

GEOCRES No. 40 P1-56

DIST. 4 REGION CENTRAL

W.P. No. 37-60-00

CONT. No. 75-132

W. O. No. 71-1111

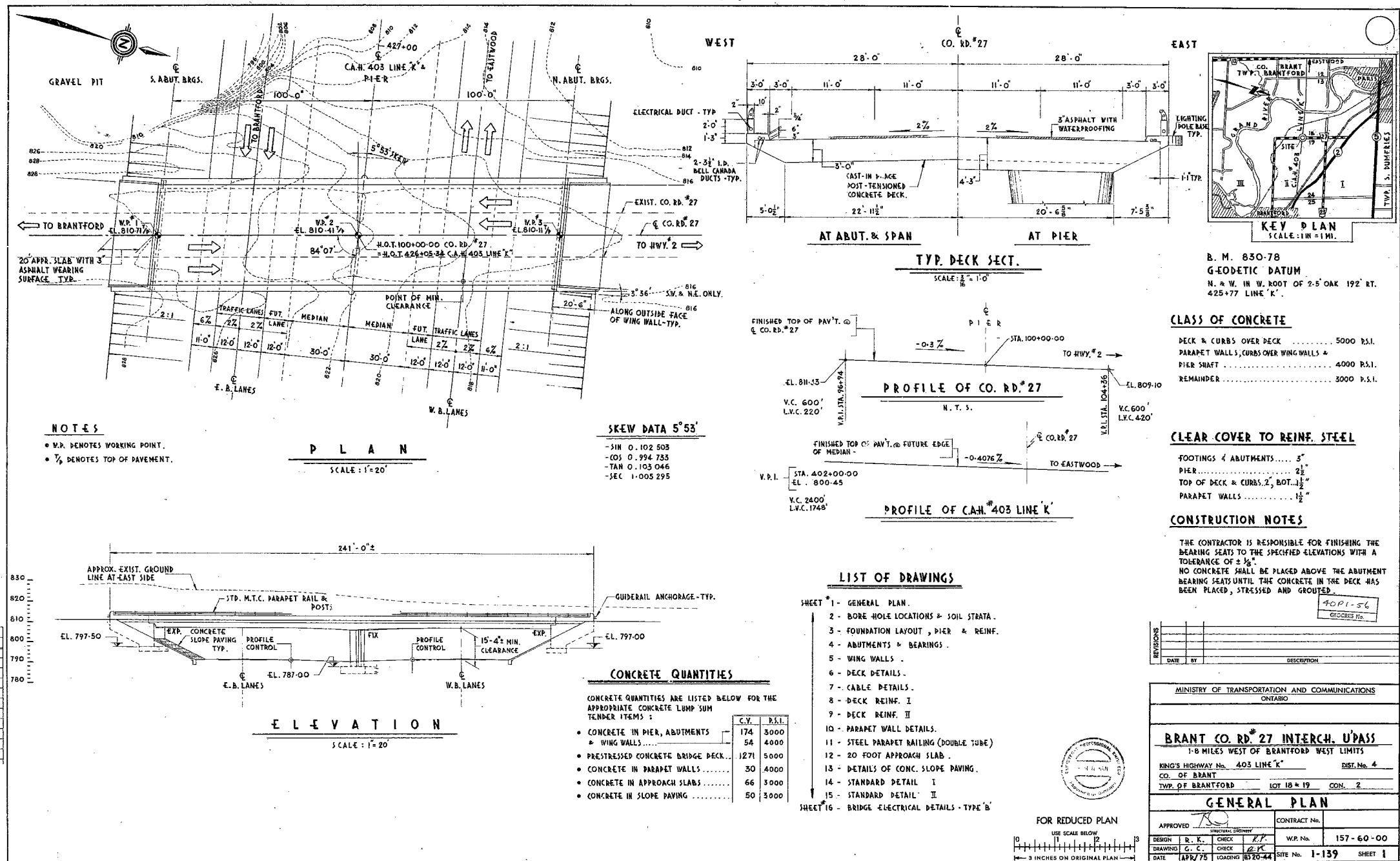
STR. SITE No. 1-139

HWY. No. 903

LOCATION Underpass - County Rd. 27
and Hwy. 903

OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT. 2

REMARKS: 2 documents to be unfolded
be for micro filming



NOTES
• W.P. DENOTES WORKING POINT.
• 1/4" DENOTES TOP OF PAVEMENT.

PLAN
SCALE: 1"=20'

SKREW DATA 5°53'
-SIN 0.102 503
-COS 0.994 733
-TAN 0.103 046
-SEC 1.005 295

TYP. DECK SECT.
SCALE: 3/8"=1'-0"

PROFILE OF CO. RD. #27
N.T.S.

PROFILE OF CAN. 403 LINE K
N.T.S.

CLASS OF CONCRETE
DECK & CURBS OVER DECK 5000 P.S.I.
PARAPET WALLS, CURBS OVER WING WALLS &
PIER SHAFT 4000 P.S.I.
REMAINDER 3000 P.S.I.

CLEAR COVER TO REINF. STEEL
FOOTINGS & ABUTMENTS 5"
PIER 2"
TOP OF DECK & CURBS, 2" BOT. 1 1/2"
PARAPET WALLS 1 1/2"

CONSTRUCTION NOTES
THE CONTRACTOR IS RESPONSIBLE FOR FINISHING THE BEARING SEATS TO THE SPECIFIED ELEVATIONS WITH A TOLERANCE OF ± 1/8". NO CONCRETE SHALL BE PLACED ABOVE THE ABUTMENT BEARING SEATS UNTIL THE CONCRETE IN THE DECK HAS BEEN PLACED, STRESSED AND GROUTED.

LIST OF DRAWINGS

- SHEET 1 - GENERAL PLAN.
 - 2 - BORE HOLE LOCATIONS & SOIL STRATA.
 - 3 - FOUNDATION LAYOUT, PIER & REINF.
 - 4 - ABUTMENTS & BEARINGS.
 - 5 - WING WALLS.
 - 6 - DECK DETAILS.
 - 7 - CABLE DETAILS.
 - 8 - DECK REINF. I
 - 9 - DECK REINF. II
 - 10 - PARAPET WALL DETAILS.
 - 11 - STEEL PARAPET RAILING (DOUBLE TUBE)
 - 12 - 20 FOOT APPROACH SLAB.
 - 13 - DETAILS OF CONC. SLOPE PAVING.
 - 14 - STANDARD DETAIL I
 - 15 - STANDARD DETAIL II
- SHEET 16 - BRIDGE ELECTRICAL DETAILS - TYPE B

CONCRETE QUANTITIES

CONCRETE QUANTITIES ARE LISTED BELOW FOR THE APPROPRIATE CONCRETE LUMP SUM TENDER ITEMS:

	C.Y.	P.S.I.
CONCRETE IN PIER, ABUTMENTS & WING WALLS	174	3000
PRESTRESSED CONCRETE BRIDGE DECK	54	4000
CONCRETE IN PARAPET WALLS	1271	5000
CONCRETE IN APPROACH SLABS	30	4000
CONCRETE IN SLOPE PAVING	66	3000
	50	3000

ELEVATION
SCALE: 1"=20'

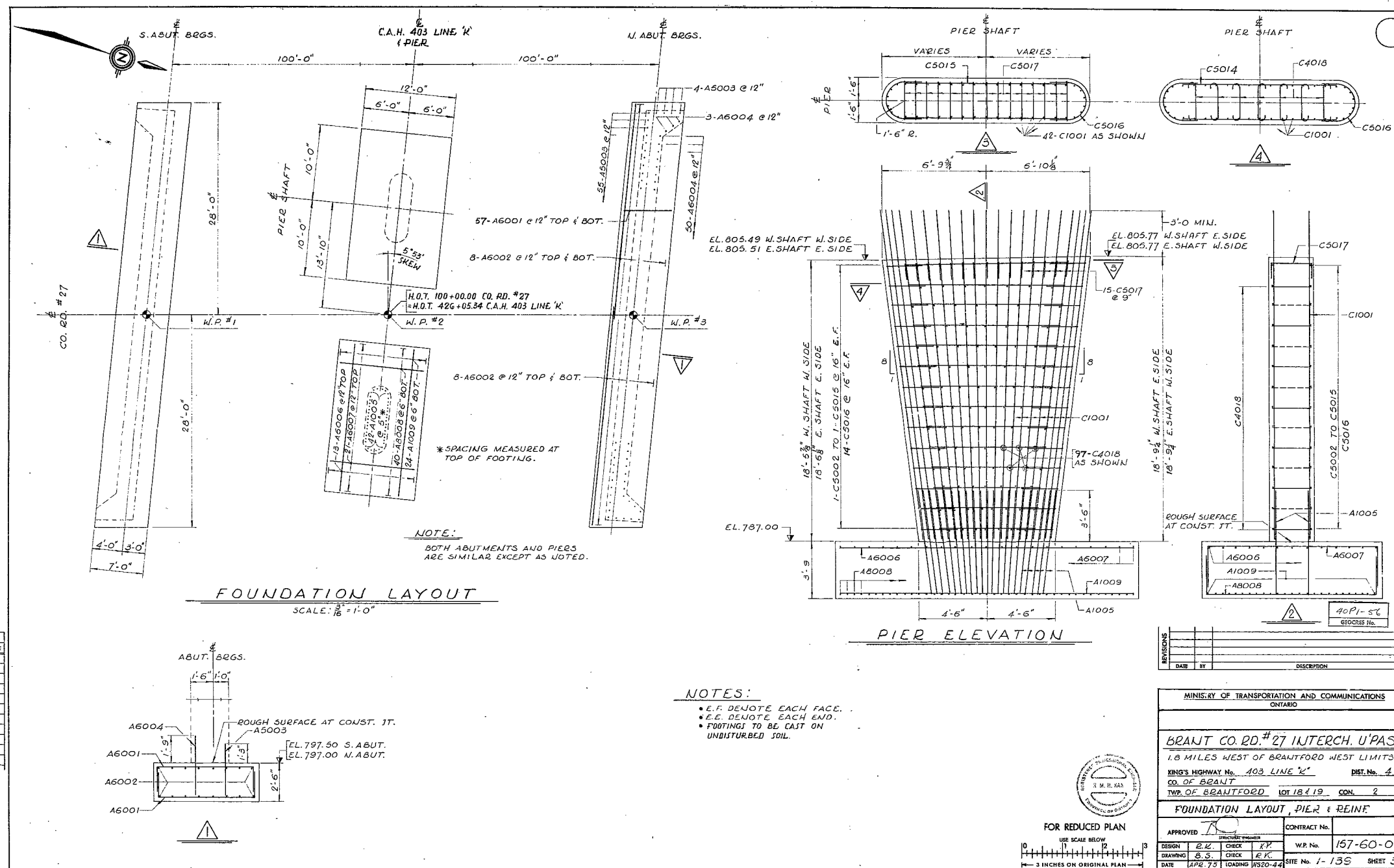
MINISTRY OF TRANSPORTATION AND COMMUNICATIONS
ONTARIO

BRANT CO. RD. #27 INTERCH. U'PASS
1.8 MILES WEST OF BRANTFORD WEST LIMITS

KING'S HIGHWAY No. 403 LINE K DIST. No. 4
CO. OF BRANT
TWP. OF BRANTFORD LOT 18 & 19 CON. 2

GENERAL PLAN

APPROVED: [Signature] CONTRACT No. 157-60-00
DESIGN: R. K. CHECK: R. K. W.P. No. 157-60-00
DRAWING: G. C. CHECK: G. C. SITE No. 1-139 SHEET 1
DATE: 12/75



DEPARTMENT OF TRANSPORTATION AND COMMUNICATIONS

MEMORANDUM

TO: Mr. G. C. E. Burkhardt, (2) FROM: Foundations Office,
Regional Bridge Planning Engineer, Design Services Branch,
Central Region, Central Region, Downsview.
90 Floral Parkway, Downsview.

ATTENTION: DATE: February 18, 1972.

OUR FILE REF. IN REPLY TO MAR 1 1972

SUBJECT:

FOUNDATION INVESTIGATION REPORT For

Proposed Underpass of Hwy. #403 Line 'K'
At Brant County Rd. #27
2.0 - 1.8 Mi. West of Brantford Hwy. 2
West Limit, District #4, Hamilton
W.O. 71-11111 -- W.P. 157-60-00

CONT. 75-132

40 P1-56
GEOCRES No.

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

We believe that the factual data and recommendations contained therein, will prove adequate for your design requirements. Should additional information be required, please do not hesitate to contact our Office.

AGS/no
Attach.

cc: Messrs. D. W. Farren
B. R. Davis
A. Rutka
G. K. Hunter
C. R. Robertson
B. J. Giroux
T. J. Kovien
G. A. Wong
E. A. Singh

Foundations Files ✓
Documents

A. C. Sternac
A. C. Sternac,
PRINCIPAL FOUNDATION ENGINEER.

TABLE OF CONTENTS

1. INTRODUCTION.
 2. DESCRIPTION OF THE SITE, FIELD AND LABORATORY INVESTIGATIONS.
 3. SUBSOIL CONDITIONS.
 4. DISCUSSION AND RECOMMENDATIONS.
4.1) General.
4.2) Foundations.
 5. MISCELLANEOUS.
-

FOUNDATION INVESTIGATION REPORT
For
Proposed Underpass of Hwy. #403 line 'K'
At Brant County Rd. #27
2.0 1.8 Mi. West of Brantford Hwy. 2
~~West limit:~~ District #4, Hamilton
W.O. 71-11111 W.P.157-60-00

1. INTRODUCTION:

In a memo dated September 23, 1971 Mr. A.P. Watt, Regional Bridge Planning Engineer, Southwestern Region, requested a Foundation Investigation for the proposed underpass of Hwy. #403 line 'K' at Brant County Rd. #27. The subsequent field investigation was carried out by this office, the results of which are compiled in this report, together with recommendations concerning foundations.

The boreholes in the field were staked out and surveyed by personnel of the Engineering Survey Office, Southwestern Region.

2. DESCRIPTION OF THE SITE, FIELD AND LABORATORY INVESTIGATIONS:

The immediate vicinity of the proposed crossing is occupied by farmlands and gravel pits. The general area is partially flat, partially gently rolling terrain.

Geologically the area belongs to the Horseshoe moraines physiographic region. This eastern arm of the horseshoe is more hilly and stony than the rest, and the drifts contains a great deal of sands and gravels. Large sand and gravel pits are located on the terraces.

Some three sampled boreholes and five dynamic cone penetration tests were implemented during the field investigation. Borings were carried out by means of a Bombardier mounted hollow stem auger (C.M.E.), taking samples at regular intervals. In view of the granular type subsoil only split spoon samples were taken by performing Standard Penetration Tests. Penetration 'N' values (blows per foot) as well as the results of the laboratory tests are plotted on the accompanying borelog sheets. Soil samples were visually examined and identified, in addition a few laboratory tests, such as natural moisture contents and grain size analyses were carried out in order to determine further physical properties of the strata.

The locations and elevations of the boreholes together with the stratigraphical profile are shown on Drawing #71-1111A in the Appendix.

3. SUBSOIL CONDITIONS:

Under a surficial 4 - 6 ft. deep silty sand with some gravel and organics, very dense granular materials were found. The granulars were identified to be gravelly sands to sandy gravels with some silt and traces of clay.

Extremely high penetration "N" values were observed throughout the layer, in the order of 100 blows for a few inches of penetrations. Based upon the penetration resistances, the relative density of the stratum is very dense. Grain size analysis performed on a few soil samples yielded some 32 - 50% gravel size, 33 - 46% sand and 13 - 22% silt and clay size particles. No groundwater was encountered within the investigated depth and natural moisture contents of the soils were found to

lie below 10% by dry weight. On account of the very high density, boreholes were terminated at shallow depths. In order to ascertain soil properties at deeper elevations, visual examinations were carried out at the face of the gravel pit immediately west of the proposed crossing. It has been noted that the very dense gravelly sands and sandy gravels extend at least to el. 771 ft. this elevation being the bottom of the gravel pit.

4. DISCUSSION AND RECOMMENDATIONS:

4.1) General:

It is proposed to construct an underpass structure at the crossing of Hwy.#403 line 'K' and County Rd. #27. The design grade of Hwy.#403 at the crossing will be at appr. el. 791 ft., some 27 - 35 ft. below existing groundlevel. County Rd.#27 is also proposed to be in a cut, the grade of which will be around el. 812 ft.

The very dense gravelly sands and sandy gravels are considered to be competent load bearing strata.

4.2) Foundations:

No foundation problems are foreseen for the proposed structure, thus it is suggested that spread footings be designed under the piers as well as under the abutments. Footings should be located at four feet below finished ground, using design loads up to 5 T.S.F. on the footing bases. It is believed that excavations for the Hwy. will be carried out in the dry and the slopes will remain stable when constructed with not steeper than 1 1/2 horizontal to 1 vertical. Erosion control of the slopes by means of seeding or sodding will be essential, since the granular

type material is susceptible to weathering and wash out.

5. MISCELLANEOUS:

The fieldwork was carried out on January 12 - 13, 1972 under the supervision of Mr. P. Korgemagi, Project Foundation Engineer. Equipment used was owned and operated by P.V.K. Drilling Company, Burford, Ontario. This report was prepared by Mr. A. K. Barsvary, Senior Foundation Engineer and reviewed by Mr. K. G. Selby, Supervising Foundation Engineer.



A. K. Barsvary
A.K. Barsvary, P.Eng.

K. G. Selby
K.G. Selby, P.Eng.

AKB/mj
February 16, 1972.

APPENDIX I

FOUNDATION SECTION

JOB <u>71-11111</u>	LOCATION <u>Sta. 19 + 76 27' Rt. (Co. Rd. 27)</u>	ORIGINATED BY <u>FK</u>
W.P. <u>157-60-00</u>	BORING DATE <u>Jan. 12, 1972</u>	COMPILED BY <u>AKB</u>
DATUM <u>Geodetic</u>	BOREHOLE TYPE <u>Cone Test Only</u>	CHECKED BY <u>S.R.</u>

[illegible]

DEPARTMENT OF HIGHWAYS- ONTARIO
MATERIALS & TESTING OFFICE

RECORD OF BOREHOLE No. 3

FOUNDATION SECTION

JOB 72-11111

LOCATION Sta. 18+97 28' Rt. (Co. Rd. 27)

ORIGINATED BY PK

W.P. 157-60-00

BORING DATE Jan. 12, 1972

COMPILED BY AKB

DATUM Geodetic

BOREHOLE TYPE Hollow Stem Auger

CHECKED BY *S.R.*

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION	RESISTANCE	LIQUID LIMIT ——— w_L	PLASTIC LIMIT ——— w_p	BULK DENSITY γ P.C.F.	REMARKS			
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		BLOWS / FOOT	20	40	60			80	100	WATER CONTENT ——— w
							SHEAR STRENGTH P.S.F.						w_p ——— w ——— w_L		
							○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL x LAB. VANE								
22.3	Ground Level														
0.0	Silty sand, some gravel & organics.					820									
3.8	Sandy gravel, some silt		1	SS	40										
11.8	Very Dense		2	SS	101							50 33 (17)			
10.5	End of Borehole					810									

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.	WAXED SAMPLE	T.P.	THINWALL PISTON
S.B.	SCRAFER 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		
	F.H.	SAMPLE ADVANCED HYDRAULICALLY	
	P.M.	SAMPLE ADVANCED MANUALLY	

SOIL TESTS

Qu	UNCONFINED COMPRESSION	L V	LABORATORY VANE
Q	UNDRAINED TRIAXIAL	F.V.	FIELD VANE
Qcu	CONSOLIDATED UNDRAINED TRIAXIAL	C	CONSOLIDATION
Qd	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
τ_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_i	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
σ'	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

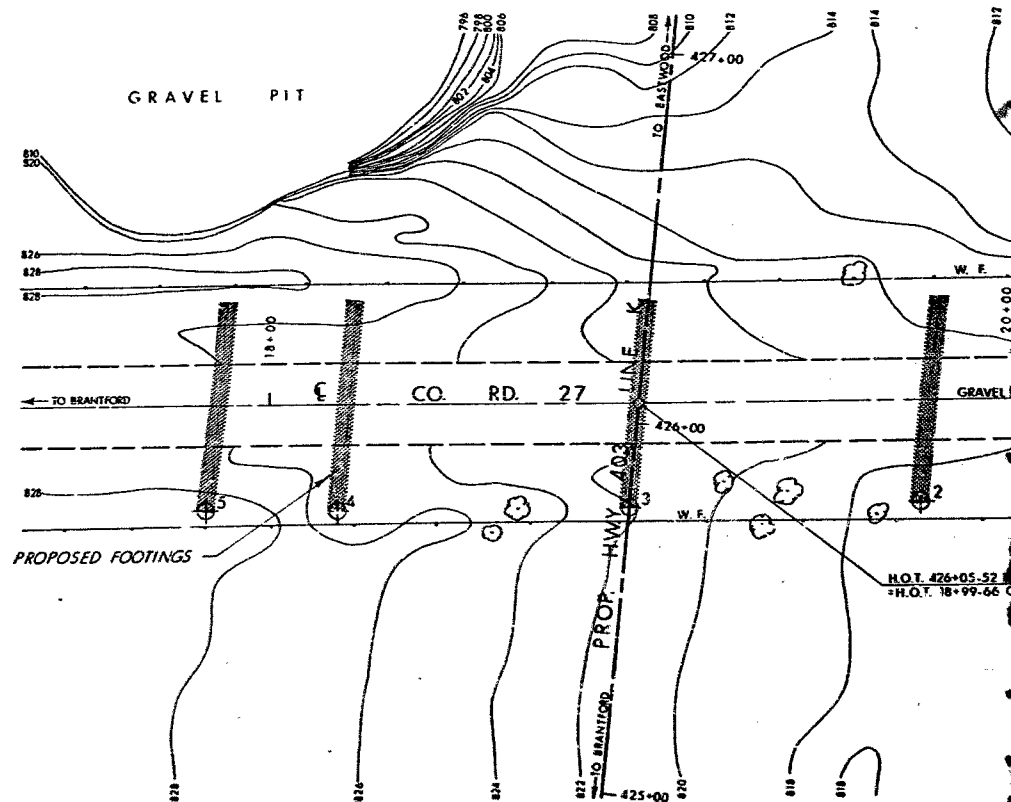
d	DISTANCE FROM TOP OF WALL TO POINT OF APPLICATION OF PRESSURE
δ	ANGLE OF WALL FRICTION
K	DIMENSIONLESS COEFFICIENT TO BE USED WITH VARIOUS SUFFIXES IN EXPRESSIONS REFERRING TO NORMAL STRESS ON WALLS
K_0	COEFFICIENT OF EARTH PRESSURE AT REST

FOUNDATIONS

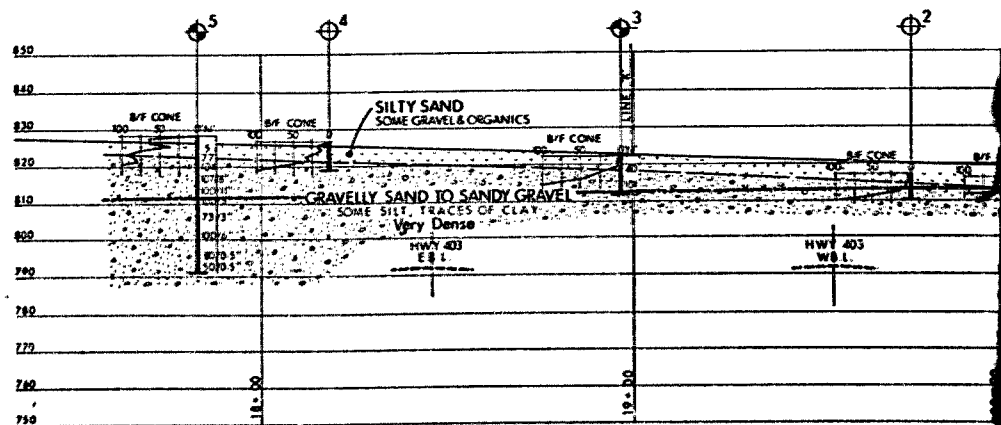
B	BREADTH OF FOUNDATION
L	LENGTH OF FOUNDATION
D	DEPTH OF FOUNDATION BENEATH GROUND
N	DIMENSIONLESS COEFFICIENT USED WITH A SUFFIX APPLYING TO SPECIFIC GRAVITY, DEPTH AND COHESION ETC. IN THE FORMULA FOR BEARING CAPACITY
k_s	MODULUS OF SUBGRADE REACTION

SLOPES

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

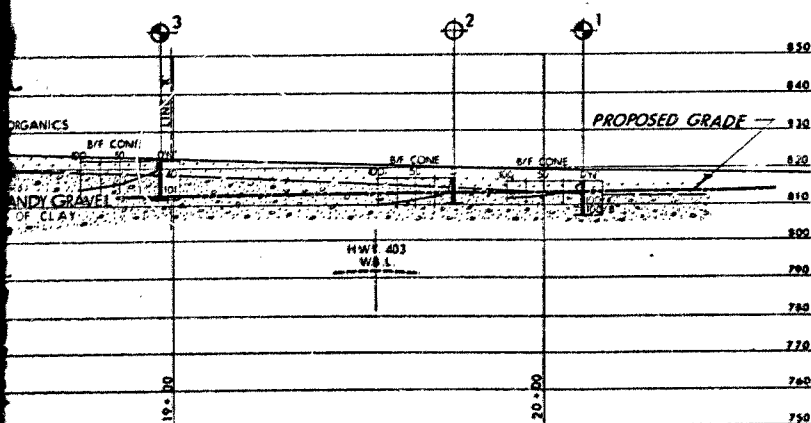
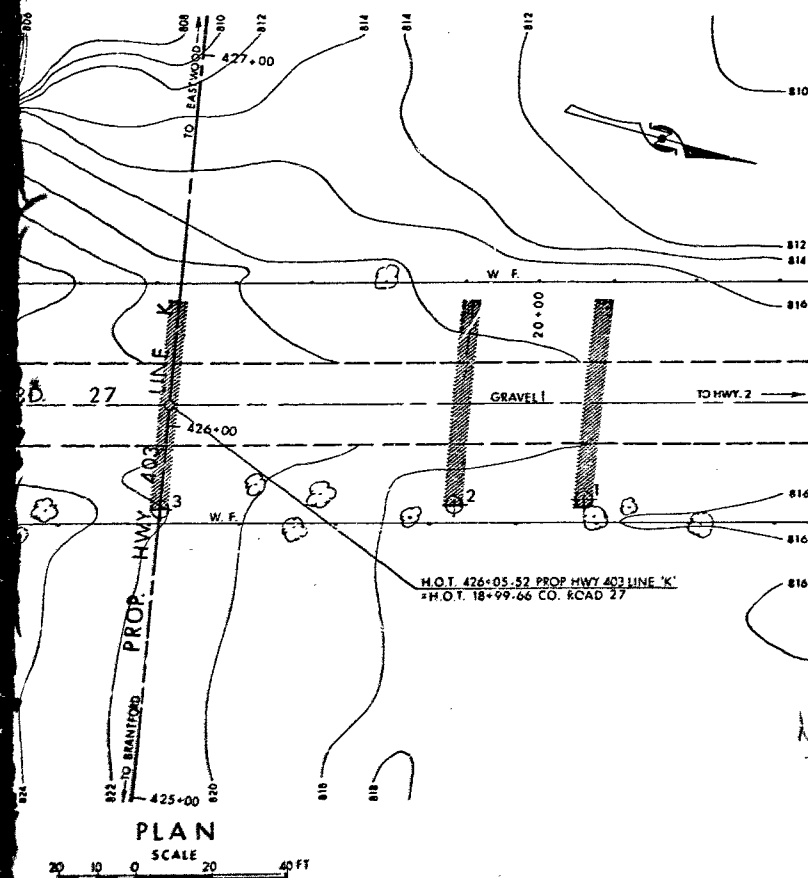


PLAN
SCALE
0 10 20 40 FT



PROFILE CO. RD. 27

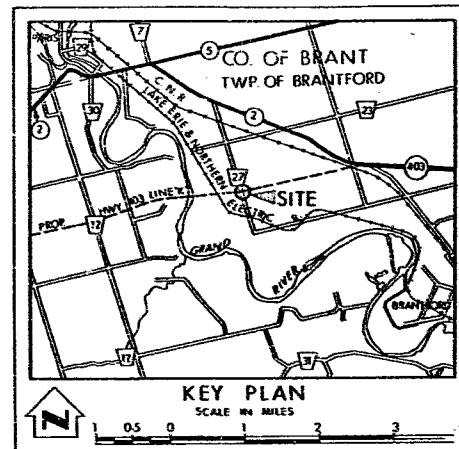
SCALE
0 10 20 40 FT



PROFILE CO. RD. 27

20 10 0 SCALE 20 40 FT.

Note



LEGEND

- Bore Hole
- ⊕ Cone Penetration Test
- ⊕ Bore Hole & Cone Test
- ⬇ Water Levels established at time of field investigation.
- No Water Encountered in Bore Holes - 12 Jan. 1972.

NO.	ELEVATION	STATION	OFFSET
1	816.3	20+11	26'RT.
2	817.4	19+76	27'RT.
3	822.3	18+97	28'RT.
4	826.9	18+18	28'RT.
5	828.7	17+82	28'RT.

NOTE: NO ORGANICS
WAS ENCOUNTERED
IN ANY OF THE
BORE HOLES

NOTE

The boundaries between soil strata have been established only at Bore Hole locations. Between Bore Holes the boundaries are assumed from geological evidence and may be subject to considerable error.

REVISIONS	DATE	BY	DESCRIPTION

DEPARTMENT OF TRANSPORTATION & COMMUNICATIONS
DESIGN SERVICES BRANCH — FOUNDATION OFFICE

COUNTY ROAD 27

HIGHWAY NO. 403 LINE 'K' DIST NO. 4
CO. BRANT
TWP. BRANTFORD LOT 18 & 19 CON. 2

BORE HOLE LOCATIONS & SOIL STRATA

SUBVD P & C	CHECKED	W.P. NO. 157-00-00	DRAWING NO.
DRAWING NO.	CHECKED	JOB NO. 71-11111	71-11111A
DATE FEB 10, 1972	SITE NO.	BORE DRAWING NO.	
APPROVED	CONT NO.		

MEMORANDUM

71-11111

To: Mr. A. G. Stermac,
Principal Foundation Engineer,
Design Services Branch,
West Bldg., DOWNSVIEW, Ontario.

FROM: Bridge Planning,
Southwestern Region,
London, Ontario.

DATE: September 23, 1971.

OUR FILE REF.

IN REPLY TO

SUBJECT: W.P. 157-60-00, Bridge Site 1-139
Brant County Road # 27 Interchange Underpass
1.8 miles west of Brantford west limits
Hwy. 403
District 4, Hamilton

Would you kindly arrange to have a foundation investigation conducted at the above location.

I have enclosed two copies of the bridge site plan B-4862-1 with the probable footing locations marked in red.

I have also enclosed the Field Reconnaissance Report.

I would like to bring to your attention that a foundation investigation was undertaken for Line 'H' approximately 400 feet south of Line 'K'. An overpass with spread footings has been designed based on recommendations by the foundation section dated February 9, 1965 for Line 'H' and 'A'.

Investigation Needed

S. Jants

SJ/fs
Encls.

S. Jants,
Bridge Planning Technician

For: A. P. Watt,
Regional Bridge Planning Engineer,
Southwestern Region.

cc: Mr. C. Grebski
Mr. A. Crowley

MAR. 4/71



Memorandum

FILE

WP. 157-60-00

To: Mr. A. P. Watt,
Reg. Structural Planning Engineer,
Southwestern Region,
London.

From: Structural Office,
West Building, Downsview.

Attention:

Date: February 11th, 1975.

Our File Ref.

In Reply to

Subject: Brant County Road #27 Interchange Underpass,
1.8 Miles West of Brantford West Limits
W. P. 157-60-00 Site 1-139,
Hwy. 403, Line K, District 4.


JOE. 71-11111

Attached herewith are prints of the detailed Preliminary Bridge
Plan Drawing 1-139-P1 for the above mentioned structure.

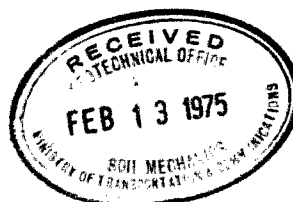
The estimated cost of the proposed structure is \$473,000.00
which includes tender, materials, engineering and sundry
construction.

Any comments or revisions you may have should be submitted
at your earliest convenience.

CSG/cf
Atch.


C. S. Grebski,
Structural Design Engineer.

c.c. B. R. Davis
W. D. Birch
A. M. McKim
J. L. Keen
M. Stoyanoff
✓ C. Mirza
J. Anderson
A. Crowley
S. Edwards.



NO COMMENTS.

PP. MAR. 13/75



Memorandum

To: Mr. A. P. Watt,
Reg. Structural Planning Engineer,
Southwestern Region,
London.

From: Structural Office,
West Building, Downsview.

Attention:

Date: February 11th, 1975.

Our File Ref.

In Reply to

Subject: Brant County Road #27 Interchange Underpass,
1.8 Miles West of Brantford West Limits
W. P. 157-60-00 Site 1-139,
Hwy. 403, Line K, District 4.

Attached herewith are prints of the detailed Preliminary Bridge Plan Drawing 1-139-P1 for the above mentioned structure.

The estimated cost of the proposed structure is \$473,000.00 which includes tender, materials, engineering and sundry construction.

Any comments or revisions you may have should be submitted at your earliest convenience.

CSG/cf
Atch.

C. S. Grebski,
Structural Design Engineer.

c.c. B. R. Davis
W. D. Birch
A. L. McKim
J. L. Keen
M. Stoyanoff
C. Mirza
J. Anderson
A. Crowley
S. Edwards.

W.P. 157-60-00

Mr. C.S. Wrebski
Structural Design Engineer
West Building, Downsview

Soil Mechanics Section
Geotechnical Office
West Building, Downsview
March 13, 1975

BRANT COUNTY RD. #27 INTERCHANGE
U'PASS 1.8 MILES WEST OF BRANTFORD
WEST LIMITS
WP: 157-60-00; SITE 1-139
HWY. #403, LINE K, DISTRICT #4 (HAMILTON)

We have reviewed the preliminary plan (1-139 Sheet P1)
for the above project. The designer appears to have
followed the recommendations of Foundation Investigation
Report WO: 71-1111.

P. Payer
Senior Engineer
for K. G. Selby
Supervising Engineer

cc: Files
Record Services

/sah



Ministry of
Transportation and
Communications

Memorandum

To: Mr. C. Mirza,
Head, Soils Mechanics Section,
West Building, Downsview.

From: Structural Office,
West Building, Downsview.

Attention:

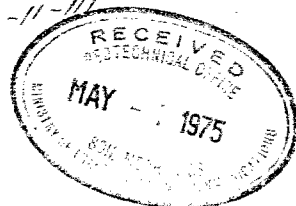
Date: April 30, 1975.

Our File Ref.

In Reply to

Subject:

Brant Co. Rd. #27 Interchange
Underpass,
W.P. # 157-60-00 Site # 1-139
Highway # 403 District # 4



Attached herewith we are submitting the final bridge
drawings which show the foundation design for this structure.
Kindly give us your comments at your earliest convenience.

CSG/cf
Attch.

C. S. Grebski
C. S. Grebski,
Structural Design Engineer.

finalized

MAY 8, 1975

cf

NO COMMENTS!

TP

MAY 8/75

Mr. C. S. Grebski
Structural Design Eng.
Structural Office
West Bldg., Downsview

Soil Mechanics Section
Geotechnical Office
West Bldg. Downsview

May 8, 1975

BRANT CO. RD. #27 INTERCHANGE UNDERPASS
HWY. #403, DISTRICT #4 (HAMILTON)
W.P. 157-60-00 SITE #1-139

We have reviewed the final bridge drawings
(Sheet 1 and 3) for the above project. The
designer appears to have followed the rec-
ommendations of Foundation Investigation
Report No: 71-11111.

P. Payer
Senior Engineer

for K.G. Selby
Supervising Engineer

cc: Files
Record Services



Memorandum

To: Mr. W. D. Birch,
Structural Maintenance Engineer,
Structural Maintenance Office,
Central Building.

From: Structural Office,
West Building, Downsview.

Attention:

Date: September 8, 1975.

Our File Ref.

In Reply to

Subject:

Grand River Bridges,
W.P. 159-60-00, Site 1-147,
Highway 403, District 4.



This memo serves to confirm the main points discussed at our meeting, held at your office August 27th, 1975. The meeting was in response to your memo of August 18th, 1975 concerning your suggestion to add steel sheathing to protect the tremie concrete primary footing from stream flow erosion.

In view that the rock is horizontally bedded, fractured with fissures to some depth, it appears impracticable to count on pouring the tremie concrete against undisturbed rock. After blasting to remove the rock to the required elevation, "over-excavation" will likely occur requiring forming of some kind in any case within which the tremie concrete would be poured.

Mr. P. Wilson expressed the opinion that with any tremie concrete installation the quality of the tremie concrete can vary to such an extent that its longterm resistance to scour could not be relied upon with complete confidence. Also from your own experience you have found this to be so.

In view of the above considerations we have decided to cast the tremie concrete within a 1/4 inch thick steel plate caisson with shear connector anchors to hold it tight to the concrete. Also to further ensure against scour we have deepened the tremie concrete from 6 to 7 feet.

JLK/cf

J. L. Keen,
Regional Structural Design Engineer.

c.c. ✓ K. Selby
P. Wilson
A. E. McKim
D. A. Waller
K. Stolarski
M. Stoyanoff

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