

DOCUMENT MICROFILMING IDENTIFICATION

GEOCRES No. 31C-100

DIST. 10 REGION EASTERN

W.P. No. 110-65-00

CONT. No. 75-140

W. O. No. 71-11119

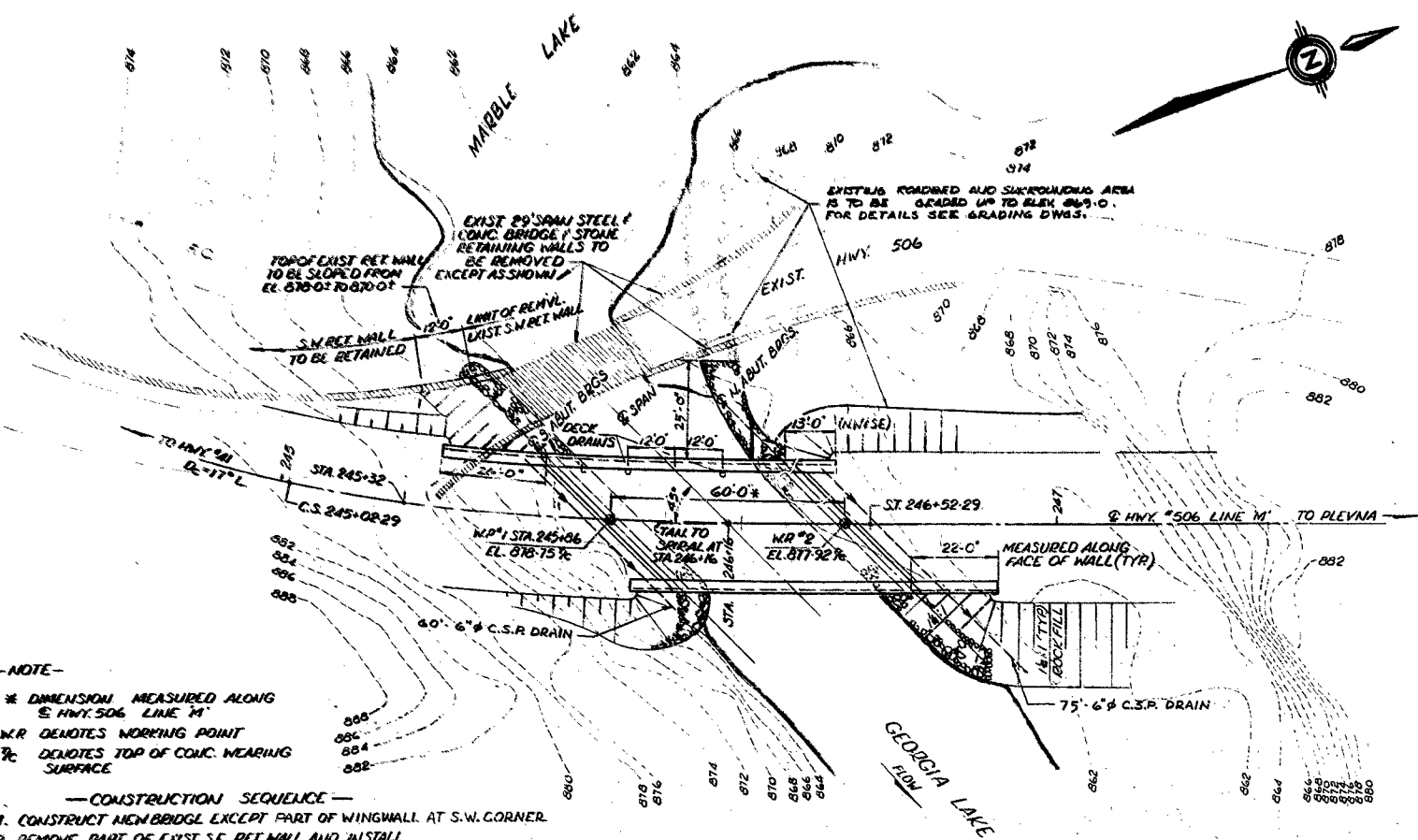
STR. SITE No. 7-0002

HWY. No. 506

LOCATION MARBLE L/GEORGIA L.

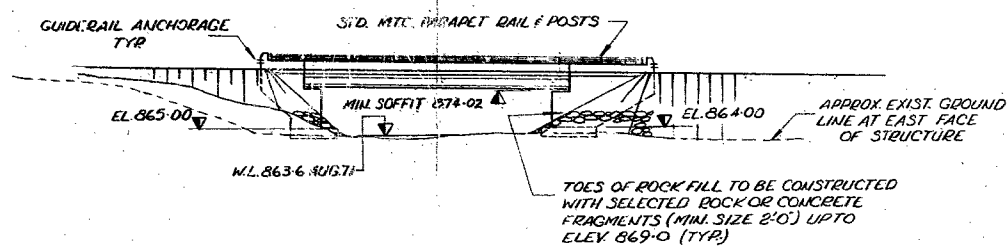
OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT. 2

REMARKS: documents to be unfolded
before microfilmed



- NOTE**
- * DIMENSION MEASURED ALONG S. HWY. 506 LINE 'M'
 - N.R. DENOTES WORKING POINT
 - R. DENOTES TOP OF CONC. WEARING SURFACE
- CONSTRUCTION SEQUENCE**
1. CONSTRUCT NEW BRIDGE EXCEPT PART OF WINGWALL AT S.W. CORNER.
 2. REMOVE PART OF EXIST. S.E. RET. WALL AND INSTALL ROADWAY DETOUR.
 3. DETOUR SINGLE LANE TRAFFIC ONTO NEW BRIDGE.
 4. REMOVE DECK, S. ABUT. AND REMAINDER OF S.E. RET. WALL OF EXIST. BRIDGE.
 5. COMPLETE CONSTRUCTION OF WINGWALL AT S.W. CORNER.
 6. COMPLETE ALL OTHER WORK.

PLAN
SCALE 1 IN. = 20 FT.



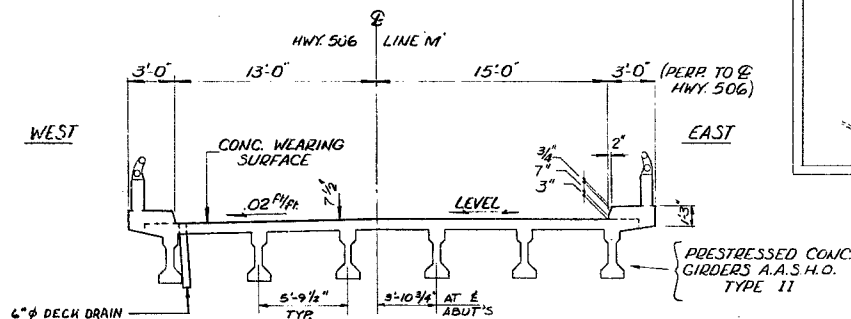
ELEVATION
SCALE 1 IN. = 20 FT.

- LIST OF DRAWINGS**
1. GENERAL LAYOUT
 2. BORE HOLE LOCATIONS & SOIL STRATA
 3. FOUNDATION LAYOUT AND REINFORCING
 4. ABUTMENTS
 5. WINGWALLS
 6. PRESTRESSED GIRDERS AND BEARINGS
 7. DECK
 8. PARAPET WALL DETAILS
 9. STEEL PARAPET RAILING
 10. STANDARDS

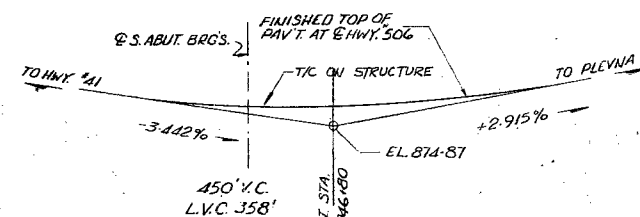
CONCRETE QUANTITIES ARE LISTED BELOW FOR THE APPROPRIATE CONCRETE TENDER ITEMS.

CONCRETE AT ABUTMENTS AND WINGWALLS	186 c.y.
CONCRETE IN DECK AND DIAPHRAGMS	74 c.y.
CONCRETE IN PARAPET WALLS	12 c.y.

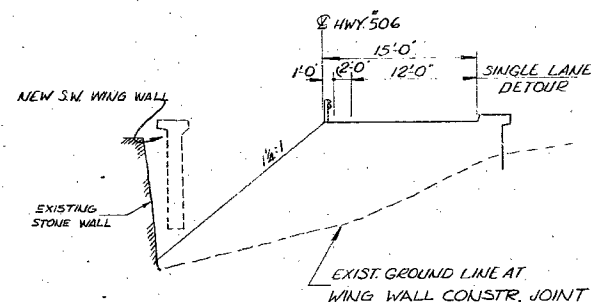
SKEW 45°
SIN 0.707107
COS 0.707107
TAN 1.000000
SEC 1.414214



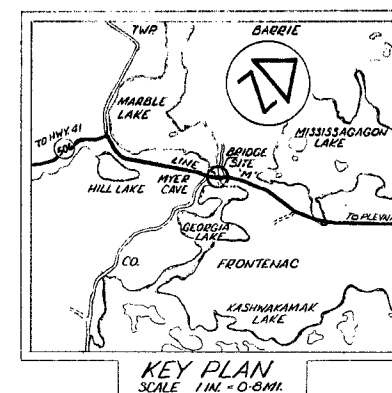
TYP. DECK SECTION
SCALE 3/16 IN. = 1 FT.



PROFILE OF HWY. 506 LINE 'M'
N.T.S.



TEMPORARY ROADWAY DETOUR AT S.W. WING WALL



REFERENCE BENCH MARK
B.M. 927.29 GEODETIC DATUM
N.E. W. IN SOUTH ROOT OF 1'-0" OAK
86'-0" LEFT OF STA. 238+17 LINE 'N'.

NOTES

CLASS OF CONCRETE

DECK, CURBS & PARAPET WALLS	4000 p.s.i.
PRESTRESSED GIRDERS	5000 p.s.i.
REMAINDER	3000 p.s.i.

CLEAR COVER ON REINF. STEEL

FOOTINGS & ABUTMENTS	3"
CURBS & TOP OF DECK	2"
BOTTOM OF DECK	1"
PARAPET WALLS	1 1/2"

CONSTRUCTION NOTES

THE CONTRACTOR IS RESPONSIBLE FOR FINISHING THE BEARING SEATS TO THE SPECIFIED ELEVATIONS WITH A TOLERANCE OF $\pm 1/8"$.

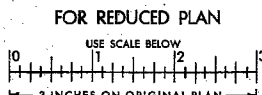
NO CONCRETE SHALL BE PLACED ABOVE THE ABUTMENT BEARING SEATS UNTIL THE CONCRETE IN THE DECK HAS BEEN PLACED.

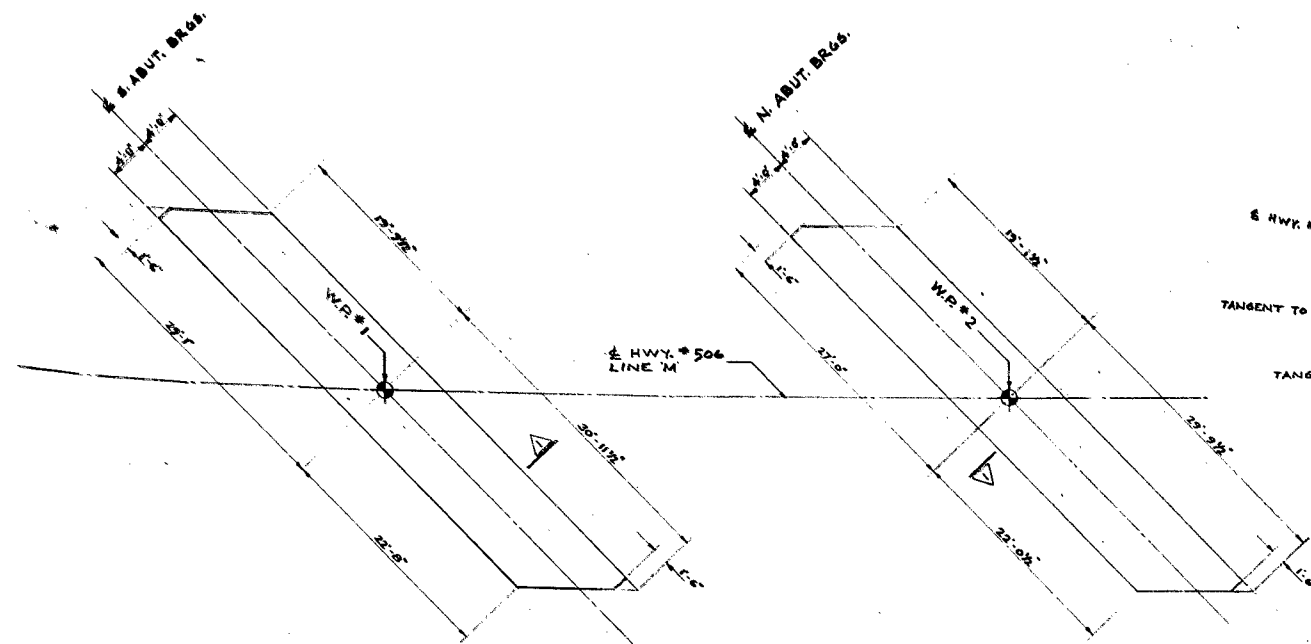
31C-100
GEORES No.

Revised July 8/75

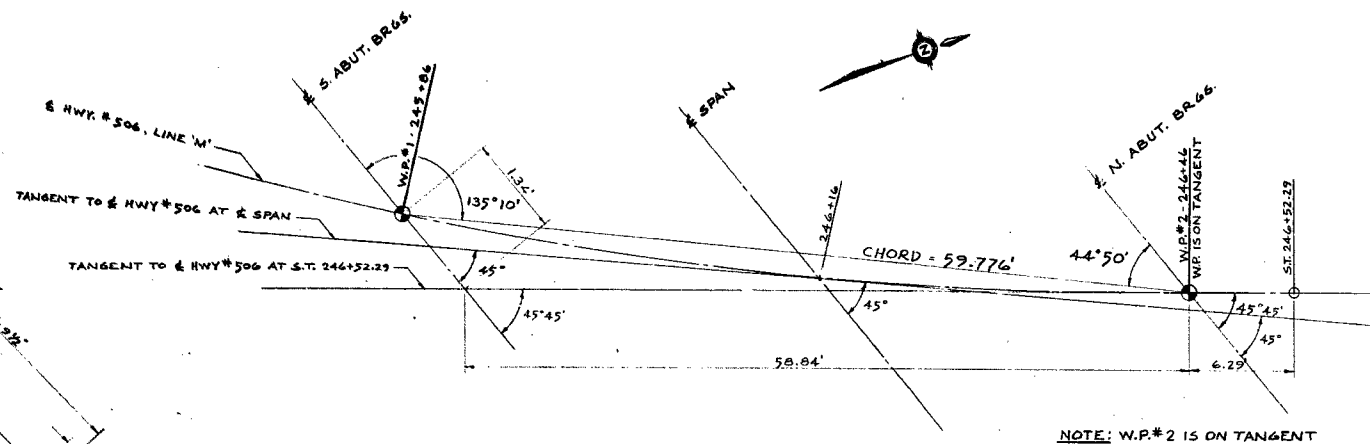
REVISIONS	DATE	BY	DESCRIPTION

MINISTRY OF TRANSPORTATION AND COMMUNICATIONS ONTARIO			
KINGSTON	J.D. LEE ENGINEERING LIMITED CONSULTING ENGINEERS	BRANTFORD	
MYER CAVE BRIDGE (5.1 MILES EAST OF HWY. NO. 41)			
KING'S HIGHWAY No. 506		DIST. No. 10	
CO. FRONTENAC		LOT 23 CON. VIII	
GENERAL LAYOUT			
APPROVED	STRUCTURAL ENGINEER	CONTRACT No.	
DESIGN	A.Z.	CHECK	D.M.N.
DRAWING	T.L.	CHECK	P.M.N.
DATE	JULY 75	LOADING	4520-44
SITE No. 7-2		SHEET 1	

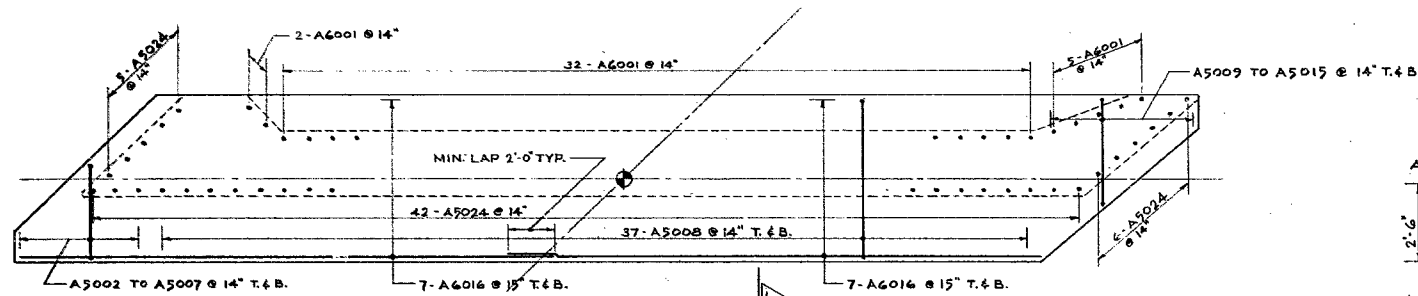




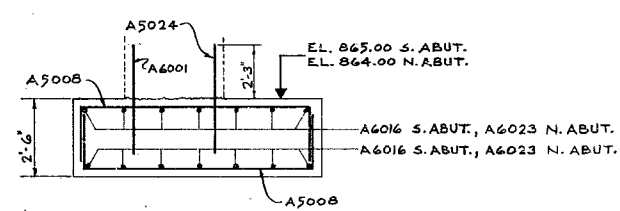
PLAN
SCALE - 1/4" = 1'-0"



LOCATION OF WORKING POINTS
N.T.S.



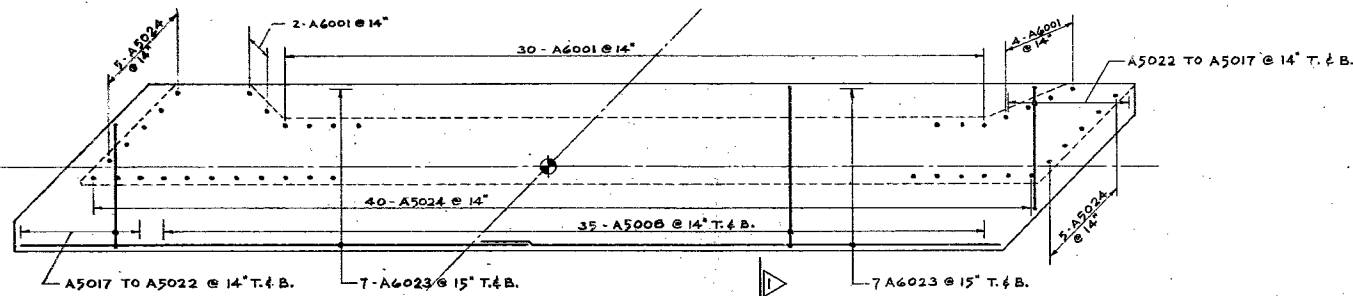
S. ABUT. FTG.
SCALE - 1/4" = 1'-0"



NOTE:
ABUTMENT FOOTINGS TO BE KEYED 6" INTO SOLID BEDROCK.

310-100
GROCHES No.

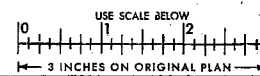
Revised 8/75



N. ABUT. FTG.
SCALE - 1/4" = 1'-0"



FOR REDUCED PLAN



REVISIONS	DATE	BY	DESCRIPTION

MINISTRY OF TRANSPORTATION AND COMMUNICATIONS ONTARIO			
KINGSTON	J.D. LEE ENGINEERING LIMITED CONSULTING ENGINEERS		BRANTFORD
MYER CAVE BRIDGE (5.1 MILES EAST OF HWY. NO. 41)			
KING'S HIGHWAY No. 506		DIST. No. 10	
CO. FRONTENAC			
TWP. BARRIE		LOT 23	CON. VIII
FOUNDATION LAYOUT & REINFORCING			
APPROVED		CONTRACT No.	
DESIGN	A.Z.	CHECK	D.M.C.U.
DRAWING	T.L.K.	CHECK	D.M.C.U.
DATE	JUNE 75	LOADING	HS 20-44
SITE No. 7-2		SHEET 3	

MEMORANDUM

TO: Mr. T. C. Kingsland, (2)
Regional Bridge Planning Engineer,
Eastern Region,
Kingston, Ontario.

FROM: Foundations Office,
Design Services Branch,
Central Bldg., Downsview.

ATTENTION:

DATE:

November 23, 1971.

OUR FILE REF.

IN REPLY TO

NOV 25 1971

SUBJECT:

FOUNDATION INVESTIGATION REPORT

For

The Proposed Structure at the Crossing of
Revised Hwy. #506 (Line 'M') and
Marble Lake and Georgia Lake
Township of Barrie, County of Frontenac
District No. 10 (Bancroft)
W.O. 71-11119 - W.P. 110-65-00

Cont. 75-140

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 design
requirements. Should additional information be required,
please do not hesitate to contact our Office.

AGS/ao

Attach.

cc: Messrs.

D. W. Farren
B. R. Davis
A. Rutka
S. J. Markiewicz
D. A. Osborne-White
B. J. Giroux
E. R. Saint
G. A. Wrong
B. A. Singh

Foundations Office ✓
Documents

A. G. Stermac
A. G. Stermac,
PRINCIPAL FOUNDATION ENGINEER.

TABLE OF CONTENTS

1. INTRODUCTION.
 2. SITE AND GEOLOGY.
 3. SUBSOIL, BEDROCK AND GROUNDWATER CONDITIONS.
 4. EXISTING STRUCTURE.
 5. DISCUSSION AND RECOMMENDATIONS.
 - 5.1 General.
 - 5.2 Scheme 'A' - Rigid Frame Structure.
 - 5.3 Scheme 'B' - Spill-Through Type Approach Fills.
 - 5.4 Approach Fills.
 6. MISCELLANEOUS.
-

FOUNDATION INVESTIGATION REPORT
For
The Proposed Structure at the Crossing of
Revised Hwy. #506 (Line 'M') and Marble Lake
and Georgia Lake
Township of Barrie, County of Frontenac
District No. 10 (Bancroft)
W.O. 71-11119 W.P. 110-65-00

1. INTRODUCTION:

The alignment of Hwy. #506 in the Township of Barrie, County of Frontenac, is to be revised (Revision - Line 'M'). In connection with this revision a new structure will have to be constructed at the crossing of revised Hwy. #506 and Georgia Lake. This structure will replace the existing one on the present crossing. A request to carry out an investigation for the proposed new structure was contained in a memo from Mr. T. C. Kingsland, Regional Bridge Planning Engineer, Eastern Region, dated November 1, 1971. An investigation was subsequently carried out by this office to determine the subsoil, bedrock and groundwater conditions at the site.

This report presents all the factual data obtained from the investigation, together with our recommendations pertaining to the foundation design, as well as considerations associated with the stability and settlement of the approach fills.

2. SITE AND GEOLOGY:

The site is located immediately east of the existing structure at the crossing of Hwy. #506 and the gap of water

between Marble and Georgia Lakes, due east of Myer Cave.

The unoccupied, bedrock oriented terrain increases in elevation in all directions from the edge of the Lakes, varying from elevations 864 to 888.

In the area in question the Georgia Lake channel is between 45 and 50 feet wide and 13 to 15 feet deep, the water is approximately 1 to 2 feet deep. The side slopes of the lake banks range from 1½:1 to 3:1.

Physiographically the area is situated in the Precambrian Shield, which indicates that it is a bedrock oriented region. In this area the bedrock is primarily gneiss. Periodically the bedrock is covered by a thin veneer of interglacial deposits composed of silt, sand and gravel.

3. SUBSOIL, BEDROCK AND GROUNDWATER CONDITIONS:

Three boreholes were put down at the proposed structure site using a diamond drill rig. The subsoil and bedrock conditions encountered in the borings, are presented on the Borelog sheets appended to this report. The location and elevation of the boreholes are shown in plan on Drawing No. 71-11119A, attached. A stratigraphical profile along the centre-line of Hwy. #506 (Line 'M'), inferred from the boring data, is also shown on the aforementioned drawing. The subsoil, bedrock and groundwater conditions across the site, are summarized in the paragraphs to follow.

Bedrock was encountered at a shallow depth below ground surface or lake bottom, as the case may be. The bedrock was

proven by core drilling in BX size for a depth of from 5 to 11.5 feet. The bedrock is composed of a massive fine grained quartz biotite gneiss. It was sound throughout as evidenced by the high percentage of core recovery.

In some areas the bedrock is covered by between 1 and 2 feet of loose interglacial sands and gravels.

At the time of the investigation the lake water level was at about elevation 864. It is inferred that the groundwater level in the shallow overburden deposits and bedrock would be at approximately the same elevation.

4. EXISTING STRUCTURE:

The existing 16 feet wide single span (29 feet) structure is a steel and concrete rigid frame bridge. The closed-type abutments are founded directly on bedrock.

The profile grade of Hwy. #506, in the vicinity of the structure, varies between elevations 874 and 880. At this grade the approach embankments are anywhere from 2 to 10 feet above the surrounding terrain. Because of the space restrictions between the lake channels and the embankments, portions of the fills are retained by retaining walls, the locations of which are shown on Drawing No. 71-11119A. These walls, which vary from a few feet to as much as 12 feet in clear height, range from 25 to 140 feet in length. It is understood these walls are founded on bedrock.

The existing structure and approach fills appear to be performing quite satisfactorily.

5. DISCUSSION AND RECOMMENDATIONS:

5.1) General:

It is proposed to construct a new 35 feet wide single span structure at the crossing of revised Hwy. #506 (Line 'M') and Georgia Lake, in the Township of Barrie, County of Frontenac. Two schemes are being considered, namely:

- i) Scheme 'A' - a 30 feet long rigid frame structure with closed-type abutments, and
- ii) Scheme 'B' - a 42.5 feet long simply supported structure with spill-through approaches and abutments 'perched' in the fills.

It is understood that the profile grade of Hwy. #506 (Line 'M'), in the vicinity of the structure will vary from elevation 877 to 880. At this grade the approach fills will have a maximum height of 15 feet above the surrounding ground surface.

Because of the presence of sound bedrock at a relatively shallow depth below ground surface or lake bottom, either of the alternate schemes would be practical from a foundation point of view. The recommendations pertaining to the two schemes are discussed separately below.

5.2) Scheme 'A' - Rigid Frame Structure:

The closed-type abutments for a rigid frame structure could be founded on spread footings located directly on or within the sound gneiss bedrock (elevation 863 to 865), using an allowable bearing value of up to 20.0 t.s.f. in design.

Footing construction will have to be carried out within the channel of Georgia Lake. A dewatering scheme will, therefore,

be required. One possibility would be to carry out the construction from within an earth dyke formed of relatively impervious material. Any water seeping into this enclosure could be pumped out.

If the structure is designed as a rigid frame, then a coefficient of earth pressure at rest (K_0) of 0.5 should be assumed for the granular material placed behind the wall, when designing the abutment wall sections. In all cases, the design should incorporate the full effect of the surcharge located above the walls.

The horizontal resistance of the spread footing may be computed using a coefficient of friction of 0.75 (rough concrete sliding on gneiss bedrock).

In order to relieve the buildup of excess hydrostatic pressure behind the walls, suitable drainage measures should be provided. Weep holes, located near the base of the walls, could be employed for this purpose; these holes should be spaced not more than 10 feet apart

5.3) Scheme 'B' - Spill-Through Type Approach Fills:

Under this scheme the abutments can be 'perched' within the approach fills. The abutments may be supported on spread footings placed within the fills. The fill material, below the tops of the footings, should consist of well compacted Granular 'A' material, and should extend to a horizontal distance of at least 10 feet from the footing edges in the plane of the

footing tops. This portion of the fill should be constructed with side slopes no steeper than 2:1. The remainder of the fill should be completed to about profile grade for a distance of 50 feet behind the abutments before re-excavation for the abutment footings. An allowable bearing pressure of 2.0 t.s.f. may be used in design.

If the abutments are supported on spread footings, founded on fill, there will be some differential settlement between the two units. Providing the fill, in the immediate vicinity of the abutment footings, is well compacted, this settlement should not exceed $\frac{1}{4}$ inch.

5.4) Approach Fills:

The maximum height of the approach fills will be of the order of 15 feet. The fills will be placed directly on a shallow granular overburden deposit (1 to 2 feet maximum) follow by sound gneiss bedrock. No stability problems are anticipated for embankments constructed of properly compacted fill with standard 2:1 slopes. The settlement of the foundation subsoil, due to the fill loadings, will be negligible.

The forward face of the fills, immediately adjacent to Georgia Lake, will have to be protected against the scour action of this lake. One possibility would be to place a properly designed rip rap cover over the fills in this area. It is recommended that the rip rap should extend at least 1 foot above the recorded high water level in this area.

6. MISCELLANEOUS:

The field work, performed during the period of October 29 and 30, 1971, was carried out under the general supervision of Mr. B. T. Darch, Senior Foundation Engineer.

The equipment used was owned and operated by the F. E. Johnston Drilling Co. Ltd., Toronto.

This report was written by Mr. Darch and reviewed by Mr. M. Devata, Supervising Foundation Engineer.

B. T. Darch

B. T. Darch, P. Eng.



M. Devata

M. Devata, P. Eng.

BTD/sfm

November 22, 1971

A P P E N D I X I

FOUNDATION SECTION

CHECKED BY *AK*

[illegible]

FOUNDATION SECTION

CHECKED BY AK

SOIL PROFILE			SAMPLES			DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT		BULK DENSITY	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT	ELEV. SCALE	BLows / Foot	PLASTIC LIMIT	WATER CONTENT		
						SHEAR STRENGTH P.S.F.		W _p — W — W _L		P.C.F.	GR. SA. SI. CL.
						○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL x LAB. VANE		WATER CONTENT %			
864.1	Water Level										
864.1	Lake Bottom										
0.3	Sand & Gravel										
863.3	Brown Loose										
1.1	Quartz Biotite Gneiss		1	BX	98%	860					
	Bedrock										
	(Fine Grained)										
	Grey		2	BX	100%						
858.1	Sound										
6.0	End of Borehole					855					

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

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
	INTERCEPT
ϕ'	EFFECTIVE ANGLE OF SHEARING RESISTANCE, OR FRICTION
	IN TERMS OF EFFECTIVE STRESS $\tau_f = c' + \sigma' \tan \phi'$
c_u	APPARENT COHESION
ϕ_u	APPARENT ANGLE OF SHEARING RESISTANCE, OR FRICTION
	IN TERMS OF TOTAL STRESS $\tau_f = c_u + \sigma \tan \phi$
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
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

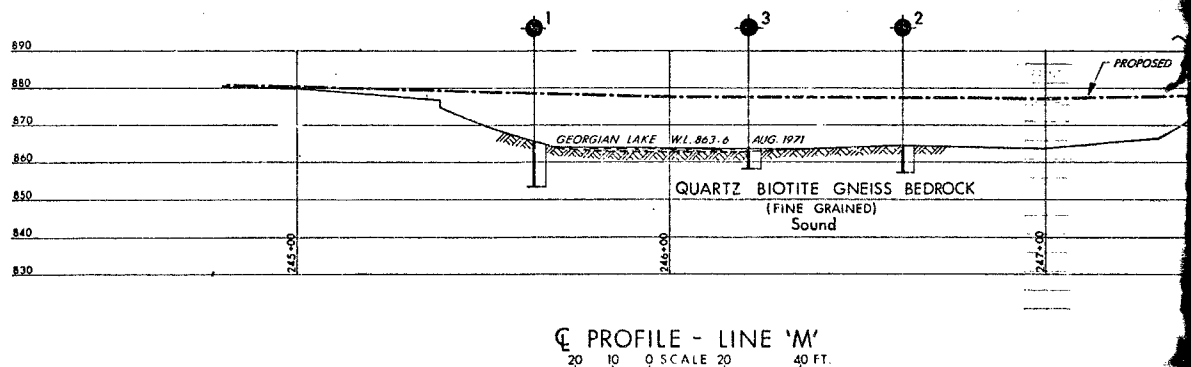
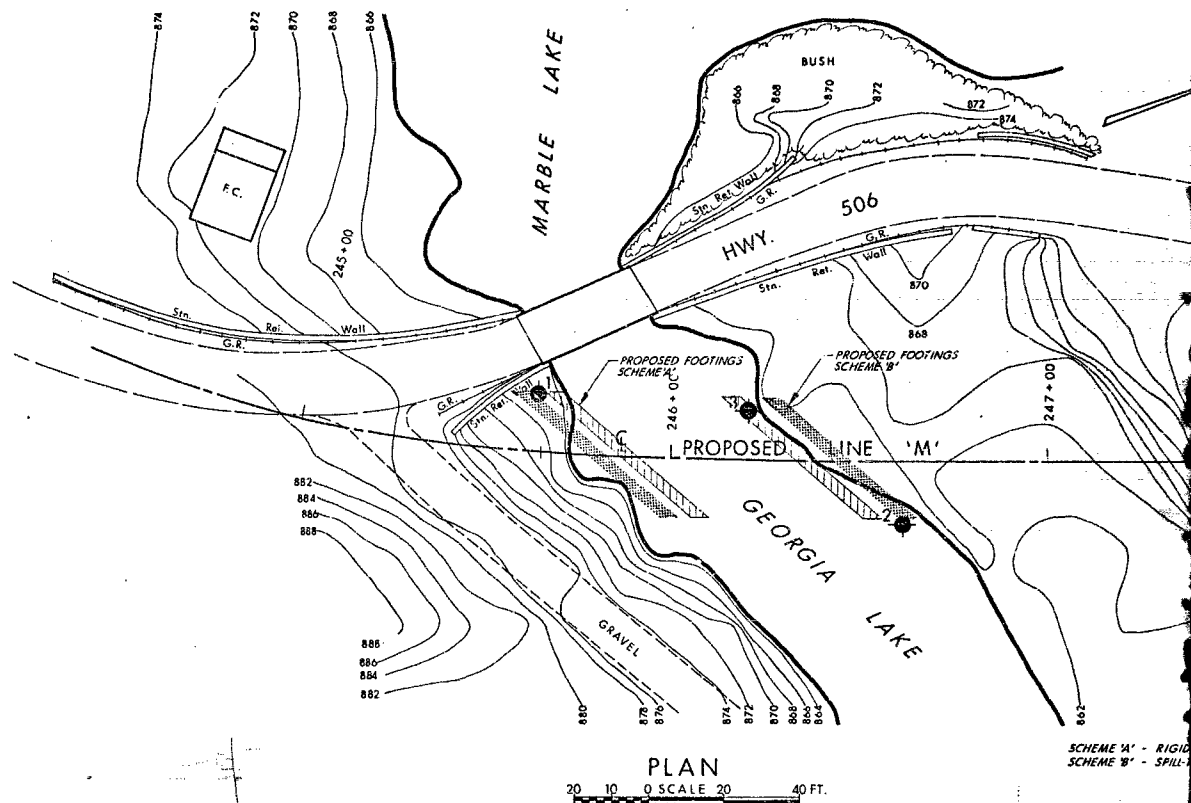
d	DISTANCE FROM TOP OF WALL TO POINT OF APPLICATION OF PRESSURE
δ	ANGLE OF WALL FRICTION
K	DIMENSIONLESS COEFFICIENT TO BE USED WITH VARIOUS SUFFIXES IN EXPRESSIONS REFERRING TO NORMAL STRESS ON WALLS
K_0	COEFFICIENT OF EARTH PRESSURE AT REST

FOUNDATIONS

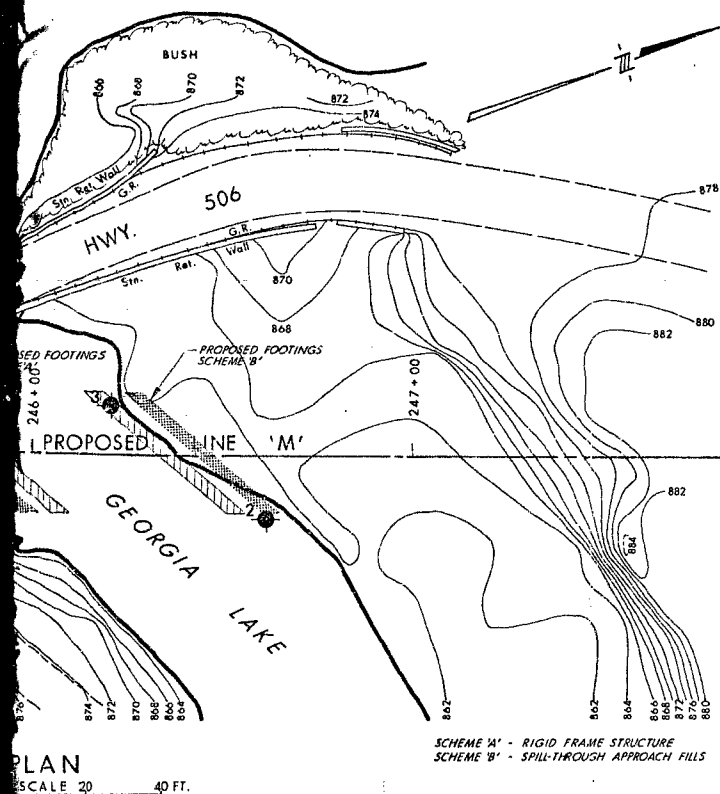
B	BREADTH OF FOUNDATION
L	LENGTH OF FOUNDATION
D	DEPTH OF FOUNDATION BENEATH GROUND
N	DIMENSIONLESS COEFFICIENT USED WITH A SUFFIX APPLYING TO SPECIFIC GRAVITY, DEPTH AND COHESION ETC. IN THE FORMULA FOR BEARING CAPACITY
k_s	MODULUS OF SUBGRADE REACTION

SLOPES

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

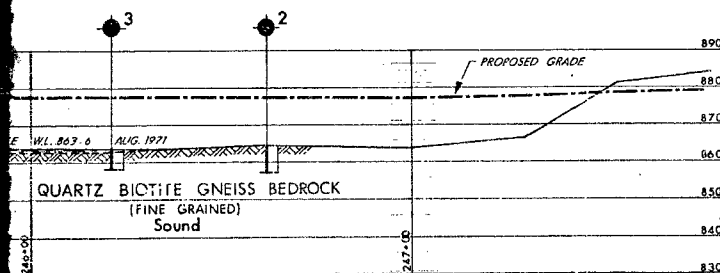


CORD
DATE

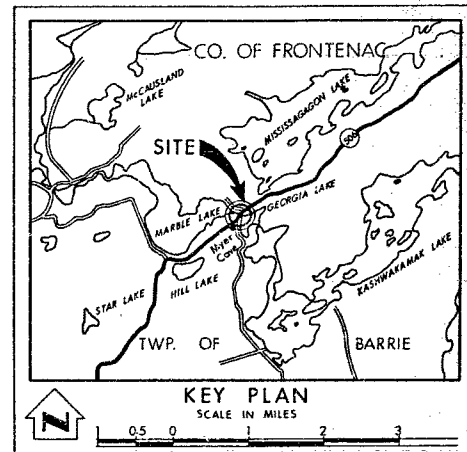


SCHEME 'A' - RIGID FRAME STRUCTURE
SCHEME 'B' - SPILL-THROUGH APPROACH FILLS

PLAN
SCALE 20 40 FT.



LINE - LINE 'M'
SCALE 20 40 FT.



KEY PLAN

SCALE IN MILES

LEGEND

- Bore Hole
- ⊕ Cone Penetration Test
- ⊕ Bore Hole & Cone Test
- W. Levels established at time of field investigation, October 1971.

NO.	ELEVATION	STATION	OFFSET
1	865.1	245+63	15' LT.
2	864.0	246+62	17' RT.
3	864.4	246+21	13' LT.

— 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

MARBLE LAKE & GEORGIA LAKE

HIGHWAY NO. 506 - LINE 'M' DIST. NO. 10

CO. FRONTENAC

TWP. BARRIE

LOT 23

CON. VIII.

BORE HOLE LOCATIONS & SOIL STRATA

SUBMD B.T.D. CHECKED	W.P. NO. 110-65	DRAWING NO.
DRAWN S.R. CHECKED	JOB NO. 71-11119	71-11119A
DATE NOV. 15, 1971	SITE NO.	BRIDGE DRAWING NO.
APPROVED	CONT. NO.	

REF. No. E-5220-1

DEPARTMENT OF TRANSPORTATION AND COMMUNICATIONS

MEMORANDUM

M. D. Gerow
Nov. 17/71
71-11119

TO: Mr. T. C. Kingsland,
 Regional Bridge Planning Eng.,
 KINGSTON, Ontario.

FROM: Materials & Testing Office,
 KINGSTON, Ontario.

ATTENTION:

DATE: October 29th, 1971

OUR FILE REF.

IN REPLY TO

SUBJECT:

Hwy. 506, W.P. 110-65-00, Site 7-2, Myer
Cave Bridge, District # 10, Bancroft

Foundation conditions at the original proposed structure location north of the present bridge indicated the possibility of poorer bedrock sections and depressed areas which were filled with numerous boulders and rock fragments. The exposed bedrock contained 60° to vertical cleavage planes. This same condition likely exists at the new location just south of the present structure.

The depth of overburden has not been determined on the east side of the stream.

In view of the condition of the bedrock and the cost of obtaining overburden depths with a backhoe, it is recommended that a foundation investigation be carried out at the proposed abutment site to ensure that the abutments are properly keyed into the bedrock.

R. D. Gerow
 R. D. Gerow,
 For: A. M. Batten,
 Sr. Soils Supervisor

RDG/AMB/sgp

c. c. - A. G. Stermac ✓
 G. A. Wrong
 S. J. Markiewicz
 A. J. Percy
 C. S. Grebski

W07 11119

Mr. E. R. Saint,
Reg. Materials & Testing Engineer,
Kingston, Ontario.

Bridge Section,
Kingston, Ontario.

Mr. A. M. Batten

November 1, 1971.

W. P. 110-65-00, Site 7-2,
Myer Cave Bridge,
Highway 506, District 10

With reference to your letter dated October 29, 1971, a
foundation investigation has now been carried out at the
above site by Head Office Foundation Section.

Bore holes were put down on October 29 and 30 and
results show that the bedrock in the proposed abutment
locations is generally sound apart from the top few inches.
Foundation Section will be issuing a Report in due course.

T. C. Kingsland
Regional Bridge Planning Engineer

TCK/hl

/c.c.

✓ A. G. Stermac - Att. M. Devata
S. J. Markiewicz
A. J. Percy
C. S. Grebski



Memorandum

To: Mr. T. Kingsland,
Reg. Structural Planning Engineer,
Eastern Region, Kingston.

From: Structural Office,
West Building, Downsview.

Attention:

Date: April 29, 1975.

Our File Ref.

In Reply to

Subject:

Myer Cave Bridge,
5.1 Miles East of Hwy. #41,
W.P. 110-65-00, Site 7-2
Highway 506, District 10.



Attached herewith are prints of the Preliminary Bridge Plan Drawing 7-2-P1 for the above-mentioned structure.

The estimated cost of the proposed structure is \$110,000.00 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
C. S. Grebski,
Structural Design Engineer.

C.C. B. R. Davis
W. D. Birch
A. E. McKim
K. G. Bassi
M. Stoyanoff
✓ C. Mirza
J. Anderson
R. Forrest
S. Edwards

no comment
by J. Davis
May 14/75



Memorandum

To: Structural Review Committee,

From: Structural Office,
West Building,
Downsview, Ontario.

Attention:

Date: June 24, 1975.

Our File Ref.

In Reply to

Subject:

Task Forces #2 and #3
Joint Design Division/Operations Division

At the meeting held on May 28, 1975, to discuss the reports of Task Forces #2 and #3, it was agreed that a structural review be carried out for each structure involving the following:

- (a) Structural Office
- (b) Construction Branch
- (c) Soils Mechanics Section
- (d) Hydrology Office (when appropriate)

The purpose of the review is to ensure that all aspects of the design are satisfactory, and that bidders are able to develop a reasonable and efficient construction process, using the bid information, the design, and related information provided.

The group to carry out the review will be known as the Structural Review Committee and will consist of the following members or their representatives:

- (a) Structural Contract Engineer, Secretary
- (b) Assistant Construction Engineer, Structures, Chairman
- (c) Head, Soils Mechanics Section
- (d) Head, Hydrology Section
- (e) Structural Design Engineer

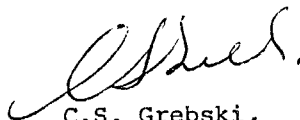
On completion of the structural contract documents, copies shall be distributed to the Committee.

Approximately two weeks after ^{distribution} the Secretary shall arrange a meeting to review the project.

Minutes of the meetings will be directed to the Regional Structural Design Engineers for appropriate action and information. Copies of the minutes will be distributed to the members of the Committee for their records.

The Structural Contract Engineer shall ensure that any suggestions and recommendations put forth by the Committee have been considered and where necessary, acted on by the Structural Design Section.

The need for feedback on the recommendations of the Committee will be determined for each project at the time of the review meeting. Such feedback will be provided to the members of the Committee at the appropriate time after construction by the Assistant Construction Engineer, Structures.



C.S. Grebski,
Structural Design Engineer.

CSG/ac

c.c. J.B. Wilkes
J.E. Callaghan
W. Wigle
E.J. Orr
B. Davis
A.G. Kelly
G. Martens
J.R. Wear
M. Stoyanoff ✓
W. Lin
J. Keen
A. Radkowski
K. Bassi
W. McFarlane



Memorandum

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

From: Structural Office,
West Building, Downsview.

Attention:

Date: July 7, 1975.

Our File Ref.

In Reply to

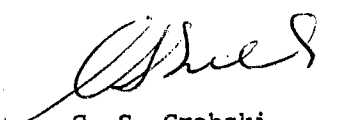
Subject:

Myer Cave Bridge
W.P. # 110-65-00 Site # 7-2
Highway # 506 District # 10

71-F-119

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
Attech.


C. S. Grebski,
Structural Design Engineer.

No Comments!

*July 15/75
Trakole
D. Durrant*



*P.s. → Footings will be located below channel water level and some
clearing may still be necessary for the correct location of foundation*



Memorandum

To: Structural Review Committee.

From: M. Stoyanoff,
Structural Office,
West Building, Downsview.

Attention:

Date: July 28, 1975.

Our File Ref.

In Reply to

Subject:

Myer Cave Bridge
Hwy. 506, District #10
Site 7-2, W.P. 110-65-00



Please be advised that a meeting of the Structural Review Committee will be held on August 12/75 at 9:30 A.M., in Boardroom "B", West Building, to review the above-mentioned project.

Would you please arrange for either yourself or your representative to attend.

M. Stoyanoff
M. Stoyanoff,
Secretary.

MS/ac

c.c. A.E. McKim
C. Mirza ✓
J. Harris
C. Grebski
W. Birch

P.S. = Requested Mr A. Prakash to attend this meeting
on my behalf.
M. Stoyanoff
July 28/75.