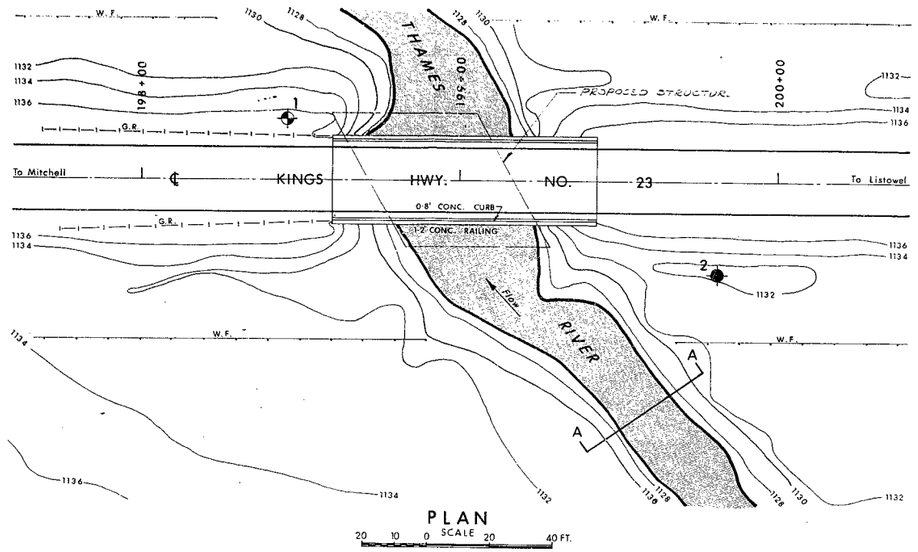
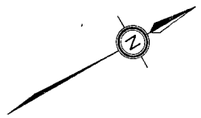
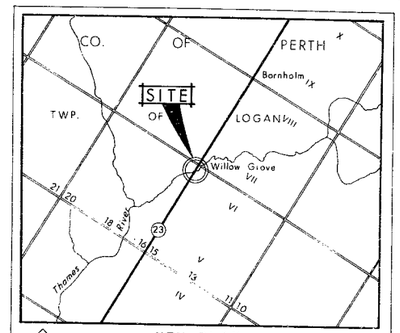
#65-F-88
W.P. #307-64
Hwy #23
THAMES RIVER
(STRATFORD)
DISTRICT



PLAN

20 10 0 SCALE 20 40 FT.

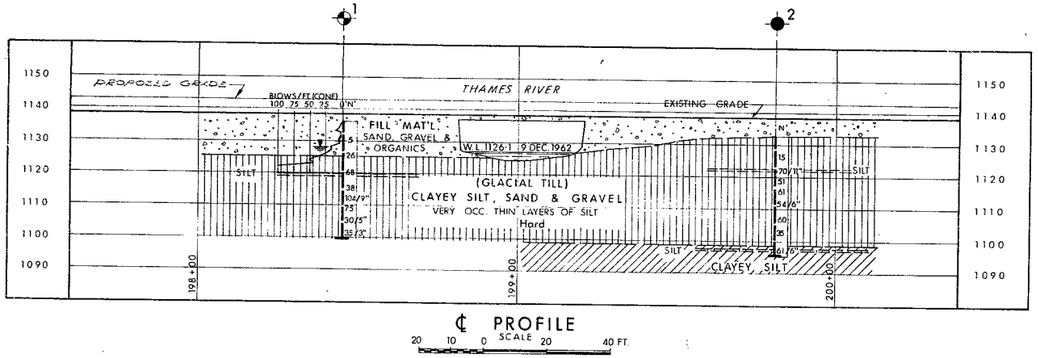




LEGEND

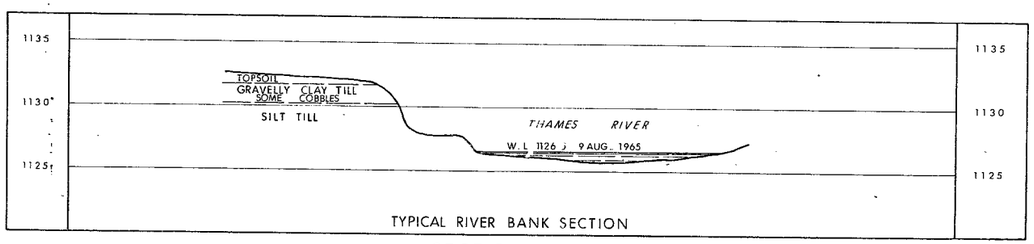
- Bore Hole
- Cone Penetration Hole
- Bore & Cone Penetration Hole
- Water Levels established at time of field investigation. (AUG. 1965)

NO.	ELEVATION	STATION	OFFSET
1	1136·0	198+46	19' LT.
2	1132·0	199+81	29' RT.



℄ PROFILE

20 10 0 SCALE 20 40 FT.



TYPICAL RIVER BANK SECTION

SECTION A-A

5 2·5 0 SCALE 5 10 FT.

— 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.

PRINT RECORD		
NO.	FOR	DATE

REVISIONS		
DATE	BY	DESCRIPTION

REF. NO. E-4192-1

DEPARTMENT OF HIGHWAYS - ONTARIO

MATERIALS & TESTING DIVISION - FOUNDATION SECTION

THAMES RIVER

KING'S HIGHWAY NO. 23 DIST. NO. 3

CO. PERTH

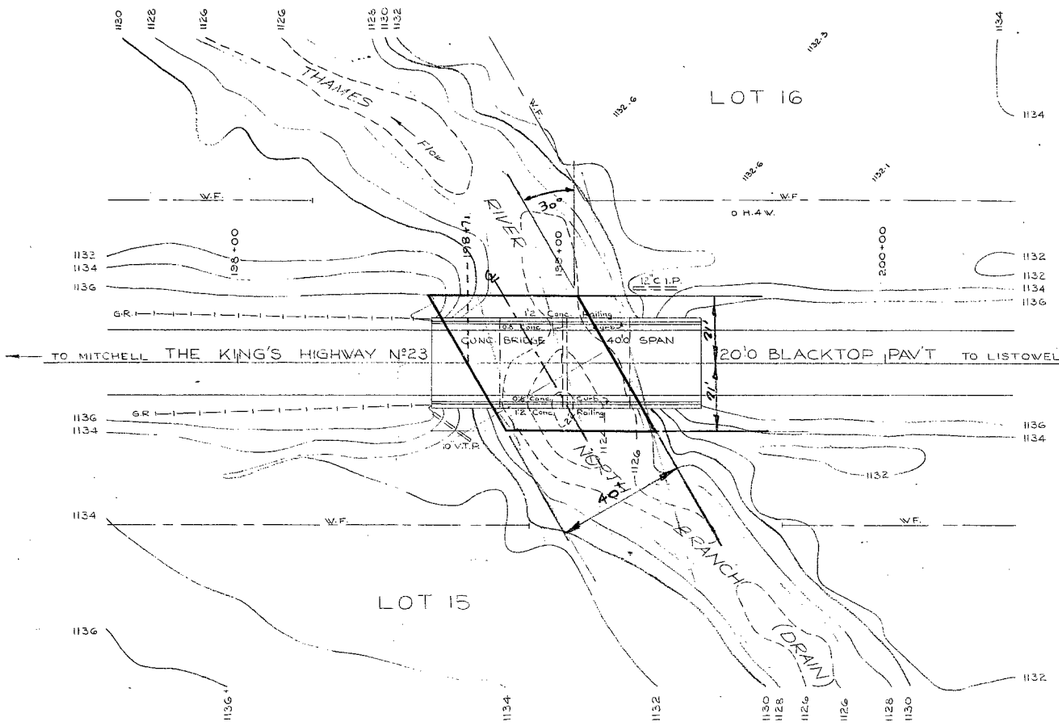
TWP. LOGAN LOT 15&16 CON. VI

BORE HOLE LOCATIONS & SOIL STRATA

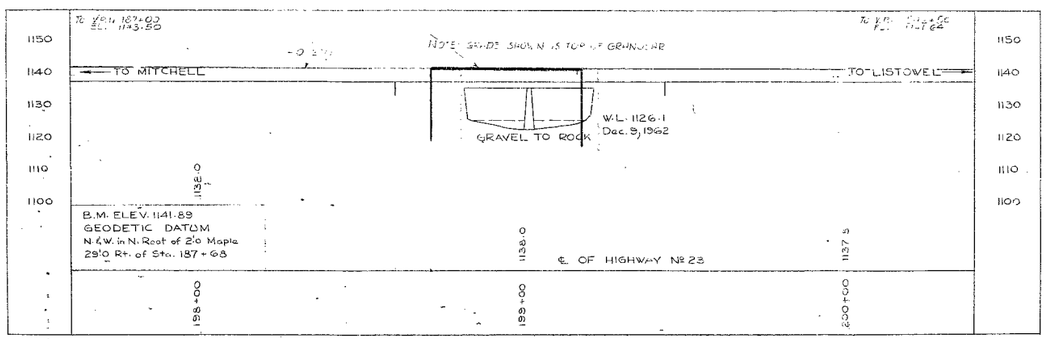
SUBM'D. L. P.	CHECKED L.P.	W.P. NO. 307-64	M.B.T. DRAWING NO. 65-F-88 A
DRAWN S.O.	CHECKED	JOB NO. 65-F-88	
DATE 28 SEPT. 1965		SITE NO	BRIDGE DRAWING NO.
APPROVED A. Thomas PRINCIPAL FOUNDATION ENG.		CONT. NO.	

E-4191-1

COUNTY OF PERTH
TOWNSHIP OF LOGAN
CON. VI

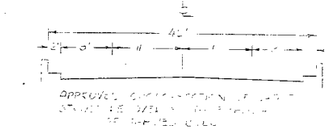


PLAN
SCALE - 1 IN. = 20 FT.

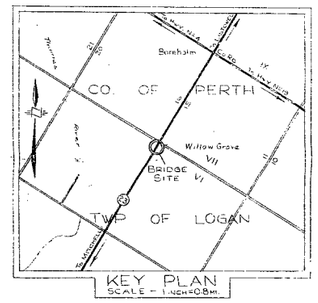


PROFILE
SCALE - HOR. - 1 IN. = 20 FT.
VER. - 1 IN. = 20 FT.

NOTE: SKETCH SHOWS PROPOSED LOCATION OF BRIDGE AS SUBMITTED FOR FOUNDATION SOILS INVESTIGATION AUG. 4, 65.



487300 E
4817800 N
STA. LITHE W.P. 307-64 40 P/11 E



G.B.M. Nº 648-F, Elev 1134.830
Concrete highway bridge in village, 0.1 mile southeast of concession (cons 6 and 7, Logan). Tablet set in northwest face of northeast concrete abutment, 14 feet from northeast end of bridge, 6 feet 7 inches below top of concrete guard rail.
Publication Nº 15, Page 312, "WILLOW GROVE"

DATE	REVISIONS & ADDITIONS	BY	CH'KD

DEPARTMENT OF HIGHWAYS - ONTARIO
PLANNING & DESIGN BRANCH
SOUTH WESTERN REGION
DISTRICT Nº 3

CROSSING
AT
THAMES RIVER NORTH BRANCH (DRAIN)
AND
THE KING'S HIGHWAY Nº 23

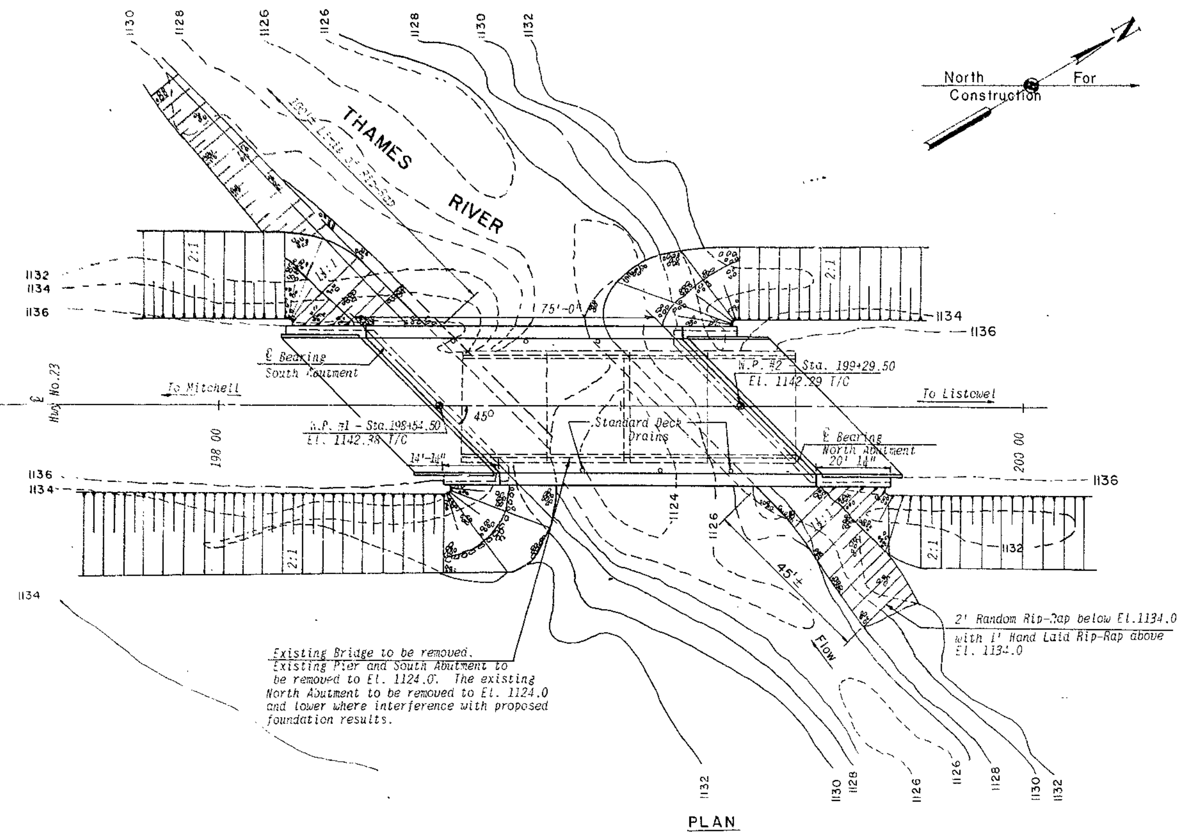
LOTS 15 & 16 TOWNSHIP OF LOGAN — CON VI COUNTY OF PERTH

BRIDGE SITE

SURVEY BY CHIEF OF PARTY - K D WRIGHT SUPERVISOR - G. BAUN	APPROVED John W. Watts Director of Planning & Design
DRAWN BY DRAFTSMAN - S. HEDRIK SUPERVISOR - J. CAMILLERI	SCALE - AS SHOWN DATE OF SURVEY - JAN. 1963 DATE OF PLAN - APR. 1963
CHECKED BY DRAFTSMAN - I. DROZD SUPERVISOR - J. CAMILLERI	W.O.Nº 7012-62-51 KING Nº PLAN E-4192-1

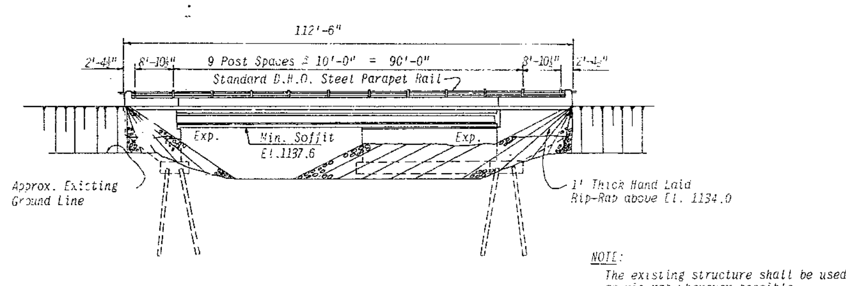
W.P 220-62 (G.B. Pav.)

E-4191-1



PLAN

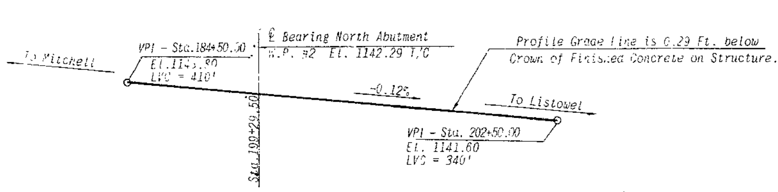
Scale 1" = 20'



ELEVATION

Scale 1" = 20'

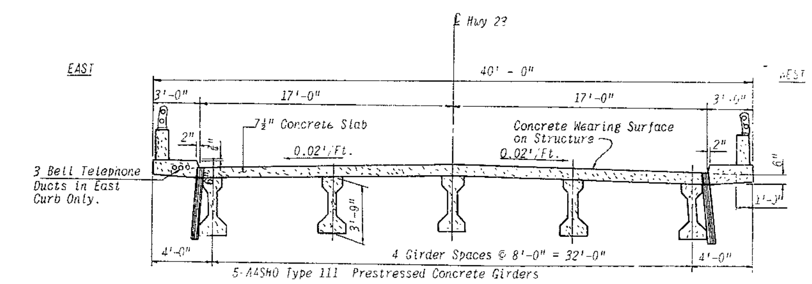
NOTE:
The existing structure shall be used as rip-rap wherever possible.



PROFILE OF HWY. Nº23

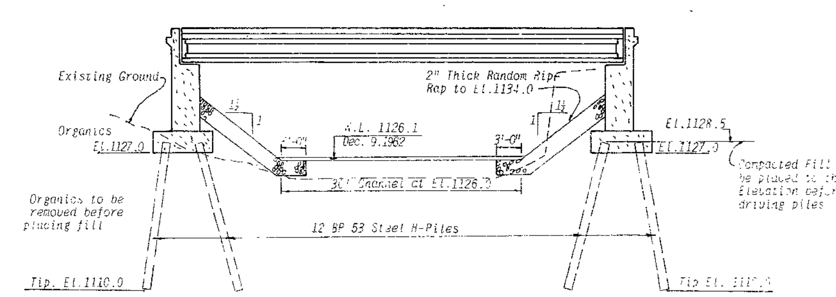
N.T.S.

SKEW ANGLE - 45° 00'	
Sin.	0.70711
Cos.	0.70711
Tan.	1.0000
Cot.	1.0000



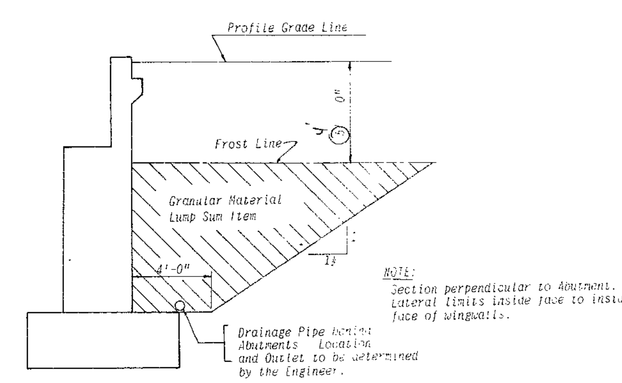
TYPICAL DECK SECTION

Scale 3/16" = 1'-0"



SECTION THROUGH STRUCTURE & WATERWAY (NORMAL TO CHANNEL)

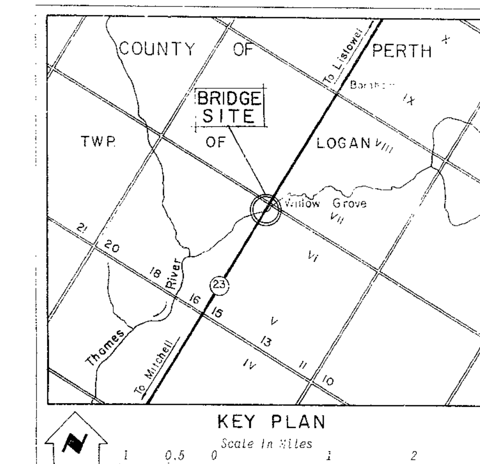
Scale 1" = 10'



NOTE:
Section perpendicular to Abutment. Lateral limits inside face to inside face of wingwalls.

DETAILS OF MINIMUM GRANULAR BACKFILL REQUIREMENTS

Scale ½" = 1' - 0"



KEY PLAN

Scale in Miles

All Elevations are related to Geodetic B.M. Elev. 1134.63 ... No. 848-F Concrete Highway Bridge (Existing Structure) In Village 0.1 mile ... of Cross Roads ... 6 & 7 Logan ...
Tablet set in Northeast Concrete Abutment ... from Northeast end of Bridge. 6'-7" below top of Concrete Guard Rail. Publication No. 19, page 312. ...

REVISIONS		
DATE	BY	DESCRIPTION

PRINT RECORD		
No	FOR	DATE

DEPARTMENT OF HIGHWAYS ONTARIO
BRIDGE DIVISION

VANCE, NEEDLES, BERGENDOFF & SMITH, LIMITED
CONSULTING ENGINEERS WOODSTOCK, ONTARIO

THAMES RIVER BRIDGE

KING'S HIGHWAY No. 23 DIST. No. 3
CO. PERTH
TWP. LOGAN LOT 15 & 16 CON. VI

PRELIMINARY PLAN

APPROVED ... BRIDGE ENGINEER				SITE No. 25-128	W.P. No. 307-64
DESIGN	K T B	CHECK	D.S B	CONTRACT Nos	
DRAWING	D S. B.	CHECK	K.T B	DRAWING No	D-5824-PI
DATE	FEB.1967	LOADING	H20-S16		

FEB 23 1967

cc: Gen. Files

DEPARTMENT OF HIGHWAYS ONTARIO

W.P. 307-64.

MEMORANDUM

To: Mr. B. R. Davis,
Bridge Engineer,
Bridge Division.

Attention: Mr. S. McCombie

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

Date: September 16, 1965

Our File Ref.

In reply to OCT 12 1965

Subject:

FOUNDATION INVESTIGATION REPORT
For
Prop. Bridge over North Thames River,
Hwy. #23, District #3 (Stratford)
W.J. 65-F-88 -- W.P. 307-64

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

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

KYL/MdeF
Attach.
cc: Messrs. B. R. Davis (2)
H. A. Tregaskes
D. W. Farren
A. Gater
J. G. Tillcock
J. Roy
A. Watt

Foundations Office
Gen. Files ✓

K. Y. Lo,
SUPERVISING FOUNDATION ENGR.
For:
A. G. Stermac,
PRINCIPAL FOUNDATION ENGR.

TABLE OF CONTENTS

FOUNDATION INVESTIGATION REPORT
For
Prop. Bridge over North Thames River,
Hwy. #23, District #3 (Stratford)
W.J. 65-F-88 -- W.P. 307-64

1. INTRODUCTION:

A request dated August 4, 1965, to conduct a foundation investigation at the proposed bridge site, was received from Mr. N. Zoltay, Bridge Location Engineer.

It is proposed to replace the present bridge over the North Thames River tributary at Willow Grove by a wider, skew bridge. The site is 4 miles north-east of Mitchell on Highway #23 and 0.1 miles south-west of the cross-road between concessions VI and VII, in the Township of Logan, County of Perth.

A foundation investigation was conducted by this Section at the bridge site to determine the underlying soil conditions. Results of this investigation, together with discussion and recommendations for the foundation design, are reported herein.

2. SITE TOPOGRAPHY AND GEOLOGY:

Highway #23 crosses the North Thames River tributary on a 2-span reinforced concrete bridge. At the time of the investigation, the river level was very low and the volume of flow was small. In general, the surrounding area is under cultivation with field crops and occasional small orchards.

cont'd. /2 ...

2. SITE TOPOGRAPHY AND GEOLOGY: (cont'd.) ...

The local topography displays a faint knoll and sag relief. The area is a glacial till plain, part of the Stratford till plain and is underlain at a depth of about 80 to 100 feet by limestone bedrock.

3. FIELD AND LABORATORY WORK:

Using conventional diamond drilling equipment adapted for soil sampling purposes, two sampled boreholes and one cone penetration test were carried out at the site. A driving energy of 350 ft.-lbs. per blow was used for the dynamic cone penetration tests.

Samples were obtained using a 2-inch O.D. split-spoon sampler driven according to the specifications of the Standard Penetration Test. In addition, one 2-inch I.D. Shelby tube sample was obtained.

Samples were visually examined and identified in the field and subsequently, in the laboratory. Laboratory tests were conducted on selected representative samples to determine, where applicable, -

1) Atterberg Limits
2) Bulk Density
3) Grain-Size Distribution
4) Natural Moisture Content

Results of these tests and the field tests, as well as the location and elevation of the boreholes, are presented in Appendix I of this report.

cont'd. /3 ...

4. SUBSOIL CONDITIONS:

4.1) General:

Subsoil at the site consists mainly of a deposit of clayey silt with some sand and gravel (glacial till). The consistency of the deposit is very stiff to hard with 'N' values ranging from 15 to >100 blows per foot, with the major portion of the deposit of a hard consistency. This deposit extended to the full depth of the exploration and was relatively uniform except for very occasional thin layers of silt or silty clay and occasional boulders.

4.2) Clayey Silt:

This deposit occurs immediately beneath the 6" of topsoil. A visual examination of the river bank indicated a layer 1½ to 2 feet thick, of a brown clayey silt which was quite gravelly and cobbly. This layer was encountered in borehole 2, but had been replaced by fill in borehole 1. Beneath this layer and extending for the full depth of the exploration (i.e., to about 35 feet), the clayey silt was grey-brown in colour and contained some sand and gravel (glacial till).

Very occasional layers of very dense silt up to 6 inches thick were encountered at about elevation 1120.0' and below (i.e. - at 10 feet and 16 feet in borehole 1 and 2, respectively). Boulders were encountered in borehole 1 at elevation 1105, but were not present in borehole 2. A pocket of soft grey silty clay 1.2 feet thick was indicated in borehole 2 at elevation 1098.0'.

cont'd. /4 ...

5. GROUND WATER:

The ground water level was observed in borehole 1 after one day and was at elevation 1128.3'. Observation of the field operation indicated a perched water table at about elevation 1128' (i.e., in the cobbly clayey silt layer). Some seepage from this layer was apparent along the river bank. The river elevation was 1126.8'.

6. DISCUSSION AND RECOMMENDATIONS:

The existing 2-span bridge over the North Thames River tributary showed signs of weathering, but was structurally sound. It is proposed to replace this structure with a wider, single-span skew bridge.

The subsoil conditions are suitable for spread footing type foundations. The existing river bed is about elevation 1126', although there is a depression as deep as 1122'. Spread footings established on undisturbed ground at elevation 1121.0 could support an allowable design load of 3 t.s.f. However, hydrological considerations may govern the elevation of the footings.

No dewatering problems are expected during excavation because of the low permeability of the subsoil. Any seepage inflow should be handled adequately by low-capacity pumps. When the desired excavated elevation is reached, a working slab should be cast immediately to prevent softening of the subsoil.

With standard side slopes of 2:1, no stability problems are anticipated for the proposed 10-foot approach embankments.

cont'd. /5 ...

7. SUMMARY:

The subsoil consists generally of a very stiff to hard deposit of clayey silt with sand and gravel (glacial till).

The abutments should be supported on spread footings at elevation 1121.0 (or below, if required for hydrological reasons) where a safe bearing pressure of 3 t.s.f. can be applied on undisturbed ground.

No dewatering or embankment stability problems are anticipated.

8. MISCELLANEOUS:

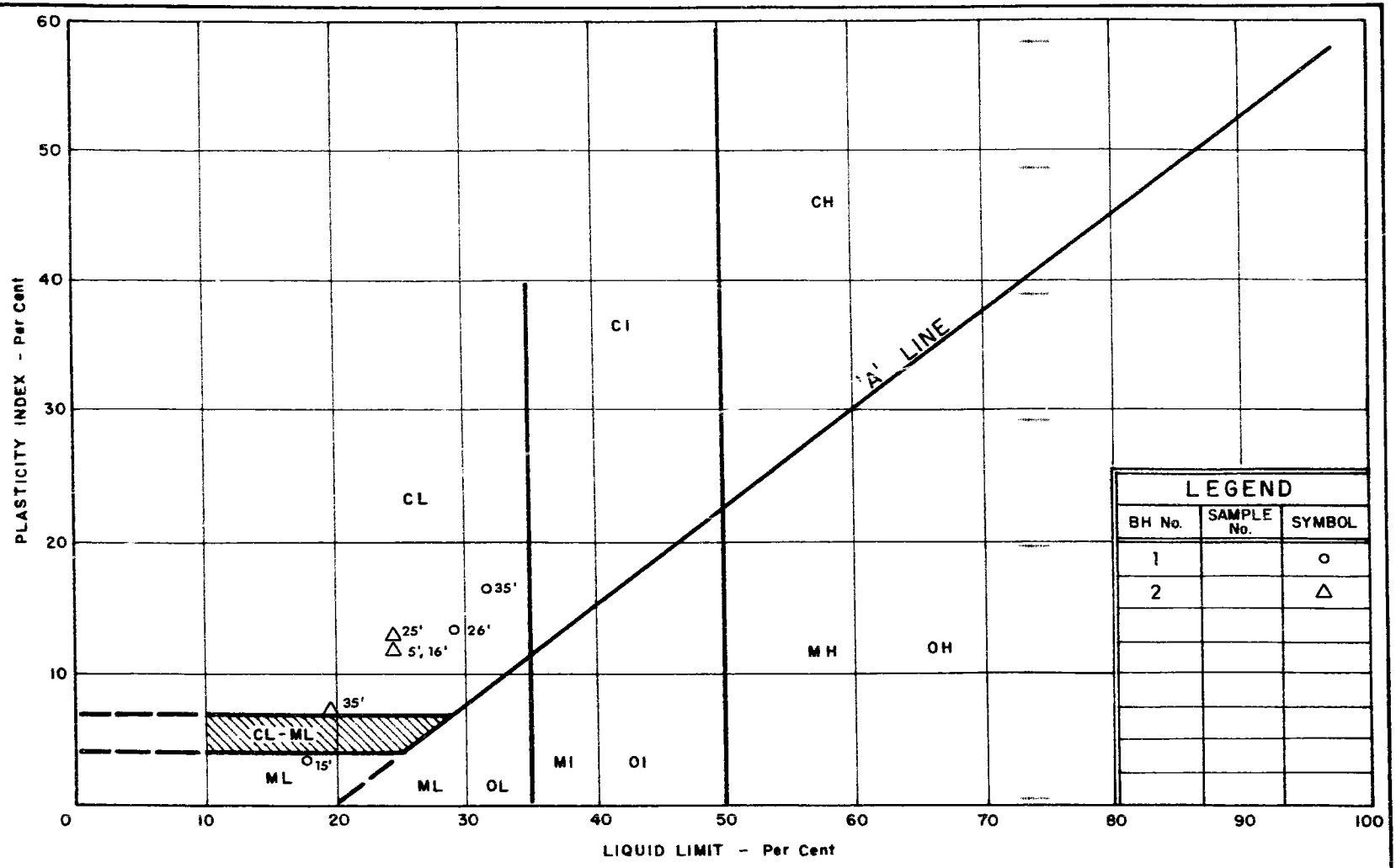
The field work was conducted in August 1965, using equipment owned and operated by Master Soil Investigations Ltd., under the supervision of Mr. L. Palmer, Project Foundation Engineer, who subsequently prepared this report.

The entire project was supervised in general, by Mr. M. Devata, who also reviewed this report.

September 1965

APPENDIX I

FORM CB-MT-252
(REV. JUNE 1965)
65-1624

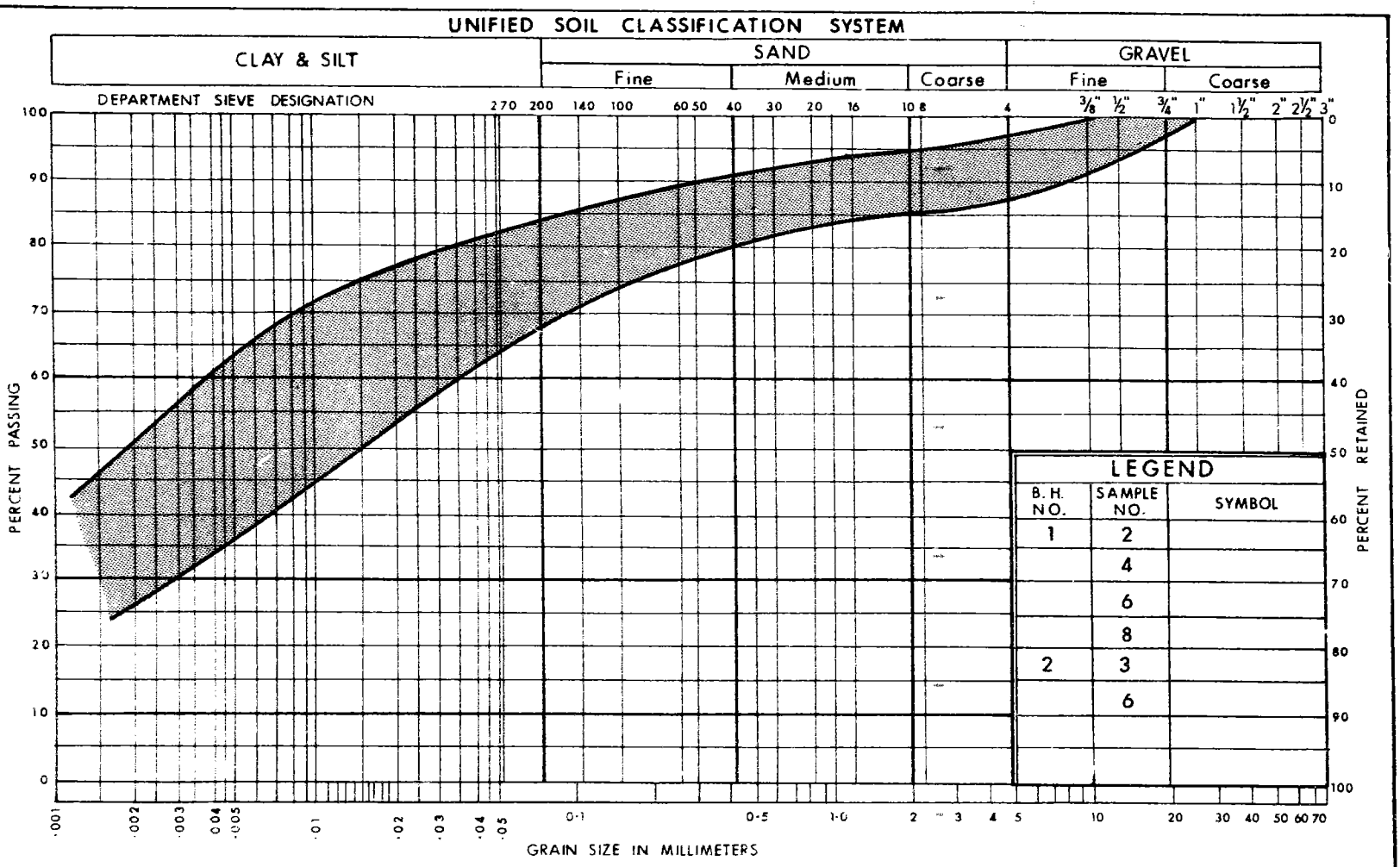


DEPARTMENT OF HIGHWAYS
MATERIALS and TESTING DIVISION
ONTARIO

PLASTICITY CHART

W.P. No. 307 - 64
JOB No. 65 - F - 88

FORM OB MT - 17
REV. APR. 1965
65-414



DEPARTMENT OF HIGHWAYS
MATERIALS and TESTING DIVISION
ONTARIO

GRAIN SIZE DISTRIBUTION
ENVELOPE FOR CLAYEY SILT

W.P. No.	307 - 64
JOB No.	65 - F - 88

FORM 08-MT-126 (FORMERLY 08-ML-126)
65-1831

OFFICE REPORT ON SOIL EXPLORATION

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 1

FOUNDATION SECTION

JOB 65-F-88 LOCATION Hwy 23, Thames River Crossing, 4Mi N of Mitchell ORIGINATED BY L.P.
W.P. 307-64 BORING DATE Aug 9, 1965 COMPILED BY L.P.
DATUM Geodetic BOREHOLE TYPE Washboring - NX Casing. CHECKED BY M.D.

SOIL PROFILE ELEV. / DEPTH	DESCRIPTION	STRAT. PLOT	SAMPLES NUMBER	TYPE	BLOWS / FOOT	ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT 20 40 60 80 100 SHEAR STRENGTH P.S.F.	LIQUID LIMIT w_L PLASTIC LIMIT w_P WATER CONTENT w WATER CONTENT % 10 20 30	BULK DENSITY γ P.C.F.	REMARKS
1136.0	Ground Surface									
0.0	Fill Material - Some sand, some gravel, some organics.		1	SS	5	1130				▼1128.3 7.7
1125.0			2	SS	26					Gr13%Sa12% Si35%Cl 40%
11.0	Clayey silt, some sand, some gravel, (Glacial Till) Hard									
1119.5	6" layer of Silt		3	SS	68	1120				
16.5	Very occasional thin layers of silt.		4	SS	38				125.5	Gr&Sa16% Si34% Cl 50%
			5	SS	104/9"					
			6	SS	75	1110			133	Gr 11%Sa19% Si34%Cl 36%
	Occasional Boulders		7	SS	30/5"					
1099.5			8	SS	35/3"	1090				Gr&Sa32% Si35% Cl 43%
36.5										

FORM DB-MT-126 (FORMERLY DB-ML-126)
65-1831

OFFICE REPORT ON SOIL EXPLORATION

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & TESTING DIVISION

RECORD OF BOREHOLE NO. 2

FOUNDATION SECTION

JOB 65-F-88 LOCATION Hwy 23 Thames River Crossing 4 Miles N of Mitchell ORIGINATED BY L.P.
W.P. 307-64 BORING DATE Aug. 10, 1965. COMPILED BY L.P.
DATUM Geodetic BOREHOLE TYPE Washboring - NX Casing. CHECKED BY M.D.

SOIL PROFILE ELEV. / DEPTH	DESCRIPTION	STRAT. PLOT	SAMPLES NUMBER	TYPE	BLOWS / FOOT	ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT — SHEAR STRENGTH P.S.F.	LIQUID LIMIT w_L / PLASTIC LIMIT w_P / WATER CONTENT w — WATER CONTENT % (10 20 30)	BULK DENSITY γ P.C.F.	REMARKS
1132.0	Ground Surface									
0.0	Clayey silt, sand, gravel, Brown (Glacial Till)					1130				
			1	SS	15					
1121.4	6" Layer of silt									
10.6			2	SS	70/11"					
	Very occasional thin layers of silt.					1120				
			3	SS	51					Gr6%Sa14% Si55%Cl 25%
			4	SS	61					
			5	SS	54/6"					
						1110				
			6	SS	60					Gr8%Sa24% Si37%Cl 31%
			7	SS	35				143	
						1100				
1098.0										
34.0										
1096.5	Silty clay		8	TW	PM6", Tap	6"				Gr33%Sa39% Si23%Cl 5%
35.2	6" Layer of silt		9	SS	61/6"					
1095										
37.0										
						1090				

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 :-

CONSISTENCY	'N' BLOWS/FT.	c LB./SQ.FT.	DENSENESS	'N' BLOWS/FT.
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 (YOUNGS 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

DEPARTMENT OF HIGHWAYS ONTARIO

MEMORANDUM

~~WP 220-62~~
65-F-88

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

From: Bridge Division,
Downsview, Ontario.

Date: August 4, 1965.

Our File Ref.

In reply to

Subject: W.P. 307-64 Site 26-128
North Thames River
Tributary at Willow Grove
Highway #23 District #3

We are sending to you herewith two prints of Bridge Site Plan E-4192-1 on which we have marked in red the proposed location of the above structure. The sketch shows the bridge as having a 30° skew angle however it is possible that this skew will be increased to as much as 40° in the design stage, maintaining the 40' span (square to abutments) and the proposed centre line.

The bridge site is readily accessible. It is 3 miles north of Mitchell. No problems are anticipated regarding the accommodation.

Please make the necessary arrangement for foundation investigation. We will be pleased to have your report in due course.

N. Zoltay.

NZ/kp

N. Zoltay,
Bridge Location Engineer.

c.c. S. McCombie
G. Scott
R. Fitzgibbon

epartment of Highways Ontario

Copy for the information of

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

Mr. A.P. Watt,
Regional Bridge Location Engineer,
London Regional Office

Bridge Division,
Downsview, Ontario

March 1, 1967

Thames River Bridge
W.P. 307-64, Site 25-128
Highway 23, District No. 3

Attached herewith are prints of the Preliminary Bridge Plan Drawing D-5824-P1 for the above-mentioned structure.

The estimated cost of the proposed structure is $73,000. This cost includes tender, materials, engineering and sundry construction.

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

C.S. Grebski,
Bridge Design Engineer

CSG:rd

Attach.

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

cc: Foundations Files (Rm. 110)

Mr. B. R. Davis,
Bridge Engineer,
Bridge Division.

Attention: Mr. J. L. Keen

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

January 12, 1967

Re: Bridge over the North Thames River,
Hwy. No. 23; District 3 (Stratford),
W.P. 307-64 -- W.J. 65-F-88

This is to summarize the discussion we had on January 11, 1967, in the Foundation Section, regarding the alternative footing design of the above mentioned structure.

Spread footings at El. 1121.0 are recommended in the report. However, if a piled founiation is more economical, we cannot see any reason why this solution should not be chosen. Relatively short piles could be used, with tip elevation at about El. 1110.0. The driving of the piles should be checked by the use of the Hiley formula as per the D.H.O. Standard.

AGS/LdeF

A. G. Stermac
PRINCIPAL FOUNDATION ENGINEER

cc: Foundations Files
Gen. Files

cc: Foundations Office (Rm. 110)

APP

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

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

March 9, 1967

Thames River Bridge --
W.P. 307-64, Site 25-128, W.J. 65-F-88,
Hwy. 23, District #3 (Stratford).

We have reviewed the Preliminary Bridge Drawing D-5824-P1 for the above mentioned structure.

The designer appears to have complied with the recommendations contained in the Foundation Report, and in our memo of January 12, 1967.

M. Devata,
SUPERVISING FOUNDATION ENGR.
For:
A. G. Stermac,
PRINCIPAL FOUNDATION ENGR.

MD/MdeF

cc: Messrs. S. McCombie
A. P. Watt

Foundations Files ✓
Gen. Files