

Jan 25/63

Copy of this report
sent to Dames and
Moore Consulting Engs

F. Delmonico

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B.A. 475

RECEIVED

Per. *MS*

Date *October 17, 62*

Job No. 733

A
REPORT ON THE
FOUNDATION INVESTIGATION
AT THE
PROPOSED UNDERPASS AT HIGHWAY
NO. 25 AND C.B.W. STN. 202+25
TOWNSHIP OF WILSON

Project F 59-39

Copies to:

Mr. A. Torg Bridge Engineer	(2)
Mr. H. Tregaskes Const. Engineer	(1)
Mr. J. Walter Design Engineer	(1)
Mr. R.E. Richardson Dist. Eng. Hamilton,	(1)
Mr. G. Parantatos	(1)
File	(1)

Plan No. 084025
11 2 83

Profile C 699-6



ONTARIO

DEPARTMENT OF HIGHWAYS

B.A. 475

Memo to Mr. A. Toye ✓ Date December 21, 1955.
Bridge Engineer. Subject Re: Foundation Report at
Hwy. #25 and Q.E.W. Station 202 ~~25~~
From F. C. Brownridge, Mat. Laboratory. Twp. of Nelson, W.P. 43-56
Project F55-39.

Attached herewith is the foundation report for
the above noted structure which is self-explanatory.

F. C. Brownridge
Materials and Research Engineer

Per:

(A. Rutka)

AR:hr

att:

Copies to: Mr. H. Tregaskes,
Mr. J. Walter,
Mr. R. E. Richardson,
Mr. G. Farantatos,
File.

INTRODUCTION

An investigation was completed recently to ascertain the soil profile beneath the footings of the proposed structure at the junction of Highway No. 25 and the C.N.R. at Station 202+25 in the Township of Nelson (WP 43-56- 1956 Preparation List).

PROCEDURE

A preliminary set of four holes was bored by power auger at the site of the proposed structure.

Having investigated the general nature of the soil mass by these borings subsequent holes were bored by the core-drill in an attempt to examine the strength properties of the soil strata.

Unfortunately it proved impossible to place the holes exactly on the centre-line of the abutments (see plan), mainly due to the existence of underground power and telephone cables, but in view of the uniformity of soil type in the locality the small displacements from centre-line are of little consequence.

Difficulty was experienced in sampling the soil below the footings due to the existence of hard layers close to the original ground level. Refusal to penetration of the sampling tubes was frequent throughout the soil mass except in the upper 4'0" - 5'0".

SOIL TESTING

Due to the friable nature of the soil material in the upper layers, and to some extent the disturbance which takes place during handling, it proved difficult to deliver suitable samples to the laboratory for testing.

SOIL CONDITIONS

Generally a shattered soft shale bedrock yielding 80% of shale core occurs below an elevation of 323.0. Above this elevation the soil mass was bored by core barrel but the core yield was negligible, and can be attributed to the fact that the clay in this section of the soil mass is interbedded by thin layers of soft shale.

This condition is further substantiated by the inspection of an open trench 150' South of the proposed site. The profile of the trench side was in close agreement with the boreholes. (It is of interest to note that the trench was being excavated by 3/4 c.y. excavation with some blasting only below 18'0").

From ground level for a depth of 4'0" to 5'0" a layer of dry clay occurs. This was the only layer sampled by the thin-walled tubes.

WATER CONDITIONS

There is no evidence of a static water table and only slight indication of minor seepage.

RECOMMENDATIONS

The laminated soil layer is suitable for a rigid frame structure provided a bearing stress of 5000 lbs/sq.ft. is not exceeded.

This allowable stress can be increased if a simply supported structure is constructed.

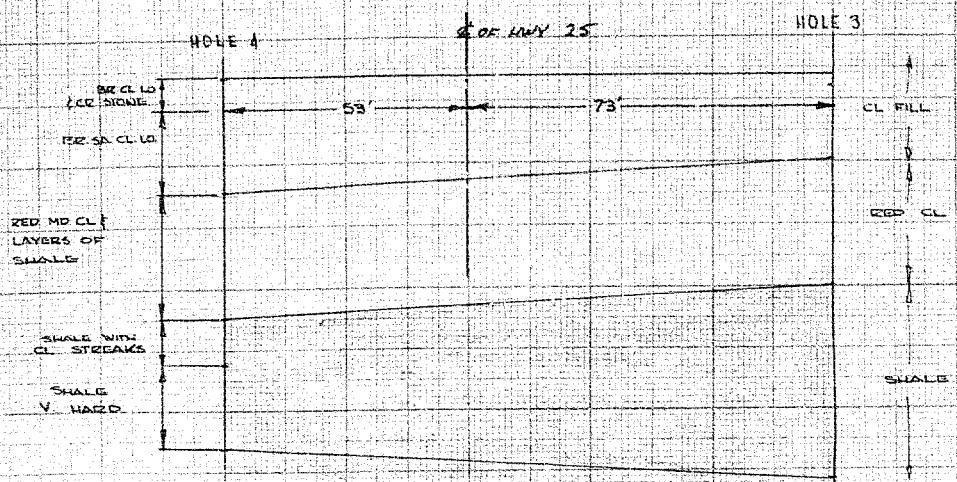
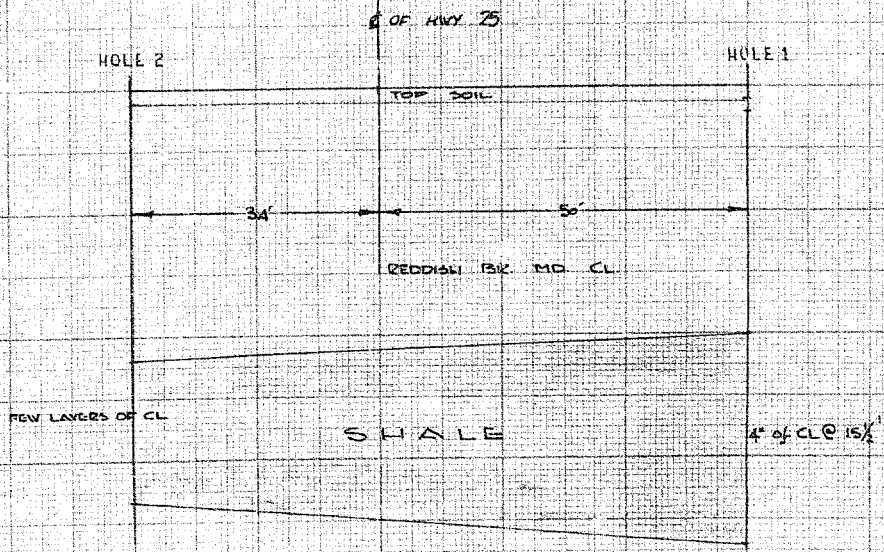
In any case the base of the foundation should be founded below frost penetration and upon sound material.

That standard sections be constructed for the approach fills as it is anticipated that no fill foundation problems will develop.

F 55-39




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GEOGRAPHIC

STRUCTURE AT INTERSECTION OF QEV & HWY 25



Vertical Scale 1" = 6'

SOIL PROFILE FROM AUGER HOLES.

SAMPLE CONDITION		SAMPLE TYPES		ABBREVIATIONS	
	DISTURBED	C-S - CHURK	V - VENTURI VALVE	SHEAR TEST	> UNIT WEIGHT
	GOOD	U - DRIVE OPEN	M - MECHANICAL ANALYSIS	K - PERMEABILITY	
	LOST	D-F - DRIVE FOOT VALVE	U - UNCONFINED COMPRESSION	C - CONSOLIDATION	
			Q - TRIAXIAL CONSOLIDATED QUICK	C - CASING	
		W-S - WASHED SAMPLE	Q - TRIAXIAL	W-L - WATER LEVEL IN CASING	
		R-C - ROCK CORE			

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SAMPLE CONDITION		SAMPLE TYPES		ABBREVIATIONS	
	DISTURBED	C4 - CHUCK	V - VIBRO VANE SHEAR TEST	F - UNIT WEIGHT	
	GOOD	UT - DRIVE OPEN	M - MECHANICAL ANALYSIS	K - PERMEABILITY	
	LOST	DF - DRIVE FOOT VALVE	U - UNCONFINED COMPRESSION	C - CONSOLIDATION	
		TO - THIN WALLED OPEN	W3 - WASHED SAMPLE	Q - TRIAXIAL CONSOLIDATED QU	CA - CASING
		RC - ROCK CORE	Q4 - TRIAXIAL QUICK	WT - WATER LEVEL IN CASING	
			Q5 - TRIAXIAL SLOW	WT - WATER TABLE IN SOIL	

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MATERIALS LABORATORY - DEPARTMENT OF HIGHWAYS - CHINA
OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG: B-4
CASING: 10" (STANDARD SAMPLERS TO FIT UNLESS NOTED)
SAMPLER HAMMER WT: 60 LB
JOB: E-55-30
DATE REPORT: 5/4/71
COMPILED BY: A-1
CHECKED BY: A-1
BORING NO: 3
DATE RESUIT: 5/4/71
BORING DATE: 5/4/71

SAMPLE CONDITION
DISTURBED
GOOD
LOST

SAMPLE TYPES
C-5 - CHUNK
D-0 - DRIVE OPEN
D-F - DRIVE FOOT VALVE
TO - THIN WALLED OPEN
W/S - WASHED SAMPLE
R/C - ROCK COKE

ABBREVIATIONS
V - INSITU VANE SHEAR TEST
M - MECHANICAL ANALYSIS
U - UNCONFINED COMPRESSION
Q - TRIAXIAL CONSOLIDATED QUICK
Q - TRIAXIAL QUICK
W - WATER LEVEL IN CASING
W - WATER TABLE IN SOIL

UNIT WEIGHT
K - PERMEABILITY
C - CONSOLIDATION
CA - CASING
WL - WATER LEVEL IN CASING
WT - WATER TABLE IN SOIL

SOIL PROFILE		SHEAR STRENGTH TONS/SQ FT. OR Q _u /2	WATER CONTENT W %	SAMPLES				
DEPTH	DESCRIPTION			OTHER TESTS	CONDITION	TYPE	NO	ELEV. RECON
1								
2	RED BROWN CLAY							
3								
4								
5								
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10								
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MATERIALS LABORATORY - DEPARTMENT OF HIGHWAYS - CHINA
OFFICE REPORT ON SOIL EXPLORATION

DRILL RIG: B-4
CASING: 10" (STANDARD SAMPLERS TO FIT UNLESS NOTED)
SAMPLER HAMMER WT: 60 LB
JOB: E-55-30
DATE REPORT: 5/4/71
COMPILED BY: A-1
CHECKED BY: A-1
BORING NO: 3
DATE RESUIT: 5/4/71
BORING DATE: 5/4/71

SAMPLE CONDITION
DISTURBED
GOOD
LOST

SAMPLE TYPES
C-5 - CHUNK
D-0 - DRIVE OPEN
D-F - DRIVE FOOT VALVE
TO - THIN WALLED OPEN
W/S - WASHED SAMPLE
R/C - ROCK COKE

ABBREVIATIONS
V - INSITU VANE SHEAR TEST
M - MECHANICAL ANALYSIS
U - UNCONFINED COMPRESSION
Q - TRIAXIAL CONSOLIDATED QUICK
Q - TRIAXIAL QUICK
W - WATER LEVEL IN CASING
W - WATER TABLE IN SOIL

UNIT WEIGHT
K - PERMEABILITY
C - CONSOLIDATION
CA - CASING
WL - WATER LEVEL IN CASING
WT - WATER TABLE IN SOIL

SOIL PROFILE		SHEAR STRENGTH TONS/SQ FT. OR Q _u /2	WATER CONTENT W %	SAMPLES				
DEPTH	DESCRIPTION			OTHER TESTS	CONDITION	TYPE	NO	ELEV. RECON
1								
2	RED BROWN CLAY							
3								
4								
5	RED BROWN CLAY WITH THIN SHALE LAYERS							
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