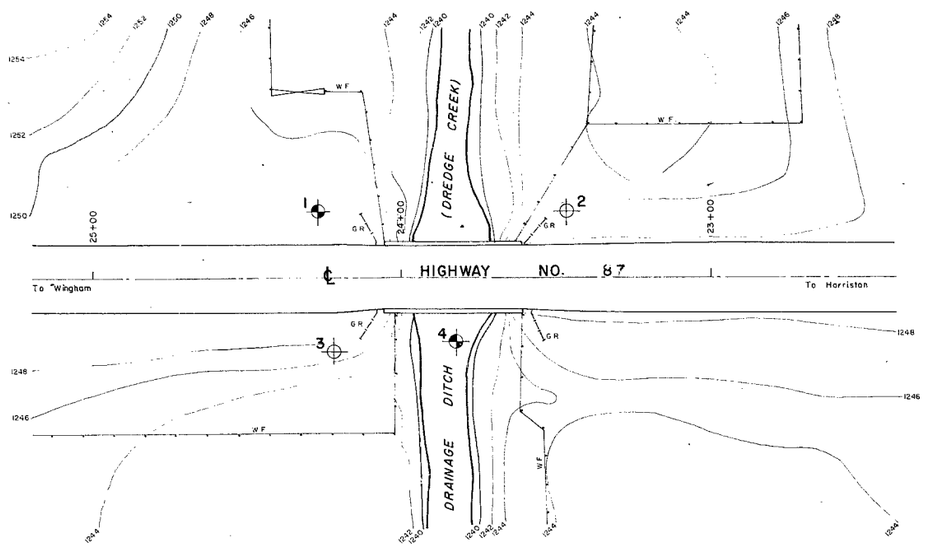
#63-F-133
W.P.# 287-63
Hwy #87
NEW BRIDGE
OVER DREDGE
CREEK



PLAN

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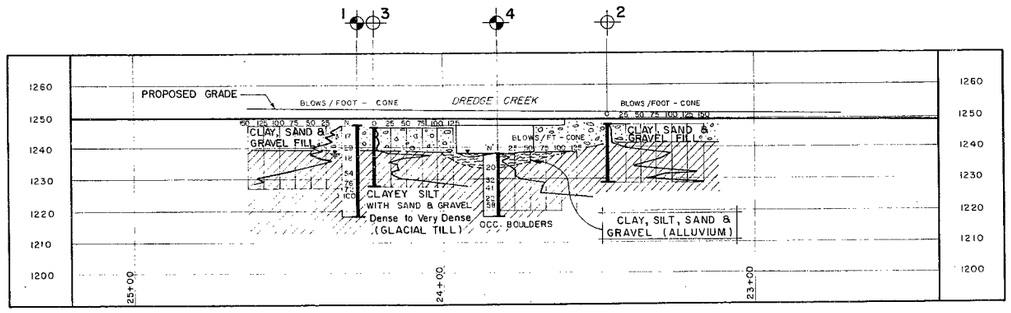

℄ PROFILE

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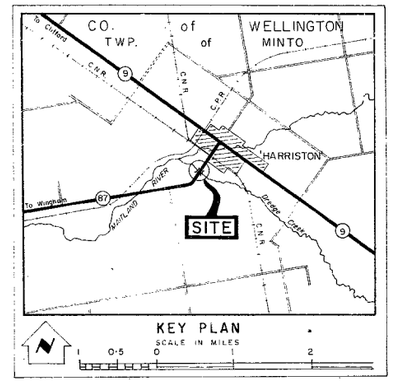


LEGEND

- Bore Hole
- Cone Penetration Hole
- Bore & Cone Penetration Hole
- Water Levels established at time of field investigation. Nov. 15, 1964.

NO.	ELEVATION	STATION	OFFSET
1	1247·5	24+27	21' RT.
2	1247·0	23+46	21' RT.
3	1246·5	24+22	24' LT.
4	1238·5	23+82	21' 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

PRINT RECORD

NO	FOR	DATE

REF. NO. E-3750-1

DEPARTMENT OF HIGHWAYS – ONTARIO
MATERIALS & RESEARCH DIVISION – FOUNDATION SECTION

DRAINAGE DITCH
(DREDGE CREEK)

KING'S HIGHWAY NO. 87 DIST. NO. 3
CO. WELLINGTON
TWP. MINTO LOT CON.

BORE HOLE LOCATIONS & SOIL STRATA

SUBM'D P.P.	CHECKED K.S	W.P. NO. 287-63	M.B.R. DRAWING NO. 63-F-133A
DRAWN F.C.	CHECKED A.T.	JOB NO. 63-F-133	
DATE JAN. 24, 1964		SITE NO.	BRIDGE DRAWING NO.
APPROVED A.D. Thomas PRINCIPAL FOUNDATION ENGINEER		CONT. NO.	

23-65-23

DEPARTMENT OF HIGHWAYS ONTARIO

MEMORANDUM

To: Mr. A. M. Toye,
Bridge Engineer,
Bridge Division.

Attention: Mr. S. McCombie

From: Mr. A. G. Stermac,
Principal Foundation Engr.,
Foundation Section,
Materials & Research Division.

Date: January 27, 1964

Our File Ref.

In reply to

Subject:

FOUNDATION INVESTIGATION REPORT

For

Proposed New Bridge over Dredge Creek
on Hwy. #87, Harriston, Ontario
District #3

W.J. 63-F-133 -- W.P. 287-63

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

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

AGS/MdeF
Attach.
cc: Messrs. A. M. Toye (2)
H. A. Tregaskes
H. D. McMillan
A. Gater
L. D. Barrett
J. Roy
A. Watt
Foundations Office
Gen. Files

A. G. Stermac,
PRINCIPAL FOUNDATION ENGINEER

TABLE OF CONTENTS

FOUNDATION INVESTIGATION REPORT

For

Proposed New Bridge over Dredge Creek
on Hwy. #87, Harriston, Ontario
District #3
W.J. 63-F-133 -- W.P. 287-63

1. INTRODUCTION:

A request for a foundation investigation at the site of the proposed Hwy. #87 and Dredge Creek crossing was received from the Bridge Office in a memo dated October 28, 1963.

A field investigation was subsequently carried out by this Section to determine the subsoil conditions existing at the site of the proposed bridge. Presented in this report are the results of this investigation, together with our recommendations pertaining to the design of the proposed foundations and approach embankments.

2. DESCRIPTION OF SITE:

The site is located in the west end of Harriston, Ontario, at the crossing of Hwy. #87 and Dredge Creek. The existing structure is a single 25-ft. span concrete bridge in a generally poor condition. At the time of the investigation, the creek was about 10 ft. wide and about 1 ft. deep. The area in the immediate vicinity of the site is generally flat farmland pasture.

3. FIELD INVESTIGATION PROCEDURES:

A total of 2 boreholes and 4 dynamic cone penetration tests was carried out during the field investigation. Boring was achieved

cont'd. /2 ...

3. FIELD INVESTIGATION PROCEDURES: (cont'd.) ...

by means of a conventional diamond drill adapted for soil sampling purposes. Disturbed samples were recovered by means of a standard 2-inch O.D. split-spoon sampler driven into the soil by means of a 140-lb. hammer falling freely 30 inches. Dynamic cone penetration tests were carried out adjacent to each borehole and also at two other locations. The cone was advanced into the soil with a driving energy of 350 ft.-lbs. per blow. Samples were visually examined in the field before being transported to the laboratory.

The locations of boreholes and cone tests were surveyed in the field by the Project Foundation Engineer. Elevations of borings are referred to T.B.M. el. 1249.0, Sta. 23+84, centreline of existing bridge. The locations and elevations of all borings are shown on the accompanying Drawing #63-F-133A.

4. LABORATORY TESTS:

A detailed visual observation and classification was carried out on all samples in the laboratory. Tests were then carried out on a selection of samples to determine the following physical properties:

(1) Grain Size Distribution.

(2) Atterberg Limits.

(3) Natural Moisture Content.

The results of these tests are contained in the Appendix of this report.

cont'd. /3 ...

5. SUBSOIL CONDITIONS:

5.1) General:

Generally, uniform subsoil conditions exist over the site area. Subsoil consists of fill material for the existing embankment, a shallow deposit of alluvium within the creek waterway and the main deposit of glacial till. A detailed description of the different deposits is given in the record of boreholes contained in the Appendix of this report. The estimated stratigraphical profile shown on Drawing #63-F-133A is based upon this information. From ground level downwards, the different soil deposits are as follows:

5.2) Fill Material:

This material consists of a mixture of clay, silt, sand and gravel and is the fill material contained in the existing embankment. The relative density may be described as compact. The upper and lower boundaries are at approximate elevations 1250.0 and 1240.0, respectively.

5.3) River Alluvium:

This material is contained within the waterway of the creek and has a maximum depth of about 5.0 ft. It consists of a fairly well graded mixture of clay, silt, sand and gravel in a generally compact state. The mixture is composed of about 40% clay and silt and 60% sand and gravel.

5.4) Clayey Silt with Sand and Gravel:

This deposit underlies the fill material and the alluvial deposit and extends for a depth of at least 22.0 ft. down to elevation 1218.0. It consists of a heterogeneous mixture of clayey silt, sand

cont'd. /4 ...

5. SUBSOIL CONDITIONS: (cont'd.) ...

5.4) Clayey Silt with Sand and Gravel: (cont'd.) ...

and gravel, with the coarse content increasing with depth, from a minimum of about 10% at the upper surface to about 60% some 22 ft. below. Below 16 ft. in B.H. #1 and 13 ft. in B.H. #4, limestone boulders were also observed to be present. The relative density of the overall stratum may be classified as compact to very dense, 'N' values ranging from a minimum of 18 to a maximum of more than 100 blows/ft. Plastic limits of the clayey silt binder material ranged from 12% to 21% and the liquid limits from 10% to 31%. Natural moisture contents were generally just below the plastic limits.

6. GROUND WATER CONDITIONS:

The water level in the boreholes was found to be at the same level as the water in the creek - i.e., el. 1238.0 during the period of the field investigation.

7. DISCUSSION AND RECOMMENDATIONS:

It is proposed to erect a new structure at this site. The new centreline will coincide with the existing centreline and the new profile grade will be some 3 ft. higher than the present one. The new bridge will have a clear span of 30.0 ft.

Subsoil at the site consists of a very dense deposit of clayey silt, sand and gravel which is competent to provide spread footing support in its upper layers. It is therefore recommended that the proposed structure be supported on spread footings founded within this stratum at a depth sufficient for scour protection. The exact depth will be dependent on hydrological considerations

cont'd. /5 ...

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

and is at present believed to be in the order of 6 ft. to 8 ft. below the stream bed (el. 1232 - el. 1230). Below el. 1232 a net allowable pressure of 3 tons per sq. ft. may be assumed for design purposes.

No dewatering problems are anticipated for the alluvial deposits within the creek waterway.

No stability problems are anticipated with regard to the proposed approach embankments, provided standard 2:1 slopes are constructed.

8. SUMMARY:

A foundation investigation at the site of the proposed Hwy. #87 and Dredge Creek crossing is reported.

Subsoil at the site consists of about 10 ft. of fill material followed by at least 22 ft. of very dense glacial till. The waterway of the creek contains about 5 ft. of alluvium, probably derived from the main glacial till stratum.

It is recommended that the new structure be founded on spread footings at a depth sufficient for scour protection. Further details are given in the main body of the report.

No dewatering problems are anticipated.

No stability problems are anticipated.

9. MISCELLANEOUS:

The field work was carried out during the period November 12 to November 22, 1963, under the supervision of Mr. P. Payer, Project Foundation Engineer. Equipment used was owned and operated by Canadian Longyear Ltd. This report was written by Mr. K. G. Selby, Senior Foundation Engineer.

January 1964

APPENDIX I.

FORM OB - ML - 126 REV 1961 OFFICE REPORT ON SOIL EXPLORATION

61-4391

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH DIVISION

RECORD OF BOREHOLE NO. 1

FOUNDATION SECTION

JOB 63-F-133 LOCATION Sta. 24+27 (21' Rt.) ORIGINATED BY P.P.

W.P. 287-63 BORING DATE November 12th, 13th, 14th & 19th, 1963. COMPILED BY P.P.

DATUM G.S.C. BOREHOLE TYPE Wash Bore - NX Casing. CHECKED BY H.S.

ELEV. / DEPTH	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	TYPE	BLOWS / FOOT	ELEV SCALE
1247.5	Groundlevel					1247.5
0.0	Mixture of gravel, sand, silt & clay. Some organics (Fill material) - Compact -		1	SS	17	
			2	SS	29	1240
1239.5						
8.0	Clayey silt with sand and fine gravel. (Glacial Till) - Compact to v. dense - Occasional boulders below 16.0'		3	SS	18	
			4	SS	39	
			5	SS	54	
						1230
			7	SS	72	
			8	SS	100/	
						1220
			9	RC	-	
1218.1						
29.4	End of borehole.					1218

DYNAMIC PENETRATION RESISTANCE
BLOWS / FOOT
25 50 75 100 125
SHEAR STRENGTH P.S.F.

LIQUID LIMIT ——— w_L
PLASTIC LIMIT ——— w_P
WATER CONTENT ——— w
w_P w w_L
WATER CONTENT %
20 40 60

BULK DENSITY
γ
P.C.F.

REMARKS

WL
1238.0

FORM OB ML 126 REV 1961 — OFFICE REPORT ON SOIL EXPLORATION

61-4391

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH DIVISION

RECORD OF BOREHOLE NO. 2

FOUNDATION SECTION

JOB 63-F-133 — LOCATION Sta. 23+46 (21' Rt.) — ORIGINATED BY P.P.

W.P 287-63 — BORING DATE Nov. 19, 1963. — COMPILED BY P.P.

DATUM G.S.C. — BOREHOLE TYPE Dynamic Cone Penetration Test Only — CHECKED BY H.S.

SOIL PROFILE ELEV / DEPTH	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	TYPE	BLOWS / FOOT	ELEV SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT 25 50 75 100 125 SHEAR STRENGTH P.S.F.	LIQUID LIMIT w_L PLASTIC LIMIT w_P WATER CONTENT w WATER CONTENT %	BULK DENSITY P.C.F.	REMARKS
1247.0	Groundlevel									
0.0	Probably fill material. - Clay, silt, sand and gravel -									
1241.0										
6.0	Probably clayey silt with sand and gravel. (Glacial Till)					1240				
						1230	150 blows for 6"			
1228.5										
18.5	End of cone test.					1220				
						1210				

FORM OB - ML - 26 REV - 961

61-4391

OFFICE REPORT ON SOIL EXPLORATION

DEPARTMENT OF HIGHWAYS ONTARIO
MATERIALS & RESEARCH DIVISION

RECORD OF BOREHOLE NO. 3

FOUNDATION SECTION

JOB 63-F-133 LOCATION Sta. 24+22 (24' Lt.) ORIGINATED BY P.P.

W P 287-63 BORING DATE November 19th, 1963. COMPILED BY P.P.

DATUM G.S.C. BOREHOLE TYPE Dynamic Cone Penetration Test. CHECKED BY H.S.

ELEV / DEPTH	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS / FOOT	ELEV SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT 25 50 75 100 125 SHEAR STRENGTH P.S.F	LIQUID LIMIT w_L PLASTIC LIMIT w_P WATER CONTENT w w_P w w_L WATER CONTENT %	BULK DENSITY γ P.C.F.	REMARKS
1246.5	Groundlevel									
0.0	Probably fill material. - clay, silt, sand and gravel -									
1239.5						1240				
7.0	Probably clayey silt with sand and gravel. (Glacial Till)									
1227.7						1230				
18.8	End of cone test.						150 blows for 10"			
						1220				
						1210				

FORM OB ML - 26 REV 1961 — OFFICE REPORT ON SOIL EXPLORATION

61-4391

DEPARTMENT OF HIGHWAYS ONTARIO
MATERIALS & RESEARCH DIVISION

RECORD OF BOREHOLE NO. 4

FOUNDATION SECTION

JOB 63-F-133 — LOCATION Sta. 23+32 (21' Lt.) — ORIGINATED BY P.P.

W P 287-63 — BORING DATE Nov. 19th, 20th & 21st, 1963. — COMPILED BY P.P.

DATUM G.S.C. — BORE HOLE TYPE Washbore - NX Casing. — CHECKED BY H.S.

ELEV. / DEPTH	SOIL PROFILE DESCRIPTION	STRAT. PLOT	SAMPLES NUMBER	TYPE	BLOWS / FOOT	ELEV SCALE
1238.5	Groundlevel					
0.0	Mixture of clay, silt, sand and gravel. River Alluvium - Compact -		1	SS	20	
1233.5						
5.0	Clayey silt with sand and gravel. (Glacial Till) Dense to v. dense. Occasional boulders below 13.0'.		2	SS	32	1230
			3	SS	41	
			4	SS	22	
			6	SS	58	
						1220
1218.5			7	RC	-	
20.0	End of borehole.					

DYNAMIC PENETRATION RESISTANCE
BLOWS / FOOT
25 50 75 100 125
SHEAR STRENGTH P.S.F

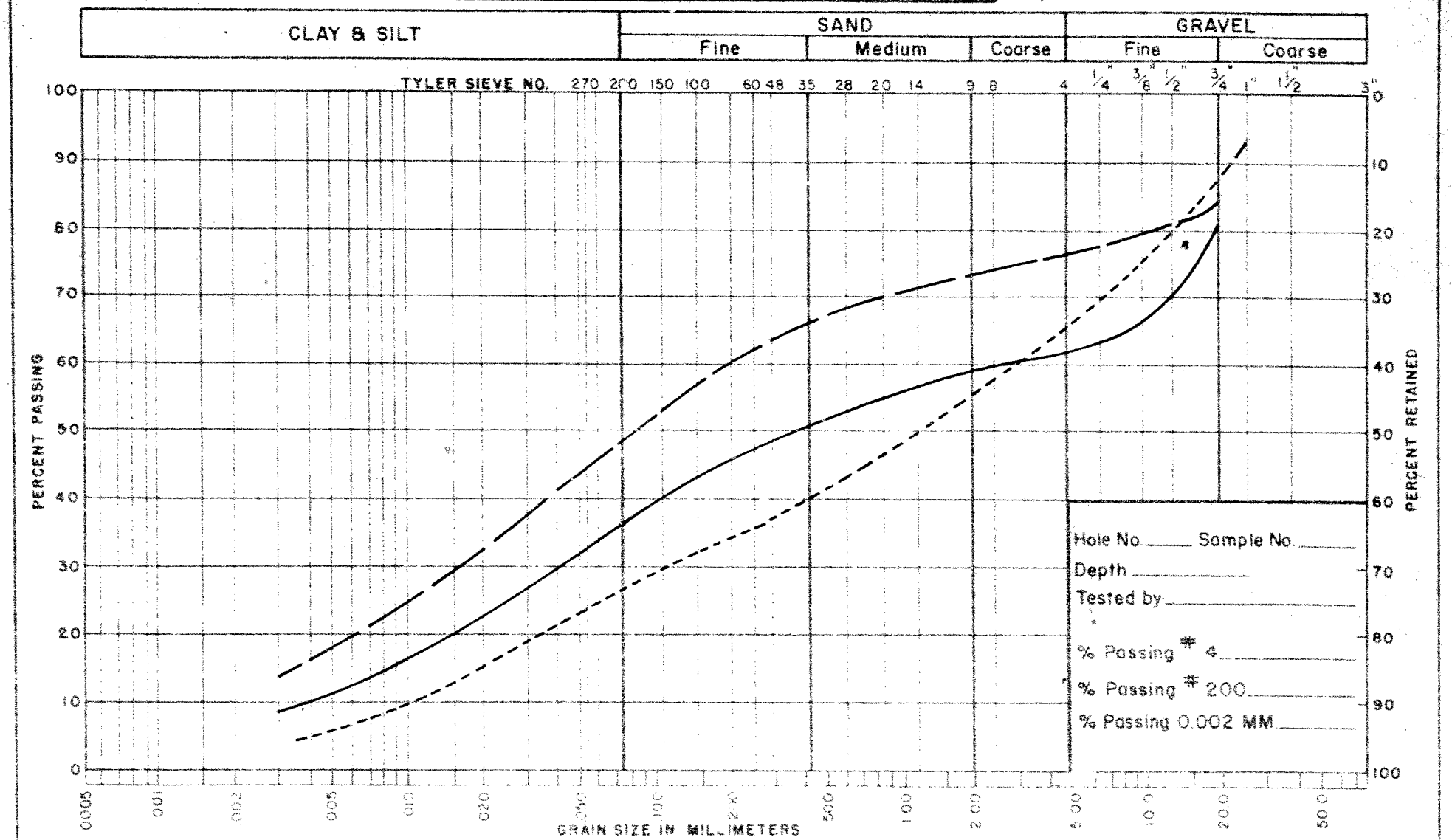
LIQUID LIMIT —— w_L
PLASTIC LIMIT —— w_P
WATER CONTENT —— w
w_P w w_L
WATER CONTENT %
20 40 60

BULK DENSITY
P.C.F.

REMARKS
W.L.
1238.0

FORM CB-MI-17
IM-59-3979

UNIFIED SOIL CLASSIFICATION SYSTEM



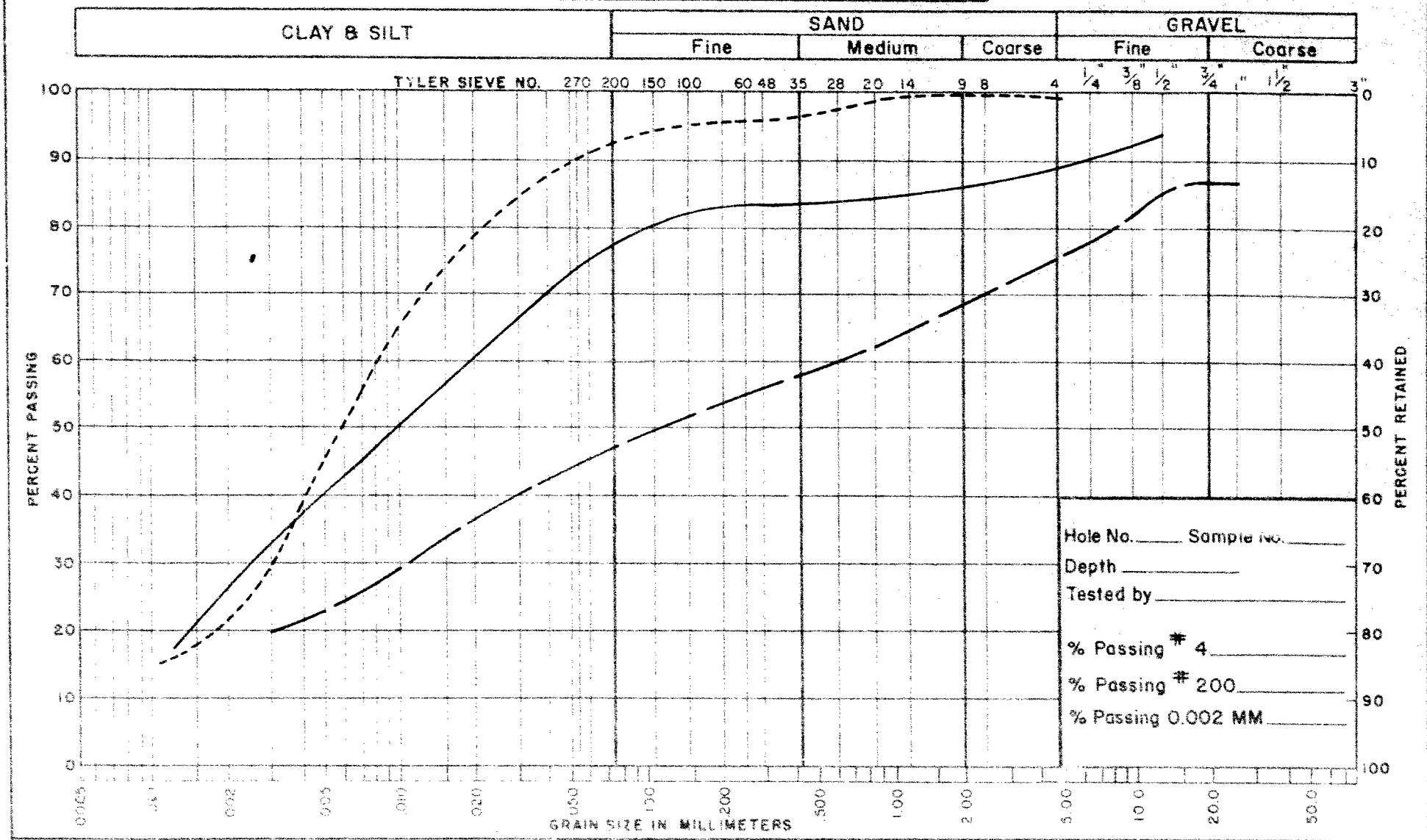
NOTES
B.H. 4 SA. 1 ——————————
B.H. 4 SA. 3 —— —— ——
B.H. 4 SA. 6 - - - - - - - - - - - - - -

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH SECTION
GRAIN SIZE DISTRIBUTION

Job No. 63-F-133 W.P. No. 287-63
Location HWY. 87 & DREDGE CREEK

FORM 108-ML-17
1M 59-3929

UNIFIED SOIL CLASSIFICATION SYSTEM



NOTES
B.H. 1 SA. 7 ——————
B.H. 1 SA. 8 — — — —
B.H. 1 SA. 3 - - - - - - - - - - - - - -

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH SECTION

GRAIN SIZE DISTRIBUTION

Job No. 63-F-133 W.P No. 287-63
Location HWY. 87 & DREDGE CREEK

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

TO: Mr. A. Stermac,
Principal Foundations Engineer,
Room 226A, Lab. Bldg.,
DOWNSVIEW.

FROM: Gavin Scott

DATE: October 28, 1963.

OUR FILE REF.

IN REPLY TO

SUBJECT: Bridge Site #36-45 - W.P. #287-63
Dredge Creek Structure at Harriston
Hwy. 87 - District #3

Attached herewith please find 2 copies of site plan E 3750-1 showing the proposed location of the above structure marked in red pencil.

Please make the necessary arrangements for a foundation soil investigation.

Due to the poor condition of the present structure this project is scheduled to have the materials and Research Foundation Report by January 15th, 1964. However if practicable this date should be bettered.

Gavin Scott.

GS/bm

Gavin Scott,
Bridge Location Engineer.

c.c. S. McCombie
N. D. Smith
R. Fitzgibbon

DEPARTMENT OF HIGHWAYS ONTARIO

MEMORANDUM

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

From: N. Zoltay

Date: March 24, 1964

Our File Ref.

In reply to

Subject: W.P. 287-63 Bridge Site #36-45
Dredge Creek Bridge
Hwy. 87 - District 3

63-F-133

We are sending to you herewith two prints of Preliminary Plan D-5455-P of the above structure.

Would you please let us have your written comments.

N. Zoltay

NZ/im
cc. S. McCombie
G. Scott
N. D. Smith

N. Zoltay,
for G. Scott,
Bridge Location Engineer.

Mr. G. Scott,
Bridge Location Engineer.

A. G. Stermac,
Principal Foundation Engr.,
Foundation Section.

April 1, 1964.

W.P. 287-63 Bridge Site #36-45
Dredge Creek Bridge
Hwy. 87 - District 3

We have reviewed the Preliminary Plan D-5455-P and found it satisfactory from the foundation point of view. However, we would like to emphasize that the footing depth should be determined on the basis of scour protection requirements.

A. G. Stermac
Principal Foundation Engr.

AGS/tt

TELETYPE

63-F-133

S

SIFD DOWN 7 NOV 14/63 4:30P VR

MR R J O'BRIEN, MAINT ENGR

FOR YOUR INFORMATION ONLY FOUNDATION SECTION COMMENCED FIELD WORK FOR PROPOSED BRIDGE HWY. 87 & DREDGE CREEK HARRISTON W P 287-63 ON TUESDAY NOV. 11TH.

WILL PROCEED FROM THERE FROM PROPOSED PATROL YARD AT MITCHELL, LOT 26, CON. 4 W T M R TWP OF FULLARTON HWY. 23

K G SELBY, SR FOUND ENGR M & R DIV

L