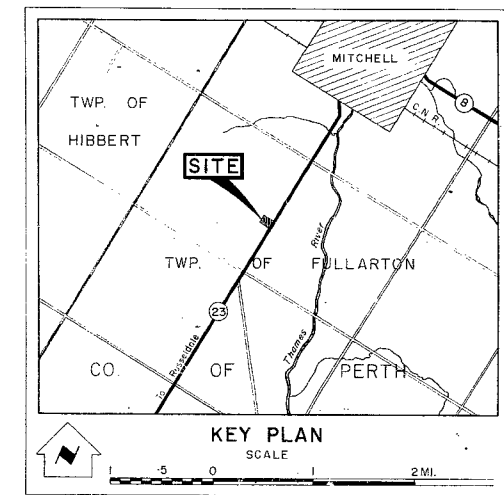
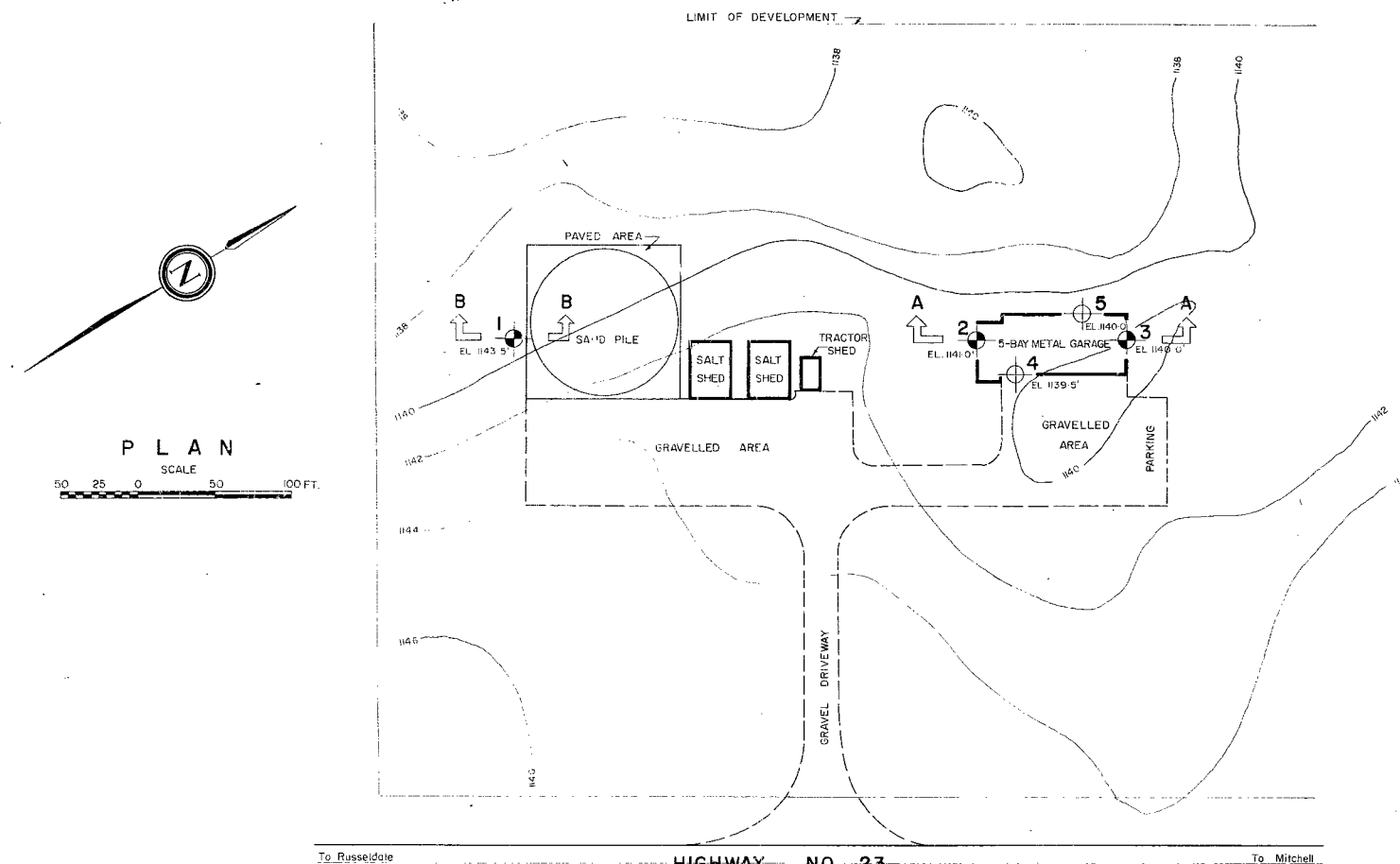


#63-F-138

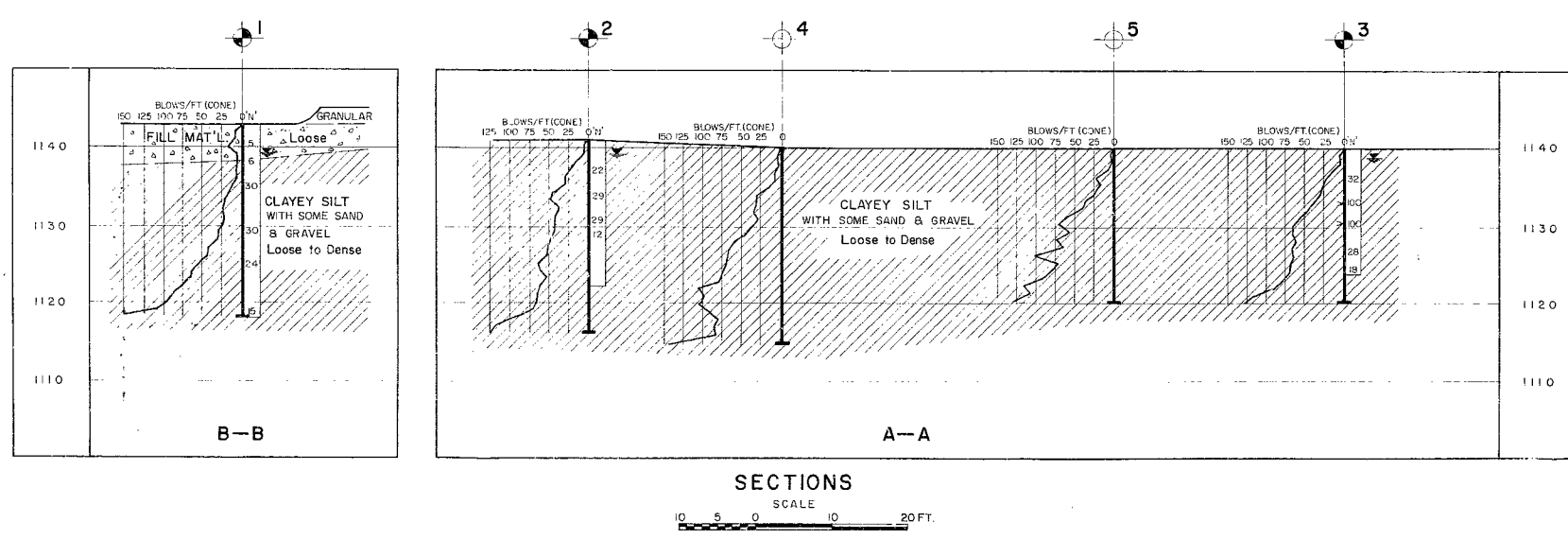
HWY. #23

MITCHELL

PATROL YARD



- LEGEND**
- Cone Penetration Hole
 - Bore & Cone Penetration Hole
 - Water Levels Established Nov. 25, 1963



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.

DEPARTMENT OF HIGHWAYS - ONTARIO			
MATERIALS & RESEARCH SECTION			
MITCHELL PATROL YARD			
SHOWING POSITIONS & ELEVATIONS OF HOLES			
HWY. 23	DISTRICT 3	COUNTY PERTH	
TOWNSHIP FULLARTON	CON. 26	CON. 14	
LOCATION 15 MILES S. OF MITCHELL			
DRAWN BY: S.O.	CHECKED BY: [initials]	W.P.	
DATE FEB. 7, 1964	APPROVED BY:	DRAWING NO.	
SCALE AS SHOWN		63-F-138A	

MEMORANDUM

Dist. 28-3.

To: Mr. C. S. Moase,
Manager,
Special Services Section.

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

DATE: January 24, 1964

OUR FILE REF.

IN REPLY TO

SUBJECT:

FOUNDATION INVESTIGATION REPORT

For

Mitchell Patrol Yard
Lot 26, Con. IV, Twp. of Fullarton,
Hwy. #23, District #3.

W. J. 63-F-138 -- W.P. (Nil)

A request for a foundation investigation at the site of the proposed D.H.O. Patrol Yard at Mitchell was received from Special Services Section, dated September 6, 1963.

A field investigation was subsequently carried out by this Section to determine the subsoil conditions existing at the site. Following are the results of this investigation, together with our recommendations pertaining to the proposed building and sand pile.

The field investigation consisted of 3 sampled boreholes and 5 dynamic cone penetration tests. The locations and elevations of these boreholes are shown on Dwg. 63-F-138A.

The subsoil at the site was found to be generally uniform and consisted of firm to hard clayey-silt with some sand and gravel to a depth of 25 feet. The upper 10 feet of this layer is oxidized and brown in colour.

In view of the above, it is estimated that for the proposed

cont'd. /2 ...

January 24, 1964

building, a safe net pressure of 2.0 t.s.f. may be achieved at a depth of 6 feet below ground level. No stability problems are anticipated for the proposed sand pile.

Attention is drawn to the fact, that while the main deposit is relatively impermeable, the extreme upper layer has a much higher permeability due to natural erosion and washing out of the finer particles. In view of this, it is quite possible that water contaminated with salt, will be able to drain away through this zone. Wells supplying water to private houses are located as follows: 900 feet Easterly; 400 feet Westerly and 700 feet Southerly, and in view of the above facts, the danger of salt contamination must be presumed to exist. It should be pointed out however, that no complaints of contamination have been made as yet, although the site has been utilized for a year for sand and salt storage purposes.

The water level was found to be 1 to 3 feet below ground level at the time of the investigation.

Recommendations pertaining to paved and gravelled areas have been given to us by Mr. J. Roy, Regional Materials Engineer, and are as follows:

1. Area in front of proposed Five Bay Garage

Topsoil should be stripped in the area proposed for paving north of the existing driveway, followed by either excavation or a grade raise (depending on garage elevations) to provide for 24 inches of granular (i.e. 6" of G.B.C. Class "A" and 18" of G.B.C. Class "B").

Because of the water condition encountered in Holes 3, 4 and 5 (see attached plan) which could partially be caused by the run off of

cont'd. /3 ...

January 24, 1964

water from the ditches on Hwy. #23, 6" perforated pipe should be placed here to lower the water table that presently exists. This pipe could then be connected to the drainage system proposed for the parking areas.

2. Driveway and Area South of Entrance Driveway (Excluding Paved Area)

If the new grade will not provide a grade raise of at least 8 inches, then excavation should be carried out to provide for 24 inches of granular materials (i.e. 6" of G.B.C. Class "A" and 18" of G.B.C. Class "B"). Any topsoil pockets encountered within 48" of grade should be removed and be replaced with suitable material to subgrade level.

3. Types of Asphalt

It is recommended that the asphalt consist of 2" HL-4 binder course and 1½" HL-4 top course.

The field work was carried out during the period November 22 to 27, 1963, under the direction of Mr. P. Payer, Project Foundation Engineer, who also prepared this report under the supervision of Mr. K. G. Selby, Senior Foundation Engineer.

We believe the data and recommendations contained in this report will suffice for your future design work. Should further information be required, please feel free to contact our Office.

PP/MdeF
Attach.

cc: Messrs. C. S. Moase (4)
E. J. Orr
H. D. McMillan
L. D. Barrett
J. Roy
A. Watt
Foundations Office
Gen. Files

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

APPENDIX I.

(Note attached to
Moase's copies)

January 27/64

MR. C. S. MOASE, MGR..
SPECIAL SERVICES SECTION.

Please note our comments
on the salt contamination.
This has been discussed with
Mr. A. C. Suter, Chemical Engr.,
and he feels that this should be
looked into further.

K. G. Selby,
Sr. Foundation Engr.

Mr. A. Gater

December 18, 1963

Senior Design Engineer-London

Re: Hwy. #23, Patrol Yard,

Materials & Research-London

1 Mile +/- South of Mitchell
Lot 26 Con. 4 Twp. of Fullarton.

A soils survey was carried out December 4, 1963 using hand auger equipment at the above site.

The following soil conditions were noted:

1. Main Driveway

The first 100 feet of driveway has been graded and paved recently, providing a granular base of at least 32" with a 3½ inch lift of asphalt over the gravel.

On the remaining part of the driveway which has not been included with the recent construction, 15" of gravel was found over 2" of black loam topsoil which was underlain by a slightly soft light clay.

2. Area in Front of Proposed Five Bay Garage

An average depth of 10 inches of topsoil was found over a soft and wet clay loam to loam subgrade. A saturated condition with free water at 24 inches below grade was found in this entire low area which will be located approximately 50' east of the front bays to the new building.

3. Area to the south of the Driveway (Excluding Paved Area)

Approximately 6 to 14 inches of gravel was found in this area. A shallow layer of topsoil was found beneath the gravel which was underlain by a very fine sandy loam. This latter material was soft and wet in several places.

4. Paved Area under stockpile

This low lying area has been built up using fill material from subexcavations carried out on past maintenance work on Hwy. #23. Approximately 24 inches of

gravel (consisting of 6" of G.B.C. Class "A" and 18" of G.B.C. Class "B") has been placed over this fill material followed by surfacing with 3½" of asphalt. Free water was encountered at the bottom of the gravel along the eastern extremities of this paved area. Due to a second stockpile to the south of this area, the drainage pattern could not be established, but it could be caused by surface water trapped in this area.

Recommendations

1. Area in front of proposed Five Bay Garage

Topsoil should be stripped in the area proposed for paving north of the existing driveway, followed by either excavation or a grade raise (depending on garage elevations) to provide for 24 inches of granular (i.e. 6" of G.B.C. Class "A" and 18" of G.B.C. Class "B").

Because of the water condition encountered in Holes 3, 4 and 5 (see attached plan) which could partially be caused by the run off of water from the ditches on Hwy. #23, 6" perforated pipe should be placed here to lower the water table that presently exists. This pipe could then be connected to the drainage system proposed for the parking areas.

2. Driveway and Area south of Entrance Driveway (Excluding Paved Area)

If the new grade will not provide a grade raise of at least 8 inches, then excavation should be carried out to provide for 24 inches of granular materials (i.e. 6" of G.B.C. Class "A" and 18" of G.B.C. Class "B"). Any topsoil pockets encountered within 48" of grade should be removed and be replaced with suitable material to subgrade level.

3. Types of Asphalt

It is recommended that the asphalt consist of 2" H.L. 4 binder course and 1½" H.L. 4 top course.

4. The soils boring data and a plan showing the location of these holes have been attached to this letter for your information.

JM/je
cc: L.D. Barrett
R. Ross
T. Stermac ✓
G. Strong
J. McKeown
file

J. McKeown
for: J. R. Roy
Regional Materials Engineer

vy. No. 23
 Cont. Location Patrol Yard (S. of Mitchell)
 Name of Pit
 Type of Pit
 Pit Location

Cont. No.

Twp.

Lot

Con.

of Holes:

T.H. 1 0-3½" Asph.
 9' Rt. 3½'-10" G.B.C. Class A } clean
 10"-32" / G.B.C. Class B

Paved from Hwy. to 150' North good condition

T.H. 2 0-6" Class A
 6"-15" Class B
 15"-17" Blk. lo. top s.
 17"-36" Br. Lt. cl. (sl. soft)

T.H. 3 0-8" Blk. lo. top s. ¾" r. gravel = 1
 8"-20" Br.v.f. sa. lo. (soft) 22" sa. = 6
 20"-36" Br.lt. br. (firm) Till from 24" / F.V.F.sa. = 18
 Silt = 44(B)
 Clay = 30
 V.F.Sa. si. = 55

T.H. 4 0-10" Top S. (6300-126)4
 10"-34" Lt.cl.cl.lo. (Soft) & wet-sat. from 30-34"
 34"-38" Lt.bor.sa.cl.lo. till firm & dry

T.H. 5 0-16" Top S.
 16"-48" Lt.Bor.cl.lo. soft & wet (Free water 24")

T.H. 6 0-8" Top S.
 8"-24" Cl.lo. till dry and firm

N.B. low area inside area of T.H. - 3,4,5 & 6

T.H. 7 0-8" Top S.
 8"-30" Lt. br.V.F.sa. V.F.sa. Lo. Till dry & firm

T.H. 8 0-6" Class A) clean
 6"-12" Class B)
 12"-24" Blk. lo. top s.
 24"-42" Lt. b. cl.lo.-loam soft and wet 6300-127
 42"-48" Lt.br.sa.lo.till dry & firm ¾" r. gravel- 4

T.H. 9 0-14" Gravel
 14"-20" Cl.lo. till dry (B) C & M.sa. -10
 20"-24" Sa.cl.lo. till dry F. & V.F.sa. -21
 Silt -44
 Clay -21
 V.F.sa. & si. -55

Hwy. No.

Cont. No.

Cont. Location

Name of Pit

Type of Pit

Pit Location

Cty.

Twp.

Lot

Con.

Log of Holes:

T.H. 10 - 0-6" crushed gravel) clean
 6"-24" Class B
 24"-28" Cl. lo. (Free water at 24"
 N F P @ 28" due to stone

T.H. 11 0-5" Asph.
 5"-10" Class A
 10"-24" Class B Free water at 24"
 24"-36" blk. lo. top s. & wood
 36"-40" Sa.cl. lo. firm

T.H. 12 0-3½" asph.
 3½"-36" Gravel clean

T.H. 13 0-3½" Asph.
 3½"-14" Class A clean
 14"-30" Class B

T.H. 14 0-8" Gravel
 8"-24" Lt. br. V.F.Sa.Lo. -
 24"-30" Cl.lo. Sl.soft - firm

T.H. 15 0-6" Gravel (sandy B
 6"-20" Cl.Lo. Till)
 20"-24" V.F.Sa.) Dry and firm

1963 NOV 14 PM 4:26

00427

63-F-138

X

LCNR DOWN 10 NOV 14/63 4:20P VR

MR J ROY, REG MATLS ENGR

FOUNDATION SECTION COMMENCED FIELD WORK FOR PROPOSED CROSSING
AT HWY. 87 AND DRAINAGE DITCH AT HARRISTON W P 287-63
ON TUESDAY NOV. 12/63

~~ANX~~ AT COMPLETION WE WILL COMMENCE FIELD WORK FOR PROPOSED
GARAGE SITE AT MITCHELL LOT 26, CONCESSION 4, W P M R.
~~TWP OF FULLERTON HWY. 23,~~

WE WILL REQUIRE FROM YOU RECOMMENDATIONS AS TO GRADING AND
PAVING FOR LATTER SITE

OUR ENGINEER WILL CONTACT YOU BEFORE GOING TO MITCHELL

K G SELEY, SR FOUND ENGR M & R DIV

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MAY 14 PM 4:35

X

LOR LONR DOWN HERE

E RE OUR NO. 10 OF TODAY

SIXTH LINE SPELLING OF TWP SHOULD BE FULLARTON NOT FULLERTON

PLS CHANGE

IT OP DOWN TKS