

DOCUMENT MICROFILMING IDENTIFICATION

G.I.-30 SEPT. 1976

GEOCRES No. 30M11-187

DIST. 6 REGION \_\_\_\_\_

W.P. No. \_\_\_\_\_

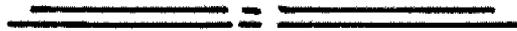
CONT. No. \_\_\_\_\_

W. O. No. 86-11005

STR. SITE No. \_\_\_\_\_

HWY. No. \_\_\_\_\_

LOCATION PROP. DOWNSVIEW BASE LINE  
MONUMENT DESIGN  
(M.T.C. DOWNSVIEW COMPLEX)



OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT. \_\_\_\_\_

REMARKS: \_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

# memorandum



248-3282

To: D. E. Morris  
Supervisor Control Surveys  
Surveys and Plans Office  
Surveys Section  
Lower Floor, East Building

Date: 1986 09 08

From: Foundation Design Section  
Room 315, Central Building

Re: **W.O. 86-11005**  
**PROPOSED DOWNSVIEW BASE LINE**  
**MONUMENT DESIGN**

As requested in your memo dated 86 07 03, this office has completed a foundation investigation to determine foundation design criteria for the installation of 4 survey monuments for the proposed Downsvievw Base Line

The field work was conducted on 86 07 16 utilizing a continuous flight auger machine equipped with hollow-stem augers. This work consisted of advancing two sampled boreholes, to depths of 9.6 and 11.9 m, along the proposed Downsvievw base line located along the north (Wilson Avenue) boundary of the MTC Downsvievw complex.

The overburden is essentially a cohesive till consisting of silty clay of low plasticity, with sand, trace gravel. Based on the results of the Standard Penetration Tests, field vane and laboratory unconfined compression test, the consistency of the deposit ranges from stiff to very stiff.

The groundwater elevation at the time of the field investigation was estimated at elevation 162± m.

The appended Record of Borehole Sheets # 1 and # 2 illustrate the specific conditions at the borehole locations.

The recommended design consists of 2 components:

- 1) The structural component consists of the sizing and detailing of the caisson. This component was provided by Mr. W. Hashizume of the Central Region Structural Section.
- 2) The foundation component consists of the foundation insulation recommendations.

The recommended installation is illustrated in Figure 1. It consists of a 3 m (10 feet) long, 0.46 m (18 inches) diameter reinforced concrete caisson insulated with a rigid product such as styrofoam (Dow Chemical Co.) or expanded polystyrene (Morval-Durofoam Ltd.).

.../2

In the vertical plane, the upper 1.2 m (4 feet) should be insulated with 38.1 mm (1.5 inches) minimum thickness of flush mounted insulation. The manufacturers should be consulted regarding product type and forming, but it is believed that it is possible to order a preformed section, or alternatively to bend the product to the required shape.

In the horizontal plane, a 1.2 m (4 feet) radius of 76.2 mm (3 inches) minimum thickness of rigid insulation should be installed on 152.4 mm (6 inches) of compacted Granular 'A' bedding, sloped at 10H:1V away from the caisson, and located a minimum of 0.3 m (1 foot) below the ground surface. A material equivalent to Dow Chemical Co. Styrofoam HI-35 is recommended for this application.

In addition, it is recommended that provisions should be made to ensure that no excavations or heavy equipment are permitted within 3 m (10 feet) of a monument.

We believe that this memo provides sufficient information for design and construction of the monuments to proceed. However, if any clarification is required, please do not hesitate to contact this office.

*D. H. Dundas*

D. H. Dundas  
Sr. Foundations Engineer

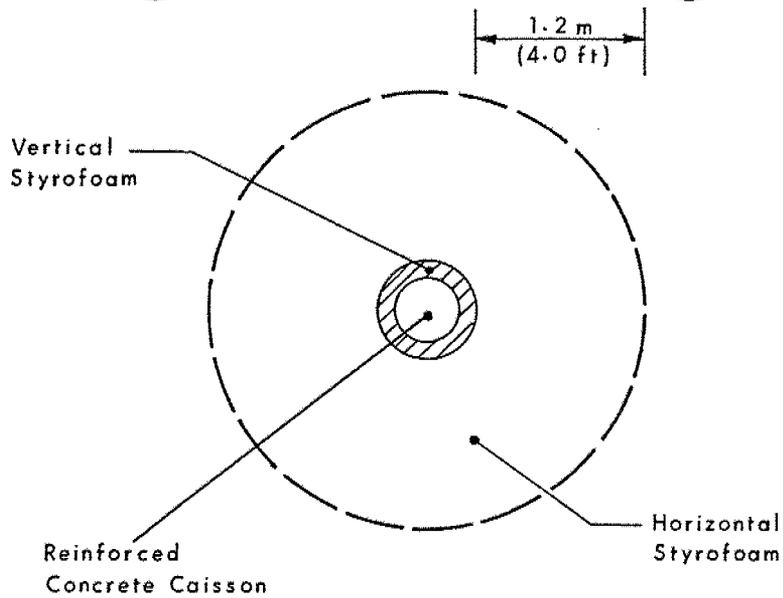
for

M. Devata, P.Eng.  
Chief Foundations Engineer  
(East)

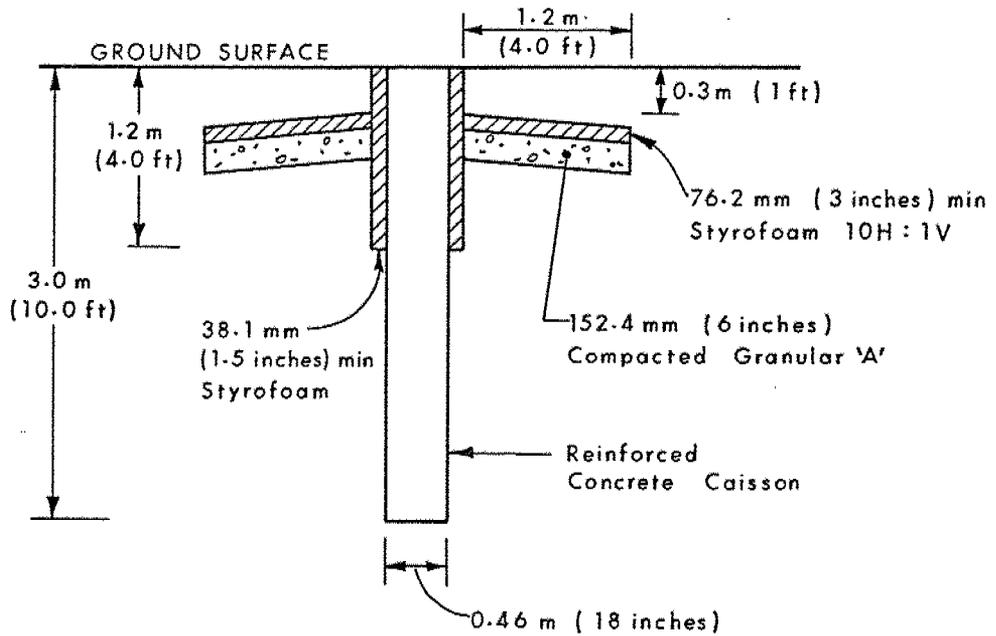
DD/mls

c.c. G. C. E. Burkhardt  
(att'n) W. Hashizume

A P P E N D I X



PLAN  
NTS



SECTION  
NTS

### Downsview Base Line Monument Design

Geocres No 30M11-187

Fig 1

W O 86-11005



## RECORD OF BOREHOLE No 2

METRIC

W O 86 - 11005 LOCATION CO-ORDS: N 4 842 520.9; E 305 596.1 ORIGINATED BY DBM  
 DIST 6 HWY N/A BOREHOLE TYPE CONE TEST, HOLLOW-STEM AUGER COMPILED BY DBM  
 DATUM GEODETIC DATE 86 07 16 CHECKED BY DD

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT			PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
ELEV DEPTH	DESCRIPTION	NUMBER	TYPE	'N' VALUES			SHEAR STRENGTH kPa 20 40 60 80 100							
168.3	GROUND SURFACE													
0.0	Silty Clay (CL) with sand trace gravel (TILL)				* -  - ▼	168								
		1	SS	23		167								2 23 50 25
		2	SS	24		166								1 31 48 20
		3	SS	16		165								
		4	SS	15		164								
		5	SS	21		163								
		6	SS	14		162								
		7	SS	10		161								
		8	SS	8		160								
		9	SS	54		159								
159.6														
8.7	Sandy Silt trace clay very dense													
158.7		10	SS	180										
9.6	END OF BOREHOLE													
	* probable groundwater elevation													

OFFICE REPORT ON SOIL EXPLORATION