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October 21, 2016

File No. 16-167-01

Edie Construction Ltd.
Box 674, RR1
Dugald, Manitoba
R0E 0K0

ATTENTION: Calvin Edie

RE: Hydraulic Conductivity Test Results, Lorette Lagoon

ENG-TECH Consulting Limited (ENG-TECH) received the seven (7) Shelby tube samples from the above site and the tubes were extracted on September 23, 2016, and three (3) samples were selected for hydraulic conductivity testing by MB Sustainable Development.

ENG-TECH prepared the sample labelled ST6 (Bottom) for testing in accordance with ASTM D5084-03, *Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials using a Flexible Wall Permeameter*. The final hydraulic conductivity value (k_{20}) of 6.3×10^{-9} cm/sec was obtained for the sample identified as ST6 (Bottom). The hydraulic conductivity test data is outlined in Table 1, while the graphical representation of the hydraulic conductivity versus elapsed time is shown in Figures 1.

The Shelby tubes labelled ST4 (Bottom) and ST7 (Top) were tested, which the results were previously forwarded to you.

ENG-TECH trusts the above is all the information you require. If you have any questions, please contact the undersigned.

Sincerely,
ENG-TECH Consulting Limited

A handwritten signature in black ink, appearing to read "Clark Hryhoruk".

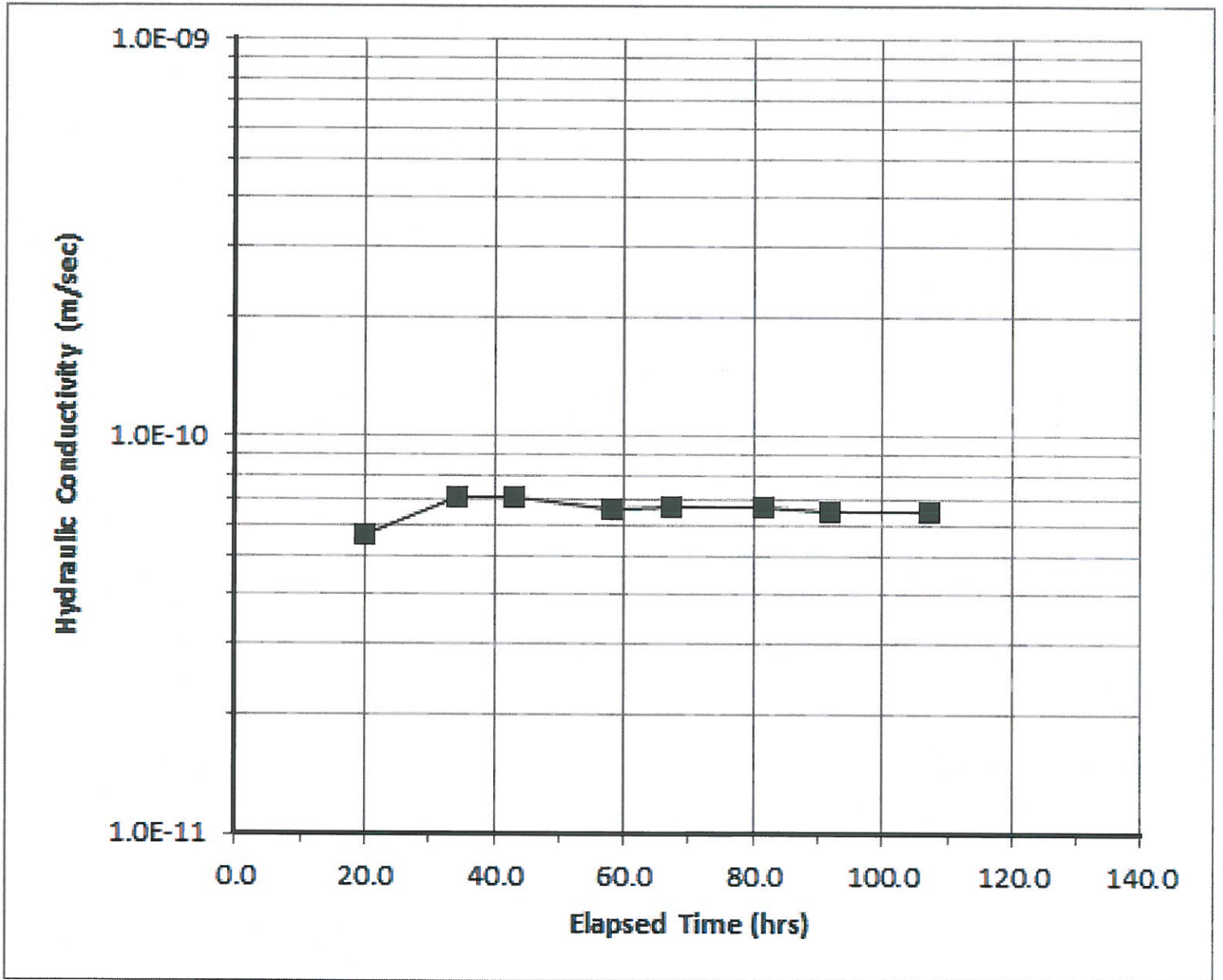
Clark Hryhoruk, M.Sc., P.Eng.
President, Geotechnical Engineer

CDH/

Attachments: Table 1 – Hydraulic Conductivity Test Data
Figure 1 – Hydraulic Conductivity Versus Elapsed Time (ST6 Bottom)

**TABLE 1
HYDRAULIC CONDUCTIVITY TEST DATA
LORETTE LAGOON**

SAMPLE IDENTIFICATION	ST6 (Bottom)
INITIAL VALUES	
ENG-TECH Reference No.	16-167-1-28
Length of Sample in Tube (cm)	> 20 cm
Length (cm)	6.45
Diameter (cm)	7.11
Area (cm ²)	39.7
Volume (cm ³)	256.0
Water Content (%)	39.2
Bulk Dry Density (kg/m ³)	1837
Specific Gravity (G _s) (assumed)	2.60
Void Ratio	0.97
Degree of Saturation (%)	100.0
FINAL VALUES	
Length (cm)	6.56
Diameter (cm)	7.17
Area (cm ²)	40.4
Volume (cm ³)	264.7
Water Content (%)	40.4
Bulk Dry Density (kg/m ³)	1823
Specific Gravity (G _s) (assumed)	2.60
Void Ratio	1.00
Degree of Saturation (%)	100.0
CONSOLIDATION PHASE	
Confining Pressure (kPa)	103.4
Pore Water Pressure (kPa)	82.7
Effective Stress (kPa)	20.7
PERMEATION PHASE	
Confining Pressure (kPa)	103.4
Pore Water Pressure (kPa)	82.7
Effective Stress (kPa)	20.7
Hydraulic Gradient	21.4
Permeant Fluid	Distilled Water
HYDRAULIC CONDUCTIVITY at TEST TEMPERATURE OF 21 °C (cm/sec)	6.5×10^{-9}
HYDRAULIC CONDUCTIVITY at TEMPERATURE OF 20 °C (K₂₀) (cm/sec)	6.3×10^{-9}



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ENG. STAMP:



CLIENT:

EDIE CONSTRUCTION LTD.

DATE:

OCTOBER 2016

DRAWN BY:

PFPC

FIGURE No.:

1

REV.:

PROJECT:

LORETTE LAGOON

FILE No.:

16-167-01

SCALE:

N/A

HYDRAULIC CONDUCTIVITY
 VERSUS ELAPSED TIME
 (ST6 - Bottom)