BOREHOLE LOG

PROJET: Iqaluit Airport
SITE: Runway - North-West
BOREHOLE NO.: IQA_AERO_DDH_13_06
COORDINATES: X: 521242.1057 Y: 7070599.2583
ELEVATION: 31
START DATE: 08-05-2013
END DATE: 09-05-2013

Instrumentation
- Temperature sensor (Decagon ECT)
- Temperature sensor (YSI 44033)
- Volumetric water content, temperature and bulk electrical conductivity (Decagon 5ET)
- Volumetric water content (Decagon EC-5)
- Pressure sensor

Instrumentation
- PVC casing

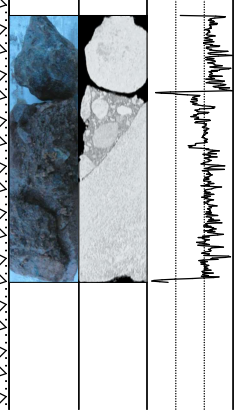
Sampling method
- Excavation
- Diamond core
- Slit spoon
- Destructive

Recovery
- Recovered
- No recovery

Sample state
- Ud-F Undisturbed and frozen
- Ud-Uf Undisturbed and unfrozen
- D-F Disturbed and frozen
- D-Uf Disturbed and unfrozen

C/H/N
- w Water content (%)
- ρ Bulk density (g/cm-3)
- C Carbon (%)
- H Hydrogen (%)
- N Nitrogen (%)

Depth (m)	Stratigraphy	Soil description	Sampling method	Recovery	Sample state	Sample name	Water content (%)	Salinity (ppm)	Grain size G	Grain size S	Grain size M-C	Consistency wl	Consistency wp	Consistency Ip	Consistency IL	USCS	Consol. kPa 25	Consol. kPa 50	Consol. kPa 100	C/H/N w	C/H/N ρ	C/H/N C	C/H/N H	C/H/N N	Radiocarbon dates 14C (BP)	±	Material
0.00		Asphalt (0,29 m)																									
		Brown fine gravel and coarse sand with small angular to subangular cobble (embankment).			D-Uf	13_06_29-67	5.2		5.0	83.2	11.8	19.2	15.4	3.8	-2.7	SP-SM											
					D-Uf	13_06_67-128	2.8		6.7	85.0	8.3	17.8				SW-SM											
-1.00					D-Uf	13_06_128-154	2.5		16.2	77.5	6.3	19.0	16.4	2.6	-5.4	SW-SM											
-2.00					Ud-F	13_06_232-253	9.1																				



Version 1.4 E. L'Hérault and A-S. Carbonneau (2015-06)

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-3.00		Cryoturbated coarse to medium beige sand with fine gravel that correspond to a paleo active layer. Many air bubbles between 4,54 and 4,67 m. Mainly pore ice with a few fine ice lenses from 4,60 to 4,68 m. From 3,19 to 3,25 m is the natural surface before construction that is composed of an ice rich peat.			Ud-F	13_06_288-292	9.1																				
						13_06_292-300	13.3																				
						13_06_300-315	10.8																				
					Ud-F	13_06_315-319	21.9																				
						13_06_319-326	122.0																				
						13_06_326-340	16.1		19.9	68.0	12.1					SM											
						13_06_340-343	15.4																				
-4.00					Ud-F	13_06_416-426	12.8																				
						13_06_426-433	13.5																				
						13_06_433-439	10.9																				
						13_06_439-440	11.0																				
					Ud-F	13_06_440-450	11.0		8.8	52.0	39.3	19.5	16.3	3.2	-1.7	SM											
		Ice rich beige fine gravel and coarse to medium sand that correspond to the top of the active layer before construction. Reticulate ice lenses with crustal ice.																									
-5.00					Ud-F	13_06_479-490	71.3																				
						13_06_490-500	40.1		2.9	74.2	22.9	16.0				SM											
						13_06_500-510	18.6																				
		Subhonrizontal bedding of fine gravel and coarse sand embedded with laminated medium sand. Occasional layer of heavy mineral found in the sand deposit. Pore ice and crustal ice.				13_06_510-519	18.5																				

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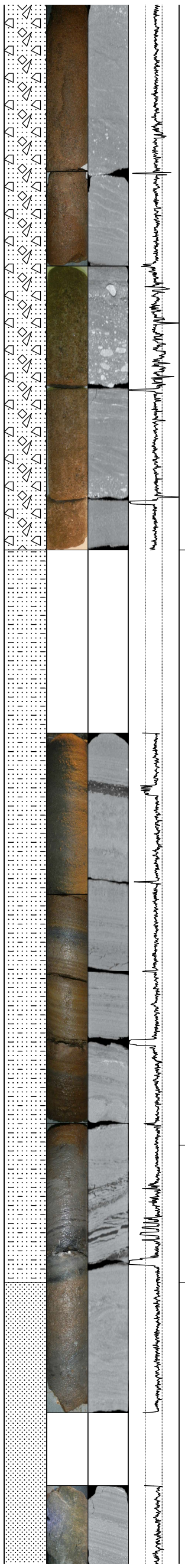
Stratigraphic information



Depth (m)	Instrumentation	Stratigraphy	Image	TI profile	Soil description
-6.00					Subhorizontal bedding of laminated oxydized medium to very fine sand with gray silty fine sand. Occasional layer of organic matter and heavy mineral. Flame structure at 7,01 m. Large ice lenses at 6,53 m, otherwise, mostly fine inclined ice lenses.
-7.00					Laminated gray silty fine sand with occasional organic matter layer. Millimetric to centimetric ice lenses. Reticulate ice lenses from 7,20 to 7,28 m.
					Horizontal bedding of very fine gray laminated sand embedded with medium to fine beige sand. Chaotic laminated deposit between 7,36 and 7,86 m (subaquatic landslide?). Pore ice.

Sampling characteristic

Laboratory analysis

Volume (%): Soil, Ice, Air (0–100)

Sample name	Sampling method	Recovery	Sample state	Water content (%)	Salinity (ppm)	Grain size G	Grain size S	Grain size M-C	Consistency wl	Consistency wp	Consistency Ip	Consistency IL	USCS	Consol. kPa 25	Consol. kPa 50	Consol. kPa 100	C/H/N w	C/H/N ρ	C/H/N C	C/H/N H	C/H/N N	Radiocarbon dates 14C (BP)	±	Material
13_06_519-531			Ud-F	20.2																				
13_06_531-541			Ud-F	21.5																				
13_06_541-550			Ud-F	20.9																				
13_06_550-565			Ud-F	21.6		0.0	93.5	6.5	22.8				SP-SM											
13_06_565-568			Ud-F	30.7																				
13_06_568-584			Ud-F	18.6		8.6	89.3	2.1					SP											
13_06_584-596			Ud-F	20.6																				
13_06_596-604			Ud-F	21.9																				
13_06_604-612			Ud-F	21.6																				
13_06_644-653			Ud-F	23.8																				
13_06_653-661			Ud-F	26.2		0.0	72.1	27.9	19.8	19.2	0.6	12.6	SM											
13_06_661-669			Ud-F	17.9																				
13_06_669-675			Ud-F	20.2																				
13_06_675-680			Ud-F																			17340	20	Organic Matter
13_06_680-685			Ud-F	25.0																				
13_06_685-697			Ud-F	21.8																				
13_06_697-711			Ud-F	18.6		0.1	53.3	46.6	19.1				SM											
13_06_710-760			Ud-F																					
13_06_770-785			Ud-F	17.1	5.7	0.0	79.2	20.7	18.5				SM											

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Depth (m)	Instrumentation	Stratigraphy	Image	CT (HU)	TI profile (HU)	Soil description	Sampling method	Recovery	Sample state	Sample name	Volume (%)	Water content (%)	Salinity (ppm)	Grain size G	Grain size S	Grain size M-C	Consistency wl	Consistency wp	Consistency Ip	Consistency IL	USCS	Consol. kPa 25	Consol. kPa 50	Consol. kPa 100	C/H/N w	C/H/N p	C/H/N C	C/H/N H	C/H/N N	Radiocarbon dates 14C (BP)	±	Material
-8.00						Boulder (bedrock)?			Ud-F	13_06_785-793		2.0																				
										13_06_793-799		0.8																				

End of borehole at 8,33 m.

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