

MEMORANDUM

DATE: January 22, 2009
TO: Christopher Prucha (WM)
C.C.:
FROM: François Richard (WESA)
PROJECT #: K-B5691-6
SUBJECT: Updated Elevation Data at Groundwater Monitor OW57

MESSAGE:

Chris:

Questions were raised by MOE hydrogeologist Kyle Stephenson regarding groundwater monitor OW57 (email dated January 14, 2009), in relation to our memo to you dated December 16, 2008, with subject "*WM Richmond Landfill: Groundwater Flow in the Zone 3-10 m below Top of Bedrock*". Following our review of available data, new measurements were recorded from this well on January 21, 2009.

Monitor OW57 is located in an area where a berm was reportedly removed during landfill construction in the mid- to late-1990's according to information obtained from landfill staff. The well, drilled in 1986, was evidently shortened by about 9 m during berm removal according to the most up-to-date survey data and well depth information. This difference between the information from 1986 and today is consistent if comparing ground elevations or well depths.

Updated elevation data at OW57 are summarized below (annotated borehole log attached):

- Reference (TOC): 131.58 masl (Nov. 2006 survey)
- Stickup: 0.76 m (21Jan09)
- Ground surface: 130.82 masl (TOC – stickup)
- Water level: 129.06 masl (2.52 mbTOC) (21Jan09)
- Depth to bottom: 12.51 mbTOC (21Jan09)
- Bedrock: ~ 120.3 masl
- EOH: ~ 118.9 masl

Because the well is screened in the upper one metre of bedrock, it should not have been included in the previous analysis, which focused on groundwater monitors screened in the zone between 3-10 metres below bedrock surface.

Please contact me should you have any additional questions or concerns.

François

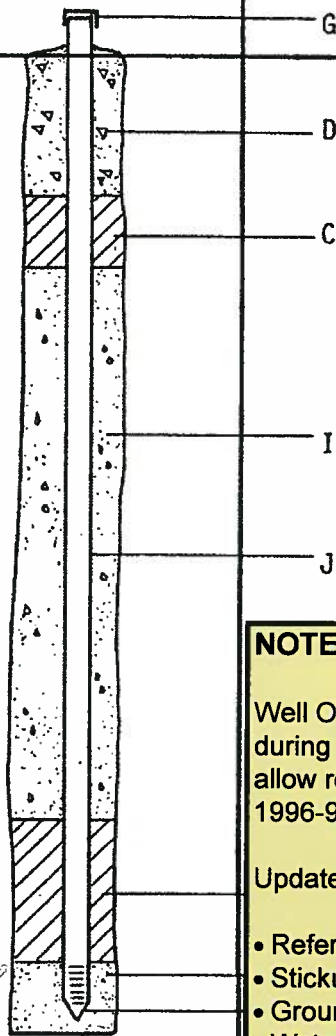


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OW57/86

CLIENT SUTCLIFFE SANITATION SERVICES LTD. FILE NO. 090-781
 PROJECT LANDFILL LOCATION RICHMOND TOWNSHIP
 GEOLOGIST/ENGINEER T.J.F. DATE COMPLETED AUGUST 8, 1986

DESCRIPTION	DEPTH		WELL	DETAIL	REMARKS
	metres	feet			
GROUND ELEV. 139.76masl					
CLAY - grey/brown, silty, sandy with pebbles (till)		10			
	5	20			
		30			
	10	40			
	15	50			
		60			
	20	70			
		80			
		90			
	LIMESTONE - grey				
END OF HOLE - 20.9m					



NOTE:
 Well OW57 was shortened during landfill construction to allow removal of a berm (circa 1996-97 approx.)
 Updated Jan. 21, 2009:
 • Reference (TOC): 131.58 masl
 • Stickup: 0.76 m
 • Ground surface: 130.82 masl
 • Water level: 129.06 masl
 • Depth to bottom: 12.51 mbTOC
 • Bedrock: ~ 120.3 masl
 • EOH: ~ 118.9 masl