

MONITORING WELL INSTALLATION REPORT

BG	BONNARD & GARDEL Ingénieurs-conseils S.A.	Project: Well installations	log-09-eng/181001.dsf
Project N°: 0211.06		Drilling company: Terrasond	Borehole N°: 31b
Site location: Cernay		Driller:	Well depth (m): 28m
Logged by: Par		Rig type: TT24	Total boring depth (m): 28.3m
Checked by:		Drilling method:	Static groundwater depth (m): 5.5m
Date started: 09.05.2007		Carottier battu	Steel casing elevation (m):
Date finished: 09.11.2007			PVC casing elevation (m):
			Static groundwater elevation (m):

SOIL SYMBOL	SOIL DESCRIPTION	Group Symbol	Water Table	PID READING (ppm)	REMARKS	WELL DIAGRAM
0	ORGANIC SOIL: sand silt mixture, some gravel [<dm], poorly graded, dry, dark brown.	SM to GM			10 % > 50 mm	
0.5	GRAVELS: poorly graded, sand silt mixture, dry, grey-brown-yellow, loose.	GM			50 % > 50 mm	
1	GRAVELS: well graded, no matrix, dry, loose. Types of gravel (limestone, sandrock, granite)	GW			90 % > 100 mm Sand zone on photo is a broken big gravel	
1.5						
2						
2.5	GRAVEL AND SAND: fine to coarse grained, poorly graded, loose, grey-brown, dry.	GC			5-10 % > 50 mm	
3	GRAVELS: well graded, sandy silty matrix, dry, loose, brown.	GW			90 % > 100 mm	
3.5	GRAVEL SAND CLAY SILT MIXTURE: poorly graded, moist, brown-red, moderately dense.	GC			5-10 % > 50 mm	
4	GRAVEL SAND MIXTURE: poorly graded, moist to wet, red-brown, trace of clay or/and silt, moderately dense. Some small layer with more or less clay or silt.	SP			10-20 % > 50 mm Biggest gravels < 250 mm	
4.5						
5	GRAVEL SAND SILT MIXTURE: poorly graded, wet to saturated (5.5m), red-brown-yellow, loose.	GC			30-50 % > 50 mm Saturated soil	
5.5						
6	GRAVELS: poorly graded, coarse grained, loose, poorly sandy clayey silty matrix, red-brown-yellow, saturated.	SP			10-20 % > 50 mm Biggest gravels < 250 mm	
6.5						
7	GRAVELS SAND MIXTURE: coarse grained, poorly graded, loose, trace of clay and silt, red-brown, saturated.	GC			30 % > 50 mm	
7.5						
8						
8.5	GRAVELS SAND MIXTURE: coarse grained, poorly graded, loose, trace of silt, brown, saturated.	GC			30 % > 50 mm 50 % > 10 mm	
9	GRAVELS SAND MIXTURE: coarse grained, poorly graded, loose, some layers with trace of silt, brown-yellow, saturated.	GC			10 % > 50 mm 50 % > 10 mm	
9.5						
10	GRAVELS SAND MIXTURE: coarse grained, poorly graded, no matrix, loose, brown, saturated. Some small layers with trace of silt.	GP			20 % > 50 mm 30 % > 10 mm	

PROTECTIVE CASING TYPE AND Ø:
 PERMANENT CASING TYPE AND Ø:
 BACKFILL TYPE: Terrain
 WELL SEAL TYPE: Bentonite
 SCREEN TYPE, Ø AND SLOT SIZE: 50/62, 0.75 mm
 FILTER PACK TYPE AND SIZE: 2-3.5 mm
 BOTTOM END CAP TYPE: PVC Cap

REMARKS:
 FIRST ENCOUNTERED GROUNDWATER
 STATIC GROUNDWATER DEPTH

04124X0672/P31BIS

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BONNARD & GARDEL Ingénieurs-conseils S.A.		Project: Well installations		log-09-eng/181001.dsf Borehole N°: 31b	
Project N°: 0211.06		Drilling company: Terrasond		Page N° 2/3	
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Logged by: Par		Rig type: TT24		Total boring depth (m): 28.3 m	
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Date started: 09.05.2007		Carottier battu		Steel casing elevation (m):	
Date finished: 09.11.2007				PVC casing elevation (m):	
				Static groundwater elevation (m):	

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10	GRAVELS SAND MIXTURE: coarse grained, poorly graded, no matrix, loose, brown, saturated.	GP			20 % > 50 mm 30 % > 10 mm	
10.5	Some small layers with trace of silt.					
11	Small layer with trace of clay, brown.					
	Gravel, 30 cm.					
11.5	GRAVEL SAND MIXTURE: poorly graded, fine to coarse grained, loose, yellow-brown, saturated, trace of silt and clay, some gravels are very weathered.	GP			5-10 % > 50 mm	
12	At 12.10m: some big gravels [>50mm]					
12.5	GRAVEL SAND CLAY MIXTURE: poorly graded, some gravels are very weathered, very dense, yellow-brown with red traces.	GC			Weathered gravels are volcanic.	
13	SAND MIXTURE: some weathered gravels, trace of clay and silt, poorly graded, loose to moderately dense, yellow-brown, moist to wet.	SP				
13.5	GRAVEL SAND SILT MIXTURE: some volcanic weathered gravels (reshuffled oligocene conglomerate), poorly graded, moderately dense, yellow-brown-red, damp to moist, sometimes trace of clay.	GM			10-20% > 10mm From 13.0 to 13.15m: weathered big gravels [>100mm]	
14	- Old alluvium with Oligocene conglomerate reshuffled -					
14.5						
15						
15.5						
16					Weathered gravels are volcanic.	
16.5						
17						
17.5						
18	Small layer with red to pink clay.					
18.5						
19	CLAY SILT MIXTURE: Medium plasticity, moderately dense, brown-red, damp to moist, one big gravel [25cm], small layer [10cm] without silt.	CL				
	GRAVEL SAND SILT MIXTURE: like before.	GM				
19.5	CLAY SILT MIXTURE: like before.	CL				
	GRAVEL SAND SILT MIXTURE: like before.	GM				
20						

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20	GRAVEL SAND SILT MIXTURE: some volcanic weathered gravels (reshuffled oligocene conglomerate), poorly graded, moderately dense, yellow-brown-red, damp to moist, sometimes trace of clay. - Old alluvium with Oligocene conglomerate reshuffled -	GM			Weathered gravels are volcanic.	<div> <div> <div>Ø OF BORING: 220 mm</div> <div>20.0</div> <div>20.5</div> <div>21.0</div> <div>21.5</div> <div>22.0</div> <div>22.5</div> <div>23.0</div> <div>23.5</div> <div>24.0</div> <div>24.5</div> <div>25.0</div> <div>25.5</div> <div>26.0</div> <div>26.5</div> <div>27.0</div> <div>27.5</div> <div>28.0</div> <div>28.3</div> </div> <div> <div>20</div> <div>20.5</div> <div>21</div> <div>21.5</div> <div>22</div> <div>22.5</div> <div>23</div> <div>23.5</div> <div>24</div> <div>24.5</div> <div>25</div> <div>25.5</div> <div>26</div> <div>26.5</div> <div>27</div> <div>27.5</div> <div>28</div> <div>28.5</div> <div>29</div> <div>29.5</div> <div>30</div> </div> </div>
20.5						
21	Transition zone between the old alluvium and Oligocene conglomerate.				10-20 % > 50 mm	
21.5						
22	WEATHERED GRAVEL SILTY CLAY: weathered gravel types (volcanic, plutonic, etc...), silt and clay seem to be provided by weathered gravels, low plasticity, brown-mauve, moist, density increasment with depth. - Oligocene conglomerate -				Moderately dense	
22.5						
23						
23.5						
24						
24.5						
25						
25.5						
26						
26.5						
27						
27.5						
28						
28.5	END OF DRILLING					
29						
29.5						
30						

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