



**DUFFIELD ASSOCIATES**  
Consultants in the Geosciences

**TEST BORING MW-4**  
Permit No.: 209178

(Page 1 of 3)

Observation and Monitoring Well Installation Review		Date Started : June 27, 2005		Drilling Equipment : ATV-mounted CME-55									
Wastewater Treatment Facility		Date Completed : June 28, 2005		Drilling Methods : 4.25" H.S.A.									
At Stonewater Creek		Logged by : JPC		Surface Elevation : 24.7 feet									
Fairmount, Sussex County, Delaware		Weather : Light Rain to		Northing : 238,506 U.S. Feet DE SPC NAD 83									
Project No.: 5708.YD		Driller/Agency : J. Foley/Walton Corporation		Easting : 714,254 U.S. Feet DE SPC NAD 83									
Depth Surf. in Elev. feet (24.7 ft)	GRAPHIC	USCS	USDA	Sample Condition ☒ Remolded	Water Levels ▼ During Drilling ▽ 7/7/2005	SAMPLES			Well Construction Details	Monitoring Well 209178 Top of Well Elev. PVC = 27.29 Steel Casing Rint = 27.64 Surf. Elev. 24.7 ft			
						DESCRIPTION	Sample Number	Blows per 6 inches			Recovery (ft)		
0								1A	2-2-3-4	1.8	Sakrete		
23.7								1B					
		SM	LS		TOPSOIL and ROOT MATERIAL (dark brown, brown fine to medium sand, little silt, trace organics (roots, fibers) (damp)).			2	4-3-3-2	1.7	Bentonite Plug - 3/8" granular bentonite		
					Light brown, yellowish brown fine to medium SAND, little silt, trace small silty sand lenses (damp).			3A	2-3-3-4	1.7	2" Schedule 40 PVC Well Casing		
20.1		SM	LS		SAME.			3B					
19.7		ML	SIL		Light brown, brown, yellowish brown SILT, some very fine to fine sand (damp) (few, very faint yellowish brown, fine to medium mottles).			3C					
		SP-SM	LS		SAME with lenses with fine to medium sand, trace to little silt (damp).			4A	6-7-13-14	1.6			
18.3					Yellow, reddish yellow, dark gray (lithic layers) fine to medium SAND, medium silt, trace granules and fine pebbles (dry) (well sorted) (coarsening down).			4B					
					White, light gray medium to coarse SAND, trace to little fine sand, trace silt (well sorted) (dry).			5A	8-9-13-19	1.5	Sand Pack - #2 well sand		
16.0		GP	S		White, light gray GRANULES/PEBBLES, some medium to coarse sand, trace silt (dry).			5B					
15.3					Yellow, white, pale yellow medium to coarse SAND, trace silt, trace granules/very coarse sand (dry).			6A	13-16-19-20	1.4			
		SP	S		Light gray fine SAND, trace silt (well sorted) (moist to wet).			6B					
					Light gray fine to medium SAND, trace silt.			7	9-10-16-14	1.8			
9.8		GP	S		Light gray medium to coarse SAND, trace silt (saturated).			8	7-11-12-13	1.4			
9.3		SP	S										

NOTES:

- Monitoring Well MW-4 (DNREC ID 209178) installed upon completion of test boring.
- Wet-on-spoon encountered at 10.0 feet +/-; water level observed at 10.7 feet +/-; bottom of augers at 10.0 feet +/-; b.e.g.s.
- EZ Mud used to wash out soils from the augers for samples 10 through 20.
- Auger boring performed in general accordance with ASTM D 1452.
- Continuous, split-barrel sampling performed in general accordance with the Method

for Penetrative Test and Split-Barrel Sampling (ASTM D 1586).

- Soil descriptions performed in general accordance with ASTM D 2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).
- Grain size scale utilized for soil descriptions based on a hybrid of the Udden-Wentworth Scale described in Delaware Geological Survey Open File Report 34 "Methodology for Mapping Groundwater Recharge in Delaware's Coastal Plain."



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Project No. : 5708.YD		Driller/Agency : J. Foley/Walton Corporation		Easting : 714,254 U.S. Feet DE SPC NAD 83							
Depth Surf. in Elev. feet	GRAPHIC	USCS	USDA	Sample Condition	SAMPLES	Blows per 6 inches	Recovery (ft)	Well Construction Details	WATER LEVEL	Monitoring Well 209178	Surf Elev. 24.7 ft
				Remolded							
16					9	4-8-10-12	1.0				
18				White, light gray, greenish gray medium to coarse SAND, trace silt (well sorted) (saturated).	10	3-3-3-4	1.7				
20				Light gray, buff fine to medium SAND, little silt, trace pebbles/granules (saturated).	11	2-2-4-8	1.0				
22		SP	S	SAME with clayey silt lense at 20.0 to 20.05 feet +/-.	12	3-2-4-5	2.0	Bottom of Screen			1.4 1.1 0.8
24				White, greenish white medium SAND, little fine sand, trace coarse sand, trace silt (well sorted) (saturated).	13	2-2-4-4	2.0				
26				SAME, medium to coarse sand, trace silt.	14A	3-3-5-6	2.0		Sand Backfill		
28				SAME, coarse sand, trace silt (well sorted).	14B						
30		SM	LS	White, light greenish gray fine to medium SAND, trace to little silt (saturated).	15	2-4-4-5	2.0				
32		SP-SM	LS/S	SAME with little silt (saturated) (well sorted).	16	3-6-9-10	1.4				
		SM	LS+	Layers of pale yellow, yellow, light greenish gray, white fine to medium SAND, trace to little silt, trace pebble sized silt/clay balls (saturated).							

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 Wastewater Treatment Facility  
 At Stonewater Creek  
 Fairmount, Sussex County, Delaware  
 Project No. : 5708.YD

Date Started : June 27, 2005  
 Date Completed : June 28, 2005  
 Logged by : JPC  
 Weather : Light Rain to  
 Driller/Agency : J. Foley/Walton Corporation

Drilling Equipment : ATV-mounted CME-55  
 Drilling Methods : 4.25" H.S.A.  
 Surface Elevation : 24.7 feet  
 Northing : 238,506 U.S. Feet DE SPC NAD 83  
 Easting : 714,254 U.S. Feet DE SPC NAD 83

Depth in feet	GRAPHIC	USCS	USDA	Sample Condition <input checked="" type="checkbox"/> Remolded	Water Levels ▼ During Drilling ▼ 7/1/2005	SAMPLIS	Sample Number	Blows per 6 inches	Recovery (ft)	Well Construction Details	WATER LEVEL	Surf. Elev.
												24.7 ft
32		SM	LS+				17A	1-2-3-4	1.8			
-8.6		CH	C				17B					
34							18A	3-4-5-8	2.0			
-9.6							18B					
36		SP-SM	S				19A	3-4-6-7	1.8			
-12.3							19B					
38		SP-SM	LS/S				20A	2-2-2-2	2.0			
-14.2		SM	SL+				20B					
40												
-15.3												
42												
44												
46												
48												

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Monitoring Well 209178  
 Surf. Elev. 24.7 ft

