

TEST BORING MW-1
Permit No : 209175 (Page 1 of 2)

Observation and Monitoring Well Installation Review
Wastewater Treatment Facility
At Stonewater Creek
Fairmount, Sussex County, Delaware
Project No.: 5708.YD

Date Started : June 24, 2005
Date Completed : June 27, 2005
Logged by : JPC
Weather : Clear to Rain
Driller/Agency : J. Foley/Watson Corporation

Drilling Equipment : ATV-mounted CME-55
Drilling Methods : 4.25" H.S.A.
Surface Elevation : 22.4 feet
Northing : 237,959 U.S. Feet DE SPC NAD 83
Easting : 713,976 U.S. Feet DE SPC NAD 83

Depth in feet	GRAPHIC	USCS	USDA	Sample Condition ☒ Remolded	Water Levels ▼ During Drilling ▼ 7/7/2005	SAMPLER	Sample Number	Blows per 6 inches	Recovery (ft)	Well Construction Details	Monitoring Well 209175 Top of Well Elev = 25.13 PVC = 25.13 Steel Casing Rim = 25.37
0							1A	3-2-4-3	1.9	Sakrete	22.4 ft
21.5		SM	SL				1B				21.4
20.9		SM	SL				1C				
20.2		SM	SL				2A	2-3-2-3	1.5	Cement / Bentonite Grout	
19.5							2B				
		SP	S				2C				
17.8							3A	2-3-6-7	1.6		17.4
16.2		SM	SL				3B				
16.0		SP-SM	S				4A	7-8-7-5	1.6	2" Schedule 40 PVC Well Casing	15.7
15.5		ML	SIL				4B				
14.8		ML	SICL				4C				
14.1		SM	SL+				4D				
13.3		SP-SM	LS				5A	2-3-4-5	1.5	Sand Pack - #2 well sand	
12.4							5B				
11.5		SP	S				5C				
11.1		GW	S				6A	5-9-6-4	2.0	2" Schedule 40 PVC Screened Casing - 0.020" slot	
10.9							6B				
		SP-SM	S				6C				
							6D				
							7	3-2-3-3	1.6		
							8	3-5-5-6	1.8		

NOTES:

- Monitoring Well MW-1 (DNREC ID 209175) installed upon completion.
- Wet-on-spoon encountered at 8.5 feet +/-; water level observed at 7.5 feet +/-; bottom of augers at 8.0 feet +/- b.e.g.s.
- EZ Mud used to wash out soils from the augers for samples 7 through 15.
- 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."



DUFFIELD ASSOCIATES
Consultants in the Geosciences

TEST BORING MW-1

Permit No : 209175

(Page 2 of 2)

Observation and Monitoring Well Installation Review		Date Started : June 24, 2005		Drilling Equipment : ATV-mounted CME-55									
Wastewater Treatment Facility		Date Completed : June 27, 2005		Drilling Methods : 4.25" H.S.A.									
At Stonewater Creek		Logged by : JPC		Surface Elevation : 22.4 feet									
Fairmount, Sussex County, Delaware		Weather : Clear to Rain		Northing : 237,959 U.S. Feet DE SPC NAD 83									
Project No.: 5708.YD		Driller/Agency : J. Foley/Walton Corporation		Easting : 713,976 U.S. Feet DE SPC NAD 83									
Depth in feet (22.4 ft)	GRAPHIC	USCS	USDA	Sample Condition ☒ Remolded	Water Levels ▼ During Drilling ▼ 7/7/2005	DESCRIPTION	SAMPLES	Sample Number	Blows per 6 inches	Recovery (ft)	Well Construction Details	WATER LEVEL	Monitoring Well 209175
16		SP-SM	S			Greenish gray, light gray, white, pale yellow coarse sand, little medium sand, trace to little silt.	9A	2-3-5-10	2.0	Bottom of Screen at 16 feet b.e.g.s.		6.3	
17		CL	SC			Greenish gray, reddish yellow fine SAND and CLAY, trace dry clay nodules, (laminated, soft, high plasticity) (wet to saturated). Greenish gray, light gray very fine to fine SAND, some silt (coarsening down to gravel). Gray, light brown, grayish white coarse to very coarse SAND, little medium sand, trace granules, trace silt (saturated) (coarsening down).	9B 9C	2-3-4-4	1.4			5.7	
20		SP-SM	LS/S			Gray, light brown coarse to medium SAND, trace silt (saturated) (coarsening down).	11	3-4-6-8	2.0			3.4	
23						White, light gray medium to coarse SAND, trace granules, trace silt, little fine sand (saturated) (clayey sands overlying gravels at base of rec'd sample).	12	2-2-4-7	1.1		Slough Backfill		
25		SP-SM	S			Yellowish gray, light brown, grayish brown coarse SAND, trace silt, little fine to medium sand, trace clayey silt nodules (saturated) (well sorted).	13A	3-2-3-3	2.0				
26						Light brown, gray, light gray fine to medium SAND, trace to little silt, trace coarse sand (saturated) (cross bedded lithic layers). Light gray, light brown, greenish gray, white medium to coarse SAND, little very coarse sand, trace granules, trace silt.	13B						
28		SP-SM	S			SAME (saturated).	14	2-4-5-7	2.0				
30							15	2-3-3-5	2.0		Bottom of Borehole - approximately 8" diameter terminated at 30 feet below existing ground surface.		-7.6

NOTES:

- Monitoring Well MW-1 (DNREC ID 209175) installed upon completion.
- Wet-on-spoon encountered at 8.5 feet +/-; water level observed at 7.5 feet +/-; bottom of augers at 8.0 feet +/- b.e.g.s.
- EZ Mud used to wash out soils from the augers for samples 7 through 15.
- 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."