



ABC SURVEYS, LLC

Professional Land Surveying and Engineering

466 Southern Boulevard, Chatham, New Jersey 07928

Phone 973.377.2174 Fax 973.377.5533

andrew@abc-surveys.com

June 30, 2020

John Ruschke, P.E.
Township Engineer
Township of Chatham
58 Meyersville Road
Chatham, NJ 07928

RE: **ARKAD GROUP**
SG17-034R3
Tax Lot 113.06 in Block 108
9 Jay Road

Dear Mr. Ruschke:

Since March 19th, I have been actively monitoring the installed tank system at 9 Jay Road. There was a significant rain event (1.34 inches of rain) just preceding this first reading. The monitoring began as an effort to determine what the drain time was following a rainfall event equivalent to the NJDEP Water Quality Storm event, which is 1.25 inches of rain. The monitoring has continued since that time and the findings are tabulated on the attached tables.

What has been observed since that initial reading is that the tank system has not fully drained. The water level fluctuates with rain events and does measurably decrease, but at a rate that is far below what would be required to fully drain the tanks within 72 hours, as required by ordinance. The infiltration rate that has been observed is about 0.5 inches per day (approximately 0.02 inches per hour) where approximately 0.2 inches per hour would be required to drain the NJDEP Water Quality Storm completely in 72 hours. This would translate to a drain time for the NJDEP Water Quality Storm of approximately 30 days.

While the system has not fully drained, it should also be noted that it has not overflowed in this observation period (through the spring months), even with a rain event of 2.4 inches of rain on April 13/14. Rain events of that magnitude (more than 2 inches of rain in a 24-hour period) historically only occur three times a year on average.

If you have any questions, please do not hesitate to contact me.

Very truly yours;

Andrew B. Clarke, PLS, PE

Rear Left Tank Port Observations

Top of Observation Port Elevation = 193.91
 Elevation of stone when empty = 188.95

Date	Time	Rainfall	Down	WSE	Water Depth (inches)	Change (inches)
03/17-03/19		1.34				
3/19	1:00 p.m.			190.15	14.40	
3/20	12:30 p.m.		-4.25	189.66	8.52	-5.9
3/21	7:30 a.m.		-4.30	189.61	7.92	-0.6
3/22	12:15 p.m.		-4.33	189.58	7.56	-0.4
3/24		0.90				
3/25	6:25 p.m.		-3.63	190.28	15.96	8.4
3/27	12:50 p.m.		-3.73	190.18	14.76	-1.2
3/29-3/31		0.68				
4/1			-3.50	190.41	17.52	2.8
4/3-4/6		0.28				
4/7	4:45 p.m.		-3.75	190.16	14.52	-3.0
4/8	5:00 p.m.		-3.60	190.31	16.32	1.8
4/13-4/14		2.40				
4/14			-2.35	191.56	31.32	15.0
4/15	11:00 a.m.		-2.43	191.48	30.36	-1.0
4/17	9:20 a.m.		-2.60	191.31	28.32	-2.0
4/18		0.40				
4/19	9:45 a.m.		-2.58	191.33	28.56	0.2
4/21		0.27				
4/22	3:45 p.m.		-2.70	191.21	27.12	-1.4
4/24		0.80				
4/25	9:30 a.m.		-2.37	191.54	31.08	4.0
4/27		0.34				
4/28	3:00 p.m.		-2.45	191.46	30.12	-1.0
4/29	11:50 a.m.		-2.52	191.39	29.28	-0.8
5/1		0.87				
5/5	11:55 a.m.		-2.57	191.34	28.68	-0.6
5/6	10:00 a.m.		-2.63	191.28	27.96	-0.7
5/7	11:30 a.m.		-2.69	191.22	27.24	-0.7
5/9		0.51				
5/12	11:10 a.m.		-2.68	191.23	27.36	0.1
5/14	1:30 p.m.		-2.78	191.13	26.16	-1.2
5/16		0.09				
5/15	4:40 p.m.		-2.83	191.08	25.56	-0.6
5/18	11:00 a.m.		-2.98	190.93	23.76	-1.8
5/20	11:20 a.m.		-3.08	190.83	22.56	-1.2
5/24		0.78				

5/30		0.16				
5/31	8:35 a.m.		-2.90	191.01	24.72	2.2
6/4		1.01				
6/8	1:20 p.m.		-2.42	191.49	30.48	5.8
6/21		0.23				
6/22	8:00 a.m.		-2.73	191.18	26.76	-3.7
6/28		0.42				
6/29	5:30 p.m.		-2.92	190.99	24.48	-2.3

Total Rainfall = 11.48

March Rainfall = 3.87
Average = 4.00 -0.13
April Rainfall = 4.99
Average = 4.00 0.99
May Rainfall = 2.60
Average = 4.00 -1.40
June Rainfall = 1.77
Average = 4.00 -2.23