Team Hoyt Community YMCA
30 Memorial Drive
Ashland, MA
Bohler Job Number: MAA240220.01
2/12/2026
1" Water Quality Volume to Flow Rate Calculation Sheet

Compute Water Quality Flow with the following Equation

WQF = (qu)(A)(WQV)

Site Plan Callout		qu (from 1" - qu Table)	Impervious Area (SF)	Ai (sq/mi)	WQV (inches)		**WQF (cfs)**
Isolator Row at Basin #1	=	795	35022	0.001256	1	=	**1.00**
Isolator Row at Basin #3	=	795	4138	0.000148	1	=	**0.12**

Water Quality Flow Rate = WQF
Water Quality Volume = WQV*
Unit peak discharge (csm/in) = qu**
Impervious Area in watershed (square miles) = Ai

*WQV is expressed in watershed inches (you must use 1.0-inches in all cases with this method and not 0.5-inches)
** calculate the qu based on the time of concentration (see 1" - qu Table)

Prepared By:
BOHLER
352 Turnpike Road
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(508) 480-9900

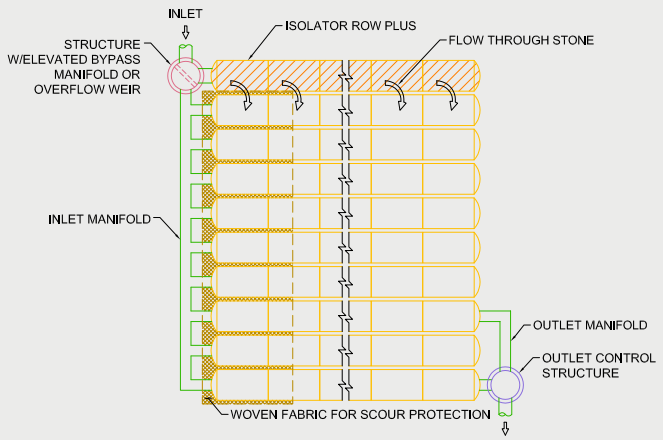
Isolator® Row Plus

The StormTech Isolator Row Plus is an enhancement to our proven water quality treatment system. This updated system is an NJCAT verified water quality treatment device that can be incorporated into any system layout.

Features

- Isolator Row Plus is now NJCAT verified. As a Manufactured Treatment Device it achieves over 80% TSS removal by filtration NJDEP Laboratory Protocol Assessment NJCAT Technology Verification.
- A patented Flamp™ (Flared End Ramp) provides a smooth transition from pipe invert to fabric bottom. The Flamp is attached to the inlet pipe inside the chamber end cap and improves chamber function over time by distributing sediment and debris that would otherwise collect at the inlet. It also serves to improve the fluid and solid flow back into the inlet pipe during maintenance and cleaning.
- Proprietary ADS Plus fabric maintains durability and sediment removal while allowing for higher water quality flow rates. A single layer of ADS Plus fabric is placed between the angular base stone and the Isolator Row Plus chambers.

Schematic of the StormTech Isolator Row Plus System



Technology Descriptions

The Isolator Row Plus is designed to capture the “first flush” runoff and offers the versatility to be sized on a volume or a flow basis. An upstream manhole not only provides access to the Isolator Row Plus but includes a high/low concept such that stormwater flow rates or volumes that exceed the capacity of the Isolator Row Plus bypass through a manifold to the other chambers. This is achieved with either an elevated bypass manifold or a high-flow weir. This creates a differential between the Isolator Row Plus row of chambers and the manifold to the rest of the system, thus allowing for settlement time in the Isolator Row Plus. After Stormwater flows through the Isolator Row Plus and into the rest of the StormTech chamber system it is either infiltrated into the soils below or passed at a controlled rate through an outlet manifold and outlet control structure.

Summary of Verified Claims[1]

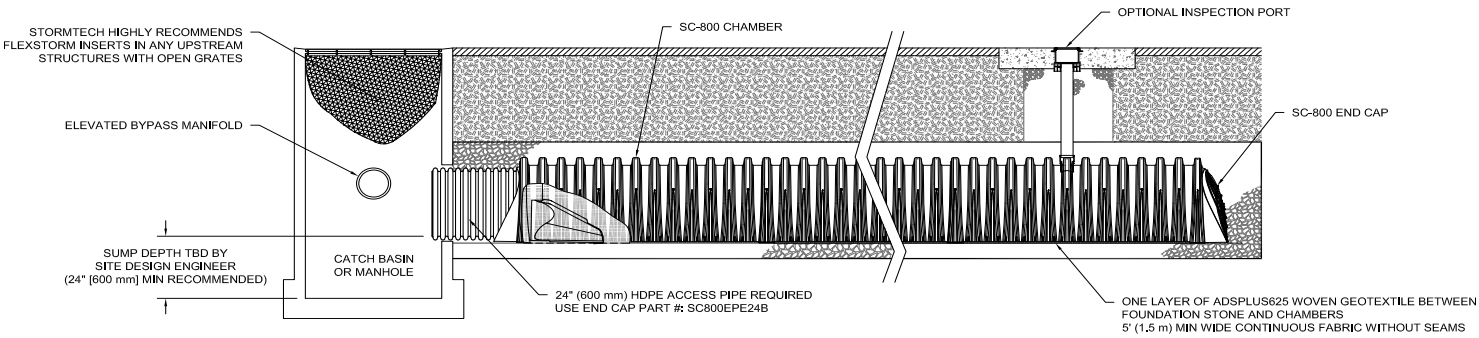
Treatment Rate (gpm/ft²)	4.1
Underlying Geotextile Layers	1
NJDEP Test Sediment	D50=75um
Mean Particle Concentration (mg/L)	200
TSS Removal Efficiency	>80%

[1] Verification testing of the StormTech SC-740 Isolator Row PLUS in accordance with NJDEP Laboratory protocol to access total suspended solids removal by filtration manufactured treatment device, 2013

ADS StormTech™

adspipe.com
800-821-6710

StormTech Isolator Row Plus (not to scale)



Maintenance

The Isolator Row Plus was designed to reduce the cost of periodic maintenance. By "isolating" sediment to just one row of the StormTech system, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout.

Maintenance is accomplished with the JetVac® process. The JetVac process utilizes a high-pressure water nozzle to propel itself down the Isolator Row Plus while scouring and suspending sediment. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency.

StormTech Isolator Row Plus

Chamber Model	Chamber Storage	Chamber Footprint	Treatment Rate
SC-160LP	15.0 cf (0.42 m^3)	11.45 sf (1.06 m^2)	0.11 cfs (3.11 L/s)
SC-310	31.0 cf (0.88 m^3)	17.7 sf (1.64 m^2)	0.16 cfs (4.53 L/s)
DC-780	78.4 cf (2.22 m^3)	27.8 sf (2.58 m^2)	0.26 cfs (7.36 L/s)
SC-800	81.0 cf (2.29 m^3)	27.3 sf (2.54 m^2)	0.25 cfs (7.1 L/s)
MC-3500	175.0 cf (4.96 m^3)	42.9 sf (3.99 m^2)	0.40 cfs (11.32 L/s)
MC-4500	162.6 cf (4.60 m^3)	30.1 sf (2.80 m^2)	0.28 cfs (7.93 L/s)
MC-7200	267.3 cf (7.57 m^3)	50.0 sf (4.65 m^2)	0.45 cfs (12.74 L/s)

Installation

Installation of the stormwater treatment unit(s) shall be preformed per manufacture's installation instructions. Such instructions can be obtained by calling Advanced Drainage Systems Inc. at (800) 821-6710 or by logging on to adspipe.com.

ADS StormTech™

adspipe.com
800-821-6710

Results

Line No.	Line ID	Inlet Time (min)	Tc (min)	i Inlet (in/hr)	Drng Area (ac)	Runoff Coeff (C)	Incr Q (cfs)	Total CxA	Known Q (cfs)	Line Length (ft)	Line Slope (%)	Line Size (in)	Flow Rate (cfs)	Capac Full (cfs)	Vel Ave (ft/s)	Invert Up (ft)	Invert Dn (ft)	Gnd/Rim El Up (ft)	HGL Up (ft)	
1	A40-BSN2	5.0	6.6	0.00	0.00	0.00	0.00	1.78	0.00	3.000	0.33	18	10.68	6.57	6.04	245.16	245.15	252.79	247.46	
2	A50-A40	5.0	6.5	0.00	0.00	0.00	0.00	1.78	0.00	7.000	1.86	18	10.69	15.50	6.05	245.38	245.25	252.73	247.94	
3	A60-A50	5.0	6.4	0.00	0.00	0.00	0.00	1.32	0.00	49.000	0.69	18	7.96	9.48	4.51	245.80	245.46	253.69	248.75	
4	A51-A50	5.0	5.0	6.49	0.18	0.77	0.90	0.14	0.00	8.000	2.87	12	0.90	6.54	4.47	249.00	248.77	252.56	249.40	
5	A61-A60	5.0	5.0	6.49	0.22	0.73	1.04	0.16	0.00	13.000	0.46	12	1.04	2.62	3.14	249.14	249.08	252.13	249.58	
6	A70-A60	5.0	5.5	0.00	0.00	0.00	0.00	0.47	0.00	67.000	0.49	15	2.96	4.91	2.41	246.33	246.00	252.12	249.19	
7	ROOF1-A70	5.0	5.0	6.49	0.23	0.90	1.34	0.21	0.00	73.000	3.59	10	1.34	4.49	3.12	251.00	248.38	254.00	251.52 j	
8	A41-A60	5.0	5.9	0.00	0.00	0.00	0.00	0.69	0.00	95.000	0.51	15	4.26	4.97	3.47	247.87	247.39	253.31	249.42	
9	A42-A41	5.0	5.4	0.00	0.00	0.00	0.00	0.50	0.00	79.000	0.49	15	3.18	4.92	2.59	248.36	247.97	252.38	249.77	
10	ROOF2-A41	5.0	5.0	6.49	0.21	0.90	1.23	0.19	0.00	61.000	1.98	8	1.23	1.84	4.91	251.50	250.29	254.00	252.02	
11	ROOF3-A42	5.0	5.0	6.49	0.26	0.90	1.52	0.23	0.00	48.000	0.65	12	1.52	3.10	3.79	251.00	250.69	254.00	251.52	
12	A43-A42	5.0	5.0	6.49	0.36	0.74	1.73	0.27	0.00	29.000	0.48	12	1.73	2.68	2.20	248.60	248.46	251.64	249.93	
13	A81-A70	5.0	5.0	6.49	0.33	0.79	1.69	0.26	0.00	52.000	0.50	12	1.69	2.73	2.15	248.15	247.89	251.15	249.38	
14	A90-A50	5.0	5.0	6.49	0.41	0.80	2.13	0.33	0.00	240.000	0.50	12	2.13	2.73	2.71	246.78	245.58	249.88	249.24	
15	B40-BSN1	5.0	5.3	0.00	0.00	0.00	0.00	0.59	0.00	3.000	0.33	24	3.78	14.15	1.20	243.19	243.18	247.76	245.45	
16	B50-B40	5.0	5.2	0.00	0.00	0.00	0.00	0.59	0.00	20.000	1.00	15	3.80	7.00	3.10	243.52	243.32	247.18	245.53	
17	B51-B50	5.0	5.0	6.49	0.36	0.86	2.01	0.31	0.00	37.000	2.16	12	2.01	5.67	2.56	244.42	243.62	247.43	245.78	
18	B52-B50	5.0	5.0	6.49	0.36	0.79	1.85	0.28	0.00	17.000	0.47	12	1.85	2.65	2.35	243.70	243.62	246.73	245.72	
19	A31-BSN2	5.0	5.2	0.00	0.00	0.00	0.00	0.30	0.00	5.000	0.20	18	1.95	5.09	1.10	245.19	245.18	251.15	246.78	
20	A32-A31	5.0	5.0	6.49	0.37	0.82	1.97	0.30	0.00	31.000	0.48	12	1.97	2.68	2.51	245.44	245.29	250.55	246.87	
21	A10-HDWL	5.0	9.9	0.00	0.00	0.00	0.00	0.00	0.00	47.000	0.51	15	1.29	5.00	3.34	236.85	236.61	244.92	237.30	
22	A30-A10	5.0	5.2	0.00	0.00	0.00	0.00	0.00	0.00	112.000	1.00	15	1.21	7.00	3.74	244.00	242.88	252.52	244.43	
23	BSN2-A30	5.0	5.0	0.00	0.00	0.00	1.21	0.00	1.21	5.000	0.20	24	1.21	10.96	2.30	245.19	245.18	252.50	245.64	

Project File: Ashland YMCA Rev 02-26.stm | Number of lines: 37 | Date: 2/12/2026

NOTES: Intensity = 33.11 / (Inlet time + 7.00) ^ 0.66 -- Return period = 25 Yrs. ; ** Critical depth

Results

Line No.	Line ID	Inlet Time (min)	Tc (min)	i Inlet (in/hr)	Drng Area (ac)	Runoff Coeff (C)	Incr Q (cfs)	Total CxA	Known Q (cfs)	Line Length (ft)	Line Slope (%)	Line Size (in)	Flow Rate (cfs)	Capac Full (cfs)	Vel Ave (ft/s)	Invert Up (ft)	Invert Dn (ft)	Gnd/Rim El Up (ft)	HGL Up (ft)
24	A20-A10	0.0	8.3	0.00	0.00	0.00	0.00	0.00	0.00	10.000	0.50	12	0.08	2.73	0.37	237.00	236.95	245.70	237.30
25	BSN3-A20	5.0	5.0	0.00	0.00	0.00	0.08	0.00	0.08	5.000	0.20	24	0.08	10.95	1.02	237.93	237.92	246.00	238.05
26	B60-BSN1	5.0	7.7	0.00	0.00	0.00	0.00	0.12	0.00	3.000	0.33	24	0.71	14.15	0.23	243.19	243.18	250.04	245.45
27	B61-B60	5.0	5.0	6.49	0.14	0.89	0.81	0.12	0.00	167.000	0.50	12	0.81	2.72	1.03	244.30	243.47	247.26	245.52
28	B20-B10	5.0	5.4	0.00	0.00	0.00	0.00	0.00	0.00	40.000	3.02	12	3.19	6.71	4.06	238.62	237.41	246.41	245.74
29	B30-B20	5.0	5.1	0.00	0.00	0.00	0.00	0.00	0.00	85.000	2.98	12	3.19	6.66	4.06	242.50	239.97	249.27	246.55
30	BSN1-B30	5.0	5.0	0.00	0.00	0.00	3.19	0.00	3.19	5.000	0.20	24	3.19	10.95	1.02	243.20	243.19	248.50	246.59
31	A21-BSN3	5.0	5.3	0.00	0.00	0.00	0.00	0.12	0.00	5.000	0.20	24	0.79	10.95	0.25	237.93	237.92	244.32	240.60
32	A22-A21	5.0	5.0	6.49	0.16	0.77	0.80	0.12	0.00	19.000	0.53	12	0.80	2.80	3.03	241.72	241.62	244.34	242.09
33	ROOF4-FES	5.0	5.0	6.49	0.01	0.90	0.06	0.01	0.00	77.000	3.23	8	0.06	2.35	2.20	237.50	235.01	239.50	237.61
34	D50-D40	5.0	5.0	6.49	0.27	0.55	0.96	0.15	0.00	41.000	0.51	8	0.96	0.94	3.04	236.96	236.75	239.59	237.53
35	B70-BSN1	0.0	0.8	0.00	0.00	0.00	0.00	0.00	0.00	14.000	2.00	8	1.33	1.85	3.81	243.36	243.08	251.92	245.59
36	B80-B70	0.0	0.3	0.00	0.00	0.00	0.00	0.00	0.00	125.000	1.84	8	1.33	1.77	3.99	246.45	244.15	253.50	247.02
37	ELC-B80	0.0	0.0	0.00	0.22	0.00	1.33	0.00	1.33	58.000	2.50	8	1.33	2.07	4.09	248.00	246.55	253.50	248.54 j

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