Summary Statistics, Hawlings River Near Sandy Spring, Maryland, Water Years 1978-1995

Parameter	Measurement	Comments
Annual Mean	29.1	
Highest Annual Mean	48.3	
Lowest Annual Mean	16.0	
Highest Daily Mean	1500	October 1, 1979
Lowest Daily Mean	1.7	September 11-13, 1995
Annual Seven-day Minimum	1.8	September 10, 1995
Instantaneous Peak Flow	4300 (a)	September 6, 1979
Instantaneous Peak Stage	8.80	September 6, 1979
Instantaneous Low Flow	.75 (b)	January 30, 1981
Annual Runoff (cfsm)	1.08	
Annual Runoff (inches)	14.64	
10 Percent Exceeds	48	
50 Percent Exceeds	18	
90 Percent Exceeds	5.6	

Source: James, R.W., Simmons, R.H., and Helinsky, B.M. U.S. Geological Survey Water-Data Report MD-DE-95-1. Water Resources Data Maryland and Delaware Water Year 1995. Volume 1 - Surface-Water Data.

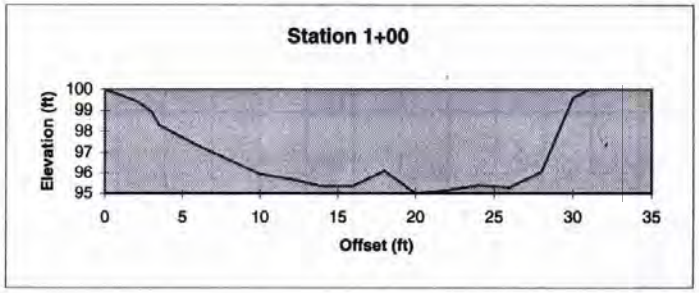
(a) From rating curve extended above 1,200 cubic ft/s on basis of contracted-opening and flow-over-road measurement of peak flow.

(b) Result of freezeup

Note: All elevations relative to an arbitrary datum. View facing upstream

Station 1+00

Offset (ft)	Rod Depth (ft)	Elevation (ft)	Comments
0.00	0.00	100.00	
2.00	0.55	99.45	
3.00	1.05	98.95	
3.50	1.70	98.30	
5.80	2.60	97.40	Bankfull
10.00	4.05	95.95	
12.00	4.30	95.70	
14.00	4.65	95.35	
16.00	4.62	95.38	
18.00	3.90	96.10	Boulder
20.00	5.00	95.00	
22.00	4.85	95.15	
24.00	4.60	95.40	
26.00	4.70	95.30	
28.00	3.95	96.05	
30.00	0.40	99.60	
31.00	0.00	100.00	

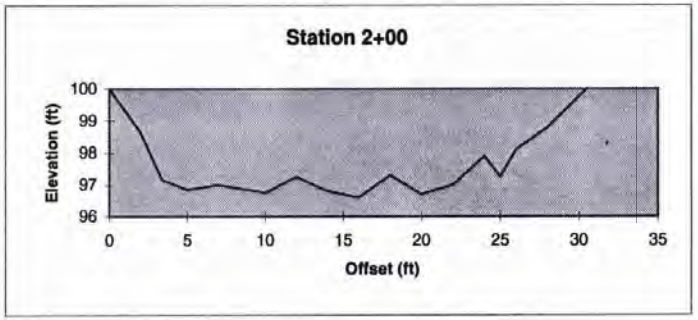


Section Data		Results		Stream Classification Parameters	
Wtd. Mannings Coefficient	0.032	Flow Area	38.00 ft^2	Average Depth	1.66 ft
Channel Slope	0.01 ft/ft	Wetted Perimeter	24.61 ft	Width/Depth Ratio	13.87
Water Surface Elevation	97.4 ft	Top Width	22.96 ft	Entrenchment	1.35
Discharge	235.73 cfs	Maximum Depth	2.4 ft	Rosgen Classification	F4
		Velocity	6.2 ft/s		

Note: All elevations relative to an arbitrary datum. View facing upstream

Station 2+00

Offset (ft)	Rod Depth (ft)	Elevation (ft)	Comments
0.00	0.00	100.00	
2.00	1.35	98.65	
3.40	2.85	97.15	Edge of water
5.00	3.15	96.85	
7.00	3.00	97.00	
10.00	3.25	96.75	
12.00	2.75	97.25	
14.00	3.20	96.80	
16.00	3.40	96.60	
18.00	2.70	97.30	
20.00	3.30	96.70	Edge of water
22.00	3.00	97.00	
24.00	2.10	97.90	
25.00	2.75	97.25	Bankfull
26.00	1.90	98.10	
28.00	1.20	98.80	
30.50	0.00	100.00	



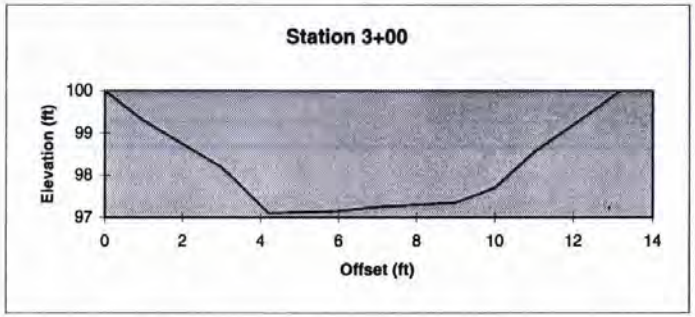
Section Data		Results	
Wtd. Mannings Coefficient	0.04	Flow Area	24.61 ft^2
Channel Slope	0.025 ft/ft	Wetted Perimeter	24.99 ft
Water Surface Elevation	98.1 ft	Top Width	23.49 ft
Discharge	143.03 cfs	Maximum Depth	1.5 ft
		Velocity	5.81 ft/s

Stream Classification Parameters	
Average Depth	1.05 ft
Width/Depth Ratio	22.42
Entrenchment	1.30
Rosgen Classification	B3

Note: All elevations relative to an arbitrary datum. View facing upstream

Station 3+00

Offset (ft)	Rod Depth (ft)	Elevation (ft)	Comments
0.00	0.00	100.00	
1.00	0.70	99.30	
3.00	1.80	98.20	
4.20	2.90	97.10	Edge of water
6.00	2.85	97.15	
7.00	2.75	97.25	
9.00	2.65	97.35	Edge of water
10.00	2.30	97.70	
11.00	1.45	98.55	Bankfull
12.00	0.80	99.20	
13.20	0.00	100.00	



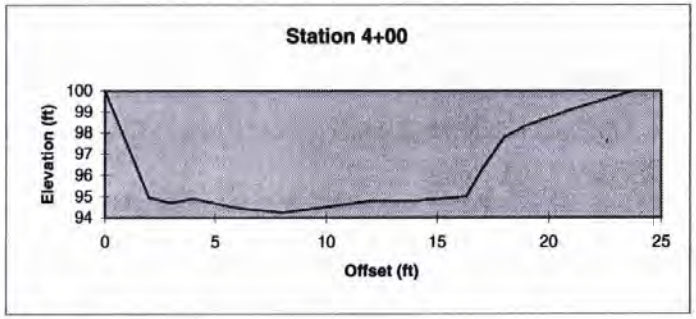
Section Data		Results	
Wtd. Mannings Coefficient	0.037	Flow Area	9.06 ft^2
Channel Slope	0.04 ft/ft	Wetted Perimeter	9.53 ft
Water Surface Elevation	98.55 ft	Top Width	8.64 ft
Discharge	70.29 cfs	Maximum Depth	1.45 ft
		Velocity	7.76 ft/s

Stream Classification Parameters	
Average Depth	1.05 ft
Width/Depth Ratio	8.24
Entrenchment	1.53
Rosgen Classification	A4

Note: All elevations relative to an arbitrary datum. View facing upstream

Station **4+00**

Offset (ft)	Rod Depth (ft)	Elevation (ft)	Comments
0.00	0.00	100.00	
2.00	5.05	94.95	
3.00	5.30	94.70	
4.00	5.10	94.90	
6.00	5.55	94.45	
8.00	5.75	94.25	Thaweg
10.00	5.50	94.50	
12.00	5.20	94.80	
14.00	5.20	94.80	
16.30	5.00	95.00	Edge of water
17.00	3.75	96.25	
18.00	2.20	97.80	Bankfull
19.00	1.65	98.35	
21.00	0.90	99.10	
23.80	0.00	100.00	



Section Data		Results	
Wtd. Mannings Coefficient	0.035	Flow Area	48.85 ft^2
Channel Slope	0.004 ft/ft	Wetted Perimeter	20.8 ft
Water Surface Elevation	97.8 ft	Top Width	17.13 ft
Discharge	231.76 cfs	Maximum Depth	3.55 ft
		Velocity	4.74 ft/s

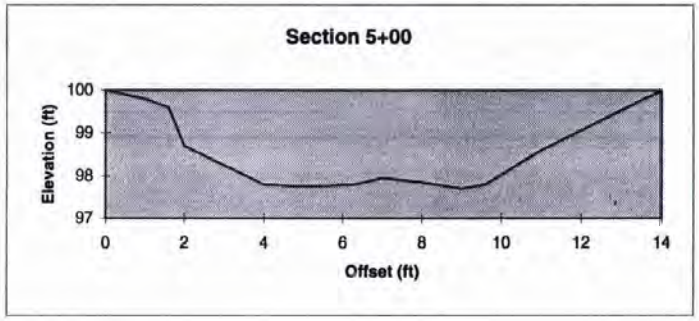
Stream Classification Parameters	
Average Depth	2.85 ft
Width/Depth Ratio	6.01 *
Entrenchment	2.35
Rosgen Classification	C4

* Does not fit Rosgen's Classification for width/depth ration

Note: All elevations relative to an arbitrary datum. View facing upstream

Station 5+00

Offset (ft)	Rod Depth (ft)	Elevation (ft)	Comments
0.00	0.00	100.00	
1.00	0.20	99.80	
1.60	0.40	99.60	
2.00	1.30	98.70	
4.00	2.20	97.80	Edge of water
5.00	2.25	97.75	
6.30	2.20	97.80	
7.00	2.05	97.95	
8.00	2.15	97.85	
9.00	2.30	97.70	
9.60	2.20	97.80	Edge of water
11.00	1.40	98.60	Bankfull
14.00	0.00	100.00	

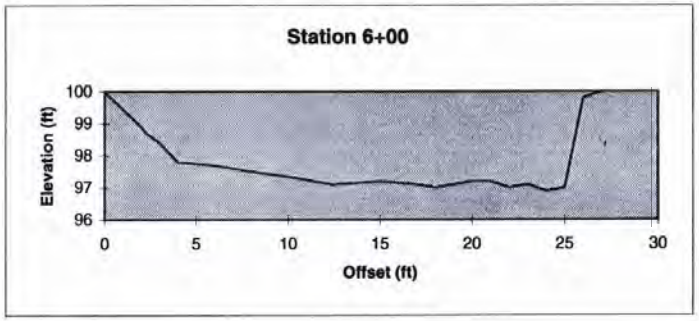


Section Data		Results		Stream Classification Parameters	
Wtd. Mannings Coefficient	0.037	Flow Area	5.71 ft^2	Average Depth	0.65 ft
Channel Slope	0.04 ft/ft	Wetted Perimeter	9.2 ft	Width/Depth Ratio	13.50
Water Surface Elevation	98.6 ft	Top Width	8.78 ft	Entrenchment	1.25
Discharge	33.37 cfs	Maximum Depth	0.9 ft	Rosgen Classification	B3
		Velocity	5.84 ft/s		

Note: All elevations relative to an arbitrary datum. View facing upstream

Station 6+00

Offset (ft)	Rod Depth (ft)	Elevation (ft)	Comments
0.00	0.00	100.00	
2.00	1.10	98.90	
2.30	1.30	98.70	Bankfull
3.00	1.60	98.40	
4.00	2.20	97.80	
6.00	2.30	97.70	
8.00	2.50	97.50	
10.00	2.65	97.35	
12.40	2.90	97.10	Edge of water
15.00	2.80	97.20	
17.00	2.90	97.10	
18.00	3.00	97.00	
20.00	2.80	97.20	
21.00	2.80	97.20	
22.00	3.00	97.00	
23.00	2.90	97.10	
24.00	3.10	96.90	
25.00	3.00	97.00	Edge of water
26.00	0.20	99.80	
27.00	0.00	100.00	

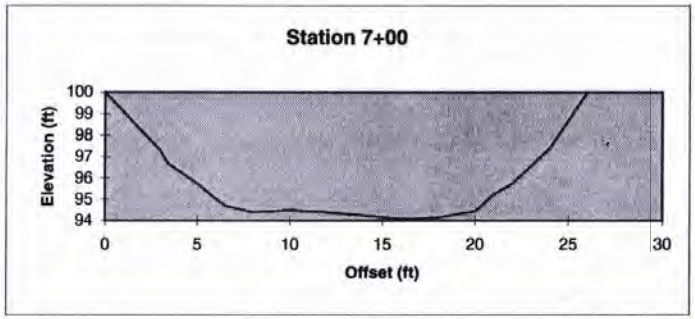


Section Data		Results		Stream Classification Parameters	
Wtd. Mannings Coefficient	0.033	Flow Area	31.59 ft^2	Average Depth	1.36 ft
Channel Slope	0.009 ft/ft	Wetted Perimeter	24.83 ft	Width/Depth Ratio	17.20
Water Surface Elevation	98.7 ft	Top Width	23.31 ft	Entrenchment	1.16
Discharge	158.44 cfs	Maximum Depth	1.8 ft	Rosgen Classification	F4
		Velocity	5.02 ft/s		

Note: All elevations relative to an arbitrary datum. View facing upstream

Station 7+00

Offset (ft)	Rod Depth (ft)	Elevation (ft)	Comments
0.00	0.00	100.00	
3.00	2.70	97.30	
3.40	3.30	96.70	Bankfull
5.00	4.25	95.75	
6.50	5.30	94.70	Edge of water
8.00	5.60	94.40	
10.00	5.50	94.50	
12.00	5.60	94.40	
14.00	5.75	94.25	
16.00	5.92	94.08	
18.00	5.85	94.15	
20.00	5.55	94.45	
21.00	4.75	95.25	
22.00	4.25	95.75	
24.00	2.60	97.40	
26.00	0.00	100.00	



Section Data		Results	
Wtd. Mannings Coefficient	0.033	Flow Area	38.58 ft^2
Channel Slope	0.0067 ft/ft	Wetted Perimeter	21.15 ft
Water Surface Elevation	96.7 ft	Top Width	19.75 ft
Discharge	212.29 cfs	Maximum Depth	2.62 ft
		Velocity	5.5 ft/s

Stream Classification Parameters	
Average Depth	1.95 ft
Width/Depth Ratio	10.11 *
Entrenchment	1.32
Rosgen Classification	F4

* Does not fit Rosgen's Classification for width/depth ratio