

# BSDMS Summary Report

23 Youghiogheny River at S.R.42 at Friendsville, MD

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## Site Location:

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**Site ID:** 23

**Site Name:** Youghiogheny River at S.R.42 at Friendsville, MD

**County:** Garrett County

**Nearest City:** Friendsville

**State:** MD

**Latitude:** 393913

**Longitude:** 792431

**USGS Station ID:** 3076500

**Route Number:** 42

**Route Class:** State

**Service Level:** Mainline

**Route Direction:** NA

**Highway Mile Point:**

**Stream Name:** Youghiogheny

**River Mile:**

**Contact:**  
USGS  
3600 West Broad Street Suite 606  
Richmond, VA 23230  
(804) 771-2427

**Publication:**  
Hayes, Donald C., 1993, Site Selection and Collection of Bridge-Scour Data in Delaware, Maryland, and Virginia: U.S. Geological Survey Water-Resources Investigations Report 93-4017, 23 p.

## Site Description:

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The site is in Friendsville, Maryland at the State Highway 42 bridge crossing the Youghiogheny River, 0.8 miles upstream from the mouth. The bridge is 155 ft long and has two 5-ft-wide piers on footers spaced 53 ft apart. The sharp-nosed piers and footers, skewed 30 degrees to the bridge deck, are aligned with the flow at most stages. The piers extend 2 ft upstream of the bridge at the nose but are square and flush with the bridge at the tail end. Bedrock is probably located several feet below the gravel and cobble channel bed. A reservoir provides some regulation of flow at this site. Peak flows generally recede rapidly and the velocity is very fast (> 7 ft/sec). The right bank has houses right up to the top of the bank, and the left bank has a gravel road at the top and houses along the road.

## Elevation Reference

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**Datum:** MSL

**MSL (ft):**

### Description of Reference Elevation:

The datum of the gage is 1487.33 ft. The datum of the wire weight (COE) at the bridge (approximately 0.5 miles downstream) is 1472.58. The datum

# BSDMS Summary Report

23 Youghiogheny River at S.R.42 at Friendsville, MD

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of the original bridge plans (assumed 100.00 ft elevation on corner of step) is approximately 1394.64. Wire-weight readings were taken on approximately half the discharge measurements made at the bridge. A relation was computed between the wire-weight reading and the stage at the gage. The maximum error between predicted wire-weight and actual wire-weight readings was 0.30 ft.

## Stream Data

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<b>Drainage Area (sq mi):</b>	295	<b>Floodplain Width:</b>	Narrow
<b>Slope in Vicinity(ft/ft):</b>	0.005	<b>Natural Levees:</b>	Little
<b>Flow Impact:</b>	Straight	<b>Apparent Incision:</b>	None
<b>Channel Evolution</b>	Unknown	<b>Channel Boundary:</b>	Non-alluvial
<b>Armoring:</b>	Unknown	<b>Banks Tree Cover:</b>	Low
<b>Debris Frequency:</b>	Occasional	<b>Sinuosity:</b>	Straight
<b>Debris Effect:</b>	Local	<b>Braiding:</b>	None
<b>Stream Size:</b>	Medium	<b>Anabranching:</b>	None
<b>Flow Habit:</b>	Perennial	<b>Bars:</b>	Unknown
<b>Bed Material:</b>	Cobbles	<b>Stream Width Variability:</b>	Unknown
<b>Valley Setting:</b>	Moderate		

## Roughness Data

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### Manning's n Values

	Left Overbank	Channel	Right Overbank
High:		0.045	
Typical		0.05	
Low:		0.06	

## Bed Material

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Measurement Number	Yr	Mo	Dy	Sampler	D95 (mm)	D84 (mm)	D50 (mm)	D16 (mm)	SP	Shape	Cohesion
1	1992	10	18	HAND (GRID)	350	233	108	68	2.65		Non-Cohesive

# BSDMS Summary Report

23 Youghiogheny River at S.R.42 at Friendsville, MD

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2 1992 10 18 scoop 12.2 6.7 2.3 0.82 2.65 Non-Cohesive

## Bed Material Comments

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Measurement No: 1

Measurement No: 2

## Bridge Data

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Structure No: 11011  
Length(ft): 155  
Width(ft): 38  
Number of Spans: 3  
Vertical Configuration: Unknown  
Low Chord Elev (ft): 1486.51  
Upper Chord Elev (ft): 1486.64  
Overtopping Elev (ft): 1490.6  
Skew (degrees): 0  
Guide Banks: Straight  
Waterway Classification: Main  
Year Built: 1932  
Avg Daily Traffic:  
Plans on File: Yes  
Parallel Bridges No  
Upstream/Downstream: N/A  
Continuous Abutment: No

# BSDMS Summary Report

23 Youghiogheny River at S.R.42 at Friendsville, MD

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Distance Between Centerlines:

Distance Between Pier Faces:

## Bridge Description:

The bridge is 155 ft long and has two 5-ft-wide piers on footers spaced 53 ft apart. The sharp-nosed piers and footers, skewed 30 degrees to the bridge deck, are aligned with the flow at most stages. The piers extend 2 ft upstream of the bridge at the nose but are square and flush with the bridge at the tail end.

## Abutment Data

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Left Station: 0

Right Station: 153

Left Skew (deg): 0

Right Skew (deg) 0

Left Abutment Length (ft): 42

Right Abutment Length (ft) 42

Left Abutment to Channel Bank (ft): 0.01

Right Abutment to Channel Bank (ft): 0.01

Left Abutment Protection:

Right Abutment Protection

Contracted Opening Type: II

Embankment Skew (deg): 0

Embankment Slope (ft/ft): 2

Abutment Slope (ft/ft)

Wingwalls: No

Wingwall Angle (deg): 0

## Pier Data

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Pier ID	Bridge Station(ft)	Alignment	Highway Station	PierType	# Of Piles	File Spacing(ft)
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# BSDMS Summary Report

23 Youghiogheny River at S.R.42 at Friendsville, MD

LEFT	50	0	0	Single	0
RT	103	0	0	Single	0

Pier ID	Pier Width(ft)	Pier Shape	Shape Factor	Length(ft)	Protection	Foundation
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LEFT	5	Sharp		41.7	None	Poured
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RT	5	Sharp		41.7	None	Poured
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Pier ID	Top Elevation(ft)	Bottom Elevation(ft)	Foot or Pile Cap Width(ft)	Cap Shape	File Tip Elevation(ft)
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LEFT	1468.41	1464.41	7	Other	
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RT	1468.48	1464.48	7	Other	
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## Pier Description

Pier ID LEFT

The two sharp-nosed piers (5 ft wide and 41.7 ft long) and footers are skewed 30 degrees to the bridge and are aligned with the flow at most stages. Each pier is a solid web for its entire length. The piers extend 2 ft upstream of the bridge at the nose but are square and flush at the tail end.

Pier ID RT

See left pier.

## Pier Scour Data

Pier ID	Date	Time	USOrDS
LEFT	7/13/90	13:00	Upstream
LEFT	4/1/93	9:30	Upstream
RT	7/13/90	13:00	Upstream
RT	4/1/93	9:30	Upstream

Pier ID	Scour Depth	Accuracy (ft)	Side Slope (ft/ft)	TopWidth (ft)	Apprch Vel (ft/s)	Apprch Depth(ft)	Effective Pier Width	Skew to Flow(deg)
LEFT	1.1	1	15	25	7.66	7.9	5	0
LEFT	1.4	1	13	35	6.85	6.8	5	0
RT	2.7	1	9.5	52	8.62000	9.9	5	0
RT	1.7	1	16	55	6.2	8	5	0

# BSDMS Summary Report

23 Youghiogheny River at S.R.42 at Friendsville, MD

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PierID	Sediment Transport	Bed Material	BedForm	Trough (ft)	Crest (ft)	Sigma	Debris Effects
LEFT	Unknown	Unknown	Unknown			1.8	Unknown
LEFT	Unknown	Unknown	Unknown			1.8	Unknown
RT	Unknown	Unknown	Unknown			1.8	Unknown
RT	Unknown	Unknown	Unknown			1.8	Unknown

PierID	D95 (mm)	D84 (mm)	D50 (mm)	D16 (mm)
LEFT	350	233	108	68
LEFT	350	233	108	68
RT	350	233	108	68
RT	350	233	108	68

## Pier Scour Comments

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Pier ID	LEFT	Time:	13:00	US/DS:	Upstream
Pier ID	LEFT	Time:	9:30	US/DS:	Upstream
Pier ID	RT	Time:	13:00	US/DS:	Upstream
Pier ID	RT	Time:	9:30	US/DS:	Upstream

## Abutment Scour

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# BSDMS Summary Report

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## ContractionScour

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## Stage and Discharge Data

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Peak Discharge					Flow	Peak Stage					Stage	Water	Return	
year	mo	dy	hr	mi	(cfs)	Qacc	year	mo	dy	hr	mi	(ft)	Temp (C)	Period(yr)

## Hydrograph

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Hydrograph							Discharge	
Number	Year	Month	Day	Hr	Min	Sec	Stage(ft)	(cfs)

## Supporting Files

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