

BSDMS Summary Report

62 Mad River at U.S. 36 near Urbana, OH

Site Location:

Site ID: 62

Site Name: Mad River at U.S. 36 near Urbana, OH

County: Champaign

Nearest City: Urbana

State: OH

Latitude: 400627

Longitude: 834757

USGS Station ID:

Route Number: 36

Route Class: US

Service Level: Mainline

Route Direction: East

Highway Mile Point: 12.44

Stream Name: Mad River

River Mile:

Contact:
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Publication:
Jackson, K.S., 1996, Evaluation of
bridge-scour data at selected
sites in Ohio: U.S. Geological
Survey Water-Resources
Investigations Report 97-4182.

Site Description:

This site is located at the US 36 bridge crossing the Mad River at Urbana, Champaign County, Ohio. USGS streamgage Mad River nr Urbana (03267000) is located on the left downstream abutment. Streamgage data available from 1939 to current year. Some data available 1925-1931. The Ohio Department of Transportation (ODOT) bridge identification is "CHP-36-1244".

Bed-material samples were collected during an annual low-flow survey.

Notes: All piers are referenced numerically, increasing from left to right, when viewing the upstream face of the bridge while facing in the downstream direction.

Slope in Vicinity (reported in Stream Site Data) is estimated from USGS 7.5-minute quadrangle topographic maps.

Water-surface slope (if reported in Pier Scour Data comments section) is the measured slope between water surfaces at the approach and bridge sections during the scour measurement.

Elevation Reference

Datum: MSL

MSL (ft): 0

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Description of Reference Elevation:

RM7 - Aluminum tablet in top of right upstream wingwall (northwest corner of of bridge). Tablet stamped (US Dept. of Interior, reset 1969).
MSL elevation = 1002.46

Stream Data

Drainage Area (sq mi):	162	Floodplain Width:	Wide
Slope in Vicinity(ft/ft):	0.00136	Natural Levees:	Little
Flow Impact:	Straight	Apparent Incision:	None
Channel Evolution	Premodified	Channel Boundary:	Non-alluvial
Armoring:	Partial	Banks Tree Cover:	High
Debris Frequency:	Frequent	Sinuosity:	Straight
Debris Effect:	Local	Braiding:	None
Stream Size:	Small	Anabranching:	None
Flow Habit:	Perennial	Bars:	Unknown
Bed Material:	Cobbles	Stream Width Variability:	Equiwidth
Valley Setting:	Low		

Roughness Data

Manning's n Values

	Left Overbank	Channel	Right Overbank
High:	0.075	0.045	0.075
Typical	0.065	0.042	0.065
Low:	0.05	0.038	0.05

Bed Material

Measurement Number	Yr	Mo	Dy	Sampler	D95 (mm)	D84 (mm)	D50 (mm)	D16 (mm)	SP	Shape	Cohesion
AP1	1991	6	19		69	58	19.8	2.7	2.65		Unknown

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AP2	1993	6	17	69	59	36	7.5	2.65	Unknown
AP3	1994	3	31	47	37	18	3.7	2.65	Unknown
BR1	1990	8	21	45	33	10	1.5	2.65	Unknown
BR2	1991	6	19	68	56	11.4	4.6	2.65	Unknown
BR3	1992	6	26	86	74	46	0.11	2.65	Unknown
BR4	1993	6	17	67	51	20	0.42	2.65	Unknown
BR5	1994	3	31	37.5	28	18.5	4.8	2.65	Unknown
P1-1	1990	8	21	38.5	27	10.3	2.3	2.65	Unknown
P1-2	1991	6	19	42	32	19	11.5	2.65	Unknown
P1-3	1993	6	17	69	56	25	3.8	2.65	Unknown
P1-4	1994	3	31	44	32	19.5	5	2.65	Unknown
P2-1	1990	8	21	9.5	5.2	1	0.05	2.65	Unknown
P2-2	1991	6	19	21	12	0.95	0.3	2.65	Unknown
P2-3	1992	6	26	7.4	3.8	1.3	0.16	2.65	Unknown
P2-4	1993	6	17	1.6	1	0.54	0.12	2.65	Unknown

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P2-5 1994 3 31 26 15 2.5 0.51 2.65 Unknown

Bed Material Comments

Measurement No: AP1

Approach-section composite sample

Measurement No: AP2

Approach-section composite sample

Measurement No: AP3

Approach-section composite sample

Measurement No: BR1

Bridge-section composite sample, collected along the upstream bridge face.

Measurement No: BR2

Bridge-section composite sample, collected along the upstream bridge face.

Measurement No: BR3

Bridge-section composite sample, collected along the upstream bridge face.

Measurement No: BR4

Bridge-section composite sample, collected along the upstream bridge face.

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Measurement No: BR5

Bridge-section composite sample, collected along the upstream bridge face.

Measurement No: P1-1

Sample collected at the upstream face of pier 1

Measurement No: P1-2

Sample collected at the upstream face of pier 1

Measurement No: P1-3

Sample collected at the upstream face of pier 1

Measurement No: P1-4

Sample collected at the upstream face of pier 1

Measurement No: P2-1

Sample collected at the upstream face of pier 2

Measurement No: P2-2

Sample collected at the upstream face of pier 2

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Measurement No: P2-3

Sample collected at the upstream face of pier 2

Measurement No: P2-4

Sample collected at the upstream face of pier 2

Measurement No: P2-5

Sample collected at the upstream face of pier 2

Bridge Data

Structure No: CHP-36-1244

Length(ft): 161.25

Width(ft): 45

Number of Spans: 3

Vertical Configuration: Horizontal

Low Chord Elev (ft): 1000.1

Upper Chord Elev (ft): 1002.7

Overtopping Elev (ft): 1002.7

Skew (degrees): 0

Guide Banks: None

Waterway Classification: Main

Year Built: 1931

Avg Daily Traffic: 6130

Plans on File: Yes

Parallel Bridges: No

Upstream/Downstream: Unknown

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Continuous Abutment: No

Distance Between Centerlines:

Distance Between Pier Faces:

Bridge Description:

The bridge is constructed of concrete and steel I-beams, and it has solid-wall round-nose piers. The site plans are not dated. The piers are referenced from the left to right abutments when looking downstream.

Abutment Data

Left Station: 0

Right Station: 161.25

Left Skew (deg): 0

Right Skew (deg) 0

Left Abutment Length (ft): 44.4

Right Abutment Length (ft) 44.4

Left Abutment to Channel Bank (ft): 10

Right Abutment to Channel Bank (ft): 55

Left Abutment Protection:

Right Abutment Protection

Contracted Opening Type: I

Embankment Skew (deg): 0

Embankment Slope (ft/ft): 2

Abutment Slope (ft/ft) 1.5

Wingwalls: Yes

Wingwall Angle (deg): 45

Pier Data

Pier ID	Bridge Station(ft)	Alignment	Highway Station	PierType	# Of Piles	File Spacing(ft)
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1	53.75	0	0	Single	0
2	107.5	0	0	Single	0

Pier ID	Pier Width(ft)	Pier Shape	Shape Factor	Length(ft)	Protection	Foundation
1	5.1	Round		37	None	Poured
2	5.1	Round		37	None	Poured

Pier ID	Top Elevation(ft)	Bottom Elevation(ft)	Foot or Pile Cap Width(ft)	Cap Shape	File Tip Elevation(ft)
1	984.2	980.6	7.5	Square	
2	984.2	980.6	7.5	Square	

Pier Description

Pier ID 1

The concrete pier is a solid wall with round nose.

Pier ID 2

The concrete pier is a solid wall with round nose.

Pier Scour Data

Pier ID	Date	Time	USOrDS					
1	1/5/93	12:10	Upstream					
1	7/2/93	10:30	Upstream					
1	1/28/94	11:25	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)
1	4	0.5	5.4	43.5	3.2	3	5.4	0
1	4.7	0.5	4.3	40	4	5.3	5.3	0
1	3.4	0.5	3.7	25	4.5	6.5	5.2	0
PierID	Sediment Transport	Bed Material	BedForm	Trough (ft)	Crest (ft)	Sigma	Debris Effects	

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1	Clear-water	Non-cohesive	Unknown	1.67	Substantial
1	Clear-water	Non-cohesive	Unknown	3.84	Substantial
1	Clear-water	Non-cohesive	Unknown	3.84	Unknown

PierID	D95 (mm)	D84 (mm)	D50 (mm)	D16 (mm)
1	42	32	19	11.5
1	69	56	25	3.8
1	69	56	25	3.8

Pier Scour Comments

Pier ID 1 **Time:** 12:10 **US/DS:** Upstream

Bed-material sample collected during low flow 6/19/91.
No bed-material sample obtained for this pier during 1992.

Pier ID 1 **Time:** 10:30 **US/DS:** Upstream

Bed-material sample collected during low flow 6/19/91.
No bed-material sample obtained for this pier during 1992.

Pier ID 1 **Time:** 11:25 **US/DS:** Upstream

Abutment Scour

Contraction Scour

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Stage and Discharge Data

Peak Discharge					Flow (cfs)	Qacc	Peak Stage					Stage (ft)	Water Temp (C)	Return Period(yr)
year	mo	dy	hr	mi			year	mo	dy	hr	mi			
1994	1	28	11:25		2220							2	2	
1993	7	2	10:30		2200							15	2	
1993	1	5	12:10		866							2	1	

Hydrograph

Supporting Files
