

BSDMS Summary Report

69 Tuscarawas River at C.R. 14 near Port Washington, OH

Site Location:

Site ID: 69

Site Name: Tuscarawas River at C.R. 14 near Port Washington, OH

County: Tuscarawas

Nearest City: Port Washington

State: OH

Latitude: 401933

Longitude: 813010

USGS Station ID:

Route Number: 14

Route Class: County

Service Level: Service

Route Direction: East

Highway Mile Point:

Stream Name: Tascarwas River

River Mile:

Contact:
Scott Jackson
U.S. Geological Survey
614-469-5553
75 West Third Ave.
Columbus, Ohio 43212
or
William Krouse
Ohio Department of Transportation
614-466-2398
25 South Front St.
Columbus, Ohio 43216

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 at CR 14 over the Tuscarawas R. at Port Washington, Tuscarawas Cty, Ohio. It is located approximately 9.6 miles upstream of USGS streamgage Tuscarawas River at Newcomerstown (03129000): with streamgage data available from 1921. Flow is regulated by eight flood-control reservoirs at points upstream 40 to 64 miles from the Newcomerstown streamgage. The bridge is maintained by the Tuscarawas County Engineers Office. 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):

BSDMS Summary Report

69 Tuscarawas River at C.R. 14 near Port Washington, OH

Description of Reference Elevation:

BM1 - Corps of Engineers brass tablet on the left downstream abutment, (southeast corner of the bridge). Tablet is marked with the elevation 820.63 feet.

MSL elevation = 819.86 ft

Stream Data

Drainage Area (sq mi):	2400	Floodplain Width:	Wide
Slope in Vicinity(ft/ft):	0.00047	Natural Levees:	Little
Flow Impact:	Straight	Apparent Incision:	None
Channel Evolution	Premodified	Channel Boundary:	Non-alluvial
Armoring:	High	Banks Tree Cover:	Low
Debris Frequency:	Occasional	Sinuosity:	Sinuous
Debris Effect:	Local	Braiding:	Locally
Stream Size:	Medium	Anabranching:	Locally
Flow Habit:	Perennial	Bars:	Narrow
Bed Material:	Gravel	Stream Width Variability:	Equiwidth
Valley Setting:	Moderate		

Roughness Data

Manning's n Values

	Left Overbank	Channel	Right Overbank
High:	0.075	0.04	0.07
Typical	0.07	0.04	0.068
Low:	0.065	0.038	0.065

Bed Material

Measurement Number	Yr	Mo	Dy	Sampler	D95 (mm)	D84 (mm)	D50 (mm)	D16 (mm)	SP	Shape	Cohesion
AP-1	1993	7	30		69	55	20	4	2.65		Unknown

BSDMS Summary Report

69 Tuscarawas River at C.R. 14 near Port Washington, OH

AP-2	1994	7	18	64	42	18	6.5	2.65	Unknown
BR-1	1990	11	27	35	29	17.5	2	2.65	Unknown
BR-2	1991	8	15	67	51	12	0.76	2.65	Unknown
BR-3	1992	10	5	40	29	10	1	2.65	Unknown
BR-4	1993	7	30	19	16	2.2	0.12	2.65	Unknown
BR-5	1994	7	18	67	58	20	0.52	2.65	Unknown
P1-1	1990	11	27	0.9	0.2	0.02		2.65	Unknown
P1-2	1991	8	15	0.9	0.3	0.03	0.004	2.65	Unknown
P1-3	1992	10	5	8	3.6	0.25	0.007	2.65	Unknown
P1-4	1993	7	30	1.4	0.8	0.07	0.01	2.65	Unknown
P1-5	1994	7	18	15	7.5	3.3	0.86	2.65	Unknown
P2-1	1991	8	15	71	65	14.8	2	2.65	Unknown
P2-2	1992	10	5	8.5	3.1	1.15	0.46	2.65	Unknown
P2-3	1993	7	30	40	27	10	1.3	2.65	Unknown
P2-4	1994	7	18	44	27	5.5	0.46	2.65	Unknown

BSDMS Summary Report

69 Tuscarawas River at C.R. 14 near Port Washington, OH

P3-1	1990	11	27	40	33	20.5	4.5	2.65	Unknown
P3-2	1991	8	15	45	37	20.6	5.8	2.65	Unknown
P3-3	1992	10	5	33	22	11.5	4.4	2.65	Unknown
P3-4	1993	7	30	38	29	17	3.7	2.65	Unknown
P3-5	1994	7	18	37	28	15.5	3	2.65	Unknown

Bed Material Comments

Measurement No: AP-1

Approach-section composite sample

Measurement No: AP-2

Approach-section composite sample

Measurement No: BR-1

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

Measurement No: BR-2

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

Measurement No: BR-3

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

BSDMS Summary Report

69 Tuscarawas River at C.R. 14 near Port Washington, OH

Measurement No: BR-4

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

Measurement No: BR-5

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: P1-5

Sample collected at the upstream face of pier 1

BSDMS Summary Report

69 Tuscarawas River at C.R. 14 near Port Washington, OH

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

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: P3-1

Sample collected at the upstream face of pier 3

Measurement No: P3-2

Sample collected at the upstream face of pier 3

Measurement No: P3-3

Sample collected at the upstream face of pier 3

BSDMS Summary Report

69 Tuscarawas River at C.R. 14 near Port Washington, OH

Measurement No: P3-4

Sample collected at the upstream face of pier 3

Measurement No: P3-5

Sample collected at the upstream face of pier 3

Bridge Data

Structure No: Tuscarawas CR 14

Length(ft): 394.6

Width(ft):

Number of Spans: 4

Vertical Configuration: Horizontal

Low Chord Elev (ft): 819.3

Upper Chord Elev (ft): 820

Overtopping Elev (ft): 820

Skew (degrees): 0

Guide Banks: None

Waterway Classification: Main

Year Built: 1959

Avg Daily Traffic:

Plans on File: Yes

Parallel Bridges: No

Upstream/Downstream: Unknown

Continuous Abutment: No

Distance Between Centerlines:

Distance Between Pier Faces:

Bridge Description:

BSDMS Summary Report

69 Tuscarawas River at C.R. 14 near Port Washington, OH

This bridge is constructed of concrete and steel I-beams, and it has solid-wall round-nose piers. The site plans are dated 1958. All piers are referenced numerically from the left to right abutments when looking downstream.

Abutment Data

Left Station: 15.0569
Right Station: 11.041
Left Skew (deg): 0
Right Skew (deg) 0
Left Abutment Length (ft): 39.5
Right Abutment Length (ft) 36.8
Left Abutment to Channel Bank (ft): 100
Right Abutment to Channel Bank (ft): 20
Left Abutment Protection:
Right Abutment Protection
Contracted Opening Type: I
Embankment Skew (deg): 0
Embankment Slope (ft/ft): 2
Abutment Slope (ft/ft) 2
Wingwalls: No
Wingwall Angle (deg): 0

Pier Data

Pier ID	Bridge Station(ft)	Alignment	Highway Station	PierType	# Of Piles	Pile Spacing(ft)
1	92.7	0	14.0881	Single	20	3.2
2	193.6	0	13.0773	Single	20	3.2
3	294.5	0	12.0664	Single	20	3.2

Pier ID	Pier Width(ft)	Pier Shape	Shape Factor	Length(ft)	Protection	Foundation
---------	----------------	------------	--------------	------------	------------	------------

BSDMS Summary Report

69 Tuscarawas River at C.R. 14 near Port Washington, OH

1	3.3	Round	29.3	None	Piles
2	3.3	Round	29.3	None	Piles
3	3.3	Round	29.3	None	Piles

Pier ID	Top Elevation(ft)	Bottom Elevation(ft)	Foot or Pile Cap Width(ft)	Cap Shape	Pile Tip Elevation(ft)
1	795	792	8	Square	
2	795	792	8	Square	
3	795	792	8	Square	

Pier Description

Pier ID 1

This concrete pier is a solid wall with round nose.

Pier ID 2

This concrete pier is a solid wall with round nose.

Pier ID 3

This concrete pier is a solid wall with round nose.

Pier Scour Data

Pier ID	Date	Time	USOrDS	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)
2	1/15/93	10:45	Upstream									
2	12/6/93	10:00	Upstream									
3	1/15/93	10:45	Upstream									
3	12/6/93	10:00	Upstream									

BSDMS Summary Report

69 Tuscarawas River at C.R. 14 near Port Washington, OH

2	1.7	0.5	5.8	20	4.1	7.7	3.3	0
2	2.4	0.5	8.2	40	4.8	7.8	3.3	0
3	1.2	0.5	13.4	30	4.3	9.8	3.3	0
3	1.7	0.5	10.5	30	4.6	10.1	3.3	0

PierID	Sediment Transport	Bed Material	BedForm	Trough (ft)	Crest (ft)	Sigma	Debris Effects
2	Clear-water	Non-cohesive	Unknown			2.6	Insignificant
2	Live-bed	Non-cohesive	Unknown			4.56	Insignificant
3	Clear-water	Unknown	Unknown			2.24	Moderate
3	Live-bed	Non-cohesive	Unknown			2.8	Unknown

PierID	D95 (mm)	D84 (mm)	D50 (mm)	D16 (mm)
2	8.5	3.1	1.15	0.46
2	40	27	10	1.3
3	33	22	11.5	4.4
3	38	29	17	3.7

Pier Scour Comments

Pier ID 2 Time: 10:45 US/DS: Upstream

Bed-material sample collected during low flow 10/5/92.

Pier ID 2 Time: 10:00 US/DS: Upstream

Pier ID 3 Time: 10:45 US/DS: Upstream

Bed-material sample collected during low flow 10/5/92.

Pier ID 3 Time: 10:00 US/DS: Upstream

Abutment Scour

BSDMS Summary Report

69 Tuscarawas River at C.R. 14 near Port Washington, OH

ContractionScour

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			
1993	12	6	10:00		8880							1	1	
1993	1	15	10:45		8330							2	1	

Hydrograph

Supporting Files
