

BSDMS Summary Report

25 Choptank River at S.R. 287 near Goldsboro, MD

Site Location:

Site ID: 25

Site Name: Choptank River at S.R. 287 near Goldsboro, MD

County: Carrolline

Nearest City: Goldsboro

State: MD

Latitude: 390200

Longitude: 754500

USGS Station ID: 1490750

Route Number: 287

Route Class: State

Service Level: Mainline

Route Direction: NA

Highway Mile Point:

Stream Name: Choptank River

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:

The site is located near Goldsboro, Maryland at the State Highway 287 bridge crossing the Choptank River. The bridge is 240 ft long and has four arch-supported spans. Each pier, formed by the the convergence of two arches, increases in width with elevation from the 4-ft width at the base. The face of each pier is flat. The abutments are outside the arches on each end. Plans are not available for this structure. Flow is through the left two arches most of the time. Debris can clog the arched passages and cause backwater and pressure flow. Existing scour holes are probably from a 1967 storm.

Elevation Reference

Datum: MSL

MSL (ft):

Description of Reference Elevation:

P-78-1942, located 0.5 miles west of the bridge, is at elevation 46.088 ft MSL.

R1, at elevation 28.229 ft, is a lag bolt in a poplar tree with four trunks located 30 ft northeast of bridge (upstream on left bank). The bolt is

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1.5 ft above the ground.

MP1, at elevation 29.383 ft, is a cross is the outside edge of a steel strap at station 41 on the upstream side of the bridge

MP2, at elevation 29.232 ft, is a cross in the outside edge of a steel strap at station 42 on the downstream side of the bridge.

Stream Data

Drainage Area (sq mi):		Floodplain Width:	Narrow
Slope in Vicinity (ft/ft):		Natural Levees:	Little
Flow Impact:	Straight	Apparent Incision:	None
Channel Evolution	Unknown	Channel Boundary:	Alluvial
Armoring:	None	Banks Tree Cover:	High
Debris Frequency:	Unknown	Sinuosity:	Sinuuous
Debris Effect:	Unknown	Braiding:	None
Stream Size:	Small	Anabranching:	None
Flow Habit:	Perennial	Bars:	Narrow
Bed Material:	Sand	Stream Width Variability:	Random
Valley Setting:	None		

Roughness Data

Manning's n Values

	Left Overbank	Channel	Right Overbank
High:		0.04	
Typical		0.04	
Low:		0.04	

Bed Material

Measurement Number	Yr	Mo	Dy	Sampler	D95 (mm)	D84 (mm)	D50 (mm)	D16 (mm)	SP	Shape	Cohesion
1	1992	8	31	scoop	2.6	0.9	0.38	0.18	2.65		Non-Cohesive

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Bed Material Comments

Measurement No: 1

Bridge Data

Structure No: 5002

Length(ft): 240

Width(ft): 35

Number of Spans: 4

Vertical Configuration: Unknown

Low Chord Elev (ft):

Upper Chord Elev (ft):

Overtopping Elev (ft):

Skew (degrees): 0

Guide Banks: None

Waterway Classification: Main

Year Built:

Avg Daily Traffic:

Plans on File: No

Parallel Bridges: No

Upstream/Downstream: N/A

Continuous Abutment: No

Distance Between Centerlines:

Distance Between Pier Faces:

Bridge Description:

The bridge is 240 ft long and has four arch-supported spans. Each pier, formed by the convergence of two arches, increases in width with elevation from the 4-ft width at the base. The face of each pier is flat. The abutments are outside the arches on each end. Plans are not available for this structure.

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Abutment Data

Left Station: 0
Right Station: 237
Left Skew (deg): 0
Right Skew (deg) 0
Left Abutment Length (ft):
Right Abutment Length (ft)
Left Abutment to Channel Bank (ft):
Right Abutment to Channel Bank (ft):
Left Abutment Protection:
Right Abutment Protection
Contracted Opening Type: Other
Embankment Skew (deg): 0
Embankment Slope (ft/ft):
Abutment Slope (ft/ft)
Wingwalls: No
Wingwall Angle (deg): 0

Pier Data

Pier ID	Bridge Station(ft)	Alignment	Highway Station	PierType	# Of Piles	Pile Spacing(ft)
CNTR	118	0	0	Single	0	
LEFT	62	0	0	Single	0	
RT	176	0	0	Single	0	

Pier ID	Pier Width(ft)	Pier Shape	Shape Factor	Length(ft)	Protection	Foundation
CNTR	4	Square		35	Unknown	Unknown
LEFT	4	Square		35	Unknown	Unknown

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RT 4 Square 35 Unknown Unknown

Pier ID	Top Elevation(ft)	Bottom Elevation(ft)	Foot or Pile Cap Width(ft)	Cap Shape	File Tip Elevation(ft)
CNTR				Unknown	
LEFT				Unknown	
RT				Unknown	

Pier Description

Pier ID CNTR

See left pier.

Pier ID LEFT

Each pier, formed by the the convergence of two arches, increases in width with elevation from the 4-ft width at the base. The face of each pier is flat. The piers are spaced approximately 56 ft apart.

Pier ID RT

See left pier.

Pier Scour Data

Pier ID	Date	Time	USOrDS
CNTR	2/23/89	11:00	Upstream
CNTR	3/25/89	14:00	Upstream
CNTR	7/28/91	10:30	Upstream
LEFT	2/23/89	11:00	Upstream
LEFT	3/25/89	14:00	Upstream
LEFT	7/28/91	10:30	Upstream
RT	2/23/89	11:00	Upstream
RT	2/23/89	14:00	Upstream
RT	7/28/91	10:30	Upstream

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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)
CNTR	2.2	1	5.5	24	0.29	3.6	4	0
CNTR	2.4	1	5	25	1.36	7.1	4	0
CNTR	2	1	7	27	0.71	4.9	4	0
LEFT	4	1	6	50	2.18	6.2	4	0
LEFT	5.4	1	6.5	72	2.53	10.1	4	0
LEFT	4.3	1	3.5	55	2.52	7.3	4	0
RT	1.6	1	18	58	0.9	3.7	4	0
RT	2.3	1	13	60	1.89	7	4	0
RT	2.2	1	11	48	1.04	4.8	4	0

PierID	Sediment Transport	Bed Material	BedForm	Trough (ft)	Crest (ft)	Sigma	Debris Effects
CNTR	Unknown	Unknown	Unknown			2.29	Unknown
CNTR	Unknown	Unknown	Unknown			2.29	Unknown
CNTR	Unknown	Unknown	Unknown			2.29	Unknown
LEFT	Unknown	Non-cohesive	Unknown			2.29	Unknown
LEFT	Unknown	Non-cohesive	Unknown			2.29	Unknown
LEFT	Unknown	Unknown	Unknown			2.29	Unknown
RT	Unknown	Unknown	Unknown			2.29	Unknown
RT	Unknown	Unknown	Unknown			2.29	Unknown
RT	Unknown	Unknown	Unknown			2.29	Unknown

PierID	D95 (mm)	D84 (mm)	D50 (mm)	D16 (mm)
CNTR	2.6	0.94	0.38	0.18
CNTR	2.6	0.94	0.38	0.18
CNTR	2.6	0.94	0.38	0.18
LEFT	2.6	0.94	0.38	0.18
LEFT	2.6	0.94	0.38	0.18
LEFT	2.6	0.94	0.38	0.18
RT	2.6	0.94	0.38	0.18
RT	2.6	0.94	0.38	0.18
RT	2.6	0.94	0.38	0.18

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Pier Scour Comments

Pier ID CNTR Time: 11:00 US/DS: Upstream

Accuracy of local scour estimate is probably 1 foot. Estimate is maximum scour for this cross section only and may not represent the maximum local scour at the pier.

Pier ID CNTR Time: 14:00 US/DS: Upstream

Pier ID CNTR Time: 10:30 US/DS: Upstream

Pier ID LEFT Time: 11:00 US/DS: Upstream

Pier ID LEFT Time: 14:00 US/DS: Upstream

Pier ID LEFT Time: 10:30 US/DS: Upstream

Pier ID RT Time: 11:00 US/DS: Upstream

Pier ID RT Time: 14:00 US/DS: Upstream

Pier ID RT Time: 10:30 US/DS: Upstream

Abutment Scour

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ContractionScour

Stage and Discharge Data

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

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

Supporting Files
