

BSDMS Summary Report

8 Red River at U.S. 71 at Index, AR

Site Location:

Site ID: 8

Site Name: Red River at U.S. 71 at Index, AR

County: Little River, Miller

Nearest City: Index

State: AR

Latitude: 333307

Longitude: 940228

USGS Station ID: 7337000

Route Number: 71

Route Class: US

Service Level: Mainline

Route Direction: NA

Highway Mile Point:

Stream Name: Red River

River Mile:

Contact:
U.S. Geological Survey, Arkansas
District
2301 Federal Office Building
700 West capitol Bldg.
Little Rock, Ark. 72201

Publication:
U.S. Geological Survey
Water Resources Investigations
Report 92-4126
"Scour around bridge piers on
streams in Arkansas"
by Rodney E. Southard

Site Description:

This site is located at the U.S. 71 bridge crossing the Red River at Index, Arkansas, near the border with Texas. The site is in the Coastal Plain Province, which is underlain by alluvial deposits and other unconsolidated sediments. The channel bed consists primarily of fine sands, silts, and clays.

Elevation Reference

Datum: Unknown

MSL (ft):

Description of Reference Elevation:

Structure elevations are from the bridge plans.

Stream Data

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Drainage Area (sq mi):	48030	Floodplain Width:	Unknown
Slope in Vicinity(ft/ft):		Natural Levees:	Unknown
Flow Impact:	Unknown	Apparent Incision:	Unknown
Channel Evolution	Unknown	Channel Boundary:	Unknown
Armoring:	Unknown	Banks Tree Cover:	Unknown
Debris Frequency:	Unknown	Sinuosity:	Unknown
Debris Effect:	Unknown	Braiding:	Unknown
Stream Size:	Unknown	Anabranching:	Unknown
Flow Habit:	Unknown	Bars:	Unknown
Bed Material:	Unknown	Stream Width Variability:	Unknown
Valley Setting:	Unknown		

Roughness Data

Manning's n Values

	Left Overbank	Channel	Right Overbank
High:			
Typical			
Low:			

Bed Material

Bridge Data

Structure No:	5817
Length(ft):	1604
Width(ft):	40

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Number of Spans: 16
Vertical Configuration: Curvilinear
Low Chord Elev (ft): 281.5
Upper Chord Elev (ft): 290.8
Overtopping Elev (ft):
Skew (degrees): 10
Guide Banks: Straight
Waterway Classification: Main
Year Built:
Avg Daily Traffic:
Plans on File: Yes
Parallel Bridges No
Upstream/Downstream: N/A
Continuous Abutment: No
Distance Between Centerlines:
Distance Between Pier Faces:

Bridge Description:

The bridge, 1,604 ft long and 40 ft wide, is supported by 17 pile-bent reinforced-concrete piers (includes abutment supports). Each pile bent consists of two concrete piles placed in drilled shafts spaced at approximately 24 ft on center. Four 7-ft-diameter bents (numbered 8-11 from the left bank, looking downstream) support spans over the main channel. The overbank pile bents have 3.5-ft-diameter piles. The four main-channel bents, which have a solid, 1.5-ft-wide connecting web above grade between the piles, are included in this database entry. The pile-cap pedestals support the bridge deck.

Abutment Data

Left Station: 40300.62
Right Station: 38696.29
Left Skew (deg): 10
Right Skew (deg): 10
Left Abutment Length (ft): 52

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Right Abutment Length (ft) 52
 Left Abutment to Channel Bank (ft): 530
 Right Abutment to Channel Bank (ft): 540
 Left Abutment Protection:
 Right Abutment Protection
 Contracted Opening Type: III
 Embankment Skew (deg): 10
 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)
10	1100	0	39427.5	Group	2	24
11	1300	0	39231.5	Group	2	24
8	750	0	39773.5	Group	2	24
9	900	0	39623.5	Group	2	24

Pier ID	Pier Width(ft)	Pier Shape	Shape Factor	Length(ft)	Protection	Foundation
10	7	Round		31	Unknown	Piles
11	7	Round		31	Unknown	Piles
8	7	Round		31	Unknown	Piles
9	7	Round		31	Unknown	Piles

Pier ID	Top Elevation(ft)	Bottom Elevation(ft)	Foot or Pile Cap Width(ft)	Cap Shape	Pile Tip Elevation(ft)
10				Unknown	203.44
11				Unknown	201.99

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8	Unknown	203.37
9	Unknown	202.97

Pier Description

Pier ID 10

See Pier 8.

Pier ID 11

See Pier 8.

Pier ID 8

This is a pile-bent pier with two concrete piles spaced 24 ft on centers. The lower portion of the pile, placed in a drilled shaft in the channel bed, is 7 ft in diameter. The pile transitions to a 6 ft diameter above the channel bed. The pile cap is above grade, just below the bridge deck.

Pier ID 9

See Pier 8.

Pier Scour Data

Pier ID	Date	Time	USOrDS					
8	5/9/90	15:00	Downstream					
9	5/9/90	15:00	Downstream					
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)
8	7.6	0.5	8.6	179	8.7	40.4	7	11
9	11.2	0.5	9.5	170	12.8	42.8	7	8
PierID	Sediment Transport	Bed Material	BedForm	Trough (ft)	Crest (ft)	Sigma	Debris Effects	

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8	Live-bed	Unknown	Unknown	Unknown
9	Live-bed	Unknown	Unknown	Unknown
PierID	D95 (mm)	D84 (mm)	D50 (mm)	D16 (mm)
8			0.119	
9			0.119	

Pier Scour Comments

Pier ID	8	Time:	15:00	US/DS:	Downstream
Pier ID	9	Time:	15:00	US/DS:	Downstream

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			
1990	5	9	15:00	0	262000	1000	1990	5	9	15:00	0	31.87	19	100

Hydrograph

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