

Bridge Design Speed Study

Bridge # 000253 over Brickhouse Creek on SR 2178 (Rumley Rd)
Alamance County
WBS Element # 17BP.7.R.5



Document Prepared By:

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April 18, 2012

Principal Investigator



Andrew D. Klinksiek, EI

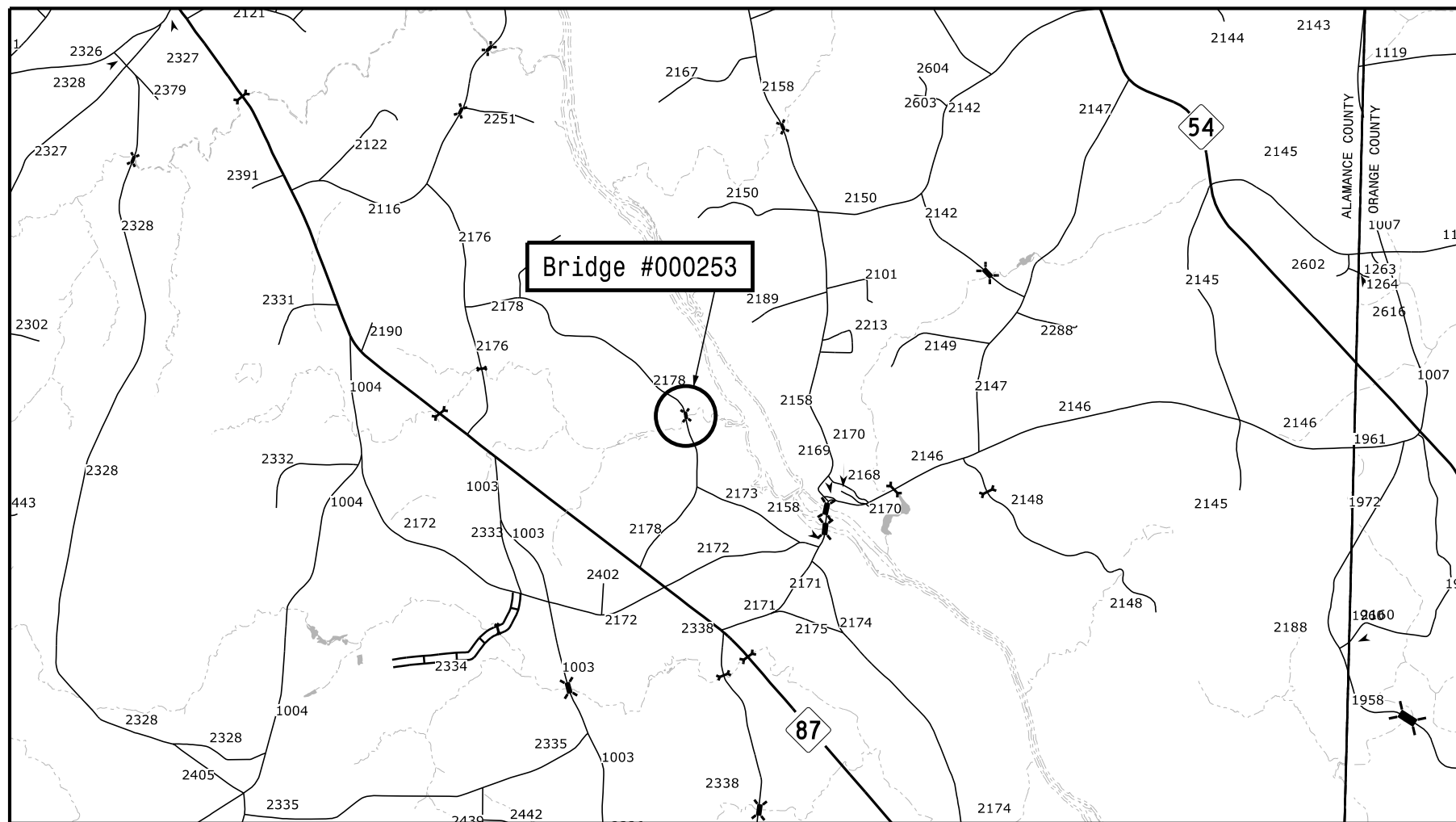
Project Manager



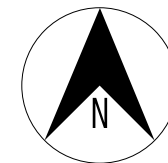
Bradley A. Reynolds, PE
Project Manager



Bridge locations plotted based on coordinates provided by Bridge Management



Division	County	Structure Number	Structure Description	Latitude	Longitude
7	Alamance	000253	Bridge #253 over Brickhouse Creek on SR 2178	35.955833	-79.337222



1" = 5000'
SCALE

Bridge and Approach Investigation Checklist

Project	17BP.7.R.5
Description	Bridge #253 over Brickhouse Creek on SR 2178
Route	SR 2178 (Rumley Rd)
Division	7
County	Alamance

Existing Speed Limit	45	☒ Posted	☐ Statutory
Reasonable & Comfortable Passenger Car Speed	45-50 mph		
Speed Data	Only 5 speed data points collected due to sparseness of traffic. 45 mph, 46 mph, 43 mph, 48 mph, 46 mph		
Ball Bank Speed Study	Slight curve on north side of bridge ball banks at 8 degrees at 45 mph, 10 degrees at 50mph and 12 degrees at 55 mph.		
Warning Signs at Bridge	W23-10 object markers, one located at each corner of the bridge. Regulatory 17 ton/25 ton weight limit sign on each approach. W1-2L Curve Warning Sign on Northbound approach W5-2a Narrow Bridge on both approaches		
Roadside Development	Rural/Agricultural		
ADT History	390 vpd from 2008 NCDOT Traffic Survey Map 410 vpd from 2002 NCDOT Traffic Survey Map		
Pedestrian/Bicycle Traffic	No bike or ped traffic observed during investigation. Little bike or ped traffic is expected on SR 2178. Bridge is on Bicycle Route 72.		
Bridge and Approach Digital Photos	See attached photos.		
Approach Lane Width	18' over all pavement width with 9' lanes		
Approach Shoulder Width: Shoulder Type	Varies from 6' to 10'± Grass		
Lane Width (existing bridge)	18' overall pavement width with 8' lanes		
Shoulder width (existing bridge)	1' /1'		
Strategic Corridor / Thoroughfare Designation and Recommended Cross Section	SR 2178 is classified as a local roadway, therefore it is recommended that the minimum cross section follow the NCDOT "R-R-R Guide" with a minimum of 10 foot lane widths and 3 foot shoulder widths (6 foot graded shoulder width where guardrail is to be installed).		
Crash History and Safety Considerations	No crashes have been reported in the vicinity of the bridge from 1/1/2002 to 12/31/2011 (10 years).		
Comments	If the bridge lane widths are widened the approach speeds may be greater than the posted 45 mph speed limit.		

Reasonable Bridge Speed 50mph

County: Alamance

Description:

Bridge #253 over Brickhouse Creek

Route: SR 2178

SR 2178 (Rumley Rd) NB $\pm 50'$ from Bridge #253



SR 2178 (Rumley Rd) NB $\pm 150'$ from Bridge #253



SR 2178 (Rumley Rd) NB $\pm 100'$ from Bridge #253



SR 2178 (Rumley Rd) NB $\pm 200'$ from Bridge #253



County: Alamance

Description:

Bridge #253 over Brickhouse Creek

Route: SR 2178

SR 2178 (Rumley Rd) NB $\pm 250'$ from Bridge #253



SR 2178 (Rumley Rd) SB $\pm 50'$ from Bridge #253



SR 2178 (Rumley Rd) SB $\pm 100'$ from Bridge #253



SR 2178 (Rumley Rd) SB $\pm 150'$ from Bridge #253



County: Alamance

Description:

Bridge #253 over Brickhouse Creek

Route: SR 2178

SR 2178 (Rumley Rd) SB $\pm 200'$ from Bridge #253



SR 2178 (Rumley Rd) SB $\pm 250'$ from Bridge #253



Bridge Approach Speed Crash Analysis Request

Order # 41000018381

**500 Feet on Both Sides of Bridge Number 253 on Secondary Route 2178 (Rumley Road)
over Brickhouse Creek in Alamance County**

Document Prepared By:

Safety Planning Group
Traffic Safety Systems Management Unit
Transportation Mobility and Safety Division
North Carolina Department of Transportation

Note: The crash statistics have been generated and are available through North Carolina's Crash Database. This database provides an inventory of **reported** crashes on record that have occurred at this location. Please note that many traffic crashes go unreported for a variety of reasons, and this report simply provides a listing of all crashes on record that occurred within 0 feet of the section described above.

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Study Criteria Summary

County: ALAMANCE **City:** All and Rural
Date: 01/01/2002 to 12/31/2011 **Study:** 41000018381
Location: 500 Feet on Both Sides of Bridge Number 253 on Secondary Route 2178 (Rumley Road) over Brickhouse Creek

Report Details

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
41000018381	41000018381			76.8	8.4	300	40002178

Request Date	Courier Service	Phone No.	Ext.	Fax No.
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County			Municipality					
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years
ALAMANCE	0	7	All and Rural		0	01/01/2002	12/31/2011	10.00

Location Text	Requestor
500 Feet on Both Sides of Bridge Number 253 on Secondary Route 2178 (Rumley Road) over Brickhouse Creek	Vickie L. Embry, P.E. Triad Region

Fiche Roads	
Name	Code
SR 2178	40002178
RUMLEY	50026700

Strip Road					
Name	Code	Begin MP	End MP	Miles	Kilometers
SR 2178	40002178	1.569	1.761	0.192	0.309