

Hydraulics Unit Pre-Design Report (Pre-Scoping) for Structure #: 770228

Date: 04/25/2017

County: Robeson Stream: Burnt Swamp
Road #: SR1513 Road Name: Evergreen Church Rd.
Division: 6 Location: 0.6 Mi. SW of JCT SR 1318
Latitude: 34.72500 Longitude: 79.14250 Decimal degrees, a min of 5 decimal points

Assigned to: In-House
Prepared By: LDC
Hydro Reviewer:
Project Type:

Existing Structure

Structure Type: Bridge Yr Built: 1967
Span Arrangement: 1@18', 1@17', 1@18' OAL (ft): 53.0 Skew: 90 Abutment Type: Vertical-Timber
Number of Barrels: @ Span (ft): x Rise (ft):
Bed to Crown (ft): 7.0 Clear Roadway (ft): 18.0 Water Depth (ft): 5.0 Superstructure Depth: 1.4
ADT: 350 Year ADT: 2012 Scour Code (item113): Z Prior Survey Completed: No Survey Date:
Drainage Area: 6.8 Sq. Mi. Drainage Area Source: USGS Stream Stats Roadway Overtops at Q100: No
Discharge Method: USGS Regression Equations USGS Region: 4- Coastal Stream Gage Number(if applicable):
Q10 (cfs): 530.0 Q25 (cfs): 740.0 Q50 (cfs): 920.0 Q100 (cfs): 1,110.0 QBFE (cfs): 567.0
Structure in Flood Hazard Zone: Yes Panel #: 9355 Panel Date: 01/09/2005 Type of FIS: LIMITED Date of FIS: 01/09/2005

Environmental

Quad Map: PEMBROKE, NC River Basin: Lumbar Buffer Rule: N/A
Primary Stream Classification
☐ Class B ☐ Class C ☐ SA ☐ SB
☐ SC ☐ SWL ☐ WL ☐ WS I
☐ WS II ☐ WS III ☒ WS IV ☐ WS V
Supplemental Stream Classification
☐ FWS ☐ HQW ☐ NSW ☐ ORW
☒ Sw ☐ Tr ☐ UWL ☐ w/in 0.5mi. of CA
Other Stream Classification
☐ Anadromous Fish ☐ Area of Environmental Concern
☐ CAMA County ☐ Federal Wild & Scenic Rivers
☐ HSB Required ☐ NC Natural & Scenic Rivers
☐ Impaired [303d] ☐ Primary Nursery Area
☐ TVA ☐ Designated Shellfish Harvesting Area
☐ Designated Public Mountain Trout Waters

Up/Down Stream Features

Upstream Feature: Confluence w/ Stream(s)
Location:
Structure #: Route:
Latitude: Longitude:
Prior Survey Completed: Survey Date:
Structure Type:
Span Arrangement: OAL (ft):
Number of Barrels: @ Span (ft): x Rise (ft):
Bed to Crown (ft): Year Built:

Downstream Feature: Bridge
Location: 0.3 Mi. S of JCT 1521
Structure #: 770239 Route: SR1515
Latitude: 34.43070 Longitude: 79.07370
Prior Survey Completed: No Survey Date:
Structure Type: Bridge
Span Arrangement: 2@25' OAL (ft): 50.00
Number of Barrels: @ Span (ft): x Rise (ft):
Bed to Crown (ft): 8.0 Year Built: 1967

Preliminary Structure Estimate [Office Estimate]

Structure Type: Skew:
Dimensions/Spans:

Notes

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
FIELD SCOPING MEETING WORKSHEET
Design Build Process

WBS No.: **17BP.6.R.84**

Field Scoping Meeting Date: **May 8, 2017**

Division: **6**

Location: **On-site**

Route (US/NC/SR): **SR 1513**

County: **Robeson**

Project Description: **Bridge No. 770228 over Burnt Swamp on SR 1513**

Tier: **Subregional - Local**

Funding: **State**

Municipality: **N/A**

Attendees

	Name	Phone No.	E-mail
Division Bridge Program Manager	Christy Huff	910-364-0600	chuff@ncdot.gov
Division Environmental Officer	Jim Rerko	910-364-0580	jjrerko@ncdot.gov
Resident Engineer	Mike Parker	910-618-5689	jmparkerjr@ncdot.gov
Div. 6 Construction Engineer	Randy Wise	919-364-0600	rwise@ncdot.gov
Div. 6 Locating Engineer	John Kaukola	910-486-1338	jkaukola@ncdot.gov
Div. 6 Maintenance Engineer	Ken Murphy	910-364-0600	rkmurphy@ncdot.gov
Div. 6 Bridge Engineer	Darren Pittman	910-364-0670	dpittman@ncdot.gov
Div. 6 Dist. 1 Engineer	Charles Miller, Jr	910-618-5546	csmiller@ncdot.gov
Hydraulics Engineer	Galen Cail	919-707-6711	gcail@ncdot.gov
Hydraulics Engineer	Jon Moore	919-707-6738	Jlmoore6@ncdot.gov
DENR-DWR	Joanne Steenhuis	910-796-7306	Joanne.steenhuis@ncdenr.gov
USACE	Liz Hair	910-251-4049	sarah.e.hair@usace.army.mil
PPU	Jamie Lancaster	919-707-6620	jlancaster@ncdot.gov
PPU	Pam Williams	919-707-6608	prwilliams@ncdot.gov
USFWS	Gary Jordan	919-856-4520 ext 32	gary_jordan@fws.gov
NCWRC	Travis Wilson	919-707-0370	travis.wilson@ncwildlife.org

Existing Features

Feature Bridged: **770228 over Burnt Swamp on SR 1513**

Ex. Bridge Clear Deck Width: **24.75 (Ft.)**

Roadway width: **24 (Ft.)**

(Bridge / Culvert) Length: **53 (Ft.)**

Deck Width (Out To Out): **25.33 (Ft.)**

Water Depth: **5 (Ft.)**

Height Bed-To-Crown: **7 (Ft.)**

Year Built: **1967**

Posted: **SV 18 Tons**

TTST: **27 Tons**

Superstructure: **RC Deck on
timber joists**

Abutment: **Timber caps/timber
piles**

Pier Type:

Temp. Shored: **Yes**

Historic High Water (Elev. To The Existing Structure): (Ft)

PRI: **55.65**

DP: **2.5**

SR: **28.84**

School Bussing crossings per day:

Posted Speed Limit Vicinity: **55 (mph)**

Detour

Off-Site ☒

Stage Construction ☐

New Alignment ☐

On-site ☐

If Off-Site, Description Of Detour Route: **SR 1318 to SR 1521 to SR 1515**

Approximate Length Of Detour?

2.4 Miles

Improvements Needed To Road(s) On Detour?

No

Div. Traffic Eng. Recommend Off-site detour signing?

Trailblazing with Street/Road names

Improvements Needed To Bridges On Detour?

No

Are future plans for upgrading this roadway either at or in the vicinity of this project?

Are Bridges On Detour Currently Programmed?

No

Are There EMS Or Business Access Issues?

Are There Any Railroad Crossings On Detour?

No

Should Work Zone Pedestrian Access Be Maintained During Construction? **No**

Overhead Utility Lines

In Conflict

Power Transmission Lines

In Conflict

Telephone

In Conflict

Cable Lines

In Conflict

Fiber Optic

In Conflict

Water

In Conflict

Sewer

In Conflict

Natural Gas

In Conflict

Other

In Conflict

Is There Any Future Utility Construction Anticipated In The Project Area:

No

Is A FEMA Buy-Out Property Being Impacted:

No

Environmental

Wetlands At Site:

Comments:

Endangered Species In County: **American Alligator, Red-cockaded woodpecker, Michaux's sumac**

T&E species effect:

Trout County: **No**

TVA County: **No**

CAMA County: **No**

Primary Nursery Area: **No**

Moratoria:

Which species:

Duration:

Permits discussion:

Water Quality Classification: **WS-IV; Sw (14-10-8-4-(0.5))**

303d: **No**

Coast Guard Permit? **No**

Drainage Basin: **Lumber**

Riparian Buffer Rules: **No**

Is The Project Site In Or Near Any Of The Following:

National Forest: **No**

Wildlife Refuge: **No**

State, County, Or Local Park: **No**

Wild And Scenic River: **No**

Airport: **No**

Recreation or Power Generation: **No**

Water Supply Reservoir: **No**

Nutrient Sensitive Waters: **No**

Public Use Boat Ramp: **No**

Cemeteries: **No**

VAD/Farmland Protection: **No**

Game Lands:

Known Or Potential Historic Properties In The Area:

Architecture: No Survey Required

Archaeology:

Is The Bridge Structure Itself, Or Any Part Thereof, Considered Historic:

Impacts to a Church, Community Center, Or Other Public Facility?

Is this a Statewide Bicycle Route or a Local Non-Marked Bicycle Route: **No**

Comments:

Geotechnical

Are There Any Historical and/or Vibration Sensitive Structures Near By? -----

Comments:

Are There Any Known Landfills and/or Geo-environmental Hazard Sites at/or Within Close Proximity To The Project Site? -----

Comments:

Are Any Impacts Anticipated To Natural Springs Or Artesian Wells? -----

Comments:

Possible Foundation Type:

End Bents:

Interior Bents:

Hydraulics

FEMA Approval? (MOA) *Yes. Limited*

Is There Unusual Scour Potential? *No*

Is Protection Needed? *Standard*

Are Banks Stable? *Yes*

Is Protection Needed? *Standard*

Appreciable Amount Of Large Debris? *Moderate*

Placement Of Bents In The Water Be Allowed: *Yes*

Where: *1035, 1030' min 5' off of banks*

Structure Type: Bridge or Culvert

If Bridge: CS or BB

If girder, why? *N/A*

Length Of Structure: *65'*

Min. Number Of Spans: *2*

Span Arrangement: *1035, 1030'*

Waive offset: *Yes*

EB Cap: 2'-6" or 4'-0"

Skewed: *90°*

maintain low chord ± 6" freeboard

*33' out to out
Flumes allowed.*

Items To Be Discussed / Resolved At FSM By Attendees

Off-Site ☒

Stage Construction ☐

New Alignment ☐

On-site ☐

Clear roadway width:

Temp. Signals:

Alignment: N, E, W, S

Clear roadway width:

one lane w/ signals:

or two lanes CRW:

Alignment: N, E, W, S

Environmental Document Prepared by DBE:

Low Impact Data Spreadsheet ☐

Minimum Criteria Checklist ☐

ADT: **350 per BIR**

NHS: **No**

Tier: **Subregional**

Func. Class: **Local**

Bridge Min. Clear Deck Width Recommended by Div.: *33'*

Roadway lane width: **10'** with **3'** shoulders

Extension of Paved shoulders: end of **construction limits** and taper down to 2' and blunt end???

Pave to face of guardrail and taper 8:1 to travel lane/paved shoulder? **Yes**

Min. Pavement Surface Course: **3"**

Existing Roadway: **18'**

Pavement Marking: **Thermoplastic or Paint**

Pavement Markers: **Raised/Snowplowable/None**

Will Railroad Involvement Be Required: **No**

Method of Clearing: **II modified**

Truck Percentage: **6 % per BIR**

Reasonable Safe Speed per SIR: **mph**

Liquidated damages: will be imposed after ____ days of closure/construction. Amt: \$ ____ per day

CEI by? **NCDOT**

R/W by?

DBT

R/W monuments? **Pin and cap.**

Salvageable materials:

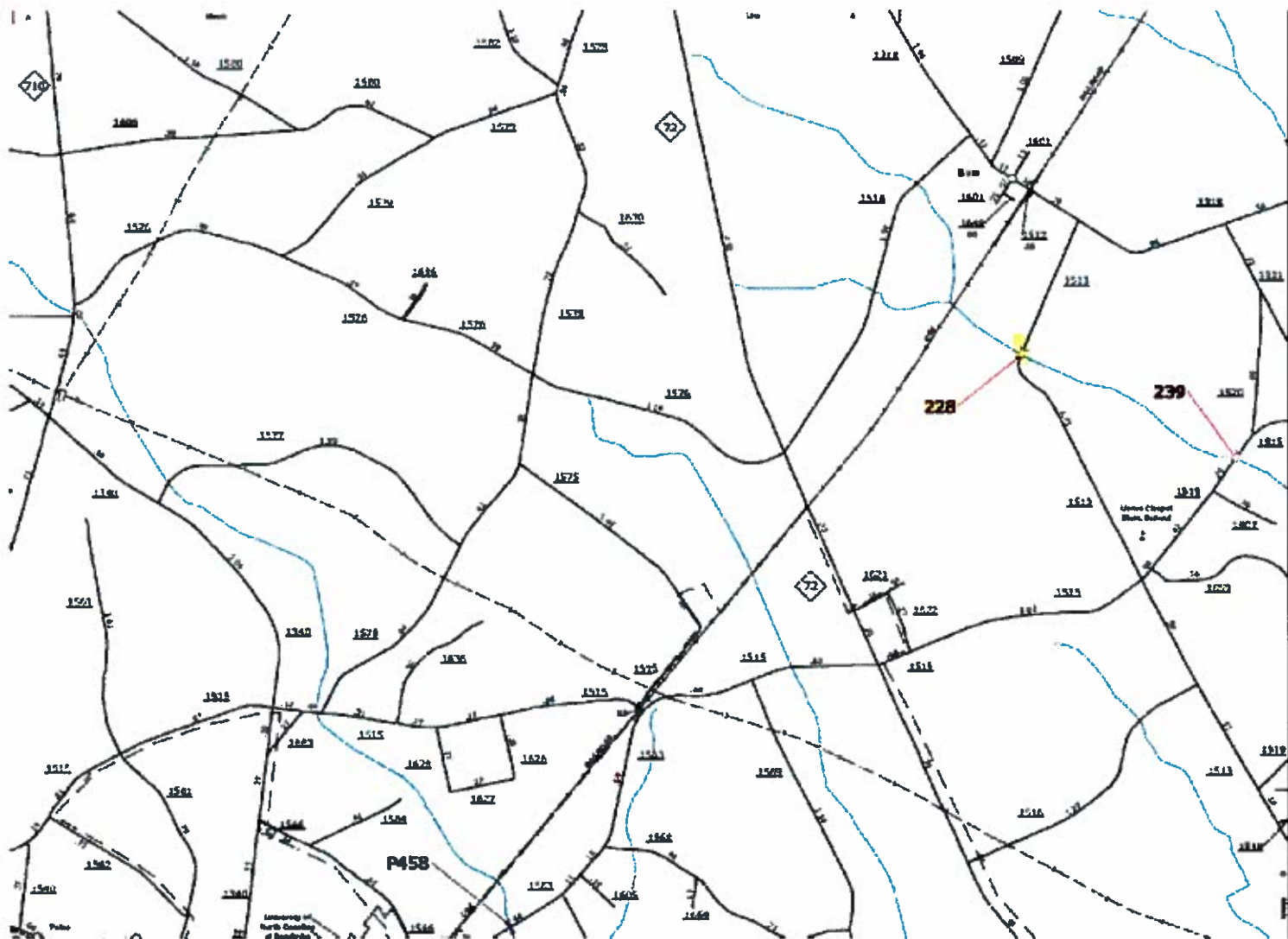
Contact Person/number:

Deliver to:

Removal of previous structure remnant abutments/piers:

Sequencing priority in construction?

Comments:





NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STRUCTURE MANAGEMENT UNIT

ATTENTION:

Structure Safety Report

2 Year Complete Topside and Underwater Element Inspection

COUNTY: ROBESON STRUCTURE NUMBER: 770228 FREQUENCY: 24 MONTHS

FACILITY CARRIED: SR1513 MILE POST:

LOCATION: 0.6 MI. SW OF JCT. SR1318

FEATURE INTERSECTED: BURNT SWAMP

LATITUDE: 34° 43' 29.74" LONGITUDE: 79° 8' 33.3"

SUPERSTRUCTURE: RC FLOOR ON TIMBER JOIST,BMD-10

SUBSTRUCTURE: E.BTS&INT.BTS:TIMBER CAPS/TIMBER PILES@VAR. CTS.

SPANS: 1@17.75', 1@17', 1@17.75'

☐ FRACTURE CRITICAL ☒ TEMPORARY SHORING ☐ SCOUR CRITICAL ☐ SCOUR PLAN OF ACTION

PRESENT CONDITION: Fair INSPECTION DATE: 12/09/2015

POSTED SV: 20 POSTED TTST: 29

OTHER SIGNS PRESENT:



LOOKING NORTH

Sign noticed issued for		Number Required
<u>NO</u>	WEIGHT LIMIT	<u>0</u>
<u>NO</u>	DELINEATORS	<u>0</u>
<u>NO</u>	NARROW BRIDGE	<u>0</u>
<u>NO</u>	ONE LANE BRIDGE	<u>0</u>
<u>NO</u>	LOW CLEARANCE	<u>0</u>

INSPECTED BY
WILLIAM MUELLER

SIGNATURE

Will R. Mueller

ASSISTED BY JAMES TALACEK, PATRICK
RUTHERFORD

NATIONAL BRIDGE INVENTORY----- STRUCTURE INVENTORY AND APPRAISAL Run Date: 06/27/2016

IDENTIFICATION				SUFFICIENCY RATING =		28.84
(1) STATE NAME - NORTH CAROLINA	BRIDGE	770228		STATUS =		Structurally Deficient
(8) STRUCTURE NUMBER(FEDERAL)		000000001550228				
(5) INVENTORY ROUTE (ON/UNDER) - ON		31015130				
(2) STATE HIGHWAY DEPARTMENT DISTRICT		1				
(3) COUNTY CODE	155	(4) PLACE CODE	0			
(6) FEATURE INTERSECTED - BURNT SWAMP						
(7) FACILITY CARRIED	SR1513					
(9) LOCATION	0.6 MI. SW OF JCT. SR1318					
(11) MILEPOINT		0				
(16) LAT	34° 43' 29.74"	(17) LONG	78° 8' 33.30"			
(98) BORDER BRIDGE STATE CODE		PCT SHARE				
(99) BORDER BRIDGE STRUCTURE NO						
STRUCTURE TYPE AND MATERIAL				CLASSIFICATION		
(43) STRUCTURE TYPE MAIN: Wood or Timber				(112) NBIS BRIDGE SYSTEM -		YES
TYPE - Stringer Multibeam or Girder		CODE	702	(104) HIGHWAY SYSTEM	Is not on NHS	0
(44) STRUCTURE TYPE APPR :				(26) FUNCTIONAL CLASS -	Local	09
TYPE -		CODE	000	(100) STRAHNET HIGHWAY -	Not a STRAHNET Route	0
(45) NUMBER OF SPANS IN MAIN UNIT			3	(101) PARALLEL STRUCTURE -	No Parallel Structure	N
(46) NUMBER OF APPROACH SPANS				(102) DIRECTION OF TRAFFIC -	2-way Traffic	2
(107) DECK STRUCTURE TYPE -	1	CODE		(103) TEMPORARY STRUCTURE -	Temporary Structure/Conditions	T
(108) WEARING SURFACE / PROTECTIVE SYSTEM :				(110) DESIGNATED NATIONAL NETWORK -	Not on the National Network	0
(A) TYPE OF WEARING SURFACE -		CODE		(20) TOLL	On Free Road	3
(B) TYPE OF MEMBRANE -		CODE		(31) MAINTAIN -	State Highway Agency	01
(C) TYPE OF DECK PROTECTION -		CODE		(22) OWNER -	State Highway Agency	01
				(37) HISTORICAL SIGNIFICANCE -	Not Eligible	5
AGE AND SERVICE				CONDITION		
(27) YEAR BUILT			1987	(58) DECK		5
(106) YEAR RECONSTRUCTED				(59) SUPERSTRUCTURE		5
(42) TYPE OF SERVICE : ON - Highway				(60) SUBSTRUCTURE		4
UNDER - Waterway		CODE	15	(61) CHANNEL & CHANNEL PROTECTION		5
(28) LANES: ON STRUCTURE	2	UNDER STRUCTURE	0	(62) CULVERTS		N
(29) AVERAGE DAILY TRAFFIC			350	LOAD RATING AND POSTING		
(30) YEAR OF ADT	2012	(109) TRUCK ADT PCT	6%	(31) DESIGN LOAD	Unknown	0
(19) BYPASS OR DETOUR LENGTH			1 MI	(63) OPERATING RATING METHOD -	Allowable Stress	2
GEOMETRIC DATA				(64) OPERATING RATING -	HS-1	1
(48) LENGTH OF MAXIMUM SPAN			17 FT	(65) INVENTORY RATING METHOD -	Allowable Stress	2
(49) STRUCTURE LENGTH			53 FT	(66) INVENTORY RATING -	HS-1	1
(50) CURB OR SIDEWALK: LEFT	.375 FT	RIGHT	.375 FT	(70) BRIDGE POSTING -	Posting Required	1
(51) BRIDGE ROADWAY WIDTH CURB TO CURB			24 FT	(41) STRUCTURE OPEN, POSTED, OR CLOSED		P
(52) DECK WIDTH OUT TO OUT			25.333 FT	DESCRIPTION -	Posted for Load	
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS)			18 FT	APPRAISAL		
(33) BRIDGE MEDIAN - No Median		CODE	0	(67) STRUCTURAL EVALUATION		3
(34) SKEW	0°	(35) STRUCTURE FLARED	0	(68) DECK GEOMETRY		5
(10) INVENTORY ROUTE MIN VERT CLEAR			999.9 FT	(69) UNDERCLEARANCES, VERTI & HORIZ		N
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR			24 FT	(71) WATERWAY ADEQUACY		7
(53) MIN VERT CLEAR OVER BRIDGE ROWY			999.9 FT	(72) APPROACH ROADWAY ALIGNMENT		6
(54) MIN VERT UNDERCLEAR REF	Not a Highway or Railroad		0 FT	(36) TRAFFIC SAFETY FEATURES		0000
(55) MIN LAT UNDERCLEAR RT REF	Not a Highway or Railroad		000 FT	(113) SCOUR CRITICAL BRIDGES		U
(56) MIN LAT UNDERCLEAR LT REF -			000 FT	PROPOSED IMPROVEMENTS		
NAVIGATION DATA				(75) TYPE OF WORK -		CODE
(38) NAVIGATION CONTROL - No Navigational Control		CODE	0	(76) LENGTH OF STRUCTURE IMPROVEMENT		
(111) PIER PROTECTION -		CODE		(94) BRIDGE IMPROVEMENT COST		
(39) NAVIGATION VERTICAL CLEARANCE			0	(95) ROADWAY IMPROVEMENT COST		
(116) VERT - LIFT BRIDGE NAV MIN VERT CLEAR			FT	(96) TOTAL PROJECT COST		
(40) NAVIGATION HORIZONTAL CLEARANCE			0 FT	(97) YEAR OF IMPROVEMENT COST ESTIMATE		
				(114) FUTURE ADT	700	(115) YEAR FUTURE ADT
						2025
				INSPECTIONS		
				(90) INSPECTION DATE		12/09/2015
				(92) CRITICAL FEATURE INSPECTION :		(93) CFI DATE
				A) FRACTURE CRIT DETAIL -	NO	A)
				B) UNDERWATER INSP -	YES 24Mo	B)
				C) OTHER SPECIAL INSP	NO	C)
				SCOUR		

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 06/27/2016

COUNTY :	DIVISION :	DISTRICT :	STRUCTURE NUMBER :	LENGTH :	
ROBESON	6	1	770228	53	FEET

ROUTE CARRIED :	FEATURE INTERSECTED :
SR1513	BURNT SWAMP

LOCATED :	BRIDGE NAME :	CITY :
0.6 MI. SW OF JCT. SR1318		

FUNC. CLASS :	SYST.ON :	SYST.UNDER :	ADT & YR :	RAIL TYPE :
09	NFA	NFA	350 2012	LT 233 RT 233

BUILT :	BY :	PROJ :	FED.AID PROJ :	DESIGN LOAD :
1967	BMU			Unknown

REHAB :	BY :	PROJ :	ALIGNMENT :	SKEW :	LANES :
			TAN.	90	ON 2 UNDER 0

NAVIGATION :			HT. CRN. TO BED :		WATER DEPTH :
VC 0 FT	HC 0 FT		7 FT		5 FT

SUPERSTRUCTURE :	RC FLOOR ON TIMBER JOIST,BMD-10
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SUBSTRUCTURE :	E.BTS&INT.BTS:TIMBER CAPS/TIMBER PILES@VAR. CTS.
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SPANS :	1@17.75'; 1@17'; 1@17.75'
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BEAMS OR GIRDERS :	19 LINES OF 6X12 TIMBER JOISTS @ 1'4.25 CENTERS
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FLOOR :	ENCROACHMENT :	DECK (OUT TO OUT) :
5 RC/NO AWS		25.333 FT

CLEAR ROADWAY :	BETWEEN RAILS :	SIDEWALK OR CURB :
24 FT	24.75 FT	LT .375 FT RT .375 FT

VERT.CL.OVER :
999.9 FT

INV.RTG. :	OPE.RTG. :	CONTR.MEMBER :	POSTED :	TTST	DATE
HS-1	HS-1	Ext Joist	SV 20	29	01/11/2012

SYSTEM :	GREEN LINE ROUTE :
Secondary S.R. Route	N

UNDER ROUTES AND CLEARANCES

REMARKS :



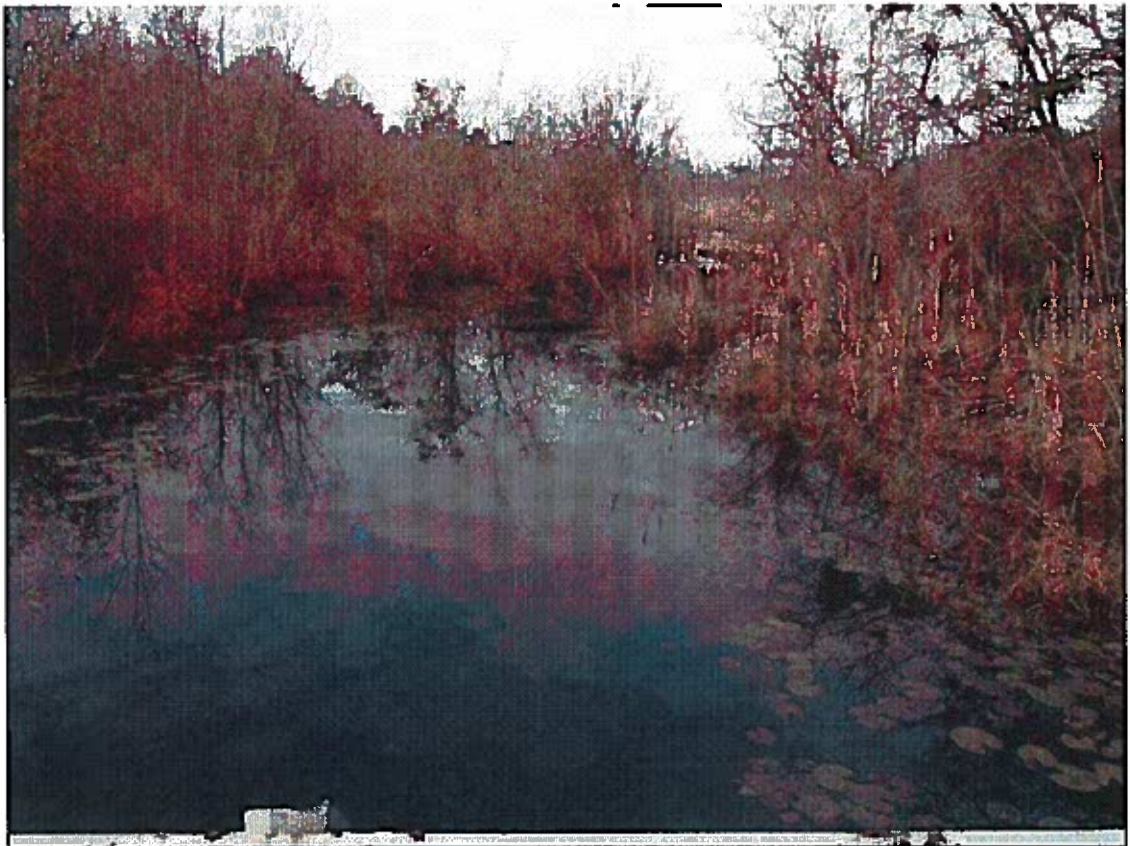
LOOKING NORTH



EAST PROFILE



LOOKING EAST



LOOKING WEST



WEST PROFILE



LOOKING SOUTH



SW WING/EXTERIOR BULKHEAD



NW WING/EXTERIOR BULKHEAD



NE WING/EXTERIOR BULKHEAD



SE WING/EXTERIOR BULKHEAD



END BENT 1

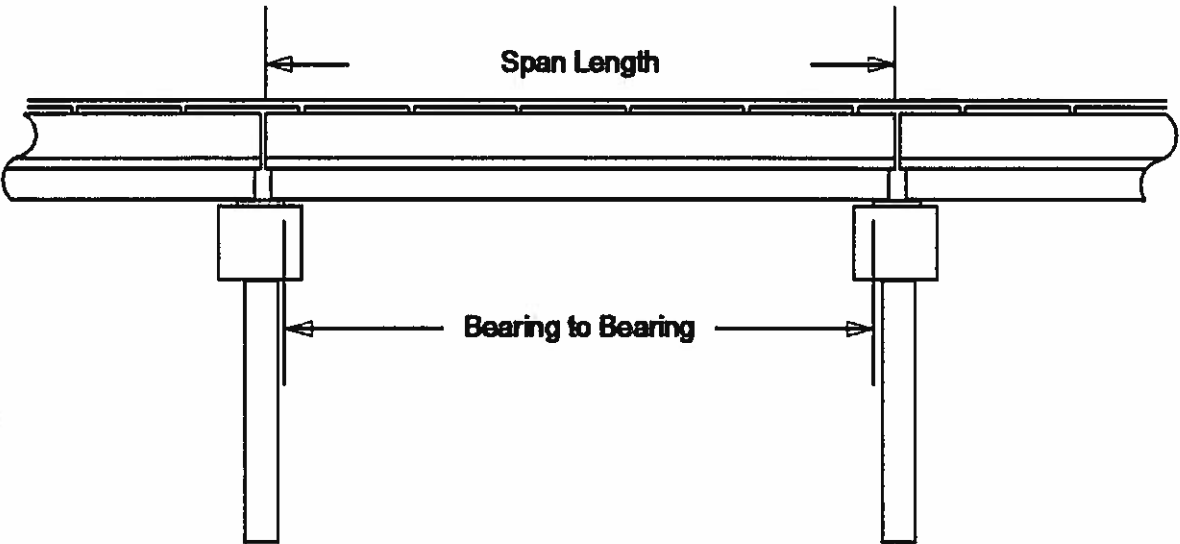


BENT 1 SPAN 1 SIDE

Structure Data Worksheet

Spans

County: ROBESON Structure No: 770228 Date: Inspected By: WRM



Span No	Span Length	Bearing to Bearing	Comments
1	17.75	17.08	
2	17.0	17.0	
3	17.75	17.08	NBIS - 51.16'

Stream Bed Soundings

(See next sheet for profile sketch)

Bridge No: 770228 County: ROBESON Date: _____ By: WRM

Record sounding from top of rail. Other location if needed: TOP OF RAIL

Distance from Highwater Mark to top of rail: 3.5 Location of Highwater Mark: ON JOISTS

DOWNSTREAM			UPSTREAM		
Distance (Station) (ft)	Sounding (ft)	Description	Distance (Station) (ft)	Sounding (ft)	Description
0.01	2.9	FILL FACE			
0.02	2.8	TOP OF BULKHEAD			
0.03	4.1	Top of Cap			
0.04	5	Water Surface/Water Edge (WSWE)			
0.05	5.8	END BENT 1	0.05	6.3	END BENT 1
0.05	6.3	END BENT 1			
8	6.8				
17.5	8.3	BENT 1	17.5	10	BENT 1
17.5	10	BENT 1			
26	9.1				
34.5	6.9	BENT 2	34.5	6.9	BENT 2
34.5	8.5	BENT 2			
44	7				
51.95	5.5	END BENT 2	51.95	5.5	END BENT 2
51.95	6.2	END BENT 2			
51.96	5	Water Surface/Water Edge (WSWE)			
51.97	4.1	Top of Cap			
51.98	2.7	TOP OF BULKHEAD			
51.99	2.7	FILL FACE			

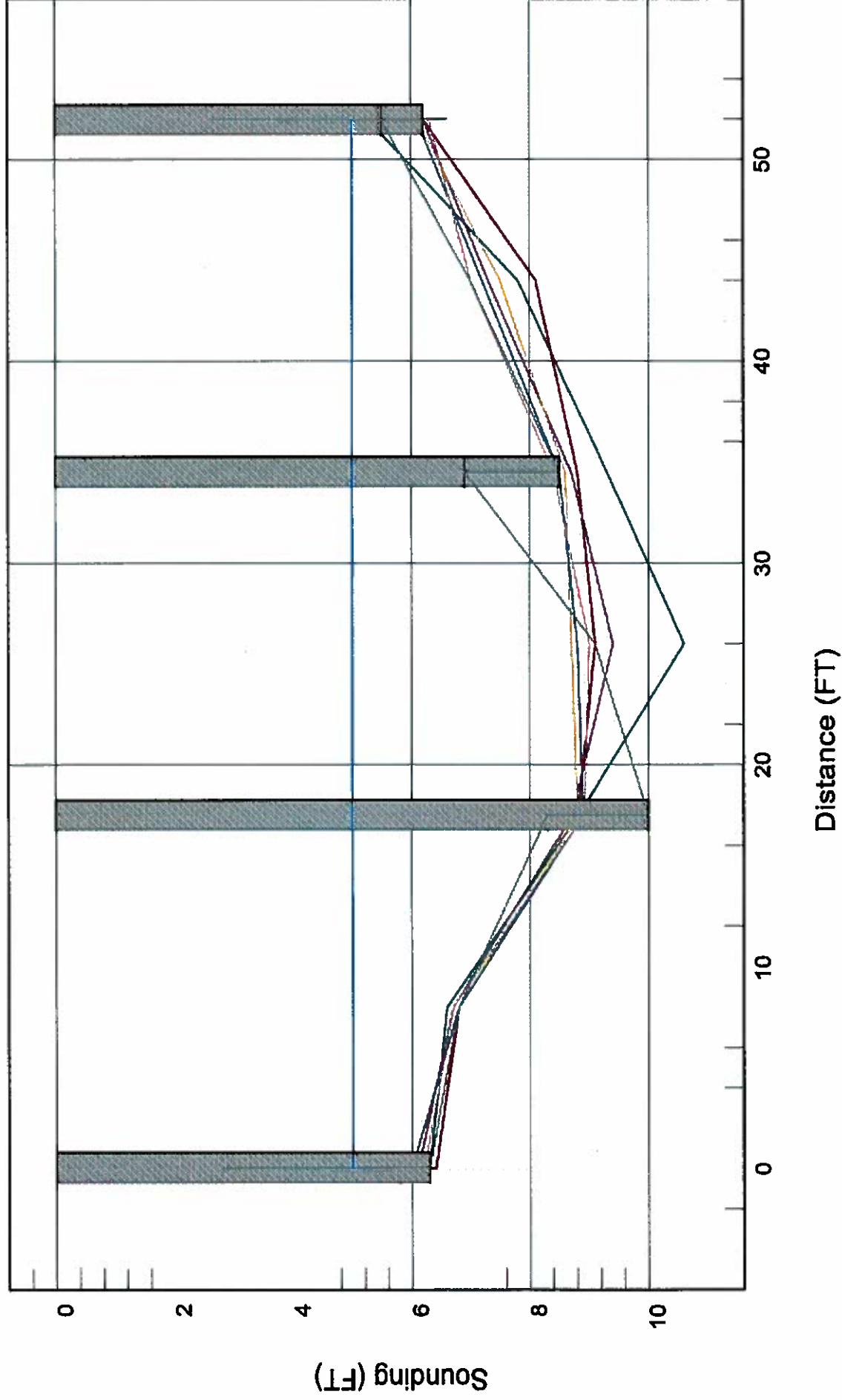
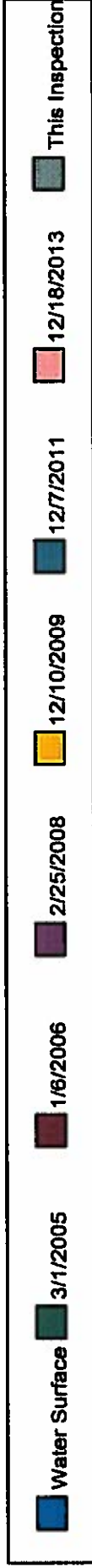
Bridge: 770228

County ROBESON

Date:

STREAMBED PROFILE (Downstream)

Top of Rail = 0 FT (Sounding)



Bridge Inspection Field Sketch



Roadway	18ft Wide	2 Paved Lanes	Looking North
Left Shoulder	4ft Wide		4ft Unpaved
Right Shoulder	4ft Wide		4ft Unpaved
Left Guardrail			
Right Guardrail			

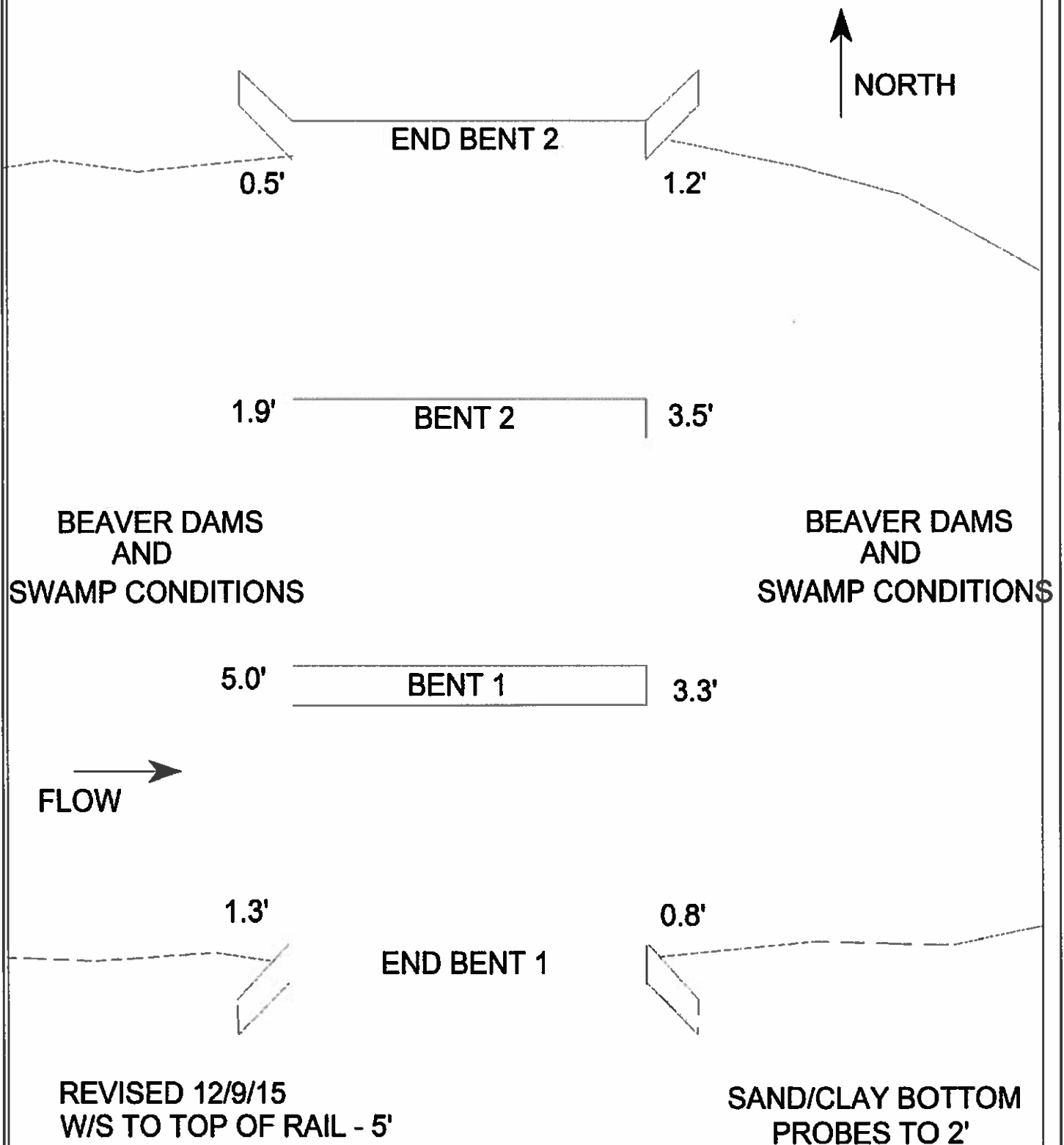
Title

Approach

Description

Approach Roadway

Bridge Inspection Field Sketch

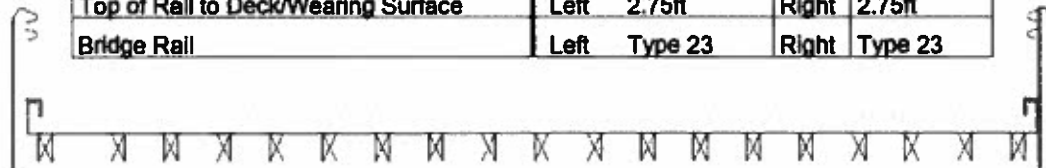


Title
PLAN VIEW

Description
CHANNEL OVERVIEW

Bridge Inspection Field Sketch

Deck Width/Out to Out	25.333ft	Between Rails	24.75ft
Clear Roadway	24ft	Wearing Surface	
Median Width		Median Height	
Curb Height		Left 0.75ft	Right 0.75ft
Sidewalk Width		Left	Right
Clear Roadway (Rail to Median)		Left	Right
Guardrail Width		Left	Right
Top of Rail to Deck/Wearing Surface		Left 2.75ft	Right 2.75ft
Bridge Rail		Left Type 23	Right Type 23



Measurements for Span #	2		
Deck Thickness	0.42	Left Overhang	0.42
Top of Rail to Bottom of Beam	4.13	Right Overhang	0.42

Beam Number	Beam Type	Spacing	Comments
1	Timber (Rectangular)	ft	
2	Timber (Rectangular)	1.83ft	
3	Timber (Rectangular)	1.33ft	
4	Timber (Rectangular)	1.33ft	
5	Timber (Rectangular)	1.33ft	
6	Timber (Rectangular)	1.33ft	
7	Timber (Rectangular)	1.33ft	
8	Timber (Rectangular)	1.33ft	
9	Timber (Rectangular)	1.33ft	
10	Timber (Rectangular)	1.33ft	
11	Timber (Rectangular)	1.33ft	
12	Timber (Rectangular)	1.33ft	
13	Timber (Rectangular)	1.33ft	
14	Timber (Rectangular)	1.33ft	
15	Timber (Rectangular)	1.33ft	
16	Timber (Rectangular)	1.33ft	
17	Timber (Rectangular)	1.33ft	
18	Timber (Rectangular)	1.33ft	
19	Timber (Rectangular)	1.33ft	

Title

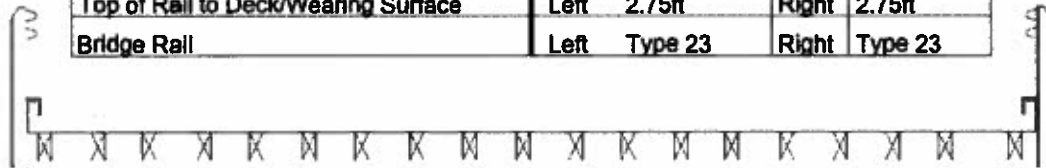
SPAN 2

Description

SUPERSTRUCTURE

Bridge Inspection Field Sketch

Deck Width/Out to Out	25.333ft	Between Rails	24.75ft
Clear Roadway	24ft	Wearing Surface	
Median Width		Median Height	
Curb Height		Left 0.75ft	Right 0.75ft
Sidewalk Width		Left	Right
Clear Roadway (Rail to Median)		Left	Right
Guardrail Width		Left	Right
Top of Rail to Deck/Wearing Surface		Left 2.75ft	Right 2.75ft
Bridge Rail		Left Type 23	Right Type 23



Measurements for Span #	1	
Deck Thickness	0.42	Left Overhang 0.42
Top of Rail to Bottom of Beam	4.13	Right Overhang 0.42

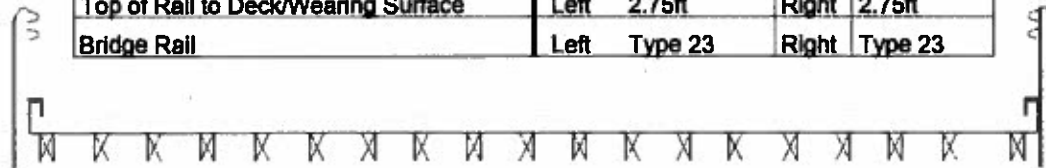
Beam Number	Beam Type	Spacing	Comments
1	Timber (Rectangular)	ft	
2	Timber (Rectangular)	1.35ft	
3	Timber (Rectangular)	1.29ft	
4	Timber (Rectangular)	1.38ft	
5	Timber (Rectangular)	1.31ft	
6	Timber (Rectangular)	1.33ft	
7	Timber (Rectangular)	1.33ft	
8	Timber (Rectangular)	1.38ft	
9	Timber (Rectangular)	1.33ft	
10	Timber (Rectangular)	1.33ft	
11	Timber (Rectangular)	1.33ft	
12	Timber (Rectangular)	1.33ft	
13	Timber (Rectangular)	1.33ft	
14	Timber (Rectangular)	1.27ft	
15	Timber (Rectangular)	1.4ft	
16	Timber (Rectangular)	1.33ft	
17	Timber (Rectangular)	1.31ft	
18	Timber (Rectangular)	1.33ft	
19	Timber (Rectangular)	1.75ft	

Title
SPAN 1

Description
SUPERSTRUCTURE

Bridge Inspection Field Sketch

Deck Width/Out to Out	25.333ft	Between Rails	24.75ft
Clear Roadway	24ft	Wearing Surface	
Median Width		Median Height	
Curb Height		Left 0.75ft	Right 0.75ft
Sidewalk Width		Left	Right
Clear Roadway (Rail to Median)		Left	Right
Guardrail Width		Left	Right
Top of Rail to Deck/Wearing Surface		Left 2.75ft	Right 2.75ft
Bridge Rail		Left Type 23	Right Type 23



Measurements for Span #	3		
Deck Thickness	0.42	Left Overhang	0.42
Top of Rail to Bottom of Beam	4.13	Right Overhang	0.42

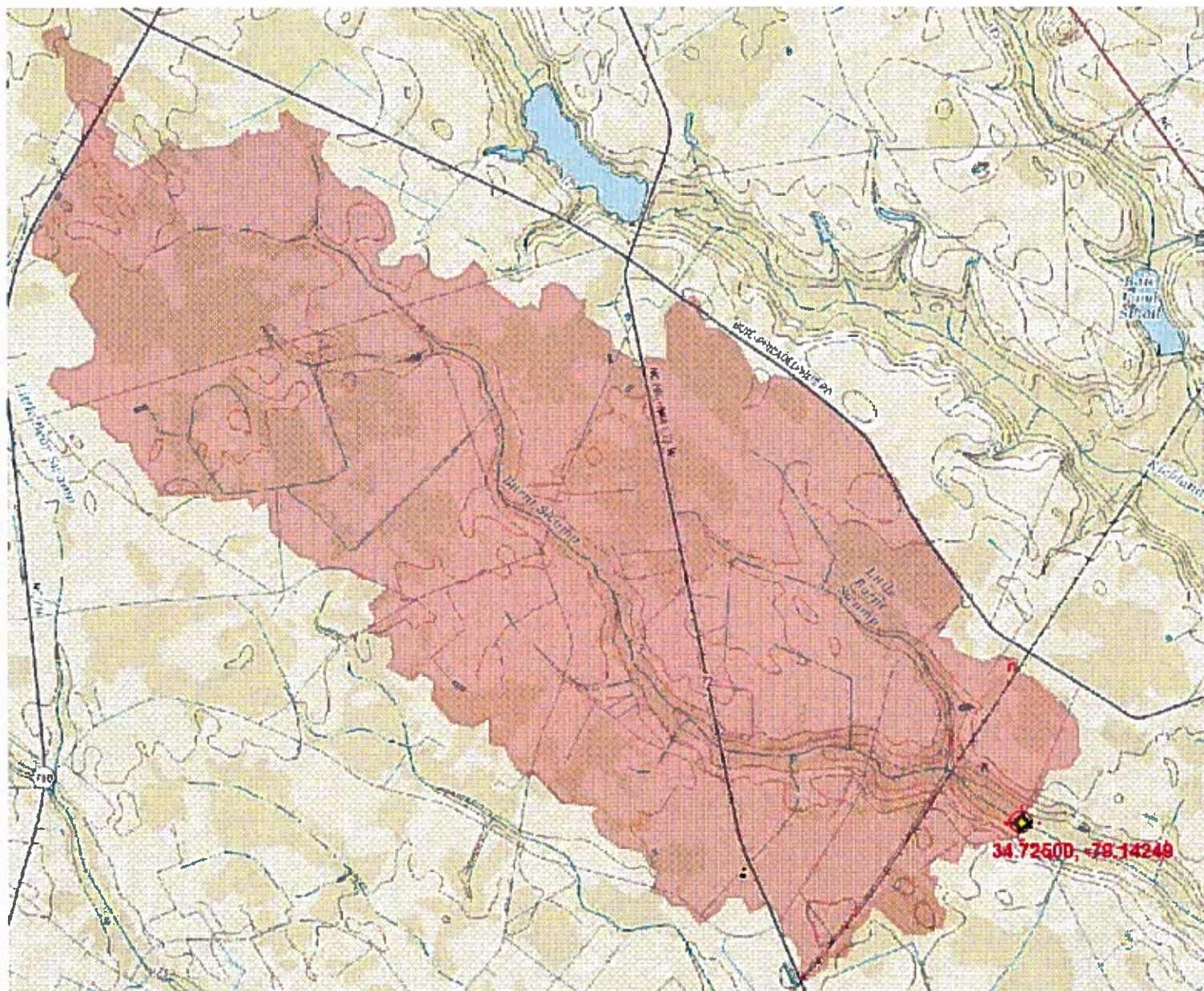
Beam Number	Beam Type	Spacing	Comments
1	Timber (Rectangular)	ft	
2	Timber (Rectangular)	1.38ft	
3	Timber (Rectangular)	1.33ft	
4	Timber (Rectangular)	1.33ft	
5	Timber (Rectangular)	1.38ft	
6	Timber (Rectangular)	1.38ft	
7	Timber (Rectangular)	1.29ft	
8	Timber (Rectangular)	1.33ft	
9	Timber (Rectangular)	1.31ft	
10	Timber (Rectangular)	1.33ft	
11	Timber (Rectangular)	1.33ft	
12	Timber (Rectangular)	1.33ft	
13	Timber (Rectangular)	1.29ft	
14	Timber (Rectangular)	1.29ft	
15	Timber (Rectangular)	1.38ft	
16	Timber (Rectangular)	1.33ft	
17	Timber (Rectangular)	1.31ft	
18	Timber (Rectangular)	1.38ft	
19	Timber (Rectangular)	1.71ft	

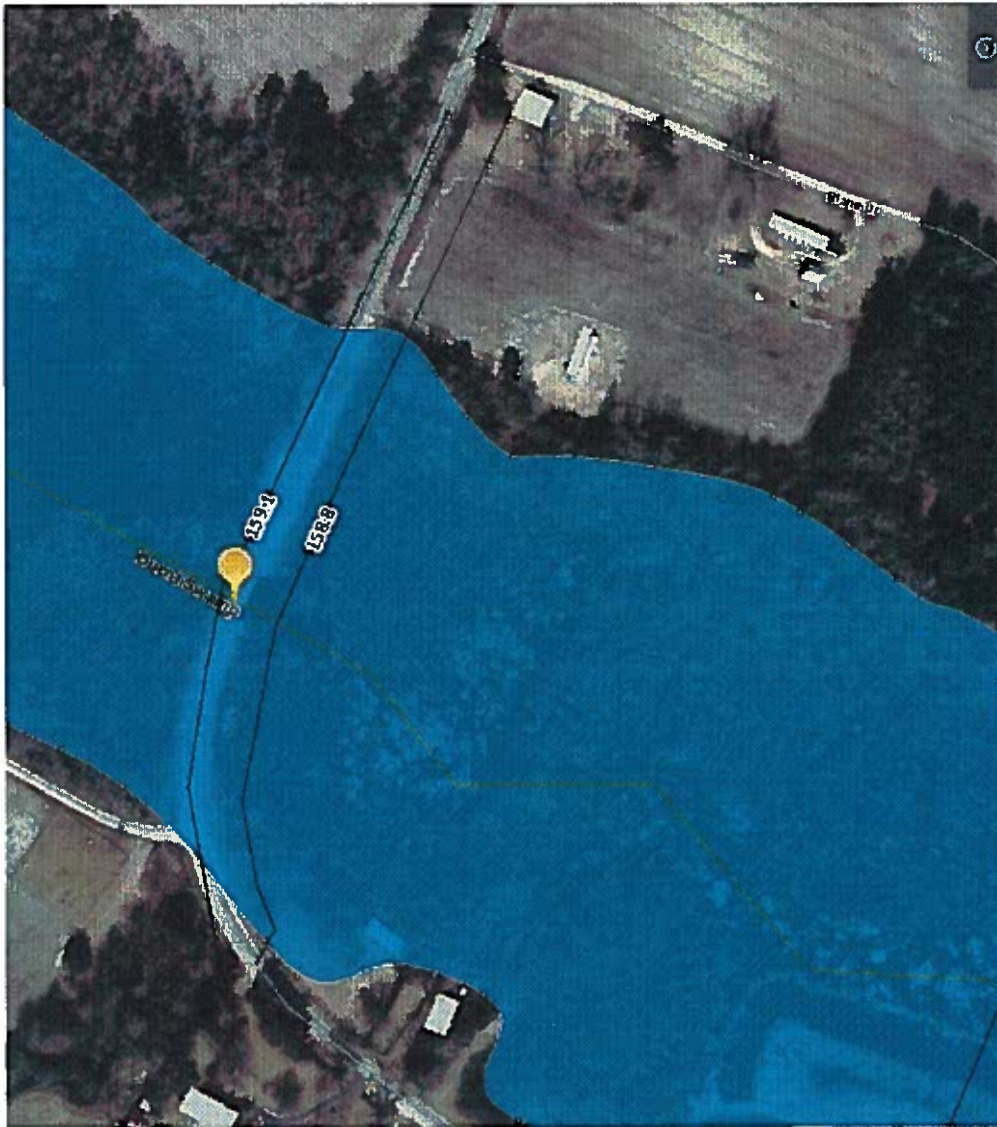
Title

SPAN 3

Description

SUPERSTRUCTURE





Click the map to view information.

Map Location

Flood Zone: AE

Flood Source: Burnt Swamp

Base Flood Elevation: 15.9 ft

County: Robeson

Political Area: Robeson County

CID: 370202

Panel: 9355 [Download](#)

Map Number: 3710935500J

Panel Effective Date: 1/19/2005

Latitude: 34.72491

Longitude: -79.14259

Address locations are approximate.

[4681 Evergreen Church Rd, Pembroke, NC](#)

[Risk Information](#)

[Financial Vulnerability](#)

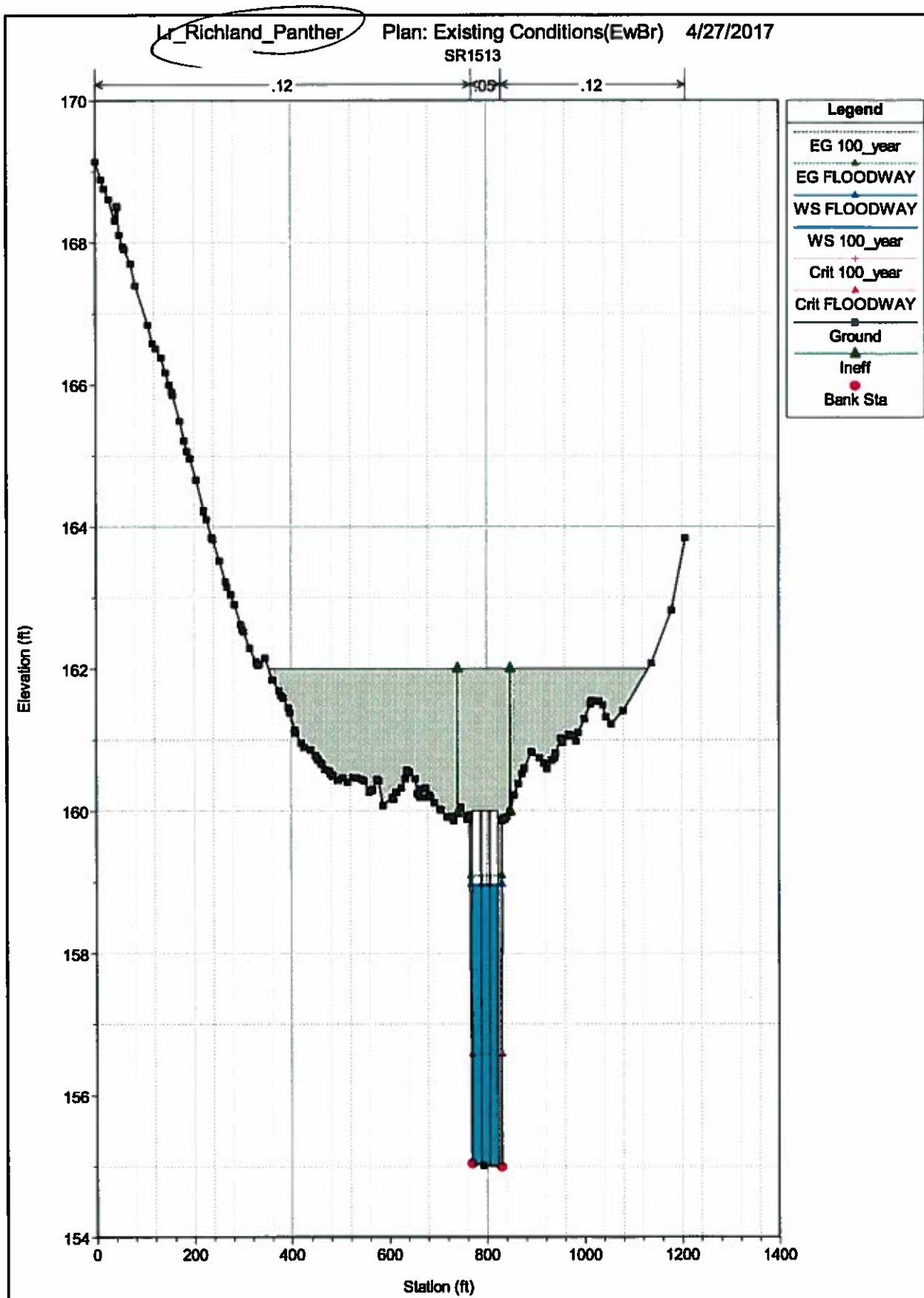
[Flood Insurance](#)

[FIS Reports](#)

[Map Export](#)

[Data Export](#)

O.K.



StreamStats Version 3.0**Flow Statistics Ungaged Site Report**

Date: Wed Apr 26, 2017 11:01:30 AM GMT-4

Study Area: North Carolina

NAD 1983 Latitude: 34.7249 (34 43 30)

NAD 1983 Longitude: -79.1423 (-79 08 33)

Drainage Area: 6.78 mi²

Peak Flows Region Grid Basin Characteristics			
100% Peak Southeast US over 1 sqmi 2009 5158 (6.78 mi ²)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	6.78	1	9000
Percent Area in Region 1 (percent)	0.000	0	100
Percent Area in Region 2 (percent)	0.000	0	100
Percent Area in Region 3 (percent)	0.000	0	100
Percent Area in Region 4 (percent)	100.000	0	100
Percent Area in Region 5 (percent)	0.000	0	100

Urban Flows Region Grid Basin Characteristics			
Area in square miles=6.78			
Percent imperviousness of basin area 2006 NLCD=0.82			
100% Region 4 Urban 2014 5030 (6.78 mi ²)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	6.78	0.1	53.5
Percent Impervious NLCD2006 (percent)	0.82	0.02	34.8
24 Hour 50 Year Precipitation (inches)	7.52	6.51	10.9

Peak Flows Region Grid Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
PK2	209	ft ³ /s	35		120	363
PK5	408	ft ³ /s	34		237	705
PK10	566	ft ³ /s	35		323	993
PK25	783	ft ³ /s	38		431	1420
PK50	974	ft ³ /s	40		519	1830
PK100	1190	ft ³ /s	42		610	2300
PK200	1380	ft ³ /s	44		686	2770
PK500	1680	ft ³ /s	48		794	3540

<http://pubs.usgs.gov/sir/2009/5158/> (<http://pubs.usgs.gov/sir/2009/5158/>)

Weaver, J.C., Feaster, T.D., and Gotvald, A.J., 2009, Magnitude and frequency of rural floods in the Southeastern United States through 2006—Volume 2, North Carolina: U.S. Geological Survey Scientific Investigations Report 2009-5158, 111 p.

Urban Flows Region Grid Statistics

Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
PK2U	205	ft3/s	41		94.8	445
PK5U	382	ft3/s	37		189	774
PK10U	528	ft3/s	37		265	1050
PK25U	741	ft3/s	38		360	1520
PK50U	916	ft3/s	40		431	1950
PK100U	1110	ft3/s	43		501	2450
PK200U	1320	ft3/s	45		567	3080
PK500U	1620	ft3/s	50		644	4050

<http://pubs.usgs.gov/sir/2014/5030/> (<http://pubs.usgs.gov/sir/2014/5030/>)

Feaster, T.D., Gotvald, A.J., and Weaver, J.C., 2014. Methods for estimating the magnitude and frequency of floods for urban and small rural streams in Georgia, South Carolina, and North Carolina, 2011 (ver. 1.1, March 2014): U.S. Geological Survey Scientific Investigations Report 2014-5030, 104 p.

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U.S. Department of the Interior | U.S. Geological Survey

URL: http://streamstatsags.cr.usgs.gov/v3_beta/FTreport.htm

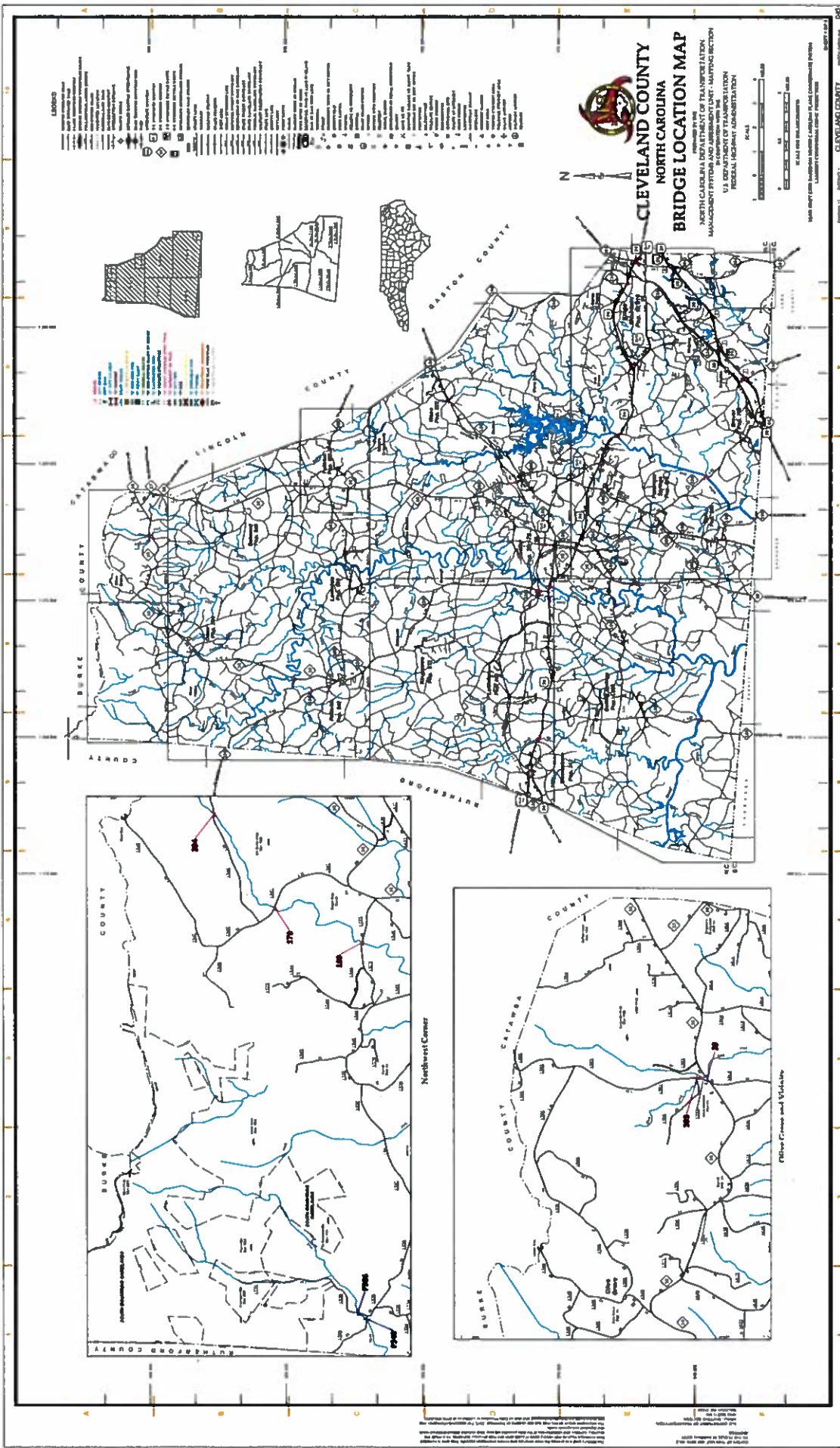
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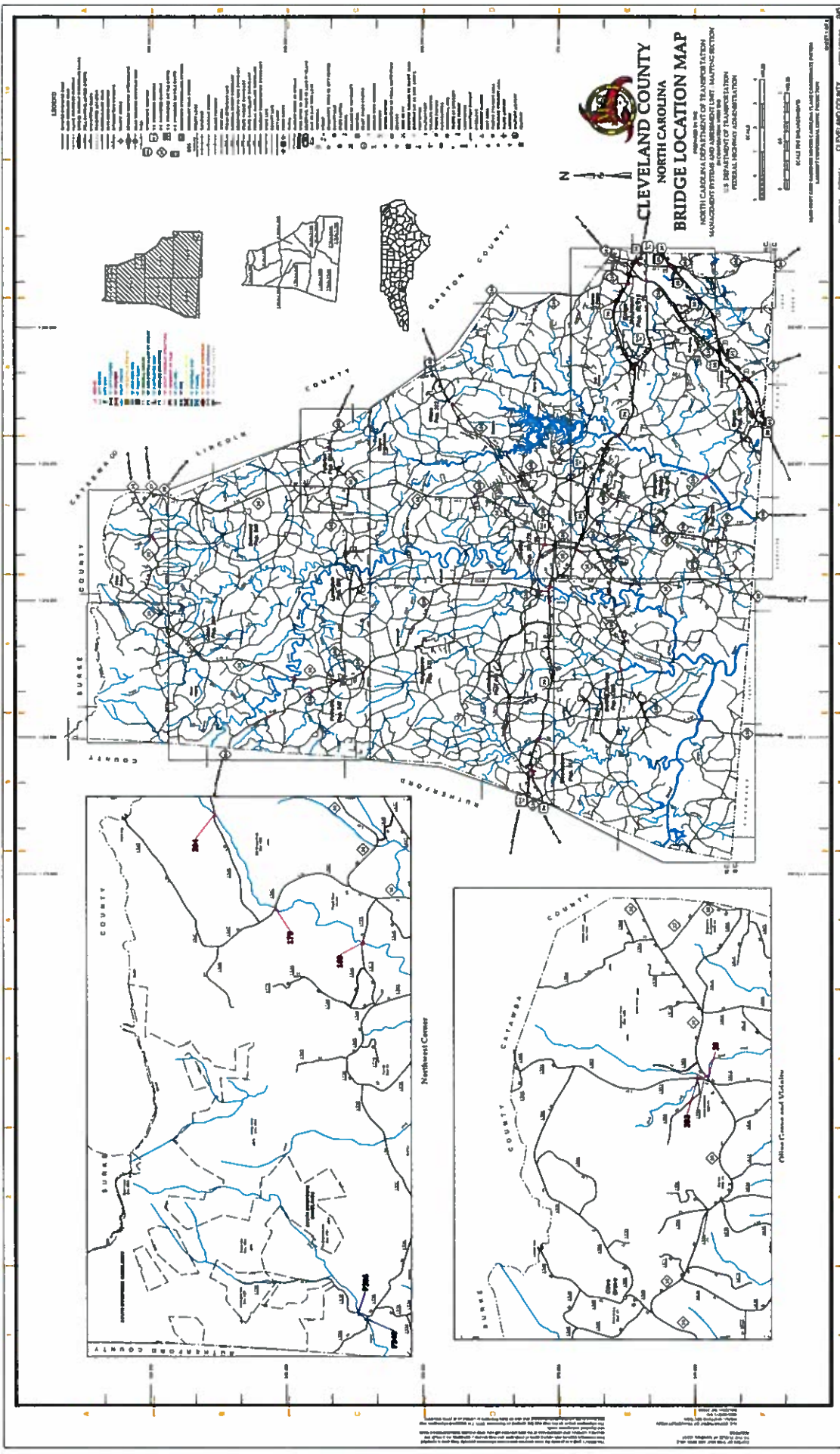
Page Last Modified: 08/09/2016 14:34:10 (Web1)

[Streamstats Status](#)

[News](#)







- LEGEND**
- State Route
 - County Route
 - Water
 - Topography
 - Settlements
 - Public Buildings
 - Religious Buildings
 - Educational Buildings
 - Healthcare Buildings
 - Government Buildings
 - Industrial Buildings
 - Commercial Buildings
 - Residential Buildings
 - Unimproved Land
 - Forest Land
 - Barren Land
 - Cultivated Land
 - Wetlands
 - Marshes
 - Swamps
 - Lakes
 - Rivers
 - Creeks
 - Streams
 - Canals
 - Ditches
 - Fences
 - Power Lines
 - Telegraph Lines
 - Other Lines

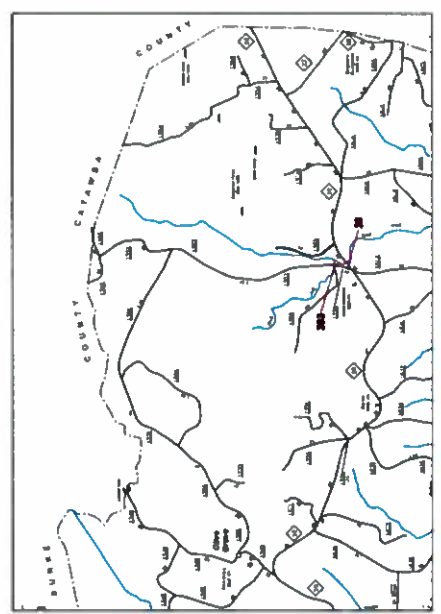
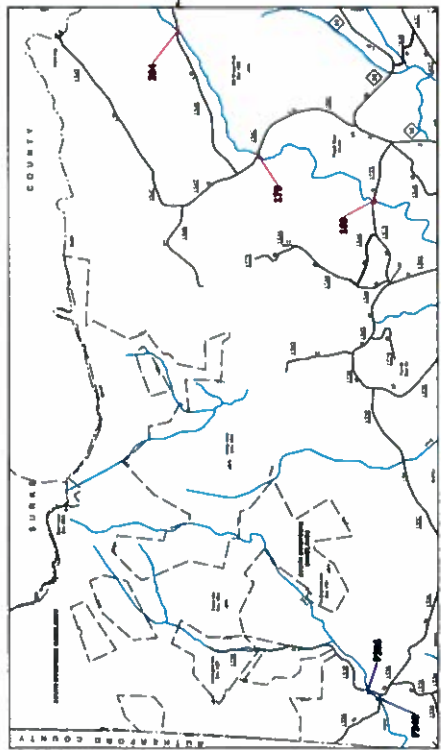


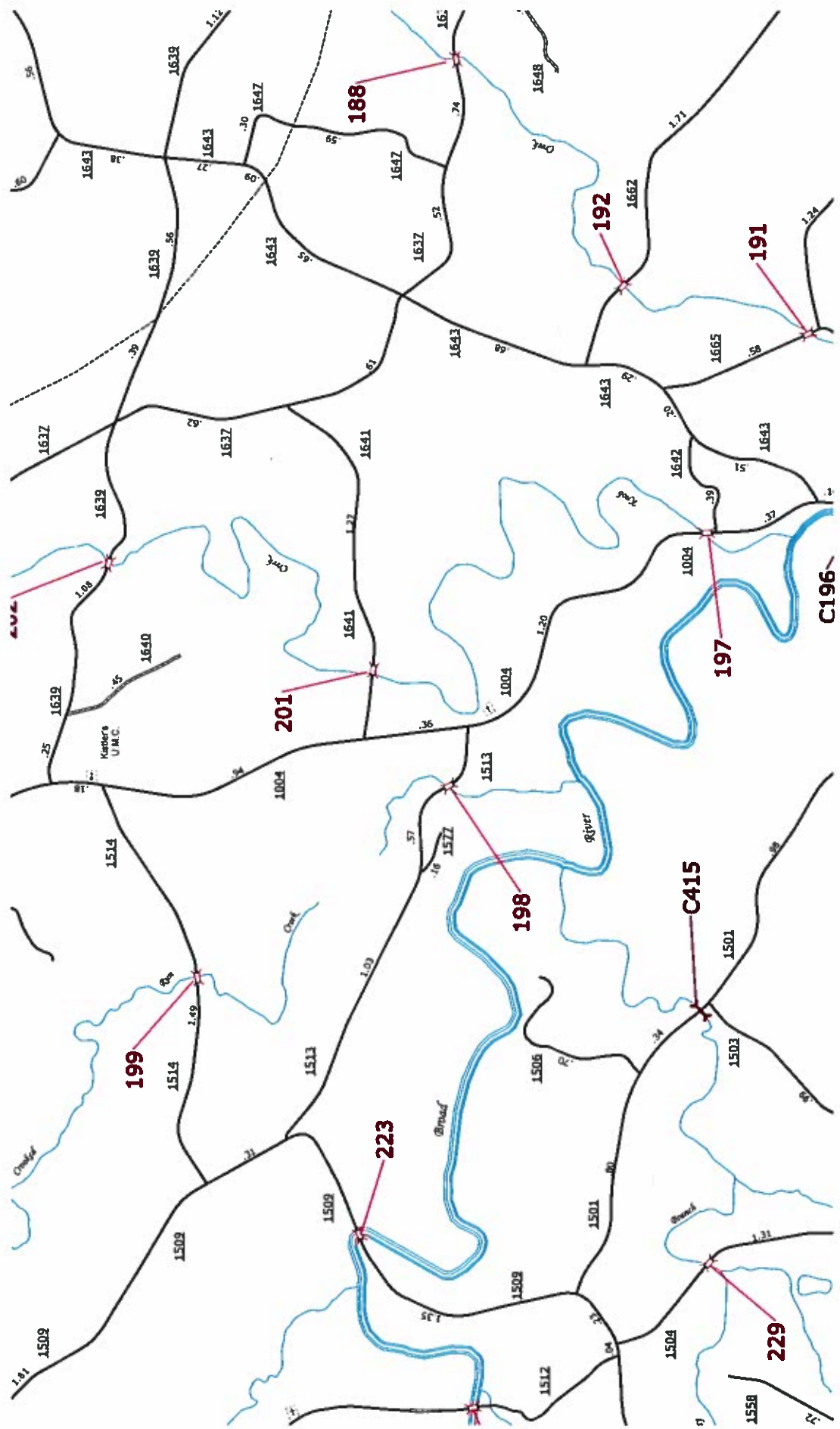
**CLEVELAND COUNTY
NORTH CAROLINA
BRIDGE LOCATION MAP**

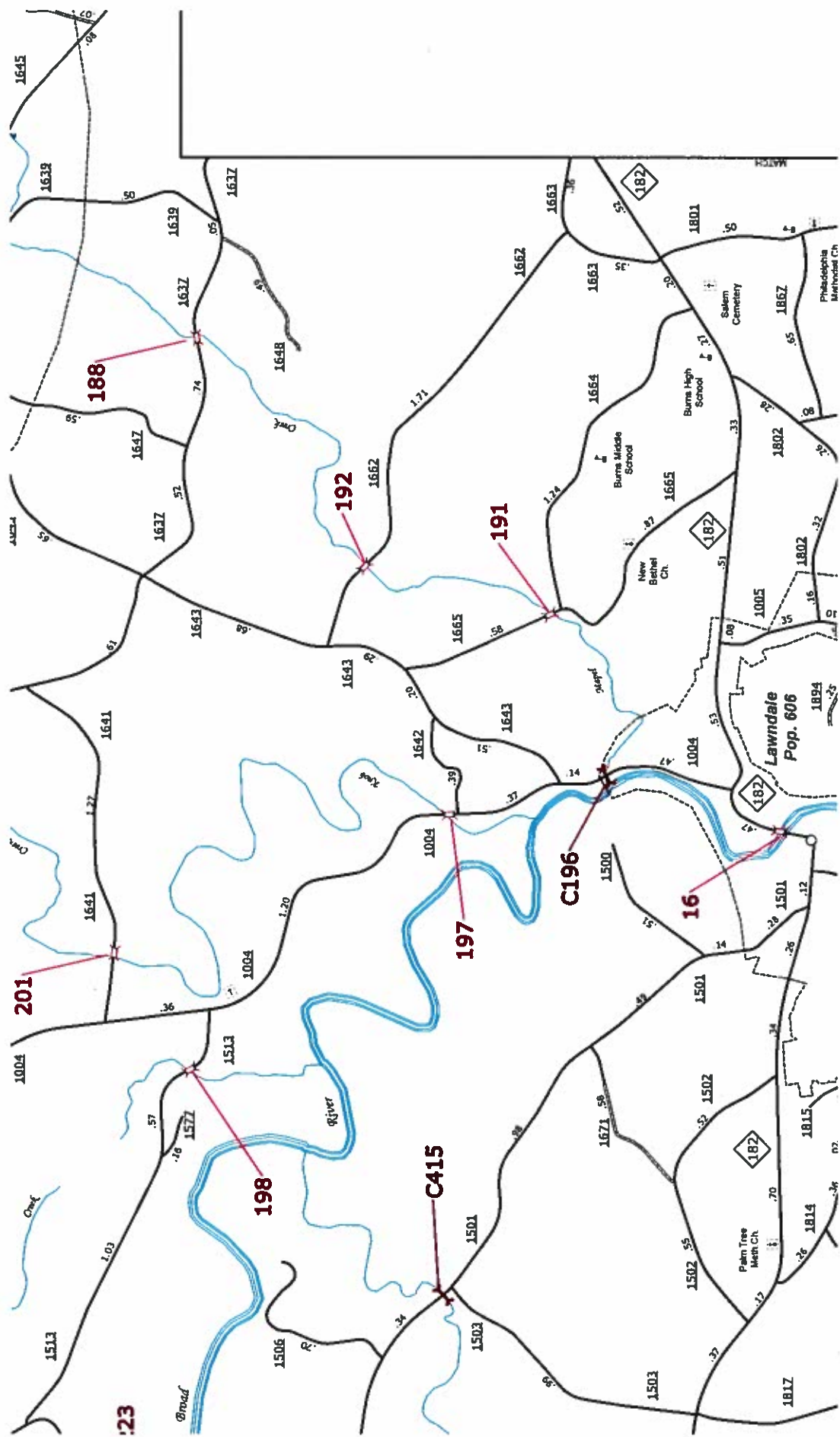
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
MANAGEMENT SYSTEMS AND AIRBORNE UNIT - MAINTENANCE SECTION
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

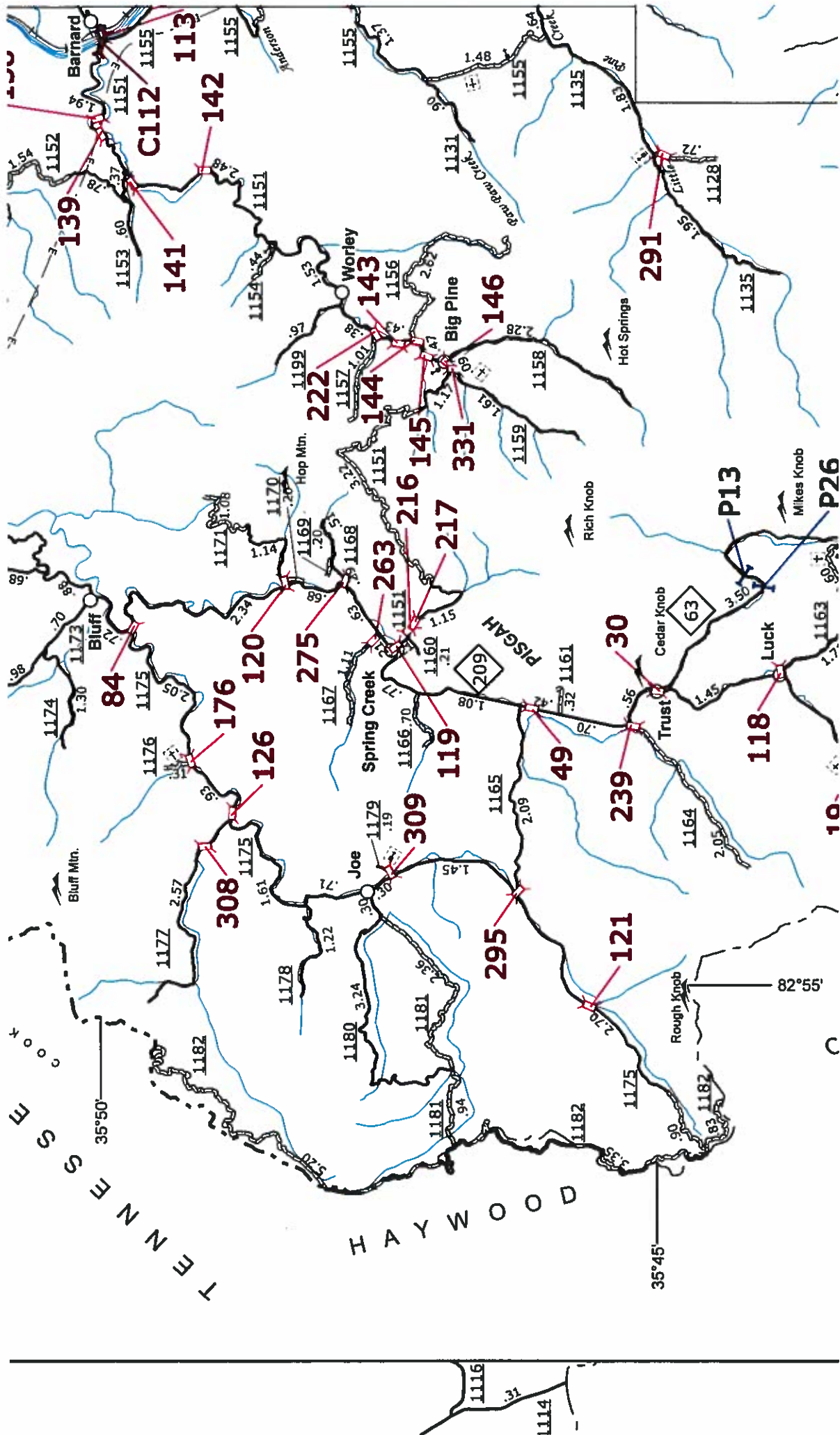


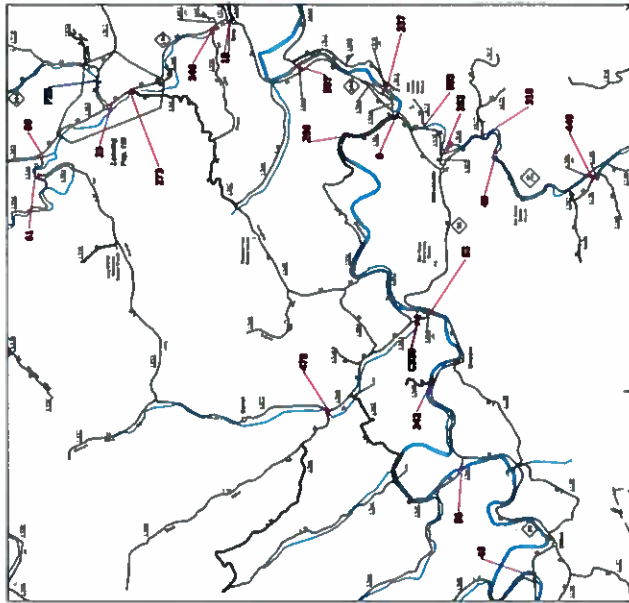
Map of Cleveland County, North Carolina, showing bridge locations. The map is oriented with North at the top. It includes labels for surrounding counties: Burke, Rutherford, and Catawba. The map is framed by a grid with letters A through S and numbers 1 through 24.





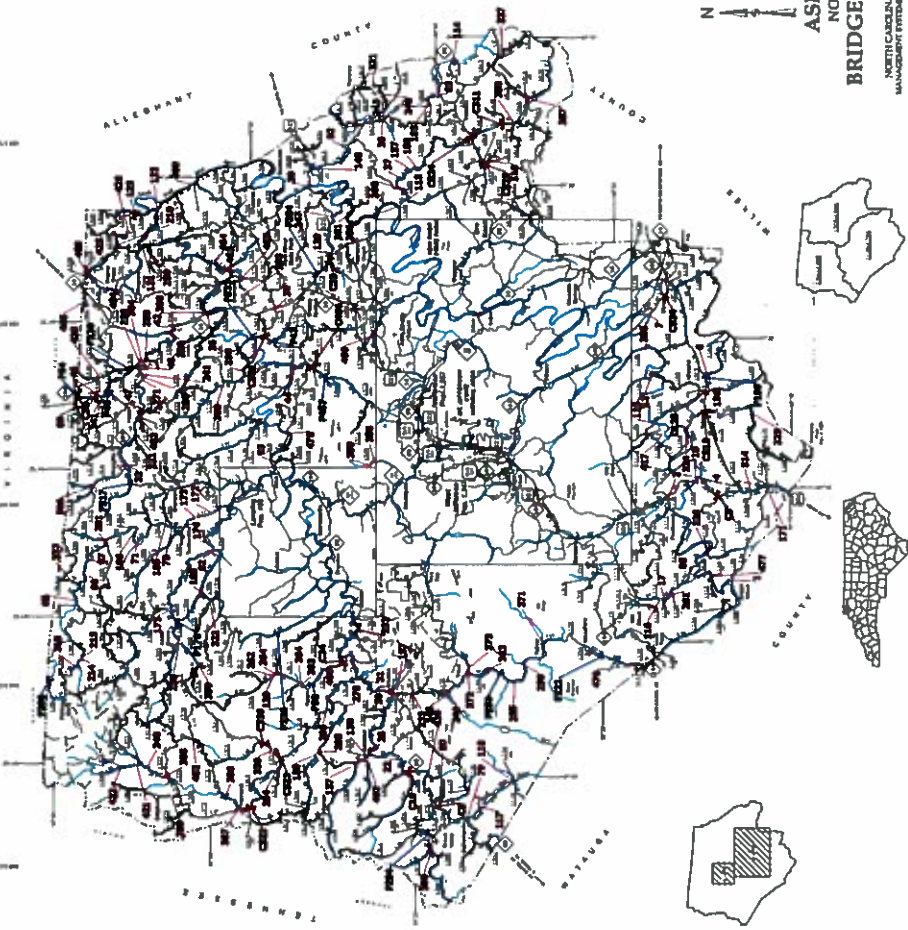






Lanning and Vicinity

- Ashe County
- Watauga County
- Allegheny County
- Madison County
- Lincoln County
- Swain County
- Wayne County
- Transylvania County
- Haywood County
- Macon County
- Greene County
- Polk County
- Cherokee County
- Union County
- Yancey County
- Catawba County
- Lincoln County
- Swain County
- Wayne County
- Transylvania County
- Haywood County
- Macon County
- Greene County
- Polk County
- Cherokee County
- Union County
- Yancey County
- Catawba County



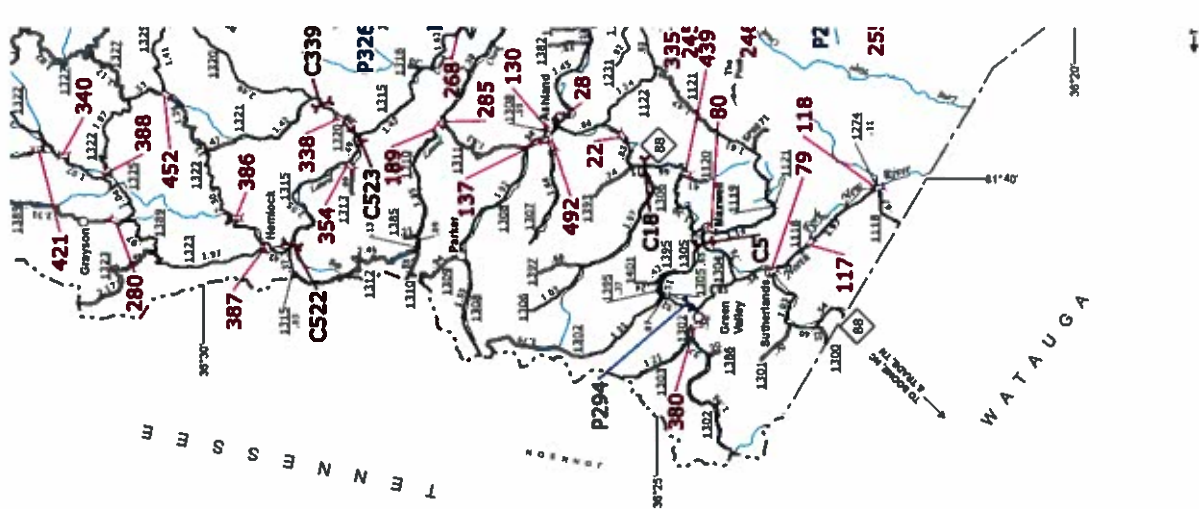
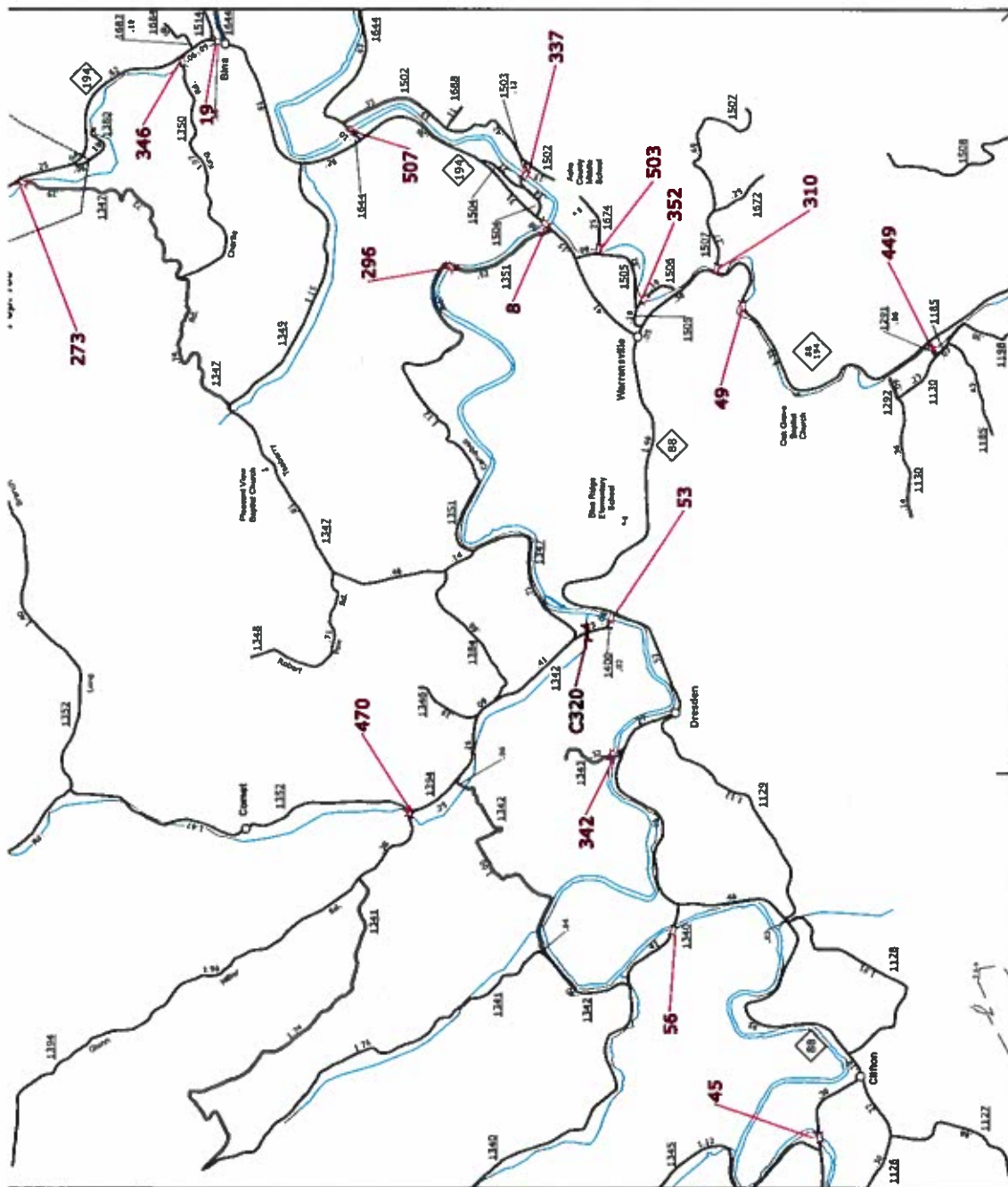
ASHE COUNTY NORTH CAROLINA BRIDGE LOCATION MAP

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ASHE COUNTY
NORTH CAROLINA
BRIDGE LOCATION MAP

- Legend
- State Routes
- County Routes
- Local Roads
- Waterways
- Topography
- Settlements
- Landmarks
- Other Features



Lansing and Vicinity

Woods

Swamp

Woods

8

65

Power

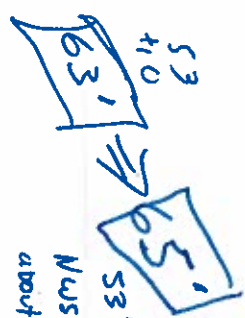


- 2'-6" CAPS
Due to Highway
31N.C.

Woods

- Banks stable
- Moderate debris

Swamp



- Woods

D/S
Left to Right
35/30

Proposed Structure: 65' waive 10' setbacks