

PREDESIGN/PRESURVEY REPORT

County: Rowan

Project No.:

TIP No.:

Let Date:

WBS No.: 17BP. 9.R.37

Bridge No.: 790184

Road No.: SR2333 (Cannon St)

Stream: Second Creek

Type of Request:

Date: 7/1/2013

Name:

Assigned to: EMT

Checked by:

Prior Survey Date (attach copy of prior survey):

Study by Scour Section:

Flood Zone: A

Detail Study: LDS

Date: 06/16/09

Panel No.: 5675

BM Info:

Quad Map: Rockwell

Drainage Area: 4.73 sq.mi

From: Quad/Stream Stats

Q25: 1400cfs

Q50: 1600cfs

Q100: 1900cfs

Method: USGS Urban Regression: Region 1

EXISTING BRIDGE INFORMATION

Location: 0.4 Miles North of JCT SR2336 (Holshouser Rd)

Average Daily Traffic: 2008 - 640

Length: 41'

Bed-to-Crown: 10'

Water Depth: 2'

Type of Structure: Tim Deck on I-Beams; End Bnts: Tim Caps, Post&Sills, Tim Bulkheads

Type of Span(s): 1@40'6

Upstream Structure: 790077 – Triple 9'X9' RCBC, 51' Along Centerline of Culvert

Location: 0.5 Miles West JCT SR2393 (Howard St)

Bed-to-Crown: 19'

Prior Survey:

Downstream Structure: 790183 – Double 15'X8' RC Box Culvert, 58' Along Centerline Culvert;

Exterior&Interior Walls: 10", Top Slab: 1'1", Bottom Slab:1'2"

Location: 0.3 Miles North JCT SR2336 (Holshouser Rd)

Bed-to-Crown: 14'

Prior Survey: 05/07/98

SCS Watershed:

ENVIRONMENTAL

Trout Stream: No

Anadromous Fish: No

Primary Nursery Area: No

High Quality Waters: No

Nutrient Sensitive Waters: No

Near Water Supply Intake:

CAMA County: No

Stream Classification: N/A: Not Applicable or Out of State

Notes: None

DENR River Basin Info: Yadkin/Pee-Dee

MAINTENANCE COORDINATION

Bridge Maintenance – Contact Superintendent and Supervisor.

High Water:

Relocation:New Alignment Staked:BM Information:

Road Maintenance – Contact District Engineer and County Maintenance Engineer.

High Water:

Road to be Paved:Relocation of Vicinity of Bridge:

New Alignment Staked:BM Information:

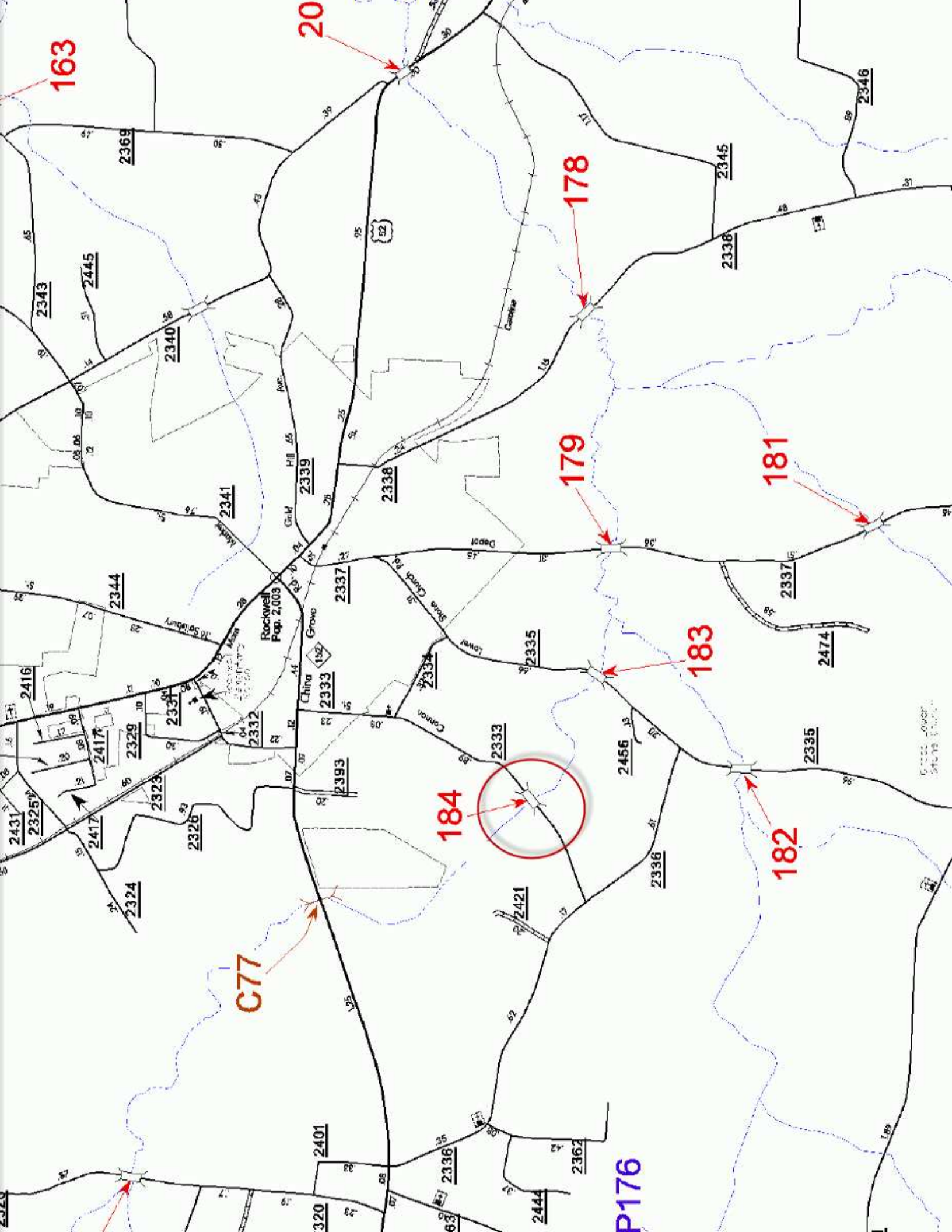
Initiated as:Date Initiated:

Man-days Estimated:

Date Surveyed:Date Completed:

Personnel	Hours	Pay Period

Comments:





NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BRIDGE MANAGEMENT UNIT

ATTENTION

TEMPORARY REPAIRS

BRIDGE INSPECTION REPORT

INSPECTION TYPE: Routine Inspection

COUNTY ROWAN BRIDGE NUMBER 790184 INSPECTION CYCLE 2 YRS
ROUTE SR2333 ACROSS SECOND CREEK M.P. 0

0.4 MI. N. JCT. SR 2336

LOCATION **0.4 MI. N. JCT. SR2336**

SUPERSTRUCTURE TIMBER DECK ON I-BEAMS

SUBSTRUCTURE END BENTS:TIMBER CAPS, POSTS & SILLS, TIMBER BULKHEADS

SPANS 1@40'6

LONGITUDE 80° 25' 6.7"

LATITUDE 35° 32' 29.2"

PRESENT CONDITION FAIR

INVENTORY RATING

INSPECTION DATE 11/03/2010

OPERATING RATING

PRESENT POSTING **SV 16 TTST 20** **SV 16, TTST 20**

PROPOSED POSTING

COMPUTER UPDATE

ANALYSIS DATE

POSTING LETTER DATE

SUFFICIENCY RATING

OTHER SIGNS PRESENT 4 DELINEATORS



LOOKING SOUTH

SIGN NOTICE ISSUED FOR		NUMBERED REQUIRED
<u>No</u>	WEIGHT LIMIT	<u></u>
<u>No</u>	DELINEATORS	<u></u>
<u>No</u>	NARROW BRIDGE	<u></u>
<u>No</u>	ONE LANE BRIDGE	<u></u>
<u>No</u>	LOW CLEARANCE	<u></u>

NATIONAL BRIDGE INVENTORY----- STRUCTURE INVENTORY AND APPRAISAL Run Date: 12/14/2010

IDENTIFICATION							
(1) STATE NAME -NORTH CAROLINA	BRIDGE	790184		SUFFICIENCY RATING =		55.2	
(8) STRUCTURE NUMBER(FEDERAL)		000000001590184		STATUS =	Not Deficient		
INVENTORY ROUTE (ON/UNDER) - ON		131023330					
(2) STATE HIGHWAY DEPARTMENT DISTRICT		9					
(3) COUNTY CODE	159	(4) PLACE CODE	00000				
(6) FEATURE INTERSECTED - SECOND CREEK							
(7) FACILITY CARRIED SR2333							
(9) LOCATION 0.4 MI. N. JCT. SR2336							
(11)MILEPOINT		0					
(16)LAT 35° 32' 29.2"	(17)LONG	80° 25' 6.7"					
(98)BORDER BRIDGE STATE CODE	PCT SHARE						
(99)BORDER BRIDGE STRUCTURE NO							
STRUCTURE TYPE AND MATERIAL				CLASSIFICATION			
(43) STRUCTURE TYPE MAIN: Steel				(112)NBIS BRIDGE SYSTEM -		YES	
TYPE - Stringer Multibeam or Girder	CODE	302		(104)HIGHWAY SYSTEM	NON NHS Route	0	
(44) STRUCTURE TYPE APPR :				(26) FUNCTIONAL CLASS -	Local	09	
TYPE -	CODE			(100)STRAHNET HIGHWAY -	Not a STRAHNET Route	0	
(45) NUMBER OF SPANS IN MAIN UNIT		1		(101)PARALLEL STRUCTURE -	No Parallel Structure	N	
(46) NUMBER OF APPROACH SPANS				(102)DIRECTION OF TRAFFIC -	2-way Traffic	2	
(107)DECK STRUCTURE TYPE - Timber	CODE	8		(103)TEMPORARY STRUCTURE -	Not Temporary		
(108)WEARING SURFACE / PROTECTIVE SYSTEM :				(110)DESIGNATED NATIONAL NETWORK -	Not Part of	0	
(A) TYPE OF WEARING SURFACE - Bituminous	CODE	6		(20) TOLL	On Free Road	3	
(B) TYPE OF MEMBRANE - None	CODE	0		(31) MAINTAIN -	State Highway Agency	01	
(C) TYPE OF DECK PROTECTION - None	CODE	0		(22) OWNER -	State Highway Agency	01	
				(37) HISTORICAL SIGNIFICANCE -	Not Eligible	5	
AGE AND SERVICE				CONDITION			
(27) YEAR BUILT		1967		(58) DECK		7	
(106)YEAR RECONSTRUCTED				(59) SUPERSTRUCTURE		7	
(42) TYPE OF SERVICE : ON - Highway				(60) SUBSTRUCTURE		6	
UNDER - Waterway	CODE	15		(61) CHANNEL & CHANNEL PROTECTION		7	
(28) LANES: ON STRUCTURE 2 UNDER STRUCTURE				(62) CULVERTS		N	
(29) AVERAGE DAILY TRAFFIC		640					
(30) YEAR OF ADT 2008	(109) TRUCK ADT PCT	6 %		LOAD RATING AND POSTING			
(19) BYPASS OR DETOUR LENGTH		1 MI		(31) DESIGN LOAD	Other or Unknown	0	
GEOMETRIC DATA				(64) OPERATING RATING -	HS-13	124	
(48) LENGTH OF MAXIMUM SPAN		41 FT		(66) INVENTORY RATING -	HS-8	114	
(49) STRUCTURE LENGTH		41 FT		(70) BRIDGE POSTING -	Posting Required	0	
(50)CURB OR SIDEWALK: LEFT 0.3 FT RIGHT 0.3 FT				(41) STRUCTURE OPEN, POSTED ,OR CLOSED		P	
(51) BRIDGE ROADWAY WIDTH CURB TO CURB		24.4 FT		DESCRIPTION -	Posted for Load		
(52) DECK WIDTH OUT TO OUT		25.4 FT					
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS)		20.0 FT		APPRAISAL			
(33) BRIDGE MEDIAN - No Median	CODE	0		(67) STRUCTURAL EVALUATION		4	
(34) SKEW 0° (35) STRUCTURE FLARED		NO		(68) DECK GEOMETRY		4	
(10) INVENTORY ROUTE MIN VERT CLEAR	99 FT 99 IN			(69) UNDERCLEARANCES,VERTI & HORIZ		N	
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR	24.4 FT			(71) WATERWAY ADEQUACY		6	
(53) MIN VERT CLEAR OVER BRIDGE RDWY	99 FT 99 IN			(72) APPROACH ROADWAY ALIGNMENT		8	
(54) MIN VERT UNDERCLEAR REF Not a Highway or Railroad				(36) TRAFFIC SAFETY FEATURES		0000	
(55) MIN LAT UNDERCLEAR RT REF Not a Highway or Railroad	99.9 FT			(113)SCOUR CRITICAL BRIDGES		U	
(56) MIN LAT UNDERCLEAR LT REF -	0.0 FT			SCOUR PLAN OF ACTION	S		
NAVIGATION DATA				PROPOSED IMPROVEMENTS			
(38) NAVIGATION CONTROL - No Navigational Control	CODE	0		(75) TYPE OF WORK -	CODE	311	
(111)PIER PROTECTION - Not Applicable	CODE			(76) LENGTH OF STRUCTURE IMPROVEMENT		64 FT	
(39) NAVIGATION VERTICAL CLEARANCE		0		(94) BRIDGE IMPROVEMENT COST		\$136,000	
(116)VERT - LIFT BRIDGE NAV MIN VERT CLEAR				(95) ROADWAY IMPROVEMENT COST		\$34,000	
(40) NAVIGATION HORIZONTAL CLEARANCE		0		(96) TOTAL PROJECT COST		\$204,000	
				(97) YEAR OF IMPROVEMENT COST ESTIMATE		2007	
				(114)FUTURE ADT 1060	(115) YEAR FUTURE ADT	2025	
				INSPECTIONS			
				(90) INSPECTION DATE		11/03/2010	
				(92) CRITICAL FEATURE INSPECTION :	(93) CFI DATE		
				A) FRACTURE CRIT DETAIL -	NO	A)	
				B) UNDERWATER INSP -	NO	B)	
				C) OTHER SPECIAL INSP	NO	C)	
				SCOUR			

BRIDGE MANAGEMENT UNIT
DATA ON EXISTING STRUCTURE

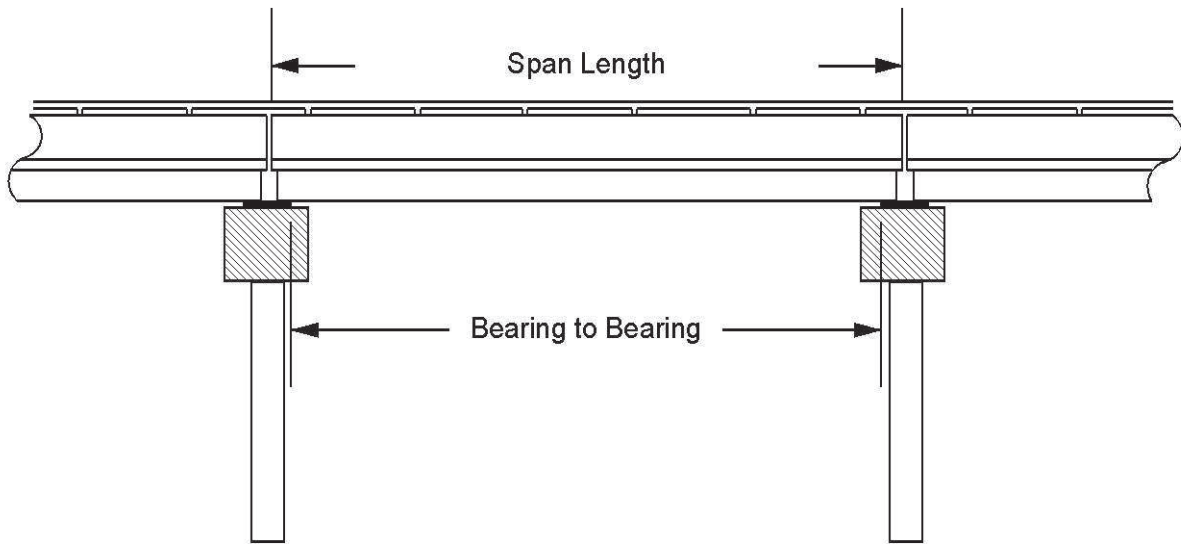
Run Date: 12/14/2010

COUNTY : ROWAN	DIV : 9	DIST : 1	STRUCTURE NUMBER : 790184	LENGTH : 41	FEET
ROUTE CARRIED : SR2333			FEATURE INTERSECTED : SECOND CREEK		
LOCATED : 0.4 MI. N. JCT. SR2336		BRIDGE NAME :		CITY :	
FUNC. CLASS : 09	SYST.ON : NFA	SYST.UNDER : NFA	ADT & YR : 640 2008	RAIL TYPE : LT 227 RT 227	
BUILT : 1967	BY : BMU	PROJ : 6.6320109	FED.AID PROJ :	DESIGN LOAD : Other or Unknown	
REHAB :	BY :	PROJ :	ALIGNMENT : TAN	SKEW : 90	LANES : ON 2 UNDER
NAVIGATION : VC 0.0 FT HC 0.0 FT		HT. CRN. TO BED : 10 FT		WATER DEPTH : 2 FT	
SUPERSTRUCTURE : TIMBER DECK ON I-BEAMS					
SUBSTRUCTURE : END BENTS:TIMBER CAPS, POSTS & SILLS, TIMBER BULKHEADS					
SPANS : 1@40'6					
BEAMS OR GIRDERS : 10 LINES OF W16X45 I-BEAMS @ 2'7 CENTERS					
FLOOR : 4X8 TIM,1.5 AWS	ENCROACHMENT :		DECK (OUT TO OUT) : 25.4 FT		
CLEAR ROADWAY : 24.4 FT	BETWEEN RAILS : 25.1 FT		SIDEWALK OR CURB : LT 0.3 FT RT 0.3 FT		
VERT.CL.OVER : 99 FT 99 IN	VERT.CL.UNDER : 00 FT 00 IN		HOR.CL.UNDER : 0.0 FT		
INV.RTG. : HS-8	OPE.RTG. : HS-13	CONTR.MEMBER : int bm	POSTED : SV 16 TTST 20 DATE 10/04/1995		
SYSTEM : Secondary S.R. Route			GREEN LINE ROUTE : N		
2ND OPENING :		3RD OPENING :		4TH OPENING : 5TH OPENING :	
REMARKS :					

Structure Data Worksheet

Spans

County: ROWAN Structure No: 790184 Date: 11/03/2010 Inspected By: GDP



Span No	Span Length	Bearing to Bearing	Comments
1	40.5	39.5	NBIS BL 38.5

Stream Bed Soundings

(See next sheet for profile sketch)

Bridge No: 790184 County: ROWAN Date: 11/03/2010 By: GDP

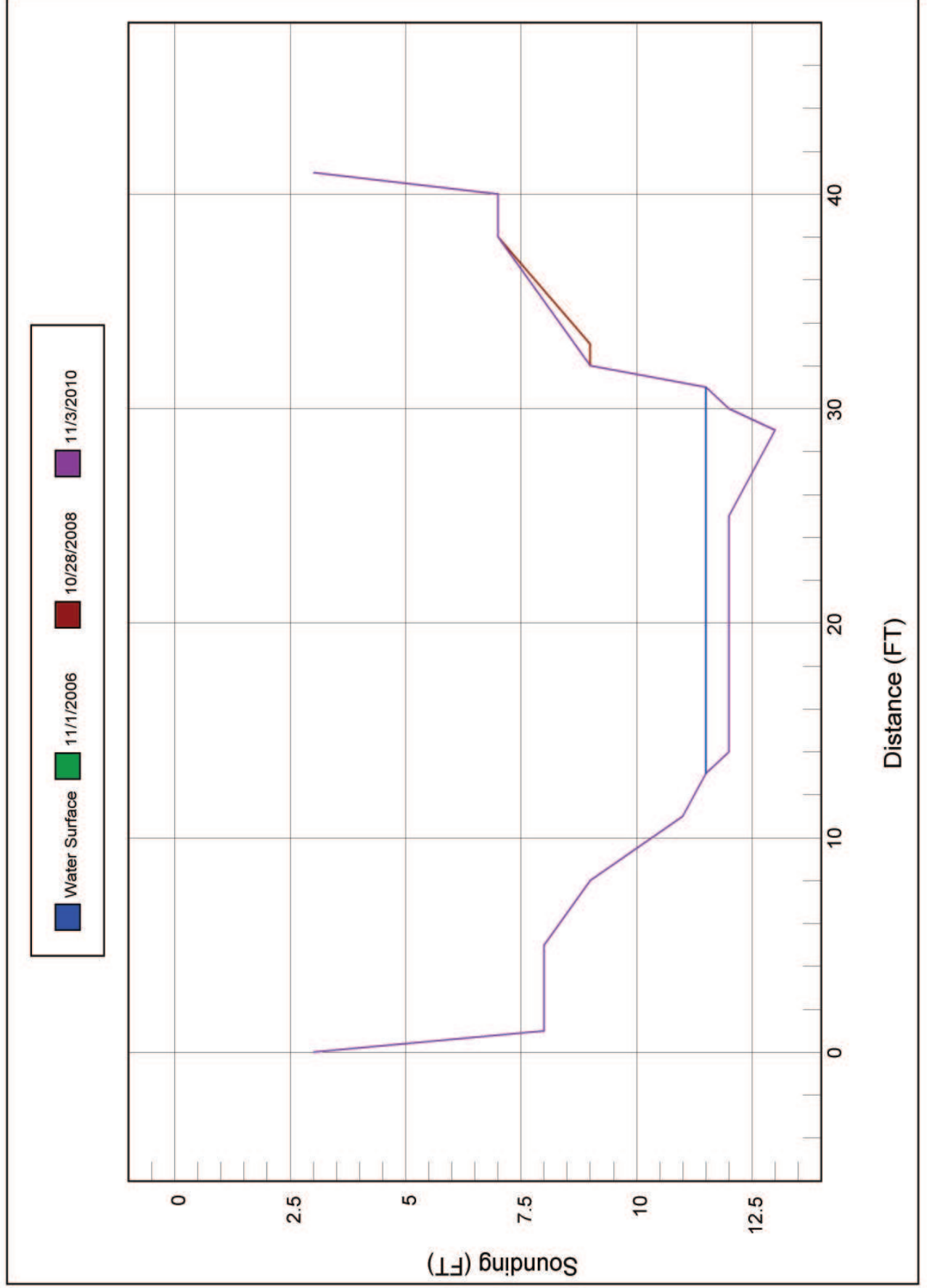
Record sounding from top of rail. Other location if needed: _____

Distance from Highwater Mark to top of rail: _____ Location of Highwater Mark: _____

DOWNSTREAM			UPSTREAM		
Distance (Station) (ft)	Sounding (ft)	Description	Distance (Station) (ft)	Sounding (ft)	Description
0	3				
1	8	EB 1	1	8	EB 1
5	8				
8	9				
11	11				
13	11.5	WSWE			
14	12				
17	12				
21	12				
25	12				
29	13				
30	12				
31	11.5	WSWE			
32	9				
38	7				
40	7	EB 2	40	7	EB 2
41	3				

STREAMBED PROFILE (Downstream)

Top of Rail = 0 FT (Sounding)



Bridge Inspection Field Sketch



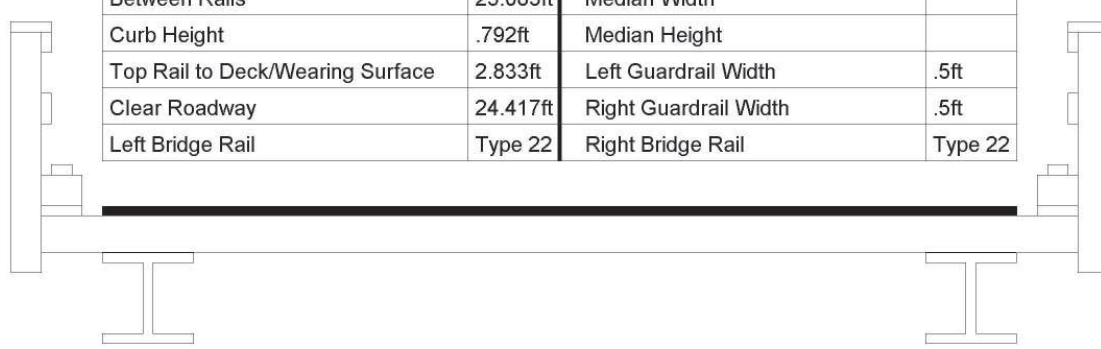
Roadway	20ft Wide	2 Paved Lanes	Looking North
Left Shoulder	6ft Wide		6ft Unpaved
Right Shoulder	6ft Wide		6ft Unpaved

verifed by wc 11-3-10

Title		Description	
APPROACH ROADWAY SKETCH		APPROACH ROADWAY SKETCH	
Bridge No: 790184	Drawn By: GDP	Date: 10/28/08	File Name: S0066001871

Bridge Inspection Field Sketch

Deck Width/Out to Out	25.417ft	Wearing Surface	.123ft
Between Rails	25.083ft	Median Width	
Curb Height	.792ft	Median Height	
Top Rail to Deck/Wearing Surface	2.833ft	Left Guardrail Width	.5ft
Clear Roadway	24.417ft	Right Guardrail Width	.5ft
Left Bridge Rail	Type 22	Right Bridge Rail	Type 22



Measurements for Span #	1		
Deck Thickness	.313	Left Overhang	1.083
Top of Rail to Bottom of Beam	4.833	Right Overhang	1.083

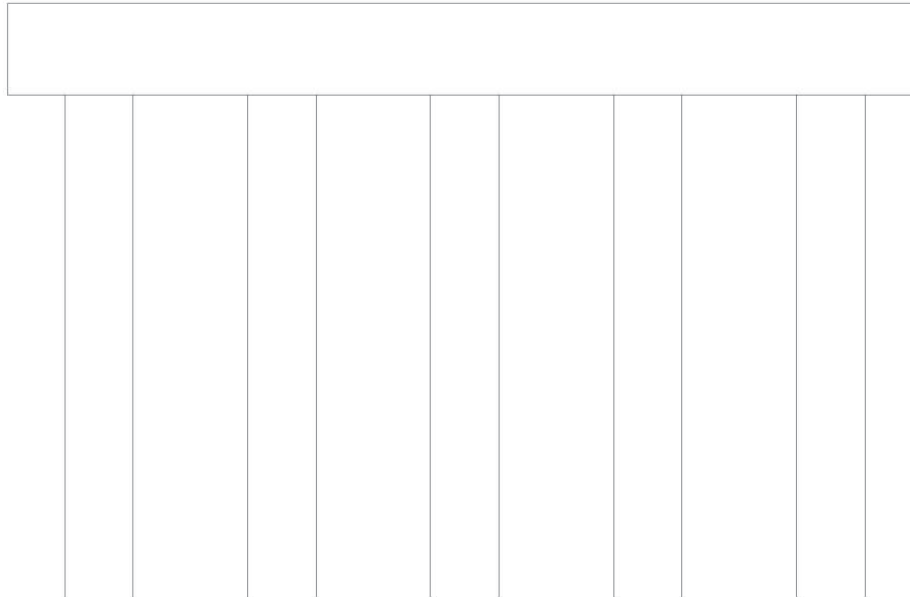
Beam No	Beam Type	Spacing	Comments
1	Steel I Beam	2.583ft	MEASUREMENTS VARIFIED
2	Steel I Beam	2.583ft	
3	Steel I Beam	2.583ft	
4	Steel I Beam	2.583ft	
5	Steel I Beam	2.583ft	
6	Steel I Beam	2.583ft	
7	Steel I Beam	2.583ft	
8	Steel I Beam	2.583ft	
9	Steel I Beam	2.583ft	
10	Steel I Beam		

BEAMS: 1.433ft HIGH X .593ft WIDE X .047ft FLANGE X .031ft WEB

verifed by wc 11-3-10

Title		Description	
STRUCTURE DATA SKETCH		STRUCTURE DATA SKETCH	
Bridge No: 790184	Drawn By: GDP	Date: 10/28/08	File Name: S0066001872

Bridge Inspection Field Sketch



Abutment #	1		
Cap - Beam Type (Wood or Steel)			
Cap Size	25.417ft Long	.833ft Wide	.959ft High
Left Overhang	2ft	Lt Cap/Beam Overhang	1.083ft
Right Overhang	2ft	Rt Cap/Beam Overhang	1.083ft

Pile #	Material	Pile Type	Spacing	Length	Width/Diam.	Height	Orientation
1	Wood or Timber	Pile Bent	5.5		.792 X .833	POST	Vertical
2	Wood or Timber	Pile Bent	5.5		.792 X .833	POST	Vertical
3	Wood or Timber	Pile Bent	5.5		.792 X .833	POST	Vertical
4	Wood or Timber	Pile Bent	5.5		.792 X .833	POST	Vertical
5	Wood or Timber	Pile Bent			.792 X .833	POST	Vertical

MEASUREMENTS VARIFIED by wc 11-3-10

Title		Description	
PILE DIAGRAM END BENT # 1		PILE DIAGRAM END BENT # 1	
Bridge No: 790184	Drawn By: GDP	Date: 10/28/08	File Name: S0066001873

Bridge Inspection Field Sketch



Cap Information			Material Timber							
Length	Width	Height	Left Overhang	Right Overhang	Left Beam to End of Cap.	Right Beam to End of Cap.				
26.417 ft.	.833 ft.	.959 ft.	3.000 ft.	1.417 ft.	2.083 ft.	1.417 ft.				
Subcap Information			Material							
Length	Width	Height	Left Overhang	Right Overhang	Left Pile to Splice.					
Sill Information			Material							
Length	Width	Height	MEASUREMENTS VERIFIED by wlc 11-5-10							
Pile #	Material	Spacing	Width/Dia.	Height	Length	Orientation	Driven?	Replacement?	Removed?	Collar?
1	Timber	1 ft.	.792 ft.	.833 ft.		Vertical	No	No	No	No
2	Timber	4.5 ft.	.792 ft.	.833 ft.		Vertical	No	No	No	No
3	Timber	1 ft.	.792 ft.	.833 ft.		Vertical	No	No	No	No
4	Timber	4.5 ft.	.792 ft.	.833 ft.		Vertical	No	No	No	No
5	Timber	1 ft.	.792 ft.	.833 ft.		Vertical	No	No	No	No
6	Timber	4.5 ft.	.792 ft.	.833 ft.		Vertical	No	No	No	No
7	Timber	5.5 ft.	.792 ft.	.833 ft.		Vertical	No	No	No	No
8	Timber		.792 ft.	.833 ft.		Vertical	No	No	No	No
Bent/Abutment #: 2			Similar Bents:							

Title		Description	
PILE DIAGRAM END BENT # 2		PILE DIAGRAM END BENT # 2	
Bridge No: 790184	Drawn By: GDP	Date: 10/28/08	File Name: S0066001874



WEST PROFILE



LOOKING UPSTREAM WEST BOTTOM



LOOKING DOWNSTREAM EAST BOTTOM



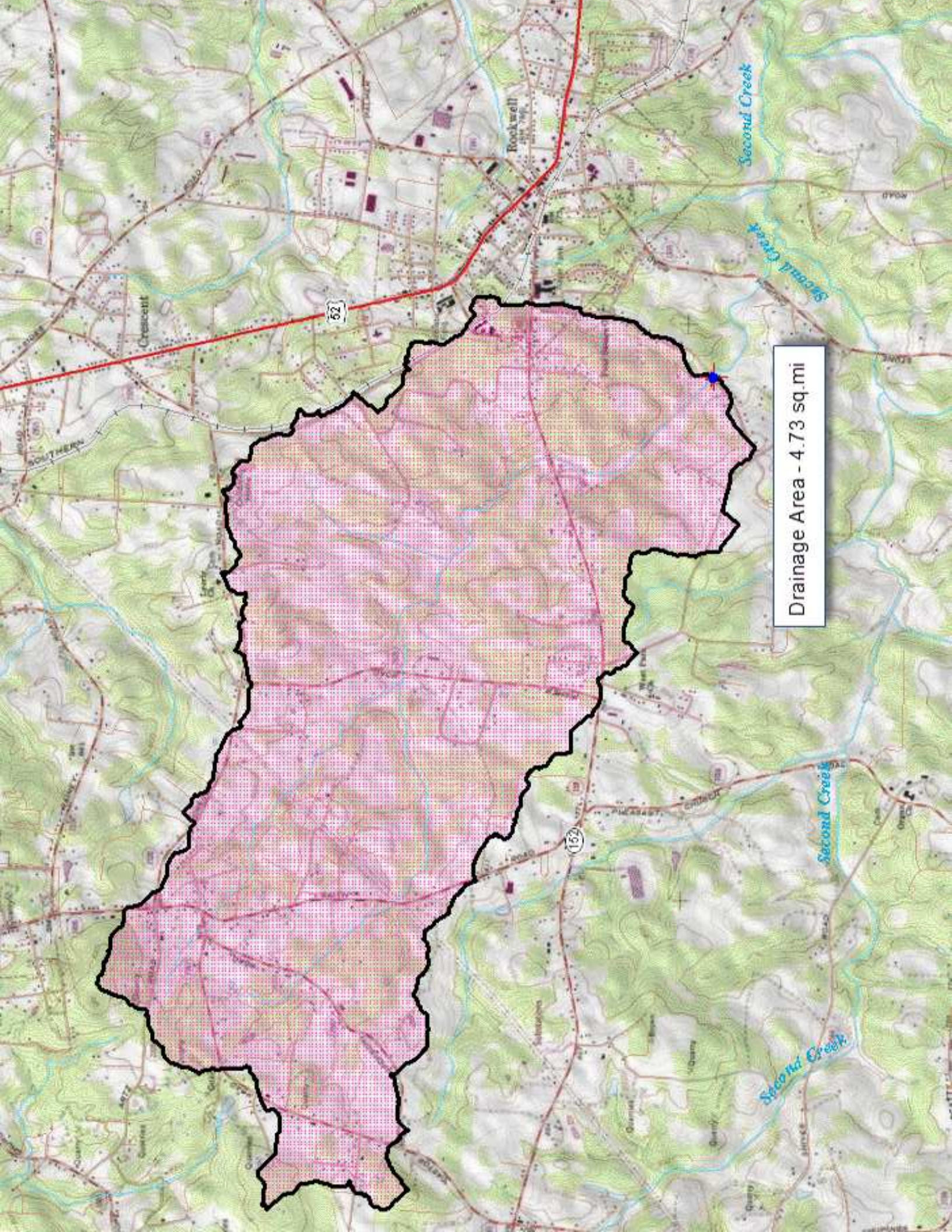
END BENT 1



END BENT 2



SUPER STRUCTURE

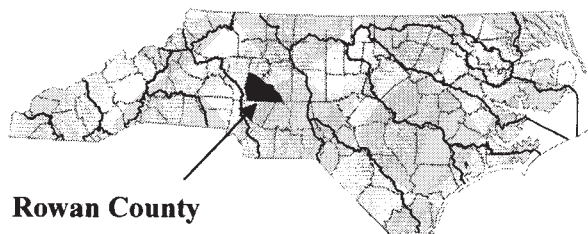


FLOOD INSURANCE STUDY

A Report of Flood Hazards in

ROWAN COUNTY, NORTH CAROLINA

AND INCORPORATED AREAS



Community Name	Community Number	River Basin
China Grove, Town of	370210	Yadkin
Cleveland, Town of	370097	Yadkin
East Spencer, Town of	370211	Yadkin
Faith, Town of	370352	Yadkin
Granite Quarry, Town of	370212	Yadkin
Landis, Town of	370213	Yadkin
Rockwell, Town of	370214	Yadkin
Rowan County (Unincorporated Areas)	370351	Yadkin
Salisbury, City of	370215	Yadkin
Spencer, Town of	370216	Yadkin



VOLUME 1 OF 3

June 16, 2009

**Federal Emergency Management Agency
State of North Carolina**

**Flood Insurance Study Number
37159CV001A**

www.fema.gov and www.ncfloodmaps.com



Section 4.0 – Area Studied

Table 6—Flooding Sources Studied by Detailed Methods: Limited Detailed

Source	Riverine Sources		Affected Communities
	From	To	
Mill Creek	The Rowan/Cabarrus County boundary	Approximately 385 feet upstream of Smith Road (SR 1361)	Rowan County (Unincorporated Areas)
North Second Creek	The confluence with South Yadkin River	The confluence with Sloan Creek and Back Creek	Rowan County (Unincorporated Areas)
Park Creek	The Rowan/Cabarrus County boundary	Approximately 0.5 mile upstream of Smith Road (SR 1360)	Rowan County (Unincorporated Areas)
Peeler Branch	The confluence with Second Creek Tributary 1	Approximately 500 feet upstream of Sides Road	Town of Rockwell, Rowan County (Unincorporated Areas)
Riles Creek	The confluence with Yadkin River	Approximately 430 feet upstream of Stokes Ferry Road	Rowan County (Unincorporated Areas)
Rocky Branch Tributary 1	The confluence with Rocky Branch	Approximately 0.5 mile upstream of Pickett Avenue	Rowan County (Unincorporated Areas), Town of Spencer, City of Salisbury
Second Creek	The confluence with Yadkin River	Approximately 0.6 mile upstream of the confluence of Second Creek Tributary 3	Town of Rockwell, Rowan County (Unincorporated Areas)
Second Creek Tributary 1	The confluence with Second Creek	Approximately 200 feet upstream of the confluence of Peeler Branch	Rowan County (Unincorporated Areas)
Second Creek Tributary 2	The confluence with Second Creek	Approximately 440 feet upstream of Miller Street	Rowan County (Unincorporated Areas), Town of Rockwell
Second Creek Tributary 3	The confluence with Second Creek	Approximately 0.5 mile upstream of Winding Brook Lane	Rowan County (Unincorporated Areas)
Sills Creek	The confluence with Back Creek	The Iredell/Rowan County boundary	Rowan County (Unincorporated Areas)
Sills Creek Tributary 1	The confluence with Sills Creek	Approximately 0.6 mile upstream of the confluence with Sills Creek	Rowan County (Unincorporated Areas)
Sloans Creek	The confluence with North Second Creek	Approximately 0.4 mile upstream of Brown Road (SR 1211)	Rowan County (Unincorporated Areas)
South Yadkin River	The confluence with Yadkin River	The Iredell/Rowan/Davie County boundary	Rowan County (Unincorporated Areas), City of Salisbury

Section 5.0 – Engineering Methods

Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Riles Creek	Approximately 60 feet upstream of the Stanly / Rowan County boundary	26.5	*	*	5,774	*
Rocky Branch	*	*	*	*	*	*
Rocky Branch Tributary 1	At the confluence with Rocky Branch	0.3	*	*	607	*
	Approximately 60 feet downstream of Private Road	0.3	*	*	590	*
	Approximately 283 feet upstream of Private Road	0.2	*	*	549	*
	Approximately 0.2 mile upstream of Private Road	0.1	*	*	430	*
	Approximately 0.3 mile upstream of Private Road	0.1	*	*	418	*
Rowan Avenue Park Stream	*	*	*	*	*	*
Second Creek	At the confluence with Yadkin River	54.0	*	*	9,014	*
	Approximately 0.4 mile upstream of Bringle Ferry Road (SR 1002)	44.3	*	*	7,963	*
	Approximately 0.7 mile upstream of Bringle Ferry Road (SR 1002)	42.6	*	*	7,767	*
	Approximately 1.3 miles downstream of Stokes Ferry Road (SR 1004)	40.5	*	*	7,531	*
	Approximately 460 feet downstream of Stokes Ferry Road (SR 1004)	36.7	*	*	7,080	*
	Approximately 320 feet upstream of Stokes Ferry Road (SR 1004)	34.2	*	*	6,771	*
	Approximately 0.8 mile downstream of St. Peters Church Road (SR 2370)	30.6	*	*	6,315	*

Section 5.0 – Engineering Methods

Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Second Creek	Approximately 137 feet downstream of St. Peters Church Road (SR 2370)	25.2	*	*	5,599	*
	At St. Peters Church Road (SR 2370)	24.2	*	*	5,459	*
	Approximately 0.2 mile downstream of US Highway 52	21.6	*	*	5,090	*
	Approximately 0.3 mile upstream of Emanuel Church Road	15.5	*	*	4,131	*
	At the confluence of Second Creek Tributary 2	15.2	*	*	4,088	*
	At the confluence of Bost Branch	14.6	*	*	3,978	*
	At the confluence of Fisher Branch	9.3	*	*	2,993	*
	Approximately 850 feet upstream of Lower Stone Church Road	7.5	*	*	2,633	*
	Approximately 0.8 mile upstream of Lower Stone Church Road	6.8	*	*	2,460	*
	Approximately 1.2 miles upstream of Lower Stone Church Road	5.5	*	*	2,154	*
	Approximately 0.5 mile downstream of Organ Church Road (SR 1006)	5.2	*	*	2,087	*
	Approximately 210 feet downstream of Organ Church Road (SR 1006)	3.1	*	*	1,517	*
	Approximately 390 feet upstream of Shive Road (SR 2564)	2.5	*	*	1,307	*
	Approximately 0.3 mile upstream of Shive Road (SR 2564)	2.2	*	*	1,209	*
	Approximately 0.3 mile downstream of the confluence of Second Creek Tributary 3	2.1	*	*	1,174	*

Section 5.0 – Engineering Methods

Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Second Creek	At the confluence of Second Creek Tributary 3	0.3	*	*	358	*
	Approximately 770 feet upstream of the confluence of Second Creek Tributary 3	0.2	*	*	283	*
	Approximately 0.4 mile upstream of the confluence of Second Creek Tributary 3	0.1	*	*	158	*
Second Creek Tributary 1	At the confluence with Second Creek	5.0	*	*	2,030	*
	Approximately 0.4 mile upstream of Linker Road (SR 2368)	4.2	*	*	1,931	*
	At the confluence of Peeler Branch	2.6	*	*	1,931	*
Second Creek Tributary 2	At the confluence with Second Creek	0.2	*	*	396	*
	Approximately 0.4 mile downstream of Miller Street	0.1	*	*	293	*
Second Creek Tributary 3	At the confluence with Second Creek	1.6	*	*	1,002	*
	Approximately 220 feet upstream of Shive Road (SR 2564)	1.5	*	*	955	*
	Approximately 0.4 mile upstream of Shive Road (SR 2564)	1.3	*	*	859	*
	Approximately 0.5 mile upstream of Shive Road (SR 2564)	0.9	*	*	719	*
	Approximately 0.4 mile downstream of Winding Brook Lane	0.6	*	*	542	*
	Approximately 1,257 feet downstream of Winding Brook Lane	0.5	*	*	480	*
	Approximately 550 feet downstream of Winding Brook Lane	0.4	*	*	415	*
Sides Branch	*	*	*	*	*	*
Sills Creek	At the confluence with Back Creek	18.0	*	*	4,537	*

Section 5.0 – Engineering Methods

Table 11—Roughness Coefficients

Stream	Channel "n"	Overbank "n"
Park Avenue Branch	0.025 – 0.070	0.025 – 0.100
Park Creek	0.040 – 0.048	0.080 – 0.130
Park Creek (into Quarry Creek)	0.025 – 0.070	0.025 – 0.100
Peeler Branch	0.040 – 0.045	0.080 – 0.140
Petrea Branch	0.045 – 0.060	0.080 – 0.140
Pine Ridge Branch	0.025 – 0.070	0.025 – 0.100
Quarry Creek	0.025 – 0.070	0.025 – 0.100
Railroad Branch	0.025 – 0.060	0.025 – 0.085
Riles Creek	0.040 – 0.045	0.080 – 0.130
Rocky Branch	0.050	0.135 – 0.150
Rocky Branch Tributary 1	0.050	0.130 – 0.140
Rowan Avenue Park Stream	0.050	0.090 – 0.160
Second Creek	0.040	0.090 – 0.160
Second Creek Tributary 1	0.045	0.080 – 0.140
Second Creek Tributary 2	0.050	0.090 – 0.150
Second Creek Tributary 3	0.050	0.100 – 0.150
Sides Branch	0.025 – 0.070	0.025 – 0.100
Sills Creek	0.048	0.048 – 0.140
Sills Creek Tributary 1	0.048 – 0.050	0.100 – 0.150
Sixth Street Branch	0.050	0.125 – 0.150
Sloans Creek	0.048	0.035 – 0.150
South Yadkin River	0.040 – 0.055	0.110 – 0.200
Southside Tributary	0.025 – 0.070	0.025 – 0.100
Southern Railroad Branch	0.050	0.120 – 0.140
Spring Hill Branch	0.050	0.110 – 0.150
Swearington Branch	0.025 – 0.035	0.025 – 0.055
Tar Branch	0.025 – 0.070	0.025 – 0.100
Tar Branch Tributary	0.025 – 0.070	0.025 – 0.100
Third Creek	0.040 – 0.050	0.035 – 0.150
Third Street Creek	0.025 – 0.065	0.025 – 0.100
Thomas Street Creek	0.025 – 0.065	0.025 – 0.100
Town Branch	0.025 – 0.070	0.025 – 0.100
Town Creek	0.035 – 0.055	0.060 – 0.160
Town Creek Tributary	0.025 – 0.070	0.025 – 0.100
Town Creek Tributary 1	0.035 – 0.050	0.070 – 0.150
Trexler Creek	0.035 – 0.050	0.080 – 0.150
Unnamed Stream 1	0.045	0.050 – 0.130
Unnamed Stream 2	0.045	0.130
Vance Avenue Branch	0.025 – 0.065	0.025 – 0.100
Walnut Street Branch	0.025 – 0.070	0.025 – 0.100
Walton Branch	0.025 – 0.070	0.025 – 0.100

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
PEELER BRANCH				
045	4,498	904	701.0	99 / 38
050	4,979	904	703.6	10 / 70
056	5,554	904	707.1	30 / 10
060	6,016	904	711.1	22 / 37
063	6,272	904	711.3	10 / 15
RILES CREEK				
017	1,729	6,259	571.6 ⁴	237 / 223
024	2,372	6,259	571.6 ⁴	133 / 299
030	2,963	6,259	571.6 ⁴	229 / 296
037	3,718	6,259	571.6 ⁴	237 / 94
042	4,196	6,259	571.6 ⁴	229 / 296
049	4,872	6,259	571.6 ⁴	307 / 307
057	5,656	5,975	571.6 ⁴	328 / 296
063	6,302	5,975	571.6 ⁴	170 / 108
068	6,836	5,975	571.6 ⁴	128 / 155
075	7,492	5,975	571.6 ⁴	179 / 199
081	8,065	5,975	571.6 ⁴	109 / 204
087	8,691	5,975	571.6 ⁴	160 / 145
092	9,209	5,975	571.6 ⁴	114 / 173
099	9,926	5,975	571.6 ⁴	292 / 279
105	10,461	5,975	571.6 ⁴	283 / 346
110	10,994	5,975	571.6 ⁴	274 / 225
119	11,857	5,975	571.6 ⁴	306 / 502
ROCKY BRANCH TRIBUTARY 1				
001	95	603	648.9 ⁴	11 / 5
005	468	603	654.6	7 / 37
012	1,222	590	669.5	32 / 32
019	1,869	549	681.6	4 / 40
029	2,918	430	701.7	12 / 15
032	3,162	418	707.5	30 / 45
SECOND CREEK				
037	3,731	9,014	625.5 ⁴	1,107 / 1,287
053	5,297	9,014	625.5 ⁴	779 / 599
067	6,731	9,014	625.5 ⁴	505 / 766
078	7,752	9,014	625.5 ⁴	444 / 666
088	8,836	9,014	625.5 ⁴	774 / 588
096	9,591	9,014	625.5 ⁴	570 / 524
109	10,937	9,014	625.5 ⁴	556 / 465
129	12,946	9,014	625.5 ⁴	921 / 694
141	14,059	7,963	625.5 ⁴	1,072 / 1,373
150	14,973	7,963	625.5 ⁴	1,337 / 1,418
162	16,194	7,767	625.5 ⁴	1,202 / 925
175	17,469	7,767	625.5 ⁴	692 / 1,044

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
SECOND CREEK				
184	18,432	7,767	625.5 ⁴	993 / 938
195	19,538	7,767	625.5 ⁴	613 / 783
208	20,807	7,531	625.5 ⁴	657 / 720
220	22,013	7,531	625.5 ⁴	446 / 425
227	22,651	7,531	625.5 ⁴	362 / 376
234	23,362	7,531	625.5 ⁴	460 / 535
240	23,962	7,531	625.5 ⁴	674 / 606
248	24,801	7,531	625.5 ⁴	253 / 430
256	25,607	7,531	625.5 ⁴	337 / 439
262	26,170	7,531	625.5 ⁴	247 / 297
268	26,828	7,531	625.5 ⁴	255 / 246
280	27,973	6,771	625.5 ⁴	291 / 365
285	28,477	6,771	625.5 ⁴	219 / 222
291	29,071	6,771	625.5 ⁴	252 / 146
295	29,473	6,771	625.5 ⁴	220 / 89
301	30,077	6,771	625.5 ⁴	220 / 145
306	30,591	6,771	625.6	220 / 53
311	31,103	6,771	628.1	53 / 205
315	31,467	6,771	628.9	82 / 220
320	31,968	6,771	629.5	291 / 318
323	32,286	6,771	629.6	353 / 81
328	32,803	6,771	629.8	353 / 81
335	33,496	6,771	630.2	297 / 53
340	33,953	6,771	630.6	261 / 53
345	34,534	6,771	631.1	227 / 74
350	35,025	6,771	631.7	53 / 254
355	35,457	6,771	632.3	27 / 395
359	35,898	6,771	632.8	53 / 405
365	36,505	6,771	633.4	232 / 329
370	36,968	6,771	633.7	523 / 225
375	37,454	6,771	633.9	492 / 53
380	38,011	6,771	634.3	222 / 26
385	38,529	6,315	635.2	68 / 107
390	39,033	6,315	636.2	213 / 311
396	39,610	6,315	636.5	288 / 52
402	40,157	6,315	637.0	256 / 52
405	40,515	6,315	637.2	165 / 133
410	40,997	6,315	637.9	52 / 471
413	41,336	6,315	638.1	52 / 446
425	42,479	5,599	640.6	49 / 69
430	43,010	5,599	641.4	46 / 125
434	43,409	5,599	641.8	37 / 117
439	43,948	5,599	642.5	367 / 136

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
SECOND CREEK				
445	44,494	5,599	642.6	364 / 256
450	44,978	5,599	642.8	741 / 49
455	45,534	5,599	643.0	750 / 49
460	45,998	5,599	643.0	669 / 49
465	46,494	5,599	643.2	335 / 49
468	46,837	5,599	643.4	130 / 49
475	47,495	5,459	644.5	405 / 61
480	48,026	5,459	644.9	333 / 145
486	48,566	5,459	645.3	49 / 258
487	48,743	5,459	645.2	41 / 136
492	49,153	5,459	645.6	25 / 136
495	49,490	5,459	646.3	41 / 49
500	50,025	5,459	647.8	143 / 81
504	50,366	5,459	648.2	92 / 246
510	51,017	5,459	648.7	327 / 36
515	51,513	5,459	649.2	132 / 81
519	51,876	5,459	649.6	152 / 73
525	52,484	5,459	650.3	30 / 257
530	52,988	5,459	650.8	256 / 49
534	53,448	5,459	651.1	398 / 87
540	53,964	5,459	651.4	320 / 155
545	54,482	5,459	651.7	877 / 81
551	55,066	5,090	652.0	724 / 97
555	55,464	5,090	652.0	204 / 150
566	56,609	5,090	655.3	224 / 70
570	56,993	5,090	655.5	238 / 47
576	57,590	5,090	655.8	383 / 47
580	57,989	5,090	655.9	212 / 47
585	58,457	5,090	656.2	47 / 243
589	58,918	5,090	656.5	47 / 199
599	59,949	5,090	658.5	221 / 97
606	60,633	5,090	658.9	96 / 66
611	61,115	5,090	659.6	141 / 47
616	61,554	5,090	660.3	396 / 75
623	62,327	5,090	661.8	175 / 407
626	62,558	5,090	661.8	47 / 516
629	62,939	5,090	661.9	126 / 322
633	63,270	5,090	662.0	363 / 87
636	63,590	5,090	662.1	376 / 47
639	63,911	4,131	662.4	102 / 222
644	64,365	4,131	662.9	81 / 423
650	64,964	4,088	663.3	99 / 201
655	65,453	4,088	663.9	43 / 76

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
SECOND CREEK				
658	65,755	4,088	665.5	464 / 43
660	66,015	4,088	665.6	217 / 100
665	66,493	4,088	666.3	320 / 164
674	67,422	3,978	669.3	345 / 255
679	67,906	3,978	669.4	374 / 43
686	68,602	2,993	669.7	266 / 192
691	69,125	2,993	670.0	40 / 235
697	69,680	2,993	670.7	65 / 150
700	70,011	2,993	671.4	184 / 49
706	70,616	2,993	672.7	104 / 82
710	71,015	2,993	673.7	194 / 106
716	71,613	2,993	674.4	513 / 175
725	72,500	2,993	677.4	40 / 40
729	72,922	2,993	679.5	117 / 40
735	73,469	2,633	680.5	83 / 117
739	73,876	2,633	680.7	39 / 36
744	74,390	2,633	682.9	108 / 148
749	74,887	2,633	683.6	39 / 90
756	75,572	2,633	685.1	207 / 193
760	75,982	2,633	685.6	113 / 39
765	76,502	2,633	687.0	16 / 141
770	76,998	2,460	689.7	38 / 203
775	77,463	2,460	689.7	34 / 38
780	77,999	2,460	692.7	9 / 26
785	78,472	2,460	697.9	38 / 101
790	79,044	2,154	698.9	44 / 203
795	79,456	2,154	699.1	105 / 37
800	79,980	2,087	701.4	67 / 37
803	80,301	2,087	702.2	37 / 37
809	80,938	2,087	705.6	124 / 70
815	81,511	2,087	707.0	125 / 103
820	81,953	2,087	707.9	37 / 43
829	82,911	1,517	714.0	57 / 34
834	83,431	1,517	716.3	120 / 34
840	84,008	1,517	718.0	34 / 34
845	84,503	1,517	720.6	7 / 84
857	85,654	1,307	724.4	37 / 120
860	86,028	1,307	726.1	35 / 100
865	86,494	1,209	728.5	33 / 107
870	87,007	1,209	730.6	47 / 47
875	87,528	1,209	734.8	33 / 33
880	88,002	1,209	738.6	34 / 33
885	88,530	1,174	741.5	33 / 82

Section 5.0 – Engineering Methods

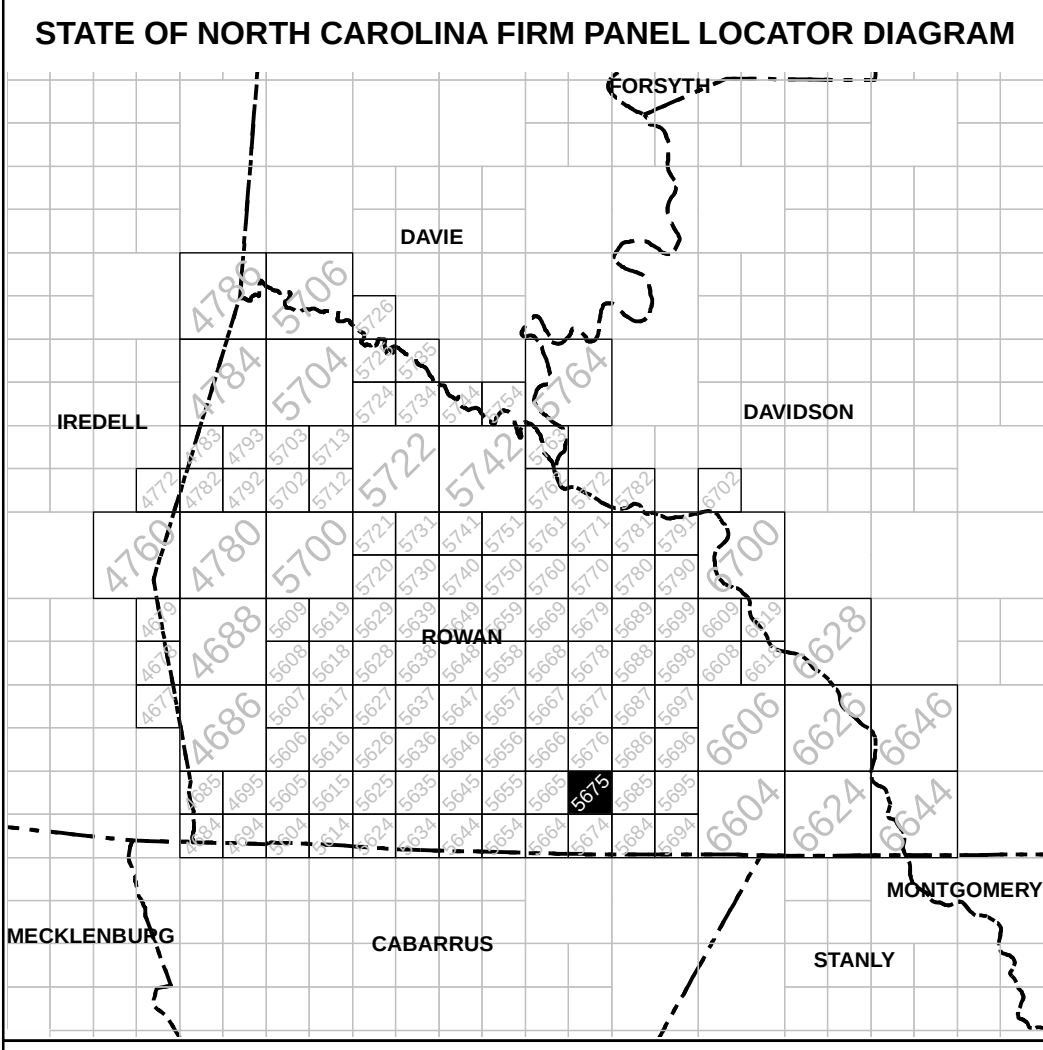
Table 12—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
SECOND CREEK				
890	88,995	1,174	743.7	65 / 54
894	89,431	1,174	746.3	85 / 143
900	89,983	358	747.8	10 / 12
905	90,457	358	754.1	65 / 41
910	91,009	283	761.5	32 / 32
915	91,489	283	769.7	32 / 32
921	92,069	158	781.3	16 / 15
925	92,533	158	796.1	29 / 16
931	93,070	158	809.8	32 / 20
SECOND CREEK TRIBUTARY 1				
003	326	2,030	640.1 ⁴	70 / 17
006	644	2,030	640.1 ⁴	42 / 17
010	1,001	2,030	640.8	34 / 43
016	1,601	2,030	645.8	158 / 17
019	1,948	2,030	646.2	136 / 69
024	2,440	2,030	646.7	88 / 82
030	3,045	2,030	647.8	73 / 132
035	3,472	2,030	648.8	24 / 153
040	3,985	1,931	649.9	140 / 142
044	4,421	1,931	650.7	128 / 30
048	4,829	1,931	652.4	17 / 74
054	5,432	1,931	655.8	49 / 62
057	5,689	1,931	657.1	55 / 15
SECOND CREEK TRIBUTARY 2				
003	267	396	663.1 ⁴	30 / 27
007	733	396	668.3	42 / 10
012	1,239	396	676.7	40 / 17
019	1,913	293	690.7	12 / 10
024	2,443	293	701.3	21 / 17
029	2,946	293	715.9	30 / 30
038	3,816	293	735.3	32 / 32
SECOND CREEK TRIBUTARY 3				
001	106	1,002	746.6 ⁴	32 / 57
005	509	1,002	748.9	49 / 32
009	909	1,002	751.5	32 / 32
017	1,650	955	756.1	32 / 32
020	2,022	955	759.3	32 / 32
024	2,437	955	761.9	15 / 32
029	2,861	955	765.5	32 / 32
033	3,322	719	767.1	115 / 27
040	3,996	719	769.3	34 / 33
044	4,443	719	773.1	32 / 7
049	4,911	719	777.2	33 / 19

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
SECOND CREEK TRIBUTARY B				
054	5,376	719	780.7	32 / 32
057	5,736	542	782.0	82 / 32
060	6,000	542	782.5	32 / 32
062	6,234	542	784.6	24 / 32
069	6,929	415	796.7	105 / 106
072	7,199	415	797.9	6 / 12
074	7,357	415	814.1	32 / 32
074	7,442	415	815.9	32 / 32
080	8,000	415	826.9	45 / 4
SILLS CREEK				
005	450	4,537	679.7 ⁴	83 / 51
009	900	4,537	679.7 ⁴	310 / 43
014	1,350	4,537	679.7 ⁴	271 / 252
018	1,800	4,537	679.7 ⁴	145 / 447
023	2,250	4,537	679.7 ⁴	32 / 461
027	2,700	4,537	679.7	25 / 363
032	3,150	4,537	680.1	157 / 112
036	3,600	4,537	680.9	88 / 102
038	3,828	4,537	681.2	36 / 76
041	4,050	4,537	682.5	134 / 27
046	4,576	4,537	683.4	63 / 147
048	4,767	4,537	683.8	55 / 180
054	5,400	4,537	685.7	40 / 353
060	5,950	4,537	685.7	57 / 310
062	6,172	4,537	685.8	226 / 191
068	6,750	4,537	686.1	277 / 236
072	7,200	4,370	686.2	233 / 287
077	7,650	4,370	686.5	218 / 216
078	7,803	4,370	686.6	291 / 74
082	8,246	4,370	687.1	260 / 165
086	8,550	4,370	687.3	179 / 192
088	8,820	4,370	687.6	136 / 308
090	9,000	4,370	687.7	30 / 369
095	9,450	4,370	688.3	68 / 336
099	9,900	4,370	689.1	176 / 314
104	10,350	4,370	689.7	102 / 389
108	10,800	4,370	690.2	213 / 249
113	11,250	4,370	690.9	300 / 262
117	11,700	4,370	691.6	246 / 142
122	12,150	4,224	692.4	313 / 36
126	12,600	4,224	693.0	109 / 129
131	13,050	4,224	694.0	183 / 183
140	13,950	4,224	696.1	373 / 185



DATUM INFORMATION

The **projection** used in the preparation of this map was the North Carolina State Plane (FIPSZONE 3200). The **horizontal datum** was the North American Datum of 1983, GRS80 ellipsoid. Differences in datum, ellipsoid, projection, or Universal Transverse Mercator zones used in the production of FIRMS for adjacent jurisdictions may result in slight positional differences in map features across jurisdictional boundaries. These differences do not affect the accuracy of this FIRM. All coordinates on this map are in U.S. Survey Feet, where 1 U.S. Survey Foot = 1200/9937 Meters.

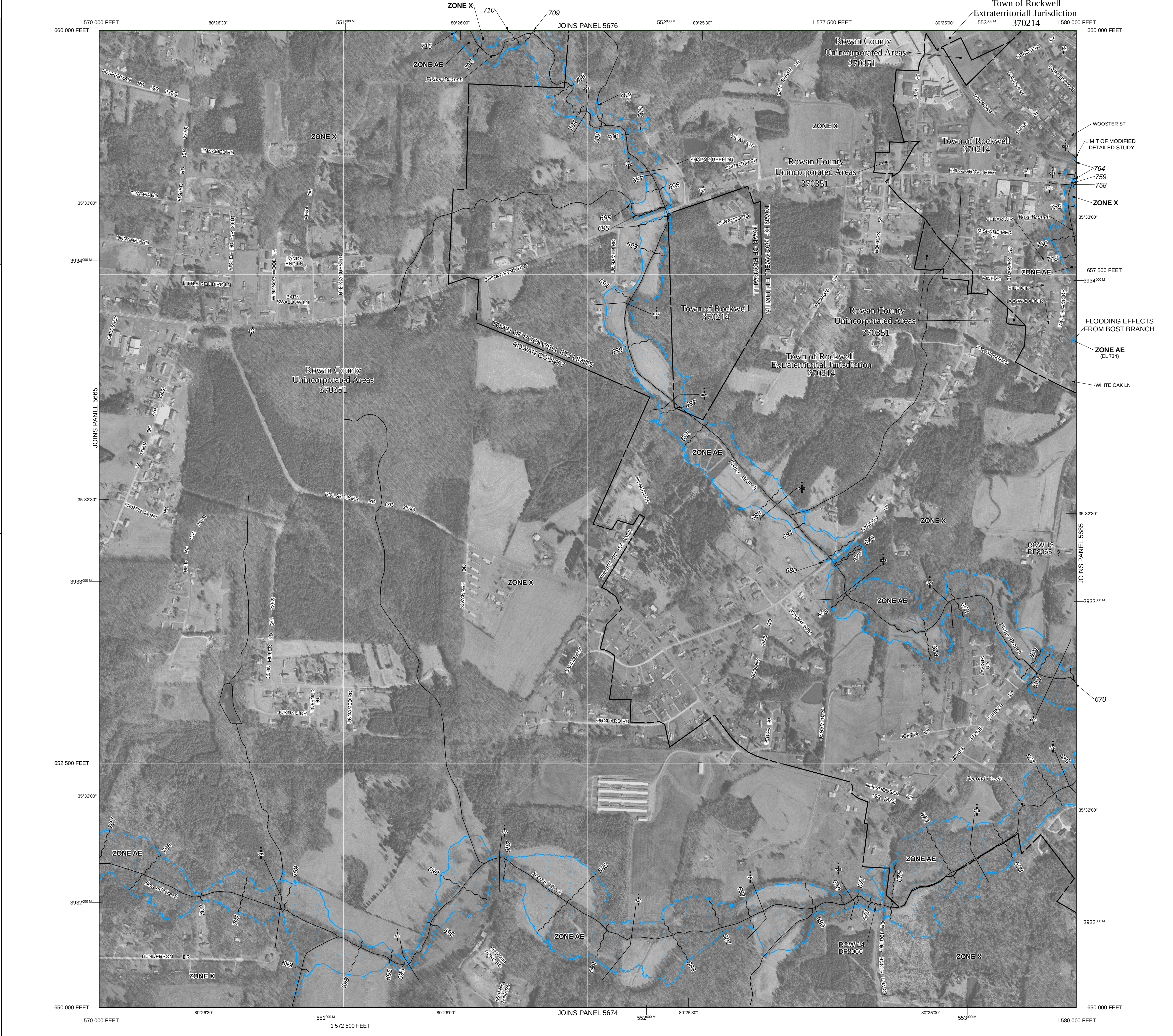
Flood elevations on this map are referenced to the North American Vertical Datum of 1988 (NAVD 88). These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. An average offset between NAVD 88 and the National Geodetic Vertical Datum of 1929 (NGVD 29) has been computed for each North Carolina county. This offset was then applied to the NGVD 29 flood elevations that were not revised during the creation of this statewide format FIRM. The offsets for each county shown on this FIRM panel are shown in the vertical datum offset table below. Where a county boundary and a flooding source with unrevised NGVD 29 flood elevations are coincident, an individual offset has been calculated and applied during the creation of this statewide format FIRM. See Section 6.1 of the accompanying Flood Insurance Study report to obtain further information on the conversion of elevations between NAVD 88 and NGVD 29. To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the North Carolina Geodetic Survey at the address shown below. You may also contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>.

North Carolina Geodetic Survey
121 West Jones Street
Raleigh, NC 27601
(919) 733-3836
<http://www.ncgs.state.nc.us>

County	Average Vertical Datum Offset (ft)
Rowan	-0.75

Example: NAVD 88 = NGVD 29 + (-0.75)

All streams listed in the **Flood Hazard Data Table** below were studied by detailed methods using field survey. Other flood hazard data shown on this map may have been derived using either a coastal analysis or limited detailed Riverine analysis. More information on the flooding sources studied by these analyses is contained in the Flood Insurance Study report.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAS) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A
No Base Flood Elevation determined.

ZONE AE
Base Flood Elevations determined.

ZONE AH
Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO
Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR
Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99
Areas to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE VE
Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE
The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X
Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X
Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D
Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)
CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
Base Flood Elevation line and value; elevation in feet*
Base Flood Elevation value where uniform within zone; elevation in feet*
*** Referenced to the North American Vertical Datum of 1988**
Cross section line
Transect line
Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
1000-meter Universal Transverse Mercator grid ticks, zone 17
2500-foot grid values: North Carolina State Plane coordinate system (FIPSZONE 3200, State Plane NAD 83 feet)
North Carolina Geodetic Survey bench mark (for more information visit <http://www.ncgs.state.nc.us>)
National Geodetic Survey bench mark (for more information visit <http://www.ngs.noaa.gov>)
NGS-S8 GPS 2-5 cm Vertical Control Marks or Contractor-Established NCMP Bench Marks (for more information visit <http://www.ncgs.state.nc.us>)
River Mile

GRID NORTH
MAP SCALE 1" = 500' (1 : 6,000)
250 500 750 1,000 FEET
150 0 150 300 METERS

Cooperating Technical State

www.ncfloodmaps.com

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles, Floodway Data, Limited Detailed Flood Hazard Data, and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Boundaries of **regulatory floodways** shown on the FIRM for flooding sources studied by detailed methods were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data for flooding sources studied by detailed methods as well as **non-encroachment widths** for flooding sources studied by limited detailed methods are provided in the Flood Insurance Study (FIS) report for this jurisdiction. The FIS report also provides instructions for determining a floodway using non-encroachment widths for flooding sources studied by limited detailed methods.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 4.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

Base map information and geospatial data used to develop this FIRM were obtained from various organizations, including the participating local community(ies), state and federal agencies, and/or other sources. The primary base for this FIRM is aerial imagery acquired by Rowan County. The time period of collection for the imagery is 2005. Information and geospatial data supplied by the local community(ies) that met FEMA base map specifications were considered the preferred source for development of the base map. See geospatial metadata for the associated digital FIRM for additional information about base map preparation.

Base map features shown on this map, such as **corporate limits**, are based on the most up-to-date data available at the time of publication. **Changes in the corporate limits may have occurred since this map was published.** Map users should consult the appropriate community official or website to verify current conditions of jurisdictional boundaries and base map features. This map may contain roads that were not considered in the hydraulic analysis of streams where no new hydraulic model was created during the production of this statewide format FIRM.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels, community map repository addresses, and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

If you have **questions about this map**, or questions concerning the National Flood Insurance Program in general, please call **1 - 877 - FEMA MAP** (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov>.

An accompanying Flood Insurance Study report, Letter of Map Revision (LOMR) or Letter of Map Amendment (LOMA) revising portions of this panel, and digital versions of this FIRM may be available. Visit the **North Carolina Floodplain Mapping Program** website at <http://www.ncfloodmaps.com>, or contact the **FEMA Map Service Center** at 1-800-358-9616 for information on all related products associated with this FIRM. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at <http://www.msc.fema.gov>.

MAP DEPOSITORY
Refer to listing of Map Repositories on Map Index or visit <http://www.ncfloodmaps.com>.

EFFECTIVE DATE OF FLOOD INSURANCE RATE MAP PANEL
JUNE 16, 2009

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to statewide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent, the North Carolina Division of Emergency Management or the National Flood Insurance Program at the following phone numbers or websites:

NC Division of Emergency Management
(919) 715-8000 <http://www.ncdemscontrol.org/nfip>

National Flood Insurance Program
1-800-638-6620 <http://www.fema.gov/business/nfip/>

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 5675J

FIRM
FLOOD INSURANCE RATE MAP
NORTH CAROLINA

PANEL 5675
(SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	CID No.	PANEL	SUFFIX
ROCKWELL, TOWN OF	370214	5675	J
ROWAN COUNTY	370351	5675	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

EFFECTIVE DATE
JUNE 16, 2009

MAP NUMBER
3710567500J

State of North Carolina
Federal Emergency Management Agency

