

# PREDESIGN/PRESURVEY REPORT

County: Rowan

Project No.:

TIP No.:

Let Date:

WBS No.: 17BP.9.R.49

Bridge No.: 790260

Road No.: SR1535 (Weaver Rd)

Stream: Little Creek

Type of Request:

Date: 7/8/2013

Name:

Assigned to: EMT

Checked by:

Prior Survey Date (attach copy of prior survey): 9/1/1982

Study by Scour Section:

Flood Zone: AE  
with FI

Detail Study: LDS

Date: 06/16/09

Panel No.: 5618

BM Info:

Quad Map: Enochville  
China Grove

Drainage Area: 1.52 sq.mi

From: Quad/Stream Stats

Q25: 700cfs

Q50: 900cfs

Q100: 1000cfs

Method: USGS Rural Regression: Region 1

## EXISTING BRIDGE INFORMATION

Location: 0.5 Miles North of JCT SR1541 (Stirewalt Rd)

Average Daily Traffic: 1979 - 240

Length: 26'

Bed-to-Crown: 9'

Water Depth: 2'

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

Type of Span(s): 1@25'6

Upstream Structure: N/A

Location:

Bed-to-Crown:

Prior Survey:

Downstream Structure: 790324 – 3 Lines 136X96 CM Pipe Arch, 60' Along Centerline of Pipe

Location: 0.6 Miles West of JCT SR1657 (Quail Pointe Dr)

Bed-to-Crown: 12'

Prior Survey:

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: C: Aquatic Life, Secondary Recreation, Fresh Water

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:

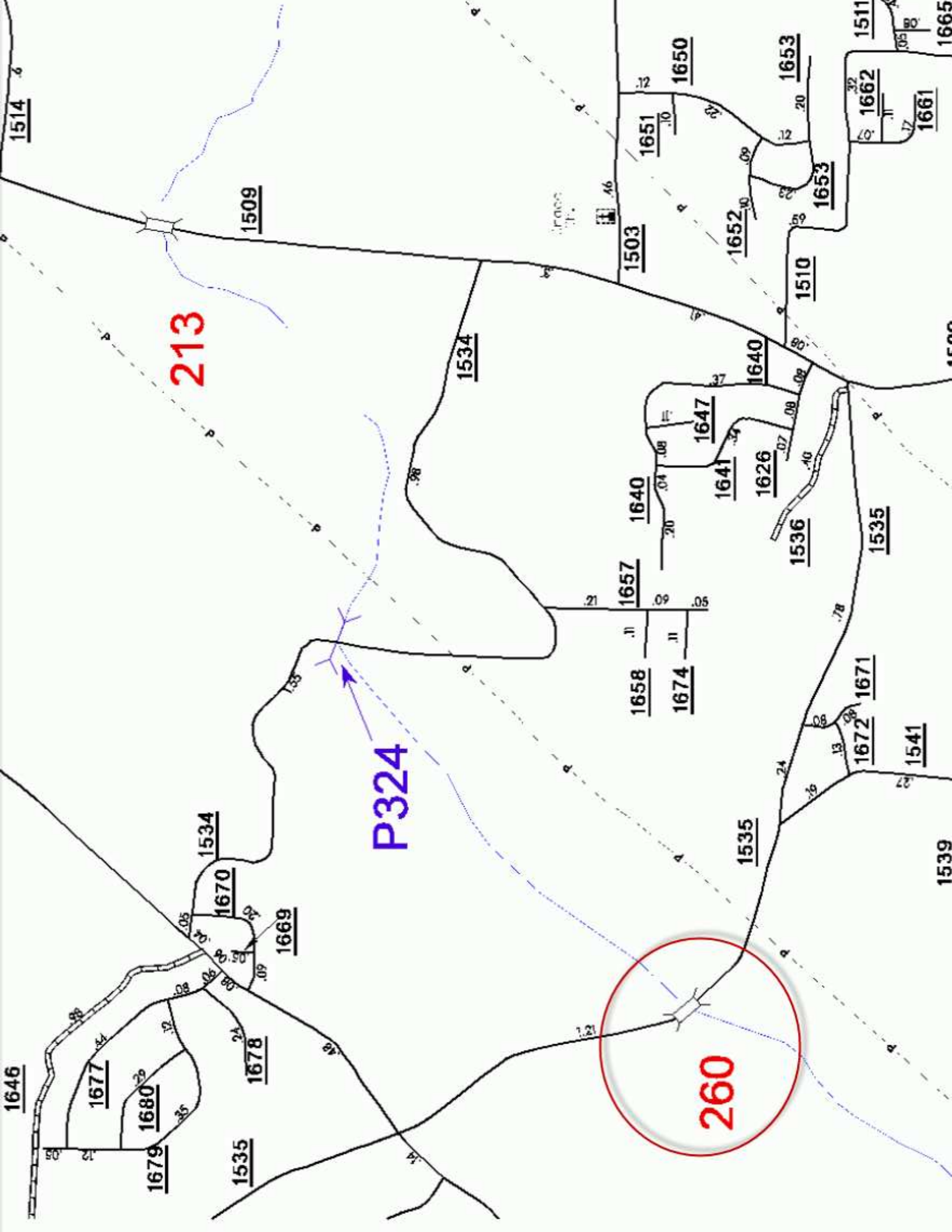
Man-days Estimated:

Date Surveyed:Date Completed:

PersonnelHoursPay Period

Redelineation

Comments:





NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
BRIDGE MANAGEMENT UNIT

ATTENTION

STRUCTURE DATA CHANGE AT END BENT 1.

# BRIDGE INSPECTION REPORT

INSPECTION TYPE: Routine Inspection

COUNTY ROWAN BRIDGE NUMBER 790260 INSPECTION CYCLE 2 YRS  
ROUTE SR1535 ACROSS LITTLE CREEK M.P. 0

LOCATION 0.5 MI. N. JCT. SR1541

SUPERSTRUCTURE TIMBER DECK ON I-BEAMS

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

SPANS 1@25'6

LONGITUDE 80° 37' 11.18"

LATITUDE 35° 36' 51.32"

PRESENT CONDITION FAIR

INVENTORY RATING

INSPECTION DATE 08/20/2012

OPERATING RATING

PRESENT POSTING SV 18 TTST 24 SV 18 TTST 24

PROPOSED POSTING

COMPUTER UPDATE

ANALYSIS DATE

POSTING LETTER DATE

SUFFICIENCY RATING

OTHER SIGNS PRESENT 4 DELINEATORS, 2 NARROW BRIDGE



LOOKING NORTH

| SIGN NOTICE<br>ISSUED FOR |                 | NUMBERED<br>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: 09/13/2012

| IDENTIFICATION                             |                              |                       |                | CLASSIFICATION                         |                             |                       |      |
|--------------------------------------------|------------------------------|-----------------------|----------------|----------------------------------------|-----------------------------|-----------------------|------|
| (1) STATE NAME -NORTH CAROLINA             | BRIDGE                       | 790260                |                | SUFFICIENCY RATING =                   |                             | 47.44                 |      |
| (8) STRUCTURE NUMBER(FEDERAL)              |                              | 000000001590260       |                | STATUS =                               | Functionally Obsolete       |                       |      |
| (5) INVENTORY ROUTE (ON/UNDER) - ON        |                              | 31015350              |                |                                        |                             |                       |      |
| (2) STATE HIGHWAY DEPARTMENT DISTRICT      |                              | 1                     |                |                                        |                             |                       |      |
| (3) COUNTY CODE                            | 159                          | (4) PLACE CODE        | 0              | (112)NBIS BRIDGE SYSTEM -              |                             | YES                   |      |
| (6) FEATURE INTERSECTED -                  | LITTLE CREEK                 |                       |                | (104)HIGHWAY SYSTEM                    | Is not on NHS               | 0                     |      |
| (7) FACILITY CARRIED                       | SR1535                       |                       |                | (26) FUNCTIONAL CLASS -                | Local                       | 09                    |      |
| (9) LOCATION                               | 0.5 MI. N. JCT. SR1541       |                       |                | (100)STRAHNET HIGHWAY -                | Not a STRAHNET Route        | 0                     |      |
| (11)MILEPOINT                              |                              | 0                     |                | (101)PARALLEL STRUCTURE -              | No Parallel Structure       | N                     |      |
| (16)LAT                                    | 35° 36' 51.32"               | (17)LONG              | 80° 37' 11.18" | (102)DIRECTION OF TRAFFIC -            | 2-way Traffic               | 2                     |      |
| (98)BORDER BRIDGE STATE CODE               |                              | PCT SHARE             |                | (103)TEMPORARY STRUCTURE -             |                             |                       |      |
| (99)BORDER BRIDGE STRUCTURE NO             |                              |                       |                | (110)DESIGNATED NATIONAL NETWORK -     | Not on the National Network | 0                     |      |
|                                            |                              |                       |                | (20) TOLL                              | On Free Road                | 3                     |      |
|                                            |                              |                       |                | (31) MAINTAIN -                        | State Highway Agency        | 01                    |      |
|                                            |                              |                       |                | (22) OWNER -                           | State Highway Agency        | 01                    |      |
|                                            |                              |                       |                | (37) HISTORICAL SIGNIFICANCE -         | Not Eligible                | 5                     |      |
| STRUCTURE TYPE AND MATERIAL                |                              |                       |                | CONDITION                              |                             |                       |      |
| (43) STRUCTURE TYPE MAIN:                  | Steel                        |                       |                | (58) DECK                              |                             | 7                     |      |
| TYPE -                                     | Stringer Multibeam or Girder | CODE                  | 302            | (59) SUPERSTRUCTURE                    |                             | 5                     |      |
| (44) STRUCTURE TYPE APPR :                 |                              |                       |                | (60) SUBSTRUCTURE                      |                             | 5                     |      |
| TYPE -                                     |                              | CODE                  | 000            | (61) CHANNEL & CHANNEL PROTECTION      |                             | 7                     |      |
| (45) NUMBER OF SPANS IN MAIN UNIT          |                              |                       | 1              | (62) CULVERTS                          |                             | N                     |      |
| (46) NUMBER OF APPROACH SPANS              |                              |                       |                |                                        |                             |                       |      |
| (107)DECK STRUCTURE TYPE -                 | 8                            | CODE                  |                | LOAD RATING AND POSTING                |                             |                       |      |
| (108)WEARING SURFACE / PROTECTIVE SYSTEM : |                              |                       |                | (31) DESIGN LOAD                       | Unknown                     | 0                     |      |
| (A) TYPE OF WEARING SURFACE -              |                              | CODE                  |                | (63) OPERATING RATING METHOD -         | Load Factor                 |                       |      |
| (B) TYPE OF MEMBRANE -                     |                              | CODE                  |                | (64) OPERATING RATING -                | HS-17                       | 131                   |      |
| (C) TYPE OF DECK PROTECTION -              |                              | CODE                  |                | (65) INVENTORY RATING METHOD -         | Load Factor                 |                       |      |
|                                            |                              |                       |                | (66) INVENTORY RATING -                | HS-11                       | 119                   |      |
|                                            |                              |                       |                | (70) BRIDGE POSTING -                  | Posting Required            | 0                     |      |
|                                            |                              |                       |                | (41) STRUCTURE OPEN, POSTED, OR CLOSED |                             | P                     |      |
|                                            |                              |                       |                | DESCRIPTION -                          | Posted for Load             |                       |      |
| AGE AND SERVICE                            |                              |                       |                | APPRAISAL                              |                             |                       |      |
| (27) YEAR BUILT                            |                              |                       | 1955           | (67) STRUCTURAL EVALUATION             |                             | 5                     |      |
| (106)YEAR RECONSTRUCTED                    |                              |                       |                | (68) DECK GEOMETRY                     |                             | 3                     |      |
| (42) TYPE OF SERVICE : ON -                | Highway                      |                       |                | (69) UNDERCLEARANCES,VERTI & HORIZ     |                             | N                     |      |
| UNDER -                                    | Waterway                     | CODE                  | 15             | (71) WATERWAY ADEQUACY                 |                             | 7                     |      |
| (28) LANES: ON STRUCTURE                   | 2 UNDER STRUCTURE            |                       | 0              | (72) APPROACH ROADWAY ALIGNMENT        |                             | 7                     |      |
| (29) AVERAGE DAILY TRAFFIC                 |                              |                       | 240            | (36) TRAFFIC SAFETY FEATURES           |                             | 0000                  |      |
| (30) YEAR OF ADT                           | 1979                         | (109) TRUCK ADT PCT   | 6%             | (113)SCOUR CRITICAL BRIDGES            |                             | U                     |      |
| (19) BYPASS OR DETOUR LENGTH               |                              |                       | 2 MI           |                                        |                             |                       |      |
| GEOMETRIC DATA                             |                              |                       |                | PROPOSED IMPROVEMENTS                  |                             |                       |      |
| (48) LENGTH OF MAXIMUM SPAN                |                              |                       | 24 FT          | (75) TYPE OF WORK -                    |                             | CODE                  |      |
| (49) STRUCTURE LENGTH                      |                              |                       | 26 FT          | (76) LENGTH OF STRUCTURE IMPROVEMENT   |                             |                       |      |
| (50)CURB OR SIDEWALK: LEFT                 | .3 FT RIGHT                  |                       | .3 FT          | (94) BRIDGE IMPROVEMENT COST           |                             |                       |      |
| (51) BRIDGE ROADWAY WIDTH CURB TO CURB     |                              |                       | 19.167 FT      | (95) ROADWAY IMPROVEMENT COST          |                             |                       |      |
| (52) DECK WIDTH OUT TO OUT                 |                              |                       | 20.083 FT      | (96) TOTAL PROJECT COST                |                             |                       |      |
| (32) APPROACH ROADWAY WIDTH (W/SHOULDERS)  |                              |                       | 18 FT          | (97) YEAR OF IMPROVEMENT COST ESTIMATE |                             |                       |      |
| (33) BRIDGE MEDIAN -                       | No Median                    | CODE                  | 0              | (114)FUTURE ADT                        | 480                         | (115) YEAR FUTURE ADT | 2025 |
| (34) SKEW                                  | 0°                           | (35) STRUCTURE FLARED | 0              |                                        |                             |                       |      |
| (10) INVENTORY ROUTE MIN VERT CLEAR        |                              |                       | 999.9 FT       | INSPECTIONS                            |                             |                       |      |
| (47) INVENTORY ROUTE TOTAL HORIZ CLEAR     |                              |                       | 19.167 FT      | (90) INSPECTION DATE                   |                             | 08/20/2012            |      |
| (53) MIN VERT CLEAR OVER BRIDGE RDWY       |                              |                       | 999.9 FT       | (92) CRITICAL FEATURE INSPECTION :     |                             | (93) CFI DATE         |      |
| (54) MIN VERT UNDERCLEAR REF               | Not a Highway or Railroad    |                       | 0 FT           | A) FRACTURE CRIT DETAIL -              | NO                          | A)                    |      |
| (55) MIN LAT UNDERCLEAR RT REF             | Not a Highway or Railroad    |                       | 000 FT         | B) UNDERWATER INSP -                   | NO                          | B)                    |      |
| (56) MIN LAT UNDERCLEAR LT REF -           |                              |                       | 000 FT         | C) OTHER SPECIAL INSP                  | NO                          | C)                    |      |
|                                            |                              |                       |                | SCOUR                                  |                             |                       |      |
| NAVIGATION DATA                            |                              |                       |                |                                        |                             |                       |      |
| (38) NAVIGATION CONTROL -                  | No Navigational Control      | CODE                  | 0              |                                        |                             |                       |      |
| (111)PIER PROTECTION -                     |                              | CODE                  |                |                                        |                             |                       |      |
| (39) NAVIGATION VERTICAL CLEARANCE         |                              |                       | 0              |                                        |                             |                       |      |
| (116)VERT - LIFT BRIDGE NAV MIN VERT CLEAR |                              |                       | FT             |                                        |                             |                       |      |
| (40) NAVIGATION HORIZONTAL CLEARANCE       |                              |                       | 0 FT           |                                        |                             |                       |      |

## BRIDGE MANAGEMENT UNIT

## DATA ON EXISTING STRUCTURE

Run Date: 09/13/2012

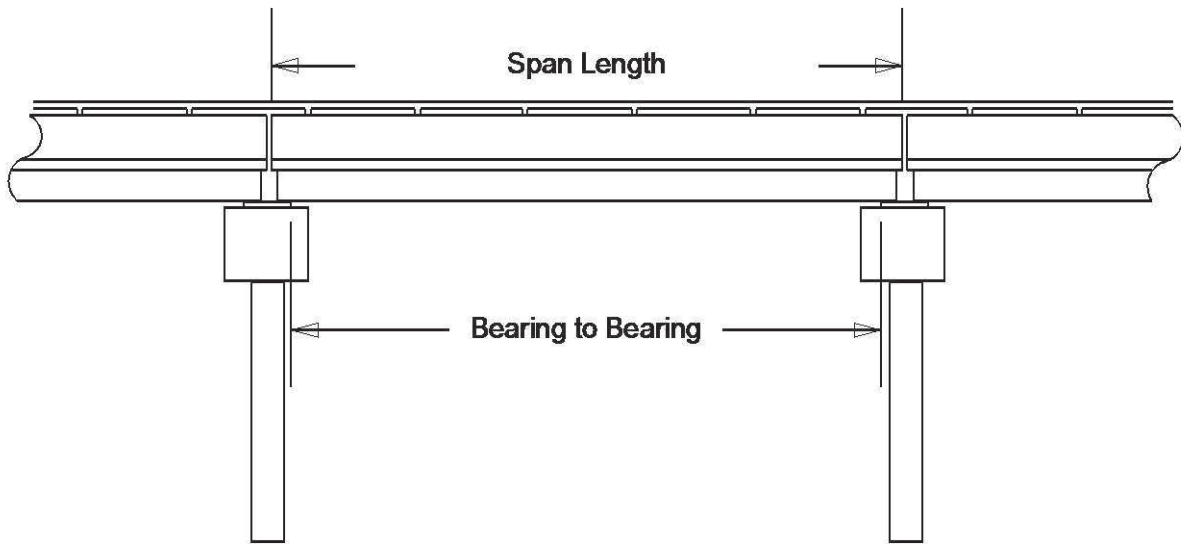
|                                                                       |                 |                       |                      |               |              |
|-----------------------------------------------------------------------|-----------------|-----------------------|----------------------|---------------|--------------|
| COUNTY :                                                              | DIVISION :      | DISTRICT :            | STRUCTURE NUMBER :   | LENGTH :      | FEET         |
| ROWAN                                                                 | 9               | 1                     | 790260               | 26            |              |
| ROUTE CARRIED :                                                       |                 | FEATURE INTERSECTED : |                      |               |              |
| SR1535                                                                |                 | LITTLE CREEK          |                      |               |              |
| LOCATED :                                                             |                 | BRIDGE NAME :         |                      | CITY :        |              |
| 0.5 MI. N. JCT. SR1541                                                |                 |                       |                      |               |              |
| FUNC. CLASS :                                                         | SYST.ON :       | SYST.UNDER :          | ADT & YR :           | RAIL TYPE :   |              |
| 09                                                                    | NFA             | NFA                   | 240 1979             | LT 227        | RT 227       |
| BUILT :                                                               | BY :            | PROJ :                | FED.AID PROJ :       | DESIGN LOAD : |              |
| 1955                                                                  | 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         | 9 FT                  |                      | 2 FT          |              |
| SUPERSTRUCTURE : TIMBER DECK ON I-BEAMS                               |                 |                       |                      |               |              |
| SUBSTRUCTURE : END BENTS:TIMBER CAPS, POSTS & SILLS, TIMBER BULKHEADS |                 |                       |                      |               |              |
| SPANS : 1@25'6                                                        |                 |                       |                      |               |              |
| BEAMS OR GIRDERS : 10 LINES OF W12X27 I-BEAMS @ VARIOUS CENTERS       |                 |                       |                      |               |              |
| FLOOR :                                                               | ENCROACHMENT :  |                       | DECK (OUT TO OUT) :  |               |              |
| 4X8 TIM,2.5 AWS                                                       |                 |                       | 20.083 FT            |               |              |
| CLEAR ROADWAY :                                                       | BETWEEN RAILS : |                       | SIDEWALK OR CURB :   |               |              |
| 19.167 FT                                                             | 19.833 FT       |                       | LT .3 FT             | RT .3 FT      |              |
| VERT.CL.OVER : 999.9 FT                                               |                 |                       |                      |               |              |
| INV.RTG. :                                                            | OPE.RTG. :      | CONTR.MEMBER :        | POSTED :             | TTST          | DATE         |
| HS-11                                                                 | HS-17           | Int Beam              | SV 18                | 24            | 10/11/2010   |
| SYSTEM : Secondary S.R. Route                                         |                 |                       | GREEN LINE ROUTE : N |               |              |
| UNDER ROUTES AND CLEARANCES                                           |                 |                       |                      |               |              |

REMARKS :

# Structure Data Worksheet

*Spans*

County: ROWAN      Structure No: 790260      Date: 08/20/2012      Inspected By: TFM



| Span No | Span Length | Bearing to Bearing | Comments     |
|---------|-------------|--------------------|--------------|
| 1       | 25.5        | 24.167             | NBIS BL 23.5 |

# Stream Bed Soundings

(See next sheet for profile sketch)

Bridge No: 790260 County: ROWAN Date: 08/20/2012 By: TFM

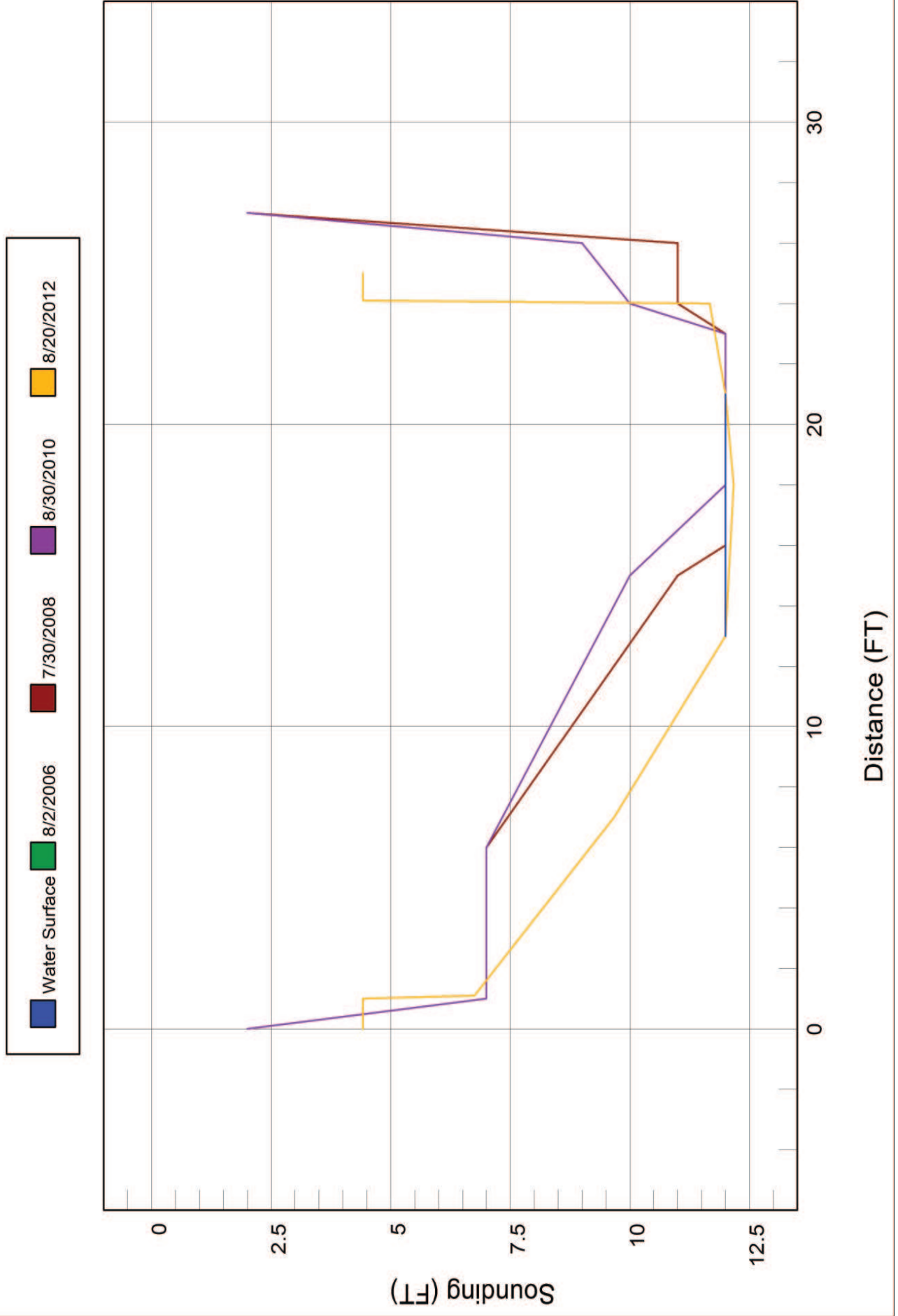
Record sounding from top of rail. Other location if needed: \_\_\_\_\_

Distance from Highwater Mark to top of rail: \_\_\_\_\_ Location of Highwater Mark: \_\_\_\_\_

| DOWNSTREAM                 |                  |                                 | UPSTREAM                   |                  |             |
|----------------------------|------------------|---------------------------------|----------------------------|------------------|-------------|
| Distance<br>(Station) (ft) | Sounding<br>(ft) | Description                     | Distance<br>(Station) (ft) | Sounding<br>(ft) | Description |
| 0                          | 4.42             | Top of Cap                      |                            |                  |             |
| 1                          | 4.42             | Top of Cap                      | 1                          | 8                | END BENT 1  |
| 1.1                        | 6.75             |                                 |                            |                  |             |
| 7                          | 9.67             |                                 |                            |                  |             |
| 13                         | 12               | WSWE                            |                            |                  |             |
| 18                         | 12.17            |                                 |                            |                  |             |
| 21                         | 12               | Water Surface/Water Edge (WSWE) |                            |                  |             |
| 24                         | 11.67            | GAC                             |                            |                  |             |
| 24.1                       | 4.42             | Top of Cap                      |                            |                  |             |
| 25                         | 4.42             | Top of Cap                      |                            |                  |             |

**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   |
|                |           |               |               |

MEASUREMENTS VERIFIED BY DH 8/20/2012

**Title**

APPROACH ROADWAY SKETCH

**Description**

APPROACH ROADWAY SKETCH

Bridge No: 790260

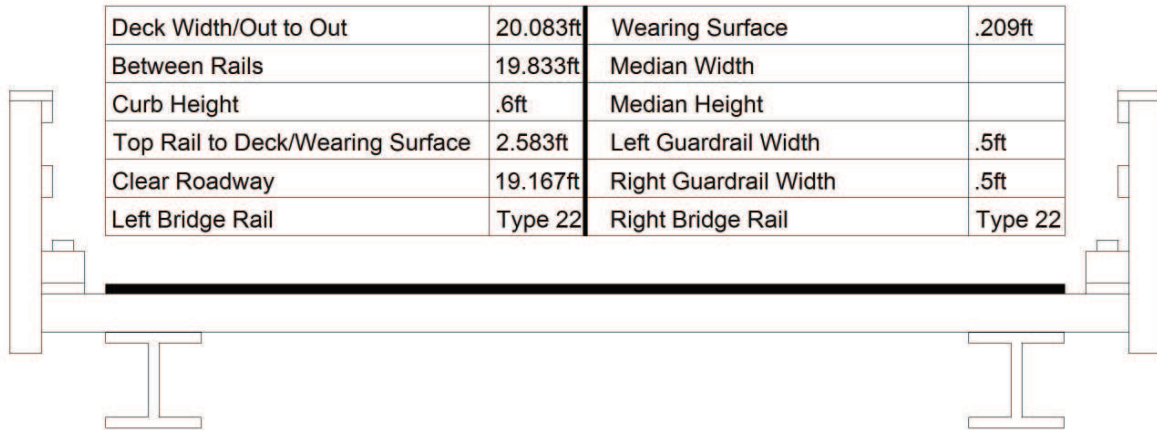
Drawn By: GDP

Date: 07/30/08

File Name: S0066001608

# Bridge Inspection Field Sketch

|                                  |          |                       |         |
|----------------------------------|----------|-----------------------|---------|
| Deck Width/Out to Out            | 20.083ft | Wearing Surface       | .209ft  |
| Between Rails                    | 19.833ft | Median Width          |         |
| Curb Height                      | .6ft     | Median Height         |         |
| Top Rail to Deck/Wearing Surface | 2.583ft  | Left Guardrail Width  | .5ft    |
| Clear Roadway                    | 19.167ft | Right Guardrail Width | .5ft    |
| Left Bridge Rail                 | Type 22  | Right Bridge Rail     | Type 22 |



|                               |      |                |      |
|-------------------------------|------|----------------|------|
| Measurements for Span #       | 1    |                |      |
| Deck Thickness                | .313 | Left Overhang  | .792 |
| Top of Rail to Bottom of Beam | 4.5  | Right Overhang | .792 |

| Beam No | Beam Type    | Spacing | Comments |
|---------|--------------|---------|----------|
| 1       | Steel I Beam | 2.063ft |          |
| 2       | Steel I Beam | 2.123ft |          |
| 3       | Steel I Beam | 2.063ft |          |
| 4       | Steel I Beam | 2.073ft |          |
| 5       | Steel I Beam | 1.98ft  |          |
| 6       | Steel I Beam | 2.093ft |          |
| 7       | Steel I Beam | 2.052ft |          |
| 8       | Steel I Beam | 2.052ft |          |
| 9       | Steel I Beam | 2ft     |          |
| 10      | Steel I Beam |         |          |

BEAM SIZE: 1ft HIGH X .542ft WIDE X .031ft FLANGE X .026ft WEB

MEASUREMENTS VERIFIED BY DH 8/20/2012

## Title

STRUCTURE DATA SKETCH

## Description

STRUCTURE DATA SKETCH

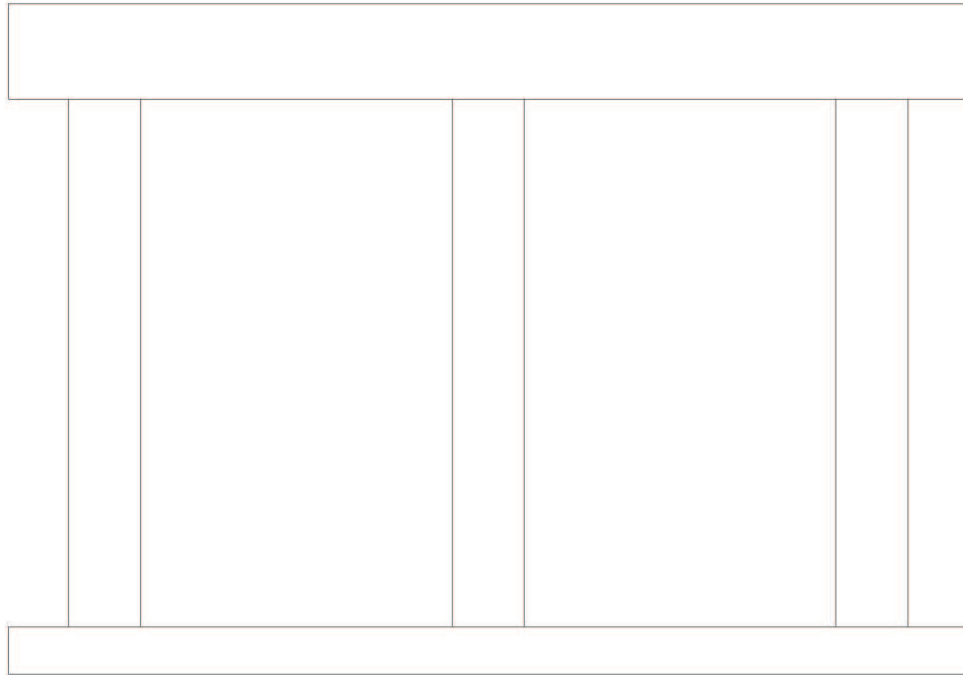
Bridge No: 790260

Drawn By: GDP

Date: 07/30/08

File Name: S0066001609

# Bridge Inspection Field Sketch



|                                 |           |                      |             |
|---------------------------------|-----------|----------------------|-------------|
| Abutment #                      | 1         | Abutment 2 similar   |             |
| Cap - Beam Type (Wood or Steel) |           |                      |             |
| Cap Size                        | 20ft Long | .833ft Wide          | .959ft High |
| Left Overhang                   | 2ft       | Lt Cap/Beam Overhang | .75ft       |
| Right Overhang                  | 2ft       | Rt Cap/Beam Overhang | .75ft       |
| Sill - Sill                     |           |                      |             |
| Sill Size                       |           |                      |             |

| Pile # | Material       | Pile Type | Spacing | Length | Width/Diam. | Height | Orientation |
|--------|----------------|-----------|---------|--------|-------------|--------|-------------|
| 1      | Wood or Timber | Pile Bent | 8       |        | .792 X .792 | POST   | Vertical    |
| 2      | Wood or Timber | Pile Bent | 8       |        | .792 X .792 | POST   | Vertical    |
| 3      | Wood or Timber | Pile Bent |         |        | .792 X .792 | POST   | Vertical    |

MEASUREMENTS VERIFIED BY DH 8/20/2012

## Title

PILE DIAGRAM END BENT 2

## Description

PILE DIAGRAM END BENT 2

Bridge No: 790260

Drawn By: GDP

Date: 07/30/08

File Name: S0066001610

| <h2>Bridge Inspection Field Sketch</h2>                                                                                                                                                   |          |              |               |                 |                          |                                               |                           |                        |          |         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------|---------------|-----------------|--------------------------|-----------------------------------------------|---------------------------|------------------------|----------|---------|
| <p>The diagram shows a horizontal rectangular cap at the top, supported by three equally spaced vertical rectangular piles. The entire structure is centered within the form's width.</p> |          |              |               |                 |                          |                                               |                           |                        |          |         |
| <b>Cap Information</b>                                                                                                                                                                    |          |              |               | <b>Material</b> |                          |                                               |                           |                        |          |         |
| Length                                                                                                                                                                                    | Width    | Height       | Left Overhang | Right Overhang  | Left Beam to End of Cap. |                                               | Right Beam to End of Cap. |                        |          |         |
| 22.250 ft.                                                                                                                                                                                | .833 ft. | .959 ft.     | 3.250 ft.     | 3.000 ft.       | .75 ft.                  |                                               | .75 ft.                   |                        |          |         |
| <b>Subcap Information</b>                                                                                                                                                                 |          |              |               | <b>Material</b> |                          |                                               |                           |                        |          |         |
| Length                                                                                                                                                                                    | Width    | Height       | Left Overhang | Right Overhang  | Left Pile to Splice.     |                                               |                           |                        |          |         |
| <b>Sill Information</b>                                                                                                                                                                   |          |              |               | <b>Material</b> |                          |                                               |                           |                        |          |         |
| Length                                                                                                                                                                                    | Width    | Height       |               |                 |                          |                                               |                           |                        |          |         |
| Pile #                                                                                                                                                                                    | Material | Spacing      | Width/Dia.    | Height          | Length                   | Orientation                                   | Driven?                   | Replacement?           | Removed? | Collar? |
| 1                                                                                                                                                                                         | Timber   | 8 ft.        | .792 X .792   | POST ft.        |                          |                                               | No                        | No                     | No       | No      |
| 2                                                                                                                                                                                         | Timber   | 8 ft.        | .792 X .792   | POST ft.        |                          |                                               | No                        | No                     | No       | No      |
| 3                                                                                                                                                                                         | Timber   |              | .792 X .792   | POST ft.        |                          |                                               | No                        | No                     | No       | No      |
|                                                                                                                                                                                           |          |              |               |                 |                          |                                               |                           |                        |          |         |
| Bent/Abutment #:   1                Similar Bents:                                                                                                                                        |          |              |               |                 |                          |                                               |                           |                        |          |         |
| <b>Title</b><br>PILE DIAGRAM END BENT 1                                                                                                                                                   |          |              |               |                 |                          | <b>Description</b><br>PILE DIAGRAM END BENT 1 |                           |                        |          |         |
| Bridge No:   790260                                                                                                                                                                       |          | Drawn By: DH |               |                 |                          | Date: 8/20/2012                               |                           | File Name: S0062000501 |          |         |





NARROW BRIDGE SIGN



LOOKING SOUTH





LOOKING DOWNSTREAM



LOOKING UPSTREAM





WEAR SURFACE AT END BENT 2



NORTH END WEAR SURFACE APPROACH





END BENT 2



END BENT 1



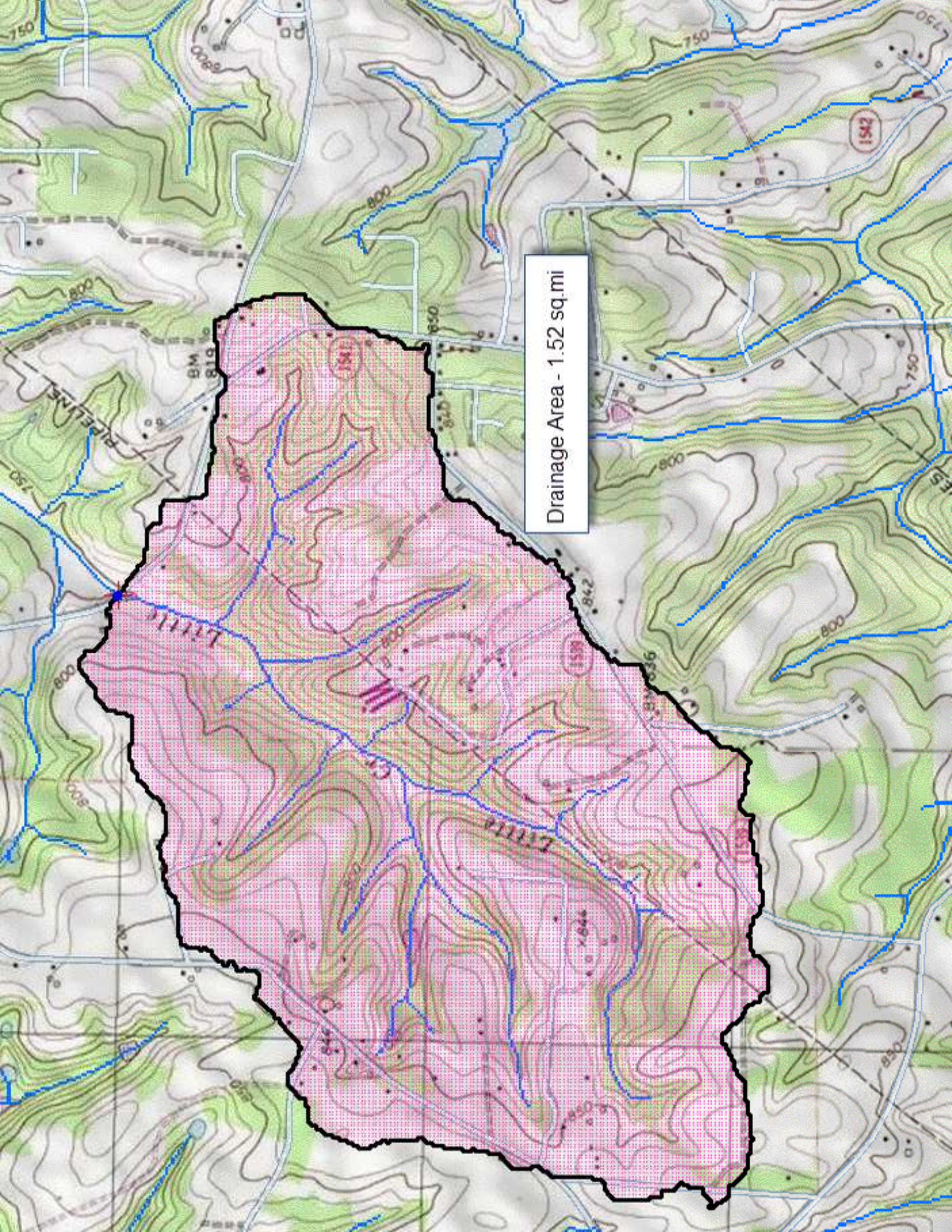


UNDERSIDE OF DECK



LOOKING AT EAST SIDE





Drainage Area - 1.52 sq. mi

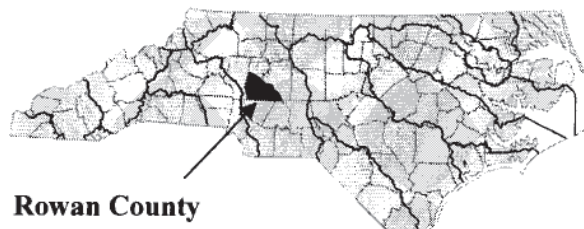


# FLOOD INSURANCE STUDY

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](http://www.fema.gov) and [www.ncfloodmaps.com](http://www.ncfloodmaps.com)





## Section 4.0 – Area Studied

**Table 3—Flooding Sources Studied by  
Detailed Methods: Revised or Newly Studied**

| Source                    | Riverine Sources                                        |                                                                       | Affected Communities                                        |
|---------------------------|---------------------------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------------------|
|                           | From                                                    | To                                                                    |                                                             |
| Legion Park Branch        | The confluence with Trexler Creek                       | Approximately 0.4 mile upstream of the confluence of Klutz Branch     | Town of Granite Quarry, Rowan County (Unincorporated Areas) |
| Little Creek*             | At the confluence with Grants Creek                     | Approximately 0.5 mile upstream of the confluence with Grants Creek   | Rowan County (Unincorporated Areas)                         |
| Lomax Creek*              | At the confluence with Grants Creek                     | Approximately 800 feet upstream of the confluence with Grants Creek   | Town of Spencer, Rowan County (Unincorporated Areas)        |
| Mahaley Branch*           | At the confluence with Grants Creek                     | East Park Road                                                        | City of Salisbury                                           |
| Petrea Branch             | The confluence with Grants Creek                        | Approximately 1.0 mile upstream of the confluence with Grants Creek   | Town of China Grove                                         |
| Rocky Branch*             | The confluence with Grants Creek                        | Approximately 1,400 feet upstream of confluence with Grants Creek     | Town of Spencer                                             |
| Rowan Avenue Park Stream* | The confluence with Grants Creek                        | Approximately 500 feet upstream of Charles Street                     | Town of Spencer, Rowan County (Unincorporated Areas)        |
| Sixth Street Branch*      | The confluence with Grants Creek                        | Approximately 1,090 feet upstream of the confluence with Grants Creek | Town of Spencer, Rowan County (Unincorporated Areas)        |
| Swearington Branch*       | At the confluence with Grants Creek                     | Approximately 700 feet upstream of the confluence with Grants Creek   | Town of China Grove                                         |
| Tar Branch*               | The confluence with Crane Creek                         | Approximately 1,440 feet upstream of the confluence with Crane Creek  | City of Salisbury                                           |
| Third Street Creek*       | The confluence with Grants Creek                        | Approximately 1,380 feet upstream of the confluence with Grants Creek | Town of Spencer, Rowan County (Unincorporated Areas)        |
| Town Creek* (downstream)  | The confluence with Crane Creek                         | Approximately 1,500 feet upstream of the confluence with Crane Creek  | Rowan County (Unincorporated Areas)                         |
| Town Creek (upstream)     | Approximately 190 feet downstream of Bringle Ferry Road | Approximately 140 feet upstream of Julian Road                        | City of Salisbury, Rowan County (Unincorporated Areas)      |
| Town Creek Tributary 1    | The confluence with Town Creek                          | Approximately 110 feet upstream of Tanglewood Drive                   | Town of East Spencer, Rowan County (Unincorporated Areas)   |

## Section 5.0 – Engineering Methods

**Table 8—Summary of Discharges**

| Flooding Source      | Location                                                             | Drainage Area<br>(square miles) | Discharges (cfs)  |                  |                  |                    |
|----------------------|----------------------------------------------------------------------|---------------------------------|-------------------|------------------|------------------|--------------------|
|                      |                                                                      |                                 | 10% Annual Chance | 2% Annual Chance | 1% Annual Chance | 0.2% Annual Chance |
| Legion Park Branch   | Approximately 0.5 mile upstream of the confluence with Trexler Creek | 0.4                             | 445               | 733              | 813              | 1,032              |
|                      | Approximately 0.6 mile upstream of the confluence with Trexler Creek | 0.4                             | 430               | 710              | 787              | 997                |
|                      | Approximately 0.7 mile upstream of the confluence with Trexler Creek | 0.4                             | 422               | 696              | 771              | 975                |
|                      | Approximately 0.2 mile downstream of the confluence of Klutz Branch  | 0.3                             | 393               | 652              | 723              | 918                |
|                      | Approximately 445 feet downstream of the confluence of Klutz Branch  | 0.3                             | 358               | 600              | 667              | 852                |
|                      | At the confluence of Klutz Branch                                    | 0.1                             | 204               | 349              | 388              | 493                |
|                      | Approximately 0.2 mile upstream of the confluence of Klutz Branch    | 0.1                             | 140               | 249              | 279              | 361                |
| Little Creek         | At the confluence with Grants Creek                                  | 8.2                             | 1,290             | 2,180            | 2,680            | 4,185              |
|                      | At Shue Road (SR 1506)                                               | 7.6                             | 1,220             | 2,100            | 2,550            | 3,970              |
|                      | At Miller Road (SR 1509)                                             | 6.1                             | 1,110             | 1,955            | 2,335            | 3,475              |
|                      | At Cooper Road (SR 1534)                                             | 3.3                             | 780               | 1,410            | 1,710            | 2,425              |
|                      | At Weaver Road (SR 1535)                                             | 1.5                             | 510               | 960              | 1,175            | 1,720              |
| Little Creek (South) | At the confluence with Third Creek                                   | 3.5                             | *                 | *                | 1,630            | *                  |
|                      | Approximately 0.8 mile upstream of the confluence with Third Creek   | 2.9                             | *                 | *                | 1,448            | *                  |
|                      | Approximately 1.3 miles upstream of the confluence with Third Creek  | 2.4                             | *                 | *                | 1,278            | *                  |
| Lomax Creek          | *                                                                    | *                               | *                 | *                | *                | *                  |
| Mahaley Branch       | *                                                                    | *                               | *                 | *                | *                | *                  |

## Section 5.0 – Engineering Methods

**Table 11—Roughness Coefficients**

| Stream                          | Channel "n"   | Overbank "n"  |
|---------------------------------|---------------|---------------|
| East Spencer High Creek         | 0.025 – 0.060 | 0.025 – 0.085 |
| Faith Road Branch               | 0.025 – 0.070 | 0.025 – 0.100 |
| Fisher Branch                   | 0.050         | 0.100 – 0.160 |
| Five Forks Tributary            | 0.025 – 0.070 | 0.025 – 0.010 |
| Flat Creek                      | 0.040 – 0.045 | 0.080 – 0.130 |
| Flat Rock Branch                | 0.035 – 0.050 | 0.100 – 0.150 |
| Fourth Creek                    | 0.040 – 0.052 | 0.080 – 0.150 |
| Fourth Creek Tributary 4        | 0.045         | 0.080 – 0.140 |
| Fourth Creek Tributary 5        | 0.048         | 0.100 – 0.130 |
| Grants Creek                    | 0.035 – 0.045 | 0.035 – 0.150 |
| Grants Creek Tributary 2        | 0.045         | 0.090         |
| Grants Creek Tributary 3        | 0.050         | 0.100 – 0.150 |
| Grants Creek Tributary 4        | 0.050         | 0.090 – 0.150 |
| Gravel Pit Branch               | 0.025 – 0.070 | 0.025 – 0.100 |
| Henderson Branch                | 0.025 – 0.070 | 0.025 – 0.100 |
| Henderson Branch Tributary      | 0.025 – 0.070 | 0.025 – 0.100 |
| Hopkins Street Branch           | 0.025 – 0.070 | 0.025 – 0.100 |
| Ice Plant Creek                 | 0.025 – 0.070 | 0.025 – 0.100 |
| Innis Street Branch             | 0.025 – 0.070 | 0.025 – 0.100 |
| Irish Buffalo Creek             | 0.050         | 0.080 – 0.140 |
| Irish Buffalo Creek Tributary 4 | 0.035 – 0.050 | 0.080 – 0.140 |
| Irish Buffalo Creek Tributary 5 | 0.035 – 0.050 | 0.080 – 0.140 |
| Jackson Branch                  | 0.025 – 0.060 | 0.025 – 0.085 |
| Julian Tributary                | 0.025 – 0.070 | 0.025 – 0.100 |
| Jump and Run Branch             | 0.0450        | 0.090 – 0.130 |
| Kerr Creek                      | 0.035 – 0.050 | 0.070 – 0.120 |
| Klutz Branch                    | 0.050         | 0.080 – 0.140 |
| Lake Wright Branch              | 0.025 – 0.070 | 0.025 – 0.100 |
| Legion Park Branch              | 0.050         | 0.080 – 0.150 |
| Little Creek                    | 0.025 – 0.070 | 0.025 – 0.100 |
| Little Creek (South)            | 0.045         | 0.080 – 0.140 |
| Lomax Creek                     | 0.050         | 0.120 – 0.150 |
| Mahaley Branch                  | 0.025 – 0.070 | 0.025 – 0.100 |
| Mahaley Branch Tributary        | 0.025 – 0.065 | 0.025 – 0.100 |
| Main Street Tributary           | 0.025 – 0.070 | 0.025 – 0.100 |
| Maple Avenue Branch             | 0.025 – 0.070 | 0.025 – 0.100 |
| Mill Creek                      | 0.040 – 0.050 | 0.080 – 0.140 |
| Mill Creek (into Grants Creek)  | 0.025 – 0.040 | 0.025 – 0.060 |
| Moose Branch                    | 0.025 – 0.070 | 0.025 – 0.100 |
| North Fork Tributary            | 0.025 – 0.070 | 0.025 – 0.100 |
| North Second Creek              | 0.048         | 0.040 – 0.150 |



## Section 5.0 – Engineering Methods

**Table 12—Limited Detailed Flood Hazard Data**

| <b>Cross Section<sup>1</sup></b> | <b>Stream Station<sup>2</sup></b> | <b>Flood Discharge (cfs)</b> | <b>1% Annual Chance Water-Surface Elevation (feet NAVD 88)</b> | <b>Non-Encroachment Width<sup>3</sup> (feet)</b> |
|----------------------------------|-----------------------------------|------------------------------|----------------------------------------------------------------|--------------------------------------------------|
| <b>KERR CREEK</b>                |                                   |                              |                                                                |                                                  |
| 335                              | 33,480                            | 906                          | 779.7                                                          | 30 / 35                                          |
| 339                              | 33,856                            | 906                          | 781.4                                                          | 12 / 17                                          |
| 342                              | 34,175                            | 651                          | 783.3                                                          | 16 / 12                                          |
| 345                              | 34,518                            | 651                          | 785.3                                                          | 12 / 11                                          |
| 350                              | 35,000                            | 651                          | 790.1                                                          | 5 / 10                                           |
| 353                              | 35,335                            | 651                          | 791.3                                                          | 12 / 12                                          |
| 358                              | 35,783                            | 651                          | 795.1                                                          | 6 / 16                                           |
| 360                              | 36,011                            | 651                          | 798.6                                                          | 12 / 12                                          |
| 365                              | 36,504                            | 651                          | 802.1                                                          | 12 / 17                                          |
| 368                              | 36,807                            | 488                          | 804.1                                                          | 10 / 18                                          |
| 369                              | 36,929                            | 488                          | 805.5                                                          | 10 / 7                                           |
| 372                              | 37,210                            | 488                          | 810.5                                                          | 13 / 18                                          |
| 374                              | 37,366                            | 488                          | 813.3                                                          | 5 / 12                                           |
| 375                              | 37,499                            | 488                          | 814.1                                                          | 8 / 8                                            |
| 377                              | 37,696                            | 488                          | 817.4                                                          | 20 / 10                                          |
| 380                              | 37,999                            | 488                          | 819.5                                                          | 4 / 12                                           |
| 382                              | 38,224                            | 488                          | 822.9                                                          | 4 / 15                                           |
| 385                              | 38,481                            | 488                          | 826.6                                                          | 6 / 11                                           |
| 389                              | 38,887                            | 488                          | 835.8                                                          | 140 / 54                                         |
| 390                              | 38,995                            | 488                          | 835.8                                                          | 110 / 51                                         |
| 393                              | 39,331                            | 488                          | 837.7                                                          | 8 / 30                                           |
| 395                              | 39,530                            | 488                          | 841.1                                                          | 51 / 12                                          |
| 397                              | 39,712                            | 488                          | 842.8                                                          | 17 / 12                                          |
| 399                              | 39,867                            | 488                          | 845.0                                                          | 41 / 10                                          |
| <b>LITTLE CREEK (SOUTH)</b>      |                                   |                              |                                                                |                                                  |
| 008                              | 800                               | 1,630                        | 719.8 <sup>4</sup>                                             | 15 / 193                                         |
| 012                              | 1,190                             | 1,630                        | 720.0                                                          | 117 / 86                                         |
| 017                              | 1,650                             | 1,630                        | 721.1                                                          | 69 / 46                                          |
| 020                              | 2,037                             | 1,630                        | 723.1                                                          | 86 / 97                                          |
| 025                              | 2,502                             | 1,630                        | 724.5                                                          | 134 / 29                                         |
| 029                              | 2,913                             | 1,630                        | 725.6                                                          | 142 / 25                                         |
| 034                              | 3,414                             | 1,630                        | 727.0                                                          | 174 / 12                                         |
| 038                              | 3,824                             | 1,630                        | 728.4                                                          | 133 / 15                                         |
| 043                              | 4,316                             | 1,448                        | 730.4                                                          | 129 / 14                                         |
| 048                              | 4,822                             | 1,448                        | 732.9                                                          | 102 / 14                                         |
| 054                              | 5,409                             | 1,448                        | 735.7                                                          | 31 / 73                                          |
| 057                              | 5,699                             | 1,448                        | 736.3                                                          | 78 / 40                                          |
| 060                              | 6,000                             | 1,448                        | 737.0                                                          | 143 / 14                                         |
| 064                              | 6,366                             | 1,448                        | 737.7                                                          | 128 / 14                                         |
| 068                              | 6,800                             | 1,448                        | 738.8                                                          | 14 / 193                                         |
| 072                              | 7,200                             | 1,448                        | 739.8                                                          | 20 / 138                                         |
| 076                              | 7,627                             | 1,278                        | 742.7                                                          | 100 / 41                                         |
| 080                              | 8,000                             | 1,278                        | 743.8                                                          | 104 / 14                                         |

## Section 5.0 – Engineering Methods

**Table 12—Limited Detailed Flood Hazard Data**

| <b>Cross Section<sup>1</sup></b> | <b>Stream Station<sup>2</sup></b> | <b>Flood Discharge (cfs)</b> | <b>1% Annual Chance Water-Surface Elevation (feet NAVD 88)</b> | <b>Non-Encroachment Width<sup>3</sup> (feet)</b> |
|----------------------------------|-----------------------------------|------------------------------|----------------------------------------------------------------|--------------------------------------------------|
| <b>LITTLE CREEK (SOUTH)</b>      |                                   |                              |                                                                |                                                  |
| 084                              | 8,400                             | 1,278                        | 745.5                                                          | 110 / 14                                         |
| 087                              | 8,710                             | 1,278                        | 746.9                                                          | 94 / 14                                          |
| 090                              | 9,012                             | 1,278                        | 748.2                                                          | 47 / 14                                          |
| <b>MILL CREEK</b>                |                                   |                              |                                                                |                                                  |
| 252                              | 25,154                            | 1,688                        | 713.6                                                          | 20 / 70                                          |
| 255                              | 25,546                            | 1,688                        | 715.4                                                          | 60 / 35                                          |
| 263                              | 26,262                            | 1,688                        | 718.7                                                          | 25 / 35                                          |
| 268                              | 26,767                            | 1,688                        | 721.0                                                          | 13 / 17                                          |
| 271                              | 27,120                            | 1,688                        | 724.3                                                          | 25 / 32                                          |
| 276                              | 27,600                            | 1,688                        | 726.3                                                          | 65 / 22                                          |
| 283                              | 28,295                            | 1,353                        | 729.3                                                          | 15 / 60                                          |
| 287                              | 28,683                            | 1,353                        | 731.1                                                          | 19 / 21                                          |
| 293                              | 29,273                            | 1,353                        | 734.5                                                          | 13 / 50                                          |
| 297                              | 29,736                            | 1,353                        | 736.5                                                          | 50 / 40                                          |
| 302                              | 30,187                            | 1,353                        | 738.0                                                          | 80 / 18                                          |
| 307                              | 30,742                            | 1,353                        | 741.6                                                          | 15 / 55                                          |
| 311                              | 31,143                            | 1,353                        | 743.1                                                          | 12 / 34                                          |
| 317                              | 31,691                            | 1,353                        | 747.4                                                          | 13 / 30                                          |
| 320                              | 32,040                            | 1,016                        | 750.1                                                          | 24 / 10                                          |
| 321                              | 32,123                            | 1,016                        | 750.7                                                          | 25 / 10                                          |
| 322                              | 32,192                            | 1,016                        | 751.2                                                          | 22 / 6                                           |
| 325                              | 32,476                            | 1,016                        | 757.1                                                          | 72 / 16                                          |
| 329                              | 32,944                            | 1,016                        | 759.2                                                          | 34 / 12                                          |
| 334                              | 33,352                            | 1,016                        | 763.0                                                          | 50 / 9                                           |
| 342                              | 34,249                            | 1,016                        | 768.6                                                          | 45 / 55                                          |
| 349                              | 34,865                            | 820                          | 771.9                                                          | 20 / 31                                          |
| 357                              | 35,685                            | 820                          | 780.0                                                          | 30 / 10                                          |
| 364                              | 36,429                            | 820                          | 783.3                                                          | 22 / 22                                          |
| 367                              | 36,733                            | 820                          | 784.8                                                          | 35 / 8                                           |
| 372                              | 37,176                            | 820                          | 788.4                                                          | 35 / 22                                          |
| 376                              | 37,600                            | 664                          | 792.9                                                          | 12 / 30                                          |
| 381                              | 38,109                            | 664                          | 798.5                                                          | 20 / 20                                          |
| 383                              | 38,264                            | 664                          | 798.7                                                          | 20 / 30                                          |
| <b>NORTH SECOND CREEK</b>        |                                   |                              |                                                                |                                                  |
| 015                              | 1,500                             | 12,683                       | 650.9 <sup>4</sup>                                             | 1,150 / 172                                      |
| 020                              | 2,000                             | 12,683                       | 650.9 <sup>4</sup>                                             | 1,240 / 41                                       |
| 025                              | 2,500                             | 12,683                       | 650.9 <sup>4</sup>                                             | 938 / 315                                        |
| 030                              | 3,000                             | 12,683                       | 650.9 <sup>4</sup>                                             | 900 / 316                                        |
| 035                              | 3,500                             | 12,683                       | 650.9 <sup>4</sup>                                             | 826 / 240                                        |
| 040                              | 4,000                             | 12,683                       | 650.9 <sup>4</sup>                                             | 580 / 201                                        |
| 045                              | 4,500                             | 12,683                       | 650.9 <sup>4</sup>                                             | 509 / 256                                        |
| 050                              | 5,003                             | 12,683                       | 650.9 <sup>4</sup>                                             | 449 / 191                                        |
| 054                              | 5,393                             | 12,683                       | 650.9 <sup>4</sup>                                             | 300 / 272                                        |

| FLOODING SOURCE                    |                       | FLOODWAY         |                                     |                                          |            | BASE FLOOD<br>WATER-SURFACE ELEVATION<br>(FEET NAVD 88) |                  |          |
|------------------------------------|-----------------------|------------------|-------------------------------------|------------------------------------------|------------|---------------------------------------------------------|------------------|----------|
| CROSS SECTION                      | DISTANCE <sup>1</sup> | WIDTH<br>(FEET)  | SECTION<br>AREA<br>(SQUARE<br>FEET) | MEAN<br>VELOCITY<br>(FEET PER<br>SECOND) | REGULATORY | WITHOUT<br>FLOODWAY                                     | WITH<br>FLOODWAY | INCREASE |
| Little Creek                       |                       |                  |                                     |                                          |            |                                                         |                  |          |
| 002                                | 200                   | 225              | 946                                 | 2.8                                      | 691.2      | 684.7 <sup>2</sup>                                      | 685.7            | 1.0      |
| 021                                | 2,075                 | 190              | 965                                 | 2.7                                      | 691.2      | 689.7 <sup>2</sup>                                      | 690.7            | 1.0      |
| 023                                | 2,275                 | 205              | 1,240                               | 2.1                                      | 691.2      | 691.1 <sup>2</sup>                                      | 692.0            | 0.9      |
| 047                                | 4,725                 | 360              | 1,540                               | 1.7                                      | 694.0      | 694.0                                                   | 695.0            | 1.0      |
| 062                                | 6,225                 | 365              | 1,399                               | 1.8                                      | 696.2      | 696.2                                                   | 697.2            | 1.0      |
| 064                                | 6,425                 | 325              | 1,744                               | 1.5                                      | 698.9      | 698.9                                                   | 699.0            | 0.1      |
| 102                                | 10,225                | 425              | 2,143                               | 1.1                                      | 700.4      | 700.4                                                   | 701.1            | 0.7      |
| 113                                | 11,307                | 375 <sup>4</sup> | 564                                 | 4.3                                      | 702.9      | 702.9                                                   | 702.9            | 0.0      |
| 119                                | 11,862                | 130              | 517                                 | 4.5                                      | 710.3      | 710.3                                                   | 711.2            | 0.9      |
| 120                                | 12,038                | 160              | 682                                 | 3.4                                      | 711.7      | 711.7                                                   | 712.4            | 0.7      |
| 152                                | 15,245                | 250              | 1,207                               | 1.7                                      | 718.2      | 718.2                                                   | 718.7            | 0.5      |
| 182                                | 18,190                | 230              | 368                                 | 4.7                                      | 725.5      | 725.5                                                   | 725.5            | 0.0      |
| 184                                | 18,361                | 175              | 746                                 | 2.3                                      | 729.7      | 729.7                                                   | 729.8            | 0.1      |
| 214                                | 21,435                | 160              | 571                                 | 2.5                                      | 739.7      | 739.7                                                   | 740.2            | 0.5      |
| 244                                | 24,365                | 50               | 286                                 | 4.1                                      | 750.0      | 750.0                                                   | 750.5            | 0.5      |
| 245 <sup>3</sup> -335 <sup>3</sup> |                       |                  |                                     |                                          |            |                                                         |                  |          |

<sup>1</sup> Feet above mouth

<sup>2</sup> Elevation computed without consideration of backwater effects from Grants Creek

<sup>3</sup> Floodway data not computed

<sup>4</sup> Value is inaccurate, as the floodway has been adjusted in this area to match topographic-based floodplain redelineation

FEDERAL EMERGENCY MANAGEMENT AGENCY

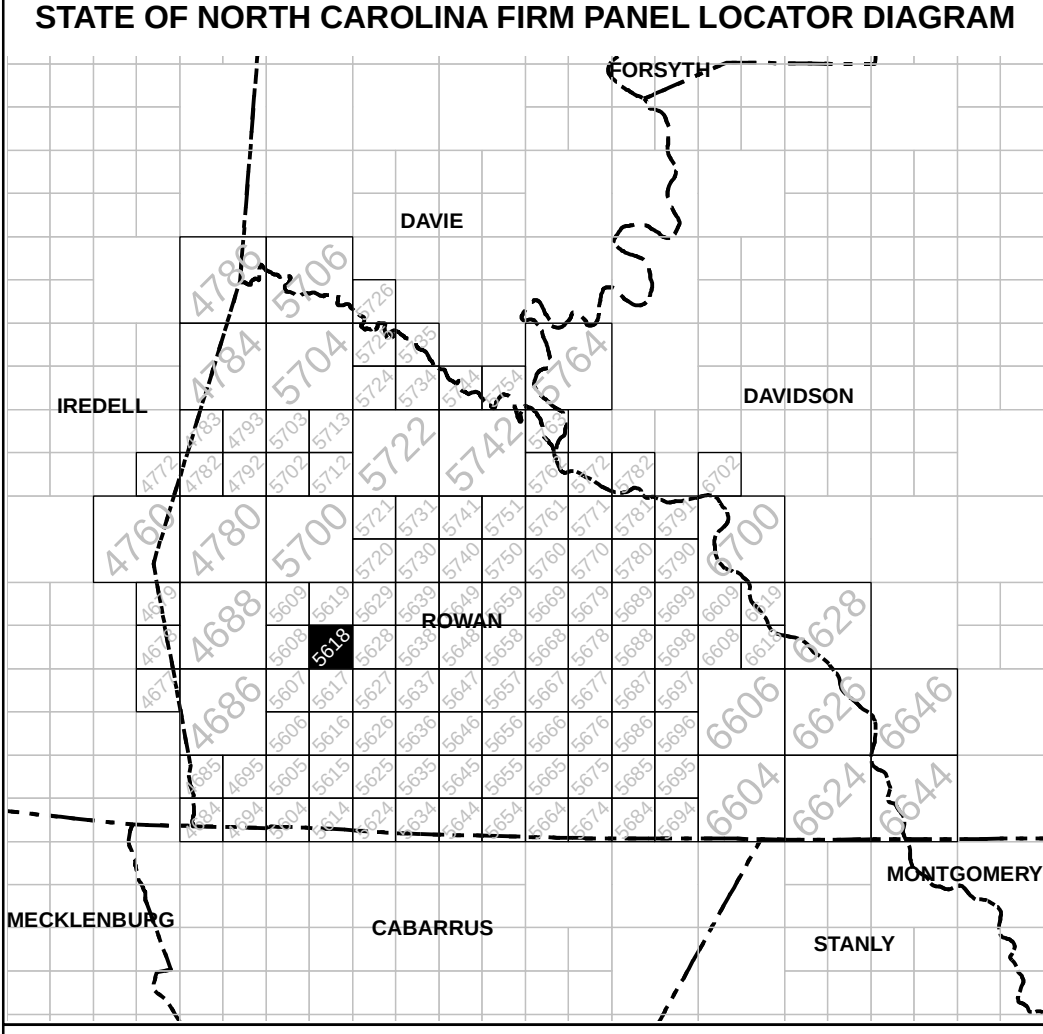
TABLE 14

## FLOODWAY DATA

## ROWAN COUNTY, NC AND INCORPORATED AREAS

## LITTLE CREEK





**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 = 1200/3937 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<br>121 West Jones Street<br>Raleigh, NC 27601<br>(919) 733-3636<br><a href="http://www.ncgs.state.nc.us">http://www.ncgs.state.nc.us</a> | County Average Vertical Datum Offset Table                                                                                                                                        |        |                            |       |       |                                      |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------------------|-------|-------|--------------------------------------|--|
|                                                                                                                                                                         | <table><tr><th>County</th><th>Vertical Datum Offset (ft)</th></tr><tr><td>ROWAN</td><td>-0.75</td></tr><tr><td colspan="2">Example: NAVD 88 = NGVD 29 + (-0.75)</td></tr></table> | County | Vertical Datum Offset (ft) | ROWAN | -0.75 | Example: NAVD 88 = NGVD 29 + (-0.75) |  |
| County                                                                                                                                                                  | 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.

| FLOOD HAZARD DATA TABLE       |                             |                       |                                                                    |                                                                                                                     | Floodway Width (feet) |
|-------------------------------|-----------------------------|-----------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-----------------------|
| Cross Section                 | Stream Station <sup>1</sup> | Flood Discharge (cfs) | 1% Annual Chance (100-year) Water-Surface Elevation (feet NAVD 88) | Left/Right Distance From the Center of Stream to Encroachment Boundary (Looking Downstream) or Total Floodway Width |                       |
| <b>LITTLE CREEK</b>           |                             |                       |                                                                    |                                                                                                                     |                       |
|                               | 244                         | 24,365                | NA                                                                 | 750.0                                                                                                               | 50                    |
| <sup>1</sup> Feet above mouth |                             |                       |                                                                    |                                                                                                                     |                       |



This digital Flood Insurance Rate Map (FIRM) was produced through a unique cooperative partnership between the State of North Carolina and the Federal Emergency Management Agency (FEMA). The State of North Carolina has implemented a long term approach of floodplain management to decrease the costs associated with flooding. This is demonstrated by the State's commitment to map floodplain areas at the local level. As a part of this effort, the state of North Carolina has joined in a Cooperating Technical State agreement with FEMA to produce and maintain this digital FIRM.

[www.ncfloodmaps.com](http://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>.

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.ncdcmcontrol.org/hdp>

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

**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.

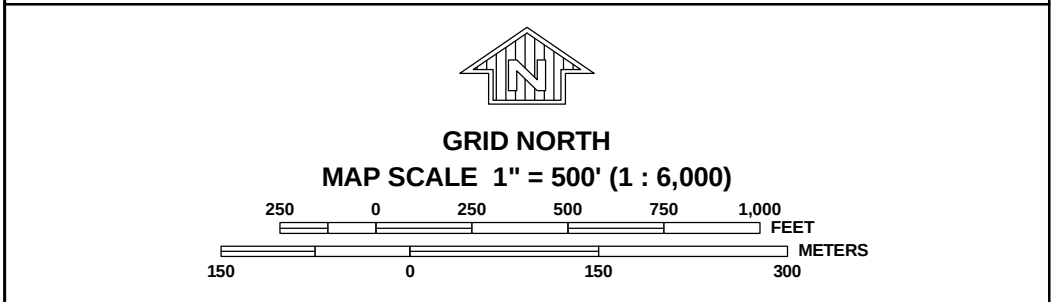
**COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**

**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 benchmark (for more information visit <http://www.ncgs.state.nc.us>)  
National Geodetic Survey benchmark (for more information visit <http://www.ngs.noaa.gov>)  
NGS-58 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



**NATIONAL FLOOD INSURANCE PROGRAM**

**PANEL 5618J**

**FIRM**

**FLOOD INSURANCE RATE MAP**

**NORTH CAROLINA**

**PANEL 5618**

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

**CONTAINS:**

|                  |                |                     |
|------------------|----------------|---------------------|
| <b>COMMUNITY</b> | <b>CID No.</b> | <b>PANEL SUFFIX</b> |
| ROWAN COUNTY     | 370351         | 5618 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**  
3710561800J

State of North Carolina  
Federal Emergency Management Agency



