OFFICE ESTIMATE: _____

Project# _____
TIP# _____
Let Date _____
WBS# _____

PREDESIGN-SCOPING REPORT

B-5

County WATAUGA (DIV. 11)
Bridge# 940022
Road# RUSH BRANCH RD. SR 1209
Stream BEAVER DAM CREEK

Type Of Request: POC Force Account TIP NCMA
Date 5-23-16 Name WSH Assigned To PFF/MTS
Checked By SSS 5-25-16
Prior Survey Date NONE (attach copy of prior survey) BRN. BK.: NONE CO. FILE NONE
Study By Scour Section NO
Flood Zone X Detail Study NONE Date — Panel# 1963 12-3-09
B.M. Info — NONE — STA 3479 2650
Quad Map SHERWOOD Drainage Area 12.8 Sq M. From DASS & (STREAM STATS = 12.8 m²)
Q25 2500 cfs Q50 3000 cfs Q100 3500 cfs Method ~~NSW~~ REG. EQU. (REGION 2)
LONG: 81.849216 (I.A. = 0.15%)
LAT.: 36.292816

EXISTING BRIDGE INFORMATION YEAR BUILT 1968

Location 0.2 MI. S. JCT. SR 1201
Average Daily Traffic 130 2012 6% TRK
Length 46' Bed- To Crown 11' Water Depth 1'
Type Structure STEEL PLANK FLOOR ON I-BEAMS, E.B. TIMBER CAPS POST & SILLS
Type Spans 1 @ 45' 6" LONG: 81.832705 LAT.: 36.291374
Upstream Structure #940023 TIMBER: FLR, CAPS, POST YR. BUILT: 1959
Location 20 FT. SO. JCT. SR 1201 CONC. SILLS ON I BEAMS
Bed- To Crown 12' (H2O 2' DEEP) Prior Survey N/A 1 @ 25'7"
Downstream Structure #940305 RC FLR ON I BEAM YR. BUILT: 1963
Location 10' SO. JCT. SR 1201 3 @ 60' H PILES RC CAPS
Bed- To Crown 28' (H2O 3' DEEP) Prior Survey N/A LONG.: 81.86.7649
SCS Watershed LAT.: 36.277696

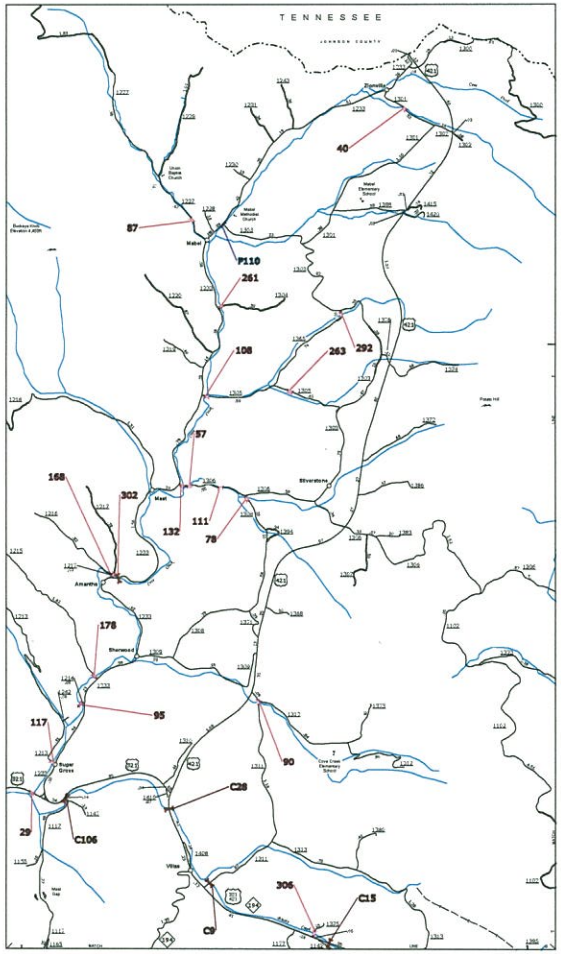
ENVIRONMENTAL TVA: YES

Trout Stream YES Anadromous Fish NO Primary Nursery Area NO
High Quality Waters NO Nutrient Sensitive Waters NO
Near Water Supply Intake NO CAMA County NO
Stream Classification C, Tr STREAM #: 04-02-01
DENR River Basin Info. WATAUGA

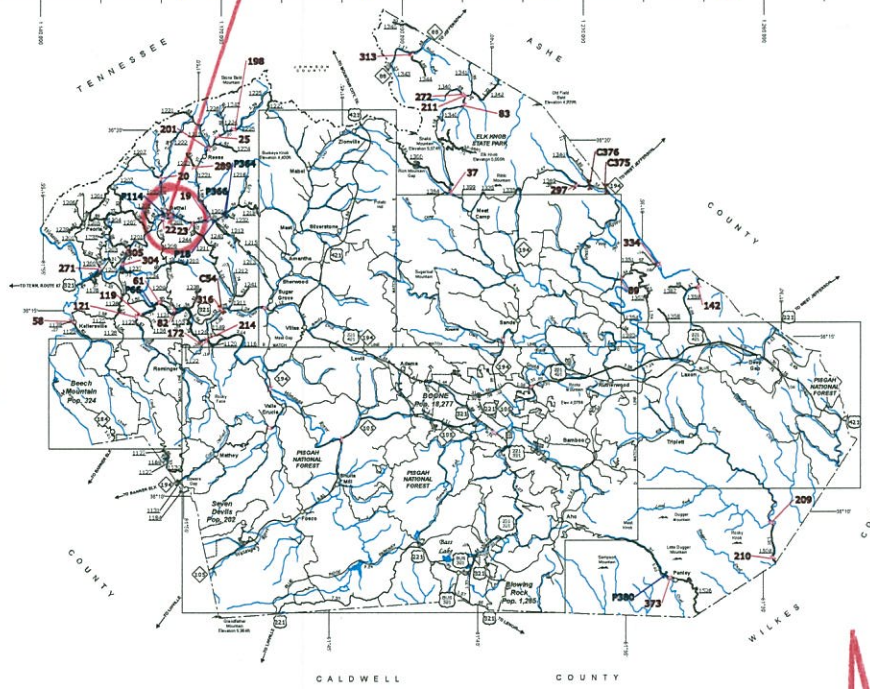
1, 14, 33, 45

940022

#22



Sugar Grove to Zionville and Vicinity



WATAUGA COUNTY
NORTH CAROLINA
BRIDGE LOCATION MAP

PREPARED BY THE
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
MANAGEMENT SYSTEMS AND ASSESSMENTS UNIT - MAPPING SECTION
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

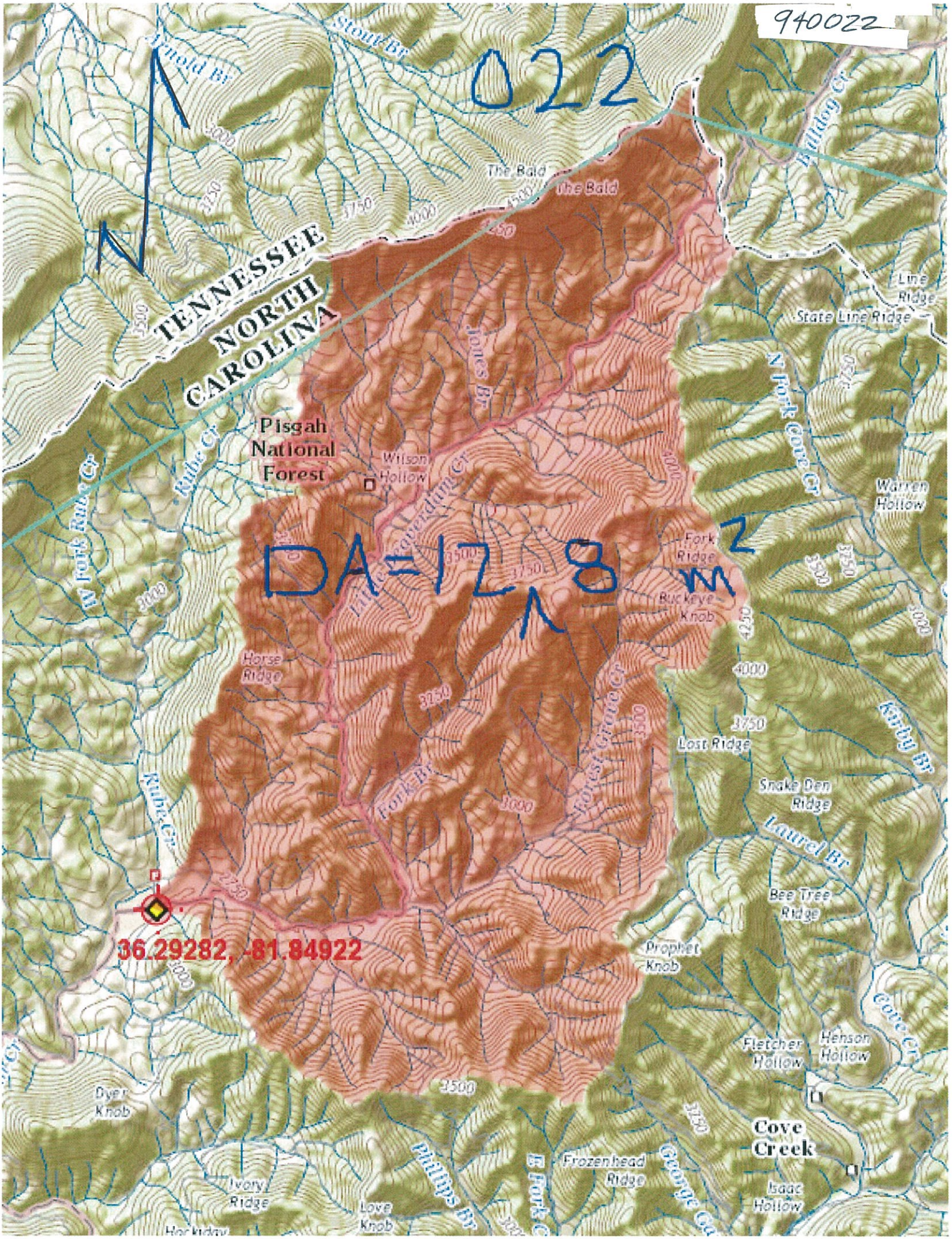
10,000 FOOT GRID BASED ON NORTH CAROLINA PLANE COORDINATE SYSTEM
LAMBERT CONFORMAL CONIC PROJECTION

SHEET 1 OF 3

DIVISION 11 DISTRICT 3 WATAUGA COUNTY NORTH CAROLINA 189

940022

#22
N
A
TO TENN. ROUTE 67
36°20'
36°15'
81°55'
81°55'
Watauga River
Dark Breeches Creek
Laurel
Cane Creek
Crabtree Creek
Buckeys Knob
Elevation 4,400ft.
Cove
Creek
Crabtree Creek
Bethel
Reese
Peoria
Kellersville
Mast Gap
Villas
Sugar Grove
Sherwood
Amantha
Mast
Silverstone
Mabel
Zionville
MATCH
271
58
121
119
P66
61
305
304
P114
223
P18
20
19
P366
289
P364
201
25
214
172
82
316
C54
1139
1125
1128
1176
1200
1201
1235
1205
1239
1206
1207
1208
1222
1221
1223
1224
1226
1227
1245
1218
1232
1213
1215
1241
1212
1211
1240
1244
1209
1234
1237
1123
1121
1156
1103
1238
1149
1120
1116
1122
321
421


940022
022
TENNESSEE
NORTH CAROLINA
Pisgah National Forest
DA=17.18 mi2
36.29282, -81.84922
Stout Br
Arnold Br
The Bald
Bulldog Cr
Line Ridge
State Line Ridge
N Fork Cove Cr
Warren Hollow
Jones Br
Wilson Hollow
Rube Cr
W Fork Rube Cr
Fork Ridge
Buckeye Knob
Horse Ridge
Forest Grove Cr
Lost Ridge
Kirby Br
Snake Den Ridge
Laurel Br
Bee Tree Ridge
Prophet Knob
Fletcher Hollow
Henson Hollow
Cove Cr
Cove Creek
Isaac Hollow
Frozenhead Ridge
Phillips Br
George Cr
Dyer Knob
Ivory Ridge
Love Knob

940022

StreamStats Version 3.0

Flow Statistics Ungaged Site Report

Date: Mon May 23, 2016 4:36:20 PM GMT-4
Study Area: North Carolina
NAD 1983 Latitude: 36.2929 (36 17 34)
NAD 1983 Longitude: -81.849 (-81 50 57)
Drainage Area: 12.8 mi2

Peak Flows Region Grid Basin Characteristics			
100% Peak Southeast US over 1 sqmi 2009 5158 (12.8 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	12.8	1	9000
Percent Area in Region 1 (percent)	0.000	0	100
Percent Area in Region 2 (percent)	100.000	0	100
Percent Area in Region 3 (percent)	0.000	0	100
Percent Area in Region 4 (percent)	0.000	0	100
Percent Area in Region 5 (percent)	0.000	0	100

Urban Flows Region Grid Basin Characteristics			
Area in square miles=12.8			
Percent imperviousness of basin area 2006 NLCD=0.15			
Percentage of impervious area determined from NLCD 2011 impervious dataset=0.15			
100% Region 2 Urban Blue Ridge FS007-00 (12.8 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	12.8	0.04	41
Percent Impervious NLCD2011 (percent)	0.15 (below min value 2)	2	54.6

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Peak Flows Region Grid Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
PK2	799	ft3/s	35		458	1390
PK5	1410	ft3/s	34		814	2440
PK10	1880	ft3/s	35		1070	3320
PK25	2520	ft3/s	38		1380	4610
PK50	2990	ft3/s	40		1580	5640
PK100	3540	ft3/s	42		1810	6920
PK200	4030	ft3/s	44		1990	8160
PK500	4780	ft3/s	48		2250	10200

http://pubs.usgs.gov/sir/2009/5158/ (http://pubs.usgs.gov/sir/2009/5158/)
Weaver_ J.C._ Feaster_ T.D._ and Gotvald_ A.J._ 2009_ Magnitude and frequency of rural floods in the Southeastern United States_ through 2006—Volume 2_ North Carolina: U.S. Geological Survey Scientific Investigations Report 2009-5158_ 111 p.

940022
(1of2)



#22 SITE

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 to floodplain management to decrease the costs associated with flooding. This is demonstrated by the State's commitment to map flood hazard 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.

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR ZONE DESCRIPTIONS AND INDEX MAP

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTP://FRIS.NC.GOV/FRIS

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% Annual Chance Flood with Average Depth Less Than One Foot or With Drainage Areas of Less Than One Square Mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes *Zone X*

OTHER AREAS
- Areas Determined to be Outside the 0.2% Annual Chance Floodplain *Zone X*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Accredited or Provisionally Accredited Levee, Dike, or Floodwall
- Non-accredited Levee, Dike, or Floodwall
- North Carolina Geodetic Survey bench mark
- National Geodetic Survey bench mark
- Contractor Est. NCFMP Survey bench mark
- Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)
- Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

OTHER FEATURES
- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at http://msc.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.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was provided in digital format by the North Carolina Floodplain Mapping Program (NCFMP). The source of this information can be determined from the metadata available in the digital FLOOD database and in the Technical Support Data Notebook (TSDN).

ACCREDITED LEVEE NOTES TO USERS: If an accredited levee note appears on this panel check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http://www.fema.gov/business/nfip/index.shtm.

PROVISIONALLY ACCREDITED LEVEE NOTES TO USERS: If a Provisionally Accredited Levee (PAL) note appears on this panel, check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection. To maintain accreditation, the levee owner or community is required to submit the data and documentation necessary to comply with Section 65.10 of the NFIP regulations. If the community or owner does not provide the necessary data and documentation or if the data and documentation provided indicates the levee system does not comply with Section 65.10 requirements, FEMA will revise the flood hazard and risk information for this area to reflect de-accreditation of the levee system. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http://www.fema.gov/business/nfip/index.shtm.

LIMIT OF MODERATE WAVE ACTION NOTES TO USERS: For some coastal flooding zones the AE Zone category has been divided by a Limit of Moderate Wave Action (LIMWA). The LIMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between the VE Zone and the LIMWA (or between the shoreline and the LIMWA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.

Limit of Moderate Wave Action (LIMWA)

COASTAL BARRIER RESOURCES SYSTEM (CBRS) NOTE

This map may include approximate boundaries of the CBRS for informational purposes only. Flood insurance is not available within CBRS areas for structures that are newly built or substantially improved on or after the date(s) indicated on the map. For more information see http://www.fws.gov/habitatconservation/coastal_barrier.html, the FIS Report, or call the U.S. Fish and Wildlife Service Customer Service Center at 1-800-344-WILD.

CBRS Area | Otherwise Protected Area

SCALE

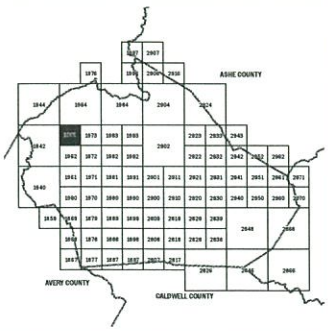
Map Projection:
North Carolina State Plane Projection Feet (Zone 3200)
Datum: NAD 1983 (Horizontal), NAVD 1988 (Vertical)

1 inch = 500 feet 1:6,000

0 250 500 1,000 Feet

0 75 150 300 Meters

PANEL LOCATOR



FEMA

National Flood Insurance Program

NORTH CAROLINA FLOODPLAIN MAPPING PROGRAM
NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

NORTH CAROLINA

PANEL 1963

Panel Contains:

COMMUNITY	CID	PANEL	SUFFIX
WATAUGA COUNTY	370251	1963	J

MAP NUMBER
3710196300J
MAP REVISED
12/3/2009


81°51'0"W
81°50'30"W
81°50'0"W
81°49'30"W
"30"N
Mountaindale Rd
Rush Branch Rd
Bethel School Rd
Bethel Rd
Farthing Cr
Grover Johnston Rd
Beaver Dam Rd
DF8569
WATAUGA COUNTY
UNINCORPORATED AREAS
370251

940022

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STRUCTURE MANAGEMENT UNIT

ATTENTION: PMN'S ISSUED FOR SUPERSTRUCTURE AND SUBSTRUCTURE...

Structure Safety Report

Routine Element Inspection

COUNTY: WATAUGA STRUCTURE NUMBER: 940022 FREQUENCY: 24 MONTHS

FACILITY CARRIED: SR1209 MILE POST:

LOCATION: .2 MI.S.JCT.SR1201

FEATURE INTERSECTED: BEAVER DAM CREEK

LATITUDE: 36° 17' 33.93" LONGITUDE: 81° 50' 57.09"

SUPERSTRUCTURE: STEEL PLANK FLOOR ON I-BEAMS

SUBSTRUCTURE: E.BTS:TIMBER CAPS/TIMBER POST&SILLS @ VARIOUS CENTERS

SPANS: 1 @ 45' - 6"
1 @ 45"-6

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

PRESENT CONDITION: Poor INSPECTION DATE: 07/13/2015

POSTED SV: 19 POSTED TTST: 22

OTHER SIGNS PRESENT: 4 DELINEATORS



SOUTH TO NORTH

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

INSPECTED BY	SIGNATURE	ASSISTED BY
ANDREW GLASCO	Andrew P. Glasco	BILLY ELLIS

940022

Structure: 940022 County: WATAUGA Date: 07/13/2015 Condition Photos



WATERWAY ALIGNMENT FLOWS INTO AND ALONG ABUTMENT A



EXCESS SOIL AND VEGETATION ALONG EACH RAIL (+/- 184 SF)

940022

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE Run Date: 08/13/2015

COUNTY :	DIVISION :	DISTRICT:	STRUCTURE NUMBER :	LENGTH :
WATAUGA	11	2	940022	46 FEET

ROUTE CARRIED : SR1209

FEATURE INTERSECTED : BEAVER DAM CREEK

LOCATED : .2 MI.S.JCT.SR1201

BRIDGE NAME :

CITY :

FUNC. CLASS :	SYST.ON :	SYST.UNDER :	ADT & YR :	RAIL TYPE :
09	NFA	NFA	130 2012	LT 233 RT 233

BUILT :	BY :	PROJ :	FED.AID PROJ :	DESIGN LOAD :
1968	BMU			Unknown

REHAB :	BY :	PROJ :	ALIGNMENT :	SKEW :	LANES :
			TAN	30	ON 2 UNDER 0

NAVIGATION :					HT. CRN. TO BED :		WATER DEPTH :	
VC	0	FT	HC	0 FT	11	FT	1	FT

SUPERSTRUCTURE : STEEL PLANK FLOOR ON I-BEAMS

SUBSTRUCTURE : E.BTS:TIMBER CAPS/TIMBER POST&SILLS @ VARIOUS CENTERS

SPANS : 1 @ 45'-6

BEAMS OR GIRDERS : 10 LINES 21 I-BEAMS @ 2'-6.625 CENTERS

FLOOR :	ENCROACHMENT :	DECK (OUT TO OUT) :
STL.PLK/3 AWS		24.083 FT

CLEAR ROADWAY :	BETWEEN RAILS :	SIDEWALK OR CURB :			
24 FT	24.5 FT	LT	.3 FT	RT	.3 FT

VERT.CL.OVER : 999.9 FT

INV.RTG. :	OPE.RTG. :	CONTR.MEMBER :	POSTED :				
HS-1	HS-1	IntBm(#9)	SV	19	TTST 22	DATE	08/16/2013

SYSTEM : Secondary S.R. Route

GREEN LINE ROUTE : N

UNDER ROUTES AND CLEARANCES

REMARKS :

940022

Bridge: 940022 County WATAUGA Date:

STREAMBED PROFILE (Downstream)

Top of Rail = 0 FT (Sounding)

