

County: Mitchell	Stream: Grassy Creek	Assigned to:
Road #: SR 1106	Road Name: Dale Rd	Prepared By: WSH/HPM
Division: 13	Location: 0.1 mi N of JCT SR 1269 (Velvis Hollifield Rd)	Hydro Reviewer:
Latitude: 35.85828	Longitude: -82.07535	Project Type: 17BP.13.R.195

Existing Structure

Structure Type: Timber Deck/ Timber Joists Yr Built: 1960

Span Arrangement: 2 @ 18'-1/4" OAL (ft): 18.0 Skew: 120 Abutment Type: Vertical -Timber

Number of Barrels: @ Span (ft): x Rise (ft):

Bed to Crown (ft): 12.0 Clear Roadway (ft): 19.2 Water Depth (ft): 1.0 Superstructure Depth:

ADT: 1,500 Year ADT: 2012 Scour Code (item113): U Prior Survey Completed: No Survey Date:

Drainage Area: 0.9 Sq. Mi. Drainage Area Source: USGS Stream Stats Roadway Overtops at Q100:

Discharge Method: USGS Regression Equations USGS Region: 2- Mountains Stream Gage Number(if applicable):

Q10 (cfs): 270.0 Q25 (cfs): 370.0 Q50 (cfs): 450.0 Q100 (cfs): 540.0 QBFE (cfs):

Structure in Flood Hazard Zone: No Panel #: 0788 Panel Date: 02/04/2009 Type of FIS: NO STUDY Date of FIS:

Enviromental

Quad Map: LITTLE SWITZERLAND, NC River Basin: French Broad Buffer Rule:

Primary Stream Classification

☐ Class B ☒ Class C ☐ SA ☐ SB

☐ SC ☐ SWL ☐ WL ☐ WS I

☐ WS II ☐ WS III ☐ WS IV ☐ WS V

Supplemental Stream Classification

☐ FWS ☐ HQW ☐ NSW ☐ ORW

☐ Sw ☒ Tr ☐ UWL ☐ w/in 0.5mi. of CA

Other Stream Classification

☐ Anadromous Fish ☐ Area of Environmental Concern

☐ CAMA County ☐ Federal Wild & Scenic Rivers

☐ HSB Required ☐ NC Natural & Scenic Rivers

☒ Impaired [303d] ☐ Primary Nursery Area

☒ TVA ☐ Designated Shellfish Harvesting Area

☐ Designated Public Mountain Trout Waters

Up/Down Stream Features

Upstream Feature: Culvert

Location: 0.2 mi W of JCT SR 1106

Structure #: 600169 Route: SR 1269

Latitude: 35.85858 Longitude: -82.07625

Prior Survey Completed: No Survey Date:

Structure Type: RCBC

Span Arrangement: OAL (ft):

Number of Barrels: 1 @ Span (ft): 23.9 x Rise (ft): 5.0

Bed to Crown (ft): 7.0 Year Built: 2015

Downstream Feature: Bridge

Location: 0.31 mi S of JCT SR 1106

Structure #: 600095 Route: SR 1111

Latitude: 35.87198 Longitude: -82.06334

Prior Survey Completed: No Survey Date:

Structure Type: Steel Deck/I Beams

Span Arrangement: 1 @ 42.083' OAL (ft): 42.00

Number of Barrels: @ Span (ft): x Rise (ft):

Bed to Crown (ft): 9.0 Year Built: 1961

Preliminary Structure Estimate [Office Estimate]

Structure Type: Skew:

Dimensions/Spans:

Notes

Stream #: 7-2-40



Project# 17BP.13.R.195

TIP#

Let Date

WBS#

PREDESIGN-SCOPING REPORT

E24

County MITCHELL (DIV. 13)Bridge# 600207Road# SR 1106 ✓

Stream

✓ GRASSY CRK.

Type Of Request: POC Force Account TIP NCMA

Date 8/3/18 Name WshAssigned To PAT/MTSChecked By 8-3-18 HPMPrior Survey Date NONE (attach copy of prior survey) BRN. BK. NONE CO. FILE NONEStudy By Scour Section NONE CODE: U PDR: NONE BSR: NONEFlood Zone X Detail Study NONE Date 2-4-09 Panel# 0788B.M. Info N/A ESM DA = 0.74 sq mi. = 474 ac.Quad Map LITTLE SWITZERLAND Drainage Area 0.91 sq mi. From STREAM STATSQ25 370 cfs Q50 450 cfs Q100 540 cfs Method STREAM STATSLONG: -82.07539LAT: 35.85897REGION 2

REG. EQU.

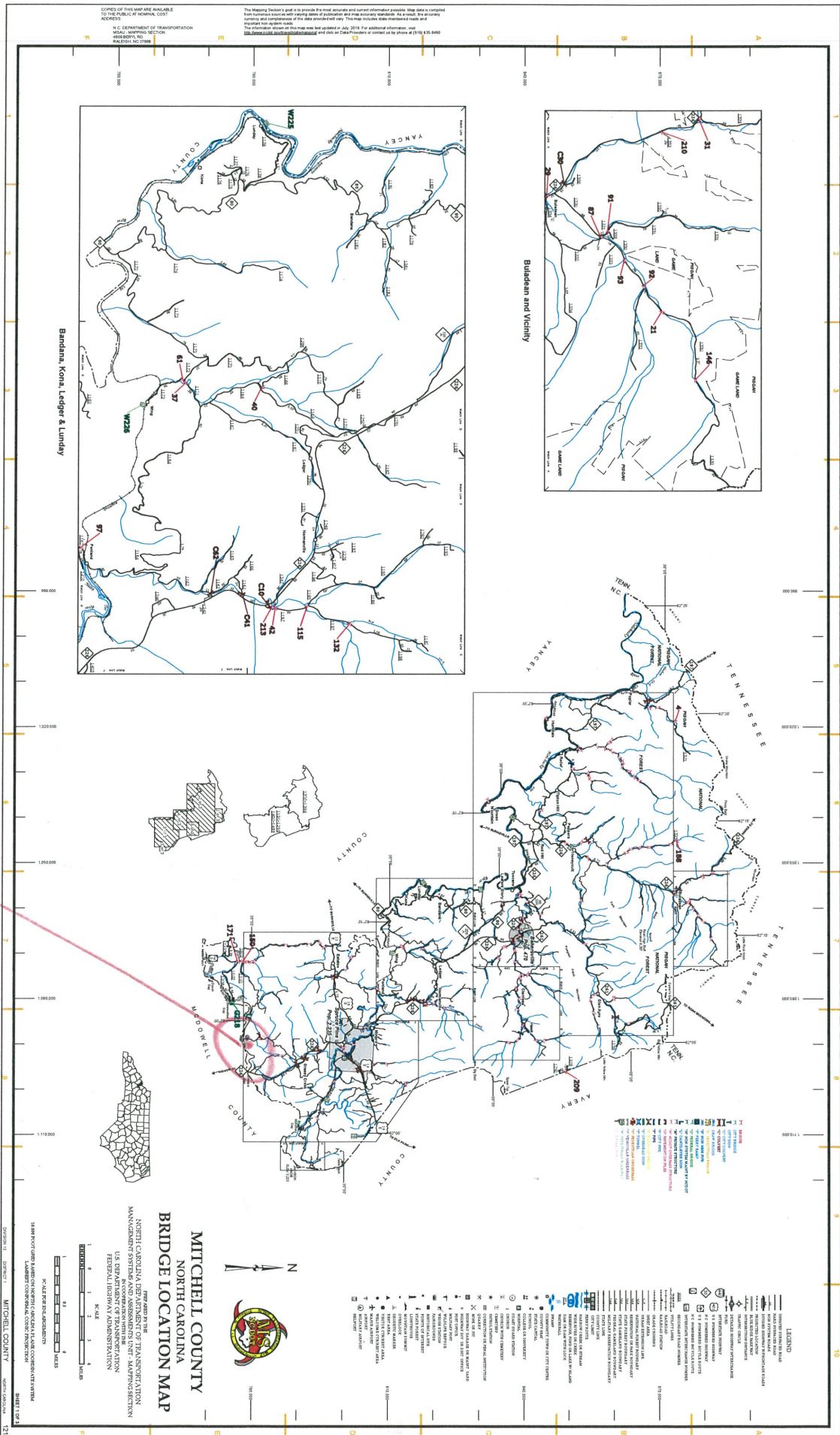
EXISTING BRIDGE INFORMATION

YEAR BUILT 1960CLEAR ROADWAY WIDTH 19.17'IA % = 0.45 %Location 0.1 M. N. Jct SR 1269Average Daily Traffic 1500, (2012) 6% TRKLength 18' 2" Bed-To Crown 12' Water Depth 1'Type Structure TIM. FLR. on TIMBER JOISTSType Spans 1e 18.25'Upstream Structure 600169 (CULVERT)YR. BUILT: 2015Location 0.2 M. W OF JCT, SR 1106LONG: -82.07625Bed-To Crown 7' Prior Survey N/ALAT: 35.85858Downstream Structure 600095YR. BUILT: 1981Location DULA ROAD, SR 1111 / 0.3 M. S. Jct SR 1106LONG: -82.063341Bed-To Crown N/A Prior Survey N/ALAT: 35.871994STEEL PLANK FLR ON I Beams (1e 42.1')

ENVIRONMENTAL

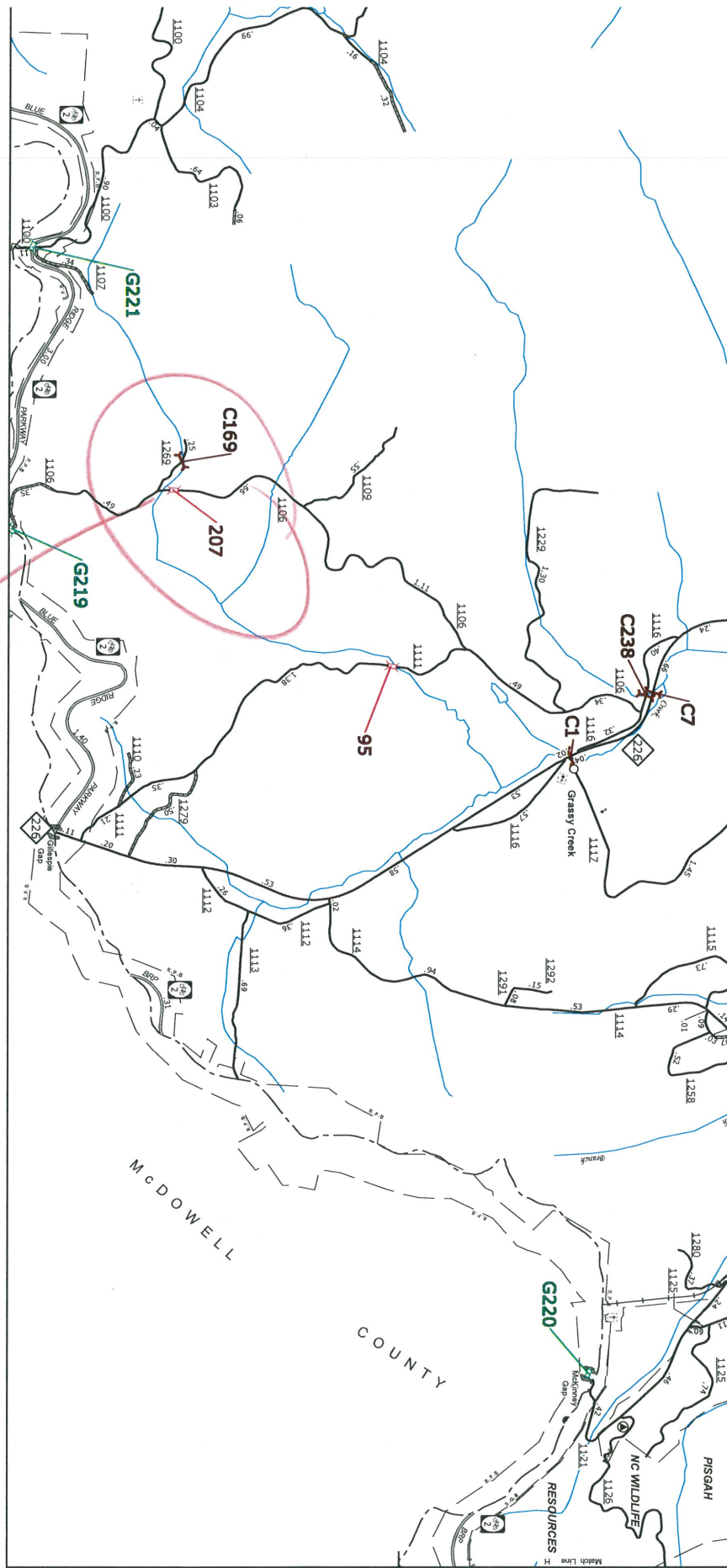
TVA: YESTrout Stream YESAnadromous Fish NO Primary Nursery Area NOHigh Quality Waters NONutrient Sensitive Waters NONear Water Supply Intake NOCAMA County NOStream Classification C, TrSTREAM #: 7-2-40DENR River Basin Info. FRENCH BOARD1, 13, 33, 26, D/S-33

600207



Spruce Pine and Vicinity

#207



StreamStats Report

600207

Region ID:
 Workspace ID:
 Clicked Point (Latitude, Longitude):
 Time:

NC
 NC20180802134041206000
 35.85888, -82.07536
 2018-08-02 09:40:56 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.91	square miles
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	0.45	percent

Urban Peak-Flow Statistics Parameters [Region 2 Urban Blue Ridge FS007-00]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.91	square miles	0.04	41
LC11IMP	Percent_Impervious_NLCD2011	0.45	percent	2	54.6

Urban Peak-Flow Statistics Disclaimers [Region 2 Urban Blue Ridge FS007-00]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Urban Peak-Flow Statistics Flow Report [Region 2 Urban Blue Ridge FS007-00]

Statistic	Value	Unit
Urban 2 Year Peak Flood	18	ft ³ /s
Urban 5 Year Peak Flood	46.9	ft ³ /s
Urban 10 Year Peak Flood	76	ft ³ /s
Urban 25 Year Peak Flood	152	ft ³ /s
Urban 50 Year Peak Flood	204	ft ³ /s
Urban 100 Year Peak Flood	266	ft ³ /s

Urban Peak-Flow Statistics Citations

207

Peak-Flow Statistics Disclaimers [Peak Southeast US over 1 sqmi 2009 5158]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errorsOne or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errorsOne or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errorsOne or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Peak-Flow Statistics Flow Report [Peak Southeast US over 1 sqmi 2009 5158]

Statistic	Value	Unit
2 Year Peak Flood	102	ft^3/s
5 Year Peak Flood	195	ft^3/s
10 Year Peak Flood	269	ft^3/s
25 Year Peak Flood	372	ft^3/s
50 Year Peak Flood	447	ft^3/s
100 Year Peak Flood	538	ft^3/s
200 Year Peak Flood	618	ft^3/s
500 Year Peak Flood	743	ft^3/s

Peak-Flow Statistics Citations

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

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Application Version: 4.2.1



NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STRUCTURE MANAGEMENT UNIT

ATTENTION: **PRIORITY MAINTENANCE: JOISTS, WINGWALL,
DATA CHANGED, TEMPORARY REPAIRS**

Structure Safety Report

Routine Element Inspection

COUNTY: MITCHELL STRUCTURE NUMBER: 600207 FREQUENCY: 24 MONTHS
FACILITY CARRIED: SR1106 MILE POST: _____
LOCATION: .1 MI.N.JCT.SR1269
FEATURE INTERSECTED: GRASSY CREEK
LATITUDE: 35° 51' 32.19" LONGITUDE: 82° 4' 31.39"

SUPERSTRUCTURE: TIMBER FLOOR ON TIMBER JOISTS

SUBSTRUCTURE: E.BTS:TIM.CAPS/TIM.POST&SILLS/CONC.FTGS.

SPANS: 1 @ 18.25'
1 @ 18'-3

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

PRESENT CONDITION: Fair

INSPECTION DATE: 12/13/2017

POSTED SV: 10

POSTED TTST: 18

OTHER SIGNS PRESENT: DELINEATORS (4)



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

DIRECTION OF
INSPECTION S-N

DIRECTION
MATCHES PLANS _____

SOUTH APPROACH LOOKING NORTH

INSPECTED BY
JOSEPH HUNTSINGER

SIGNATURE

Joseph Huntsinger

ASSISTED BY DENNIS WILSON

600207

Structure: 600207

County: MITCHELL

Date: 12/13/2017

Structure Photos



SOUTH APPROACH LOOKING NORTH



UPSTREAM PROFILE

600 207

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 07/30/2018

COUNTY : MITCHELL DIVISION : 13 DISTRICT : 1 STRUCTURE NUMBER : 600207 LENGTH : 18 FEET

ROUTE CARRIED : SR1106 FEATURE INTERSECTED : GRASSY CREEK

LOCATED : .1 MI.N.JCT.SR1269 BRIDGE NAME : CITY :

FUNC. CLASS : 09 SYST.ON : NFA SYST.UNDER : NFA ADT & YR : 1500 2012 RAIL TYPE : LT 227 RT 227

BUILT : 1960 BY : BMU PROJ : FED.AID PROJ : DESIGN LOAD : Unknown

REHAB : BY : PROJ : ALIGNMENT : TAN SKEW : 120 LANES : ON 2 UNDER 0

NAVIGATION : VC 0 FT HC 0 FT HT. CRN. TO BED : 12 FT WATER DEPTH : 1 FT

SUPERSTRUCTURE : TIMBER FLOOR ON TIMBER JOISTS

SUBSTRUCTURE : E.BTS.TIM.CAPS/TIM.POST&SILLS/CONC.FTGS.; CRUTCH BTS.TIM.POST&SILLS

SPANS : 1 @ 9'- 1/8", 1 @ 9'- 1/8"

BEAMS OR GIRDERS : 8 LINES 6X12 TIMBER JOISTS & 3 DOUBLE LINES @ 1'-9.5 CENTERS

FLOOR : 4X8 TIM/5.47 AWS ENCROACHMENT : DECK (OUT TO OUT) : 20.167 FT

CLEAR ROADWAY : 19.167 FT BETWEEN RAILS : 19.833 FT SIDEWALK OR CURB : LT .3 FT RT .3 FT

VERT.CL.OVER : 999.9 FT

INV.RTG. : HS-27 OPE.RTG. : HS-36 CONTR.MEMBER : Int.jsts POSTED : SV TTST DATE 07/19/2018

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

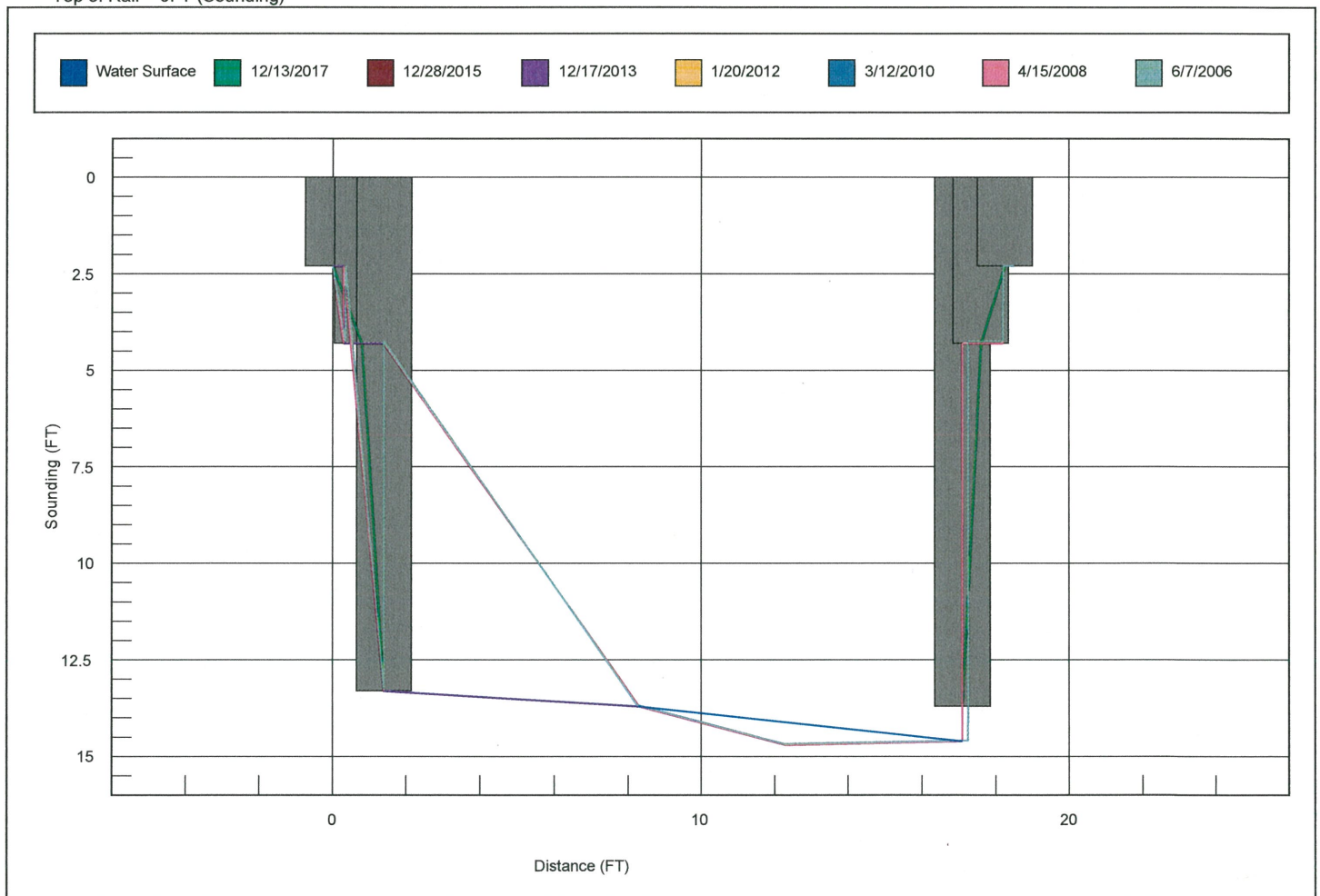
UNDER ROUTES AND CLEARANCES

REMARKS :

Date: 12/13/2017

STREAMBED PROFILE (Downstream)

Top of Rail = 0FT (Sounding)



600207

U/S STR.

Structure: 600169

County: MITCHELL

Date: 12/13/2017

Structure Photos



DOWNSTREAM PROFILE



ELECTRIC FENCE RUNNING THROUGH THE CULVERT

D/S STR.

600207

Structure: 600095

County: MITCHELL

Date: 12/13/2017

Structure Photos



END BENT 1



DOWNSTREAM PROFILE

old regression equations:

	REGION 1	REGION 2
Q25	507.1698	371.7312
Q50	624.635	447.6383
Q100	733.7233	537.6063

D.A. = 0.91 sq mi lpArea= 0.45 ✓

SITE: 600207

DATE: 8/2/2018

current regression equations: **2014-2050 PG 28.**

UPDATED: .1 to 3mi

	REGION 1	REGION 2
Q25	484.1318	
Q50	588.8606	
Q100	699.7654	

3mi TO 436mi

	REGION 1
Q25	623.97
Q50	757.27
Q100	896.99

600 207



600 207

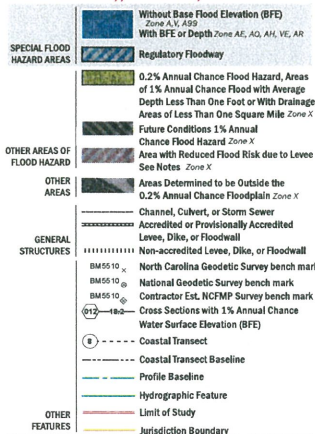


207

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 risk of 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 Cooperative 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](http://fris.nc.gov/fris)



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 Hotline at 1-877-FEMA-MAP (1-877-362-6271) or visit the FEMA Map Service Center 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 are available. Visit the North Carolina Floodplain Mapping Program website at <http://www.ncfloodmaps.com> or contact the FEMA Map Service Center.

Communities appearing on an adjacent FIRM panel must obtain a current copy of the adjacent panel as well as the current FIRM panel. These may be obtained directly from the Map Service Center at the number listed above.

For community and countywide map data 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 1-800-888-8200.

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

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 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/floodinsurance>.

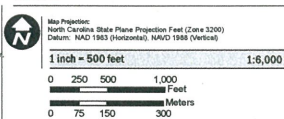
ACCREDITED LEVEE NOTES TO USERS: If an accredited levee note appears on this panel (check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1 percent annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection. To maintain accreditation, the levee owner or community is required to submit the data and documentation necessary to comply with Section 65.12 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 65.12 requirements, FEMA will remove 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/floodinsurance>.

LIMIT OF MODERATE WAVE ACTION NOTES TO USERS: For some coastal flooding zones the AE Zone (subject to base flood elevation) is limited by the Limit of Moderate Wave Action (LIMWA). The LIMWA represents the approximate lowest level of the 1.5 foot breaking wave. The effects of wave hazards between the VE Zone and the LIMWA (or between the LIMWA and the LOMA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.

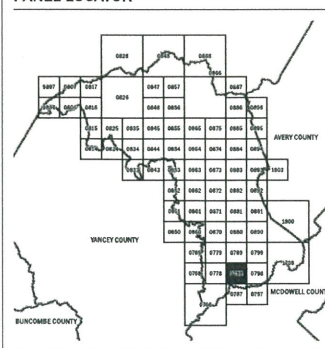
COASTAL BARRIER RESOURCES SYSTEM (CBRS) NOTE
This map may include approximate boundaries of the CBRS for informational purposes only. Flood insurance is not available within CBRS areas for structures that are newly built or substantially improved on or after the date(s) published on the map. For more information see <http://www.fema.gov/floodinsurance> or visit the FEMA Map Service Center at 1-800-888-8200.

Legend:
— Limit of Moderate Wave Action (LIMWA)
CBRS Area
Otherwise Protected Area

SCALE



PANEL LOCATOR



FEDERAL EMERGENCY MANAGEMENT AGENCY

National Flood Insurance Program

NORTH CAROLINA FLOODPLAIN MAPPING PROGRAM

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

NORTH CAROLINA

PANEL 0788

Panel Contains:

COMMUNITY
MITCHELL COUNTY

CID PANEL SUFFIX
370161 0788 J

MAP NUMBER
3710078800J

MAP REVISED
2/4/2009

600207



* No Study
No HEC-
RAS

36° 51' 30"

#207



Final 2016 Category 5 Assessments -303(d) List

207

Nolichucky River Subbasin

French Broad River Basin

Assessment Unit Name	Assessment Unit Description		
Assessment Unit Number	Water Quality Classification	Length/Area	Units
Fox Creek	From source to Bald Creek		
7-3-22-1	C	2.2	FW Miles

Assessment Criteria Status	Reason for Rating	Parameter of Interest	IR Category
Exceeding Criteria	FCB 5in30 GM >200 or >2	Fecal Coliform (GM 200/400, REC, FW)	5

Grassy Creek	From source to North Toe River		
7-2-40	C;Tr	5.9	FW Miles

Assessment Criteria Status	Reason for Rating	Parameter of Interest	IR Category
Exceeding Criteria	Fair	Fish Community (Nar, AL, FW)	5

Jacks Creek	From source to North Toe River		
7-2-63	C	8.5	FW Miles

Assessment Criteria Status	Reason for Rating	Parameter of Interest	IR Category
Exceeding Criteria	Fair	Fish Community (Nar, AL, FW)	5

Lickskillet Branch	From source to Bald Creek		
7-3-22-5	C;Tr	3.4	FW Miles

Assessment Criteria Status	Reason for Rating	Parameter of Interest	IR Category
Exceeding Criteria	FCB 5in30 GM >200 or >2	Fecal Coliform (GM 200/400, REC, FW)	5

Lilly Branch	From source to North Toe River		
7-2-49	C;Tr	1.4	FW Miles

Assessment Criteria Status	Reason for Rating	Parameter of Interest	IR Category
Exceeding Criteria	> 10% and >90 conf	Turbidity (10 NTU, AL, Tr)	5

NOLICHUCKY RIVER	From source to North Carolina-Tennessee State Line		
7	B	10.0	FW Miles

Assessment Criteria Status	Reason for Rating	Parameter of Interest	IR Category
Exceeding Criteria	> 10% and < 90% conf	Copper (7 µg/l, AL, FW)	5e
Data Inconclusive	Not assessed	Turbidity (50 NTU, AL, FW miles)	5