

Hydraulics Unit Pre-Design Report (Pre-Scoping) for Structure #: 020035

Date: 01/07/2020

County: Alleghany Stream: Glade Creek
Road #: SR 1422 Road Name: Fox Ridge Rd
Division: 11 Location: 0.8 mi W JCT SR 1433 (Ridgeglen Rd)
Latitude: 36.49989 Longitude: -81.03651 Decimal degrees, a min of 5 decimal points

Assigned to:
Prepared By: HPM
Hydro Reviewer: MTS
Project Type: 17BP.11.R.157

Existing Structure

Structure Type: Steel Deck/I Beams Yr Built: 1970
Span Arrangement: 2 @ 40'-3" OAL (ft): 81.0 Skew: 135 Abutment Type: Vertical -Timber
Number of Barrels: @ Span (ft): x Rise (ft):
Bed to Crown (ft): 17.0 Clear Roadway (ft): 24.0 Water Depth (ft): 2.0 Superstructure Depth:
ADT: 380 Year ADT: 2013 Scour Code (item113): U Prior Survey Completed: Yes Survey Date: 04/01/1970
Drainage Area: 12.9 Sq. Mi. Drainage Area Source: USGS Stream Stats Roadway Overtops at Q100: No
Discharge Method: USGS Regression Equations USGS Region: 2- Mountains Stream Gage Number(if applicable):
Q10 (cfs): 1,900.0 Q25 (cfs): 2,500.0 Q50 (cfs): 3,000.0 Q100 (cfs): 3,600.0 QBFE (cfs): 3,693.0
Structure in Flood Hazard Zone: Yes Panel #: 4000 Panel Date: 09/02/2009 Type of FIS: LIMITED Date of FIS:

Environmental

Quad Map: GLADE VALLEY, NC River Basin: New 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 ☒ Designated Public Mountain Trout Waters
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

Up/Down Stream Features

Upstream Feature: Bridge
Location: 0.6 mi N JCT SR 1422/1430 (Sheriff Rd)
Structure #: 020032 Route: SR 1422
Latitude: 36.48189 Longitude: -81.05460
Prior Survey Completed: Yes Survey Date: 02/09/1993
Structure Type: Cored Slab
Span Arrangement: 1 @ 31', 1 @ 50', 1 @ 31' OAL (ft): 112.0
Number of Barrels: @ Span (ft): x Rise (ft):
Bed to Crown (ft): 18.0 Year Built: 1993
Downstream Feature: Confluence w/ Stream(s)
Location: 0.25 mi NW of 020035 / Little River
Structure #: Route:
Latitude: 36.50303 Longitude: -81.03878
Prior Survey Completed: Survey Date: Bed to Crown (ft): Year Built:

Preliminary Structure Estimate [Office Estimate]

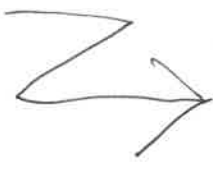
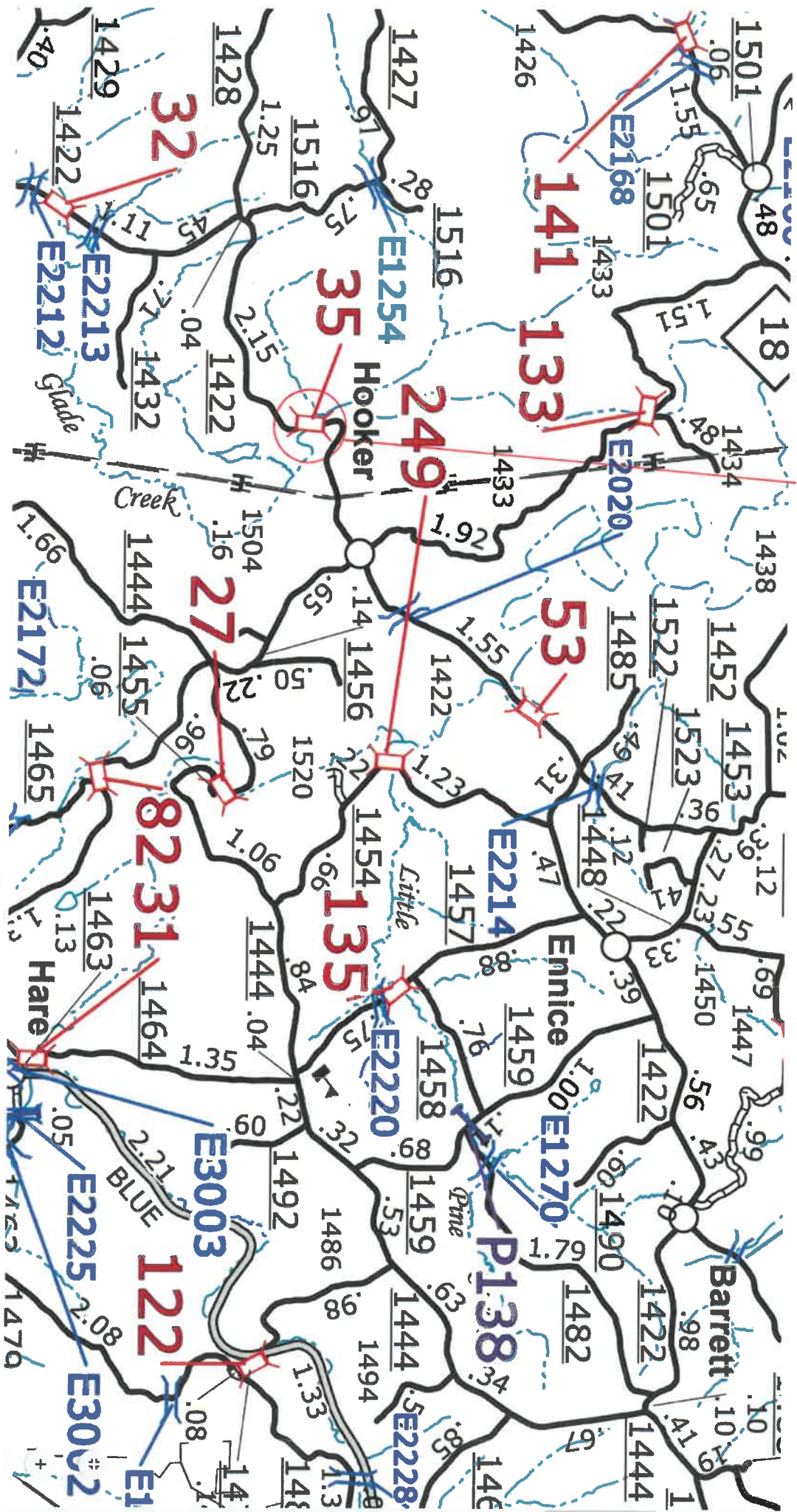
Structure Type: Skew:
Dimensions/Spans:

Notes

Stream #: 10-9-9

The map displays Allegheny County, North Carolina, with a red circle indicating the bridge location. The county is bordered by Wilkes County to the west and Virginia to the east. The map includes a legend with symbols for various features, a scale bar, and a north arrow. The title 'ALLEGHENY COUNTY NORTH CAROLINA BRIDGE LOCATION MAP' is prominently displayed at the top. The map is a product of the North Carolina Department of Transportation, Office of Regional Management and Planning, and is dated 1998.

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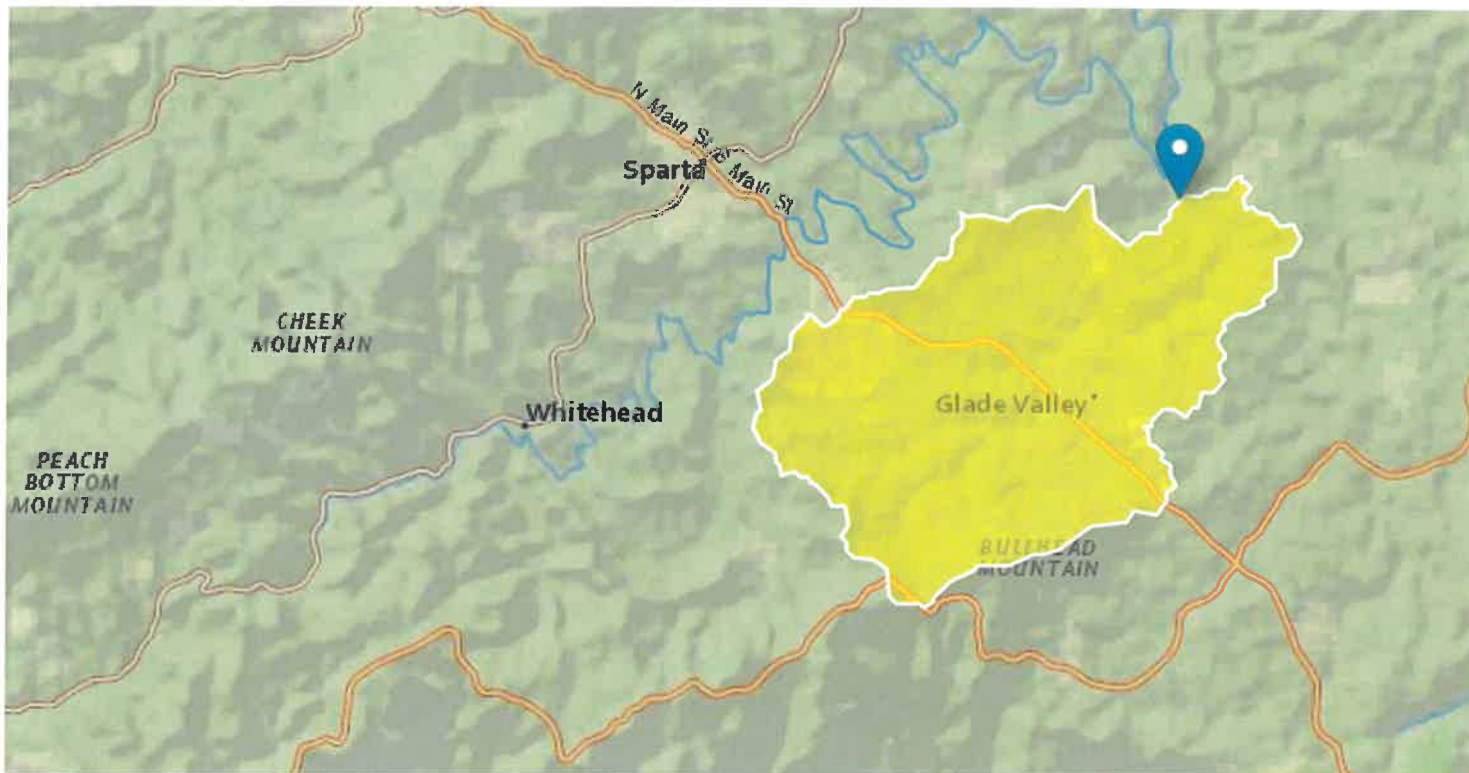
StreamStats Report

Region ID: NC

Workspace ID: NC20200107173647072000

Clicked Point (Latitude, Longitude): 36.49986, -81.03649

Time: 2020-01-07 12:37:03 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	12.9	square miles
PCTREG1	Percentage of drainage area located in Region 1	0	percent
PCTREG2	Percentage of drainage area located in Region 2	100	percent
PCTREG3	Percentage of drainage area located in Region 3	0	percent
PCTREG4	Percentage of drainage area located in Region 4	0	percent
PCTREG5	Percentage of drainage area located in Region 5	0	percent

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

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
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Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	12.9	square miles	1	9000
PCTREG1	Percent Area in Region 1	0	percent	0	100
PCTREG2	Percent Area in Region 2	100	percent	0	100
PCTREG3	Percent Area in Region 3	0	percent	0	100
PCTREG4	Percent Area in Region 4	0	percent	0	100
PCTREG5	Percent Area in Region 5	0	percent	0	100

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

Pll: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	Pll	Plu	SEp
2 Year Peak Flood	804	ft ³ /s	461	1400	34.5
5 Year Peak Flood	1420	ft ³ /s	819	2460	34
10 Year Peak Flood	1890	ft ³ /s	1070	3340	35.1
25 Year Peak Flood	2540	ft ³ /s	1390	4630	37.5
50 Year Peak Flood	3000	ft ³ /s	1590	5670	39.6
100 Year Peak Flood	3560	ft ³ /s	1820	6960	41.9
200 Year Peak Flood	4050	ft ³ /s	2000	8200	44.3
500 Year Peak Flood	4810	ft ³ /s	2260	10200	47.7

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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NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STRUCTURE MANAGEMENT UNIT

ATTENTION: PM ISSUED: DECK, BEAMS, ABUTMENTS, CAPS AND PILES, DRIFT, WEIGHT LIMIT SIGNS. SIGN NOTIFICATION. CHANGE TO AWS THICKNESS. NEWLY STRUCTURAL DEFICIENT SUBSTRUCTURE. CHANGES TO APPROACH ROADWAY AND TYPICAL SECTION SKETCHES.

Structure Safety Report

Routine Element Inspection - Contract

INSPECTION DATE: 10/23/2018

DIVISION: 11 COUNTY: ALLEGHANY STRUCTURE NUMBER: 020035 FREQUENCY: 24 MONTHS

FACILITY CARRIED: SR1422 MILE POST: _____

LOCATION: 0.8 MI.W.JCT.SR1433

FEATURE INTERSECTED: GLADE CREEK

LATITUDE: 36° 29' 59.57" LONGITUDE: 81° 2' 11.39"

SUPERSTRUCTURE: STEEL PLANK FLOOR ON I-BEAMS

SUBSTRUCTURE: E.BTS&INT.BTS:H-PILE CAPS/H-PILES ENCASED IN CONCRETE

SPANS: 2 SPANS. SEE SPAN PROFILE SHEET FOR SPAN DETAILS

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

NBI GRADES: DECK 4 SUPERSTRUCTURE 4 SUBSTRUCTURE 4 CULVERT N

POSTED SV: 22 24 POSTED TTST: 27 30

OTHER SIGNS PRESENT: (2) WEIGHT LIMIT, (4) DELINEATORS, (2) NARROW BRIDGE



Sign noticed issued for	Number Required
YES WEIGHT LIMIT	2
NO DELINEATORS	0
NO NARROW BRIDGE	0
NO ONE LANE BRIDGE	0
NO LOW CLEARANCE	0

DIRECTION OF INSPECTION S-N

DIRECTION MATCHES PLANS NO PLANS

LOOKING STATIONS AHEAD, NORTH

INSPECTED BY MIKE CLINGER	SIGNATURE 	ASSISTED BY MARTIN RUSS
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Structure: 020035

County: ALLEGHANY

Date: 10/23/2018

Structure Photos



UPSTREAM ELEVATION



DOWNSTREAM ELEVATION

020035

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 12/19/2018

COUNTY :	DIVISION :	DISTRICT :	STRUCTURE NUMBER :	LENGTH :	
ALLEGHANY	11	1	020035	81	FEET

ROUTE CARRIED :	FEATURE INTERSECTED :
SR1422	GLADE CREEK

LOCATED :	BRIDGE NAME :	CITY :
0.8 MI.W.JCT.SR1433		

FUNC. CLASS :	SYST.ON :	SYST.UNDER :	ADT & YR :	RAIL TYPE :
09	NFA	NFA	380 2013	LT 233 RT 233

BUILT :	BY :	PROJ :	FED.AID PROJ :	DESIGN LOAD :
1970	BMU			Unknown

REHAB :	BY :	PROJ :	ALIGNMENT :	SKEW :	LANES :
			TAN	135	ON 2 UNDER 0

NAVIGATION :	VC	0	FT	HC	0	FT	HT. CRN. TO BED :	17	FT	WATER DEPTH :	2	FT
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SUPERSTRUCTURE :	STEEL PLANK FLOOR ON I-BEAMS
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SUBSTRUCTURE :	E.BTS&INT.BTS:H-PILE CAPS/H-PILES ENCASED IN CONCRETE
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SPANS :	2 @ 40'-3
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BEAMS OR GIRDERS :	10 LINES 18 I-BEAMS @ 2'-6.75 CENTERS
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FLOOR :	ENCROACHMENT :	DECK (OUT TO OUT) :
STL.PLK/6" AWS		24.083 FT

CLEAR ROADWAY :	BETWEEN RAILS :	SIDEWALK OR CURB :
24 FT	24.5 FT	LT .25 FT RT .25 FT

VERT.CL.OVER :
999.9 FT

INV.RTG. :	OPE.RTG. :	CONTR.MEMBER :	POSTED :	TTST	18	DATE	12/03/2018
HS-7	HS-12	Int.bm(w/o beam6)	SV 15				

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

UNDER ROUTES AND CLEARANCES

REMARKS :

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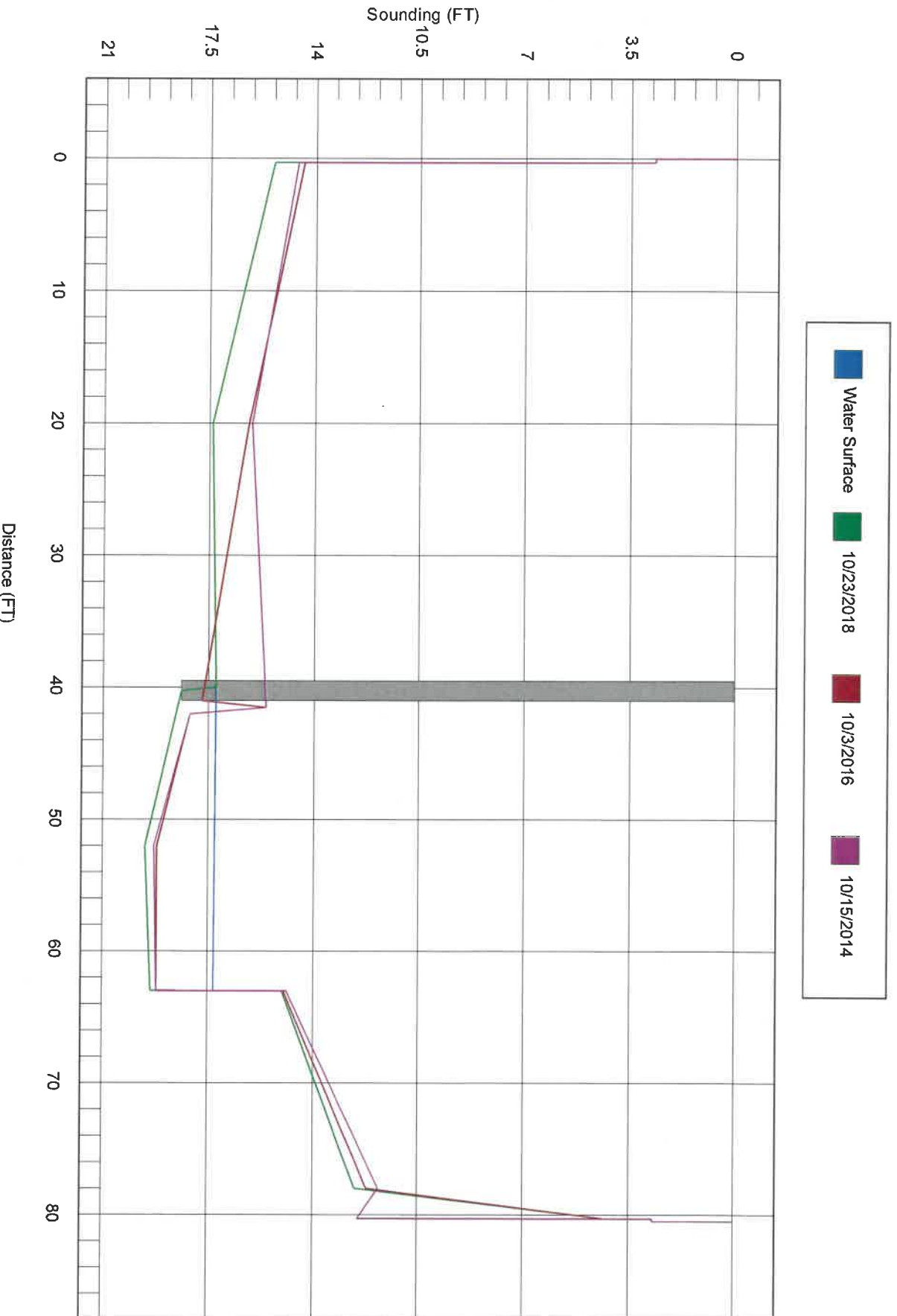
Bridge: 020035

County: ALLEGHANY

Date: 10/23/2018

Top of Rail = 0FT (Sounding)

STREAMBED PROFILE (Downstream)



020035

U/S Feature

Structure: 020032

County: ALLEGHANY

Date: 09/20/2018

Structure Photos



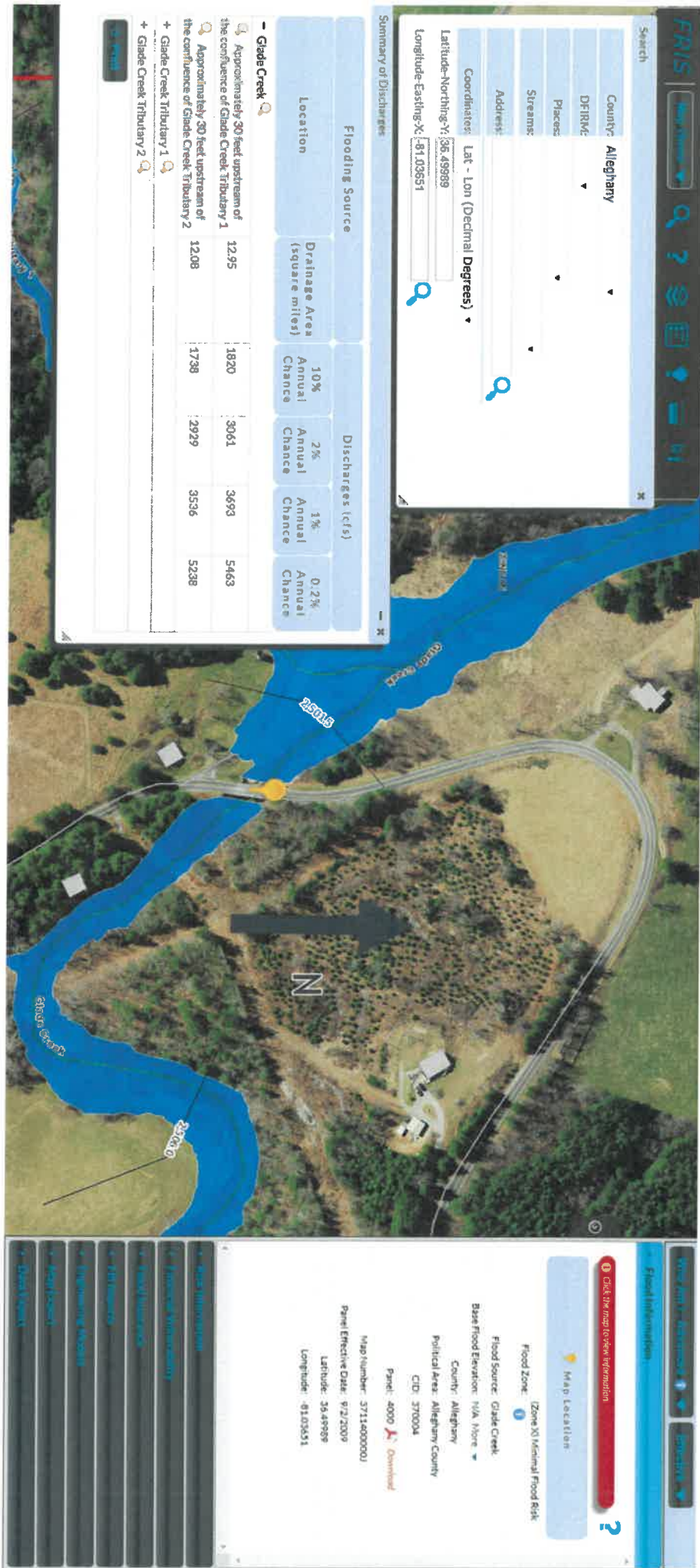
UPSTREAM



DOWNSTREAM PROFILE

APRIL 1972

020035



FEMA

National Flood Insurance Program

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

NORTH CAROLINA

PANEL 4000

Panel Contains:

COMMUNITY
ALLEGANY COUNTY

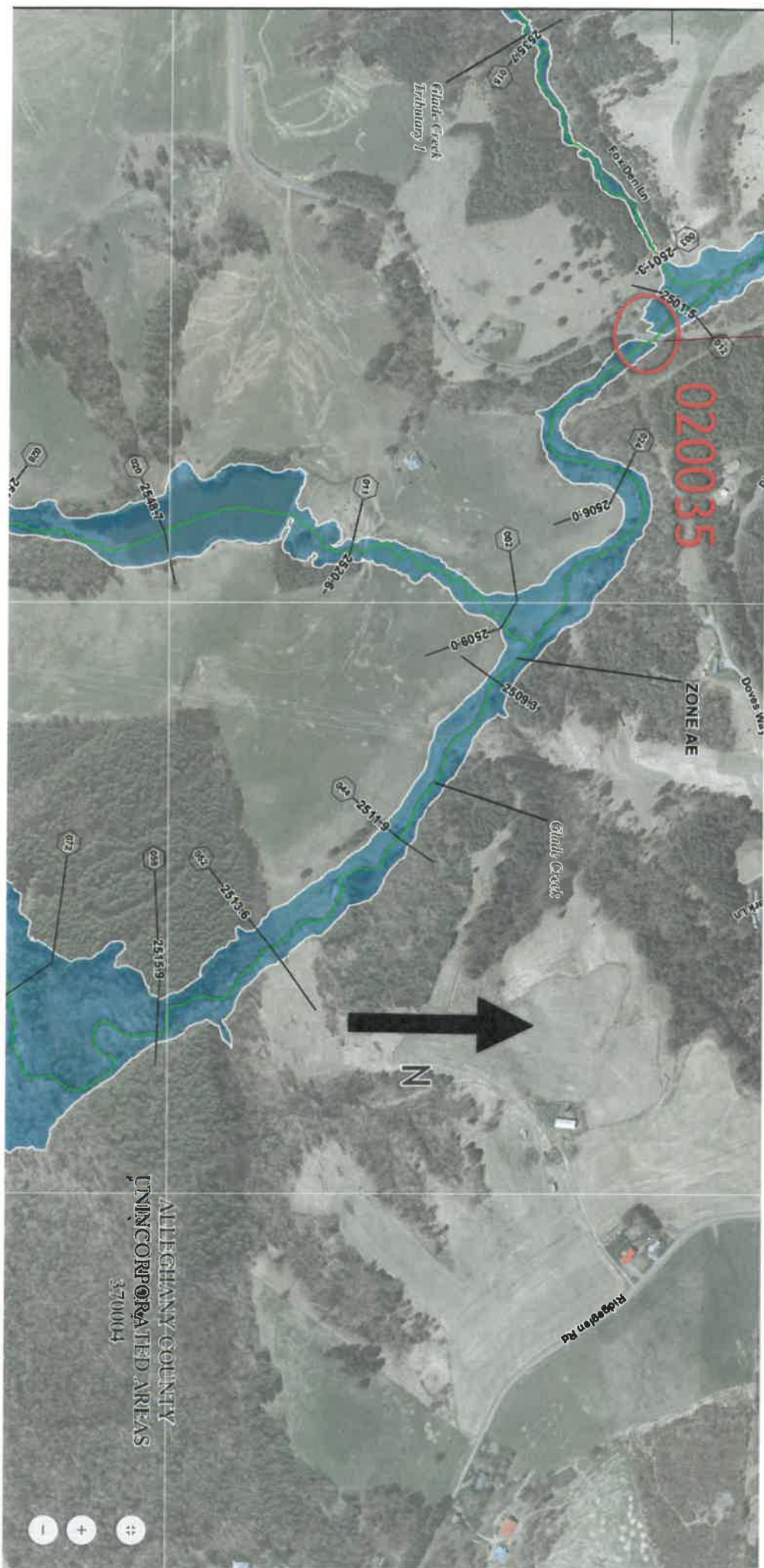
FEMA

CID PANEL SUFFIX
371004 4000 2

MAP NUMBER
37114C0000J

MAP REVISED
8/2/2000

020035



#35

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ALLSHEPHERD COUNTY
UNINCORPORATED AREAS
370004

020035

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