

Hydraulics Unit Pre-Design Report (Pre-Scoping) for Structure #: 020133

Date: 01/07/2020

County: Alleghany	Stream: Little River	Assigned to:
Road #: SR 1433	Road Name: Ridge Glen Rd	Prepared By: HPM/WSH
Division: 11	Location: 50 ft W JCT SR 1434 (Clark Hope Rd)	Hydro Reviewer: MTS/JLM
Latitude: 36.52300	Longitude: -81.03803	Project Type: 17BP.11.R.159
Decimal degrees, a min of 5 decimal points		

Existing Structure

Structure Type: Timber Deck/ I Beams	Yr Built: 1962			
Span Arrangement: 2 @ 30'-6"	OAL (ft): 61.0	Skew: 80	Abutment Type: Vertical-Concrete	
Number of Barrels: @ Span (ft): x Rise (ft):				
Bed to Crown (ft): 8.0	Clear Roadway (ft): 15.9	Water Depth (ft): 4.0	Superstructure Depth:	
ADT: 90	Year ADT: 2000	Scour Code (item113): U	Prior Survey Completed: No	Survey Date:
Drainage Area: 58.6	Sq. Mi.	Drainage Area Source: USGS Stream Stats	Roadway Overtops at Q100: Yes	
Discharge Method: USGS Regression Equations	USGS Region: 2- Mountains	Stream Gage Number(if applicable):		
Q10 (cfs): 5,800.0	Q25 (cfs): 7,600.0	Q50 (cfs): 8,900.0	Q100 (cfs): 11,000.0	QBFE (cfs): 9,584.0
Structure in Flood Hazard Zone: Yes	Panel #: 4001	Panel Date: 09/02/2009	Type of FIS: DETAILED	Date of FIS:

Environmental

Quad Map: SPARTA EAST, NC	River Basin: New	Buffer Rule:			
Primary Stream Classification		Other Stream Classification			
☐ Class B	☒ Class C	☐ SA	☐ SB	☐ Anadromous Fish	☐ Area of Environmental Concern
☐ SC	☐ SWL	☐ WL	☐ WS I	☐ CAMA County	☐ Federal Wild & Scenic Rivers
☐ WS II	☐ WS III	☐ WS IV	☐ WS V	☐ HSB Required	☐ NC Natural & Scenic Rivers
Supplemental Stream Classification				☐ Impaired [303d]	☐ Primary Nursery Area
☐ FWS	☐ HQW	☐ NSW	☐ ORW	☐ TVA	☐ Designated Shellfish Harvesting Area
☐ Sw	☐ Tr	☐ UWL	☐ w/in 0.5mi. of CA	☐ Designated Public Mountain Trout Waters	

Up/Down Stream Features

Upstream Feature: Bridge	Structure Type: Steel Deck/I Beams		
Location: 0.7 mi SW JCT NC 18 / On Chestnut Grove Church	Span Arrangement: 1 @ 50'-1", 1 @ 60', 1 @ 51' OAL (ft): 161.0		
Structure #: 020141	Route: SR 1426	Number of Barrels: @ Span (ft): x Rise (ft):	
Latitude: 36.52044	Longitude: -81.07040		
Prior Survey Completed: Yes	Survey Date: 07/01/1987	Bed to Crown (ft): 30.0	Year Built: 1988
Downstream Feature: Proposed B-5388; Sealed 2018	Structure Type: PCG Bridge		
Location: 0.1 mi W JCT SR 1438 (Cranford Knoll Rd)	Span Arrangement: 1 @ 100', 1 @ 115', 1 @ 100' OAL (ft): 315.00		
Structure #: 020021	Route: NC 18	Number of Barrels: @ Span (ft): x Rise (ft):	
Latitude: 36.54281	Longitude: -81.02109		
Prior Survey Completed:	Survey Date: 05/29/2018	Bed to Crown (ft): 39.0	Year Built: 1948

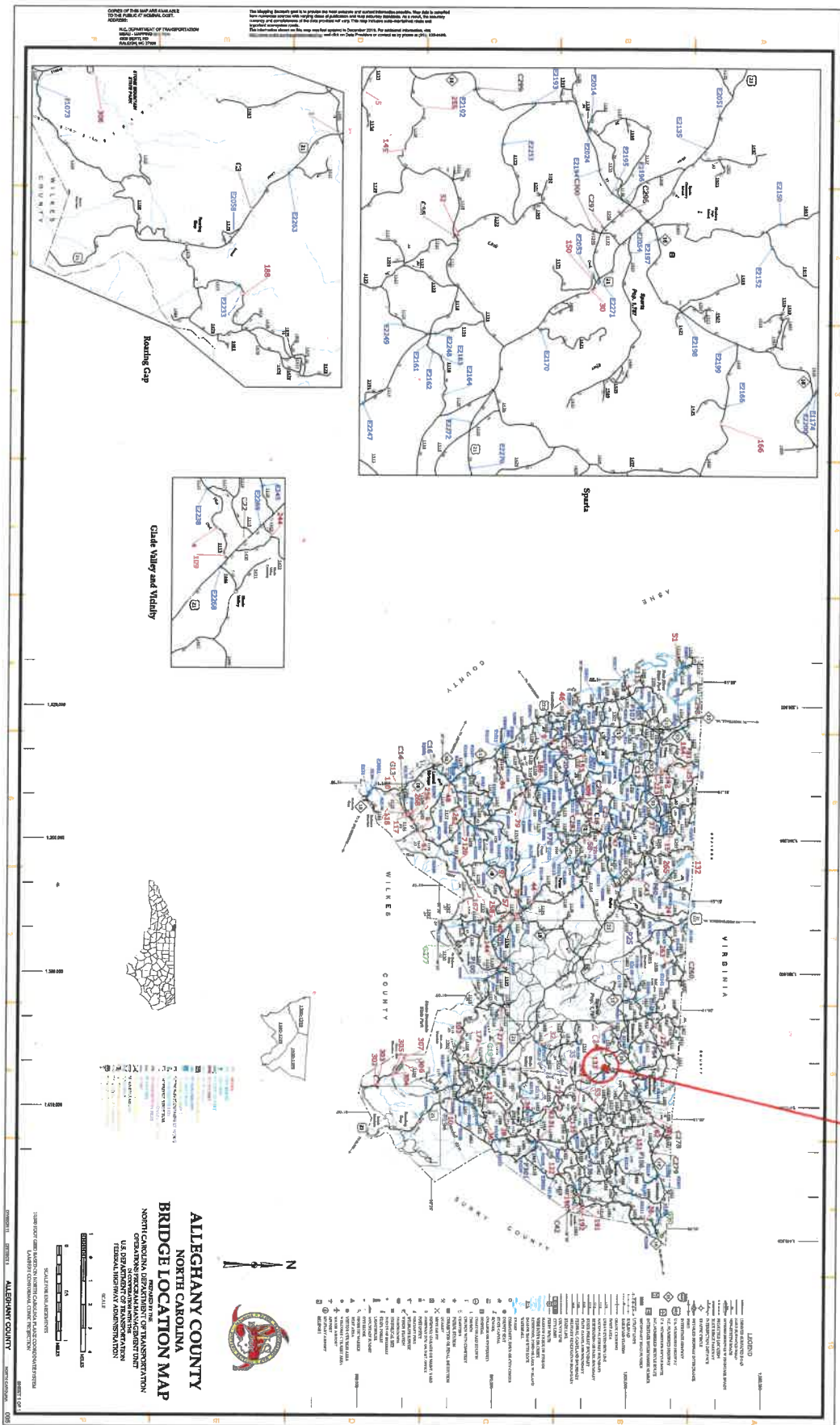
Preliminary Structure Estimate [Office Estimate]

Structure Type:	Skew:
Dimensions/Spans:	

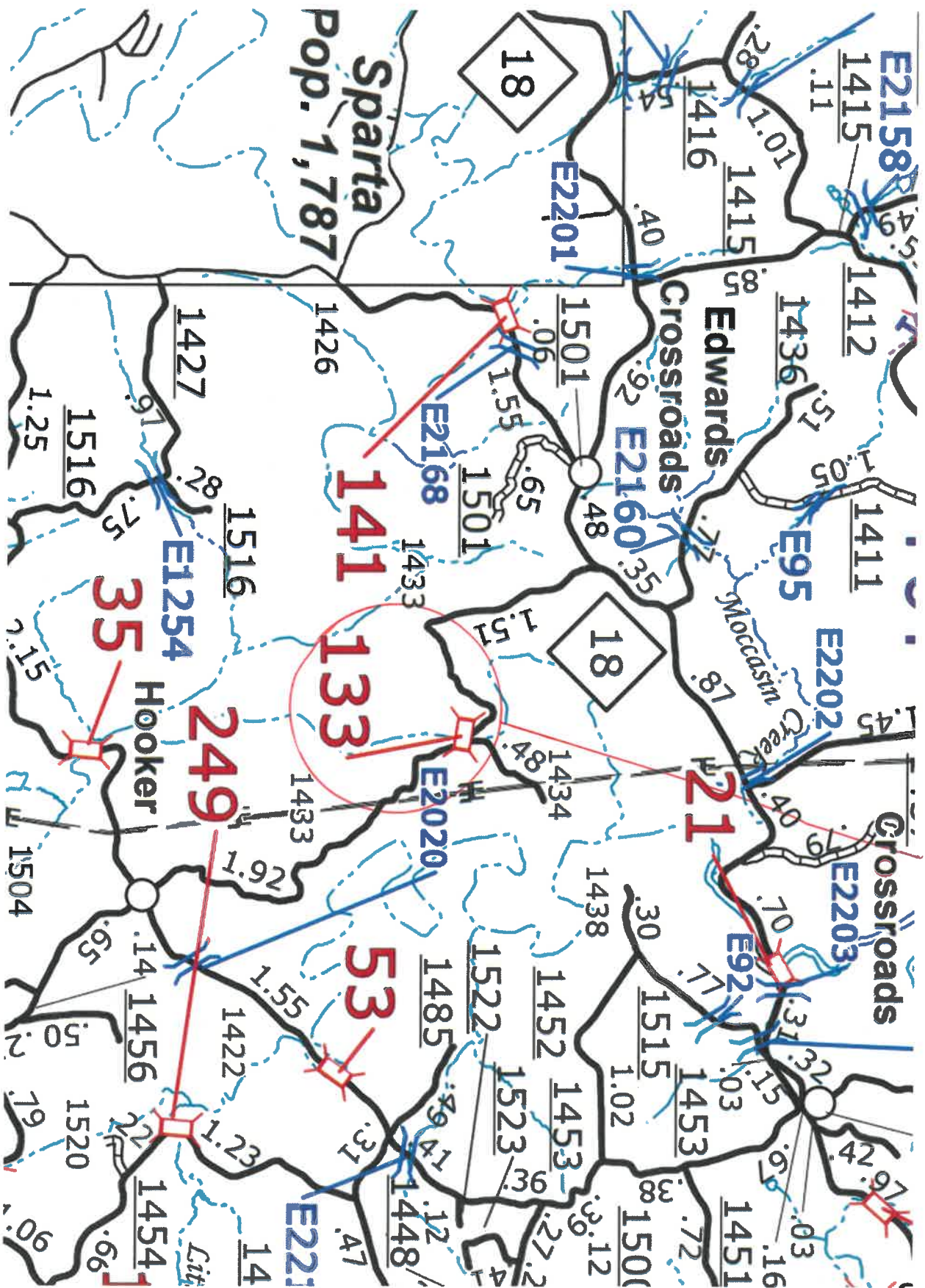
Notes

Existing Structure is considered Low H2O type along with Timber Deck on I-Beams
Stream #: 10-9-(6)

020133



#133



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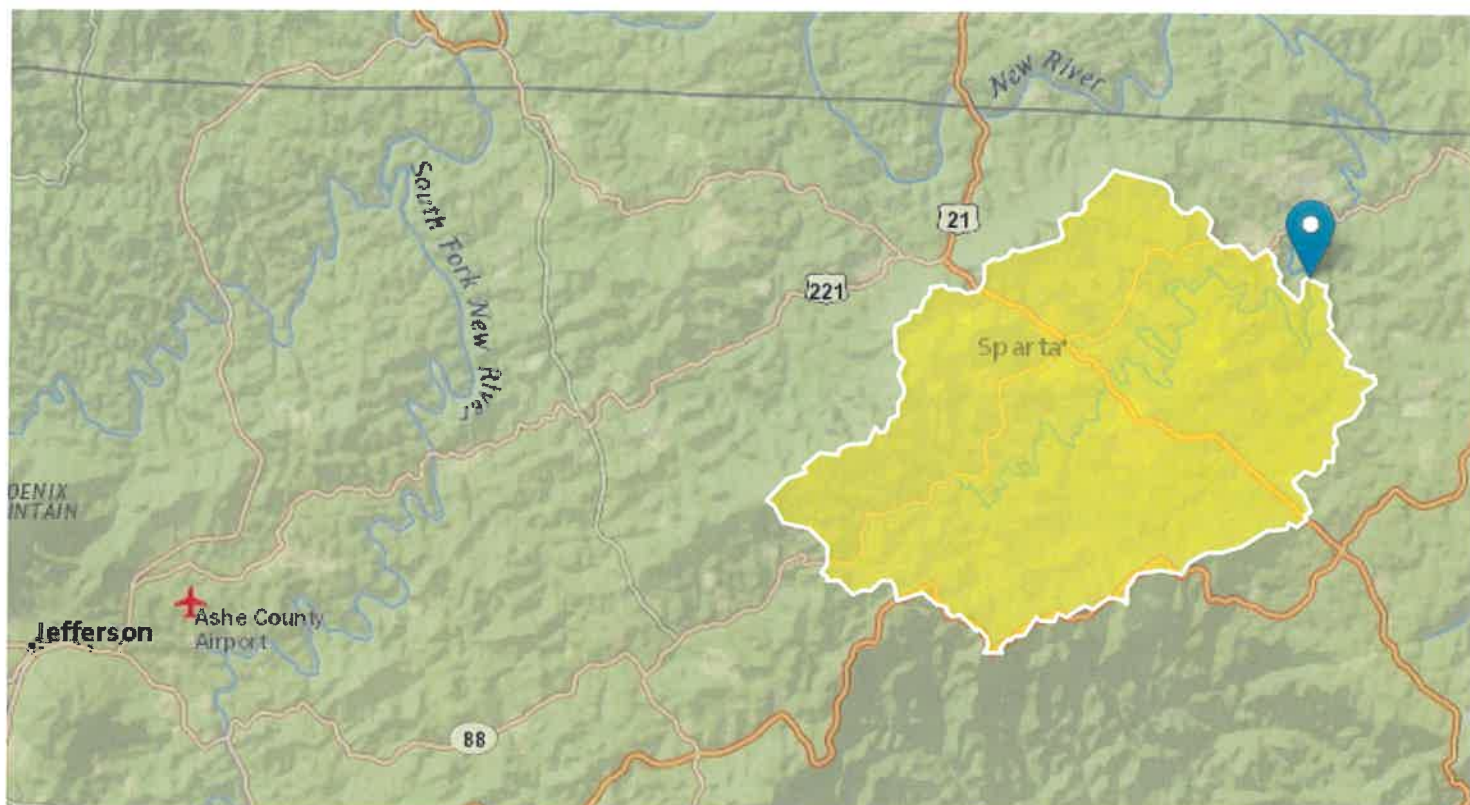
StreamStats Report

Region ID: NC

Workspace ID: NC20200107182827943000

Clicked Point (Latitude, Longitude): 36.52300, -81.03803

Time: 2020-01-07 13:28:43 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	58.6	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
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	1.08	percent

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

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	58.6	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]

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

Statistic	Value	Unit	PII	Plu	SEp
2 Year Peak Flood	2610	ft ³ /s	1500	4540	34.5
5 Year Peak Flood	4410	ft ³ /s	2550	7610	34
10 Year Peak Flood	5770	ft ³ /s	3290	10100	35.1
25 Year Peak Flood	7590	ft ³ /s	4170	13800	37.5
50 Year Peak Flood	8900	ft ³ /s	4740	16700	39.6
100 Year Peak Flood	10500	ft ³ /s	5390	20400	41.9
200 Year Peak Flood	11800	ft ³ /s	5880	23800	44.3
500 Year Peak Flood	14000	ft ³ /s	6600	29500	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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020133



NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STRUCTURE MANAGEMENT UNIT

ATTENTION: PRIORITY MAINTENANCE ISSUED FOR CORROSION TO BEAMS.

Structure Safety Report

2 Year Complete Topside and Underwater Element Inspection

INSPECTION DATE: 03/27/2018

DIVISION: 11 COUNTY: ALLEGHANY STRUCTURE NUMBER: 020133 FREQUENCY: 24 MONTHS

FACILITY CARRIED: SR1433 MILE POST: _____

LOCATION: 15 FT.N.JCT.SR1434

FEATURE INTERSECTED: LITTLE RIVER

LATITUDE: 36° 31' 22.75" LONGITUDE: 81° 2' 16.9"

SUPERSTRUCTURE: TIMBER FLOOR ON I-BEAMS (LOW WATER TYPE)

SUBSTRUCTURE: ABUTS & PIER: STEEL CAPS/REINFORCED CONCRETE

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

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

GRADES: DECK 6 SUPERSTRUCTURE 4 SUBSTRUCTURE 6 CULVERT N

POSTED SV: 12 POSTED TTST: 16

OTHER SIGNS PRESENT: 3 DELINEATORS



Sign noticed issued for		Number Required
NO	WEIGHT LIMIT	0
YES	DELINEATORS	1
NO	NARROW BRIDGE	0
NO	ONE LANE BRIDGE	0
NO	LOW CLEARANCE	0

DIRECTION OF INSPECTION S-N

DIRECTION MATCHES PLANS

LOOKING NORTH AT APPROACH

INSPECTED BY JOHN HOUSTON	SIGNATURE 	ASSISTED BY KSH; MEC
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020133

Structure: 020133

County: ALLEGHANY

Date: 03/27/2018

Structure Photos



EAST PROFILE



WEST PROFILE

020133

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 11/20/2018

COUNTY : ALLEGHANY	DIVISION : 11	DISTRICT : 1	STRUCTURE NUMBER : 020133	LENGTH : 61	FEET
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ROUTE CARRIED : SR1433	FEATURE INTERSECTED : LITTLE RIVER
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LOCATED : 15 FT.N.JCT.SR1434	BRIDGE NAME :	CITY :
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FUNC. CLASS : 09	SYST.ON : NFA	SYST.UNDER : NFA	ADT & YR : 90 2000	RAIL TYPE : LT 0 RT 0
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BUILT : 1962	BY : BMU	PROJ :	FED.AID PROJ :	DESIGN LOAD : Unknown
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REHAB :	BY : BMU	PROJ :	ALIGNMENT : TAN	SKEW : 80	LANES : ON 1 UNDER 0
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NAVIGATION : VC 0 FT	HC 0 FT	HT. CRN. TO BED : 8 FT	WATER DEPTH : 4 FT
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SUPERSTRUCTURE : TIMBER FLOOR ON I-BEAMS (LOW WATER TYPE)
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SUBSTRUCTURE : ABUTS & PIER: STEEL CAPS/REINFORCED CONCRETE
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SPANS : 2 @ 30'-6

BEAMS OR GIRDERS : 8 LINES 12 I-BEAMS @ 2'-4 CENTERS

FLOOR : 4X8 TIM/1.5 AWS	ENCROACHMENT :	DECK (OUT TO OUT) : 18 FT
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CLEAR ROADWAY : 15.917 FT	BETWEEN RAILS : 0 FT	SIDEWALK OR CURB : LT 1 FT RT 1 FT
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VERT.CL.OVER : 999.9 FT

INV.RTG. : HS-7	OPE.RTG. : HS-12	CONTR.MEMBER : Ext.Beams	POSTED : SV 12	TTST 16	DATE 08/22/2006
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SYSTEM : Secondary S.R. Route	GREEN LINE ROUTE : N
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UNDER ROUTES AND CLEARANCES

REMARKS :

020133

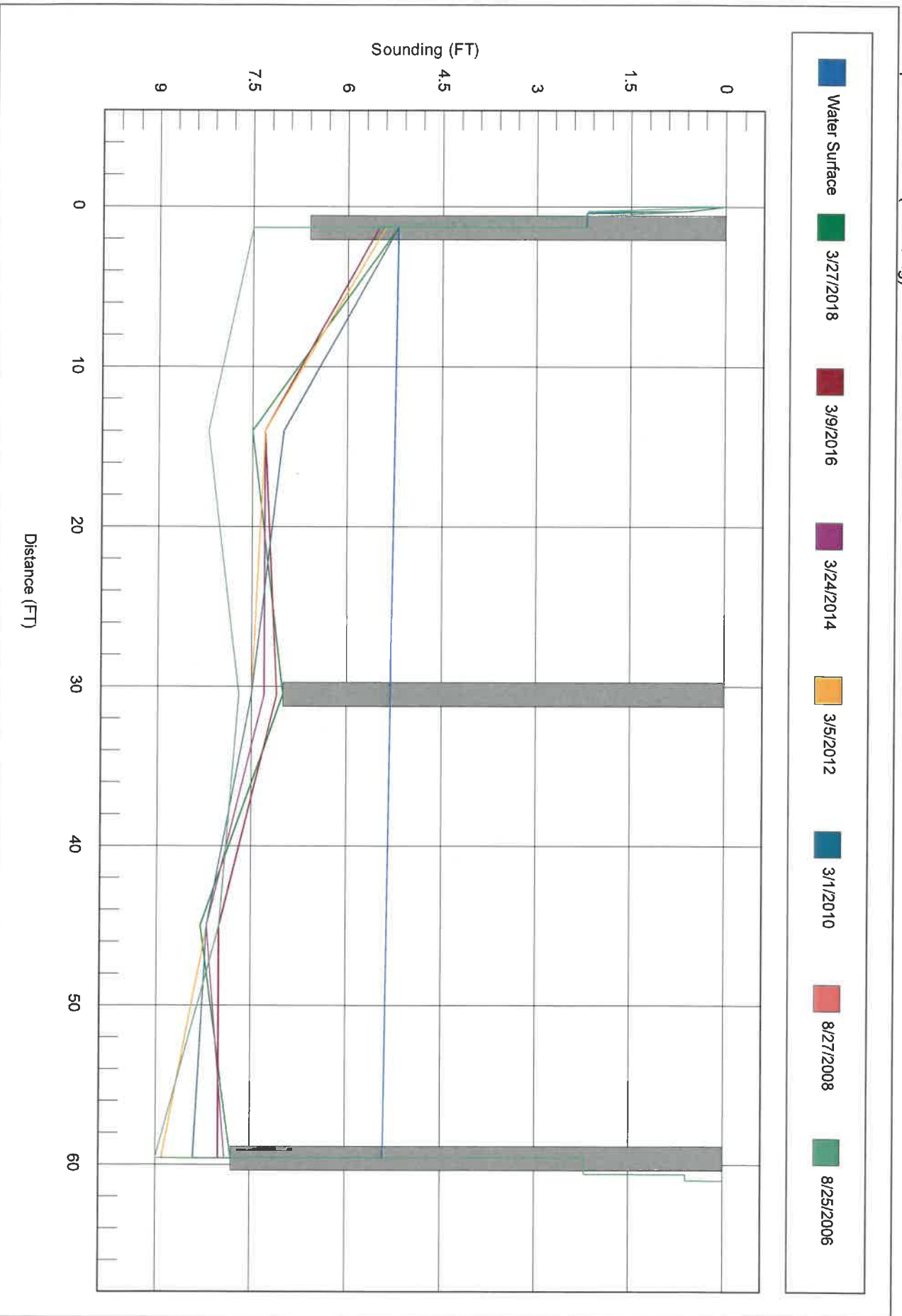
Bridge: 020133

County: ALLEGHANY

Date: 03/27/2018

Top of Rail = 0FT (Sounding)

STREAMBED PROFILE (Downstream)



020133

U/S feature

Structure: 020141

County: ALLEGHANY

Date: 08/15/2018

Structure Photos

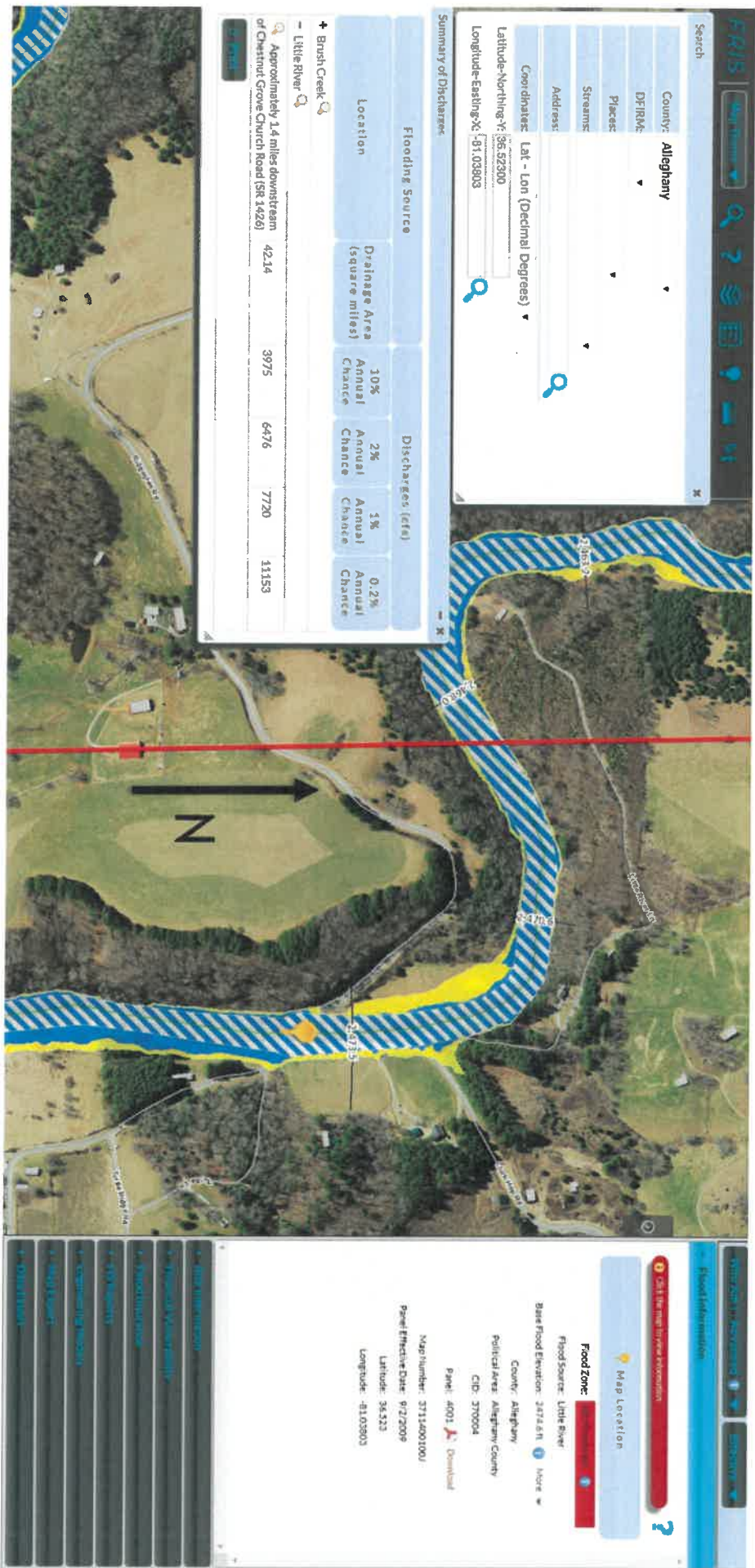


DOWNSTREAM PROFILE, LOOKING WEST

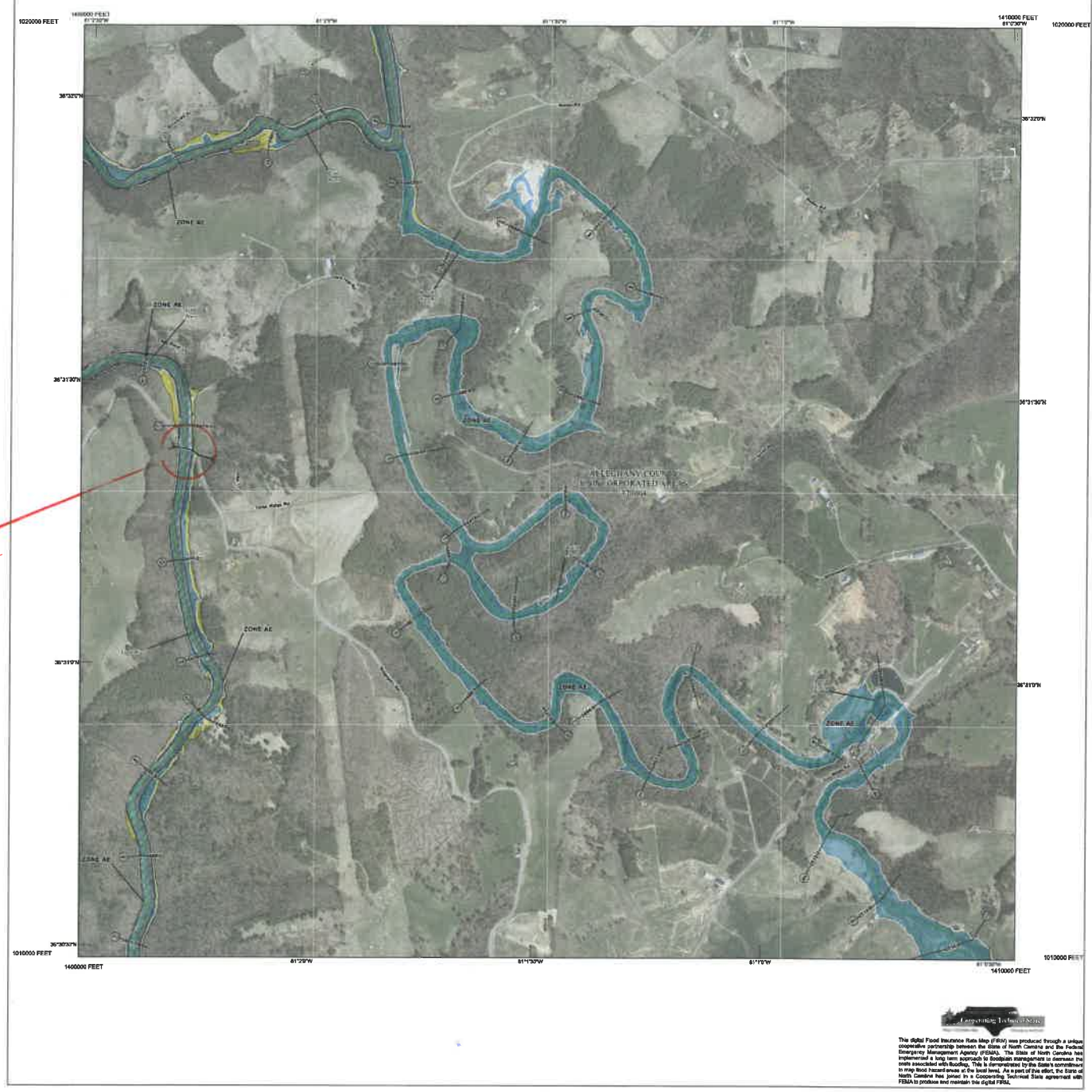


END BENT 2 SLOPE PROTECTION, LOOKING NORTH

020133



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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)

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) Zone AE, AD, AH, V, AR
- With BFE or Depth Zone AE, AD, AH, V, AR
- Regulatory Floodway
- 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 V
- Areas Determined to be Outside the 0.2% Annual Chance Floodplain Zone X
- 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
- Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)
- Coastal Tract
- Coastal Tract Baseline
- Profile Baseline
- Hydrographic Feature
- Limit of Study
- Indefinition Boundary

OTHER AREAS OF FLOOD HAZARD

OTHER FEATURES

NOTES TO USERS

For information and questions about this map, available products associated with this FIS including FIS reports, FIS maps, FIS data, or FIS services, please contact the FIS Help Desk at 1-877-FEMA-HELP (1-877-362-4357) or visit the FIS Help Desk website at <http://fris.nc.gov/fris>. For more information on flood insurance, please contact the FIS Help Desk at 1-877-FEMA-HELP (1-877-362-4357) or visit the FIS Help Desk website at <http://fris.nc.gov/fris>.

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SCALE

1 inch = 500 feet

0 250 500 1,000 Feet

0 75 150 300 Meters

PANEL LOCATOR

Map of Alleghany County showing the location of the map panel within the county. The map shows the county boundaries and the location of the map panel within the county. The map panel is located in the center of the county, covering the area from 100000 to 140000 Easting and 3600000 to 3602000 Northing.

NORTH CAROLINA FLOODPLAIN MAPPING PROGRAM

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

NORTH CAROLINA

Panel 4001

COMMUNITY: ALLEGANY COUNTY

CID: 37004

PANEL: 4001

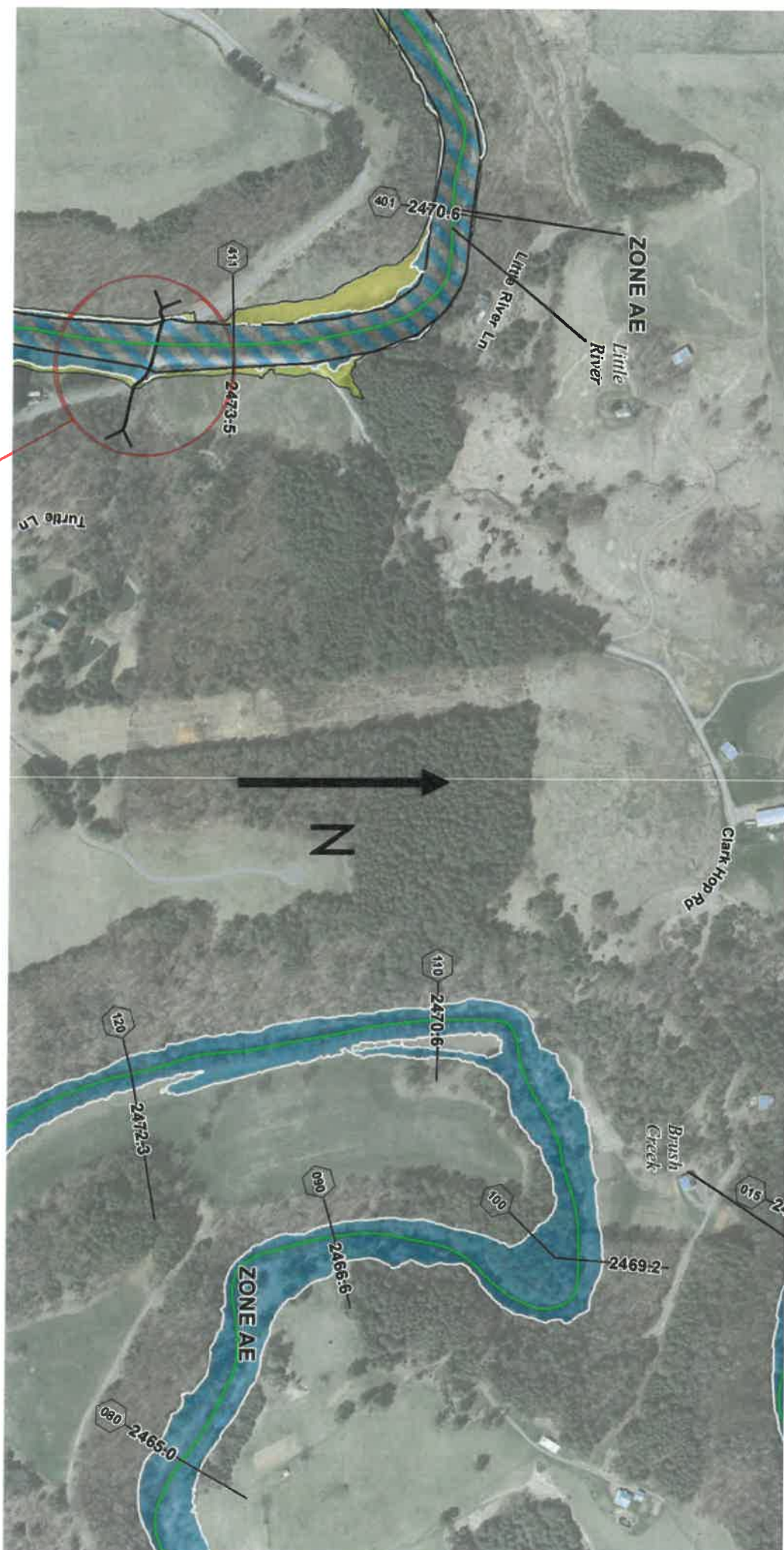
SUFFIX: 4

MAP NUMBER: 37114001001

MAP REVISED: 07/2006

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