

Hydraulics Unit Pre-Design Report (Pre-Scoping) for Structure #: 580312

Date: 08/06/2018

County: McDowell	Stream: Second Broad River	Assigned to:
Road #: SR 1781	Road Name: Polly Spout Rd	Prepared By: WSH/HPM
Division: 13	Location: 0.3 mi N of JCT US 221	Hydro Reviewer: PAJ/MTS
Latitude: 35.53101	Longitude: -81.96806	Project Type: 17BP.13.R.196

Existing Structure

Structure Type: Timber Deck/ I Beams	Yr Built: 1960
Span Arrangement: <input &="" 1="" 32'-3""="" @="" type="text" value="1 @ 33'-3"/>	OAL (ft): 66.0
Skew: 135	Abutment Type: Vertical -Timber
Number of Barrels: 1 @ Span (ft): 33.5 x Rise (ft): 10	
Bed to Crown (ft): 15.0	Clear Roadway (ft): 22.0
Water Depth (ft): 4.0	Superstructure Depth: 1.0
ADT: 170	Year ADT: 2013
Scour Code (item113): U	Prior Survey Completed: No
Survey Date:	
Drainage Area: 19.1 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): 2,530.0	Q25 (cfs): 3,400.0
Q50 (cfs): 4,000.0	Q100 (cfs): 4,700.0
QBFE (cfs):	
Structure in Flood Hazard Zone: Yes	Panel #: 1606
Panel Date: 10/02/2008	Type of FIS: LIMITED
Date of FIS:	

Enviromental

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

Up/Down Stream Features

Upstream Feature: Railroad	Structure Type: Concrete Tunnel
Location: 0.1 mi E of JCT SR 1781	Span Arrangement: <input &="" 1="" 32'-3""="" @="" type="text" value="1 @ 33'-3"/>
Structure #: 580232	OAL (ft): 66.0
Route: SR 1802	Number of Barrels: 1 @ Span (ft): 33.5 x Rise (ft): 10
Latitude: 35.54606	Bed to Crown (ft): 0.0
Longitude: -81.95574	Year Built: 1907
Prior Survey Completed: No	
Survey Date:	
Downstream Feature: Bridge	Structure Type: Cored Slab
Location: 0.1 mi S of JCT US 221 (Rutherford County)	Span Arrangement: <input &="" ,="" 1@41'-8""="" 2@40',="" type="text" value="1@40'-8"/>
Structure #: 800231	OAL (ft): 163.00
Route: SR 1500	Number of Barrels: 1 @ Span (ft): 40.0 x Rise (ft): 10
Latitude: 35.51764	Bed to Crown (ft): 18.0
Longitude: -81.97211	Year Built: 1970
Prior Survey Completed: No	
Survey Date:	

Preliminary Structure Estimate [Office Estimate]

Structure Type:	Skew:
Dimensions/Spans:	

Notes

Stream #: 9-41-(0.5)
Rehab Year: 1980

PREDESIGN-SCOPING REPORT

Project# 17BP. 13.R. 196

TIP#

Let Date

WBS#

FL

County MCDOWELL (DIV 13)

Bridge# 580312

Road# SR 1781 / POLLY SPOUT RD.

Stream 2nd BROAD RIVER

Type Of Request: POC Force Account TIP NCMA

Date 8/3/18 Name WSH

Assigned To PAT / MTS

Checked By

Prior Survey Date NONE (attach copy of prior survey) BRN. BK. NONE CO. FILE NONE

Study By Scour Section NONE x2 CODE: U PDR: NONE BSR: NONE

Flood Zone AE Detail Study LIMITED Date 10-2-08 Panel# 1606

B.M. Info N/A ESM DA = 21.2 SQ.MI.

Quad Map GLENWOOD Drainage Area 19.1 Sq. Mi. From STREAM STARTS

Q25 3400 cfs Q50 4000 cfs Q100 4700 cfs Method Reg. Equiv.

LONG: -81.968077

LAT: 35.531017

REGION # 2

EXISTING BRIDGE INFORMATION

Location 0.3 M.N. Jct. US 221

YEAR BUILT 1960 / 1980 RECON.

Average Daily Traffic 170 (2213) 6% TRK.

CLEAR ROADWAY

WIDTH 22'

Length 66' Bed-To Crown

Water Depth

Type Structure TIM. FLR ON SALVAGED I BEAMS

Type Spans 1c 33' 3" , 1c 32' 3"

Upstream Structure (RR)

(NEAR: 580328) (RR)

YR. BUILT: UNKNOWN

Location 20' SOUTH OF VEIN MT. RD.

LONG: -81.955755

Bed-To Crown UNKNOWN

Prior Survey N/A

LAT: 35.546088

Downstream Structure 800-580231

YR. BUILT: 1970

Location BOX CREEK RD. (SR 1500) 0.1 MS Jct. US 221

LONG: -81.989936

Bed-To Crown 18' (1' deep) Prior Survey N/A

LAT: 35.517604

CORED SLAB (1c 41.7' , 2c 40' 1" , 1c 41' 7") L = 163'

ENVIRONMENTAL

TVA: NO

Trout Stream NO

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 WS-IV

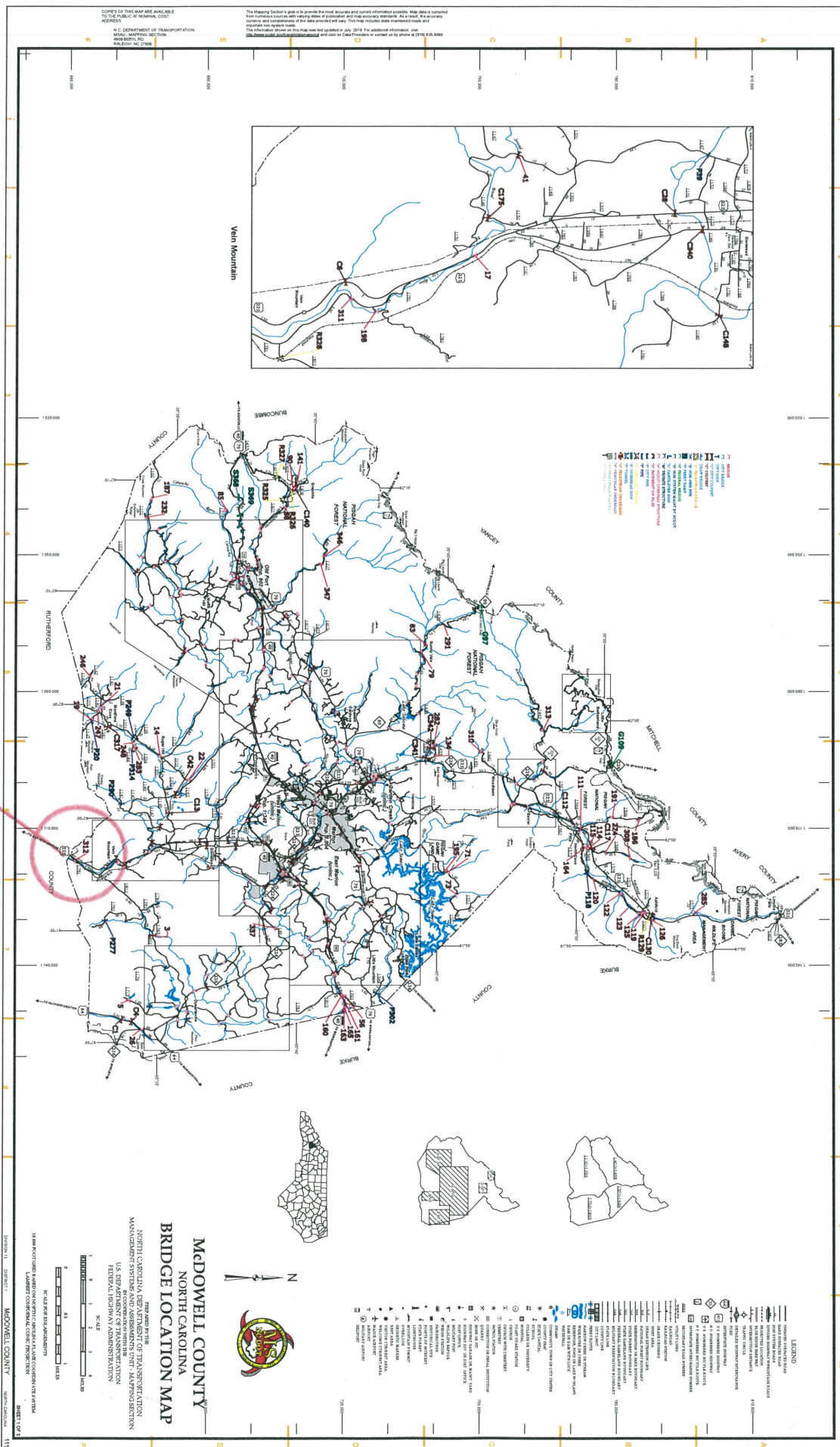
STREAM #: 9-41-(0.5)

DENR River Basin Info. BROAD

1,61, 58, 85.

D/S = 45

580312



580312

1,080,000

82°05'

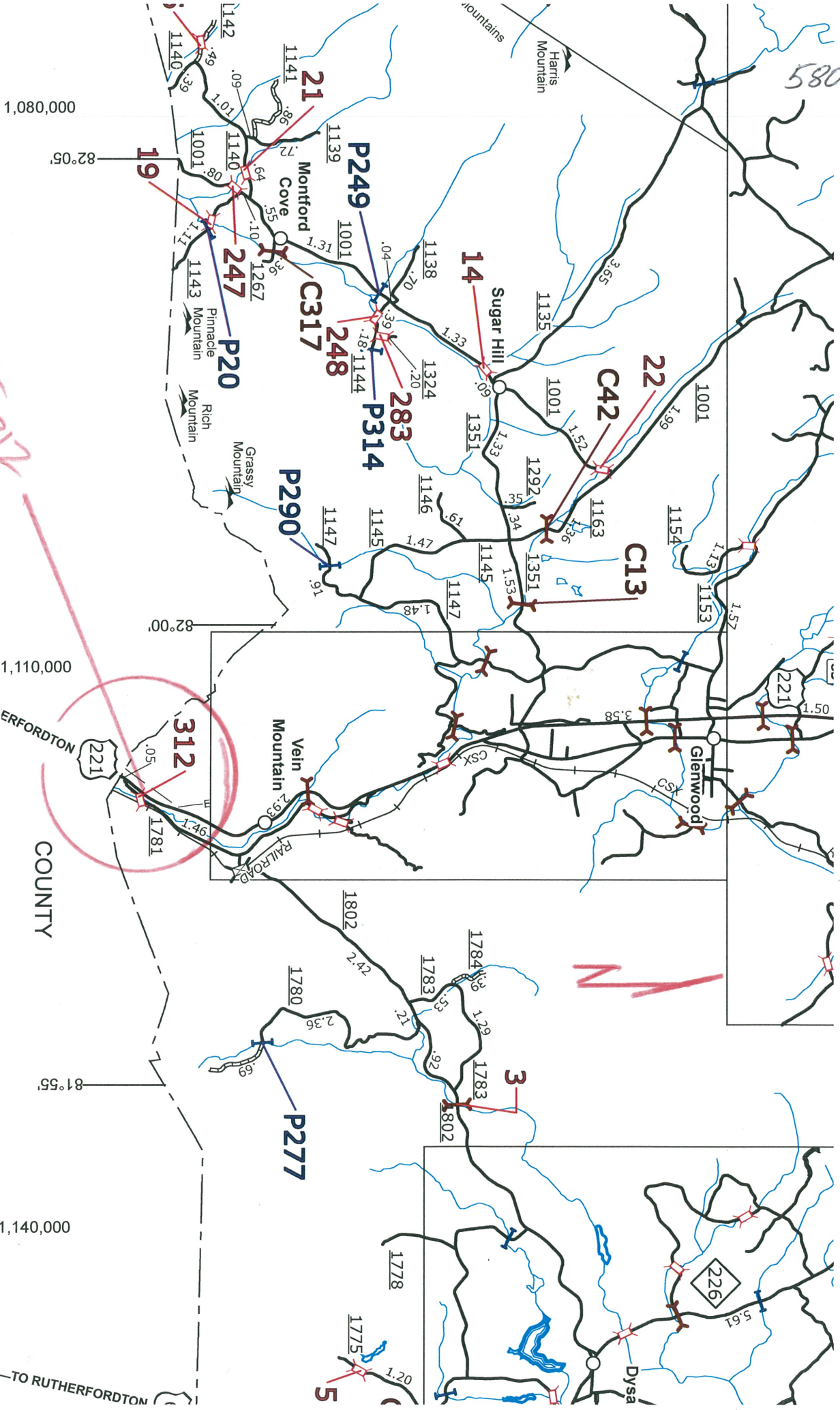
1,110,000

82°00'

81°55'

1,140,000

TO RUTHERFORDTON



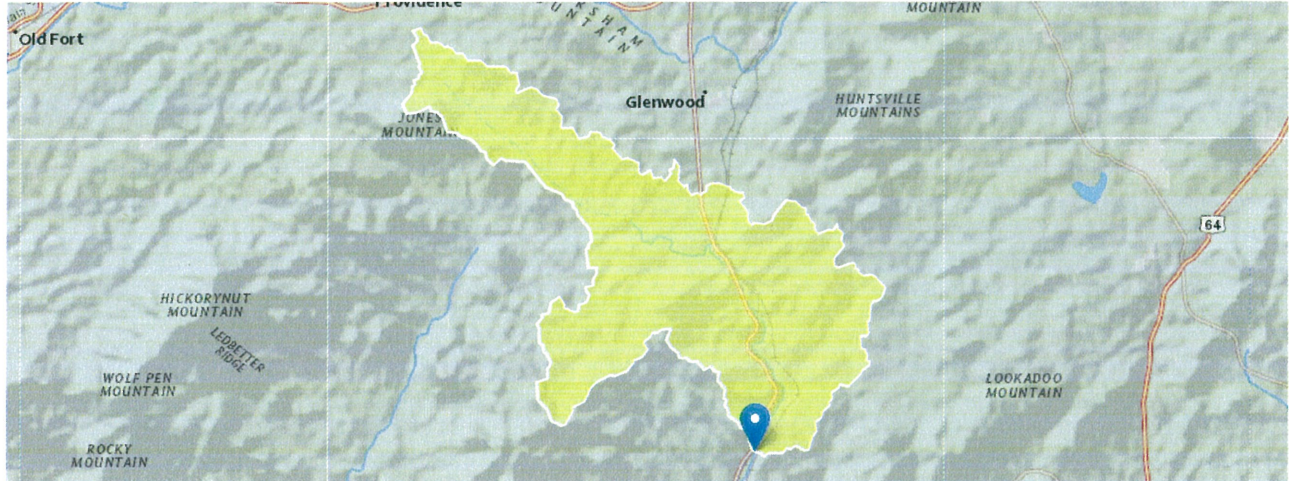
X 1312

N

StreamStats Report

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

NC
NC20180805134916370000
35.53106, -81.96809
2018-08-05 09:49:37 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	19.1	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
DRNAREA	Drainage Area	19.1	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, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	PIu	SEp
2 Year Peak Flood	1090	ft ³ /s	627	1900	34.5
5 Year Peak Flood	1900	ft ³ /s	1100	3290	34
10 Year Peak Flood	2530	ft ³ /s	1440	4450	35.1
25 Year Peak Flood	3370	ft ³ /s	1850	6150	37.5
50 Year Peak Flood	3980	ft ³ /s	2110	7500	39.6
100 Year Peak Flood	4710	ft ³ /s	2420	9190	41.9

Statistic	Value	Unit	PII	Plu	SEp
200 Year Peak Flood	5350	ft^3/s	2650	10800	44.3
500 Year Peak Flood	6340	ft^3/s	2980	13500	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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Application Version: 4.2.1

5803



NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STRUCTURE MANAGEMENT UNIT

ATTENTION: **PRIORITY MAINTENANCE ISSUED**
SIGN NOTICE ISSUED
SKETCHES UPDATED

Structure Safety Report

Routine Element Inspection - Contract

INSPECTION DATE: 06/04/2018

DIVISION: 13 COUNTY: MCDOWELL STRUCTURE NUMBER: 580312 FREQUENCY: 24 MONTHS

FACILITY CARRIED: SR1781 MILE POST: _____

LOCATION: .3 MI.N.JCT.US221

FEATURE INTERSECTED: SECOND BROAD RIVER

LATITUDE: 35° 31' 51.38" LONGITUDE: 81° 58' 5.25"

SUPERSTRUCTURE: TIMBER FLOOR ON SALVAGED I-BEAMS

SUBSTRUCTURE: E.BT.1:TIM.CAP/PILES;BT:TIM.CAP/TIM.P&S;ABUT2:RC W/TIMBER RISER

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 4 CULVERT N

POSTED SV: 18 POSTED TTST: 21

OTHER SIGNS PRESENT: (4) DELINEATORS; (1) NARROW BRIDGE SIGN



south approach looking north

Sign noticed issued for		Number Required
<u>NO</u>	WEIGHT LIMIT	<u>0</u>
<u>NO</u>	DELINEATORS	<u>0</u>
<u>YES</u>	NARROW BRIDGE	<u>1</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 _____

INSPECTED BY
RICARDO CORNEJO

SIGNATURE

Ricardo Cornejo

ASSISTED BY HECTOR BONILLA

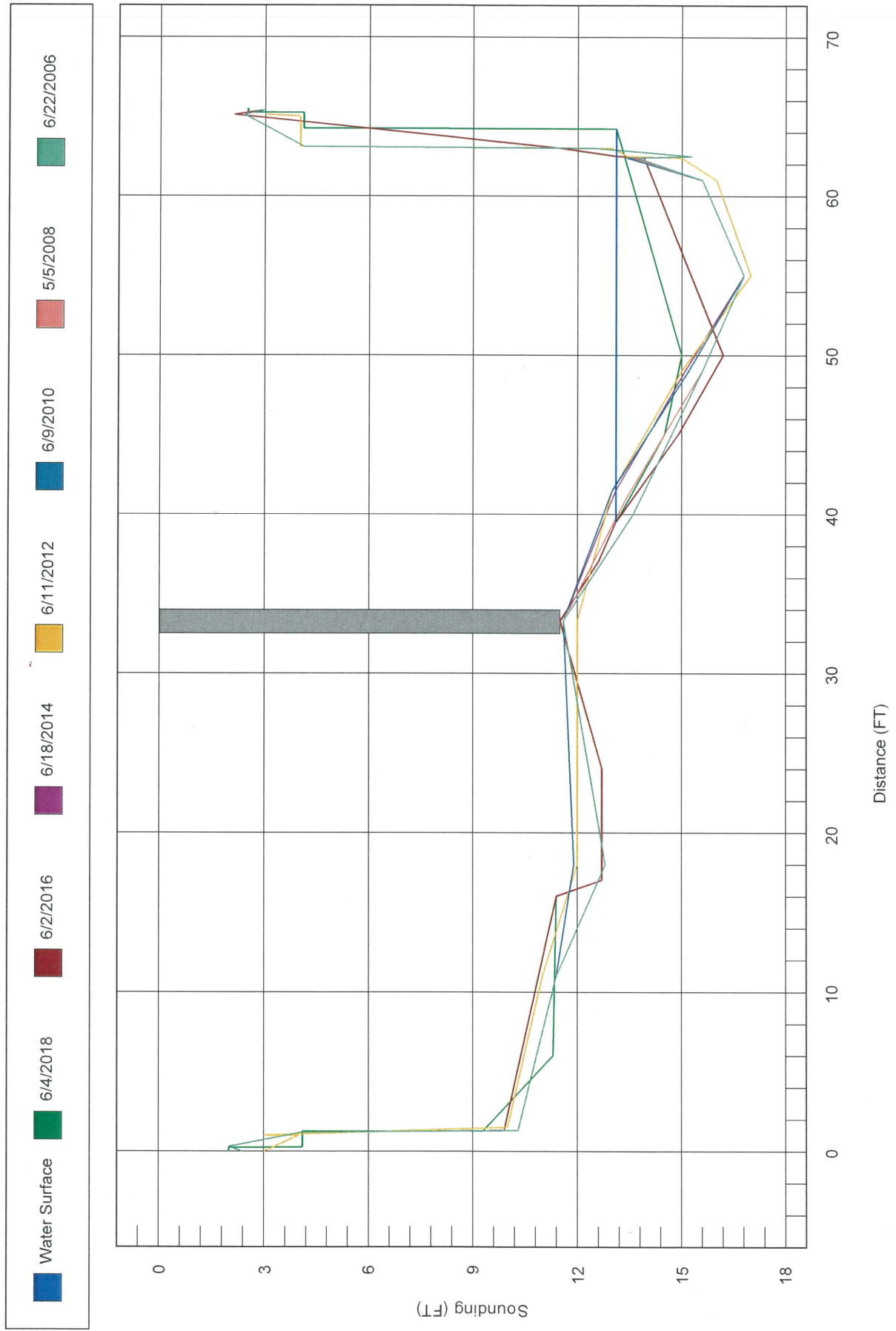
Bridge: 580312

County: MCDOWELL

Date: 06/04/2018

STREAMBED PROFILE (Downstream)

Top of Rail = 0FT (Sounding)



580 312



NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STRUCTURE MANAGEMENT UNIT

ATTENTION: PRIORITY MAINTENANCE ISSUED, NEWLY
STRUCTURE DEFICIENT, REGULATORY SIGN
NOTICE ISSUED

6/2

Structure Safety Report

Routine Element Inspection - Contract

COUNTY: MCDOWELL STRUCTURE NUMBER: 580312 FREQUENCY: 24 MONTHS

FACILITY CARRIED: SR1781 MILE POST: _____

LOCATION: .3 MI.N.JCT.US221

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SUBSTRUCTURE: E.BT.1:TIM.CAP/PILES;BT:TIM.CAP/TIM.P&S;ABUT2:RC W/TIMBER RISER

SPANS: 1 @ 33'-3", 1 @ 32'-3"
1 @ 33'-3, 1 @ 32'-3

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

PRESENT CONDITION: Poor INSPECTION DATE: 06/02/2016

POSTED SV: 18 POSTED TTST: 21

OTHER SIGNS PRESENT: 4 DELINEATORS, 1 NARROW BRIDGE



LOOKING NORTH

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

INSPECTED BY
DAVID M RAGAN

SIGNATURE

David M Ragan

ASSISTED BY DANIEL ROBINSON

580 312
6/2/16

BRIDGE MANAGEMENT UNIT
DATA ON EXISTING STRUCTURE

Run Date: 09/12/2016

COUNTY : MCDOWELL DIVISION : 13 DISTRICT : 1 STRUCTURE NUMBER : 580312 LENGTH : 66 FEET

ROUTE CARRIED : SR1781 FEATURE INTERSECTED : SECOND BROAD RIVER

LOCATED : .3 MI.N.JCT.US221 BRIDGE NAME : CITY :

FUNC. CLASS : 08 SYST.ON : NFA SYST.UNDER : NFA ADT & YR : 170 2013 RAIL TYPE : LT 253 RT 253

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

REHAB : 1980 BY : BMU PROJ : 5.8751 ALIGNMENT : TAN SKEW : 135 LANES : ON 2 UNDER 0

NAVIGATION : VC 0 FT HC 0 FT HT. CRN. TO BED : 15 FT WATER DEPTH : 4 FT

SUPERSTRUCTURE : TIMBER FLOOR ON SALVAGED I-BEAMS

SUBSTRUCTURE : E.BT.1:TIM.CAP/PILES;BT:TIM.CAP/TIM.P&S;ABUT2:RC W/TIMBER RISER

SPANS : 1 @ 33'-3, 1 @ 32'-3

BEAMS OR GIRDERS : 11 LINES 15 I-BEAMS @ 2'-1 CENTERS

FLOOR : 3X4 TIM/2 AWS ENCROACHMENT : DECK (OUT TO OUT) : 22.667 FT

CLEAR ROADWAY : 22 FT BETWEEN RAILS : 22 FT SIDEWALK OR CURB : LT 0 FT RT 0 FT

VERT.CL.OVER : 999.9 FT

INV.RTG. : HS-1 OPE.RTG. : HS-1 CONTR.MEMBER : SpB10 (2Holes) POSTED : SV 18 TTST 21 DATE 09/10/2012

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

UNDER ROUTES AND CLEARANCES

REMARKS :

580 312

6/2/16

Structure: 580312

County: MCDOWELL

Date: 06/02/2016

Structure Photos



END OF BENT 1 CAP, EAST FACE



BENT 1 BEARING ASSEMBLY, BEAM 2, TYPICAL

580312
6/2/16

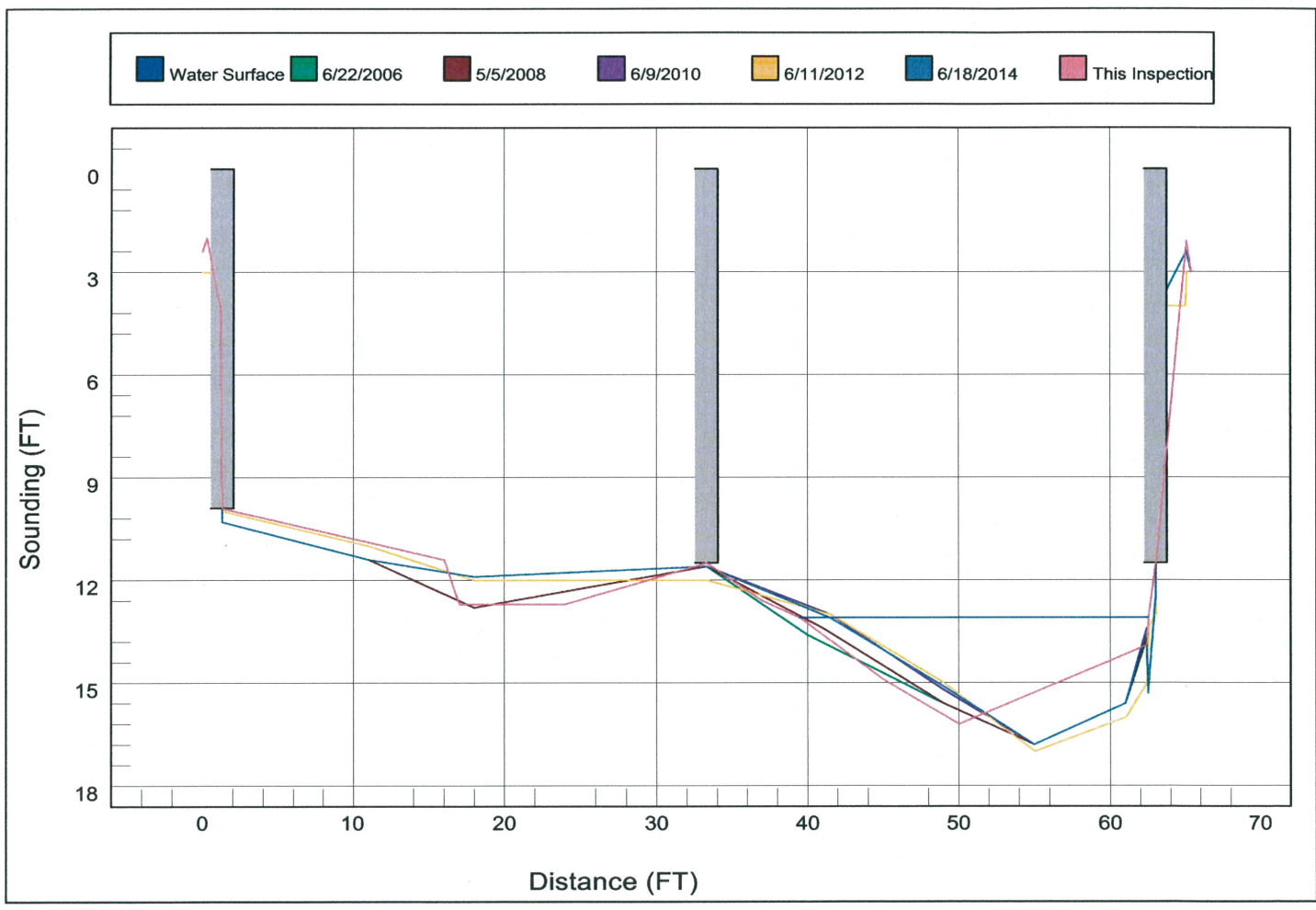
Bridge: 580312

County MCDOWELL

Date:

STREAMBED PROFILE (Downstream)

Top of Rail = 0 FT (Sounding)



D/S STR.

580 312

Structure: 800231

County: RUTHERFORD

Date: 03/17/2017

Structure Photos



Looking Downstream



Bent 2 North face

580312



580312

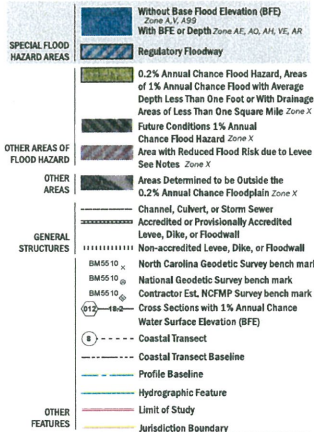


#312

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 accomplished by the State's commitment to make flood insurance available at the lowest 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 the 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 (1-877-362-7272) or visit the FEMA Map Service Center website at www.fema.gov. An accompanying Flood Insurance Study report, Letter of Map Revision (LOR) or Letter of Map Amendment (LOMA) reviewing portions of this panel, and digital versions of this FIRM may be available. Visit the North Carolina Floodplain Mapping Program website at <http://www.ncfloodplain.org> or contact the FEMA Map Service Center.

Comments received on adjacent FIRM panels 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 or 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 1-800-655-4622.

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 Handbook (TSDB).

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/floodinsurance>.

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>.

LIMIT OF MODERATE WAVE ACTION NOTES TO USERS: For some coastal flood zones the AE Zone category has been designated by a Limit of Moderate Wave Action (LIMWA). The LIMWA represents the approximate boundary of the 1-foot storm surge wave. The distance from the shoreline to 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.

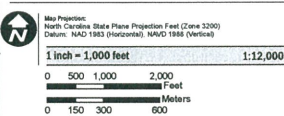
COASTAL BARRIER RESOURCES SYSTEM (CBRS) NOTE

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 visit <http://www.fema.gov/cbrs> or contact the FEMA Map Service Center at 1-800-344-7462.

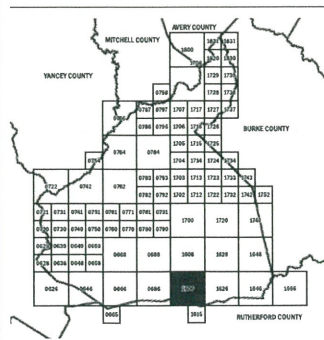
Limit of Moderate Wave Action (LIMWA)

CBRS Area **Otherwise Protected Area**

SCALE



PANEL LOCATOR



National Flood Insurance Program

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

PANEL 1606

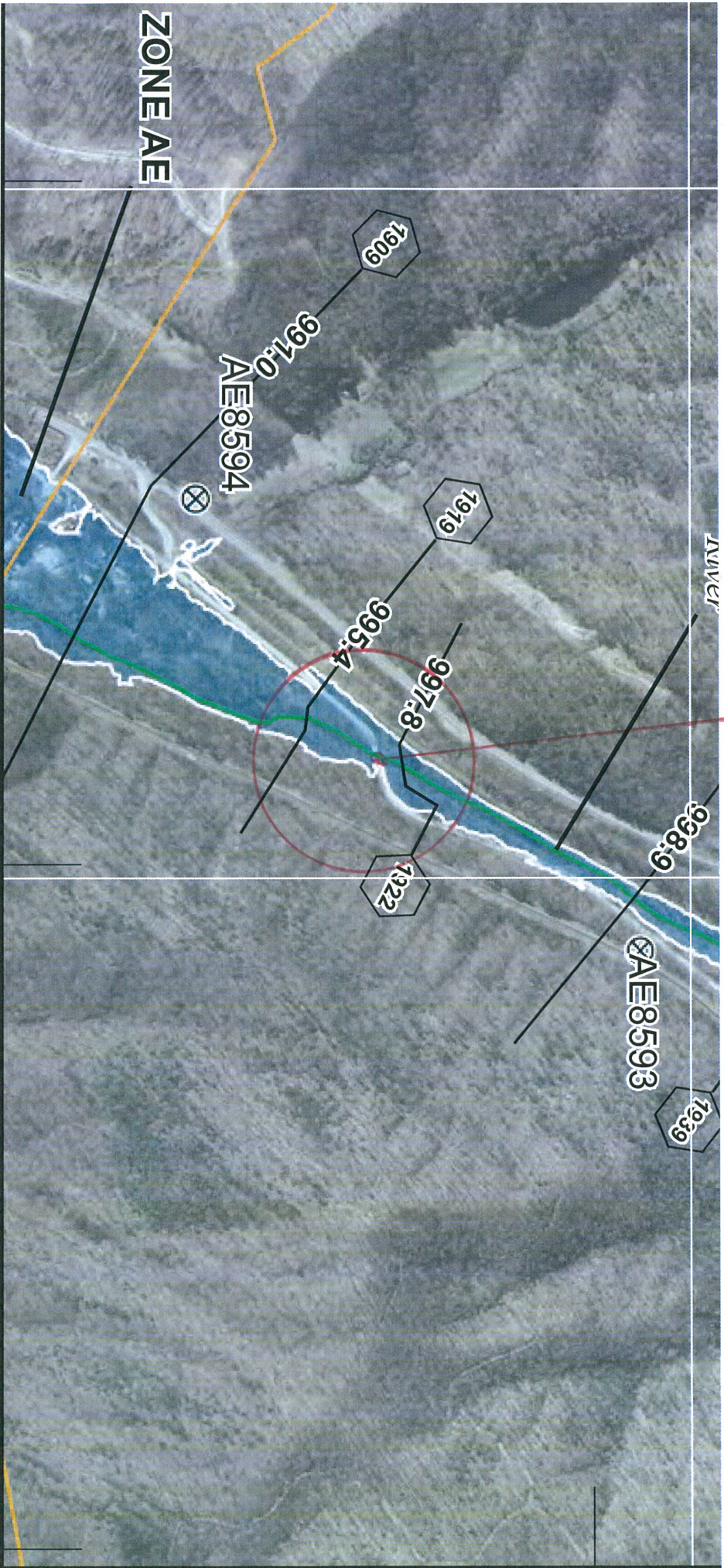
Panel Contains:

COMMUNITY	CID	PANEL	SUFFIX
MCOWELL COUNTY	370148	1606	K
RUTHERFORD COUNTY	370217	1606	K

MAP NUMBER
3710160600K
MAP REVISION
10/2/2008

580312

#312



81°58'30"W

81°58'0"W

81°57'30"
4400000 E

580312

