

17' offset Left/DS.

4'-0" CAPS



11' PAVE 3' shld. 20' out to out

Project Number 45618.1.1
TIP Number B-5663
Let Date _____

PREDESIGN-PRESURVEY REPORT

County JOHNSTON

Bridge Number 500046
Road Number SR 1124 - REEDY Prong
Stream Mill Creek Church Road

Type Of Request: POC Force Account TIP
Date 2-2-16 Name S J Sykes Assigned To _____

Checked By _____
Prior Survey Date 1-69 (attach copy of prior survey)

Study By Scour Section _____
Flood Zone AE Detail Study Limited Date 12/2/2005 (attach copy of flood map) Panel 1566
B.M. Info _____

Quad Map Peacocks Crossroads Drainage Area 20.6 sq mi From STREAM Stats
Q25 1500 Q50 1900 Q100 2300 Method USGS SR Report 2009-5158

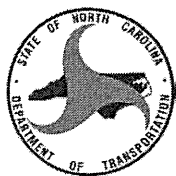
EXISTING BRIDGE INFORMATION

Location 0.1 mi N of JCT SR 1122
Average Daily Traffic 130 (yr. 2012)
Length 90' Bed-To Crown 17' Water Depth 8'
Type Structure Prestressed Concrete Channels, PPC Caps & timber piles
Type Spans 3 @ 30'
Upstream Structure #22 (NC 96)
Location 0.7 mi S of JCT SR 1116
Bed-To Crown 13' Prior Survey 9-84 (2 @ 38')
Downstream Structure #19 (NC 50)
Location 0.8 mi N of JCT SR 11
Bed-To Crown 16' Prior Survey No
SCS Watershed _____

ENVIRONMENTAL

Trout Stream No Anadromous Fish No Primary Nursery Area No
High Quality Waters No Nutrient Sensitive Waters Yes
Near Water Supply Intake No CAMA County No
Stream Classification C, NSW
DENR River Basin Info. Neuse

office estimated min. brg. Length = 115



NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BRIDGE MANAGEMENT UNIT

ATTENTION PRIORITY MAINTENANCE ISSUED ON SPALLED
CHANNEL LEG
TEMPORARY PILE REPAIRS.
CONCRETE CHANNEL LEGS PATCHED.

BRIDGE INSPECTION REPORT

INSPECTION TYPE: Routine Inspection

COUNTY JOHNSTON BRIDGE NUMBER 500046 INSPECTION CYCLE 2 YRS
ROUTE SR1124 ACROSS MILL CREEK M.P. 0

LOCATION 0.1 MI.N.SR1122

SUPERSTRUCTURE PRESTRESSED CONCRETE CHANNELS(STD.BMD-13)

SUBSTRUCTURE E.BTS&BTS:PPC CAPS TIM.PILES@BT.1PILE3 SPLICED ENC.W/CONC.

SPANS 3@30'

LONGITUDE 78° 25' 48.78"

LATITUDE 35° 17' 16.38"

INSPECTION DATE 12/16/2013

PRESENT CONDITION FAIR

PRESENT POSTING SV 26 TTST 30

SV 26 TTST 30

PROPOSED POSTING

OTHER SIGNS PRESENT 4 DELINEATORS



LOOKING NORTH

Fracture Critical	<u>No</u>
Temporary Shoring	<u>No</u>
Scour Critical	<u>No</u>
Scour POA	<u>Yes</u>

SIGN NOTICE ISSUED FOR	NUMBERED REQUIRED
<u>No</u> WEIGHT LIMIT	<u> </u>
<u>No</u> DELINEATORS	<u> </u>
<u>No</u> NARROW BRIDGE	<u> </u>
<u>No</u> ONE LANE BRIDGE	<u> </u>
<u>No</u> LOW CLEARANCE	<u> </u>

NATIONAL BRIDGE INVENTORY----- STRUCTURE INVENTORY AND APPRAISAL

Run Date: 01/14/2014

IDENTIFICATION			
(1) STATE NAME -NORTH CAROLINA	BRIDGE	500046	SUFFICIENCY RATING = 33.74
(8) STRUCTURE NUMBER(FEDERAL)	000000001010046	STATUS =	Functionally Obsolete
(5) INVENTORY ROUTE (ON/UNDER) - ON	31011240		
(2) STATE HIGHWAY DEPARTMENT DISTRICT	3	CLASSIFICATION	CODE
(3) COUNTY CODE 101 (4) PLACE CODE	0	(112)NBIS BRIDGE SYSTEM -	YES
(6) FEATURE INTERSECTED - MILL CREEK		(104)HIGHWAY SYSTEM Is not on NHS	0
(7) FACILITY CARRIED SR1124		(26) FUNCTIONAL CLASS - Local	09
(9) LOCATION 0.1 MI. N. OF SR1122		(100)STRAHNET HIGHWAY - Not a STRAHNET Route	0
(11)MILEPOINT	0	(101)PARALLEL STRUCTURE - No Parallel Structure	N
(16)LAT 35° 17' 16.38" (17)LONG 78° 25' 48.78"		(102)DIRECTION OF TRAFFIC - 2-way Traffic	2
(98)BORDER BRIDGE STATE CODE	PCT SHARE	(103)TEMPORARY STRUCTURE - Temporary Structure/Conditions	T
(99)BORDER BRIDGE STRUCTURE NO		(110)DESIGNATED NATIONAL NETWORK - Not on the National Network	0
		(20) TOLL On Free Road	3
		(31) MAINTAIN - State Highway Agency	01
		(22) OWNER - State Highway Agency	01
		(37) HISTORICAL SIGNIFICANCE - Not Eligible	5
STRUCTURE TYPE AND MATERIAL			
(43) STRUCTURE TYPE MAIN: Prestressed Concrete			
TYPE - Channel Beam	CODE 522		
(44) STRUCTURE TYPE APPR :		CONDITION	CODE
TYPE -	CODE 000	(58) DECK	5
(45) NUMBER OF SPANS IN MAIN UNIT	3	(59) SUPERSTRUCTURE	5
(46) NUMBER OF APPROACH SPANS		(60) SUBSTRUCTURE	5
(107)DECK STRUCTURE TYPE - 1	CODE	(61) CHANNEL & CHANNEL PROTECTION	7
(108)WEARING SURFACE / PROTECTIVE SYSTEM :		(62) CULVERTS	N
(A) TYPE OF WEARING SURFACE -	CODE		
(B) TYPE OF MEMBRANE -	CODE		
(C) TYPE OF DECK PROTECTION -	CODE		
LOAD RATING AND POSTING			
		(31) DESIGN LOAD H 10	1
		(63) OPERATING RATING METHOD - Load Factor	1
		(64) OPERATING RATING - HS-1	1
		(65) INVENTORY RATING METHOD - Load Factor	1
		(66) INVENTORY RATING - HS-1	1
		(70) BRIDGE POSTING - Posting Required	4
		(41) STRUCTURE OPEN, POSTED ,OR CLOSED	P
		DESCRIPTION - Posted for Load	
APPRAISAL			
		(67) STRUCTURAL EVALUATION	3
		(68) DECK GEOMETRY	5
		(69) UNDERCLEARANCES,VERTI & HORIZ	N
		(71) WATERWAY ADEQUACY	7
		(72) APPROACH ROADWAY ALIGNMENT	8
		(36) TRAFFIC SAFETY FEATURES	0000
		(113)SCOUR CRITICAL BRIDGES	U
PROPOSED IMPROVEMENTS			
		(75) TYPE OF WORK -	CODE
		(76) LENGTH OF STRUCTURE IMPROVEMENT	
		(94) BRIDGE IMPROVEMENT COST	
		(95) ROADWAY IMPROVEMENT COST	
		(96) TOTAL PROJECT COST	
		(97) YEAR OF IMPROVEMENT COST ESTIMATE	
		(114)FUTURE ADT 260 (115) YEAR FUTURE ADT 2025	
INSPECTIONS			
		(90) INSPECTION DATE	12/16/2013
		(92) CRITICAL FEATURE INSPECTION :	(93) CFI DATE
		A) FRACTURE CRIT DETAIL - NO	A)
		B) UNDERWATER INSP - YES 48Mo	B) 01/20/2010
		C) OTHER SPECIAL INSP NO	C)
		SCOUR	
NAVIGATION DATA			
(38) NAVIGATION CONTROL - No Navigational Control	CODE 0		
(111)PIER PROTECTION -	CODE		
(39) NAVIGATION VERTICAL CLEARANCE	0		
(116)VERT - LIFT BRIDGE NAV MIN VERT CLEAR	FT		
(40) NAVIGATION HORIZONTAL CLEARANCE	0 FT		

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 01/14/2014

COUNTY :	DIVISION :	DISTRICT :	STRUCTURE NUMBER :	LENGTH :	
JOHNSTON	4	3	500046	90	FEET

ROUTE CARRIED :	FEATURE INTERSECTED :
SR1124	MILL CREEK

LOCATED :	BRIDGE NAME :	CITY :
0.1 MI. N. OF SR1122		

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 :
1969	BMU			H 10

REHAB :	BY :	PROJ :	ALIGNMENT :	SKEW :	LANES :
	DBM		TAN	90	ON 2 UNDER 0

NAVIGATION :			HT. CRN. TO BED :		WATER DEPTH :
VC 0 FT	HC 0 FT		17 FT		8 FT

SUPERSTRUCTURE : PRESTRESSED CONCRETE CHANNELS(STD.BMD-13)

SUBSTRUCTURE : E.BTS&BTS:PPC CAPS TIM.PILES@BT.1PILE3 SPLICED ENC.W/CONC.

SPANS : 3@30'

BEAMS OR GIRDERS : 10 PPC CHANNEL SECTIONS

FLOOR :	ENCROACHMENT :	DECK (OUT TO OUT) :
PPC.CH/2AWS		25.4167 FT

CLEAR ROADWAY :	BETWEEN RAILS :	SIDEWALK OR CURB :
24 FT	24.8333 FT	LT .41665 FT RT .41665 FT

VERT.CL.OVER :
999.9 FT

INV.RTG. :	OPE.RTG. :	CONTR.MEMBER :	POSTED :	TTST	30	DATE	09/10/2008
HS-1	HS-1	Chan Patt B,Pile	SV 26				

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

UNDER ROUTES AND CLEARANCES

REMARKS :

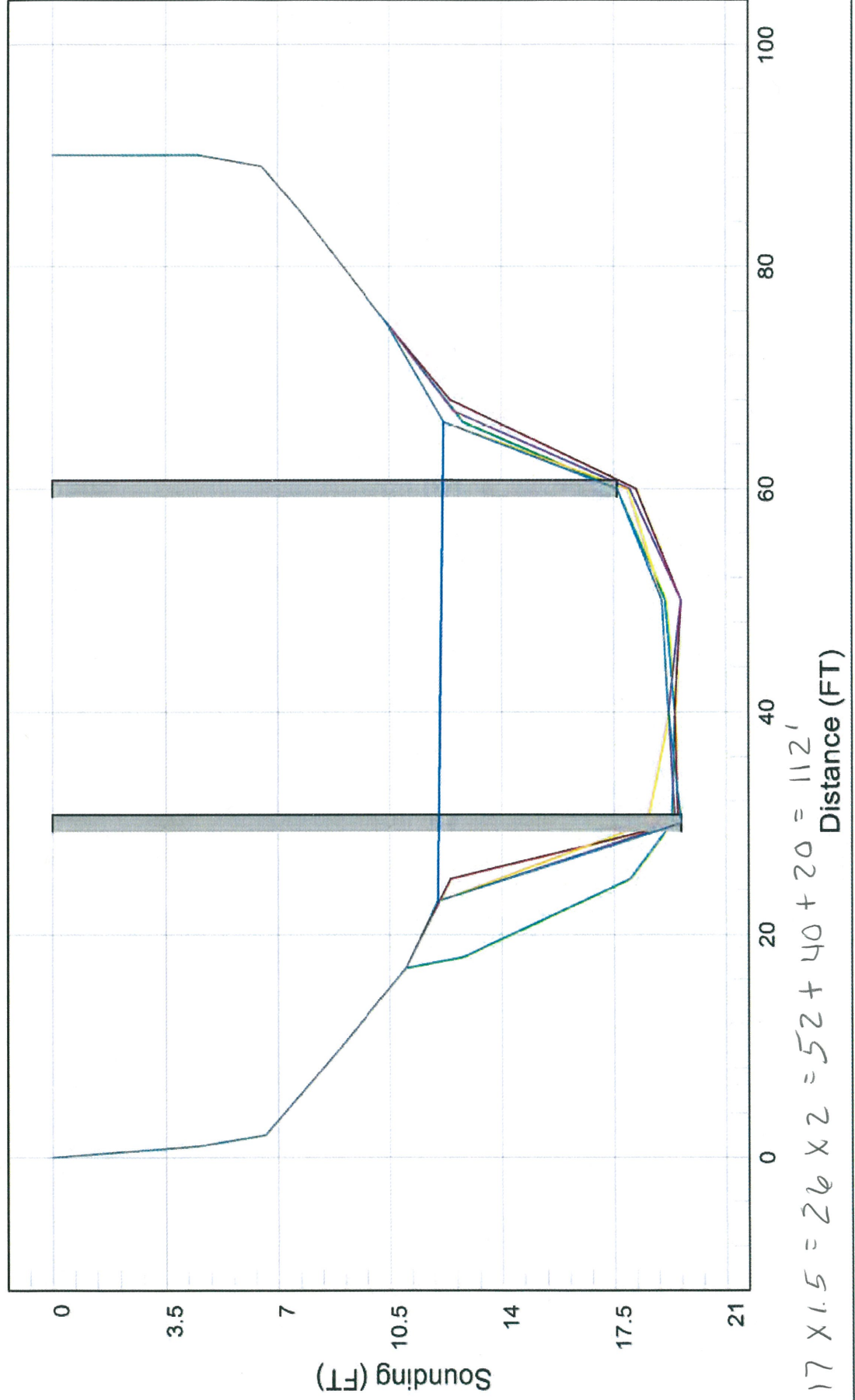
Bridge: 500046

County JOHNSTON

Date: 12/16/2013

STREAMBED PROFILE (Downstream)

Top of Rail = 0 FT (Sounding)

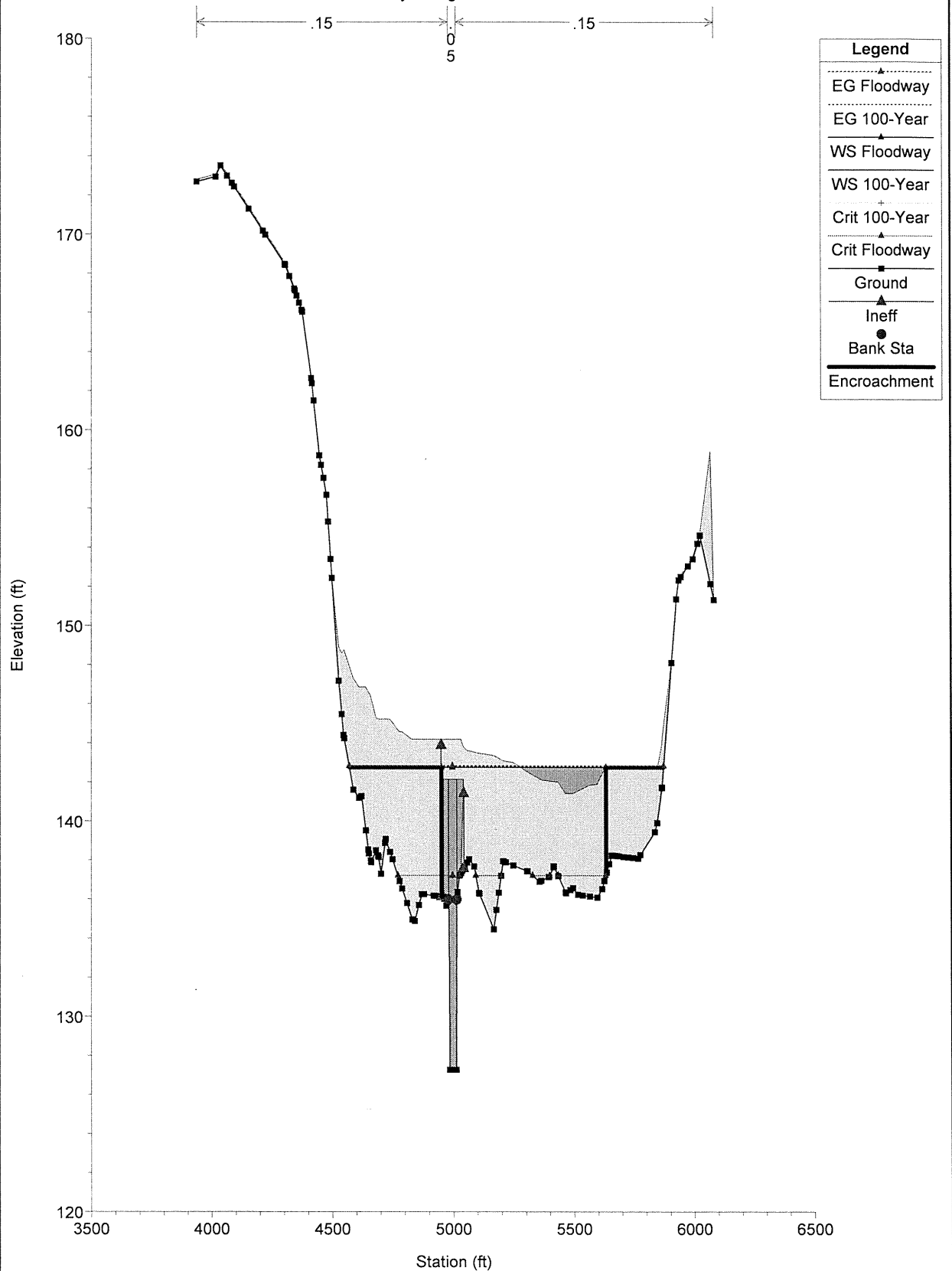


Section 5.0 – Engineering Methods

Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Mill Creek (South) (continued)	Approximately 0.4 mile upstream of US Highway 701	38.7	*	*	7,324	*
	Approximately 0.5 mile upstream of US Highway 701	36.5	*	*	7,061	*
	Approximately 0.1 mile downstream of the confluence with Mill Creek Tributary 5	35.9	*	*	6,980	*
	Approximately 0.4 mile upstream of the confluence with Mill Creek Tributary 5	32.2	*	*	6,530	*
	Approximately 0.8 mile downstream of Eldridge Road	32.0	*	*	6,492	*
	Approximately 0.4 mile downstream of Eldridge Road	31.2	*	*	6,398	*
	Approximately 0.1 mile upstream of Eldridge Road	30.73	*	*	6,337	*
	Approximately 0.2 mile downstream of Interstate 40	29.4	*	*	6,163	*
	Approximately 0.4 mile upstream of Highway 50	28.5	*	*	6,047	*
	Approximately 0.2 mile downstream of Reedy Prong Church Road	27.2	*	*	5,873	*
	Approximately 0.2 mile upstream of Reedy Prong Church Road	20.3	*	*	4,892	*
	Approximately 0.3 mile upstream of Reedy Prong Church Road	20.1	*	*	4,857	*
	Approximately 0.4 mile upstream of Reedy Prong Church Road	19.4	*	*	4,746	*
	Approximately 0.9 mile upstream of Reedy Prong Church Road	18.4	*	*	4,604	*

Mill Creek Plan: 100 Year Single 7/24/2003
 Reedy Prong Church Road-TOR



HEC-RAS Plan: Plan01 River: Mill Creek Reach: Reach - 1

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach - 1	128981.1	100-Year	4857.00	129.50	143.18		143.24	0.000552	3.46	5476.79	1068.29	0.17
Reach - 1	128981.1	Floodway	4857.00	129.50	143.32		143.40	0.000617	3.68	4408.58	660.00	0.18
Reach - 1	128550.6	100-Year	4892.00	128.78	143.06		143.09	0.000312	2.64	7090.89	1191.85	0.13
Reach - 1	128550.6	Floodway	4892.00	128.78	143.17		143.21	0.000396	2.99	5511.11	762.19	0.15
Reach - 1	128036.2	100-Year	4892.00	128.31	142.94		142.96	0.000212	2.21	8901.24	1493.62	0.11
Reach - 1	128036.2	Floodway	4892.00	128.31	143.01		143.04	0.000304	2.65	6285.19	842.60	0.13
Reach - 1	127432.2	100-Year	4892.00	127.28	142.75	137.45	142.80	0.000500	3.22	5330.47	1301.89	0.15
Reach - 1	127432.2	Floodway	4892.00	127.28	142.75	137.38	142.83	0.000634	3.63	4350.56	680.00	0.17
Reach - 1	127410.2	Bridge										
Reach - 1	127388.2	100-Year	4892.00	127.28	139.64	137.52	140.07	0.003246	7.00	2512.33	1202.78	0.36
Reach - 1	127388.2	Floodway	4892.00	127.28	140.30	137.53	140.59	0.002242	6.04	2682.95	680.00	0.30
Reach - 1	127275.9	100-Year	4892.00	127.20	139.61		139.72	0.001052	4.54	4527.77	1155.93	0.24
Reach - 1	127275.9	Floodway	4892.00	127.20	140.26		140.35	0.000769	4.02	4580.60	885.90	0.20
Reach - 1	126947.1	100-Year	4892.00	126.80	139.37		139.41	0.000612	3.29	6308.59	1491.96	0.18
Reach - 1	126947.1	Floodway	4892.00	126.80	140.09		140.12	0.000424	2.86	6606.06	1221.24	0.15
Reach - 1	126279.4	100-Year	5873.00	126.10	138.86		138.98	0.001100	4.57	5017.01	1165.73	0.24
Reach - 1	126279.4	Floodway	5873.00	126.10	139.71		139.81	0.000837	4.19	4764.01	799.06	0.21

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 12/17/2013

COUNTY : JOHNSTON DIVISION : 4 DISTRICT : 3 STRUCTURE NUMBER : 500022 LENGTH : 78 FEET

ROUTE CARRIED : NC96 FEATURE INTERSECTED : JUMPING RUN CREEK

LOCATED : 0.7 MI.S.JCT.SR1116 BRIDGE NAME : CITY :

FUNC. CLASS : 07 SYST.ON : FA SYST.UNDER : NFA ADT & YR : 1500 2012 RAIL TYPE : LT 41 RT 41

BUILT : 1987 BY : DOH PROJ : 8.1310201 FED.AID PROJ : BRS-5516(1) DESIGN LOAD : HS 20 + MOD

REHAB : BY : PROJ : ALIGNMENT : TAN. SKEW : 90 LANES : ON 2 UNDER 0

NAVIGATION : VC 0 FT HC 0 FT HT. CRN. TO BED : 13 FT WATER DEPTH : 6 FT

SUPERSTRUCTURE : PRESTRESSED CONCRETE CORED SLAB

SUBSTRUCTURE : EBTS&IBT:RC CAPS/PRESTR.CONC.PILES

SPANS : 2@39'2

BEAMS OR GIRDERS : 9 PRESTRESSED CONCRETE CORED SLAB SECTIONS

FLOOR : PPC.C.S/2 AWS ENCROACHMENT : DECK (OUT TO OUT) : 27.333 FT

CLEAR ROADWAY : 24 FT BETWEEN RAILS : 26.167 FT SIDEWALK OR CURB : LT 1.0835 FT RT 1.0835 FT

VERT.CL.OVER : 999.9 FT

INV.RTG. : HS-31 OPE.RTG. : HS-51 CONTR.MEMBER : C. Slab .44 POSTED : SV TTST DATE : 09/20/1988

SYSTEM : Primary N.C. Route GREEN LINE ROUTE : Y

UNDER ROUTES AND CLEARANCES

UPSTREAM STRUCTURE

REMARKS :

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 09/20/2013

COUNTY : JOHNSTON DIVISION : 4 DISTRICT : 3 STRUCTURE NUMBER : 500019 LENGTH : 113 FEET

ROUTE CARRIED : NC50 FEATURE INTERSECTED : MILL CREEK

LOCATED : 0.8 MI. N. JCT SR 11 BRIDGE NAME : CITY :

FUNC. CLASS : 07 SYST.ON : FA SYST.UNDER : NFA ADT & YR : 1300 2012 RAIL TYPE : LT 111 RT 111

BUILT : 1957 BY : SHC PROJ : 2435 FED.AID PROJ : DESIGN LOAD : HS 15

REHAB : BY : PROJ : ALIGNMENT : TAN. SKEW : 90 LANES : ON 2 UNDER 0

NAVIGATION : VC 0 FT HC 0 FT HT. CRN. TO BED : 16 FT WATER DEPTH : 5 FT

SUPERSTRUCTURE : REINFORCED CONCRETE DECK GIRDER

SUBSTRUCTURE : E.BTS&INT.BTS:RC CAPS/PPC PILES

SPANS : 3@37'6

BEAMS OR GIRDERS : 4 LINES RC DECK GIRDERS@8' CENTERS

FLOOR : RC/1.5 AWS ENCROACHMENT : DECK (OUT TO OUT) : 31.5 FT

CLEAR ROADWAY : 28 FT BETWEEN RAILS : 31.333 FT SIDEWALK OR CURB : LT 1.6665 FT RT 1.6665 FT

VERT.CL.OVER : 999.9 FT

INV.RTG. : HS-27 OPE.RTG. : HS-46 CONTR.MEMBER : RCDG POSTED : SV TTST DATE

SYSTEM : Primary N.C. Route GREEN LINE ROUTE : Y

UNDER ROUTES AND CLEARANCES

DOWNSTREAM STRUCTURE

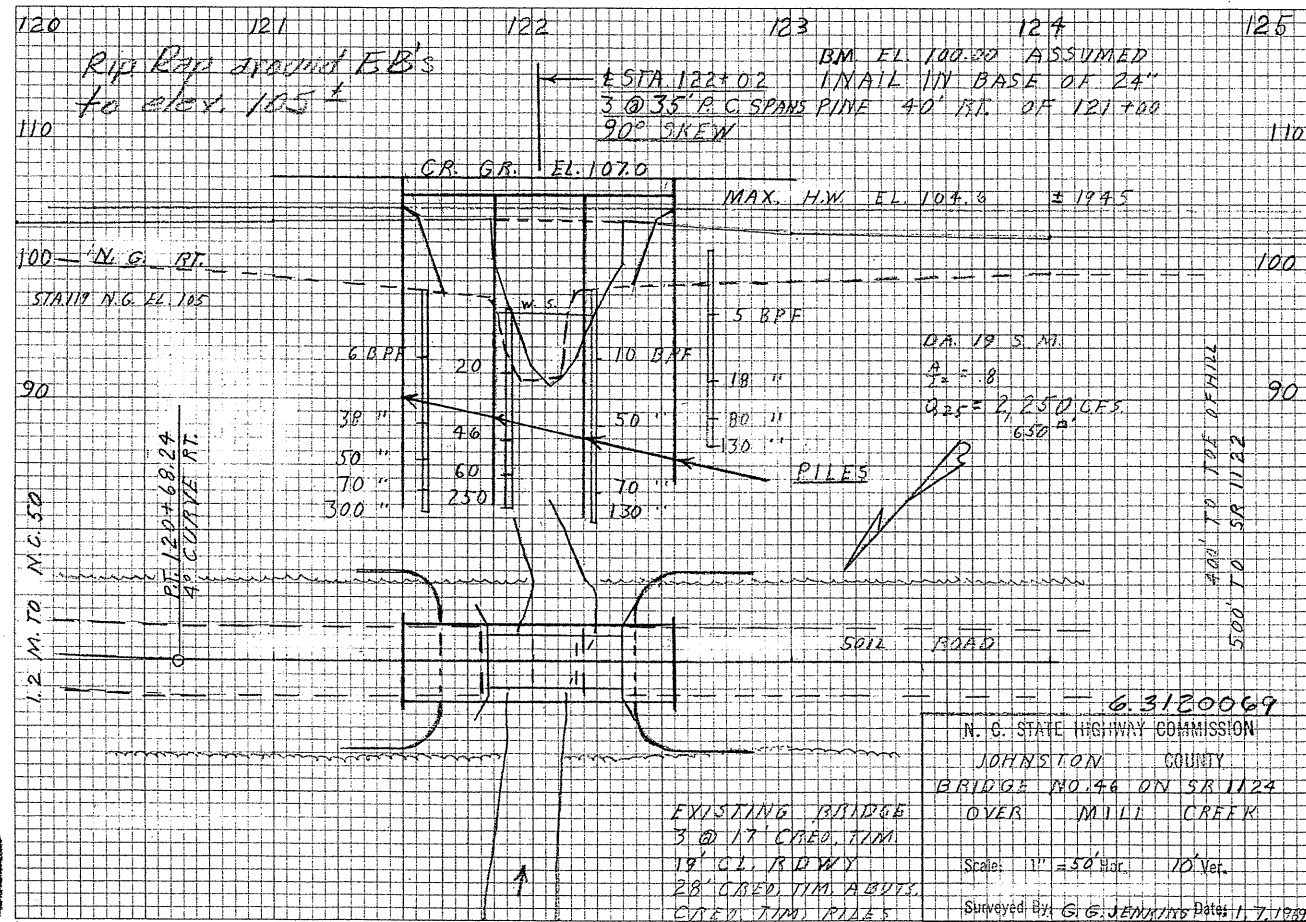
REMARKS :

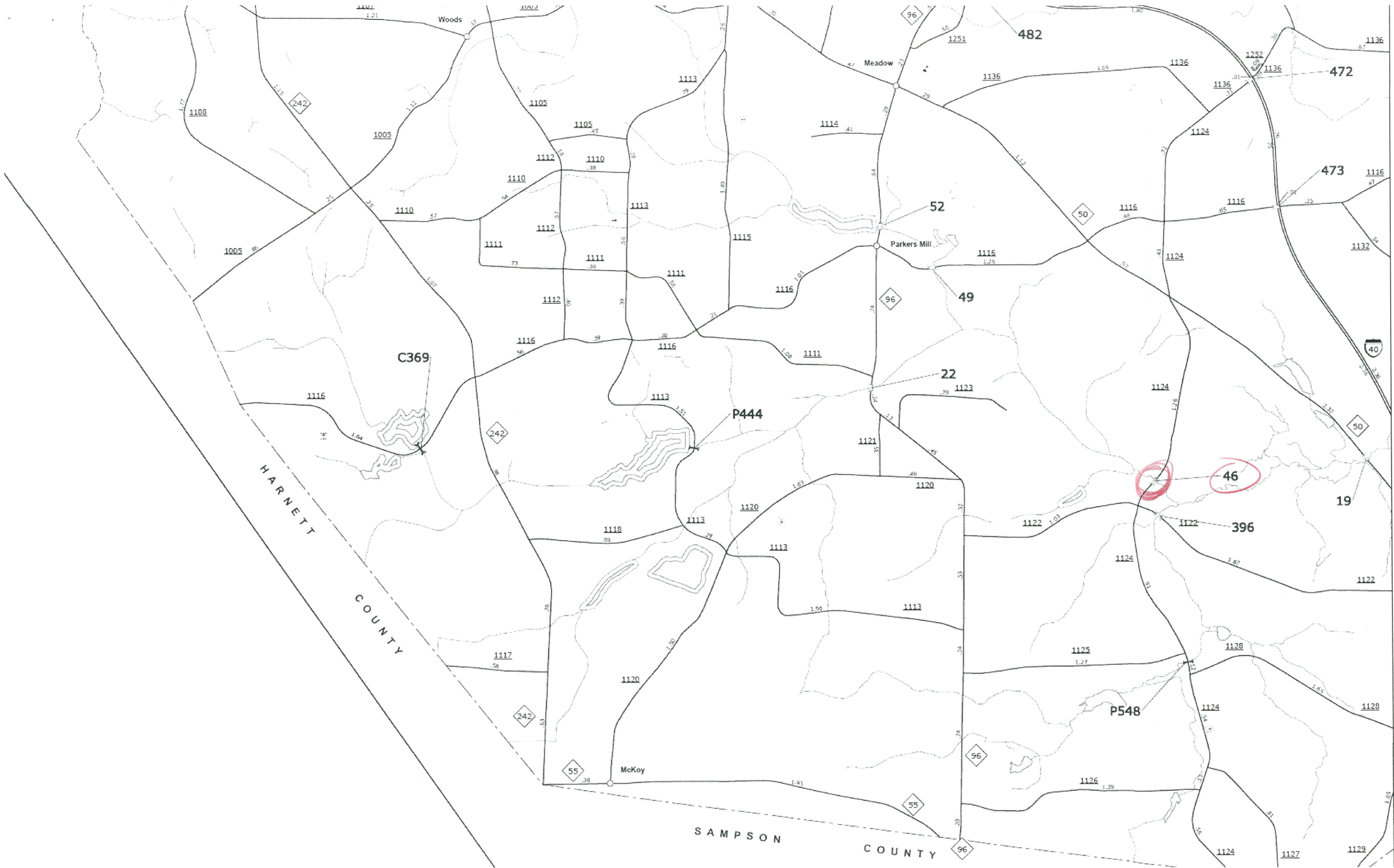
157-3

10 X 10 PER INCH

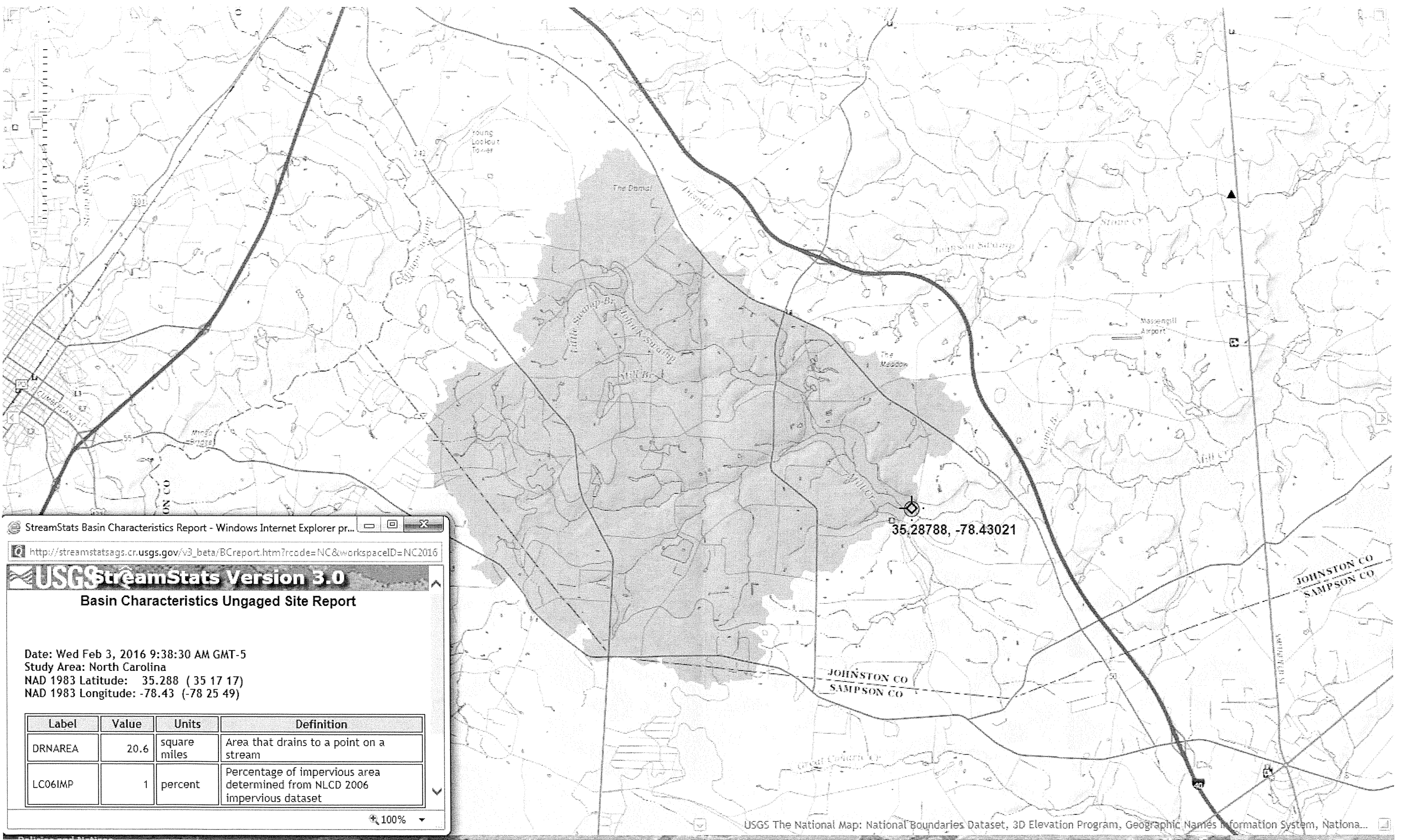
3
MADE IN U. S. A.

50 0046 1969 NO TIP STA_12202 MILL CR SR 1124
WO_63120069 .PDF





Meadow



StreamStats Basin Characteristics Report - Windows Internet Explorer pr...

http://streamstatsags.cr.usgs.gov/v3_beta/BCReport.htm?rcode=NC&workspaceID=NC2016

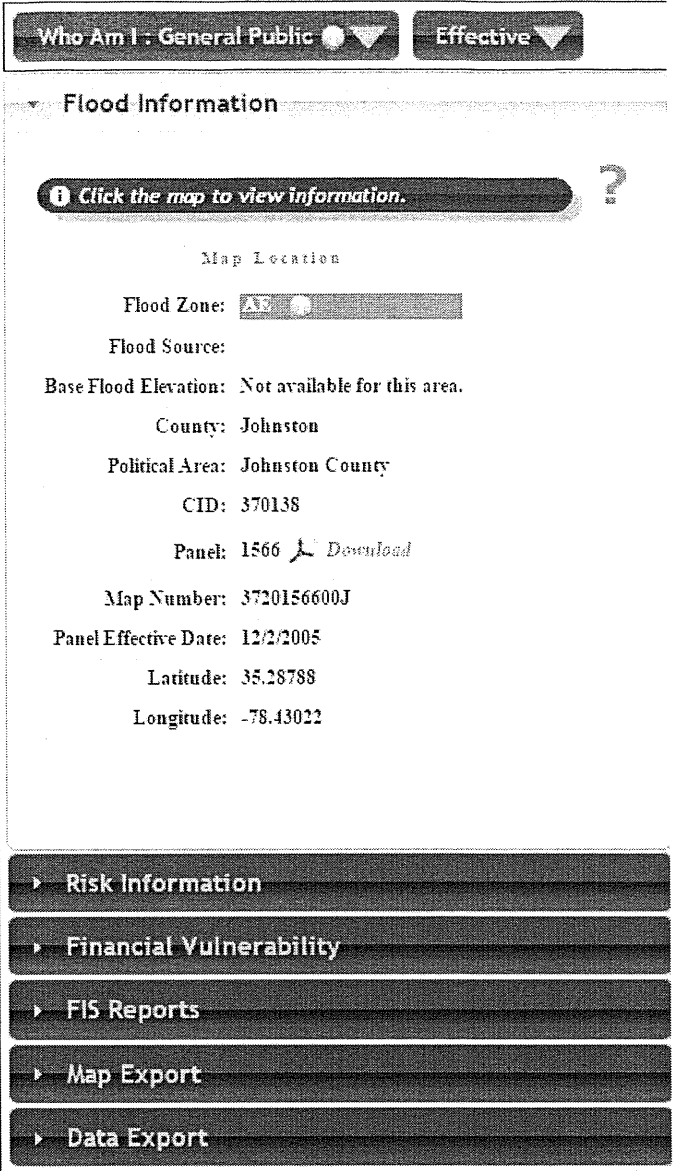
USGS StreamStats Version 3.0

Basin Characteristics Ungaged Site Report

Date: Wed Feb 3, 2016 9:38:30 AM GMT-5
Study Area: North Carolina
NAD 1983 Latitude: 35.288 (35 17 17)
NAD 1983 Longitude: -78.43 (-78 25 49)

Label	Value	Units	Definition
DRNAREA	20.6	square miles	Area that drains to a point on a stream
LC06IMP	1	percent	Percentage of impervious area determined from NLCD 2006 impervious dataset

100%





Effective ▼

Engineering Models

2000

End: Approximately 0.5 mile upstream of NC 96

[Download Model](#)

► **Data Export**

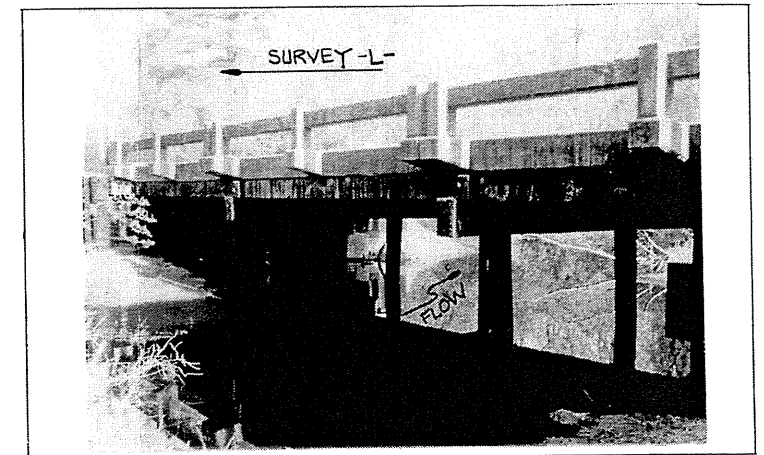
Drainage Area 9.5 SQ MI. Obtained from USGS QUADRANGLE MAPS
Character of Drainage Area RURAL AND UNDEVELOPED HARDWOOD SWAMP FOREST
Highwater Mark(s) 156.0 ± (UNKNOWN) Obtained From BRIDGE SURVEY REPORT (MAY '50)
Maximum Discharge of Record UNKNOWN Sec. ft. Date N/A
Discharge Data Obtained From N/A
Period Covered by Discharge Records NO RECORDS AVAILABLE
Discharge Used for Design of Waterway 1122 CFS Sec. Ft.
Waterway Area Considered Necessary 495 SQ. FT. Sq. Ft.
Waterway Area Provided by Recommended Structure 495 SQ. FT. Sq. Ft.
Data on Existing Structure 3 SPANS - 2 @ 18' 1 @ 17' REINFORCED CONCRETE ON TIMBER JOISTS END BENTS AND INTERIOR BENTS. TIMBER CAPS ON 3 TIMBER PILES @ 9' 0" CTS. POSTED SV II, TTST IS AREA = 430 SQ. FT.
Data on other Structures Up or Down Stream NO STRUCTURES UP OR DOWN STREAM AFFECT FLOW AT PROPOSED STRUCTURE
Method Used in Determining Foundation Material SOIL BORINGS W/ LABORATORY TESTS
Is Additional Foundation Investigation Considered Advisable NO
Other Information 25 YR DESIGN FREQUENCY USED INSTEAD OF 50 YR DESIGN FREQUENCY BECAUSE OF THE LOW PREDICTED TRAFFIC VOLUME OF 1200 YPD AND THE RURAL NATURE OF THE SITE. THE SITE IS LOCATED IN A FLOOD HAZARD ZONE (STUDY NOT COMPLETED) AND IS DESIGNED ACCORDINGLY.
Information to be shown on plans
Design Discharge 1540 CFS Frequency 25 YR
100 yr. Discharge 2450 CFS
Design High Water Elev. EXISTING BRIDGE 153.60; PROPOSED BRIDGE 153.57; BACKWATER = 0.63 (ABOVE NATURAL)
100 yr. High Water Elev. EXISTING BRIDGE 155.56; PROPOSED BRIDGE 155.12; BACKWATER = 1.13 (ABOVE NATURAL)
Flood of Record NONE AVAILABLE Date Discharge Frequency

UPSTREAM STRUCTURE

HYDROGRAPHIC DEPARTMENT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N. C.

BRIDGE SURVEY REPORT

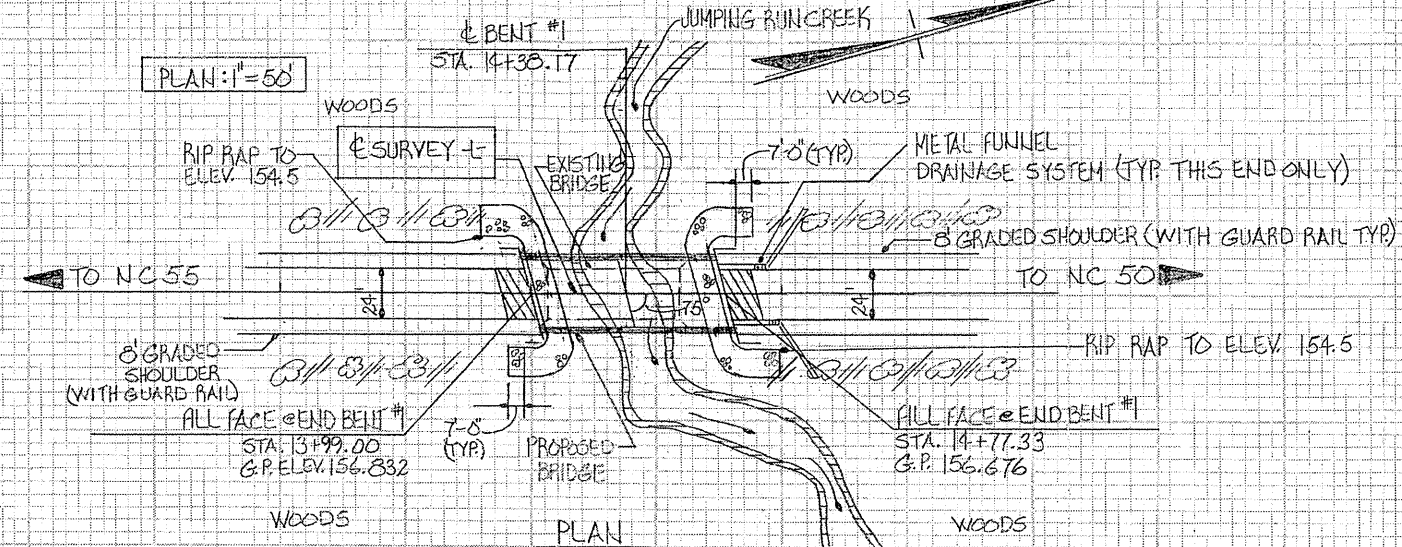
PROJECT NO. 8.1310201; B-1246; JOHNSTON COUNTY, STA. 14+38.17
BRIDGE OVER JUMPING RUN CREEK Known as (SAME)
On NC 96 between NC 50 and NC 55
Recommended Width of Roadway 24'-0" Skew 75°
Recommended Structure 2 SPAN CORED SLAB BRIDGE WITH TOTAL LENGTH OF 97'-9"; SUBSTRUCTURE OF PILED END BENTS AND PILE INTERIOR BENTS.
Rip Rap PLAIN RIP RAP CLASS II (2'-0" THICK) SLOPE 12:1 TO ELEV. 154.5
Temporary Crossing NONE
Present Structure CONCRETE DECK ON TIMBER JOISTS WITH TIMBER SUBSTRUCTURE
New Location is SAME AS PRESENT LOCATION Up, Down, Stream from Crossing on Present Road
Nearest Shipping Point BENSON On SEABOARD COAST LINE R. R.
Distance from Shipping Point to Bridge Site is 9 miles.
Elevations From B. M. R.R. SPIKE IN BASE OF A 12" PINE Elev. 158.05
LOCATED 73' LEFT OF & SURVEY-L- STA 10+70 Datum: NGVD 1929



Surveyed by N.C.DOT LOCATION AND SURVEYS Assisted by Date SEPT 1984

HP57088

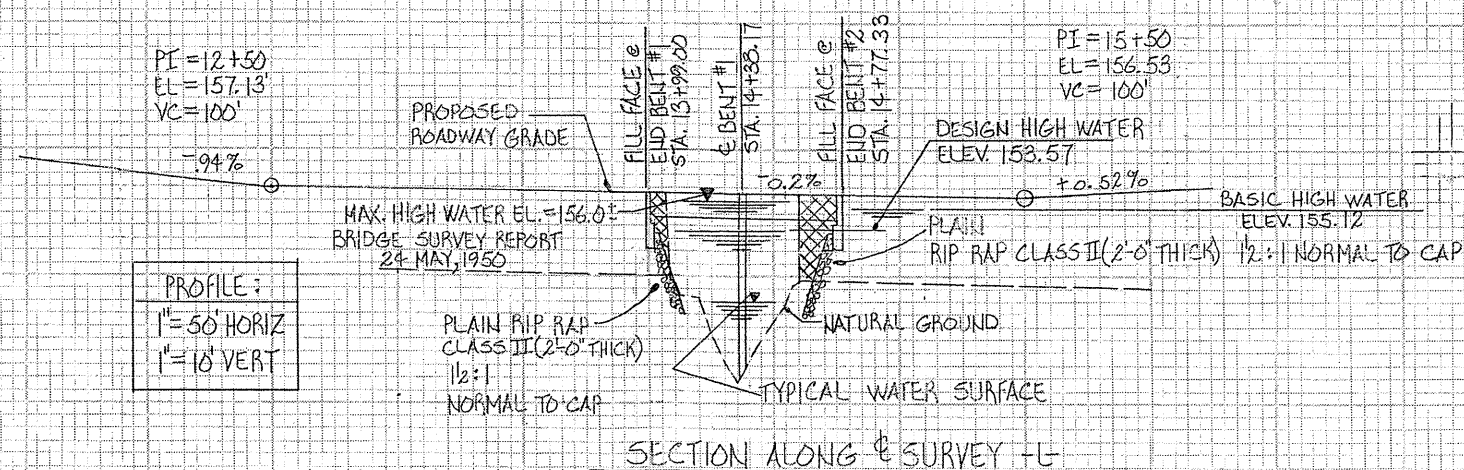
66-26



HYDROGRAPHIC DATA:

DESIGN DISCHARGE	=	1540 CFS
FREQUENCY OF DESIGN FLOOD	=	25 YR.
DESIGN HIGH WATER ELEV.	=	153.57 FT.
DRAINAGE AREA	=	9.5 SQ. MI.
BASIC DISCHARGE (Q ₁₀₀)	=	2450 CFS
BASIC HIGH WATER ELEV.	=	155.12 FT.

THE PROPOSED CROSSING WILL PROVIDE A FLOOD CONVEYANCE SIMILAR TO THAT OF THE EXISTING FEATURES, THEREFORE, THE STUDY DOES NOT WARRANT CONSIDERATION OF THE OVERTOPPING FLOOD.



UPSTREAM STRUCTURE