

Hydraulics Unit Pre-Design Report (Pre-Scoping) for Structure #: 280031

Date: 09/28/2016

County: Davidson	Stream: Lick Creek	Assigned to: wgc
Road #: NC 8	Road Name: NC 8	Prepared By: ldc
Division: 9	Location: 0.4 Mi. S. Jct. SR-1002	Hydro Reviewer:
Latitude: 35.61310	Longitude: -80.17340	Project Type: DB

Existing Structure

Structure Type: RC Deck/ Beams	Yr Built: 1947			
Span Arrangement: 1@50'5", 1@50'0", 1@50'5"	OAL (ft): 151.0	Skew: 120	Abutment Type: Spill Through	
Number of Barrels: @ Span (ft): x Rise (ft):				
Bed to Crown (ft): 24.0	Clear Roadway (ft): 24.0	Water Depth (ft): 1.0	Superstructure Depth:	
ADT: 1,000	Year ADT: 2012	Scour Code (item113): 8	Prior Survey Completed: No	Survey Date:
Drainage Area: 27.9	Sq. Mi.	Drainage Area Source: USGS Stream Stats	Roadway Overtops at Q100: No	
Discharge Method: USGS Regression Equations	USGS Region: 1- Piedmont	Stream Gage Number(if applicable):		
Q10 (cfs): 3,920.0	Q25 (cfs): 4,910.0	Q50 (cfs): 5,640.0	Q100 (cfs): 6,350.0	QBFE (cfs): 6,192.0
Structure in Flood Hazard Zone: Yes	Panel #: 6648	Panel Date: 03/16/2009	Type of FIS: LIMITED	Date of FIS:

Enviromental

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

Up/Down Stream Features

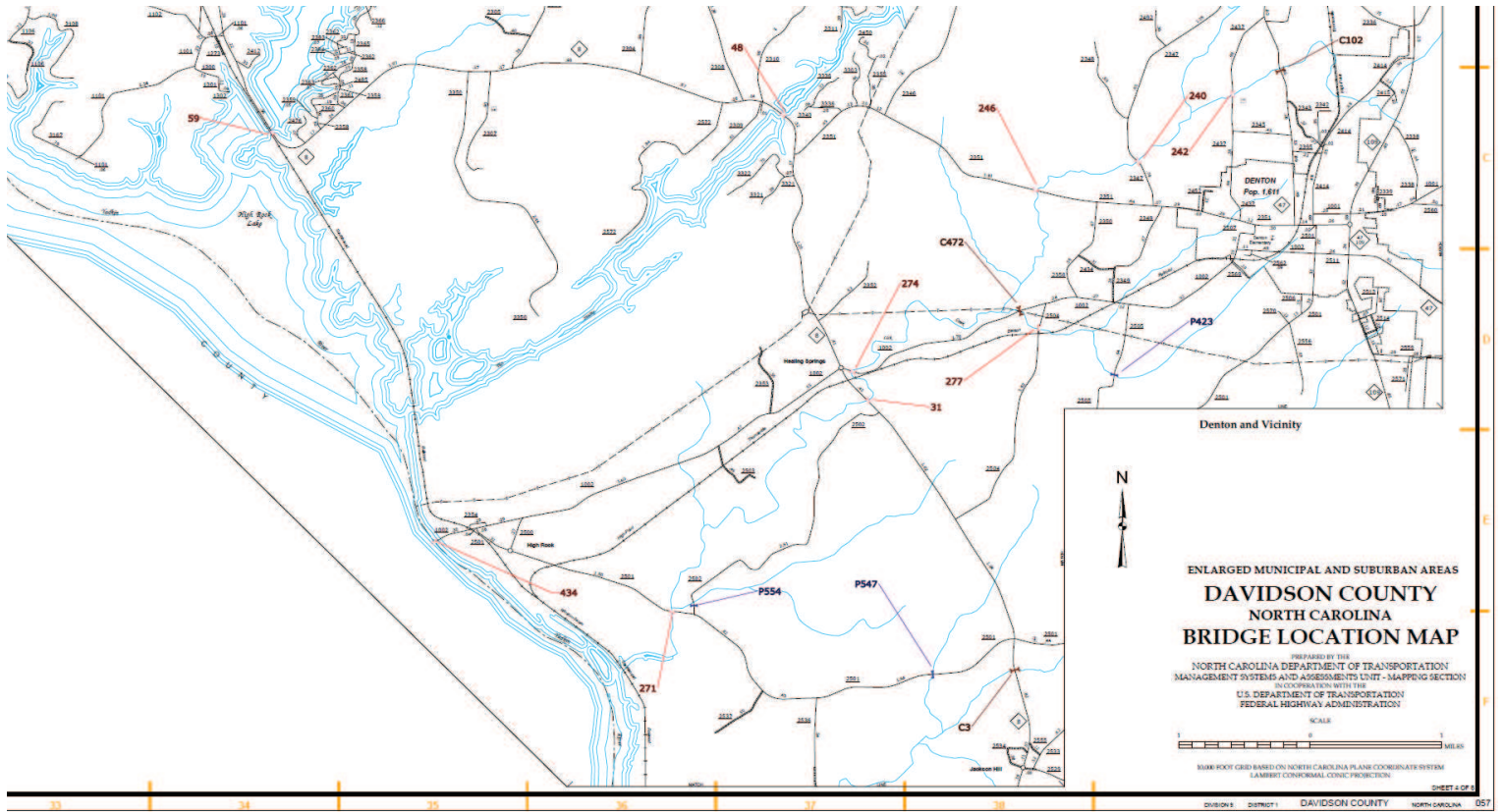
Upstream Feature: Bridge	Structure Type: Cored Slab		
Location: 0.1 Mi. E. Jct. NC 8	Span Arrangement: 1@42,3@30	OAL (ft): 132.0	
Structure #: 280274	Route: SR-1002	Number of Barrels: @ Span (ft): x Rise (ft):	
Latitude: 35.61630	Longitude: 80.17530	Bed to Crown (ft): 15.0	Year Built:
Prior Survey Completed: Yes	Survey Date: 2013		
Downstream Feature: Confluence w/ Stream(s)	Structure Type:	Span Arrangement:	OAL (ft):
Location:		Number of Barrels: @ Span (ft):	x Rise (ft):
Structure #:	Route:	Bed to Crown (ft):	Year Built:
Latitude:	Longitude:		
Prior Survey Completed:	Survey Date:		

Preliminary Structure Estimate [Office Estimate]

Structure Type:	Skew:
Dimensions/Spans:	

Notes

5.0' +/- Below low steel





NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BRIDGE MANAGEMENT UNIT

ATTENTION

AWS REPAVED WITH BST 1/4 IN. ADDED.
TEMPORARY REPAIRS.

BRIDGE INSPECTION REPORT

INSPECTION TYPE: Routine Inspection

COUNTY DAVIDSON BRIDGE NUMBER 280031 INSPECTION CYCLE 2 YRS
ROUTE NC8 ACROSS LICK CREEK M.P. 0

LOCATION 0.4 MI. S. JCT. SR1002

SUPERSTRUCTURE REINFORCED CONCRETE DECK ON I-BEAMS

SUBSTRUCTURE EBT#1:RC CAP ON SPR.FTG, ABUT#2:RC SPILL THRU, INT.BTS:RCP&B

SPANS 1@50'5", 1@50'0", 1@50'5"

LONGITUDE 80° 10' 23.97"

LATITUDE 35° 36' 46.96"

INSPECTION DATE 03/03/2014

PRESENT CONDITION POOR

PRESENT POSTING Y 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>No</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: 04/02/2014

IDENTIFICATION							
(1) STATE NAME -NORTH CAROLINA	BRIDGE	280031		SUFFICIENCY RATING =		21.41	
(8) STRUCTURE NUMBER(FEDERAL)		00000000570031		STATUS =	Structurally Deficient		
(5) INVENTORY ROUTE (ON/UNDER) - ON		31000080					
(2) STATE HIGHWAY DEPARTMENT DISTRICT		1		CLASSIFICATION		CODE	
(3) COUNTY CODE 57	(4) PLACE CODE	0		(112)NBIS BRIDGE SYSTEM -		YES	
(6) FEATURE INTERSECTED - LICK CREEK				(104)HIGHWAY SYSTEM	Is not on NHS	0	
(7) FACILITY CARRIED NC8				(26) FUNCTIONAL CLASS -	Major Collector	07	
(9) LOCATION 0.4 MI. S. JCT. SR1002				(100)STRAHNET HIGHWAY -	Not a STRAHNET Route	0	
(11)MILEPOINT		0		(101)PARALLEL STRUCTURE -	No Parallel Structure	N	
(16)LAT 35° 36' 46.96"	(17)LONG 80° 10' 23.97"			(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	
STRUCTURE TYPE AND MATERIAL				(31) MAINTAIN -	State Highway Agency	01	
(43) STRUCTURE TYPE MAIN: Steel				(22) OWNER -	State Highway Agency	01	
TYPE - Stringer Multibeam or Girder	CODE	302		(37) HISTORICAL SIGNIFICANCE -	Not Eligible	5	
(44) STRUCTURE TYPE APPR :				CONDITION		CODE	
TYPE -	CODE	000		(58) DECK		5	
(45) NUMBER OF SPANS IN MAIN UNIT		3		(59) SUPERSTRUCTURE		3	
(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			LOAD RATING AND POSTING		CODE	
(B) TYPE OF MEMBRANE -	CODE			(31) DESIGN LOAD	H 15	2	
(C) TYPE OF DECK PROTECTION -	CODE			(63) OPERATING RATING METHOD -	Load Factor	1	
				(64) OPERATING RATING -	HS-1	1	
(27) YEAR BUILT		1947		(65) INVENTORY RATING METHOD -	Load Factor	1	
(106)YEAR RECONSTRUCTED		1969		(66) INVENTORY RATING -	HS-1	1	
(42) TYPE OF SERVICE : ON - Highway				(70) BRIDGE POSTING -	Posting Required	4	
UNDER - Waterway	CODE	15		(41) STRUCTURE OPEN, POSTED, OR CLOSED		P	
(28) LANES: ON STRUCTURE 2 UNDER STRUCTURE		0		DESCRIPTION -	Posted for Load		
(29) AVERAGE DAILY TRAFFIC		1000		APPRAISAL		CODE	
(30) YEAR OF ADT 2012	(109) TRUCK ADT PCT	7%		(67) STRUCTURAL EVALUATION		3	
(19) BYPASS OR DETOUR LENGTH		2 MI		(68) DECK GEOMETRY		4	
GEOMETRIC DATA				(69) UNDERCLEARANCES, VERTI & HORIZ		N	
(48) LENGTH OF MAXIMUM SPAN		49 FT		(71) WATERWAY ADEQUACY		7	
(49) STRUCTURE LENGTH		151 FT		(72) APPROACH ROADWAY ALIGNMENT		8	
(50)CURB OR SIDEWALK: LEFT 1 FT RIGHT		1 FT		(36) TRAFFIC SAFETY FEATURES		0000	
(51) BRIDGE ROADWAY WIDTH CURB TO CURB		24 FT		(113)SCOUR CRITICAL BRIDGES		8	
(52) DECK WIDTH OUT TO OUT		25.333 FT		PROPOSED IMPROVEMENTS		CODE	
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS)		19 FT		(75) TYPE OF WORK -			
(33) BRIDGE MEDIAN - No Median	CODE	0		(76) LENGTH OF STRUCTURE IMPROVEMENT			
(34) SKEW 30°	(35) STRUCTURE FLARED	0		(94) BRIDGE IMPROVEMENT COST			
(10) INVENTORY ROUTE MIN VERT CLEAR		999.9 FT		(95) ROADWAY IMPROVEMENT COST			
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR		24 FT		(96) TOTAL PROJECT COST			
(53) MIN VERT CLEAR OVER BRIDGE RDWY		999.9 FT		(97) YEAR OF IMPROVEMENT COST ESTIMATE			
(54) MIN VERT UNDERCLEAR REF Not a Highway or Railroad		0 FT		(114)FUTURE ADT 2000	(115) YEAR FUTURE ADT 2025		
(55) MIN LAT UNDERCLEAR RT REF Not a Highway or Railroad		000 FT		INSPECTIONS			
(56) MIN LAT UNDERCLEAR LT REF -		000 FT		(90) INSPECTION DATE		03/03/2014	
NAVIGATION DATA				(92) CRITICAL FEATURE INSPECTION :	(93) CFI DATE		
(38) NAVIGATION CONTROL - No Navigational Control	CODE	0		A) FRACTURE CRIT DETAIL -	NO	A)	
(111)PIER PROTECTION -	CODE			B) UNDERWATER INSP -	NO	B)	
(39) NAVIGATION VERTICAL CLEARANCE		0		C) OTHER SPECIAL INSP	NO	C)	
(116)VERT - LIFT BRIDGE NAV MIN VERT CLEAR	FT			SCOUR			
(40) NAVIGATION HORIZONTAL CLEARANCE		0 FT					

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 04/02/2014

COUNTY :	DIVISION :	DISTRICT :	STRUCTURE NUMBER :	LENGTH :	
DAVIDSON	9	1	280031	151	FEET

ROUTE CARRIED :	FEATURE INTERSECTED :
NC8	LICK CREEK

LOCATED :	BRIDGE NAME :	CITY :
0.4 MI. S. JCT. SR1002		

FUNC. CLASS :	SYST.ON :	SYST.UNDER :	ADT & YR :	RAIL TYPE :
07	FA	NFA	1000 2012	LT 141 RT 141

BUILT :	BY :	PROJ :	FED.AID PROJ :	DESIGN LOAD :
1947	SHPWC	5244	S-416-(5)	H 15

REHAB :	BY :	PROJ :	ALIGNMENT :	SKEW :	LANES :
1969	BMU	5.604	TAN	120	ON 2 UNDER 0

NAVIGATION :	HT. CRN. TO BED :	WATER DEPTH :
VC 0 FT HC 0 FT 24 FT		1 FT

SUPERSTRUCTURE : REINFORCED CONCRETE DECK ON I-BEAMS

SUBSTRUCTURE : EBT#1:RC CAP ON SPR.FTG, ABUT#2:RC SPILL THRU, INT.BTS:RCP&B

SPANS : 1@50'5", 1@50'0", 1@50'5"

BEAMS OR GIRDERS : 4 LINES OF W30X124 EXT. & W30X116 INT. I-BEAMS @ 6'9"CENTERS

FLOOR :	ENCROACHMENT :	DECK (OUT TO OUT) :
7 3/4" RC, 2.24"AWS		25.333 FT

CLEAR ROADWAY :	BETWEEN RAILS :	SIDEWALK OR CURB :
24 FT	26 FT	LT 1 FT RT 1 FT

VERT.CL.OVER :
999.9 FT

INV.RTG. :	OPE.RTG. :	CONTR.MEMBER :	POSTED :	TTST	30	DATE	03/28/2012
HS-1	HS-1	Int Bm	SV 26				

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

UNDER ROUTES AND CLEARANCES

REMARKS :



LOOKING SOUTH



NORTH POSTING



LOOKING EAST



NORTH APPROACH



DOWNSTREAM



UPSTREAM



SOUTH APPROACH



SOUTH POSTING



LOOKING NORTH



LOOKING WEST



SUPERSTRUCTURE SPAN 2



DOWNSTREAM



UPSTREAM



PIER 1



SURFACE RUST ON BEAMS IN SPAN 2



UNDERSIDE OF DECK MID SPAN 2 BAY 2 TRANSVERSE CRACK 1/8 IN.



COLUMN 2 PIER 1 4 FT. FROM FOOTING SPALL WITH EXPOSED REBAR

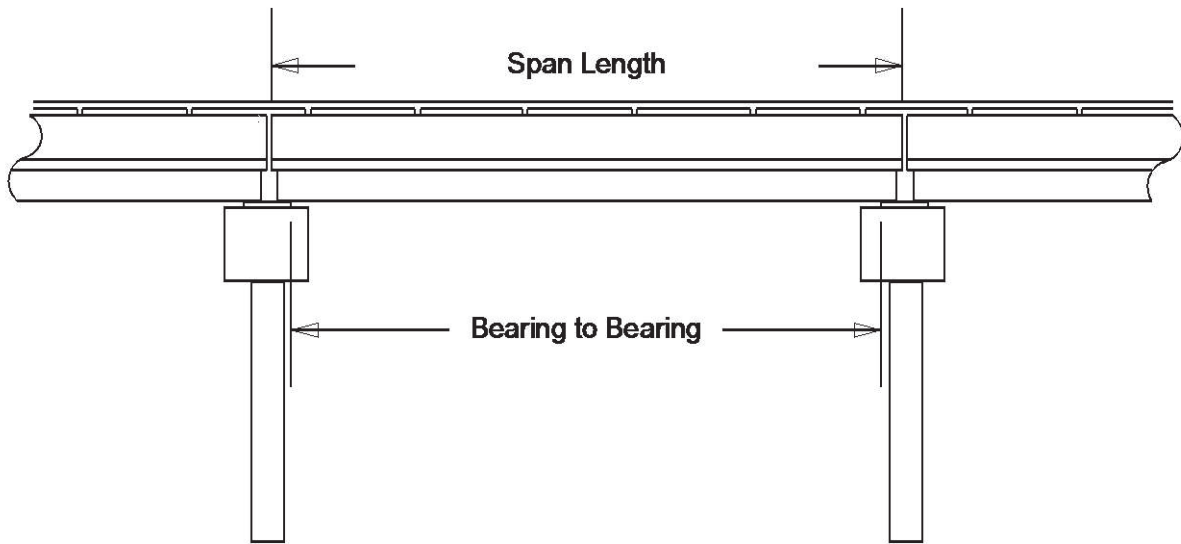


CRACKS WITH EFFLO IN DECK SPAN 3 BAY 1

Structure Data Worksheet

Spans

County: DAVIDSON Structure No: 280031 Date: 03/03/2014 Inspected By: BTH



Span No	Span Length	Bearing to Bearing	Comments
1	50.417	48.667	NBIS BL: 149.0 FT.
2	50.0	49.167	
3	50.417	48.667	

Stream Bed Soundings

(See next sheet for profile sketch)

Bridge No: 280031 County: DAVIDSON Date: 03/03/2014 By: BTH

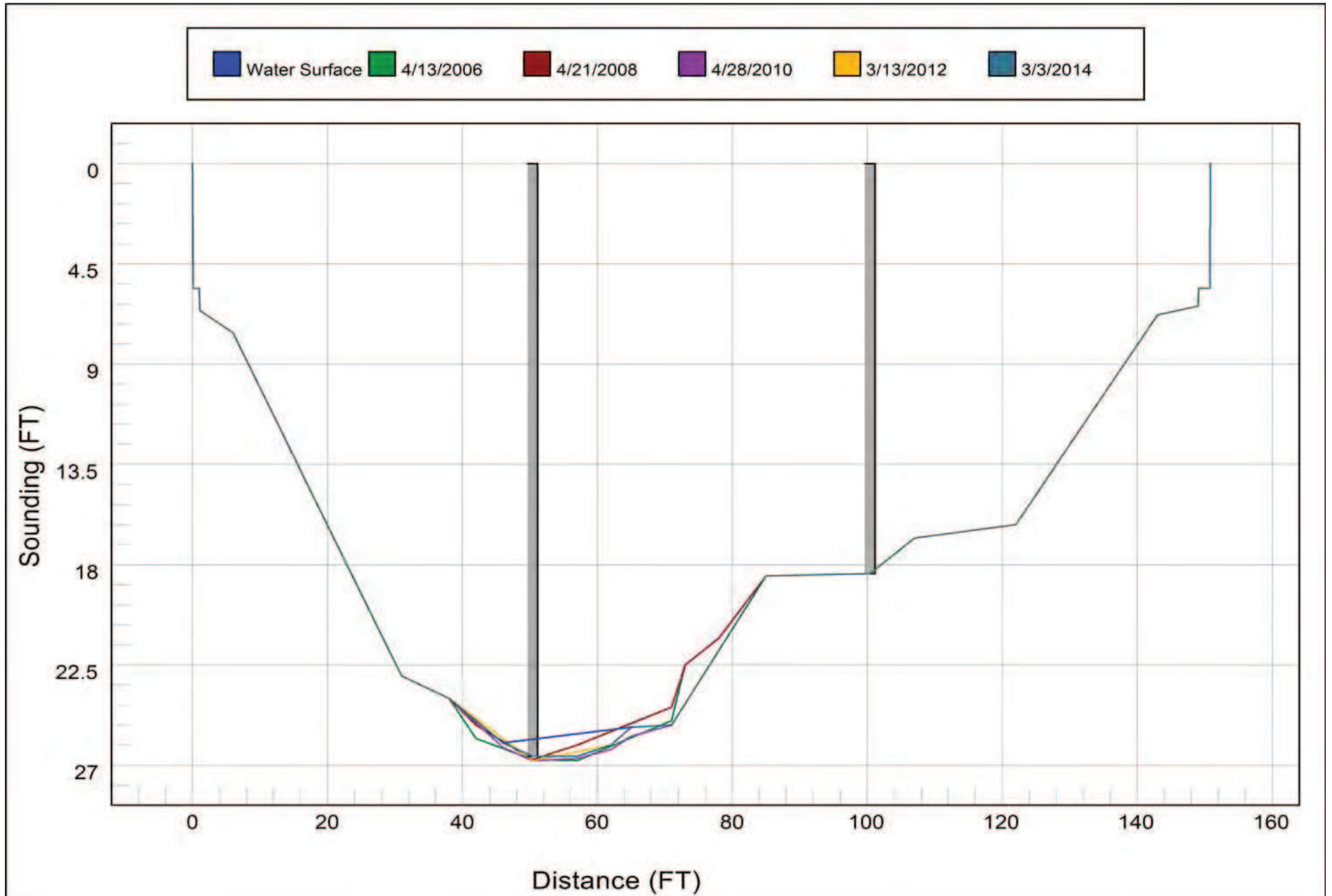
Record sounding from top of rail. Other location if needed: _____

Distance from Highwater Mark to top of rail: _____ Location of Highwater Mark: _____

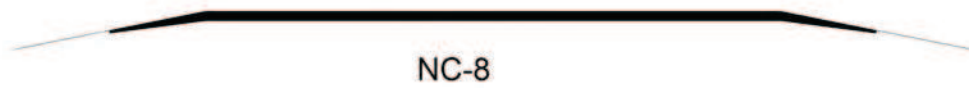
DOWNSTREAM			UPSTREAM		
Distance (Station) (ft)	Sounding (ft)	Description	Distance (Station) (ft)	Sounding (ft)	Description
0	0	ABUT 1	0	0.0	ABUT 1
0.1	5.6	TOC			
1	5.6				
1.1	6.6		1.1	7.0	
6	7.6				
31	23				
38	24				
46	26	WS WE			
50.4	26.6	PIER 1	50.4	26.6	PIER 1
57	26.6				
62	26.1				
65	25.3	WS WE			
71	25.2				
85	18.5				
100.4	18.4	PIER 2	100.4	17.8	PIER 2
107	16.8				
122	16.2				
143	6.8				
149	6.4		149	7.0	
149.1	5.6				
150.8	5.6	TOC			
150.81	0	ABUT 2	150.81	0.0	ABUT 2

STREAMBED PROFILE (Downstream)

Top of Rail = 0 FT (Sounding)



Bridge Inspection Field Sketch

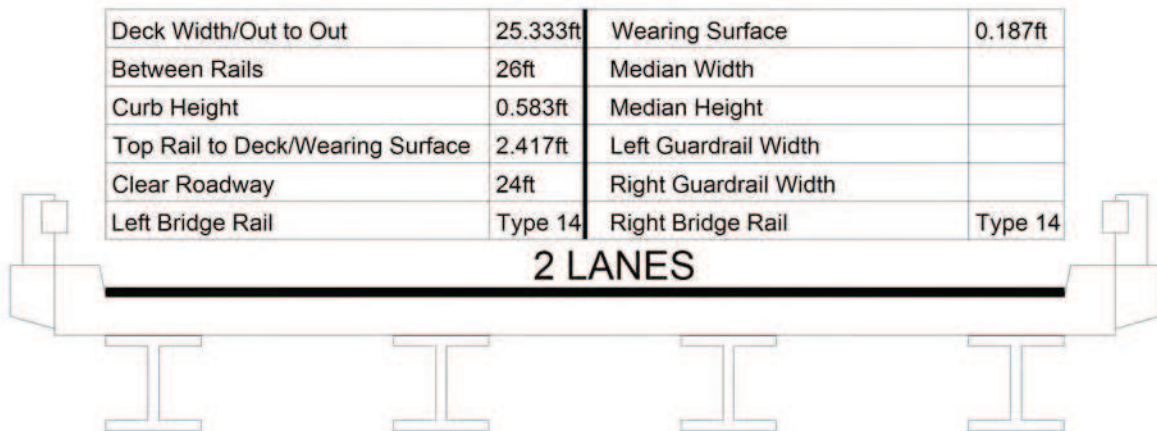


Roadway	19ft Wide	2 Paved Lanes	Looking North
Left Shoulder	4ft Wide		4ft Unpaved
Right Shoulder	4ft Wide		4ft Unpaved
Left Guardrail			
Right Guardrail			

MEASUREMENTS VERIFIED 3-3-14 JER
MEASUREMENTS VERIFIED 3-13-12 BTH
MEASUREMENTS VERIFIED 4-28-10 BTH

Title APPROACH ROADWAY		Description SHEET 1	
Bridge No: 280031	Drawn By: BTH	Date: 04/21/08	File Name: S0090001124

Bridge Inspection Field Sketch



Measurements for Span #	1	Spans 2-3 Similar	
Deck Thickness	0.646	Left Overhang	2.542
Top of Rail to Bottom of Beam	5.583	Right Overhang	2.542

Beam No	Beam Type	Spacing	Comments
1	Steel I Beam	6.75 ft.	
2	Steel I Beam	6.75 ft.	
3	Steel I Beam	6.75 ft.	
4	Steel I Beam		

ABUT 1: RC CAP ON SPREAD FOOTINGS. ABUT 2 & PIERS: 2 COLUMN RCP&B.



I-BEAMS	WIDTH	HEIGHT	WEB	FLANGE
INT.	.875 ft.	2.5 ft.	.047 ft.	.073 ft.
EXT.	.875 ft.	2.510 ft.	.047 ft.	.078 ft.

MEASUREMENTS REVISED 3-3-14 JER

Title

SUPERSTRUCTURE

Description

SHEET 2

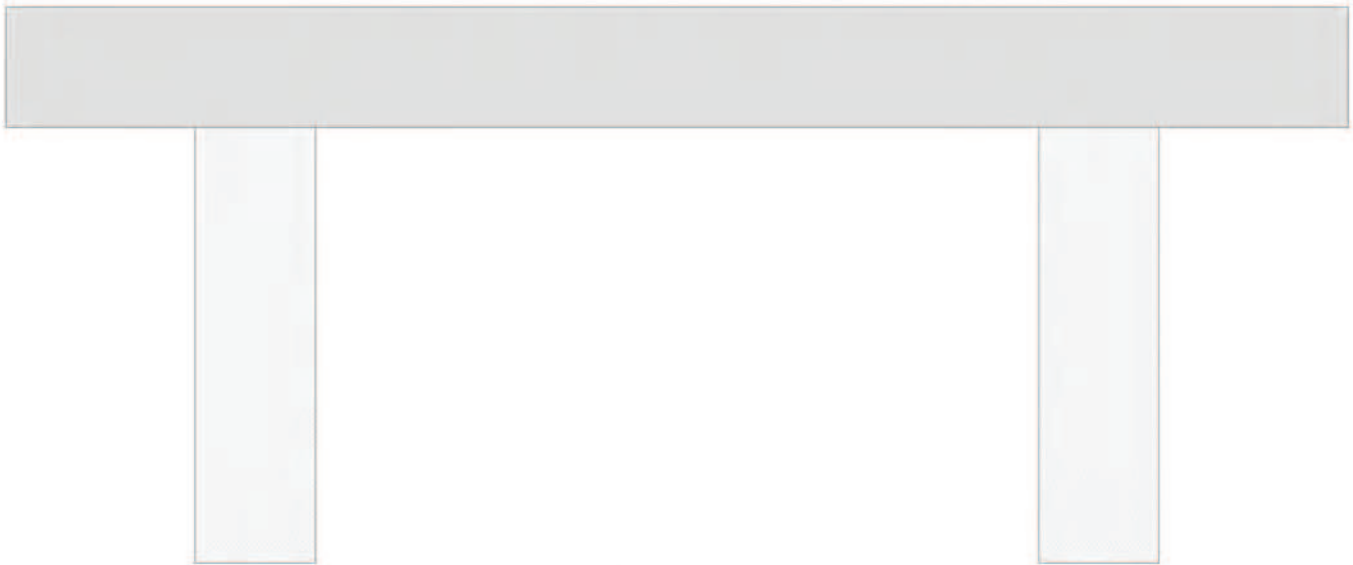
Bridge No: 280031

Drawn By: BTH

Date: 04/21/08

File Name: S0090001141

Bridge Inspection Field Sketch



Cap Information			Material Cast-in-Place Concrete							
Length	Width	Height	Left Overhang	Right Overhang	Left Beam to End of Cap.	Right Beam to End of Cap.				
27.833 ft.	2.500 ft.	2.500 ft.	5.167 ft.	5.167 ft.	2.167 ft.	2.167 ft.				
Subcap Information			Material							
Length	Width	Height	Left Overhang	Right Overhang	Left Pile to Splice.					
Sill Information			Material							
Length	Width	Height								
Pile #	Material	Spacing	Width/Dia.	Height	Length	Orientation	Driven?	Replacement?	Removed?	Collar?
1	Concrete	17.5 ft.	2.5 ft.	2.0 ft.		Vertical	No	No	No	No
2	Concrete		2.5 ft.	2.0 ft.		Vertical	No	No	No	No
MEASUREMENTS VERIFIED 3-3-14 JER MEASUREMENTS VERIFIED 3-13-12 BTH MEASUREMENTS VERIFIED 4-28-10 BTH										
Bent/Abutment #: 1			Similar Bents: 1							

Title

PIERS

Description

SHEET 3

Bridge No: 280031

Drawn By: BTH

Date: 4/21/2008

File Name: S0090002769

Lick Creek (Davidson Co) Limited Detail Study Plan: Floodway Run 10/6/2016

NC HWY 8 - TORStructure ID: LDS_LC_02Approximate Survey Struct

