

Hydraulics Unit Pre-Design Report (Pre-Scoping) for Structure #: 290050

Date: 10/03/2016

County: Davie	Stream: Dutchmans Creek	Assigned to: wgc
Road #: SR-1411	Road Name: Cana Rd	Prepared By: ldc
Division: 9	Location: 0.3 Mi. S. Jct. SR-1435	Hydro Reviewer:
Latitude: 35.98320	Longitude: -80.58020	Project Type: DB

Existing Structure

Structure Type: RC Deck/I Beams	Yr Built: 1958			
Span Arrangement: 5@30'00\	OAL (ft): 150.0	Skew: 90	Abutment Type: Spill Through	
Number of Barrels: 5	@ Span (ft): 30	x Rise (ft): 0		
Bed to Crown (ft): 17.0	Clear Roadway (ft): 24.0	Water Depth (ft): 1.0	Superstructure Depth:	
ADT: 790	Year ADT: 2012	Scour Code (item113): 3	Prior Survey Completed: Yes	Survey Date: 1996
Drainage Area: 41.7	Sq. Mi.	Drainage Area Source: USGS Stream Stats	Roadway Overtops at Q100: Yes	
Discharge Method: USGS Regression Equations	USGS Region: 1- Piedmont	Stream Gage Number(if applicable):		
Q10 (cfs): 4,000.0	Q25 (cfs): 5,200.0	Q50 (cfs): 6,200.0	Q100 (cfs): 7,100.0	QBFE (cfs): 7,861.0
Structure in Flood Hazard Zone: Yes	Panel #: 5820	Panel Date: 09/17/2008	Type of FIS: LIMITED	Date of FIS:

Enviromental

Quad Map: MOCKSVILLE, 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
☐ FWS	☐ HQW	☐ TVA	☐ Designated Shellfish Harvesting Area
☐ Sw	☐ Tr	☐ UWL	☐ Designated Public Mountain Trout Waters
☐ ORW	☐ w/in 0.5mi. of CA		

Up/Down Stream Features

Upstream Feature: Confluence w/ Stream(s)	Structure Type:			
Location:	Span Arrangement:	OAL (ft):		
Structure #:	Route:	Number of Barrels:	@ Span (ft):	x Rise (ft):
Latitude:	Longitude:	Bed to Crown (ft):	Year Built:	
Prior Survey Completed:	Survey Date:			
Downstream Feature: Confluence w/ Stream(s)	Structure Type:			
Location:	Span Arrangement:	OAL (ft):		
Structure #:	Route:	Number of Barrels:	@ Span (ft):	x Rise (ft):
Latitude:	Longitude:	Bed to Crown (ft):	Year Built:	
Prior Survey Completed:	Survey Date:			

Preliminary Structure Estimate [Office Estimate]

Structure Type:	Skew:
Dimensions/Spans:	

Notes

Overtops @ Sag



NC DEPARTMENT OF TRANSPORTATION ATTENTION:
DIVISION OF HIGHWAYS
STRUCTURE MANAGEMENT UNIT

Structure Safety Report

Routine Element Inspection

COUNTY: DAVIE STRUCTURE NUMBER: 290050 FREQUENCY: 24 MONTHS

FACILITY CARRIED: SR1411 MILE POST:

LOCATION: 0.3 MI. S. JCT. SR1435

FEATURE INTERSECTED: DUTCHMANS CREEK

LATITUDE: 35° 59' 0.31" LONGITUDE: 80° 34' 48.81"

SUPERSTRUCTURE: REINFORCED CONCRETE DECK ON I-BEAMS

SUBSTRUCTURE: END & INT.BENTS:RC CAP ON PRECAST PRESTRESSED CONCRETE PILES

SPANS: 5@30'0"

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

PRESENT CONDITION: Fair INSPECTION DATE: 11/17/2014

POSTED SV: 39 POSTED TTST: Not Posted

OTHER SIGNS PRESENT: (4) DELINEATORS



LOOKING NORTH

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

INSPECTED BY STEVE AUSTIN	SIGNATURE 	ASSISTED BY JASON ROLFSMEYER
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NATIONAL BRIDGE INVENTORY----- STRUCTURE INVENTORY AND APPRAISAL

Run Date: 02/09/2015

IDENTIFICATION							
(1) STATE NAME -NORTH CAROLINA	BRIDGE	290050		SUFFICIENCY RATING =		47.57	
(8) STRUCTURE NUMBER(FEDERAL)		000000000590050		STATUS =	Structurally Deficient		
(5) INVENTORY ROUTE (ON/UNDER) - ON		31014110					
(2) STATE HIGHWAY DEPARTMENT DISTRICT		2		CLASSIFICATION			CODE
(3) COUNTY CODE 59	(4) PLACE CODE	0		(112)NBIS BRIDGE SYSTEM -			YES
(6) FEATURE INTERSECTED - DUTCHMANS CREEK				(104)HIGHWAY SYSTEM	Is not on NHS		0
(7) FACILITY CARRIED SR1411				(26) FUNCTIONAL CLASS -	Local		09
(9) LOCATION 0.3 MI. S. JCT. SR1435				(100)STRAHNET HIGHWAY -	Not a STRAHNET Route		0
(11)MILEPOINT		0		(101)PARALLEL STRUCTURE -	No Parallel Structure		N
(16)LAT 35° 59' 0.31"	(17)LONG 80° 34' 48.81"			(102)DIRECTION OF TRAFFIC -	2-way Traffic		2
(98)BORDER BRIDGE STATE CODE	PCT SHARE			(103)TEMPORARY STRUCTURE -			
(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			
TYPE -	CODE	000		(58) DECK			6
(45) NUMBER OF SPANS IN MAIN UNIT		5		(59) SUPERSTRUCTURE			4
(46) NUMBER OF APPROACH SPANS				(60) SUBSTRUCTURE			7
(107)DECK STRUCTURE TYPE - 1	CODE			(61) CHANNEL & CHANNEL PROTECTION			6
(108)WEARING SURFACE / PROTECTIVE SYSTEM :				(62) CULVERTS			N
(A) TYPE OF WEARING SURFACE -	CODE			LOAD RATING AND POSTING			
(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-27		49
(27) YEAR BUILT		1958		(65) INVENTORY RATING METHOD -	Load Factor		1
(106)YEAR RECONSTRUCTED				(66) INVENTORY RATING -	HS-16		29
(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		790		APPRAISAL			
(30) YEAR OF ADT 2012	(109) TRUCK ADT PCT	6%		(67) STRUCTURAL EVALUATION			4
(19) BYPASS OR DETOUR LENGTH		2 MI		(68) DECK GEOMETRY			4
GEOMETRIC DATA				(69) UNDERCLEARANCES, VERTI & HORIZ			N
(48) LENGTH OF MAXIMUM SPAN		29 FT		(71) WATERWAY ADEQUACY			8
(49) STRUCTURE LENGTH		150 FT		(72) APPROACH ROADWAY ALIGNMENT			8
(50)CURB OR SIDEWALK: LEFT 1.125 FT RIGHT 1.125 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		26.5 FT		PROPOSED IMPROVEMENTS			
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS)		18 FT		(75) TYPE OF WORK -			CODE
(33) BRIDGE MEDIAN - No Median	CODE	0		(76) LENGTH OF STRUCTURE IMPROVEMENT			
(34) SKEW 0°	(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 1580	(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			11/17/2014
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: 02/09/2015

COUNTY :	DIVISION :	DISTRICT :	STRUCTURE NUMBER :	LENGTH :	
DAVIE	9	2	290050	150	FEET

ROUTE CARRIED :	FEATURE INTERSECTED :
SR1411	DUTCHMANS CREEK

LOCATED :	BRIDGE NAME :	CITY :
0.3 MI. S. JCT. SR1435		

FUNC. CLASS :	SYST.ON :	SYST.UNDER :	ADT & YR :	RAIL TYPE :
09	NFA	NFA	790 2012	LT 141 RT 141

BUILT :	BY :	PROJ :	FED.AID PROJ :	DESIGN LOAD :
1958	SHC	8.28254		H 15

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

NAVIGATION :			HT. CRN. TO BED :		WATER DEPTH :		
VC 0 FT	HC 0 FT		17 FT		1		FT

SUPERSTRUCTURE :	REINFORCED CONCRETE DECK ON I-BEAMS
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SUBSTRUCTURE :	END & INT.BENTS:RC CAP ON PRECAST PRESTRESSED CONCRETE PILES
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SPANS :	5@30'0"
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BEAMS OR GIRDERS :	4 LINES OF W24X76 I-BEAMS @ 7'0" CENTERS
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FLOOR :	ENCROACHMENT :	DECK (OUT TO OUT) :
7" RC SLAB		26.5 FT

CLEAR ROADWAY :	BETWEEN RAILS :	SIDEWALK OR CURB :
24 FT	26.25 FT	LT 1.125 FT RT 1.125 FT

VERT.CL.OVER :
999.9 FT

INV.RTG. :	OPE.RTG. :	CONTR.MEMBER :	POSTED :				
HS-16	HS-27	IntBeams	SV 39	TTST	LGW	DATE	08/30/2006

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

UNDER ROUTES AND CLEARANCES

REMARKS :



LOOKING WEST



SOUTH APPROACH



DOWNSTREAM



UPSTREAM



UPSTREAM



NORTH APPROACH



LOOKING SOUTH



NORTH POSTING



BEARING ASSY PIER 4 SEAT 2



PIER 1



SUPERSTRUCTURE SPAN 2



PIER 2



UPSTREAM



DOWNSTREAM

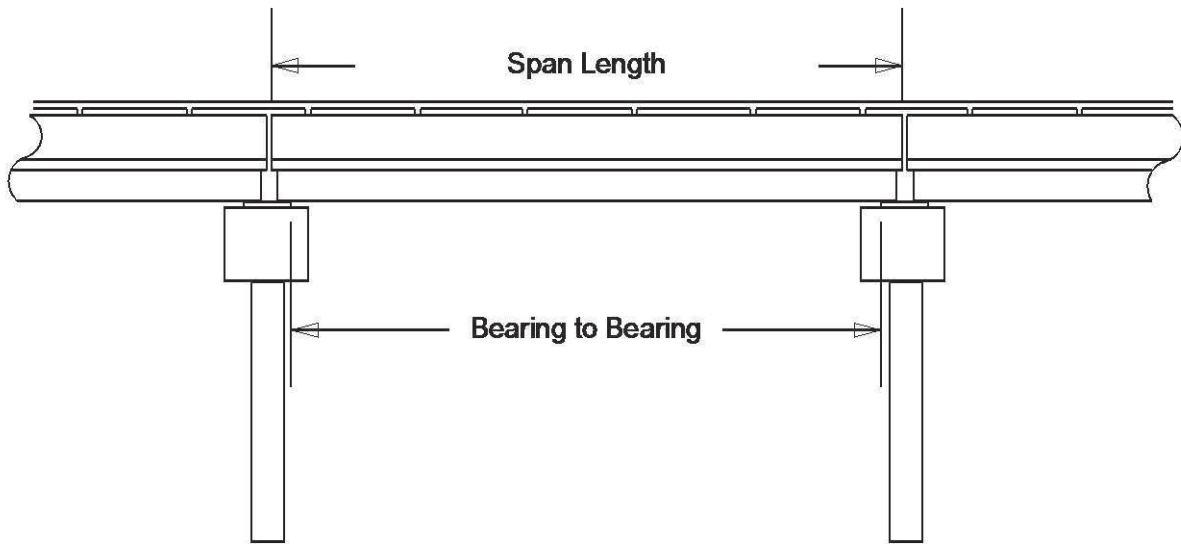


LOOKING EAST

Structure Data Worksheet

Spans

County: DAVIE Structure No: 290050 Date: Inspected By: SWA



Span No	Span Length	Bearing to Bearing	Comments
1	30.0	28.167	NBIS : 145.0 FT
2	30.0	29.0	
3	30.0	29.0	
4	30.0	29.0	
5	30.0	28.167	

Stream Bed Soundings

(See next sheet for profile sketch)

Bridge No: 290050 County: DAVIE Date: By: SWA

Record sounding from top of rail. Other location if needed: TOP OF CAP

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				
0	5.3	Top of Cap			
2.5	5.3				
2.501	6.6	FACE OF END BENT 1	2.501	6.6	FACE OF END BENT 1
6	6.7				
22	14.5				
27	15.4				
30	17.3	BENT 1	30	19.9	BENT 1
32	18.8	Water Surface/Water Edge (WSWE)			
36	19.4				
42	19.5				
55	19.7				
60	19.2	BENT 2	60	19	BENT 2
60.1	18.3	Water Surface/Water Edge (WSWE)			
64	15				
68	12.6				
80	12.3				
90	13.9	BENT 3	90	13	BENT 3
100	13.1				
120	12.5	BENT 4	120	11.7	BENT 4
136	11.7				
144	6.8				
147.499	5.4	FACE OF END BENT 2	147.499	6.7	FACE OF END BENT 2
147.5	5.3	Top of Cap			
150	5.3				

DOWNSTREAM			UPSTREAM		
Distance (Station) (ft)	Sounding (ft)	Description	Distance (Station) (ft)	Sounding (ft)	Description
150.1	0				

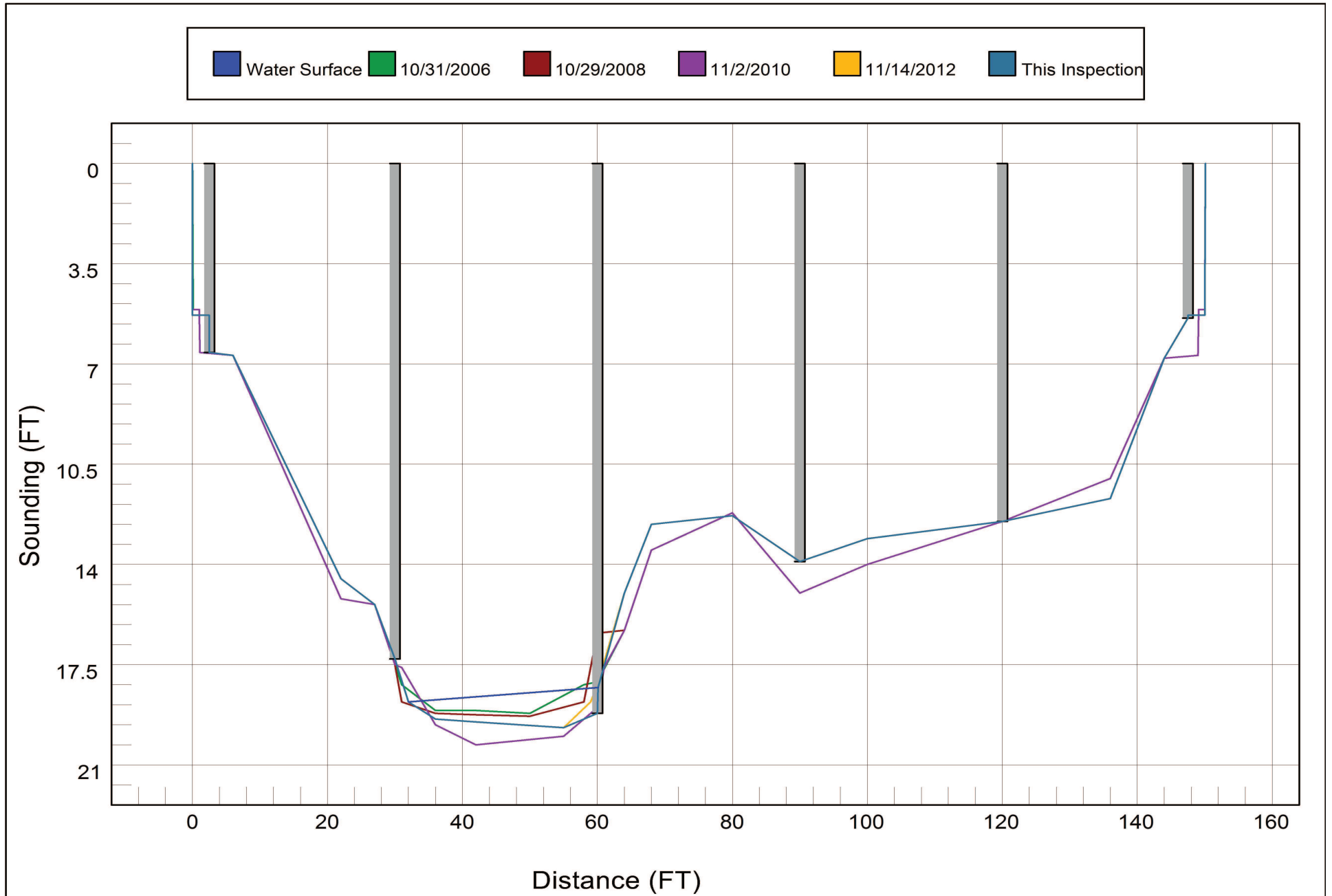
Bridge: 290050

County DAVIE

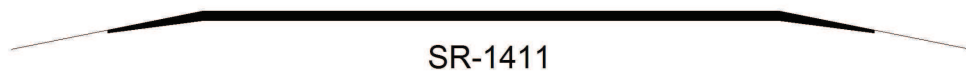
Date:

STREAMBED PROFILE (Downstream)

Top of Rail = 0 FT (Sounding)



Bridge Inspection Field Sketch

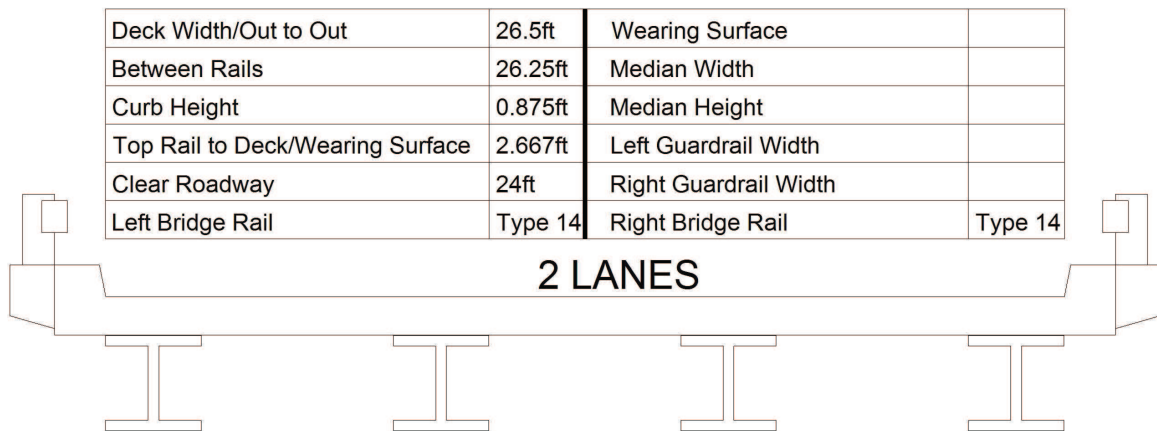


Roadway	18ft Wide	2 Paved Lanes	Looking North
Left Shoulder	6ft Wide		6ft Unpaved
Right Shoulder	6ft Wide		6ft Unpaved
Left Guardrail			
Right Guardrail			

MEASUREMENTS VERIFIED 11-17-14 JER
MEASUREMENTS VERIFIED 11-14-12 BY KCI

Title APPROACH ROADWAY		Description SHEET 1	
Bridge No: 290050	Drawn By: BTH	Date: 10/29/08	File Name: S0090001956

Bridge Inspection Field Sketch

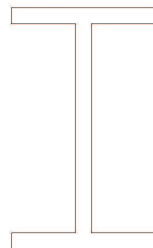


Measurements for Span #	1	Spans 2 Thru 5 Similar	
Deck Thickness	0.583	Left Overhang	2.75
Top of Rail to Bottom of Beam	2.667	Right Overhang	2.75

Beam No	Beam Type	Spacing	Comments
1	Steel I Beam	7.0 ft.	
2	Steel I Beam	7.0 ft.	
3	Steel I Beam	7.0 ft.	
4	Steel I Beam		

ABUTS & PIERS: RC CAPS ON 4- 1.0 ft. PPC PILES.

INT. DIAPH. ARE 15 IN. CHANNELS SPACED AT 1/2 PT. IN ALL BAYS AND SPANS.



I-BEAMS	WIDTH	HEIGHT	WEB	FLANGE
ALL	.75 ft.	2.0 ft.	.031 ft.	.047 ft.

MEASUREMENTS VERIFIED 11-17-14 JER

MEASUREMENTS VERIFIED 11-14-12 BY KCI

Title

SUPERSTRUCTURE

Description

SHEET 2

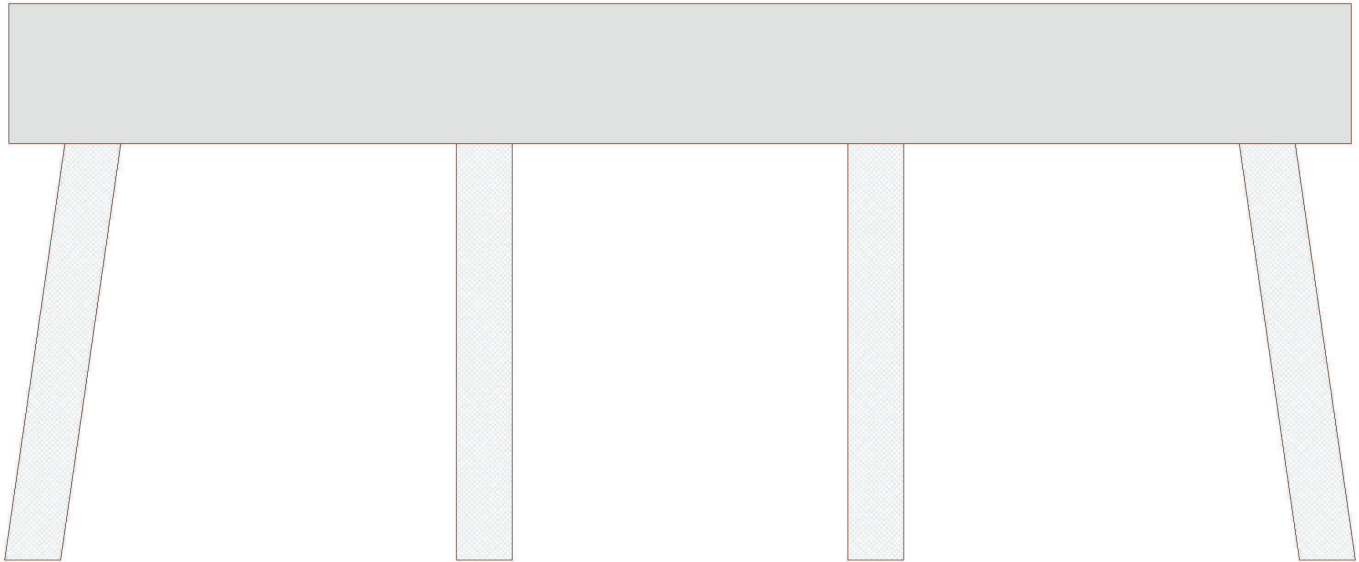
Bridge No: 290050

Drawn By: BTH

Date: 10/29/08

File Name: S0090001957

Bridge Inspection Field Sketch



Cap Information			Material Precast Concrete							
Length	Width	Height	Left Overhang	Right Overhang	Left Beam to End of Cap.	Right Beam to End of Cap.				
24.000 ft.	2.500 ft.	2.500 ft.	1.500 ft.	1.500 ft.	1.500 ft.	1.500 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	7.0 ft.	1.0 ft.	1.0 ft.		Battered	No	No	No	No
2	Concrete	7.0 ft.	1.0 ft.	1.0 ft.		Vertical	No	No	No	No
3	Concrete	7.0 ft.	1.0 ft.	1.0 ft.		Vertical	No	No	No	No
4	Concrete		1.0 ft.	1.0 ft.		Battered	No	No	No	No
MEASUREMENTS VERIFIED 11-17-14 JER MEASUREMENTS VERIFIED 11-14-12 BY KCI										
Bent/Abutment #: 1			Similar Bents: PIERS 1-4							

Title

PIERS

Description

SHEET 3

Bridge No: 290050

Drawn By: BTH

Date: 10/29/2008

File Name: S0090003026

Dutchman Creek Limited Detail Study Plan: Floodway Run 10/5/2016
Cana Rd (DC) for Structure ID: LDS_DC_09-1 Approximate Survey St

