



NC DEPARTMENT OF TRANSPORTATION ATTENTION
 DIVISION OF HIGHWAYS
 BRIDGE MAINTENANCE UNIT

BRIDGE INSPECTION REPORT

INSPECTION TYPE: Routine Inspection

COUNTY MECKLENBURG BRIDGE NUMBER 590215 INSPECTION CYCLE 2 YRS
 ROUTE I77 RAMP ACROSS IRWIN CREEK M.P. 8930

LOCATION 0.15 MI. N. JCT. NC160

SUPERSTRUCTURE REINFORCED CONCRETE DECK ON I-BEAMS

SUBSTRUCTURE E.BENTS:RC CAPS ON STEEL PILES,INT.BENTS:4COL.RC POST & BEAM

SPANS 2@88'6, 2@82'0

LONGITUDE 80° 52' 17.9" LATITUDE 35° 13' 10.0"

PRESENT CONDITION FAIR INVENTORY RATING HS 29.5

INSPECTION DATE 06/19/2007 OPERATING RATING HS 49.1

PRESENT POSTING Not Posted PROPOSED POSTING NO POSTING REQUIRED

COMPUTER UPDATE 01. 09. 08 ANALYSIS DATE 12. 10. 07

POSTING LETTER DATE _____ SUFFICIENCY RATING _____

OTHER SIGNS PRESENT NONE



LOOKING NORTH

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

NATIONAL BRIDGE INVENTORY — STRUCTURE INVENTORY AND APPRAISAL

Run Date: 01/09/2008

IDENTIFICATION				CLASSIFICATION	
(1) STATE NAME -NORTH CAROLINA	BRIDGE	590215	SUFFICIENCY RATING =		72
(8) STRUCTURE NUMBER(FEDERAL)		000000001190215	STATUS =	Structurally Deficient	
INVENTORY ROUTE (ON/UNDER) - ON		117000770			
(2) STATE HIGHWAY DEPARTMENT DISTRICT		10			
(3) COUNTY CODE 119	(4) PLACE CODE	00000	(112)NBIS BRIDGE SYSTEM -		YES
(6) FEATURE INTERSECTED - IRWIN CREEK			(104)HIGHWAY SYSTEM NHS Route		1
(7) FACILITY CARRIED I77 RAMP			(26) FUNCTIONAL CLASS - Arterial - Interstate		11
(9) LOCATION 0.15 MI. N. JCT. NC160			(100)STRAHNET HIGHWAY - Not a STRAHNET Route		0
(11)MILEPOINT		8930	(101)PARALLEL STRUCTURE - No Parallel Structure		N
(16)LAT 35° 13' 10.0"	(17)LONG 80° 52' 17.9"		(102)DIRECTION OF TRAFFIC - 1-way Traffic		1
(98)BORDER BRIDGE STATE CODE	PCT SHARE		(103)TEMPORARY STRUCTURE - Not Temporary		
(99)BORDER BRIDGE STRUCTURE NO			(110)DESIGNATED NATIONAL NETWORK - Is Part of		1
			(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				CONDITION	
(43) STRUCTURE TYPE MAIN: Steel			(58) DECK		6
TYPE - Stringer Multibeam or Girder	CODE	302	(59) SUPERSTRUCTURE		5
(44) STRUCTURE TYPE APPR :			(60) SUBSTRUCTURE		4
TYPE -	CODE	0	(61) CHANNEL & CHANNEL PROTECTION		7
(45) NUMBER OF SPANS IN MAIN UNIT		4	(62) CULVERTS		N
(46) NUMBER OF APPROACH SPANS					
(107)DECK STRUCTURE TYPE - Concrete cast-in-place	CODE	1	LOAD RATING AND POSTING		CODE
(108)WEARING SURFACE / PROTECTIVE SYSTEM :			(31) DESIGN LOAD HS 20+MOD		6
(A) TYPE OF WEARING SURFACE - Concrete	CODE	1	(64) OPERATING RATING - HS-49		188
(B) TYPE OF MEMBRANE - None	CODE	0	(66) INVENTORY RATING - HS-29		153
(C) TYPE OF DECK PROTECTION - None	CODE	0	(70) BRIDGE POSTING - No Posting Required		5
			(41) STRUCTURE OPEN, POSTED ,OR CLOSED		A
			DESCRIPTION - Open, No Restriction		
AGE AND SERVICE				APPRAISAL	
(27) YEAR BUILT		1970	(67) STRUCTURAL EVALUATION		4
(106)YEAR RECONSTRUCTED		0	(68) DECK GEOMETRY		7
(42) TYPE OF SERVICE : ON - Highway			(69) UNDERCLEARANCES,VERTI & HORIZ		N
UNDER - Waterway	CODE	15	(71) WATERWAY ADEQUACY		8
(28) LANES: ON STRUCTURE 1 UNDER STRUCTURE			(72) APPROACH ROADWAY ALIGNMENT		8
(29) AVERAGE DAILY TRAFFIC		9000	(36) TRAFFIC SAFETY FEATURES		0110
(30) YEAR OF ADT 1998	(109) TRUCK ADT PCT	16 %	(11)SCOUR CRITICAL BRIDGES		8
(19) BYPASS OR DETOUR LENGTH		MI			
GEOMETRIC DATA				PROPOSED IMPROVEMENTS	
(48) LENGTH OF MAXIMUM SPAN		89 FT	(75) TYPE OF WORK -	CODE	311
(49) STRUCTURE LENGTH		341 FT	(76) LENGTH OF STRUCTURE IMPROVEMENT		375 FT
(50)CURB OR SIDEWALK: LEFT 0.0 FT RIGHT 0.0 FT		0.0 FT	(94) BRIDGE IMPROVEMENT COST		\$1,216,000
(51) BRIDGE ROADWAY WIDTH CURB TO CURB		24.0 FT	(95) ROADWAY IMPROVEMENT COST		\$304,000
(52) DECK WIDTH OUT TO OUT		26.0 FT	(96) TOTAL PROJECT COST		\$1,824,000
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS)		24.0 FT	(97) YEAR OF IMPROVEMENT COST ESTIMATE		207
(33) BRIDGE MEDIAN - No Median	CODE	0	(114)FUTURE ADT 18000	(115) YEAR FUTURE ADT	2025
(34) SKEW 65° (35) STRUCTURE FLARED		NO			
(10) INVENTORY ROUTE MIN VERT CLEAR		99 FT 99 IN	INSPECTIONS		
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR		24.0 FT	(90) INSPECTION DATE		06/19/2007
(53) MIN VERT CLEAR OVER BRIDGE RDWY		99 FT 99 IN	(92) CRITICAL FEATURE INSPECTION :	(93) CFI DATE	
(54) MIN VERT UNDERCLEAR REF Not a Highway or Railroad			A) FRACTURE CRIT DETAIL - NO	A)	
(55) MIN LAT UNDERCLEAR RT REF Not a Highway or Railroad		99.9 FT	B) UNDERWATER INSP - NO	B)	
(56) MIN LAT UNDERCLEAR LT REF -		0.0 FT	C) OTHER SPECIAL INSP NO	C)	
			SCOUR		
NAVIGATION DATA					
(38) NAVIGATION CONTROL - No Navigational Control	CODE	0			
(111)PIER PROTECTION - Not Applicable	CODE				
(39) NAVIGATION VERTICAL CLEARANCE		0			
(116)VERT - LIFT BRIDGE NAV MIN VERT CLEAR					
(40) NAVIGATION HORIZONTAL CLEARANCE		0			

BRIDGE INSPECTION RECORD AND SUMMARY

INSPECTION TYPE Routine Inspection
 BRIDGE NO. 590215 COUNTY MECKLENBURG ROUTE I77 RAMP OVER IRWIN CREEK
 STRUCTURE TYPE REINFORCED CONCRETE DECK ON I-BEAMS
 ROUTE ORIENTATION N - S SPANS 2@88'6, 2@82'0

EVALUATION CODE: 0-2 CRITICAL, 3 & 4 POOR, 5 & 6 FAIR, 7-9 GOOD

INSPECTION ITEM				ITEM 61				
DECK ITEMS			GRADES					
1. WEARING SURFACE				45. CHANNEL & CHANNEL PROT.	a. WATERWAY		7	
2. DECK NO. OF EA TYPE					b. ALIGNMENT		8	
SPN GRADE					c. SCOUR		7	
RATES SI & A					d. SLOPE PROT., RIP-RAP, DIKES, ETC.		7	
ITEM 58				50. APPROACH ROADWAY CONDITION			5	
3. RAILING				51. APPROACH SLABS				
a. CONCRETE				52. PAINT SYSTEM			CODE A 5	
b. TIMBER				53. UTILITIES				
c. ALUMINUM			8	54. RESPONSE TO LIVE LOAD			7	
d. STEEL				55. ESTIMATED REMAINING LIFE			16	
4. CURBS, WHEELGUARDS, PARAPETS, MEDIANS			7					
5. WALKWAYS (ON OR ATTACHED TO STRUCTURE)				60. REGULATORY SIGN NOTICE ISSUED			NO	
6. DECK EXP JTS. OR DEVICES.				61. PROMPT-ACTION NOTICE ISSUED			NO	
NO. OF EACH				62. PRESENTLY POSTED			NO	
a. STEEL PL OR FINGER				63. TOT. FIELD INSP TIME (INCLUDE WRITE UP)(MAN HR)			6	
b. MISC PREFAB				64. TOTAL SNOOPER INSP. TIME (HRS)			0	
c. COMPRESSION SEAL				65. TOTAL TRAFFIC CONTROL TIME (MAN HRS)			0	
d. STANDARD JOINTS			4 5					
e. OPEN JOINTS								
7. DECK DEBRIS (INCLUDES EXCESS SAND/GRAVEL)			7					
				70. SI&A GENERAL CONDITION RATINGS				
SUPER STR. (FM. 1 (90)B TRUSS) ITEM 59				a. DECK	ITEM 58		6	
10. LONGITUDINAL BEAMS OR GIRDERS			5	b. SUPERSTRUCTURE	ITEM 59		5	
11. LONGITUDINAL JOIST OR STRINGERS				c. SUBSTRUCTURE	ITEM 60		4	
12. INT. DIAP'S, X-FRAMES, BRACING & CONN'S			7	d. CHANNEL & CHANNEL PROT.	ITEM 61		7	
13. END DIAP'S, CURTAIN WALLS, & CONN'S			7					
14. FLOOR BEAMS AND CONNECTIONS				71. SI&A FIELD APPRAISAL RATINGS				
15. BEARING ASSEMBLIES (INCLUDING MISALIGN)			5	a. WATERWAY ADAQUACY			8	
16. DRAINAGE SYSTEM (ON STRUCTURE)			7	b. APPR. RDWY. ALIGNMENT			8	
17. MOVABLE SPAN MACHINERY								
				72. FIELD SCOUR EVALUATION				U
SUB STR. ITEMS. ITEM 60 (INCLUDE SCOUR)								
				USE OF INSP. ACCESSIBILITY EQUIPMENT				
35. TIM SUB STR.				SNOOPER (CODE S, 4, OR N)			HRS NO	
a. ABUT. & INT. BENT CAPS & RISERS				LADDER			NO	
b. PILES, POST, SILLS, & BRACING				BUCKET TRUCK			NO	
c. BULKHEADS, WING'S, & TIE BACKS				BOAT			NO	
36. CONC SUB STR.				OTHER			NO	
a. ABUT. & INT. BENT CAPS			7					
b. ABUT. & BENT COL'S BREASTWALLS			7					
c. ABUT. & INT. BENT PILES								
d. BACKWALLS, WING'S, RETAIN. WALLS			7					
e. ABUT. & BENT FOOTINGS & SILLS								
37. STEEL SUB STR.				SPECIAL INSPECTION REQUESTED FOR				
a. ABUT. & INT. BENT CAPS & RISERS								
b. PILES, BRACING, AND BULKHEADS			4					
38. FOUNDATION PILES TYPE MATERIAL				NOTE				
39. SLOPE PROT., RIP-RAP (INCLUDE DRAINAGE)			6					
40. FENDER SYSTEMS				80. INSPECTED BY:			RG Kaban	
41. DRIFT			7	81. REVIEWED BY:				

Bridge I&A Form 1(82)H		FIELD INSPECTION REPORT <u>Bridge Inspection & Analysis</u>	
State of North Carolina Dept. of Transportation Division of Highways			
Team Leader RG KIKER			
Assisted By SWA			
Item No.	Grade		
2a	6	TRANSVERSE CRACKS IN ALL SPANS UP TO 1/16 INCH WIDE.	
		CRACKS IN THE BOTTOM OF THE DECK UP TO 1/32 INCH WIDE IN ALL SPANS	
4	7	H/L CRACKS IN BOTH PARAPET WALLS WITH EFFLO.	
6d	5	ALL EXPANSION JOINTS ARE LOW AND LEAKING	
10	5	SURFACE RUST ON THE BOTTOM FLANGES OF ALL BEAMS.	
		RUST WITH SECTION LOSS UP TO 1/8 INCH DEEP ON EXT. BEAM 1 SPAN 4 BOTTOM FLANGE AND LOWER WEB.	
		SECTION LOSS UP TO 1/4 INCH ON THE ENDS OF BEAMS 2 SPANS 3 AND 4 AT PIER 3 FROM THE BEAM END OUT 30 INCHES.	
		SECTION LOSS UP TO 1/4 INCH ON THE BOTTOM FLANGE AND WEB OF BEAM 4 SPAN 4 AT PIER 3 FROM BEAM END OUT 30 INCHES.	
		SECTION LOSS UP TO 1/16 INCH ON THE BOTTOM FLANGE AND WEB OF BEAM 3 SPAN 3 AT PIER 2 FROM THE BEAM END OUT 3 FT.	
		BEAM 4 SPANS 1 AND 2 AT PIER 1 RUST ON THE BEAM ENDS WITH UP TO 1/16 INCH PITTING FROM THE BEAM END OUT 30 INCHES.	
15	5	RUST ON BEARINGS WITH UP TO 1/8 INCH SECTION LOSS.	
52	5	SEE BEAMS	
37b	4	CONCRETE HAS BEEN PLACED UNDER ABUT. 2 CAP WHERE THE FOUNDATION PILES WERE EXPOSED AND RUSTED.	
39	6	ABUT. 2 SLOPE SETTLEMENT REPAIRED AT ABUT. 2 LEFT SIDE.	
		SLOPE PROTECTION REPAIRED AT BRACE PILE 3 AT ABUT.. 2.	
		WASH ON ABUT.2 SLOPE AT BRACE PILE 3 UP TO 2 FT. DEEP X 12 FT. WIDE X 12 FT. LONG.	
		EARTH SLOPE SETTLED UP TO 1 FT. AT ABUT. 1 CAP.	

Bridge I&A Form 1(82)H
State of North Carolina
Dept. of Transportation
Division of Highways

FIELD INSPECTION REPORT

Bridge Inspeccion & Analysis

Team Leader **RG KIKER**

Assisted By **SWA**

Item No.	Grade	
50	5	THERE IS UP TO 4 INCHES OF SETTLEMENT IN ALL THE SHOULDERS NEAR THE BRIDGE. WASH ON THE LEFT SHOULDER ON THE NORTH END OF THE BRIDGE APPROX. 25 FT. FROM THE BRIDGE UP TO 3 FT. DEEP UNDER THE ROADWAY AND CURB HAS BEEN REPAIRED

BRIDGE INSPECTOR'S RECOMMENDATION FOR MAINTENANCE REPAIRS

Bridge: 590215

County MECKLENBURG

Date: 06/19/2007

These Repairs Should Be Made Within Twelve Months From Date Of This Inspection

Function Code	Description of Function	Unit	Quantity	Remarks	Est. Cost
576	Maintenance of standard deck expansion joints	Lin-ft	96	ALL EXPANSION JOINTS LOW AND LEAKING	
554	Partial clenaing and partial painting of structural steel	Man-Hours	2000	RUST ON STEEL	
560	Maintenance and repairs to concrete bridge floors	Sq-ft	1500	CRACKS IN TOP OF THE DECK	
585	Maintenance of slope and shore devices	Man-Hours	200	SETTLEMENT IN EARTH SLOPE UNDER BOTH ENDS OF THE BRIDGE, BRUSH AND TREES AT STRUCTURE	
556	Bridge approaches, surfacing or pavement replacement or repair	Man-Hours	100	SETTLEMENT AT ALL CORNERS OF THE BRIDGE	



SETTLEMENT AT ALL CORNERS OF THE BRIDGE



TRANSVERSE CRACKS IN ALL SPANS



ALL EXPANSION JOINTS LOW AND LEAKING



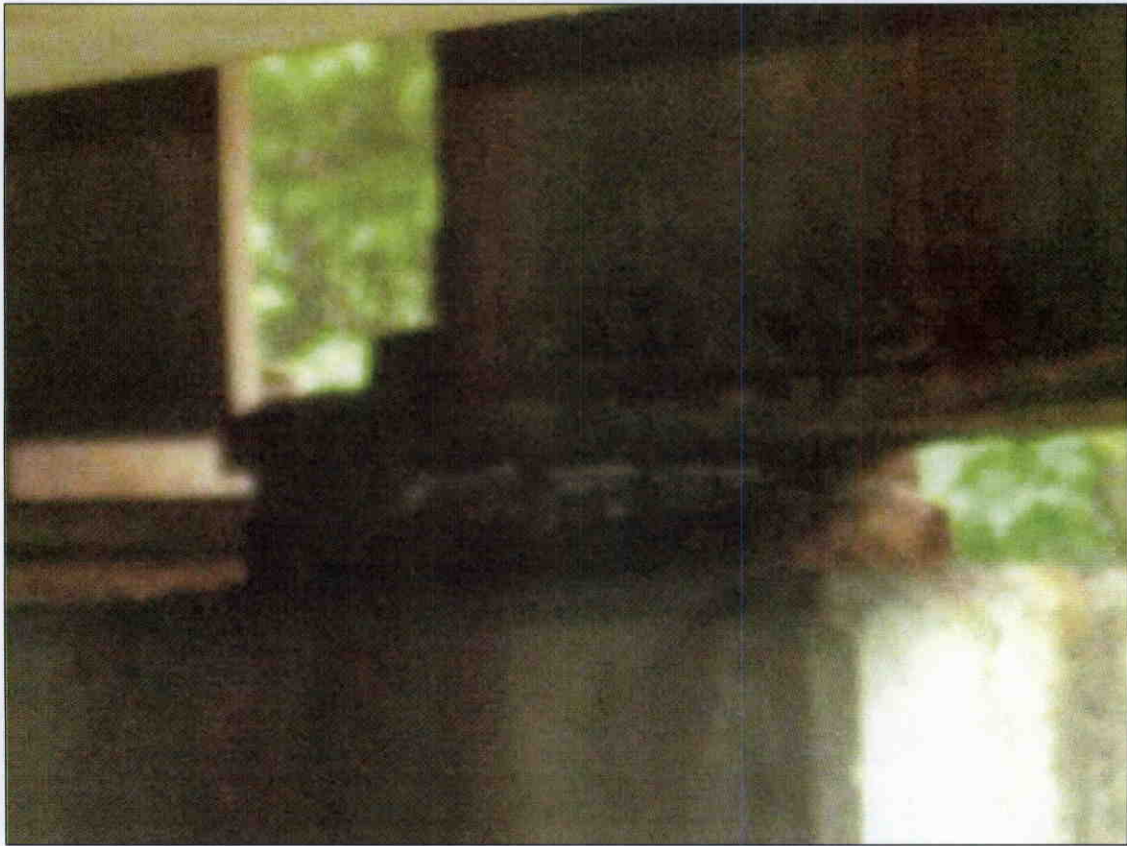
VERTICAL CRACKS IN BOTH PARAPET WALLS



TREES GROWING OVER THE RAILS



WASH AT NORTH END OF THE BRIDGE LEFT SIDE REPAIRED



RUST ON THE BEAM ENDS AND BEARINGS AT THE PIERS



SURFACE RUST ON BOTTOM FLANGES IN ALL SPANS



CRACKS IN THE BOTTOM OF THE DECK IN ALL SPANS



WASH ON ABUT 2 EARTH SLOPE



VOID AT THE NE CORNER HAS BEEN REPAIRED WITH GROUT



RUST ON THE BEARINGS AND BEAM ENDS AT THE ABUTMENTS

Structure Data Worksheet

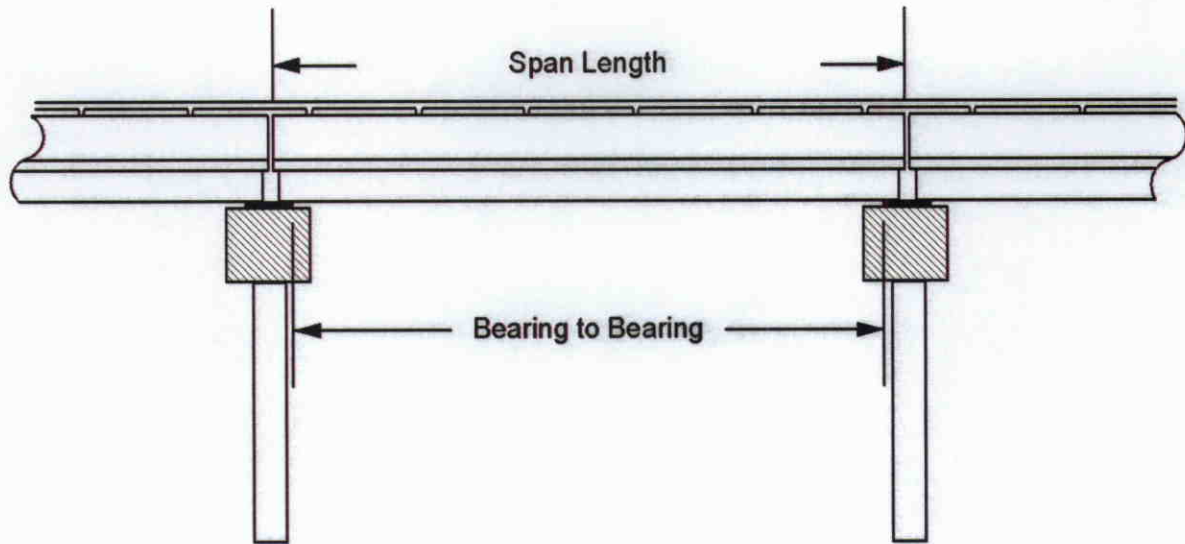
Spans

County: MECKLENBURG

Structure No: 590215

Date: 06/19/2007

Inspected By: RGK



Span No	Span Length	Bearing to Bearing	Comments
1	88.5 ft.	SEE PLANS	
2	88.5 ft.	SEE PLANS	
3	82 ft.	SEE PLANS	
4	82 ft.	SEE PLANS	

BRIDGE MAINTENANCE UNIT
DATA ON EXISTING STRUCTURE

RUN DATE 01/09/2008

COUNTY : MECKLENBURG	DIV : 10	DIST : 2	STRUCTURE NUMBER : 590215	LENGTH : 341 FEET
ROUTE CARRIED : 177 RAMP		FEATURE INTERSECTED : IRWIN CREEK		
LOCATED : 0.15 MI. N. JCT. NC160		BRIDGE NAME :		
FUNC. CLASS : 11	SYST.ON : FA	SYST.UNDER : NFA	ADT & YR : 9000 1998	RAIL TYPE : LT 019 RT 019
BUILT : 1970	BY : SHC	PROJ : 8.1654710	FED.AID PROJ : SF-29-1(116)	DESIGN LOAD : HS 20+MOD
REHAB : 0	BY :	PROJ :	ALIGNMENT : TAN	SKEW : 155
NAVIGATION : VC 0 FT HC 0		HT. CRN. TO BED : 36 FT		LANES : ON 1 UNDER
WATER DEPTH : 2 FT				
SUPERSTRUCTURE : REINFORCED CONCRETE DECK ON I-BEAMS				
SUBSTRUCTURE : E.BENTS:RC CAPS ON STEEL PILES,INT.BENTS:4COL.RC POST & BEAM				
SPANS : 2@88'6, 2@82'0				
BEAMS OR GIRDERS : 4 LINES OF 36 I-BEAMS @ 7'0 CENTERS				
FLOOR : 7 5/8 RC SLAB	ENCROACHMENT :		DECK (OUT TO OUT) : 26.0 FT	
CLEAR ROADWAY : 24.0 FT	BETWEEN RAILS : 24.0 FT		SIDEWALK OR CURB : LT 0.0 FT RT 0.0 FT	
VERT.CL.OVER : 99 FT 99 IN	VERT.CL.UNDER : 00 FT 00 IN		HOR.CL.UNDER : 0.0 FT	
INV.RTG. : HS-29	OPE.RTG. : HS-49	CONTR.MEMBER : Copyint bm b	POSTED : SV 0 TTST 0 DATE	
SYSTEM : Primary Interstate			GREEN LINE ROUTE : N	
2ND OPENING :		3RD OPENING :		4TH OPENING :
5TH OPENING :				
REMARKS :				

Stream Bed Soundings

(See next sheet for profile sketch)

Bridge No: 590215 County: MECKLENBURG Date: 06/19/2007 By: RGK

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

Distance from Highwater Mark to top of rail: 17 Location of Highwater Mark: _____

DOWNSTREAM			UPSTREAM		
Distance (Station)	Sounding	Description	Distance (Station)	Sounding	Description
0	0				
0.10	6.50	ABUTMENT 1			
3	6.50		3	8.333	FACE OF CAP
3.10	8	FACE OF CAP			
20	8				
40	13				
60	16.50				
88.50	22.50	PIER 1			
92	26				
115	32.1670				
130	36	WSWE			
137	36.1670				
156	36.6670				
177	37.75	PIER 2	177	37.75	PIER 2
184	38.4170				
200	38.4170				
210	38				
216	36	WSWE			
224	35				
259	27	PIER 3	259	27.5	PIER 3
290	20.25				
300	17.5830				
338	7.6670	FACE OF CAP	338	9	FACE OF CAP
338.10	6.50				
341	6.50	ABUTMENT 2			

DOWNSTREAM			UPSTREAM		
Distance (Station)	Sounding	Description	Distance (Station)	Sounding	Description
341.10	0				

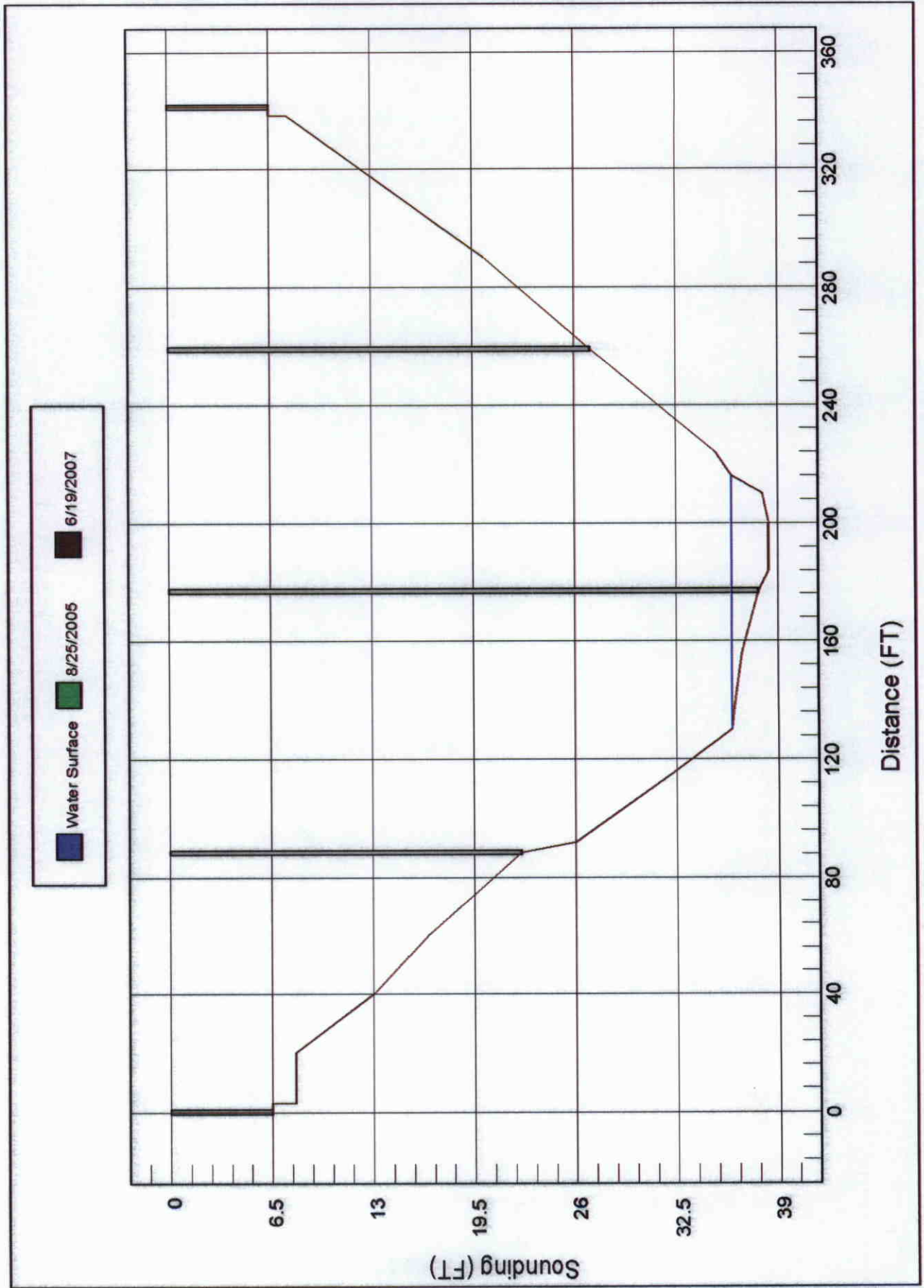
Bridge: 590215

County MECKLENBURG

Date: 06/19/2007

STREAMBED PROFILE (Downstream)

Top of Rail = 0 FT (Sounding)



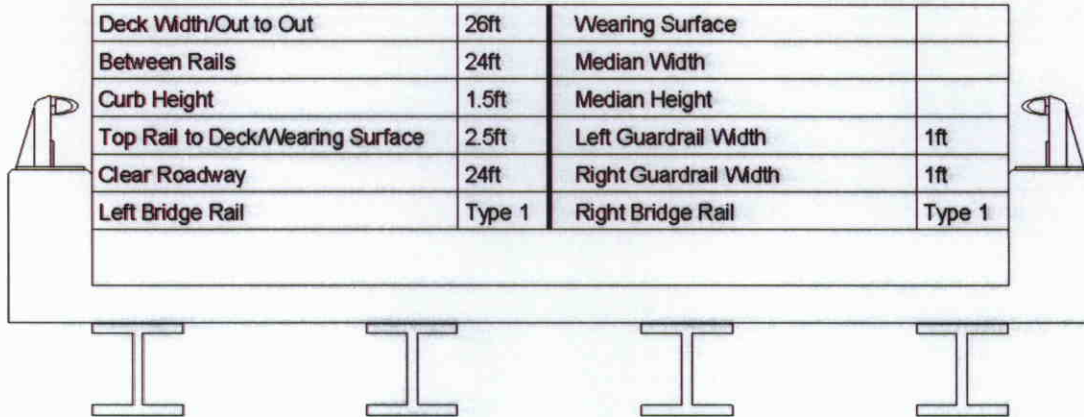
Bridge Inspection Field Sketch



Roadway	16ft Wide	2 Paved Lanes	Looking North
Left Shoulder	4ft Wide	4ft Paved	
Right Shoulder	4ft Wide	4ft Paved	
Left Guardrail			
Right Guardrail			

Title APPROACH ROADWAY		Description SHEET 1	
Bridge No: 590215	Drawn By: S.AUSTIN	Date: 06/19/2007	File Name: S0082000300

Bridge Inspection Field Sketch



Measurements for Span #	1	ALL SPANS SIMILAR	
Deck Thickness	0.635	Left Overhang	2.5
Top of Rail to Bottom of Beam	6.667	Right Overhang	2.5

Beam No	Beam Type	Spacing	Comments
1	Steel I Beam	7 ft.	ALL SPANS SIMILAR
2	Steel I Beam	7 ft.	
3	Steel I Beam	7 ft.	
4	Steel I Beam		

BEAM DETAIL =36 I-BEAMS

SUBSTRUCTURE DETAIL=E.BENTS : RC CAPS ON STEEL PILES,
INT. BENTS:4COL. RC POST & BEAM

Title TYPICAL SECTION		Description SHEET 2	
Bridge No: 590215	Drawn By: S.AUSTIN	Date: 06/19/2007	File Name: S0082000301



GUARD RAIL TERMINAL AT THE SE END NE AND NW SIMILAR



LOOKING NORTH



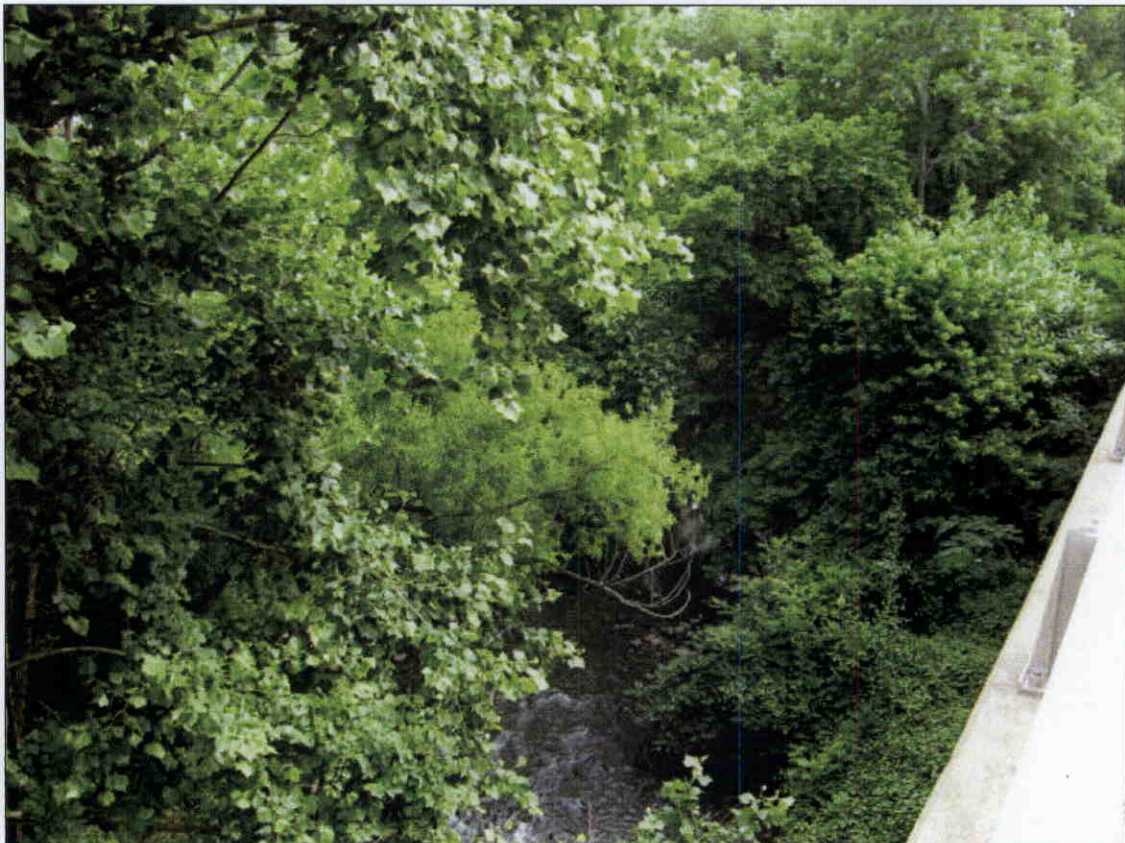
EXPANSION JOINTS AT THE PIERS AND ABUTMENTS



GUARD RAIL LOOKING SOUTH



GUARD RAIL LOOKING NORTH



LOOKING UPSTREAM



GUARD RAIL CONNECTION NW CORNER NE AND SE SIMILAR



POST SPACING AT THE NW CORNER NE AND SE SIMILAR



LOOKING SOUTH



PIER 3 LOOKING SOUTH



LEFT END OF PIER 3 CAP



SUPERSTRUCTURE



STREAM ALIGNMENT LOOKING DOWNSTREAM LOOKING DOWNSTREAM



ABUTMENT 2 ABUTMENT 1 SIMILAR



LOOKING EAST



GUARD RAIL POST SPACING IN THE MIDDLE



LOOKING WEST