NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STRUCTURE MANAGEMENT UNIT

ATTENTION: prompt action request, sketches revised, clearances revised

Structure Safety Report

Routine Element Inspection - Contract

STRUCTURE NUMBER: 110156 **SAP STRUCTURE NO:** 0120156 **FHWA STRUCTURE NO:** 000000000230156

DIVISION: 13 **COUNTY:** BURKE **INSPECTION DATE:** 08/09/2023 **FREQUENCY:** 24 MONTHS

FACILITY CARRIED: SR1755 **MILE POST:**

LOCATION: .1 MI.S.JCT.SR1756

FEATURE INTERSECTED: I-40

LATITUDE: 35° 44' 10.3" **LONGITUDE:** 81° 30' 43.98"

SUPERSTRUCTURE: REINF.CONC.FLOOR ON CONT.STL.PL.GDRS.+H(S.I.P. METAL FORMS)

SUBSTRUCTURE: E.BTS: RC CAPS/H-PILES; RC DRILLED SHAFT PIER

SPANS: 2 SPANS. SEE SPAN PROFILE SHEET FOR SPAN DETAILS

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

GRADES: (Inspector/NBI Coding) **DECK** 6 / 6 **SUPERSTRUCTURE** 7 / 7 **SUBSTRUCTURE** 7 / 7 **CULVERT** N / N

POSTED SV: Not Posted **POSTED TTST:** Not Posted

OTHER SIGNS PRESENT: none

south approach looking north

Sign noticed issued for		Number Required
NO	**WEIGHT LIMIT**	0
NO	**DELINEATORS**	0
NO	**NARROW BRIDGE**	0
NO	**ONE LANE BRIDGE**	0
NO	**LOW CLEARANCE**	0

DIRECTION OF INSPECTION S-N

DIRECTION MATCHES PLANS

INSPECTED BY	SIGNATURE	ASSISTED BY
Chris Perry		Isaiah Chapman

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

11/01/2023

IDENTIFICATION

(1) STATE NAME NORTH CAROLINA BRIDGE **110156**
(8) STRUCTURE NUMBER (FEDERAL) **0230156**
(5) INVENTORY ROUTE (ON/UNDER) ON **31017550**
(2) STATE HIGHWAY DEPARTMENT DISTRICT **13**
(3) COUNTY CODE (FEDERAL) **23** (4) PLACE CODE **14280**
(6) FEATURE INTERSECTED **I-40**
(7) FACILITY CARRIED **SR1755**
(9) LOCATION **.1 MI.S.JCT.SR1756**
(11) MILEPOINT **0.0**
(12) BASE HIGHWAY NETWORK **0**
(13) LRS INVENTORY ROUTE & SUBROUTE **0**
(16) LATITUDE **35° 44' 10.3"** (17) LONGITUDE **81° 30' 43.98"**
(98) BORDER BRIDGE STATE CODE PERCENT SHARED
(99) BORDER BRIDGE STRUCTURE NUMBER

STRUCTURE TYPE AND MATERIAL

(43) STRUCTURE TYPE MAIN **Steel Continuous**
TYPE **Stringer/Multi-beam or girder** CODE **402**
(44) STRUCTURE TYPE APPROACH
TYPE CODE
(45) NUMBER OF SPANS IN MAIN UNIT **2**
(46) NUMBER OF SPANS IN APPROACH **0**
(107) DECK STRUCTURE TYPE CODE **1**
(108)WEARING SURFACE/PROTECTIVE SYSTEM
(A) TYPE OF WEARING SURFACE CODE **1**
(B) TYPE OF MEMBRANE CODE **0**
(C) TYPE OF DECK PROTECTION CODE **1**

AGE AND SERVICE

(27) YEAR BUILT **1999**
(106) YEAR RECONSTRUCTED **0**
(42) TYPE OF SERVICE ON - **Highway**
OFF - **Highway** CODE **11**
(28) LANES ON STRUCTURE **2** LANES UNDER STRUCTURE **8**
(29) AVERAGE DAILY TRAFFIC **810**
(30) YEAR OF ADT **2017** (109) TRUCK ADT PCT **7**
(19) BYPASS OR DETOUR LENGTH **99.0**

GEOMETRIC DATA

(48) LENGTH OF MAXIMUM SPAN **121.0**
(49) STRUCTURE LENGTH **223.0**
(50) CURB OR SIDEWALK: LEFT **0.0** RIGHT **0.0**
(51) BRIDGE ROADWAY WIDTH, CURB TO CURB **28.0**
(52) DECK WIDTH OUT TO OUT **31.2**
(32) APPROACH ROADWAY WITH (W/ SHOULDERS) **28.0**
(33) BRIDGE MEDIAN CODE **6**
(34) SKEW **2** (35) STRUCTURE FLARED **1111**
(10) INVENTORY ROUTE MIN VERT CLEAR **999.9**
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR **0.0**
(53) MIN VERT CLEAR OVER BRIDGE RDWY **999.9**
(54) MIN VERT UNDERCLEAR: REFERENCE **H** **21.0**
(55) MIN LAT UNDERCLEARANCE RT: REFERENCE **H** **30.0**
(56) MIN LAT UNDERCLEARANCE LT: **12.4**

NAVIGATION DATA

(38) NAVIGATION CONTROL - CODE **7**
(111) PIER PROTECTION CODE
(39) NAVIGATION VERTICAL CLEARANCE **0.0**
(116) VERT - LIFT BRIDGE NAV MIN VERT CLEAR **0.0**
(40) NAVIGATION HORIZONTAL CLEARANCE **0.0**

SUFFICIENCY RATING **80.90**
STATUS =

CLASSIFICATION — CODE

(112) NBIS BRIDGE SYSTEM **Y**
(104) HIGHWAY SYSTEM **Inventory Route not on NHS** **0**
(26) FUNCTIONAL CLASS **Urban Local** **19**
(100) STRAHNET HIGHWAY **Not a STRAHNET Route** **0**
(101) PARALLEL STRUCTURE **0**
(102) DIRECTION OF TRAFFIC **2-way traffic** **2**
(103) TEMPORARY STRUCTURE
(110) DESIGNATED NATIONAL NETWORK - **on national network for trucks** **0**
(20) TOLL **On Free Road** **3**
(21) MAINT - **01**
(22) OWNER - **01**
(37) HISTORICAL SIGNIFICANCE - **5**

CONDITION — CODE

(58) DECK **6**
(59) SUPERSTRUCTURE **7**
(60) SUBSTRUCTURE **7**
(61) CHANNEL & CHANNEL PROTECTION **N**
(62) CULVERTS **N**

LOAD RATING AND POSTING — CODE

(31) DESIGN LOAD **H 20 + Mod** **6**
(63) OPERATING RATING METHOD - **Load Factor** **1**
(64) OPERATING RATING - **HS-38** **69**
(65) INVENTORY RATING METHOD - **1**
(66) INVENTORY RATING **HS-23** **41**
(70) BRIDGE POSTING **No Posting Required** **5**
(41) STRUCTURE OPEN, POSTED, OR CLOSED **A**
DESCRIPTION **Open, no restriction**

APPRAISAL — CODE

(67) STRUCTURAL EVALUATION **7**
(68) DECK GEOMETRY **N**
(69) UNDERCLEARANCES, VERT & HORIZ **6**
(71) WATERWAY ADEQUACY **N**
(72) APPROACH ROADWAY ALIGNMENT **8**
(36) TRAFFIC SAFETY FEATURES **N**
(113) SCOUR CRITICAL BRIDGES **N**

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 **1,620** YEAR OF FUTURE ADT **2040**

INSPECTION

(90) INSPECTION DATE **08/23** (91) FREQUENCY **24**
(92) CRITICAL FEATURE INSPECTION (93) CFI DATE
A) FRACTURE CRIT DETAIL A)
B) UNDERWATER INSP B)
C) OTHER SPECIAL INSP C)
SCOUR

Structure Number **110156** County **BURKE** Run Date **11/01/2023**

Span Number	Facility Carried	Inventory Route	Maximum Minimum Vertical Clearance	Milepoint	Base Highway	LRS Inventory Route	Functional Classification	Number of Lanes	Average Daily Traffic	Year of Average Daily Traffic	Total Horizontal Clearance	*See Note Below*					STRAHNET Highway	Direction of Traffic	National Highway System	National Truck Network
												Reference Feature	Minimum Vertical Underclearance	Rigth Lateral Underclearance	Left Lateral Underclearance	Underclearance Appraisal Grade				
	7	5	10	11	12	13	26	28	29	30	47	54A	54	55	56	69	100	102	104	110
1	I-40 EBL	11000400	26.8	113.6	1	10040	01	2	22000	2015	46.5	H	23.2	38.0	10.3	6		1	☐	☐
2	I-40 WBL	11000400	22.4	113.6	1	10040	01	2	22000	2015	48.8	H	21.0	31.8	12.4	6		1	☐	☐

Note: Items 54, 55, and 56 are not reported FHWA under route data points but are collected for each under route to determine the minimum value for Underclearance Appraisal Item 69.

Superstructure Build Details

Span Number 1 **Span Length** 123.250 **Skew** 92.000

Number of Items	Type of Component	Element Name	Quantity	Protective System Applied	Quantity (Sq Ft)
4	Pot Bearing	Pot Bearing	4 Each	Metalized	20
1	Reinforced Concrete Deck	Reinforced Concrete Deck	3842 Square Feet		
8	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	8 Each	Galvanized Protective System	40
4	Plate Girder	Steel Open Girder/Beam	884 Feet	WS with Acrylic Primer and Topcoat	11600
1	Compression Seal	Compression Joint Seal	31 Feet		
2	Concrete Railing	Reinforced Concrete Bridge Railing	248 Feet		

Span Number 2 **Span Length** 99.250 **Skew** 92.000

Number of Items	Type of Component	Element Name	Quantity	Protective System Applied	Quantity (Sq Ft)
2	Concrete Railing	Reinforced Concrete Bridge Railing	200 Feet		
1	Reinforced Concrete Deck	Reinforced Concrete Deck	3094 Square Feet		
1	Compression Seal	Compression Joint Seal	31 Feet		

Structure Element Scoring

Structure Number: **110156**

Inspection Date **8/9/2023**

Element Number	Parent Number	Element Name	Location	Total Quantity	Level 1 Quantity	Level 2 Quantity	Level 3 Quantity	Level 4 Quantity
12		Reinforced Concrete Deck	Deck	6,936	6,744	192	0	0
107		Steel Open Girder/Beam	Beam	884	884	0	0	0
515	107	Steel Protective Coating	Beam	11,600	11,600	0	0	0
205		Reinforced Concrete Column	Piles and Columns	2	0	2	0	0
215		Reinforced Concrete Abutment	Abutments	100	100	0	0	0
225		Steel Pile	Piles and Columns	11	11	0	0	0
234		Reinforced Concrete Pier Cap	Caps	107	99	8	0	0
521	234	Concrete Protective Coating	Caps	130	130	0	0	0
302		Compression Joint Seal	Expansion Joints	62	46	9	7	0
310		Elastomeric Bearing	Bearing Device	8	8	0	0	0
515	310	Steel Protective Coating	Bearing Device	40	40	0	0	0
314		Pot Bearing	Bearing Device	4	0	4	0	0
515	314	Steel Protective Coating	Bearing Device	20	0	20	0	0
321		Reinforced Concrete Approach Slabs	Approaches	704	604	100	0	0
331		Reinforced Concrete Bridge Railing	Bridge Rail	448	259	99	90	0

Summary of Maintenance Needs

Maintenance By Defect

Structure Number: **110156** Inspection Date: **08/09/2023**

MMS Code	Element Name	Defect Name	Recommended Quantity
3326	Reinforced Concrete Deck	Cracking (RC and Other)	192 Square Feet
3353	Reinforced Concrete Approach Slabs	Cracking (RC and Other)	100 Square Feet
3318	Reinforced Concrete Bridge Railing	Efflorescence/Rust Staining	90 Feet
3342	Steel Protective Coating	Effectiveness (Steel Protective Coatings)	20 Square Feet

Element Structure Maintenance Quantities

Structure Number: **110156** Inspection Date **08/09/2023**

Location	MMS Code	Description	Maint Quantity	Total Quantity	Severe Quantity	Poor Quantity	Fair Quantity	Good Quantity
Beam	3314	Maintenance Steel Superstructure Components	0	884	0.000	0.000	0.000	884.000
Beam	3342	Clean and Paint Steel	0	11600	0.000	0.000	0.000	11600.000
Bearing Device	3334	Bridge Bearing	0	8	0.000	0.000	0.000	8.000
Bearing Device	3334	Bridge Bearing	0	4	0.000	0.000	4.000	0.000
Bearing Device	3342	Clean and Paint Steel	0	40	0.000	0.000	0.000	40.000
Bearing Device	3342	Clean and Paint Steel	20	20	0.000	0.000	20.000	0.000
Bridge Rail	3318	Maintenance of Concrete Bridge Rail	90	448	0.000	90.000	99.000	259.000
Deck	3326	Maintenance of Concrete Deck	192	6936	0.000	0.000	192.000	6744.000
Expansion Joints	3310	Maintenance of Standard Bridge Expansion Joints	0	62	0.000	7.000	9.000	46.000
Abutments	3350	Maintenance of Concrete Wings and Wall	0	100	0.000	0.000	0.000	100.000
Caps	3348	Maintenance of Concrete Substructure	0	107	0.000	0.000	8.000	99.000
Caps	5603	Partial Cleaning and Painting of Structural Steel	0	130	0.000	0.000	0.000	130.000
Piles and Columns	3348	Maintenance of Concrete Substructure	0	2	0.000	0.000	2.000	0.000
Piles and Columns	3354	Maintenance of Steel Substructure Components	0	11	0.000	0.000	0.000	11.000
Approaches	3353	Maintenance of Concrete Bridge Approach Slabs	100	704	0.000	0.000	100.000	604.000

Priority Actions Request

Structure Number **110156**

Span1

3318 **Left Bridge Rail** Concrete Railing

Priority Level	Defect Type	Quantity	Defect Description
2	Efflorescence/Rust	90	Span 1 Left Bridge Rail: (PAR) VERTICAL, horizontal AND WRAP AROUND CRACKS UP TO 1/32 INCH WITH EFFLORESCENCE AND EFFLORESCENCE BUILDUP AT RANDOM THROUGHOUT

? Priority Action Request (PAR) 1 Assigned Routine Maintenance 2 Assigned Priority Maintenance 3 Assigned Critical Find

Element Condition and Maintenance Data

Structure Number: **110156** Inspection Date: **08/09/2023**

Span 1 Deck

Reinforced Concrete Deck

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
12	Reinforced Concrete Deck	3,842	3,803	39	0	0	Square Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ 12	Cracking (RC and Other)	southbound lane, near bent 1, transverse crack (1/32 inch x 6 feet)	2	6	6	Square Feet
☑ 12	Cracking (RC and Other)	TRANSVERSE CRACKS UP TO 1/64 INCH WITH EFFLORESCENCE UNDERSIDE OF EAST OVERHANG AT RANDOM THROUGHOUT.	2	12	12	Square Feet
☑ 12	Cracking (RC and Other)	TRANSVERSE CRACKS UP TO 1/64 INCH WITH EFFLORESCENCE UNDERSIDE OF WEST OVERHANG AT RANDOM THROUGHOUT.	2	21	21	Square Feet
☑ 12	Delamination/Spall	(2023 defect moved to approach 1) TOP OF DECK HAS SCATTERED CHIPPED AREAS ALONG THE EXPANSION JOINT AT END BENT 1.	1			Square Feet

General Comments

Span 1 Left Bridge Rail

Concrete Railing

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
331	Reinforced Concrete Bridge Railing	124	34	0	90	0	Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ 331	Efflorescence/Rust Staining	(PAR) VERTICAL, horizontal AND WRAP AROUND CRACKS UP TO 1/32 INCH WITH EFFLORESCENCE AND EFFLORESCENCE BUILDUP AT RANDOM THROUGHOUT	3	90	90	Feet

General Comments

Span 1 Right Bridge Rail

Concrete Railing

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
331	Reinforced Concrete Bridge Railing	124	94	30	0	0	Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ 331	Cracking (RC and Other)	30 - VERTICAL, HORIZONTAL AND WRAP AROUND CRACKS UP TO 1/32 INCH WITH EFFLORESCENCE AT RANDOM THROUGHOUT	2	30		Feet

General Comments

Span 1 — Intermediate Bearing 1

Pot Bearing

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
314	Pot Bearing	1	0	1	0	0	Each
515	Steel Protective Coating	5	0	5	0	0	Square Feet

	Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑	**314**	Corrosion	FRECKLED RUST	2	1		Each
☑	**515**	Effectiveness (Steel Protective Coatings)	5 SQUARE FEET OF FRECKLED RUST	2	5	5	Square Feet

General Comments

Span 1 — Intermediate Bearing 2

Pot Bearing

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
314	Pot Bearing	1	0	1	0	0	Each
515	Steel Protective Coating	5	0	5	0	0	Square Feet

	Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑	**314**	Corrosion	FRECKLED RUST	2	1		Each
☑	**515**	Effectiveness (Steel Protective Coatings)	5 SQUARE FEET OF FRECKLED RUST	2	5	5	Square Feet

General Comments

Span 1 — Intermediate Bearing 3

Pot Bearing

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
314	Pot Bearing	1	0	1	0	0	Each
515	Steel Protective Coating	5	0	5	0	0	Square Feet

	Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑	**314**	Corrosion	FRECKLED RUST	2	1		Each
☑	**515**	Effectiveness (Steel Protective Coatings)	5 SQUARE FEET OF FRECKLED RUST	2	5	5	Square Feet

General Comments

Span 1 — Intermediate Bearing 4

Pot Bearing

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
314	Pot Bearing	1	0	1	0	0	Each
515	Steel Protective Coating	5	0	5	0	0	Square Feet

	Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑	**314**	Corrosion	FRECKLED RUST	2	1		Each

☑ **515**	Effectiveness (Steel Protective Coatings)	5 SQUARE FEET OF FRECKLED RUST	2	5	5	Square Feet

General Comments

Span 1 — End Bent 1 Joint

Compression Seal

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
302	Compression Joint Seal	31	27	4	0	0	Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ **302**	Adjacent Deck or Header	along the length of the joint, edge spalls (up to 4 inch x 2 inch x 1 inch deep)	2	4		Feet
☑ **302**	Debris Impaction	LOOSE GRAVEL DEBRIS AT RANDOM THROUGHOUT	1	15		Feet
☑ **302**	Seal Adhesion	(not found 2023) along length of joint at random throughout, adhesion loss greater than 50 percent	1			Feet

General Comments

Span 2 — Deck

Reinforced Concrete Deck

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
12	Reinforced Concrete Deck	3,094	2,941	153	0	0	Square Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ **12**	Cracking (RC and Other)	SCATTERED TRANSVERSE CRACKS UP TO 1/32 INCH AT RANDOM THROUGHOUT top of deck	2	120	120	Square Feet
☑ **12**	Cracking (RC and Other)	TRANSVERSE CRACKS UP TO 1/64 INCH WITH EFFLORESCENCE UNDERSIDE OF EAST OVERHANG AT RANDOM THROUGHOUT.	2	15	15	Square Feet
☑ **12**	Cracking (RC and Other)	TRANSVERSE CRACKS UP TO 1/64 INCH WITH EFFLORESCENCE UNDERSIDE OF WEST OVERHANG AT RANDOM THROUGHOUT.	2	18	18	Square Feet
☑ **12**	Delamination/Spall	(2023 defect moved to end bent 2 joint) TOP OF DECK HAS SCATTERED CHIPPED AREAS UP TO 8 INCH X 1 INCH X 1 INCH DEEP ALONG THE EXPANSION JOINT AT END BENT 2.	1			Square Feet

General Comments

Span 2 — Left Bridge Rail

Concrete Railing

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
331	Reinforced Concrete Bridge Railing	100	58	42	0	0	Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ **331**	Cracking (RC and Other)	42 - VERTICAL, HORIZONTAL AND WRAP AROUND CRACKS UP TO 1/32 INCH WITH EFFLORESCENCE AT RANDOM THROUGHOUT	2	42		Feet

General Comments

Span 2 — Right Bridge Rail

Concrete Railing

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
331	Reinforced Concrete Bridge Railing	100	73	27	0	0	Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ **331**	Cracking (RC and Other)	27 - VERTICAL, HORIZONTAL AND WRAP AROUND CRACKS UP TO 1/32 INCH WITH EFFLORESCENCE AT RANDOM THROUGHOUT	2	27		Feet

General Comments

Span 2 — End Bent 2 Joint

Compression Seal

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
302	Compression Joint Seal	31	19	5	7	0	Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ **302**	Seal Adhesion	along length of joint at random throughout, adhesion loss greater than 50 percent	3	7		Feet
☑ **302**	Adjacent Deck or Header	along the length of the joint, edge spalls (up to 8 inch x 1 inch x 1 inch deep)	2	5		Feet
☑ **302**	Debris Impaction	LOOSE GRAVEL DEBRIS AT RANDOM THROUGHOUT	1	15		Feet

General Comments

Bent 1 — Cap 1

Reinforced Concrete Pier Cap

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
234	Reinforced Concrete Pier Cap	31	23	8	0	0	Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ **234**	Cracking (RC and Other)	SCATTERED VERTICAL AND DIAGONAL CRACKS UP TO 1/32 INCH, SOME WITH EFFLORESCENCE, AT RANDOM THROUGHOUT ALL FACES.	2	8		Feet

General Comments

Bent 1 — Pile 1

Reinforced Concrete Column

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
205	Reinforced Concrete Column	1	0	1	0	0	Each

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ **205**	Efflorescence/Rust Staining	south face, near cap, efflorescence	2	1		Each

General Comments

Bent 1 — Pile 2

Reinforced Concrete Column

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
205	Reinforced Concrete Column	1	0	1	0	0	Each

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ **205**	Efflorescence/Rust Staining	north face, near cap, efflorescence	2	1		Each

General Comments

End Bent 1 — Cap 1

Reinforced Concrete Pier Cap

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
234	Reinforced Concrete Pier Cap	38	38	0	0	0	Feet
521	Concrete Protective Coating	65	65	0	0	0	Square Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ **234**	Cracking (RC and Other)	along length, multiple vertical cracks, up to 8 inch x hairline	1	6		Feet

General Comments

End Bent 2 — Cap 1

Reinforced Concrete Pier Cap

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
234	Reinforced Concrete Pier Cap	38	38	0	0	0	Feet
521	Concrete Protective Coating	65	65	0	0	0	Square Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ **234**	Cracking (RC and Other)	along length, multiple vertical cracks, up to 9 inch x hairline	1	7		Feet

General Comments

Approach 1

Reinforced Concrete Approach Slab

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
321	Reinforced Concrete Approach Slabs	352	312	40	0	0	Square Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ **321**	Cracking (RC and Other)	throughout approach slab, longitudinal cracks (up to 1/32 inch x 2.5 feet) and areas of map cracks (hairline) at random	2	40	40	Square Feet

General Comments

partially paved over by asphalt

Approach 2

Reinforced Concrete Approach Slab

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
321	Reinforced Concrete Approach Slabs	352	292	60	0	0	Square Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ **321**	Cracking (RC and Other)	throughout approach slab, longitudinal cracks (up to 1/32 inch x 2.5 feet) and areas of map cracks (hairline) at random	2	60	60	Square Feet

General Comments

partially paved over by asphalt

Elements Verfied

Location	Name	Component	Element Name	Amount
Span 1	Deck	Reinforced Concrete Deck	Reinforced Concrete Deck	3842
Span 1	Beam 1	Plate Girder	Steel Open Girder/Beam	221
Span 1	Beam 2	Plate Girder	Steel Open Girder/Beam	221
Span 1	Beam 3	Plate Girder	Steel Open Girder/Beam	221
Span 1	Beam 4	Plate Girder	Steel Open Girder/Beam	221
Span 1	Left Bridge Rail	Concrete Railing	Reinforced Concrete Bridge Railing	124
Span 1	Right Bridge Rail	Concrete Railing	Reinforced Concrete Bridge Railing	124
Span 1	End Bent 1 Joint	Compression Seal	Compression Joint Seal	31
Span 1	Far Bearing 1	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	1
Span 1	Near Bearing 1	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	1
Span 1	Intermediate Bearing 1	Pot Bearing	Pot Bearing	1
Span 1	Intermediate Bearing 2	Pot Bearing	Pot Bearing	1
Span 1	Near Bearing 2	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	1
Span 1	Far Bearing 2	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	1
Span 1	Far Bearing 3	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	1
Span 1	Near Bearing 3	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	1
Span 1	Intermediate Bearing 3	Pot Bearing	Pot Bearing	1
Span 1	Intermediate Bearing 4	Pot Bearing	Pot Bearing	1
Span 1	Near Bearing 4	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	1
Span 1	Far Bearing 4	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	1
Span 2	Deck	Reinforced Concrete Deck	Reinforced Concrete Deck	3094
Span 2	Left Bridge Rail	Concrete Railing	Reinforced Concrete Bridge Railing	100
Span 2	Right Bridge Rail	Concrete Railing	Reinforced Concrete Bridge Railing	100
Span 2	End Bent 2 Joint	Compression Seal	Compression Joint Seal	31
Bent 1	Cap 1	Reinforced Concrete Pier Cap	Reinforced Concrete Pier Cap	31
Bent 1	Pile 1	Reinforced Concrete Column	Reinforced Concrete Column	1
Bent 1	Pile 2	Reinforced Concrete Column	Reinforced Concrete Column	1
End Bent 1	Cap 1	Reinforced Concrete Pier Cap	Reinforced Concrete Pier Cap	38
End Bent 1	Abutment	Reinforced Concrete Abutment	Reinforced Concrete Abutment	50
End Bent 2	Cap 1	Reinforced Concrete Pier Cap	Reinforced Concrete Pier Cap	38
End Bent 2	Abutment	Reinforced Concrete Abutment	Reinforced Concrete Abutment	50
Approach1		Reinforced Concrete Approach Slab	Reinforced Concrete Approach Slabs	352
Approach2		Reinforced Concrete Approach Slab	Reinforced Concrete Approach Slabs	352

General Inspection Notes

National Bridge and NC Inspection Items

Structure Number: 110156 **Inspection Date:** 08/09/2023

National Bridge Inventory Items

Item	Grade Scale	Grade
Item 58: Deck	0 - 9 , N	**6**
Item 59: Superstructure	0 - 9 , N	**7**
Item 60: Substructure	0 - 9 , N	**7**
Item 61: Channel and Channel Protection	0 - 9 , N	**N**
Item 62: Culvert	0 - 9 , N	**N**
Item 71: Waterway Adequacy	0 - 9 , N	**N**
Item 72: Approach Roadway Alignment	0 - 9 , N	**8**

Note:

Items 58,59,60,62 reflect this inspection only.

For overall NBI coding grade, see cover sheet.

Note: If NBI Inspection Item is not present, code NBI item with "N"

NC SMU Inspection Items

Item	Grade Scale	Grade	Maint. Qty.	Maint. Code
Deck Debris	G, F, P, or C	**G**	**0**	**3376**
Drainage System	G, F, P, or C	**G**	**0**	**3332**
Utilities	G, F, P, or C			
Slope Protection	G, F, P, or C	**G**	**0**	**3352**
Scour	G, F, P, or C			
Wingwall	G, F, P, or C		**0**	**3350**
Field Scour Evaluation				
Drift	G, F, P, or C		**0**	**3366**
Fender System	G, F, P, or C		**0**	**3364**
Movable Span Machinery	G, F, P, or C			
Response to Live Load	G, F, P, or C	**G**		
Superstructure Paint Code		**X**		

Note: If NC SMU Insepction Item is not present, leave NC SMU item blank

Inspection Information

Item	Grade Scale	Grade
Sign Noticed Issued	YES/NO	**N**
Priority Maintenance Request Submitted	YES/NO	**Y**
Inspection Time	Hours	**4**
Traffic Control Time	Hours	
Snooper Time	Hours	
Ladder Used	YES/NO	**N**
Bucket Truck Used	YES/NO	**N**
Boat Used	YES/NO	**N**
Other Equipment Used	YES/NO	**N**
Portion of Structure in > 3' of water	YES/NO	**N**

National Bridge and NC SMU Inspection Item Details

Structure Number: 110156 **Inspection Date:** 08/09/2023

Item	Ladder Used	**Grade**	N	**Maint Code**	**Qty.** 0
Details	no safe ladder access at bent 1 due to narrow left shoulders; binoculars used to inspect the superstructure and substructure at bent 1				

Item	General Comments and Misc Items	**Grade**		**Maint Code**	**Qty.** 0
Details	at all corners, vegetation overgrowing guardrails south and north approach asphalt, adjacent to approach slabs, transverse cracks (up to 1/4 inch x full width of roadway)				

Bent 1 Cap 1: SCATTERED VERTICAL AND DIAGONAL CRACKS UP TO 1/32 INCH, SOME WITH EFFLORESCENCE, AT RANDOM THROUGHOUT ALL FACES.

Span 1 Beam 4 - Intermediate Bearing 4: FRECKLED RUST

Bent 1 Pile 2: north face, near cap, efflorescence

Span 2 Deck: TRANSVERSE CRACKS UP TO 1/64 INCH WITH EFFLORESCENCE UNDERSIDE OF EAST OVERHANG AT RANDOM THROUGHOUT.

Span 1 Deck: TRANSVERSE CRACKS UP TO 1/64 INCH WITH EFFLORESCENCE UNDERSIDE OF WEST OVERHANG AT RANDOM THROUGHOUT.

End Bent 1 Cap 1: along length, multiple vertical cracks, up to 8 inch x hairline

Approach 1 : throughout approach slab, longitudinal cracks (up to 1/32 inch x 2.5 feet) and areas of map cracks (hairline) at random

Span 1 End Bent 1 Joint: (not found 2023) along length of joint at random throughout, adhesion loss greater than 50 percent

Span 1 End Bent 1 Joint: LOOSE GRAVEL DEBRIS AT RANDOM THROUGHOUT

Approach 1 : along end bent 1 joint, edge spalls (up to 4 inch x 2 inch x 1 inch deep)

Span 1 Deck: southbound lane, near bent 1, transverse crack (1/32 inch x 6 feet)

Span 1 Left Bridge Rail: (PAR) VERTICAL, horizontal AND WRAP AROUND CRACKS UP TO 1/32 INCH WITH EFFLORESCENCE AND EFFLORESCENCE BUILDUP AT RANDOM THROUGHOUT

Span 2 Right Bridge Rail: 27 - VERTICAL, HORIZONTAL AND WRAP AROUND CRACKS UP TO 1/32 INCH WITH EFFLORESCENCE AT RANDOM THROUGHOUT

Span 2 Deck: SCATTERED TRANSVERSE CRACKS UP TO 1/32 INCH AT RANDOM THROUGHOUT top of deck

Span 2 End Bent 2 Joint: along the length of the joint, edge spalls (up to 8 inch x 1 inch x 1 inch deep)

Span 2 End Bent 2 Joint: along length of joint at random throughout, adhesion loss greater than 50 percent

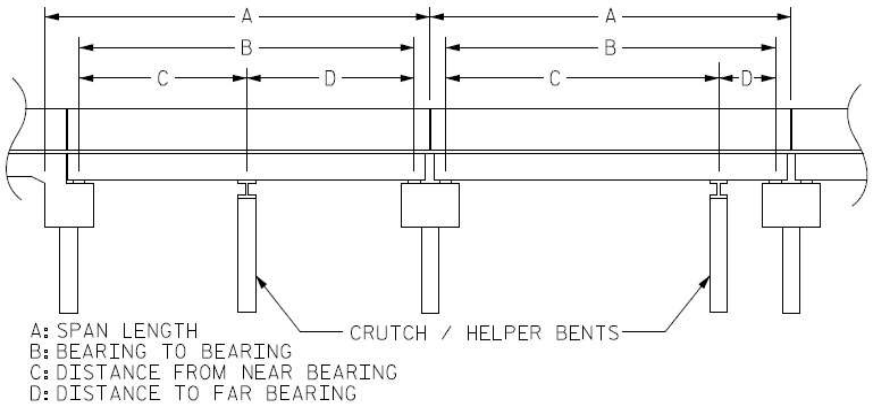
Approach 2 : throughout approach slab, longitudinal cracks (up to 1/32 inch x 2.5 feet) and areas of map cracks (hairline) at random

south and north approach asphalt, adjacent to approach slabs, transverse cracks (up to 1/4 inch x full width of roadway)

Structure Data Worksheet

Span Profile

County: **BURKE** Structure Number: **110156**



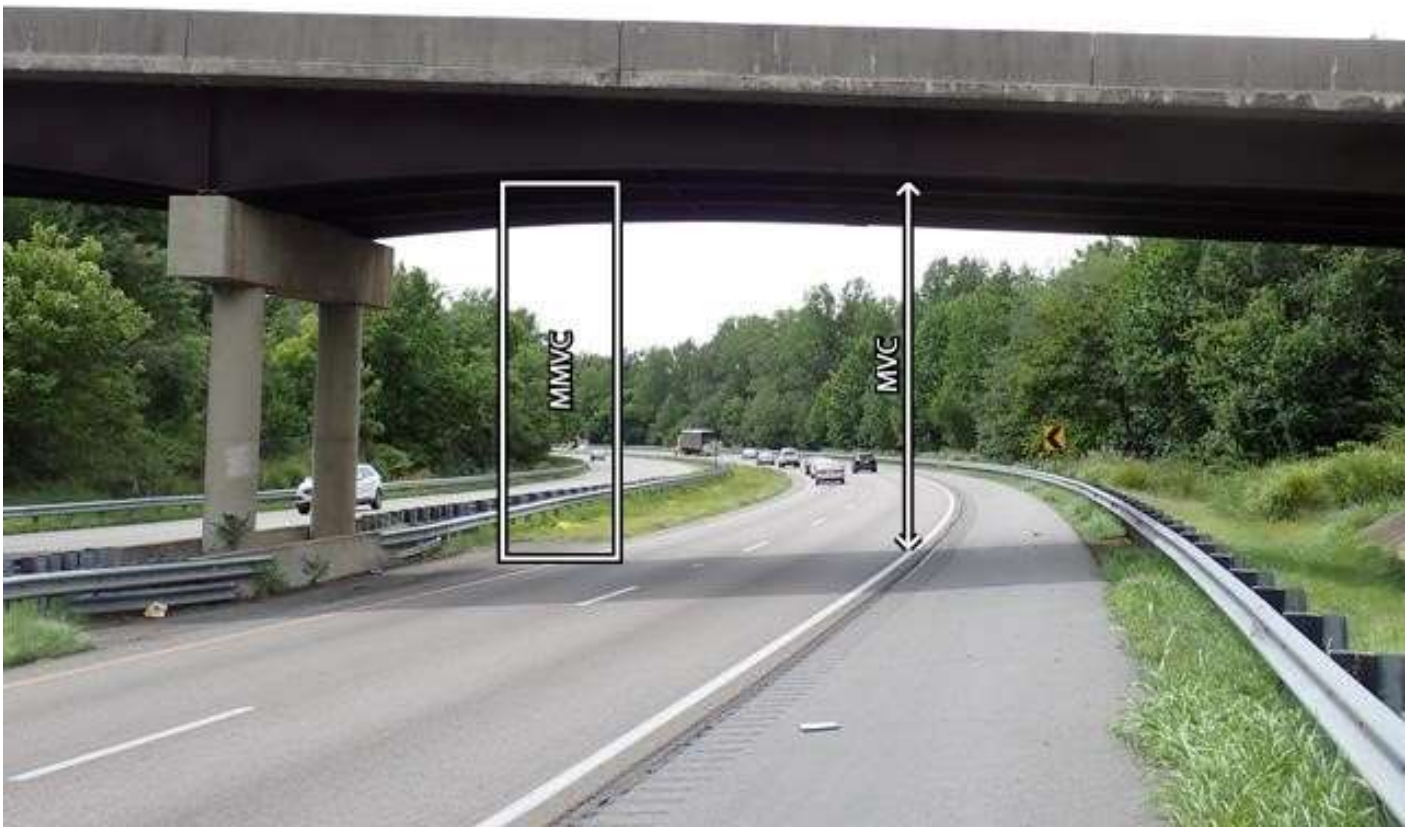
Span Number	Span Length	Bearing to Bearing	Crutch/ Helper Bent	Distance to Near Bearing	Distance to Far Bearing
1	123.250	121.250			
2	99.250	97.250			

Structure Number: 110156 Span: 1 Route Name: I-40 EBL

roadway under span 1, looking east (I-40 eastbound)

Route Number: 11000400	**Route Name:** I-40 EBL			**Reference Feature:** H
Minimum Vertical Clearance 23.200 feet	**Maximum Minimum Vertical Clearance** 26.750 feet			
Total Horizontal Clearance 46.500 feet	**Lateral Clearances: Left:** 10.250 feet **Right** 38.000 feet			
☑ **Base Highway Network**	**LRS Inventory Route, Sub Route Number** 10040			
Milepost: 113.560	**Number of Lanes:** 2	**ADT:** 22000	**Year of ADT:** 2015	**Percentage of Trucks:** 23
☑ **National Highway System**		☐ **STRAHNET Highway Designator**		
Functional Classification 01 Rural Principal Arterial - Interstate		**Direction of Traffic:** 1 1 - way traffic		

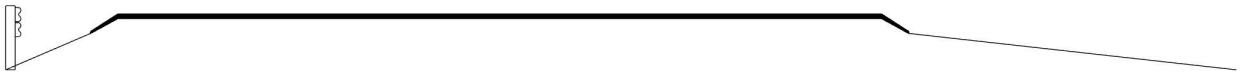
Structure Number: 110156 Span: 2 Route Name: I-40 WBL



roadway under span 2, looking west (I-40 westbound)

Route Number: 11000400	**Route Name:** I-40 WBL			**Reference Feature:** H
Minimum Vertical Clearance 20.960 feet	**Maximum Minimum Vertical Clearance** 22.417 feet			
Total Horizontal Clearance 48.780 feet	**Lateral Clearances: Left:** 12.400 feet **Right** 31.750 feet			
☑ **Base Highway Network**	**LRS Inventory Route, Sub Route Number** 10040			
Milepost: 113.560	**Number of Lanes:** 2	**ADT:** 22000	**Year of ADT:** 2015	**Percentage of Trucks:** 23
☑ **National Highway System**		☐ **STRAHNET Highway Designator**		
Functional Classification 01	Rural Principal Arterial - Interstate	**Direction of Traffic:** 1	1 - way traffic	

Bridge Inspection Field Sketch



Roadway	21ft Wide	2 Paved Lanes	Looking North
Left Shoulder	3.08ft Wide	0.75ft Paved	2.33ft Unpaved
Right Shoulder	9.75ft Wide	0.75ft Paved	9ft Unpaved
Left Guardrail	3.08ft from road		
Right Guardrail			

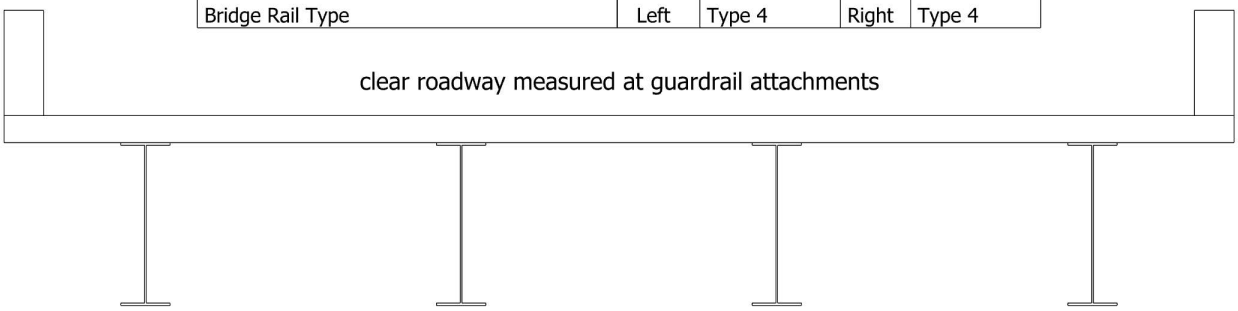
Measurements taken approximately 50 feet from end bent 1

Title	Description
APPROACH ROADWAY	LOOKING NORTH

Structure No:	Drawn By:	Date:	Filename:
110156	ITChapman	8/9/2023	S000918000433.wes

Bridge Inspection Field Sketch

Deck Width/Out to Out	31.167ft	Between Rails			28ft
Clear Roadway	27.75ft	Wearing Surface			
Median Width		Median Height			
Curb Height		Left		Right	
Sidewalk Width		Left		Right	
Clear Roadway (Rail to Median)		Left		Right	
Guardrail Width		Left	19in	Right	19in
Top of Rail to Deck/Wearing Surface		Left	2.667ft	Right	2.667ft
Bridge Rail Type		Left	Type 4	Right	Type 4



Measurements for Span #	1-2		
Deck Thickness	8.25in	Left Overhang	3.58ft
Top of Rail to Bottom of Beam (Avg)	7.483ft	Right Overhang	3.58ft

Beam #	Beam Type	Width	Height	Spacing	From
1	Plate Girder	15in	49.5in	3.583ft	Left Edge of Deck
2	Plate Girder	15in	49.5in	8ft	Beam 1
3	Plate Girder	15in	49.5in	8ft	Beam 2
4	Plate Girder	15in	49.5in	8ft	Beam 3

BEAM DIMENSIONS:

Web thickness: 1/2" throughout bridge

Web height: 4'-0" near half span 1, transitioning to 6'-0" at bent 1, then 3'-6" far half span 2

Bottom flange: 15" wide x 7/8" thick near half span 1, 15" x 1-1/4" at/near bent 1, 15" x 3/4" far half span 2

Title	Description
TYPICAL SECTION	LOOKING NORTH

Structure No: 110156	Drawn By: ITChapman	Date: 8/9/2023	Filename: S000918000434.wes

Bridge Inspection Field Sketch

Caps							
#	Name	Type	Length	Width	Height	Left Beam to End of Cap	Right Beam to End of Cap
1	Cap 1	Reinforced Concrete Pier Cap	30.5ft	42in	48in	1.667ft	1.667ft

Piles							
#	Name	Type	Spacing	From	Height/Diam.	Width	Length
1	Pile 1	Reinforced Concrete Column	6ft	Left End of Bent	36in		
2	Pile 2	Reinforced Concrete Column	18.5ft	Pile 1	36in		

Title	Description
BENT SKETCH	LOOKING NORTH

Structure No: 110156	Drawn By: ITChapman	Date: 8/9/2023	Filename: S000918000435.wes

east profile looking west

roadway under span 2, looking west (I-40 westbound)

beams over bent 1

bent 1

superstructure underside

intermediate diaphragm near bent 1

end diaphragm at bent 1

intermediate diaphragm near end bents

end bent 2 slope protection

typical bolted beam splice

interior bearing assembly

northeast wingwall

end bent 2

end bearing assembly

northwest wingwall

roadway under span 1, looking east (I-40 eastbound)

west profile looking east

end bent 1 slope protection

southwest wingwall

end bent 1

southeast wingwall

end diaphragm at end bents

southwest guardrail

southeast guardrail termination

southeast guardrail

south approach looking north

southeast guardrail transition

southeast guardrail attachment

end bent 1 joint

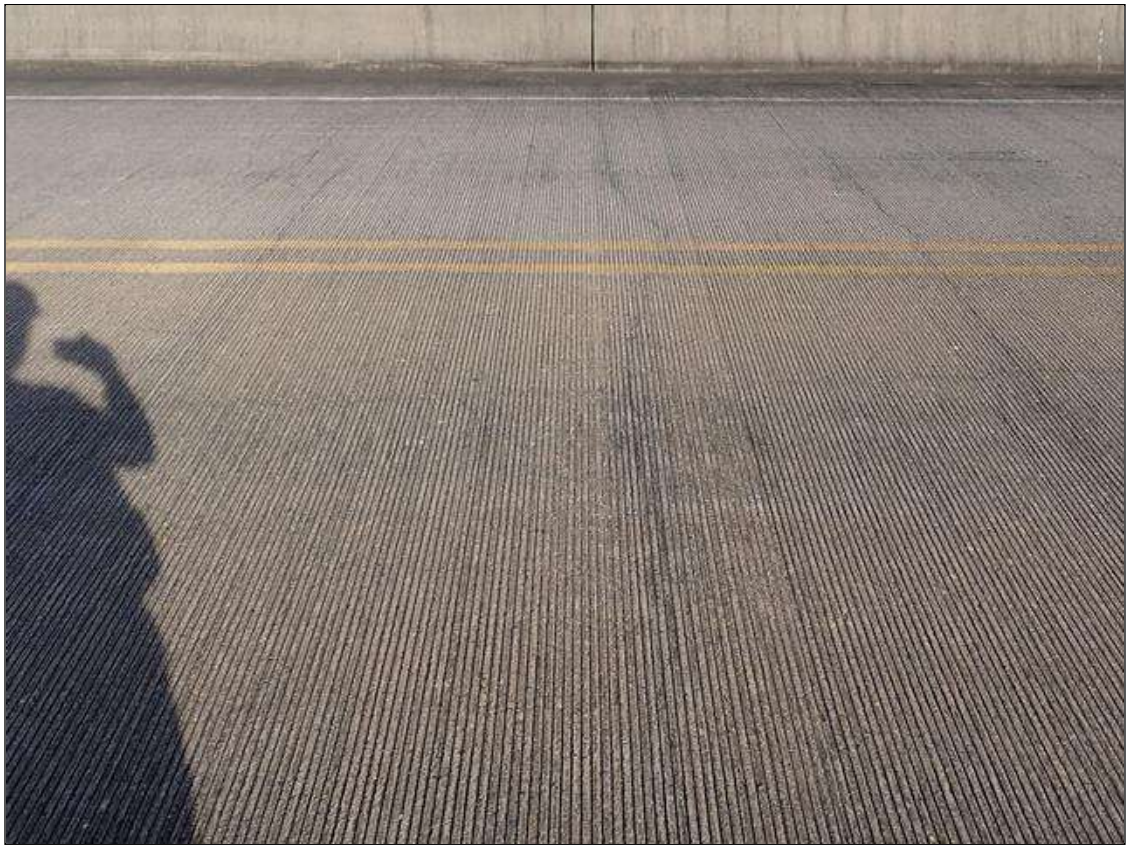
right bridge rail

left bridge rail

bridge deck

southwest guardrail attachment

south approach looking south



bent 1 deck

roadway looking east

roadway looking west

north approach looking north

northeast guardrail attachment

end bent 2 joint

northeast guardrail

northeast guardrail termination

northwest guardrail termination

northwest guardrail

north approach looking south

northwest guardrail transition

northwest guardrail attachment