NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STRUCTURE MANAGEMENT UNIT

ATTENTION: prompt action request; sketches updated; clearance revised

Structure Safety Report

Routine Element Inspection - Contract

STRUCTURE NUMBER: 110037 **SAP STRUCTURE NO:** 0120037 **FHWA STRUCTURE NO:** 000000000230037

DIVISION: 13 **COUNTY:** BURKE **INSPECTION DATE:** 08/07/2023 **FREQUENCY:** 24 MONTHS

FACILITY CARRIED: SR1129 **MILE POST:**

LOCATION: 0.2 MI.N.JCT.SR1142

FEATURE INTERSECTED: I-40

LATITUDE: 35° 41' 25.69" **LONGITUDE:** 81° 50' 27.12"

SUPERSTRUCTURE: REINFORCED CONCRETE FLOOR ON CONT.GDRS.(S.I.P.METAL FORMS)

SUBSTRUCTURE: E.BTS:RC CAPS/H-PILES;INT.BTS:RC P&B/H-PILE FOOTINGS

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** 7 / 7 **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
Juan Rodriguez		Hector Bonilla

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

10/26/2023

IDENTIFICATION

(1) STATE NAME NORTH CAROLINA BRIDGE **110037**
(8) STRUCTURE NUMBER (FEDERAL) **0230037**
(5) INVENTORY ROUTE (ON/UNDER) ON **31011290**
(2) STATE HIGHWAY DEPARTMENT DISTRICT **13**
(3) COUNTY CODE (FEDERAL) **23** (4) PLACE CODE **0**
(6) FEATURE INTERSECTED **I-40**
(7) FACILITY CARRIED **SR1129**
(9) LOCATION **0.2 MI.N.JCT.SR1142**
(11) MILEPOINT **0.0**
(12) BASE HIGHWAY NETWORK **0**
(13) LRS INVENTORY ROUTE & SUBROUTE **0**
(16) LATITUDE **35° 41' 25.69"** (17) LONGITUDE **81° 50' 27.12"**
(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 **0**

AGE AND SERVICE

(27) YEAR BUILT **2001**
(106) YEAR RECONSTRUCTED **0**
(42) TYPE OF SERVICE ON - **Overpass Structure**
OFF - **Highway** CODE **61**
(28) LANES ON STRUCTURE **2** LANES UNDER STRUCTURE **8**
(29) AVERAGE DAILY TRAFFIC **2900**
(30) YEAR OF ADT **2018** (109) TRUCK ADT PCT **6**
(19) BYPASS OR DETOUR LENGTH **0.0**

GEOMETRIC DATA

(48) LENGTH OF MAXIMUM SPAN **108.0**
(49) STRUCTURE LENGTH **212.0**
(50) CURB OR SIDEWALK: LEFT **0.0** RIGHT **0.0**
(51) BRIDGE ROADWAY WIDTH, CURB TO CURB **54.4**
(52) DECK WIDTH OUT TO OUT **57.9**
(32) APPROACH ROADWAY WITH (W/ SHOULDERS) **30.0**
(33) BRIDGE MEDIAN CODE **7**
(34) SKEW **7** (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** **18.0**
(55) MIN LAT UNDERCLEARANCE RT: REFERENCE **H** **14.4**
(56) MIN LAT UNDERCLEARANCE LT: **13.8**

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 **100.00**
STATUS =

CLASSIFICATION — CODE

(112) NBIS BRIDGE SYSTEM **Y**
(104) HIGHWAY SYSTEM **Inventory Route not on NHS** **0**
(26) FUNCTIONAL CLASS **Rural Minor Collector** **08**
(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 **7**
(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-52** **93**
(65) INVENTORY RATING METHOD - **1**
(66) INVENTORY RATING **HS-31** **55**
(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 **5,800** 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 **110037** County **BURKE** Run Date **10/26/2023**

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	17.0	94.3	1	10040	08	2	14500	2015	56.1	H	16.9	17.3	14.1	9		1	☐	☐
1	I 40 EBL	11000400	100.0	94.3	1	10040	1	2	14500	2015	56.1	H	100.0	17.3	14.1	6		1	☐	☐
2	I 40 WBL	11000400	18.6	94.3	1	10040	1	2	14500	2015	49.8	H	18.0	14.4	13.8	6	1	1	☐	☐
2	I 40 WBL	11000400	18.6	94.3	1	10040	08	2	14500	2015	49.8	H	18.0	14.4	13.8	9		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** 109.250 **Skew** 83.000

Number of Items	Type of Component	Element Name	Quantity	Protective System Applied	Quantity (Sq Ft)
6	Pot Bearing	Pot Bearing	6 Each		
12	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	12 Each	WS with Acrylic Primer and Topcoat	12
1	Compression Seal	Compression Joint Seal	59 Feet		
6	Plate Girder	Steel Open Girder/Beam	1260 Feet	WS with Acrylic Primer and Topcoat	18108
2	Concrete Railing	Reinforced Concrete Bridge Railing	220 Feet		
1	Reinforced Concrete Deck	Reinforced Concrete Deck	6328 Square Feet		

Span Number 2 **Span Length** 102.500 **Skew** 83.000

Number of Items	Type of Component	Element Name	Quantity	Protective System Applied	Quantity (Sq Ft)
1	Reinforced Concrete Deck	Reinforced Concrete Deck	6325 Square Feet		
2	Concrete Railing	Reinforced Concrete Bridge Railing	218 Feet		
1	Compression Seal	Compression Joint Seal	59 Feet		

Structure Element Scoring

Structure Number: **110037**

Inspection Date **8/7/2023**

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	12,653	9,533	3,120	0	0
107		Steel Open Girder/Beam	Beam	1,260	1,251	0	0	9
515	107	Steel Protective Coating	Beam	18,108	18,099	0	0	9
205		Reinforced Concrete Column	Piles and Columns	3	3	0	0	0
215		Reinforced Concrete Abutment	Abutments	162	162	0	0	0
220		Reinforced Concrete Pile Cap/Footing	Footing	14	14	0	0	0
225		Steel Pile	Piles and Columns	26	26	0	0	0
234		Reinforced Concrete Pier Cap	Caps	189	180	9	0	0
521	234	Concrete Protective Coating	Caps	467	467	0	0	0
302		Compression Joint Seal	Expansion Joints	118	0	0	0	118
310		Elastomeric Bearing	Bearing Device	12	2	8	2	0
515	310	Steel Protective Coating	Bearing Device	12	7	0	0	5
314		Pot Bearing	Bearing Device	6	6	0	0	0
321		Reinforced Concrete Approach Slabs	Approaches	1,368	1,320	48	0	0
331		Reinforced Concrete Bridge Railing	Bridge Rail	438	238	200	0	0

Summary of Maintenance Needs

Maintenance By Defect

Structure Number: **110037** Inspection Date: **08/07/2023**

MMS Code	Element Name	Defect Name	Recommended Quantity
3326	Reinforced Concrete Deck	Cracking (RC and Other)	3030 Square Feet
3314	Steel Open Girder/Beam	Corrosion	9 Feet
3310	Compression Joint Seal	Debris Impaction	59 Feet
3310	Compression Joint Seal	Seal Adhesion	118 Feet
3334	Elastomeric Bearing	Corrosion	1 Each
3334	Elastomeric Bearing	Bulging, Splitting, or Tearing	1 Each
3334	Elastomeric Bearing	Alignment	1 Each
3353	Reinforced Concrete Approach Slabs	Cracking (RC and Other)	48 Square Feet
3342	Steel Protective Coating	Effectiveness (Steel Protective Coatings)	14 Square Feet

Element Structure Maintenance Quantities

Structure Number: **110037** Inspection Date **08/07/2023**

Location	MMS Code	Description	Maint Quantity	Total Quantity	Severe Quantity	Poor Quantity	Fair Quantity	Good Quantity
Beam	3314	Maintenance Steel Superstructure Components	9	1260	9.000	0.000	0.000	1251.000
Beam	3342	Clean and Paint Steel	9	18108	9.000	0.000	0.000	18099.000
Bearing Device	3334	Bridge Bearing	3	12	0.000	2.000	8.000	2.000
Bearing Device	3334	Bridge Bearing	0	6	0.000	0.000	0.000	6.000
Bearing Device	3342	Clean and Paint Steel	5	12	5.000	0.000	0.000	7.000
Bridge Rail	3318	Maintenance of Concrete Bridge Rail	0	438	0.000	0.000	200.000	238.000
Deck	3326	Maintenance of Concrete Deck	3030	12653	0.000	0.000	3120.000	9533.000
Expansion Joints	3310	Maintenance of Standard Bridge Expansion Joints	177	118	118.000	0.000	0.000	0.000
Abutments	3350	Maintenance of Concrete Wings and Wall	0	162	0.000	0.000	0.000	162.000
Caps	3348	Maintenance of Concrete Substructure	0	189	0.000	0.000	9.000	180.000
Caps	5603	Partial Cleaning and Painting of Structural Steel	0	704	0.000	0.000	0.000	704.000
Footing	3348	Maintenance of Concrete Substructure	0	14	0.000	0.000	0.000	14.000
Piles and Columns	3348	Maintenance of Concrete Substructure	0	3	0.000	0.000	0.000	3.000
Piles and Columns	3354	Maintenance of Steel Substructure Components	0	26	0.000	0.000	0.000	26.000
Approaches	3353	Maintenance of Concrete Bridge Approach Slabs	48	1368	0.000	0.000	48.000	1320.000

Priority Actions Request

Structure Number 110037

Span1

3314 **Beam 2** Plate Girder

Priority Level	Defect Type	Quantity	Defect Description
2	Corrosion	9	Span 1 Beam 2: (PAR) 6.5 foot from end bent 2, corrosion with section loss: lower web (3/8 inch average remaining x 34 inch x 2 inch); bottom flange, rust scale (9 foot)

3334 **Beam 6** Plate Girder

Priority Level	Defect Type	Quantity	Defect Description
2	Bulging, Splitting, or Tearing	1	Span 1 Beam 6 - Far Bearing 6: (PAR) east face, bulging (up to 1/8 inch high) with tear (10 inch x 1/4 inch wide) exposing steel plate; steel plate, rust scale; southeast corner, loss of bearing (1 inch x 1.5 inch)

Element Condition and Maintenance Data

Structure Number: **110037** Inspection Date: **08/07/2023**

Span 1 Deck

Reinforced Concrete Deck

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
12	Reinforced Concrete Deck	6,328	5,298	1,030	0	0	Square Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ 12	Cracking (RC and Other)	throughout topside of deck, map cracks (hairline) and transverse/longitudinal cracks (up to 1/32 inch x 12 foot) at random	2	1,000	1,000	Square Feet
☑ 12	Cracking (RC and Other)	underside of deck, both overhangs, transverse cracks (up to 1/32 inch x full width) some with efflorescence	2	30	30	Square Feet

General Comments

Span 1 Beam 2

Plate Girder

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
107	Steel Open Girder/Beam	210	201	0	0	9	Feet
515	Steel Protective Coating	3,018	3,009	0	0	9	Square Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ 107	Corrosion	(PAR) 6.5 foot from end bent 2, corrosion with section loss: lower web (3/8 inch average remaining x 34 inch x 2 inch); bottom flange, rust scale (9 foot)	4	9	9	Feet
☑ 515	Effectiveness (Steel Protective Coatings)	rust scale/corrosion with section loss	4	9	9	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	110	60	50	0	0	Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ 331	Cracking (RC and Other)	along length of rail, map cracks [hairline] and multiple vertical cracks [up to full height x 1/32 inch], some wrap around, some with efflorescence	2	50		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	110	60	50	0	0	Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty

☑ **331**	Cracking (RC and Other)	along length of rail, map cracks [hairline] and multiple vertical cracks [up to full height x 1/32 inch], some wrap around, some with efflorescence	2	50		Feet

General Comments

Span 1 — Expansion Joint at End Bent 1

Compression Seal

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
302	Compression Joint Seal	59	0	0	0	59	Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ **302**	Seal Adhesion	along the length of the joint, seal deteriorated/torn and adhesion loss (up to full length x full depth)	4	59	59	Feet
☑ **302**	Debris Impaction	along the length of the joint, debris accumulation (full length)	3			Feet

General Comments

Span 1 — Near Bearing 1

Elastomeric Bearing with Metal Plates

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
310	Elastomeric Bearing	1	0	0	1	0	Each
515	Steel Protective Coating	1	0	0	0	1	Square Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ **310**	Corrosion	rust scale/corrosion with section loss (up to 1/16 inch loss)	3	1	1	Each
☑ **310**	Bulging, Splitting, or Tearing	north face, bulging (up to 1/16 inch high)	2			Each
☑ **515**	Effectiveness (Steel Protective Coatings)	rust scale	4	1	1	Square Feet

General Comments

Span 1 — Far Bearing 1

Elastomeric Bearing with Metal Plates

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
310	Elastomeric Bearing	1	0	1	0	0	Each
515	Steel Protective Coating	1	0	0	0	1	Square Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ **310**	Bulging, Splitting, or Tearing	south face, bulging (up to 1/16 inch high)	2			Each
☑ **310**	Corrosion	rust scale (no measurable loss)	2	1		Each
☑ **515**	Effectiveness (Steel Protective Coatings)	rust scale	4	1	1	Square Feet

General Comments

Span 1 Near Bearing 2

Elastomeric Bearing with Metal Plates

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
310	Elastomeric Bearing	1	0	1	0	0	Each
515	Steel Protective Coating	1	1	0	0	0	Square Feet

	Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑	310	Bulging, Splitting, or Tearing	north face, bulging (up to 1/16 inch high)	2	1		Each

General Comments

Span 1 Far Bearing 2

Elastomeric Bearing with Metal Plates

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
310	Elastomeric Bearing	1	0	1	0	0	Each
515	Steel Protective Coating	1	0	0	0	1	Square Feet

	Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑	310	Corrosion	rust scale	2	1		Each
☑	515	Effectiveness (Steel Protective Coatings)	rust scale	4	1	1	Square Feet

General Comments

Span 1 Far Bearing 3

Elastomeric Bearing with Metal Plates

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
310	Elastomeric Bearing	1	0	1	0	0	Each
515	Steel Protective Coating	1	1	0	0	0	Square Feet

	Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑	310	Bulging, Splitting, or Tearing	south and east faces, bulging (up to 1/16 inch high)	2	1		Each

General Comments

Span 1 Near Bearing 4

Elastomeric Bearing with Metal Plates

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
310	Elastomeric Bearing	1	0	1	0	0	Each
515	Steel Protective Coating	1	0	0	0	1	Square Feet

	Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑	310	Bulging, Splitting, or Tearing	north face, bulging (up to 1/16 inch high)	2			Each
☑	310	Corrosion	rust scale	2	1		Each
☑	515	Effectiveness (Steel Protective Coatings)	rust scale	4	1	1	Square Feet

General Comments

Span 1 — Far Bearing 4

Elastomeric Bearing with Metal Plates

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
310	Elastomeric Bearing	1	0	1	0	0	Each
515	Steel Protective Coating	1	1	0	0	0	Square Feet

	Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑	310	Bulging, Splitting, or Tearing	west face, bulging (up to 1/16 inch high)	2	1		Each

General Comments

Span 1 — Far Bearing 5

Elastomeric Bearing with Metal Plates

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
310	Elastomeric Bearing	1	0	1	0	0	Each
515	Steel Protective Coating	1	1	0	0	0	Square Feet

	Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑	310	Bulging, Splitting, or Tearing	south face, bulging (up to 1/8 inch high)	2	1		Each

General Comments

Span 1 — Near Bearing 6

Elastomeric Bearing with Metal Plates

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
310	Elastomeric Bearing	1	0	1	0	0	Each
515	Steel Protective Coating	1	0	0	0	1	Square Feet

	Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑	310	Corrosion	rust scale	2	1		Each
☑	515	Effectiveness (Steel Protective Coatings)	rust scale	4	1	1	Square Feet

General Comments

Span 1 — Far Bearing 6

Elastomeric Bearing with Metal Plates

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
310	Elastomeric Bearing	1	0	0	1	0	Each
515	Steel Protective Coating	1	1	0	0	0	Square Feet

	Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	

☑ **310**	Bulging, Splitting, or Tearing	(PAR) east face, bulging (up to 1/8 inch high) with tear (10 inch x 1/4 inch wide) exposing steel plate; steel plate, rust scale; southeast corner, loss of bearing (1 inch x 1.5 inch)	3	1	1	Each	
☑ **310**	Alignment	bearing is in expanded position (up to 1/2 inch); bearing pad, not flush with bearing plate (up to 1/8 inch)	2		1	Each	

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	6,325	4,235	2,090	0	0	Square Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ **12**	Cracking (RC and Other)	throughout topside of deck, map cracks (hairline) and transverse/longitudinal cracks (up to 1/32 inch x 12 foot) at random	2	2,000	2,000	Square Feet
☑ **12**	Cracking (RC and Other)	underside of deck, both overhangs, transverse cracks (up to 1/32 inch x full width) some with efflorescence	2	90		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	109	59	50	0	0	Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ **331**	Cracking (RC and Other)	along length of rail, map cracks [hairline] and multiple vertical cracks [up to full height x 1/32 inch], some wrap around, some with efflorescence	2	50		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	109	59	50	0	0	Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑ **331**	Cracking (RC and Other)	along length of rail, map cracks [hairline] and multiple vertical cracks [up to full height x 1/32 inch], some wrap around, some with efflorescence	2	50		Feet

General Comments

Span 2 — Expansion Joint at End Bent 2

Compression Seal

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty	
302	Compression Joint Seal	59	0	0	0	59	Feet

	Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑	**302**	Seal Adhesion	along the length of the joint, seal deteriorated/torn and adhesion loss (up to full length x full depth)	4	59	59	Feet
☑	**302**	Debris Impaction	along the length of the joint, debris accumulation (full length)	3		59	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	57	48	9	0	0	Feet
521	Concrete Protective Coating	237	237	0	0	0	Square Feet

	Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑	**234**	Cracking (RC and Other)	along the length of the cap, multiple vertical and diagonal cracks [up to full height x 1/32 inch] some extend across top	2	9		Feet

General Comments

Approach 1 — 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	684	668	16	0	0	Square Feet

	Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑	**321**	Cracking (RC and Other)	UP TO 2 FOOT X 1/32 INCH LONGITUDINAL CRACKS AT RANDOM THROUGHOUT	2	16	16	Square Feet

General Comments

Approach 2 — 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	684	652	32	0	0	Square Feet

	Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty	
☑	**321**	Cracking (RC and Other)	SCATTERED LONGITUDINAL CRACKS THROUGH OUT [UP TO FULL WIDTH X 1/32 INCH]	2	32	32	Square Feet

General Comments

Elements Verfied

Location	Name	Component	Element Name	Amount
Span 1	Deck	Reinforced Concrete Deck	Reinforced Concrete Deck	6328
Span 1	Beam 1	Plate Girder	Steel Open Girder/Beam	210
Span 1	Beam 2	Plate Girder	Steel Open Girder/Beam	210
Span 1	Beam 3	Plate Girder	Steel Open Girder/Beam	210
Span 1	Beam 4	Plate Girder	Steel Open Girder/Beam	210
Span 1	Beam 5	Plate Girder	Steel Open Girder/Beam	210
Span 1	Beam 6	Plate Girder	Steel Open Girder/Beam	210
Span 1	Left Bridge Rail	Concrete Railing	Reinforced Concrete Bridge Railing	110
Span 1	Right Bridge Rail	Concrete Railing	Reinforced Concrete Bridge Railing	110
Span 1	Expansion Joint at End Bent 1	Compression Seal	Compression Joint Seal	59
Span 1	Far Bearing 1	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	1
Span 1	Intermediate Bearing 1 at Bent 1	Pot Bearing	Pot Bearing	1
Span 1	Near Bearing 1	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	1
Span 1	Near Bearing 2	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	1
Span 1	Intermediate Bearing 2 at Bent 1	Pot Bearing	Pot 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	Intermediate Bearing 3 at Bent 1	Pot Bearing	Pot Bearing	1
Span 1	Near Bearing 3	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	1
Span 1	Near Bearing 4	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	1
Span 1	Intermediate Bearing 4 at Bent 1	Pot Bearing	Pot Bearing	1
Span 1	Far Bearing 4	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	1
Span 1	Far Bearing 5	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	1
Span 1	Intermediate Bearing 5 at Bent 1	Pot Bearing	Pot Bearing	1
Span 1	Near Bearing 5	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	1
Span 1	Near Bearing 6	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	1
Span 1	Intermediate Bearing 6 at Bent 1	Pot Bearing	Pot Bearing	1
Span 1	Far Bearing 6	Elastomeric Bearing with Metal Plates	Elastomeric Bearing	1
Span 2	Deck	Reinforced Concrete Deck	Reinforced Concrete Deck	6325
Span 2	Left Bridge Rail	Concrete Railing	Reinforced Concrete Bridge Railing	109
Span 2	Right Bridge Rail	Concrete Railing	Reinforced Concrete Bridge Railing	109
Span 2	Expansion Joint at End Bent 2	Compression Seal	Compression Joint Seal	59
Bent 1	Cap 1	Reinforced Concrete Pier Cap	Reinforced Concrete Pier Cap	57
Bent 1	Pile 1	Reinforced Concrete Column	Reinforced Concrete Column	1
Bent 1	Pile 2	Reinforced Concrete Column	Reinforced Concrete Column	1
Bent 1	Pile 3	Reinforced Concrete Column	Reinforced Concrete Column	1
End Bent 1	Cap 1	Reinforced Concrete Pier Cap	Reinforced Concrete Pier Cap	66
End Bent 1	Abutment 1	Reinforced Concrete Abutment	Reinforced Concrete Abutment	81
End Bent 2	Cap 1	Reinforced Concrete Pier Cap	Reinforced Concrete Pier Cap	66
End Bent 2	Abutment 1	Reinforced Concrete Abutment	Reinforced Concrete Abutment	81
Approach1	Approach 1	Reinforced Concrete Approach Slab	Reinforced Concrete Approach Slabs	684
Approach2	Approach 2	Reinforced Concrete Approach Slab	Reinforced Concrete Approach Slabs	684

General Inspection Notes

National Bridge and NC Inspection Items

Structure Number: 110037 **Inspection Date:** 08/07/2023

National Bridge Inventory Items

Item	Grade Scale	Grade
Item 58: Deck	0 - 9 , N	**7**
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			
Fender System	G, F, P, or C			
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	**6**
Traffic Control Time	Hours	
Snooper Time	Hours	
Ladder Used	YES/NO	**Y**
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: 110037 **Inspection Date:** 08/07/2023

Item	Grade	Maint Code	Qty.
Details			

Span 2 Deck: underside of deck, both overhangs, transverse cracks (up to 1/32 inch x full width) some with efflorescence

Span 1 Beam 1 - Far Bearing 1: rust scale (no measurable loss)

Span 1 Beam 2: (PAR) 6.5 foot from end bent 2, corrosion with section loss: lower web (3/8 inch average remaining x 34 inch x 2 inch); bottom flange, rust scale (9 foot)

Span 1 Far Bearing 1: south face, bulging (up to 1/16 inch high)

Span 1 Far Bearing 5: south face, bulging (up to 1/8 inch high)

Span 1 Far Bearing 6: (PAR) east face, bulging (up to 1/8 inch high) with tear (10 inch x 1/4 inch wide) exposing steel plate; steel plate, rust scale; southeast corner, loss of bearing (1 inch x 1.5 inch)

Span 1 Far Bearing 6: (PAR) east face, bulging (up to 1/8 inch high) with tear (10 inch x 1/4 inch wide) exposing steel plate; steel plate, rust scale; southeast corner, loss of bearing (1 inch x 1.5 inch)

Span 1 Far Bearing 6: (PAR) east face, bulging (up to 1/8 inch high) with tear (10 inch x 1/4 inch wide) exposing steel plate; steel plate, rust scale; southeast corner, loss of bearing (1 inch x 1.5 inch)

Span 1 Far Bearing 6: bearing is in expanded position (up to 1/2 inch); bearing pad, not flush with bearing plate (up to 1/8 inch)

Span 1 Far Bearing 6: bearing is in expanded position (up to 1/2 inch); bearing pad, not flush with bearing plate (up to 1/8 inch)

Approach 2 : SCATTERED LONGITUDINAL CRACKS THROUGH OUT [UP TO FULL WIDTH X 1/32 INCH]

Span 2 Expansion Joint at End Bent 2: along the length of the joint, seal deteriorated/torn and adhesion loss (up to full length x full depth)

Span 2 Expansion Joint at End Bent 2: along the length of the joint, seal deteriorated/torn and adhesion loss (up to full length x full depth)

Span 2 Expansion Joint at End Bent 2: along the length of the joint, seal deteriorated/torn and adhesion loss (up to full length x full depth)

Span 2 Right Bridge Rail: along length of rail, map cracks [hairline] and multiple vertical cracks [up to full height x 1/32 inch], some wrap around, some with efflorescence

Span 2 Right Bridge Rail: along length of rail, map cracks [hairline] and multiple vertical cracks [up to full height x 1/32 inch], some wrap around, some with efflorescence

Span 2 Deck: throughout topside of deck, map cracks (hairline) and transverse/longitudinal cracks (up to 1/32 inch x 12 foot) at random

Span 2 Deck: throughout topside of deck, map cracks (hairline) and transverse/longitudinal cracks (up to 1/32 inch x 12 foot) at random

Span 2 Deck: throughout topside of deck, map cracks (hairline) and transverse/longitudinal cracks (up to 1/32 inch x 12 foot) at random

Span 1 Deck: throughout topside of deck, map cracks (hairline) and transverse/longitudinal cracks (up to 1/32 inch x 12 foot) at random

Span 1 Deck: throughout topside of deck, map cracks (hairline) and transverse/longitudinal cracks (up to 1/32 inch x 12 foot) at random

Span 1 Expansion Joint at End Bent 1: along the length of the joint, seal deteriorated/torn and adhesion loss (up to full length x full depth)

Span 1 Expansion Joint at End Bent 1: along the length of the joint, seal deteriorated/torn and adhesion loss (up to full length x full depth)

Span 1 Near Bearing 1: rust scale/corrosion with section loss (up to 1/16 inch loss)

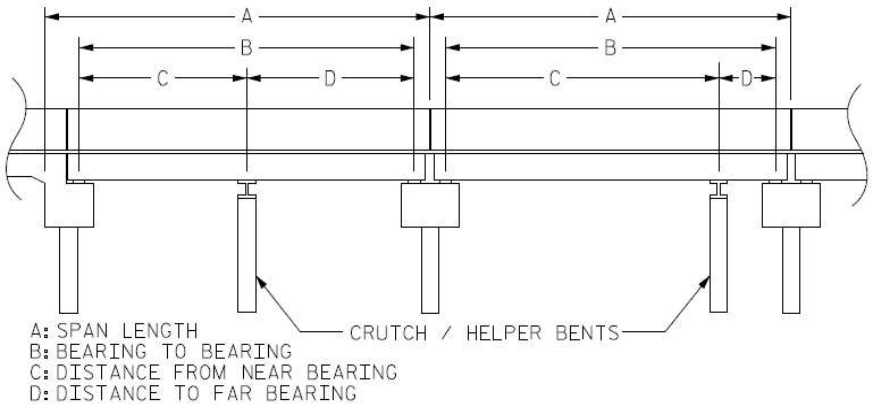
Span 1 Near Bearing 1: north face, bulging (up to 1/16 inch high)

Bent 1 Cap 1: along the length of the cap, multiple vertical and diagonal cracks [up to full height x 1/32 inch] some extend across top

Structure Data Worksheet

Span Profile

County: **BURKE** Structure Number: **110037**



Span Number	Span Length	Bearing to Bearing	Crutch/ Helper Bent	Distance to Near Bearing	Distance to Far Bearing
1	109.250	107.500			
2	102.500	99.500			

Structure Number: 110037 Span: 1 Route Name: I 40 EBL

roadway under span 1, looking east

Route Number: 11000400	**Route Name:** I 40 EBL			**Reference Feature:** H
Minimum Vertical Clearance 16.890 feet	**Maximum Minimum Vertical Clearance** 17.040 feet			
Total Horizontal Clearance 56.070 feet	**Lateral Clearances: Left:** 14.120 feet **Right** 17.320 feet			
☑ **Base Highway Network**	**LRS Inventory Route, Sub Route Number** 10040			
Milepost: 94.280	**Number of Lanes:** 2	**ADT:** 14500	**Year of ADT:** 2015	**Percentage of Trucks:** 23
☑ **National Highway System**		☐ **STRAHNET Highway Designator**		
Functional Classification 08 Rural Minor Collector		**Direction of Traffic:** 1 1 - way traffic		

Structure Number: 110037 Span: 2 Route Name: I 40 WBL

roadway under span 2, looking west

Route Number: 11000400	**Route Name:** I 40 WBL			**Reference Feature:** H
Minimum Vertical Clearance 18.040 feet	**Maximum Minimum Vertical Clearance** 18.550 feet			
Total Horizontal Clearance 49.760 feet	**Lateral Clearances: Left:** 13.840 feet **Right** 14.430 feet			
☑ **Base Highway Network**	**LRS Inventory Route, Sub Route Number** 10040			
Milepost: 94.280	**Number of Lanes:** 2	**ADT:** 14500	**Year of ADT:** 2015	**Percentage of Trucks:** 23
☑ **National Highway System**		☐ **STRAHNET Highway Designator**		
Functional Classification 08 Rural Minor Collector		**Direction of Traffic:** 1 1 - way traffic		

Bridge Inspection Field Sketch

Deck Width/Out to Out	57.917ft	Between Rails			54.917ft
Clear Roadway	54.917ft	Wearing Surface			
Median Width		Median Height			
Curb Height		Left		Right	
Sidewalk Width		Left		Right	
Clear Roadway (Rail to Median)		Left		Right	
Guardrail Width		Left	17in	Right	17in
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	ALL SPANS SIMILAR	
Deck Thickness	9.25in	Left Overhang	2.5ft
Top of Rail to Bottom of Beam (Avg)	8.23ft	Right Overhang	2.5ft

Beam #	Beam Type	Width	Height	Spacing	From
1	Plate Girder	14.25in	57.875in	2.5ft	Left Edge of Deck
2	Plate Girder	14.25in	57.875in	10.583ft	Beam 1
3	Plate Girder	14.25in	57.875in	10.583ft	Beam 2
4	Plate Girder	14.25in	57.875in	10.583ft	Beam 3
5	Plate Girder	14.25in	57.875in	10.583ft	Beam 4
6	Plate Girder	14.25in	57.875in	10.583ft	Beam 5

SPAN 1 BEAM DIMENSIONS: between flanges 56" ; bottom flange 14-1/4" x 1" thick; web 1/2" thick
SPAN 2 BEAM DIMENSIONS: between flanges 56" ; bottom flange 12-1/4" x 1-3/8" thick; web 1/2" thick

Title	Description
TYPICAL SECTION SKETCH	LOOKING NORTH

Structure No:	Drawn By:	Date:	Filename:
110037	HABonilla	8/7/2023	S000906000208.wes

Bridge Inspection Field Sketch

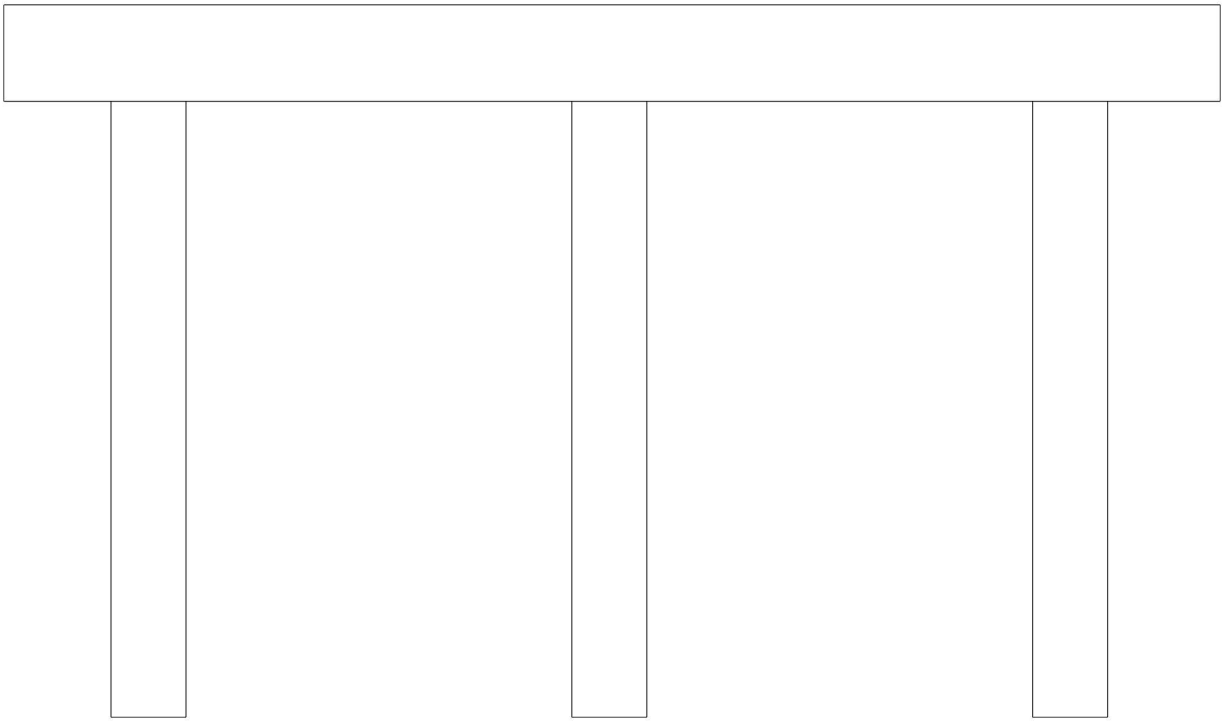
Roadway	25.9ft Wide	2 Paved Lanes	Looking North
Left Shoulder	5.3ft Wide	1.3ft Paved	4ft Unpaved
Right Shoulder	6.3ft Wide	2.3ft Paved	4ft Unpaved
Left Guardrail			
Right Guardrail			

measurements taken approximately 650 feet from end bent 1; road narrows to 2 lanes

Title	Description
APPROACH ROADWAY SKETCH	LOOKING NORTH

Structure No:	Drawn By:	Date:	Filename:
110037	HABonilla	8/7/2023	S000906000209.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	56.75ft	50in	54in	1.5ft	2.333ft

Piles							
#	Name	Type	Spacing	From	Height/Diam.	Width	Length
1	Pile 1	Reinforced Concrete Column	6.75ft	Left End of Bent	42in		18ft
2	Pile 2	Reinforced Concrete Column	21.5ft	Pile 1	42in		18ft
3	Pile 3	Reinforced Concrete Column	21.5ft	Pile 2	42in		18ft

Title	Description
BENT SKETCH	LOOKING NORTH

Structure No: 110037	Drawn By: HABonilla	Date: 8/7/2023	Filename: S000906000210.wes

west profile looking east

bent 1

roadway under span 2, looking west

east profile looking west

typical bolted splice connection

end bent 2 and slope protection

intermediate diaphragm

end bearing assembly

northeast wingwall

northwest wingwall

north approach looking south

northwest guardrail termination

northwest guardrail

northwest guardrail transition

northwest guardrail attachment

end bent 2 joint

roadway looking west

roadway looking east

bent 1 deck

north approach looking north

south approach looking south

end bent 1 joint

bridge deck

right bridge rail

left bridge rail

south approach looking north

southeast guardrail transition

southeast guardrail attachment

southeast guardrail

southeast guardrail termination

southeast wingwall

end bent 1 and slope protection

end diaphragm

southwest wingwall

roadway under span 1, looking east

interior bearing assembly

beams over bent

ladder used