



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

Structure Safety Report

Routine Element Inspection

INSPECTION DATE: 05/23/2018

DIVISION: 6 COUNTY: ROBESON STRUCTURE NUMBER: 770464 FREQUENCY: 24 MONTHS

FACILITY CARRIED: I95, US301 MILE POST: 20.2

LOCATION: 0.3 MI.N. JCT.NC211

FEATURE INTERSECTED: FIVEMILE BRANCH

LATITUDE: 34° 39' 2.35" LONGITUDE: 79° 0' 43.48"

SUPERSTRUCTURE: DOUBLE 10' X 8' RCBC;285'-4 13/16" ALONG CENTERLINE OF CULVERT

SUBSTRUCTURE: _____

SPANS: 2 BARRELS. SEE CULVERT SKETCH FOR DETAILS.

FRACTURE CRITICAL TEMPORARY SHORING SCOUR CRITICAL SCOUR PLAN OF ACTION

GRADES: DECK N SUPERSTRUCTURE N SUBSTRUCTURE N CULVERT 6

POSTED SV: Not Posted POSTED TTST: Not Posted

OTHER SIGNS PRESENT: 5 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>

DIRECTION OF INSPECTION S-N

DIRECTION MATCHES PLANS NO PLANS

INSPECTED BY Ray L. Kisner	SIGNATURE <i>Ray L. Kisner</i>	ASSISTED BY Andrew C. Stone
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Structure Element Scoring

Structure Number: 770464

Inspection Date 5/23/2018

Element Number	Parent Number	Element Name	Location	Total Quantity	Level 1 Quantity	Level 2 Quantity	Level 3 Quantity	Level 4 Quantity
241	0	Reinforced Concrete Culvert	Culverts and Pipes	572	187	385	0	0

Summary of Maintenance Needs

Maintenance By Defect

Structure Number: 770464

Inspection Date: 05/23/2018

MMS Code	Element Name	Defect Name	Recommended Quantity
3370	Reinforced Concrete Culvert	Delamination/Spall	2 Feet

Element Structure Maintenance Quantities

Structure Number: 770464

Inspection Date 05/23/2018

Location	MMS Code	Description	Maint Quantity	Total Quantity	Severe Quantity	Poor Quantity	Fair Quantity	Good Quantity
Culverts and Pipes	3370	Maintenance of NBI Culverts and Pipes	2	572	0	0	385	187

Element Condition and Maintenance Data

Structure Number: 770464

Inspection Date: 05/23/2018

Span 1 Culvert Section 1

Reinforced Concrete Box Culvert

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty
241	Reinforced Concrete Culvert	286	1	285	0	0 Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty
241	Abrasion/Wear (PSC/RC)	EXPOSED AGGREGATE ALONG WALLS 3 FT. HIGH	2	250	Feet
241	Cracking (RC and Other)	2 - 10 FT. LONG X HAIRLINE LONGITUDINAL CRACKS WITH EFFLORESENCE IN TOP SLAB AT 50 FT. FROM EAST END	2	20	Feet
241	Cracking (RC and Other)	3 - 5 FT. HIGH X HAIRLINE VERTICAL CRACKS AT 2 FT. SPACING IN SOUTH WALL 75' FROM EAST END	2	3	Feet
241	Cracking (RC and Other)	HAIRLINE LONGITUDINAL CRACK WITH EFFLORESENCE TOP SLAB AT 40 FT. FROM WEST END	2	10	Feet
241	Delamination/Spall	SPALL 2 FT. LONG X 2-3 " HIGH X 1" DEEP IN BARREL 1 SOUTH WALL AT WEST END	2	2	2 Feet

General Comments

Span 2 Culvert Section 1

Reinforced Concrete Box Culvert

Element Number	Element Name	Total Qty	CS1 Qty	CS2 Qty	CS3 Qty	CS4 Qty
241	Reinforced Concrete Culvert	286	186	100	0	0 Feet

Element Number	Defect Type	Defect Description	CS	CS Qty	Maint Qty
241	Cracking (RC and Other)	10 - 10 FT. LONG HAIRLINE LONGITUDINAL CRACKS WITH EFFLORESENCE AT 5-20 FT. SPACING	2	100	Feet

General Comments

Elements Verified

Location	Name	Component	Element Name	Amount
Span 1	Culvert Section 1	Reinforced Concrete Box Culvert	Reinforced Concrete Culvert	286
Span 2	Culvert Section 1	Reinforced Concrete Box Culvert	Reinforced Concrete Culvert	286

General Inspection Notes

National Bridge and NC Inspection Items

Structure Number: 770464

Inspection Date: 05/23/2018

National Bridge Inventory Items

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

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
Headwall	G, F, P, or C	F	5	4675
Wingwall	G, F, P, or C	G	0	3350
Scour	G, F, P, or C	F		
Drift	G, F, P, or C	F	20	3366
Estimated Remaining Life	G, F, P, or C	18		

Note: If NC SMU Inspection 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	N
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	Y

National Bridge and NC SMU Inspection Item Details

Structure Number: 770464

Inspection Date: 05/23/2018

Item	Other Equipment Used	Grade Y	Maint Code	Qty. 0
Details	BOOTS			
Item	Drift	Grade F	Maint Code 3366	Qty. 20
Details	DRIFT AT EAST END INTERIOR WALL 20 HOURS.			
Item	Scour	Grade F	Maint Code	Qty. 0
Details	2.25 FT. VERTICAL SCOUR AT WEST OUTLET END OF BARRELS 1 AND 2 WITH NO UNDERMINING			
Item	Headwalls	Grade F	Maint Code 4675	Qty. 5
Details	WEST HEADWALL SPALL 8" LONG X 3" HIGH X 2" DEEP OVER BARREL 2 EAST HEADWALL SPALL 16" LONG X 12" WIDE X 8" DEEP AT SOUTHEAST CORNER EAST HEADWALL SPALL 16" LONG X 8" WIDE X 6" DEEP AT NORTHEAST CORNER			
Item	General Comments and Misc Items	Grade	Maint Code	Qty. 0
Details	SCOUR FROM HURRICANE MATTHEW WEST END BANKS REPAIRED WITH RIP RAP. 2.25 FT. OF VERTICAL SCOUR AT WEST END OF BOTH BARRELS WITH NO UNDERMINING			



WEST HEADWALL SPALL 8" LONG X 3" HIGH X 2" DEEP OVER BARREL 2



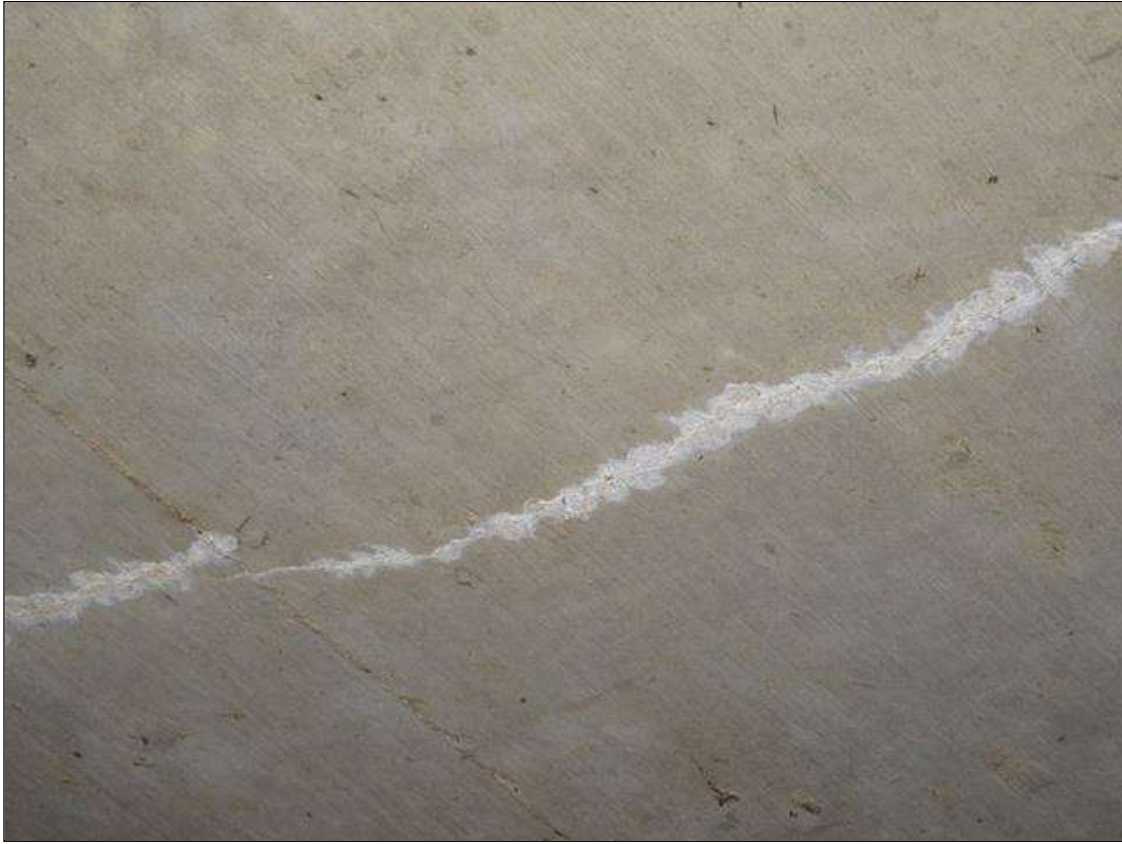
Barrel 1 Section 1: EXPOSED AGGREGATE ALONG WALLS 3 FT. HIGH



2.25 FT. VERTICAL SCOUR AT WEST OUTLET END OF BARRELS 1 AND 2 WITH NO UNDERMINING



Barrel 1 Section 1: SPALL 2 FT. LONG X 2-3" HIGH X 1" DEEP IN BARREL 1 SOUTH WALL AT WEST END



Barrel 1 Section 1: HAIRLINE LONGITUDINAL CRACK WITH EFFLORESCENCE TOP SLAB AT 40 FT. FROM WEST END



Barrel 1 Section 1: 3 - 5 FT. HIGH X HAIRLINE VERTICAL CRACKS AT 2 FT. SPACING IN SOUTH WALL 75' FROM EAST END



Barrel 1 Section 1: 2 - 10 FT. LONG X HAIRLINE LONGITUDINAL CRACKS WITH EFFLORESCENCE IN TOP SLAB AT 50 FT. FROM EAST END



6" OF VERTICAL SCOUR AT EAST END OF BARREL 1



DRIFT AT EAST END INTERIOR WALL 20 HOURS.



EAST HEADWALL SPALL 16" LONG X 12" WIDE X 8" DEEP AT SOUTHEAST CORNER



EAST HEADWALL SPALL 16" LONG X 8" WIDE X 6" DEEP AT NORTHEAST CORNER



Barrel 2 Section 1: 10 - 10 FT. LONG HAIRLINE LONGITUDINAL CRACKS WITH EFFLORESCENCE AT 5-20 FT. SPACING



LOOKING NORTH



LOOKING NORTH, NORTHBOUND LANE I-95



LOOKING SOUTH, SOUTHBOUND LANE I-95



LOOKING SOUTH



WEST PROFILE



RIP RAP SLOPE PROTECTION , HURRICANE MATTHEW REPAIR



UPSTREAM EAST



LOOKING SOUTH, SR- 1791



DOWNSTREAM WEST



12" CAST IRON UTILITY 8' WEST OF CULVERT



12" CAST IRON UTILITY BARREL 1 ALONG SOUTH WALL



STORM WATER INLET TOP SLAB BARREL 1 AT MID POINT



DOWNSTREAM WEST THRU BARREL 1



UPSTREAM EAST THRU BARREL 1



EAST PROFILE



DOWNSTREAM WEST



LOOKING NORTH, SR-1792



UPSTREAM EAST

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

Run Date: 07/06/2018

IDENTIFICATION

(1) STATE NAME -NORTH CAROLINA BRIDGE **770464**
 (8) STRUCTURE NUMBER(FEDERAL) 000000001550464
 (5) INVENTORY ROUTE (ON/UNDER) - ON 11000950
 (2) STATE HIGHWAY DEPARTMENT DISTRICT 1
 (3) COUNTY CODE 155 (4) PLACE CODE 39700
 (6) FEATURE INTERSECTED - FIVEMILE BRANCH
 (7) FACILITY CARRIED I95, US301
 (9) LOCATION 0.3 MI.N. JCT.NC211
 (11)MILEPOINT 20.2
 (16)LAT 34° 39' 2.35" (17)LONG 79° 0' 43.48"
 (98)BORDER BRIDGE STATE CODE PCT SHARE
 (99)BORDER BRIDGE STRUCTURE NO

SUFFICIENCY RATING = 95.86
 STATUS = Not Deficient

CLASSIFICATION **CODE**

(112)NBIS BRIDGE SYSTEM - YES
 (104)HIGHWAY SYSTEM Is on the NHS 1
 (26) FUNCTIONAL CLASS - Arterial - Interstate 11
 (100)STRAHNET HIGHWAY - Interstate STRAHNET Route 1
 (101)PARALLEL STRUCTURE - No Parallel Structure N
 (102)DIRECTION OF TRAFFIC - 2-way Traffic 2
 (103)TEMPORARY STRUCTURE -
 (110)DESIGNATED NATIONAL NETWORK - On the National Network 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

(43) STRUCTURE TYPE MAIN: Concrete continuous
 TYPE - Culverts (includes frame culverts) CODE 219
 (44) STRUCTURE TYPE APPR :
 TYPE - CODE 000
 (45) NUMBER OF SPANS IN MAIN UNIT 2
 (46) NUMBER OF APPROACH SPANS
 (107)DECK STRUCTURE TYPE - N CODE
 (108)WEARING SURFACE / PROTECTIVE SYSTEM :
 (A) TYPE OF WEARING SURFACE - CODE
 (B) TYPE OF MEMBRANE - CODE
 (C) TYPE OF DECK PROTECTION - CODE

CONDITION **CODE**

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

LOAD RATING AND POSTING **CODE**

(31) DESIGN LOAD HS 20 5
 (63) OPERATING RATING METHOD - Field Evaluation and Document 0
 (64) OPERATING RATING - HS-26 46
 (65) INVENTORY RATING METHOD - Field Evaluation and Document 0
 (66) INVENTORY RATING - HS-20 36
 (70) BRIDGE POSTING - No Posting Required 5
 (41) STRUCTURE OPEN, POSTED ,OR CLOSED A
 DESCRIPTION - Open, No Restriction

AGE AND SERVICE

(27) YEAR BUILT 1952
 (106)YEAR RECONSTRUCTED
 (42) TYPE OF SERVICE : ON - Highway
 UNDER - Waterway CODE 15
 (28) LANES: ON STRUCTURE 8 UNDER STRUCTURE 0
 (29) AVERAGE DAILY TRAFFIC 28500
 (30) YEAR OF ADT 2015 (109) TRUCK ADT PCT 16%
 (19) BYPASS OR DETOUR LENGTH 1 MI

APPRAISAL **CODE**

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

GEOMETRIC DATA

(48) LENGTH OF MAXIMUM SPAN 10 FT
 (49) STRUCTURE LENGTH 27 FT
 (50)CURB OR SIDEWALK: LEFT 0 FT RIGHT 0 FT
 (51) BRIDGE ROADWAY WIDTH CURB TO CURB 0 FT
 (52) DECK WIDTH OUT TO OUT 0 FT
 (32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 166 FT
 (33) BRIDGE MEDIAN - No Median CODE 0
 (34) SKEW 40° (35) STRUCTURE FLARED 0
 (10) INVENTORY ROUTE MIN VERT CLEAR 999.9 FT
 (47) INVENTORY ROUTE TOTAL HORIZ CLEAR 99.9 FT
 (53) MIN VERT CLEAR OVER BRIDGE RDWY 999.9 FT
 (54) MIN VERT UNDERCLEAR REF Not a Highway or Railroad 0 FT
 (55) MIN LAT UNDERCLEAR RT REF Not a Highway or Railroad 000 FT
 (56) MIN LAT UNDERCLEAR LT REF - 000 FT

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 57000 (115) YEAR FUTURE ADT 2025

INSPECTIONS

(90) INSPECTION DATE 05/23/2018
 (92) CRITICAL FEATURE INSPECTION : (93) CFI DATE
 A) FRACTURE CRIT DETAIL - NO A)
 B) UNDERWATER INSP - NO B)
 C) OTHER SPECIAL INSP NO C)
 SCOUR

NAVIGATION DATA

(38) NAVIGATION CONTROL - No Navigational Control CODE 0
 (111)PIER PROTECTION - CODE
 (39) NAVIGATION VERTICAL CLEARANCE 0
 (116)VERT - LIFT BRIDGE NAV MIN VERT CLEAR FT
 (40) NAVIGATION HORIZONTAL CLEARANCE 0 FT

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 07/06/2018

COUNTY : ROBESON DIVISION : 6 DISTRICT : 1 STRUCTURE NUMBER : 770464 LENGTH : 27 FEET

ROUTE CARRIED : I95, US301 FEATURE INTERSECTED : FIVEMILE BRANCH

LOCATED : 0.3 MI.N. JCT.NC211 BRIDGE NAME : CITY : LUMBERTON

FUNC. CLASS : 11 SYST.ON : FA SYST.UNDER : NFA ADT & YR : 28500 2015 RAIL TYPE : LT 0 RT 0

BUILT : 1952 BY : BMU PROJ : FED.AID PROJ : DESIGN LOAD : HS 20

REHAB : BY : PROJ : ALIGNMENT : TAN SKEW : 130 LANES : ON 8 UNDER 0

NAVIGATION : VC 0 FT HC 0 FT HT. CRN. TO BED : 11 FT WATER DEPTH : 1 FT

SUPERSTRUCTURE : DOUBLE 10' X 8' RCBC;285'-4 13/16" ALONG CENTERLINE OF CULVERT

SUBSTRUCTURE :

SPANS :

BEAMS OR GIRDERS :

FLOOR : ENCROACHMENT : DECK (OUT TO OUT) : 0 FT

CLEAR ROADWAY : 0 FT BETWEEN RAILS : 0 FT SIDEWALK OR CURB : LT 0 FT RT 0 FT

VERT.CL.OVER : 999.9 FT

INV.RTG. : HS-20 OPE.RTG. : HS-26 CONTR.MEMBER : RCBC POSTED : SV TTST DATE

SYSTEM : Primary Interstate GREEN LINE ROUTE : N

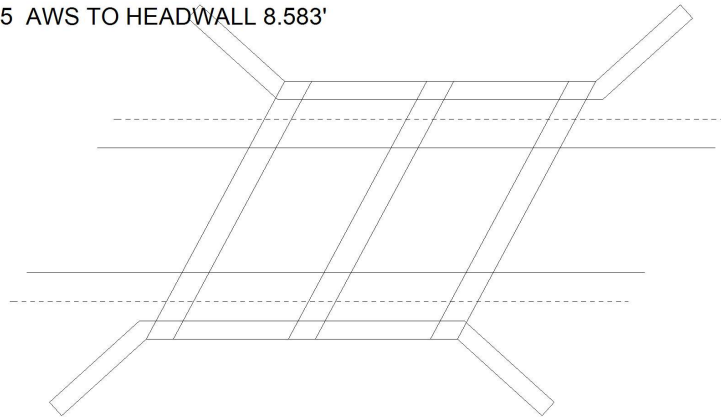
UNDER ROUTES AND CLEARANCES

REMARKS :

Bridge Inspection Field Sketch

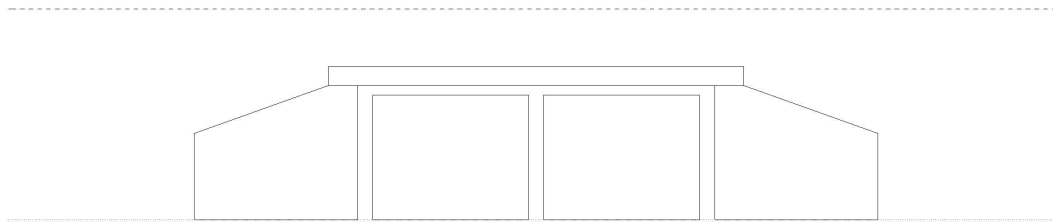
WEST END SR 1791 MPH 45 AWS TO HEADWALL 8.583'

MPH I-95 IS 65



EAST END SR 1792 MPH 45 5.333' AWS TO EAST HEADWALL

Crown of Roadway



Bed

Number of Barrels	Skew	Distance From Crown to Bed
2	130°	11 ft
Length Along Center Line of Culvert		Length Along Center Line of Roadway
285.4 ft		26.762 ft

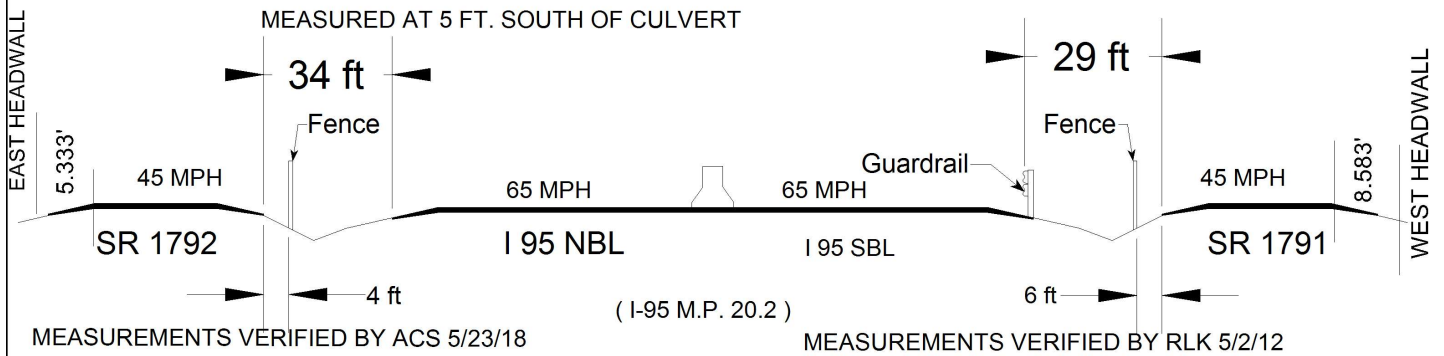
Barrel #	Width	Height	Wall Thickness	Scour at Inlet	Scour at Outlet	Distance From Previous Pipe
1	10	8	0.5	2.25 FT.	2.25 FT.	
2	10	8		0.5 ft.	0	

THERE IS 2" OF WATER IN BOTH BARRELS 5/23/18

MEASUREMENTS VERIFIED BY RLK 6/21/10
 MEASUREMENTS VERIFIED BY RLK 5/2/12
 MEASUREMENTS REVISED BY RLK 5/7/14
 MEASUREMENTS VERIFIED BY RLK 5/18/16

Title Culvert Sketch	Description 2 Barrel Concrete Box
Bridge No: 770464	Drawn By: CLS
Date: 02/26/2007	File Name: S0234001103

Bridge Inspection Field Sketch



Left Lanes			
Roadway	36 ft Wide	3 Paved Lanes	North Bound
Left Shoulder	11 ft Wide	11 ft Paved	
Right Shoulder	14 ft Wide	14 ft Paved	
Left Guardrail			
Right Guardrail			
Median	2ft Wide	5ft High	
Right Lanes			
Roadway	36 ft Wide	3 Paved Lanes	South Bound
Left Shoulder	14 ft Wide	14 ft Paved	
Right Shoulder	7ft Wide	7ft Paved	
Left Guardrail			
Right Guardrail	7ft from road		
SR 1791			
Roadway	22 ft Wide	2 Paved Lanes	
Left Shoulder	2ft Wide	2ft Paved	
Right Shoulder	2ft Wide	2ft Paved	
Left Guardrail			
Right Guardrail			
SR 1792			
Roadway	20ft Wide	2 Paved Lanes	
Left Shoulder	1ft Wide	1ft Paved	
Right Shoulder	1ft Wide	1ft Paved	
Left Guardrail			
Right Guardrail			

MEASUREMENTS REVISED BY RLK 5/7/14

MEASUREMENTS VERIFIED BY RLK 5/18/16

Title

Approach Roadway

Description

Looking South

Bridge No: 770464

Drawn By: CLS

Date: 02/28/2007

File Name: S0234001104