



NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 STRUCTURE MANAGEMENT UNIT

ATTENTION: **SUPPLEMENT INSPECTION/ BEAM DAMAGE TO SPAN 2 / DAMAGE TO BEAM 10 ONLY/ PRIORITY MAINTENANCE REQUESTED X 3**

# Structure Safety Report

## Supplemental Element Inspection

INSPECTION DATE: 01/17/2019

DIVISION: 13 COUNTY: BUNCOMBE STRUCTURE NUMBER: 100382 FREQUENCY: None

FACILITY CARRIED: US25,US70 MILE POST: \_\_\_\_\_

LOCATION: .4 MI.S.JCT.SR1727

FEATURE INTERSECTED: US19,US23,BYP

LATITUDE: 35° 42' 16.86" LONGITUDE: 82° 34' 21.06"

SUPERSTRUCTURE: REINFORCED CONC. FLOOR ON I-BEAMS(WIDENED); (LATEX MOD. CONC. OVERLAY)

SUBSTRUCTURE: E.BTS:RC CAPS/H-PILES;INT.BTS:RC POST&BEAM/PILE FTGS.

SPANS: 4 SPANS. SEE SPAN PROFILE SHEET FOR SPAN DETAILS

FRACTURE CRITICAL     TEMPORARY SHORING     SCOUR CRITICAL     SCOUR PLAN OF ACTION

NBI GRADES: DECK 7 SUPERSTRUCTURE 6 SUBSTRUCTURE 6 CULVERT N

POSTED SV: Not Posted POSTED TTST: Not Posted

OTHER SIGNS PRESENT: \_\_\_\_\_



| 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 \_\_\_\_\_

LOOKING WEST

|                           |               |                       |
|---------------------------|---------------|-----------------------|
| INSPECTED BY<br>ME RENFRO | SIGNATURE<br> | ASSISTED BY BA WILCOX |
|---------------------------|---------------|-----------------------|

**Span 2 Beam 9**  
**Plate Girder**

| Element Number | Element Name             | Total Qty | CS1 Qty | CS2 Qty | CS3 Qty | CS4 Qty |             |
|----------------|--------------------------|-----------|---------|---------|---------|---------|-------------|
| 107            | Steel Open Girder/Beam   | 59        | 53      | 6       | 0       | 0       | Feet        |
| 515            | Steel Protective Coating | 0         | 0       | 0       | 0       | 0       | Square Feet |

| Element Number | Defect Type | Defect Description  | CS | CS Qty | Maint Qty |      |
|----------------|-------------|---|----|--------|-----------|------|
| 107            | Corrosion   | PREVIOUSLY NOTED 1/16" - 1/8" PITTING ON THE WEB AND FLANGES AT BEARING ON BENTS 1 AND 2 HAS BEEN CLEANED AND PAINTED OVER. | 2  | 6      |           | Feet |

General Comments

**Span 2 Beam 10**  
**Plate Girder**

| Element Number | Element Name             | Total Qty | CS1 Qty | CS2 Qty | CS3 Qty | CS4 Qty |             |
|----------------|--------------------------|-----------|---------|---------|---------|---------|-------------|
| 107            | Steel Open Girder/Beam   | 59        | 1       | 14      | 29      | 15      | Feet        |
| 515            | Steel Protective Coating | 591       | 591     | 0       | 0       | 0       | Square Feet |

| Element Number | Defect Type | Defect Description   | CS | CS Qty | Maint Qty |      |
|----------------|-------------|--|----|--------|-----------|------|
| 107            | Damage      | IMPACT DAMAGE TO BOTTOM FLANGE, CAUSING VERTICAL DISTORTION UP TO 2.5" IN (3) LOCATIONS, HORIZONTAL DEFLECTION UP TO 1", AND CAUSING AN UP TO 20" TEAR IN WELD BETWEEN INTERMEDIATE DIAPHRAGM AND BEAM WEB, AT MIDSPAN. (PM)   | 4  | 15     | 15        | Feet |
| 107            | Damage      | BEAM 10 BOWED UPWARD AT POINT OF IMPACT. BEAM BOWED UPWARD AT INDENTION 1 FOR A LENGTH OF 2 FEET, AT INDENTION 2 FOR A LENGTH OF 18", AND AT INDENTION 3 FOR A LENGTH OF 2 FEET.   | 3  | 6      | 6         | Feet |
| 107            | Damage      | BEAM 10 IS OUT OF PLUMB FOR A TOTAL LENGTH OF 20 FEET. THE BEAM IS SWEEP WESTWARD AND OUT OF PLUMB 1"  | 3  | 20     | 20        | Feet |
| 107            | Damage      | THREE INDENTIONS IN BEAM 10 AT POINT OF IMPACT. INDENTION 1 IS 4" LONG X 5" WIDE IN BEAM 10 MEASURED 17' FROM INTERIOR BENT 2. INDENTION 2 IS 3" LONG X 1" WIDE MEASURED 23'2" FROM INTERIOR BENT 2. INDENTION 3 IS 3" LONG X 1" WIDE MEASURED 26'4" FROM INTERIOR BENT 2. | 3  | 3      | 3         | Feet |
| 107            | Corrosion   | PREVIOUSLY NOTED 1/16" - 1/8" PITTING ON THE WEB AND FLANGES AT BEARING ON BENTS 1 AND 2 HAS BEEN CLEANED AND PAINTED OVER.  | 2  | 6      |           | Feet |
| 107            | Damage      | 3' OF IMPACT SCRAPES TO UNDERSIDE OF BOTTOM FLANGE, AT 1/3 POINT.  | 2  | 3      | 3         | Feet |
| 107            | Damage      | SCRAPES ON BOTTOM FLANGE OF BEAM 10. MEASURED 20' FROM INERIOR BENT 2 FOR A LENGTH OF 6". SCATTERED SCRAPES ON BOTTOM FLANGE OF BEAM 10 MEASURED 28' FROM INTERIOR BENT 2 AND MEASURED 30' FROM INTERIOR BENT 2  | 2  | 5      | 5         | Feet |

General Comments

**Span 2 Wearing Surface**  
**Asphalt Wearing Surface**

| Element Number | Element Name    | Total Qty | CS1 Qty | CS2 Qty | CS3 Qty | CS4 Qty |             |
|----------------|-----------------|-----------|---------|---------|---------|---------|-------------|
| 510            | Wearing Surface | 4,081     | 3,981   | 100     | 0       | 0       | Square Feet |

| Element Number | Defect Type | Defect Description | CS | CS Qty | Maint Qty |  |
|----------------|-------------|--------------------|----|--------|-----------|--|
|----------------|-------------|--------------------|----|--------|-----------|--|



DIAPHRAGM 3 BAY 9 IN SPAN 2 IS CRACKED AND SEPERATED FROM BEAM 10. THE CRACK IS A TOTAL LENGTH OF 20" FROM THE BOTTOM OF THE DIAPHRAGM.



DIAPHRAGM 3 BAY 9 IS OUT OF PLUMB SOUTHWARD FOR 1"



DIAPHRAGM 4 BAY 9 IN SPAN 2 IS CRACKED AND SEPERATED FROM BEAM 10. THE CRACK IS A TOTAL LENGTH OF 8" FROM THE BOTTOM OF THE DIAPHRAGM.



DIAPHRAGM 4 BAY 9 IS OUT OF PLUMB SOUTHWARD FOR 3/4"



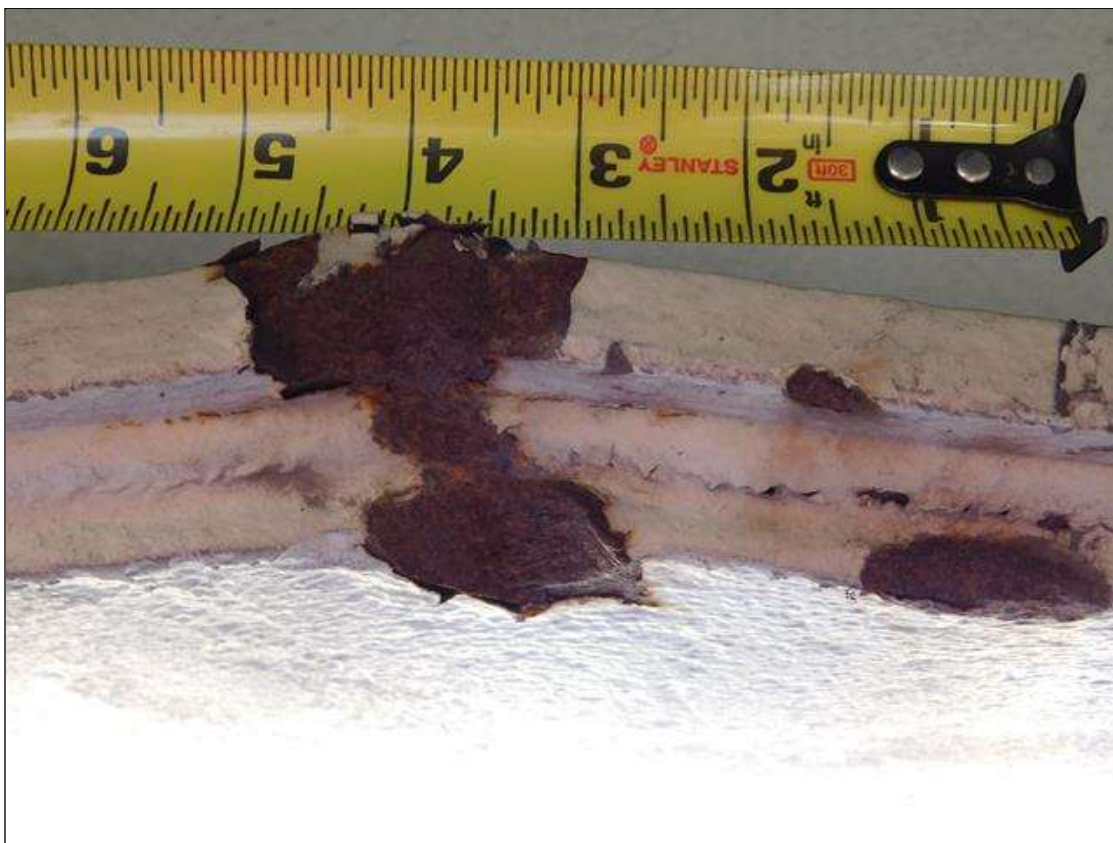
OVERVIEW OF INDENTATION AT POINT OF IMPACT FOR BEAM 10. INDENTATION IS 4" LONG X 5" WIDE IN BEAM 10 MEASURED 17' FROM INTERIOR BENT 2



CLOSE UP OF INDENTATION AT POINT OF IMPACT FOR BEAM 10. INDENTATION IS 4" LONG X 5" WIDE IN BEAM 10 MEASURED 17' FROM INTERIOR BENT 2



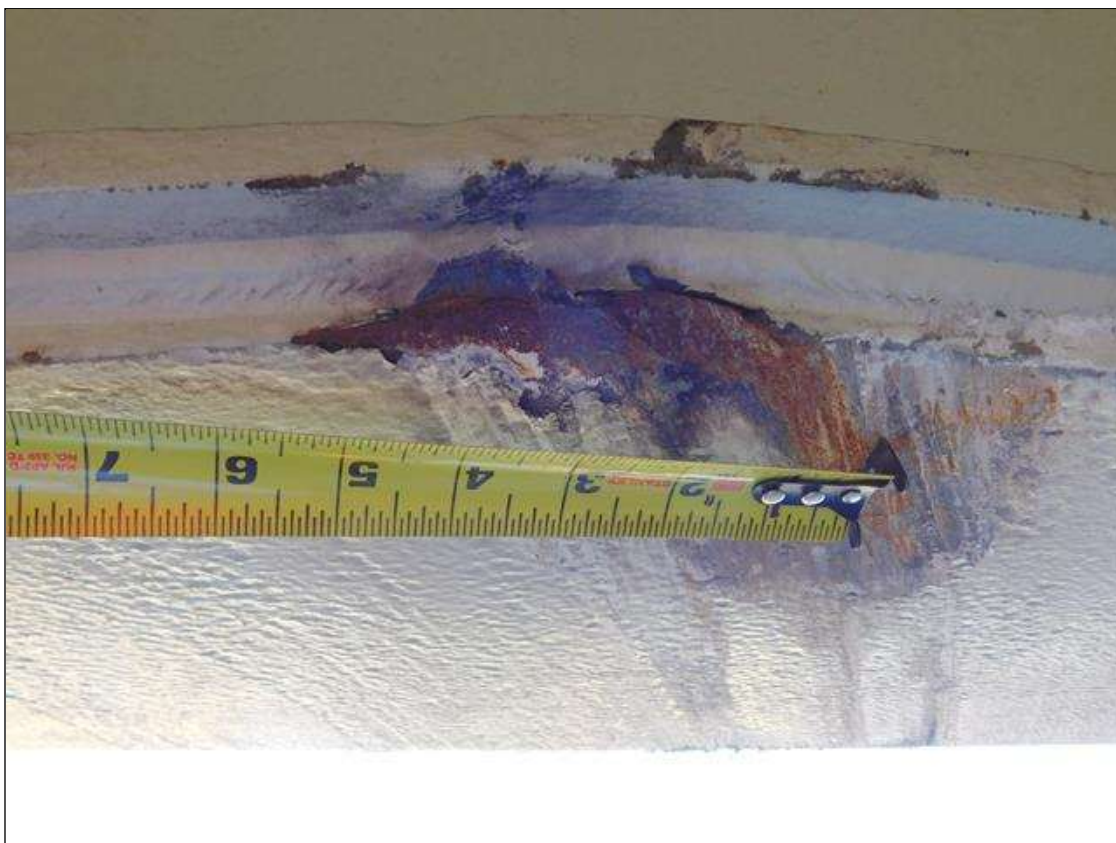
SCRAPES ON BOTTOM FLANGE OF BEAM 10 FOR A TOTAL LENGTH OF 6". MEASURED 20' OUT FROM INTERIOR BENT 2



CLOSE UP OF INDENTION AT POINT OF IMPACT FOR BEAM 10. INDENTION IS 3" LONG X 1" WIDE MEASURED 23'2" FROM INTERIOR BENT 2



OVERVIEW OF INDENTATION AT POINT OF IMPACT FOR BEAM 10. INDENTATION IS 3" LONG X 1" WIDE MEASURED 23'2" FROM INTERIOR BENT 2



CLOSE UP OF INDENTATION AT POINT OF IMPACT FOR BEAM 10. INDENTATION IS 3" LONG X 1" WIDE MEASURED 26'4" FROM INTERIOR BENT 2.



OVERVIEW OF INDENTION AT POINT OF IMPACT FOR BEAM 10. INDENTION IS 3" LONG X 1" WIDE MEASURED 26'4" FROM INTERIOR BENT 2.



SCATTERED SCRAPES ON BOTTOM FLANGE OF BEAM 10. MEASURED 28' FROM INTERIOR BENT 2





SCATTERED SCRAPES ON BOTTOM FLANGE OF BEAM 10. MEASURED 30' FROM INTERIOR BENT 2



BEAM 10 IS OUT OF PLUMB WESTWARD FOR 1" FOR A TOTAL LENGTH OF 20 FEET



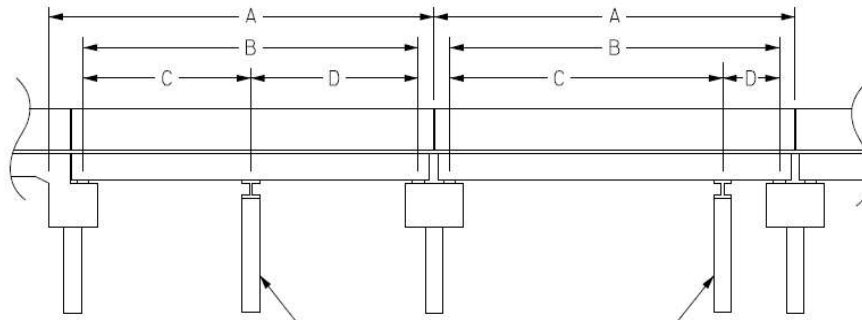
LOOKING WEST

# Structure Data Worksheet

## Span Profile

County: BUNCOMBE

Structure Number: 100382



A: SPAN LENGTH  
 B: BEARING TO BEARING  
 C: DISTANCE FROM NEAR BEARING  
 D: DISTANCE TO FAR BEARING

| Span Number | Span Length | Bearing to Bearing | Crutch/ Helper Bent | Distance to Near Bearing | Distance to Far Bearing |
|-------------|-------------|--------------------|---------------------|--------------------------|-------------------------|
| 1           | 51.730      | 50.000             |                     |                          |                         |
| 2           | 58.940      | 57.940             |                     |                          |                         |
| 3           | 58.667      | 57.667             |                     |                          |                         |
| 4           | 58.430      | 56.667             |                     |                          |                         |



NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 STRUCTURE MANAGEMENT UNIT

ATTENTION: **IMPACT DAMAGE REPORT ON SPAN 3/ RATINGS FOR SPAN 3 ONLY/REFER TO SPAN 2 BEAMS ARE CONTINUOUS/ PRIORITY MAINTENANCE REQUESTED X 2**

# Structure Safety Report

## Supplemental Element Inspection

INSPECTION DATE: 03/05/2019

DIVISION: 13 COUNTY: BUNCOMBE STRUCTURE NUMBER: 100407 FREQUENCY: None

FACILITY CARRIED: SR2207 MILE POST: \_\_\_\_\_

LOCATION: .1 MI.N.JCT.SR2135

FEATURE INTERSECTED: I-26

LATITUDE: 35° 43' 35.23" LONGITUDE: 82° 33' 18.98"

SUPERSTRUCTURE: RC.FL.ON CONT.I-BMS&NON.CONT.I-BMS

SUBSTRUCTURE: E.BTS:RC CAPS/H-PILES;BTS1&2:RCP&B;BT3:RCP&B/PILE FTG.

SPANS: 4 SPANS. SEE SPAN PROFILE SHEET FOR SPAN DETAILS

FRACTURE CRITICAL  TEMPORARY SHORING  SCOUR CRITICAL  SCOUR PLAN OF ACTION

NBI GRADES: DECK 6 SUPERSTRUCTURE 5 SUBSTRUCTURE 6 CULVERT N

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

OTHER SIGNS PRESENT: NONE



| 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 \_\_\_\_\_

LOOKING EAST

|                           |                                 |                          |
|---------------------------|---------------------------------|--------------------------|
| INSPECTED BY<br>ME.RENFRO | SIGNATURE<br><i>Mike Renfro</i> | ASSISTED BY<br>BA.WILCOX |
|---------------------------|---------------------------------|--------------------------|

LONG. CONFIRMED BY SPECIAL INSPECTION ON 3/5/19

|     |   |   |   |       |       |             |
|-----|---|---|---|-------|-------|-------------|
| 515 | Effectiveness (Steel Protective Coatings) | LOSS OF PAINT ALLOWING SURFACE CORROSION ON THE BEAM. | 2 | 2,000 | 2,000 | Square Feet |
|-----|---|---|---|-------|-------|-------------|

General Comments

UNABLE TO VERIFY EXTENT OF IMPACT DAMAGE IN SPAN 3 DUE TO LACK OF TRAFFIC CONTROL.

**Span 2 Plate Girder 3**

Plate Girder

| Element Number | Element Name             | Total Qty | CS1 Qty | CS2 Qty | CS3 Qty | CS4 Qty       |
|----------------|--------------------------|-----------|---------|---------|---------|---------------|
| 107            | Steel Open Girder/Beam   | 197       | -3      | 195     | 0       | 5 Feet        |
| 515            | Steel Protective Coating | 2,000     | 0       | 1,992   | 0       | 8 Square Feet |

| Element Number | Defect Type                               | Defect Description   | CS | CS Qty | Maint Qty         |
|----------------|---|--|----|--------|-------------------|
| 107            | Corrosion                                 | 14" X 10" AREA OF CORROSION WITH SECTION LOSS, WITH UP TO 1/4" DIAMETER HOLES THROUGH WEB, BOTTOM OF WEB IS DISTORTED AND BEGINNING TO BUCKLE, AT BENT 1. (PM) | 4  | 2      | 2 Feet            |
| 107            | Corrosion                                 | 3' OF CORROSION WITH SECTION LOSS, 9/16" AVERAGE REMAINING ALONG WEST SIDE OF BOTTOM FLANGE, AT BENT 3. (PM)   | 4  | 3      | 3 Feet            |
| 107            | Corrosion                                 | FULL LENGTH FRECKLED RUST ALONG THE BOTTOM FLANGE AND SCATTERED ALONG THE WEB.   | 2  | 194    | Feet              |
| 107            | Damage                                    | INDENTION IN BEAM 3 STARTING AT 45' FROM INTERIOR BENT 3. 1" LONG BY 1/4" DEEP   | 2  | 1      | Feet              |
| 515            | Effectiveness (Steel Protective Coatings) | LOSS OF PAINT ALLOWING SURFACE CORROSION WITH SECTION LOSS ON THE BEAM.  | 4  | 8      | 8 Square Feet     |
| 515            | Effectiveness (Steel Protective Coatings) | LOSS OF PAINT ALLOWING SURFACE CORROSION WITH SECTION LOSS ON THE BEAM.  | 2  | 1,992  | 1,992 Square Feet |

General Comments

**Span 2 Plate Girder 4**

Plate Girder

| Element Number | Element Name             | Total Qty | CS1 Qty | CS2 Qty | CS3 Qty | CS4 Qty       |
|----------------|--------------------------|-----------|---------|---------|---------|---------------|
| 107            | Steel Open Girder/Beam   | 197       | 0       | 195     | 0       | 2 Feet        |
| 515            | Steel Protective Coating | 2,000     | 0       | 1,996   | 0       | 4 Square Feet |

| Element Number | Defect Type                               | Defect Description   | CS | CS Qty | Maint Qty         |
|----------------|---|--|----|--------|-------------------|
| 107            | Corrosion                                 | 18" OF CORROSION WITH SECTION LOSS, 1/2" REMAINING ALONG WEST SIDE OF BOTTOM FLANGE, AT BENT 3. (PM) | 4  | 2      | 2 Feet            |
| 107            | Corrosion                                 | FULL LENGTH FRECKLED RUST ESPECIALLY ALONG THE BOTTOM FLANGE AND SCATTERED ALONG THE WEB.            | 2  | 195    | Feet              |
| 515            | Effectiveness (Steel Protective Coatings) | LOSS OF PAINT ALLOWING SURFACE CORROSION WITH SECTION LOSS ON THE BEAM.                              | 4  | 4      | 4 Square Feet     |
| 515            | Effectiveness (Steel Protective Coatings) | LOSS OF PAINT ALLOWING SURFACE CORROSION ON THE BEAM.  | 2  | 1,996  | 1,996 Square Feet |

General Comments

**Span 2 Beam 5**

Plate Girder

| Element Number | Element Name             | Total Qty | CS1 Qty | CS2 Qty | CS3 Qty | CS4 Qty       |
|----------------|--------------------------|-----------|---------|---------|---------|---------------|
| 107            | Steel Open Girder/Beam   | 197       | 0       | 197     | 0       | 0 Feet        |
| 515            | Steel Protective Coating | 2,000     | 0       | 2,000   | 0       | 0 Square Feet |

| Element Number | Defect Type | Defect Description | CS | CS Qty | Maint Qty |
|----------------|-------------|--------------------|----|--------|-----------|
|----------------|-------------|--------------------|----|--------|-----------|

Structure Number: 100407

Inspection Date: 03/05/2019

|     |   |  |   |       |       |             |
|-----|---|--|---|-------|-------|-------------|
| 107 | Corrosion                                 | FULL LENGTH FRECKLED RUST ESPECIALLY ALONG THE BOTTOM FLANGE AND SCATTERED ALONG THE WEB.                                | 2 | 194   |       | Feet        |
| 107 | Damage                                    | SPAN 3 BEAM 5 SWEEP EASTWARD 1" FOR A LENGTH OF 5' AT 47' -10" OUT FROM IB 3. CONFIRMED BY SPECIAL INSPECTION ON 3/5/19. | 2 | 1     | 1     | Feet        |
| 107 | Damage                                    | IMPACT DAMAGE TO BEAM 5 AT 49.833' FROM IB 3, 2' LONG BY 1/2" HIGH BY 1" DEEP. CONFIRMED BY SPECIAL INSPECTION ON 3/5/19 | 2 | 2     | 2     | Feet        |
| 515 | Effectiveness (Steel Protective Coatings) | LOSS OF PAINT ALLOWING SURFACE CORROSION ON THE BEAM.  | 2 | 2,000 | 2,000 | Square Feet |

General Comments

UNABLE TO VERIFY EXTENT OF IMPACT DAMAGE IN SPAN 3 DUE TO LACK OF TRAFFIC CONTROL.

**Span 2** **Beam 6**  
**Plate Girder**

| Element Number | Element Name             | Total Qty | CS1 Qty | CS2 Qty | CS3 Qty | CS4 Qty         |
|----------------|--------------------------|-----------|---------|---------|---------|-----------------|
| 107            | Steel Open Girder/Beam   | 197       | -1      | 152     | 46      | 0 Feet          |
| 515            | Steel Protective Coating | 2,000     | 47      | 1,803   | 0       | 150 Square Feet |

| Element Number | Defect Type                               | Defect Description  | CS | CS Qty | Maint Qty         |
|----------------|---|---|----|--------|-------------------|
| 107            | Damage                                    | SPAN 3 BOTTOM FLANGE OF BEAM BENT UPWARD AT 47-2" FROM IB 3. 3/4" LONG. CONFIRMED BY SPECIAL INSPECTION ON 3/5/19   | 3  | 1      | 1 Feet            |
| 107            | Damage                                    | SPAN 3 IMPACT DAMAGE TO BOTTOM PLATE/INDENTTION, ONE AT 43' FROM IB 3, 11" LONG BY 1" DEEP BY 3/8" HIGH. ONE AT 44'-10" FROM IB 3, 3'-8" LONG BY 1" DEEP BY 1/2" HIGH. IMPACT DAMAGE TO BOTTOM FLANGE. ONE AT 43'-10" FROM IB 3, 4" LONG BY 1/2" HIGH BY 1/2" DEEP. ONE AT 44'-10" FROM IB 3, 3'-7" LONG BY 1" DEEP BY 1" HIGH. CONFIRMED BY SPECIAL INSPECTION ON 3/5/19 | 3  | 9      | 9 Feet            |
| 107            | Damage                                    | BEAM SWEEP EASTWARD 1.5" FOR A LENGTH OF 35' AT 29-6" OUT FROM INTERIOR BENT 3. CONFIRMED BY SPECIAL INPSECTION ON 3/5/19   | 3  | 35     | 35 Feet           |
| 107            | Damage                                    | SPAN 3 CRACK IN BOTTOM PLATE OF BEAM AT 46-7"FROM IB 3, 3/4" LONG. CRACK IN BOTTOM FLANGE OF BEAM AT 47-5"FROM IB 3, 1" LONG. CONFIRMED BY SPECIAL INSPECTION ON 3/5/19   | 3  | 1      | 1 Feet            |
| 107            | Corrosion                                 | TOP OF THE EXTERIOR BOTTOM FLANGE HAS SURFACE CORROSION WITH 1/16" PITTING FOR FULL LENGTH.   | 2  | 151    | Feet              |
| 107            | Damage                                    | SPAN 3 INDENTION IN BEAM 6 STARTING AT 44' 4" FROM INTERIOR BENT 3. 1" LONG BY 1/4" DEEP. SCRAPE ON WEB IN BEAM 6 AT 45' FROM INTERIOR BENT 3. 20" LONG WITH 1/4" DEEP INDENTION  | 2  | 1      | Feet              |
| 515            | Effectiveness (Steel Protective Coatings) | LOSS OF PAINT ALLOWING SURFACE CORROSION WITH SECTION LOSS ON THE BEAM.   | 4  | 150    | 151 Square Feet   |
| 515            | Effectiveness (Steel Protective Coatings) | LOSS OF PAINT ALLOWING SURFACE CORROSION ON THE BEAM.   | 2  | 1,803  | 1,803 Square Feet |

General Comments

UNABLE TO VERIFY EXTENT OF IMPACT DAMAGE IN SPAN 3 DUE TO LACK OF TRAFFIC CONTROL.

**Span 2** **Left Bridge Rail**  
**Concrete Railing**

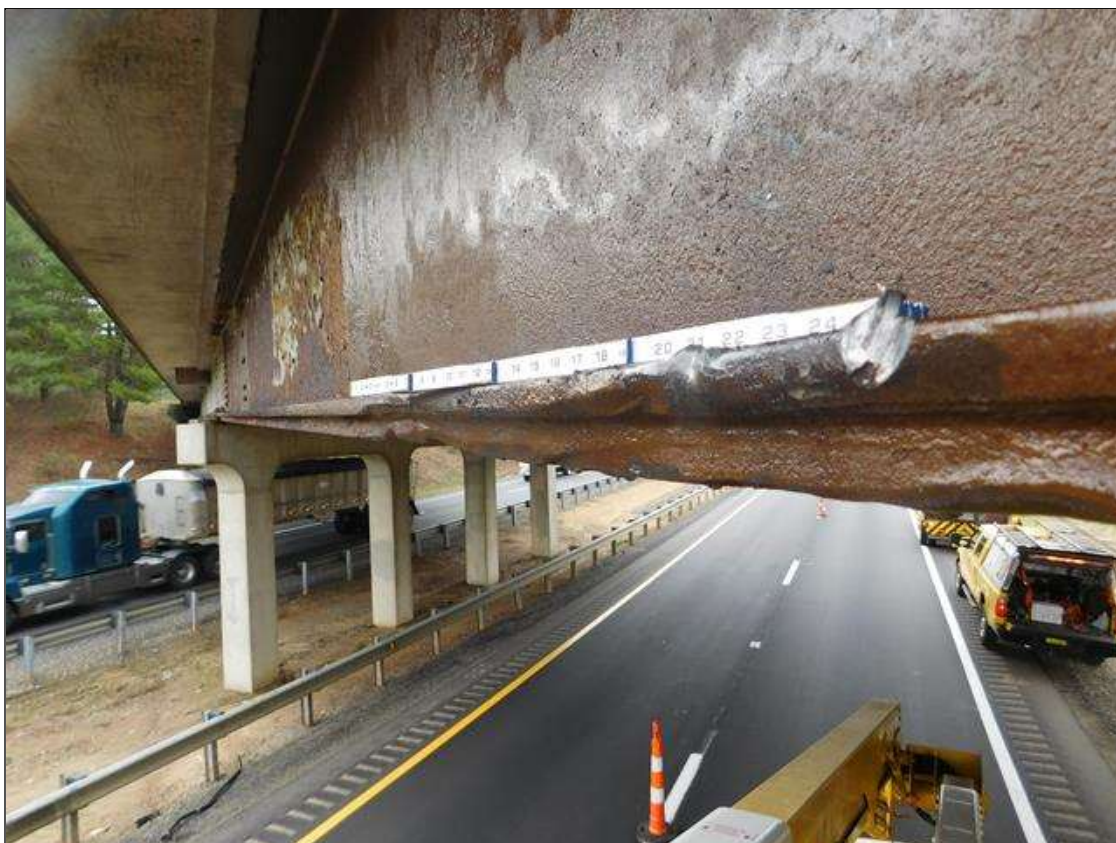
| Element Number | Element Name                       | Total Qty | CS1 Qty | CS2 Qty | CS3 Qty | CS4 Qty |
|----------------|------------------------------------|-----------|---------|---------|---------|---------|
| 331            | Reinforced Concrete Bridge Railing | 99        | 0       | 0       | 99      | 0 Feet  |

| Element Number | Defect Type             | Defect Description  | CS | CS Qty | Maint Qty |
|----------------|-------------------------|---|----|--------|-----------|
| 331            | Cracking (RC and Other) | FULL LENGTH HORIZONTAL CRACK UP TO 1/16" WITH RUST STAINING AND 1/2" DEEP POPOUTS WITH EXPOSED REINFORCING ALONG INSIDE FACE OF BOTTOM OF RAIL. | 3  | 99     | 99 Feet   |

General Comments



Span 3 : BEAM SWEEP EASTWARD 1.5" FOR A LENGTH OF 35' AT 29'-6" OUT FROM INTERIOR BENT 3. CONFIRMED BY SPECIAL INSPECTION ON 3/5/19



Span 3 : PREVIOUS IMPACT DAMAGE TO BEAM 6



Span 3 : INDENTATION IN BEAM 6 STARTING AT 44' 4" FROM INTERIOR BENT 3. 1" LONG BY 1/4" DEEP



Span 3 : PREVIOUS IMPACT DAMAGE TO BEAM 5 AT 49.833' FROM IB 3, 2' LONG BY 1/2" HIGH BY 1" DEEP. CONFIRMED BY SPECIAL INSPECTION ON 3/5/19





Span 3 : BEAM 5 SWEEP EASTWARD 1" FOR A LENGTH OF 5' AT 47' -10" OUT FROM IB 3. CONFIRMED BY SPECIAL INSPECTION ON 3/5/19.



Span 3 : INDENTION IN BEAM 3 STARTING AT 45' FROM INTERIOR BENT 3. 1" LONG BY 1/4" DEEP



DIAPHRAGM 4 BAY 4 SWEEP NORTHWARD 1/4"



PREVIOUS IMPACT DAMAGE TO DIAPHRAGM 4 BAY 5. SWPET NORTHWARD 1/2"



LOOKING EAST



NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 STRUCTURE MANAGEMENT UNIT

ATTENTION: **IMPACT DAMAGE / SUPPLEMENTAL INSPECTION/  
 GRADE REFLECTS SPAN 2 ONLY/ PRIORITY  
 MAINTENACE REQUESTED**

# Structure Safety Report

## Supplemental Element Inspection

INSPECTION DATE: 03/20/2019

DIVISION: 13 COUNTY: BUNCOMBE STRUCTURE NUMBER: 100412 FREQUENCY: None

FACILITY CARRIED: US19,23NBL US19,23NBL (FUTURE 26 (E/W)) MILE POST: \_\_\_\_\_

LOCATION: 1.5 MI.N.JCT.SR2137

FEATURE INTERSECTED: NC197

LATITUDE: 35° 45' 31.58" LONGITUDE: 82° 32' 35.69"

SUPERSTRUCTURE: REINFORCED CONCRETE FLOOR ON CONT.I-BEAMS

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

SPANS: 3 SPANS. SEE SPAN PROFILE SHEET FOR SPAN DETAILS

FRACTURE CRITICAL  TEMPORARY SHORING  SCOUR CRITICAL  SCOUR PLAN OF ACTION

NBI GRADES: DECK 7 SUPERSTRUCTURE 4 SUBSTRUCTURE 7 CULVERT N

POSTED SV: Not Posted POSTED TTST: Not Posted

OTHER SIGNS PRESENT: NONE



LOOKING SOUTH

| 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 E-W

DIRECTION MATCHES PLANS \_\_\_\_\_

|                           |               |                          |
|---------------------------|---------------|--------------------------|
| INSPECTED BY<br>ME.RENFRO | SIGNATURE<br> | ASSISTED BY<br>bA.WILCOX |
|---------------------------|---------------|--------------------------|

## Element Condition and Maintenance Data

Structure Number: 100412

Inspection Date: 03/20/2019

**Span 1 Deck**  
**Reinforced Concrete Deck**

| Element Number | Element Name             | Total Qty | CS1 Qty | CS2 Qty | CS3 Qty | CS4 Qty |             |
|----------------|--------------------------|-----------|---------|---------|---------|---------|-------------|
| 12             | Reinforced Concrete Deck | 1,513     | 741     | 772     | 0       | 0       | Square Feet |

| Element Number | Defect Type                 | Defect Description  | CS | CS Qty | Maint Qty |             |
|----------------|-----------------------------|---|----|--------|-----------|-------------|
| 12             | Cracking (RC and Other)     | 120 square feet hairline longitudinal, transverse and diagonal cracks                     | 2  | 120    | 120       | Square Feet |
| 12             | Cracking (RC and Other)     | 500 square feet hairline longitudinal and transverse cracks on bottom of deck             | 2  | 500    | 500       | Square Feet |
| 12             | Damage                      | IMPACT DAMAGE : THERE IS A 7 1/2" LONG X 1" DEEP SPALL ABOVE DIAPHRAGM 2, BAY 1, SPAN 2 . | 2  | 1      |           | Square Feet |
| 12             | Delamination/Spall          | (5) up to 9" x 1" x 1" deep spalls at End Bent 1  | 2  | 1      | 1         | Square Feet |
| 12             | Efflorescence/Rust Staining | TRANSVERSE HAIRLINE CRACKS WITH EFFLORESCENCE STAINING.                                   | 2  | 150    |           | Square Feet |

General Comments

**Span 1 Beam 1**  
**Plate Girder**

| Element Number | Element Name             | Total Qty | CS1 Qty | CS2 Qty | CS3 Qty | CS4 Qty |             |
|----------------|--------------------------|-----------|---------|---------|---------|---------|-------------|
| 107            | Steel Open Girder/Beam   | 147       | 0       | 75      | 72      | 0       | Feet        |
| 515            | Steel Protective Coating | 1,389     | 1,163   | 81      | 145     | 0       | Square Feet |

| Element Number | Defect Type   | Defect Description  | CS | CS Qty | Maint Qty |             |
|----------------|---|---|----|--------|-----------|-------------|
| 107            | Corrosion   | IMPACT DAMAGE : BEAM1 SPAN 2 . BEAM IS DEFLECTED 1'-2" SOUTHWARD . POINT OF IMPACT DAMAGE AT 29'-9" OUT FROM INT. BENT 1 ,1'-0" LONG X 2" HIGH INDINTION WITH A 2" LONG HAIRLINE CRACK BETWEEN THE BOTTOM FLANGE AND COVER PLATE . THERE IS A 1" WIDE X 4" LONG X 1/16" DEEP SCRAPE / INDINTION WEST SIDE OF POINT OF IMPACT. ALSO A 2 1/2" LONG X 3/4" SCRAPE/ INDINTION EAST SIDE OF POINT OF IMPACT. 2" WIDE X 1" HIGH X 1/16" DEEP SCRAPE/INDINTION ON THE WEB AT 2" UP FROM POINT OF IMPACT. SCATTERED SCRAPES AT WEST SIDE OF POINT OF IMPACT . | 3  | 72     | 72        | Feet        |
| 107            | Corrosion   | 1' surface rust on bottom flange and web in Span 3 at End Bent 2  | 2  | 1      |           | Feet        |
| 107            | Corrosion   | 1' surface rust on bottom flange in Span 1 at End Bent 1  | 2  | 1      |           | Feet        |
| 107            | Corrosion   | CORROSION WITH UP TO 1/16" PITTING ON THE TOP SURFACE OF THE LEFT HALF OF THE BOTTOM FLANGE.  | 2  | 73     |           | Feet        |
| 515            | Effectiveness (Steel Protective Coatings)             | PAINT SYSTEM HAS COMPLETELY DETERIORATED, ALLOWING CORROSION WITH UP TO 1/16" PITTING ON THE TOP OF THE LEFT HALF OF THE FLANGE.  | 3  | 145    | 145       | Square Feet |
| 515            | Damage  | IMPACT DAMAGE : PAINT PEELING OFF DO TO COLLISION DAMAGE  | 2  | 30     |           | Square Feet |
| 515            | Effectiveness (Steel Protective Coatings)             | Substantially effective   | 2  | 1      | 1         | Square Feet |
| 515            | Peeling/Bubbling/Cracking (steel Protective Coatings) | FINISH COAT PEELED AWAY FROM BEAMS AT END BENTS AND INTERIOR BENTS.   | 2  | 50     | 50        | Square Feet |

General Comments

PREVIOUS INPACT DAMGE 3 INDITIONS UP TO 1" LONG AT 43'-11" OUT FROM INT. BENT 1



POINT OF IMPACT 1' LONG X 2" HIGH 29'-9" OUT FROM INT. BENT 1 (P/M)



POINT OF IMPACT 1' LONG X 2" HIGH 29'-9" OUT FROM INT. BENT 1 (P/M)



1" WIDE X4" LONG SCRAPE/ INDINTION WEST SIDE OF POINT OF IMPACT



1" WIDE X4" LONG SCRAPE/ INDINTION WEST SIDE OF POINT OF IMPACT



BEAM 1 DEFLECTED 1'-2" SOUTH WARD



SCRAPE IN BOTTOM OF WEB 2" ABOVE POINT OF IMPACT, 2" WIDE X 1" HIGH X 1/16" DEEP





2" WIDE X 1/2" DEEP X 1" LONG INDINTION IN THE BOTTOM COVERPALE AT POINT OF IMPACT.



6" LONG SCRAPE ON BOTTOM OF BEAM AT POINT OF IMPACT



2" LONG HAIRLINE CRACK BETWEEN COVERPLATE AND BOTTOM FLANGE AT POINT OF IMPACT



2 1/2" LONG X 3/4" WIDE SCRAPE/INDENTION EAST SIDE OF POINT OF IMPACT.



SCATTERED SCRAPES ON BOTTOM OF BEAM 1



SCATTERED SCRAPES ON BOTTOM OF BEAM 1



DIAPHRAGM 2 BAY 2 BENT AND TWISTED EAST WARD ON THE NORTH SIDE WITH A 1' HIGH X 2" WIDE RIP IN BOTTOM 1"



DIAPHRAGM 2 BAY 2 BENT AND TWISTED EAST WARD ON THE NORTH SIDE WITH A 1' HIGH X 2" WIDE RIP IN BOTTOM 1"



2" LONG CRACK IN TOP OF RIP IN DIAPGRAGM 2 BAY 2



SPALLING IN BOTTOM OF DECK, 7 1/2" LONG X 1 1/2" DEEP ABOVE DIAPHRAGM 2 AT POINT OF IMPACT



DIAPHRAGM 2 BAY 1 BENT EAST WARD FOR 11" NORTH SIDE



DIAPHRAGM 2 BAY 1 SOUTH SIDE BENT WESTWARD UP TO 5"



BEAM 1 SPAN 2 IMPACT DAMAGE



BAY 1 SPAN 2 : DIAPHRAGM 2 BAY 1 SPAN 2 IS BENT AND TWISTED WITH A 1' HIGH X 2" WIDE RIP AT ITS BASE . THERE IS ALSO A 2" LONG CRACK AT THE TOP OF THIS RIP. NORTH SIDE DIAPHRAGM 2 BENT EASTWARD 11". SOUTH SIDE IS BENT WESTWARD UP TO 5". A PRIORITY MAINTENANCE HAS BEE REQUESTED FOR THIS CONDITIONS.





BAY 1 SPAN 2 : DIAPHRAGM 2 BAY 1 SPAN 2 IS BENT AND TWISTED WITH A 1' HIGH X 2" WIDE RIP AT ITS BASE . THERE IS ALSO A 2" LONG CRACK AT THE TOP OF THIS RIP. NORTH SIDE DIAPHRAGM 2 BENT EASTWARD 11". SOUTH SIDE IS BENT WESTWARD UP TO 5". A PRIORITY MAINTENANCE HAS BEE REQUESTED FOR THIS CONDITIONS.



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BAY 1 SPAN 2 : DIAPHRAGM 2 BAY 1 SPAN 2 IS BENT AND TWISTED WITH A 1' HIGH X 2" WIDE RIP AT ITS BASE . THERE IS ALSO A 2" LONG CRACK AT THE TOP OF THIS RIP. NORTH SIDE DIAPHRAGM 2 BENT EASTWARD 11". SOUTH SIDE IS BENT WESTWARD UP TO 5". A PRIORITY MAINTENANCE HAS BEE REQUESTED FOR THIS CONDITIONS.



BAY 1 SPAN 2 : DIAPHRAGM 2 BAY 1 SPAN 2 IS BENT AND TWISTED WITH A 1' HIGH X 2" WIDE RIP AT ITS BASE . THERE IS ALSO A 2" LONG CRACK AT THE TOP OF THIS RIP. NORTH SIDE DIAPHRAGM 2 BENT EASTWARD 11". SOUTH SIDE IS BENT WESTWARD UP TO 5". A PRIORITY MAINTENANCE HAS BEE REQUESTED FOR THIS CONDITIONS.



LOOKING SOUTH



NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 STRUCTURE MANAGEMENT UNIT

ATTENTION: **SUPPLEMENTAL INSPECTION- IMPACT DAMAGE  
 SPAN 1 ONLY / PRIORITY MAINTENANCE  
 REQUESTED**

# Structure Safety Report

## Supplemental Element Inspection

INSPECTION DATE: 01/17/2019

DIVISION: 13 COUNTY: BURKE STRUCTURE NUMBER: 110112 FREQUENCY: None

FACILITY CARRIED: SR1142 MILE POST: 100

LOCATION: .45 MI.N.JCT.SR1197

FEATURE INTERSECTED: I40

LATITUDE: 35° 43' 4.64" LONGITUDE: 81° 45' 8.86"

SUPERSTRUCTURE: REINFORCED CONCRETE FLOOR ON I-BEAMS

SUBSTRUCTURE: E.BTS:RC CAPS/PPC PILES;INT.BTS:RC P&B/PPC PILE FTGS.

SPANS: 4 SPANS. SEE SPAN PROFILE SHEET FOR SPAN DETAILS

FRACTURE CRITICAL  TEMPORARY SHORING  SCOUR CRITICAL  SCOUR PLAN OF ACTION

NBI GRADES: DECK 6 SUPERSTRUCTURE 5 SUBSTRUCTURE 6 CULVERT N

POSTED SV: Not Posted POSTED TTST: Not Posted

OTHER SIGNS PRESENT: NONE



| 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

LOOKING EAST

|                           |               |                          |
|---------------------------|---------------|--------------------------|
| INSPECTED BY<br>ME.RENFRO | SIGNATURE<br> | ASSISTED BY<br>BA.WILCOX |
|---------------------------|---------------|--------------------------|

## Element Condition and Maintenance Data

Structure Number: 110112

Inspection Date: 01/17/2019

### Span 1 Deck Reinforced Concrete Deck

| Element Number | Element Name             | Total Qty | CS1 Qty | CS2 Qty | CS3 Qty | CS4 Qty |             |
|----------------|--------------------------|-----------|---------|---------|---------|---------|-------------|
| 12             | Reinforced Concrete Deck | 1,938     | 438     | 1,500   | 0       | 0       | Square Feet |

| Element Number | Defect Type             | Defect Description  | CS | CS Qty | Maint Qty |             |
|----------------|-------------------------|---|----|--------|-----------|-------------|
| 12             | Cracking (RC and Other) | SPAN 1 BOTTOM OF DECK HAS SCATTERED CRACKS WITH SOME EFFLO VISIBLE. | 2  | 1,500  | 1,500     | Square Feet |

General Comments

### Span 1 Beam 1 Plate Girder

| Element Number | Element Name             | Total Qty | CS1 Qty | CS2 Qty | CS3 Qty | CS4 Qty |             |
|----------------|--------------------------|-----------|---------|---------|---------|---------|-------------|
| 107            | Steel Open Girder/Beam   | 61        | 31      | 0       | 30      | 0       | Feet        |
| 515            | Steel Protective Coating | 570       | 570     | 0       | 0       | 0       | Square Feet |

| Element Number | Defect Type | Defect Description   | CS | CS Qty | Maint Qty |      |
|----------------|-------------|--|----|--------|-----------|------|
| 107            | Damage      | IMPACT DAMAGE - THE SOUTH MOST 30' DEFLECTED 1" EASTWARD . SCATTERED SCARPS WITH 1/16" INDENTIONS THROUGH OUT A 7' LONG X 2'-7" HIGH AREA AT 12' OUT FROM END BENT 1 (POINT OF IMPACT). THERE IS A 1'-8" LONG X 1/2" WIDE X 1/16" DEEP SCRAP ON THE BOTTOM FLANGE AT 12' OUT FROM END BENT 1 . | 3  | 30     | 30        | 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   | 61        | 61      | 0       | 0       | 0       | Feet        |
| 515            | Steel Protective Coating | 570       | 545     | 0       | 25      | 0       | Square Feet |

| Element Number | Defect Type | Defect Description         | CS | CS Qty | Maint Qty |             |
|----------------|-------------|----------------------------|----|--------|-----------|-------------|
| 515            | Damage      | SCATTERED SCRAPS ON BEAM 1 | 3  | 25     |           | Square Feet |

General Comments

### Span 1 Near Bearing Fixed Bearing

| Element Number | Element Name             | Total Qty | CS1 Qty | CS2 Qty | CS3 Qty | CS4 Qty |             |
|----------------|--------------------------|-----------|---------|---------|---------|---------|-------------|
| 313            | Fixed Bearing            | 1         | 0       | 1       | 0       | 0       | Each        |
| 515            | Steel Protective Coating | 1         | 0       | 0       | 1       | 0       | Square Feet |

| Element Number | Defect Type   | Defect Description  | CS | CS Qty | Maint Qty |             |
|----------------|---|---|----|--------|-----------|-------------|
| 313            | Corrosion   | SPAN 1 NEAR BEARING HAS SCATTERED SURFACE RUST.                           | 2  | 1      |           | Each        |
| 515            | Peeling/Bubbling/Cracking (steel Protective Coatings) | SPAN 1 NEAR BEARING PROTECTIVE COATING IS PEELING IN SCATTERED LOCATIONS. | 3  | 1      | 1         | Square Feet |



Span 1 Beam 1: IMPACT DAMAGE - THE SOUTH MOST 30' DEFLECTED 1" EASTWARD . SCATTERED SCARPES WITH 1/6" INDENTIONS THROUGH OUT A 7' LONG X 2'-7" HIGH AREA AT 12' OUT FROM END BENT 1 (POINT OF IMPACT).





Span 1 Beam 1: IMPACT DAMAGE - THERE IS A 1'-8" LONG X 1/2" WIDE X 1/16" DEEP SCRAP ON THE BOTTOM FLANGE AT 12' OUT FROM END BENT 1 .



Span 1 Beam 1: IMPACT DAMAGE - THE SOUTH MOST 30' DEFLECTED 1" EASTWARD .



Span 1 Beam 1: IMPACT DAMAGE - THE SOUTH MOST 30' DEFLECTED 1" EASTWARD . SCATTERED SCAREPS WITH 1/6" INDENTIONS THROUGH OUT A 7' LONG X 2'-7" HIGH AREA AT 12' OUT FROM END BENT 1 (POINT OF IMPACT).



Span 1 Beam 1: IMPACT DAMAGE - THE SOUTH MOST 30' DEFLECTED 1" EASTWARD . SCATTERED SCARPES WITH 1/6" INDENTIONS THROUGH OUT A 7' LONG X 2'-7" HIGH AREA AT 12' OUT FROM END BENT 1 (POINT OF IMPACT).



IMPACT DAMAGE - DIAPHRAGM 1 BAY 1 LEFT SIDE THE LOWER 8" OF DIAPHRAGM IS DEFLECTED NORTHWARD UP TO 2"



IMPACT DAMAGE - DIAPHRAGM 1 BAY 1 LEFT SIDE THE LOWER 8" OF DIAPHRAGM DEFLECTED NORTHWARD UP TO 2"



End Bent 1 Abutment/Backwall : 1'3" WIDE X 1' HIGH X 2" DEEP SPALL ON THE LEFT SIDE OF BEAM 1, WITH ONE REBAR EXPOSED .



LOOKING EAST