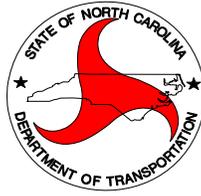


STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**



DIVISION FIVE

# CONTRACT PROPOSAL

**WBS ELEMENT:** 41665.4C  
**ROUTES:** Various  
**COUNTY:** Durham, Vance and Wake  
**DESCRIPTION:** Repair of Damaged Steel Bridge Beams in 8 Locations  
**BID OPENING:** 2:00 p.m., Wednesday, May 14, 2014

**NOTICE:**

ALL BIDDERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA WHICH REQUIRES THE BIDDER TO BE LICENSED BY THE NC LICENSING BOARD FOR CONTRACTORS WHEN BIDDING ON ANY NON-FEDERAL AID PROJECT WHERE THE BID IS \$30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD. BIDDERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA. NOT WITHSTANDING THESE LIMITATIONS ON BIDDING, THE BIDDER WHO IS AWARDED ANY PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING, REGARDLESS OF FUNDING SOURCES.

---

NAME OF BIDDER

N.C. CONTRACTOR'S LICENSE NUMBER

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ADDRESS OF BIDDER

**RETURN BIDS TO:** NC DEPARTMENT OF TRANSPORTATION  
Michael J. Kneis, PE  
Division Project Manager  
North Carolina Department of Transportation  
2612 N Duke Street  
Durham, NC 27704



<b><u>INSTRUCTIONS TO BIDDERS</u></b> .....	<b>5</b>
<b><u>PURCHASE ORDER CONTRACT</u></b> .....	<b>7</b>
<b><u>STANDARD PROVISIONS</u></b> .....	<b>7</b>
GENERAL .....	7
CONTRACT TIME AND LIQUIDATED DAMAGES.....	7
INTERMEDIATE CONTRACT TIME NUMBER (1) AND LIQUIDATED DAMAGES.....	7
AUTHORITY OF THE ENGINEER .....	9
PURCHASE ORDER CONTRACT PREQUALIFICATION.....	9
BIDS .....	9
WORK ZONE SAFETY.....	9
SAFETY VESTS .....	10
MATERIALS AND TESTING .....	10
SUPERVISION BY CONTRACTOR .....	10
WORK SITE CLEANUP .....	10
UTILITY CONFLICTS.....	10
CONTRACT PAYMENT AND PERFORMANCE BOND .....	11
LIABILITY INSURANCE .....	11
SUBLETTING OF CONTRACT.....	11
DEFAULT OF CONTRACT .....	11
CLAIMS FOR ADDITIONAL COMPENSATION OR EXTENSION OF TIME.....	11
PROMPT PAYMENT .....	12
BANKRUPTCY.....	12
PAYMENT AND RETAINAGE.....	12
PROSECUTION AND PROGRESS .....	12
GIFTS FROM VENDORS AND CONTRACTORS .....	13
EMPLOYMENT .....	13
PROGRESS SCHEDULE .....	13
STATE HIGHWAY ADMINISTRATOR TITLE CHANGE.....	13
MATERIALS.....	14
MINORITY BUSINESS ENTERPRISE AND WOMEN BUSINESS ENTERPRISE (DIVISIONS)	
.....	22
NO MAJOR CONTRACT ITEMS .....	33
SPECIALTY ITEMS .....	33
<b>PROJECT SPECIAL PROVISIONS</b> .....	<b>35</b>
<b>STANDARD SPECIAL PROVISION</b> .....	<b>I</b>
ERRATA.....	I
MINIMUM WAGES.....	II
ON-THE-JOB TRAINING.....	II

**LISTING OF MBE WBE SUBCONTRACTORS**

**AWARD LIMITS ON MULTIPLE PROJECTS**

**BIDFORM**

**EXECUTION OF BID – NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION**

**DEBARMENT CERTIFICATION**



# **INSTRUCTIONS TO BIDDERS**

**PLEASE READ ALL INSTRUCTIONS CAREFULLY  
BEFORE PREPARING AND SUBMITTING YOUR BID.**

**All bids shall be prepared and submitted in accordance with the following requirements. Failure to comply with any requirement shall cause the bid to be considered irregular and shall be grounds for rejection of the bid. Bidders must be prequalified for the type of work they wish to perform prior to submitting a bid.**

1. The bid sheet furnished by NCDOT with the proposal shall be used and shall not be altered in any manner. **DO NOT SEPARATE THE BID SHEET FROM THE PROPOSAL!**
2. All entries on the bid sheet, including signatures, shall be written in ink.
3. The Bidder shall submit a unit price for every item on the bid form. The unit prices for the various contract items shall be written in figures.
4. An amount bid shall be entered on the bid sheet for every item. The amount bid for each item shall be determined by multiplying each unit bid by the quantity for that item, and shall be written in figures in the "Amount Bid" column of the sheet.
5. The total amount bid shall be written in figures in the proper place on the bid sheet. The total amount shall be determined by adding the amounts bid for each item.
6. Changes in any entry shall be made by marking through the entry in ink and making the correct entry adjacent thereto in ink. A representative of the Bidder shall initial the change in ink.
7. The bid shall be properly executed. All bids shall show the following information:
  - a. Name of individual, firm, corporation, partnership, or joint venture submitting bid.
  - b. Name of individual or representative submitting bid and position or title.
  - c. Name, signature, and position or title of witness.
  - d. Federal Identification Number (or Social Security Number of Individual)
  - e. Contractor's License Number (if Applicable)
8. Bids submitted by corporations shall bear the seal of the corporation.
9. The bid shall not contain any unauthorized additions, deletions, or conditional bids.
10. The bidder shall not add any provision reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.
11. **THE PROPOSAL WITH THE BID SHEET STILL ATTACHED SHALL BE PLACED IN A SEALED ENVELOPE AND SHALL HAVE BEEN DELIVERED TO AND RECEIVED IN THE DIVISION ENGINEER'S OFFICE AT 2612 North Duke Street Durham, NC 27704 BY 2:00 p.m., on Wednesday, May 14, 2014.**
12. The sealed bid must display the following statement on the front of the sealed envelope:

**Quotation for Repair of Damaged Bridge Beams in Durham, Vance and Wake Counties to be opened at 2:00 p.m., on Wednesday May 14, 2014.**

13. If delivered by mail, the sealed envelope shall be placed in another sealed envelope and the outer envelope shall be addressed as follows:

**N. C. DEPARTMENT OF TRANSPORTATION  
Attn: Michael J. Kneis, PE  
2612 N Duke Street  
Durham, NC 27704**

## **AWARD OF CONTRACT**

**The award of the contract, if it be awarded, will be made to the lowest responsible Bidder in accordance with Section 102 (excluding 102-10) of the Standard Specifications for Roads and Structures 2012. The lowest responsible Bidder will be notified that his bid has been accepted and that he has been awarded the contract. NCDOT reserves the right to reject all bids.**



# **PURCHASE ORDER CONTRACT**

## **Standard Provisions**

### **GENERAL**

This contract is for the repair of damaged bridge beams at one (1) bridge in Durham County, two (2) bridges in Vance County and five (5) bridges in Wake County. The permissible methods of repairs will include flame straightening and welding. Replacement of damaged diaphragm and connection plates may also be required. Removal of paint (including paint containing lead) and touch-up paint after repairs will also be the responsibility of the Contractor. Traffic control will be provided by the Department and will not be included in this contract.

All work and materials shall be in accordance with the provisions of the General Guidelines of this contract, the Project Special Provisions, the North Carolina Department of Transportation Standard Specifications for Roads and Structures 2012, the North Carolina Department of Transportation 2012 Roadway Standards Drawings, and the current edition of the Manual of Uniform Traffic Control Devices (MUTCD), with the exception that bid bonds are *not* required.

The Contractor shall keep himself fully informed of all Federal, State and local laws, ordinances, and regulations, and shall comply with the provisions of Section 107 of the Standard Specifications.

### **CONTRACT TIME AND LIQUIDATED DAMAGES**

The date of availability for this contract is the date the Contractor begins work but not before **June 2, 2014** or later than **July 15, 2014**.

The completion date for this contract is the date that is **Forty Five (45)** consecutive calendar days after and including the date of availability.

Except where otherwise provided by the contract, observation periods required by the contract will not be a part of the work to be completed by the completion date and/or intermediate contract times stated in the contract. The acceptable completion of the observation periods that extend beyond the final completion date shall be a part of the work covered by the performance and payment bonds.

The liquidated damages for this contract are **Five Hundred Dollars (\$500.00)** per calendar day. At the preconstruction conference the Contractor shall declare his expected date for beginning work. Should the Contractor desire to revise this date after the preconstruction conference, he shall notify the Engineer in writing at least thirty (30) days prior to the revised date.

### **INTERMEDIATE CONTRACT TIME NUMBER (1) AND LIQUIDATED DAMAGES**

The NCDOT and/or their Contractor shall complete the required work of installing, maintaining, and removing the traffic control devices for lane closures and restoring traffic to existing traffic pattern. The NCDOT and/or their Contractor shall **not close or narrow a lane of traffic and/or shoulder on I-40, NC 55, US 70 SR 1012 (Western Blvd) and Peace Street** during the following time restrictions:

#### **I-40, NC 55, US 70 SR 1012 (Western Blvd) and Peace Street DAY AND TIME RESTRICTIONS**

Monday through Sunday from 6:00 A.M. to 9:00 P.M.

The NCDOT and/or their Contractor shall **not close or narrow a lane of traffic and/or shoulder on US 1 Bypass, US 1 Business/US 158** during the following time restrictions:

## US 1 BYP, US 1 BUS/US 158 DAY AND TIME RESTRICTIONS

Monday through Friday from 6:00 A.M. to 9:00 A.M.

Monday through Friday from 4:00 P.M. to 7:00 P.M.

**In addition, the NCDOT and/or their Contractor shall not close or narrow a lane of traffic on all routes, detain and/or alter the traffic flow on or during holidays, holiday weekends, special events, or any other time when traffic is unusually heavy, including the following schedules:**

### HOLIDAY AND HOLIDAY WEEKEND LANE CLOSURE RESTRICTIONS

1. For **unexpected occurrence** that creates unusually high traffic volumes, as directed by the Engineer.
2. For **New Year's Day**, between the hours of **6:00 a.m.** December 31st and **9:00 p.m.** January 2nd. If New Year's Day is on a Friday, Saturday, Sunday or Monday, then until **9:00 a.m.** the following Tuesday.
3. For **Easter**, between the hours of **6:00 a.m.** Thursday and **9:00 p.m.** Monday.
4. For **Memorial Day**, between the hours of **6:00 a.m.** Friday and **9:00 p.m.** Tuesday.
5. For **Independence Day**, between the hours of **6:00 p.m.** the day before Independence Day and **9:00 a.m.** the day after Independence Day.

If **Independence Day** is on a Friday, Saturday, Sunday or Monday, then between the hours of **6:00 a.m.** the Thursday before Independence Day and **9:00 p.m.** the Tuesday after Independence Day.

6. For **Labor Day**, between the hours of **6:00 a.m.** Friday and **9:00 p.m.** Tuesday.
7. For **Thanksgiving Day**, between the hours of **6:00 a.m.** Tuesday and **9:00 p.m.** Monday.
8. For **Christmas**, between the hours of **6:00 a.m.** the Friday before the week of Christmas Day and **9:00 p.m.** the following Tuesday after the week of Christmas Day.
9. For events that are significant traffic generators from one (1) hour before the event to one (1) hour after the end of the event, as directed by the Engineer.

Holidays and holiday weekends shall include New Years, Easter, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas. The Contractor shall schedule his work so that lane closures are not required during these periods, unless otherwise directed by the Engineer.

The time of availability for this intermediate contract work shall be the time the NCDOT and/or their Contractor begins to install all traffic control devices for lane closures according to the time restrictions listed above.

The completion time for this intermediate contract work shall be the time the NCDOT and/or their Contractor is required to complete the removal of all traffic control devices for lane closures according to the time restrictions stated above and place traffic in the **existing traffic** pattern.

**The heat straightening operation should not prevent the NCDOT and/or their Contractor from removing the lane closures.** Liquidated damages will be assessed if the heat straightening operation prevents the NCDOT and/or their Contractor from clearing the lanes and placing traffic in the existing traffic pattern. The liquidated damages are **Five Hundred Dollars (\$500.00)** per **fifteen** minutes or portion thereof.

## **AUTHORITY OF THE ENGINEER**

The Engineer for this project shall be the Division Engineer, Division 5, Division of Highways, North Carolina Department of Transportation, acting directly or through his duly authorized representatives.

The Engineer will decide all questions which may arise as to the quality and acceptability of work performed and as to the rate of progress of the work; all questions which may arise as to the interpretation of the contract; and all questions as to the acceptable fulfillment of the contract on the part of the Contractor. His decision shall be final and he shall have executive authority to enforce and make effective such decisions and orders as the Contractor fails to carry out promptly.

## **PURCHASE ORDER CONTRACT PREQUALIFICATION**

Beginning **July 1, 2009**, any firm that wishes to perform work on Division Purchase Order Contracts as either the prime contractor or as a subcontractor on the project must be prequalified for the type of work they wish to perform. Firms that wish to bid on these projects as the prime contractor must be prequalified prior to submitting a bid. Firms that wish to perform as a subcontractor to the prime contractor must be prequalified prior to beginning work on the project.

For the purposes of prequalification, any firm that is currently prequalified as a prime or a subcontractor on central let projects for the appropriate work codes is considered eligible to work and/or bid on Purchase Order Contracts as long as other items such as bonding and license requirements for the contract are met.

Information regarding the requirements to become prequalified as a Purchase Order Contract contractor, including the application to become prequalified if you are not already prequalified, can be found at the following website:

<http://www.ncdot.org/business/howtogetstarted/>

## **BIDS**

In accordance with GS 136-28.1(b), if the total bid amount of the contract exceeds \$2.5 million, the bid will not be considered for award.

## **WORK ZONE SAFETY**

All personnel when working in traffic areas or areas in close proximity to traffic shall wear an approved safety vest, or shirt or jacket which meets the color requirements of the Manual of Uniform Traffic Control Devices (MUTCD).

The Contractor shall comply with all applicable Federal, State, and local laws, ordinances, and regulations governing safety, health, and sanitation, and shall provide all safeguards, safety devices, and protective equipment, and shall take any other needed actions, on his own responsibility that are reasonably necessary to protect the life and health of employees on the job and the safety of the public, and to protect property in connection with the performance of the work covered by the contract.

Failure to comply with any of the requirements for safety and traffic control of this contract shall result in suspension of work as provided in Subarticle 108-7 of the Standard Specifications.

The Contractor's vehicles and equipment shall not be parked within the State Highway System right of way overnight or at other times when work has been suspended unless approved by the Engineer, and in no case within 30 feet of the edge of pavement. The Engineer may designate specific locations for parking equipment.

No direct payment will be made for providing work zone safety item(s), as the cost of same will be considered incidental to the work being paid for under those various payitem(s) that have been included.

## **SAFETY VESTS**

**All Contractors' personnel, all subcontractors and their personnel, and any material suppliers and their personnel must wear an OSHA approved reflective vest or outer garment at all times while on the project.**

Failure to comply with any of the requirements for safety and traffic control of this contract shall result in suspension of work as provided in Subarticle 108-7 of the Standard Specifications.

## **MATERIALS AND TESTING**

The Engineer reserves the right to perform all sampling and testing in accordance with Section 106 of the Standard Specifications and the Department's "Material and Tests Manual". All material must be approved by the Engineer prior to being used.

## **SUPERVISION BY CONTRACTOR**

At all times during the life of the project the Contractor shall provide one permanent employee who shall have the authority and capability for overall responsibility of the project and who shall be personally available at the work site within 24 hours notice. Such employee shall be fully authorized to conduct all business with the subcontractors, to negotiate and execute all supplemental agreements, and to execute the orders or directions of the Engineer.

At all times that work is actually being performed, the Contractor shall have present on the project one competent individual who is authorized to act in a supervisory capacity over all work on the project, including work subcontracted. The individual who has been so authorized shall be experienced in the type of work being performed and shall be fully capable of managing, directing, and coordinating the work; of reading and thoroughly understanding the contract; and receiving and carrying out directions from the Engineer or his authorized representatives. He shall be an employee of the Contractor unless otherwise approved by the Engineer.

The Contractor may, at his option, designate one employee to meet the requirements of both positions. However, whenever the designated employee is absent from the work site, an authorized individual qualified to act in a supervisory capacity on the project shall be present.

## **WORK SITE CLEANUP**

The Contractor shall clean the work sites of all debris, excess excavations, waste packing material, scraps, etc. At the end of each work day the site shall be clear and clean. The Contractor shall not throw any waste material in any storm sewers or streams. All disturbed areas of vegetation shall be graded, seeded and mulched as required in the Standard Specifications for Roads and Structures 2012. The Contractor shall be responsible for damage to private and/or public property resulting from the work.

## **UTILITY CONFLICTS**

**Bridges within this scope may existing utilities attached in areas of damage. The Contractor will liable for any damage to utilities. If utilities are going to be prohibitive to the Contractor's operation, the Contractor needs to notify the Engineer as soon as they become aware of this situation.**

It shall be the responsibility of the Contractor to contact all affected utility owners and determine the precise locations of all utilities prior to beginning construction. Utility owners shall be contacted a minimum of 48 hours prior to the commencement of operations. Special care shall be used in working around or near existing utilities, protecting them when necessary to provide uninterrupted service. In the event that any utility service is interrupted, the Contractor shall notify the utility owner immediately and shall cooperate with the owner, or his representative, in the restoration of service in the shortest time possible. Existing fire hydrants shall be kept accessible to fire departments at all times.

The Contractor shall adhere to all applicable regulations and follow accepted safety procedures when working in the vicinity of utilities in order to insure the safety of construction personnel and the public.

## **CONTRACT PAYMENT AND PERFORMANCE BOND**

A performance bond in the amount of one hundred percent (100%) of the contract amount, conditioned upon the faithful performance of the contract in accordance with specifications and conditions of the contract is required for contracts of **\$500,000** or more. Such bond shall be solely for the protection of the North Carolina Department of Transportation and the State of North Carolina.

A payment bond in the amount of one hundred percent (100%) of the contract amount, conditioned upon the prompt payment for all labor or materials for which the Contractor, or his subcontractors, are liable is required for Construction contracts greater than **\$500,000**. The payment bond shall be solely for the protection of persons or firms furnishing materials or performing labor for this contract for which the Contractor is liable.

The successful bidder, within fourteen (14) days after notice of award, shall provide the Department with a contract payment bond and a contract performance bond each in an amount equal to 100 percent of the amount of the contract.

## **LIABILITY INSURANCE**

(5-20-14)

SP1 G160

Revise the *2012 Standard Specifications* as follows:

**Page 1-60, Article 107-15 LIABILITY INSURANCE, line 16**, add the following as the second sentence of the third paragraph:

Prior to beginning services, all contractors shall provide proof of coverage issued by a workers' compensation insurance carrier, or a certificate of compliance issued by the Department of Insurance for self-insured subcontractors, irrespective of whether having regularly in service fewer than three employees.

## **SUBLETTING OF CONTRACT**

The Contractor shall not sublet, sell, transfer, assign or otherwise dispose of this contract or any portion thereof; or his right, title, or interest therein; without written consent of the Engineer. Subletting of this contract or any portion of the contract shall conform to the requirements of Article of 108-6 of the Standard Specifications

## **DEFAULT OF CONTRACT**

The Department of Transportation shall have the right to declare a default of contract for breach by the Contractor of any material term or condition of the contract. Default of contract shall be in accordance with the terms, conditions, and procedures of Article 108-9 of the Standard Specifications.

## **CLAIMS FOR ADDITIONAL COMPENSATION OR EXTENSION OF TIME**

Any claims for additional compensation and/or extensions of the completion date shall be submitted to the Division Engineer in writing, with detailed justification, **prior** to submitting the final invoice payment. Once an invoice is received and accepted that is marked as "Final", the Contractor shall be barred from recovery.

## **PROMPT PAYMENT**

### **Prompt Payment of Monies Due Subcontractors, Second Tier Subcontractors and Material Suppliers**

Contractors at all levels, prime, subcontractor, or second tier contractor, shall within seven calendar days of receipt of monies, resulting from work performed on the project or services rendered, pay subcontractors, second tier subcontractors, or material suppliers, as appropriate. This seven-day period begins upon knowledgeable receipt by the contracting firm obligated to make a subsequent periodic payment or final payment. These prompt payment requirements will be met if each firm mails the payment to the next level firm by evidence of postmark within the seven-day period.

This provision for prompt payment shall be incorporated into each subcontract or second tier subcontract issued for work performed on the project or for services provided. Failure of any entity to make prompt payment as defined herein may result in (1) withholding of money due to that entity in the next partial payment until such assurances are made satisfactory to this provision; or (2) removal of an approved contractor from the pre-qualified bidders list or the removal of other entities from the approved subcontractors list.

## **BANKRUPTCY**

The Department of Transportation, at its option, may terminate the contract upon the filing by the contractor of any petition for protection under the provisions of the Federal Bankruptcy Act.

## **PAYMENT AND RETAINAGE**

The Contractor may submit requests for partial payments on a monthly basis, or other interval as approved by the Engineer. Compensation for all pay items shall be in accordance with the Standard Specifications. The amount of partial payments will be based on the work accomplished and accepted by the last day of the approved pay period.

Requests for payment shall be made by Contractor's Invoice. All invoice items and unit costs shall correspond to contract pay items. In the event of error or discrepancy in items or unit costs, the Department may return the invoice to the contractor for correction. The invoice shall be completely and legibly filled out with all appropriate information and shall be signed by an authorized representative of the Contractor.

All requests for payment shall be submitted to the Bridge Maintenance Engineer's Office.

**Bridge Maintenance Engineer  
N.C. Department of Transportation  
4809 Beryl Road  
Raleigh, NC 27606**

Due to the nature of the contract, no retainage will be withheld. However, the Department reserves the right to withhold payment for a specific location until after successful completion of the work as verified by the final inspection of that location.

## **PROSECUTION AND PROGRESS**

The Contractor shall pursue the work diligently with workmen in sufficient numbers, abilities, and supervision, and with equipment, materials, and methods of construction as may be required to complete the work described in the contract by the completion date and in accordance with Section 108 of the Standard Specifications

The Contractor's vehicles and equipment shall not be parked within the State Highway System right of way overnight or at other times when work has been suspended unless approved by the Engineer, and in no case within 30 feet of the edge of pavement. The Engineer may designate specific locations for parking equipment.

## GIFTS FROM VENDORS AND CONTRACTORS

(12-15-09)

SP1 G152

By Executive Order 24, issued by Governor Perdue, and *N.C. G.S. § 133-32*, it is unlawful for any vendor or contractor (i.e. architect, bidder, contractor, construction manager, design professional, engineer, landlord, offeror, seller, subcontractor, supplier, or vendor), to make gifts or to give favors to any State employee of the Governor's Cabinet Agencies (i.e. Administration, Commerce, Correction, Crime Control and Public Safety, Cultural Resources, Environment and Natural Resources, Health and Human Services, Juvenile Justice and Delinquency Prevention, Revenue, Transportation, and the Office of the Governor). This prohibition covers those vendors and contractors who:

- (1) have a contract with a governmental agency; or
- (2) have performed under such a contract within the past year; or
- (3) anticipate bidding on such a contract in the future.

For additional information regarding the specific requirements and exemptions, vendors and contractors are encouraged to review Executive Order 24 and *G.S. § 133-32*.

Executive Order 24 also encouraged and invited other State Agencies to implement the requirements and prohibitions of the Executive Order to their agencies. Vendors and contractors should contact other State Agencies to determine if those agencies have adopted Executive Order 24.

## EMPLOYMENT

(11-15-11) (Rev. 1-17-12)

108, 102

RG184

Revise the *2012 Standard Specifications* as follows:

**Page 1-20, Subarticle 102-15(O)**, delete and replace with the following:

- (O) Failure to restrict a former Department employee as prohibited by Article 108-5.

**Page 1-65, Article 108-5 Character of Workmen, Methods, and Equipment, line 32**, delete all of line 32, the first sentence of the second paragraph and the first word of the second sentence of the second paragraph.

## PROGRESS SCHEDULE

The Contractor shall provide a progress schedule in accordance with Section 108-2 of the Standard Specifications.

## STATE HIGHWAY ADMINISTRATOR TITLE CHANGE

(9-18-12)

SP1 G185

Revise the *2012 Standard Specifications* as follows:

Replace all references to "State Highway Administrator" with "Chief Engineer".

## MATERIALS

(2-21-12) (Rev. 5-20-14)

1000, 1002, 1005, 1024, 1050, 1056, 1074, 1078, 1080, 1081, 1086, 1084, 1087, 1092

SP10 R01

Revise the *2012 Standard Specifications* as follows:

**Page 10-1, Article 1000-1, DESCRIPTION, lines 9-10**, replace the last sentence of the first paragraph with the following:

Type IL, IP, IS or IT blended cement may be used instead of Portland cement.

**Page 10-1, Article 1000-1, DESCRIPTION, line 14**, add the following:

Use materials which do not produce a mottled appearance through rusting or other staining of the finished concrete surface.

Page 10-5, Table 1000-1, REQUIREMENTS FOR CONCRETE, replace with the following:

TABLE 1000-1 REQUIREMENTS FOR CONCRETE											
Class of Concrete	Min. Comp. Strength at 28 days	Maximum Water-Cement Ratio				Consistency Max. Slump		Cement Content			
		Air-Entrained Concrete		Non Air-Entrained Concrete		Vibrated	Non-Vibrated	Vibrated		Non-Vibrated	
		Rounded Aggregate	Angular Aggregate	Rounded Aggregate	Angular Aggregate			Min.	Max.	Min.	Max.
Units	psi					inch	inch	lb/cy	lb/cy	lb/cy	lb/cy
AA	4,500	0.381	0.426	-	-	3.5	-	639	715	-	-
AA Slip Form	4,500	0.381	0.426	-	-	1.5	-	639	715	-	-
Drilled Pier	4,500	-	-	0.450	0.450	-	5-7 dry 7-9 wet	-	-	640	800
A	3,000	0.488	0.532	0.550	0.594	3.5	4	564	-	602	-
B	2,500	0.488	0.567	0.559	0.630	2.5	4	508	-	545	-
B Slip Formed	2,500	0.488	0.567	-	-	1.5	-	508	-	-	-
Sand Light-weight	4,500	-	0.420	-	-	4	-	715	-	-	-
Latex Modified	3,000 7 day	0.400	0.400	-	-	6	-	658	-	-	-
Flowable Fill excavatable	150 max. at 56 days	as needed	as needed	as needed	as needed	-	Flowable	-	-	40	100
Flowable Fill non-excavatable	125	as needed	as needed	as needed	as needed	-	Flowable	-	-	100	as needed
Pavement	4,500 design, field 650 flexural, design only	0.559	0.559	-	-	1.5 slip form 3.0 hand place	-	526	-	-	-
Precast	See Table 1077-1	as needed	as needed	-	-	6	as needed	as needed	as needed	as needed	as needed
Prestress	per contract	See Table 1078-1	See Table 1078-1	-	-	8	-	564	as needed	-	-

Page 10-1, Article 1000-2, MATERIALS, line 16; Page 10-8, Subarticle 1000-7(A), MATERIALS, line 8; and Page 10-18, Article 1002-2, MATERIALS, line 9, add the following to the table of item references:

Item  
Type IL Blended Cement

Section  
1024-1

Page 10-23, Table 1005-1, AGGREGATE GRADATION-COARSE AGGREGATE, replace with the following:

**TABLE 1005-1  
AGGREGATE GRADATION - COARSE AGGREGATE**

Std. Size #	Percentage of Total by Weight Passing														Remarks
	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#10	#16	#40	#200			
4	100	90-100	20-55	0-15	-	0-5	-	-	-	-	-	A	Asphalt Plant Mix		
467M	100	95-100	-	35-70	-	0-30	0-5	-	-	-	-	A	Asphalt Plant Mix		
5	-	100	90-100	20-55	0-10	0-5	-	-	-	-	-	A	AST, Sediment Control Stone		
57	-	100	95-100	-	25-60	-	0-10	0-5	-	-	-	A	AST, Str. Concrete, Shoulder Drain, Sediment Control Stone		
57M	-	100	95-100	-	25-45	-	0-10	0-5	-	-	-	A	AST, Concrete Pavement		
6M	-	-	100	90-100	20-55	0-20	0-8	-	-	-	-	A	AST		
67	-	-	100	90-100	-	20-55	0-10	0-5	-	-	-	A	AST, Str. Concrete, Asphalt Plant Mix		
78M	-	-	-	100	98-100	75-100	20-45	0-15	-	-	-	A	Asphalt Plant Mix, Str. Conc., Weep Hole Drains		
14M	-	-	-	-	-	100	35-70	5-20	-	0-8	-	A	Asphalt Plant Mix, AST, Weep Hole Drains, Str. Concrete		
9	-	-	-	-	-	100	85-100	10-40	-	0-10	-	A	AST		
ABC	-	100	75-97	-	55-80	-	35-55	-	25-45	-	14-30	4-12 <sup>B</sup>	Aggregate Base Course, Aggregate Stabilization		
ABC (M)	-	100	75-100	-	45-79	-	20-40	-	0-25	-	-	0-12 <sup>B</sup>	Maintenance Stabilization		
Light-C weight	-	-	-	-	100	80-100	5-40	0-20	-	0-10	-	0-2.5	AST		

A. See Subarticle 1005-4(A).

B. See Subarticle 1005-4(B).

C. For Lightweight Aggregate used in Structural Concrete, see Subarticle 1014-2(E)(6).

**Page 10-46, Article 1024-1, PORTLAND CEMENT, line 33,** add the following as the ninth paragraph:

Use Type IL blended cement that meets AASHTO M 240, except that the limestone content is limited to between 5 and 12% by weight and the constituents shall be interground. Class F fly ash can replace a portion of Type IL blended cement and shall be replaced as outlined in Subarticle 1000-4(I) for Portland cement. For mixes that contain cement with alkali content between 0.6% and 1.0% and for mixes that contain a reactive aggregate documented by the Department, use a pozzolan in the amount shown in Table 1024-1.

**Page 10-65, Article 1050-1, GENERAL, line 41,** replace the first sentence with the following:

All fencing material and accessories shall meet Section 106.

**Page 10-73, Article 1056-1 DESCRIPTION, lines 7-8,** delete the first sentence of the second paragraph and replace with the following:

Use geotextile fabrics that are on the NCDOT Approved Products List.

**Page 10-73, Article 1056-2 HANDLING AND STORING, line 17,** replace “mechanically stabilized earth (MSE) wall faces” with “temporary wall faces”.

**Page 10-74, TABLE 1056-1 GEOTEXTILE REQUIREMENTS,** replace table with the following:

<b>TABLE 1056-1 GEOTEXTILE REQUIREMENTS</b>						
<b>Property</b>	<b>Requirement (MARV<sup>A</sup>)</b>					<b>Test Method</b>
	<b>Type 1</b>	<b>Type 2</b>	<b>Type 3<sup>B</sup></b>	<b>Type 4</b>	<b>Type 5<sup>C</sup></b>	
<i>Typical Application</i>	<i>Shoulder Drains</i>	<i>Under Rip Rap</i>	<i>Temporary Silt Fence</i>	<i>Soil Stabilization</i>	<i>Temporary Walls</i>	
Elongation (MD & CD)	≥ 50%	≥ 50%	≤ 25%	< 50%	< 50%	ASTM D4632
Grab Strength (MD & CD)	Table 1 <sup>D</sup> , Class 3	Table 1 <sup>D</sup> , Class 1	100 lb	Table 1 <sup>D</sup> , Class 3	-	ASTM D4632
Tear Strength (MD & CD)			-		-	ASTM D4533
Puncture Strength			-		-	ASTM D6241
Ultimate Tensile Strength (MD & CD)	-	-	-	-	2,400 lb/ft (unless required otherwise in the contract)	ASTM D4595
Permittivity	Table 2 <sup>D</sup> , 15% to 50% <i>in Situ</i> Soil Passing No. 200 <sup>E</sup>		Table 7 <sup>D</sup>	Table 5 <sup>D</sup>	0.20 sec <sup>-1</sup>	ASTM D4491
Apparent Opening Size					No. 30 <sup>E</sup>	ASTM D4751
UV Stability (Retained Strength)					70%	ASTM D4355

- A.** MARV does not apply to elongation
- B.** Minimum roll width of 36" required
- C.** Minimum roll width of 13 ft required
- D.** AASHTO M 288

E. US Sieve No. per AASHTO M 92

**Page 10-115, Subarticle 1074-7(B), Gray Iron Castings, lines 10-11**, replace with the first two sentences with the following:

Supply gray iron castings meeting all facets of AASHTO M 306 excluding proof load. Proof load testing will only be required for new casting designs during the design process, and conformance to M306 loading (40,000 lbs.) will be required only when noted on the design documents.

**Page 10-126, Table 1078-1, REQUIREMENTS FOR CONCRETE**, replace with the following:

<b>TABLE 1078-1 REQUIREMENTS FOR CONCRETE</b>		
<b>Property</b>	<b>28 Day Design Compressive Strength 6,000 psi or less</b>	<b>28 Day Design Compressive Strength greater than 6,000 psi</b>
Maximum Water/Cementitious Material Ratio	0.45	0.40
Maximum Slump without HRWR	3.5"	3.5"
Maximum Slump with HRWR	8"	8"
Air Content (upon discharge into forms)	5 + 2%	5 + 2%

**Page 10-151, Article 1080-4 Inspection and Sampling, lines 18-22**, replace (B), (C) and (D) with the following:

(B) At least 3 panels prepared as specified in 5.5.10 of AASHTO M 300, Bullet Hole Immersion Test.

(C) At least 3 panels of 4"x6"x1/4" for the Elcometer Adhesion Pull Off Test, ASTM D4541.

(D) A certified test report from an approved independent testing laboratory for the Salt Fog Resistance Test, Cyclic Weathering Resistance Test, and Bullet Hole Immersion Test as specified in AASHTO M 300.

(E) A certified test report from an approved independent testing laboratory that the product has been tested for slip coefficient and meets AASHTO M253, Class B.

**Page 10-161, Subarticle 1081-1(A) Classifications, lines 29-33**, delete first 3 sentences of the description for Type 2 and replace with the following:

**Type 2** - A low-modulus, general-purpose adhesive used in epoxy mortar repairs. It may be used to patch spalled, cracked or broken concrete where vibration, shock or expansion and contraction are expected.

**Page 10-162, Subarticle 1081-1(A) Classifications, lines 4-7**, delete the second and third sentences of the description for Type 3A. **Lines 16-22**, delete Types 6A, 6B and 6C.

**Page 10-162, Subarticle 1081-1(B) Requirements, lines 26-30**, replace the second paragraph with the following:

For epoxy resin systems used for embedding dowel bars, threaded rods, rebar, anchor bolts and other fixtures in hardened concrete, the manufacturer shall submit test results showing that the bonding system will obtain 125% of the specified required yield strength of the fixture. Furnish certification that, for the particular bolt grade, diameter and embedment depth required, the anchor system will not fail by adhesive failure and that there is no movement of the anchor bolt. For certification and anchorage, use 3,000 psi as the minimum Portland cement concrete compressive strength used in this test. Use adhesives that meet Section 1081.

List the properties of the adhesive on the container and include density, minimum and maximum temperature application, setting time, shelf life, pot life, shear strength and compressive strength.

**Page 10-163, Table 1081-1 Properties of Mixed Epoxy Resin Systems**, replace table with the following:

<b>Table 1081-1 Properties of Mixed Epoxy Resin Systems</b>							
<b>Property</b>	<b>Type 1</b>	<b>Type 2</b>	<b>Type 3</b>	<b>Type 3A</b>	<b>Type 4A</b>	<b>Type 4B</b>	<b>Type 5</b>
Viscosity-Poises at 77°F ± 2°F	Gel	10-30	25-75	Gel	40-150	40-150	1-6
Spindle No.	-	3	4	--	4	4	2
Speed (RPM)	-	20	20	--	10	10	50
Pot Life (Minutes)	20-50	30-60	20-50	5-50	40-80	40-80	20-60
Minimum Tensile Strength at 7 days (psi)	1,500	2,000	4,000	4,000	1,500	1,500	4,000
Tensile Elongation at 7 days (%)	30 min.	30 min.	2-5	2-5	5-15	5-15	2-5
Min. Compressive Strength of 2" mortar cubes at 24 hours	3,000 (Neat)	4,000-	6,000-	6,000 (Neat)	3,000	3,000	6,000
Min. Compressive Strength of 2" mortar cubes at 7 days	5,000 (Neat)	-	-	-	-	5,000	-
Maximum Water Absorption (%)	1.5	1.0	1.0	1.5	1.0	1.0	1.0
Min. Bond Strength Slant Shear Test at 14 days (psi)	1,500	1,500	2,000	2,000	1,500	1,500	1,500

**Page 10-164, Subarticle 1081-1(E) Prequalification, lines 31-33**, replace the second sentence of the first paragraph with the following:

Manufacturers choosing to supply material for Department jobs must submit an application through the Value Management Unit with the following information for each type and brand name:

**Page 10-164, Subarticle 1081-1(E)(3), line 37**, replace this subarticle with the following:

(3) Type of the material in accordance with Articles 1081-1 and 1081-4,

**Page 10-165, Subarticle 1081-1(E)(6), line 1**, in the first sentence of the first paragraph replace “AASHTO M 237” with “the specifications”.

**Page 10-165, Subarticle 1081-1(E) Prequalification, line 9-10**, delete the second sentence of the last paragraph.

**Page 10-165, Subarticle 1081-1(F) Acceptance, line 14**, in the first sentence of the first paragraph replace “Type 1” with “Type 3”.

**Page 10-169, Subarticle 1081-3(G) Anchor Bolt Adhesives**, delete this subarticle.

**Page 10-170, Article 1081-3 Hot Bitumen, line 9**, add the following at the end of Section 1081:

#### **1081-4 EPOXY RESIN ADHESIVE FOR BONDING TRAFFIC MARKINGS**

##### **(A) General**

This section covers epoxy resin adhesive for bonding traffic markers to pavement surfaces.

##### **(B) Classification**

The types of epoxies and their uses are as shown below:

**Type I** – Rapid Setting, High Viscosity, Epoxy Adhesive. This type of adhesive provides rapid adherence to traffic markers to the surface of pavement.

**Type II** – Standard Setting, High Viscosity, Epoxy Adhesive. This type of adhesive is recommended for adherence of traffic markers to pavement surfaces when rapid set is not required.

**Type III** – Rapid Setting, Low Viscosity, Water Resistant, Epoxy Adhesive. This type of rapid setting adhesive, due to its low viscosity, is appropriate only for use with embedded traffic markers.

**Type IV** – Standard Set Epoxy for Blade Deflecting-Type Plowable Markers.

##### **(C) Requirements**

Epoxies shall conform to the requirements set forth in AASHTO M 237.

##### **(D) Prequalification**

Refer to Subarticle 1081-1(E).

##### **(E) Acceptance**

Refer to Subarticle 1081-1(F).

**Page 10-173, Article 1084-2 STEEL SHEET PILES, lines 37-38**, replace first paragraph with the following:

Steel sheet piles detailed for permanent applications shall be hot rolled and meet ASTM A572 or ASTM A690 unless otherwise required by the plans. Steel sheet piles shall be coated as required by the plans.

Galvanized sheet piles shall be coated in accordance with Section 1076. Metallized sheet piles shall be metallized in accordance to the Project Special Provision “Thermal Sprayed Coatings (Metallization)” with an 8 mil, 99.9% aluminum alloy coating and a 0.5 mil seal coating. Any portion of the metallized sheet piling encased in concrete shall receive a barrier coat. The barrier coat shall be an approved waterborne coating with a low-viscosity which readily absorbs into the pores of the aluminum thermal sprayed coating. The waterborne coating shall be applied at a spreading rate that results in a theoretical 1.5 mil dry film thickness. The manufacturer shall issue a letter of certification that the resin chemistry of the waterborne coating is compatible with the 99.9% aluminum thermal sprayed alloy and suitable for tidal water applications.

**Page 10-174, Subarticle 1086-1(B)(1) Epoxy, lines 18-24**, replace this subarticle with the following:

The epoxy shall meet Article 1081-4.

The 2 types of epoxy adhesive which may be used are Type I, Rapid Setting, and Type II, Standard Setting. Use Type II when the pavement temperature is above 60°F or per the manufacturer’s recommendations whichever is more stringent. Use Type I when the pavement temperature is between 50°F and 60°F or per the manufacturer’s recommendations whichever is more stringent. Epoxy adhesive Type I, Cold Set, may be used to attach temporary pavement markers to the pavement surface when the pavement temperature is between 32°F and 50°F or per the manufacturer’s recommendations whichever is more stringent.

**Page 10-175, Subarticle 1086-2(E) Epoxy Adhesives, line 27**, replace “Section 1081” with “Article 1081-4”.

**Page 10-177, Subarticle 1086-3(E) Epoxy Adhesives, line 22**, replace “Section 1081” with “Article 1081-4”.

**Page 10-179, Subarticle 1087-4(A) Composition, lines 39-41**, replace the third paragraph with the following:

All intermixed and drop-on glass beads shall not contain more than 75 ppm arsenic or 200 ppm lead.

**Page 10-180, Subarticle 1087-4(B) Physical Characteristics, line 8**, replace the second paragraph with the following:

All intermixed and drop-on glass beads shall comply with NCGS § 136-30.2 and 23 USC § 109(r).

**Page 10-181, Subarticle 1087-7(A) Intermixed and Drop-on Glass Beads, line 24**, add the following after the first paragraph:

Use X-ray Fluorescence for the normal sampling procedure for intermixed and drop-on beads, without crushing, to check for any levels of arsenic and lead. If any arsenic or lead is detected, the sample shall be crushed and repeat the test using X-ray Fluorescence. If the X-ray Fluorescence test shows more than a LOD of 5 ppm, test the beads using United States Environmental Protection Agency Method 6010B, 6010C or 3052 for no more than 75 ppm arsenic or 200 ppm lead.

Page 10-204, Subarticle 1092-2(A) Performance and Test Requirements, replace Table 1092-3 Minimum Coefficient of Retroreflection for NC Grade A with the following:

Observation Angle, degrees	Entrance Angle, degrees	White	Yellow	Green	Red	Blue	Fluorescent Yellow Green	Fluorescent Yellow
0.2	-4.0	525	395	52	95	30	420	315
0.2	30.0	215	162	22	43	10	170	130
0.5	-4.0	310	230	31	56	18	245	185
0.5	30.0	135	100	14	27	6	110	81
1.0	-4.0	<b>120</b>	60	8	16	3.6	64	48
1.0	30.0	45	34	4.5	9	2	36	27

## MINORITY BUSINESS ENTERPRISE AND WOMEN BUSINESS ENTERPRISE (DIVISIONS)

(10-16-07)(Rev. 12-17-13)

102-15(J)

SP1 G67

### Description

The purpose of this Special Provision is to carry out the North Carolina Department of Transportation's policy of ensuring nondiscrimination in the award and administration of contracts financed in whole or in part with State funds.

### Definitions

*Additional MBE/WBE Subcontractors* - Any MBE/WBE submitted at the time of bid that will not be used to meet either the MBE or WBE goal. No submittal of a Letter of Intent is required.

*Committed MBE/WBE Subcontractor* - Any MBE/WBE submitted at the time of bid that is being used to meet either the MBE or WBE goal by submission of a Letter of Intent. Or any MBE or WBE used as a replacement for a previously committed MBE or WBE firm.

*Contract Goals Requirement* - The approved MBE and WBE participation at time of award, but not greater than the advertised contract goals for each.

*Goal Confirmation Letter* - Written documentation from the Department to the bidder confirming the Contractor's approved, committed MBE and WBE participation along with a listing of the committed MBE and WBE firms.

*Manufacturer* - A firm that operates or maintains a factory or establishment that produces on the premises, the materials or supplies obtained by the Contractor.

*MBE Goal* - A portion of the total contract, expressed as a percentage, that is to be performed by committed MBE subcontractor(s).

*Minority Business Enterprise (MBE)* - A firm certified as a Disadvantaged Minority-Owned Business Enterprise through the North Carolina Unified Certification Program.

*Regular Dealer* - A firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials or supplies required for the performance of the contract are bought, kept in stock, and regularly sold to the public in the usual course of business. A regular dealer engages in, as its principal business and in its own name, the purchase and sale or lease of the products in question. A regular dealer in such bulk items as steel, cement, gravel, stone, and petroleum products need not keep such products in stock, if it owns and operates distribution equipment for the products. Brokers and packagers are not regarded as manufacturers or regular dealers within the meaning of this section.

*North Carolina Unified Certification Program (NCUCP)* - A program that provides comprehensive services and information to applicants for MBE/WBE certification. The MBE/WBE program follows the same regulations as the federal Disadvantaged Business Enterprise (DBE) program in accordance with 49 CFR Part 26.

*United States Department of Transportation (USDOT)* - Federal agency responsible for issuing regulations (49 CFR Part 26) and official guidance for the DBE program.

*WBE Goal* - A portion of the total contract, expressed as a percentage, that is to be performed by committed WBE subcontractor(s).

*Women Business Enterprise (WBE)* - A firm certified as a Disadvantaged Women-Owned Business Enterprise through the North Carolina Unified Certification Program.

#### **Forms and Websites Referenced in this Provision**

*Payment Tracking System* - On-line system in which the Contractor enters the payments made to MBE and WBE subcontractors who have performed work on the project.  
<https://apps.dot.state.nc.us/Vendor/PaymentTracking/>

*DBE-IS Subcontractor Payment Information* - Form for reporting the payments made to all MBE/WBE firms working on the project. This form is for paper bid projects only.  
<http://www.ncdot.org/doh/forms/files/DBE-IS.xls>

*RF-1 MBE/WBE Replacement Request Form* - Form for replacing a committed MBE or WBE.  
<http://connect.ncdot.gov/projects/construction/Construction%20Forms/DBE%20MBE%20WBE%20Replacement%20Request%20Form.pdf>

*SAF Subcontract Approval Form* - Form required for approval to sublet the contract.  
<http://connect.ncdot.gov/projects/construction/Construction%20Forms/Subcontract%20Approval%20Form%20Rev.%202012.zip>

*JC-1 Joint Check Notification Form* - Form and procedures for joint check notification. The form acts as a written joint check agreement among the parties providing full and prompt disclosure of the expected use of joint checks.  
<http://connect.ncdot.gov/projects/construction/Construction%20Forms/Joint%20Check%20Notification%20Form.pdf>

*Letter of Intent* - Form signed by the Contractor and the MBE/WBE subcontractor, manufacturer or regular dealer that affirms that a portion of said contract is going to be performed by the signed MBE/WBE for the amount listed at the time of bid.  
<http://connect.ncdot.gov/letting/LetCentral/Letter%20of%20Intent%20to%20Perform%20as%20a%20Subcontractor.pdf>

*Listing of MBE and WBE Subcontractors Form* - Form for entering MBE/WBE subcontractors on a project that will meet this MBE and WBE goals. This form is for paper bids only.

[http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/09%20MBE-WBE%20Subcontractors%20\(State\).doc](http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/09%20MBE-WBE%20Subcontractors%20(State).doc)

*Subcontractor Quote Comparison Sheet* - Spreadsheet for showing all subcontractor quotes in the work areas where MBEs and WBEs quoted on the project. This sheet is submitted with good faith effort packages.

<http://connect.ncdot.gov/business/SmallBusiness/Documents/DBE%20Subcontractor%20Quote%20Comparison%20Example.xls>

### **MBE and WBE Goal**

The following goals for participation by Minority Business Enterprises and Women Business Enterprises are established for this contract:

- (A) Minority Business Enterprises **0 %**
- (1) *If the MBE goal is more than zero*, the Contractor shall exercise all necessary and reasonable steps to ensure that MBEs participate in at least the percent of the contract as set forth above as the MBE goal.
  - (2) *If the MBE goal is zero*, the Contractor shall make an effort to recruit and use MBEs during the performance of the contract. Any MBE participation obtained shall be reported to the Department.
- (B) Women Business Enterprises **0 %**
- (1) *If the WBE goal is more than zero*, the Contractor shall exercise all necessary and reasonable steps to ensure that WBEs participate in at least the percent of the contract as set forth above as the WBE goal.
  - (2) *If the WBE goal is zero*, the Contractor shall make an effort to recruit and use WBEs during the performance of the contract. Any WBE participation obtained shall be reported to the Department.

### **Directory of Transportation Firms (Directory)**

Real-time information is available about firms doing business with the Department and firms that are certified through NCUCP in the Directory of Transportation Firms. Only firms identified in the Directory as MBE and WBE certified shall be used to meet the MBE and WBE goals respectively. The Directory can be found at the following link. <https://partner.ncdot.gov/VendorDirectory/default.html>

The listing of an individual firm in the directory shall not be construed as an endorsement of the firm's capability to perform certain work.

### **Listing of MBE/WBE Subcontractors**

At the time of bid, bidders shall submit all MBE and WBE participation that they anticipate to use during the life of the contract. Only those identified to meet the MBE goal and the WBE goal will be considered committed, even though the listing shall include both committed MBE/WBE subcontractors and additional MBE/WBE subcontractors. Any additional MBE/WBE subcontractor participation submitted at the time of bid will be used toward overall race-neutral goals. Only those firms with current MBE and WBE certification at the time of bid opening will be acceptable for listing in the bidder's submittal of MBE and WBE participation. The Contractor shall indicate the following required information:

- (A) *If either the MBE or WBE goal is more than zero,*
- (1) Bidders, at the time the bid proposal is submitted, shall submit a listing of MBE/WBE participation, including the names and addresses on *Listing of MBE and WBE Subcontractors* contained elsewhere in the contract documents in order for the bid to be considered responsive. Bidders shall indicate the total dollar value of the MBE and WBE participation for the contract.
  - (2) If bidders have no MBE or WBE participation, they shall indicate this on the *Listing of MBE and WBE Subcontractors* by entering the word “None” or the number “0.” This form shall be completed in its entirety. **Blank forms will not be deemed to represent zero participation.** Bids submitted that do not have MBE and WBE participation indicated on the appropriate form will not be read publicly during the opening of bids. The Department will not consider these bids for award and the proposal will be rejected.
  - (3) The bidder shall be responsible for ensuring that the MBE/WBE is certified at the time of bid by checking the Directory of Transportation Firms. If the firm is not certified at the time of the bid-letting, that MBE’s or WBE’s participation will not count towards achieving the corresponding goal.
- (B) *If either the MBE or WBE goal is zero,* entries on the *Listing of MBE and WBE Subcontractors* are not required for the zero goal, however any MBE or WBE participation that is achieved during the project shall be reported in accordance with requirements contained elsewhere in the special provision.

#### **MBE or WBE Prime Contractor**

When a certified MBE or WBE firm bids on a contract that contains MBE and WBE goals, the firm is responsible for meeting the goals or making good faith efforts to meet the goals, just like any other bidder. In most cases, a MBE or WBE bidder on a contract will meet one of the goals by virtue of the work it performs on the contract with its own forces. However, all the work that is performed by the MBE or WBE bidder and any other similarly certified subcontractors will count toward the goal. The MBE or WBE bidder shall list itself along with any MBE or WBE subcontractors, if any, in order to receive credit toward the goals.

For example, on a proposed contract, the WBE goal is 10%, and the MBE goal is 8%. A WBE bidder puts in a bid where they will perform 40% of the contract work and have a WBE subcontractor which will perform another 5% of the work. Together the two WBE firms submit on the *Listing of MBE and WBE Subcontractors* a value of 45% of the contract which fulfills the WBE goal. The 8% MBE goal shall be obtained through MBE participation with MBE certified subcontractors or documented through a good faith effort. It should be noted that you cannot combine the two goals to meet an overall value. The two goals shall remain separate.

MBE/WBE prime contractors shall also follow Sections A or B listed under *Listing of MBE/WBE Subcontractors* just as a non-MBE/WBE bidder would.

#### **Written Documentation – Letter of Intent**

The bidder shall submit written documentation for each MBE/WBE that will be used to meet the MBE and WBE goals of the contract, indicating the bidder’s commitment to use the MBE/WBE in the contract. This documentation shall be submitted on the Department’s form titled *Letter of Intent*.

The documentation shall be received in the office of the Engineer no later than 12:00 noon of the sixth calendar day following opening of bids, unless the sixth day falls on Saturday, Sunday or an official state

holiday. In that situation, it is due in the office of the Engineer no later than 12:00 noon on the next official state business day.

If the bidder fails to submit the Letter of Intent from each committed MBE and WBE to be used toward the MBE and WBE goals, or if the form is incomplete (i.e. both signatures are not present), the MBE/WBE participation will not count toward meeting the MBE/WBE goal. If the lack of this participation drops the commitment below either the MBE or WBE goal, the Contractor shall submit evidence of good faith efforts for the goal not met, completed in its entirety, to the Engineer no later than 12:00 noon of the eighth calendar day following opening of bids, unless the eighth day falls on Saturday, Sunday or an official state holiday. In that situation, it is due in the office of the Engineer no later than 12:00 noon on the next official state business day.

### **Submission of Good Faith Effort**

If the bidder fails to meet or exceed either the MBE or the WBE goal, the apparent lowest responsive bidder shall submit to the Department documentation of adequate good faith efforts made to reach that specific goal(s).

One complete set and nine copies of this information shall be received in the office of the Engineer no later than 12:00 noon of the sixth calendar day following opening of bids, unless the sixth day falls on Saturday, Sunday or an official state holiday. In that situation, it is due in the office of the Engineer no later than 12:00 noon on the next official state business day.

Note: Where the information submitted includes repetitious solicitation letters, it will be acceptable to submit a representative letter along with a distribution list of the firms that were solicited. Documentation of MBE/WBE quotations shall be a part of the good faith effort submittal. This documentation may include written subcontractor quotations, telephone log notations of verbal quotations, or other types of quotation documentation.

### **Consideration of Good Faith Effort for Projects with MBE/WBE Goals More Than Zero**

Adequate good faith efforts mean that the bidder took all necessary and reasonable steps to achieve the goal which, by their scope, intensity, and appropriateness, could reasonably be expected to obtain sufficient MBE/WBE participation. Adequate good faith efforts also mean that the bidder actively and aggressively sought MBE/WBE participation. Mere *pro forma* efforts are not considered good faith efforts.

The Department will consider the quality, quantity, and intensity of the different kinds of efforts a bidder has made. Listed below are examples of the types of actions a bidder will take in making a good faith effort to meet the goals and are not intended to be exclusive or exhaustive, nor is it intended to be a mandatory checklist.

- (A) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising, written notices, use of verifiable electronic means through the use of the NCDOT Directory of Transportation Firms) the interest of all certified MBEs/WBEs who have the capability to perform the work of the contract. The bidder must solicit this interest within at least 10 days prior to bid opening to allow the MBEs/WBEs to respond to the solicitation. Solicitation shall provide the opportunity to MBEs/WBEs within the Division and surrounding Divisions where the project is located. The bidder must determine with certainty if the MBEs/WBEs are interested by taking appropriate steps to follow up initial solicitations.

- (B) Selecting portions of the work to be performed by MBEs/WBEs in order to increase the likelihood that the MBE and WBE goals will be achieved.
  - (1) Where appropriate, break out contract work items into economically feasible units to facilitate MBE/WBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.
  - (2) Negotiate with subcontractors to assume part of the responsibility to meet the contract MBE/WBE goals when the work to be sublet includes potential for MBE/WBE participation (2<sup>nd</sup> and 3<sup>rd</sup> tier subcontractors).
- (C) Providing interested MBEs/WBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- (D) (1) Negotiating in good faith with interested MBEs/WBEs. It is the bidder's responsibility to make a portion of the work available to MBE/WBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available MBE/WBE subcontractors and suppliers, so as to facilitate MBE/WBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of MBEs/WBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for MBEs/WBEs to perform the work.
  - (2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including MBE/WBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using MBEs/WBEs is not in itself sufficient reason for a bidder's failure to meet the contract MBE or WBE goals, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidding contractors are not, however, required to accept higher quotes from MBEs/WBEs if the price difference is excessive or unreasonable.
- (E) Not rejecting MBEs/WBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associates and political or social affiliations (for example, union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.
- (F) Making efforts to assist interested MBEs/WBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or bidder.
- (G) Making efforts to assist interested MBEs/WBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.
- (H) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; Federal, State, and local minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of MBEs/WBEs. Contact within 7 days from the bid opening NCDOT's Business Development Manager in the Business Opportunity and Work Force Development Unit to give notification of the bidder's inability to get MBE or WBE quotes.

- (I) Any other evidence that the bidder submits which shows that the bidder has made reasonable good faith efforts to meet the MBE and WBE goal.

In addition, the Department may take into account the following:

- (1) Whether the bidder's documentation reflects a clear and realistic plan for achieving the MBE and WBE goals.
- (2) The bidders' past performance in meeting the MBE and WBE goals.
- (3) The performance of other bidders in meeting the MBE and WBE goals. For example, when the apparent successful bidder fails to meet the goals, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts the apparent successful bidder could have met the goals. If the apparent successful bidder fails to meet the MBE and WBE goals, but meets or exceeds the average MBE and WBE participation obtained by other bidders, the Department may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made a good faith effort.

If the Department does not award the contract to the apparent lowest responsive bidder, the Department reserves the right to award the contract to the next lowest responsive bidder that can satisfy to the Department that the MBE and WBE goals can be met or that an adequate good faith effort has been made to meet the MBE and WBE goals.

#### **Non-Good Faith Appeal**

The Engineer will notify the contractor verbally and in writing of non-good faith. A contractor may appeal a determination of non-good faith made by the Goal Compliance Committee. If a contractor wishes to appeal the determination made by the Committee, they shall provide written notification to the Engineer. The appeal shall be made within 2 business days of notification of the determination of non-good faith.

#### **Counting MBE/WBE Participation Toward Meeting MBE/WBE Goals**

- (A) Participation

The total dollar value of the participation by a committed MBE/WBE will be counted toward the contract goal requirements. The total dollar value of participation by a committed MBE/WBE will be based upon the value of work actually performed by the MBE/WBE and the actual payments to MBE/WBE firms by the Contractor.

- (B) Joint Checks

Prior notification of joint check use shall be required when counting MBE/WBE participation for services or purchases that involves the use of a joint check. Notification shall be through submission of Form JC-1 (*Joint Check Notification Form*) and the use of joint checks shall be in accordance with the Department's Joint Check Procedures.

- (C) Subcontracts (Non-Trucking)

A MBE/WBE may enter into subcontracts. Work that a MBE subcontracts to another MBE firm may be counted toward the MBE contract goal requirement. The same holds for work that a WBE subcontracts to another WBE firm. Work that a MBE subcontracts to a non-MBE firm does not count toward the MBE contract goal requirement. Again, the same holds true for the work that a WBE subcontracts to a non-WBE firm. If a MBE or WBE contractor or subcontractor subcontracts a significantly greater portion of the work of the contract than would be expected on

the basis of standard industry practices, it shall be presumed that the MBE or WBE is not performing a commercially useful function. The MBE/WBE may present evidence to rebut this presumption to the Department. The Department's decision on the rebuttal of this presumption may be subject to review by the Office of Inspector General, NCDOT.

(D) Joint Venture

When a MBE or WBE performs as a participant in a joint venture, the Contractor may count toward its contract goal requirement a portion of the total value of participation with the MBE or WBE in the joint venture, that portion of the total dollar value being a distinct clearly defined portion of work that the MBE or WBE performs with its forces.

(E) Suppliers

A contractor may count toward its MBE or WBE requirement 60 percent of its expenditures for materials and supplies required to complete the contract and obtained from a MBE or WBE regular dealer and 100 percent of such expenditures from a MBE or WBE manufacturer.

(F) Manufacturers and Regular Dealers

A contractor may count toward its MBE or WBE requirement the following expenditures to MBE/WBE firms that are not manufacturers or regular dealers:

- (1) The fees or commissions charged by a MBE/WBE firm for providing a *bona fide* service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a DOT-assisted contract, provided the fees or commissions are determined to be reasonable and not excessive as compared with fees and commissions customarily allowed for similar services.
- (2) With respect to materials or supplies purchased from a MBE/WBE, which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site (but not the cost of the materials and supplies themselves), provided the fees are determined to be reasonable and not excessive as compared with fees customarily allowed for similar services.

**Commercially Useful Function**

(A) MBE/WBE Utilization

The Contractor may count toward its contract goal requirement only expenditures to MBEs and WBEs that perform a commercially useful function in the work of a contract. A MBE/WBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the MBE/WBE shall also be responsible with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material and installing (where applicable) and paying for the material itself. To determine whether a MBE/WBE is performing a commercially useful function, the Department will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the MBE/WBE credit claimed for its performance of the work, and any other relevant factors.

(B) MBE/WBE Utilization in Trucking

The following factors will be used to determine if a MBE or WBE trucking firm is performing a commercially useful function:

- (1) The MBE/WBE shall be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there shall not be a contrived arrangement for the purpose of meeting the MBE or WBE goal.
- (2) The MBE/WBE shall itself own and operate at least one fully licensed, insured, and operational truck used on the contract.
- (3) The MBE/WBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.
- (4) The MBE may subcontract the work to another MBE firm, including an owner-operator who is certified as a MBE. The same holds true that a WBE may subcontract the work to another WBE firm, including an owner-operator who is certified as a WBE. When this occurs, the MBE or WBE who subcontracts work receives credit for the total value of the transportation services the subcontracted MBE or WBE provides on the contract. It should be noted that every effort shall be made by MBE and WBE contractors to subcontract to the same certification (i.e., MBEs to MBEs and WBEs to WBEs), in order to fulfill the goal requirement. This, however, may not always be possible due to the limitation of firms in the area. If the MBE or WBE firm shows a good faith effort has been made to reach out to similarly certified transportation service providers and there is no interest or availability, and they can get assistance from other certified providers, the Engineer will not hold the prime liable for meeting the goal.
- (5) The MBE/WBE may also subcontract the work to a non-MBE/WBE firm, including from an owner-operator. The MBE/WBE who subcontracts the work to a non-MBE/WBE is entitled to credit for the total value of transportation services provided by the non-MBE/WBE subcontractor not to exceed the value of transportation services provided by MBE/WBE-owned trucks on the contract. Additional participation by non-MBE/WBE subcontractors receives credit only for the fee or commission it receives as a result of the subcontract arrangement. The value of services performed under subcontract agreements between the MBE/WBE and the Contractor will not count towards the MBE/WBE contract requirement.
- (6) A MBE/WBE may lease truck(s) from an established equipment leasing business open to the general public. The lease must indicate that the MBE/WBE has exclusive use of and control over the truck. This requirement does not preclude the leased truck from working for others during the term of the lease with the consent of the MBE/WBE, so long as the lease gives the MBE/WBE absolute priority for use of the leased truck. This type of lease may count toward the MBE/WBE's credit as long as the driver is under the MBE/WBE's payroll.
- (7) Subcontracted/leased trucks shall display clearly on the dashboard the name of the MBE/WBE that they are subcontracted/leased to and their own company name if it is not identified on the truck itself. Magnetic door signs are not permitted.

**MBE/WBE Replacement**

When a Contractor has relied on a commitment to a MBE or WBE firm (or an approved substitute MBE or WBE firm) to meet all or part of a contract goal requirement, the contractor shall not terminate the

MBE/WBE for convenience. This includes, but is not limited to, instances in which the Contractor seeks to perform the work of the terminated subcontractor with another MBE/WBE subcontractor, a non-MBE/WBE subcontractor, or with the Contractor's own forces or those of an affiliate. A MBE/WBE may only be terminated after receiving the Engineer's written approval based upon a finding of good cause for the termination.

All requests for replacement of a committed MBE/WBE firm shall be submitted to the Engineer for approval on Form RF-1 (*Replacement Request*). If the Contractor fails to follow this procedure, the Contractor may be disqualified from further bidding for a period of up to 6 months.

The Contractor shall comply with the following for replacement of a committed MBE/WBE:

(A) Performance Related Replacement

When a committed MBE is terminated for good cause as stated above, an additional MBE that was submitted at the time of bid may be used to fulfill the MBE commitment. The same holds true if a committed WBE is terminated for good cause, an additional WBE that was submitted at the time of bid may be used to fulfill the WBE goal. A good faith effort will only be required for removing a committed MBE/WBE if there were no additional MBEs/WBEs submitted at the time of bid to cover the same amount of work as the MBE/WBE that was terminated.

If a replacement MBE/WBE is not found that can perform at least the same amount of work as the terminated MBE/WBE, the Contractor shall submit a good faith effort documenting the steps taken. Such documentation shall include, but not be limited to, the following:

- (1) Copies of written notification to MBEs/WBEs that their interest is solicited in contracting the work defaulted by the previous MBE/WBE or in subcontracting other items of work in the contract.
- (2) Efforts to negotiate with MBEs/WBEs for specific subbids including, at a minimum:
  - (a) The names, addresses, and telephone numbers of MBEs/WBEs who were contacted.
  - (b) A description of the information provided to MBEs/WBEs regarding the plans and specifications for portions of the work to be performed.
- (3) A list of reasons why MBE/WBE quotes were not accepted.
- (4) Efforts made to assist the MBEs/WBEs contacted, if needed, in obtaining bonding or insurance required by the Contractor.

(B) Decertification Replacement

- (1) When a committed MBE/WBE is decertified by the Department after the SAF (*Subcontract Approval Form*) has been received by the Department, the Department will not require the Contractor to solicit replacement MBE/WBE participation equal to the remaining work to be performed by the decertified firm. The participation equal to the remaining work performed by the decertified firm will count toward the contract goal requirement.
- (2) When a committed MBE/WBE is decertified prior to the Department receiving the SAF (*Subcontract Approval Form*) for the named MBE/WBE firm, the Contractor shall take all necessary and reasonable steps to replace the MBE/WBE subcontractor with another similarly certified MBE/WBE subcontractor to perform at least the same amount of work to meet the MBE/WBE goal requirement. If a MBE/WBE firm is not found to

do the same amount of work, a good faith effort must be submitted to NCDOT (see A herein for required documentation).

### **Changes in the Work**

When the Engineer makes changes that result in the reduction or elimination of work to be performed by a committed MBE/WBE, the Contractor will not be required to seek additional participation. When the Engineer makes changes that result in additional work to be performed by a MBE/WBE based upon the Contractor's commitment, the MBE/WBE shall participate in additional work to the same extent as the MBE/WBE participated in the original contract work.

When the Engineer makes changes that result in extra work, which has more than a minimal impact on the contract amount, the Contractor shall seek additional participation by MBEs/WBEs unless otherwise approved by the Engineer.

When the Engineer makes changes that result in an alteration of plans or details of construction, and a portion or all of the work had been expected to be performed by a committed MBE/WBE, the Contractor shall seek participation by MBEs/WBEs unless otherwise approved by the Engineer.

When the Contractor requests changes in the work that result in the reduction or elimination of work that the Contractor committed to be performed by a MBE/WBE, the Contractor shall seek additional participation by MBEs/WBEs equal to the reduced MBE/WBE participation caused by the changes.

### **Reports and Documentation**

A SAF (*Subcontract Approval Form*) shall be submitted for all work which is to be performed by a MBE/WBE subcontractor. The Department reserves the right to require copies of actual subcontract agreements involving MBE/WBE subcontractors.

When using transportation services to meet the contract commitment, the Contractor shall submit a proposed trucking plan in addition to the SAF. The plan shall be submitted prior to beginning construction on the project. The plan shall include the names of all trucking firms proposed for use, their certification type(s), the number of trucks owned by the firm, as well as the individual truck identification numbers, and the line item(s) being performed.

Within 30 calendar days of entering into an agreement with a MBE/WBE for materials, supplies or services, not otherwise documented by the SAF as specified above, the Contractor shall furnish the Engineer a copy of the agreement. The documentation shall also indicate the percentage (60% or 100%) of expenditures claimed for MBE/WBE credit.

### **Reporting Minority and Women Business Enterprise Participation**

The Contractor shall provide the Engineer with an accounting of payments made to all MBE and WBE firms, including material suppliers and contractors at all levels (prime, subcontractor, or second tier subcontractor). This accounting shall be furnished to the Engineer for any given month by the end of the following month. Failure to submit this information accordingly may result in the following action:

- (A) Withholding of money due in the next partial pay estimate; or
- (B) Removal of an approved contractor from the prequalified bidders' list or the removal of other entities from the approved subcontractors list.

While each contractor (prime, subcontractor, 2nd tier subcontractor) is responsible for accurate accounting of payments to MBEs/WBEs, it shall be the prime contractor's responsibility to report all monthly and final payment information in the correct reporting manner.

Failure on the part of the Contractor to submit the required information in the time frame specified may result in the disqualification of that contractor and any affiliate companies from further bidding until the required information is submitted.

Failure on the part of any subcontractor to submit the required information in the time frame specified may result in the disqualification of that contractor and any affiliate companies from being approved for further work on future projects until the required information is submitted.

Contractors reporting transportation services provided by non-MBE/WBE lessees shall evaluate the value of services provided during the month of the reporting period only.

At any time, the Engineer can request written verification of subcontractor payments.

The Contractor shall report the accounting of payments on the Department's DBE-IS (*Subcontractor Payment Information*) with each invoice. Invoices will not be processed for payment until the DBE-IS is received.

**Failure to Meet Contract Requirements**

Failure to meet contract requirements in accordance with Subarticle 102-15(J) of the *2012 Standard Specifications* may be cause to disqualify the Contractor.

**NO MAJOR CONTRACT ITEMS**

None of the items included in this contract will be major items.

**SPECIALTY ITEMS**

(7-1-95)

SP1 G37

None of the items included in this contract will be specialty items.



**Project Special Provisions  
Structures  
Table of Contents**

<b>Special Provisions</b>	<b>Page</b>
Scope of Work	2
Domestic Steel Products	2
Repair of the Damaged Steel Beams	3
Description of Damaged Durham County Bridge No. 44	9
Description of Damaged Vance County Bridge No. 14	19
Description of Damaged Vance County Bridge No. 42	27
Description of Damaged Wake County Bridge No. 69	37
Description of Damaged Wake County Bridge No. 138	62
Description of Damaged Wake County Bridge No. 211	84
Description of Damaged Wake County Bridge No. 227	98
Description of Damaged Wake County Bridge No. 533	108
Bid Items	132
Appendix I - Technical Specifications - FHWA	133
Appendix II - Existing Bridge Plans	137

## **Project Special Provisions**

### **SCOPE OF WORK**

This work is to permanently repair damaged bridge beams at bridge number 44 in Durham County, bridge numbers 14 and 44 in Vance County and bridge numbers 69, 138, 211, 227 & 533 in Wake County. The permissible methods of repairs will include flame straightening and welding. Replacement of damaged diaphragm, connection plates and high strength bolts may also be required. Removal of paint (including paint containing lead) and touch-up paint after repairs will also be the responsibility of the Contractor. Traffic control will be provided by the Department.

All work and materials shall be in accordance with the provisions of the General Guidelines of this contract, the Project Special Provisions, the North Carolina Department of Transportation Standard Specifications for Roads and Structures 2012, the North Carolina Department of Transportation Roadway Standards Drawings 2012, and the current edition of the Manual of Uniform Traffic Control Devices (MUTCD).

The Contractor shall keep himself fully informed of all Federal, State and local laws, ordinances, and regulations, and shall comply with the provisions of Section 107 of the Standard Specifications.

### **DOMESTIC STEEL PRODUCTS**

All steel products which are permanently incorporated into this project shall be produced in the United States except minimal amounts of foreign steel products may be used provided the combined project cost of the bid items involved does not exceed one-tenth of one percent (0.1 percent) of the total amount bid for the entire project or \$2,500.00, whichever is greater. This minimal amount of foreign produced steel products permitted for use by this Special Provision is not applicable to fasteners. Domestically produced fasteners are required for this project.

All steel products furnished as “domestic products” shall be melted, cast, formed, shaped, drawn, extruded, forged, fabricated, produced or otherwise processed and manufactured in the United States. Raw materials used in manufacturing “domestic” steel products may be imported; however, all manufacturing processes to produce the products must occur in the United States.

Before each steel product is incorporated into this project or included for partial payment on a monthly estimate, the Contractor shall furnish the Division Bridge Maintenance Engineer a notarized certification certifying that the product conforms to the requirements of this Special Provision. The Division Bridge Maintenance Engineer will forward a copy of each certification to the Materials and Test Unit.

Each purchase order issued by the Contractor or a subcontractor for steel products to be permanently incorporated into this project shall contain in bold print a statement advising the supplier that all manufacturing processes to produce the steel shall have occurred in the United States. The Contractor and all affected subcontractors shall maintain a separate file for steel products permanently incorporated into this project so that verification of the Contractor's efforts to purchase "domestic" steel products can readily be verified by an authorized representative of the Department.

### **REPAIR OF DAMAGED STEEL BEAMS**

All repairs shall be made in accordance with FHWA's "Guide for Heat-Straightening of Damaged Steel Bridge Members". It can be downloaded at:

<http://www.fhwa.dot.gov/BRIDGE/steel/index.cfm>

The work shall consist of, but not be limited to, furnishing all labor, materials, equipment and incidentals required to perform all operations in connection with the removal of all paint (including paint containing lead) as needed and repair by flame straightening and welding. Replacement of damaged diaphragm and connection plates may also be required. The intent of the work is to bring damaged beams back to the tolerances specified in Table A1 of the "Guide for Heat-Straightening of Damaged Steel Bridge Members". Tolerance limits may be relaxed by the Department's Engineer as specified in the "Guide for Heat-Straightening of Damage Steel Bridge Members". After repairs, touch-up painting shall be done on any steel exposed by the Contractor during his repair.

It is the desire of the Department that the repairs be made using "heat straightening" as defined in Chapter 2 of the "Guide for Heat-Straightening of Damaged Steel Bridge Members". "Hot mechanical straightening" should only be considered for non-load carrying elements when replacement or other methods are not viable. "Hot working" should not be used to repair damaged structural steel. Written authorization must be given by the Departments' Engineer before any "hot mechanical straightening" or "hot working" repairs are made, regardless of the size of the repair.

The Department is not aware of previous heat straightening repairs performed in the areas of damage included in this proposal. If the Contractor, upon closer investigation, determines multiple repairs have occurred in the area and that these repairs prevent the use of heat straightening, the method and cost of repair work will be by supplemental agreement.

### **Flame Straightening Requirements**

The Contractor shall inspect, identify and document all yield zones, yield lines and associated damage and provide this information to the Engineer prior to initiation of heat straightening by either visual inspection or measurements. NCDOT shall have staff on-site at all times during the heat straightening operations to provide inspection and technical support.

The heating patterns and torch paths **shall be laid out and approved by the Engineer** prior to application of heat. The heating steel temperature will be as specified in the "Guide for Heat-Straightening of Damaged Steel Bridge Members". NCDOT will test and provide the Contractor with the steel types of damaged bridge members. Monitoring of heating will be by heat sticks. Torch operator must be skilled and experienced at producing results that are free of wrinkles, cracks, bulges, and poor alignment. The Engineer **shall** require evidence of qualifications for the technicians involved in the conduct of the heat applications. These qualifications may include evidence of similar, prior work on equivalent structures, documented training in heat straightening and the ability to explain performance of their duties.

Vee heats should be confined to  $\frac{1}{2}$  the width of the flange. The opening width of Vee heats should be between 3" and 10" wide, and simultaneous Vee heats shall have a minimum spacing of 12 inches. A good rule of thumb is to limit the open end of the vee to 250mm (10 in) for one inch thick plates. However a smaller limit should be considered for progressively thinner plates. These limits will minimize distortion which might occur due to local buckling of the plate element.

### **Dimensional Tolerances**

The bottom flange tilt shall not exceed  $\frac{3}{8}$  inch. The bottom flange sweep shall not exceed  $\frac{1}{2}$  inch in 20 feet, nor  $\frac{1}{2}$ " to either side over the length of the beam. Web shall not be out of plumb by more than  $\frac{1}{4}$  inch. Localized web distortion shall not exceed  $\frac{1}{4}$  inch. The tolerances shall be measured without forces or additional constraint.

### **Nicks, Cracks, and Gouges Repair**

The defects on the bottom flanges and webs must be repaired by grinding or welding the dents to an acceptable contour or shape. Gouges less than  $\frac{3}{16}$  inch deep in the bottom flange surface shall be ground to a  $\frac{1}{10}$  slope with smooth finish. Gouges deeper than  $\frac{3}{16}$  inch shall be welded and ground flush. Cracks shall be removed by hand grinding, arc or flame gouging. Prior to arc or flame gouging, the work area must be heated to 150

F minimum. Also, any nicks or gouges on surfaces to be welded (such as from grinding or gouging) should be ground out prior to welding.

### **Effect of Heating**

Contractor must adequately support both sides of the damaged area of the flange(s) while heating or welding the area to prevent any sagging, deck cracking or possible girder failure.

### **Crack Injection**

Any separation of top flange from the deck above, as a result of the repair process, must be injected (by the contractor) with an NCDOT pre-approved epoxy grout to obtain full bearing of the slab on the top flange of the beam.

### **Partial Replacement**

The Engineer shall assist the Contractor in field locating the area to be removed and replaced. New replacement pieces shall match the thickness and other appropriate original dimensions of the existing members. Diaphragm and diaphragm connection plates may not be able to be repaired and may need to be replaced as part of this project. Replacement of those items should be included in the lump sum bid price for the specific bridge locations if anticipated by the Contractor.

To obtain straight, smooth and good fit for partial replacement sections, the Contractor shall preferably use mechanized cutting torch when cutting and removing the damaged portion of the flange in order to minimize the grinding or re-cutting of the same. The repaired girder section shall be inspected by NCDOT during fit-up and approved before welding the new section may begin. After approval of the fit-up section, weld fit-up section into place. Welding shall be performed by certified welders as specified in the Standard Specifications.

Since this repair involves working with an existing structure where the dimensions may vary throughout the structure, the Contractor should expect and shall be prepared to make alterations in the field. This includes, but not limited to, having qualified personnel on hand to perform necessary alterations and having extra material on hand (or the ability to procure extra material in a timely manner). All such alterations shall be brought to the attention of the Engineer and agreed upon prior to alteration.

If the Contractor properly performs the heat straightening repairs on the structural beams and it is determined that damage was more extensive or that the tolerance can not be met, partial replacement might be considered and would be included as a supplemental agreement. If partial replacement is required because of error or poor quality work on the

part of the Contractor, NCDOT will not consider this work supplemental and no additional compensation will be provided for this work.

### **Welding**

Preheat shall always be used when making weld repairs. Minimum preheat temperature shall be 300°F. Maximum preheat shall be 450°F.

Post heat temperature shall be 200 F degrees and it shall be maintained at this temperature for 1-1/2 hours. After this time period, the heat source should be removed and the weldment must be covered to cool down slowly to ambient temperature.

Prior to welding, the joint surface shall be cleaned by wire brush or light grinding to remove any rust that may have formed.

Welders must be qualified in all welding types and positions per Part B of Section 5 of the latest edition of AWS D1.5.

The shielded metal arc (covered electrode) shall be used. The Gas Metal Arc, or Metal Inert Gas (GMA or MIG), is not acceptable.

E7018 Low Hydrogen covered electrodes shall be used on AASHTO M270 Grades 36 & 50 and ASTM A-36 & A-572 steels.

E8018 Low Hydrogen covered electrodes shall be used on ASTM A-588 Grade 50W (Weathering) steel.

The minimum electrode size shall be 5/32" diameter, and special care must be taken to prevent moisture pickup when the container is opened.

The electrode should be kept in the oven at 250 F as soon as the can is opened and kept in the oven until ready to weld. The electrode should be warm to touch when used.

### **Peening Welds**

Peening of intermediate weld layers may be permitted. Prior approval is required before the contractor begins peening the welds.

### **Testing**

Magnetic testing and Ultrasonic testing on welded cracks, nicks, gouges will be done by NCDOT personnel.

**Bolts**

Contractor shall replace missing and/ or damaged bolts, washers, and nuts for connection of beams to diaphragms, channels, plates, or other members as designated by the Engineer. Bolts shall be high strength and shall meet the requirements of NCDOT Standard Specification Section 1072-5.

**Safety and Accident Protection- Section 107-21, NCDOT Standard Specifications**

The contractor shall comply with all applicable Federal, State and local laws, ordinance, and regulation governing safety, health, and sanitation, and shall provide all safeguards, safety devices, and protective equipment, and shall take any other needed actions, on his own responsibility that are reasonably necessary to protect the life and health of employees on the job and the safety of the public, and protect property in connection with the performance of the work covered by the contract.

**Lead Containment and Disposal**

The repair work shall be done in such a manner as not to introduce hazardous materials into the air, water or workers bodies, and that complies with all applicable laws and regulations, including those of OSHA & DENR.

No work shall begin until the Contractor furnishes the Engineer with a lead containment and disposal plan for all work on the bridge, and the engineer reviews and responds in writing about the acceptability of said plan. The plan shall describe how lead is contained and collected. Also, it should tell how the system would allow for such possibilities as receiving rainwater.

Disposal of lead shall be in accordance with the North Carolina Hazardous Waste Rules 15A NCAC 13A (see Section 442-13 of the NCDOT Std Specs).

The Contractor shall have a competent person on site whenever any lead removal process is going on. A competent person is able to both recognize a hazard and take the proper action to contain it. A supervisor (who is not working) is allowed to be the competent person, but a worker is not.

**Touch Up and Field Painting**

All touch-up and field painting shall be in accordance with NCDOT Standard Specification Section 442-11.

The contractor shall apply one primer coat to all steel left exposed by the repairs (the Department shall supply the paint). The Department shall apply all remaining coats of paint.

### **Required Submittals**

It is the intent of the Department that they have a clear understanding of the Contractor's work plan prior to the start of any heat straightening repairs. The following steps should be performed, documented and submitted to the Engineer for review and approval. No work shall begin before the work plan has been approved. Allow 5 days for review and approval of work plan.

- Analyze the degree of damage and maximum strains induced.
- Demarcate the regions for heat straightening repair.
- Select heating patterns and parameters.
- Develop a constraint plan and design the jacking restraint configuration.
- Estimate heating cycles required to straighten members.
- Prepare a step by step work plan and submit to the Engineer for review and approval (allow 5 days).

### **Basis of Inspection and Acceptance**

It is the intent of the Department that they have inspection staff on hand during the majority of the repair operations. The following items are some of the areas that will be observed and checked during repairs. The NCDOT will:

- Check for adherence to accepted heating patterns.
- Periodically check the jack gauges to insure that excessive force is not being applied before heating.
- Observe the color of the steel at the torch tip. Looking for a satiny silver halo at the tip in normal daylight lighting and for a slight dull red glow in low light.
- Verify reference points to measure movements by a taut line or straightedge.
- Insure that the Contractor is working safely and that jacks and other equipment are secured from falling.
- Testing by Liquid Penetrant, Magnetic-Particle, Ultrasonic or Radiographic examination shall be performed the Department's staff. If NCDOT forces are not available to perform testing, the Contractor may be asked to provide independent testing through supplemental agreement.

Final acceptance will be based on meeting the specified dimensional tolerances, as agreed upon by the Engineer, without exceeding temperature or restraint limitations.

### **Basis of Payment**

Payment will be made at the lump sum price bid for "Repairs to xx Co. Bridge No. xx". Such lump sum price shall be full compensation for all work, including but not limited to supervision, labor, materials, transportation, fuels, lubricants, repair parts, equipment,

machinery, tools, and incidentals necessary for the prosecution and completion of the work. Payments will be made to the Contractor for work accomplished and accepted.

Payment for this item will be made for as follows:

<b>Repairs to Durham Co. Bridge No. 44 .....</b>	<b>LS</b>
<b>Repairs to Vance Co. Bridge No. 14.....</b>	<b>LS</b>
<b>Repairs to Vance Co. Bridge No. 42 .....</b>	<b>LS</b>
<b>Repairs to Wake Co. Bridge No. 69.....</b>	<b>LS</b>
<b>Repairs to Wake Co. Bridge No. 138 .....</b>	<b>LS</b>
<b>Repairs to Wake Co. Bridge No. 211.....</b>	<b>LS</b>
<b>Repairs to Wake Co. Bridge No. 227 .....</b>	<b>LS</b>
<b>Repairs to Wake Co. Bridge No. 533.....</b>	<b>LS</b>

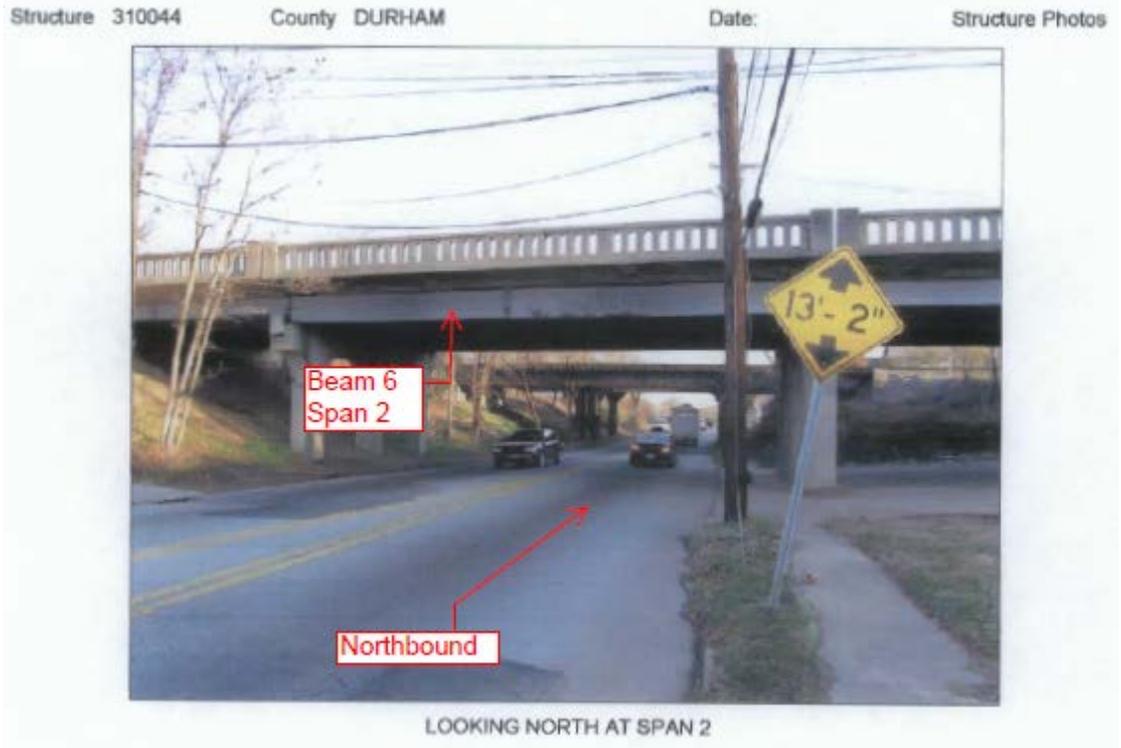
**DESCRIPTION OF DAMAGED BRIDGES**      *Refer to the plans in Appendix II*

Damaged beams, girders, diaphragms, bracings and connection plates due to vehicle impact for the following bridges:

**Durham County Bridge No. 44:** The bridge was built in 1951 and carries Pettigrew Street across NC55 in Durham. The superstructure consists of 4 spans total length 147 ft., 6 lines of W24x84 on span 1, W33x152 on span 2 and W27x94 on spans 3 &4. The following damage assessment items were deduced from the Damaged Inspection Report dated 1-19-2012:

- **Beam 6 span 2:** Bottom flange bent upward 2” and beam is out of plump 5 1/8” at the impacted area. Top of beam pulled away 1 1/4” from bottom of non-composite deck 18’ long. Outside diaphragm missing rivet. Inside diaphragm loose bolts. diaphragm connection has 8 1/8” vertical crack that is 3/16” wide at the bottom to hairline at the top.

All steel are assumed to be ASTM A36 and coated with Aluminum over red lead.









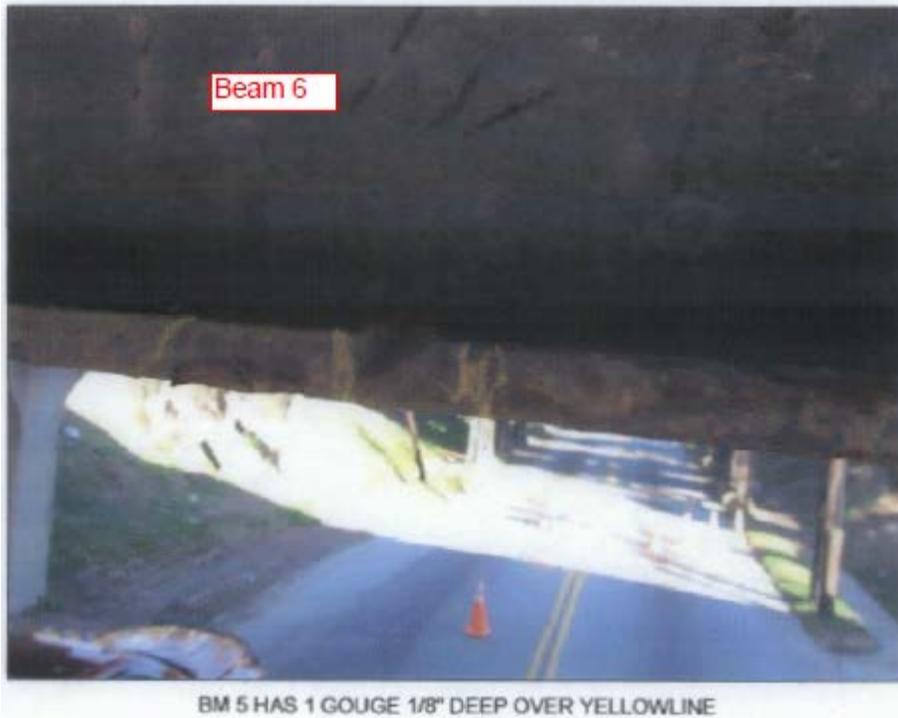


INSIDE OF BM 6 DIAPHRAGM E SIDE BOTTOM 2 BOLTS LOOSE & 1 BOLT LOOSE W SIDE



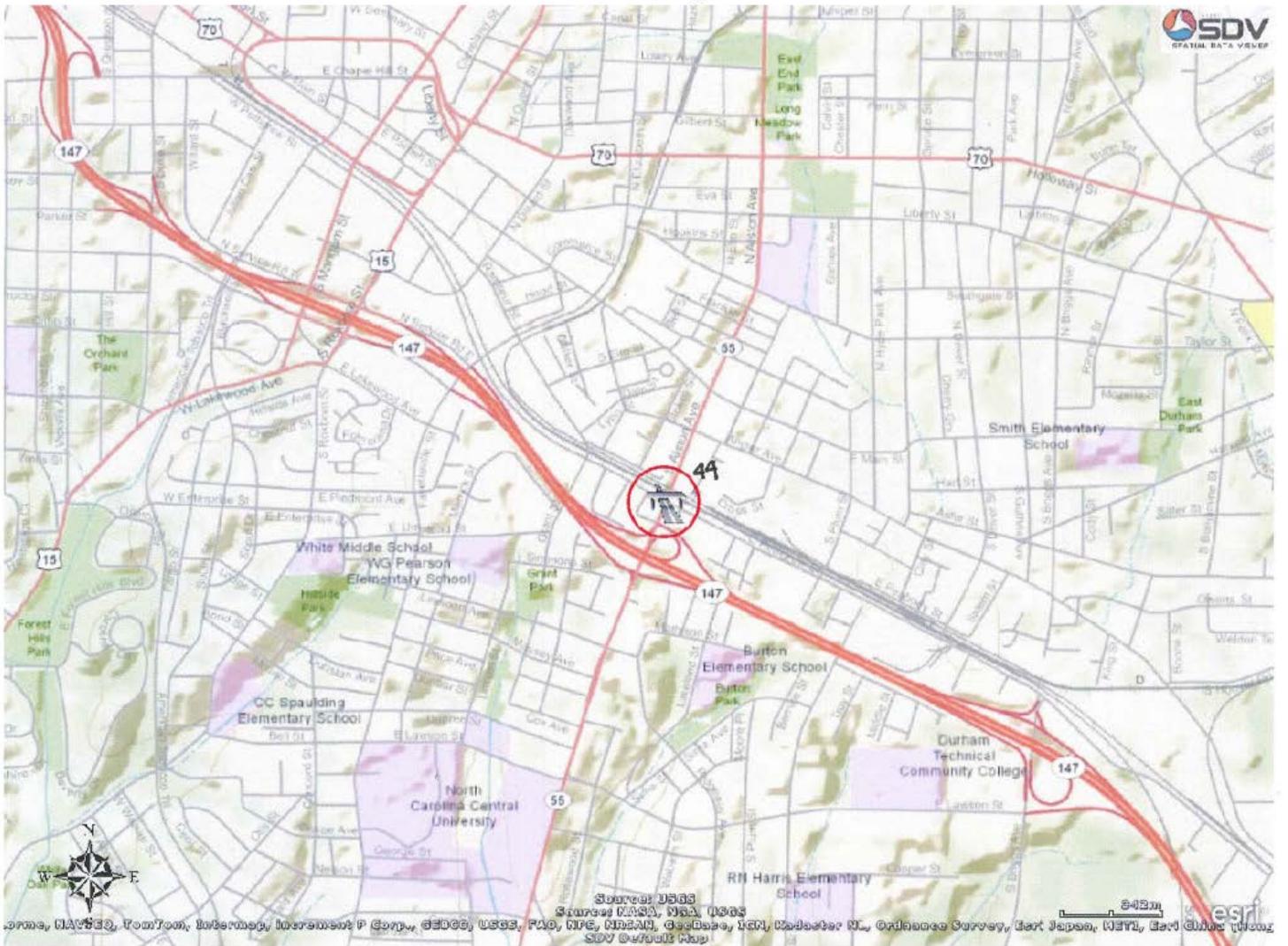
BM 6 DIAPHRAGM CONNECTION E SIDE HAS A 8 - 1/2" VERTICAL CRACK THAT IS 3/16" WIDE AT BOTTOM TO HAIRLINE AT TOP







### Durham Co. Bridge No. 44



**Vance County Bridge No. 14:** The bridge was built in 1955 and carries NC39 across US1 BYP in Henderson. The superstructure consists of 4 spans total length 180 ft., 7 lines of W33x130 on all spans. The following damage items were deduced from the Damaged Inspection Report dated 11-28-2011:

- **Beams 1 span 2:** Bottom flange and cover plate bent up ¼” and beam is out of plump ½” at the impacted area. Connection plate at intermediate diaphragm is bent 1” out of plane. There are several repair welds, from previous repairs, on the bottom flange cover plate adjacent to the impact and at the intermediate diaphragm and no cracks were found at the time of the inspection.
- **Beam 2, 3, 4, 5 & 6 span 2:** Minor scrape marks and indentions at the impacted area.
- **Beam 7 span 2:** There are two points of impact at bottom flange and cover plate bent up ½” at one point and 3/8” at the second point and beam is out of plum ¼” at both points as no indication of damages to the concrete deck due to impact.

There was no indication of damages to the concrete deck due to impact.

All steel are assumed to be ASTM A36 and coated with Aluminum over red lead.

Structure 900014

County VANCE

Date: 11/28/2011

Structure Photos



LOOKING EAST AT SPAN 2



POINT OF IMPACT ON BEAM 1 SPAN 2 AT 18'-7" NORTH OF BENT 1. NOTE WELD ON COVER PLATE FROM PREVIOUS REPAIR.



2" X 1" X 1/2" GOUGE AND 1" X 1/2" X 1/8" INDENTATION AT BEAM 1 POINT OF IMPACT.



BEAM 1 IS 1/2" OUT OF PLUMB AT THE POINT OF IMPACT.



BTM FLANGE & COVER PLATE OF BEAM 1 ARE BENT UP 1/4" AT THE POINT OF IMPACT.



CONNECTION PLATE IS BENT 1" OUT OF PLANE OVER BTM 14" ON INTERMEDIATE DIAPHRAGM 1 BAY 1 SPAN 2 AT BEAM 1.



CLOSE UP OF CONNECTION PLATE BENT 1" OUT OF PLANE OVER BTM 14" ON INTERMEDIATE DIAPHRAGM 1 BAY 1 SPAN 2 AT BEAM 1. NOTE WELDS FROM PREVIOUS REPAIR.



MINOR 1/16" DEEP INDENTATION IN COVER PLATE OF BEAM 3 SPAN 2 AT 19'-0" NORTH OF BENT 1



POINT OF IMPACT ON BEAM 4 SPAN 2 AT 19'-2" NORTH OF BENT 1 WITH 1" X 1/4" X 1/16" INDENTATION IN THE COVER PLATE.



POINT OF IMPACT ON BEAM 5 SPAN 2 AT 18'-8" NORTH OF BENT 1 WITH 1 1/4" X 1/8" X 1/16" INDENTATION IN THE COVER PLATE.



2 POINT OF IMPACT ON BEAM 7 SPAN 2 AT 17'-0" AND 18'-10" NORTH OF BENT 1.



BTM FLANGE AND COVER PLATE ARE BENT UP 1/2" AT 1ST POINT OF IMPACT.



BTM FLANGE AND COVER PLATE ARE BENT UP 3/8" AT 2ND POINT OF IMPACT.



- Beam 3 on span 2: Minor scrape marks at bottom stiffener plate.

There was no indication of damages to the concrete deck due to impact.

All steel are assumed to be ASTM A36 and coated with Foliage green (ALKYD) over red lead.

Structure 900042

County VANCE

Date: 04/26/2011

Structure Photos



LOOKING WEST AT SPAN 2



BEAM 4 IN SPAN 2 POINT OF IMPACT IS 18FT FROM BENT 1



BEAM 4 IN SPAN 2 IS BOWED 5 1/2" TO THE EAST FOR A LENGTH OF 10FT



33" LONG SMALL INDENTION 1/8" DEEP TO NOTHING IN BOTTOM FLANGE AND STIFFNER PLATE LOCATED 18 FT FROM BENT 1



BEAM 4 IN SPAN 2 OVER WEST BOUND LANE IS BOWED 3/4" TOWARDS THE WEST. (POINT OF IMPACT IS 16 FT FROM BENT 2)



CLOSE UP OF BEAM 4 IN SPAN 2 BOTTOM FLANGE AND STIFFNER PLATE SHOWING 1/8" INDENTATION AND INITIAL AREA OF IMPACT.



INTERMEDIATE DIAPHRAGM 1 IN BAY 3 SHOWS BUSTED CONNECTION.



INTERMEDIATE DIAPHRAGM 1 IN BAY 3 IS BUSTED AWAY FROM BEAM 4 AND HAS TOTAL OF 4 BOLTS MISSING.



INTERMEDIATE DIAPHRAGM 1 IN BAY 3 IS SEPERATED 2" FROM BEAM 4 IN SPAN 2



BEAM 4 BOTTOM FLANGE IN SPAN 2 IS BENT DOWN 1" FOR A LENGTH OF 7FT.



SCRAPE MARKS ON BOTTOM STIFFNER PLATE OF BEAM 4 IN SPAN 2 (SIMILAR TO A LESSER DEGREE ON BEAM 3)



OVERALL OF INTERMEDIATE DIAPHRAGM 1 CONNECTION ON EAST SIDE OF BEAM 4 SPAN 2 SHOWING TOTAL OF 4 BOLTS MISSING DUE TO IMPACT.



4 1/2" TEAR IN INTERMEDIATE DIAPHRAGM 2 BAY 3 CONNECTION PLATE. ( NOTE 1 BOLT LOOSE ON EACH SIDE OF THE TEAR, 2 BOLTS TOTAL)



LOOKING NORTH DOWN BEAM 4 IN SPAN 2 SHOWING THE OVERALL CURVATURE OF THE BEAM FROM OVER HEIGHT COLLISION.



BEAM 4 IN SPAN 2 OVER WEST BOUND LANE INITIAL START OF BEND IN BEAM IS 11 FT FROM BENT 2

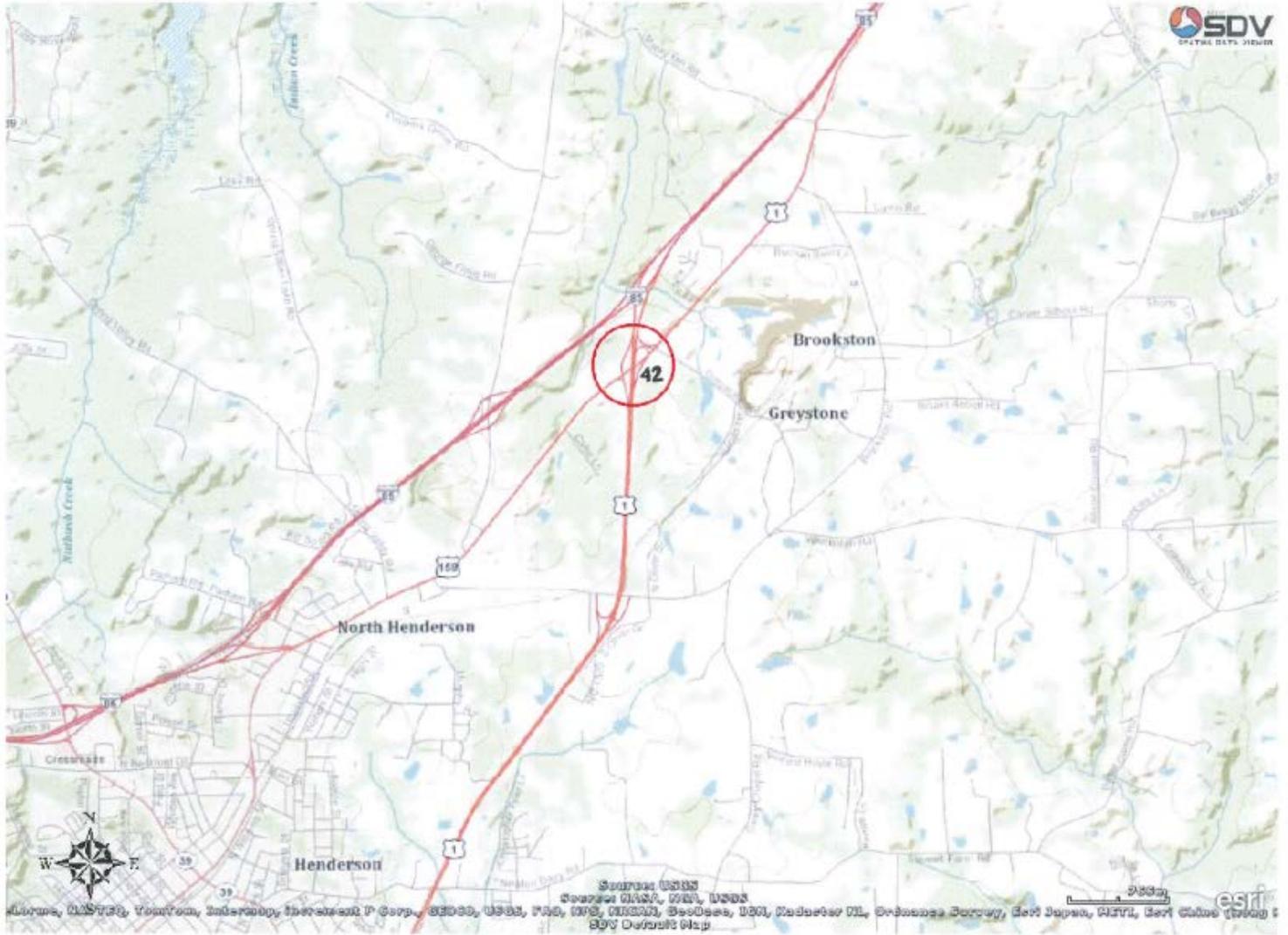


NUMEROUS INDENTIONS IN BTM FLANGE OF BEAM 4 SPAN 2 OVER WEST BOUND LANE RANGE FROM 1/4" TO 1/8" DEEP BY 1/4" TO 1 1/2" WIDE. FOR A 5FT AREA OF THE BEA



INTERMEDIATE DIAPHRAGM 2 CONNECTION IN BAY 3 TO BEAM 4 SHOWING TO BE CRACKED

### Vance Co. Bridge No. 42



**Wake County Bridge No. 69:** The bridge was built in 1952 and carries NC50 across US70 in Garner. The superstructure consists of 4 spans of total length 212 ft., 7 lines of W30 I beams on spans 1, 2 & 4; 2 lines of W30, 4 lines of W33 and 1 line of W27 I beams

on span 3. The following damage items were deduced from the Damaged Inspection Report dated 1-17-2012:

- **Beam 7 on span 3:** Bottom flange bent upwards 1" for length of 10". There is several gouges bottom flange stiffener plate. Concrete spall areas at the top flange for the full length of the beam and some areas exposing rebar.
- **Beam 6 on span 3:** Bottom flange and stiffener plate is bent upwards 1 ½" for length of 2 ft. . There are minor gouges and indention at the bottom flange stiffener plate.
- **Beam 5 on span 3:** Bottom flange and stiffener plate is bent upwards 1 ¼" for a length of 1 ft. and diagonal bracing is broken for 8" at the diaphragm connection plate. Bottom stiffener plate weld has 1" crack.
- **Beam 4 on span 3:** Bottom flange is bent upwards for ¾". The beam is out of plumb 1" toward the west. There are several gouges and indentions at the bottom flange. Broken weld at bottom of diaphragm connection plate and nuts are not fully threaded.
- **Beam 3 on span 3:** Bottom flange is bent upwards ¾" for a length of 4" and gouged. Broken weld at bottom of diaphragm connection plate.
- **Beam 2 on span 3:** Bottom flange is bent upwards 1 ¼" for a length of 4".
- **Beam 1 on span 2:** Bottom flange and stiffener plate is bent upwards for ½". The beam is out of plumb 1/2" toward the east for a length of 10'. There are several gouges and indentions at the bottom flange stiffener plate.

All steel are assumed to be ASTM A36 and coated with Aluminum over red lead.

Structure 910069

County WAKE

Date: 01/17/2012

Structure Photos

Beam 7  
W30x132  
Span 3



Westbound to Clayton

LOOKING WEST @ SPAN 3

Beam 1  
W30x132  
Span 2



Eastbound to Raleigh

LOOKING EAST @ SPAN 2.



BEAM 7 IN SPAN 3 SHOWS SEVERAL GOUGES IN BOTTOM FLANGE STIFFNER PLATE.



3" WIDE X 1/2" DEEP GOUGE IN BEAM 7 IN SPAN 3 BOTTOM FLANGE STIFFNER PLATE, LOCATED 19 FT 7" FROM SOUTH END OF BEAM 7.



2 GOUGES 2 1/2" WIDE X 3/16" DEEP IN BOTTOM FLANGE STIFFNER PLATE OF BEAM 7 SPAN 3 AND IS LOCATED 19FT 7" FROM SOUTH END OF BEAM 7.



BEAM 7 IN SPAN 3 HAS A 2" WIDE X 3/4" DEEP GOUGE IN BOTTOM FLANGE STIFFNER PLATE AND IS LOCATED 22 FT 8" FROM SOUTH EEND OF BEAM 7.



ATTACHED 13FT 6" CLEARANCE SIGN TO BEAM 7 WEB IS BENT AND FLAPPING AS BIG TRUCKS PASS UNDER THE BRIDGE. (ALSO HAS A 5" CRACK IN SIGN PANEL)



SPALLED AREAS AT TOP FLANGE OF BEAM 7 IN SPAN 3 ARE SPALLED FOR THE FULL LENGTH OF THE BEAM . (SOME AREAS EXPOSING REBAR)



BEAM 6 IN SPAN 3 HAS 2 GOUGES 2" WIDE X 3/16" DEEP IN BOTTOM FLANGE STIFFENER PLATE AND IS LOCATED 19 FT FROM SOUTH END OF BEAM 6.



WELDED AREA TO BOTTOM FLANGE OF BEAM 5, DIAGONAL BRACING IS BROKEN FOR 8" AT THE CONN. PLATE AND IS LOCATED @ BAY 5 SPAN 3 UNDER INTERMEDIATE DIAP. 2



BEAM 6 IN SPAN 3 BOTTOM FLANGE AND STIFFNER PLATE IS BOWED UPWARDS 1 1/2" FOR A LENGTH OF 2FT AND IS LOCATED 19FT FROM SOUTH END OF BEAM 6.



INTERMEDIATE DIAPHRAGM 2 IN BAY 5 SPAN 3 SHOWING IMPACT DAMAGE.



INTERMEDIATE DIAPHRAGM 2 IN BAY 5 SPAN 3 HAS A BROKEN WELD TO CONNECTION PLATE FOR A TOTAL LENGTH OF 8".



BEAM 5 IN SPAN 3 SHOWS DAMAGE TO BOTTOM FLANGE AND DIAGONAL BRACING.



BEAM 6 IN SPAN 3 BOTTOM FLANGE AND STIFFNER PLATE IS BOWED UPWARDS 1 1/2" FOR A LENGTH OF 2FT AND IS LOCATED 19FT FROM SOUTH END OF BEAM 6.



INTERMEDIATE DIAPHRAGM 2 IN BAY 5 SPAN 3 SHOWING IMPACT DAMAGE.



BEAM 5 IN SPAN 3 BOTTOM STIFFNER PLATE HAS A 1" CRACK IN STIFFNER PLATE WELD AND IS LOCATED 20FT FROM SOUTH END OF BEAM 5.



BEAM 5 IN SPAN 3 BOTTOM FLANGE AND STIFFNER PLATE IS BOWED UPWARDS 1 1/4" FOR A LENGTH OF 1 FT. POINT OF IMPACT IS 20FT FROM SOUTH END OF BEAM 5



BOTTOM FLANGE STIFFNER PLATE WELD TO BEAM 5 IN SPAN 3 IS SEPERATED FOR A LENGTH OF 13" AND IS LOCATED 20FT FROM SOUTH END OF BEAM 5.



BROKEN DIAGONAL BRACER WELD TO BOTTOM FLANGE OF BEAM 5 IN SPAN 3 BAY 5. (100% LOSS OF WELD)



BEAM 5 IN SPAN 3 HAS SEVERAL SMALL INDENTIONS AND SCRAPE MARKS RANGING FROM 1 1/2"-2 1/2" WIDE X 3/16" -1/4" DEEP.



BEAM 4 IN SPAN 3 SHOWS DAMAGE TO BOTTOM FLANGE.



BEAM 4 IN SPAN 3 HAS 3 1/2" WIDE X 1/2" DEEP GOUGE IN BOTTOM FLANGE STIFFNER PLATE AND IS LOCATED 15 FT 6" FROM SOUTH END OF BEAM 4.



BOTTOM FLANGE OF BEAM 4 IN SPAN 3 HAS SEVERAL SMALL INDENTIONS 1" WIDE X 3/16" DEEP AND IS LOCATED 14 FT FROM SOUTH END OF BEAM 4.



BOTTOM FLANGE OF BEAM 4 IN SPAN 3 IS BOWED UPWARDS FOR 3/4" AND IS LOCATED 20 FT FROM SOUTH END OF BEAM 4.



BEAM 4 IN SPAN 3 IS BOWED OUT OF PLUM 1" TOWARDS THE WEST @ POINT OF IMPACT 20 FT FROM SOUTH END OF BEAM 4.



3 NUTS ARE NOT FULLY THREADED AT INTERMEDIATE DIAPHRAGM 2 CONNECTION TO BEAM 4 WED IN BAY 4.



BEAM 3 IN SPAN 3 HAS 1 1/2" WIDE X 1/2" DEEP GOUGE IN BOTTOM FLANGE AND STIFFNER PLATE AND IS LOCATED 19 FT FROM SOUTH END OF BEAM 3.



INTERMEDIATE DIAPHRAGM 2 IN SPAN 3 BAY 3 AT BEAM 4 CONN. HAS BROKEN WELD AT BOTTOM OF DIAPHRAGM CONN. PLATE. (SIMILAR AT CONN. TO BEAM 3)



OVER ALL OF INTERMEDIATE DIAPHRAGM 2 IN BAY 3 AT BEAM 4 CONNECTION (BROKEN WELD)



Beam 3  
Span 3

BEAM 3 IN SPAN 3 BOTTOM FLANGE AND STIFFNER PLATE IS BOWED UPWARDS 3/4" FOR A LENGTH OF 4" LOCATED 20 FT FROM SOUTH END OF BEAM 3.



Beam 2 Span 3

BEAM 2 IN SPAN 3 SHOWING DAMAGE TO BOTTOM FLANGE.



BOTTOM FLANGE OF BEAM 2 IN SPAN 3 IS BOWED UPWARDS 1 1/4" FOR A LENGTH OF 4" AND IS LOCATED 14 FT 5" FROM SOUTH END OF BEAM 2.



BEAM 1 IN SPAN 3 SHOWS NO NEW DAMAGE ONLY 1 SMALL INDENTION AND NEW PAINT ON REPAIRED AREAS.



BEAM 6 IN SPAN 3 HAS SMALL INDENTION ON BOTTOM FLANGE STIFFNER PLATE 2 1/2" WIDE X 3/16" DEEP & LOCATED 32FT FROM SOUTH END OF BEAM 6.



TOP OF DECK OVER SPAN 3 SHOWS NO DAMAGE, ONLY NORMAL WEAR TO WEARING SURFACE.



BEAM 1 IN SPAN 2 SHOWS DAMAGE TO BOTTOM FLANGE AND STIFFNER PLATE



3" WIDE X 3/4" DEEP GOUGE IN BEAM 1 BOTTOM FLANGE STIFFNER PLATE IN SPAN 2 IS LOCATED 26 FT FROM NORTH END OF BEAM 1.



BEAM 1 IN SPAN 2 BOTTOM FLANGE AND STIFFNER PLATE IS BOWED UPWARDS 1/2".



THERE IS A 3" LONG X 3/16" DEEP GOUGE IN BEAM 1 IN SPAN 2 BOTTOM FLANGE STIFFNER PLATE AND IS LOCATED 26' 6" FROM NORTH END OF BEAM 1.



BEAM 1 IN SPAN 2 IS OUT OF PLUM 1/2" TOWARDS THE EAST FOR A LENGTH OF 10 FT.



Beam 1 Span 2

BEAM 7 IN SPAN 2 SHOWING DAMAGE TO BOTTOM FLANGE AND STIFFNER PLATE.

Beam 1



**Beam 1** - BEAM 7 IN SPAN 2 BOTTOM FLANGE STIFFNER PLATE WELD IS CRACKED AND SEPERATED FOR 11" LONG X 1/16" WIDE AND IS LOCATED 23' 5" FROM NORTH END OF BEAM 7.



**Beam 1** BOTTOM FLANGE OF BEAM 7 IN SPAN 2 IS BOWED UPWARDS 1" FOR A LENGTH OF 10" AND IS LOCATED 23' 5" FROM NORTH END OF BEAM 1.



THERE IS A 5" LONG X 2" WIDE X 3/16" DEEP GOUGE IN BOTTOM FLANGE STIFFNER PLATE OF BEAM-7 IN SPAN 2 LOCATED 23' 5" FROM NORTH END OF BEAM 7.

Beam 1



girders at each side of the bridge. The following damage items were deduced from the Damaged Inspection Report dated 12-14-2011:

- **Girder 1 on span 2:** Indention at the bottom flange and web. The girder is rotated and out of plumb 2 7/8". Intermediate diaphragm 1 bay 1 channel and connection plate are bent 3/4" out of plane. Intermediate diaphragm 2 bay 1 channel and connection plate are bent 1 1/2" out of plane. Intermediate diaphragm 3 bay 1 channel and connection plate are bent 3 1/2" out of plane, connection plate is completely separated from the bottom flange weld and 3/8" crack at to the web weld.
- **Beam 4 on span 2:** bottom flange cover plate weld has long crack and gouges. Web is wrapped around the diaphragm connection adjacent to the point of impact. Intermediate diaphragm 3 bay 3 all channel bolts are missing. Diaphragm 3 bay 4 has a 3 11/16" crack at base of connection plate. Diaphragm 4 bay 4 has 8 1/2" crack from bottom up of connection plate, top channel has 1/4" crack in weld, channel and connection plate are bent 9" out of plane. Bolt is broken on channel connection of the intermediate diaphragm 4 bay 3.
- **Beam 5 on span 2:** Intermediate diaphragm connection plate is bent 1 1/2" out of plane top 10" of beam.

There was no indication of damages to the concrete deck due to impact.

All steel are assumed to be ASTM A36 and coated with Aluminum over red lead.

Structure 910138

County WAKE

Date: 12/14/2011

Structure Photos



LOOKING EAST AT SPAN 2



THERE ARE UP TO 1/8" INDENTIONS IN THE BTM FLANGE OF GDR 1 OVER A 2' AREA AT THE POINT OF IMPACT.



GDR 1 IS 2 7/8" OUT OF PLUMB AT THE POINT OF IMPACT AND THE GDR IS ROTATED CCW.



3 - 1/16" INDENTIONS IN THE BTM FLANGE OF GDR 1 AT 42'-0" NORTH OF BENT 1 OVER LANE 1. THIS AREA APPEARS TO BE FROM A PREVIOUS IMPACT.



LOOKING NORTH ALONG BTM FLANGE OF GDR 1 AT THE POINT OF IMPACT.



INTERMEDIATE DIAPHRAGM 1 BAY 1 SPAN 2 AT GDR 1.



CONN. PLATE IS BENT APPROX. 3/4" OUT OF PLANE ON INTERMEDIATE DIAPHRAGM 1 BAY 1 SPAN 2 AT GDR



POSSIBLE CRACK AT TOP OF CONN. PLATE ON INTERMEDIATE DIAPHRAGM 1 BAY 1 SPAN 2 AT GDR 1.



POSSIBLE CRACKS IN CONN. PLATE ADJACENT TO BTM BOLT ON INTERMEDIATE DIAPHRAGM 1 BAY 1 SPAN 2 AT GDR 1.



TOP OF CONN. PLATE PREPPED FOR DYE TEST ON INTERMEDIATE DIAPHRAGM 1 BAY 1 SPAN 2 AT GDR 1.



CENTER OF CONN. PLATE PREPPED FOR DYE TEST ON INTERMEDIATE DIAPHRAGM 1 BAY 1 SPAN 2 AT GDR 1. NOTE THE STRESS LINES THAT APPEAR IN THE STEEL.



NEGATIVE DYE TEST AT TOP OF CONN. PLATE ON INTERMEDIATE DIAPHRAGM 1 BAY 1 SPAN 2 AT GDR 1.



NEGATIVE DYE TEST AT CENTER AREA OF CONN. PLATE ON INTERMEDIATE DIAPHRAGM 1 BAY 1 SPAN 2 AT GDR 1.



INTERMEDIATE DIAPHRAGM 2 BAY 1 SPAN 2 AT GDR 1



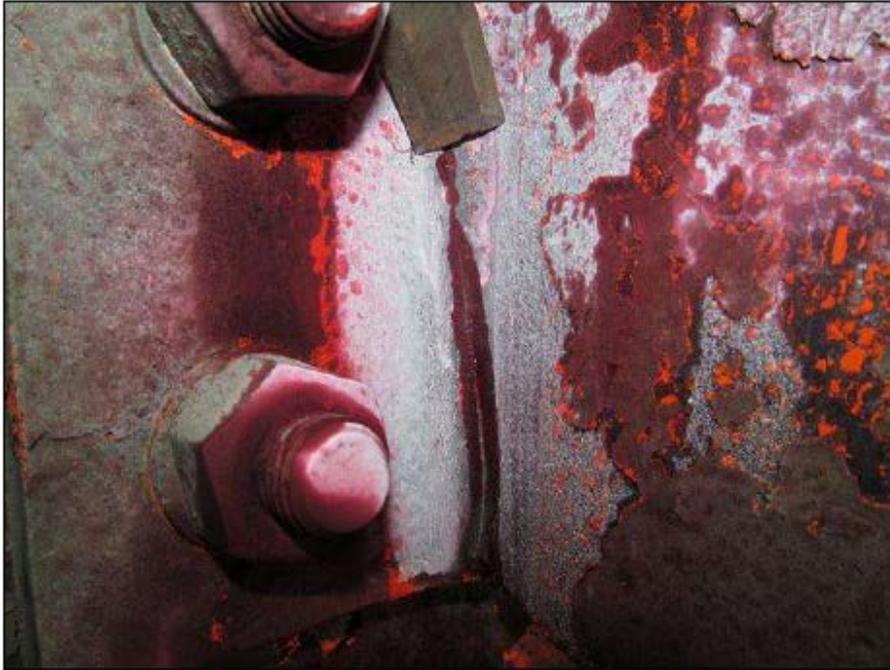
CHANNEL & CONN. PLATE ARE BENT APPROX. 1 1/2" OUT OF PLANE ON INTERMEDIATE DIAPHRAGM 2 BAY 1 SPAN 2 AT GDR 1.



INTERMEDIATE DIAPHRAGM 3 BAY 4 SPAN 2 AT BEAM 4



CRACK AT BASE OF CONN. PLATE ON INTERMEDIATE DIAPHRAGM 3 BAY 4 SPAN 2 AT BEAM 4.



3 11/16" CRACK AT BASE OF CONN. PLATE AFTER DYE TEST ON INTERMEDIATE DIAPHRAGM 3 BAY 4 SPAN 2 AT BEAM 4.



INTERMEDIATE DIAPHRAGM 3 BAY 1 SPAN 2 AT GDR 1



BENT CHANNEL AND CONN. PLATE ON INTERMEDIATE DIAPHRAGM 3 BAY 1 SPAN 2 AT GDR 1.



3/8" CRACK AT BASE OF CONN. PLATE TO WEB WELD ON INTERMEDIATE DIAPHRAGM 3 BAY 1 SPAN 2 AT GDR 1.



CONN. PLATE IS COMPLETELY SEPARATED FROM THE BTM FLANGE WELD ON INTERMEDIATE DIAPHRAGM 3 BAY 1 SPAN 2 AT GDR 1.



AT LEAST 1 BOLT IS BROKEN ON CHANNEL CONNECTION OF INTERMEDIATE DIAPHRAGM 4 BAY 3 SPAN 2 AT BEAM 4. THIS DIAPHRAGM WAS NOT ACCESSIBLE DURING INSP.



CHANNEL & CONN. PLATE ARE APPROX. 3 1/2" OUT OF PLANE ON INTERMEDIATE DIAPHRAGM 3 BAY 1 SPAN 2 AT GDR 1.



6" DIAM. AREA INDENTED 3/8" IN WEB OF **GDR 1** WHERE DIAPHRAGM CHANNEL HIT GDR.



INTERMEDIATE DIAPHRAGM 4 BAY 1 SPAN 2 AT GDR 1 APPEARS TO BE BENT BUT IS NOT ACCESSIBLE DUE TO TRAFFIC.



INTERMEDIATE DIAPHRAGM 3 BAY 3 SPAN 2 AT BEAM 4



ALL CHANNEL BOLTS ARE MISSING AT BEAM 4 SIDE OF INTERMEDIATE DIAPHRAGM 3 BAY 3 SPAN 2.



POINT OF IMPACT ON BEAM 4 SPAN 2 AT 58'-8" NORTH OF BENT 1. DAMAGE TO BEAM 4 EXTENDS FROM BENT 1 TO 2ND BOLTED FIELD SPLICE.



Beam 4 Span 2

15" X 1" X 1/8" GOUGE IN COVER PLATE OF BEAM 4 AT THE POINT OF IMPACT.



COVER PLATE WELD IS CRACKED & CRACK IN THE BTM FLANGE OF BEAM 4 AT THE POINT OF IMPACT.



6" X 3/4" X 1 1/4" & 11 1/4" X 7/8" X 7/8" GOUGES IN COVER PLATE OF BEAM 4 2' SOUTH OF THE POINT OF IMPACT.



WEB OF BEAM 4 IS WRAPPED AROUND THE DIAPHRAGM CONN. ADJACENT TO THE POINT OF IMPACT.



DYE TEST SHOWING FULL DEPTH CRACK IN BTM FLANGE OF BEAM 4 AT THE POINT OF IMPACT.



10 3/8" LONG CRACK IN THE BTM FLANGE COVER PLATE WELD ON BEAM 4 AT THE POINT OF IMPACT.



INTERMEDIATE DIAPHRAGM 4 BAY 4 SPAN 2 AT BEAM 4



CONN. PLATE IS CRACKED FROM BTM UP 8 1/2" AT BEAM 4 ON INTERMEDIATE DIAPHRAGM 4 BAY 4 SPAN 2.



1/4" CRACK IN WELD AT TOP OF CHANNEL AT **BEAM 4** ON INTERMEDIATE DIAPHRAGM 4 BAY 4 SPAN 2.



CHANNEL & CONN. PLATE IS BENT APPROX. 9° OUT OF PLANE AT BEAM 4 ON INTERMEDIATE DIAPHRAGM 4 BAY 4 SPAN 2.



CONN. PLATE IS BENT 1 1/2" OUT OF PLANE OVER TOP 10" AT BEAM 5 ON INTERMEDIATE DIAPHRAGM 4 BAY 4 SPAN 2.



BEAM 4 IS 7 1/2" OUT OF PLUMB AT THE POINT OF IMPACT.



length 208 ft., 6 lines of W36x150 on all spans. The following damage items were deduced from the Damaged Inspection Report dated 5-3-2011:

- **Beams 1 on span 2:** bottom flange has bents towards the underside of deck at 3 locations measuring 2", 1 ¼" and ½" and beam is out of plumb ½" toward the south for a length of 3 ft. Gouges and indentions are found in these locations. Bottom flange stiffener plate has 1 ½" crack along weld. Overhead sign lower angle connection bar is bent 5 ½" upwards for a length of 7 ft. Overhead sign lower diagonal bracing is bent 2" upwards for a length of 5 ft. Intermediate diaphragm 2 bay 1 is bent 1" toward east for a total length of 2 ft.
- **Beam 2 on span 2:** Bottom flange is bent ½" towards the ground for 6" long.
- **Beam 3 on span 2:** Bottom flange is bent upwards toward the underside of deck with ¼" indentation.

There was no indication of damages to the concrete deck due to impact.

All steel are assumed to be ASTM A36 and coated with Foliage green (ALKYD) over red lead.

Structure 910211

County WAKE

Date: 05/03/2011

Structure Photos



LOOKING SOUTH @ SPAN 2



UNDERSIDE OF BEAM 1 BOTTOM FLANGE IN SPAN 2



BOTTOM FLANGE OF BEAM 1 IN SPAN 2 IS BENT TOWARDS THE UNDERSIDE OF DECK 2" LOCATED 18 FT FROM INTERIOR BENT 1.



OVER ALL OF BEAM 1 SPAN 2 SHOWING IMPACT DAMAGE, POINT OF IMPACT IS 17 FT FROM INTERIOR BENT 1



BEAM 1 IN SPAN 2 IS OUT OF PLUMB 1/2" TOWARDS THE SOUTH FOR A LENGTH OF 3 FT.



1 1/4" WIDE X 3/4" DEEP INDENTATION IN BEAM 1 SPAN 2 BOTTOM FLANGE LOCATED 17FT FROM INTERIOR BENT 1



BOTTOM FLANGE OF BEAM 1 IN SPAN 2 SHOWING AREA IF IMPACT DAMAGE POINT OF IMPACT IS 24FT FROM INTERIOR BENT 1



BEAM 1 BTM FLANGE IN SPAN 2 IS BENT 1 1/4" UPWARDS TOWARDS THE UNDERSIDE OF DECK & HAS A SMALL 3/4" W X 1/2" D GOUGE LOCATED 24FT FROM INTERIOR BENT 1



BEAM 1 BOTTOM FLANGE IN SPAN 2 HAS A 1 1/2" LONG CRACK IN STIFFNER PLATE WELD TO BOTTOM FLANGE AND IS LOCATED 24 FT FROM INTERIOR BENT 1.



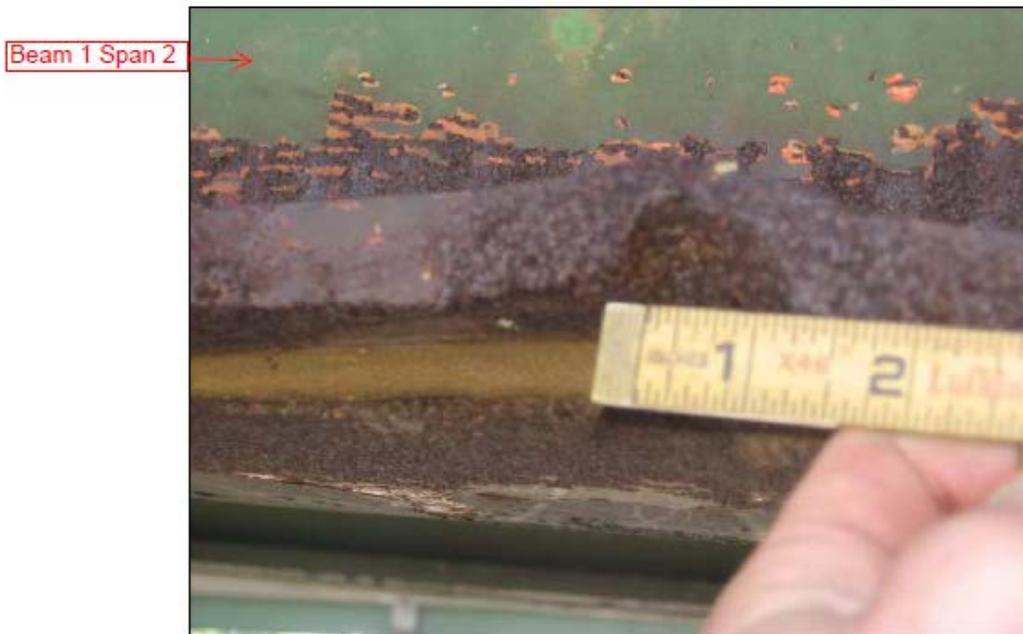
OVERALL OF BEAM 1 BOTTOM FLANGE IN SPAN 2 SHOWING CRACK IN STIFFNER PLATE WELD TO BOTTOM FLANGE AND IS LOCATED 24 FT FROM INTERIOR BENT 1.



BEAM 1 BOTTOM FLANGE IN SPAN 2 SHOWING IMPACT DAMAGE AND POINT OF IMPACT 28 FT FROM INTERIOR BENT 1.



BOTTOM FLANGE OF BEAM 1 IN SPAN 2 IS BENT 1/2" UP TOWARDS THE UNDERSIDE OF DECK FOR A LENGTH OF 6" AND LOCATION IS 28 FT FROM INTERIOR BENT 1.



1" WIDE X 1/4" DEEP GOUGE IN BEAM 1 SPAN 2 BOTTOM FLANGE LOCATED 28 FT FROM INTERIOR BENT 1.



OVERALL OF OVERHEAD SIGN CONNECTION TO BEAM 1 IN SPAN 2 SHOWS BENT LOWER ANGLE BRACING.  
(NOTE: SIGN IS LOCATED OVER EXIT RAMP)



BOTTOM ANGLE BAR CONNECTION TO I-BAR IS BOWED 5 1/2" UPWARDS FOR A LENGTH OF 7FT.



OVERALL OF LOWER ANGLE BAR TO I-BAR CONNECTION IS BENT IS SHOWING TO BE BENT FOR WHOLE LENGTH OF ANGLE.



LOWER DIAGONAL BRACING TO BEAM 1 SPAN 2 BOTTOM FLANGE AND SIGN I-BAR CONNECTION. ( EAST SIDE OF SIGN )



LOWER DIAGONAL BRACE TO BEAM 1 SPAN 2 CONNECTION ON EAST SIDE OF SIGN IS BENT UPWARDS 2" FOR A TOTAL LENGTH OF 5 FT.



INTERMEDIATE DIAPHRAGM 2 SPAN 2 IN BAY 1 IS BOWED



INTERMEDIATE DIAPHRAGM 2 SPAN 2 IN BAY 1 IS BOWED 1" TOWARDS THE EAST FOR A TOTAL LENGTH OF 2 FT.



OVER ALL OF BEAM 2 BOTTOM FLANGE IN SPAN 2 SHOWING IMPACT DAMAGE 17 FT FROM INTERIOR BENT  
1



BEAM 2 BOTTOM FLANGE IN SPAN 2 IS BENT TOWARDS THE GROUND 1/2" FOR 6" LONG AND IS LOCATED 17 FT FROM INTERIOR BENT 1.



BEAM 3 BOTTOM FLANGE IN SPAN 2 SHOWING IMPACT DAMAGE AND POINT OF IMPACT IS 26 FT FROM INTERIOR BENT 1.



BEAM 3 BTM FLANGE IN SPAN 2 HAS 3/4" WIDE X 1/4" DEEP INDENTION AND IS BENT UPWARDS TOWARDS THE UNDERSIDE OF DECK, LOCATED 26 FT FROM INTERIOR BENT 1



**Wake County Bridge No. 227:** The bridge was built in 1948 and carries US70 across Peace Street in Raleigh. The superstructure consists of 3 spans continuous of total length 137 ft., 10 lines of various continuous I beams. The following damage items were deduced from the Damaged Inspection Report dated 10-24-2011:

- **Beam 7 on span 2:** Bottom flange is bent 2 ¼” downwards for a length of 1 ft. and 4” out of plumb toward the east for a length of 12 ft.
- **Beam 8 on span 2:** Bottom flange is bent 3/16” upwards for a length of 6”. With indentation.
- **Beam 9 on span 2:** Bottom flange is bent 1 ¾” upwards for a length of 8” with gouges and is 2 ¾” out of plumb towards the east for a length of 18 ft.
- **Beam 10 on span 2:** Bottom flange has bents at 2 locations measuring ½” upwards for a length of 2 ft. and measuring 1 ½” upwards for a length of 1 ft. with indentation in the web. The beam is out of plumb ½” toward the east for a length of 10 ft.

There was no indication of damages to the concrete deck due to impact.

All steel are assumed to be ASTM A36 and coated green vinyl over zinc.

Structure 910227

County WAKE

Date: 01/18/2012

Structure Photos



LOOKING EAST @ SPAN 2



BEAM 7 IN SPAN 2 SHOWING DAMAGE TO BOTTOM FLANGE.



BOTTOM FLANGE OF BEAM 7 IN SPAN 2 IS BOWED DOWNWARDS 2 1/4" FOR A LENGTH OF 1 FT AND IS LOCATED 23 FT FROM SOUTH END OF BEAM 7.



BEAM 7 IN SPAN 2 IS BOWED 4" OUT OF PLUM TOWARDS THE EAST FOR A LENGTH OF 12FT OF THE BEAM, POINT OF IMPACT IS 23 FT FROM SOUTH END OF BEAM 7.



BEAM 8 IN SPAN 2 BOTTOM FLANGE HAS A 1 1/2" WIDE X 3/16" DEEP INDENTION AND IS LOCATED 23FT FROM SOUTH END OF BEAM 8.



BEAM 8 IN SPAN 2 BOTTOM FLANGE IS BOWED UPWARDS 3/16" FOR A LENGTH OF 6" AND IS LOCATED 23 FT FROM SOUTH END OF BEAM 8. (NOTE: BEAM IS PLUMB)



BEAM 9 IN SPAN 2 SHOWING OVER ALL OF IMPACT DAMAGE.



BEAM 9 IN SPAN 2 HAS TWO SMALL GOUGES 1/2" WIDE X 3/16" DEEP AND IS LOCATED 21FT FROM SOUTH END OF BEAM 9.



BEAM 10 IN SPAN 2 BOTTOM FLANGE IS BOWED UPWARDS 1 1/2" FOR A LENGTH OF 1 FT AND IS LOCATED 10 FT FROM SOUTH END OF BEAM 10.



BEAM 9 BOTTOM FLANGE IN SPAN 2 IS BOWED UPWARDS 1 3/4" FOR A LENGTH OF 8" AND IS LOCATED 22FT FROM SOUTH END OF BEAM 9.



BEAM 9 IN SPAN 2 IS BOWED 2 3/4" TOWARDS THE EAST FOR A LENGTH OF 18FT



BEAM 10 IN SPAN 2 SHOWING OVER ALL OF IMPACT DAMAGE.



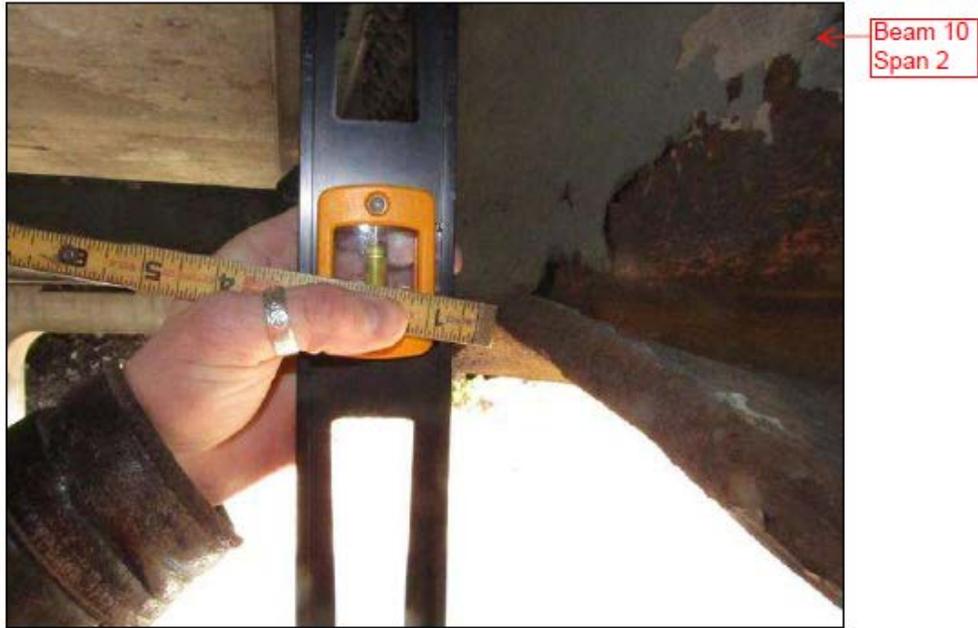
BEAM 10 IN SPAN 2 BOTTOM FLANGE IS BOWED UPWARDS 1/2" FOR A LENGTH OF 2 FT AND IS LOCATED 23 FT FROM SOUTH END OF BEAM 10.



BEAM 10 IN SPAN 2 HAS AN INDENTION IN WEB THAT IS 8" WIDE X 15" LONG X 1 1/4" DEEP AND IS LOCATED ON THE BEAM 27FT FROM SOUTH END OF BEAM 10.

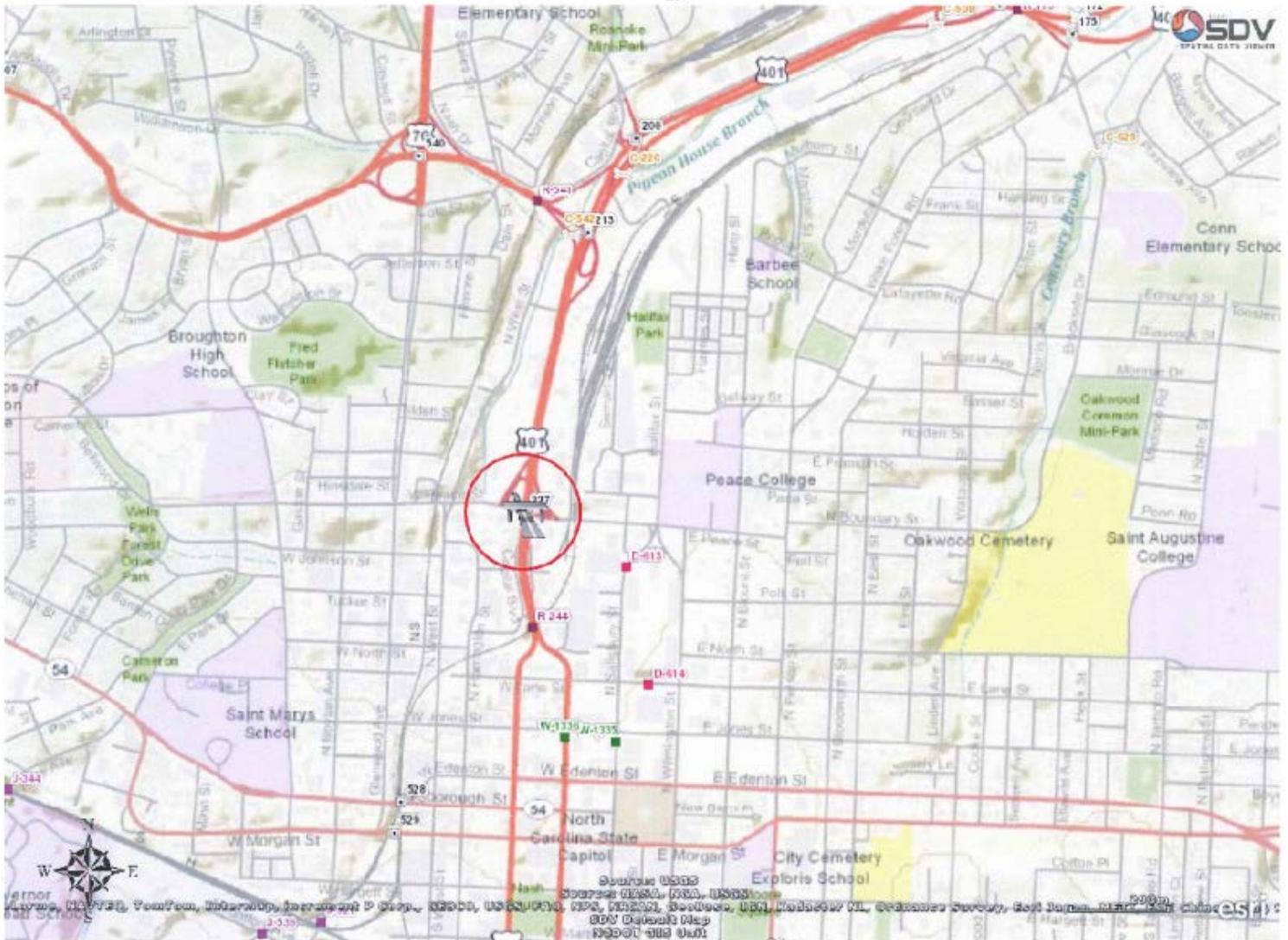


BEAM 10 IN SPAN 2 SHOWING OVER ALL DAMAGE TO BOTTOM FLANGE.



BEAM 10 IN SPAN 2 IS BOWED 1/2" TOWARDS THE EAST AT POINT OF IMPACT OF 10 FT FROM SOUTH END OF BEAM 10.

### Wake Co. Bridge No. 227



**Wake County Bridge No. 533:** The bridge was built in 1952 and carries Pullen road across SR1012 (Western Blvd) in Raleigh. The superstructure consists of 3 spans of total length 118 ft., 5 lines of W24x94 on spans 1 & 3, 5 lines of W27x94 on span 2. The

following damage items were deduced from the Damaged Inspection Report dated 5-2-2011:

- **Beams 5 on span 2:** The bottom flange is bent 2 3/4" upwards over 3 ft. and bent 13/16" downwards opposite of the point of impact and has gouge and indention. Beam is 6" out of plumb for full length of the beam. Connection plate and channel of intermediate diaphragm in Bay 4 is 9" out of plumb.
- **Beam 4 on span 2:** The bottom flange is bent 2 1/8" upwards over 2.5 ft. and bent 1/2" downwards opposite of the point of impact and has gouges. Beam is 2 3/8" out of plumb from intermediate diaphragm to the end of the beam. 12" crack in the bottom flange cover plate weld. 5/16" crack at base of connection plate on intermediate diaphragm in bay 4 and is 1/2" out of plumb. Connection plate base at the intermediate diaphragm bay 3 is bent and has 1/8" hairline crack and is 3/8" out of plumb.
- **Beam 3 on span 2:** The bottom flange is bent 1" upwards over 1.5 ft. and bent 1/4" downwards opposite of the point of impact and has gouges. Beam is 2 3/16" out of plumb from intermediate diaphragm to the end of the beam. Bottom of flange has several cracks varies from 1/4" to 2 1/2". The bottom flange cover plate weld has 2 1/4" crack at the point of impact.
- **Beam 1 on span 2:** The bottom flange is bent 1 1/2" upwards over 2 ft. and bent 1/2" downwards opposite of the point of impact. Beam is 2 3/16" out of plumb from intermediate diaphragm to the end of the beam. Bottom flange cover plate weld has 2" hairline crack at the point of impact.

There are random spalls up to 3/8" deep in the bottom of deck adjacent to beams 1, 3 & 5. The largest of these spalls is 6" in diameter.

All steel are assumed to be ASTM A36 and coated with Foliage green (ALKYD) over red lead.

Structure 910533

County WAKE

Date: 05/02/2011

Structure Photos

Beam 5  
W27x94  
Span2



Westbound

LOOKING WEST AT SPAN 2



Beam 5 Span 2

POINT OF IMPACT ON BEAM 5 IN SPAN 2 22' SOUTH OF BENT 2.



BEAM 5 SPAN 2 IS 6" OUT OF PLUMB AT THE POINT OF IMPACT.



Beam 5 Span 2

BTM FLANGE OF BEAM 5 SPAN 2 IS BENT UP 2 3/4" OVER 3' AT THE POINT OF IMPACT.



14" CRACK IN BTM FLANGE COVER PLATE WELD AT THE POINT OF IMPACT ON BEAM 5 SPAN 2.



FULL DEPTH GOUGE IN THE BTM FLANGE COVER PLATE EXTENDING 5" ACROSS THE BTM OF THE PLATE AT THE POINT OF IMPACT ON **BEAM 5 SPAN 2.**



2 1" WIDE X 1/8" DEEP GOUGES IN THE BTM FLANGE COVER PLATE OF BEAM 5 SPAN 2 19' SOUTH OF BENT  
2



BTM FLANGE OF BEAM 5 SPAN 2 IS BENT DOWN 13/16" OPPOSITE THE POINT OF IMPACT.



CONNECTION PLATE & CHANNEL OF INTERMEDIATE DIAPHRAGM IN BAY 4 SPAN 2 AT BEAM 5 ARE BENT APPROX. 9" OUT OF PLUMB.



CONNECTION PLATE ON INTERMEDIATE DIAPHRAGM IN BAY 4 SPAN 2 IS APPROX. 1/2" OUT OF PLUMB AT BEAM 4.



SECOND VIEW SHOWING CONNECTION PLATE & CHANNEL OF INTERMEDIATE DIAPHRAGM IN BAY 4 SPAN 2 AT BEAM 5 ARE BENT APPROX. 9" OUT OF PLUMB.



5/16" CRACK AT BASE OF CONNECTION PLATE ON INTERMEDIATE DIAPHRAGM IN BAY 4 SPAN 2 AT BEAM 5.



1 1/2" X 3/16" DEEP INDENTATION IN BTM FLANGE COVER PLATE OF BEAM 5 SPAN 2 OPPOSITE THE POINT OF IMPACT.



RANDOM SPALLS UP TO 3/8" DEEP IN BTM OF DECK ADJACENT TO BEAM 5. SIMILAR AT BEAMS 1 & 3.



POINT OF IMPACT ON BEAM 4 IN SPAN 2 21'-6" SOUTH OF BENT 2.



BEAM 4 SPAN 2 IS 2 3/8" OUT OF PLUMB AT THE POINT OF IMPACT.



BTM FLANGE OF BEAM 4 SPAN 2 IS BENT UP 2 1/8" OVER 2'-6" AT THE POINT OF IMPACT.



12" CRACK IN BTM FLANGE COVER PLATE WELD AT THE POINT OF IMPACT ON BEAM 4 SPAN 2.



2 - 2" WIDE X 1/2" DEEP GOUGES IN COVER PLATE & 2 - 1 1/2" WIDE X 1/4" DEEP GOUGES IN BTM FLANGE AT POINT OF IMPACT ON BEAM 4 SPAN 2.



BTM FLANGE OF BEAM 4 SPAN 2 IS BENT DOWN 1/2" OPPOSITE THE POINT OF IMPACT.



CONNECTION PLATE BENT OVER BTM 8" & 1 BOLT SHEARED OFF AT INTERMEDIATE DIAPHRAGM IN BAY 3 SPAN 2 AT BEAM 4.



CONNECTION PLATE IS BENT SLIGHTLY OVER BTM 6" ON INTERMEDIATE DIAPHRAGM IN BAY 2 SPAN 2 AT BEAM 3



SECOND VIEW OF CONNECTION PLATE BENT OVER BTM 8" & 1 BOLT SHEARED OFF AT INTERMEDIATE DIAPHRAGM IN BAY 3 SPAN 2 AT BEAM 4.



CHANNEL APPROX. 3/8" OUT OF PLUMB ON INTERMEDIATE DIAPHRAGM IN BAY 3 SPAN 2 AT BEAM 4



1/8" HAIRLINE CRACK AT BASE OF CONNECTION PLATE ON INTERMEDIATE DIAPHRAGM IN BAY 3 SPAN 2 AT **BEAM 4.**



POINT OF IMPACT ON BEAM 3 SPAN 2 20'-6" SOUTH OF BENT 2.



BEAM 3 SPAN 2 IS 2 13/16" OUT OF PLUMB AT THE POINT OF IMPACT.



BTM FLANGE OF BEAM 3 SPAN 2 IS BENT UP 1" OVER 1'-6" AT THE POINT OF IMPACT.



2 - 1 3/4" WIDE X 3/8" DEEP GOUGES IN BTM FLANGE & COVER PLATE AT POINT OF IMPACT. ON BEAM 3 SPAN 2.



BTM FLANGE OF BEAM 3 SPAN 2 IS BENT DOWN 1/4" OVER 1' AT THE POINT OF IMPACT.



2 1/4" CRACK IN BTM FLANGE COVER PLATE WELD AT THE POINT OF IMPACT ON BEAM 3 SPAN 2.



2 1/2" CRACK & 1/4" CRACK IN BTM FLANGE AT THE POINT OF IMPACT ON BEAM 3 SPAN 2.



ADDITIONAL 1" CRACK IN BTM FLANGE AT THE POINT OF IMPACT ON BEAM 3 SPAN 2.



OVERALL PHOTO OF CRACKED AREA ON BEAM 3 SPAN 2.



2 - 1" WIDE X 1/4" DEEP GOUGES IN BTM FLANGE COVER PLATE OF BEAM 2 SPAN 2 17' SOUTH OF BENT 2. BOTH GOUGES HAVE 1/32" SURFACE RUST.



POINT OF IMPACT ON BEAM 2 SPAN 2 20' SOUTH OF BENT 2. THERE IS NO MEASURABLE DAMAGE TO BEAM 2 AT THIS POINT.



Beam 1  
Span 2

3' AREA OF BEAM 1 SPAN 2 WITH RANDOM GOUGES UP TO 1/8" DEEP. BEGINS 14' SOUTH OF BENT 2 & EXTENDS SOUTH 3'. BEAM IS 2" OUT OF PLUMB AT THIS POINT.



Beam 1 Span 2

POINT OF IMPACT ON BEAM 1 SPAN 2 19'-6" SOUTH OF BENT 2.



BEAM 1 SPAN 2 IS 2 3/16" OUT OF PLUMB AT THE POINT OF IMPACT.

Beam 1 Span 2



BTM FLANGE OF BEAM 1 SPAN 2 IS BENT UP 1 1/2" OVER 2' AT THE POINT OF IMPACT.



BTM FLANGE OF BEAM 1 SPAN 2 IS BENT DOWN 1/2" OPPOSITE THE POINT OF IMPACT.

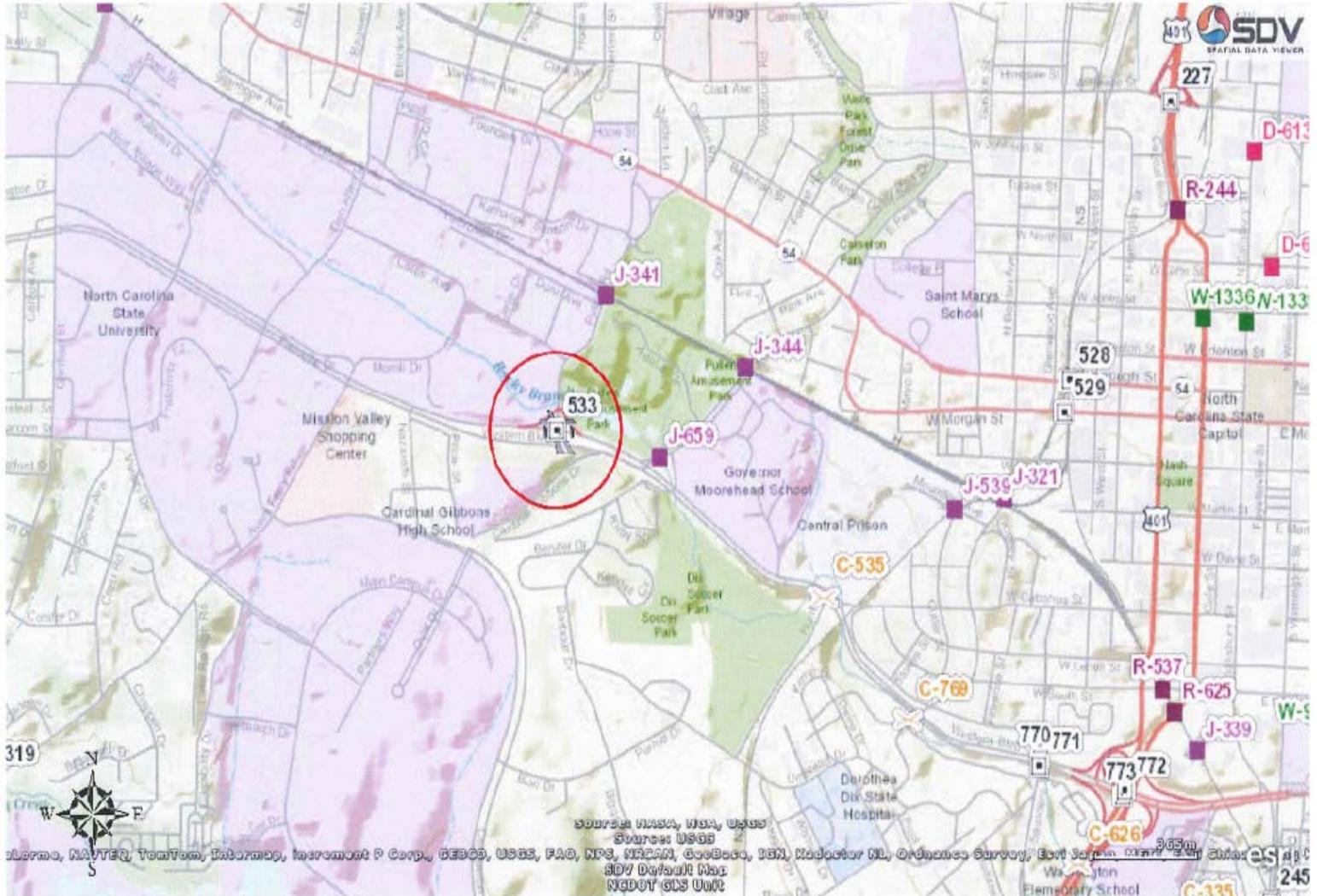


2 - 2" HAIRLINE CRACKS IN THE BTM FLANGE COVER PLATE WELD AT THE POINT OF IMPACT ON BEAM 1 SPAN 2.



SECOND VIEW OF 2 - 2" HAIRLINE CRACKS IN THE BTM FLANGE COVER PLATE WELD AT THE POINT OF IMPACT ON BEAM 1 SPAN 2.

### Wake Co. Bridge No. 533



**BID ITEMS 41665.4C**

Line No.	Item No.	Sec #	Unit Bid Price	Quantity	Unit Cost	Amount
	8860000000-N	SP	GENERIC STRUCTURE ITEM- REPAIRS TO DURHAM CO. BRIDGE NO. 44	LS	LS	-----
	8860000000-N	SP	GENERIC STRUCTURE ITEM- REPAIRS TO VANCE CO. BRIDGE NO. 14	LS	LS	-----
	8860000000-N	SP	GENERIC STRUCTURE ITEM- REPAIRS TO VANCE CO. BRIDGE NO. 42	LS	LS	-----
	8860000000-N	SP	GENERIC STRUCTURE ITEM- REPAIRS TO WAKE CO. BRIDGE NO. 69	LS	LS	-----
	8860000000-N	SP	GENERIC STRUCTURE ITEM- REPAIRS TO WAKE CO. BRIDGE NO. 138	LS	LS	-----
	8860000000-N	SP	GENERIC STRUCTURE ITEM- REPAIRS TO WAKE CO. BRIDGE NO. 211	LS	LS	-----
	8860000000-N	SP	GENERIC STRUCTURE ITEM- REPAIRS TO WAKE CO. BRIDGE NO. 227	LS	LS	-----
	8860000000-N	SP	GENERIC STRUCTURE ITEM- REPAIRS TO WAKE CO. BRIDGE NO. 533	LS	LS	-----
<b>NOT FOR BIDDING PURPOSES TOTAL AMOUNT OF BID FOR ENTIRE PROJECT</b>						-----

## APPENDIX I

### TECHNICAL SPECIFICATIONS

#### *FROM THE FHWA GUIDE FOR HEAT-STRAIGHTENING OF DAMAGED STEEL BRIDGE MEMBERS APPENDIX I*

### 1. Equipment

**1.1** Heating shall be with an oxygen-fuel combination. The fuel may be propane, acetylene or other similar fuel as may be selected by the contractor, subjected to the Engineer's approval.

**1.2** Heat application shall be by single or multiple orifice tips only. The size of the tip shall be proportional to the thickness of the heated material. As a guide, the tip sizes shown in table A2 are recommended. No cutting torch heads are permitted.

**1.3** Jacks, come-alongs or other force application devices shall be gauged and calibrated so that the force exerted by the device may be controlled and measured. No external force shall be applied to the structure by the contractor unless it is measured.

### 2. Damage Assessment

**2.1** Suspected areas of cracking shall be called to the attention of the Engineer and shall be inspected by one or more of the following methods as applicable.

**2.1.1** Visual Inspection

**2.1.2** Liquid penetrant examination as described in ASTM E165 (1994 or latest edition).

**2.1.3** Magnetic-Particle testing as described in ASTM E709 (1994 or latest edition).

**Table A1. Recommended Tolerances for Heat Straightening Repair.**

Member Type	Recommended Minimum Tolerance <sup>1,2</sup>	
	English (in)	SI (mm)
Beams, Truss members, or Columns overall at impact point	½ in over 20 ft ¾ in over 20 ft	13 mm over 6 meters 19 mm over 6 meters
Local Web Deviations	d/100 but not less than ¼ in	d/100 but not less than 6 mm
Local Flange Deviations	b/100 but not less than ¼ in	b/100 but not less than 6 mm

<sup>1</sup> Units of member depth, d, and flange width, b, are inches and millimeters, respectively, for English and SI units

<sup>2</sup> Tolerances for curved or cambered members should account for the original shape of the

Member Type	Recommended Minimum Tolerance <sup>1,2</sup>	
	English (in)	SI (mm)
member		

**Table A2. Recommended torch tips for various material thicknesses.**

Steel Thickness (in)	Orifice Type	Size
< ¼	Single	3
3/8	Single	4
½	Single	5
5/8	Single	7
¾	Single	8
1	Single Rosebud	8 3
2	Single Rosebud	8 4
3	Rosebud	5
> 4	Rosebud	5

**2.1.4** Ultrasonic examination as described in section 6, part C of the ANSI/AASHTO/AWS Bridge Welding Code D1.5, American Welding Society (1996 or latest edition).

**2.1.5** Radiographic examination as described in section 6, part B of the ANSI/AASHTO/AWS Bridge Welding Code D1.5, American Welding Society (1996 or latest edition).

**2.2** The cost of the inspections under 2.1 shall be additional to other testing required and costs shall be negotiated between the Engineer and contractor.

**2.3** Contractor shall identify and document all yield zones, yield lines and associated damage and provide this information to the Engineer prior to initiation of heat straightening by either visual inspection or measurements.

**2.4** Steel with strains up to 100 times the yield strain may be repaired by heat straightening. For strains greater than this limit, the Engineer shall determine if heat straightening may be used.

**2.5** Cracks and/or strains exceeding 100 times the yield strain, or other serious defects may require changes in the scope of the contract which shall be negotiated between the Engineer and the contractor.

### **3. Heat Application**

**3.1** The temperature of the steel during heat straightening shall not exceed the following:

**3.1.1** 650°C (1,200°F) for Carbon Steels.

**3.1.2** 620°C (1,100°F) for A514 and A709 (grades 100 and 100W) steels.

**3.1.3** 565°C (1,050°F) for A709 grade 70W steel.

**3.2** The Contractor shall use one or more of the following methods for routine, ongoing, documented temperature verification during heat straightening:

**3.2.1** Temperature sensitive crayons

**3.2.2** Pyrometer

**3.2.3** Infrared non-contact thermometer

**3.3** Material should be heated in a single pass following the specified pattern and allowed to cool to below 120°C (250°F) prior to re-heating.

**3.4** Heating patterns and sequences shall be selected to match the type of damage and cross section shape.

**3.5** Vee heats shall be shifted over the yield zone on successive heating cycles.

**3.6** Simultaneous vee heats may be used provided that the clear spacing between vees is greater than the width of the plate element

**3.7** Repair of previously heat-straightened members in the same region of damage may be conducted once. Further repairs are not recommended unless approved by the Engineer.

### **4. Application of Jacking forces**

**4.1** Jacks shall be placed so that forces are relieved as straightening occurs during cooling.

**4.2** Magnitude of Jacking Forces

**4.2.1** Jacking shall be limited so that the maximum bending moment in the heated zone shall be less than 50 percent of the plastic moment capacity of the member or major bending element. For local damage, the jacking force shall be limited to 50 percent of initial yield of the element.

**4.2.2** The jacking force shall be adjusted so that the sum of jacking-induced moments and estimated residual moments shall be less than 50 percent of the plastic moment

capacity of the member. As an alternative to considering residual moments, the moment due to jacking forces can be limited to 25 percent of the plastic moment capacity of the member during the first two heating cycles. For additional heating cycles, the limit of 50 percent may again be used.

#### **4.3 Control of jacking forces**

The contractor shall determine and document the maximum jacking force for each damage location, and the proposed sequence of jacking and heating. Copies of the documentation shall be submitted to the Engineer for acceptance before beginning repairs. Modifications due to changing condition shall be submitted to the Engineer. The maximum jacking force may be controlled by measuring the deflection resulting from the jacking force. The deflection limitation can be computed by one of the following methods.

**4.4** The calibration of jacks and electronic temperature monitoring equipment shall be performed and documented monthly, and load cells used for calibration must be certified within a two year period.

### **5. Field Supervision of Repair**

**5.1** Jacking forces shall be monitored to insure that limits are not exceeded.

**5.2** Heating patterns shall be approved by the Engineer.

**5.3** Heating temperatures shall be routinely monitored to insure compliance with specified limits.

### **6. Tolerances**

**6.1** The dimensions of heat-straightened structural members shall conform to the tolerances specified in table A1 except as noted below.

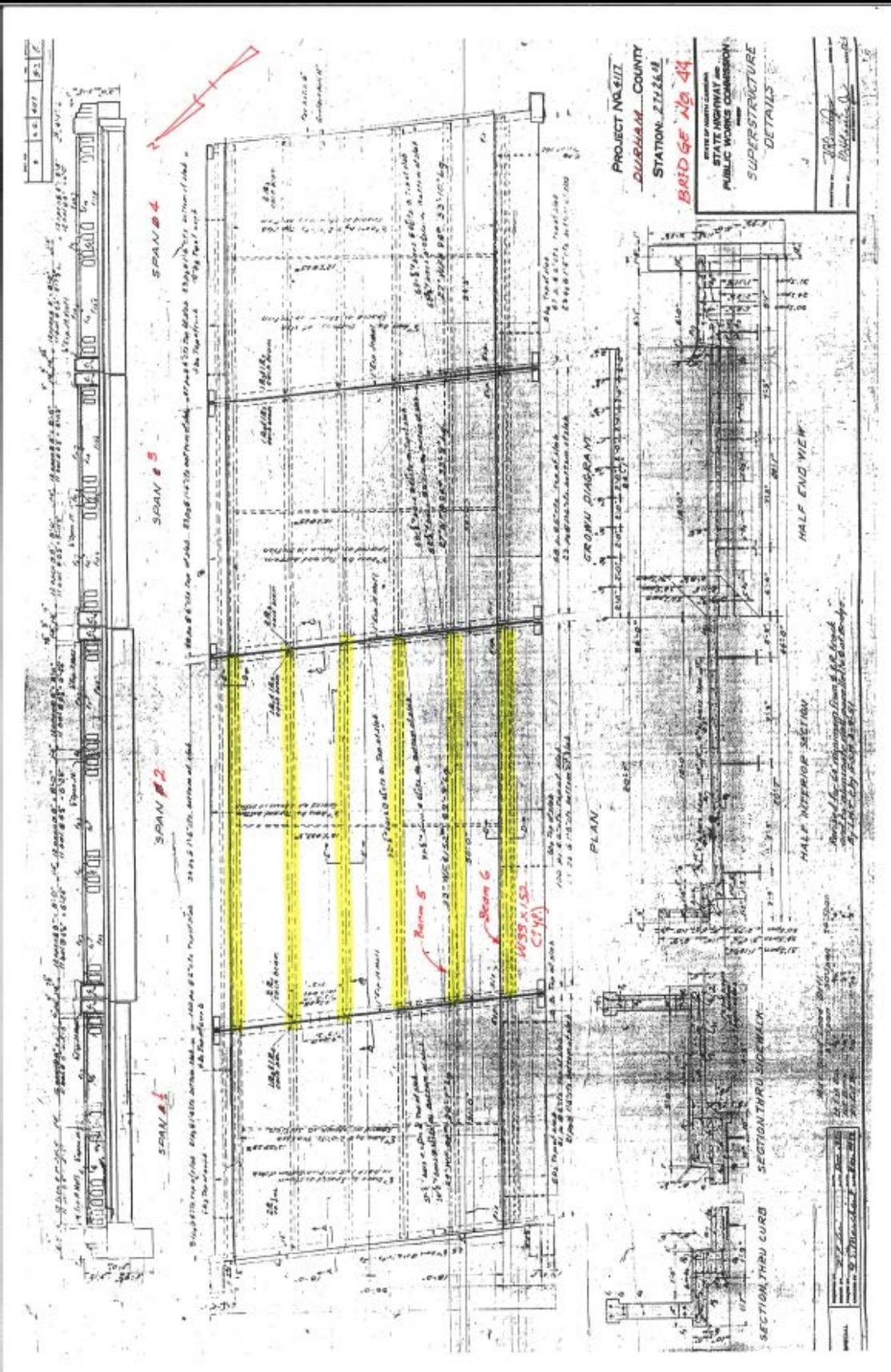
**6.2** Tolerance limits may be relaxed at the discretion of the Engineer, based on one or more of the following considerations:

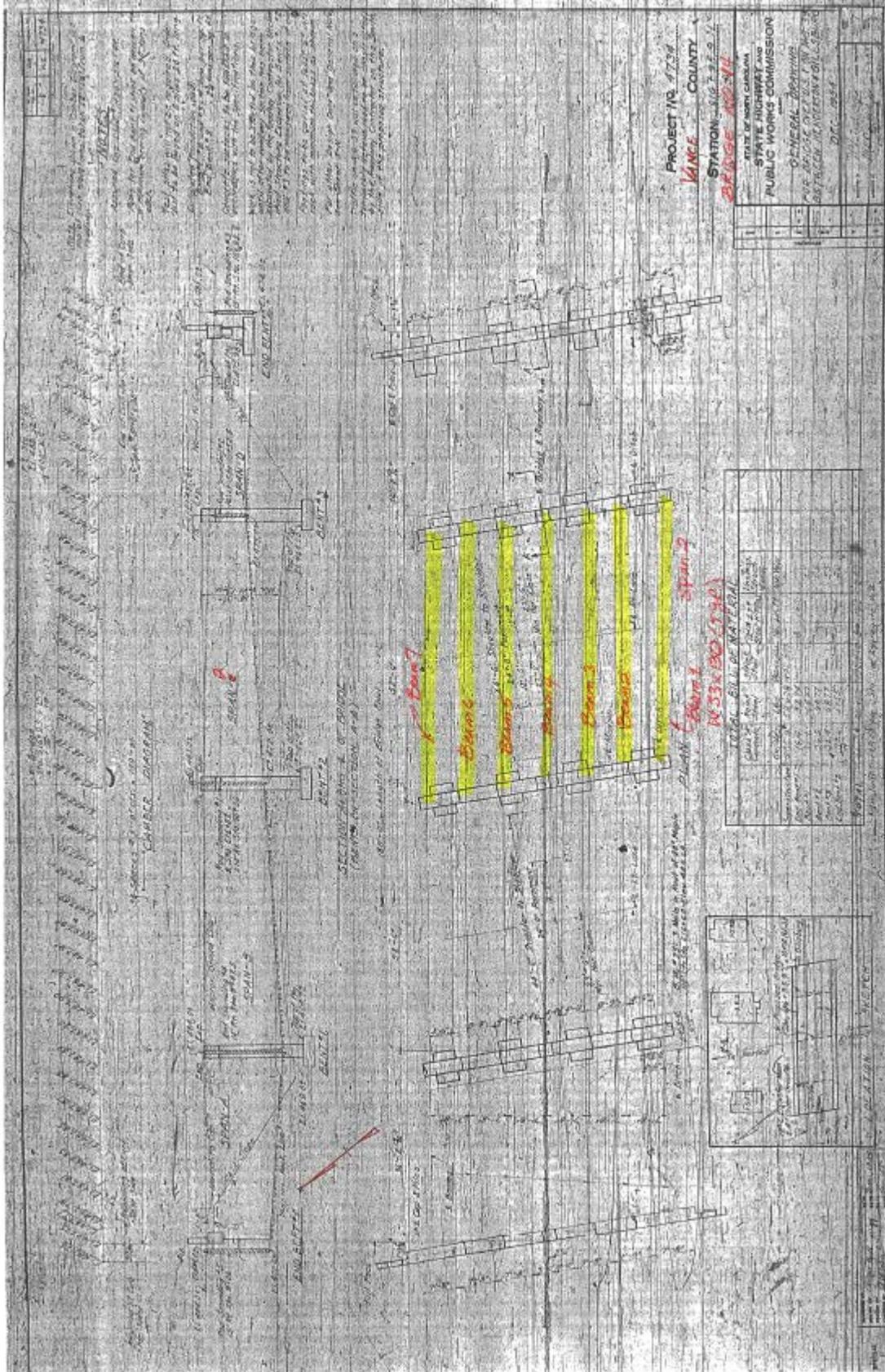
- (a) Type and location of damage in the member.
- (b) Time considerations resulting from the nature of traffic congestion during the repair operation.
- (c) Cost of repair.
- (d) Degree of restoration required to restore structural integrity.

**APPENDIX II**

**EXISTING BRIDGE PLANS FOR:**

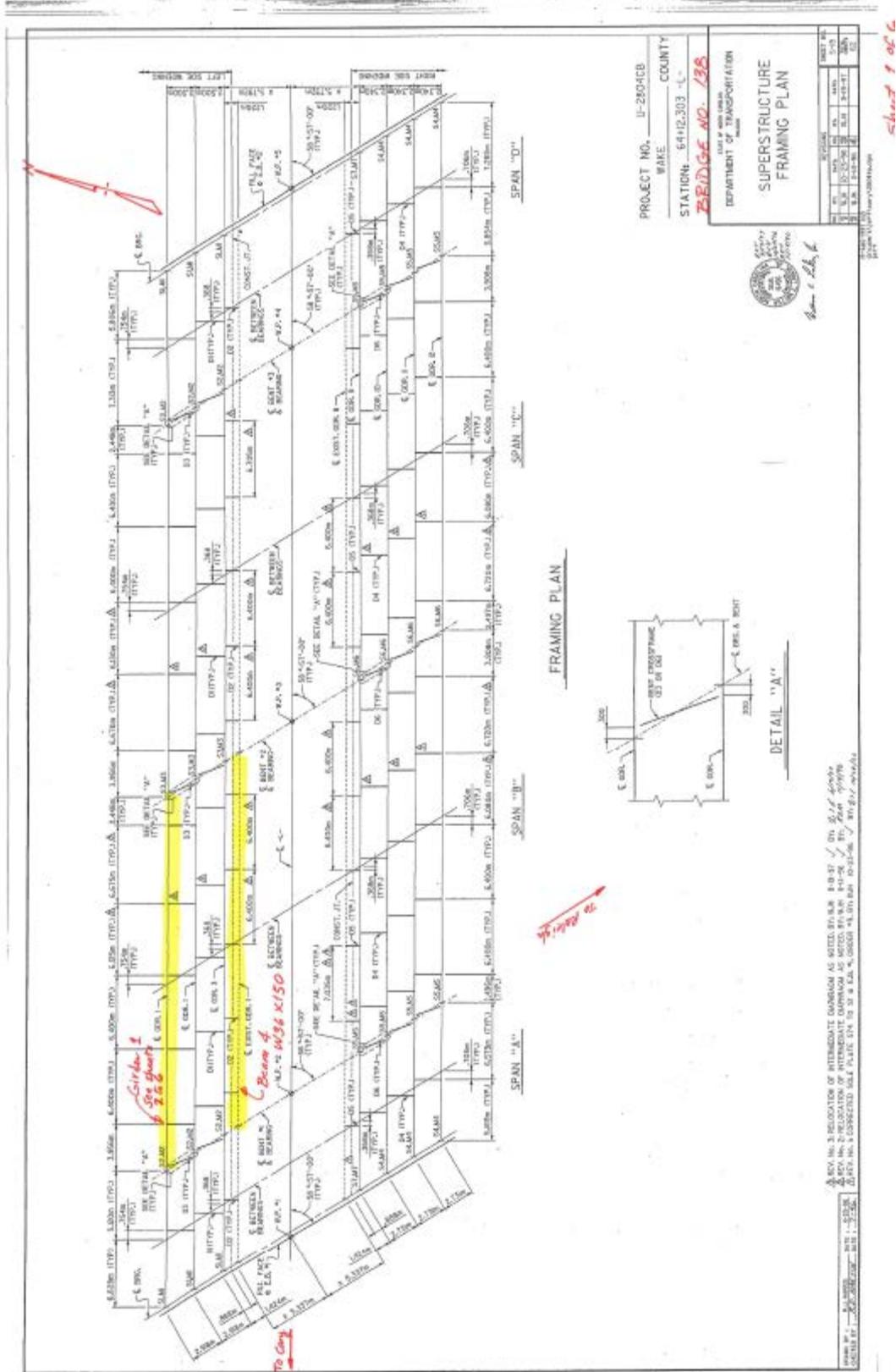
- **Durham Co. Bridge No. 44**
- **Vance Co. Bridge No. 14**
- **Vance Co. Bridge No. 42**
- **Wake Co. Bridge No. 69**
- **Wake Co. Bridge No. 138**
- **Wake Co. Bridge No. 211**
- **Wake Co. Bridge No. 227**
- **Wake Co. Bridge No. 533**

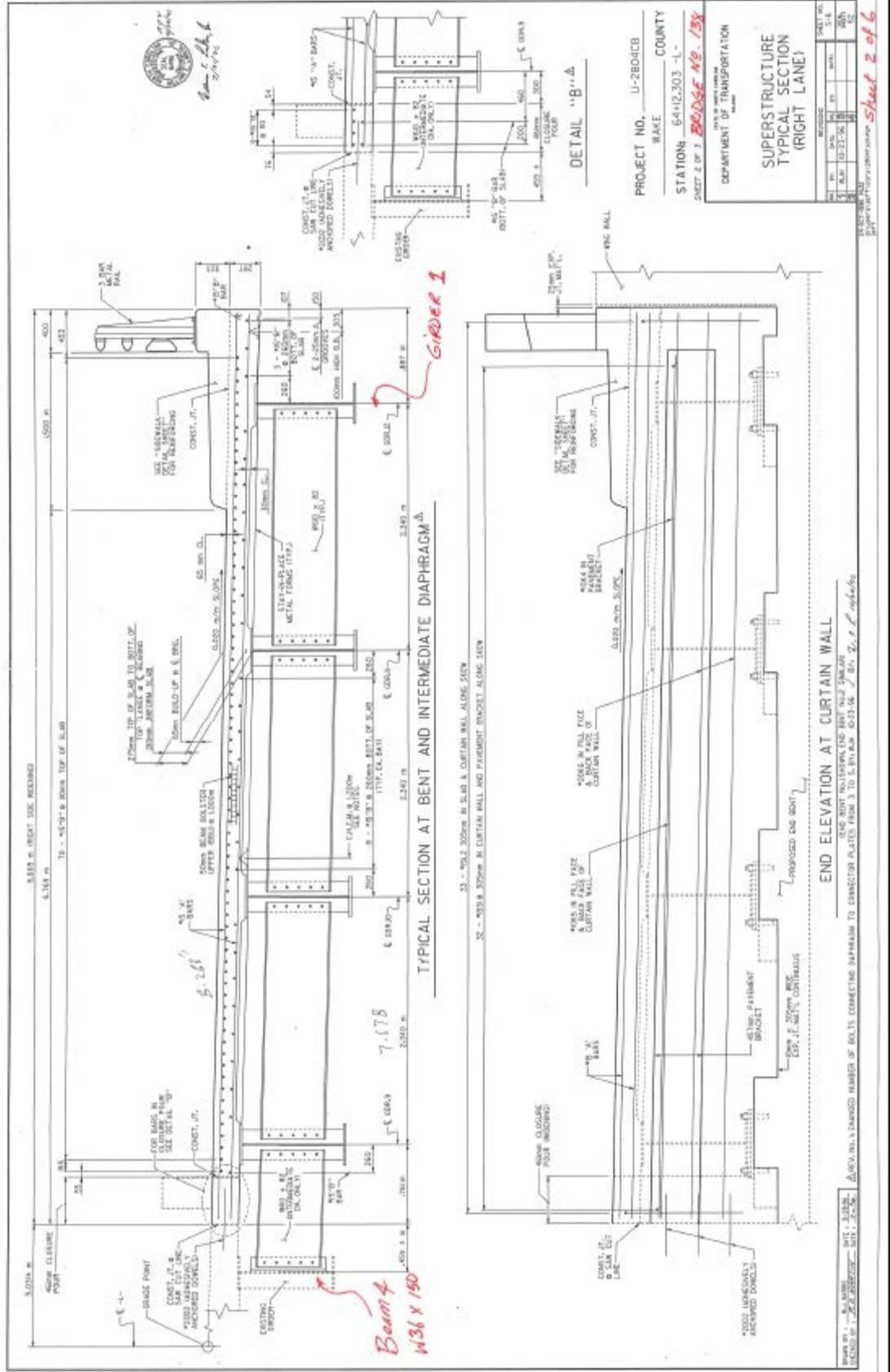


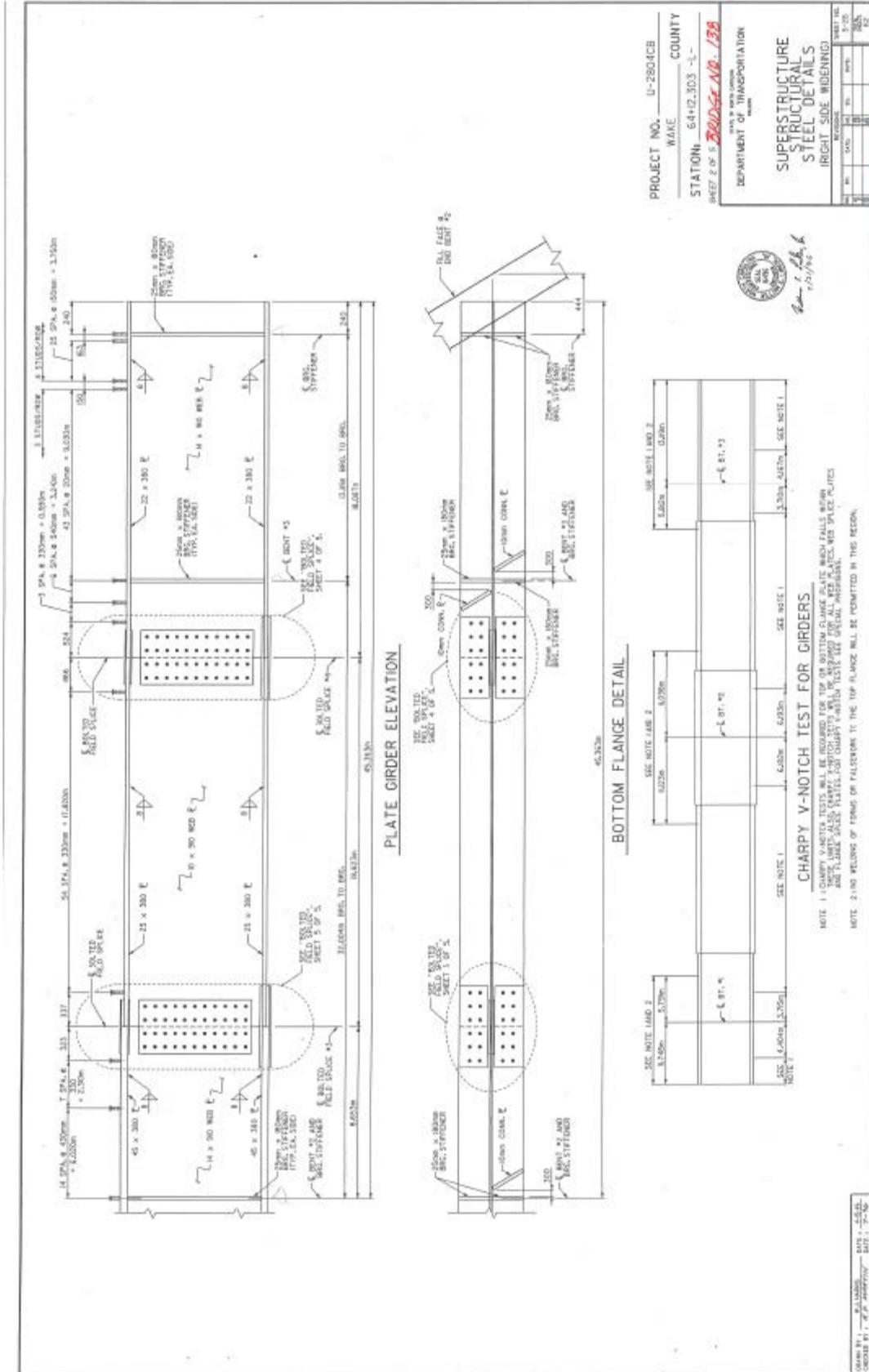








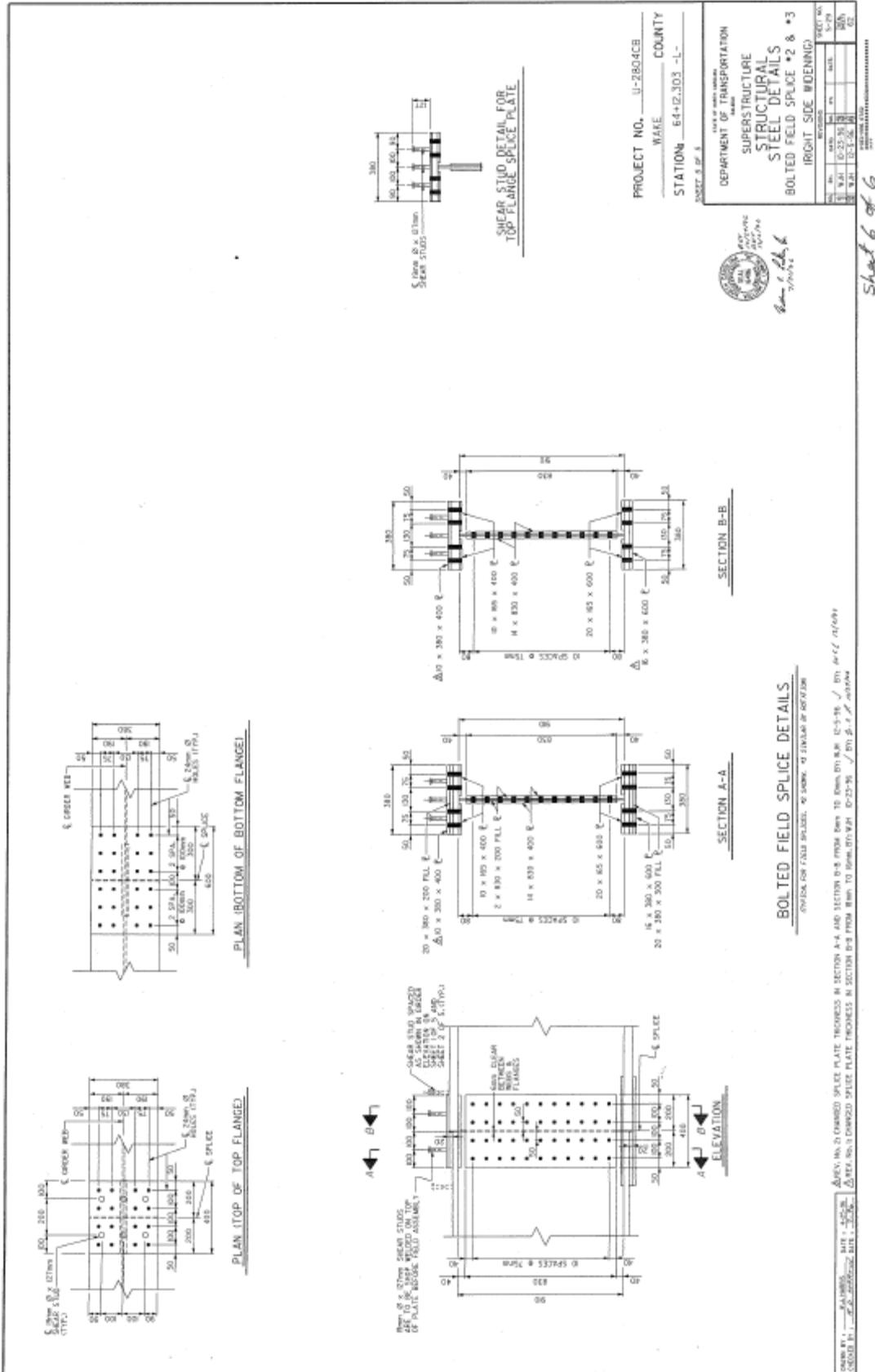




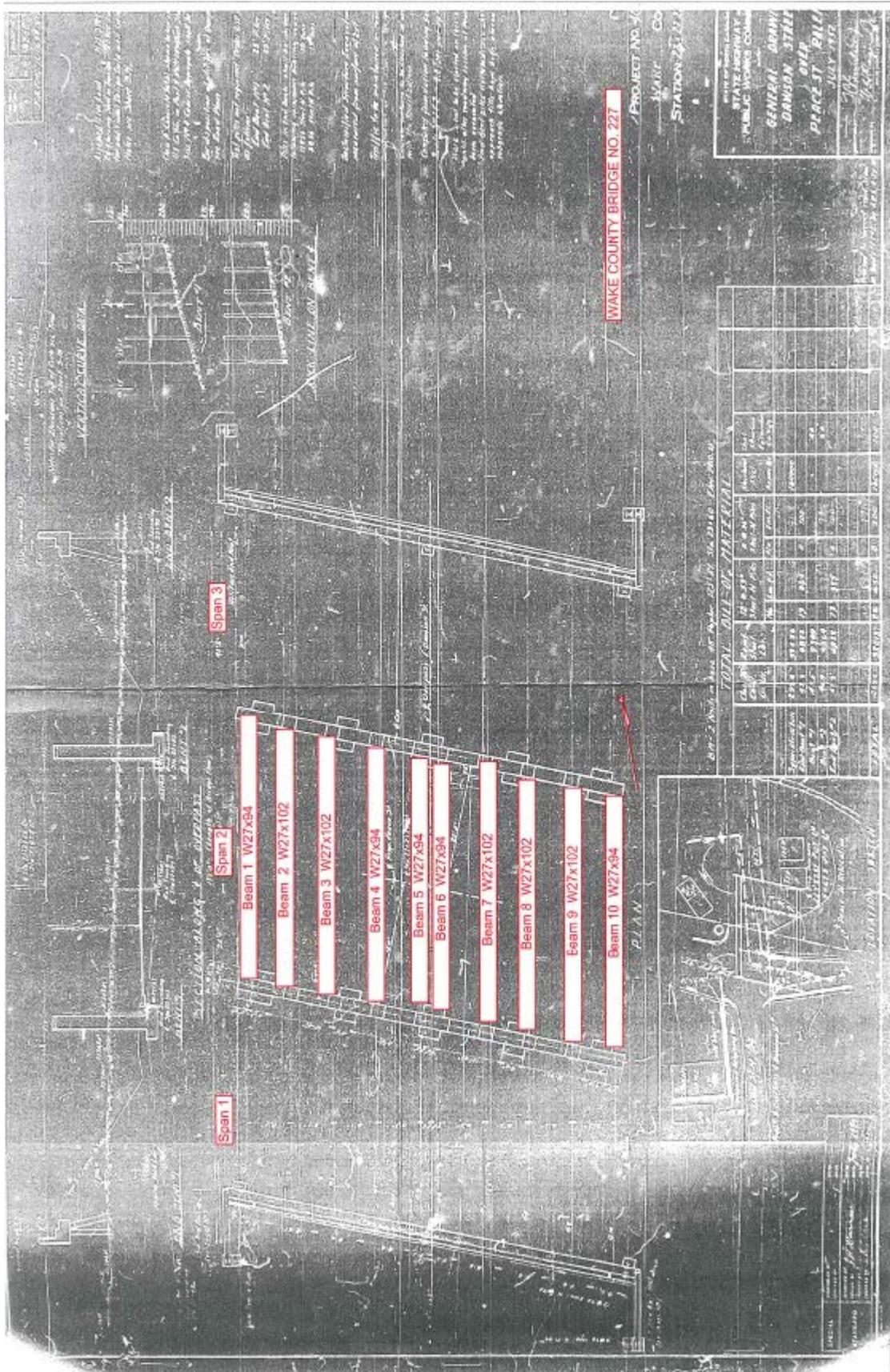
*Sheet 3 of 6*















# STANDARD SPECIAL PROVISION

## ERRATA

(1-17-12) (Rev. 1-21-14)

Z-4

Revise the *2012 Standard Specifications* as follows:

### Division 2

**Page 2-7, line 31, Article 215-2 Construction Methods**, replace “Article 107-26” with “Article 107-25”.

**Page 2-17, Article 226-3, Measurement and Payment, line 2**, delete “pipe culverts,”.

**Page 2-20, Subarticle 230-4(B), Contractor Furnished Sources, change references as follows: Line 1**, replace “(4) Buffer Zone” with “(c) Buffer Zone”; **Line 12**, replace “(5) Evaluation for Potential Wetlands and Endangered Species” with “(d) Evaluation for Potential Wetlands and Endangered Species”; and **Line 33**, replace “(6) Approval” with “(4) Approval”.

### Division 3

**Page 3-1, after line 15, Article 300-2 Materials**, replace “1032-9(F)” with “1032-6(F)”.

### Division 4

**Page 4-77, line 27, Subarticle 452-3(C) Concrete Coping**, replace “sheet pile” with “reinforcement”.

### Division 6

**Page 6-7, line 31, Article 609-3 Field Verification of Mixture and Job Mix Formula Adjustments**, replace “30” with “45”.

**Page 6-10, line 42, Subarticle 609-6(C)(2)**, replace “Subarticle 609-6(E)” with “Subarticle 609-6(D)”.

**Page 6-11, Table 609-1 Control Limits**, replace “Max. Spec. Limit” for the Target Source of  $P_{0.075}/P_{be}$  Ratio with “1.0”.

**Page 6-40, Article 650-2 Materials**, replace “Subarticle 1012-1(F)” with “Subarticle 1012-1(E)”

### Division 8

**Page 8-23, line 10, Article 838-2 Materials**, replace “Portland Cement Concrete, Class B” with “Portland Cement Concrete, Class A”.

### Division 12

**Page 12-7, Table 1205-3**, add “FOR THERMOPLASTIC” to the end of the title.

**Page 12-8, Subarticle 1205-5(B), line 13**, replace “Table 1205-2” with “Table 1205-4”.

**Page 12-8, Table 1205-4 and 1205-5**, replace “THERMOPLASTIC” in the title of these tables with “POLYUREA”.

**Page 12-9, Subarticle 1205-6(B), line 21**, replace “Table 1205-4” with “Table 1205-6”.

**Page 12-11, Subarticle 1205-8(C), line 25**, replace “Table 1205-5” with “Table 1205-7”.

### Division 15

**Page 15-4, Subarticle 1505-3(F) Backfilling, line 26**, replace “Subarticle 235-4(C)” with “Subarticle 235-3(C)”.

**Page 15-6, Subarticle 1510-3(B), after line 21**, replace the allowable leakage formula with the following:

$$W = LD\sqrt{P} + 148,000$$

**Page 15-6, Subarticle 1510-3(B), line 32**, delete “may be performed concurrently or” and replace with “shall be performed”.

**Page 15-17, Subarticle 1540-3(E), line 27**, delete “Type 1”.

**Division 17**

**Page 17-26, line 42, Subarticle 1731-3(D) Termination and Splicing within Interconnect Center,** delete this subarticle.

Revise the *2012 Roadway Standard Drawings* as follows:

**1633.01 Sheet 1 of 1, English Standard Drawing for Matting Installation,** replace “1633.01” with “1631.01”.

**MINIMUM WAGES**

(7-21-09)

Z-5

**FEDERAL:** The Fair Labor Standards Act provides that with certain exceptions every employer shall pay wages at the rate of not less than SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

**STATE:** The North Carolina Minimum Wage Act provides that every employer shall pay to each of his employees, wages at a rate of not less than SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

The minimum wage paid to all skilled labor employed on this contract shall be SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

The minimum wage paid to all intermediate labor employed on this contract shall be SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

The minimum wage paid to all unskilled labor on this contract shall be SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

This determination of the intent of the application of this act to the contract on this project is the responsibility of the Contractor.

The Contractor shall have no claim against the Department of Transportation for any changes in the minimum wage laws, Federal or State. It is the responsibility of the Contractor to keep fully informed of all Federal and State Laws affecting his contract.

**ON-THE-JOB TRAINING**

(10-16-07) (Rev. 5-21-13)

Z-10

**Description**

The North Carolina Department of Transportation will administer a custom version of the Federal On-the-Job Training (OJT) Program, commonly referred to as the Alternate OJT Program. All contractors (existing and newcomers) will be automatically placed in the Alternate Program. Standard OJT requirements typically associated with individual projects will no longer be applied at the project level. Instead, these requirements will be applicable on an annual basis for each contractor administered by the OJT Program Manager.

On the Job Training shall meet the requirements of 23 CFR 230.107 (b), 23 USC – Section 140, this provision and the On-the-Job Training Program Manual.

The Alternate OJT Program will allow a contractor to train employees on Federal, State and privately funded projects located in North Carolina. However, priority shall be given to training employees on NCDOT Federal-Aid funded projects.

### **Minorities and Women**

Developing, training and upgrading of minorities and women toward journeyman level status is a primary objective of this special training provision. Accordingly, the Contractor shall make every effort to enroll minority and women as trainees to the extent that such persons are available within a reasonable area of recruitment. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

### **Assigning Training Goals**

The Department, through the OJT Program Manager, will assign training goals for a calendar year based on the contractors' past three years' activity and the contractors' anticipated upcoming year's activity with the Department. At the beginning of each year, all contractors eligible will be contacted by the Department to determine the number of trainees that will be assigned for the upcoming calendar year. At that time the Contractor shall enter into an agreement with the Department to provide a self-imposed on-the-job training program for the calendar year. This agreement will include a specific number of annual training goals agreed to by both parties. The number of training assignments may range from 1 to 15 per contractor per calendar year. The Contractor shall sign an agreement to fulfill their annual goal for the year. A sample agreement is available at [www.ncbowd.com/section/on-the-job-training](http://www.ncbowd.com/section/on-the-job-training).

### **Training Classifications**

The Contractor shall provide on-the-job training aimed at developing full journeyman level workers in the construction craft/operator positions. Preference shall be given to providing training in the following skilled work classifications:

Equipment Operators	Office Engineers
Truck Drivers	Estimators
Carpenters	Iron / Reinforcing Steel Workers
Concrete Finishers	Mechanics
Pipe Layers	Welders

The Department has established common training classifications and their respective training requirements that may be used by the contractors. However, the classifications established are not all-inclusive. Where the training is oriented toward construction applications, training will be allowed in lower-level management positions such as office engineers and estimators. Contractors shall submit new classifications for specific job functions that their employees are performing. The Department will review and recommend for acceptance to FHWA the new classifications proposed by contractors, if applicable. New classifications shall meet the following requirements:

Proposed training classifications are reasonable and realistic based on the job skill classification needs, and

The number of training hours specified in the training classification is consistent with common practices and provides enough time for the trainee to obtain journeyman level status.

The Contractor may allow trainees to be trained by a subcontractor provided that the Contractor retains primary responsibility for meeting the training and this provision is made applicable to the subcontract. However, only the Contractor will receive credit towards the annual goal for the trainee.

Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment.

No employee shall be employed as a trainee in any classification in which they have successfully completed a training course leading to journeyman level status or in which they have been employed as a journeyman.

**Records and Reports**

The Contractor shall maintain enrollment, monthly and completion reports documenting company compliance under these contract documents. These documents and any other information as requested shall be submitted to the OJT Program Manager.

Upon completion and graduation of the program, the Contractor shall provide each trainee with a certification Certificate showing the type and length of training satisfactorily completed.

**Trainee Interviews**

All trainees enrolled in the program will receive an initial and Trainee/Post graduate interview conducted by the OJT program staff.

**Trainee Wages**

Contractors shall compensate trainees on a graduating pay scale based upon a percentage of the prevailing minimum journeyman wages (Davis-Bacon Act). Minimum pay shall be as follows:

- 60 percent of the journeyman wage for the first half of the training period
- 75 percent of the journeyman wage for the third quarter of the training period
- 90 percent of the journeyman wage for the last quarter of the training period

In no instance shall a trainee be paid less than the local minimum wage. The Contractor shall adhere to the minimum hourly wage rate that will satisfy both the NC Department of Labor (NCDOL) and the Department.

**Achieving or Failing to Meet Training Goals**

The Contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and who receives training for at least 50 percent of the specific program requirement. Trainees will be allowed to be transferred between projects if required by the Contractor's scheduled workload to meet training goals.

If a contractor fails to attain their training assignments for the calendar year, they may be taken off the NCDOT's Bidders List.

**Measurement and Payment**

No compensation will be made for providing required training in accordance with these contract documents.







**\*AWARD LIMITS ON MULTIPLE PROJECTS\***

It is the desire of the Proposer to be awarded contracts, the value of which will not exceed a total of \$ \_\_\_\_\_, for those projects indicated below on which bids are being opened on the same date as shown in the Proposal Form. Individual projects shall be indicated by placing the project number and county in the appropriate place below. Projects not selected will not be subject to an award limit.

_____ (Project Number)	_____ (County)

\*If a Proposer desires to limit the total amount of work awarded to him in this letting, he shall state such limit in the space provided above in the second line of this form.

It is agreed that in the event that I am (we are) the successful bidder on indicated projects, the total value of which is more than the above stipulated award limits, the Board of Transportation will award me (us) projects from among those indicated which have a total value not exceeding the award limit and which will result in the best advantage to the Department of Transportation.

\_\_\_\_\_  
\*\*Signature of Authorized Person

\*\*Only those persons authorized to sign bids under the provisions of Article 102-8, Item 7, shall be authorized to sign this form.



**North Carolina Department of Transportation  
PURCHASE ORDER CONTRACT BID FORM**

**Work Order:** 41665.4C  
**Description:** REPAIR OF DAMAGED BRIDGE BEAMS USING HEAT STRAIGHTENING  
**County:** DURHAM, VANCE AND WAKE

ITEM	SECT	DESCRIPTION	QTY	UNIT	UNIT PRICE (\$)	AMOUNT BID (\$)
1	SP	REPAIRS TO DURHAM CO. BRIDGE NO. 44	1	LS		
2	SP	REPAIRS TO VANCE CO. BRIDGE NO. 14	1	LS		
3	SP	REPAIRS TO VANCE CO. BRIDGE NO. 42	1	LS		
4	SP	REPAIRS TO WAKE CO. BRIDGE NO. 69	1	LS		
5	SP	REPAIRS TO WAKE CO. BRIDGE NO. 138	1	LS		
6	SP	REPAIRS TO WAKE CO. BRIDGE NO. 211	1	LS		
7	SP	REPAIRS TO WAKE CO. BRIDGE NO. 227	1	LS		
8	SP	REPAIRS TO WAKE CO. BRIDGE NO. 533	1	LS		

**TOTAL BID FOR PROJECT:** \_\_\_\_\_

CONTRACTOR \_\_\_\_\_

ADDRESS \_\_\_\_\_

FEDERAL I.D. NO. \_\_\_\_\_

CONTRACTOR LICENSE NO. \_\_\_\_\_

AUTHORIZED AGENT \_\_\_\_\_

TITLE \_\_\_\_\_

SIGNATURE \_\_\_\_\_

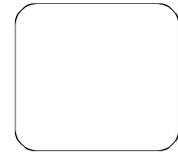
DATE \_\_\_\_\_

WITNESS \_\_\_\_\_

TITLE \_\_\_\_\_

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_



CORPORATE SEAL



**EXECUTION OF CONTRACT  
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION  
CORPORATION**

The Contractor being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this Contract, that the Contractor has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Contractor intends to do the work with its own bonafide employees or subcontractors and did not bid for the benefit of another contractor.

By submitting this Execution of Contract, Non-Collusion Affidavit and Debarment Certification, the Contractor is certifying his status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

*N.C.G.S. § 133-32* and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

**SIGNATURE OF CONTRACTOR**

\_\_\_\_\_  
Full name of Corporation

\_\_\_\_\_  
Address as Prequalified

Attest \_\_\_\_\_

Secretary/Assistant Secretary  
*Select appropriate title*

By \_\_\_\_\_

President/Vice President/Assistant Vice President  
*Select appropriate title*

\_\_\_\_\_  
Print or type Signer's name

\_\_\_\_\_  
Print or type Signer's name

**CORPORATE SEAL**

**AFFIDAVIT MUST BE NOTARIZED**

Subscribed and sworn to before me this the

\_\_\_\_\_ day of \_\_\_\_\_ 20\_\_.

\_\_\_\_\_  
Signature of Notary Public

**NOTARY SEAL**

of \_\_\_\_\_ County

State of \_\_\_\_\_

My Commission Expires: \_\_\_\_\_







**EXECUTION OF CONTRACT  
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION  
LIMITED LIABILITY COMPANY**

The Contractor being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this Contract, that the Contractor has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Contractor intends to do the work with its own bonafide employees or subcontractors and did not bid for the benefit of another contractor.

By submitting this Execution of Contract, Non-Collusion Affidavit and Debarment Certification, the Contractor is certifying his status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

*N.C.G.S. § 133-32* and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

**SIGNATURE OF CONTRACTOR**

\_\_\_\_\_ Full Name of Firm

\_\_\_\_\_ Address as Prequalified

\_\_\_\_\_ Signature of Witness

\_\_\_\_\_ Signature of Member/Manager/Authorized Agent  
*Select appropriate title*

\_\_\_\_\_ Print or type Signer's name

\_\_\_\_\_ Print or type Signer's Name

**AFFIDAVIT MUST BE NOTARIZED**

Subscribed and sworn to before me this the \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_.

**NOTARY SEAL**

\_\_\_\_\_ Signature of Notary Public

of \_\_\_\_\_ County

State of \_\_\_\_\_

My Commission Expires: \_\_\_\_\_



**EXECUTION OF CONTRACT  
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION  
JOINT VENTURE (2) or (3)**

The Contractor being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this Contract, that the Contractor has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Contractor intends to do the work with its own bonafide employees or subcontractors and did not bid for the benefit of another contractor.

By submitting this Execution of Contract, Non-Collusion Affidavit and Debarment Certification, the Contractor is certifying his status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

*N.C.G.S. § 133-32* and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

**SIGNATURE OF CONTRACTORS**

Instructions: **2 Joint Venturers** Fill in lines (1), (2) and (3) and execute. **3 Joint Venturers** Fill in lines (1), (2), (3) and (4) and execute. On Line (1), fill in the name of the Joint Venture Company. On Line (2), fill in the name of one of the joint venturers and execute below in the appropriate manner. On Line (3), print or type the name of the other joint venturer and execute below in the appropriate manner. On Line (4), fill in the name of the third joint venturer, if applicable and execute below in the appropriate manner.

(1) \_\_\_\_\_  
Name of Joint Venture

(2) \_\_\_\_\_  
Name of Contractor

\_\_\_\_\_ Address as Prequalified

Signature of Witness or Attest	By	Signature of Contractor
Print or type Signer's name		Print or type Signer's name

*If Corporation, affix Corporate Seal* and

(3) \_\_\_\_\_  
Name of Contractor

\_\_\_\_\_ Address as Prequalified

Signature of Witness or Attest	By	Signature of Contractor
Print or type Signer's name		Print or type Signer's name

*If Corporation, affix Corporate Seal* and

(4) \_\_\_\_\_  
Name of Contractor (for 3 Joint Venture only)

\_\_\_\_\_ Address as Prequalified

Signature of Witness or Attest	By	Signature of Contractor
Print or type Signer's name		Print or type Signer's name

*If Corporation, affix Corporate Seal*

**NOTARY SEAL**  
Affidavit must be notarized for Line (2)  
Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_  
\_\_\_\_\_  
Signature of Notary Public  
of \_\_\_\_\_ County  
State of \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_

**NOTARY SEAL**  
Affidavit must be notarized for Line (3)  
Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_  
\_\_\_\_\_  
Signature of Notary Public  
of \_\_\_\_\_ County  
State of \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_

**NOTARY SEAL**  
Affidavit must be notarized for Line (4)  
Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_  
\_\_\_\_\_  
Signature of Notary Public  
of \_\_\_\_\_ County  
State of \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_







**EXECUTION OF CONTRACT  
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION  
INDIVIDUAL DOING BUSINESS IN HIS OWN NAME**

The Contractor being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this Contract, that the Contractor has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Contractor intends to do the work with its own bonafide employees or subcontractors and did not bid for the benefit of another contractor.

By submitting this Execution of Contract, Non-Collusion Affidavit and Debarment Certification, the Contractor is certifying his status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

*N.C.G.S. § 133-32* and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

**SIGNATURE OF CONTRACTOR**

Name of Contractor \_\_\_\_\_  
Print or type Individual name

\_\_\_\_\_  
Address as Prequalified

\_\_\_\_\_  
Signature of Contractor, Individually

\_\_\_\_\_  
Print or type Signer's Name

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Print or type Signer's name

**AFFIDAVIT MUST BE NOTARIZED**

Subscribed and sworn to before me this the \_\_\_\_\_  
\_\_\_\_\_ day of \_\_\_\_\_ 20\_\_.

**NOTARY SEAL**

\_\_\_\_\_  
Signature of Notary Public

of \_\_\_\_\_ County

State of \_\_\_\_\_

My Commission Expires: \_\_\_\_\_



## DEBARMENT CERTIFICATION

Conditions for certification:

1. The prequalified bidder shall provide immediate written notice to the Department if at any time the bidder learns that his certification was erroneous when he submitted his debarment certification or explanation filed with the Department, or has become erroneous because of changed circumstances.
2. The terms *covered transaction, debarred, suspended, ineligible, lower tier covered transaction, participant, person, primary covered transaction, principal, proposal, and voluntarily excluded*, as used in this provision, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. A copy of the Federal Rules requiring this certification and detailing the definitions and coverages may be obtained from the Contract Officer of the Department.
3. The prequalified bidder agrees by submitting this form, that he will not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in NCDOT contracts, unless authorized by the Department.
4. For Federal Aid projects, the prequalified bidder further agrees that by submitting this form he will include the Federal-Aid Provision titled *Required Contract Provisions Federal-Aid Construction Contract (Form FHWA PR 1273)* provided by the Department, without subsequent modification, in all lower tier covered transactions.
5. The prequalified bidder may rely upon a certification of a participant in a lower tier covered transaction that he is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless he knows that the certification is erroneous. The bidder may decide the method and frequency by which he will determine the eligibility of his subcontractors.
6. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this provision. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
7. Except as authorized in paragraph 6 herein, the Department may terminate any contract if the bidder knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available by the Federal Government.



## DEBARMENT CERTIFICATION

The prequalified bidder certifies to the best of his knowledge and belief, that he and his principals:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property;
- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph b. of this certification; and
- d. Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- e. Will submit a revised Debarment Certification immediately if his status changes and will show in his bid proposal an explanation for the change in status.

If the prequalified bidder cannot certify that he is not debarred, he shall provide an explanation with this submittal. An explanation will not necessarily result in denial of participation in a contract.

Failure to submit a non-collusion affidavit and debarment certification will result in the prequalified bidder's bid being considered non-responsive.

Check here if an explanation is attached to this certification.

