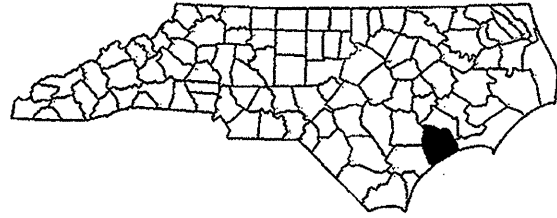


17BP.3.H.2

CONTRACT: C203068

PENTABLE: #PENTBL5\*  
TIME: #TIMEY

PLOT DRIVER: #PLTDVRS\*  
USER: #USER\* DATE: #DATE\*  
FILE: #PWAVAU.LPATRSCC\*

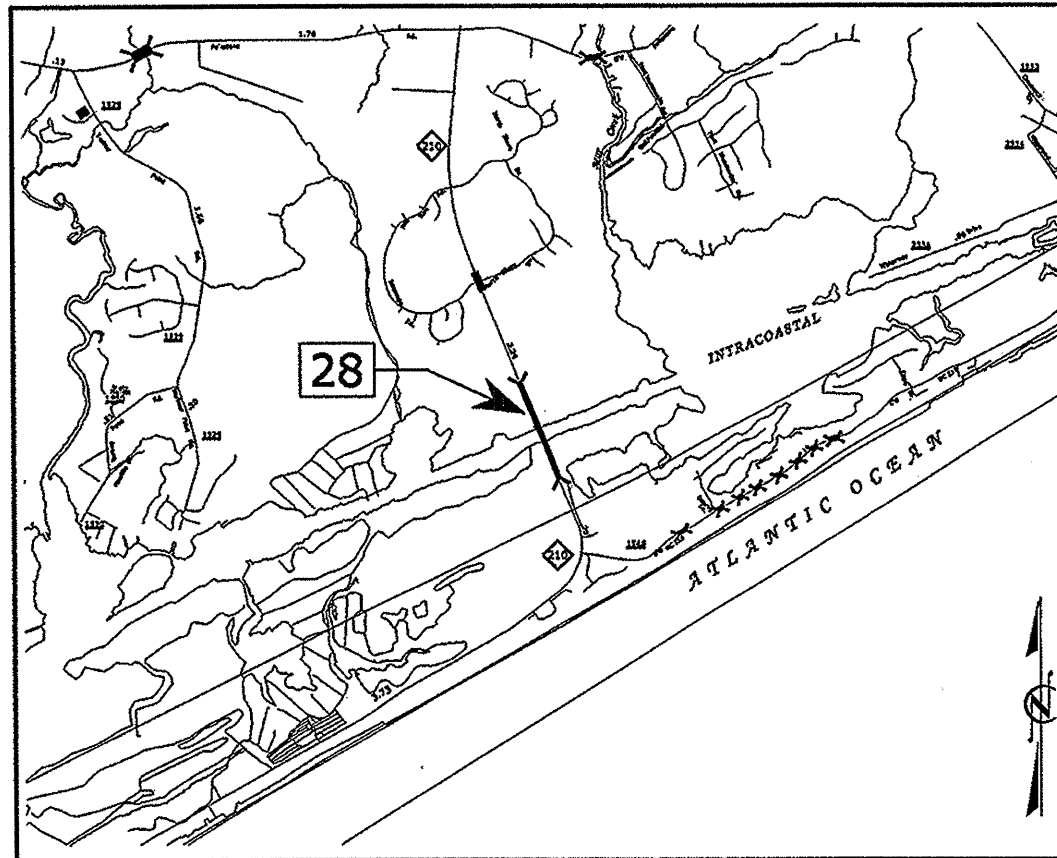


STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**ONSLOW COUNTY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.3.H.2	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
17BP.3.H.2		P.E.	
17BP.3.H.2		CONST.	

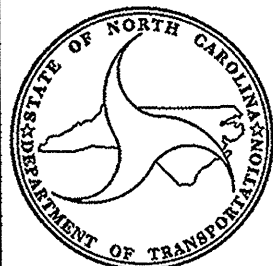
LOCATION: BRIDGE NO.28 ON NC 210 OVER INTRACOASTAL WATERWAY

TYPE OF WORK: BRIDGE PRESERVATION: HYDRODEMOLITION, LMC OVERLAY, JOINT REPLACEMENT,  
CONCRETE GIRDER REPAIRS & SUBSTRUCTURE REPAIRS



**STRUCTURES**

Prepared in the Office of:  
HDR Engineering, Inc. of the Carolinas  
3783 Norfolk Drive, Suite 207 Raleigh, N.C. 27610  
N.C.R.E.L.S. License Number: F-0114



**DESIGN DATA**

BRIDGE #28  
ADT = 3900  
IN 2009

**PROJECT LENGTH**

LENGTH ROADWAY OF PROJECT = 0.05 MILES  
LENGTH STRUCTURE OF PROJECT = 0.48 MILES  
TOTAL LENGTH OF STATE PROJECT = 0.53 MILES

STRUCTURES MANAGEMENT UNIT  
1000 BIRCH RIDGE DR.  
RALEIGH, N.C. 27610

2011 STANDARD SPECIFICATIONS

LETTING DATE :  
SEPTEMBER 18, 2012

MATTHEW MOYER, P.E.  
PROJECT ENGINEER

RICK NELSON, P.E.  
PROJECT ENGINEER



FARZIN ASEFNIA, P.E.  
PROJECT DESIGN ENGINEER

**17BP.3.H.2**

**CONTRACT: C203068**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**ONSLOW COUNTY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.3.H.2	1A	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.3.H.2		P.E.	
17BP.3.H.2		CONST.	

**LOCATION: BRIDGE NO.28 ON NC 210 OVER INTRACOASTAL WATERWAY**

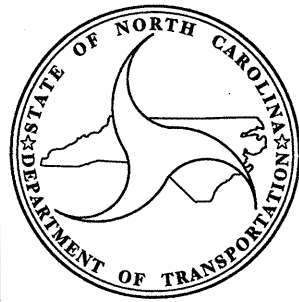
**TYPE OF WORK: BRIDGE PRESERVATION: HYDRODEMOLITION, LMC OVERLAY, JOINT REPLACEMENT, CONCRETE GIRDER REPAIRS & SUBSTRUCTURE REPAIRS**

**INDEX OF SHEETS**

DWG. #	DESCRIPTION
1	TITLE SHEET
1A	INDEX OF SHEETS
2	SUMMARY OF QUANTITIES
S-1 THRU S-37	STRUCTURE PLANS
TMP-1 THRU TMP-3	TRANSPORTATION MANAGEMENT PLANS

**STRUCTURES**

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STRUCTURES MANAGEMENT UNIT  
1000 BIRCH RIDGE DR.  
RALEIGH, N.C. 27610

2012 STANDARD SPECIFICATIONS

LETTING DATE :  
JUNE 19, 2012

MATTHEW MOYER, P.E.  
PROJECT ENGINEER

RICK NELSON, P.E.  
PROJECT ENGINEER

Prepared In the Office of:  
**HDR** HDR Engineering, Inc. of the Carolinas  
3733 National Drive, Suite 207 Raleigh, N.C. 27612  
N.C.B.E.L.S. License Number: F-0116

FARZIN ASEFNIA, P.E.  
PROJECT DESIGN ENGINEER

BRIDGE DESIGN ENGINEER

P.E.

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203068

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
1330000000-E	607	709	SY	INCIDENTAL MILLING
1519000000-E	610	84	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1575000000-E	620	10	TON	ASPHALT BINDER FOR PLANT MIX
4400000000-E	1110	48	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	96	SF	WORK ZONE SIGNS (PORTABLE)
4455000000-N	1150	100	DAY	FLAGGER
4516000000-N	1180	40	EA	SKINNY DRUM
4810000000-E	1205	8,156	LF	PAINT PAVEMENT MARKING LINES (4")
4847000000-E	1205	8,156	LF	POLYUREA PAVEMENT MARKING LINES (4", *****) (HIGHLY REFLECTIVE ELEMENTS)
4900000000-N	1251	35	EA	PERMANENT RAISED PAVEMENT MARKERS
5255000000-N	1413	Lump Sum		PORTABLE LIGHTING
8161000000-E	420	62,344	SF	GROOVING BRIDGE FLOORS
8664000000-E	SP	66	CF	SHOTCRETE REPAIRS
8678000000-E	SP	26	LF	EPOXY RESIN INJECTION
8692000000-N	SP	Lump Sum		FOAM JOINT SEALS
8881000000-E	SP	329	CY	GENERIC STRUCTURE ITEM LATEX MOD CONC OVERLAY - VERY EARLY STRENGTH
8893000000-E	SP	7,878	SY	GENERIC STRUCTURE ITEM HYDRO-DEMOLITION OF BRIDGE DECK
8893000000-E	SP	7,878	SY	GENERIC STRUCTURE ITEM PLACING & FINISHING LATEX MOD CONC OVERLAY - VERY EARLY STRENGTH
8893000000-E	SP	7,878	SY	GENERIC STRUCTURE ITEM SCARIFYING BRIDGE DECK

DESIGN AND CONSTRUCTION SPECIFICATIONS

STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES (2012)

GENERAL

EXISTING DIMENSIONS AND BRIDGE CONDITIONS ARE FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

THE LOCATION AND EXTENT OF REPAIRS SHOWN ON THE PLANS ARE GENERAL IN NATURE. THE ENGINEER WILL DETERMINE THE EXACT EXTENT OF REMOVAL IN THE FIELD BASED ON AN EVALUATION OF THE CONDITION OF THE EXPOSED SURFACES.

CONSTRUCTION METHODS, PROCEDURES AND SEQUENCES ARE THE CONTRACTOR'S RESPONSIBILITY AND THE CONTRACTOR SHALL TAKE ALL THE NECESSARY MEANS TO MAINTAIN AND PROTECT THE STRUCTURAL INTEGRITY OF ALL CONSTRUCTION AT ALL STAGES.

THE MANUFACTURER'S CERTIFIED DRAWINGS AND SPECIFICATION FOR EQUIPMENT ANCHORAGE AND DETAILS SHALL BE SUBMITTED FOR APPROVAL.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

REPAIR AREAS INACCESSIBLE BY POWER TOOLS SHALL BE CLEANED WITH HAND TOOLS.

CONCRETE REPAIRS

FOR CLASS I, CLASS II AND CLASS III BRIDGE DECK SURFACE PREPARATION, SEE HYDRO-DEMOLITION OF BRIDGE DECK SPECIAL PROVISION.

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL PROTECT THE BEARING FROM SHOTCRETE OVERSPRAY WHEN PERFORMING SHOTCRETE REPAIRS NEAR THE GIRDER ENDS.

FOR "UNDERSIDE OF DECK AND DIAPHRAGM REPAIR DETAIL", SEE DRAWING "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".

FOR "CONCRETE GIRDER REPAIR DETAIL", SEE DRAWING "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".

FOR "BENT CAP REPAIR DETAIL", SEE DRAWING "SUBSTRUCTURE REPAIR DETAILS".

FOR "COLUMN AND STRUT REPAIR DETAIL", SEE DRAWING "SUBSTRUCTURE REPAIR DETAILS".

DECK REHABILITATION

FOR SCARIFYING BRIDGE DECK, SEE HYDRO-DEMOLITION OF BRIDGE DECK SPECIAL PROVISION.

FOR HYDRO-DEMOLITION OF BRIDGE DECK, SEE SPECIAL PROVISIONS.

EXISTING JOINTS AND BRIDGE DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE MANAGING HYDRO-DEMOLITION WATER SPECIAL PROVISION.

WATER AND CONCRETE SLURRY FROM HYDRO-DEMOLITION SHALL NOT BE ALLOWED TO DRAIN ACROSS TRAVEL LANES. CONTRACTOR SHALL PROVIDE A METHOD TO CONTROL WATER.

THE BOUNDARIES OF AREA IDENTIFIED FOR CLASS III SURFACE PREPARATION ARE APPROXIMATE. IF ANY CLASS III LOCATIONS ARE ENCOUNTERED PRIOR TO OR DURING HYDRO-DEMOLITION, SEE "BLOW THRU CONTAINMENT AND FORMWORK" DETAIL. THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK.

BLOW THROUGH CONTAINMENT AND FORMWORK ARE NOT REQUIRED AT BAYS FORMED USING PRESTRESSED CONCRETE DECK PANELS.

LATEX MODIFIED CONCRETE SHALL BE LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH.

FOR LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.

FOR GROOVING BRIDGE FLOORS INFORMATION, SEE LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH SPECIAL PROVISION.

JOINT REPLACEMENT

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2 1/2" AT BENTS 1-11, 16-26 AND AT BEGIN AND END OF DROP-IN-SPAN WITHIN SPAN 14.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 3 1/8" AT BENTS 12 AND 15.

**TOTAL BILL OF MATERIAL**

SCARIFYING BRIDGE DECK	* CLASS I SURFACE PREPARATION	* CLASS II SURFACE PREPARATION	* CLASS III SURFACE PREPARATION	* CLASS AA CONCRETE	EPOXY RESIN INJECTION	HYDRO-DEMOLITION OF BRIDGE DECK	LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH OVERLAY	PLACING & FINISHING LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH OVERLAY	FOAM JOINT SEALS	GROOVING BRIDGE FLOORS	SHOTCRETE REPAIRS	INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE TYPE S 9.5B	ASPHALT BINDER FOR PLANT MIX
SO. YDS.	SO. YDS.	SO. YDS.	SO. YDS.	CU. YDS.	L.F.	SO. YDS.	CU. YDS.	SO. YDS.	LUMP SUM	SO. FT.	CU. FT.	SO. YDS.	TONS	TONS
7,878	4	0	0	0	26	7,878	329	7,878	LUMP SUM	62,344	66	709	84	10

\* QUANTITY SHOWN IS FOR INFORMATION ONLY.

PROJECT NO. 17BP.3.H.2  
ONSLOW COUNTY  
 BRIDGE NO.: 28

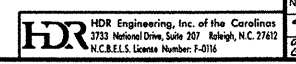


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

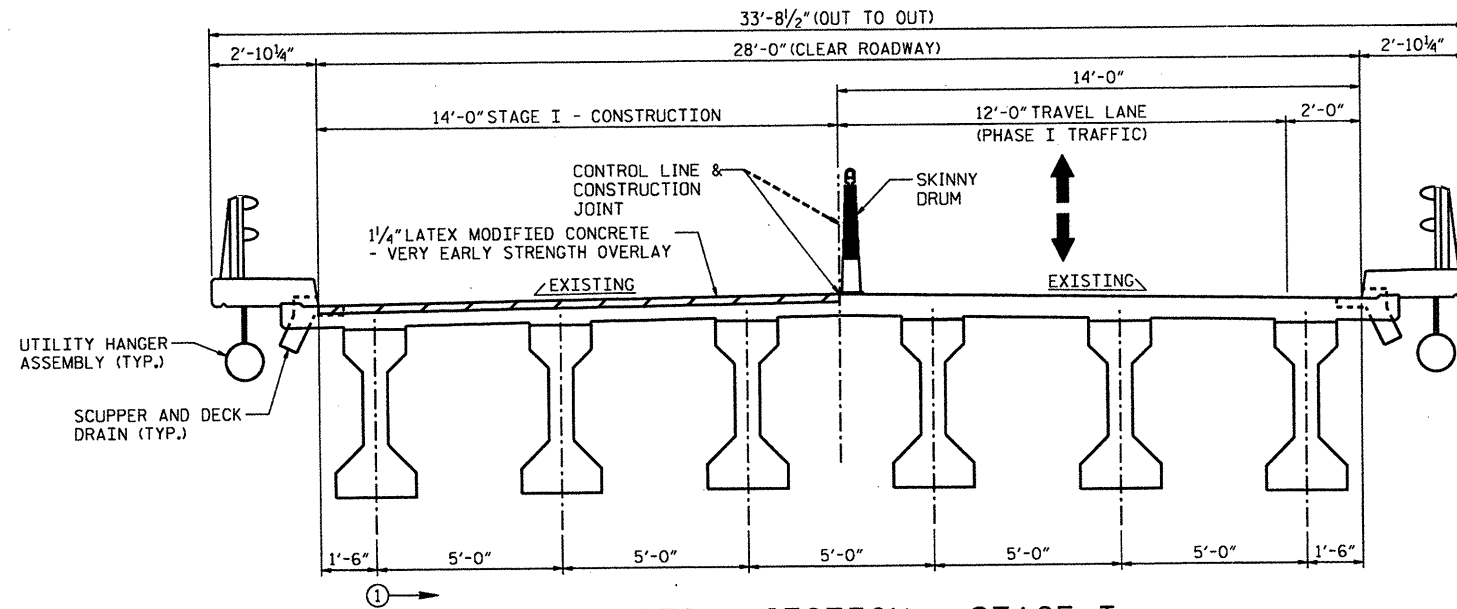
**GENERAL NOTES  
 AND TOTAL  
 BILL OF MATERIAL**

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NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011

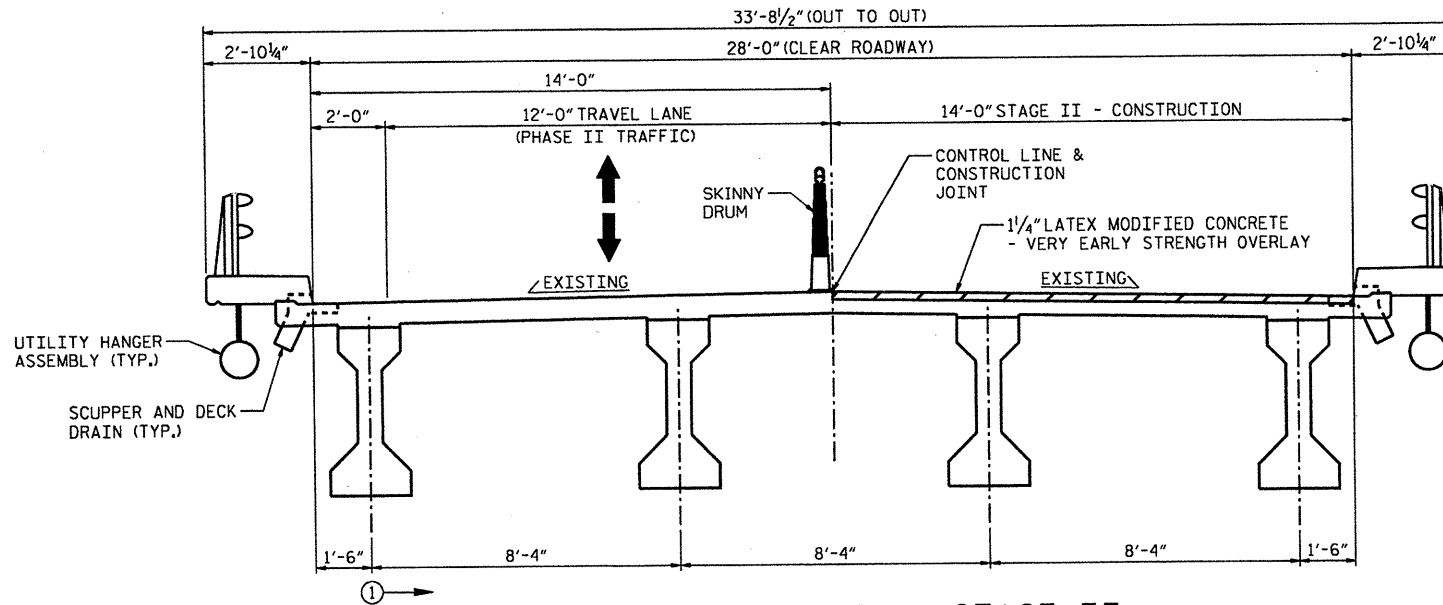


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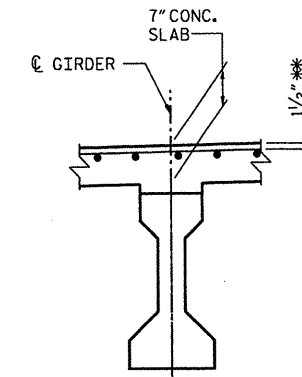
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(SPANS 13 AND 15 SHOWN, SPAN 14 SIMILAR. STAGE I CONSTRUCTION AND PHASE I TRAFFIC APPLIES AT ALL SPANS.)



**TYPICAL SECTION - STAGE II**

(SPANS 2 - 12 AND 16 - 26 SHOWN, SPANS 1 AND 27 SIMILAR. STAGE II CONSTRUCTION AND PHASE II TRAFFIC APPLIES AT ALL SPANS.)



**EXISTING SLAB SECTION**

BOTTOM MAT OF REINFORCING NOT SHOWN FOR CLARITY  
 \*\* CONCRETE COVER PER "AS-BUILT PLANS"

PROJECT NO. 17BP.3.H.2  
ONSLow COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**TYPICAL SECTION**  
 (NC 210 OVER INTRACOASTAL WATERWAY)

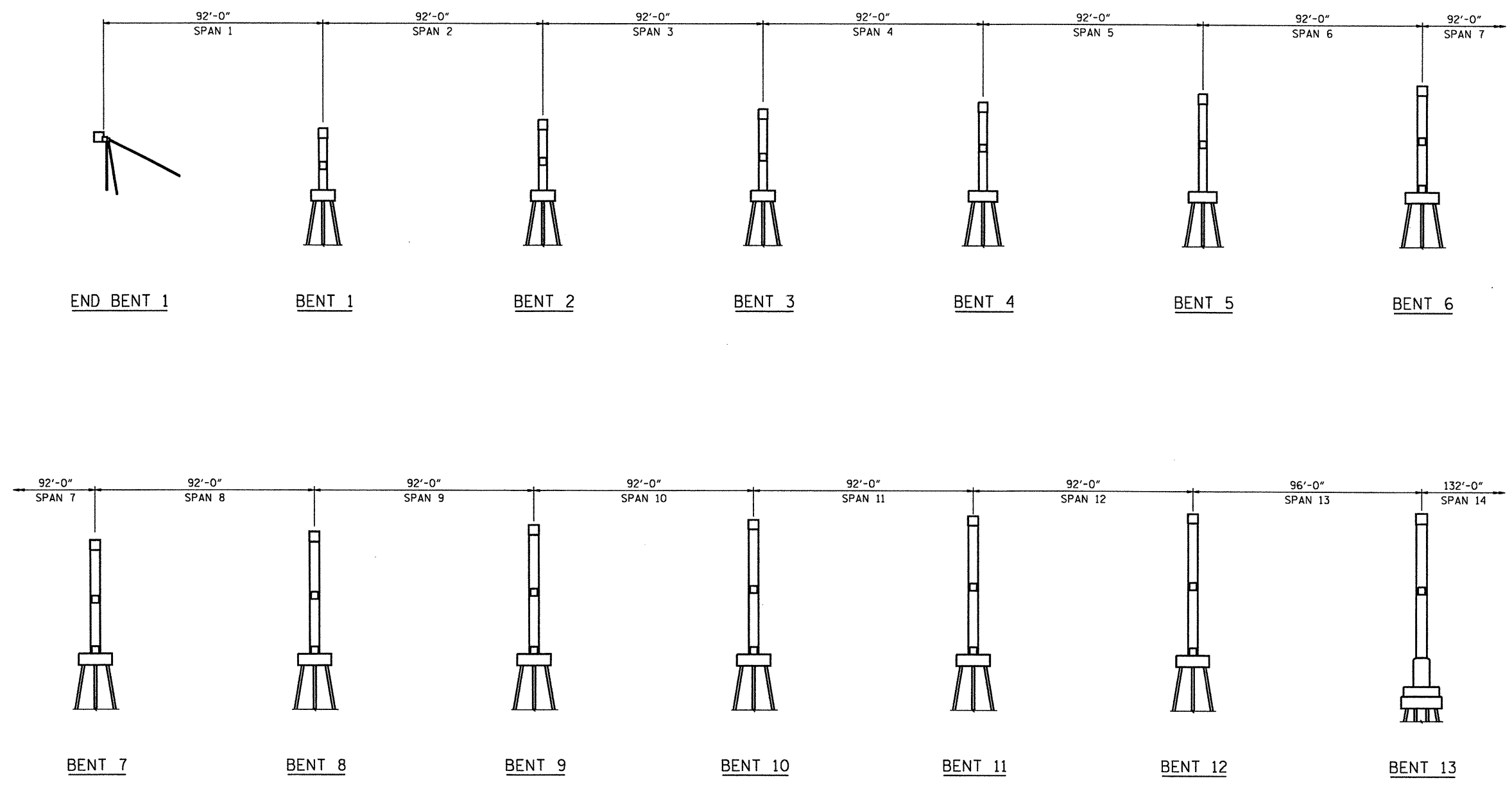
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DRAWN BY: D. CHAPMAN DATE: 12/2011  
 CHECKED BY: A. ABERNATHY DATE: 12/2011

**HDR** HDR Engineering, Inc. of the Carolinas  
 2723 Medical Drive, Suite 207 Raleigh, N.C. 27612  
 N.C.E.L.S. License Number: F-0116

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BRIDGE PROFILE

PROJECT NO. 17BP.3.H.2  
ONSLow COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

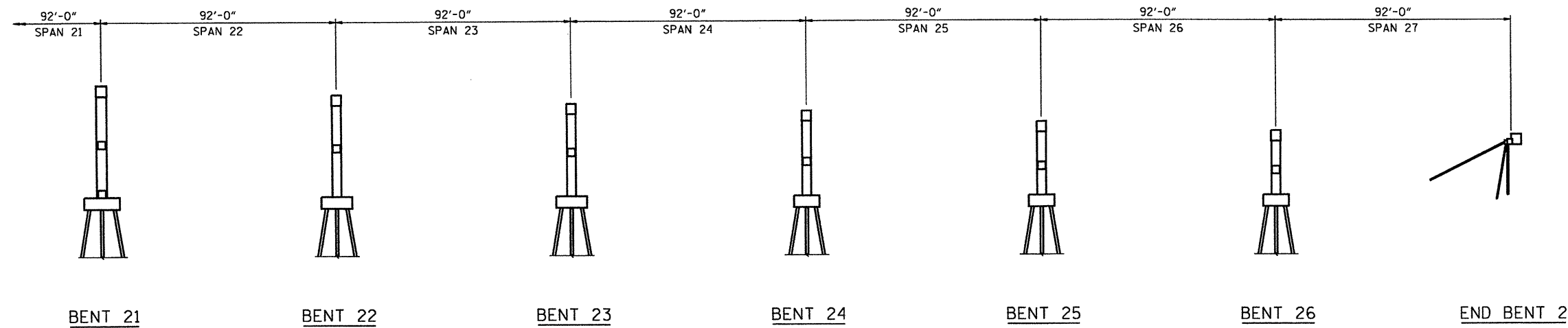
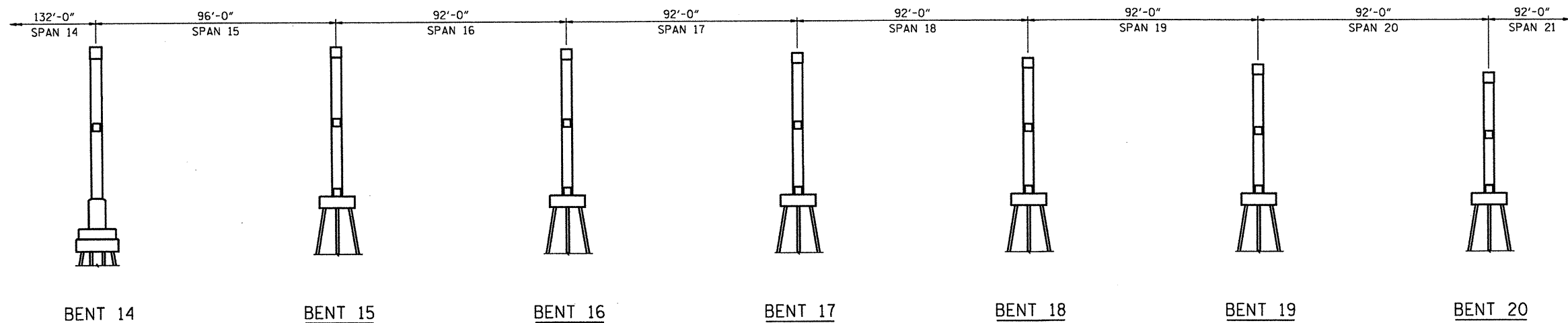
BRIDGE PROFILE  
 SPANS 1 - 14

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2			4		

SHEET NO. 5-3  
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DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011

HDR HDR Engineering, Inc. of the Carolinas  
 1723 National Drive, Suite 307 Raleigh, N.C. 27603  
 N.C. P.E. License Number: F-0116



BRIDGE PROFILE

PROJECT NO. 17BP.3.H.2  
ONSLow COUNTY  
 BRIDGE NO.: 28



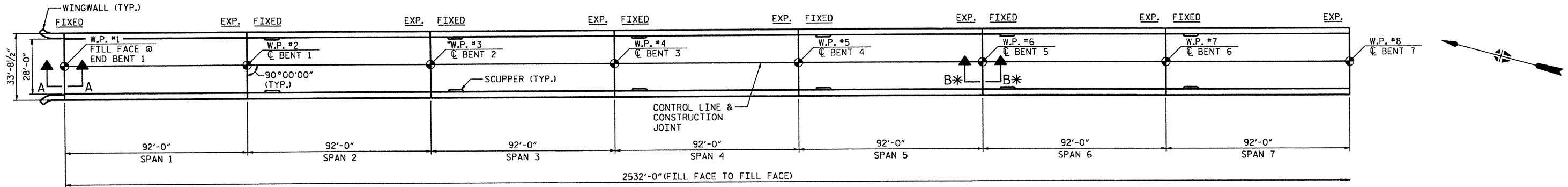
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 BRIDGE PROFILE  
 SPANS 14 - 27

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 CHECKED BY : A. ABERNATHY DATE : 12/2011

**HDR** HDR Engineering, Inc. of the Carolinas  
 3733 National Drive, Suite 207 Raleigh, N.C. 27612  
 N.C.R.E.L.S. License Number: F-0116

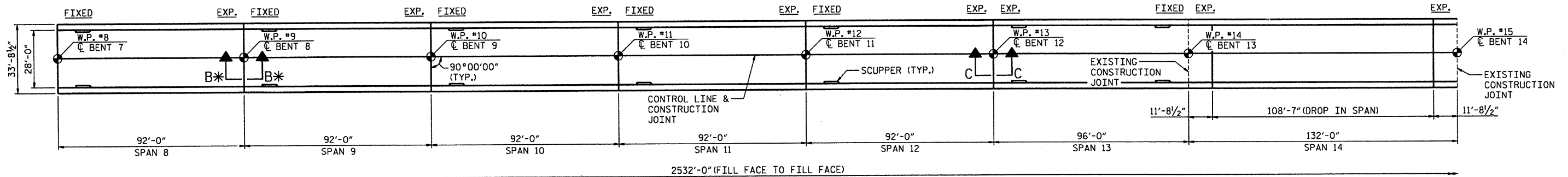
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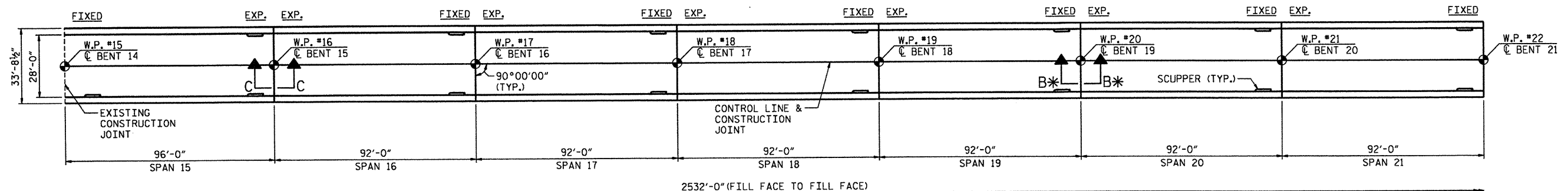
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SPANS 1 - 7  
\* SECTION B-B TYPICAL UNLESS NOTED OTHERWISE



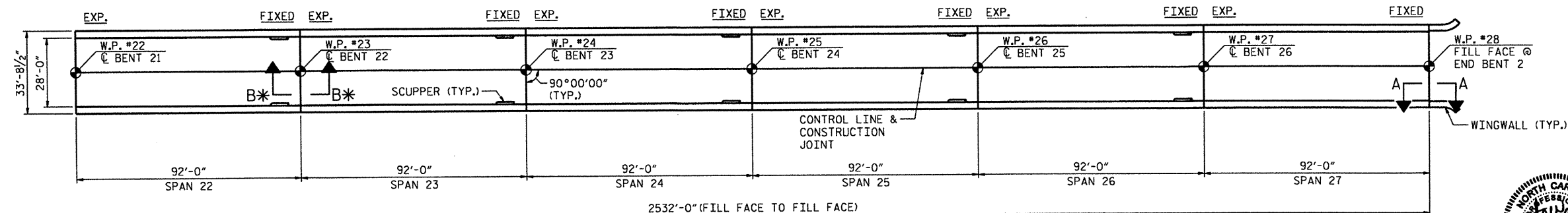
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SPANS 8 - 14  
\* SECTION B-B TYPICAL UNLESS NOTED OTHERWISE



**PLAN VIEW**

SPANS 15 - 21  
\* SECTION B-B TYPICAL UNLESS NOTED OTHERWISE



**PLAN VIEW**

SPANS 22 - 27  
\* SECTION B-B TYPICAL UNLESS NOTED OTHERWISE

**NOTES**

FOR SECTIONS A-A, B-B AND C-C, SEE "JOINT DETAILS".

PROJECT NO. 17BP.3.H.2  
ONSLow COUNTY  
BRIDGE NO.: 28

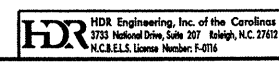


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**PLAN VIEW**

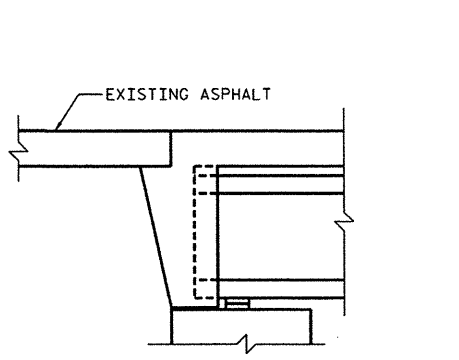
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DRAWN BY : D. CHAPMAN DATE : 12/2011  
CHECKED BY : A. ABERNATHY DATE : 12/2011

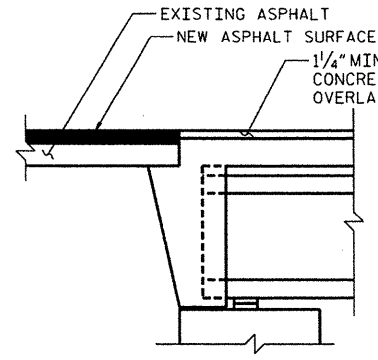


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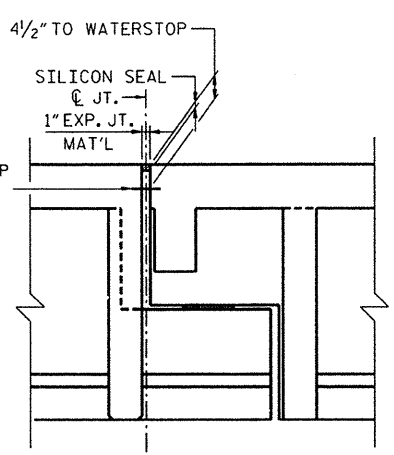


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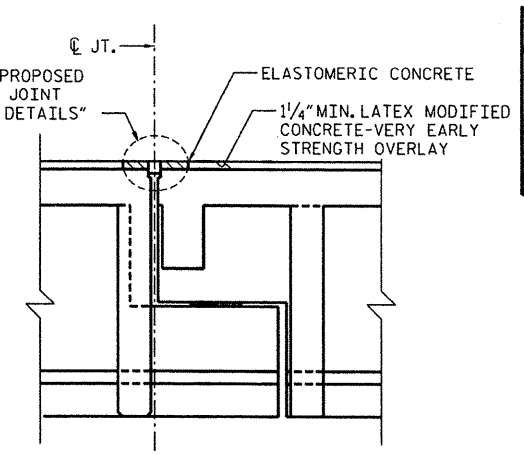


PROPOSED SECTION AT END BENT

SECTION A-A

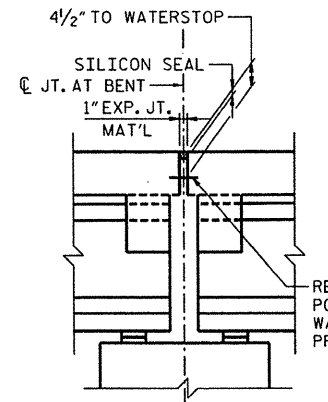


EXISTING JOINT AT DROP-IN SPAN

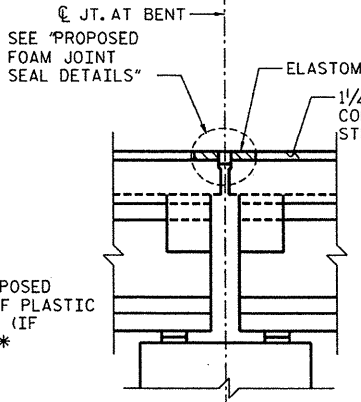


PROPOSED JOINT AT DROP-IN SPAN

SECTION D-D



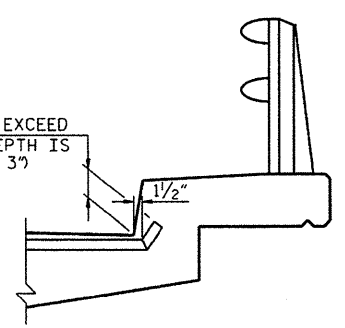
EXISTING JOINT AT BENTS



PROPOSED JOINT AT BENTS

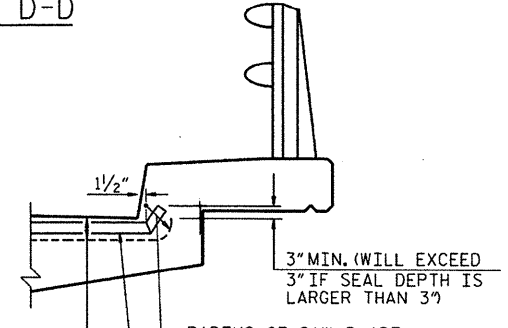
SECTION B-B

(BENTS 1-11 & 16-26)



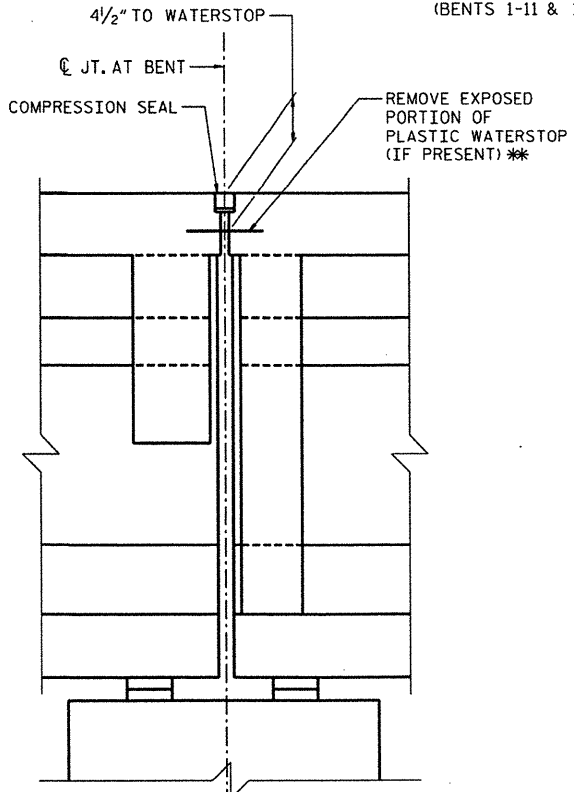
JOINT DETAIL AT RAIL

(BENTS 12 & 15, NOTCHED SAWED OPENING NOT REQUIRED)

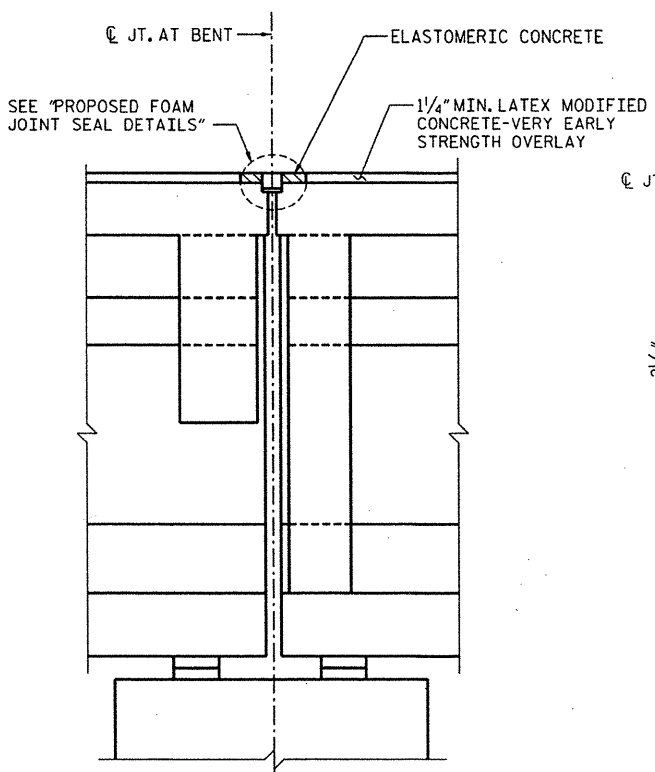


JOINT DETAIL AT RAIL

(BENTS 1-11 & 12-26 AND AT DROP-IN-SPAN)



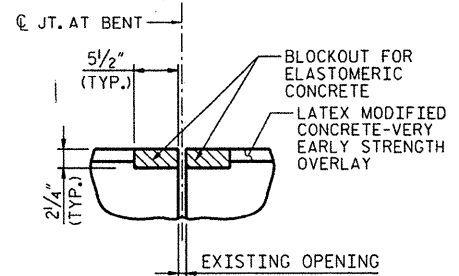
EXISTING JOINT AT BENTS



PROPOSED JOINT AT BENTS

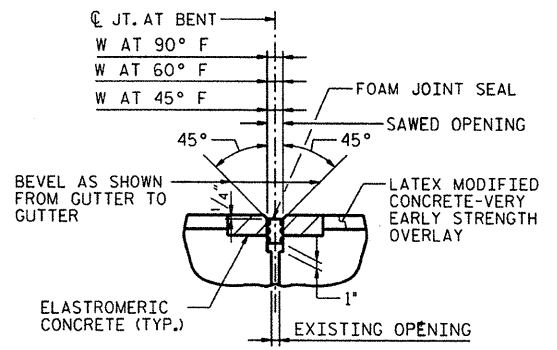
SECTION C-C

(BENTS 12 & 15)



DETAIL A

PRE-SAWED ELASTOMERIC CONCRETE DIMENSIONS



DETAIL B

SAWED OPENING DETAILS

PROPOSED FOAM JOINT SEAL DETAILS

(BENTS 1-11, 16-26, BEGIN/END DROP-IN SPAN)

SAWED OPENING FOR FOAM JOINT			
BENT NO.	W AT 90° F	W AT 60° F	W AT 30° F
1-11, 16-26	1 3/4"	2"	2 1/4"
12 & 15	2 1/4"	2 11/16"	2 15/16"
BEGIN/END DROP-IN-SPAN	1 13/16"	2"	2 1/4"

ELASTOMERIC CONCRETE	
BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
BENT 1	4.8
BENT 2	4.8
BENT 3	4.8
BENT 4	4.8
BENT 5	4.8
BENT 6	4.8
BENT 7	4.8
BENT 8	4.8
BENT 9	4.8
BENT 10	4.8
BENT 11	4.8
BENT 12	4.8
BENT 15	4.8
BENT 16	4.8
BENT 17	4.8
BENT 18	4.8
BENT 19	4.8
BENT 20	4.8
BENT 21	4.8
BENT 22	4.8
BENT 23	4.8
BENT 24	4.8
BENT 25	4.8
BENT 26	4.8
BEGIN DROP-IN-SPAN	4.8
END DROP-IN-SPAN	4.8
TOTAL	124.8

\* BASED ON THE MINIMUM BLOCKOUT SHOWN

PROJECT NO. 17BP.3.H.2

ONSLow COUNTY

BRIDGE NO.: 28

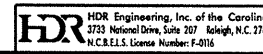


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

## JOINT DETAILS

DRAWN BY: D. CHAPMAN DATE: 12/2011  
CHECKED BY: A. ABERNATHY DATE: 12/2011

\*\* ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, THE ENTIRE WATERSTOP SHALL BE REMOVED. OTHERWISE, TRIM WATERSTOP FLUSH WITH EXISTING CONCRETE SURFACE.






REVISIONS						SHEET NO. 3-6
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			

PLOT DRIVER: NCDOT...  
 USER: ipatters...  
 FILE: North Carolina Dept. of Transportation...

PLOT DRIVER: NCDOT\_pdf\_mono\_eng\_50.plt  
 USER: msells  
 DATE: 2/24/2012  
 TIME: 7:50:28 AM  
 FILE: North Carolina Dept. of Transportation\NCDOT\_C2011\_STRDSN.onCall.TO\_4\13.00.CAD\DIV31.1\_SD\_ONSLOW028.07.dgn

DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011

### PLAN OF SPANS - DECK REPAIRS

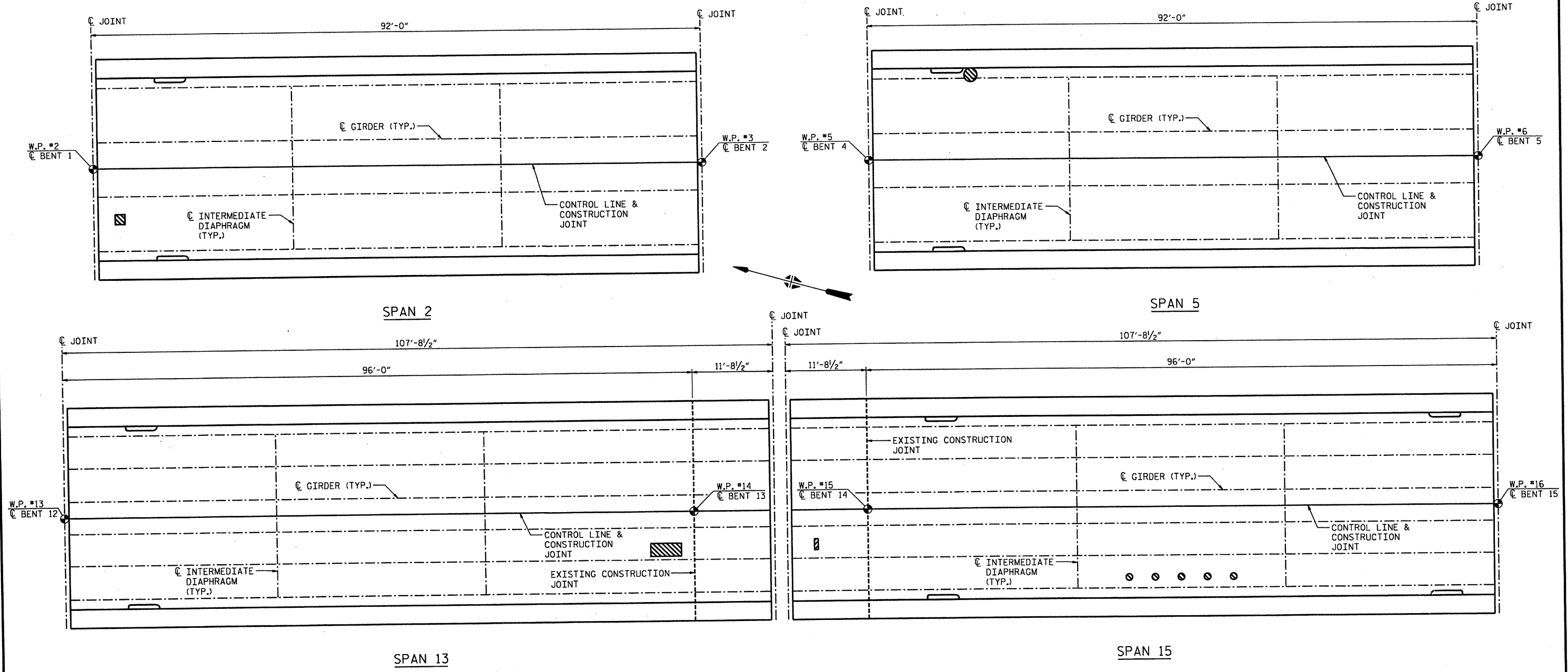
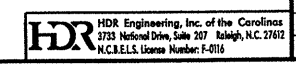
-  APPROX. AREA: CLASS I REPAIR
-  APPROX. AREA: CLASS II REPAIR
-  APPROX. AREA: CLASS III REPAIR

PROJECT NO. 17BP.3.H.2  
ONSLow COUNTY  
 BRIDGE NO.: 28

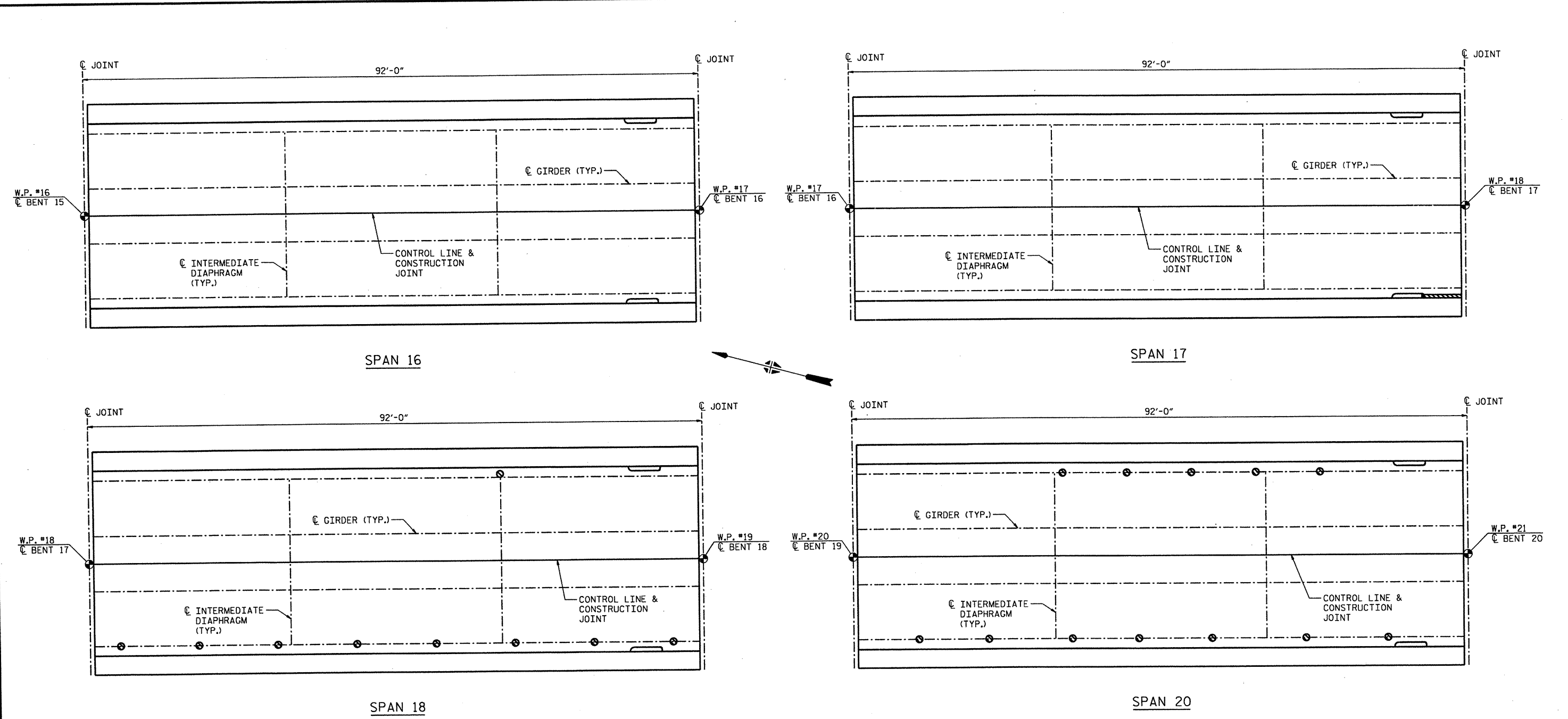


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
  
 PLAN VIEW  
 DECK REPAIR  
 SPANS 2, 5, 13 & 15

REVISIONS						SHEET NO. 5-7
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS 37
1			3			
2			4			



PLOT DRIVER: NCDOT\_pdf\_mono\_eng\_50.pit  
 USER: msells  
 FILE: North Carolina Dept. of Transportation\NCDOT\_C2011\_STROSN\_09\cell-10\_4\13.00\_CAD\DIV3.1\_SD\_ONSLOW28\_08.dgn  
 DATE: 2/24/2012  
 TIME: 15:03:39 AM



**PLAN OF SPANS - DECK REPAIRS**

- APPROX. AREA: CLASS I REPAIR
- APPROX. AREA: CLASS II REPAIR
- APPROX. AREA: CLASS III REPAIR

PROJECT NO. 17BP.3.H.2  
ONslow COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
  
 PLAN VIEW  
 DECK REPAIR  
 SPANS 16, 17, 18 & 20

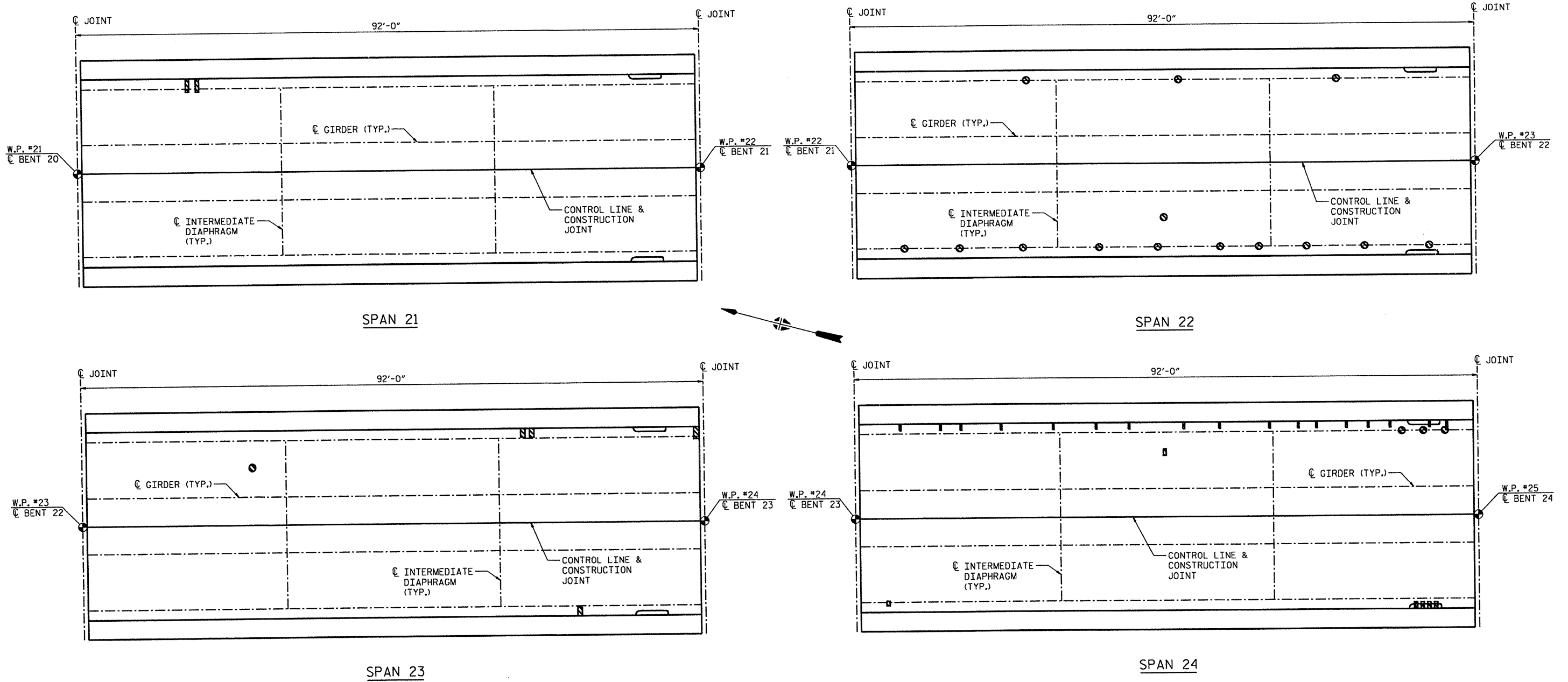
DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011

**HDR** HDR Engineering, Inc. of the Carolinas  
 3753 National Drive, Suite 207 Raleigh, N.C. 27612  
 N.C.R.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-8
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			

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 TIME: 7:50:50 AM  
 DATE: 2/24/2012

DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011



PLAN OF SPANS - DECK REPAIRS

- APPROX. AREA: CLASS I REPAIR
- APPROX. AREA: CLASS II REPAIR
- APPROX. AREA: CLASS III REPAIR

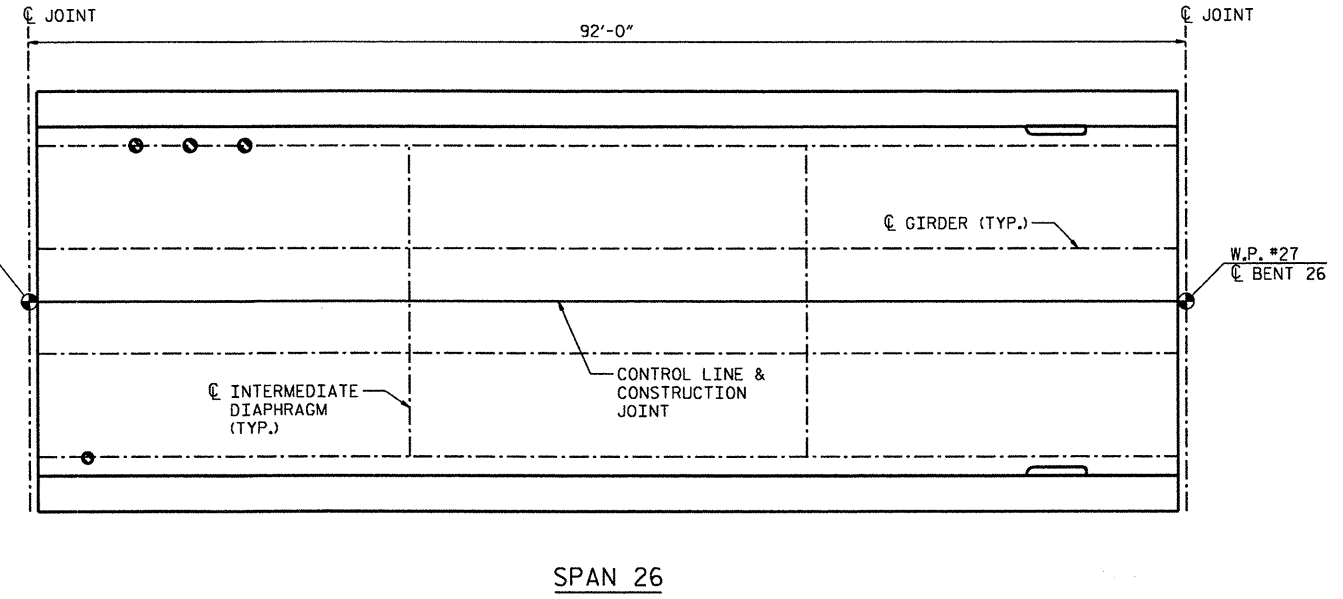
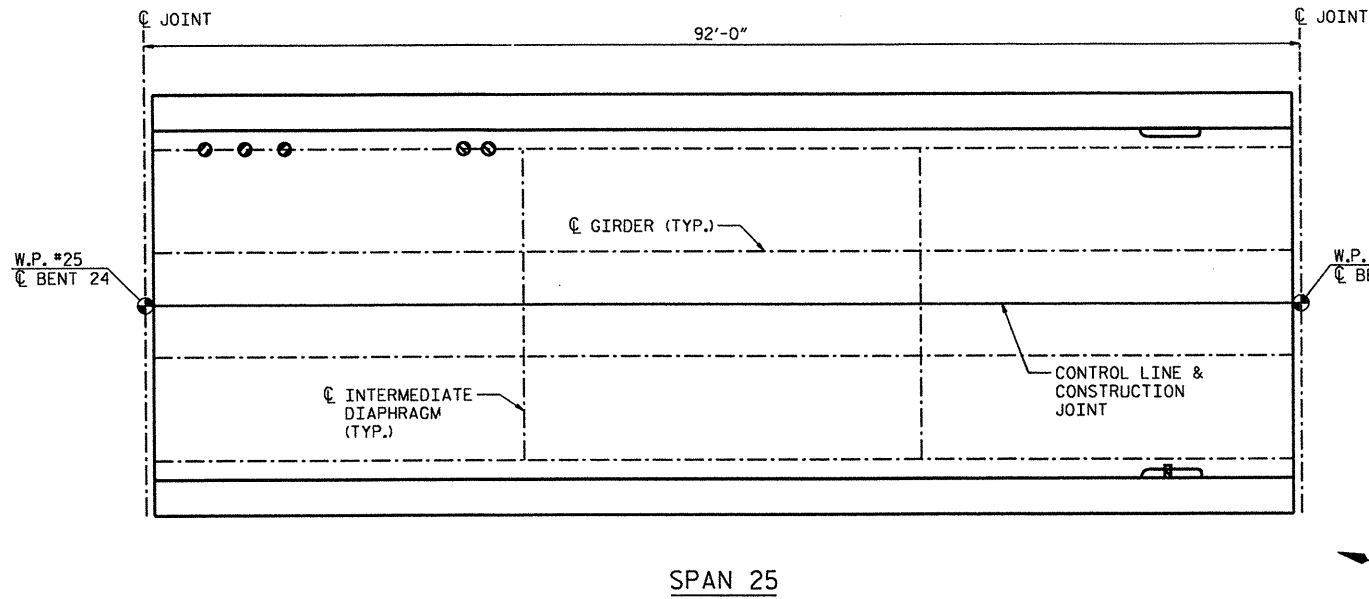
PROJECT NO. 17BP.3.H.2  
 ONSLOW COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 PLAN VIEW  
 DECK REPAIR  
 SPANS 21 - 24

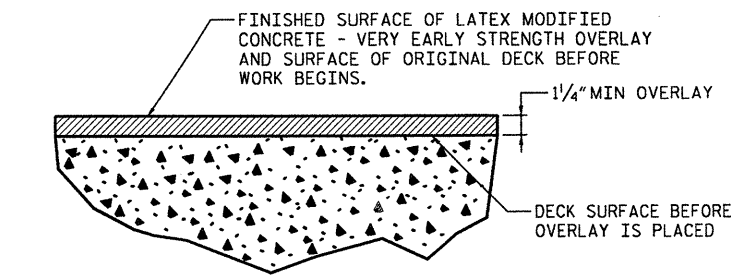
REVISIONS						SHEET NO. 5-9
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			

HDR Engineering, Inc. of the Carolinas  
 3733 National Drive, Suite 207 Raleigh, N.C. 27612  
 N.C. REG. LICENSE NUMBER: F-0116

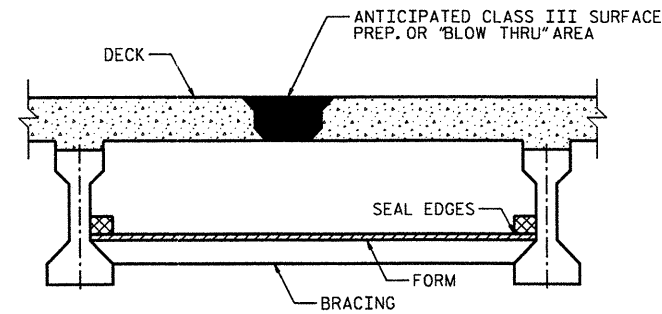


PLAN OF SPANS - DECK REPAIRS

- APPROX. AREA: CLASS I REPAIR
- APPROX. AREA: CLASS II REPAIR
- APPROX. AREA: CLASS III REPAIR



DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY



TYPICAL "BLOW THRU" CONTAINMENT AND FORMWORK

A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALLED IN AREAS INDICATED AS CLASS III SURFACE PREPARATION.  
 SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.  
 COST FOR INSTALLING REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PER SQ. YARD OF HYDRO-DEMOLITION.

PROJECT NO. 17BP.3.H.2  
ONSLow COUNTY  
 BRIDGE NO.: 28



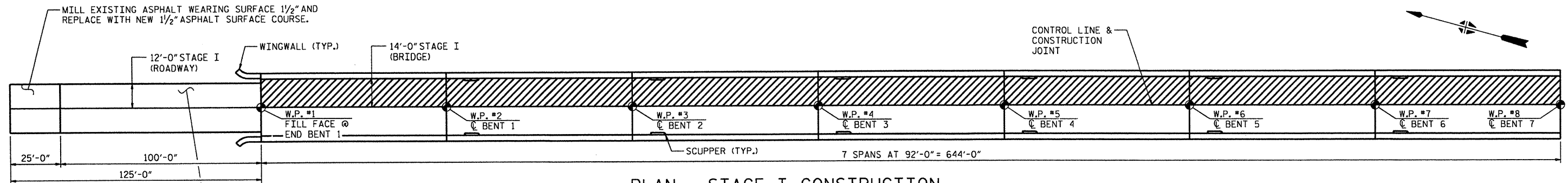
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

PLAN VIEW  
 DECK REPAIR  
 SPANS 25 & 26

REVISIONS						SHEET NO. S-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			

DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011

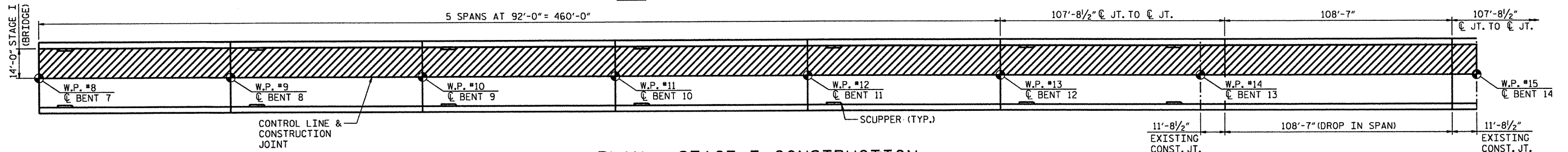
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 DATE: 2/24/2012  
 TIME: 7:51:05 AM  
 FILE: North Carolina Dept. of Transportation\NCDOT\_c2011\_STROSN\_OnCall\_TO\_4\13.00\_CAD\DIV31.SD\_ONSLOW028-10.dgn



PLAN - STAGE I CONSTRUCTION

SPANS 1 - 7

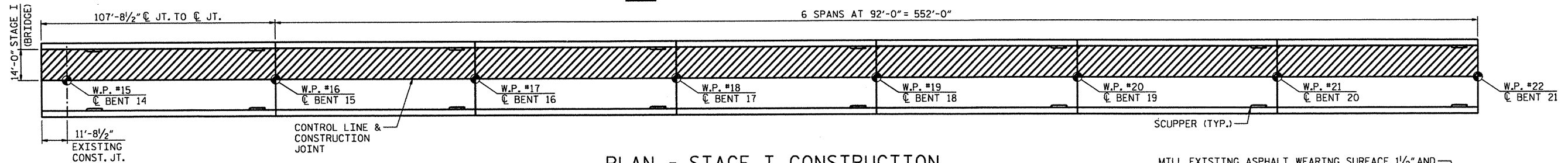
DECK SCARIFICATION AND HYDRO-DEMOLITION



PLAN - STAGE I CONSTRUCTION

SPANS 8 - 14

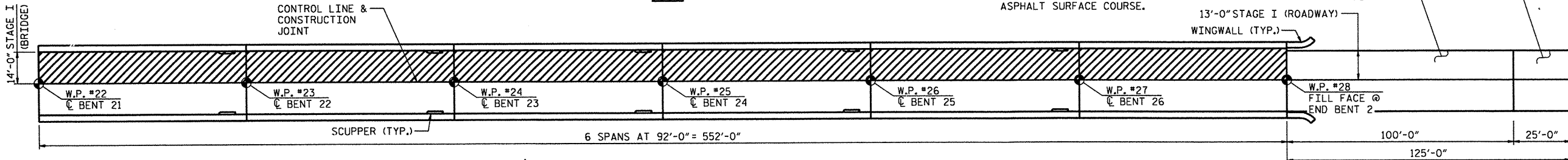
DECK SCARIFICATION AND HYDRO-DEMOLITION



PLAN - STAGE I CONSTRUCTION

SPANS 15 - 21

DECK SCARIFICATION AND HYDRO-DEMOLITION



PLAN - STAGE I CONSTRUCTION

SPANS 22 - 27

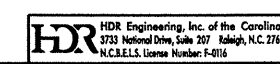
DECK SCARIFICATION AND HYDRO-DEMOLITION

PROJECT NO. 17BP.3.H.2  
 ONSLOW COUNTY  
 BRIDGE NO.: 28



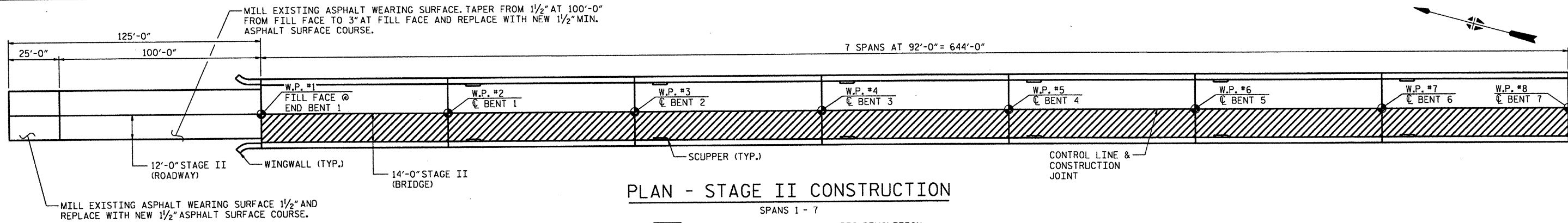
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 DECK SCARIFICATION  
 STAGE I

REVISIONS						SHEET NO. S-11
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			



DRAWN BY: D. CHAPMAN DATE: 12/2011  
 CHECKED BY: A. ABERNATHY DATE: 12/2011

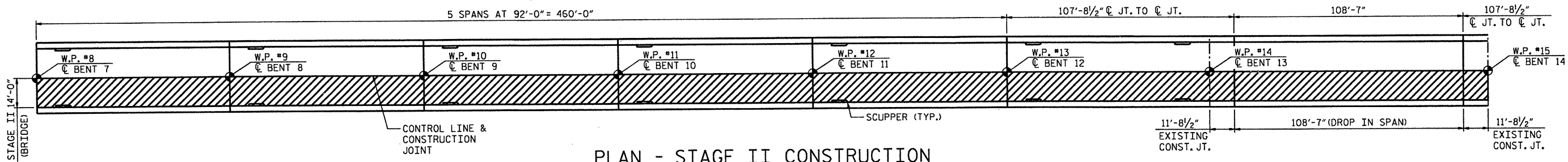
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 DATE: 2/24/2012  
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PLAN - STAGE II CONSTRUCTION

SPANS 1 - 7

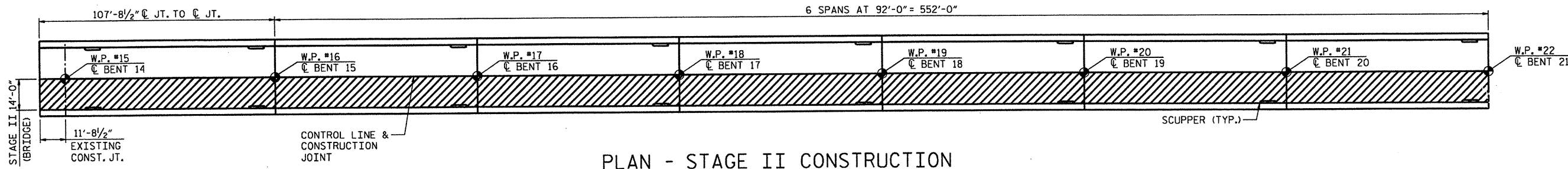
DECK SCARIFICATION AND HYDRO-DEMOLITION



PLAN - STAGE II CONSTRUCTION

SPANS 8 - 14

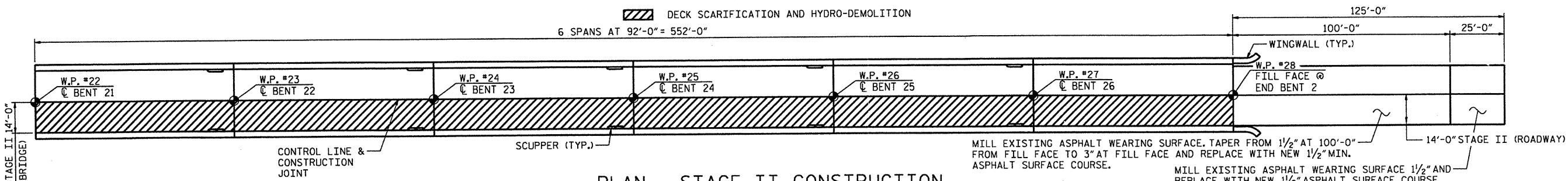
DECK SCARIFICATION AND HYDRO-DEMOLITION



PLAN - STAGE II CONSTRUCTION

SPANS 15 - 21

DECK SCARIFICATION AND HYDRO-DEMOLITION



PLAN - STAGE II CONSTRUCTION

SPANS 22 - 27

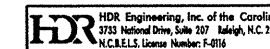
DECK SCARIFICATION AND HYDRO-DEMOLITION

PROJECT NO. 17BP.3.H.2  
 ONSLOW COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
DECK SCARIFICATION STAGE II					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			2		
2			4		
SHEET NO. S-12					TOTAL SHEETS 37

DRAWN BY: D. CHAPMAN DATE: 12/2011  
 CHECKED BY: A. ABERNATHY DATE: 12/2011

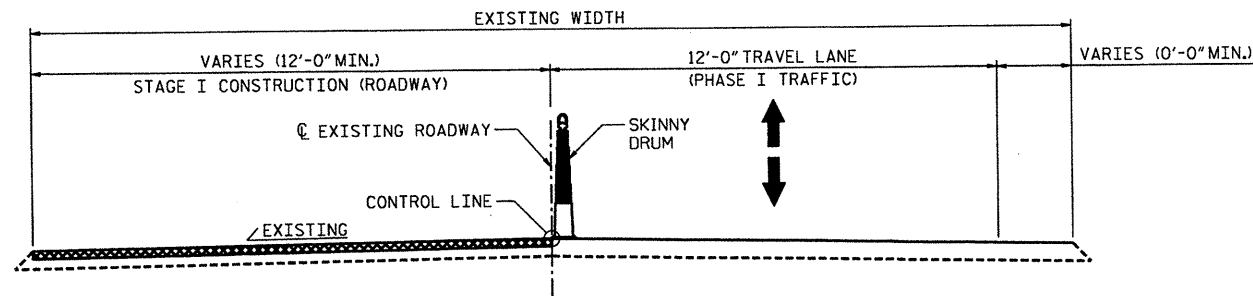


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 USER: mseis  
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**NOTES**

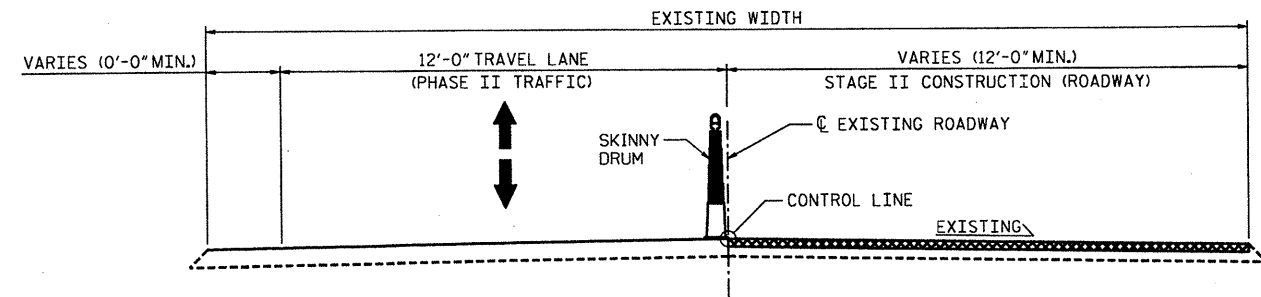
APSHALT CONCRETE SURFACE COURSE, TYPE S 9.5B TO BE PLACED IN LIFTS NOT TO EXCEED 2".

C1 PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S 9.5B AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH.



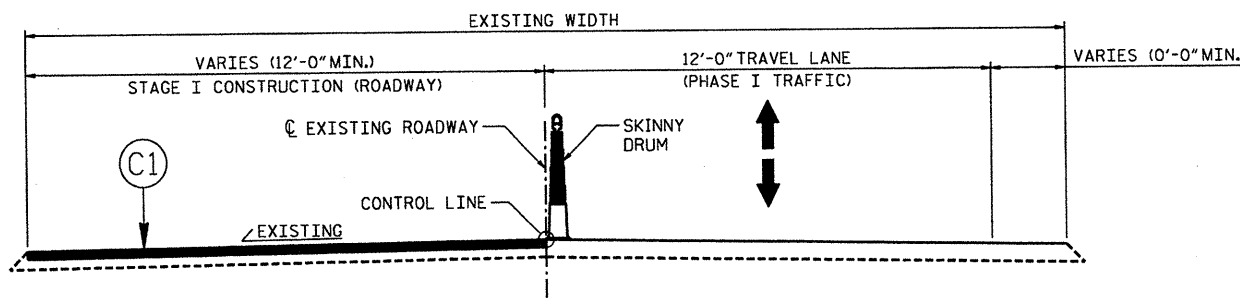
**TYPICAL ROADWAY MILLING SECTION - STAGE I CONSTRUCTION**

(MILLING DEPTH VARIES, SEE PLAN)  
 ASPHALT MILLING

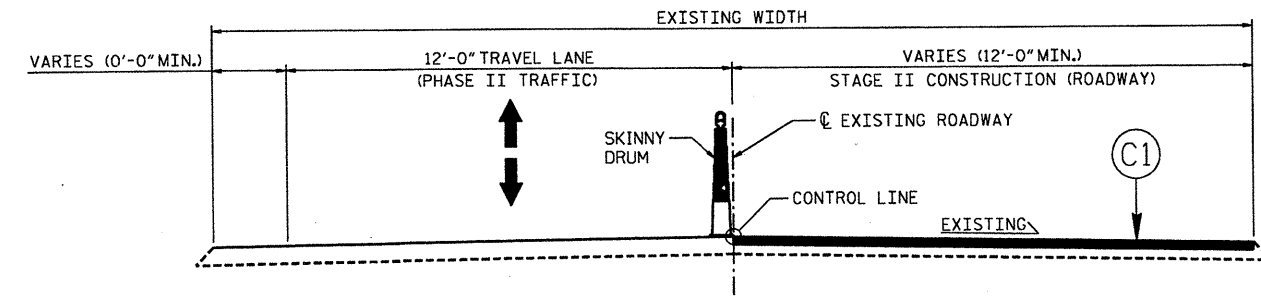


**TYPICAL ROADWAY MILLING SECTION - STAGE II CONSTRUCTION**

(MILLING DEPTH VARIES, SEE PLAN)  
 ASPHALT MILLING



**TYPICAL ROADWAY SECTION - STAGE I CONSTRUCTION**



**TYPICAL ROADWAY SECTION - STAGE II CONSTRUCTION**

PROJECT NO. 17BP.3.H.2  
ONSLOW COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**TYPICAL ROADWAY SECTION**

REVISIONS						SHEET NO. 5-13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			

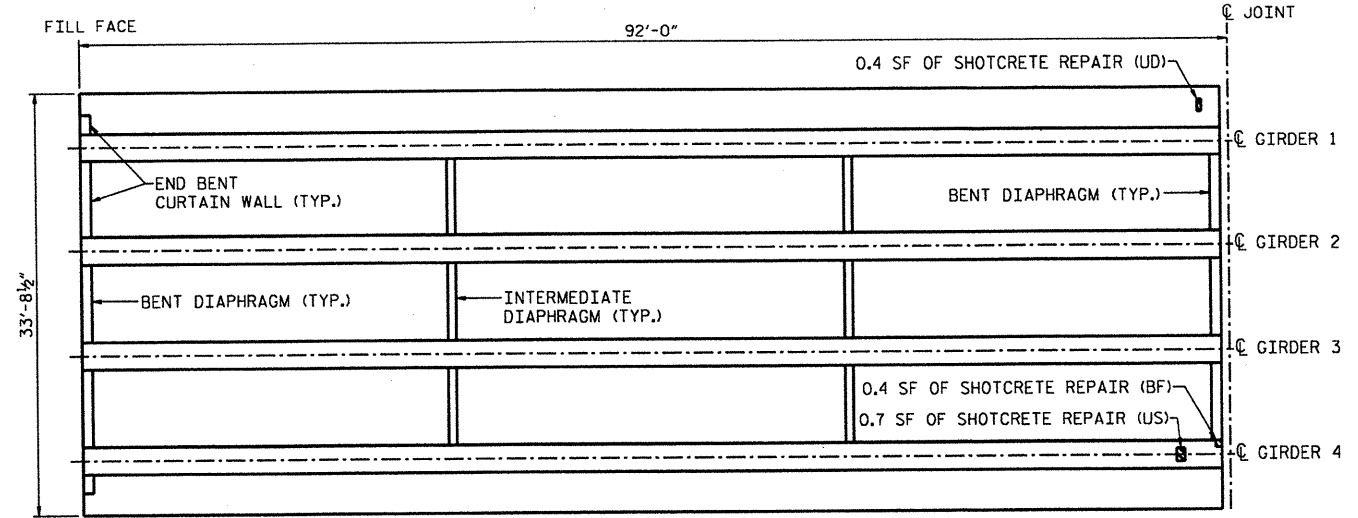
**HDR** HDR Engineering, Inc. of the Carolinas  
 1733 Norfolk Drive, Suite 207 Raleigh, N.C. 27612  
 N.C. E.L.S. License Number: F-0116

DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011

PLOT DRIVER: NCDOT\_pdf\_mono\_eng\_50.plt  
 USER: msells  
 DATE: 4/11/2012  
 TIME: 1:39:28 PM  
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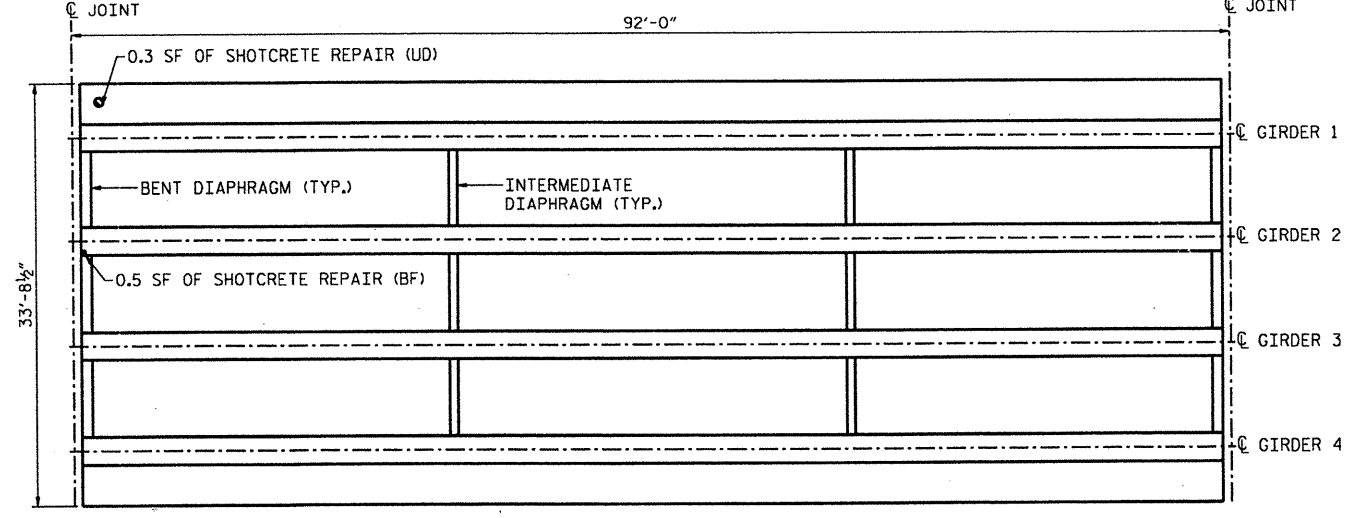


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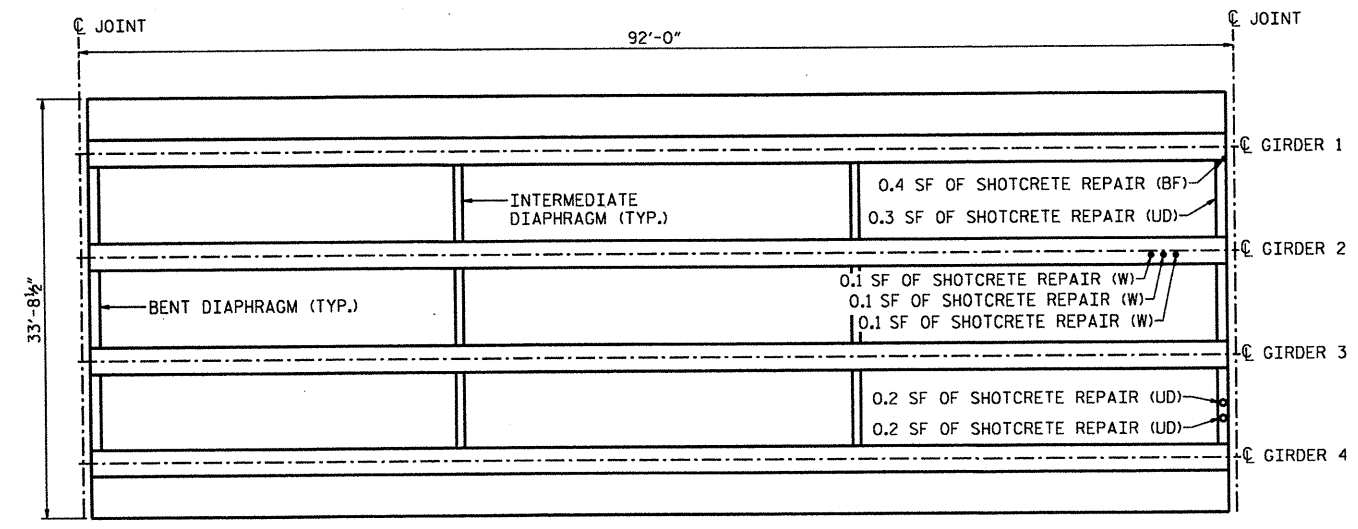
END BENT 1 BENT 1

SPAN 1 - UNDERSIDE



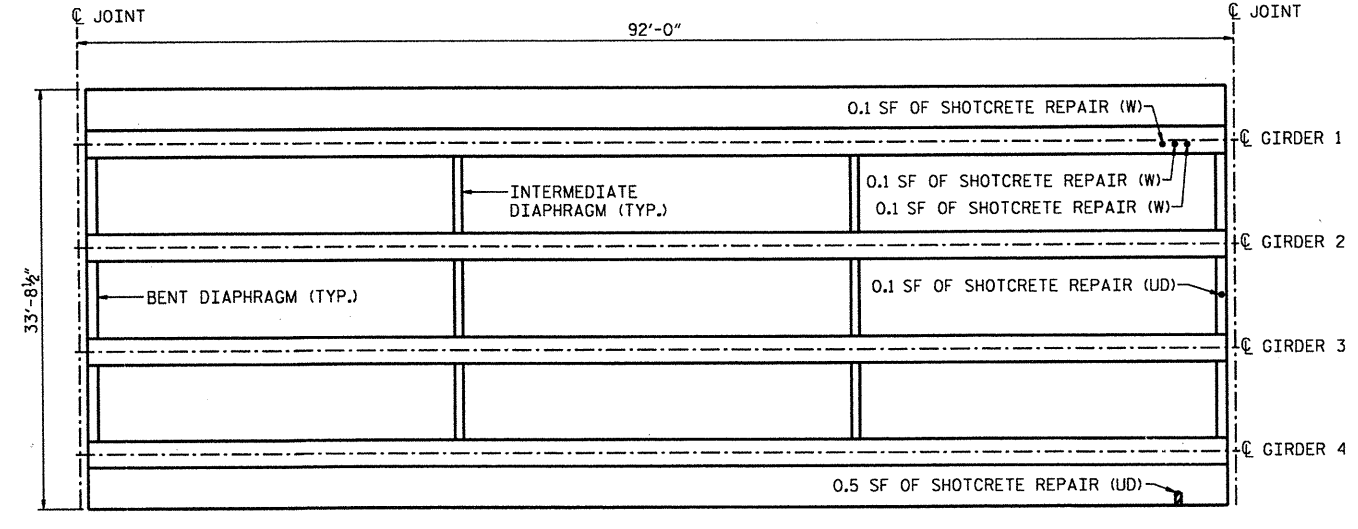
BENT 2

SPAN 2 - UNDERSIDE



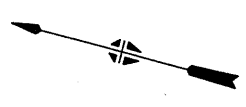
BENT 2 BENT 3

SPAN 3 - UNDERSIDE



BENT 4

SPAN 4 - UNDERSIDE



**NOTES**

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".

UTILITIES MOUNTED TO BOTTOM OF OVERHANGS NOT SHOWN.

DECK DRAINS NOT SHOWN.

SHOTCRETE REPAIR

BILL OF MATERIAL		
SPANS 1 - 4		
SHOTCRETE REPAIR SPAN 1	CF	0.4
SHOTCRETE REPAIR SPAN 2	CF	0.2
SHOTCRETE REPAIR SPAN 3	CF	0.4
SHOTCRETE REPAIR SPAN 4	CF	0.3

DRAWN BY : D. CHAPMAN    DATE : 12/2011  
 CHECKED BY : A. ABERNATHY    DATE : 12/2011

PROJECT NO. 17BP.3.H.2  
ONSLOW COUNTY  
 BRIDGE NO.: 28

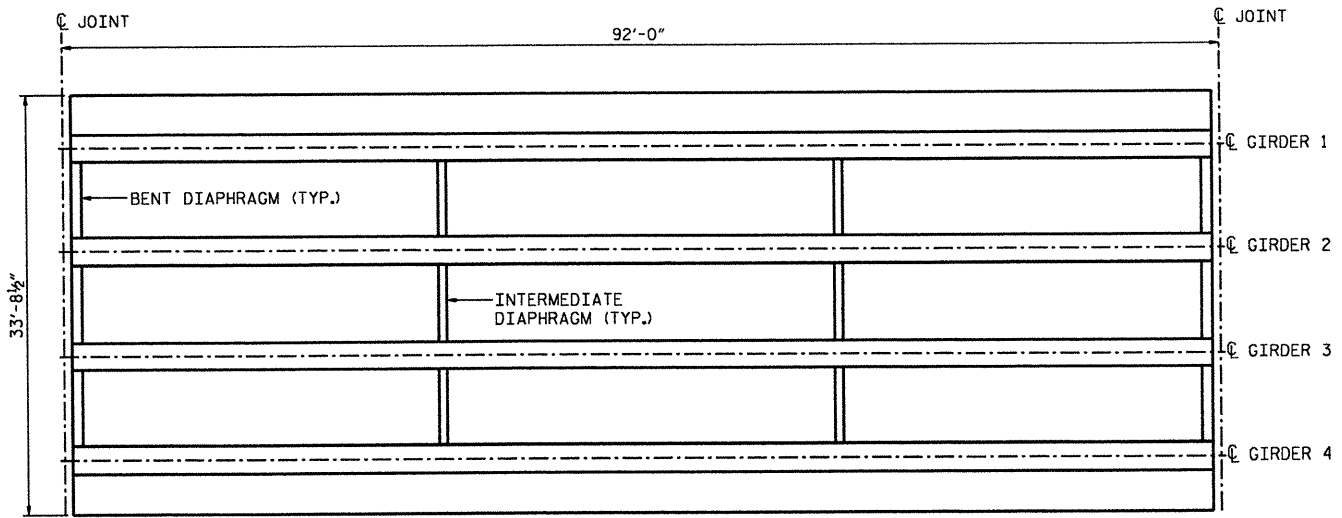


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE  
UNDERSIDE REPAIR  
SPANS 1 - 4

REVISIONS						SHEET NO. S-14  TOTAL SHEETS 37
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

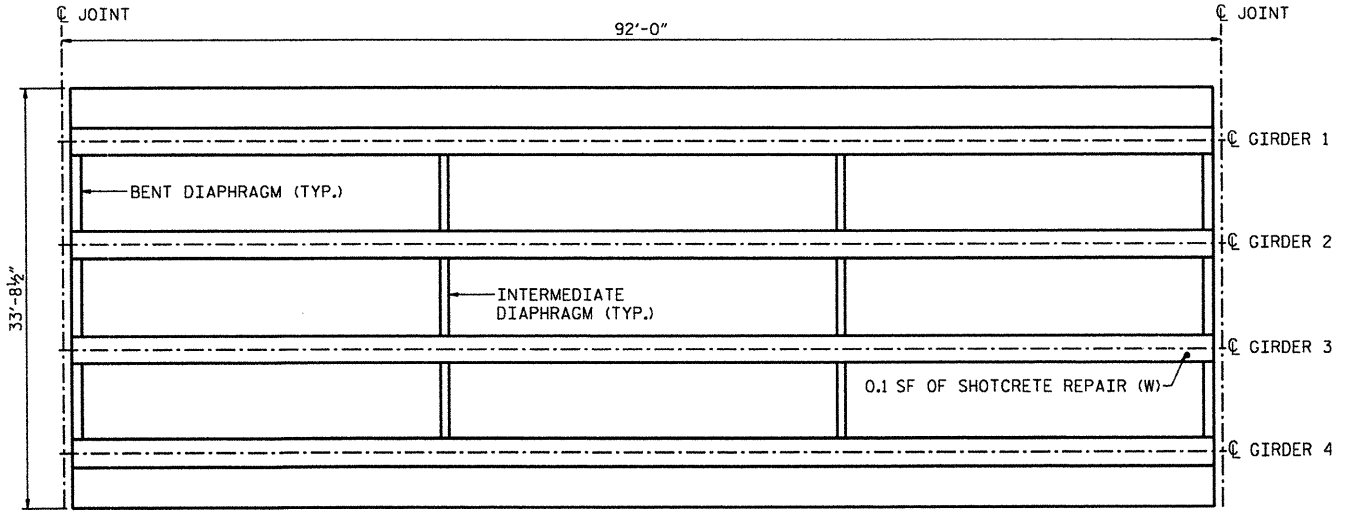
HDR Engineering, Inc. of the Carolinas  
 3733 National Drive, Suite 207 Raleigh, N.C. 27612  
 N.C. E.L.L. License Number: F-0116



BENT 4

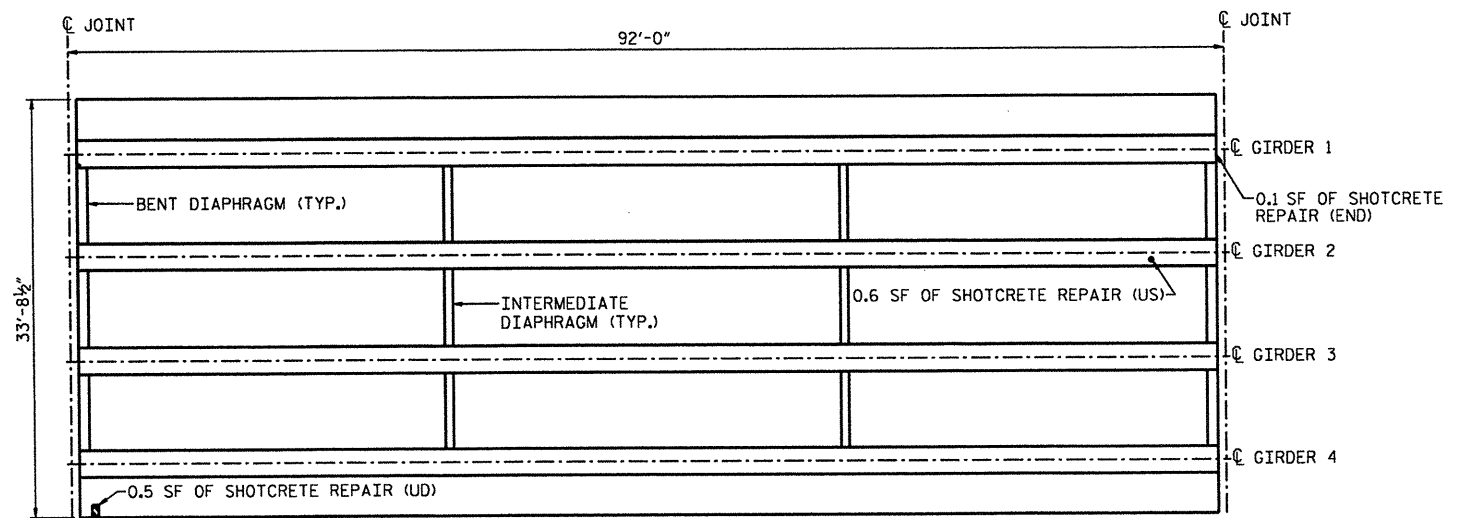
SPAN 5 - UNDERSIDE

BENT 5



BENT 6

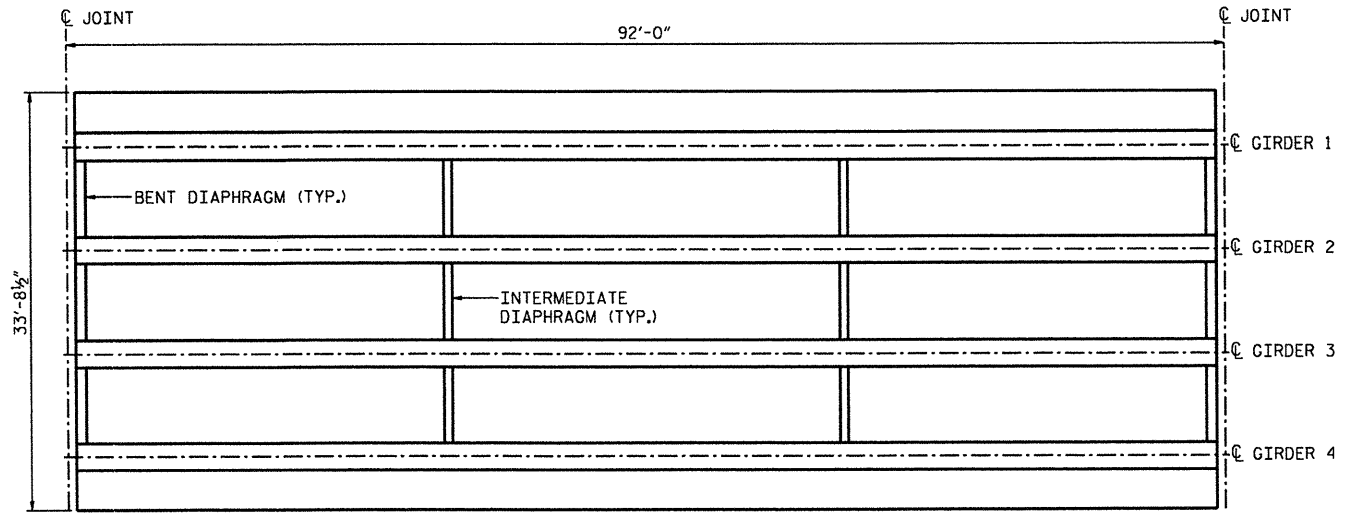
SPAN 6 - UNDERSIDE



BENT 6

SPAN 7 - UNDERSIDE

BENT 7



BENT 8

SPAN 8 - UNDERSIDE



**NOTES**

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".

UTILITIES MOUNTED TO BOTTOM OF OVERHANGS NOT SHOWN.

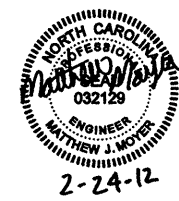
DECK DRAINS NOT SHOWN.

SHOTCRETE REPAIR

**BILL OF MATERIAL**

SPANS 5 - 8		
SHOTCRETE REPAIR SPAN 5	CF	0.0
SHOTCRETE REPAIR SPAN 6	CF	0.1
SHOTCRETE REPAIR SPAN 7	CF	0.3
SHOTCRETE REPAIR SPAN 8	CF	0.0

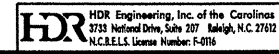
PROJECT NO. 17BP.3.H.2  
ONSLow COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

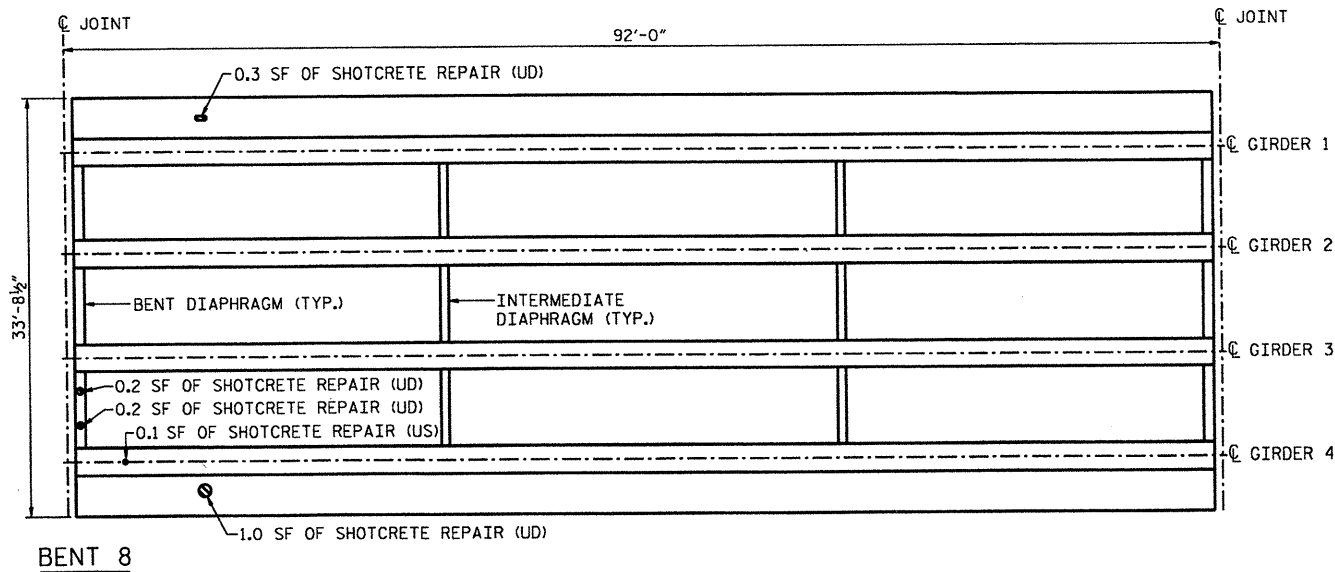
**SUPERSTRUCTURE  
 UNDERSIDE REPAIR  
 SPANS 5 - 8**

REVISIONS						SHEET NO. 5-15 TOTAL SHEETS 37
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

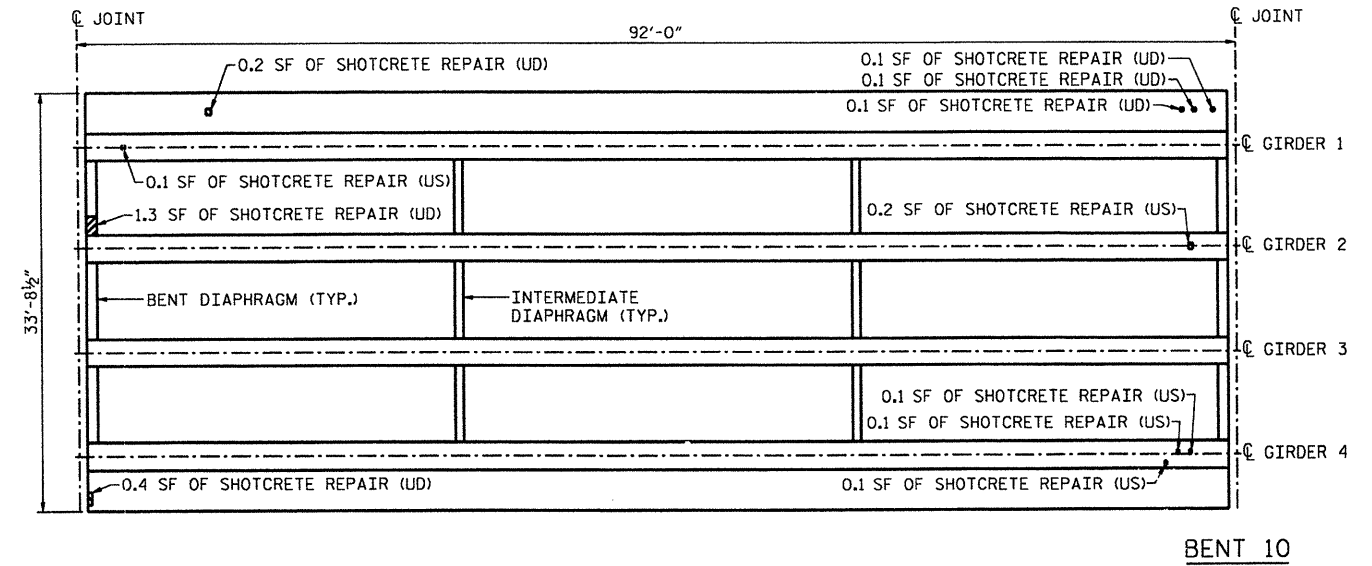


DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011

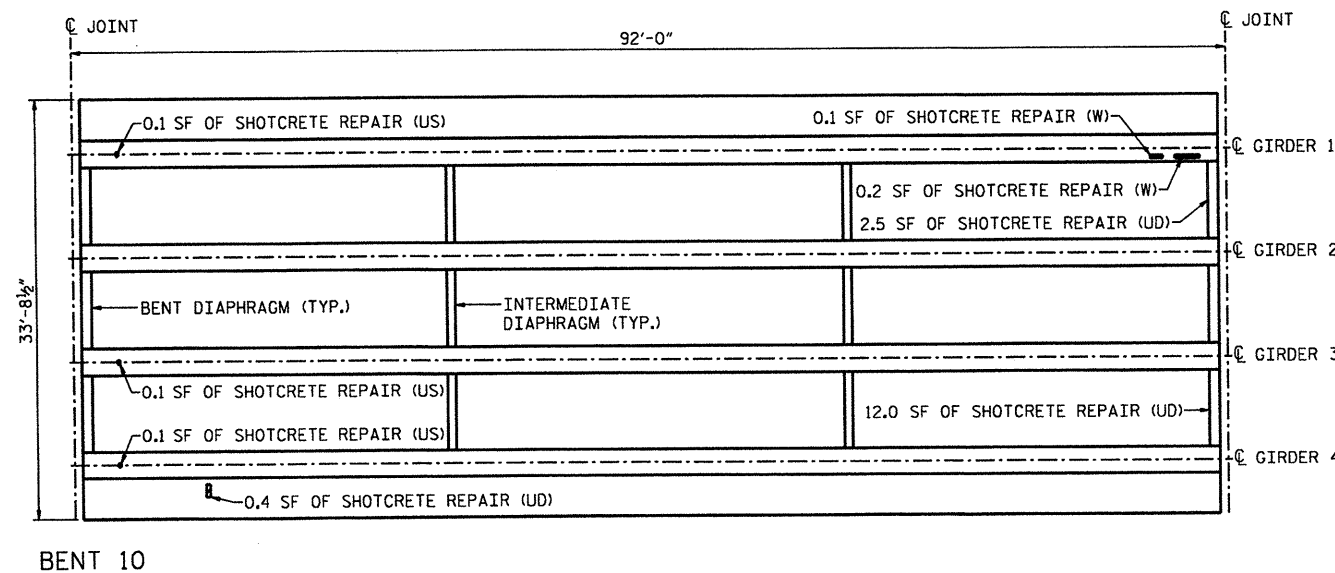
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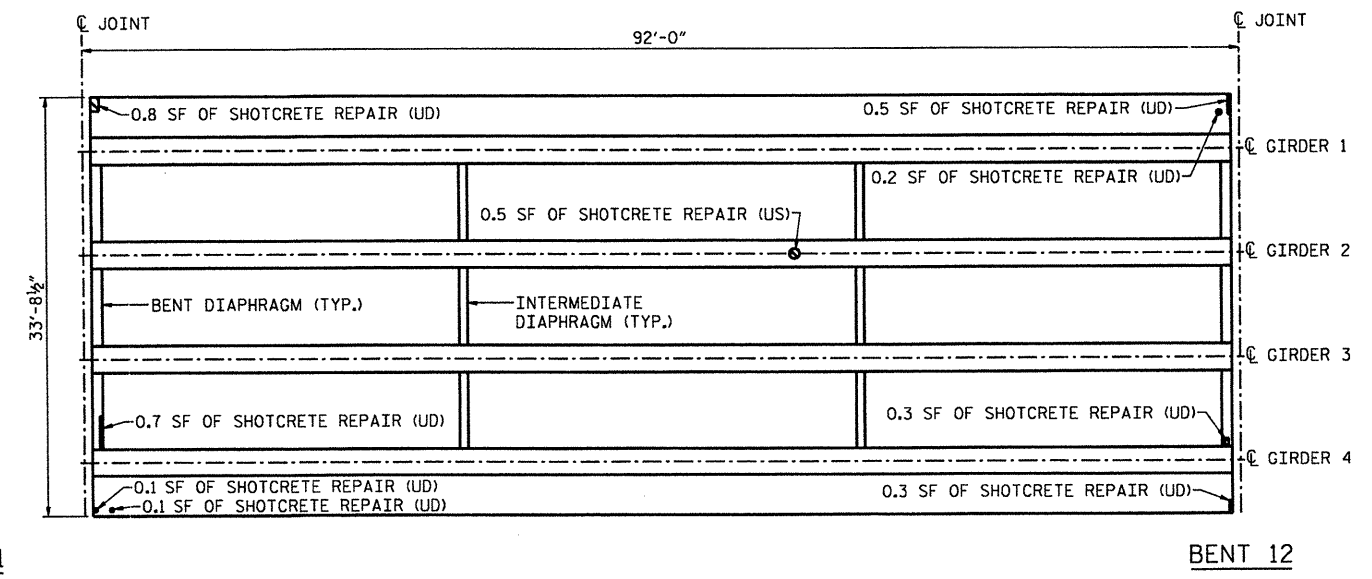
SPAN 9 - UNDERSIDE



SPAN 10 - UNDERSIDE



SPAN 11 - UNDERSIDE



SPAN 12 - UNDERSIDE




**NOTES**

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".

UTILITIES MOUNTED TO BOTTOM OF OVERHANGS NOT SHOWN.

DECK DRAINS NOT SHOWN.

 SHOTCRETE REPAIR

BILL OF MATERIAL			
SPANS 9 - 12			
SHOTCRETE REPAIR SPAN 9	CF	0.5	
SHOTCRETE REPAIR SPAN 10	CF	1.2	
SHOTCRETE REPAIR SPAN 11	CF	4.6	
SHOTCRETE REPAIR SPAN 12	CF	1.0	

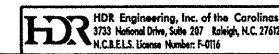
PROJECT NO. 17BP.3.H.2  
ONslow COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 UNDERSIDE REPAIR  
 SPANS 9 - 12

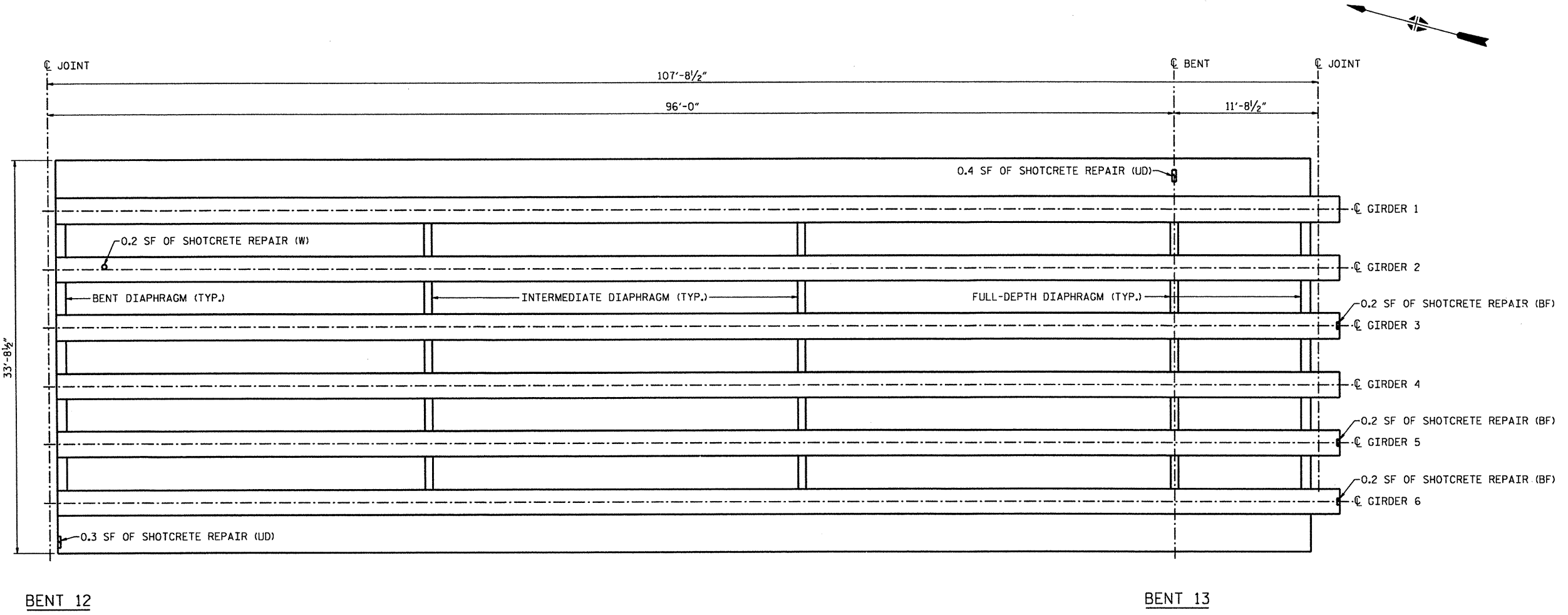
REVISIONS						SHEET NO. 5-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			

DRAWN BY: D. CHAPMAN DATE: 12/2011  
 CHECKED BY: A. ABERNATHY DATE: 12/2011



PLOT DRIVER: NCDOT\_pdf\_mono\_eng\_50.plt  
 USER: msells DATE: 2/24/2012  
 FILE: North Carolina Dept. of Transportation\NCDOT\_C2011\_STROSN\_OnCall\_TO\_4\13.00\_CAD\DIV3.1\_SD\_ONSLOW028.16.DGN

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 DATE: 2/24/2012  
 TIME: 7:52:39 AM



**SUPERSTRUCTURE SPAN 13**

**NOTES**

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".

UTILITIES MOUNTED TO BOTTOM OF OVERHANGS NOT SHOWN.

DECK DRAINS NOT SHOWN.

SHOTCRETE REPAIR

<b>BILL OF MATERIAL</b>	
SPAN 13	
SHOTCRETE REPAIR	CF 0.4

PROJECT NO. 17BP.3.H.2  
ONSLW COUNTY  
 BRIDGE NO.: 28



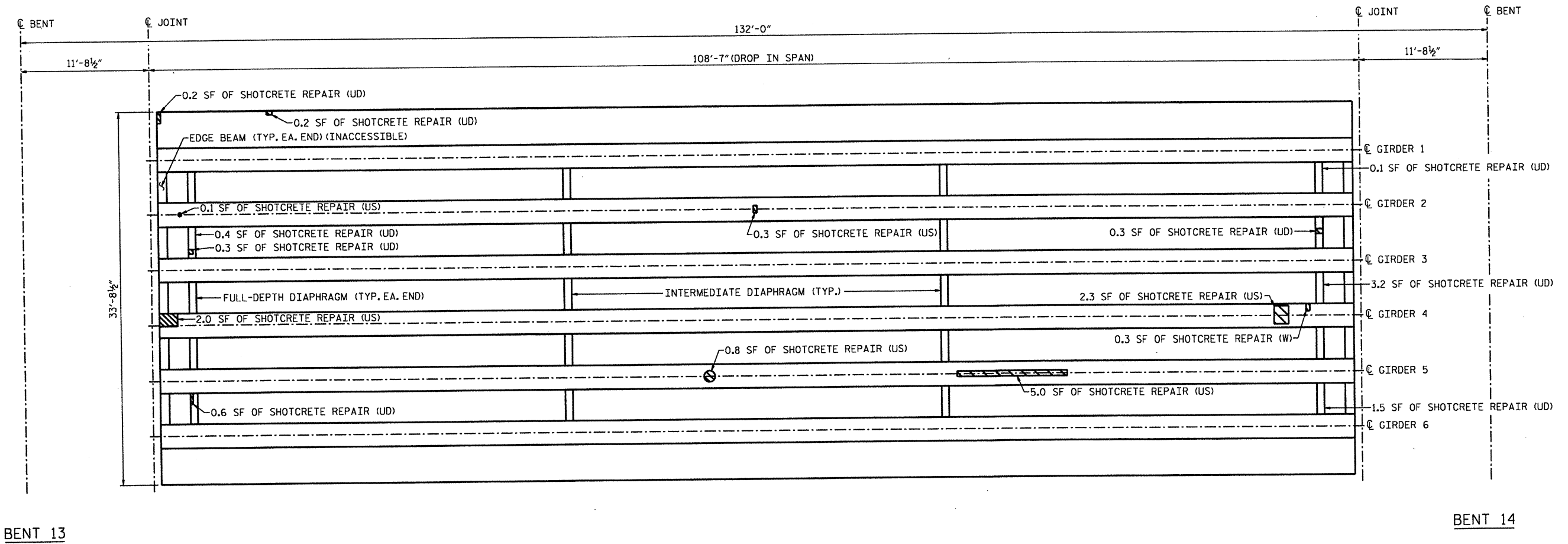
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUPERSTRUCTURE  
 UNDERSIDE REPAIR  
 SPAN 13**

DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011

**HDR** HDR Engineering, Inc. of the Carolinas  
 3733 National Drive, Suite 207 Raleigh, N.C. 27612  
 N.C. REG. LICENSE NUMBER: F-0116

REVISIONS						SHEET NO. 5-17
NO.	BYs	DATEs	NO.	BYs	DATEs	
1			3			TOTAL SHEETS 37
2			4			



**SUPERSTRUCTURE SPAN 14**

PROJECT NO. 17BP.3.H.2  
ONSLOW COUNTY  
 BRIDGE NO.: 28

**NOTES**

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".

UTILITIES MOUNTED TO BOTTOM OF OVERHANGS NOT SHOWN.

NAVIGATIONAL LIGHTING FIXTURES NOT SHOWN.

BILL OF MATERIAL	
SPAN 14	
SHOTCRETE REPAIR	CF 4.5

SHOTCRETE REPAIR



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

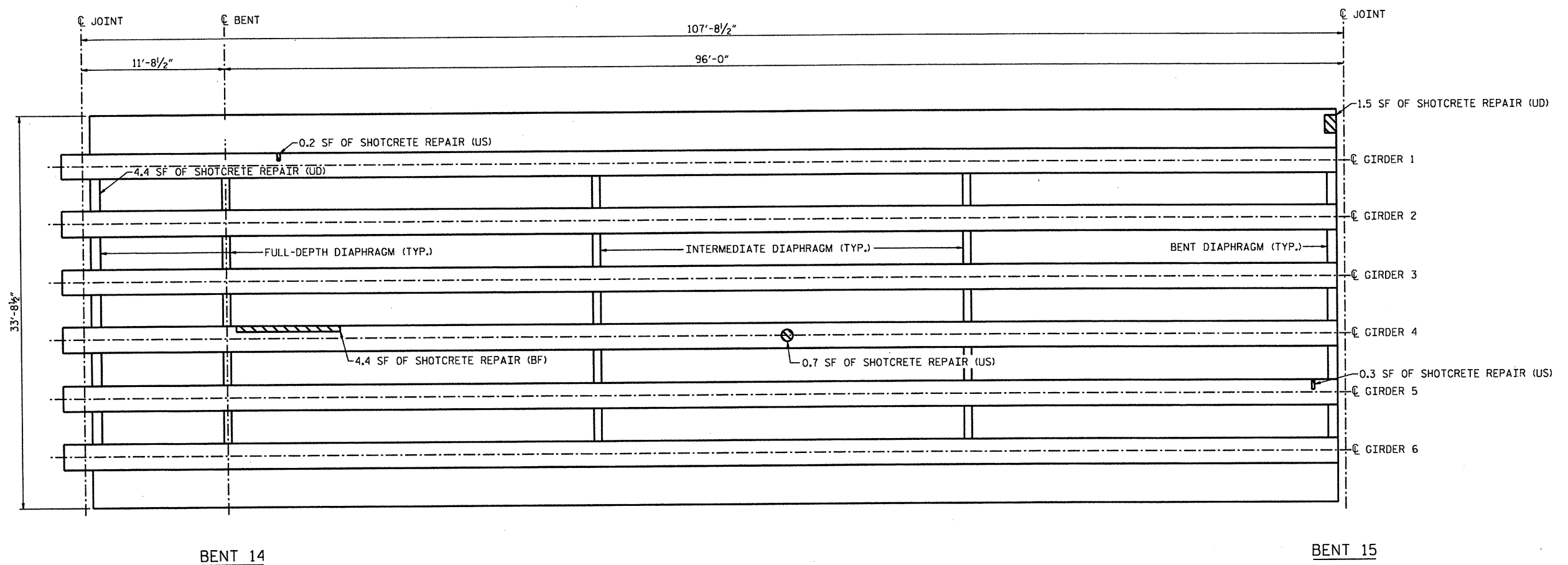
**SUPERSTRUCTURE  
 UNDERSIDE REPAIR  
 SPAN 14**

REVISIONS						SHEET NO. S-18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			



DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011

PLOT DRIVER: NCDOT.pdf.mono.eng\_50.plt  
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 FILE: North Carolina Dept. of Transportation\NCDOT\_C2011-STROSN\_OnCall\_TO\_413.00\_CAD\DIV3.1\_SD\_ONSL0W028.18.DGN



BENT 14

BENT 15

**SUPERSTRUCTURE SPAN 15**

PROJECT NO. 17BP.3.H.2  
ONSLOW COUNTY  
 BRIDGE NO.: 28

**NOTES**

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".

UTILITIES MOUNTED TO BOTTOM OF OVERHANGS NOT SHOWN.

DECK DRAINS NOT SHOWN.

SHOTCRETE REPAIR

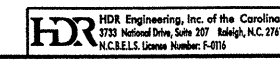
BILL OF MATERIAL	
SPAN 15	
SHOTCRETE REPAIR	CF 4.0

DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011



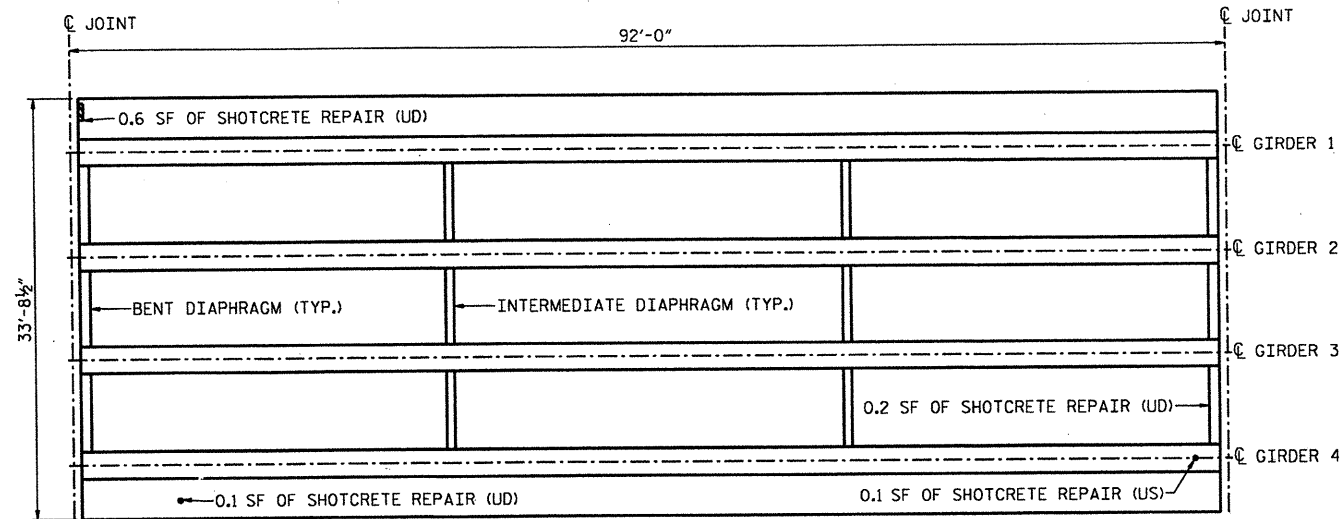
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUPERSTRUCTURE  
 UNDERSIDE REPAIR  
 SPAN 15**

REVISIONS						SHEET NO. 5-19
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			



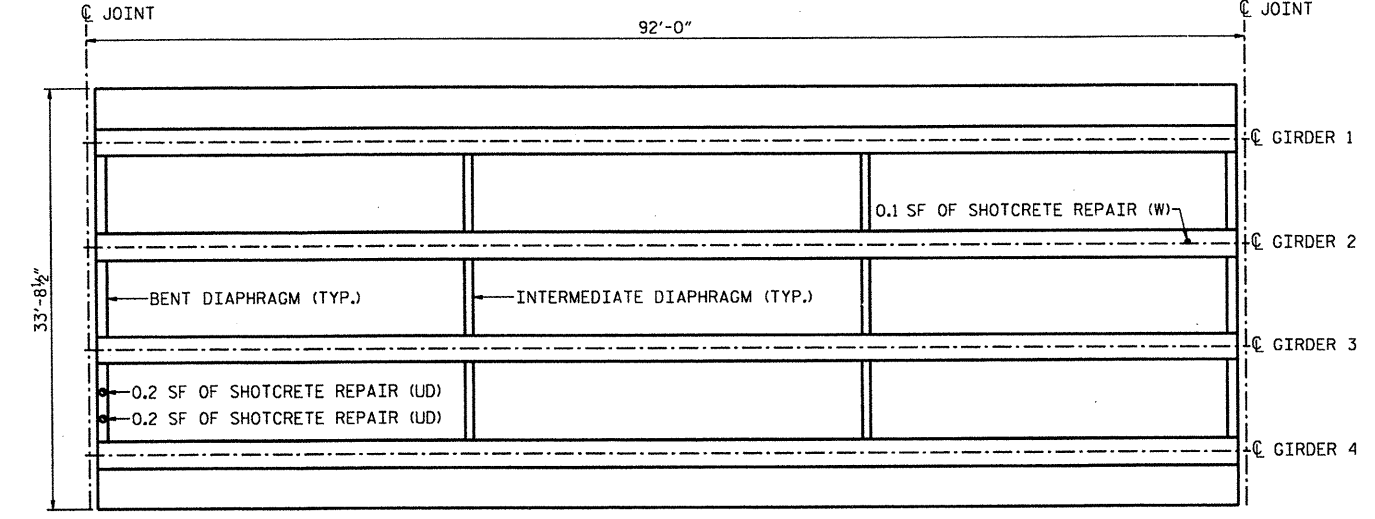
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 DATE: 2/24/2012  
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BENT 15

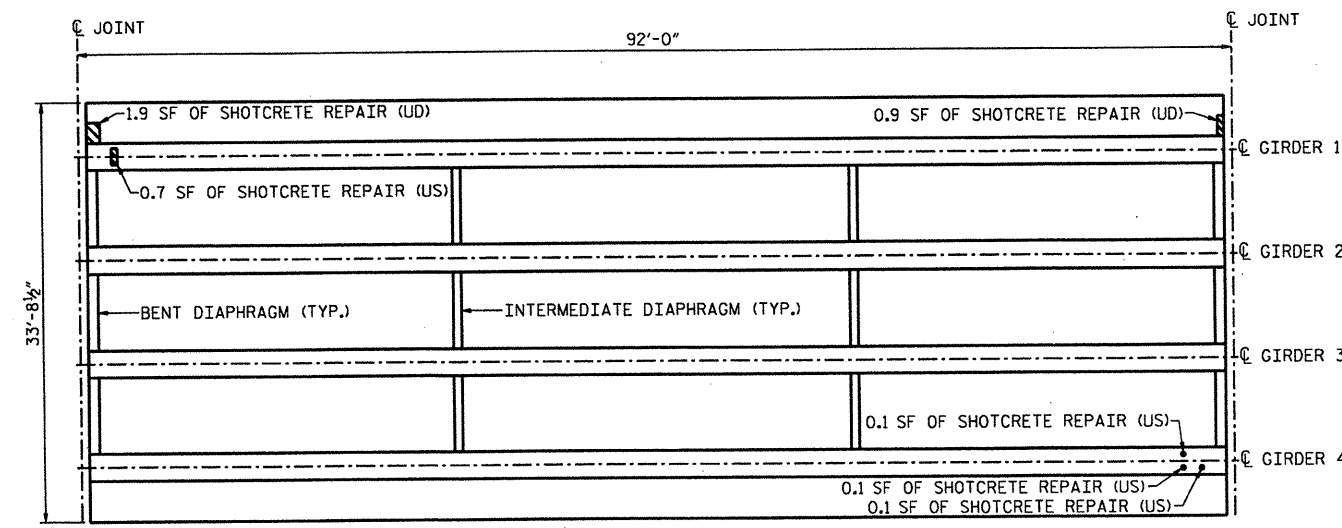
SPAN 16 - UNDERSIDE



BENT 16

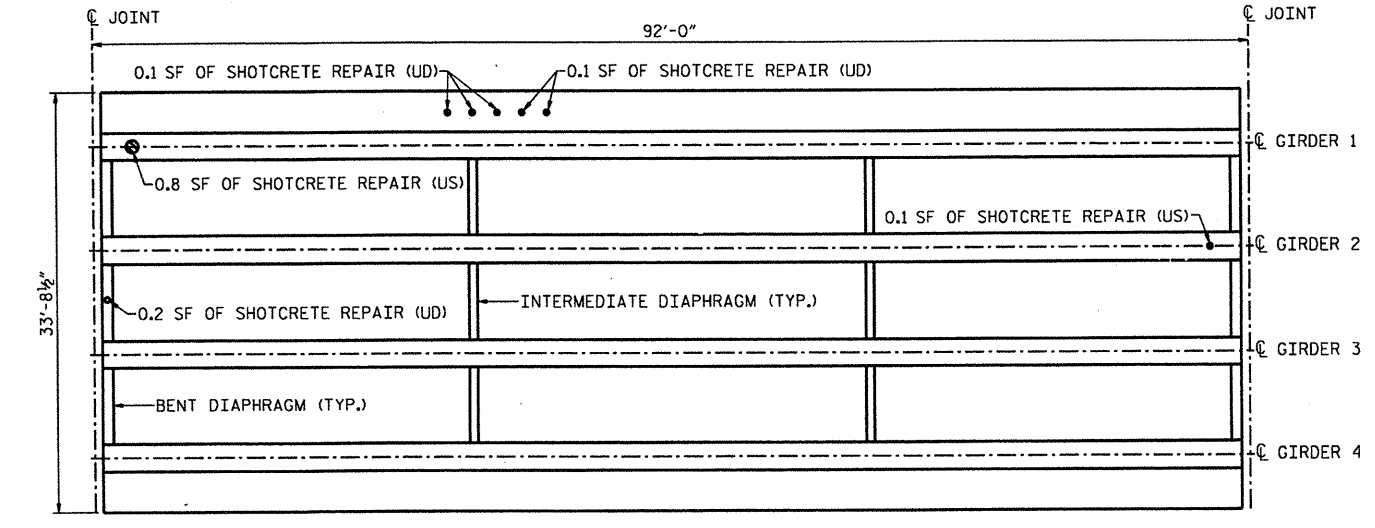
SPAN 17 - UNDERSIDE

BENT 17



BENT 17

SPAN 18 - UNDERSIDE



BENT 18

SPAN 19 - UNDERSIDE

BENT 19

NOTES

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".

UTILITIES MOUNTED TO BOTTOM OF OVERHANGS NOT SHOWN.

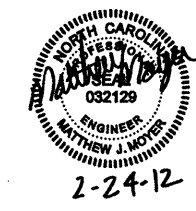
DECK DRAINS NOT SHOWN.

SHOTCRETE REPAIR

BILL OF MATERIAL		
SPANS 16 - 19		
SHOTCRETE REPAIR SPAN 16	CF	0.3
SHOTCRETE REPAIR SPAN 17	CF	0.2
SHOTCRETE REPAIR SPAN 18	CF	1.6
SHOTCRETE REPAIR SPAN 19	CF	0.4

DRAWN BY: D. CHAPMAN DATE: 12/2011  
 CHECKED BY: A. ABERNATHY DATE: 12/2011

PROJECT NO. 17BP.3.H.2  
 ONSLOW COUNTY  
 BRIDGE NO.: 28

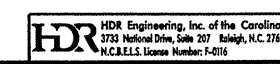


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

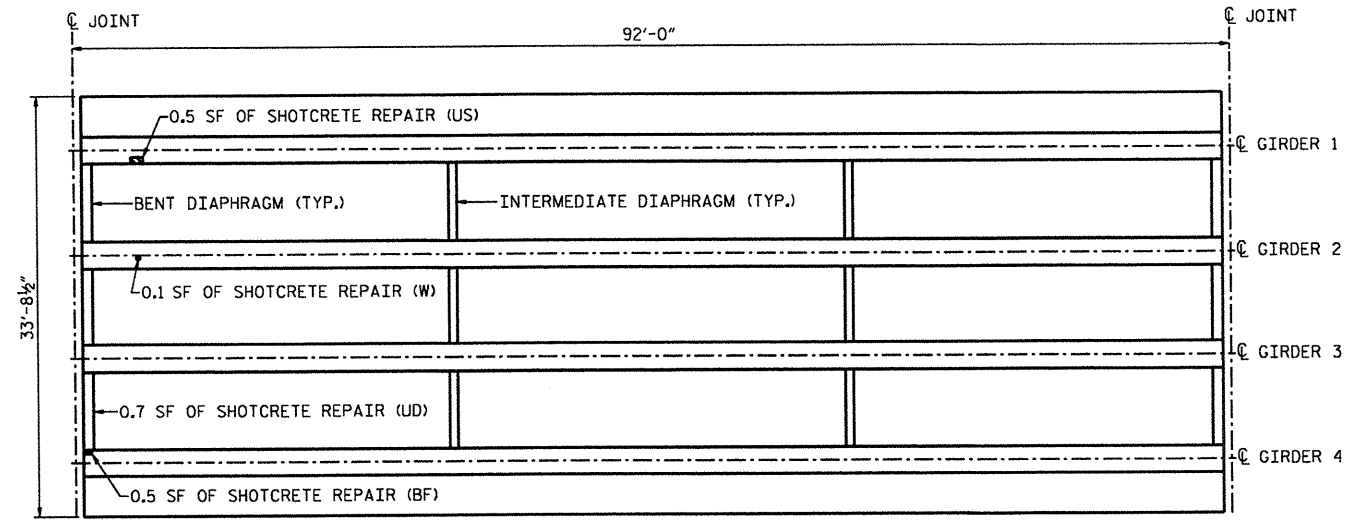
**SUPERSTRUCTURE  
 UNDERSIDE REPAIR  
 SPANS 16 - 19**

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. 5-20  
 TOTAL SHEETS 37



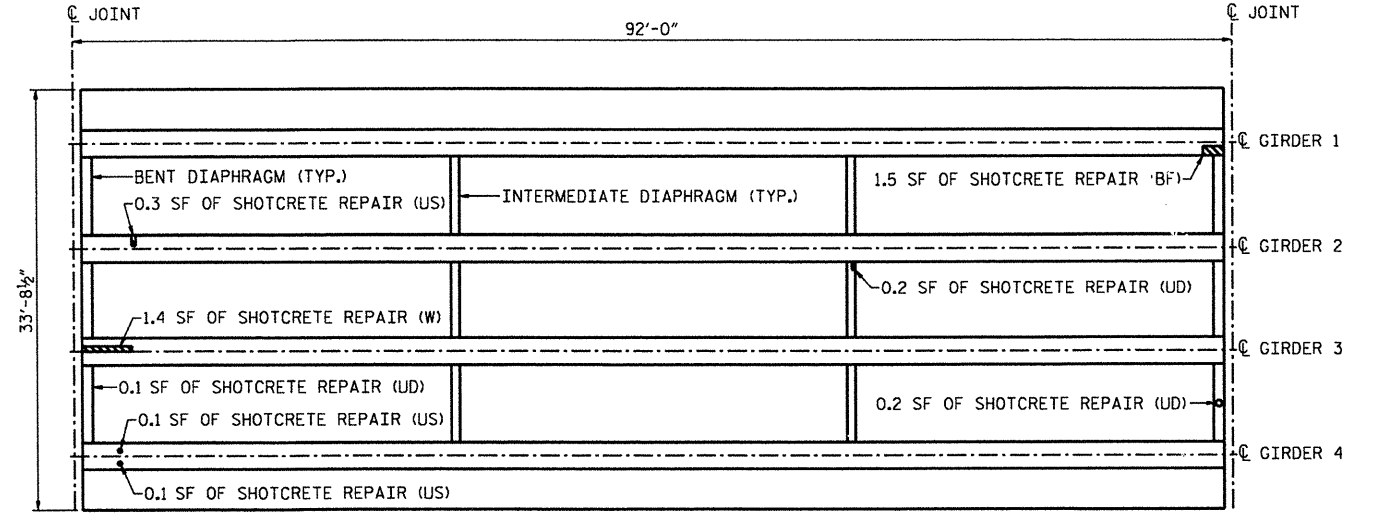
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 DATE: 2/24/2012  
 TIME: 7:53:32 AM



BENT 19

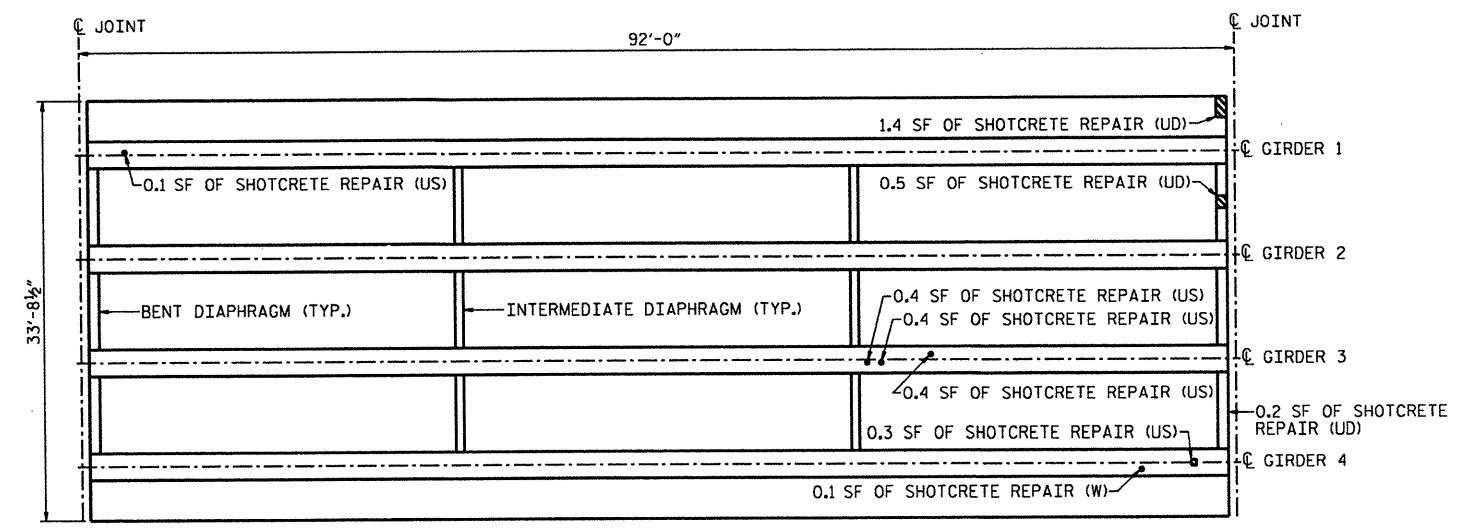
SPAN 20 - UNDERSIDE

BENT 20



BENT 21

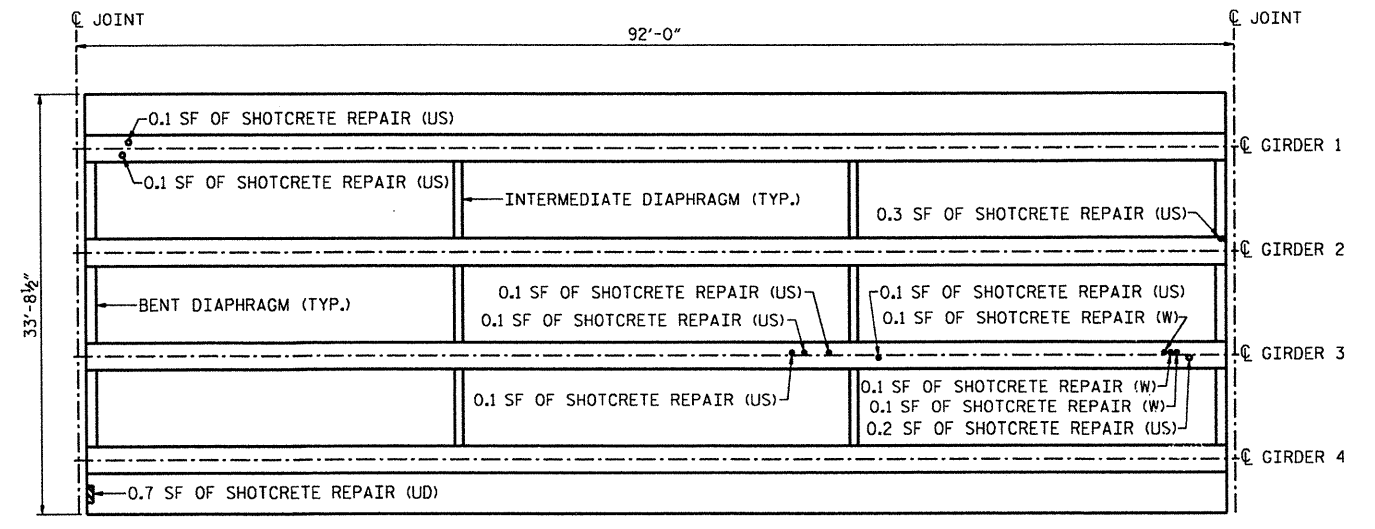
SPAN 21 - UNDERSIDE



BENT 21

SPAN 22 - UNDERSIDE

BENT 22



BENT 23

SPAN 23 - UNDERSIDE

**NOTES**

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".

UTILITIES MOUNTED TO BOTTOM OF OVERHANGS NOT SHOWN.

DECK DRAINS NOT SHOWN.

SHOTCRETE REPAIR

BILL OF MATERIAL			
SPANS 20 - 23			
SHOTCRETE REPAIR SPAN 20	CF	0.5	
SHOTCRETE REPAIR SPAN 21	CF	1.0	
SHOTCRETE REPAIR SPAN 22	CF	1.1	
SHOTCRETE REPAIR SPAN 23	CF	0.6	

PROJECT NO. 17BP.3.H.2

ONSLow COUNTY

BRIDGE NO.: 28

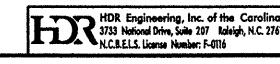


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUPERSTRUCTURE  
UNDERSIDE REPAIR  
SPANS 20 - 23**

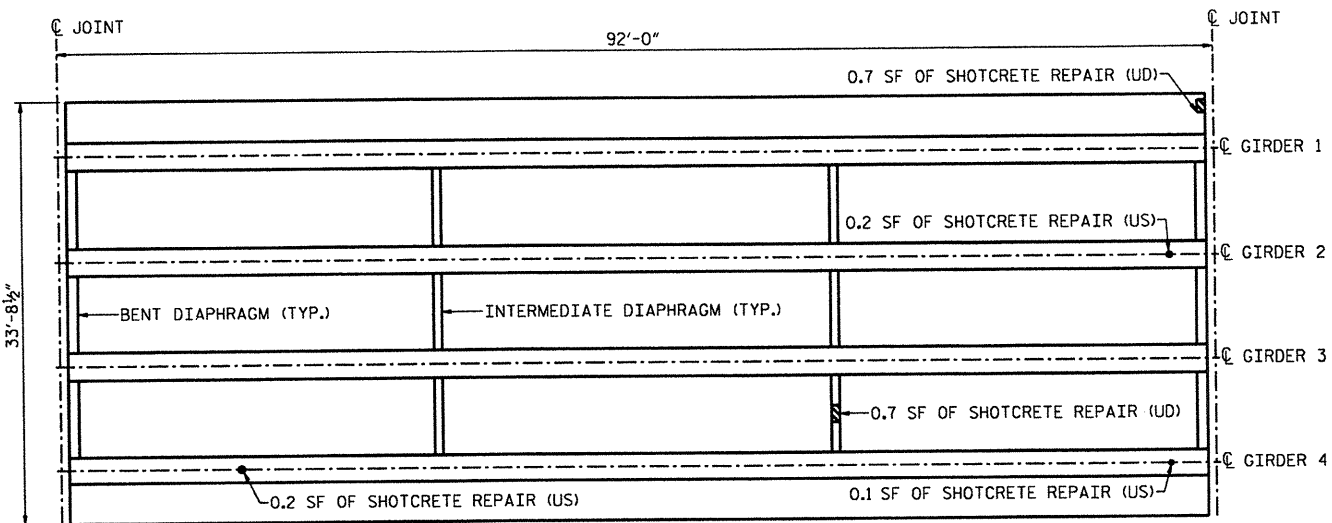
DRAWN BY: D. CHAPMAN DATE: 12/2011

CHECKED BY: A. ABERNATHY DATE: 12/2011



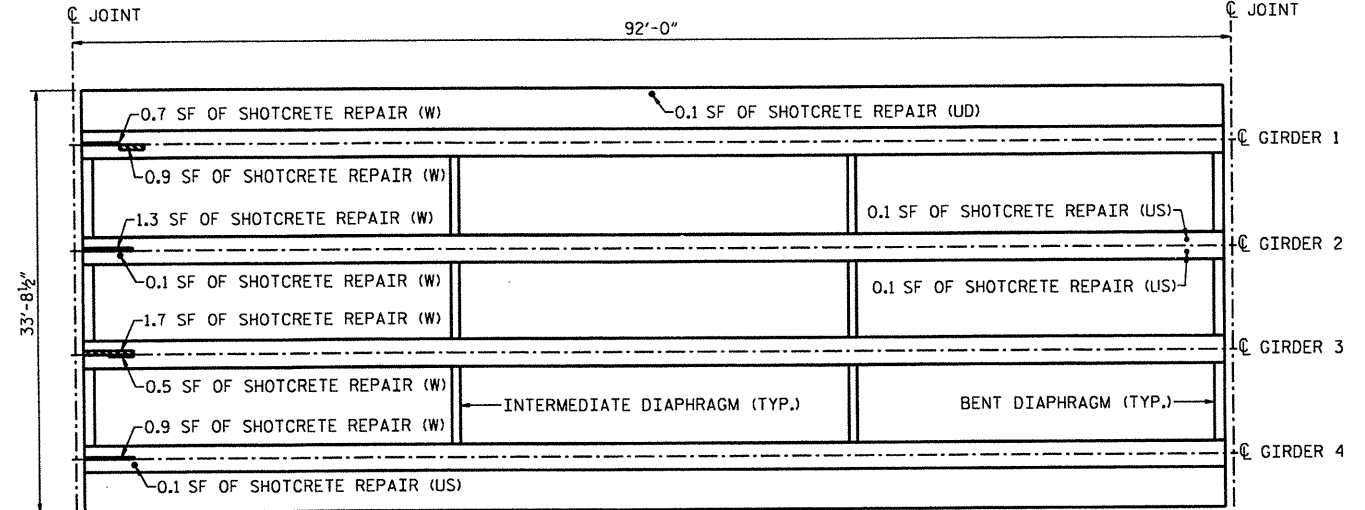
REVISIONS						SHEET NO. 5-21
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			





BENT 23

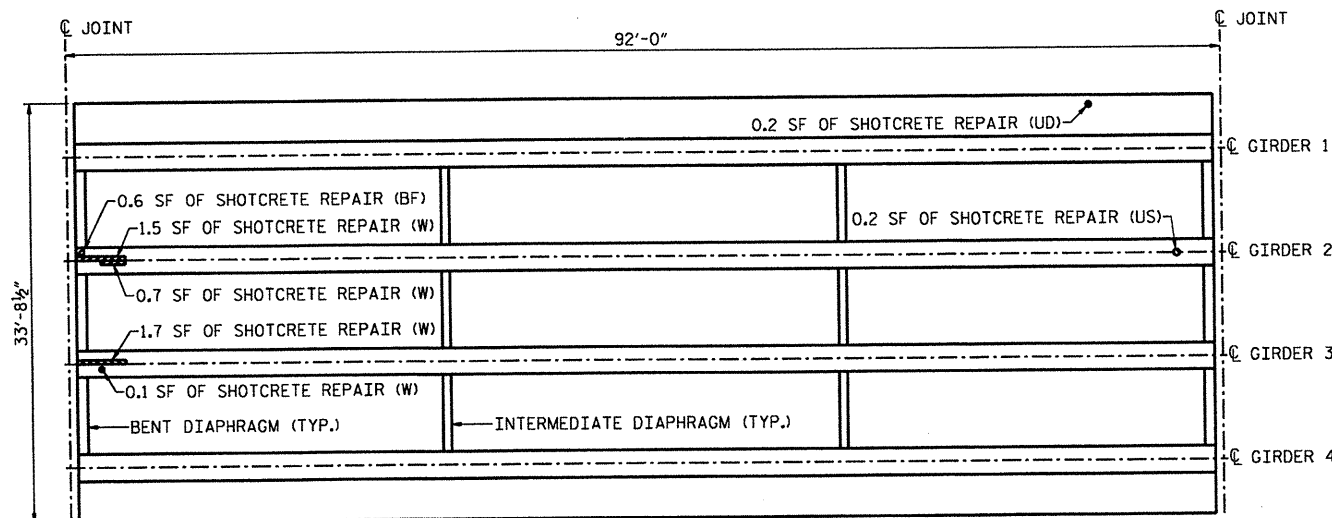
SPAN 24 - UNDERSIDE



BENT 24

SPAN 25 - UNDERSIDE

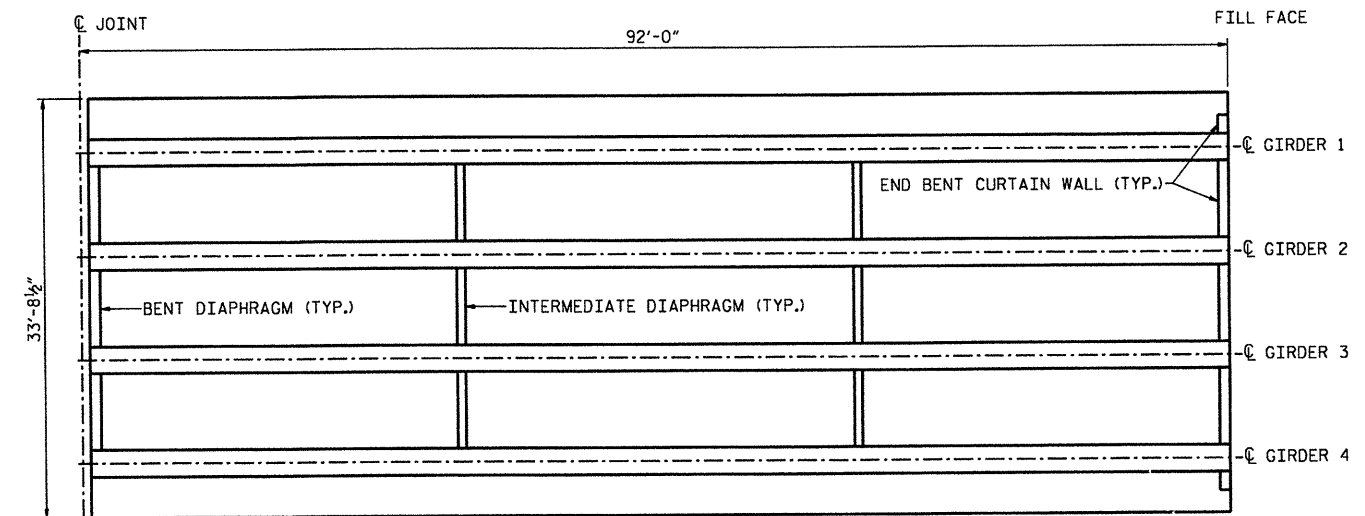
BENT 25



BENT 25

SPAN 26 - UNDERSIDE

BENT 26



END BENT 2

SPAN 27 - UNDERSIDE

**NOTES**

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUPERSTRUCTURE UNDERSIDE REPAIR DETAILS".

UTILITIES MOUNTED TO BOTTOM OF OVERHANGS NOT SHOWN.

DECK DRAINS NOT SHOWN.

SHOTCRETE REPAIR

**BILL OF MATERIAL**

**SPANS 24 - 27**

SHOTCRETE REPAIR SPAN 24	CF	0.5
SHOTCRETE REPAIR SPAN 25	CF	1.7
SHOTCRETE REPAIR SPAN 26	CF	1.3
SHOTCRETE REPAIR SPAN 27	CF	0.0

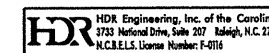
PROJECT NO. 17BP.3.H.2  
ONSLOW COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUPERSTRUCTURE  
 UNDERSIDE REPAIR  
 SPANS 24 - 27**

REVISIONS						SHEET NO. 5-22
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			



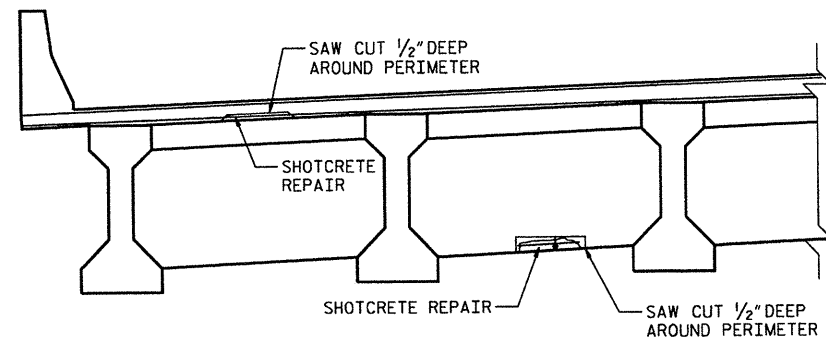
DRAWN BY: D. CHAPMAN DATE: 12/2011  
 CHECKED BY: A. ABERNATHY DATE: 12/2011

**NOTES**

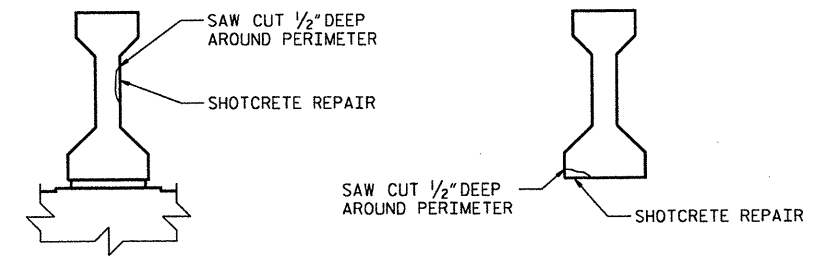
FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

**UNDERSIDE REPAIR LEGEND:**

- UD = UNDERSIDE OF DECK
- BF = BOTTOM FLANGE OF GIRDER
- US = UNDERSIDE OF GIRDER
- W = WEB OR FACE OF GIRDER

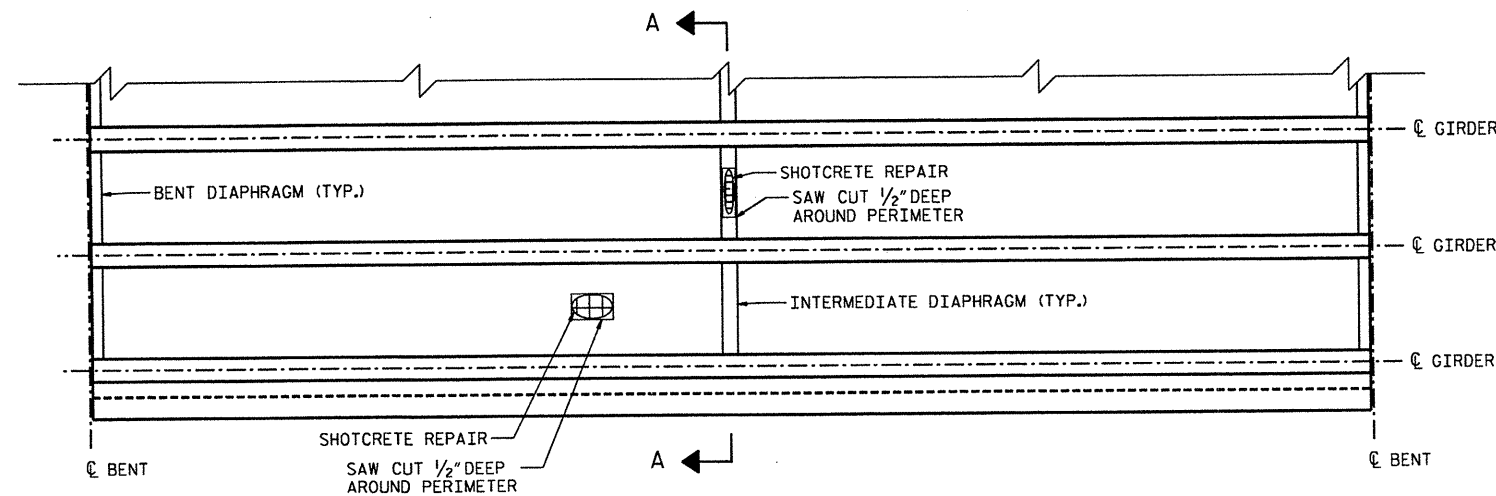


**SECTION A-A**

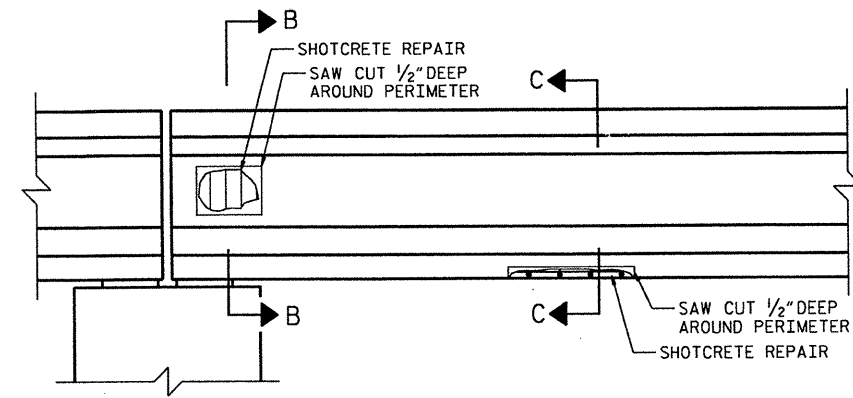


**SECTION B-B**

**SECTION C-C**



**UNDERSIDE OF DECK AND DIAPHRAGM REPAIR DETAIL**



**CONCRETE GIRDER REPAIR DETAIL**

PROJECT NO. 17BP.3.H.2  
ONSLow COUNTY  
 BRIDGE NO.: 28



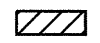
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUPERSTRUCTURE  
 UNDERSIDE REPAIR  
 DETAILS**

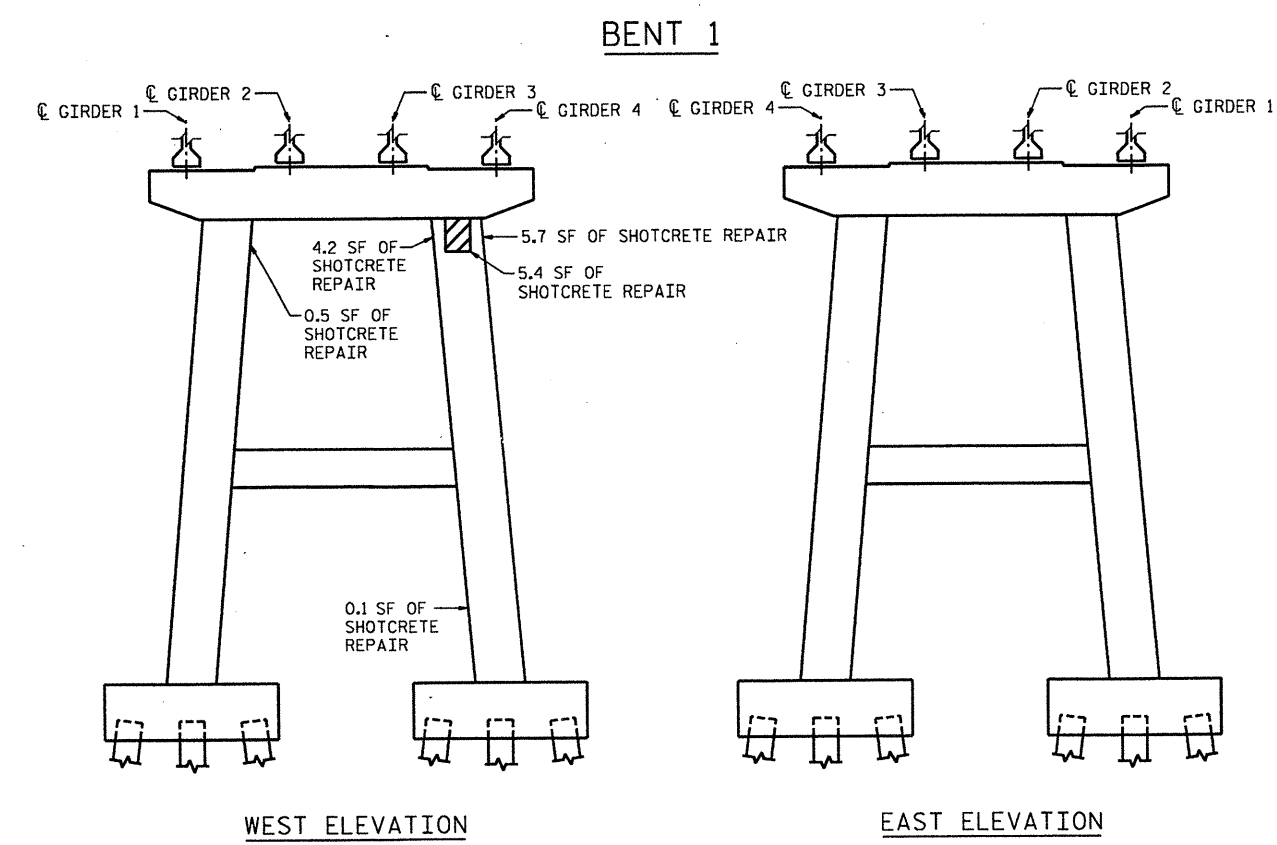
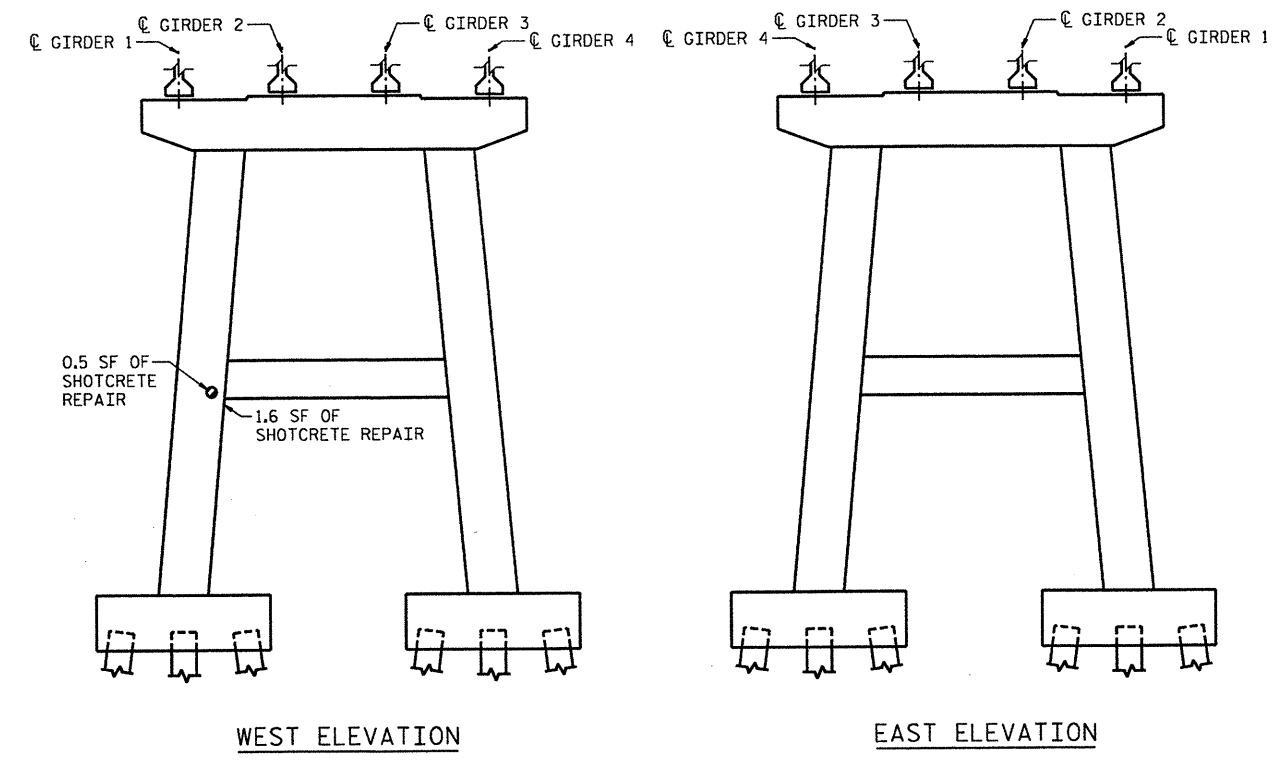
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			

DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011

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 DATE: 2/24/2012

BILL OF MATERIAL	
BENT 1	
SHOTCRETE REPAIR	CF 0.5
EPOXY RESIN INJECTION	LF 0.0
BENT 2	
SHOTCRETE REPAIR	CF 4.0
EPOXY RESIN INJECTION	LF 0.0

**NOTES**  
 FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".  
 FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".  
 SHOTCRETE REPAIR



PROJECT NO. 17BP.3.H.2  
ONSLOW COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE REPAIR  
 BENTS 1 & 2

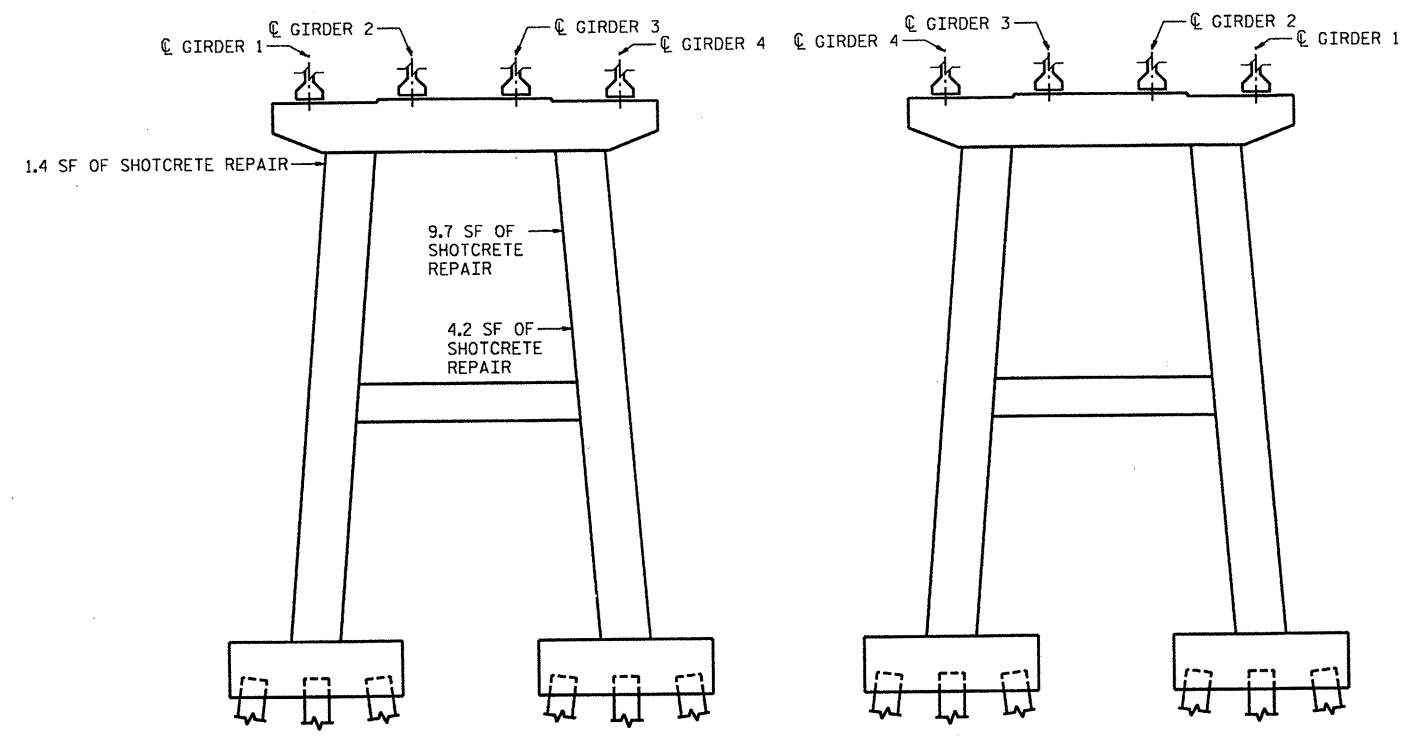
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			

DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011

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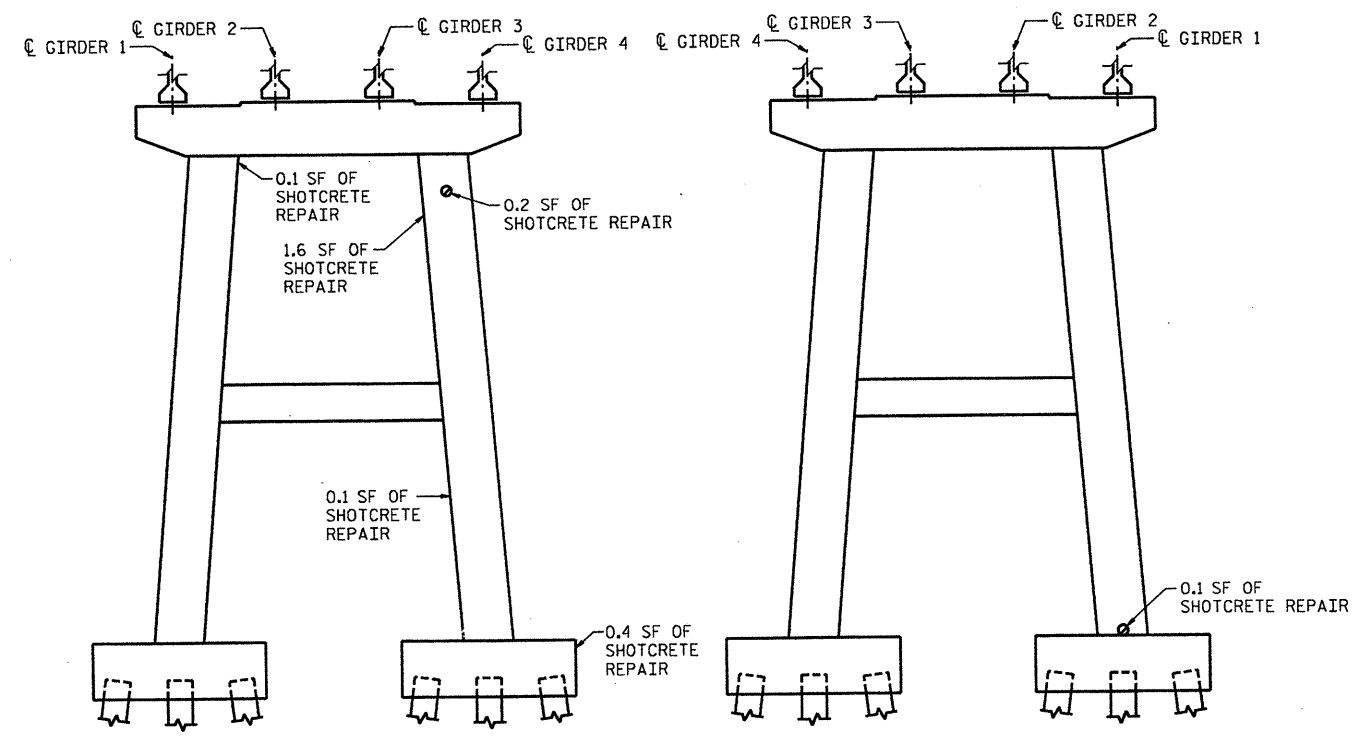
BILL OF MATERIAL	
BENT 3	
SHOTCRETE REPAIR	CF 3.8
EPOXY RESIN INJECTION	LF 0.0
BENT 5	
SHOTCRETE REPAIR	CF 0.6
EPOXY RESIN INJECTION	LF 0.0



WEST ELEVATION

EAST ELEVATION

BENT 3



WEST ELEVATION

EAST ELEVATION

BENT 5

NOTES

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

SHOTCRETE REPAIR

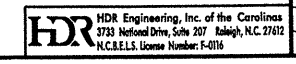
PROJECT NO. 17BP.3.H.2  
 ONSLOW COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE REPAIR  
 BENTS 3 & 5

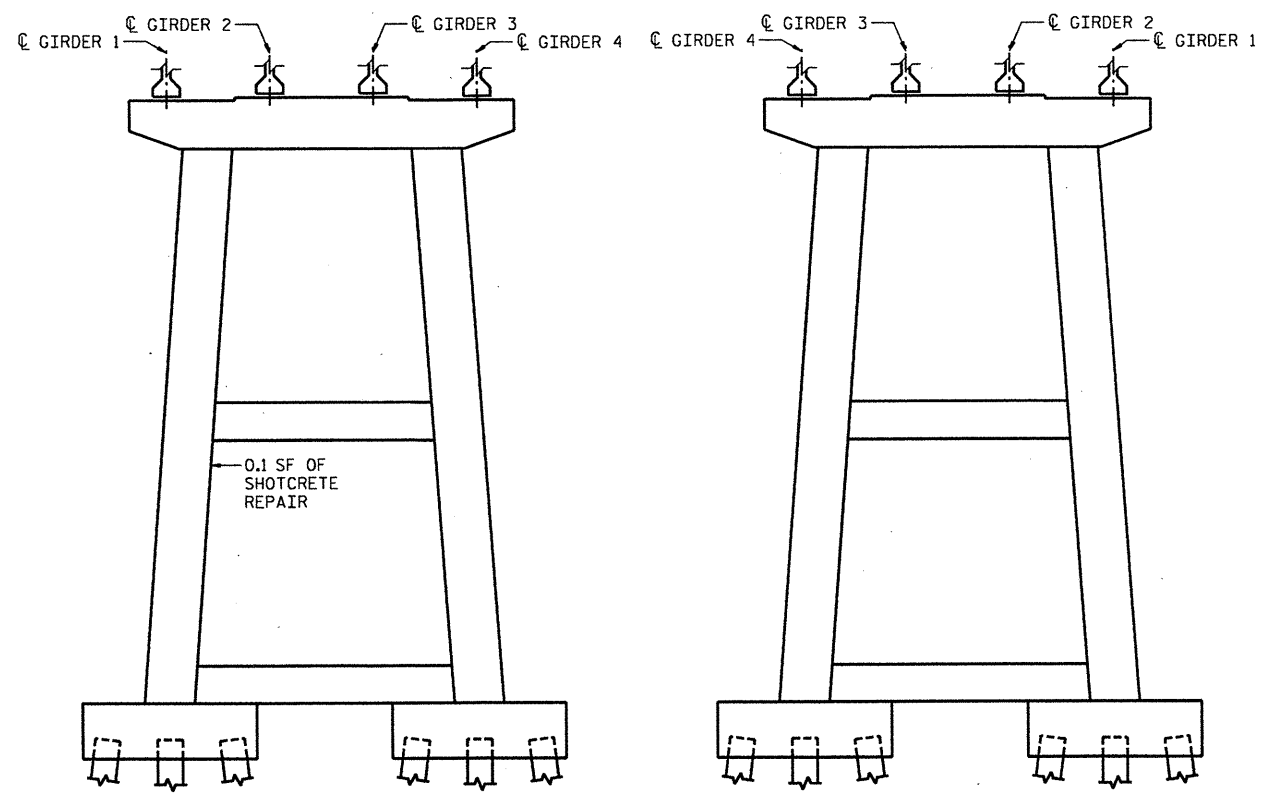
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			

DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011



PLOT DRIVER: NCDOT\_pdf\_mono\_eng\_50.plt  
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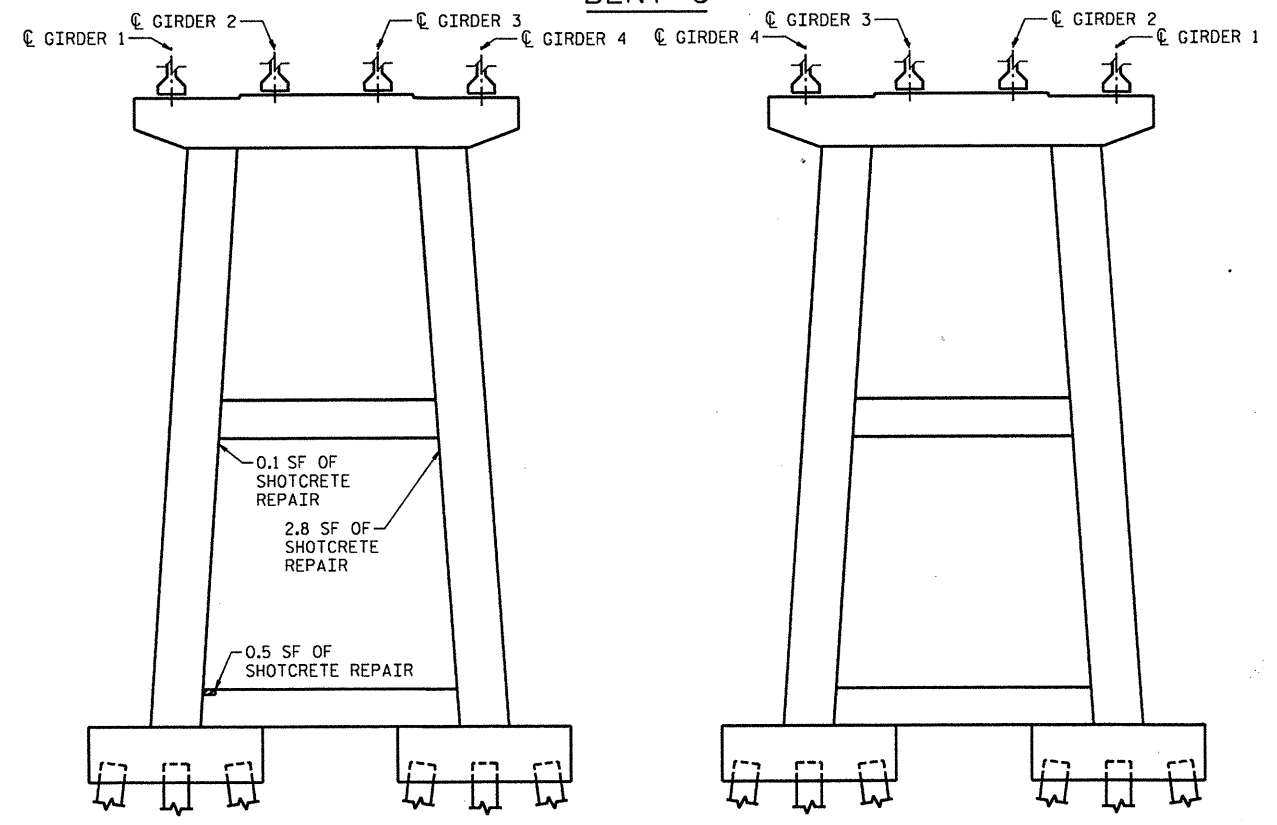
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 DATE: 4/11/2012  
 TIME: 1:40:06 PM



WEST ELEVATION

EAST ELEVATION

BENT 6



WEST ELEVATION

EAST ELEVATION

BENT 7

NOTES

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".  
 FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

SHOTCRETE REPAIR

BILL OF MATERIAL

BENT 6		
SHOTCRETE REPAIR	CF	0.1
EPOXY RESIN INJECTION	LF	0.0
BENT 7		
SHOTCRETE REPAIR	CF	0.9
EPOXY RESIN INJECTION	LF	0.0

DRAWN BY : D. CHAPMAN    DATE : 12/2011  
 CHECKED BY : A. ABERNATHY    DATE : 12/2011

HDR Engineering, Inc. of the Carolinas  
 3733 National Drive, Suite 207 Raleigh, N.C. 27612  
 N.C.E.L.S. License Number: F-0116

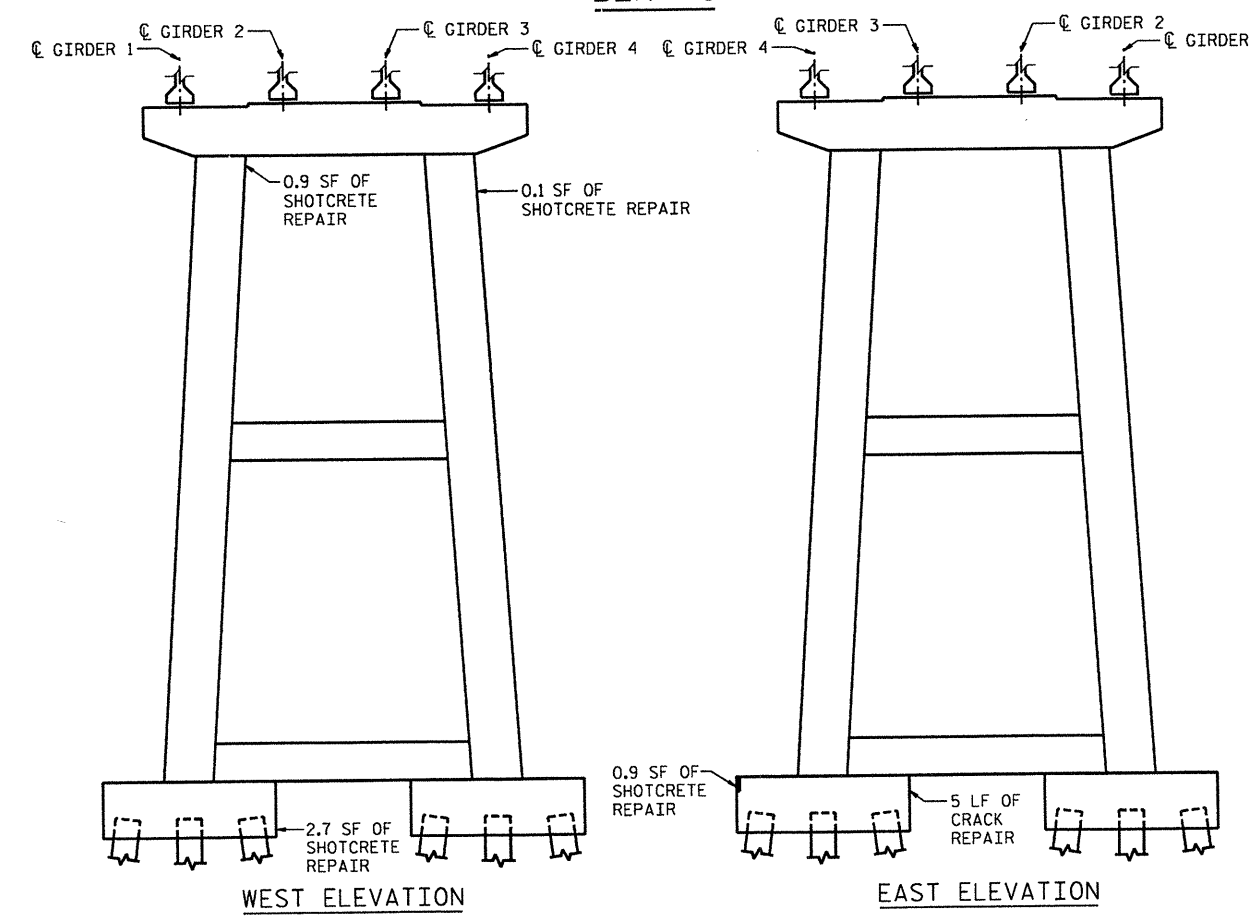
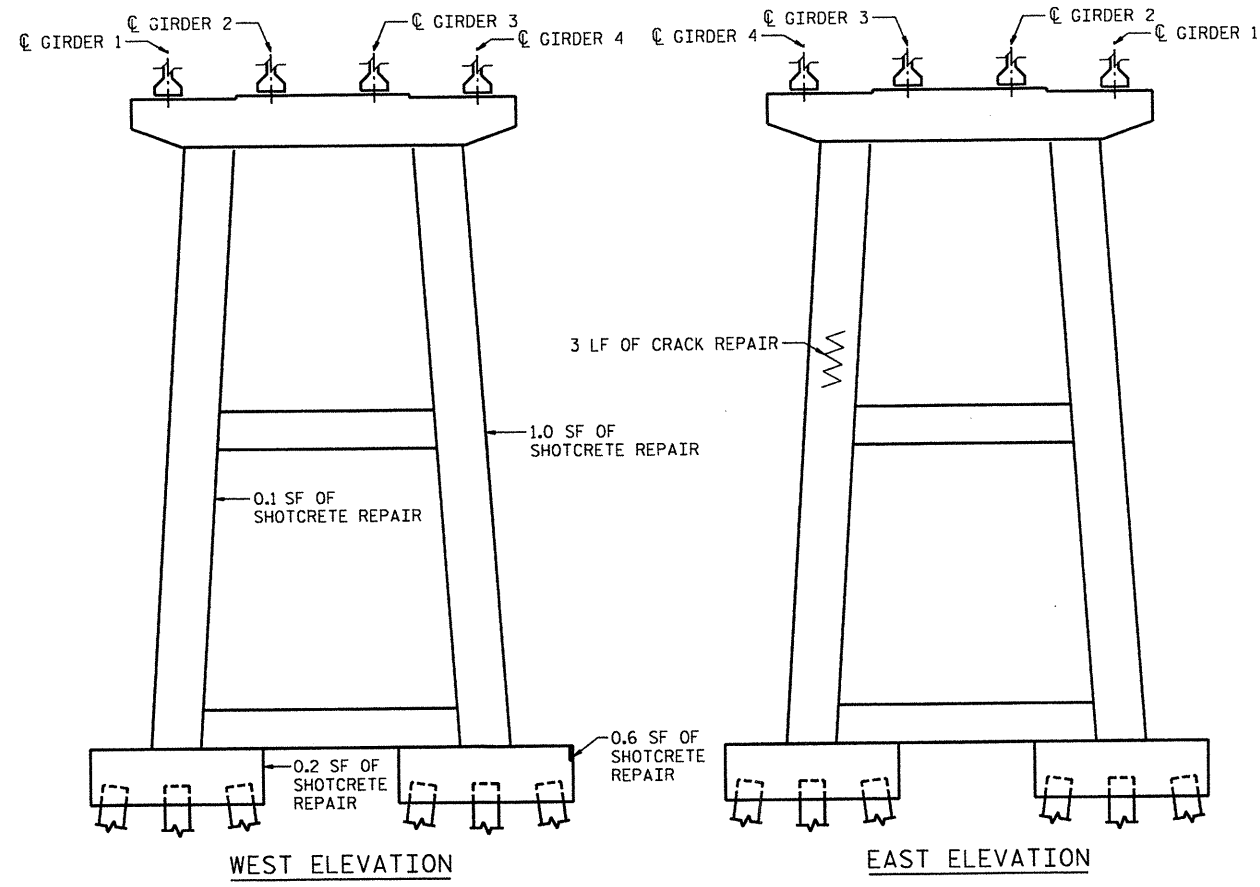


PROJECT NO. 17BP.3.H.2  
 ONSLOW COUNTY  
 BRIDGE NO.: 28

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE REPAIR  
 BENTS 6 & 7

REVISIONS						SHEET NO. S-26
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			

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 TIME: 14:01:18 PM  
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**NOTES**

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

- SHOTCRETE REPAIR
- CRACK REPAIR

BILL OF MATERIAL	
<b>BENT 8</b>	
SHOTCRETE REPAIR	CF 0.5
EPOXY RESIN INJECTION	LF 3.0
<b>BENT 9</b>	
SHOTCRETE REPAIR	CF 1.4
EPOXY RESIN INJECTION	LF 5.0

**BENT 8**

**BENT 9**

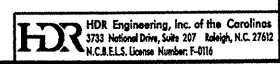
PROJECT NO. 17BP.3.H.2  
 \_\_\_\_\_ ONSLOW COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH


**SUBSTRUCTURE REPAIR  
 BENTS 8 & 9**

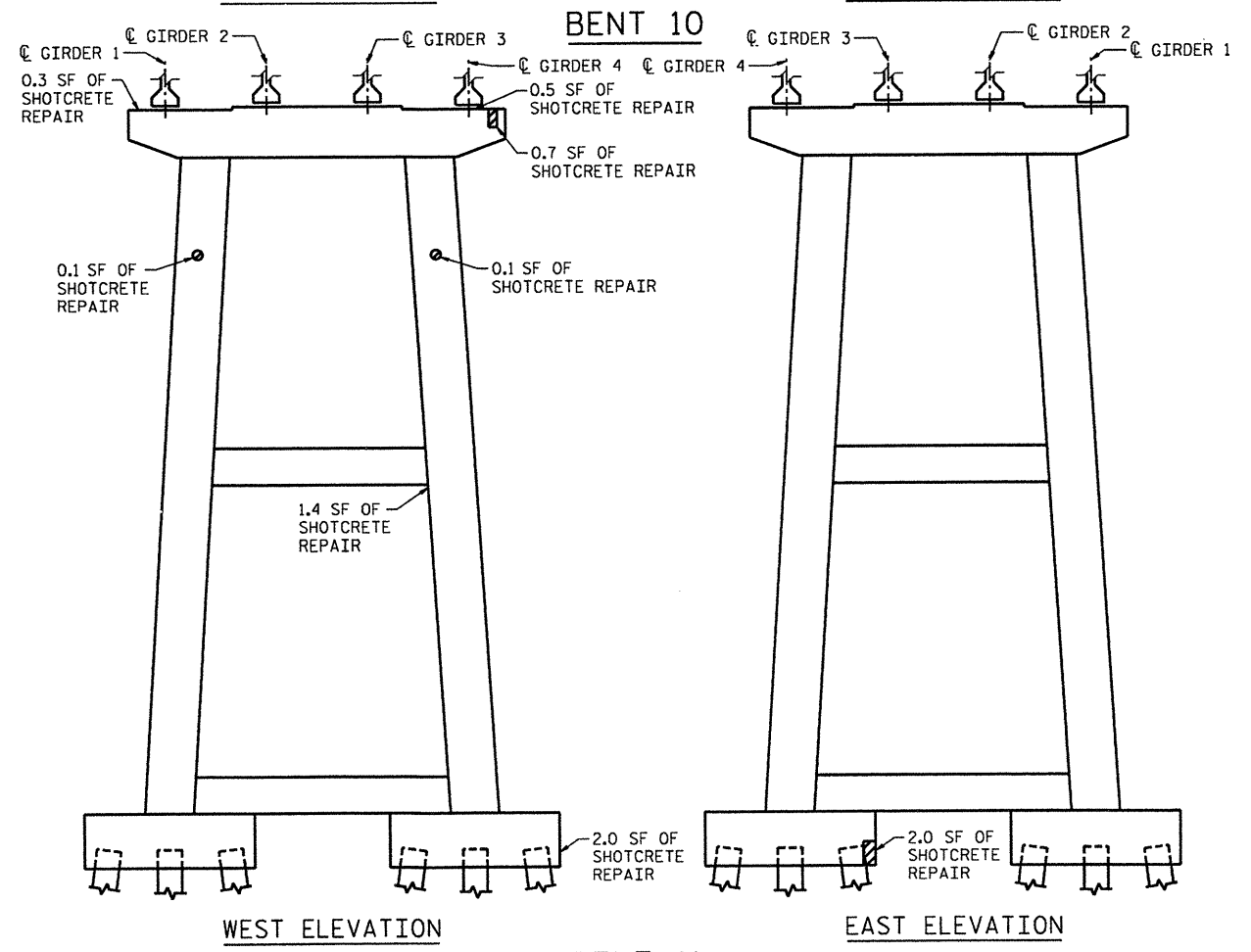
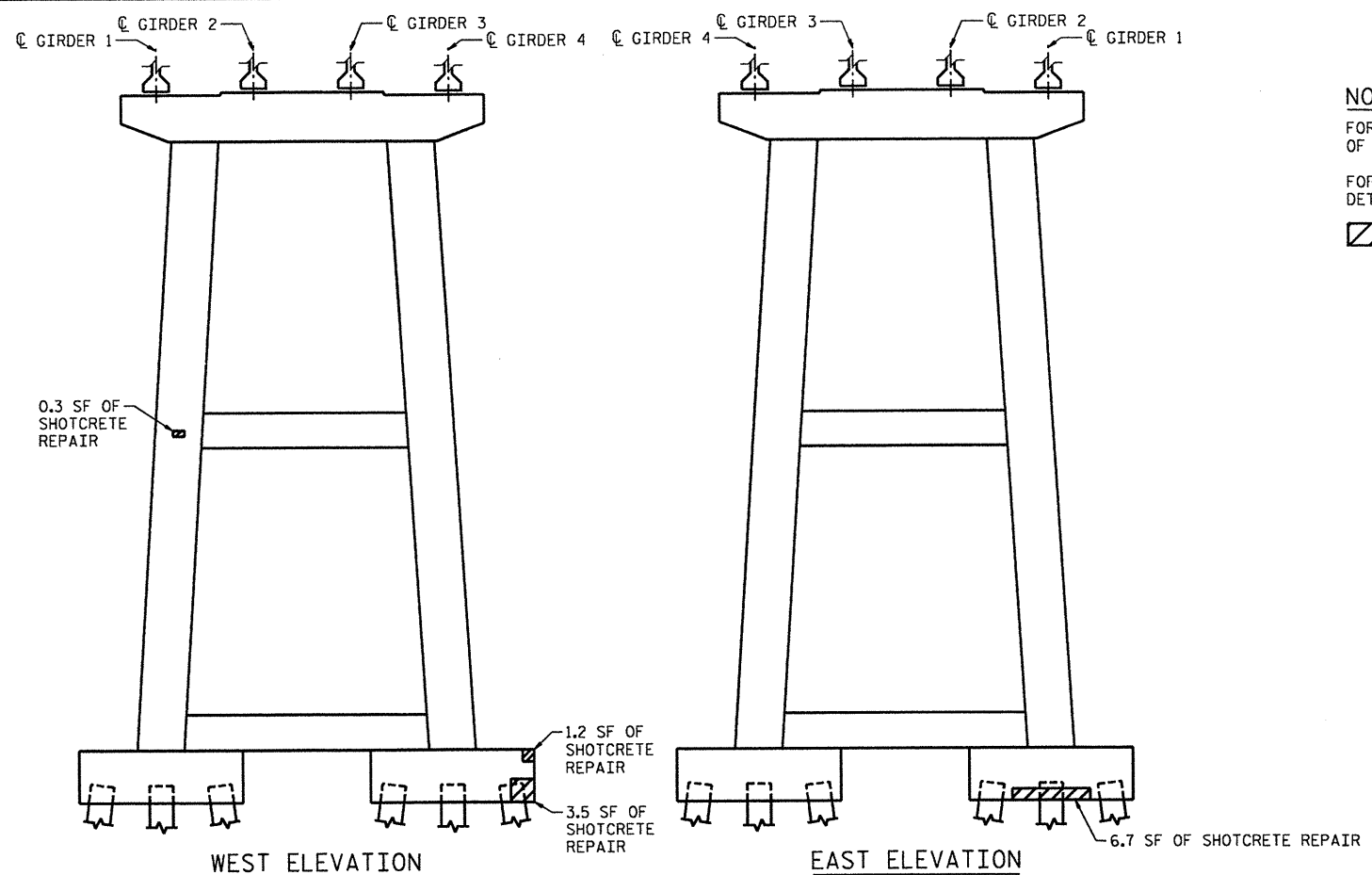
DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011



REVISIONS						SHEET NO. 5-27
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			

BILL OF MATERIAL	
BENT 10	
SHOTCRETE REPAIR	CF 4.0
EPOXY RESIN INJECTION	LF 0.0
BENT 11	
SHOTCRETE REPAIR	CF 2.6
EPOXY RESIN INJECTION	LF 0.0

**NOTES**  
 FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".  
 FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".  
 SHOTCRETE REPAIR



PROJECT NO. 17BP.3.H.2  
ONSLOW COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE REPAIR  
 BENTS 10 & 11**

REVISIONS						SHEET NO. S-28
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			

DRAWN BY: D. CHAPMAN DATE: 12/2011  
 CHECKED BY: A. ABERNATHY DATE: 12/2011

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 DATE: 4/11/2012  
 TIME: 1:40:30 PM

BILL OF MATERIAL


BENT 12

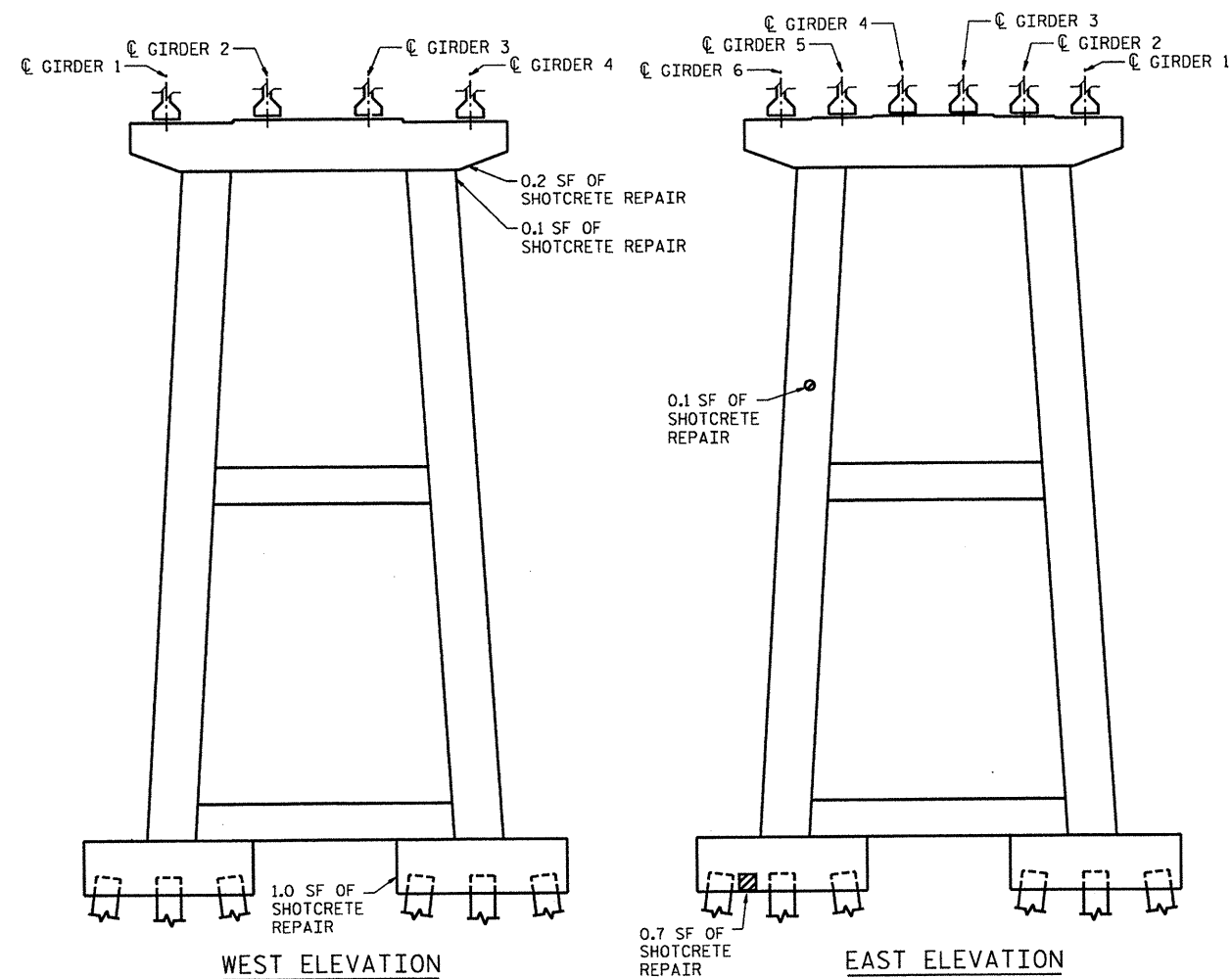
SHOTCRETE REPAIR	CF	0.5
EPOXY RESIN INJECTION	LF	0.0

NOTES

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

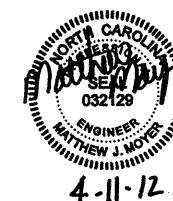
FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

 SHOTCRETE REPAIR



BENT 12

PROJECT NO. 17BP.3.H.2  
ONSLOW COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE REPAIR  
 BENT 12

REVISIONS						SHEET NO. S-29
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			


**HDR** HDR Engineering, Inc. of the Carolinas  
 3733 National Drive, Suite 207 Raleigh, N.C. 27612  
 N.C. E.L.S. License Number: F-2016

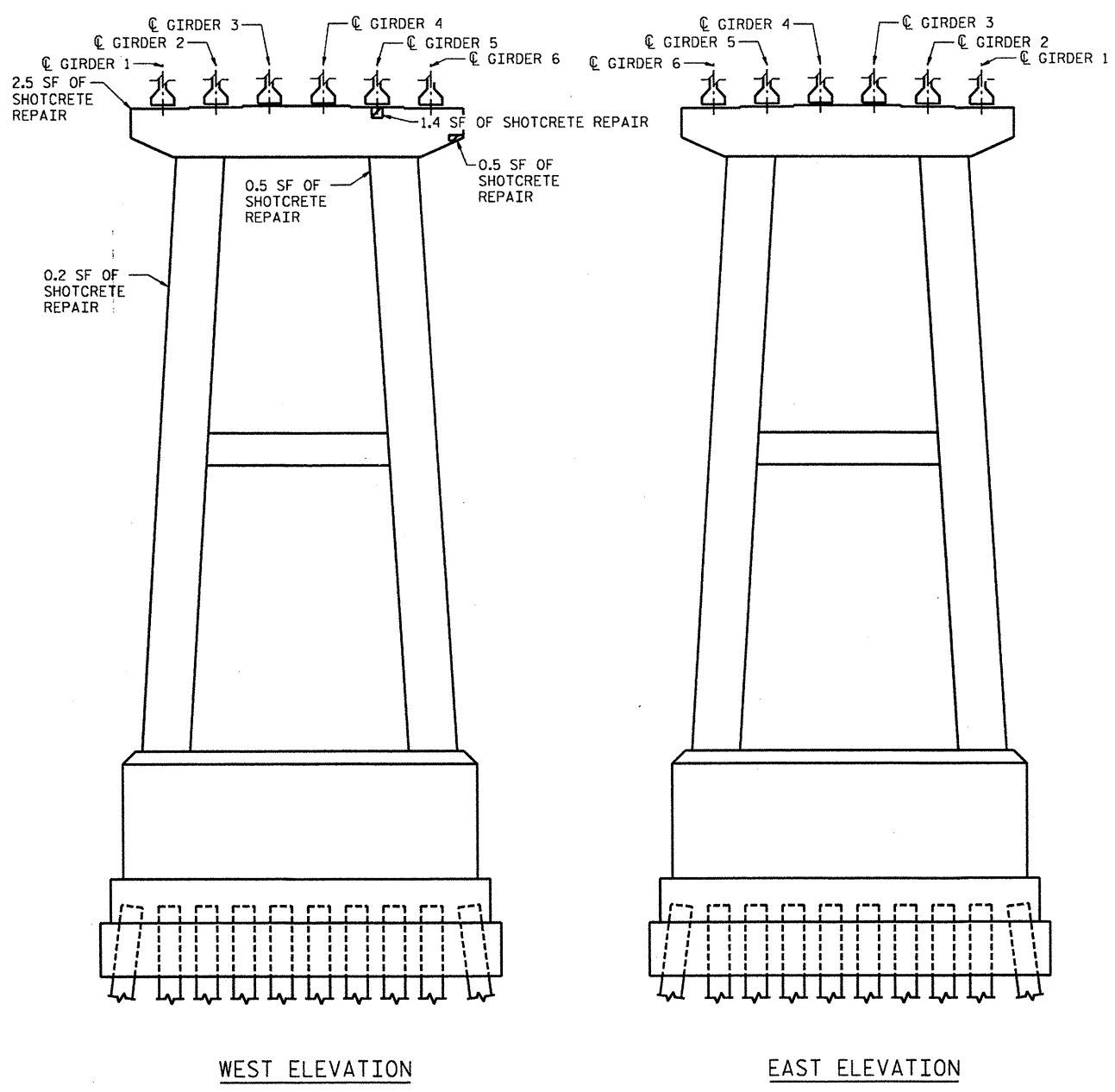
DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011

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 USER: meells  
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 DATE: 4/11/2012  
 TIME: 1:40:40 PM



BILL OF MATERIAL	
BENT 13	
SHOTCRETE REPAIR	CF 1.3
EPOXY RESIN INJECTION	LF 0.0

**NOTES**  
 FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".  
 FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".  
 SHOTCRETE REPAIR



**BENT 13**

PROJECT NO. 17BP.3.H.2  
ONSLOW COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIR  
 BENT 13**

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-30  
 TOTAL SHEETS 37

DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011


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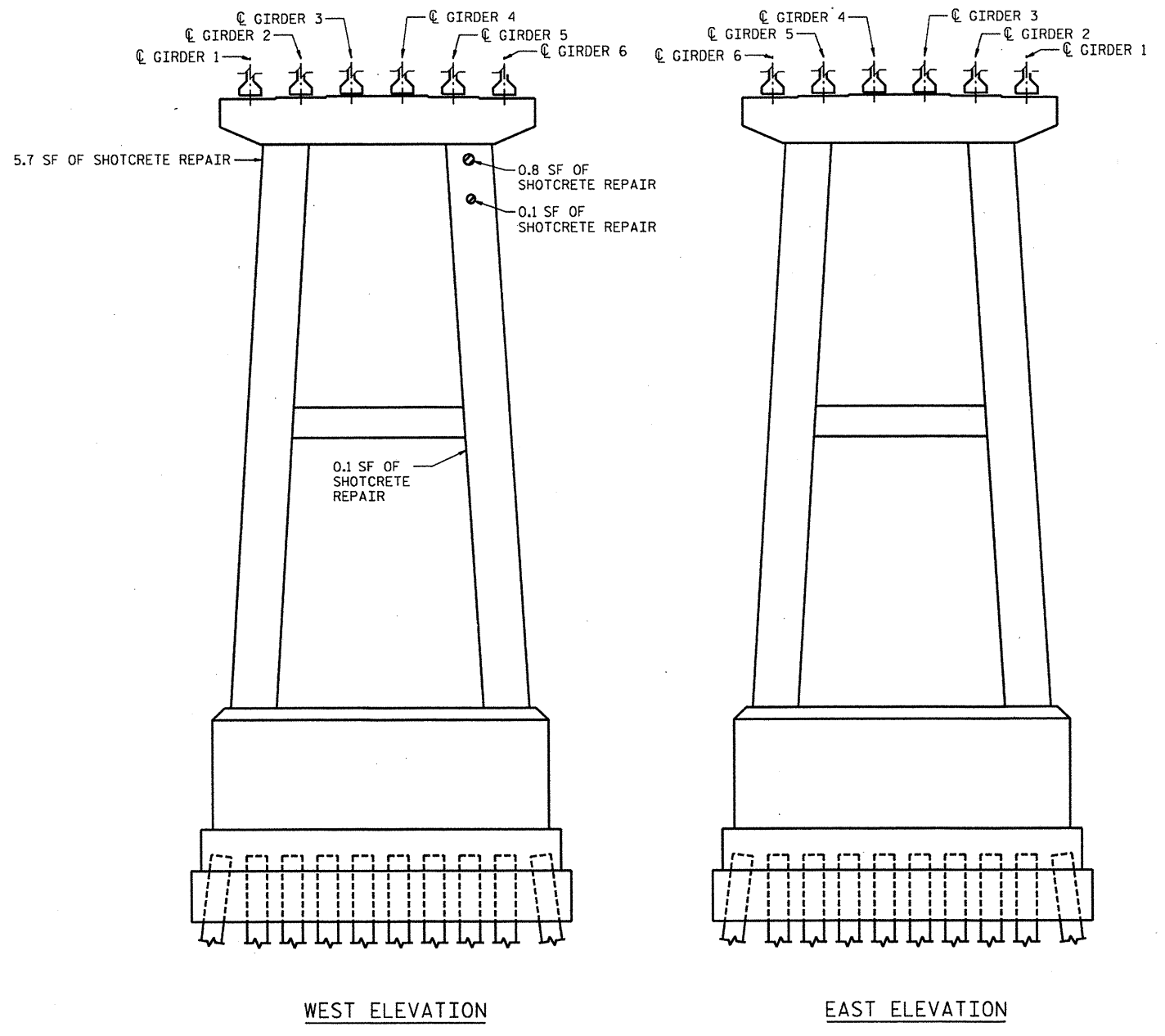
BILL OF MATERIAL	
BENT 14	
SHOTCRETE REPAIR	CF 1.7
EPOXY RESIN INJECTION	LF 0.0

**NOTES**

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

 SHOTCRETE REPAIR



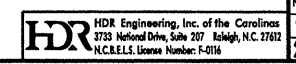
**BENT 14**

PROJECT NO. 17BP.3.H.2  
ONSLow COUNTY  
 BRIDGE NO.: 28



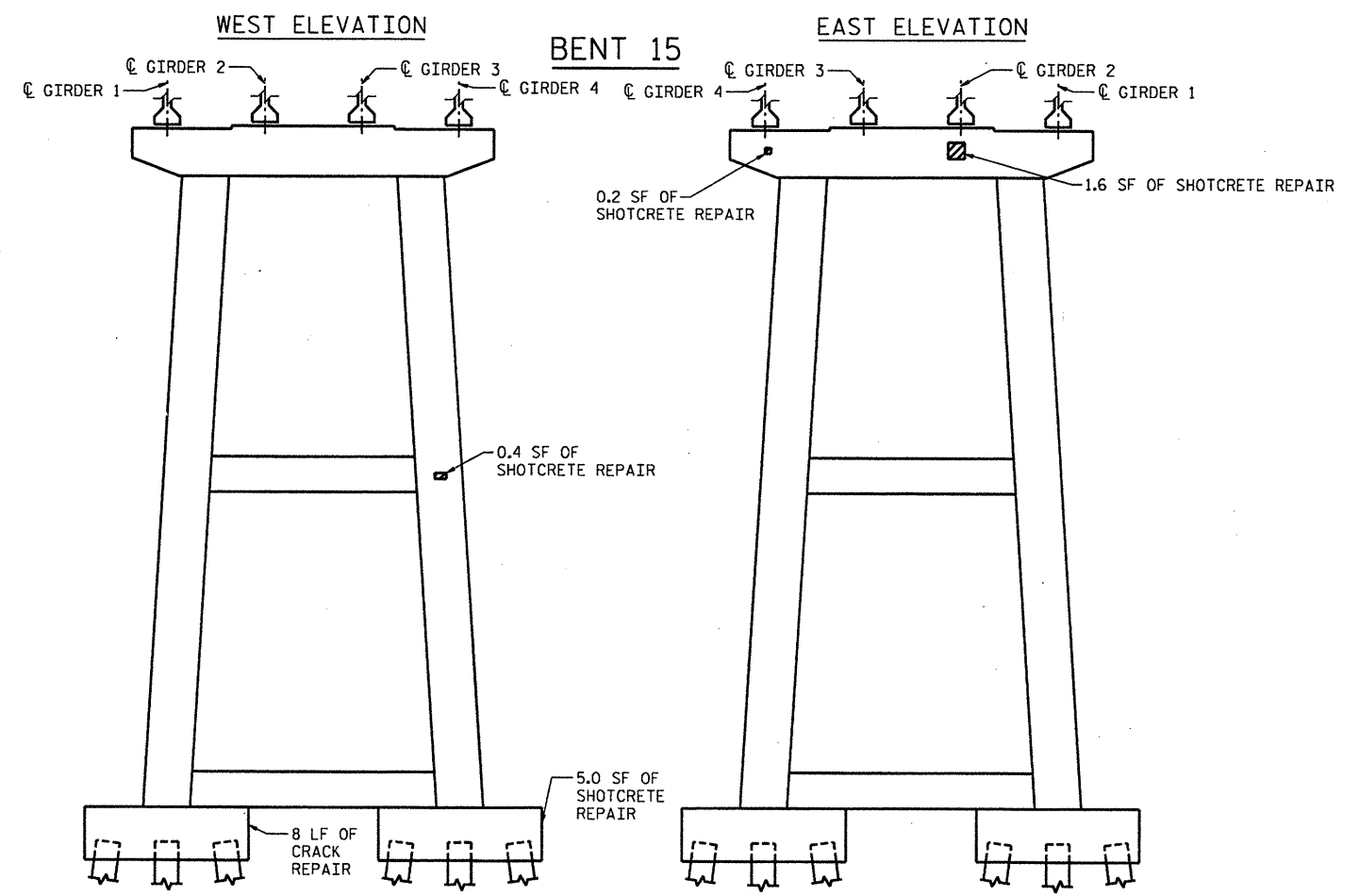
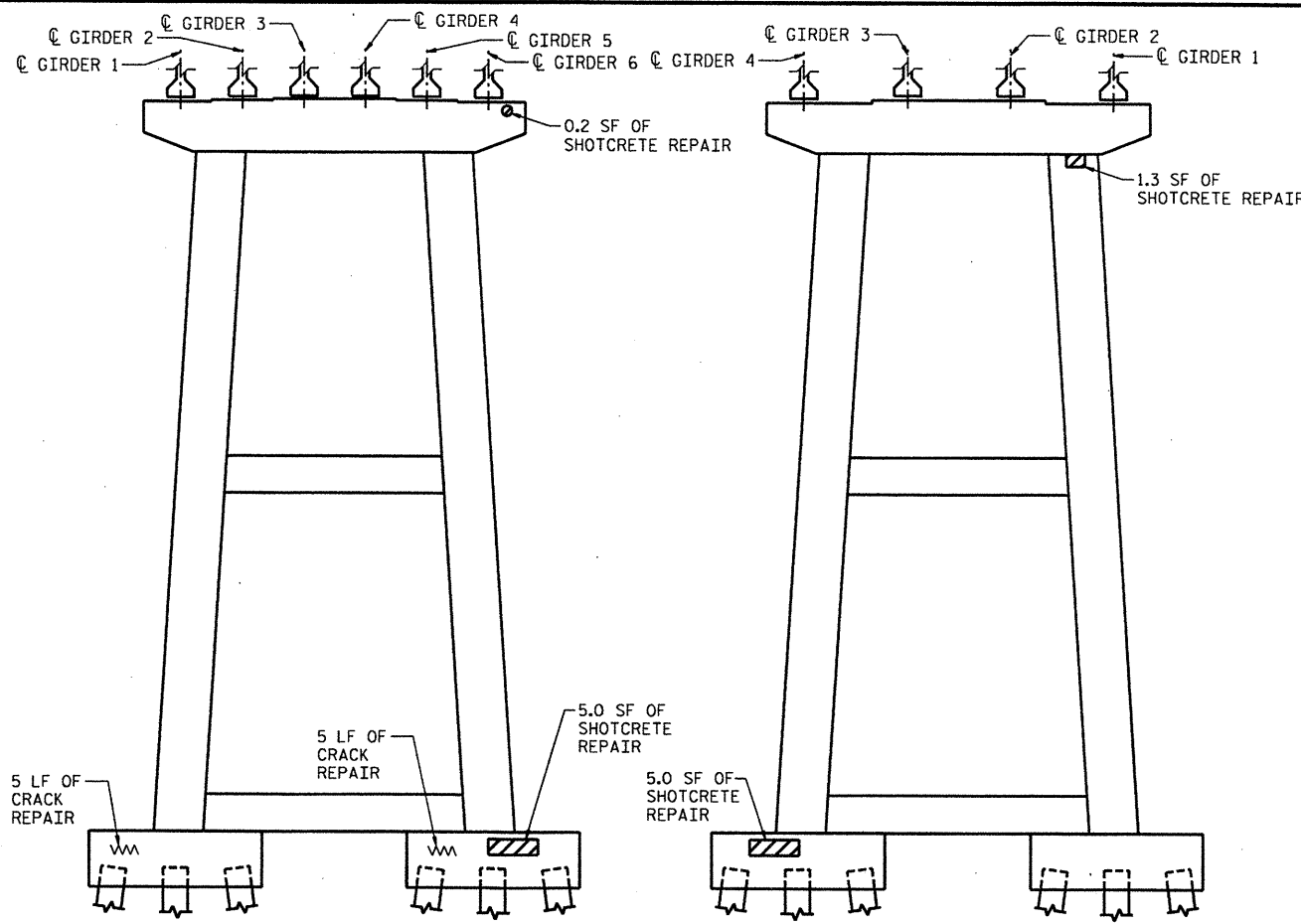
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE REPAIR  
 BENT 14**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-31
1			3			TOTAL SHEETS
2			4			37





DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011

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 DATE: 4/11/2012  
 TIME: 1:41:04 PM



**NOTES**  
 FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".  
 FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

 SHOTCRETE REPAIR  
 CRACK REPAIR

BILL OF MATERIAL	
BENT 15	
SHOTCRETE REPAIR	CF 2.9
EPOXY RESIN INJECTION	LF 10.0
BENT 16	
SHOTCRETE REPAIR	CF 1.8
EPOXY RESIN INJECTION	LF 8.0

PLOT DRIVER: NCDOT\_pdf\_mono\_eng\_50.pit  
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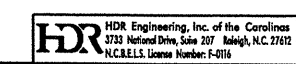
DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011

PROJECT NO. 17BP.3.H.2  
 ONSLOW COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE REPAIR  
 BENTS 15 & 16

REVISIONS						SHEET NO. 5-32 TOTAL SHEETS 37
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			






BILL OF MATERIAL

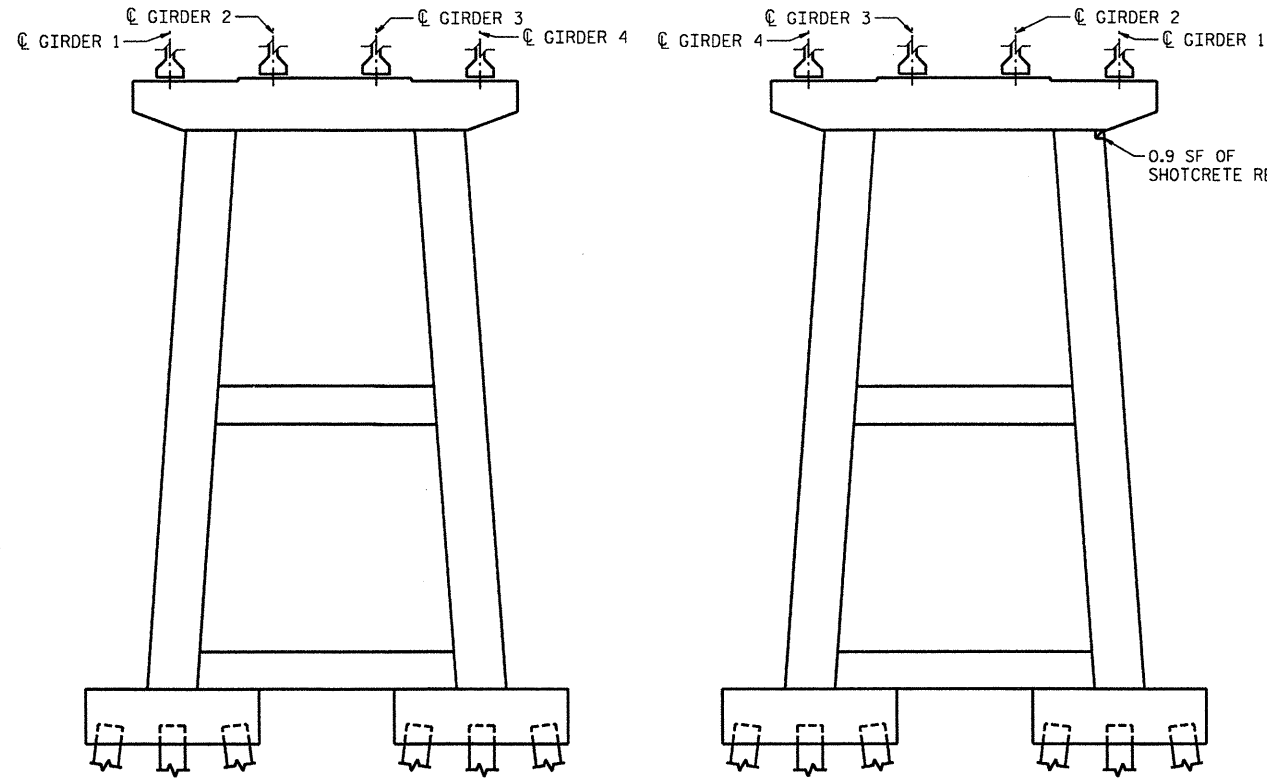
BENT 21	
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EPOXY RESIN INJECTION	LF 0.0
BENT 22	
SHOTCRETE REPAIR	CF 3.5
EPOXY RESIN INJECTION	LF 0.0

NOTES

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

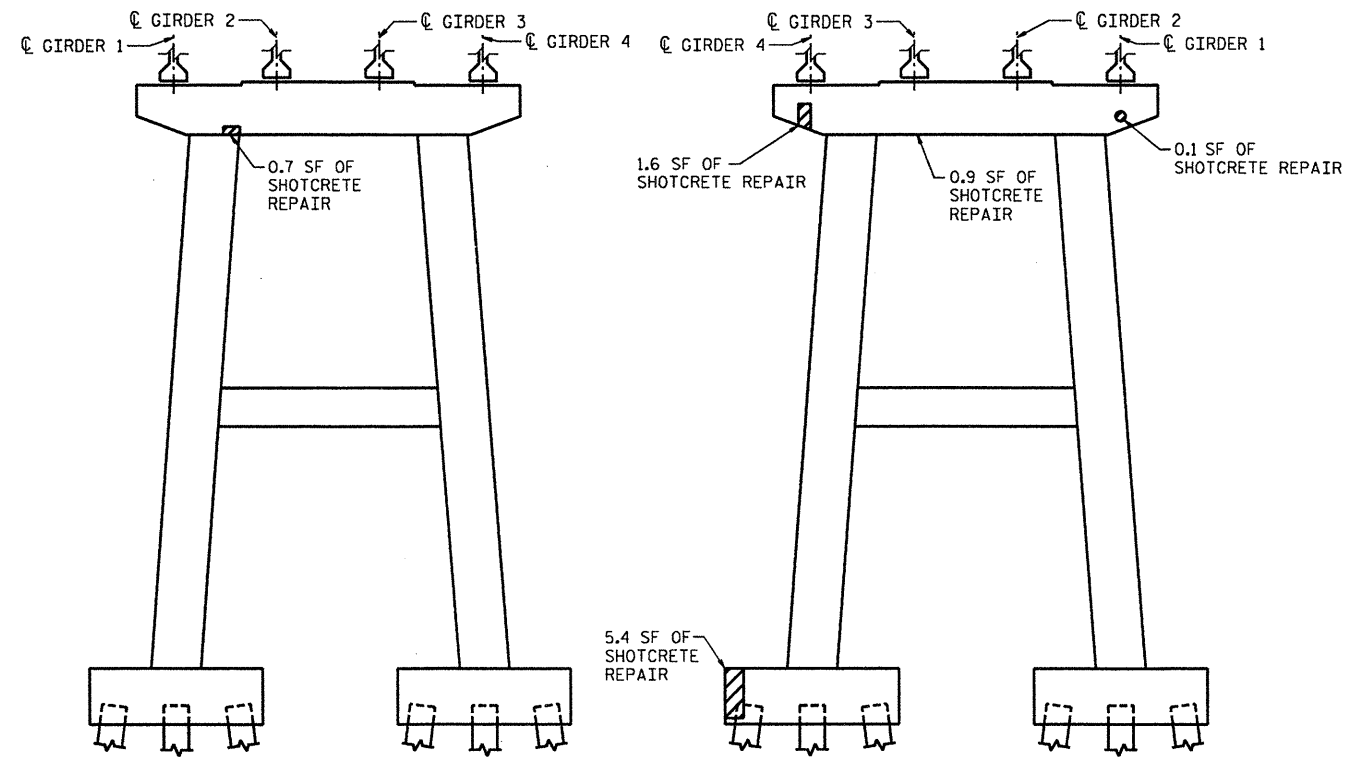
 SHOTCRETE REPAIR



WEST ELEVATION

EAST ELEVATION

BENT 21



WEST ELEVATION

EAST ELEVATION

BENT 22

PROJECT NO. 17BP.3.H.2  
 ONSLOW COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE REPAIR  
 BENTS 21 & 22

REVISIONS						SHEET NO. S-34	TOTAL SHEETS 37
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011

HDR Engineering, Inc. of the Carolinas  
 3733 National Drive, Suite 207 Raleigh, N.C. 27602  
 N.C.E.L.S. License Number: F-0116

PLOT DRIVER: NCDOT\_pdf\_mono\_eng\_50.plt  
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 FILE: North Carolina Dept. of Transportation\NCDOT\_C2011\_STRDSN\_OnCall\_TO\_4\13.00\_CAD\DIV3.1\_SD\_ONSLOW028.34.dgn  
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BILL OF MATERIAL

BENT 23

SHOTCRETE REPAIR	CF	4.9
EPOXY RESIN INJECTION	LF	0.0


BENT 24

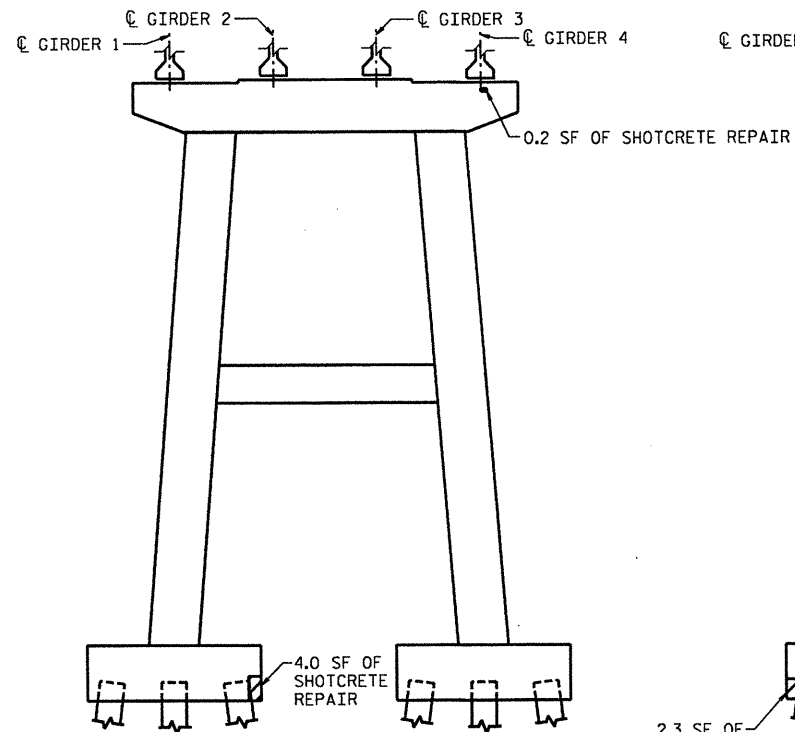
SHOTCRETE REPAIR	CF	1.6
EPOXY RESIN INJECTION	LF	0.0

NOTES

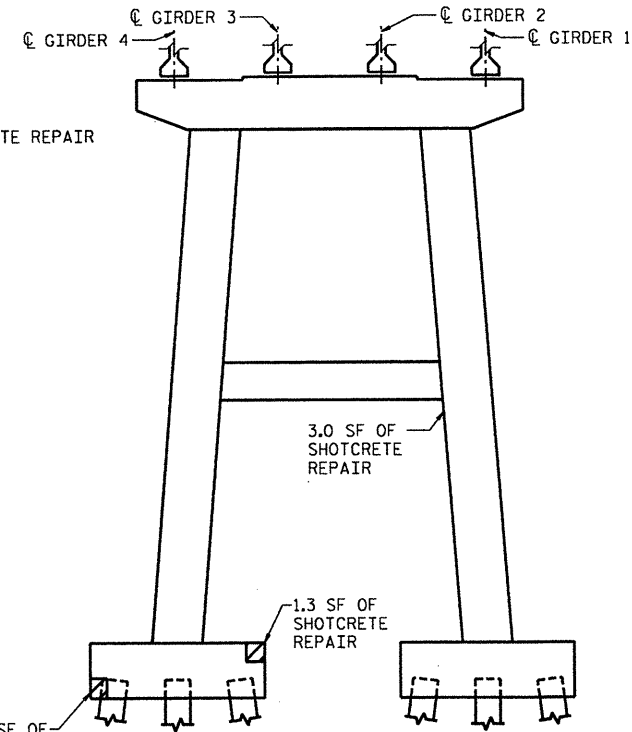
FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

 SHOTCRETE REPAIR

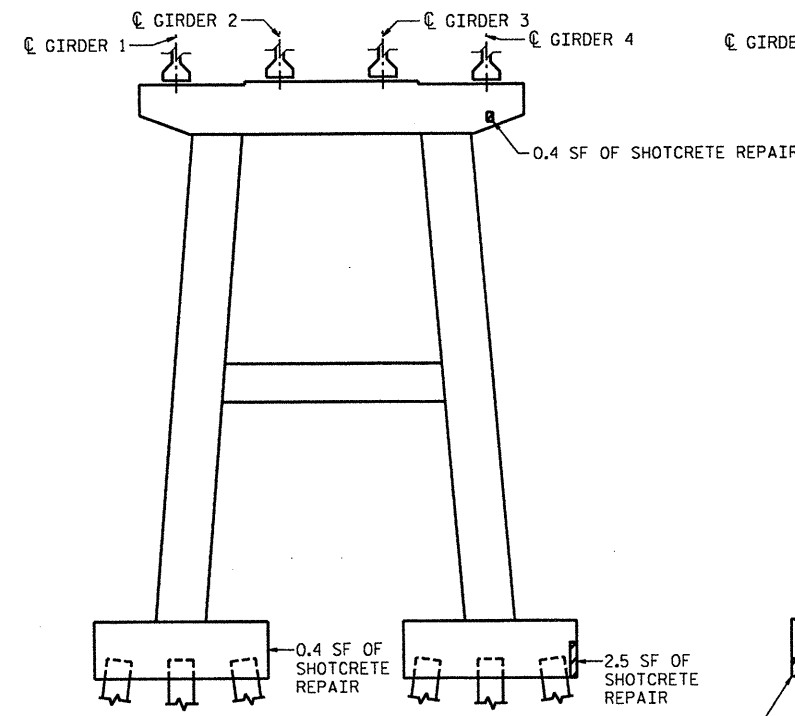


WEST ELEVATION

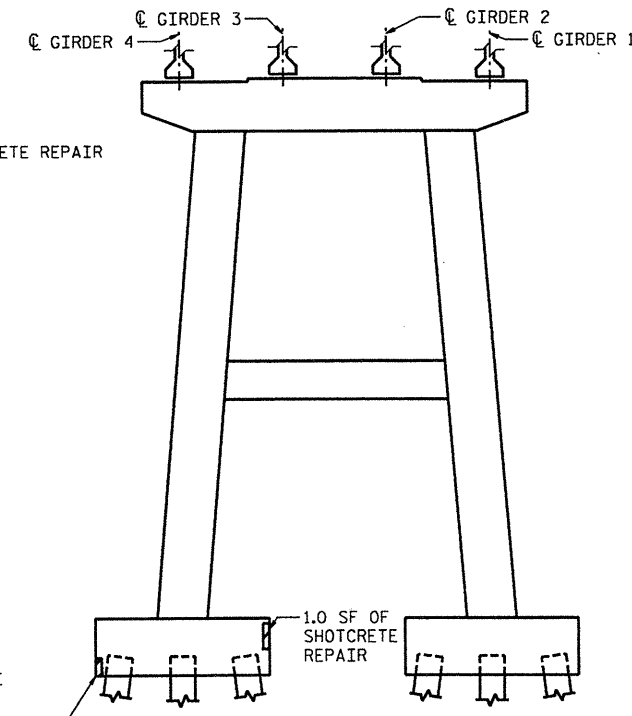


EAST ELEVATION

BENT 23



WEST ELEVATION



EAST ELEVATION

BENT 24

PROJECT NO. 17BP.3.H.2  
 ONSLOW COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE REPAIR  
 BENTS 23 & 24

REVISIONS						SHEET NO. S-35
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			



DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011

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 USER: meslis  
 FILE: North Carolina Dept. of Transportation\NCDOT\_c2011\_STRDSN\_OnCall\_TO\_4\13.00\_CAD\DTV3.1.SD\_ONSLOW028\_35.dgn  
 DATE: 4/11/2012  
 TIME: 1:41:49 PM

BILL OF MATERIAL

BENT 25

SHOTCRETE REPAIR	CF	0.3
EPOXY RESIN INJECTION	LF	0.0


BENT 26

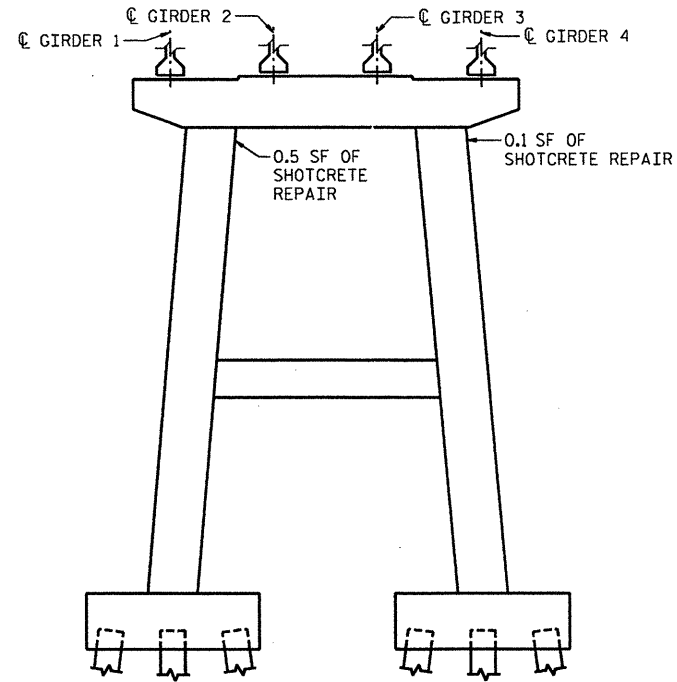
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EPOXY RESIN INJECTION	LF	0.0

NOTES

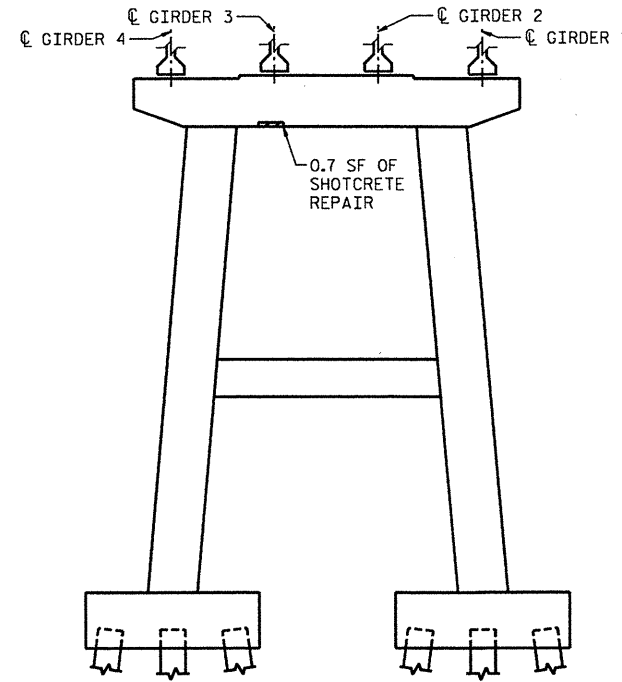
FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".

FOR REPAIR DETAILS, SEE "SUBSTRUCTURE REPAIR DETAILS".

 SHOTCRETE REPAIR

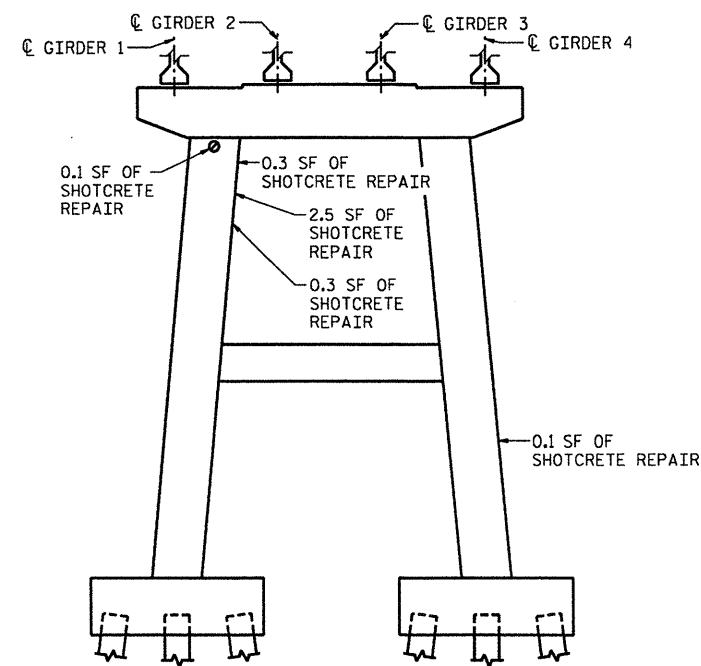


WEST ELEVATION

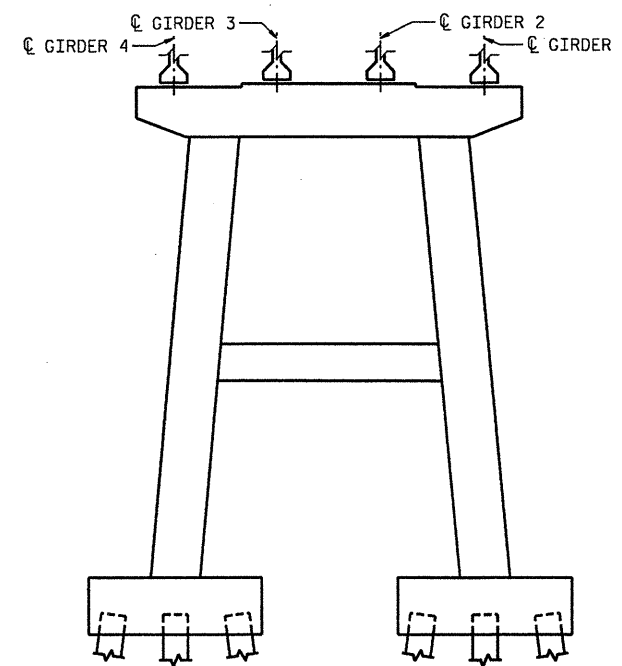


EAST ELEVATION

BENT 25



WEST ELEVATION



EAST ELEVATION

BENT 26

PROJECT NO. 17BP.3.H.2  
 \_\_\_\_\_ ONSLOW COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE REPAIR  
 BENTS 25 & 26

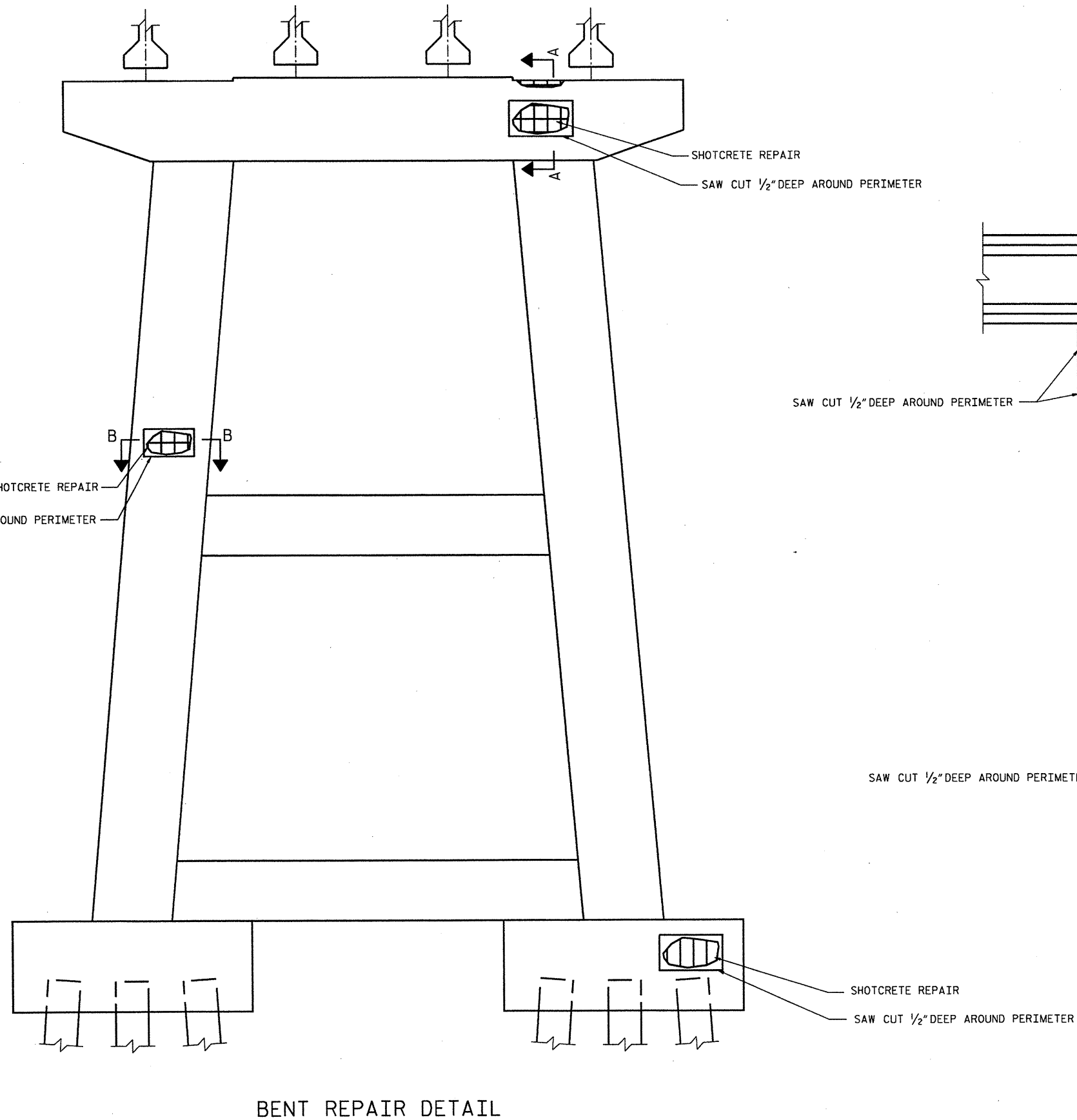
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			

DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011

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**HDR** HDR Engineering, Inc. of the Carolinas  
 3733 National Drive, Suite 207 Raleigh, N.C. 27612  
 N.C. ELS License Number: F-0116

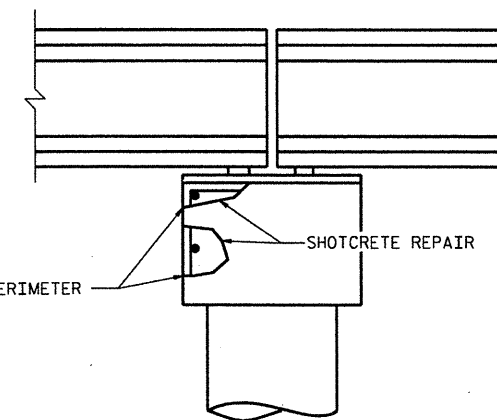
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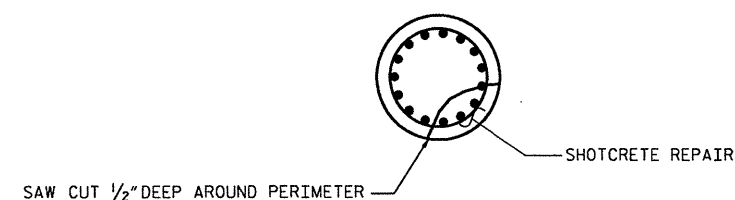
BENT REPAIR DETAIL

**NOTES**

FOR NOTES, SEE "GENERAL NOTES AND TOTAL BILL OF MATERIAL".



SECTION A-A



SECTION B-B

PROJECT NO. 17BP.3.H.2  
ONSLow COUNTY  
 BRIDGE NO.: 28



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
  
 SUBSTRUCTURE  
 REPAIR DETAILS

DRAWN BY : D. CHAPMAN DATE : 12/2011  
 CHECKED BY : A. ABERNATHY DATE : 12/2011

**HDR** HDR Engineering, Inc. of the Carolinas  
 3733 National Drive, Suite 207 Raleigh, N.C. 27612  
 N.C. REG. License Number: F-0116

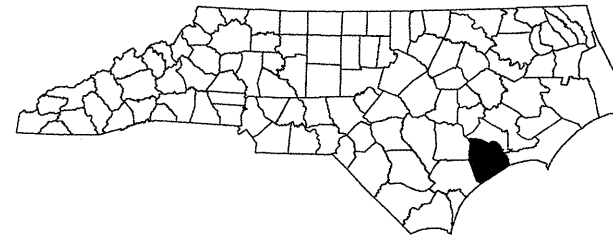
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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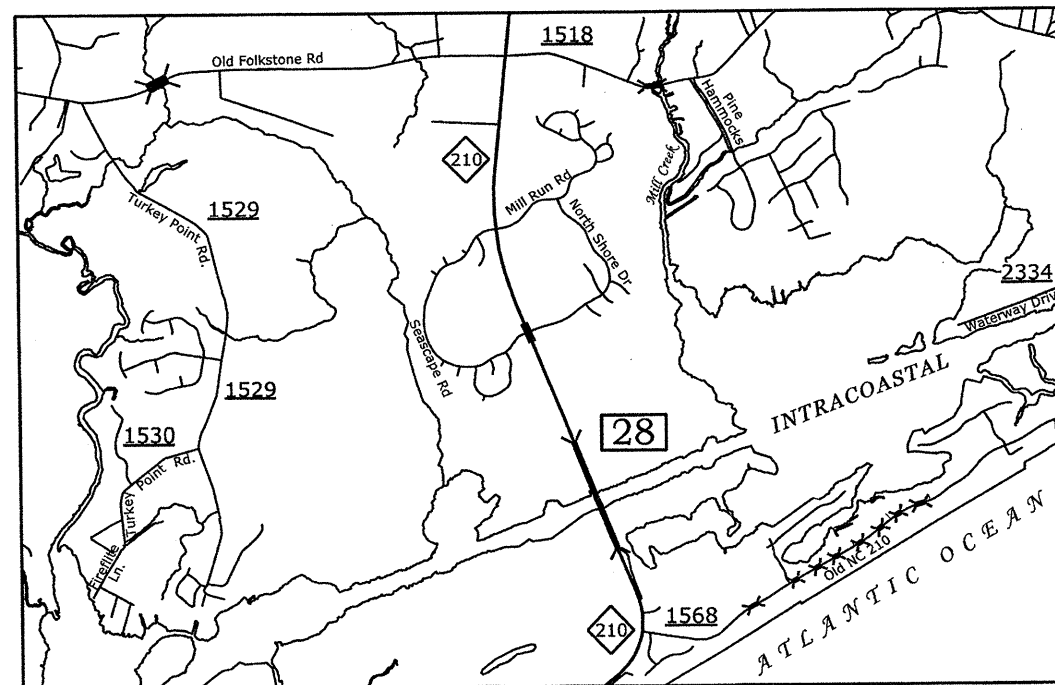
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

**ONSLOW COUNTY**



**LOCATION: BRIDGE 28 ON NC 210 OVER INTRACOASTAL WATERWAY**  
**TYPE OF WORK: TRAFFIC CONTROL FOR BRIDGE PRESERVATION**



**INDEX OF SHEETS**

SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-2 & TMP-2A	PROJECT NOTES
TMP-3	STAGING & TYPICALS - BRIDGE 28

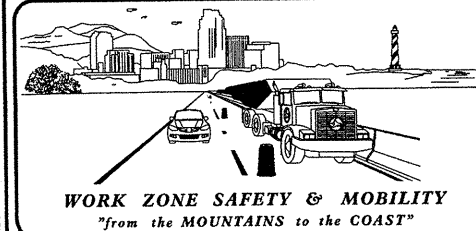
SHEET NO.

TMP-1

**PROJECT:**  
**17BP.3.H.2**

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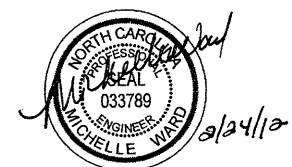
**N.C.D.O.T. WORK ZONE TRAFFIC CONTROL**  
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27689-1561  
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)  
PHONE: (919) 773-2800 FAX: (919) 771-2745

**J. S. BOURNE, P.E.** STATE TRAFFIC MANAGEMENT ENGINEER  
**MATTHEW MOYER, P.E.** PROJECT MANAGER  
**MICHELLE WARD, P.E.** TRAFFIC CONTROL PROJECT DESIGN ENGINEER  
**CHRIS HARNDEN** TRAFFIC CONTROL DESIGN ENGINEER



PLAN PREPARED BY:  
**HDR** HDR Engineering, Inc. of the Carolinas  
3733 National Drive, Suite 207 Raleigh, N.C. 27612  
N.C.B.E.L.S. License Number: F-0116

SEAL



**PROJECT:**






## ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JULY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

<u>STD. NO.</u>	<u>TITLE</u>
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE & MULTILANE ROADWAYS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)












## LEGEND

### GENERAL




-  DIRECTION OF TRAFFIC FLOW
-  DIRECTION OF PEDESTRIAN TRAFFIC FLOW
-  EXIST. PVMT.
-  NORTH ARROW
-  PROPOSED PVMT.

 WORK AREA




### TRAFFIC CONTROL DEVICES

-  BARRICADE (TYPE III)
-  CONE
-  DRUM     SKINNY DRUM     TUBULAR MARKER
-  TEMPORARY CRASH CUSHION
-  FLASHING ARROW PANEL (TYPE C)
-  FLAGGER
-  LAW ENFORCEMENT
-  TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
-  CHANGEABLE MESSAGE SIGN

### TEMPORARY SIGNING

-  PORTABLE SIGN
-  STATIONARY SIGN
-  STATIONARY OR PORTABLE SIGN




### SIGNALS

-  EXISTING
-  PROPOSED
-  TEMPORARY


### PAVEMENT MARKINGS

-  EXISTING LINES
-  TEMPORARY LINES

### PAVEMENT MARKERS

-  CRYSTAL/CRYSTAL
-  CRYSTAL/RED
-  YELLOW/YELLOW



### PAVEMENT MARKING SYMBOLS

-  PAVEMENT MARKING SYMBOLS

PLOT DRIVER: NCDOT1.pdf\_color\_eng\_50.pit  
 USER: pward  
 FILE: \

PENTABLE: NCDOT1.tbl  
 TIME: 4:58:05 PM

DATE: 2/23/2012

		<h2 style="margin: 0;">ROADWAY STANDARD DRAWINGS &amp; LEGEND</h2>
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## PROJECT NOTES

### GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS, OR RESULT IN DUPLICATE, OR UNDESIRE OVERLAPPING OF DEVICES. MODIFICATIONS MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR AS DIRECTED BY THE ENGINEER.

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

<u>ROAD NAMES</u>	<u>DAY &amp; TIME RESTRICTIONS</u>
NC 210	MONDAY-THURSDAY: 6:00 A.M. TO 9:00 A.M. 4:00 P.M. TO 7:00 P.M. FRIDAY 6:00 A.M. TO SUNDAY 7:00 P.M.

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

<u>ROAD NAMES</u>	<u>DAY &amp; TIME RESTRICTIONS</u>
NC 210	1) FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER. 2) FOR NEW YEAR'S, BETWEEN THE HOURS OF 6 A.M. DECEMBER 31ST TO 7 P.M. JANUARY 2ND. IF NEW YEARS DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7 P.M. THE FOLLOWING TUESDAY. 3) FOR EASTER, BETWEEN THE HOURS OF 6 A.M. THURSDAY AND 7 P.M. MONDAY. 4) FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6 A.M. FRIDAY AND 7 P.M. TUESDAY 5) FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7 P.M. THE DAY AFTER INDEPENDENCE DAY. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN BETWEEN THE HOURS OF 6 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 7 P.M. THE TUESDAY AFTER INDEPENDENCE DAY. 6) FOR LABOR DAY, BETWEEN THE HOURS OF 6 A.M. FRIDAY AND 7 P.M. TUESDAY. 7) FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6 A.M. TUESDAY AND 7 P.M. MONDAY. 8) FOR CHRISTMAS, BETWEEN THE HOURS OF 6 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

C) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

### LANE AND SHOULDER CLOSURE REQUIREMENTS

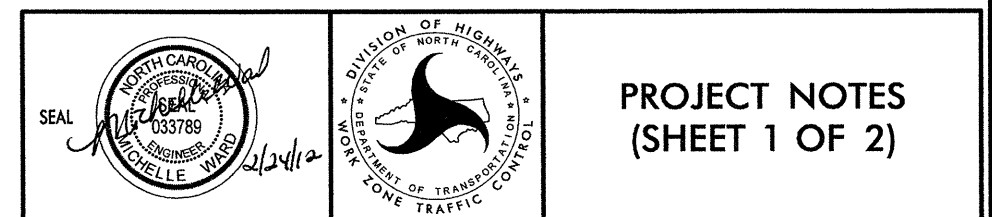
- D) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED, OR AS DIRECTED BY THE ENGINEER.
- E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT. OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN DIVIDED FACILITY AND WITHIN 10 FT. OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- H) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT. ON BOTH SIDES OF AN OPEN TRAVELWAY RAMP OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH BARRIER OR GUARDRAIL.
- I) DO NOT INSTALL MORE THAN 1/2 MILE OF LANE CLOSURES ON NC 210 MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.
- J) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON NC 210.

### PAVEMENT EDGE DROP OFF REQUIREMENTS

- K) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 500 FT. IN ADVANCE AND A MINIMUM OF ONCE EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

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## PROJECT NOTES

### GENERAL NOTES

#### TRAFFIC PATTERN ALTERATIONS

- L) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

#### SIGNING

- M) INSTALL ADVANCE WORK ZONE SIGNS WHEN WORK IS WITHIN 40 FT. FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- N) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

#### TRAFFIC CONTROL DEVICES

- O) WHEN LANE CLOSURES ARE IN EFFECT, SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH), EXCEPT 10 FT. ON-CENTER IN RADII, AND 3 FT. OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATION FOR ROADS & STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES), & 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- P) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT. CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

#### PAVEMENT MARKINGS AND MARKERS

- Q) INSTALL FINAL PAVEMENT MARKINGS AND PAVEMENT MARKERS AS FOLLOWS:

<u>ROAD NAME</u>	<u>MARKING</u>	<u>MARKER</u>
NC 210	POLYUREA	PERMANENT RAISED

- R) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS AS FOLLOWS:

<u>ROAD NAME</u>	<u>MARKING</u>	<u>MARKER</u>
NC 210	PAINT	NONE

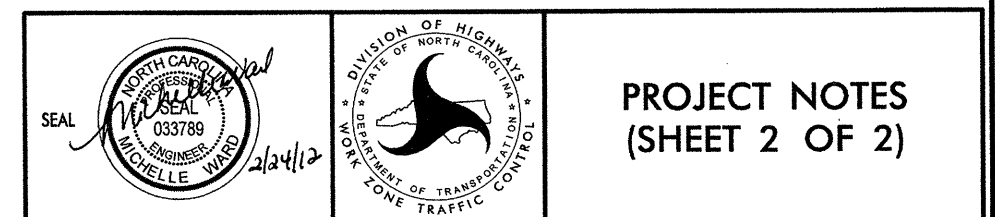
- S) TIE PROPOSED MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- T) REMOVE/REPLACE ANY CONFLICTING OR DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATIONS, WITH ONE APPLICATION OF PAINT.

### MISCELLANEOUS

- U) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS, AS DIRECTED BY THE ENGINEER.
- V) ENGINEER WILL NOTIFY THE OVERSIZE/OVERWEIGHT PERMIT UNIT AT 919-733-4740 OR 919-733-7154 TWO WEEKS PRIOR TO TRAFFIC BEING PLACED IN A ONE-LANE TRAFFIC PATTERN, IF NECESSARY AND WHEN TRAFFIC IS RESTORED TO THE EXISTING PATTERN.
- W) DO NOT ALLOW WATER AND CONCRETE SLURRY FROM HYDRO-DEMOLITION TO DRAIN ACROSS TRAVEL LANES.
- X) COMPLETE PROPOSED CONSTRUCTION IN SUCH A MANNER THAT PONDING OF WATER DOES NOT OCCUR IN THE TRAVEL LANES.
- Y) RECORD ALL EXISTING MARKINGS ON THE BRIDGE AND APPROACHES IN ORDER TO REPLACE MARKINGS AT THE END OF THE WORKDAY AND ONCE CONSTRUCTION IS COMPLETE.
- Z) ROADWAY STANDARD DRAWING (RSD) 1101.02, SHEET 1 OF 15 (FLAGGERS), MAY REQUIRE PILOT CAR OPERATION, AS DIRECTED BY THE ENGINEER. (SEE ADDITIONAL NOTES REGARDING PILOT CAR OPERATIONS ON RSD 1101.02, SHEET 1 OF 15.)

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**TRAFFIC CONTROL STAGING**

NOTE: AT THE END OF THE WORK DAY, REMOVE ALL TRAFFIC CONTROL DEVICES, COVER OR REMOVE ALL ADVANCED TRAFFIC CONTROL SIGNS FOR THE LANE CLOSURE OPERATION, AND RETURN TRAFFIC TO ITS EXISTING PATTERN.

**STAGE I:**

STEP 1: USING THIS SHEET AND RSD 1101.02, SHEET 1 OF 15, COMPLETE BRIDGE WORK ON ONE SIDE OF THE BRIDGE.

USING RSD 1101.02, SHEET 1 OF 15 OR RSD 1101.04, SHEET 1 OF 1, AS NEEDED, MAY BEGIN WORK ON SUPERSTRUCTURE AND SUBSTRUCTURE.

**STAGE II:**

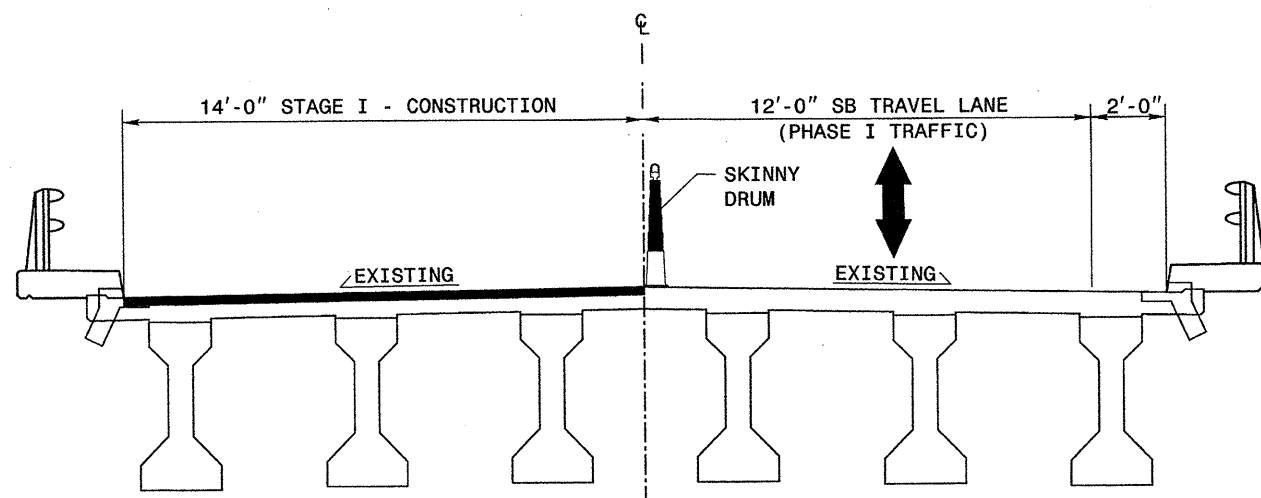
STEP 1: USING THIS SHEET AND RSD 1101.02, SHEET 1 OF 15, COMPLETE BRIDGE WORK ON THE OTHER SIDE OF THE BRIDGE.

STEP 2: USING THIS SHEET AND RSD 1101.02, SHEET 1 OF 15, COMPLETE ROADWAY APPROACH WORK.

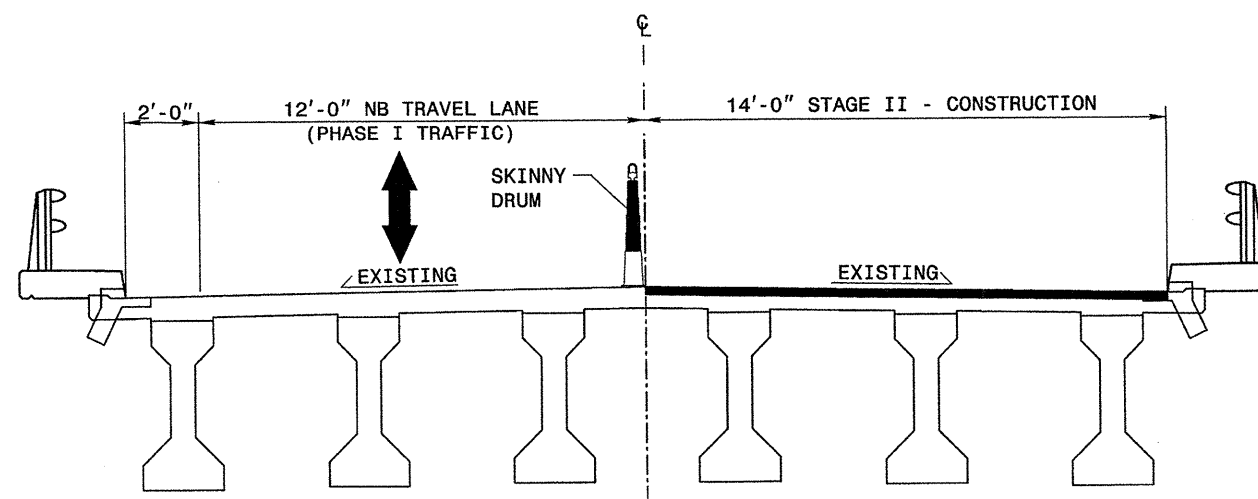
USING RSD 1101.02, SHEET 1 OF 15 OR RSD 1101.04, SHEET 1 OF 1, AS NEEDED, COMPLETE WORK ON SUPERSTRUCTURE AND SUBSTRUCTURE.

STEP 3: USING RSD 1101.02, SHEET 1 OR 11 OF 15, PLACE FINAL PAVEMENT MARKINGS AND MARKERS AND OPEN TO TRAFFIC.

STEP 4: REMOVE ALL REMAINING TRAFFIC CONTROL DEVICES.



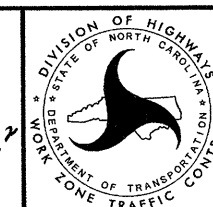
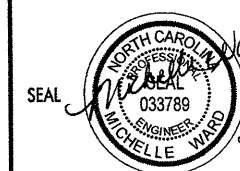
**TYPICAL SECTION - STAGE I**



**TYPICAL SECTION - STAGE II**

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ONSLOW CO.  
BRIDGE NO. 28  
(US 210 OVER THE  
INTRACOASTAL WATERWAY)  
STAGING & TYPICALS

## STANDARD NOTES

### DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	--	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN	-----	375 LBS. PER SQ. IN.
OF TIMBER	-----	
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT.
		(MINIMUM)

### MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

### CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

### CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

### DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

### ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

### REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

### STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

### HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

### SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

# ENGLISH

JANUARY, 1990

STD. NO. SN