

**NOTES**

ASSUMED LIVE LOAD - HS 20-44 OR ALTERNATE LOADINGS.  
FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET S-N.

ALL REINFORCING STEEL SHALL BE GRADE 60.  
FOR EPOXY COATED REINFORCING STEEL, SEE SPECIAL PROVISIONS.

FOR ADHESIVE ANCHORS, SEE SPECIAL PROVISIONS. ADHESIVE ANCHORS SHALL BE INCLUDED IN THE PRICE FOR THE REINFORCING STEEL. HOLES FOR ADHESIVE ANCHORS SHALL BE DRILLED WITH A ROTARY DRILL OR ROTARY IMPACT DRILL. IMPACT DRILLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

ALL STRUCTURAL STEEL FOR THIS STRUCTURE SHALL BE ASTM A588 STEEL WITH MINIMUM YIELD STRENGTH OF 50,000 P.S.I., UNLESS OTHERWISE NOTED ON PLANS.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

CRACKS IN EAST AND WEST FACES OF EXISTING BENT 1 CAP SHALL BE EPOXY RESIN INJECTED (SEE DWG. 23A).

REMOVAL OF PORTIONS OF THE EXISTING SUPERSTRUCTURE AND SUBSTRUCTURE SHALL NOT EXCEED THE LIMITS GIVEN IN THE PLANS, AND SHALL NOT BE UNDERTAKEN UNTIL APPROVAL HAS BEEN GIVEN BY THE ENGINEER.

THE ENTIRE COST OF THE REMOVAL OF THE EXISTING CONCRETE PARAPET, CURTAIN WALLS, EARWALLS, APPROACH BRACKETS, APPROACH PAVING, AND CONCRETE SLOPE PROTECTION WHICH INCLUDES THE REMOVAL OF THE CONCRETE TO THE LINES SHOWN, THE CLEANING OF THE EXISTING REINFORCING STEEL WHICH WILL BECOME PART OF THE FINISHED STRUCTURE, EQUIPMENT, TOOLS, LABOR, AND ANY OTHER INCIDENTALS NECESSARY TO COMPLETE THE WORK SHALL BE INCLUDED IN THE LUMP SUM PAY ITEM "REMOVAL OF EXISTING STRUCTURE AT STATION 32+98.75 - L-1". SEE STANDARD SPECIFICATIONS, SECTION 402.

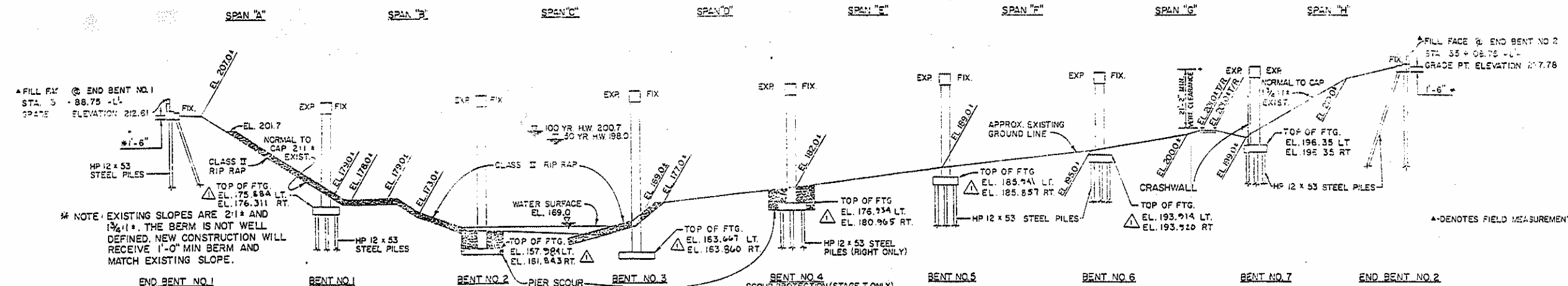
THE EXISTING BRIDGE IS NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING THE CONSTRUCTION OF THE PROPOSED WIDENING, THE RESIDENT ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

PILES AT END BENT 1, END BENT 2, BENT 3, BENT 4 R.R. AND BENTS 5, 6 & 7, SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 50 TONS, EACH.

COMPUTED FOUNDATION LOAD FOR BENTS 2, 3, 5 & 4 LT. EQUALS 4 TONS PER SQ. FT.

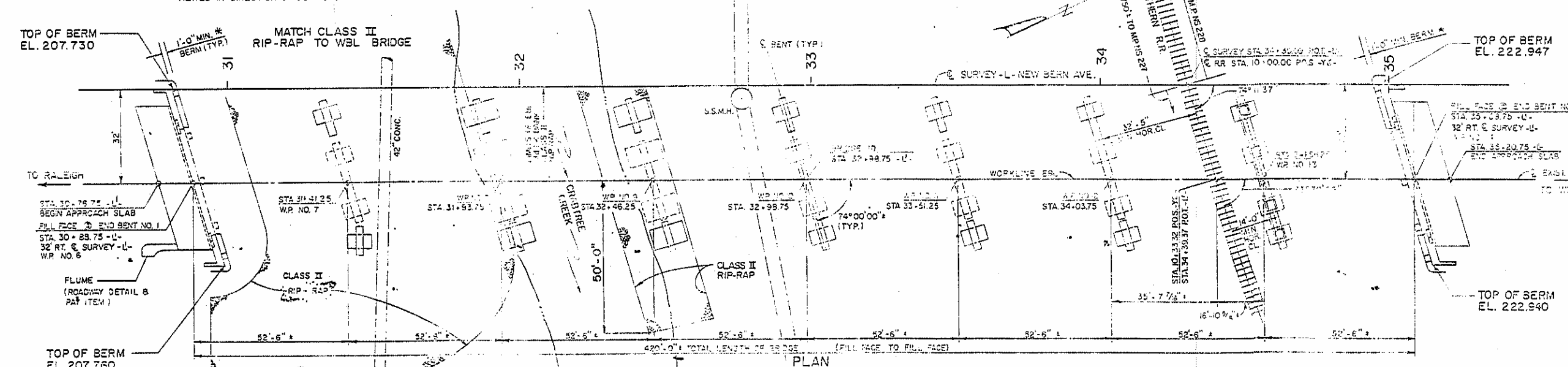
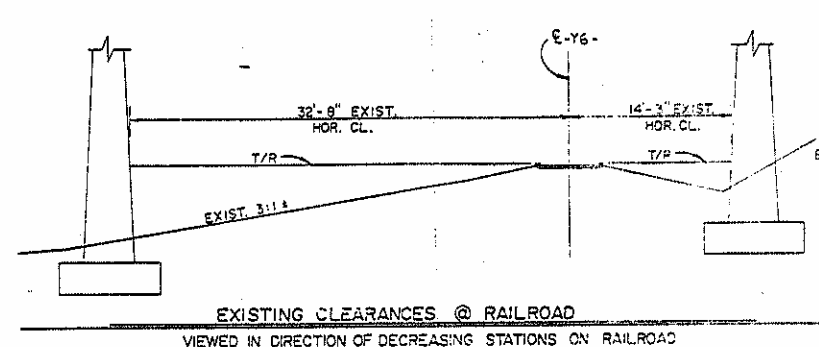
FOOTINGS AT INTERIOR BENTS 2 RT. AND 3 SHALL BE KEPT INTO ROCK THE FULL DEPTH OF FOOTING.

(NOTES CONTINUED ON SHEET 2.)



| HYDRAULIC DATA  |              |
|-----------------|--------------|
| D.A.            | 135 SQ. MI.  |
| Q <sub>50</sub> | 22,100 CFS   |
| DESIGN HW       | ELEV. 198.0  |
| BASIC HW        | ELEV. 200.7  |
| OVERTOP         | ELEV. 209.41 |
| Q > 500         | 60,000 CFS   |

| TOP OF RAIL ELEVATION |           |        |
|-----------------------|-----------|--------|
| TRACK                 | LINE - YG |        |
| RAIL                  | 1ST       | 2ND    |
| STA. 9+00             | 200.92    | 200.72 |
| STA. 9+50             | 201.00    | 200.80 |
| STA. 10+00            | 201.04    | 200.87 |
| STA. 10+50            | 200.97    | 200.84 |
| STA. 11+00            | 200.86    | 200.75 |



| SOUTHERN RAILROAD - YG - |          |
|--------------------------|----------|
| CURVE DATA               |          |
| P.I.                     | 9+87.12  |
| E <sub>s</sub>           | 4°00'00" |
| D                        | 4°00'00" |
| L <sub>s</sub>           | 200.00'  |
| L.T.                     | 133.37'  |
| S.T.                     | 66.70'   |
| C.C.                     | 139.90'  |

Project No. 8.2402101  
WAKE COUNTY  
STATION: 32+98.75 - L-1  
SHEET 2 OF 2  
MILE POST 32+98.75 (WIDENING BR. NO. 533)

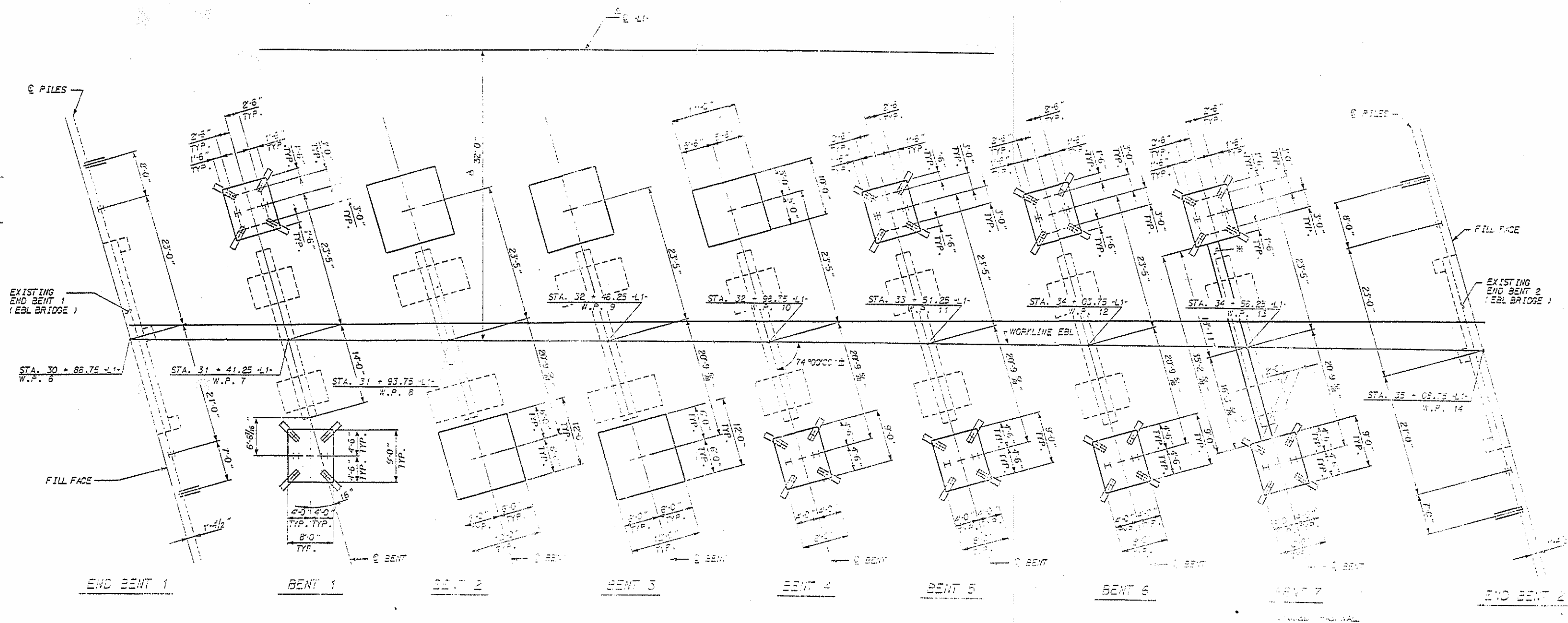
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
GENERAL DRAWING  
FOR WIDENING EXIST. EAST SOUND LANE  
BRIDGE NO. 533 OVER GRABTREE CREEK AND  
SOUTHERN RAILROAD ON SR 2811 (NEW  
BERN AVE) BETWEEN RALEIGH AND  
WENDELL

| REVISIONS |        |         |     |    | SHEET NO.        |
|-----------|--------|---------|-----|----|------------------|
| NO.       | BY     | DATE    | NO. | BY |                  |
| 1         | L.T.B. | 2-15-93 | 3   |    | 5-289            |
| 2         |        |         | 4   |    | TOTAL SHEETS 332 |

DRAWN BY: DAP DATE: 5/92  
CHECKED BY: JLM DATE: 5/92  
FLORENCE & HUTCHESON, INC.  
CONSULTING ENGINEERS RALEIGH, N.C.

Professional Engineer Seal  
John H. Mundy  
8-21-92

REVISED TOP OF FOOTING ELEVATIONS. BY: FCL 2/93 DWG. 1



### FOUNDATION LAYOUT

ALL DIMENSIONS SHOWN ARE GIVEN TO THE PILE CENTERLINE UNLESS NOTED OTHERWISE. PILES ARE BATTERED AT 1/4" PER 12" @ BENTS & 3/12" @ END BENTS. PILES 2, 3 & 4 ON THE LEFT SIDE OF BENT 4 HAVE SPREAD FOOTINGS.

WORKLINE SHOWN - FIELD DIMENSIONS FOR SHOWN ARE DETAIL ON SHEET S-305

PROJECT NO. 8.2402101  
WAKE COUNTY  
STATION: 32 + 92.75 -LI-  
EBL

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

FOUNDATION LAYOUT  
PLAN

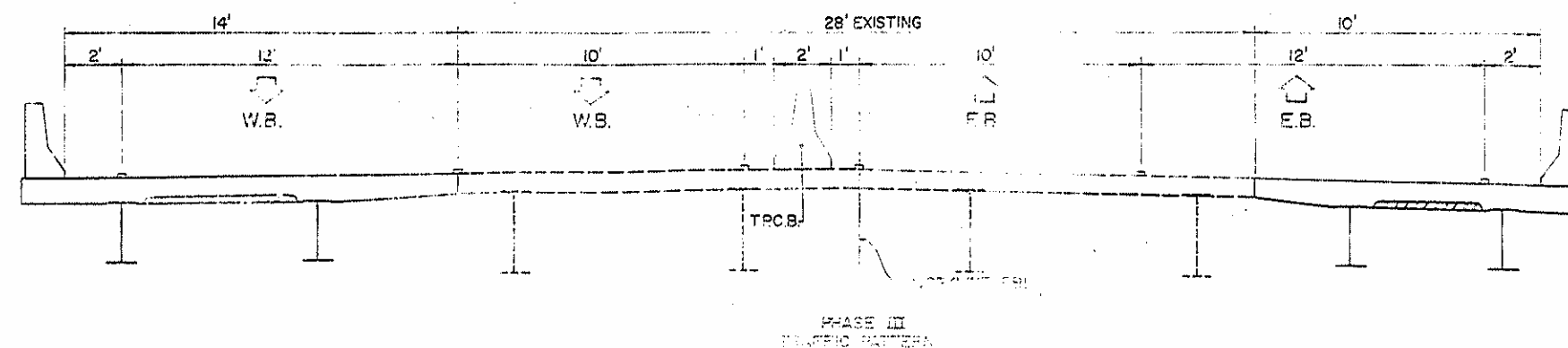
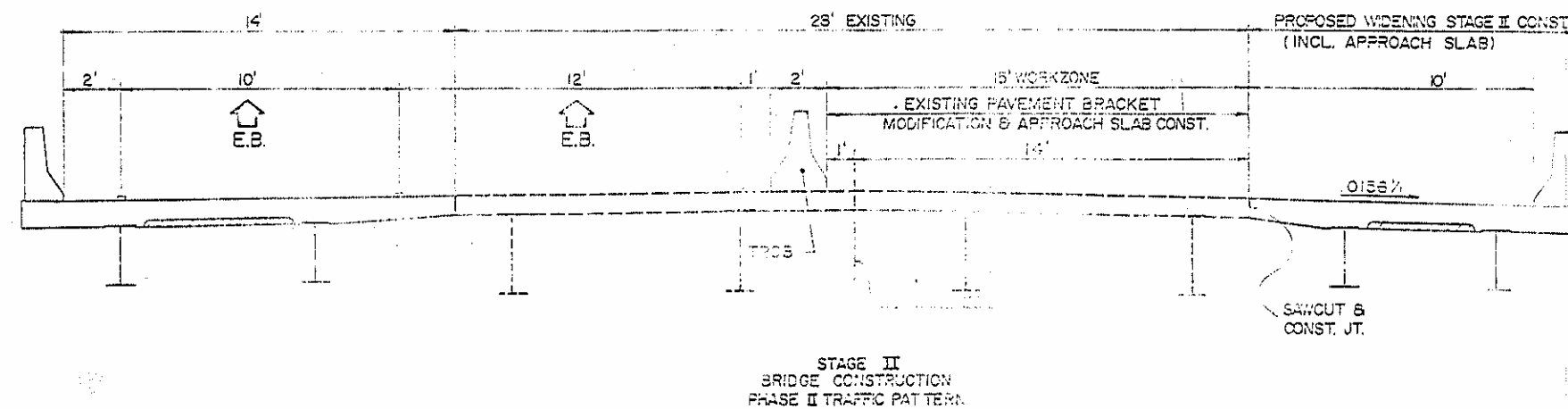
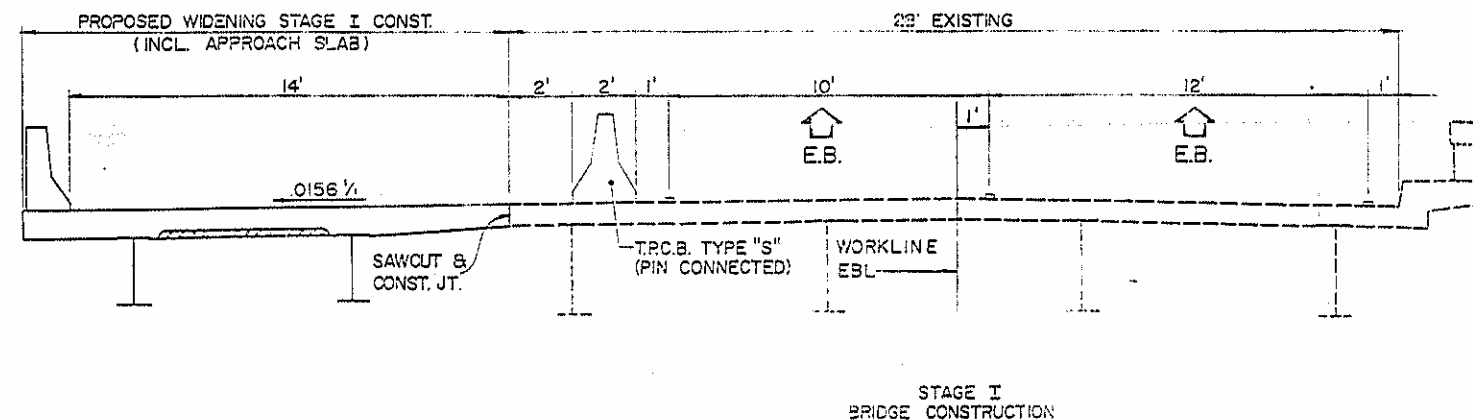
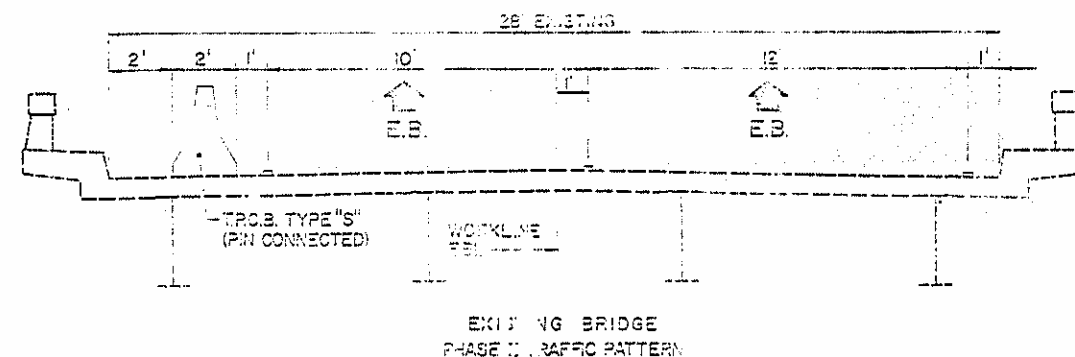
DRAWN BY: H. A. LUCAS DATE: 10/1/92  
CHECKED BY: J. C. G. DATE: 10-22

13-OCT-1992 15:45  
20020302182173.DGN  
H. LUCAS

REV. NO. 1 - REVISED DISTANCE FROM WORKLINE EBL TO E-LI-  
REVISED BY: HAL 1/26/93 CHKD. BY: J. C. G. 1/27/93

| OCTOBER 1992 |     |         |     |    | SHEET NO. |     |
|--------------|-----|---------|-----|----|-----------|-----|
| REVISIONS    |     |         |     |    | 5-240     |     |
| NO.          | BY  | DATE    | NO. | BY | DATE      |     |
| 1            | HAL | 1/26/93 | 2   |    |           |     |
| 2            |     |         | 3   |    |           | 322 |





# NOTES:

SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE POSITIVELY ANCHORED TEMPORARY PRECAST CONCRETE BRIDGE BARRIER- TYPE S.

REHABILITATION WORK SHALL CONSIST OF "CLASS I SURFACE PREPARATION", "CLASS II SURFACE PREPARATION", & "CLASS III SURFACE PREPARATION" SEE SPECIAL PROVISIONS.

NEW DECK IS PLACED WITH RAKED SURFACE AND EXISTING DECK IS MILLED 1/2" AND A 1 1/4" OVERLAY IS PLACED TO BRING DECK TO FINAL ELEVATION.

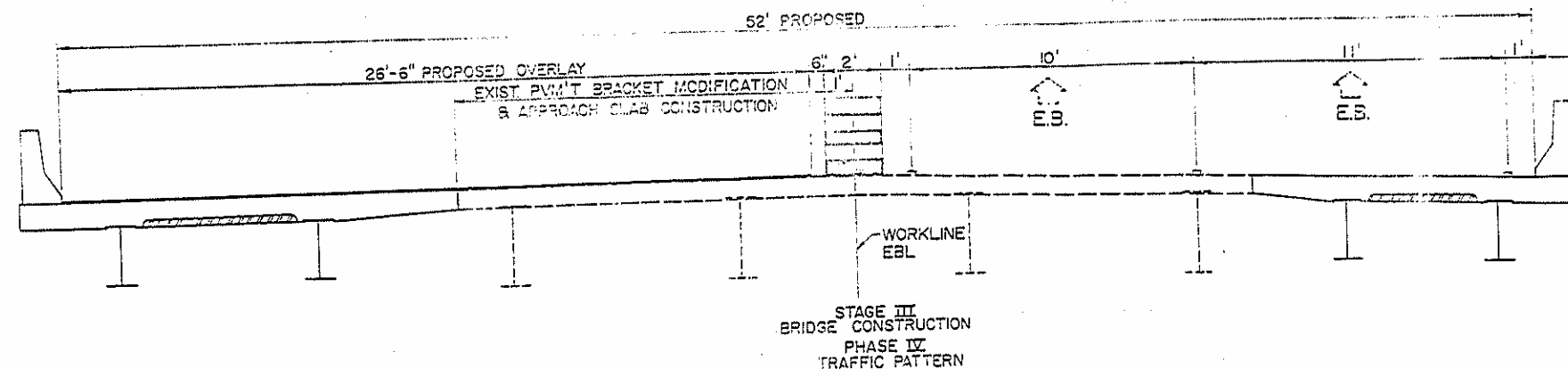
Project No. 8.2402101  
WAKE COUNTY  
STATION: 32+98.75-L-

| STATE OF NORTH CAROLINA      |    |      |     |    |                  |
|------------------------------|----|------|-----|----|------------------|
| DEPARTMENT OF TRANSPORTATION |    |      |     |    |                  |
| RALEIGH                      |    |      |     |    |                  |
| CONSTRUCTION SEQUENCE        |    |      |     |    |                  |
| MARCH 1992                   |    |      |     |    |                  |
| REVISIONS                    |    |      |     |    |                  |
| NO.                          | BY | DATE | NO. | BY | DATE             |
| 1                            |    |      | 3   |    |                  |
| 2                            |    |      | 4   |    |                  |
| SHEET 5-292                  |    |      |     |    | TOTAL SHEETS 632 |

DWG. 3

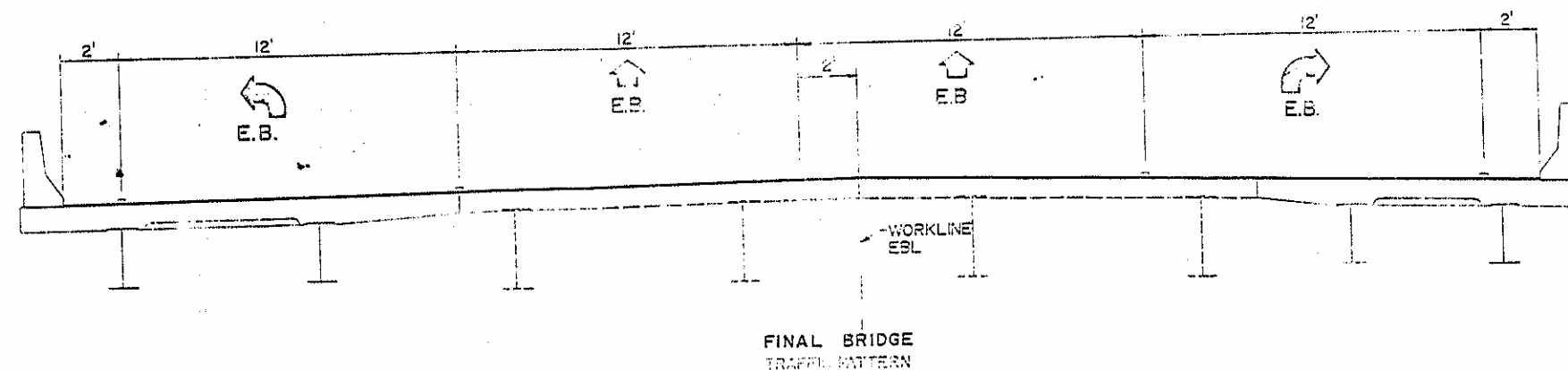
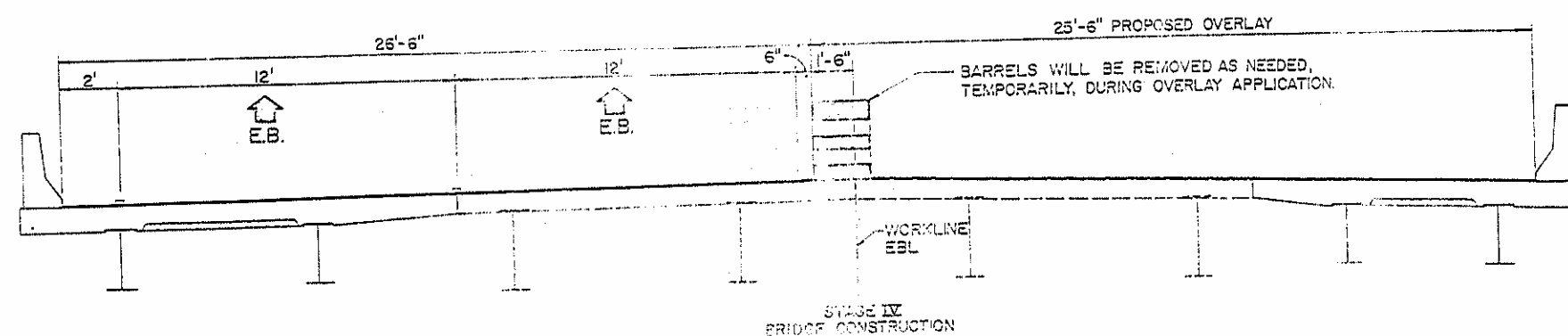
DRAWN BY: WET DATE: 5-92  
CHECKED BY: J. H. DATE: 5-92  
FLORENCE S. HUTCHESON INC.  
CONSULTING ENGINEERS RALEIGH N.C.





# CONSTRUCTION SEQUENCE FOR STAGE III BRIDGE CONSTRUCTION

1. MODIFY EXISTING PAVEMENT BRACKET, SEE DWG. 5
2. CONSTRUCT NEW APPROACH SLAB @ EXISTING BRIDGE ENDS.
3. PLACE 1 1/4" OVERLAY.



PROJECT No. 82402101  
WAKE County  
STATION: 32+98.75-L-

| STATE OF NORTH CAROLINA      |    |      |     |    |       |
|------------------------------|----|------|-----|----|-------|
| DEPARTMENT OF TRANSPORTATION |    |      |     |    |       |
| RALEIGH                      |    |      |     |    |       |
| CONSTRUCTION SEQUENCE        |    |      |     |    |       |
| MARCH 1992                   |    |      |     |    |       |
| REVISIONS                    |    |      |     |    |       |
| NO.                          | BY | DATE | NO. | BY | DATE  |
| 1                            |    |      | 3   |    |       |
| 2                            |    |      | 4   |    |       |
| SHEET NO.                    |    |      |     |    | 5-292 |
| TOTAL SHEETS                 |    |      |     |    | 332   |

DWG. 4

DRAWN BY: WET DATE: 5-92  
CHECKED BY: J. H. DATE: 5-92  
FLORENCE & HUTCHESON INC.  
CONSULTING ENGINEERS RALEIGH N.C.

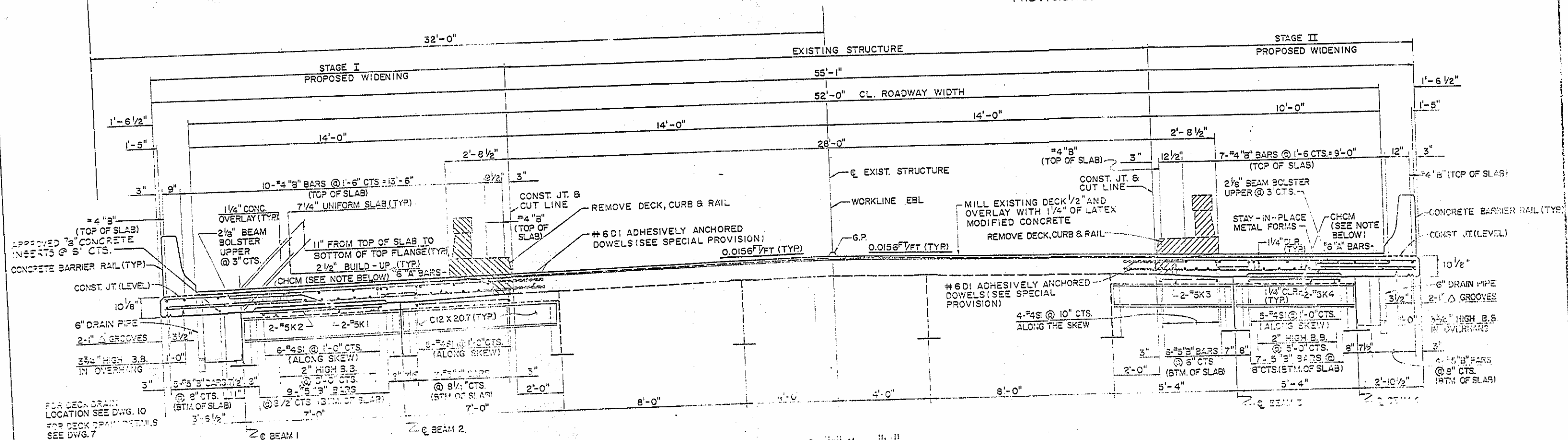
## NOTES:

THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND BEAM/ GIRDER STIFFENER OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.

FOR EPOXY COATED REINFORCING STEEL, SEE SPECIAL PROVISIONS.

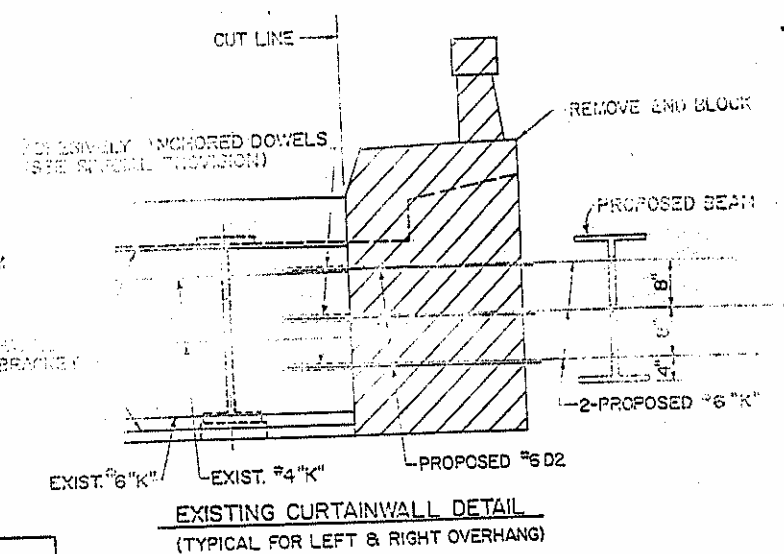
THE DIMENSIONS AND DETAILS SHOWN FOR CONCRETE  
INSERTS ARE FOR THE CONTRACTOR'S BENEFIT IN  
PLACING THE INSERTS AND ARE NOT TO BE CONSIDERED  
AS AN APPROVAL FOR THE ATTACHMENT OF A  
UTILITY LINE.

FOR RESPONSIBILITIES FOR FURNISHING AND PLACING  
CONCRETE INSERTS, SEE UTILITY SPECIAL  
PROVISIONS.



TYPICAL SECTION-SPANS "A" thru "H"  
SHOWING BENT DIAPHRAGMS

NOTE: EXISTING CONCRETE SHALL BE REMOVED IN ACCORDANCE WITH THE SPECIFICATIONS EXCEPT THAT AN ADDITIONAL GROOVE 1" DEEP SHALL BE SAWS TO LINE IN THE BOTTOM OF THE FLOOR SLAB BEFORE REMOVING EXISTING CONCRETE. IN THE EVENT THE 1" SAW CUT RESULTS IN DAMAGE TO THE REINFORCING STEEL, THE DEPTH OF THE CUT SHALL BE REDUCED TO AVOID SUCH DAMAGE AS DIRECTED BY THE ENGINEER. CARE SHALL BE TAKEN TO OBTAIN A STRAIGHT LINE AT THE TOP AND BOTTOM OF OLD AND NEW CONCRETE. RETAIN EXISTING STEEL AS SHOWN.



## NOTES:

NOTES:  
FOR BARS INDICATED AND NO MARK SHOWN, SEE PLAN OF SPANS.

DOWELS IN DECK SLAB SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE MAIN SLAB REINFORCING STEEL. DURING THE JOINT INSTALLATION PROCEDURE, THE JOINT AND SURROUNDING AREA SHALL BE KEPT CLEAN AND FREE OF DEBRIS.

FOR DECK REMOVAL, SEE SPECIAL PROVISIONS. PAYMENT FOR  
DECK REMOVAL SHALL BE INCLUDED IN THE LUMP SUM PAY  
ITEM "REMOVAL OF EXISTING STRUCTURE AT STATION 32+00.75"

NEW REINFORCED CONCRETE DECK SLAB SHALL BE CAST WITH A  
RAKED FINISH. CARE SHALL BE TAKEN TO AVOID CONTAMINATION  
OF DECK SLAB PRIOR TO PLACEMENT OF OVERLAY. OVERLAY  
SHALL NOT BE PLACED UNTIL ALL SLAB CONCRETE IN THAT  
SPAN HAS REACHED A MIN. COMPRESSIVE STRENGTH OF 3000 PSI.

BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.

FOR METAL STAY-IN-PLACE FORMS, SEE SPECIAL PROVISIONS.  
 PROVIDE CONTINUOUS HIGH CHAIR FOR METAL DECK (CONC) AT 4'-0" CTS. WITH LEG SPACING TO MATCH THE PITCH OF THE FORMS AND WITH A HEIGHT TO SUPPORT THE BOTTOM LAYER OF SLAB REINFORCEMENT A CLEAR DISTANCE OF 1 1/4' ABOVE THE TOP OF THE STAY-IN-PLACE FORMS.  
 (NOTES CONTINUED ON DWG. 6)

△ REVISED CURTAINWALL DETAIL

DWG. 5

DRAWN BY DAP DATE 5-92  
CHECKED BY 2/10/92 DATE 5-92

FLORENCE & HUTCHESON INC.  
CONSULTING ENGINEERS      RALEIGH N.C.

PROJECT NO. D-2-02101

STATE \_\_\_\_\_ COUNTY \_\_\_\_\_

STATION 32+98.75 L-

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

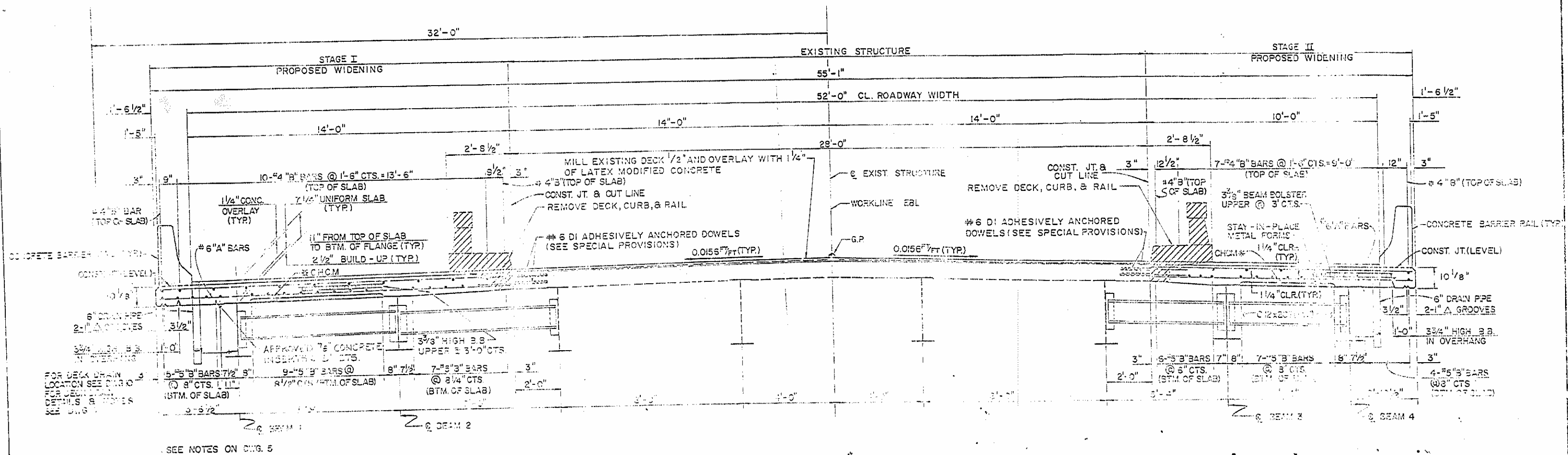
RALLIGH

CIVIL STRUCTURE

TYPICAL SECTIONS-SPANS A-1

| REVISIONS |        |        |     |    |      |  | SHEET NO.       |
|-----------|--------|--------|-----|----|------|--|-----------------|
| NO.       | BY     | DATE   | NO. | BY | DATE |  |                 |
| 1         | F.B.H. | 2-5-93 | 3   |    |      |  | 5-29            |
| 2         |        |        | 4   |    |      |  | TOTAL SHEETS 23 |

NEW BERN, N.C.



TYPICAL SECTION - SPAN "A" thru "H"  
SHOWING INTERMEDIATE DIAPHRAGMS

Project No. 62-02101

WAKE COUNTY

Section 32 + 98.75 - L -

SHT. 2 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE  
TYPICAL SECTIONS-SPANS A-H

NOTES :

NOTES:  
(CONTINUED FROM DWG. 5)

FOR EPOXY COATED REINFORCING STEEL, SEE APCA  
PROVISIONS.

During the joint installation, working area and the surrounding area shall be kept clean and free of debris. The contractor may, when necessary, provide a clean floor for avoiding interference between metal stay-in-place form supports or forms and beam/girder stiffener or connector plates. The proposal shall be indicated, as appropriate, on either the steel working drawings or the metal stay-in-place form working drawings.

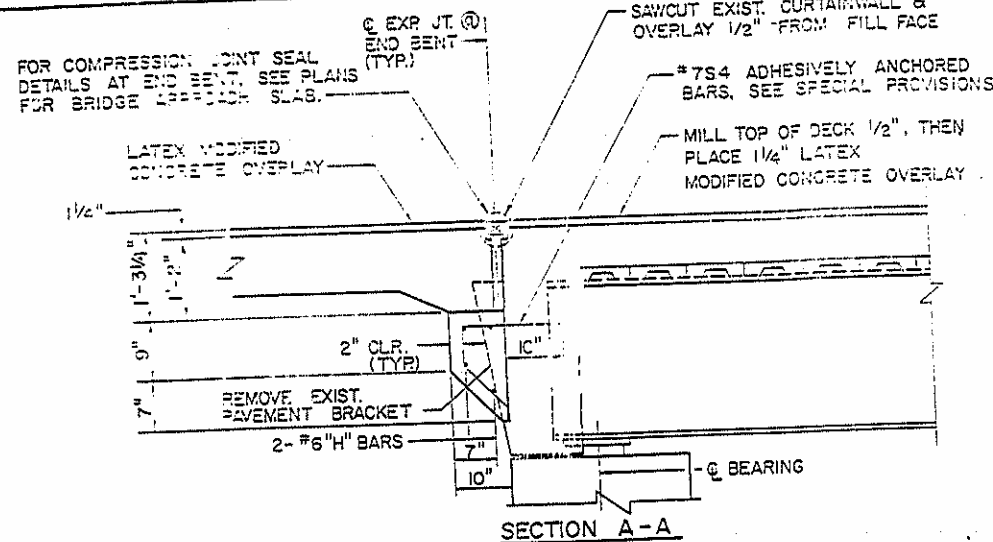
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|-----------|----|------|----|----|------|------------------|
| NO        | BY | DATE | NO | BY | DATE |                  |
| 1         |    |      | 3  |    |      | TOTAL SHEETS 322 |
| 2         |    |      | 4  |    |      |                  |

DWG. 6

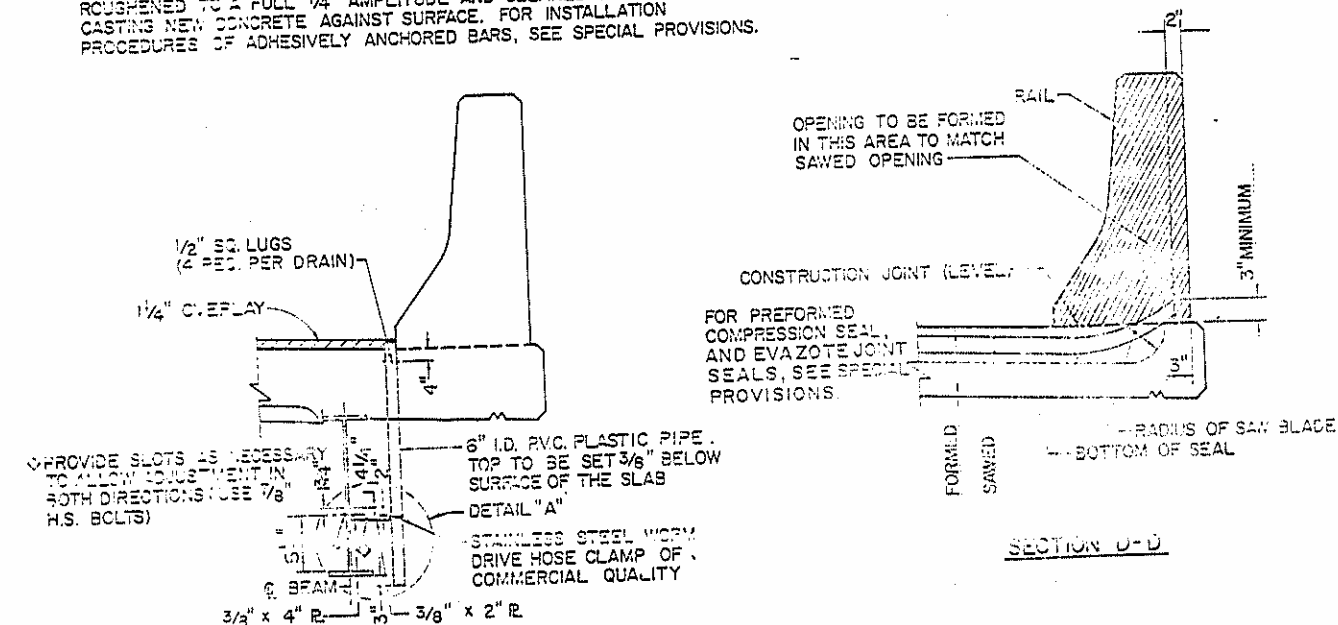
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CHECKED BY [Signature] DATE 5-92

 FLORENCE B. HUTCHESON INC.  
CONSULTING ENGINEERS      RALEIGH N.C.

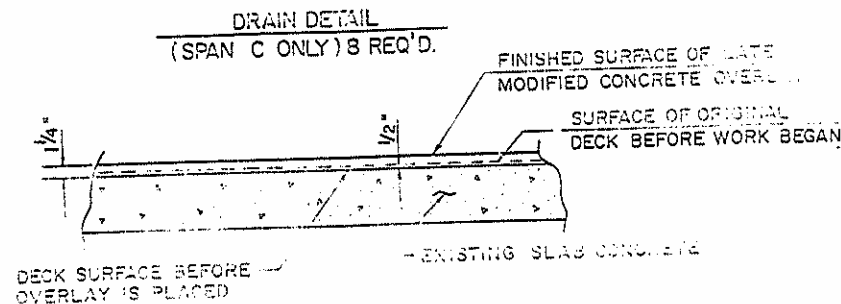
FLORENCE & HUTCHESON INC.



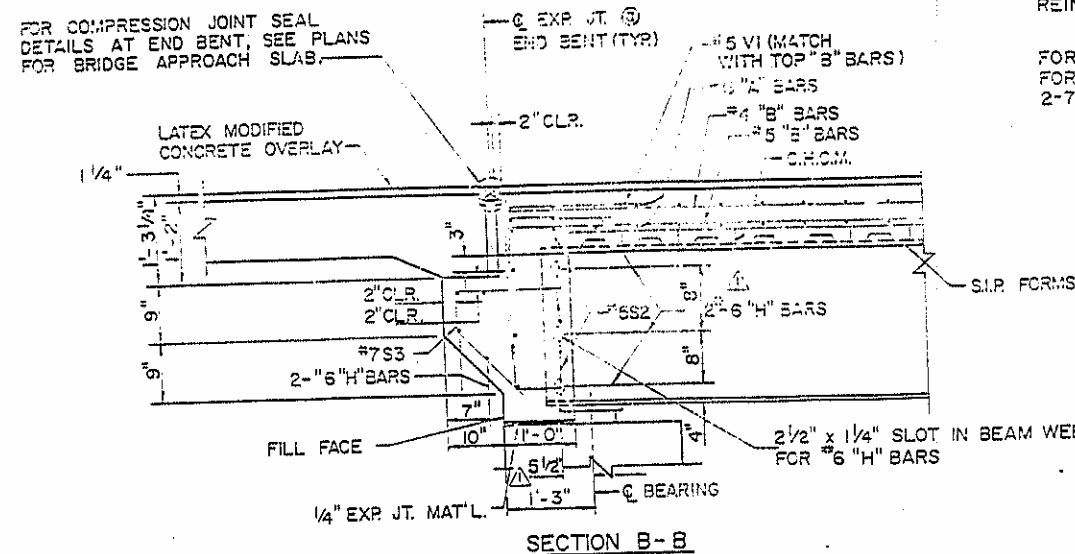
NOTE: THE EXISTING PAVEMENT BRACKET SHOWN IN THE SHADED AREA SHALL BE REMOVED FULL LENGTH ACCORDING TO THE LIMITS PROVIDED IN THE SECTION ABOVE. CARE SHALL BE TAKEN TO INSURE THAT EXISTING CURTAIN WALL IS NOT DAMAGED DURING REMOVAL. THE REMAINING SURFACE SHALL BE INTENTIONALLY ROUGHENED TO A FULL 1/4" AMPLITUDE AND CLEANED PRIOR TO CASTING NEW CONCRETE AGAINST SURFACE. FOR INSTALLATION PROCEDURES OF ADHESIVELY ANCHORED BARS, SEE SPECIAL PROVISIONS.



NOTE: PVC PLASTIC DECK DRAINS SHALL BE PAINTED WITH AN APPROVED VINYL PAINT.  
4-1/2" SQ. LUGS TO BE GLUED TO THE PVC PLASTIC PIPE AT EQUAL SPACES AROUND THE PIPE DRAIN.  
COUPLING IN DRAIN PIPE WILL BE PERMITTED AS APPROVED BY THE ENGINEER.



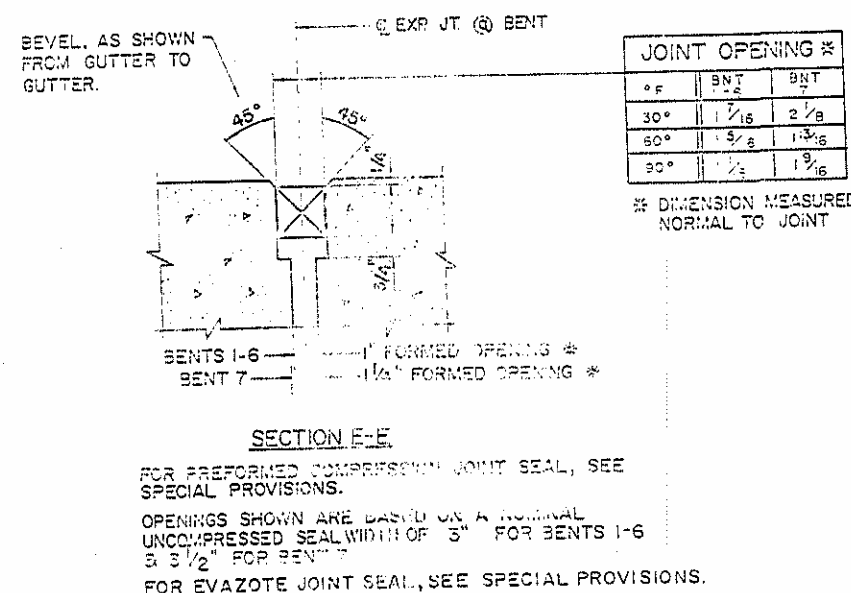
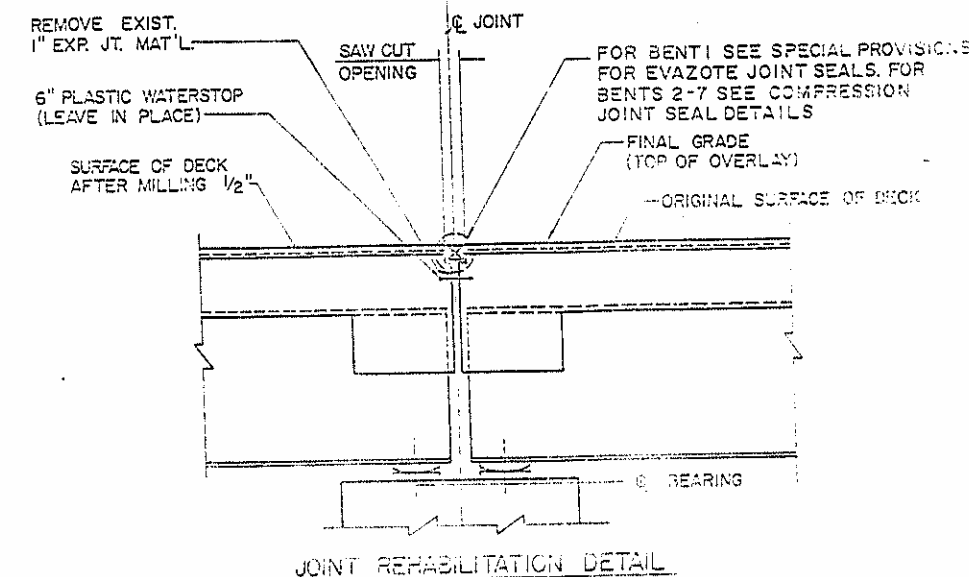
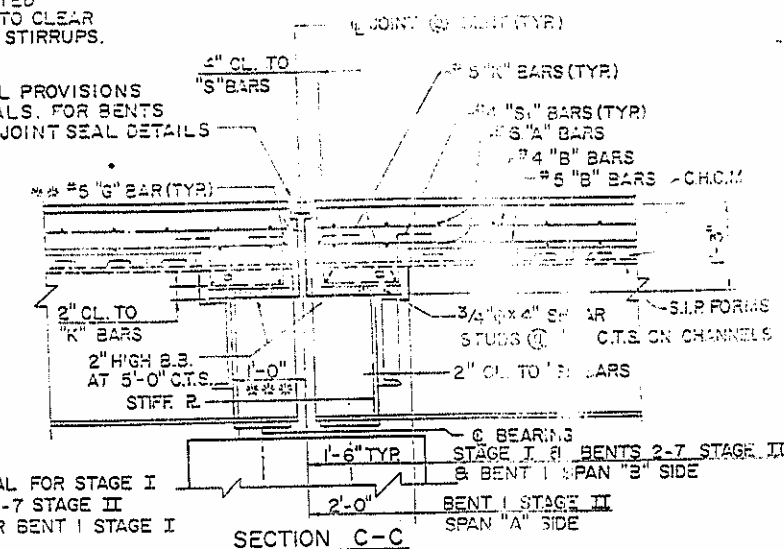
DETAIL OF EXISTING DECK REHABILITATION



\*\* #5 "6" BARS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR REINFORCING STEEL AND STIRRUPS.

FOR BENT 1 SEE SPECIAL PROVISIONS FOR EVAZOTE JOINT SEALS. FOR BENTS 2-7 SEE COMPRESSION JOINT SEAL DETAILS

\*\*\* 1'-0" TYPICAL FOR STAGE I & BENTS 2-7 STAGE II VARIES FOR BENT 1 STAGE I



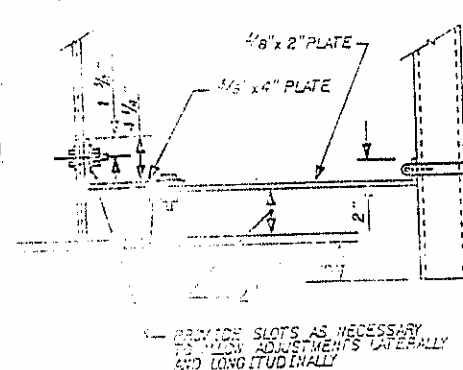
SECTION E-E

FOR PREFORMED COMPRESSION JOINT SEAL, SEE SPECIAL PROVISIONS.

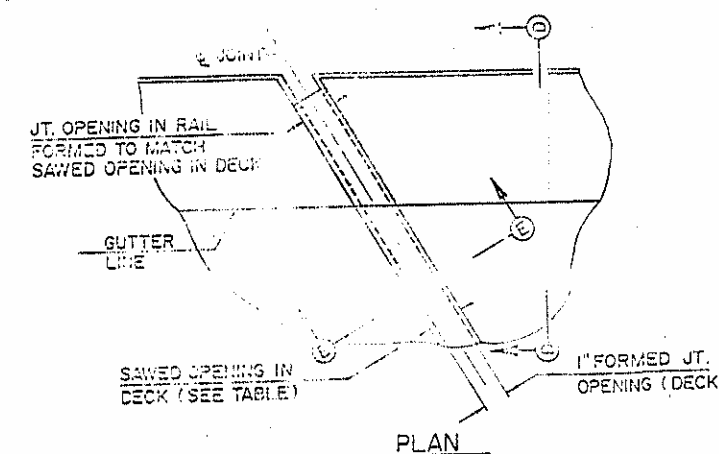
OPENINGS SHOWN ARE BASED ON A NOMINAL UNCOMPRESSED SEAL WIDTH OF 3" FOR BENTS 1-6 & 3 1/2" FOR BENT 7

FOR EVAZOTE JOINT SEAL, SEE SPECIAL PROVISIONS.

JOINT SEAL DETAILS @ INTERIOR BENTS  
(EVAZOTE SEAL AT BENT 1)  
COMPRESSION SEAL AT BENTS 2-7



DETAIL "A"



PLAN

Δ REVISED SLOT LOCATIONS, ELIMINATED ROW OF "B" BARS

PROJECT No. 82402101

WAKE COUNTY

STATION: 32+93.71 to 32+93.71

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
TYPICAL SECTION OF BRIDGE

| REVISIONS |        |        |     |    |      |
|-----------|--------|--------|-----|----|------|
| NO.       | BY     | DATE   | NO. | BY | DATE |
| 1         | F.B.H. | 2-5-93 | 3   |    |      |
| 2         |        |        | 4   |    |      |

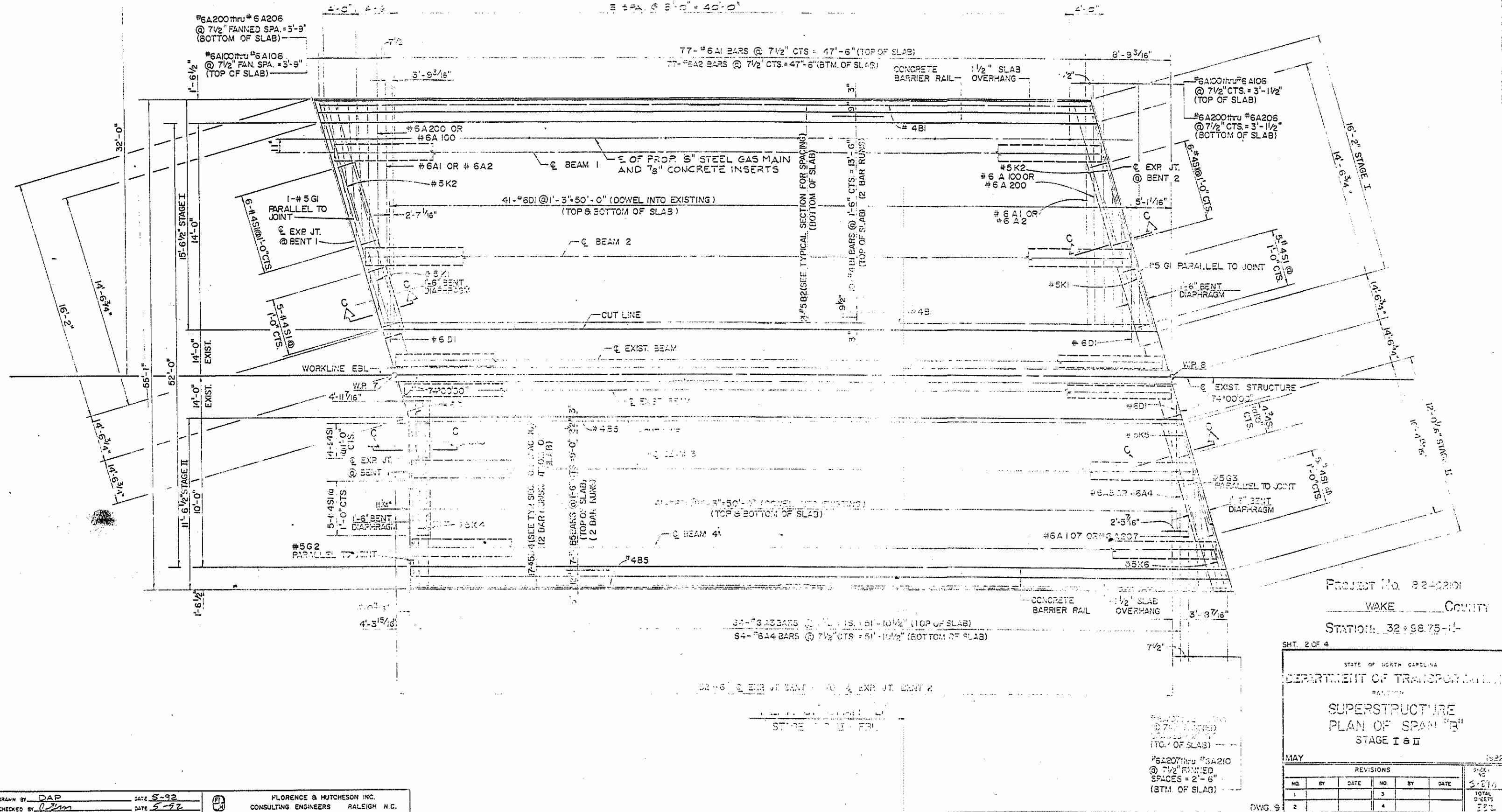
DWG. 7

DRAWN BY: DAP DATE: 5-92  
CHECKED BY: [Signature] DATE: 5-92  
FLORENCE & HUTCHESON INC.  
CONSULTING ENGINEERS RALEIGH, N.C.

DWG. 3



—Q SURVEY - L<sup>1</sup> - NEW BERN AVE



Project No. 82-02101  
WAKE COUNTY  
STATION: 32+98.75-11-

SHT. 2 OF 4

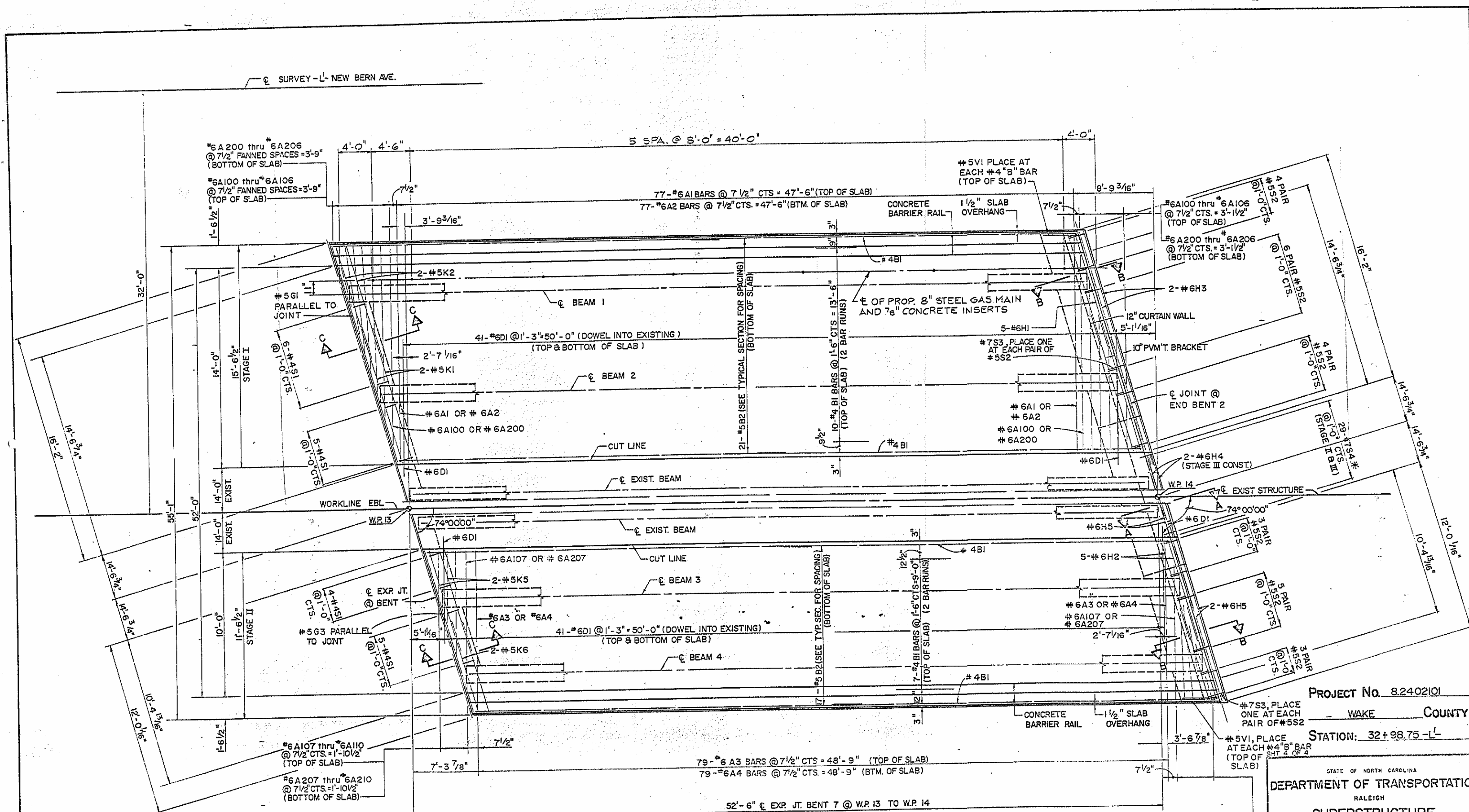
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RAILROADS  
SUPERSTRUCTURE  
PLAN OF SPAN "B"  
STAGE I & II

| REVISONS |    |      |     |    |      |                                              |
|----------|----|------|-----|----|------|----------------------------------------------|
| NO.      | BY | DATE | NO. | BY | DATE |                                              |
| 1        |    |      | 3   |    |      | SHEET NO.<br>5-216<br>TOTAL<br>SHEETS<br>222 |
| 2        |    |      | 4   |    |      |                                              |

DWG. 9







**PLAN OF SPAN "H"**  
STAGE I & II - EBL

\* SEE CONSTRUCTION SEQUENCE SHEETS  
DWGS 3 & 4 FOR WHEN TO MODIFY PAVEMENT  
BRACKET.  
FOR SECTIONS A-A, B-B & C-C SEE DWG. 7

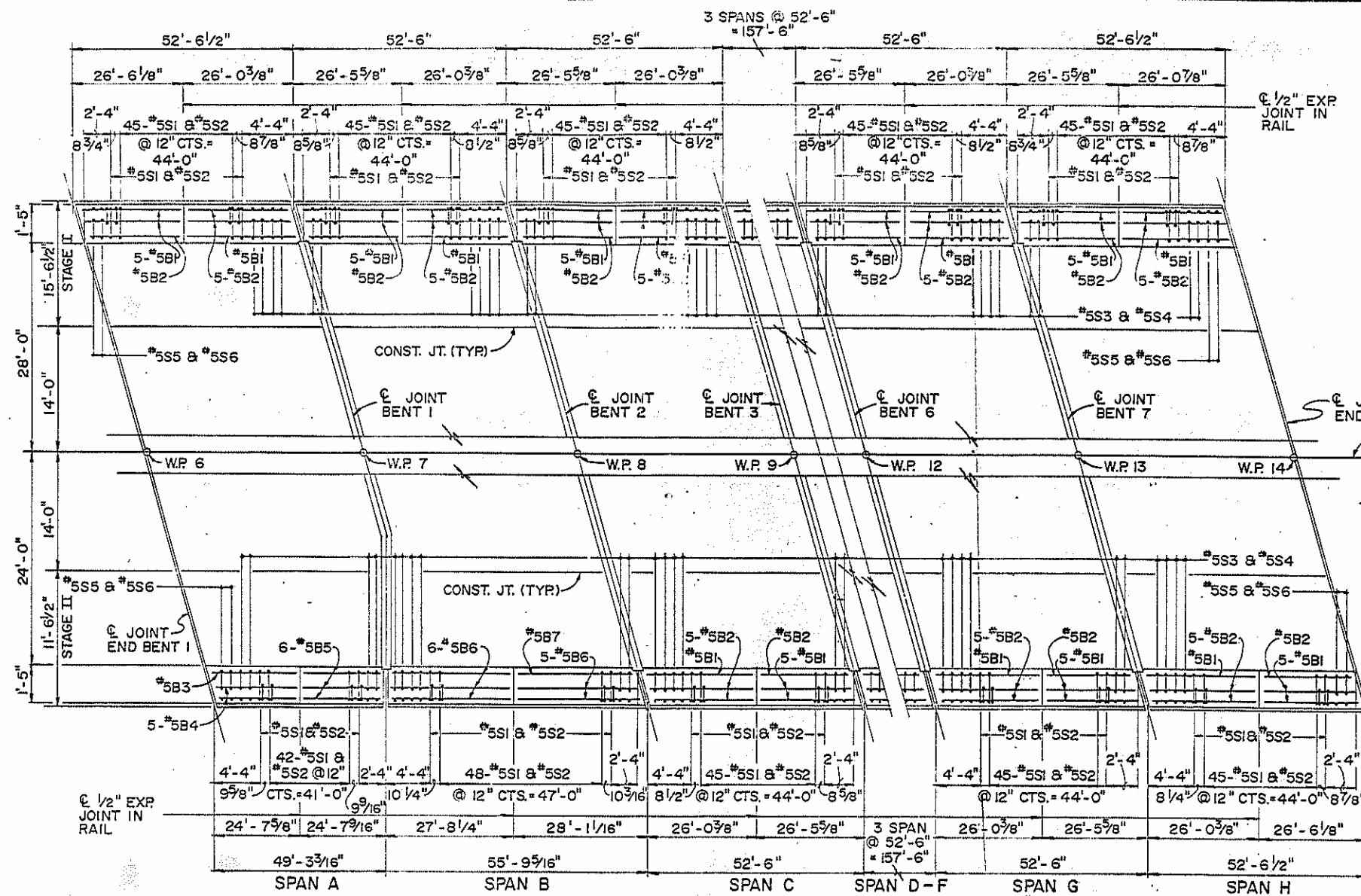
PROJECT No. 8.2402101  
WAKE COUNTY  
STATION: 32+98.75 - L

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
PLAN OF SPAN "H"  
STAGE I & II

| MAY |    |      |     | REVISIONS |      |     |    | 1992  |       |
|-----|----|------|-----|-----------|------|-----|----|-------|-------|
| NO. | BY | DATE | NO. | BY        | DATE | NO. | BY | SHEET | TOTAL |
| 1   |    |      | 3   |           |      |     |    | 5-202 | 232   |
| 2   |    |      | 4   |           |      |     |    |       |       |

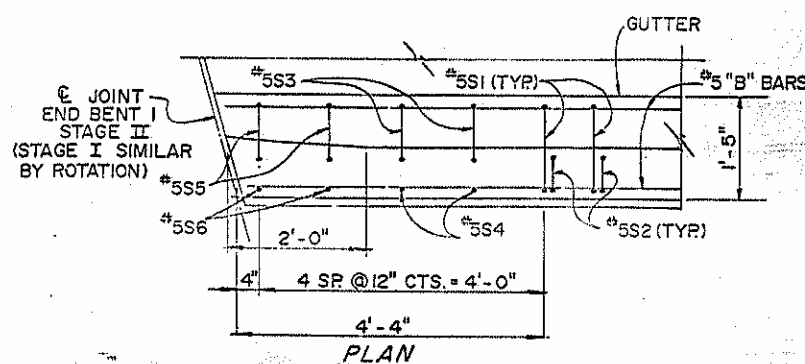
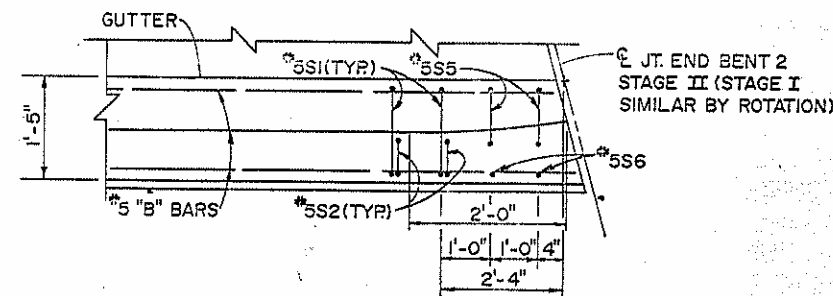
REVISED BY W.J.J.II. CHECKED BY G.R.P.-10-1-90

IN VISION BY W.J.J.II. CHECKED BY C.K. 3-22-89  
IN VISION BY W.J.J.II. CHECKED BY C.R.K. 3-1-89  
IN VISION BY W.J.J.II. CHECKED BY C.R.K. 3-1-89  
IN VISION BY W.J.J.II. CHECKED BY C.R.K. 3-1-89

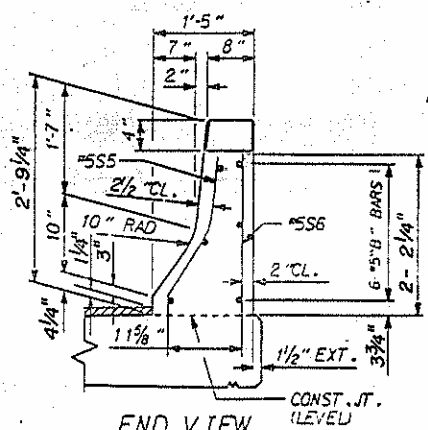


PLAN

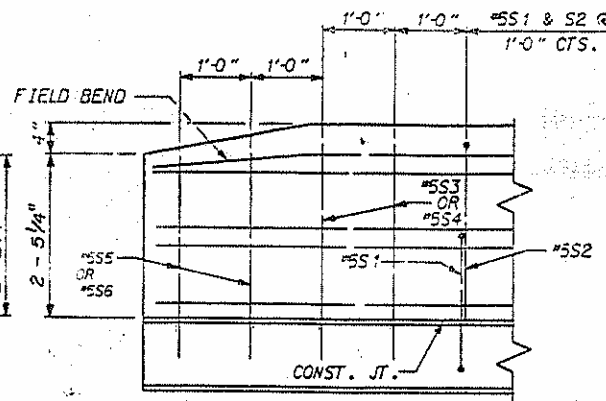
NOTE: SPANS D, E & F DETAILS ARE THE SAME AS SPANS C & G.



PLAN

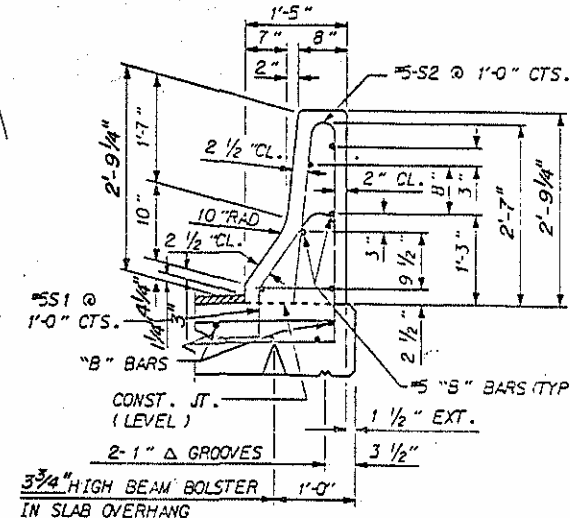


END VIEW

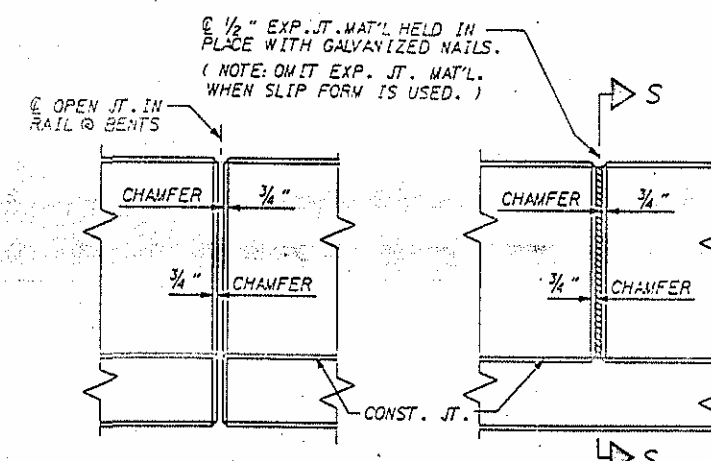


SIDE VIEW

BARRIER RAIL-END OF RAIL DETAILS



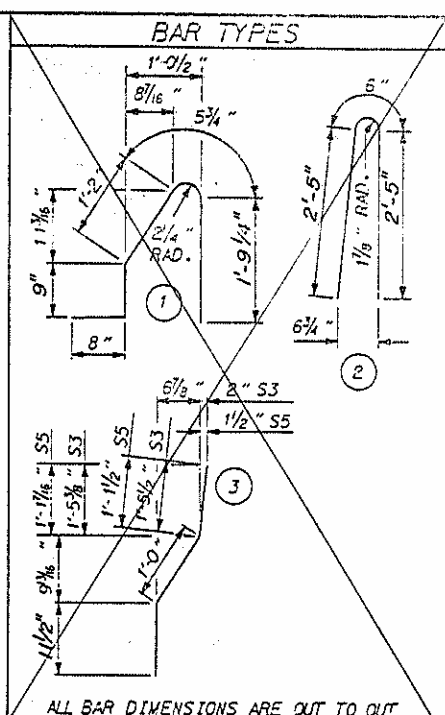
SECTION THRU RAIL



ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS

**NOTES**  
THE BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.  
WHEN COMPRESSION JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK SHALL BE SAWS PRIOR TO THE CASTING OF BARRIER RAIL.  
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.  
FOR EPOXY COATED REINFORCING STEEL, SEE SPECIAL PROVISIONS.  
THE #SS3 THRU #SS6 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. FOR ADHESIVELY ANCHORED BOLTS OR COWELS, SEE SPECIAL PROVISIONS. TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

STAGE I CONSTRUCTION

| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|-----|-----|------|------|--------|--------|
| S1  | 376 | 5    | 1    | 4'-10" | 895    |
| S2  | 376 | 5    | 2    | 5'-4"  | 2092   |
| S3  | 44  | 5    | 3    | 3'-5"  | 157    |
| S4  | 44  | 5    | STR. | 3'-3"  | 149    |
| S5  | 4   | 5    | 3    | 3'-1"  | 13     |
| S6  | 4   | 5    | STR. | 2'-10" | 12     |
| B1  | 48  | 5    | STR. | 26'-0" | 1302   |
| B2  | 48  | 5    | STR. | 25'-8" | 1285   |

TOTAL EPOXY COATED REIN. STEEL 6905 LBS.

CLASS A-A CONCRETE 40 CU. YDS.

CONCRETE BARRIER RAIL 420 LIN. FT.

STAGE II CONSTRUCTION

| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|-----|-----|------|------|--------|--------|
| S1  | 376 | 5    | 1    | 4'-10" | 895    |
| S2  | 376 | 5    | 2    | 5'-4"  | 2091   |
| S3  | 44  | 5    | 3    | 3'-5"  | 157    |
| S4  | 44  | 5    | STR. | 3'-3"  | 149    |
| S5  | 4   | 5    | 3    | 3'-1"  | 13     |
| S6  | 4   | 5    | STR. | 2'-10" | 12     |
| B1  | 38  | 5    | STR. | 26'-0" | 976    |
| B2  | 36  | 5    | STR. | 25'-8" | 964    |
| B3  | 1   | 5    | STR. | 25'-0" | 26     |
| B4  | 5   | 5    | STR. | 24'-8" | 129    |
| B5  | 6   | 5    | STR. | 24'-7" | 154    |
| B6  | 11  | 5    | STR. | 27'-1" | 311    |
| B7  | 1   | 5    | STR. | 26'-9" | 28     |

TOTAL EPOXY COATED REIN. STEEL 6905 LBS.

CLASS A-A CONCRETE 40 CU. YDS.

CONCRETE BARRIER RAIL 420 LIN. FT.

PROJECT NO. 82402101

WAKE COUNTY

STATION: 32+98.75-L-

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

STANDARD

CONCRETE

BARRIER RAIL

OCTOBER 1987

REVISED

DATE

BY

DATE

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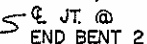
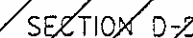
DATE

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DATE



THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF GUARDRAIL ANCHOR ASSEMBLY. SEE SPECIAL PROVISIONS FOR "ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS". THE REQUIRED DESIGN LOAD OF THE  $\frac{1}{4}$ "  $\phi$  BOLT SHALL BE  $\geq 15$  KIPS. THE ANCHOR BOLTS SHALL BE COATED WITH A DEBONDING AGENT SO THAT THE ANCHOR BOLTS CAN BE SAFELY REMOVED IF NECESSARY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE DEBONDING AGENT DOES NOT REDUCE THE STRENGTH OF THE ANCHOR SYSTEM. TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

STD.No. GRA1

|                                   |                        |          |
|-----------------------------------|------------------------|----------|
| ASSEMBLED BY: <u>DAP</u>          | DATE: <u>5-92</u>      | SPECIAL  |
| CHECKED BY: <u>g #11</u>          | DATE: <u>6-92</u>      |          |
| DRAWN BY: <u>WIFE BRITT</u>       | DATE: <u>DEC. 1997</u> | STANDARD |
| CHECKED BY: <u>RANDY BISSETTE</u> | DATE: <u>DEC. 1997</u> |          |

## LOCATION OF ANCHORS FOR GUARDRAIL

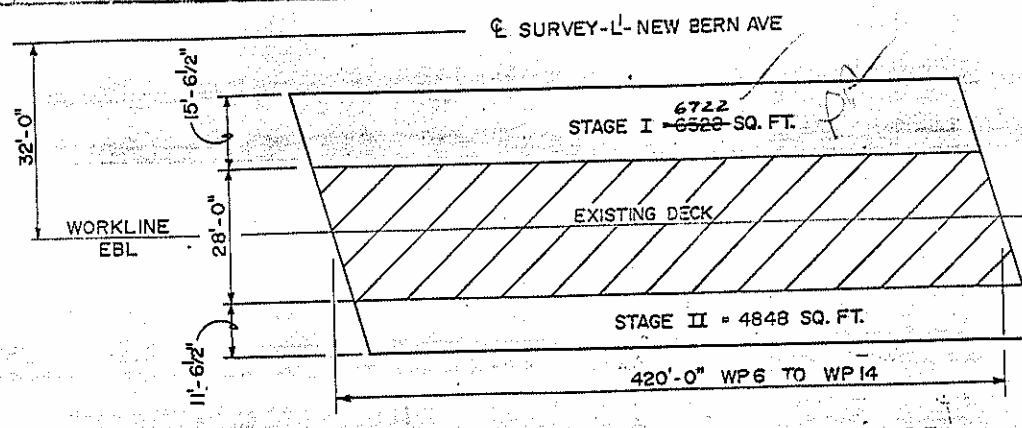
RECEIVED BY ...<sup>9</sup> CHECKED BY G.R.P. 10-1-50



## SPAN E

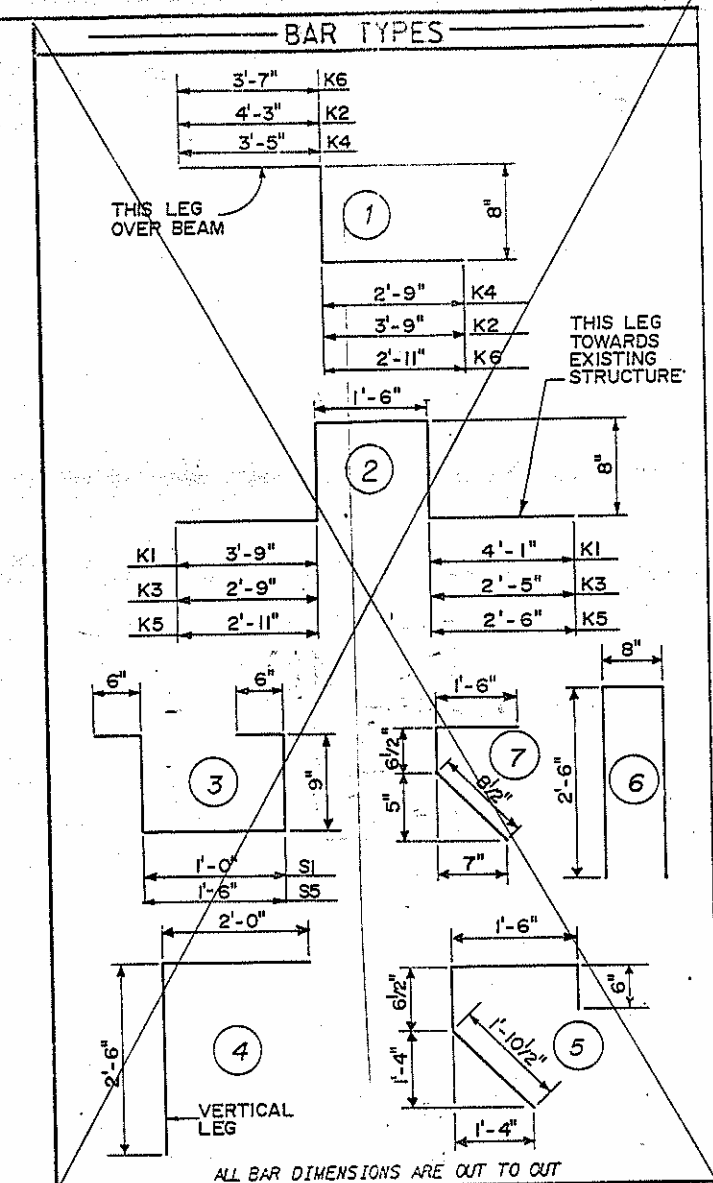
| SPAN A |     |      |      |         |        | SPAN B |     |      |      |         |        | SPAN C |     |      |      |         |        | SPAN D |     |      |      |         |        | SPAN E |     |      |      |         |        |
|--------|-----|------|------|---------|--------|--------|-----|------|------|---------|--------|--------|-----|------|------|---------|--------|--------|-----|------|------|---------|--------|--------|-----|------|------|---------|--------|
| BAR    | NO. | SIZE | TYPE | LENGTH  | WEIGHT | BAR    | NO. | SIZE | TYPE | LENGTH  | WEIGHT | BAR    | NO. | SIZE | TYPE | LENGTH  | WEIGHT | BAR    | NO. | SIZE | TYPE | LENGTH  | WEIGHT | BAR    | NO. | SIZE | TYPE | LENGTH  | WEIGHT |
| A1     | 77  | 6    | STR. | 15'-2"  | 1754   | A1     | 77  | 6    | STR. | 15'-2"  | 1754   | A1     | 77  | 6    | STR. | 15'-2"  | 1754   | A1     | 77  | 6    | STR. | 15'-2"  | 1754   | A1     | 77  | 6    | STR. | 15'-2"  | 1754   |
| A2     | 77  | 6    | STR. | 15'-2"  | 1754   | A2     | 77  | 6    | STR. | 15'-2"  | 1754   | A2     | 77  | 6    | STR. | 15'-2"  | 1754   | A2     | 77  | 6    | STR. | 15'-2"  | 1754   | A2     | 77  | 6    | STR. | 15'-2"  | 1754   |
| A100   | 2   |      |      | 13'-5"  | 40     | A100   | 2   |      |      | 13'-5"  | 40     | A100   | 2   |      |      | 13'-5"  | 40     | A100   | 2   |      |      | 13'-5"  | 40     | A100   | 2   |      |      | 13'-5"  | 40     |
| A101   |     |      |      | 11'-2"  | 34     | A101   |     |      |      | 11'-2"  | 34     | A101   |     |      |      | 11'-2"  | 34     | A101   |     |      |      | 11'-2"  | 34     | A101   |     |      |      | 11'-2"  | 34     |
| A102   |     |      |      | 9'-2"   | 28     | A102   |     |      |      | 9'-2"   | 28     | A102   |     |      |      | 9'-2"   | 28     | A102   |     |      |      | 9'-2"   | 28     | A102   |     |      |      | 9'-2"   | 28     |
| A103   |     |      |      | 7'-0"   | 21     | A103   |     |      |      | 7'-0"   | 21     | A103   |     |      |      | 7'-0"   | 21     | A103   |     |      |      | 7'-0"   | 21     | A103   |     |      |      | 7'-0"   | 21     |
| A104   |     |      |      | 5'-6"   | 17     | A104   |     |      |      | 5'-6"   | 17     | A104   |     |      |      | 5'-6"   | 17     | A104   |     |      |      | 5'-6"   | 17     | A104   |     |      |      | 5'-6"   | 17     |
| A105   |     |      |      | 4'-3"   | 13     | A105   |     |      |      | 4'-3"   | 13     | A105   |     |      |      | 4'-3"   | 13     | A105   |     |      |      | 4'-3"   | 13     | A105   |     |      |      | 4'-3"   | 13     |
| A106   |     |      |      | 3'-0"   | 9      | A106   |     |      |      | 3'-0"   | 9      | A106   |     |      |      | 3'-0"   | 9      | A106   |     |      |      | 3'-0"   | 9      | A106   |     |      |      | 3'-0"   | 9      |
| A200   |     |      |      | 13'-5"  | 40     | A200   |     |      |      | 13'-5"  | 40     | A200   |     |      |      | 13'-5"  | 40     | A200   |     |      |      | 13'-5"  | 40     | A200   |     |      |      | 13'-5"  | 40     |
| A201   |     |      |      | 11'-2"  | 34     | A201   |     |      |      | 11'-2"  | 34     | A201   |     |      |      | 11'-2"  | 34     | A201   |     |      |      | 11'-2"  | 34     | A201   |     |      |      | 11'-2"  | 34     |
| A202   |     |      |      | 9'-2"   | 28     | A202   |     |      |      | 9'-2"   | 28     | A202   |     |      |      | 9'-2"   | 28     | A202   |     |      |      | 9'-2"   | 28     | A202   |     |      |      | 9'-2"   | 28     |
| A203   |     |      |      | 7'-0"   | 21     | A203   |     |      |      | 7'-0"   | 21     | A203   |     |      |      | 7'-0"   | 21     | A203   |     |      |      | 7'-0"   | 21     | A203   |     |      |      | 7'-0"   | 21     |
| A204   |     |      |      | 5'-6"   | 17     | A204   |     |      |      | 5'-6"   | 17     | A204   |     |      |      | 5'-6"   | 17     | A204   |     |      |      | 5'-6"   | 17     | A204   |     |      |      | 5'-6"   | 17     |
| A205   |     |      |      | 4'-3"   | 13     | A205   |     |      |      | 4'-3"   | 13     | A205   |     |      |      | 4'-3"   | 13     | A205   |     |      |      | 4'-3"   | 13     | A205   |     |      |      | 4'-3"   | 13     |
| A206   | 2   | 6    | STR. | 3'-0"   | 9      | A206   | 2   | 6    | STR. | 3'-0"   | 9      | A206   | 2   | 6    | STR. | 3'-0"   | 9      | A206   | 2   | 6    | STR. | 3'-0"   | 9      | A206   | 2   | 6    | STR. | 3'-0"   | 9      |
| B1     | 24  | 4    | STR. | 26'-10" | 430    | B1     | 24  | 4    | STR. | 26'-10" | 430    | B1     | 24  | 4    | STR. | 26'-10" | 430    | B1     | 24  | 4    | STR. | 26'-10" | 430    | B1     | 24  | 4    | STR. | 26'-10" | 430    |
| B2     | 21  | 5    | STR. | 52'-2"  | 1143   | B2     | 21  | 5    | STR. | 52'-2"  | 1143   | B2     | 21  | 5    | STR. | 52'-2"  | 1143   | B2     | 21  | 5    | STR. | 52'-2"  | 1143   | B2     | 21  | 5    | STR. | 52'-2"  | 1143   |
| D1*    | 82  | 6    | STR. | 3'-6"   | 431    | D1*    | 82  | 6    | STR. | 3'-6"   | 431    | D1*    | 82  | 6    | STR. | 3'-6"   | 431    | D1*    | 82  | 6    | STR. | 3'-6"   | 431    | D1*    | 82  | 6    | STR. | 3'-6"   | 431    |
| G1     | 1   | 5    | STR. | 15'-8"  | 16     | G1     | 2   | 5    | STR. | 15'-8"  | 33     | G1     | 2   | 5    | STR. | 15'-8"  | 33     | G1     | 2   | 5    | STR. | 15'-8"  | 33     | G1     | 2   | 5    | STR. | 15'-8"  | 33     |
| H1     | 8   | 6    | STR. | 15'-10" | 95     | K1     | 4   | 5    | 2    | 10'-8"  | 45     | K1     | 4   | 5    | 2    | 10'-8"  | 45     | K1     | 4   | 5    | 2    | 10'-8"  | 45     | K1     | 4   | 5    | 2    | 10'-8"  | 45     |
| H3     | 4   | 6    | STR. | 15'-10" | 95     | K2     | 4   | 5    | 1    | 8'-8"   | 36     | K2     | 4   | 5    | 1    | 8'-8"   | 36     | K2     | 4   | 5    | 1    | 8'-8"   | 36     | K2     | 4   | 5    | 1    | 8'-8"   | 36     |
| H4     | 4   | 6    | STR. | 13'-2"  | 79     | S1     | 22  | 4    | 3    | 3'-6"   | 51     | S1     | 22  | 4    | 3    | 3'-6"   | 51     | S1     | 22  | 4    | 3    | 3'-6"   | 51     | S1     | 22  | 4    | 3    | 3'-6"   | 51     |
| K1     | 2   | 5    | 2    | 10'-8"  | 22     |        |     |      |      |         |        |        |     |      |      |         |        |        |     |      |      |         |        |        |     |      |      |         |        |
| K2     | 2   | 5    | 1    | 8'-8"   | 18     |        |     |      |      |         |        |        |     |      |      |         |        |        |     |      |      |         |        |        |     |      |      |         |        |

| BAR    | NO. | SIZE | TYPE | LENGTH   | WEIGHT |
|--------|-----|------|------|----------|--------|
| • A3   | 78  | 6    | STR. | 11'- 2"  | 1308   |
| A4     | 78  | 6    | STR. | 11'- 2"  | 1308   |
| • A107 | 1   |      |      | 9'- 5"   | 14     |
| • A108 | 1   |      |      | 7'- 3"   | 1      |
| • A109 |     |      |      | 5'- 4"   | 8      |
| • A110 |     |      |      | 3'- 5"   | 5      |
| A207   |     |      |      | 9'- 5"   | 14     |
| A208   |     |      |      | 7'- 3"   | 11     |
| A209   |     |      |      | 5'- 4"   | 8      |
| A210   | 1   | 6    | STR. | 3'- 5"   | 5      |
| • B1   | 18  | 4    | STR. | 26'- 10" | 323    |
| B3     | 34  | 5    | STR. | 26'- 10" | 952    |
| • D1 * | 92  | 6    | STR. | 3'- 6"   | 431    |
| • G2   | 1   | 5    | STR. | 11'- 2"  | 12     |
| H2     | 8   | 6    | STR. | 11'- 8"  | 140    |
| H5     | 4   | 6    | STR. | 27'- 2"  | 163    |
| *D2    | 6   | 6    | STR. | 3'- 6"   | 32     |
| • K3   | 2   | 5    | 2    | 8'- 0"   | 17     |
| • K4   | 2   | 5    | 1    | 6'- 10"  | 14     |
| • S5   | 9   | 4    | 3    | 4'- 0"   | 24     |
| • S2   | 22  | 5    | 6    | 5'- 8"   | 130    |
| • S3   | 11  | 7    | 5    | 4'- 5"   | 99     |
| S4     | 15  | 7    | 7    | 2'- 9"   | 84     |
| • V1   | 9   | 5    | 4    | 4'- 6"   | 42     |

[illegible]

LAYOUT FOR COMPUTING AREA  
OF REINFORCED CONCRETE DECK SLAB  
(50. FT. =  $\frac{11 \cdot 376}{12}$ )

△ REVISED A-A CONCRETE QUANTITIES. ✓ FB



ALL BAR DIMENSIONS ARE OUT TO OUT

|           |  | CLASS A-A<br>CONCRETE<br>(CU. YDS.) |       | REINFORCING<br>STEEL<br>(LBS.) |       | EPOXY COATED<br>REINFORCING<br>STEEL<br>(LBS.) |       |
|-----------|--|-------------------------------------|-------|--------------------------------|-------|------------------------------------------------|-------|
| STAGE     |  | I                                   | II    | I                              | II    | I                                              | II    |
| SPAN A    |  | 25.0                                | 18.4  | 3534                           | 2717  | 3206                                           | 2438  |
| SPAN B    |  | 24.5                                | 18.2  | 3059                           | 2458  | 2942                                           | 2350  |
| SPAN C    |  | 24.5                                | 17.5  | 3059                           | 2326  | 2942                                           | 2285  |
| SPAN D    |  | 24.5                                | 17.6  | 3059                           | 2326  | 2942                                           | 2285  |
| SPAN E    |  | 24.5                                | 17.6  | 3059                           | 2326  | 2942                                           | 2285  |
| SPAN F    |  | 24.5                                | 17.6  | 3059                           | 2326  | 2942                                           | 2285  |
| SPAN G    |  | 23.2                                | 17.6  | 3059                           | 2326  | 2942                                           | 2285  |
| SPAN H    |  | 25.0                                | 18.4  | 3534                           | 2734  | 3206                                           | 2453  |
| TOTALS ** |  | 195.7                               | 143.0 | 25422                          | 19539 | 24064                                          | 18666 |

PROJECT NO. 8.2402101

WAKE COUNTY

STATION: 32 + 98.75 -L-

SHT. 1 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
SUPERSTRUCTURE  
BILL OF MATERIAL

OCTOBER 1987

|           |        |    |        |           |               |
|-----------|--------|----|--------|-----------|---------------|
| REVISIONS |        |    |        | SHEET NO. |               |
| BY        | DATE   | NO | BY     | DATE      | 5-303         |
| FBM       | 2-5-93 | 1  | L.L.B. | 8-16-93   | TECH<br>SPECS |
| FBM       | 2-5-93 |    |        |           | 322           |

|        | LATEX MODIFIED<br>CONCRETE OVERLAY<br>(CU. YDS.) | PLACING & FINISHING<br>LATEX MODIFIED<br>CONCRETE OVERLAY<br>(SQ. YDS.) | SURFACE<br>PREPARATION 180 YDS.<br>GLASS |      |            |
|--------|--------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------|------|------------|
|        |                                                  |                                                                         | I                                        | II   | III        |
| STAGE  | III                                              | IV                                                                      | III                                      | IV   |            |
| SPAN A | 5.4                                              | 5.2                                                                     | 155                                      | 149  | 164 1 8    |
| SPAN B | 5.4                                              | 5.2                                                                     | 155                                      | 149  | 164 2 8    |
| SPAN C | 5.4                                              | 5.2                                                                     | 155                                      | 149  | 164 1 8    |
| SPAN D | 5.4                                              | 5.2                                                                     | 155                                      | 149  | 164 2 8    |
| SPAN E | 5.4                                              | 5.2                                                                     | 155                                      | 149  | 164 2 8    |
| SPAN F | 5.4                                              | 5.2                                                                     | 155                                      | 149  | 164 1 8    |
| SPAN G | 5.4                                              | 5.2                                                                     | 155                                      | 149  | 164 2 8    |
| SPAN H | 5.4                                              | 5.2                                                                     | 155                                      | 149  | 164 2 8    |
| TOTALS | 43.2                                             | 41.6                                                                    | 1240                                     | 1192 | 1312 13 84 |

1 ADDED EFOXY REIN. MARKS  
2 ADDED D2 BAR, REVISED BAR NO.S, CHANGED QUANTITIES.

• DENOTES EPOXY COATED REINFORCING STEEL. \*\* QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED.

QUANTITIES FOR BARS DENOTED WITH \* ARE BASED ON 10" EMBEDMENT FOR ADHESIVELY ANCHORED DOWELS. SEE SPECIAL PROVISIONS.

DWG. 14

DWG. 14

1001

18-2-01 MAY 1961

# REINFORCING BAR SCHEDULE

## STAGE I CONSTRUCTION

| SPAN F |     |      |      |         |        | SPAN G |     |      |      |         |        | SPAN H |     |      |      |         |         | SPAN |     |      |      |        |        | SPAN |     |      |      |        |        |
|--------|-----|------|------|---------|--------|--------|-----|------|------|---------|--------|--------|-----|------|------|---------|---------|------|-----|------|------|--------|--------|------|-----|------|------|--------|--------|
| BAR    | NO. | SIZE | TYPE | LENGTH  | WEIGHT | BAR    | NO. | SIZE | TYPE | LENGTH  | WEIGHT | BAR    | NO. | SIZE | TYPE | LENGTH  | WEIGHT  | BAR  | NO. | SIZE | TYPE | LENGTH | WEIGHT | BAR  | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| A1     | 77  | 6    | STR. | 15'-2"  | 1754   | A1     | 77  | 6    | STR. | 15'-2"  | 1754   | A1     | 77  | 6    | STR. | 15'-2"  | 1754    |      |     |      |      |        |        |      |     |      |      |        |        |
| A2     | 77  | 6    | STR. | 15'-2"  | 1754   | A2     | 77  | 6    | STR. | 15'-2"  | 1754   | A2     | 77  | 6    | STR. | 15'-2"  | 1754    |      |     |      |      |        |        |      |     |      |      |        |        |
| A100   | 2   |      |      | 13'-5"  | 40     | A100   | 2   |      |      | 13'-5"  | 40     | A100   | 2   |      |      | 13'-5"  | 40      |      |     |      |      |        |        |      |     |      |      |        |        |
| A101   |     |      |      | 11'-2"  | 34     | A101   |     |      |      | 11'-2"  | 34     | A101   |     |      |      | 11'-2"  | 34      |      |     |      |      |        |        |      |     |      |      |        |        |
| A102   |     |      |      | 9'-2"   | 28     | A102   |     |      |      | 9'-2"   | 28     | A102   |     |      |      | 9'-2"   | 28      |      |     |      |      |        |        |      |     |      |      |        |        |
| A103   |     |      |      | 7'-0"   | 21     | A103   |     |      |      | 7'-0"   | 21     | A103   |     |      |      | 7'-0"   | 21      |      |     |      |      |        |        |      |     |      |      |        |        |
| A104   |     |      |      | 5'-6"   | 17     | A104   |     |      |      | 5'-6"   | 17     | A104   |     |      |      | 5'-6"   | 17      |      |     |      |      |        |        |      |     |      |      |        |        |
| A105   |     |      |      | 4'-3"   | 13     | A105   |     |      |      | 4'-3"   | 13     | A105   |     |      |      | 4'-3"   | 13      |      |     |      |      |        |        |      |     |      |      |        |        |
| A106   |     |      |      | 3'-0"   | 9      | A106   |     |      |      | 3'-0"   | 9      | A106   |     |      |      | 3'-0"   | 9       |      |     |      |      |        |        |      |     |      |      |        |        |
| A200   |     |      |      | 13'-5"  | 40     | A200   |     |      |      | 13'-5"  | 40     | A200   |     |      |      | 13'-5"  | 40      |      |     |      |      |        |        |      |     |      |      |        |        |
| A201   |     |      |      | 11'-2"  | 34     | A201   |     |      |      | 11'-2"  | 34     | A201   |     |      |      | 11'-2"  | 34      |      |     |      |      |        |        |      |     |      |      |        |        |
| A202   |     |      |      | 9'-2"   | 28     | A202   |     |      |      | 9'-2"   | 28     | A202   |     |      |      | 9'-2"   | 28      |      |     |      |      |        |        |      |     |      |      |        |        |
| A203   |     |      |      | 7'-0"   | 21     | A203   |     |      |      | 7'-0"   | 21     | A203   |     |      |      | 7'-0"   | 21      |      |     |      |      |        |        |      |     |      |      |        |        |
| A204   |     |      |      | 5'-6"   | 17     | A204   |     |      |      | 5'-6"   | 17     | A204   |     |      |      | 5'-6"   | 17      |      |     |      |      |        |        |      |     |      |      |        |        |
| A205   |     |      |      | 4'-3"   | 13     | A205   |     |      |      | 4'-3"   | 13     | A205   |     |      |      | 4'-3"   | 13      |      |     |      |      |        |        |      |     |      |      |        |        |
| A206   | 2   | 6    | STR. | 3'-0"   | 9      | A206   | 2   | 6    | STR. | 3'-0"   | 9      | A206   | 2   | 6    | STR. | 3'-0"   | 9       |      |     |      |      |        |        |      |     |      |      |        |        |
| B1     | 24  | 4    | STR. | 26'-10" | 430    | B1     | 24  | 4    | STR. | 26'-10" | 430    | B1     | 24  | 4    | STR. | 26'-10" | 430     |      |     |      |      |        |        |      |     |      |      |        |        |
| B2     | 21  | 5    | STR. | 52'-2"  | 1143   | B2     | 21  | 5    | STR. | 52'-2"  | 1143   | B2     | 21  | 5    | STR. | 52'-2"  | 1143    |      |     |      |      |        |        |      |     |      |      |        |        |
| D1 *   | 82  | 6    | STR. | 3'-6"   | 431    | D1 *   | 82  | 6    | STR. | 3'-6"   | 431    | D1 *   | 82  | 6    | STR. | 3'-6"   | 431     |      |     |      |      |        |        |      |     |      |      |        |        |
| G1     | 2   | 5    | STR. | 15'-8"  | 33     | G1     | 2   | 5    | STR. | 15'-8"  | 33     | G1     | 1   | 5    | STR. | 15'-8"  | 16      |      |     |      |      |        |        |      |     |      |      |        |        |
| K1     | 4   | 5    | 2    | 10'-8"  | 45     | K1     | 4   | 5    | 2    | 10'-8"  | 45     | H1     | Δ   | 8    | 6    | STR.    | 15'-10" | Δ    | 190 |      |      |        |        |      |     |      |      |        |        |
| K2     | 4   | 5    | 1    | 8'-8"   | 36     | K2     | 4   | 5    | 1    | 8'-8"   | 36     | H3     | 4   | 6    | STR. | 15'-10" | 95      |      |     |      |      |        |        |      |     |      |      |        |        |
| S1     | 22  | 4    | 3    | 3'-6"   | 51     | S1     | 22  | 4    | 3    | 3'-6"   | 51     | H4     | 4   | 6    | STR. | 13'-2"  | 79      |      |     |      |      |        |        |      |     |      |      |        |        |
|        |     |      |      |         |        |        |     |      |      |         |        | K1     | 2   | 5    | 2    | 10'-8"  | 22      |      |     |      |      |        |        |      |     |      |      |        |        |
|        |     |      |      |         |        |        |     |      |      |         |        | K2     | 2   | 5    | 1    | 8'-8"   | 18      |      |     |      |      |        |        |      |     |      |      |        |        |
|        |     |      |      |         |        |        |     |      |      |         |        | S1     | 11  | 4    | 3    | 3'-6"   | 26      |      |     |      |      |        |        |      |     |      |      |        |        |
|        |     |      |      |         |        |        |     |      |      |         |        |        |     |      |      | 5'-0"   | 165     |      |     |      |      |        |        |      |     |      |      |        |        |

## STAGE II CONSTRUCTION

| SPAN F |     |      |      |         |        | SPAN G |     |      |      |         |        | SPAN H |     |      |      |         |        |
|--------|-----|------|------|---------|--------|--------|-----|------|------|---------|--------|--------|-----|------|------|---------|--------|
| BAR    | NO. | SIZE | TYPE | LENGTH  | WEIGHT | BAR    | NO. | SIZE | TYPE | LENGTH  | WEIGHT | BAR    | NO. | SIZE | TYPE | LENGTH  | WEIGHT |
| A3     | 79  | 6    | STR. | 11'-2"  | 1325   | A3     | 79  | 6    | STR. | 11'-2"  | 1325   | A3     | 79  | 6    | STR. | 11'-2"  | 1325   |
| A4     | 79  | 6    | STR. | 11'-2"  | 1325   | A4     | 79  | 6    | STR. | 11'-2"  | 1325   | A4     | 79  | 6    | STR. | 11'-2"  | 1325   |
| A107   | 2   |      |      | 9'-5"   | 28     | A107   | 2   |      |      | 9'-5"   | 28     | A107   | 2   |      |      | 9'-5"   | 28     |
| A108   |     |      |      | 7'-3"   | 22     | A108   |     |      |      | 7'-3"   | 22     | A108   |     |      |      | 7'-3"   | 22     |
| A109   |     |      |      | 5'-4"   | 16     | A109   |     |      |      | 5'-4"   | 16     | A109   |     |      |      | 5'-4"   | 16     |
| A110   |     |      |      | 3'-5"   | 10     | A110   |     |      |      | 3'-5"   | 10     | A110   |     |      |      | 3'-5"   | 10     |
| A207   |     |      |      | 9'-5"   | 28     | A207   |     |      |      | 9'-5"   | 28     | A207   |     |      |      | 9'-5"   | 28     |
| A208   |     |      |      | 7'-3"   | 22     | A208   |     |      |      | 7'-3"   | 22     | A208   |     |      |      | 7'-3"   | 22     |
| A209   |     |      |      | 5'-4"   | 16     | A209   |     |      |      | 5'-4"   | 16     | A209   |     |      |      | 5'-4"   | 16     |
| A210   | 2   | 6    | STR. | 3'-5"   | 10     | A210   | 2   | 6    | STR. | 3'-5"   | 10     | A210   | 2   | 6    | STR. | 3'-5"   | 10     |
| B1     | 18  | 4    | STR. | 26'-10" | 323    | B1     | 18  | 4    | STR. | 26'-10" | 323    | B1     | 18  | 4    | STR. | 26'-10" | 323    |
| B2     | 17  | 5    | STR. | 52'-2"  | 925    | B2     | 17  | 5    | STR. | 52'-2"  | 925    | B2     | 17  | 5    | STR. | 52'-2"  | 925    |
| D1     | 82  | 6    | STR. | 3'-6"   | 431    | D1     | 82  | 6    | STR. | 3'-6"   | 431    | D1     | 82  | 6    | STR. | 3'-6"   | 431    |
| G3     | 2   | 5    | STR. | 11'-8"  | 24     | G3     | 2   | 5    | STR. | 11'-8"  | 24     | G3     | 2   | 5    | STR. | 11'-8"  | 24     |
| K5     | 4   | 5    | 2    | 8'-3"   | 34     | K5     | 4   | 5    | 2    | 8'-3"   | 34     | K5     | 4   | 5    | 2    | 8'-3"   | 34     |
| K6     | 4   | 5    | 1    | 7'-2"   | 30     | K6     | 4   | 5    | 1    | 7'-2"   | 30     | K6     | 4   | 5    | 1    | 7'-2"   | 30     |
| S1     | 18  | 4    | 3    | 3'-6"   | 42     | S1     | 18  | 4    | 3    | 3'-6"   | 42     | S1     | 18  | 4    | 3    | 3'-6"   | 42     |

## STAGE II CONSTRUCTION

| BAR  | NO. | SIZE | TYPE | LENGTH  | WEIGHT |
|------|-----|------|------|---------|--------|
| A3   | 79  | 6    | STR. | 11'-2"  | 1325   |
| A4   | 79  | 6    | STR. | 11'-2"  | 1325   |
| A107 | 2   |      |      | 9'-5"   | 28     |
| A108 |     |      |      | 7'-3"   | 22     |
| A109 |     |      |      | 5'-4"   | 16     |
| A110 |     |      |      | 3'-5"   | 10     |
| A207 |     |      |      | 9'-5"   | 28     |
| A208 |     |      |      | 7'-3"   | 22     |
| A209 |     |      |      | 5'-4"   | 16     |
| A210 | 2   | 6    | STR. | 3'-5"   | 10     |
| B1   | 18  | 4    | STR. | 26'-10" | 323    |
| B2   | 17  | 5    | STR. | 52'-2"  | 925    |
| D1   | 82  | 6    | STR. | 3'-6"   | 431    |
| G3   | 2   | 5    | STR. | 11'-8"  | 24     |
| K5   | 4   | 5    | 2    | 8'-3"   | 34     |
| K6   | 4   | 5    | 1    | 7'-2"   | 30     |
| S1   | 18  | 4    | 3    | 3'-6"   | 42     |

SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

| BAR SIZE | SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL |          | APPROACH SLABS |          | PARAPET AND BARRIER RAIL |
|----------|-----------------------------------------------------------------|----------|----------------|----------|--------------------------|
|          | EPOXY COATED                                                    | UNCOATED | EPOXY COATED   | UNCOATED |                          |
| #4       | 1'-5"                                                           | 1'-2"    | 1'-5"          | 1'-2"    | 1'-11"                   |
| #5       | 1'-8"                                                           | 1'-5"    | 1'-8"          | 1'-5"    | 2'-4"                    |
| #6       | 2'-2"                                                           | 1'-10"   | 2'-9"          | 1'-10"   | 3'-2"                    |
| #8       | 5'-0"                                                           | 3'-4"    | 5'-0"          | 3'-4"    | 5'-8"                    |

BILL OF MATERIALS FOR INSTALL CONCRETE INSERTS (FOR PROPOSED 8-INCH STEEL GAS MAIN)

| ITEM | QUANTITY | DESCRIPTION           |
|------|----------|-----------------------|
| 1    | 56 Each  | 7/8" Concrete Inserts |

THESE QUANTITIES FOR ESTIMATED QUANTITIES ONLY. ITEMS TO BE FURNISHED BY PUBLIC SERVICE COMPANY OF NORTH CAROLINA, INC.

NOTE: TO BE INCLUDED WITH STAGE I CONST. (MEDIAN SIDE).

GROOVING BRIDGE FLOORS

|                |        |
|----------------|--------|
| APPROACH SLABS | 50.FT. |
| BRIDGE DECK    | 50.FT. |
| TOTAL          | 50.FT. |

ADDED D2 BAR, REVISED NO. 8 QUANTITY OF H1 & H2 BARS.

QUANTITIES FOR BARS DENOTED WITH "\*" ARE BASED ON 10" EMBEDMENT FOR ADHESIVELY ANCHORED DOWELS SEE SPECIAL PROVISIONS

\* DENOTES EPOXY COATED REINFORCED STEEL

## BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT

## SUPERSTRUCTURE BILL OF MATERIAL

|           | CLASS A-A CONCRETE (CU.YDS.) | REINFORCING STEEL (LBS.) | EPOXY COATED REINFORCING STEEL (LBS.) |
|-----------|------------------------------|--------------------------|---------------------------------------|
| SPAN "A"  |                              |                          |                                       |
| SPAN "B"  |                              |                          |                                       |
| SPAN "C"  |                              |                          |                                       |
| SPAN "D"  |                              |                          |                                       |
| TOTALS ** |                              |                          |                                       |

\*\* QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

PROJECT NO. 8.2402101

WAKE COUNTY

STATION: 32 + 98.75 -L-

SHT. 2 OF 2

|                                 |        |    |      |
|---------------------------------|--------|----|------|
| STATE OF NORTH CAROLINA         |        |    |      |
| DEPARTMENT OF TRANSPORTATION    |        |    |      |
| STANDARD                        |        |    |      |
| SUPERSTRUCTURE BILL OF MATERIAL |        |    |      |
| OCTOBER 1997                    |        |    |      |
| REVISIONS                       |        |    |      |
| BY                              | DATE   | BY | DATE |
| 1                               | F.B.M. | 2  | 5-93 |
| 2                               |        | 3  |      |
| 3                               |        | 4  |      |
| SHEET NO. 5-304                 |        |    | 332  |

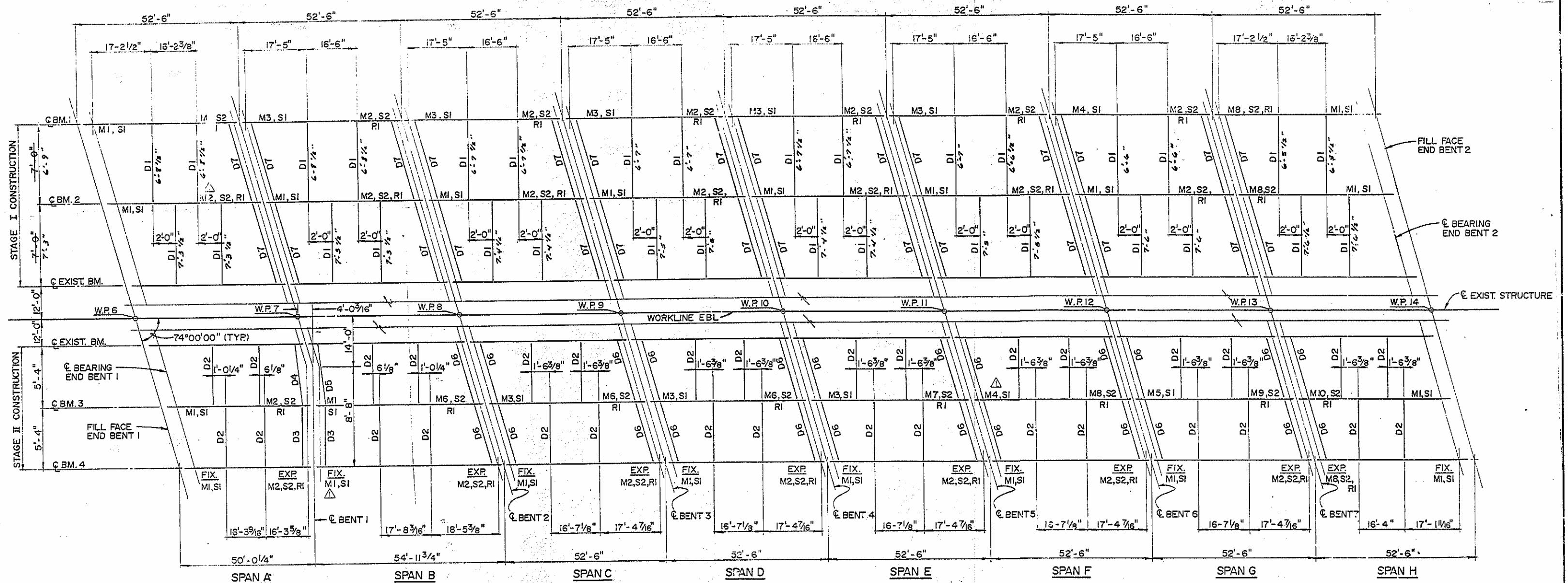
DWG. 15

STD. NO. ROM 1

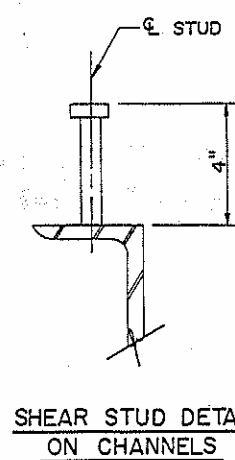
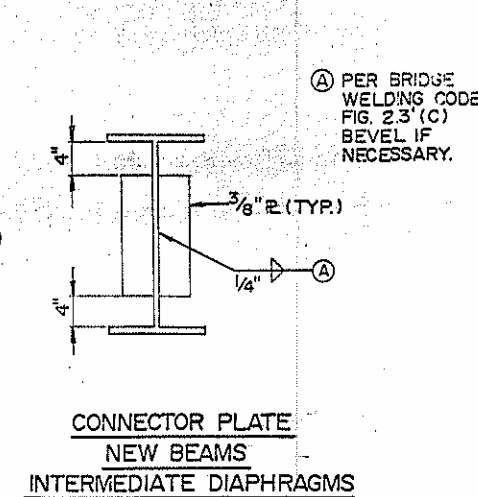
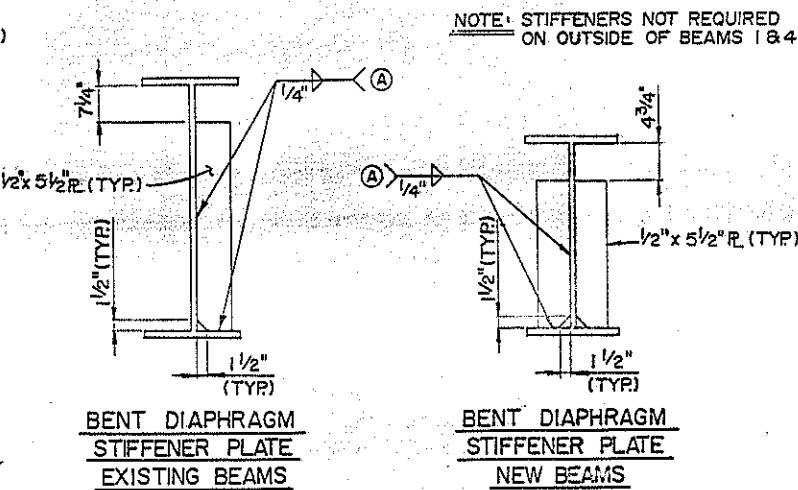
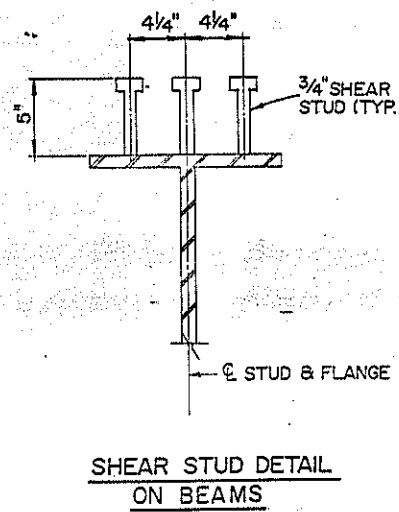
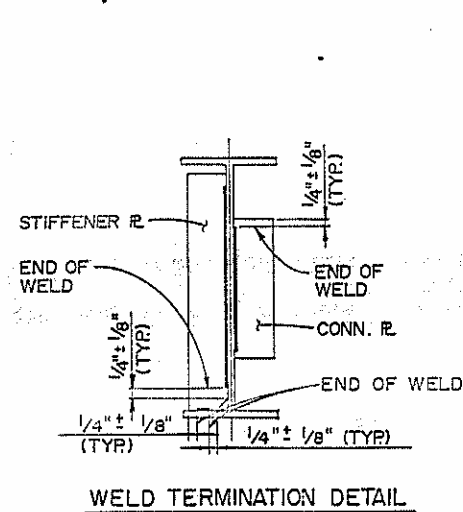
DRAWN BY: G.W. DATE: 6/92  
CHECKED BY: P.H.M. DATE: 8-92

DRAWN BY: U. BRIT DATE: 5/28/87  
CHECKED BY: S.J. DAVIS DATE: 9/3/87





# FRAMING PLAN



NOTE: STIFFENERS NOT REQUIRED ON OUTSIDE OF BEAMS 1 & 4

PER BRIDGE WELDING CODE FIG. 2.3 (C) BEVEL IF NECESSARY.

PROJECT No. 8.2402101  
 WAKE COUNTY  
 STATION: 32+98.75 - L1

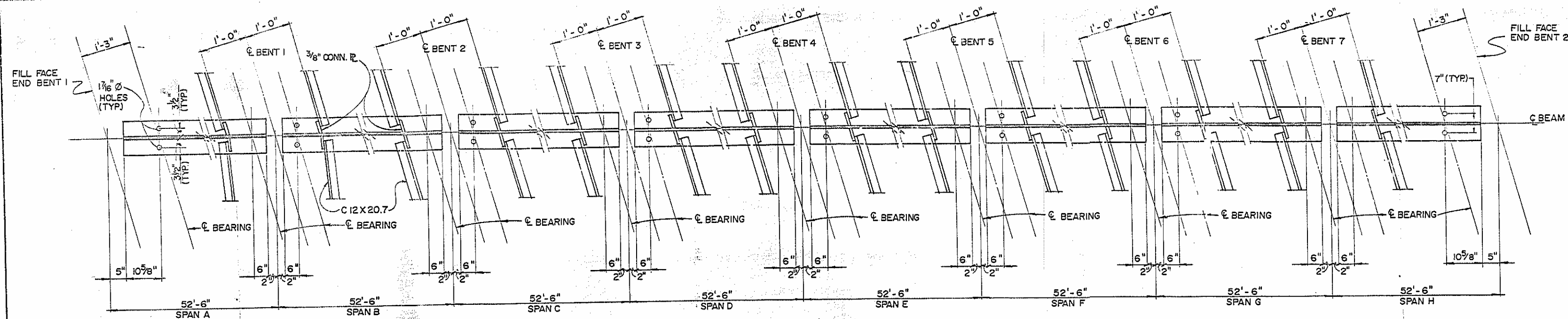
SHT. 1 OF 4

| STATE OF NORTH CAROLINA      |        |        |     |    |       |
|------------------------------|--------|--------|-----|----|-------|
| DEPARTMENT OF TRANSPORTATION |        |        |     |    |       |
| RALEIGH                      |        |        |     |    |       |
| SUPERSTRUCTURE               |        |        |     |    |       |
| STRUCTURAL STEEL             |        |        |     |    |       |
| DETAILS                      |        |        |     |    |       |
| FEBRUARY 1992                |        |        |     |    |       |
| REVISIONS                    |        |        |     |    |       |
| NO.                          | BY     | DATE   | NO. | BY | DATE  |
| 1                            | F.B.H. | 2-5-92 | 3   |    |       |
| 2                            |        |        | 4   |    |       |
| TOTAL SHEETS                 |        |        |     |    | 5-205 |
|                              |        |        |     |    | 222   |

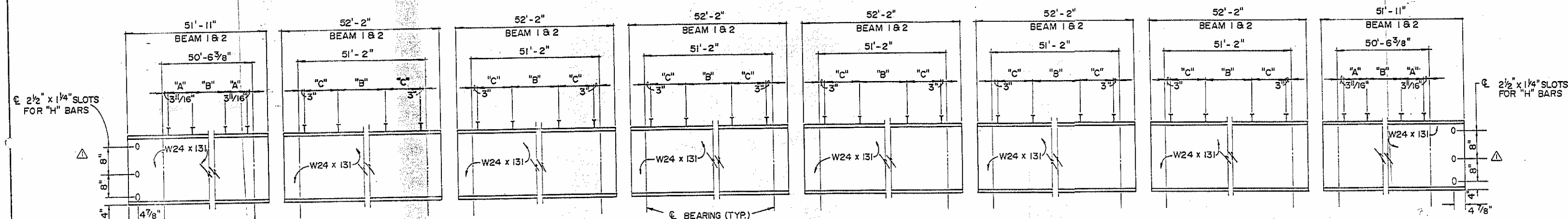
DRAWN BY: DAP DATE: 5-92  
 CHECKED BY: J. H. DATE: 5-92  
 FLORENCE & HUTCHESON, INC.  
 CONSULTING ENGINEERS RALEIGH, N.C.

REVISOR MASONRY PLATE MARKS

DWG. 16



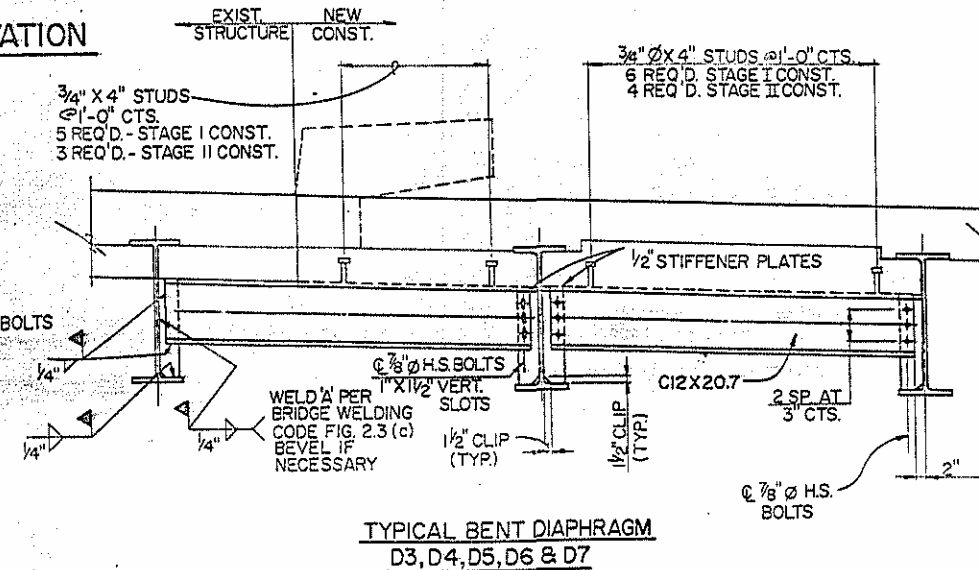
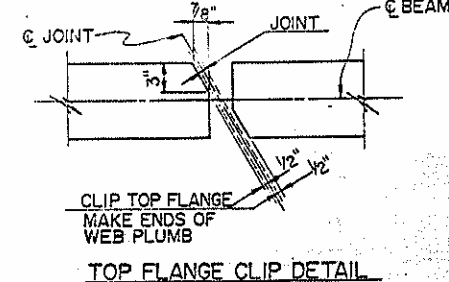
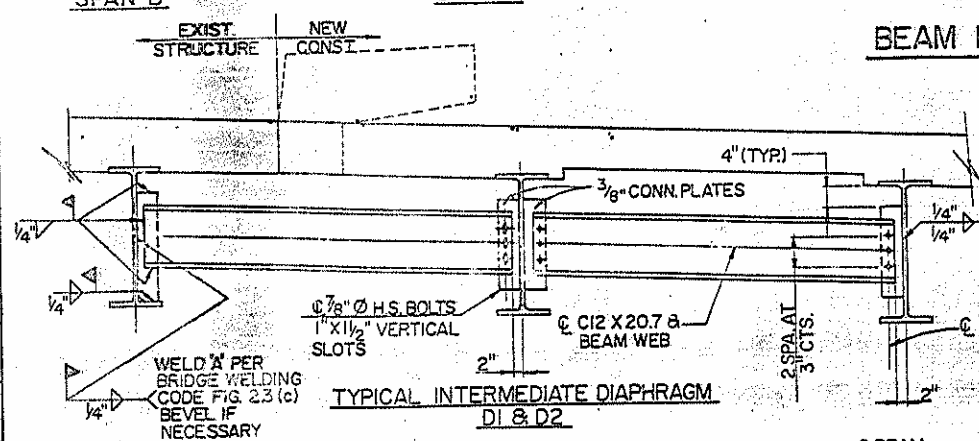
**BOTTOM FLANGE DETAIL - STAGE I**



**BEAM ELEVATION**

| MARK | DESCRIPTION                                           |
|------|-------------------------------------------------------|
| "A"  | 36 SP @ 5" = 15' - 0"<br>3 STUDS PER ROW = III REQ'D. |
| "B"  | 40 SP @ 6" = 20' - 0"<br>3 STUDS PER ROW = II7 REQ'D. |
| "C"  | 37 SP @ 5" = 15' - 5"<br>3 STUDS PER ROW = II4 REQ'D. |

NOTE: CONNECTION BOLTS ARE TO BE LOCATED AT THE BOTTOM OF THE CONNECTION SLOTS AND TIGHTENED TO SNUG FIT PRIOR TO FIELD WELDING OPPOSITE END OF CHANNEL. AFTER WELDING CHANNEL TO CONNECTION PLATE AND PRIOR TO THE POURING OF THE SLAB, BACK OFF BOLTS 1/2" TURN TO ALLOW FOR VERTICAL DEFLECTION OF NEW BEAM. AFTER DEFLECTIONS HAVE OCCURRED, TIGHTEN BOLTS AS REQUIRED BY SPECIFICATIONS.

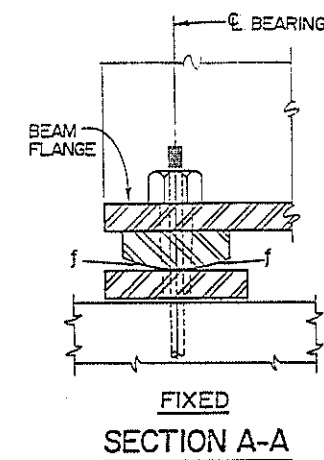


PROJECT No. 8.2402101  
WAKE COUNTY  
STATION: 32+98.75-L1-

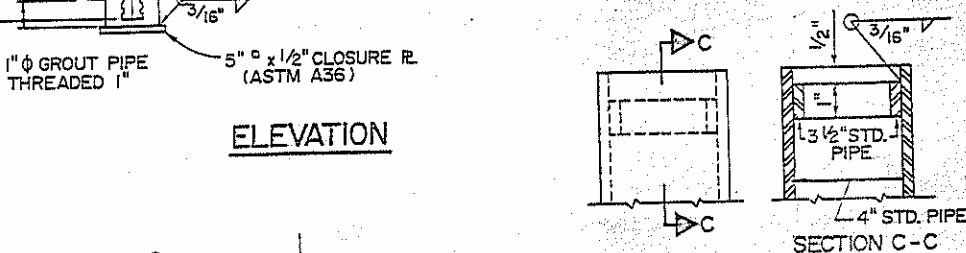
| STATE OF NORTH CAROLINA      |     |        |     |    |                  |
|------------------------------|-----|--------|-----|----|------------------|
| DEPARTMENT OF TRANSPORTATION |     |        |     |    |                  |
| RALEIGH                      |     |        |     |    |                  |
| SUPERSTRUCTURE               |     |        |     |    |                  |
| STRUCTURAL STEEL DETAILS     |     |        |     |    |                  |
| MAY 1992                     |     |        |     |    |                  |
| REVISIONS                    |     |        |     |    |                  |
| NO.                          | BY  | DATE   | NO. | BY | DATE             |
| 1                            | F&H | 2-5-95 | 3   |    |                  |
| 2                            |     |        | 4   |    |                  |
| SHEET NO. 5-306              |     |        |     |    | TOTAL SHEETS 232 |

DWG. 17



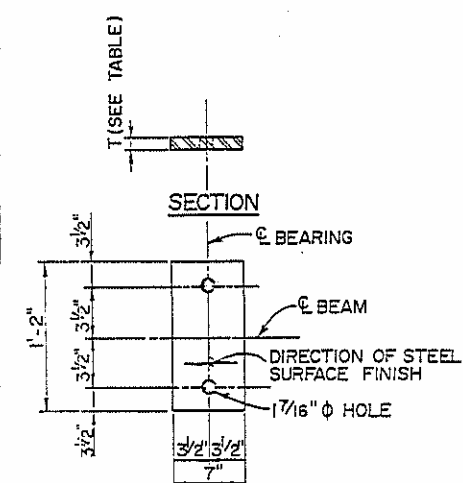
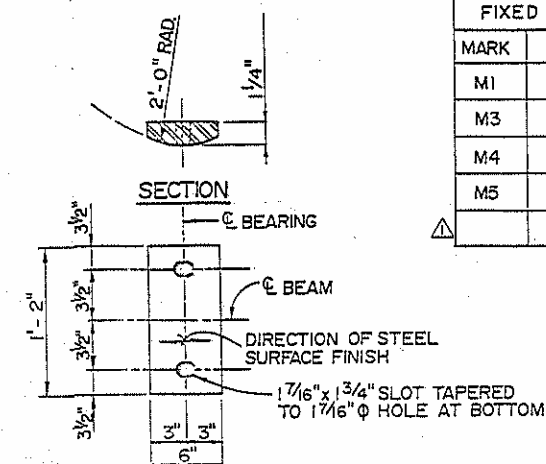


| FIXED MASONRY P.C.                                                                  |                                                                                              |     |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----|
| MARK                                                                                | T"                                                                                           | NO. |
| M1                                                                                  | 1 1/4"    | 21  |
| M3                                                                                  | 1 1/2"    | 8   |
| M4                                                                                  | 1 9/16"   | 2   |
| M5                                                                                  | 1 11/16"  | 1   |
|  |                                                                                              |     |



| TABLE FOR PLATE SETTING DATA<br>(FOR EXPANSION POT AND TFE BEARINGS) |        |       |        |         |
|----------------------------------------------------------------------|--------|-------|--------|---------|
| TEMPERATURE<br>AT TIME<br>OF SETTING                                 | 30° F  | 60° F | 90° F  | *       |
| BENTS 1 - G                                                          | - 1/8" | 0     | 1/2"   | - 1/16" |
| BT. 7 - SPAN G                                                       | - 1/8" | 0     | 1/8"   | - 1/16" |
| BT. 7 - SPAN H                                                       | 1/8"   | 0     | - 1/8" | 1/16"   |

\* CORRECTION FOR END ROTATION DUE TO WEIGHT OF SLAB AND  
COMPOSITE DEAD LOAD: 1 INCREASE STATIONS

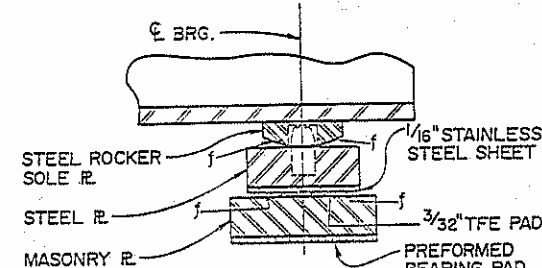


MASONRY PLATE (MI)

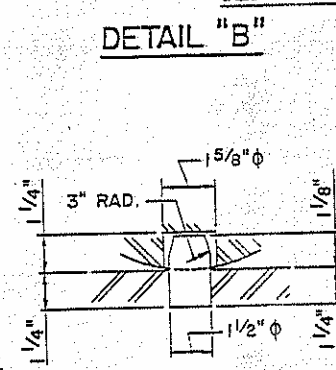
FOR TFE EXP BEARING ASSEMBLIES,  
SEE SPECIAL PROVISIONS.

ALL BEARING PLATES SHALL BE  
ASTM A-588 .

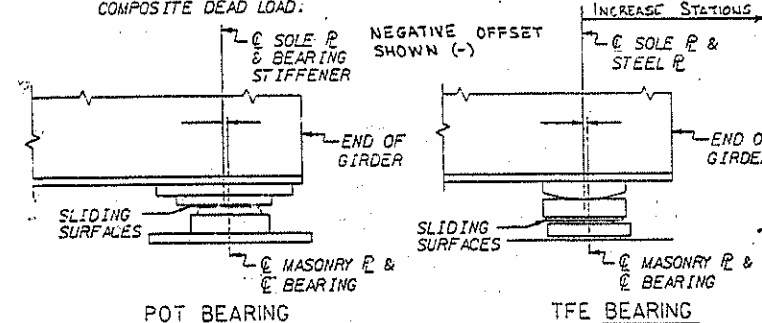
FOR CLEANING AND PAINTING EXISTING BEARING PLATES, SEE SPECIAL PROVISIONS.



SECTION B-B



## PINTLE DETAIL



TEMPERATURE SETTING DETAIL

SOLE PLATE (SI)  
SI (32 REQ'D)

## NOTES

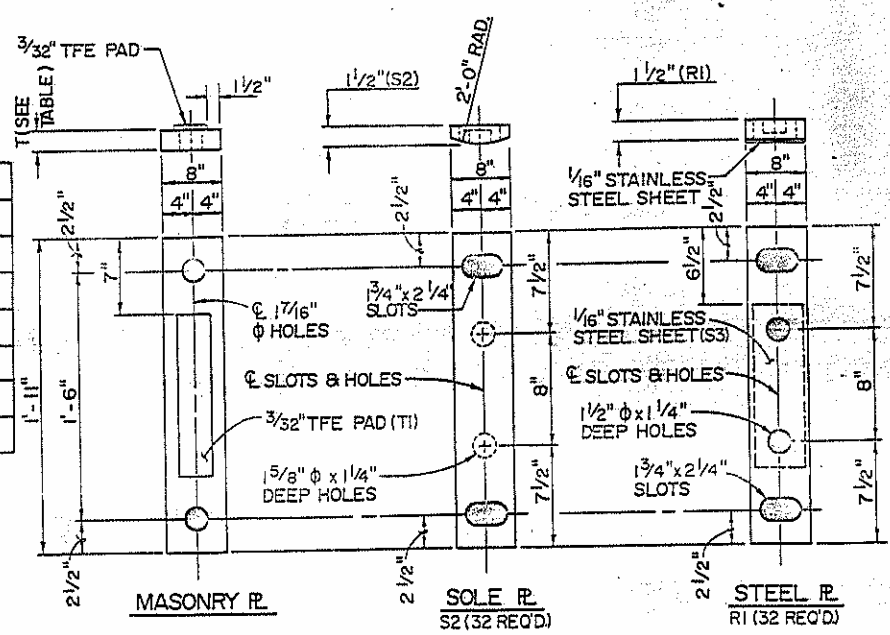
ALL SURFACES OF BEARING PLATES SHALL BE  
SMOOTH AND STRAIGHT.

SOLE PLATES, MASONRY PLATES, BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

AT FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS SHALL BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL. (DO NOT USE THIS NOTE FOR POT BEARINGS.)

THE 1/4-INCH DIAMETER PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PIPE SHALL MEET THE REQUIREMENT OF ASTM D1785.

| FIXED MASONRY P'S |          |     |
|-------------------|----------|-----|
| MARK              | T "      | NO. |
| M2                | 1 1/4"   | 22  |
| M6                | 1 1/2"   | 3   |
| M7                | 1 9/16"  | 1   |
| M8                | 1 11/16" | 4   |
| M9                | 1 3/4"   | 1   |
| M10               | 2 3/16"  | 1   |



## EXPANSION BEARING DETAILS

| DEAD LOAD DEFLECTION TABLE            |        |       |         |         |        |       |        |       |            |       |       |        |        |      |        |        |            |        |        |        |         |        |        |      |
|---------------------------------------|--------|-------|---------|---------|--------|-------|--------|-------|------------|-------|-------|--------|--------|------|--------|--------|------------|--------|--------|--------|---------|--------|--------|------|
|                                       | SPAN A |       |         |         | SPAN B |       |        |       | SPAN C & D |       |       |        | SPAN E |      |        |        | SPAN F & G |        |        |        | SPAN H  |        |        |      |
|                                       | 1B     | 1B    | 2B      | 3B      | 4B     | 1B    | 2B     | 3B    | 4B         | 1B    | 1B    | 2B     | 3B     | 4B   | 1B     | 1B     | 2B         | 3B     | 4B     | 1B     | 1B      | 2B     | 3B     | 4B   |
| DEFLECTION DUE TO WT. OF SLAB         | .105   | .097  | .063    | .065    | .105   | .097  | .074   | .096  | .105       | .097  | .068  | .079   | .105   | .097 | .068   | .079   | .105       | .097   | .068   | .079   | .105    | .097   | .068   | .079 |
| DEFLECTION DUE TO WT. OF STEEL        | .015   | .016  | .015    | .013    | .015   | .016  | .017   | .019  | .015       | .016  | .016  | .015   | .015   | .016 | .016   | .015   | .015       | .016   | .016   | .015   | .015    | .016   | .016   | .015 |
| DEFLECTION DUE TO WT. OF BARRIER RAIL | .013   | .015  | .013    | .010    | .013   | .015  | .015   | .014  | .013       | .015  | .014  | .012   | .013   | .015 | .014   | .012   | .013       | .015   | .014   | .012   | .013    | .015   | .014   | .012 |
| TOTAL DEAD LOAD DEFLECTION            | .133   | .128  | .091    | .088    | .133   | .128  | .106   | .129  | .133       | .128  | .098  | .106   | .133   | .128 | .098   | .106   | .133       | .128   | .098   | .106   | .133    | .128   | .098   | .106 |
| VERTICAL CURVE ORDINATES              | —      | —     | —       | —       | —      | —     | —      | —     | —          | —     | —     | —      | .017   | .018 | .026   | .027   | .029       | .029   | .029   | .029   | .029    | .029   | .028   | .028 |
| CAMBER REQUIRED                       | 5/8"   | 9/16" | 1 1/16" | 1 1/16" | 5/8"   | 9/16" | 1 1/4" | 9/16" | 5/8"       | 9/16" | 3/16" | 1 1/4" | 3/16"  | 3/4" | 1 1/2" | 1 5/8" | 1 5/16"    | 1 7/8" | 1 1/2" | 1 5/8" | 1 5/16" | 1 7/8" | 1 1/2" | 5/8" |

DEFLECTIONS AND ORDINATES SHOWN ARE IN DECIMALS OF A FOOT.

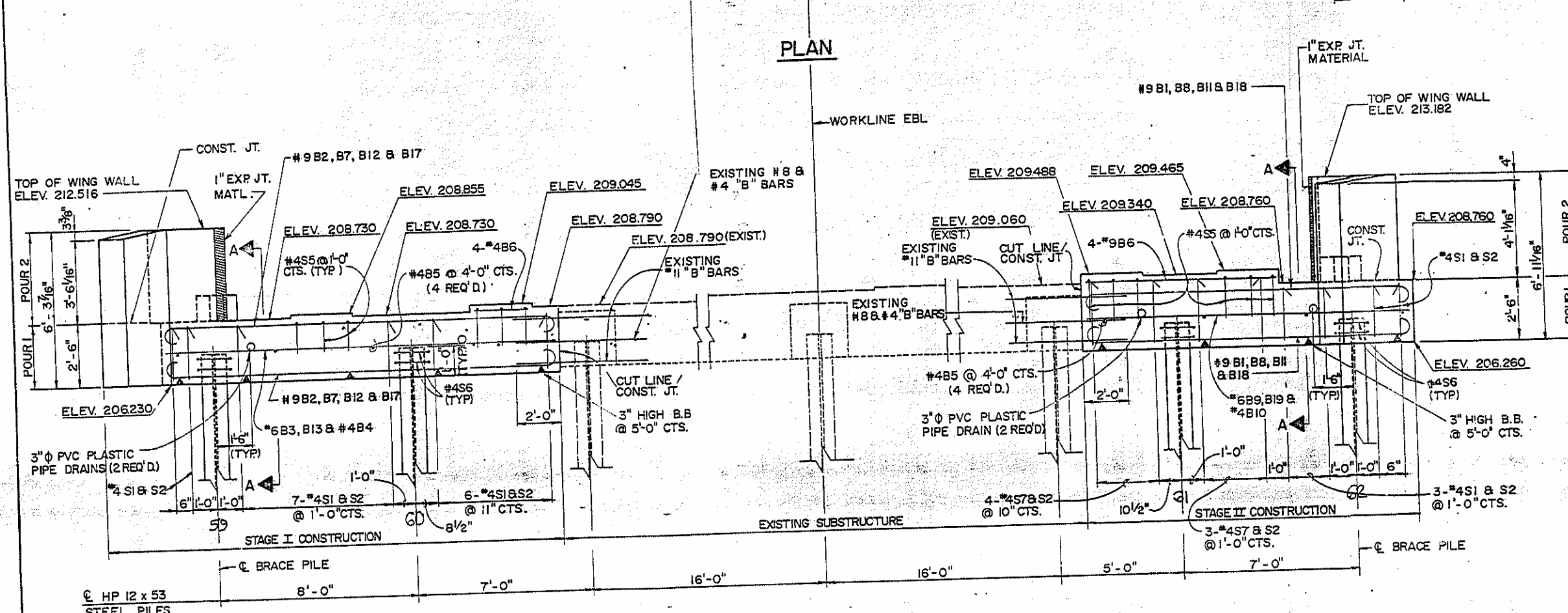
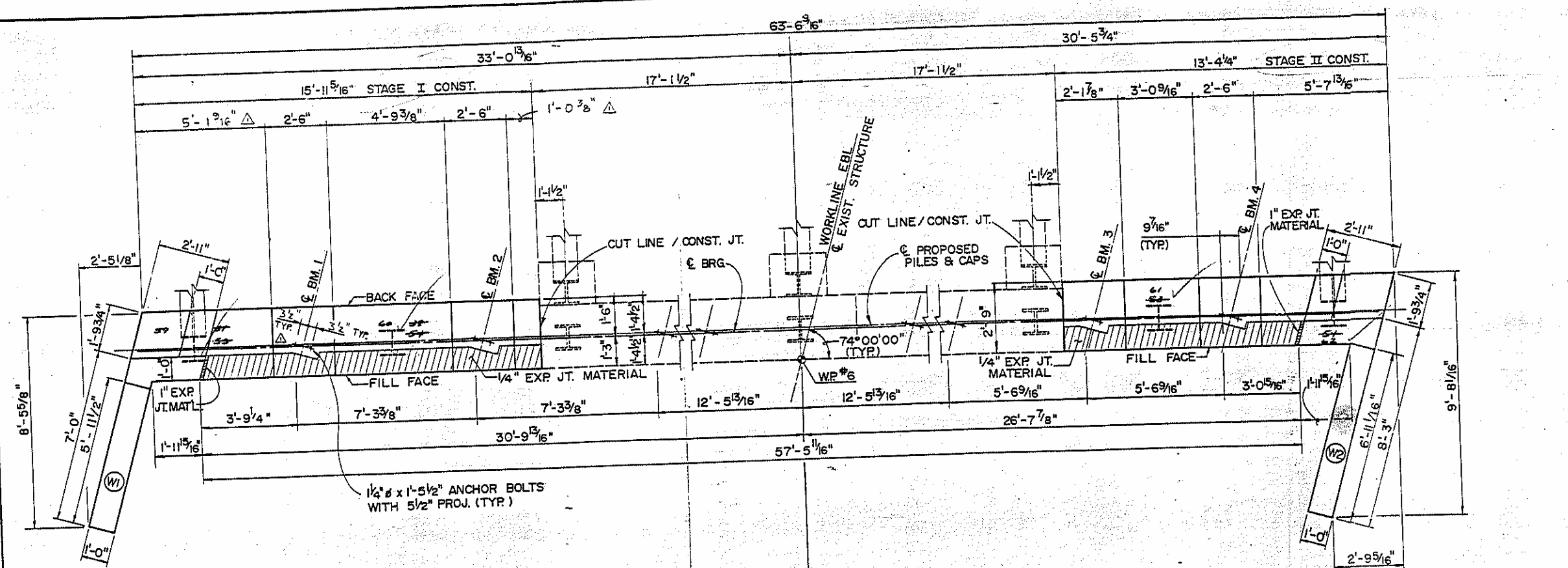
1 ELIMINATED M11, CHANGED M3  
THICKNESS, REVISED NO. OF M1 PLATES

ADDED PLATE SETTING TABLE. J BY: CEP 5/27/93

DMG 19

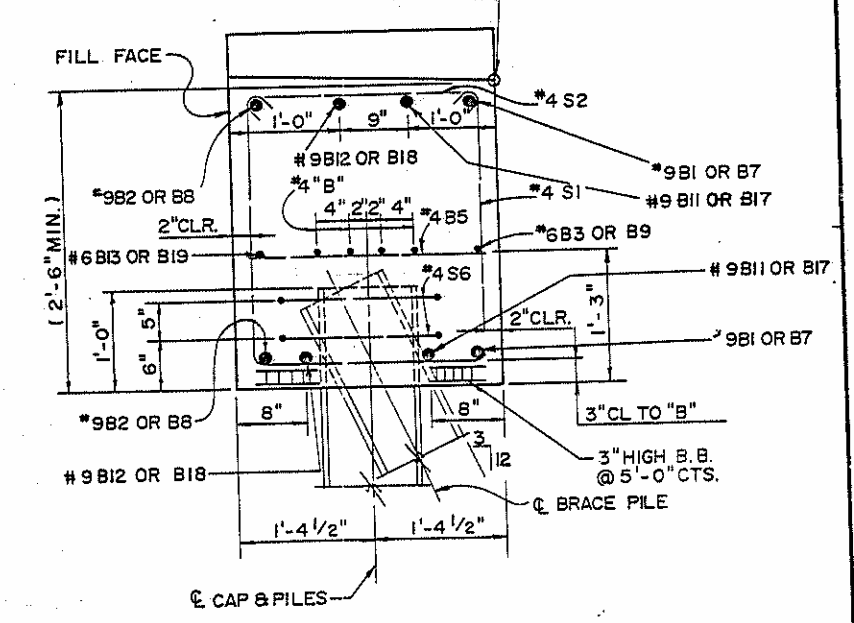
3 SWITCHED THE WORDS "STEEL" & "SLAC". ✓FB





FOR END BENT NOTES SEE DWG.39  
FOR PILE SPLICE DETAILS SEE DWG.39  
FOR PIPE DRAIN DETAILS SEE DWG.39  
FOR TEMPORARY DRAINAGE @ END BENT SEE DWG.39

ELEVATIONS BETWEEN  
BEAM SEAT BUILD-UPS  
ARE SHOWN @ THIS  
POINT.



~~HP 12X53 STEEL PILES~~

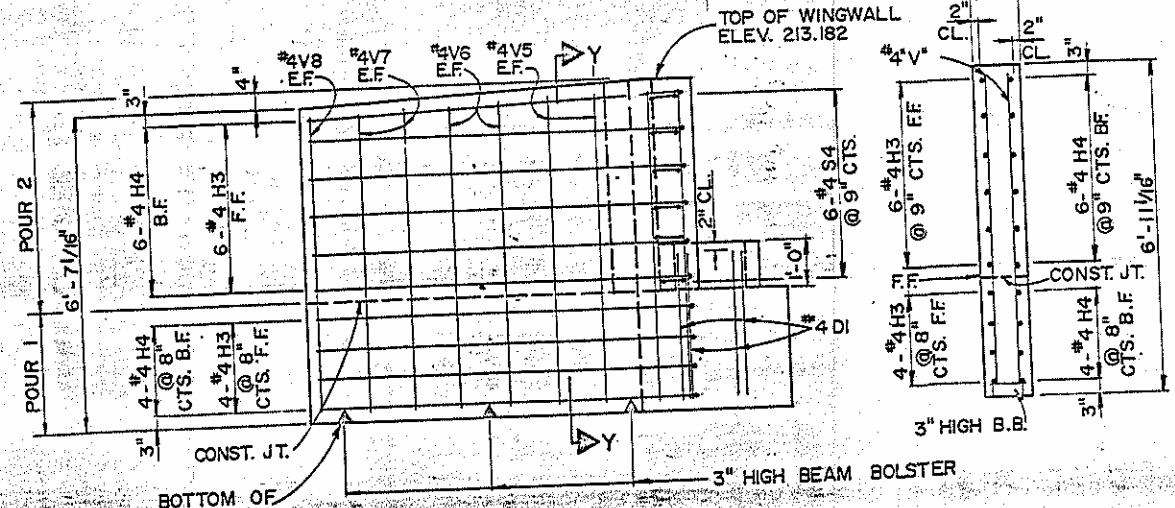
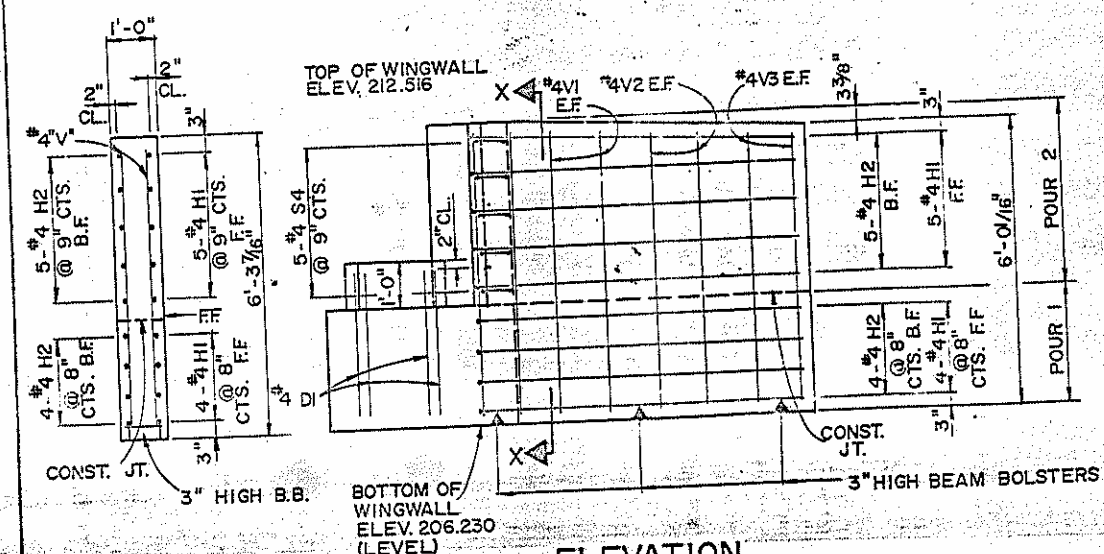
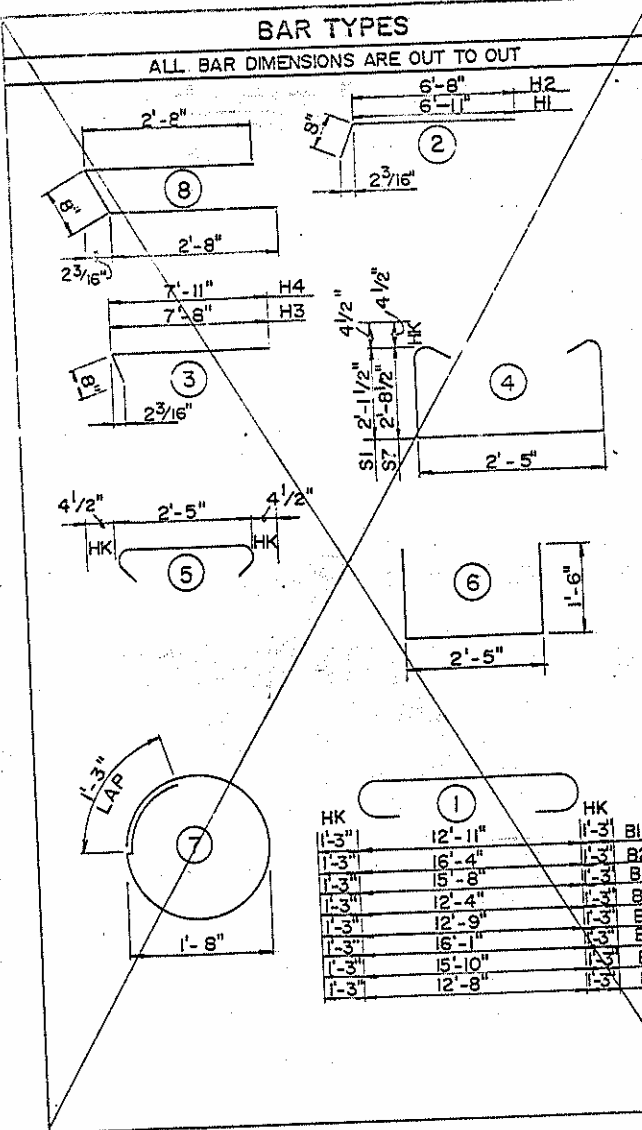
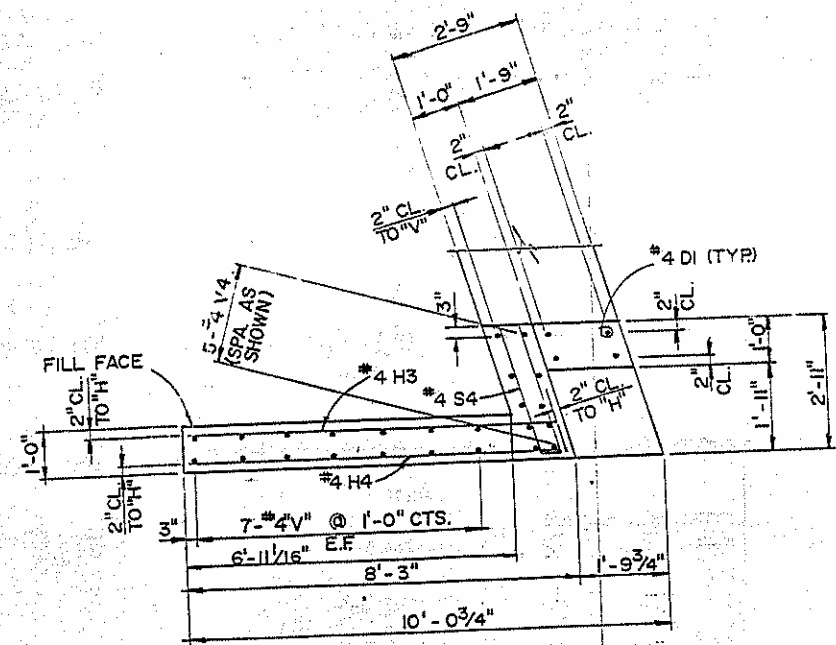
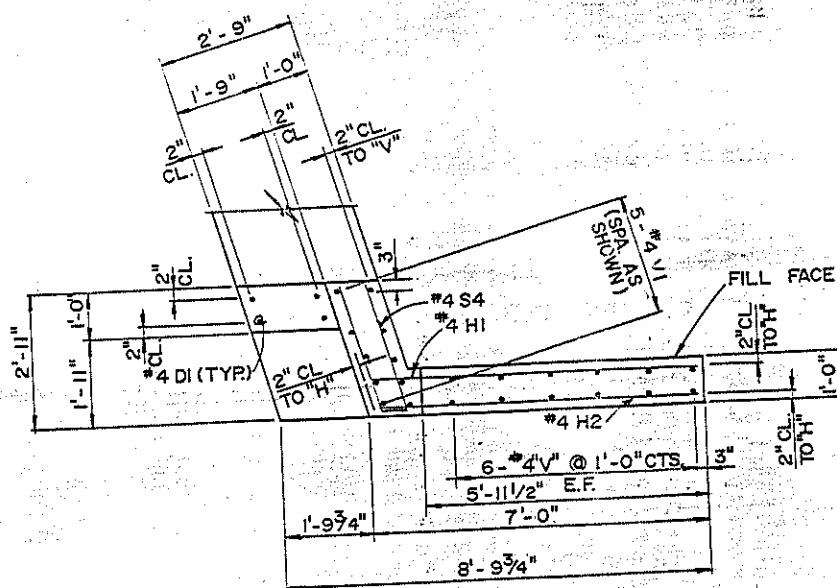
| <del>NO.</del> | <del>LENGTH</del> |
|----------------|-------------------|
| <del>59</del>  | <del>48.30</del>  |
| <del>60</del>  | <del>44.40</del>  |
| <del>61</del>  | <del>41.50</del>  |
| <del>62</del>  | <del>44.20</del>  |

PROJECT No. 8.2402101  
WAKE COUNTY  
 STATION: 32+98.75-LI-

SHT. 1 OF 2  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 1  
 MAY 1992

| REVISIONS |        |         |     |    |      | SHEET NO.    |
|-----------|--------|---------|-----|----|------|--------------|
| NO.       | BY     | DATE    | NO. | BY | DATE |              |
| 1         | L.I.B. | 7-21-93 | 3   |    |      | TOTAL SHEETS |
| 2         |        |         | 4   |    |      | 332          |





SECTION Y-Y

ELEVATION  
WINGWALL - W2  
STAGE II CONST.

TOTAL QUANTITIES FOR END BENT

| ITEM                      | STAGE I | STAGE II | TOTAL |
|---------------------------|---------|----------|-------|
| REINFORCING STEEL         | 955     | 969      | 1,924 |
| CLASS "A" CONCRETE POUR 1 | 4.7     | 4.4      | 9.1   |
| CLASS "A" CONCRETE POUR 2 | 1.4     | 1.6      | 3.0   |
| CLASS "A" CONCRETE TOTAL  | 6.1     | 6.0      | 12.1  |
| HP 12 X 53 STEEL PILES    | 2       | 2        | 4     |
| HP 12 X 53 STEEL PILES    | 80      | 80       | 160   |

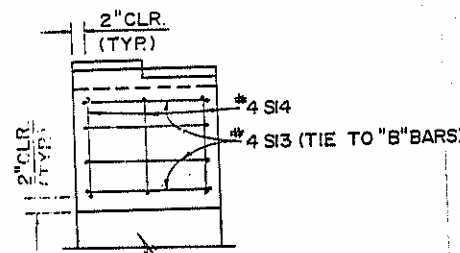
PROJECT NO. 82402101  
WAKE COUNTY  
STATION: 32+98.75 -L-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
END BENT I

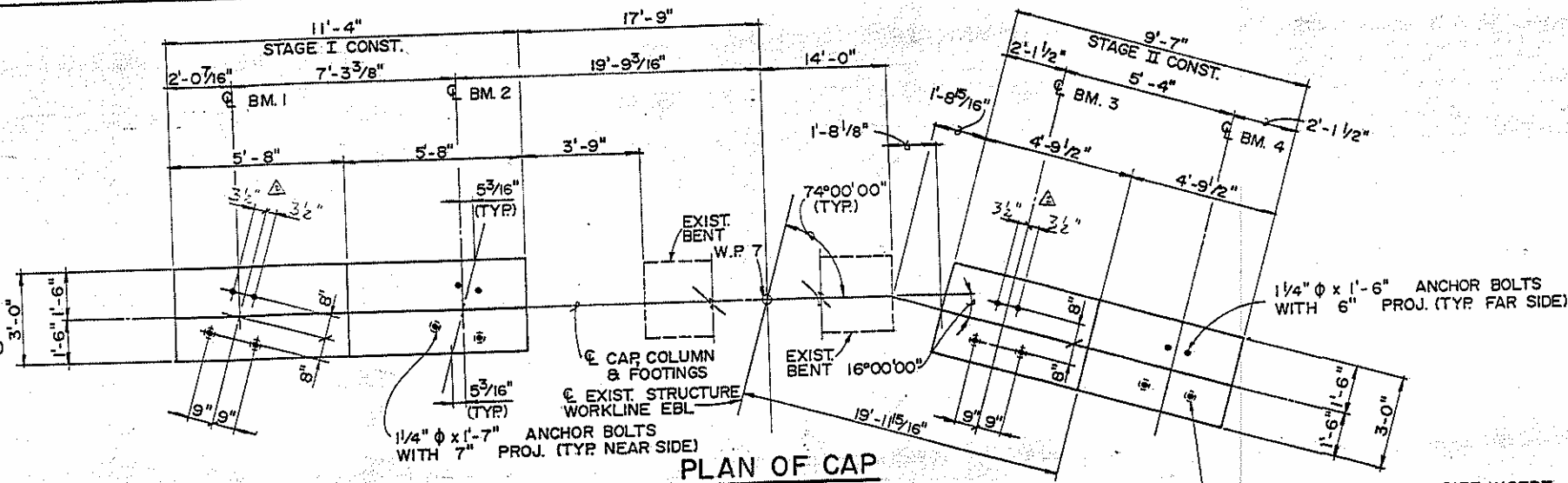
REVISIONS

| NO. | BY | DATE | NO. | BY | DATE |
|-----|----|------|-----|----|------|
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| 2   |    |      | 4   |    |      |

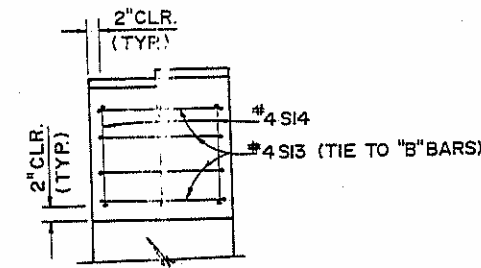
SHEET NO. 5-31b  
TOTAL SHEETS 332



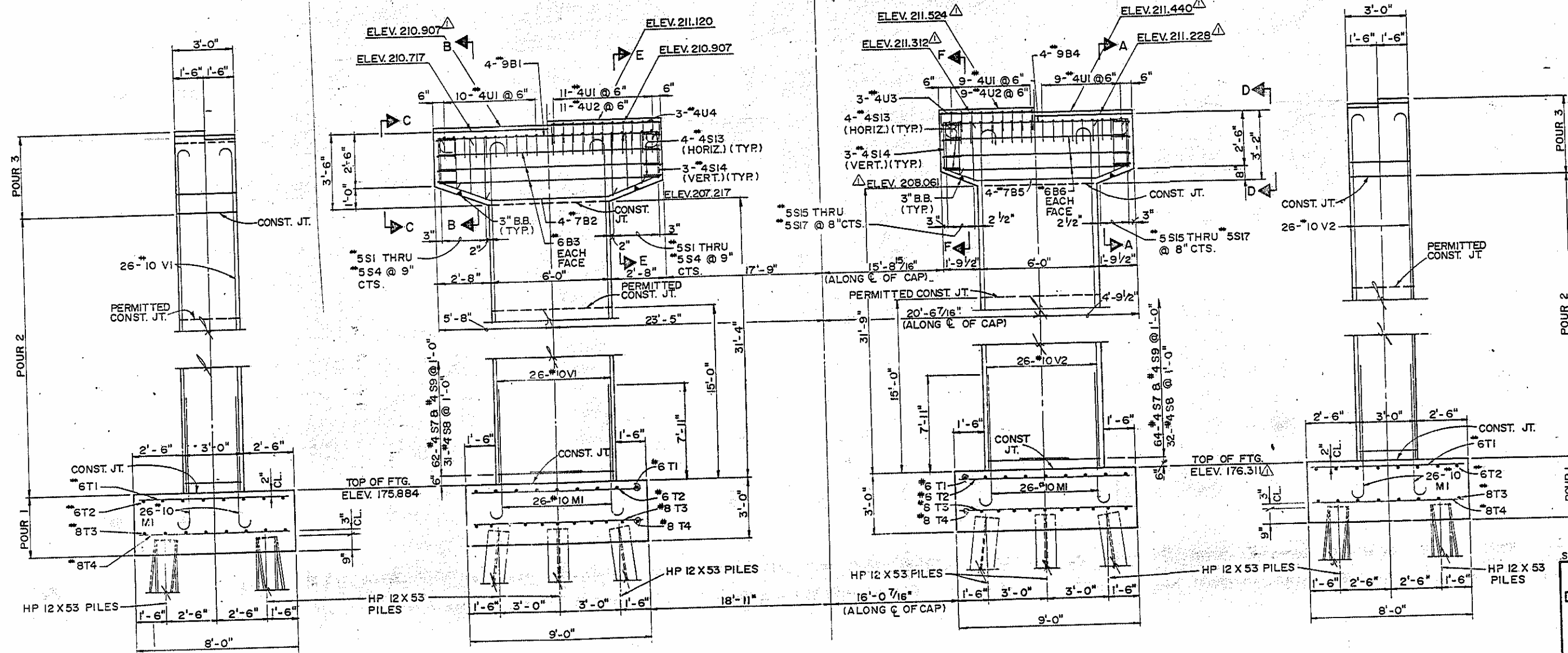
VIEW C-C



PLAN OF CAP



VIEW D-D



ELEVATION

END ELEVATION  
STAGE I

END ELEVATION  
STAGE II

- NOTES**
- HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
  - FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.
  - THE TOP SURFACE AREAS OF THE BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
  - STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
  - FOR PILE SPLICE DETAILS SEE DWG. 39

PROJECT No. 82402101  
WAKE COUNTY  
STATION: 32 + 98.75 - 11

SHT. 1 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUBSTRUCTURE  
BENT 1**

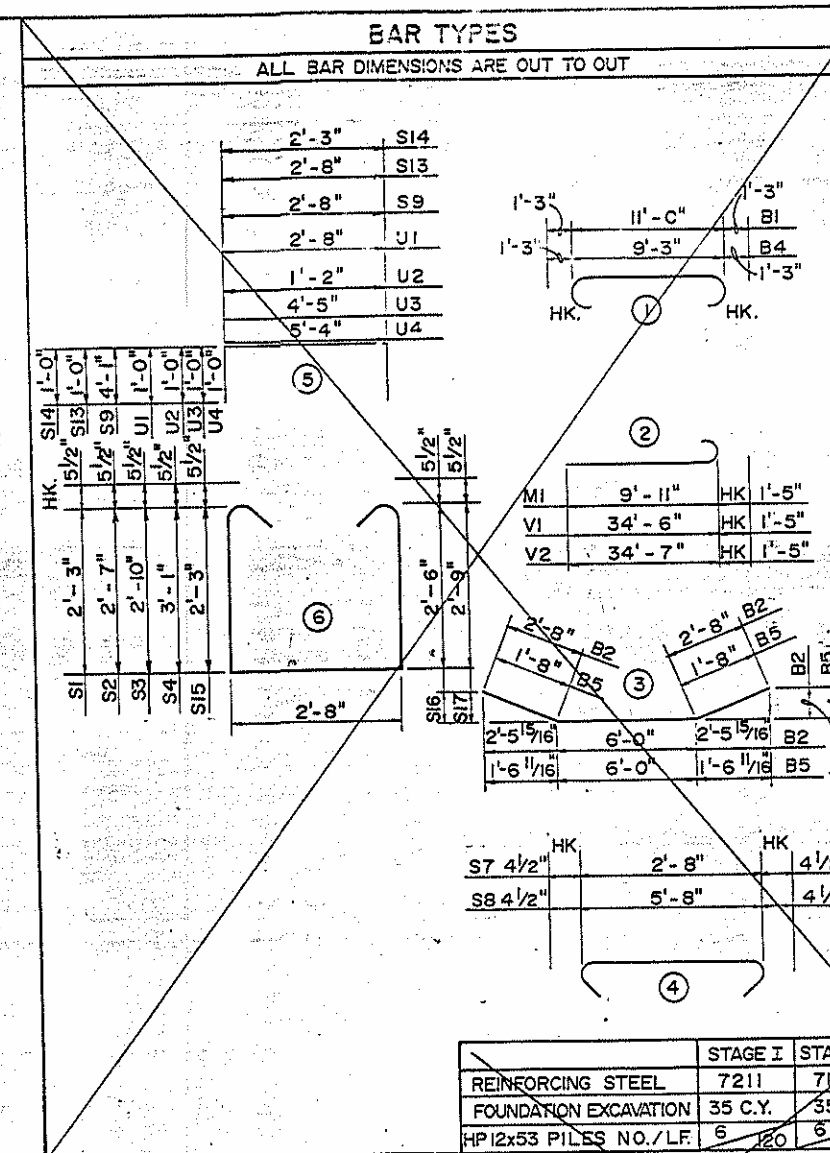
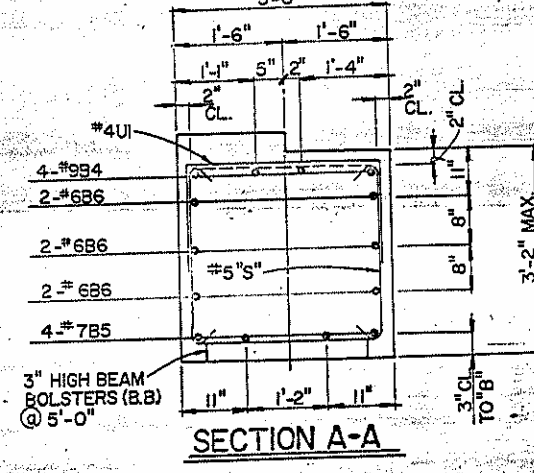
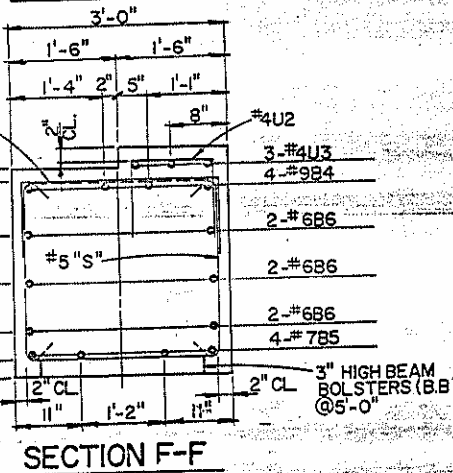
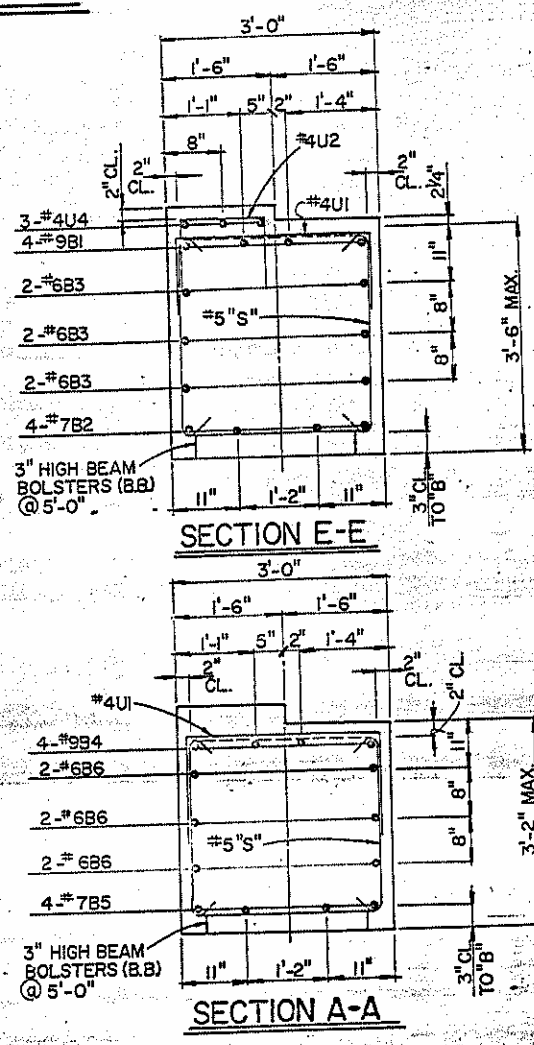
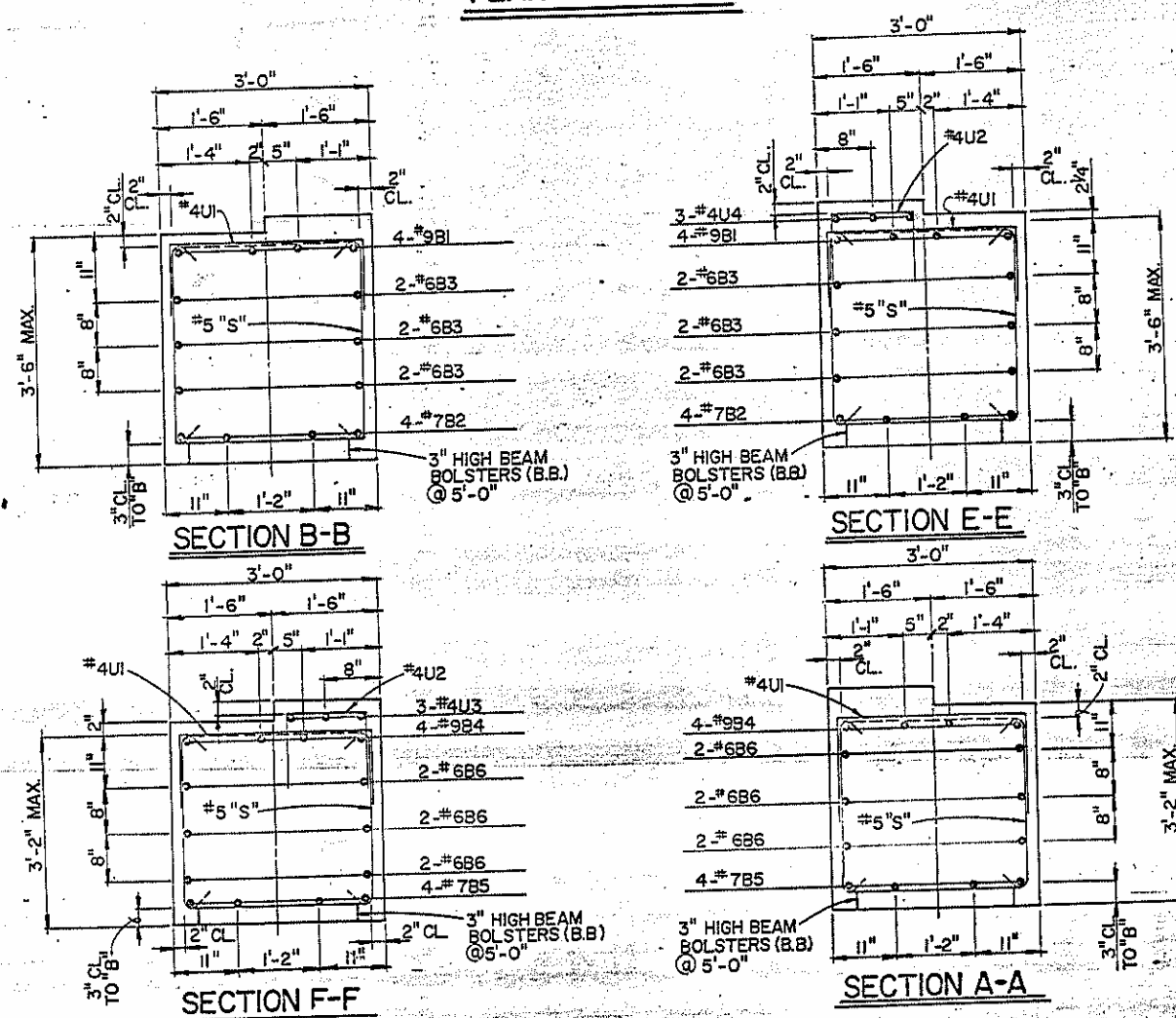
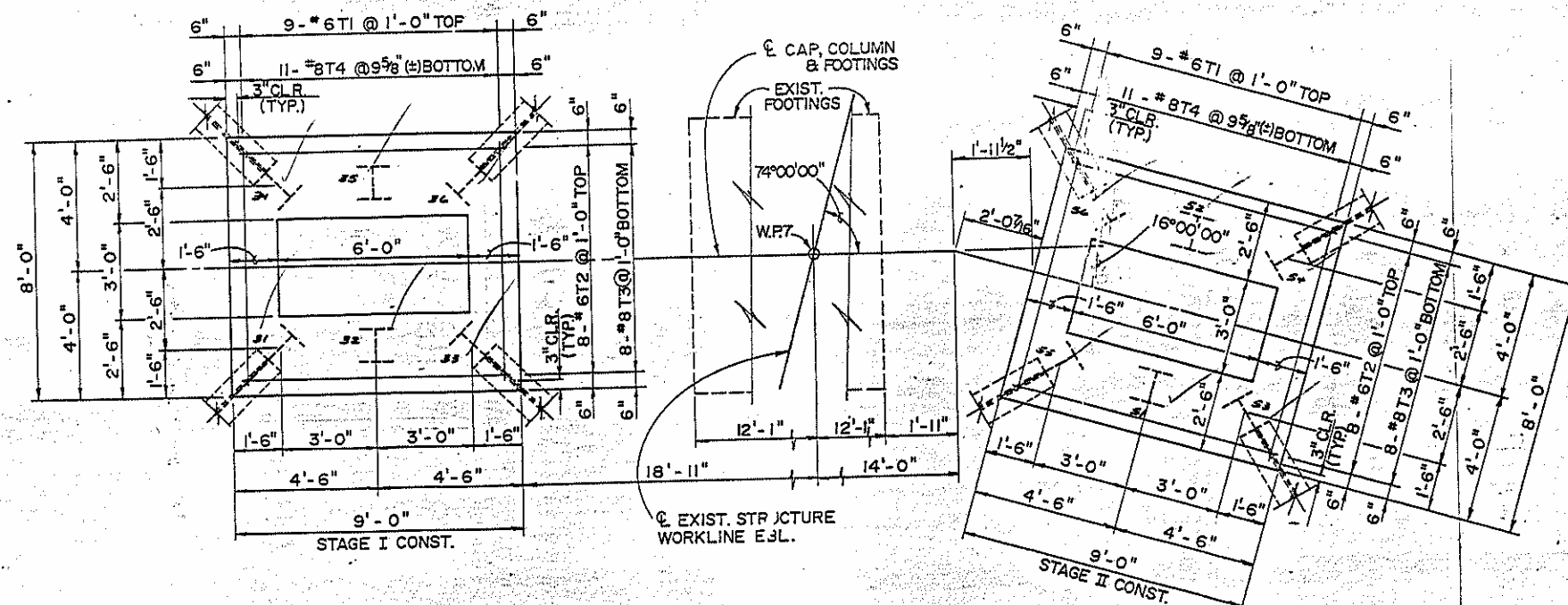
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|-----------|--------|---------|-----|----|------|---------------------|
| NO.       | BY     | DATE    | NO. | BY | DATE |                     |
| 1         | F.B.H. | 2-5-93  | 3   |    |      | TOTAL SHEETS<br>332 |
| 2         | L.T.S. | 7-21-93 | 4   |    |      |                     |

MAY 1992

DWG. 22

NOTE: BATTER PILES 1 1/2" TO 12" SLOPE DIAGONALLY, SEE PLAN OF FOOTING.

REVISOR BENT ELEV. J. BY: H.K.P. 7-21-93



## BILL OF MATERIAL

BENT I

STAGE I CONST.

| BAR | NO. | SIZE | TYPE | LENGTH  | WEIGHT |
|-----|-----|------|------|---------|--------|
| B1  | 4   | 9    | 1    | 13'-6"  | 164    |
| B2  | 4   | 7    | 3    | 11'-4"  | 93     |
| B3  | 6   | 6    | STR. | 11'-0"  | 99     |
| M1  | 26  | 10   | 2    | 11'-4"  | 1268   |
| S1  | 2   | 5    | 6    | 8'-1"   | 17     |
| S2  | 2   | 5    | 6    | 8'-9"   | 18     |
| S3  | 2   | 5    | 6    | 9'-3"   | 19     |
| S4  | 2   | 5    | 6    | 9'-9"   | 20     |
| S7  | 62  | 4    | 4    | 3'-5"   | 142    |
| S8  | 31  | 4    | 4    | 6'-5"   | 133    |
| S9  | 62  | 5    | 5    | 10'-10" | 449    |
| S13 | 8   | 4    | 5    | 4'-8"   | 25     |
| S14 | 6   | 4    | 5    | 4'-3"   | 17     |
| T1  | 9   | 6    | STR. | 7'-6"   | 101    |
| T2  | 8   | 6    | STR. | 8'-6"   | 102    |
| T3  | 8   | 8    | STR. | 8'-6"   | 182    |
| T4  | 11  | 8    | STR. | 7'-6"   | 220    |
| U1  | 21  | 4    | 5    | 4'-8"   | 66     |
| U2  | 11  | 4    | 5    | 3'-2"   | 23     |
| U4  | 3   | 4    | 5    | 7'-4"   | 15     |
| V1  | 26  | 10   | 2    | 35'-11" | 4018   |

STAGE II CONST.

|     |    |    |      |         |      |
|-----|----|----|------|---------|------|
| B4  | 4  | 9  | 1    | 11'-9"  | 160  |
| B5  | 4  | 7  | 3    | 9'-4"   | 76   |
| B6  | 6  | 6  | STR. | 9'-3"   | 83   |
| M1  | 26 | 10 | 2    | 11'-4"  | 1268 |
| S7  | 64 | 4  | 4    | 3'-5"   | 146  |
| S8  | 32 | 4  | 4    | 6'-5"   | 137  |
| S9  | 64 | 4  | 5    | 10'-10" | 463  |
| S13 | 8  | 4  | 5    | 4'-8"   | 25   |
| S14 | 6  | 4  | 5    | 4'-3"   | 17   |
| S15 | 2  | 5  | 6    | 8'-1"   | 17   |
| S16 | 2  | 5  | 6    | 8'-7"   | 18   |
| S17 | 2  | 5  | 6    | 9'-1"   | 19   |
| T1  | 9  | 6  | STR. | 7'-6"   | 101  |
| T2  | 8  | 6  | STR. | 8'-6"   | 102  |
| T3  | 8  | 8  | STR. | 8'-6"   | 182  |
| T4  | 11 | 8  | STR. | 7'-6"   | 220  |
| U1  | 16 | 4  | 5    | 4'-8"   | 56   |
| U2  | 9  | 4  | 5    | 3'-2"   | 19   |
| U3  | 3  | 4  | 5    | 6'-5"   | 13   |
| V2  | 26 | 10 | 2    | 36'-0"  | 4028 |

|                        |         |          |     |    |    |      |        |      |
|------------------------|---------|----------|-----|----|----|------|--------|------|
|                        | STAGE I | STAGE II | S15 | 2  | 5  | 6    | 8'-1"  | 17   |
| REINFORCING STEEL      | 7211    | 7180     | S16 | 2  | 5  | 6    | 8'-7"  | 18   |
| FOUNDATION EXCAVATION  | 35 C.Y. | 35 C.Y.  | S17 | 2  | 5  | 6    | 9'-9"  | 19   |
| HP12x53 PILES NO./L.F. | 6       | 60       | T1  | 9  | 6  | STR. | 7'-6"  | 101  |
| DIVISION OF CONCRETE   |         |          | T2  | 8  | 6  | STR. | 8'-6"  | 102  |
|                        | STAGE I | STAGE II | T3  | 8  | 8  | STR. | 8'-6"  | 182  |
| POUR NUMBER            | CU. YD. | CU. YD.  | T4  | 11 | 8  | STR. | 7'-6"  | 220  |
| 1                      | 8.0     | 8.0      | U1  | 6  | 4  | 5    | 4'-8"  | 56   |
| 2                      | 20.9    | 21.2     | U2  | 9  | 4  | 5    | 3'-2"  | 19   |
| 3                      | 44      | 3.4      | U3  | 3  | 4  | 5    | 6'-5"  | 13   |
|                        |         |          | V2  | 26 | 10 | 2    | 36'-0" | 4028 |
| TOTAL CLASS "A" CONC   | 33.3    | 32.6     |     |    |    |      |        |      |

| HP12K 2.0 STD. Pile |         |
|---------------------|---------|
| 31                  | 17.4 /  |
| 32                  | 17.8 /  |
| 33                  | 18.0 /  |
| 34                  | 17.2 /  |
| 35                  | 17.4 /  |
| 36                  | 18.0 /  |
|                     |         |
| 51                  | 16.6    |
| 52                  | 17.8    |
| 53                  | 18.5    |
| 54                  | 18.9    |
| 55                  | 17.8 25 |
| 56                  | 17.2    |

NOTE: PILES ARE NUMBERED ON DRAWINGS TO THE LEFT.

PROJECT No. 8.2402101

WAKE COUNTY

STATION: 32 + 98.75 - L -

SHT 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

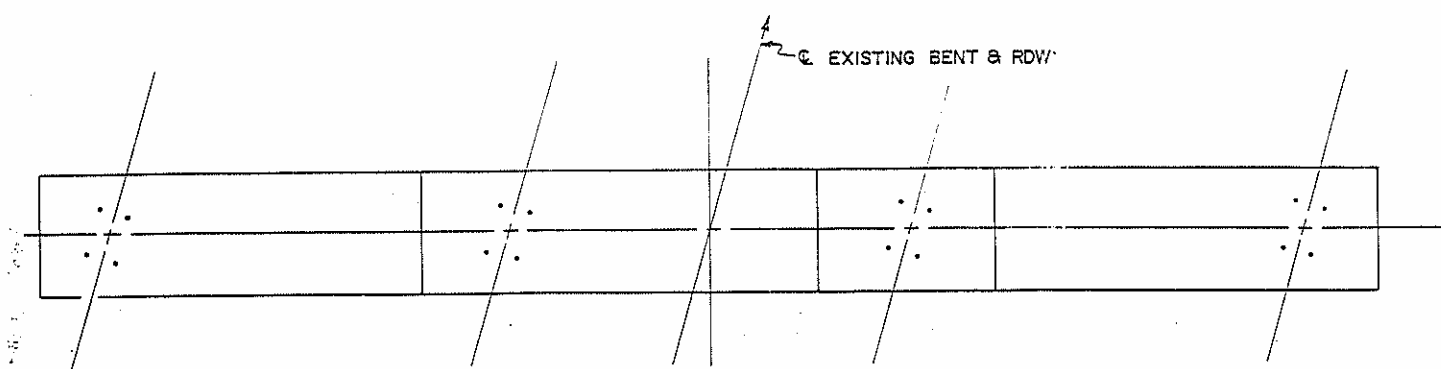
SUBSTRUCTURE  
BENT 1

MAY 19

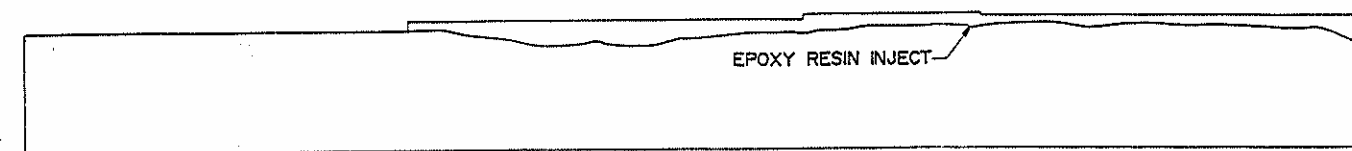
| REVISIONS |    |      |     |    |      | SHEET NO.                |
|-----------|----|------|-----|----|------|--------------------------|
| NO.       | BY | DATE | NO. | BY | DATE | 5-3<br>TOTAL SHEET<br>33 |
| 1         |    |      | 3   |    |      |                          |
| 2         |    |      | 4   |    |      |                          |

\_\_\_\_\_

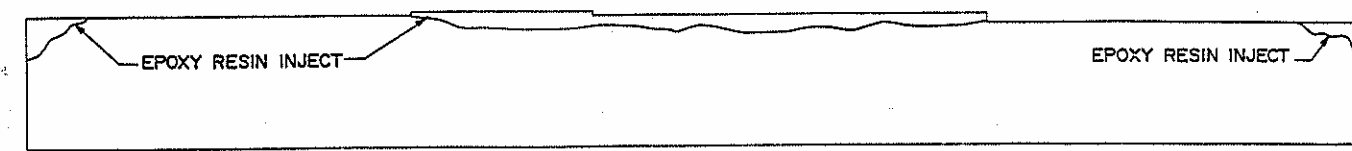
DRAWN BY DAP DATE 5-92  FLORENCE & HUTCHESON, INC.  
CHECKED BY J. F. M. DATE 5-92 CONSULTING ENGINEERS RALEIGH, N.C.



PLAN OF CAP



WEST ELEVATION



EAST ELEVATION

CRACKS IN EXISTING BENT I CAP

NOTES

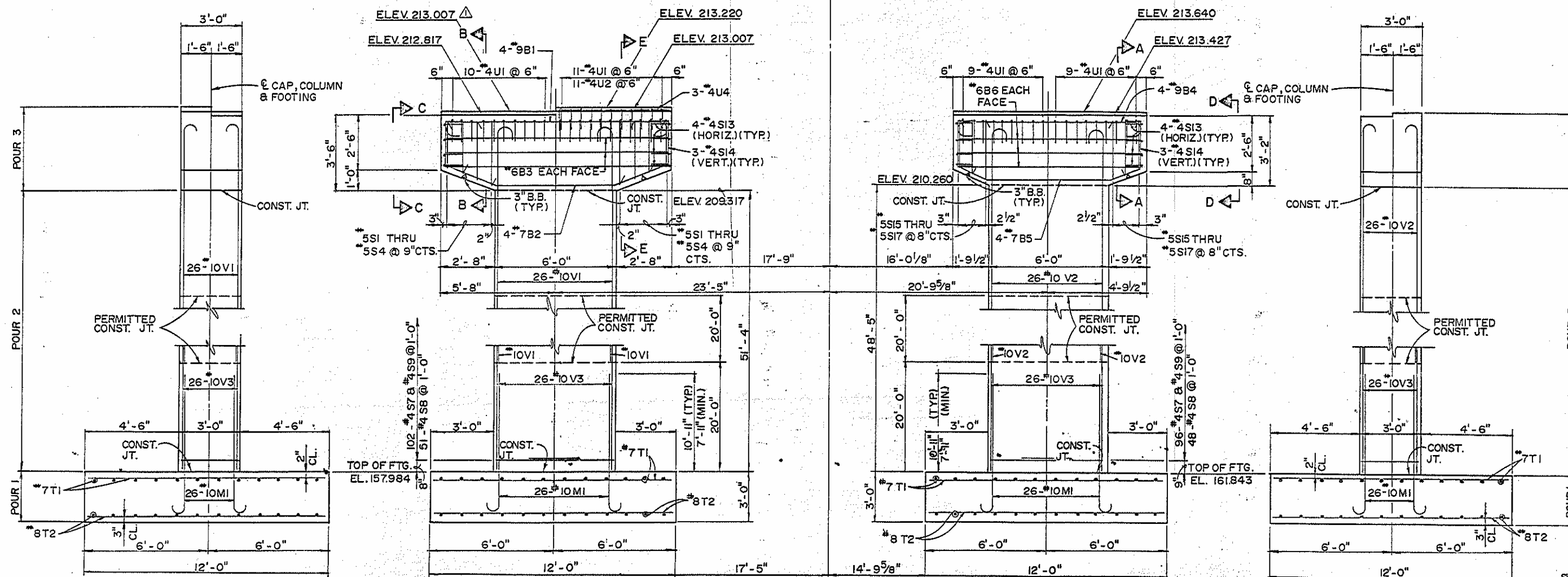
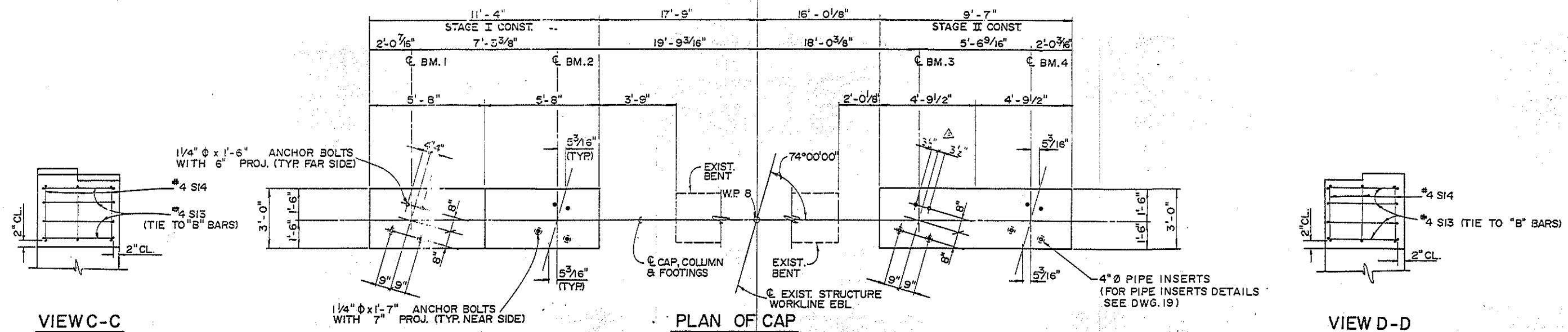
1. FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.
2. LOCATIONS OF CRACKS ARE APPROXIMATE AND SHALL BE EXAMINED MORE CLOSELY BY THE FIELD ENGINEER DURING CONSTRUCTION.

| BILL OF MATERIAL      |             |
|-----------------------|-------------|
| EPOXY RESIN INJECTION | 38 LIN. FT. |

PROJECT No. 8.2402101  
 WAKE COUNTY  
 STATION: 32+98.75 -L-

| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH |    |      |     |    |              |
|--------------------------------------------------------------------|----|------|-----|----|--------------|
| SUBSTRUCTURE<br>REPAIR DETAILS<br>(EXISTING BENT I)                |    |      |     |    |              |
| REVISIONS                                                          |    |      |     |    | SHEET NO.    |
| NO.                                                                | BY | DATE | NO. | BY | DATE         |
| 1                                                                  |    |      | 3   |    |              |
| 2                                                                  |    |      | 4   |    |              |
|                                                                    |    |      |     |    | TOTAL SHEETS |
|                                                                    |    |      |     |    | 332          |

|                         |                   |
|-------------------------|-------------------|
| DRAWN BY: <u>2410</u>   | DATE: <u>9-92</u> |
| CHECKED BY: <u>2410</u> | DATE: <u>9-92</u> |



## NOTES

1. HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
2. FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.
3. THE TOP SURFACE AREAS OF THE BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
4. STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
5. FOR SUBSTRUCTURE SCOUR PROTECTION, SEE SPECIAL PROVISION.

PROJECT No. 8.2402101  
WAKE COUNTY  
 STATION: 32+98.75 -L-

WAKE COUNTY

STATION: 32+98.75 -L-

SHT 1 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
BENT 2

|           |        |         |     |    |      |              |  |
|-----------|--------|---------|-----|----|------|--------------|--|
| MAY       |        |         |     |    |      | 1992         |  |
| REVISIONS |        |         |     |    |      | SHEET NO.    |  |
| NO.       | BY     | DATE    | NO. | BY | DATE | 5-314        |  |
| △         | F&H    | 2-5-93  | 3   |    |      | TOTAL SHEETS |  |
| △         | L.I.B. | 7-21-93 | 4   |    |      | 332          |  |

DRAWN BY ALG DATE 4-92  
CHECKED BY ETH DATE 5-92

 FLORENCE & HUTCHESON, INC.  
CONSULTING ENGINEERS RALEIGH, N.C.

DATE 4.92

DATE 5-9-

FLORENCE & HUTCHESON, INC.  
CONSULTING ENGINEERS      RALEIGH, N.C.

CONSULTING ENGINEERS      RALEIGH, N.C.

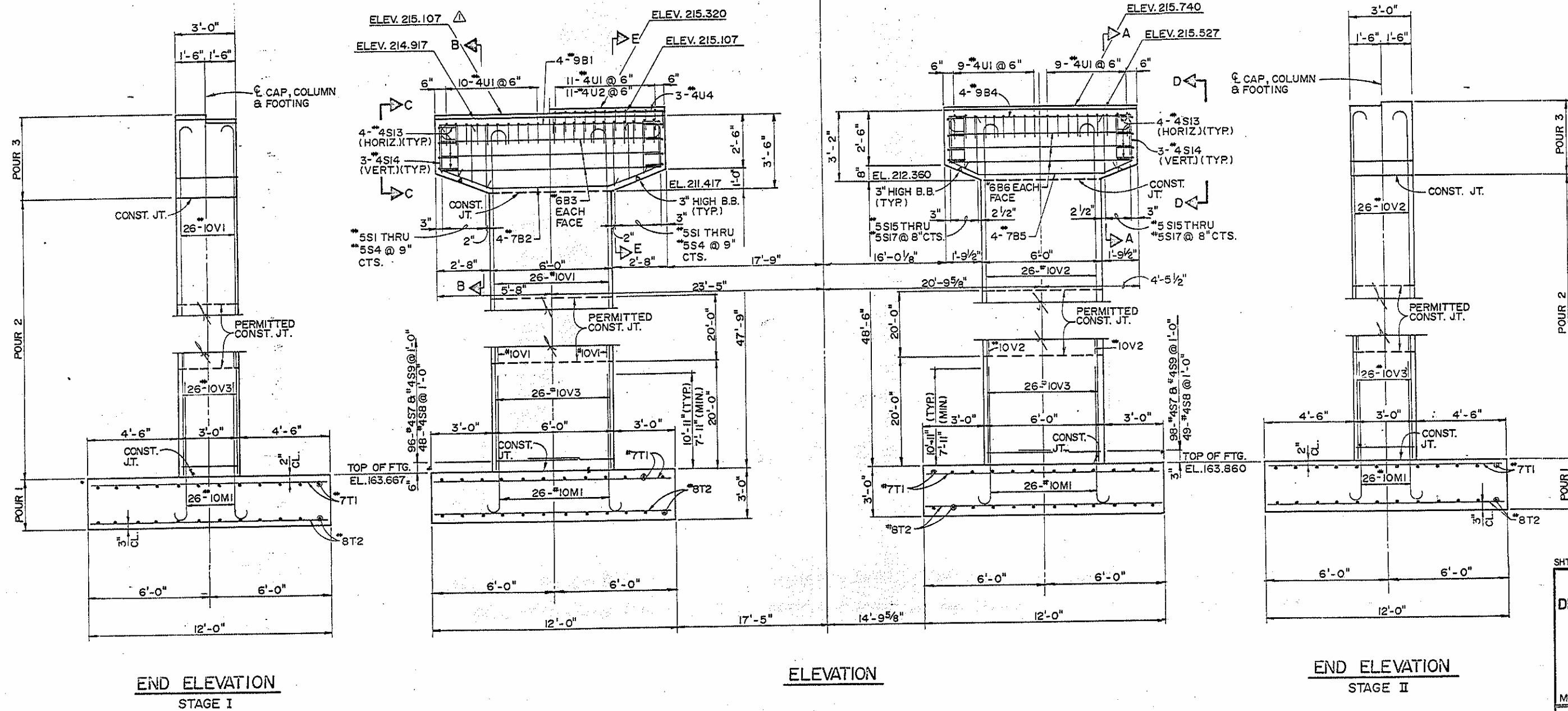
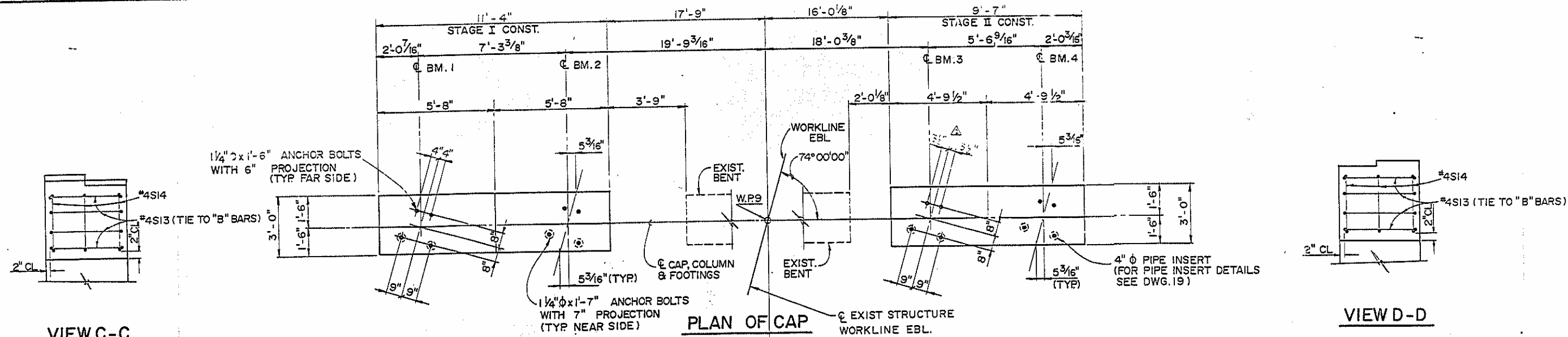
△ REVISED BEAM SEAT ELEV.

△ REVISED ANCHOR BOLT CAGE. J BY: N.K.P. 7-21-93

DWG. 24







- NOTES**
1. HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
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PROJECT No. 8.2402101

WAKE COUNTY

STATION: 32 + 98.75 - 1<sup>L</sup>

SHT. 1 OF 2

| STATE OF NORTH CAROLINA      |        |         |     |    |                  |
|------------------------------|--------|---------|-----|----|------------------|
| DEPARTMENT OF TRANSPORTATION |        |         |     |    |                  |
| RALEIGH                      |        |         |     |    |                  |
| SUBSTRUCTURE BENT 3          |        |         |     |    |                  |
| MAY 1992                     |        |         |     |    |                  |
| REVISIONS                    |        |         |     |    |                  |
| NO.                          | BY     | DATE    | NO. | BY | DATE             |
| 1                            | FSH    | 2-5-93  | 3   |    |                  |
| 2                            | L.I.B. | 7-21-93 | 4   |    |                  |
| SHEET NO. 5-316              |        |         |     |    | TOTAL SHEETS 332 |

DRAWN BY JAS DATE 5/92

CHECKED BY J. V. DATE 5-92

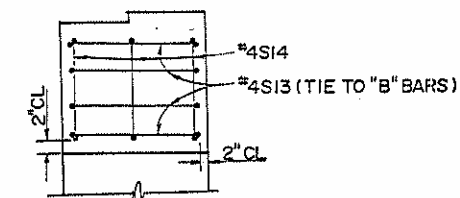
FLORENCE & HUTCHESON, INC.

CONSULTING ENGINEERS RALEIGH, N.C.

△ REVISED BEAM SEAT ELEV.

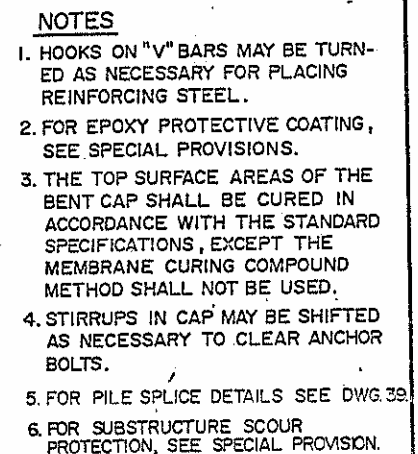
△ REVISED ANCHOR BOLT GAGE. J BY: N.K.R. 7-21-93 DWG. 26





PLAN OF CAP & EXISTING STRUCTURE  
WORKLINE EBL.

VIEW D-D



PROJECT No. 8.2402102  
WAKE COUNTY  
STATION: 32 + 98.75 -L<sup>1</sup>

SHT. 1 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
BENT 4

|          |        |         |     |    |      |  |              |
|----------|--------|---------|-----|----|------|--|--------------|
| MAY      |        |         |     |    |      |  | 1992         |
| REVISONS |        |         |     |    |      |  | SHEET NO.    |
| NO.      | BY     | DATE    | NO. | BY | DATE |  | 5-318        |
| 1        | FBM    | 2-5-93  | 3   |    |      |  | TOTAL SHEETS |
| 2        | L.L.B. | 7-21-93 | 4   |    |      |  | 332          |

NOTE: BATTER PILES 1 1/2" TO 12" SLOPE  
DIAGONALLY. SEE PLAN OF FOOTING.

△ REVISED BEAM SEAT ELEV.

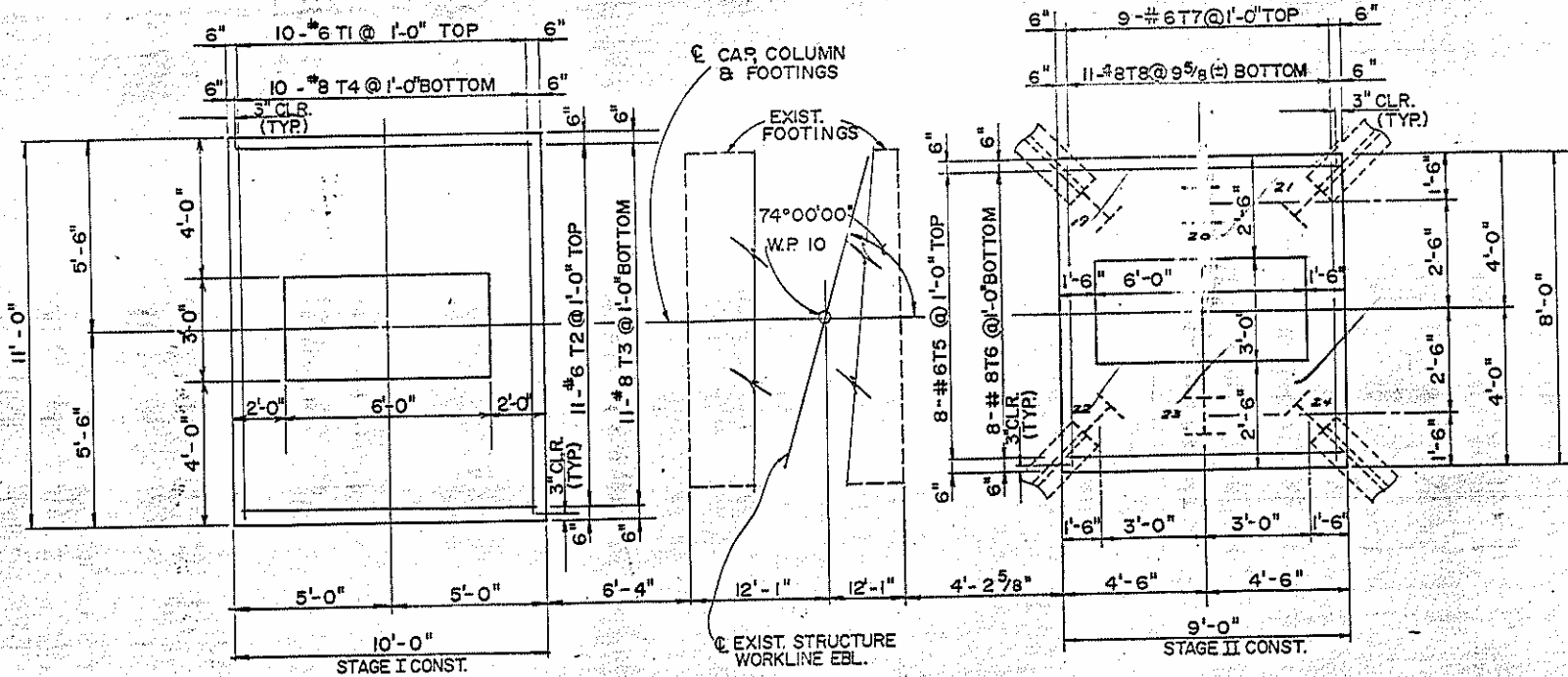
2 REVISED ANCHOR BOLT GAGE. J BY: N.K.P. 7-21-93

DWG. 28

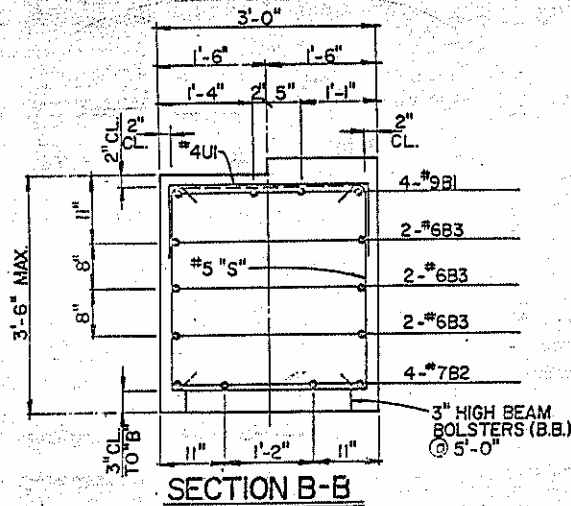
DRAWN BY ALG DATE 4-92  
CHECKED BY C. Flinn DATE 5-92

 FLORENCE & HUTCHESON, INC.  
CONSULTING ENGINEERS RALEIGH, N.C.

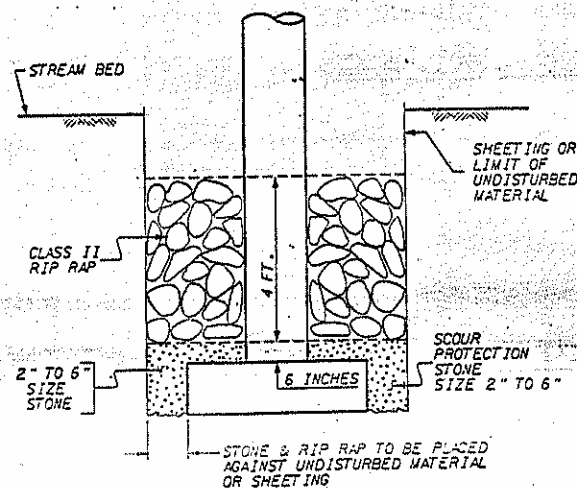




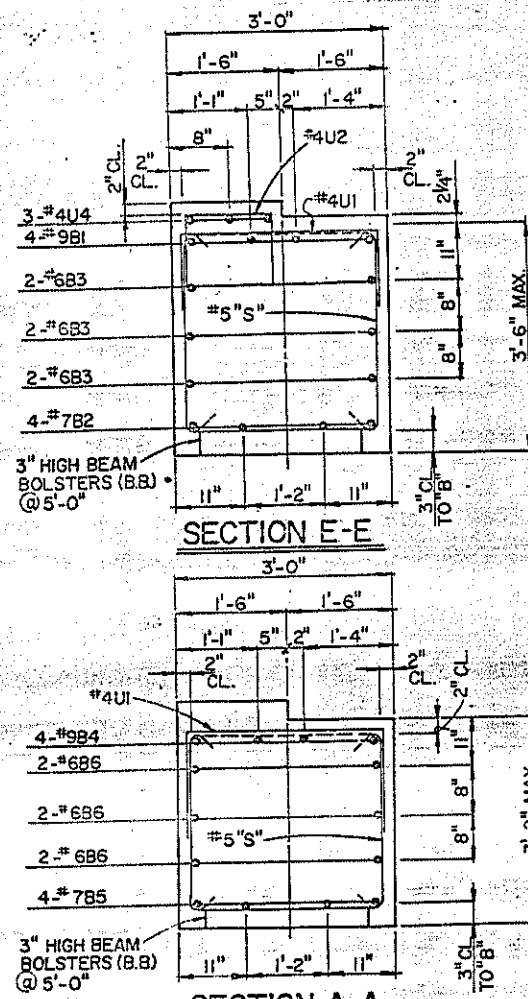
PLAN OF FOOTING



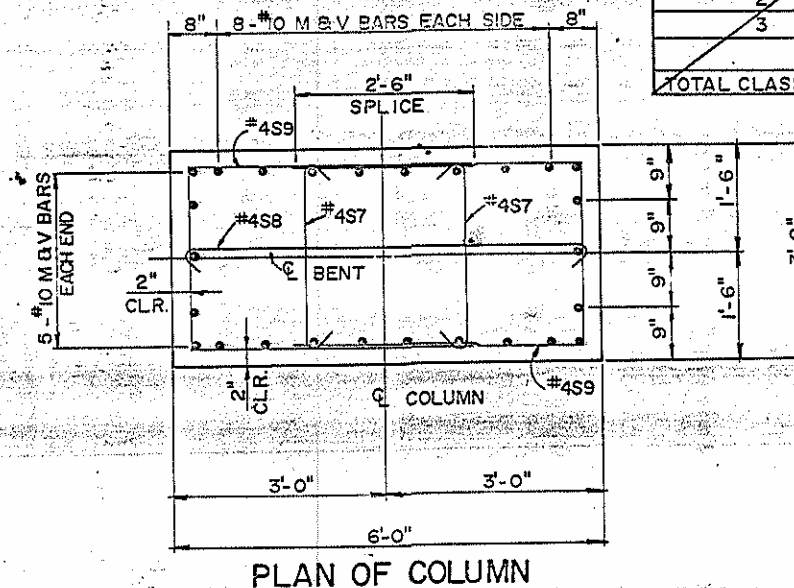
SECTION B-B



PIER SCOUR PROTECTION



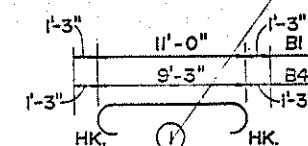
SECTION A-A



PLAN OF COLUMN

BAR TYPES  
ALL BAR DIMENSIONS ARE OUT TO OUT

|       |     |
|-------|-----|
| 2'-3" | S14 |
| 2'-8" | S13 |
| 5'-4" | U4  |
| 2'-8" | S9  |
| 2'-8" | U1  |
| 1'-2" | U2  |



|    |        |       |
|----|--------|-------|
| M1 | 13'-8" | 1'-5" |
| M2 | 9'-11" | 1'-5" |
| V1 | 39'-9" | 1'-5" |
| V2 | 36'-4" | 1'-5" |

|    |        |       |        |
|----|--------|-------|--------|
| S7 | 4 1/2" | 2'-8" | 4 1/2" |
| S8 | 4 1/2" | 5'-8" | 4 1/2" |

| REINFORCING STEEL     | STAGE I | STAGE II |
|-----------------------|---------|----------|
| 8627                  | 7337    |          |
| FOUNDATION EXCAVATION | L.S.    | 20 C.Y.  |
| HP 12 x 53 PILES      | NO. 6   | 60       |
| DIVISION OF CONCRETE  |         |          |
| POUR NUMBER           |         |          |
| CU. YD.               | STAGE I | STAGE II |
| 1                     | 12.2    | 8.0      |
| 2                     | 24.4    | 22.3     |
| 3                     | 4.4     | 3.4      |
| TOTAL CLASS 'A' CONC. | 41.0    | 33.7     |

| HP 12 x 53 STEEL PILES | NO.  | LENGTH |
|------------------------|------|--------|
| 19                     | 12.6 |        |
| 20                     | 13.1 |        |
| 21                     | 11.8 |        |
| 22                     | 11.3 |        |
| 23                     | 12.0 |        |
| 24                     | 12.2 |        |

BILL OF MATERIAL

BENT 4

STAGE I CONST.

| BAR | NO. | SIZE | TYPE | LENGTH  | WEIGHT |
|-----|-----|------|------|---------|--------|
| B1  | 4   | 9    | 1    | 13'-6"  | 164    |
| B2  | 4   | 7    | 3    | 11'-4"  | 93     |
| B3  | 6   | 6    | STR. | 11'-0"  | 99     |
| M1  | 26  | 10   | 2    | 15'-3"  | 1687   |
| S1  | 5   | 5    | 6    | 8'-1"   | 17     |
| S2  | 2   | 5    | 6    | 8'-9"   | 18     |
| S3  | 2   | 5    | 6    | 9'-3"   | 19     |
| S4  | 2   | 5    | 6    | 9'-9"   | 20     |
| S7  | 74  | 4    | 4    | 3'-5"   | 169    |
| S8  | 37  | 4    | 4    | 6'-5"   | 159    |
| S9  | 74  | 4    | 5    | 10'-10" | 536    |
| S13 | 8   | 4    | 5    | 4'-8"   | 25     |
| S14 | 6   | 4    | 5    | 4'-3"   | 17     |
| T1  | 10  | 6    | STR. | 10'-6"  | 158    |
| T2  | 11  | 6    | STR. | 9'-6"   | 157    |
| T3  | 11  | 8    | STR. | 9'-6"   | 279    |
| T4  | 10  | 8    | STR. | 10'-6"  | 280    |
| U1  | 21  | 4    | 5    | 4'-8"   | 66     |
| U2  | 11  | 4    | 5    | 3'-2"   | 23     |
| U4  | 3   | 4    | 5    | 7'-4"   | 15     |
| V1  | 26  | 10   | 2    | 4'-2"   | 4606   |

STAGE II CONST.

|     |    |    |      |         |      |
|-----|----|----|------|---------|------|
| B4  | 4  | 9  | 1    | 11'-9"  | 160  |
| B5  | 4  | 7  | 3    | 9'-4"   | 76   |
| B6  | 6  | 6  | STR. | 9'-3"   | 83   |
| M2  | 26 | 10 | 2    | 11'-4"  | 1268 |
| S7  | 66 | 4  | 4    | 3'-5"   | 151  |
| S8  | 33 | 4  | 4    | 6'-5"   | 141  |
| S9  | 66 | 4  | 5    | 10'-10" | 478  |
| S13 | 8  | 4  | 5    | 4'-8"   | 25   |
| S14 | 6  | 4  | 5    | 4'-3"   | 17   |
| S15 | 2  | 5  | 6    | 8'-1"   | 17   |
| S16 | 2  | 5  | 6    | 8'-7"   | 18   |
| S17 | 2  | 5  | 6    | 9'-1"   | 19   |
| T5  | 8  | 6  | STR. | 8'-6"   | 102  |
| T6  | 8  | 8  | STR. | 8'-6"   | 182  |
| T7  | 9  | 6  | STR. | 7'-6"   | 101  |
| T8  | 11 | 8  | STR. | 7'-6"   | 220  |
| U1  | 18 | 4  | 5    | 4'-8"   | 56   |
| V2  | 26 | 10 | 2    | 37'-9"  | 4223 |

PROJECT No. 8.2402101

WAKE COUNTY

STATION: 32 + 98.75 - L

SHT. 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
BENT 4

| NO. | BY | DATE | NO. | BY | DATE |
|-----|----|------|-----|----|------|
| 1   |    |      | 3   |    |      |
| 2   |    |      | 4   |    |      |

1992

SHEET NO.

5-319

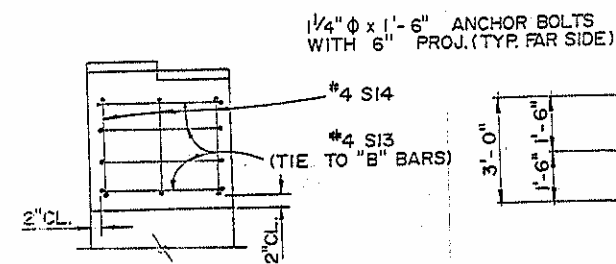
TOTAL SHEETS

332

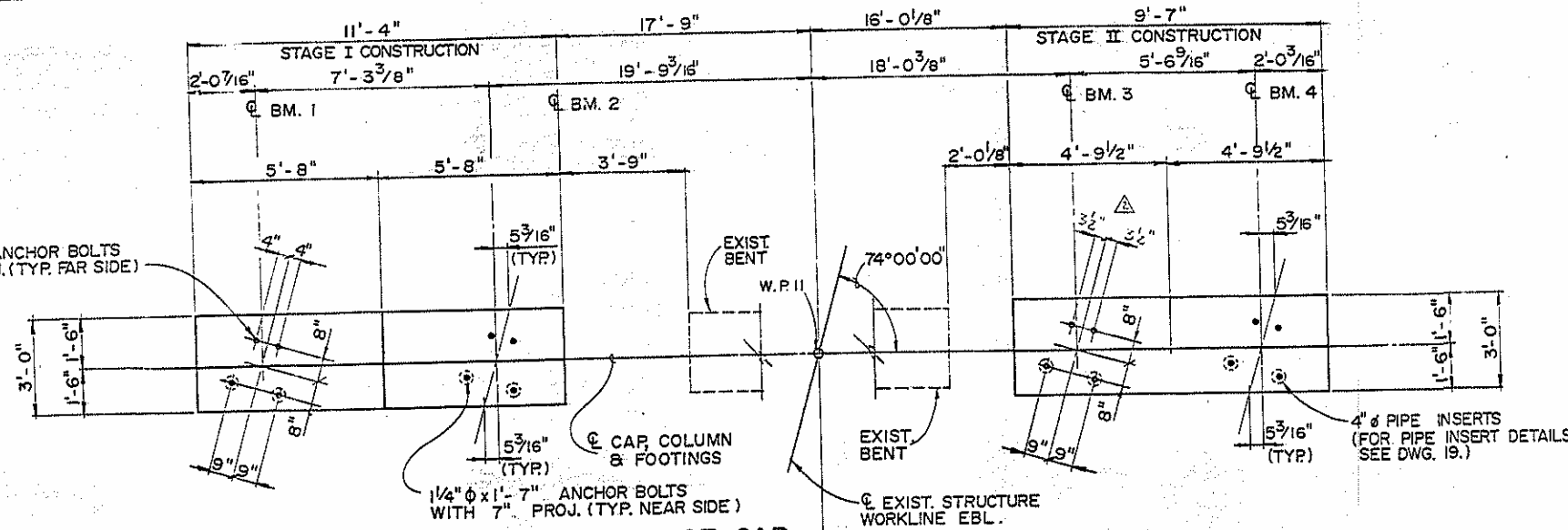
DWG. 29

DRAWN BY DAP DATE 5-92  
CHECKED BY J. M. DATE 5-92  
FLORENCE B. HUTCHESON, INC.  
CONSULTING ENGINEERS RALEIGH, N.C.

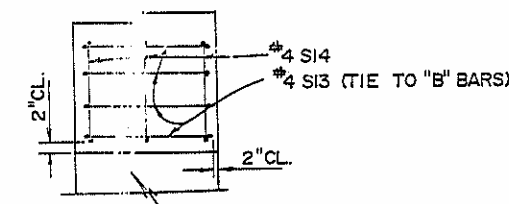




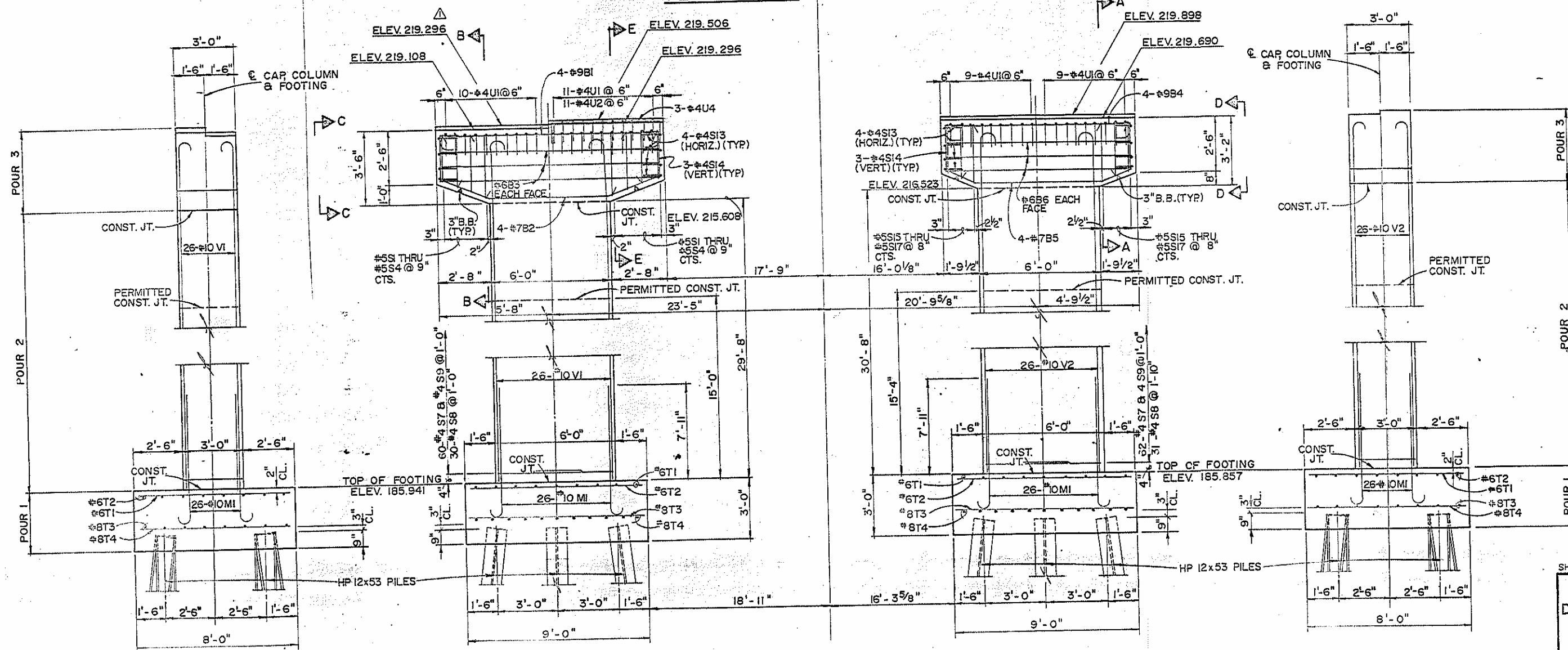
VIEW C-C



PLAN OF CAP



VIEW D-D



END ELEVATION  
STAGE I

ELEVATION

END ELEVATION  
STAGE II

NOTES

1. HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
2. FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.
3. THE TOP SURFACE AREAS OF THE BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
4. STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
5. FOR PILE SPLICE DETAILS SEE DWG. 39.

PROJECT NO. 8.2402101

WAKE COUNTY

STATION: 32 + 98.75 - L1-

SHT. 1 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
BENT 5

| REVISIONS |        |         |     |    |      | SHEET NO.    |
|-----------|--------|---------|-----|----|------|--------------|
| NO.       | BY     | DATE    | NO. | BY | DATE |              |
| 1         | FBH    | 2-15-93 | 3   |    |      | 5-322        |
| 2         | L.I.S. | 7-21-93 | 4   |    |      | TOTAL SHEETS |
|           |        |         |     |    |      | 322          |

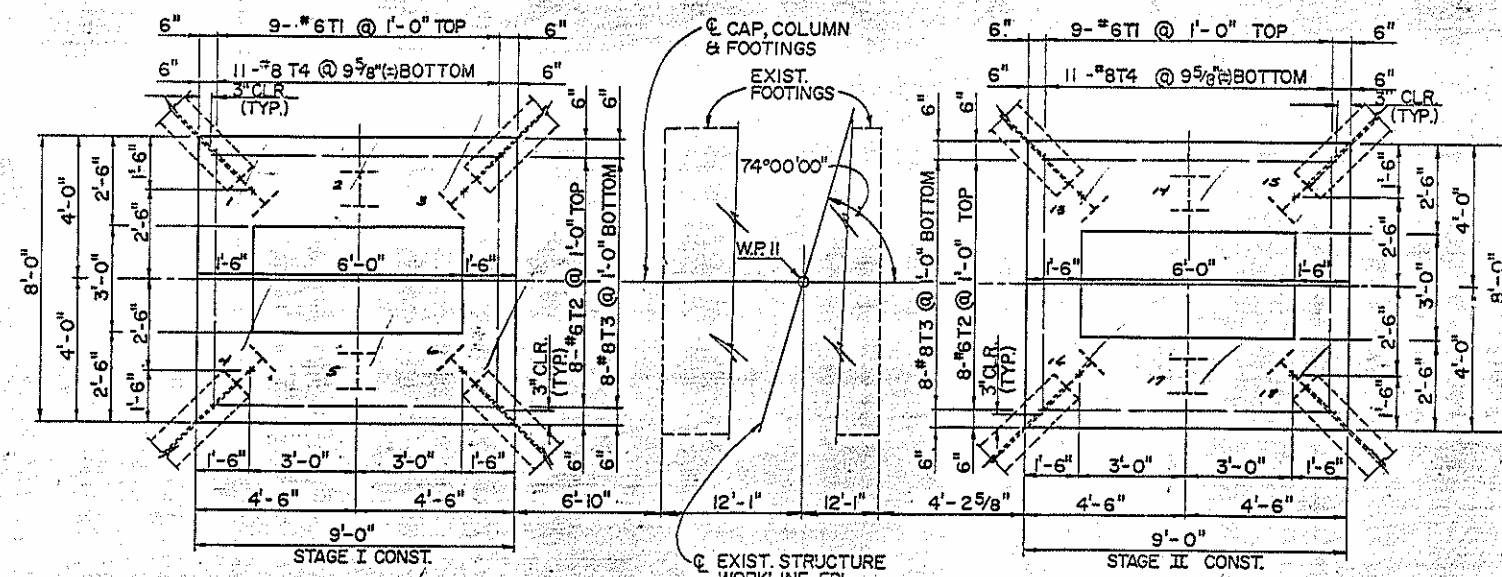
NOTE: BATTER PILES 1/2" TO 12" SLOPE DIAGONALLY, SEE PLAN OF FOOTING.

△ REVISED BEAM SEAT ELEV.

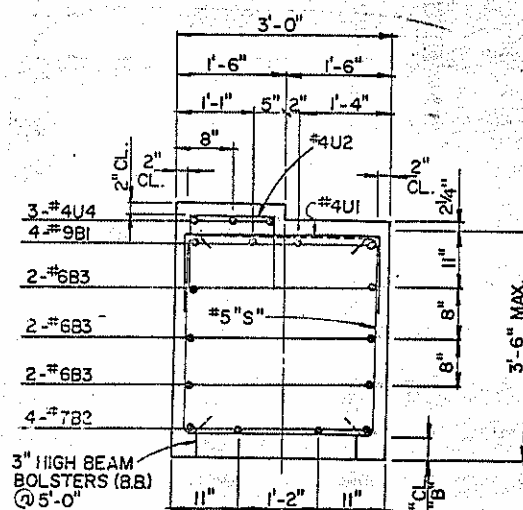
△ REVISED ANCHOR BOLT GAGE.

N.K.P.  
BY: 7-21-93  
DWG. 30

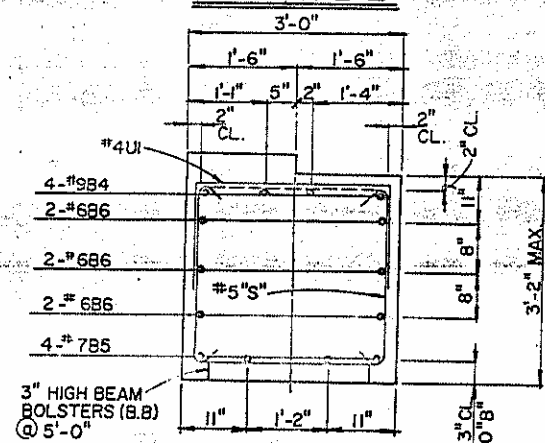
DRAWN BY: DAP DATE: 5-92  
CHECKED BY: J. W. DATE: 5-92  
FLORENCE & HUTCHESON, INC.  
CONSULTING ENGINEERS RALEIGH, N.C.



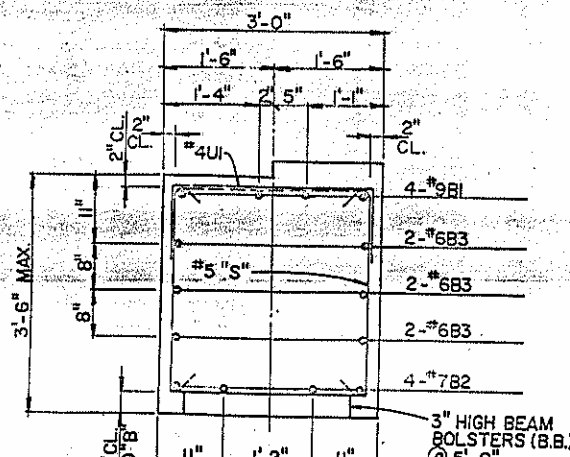
PLAN OF FOOTING



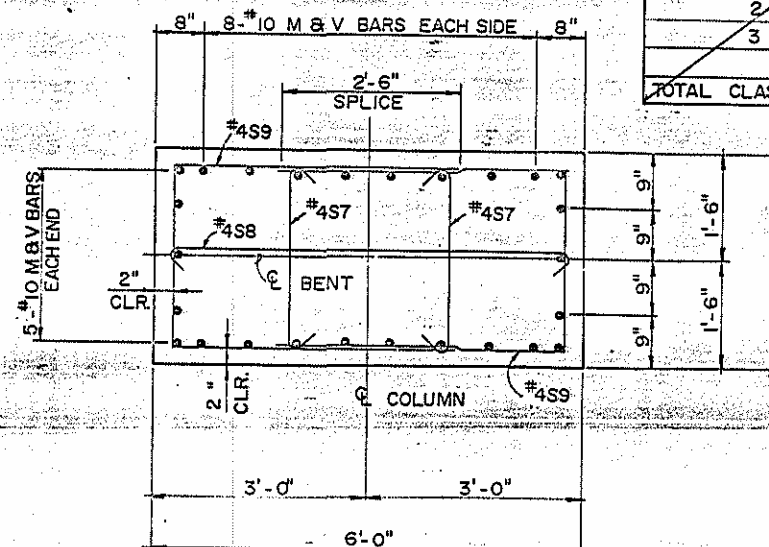
SECTION E-E



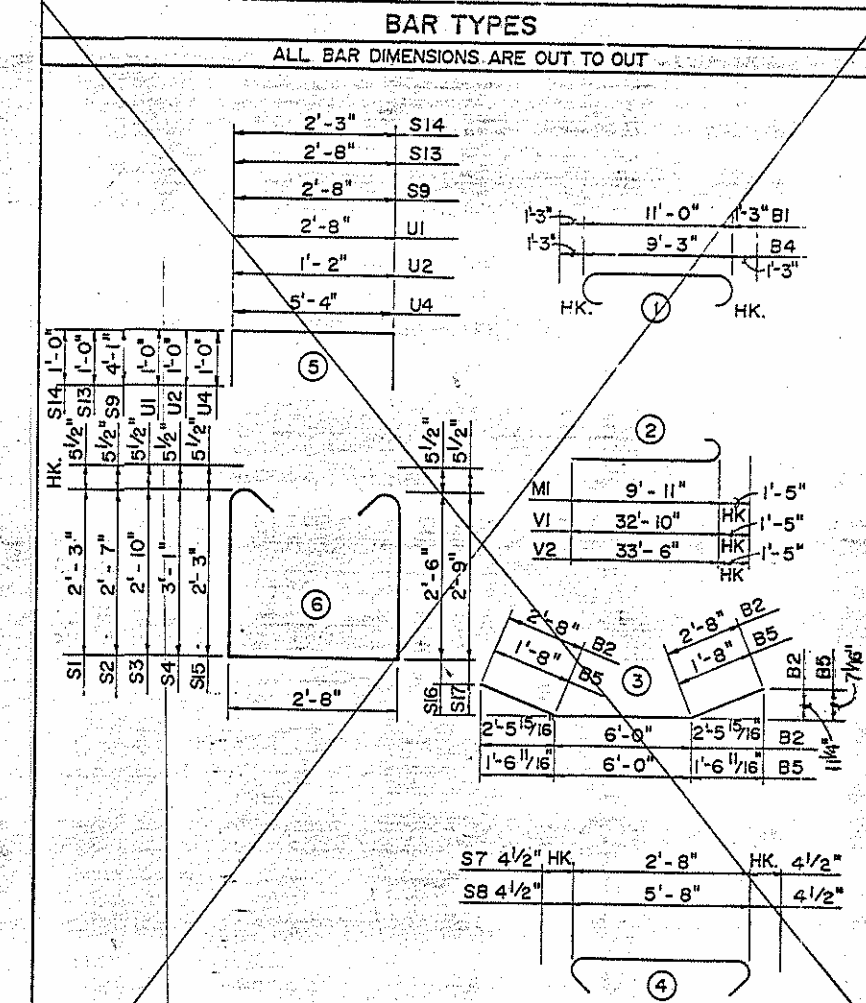
SECTION A-A



SECTION B-B



PLAN OF COLUMN



BILL OF MATERIAL

BENT 5

STAGE I CONST.

| BAR | NO. | SIZE | TYPE | LENGTH  | WEIGHT |
|-----|-----|------|------|---------|--------|
| B1  | 4   | 9    | I    | 13'-6"  | 184    |
| B2  | 4   | 7    | 3    | 11'-4"  | 93     |
| B3  | 6   | 6    | STR. | 11'-0"  | 99     |
| M1  | 26  | 10   | 2    | 11'-4"  | 1268   |
| S1  | 2   | 5    | 6    | 8'-1"   | 17     |
| S2  | 2   | 5    | 6    | 8'-9"   | 18     |
| S3  | 2   | 5    | 6    | 9'-3"   | 19     |
| S4  | 2   | 5    | 6    | 9'-9"   | 20     |
| S7  | 60  | 4    | 4    | 3'-5"   | 137    |
| S8  | 30  | 4    | 4    | 6'-5"   | 129    |
| S9  | 60  | 4    | 5    | 10'-10" | 434    |
| S13 | 8   | 4    | 5    | 4'-8"   | 25     |
| S14 | 6   | 4    | 5    | 4'-3"   | 17     |
| T1  | 9   | 6    | STR. | 7'-6"   | 101    |
| T2  | 8   | 6    | STR. | 8'-6"   | 102    |
| T3  | 8   | 8    | STR. | 8'-6"   | 182    |
| T4  | 8   | 8    | STR. | 7'-6"   | 220    |
| U1  | 21  | 4    | 5    | 4'-8"   | 66     |
| U2  | 11  | 4    | 5    | 3'-2"   | 23     |
| U4  | 3   | 4    | 5    | 7'-4"   | 15     |
| V1  | 26  | 10   | 2    | 34'-3"  | 3832   |

STAGE II CONST.

|     |    |    |      |         |      |
|-----|----|----|------|---------|------|
| B4  | 4  | 9  | I    | 11'-9"  | 160  |
| B5  | 4  | 7  | 3    | 9'-4"   | 76   |
| B6  | 6  | 6  | STR. | 9'-3"   | 83   |
| M2  | 26 | 10 | 2    | 11'-4"  | 1268 |
| S5  | 82 | 4  | 4    | 3'-5"   | 142  |
| S6  | 31 | 4  | 4    | 8'-5"   | 133  |
| S9  | 62 | 4  | 5    | 10'-10" | 449  |
| S15 | 8  | 4  | 5    | 4'-8"   | 25   |
| S16 | 6  | 4  | 5    | 4'-3"   | 17   |
| S17 | 2  | 5  | 6    | 8'-1"   | 17   |
| S18 | 2  | 5  | 6    | 8'-7"   | 18   |
| S19 | 2  | 5  | 6    | 9'-1"   | 19   |
| T5  | 9  | 6  | STR. | 7'-6"   | 101  |
| T6  | 8  | 6  | STR. | 8'-6"   | 102  |
| T7  | 8  | 8  | STR. | 8'-6"   | 182  |
| T8  | 8  | 8  | STR. | 7'-6"   | 220  |
| U3  | 13 | 4  | 5    | 4'-8"   | 56   |
| U5  | 26 | 10 | 2    | 34'-11" | 3506 |

|                         | STAGE I | STAGE II |
|-------------------------|---------|----------|
| REINFORCING STEEL       | 7.001   | 6.974    |
| FOUNDATION EXCAVATION   | 30 CY.  | 30 CY.   |
| HP 12x53 PILES NO. L.F. | 6/90    | 6/90     |
| DIVISION OF CONCRETE    |         |          |
|                         | STAGE I | STAGE II |
| POUR NUMBER             | CU. YD. | CU. YD.  |
| 1                       | 8.0     | 8.0      |
| 2                       | 19.8    | 20.4     |
| 3                       | 4.4     | 3.4      |
| TOTAL CLASS "A" CONC.   | 32.2    | 31.8     |

|                      |      |
|----------------------|------|
| HP 12x53 Steel Piles |      |
| 1                    | 16.8 |
| 2                    | 17.0 |
| 3                    | 20.5 |
| 4                    | 12.5 |
| 5                    | 16.7 |
| 6                    | 20.3 |
| 12                   | 16.0 |
| 14                   | 22.7 |
| 15                   | 22.2 |
| 16                   | 16.0 |
| 17                   | 17.2 |
| 18                   | 23.1 |

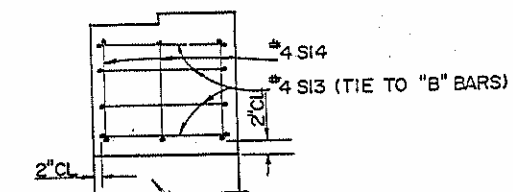
PROJECT NO. 8.2402101

WAKE COUNTY

STATION: 32+98.75-1'

SHT 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
SUBSTRUCTURE  
BENT 5  
MAY 1992  
REVISIONS  
NO. BY DATE NO. BY DATE  
1 3 2 4  
SHEET NO. 5-321  
TOTAL SHEETS 552



PLAN OF CAP

VIEW D-D



ELEVATION

END ELEVATION  
STAGE II

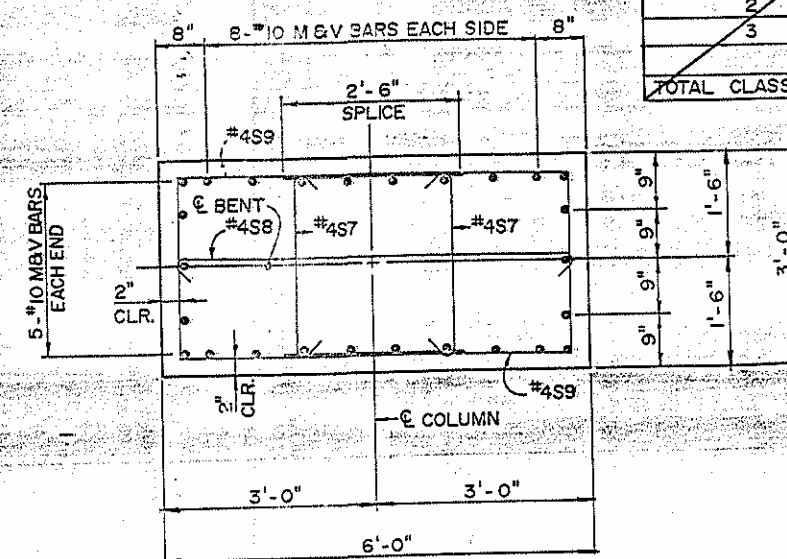
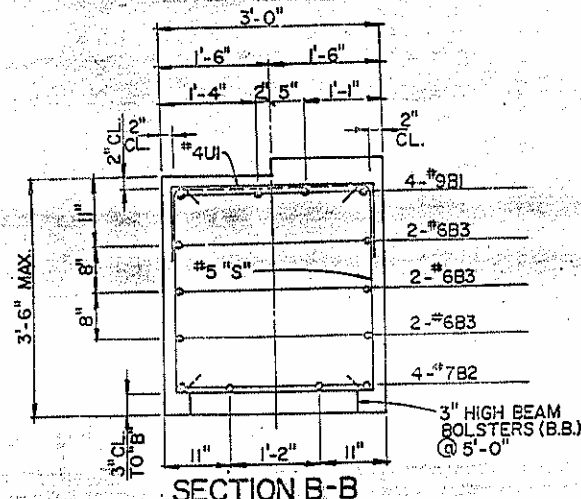
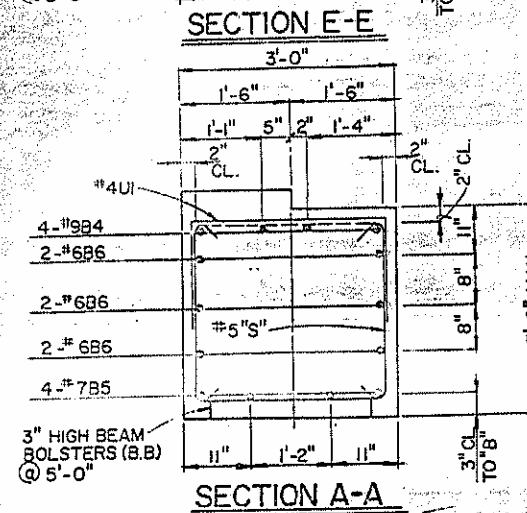
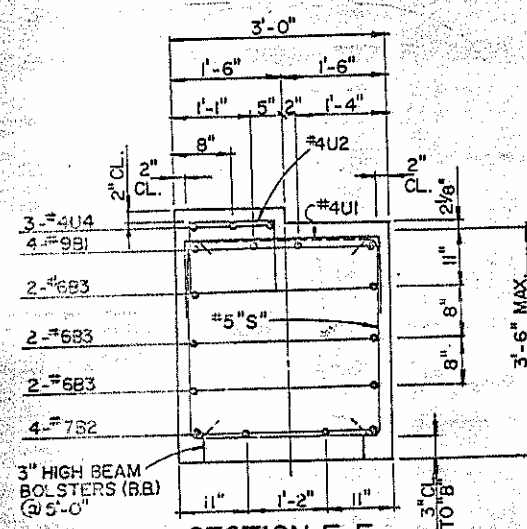
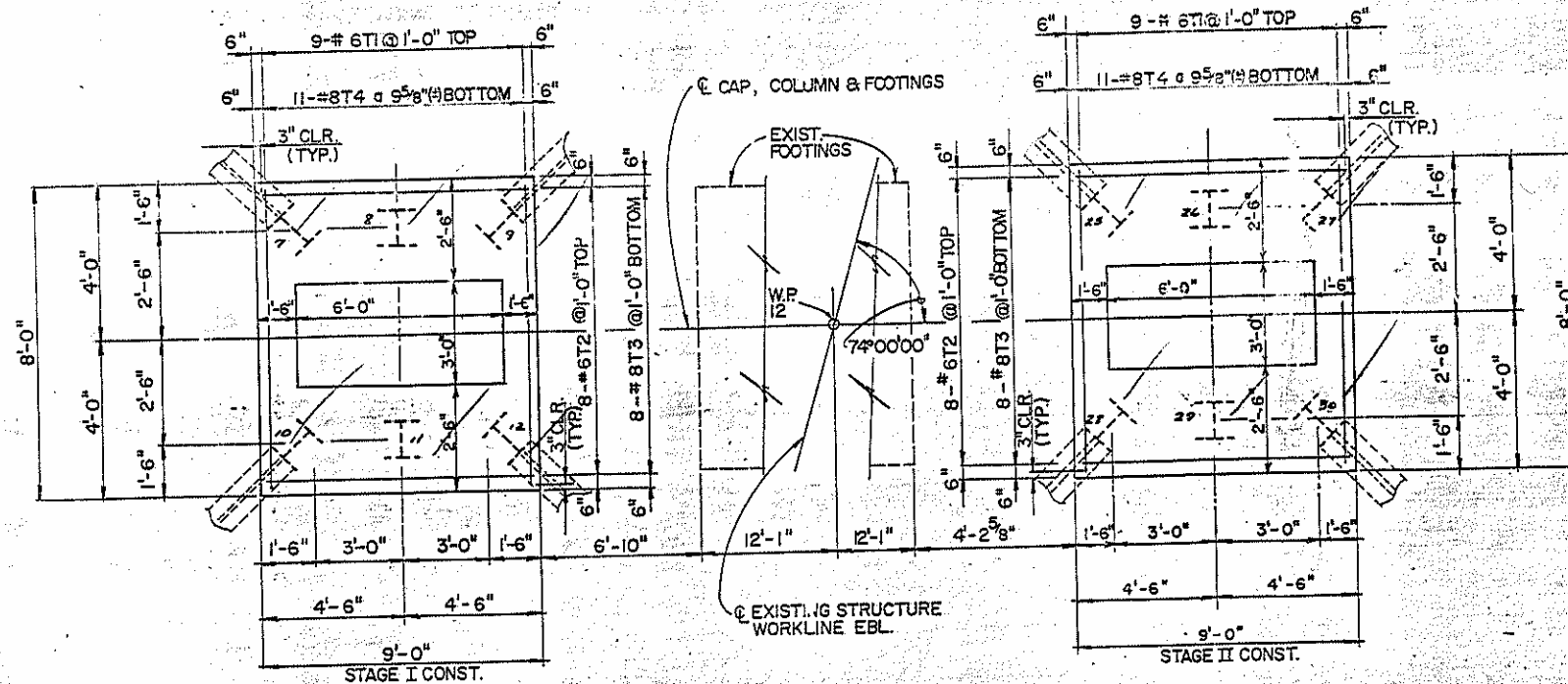
1. HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
2. FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.
3. THE TOP SURFACE AREAS OF THE BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
4. STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
5. FOR PIPE SPlice DETAILS SEE DWG. 39

|           |        |         |     |    |      |                              |
|-----------|--------|---------|-----|----|------|------------------------------|
| MAY       |        |         |     |    |      | 1992                         |
| REVISIONS |        |         |     |    |      | SHEET NO.                    |
| NO.       | BY     | DATE    | NO. | BY | DATE | 5-322<br>TOTAL SHEETS<br>332 |
| 1         | F.H.H. | 2-5-93  | 3   |    |      |                              |
| 2         | L.I.B. | 7-21-93 | 4   |    |      |                              |

▲ REVISED BEAM SEAT ELEV.  
 ▲ REVISED ANCHOR BOLT GAGE. J BY: N.K.P.  
 7-21-93  
 DWG. 32

DRAWN BY SLW DATE MAY 92  
 CHECKED BY R. Hsu DATE 5-92

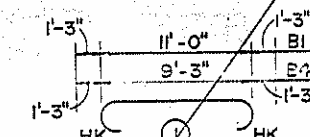




## BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT

|       |     |
|-------|-----|
| 2'-3" | S14 |
| 2'-8" | S13 |
| 5'-4" | U4  |
| 2'-8" | S9  |
| 2'-8" | U1  |
| 1'-2" | U2  |



|    | HK     | 3/4  | 1'-0" |
|----|--------|------|-------|
| S1 | 2'-3"  | 5/2" | 1'-0" |
| S2 | 2'-7"  | 5/2" | 1'-0" |
| S3 | 2'-10" | 5/2" | 1'-0" |
| S4 | 3'-1"  | 5/2" | 1'-0" |
| NE | 2'-3"  | 5/2" | 1'-0" |

|    |        |    |       |
|----|--------|----|-------|
| M1 | 9'-11" | HK | 1'-5" |
| VI | 26'-9" |    | 1'-5" |
| V2 | 27'-3" |    | 1'-5" |

| HK        |       | HK     |  |
|-----------|-------|--------|--|
| S7 4 1/2" | 2'-8" | 4 1/2" |  |
| S8 4 1/2" | 5'-8" | 4 1/2" |  |

|                          |            |            |
|--------------------------|------------|------------|
|                          | STAGE I    | STAGE II   |
| REINFORCING STEEL        | 6180 LBS.  | 6134 LBS.  |
| FOUNDATION EXCAVATION    | 25 CU.YDS. | 25 CU.YDS. |
| HP 12 X 53 PILES NO./LF. | 6 @ 150    | 6 @ 210    |
| DIVISION OF CONCRETE     |            |            |
|                          | STAGE I    | STAGE II   |
| POUR NUMBER              | CU. YD.    | CU. YD.    |
| 1                        | 8.0        | 8.0        |
| 2                        | 15.7       | 16.3       |
| 3                        | 4.4        | 3.4        |
| TOTAL CLASS 'A' CONC.    | 28.1       | 27.7       |

| NM 12 x 20 STEEL PIPE |        |
|-----------------------|--------|
| NO.                   | LENGTH |
| 7                     | 20.7   |
| 8                     | 28.4   |
| 9                     | 25.6   |
| 10                    | 26.6   |
| 11                    | 26.8   |
| 12                    | 27.4   |
| 25                    | 27.0   |
| 26                    | 27.3   |
| 27                    | 27.0   |
| 28                    | 33.4   |
| 29                    | 27.8   |
| 30                    | 27.2   |

## BILL OF MATERIAL

| BENT 6          |     |      |      |         |        |
|-----------------|-----|------|------|---------|--------|
| STAGE I CONST.  |     |      |      |         |        |
| SAR             | NO. | SIZE | TYPE | LENGTH  | WEIGHT |
| B1              | 4   | 9    | 1    | 13'-5"  | 184    |
| B2              | 4   | 7    | 3    | 11'-4"  | 93     |
| B3              | 6   | 6    | STR. | 11'-3"  | 99     |
| M1              | 26  | 10   | 2    | 11'-4"  | 1268   |
| S1              | 2   | 5    | 6    | 8'-1"   | 17     |
| S2              | 2   | 5    | 6    | 8'-9"   | 18     |
| S3              | 2   | 5    | 6    | 9'-3"   | 19     |
| S4              | 2   | 5    | 6    | 9'-9"   | 20     |
| S7              | 48  | 4    | 4    | 3'-5"   | 110    |
| S8              | 24  | 4    | 4    | 6'-5"   | 103    |
| S9              | 48  | 4    | 5    | 10'-10" | 347    |
| SI3             | 8   | 4    | 5    | 4'-8"   | 25     |
| SI4             | 6   | 4    | 5    | 4'-3"   | 17     |
| T1              | 9   | 6    | STR. | 7'-6"   | 101    |
| T2              | 8   | 6    | STR. | 8'-6"   | 102    |
| T3              | 8   | 8    | STR. | 8'-6"   | 182    |
| T4              | 11  | 8    | STR. | 7'-6"   | 220    |
| U1              | 21  | 4    | 5    | 4'-8"   | 66     |
| U2              | 11  | 4    | 5    | 3'-2"   | 23     |
| U4              | 3   | 4    | 5    | 7'-4"   | 15     |
| VI              | 26  | 10   | 2    | 28'-2"  | 3151   |
| STAGE II CONST. |     |      |      |         |        |
| B4              | 4   | 9    | 1    | 11'-9"  | 168    |
| B5              | 4   | 7    | 3    | 9'-4"   | 76     |
| B6              | 6   | 6    | STR. | 9'-3"   | 83     |
| M1              | 26  | 10   | 2    | 11'-4"  | 1268   |
| S7              | 58  | 4    | 4    | 3'-5"   | 114    |
| S8              | 25  | 4    | 4    | 6'-5"   | 107    |
| S9              | 50  | 4    | 5    | 10'-10" | 362    |
| SI3             | 8   | 4    | 5    | 4'-8"   | 25     |
| SI4             | 6   | 4    | 5    | 4'-3"   | 17     |
| SI5             | 2   | 5    | 6    | 8'-1"   | 17     |
| SI6             | 2   | 5    | 6    | 8'-7"   | 18     |
| SI7             | 2   | 5    | 6    | 9'-1"   | 19     |
| T1              | 9   | 6    | STR. | 7'-6"   | 101    |
| T2              | 8   | 6    | STR. | 8'-6"   | 102    |
| T3              | 8   | 8    | STR. | 8'-6"   | 182    |
| T4              | 11  | 8    | STR. | 7'-6"   | 220    |
| U1              | 18  | 4    | 5    | 4'-8"   | 56     |
| V2              | 26  | 10   | 2    | 28'-8"  | 320    |

PROJECT No. 8.2402101  
WAKE COUNTY  
STATION: 32 + 98.75 -L-

SHT. 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
PENT 6

~~DEBENTURE~~

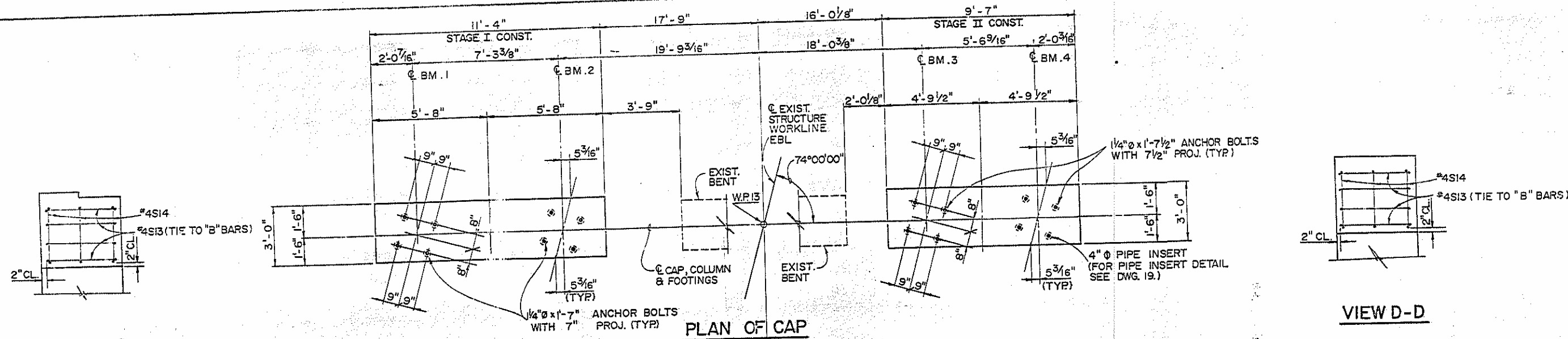
MAY 1992

| REVISIONS |    |      |    |    |      | SHEET NO            |
|-----------|----|------|----|----|------|---------------------|
| NO.       | BY | DATE | NO | BY | DATE |                     |
| 1         |    |      | 3  |    |      | 5-323               |
| 2         |    |      | 4  |    |      | TOTAL SHEETS<br>332 |

DWG. 33

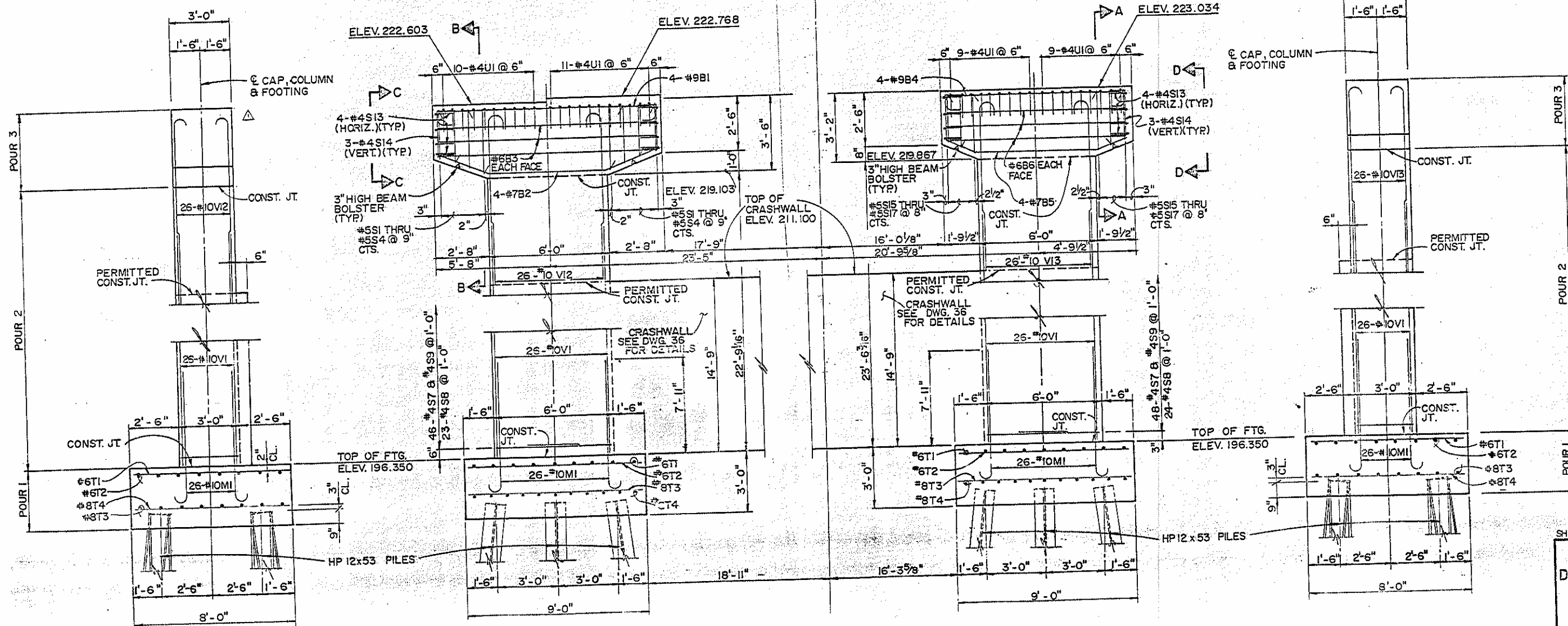
DRAWN BY DAP DATE 5-92  
CHECKED BY J. Hen DATE 5-92

FLORENCE B. HUTCHESON, INC.  
CONSULTING ENGINEERS RALEIGH, N.C.



VIEW C-C

VIEW D-D



END ELEVATION  
STAGE I

ELEVATION

END ELEVATION  
STAGE II

- NOTES**
1. HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
  2. FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.
  3. THE TOP SURFACE AREAS OF THE BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
  4. STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
  5. FOR PILE SPlice DETAILS SEE DWG. 39

PROJECT No. 8.2402101  
WAKE COUNTY  
STATION: 32 + 98.75 - L

SHT. 1 OF 3

| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH |      |         |     |    |      |
|--------------------------------------------------------------------|------|---------|-----|----|------|
| SUBSTRUCTURE<br>BENT 7                                             |      |         |     |    |      |
| MAY 1992                                                           |      |         |     |    |      |
| REVISIONS                                                          |      |         |     |    |      |
| NO.                                                                | BY   | DATE    | NO. | BY | DATE |
| 1                                                                  | L.B. | 8-14-93 | 3   |    |      |
| 2                                                                  |      |         | 4   |    |      |

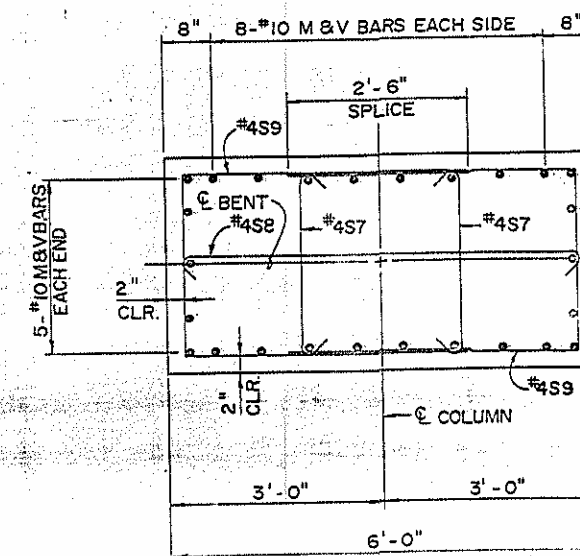
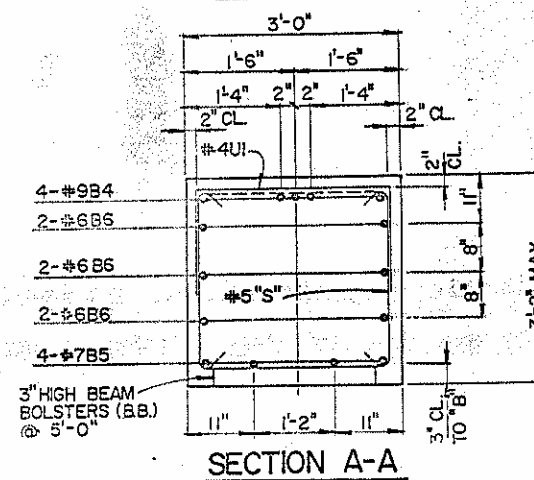
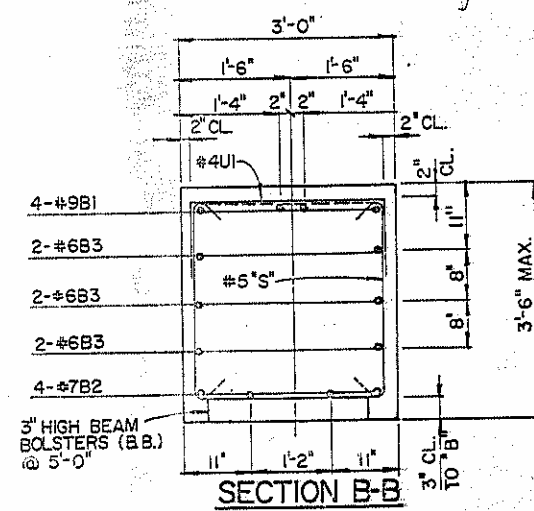
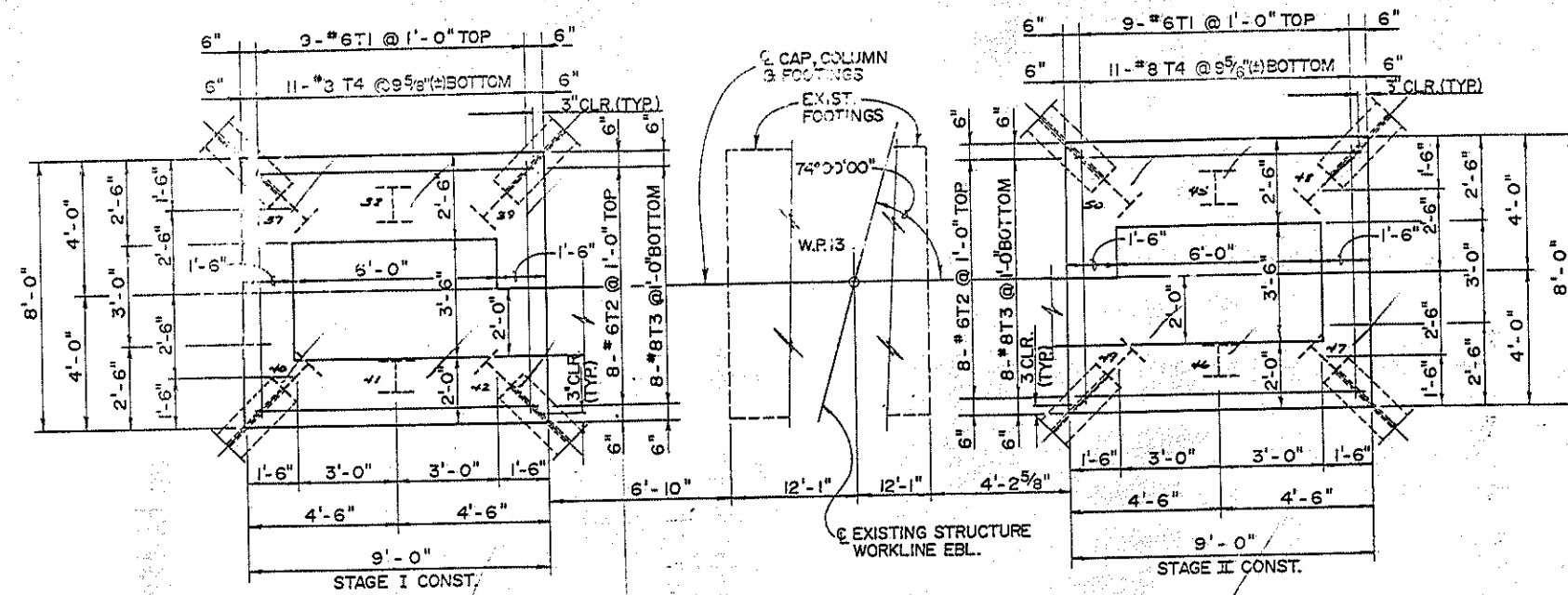
SHEET NO. 5-224  
TOTAL SHEETS 232

DRAWN BY J.A.S. DATE 5/92  
CHECKED BY R.H.M. DATE 5/92  
FLORENCE & HUTCHESON, INC.  
CONSULTING ENGINEERS RALEIGH, N.C.

NOTE: BATTER PILES 1/2" TO 12" SLOPE DIAGONALLY, SEE PLAN OF FOOTING.

REMOVED STEP FROM END ELEVATION OF CAP/FB. DWG. 34





BAR TYPES

|       |     |
|-------|-----|
| 2'-3" | S14 |
| 2'-8" | S13 |
| 1'-8" | S12 |
| 2'-8" | S9  |
| 2'-8" | U1  |
| 1'-8" | S18 |

|     |            |       |
|-----|------------|-------|
| HK. | S14        | 1'-0" |
|     | 5 1/2" S13 | 1'-0" |
|     | 5 1/2" S12 | 1'-0" |
|     | 5 1/2" S9  | 4'-1" |
|     | 5 1/2" U1  | 1'-0" |
|     | 5 1/2" S18 | 10"   |

Diagram of a roof truss section. The top chord is labeled 11'-0" and the bottom chord is labeled 9'-3". The vertical height is labeled 1'-3" on both sides. The truss is labeled HK. at both ends. A diagonal member is labeled BI. and a horizontal member is labeled B4. A circle with a checkmark is shown below the bottom chord.

|     |           |    |      |
|-----|-----------|----|------|
| M1  | 9' - 11"  | HK | 1' - |
| VI2 | 11' - 2 " |    | 1' - |
| VI3 | 11' - 7 " |    | 1' - |

Diagram of a roof truss structure showing members and their dimensions:

- Members: 2'-8" B2, 1'-8" B5, 2'-5 15/16" B2, 1'-6 1/16" B5, 6'-0" B2, 1'-6 1/16" B5, 2'-5 15/16" B2, 1'-6 1/16" B5, 6'-0" B2, 1'-6 1/16" B5.
- Dimensions: 2'-8" B2, 1'-8" B5, 2'-5 15/16" B2, 1'-6 1/16" B5, 6'-0" B2, 1'-6 1/16" B5, 2'-5 15/16" B2, 1'-6 1/16" B5, 6'-0" B2, 1'-6 1/16" B5.
- Other dimensions: 8' 1/4"

| HK.       |  | HK.     |        |
|-----------|--|---------|--------|
| S7 4 1/2" |  | 2' - 8" | 4 1/2" |
| S8 4 1/2" |  | 5' - 8" | 4 1/2" |

|                       | STAGE I | STAGE II |
|-----------------------|---------|----------|
| REINFORCING STEEL #   | 9,598   | 7,914    |
| FOUNDATION EXCAVATION | 57 C.Y. | 40 C.    |
| HP12x53 PILES NO./LF  | 6/210   | 6/24     |

|                      |         |       |
|----------------------|---------|-------|
| DIVISION OF CONCRETE |         |       |
|                      | STAGE I | STAGE |
| POUR NUMBER: 0       | CLYD    | CLYD  |

| FOUR NUMBER           | CO. ID. | CO. N. |
|-----------------------|---------|--------|
| 1                     | 8.0     | 8.0    |
| 2                     | 43.8%   | 25.    |
| 3                     | 4.2     | 3.2    |
| TOTAL CLASS "A" CONC. | 56.0%   | 36.3   |

|                              |  |                              |  |
|------------------------------|--|------------------------------|--|
| TOTAL CLASS A COST: \$394.00 |  | TOTAL CLASS B COST: \$394.00 |  |
|------------------------------|--|------------------------------|--|

\*INCLUDING CRASHWALL  
QUANTITIES

| NP1250 Steel Piles |        |
|--------------------|--------|
| NO.                | LENGTH |
| 37                 | 30.0   |
| 38                 | 32.5   |
| 39                 | 34.8   |
| 40                 | 31.0   |
| 41                 | 37.7   |
| 42                 | 22.8   |
| 43                 | 32.7   |
| 44                 | 37.7   |
| 47                 | 31.3   |
| 48                 | 34.7   |
| 49                 | 37.4   |
| 50                 | 28.4   |

## BILL OF MATERIAL

| BENT 7         |     |      |      |                 |
|----------------|-----|------|------|-----------------|
| STAGE I CONST. |     |      |      |                 |
| BAR            | NO. | SIZE | TYPE | LENGTH - WEIGHT |
| B1             | 4   | 3    |      | 13'-6" 187      |
| B2             | 4   | 7    | 3    | 11'-4" 93       |
| B3             | 6   | 5    | STR. | 11'-0" 99       |
| D1             | 51  | 5    | STR. | 3'-2" 201       |
| D2             | 2   | 3    | STR. | 1'-11" 24       |
| H1             | 14  | 3    | STR. | 39'-7" 578      |
| H4             | 14  | 5    | STR. | 12'-6" 183      |
| H6             | 2   | 6    | STR. | 13'-3" 40       |
| H7             | 2   | 6    | STR. | 12'-6" 38       |
| H8             | 1   | 5    | STR. | 14'-6" 15       |
| H9             | 2   | 5    | STR. | 2'-3" 26        |
| H10            | 9   | 5    | STR. | 15'-2" 142      |
| H12            | 1   | 6    | STR. | 39'-7" 59       |
| M1             | 26  | 10   | 2    | 11'-4" 1268     |
| M2             | 21  | 5    | 7    | 4'-11" 108      |
| S1             | 2   | 5    | 6    | 8'-1" 17        |
| S2             | 2   | 5    | 6    | 8'-9" 18        |
| S3             | 2   | 5    | 6    | 9'-3" 19        |
| S4             | 2   | 5    | 6    | 9'-9" 20        |
| S7             | 48  | 4    | 4    | 3'-5" 110       |
| S8             | 24  | 4    | 4    | 6'-5" 103       |
| S9             | 48  | 4    | 5    | 10'-10" 347     |
| S12            | 15  | 5    | 5    | 3'-8" 57        |
| S13            | 8   | 4    | 5    | 4'-8" 25        |
| S14            | 6   | 4    | 5    | 4'-3" 17        |
| S18            | 12  | 5    | 5    | 3'-4" 42        |
| T1             | 9   | 6    | STR. | 7'-6" 101       |
| T2             | 8   | 6    | STR. | 8'-6" 102       |
| T3             | 8   | 8    | STR. | 8'-6" 182       |
| T4             | 11  | 8    | STR. | 7'-8" 220       |
| U1             | 2   | 4    | 5    | 4'-8" 66        |
| V1             | 26  | 10   | STR. | 22'-8" 2536     |
| V3             | 65  | 5    | STR. | 14'-5" 977      |
| V4             | 12  | 5    | STR. | 10'-8" 134      |
| V5             | 2   | 5    | STR. | 9'-8" 20        |
| V6             | 2   | 5    | STR. | 8'-11" 9        |
| V12            | 26  | 10   | 2    | 12'-7" 1498     |

| STAGE II CONST. |    |    |      |         |      |  |
|-----------------|----|----|------|---------|------|--|
| B5              | 4  | 9  | 1    | 11'-9"  | 160  |  |
| B4              | 4  | 7  | 3    | 9'-4"   | 76   |  |
| B6              | 6  | 6  | STR. | 9'-3"   | 83   |  |
| D1              | 18 | 5  | STR. | 7'-2"   | 59   |  |
| H2              | 14 | 5  | STR. | 12'-9"  | 186  |  |
| H3              | 14 | 5  | STR. | 9'-8"   | 141  |  |
| H5              | 2  | 6  | STR. | 8'-8"   | 29   |  |
| H11             | 1  | 6  | STR. | 12'-9"  | 19   |  |
| M1              | 26 | 10 | 2    | 11'-4"  | 1268 |  |
| M2              | 19 | 5  | 7    | 4'-11"  | 97   |  |
| S7              | 46 | 4  | 4    | 3'-5"   | 105  |  |
| S8              | 23 | 4  | 4    | 6'-5"   | 99   |  |
| S9              | 46 | 4  | 5    | 10'-10" | 333  |  |
| S12             | 12 | 3  | 5    | 3'-8"   | 46   |  |
| S13             | 8  | 4  | 5    | 4'-8"   | 25   |  |
| S14             | 6  | 4  | 5    | 4'-3"   | 17   |  |
| S15             | 2  | 5  | 6    | 8'-1"   | 17   |  |
| S16             | 2  | 5  | 6    | 8'-7"   | 13   |  |
| S17             | 2  | 5  | 6    | 9'-1"   | 13   |  |
| T1              | 9  | 6  | STR. | 7'-6"   | 101  |  |
| T2              | 8  | 6  | STR. | 8'-6"   | 102  |  |
| T3              | 8  | 8  | STR. | 8'-6"   | 182  |  |
| T4              | 11 | 8  | STR. | 7'-6"   | 220  |  |
| U1              | 18 | 4  | 5    | 4'-9"   | 56   |  |
| V1              | 26 | 10 | STR. | 22'-8"  | 2536 |  |
| V3              | 31 | 5  | STR. | 14'-5"  | 466  |  |
| V13             | 26 | 10 | 2    | 13'-0"  | 1454 |  |

PROJECT No. 8.2402101

WAKE COUNTY

STATION: 32 + 98.75 - L'-

SHT 2 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
BENT 7

\_\_\_\_\_

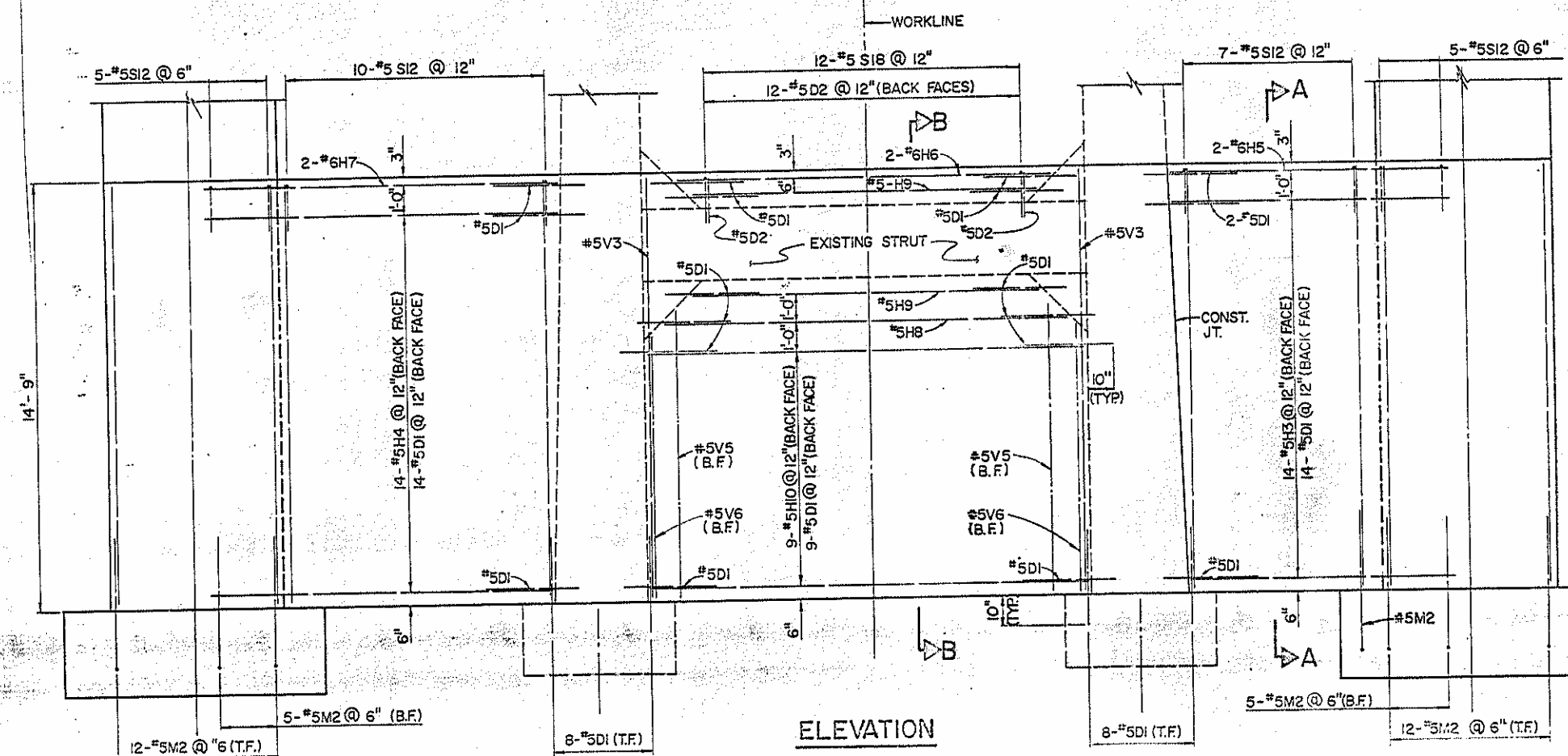
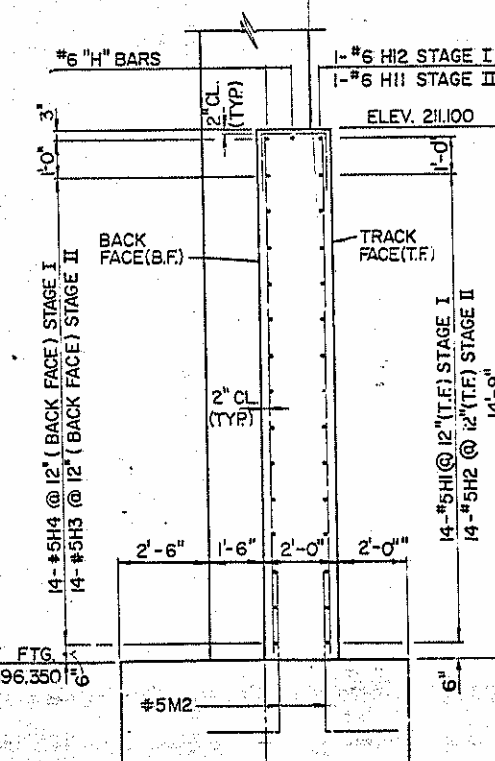
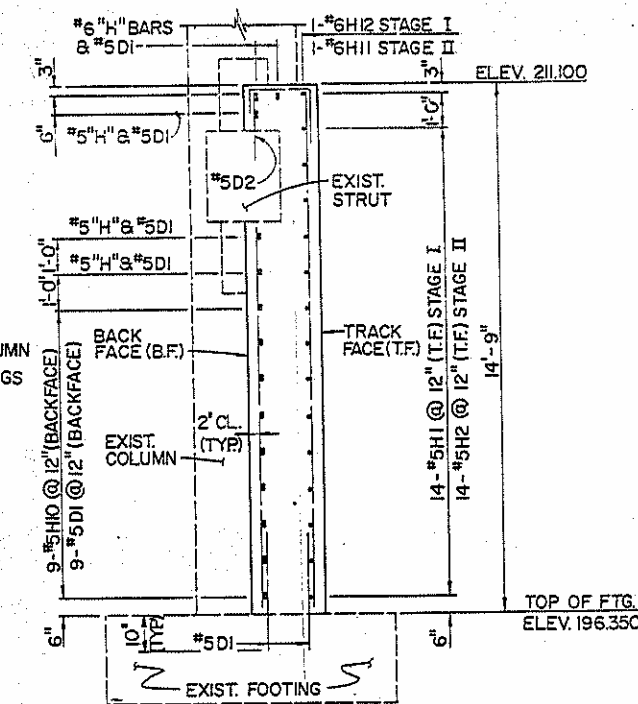
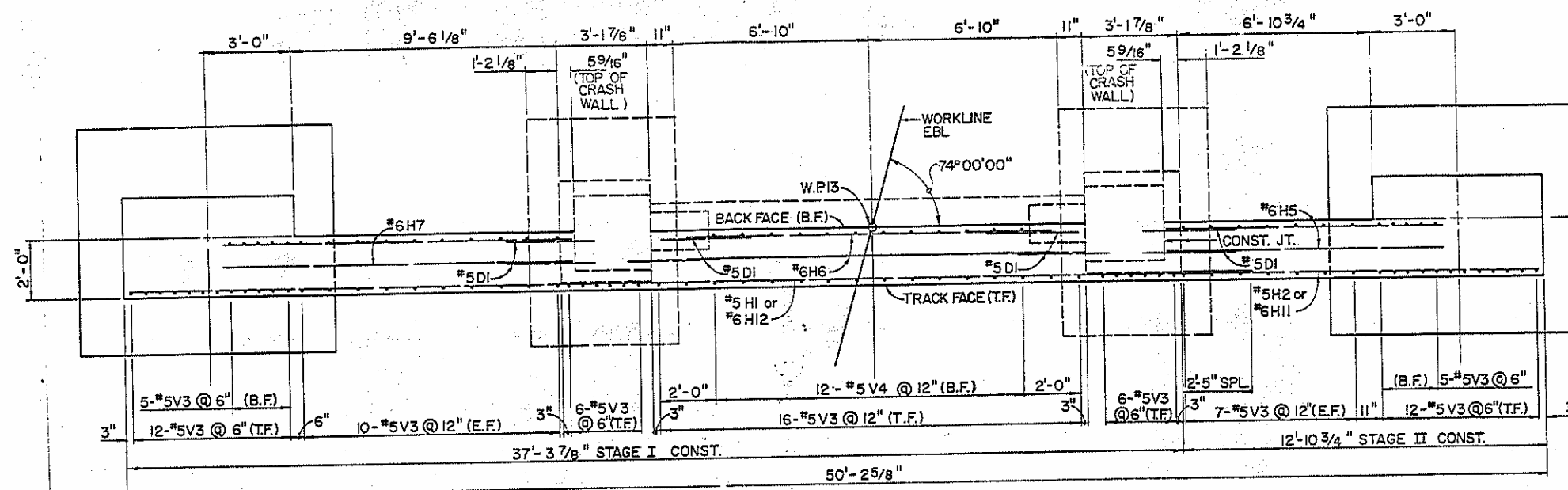
MAY 1992

| REVISIONS |    |      |     |    |      | SHEET NO.                    |
|-----------|----|------|-----|----|------|------------------------------|
| NO.       | BY | DATE | NO. | BY | DATE | 6-326<br>TOTAL SHEETS<br>332 |
| 1         |    |      | 3   |    |      |                              |
| 2         |    |      | 4   |    |      |                              |

|                           |                    |                                                                                     |                                                                       |
|---------------------------|--------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| DRAWN BY <u>SLW</u>       | DATE <u>MAY 92</u> |  | FLORENCE & HUTCHESON, INC.<br>CONSULTING ENGINEERS      RALEIGH, N.C. |
| CHECKED BY <u>J. Ford</u> | DATE <u>5-92</u>   |                                                                                     |                                                                       |

FLORENCE & HUTCHESON, INC.  
CONSULTING ENGINEERS. RALEIGH, N.C.

DWG. 35



T.F. - TRACK FACE  
B.F. - BACK FACE  
E.F. - EACH FACE

PROJECT No. 8.2402101  
WAKE COUNTY  
 STATION: 32 + 98.75 - L

SHT. 3 OF 3:

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
BENT 7

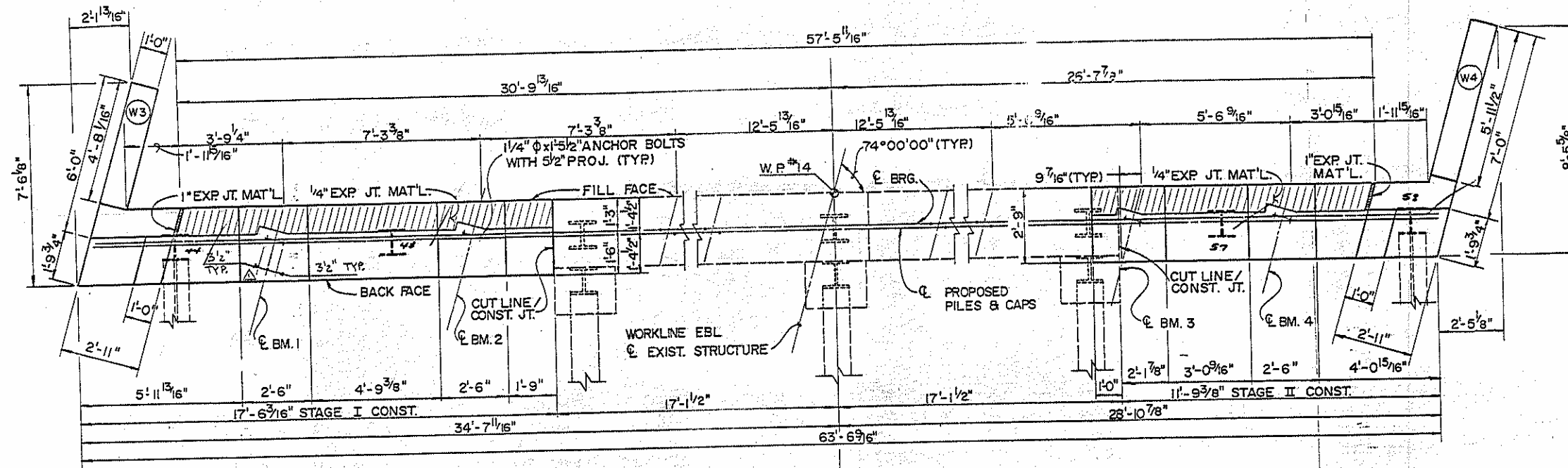
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| MAY       |    |      |     |    |      |              | 1992      |
| REVISIONS |    |      |     |    |      |              | SHEET NO. |
| NO        | BY | DATE | NO. | BY | DATE | 5-226        |           |
| 1         |    |      | 3   |    |      | TOTAL SHEETS |           |
| 2         |    |      | 4   |    |      | 332          |           |

DRAWN BY DAP DATE 5-92  
CHECKED BY A. T. M. DATE 5-92

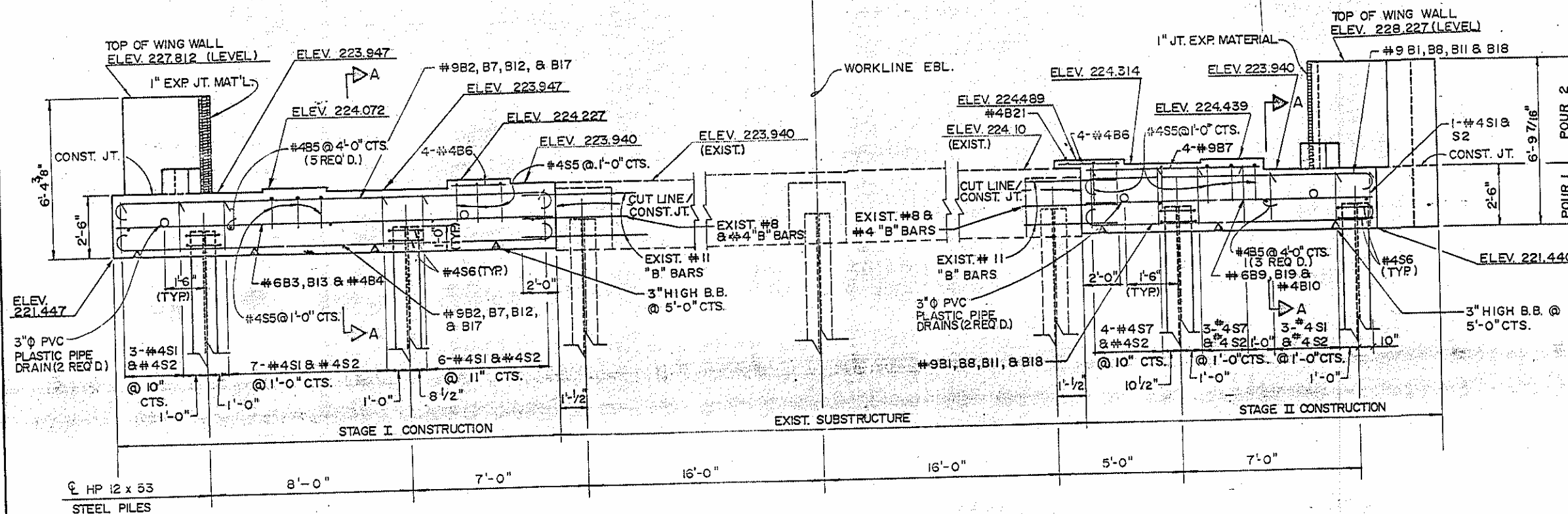
FLORENCE & HUTCHESON, INC.  
CONSULTING ENGINEERS RALEIGH, N.C.

DWG. 36

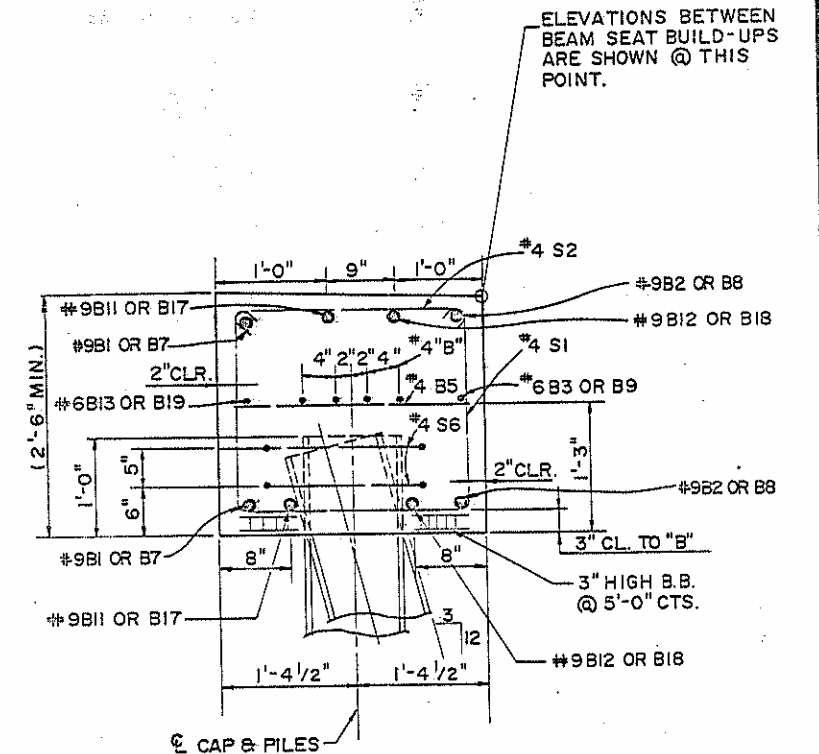
FOR END BENT NOTES SEE DWG. 39  
 FOR PILE SPLICE DETAILS SEE DWG. 39  
 FOR TEMPORARY DRAINAGE @ END BENT SEE DWG. 39  
 FOR PIPE DRAIN DETAILS SEE DWG. 39



PLAN



ELEVATION



SECTION A-A

PROJECT No. 8.2402101  
 WAKE COUNTY  
 STATION: 32+98.75-L-

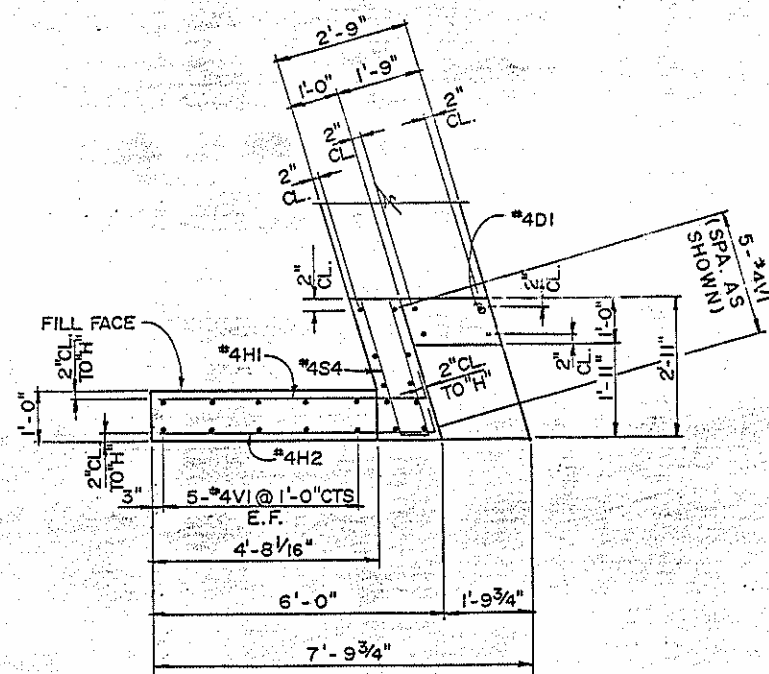
SHT. 1 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 2

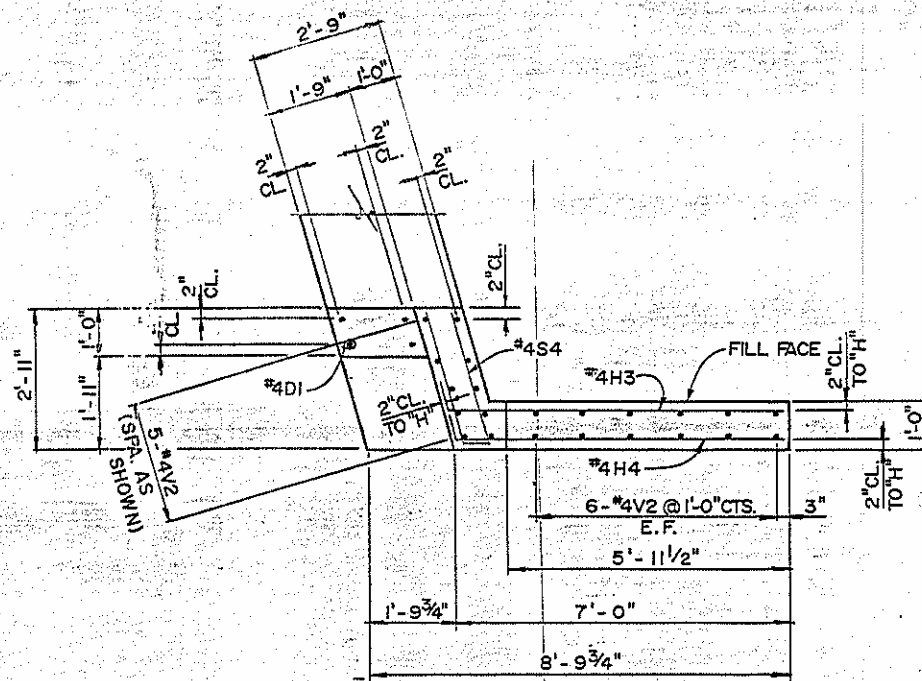
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| NO.       | BY     | DATE    | NO. | BY | DATE |           |              |
| 1         | L.I.B. | 7-21-93 | 3   |    |      | 5-327     | 332          |
| 2         |        |         | 4   |    |      |           |              |

ADDED ANCHOR BOLT GAGE. ✓ BY: H.K.P. 7-21-93 DWG. 37

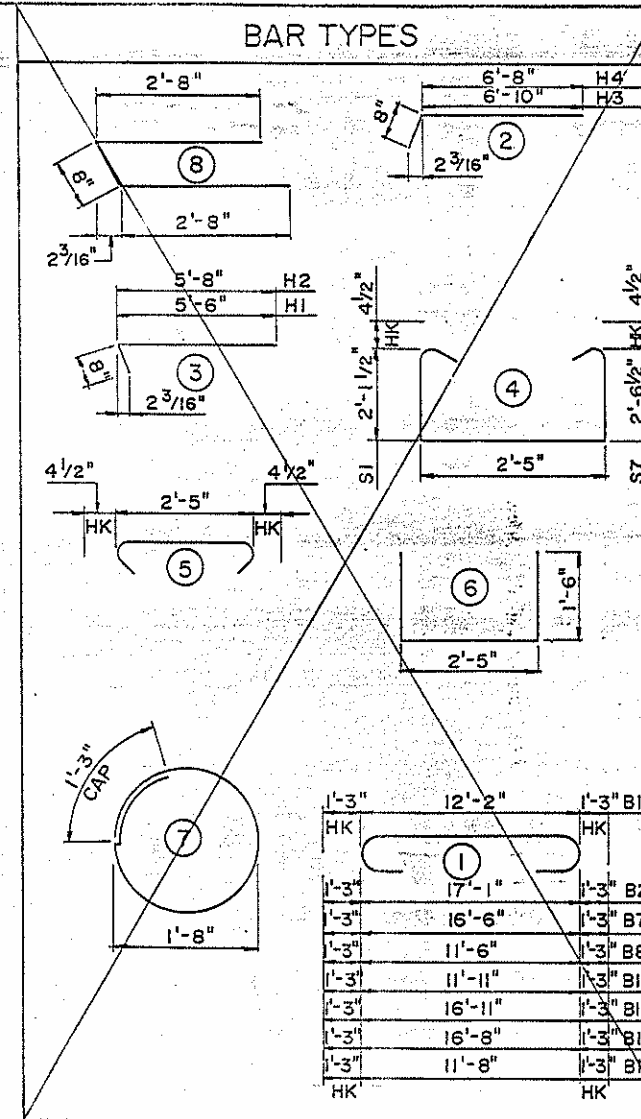
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 CHECKED BY: A. Hines DATE: 5-92  
 FLORENCE & HUTCHESON, INC.  
 CONSULTING ENGINEERS RALEIGH, N.C.



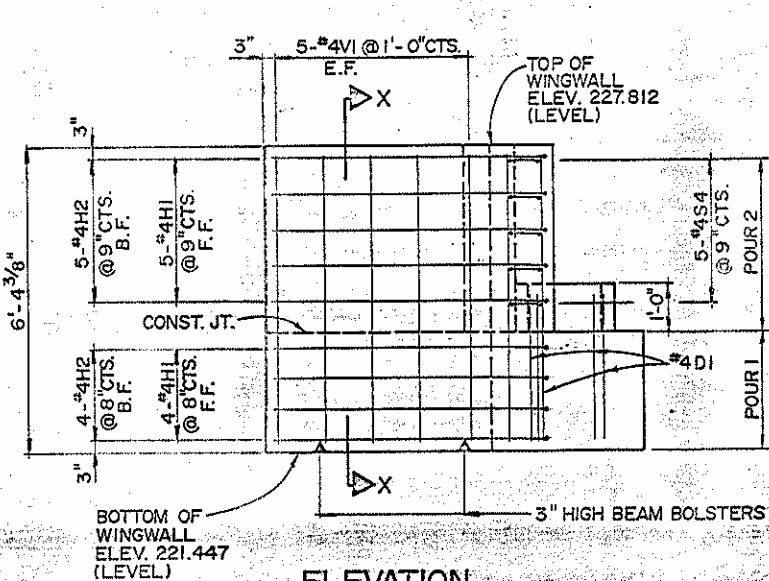
PLAN  
WINGWALL-W3  
STAGE I CONST.



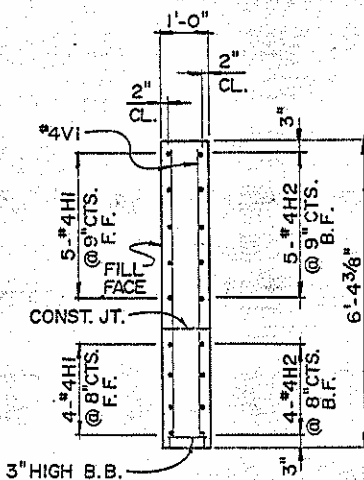
PLAN  
WINGWALL-W4  
STAGE II CONST.



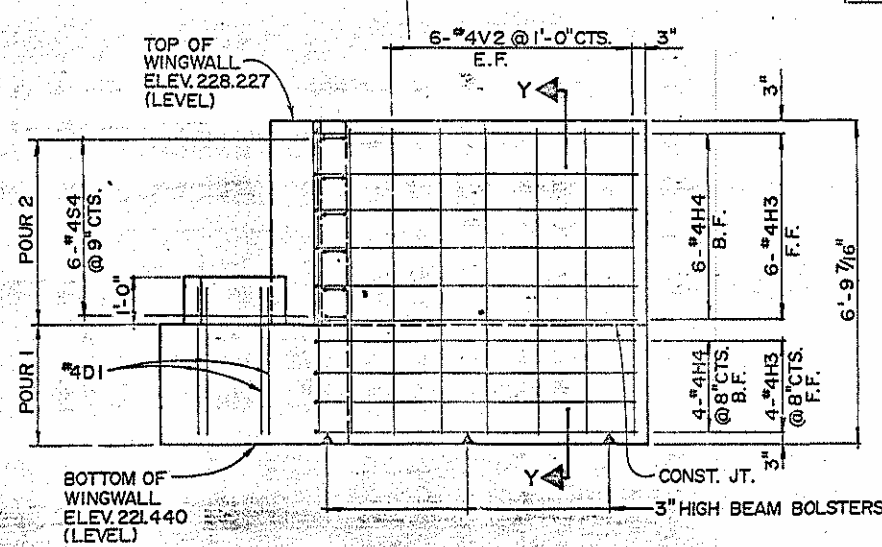
| BILL OF MATERIAL    |      |      |      |         |     |
|---------------------|------|------|------|---------|-----|
| END BENT 2 STAGE I  |      |      |      |         |     |
| BAR NO.             | SIZE | TYPE | LEN. | WGT.    |     |
| B2                  | 2    | 9    | 1    | 19'-7"  | 133 |
| B3                  | 1    | 6    | STR. | 17'-1"  | 26  |
| B4                  | 4    | 4    | STR. | 16'-9"  | 45  |
| B5                  | 5    | 4    | STR. | 2'-5"   | 8   |
| B6                  | 4    | 4    | STR. | 2'-2"   | 6   |
| B7                  | 2    | 9    | 1    | 19'-0"  | 129 |
| BI2                 | 2    | 9    | 1    | 19'-5"  | 132 |
| BI3                 | 1    | 6    | STR. | 16'-6"  | 25  |
| BI7                 | 2    | 9    | 1    | 19'-2"  | 130 |
| DI                  | 4    | 4    | STR. | 3'-1"   | 8   |
| HI                  | 9    | 4    | 3    | 6'-2"   | 37  |
| H2                  | 9    | 4    | 3    | 6'-4"   | 38  |
| SI                  | 16   | 4    | 4    | 7'-5"   | 79  |
| S2                  | 16   | 4    | 5    | 3'-2"   | 34  |
| S4                  | 5    | 4    | 8    | 6'-0"   | 20  |
| S5                  | 6    | 4    | 6    | 5'-5"   | 22  |
| S6                  | 4    | 4    | 7    | 6'-6"   | 17  |
| VI                  | 20   | 4    | STR. | 6'-0"   | 80  |
| END BENT 2 STAGE II |      |      |      |         |     |
| BI                  | 2    | 9    | 1    | 14'-8"  | 100 |
| B5                  | 3    | 4    | STR. | 2'-5"   | 5   |
| B6                  | 4    | 4    | STR. | 2'-10"  | 8   |
| B7                  | 4    | 9    | STR. | 7'-4"   | 100 |
| B8                  | 2    | 9    | 1    | 14'-0"  | 95  |
| B9                  | 1    | 6    | STR. | 1'-6"   | 17  |
| BI0                 | 4    | 4    | STR. | 11'-10" | 32  |
| BI1                 | 2    | 9    | 1    | 14'-5"  | 98  |
| BI8                 | 2    | 9    | 1    | 14'-2"  | 96  |
| BI9                 | 1    | 6    | STR. | 12'-2"  | 18  |
| B21                 | 1    | 4    | STR. | 2'-5"   | 2   |
| DI                  | 4    | 4    | STR. | 3'-1"   | 8   |
| H3                  | 10   | 4    | 2    | 7'-6"   | 50  |
| H4                  | 10   | 4    | 2    | 7'-4"   | 49  |
| SI                  | 4    | 4    | 4    | 7'-5"   | 20  |
| S2                  | 11   | 4    | 5    | 3'-2"   | 23  |
| S4                  | 6    | 4    | 8    | 6'-0"   | 24  |
| S5                  | 5    | 4    | 6    | 5'-5"   | 18  |
| S6                  | 4    | 4    | 7    | 6'-6"   | 17  |
| S7                  | 7    | 4    | 4    | 8'-3"   | 39  |
| V2                  | 22   | 4    | STR. | 6'-5"   | 54  |



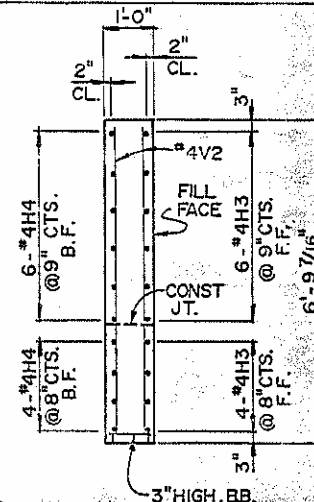
ELEVATION  
WINGWALL-W3  
STAGE I CONST.



SECTION X-X



ELEVATION  
WINGWALL-W4  
STAGE II CONST.



SECTION Y-Y

| TOTAL QUANTITIES FOR END BENT |         |          |       |  |  |
|-------------------------------|---------|----------|-------|--|--|
| ITEM                          | STAGE I | STAGE II | TOTAL |  |  |
| REINFORCING STEEL             | 969     | 913      | 1882  |  |  |
| CLASS "A" CONCRETE POUR 1     | 4.8     | 4.0      | 8.8   |  |  |
| CLASS "A" CONCRETE POUR 2     | 1.2     | 1.5      | 2.7   |  |  |
| CLASS "A" CONCRETE TOTAL      | 6.0     | 5.5      | 11.5  |  |  |
| H.P. 12x53 STEEL PILES        | 2       | 2        | 4     |  |  |
| H.P. 12x53 STEEL PILES        | 120     | 120      | 240   |  |  |

| H.P. 12x53 STEEL PILES |        |
|------------------------|--------|
| No.                    | Length |
| 43                     | 59.4   |
| 44                     | 47.0   |
| 57                     | 56.0   |
| 58                     | 50.2   |
| 59                     | 50.2   |
| 60                     | 50.2   |
| 61                     | 50.2   |
| 62                     | 50.2   |
| 63                     | 50.2   |
| 64                     | 50.2   |
| 65                     | 50.2   |
| 66                     | 50.2   |
| 67                     | 50.2   |
| 68                     | 50.2   |
| 69                     | 50.2   |
| 70                     | 50.2   |
| 71                     | 50.2   |
| 72                     | 50.2   |
| 73                     | 50.2   |
| 74                     | 50.2   |
| 75                     | 50.2   |
| 76                     | 50.2   |
| 77                     | 50.2   |
| 78                     | 50.2   |
| 79                     | 50.2   |
| 80                     | 50.2   |
| 81                     | 50.2   |
| 82                     | 50.2   |
| 83                     | 50.2   |
| 84                     | 50.2   |
| 85                     | 50.2   |
| 86                     | 50.2   |
| 87                     | 50.2   |
| 88                     | 50.2   |
| 89                     | 50.2   |
| 90                     | 50.2   |
| 91                     | 50.2   |
| 92                     | 50.2   |
| 93                     | 50.2   |
| 94                     | 50.2   |
| 95                     | 50.2   |
| 96                     | 50.2   |
| 97                     | 50.2   |
| 98                     | 50.2   |
| 99                     | 50.2   |
| 100                    | 50.2   |

PROJECT No. 8.2402101  
WAKE COUNTY  
STATION: 32+98.75 -L-

SHT 2 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUBSTRUCTURE  
END BENT 2**

MAY 1992

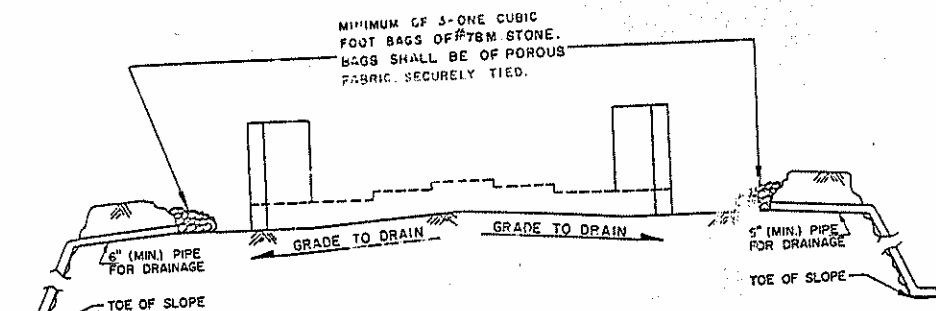
REVISIONS

| NO. | BY | DATE | NO. | BY | DATE |
|-----|----|------|-----|----|------|
| 1   |    |      | 3   |    |      |
| 2   |    |      | 4   |    |      |

SHEET NO. 5-328  
TOTAL SHEETS 332

OWG 38



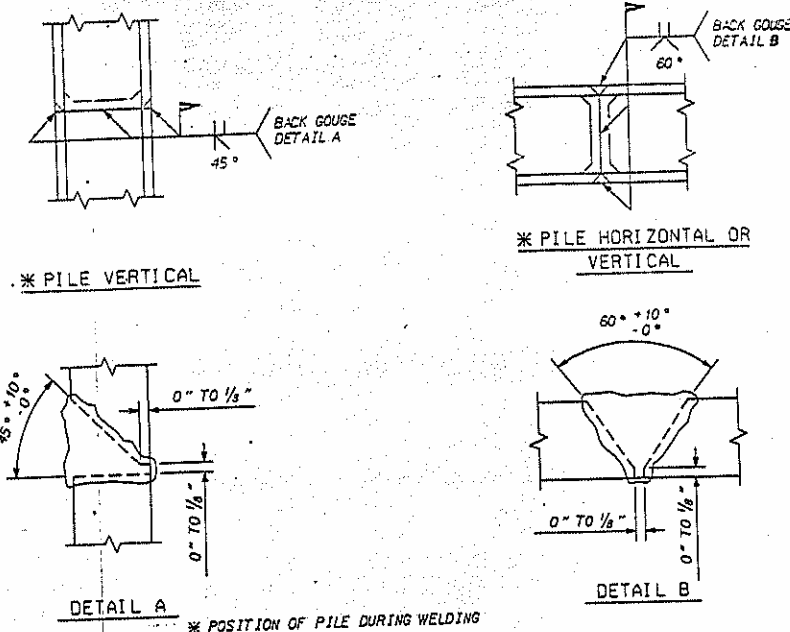


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

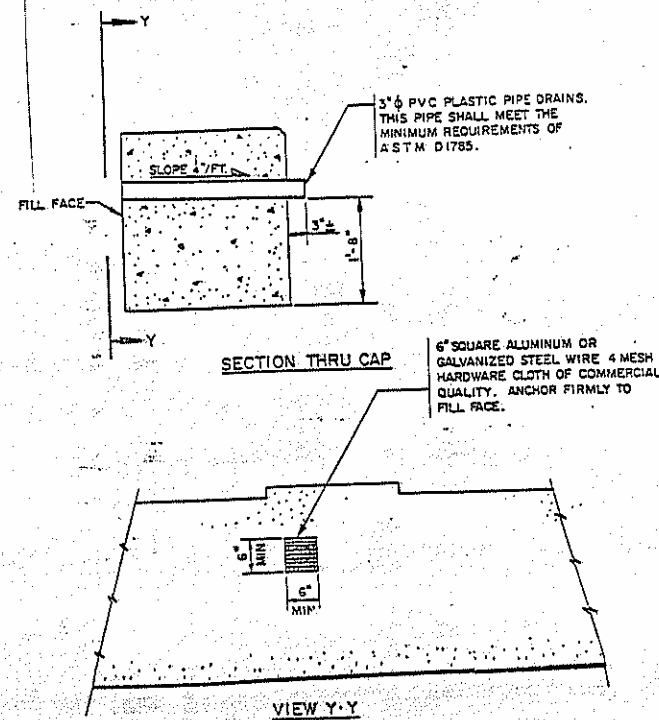
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

### TEMPORARY DRAINAGE AT END BENT



### PILE SPLICE DETAILS



NOTE: NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE PVC PLASTIC PIPE DRAINS, HARDWARE CLOTH AND FASTENERS. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

### PIPE DRAIN DETAILS FOR STRUCTURES WITH APPROACH SLABS

- NOTES:
1. PILES ARE TO BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 50 TONS EACH.
  2. PIPE DRAINS MAY BE SHIFTED TO CLEAR REINFORCING STEEL.
  3. FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.
  4. WHERE CURTAIN WALL IS PRESENT, THE CAP AREA UNDER THE CURTAIN WALL SHALL BE EPOXY COATED. COAT ALL SURFACE AREAS OF THE TOP OF CAP, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING. THE CONTRACTOR MAY OR MAY NOT COAT THE AREA UNDER THE BEARINGS. THE EXISTING END BENTS SHALL ALSO HAVE THE EPOXY PROTECTIVE COATING APPLIED.
  5. THE TOP SURFACE AREAS OF THE END BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
  6. STIRRUPS IN THE CAP MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR ANCHOR BOLTS.
  7. THE SURFACE OF EXISTING END BENT AT TIE-IN WITH PROPOSED END BENT SHALL BE ROUGHENED TO A FULL 1/4" AMPLITUDE AND CLEANED PRIOR TO CASTING NEW CONCRETE AGAINST SURFACE.
  8. THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 1/4" PER FOOT.

PROJECT No. 8.2402101

WAKE COUNTY

STATION: 32+98.75 -L1-

SHT. 3 OF 3

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

TYPICAL DETAILS

FOR END BENTS 1 & 2

| REVISIONS |    |      |     |    |      | SHEET NO.        |
|-----------|----|------|-----|----|------|------------------|
| NO.       | BY | DATE | NO. | BY | DATE |                  |
| 1         |    |      | 3   |    |      | 5-329            |
| 2         |    |      | 4   |    |      | TOTAL SHEETS 332 |

DWG. 39

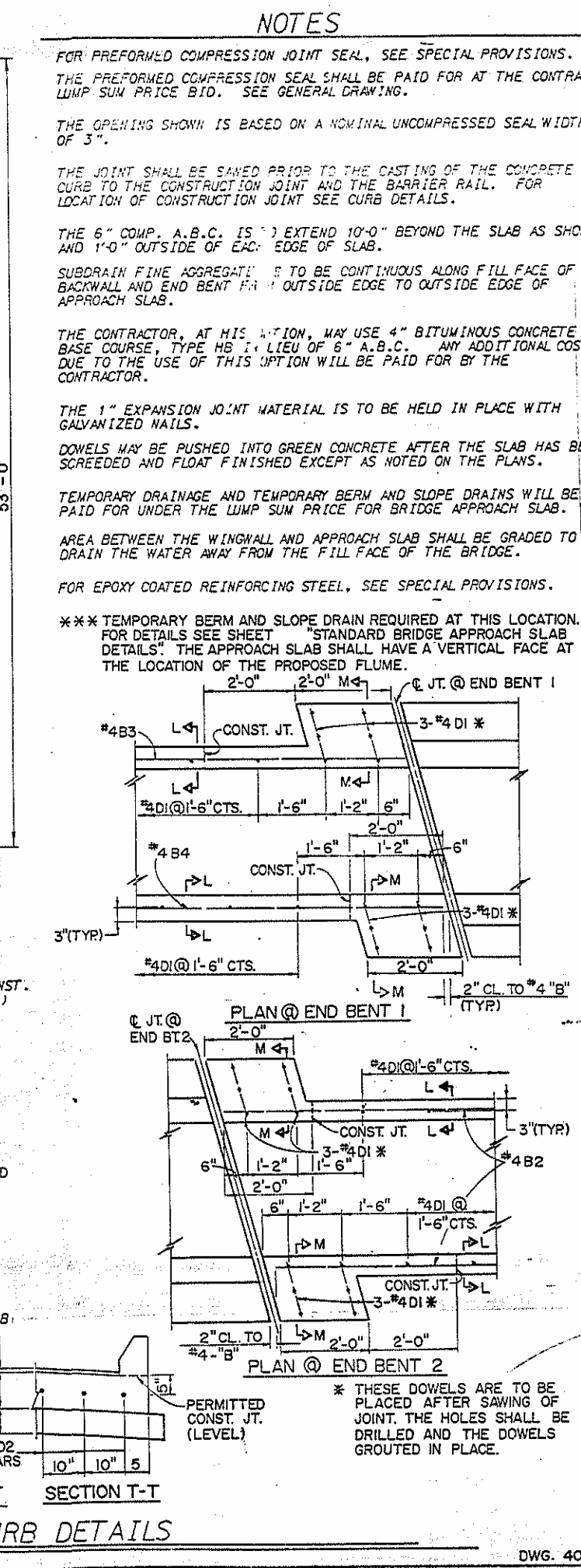
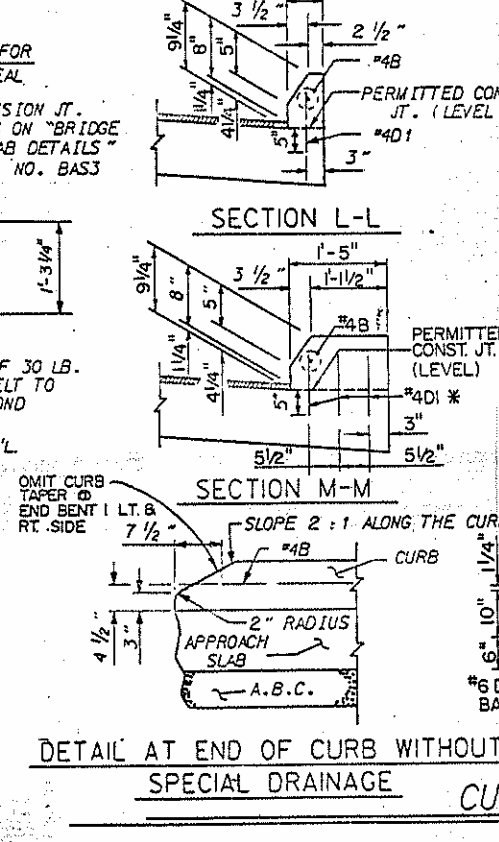
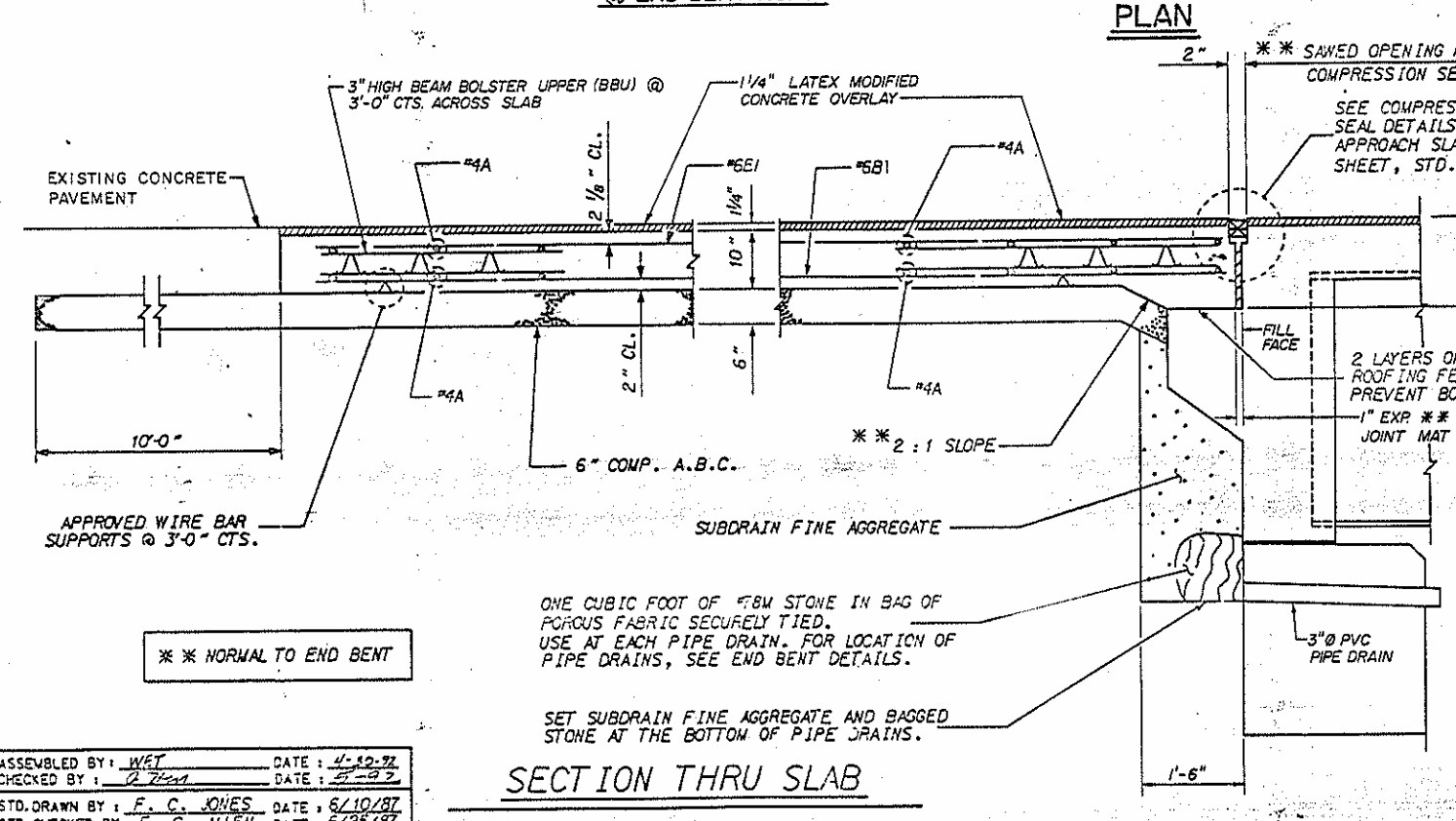
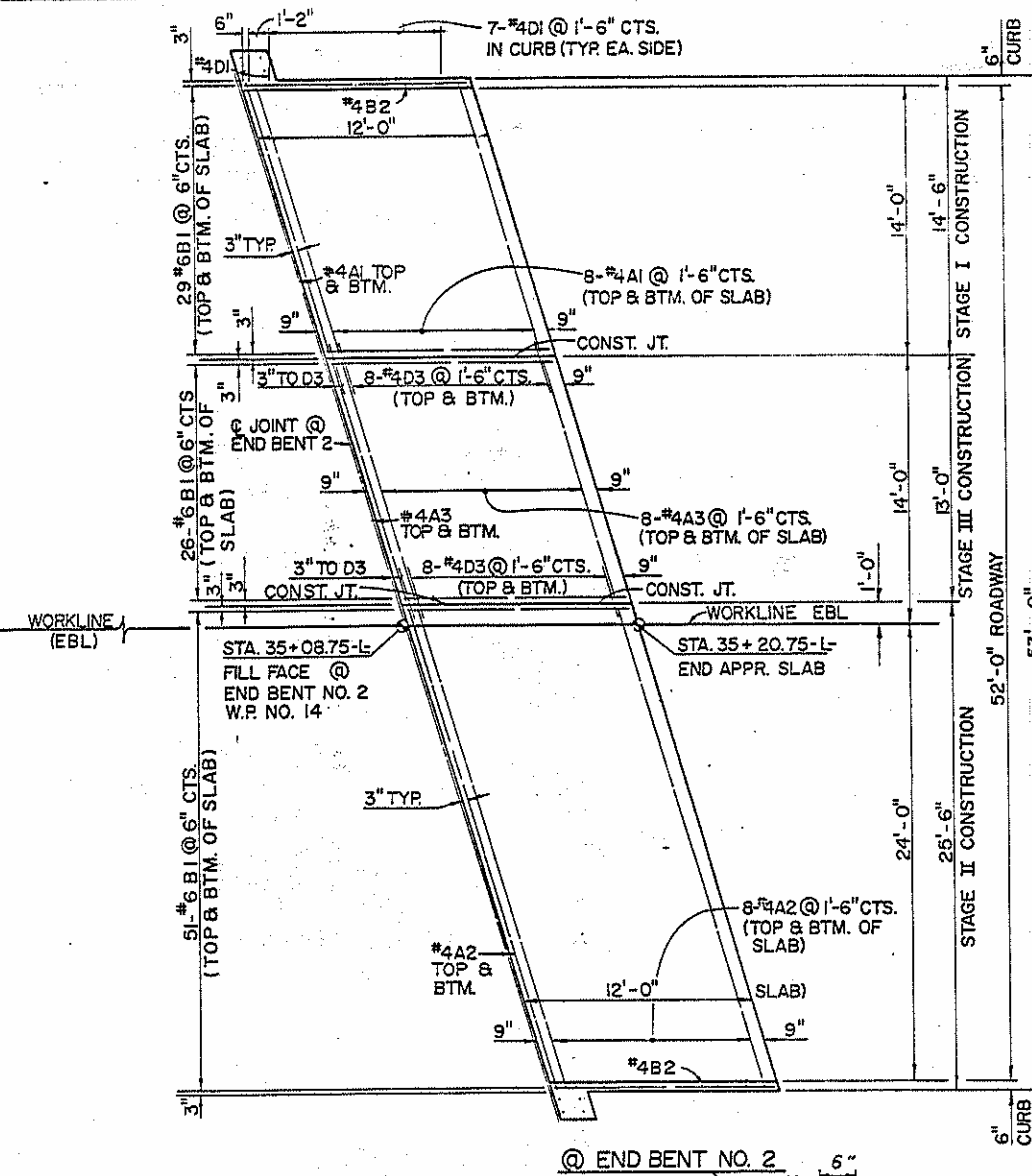
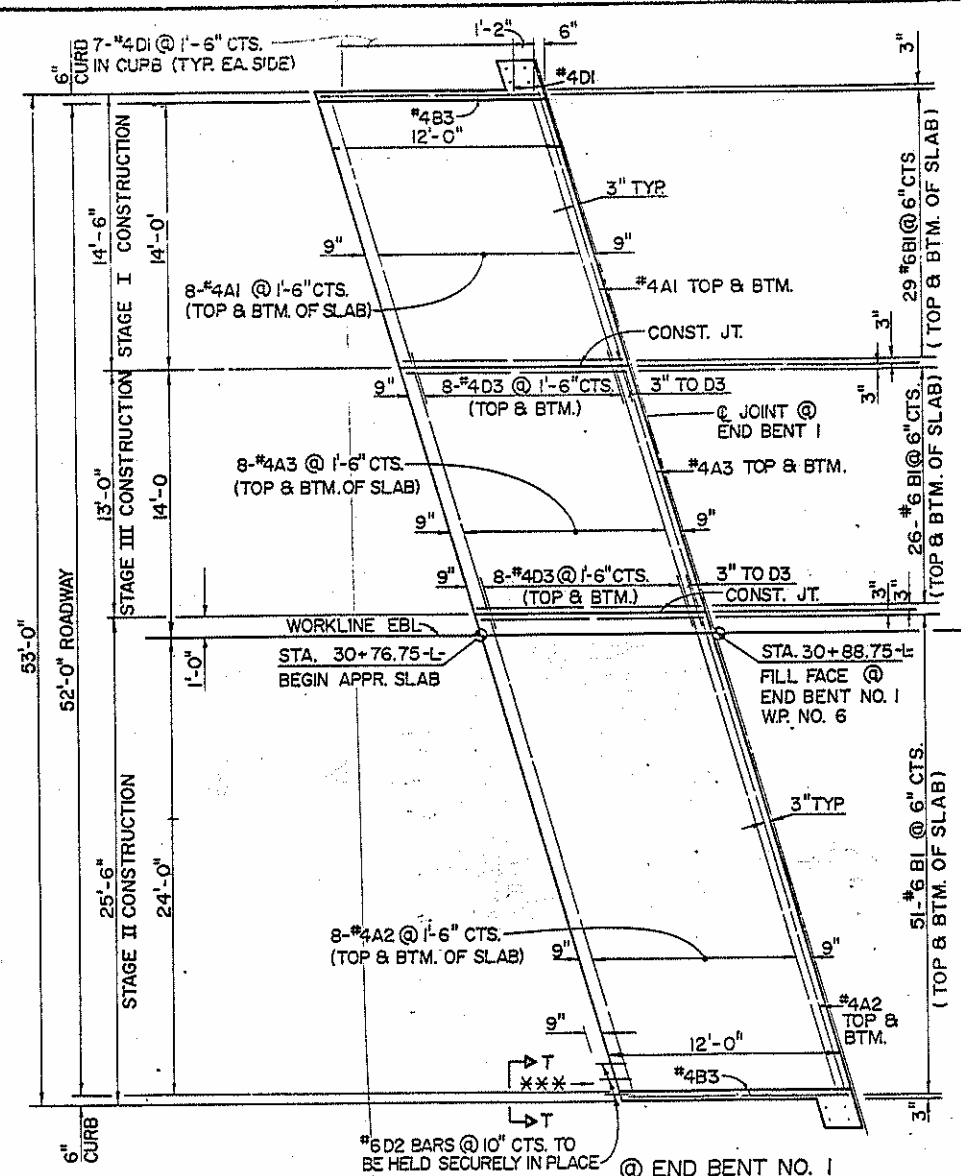
DRAWN BY: E.J.W. DATE: MAY 97

CHECKED BY: P. J. DATE: 5-97

FLORENCE & HUTCHESON, INC.

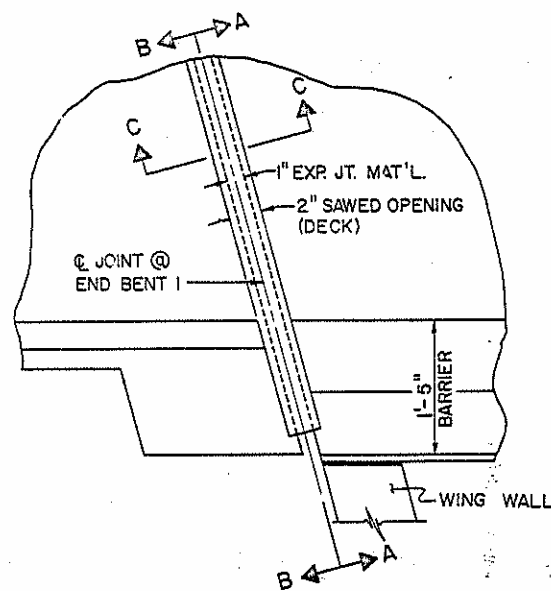
CONSULTING ENGINEERS RALEIGH, N.C.

REVISED 10/11/90 BY: ARB  
 REVISED 3/1/90 BY: WJH  
 REVISED 12/1/88 BY: FCJ  
 REVISED 6/22/89 BY: JPC  
 REVISED 2/29/88 BY: WJH



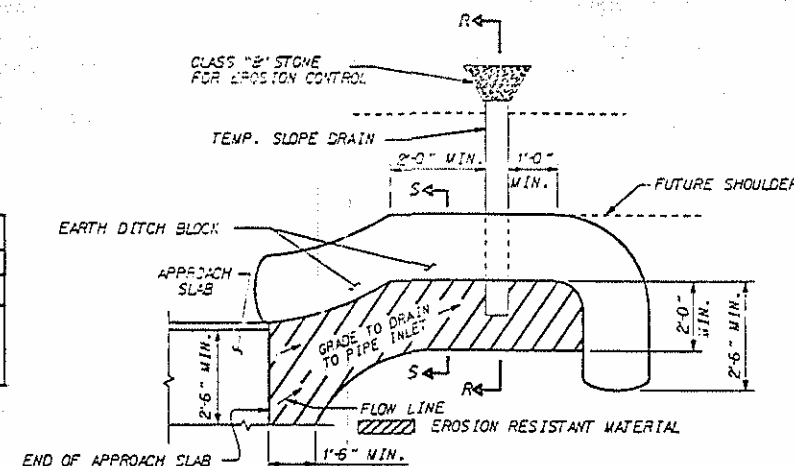
| BILL OF MATERIAL                         |      |      |             |        |           |
|------------------------------------------|------|------|-------------|--------|-----------|
| <b>APPROACH SLAB @ END BENT NO. 1</b>    |      |      |             |        |           |
| STAGE I CONSTRUCTION                     |      |      |             |        |           |
| BAR NO.                                  | SIZE | TYPE | LENGTH      | WEIGHT |           |
| A1                                       | 18   | 4    | STR. 14'-8" | 176    |           |
| B1                                       | 58   | 6    | STR. 11'-7" | 1009   |           |
| B3                                       | 1    | 4    | STR. 11'-8" | 8      |           |
| D1                                       | 12   | 4    | STR. 0'-11" | 7      |           |
| EPOXY COATED REIN. STEEL...LBS: 1200     |      |      |             |        |           |
| CLASS "AA" CONCRETE...CU. YD. 5.8        |      |      |             |        |           |
| STAGE II CONSTRUCTION                    |      |      |             |        |           |
| A2                                       | 18   | 4    | STR. 26'-2" | 315    |           |
| B1                                       | 102  | 6    | STR. 11'-7" | 1775   |           |
| B3                                       | 1    | 4    | STR. 11'-8" | 8      |           |
| D1                                       | 12   | 4    | STR. 0'-11" | 7      |           |
| D2                                       | 3    | 6    | STR. 1'-6"  | 7      |           |
| EPOXY COATED REIN. STEEL...LBS: 2112     |      |      |             |        |           |
| CLASS "AA" CONCRETE...CU. YD. 9.8        |      |      |             |        |           |
| STAGE III CONSTRUCTION                   |      |      |             |        |           |
| A3                                       | 18   | 4    | STR. 13'-2" | 158    |           |
| B1                                       | 52   | 6    | STR. 11'-7" | 905    |           |
| D3                                       | 36   | 4    | STR. 2'-10" | 68     |           |
| EPOXY COATED REIN. STEEL...LBS: 1131     |      |      |             |        |           |
| CLASS "AA" CONCRETE...CU. YD. 5.0        |      |      |             |        |           |
| FOR LATEX MOD. CONC. OVERLAY SEE DWG. 41 |      |      |             |        |           |
| <b>TOTAL @ END BENT NO. 1</b>            |      |      |             |        |           |
| EPOXY COATED REIN. STEEL...LBS: 4443     |      |      |             |        |           |
| CLASS "AA" CONCRETE...CU. YD. 20.6       |      |      |             |        |           |
| <b>APPROACH SLAB @ END BENT NO. 2</b>    |      |      |             |        |           |
| STAGE I CONSTRUCTION                     |      |      |             |        |           |
| A1                                       | 18   | 4    | STR. 14'-8" | 176    |           |
| B1                                       | 58   | 6    | STR. 11'-7" | 1009   |           |
| B2                                       | 1    | 4    | STR. 11'-2" | 7      |           |
| D1                                       | 12   | 4    | STR. 0'-11" | 7      |           |
| EPOXY COATED REIN. STEEL...LBS: 1199     |      |      |             |        |           |
| CLASS "AA" CONCRETE...CU. YD. 5.8        |      |      |             |        |           |
| STAGE II CONSTRUCTION                    |      |      |             |        |           |
| A2                                       | 18   | 4    | STR. 26'-2" | 315    |           |
| B1                                       | 102  | 6    | STR. 11'-7" | 1775   |           |
| B2                                       | 1    | 4    | STR. 11'-2" | 7      |           |
| D1                                       | 12   | 4    | STR. 0'-11" | 7      |           |
| EPOXY COATED REIN. STEEL...LBS: 2104     |      |      |             |        |           |
| CLASS "AA" CONCRETE...CU. YD. 9.8        |      |      |             |        |           |
| STAGE III CONSTRUCTION                   |      |      |             |        |           |
| A3                                       | 18   | 4    | STR. 13'-2" | 158    |           |
| B1                                       | 52   | 6    | STR. 11'-7" | 905    |           |
| D3                                       | 36   | 4    | STR. 2'-10" | 68     |           |
| EPOXY COATED REIN. STEEL...LBS: 1131     |      |      |             |        |           |
| CLASS "AA" CONCRETE...CU. YD. 5.0        |      |      |             |        |           |
| FOR LATEX MOD. CONC. OVERLAY SEE DWG. 41 |      |      |             |        |           |
| <b>TOTAL @ END BENT NO. 2</b>            |      |      |             |        |           |
| EPOXY COATED REIN. STEEL...LBS: 4434     |      |      |             |        |           |
| CLASS "AA" CONCRETE...CU. YD. 20.6       |      |      |             |        |           |
| PROJECT NO. 82402101                     |      |      |             |        |           |
| WAKE COUNTY                              |      |      |             |        |           |
| STATION: 32+98.75-L                      |      |      |             |        |           |
| SHT. 1 OF 2                              |      |      |             |        |           |
| STATE OF NORTH CAROLINA                  |      |      |             |        |           |
| DEPARTMENT OF TRANSPORTATION             |      |      |             |        |           |
| STANDARD                                 |      |      |             |        |           |
| BRIDGE APPROACH SLAB FOR RIGID PAVEMENT  |      |      |             |        |           |
| FEB. 1998                                |      |      |             |        |           |
| REVISIONS                                |      |      |             |        |           |
| NO.                                      | BY   | DATE | NO.         | DATE   | SHEET NO. |
| 1                                        |      |      | 3           |        | 5-230     |
| 2                                        |      |      | 4           |        | 332       |
| STD. NO. B451                            |      |      |             |        |           |

DWG. 40

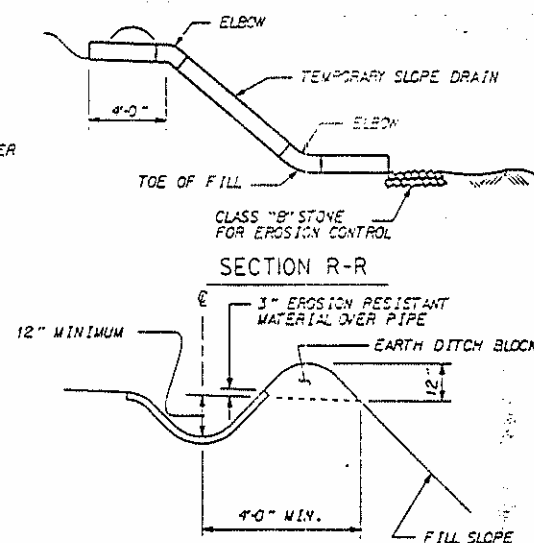


|                                                                   | STAGE # | III  | IV   | III  | IV   |
|-------------------------------------------------------------------|---------|------|------|------|------|
| APPROACH SLAB EB.1                                                |         | 1.2  | 1.2  | 1.2  | 1.2  |
| APPROACH SLAB EB.2                                                |         |      |      |      |      |
| LATEX MOD. CONC. OVERLAY - CU. YDS.                               |         | 35.3 | 34.0 | 35.3 | 31.1 |
| PLACING & FINISHING OF LATEX MODIFIED CONCRETE OVERLAY - SQ. YDS. |         |      |      |      |      |

\* SEE DWG. 4 FOR OVERLAY STAGING LIMITS.

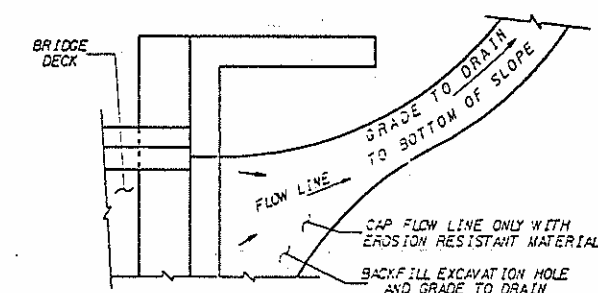


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) BITUMINOUS PLANT MIX, TYPE 1 OR TYPE 2, 1/2" MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.



PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER, TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE RESPONSIBLE TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL

PROJECT NO. 8.2402101

WAKE COUNTY

STATION: 32+98.75 - L-1

SHT. 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

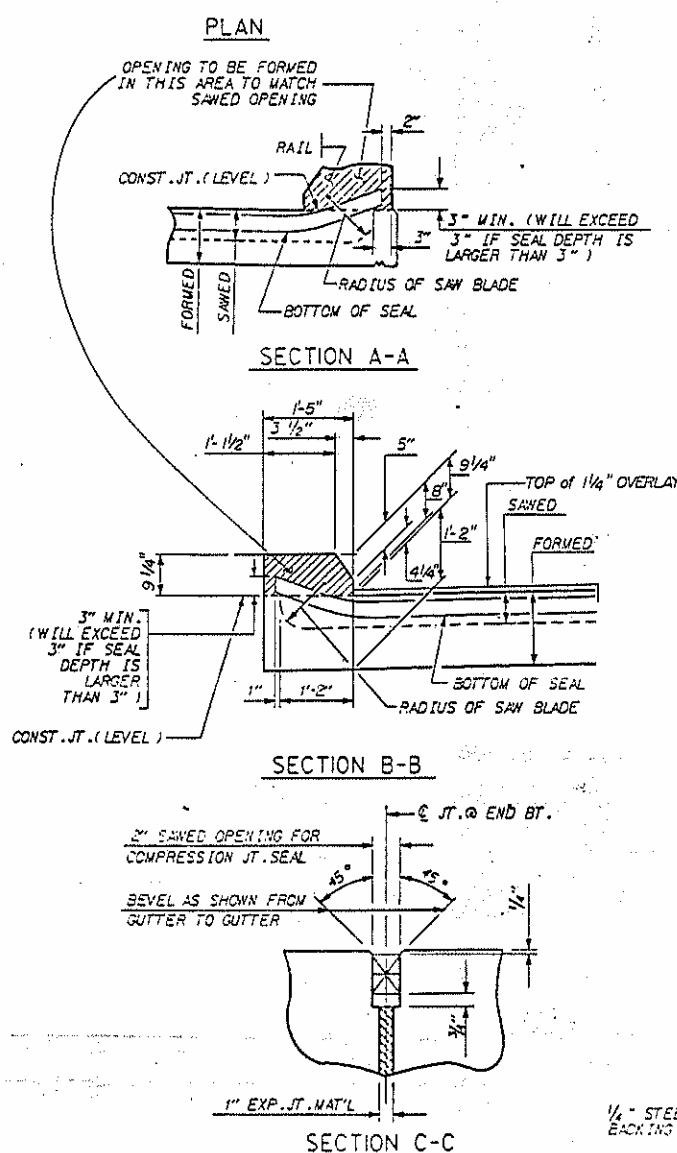
STANDARD  
BRIDGE APPROACH  
SLAB DETAILS

| REVISION | DATE     | BY             | CHKD | APP'D |
|----------|----------|----------------|------|-------|
| 1        | 5-92     | DAP            |      |       |
| 2        | 11/28/88 | F. C. JONES    |      |       |
| 3        | 11/28/88 | A. R. BISSETTE |      |       |

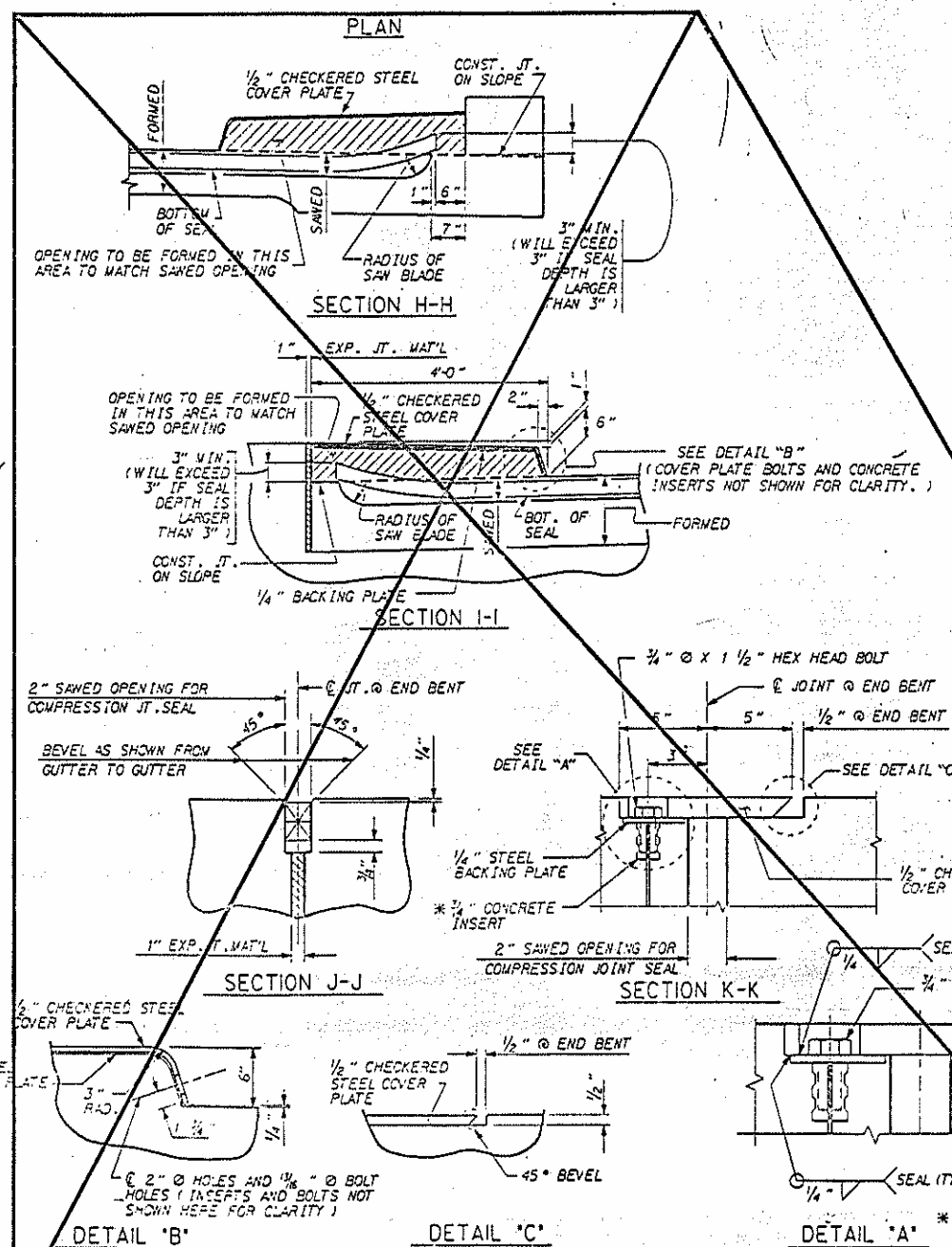
SHEET NO.  
S-331  
332

DWG. 41

STD. NO. 8453

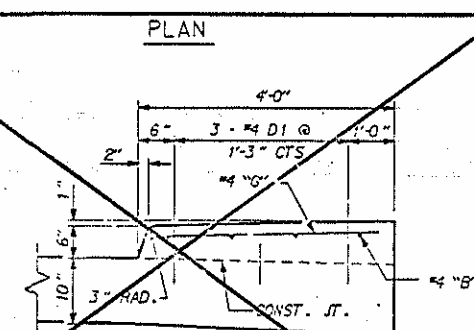


COMPRESSION JOINT SEAL DETAILS  
@ END BENT



COMPRESSION JOINT SEAL DETAILS @ END BENT

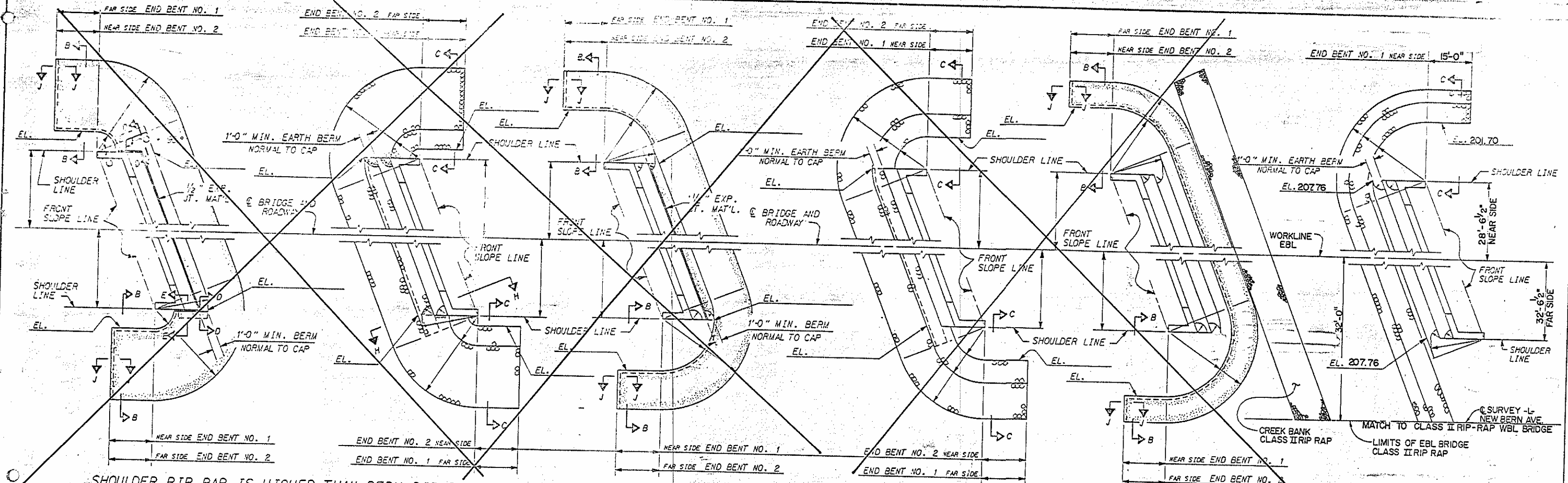
\* THE 1/4" CONCRETE INSERTS SHALL BE CLOSED-CELL FERRULES WITH LOOSE WIRE STRIPS ATTACHED TO THEM. THE INSERTS SHALL CONFORM TO SD-1 AND, GRADE 12L14 AND SHALL HAVE A TENSILE WORKING LOAD CAPACITY OF 3000 LBS.



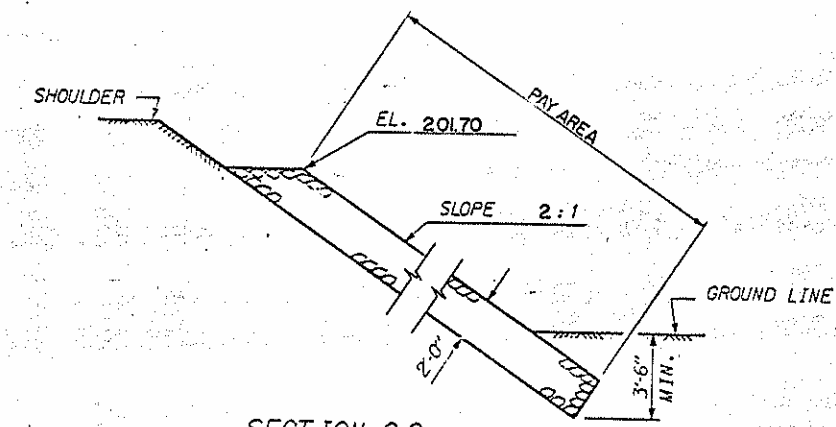
SECTION N-N  
SIDEWALK DETAILS

|                            |                |          |
|----------------------------|----------------|----------|
| ASSEMBLED BY: DAP          | DATE: 5-92     | SPECIAL  |
| CHECKED BY: F. C. JONES    | DATE: 11/28/88 | STANDARD |
| CHECKED BY: A. R. BISSETTE | DATE: 11/28/88 |          |

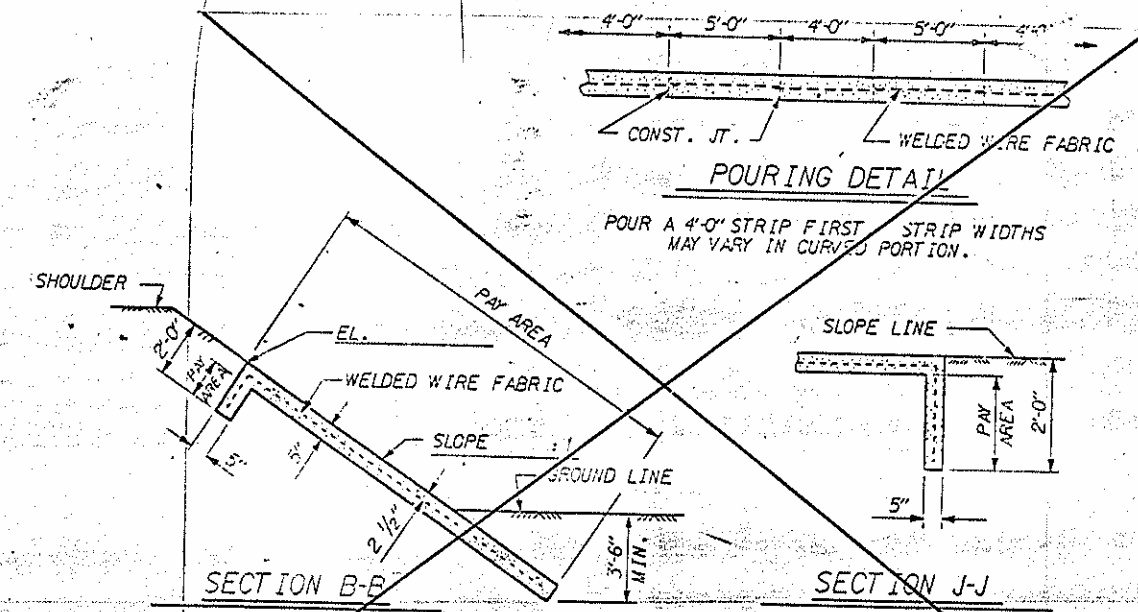
REVISED 5/15/91 BY: EJR JDE:GRP  
REVISED 3/1/90 BY: WHJ J DE:CK  
REVISED 11/28/88 BY: F. C. JONES  
REVISED 11/28/88 BY: A. R. BISSETTE



SHOULDER RIP RAP IS HIGHER THAN BERM RIP RAP  
CONCRETE RIP RAP      PLAIN RIP RAP      CONCRETE RIP RAP      PLAIN RIP RAP      RIP RAP BELOW BERM      PLAIN RIP RAP



SECTION C-C  
PLAIN RIP RAP DETAILS



SECTION B-B      SECTION J-J  
CONCRETE RIP RAP DETAILS

| ESTIMATED QUANTITIES             |              |                                 |              |                                                     |
|----------------------------------|--------------|---------------------------------|--------------|-----------------------------------------------------|
| PLAIN RIP RAP<br>CLASS 2<br>TONS |              | CONCRETE<br>RIP RAP<br>SQ. YDS. |              | WELDED WIRE<br>FABRIC 60"W X 6'<br>APPROX. LIN. FT. |
| BRIDGE AT                        | E. ST. NO. 1 | E. ST. NO. 1                    | E. ST. NO. 2 |                                                     |
| STA. 32+98.75                    | 1230 *       |                                 |              |                                                     |
|                                  |              |                                 |              |                                                     |
|                                  |              |                                 |              |                                                     |

\* INCLUDES CREEK BANK RIP RAP

\* INCLUDES CREEK BANK RIP RAP

NOTES :  
 FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.  
 CONCRETE RIP RAP SHALL BE CLASS "B" CONCRETE.  
 WELDED WIRE FABRIC REINFORCING TO BE STYLE 6 X 6, W2.9, 60" WIDE. ADJACENT RUNS OF WELDED WIRE FABRIC TO LAP AT LEAST 6".  
 CONCRETE RIP RAP TO BE POURED IN ALTERNATE 4' & 5' STRIPS AS SHOWN IN POURING DETAIL. TOE WALLS SHALL BE CONSTRUCTED AT ENDS OF RIP RAP SLOPE TO THAT SHOWN FOR THE TOP OF THE RIP RAP.  
 CONCRETE IN WALLS AT END BENT WINGS AS INDICATED BY CROSS-HATCHED AREAS IN SECTION C-C AND SECTION E-E WILL NOT BE MEASURED OR PAID FOR AS A SEPARATE ITEM. THE ENTIRE COST OF SAME SHALL BE INCLUDED IN THE PRICE BID PER SQ. YD. FOR CONCRETE RIP RAP.

PROJECT NO. 8.2402101  
 WAKE COUNTY  
 STATION: 32+98.75 - L1-

|                              |    |      |     |    |      |           |  |
|------------------------------|----|------|-----|----|------|-----------|--|
| STATE OF NORTH CAROLINA      |    |      |     |    |      |           |  |
| DEPARTMENT OF TRANSPORTATION |    |      |     |    |      |           |  |
| RALEIGH                      |    |      |     |    |      |           |  |
| STANDARD                     |    |      |     |    |      |           |  |
| RIP RAP DETAILS              |    |      |     |    |      |           |  |
| MARCH                        |    |      |     |    |      | 1984      |  |
| REVISIONS                    |    |      |     |    |      | SHEET NO. |  |
| NO.                          | BY | DATE | NO. | BY | DATE | S-332     |  |
| 1                            |    |      | 2   |    |      | 332       |  |
| 3                            |    |      | 4   |    |      | 332       |  |

|                             |             |          |
|-----------------------------|-------------|----------|
| DESIGNED BY : DAP           | DATE : 5-92 | SPECIAL  |
| CHECKED BY : JPM            | DATE : 5-92 |          |
| DRAWN BY : R.E. KUSSEY      | DATE : 1-93 | STANDARD |
| INVESTIGATED BY : J.P. DUNN | DATE : 1-93 |          |