



04/24/2003  
C:\H570502.s01

GENERAL NOTES:

THIS DESIGN IS FOR REPAIRS TO THREE BRIDGES ON NORTHBOUND I-380 IN CEDAR RAPIDS. THE FIRST BRIDGE IS THE 2221'- 8" X 52' - 0" CONTINUOUS WELDED PLATE GIRDER BRIDGE OVER IA 922 AND 3RD AVE. THIS BRIDGE IS DES. NO. 602 AND WILL BE REFERRED TO AS THE SOUTH APPROACH BRIDGE. THE SECOND BRIDGE IS THE 684'- 4 1/2" X VARIABLE WIDTH PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE OVER THE CEDAR RIVER. THIS BRIDGE IS DES. NO. 702 AND WILL BE REFERRED TO AS THE RIVER BRIDGE. THE THIRD BRIDGE IS THE 1473'-0 1/2" X VARIABLE WIDTH CONTINUOUS WELDED PLATE GIRDER BRIDGE OVER 1ST THROUGH 4TH STREETS AND THE CRI & P R.R. THIS BRIDGE IS DES. NO. 502 AND WILL BE REFERRED TO AS THE NORTH APPROACH BRIDGE. THE THREE MAINLINE BRIDGES FORM ONE CONTINUOUS STRUCTURE THROUGH DOWNTOWN CEDAR RAPIDS. COPIES OF THE ORIGINAL DESIGN PLANS WILL BE MADE AVAILABLE TO THE CONTRACTOR. CONTACT THE OFFICE OF CONTRACTS - HIGHWAY DIVISION - IOWA D.O.T. - AMES.

REPAIR SHALL CONSIST OF:

- ① REPLACING THE EXISTING SLIDING PLATE EXPANSION JOINTS WITH NEW STEEL EXTRUSIONS WITH NEOPRENE SEALS AT THE FOLLOWING LOCATIONS:  
  
-SOUTH ABUTMENT OF THE SOUTH APPROACH BRIDGE  
-NORTH ABUTMENT OF THE NORTH APPROACH BRIDGE
- ② REPLACING THE EXISTING SLIDING PLATE EXPANSION JOINTS WITH A NEW FINGER JOINT SYSTEM AT THE FOLLOWING LOCATIONS:  
  
-JOINT NO. 1N (NEAR PIER NO. 6N), JOINT NO. 3N (NEAR PIER NO. 15N), JOINT NO. 4N (NEAR PIER NO. 20N), AND JOINT NO. 5N (NEAR PIER NO. 24N), OF THE SOUTH APPROACH BRIDGE.  
-JOINT NO. 2N (NEAR PIER NO. 43N), JOINT NO. 3N (NEAR PIER NO. 49N), AND JOINT NO. 4N (NEAR PIER NO. 52N) OF THE NORTH APPROACH BRIDGE.
- ③ REPLACING THE EXISTING COMPRESSION SEALS WITH NEW STEEL EXTRUSIONS WITH NEOPRENE SEALS AT THE FOLLOWING LOCATIONS:  
  
-PIER NOS. 26, 28, 32, 34, AND 36 OF THE RIVER BRIDGE.  
-JOINT NO. 1N (NEAR PIER NO. 38N) OF THE NORTH APPROACH BRIDGE

ALL DIMENSIONS AND DETAILS SHOWN ON THESE PLANS PERTINENT TO NEW CONSTRUCTION IN RELATION TO EXISTING PORTIONS OF THE STRUCTURE SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR BEFORE STARTING CONSTRUCTION.

ALL DIMENSIONS REQUIRED TO FABRICATE NEW STRUCTURAL STEEL SHALL BE FIELD VERIFIED BY THE CONTRACTOR.

THE CITY AND UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE BRIDGE CONTRACTOR OF THE STARTING DATE.

THE CONTRACTOR SHALL WORK IN SUCH A MANNER THAT EQUIPMENT AND MATERIALS SHALL NOT BE ALLOWED TO INTERFERE WITH TRAFFIC BELOW OR BE ALLOWED TO FALL ON THE ROADWAYS BELOW. ON THE NORTH APPROACH BRIDGE, THE CONTRACTOR SHALL ALSO BE REQUIRED TO WORK IN SUCH A MANNER THAT EQUIPMENT AND MATERIALS SHALL NOT BE ALLOWED TO INTERFERE WITH TRAIN TRAFFIC OR BE ALLOWED TO FALL ON THE RAILROAD TRACKS. INTERFERENCE ABOVE THE RAILROAD TRACK AREA SHALL BE COORDINATED WITH THE RAILROAD.

CONSTRUCTION SHALL BE DONE IN STAGES WITH AT LEAST TWO LANE TRAFFIC MAINTAINED AT ALL TIMES IN ACCORDANCE WITH 'TRAFFIC CONTROL PLAN' NOTE.

THE PRICE BID FOR 'REMOVALS, AS PER PLAN' SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE FOLLOWING:  
REMOVAL OF THE EXPANSION JOINTS ON ALL BRIDGES.  
REMOVAL OF THE SECTIONS OF CONCRETE IN THE SLAB, DIAPHRAGM, BARRIER RAIL, AND/OR BACKWALL ADJACENT TO EACH OF THE EXPANSION JOINTS ON ALL BRIDGES.  
THE DISMANTLED MATERIAL IS TO BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED FROM THE SITE BY THE CONTRACTOR.

REMOVAL OF SCHEDULED ITEMS SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE SPECIFICATIONS. ANY DAMAGE TO ANY STEEL OR CONCRETE NOT TO BE REMOVED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE STATE.

EXISTING REINFORCING BARS THAT ARE EXPOSED BY CONCRETE REMOVAL SHALL BE CLEANED AND CAREFULLY INCORPORATED INTO THE NEW WORK WHERE NOTED OR SHOWN. REINFORCING BARS WHICH ARE DAMAGED OR RENDERED UNSERVICEABLE BY REMOVAL OPERATIONS SHALL BE REPLACED AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE STATE.

IF MACHINE FINISHING FOR THE TOP OF BACKWALL AND ENDS OF SLAB AT THE NEW JOINTS IS NOT PRACTICAL, A MANUAL TYPE SCREED OR METAL PLATE, WITH APPROVED VIBRATORS ATTACHED, SHALL BE USED.

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

ALL CONCRETE REMOVAL LINES SHALL BE INITIATED WITH A 3/4 INCH SAWCUT.

ALL EXPOSED CORNERS 90 DEGREES OR SHARPER ARE TO BE FILLETED WITH A 3/4 INCH DRESSED AND BEVELED STRIP.

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE EXISTING CONDUIT IN THE BRIDGE CURBS. IN ORDER TO ENSURE THE EXISTING CONDUITS AND/OR ELECTRICAL SERVICE (IF PRESENT) ARE NOT DAMAGED DURING REPLACEMENT OF THE EXPANSION JOINTS, THE CONTRACTOR SHALL BE REQUIRED TO DO THE FOLLOWING:  
1. PHYSICALLY LOCATE THE CONDUIT PRIOR TO THE REMOVAL OF THE EXISTING CURBS.  
2. AFTER PERFORMING THE REMOVAL OF THE EXISTING CURBS AND PRIOR TO PLACEMENT OF THE NEW CONCRETE, PROVE TO THE INSPECTOR BY A REASONABLE METHOD THE USABILITY OF THE CONDUIT HAS NOT BEEN COMPROMISED.  
THE COST OF THESE OPERATIONS WILL BE CONSIDERED INCIDENTAL TO THE COST OF THE STRUCTURAL CONCRETE. ANY DAMAGE TO THE CONDUIT OR WIRING BY THE CONTRACTOR WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE STATE.

NO TORCHWORK, CUTTING, GRINDING OR DRILLING OF HOLES ON THE EXISTING STRUCTURAL STEEL OF THE BRIDGE SHALL BE PERFORMED WHEN THE AIR TEMPERATURE AND STEEL TEMPERATURE ARE BELOW 40°F.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, PRIOR TO BEGINNING CONSTRUCTION, A PROPOSED METHOD THAT SHOWS THEY ARE CAPABLE OF PROVIDING THE CONCRETE STRENGTH REQUIRED WITHIN THE TIME PERIOD ALLOWED. INCLUDED IN THE SUBMITTAL WILL BE THE CONTRACTOR'S PROPOSED METHOD OF CURING THE CONCRETE. IDOT INTENDS TO USE THE MATURITY METHOD OF TESTING THE STRENGTH OF THE PORTLAND CEMENT CONCRETE. REFER TO THE TRAFFIC CONTROL PLAN, ON SHEET 42, FOR ADDITIONAL INFORMATION CONCERNING THE TIME PERIOD ALLOWED FOR CONSTRUCTION. SEE ESTIMATE REFERENCE INFORMATION FOR ADDITIONAL CONCRETE REQUIREMENTS.

ACTUAL BRIDGE QUANTITIES					
ITEM NO.	ITEM CODE	ITEM	UNITS	QUANTITY	AS BUILT QUANTITY
1	2401-6750001	REMOVALS, AS PER PLAN	LS	1.000	1.000
2	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	132.500	132.500
3	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	17920.000	17920.000
4	2408-7800000	STRUCTURAL STEEL	LB	120225.000	120225.000
5	2413-1200000	STEEL EXTRUSION JOINT WITH NEOPRENE	LF	478.000	478.000
6	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	7038.000	6612.500
7	2533-4980005	MOBILIZATION	LS	1.000	1.000

ESTIMATE REFERENCE INFORMATION

DATA LISTED BELOW IS FOR INFORMATIONAL PURPOSES ONLY AND SHALL NOT CONSTITUTE A BASIS FOR ANY EXTRA WORK ORDERS.

ITEM NO.	DESCRIPTION
1	INCLUDES REMOVAL OF THE EXISTING COMPRESSION SEALS AND SLIDING PLATE JOINTS.
2	CONCRETE SHALL MEET THE REQUIREMENTS OF A CLASS C MIX. MATURITY TESTING WILL BE USED TO DETERMINE CONCRETE STRENGTH. A FLEXURAL STRENGTH OF 400 PSI WILL BE REQUIRED PRIOR TO SUBJECTING THE CONCRETE TO TRAFFIC LOADS.
6	ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 12'-6 LONG CONCRETE UNITS.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL A PROPOSED METHOD FOR POURING THE BARRIER RAIL AND CURB SECTIONS WITHIN THE TIME PERIOD ALLOWED.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, PRIOR TO BEGINNING CONSTRUCTION, A PROPOSED METHOD FOR COVERING THE OPENING IN THE SLAB IN THE EVENT THAT THE EXISTING JOINT HAS BEEN REMOVED, CONCRETE HAS NOT BEEN POURED, AND THE BRIDGE MUST BE OPENED TO TRAFFIC.

THE STRIP SEAL GLANDS SHALL BE PLACED IN THE STEEL EXTRUSIONS IN ONE CONTINUOUS PIECE. THIS OPERATION SHALL BE PERFORMED AS PART OF STAGE 3 OF THE CONSTRUCTION. NO SPLICING OF THE STRIP SEAL GLAND WILL BE PERMITTED. THE GLANDS MAY BE DROPPED THROUGH THE OPENING AND TEMPORARILY SUPPORTED BELOW THE DECK WHILE THE TRAFFIC CONTROL IS MANEUVERED. REFER TO THE STAGING NOTES AND TRAFFIC CONTROL PLAN, ON SHEET 42 FOR ADDITIONAL INFORMATION CONCERNING STAGE 3 CONSTRUCTION.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL A PROPOSED METHOD FOR PREVENTING DEBRIS FROM THE CONCRETE REMOVAL OPERATIONS NEAR THE MEDIAN BARRIER FROM INTERFERING WITH TRAFFIC ON THE SOUTHBOUND LANES OF I-380.

SPECIFICATIONS:  
DESIGN: AASHTO SERIES OF 1996 PLUS CURRENT INTERIMS. CONSTRUCTION: THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2001, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

DESIGN STRESSES:  
DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1996, PLUS CURRENT INTERIM SPECIFICATIONS. CONCRETE IN ACCORDANCE WITH SECTION 8, f'c = 3,500 PSI.  
REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60.  
2" x 2'-6 FINGER JOINT PLATE IN ACCORDANCE WITH SECTION 10, ASTM A572, GRADE 50.  
ALL OTHER STRUCTURAL STEEL IN ACCORDANCE WITH SECTION 10, ASTM A709, GRADE 36.

DESIGN FOR REPAIRS TO MULTIPLE SKEWS  
4420'-4 x VAR. WIDTH WELDED  
PLATE GIRDER & PRETENS.  
PRESTR. CONCRETE BEAM BRIDGE  
I-380 OVER CEDAR RIVER BRIDGE & APPROACHES  
SITUATION PLAN & QUANTITIES  
STATION: 344+28.26 (DESIGN 502 - NORTH APPROACH)  
~~STATION: 322+81.95 (DESIGN 602 - SOUTH APPROACH)~~  
~~STATION: 344+28.26 (DESIGN 702 - CEDAR RIVER)~~ APRIL, 2003  
LINN COUNTY  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 1 OF 39 FILE NO. 29821 DESIGN NO. 502, 602, 702

WHKS & CO.  
ENGINEERS PLANNERS LAND SURVEYORS  
MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN

NOTE:  
ROADWAY QUANTITIES SHOWN  
ELSEWHERE IN THESE PLANS.

TRAFFIC CONTROL PLAN:  
THE ROADWAY WILL BE OPEN TO THRU TRAFFIC.  
REFER TO THE TRAFFIC CONTROL PLAN SHOWN  
ELSEWHERE IN THESE PLANS.

THE CONTRACTOR IS ENCOURAGED TO TAKE FULL ADVANTAGE  
OF SPECIFICATION 1105.15 -- VALUE ENGINEERING INCENTIVE  
PROPOSAL. A PAMPHLET AND CONCEPTUAL PROPOSAL FORM  
WILL BE AVAILABLE AT THE PRECONSTRUCTION CONFERENCE.

DESIGNED BY S.T.S. CHECKED BY S.T.S.  
DETAILED BY T.A.M. CADD FILE H570502.S01

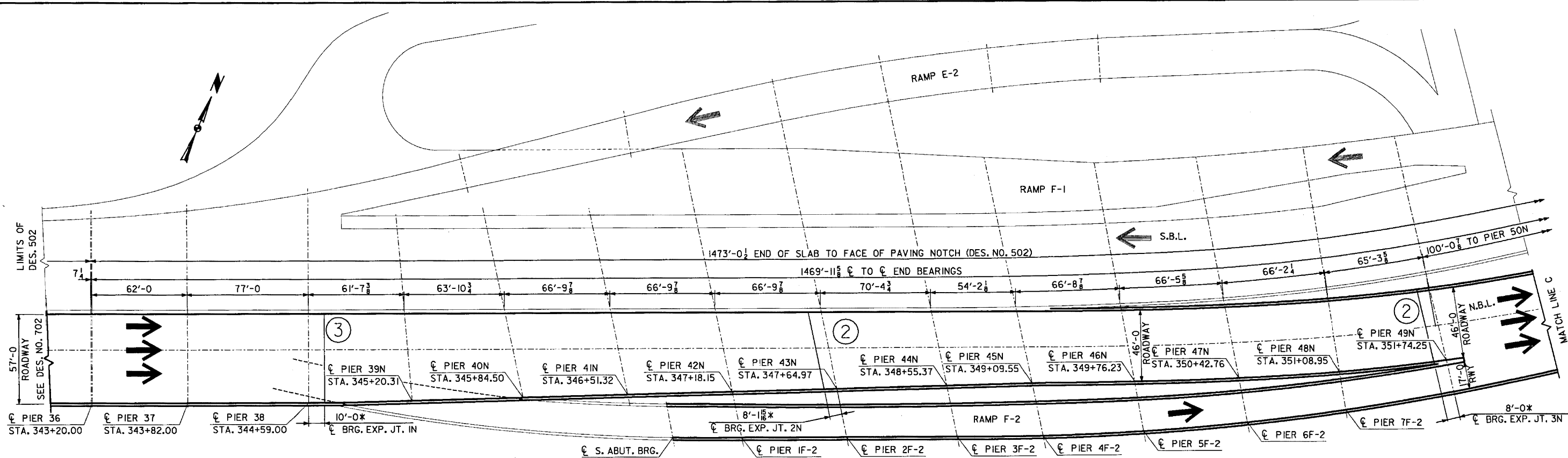
LINN COUNTY

PROJECT NUMBER IMN-380-6(227)19--OE-57

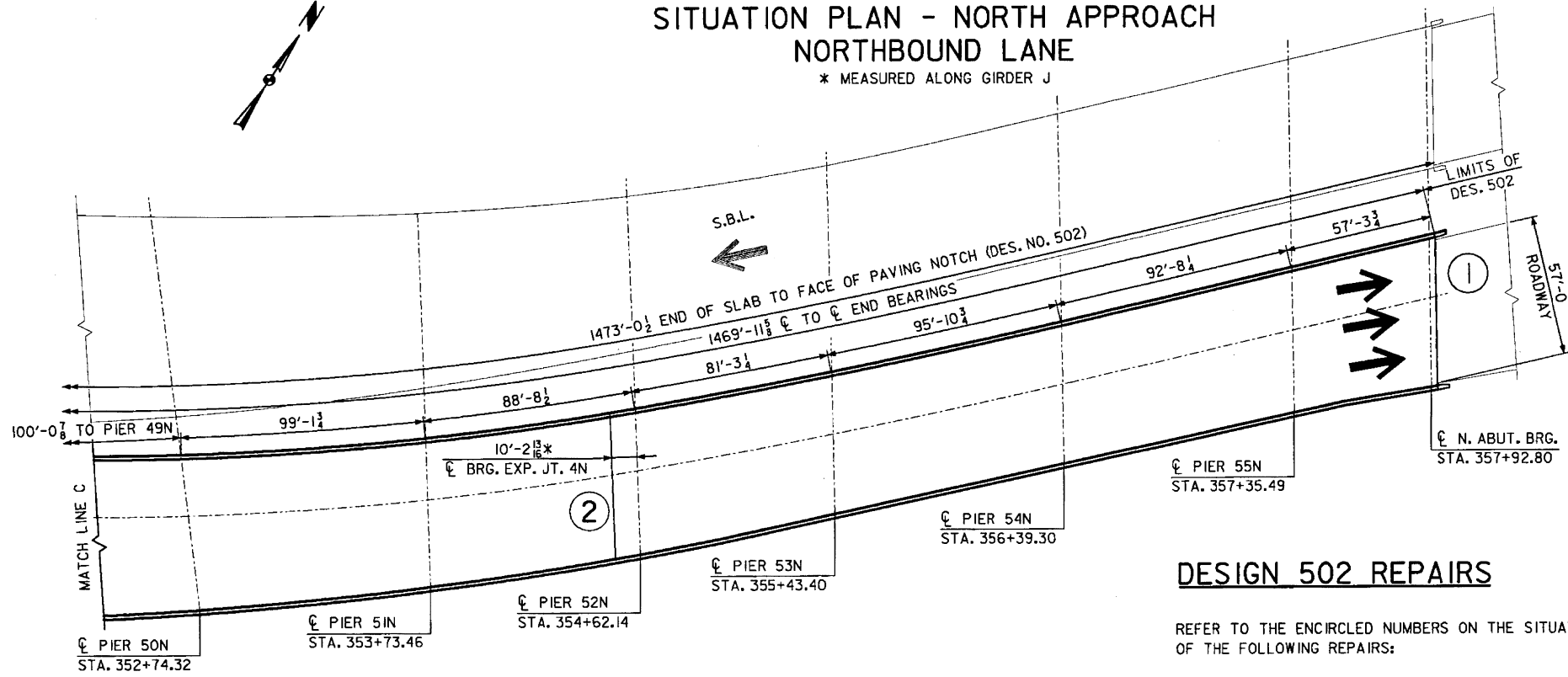
SHEET NUMBER 2/76



03/28/2003  
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SITUATION PLAN - NORTH APPROACH  
NORTHBOUND LANE  
\* MEASURED ALONG GIRDER J



DESIGN 502 REPAIRS

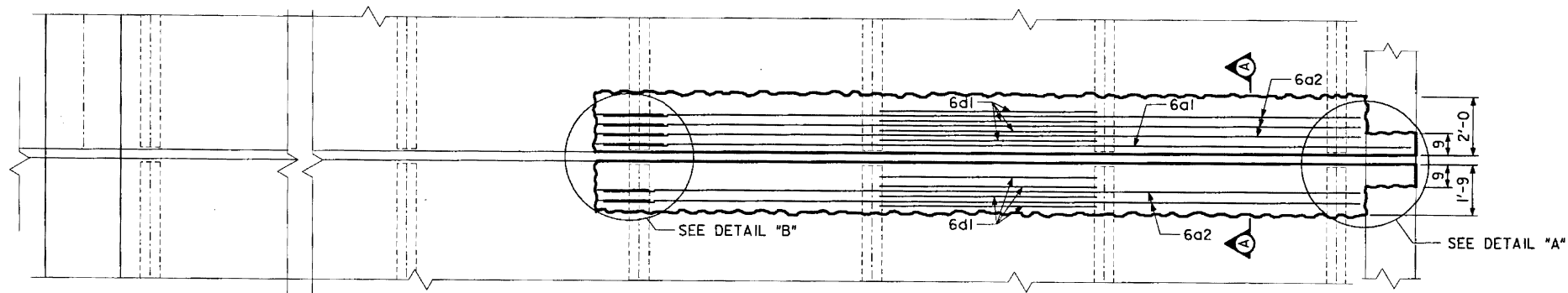
- REFER TO THE ENCIRCLED NUMBERS ON THE SITUATION PLAN TO LOCATE EACH OF THE FOLLOWING REPAIRS:
- ① REPLACING EXISTING SLIDING PLATE EXPANSION JOINT WITH A NEW STEEL EXTRUSION WITH NEOPRENE SEAL.
  - ② REPLACING THE EXISTING SLIDING PLATE JOINT WITH A FINGER JOINT SYSTEM.
  - ③ REPLACING THE EXISTING COMPRESSION SEAL WITH A NEW STEEL EXTRUSION WITH NEOPRENE SEAL.

DESIGN HISTORY AT THIS SITE	
DES. NO.	TYPE OF WORK
1176	ORIGINAL DESIGN
502	JOINT REPAIR

LOCATION:  
MAINT. NO. 5720.3R380  
ON NORTHBOUND I-380 OVER  
1ST., 2ND., 3RD., AND 4TH STS. N.E.  
AND CRI & PRR  
RAILROADS  
T-83N, R-7W  
SECTION 21  
RAPIDS TWP.  
CITY OF CEDAR RAPIDS  
LINN COUNTY  
FHWA #603690

DESIGN FOR REPAIRS TO MULTIPLE SKEWS  
**4420'-4 x VAR. WIDTH WELDED  
PLATE GIRDER & PRETENS.  
PRESTR. CONCRETE BEAM BRIDGE**  
I-380 OVER CEDAR RIVER BRIDGE & APPROACHES  
**SITUATION PLAN**  
STATION: 344+28.26 (DESIGN 502 - NORTH APPROACH)  
~~STATION: 322+81.95 (DESIGN 602 - SOUTH APPROACH)~~  
~~STATION: 344+28.26 (DESIGN 702 - CEDAR RIVER)~~  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 5 OF 39 FILE NO. 29821 DESIGN NO. 502

**WHKS & CO.**  
ENGINEERS PLANNERS LAND SURVEYORS  
NASH, CTT, IA DUBUQUE, IA AMES, IA ROCHESTER, MN  
DESIGNED BY S.T.S. CHECKED BY S.T.S.  
DETAILED BY T.A.M. CADD FILE H570502.S05



**PLAN VIEW  
REPAIR DETAILS - STAGE ONE**  
(NEW STRIP SEAL NOT SHOWN)

NOTE:  
HANDRAIL NOT SHOWN FOR CLARITY.  
HANDRAIL TO REMAIN.

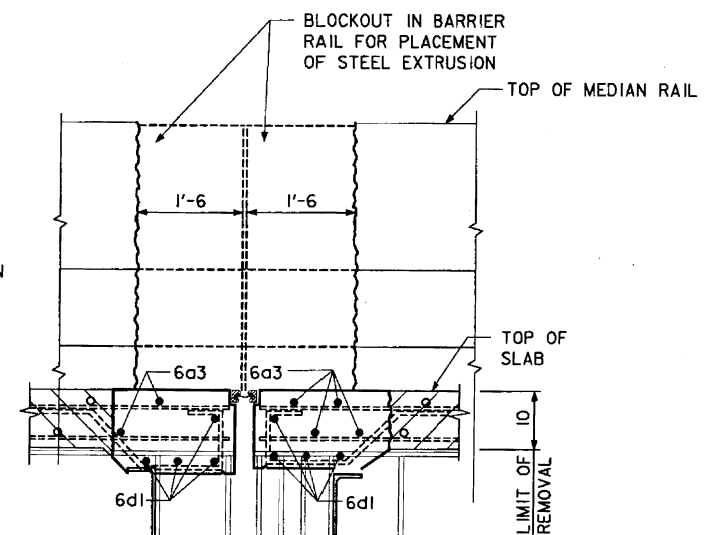
### EPOXY COATED REINFORCING STEEL

MARK	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a1	SLAB, TRANSVERSE		1	27'-2	41
6a2	SLAB, TRANSVERSE		5	25'-6	192
6d1	DIAPHRAGM		24	7'-3	261
TOTAL (lbs)					494

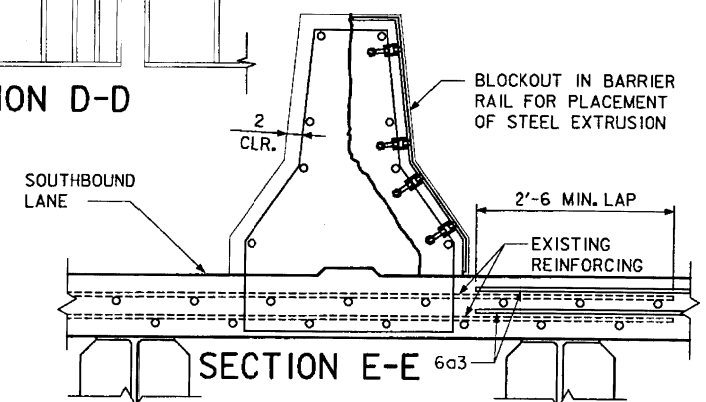
### CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
SLAB*	3.4
TOTAL (CY)	3.4

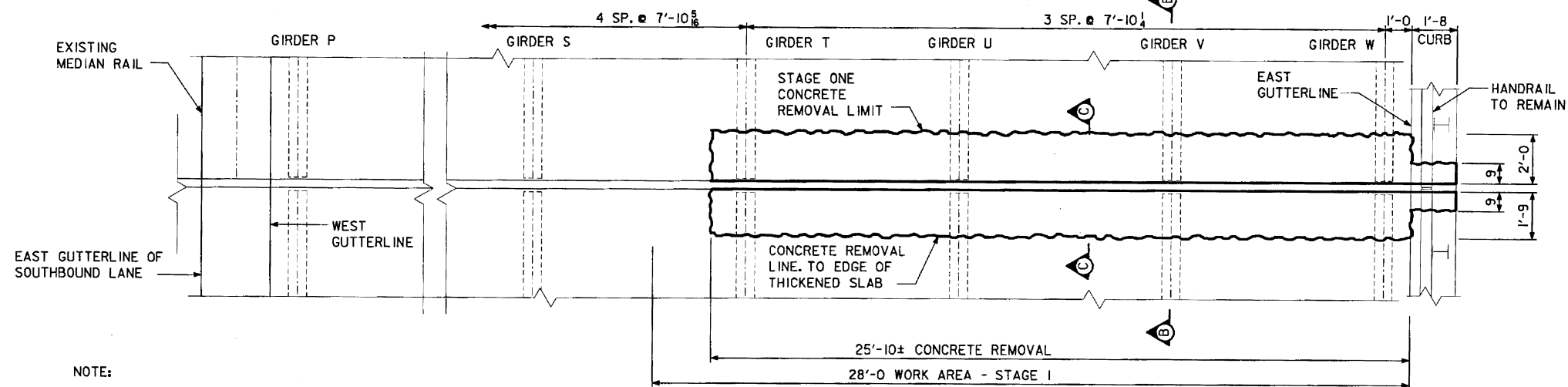
\*INCLUDES CURB



**SECTION D-D**



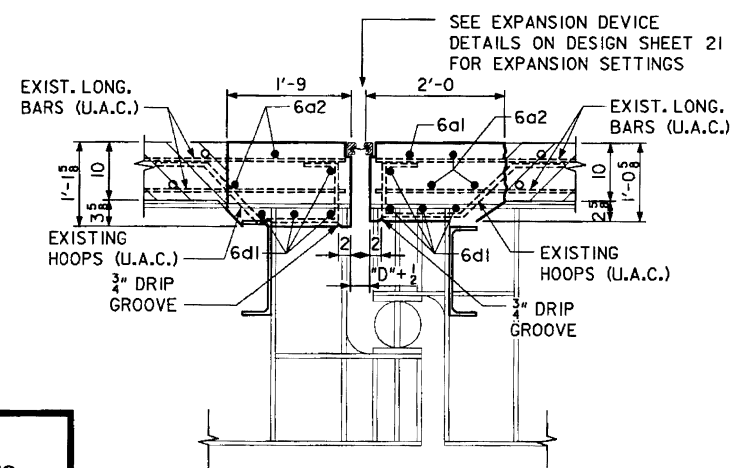
**SECTION E-E**



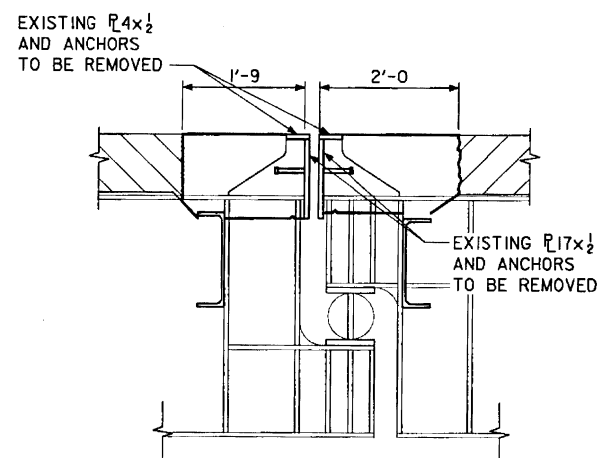
**PLAN VIEW  
CONCRETE REMOVAL - STAGE ONE**  
(EXISTING COMPRESSION SEAL AND REINFORCING NOT SHOWN)

NOTE:  
SEE DESIGN SHEET 17 FOR DETAILS "A" AND "B".

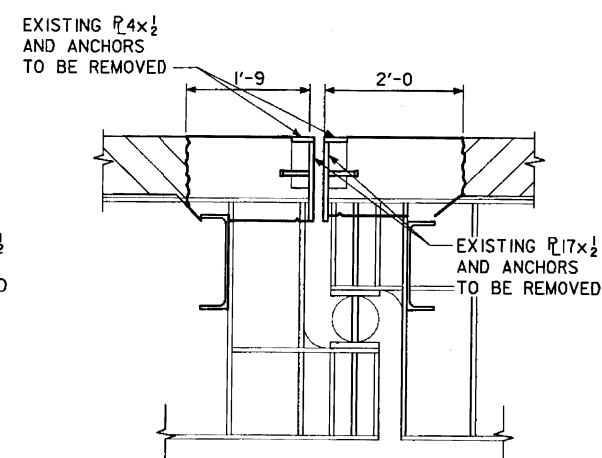
NOTE:  
LONGITUDINAL BARS, CURB HOOPS,  
AND DIAPHRAGM HOOPS EXPOSED BY  
CONCRETE REMOVAL SHALL BE CLEANED  
AND INCORPORATED INTO NEW WORK.



**SECTION A-A**



**SECTION B-B**  
(AT GIRDER LOCATIONS / REINFORCING NOT SHOWN)



**SECTION C-C**  
(TYPICAL BETWEEN GIRDERS / REINFORCING NOT SHOWN)

DESIGN FOR REPAIRS TO MULTIPLE SKEWS  
**4420'-4 x VAR. WIDTH WELDED  
PLATE GIRDER & PRETENS.  
PRESTR. CONCRETE BEAM BRIDGE**  
I-380 OVER CEDAR RIVER BRIDGE & APPROACHES  
**JOINT IN STAGE ONE DETAILS**  
STATION: 344+28.26 (DESIGN 502 - NORTH APPROACH)  
~~STATION: 322+81.95 (DESIGN 602 - SOUTH APPROACH)~~  
~~STATION: 344+28.26 (DESIGN 702 - CEDAR RIVER)~~  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 16 OF 39 FILE NO. 29821 DESIGN NO. 502

APRIL, 2003

**WHKS & CO.**

ENGINEERS PLANNERS LAND SURVEYORS  
MASON CITY, IA DUBUQUE, IA JAMES, IA ROCHESTER, MN

DESIGNED BY S.T.S. CHECKED BY S.T.S.  
DETAILED BY T.A.M. CADD FILE H570502.S16

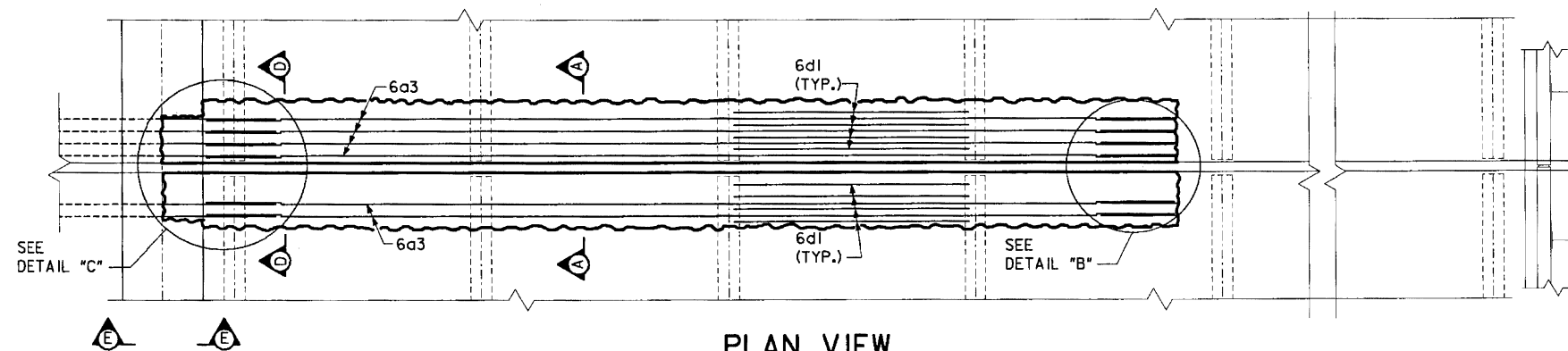
LINN COUNTY

PROJECT NUMBER

IMN-380-6(227)19--OE-57

SHEET NUMBER

17/78



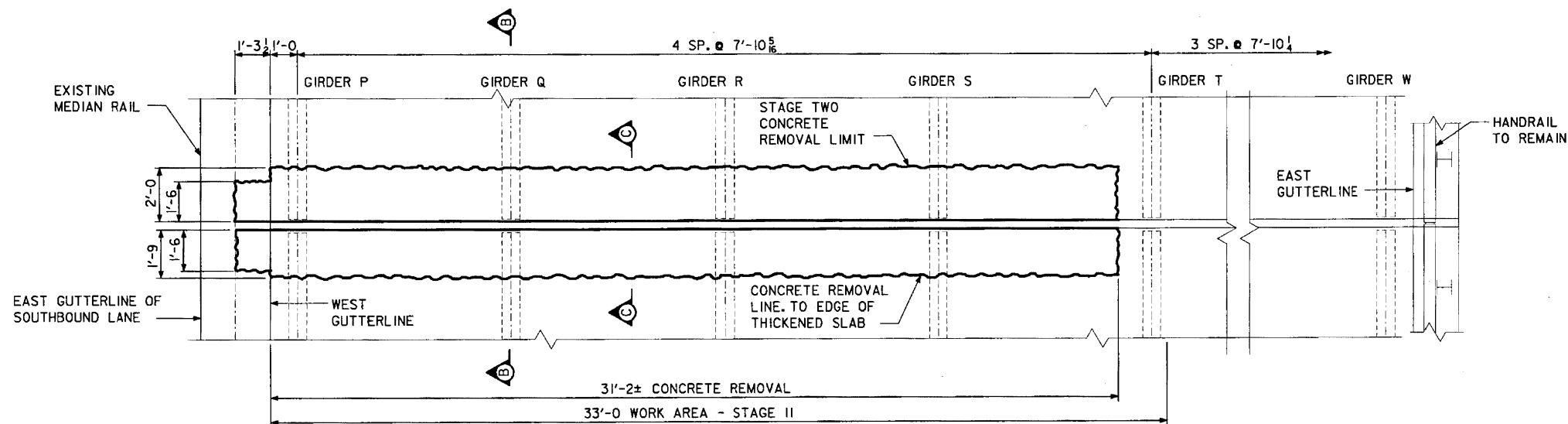
**PLAN VIEW  
REPAIR DETAILS - STAGE TWO**  
(NEW STRIP SEAL NOT SHOWN)

EPOXY COATED REINFORCING STEEL					
MARK	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a3	SLAB, TRANSVERSE	—	6	30'-10"	278
6d1	DIAPHRAGM	—	32	7'-3"	348
TOTAL (lbs)					626

### CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
SLAB*	4.2
TOTAL (CY)	4.2

\* INCLUDES BARRIER RAIL



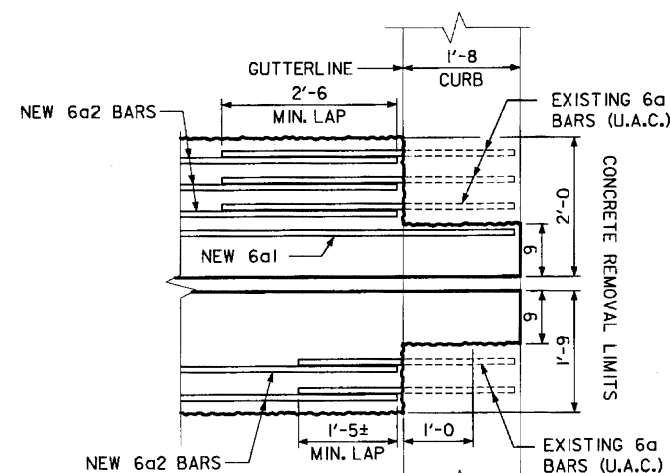
NOTE:

LONGITUDINAL BARS AND CURB HOOPS  
EXPOSED BY CONCRETE REMOVAL SHALL BE  
CLEANED AND INCORPORATED INTO NEW WORK.

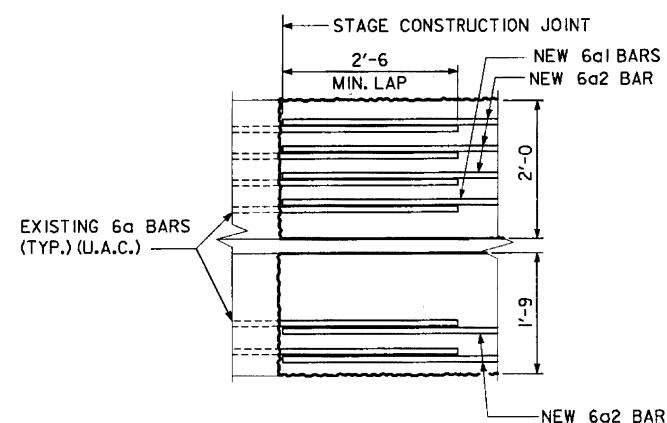
**PLAN VIEW  
CONCRETE REMOVAL - STAGE TWO**  
(EXISTING COMPRESSION SEAL AND REINFORCING NOT SHOWN)

NOTE:

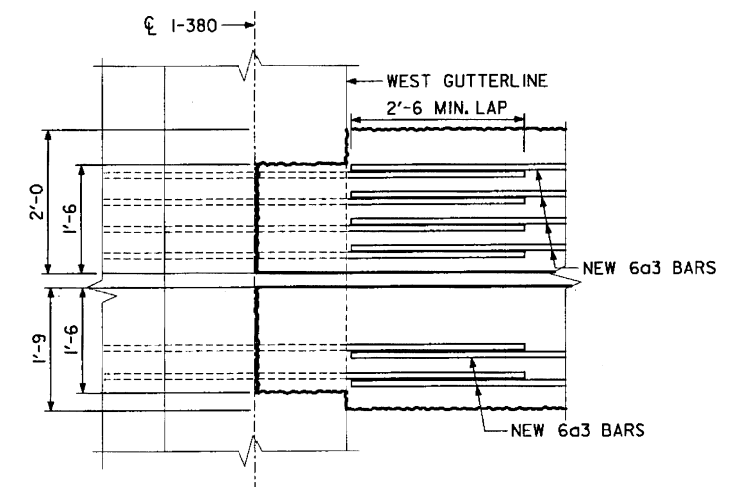
SEE DESIGN SHEET 16 FOR SECTIONS A-A, B-B,  
C-C, D-D, AND E-E.



**DETAIL A**  
(STAGE ONE)



**DETAIL B**  
(STAGE ONE SHOWN, MIRROR FOR STAGE TWO)



**DETAIL C**  
(STAGE TWO)



DESIGNED BY S.T.S. CHECKED BY S.T.S.  
DETAILED BY T.A.M. CADD FILE H570502.S17

DESIGN FOR REPAIRS TO MULTIPLE SKEWS  
**4420'-4 x VAR. WIDTH WELDED  
PLATE GIRDER & PRETENS.  
PRESTR. CONCRETE BEAM BRIDGE**  
I-380 OVER CEDAR RIVER BRIDGE & APPROACHES  
**JOINT IN STAGE TWO DETAILS**  
STATION: 344+28.26 (DESIGN 502 - NORTH APPROACH)  
~~STATION: 322+81.95 (DESIGN 602 - SOUTH APPROACH)~~  
~~STATION: 344+28.26 (DESIGN 702 - CEDAR RIVER)~~ APRIL, 2003  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 17 OF 39 FILE NO. 29821 DESIGN NO. 502

LINN COUNTY

PROJECT NUMBER

IMN-380-6(227)19--0E-57

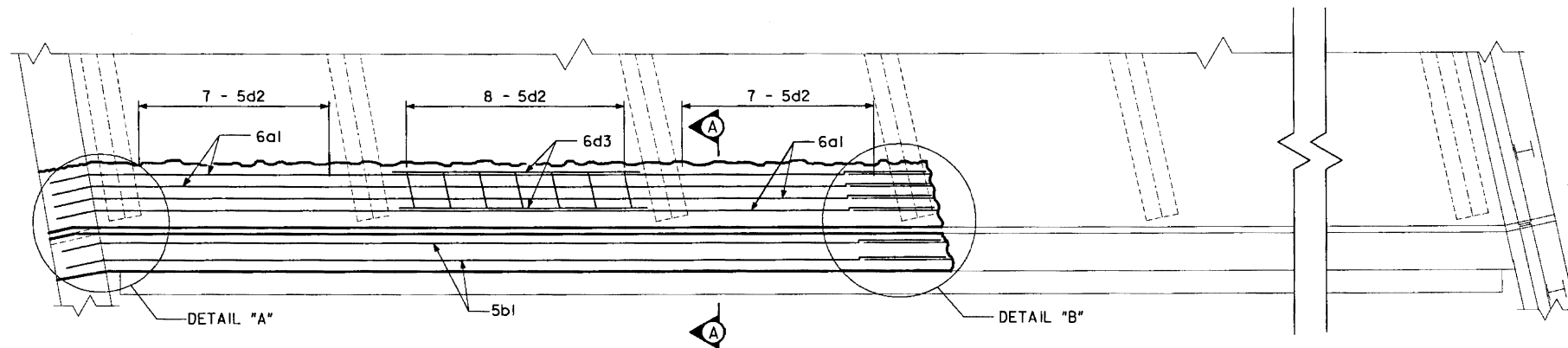
SHEET NUMBER

18/76



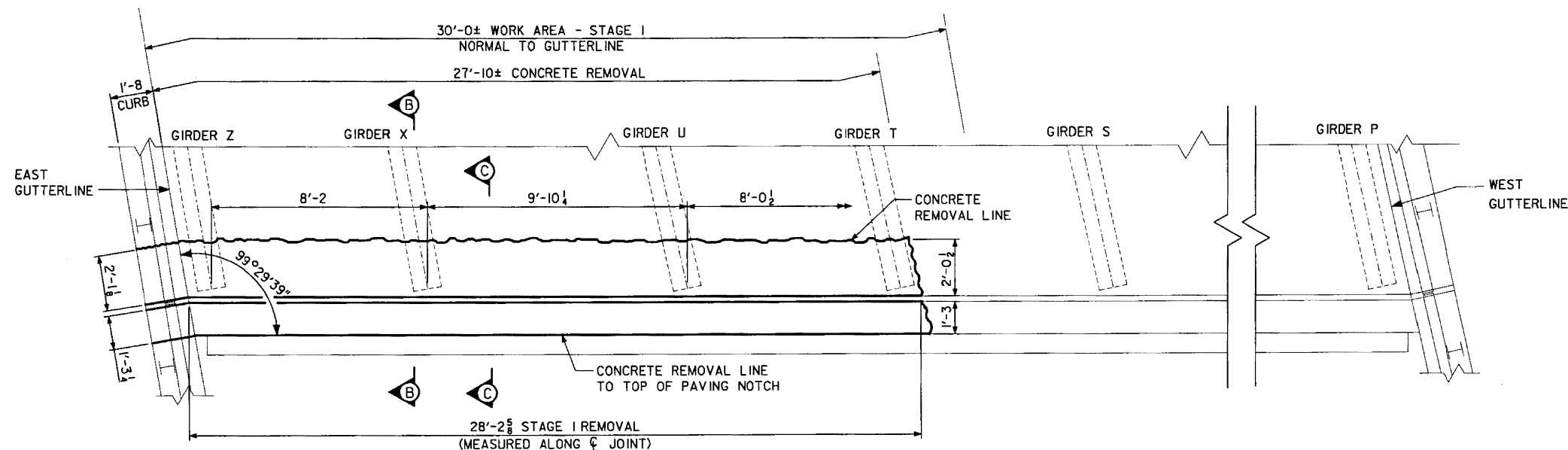
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NOTE:  
HANDRAIL NOT SHOWN FOR CLARITY.  
HANDRAIL TO REMAIN.

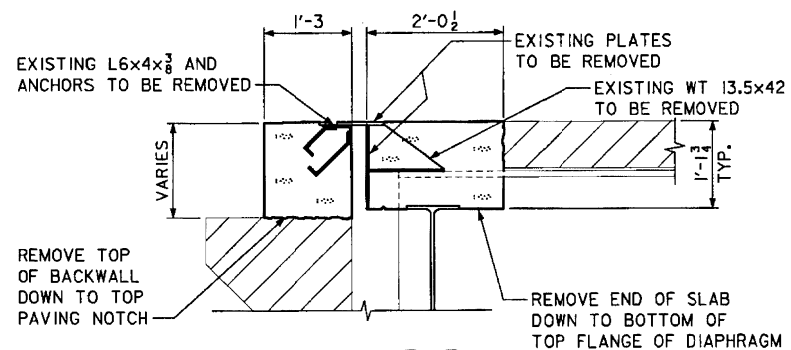
### PLAN VIEW REPAIR DETAILS - STAGE ONE (NEW STRIP SEAL NOT SHOWN)



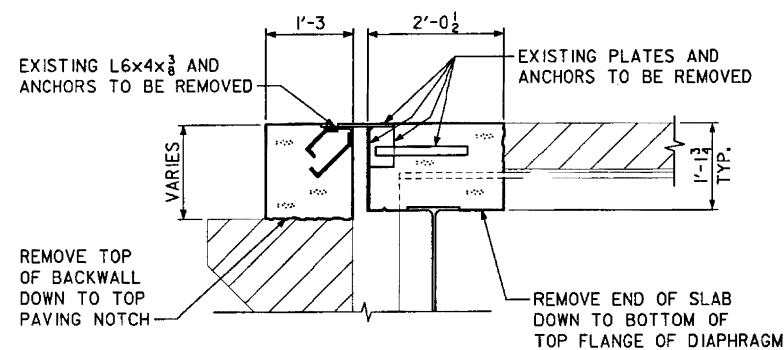
NOTE:  
LONGITUDINAL BARS AND CURB HOOPS EXPOSED BY  
CONCRETE REMOVAL SHALL BE CLEANED AND  
INCORPORATED INTO NEW WORK.

### PLAN VIEW CONCRETE REMOVAL - STAGE ONE (EXISTING SLIDING PLATE AND REINFORCING NOT SHOWN)

NOTE:  
SEE DESIGN SHEET 19 FOR DETAILS "A" AND "B".



### SECTION B-B (AT GIRDER LOCATIONS / REINFORCING NOT SHOWN)



### SECTION C-C (TYPICAL BETWEEN GIRDERS / REINFORCING NOT SHOWN)

### EPOXY COATED REINFORCING STEEL

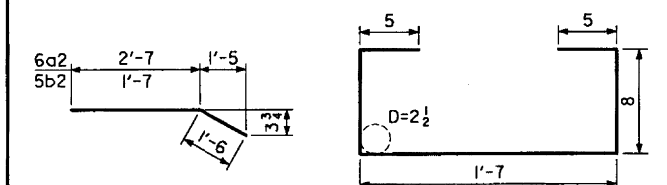
MARK	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a1	SLAB, TRANSVERSE		4	29'-2	175
5b1	BACKWALL, TRANSVERSE		4	29'-2	122
6d1	DIAPHRAGM		6	7'-8	69
5d2	ABUTMENT HOOPS		22	3'-9	86
6d3	DIAPHRAGM		3	9'-6	43
TOTAL (lbs)					495

### CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
BACKWALL*	1.7
SLAB*	2.0
TOTAL (CY)	3.7

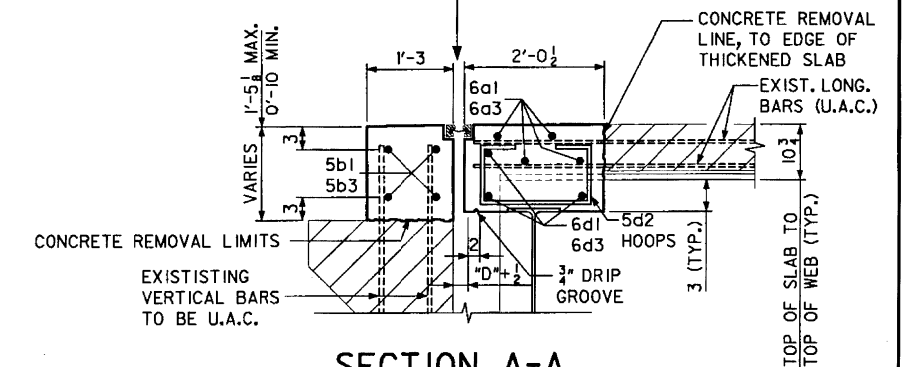
\* INCLUDES CURB

### BENT BAR DETAIL



NOTE: ALL PIN DIMENSIONS ARE OUT TO OUT.

SEE EXPANSION DEVICE  
DETAILS ON DESIGN SHEET  
21 FOR EXPANSION SETTINGS



### SECTION A-A

DESIGN FOR REPAIRS TO MULTIPLE SKEWS  
**4420'-4 x VAR. WIDTH WELDED  
PLATE GIRDER & PRETENS.  
PRESTR. CONCRETE BEAM BRIDGE**  
I-380 OVER CEDAR RIVER BRIDGE & APPROACHES  
**N. ABUTMENT STAGE ONE DETAILS**  
STATION: 344+28.26 (DESIGN 502 - NORTH APPROACH)  
~~STATION: 322+81.95 (DESIGN 602 - SOUTH APPROACH)~~  
~~STATION: 344+28.26 (DESIGN 702 - CEDAR RIVER)~~  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 18 OF 39 FILE NO. 29821 DESIGN NO. 502



DESIGNED BY S.T.S. CHECKED BY S.T.S.  
DETAILED BY T.A.M. CADD FILE H570502.S18

LINN COUNTY

PROJECT NUMBER

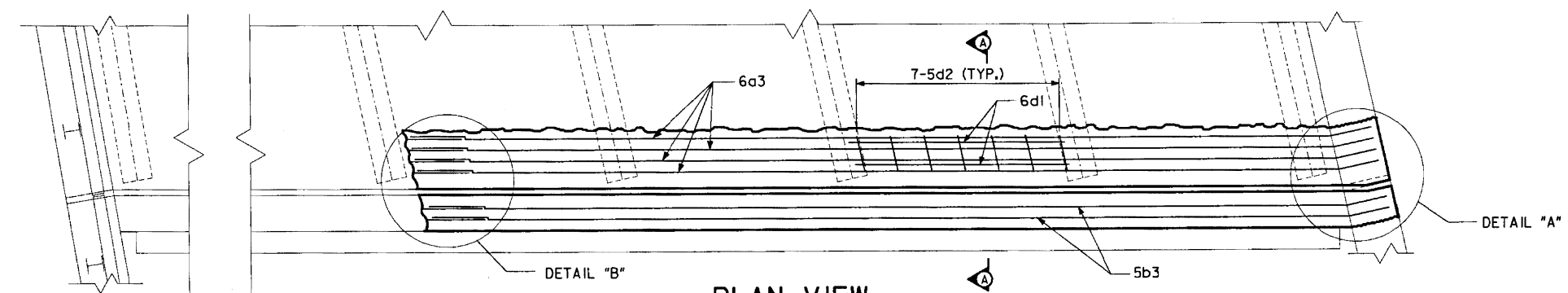
IMN-380-6(227)19--0E-57

SHEET NUMBER

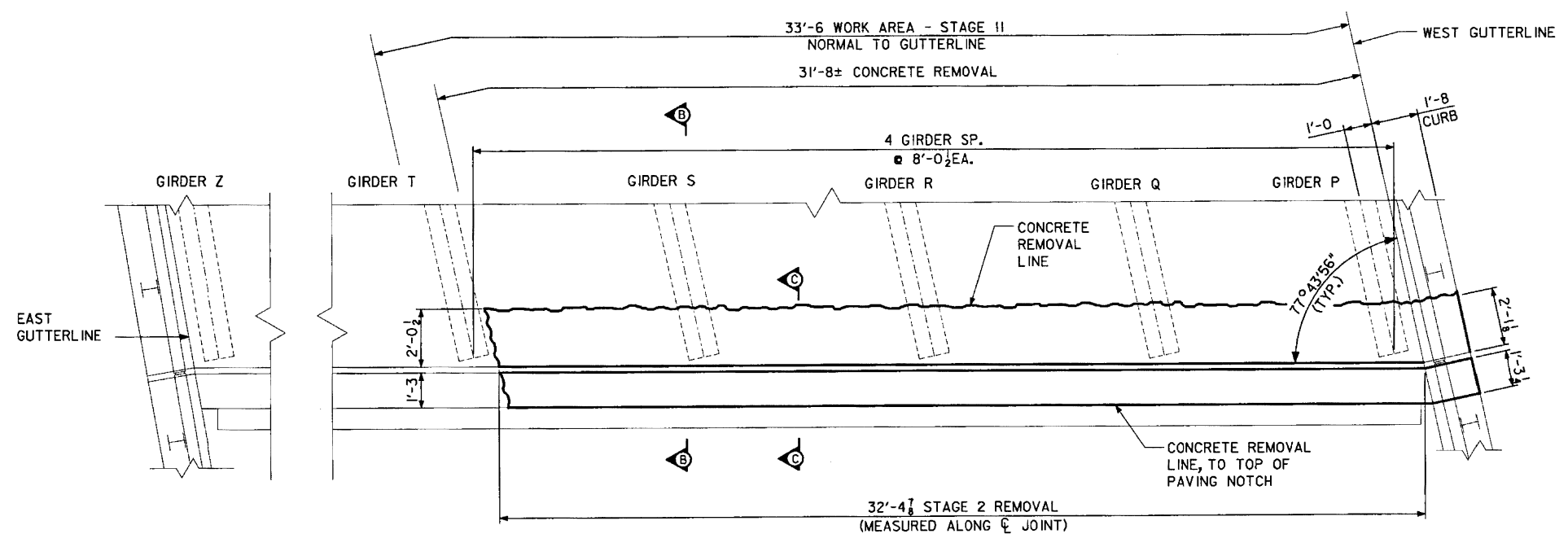
19/76

03/28/2003

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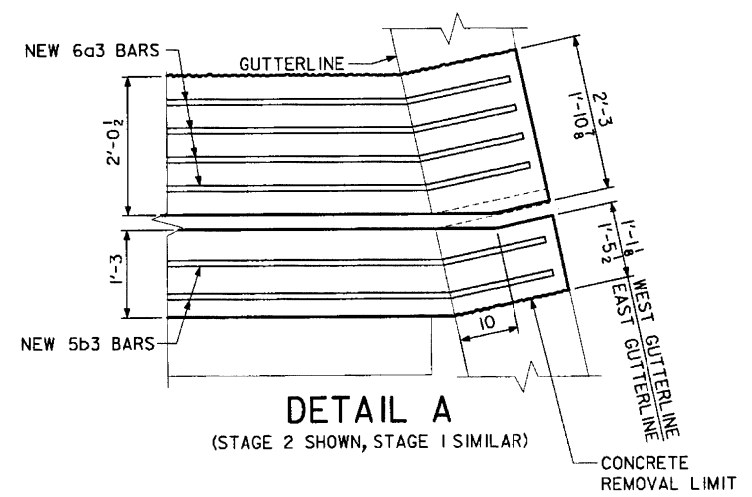
PLAN VIEW  
REPAIR DETAILS - STAGE TWO  
(NEW STRIP SEAL NOT SHOWN)



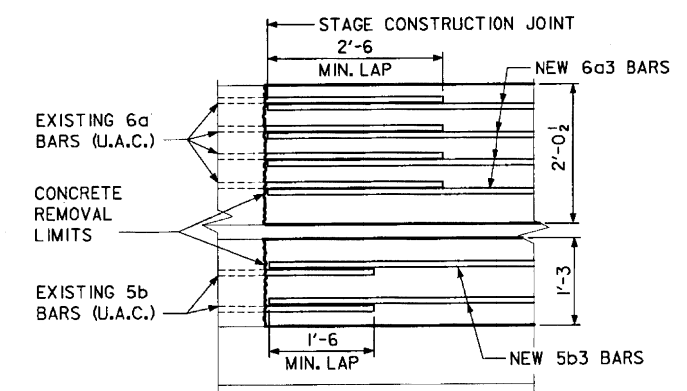
PLAN VIEW  
CONCRETE REMOVAL - STAGE TWO  
(EXISTING SLIDING PLATE AND REINFORCING NOT SHOWN)

NOTE:  
LONGITUDINAL BARS AND CURB HOOPS EXPOSED  
BY CONCRETE REMOVAL SHALL BE CLEANED AND  
INCORPORATED INTO NEW WORK.

NOTE:  
SEE DESIGN SHEET 18 FOR SECTIONS  
A-A, B-B, AND C-C.



DETAIL A  
(STAGE 2 SHOWN, STAGE 1 SIMILAR)

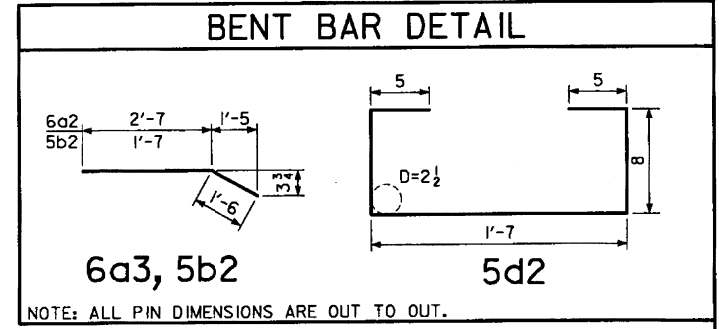


DETAIL B  
(STAGE 2 SHOWN, MIRROR FOR STAGE 1)

EPOXY COATED REINFORCING STEEL					
MARK	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a3	SLAB, TRANSVERSE		4	33'-0	198
5b3	BACKWALL, TRANSVERSE		4	33'-0	138
6d1	DIAPHRAGM		12	7'-6	135
5d2	ABUTMENT HOOPS		28	3'-9	110
TOTAL (lbs)					581

CONCRETE PLACEMENT SUMMARY	
SECTION	TOTAL
BACKWALL*	2.0
SLAB*	2.3
TOTAL (CY)	4.3

\* INCLUDES CURB



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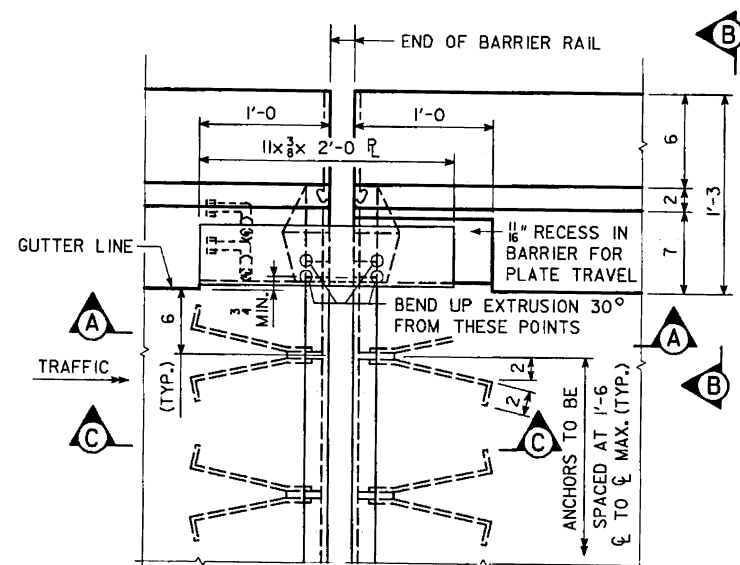
DESIGNED BY S.T.S. CHECKED BY S.T.S.  
DETAILED BY T.A.M. CADD FILE H570502.S19

DESIGN FOR REPAIRS TO MULTIPLE SKEWS  
**4420'-4 x VAR. WIDTH WELDED  
PLATE GIRDER & PRETENS.  
PRESTR. CONCRETE BEAM BRIDGE**  
I-380 OVER CEDAR RIVER BRIDGE & APPROACHES  
**N. ABUTMENT STAGE TWO DETAILS**  
STATION: 344+28.26 (DESIGN 502 - NORTH APPROACH)  
~~STATION: 322+01.95 (DESIGN 602 - SOUTH APPROACH)~~  
~~STATION: 344+28.26 (DESIGN 702 - CEDAR RIVER)~~  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 19 OF 39 FILE NO. 29821 DESIGN NO. 502

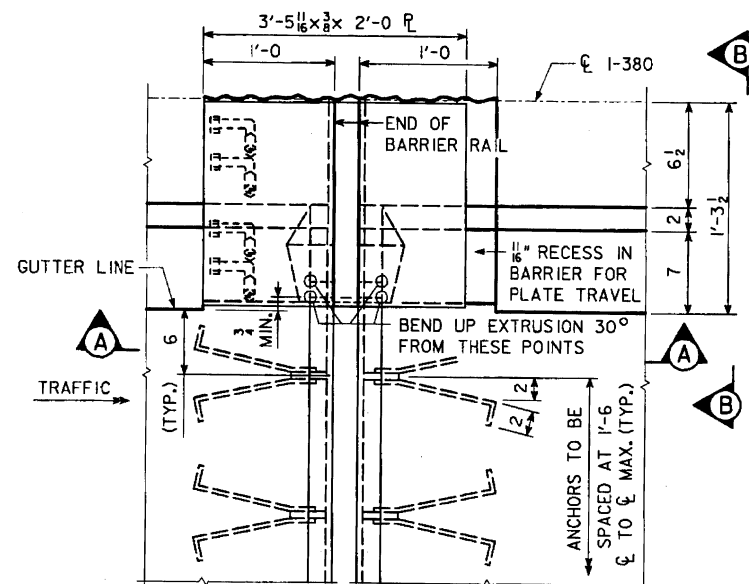
APRIL, 2003



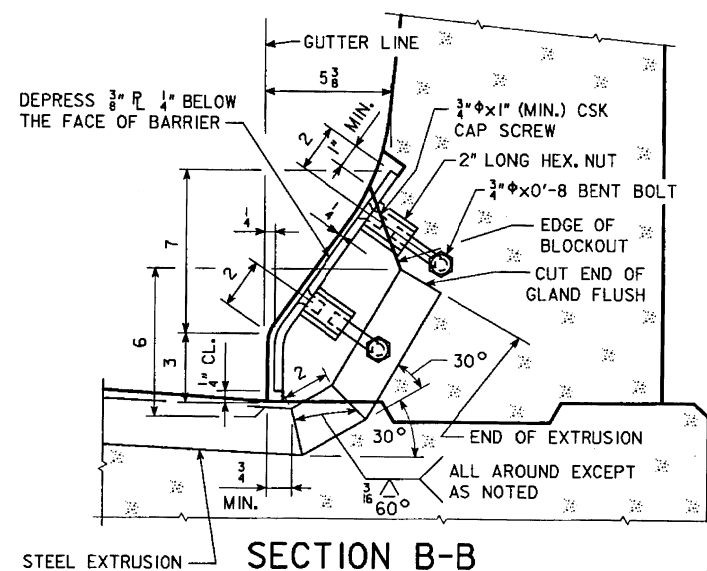




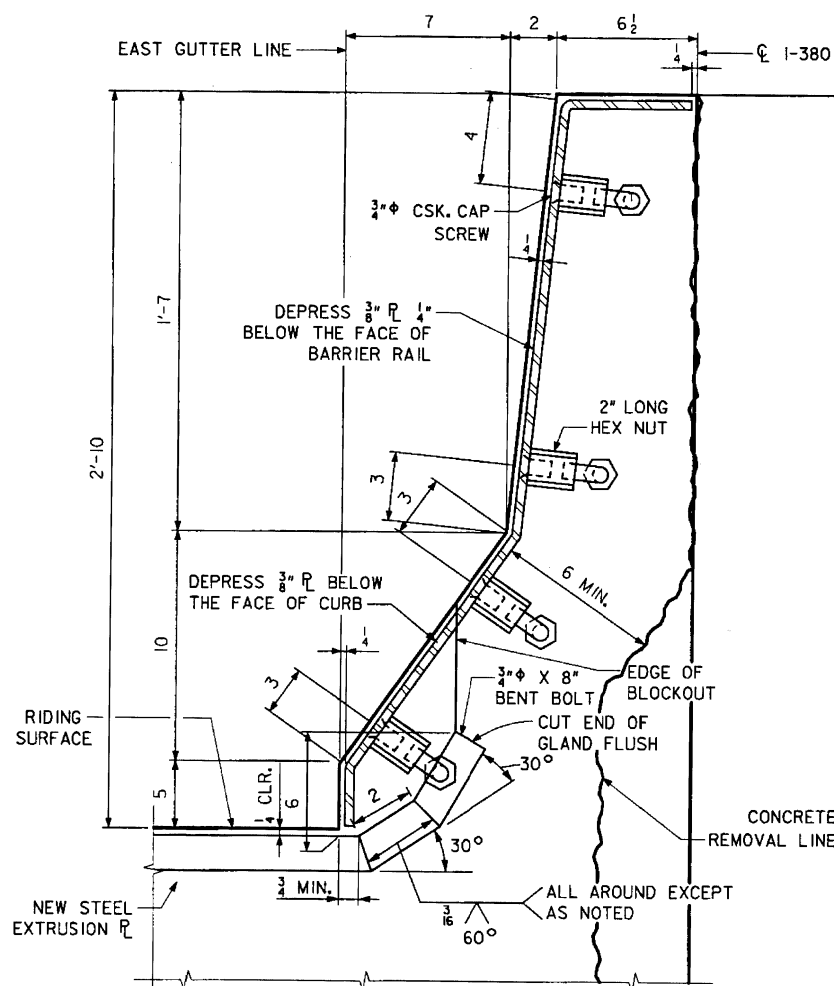
PART PLAN VIEW OF EXPANSION  
DEVICE AT JERSEY RAIL (TYP.)



PART PLAN VIEW OF EXPANSION  
DEVICE AT MEDIAN RAIL (TYP.)

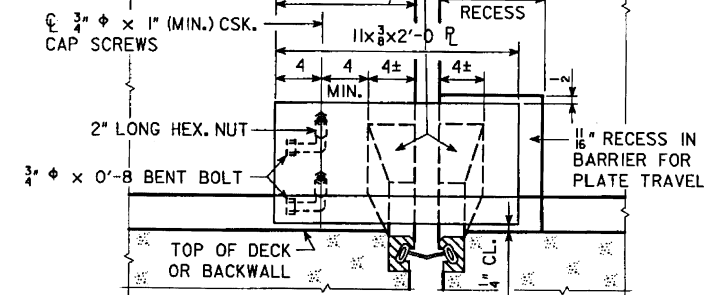


SECTION B-B  
FOR JERSEY RAIL



SECTION B-B  
FOR MEDIAN RAIL

THIS PORTION OF THE 3/8" BENT PLATE IS TO BE PAINTED WITH A COLORLESS OIL, OR SOME OTHER SATISFACTORY MEANS TO PREVENT CONCRETE FROM ADHERING TO THE PLATE SO THAT THE PLATE CAN BE REMOVED IF NECESSARY. (TYP. ALL 3/8" BENT PLATES)



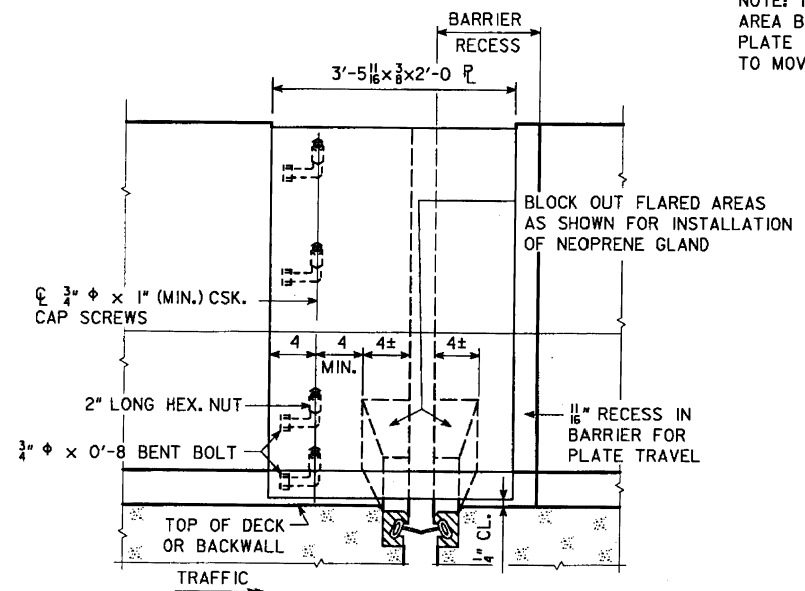
SECTION A-A  
FOR JERSEY RAIL  
(DRAWN FOR 0° SKEW FOR ILLUSTRATIVE PURPOSES)

#### BARRIER PLATE NOTE:

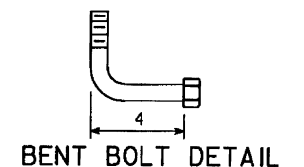
THE MATERIAL USED FOR THE BARRIER PLATES IS TO BE ASTM A-36 STEEL. THE BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A-307. THE PLATES, BOLTS, NUTS AND CAP SCREWS ARE TO BE GALVANIZED IN ACCORDANCE WITH ARTICLE 4100.07 OF THE STANDARD SPECIFICATIONS.

CONTRACTOR TO NOTE THAT THE CAP SCREW ANCHORAGE SYSTEM FOR THE 3/8" BARRIER PLATES ARE ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE.

NOTE: IT IS INTENDED THAT THE 1/2" RECESSED AREA BE FORMED SO THAT WHEN THE 3/8" BENT PLATE IS INSTALLED, THE PLATE WILL BE ABLE TO MOVE FREELY IN THIS RECESSED AREA.



SECTION A-A  
FOR MEDIAN RAIL  
(DRAWN FOR 0° SKEW FOR ILLUSTRATIVE PURPOSES)



#### EXPANSION JOINT SETTINGS - "D"

TEMP. AT TIME OF SETTING	S. ABUT. DES. 602	PIER 26 DES. 702	PIER 28 DES. 702	PIER 32 DES. 702	PIER 34 DES. 702	PIER 36 DES. 702	JOINT IN DES. 502	N. ABUT. DES. 502
90° F	1 5/8	1 1/8	1 1/8	1 1/8	1 3/4	1 3/8	1 5/8	1 1/2
50° F	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4
10° F	2 7/8	2 13/8	2 13/8	2 13/8	2 3/4	2 13/8	2 7/8	3

NOTE: JOINT SETTINGS FOR OTHER TEMPERATURES ARE PROPORTIONAL. TEMPERATURES SHOWN ARE CONCRETE DECK TEMPERATURES ON THE UNDERSIDE OR SHADED PORTION OF THE DECK.

NOTE: SEE DES. SH. 20 FOR SECTION C-C, EXPANSION OPENING DETAIL, TABLE OF APPROVED EXPANSION DEVICES, AND EXPANSION DEVICE NOTES.

DESIGN FOR REPAIRS TO MULTIPLE SKEWS  
**4420'-4 x VAR. WIDTH WELDED  
 PLATE GIRDER & PRETENS.  
 PRESTR. CONCRETE BEAM BRIDGE**  
 I-380 OVER CEDAR RIVER BRIDGE & APPROACHES  
**EXPANSION WITH RAIL DETAILS**

STATION: 344+28.26 (DESIGN 502 - NORTH APPROACH)  
~~STATION: 322+81.95 (DESIGN 602 - SOUTH APPROACH)~~  
~~STATION: 344+29.26 (DESIGN 702 - CEDAR RIVER)~~

APRIL, 2003

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 21 OF 39 FILE NO. 29821 DESIGN NO. 502, 602, 702

**WHKS & CO.**

ENGINEERS PLANNERS LAND SURVEYORS  
 MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN

DESIGNED BY S.T.S. CHECKED BY S.T.S.  
 DETAILED BY T.A.M. CADD FILE H570502.S21

F-SHAPE EXPANSION DEVICE DETAILS

STEEL EXTRUSION WITH  
NEOPRENE GLAND

STANDARD SH. 1026 (MOD.)

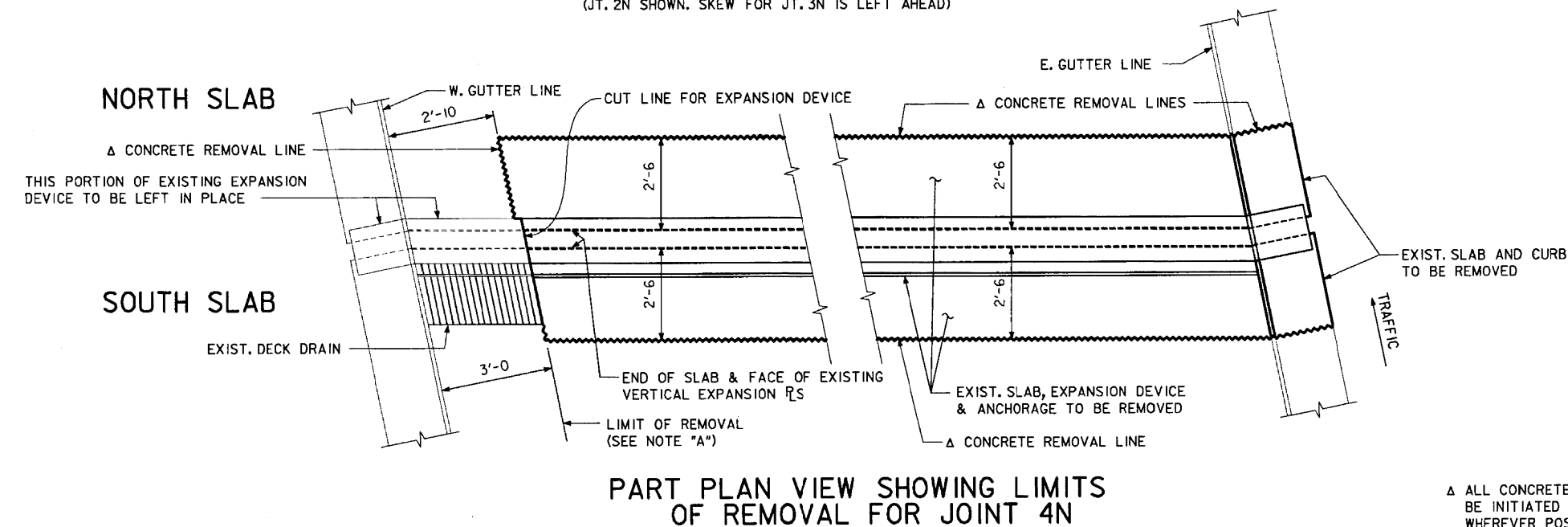
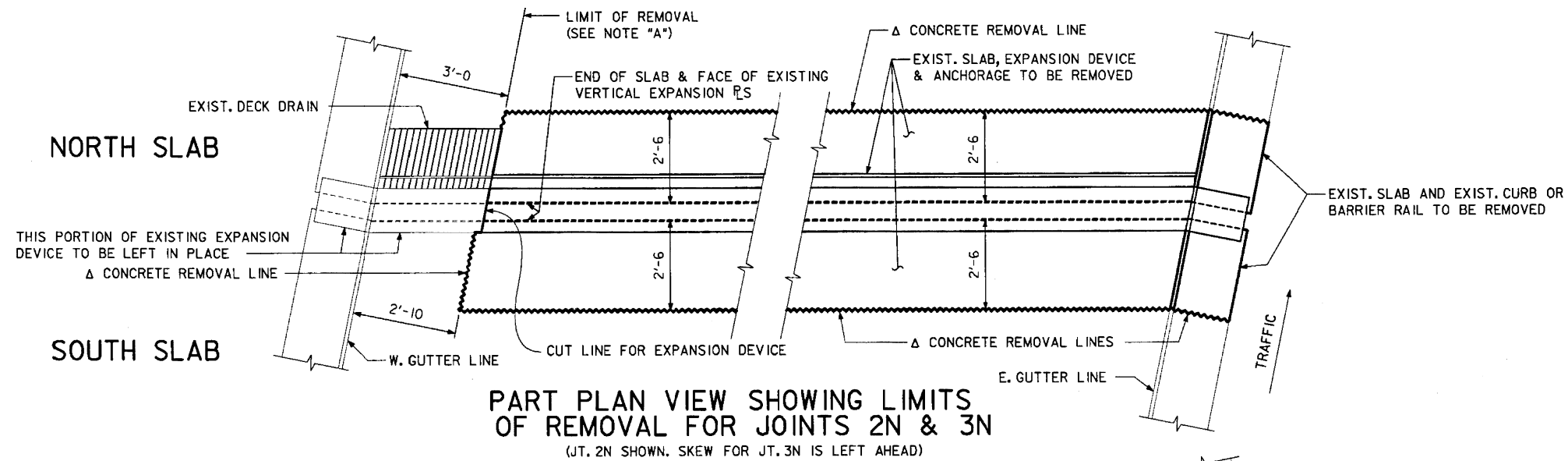
LINN COUNTY

PROJECT NUMBER

IMN-380-6(227)19--0E-57

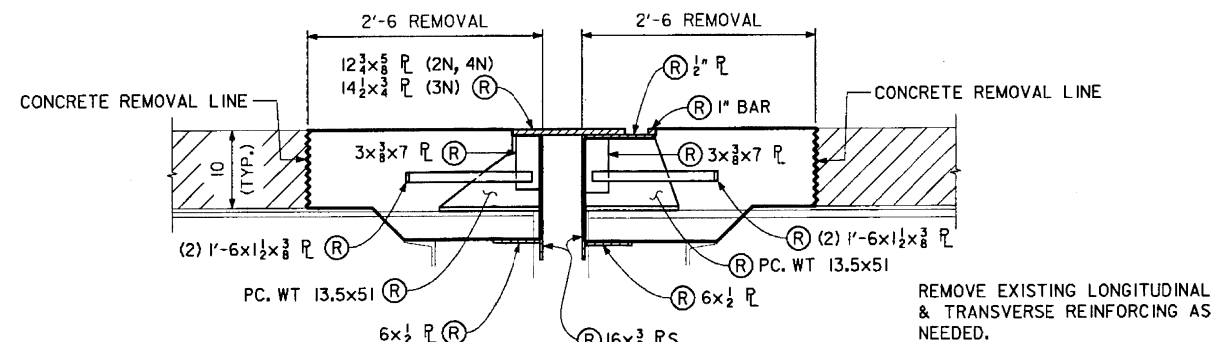
SHEET NUMBER

22/76



△ ALL CONCRETE REMOVAL LINES SHALL BE INITIATED WITH A  $\frac{3}{4}$ " SAWCUT WHEREVER POSSIBLE.

NOTE "A":  
EXISTING SLIDING PLATES, VERTICAL PLATES, AND NEOPRENE DRAIN TROUGH SHALL BE CUT CLEAN AT THE EDGE OF THE DRAIN BOX AND INCORPORATED INTO THE NEW WORK. SEE DES. SH. 25 & 26 FOR DETAILS.



### FINGER JOINT NOTES:

THE CONTRACTOR SHALL SUBMIT, FOR APPROVAL, SHOP DRAWINGS OF THE FINGER JOINT SYSTEM SHOWING LAYOUT, MATERIAL TO BE USED, AND PROVISIONS FOR HOLDING THE JOINT DURING PLACEMENT OF CONCRETE.

THE EXPANSION DEVICE SHALL BE GALVANIZED AFTER WELDING.

THE EXPANSION DEVICE IS TO BE PARALLEL TO GRADE.

CAP SCREWS SHALL BE COUNTERSUNK  $\frac{1}{16}$ " BELOW TOP OF THE BARRIER PLATE.

THE CONTRACT UNIT PRICE BID FOR 'STRUCTURAL STEEL' SHALL BE FULL COMPENSATION FOR ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING THE FINGER JOINT SYSTEM AT JT. 2N, JT. 3N, AND JT. 4N EXCEPT ITEMS INCLUDED IN 'REMOVALS, AS PER PLAN', 'STRUCTURAL CONCRETE' AND 'EPOXY COATED REINFORCING STEEL'. THIS WORK SHALL INCLUDE FURNISHING AND INSTALLING THE COMPLETE FINGER JOINT SYSTEM, BARRIER AND CURB PLATES, TEMPORARY ERECTION MATERIAL AND HOLDING DEVICES, NEOPRENE TROUGHS, AND ALL HARDWARE REQUIRED.

FIELD SPLICES OF THE FINGER JOINT WILL BE PERMITTED AT THE STAGING JOINTS. THE JOINTS SHALL BE CONNECTED AT SPLICE LOCATIONS AS SHOWN IN 'SPlice DETAIL AT CONSTRUCTION JOINT' ON DES. SH. 26 & 27. ALL PIECES SHALL BE JOINED WITH A PREQUALIFIED PARTIAL PENETRATION BEVEL WELD, AND ALL SURFACES NOT IN CONTACT WITH CONCRETE ARE TO BE GROUND FLUSH.

THE MATERIAL USED FOR THE 2" x 2'-6" EXPANSION PLATE IS TO BE ASTM A572, GRADE 50 STEEL. ALL OTHER STRUCTURAL STEEL IS TO BE ASTM A-36 STEEL. THE  $\frac{3}{8}$ " CAP SCREWS AND WASHERS ATTACHING THE NEOPRENE TROUGH TO THE  $\frac{1}{2}$ " BENT PLATE ARE TO BE STAINLESS STEEL. ALL OTHER BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A-307. THE PLATES, BOLTS, WASHERS, NUTS, SHIMS, AND CAP SCREWS ARE TO BE GALVANIZED IN ACCORDANCE WITH ARTICLE 4100.07 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED.

THE ELASTOMER COMPOUND FOR TROUGH SHALL BE IN ACCORDANCE WITH TABLE B OF ARTICLE 4195.02 OF THE STANDARD SPECIFICATIONS, EXCEPT THE TENSILE STRENGTH SHALL BE 1500 PSI MINIMUM OR IT SHALL BE (EPDM) ETHYLENE PROPYLENE DIENE MONOMER (ASTM D 2000, LINE CALL-OUTS 3BA, 515, A14, B13, F17, C12, K21, Z1, Z2).

**WHKS & CO.**

ENGINEERS PLANNERS LAND SURVEYORS  
MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN

DESIGNED BY J.S.L. CHECKED BY S.K.G.  
DETAILED BY M.A.F. CADD FILE H570502.S22

**TYPICAL SECTION THROUGH EXPANSION DEVICE**

△ DENOTES ITEMS TO BE REMOVED

SEE DES. SH. 26 & 27 FOR STAGE CONSTRUCTION JOINT LOCATIONS.

DESIGN FOR REPAIRS TO MULTIPLE SKEWS  
**4420'-4 x VAR. WIDTH WELDED  
PLATE GIRDER & PRETENS.  
PRESTR. CONCRETE BEAM BRIDGE**  
I-380 OVER CEDAR RIVER BRIDGE & APPROACHES

**JOINT REMOVAL DETAILS**

STATION: 344+28.26 (DESIGN 502 - NORTH APPROACH)

STATION: 322+81.95 (DESIGN 602 - SOUTH APPROACH)

STATION: 344+28.26 (DESIGN 702 - CEDAR RIVER)

APRIL, 2003

**LINN COUNTY**

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 22 OF 39 FILE NO. 29821 DESIGN NO. 502

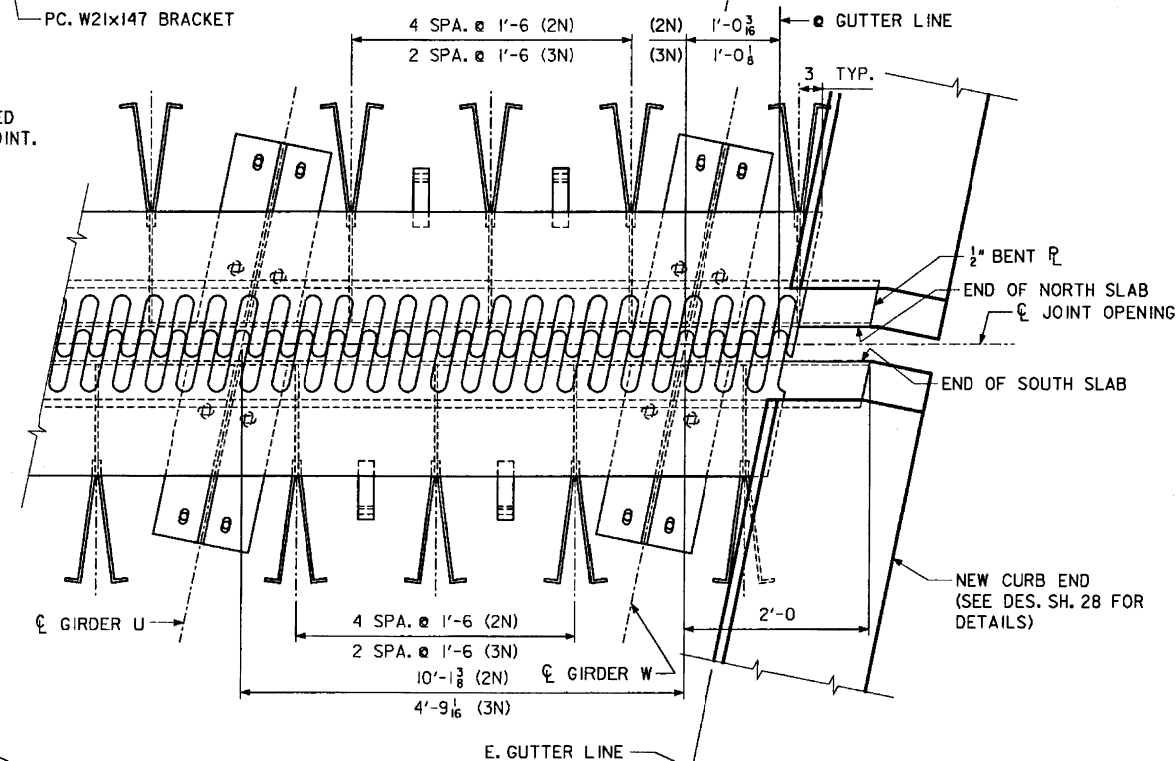
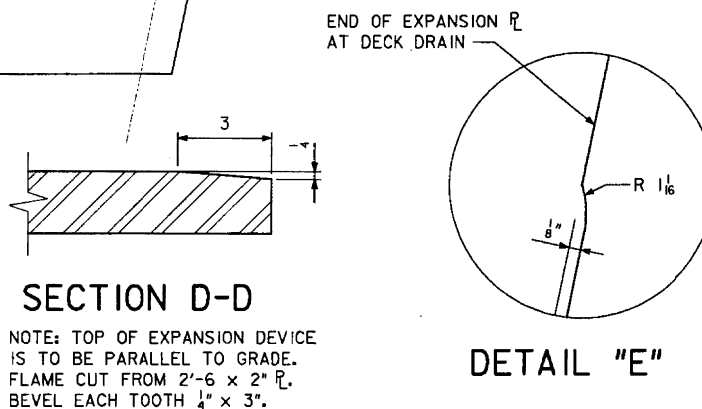
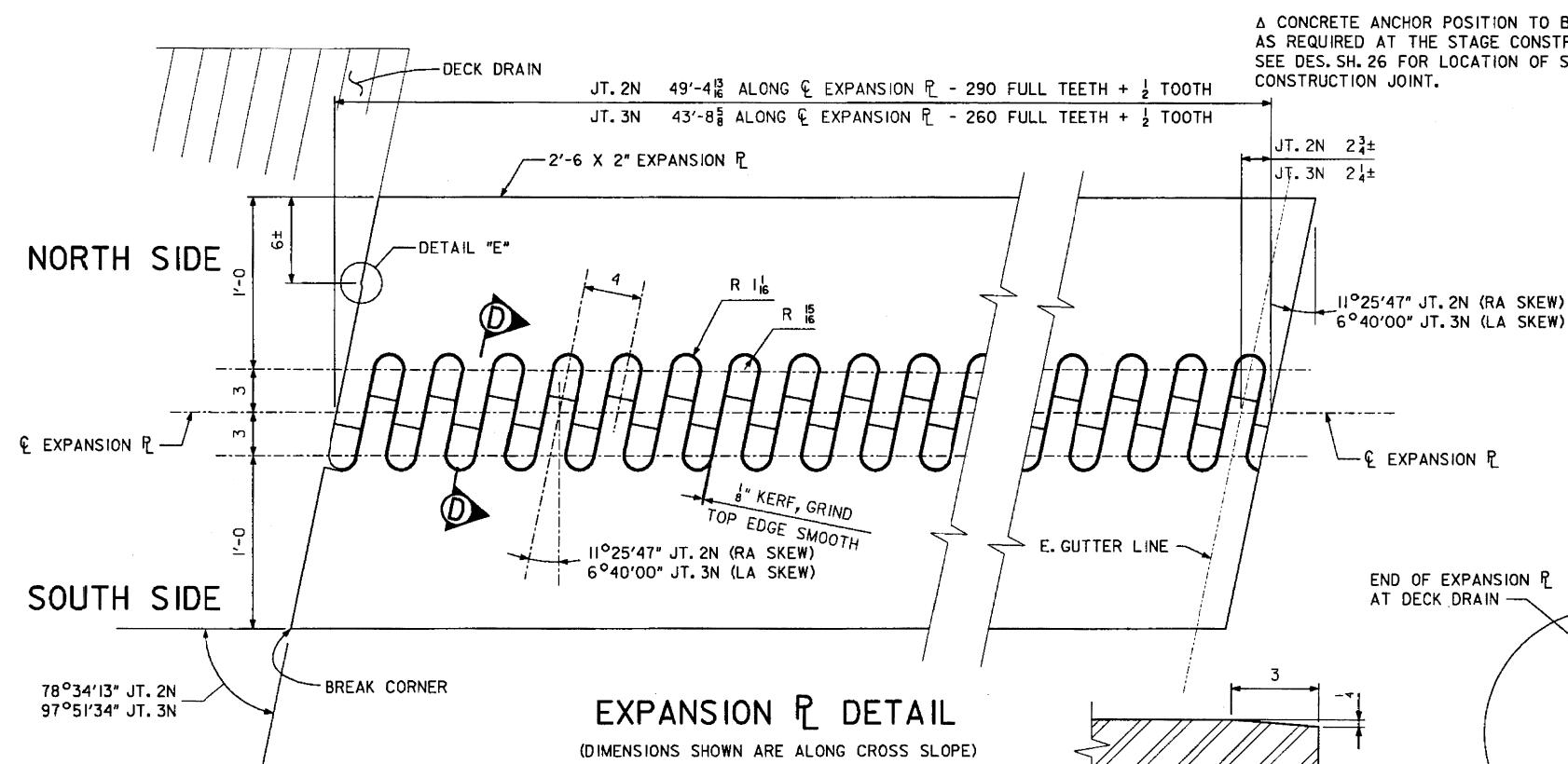
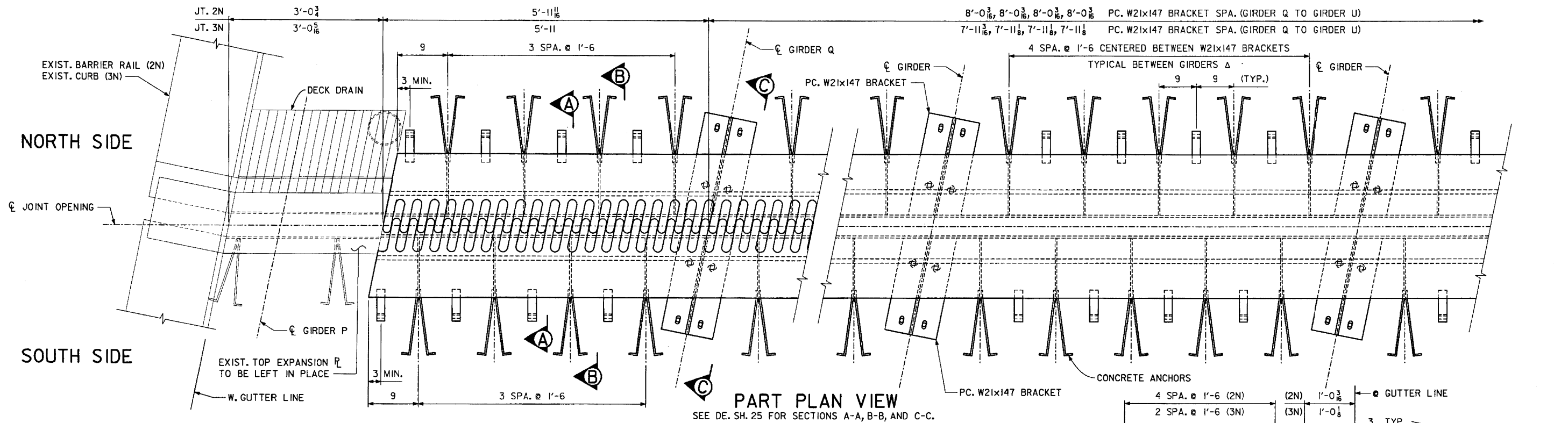
LINN COUNTY

PROJECT NUMBER

IMN-380-6(227)19--0E-57

SHEET NUMBER

23/76



DESIGNED BY J.S.I. CHECKED BY S.K.G.  
 DETAILED BY M.A.F. CADD FILE H570502.S23

SEE DES. SH. 24 FOR FINGER JOINT SETTINGS.

LINN COUNTY

PROJECT NUMBER

IMN-380-6(227)9--0E-57

SHEET NUMBER

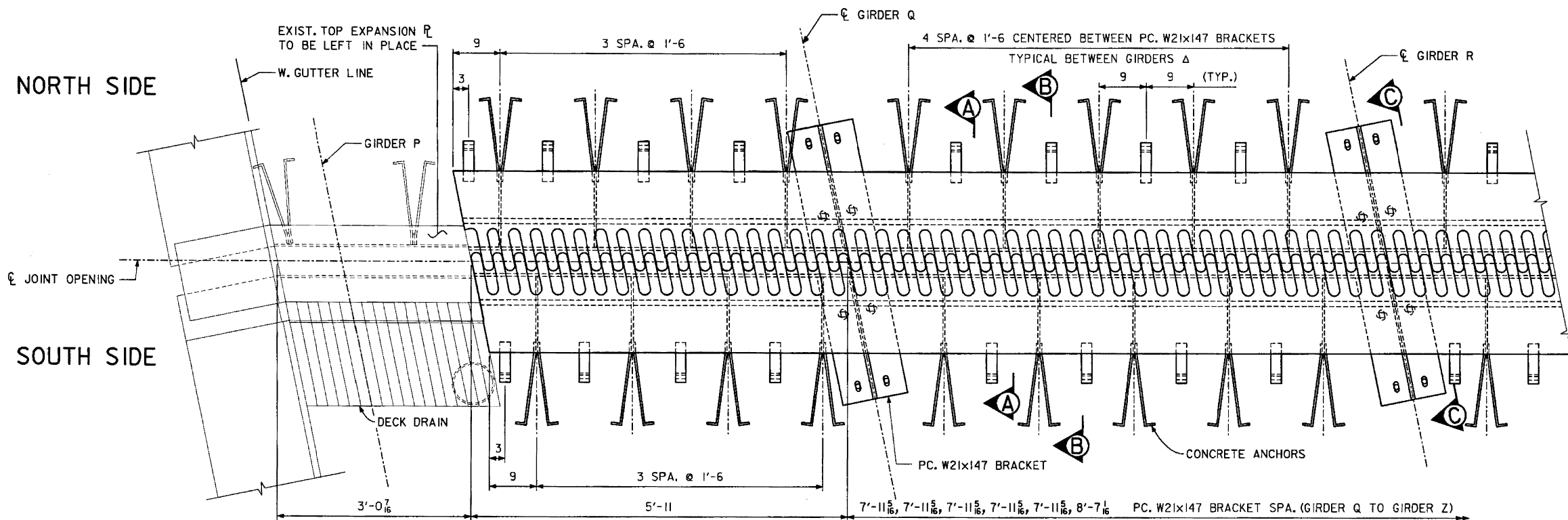
24/10

DESIGN FOR REPAIRS TO MULTIPLE SKEWS  
**4420'-4 x VAR. WIDTH WELDED  
 PLATE GIRDER & PRETENS.  
 PRESTR. CONCRETE BEAM BRIDGE**  
 I-380 OVER CEDAR RIVER BRIDGE & APPROACHES  
**FINGER JOINT DETAILS-JTS. 2N & 3N**  
 STATION: 344+28.26 (DESIGN 502 - NORTH APPROACH)  
~~STATION: 322+81.95 (DESIGN 602 - SOUTH APPROACH)~~  
~~STATION: 344+28.26 (DESIGN 702 - CEDAR RIVER)~~  
**LINN COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 23 OF 39 FILE NO. 29821 DESIGN NO. 502

APRIL, 2003

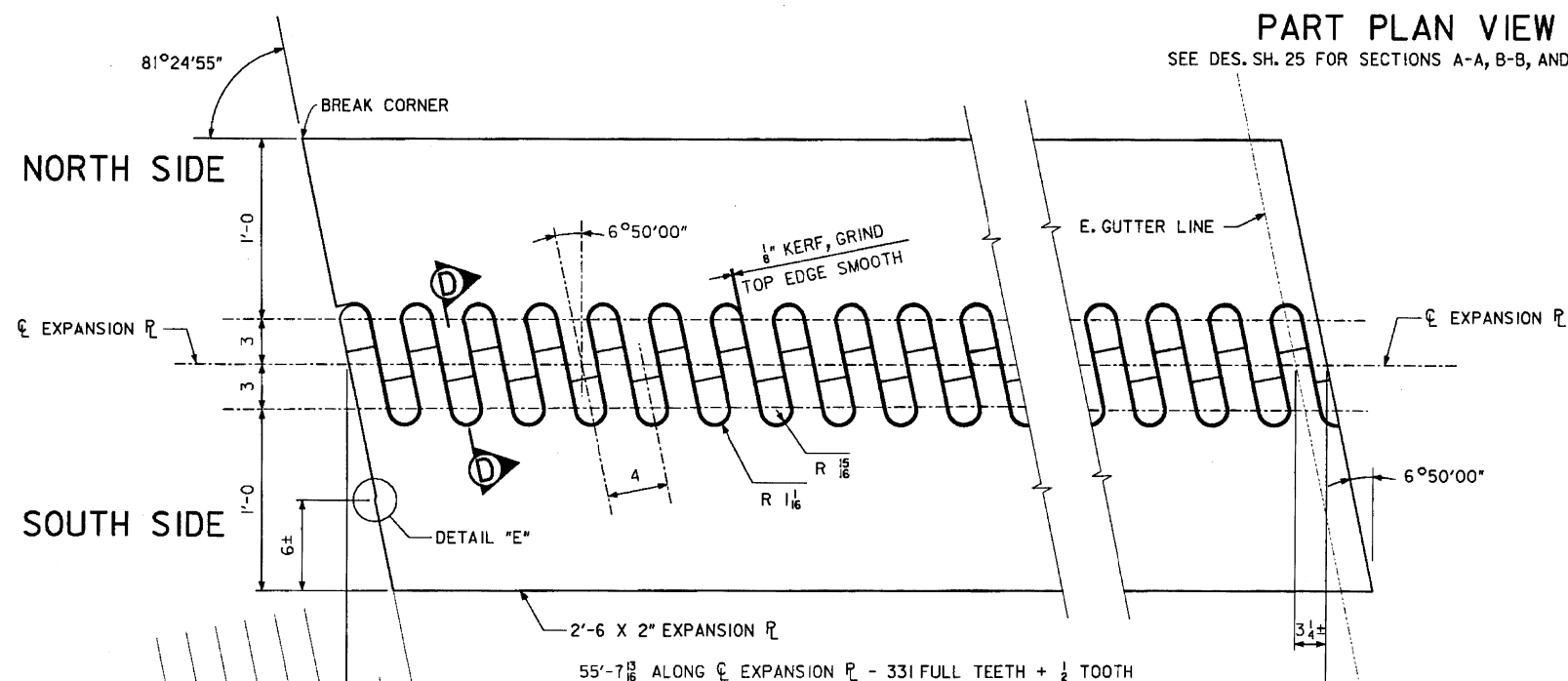


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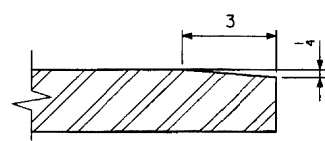
### PART PLAN VIEW

SEE DES. SH. 25 FOR SECTIONS A-A, B-B, AND C-C.

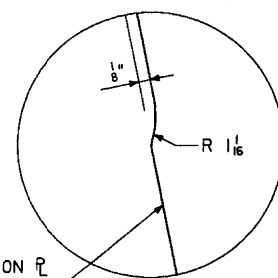


### EXPANSION JOINT DETAIL

(DIMENSIONS SHOWN ARE ALONG CROSS SLOPE)

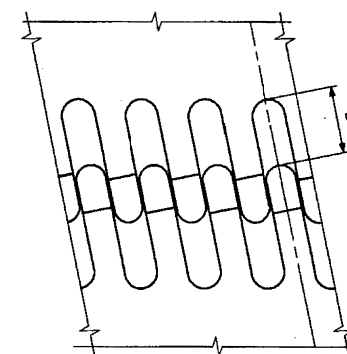


### SECTION D-D



END OF EXPANSION JOINT  
AT DECK DRAIN

### DETAIL "E"

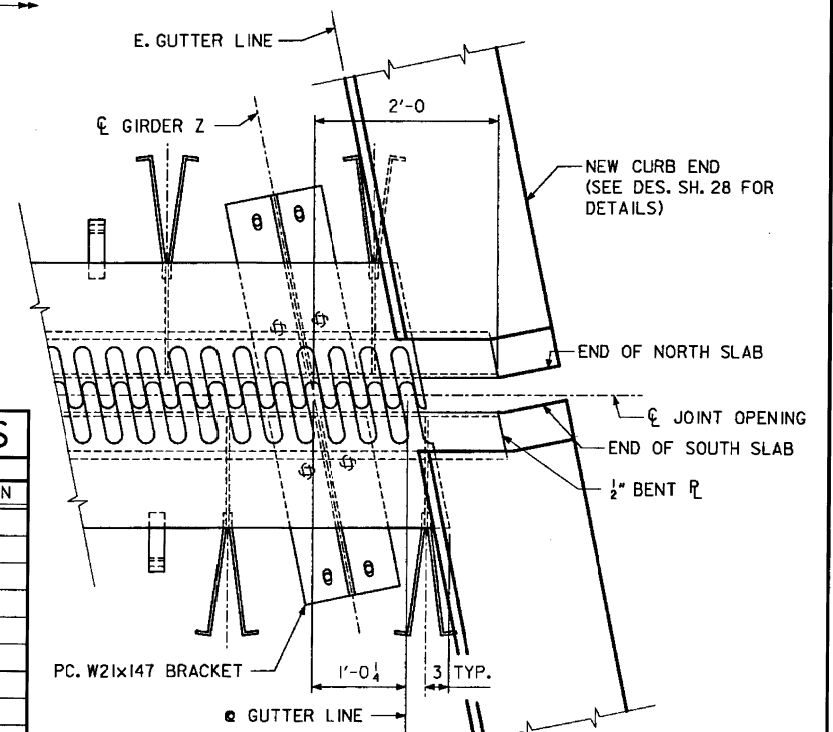


### FINGER JOINT SETTINGS

TEMP. *	DIMENSION "D"		
	JOINT 2N	JOINT 3N	JOINT 4N
10°F	4 7/8	4 3/4	4 7/8
15°F	4 3/4	4 5/8	4 5/8
20°F	4 9/16	4 1/2	4 1/4
25°F	4 7/16	4 5/8	4 1/8
30°F	4 1/4	4 1/8	4 1/8
35°F	4 1/8	4 1/8	3 5/8
40°F	3 5/8	3 7/8	3 3/8
45°F	3 3/4	3 3/4	3 3/4
50°F	3 5/8	3 5/8	3 5/8
55°F	3 1/2	3 1/2	3 1/2
60°F	3 5/8	3 5/8	3 5/8
65°F	3 1/8	3 1/8	3 5/8
70°F	3	3 1/8	3 5/8
75°F	2 7/8	2 5/8	3 1/8
80°F	2 11/16	2 3/8	3
85°F	2 9/16	2 5/8	2 5/8
90°F	2 3/8	2 1/2	2 3/8

\* JOINT SETTINGS FOR OTHER TEMPERATURES ARE PROPORTIONAL. TEMPERATURES SHOWN ARE CONCRETE DECK TEMPERATURES ON THE UNDERSIDE OR SHADED PORTION OF THE DECK.

(SEE SEC. C-C ON DES. SH. 25 FOR LOCATION OF "D")



DESIGN FOR REPAIRS TO MULTIPLE SKEWS  
**4420'-4 x VAR. WIDTH WELDED  
PLATE GIRDER & PRETENS.  
PRESTR. CONCRETE BEAM BRIDGE**  
I-380 OVER CEDAR RIVER BRIDGE & APPROACHES  
**FINGER JOINT DETAILS - JT. 4N**  
STATION: 344+28.26 (DESIGN 502 - NORTH APPROACH)  
~~STATION: 322+81.95 (DESIGN 602 - SOUTH APPROACH)~~  
~~STATION: 344+28.26 (DESIGN 702 - CEDAR RIVER)~~  
APRIL, 2003  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 24 OF 39. FILE NO. 29821. DESIGN NO. 502



DESIGNED BY J.S.I. CHECKED BY S.K.G.  
DETAILED BY M.A.F. CADD FILE H570502.S24

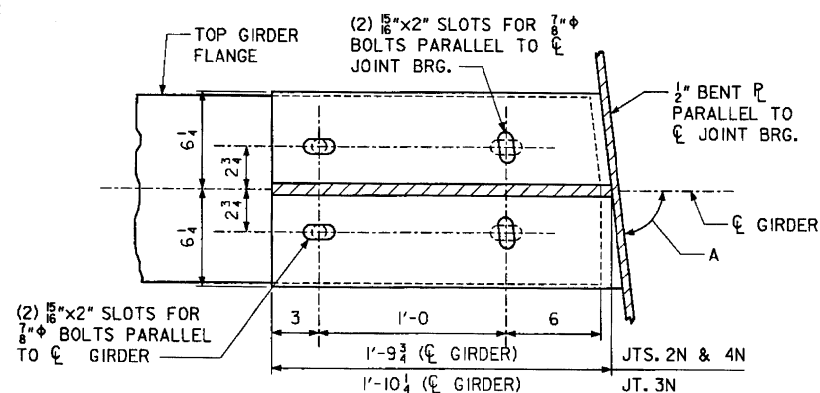
LINN COUNTY

PROJECT NUMBER

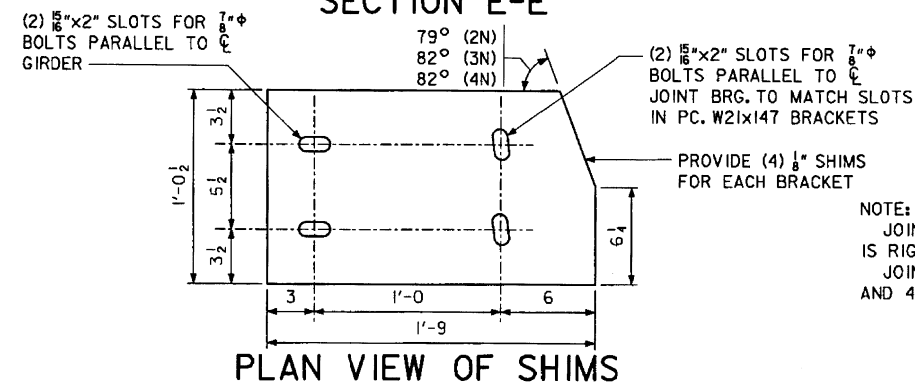
IMN-380-6(227)19--0E-57

SHEET NUMBER

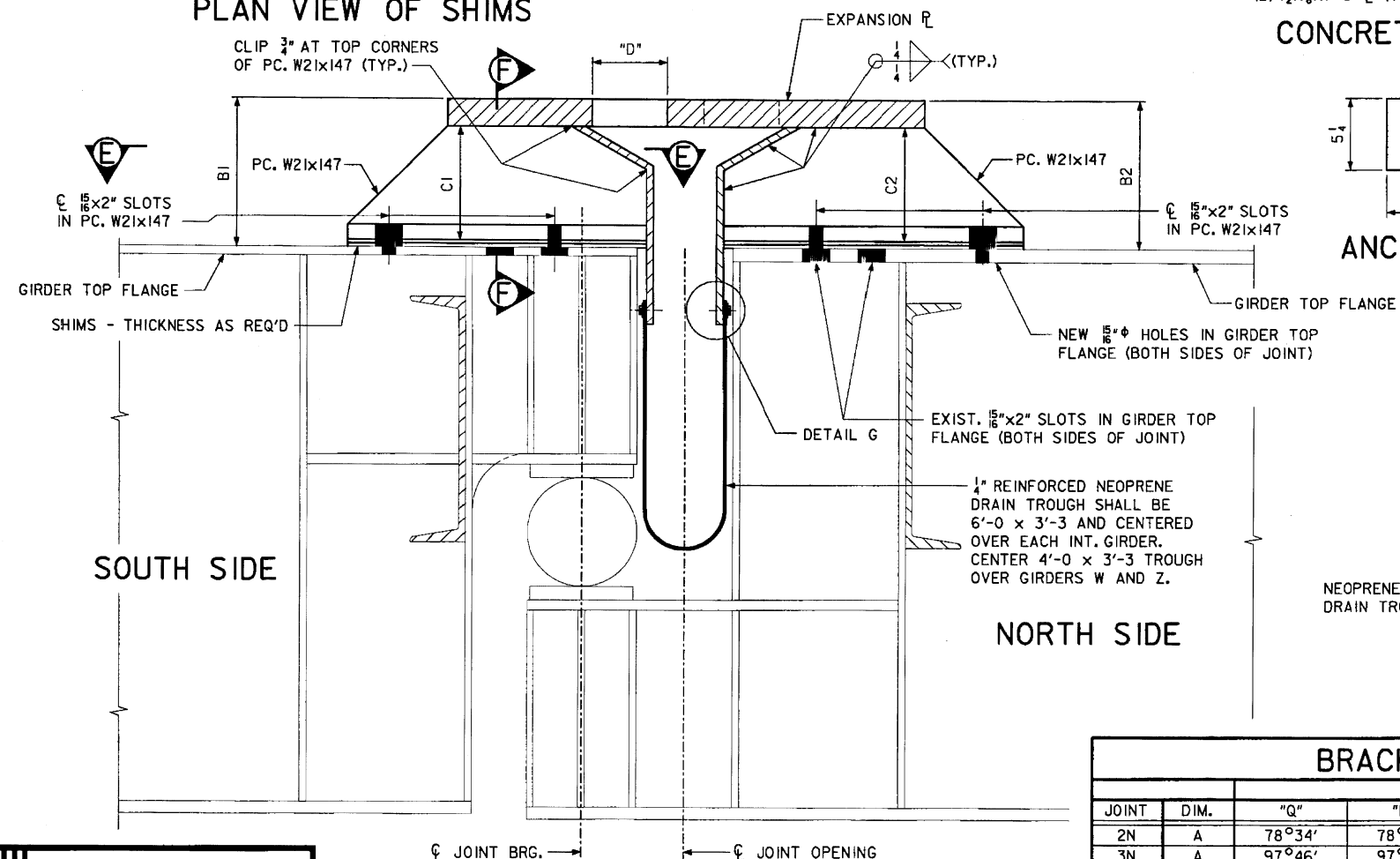
25/76



SECTION E-E

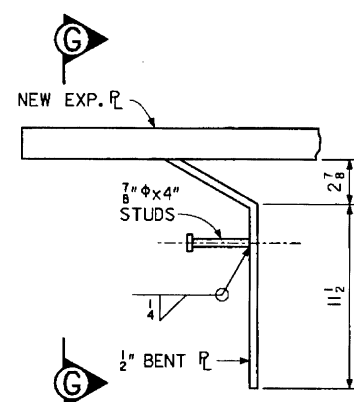


PLAN VIEW OF SHIMS

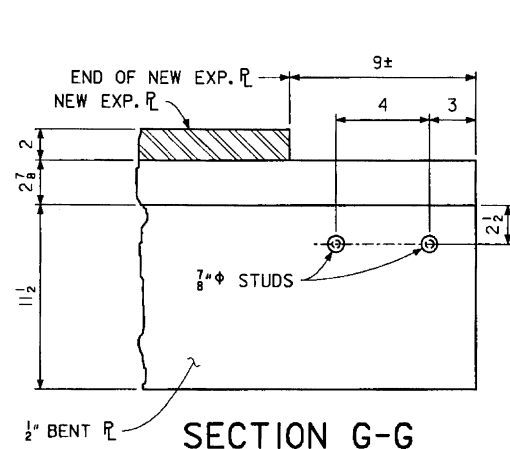


SECTION C-C (ALONG GIRDER)

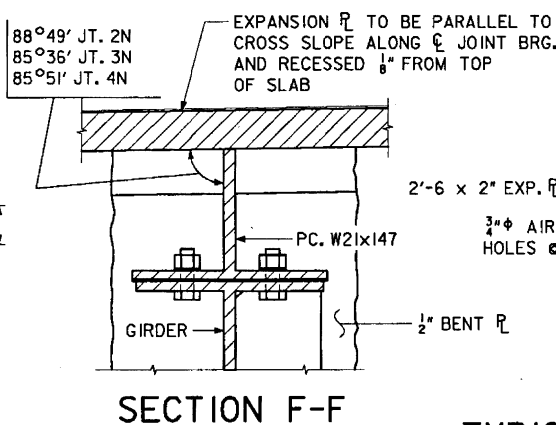
(SEE TABLE ON DES. SH. 24 FOR "D")

ELEVATION  
(LOOKING ALONG GIRDER)DETAIL OF 1/2" BENT PLATE  
UNDER EAST CURB / BARRIER RAIL

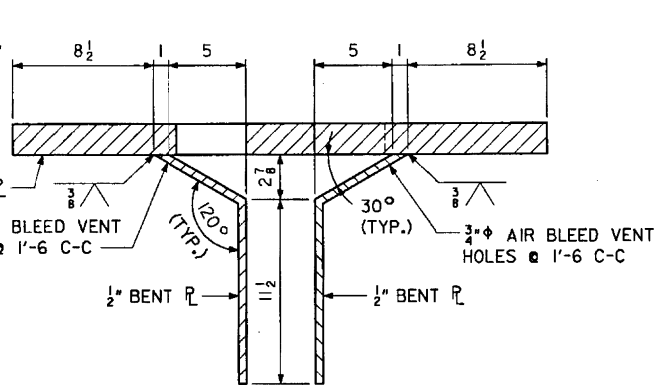
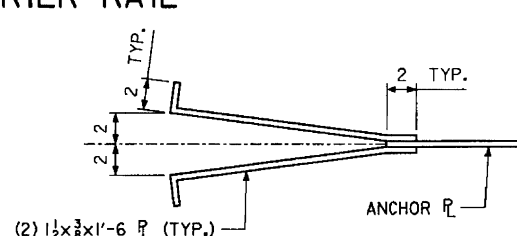
NOTE:  
JOINT SKEW AT JOINT 2N  
IS RIGHT AHEAD.  
JOINT SKEWS AT JOINTS 3N  
AND 4N ARE LEFT AHEAD.



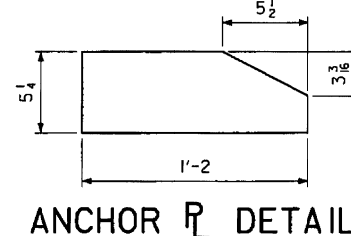
SECTION G-G



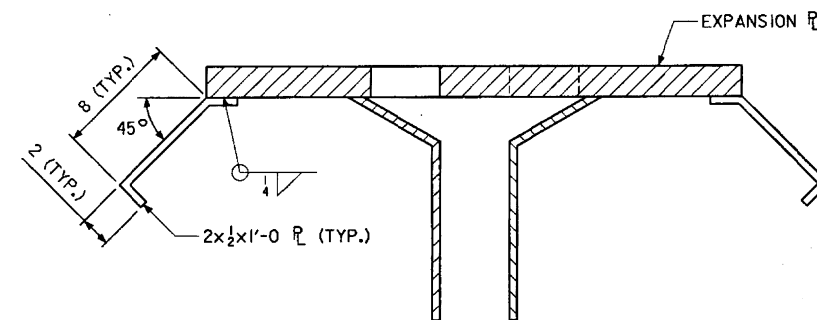
SECTION F-F

TYPICAL SECTION OF EXPANSION DEVICE  
NORMAL TO GIRDER JOINT

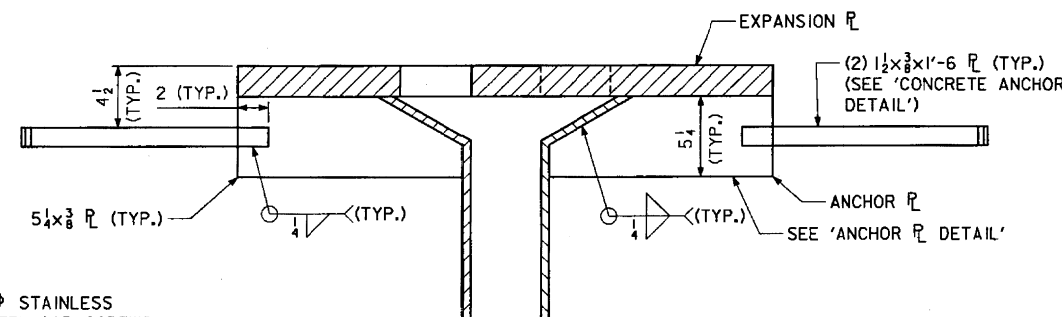
CONCRETE ANCHOR DETAIL



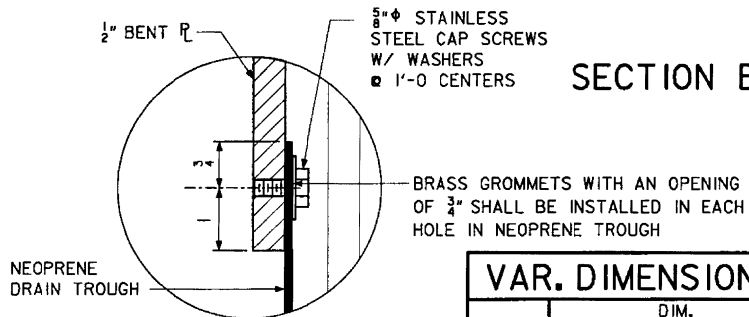
ANCHOR PLATE DETAIL



SECTION A-A (NORMAL TO GIRDER JOINT)



SECTION B-B (NORMAL TO GIRDER JOINT)



DETAIL 'G'

VAR. DIMENSIONS				
JOINT	DIM.	B1	B2	C2
2N	A	11	11	8 1/2
3N	A	11 1/2	12 1/2	9 1/2
4N	A	12 1/2	11 1/2	10 1/2

NOTE:  
SEE DES. SHTS. 23 & 24 FOR LOCATIONS OF SECTIONS A-A, B-B,  
& C-C.

BRACKET ANGLES AT GIRDERS

JOINT	DIM.	GIRDER						
		"Q"	"R"	"S"	"T"	"U"	"W"	"X"
2N	A	78°34'	78°34'	78°34'	78°34'	78°34'	79°37'	NA
3N	A	97°46'	97°44'	97°41'	97°38'	97°35'	97°34'	NA
4N	A	98°30'	98°27'	98°24'	98°21'	98°18'	NA	98°15'
JOINT	DIM.	"Z"						
2N	A	NA						
3N	A	NA						
4N	A	99°17'						

**WHKS & CO.**

ENGINEERS PLANNERS LAND SURVEYORS  
MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN

DESIGNED BY J.S.I. CHECKED BY S.K.G.  
DETAILED BY M.A.F. CADD FILE H570502.S25

DESIGN FOR REPAIRS TO MULTIPLE SKEWS  
**4420'-4 x VAR. WIDTH WELDED  
PLATE GIRDER & PRETENS.  
PRESTR. CONCRETE BEAM BRIDGE**  
I-380 OVER CEDAR RIVER BRIDGE & APPROACHES

**FINGER JOINT DETAILS**

STATION: 344+28.26 (DESIGN 502 - NORTH APPROACH)

~~STATION: 322+01.95 (DESIGN 602 - SOUTH APPROACH)~~

~~STATION: 344+28.26 (DESIGN 702 - CEDAR RIVER)~~

APRIL, 2003

**LINN COUNTY**

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 25 OF 39 FILE NO. 29821 DESIGN NO. 502

LINN COUNTY

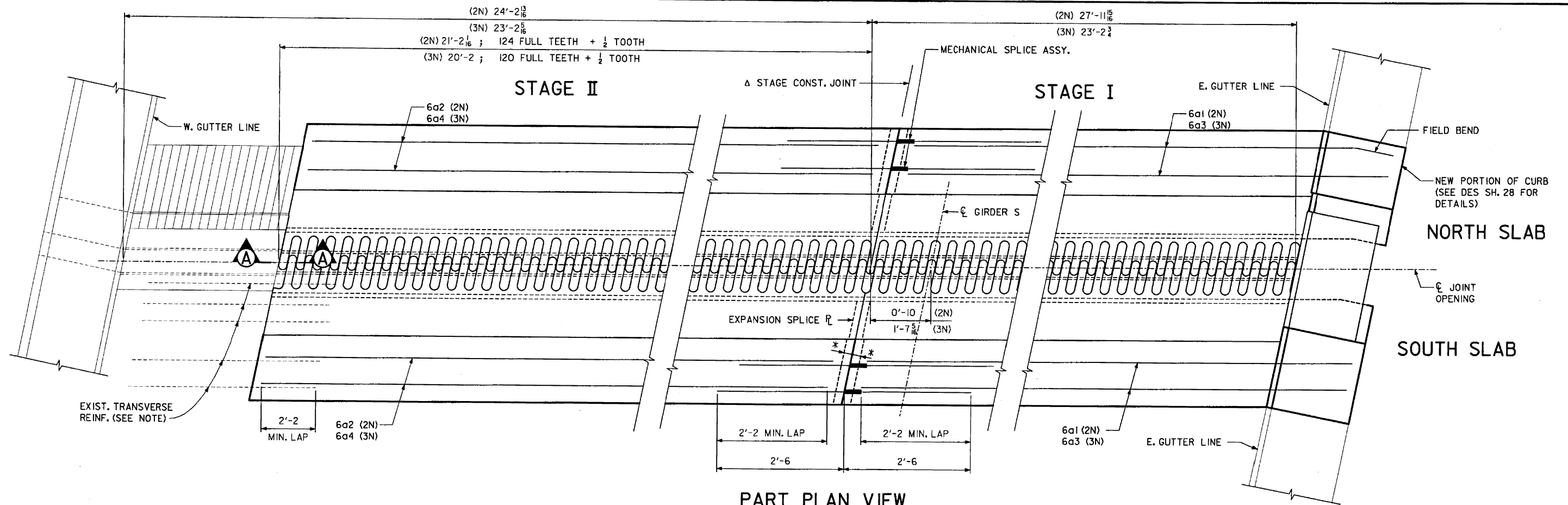
PROJECT NUMBER

IMN-380-6(227)19--OE-57

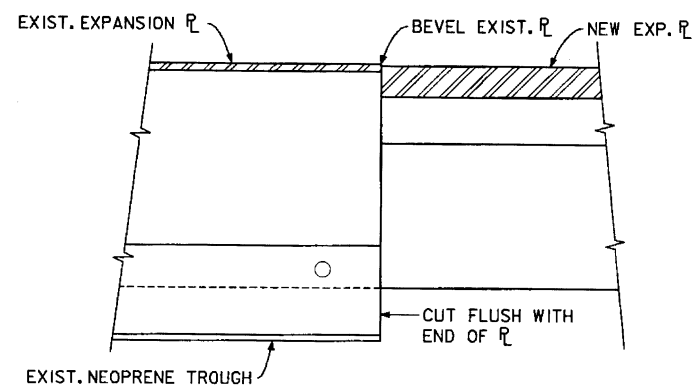
SHEET NUMBER

26/76

03/28/2003  
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**PART PLAN VIEW**  
 (JT. 2N SHOWN, SKEW FOR JT. 3N IS LEFT AHEAD)



**SECTION A-A**

A STAGE CONSTRUCTION JOINT MUST BE PARALLEL TO EXPANSION JOINT FINGERS TO INSURE PROPER SPLICING.

DIM "\*" - CONCRETE MAY BE REMOVED BEYOND THE STAGE CONSTRUCTION JOINT A DISTANCE NO GREATER THAN 2".

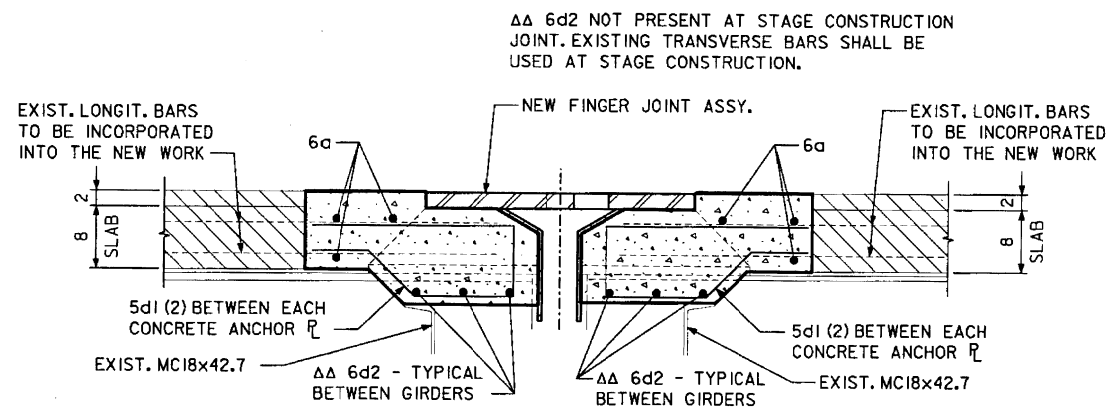
NOTE:  
 EXISTING REINFORCING BARS SHALL BE CUT, CLEANED, AND INCORPORATED INTO THE NEW WORK WHEREVER POSSIBLE.

### MECHANICAL SPLICE ASSEMBLIES:

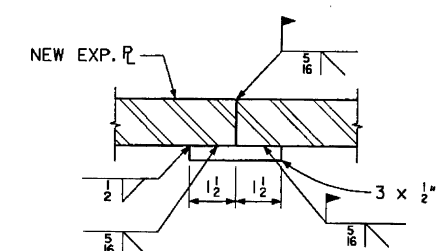
THE TRANSVERSE REINFORCING BARS IN THE SLAB AND DIAPHRAGM SHALL BE SPLICED AT THE LOCATIONS SHOWN USING COIL TIE ASSEMBLIES OR MECHANICAL SPLICE ASSEMBLIES. COIL TIE ASSEMBLIES CONSIST OF COIL TIES AND THREADED COIL RODS. MECHANICAL SPLICE ASSEMBLIES CONSIST OF MECHANICAL SPLICERS AND REINFORCING SPLICE BARS AS REQUIRED TO FACILITATE THE USE OF THE MECHANICAL SPLICER. THE COIL TIE ASSEMBLY OR MECHANICAL SPLICE ASSEMBLY USED SHALL BE CAPABLE OF DEVELOPING 90 KSI TENSILE STRENGTH IN THE ASSEMBLY BARS. THREADED COIL RODS OR REINFORCING SPLICE BARS SHALL BE A MINIMUM OF  $\frac{5}{8}$ " DIA.

ALL COIL TIE ASSEMBLIES OR MECHANICAL SPLICE ASSEMBLIES TO BE USED SHALL BE EPOXY COATED. THREE ADDITIONAL EPOXY COATED SPLICE ASSEMBLIES SHALL BE FURNISHED TO THE ENGINEER FOR TESTING AND APPROVAL.

THE COST OF ALL SPLICE ASSEMBLIES, INCLUDING THE 3 TO BE FURNISHED FOR TESTING, IS TO BE INCLUDED IN THE PRICE BID FOR "REINFORCING STEEL EPOXY COATED" AND NO SEPARATE PAYMENT WILL BE MADE. THE WEIGHT OF COIL TIE ASSEMBLIES OR MECHANICAL SPLICE ASSEMBLIES IS NOT INCLUDED IN THE QUANTITY SHOWN FOR "REINFORCING STEEL EPOXY COATED". A TOTAL OF 18 SPLICE ASSEMBLIES WILL BE REQUIRED FOR JOINTS 2N, 3N & 4N (6 PER JOINT).



**TYPICAL SECTION THROUGH EXPANSION DEVICE**



**SPlice DETAIL  
 AT CONSTRUCTION JOINT**



DESIGNED BY J.S.L. CHECKED BY S.K.G.  
 DETAILED BY M.A.F. CADD FILE H570502.S26

LINN COUNTY

PROJECT NUMBER

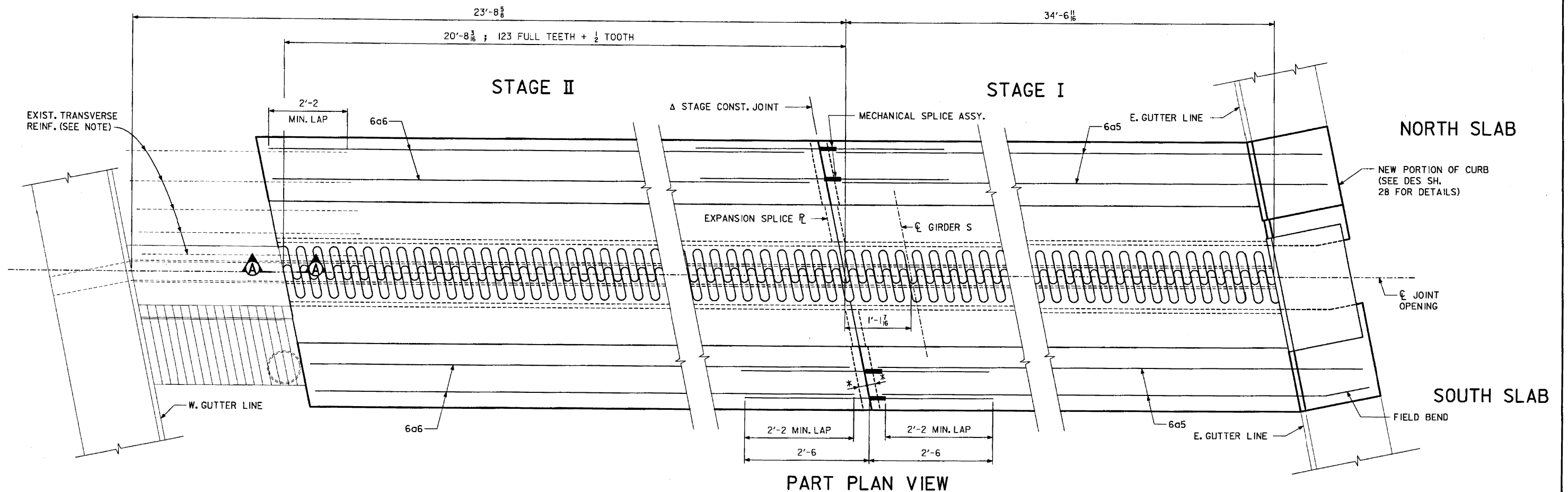
IMN-380-6(227)19--OE-57

SHEET NUMBER

27/76

DESIGN FOR REPAIRS TO MULTIPLE SKEWS  
**4420'-4 x VAR. WIDTH WELDED  
 PLATE GIRDER & PRETENS.  
 PRESTR. CONCRETE BEAM BRIDGE**  
 I-380 OVER CEDAR RIVER BRIDGE & APPROACHES  
**RECONSTRUCTION DETAILS - 2N & 3N**  
 STATION: 344+28.26 (DESIGN 502 - NORTH APPROACH)  
~~STATION: 322+81.95 (DESIGN 602 - SOUTH APPROACH)~~  
~~STATION: 344+28.26 (DESIGN 702 - CEDAR RIVER)~~  
 LINN COUNTY  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 26 OF 39 FILE NO. 29821 DESIGN NO. 502  
 APRIL, 2003





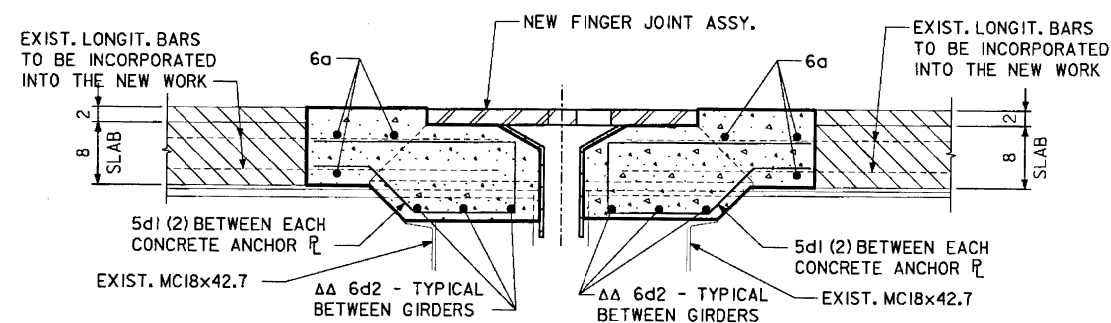
PART PLAN VIEW

Δ STAGE CONSTRUCTION JOINT MUST BE PARALLEL TO EXPANSION JOINT FINGERS TO INSURE PROPER SPLICING.

DIM "\*" - CONCRETE MAY BE REMOVED BEYOND THE STAGE CONSTRUCTION JOINT A DISTANCE NO GREATER THAN 2".

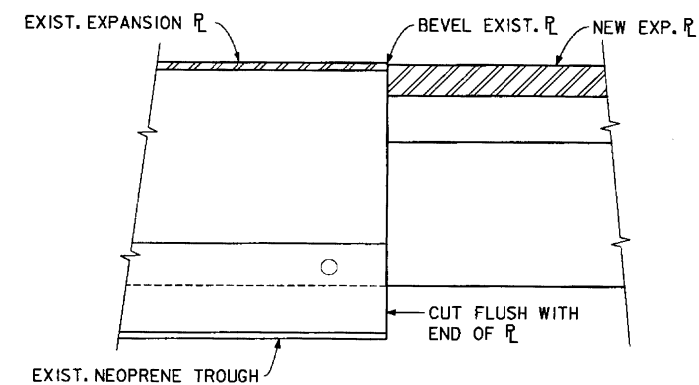
NOTE:  
EXISTING REINFORCING BARS SHALL BE CUT, CLEANED, AND INCORPORATED INTO THE NEW WORK WHEREVER POSSIBLE.

SEE DES. SH. 26 FOR MECHANICAL SPLICE ASSEMBLY NOTE.

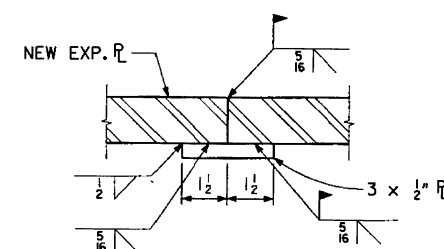


TYPICAL SECTION THROUGH EXPANSION DEVICE

ΔΔ 6d2 NOT PRESENT AT STAGE CONSTRUCTION JOINT. EXISTING TRANSVERSE BARS SHALL BE USED AT STAGE CONSTRUCTION.



SECTION A-A

SPLICE DETAIL  
AT CONSTRUCTION JOINT

DESIGNED BY J.S.J. CHECKED BY S.K.G.  
DETAILED BY M.A.F. CADD FILE H570502.S27

LINN COUNTY

PROJECT NUMBER

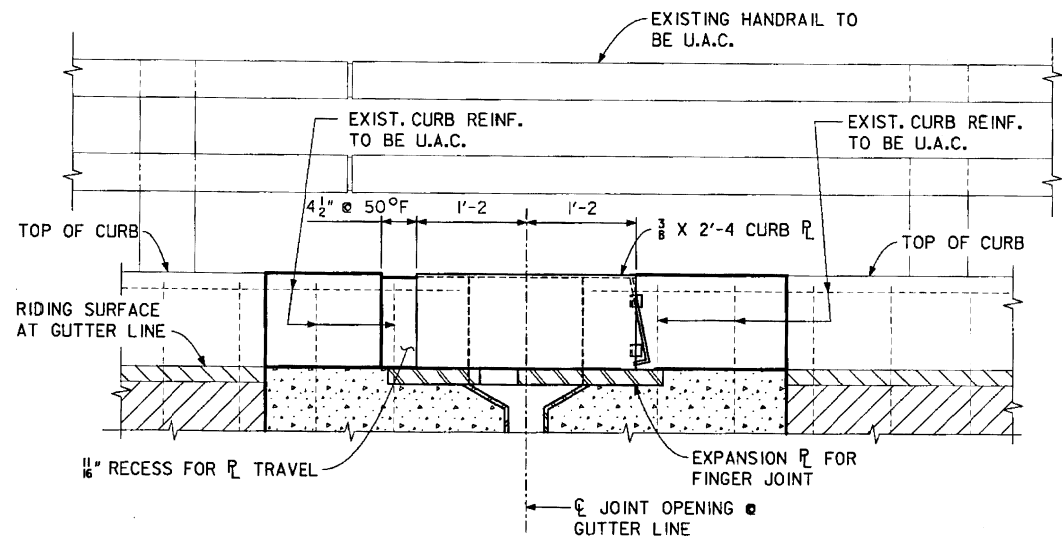
IMN-380-6(227)19--0E-57

SHEET NUMBER

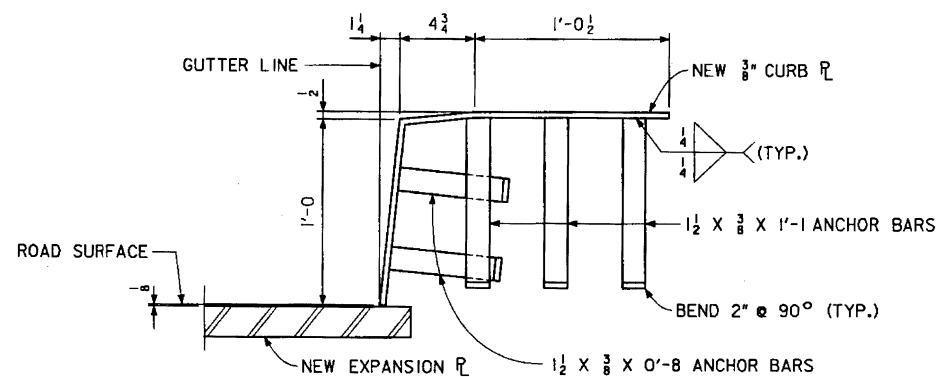
28/70

DESIGN FOR REPAIRS TO MULTIPLE SKEWS  
**4420'-4 x VAR. WIDTH WELDED  
 PLATE GIRDER & PRETENS.  
 PRESTR. CONCRETE BEAM BRIDGE**  
 I-380 OVER CEDAR RIVER BRIDGE & APPROACHES  
**RECONSTRUCTION DETAILS - 4N**  
 STATION: 344+28.26 (DESIGN 502 - NORTH APPROACH)  
~~STATION: 322+81.95 (DESIGN 602 - SOUTH APPROACH)~~  
~~STATION: 344+28.26 (DESIGN 702 - CEDAR RIVER)~~ APRIL, 2003  
**LINN COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 27 OF 39 FILE NO. 29821 DESIGN NO. 502

03/28/2003  
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TYPICAL SECTION AT E. GUTTER LINE



CURB PL DETAIL

EPOXY COATED REINFORCING STEEL

MARK	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a1	SLAB, TRANS. (2N)		6	29'-2"	263
6a2	SLAB, TRANS. (2N)		6	20'-8"	186
6a3	SLAB, TRANS. (3N)		6	24'-4"	219
6a4	SLAB, TRANS. (3N)		6	19'-8"	177
6a5	SLAB, TRANS. (4N)		6	35'-8"	321
6a6	SLAB, TRANS. (4N)		6	20'-2"	182
5d1	LONGIT., DIAPHRAGM		372	5'-1"	1972
*6d2	DIAPHRAGM, TRANS., BOT.		96	VAR.	1028
TOTAL (lbs)					4348

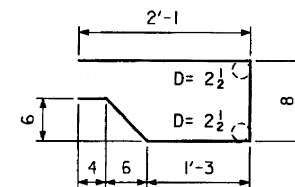
* - 6d2		
JT. 2N	JT. 3N	JT. 4N
6 @ 5'-7"	6 @ 5'-6"	6 @ 5'-6"
18 @ 7'-7"	18 @ 7'-6"	24 @ 7'-6"
6 @ 9'-8"	6 @ 4'-4"	6 @ 8'-2"

COST FOR 'REINFORCING STEEL, EPOXY COATED' INCLUDES 21 MECHANICAL SPLICE ASSEMBLIES.

CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
JOINT 2N	10.5
JOINT 3N	9.4
JOINT 4N	11.7
TOTAL (YD <sup>3</sup> )	31.6

BENT BAR DETAIL



5d1

NOTE:  
ALL PIN DIMENSIONS ARE OUT TO OUT.  
D=PIN DIAMETER

NOTE:  
IT IS INTENDED THAT THE 1/8" RECESSED AREA BE FORMED SO THAT WHEN THE 3/8" PLATE IS INSTALLED, THE PLATE WILL BE ABLE TO MOVE FREELY IN THE RECESSED AREA.

NOTE:  
CONTRACTOR TO NOTE THAT THE ANCHOR BARS FOR THE 3/8" CURB PLATES ARE ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE OF THE JOINT.

DESIGN FOR REPAIRS TO MULTIPLE SKEWS  
4420'-4 x VAR. WIDTH WELDED  
PLATE GIRDER & PRETENS.  
PRESTR. CONCRETE BEAM BRIDGE  
I-380 OVER CEDAR RIVER BRIDGE & APPROACHES

CURB DETAILS

STATION: 344+28.26 (DESIGN 502 - NORTH APPROACH)  
~~STATION: 322+81.95 (DESIGN 602 - SOUTH APPROACH)~~  
~~STATION: 344+28.26 (DESIGN 702 - CEDAR RIVER)~~

APRIL, 2003

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 28 OF 39 FILE NO. 29821 DESIGN NO. 502

WHKS & CO.

ENGINEERS PLANNERS LAND SURVEYORS

MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN

DESIGNED BY J.S.I. CHECKED BY S.K.G.  
DETAILED BY M.A.E. CADD FILE H570502.S28

LINN COUNTY

PROJECT NUMBER

IMN-380-6(227)19--0E-57

SHEET NUMBER

29/76

100-1A  
07-15-97

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
8	2518-6910000	SAFETY CLOSURE	EACH	34	34.000
9	2527-9263130	REMOVABLE TAPE MARK	STA	1 714	1638.595
10	2528-8445110	TRAFFIC CONTROL	LS	1	1.000
11	2528-8445112	FLAGGER	DAY	90	0.000
11.5	2599-9999005	(Each Item) Price Adjustment	Each		-1.000

100-4A
10-29-02

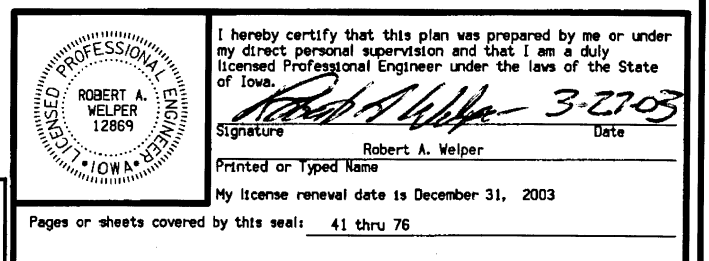
Item No.	Item Code	Description
1	2518-6910000	See Tabulation 108-13A on Sheet 42 for location and type of closure. See also Detail RCD-1 on Sheet 43 for further information.
2	2527-9263130	See Tabulation 108-22 on Sheets 44 and 45 for quantities and types of removable tape. For locations and types of markings see Detail LMD-1 and Detail 9001 on Sheet 43.
3	2528-8445110	See Tabulation 108-23 on Sheet 42 for Traffic Control Plan.
4	2528-8445112	The contractor shall provide a flagger at each joint location, during each stage of construction on I-380. A day shall be considered a twelve (12) hour period. Three (3) flagger-days per joint per stage are anticipated.

06-22-84 251-2

The contractor is hereby notified that removal of any existing traffic markers, warning devices or guardrail barriers shall be scheduled subject to the approval of the Engineer. The contractor may be required to place temporary warning devices at certain locations where replacement features are not installed the same day during which any such removals take place.

01-20-84 253-1  
Contractor is prohibited from using any established or other type median crossover on this project unless specifically designated for the contractor's use by this plan.

DESIGN NOS. 502, 602, 702  
FILE NO. 29821



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73/26/2003



105-4  
12-03-96

NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
RE-71(1)	04-15-03				
RE-71(2)	04-15-03				
RE-72	04-15-03				
RS-26B	10-28-97				
RS-61	10-27-98				
RS-62	01-12-99				
RS-63A	10-29-02				
RS-63B	04-15-03				
RS-64A	04-30-96				
RS-64B	04-30-96				
RS-65B	09-21-99				
RS-72	04-30-96				
RS-80	10-29-02				
RS-82	09-21-99				

108-26  
08-30-88

102-15
10-29-02

Event	Location	Date
2003		
Freedom Festival	Downtown Cedar Rapids	TBA
Fourth of July	Mays Island	July 4
Taste of Cedar Rapids Festival	Mays Island	TBA
Flavors of Greece		TBA

108-23
04-04-89

- 108-13A  
10-28-97

STATION	CLOSURE TYPE		REMARKS
	Road Qty.	Hazard Qty.	
Group 6 - Stage 1 Ramp E-1	2		See Detail RCD-1
Group 7 - Stage 1 Ramp E-1 Ramp D-4	2 2		See Detail RCD-1 See Detail RCD-1
Group 7 - Stage 2 Ramp D-4	2		See Detail RCD-1
Group 8 - Stage 1 Ramp E-1 Ramp D-4	2 2		See Detail RCD-1 See Detail RCD-1
Group 8 - Stage 2 Ramp D-4	2		See Detail RCD-1
Group 9 - Stage 1 Ramp D-4	2		See Detail RCD-1
Group 9 - Stage 2 Ramp D-4	2		See Detail RCD-1
Group 10 - Stage 1 Ramp F-2 Ramp G-1	2 2		See Detail RCD-1 See Detail RCD-1
Group 10 - Stage 2 Ramp D-4 Ramp F-2	2 2		See Detail RCD-1 See Detail RCD-1
Group 11 - Stage 1 Ramp F-2 Ramp G-1	2 2		See Detail RCD-1 See Detail RCD-1
Group 11 - Stage 2 Ramp D-4 Ramp F-2	2 2		See Detail RCD-1 See Detail RCD-1

42/76