

CRAWFORD COUNTY PROJECT NO. BHM-1920(2)--8K-24 BRIDGE WIDENING, GRADING AND P.C.C. PAVING

LETTING DATE : JANUARY 7, 1994

IOWA DEPARTMENT OF TRANSPORTATION Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE DONNA REED DRIVE CITY OF DENISON

BRIDGE WIDENING, GRADING AND P.C.C. PAVING

PROJECT NO. BHM-1920(2)--8K-24
FHWA NO. 127812

STANDARD ROAD PLANS

THE FOLLOWING STANDARD ROAD PLANS SHALL BE CONSIDERED APPLICABLE TO CONSTRUCTION WORK ON THIS PROJECT.

IDENT.	DATE	IDENT.	DATE	IDENT.	DATE
RE-2A	2-17-87	RE-68	8-8-89	RL-1	4-23-82
RE-2B	10-22-93	RE-69	10-22-93	RL-7	7-16-91
RE-7	4-28-92			RL-11	10-11-88
RE-12A	10-11-88	RH-22	11-10-92		
RE-12B	1-9-90	RH-37D	7-16-91		
RE-47	11-10-87	RH-50	6-15-93		
RE-48A	6-15-93	RH-51	2-23-93		
RE-52	10-22-93	RH-52	9-29-92		
RE-65	1-7-92				

PROJECT TRAFFIC CONTROL PLAN
THIS ROAD WILL BE CLOSED TO THROUGH TRAFFIC DURING CONSTRUCTION. LOCAL TRAFFIC TO ADJACENT PROPERTIES WILL BE MAINTAINED AS PROVIDED FOR IN ARTICLE 1107.08, 1992 SPECIFICATIONS PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS. TRAFFIC CONTROL DEVICES, PROCEDURES AND LAYOUTS SHALL BE AS PROVIDED FOR BY SUPPLEMENTAL SPECIFICATIONS FOR TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS, SPECIFICATION 5055 AND THE IOWA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

THE STANDARD SPECIFICATIONS OF THE IOWA DEPARTMENT OF TRANSPORTATION, SERIES OF 1992, PLUS CURRENT SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS, SHALL APPLY TO WORK ON THIS PROJECT.

DIVISION I - BRIDGE
DIVISION II - GRADING & P.C.C. PAVING

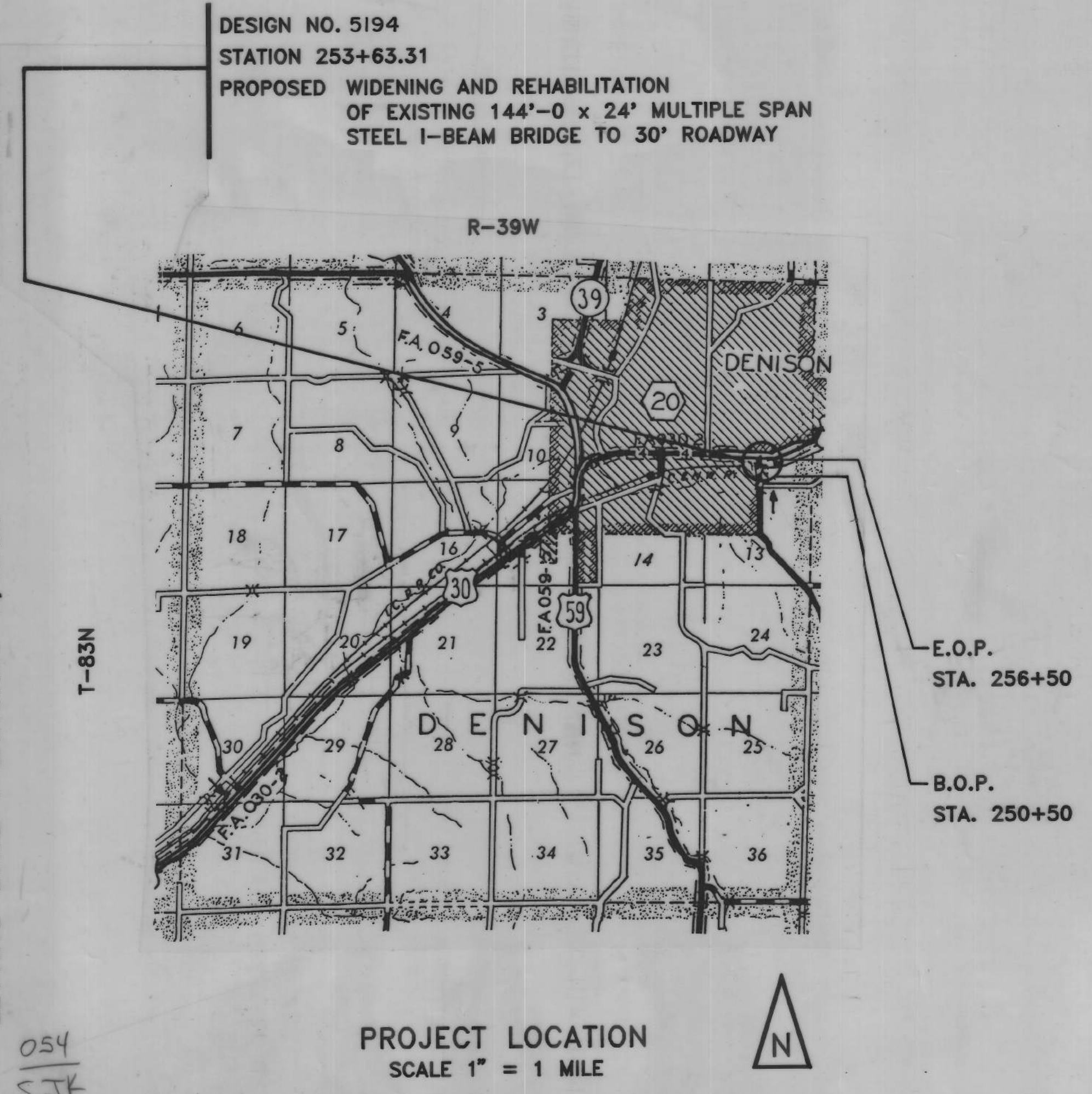
- INDEX OF SHEETS**
1. TITLE SHEET
 2. QUANTITY SUMMARY
 3. TRAFFIC CONTROL, DETAIL SHEET 520-27
- DIVISION I**
4. SITUATION PLAN
 5. SOUNDING DATA AND GENERAL NOTES
 6. SOUTH ABUTMENT DETAILS
 7. NORTH ABUTMENT DETAILS
 8. SOUTH PIER DETAILS
 9. NORTH PIER DETAILS
 10. NORTH PIER DETAILS
 11. SUPERSTRUCTURE DETAILS
 12. SUPERSTRUCTURE DETAILS
 13. SUPERSTRUCTURE DETAILS
 14. SUPERSTRUCTURE DETAILS
 15. SUPERSTRUCTURE DETAILS
 16. SUPERSTRUCTURE DETAILS
 17. BEARING DETAILS
 18. EXPANSION DEVICE DETAILS
 19. BARRIER RAIL DETAILS
- DIVISION II**
20. QUANTITIES AND NOTES
 21. TYPICAL SECTIONS AND DETAILS
 22. TABULATIONS
 23. PLAN AND PROFILE
 24. BRIDGE APPROACH DETAILS

MILEAGE SUMMARY			
DIV.	LOCATION	LIN.FT.	MILES
I	BRIDGE AT STA. 253+63.31	188.6	0.0357
II	GRADING AT STA. 250+50 TO 252+69 STA. 254+57.6 TO 256+50	411.4	0.0779
TOTAL		600	0.1136

DRAWING APPROVAL
ALL SHOP DRAWINGS AND FALSEWORK DRAWINGS THAT REQUIRE APPROVAL SHALL BE APPROVED BY CALHOUN-BURNS AND ASSOCIATES, INC.
ADDRESS : 1801 FULLER ROAD, P.O. BOX 65859
WEST DES MOINES, IOWA 50265
TELEPHONE : (515) 224-4344
THESE SHOP DRAWINGS SHALL NOT BE SENT TO IOWA D.O.T. OFFICE OF BRIDGE DESIGN.

STANDARD P10A (REVISED 12-9-92) IS REQUIRED AND MAY BE OBTAINED AT BRIDGE DESIGN SERVICES.

1984, TRAFFIC COUNT = 1990 V.P.D.



CITY OF DENISON, IOWA

APPROVED

Steve B. Reneker 11-2-93
MAYOR DATE

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED UNDER MY SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.
SIGNATURE: *Steve B. Reneker*
NAME: STEVEN B. RENEKER
DATE: 10-15-93 REG. NO. 11455
MY REGISTRATION EXPIRES DECEMBER 31, 1993

GRADING

**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION**

APPROVED

DIVISION ADMINISTRATOR DATE

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED UNDER MY SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.
SIGNATURE: *Michael A. Vander Wert*
NAME: MICHAEL A. VANDER WERT
DATE: 10/15/93 REG. NO. 12496
MY REGISTRATION EXPIRES DECEMBER 31, 1993

BRIDGE

APPROVED

H. Dale Wright 11-1-93
CRAWFORD COUNTY ENGINEER DATE

**DEPARTMENT OF TRANSPORTATION
IOWA**

Highway Division

AUTHORIZED FOR LETTING

DEPUTY CHIEF ENGINEER DATE

Le Roy a. Hansohn
John G. Lawler
Gileen Heider
Vincent E. Anderson

10-26-93
BOARD OF SUPERVISORS DATE

IOWA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

ACCEPTED FOR LETTING

Steve B. Reneker 11/10/93
URBAN/SYSTEMS ENGR. DATE

TOTAL ESTIMATED QUANTITIES : DIV. I 144'-0 x 30' STEEL I-BEAM BRIDGE

NO.	ITEM	UNIT	2 ABUTS.	S. PIER	N. PIER	SUPERST.	TOTAL
1	CONCRETE, STRUCTURAL	CU.YDS.	44.1	8.5	72.2	123.7	248.5
2	STEEL, REINFORCING	LBS.	2,086	938	7,104	-	10,128
3	STEEL, REINFORCING - EPOXY COATED	LBS.	2,038	-	-	47,925	49,963
4	STEEL, STRUCTURAL	LBS.	-	-	-	49,876	49,876
5	PILING, STEEL BEARING	FURNISH 12 @ 38', 4 @ 48'	LIN.FT.	192	-	456	648
6	HP10 x 42	DRIVE 12 @ 38', 4 @ 48'	LIN.FT.	192	-	456	648
7	PILING, STEEL BEARING	FURNISH 2 @ 84'	LIN.FT.	-	168	-	168
8	HP12 x 53	DRIVE 2 @ 84'	LIN.FT.	-	168	-	168
9	P10A - TYPE 3, 18" φ	ENCASE 2 @ 21.5'	LIN.FT.	-	43	-	43
10	JOINTS, STEEL EXTRUSION W/ NEOPRENE	LIN.FT.	-	-	-	91.7	91.7
11	EXCAVATION, CLASS 20	CU.YDS.	50	-	55	-	105
12	RAIL, CONCRETE BARRIER	LIN.FT.	-	-	-	325.2	325.2
13	TRAFFIC CONTROL	L.S.	-	-	-	-	LUMP SUM
14	SAFETY CLOSURES	ONLY	-	-	-	-	2
15	MOBILIZATION	L.S.	-	-	-	-	LUMP SUM
16	REMOVALS, AS PER PLAN	L.S.	-	-	-	-	LUMP SUM

ITEM NO. ESTIMATE REFERENCE INFORMATION

- ALL STRUCTURAL CONCRETE IS TO BE CLASS "C". CLASS "D" WILL NOT BE ALLOWED. INCLUDES COST OF LABOR, EQUIPMENT, AND MATERIALS REQUIRED TO INSTALL SUBDRAINS, CONCRETE SEALER, POROUS AND GRANULAR BACKFILL, AND PREFORMED JOINT FILLER.
- INCLUDES 262 LBS OF LEAD SHEETS. INCLUDES COST OF LABOR, MATERIAL, AND EQUIPMENT FOR ALL FIELD WELDING AND MODIFICATIONS PER PLAN.
- INCLUDES COST OF DRIVING POINTS.
- SEE SHEET 3 FOR DETAILS.
- SEE TABULATIONS, SHEET 22.
- SEE REMOVALS, SHEET 5.

TOTAL ESTIMATED QUANTITIES: DIV. II - GRADING

NO.	ITEM	UNIT	TOTAL
17	EXCAVATION, CLASS 10, ROADWAY & BORROW	CU. YDS.	1,216
18	PAVEMENT, STANDARD OR SLIP FORM, P.C.C., CLASS C, 8"	SQ. YDS.	831
19	BRIDGE APPROACH SECTION, REINFORCED, AS PER PLAN	SQ. YDS.	408.8
20	SHOULDER, GRANULAR, TYPE A	TONS	170
21	REMOVAL OF PAVEMENT	SQ. YDS.	1003
22	SEEDING, FERTILIZING AND MULCHING	ACRES	0.65
23	GUARDRAIL FORMED STEEL THRIE BEAM	LIN. FT.	125
24	GUARDRAIL FORMED STEEL BEAM	LIN. FT.	94
25	REMOVE AND REINSTALL FORMED STEEL BEAM GUARDRAIL	LIN. FT.	531
26	REMOVE AND REINSTALL BEAM GUARDRAIL POSTS	ONLY	108
27	REMOVE BEAM GUARDRAIL POSTS	ONLY	2
28	REMOVE AND REINSTALL GUARDRAIL, END ANCHORAGES, BEAM (RE-52)	ONLY	2
29	GUARDRAIL, END ANCHORAGES, BEAM, RE-69	ONLY	4
30	REMOVE AND REINSTALL OBJECT MARKERS, TYPE 3	ONLY	18
31	PAVEMENT MARKINGS, PAINTED	STA.	24
32	SURFACE, CLASS A, CRUSHED STONE, DRIVEWAY	TONS	75
33	CONSTRUCTION SURVEY	L.S.	LUMP SUM
34	FIELD LABORATORY	ONLY	1

ITEM NO. ESTIMATE REFERENCE INFORMATION

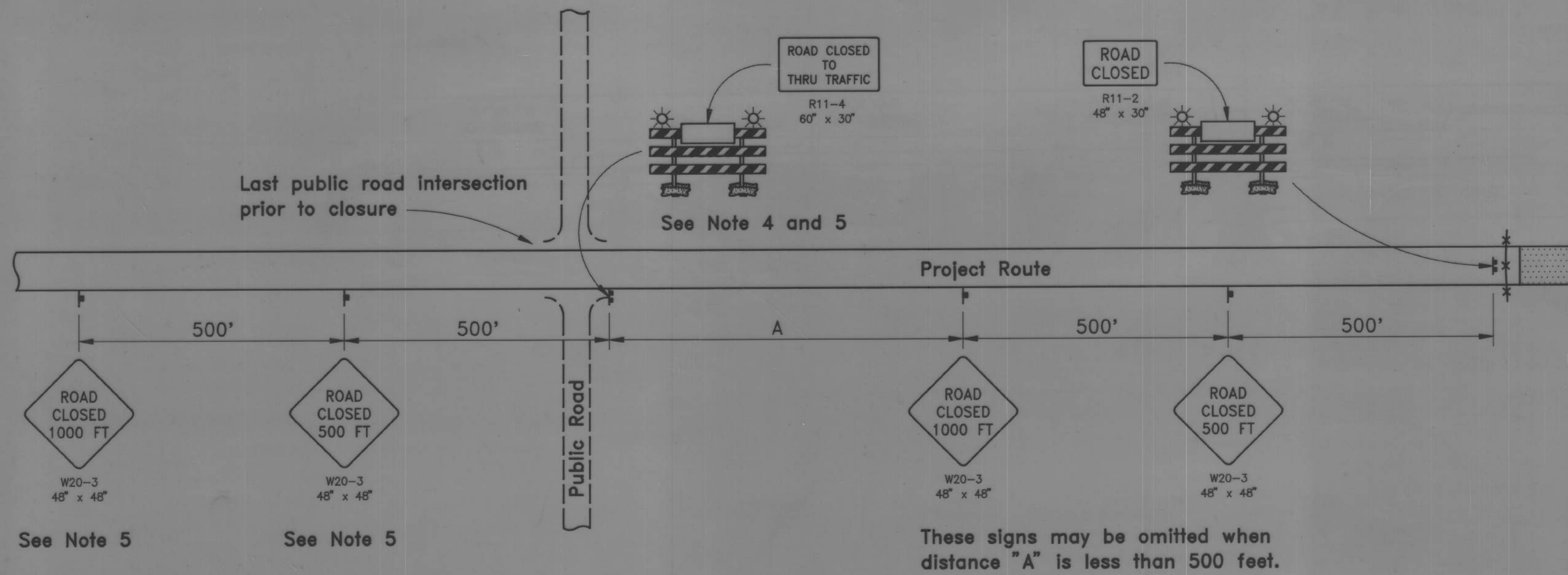
- NO PAYMENT FOR OVERHAUL WILL BE ALLOWED. TYPE "A" COMPACTION WILL BE REQUIRED. THE CONTRACTOR WILL BE REQUIRED TO OBTAIN HIS OWN BORROW. THE CONTRACTOR IS TO FAMILIARIZE HIMSELF WITH IOWA LAW AS IT PERTAINS TO REMOVAL AND REPLACEMENT OF TOPSOIL WITHIN THE BORROW AREAS. EARTH SHOULDER FILL REQUIRED FOR GRANULAR SHOULDERS SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM.
- SEE TYPICAL SECTION, SHEET 21. "CD" JOINTS ARE REQUIRED. COARSE AGGREGATE DURABILITY SHALL BE 2B.
- SEE SHEET 24 FOR DETAILS.
- SEE TABULATION, SHEET 22.
- SEE GENERAL NOTES, SHEET 20.
- SEE TABULATIONS, SHEET 22, AND DETAILS, SHEET 21.
- INCLUDES 14 TYPE 2 AND 4 TYPE 3 OBJECT MARKERS.
- SEE TABULATION, SHEET 22.

QUANTITY SUMMARY

CRAWFORD COUNTY,

IOWA

SHEET 2 OF 24



PROJECT ROUTE CLOSURE

GENERAL NOTES

- ① This layout illustrates traffic control necessary to close the project route.
- ② All "Stop" and other regulatory signs on the sideroads are not to be disturbed. If a "Stop" or other regulatory sign must be removed, it will be relocated by the Contracting Authority.
- ③ This layout does not include all barricades as may be required by Section 2518 of the Standard Specifications.
- ④ When distance "A" is less than 500 feet the barricade should be placed in the middle of the traffic lane approaching the work area. In this case, Type 'A' Flashing Warning Lights shall be visible to both directions of traffic. The barricade may be omitted if the distance to the work area is less than 250 feet.
- ⑤ If the intersection is the beginning of a marked detour, these two signs and barricade will become the responsibility of the contracting authority and may be modified by the contracting authority to fit detour signing.

LEGEND

- † Traffic Sign
- ‡ Type III Barricade (Type "A" Low Intensity Flashing Warning Light Required for Nighttime Use)
- ☼ Type "A" Low Intensity Flashing Warning Light
- ▨ Work Area
- Slat Fence Barricade or Orange Plastic Safety Fence

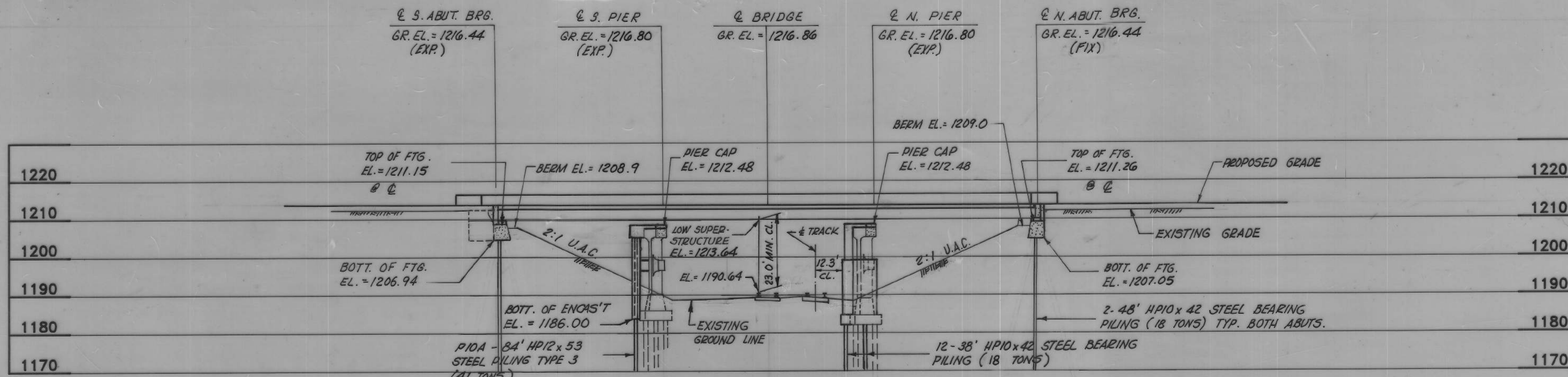
IOWA D.O.T. STANDARD DETAIL SHEET 520-27

TRAFFIC CONTROL LAYOUT FOR
TEMPORARY ROAD CLOSURES AT
BRIDGES AND SPOT LOCATIONS
(RURAL AREAS)

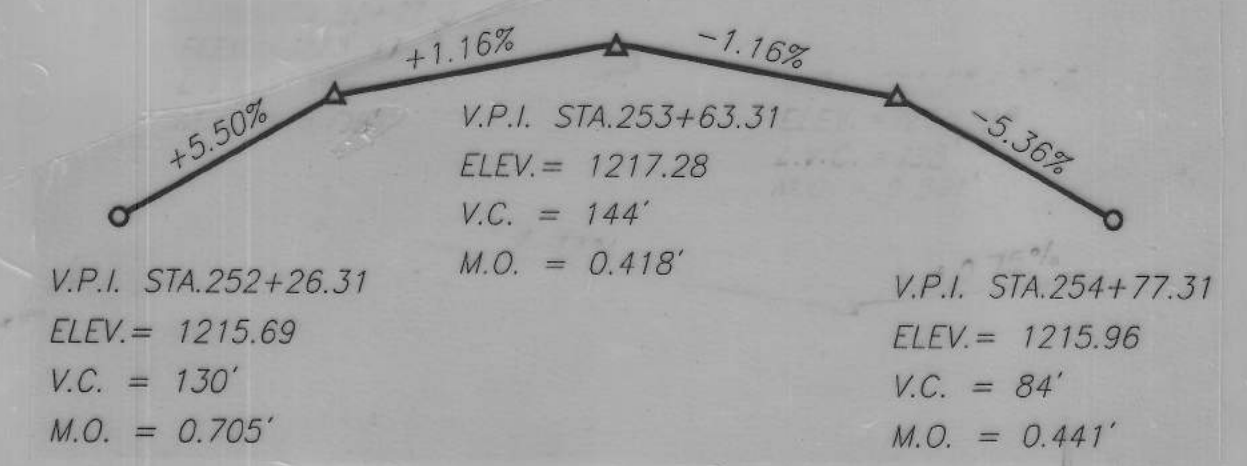
CRAWFORD COUNTY,

IOWA

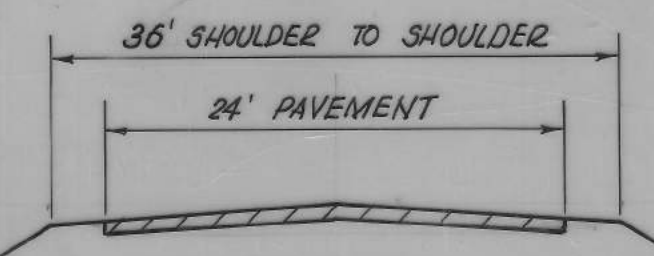
SHEET 3 OF 24



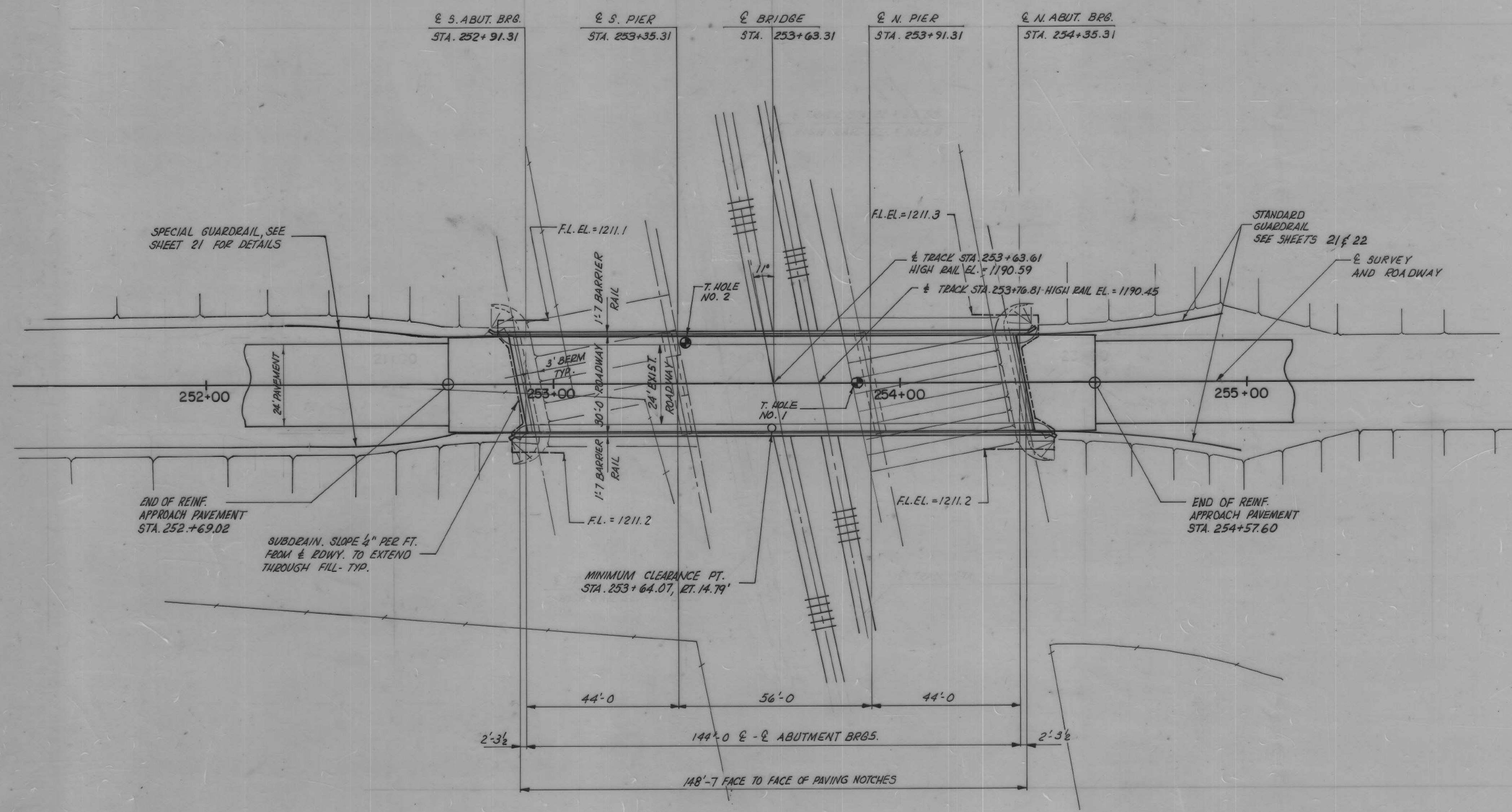
LONGITUDINAL SECTION ALONG Q ROADWAY



PROPOSED GRADE



TYPICAL APPROACH SECTION



SITUATION PLAN
SCALE 1" = 20'

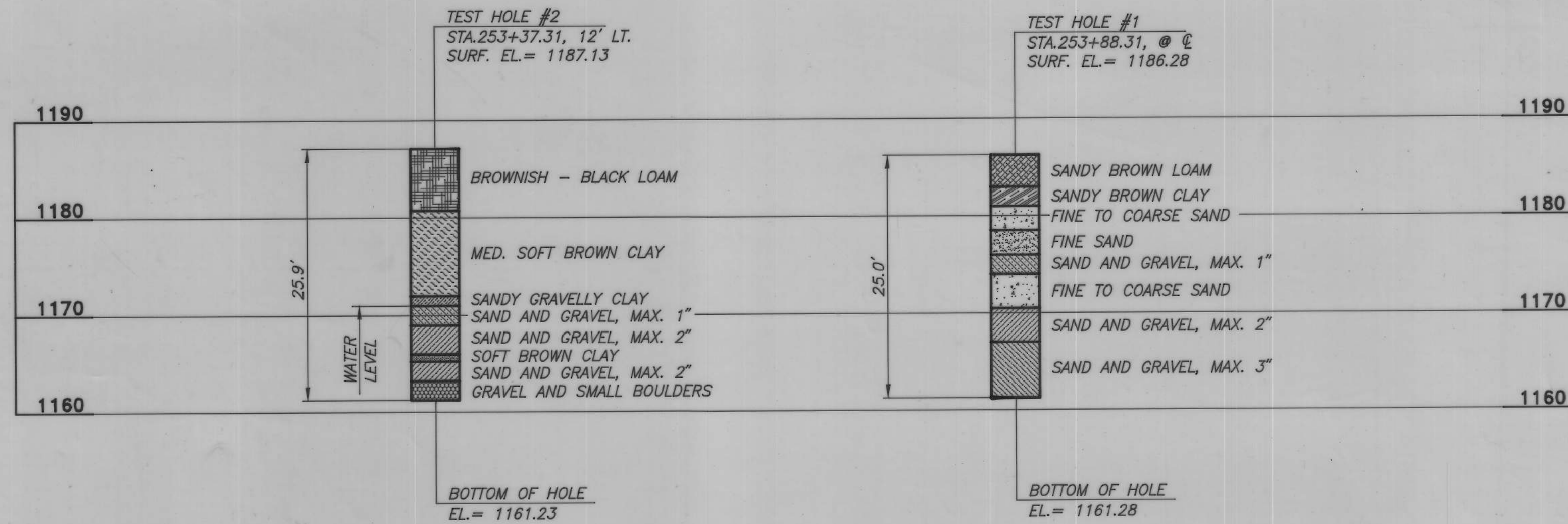
LOCATION

CRAWFORD COUNTY
T-83N, R-39W
SECTION 12
DENISON TOWNSHIP
ROAD M36 OVER
C&NW RAILROAD

144'-0" x 24' MULTIPLE SPAN STEEL I-BEAM
BRIDGE WIDENING TO 30' ROADWAY
44'-0" END SPANS
56'-0" CENTER SPAN
CONCRETE SUBSTRUCTURE

SITUATION PLAN

STATION 253 + 63.31, IA. R.R. XING NO. 1107 11° SKEW, RT. AHEAD
CRAWFORD COUNTY, IOWA
SHEET 4 OF 24



SOUNDING DATA
SCALE : 1" = 10'
SOUNDINGS TAKEN FROM DES. #135 DATED: NOV. 1935

DRILLED - IN DOWELS

EPOXY ADHESIVE FOR BONDING DOWELS IN DRILLED HOLES SHALL BE IN ACCORDANCE WITH MATERIALS I.M. 491.11 AND SHALL BE USED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR SHALL ARRANGE A MEETING WITH THE SUPPLIER'S TECHNICAL REPRESENTATIVE AND THE ENGINEER TO REVIEW THE MANUFACTURER'S RECOMMENDATIONS PRIOR TO CONSTRUCTION.

DRILLED HOLES FOR DOWELS SHALL BE 1/8" LARGER IN DIAMETER THAN THE DIAMETER OF THE BAR. WHERE NOT SHOWN ON THE PLANS, THE MINIMUM EMBEDMENT DEPTH IS 10 TIMES THE BAR DIAMETER.

INSTALLATION PROCEDURE:

- BLOW HOLE CLEAN USING OIL-FREE COMPRESSED AIR.
- PLACE EPOXY TO PREDETERMINED DEPTH IN HOLE, AND INSERT CLEAN BAR, WORKING BACK AND FORTH, UP AND DOWN, TO ENSURE COMPLETE EMBEDMENT AND COATING.
- POSITION BAR IN CENTER OF HOLE WITH TEMPLATE UNTIL EPOXY SETS.

COST OF ALL LABOR AND MATERIALS TO DRILL HOLES AND EMBED BARS WILL BE INCLUDED IN THE PRICE BID FOR "STEEL, REINFORCING", "STEEL, REINFORCING-EPOXY COATED", AND "STEEL, STRUCTURAL" (WHERE APPLICABLE) AND NO SEPARATE PAYMENT WILL BE MADE.

EPOXY BONDING CONCRETE

NEW CONCRETE SHALL BE BONDED TO EXISTING CONCRETE WITH AN EPOXY BONDING AGENT AS SPECIFIED IN MATERIALS I.M. 491.11.

EPOXY BONDING AGENT SHALL BE APPLIED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. EPOXY SHALL NOT BE APPLIED BY SPRAY METHODS, AND NO SOLVENT SHALL BE ADDED TO THE EPOXY ADHESIVE.

THE SUPPLIER OF THE ADHESIVE SHALL SUBMIT TO THE ENGINEER A CERTIFIED TEST REPORT COVERING EACH LOT OF THE ADHESIVE SHIPPED TO THE PROJECT. THE TEST REPORT SHALL CERTIFY THAT THE COMPOSITION AND PROPERTIES OF THE ADHESIVE ARE IN ACCORDANCE WITH THESE PLANS AND IT SHALL GIVE THE ACTUAL VALUES OF THE MECHANICAL PROPERTIES OF THE MATERIAL IN THE PARTICULAR LOT.

THE SURFACE OF THE OLD CONCRETE TO WHICH NEW CONCRETE IS TO BE BONDED SHALL BE CLEANED BY SANDBLASTING, AFTER REMOVAL OF CONCRETE AS SHOWN ON THE PLANS, SO THAT ALL FOREIGN MATERIAL, LOOSE AND UNSOUND CONCRETE IS REMOVED AND ONLY SOUND CONCRETE REMAINS. WASHING WITH FRESH WATER WILL BE REQUIRED AS NECESSARY TO REMOVE DUST AND SMALL PARTICLES NOT REMOVED BY OTHER CLEANING METHODS.

WHEN ALL FREE WATER HAS DRIED FROM THE AREA TO BE BONDED, EPOXY ADHESIVE SHALL BE APPLIED BY BRUSH TO A 20 MIL THICKNESS MINIMUM. THE EPOXY SURFACE SHALL APPEAR SHINY AND SHALL BE TACKY JUST BEFORE NEW CONCRETE IS PLACED AGAINST IT. IF THE CONCRETE HAS ABSORBED THE ADHESIVE, AS EVIDENCED BY A DULL APPEARANCE, APPLY ANOTHER COAT. THE NEW CONCRETE SHALL THEN BE PLACED WHILE THE EPOXY REMAINS TACKY.

THE EPOXY BONDING AGENT IS TO BE APPLIED TO CONCRETE THAT IS FREE OF ALL DUST, OIL, DEBRIS OR OTHER FOREIGN MATERIAL. ANY MATERIAL THAT INHIBITS THE ABILITY TO BOND SHALL BE REMOVED BY OIL FREE AIR COMPRESSORS OR LIGHT SANDBLASTING PRIOR TO PLACEMENT OF EPOXY BONDING AGENT. STANDING WATER PUDDLES ARE TO BE REMOVED. A DAMP CONDITION OF SURFACE IS ACCEPTABLE PRIOR TO APPLICATION.

THE EPOXY BONDING AGENT SHALL BE APPLIED BY HEAVY DUTY BRUSHES.

THE EPOXY BONDING AGENT SHALL BE APPLIED AT A RATE OF 9 SQUARE YARDS PER GALLON (APPROXIMATELY 80 SQUARE FEET/GALLON). THE MINIMUM BUILDUP IS TO BE 20 MILS.

PRIOR TO PLACING THE EPOXY, THE INSPECTOR, CONTRACTOR, AND SUPPLIER'S REPRESENTATIVE SHALL MEET TO DETERMINE THE FINAL RATE OF APPLICATION. A WET FILM THICKNESS GAUGE SHALL BE EMPLOYED AT RANDOM INTERVALS TO ENSURE A MINIMUM BUILDUP OF 20 MILS.

THE EPOXY BONDING AGENT MIGHT LOSE TACK AFTER APPROXIMATELY 3 HOURS AT 70 DEGREES F.

COST OF LABOR AND MATERIAL TO APPLY EPOXY BONDING AGENT WILL BE INCLUDED IN PRICE BID FOR "CONCRETE, STRUCTURAL" AND NO SEPARATE PAYMENT WILL BE MADE.

REMOVALS

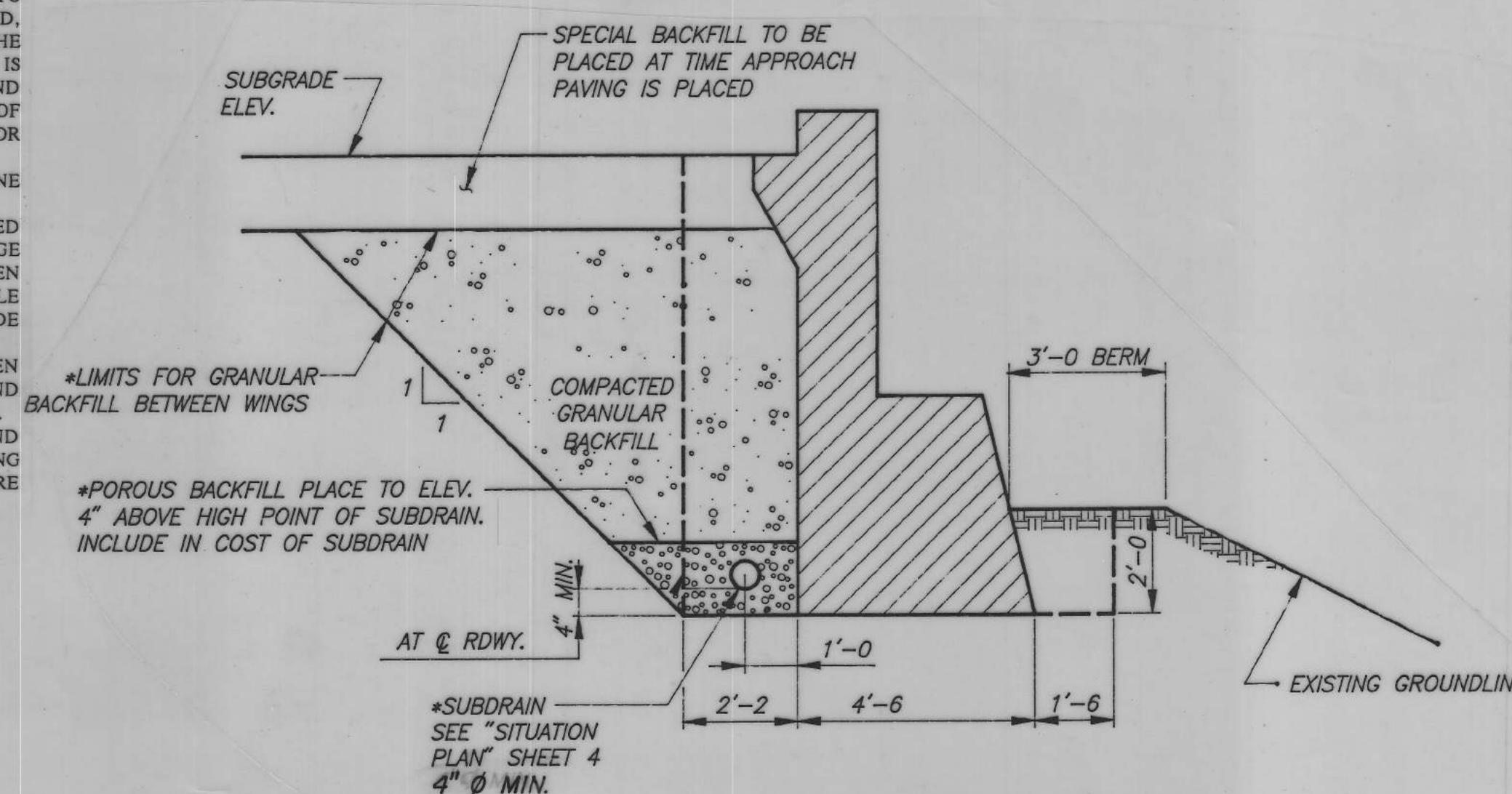
CONCRETE SHALL BE REMOVED TO NEAT LINES AS SHOWN IN DETAILS. ALL SUCH REMOVALS SHALL BE TO NEAT SAW CUTS TO PROVIDE CLEAN STRAIGHT SURFACES AT INTERFACES BETWEEN NEW CONCRETE AND REMAINING CONCRETE. THE REMOVAL SHALL BE DONE IN A MANNER WHICH WILL PREVENT ANY DAMAGE TO THE EXISTING STRUCTURE TO REMAIN. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY DAMAGE CAUSED, AND SHALL REPAIR ANY DAMAGED AREA TO ITS ORIGINAL CONDITION, AS DIRECTED BY THE ENGINEER, AT THE CONTRACTOR'S EXPENSE. ANY EXISTING REINFORCING STEEL WHICH IS EXPOSED DURING REMOVAL OPERATIONS IS TO BE CAREFULLY PROTECTED, CLEANED AND INCORPORATED INTO NEW CONSTRUCTION UNLESS NOTED OTHERWISE. ALL COSTS OF CONCRETE REMOVAL AND CLEANING REBARS SHALL BE INCLUDED IN THE PRICE BID FOR "REMOVALS, AS PER PLAN".

WHERE PLANS REQUIRE THE REMOVAL OF EXISTING CONCRETE, IT SHALL BE DONE CAREFULLY TO THE LINES INDICATED ON THE PLANS.

THE CONCRETE MASONRY AND RUBBLE REMOVED FROM THE BRIDGE SHALL BE DISPOSED OF OFF THE HIGHWAY RIGHT-OF-WAY ON A WASTE AREA PROVIDED BY THE BRIDGE CONTRACTOR. THE WASTE MATERIAL MUST NOT CREATE AN UNSIGHTLY CONDITION WHEN VIEWED FROM PUBLIC HIGHWAYS. THE COST OF WASTING CONCRETE MASONRY AND RUBBLE IS TO BE INCLUDED IN THE BID ITEM "REMOVALS, AS PER PLAN". NO PAYMENT WILL BE MADE FOR OVERHAUL.

ALL EXISTING ABUTMENT REINFORCING AND EXISTING PIER REINFORCING EXPOSED WHEN REMOVING OLD CONCRETE IS TO BE CLEANED AND STRAIGHTENED WHERE NECESSARY AND BONDED INTO THE NEW CONSTRUCTION, WHERE PRACTICABLE, UNLESS NOTED OTHERWISE.

THE LUMP SUM BID FOR "REMOVALS, AS PER PLAN" SHALL INCLUDE THE REMOVAL AND DISPOSAL OF PORTIONS OF THE EXISTING STRUCTURE AS SHOWN ON THE PLANS, DISMANTLING OF EXISTING SUPERSTRUCTURE STEEL, AND A RE-ERECTION OF THE EXISTING SUPERSTRUCTURE STEEL, IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS.



GRANULAR BACKFILL DETAIL
* INCLUDE IN COST OF "CONCRETE, STRUCTURAL".

SPECIFICATIONS

DESIGN: AASHTO 'STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES', 15TH EDITION, 1992.

CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION 'STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION', 1992, AND CURRENT SUPPLEMENTAL SPECIFICATIONS.

WELDING: ALL WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT ANSI/AWS STRUCTURAL WELDING CODE, AS MODIFIED BY THE AASHTO STEEL WELDING SPECIFICATIONS AND ARTICLE 2408.13.

DESIGN STRESSES

DESIGN STRESSES FOR THE FOLLOWING MATERIAL ARE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1992.

CONCRETE	SECTION 8, f _c	=	3,500 PSI
REINFORCING STEEL	SECTION 8		
ASTM A615	GRADE 60, f _s	=	24,000 PSI
STRUCTURAL STEEL	SECTION 10		
ASTM A36 (NEW)	f _s	=	20,000 PSI
ASTM A141 (EXISTING)	f _s	=	16,000 PSI

GENERAL NOTES

THE NEW BRIDGE DECK, NEW EXTERIOR BEAMS, PIER EXTENSIONS, AND ABUTMENT PILING ARE DESIGNED FOR HS20-44 LIVE LOAD PLUS 20 LBS PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE. THE EXISTING PORTIONS OF THE STRUCTURE ARE ADEQUATE FOR HS20-44 LIVE LOAD PLUS 20 LBS PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE AT STRESSES NOT EXCEEDING .65 F_y.

THE EXISTING BRIDGE IS A 144'-0" X 24'-0" THREE-SPAN CANTILEVER STEEL I-BEAM WITH COLUMN PEDESTAL PIERS AND CONCRETE SUB ABUTMENTS. IT IS IOWA DEPT. OF TRANSPORTATION PROJECT NO. W.P.G.S. 578, DESIGN NO. 135, CRAWFORD COUNTY. PLANS ARE AVAILABLE AT THE IOWA DEPT. OF TRANSPORTATION OFFICE IN AMES OR AT THE COUNTY ENGINEER'S OFFICE.

ALL EXPOSED CORNERS 90 DEGREES OR SHARPER ARE TO BE FILLETED WITH 3/4" DRESSED AND BEVELED STRIP. THE MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED. THE REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE BEFORE CONCRETE IS PLACED.

BONDING NEW CONCRETE TO OLD CONCRETE SHALL BE DONE IN ACCORDANCE WITH SECTION 2403.14 OF THE STANDARD SPECIFICATIONS, EXCEPT AS PROVIDED ELSEWHERE FOR EPOXY BONDING.

CONCRETE SEALER SHALL BE APPLIED TO THE EXPOSED BRIDGE SEAT SURFACE AT BOTH ABUTMENTS. THE "BRIDGE SEAT SURFACE" SHALL INCLUDE THE TOP SURFACE (EXISTING AND NEW), THE FRONT VERTICAL FACE OF THE NEW BRIDGE SEATS AND THE EDGE FILLETS. THE SEALER SHALL EXTEND UP THE FRONT FACE AND ACROSS THE TOP OF THE BACKWALL. THE BRIDGE SEAT PROTECTIVE COATING SHALL BE AN APPROVED SEALER LISTED IN MATERIALS I.M. 491.12 AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE COST OF FURNISHING AND APPLYING THE BRIDGE SEAT SEALER IS TO BE INCLUDED IN THE UNIT PRICE BID FOR "CONCRETE, STRUCTURAL".

THE CONTRACTOR'S WORK AND MATERIAL STORAGE AREA SHALL BE LOCATED AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL SHAPE, FERTILIZE AND SEED THE CONTRACTOR'S AREA PER SECTION 2601.04 IN ORDER TO RETURN IT TO ITS ORIGINAL CONDITION. PAYMENT FOR THIS WORK SHALL BE INCIDENTAL TO THE "REMOVALS, AS PER PLAN" BID ITEM. AREAS OUTSIDE THE CONTRACTOR'S AREA, DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED TO THEIR ORIGINAL CONDITION AS DETERMINED BY THE ENGINEER. NO ADDITIONAL PAYMENT WILL BE AUTHORIZED FOR THIS WORK.

ALL REINFORCING BARS SHALL BE GRADE 60.

WATER REDUCING ADMIXTURES SHALL NOT BE USED FOR CONCRETE PLACED ON THIS PROJECT.

THE CONTRACTOR SHALL VISIT THE CONSTRUCTION SITE TO ENSURE THAT HE IS FAMILIAR WITH THE EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES AND SHALL NOTIFY ANY UTILITY COMPANIES WHOSE FACILITIES ARE KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS BEFORE COMMENCING WORK. UTILITIES SHALL BE PROTECTED IN PLACE. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ALL UTILITIES.

GENERAL NOTES (CONT.)

THE INTENT OF THE BRIDGE PLANS AND SPECIFICATIONS IS TO RAISE AND WIDEN THE EXISTING CANTILEVER STEEL I-BEAM BRIDGE TO A 30' ROADWAY BY REMOVING EXISTING CONCRETE DECK, DISMANTLING EXISTING SUPERSTRUCTURE STEEL, RAISING AND EXTENDING THE ABUTMENTS, RAISING AND WIDENING THE PIERS, ADDING A CRASHWALL TO THE NORTH PIER, RE-ERECTING EXISTING SUPERSTRUCTURE STEEL, ADDING TWO (2) NEW CONTINUOUS BEAMS, INSTALLING A NEW DECK, INSTALLING NEW RAIL, AND INSTALLING SUBDRAINS. THE CONTRACTOR SHALL VERIFY DIMENSIONS AND ELEVATIONS IN THE FIELD PRIOR TO BEGINNING WORK, AND AGAIN PRIOR TO EACH CRITICAL STEP THROUGHOUT THE PROJECT. ANY DIMENSIONS OR ELEVATIONS WHICH ARE FOUND TO DIFFER FROM THOSE SHOWN ON THESE DRAWINGS OR APPROVED SHOP DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR WORK INCORRECTLY INSTALLED DUE TO HIS FAILURE TO VERIFY DIMENSIONS AND ELEVATIONS IN THE FIELD. COST OF THIS MEASUREMENT WORK SHALL BE COMPENSATED FOR UNDER THE LUMP SUM BID FOR "CONSTRUCTION SURVEY".

THE BRIDGE CONTRACTOR IS TO INSTALL SUBDRAINS BEHIND THE ABUTMENTS AS DETAILED. THE SUBDRAINS SHALL MEET REQUIREMENTS FOR THE TYPES PERMITTED IN SECTION 4143.01C. WHEN THE SUBDRAINS ARE INSTALLED USING FLEXIBLE TUBING OR SHORT LENGTHS OF CONCRETE OR CLAY TILE, THE ENDS SHALL CONSIST OF 6' LENGTHS OF CORRUGATED METAL PIPE (CMP) THAT PROTRUDE A MINIMUM THROUGH THE FORESLOPE. THE CONNECTION BETWEEN THE FLEXIBLE TUBING OR TILE AND THE CMP MAY BE MADE WITH A REDUCER COUPLING OR BY EXTENDING THE FLEXIBLE TUBING OR TILE INTO THE CMP A MINIMUM OF 6 INCHES AND PACKING THE OPEN SPACE BETWEEN THE PIPES WITH GROUT. A REMOVABLE 3/8" MESH GALVANIZED SCREEN, OR OTHER APPROVED RODENT GUARD IS TO BE FASTENED TO THE END OF EACH OUTLET PIPE. COST OF FURNISHING AND INSTALLING SUBDRAIN IS TO BE INCLUDED IN THE PRICE BID FOR "CONCRETE, STRUCTURAL".

ALL BACKFILL BEHIND THE ABUTMENT BETWEEN THE WINGS SHALL BE POROUS AND GRANULAR BACKFILL AS SHOWN ON THIS SHEET. THE REMAINDER OF THE ABUTMENT EXCAVATION SHALL BE BACKFILLED WITH SOIL. COST OF FURNISHING AND INSTALLING POROUS AND GRANULAR BACKFILL IS TO BE INCLUDED IN PRICE BID FOR "CONCRETE, STRUCTURAL".

THE CONTRACTOR SHALL NOTE THAT THE SLAB REINFORCING BARS, THE BARRIER RAIL REINFORCING BARS AND SEVERAL OF THE ABUTMENT REINFORCING BARS ARE TO BE EPOXY COATED. SEE RESPECTIVE REINFORCING BAR LISTS ON DESIGN SHEETS 6, 7, 16, AND 19. THE EPOXY COATING SHALL BE DONE IN ACCORDANCE WITH ARTICLE 4151.03(B) AND THE CURRENT SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS OF THE IOWA DOT - HIGHWAY DIVISION.

IF ARCHAEOLOGICAL MATERIALS ARE ENCOUNTERED DURING THE CONSTRUCTION PHASE OF THIS PROJECT, THE OFFICE OF PROJECT PLANNING (IDOT) MUST BE CONTACTED IMMEDIATELY SO THE PROPER AUTHORITIES CAN BE NOTIFIED ACCORDING TO THE EXISTING FEDERAL REGULATIONS AND STATE PROCEDURES. ADDITIONALLY, IT SHOULD BE NOTED THAT FINDINGS AND RECOMMENDATIONS FOR CLEARANCE OR FURTHER TESTING CANNOT BE CONSIDERED FINAL UNTIL CONCURRENCE IS RECEIVED FROM THE STATE HISTORIC PRESERVATION OFFICE. PHONE: OFFICE OF PROJECT PLANNING - (515) 239-1215.

THE BRIDGE CONTRACTOR SHALL LEVEL AND SHAPE THE BERMS TO THE ELEVATIONS AND DIMENSIONS SHOWN. IF AUTHORIZED, DRESSING OF SLOPES OUTSIDE THE BRIDGE AREA, NOT DISTURBED BY THE BRIDGE CONTRACTOR, SHALL BE PAID FOR AS EXTRA WORK. DRAWINGS SHALL NOT BE SCALED.

THE CHICAGO AND NORTHWESTERN RAILROAD COMPANY SHALL BE NOTIFIED BY THE CONTRACTOR OF THE CONSTRUCTION STARTING DATE.

THE CONTRACTOR SHALL KEEP THE RAILROAD RIGHT-OF-WAY CONTINUALLY CLEAR WITHIN THE CONSTRUCTION LIMITS OF THE PROJECT, DURING BOTH CONSTRUCTION OF THE WIDENED BRIDGE AND REMOVAL AND REERECTION OF THE EXISTING STRUCTURE. THE CONTRACTOR SHALL KEEP THE RIGHT-OF-WAY CLEAR WHILE HE IS AT THE SITE AND SHALL MAKE SURE IT IS CLEAR BEFORE HE LEAVES THE SITE EACH DAY.

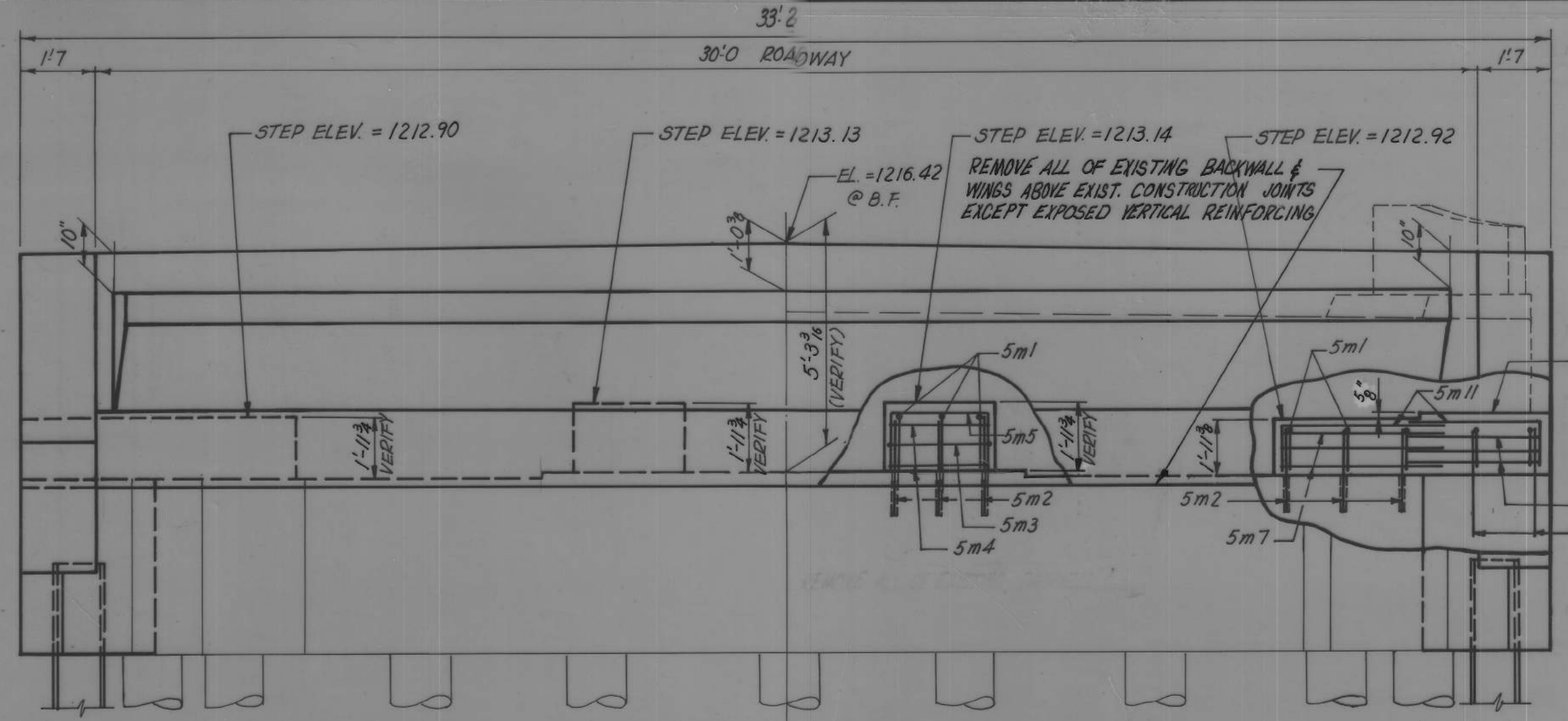
THE CONTRACTOR SHALL SUBMIT PLANS FOR APPROVAL TO THE CHICAGO AND NORTHWESTERN RAILWAY COMPANY, THROUGH THE CITY ENGINEER, PRIOR TO CONSTRUCTING ANY TEMPORARY CROSSING OVER THE RAILROAD TRACKS. THE CONTRACTOR SHALL BE AWARE OF THE TRAIN SCHEDULES FOR THE TRACKS RUNNING THROUGH THE CONSTRUCTION SITE AND SHALL SCHEDULE THE MOVEMENT OF EQUIPMENT ACROSS TEMPORARY CROSSINGS ACCORDING TO THOSE SCHEDULES. WHEN MOVING EQUIPMENT ACROSS TEMPORARY CROSSINGS, THE CONTRACTOR SHALL PROVIDE FLAGGERS UP AND DOWN THE TRACKS AT LOCATIONS TO BE DETERMINED BY THE RAILROAD. THE COST OF INSTALLING, MAINTAINING AND REMOVING TEMPORARY CROSSINGS, AND OF PROVIDING FLAGGERS, SHALL BE INCIDENTAL TO THE PROJECT.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAIL PLANS FOR RAILROAD BED PROTECTION NEAR PIER EXCAVATIONS. THE DESIGN SHALL BE SEALED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF IOWA.

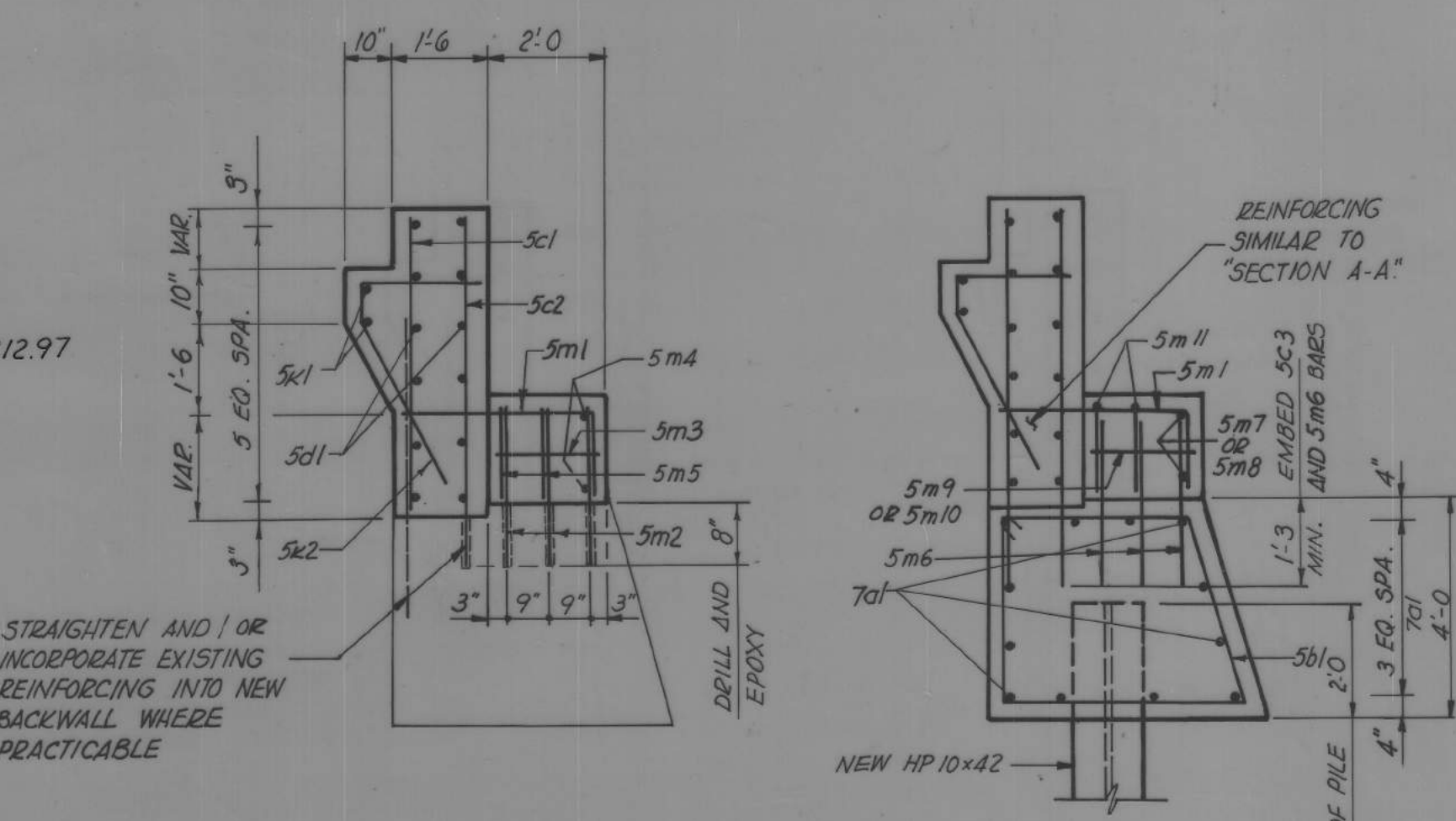
**144'-0" x 24' MULTIPLE SPAN STEEL I-BEAM
BRIDGE WIDENING TO 30' ROADWAY**
44'-0" END SPANS
56'-0" CENTER SPAN
CONCRETE SUBSTRUCTURE

SOUNDING DATA AND GENERAL NOTES

STA.253+63.31, I.A.R.R.XING, NO.1107 11° SKEW, RT. AHEAD
CRAWFORD COUNTY, IOWA
SHEET 5 OF 24

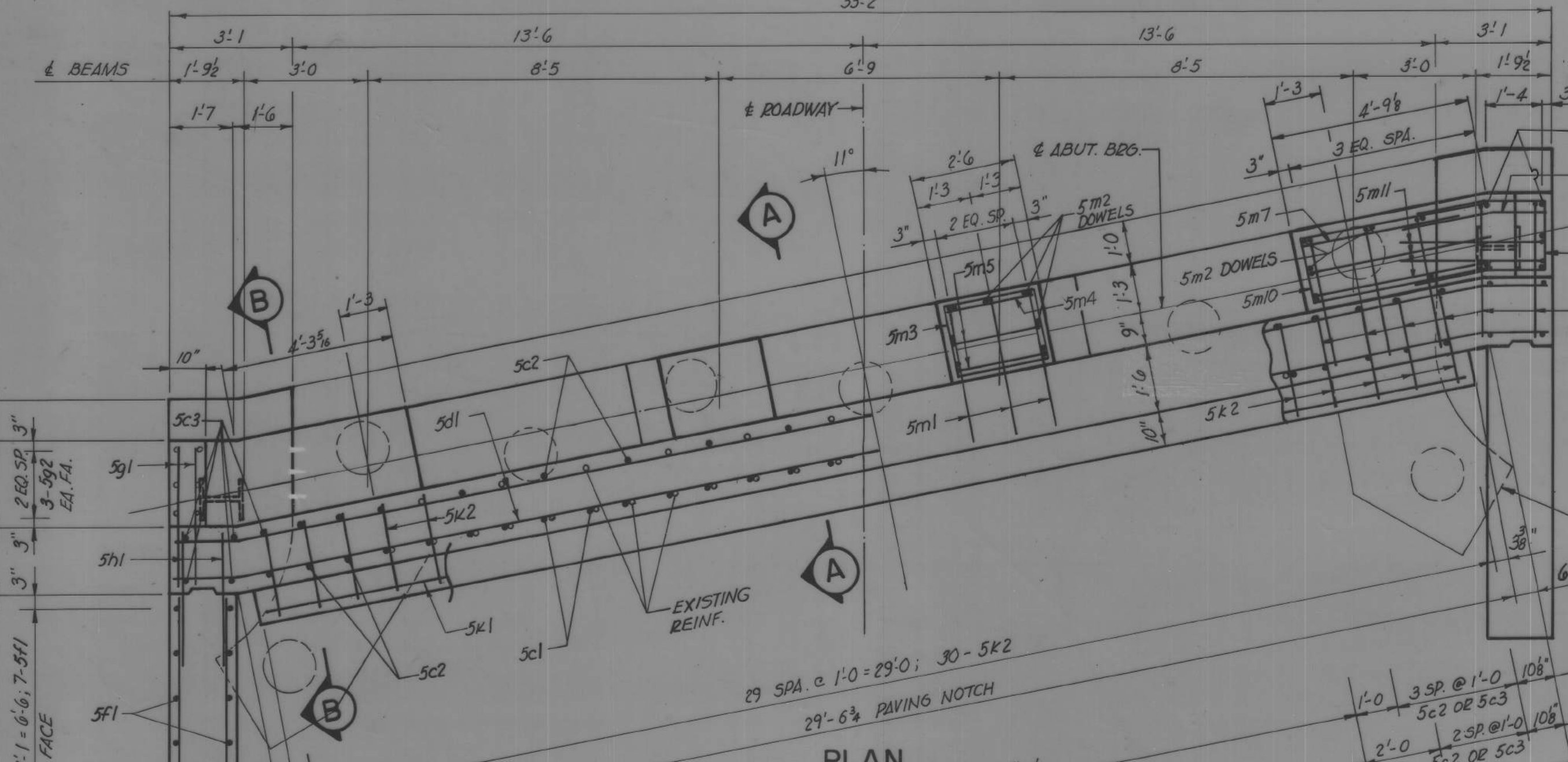


REAR ELEVATION

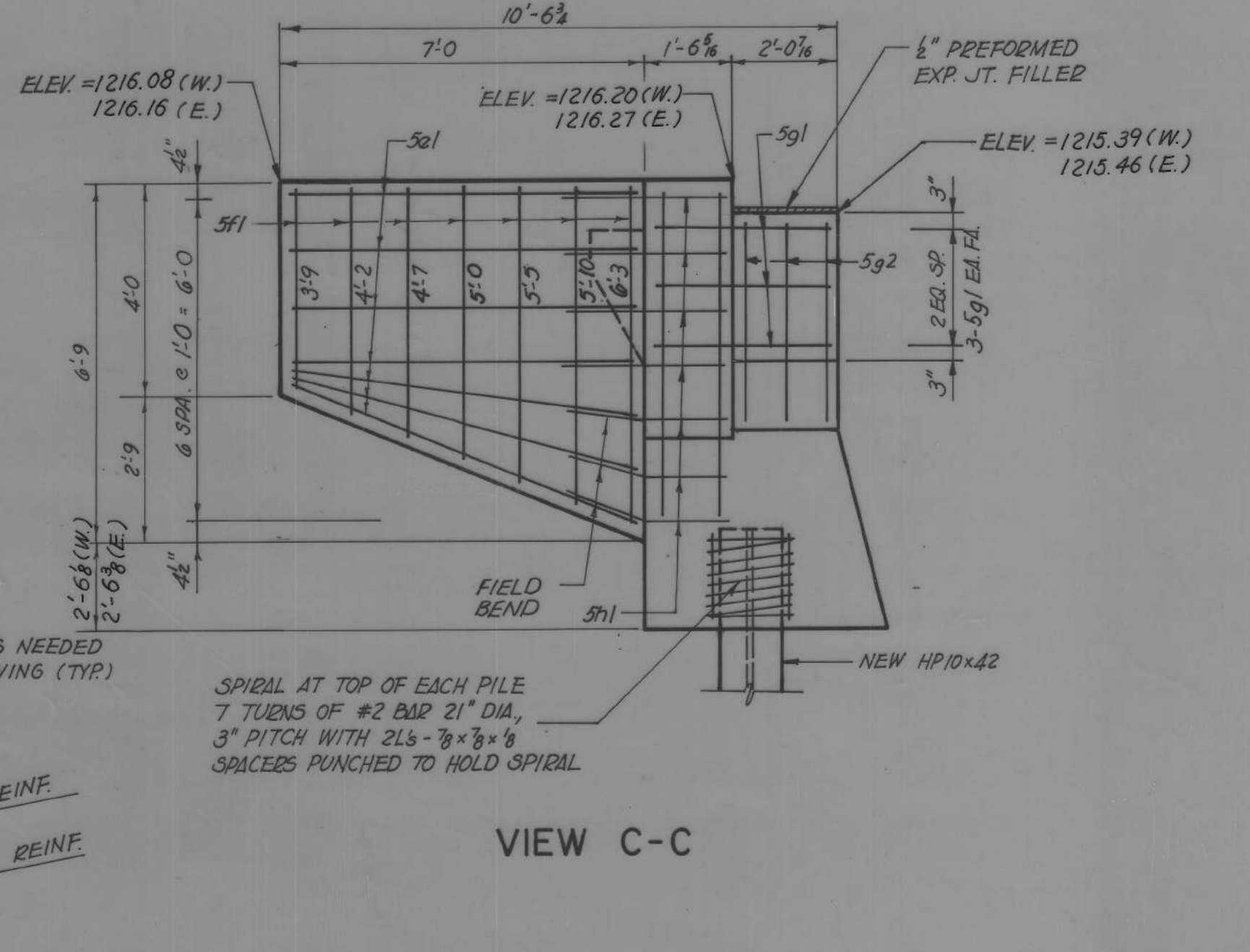


SECTION A-A

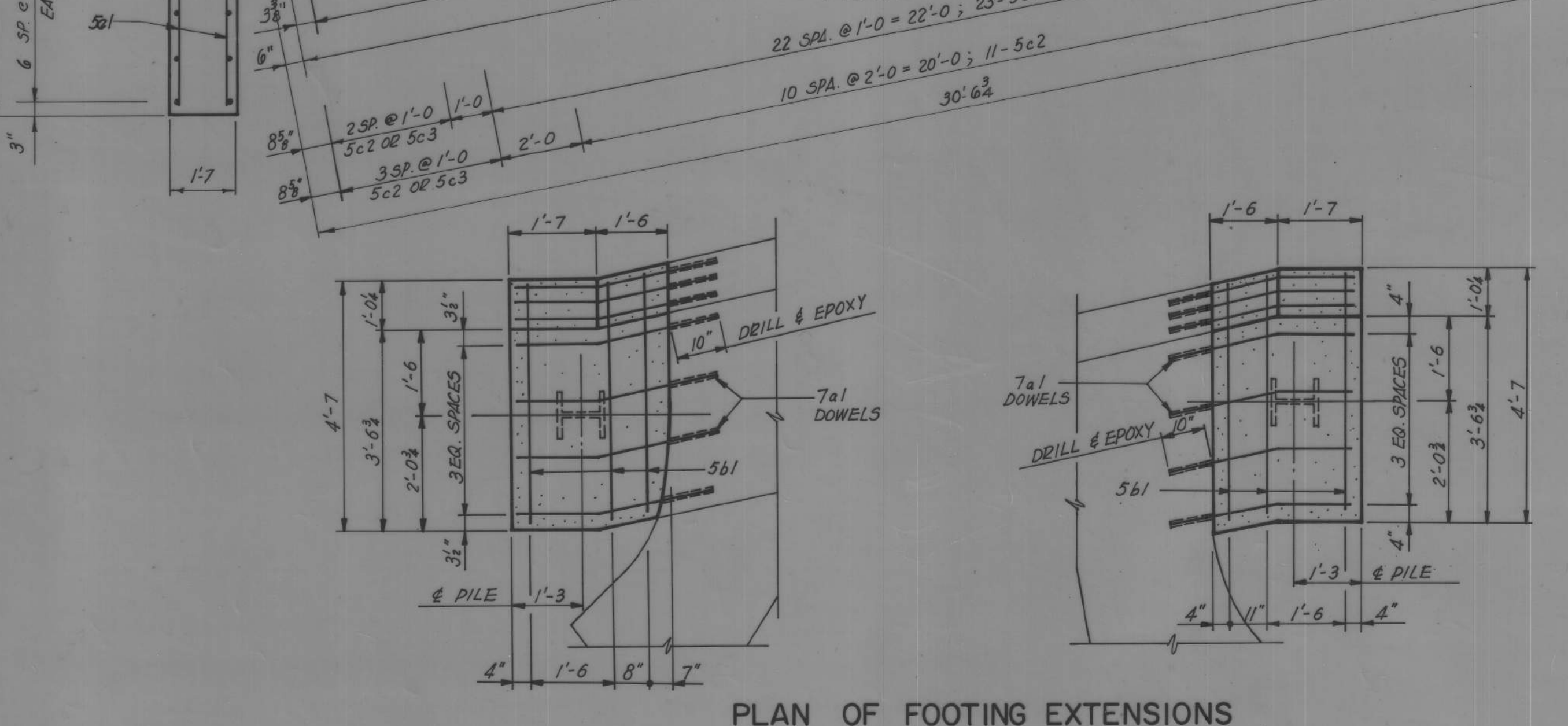
SECTION B-B



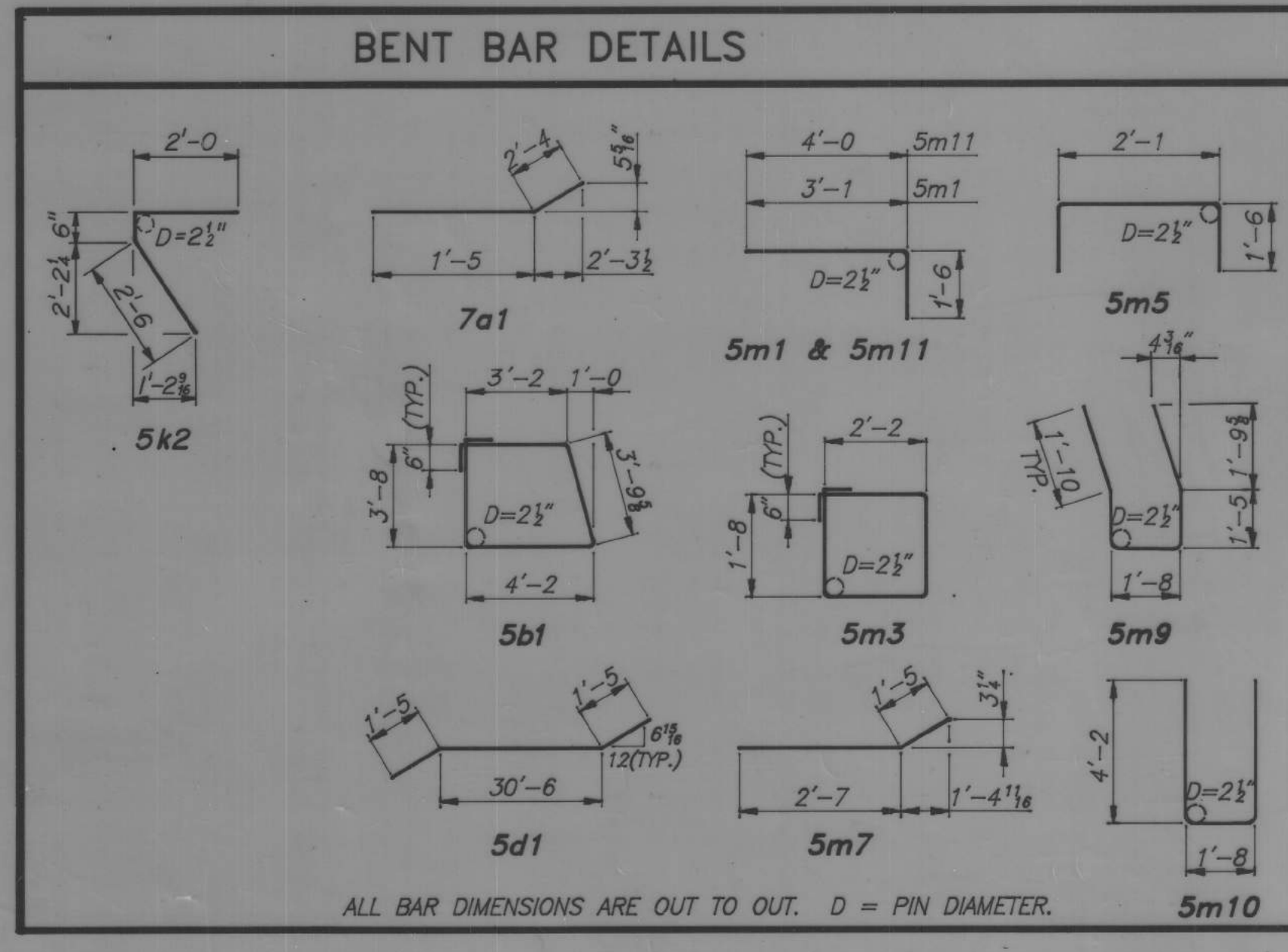
PLAN



VIEW C-C



PLAN OF FOOTING EXTENSIONS



BENT BAR DETAILS

REINFORCING BAR LIST - SOUTH ABUTMENT

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
7a1	FOOTING EXTENSION, DOWELS	U	24	3'-9"	184
5b1	FOOTING EXTENSION, HOOPS	□	6	15'-10"	99
5c1	BACKWALL, VERTICAL, B.F.	U	23	4'-9"	114
5c2	BACKWALL, VERTICAL, B.F. & F.F.	U	20	5'-7"	116
5c3	BACKWALL, VERTICAL, B.F. & F.F.	U	12	6'-0"	75
5d1	BACKWALL, HORIZ., B.F. & F.F.	U	12	33'-4"	417
5e1	WING, HORIZONTAL	U	28	6'-8"	195
5f1	WING, VERTICAL	U	28	SHOWN	146
5g1	MASKWALL TO BACKWALL, HORIZ.	U	12	3'-4"	42
5g2	MASKWALL, VERTICAL	U	12	3'-9"	47
5h1	BACKWALL TO WING, HORIZ.	U	28	2'-9"	80
5k1	PAVING NOTCH, LONGITUDINAL	U	2	29'-2"	61
5k2	PAVING NOTCH, TRANSVERSE	U	30	5'-0"	156
5m1	BEAM STEPS, TRANSVERSE	U	16	4'-7"	76
5m2	BEAM STEPS, DOWELS	U	26	2'-2"	59
5m3	BEAM STEPS, HOOPS	□	2	8'-8"	18
5m4	BEAM STEPS, LONGITUDINAL	U	4	2'-2"	9
5m5	BEAM STEPS, STIRRUPS	U	4	5'-1"	21
5m6	BEAM STEPS, VERT. (EMBEDDED)	U	10	2'-9"	29
5m7	BEAM STEPS, LONGITUDINAL	U	4	4'-0"	17
5m8	BEAM STEPS, LONGITUDINAL	U	4	4'-0"	17
5m9	BEAM STEPS, STIRRUPS	U	2	8'-2"	17
5m10	BEAM STEPS, STIRRUPS	U	2	10'-0"	21
5m11	BEAM STEPS, LONGITUDINAL	U	8	5'-6"	46

△ EPOXY COATED BARS	EPOXY COATED TOTAL (LBS.)	1,019
	UNCOATED TOTAL (LBS.)	1,043

CONCRETE PLACEMENT QUANT. - S. ABUT.

LOCATION	UNIT	QUANTITY
BACKWALL AND PAVING NOTCH	CU.YDS.	11.3
MASKWALLS 2 @ 0.16	CU.YDS.	0.3
WINGS 2 @ 2.21	CU.YDS.	4.4
FOOTING EXTENSIONS 2 @ 1.86	CU.YDS.	3.7
BEAM STEPS	CU.YDS.	2.5
TOTAL	CU.YDS.	22.2

ESTIMATED QUANTITIES - SOUTH ABUTMENT

ITEM	UNIT	QUANTITY	
STRUCTURAL CONCRETE, CLASS "C"	CU.YDS.	22.2	
REINFORCING STEEL	LBS.	1,043	
REINFORCING STEEL - EPOXY COATED	LBS.	1,019	
HP 10 x 42 STEEL	FURNISH 2 @ 48'	L.F.	96
BEARING PILING	DRIVE 2 @ 48'	L.F.	96
EXCAVATION, CLASS 20	CU.YDS.	25	

SOUTH ABUTMENT NOTES

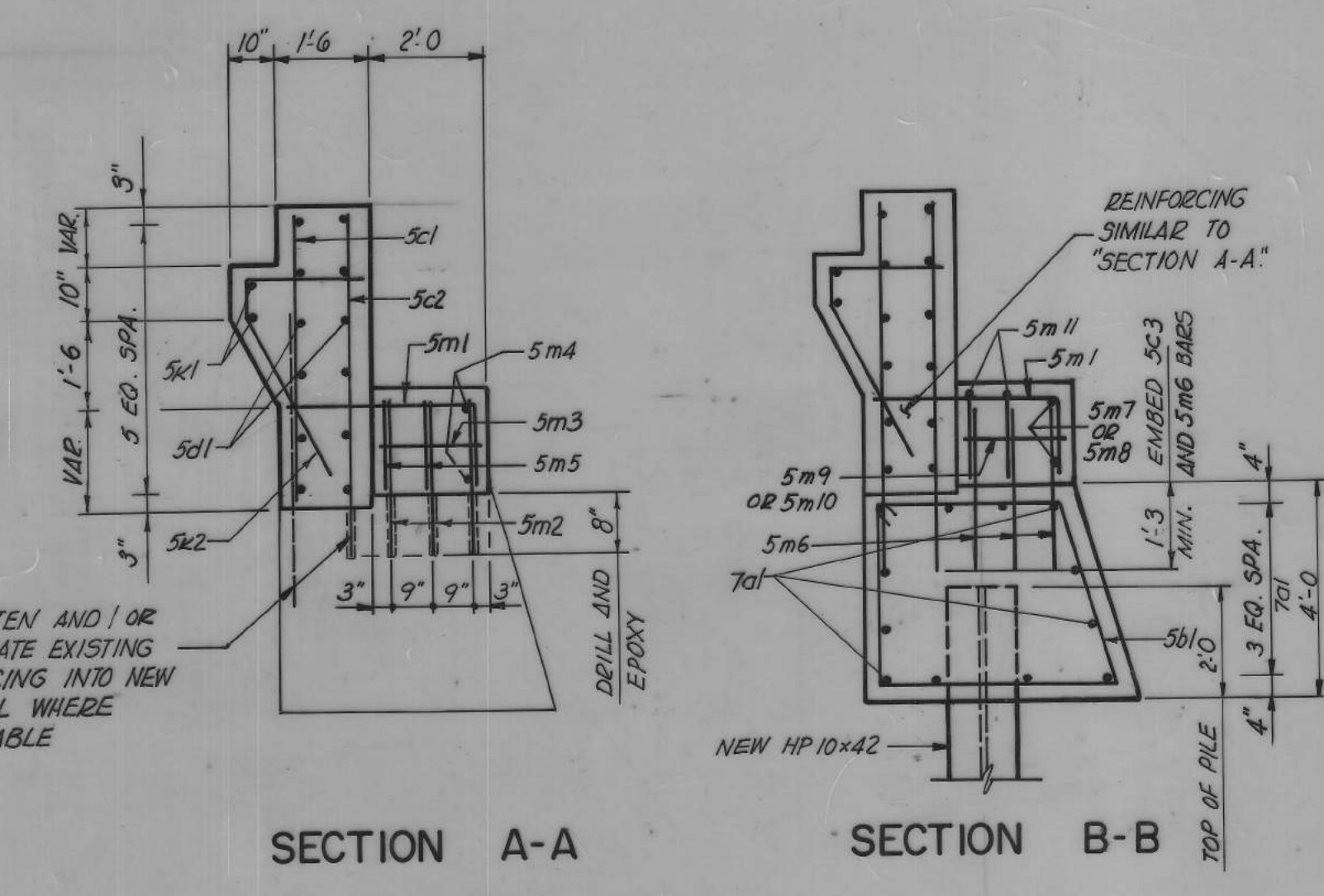
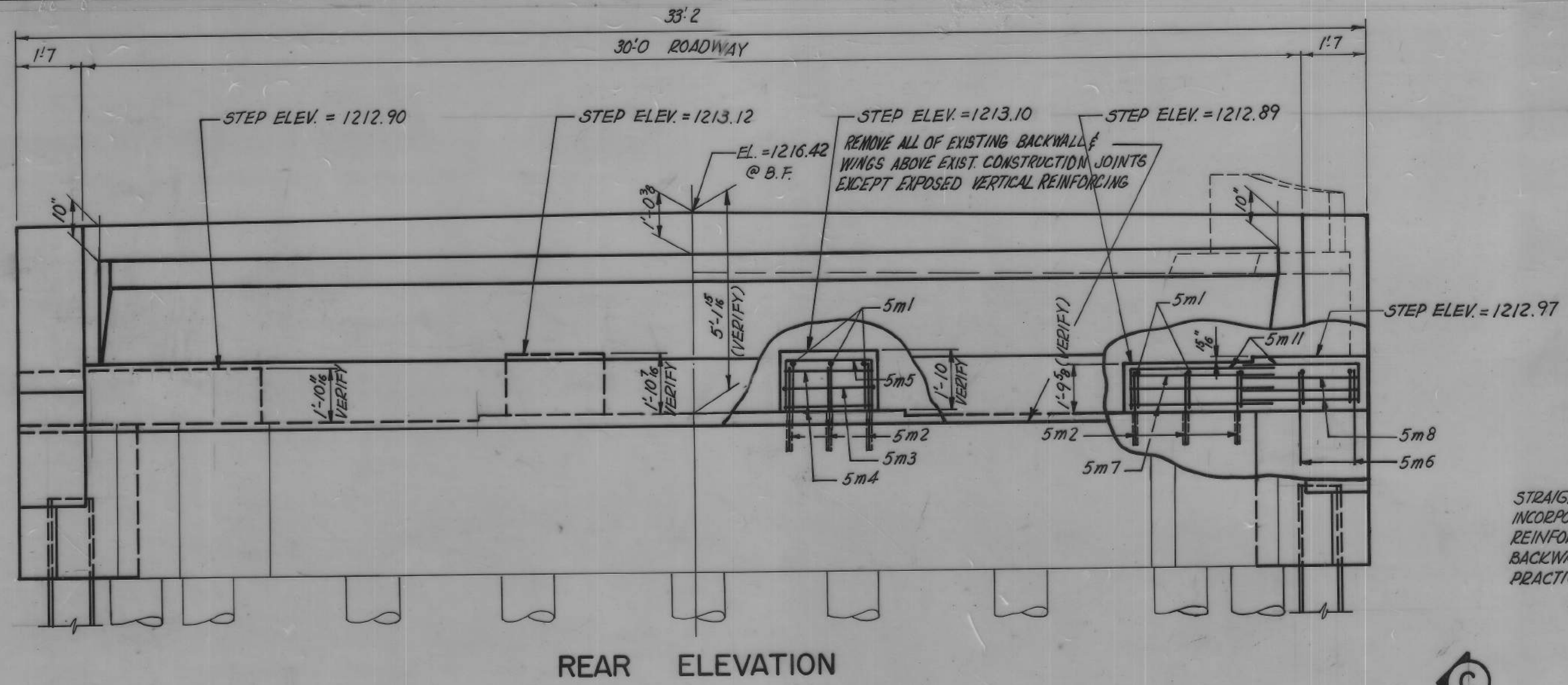
FIELD VERIFY EXISTING DIMENSIONS PRIOR TO CONSTRUCTION.
 ALL BACKFILL BEHIND THE ABUTMENTS BETWEEN THE WINGS IS TO BE GRANULAR AND POROUS BACKFILL. THE REMAINDER OF THE ABUTMENT EXCAVATION IS TO BE BACKFILLED WITH SOIL.
 COST OF PREFORMED EXPANSION JOINT FILLER IS TO BE INCLUDED IN PRICE BID FOR "CONCRETE, STRUCTURAL".
 THE MASKWALL IS TO BE PLACED BEFORE THE SUPERSTRUCTURE SLAB IS PLACED.
 CONSTRUCTION JOINT KEYWAYS ARE TO BE FORMED WITH BEVELED 2 X 6'S UNLESS NOTED OTHERWISE.
 BEAMS, EXPANSION DEVICES AND MASONRY PLATES ARE TO BE SET BEFORE BACKWALL CONCRETE IS PLACED.
 THE DESIGN BEARING FOR THE ABUTMENT EXTENSION PILES IS 18 TONS.
 PILES MUST BE EQUIPPED WITH DRIVING POINTS PER I.M. 467.02 OR APPROVED EQUAL.
 COST OF DRIVING POINTS SHALL BE INCLUDED FOR PRICE BID FOR PILING. HP10x42 FURNISH.
 EPOXY BOND IS TO BE APPLIED TO SURFACES WHERE NEW AND EXISTING CONCRETE INTERFACE. EXISTING ABUTMENT SHALL BE SCARIFIED AS SHOWN ON THIS SHEET. EPOXY GROUT AND DOWELS SHALL BE INSTALLED ACCORDING TO PROCEDURES NOTED ON SHEET 5, BEFORE NEW CONCRETE IS PLACED.

144'-0" x 24' MULTIPLE SPAN STEEL I-BEAM
 BRIDGE WIDENING TO 30' ROADWAY

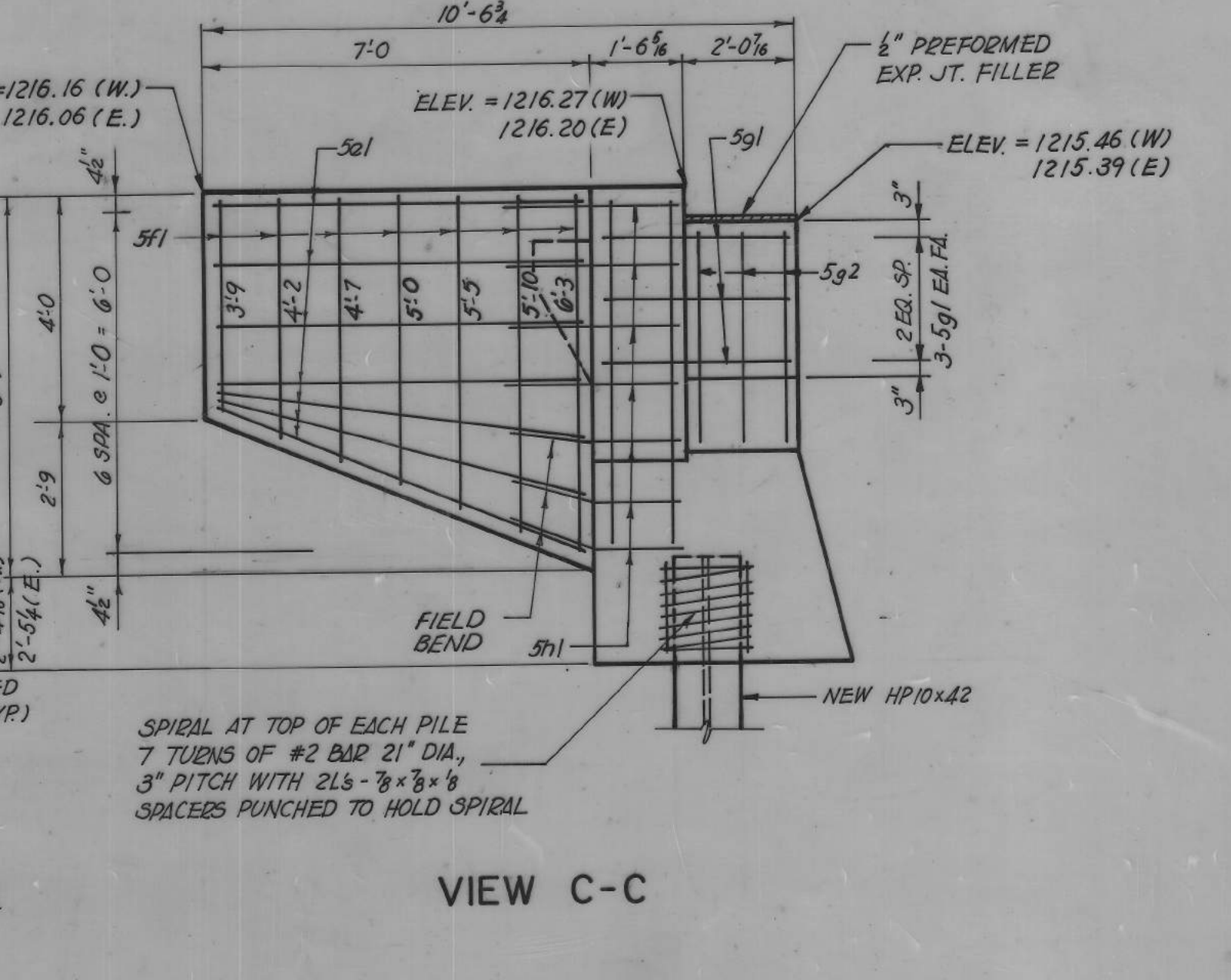
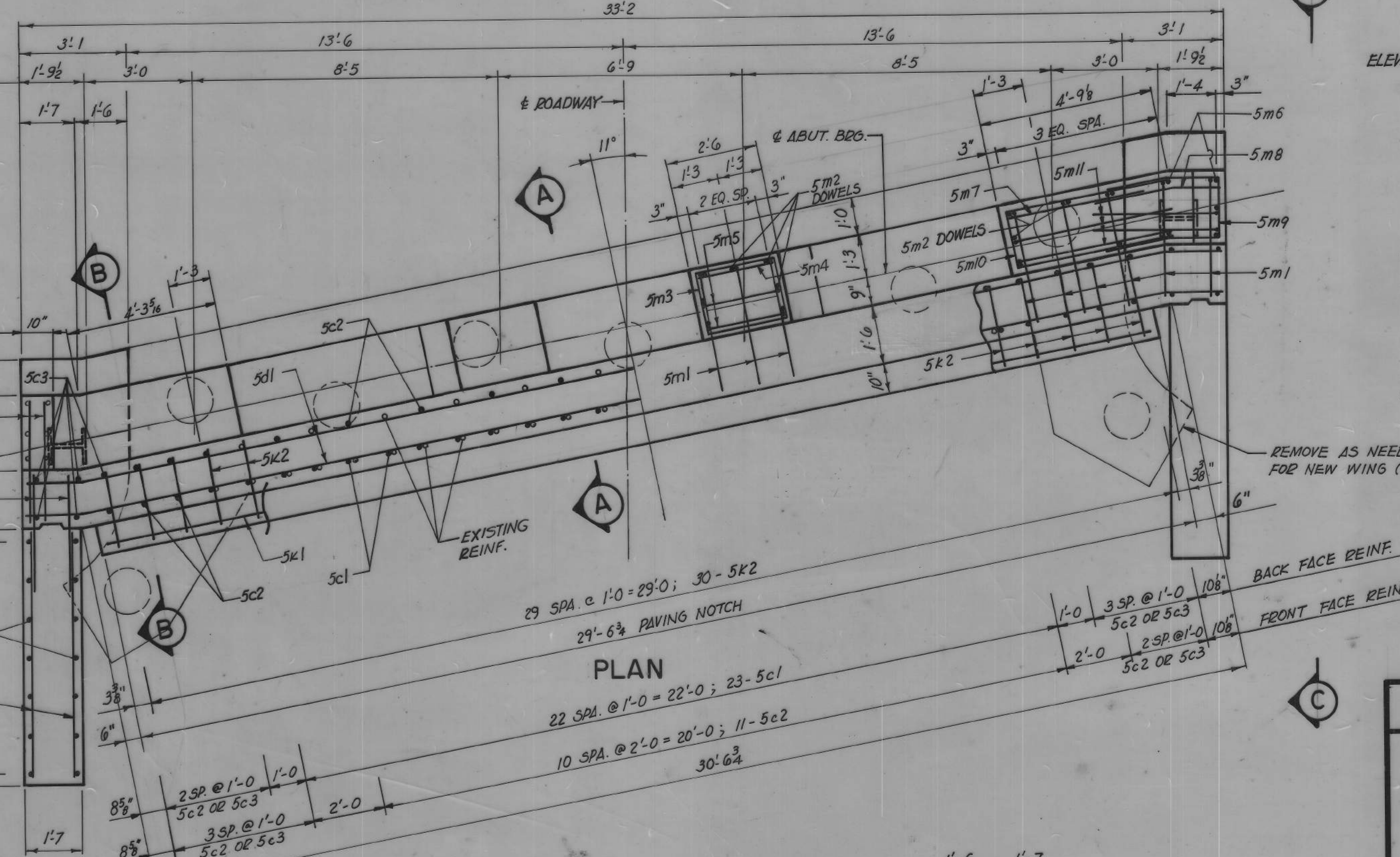
44'-0" END SPANS
 56'-0" CENTER SPAN
 CONCRETE SUBSTRUCTURE

SOUTH ABUTMENT DETAILS

STA. 253+63.31, I.A.R.R. XING, NO. 1107
 CRAWFORD COUNTY, IOWA
 11° SKEW, RT. AHEAD
 SHEET 6 OF 24

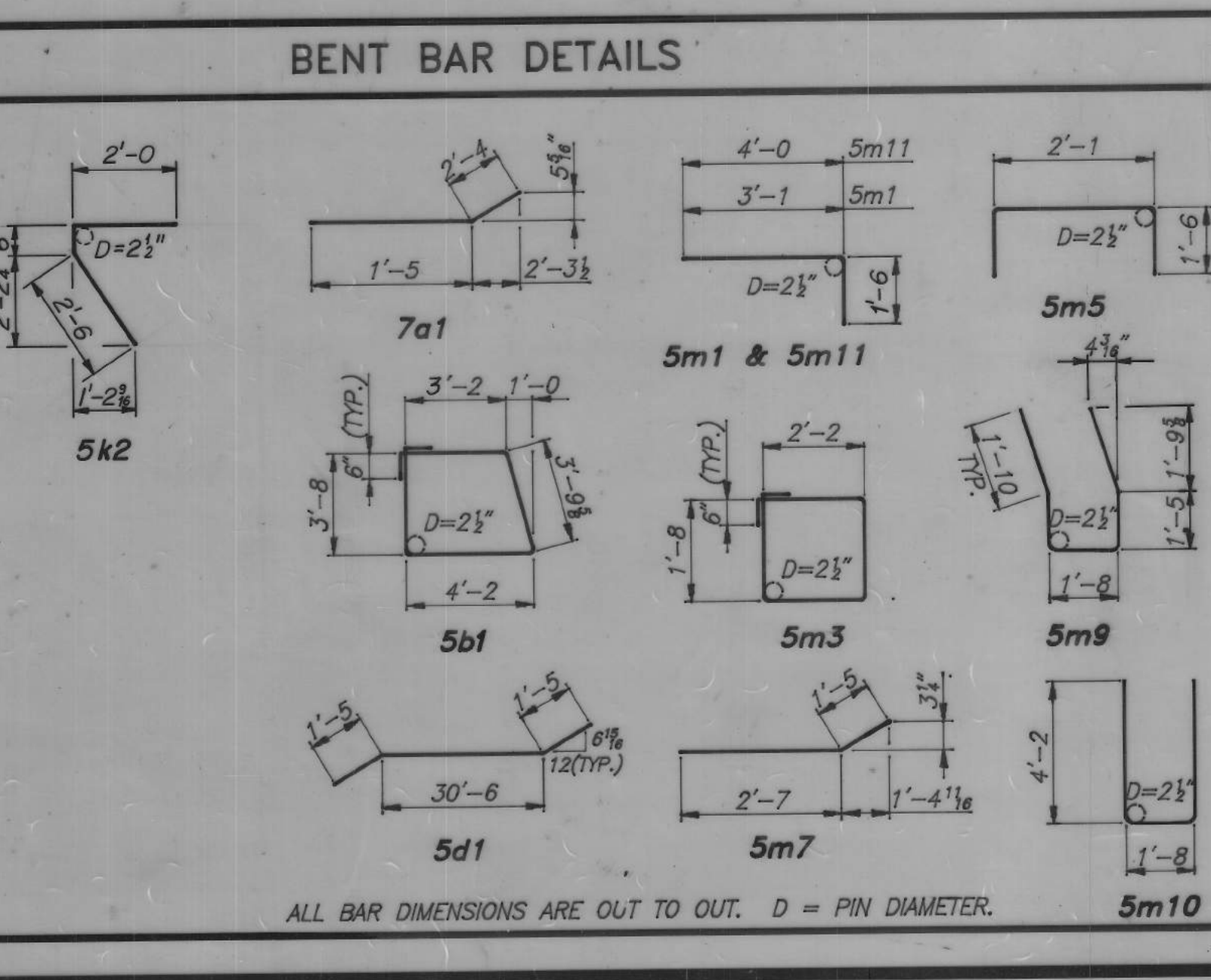
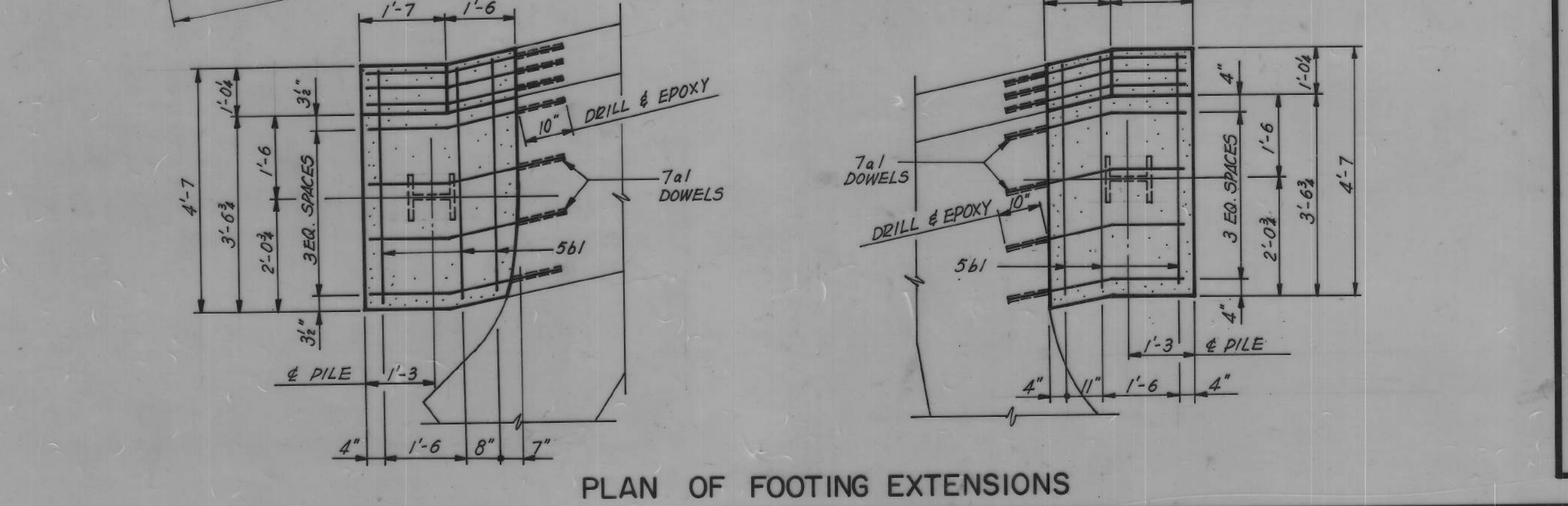


REINFORCING BAR LIST - NORTH ABUTMENT						
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	
7a1	FOOTING EXTENSION, DOWELS	—	24	3'-9"	184	
5b1	FOOTING EXTENSION, HOOPS	□	6	15'-10"	99	
5c1	BACKWALL, VERTICAL, B.F.	—	23	4'-9"	114	
5c2	BACKWALL, VERTICAL, B.F. & F.F.	—	20	5'-7"	116	
5c3	BACKWALL, VERTICAL, B.F. & F.F.	—	12	6'-0"	75	
5d1	BACKWALL, HORIZ., B.F. & F.F.	—	12	33'-4"	417	
5e1	WING, HORIZONTAL	—	28	6'-8"	195	
5f1	WING, VERTICAL	—	28	SHOWN	146	
5g1	MASKWALL TO BACKWALL, HORIZ.	—	12	3'-4"	42	
5g2	MASKWALL, VERTICAL	—	12	3'-9"	47	
5h1	BACKWALL TO WING, HORIZ.	—	28	2'-9"	80	
5k1	PAVING NOTCH, LONGITUDINAL	—	2	29'-2"	61	
5k2	PAVING NOTCH, TRANSVERSE	—	30	5'-0"	156	
5m1	BEAM STEPS, TRANSVERSE	—	16	4'-7"	76	
5m2	BEAM STEPS, DOWELS	—	26	2'-2"	59	
5m3	BEAM STEPS, HOOPS	□	2	8'-8"	18	
5m4	BEAM STEPS, LONGITUDINAL	—	4	2'-2"	9	
5m5	BEAM STEPS, STIRRUPS	—	4	5'-1"	21	
5m6	BEAM STEPS, VERT. (EMBEDDED)	—	10	2'-9"	29	
5m7	BEAM STEPS, LONGITUDINAL	—	4	4'-0"	17	
5m8	BEAM STEPS, LONGITUDINAL	—	4	4'-0"	17	
5m9	BEAM STEPS, STIRRUPS	—	2	8'-2"	17	
5m10	BEAM STEPS, STIRRUPS	—	2	10'-0"	21	
5m11	BEAM STEPS, LONGITUDINAL	—	8	5'-6"	46	
△ EPOXY COATED BARS					EPOXY COATED TOTAL (LBS.)	1,019
					UNCOATED TOTAL (LBS.)	1,043



CONCRETE PLACEMENT QUANT. - N. ABUT.		
LOCATION	UNIT	QUANTITY
BACKWALL AND PAVING NOTCH	CU.YDS.	11.1
MASKWALLS 2 @ 0.16	CU.YDS.	0.3
WINGS 2 @ 2.21	CU.YDS.	4.4
FOOTING EXTENSIONS 2 @ 1.86	CU.YDS.	3.7
BEAM STEPS	CU.YDS.	2.4
TOTAL	CU.YDS.	21.9

ESTIMATED QUANTITIES - NORTH ABUTMENT		
ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE, CLASS "C"	CU.YDS.	21.9
REINFORCING STEEL	LBS.	1,043
REINFORCING STEEL - EPOXY COATED	LBS.	1,019
HP 10 x 42 STEEL	L.F.	96
BEARING PILING	L.F.	96
EXCAVATION, CLASS 20	CU.YDS.	25



NORTH ABUTMENT NOTES

FIELD VERIFY EXISTING DIMENSIONS PRIOR TO CONSTRUCTION.

ALL BACKFILL BEHIND THE ABUTMENTS BETWEEN THE WINGS IS TO BE GRANULAR AND POROUS BACKFILL. THE REMAINDER OF THE ABUTMENT EXCAVATION IS TO BE BACKFILLED WITH SOIL.

COST OF PREFORMED EXPANSION JOINT FILLER IS TO BE INCLUDED IN PRICE BID FOR "CONCRETE, STRUCTURAL".

THE MASKWALL IS TO BE PLACED BEFORE THE SUPERSTRUCTURE SLAB IS PLACED.

CONSTRUCTION JOINT KEYWAYS ARE TO BE FORMED WITH BEVELED 2 X 6'S UNLESS NOTED OTHERWISE.

BEAMS, EXPANSION DEVICES AND MASONRY PLATES ARE TO BE SET BEFORE BACKWALL CONCRETE IS PLACED.

THE DESIGN BEARING FOR THE ABUTMENT EXTENSION PILES IS 18 TONS.

PILES MUST BE EQUIPPED WITH DRIVING POINTS PER I.M. 467.02 OR APPROVED EQUAL. COST OF DRIVING POINTS SHALL BE INCLUDED FOR PRICE BID FOR PILING. HP10x42 FURNISH.

EPOXY BOND IS TO BE APPLIED TO SURFACES WHERE NEW AND EXISTING CONCRETE INTERFACE. EXISTING ABUTMENT SHALL BE SCARIFIED AS SHOWN ON THIS SHEET. EPOXY GROUT AND DOWELS SHALL BE INSTALLED ACCORDING TO PROCEDURES NOTED ON SHEET 5, BEFORE NEW CONCRETE IS PLACED.

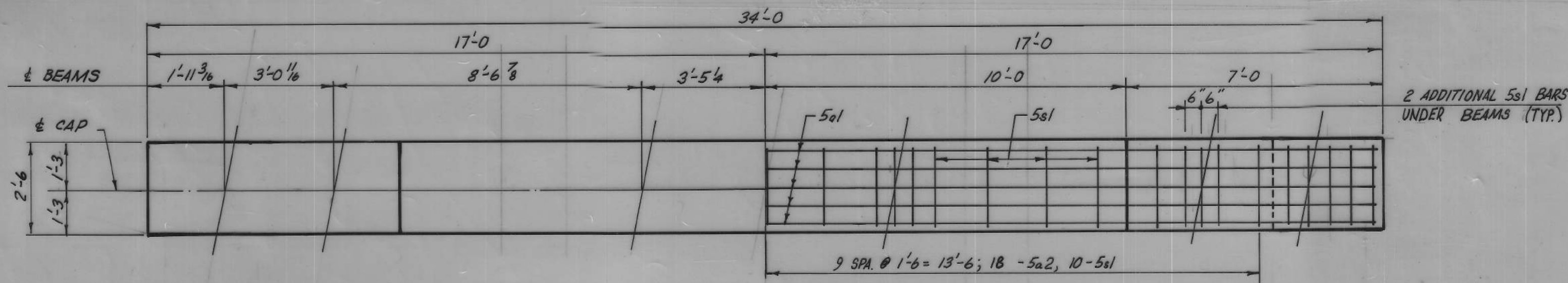
144'-0" x 24' MULTIPLE SPAN STEEL I-BEAM BRIDGE WIDENING TO 30' ROADWAY

44'-0" END SPANS
56'-0" CENTER SPAN

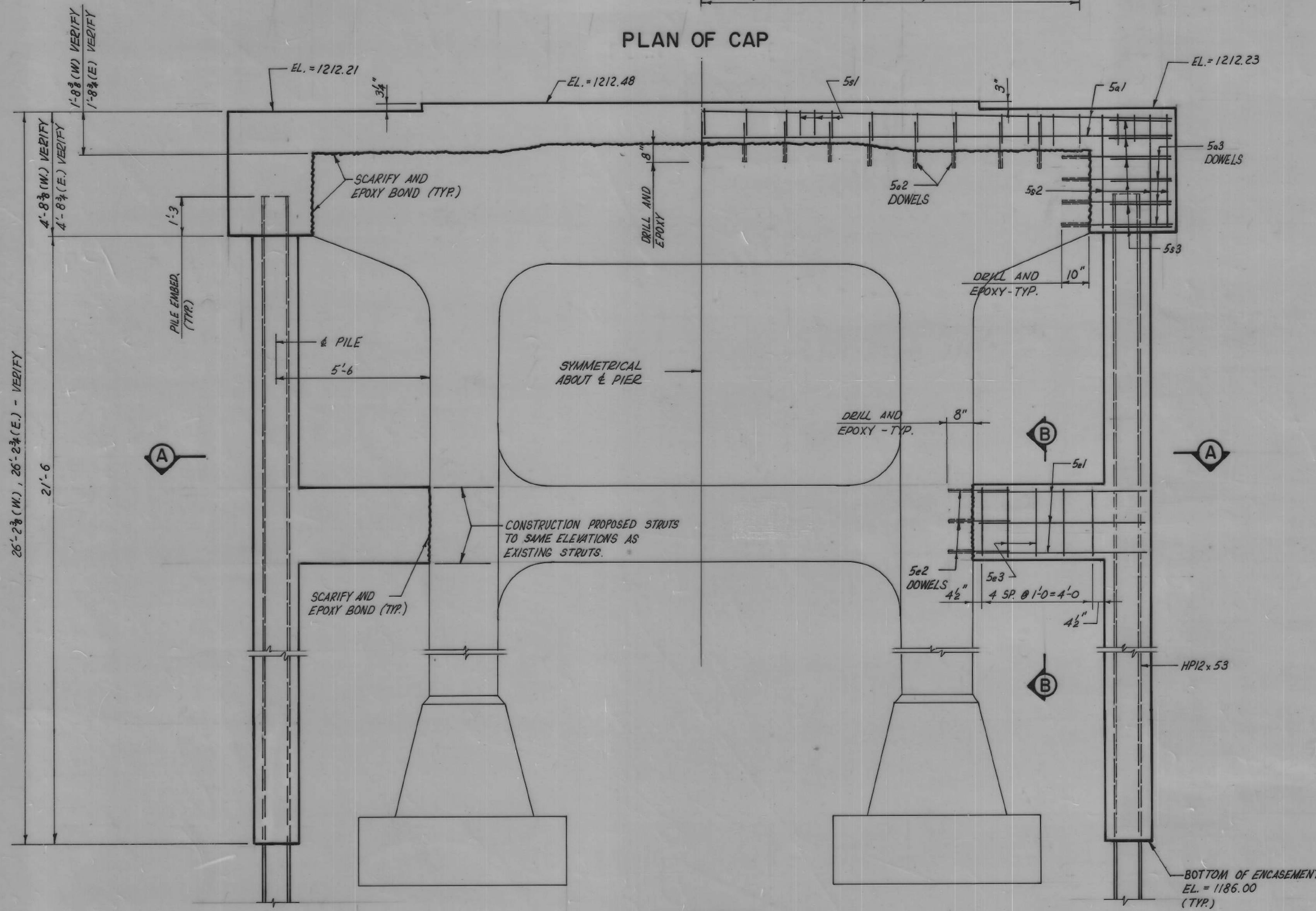
NORTH ABUTMENT DETAILS

STA. 253+63.31, I.A.R.R.XING, NO. 1107
CRAWFORD COUNTY, IOWA

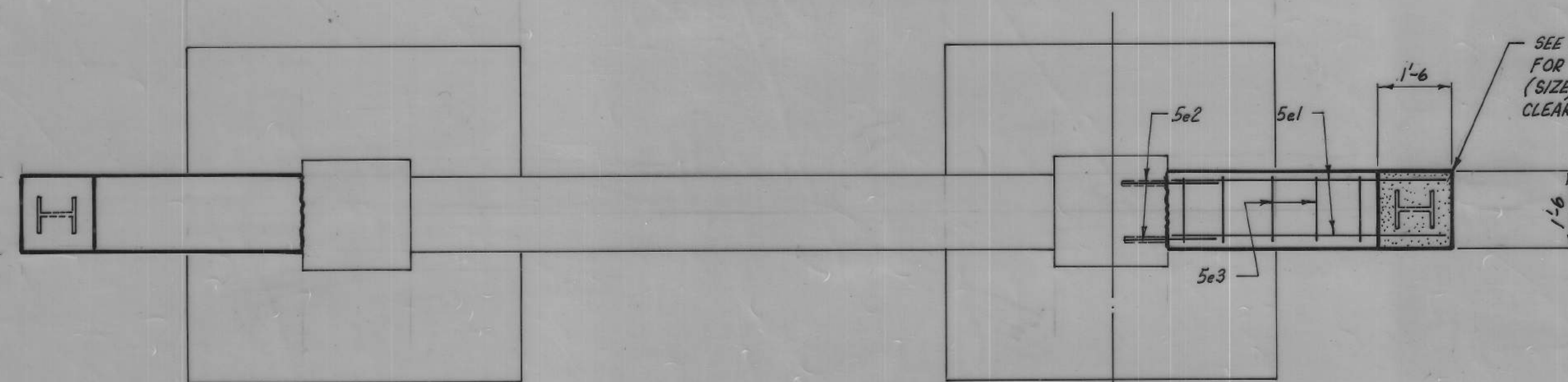
11° SKEW, RT. AHEAD
SHEET 7 OF 24



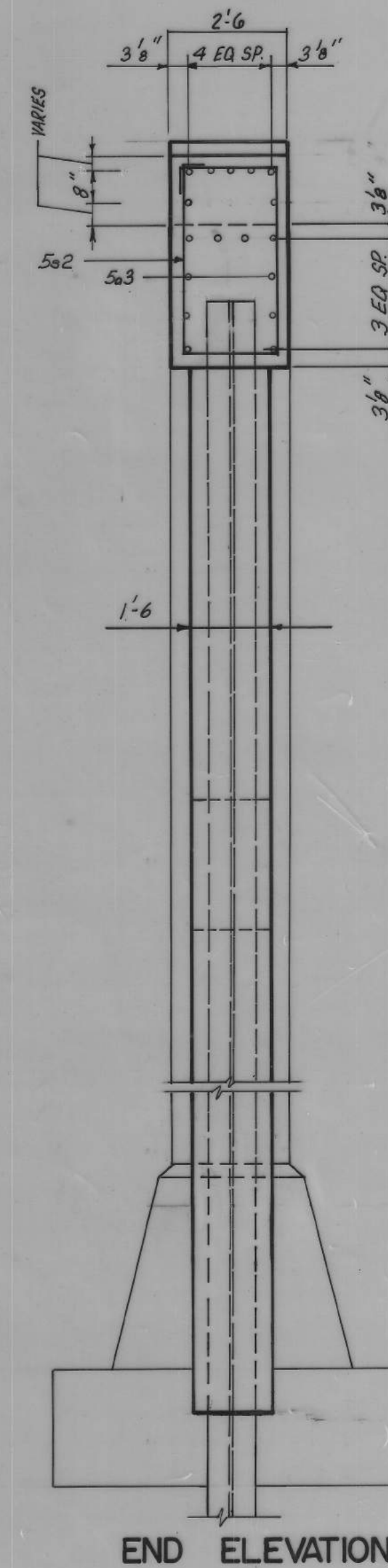
PLAN OF CAP



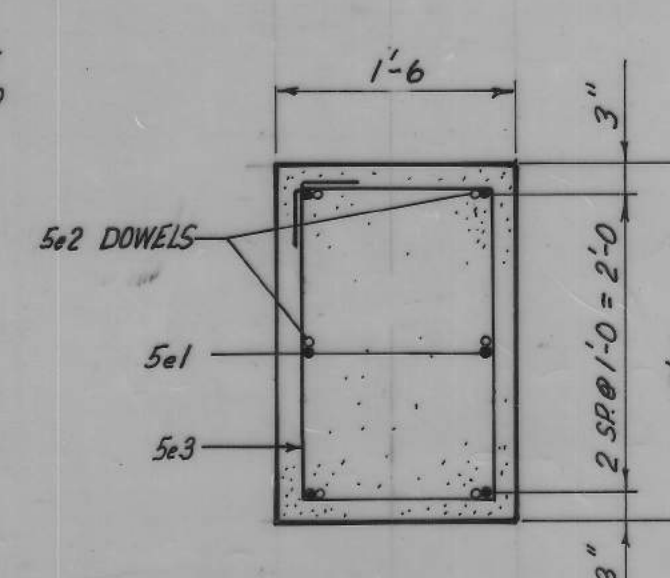
ELEVATION (LOOKING NORTH)



SECTION A-A



END ELEVATION

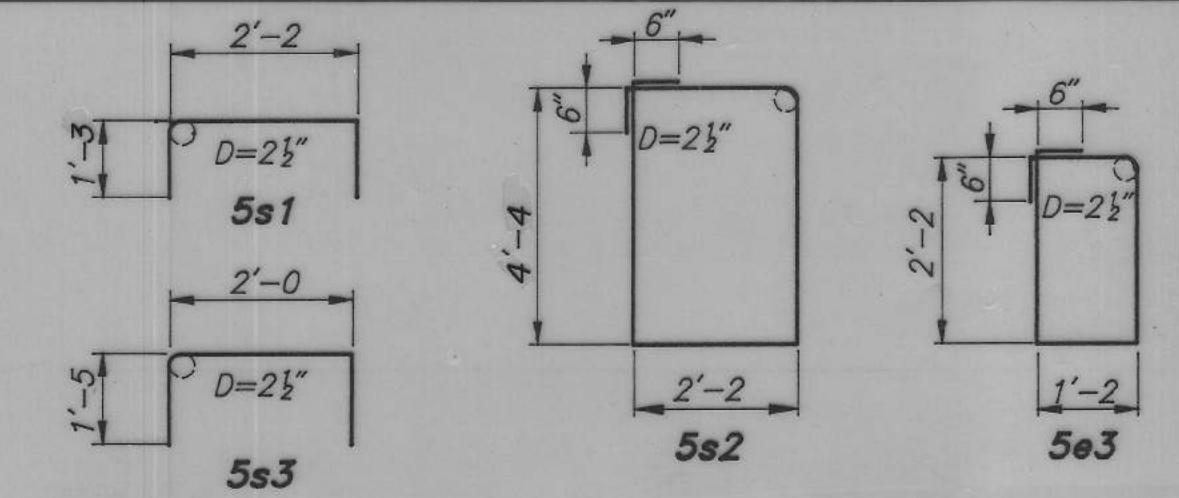


SECTION B-B

REINFORCING BAR LIST - SOUTH PIER

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5a1	CAP EXTENSION, LONGITUDINAL	—	7	33'-8	246
5a2	CAP EXTENSION, DOWELS, VERT.	—	34	2'-0	71
5a3	CAP EXTENSION, DOWELS, HORIZ.	—	20	3'-8	77
5e1	STRUT, LONGITUDINAL	—	16	5'-11	99
5e2	STRUT, DOWELS	—	16	2'-8	45
5e3	STRUT, HOOPS	□	10	9'-8	101
5s1	CAP EXTENSION, STIRRUPS, VERT.	□	31	4'-8	151
5s2	CAP EXTENSION, HOOPS	□	6	14'-0	88
5s3	CAP EXTENSION, STIRRUPS, HORIZ.	□	12	4'-10	60
TOTAL (LBS.)					938

BENT BAR DETAILS



CONCRETE PLACEMENT QUANT. - S. PIER

LOCATION	UNIT	QUANTITY
CAP EXTENSION	CU.YDS.	7.2
STRUTS	CU.YDS.	1.3
TOTAL	CU.YDS.	8.5

ESTIMATED QUANTITIES - SOUTH PIER

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE, CLASS "C"	CU.YDS.	8.5
REINFORCING STEEL	LBS.	938
HP12x53	FURNISH 2 @ 84'	L.F. 168
STEEL BEARING PILING	DRIVE 2 @ 84'	L.F. 168
P10A, TYPE 3, 18" Φ	ENCASE 2 @ 21.5'	L.F. 43

SOUTH PIER NOTES

EPOXY BOND IS TO BE APPLIED TO SURFACES WHERE NEW AND EXISTING CONCRETE INTERFACE. EXISTING PIER SHALL BE SCARIFIED AS SHOWN ON THIS SHEET. DOWELS SHALL BE INSTALLED ACCORDING TO PROCEDURES NOTED ON SHEET 5 BEFORE NEW CONCRETE IS PLACED.
 FIELD VERIFY EXISTING DIMENSIONS PRIOR TO CONSTRUCTION.
 STANDARD P10A MAY BE OBTAINED FROM "BRIDGE DESIGN SERVICES", IDOT, AMES, IA. THE DESIGN BEARING FOR THE PIER EXTENSION PILES IS 41 TONS.
 PILES MUST BE EQUIPPED WITH DRIVING POINTS FOR I.M. 467.02 OR APPROVED EQUAL. COST OF DRIVING POINTS SHALL BE INCLUDED FOR PRICE BID FOR PILING, HP12X53 FURNISH.

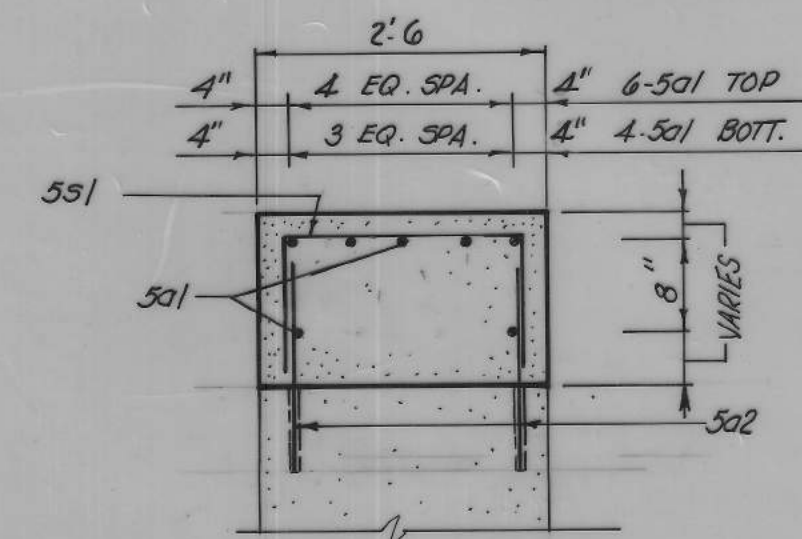
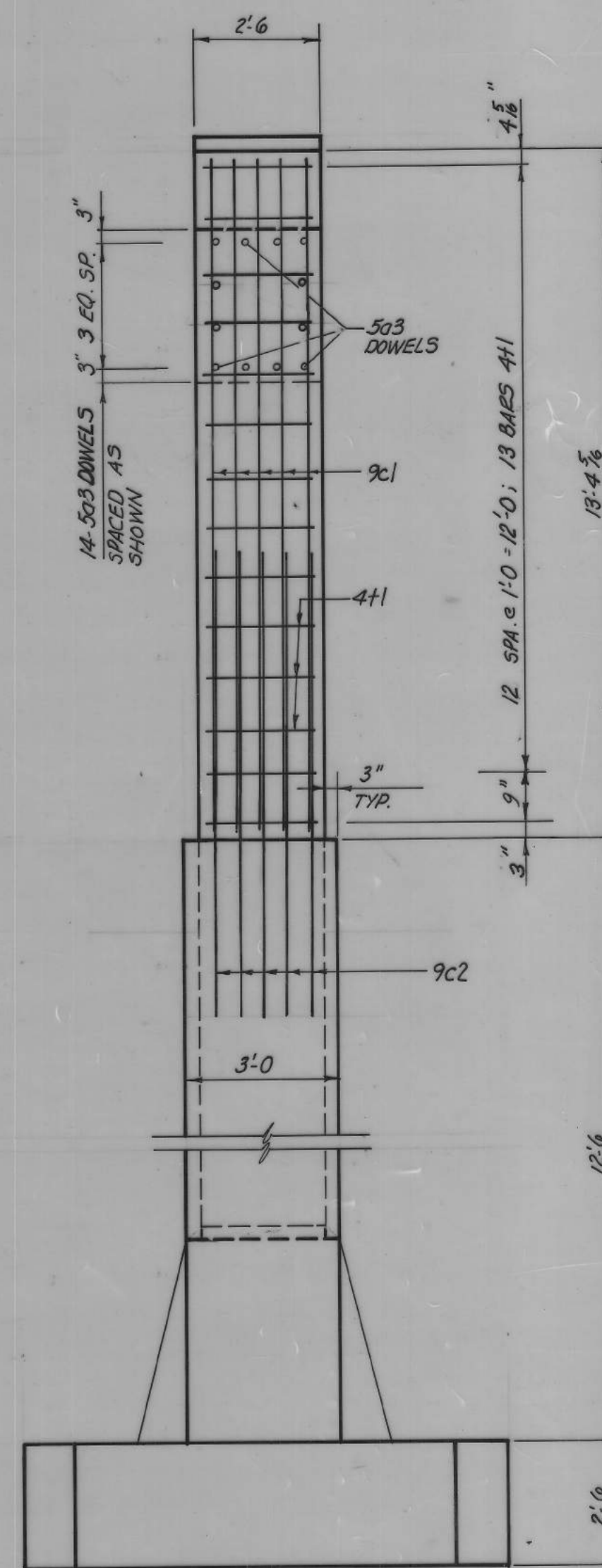
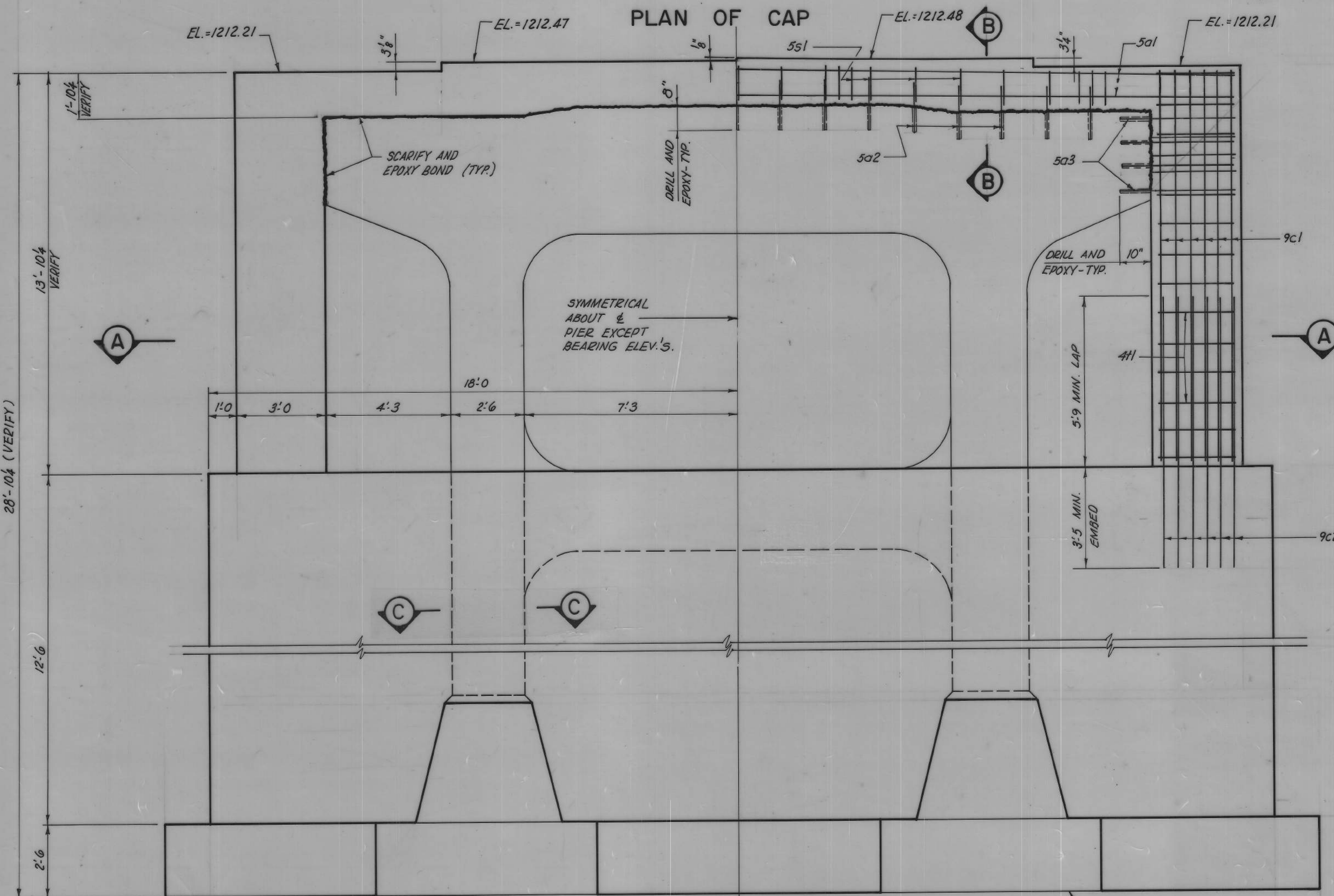
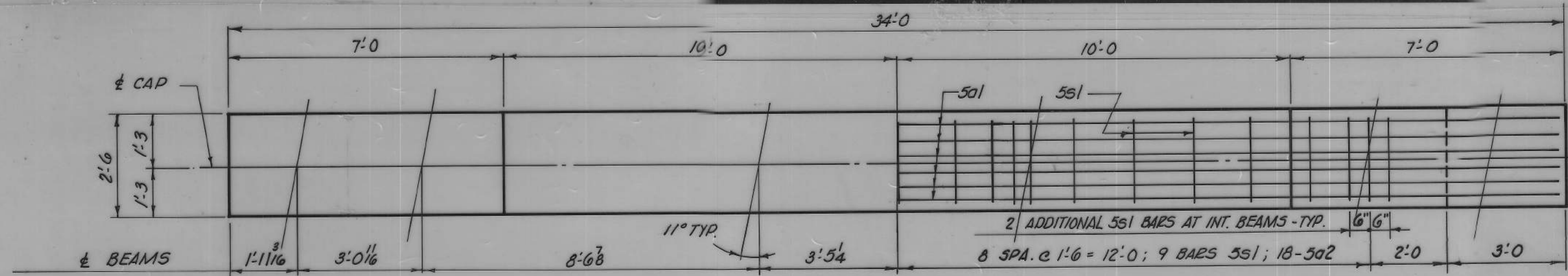
144'-0 x 24' MULTIPLE SPAN STEEL I-BEAM
 BRIDGE WIDENING TO 30' ROADWAY

44'-0 END SPANS
 56'-0 CENTER SPAN
 CONCRETE SUBSTRUCTURE

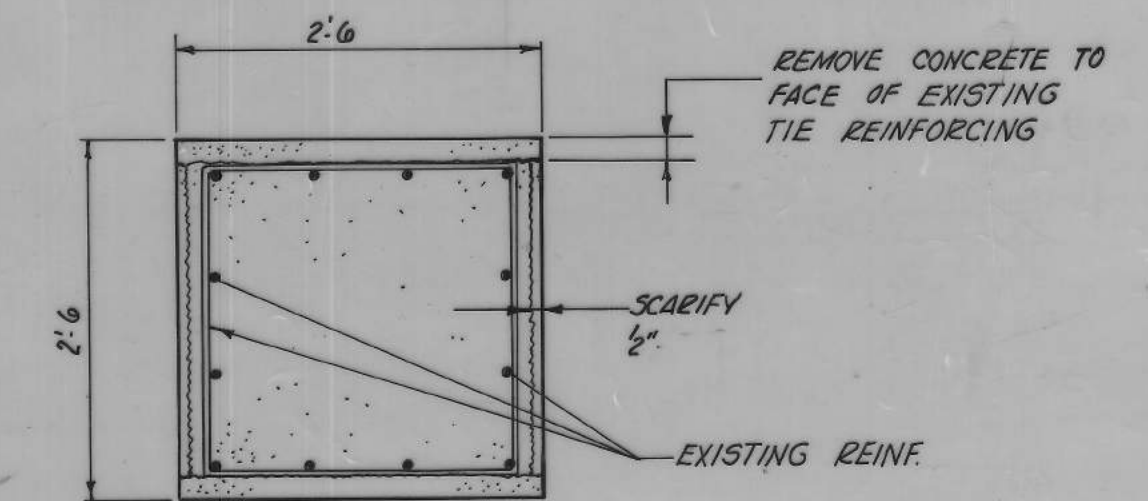
SOUTH PIER DETAILS

STA.253+63.31, IA.RR.XING, NO.1107 11° SKEW, RT. AHEAD
 CRAWFORD COUNTY, IOWA

SHEET 8 OF 24



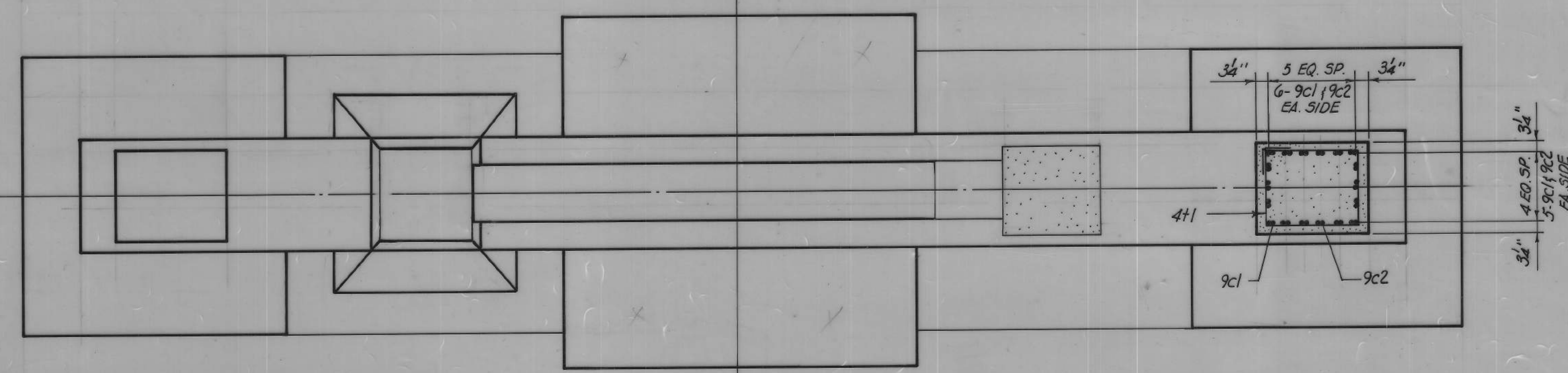
SECTION B-B



SECTION C-C

NORTH PIER NOTES

EPOXY BOND IS TO BE APPLIED TO SURFACES WHERE NEW AND EXISTING CONCRETE INTERFACE. EXISTING PIER SHALL BE SCARIFIED AS SHOWN ON THIS SHEET. DOWELS SHALL BE INSTALLED ACCORDING TO PROCEDURES NOTED ON SHEET 5 BEFORE NEW CONCRETE IS PLACED.
 FIELD VERIFY EXISTING DIMENSIONS PRIOR TO CONSTRUCTION.
 STANDARD PLOA MAY BE OBTAINED FROM "BRIDGE DESIGN SERVICES", IDOT, AMES, IA. THE DESIGN BEARING FOR THE PIER EXTENSION AND CRASHWALL PILES IS 18 TONS.
 PILES MUST BE EQUIPPED WITH DRIVING POINTS FOR I.M. 467.02 OR APPROVED EQUAL. COST OF DRIVING POINTS SHALL BE INCLUDED FOR PRICE BID FOR PILING, HP12X53 FURNISH.



SECTION A-A

END ELEVATION

FOR ADDITIONAL "NORTH PIER DETAILS," SEE SHEET 10

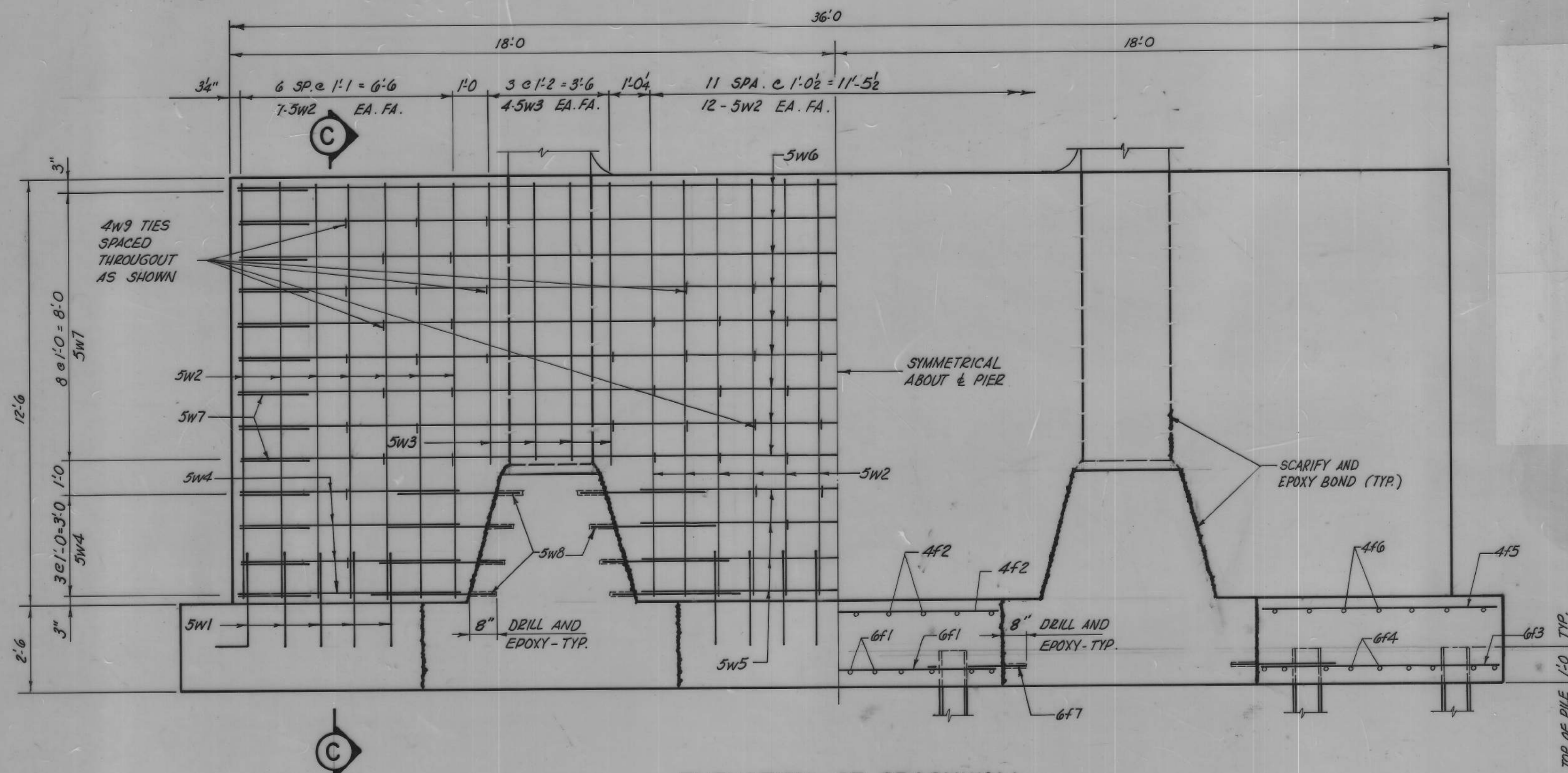
144'-0 x 24' MULTIPLE SPAN STEEL I-BEAM BRIDGE WIDENING TO 30' ROADWAY

44'-0 END SPANS
 56'-0 CENTER SPAN
 CONCRETE SUBSTRUCTURE

NORTH PIER DETAILS

STA.253+63.31, I.A.R.R.XING, NO.1107
 CRAWFORD COUNTY, IOWA

11° SKEW, RT. AHEAD
 SHEET 9 OF 24

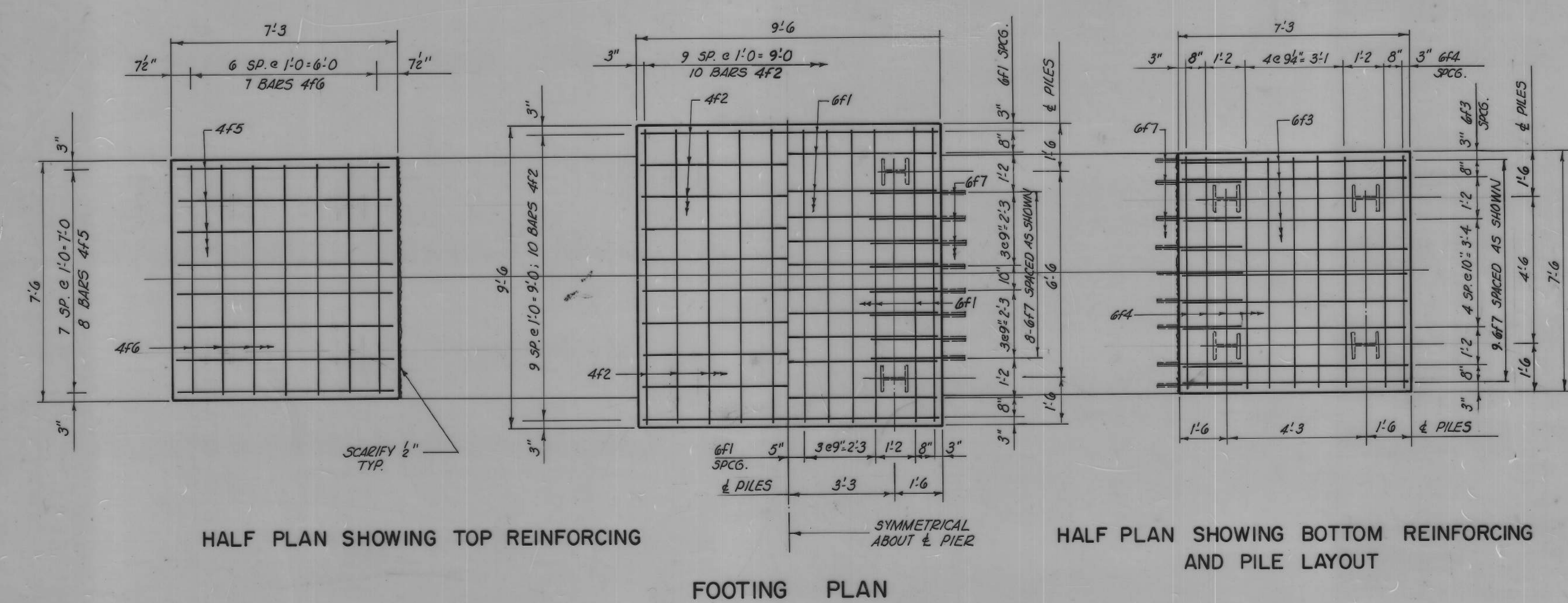


ELEVATION OF CRASHWALL

CONCRETE PLACEMENT QUANT. - N. PIER		
LOCATION	UNIT	QUANTITY
COLUMNS 2 @ 3.33	CU.YDS.	6.7
CAP EXTENSION	CU.YDS.	6.0
CRASH WALL	CU.YDS.	41.0
EXT. FOOTINGS 2 @ 5.03	CU.YDS.	10.1
INT. FOOTING	CU.YDS.	8.4
TOTAL	CU.YDS.	72.2

ESTIMATED QUANTITIES - N. PIER		
ITEM	UNIT	QUANTITY
CONCRETE, STRUCTURAL, CLASS "C"	CU.YDS.	72.2
STEEL, REINFORCING	LBS.	7,104
PILING, HP 10x42	FURNISH 12 @ 38'	456
STEEL BEARING	DRIVE 12 @ 38'	456
EXCAVATION, CLASS 20	CU.YDS.	55

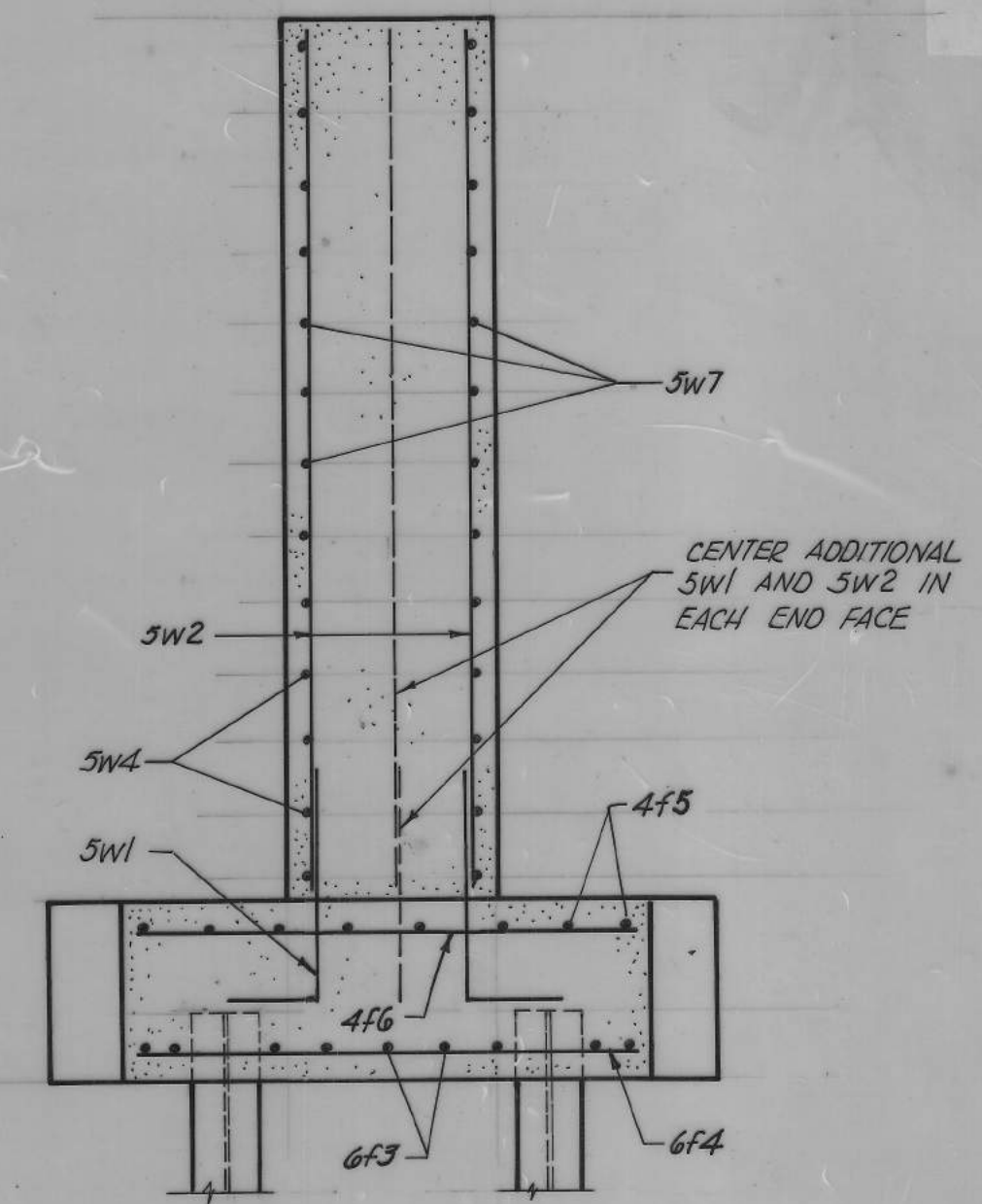
REINFORCING BAR LIST - NORTH PIER					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5a1	CAP EXTENSION, LONGIT.	—	11	33'-8"	386
5a2	CAP EXTENSION, DOWELS, VERT.	—	34	2'-2"	77
5a3	CAP EXTENSION, DOWELS, HORIZ.	—	28	3'-8"	107
9c1	COLUMN, VERTICAL	—	36	13'-6"	1,652
9c2	COLUMN, DOWELS	—	36	9'-4"	1,142
6f1	FTG., INT., BOTT., LONGIT. & TRANS.	—	24	9'-2"	331
4f2	FTG., INT., TOP, LONGIT. & TRANS.	—	20	9'-2"	123
6f3	FTG., EXT., BOTTOM, LONGIT.	—	18	6'-11"	187
6f4	FTG., EXT., BOTTOM, TRANS.	—	18	7'-2"	194
4f5	FTG., EXT., TOP, LONGIT.	—	16	6'-11"	74
4f6	FTG., EXT., TOP, TRANS.	—	16	7'-2"	77
6f7	FTG., DOWELS	—	34	2'-11"	149
5s1	CAP EXTENSION, STIRRUPS	□	25	5'-0"	130
4t1	COLUMN, HOOPS	□	28	10'-5"	195
5w1	CRASH WALL, FTG. TO WALL, DOWELS	—	38	3'-8"	145
5w2	CRASH WALL, VERTICAL	—	52	12'-2"	660
5w3	CRASH WALL, VERTICAL	—	16	8'-5"	141
5w4	CRASH WALL, HORIZONTAL	—	16	6'-8"	111
5w5	CRASH WALL, HORIZONTAL	—	8	11'-8"	97
5w6	CRASH WALL, HORIZONTAL	—	18	35'-8"	670
5w7	CRASH WALL, ENDS	—	26	5'-8"	154
5w8	CRASH WALL, DOWELS	—	32	2'-9"	92
4w9	CRASH WALL, TIES	—	90	3'-6"	210
TOTAL (LBS.)					7,104



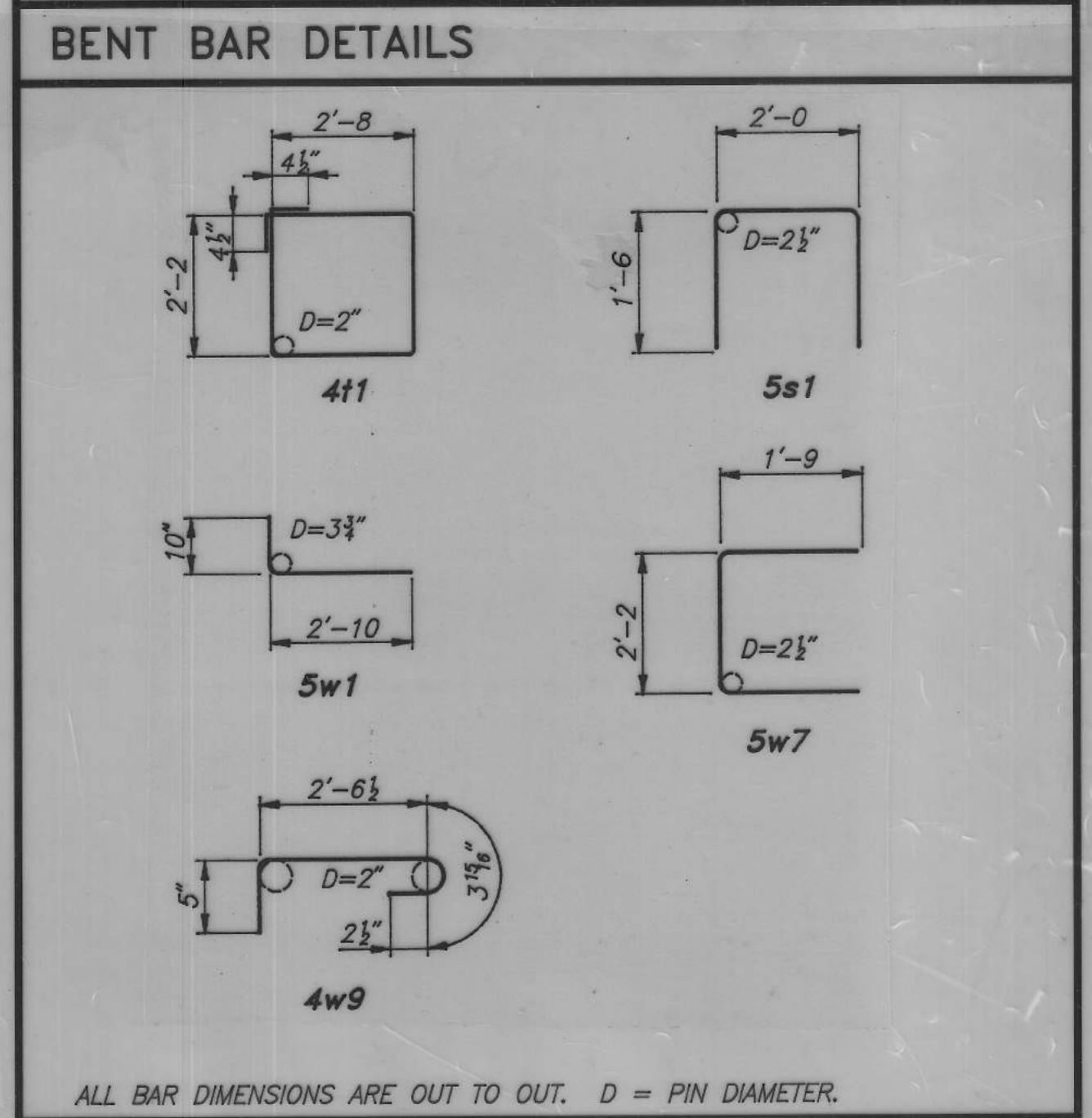
HALF PLAN SHOWING TOP REINFORCING

FOOTING PLAN

HALF PLAN SHOWING BOTTOM REINFORCING AND PILE LAYOUT



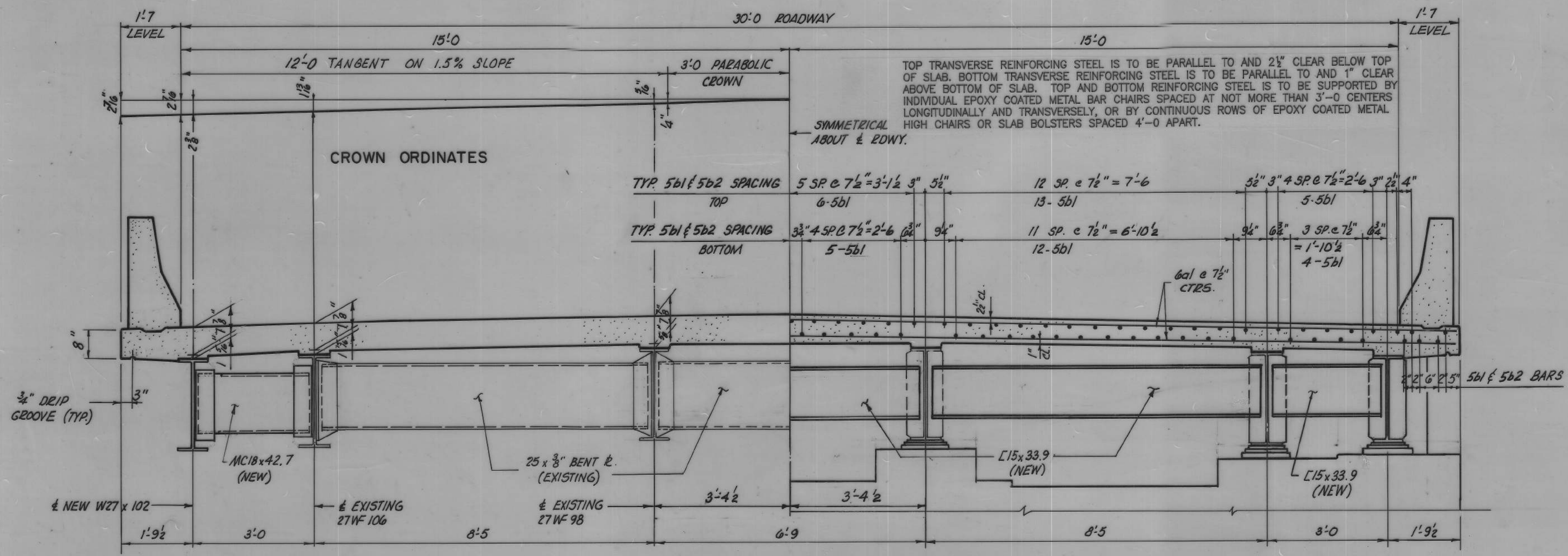
SECTION C-C



ALL BAR DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER.

144'-0 x 24' MULTIPLE SPAN STEEL I-BEAM
BRIDGE WIDENING TO 30' ROADWAY
44'-0 END SPANS
56'-0 CENTER SPAN
CONCRETE SUBSTRUCTURE

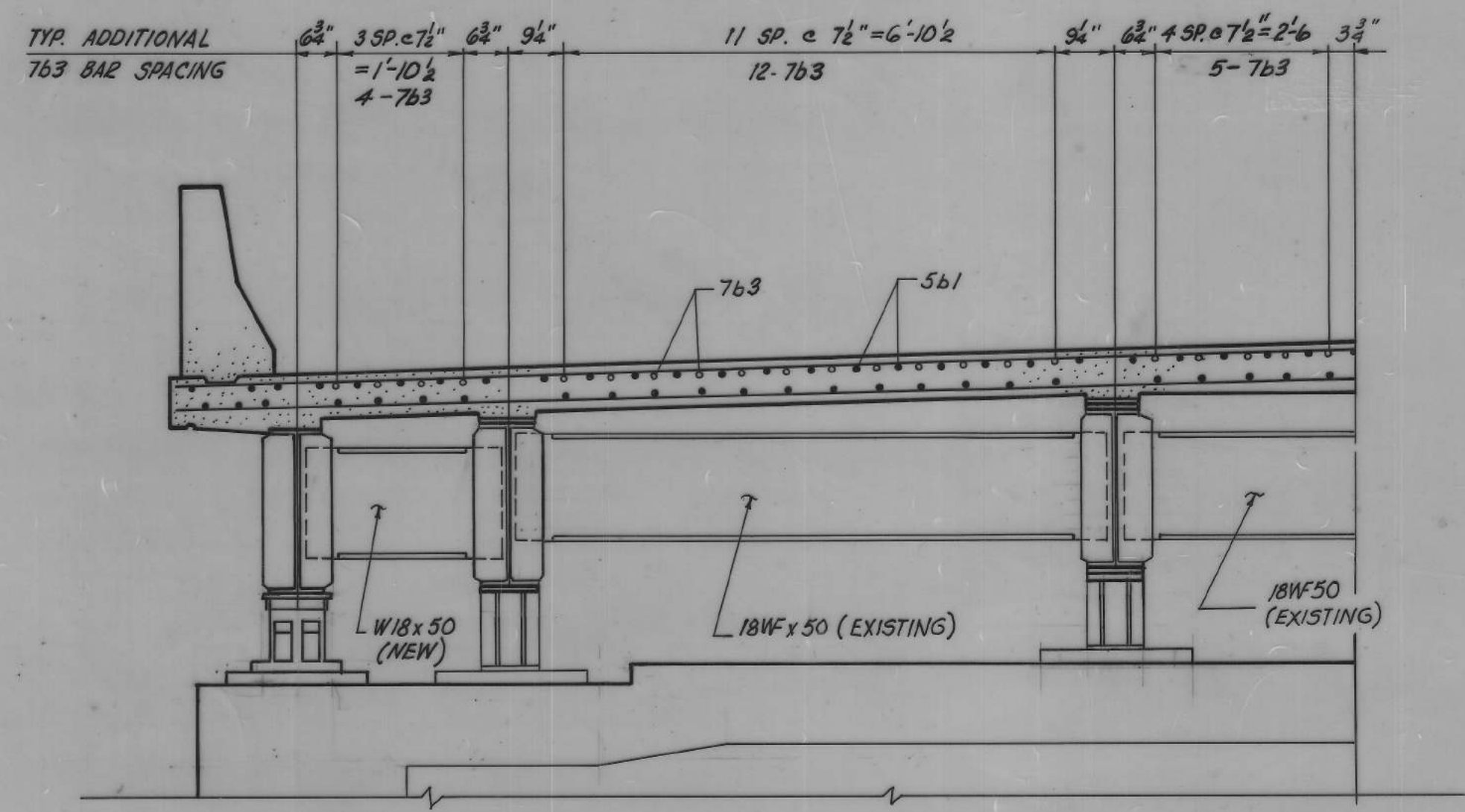
NORTH PIER DETAILS
STA.253+63.31, IA.RR.XING, NO.1107
CRAWFORD COUNTY, IOWA
11° SKEW, RT. AHEAD
SHEET 10 OF 24



HALF SECTION NEAR MIDSPAN

HALF SECTION NEAR ABUTMENT

FOR DIAPHRAGM CONNECTION DETAILS, SEE SHEET 14.



HALF SECTION NEAR PIER

SUPERSTRUCTURE NOTES

THE NEW BRIDGE DECK, NEW BEAMS AND WIDENED SUBSTRUCTURE PORTIONS ARE DESIGNED FOR HS20-44 LIVE LOAD PLUS 20 LBS PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE. EXISTING PORTIONS OF STRUCTURE ARE ADEQUATE FOR HS20-44 LIVE LOAD PLUS 20 LBS. PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE AT STRESSES NOT EXCEEDING .65 F_y.

ALL EXPOSED CORNERS OF 90 DEGREES OR SHARPER ARE TO BE FORMED WITH A 3/4" DRESSED AND BEVELED STRIP. CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR SHALL BE 2" UNLESS OTHERWISE NOTED OR SHOWN. ALL REINFORCING BARS ARE TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON EPOXY COATED BAR CHAIRS BEFORE CONCRETE IS PLACED.

ALL BEAMS ARE TO BE SET VERTICAL.

SLAB THICKNESS INCLUDES 1/2" INTEGRAL WEARING SURFACE.

FORMS FOR THE SLAB ARE TO BE SUPPORTED BY THE I-BEAMS.

FASTENERS (BOLTS, NUTS, & WASHERS) SHALL BE HIGH STRENGTH MEETING THE REQUIREMENTS OF ARTICLE 4153.06, PARAGRAPH B, AND MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B 695, CLASS 55, TYPE I. USE 3/4" ϕ H.T.S. BOLTS WHEN CONNECTING NEW MATERIAL TO EXISTING AND RECONNECTING EXISTING COMPONENTS IF EXISTING RIVET HOLES AND BOLT HOLES ARE 13/16" ϕ (VERIFY). UNLESS OTHERWISE NOTED, ALL OPEN HOLES FOR INTERCONNECTING NEW MATERIAL ARE TO BE 15/16" ϕ AND BOLTS ARE TO BE 7/8" ϕ .

THE DESIGN DRAWINGS INDICATE AWS PREQUALIFIED WELDED JOINTS, AND UNLESS OTHERWISE NOTED, THE DESIGN JOINT DETAILS ARE FOR MANUAL SHIELDED METAL ARC-WELDING. ALTERNATE JOINT DETAILS MAY BE SUBMITTED FOR APPROVAL.

PAYING SURFACES AT DIAPHRAGM CONNECTIONS ARE TO BE GIVEN ONE SHOP COAT OF PAINT. THE SHOP APPLIED PAINT SHALL BE OMITTED AT LOCATIONS WHICH ARE TO BE FIELD WELDED.

SEE "BEARING NOTES", SHEET 17, FOR DETAILS OF NEW BEARING MATERIAL.

STUD SHEAR CONNECTORS ARE TO BE WELDED IN THE SHOP OR IN THE FIELD TO THE NEW BEAM AND DIAPHRAGMS AT THE LOCATIONS SHOWN ON THE DESIGN PLANS OR THE APPROVED SHOP DRAWINGS. STUD SHEAR CONNECTORS ARE TO BE WELDED IN THE FIELD TO THE EXISTING BEAMS AND DIAPHRAGMS AT THE LOCATIONS SHOWN ON THE DESIGN PLANS. STUDS SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH CURRENT ANSI/AWS STRUCTURAL WELDING CODE.

THE COST OF FURNISHING AND INSTALLING THE NEW BEARING MATERIALS, SWEDGED ANCHOR BOLTS, HEX NUTS AND WASHERS, NEW DIAPHRAGMS, NEW COVER PLATES, BOLTS, AND SHOP WELDS SHALL BE INCLUDED IN THE PRICE BID FOR "STEEL, STRUCTURAL".

ALL NEW SUPERSTRUCTURE REINFORCING IS TO BE EPOXY COATED. THE EPOXY COATING SHALL BE IN ACCORDANCE WITH CURRENT STANDARD SPECIFICATIONS SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS OF THE IOWA DOT-HIGHWAY DIVISION.

ALL WELDING SHALL BE DONE BY WELDERS CERTIFIED IN THE POSITIONS REQUIRED AND IN ACCORDANCE WITH CURRENT ANSI/AWS SPECIFICATIONS. COST OF LABOR, MATERIAL, AND EQUIPMENT REQUIRED FOR FIELD WELDING SHALL BE INCIDENTAL TO CONSTRUCTION AND NO DIRECT PAYMENT WILL BE MADE.

PAINTING OF NEW STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 5096. CLEANING AND PAINTING OF EXISTING STRUCTURAL STEEL IS NOT AUTHORIZED UNDER THIS CONTRACT AND SHALL NOT BE PERFORMED WITHOUT A SPECIAL PROVISION APPROVED IN WRITING BY THE IDOT.

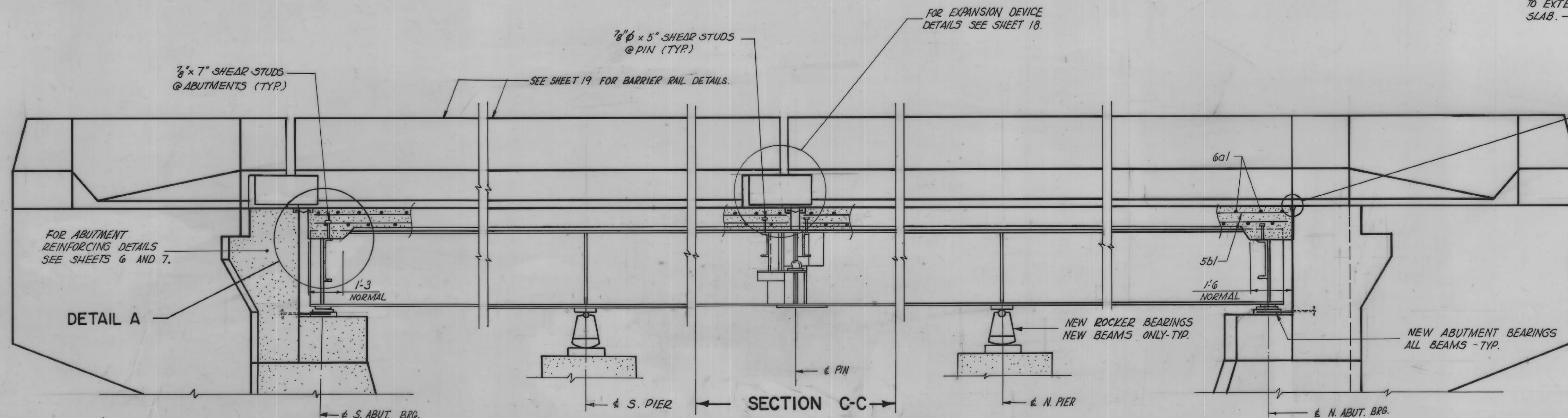
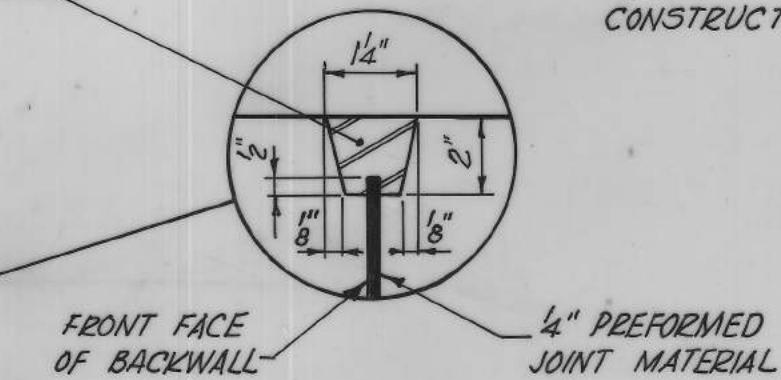
144'-0 x 24' MULTIPLE SPAN STEEL I-BEAM
BRIDGE WIDENING TO 30' ROADWAY
44'-0 END SPANS CONCRETE SUBSTRUCTURE
56'-0 CENTER SPAN

SUPERSTRUCTURE DETAILS

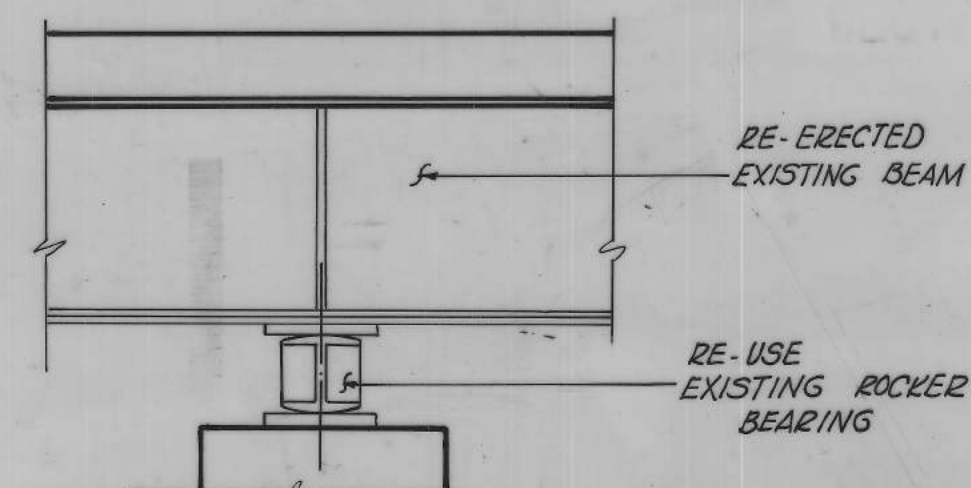
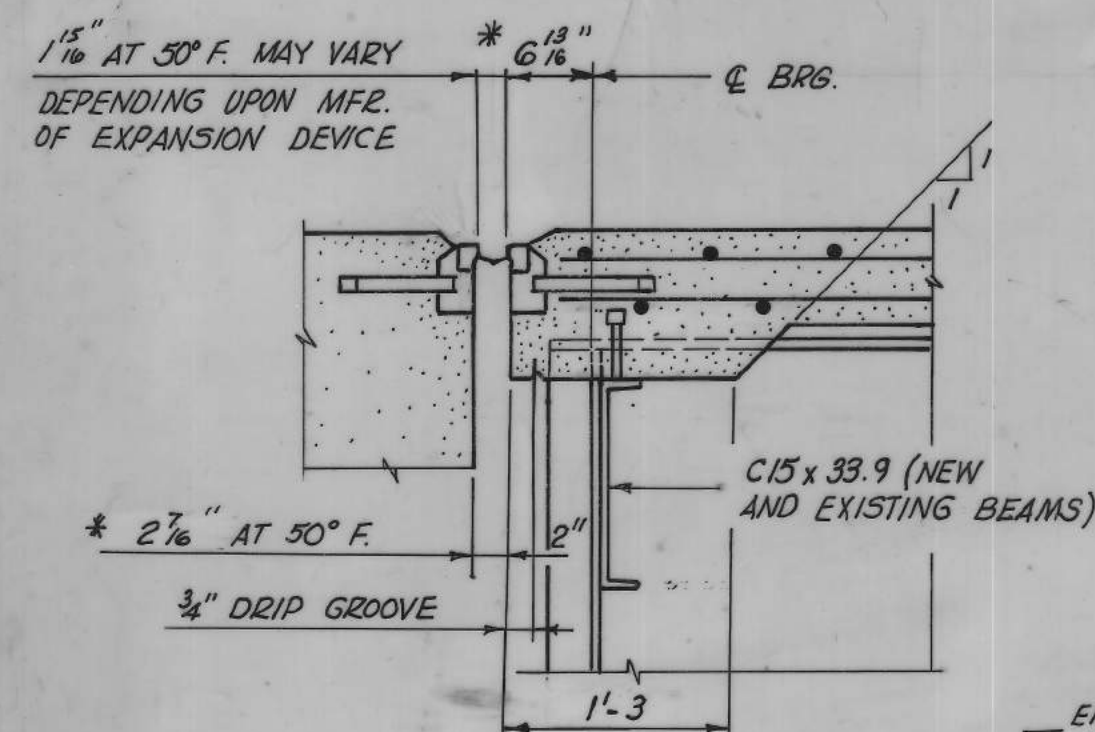
STA.253+63.31, IA.RR.XING, NO.1107 11° SKEW, RT.AHEAD
CRAWFORD COUNTY, IOWA
SHEET 11 OF 24

NOT POURED JOINT SEALER AND 1/2" PREF. EXP. JT. FILLER TO EXTEND OUT TO OUT OF SLAB.

SEE STANDARD SPEC. AET. 2412.10 "FILLING AND SEALING JOINTS" FOR SPECIFICATIONS GOVERNING JOINT FILLER MATERIALS AND JOINT CONSTRUCTION.

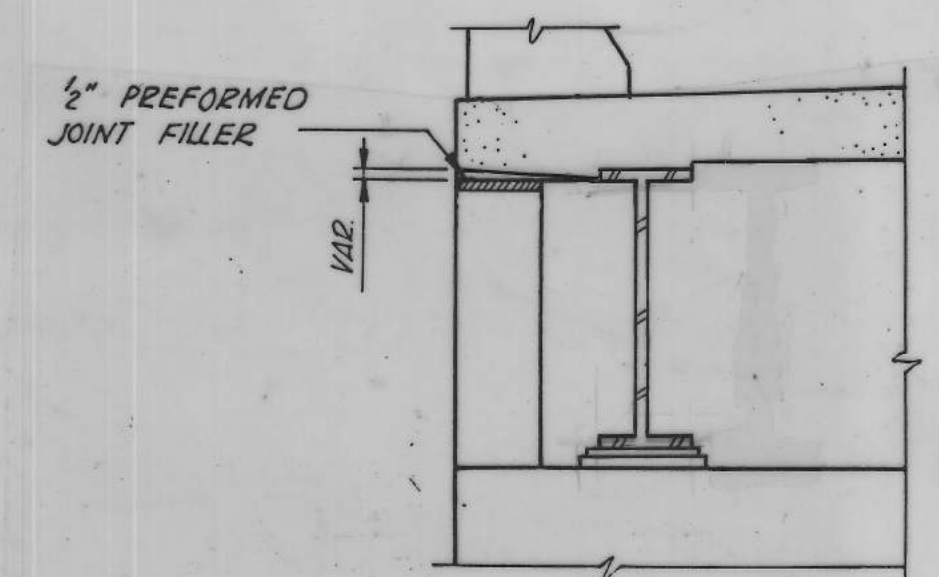


PART LONGITUDINAL SECTION NEAR NEW EXTERIOR BEAM

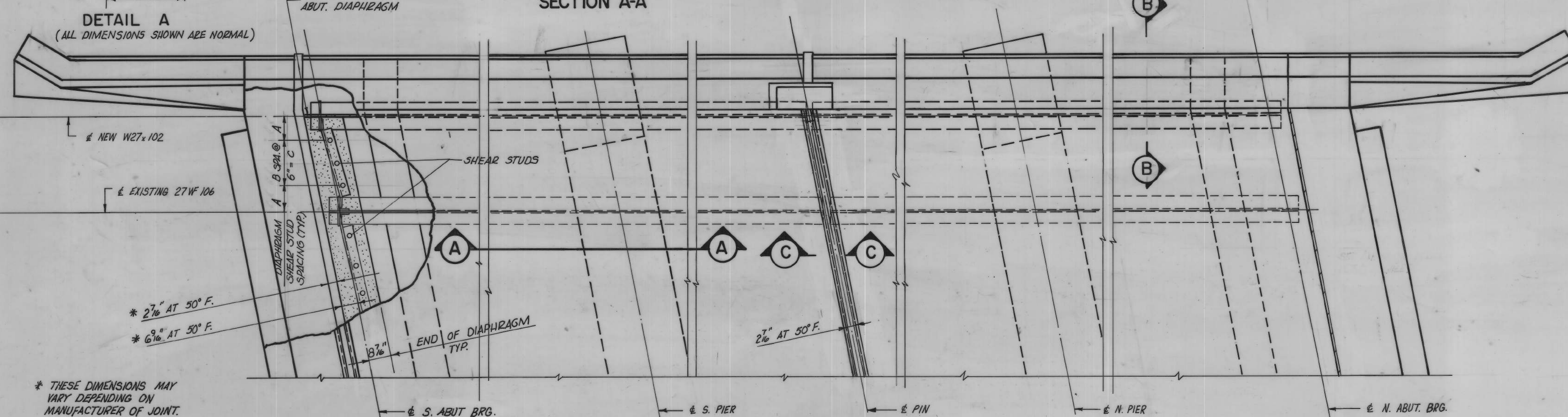


SECTION A-A

ROCKER SETTINGS (TYP. AT NEW AND EXISTING BEAMS)			
TEMPERATURE AT TIME OF SETTING	NORTH ABUTMENT	NORTH PIER	SOUTH PIER
	FIXED		
90°	-	+ 1/8"	+ 1/16"
50°	-	0"	0"
10°	-	- 1/8"	- 1/16"



SECTION B-B



PART PLAN

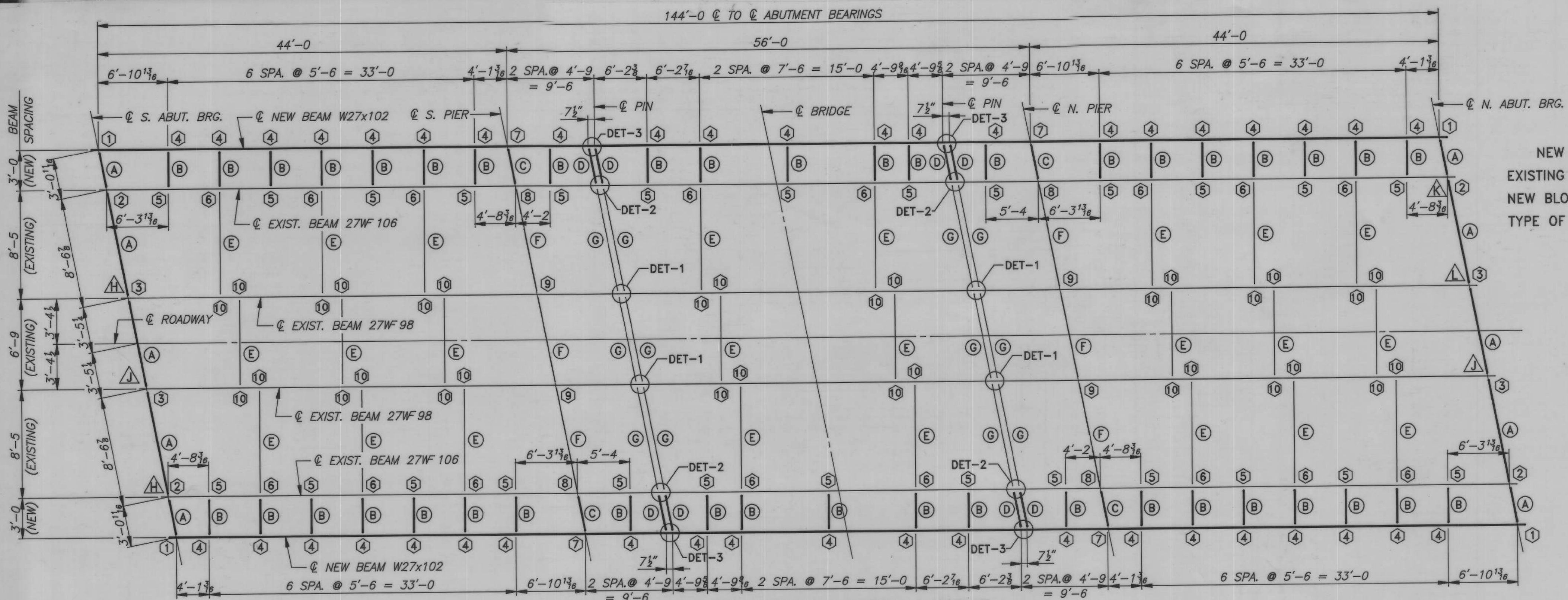
DIAPHRAGM SHEAR STUD SPACING			
BEAM SPACE	A	B	C
27WF98 / 27WF98	1'-1 1/2"	9"	4'-6"
27WF98 / 27WF106	1'-2 1/2"	12"	6'-0"
27WF106 / W27x102	1'-0"	2"	1'-0"

SPACINGS NORMAL TO C BEAMS.
USE SAME SPACING @ ABUTMENT DIAPHRAGMS AND PIN DIAPHRAGMS.

144'-0 x 24' MULTIPLE SPAN STEEL I-BEAM
BRIDGE WIDENING TO 30' ROADWAY
44'-0 END SPANS
56'-0 CENTER SPAN
CONCRETE SUBSTRUCTURE

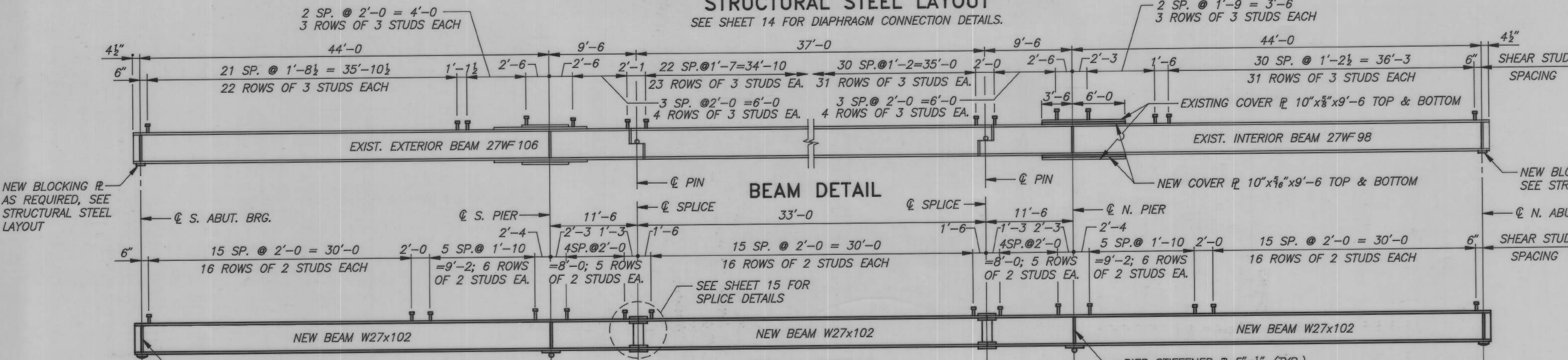
SUPERSTRUCTURE DETAILS

STA.253+63.31, IA.RR.XING, NO.1107
CRAWFORD COUNTY, IOWA
11° SKEW, RT. AHEAD
SHEET 12 OF 24



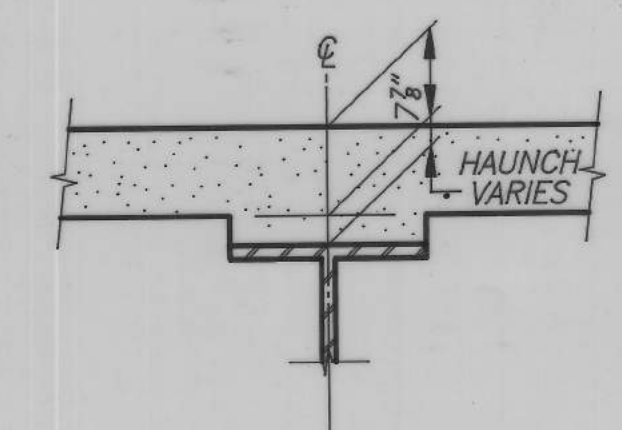
- NEW DIAPHRAGMS (A) C15 x 33.9 (B) MC18 x 42.7 (C) W18 x 50 (D) MC12 x 35
 EXISTING DIAPHRAGMS (E) 25x3/8" BENT PL (F) 18 WF 50 (G) 12 C 35
 NEW BLOCKING PLATE (H) PL 1/2"x6"x0'-11" (I) PL 5/8"x6"x0'-11" (J) PL 7/8"x6"x0'-11" (K) PL 1 1/8"x6"x0'-11"
 TYPE OF CONNECTION (L) [Symbol]

STRUCTURAL STEEL LAYOUT
 SEE SHEET 14 FOR DIAPHRAGM CONNECTION DETAILS.



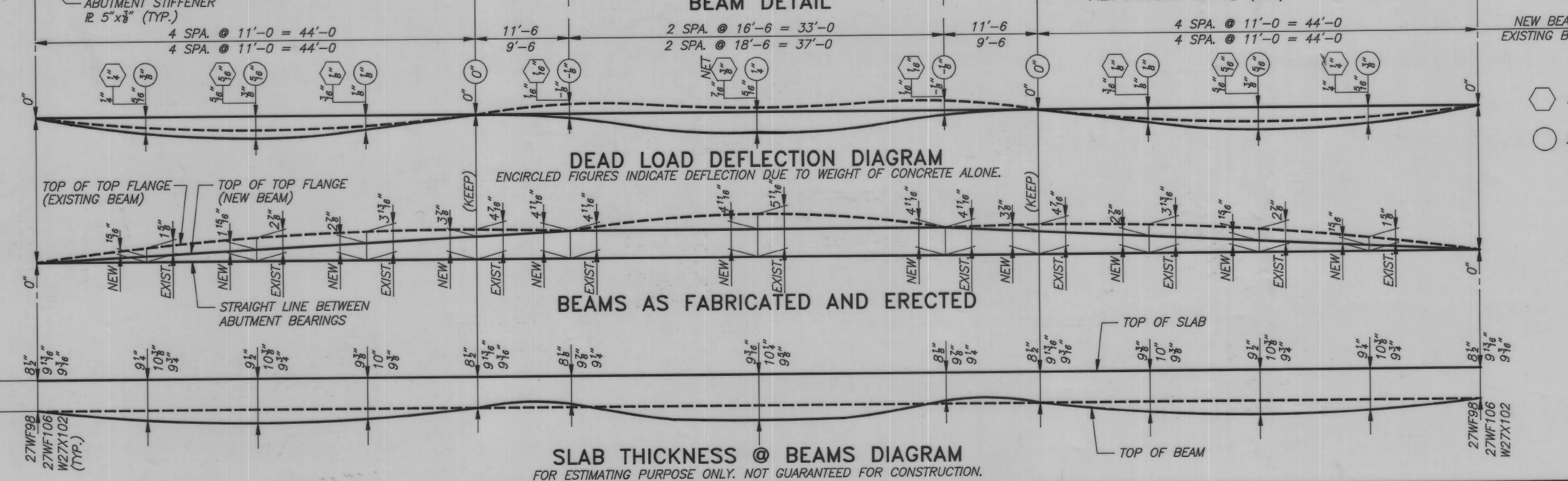
BEAM DETAIL

BEAM DETAIL



TYPICAL SLAB AND HAUNCH DETAIL

THE HAUNCH DIMENSIONS SHOWN IN THE "HAUNCH THICKENING DIAGRAM" SHALL BE INCREASED OR DECREASED TO COMPENSATE FOR CONSTRUCTION INACCURACIES. THE MAXIMUM HAUNCH ALLOWED IS 2 1/2 INCHES, AND THE MINIMUM HAUNCH ALLOWED IS ZERO INCHES. (TOP OF FLANGE SHALL NOT BE EMBEDDED IN SLAB). THE "HAUNCH THICKENING DIAGRAM" INDICATES HAUNCH THICKENING NECESSARY TO COMPENSATE FOR DEAD LOAD DEFLECTION WITH BEAMS ERECTED AS SHOWN ON THIS SHEET.



DEAD LOAD DEFLECTION DIAGRAM
 ENCIRCLED FIGURES INDICATE DEFLECTION DUE TO WEIGHT OF CONCRETE ALONE.

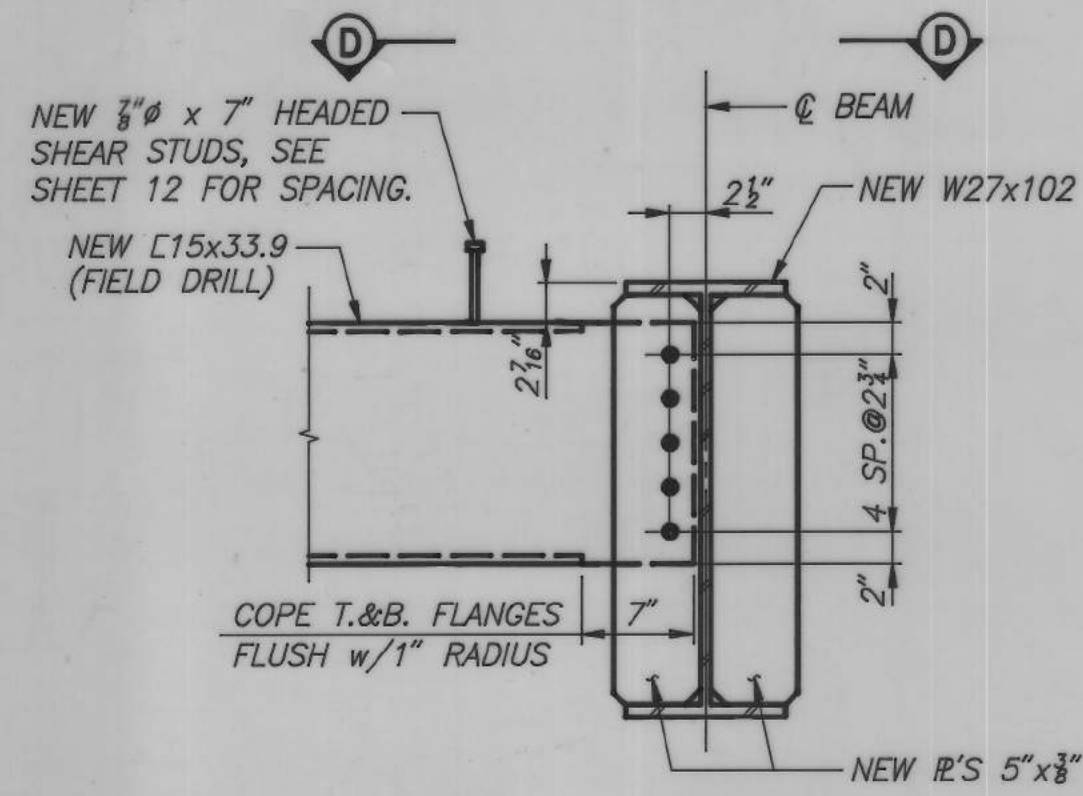
BEAMS AS FABRICATED AND ERECTED

SLAB THICKNESS @ BEAMS DIAGRAM
 FOR ESTIMATING PURPOSE ONLY. NOT GUARANTEED FOR CONSTRUCTION.

144'-0" x 24' MULTIPLE SPAN STEEL I-BEAM BRIDGE WIDENING TO 30' ROADWAY
 44'-0" END SPANS
 56'-0" CENTER SPAN
 CONCRETE SUBSTRUCTURE

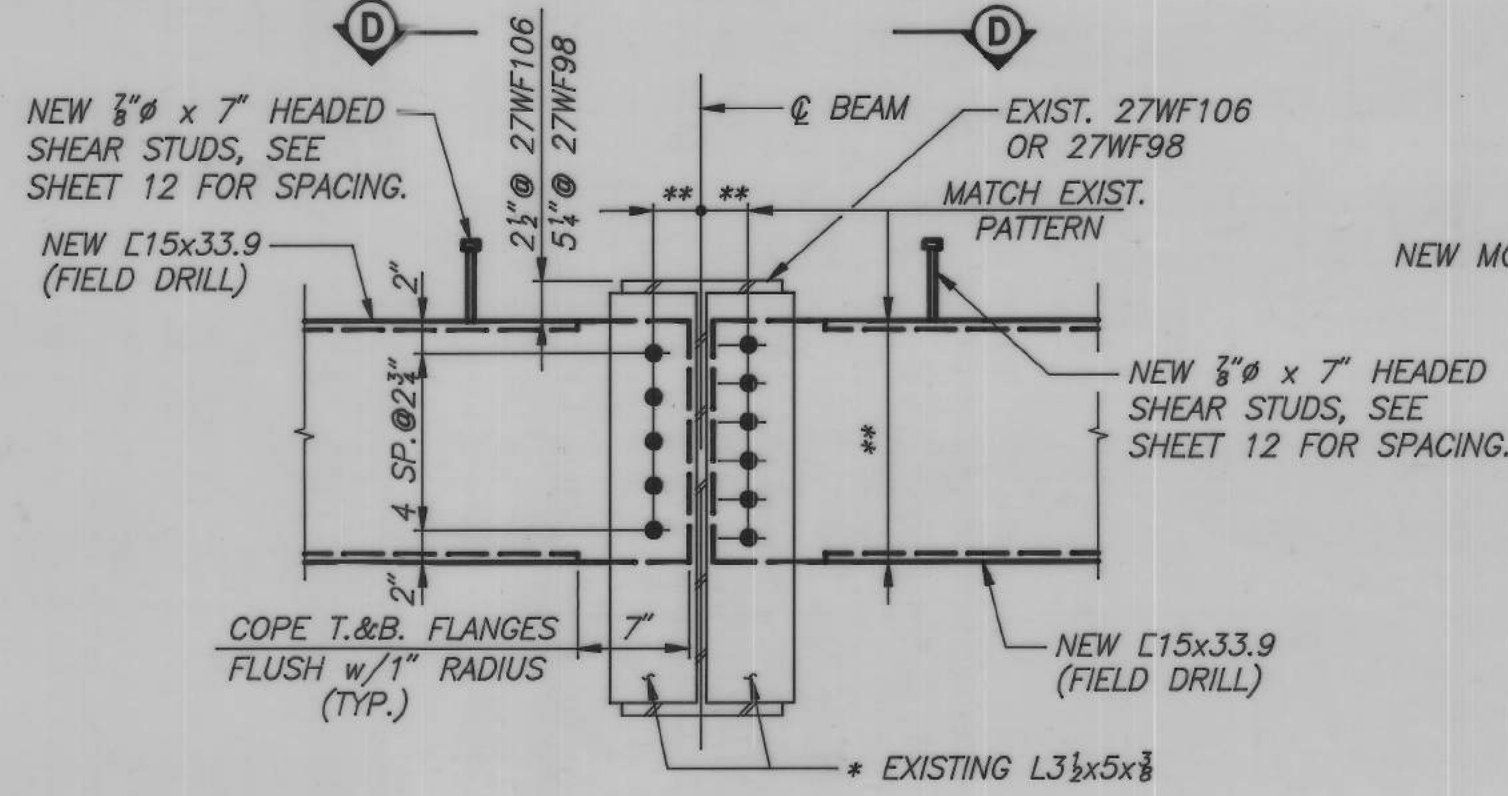
SUPERSTRUCTURE DETAILS

STA.253+63.31, I.A.RR.XING, NO.1107
 CRAWFORD COUNTY, IOWA
 SHEET 13 OF 24



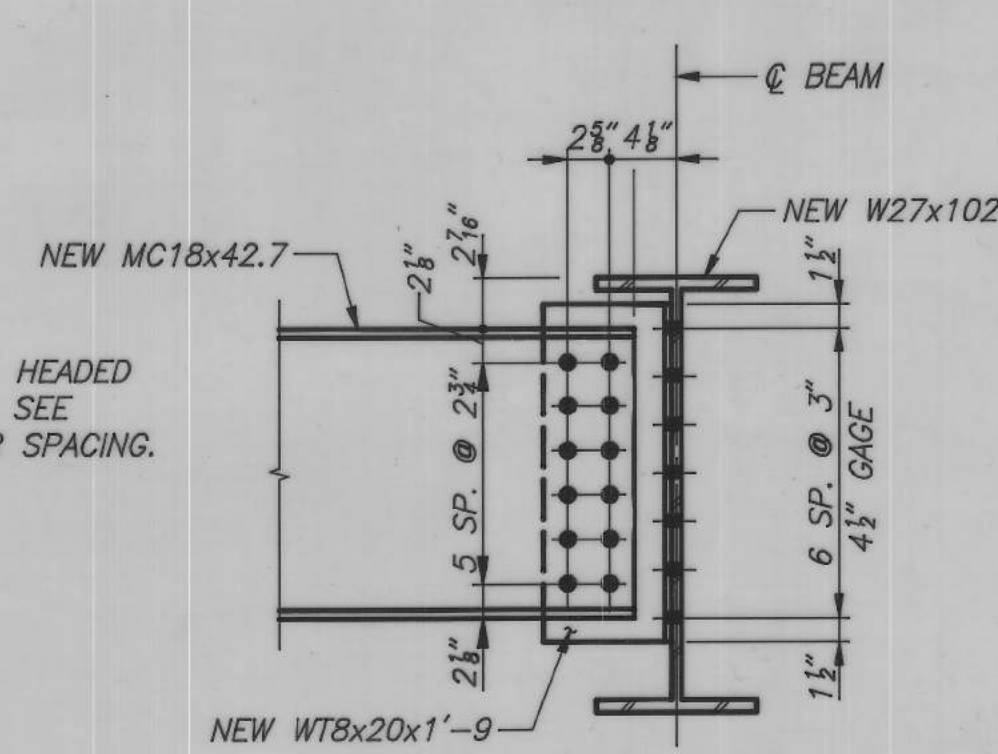
CONNECTION ①

NOTE: $\frac{3}{8}$ " BOLTS



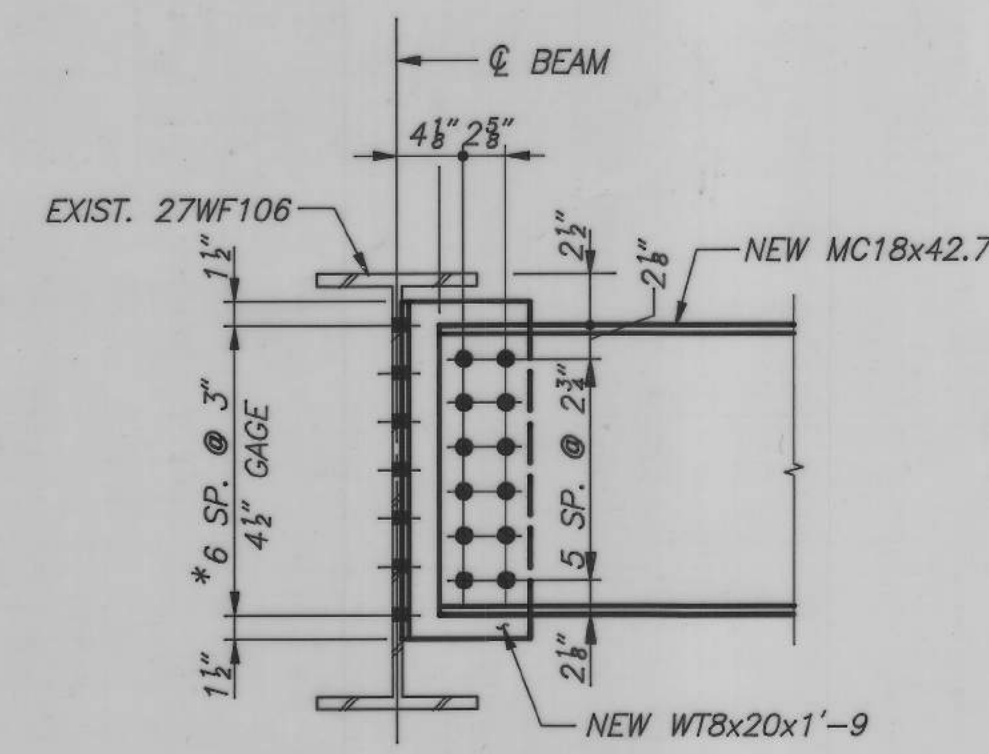
CONNECTION ② OR ③

* FIELD DRILL HOLES IN EXISTING EXTERIOR STIFFENER ANGLE FOR $\frac{3}{8}$ " BOLTS
** REMOVE EXISTING BOLTS/RIVETS AND REPLACE WITH $\frac{3}{8}$ " A325 BOLTS. FIELD VERIFY HOLE SIZE.



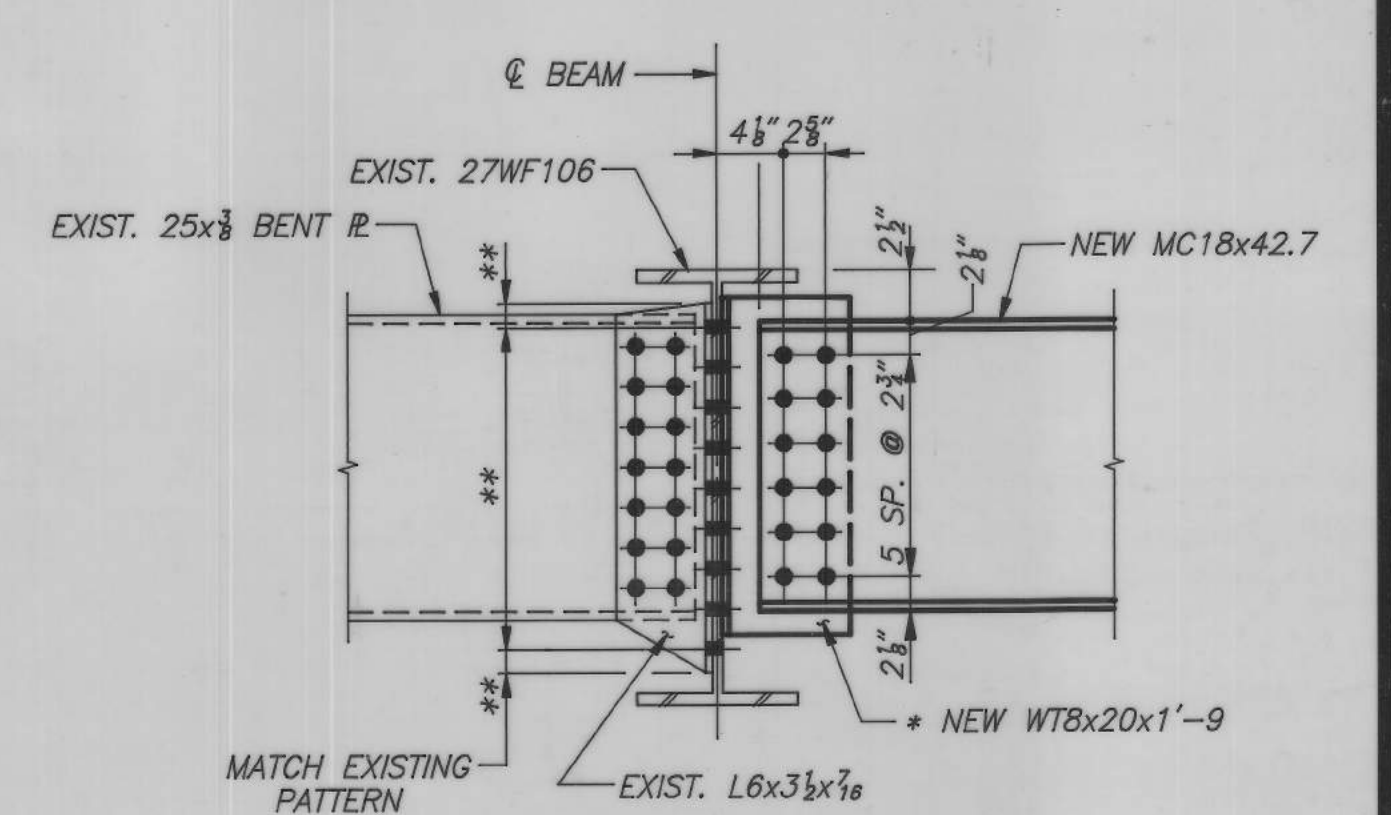
CONNECTION ④

NOTE: $\frac{3}{8}$ " BOLTS



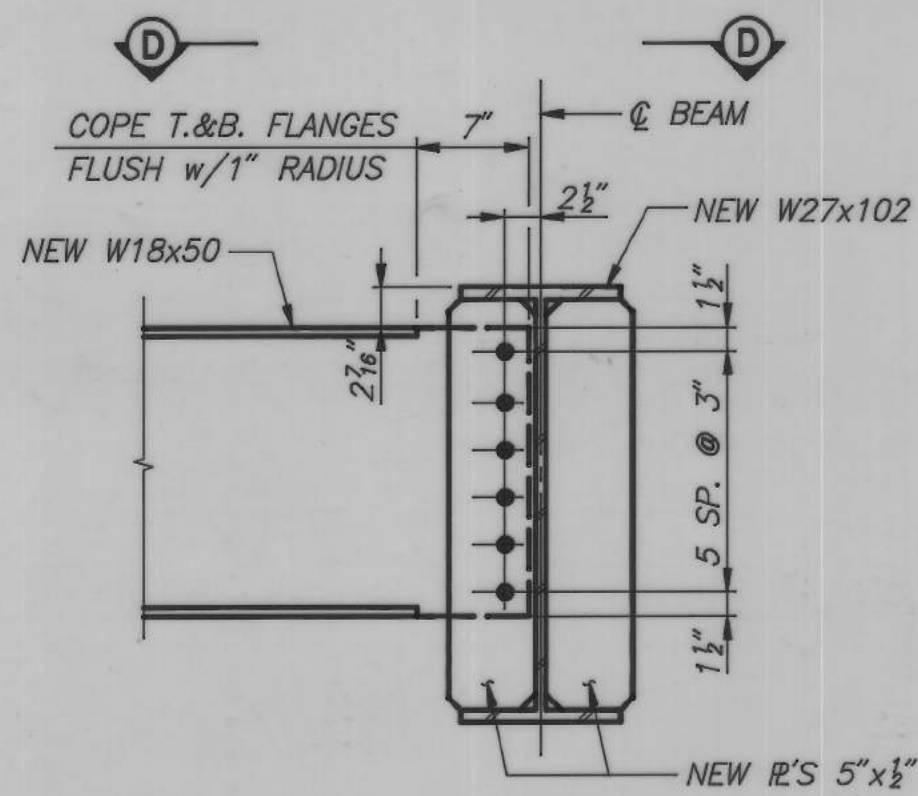
CONNECTION ⑤

* FIELD DRILL HOLES IN EXISTING BEAM WEB ALL BOLTS $\frac{3}{8}$ "



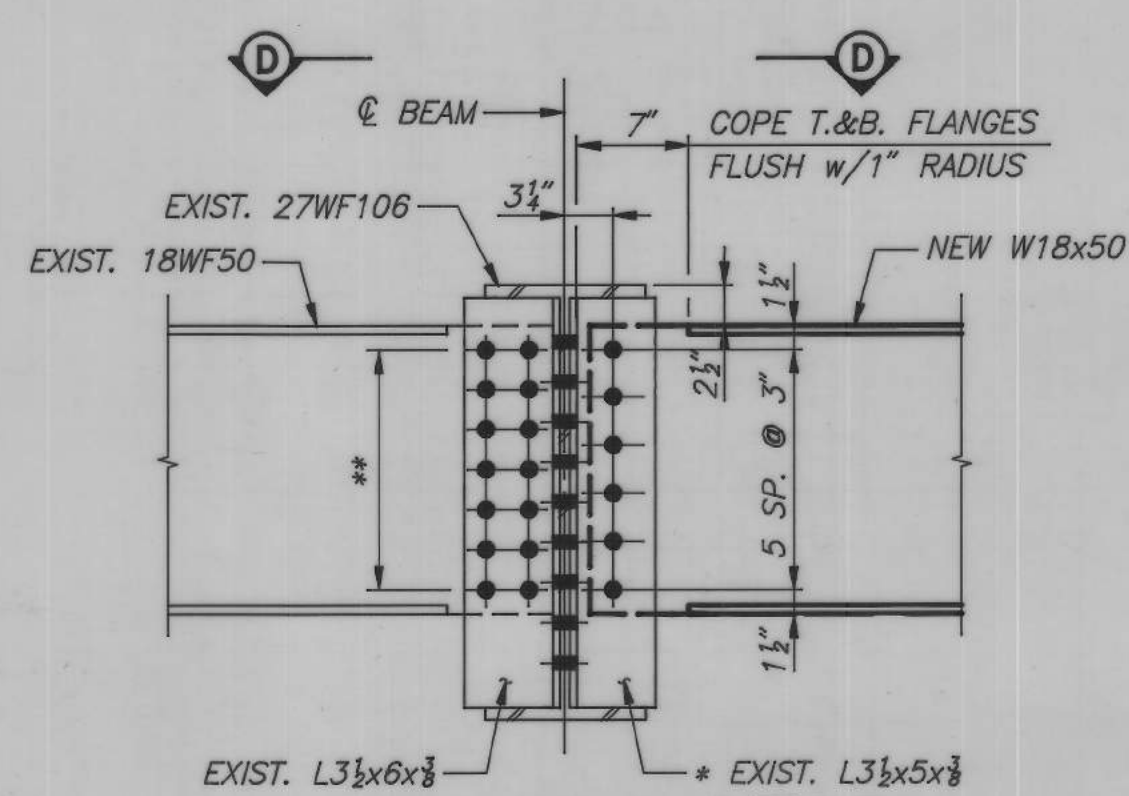
CONNECTION ⑥

* FIELD DRILL HOLES IN EXISTING BEAM WEB FOR SECOND ROW OF BOLTS, FOR $\frac{3}{8}$ "
** REMOVE EXISTING BOLTS/RIVETS AND REPLACE WITH $\frac{3}{8}$ " A325 BOLTS. FIELD VERIFY HOLE SIZE.



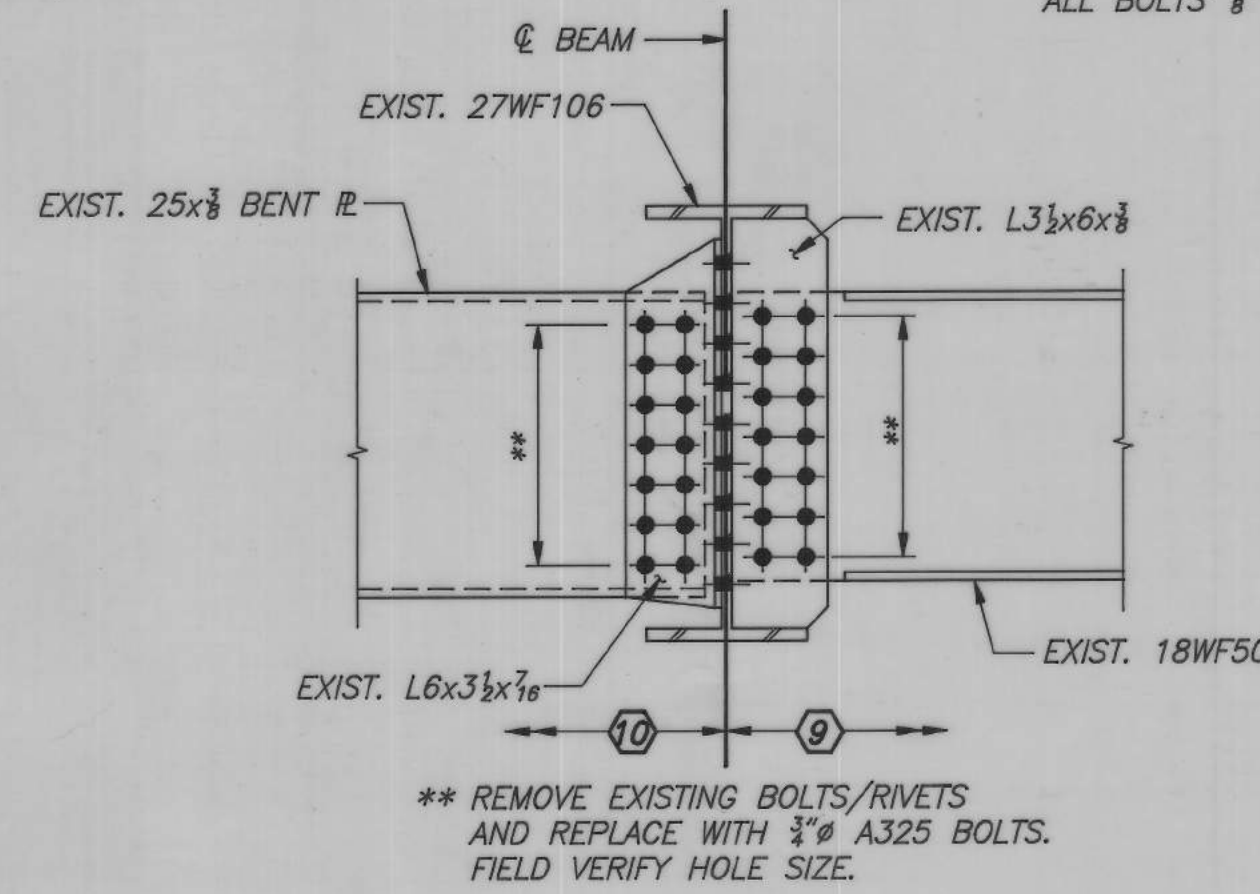
CONNECTION ⑦

NOTE: $\frac{3}{8}$ " BOLTS



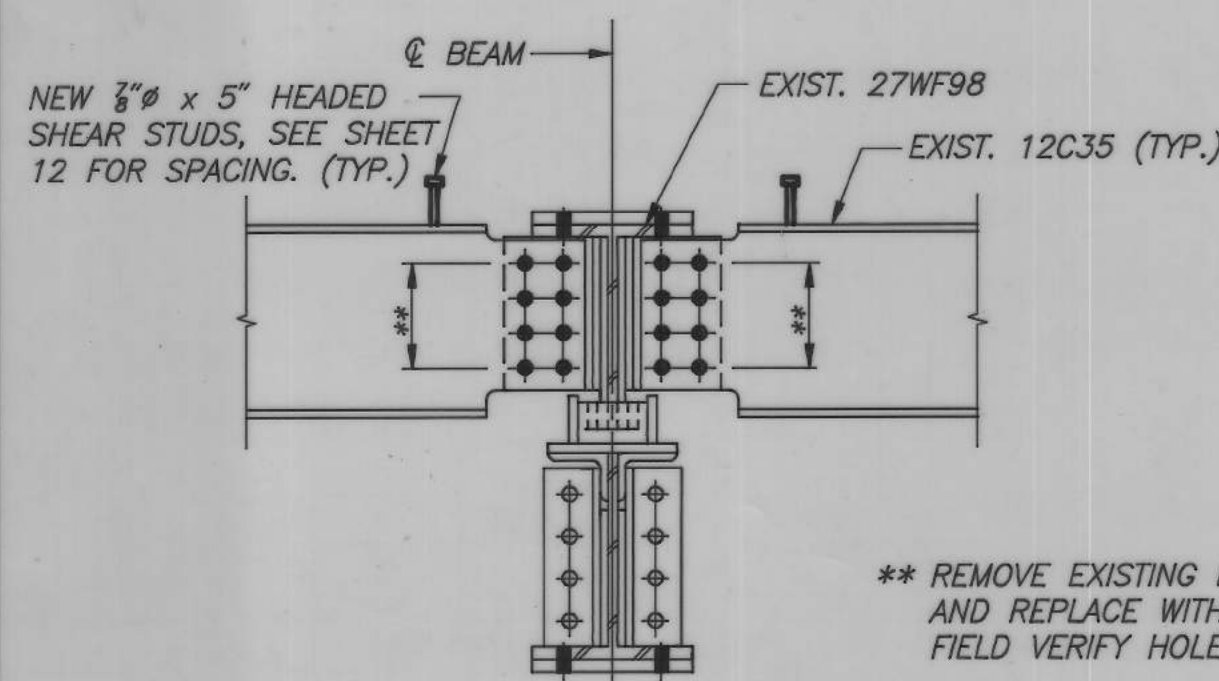
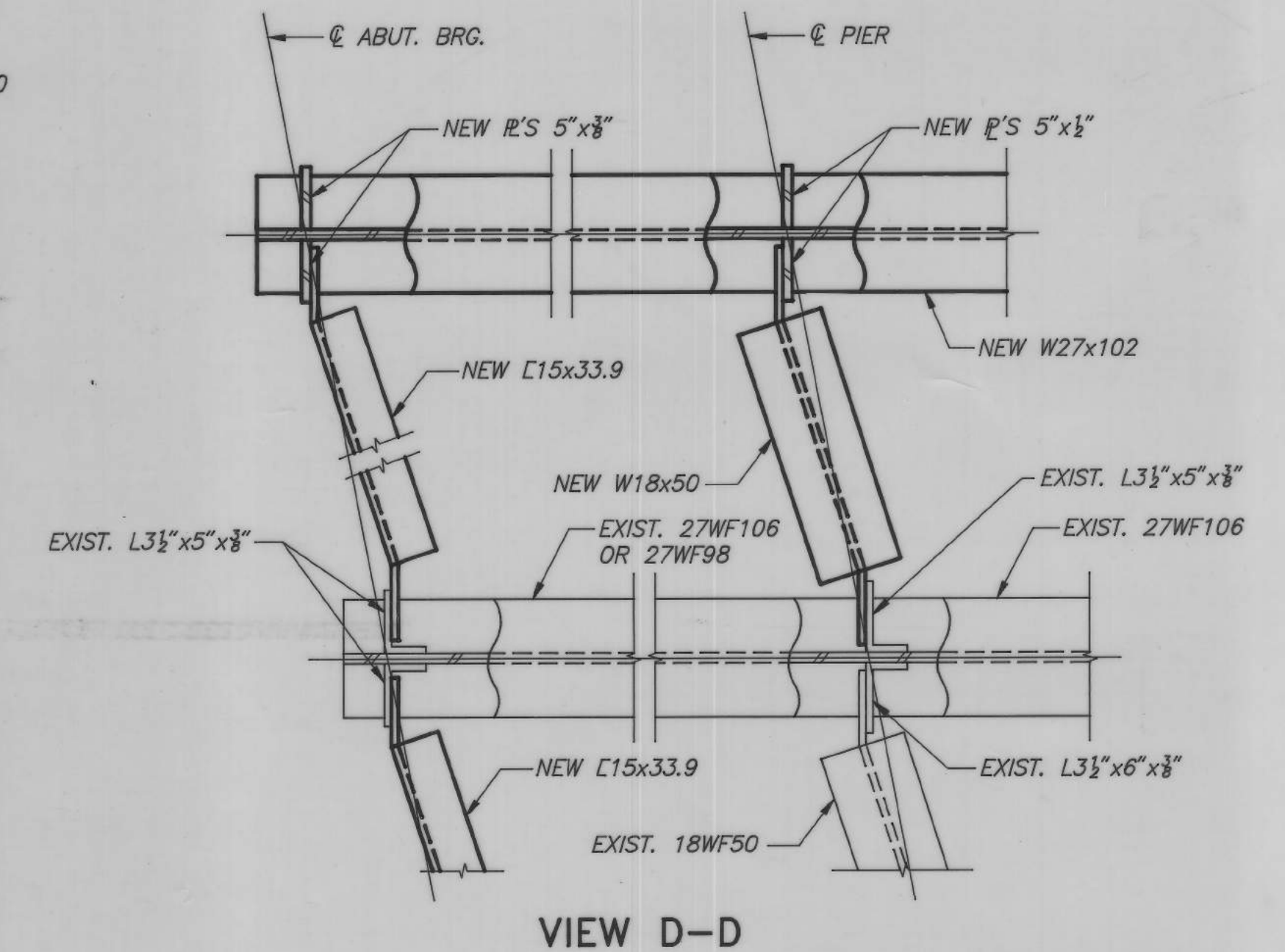
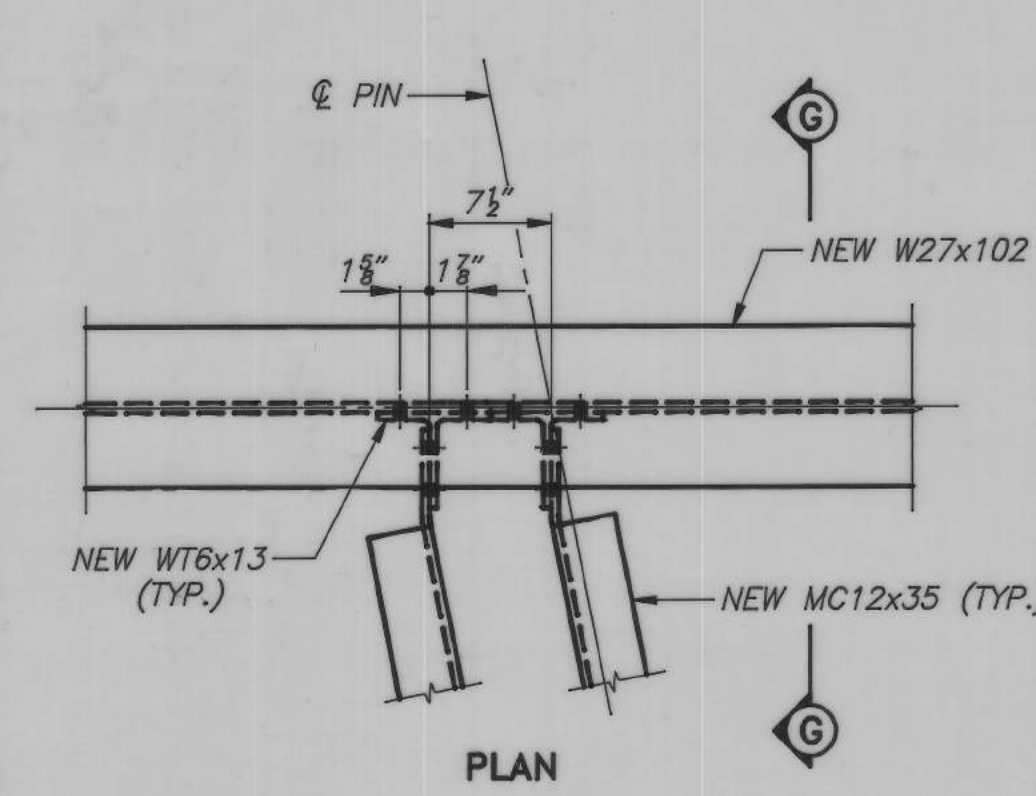
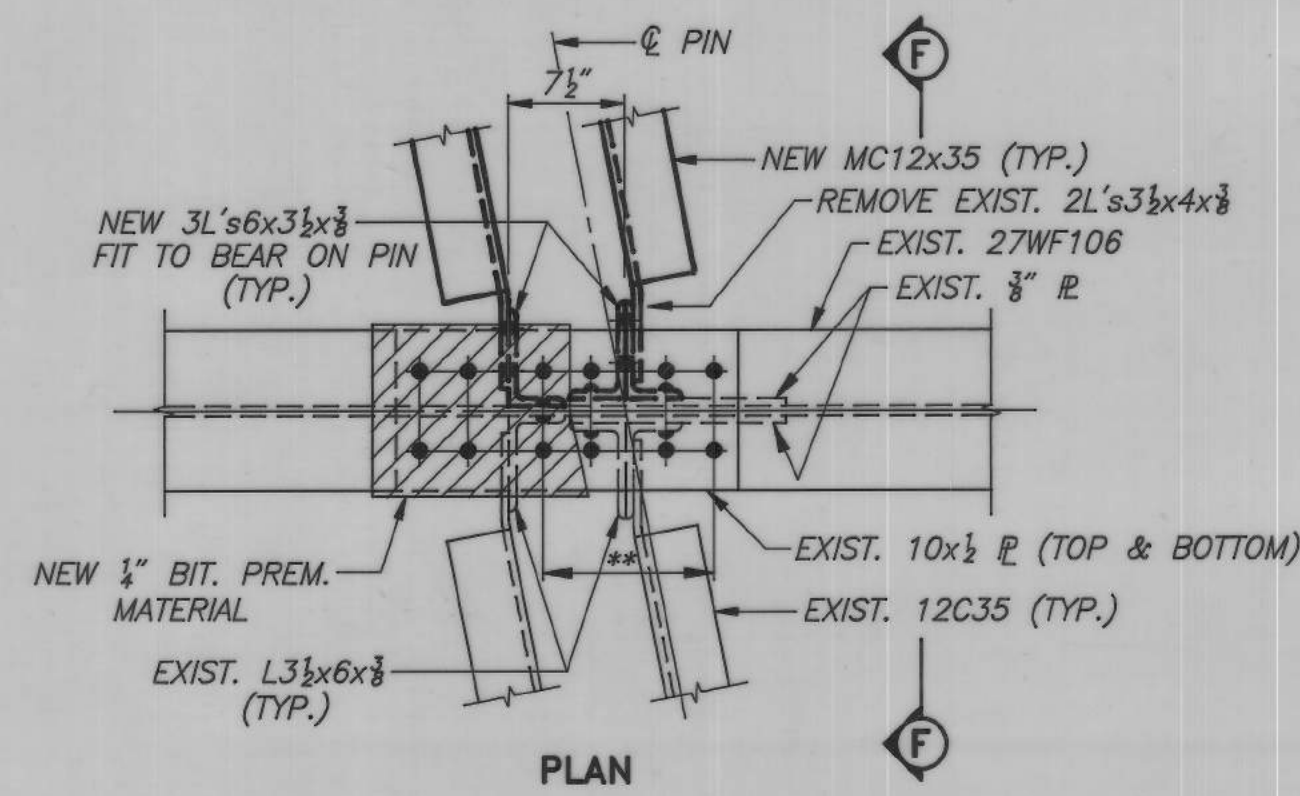
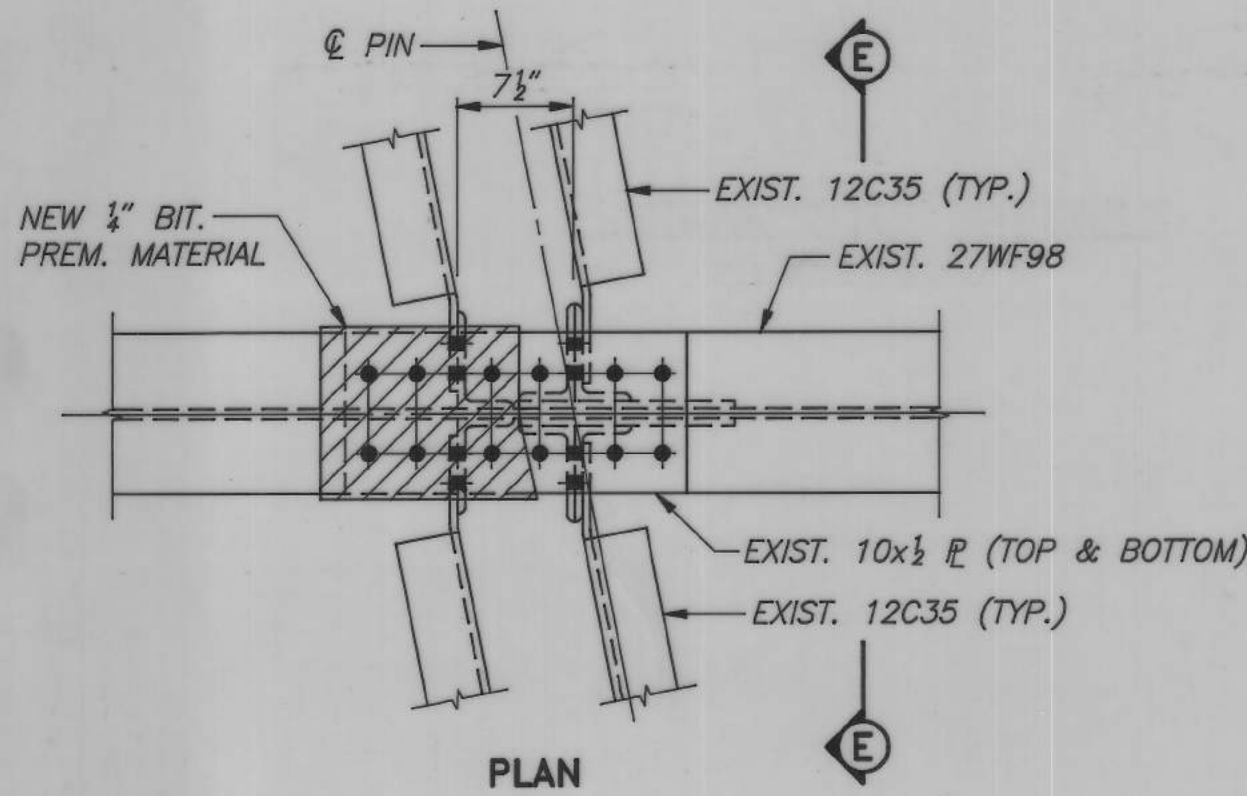
CONNECTION ⑧

* FIELD DRILL HOLES IN EXISTING EXTERIOR STIFFENER ANGLE FOR $\frac{3}{8}$ " BOLTS
** REMOVE EXISTING BOLTS/RIVETS AND REPLACE WITH $\frac{3}{8}$ " A325 BOLTS. FIELD VERIFY HOLE SIZE.

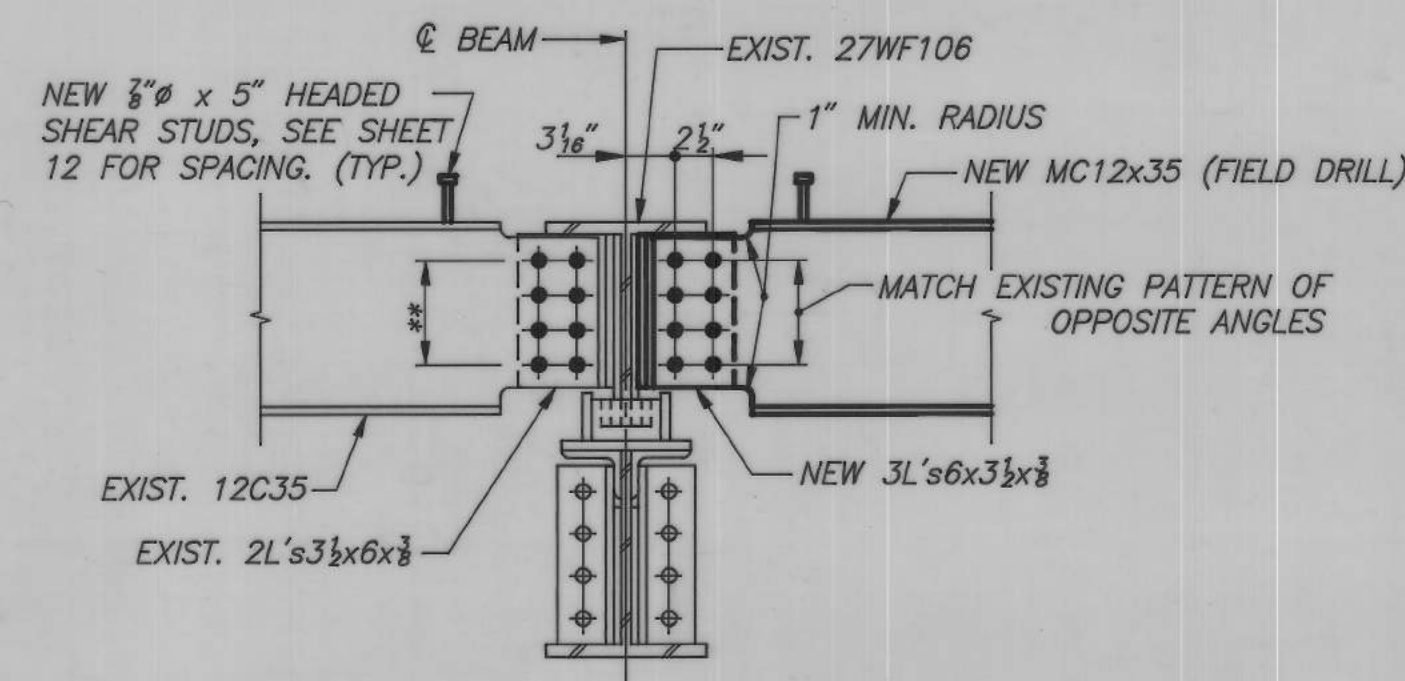


CONNECTION ⑨ & ⑩

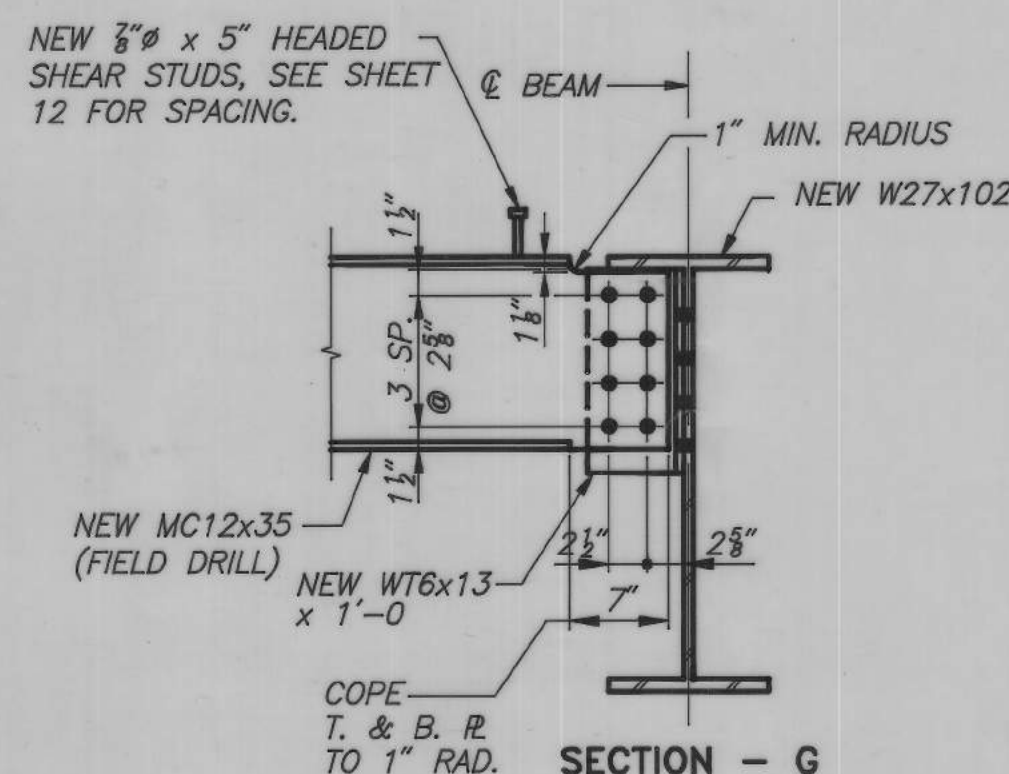
** REMOVE EXISTING BOLTS/RIVETS AND REPLACE WITH $\frac{3}{8}$ " A325 BOLTS. FIELD VERIFY HOLE SIZE.



**SECTION - E
DETAIL-1**



**SECTION - F
DETAIL-2**

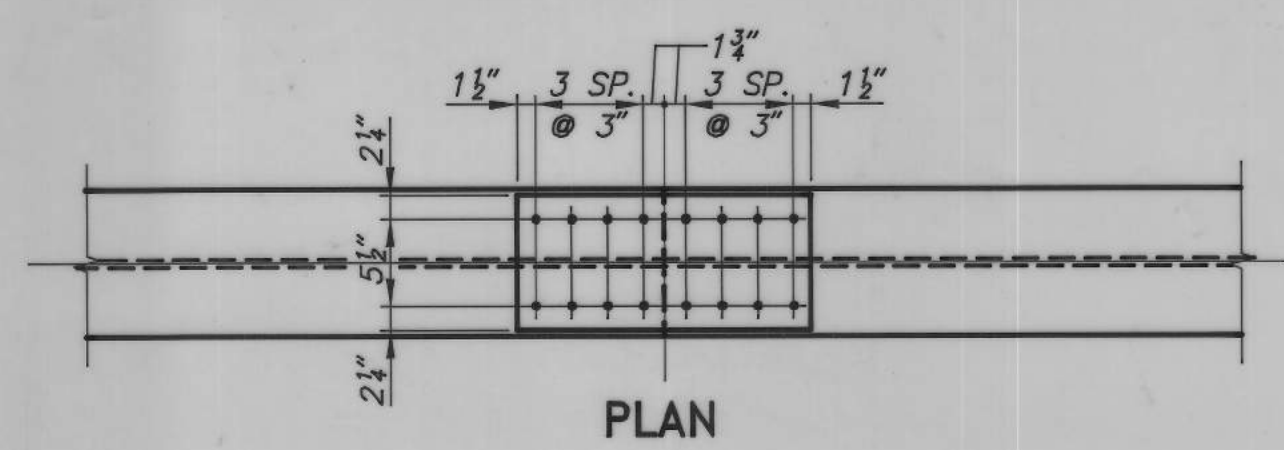


**SECTION - G
DETAIL-3**

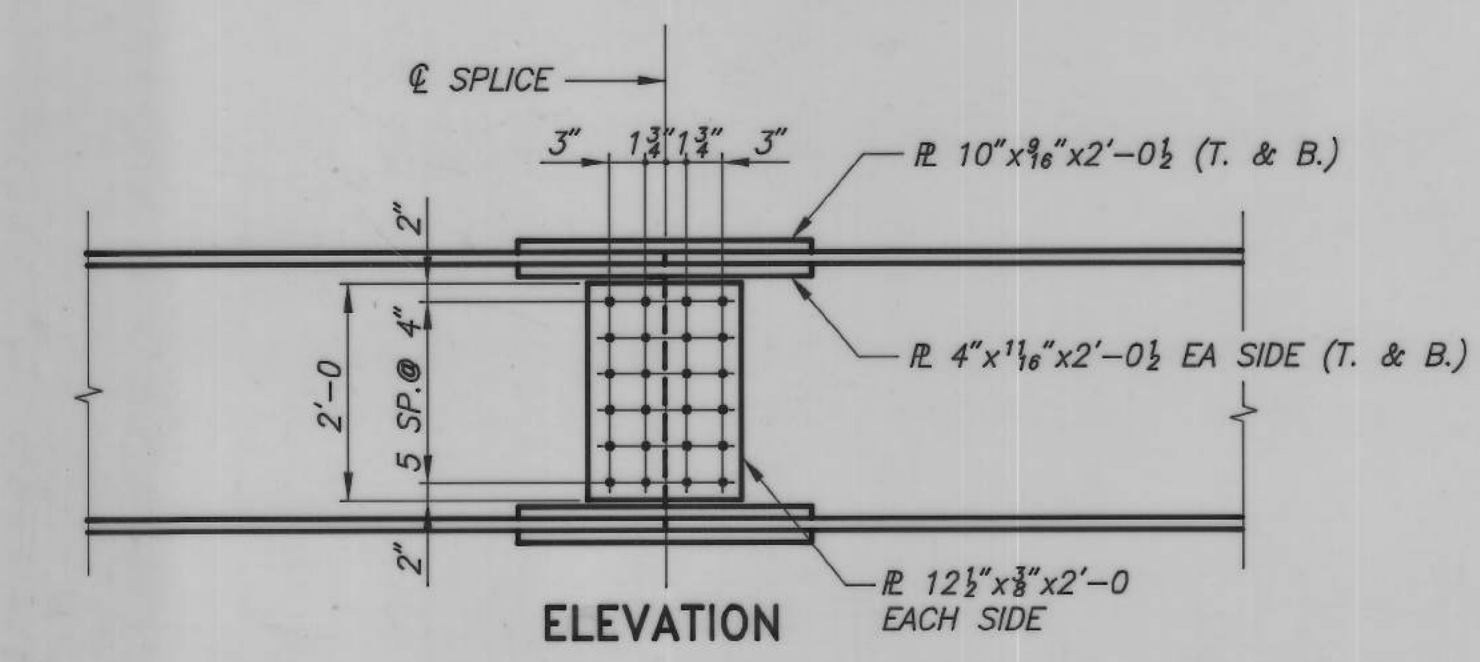
144'-0" \times 24' MULTIPLE SPAN STEEL I-BEAM
BRIDGE WIDENING TO 30' ROADWAY
44'-0" END SPANS
56'-0" CENTER SPAN
CONCRETE SUBSTRUCTURE

SUPERSTRUCTURE DETAILS

STA.253+63.31, IA.RR.XING, NO.1107
CRAWFORD COUNTY, IOWA
11° SKEW, RT. AHEAD
SHEET 14 OF 24

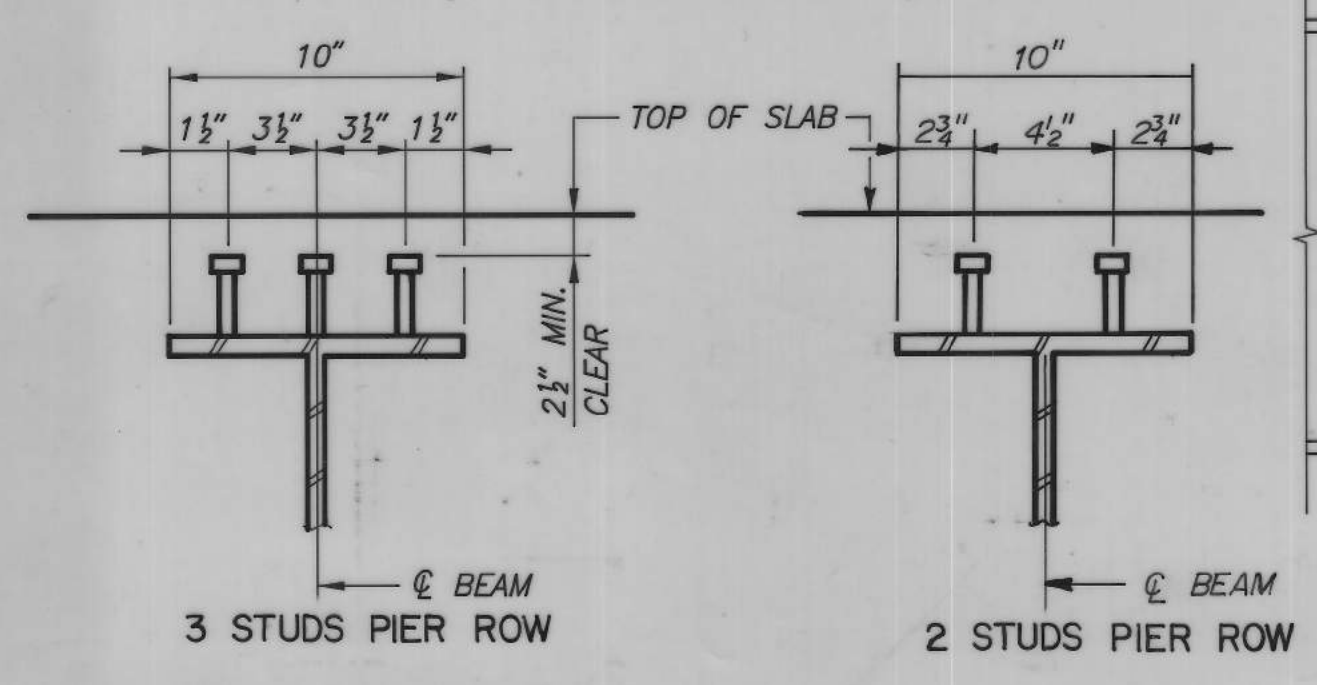


PLAN

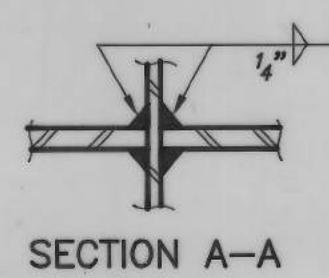
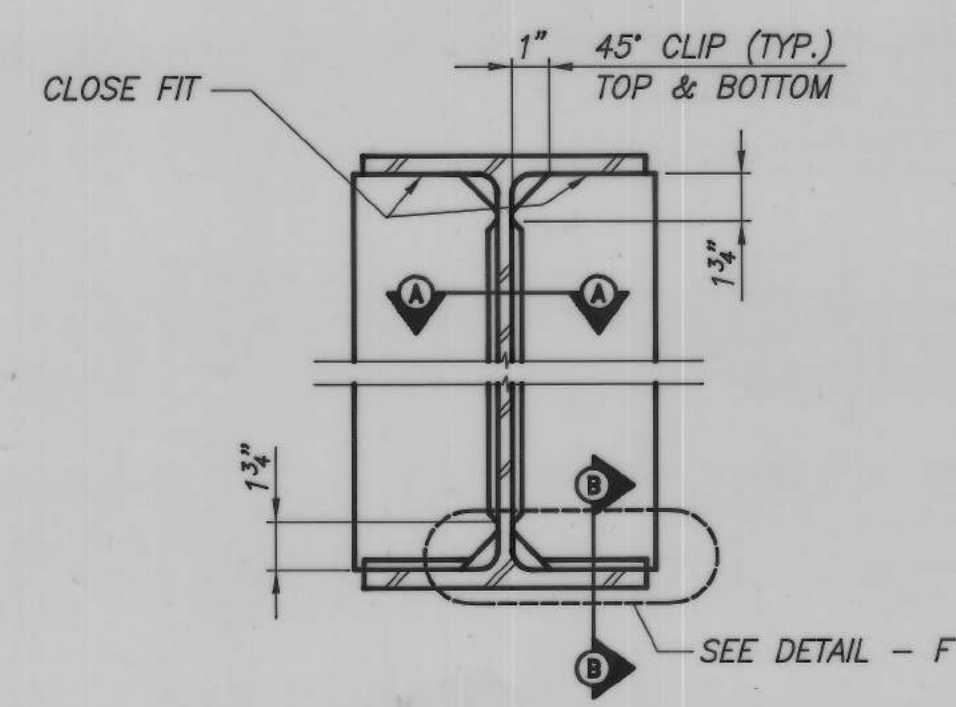


ELEVATION

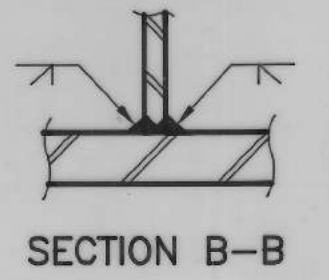
NEW W27x102 SPLICE DETAILS



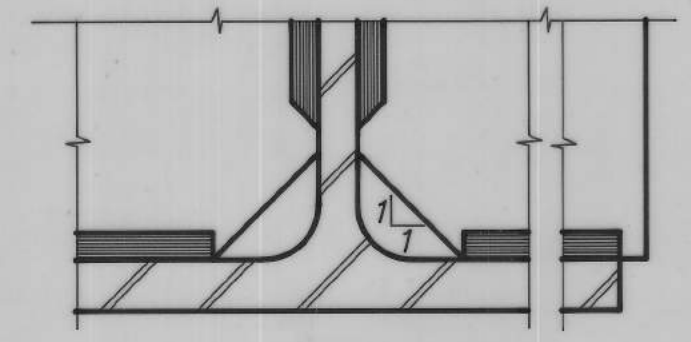
SHEAR STUD DETAILS
ALL STUDS 3/8" x 5"



SECTION A-A

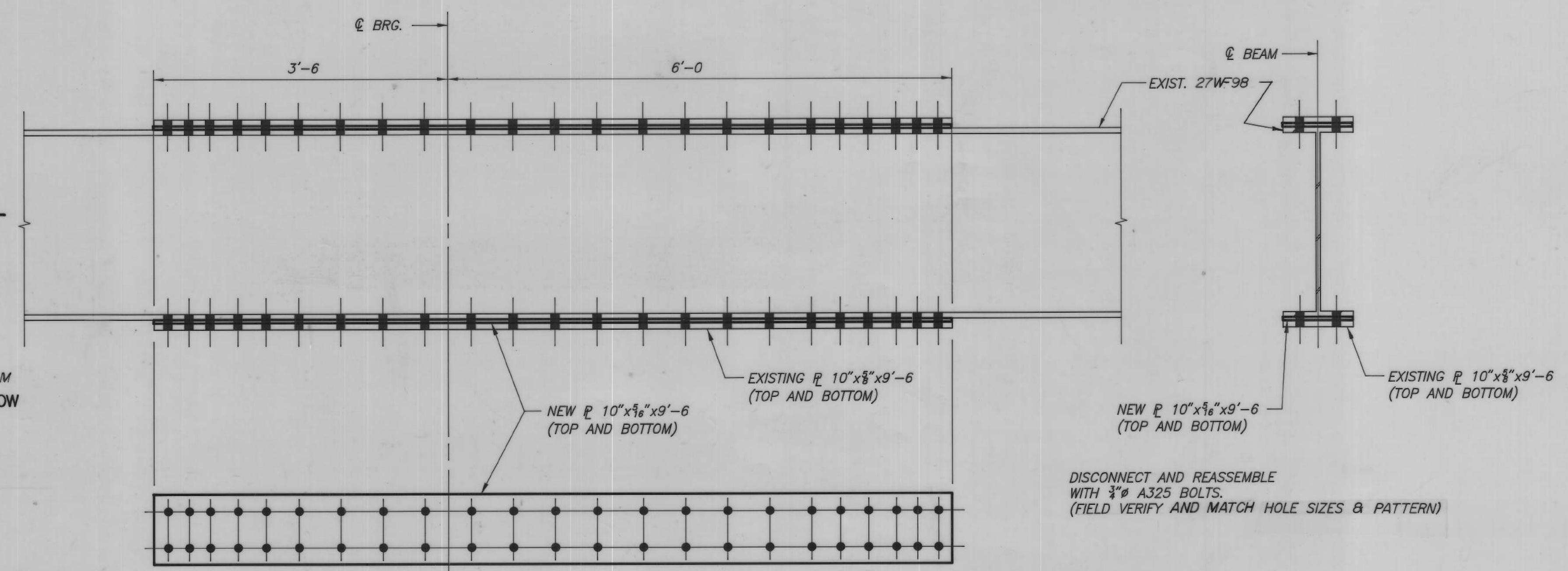


SECTION B-B



DETAIL - F

NEW W27x102 BEARING STIFFENER WELD DETAILS
(TYP. FOR ABUTMENTS AND PIERS)



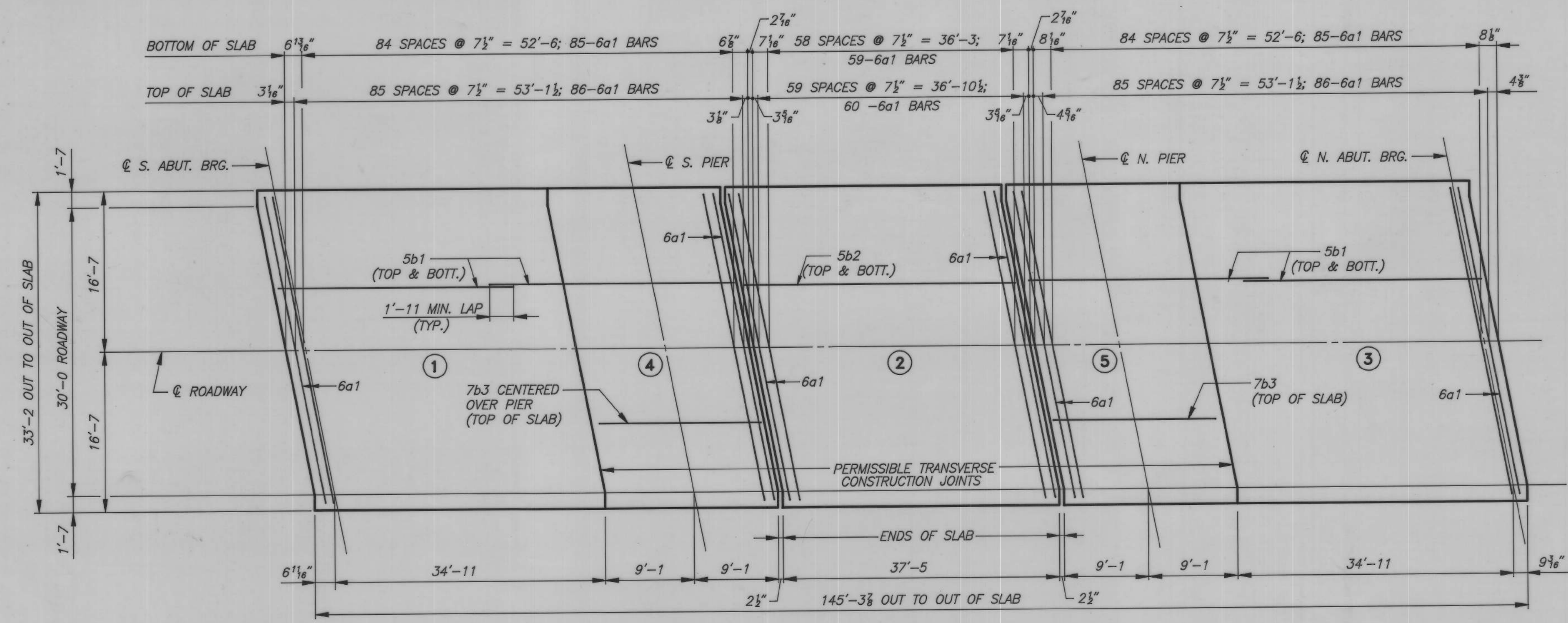
NEW COVER PLATE DETAIL FOR EXIST. 27WF98 INTERIOR BEAM

DISCONNECT AND REASSEMBLE WITH 3/4" A325 BOLTS. (FIELD VERIFY AND MATCH HOLE SIZES & PATTERN)

144'-0" x 24' MULTIPLE SPAN STEEL I-BEAM
BRIDGE WIDENING TO 30' ROADWAY
44'-0" END SPANS
56'-0" CENTER SPAN

SUPERSTRUCTURE DETAILS

STA.253+63.31, IA.RR.XING, NO.1107
CRAWFORD COUNTY, IOWA
11° SKEW, RT. AHEAD
SHEET 15 OF 24



CONCRETE PLACEMENT DIAGRAM AND TRANSVERSE REINFORCING LAYOUT

ROADWAY SLAB SHALL BE PLACED IN SECTIONS AND IN SEQUENCE INDICATED. ALTERNATE PROCEDURES FOR PLACING SLAB CONCRETE MAY BE SUBMITTED FOR APPROVAL TOGETHER WITH A STATEMENT OF THE PROPOSED METHOD AND EVIDENCE THAT THE CONTRACTOR POSSESSES THE NECESSARY EQUIPMENT AND FACILITIES TO ACCOMPLISH THE REQUIRED RESULT.



REINFORCING BAR LIST - SUPERSTRUCTURE

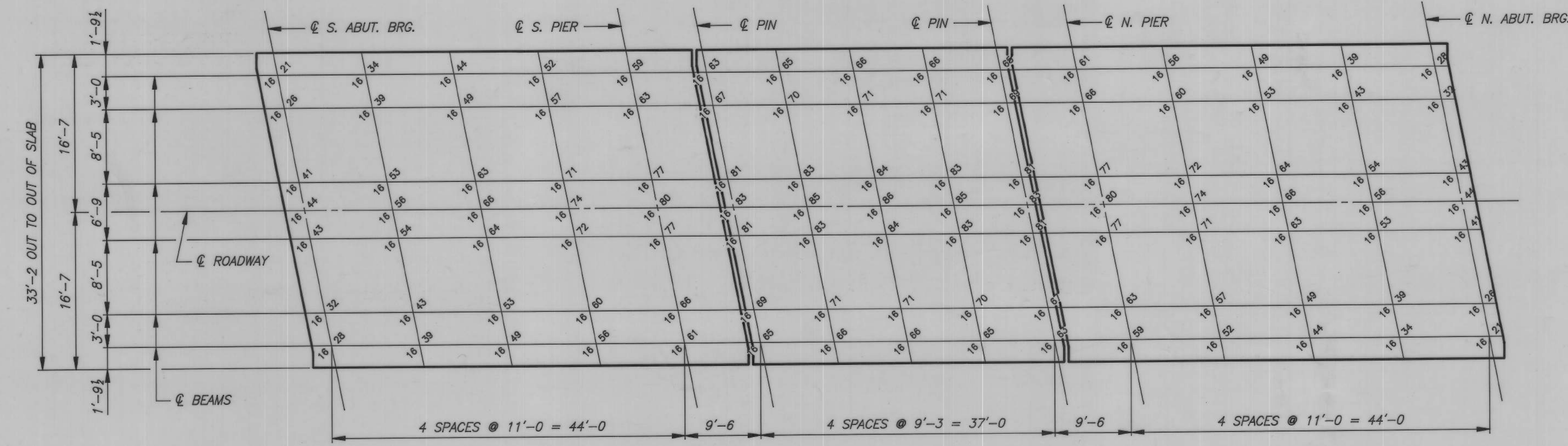
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a1	SLAB, TRANS., TOP & BOTTOM	—	461	33'-5"	23,138
5b1	SLAB, LONGIT., TOP & BOTTOM	—	404	27'-9"	11,693
5b2	SLAB, LONGIT., TOP & BOTTOM	—	101	37'-1"	3,906
7b3	SLAB, LONGITUDINAL, OVER PIERS	—	84	17'-10"	3,062
	BARRIER RAIL, SEE SHEET 19				6,126
				TOTAL (LBS.)	47,925

CONCRETE PLACEMENT QUANT.-SUPERSTR.

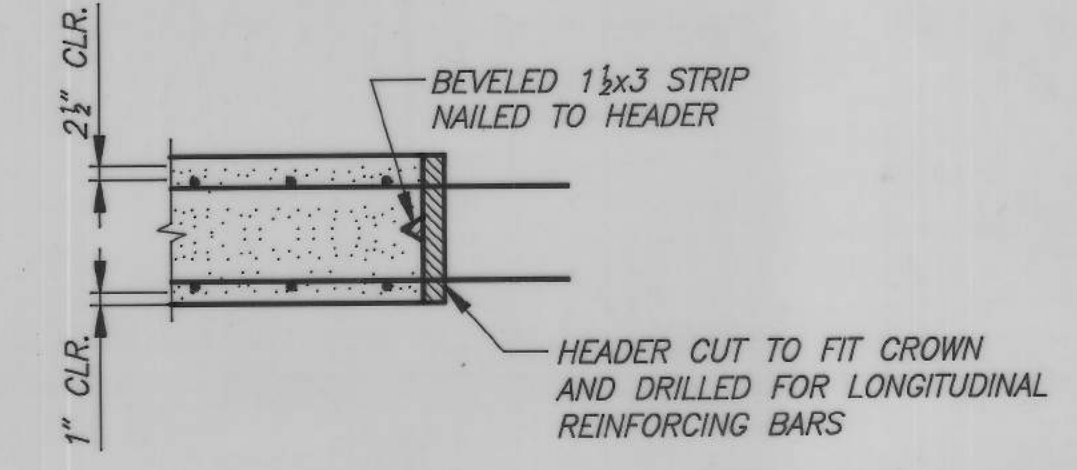
SECTION	LOCATION	QUANTITY
SECTION ①		30.6
SECTION ②		31.6
SECTION ③		30.8
SECTIONS ④ & ⑤	2 @ 15.35 C.Y.	30.7
TOTAL (CU.YDS.)		176.9

ESTIMATED QUANTITIES - SUPERSTRUCTURE

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE, CLASS "C"	CU.YDS.	123.7
STRUCTURAL STEEL	LBS.	49,701
REINFORCING STEEL, EPOXY COATED	LBS.	47,925



TOP OF SLAB ELEVATIONS
(ADD 1,200 TO ELEVATIONS SHOWN)



TRANSVERSE SLAB CONSTRUCTION JOINT DETAIL

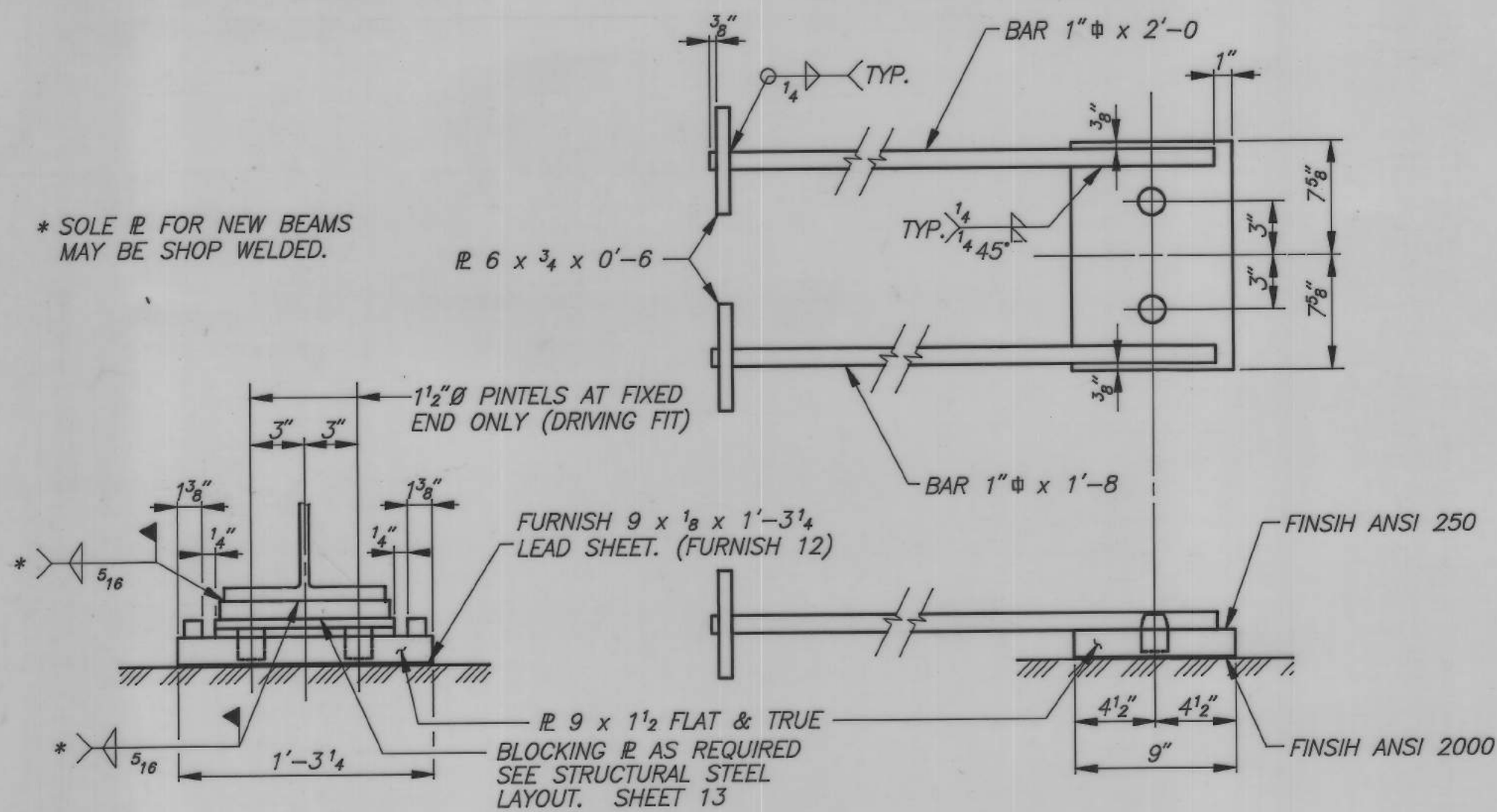
144'-0 x 24' MULTIPLE SPAN STEEL I-BEAM BRIDGE WIDENING TO 30' ROADWAY
44'-0 END SPANS
56'-0 CENTER SPAN
CONCRETE SUBSTRUCTURE

SUPERSTRUCTURE DETAILS

STA.253+63.31, IA.RR.XING, NO.1107
CRAWFORD COUNTY, IOWA
11° SKEW, RT. AHEAD
SHEET 16 OF 24

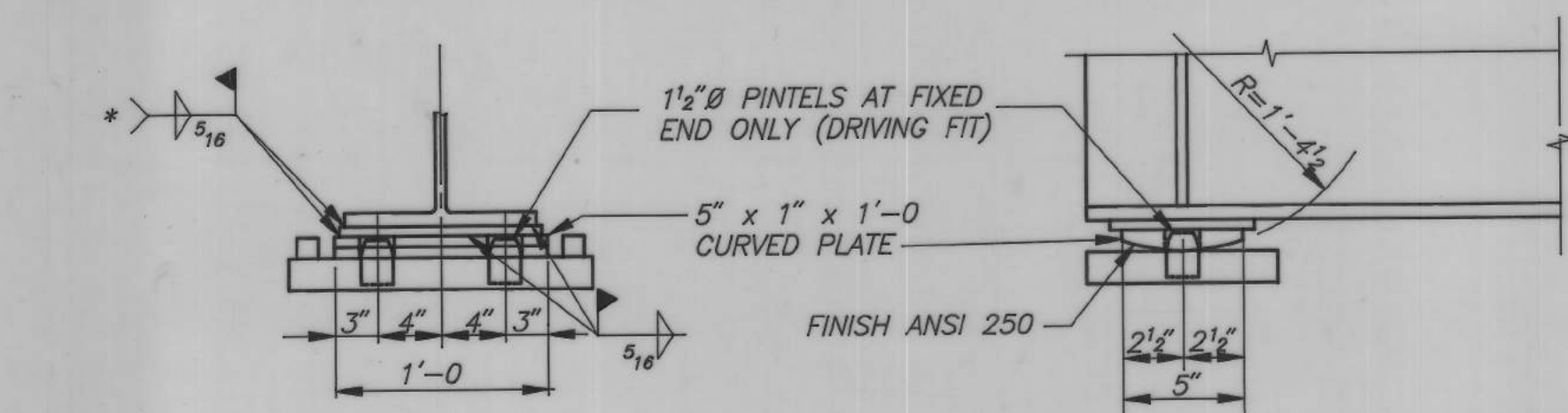
BEARING NOTES

THE CASTING OF R3A SHALL COMPLY WITH ARTICLE 4153.04 OF THE IOWA DOT. STANDARD SPECIFICATIONS. CASTING MAY BE GRAY IRON OR NODULAR IRON.
 THE MASONRY PLATES SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A-36 STEEL.
 THE PINS SHALL COMPLY WITH ARTICLE 4153.02 OF THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AND WITH THE REQUIREMENTS OF ASTM A-108 STEEL.
 ANCHOR BOLTS SHALL BE SET IN ACCORDANCE WITH ARTICLE 2405.09 OF THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
 ALL NEW AND EXISTING BEARINGS ARE TO BE SET ON 1/8" LEAD SHEETS IN ACCORDANCE WITH ARTICLE 2408.34 OF THE SPECIFICATIONS. THE WEIGHT OF BEARINGS SHOWN DOES NOT INCLUDE THE WEIGHT OF PAINT.
 AS SOON AS THE SURFACING PROCESS IS DONE, THE SURFACES FINISHED WITH AN ANSI 125 FINISH SHALL BE SHOP COATED WITH AN APPLICATION OF WATERPROOF NATIONAL LUBRICATING GREASE INSTITUTE NO. 3 MULTIPURPOSE GREASE. JUST BEFORE THE ERECTION OF THE STRUCTURAL STEEL IN THE FIELD, THE SHOP COATED SURFACES ARE TO BE WIPED CLEAN AND A FIELD COAT OF N.L.G.I. NO. 3 GREASE IS TO BE APPLIED. GREASE SHALL ALSO BE APPLIED TO EXISTING BEARING SURFACES.
 AFTER MASONRY PLATES AND ROCKERS ARE IN CORRECT LOCATION, FILL SLOTTED HOLES AROUND ANCHOR BOLTS WITH HYDRAULIC CEMENT OR POLYMER GROUT IN ACCORDANCE WITH ARTICLE 2405.09 OF THE STANDARD SPECIFICATIONS.
 ALL NEW MASONRY PLATES, SWEDGED ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. GALVANIZING SHALL BE IN ACCORDANCE WITH ARTICLE 4100.07 OF THE STANDARD SPECIFICATIONS.
 ABUTMENT MASONRY PLATES SHALL BE GALVANIZED AFTER THE 1" ϕ BARS HAVE BEEN WELDED TO THE MASONRY PLATE.



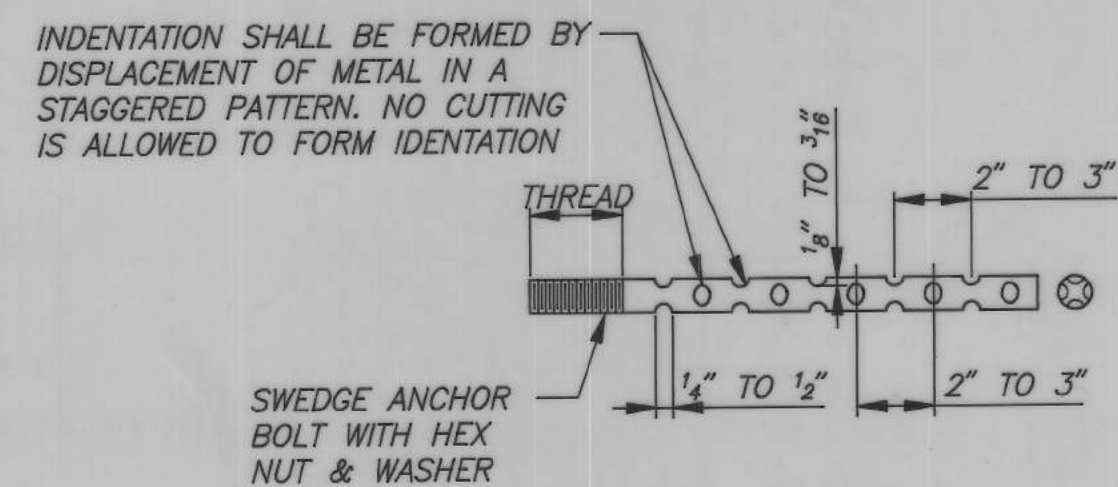
ABUTMENT MASONRY PLATE

(EXISTING AND NEW BEAMS)
 (FURNISH 12, WT. = 86 LBS.
 6 W/ PINTLES, 6 W/O PINTLES)



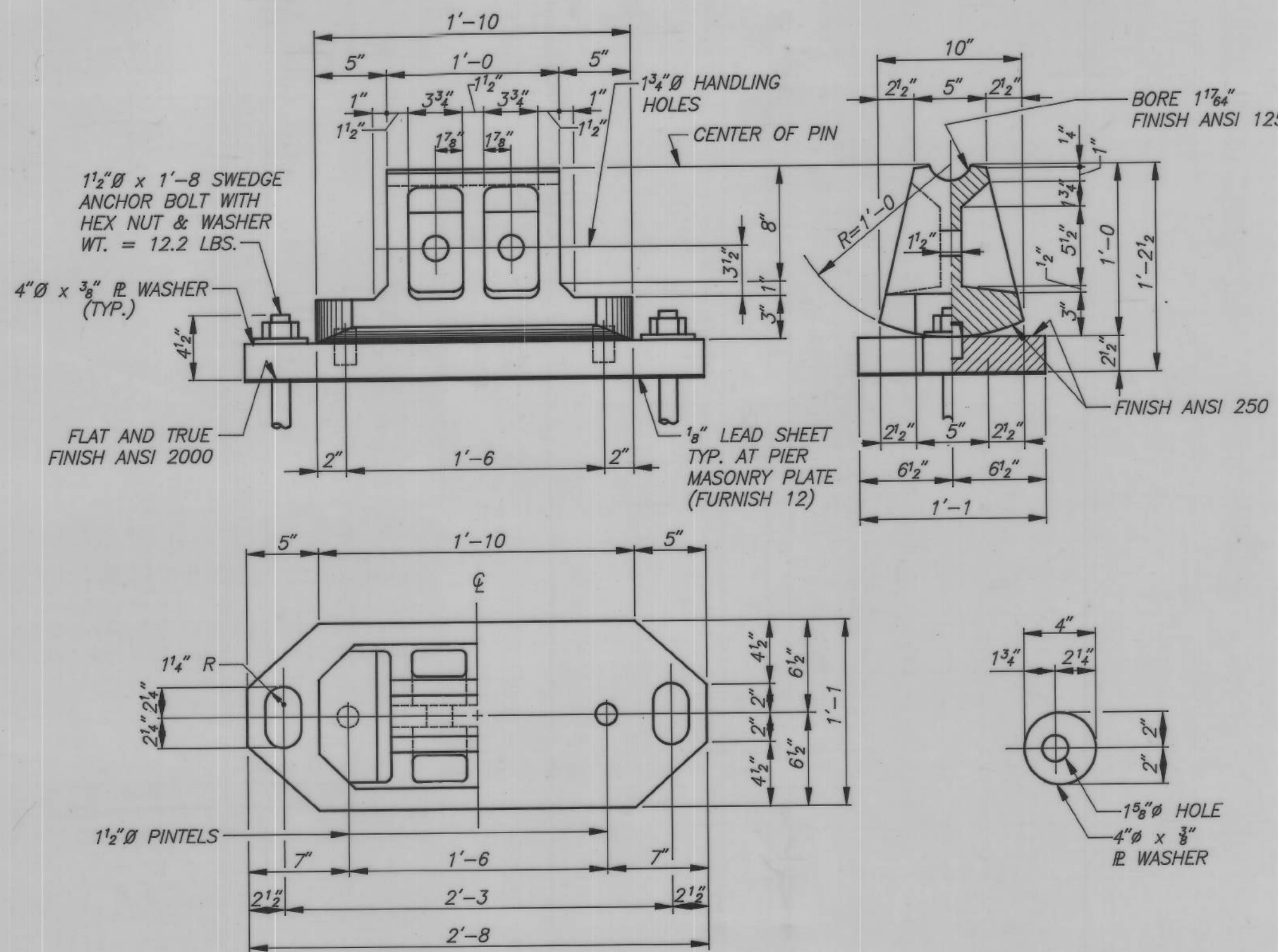
SOLE PLATE DETAIL

(FURNISH 6 TO RECEIVE PINTLES)
 (FURNISH 6 WITHOUT PINTLE HOLES)



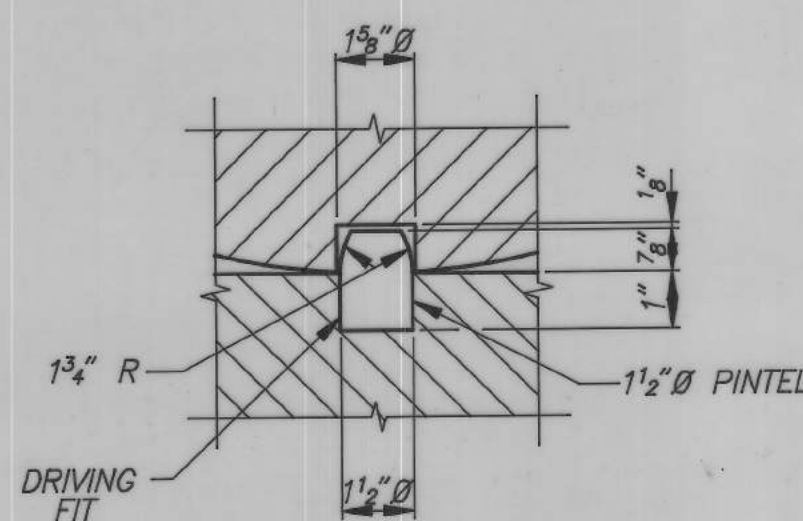
ANCHOR BOLT SWEDGE DETAIL

1 1/2" ϕ x 1'-8 @ NEW PIER BRGS., 8 REQUIRED, 12.2 LBS./EA.
 1" ϕ x 1'-6 @ EXIST. PIER BRGS., 16 REQUIRED 4.8 LBS./EA.

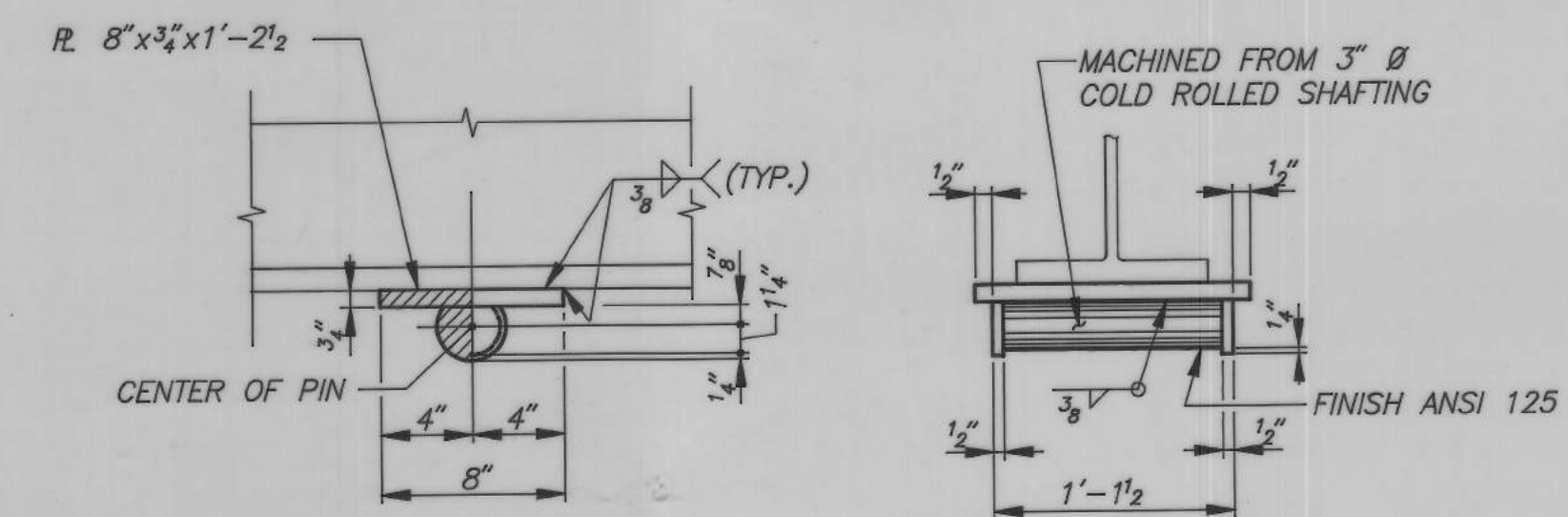


PIER ROCKER R3A AND MP3P MASONRY PLATE

(NEW BEAMS) (FURNISH 4, WT. = 259 LBS.)
 (FURNISH 4, WT. = 249 LBS.)



TYP. PINTLE DETAIL



SOLE PLATE - SP3

(NEW BEAMS)
 (FURNISH 4, WT. = 43 LBS.)

144'-0" x 24' MULTIPLE SPAN STEEL I-BEAM
 BRIDGE WIDENING TO 30' ROADWAY

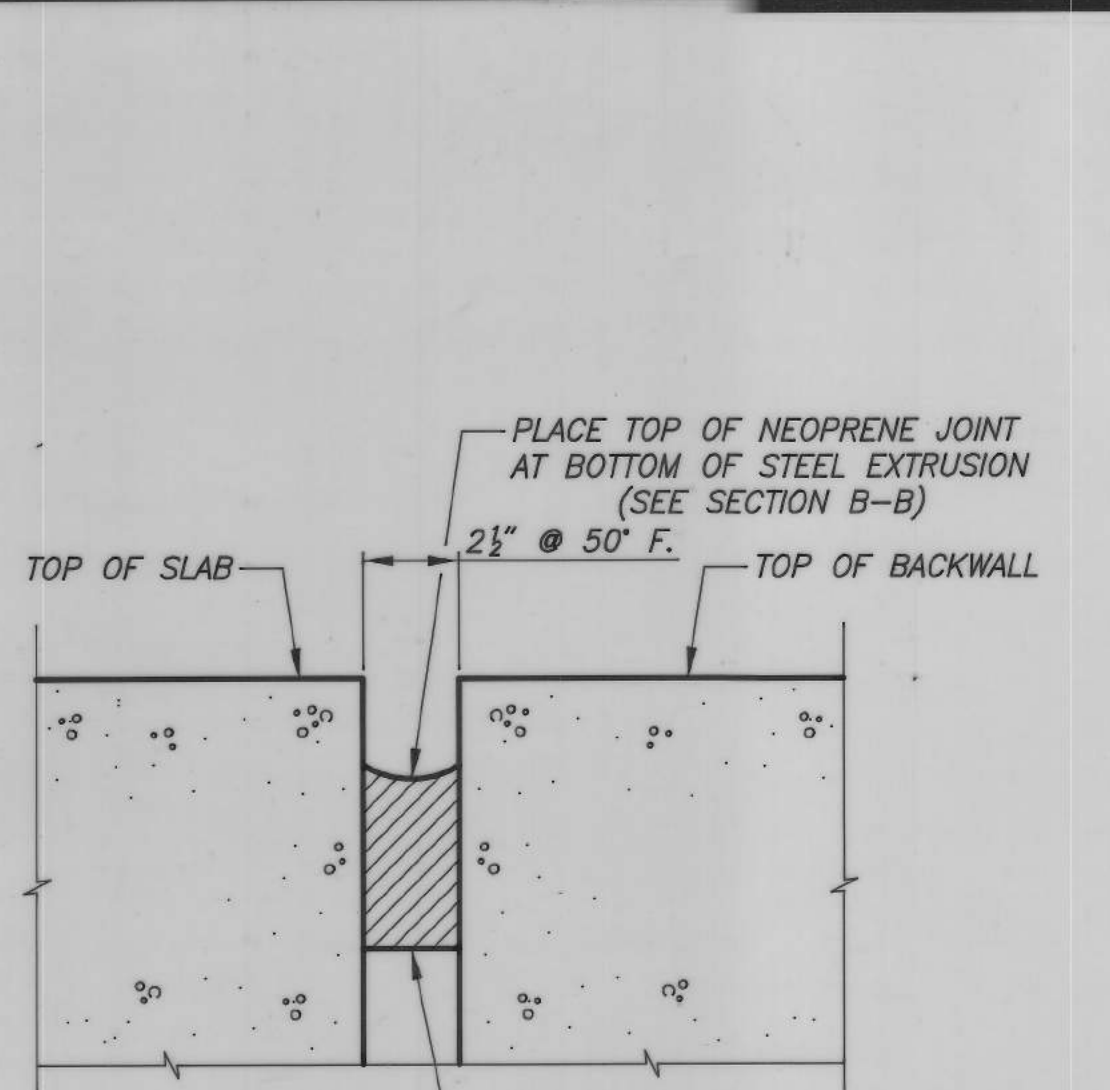
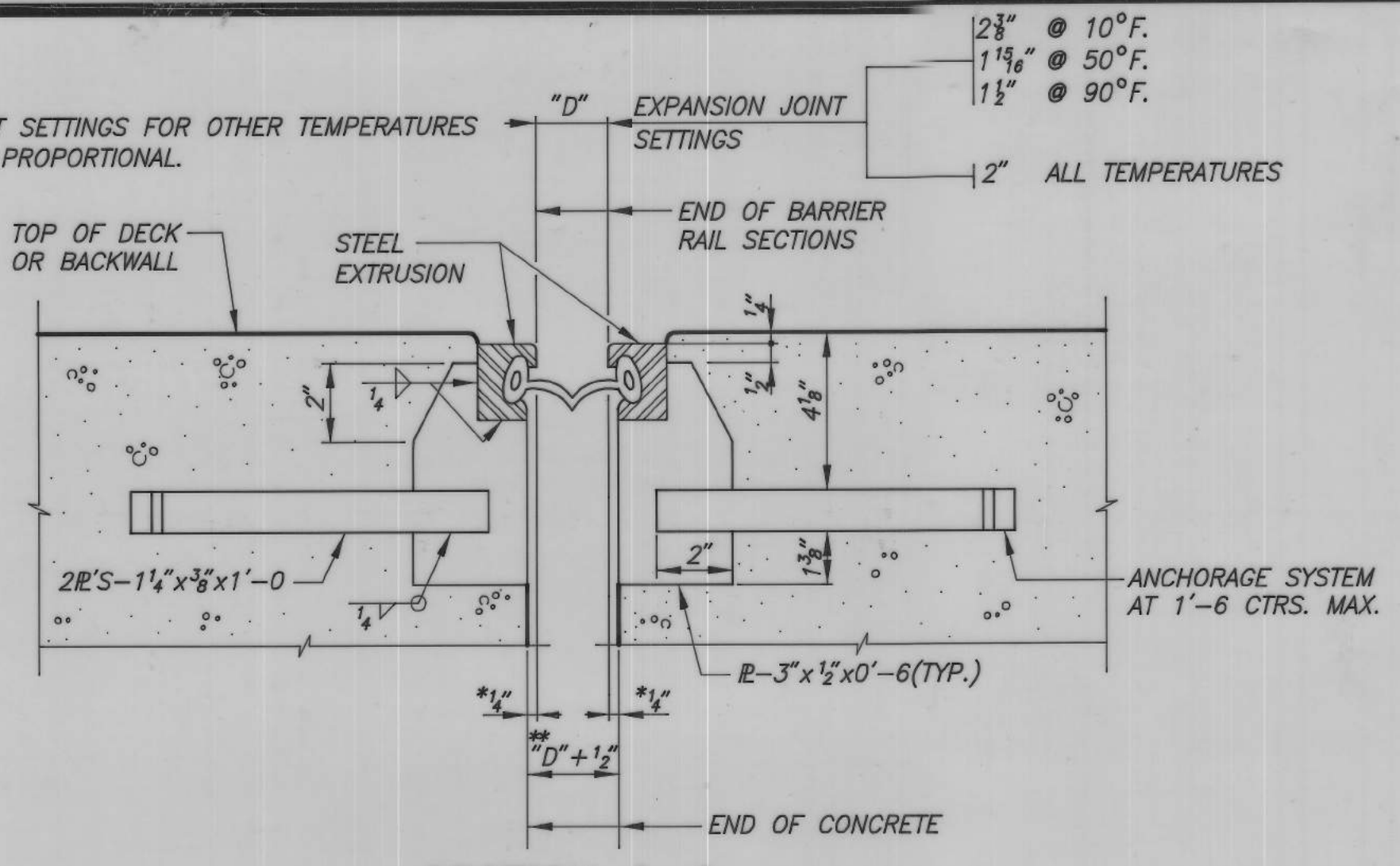
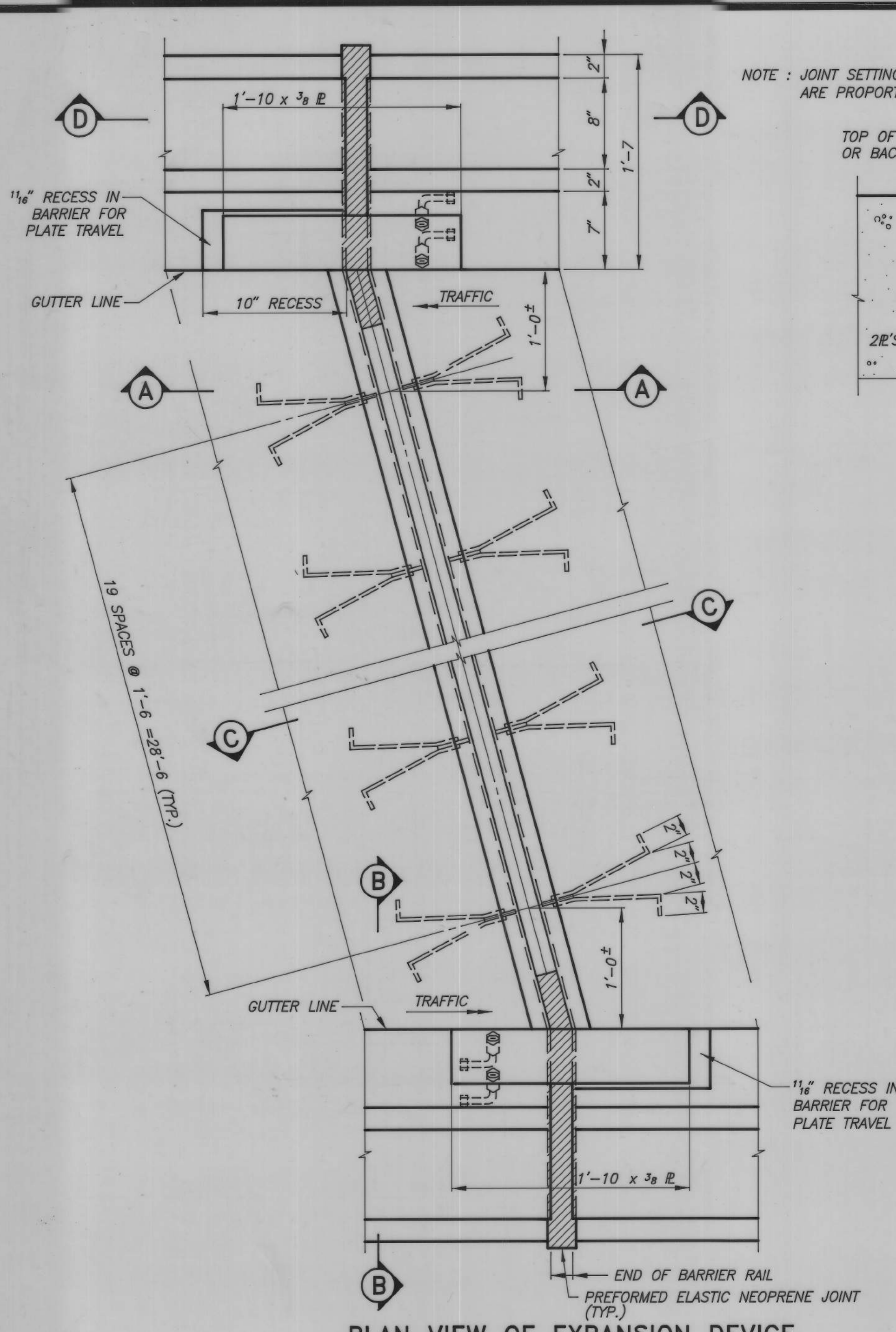
44'-0" END SPANS CONCRETE SUBSTRUCTURE
 56'-0" CENTER SPAN

BEARING DETAILS

STA. 253+63.31, IA.RR.XING, NO. 1107 11° SKEW, RT. AHEAD
 CRAWFORD COUNTY, IOWA

SHEET 17 OF 24

003000



EXPANSION DEVICE NOTES

THE CONTRACTOR SHALL SUBMIT FOR APPROVAL SHOP DRAWINGS OF THE EXPANSION DEVICES SHOWING LAYOUT, MATERIAL TO BE USED, AND PROVISIONS FOR HOLDING DEVICE DURING PLACEMENT OF CONCRETE.

THE EXPANSION DEVICES SHALL BE GALVANIZED AFTER WELDING.

THE EXPANSION DEVICES ARE TO BE PARALLEL TO GRADE.

CAP SCREWS SHALL BE COUNTERSUNK 1/16" BELOW TOP OF THE PLATE.

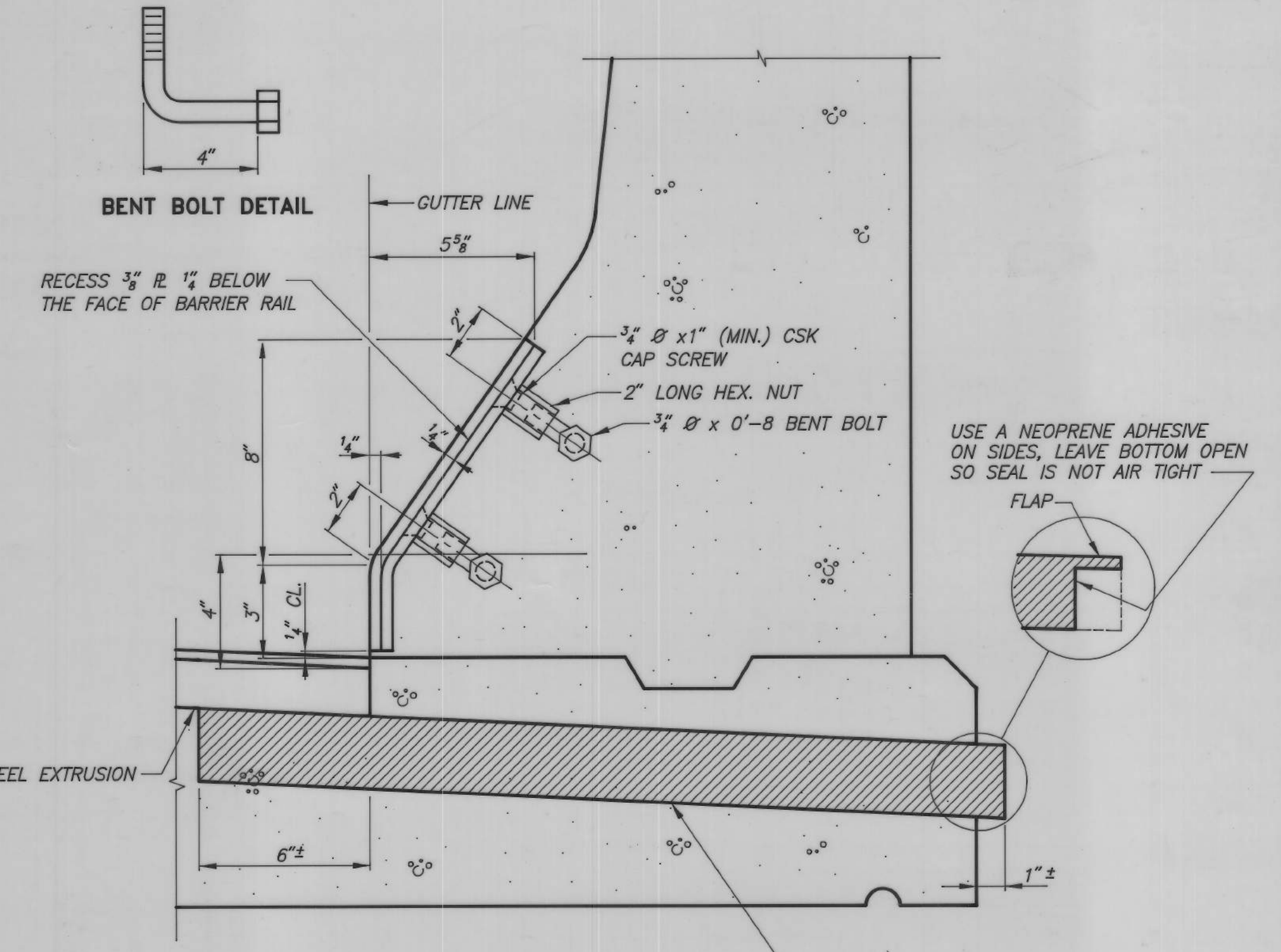
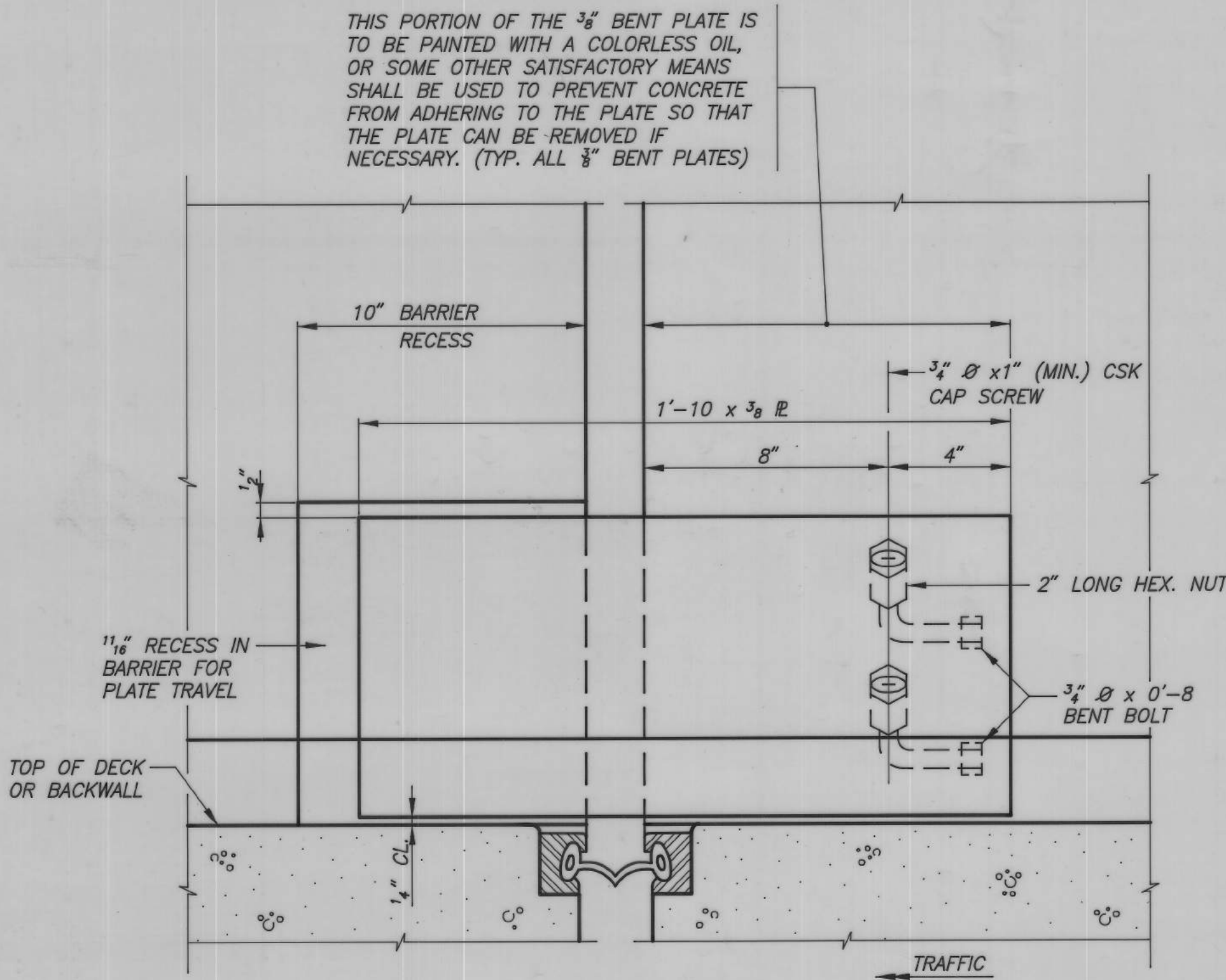
SHOP AND OR FIELD SPLICES OF THE STEEL EXTRUSION WILL BE PERMITTED. PIECES OF STEEL EXTRUSION IN THE 15 FT. TO 22 FT. RANGE SHALL BE USED TO FORM THE REQUIRED GUTTER TO GUTTER LENGTH. THE INDIVIDUAL LENGTH OF PIECES SHALL BE CHOSEN SO THAT A MINIMUM NUMBER OF SPLICES IS REQUIRED. ALL PIECES SHALL BE JOINED WITH A PREQUALIFIED SINGLE GROOVE WELD, AND ALL SURFACES NOT IN CONTACT WITH CONCRETE ARE TO BE GROUND FLUSH. NO WELD SHALL BE PERMITTED IN THE INTERNAL SECTION OF THE EXTRUSION WHERE THE NEOPRENE GLAND IS TO BE LOCATED.

THE NEOPRENE GLAND IS TO BE PLACED AS ONE CONTINUOUS PIECE FROM END TO END OF THE STEEL EXTRUSIONS.

THE MINIMUM GRADE OF STRUCTURAL STEEL FOR THE EXPANSION DEVICE SHALL BE ASTM A-36.

THE NEOPRENE GLAND SHALL CONFORM TO ASTM D-2628 MODIFIED TO EXCLUDE RECOVERY TESTS AND COMPRESSION SET.

THE CONTRACT UNIT PRICE BID FOR "STEEL EXTRUSION JOINT WITH NEOPRENE" SHALL BE FULL COMPENSATION FOR FURNISHING AND INSTALLING THE EXPANSION JOINTS. THIS WORK WILL CONSIST OF FURNISHING ALL REQUIRED MATERIALS (INCLUDING THE 3/8" PLATES AT THE BARRIERS AND THEIR ANCHORAGE SYSTEM), AND THE INSTALLATION AND ADJUSTMENT OF THE EXPANSION JOINTS IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER. THE FURNISHING AND INSTALLATION OF ALL NECESSARY HARDWARE AND ACCESSORIES AS SUPPLIED BY THE EXPANSION JOINT MANUFACTURER ARE TO BE INCLUDED IN THIS WORK, INCLUDING THE ANCHORAGE SYSTEM AND ANY TEMPORARY ERECTION MATERIAL. ALL WORK AND MATERIALS FOR THE INSTALLATION OF THE EXPANSION JOINTS ARE TO COMPLY WITH THE WRITTEN RECOMMENDATIONS OF THE EXPANSION JOINT MANUFACTURER.



PLAN VIEW OF EXPANSION DEVICE

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 SCREW ARE TO BE GALVANIZED IN ACCORDANCE WITH ARTICLE 4100.07 OF THE STANDARD SPECIFICATIONS.

FOLLOWING DEVICES ARE APPROVED FOR USE

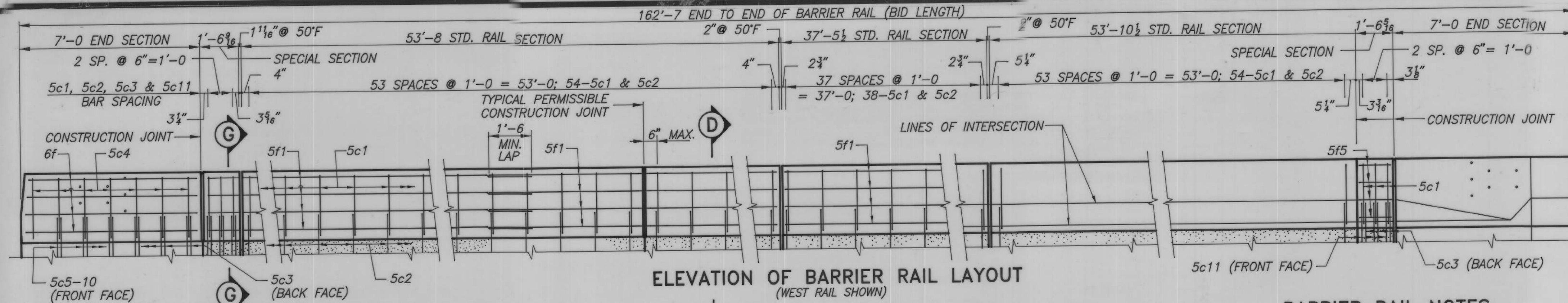
TABLE OF APPROVED EXPANSION DEVICES		
MANUFACTURER	TYPE OF STEEL EXTRUSION	NEOPRENE GLAND
WATSON-BOWMAN & ACME CORP.	A3	SE-300
D.S. BROWN CO.	SSA2	A2
D.S. BROWN CO.	*RS3	A-300
GENERAL TIRE & RUBBER CO.	PROFILE A	GEN-STRIP CD
LEWIS ENGINEERING CO.	W	L-300
APPROVED EQUAL		

* HOT ROLLED STEEL

144'-0 x 24' MULTIPLE SPAN STEEL I-BEAM
 BRIDGE WIDENING TO 30' ROADWAY
 44'-0 END SPANS
 56'-0 CENTER SPAN
 CONCRETE SUBSTRUCTURE

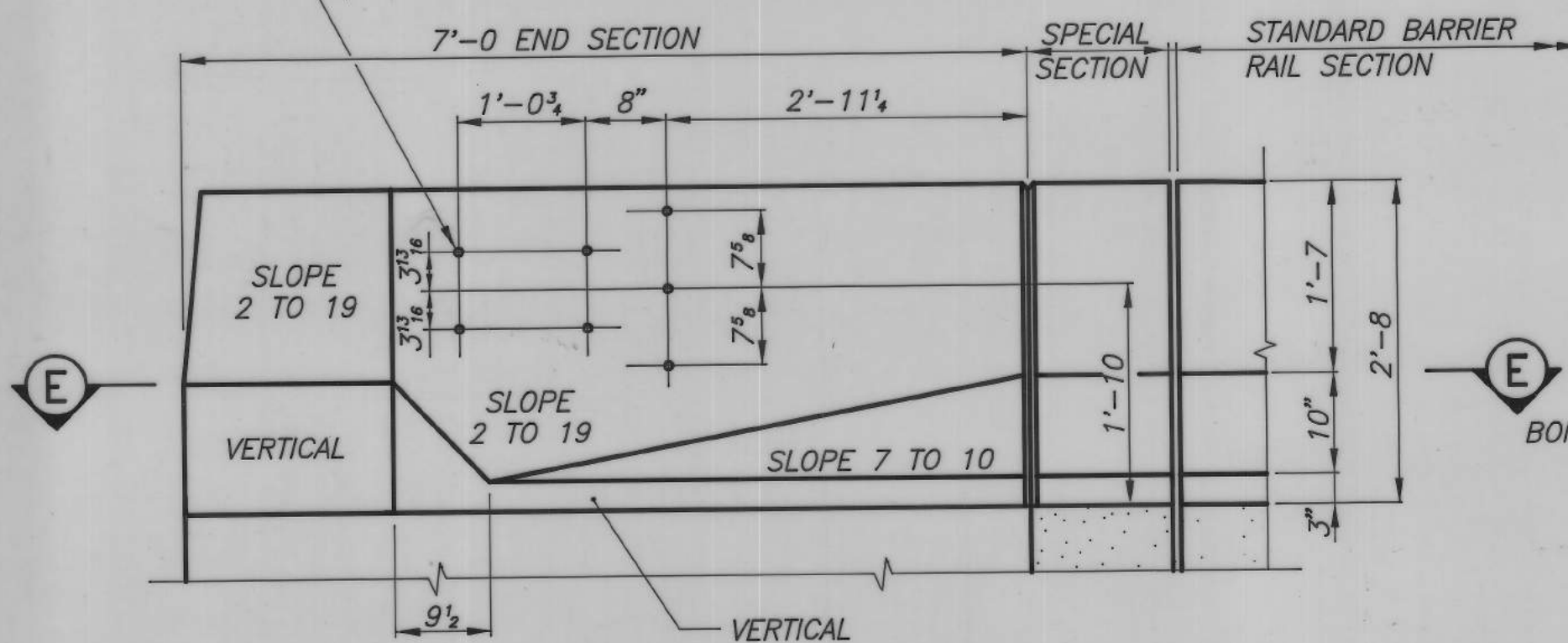
EXPANSION DEVICE DETAILS

STA.253+63.31, IA.RR.XING, NO.1107
 CRAWFORD COUNTY, IOWA
 11° SKEW, RT. AHEAD
 SHEET 18 OF 24

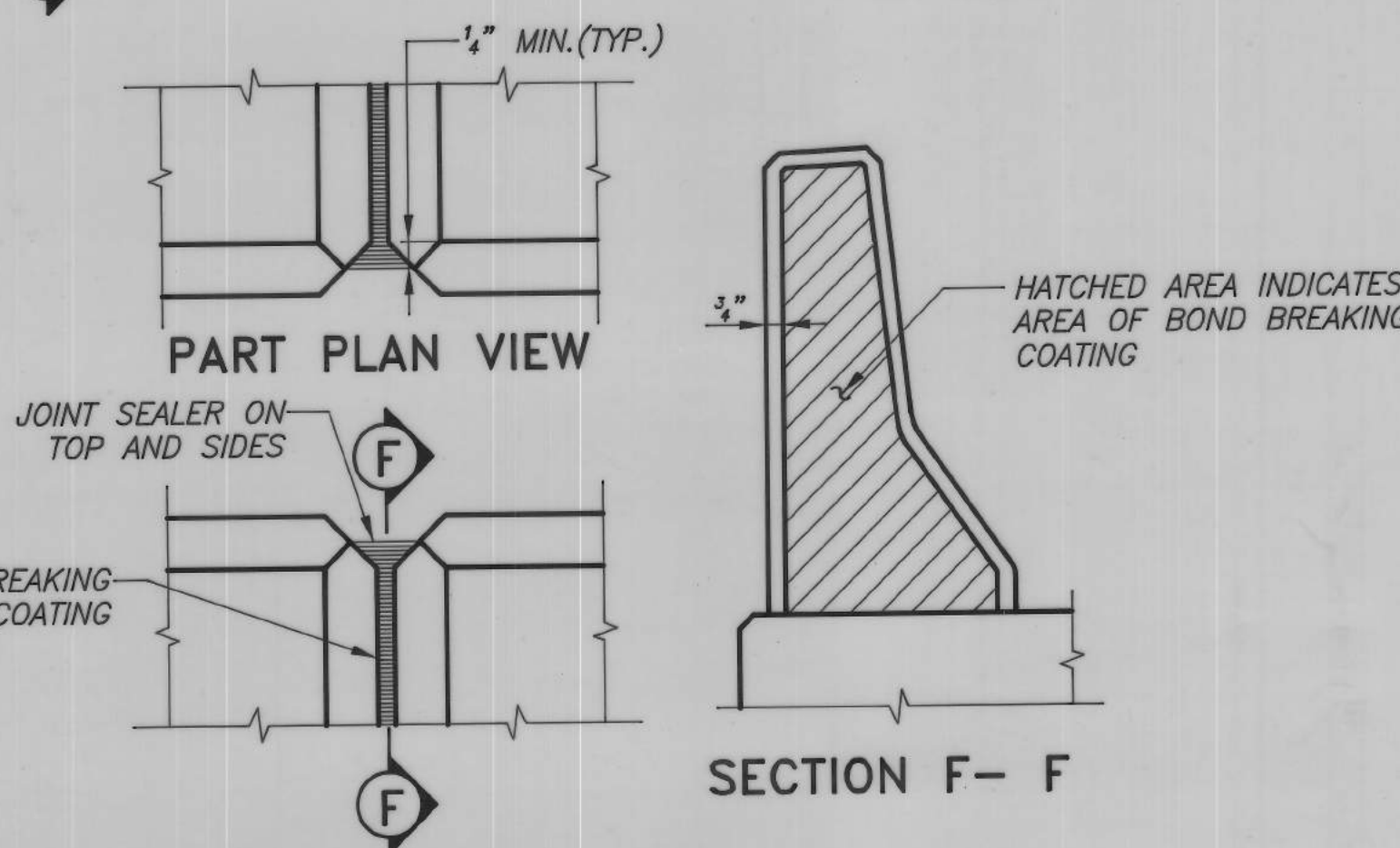


ELEVATION OF BARRIER RAIL LAYOUT
(WEST RAIL SHOWN)

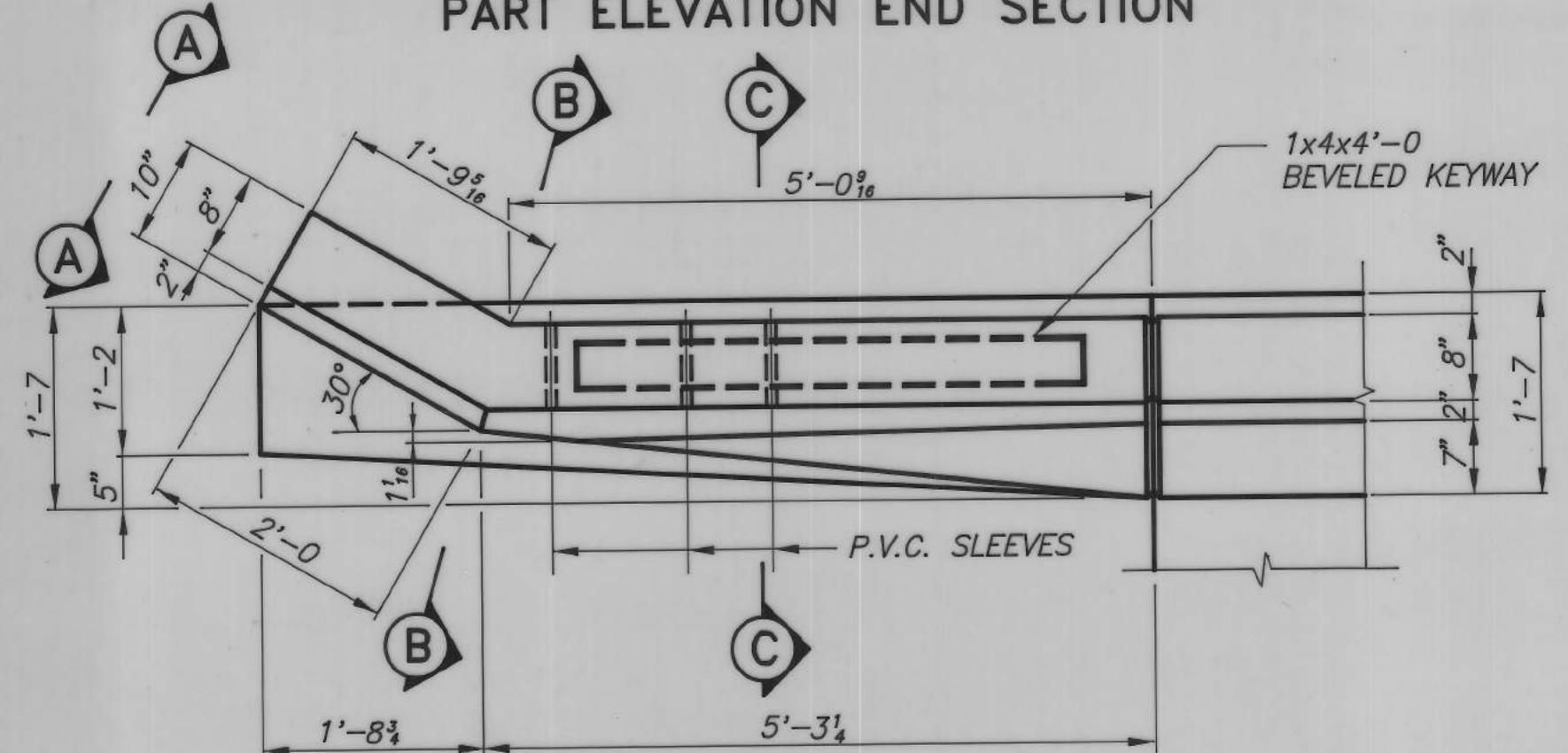
HOLES FOR 7/8"Ø BOLTS ARE TO BE FORMED WITH 1"Ø (NOMINAL I.D.) PLASTIC CONDUIT SLEEVES. THE SLEEVES SHALL BE SECURELY FIXED IN EXACT LOCATION AS SHOWN BEFORE CONCRETE IS POURED. COST OF SLEEVES TO BE INCLUDED IN PRICE BID FOR "RAIL, CONCRETE BARRIER." BOLTS AND WASHERS TO BE FURNISHED BY CONTRACTOR INSTALLING GUARDRAIL.



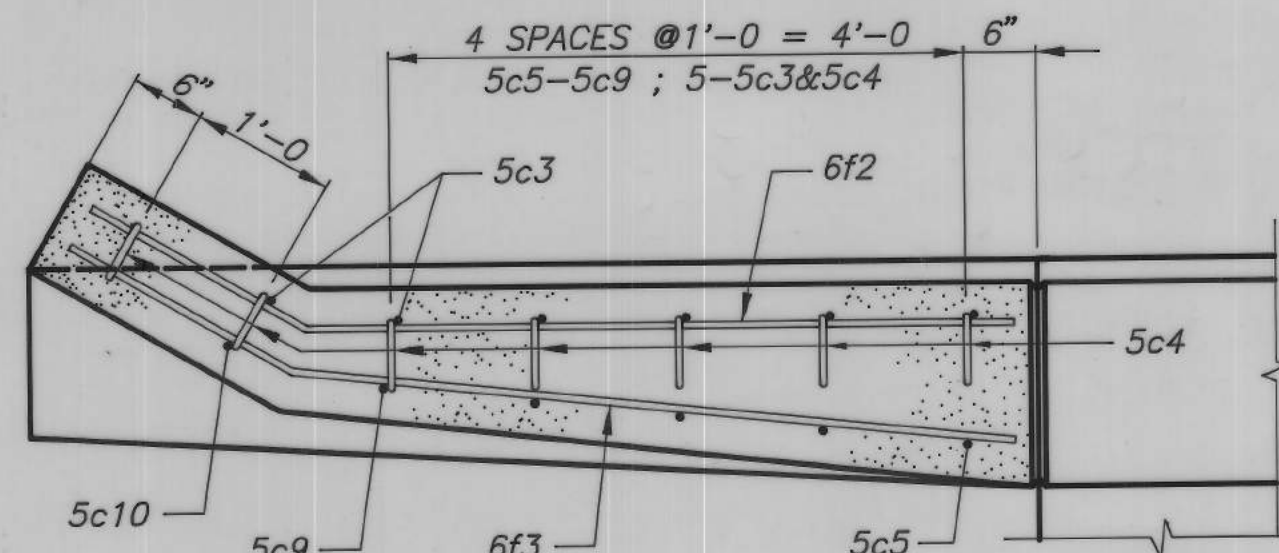
PART ELEVATION END SECTION



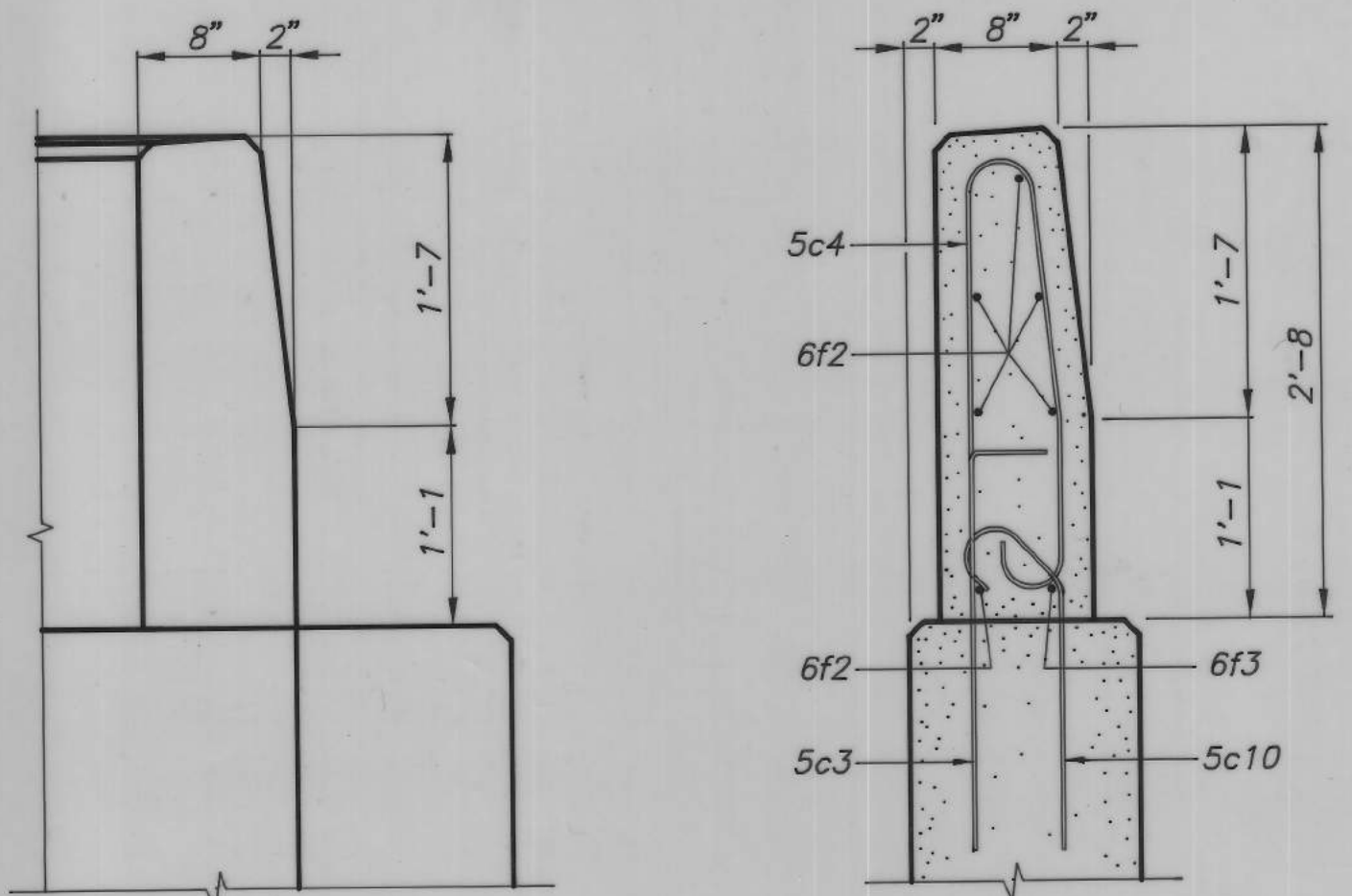
PART ELEVATION VIEW
BARRIER RAIL JOINT DETAILS



PART PLAN VIEW

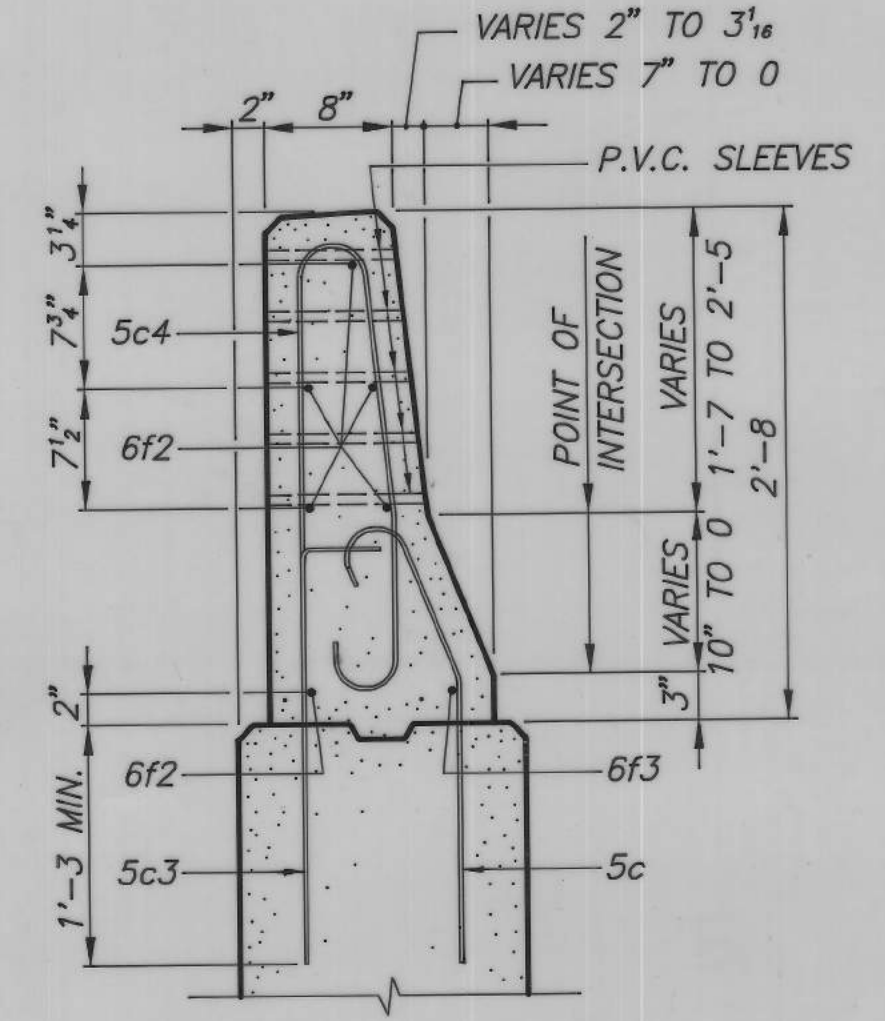


PART SECTION E - E

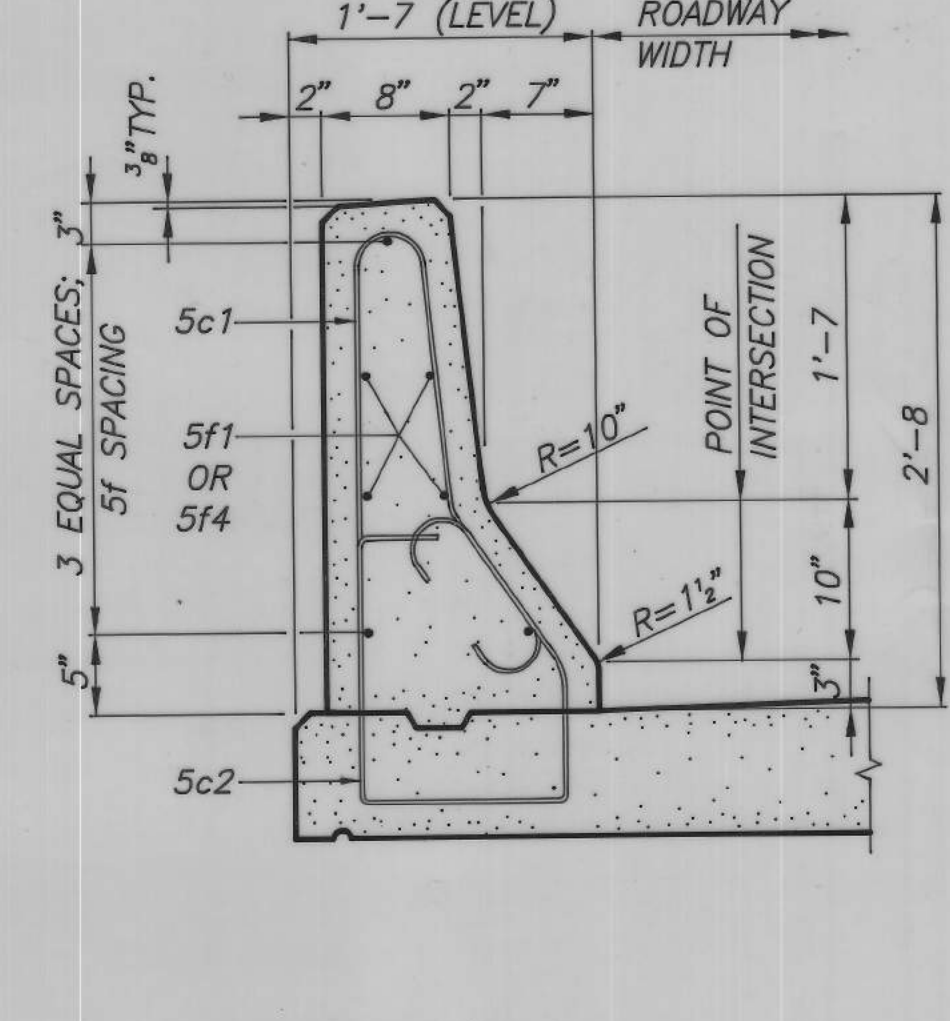


PART VIEW A - A

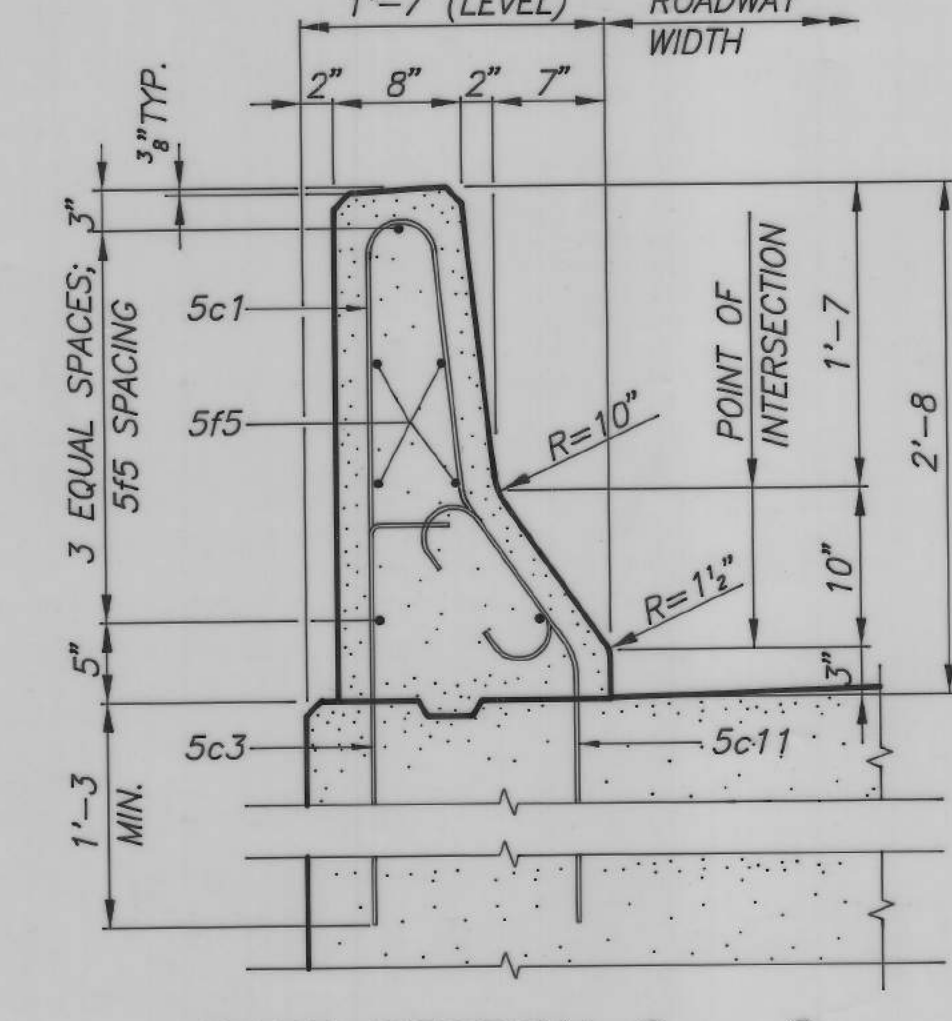
PART SECTION B - B



PART SECTION C - C



PART SECTION D - D



PART SECTION G - G

BARRIER RAIL NOTES

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

THE STANDARD SECTION OF BARRIER RAIL MAY BE PLACED CONTINUOUSLY OR IN SECTIONS. THERE SHALL BE AT LEAST 20 FEET BETWEEN CONSTRUCTION JOINTS. CONSTRUCTION JOINT CONTACT SURFACES ARE TO BE COATED WITH AN APPROVED BOND BREAKER.

THE JOINT SEALER SHALL CONFORM TO FEDERAL SPECIFICATION TT-S00230 OR TT-S00227 FOR TYPE II, CLASS A OR B.

COST OF THE JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

ALL BARRIER RAIL CONCRETE IS TO BE CLASS D.

THE CONCRETE BARRIER RAIL IS TO BE BID ON A LINEAL FOOT BASIS MEASURED FROM END TO END OF RAIL. THE NUMBER OF LINEAL FEET OF BARRIER RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT.

PRICE BID FOR CONCRETE BARRIER RAIL SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EXCLUDING REINFORCING STEEL, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS.

ALL BARRIER RAIL REINFORCING STEEL IS TO BE INCLUDED WITH THE SUPERSTRUCTURE REINFORCING STEEL.

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

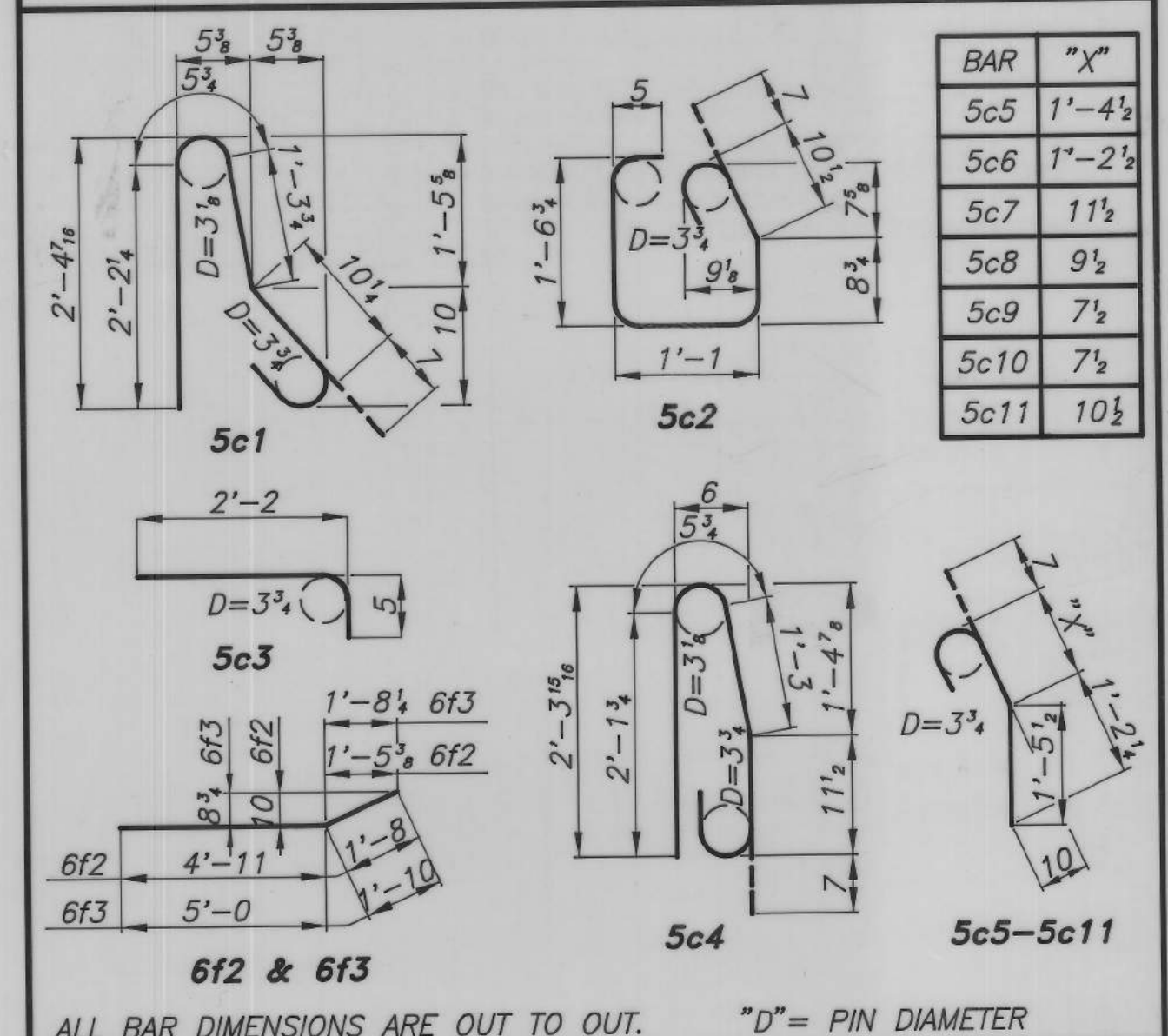
TOP OF THE BARRIER RAIL IS TO BE PARALLEL TO THE THEORETICAL G GRADE.

ALL REINFORCING STEEL IS TO BE GRADE 60 AND EPOXY COATED.

NOTE:
CROSS SECTIONAL AREA OF THE STANDARD SECTION OF THE BARRIER RAIL = 2.47 SQUARE FEET.

REINFORCING STEEL - TWO RAILS										
SECTION	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT				
STANDARD SECTION	5c1	VERTICAL	⌋	292	5'-5"	1,650				
	5c2	VERTICAL	⌋	292	5'-3"	1,599				
4 END SECTIONS	5f1	LONGITUDINAL	—	56	27'-5"	1,602				
	5f4	LONGITUDINAL	—	14	37'-1"	541				
	5c3	VERTICAL	⌋	24	2'-7"	65				
	5c4	VERTICAL	⌋	28	5'-5"	158				
	5c5-10	VERTICAL	⌋	24	VAR.	74				
4 SPECIAL SECTIONS	6f2	LONGITUDINAL	—	24	6'-7"	237				
	6f3	LONGITUDINAL	—	4	6'-10"	41				
	5c1	VERTICAL	⌋	12	5'-5"	68				
	5c3	VERTICAL	⌋	12	2'-7"	32				
	5c11	VERTICAL	⌋	12	2'-0"	25				
					5f5	LONGITUDINAL	—	28	1'-2"	34
					TOTAL (LBS.)		6,126			

BENT BAR DETAILS



CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
STANDARD SECTION 290.00 @ .0915 C.Y. PER FT.	26.5
SPECIAL SECTIONS 4 @ .14	0.6
END SECTIONS 4 @ .58 C.Y.	2.3
TOTAL (C.Y.) 29.4	

CONCRETE BARRIER RAIL QUANTITIES

ITEM	UNIT	QUANTITY
CONCRETE BARRIER RAIL	L.F.	325.2

144'-0" x 24' MULTIPLE SPAN STEEL I-BEAM
BRIDGE WIDENING TO 30' ROADWAY
44'-0" END SPANS
56'-0" CENTER SPAN
CONCRETE SUBSTRUCTURE

BARRIER RAIL DETAILS

STA. 253+63.31, I.A.R.R. XING, NO. 1107
CRAWFORD COUNTY, IOWA
11° SKEW, RT. AHEAD
SHEET 19 OF 24

TOTAL ESTIMATED QUANTITIES: DIV.II - GRADING

NO.	ITEM	UNIT	TOTAL
17	EXCAVATION, CLASS 10, ROADWAY & BORROW	CU. YDS.	1,216
18	PAVEMENT, STANDARD OR SLIP FORM, P.C.C., CLASS C, 8"	SQ. YDS.	831
19	BRIDGE APPROACH SECTION, AS PER PLAN	SQ. YDS.	408.8
20	SHOULDER, GRANULAR, TYPE A	TONS	170
21	REMOVAL OF PAVEMENT	SQ. YDS.	1,003
22	SEEDING, FERTILIZING AND MULCHING	ACRES	0.65
23	GUARDRAIL FORMED STEEL THRIE BEAM	LIN. FT.	125
24	GUARDRAIL FORMED STEEL BEAM	LIN. FT.	94
25	REMOVE AND REINSTALL FORMED STEEL BEAM GUARDRAIL	LIN. FT.	531
26	REMOVE AND REINSTALL BEAM GUARDRAIL POSTS	ONLY	108
27	REMOVE BEAM GUARDRAIL POSTS	ONLY	2
28	REMOVE AND REINSTALL GUARDRAIL, END ANCHORAGES, BEAM RE-52	ONLY	2
29	GUARDRAIL, END ANCHORAGES, BEAM, RE-69	ONLY	4
30	REMOVE AND REINSTALL OBJECT MARKERS, TYPE 3	ONLY	18
31	PAVEMENT MARKINGS, PAINTED	STA.	24
32	SURFACE, CLASS A, CRUSHED STONE, DRIVEWAY	TONS	75
33	CONSTRUCTION SURVEY	L.S.	LUMP SUM
34	FIELD LABORATORY	ONLY	1

ESTIMATE REFERENCE NOTES

- 17 NO PAYMENT FOR OVERHAUL WILL BE ALLOWED. TYPE "A" COMPACTION WILL BE REQUIRED. THE CONTRACTOR WILL BE REQUIRED TO OBTAIN HIS OWN BORROW. THE CONTRACTOR IS TO FAMILIARIZE HIMSELF WITH IOWA LAW AS IT PERTAINS TO REMOVAL AND REPLACEMENT OF TOPSOIL WITHIN THE BORROW AREAS. EARTH SHOULDER FILL REQUIRED FOR GRANULAR SHOULDERS SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM.
- 18 SEE TYPICAL SECTION, SHEET 21. "CD" JOINTS ARE REQUIRED. COARSE AGGREGATE DURABILITY SHALL BE 2B.
- 19 SEE SHEET 24 FOR DETAILS.
- 21 SEE TABULATION, SHEET 22.
- 22 SEE GENERAL NOTES, SHEET 20.
- 23 - 31 SEE TABULATIONS, SHEET 22, AND DETAILS, SHEET 21.
- 30 INCLUDES 14 TYPE 2 AND 4 TYPE 3 OBJECT MARKERS.
- 32 SEE TABULATION, SHEET 22.

GENERAL NOTES

PLAN AND PROFILE SHEETS INCLUDED IN THE PROJECT ARE FOR PURPOSE OF ALIGNMENT, LOCATION AND SPECIAL DIRECTION FOR THE WORK TO BE PERFORMED UNDER THIS CONTRACT. IRRELEVANT DATA ON THESE SHEETS IS NOT TO BE CONSIDERED A PART OF THIS CONTRACT.

ACCESS SHALL BE MAINTAINED TO INDIVIDUAL PROPERTIES DURING CONSTRUCTION. IF RELOCATED ACCESS CANNOT BE COMPLETED TO INDIVIDUAL PROPERTIES PRIOR TO REMOVAL OF EXISTING ACCESS, AN ALTERNATE ACCESS SHALL BE PROVIDED AND MAINTAINED. THIS WORK WILL BE CONSIDERED INCIDENTAL TO THE PROJECT.

A WASTE AREA SHALL BE PROVIDED BY THE CONTRACTOR FOR WASTE MATERIAL REMOVED FROM THE PROJECT SITE. THE SITE SHALL BE APPROVED BY THE ENGINEER. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES.

WHERE PUBLIC UTILITY FIXTURES ARE SHOWN AS EXISTING ON THE PLANS OR ENCOUNTERED WITHIN THE CONSTRUCTION AREA, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF THOSE UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION. ACCESS SHALL BE AFFORDED TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES. UNDERGROUND FACILITIES, STRUCTURES AND THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS NOT PRESENTLY KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND AVOID DAMAGE THERETO. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR INTERFERENCE, OR DELAY CAUSED BY SUCH WORK.

UTILITY RELOCATIONS SHALL BE COORDINATED WITH WORK ON THIS PROJECT. BOTH REMOVAL AND RELOCATION WILL REQUIRE ASSISTANCE. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO OTHER WORK ON THIS PROJECT.

THE EXISTING PAVEMENT IS P.C.C. PAVEMENT OF UNKNOWN THICKNESS.

IN ORDER TO AVOID ANY UNNECESSARY SURFACE BREAKS OR PREMATURE SPALLING, THE CONTRACTOR IS CAUTIONED TO EXERCISE EXTREME CARE WHEN PERFORMING ANY OF THE NECESSARY SAW CUTTING OPERATIONS FOR THE PROPOSED PAVEMENT REMOVAL. SAW CUTS ARE TO BE MADE AT THE STATION INDICATED OR AT THE NEAREST TRANSVERSE PAVEMENT JOINT, AS DIRECTED BY THE ENGINEER.

STANDARD ROAD PLANS ARE AVAILABLE FROM THE IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION, AMES, IOWA.

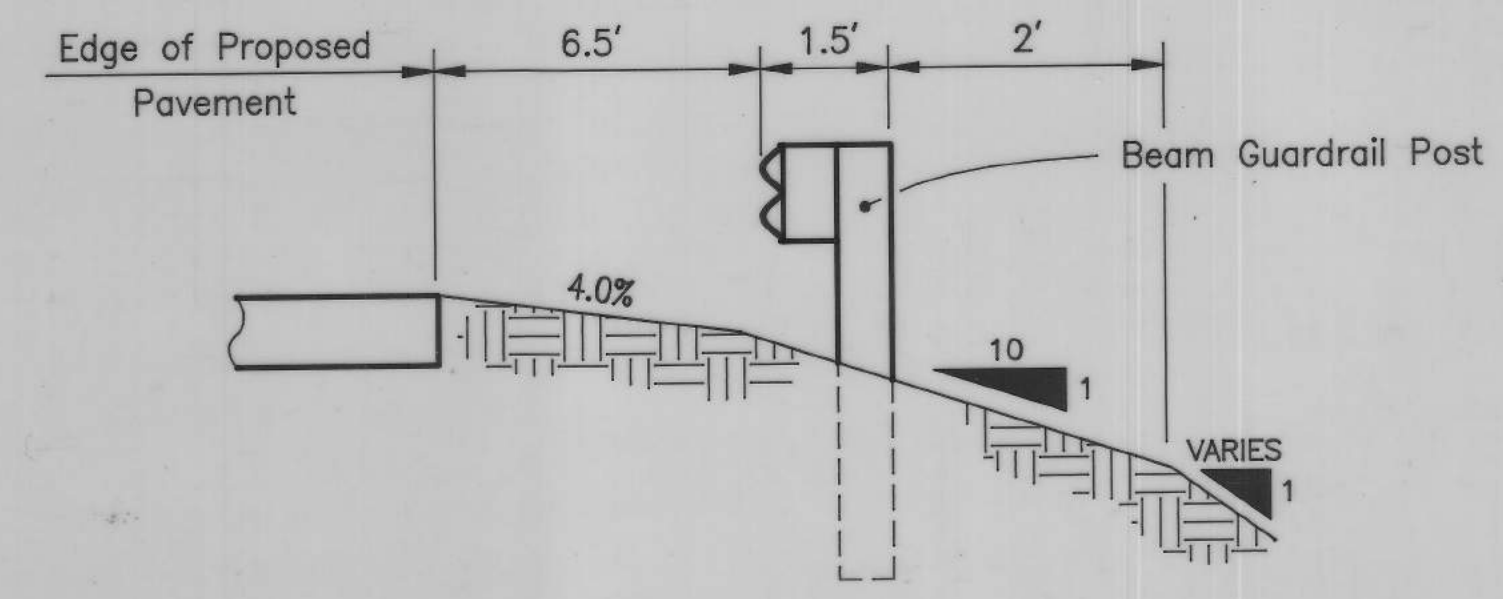
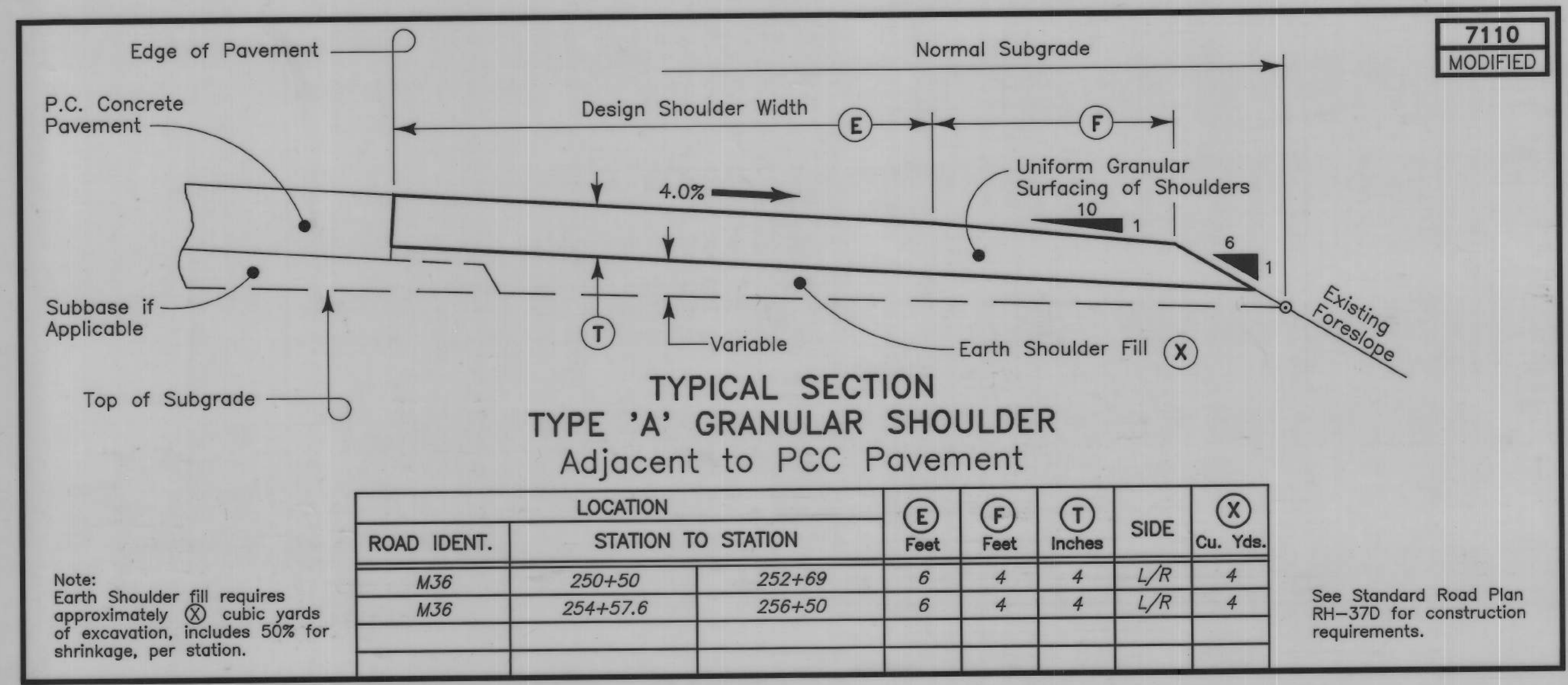
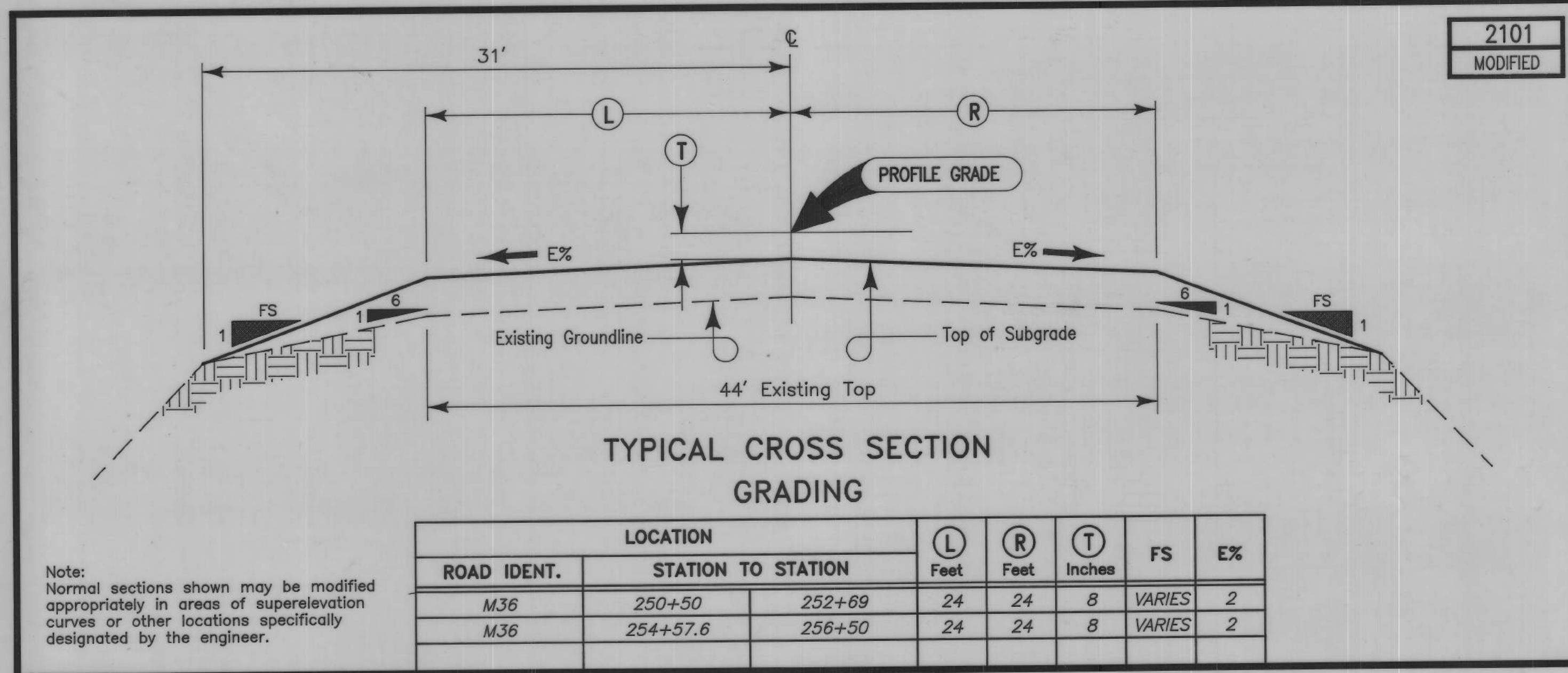
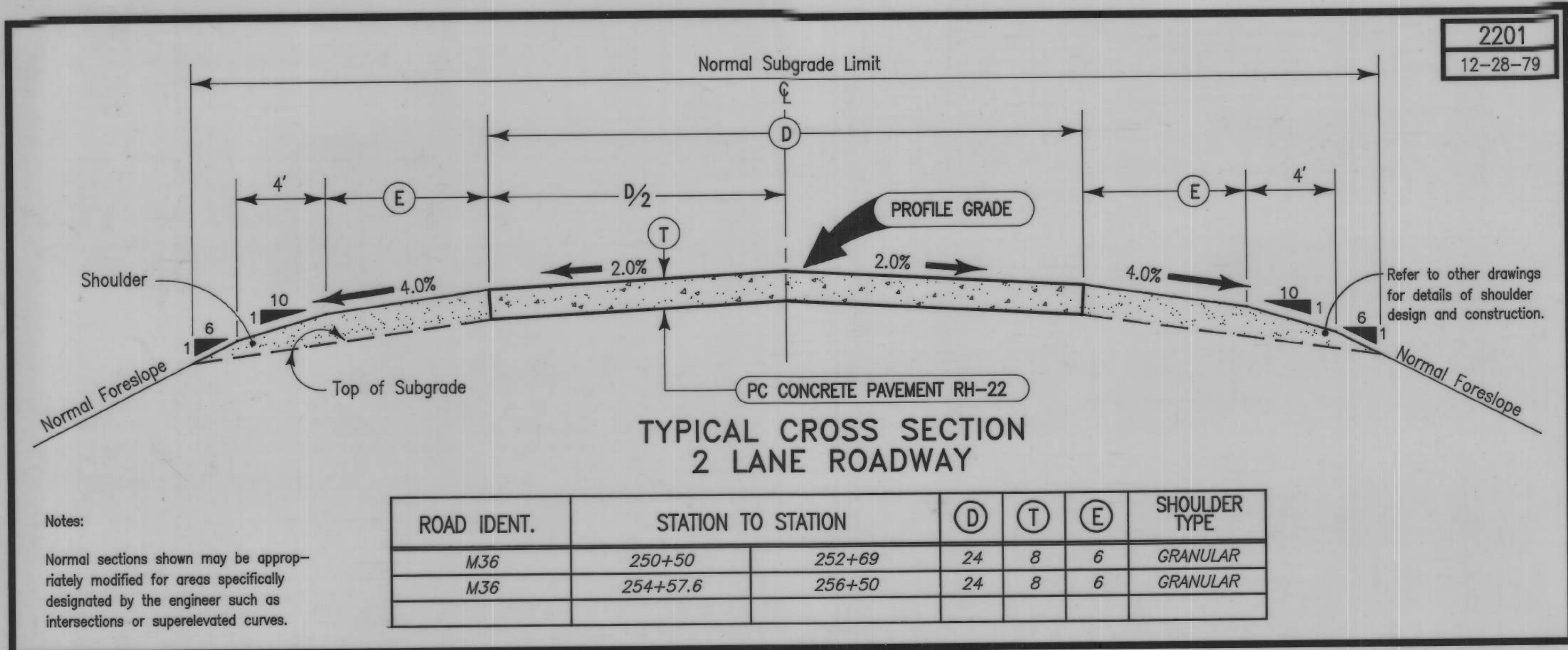
SATURDAY WORK WILL NOT BE ALLOWED WITHOUT PRIOR APPROVAL OF THE ENGINEER.

THE QUANTITY SHOWN FOR 'EXCAVATION, CLASS 10, ROADWAY AND BORROW' WILL BE FINAL PAY QUANTITY. NO PAYMENT FOR OVERHAUL SHALL BE MADE ON THIS PROJECT.

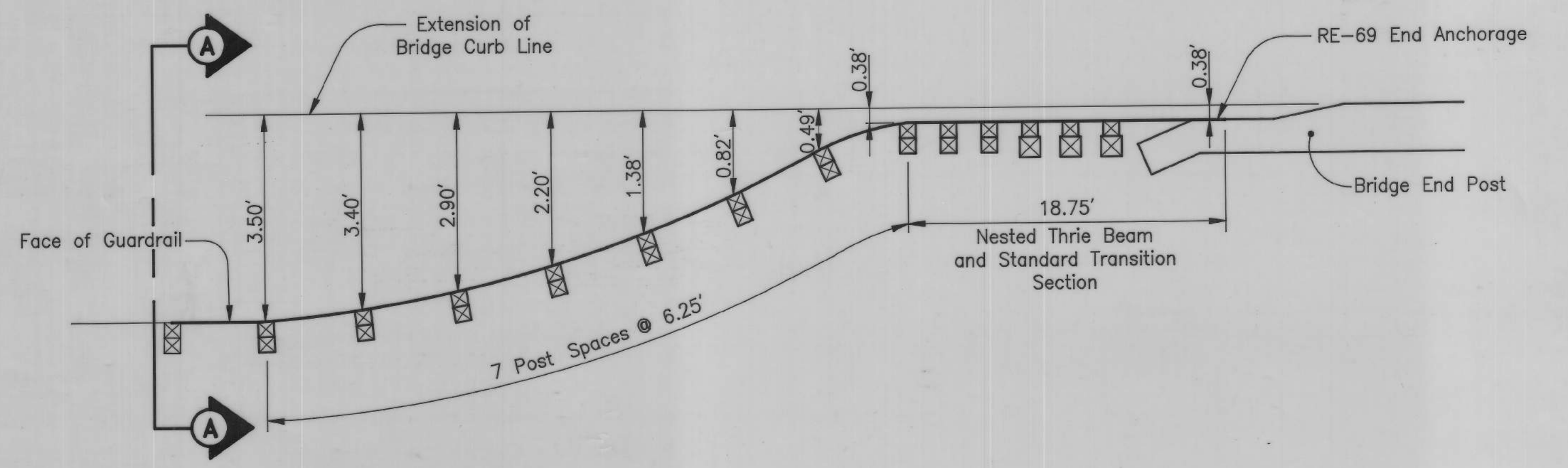
DISTURBED AREAS NORTH OF THE BRIDGE SHALL BE SEEDED WITH AN APPROVED URBAN MIXTURE, DISTURBED AREAS SOUTH OF THE BRIDGE SHALL BE SEEDED WITH AN APPROVED RURAL MIXTURE, AS PART OF 'SEEDING, FERTILIZING AND MULCHING'. THE SEED MIXTURES CONTAINED IN SECTION 2601.04C MAY BE USED.

QUANTITIES AND NOTES

CRAWFORD COUNTY, IOWA
SHEET 20 OF 24



SECTION A - A



GUARDRAIL INSTALLATION DETAILS for Southeast and Southwest Corners

TYPICAL SECTIONS AND DETAILS

TABULATION OF GRADING FOR GUARDRAIL INSTALLATIONS

*Refer to Standard Road Plan RL-11 or Typicals 4303 and 4306

LOCATION POINT	No.	Station	TYPE	*DIMENSIONS				AC CLASS 10 (RDWY. & BORROW EXCAV. Cu.Yds.)	EMBANK. IN PLACE Cu.Yds.	PIPE			REMARKS
				A/T Lin.Ft.	Y Lin.Ft.	Z Lin.Ft.	SIZE Inches			TYPE	LENGTH Lin.Ft.		
	1	254+95.60	1	56.25	7.9	30	35	-	-	-	-	N. ABUT., LT.	
	2	255+01.43	1	56.25	7.9	30	35	-	-	-	-	N. ABUT., RT.	

▲ INCLUDES 35% FOR SHRINKAGE.

TABULATION OF DELINEATORS AND OBJECT MARKERS

Refer to Standard Road Plan RE-48A-B and RE-29C **Not a Bid Item

STATION	TYPE	DELINEATOR		OBJECT MARKER			REMARKS
		SINGLE WHITE D-1W NO.	TYPE 2 OM2-3YV NO.	TYPE 3		** OFFSET BRACKETS NO.	
				OM-3L NO.	OM-3R NO.		
253+63.31	1	-	10	1	1	2	S. END
253+63.31	1	-	4	1	1	2	N. END

TRAFFIC CONTROL PLAN

THE PROJECT ROUTE WILL BE CLOSED TO TRAFFIC. TRAFFIC CONTROL ON THIS PROJECT SHALL BE IN ACCORDANCE WITH DETAIL SHEET 520-27. FOR ADDITIONAL COMPLEMENTARY INFORMATION, REFER TO SUPPLEMENTAL SPECIFICATION 5055 AND THE IOWA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED AND REMOVED BY THE CONTRACTOR.

SLAT FENCE BARRICADES OR PLASTIC SAFETY FENCE SHALL BE PLACED ON BOTH SIDES OF THE BRIDGE SITE. IN ADDITION, A TYPE III BARRICADE SHALL BE PLACED IN ADVANCE OF THE SLAT FENCE OR PLASTIC SAFETY FENCE. A "ROAD CLOSED" SIGN (R-11-2, 48" X 30") SHALL BE PLACED ON EACH TYPE III BARRICADE ALONG WITH TWO TYPE "A" LOW INTENSITY FLASHING WARNING LIGHTS. THE "ROAD CLOSED" SIGN SHALL BE MOUNTED SUCH THAT NO PART OF THE BARRICADE IS COVERED.

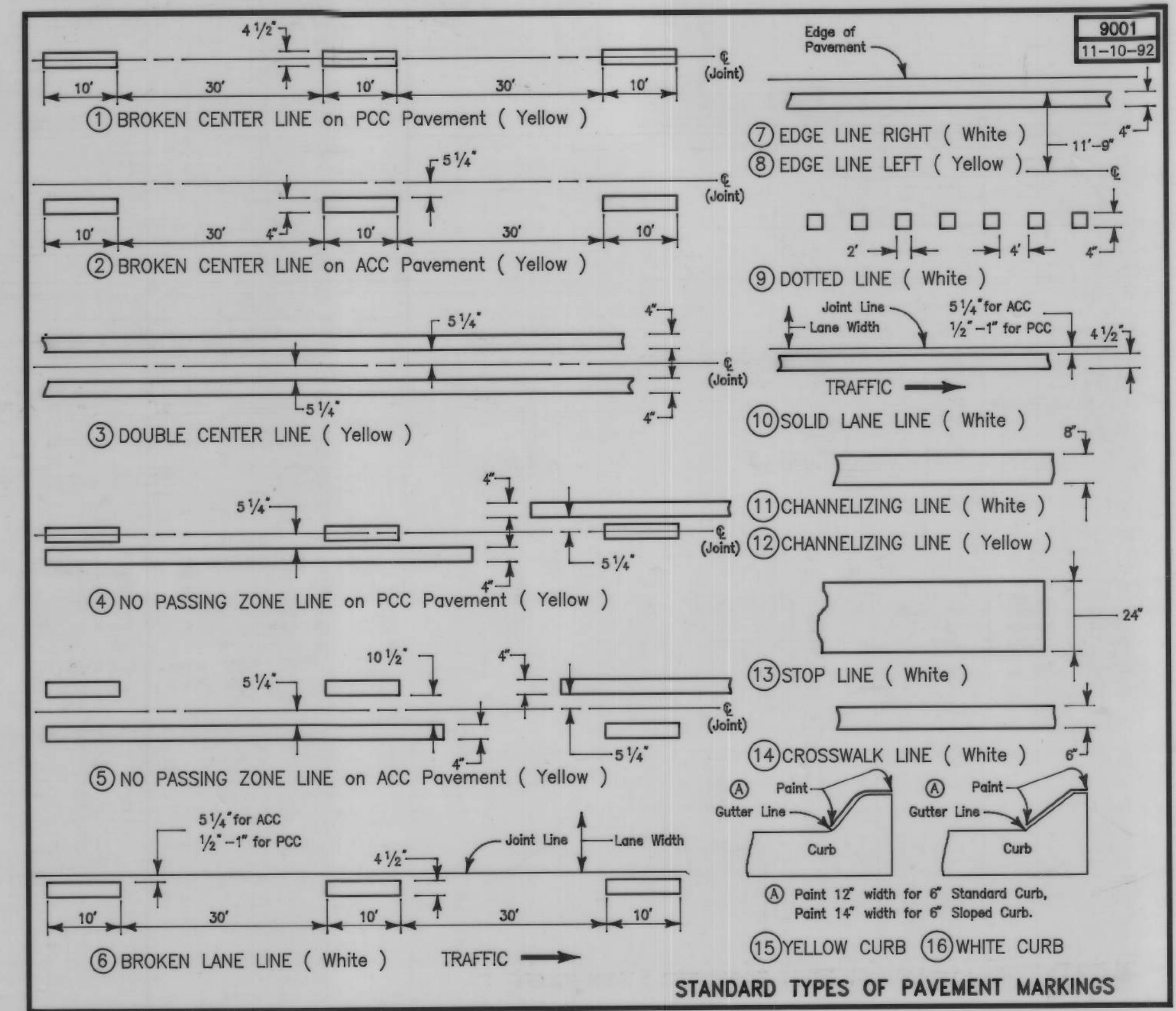
CRAWFORD COUNTY MAINTENANCE SHALL SALVAGE ALL ROAD MARKERS AFTER ROAD IS CLOSED.

THE BID ITEM "TRAFFIC CONTROL" SHALL INCLUDE THE COST FOR ALL TRAFFIC CONTROL MEASURES REQUIRED OF THE CONTRACTOR EXCEPT FOR THOSE WHICH ARE SEPARATE BID ITEMS OR ARE INCIDENTAL TO OTHER BID ITEMS.

THE GUARDRAIL INSTALLATION MUST BE COMPLETED BEFORE THE ROAD IS OPENED TO TRAFFIC.

ALL CONTRACTOR FURNISHED TRAFFIC CONTROL AND FIXED, POST MOUNTED, TRAFFIC CONTROL SIGNS USED ON THIS PROJECT SHALL BE SHEETED WITH ENCAPSULATED LENS SHEETING.

TYPE C STEADY BURN WARNING LIGHTS ARE NOT REQUIRED FOR VERTICAL PANELS, BARRICADES, AND DRUMS WHEN THESE TRAFFIC CONTROL DEVICES ARE SHEETED WITH ENCAPSULATED LENS SHEETING.



TABULATION OF BRIDGE APPROACH SECTION

① Not a bid item

112-6

Refer to Standard Road Plan RF-19D, RF-19E, RK-16, RK-19A, RK-19B, RK-19C, RK-19D, RK-19E, RK-19F, RK-19G, RK-19H, or RK-19J

08-08-89

BRIDGE STATION	END	CASE	APPROACH PAVEMENT				SUBDRAIN				APPROACH SUBGRADE		REMARKS	
			PN FOR CASE "2"	T THICKNESS Inches	NON-REINF. PAVE. AREA Sq.Yds.	REINF. PAVE. AREA Sq.Yds.	① PERFORATED SUBDRAIN 4" Lin.Ft.	① SUBDRAIN OUTLET		① POROUS BACKFILL Cu.Yds.	① CLASS 'A' CRUSHED STONE BACKFILL Cu.Yds.	① SPECIAL BACKFILL Tons		① ENGINEERING FABRIC Sq.Yds.
								STATION	SIDE					
253+63.31	S.	1	-	8	133.3	71.1	45	252+29	R.	2	-	169	220	S. END
253+63.31	N.	1	-	8	133.3	71.1	38	254+97.6	R.	2	-	169	220	N. END

TABULATION OF STEEL BEAM GUARDRAIL FOR STANDARD ROAD PLANS RE-63, RE-65

*Include 2 - 12.5' Thrie Beam Sections and 1 - 6.25' "W" to Thrie Beam Transition Section

108-8A

01-07-92

NO.	STATION	STANDARD ROAD PLAN	CASE	FORMED STEEL BEAM GUARDRAIL					BEAM GUARDRAIL POSTS			POST & ADAPTOR RE-37	ANCHOR SYSTEM	REMARKS		
				"W" BEAM Lin.Ft.	① (STS)* THRIE BEAM 31.25'		① (T) THRIE BEAM 31.25'	"W" BEAM Lin.Ft.	TOTAL "W" BEAM Lin.Ft.	TOTAL THRIE BEAM Lin.Ft.	WITH 8" x 8" SPACER BLOCKS					
					10" x 10" x 6'-0"	8" x 8" x 6'-0"					6" x 8" x 6'-0"					
1	253+63.51	*	-	-	-	-	228	228	-	-	-	-	-	-	S. END, LT	
2	253+63.51	*	-	228	-	-	-	228	-	-	-	-	-	-	S. END, RT.	
3	253+63.51	RE-65	U	37.5	31.25	-	-	37.5	-	-	7	2	-	-	N. END, LT.	
4	253+63.51	RE-65	U	-	31.25	-	-	37.5	37.5	-	7	2	-	-	N. END, RT.	

* SEE GUARDRAIL DETAILS, SHEET 21

TABULATION OF PAVEMENT MARKINGS

LINE TYPE *	STATION TO STATION	SIDE	LENGTH Sta.
⑦ EDGE LINE RIGHT	250+50 TO 256+50	L	6
⑦ EDGE LINE RIGHT	250+50 TO 256+50	R	6
③ DOUBLE CENTER LINE	250+50 TO 256+50	B	12

* REFER TYP. DETAIL 9001

TABULATION OF SAFETY CLOSURES

NO.	STATION	REMARKS
1	248+00	S. END
1	256+75	N. END

REMOVAL OF PAVEMENT

STATION TO STATION	AREA Sq.Yds.	SAW CUT Lin.Ft.	REMARKS
250+50	252+88	531	20
254+37.6	256+50	472	20

TABULATIONS

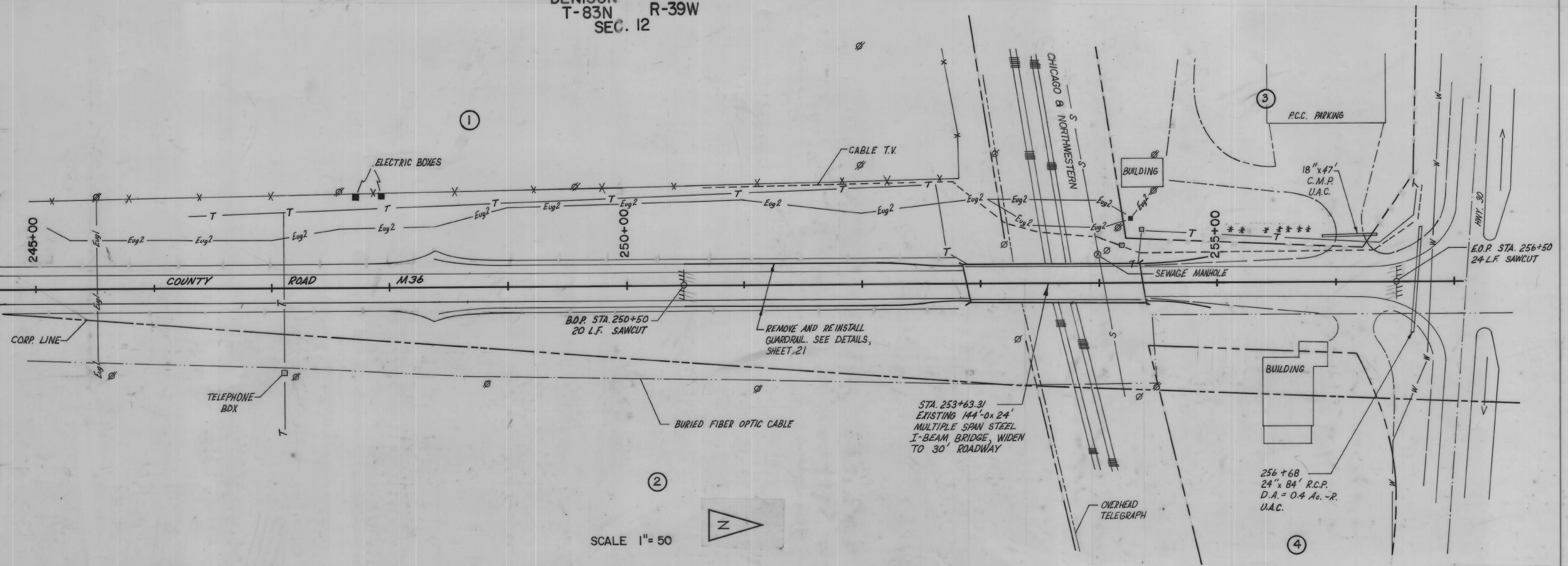
PROPERTY OWNERS

- ① DEWEY L. REIS
SHARON REIS
GLADYS ANN NORTH
- ② DENNIS J. FINERON
- ③ ARNOLD POGGENSEE
- ④ STAN KRACHT

UTILITIES

- ⊕ POWER POLES
- T- BURIED TELE. CABLE
- W- WATER LINE
- UNDERGROUND ELECTRICAL LINES
- Eug1- SOUTH CRAWFORD R.E.C.
- Eug2- CITY OF DENISON UTILITIES

DENISON TOWNSHIP
T-83N R-39W
SEC. 12

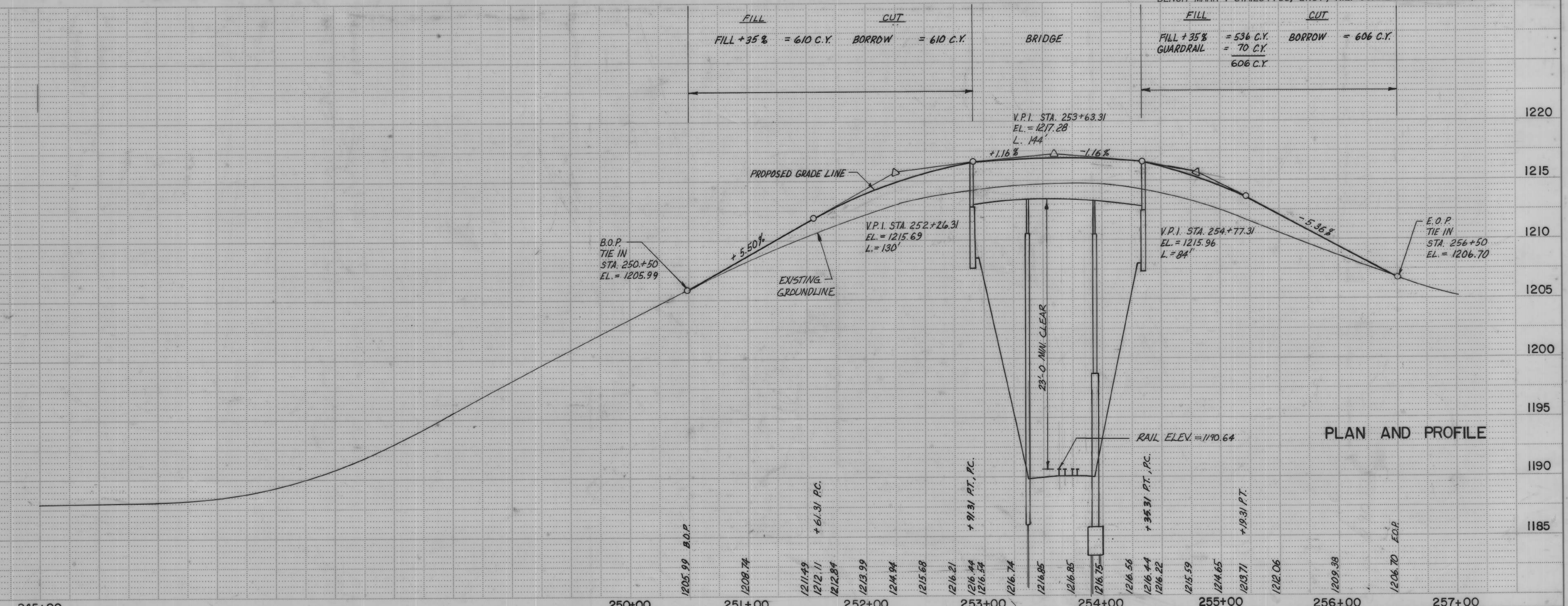


SCALE 1" = 50'



BENCH MARK : STA.254+55, LT.81', N.E. CORNER LOADING DOCK, EL.= 1204.90

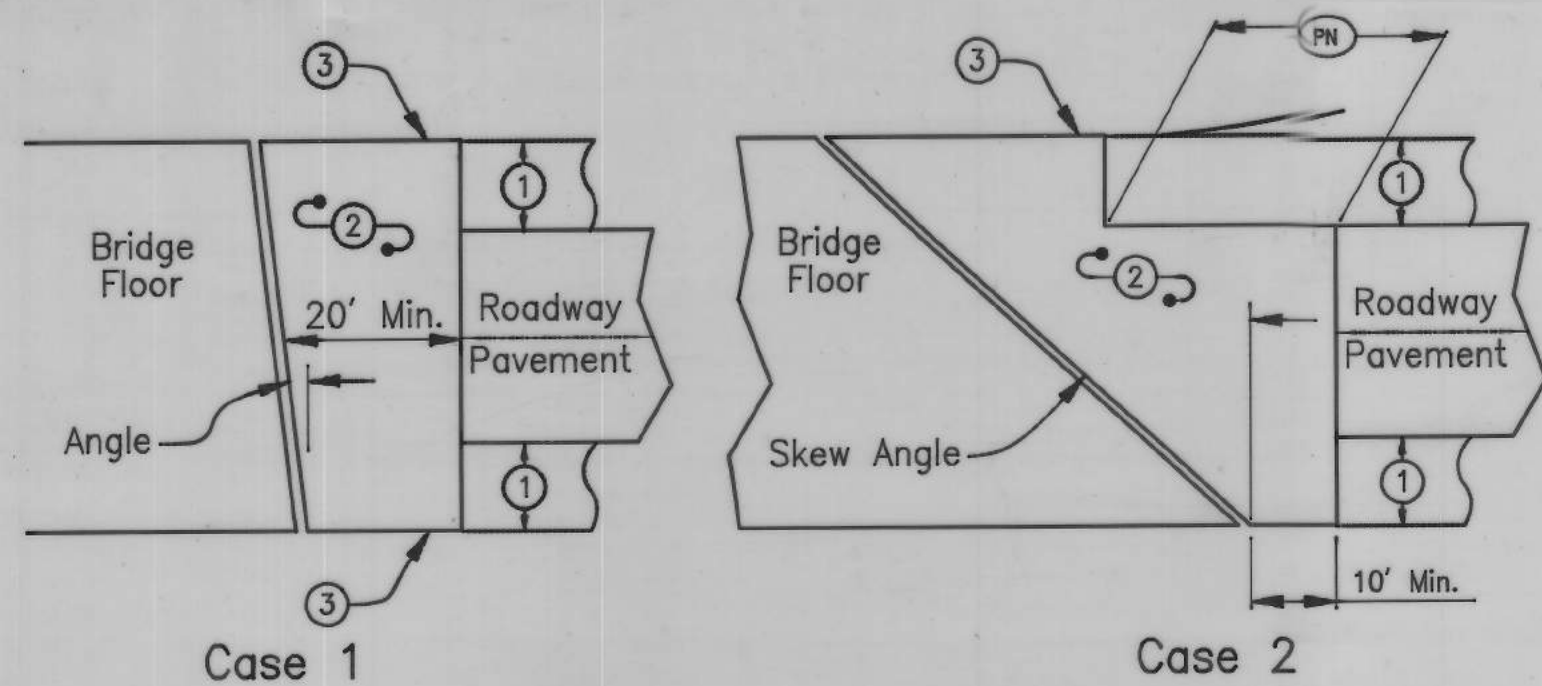
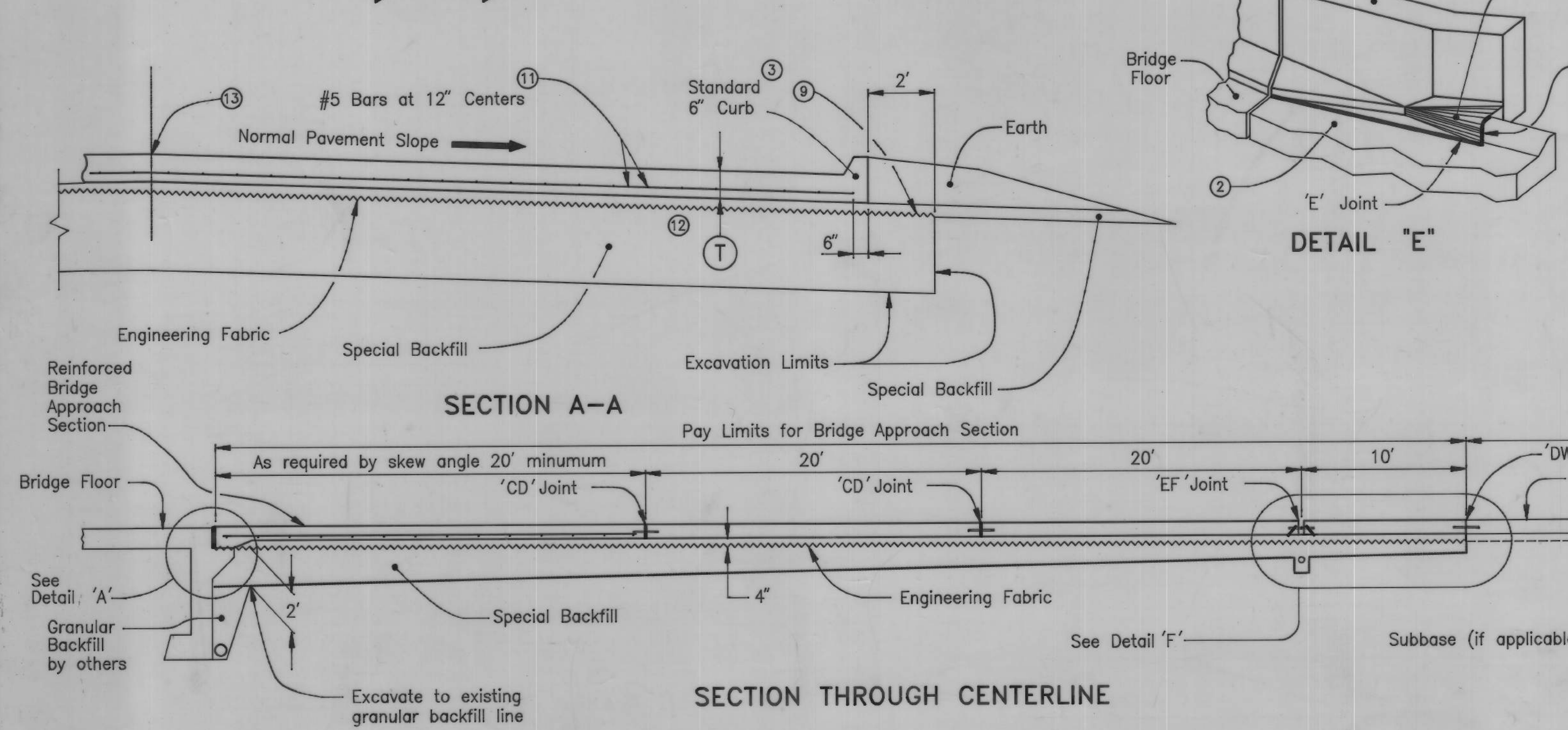
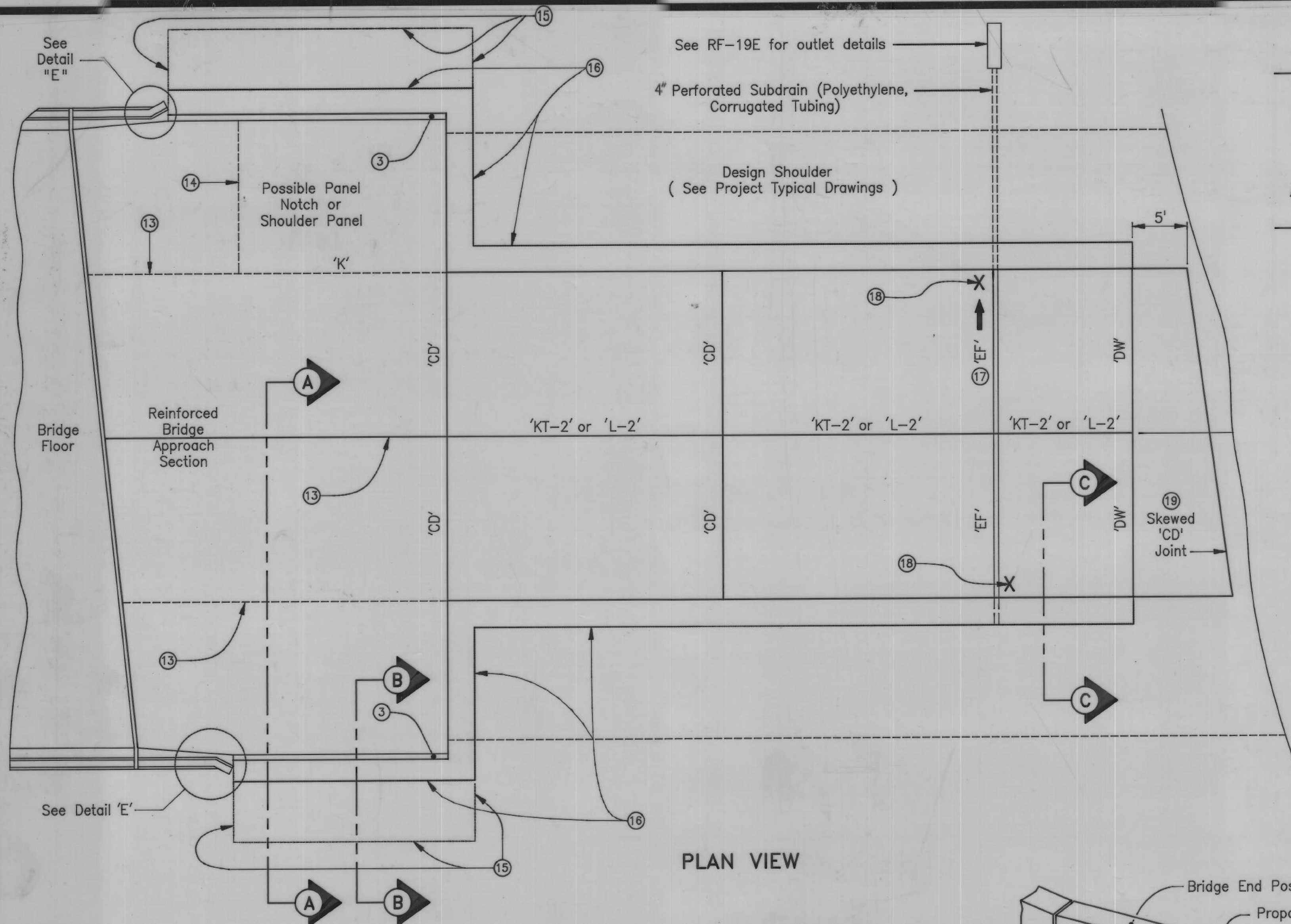
FILL		CUT	
FILL +35%	= 610 C.Y.	BORROW	= 610 C.Y.
BRIDGE		BRIDGE	
FILL +35%	= 536 C.Y.	BORROW	= 606 C.Y.
GUARDRAIL	= 70 C.Y.		
		606 C.Y.	



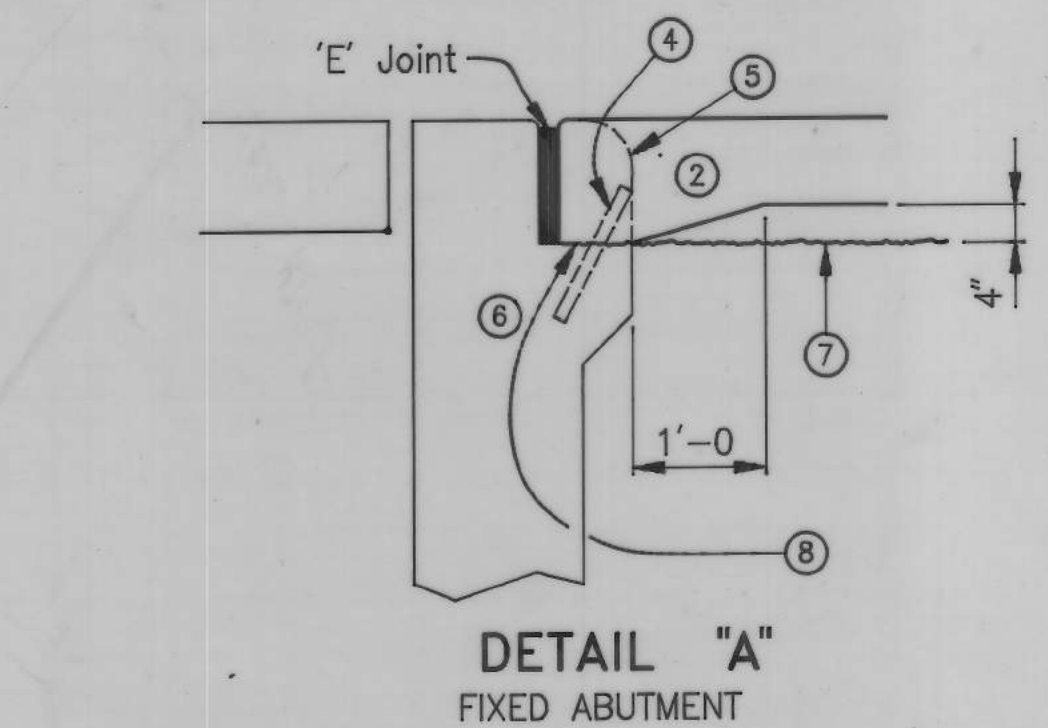
PLAN AND PROFILE

DATE: _____
BY: _____
SURVEYED: _____
PLOTTED: _____
ALIGNMENT CHECKED: _____
RT. OF WAY CHECKED: _____
PLAN NO. _____

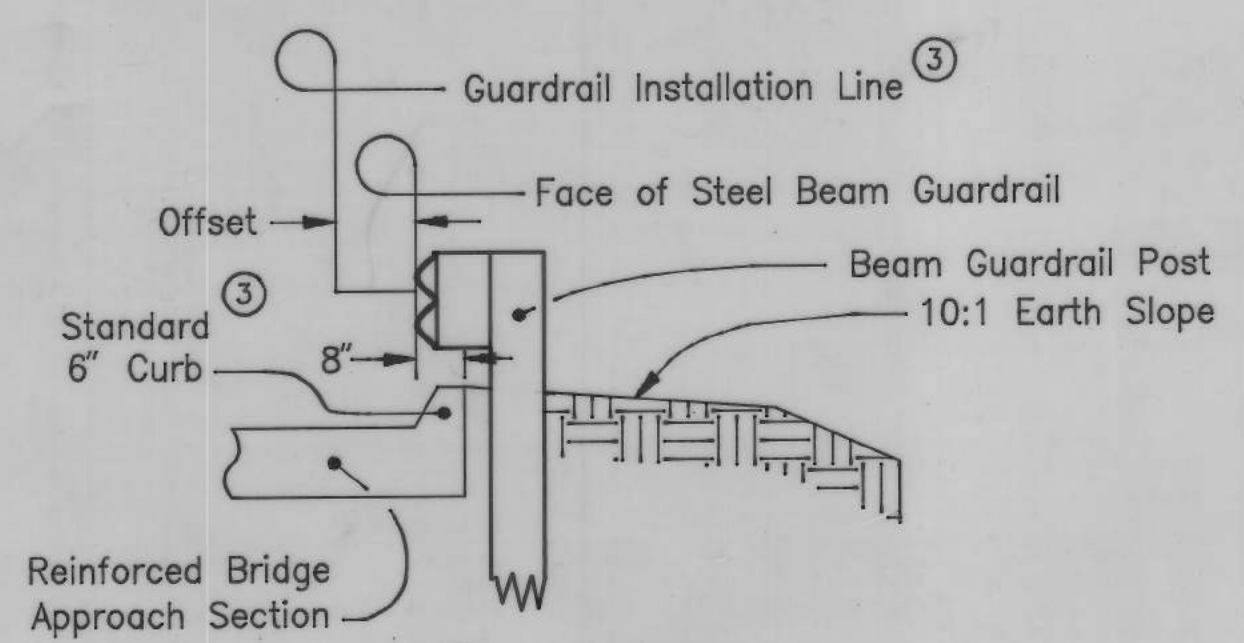
DATE: _____
BY: _____
SURVEYED: _____
GRADES CHECKED: _____
B.M. NOTED: _____
STRUCTURE NOTATIONS CHKD: _____
PROFILE NO. _____



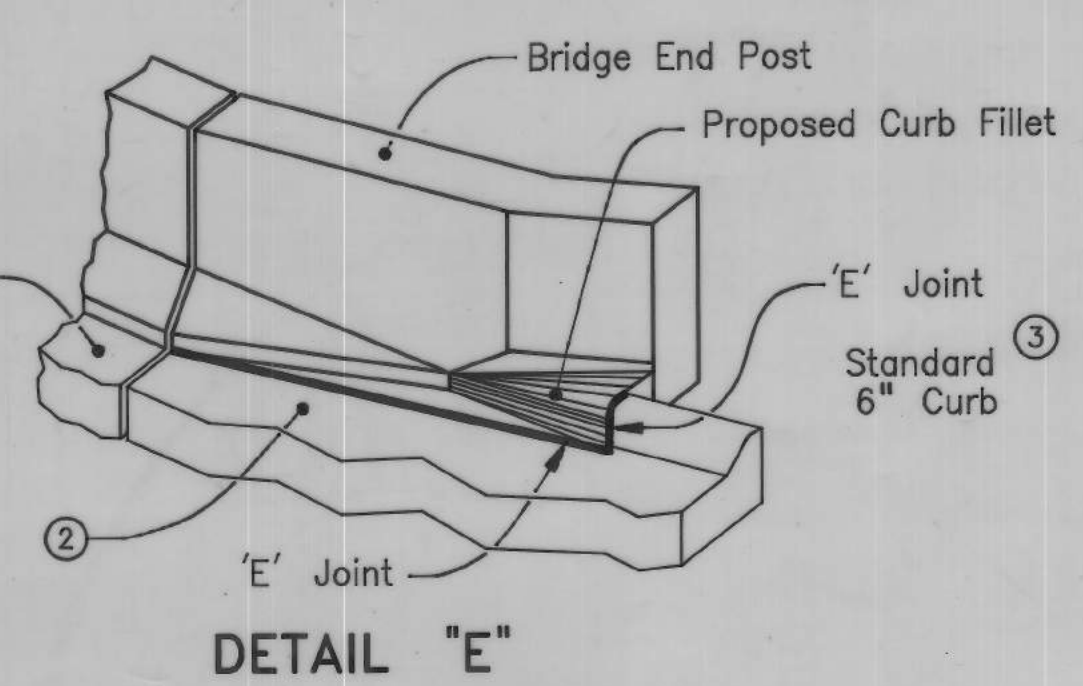
TWO LANE APPROACH PAVEMENT LAYOUTS AT VARIOUS SKEWS



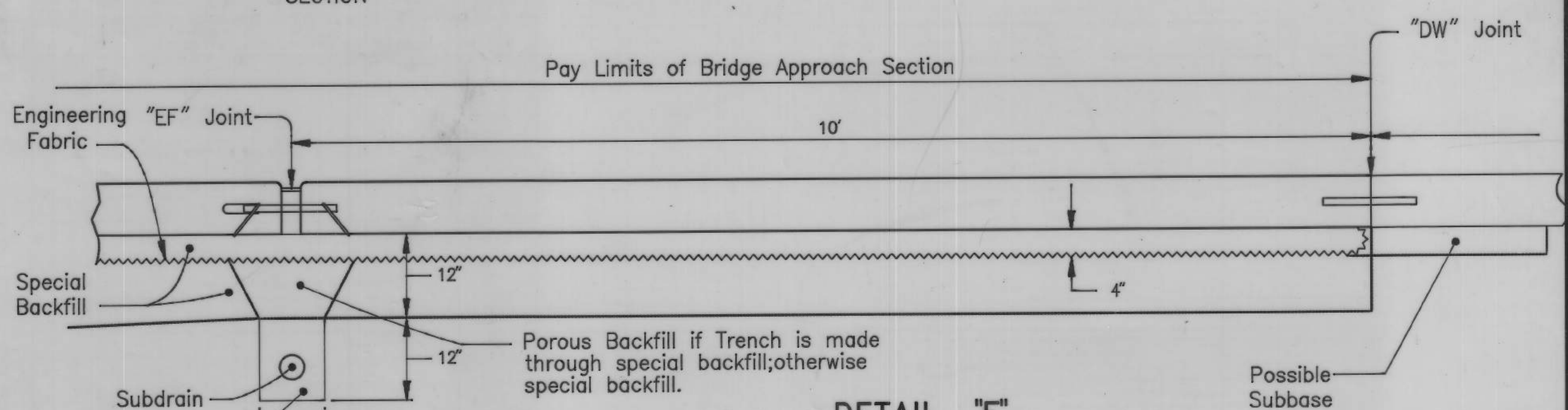
DETAIL "A" FIXED ABUTMENT



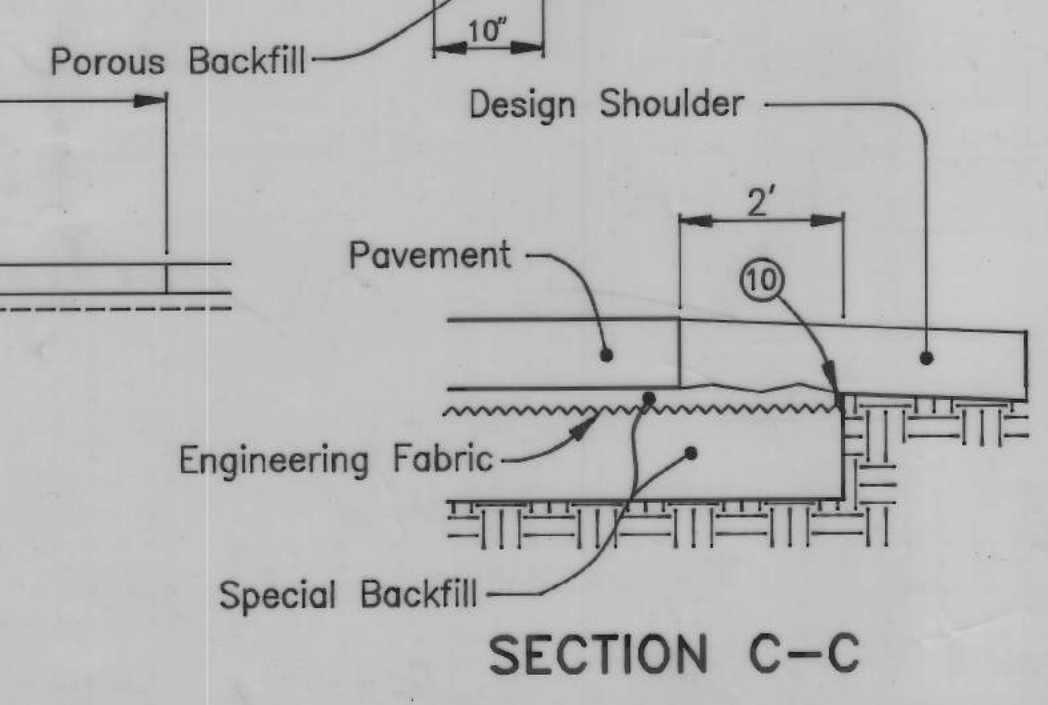
DETAIL "C" JOINT AND CURB FILLET AT BRIDGE END SECTION



DETAIL "E"



DETAIL "F"



SECTION C-C

GENERAL NOTES

THE INTENT OF THIS SHEET IS TO DETAIL THE CONSTRUCTION OF A PCC BRIDGE APPROACH PAVEMENT.

THE SUBGRADE SHALL BE EXCAVATED TO THE LIMITS SHOWN. A TRANSVERSE SUBDRAIN SHALL BE INSTALLED DIRECTLY BENEATH THE LOCATION OF THE PROPOSED 'EF' JOINT. THE EXCAVATION SHALL BE BACKFILLED WITH THE SPECIFIED MATERIAL AND AN APPROVED ENGINEERING FABRIC AS SPECIFIED IN SECTION 4196 SUBGRADE STABILIZATION INSTALLED AS SHOWN. THE ENGINEERING FABRIC SHALL BE SECURED TO THE TOP OF THE BRIDGE PAVING NOTCH AND EXTENDED AS SHOWN.

A PORTION OF THE BRIDGE APPROACH PAVEMENT SECTION SHALL BE CONSTRUCTED OF REINFORCED PCC WITH INTEGRAL 6 INCH CURB; CONCRETE USED FOR CONSTRUCTION SHALL BE THE SAME AS INDICATED FOR THE REMAINDER OF THE PAVEMENT. THE PAVEMENT PANELS BETWEEN THE REINFORCED BRIDGE APPROACH SECTION AND THE 'DW' JOINT SHALL BE STANDARD PCC PAVING AS SPECIFIED BY THE PLANS FOR MAINLINE PAVING.

'BRIDGE APPROACH SECTION' SHALL BE MEASURED AND PAID FOR AS SPECIFIED IN SECTIONS 2301.34F AND 2301.35F. THE FOLLOWING ITEMS SHALL BE CONSIDERED INCIDENTAL TO AND INCLUDED IN THE PRICE BID FOR 'BRIDGE APPROACH SECTION': FURNISHING AND INSTALLING REINFORCING STEEL, TIE BARS AND DWEL ASSEMBLIES.

PLACING, FINISHING, TEXTURING, TRANSVERSE GROOVING, CURING, ALL JOINT CONSTRUCTION AND ALL OTHER MATERIALS AND LABOR TO CONSTRUCT THE 'BRIDGE APPROACH SECTION' AS DETAILED ON THIS SHEET.

EXCAVATION FOR SPECIAL BACKFILL.

FURNISHING AND INSTALLING SUBDRAIN.

FURNISHING AND PLACING POROUS BACKFILL.

FURNISHING AND INSTALLING SUBDRAIN OUTLET.

FURNISHING AND INSTALLING ENGINEERING FABRIC.

FURNISHING AND BACKFILLING WITH SPECIAL BACKFILL.

- DESIGN SHOULDER WIDTH.
- REINFORCED BRIDGE APPROACH SECTION.
- BUILD 6 INCH CURB TO END OF REINFORCED BRIDGE APPROACH SECTION. THE LOCATION OF THE GUARDRAIL DETERMINES THE LOCATION OF THE CURB. THE BACK OF CURB IS LOCATED 8 INCHES BACK OF THE FACE OF GUARDRAIL.
- REINFORCING BAR.
- TEMPORARY PAVING BLOCK REMOVED BY PAVING CONTRACTOR.
- BRIDGE ABUTMENT.
- ENGINEERING FABRIC.
- SECURE ENGINEERING FABRIC ON TOP OF PAVING NOTCH.
- EXTEND ENGINEERING FABRIC TO 2' OUTSIDE EDGE OF PAVEMENT.
- TRIM FABRIC TO EDGE OF EXCAVATION.
- ADD ONE ADDITIONAL #5 BAR PARALLEL TO SKEWED FACE WHEN SKEW ANGLE IS 30 DEGREES OR MORE.
- T=8"
- LONGITUDINAL JOINT: SINGLE POUR - NO JOINT. TWO POURS - USE 'K' JOINT.
- IF PN "PANEL NOTCH" USE 'RT' JOINT.
- LIMITS OF SPECIAL BACKFILL.
- EXCAVATION LIMITS 2 FEET OUTSIDE OF PAVEMENT EDGE.
- SLOPE SUBDRAIN TO DRAIN.
- AN 'X' SHALL BE PLACED IN THE PLASTIC CONCRETE NEAR THE 'EF' JOINT AT THE OUTSIDE EDGE OF PAVEMENT.
- 'CD' JOINTS REQUIRED UP TO 300' EACH WAY FROM REINFORCED BRIDGE APPROACH SECTION.

BRIDGE APPROACH DETAILS

CRAWFORD COUNTY, IOWA
SHEET 24 OF 24

003000