

345

BRIDGE - NEW

BRF-5-4(35)--38-91

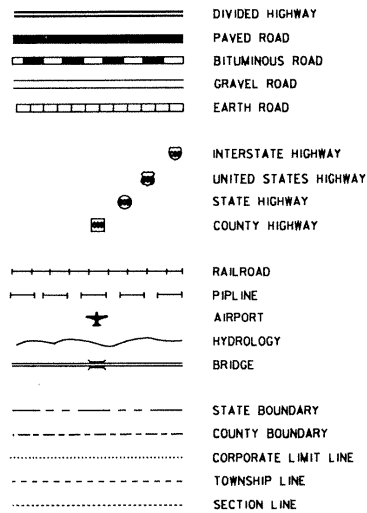
WARREN COUNTY

CADD FILE: h910195.S00



148
SJK

CONVENTIONAL SIGNS



IOWA
DEPARTMENT OF TRANSPORTATION
Project Development Division
PLANS OF PROPOSED IMPROVEMENTS ON THE

PRIMARY ROAD SYSTEM
WARREN COUNTY

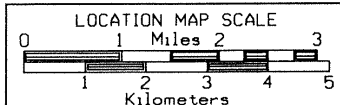
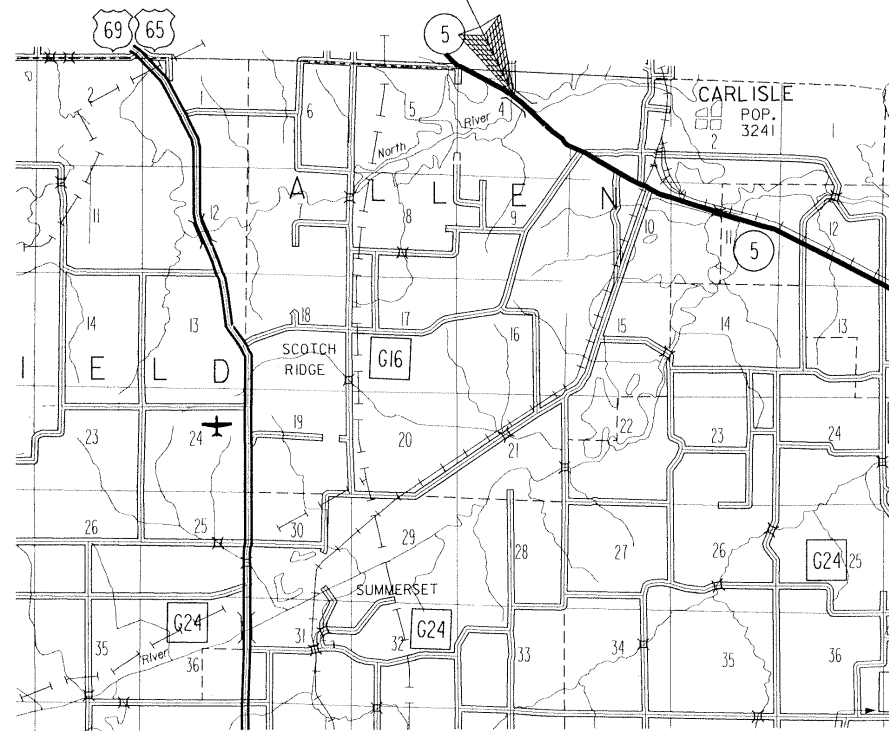
BRIDGE - NEW
ON IA 5
OVER NORTH RIVER

SCALE: As Noted

The standard specifications, series of 1992 of the Iowa Department of Transportation, shall apply to construction work on this project.
(PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS)

DESIGN NO. 195

150x



R-23W

Form 520005 12-67

MITCHELL J. DILLAVOU
No. 12250
IOWA

I hereby certify that this project was constructed in accordance with the contract documents, the "as-built" plans were prepared under my supervision, and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Mitchell J. Dillavou 12/30/19
Project Engineer Date

My license renewal date is December 31, 1999.

96 UNITED CONTRACTORS STEVE HUBER
Year Contractor Project Inspector

T-77N

C.I.T.C. - 1 FULL SIZE
R.M.E. - FULL SIZE
WARREN CO. - HALF SIZE

STATE	FHWA REGION	F.Y.	SHEET	TOTAL
IOWA	7		1	14
PROJECT NUMBER				
BRF-5-4(35)--38-91				
R.O.W. PROJECT NUMBER				
PIN				
72-91-040-2				

INDEX OF SHEETS	
NO.	DESCRIPTION
1	TITLE SHEET
2	EXTRA WORK ORDERS
2	BRIDGE ESTIMATE SHEET
2-13	BRIDGE DESIGN NO. 195
14	POLLUTION PREVENTION PLAN
14A	LOG OF PILING

VALUE ENGINEERING SAVES
REFER TO THE GENERAL NOTES ON SHEET 2 OF 14

STANDARD ROAD PLANS				STANDARD BRIDGE PLANS		
IDENT	DATE	IDENT	DATE	STANDARD	ISSUED	REVISED

REVISIONS

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Iowa Department of Transportation
PROJECT DEVELOPMENT DIVISION
AUTHORIZED FOR LETTING

Wendy A. Zimmet 1/12/95
BRIDGE ENGINEER DATE

I hereby certify that this plan was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly Registered Professional Engineers under the laws of the State of Iowa.

Name Steve Huber
Iowa Registration No. 8704 Date 1/14/95

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

FOR THE DIVISION ADMINISTRATOR DATE

LETTING DATE 3-28-95 STATE CONTROL SECTION NUMBER 91-I500

FILE NO. 28241

WARREN COUNTY PROJECT NO. BRF-5-4(35)--38-91

SHEET NO. 1
CADD FILE: h910195.S00

3-28-95 GAN 195 WARREN

GENERAL NOTES:

THIS DESIGN IS FOR THE CONSTRUCTION OF A 288'-0 x 40' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE, ON THE PROPOSED EASTBOUND ROADWAY OF IOWA NO. 5. A ROAD CONTRACT BY OTHERS IS TO CONSTRUCT A NEW ROADWAY SOUTH OF PRESENT IOWA NO. 5 TO EXPAND TO A FOUR LANE HIGHWAY. THE PROPOSED BRIDGE IS PARALLEL TO AND SOUTH OF EXISTING 288'-0 x 44' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE, DESIGN NO. 182, WARREN COUNTY, MAINT. NO. 9189.8L005.

THIS BRIDGE IS DESIGNED FOR HS20-44 LOADING, PLUS 20 LBS. PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE.

THE ROAD WILL BE CLOSED TO TRAFFIC DURING CONSTRUCTION.

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 CONSTRUCTION STARTING DATE.

DASHED LINES ON TRACINGS AND ON PRINTS INDICATE THE EXISTING STRUCTURE.

THE APPROACH FILLS AS SHOWN ARE NOT A PART OF THIS CONTRACT, BUT ARE TO BE IN PLACE BEFORE ABUTMENT PILES ARE DRIVEN. THE BRIDGE CONTRACTOR IS TO LEVEL OFF AND SHAPE THE BERMS TO THE ELEVATIONS AND DIMENSIONS SHOWN. DRESSING OF SLOPES OUTSIDE THE BRIDGE AREA NOT DISTURBED BY THE BRIDGE CONTRACTOR SHALL BE PAID FOR AS EXTRA WORK.

GUARDRAIL IS TO BE PLACED BY OTHERS.

THE BRIDGE CONTRACTOR IS TO INSTALL SUBDRAINS BEHIND THE ABUTMENTS AS DETAILED. THE SUBDRAINS SHALL BE AT LEAST 4 INCHES IN DIAMETER AND MEET REQUIREMENTS FOR THE TYPES PERMITTED IN SECTION 4143.01 C. WHEN THE SUBDRAINS ARE INSTALLED USING FLEXIBLE TUBING OR SHORT LENGTHS OF CONCRETE OR CLAY TILE, THE ENDS SHALL CONSIST OF 6 FOOT 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 IS TO BE FASTENED TO THE END OF EACH OUTLET PIPE. ALL MATERIAL, LABOR AND EXCAVATION NECESSARY FOR SUBDRAIN INSTALLATION IS TO BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE".

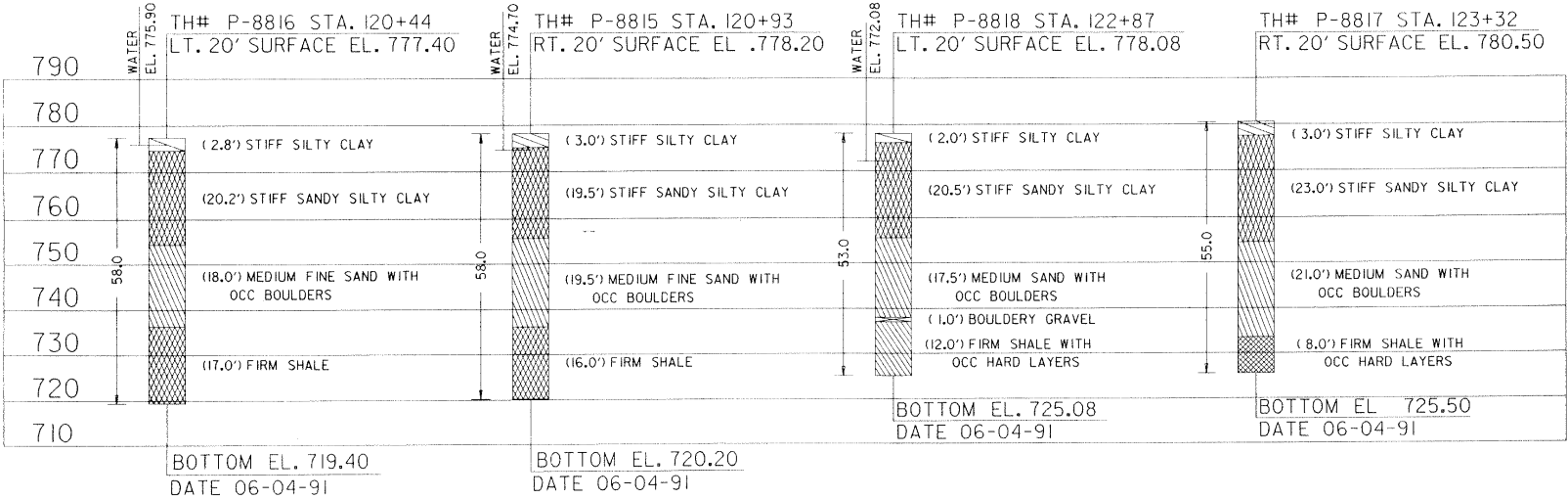
ALL REINFORCING SUPPLIED FOR THIS STRUCTURE IS TO BE GRADE 60.

ALL OF THE REINFORCING BARS IN THE SLAB AND BARRIER RAILS ARE TO BE EPOXY COATED. SOME OF THE REINFORCING BARS IN THE ABUTMENTS ARE TO BE EPOXY COATED. SEE EPOXY COATED REINFORCING BAR LISTS IN THESE PLANS.

THE BRIDGE CONTRACTOR SHALL PREBORE HOLES FOR ABUTMENT PILES IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. HOLES SHALL BE BORED TO THE ELEVATIONS SHOWN ON THE "LONGITUDINAL SECTION ALONG CENTERLINE ROADWAY" ON DESIGN SHEET 2. PILES SHALL BE DRIVEN THROUGH THE HOLES TO AT LEAST THE SPECIFIED DESIGN BEARING.

THE BRIDGE 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.

THE BRIDGE CONTRACTOR SHALL NOTE THE BRIDGE DECK SHALL BE CLASS D CONCRETE WITH A MINIMUM 28 DAY STRENGTH OF 4000 PSI.



SOUNDING DATA

ESTIMATED PROJECT QUANTITIES

ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUANTITY
2402-2720000	EXCAVATION, CLASS 20	CY	292.000	292.30
2402-2721000	EXCAVATION, CLASS 21	CY	193.000	193.00
2403-0900000	CONCRETE, STRUCTURAL	CY	690.300	690.300
2404-7775000	STEEL, REINFORCING	LB	44855.000	44855.00
2404-7775005	STEEL, REINFORCING, EPOXY COATED	LB	76483.000	76483.00
2407-0580495	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, LXD95	ONLY	18.000	18.0
2408-7800000	STEEL, STRUCTURAL	LB	5913.000	5913.00
2414-6424110	RAIL, CONCRETE BARRIER	LF	630.000	630.00
2501-5425042	PILING, DRIVE STEEL BEARING, HP 10 X 42	LF	3360.000	3087.00
2501-5550042	PILING, FURNISH STEEL BEARING, HP 10 X 42	LF	3360.000	3302.90
2501-6335010	PREBORED HOLES, AS PER PLAN	LF	208.000	208.00
2526-8285000	SURVEY, CONSTRUCTION	LS	1.000	\$4,200.00
2533-4980005	MOBILIZATION	LS	1.000	\$37,000.00

ITEM CODE

ESTIMATE REFERENCE INFORMATION

2403-0900000	INCLUDES COST OF ALL PREFORMED EXPANSION JOINT FILLER REQUIRED. INCLUDES COST OF FURNISHING AND PLACING SUBDRAIN (INCLUDING EXCAVATION), GRANULAR BACKFILL AND POROUS BACKFILL AT ABUTMENTS.
2407-0550001	INCLUDES COST OF PIER AND ABUTMENT BEARING MATERIAL
2408-7800000	INCLUDES STEEL INTERMEDIATE DIAPHRAGMS AND 16 DRAINS AT 106 LBS. EACH.

EXTRA WORK ORDERS

NO.	DESCRIPTION	UNIT	TOTAL
8001	1" ROAD STONE	TONS	27.69
8002	HEATING MATERIALS	CY	280.90
8003	COLD WEATHER PROTECTION	CY	196.10
8005	EXTRA DECK CHAIRS	L.S.	757.89
8006	REINFORCING STEEL SPECIAL EPOXY COATED	L.B.	5,242.0
8007	ADDMIXTURE RETARDER	CY	407.80
8008	BRIDGE DECK SMOOTHNESS INCENTIVE	L.S.	3,000.00

TRAFFIC CONTROL PLAN

THE BRIDGE SITE WILL BE CLOSED TO TRAFFIC DURING CONSTRUCTION. TRAFFIC CONTROL WILL BE THE RESPONSIBILITY OF THE ROAD CONTRACTOR AND WILL BE AS INDICATED IN THE "TRAFFIC CONTROL PLAN" ON THE ROAD PLANS.

SPECIFICATIONS:

DESIGN: AASHTO SERIES OF 1992.
CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION SPECIFICATION, SERIES OF 1992, PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1992. REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60. CONCRETE IN ACCORDANCE WITH SECTION 8, f'c = 3,500 PSI. MINIMUM f'c = 4,000 PSI FOR DECK CONCRETE PRESTRESSED CONCRETE BEAMS, SEE DESIGN SHEETS 12 & 13.

DESIGN FOR 0° SKEW
288'-0 x 40' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
95'-9 END SPANS 96'-6 CENTER SPAN
QUANTITIES AND GENERAL NOTES
STATION: 121+ 88.20 (C IOWA NO. 5) DECEMBER, 1994
WARREN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION
DESIGN SHEET NO. 1 OF 13 FILE NO. 28241 SHEET NO. 195

+0.542%

PROPOSED GRADE ON HIGHWAY #5

EXTREME HW STAGE= 785.0
DATE= JUN 1947

1992: 8460 VPD
2012: 12220 VPD
6% TRUCKS

WARREN COUNTY
T 77N R 23W
ALLEN YWP.
SECTION 4
IOWA NO. 5 OVER
NORTH RIVER

DESIGN FOR 0° SKEW

288'-0" x 40' PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE

95'-9" END SPANS 96'-6" CENTER SPAN

SITUATION PLAN

STATION: 121+88.20 (℄ IOWA NO. 5) DECEMBER, 1994

WARREN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION

DESIGN SHEET NO. 2 OF 13 FILE NO. 28241 DESIGN NO. 195

DESIGNED BY	M.M.CHACKO	CHECKED BY	J.S.LEAHY
DETAILED BY	C.E.COLE	CADD FILE	H910195.C02

WARREN COUNTY

PROJECT NUMBER

BRF-5-4(35)--38-91

STATE
IOWAFHWA
REGION

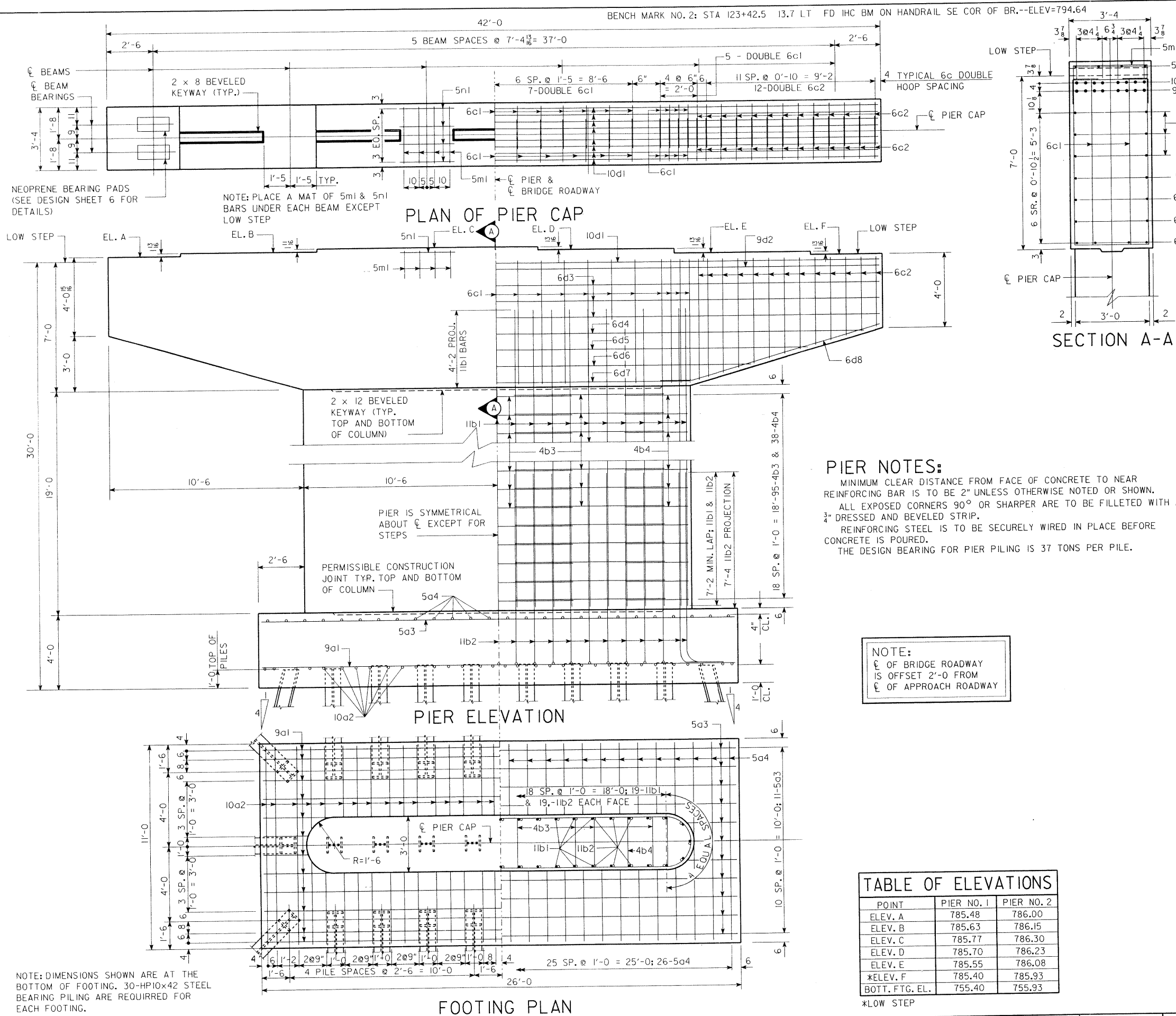
	FISCAL YEAR
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16	16

DEVICE : ZGAI[200.003]ARCH. TAPE No. _____ DATE _____

REVISION: 1001 STANDARD SPECIFICATIONS, UPDATE: ARCH. TAPE NO. 12 DATE: 9-8-88
HSTD0038501-LEP: THIS SHEET REDRAWN, DEVICE: ZH0302000041 ARCH. TAPE NO. 15 DATE: 9-8-88
REVISION: 6-21-93 - ESTIMATE REFERENCE INFORMATION CHANGED FOR " CONCRETE BARRIER RAIL - CAST IN PLACE".



PIER NOTES:

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.
ALL EXPOSED CORNERS 90° OR SHARPER ARE TO BE FILLETED WITH A 3" DRESSED AND BEVELED STRIP.
REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE BEFORE CONCRETE IS POURED.
THE DESIGN BEARING FOR PIER PILING IS 37 TONS PER PILE.

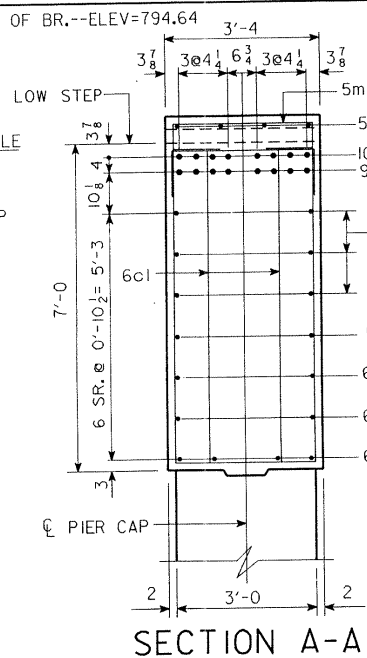
NOTE:

CL OF BRIDGE ROADWAY IS OFFSET 2'-0" FROM CL OF APPROACH ROADWAY

TABLE OF ELEVATIONS

POINT	PIER NO. 1	PIER NO. 2
ELEV. A	785.48	786.00
ELEV. B	785.63	786.15
ELEV. C	785.77	786.30
ELEV. D	785.70	786.23
ELEV. E	785.55	786.08
ELEV. F	785.40	785.93
BOTT. FTG. EL.	755.40	755.93

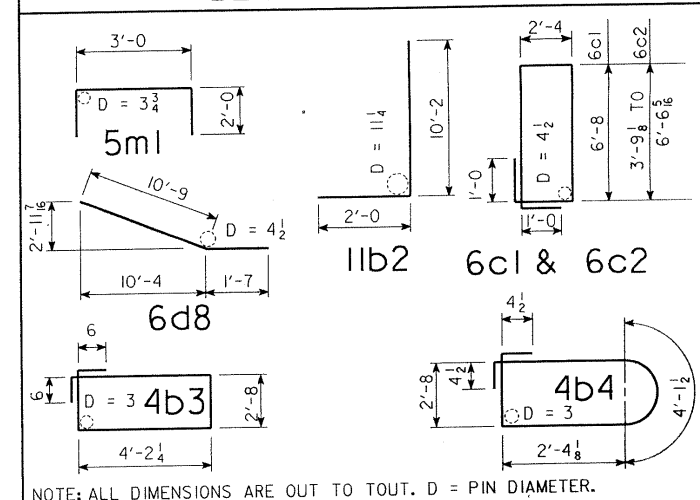
*LOW STEP



REINFORCING STEEL - ONE PIER

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
9a1	FOOTING. BOTTOM, LONGITUDINAL	---	12	25'-8"	1047
10a2	FOOTING. BOTTOM, TRANSVERSE	---	32	10'-8"	1469
5a3	FOOTING. TOP, LONGITUDINAL	---	11	25'-8"	294
5a4	FOOTING. TOP, TRANSVERSE	---	26	10'-8"	289
11b1	STEM, VERTICAL	---	44	23'-0"	5377
11b2	STEM TO FOOTING, VERTICAL	---	44	12'-2"	2844
4b3	STEM HOOPS	---	95	14'-9"	936
4b4	STEM HOOPS, ENDS	---	38	12'-3"	313
6c1	CAP HOOPS	---	42	20'-0"	1262
6c2	CAP, CANTILEVER HOOPS	---	52	VARIES	1324
10d1	CAP, TOP, LONGITUDINAL	---	8	41'-8"	1434
9d2	CAP, TOP, LONGITUDINAL	---	8	41'-8"	1133
6d3	CAP, SIDES, LONGITUDINAL	---	6	41'-8"	501
6d4	CAP, SIDES, LONGITUDINAL	---	2	39'-10"	120
6d5	CAP, SIDES, LONGITUDINAL	---	2	33'-9"	101
6d6	CAP, SIDES, LONGITUDINAL	---	2	27'-8"	83
6d7	CAP, BOTTOM, LONGITUDINAL	---	4	21'-0"	123
6d8	CANTILEVER, BOTTOM, LONGITUDINAL	---	8	12'-4"	74
5m1	STEP, TRANSVERSE	---	20	7'-0"	146
5n1	STEP, LONGITUDINAL	---	20	3'-0"	63
TOTAL (LBS.)					18,933

BENT BAR DETAILS



CONCRETE PLACEMENT QUANT. - ONE PIER

FOOTINGS	42.4
STEMS	43.0
CAPS	33.5
TOTAL (CU.YDS.)	118.9

ESTIMATED QUANTITIES - TWO PIERS

ITEM	UNIT	PIER NO. 1	PIER NO. 2	QUANTITY
STRUCTURAL CONCRETE	C.Y.	118.9	118.9	237.8
REINFORCING STEEL	LBS.	18,933	18,933	37,866
CLASS 20 EXCAVATION	C.Y.	---	170	170
CLASS 21 EXCAVATION	C.Y.	97	96	193
HP10x42 STEEL	FURNISH	30 @ 30'	30 @ 30'	1800
BEARING PILING	DRIVE	30 @ 30'	30 @ 30'	1800

DESIGN FOR 0° SKEW

288'-0" x 40' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

95'-9" END SPANS 96'-6" CENTER SPAN

PIER DETAILS

STATION: 121 + 88.20 (CL IOWA NO. 5) DECEMBER, 1994

WARREN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION

DESIGN SHEET NO. 3 OF 13 FILE NO. 28241 DESIGN NO. 195

DESIGNED BY M.M.CHACKO CHECKED BY J.S.LEAHY
DETAILED BY C.E.COLE CADD FILE H910195.C04

WARREN COUNTY

PROJECT NUMBER

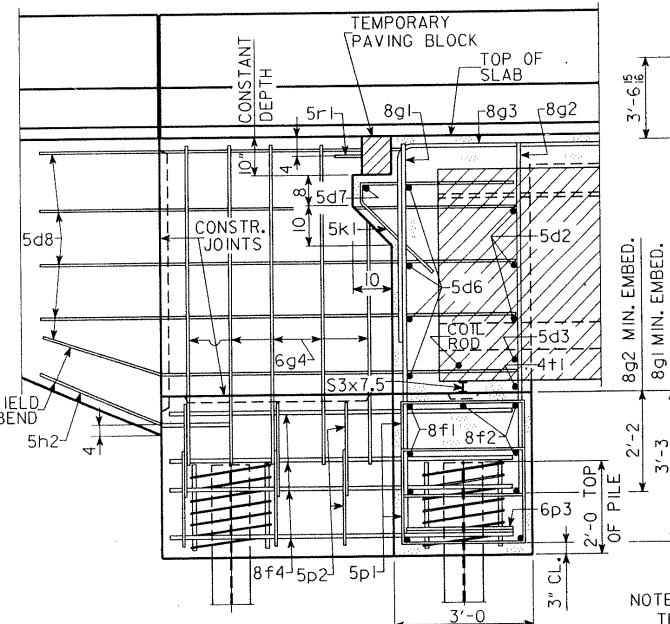
STATE
IOWA

REGION
7

FISCAL
YEAR

SHEET
NO.

TOTAL
SHEETS



PART SECTION B - B

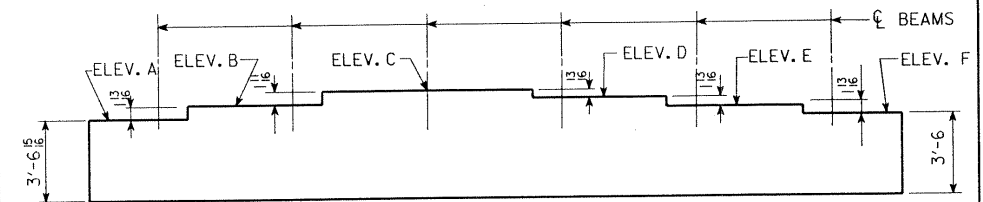
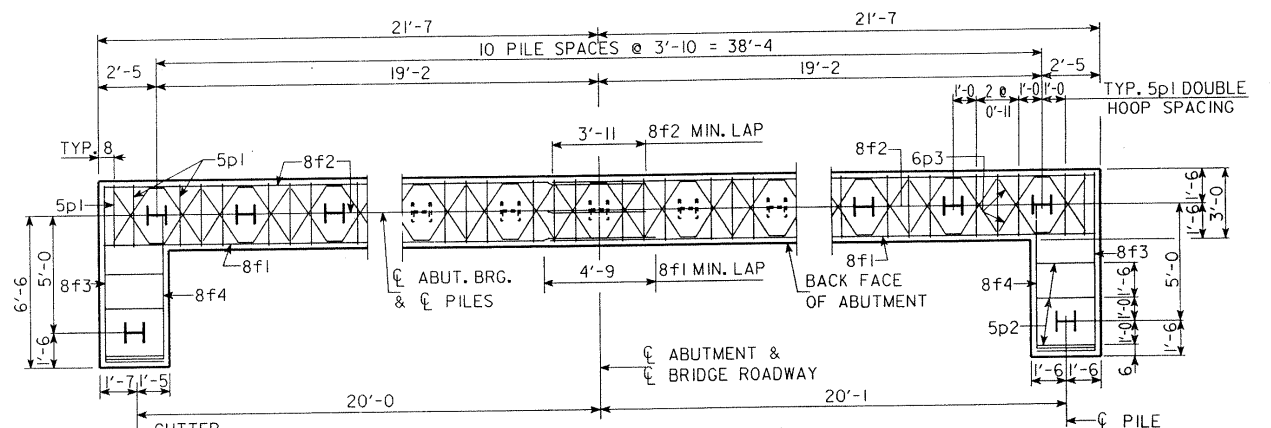


TABLE OF ABUTMENT ELEVATIONS	
1	2
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77	78
79	80
81	82
83	84
85	86
87	88
89	90
91	92
93	94
95	96
97	98
99	100

POINT	WEST ABUTMENT	EAST ABUTMENT
ELEV. A	784.80	786.36
ELEV. B	784.95	786.51
ELEV. C	785.09	786.65
ELEV. D	785.02	786.58
ELEV. E	784.87	786.43
*ELEV. F	784.72	786.28
BOTTOM FTG. ELEV.	781.22	782.78

NOTE:
THE SPIRAL AT THE TOP OF EACH PILE
TO BE 7 TURNS OF No. 2 BAR, 21" DIAMETER,
3" PITCH WITH 2 - $L \frac{7}{8} \times \frac{7}{8} \times \frac{7}{8}$ SPACERS
PUNCHED TO HOLD SPIRAL.



ABUTMENT PILE PLAN

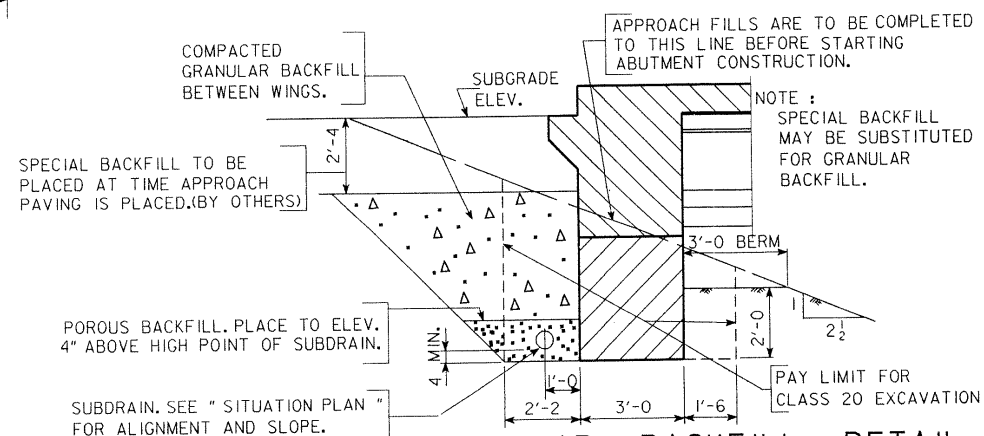
NOTE:
 C OF BRIDGE ROADWAY
 IS OFFSET 2'-0 FROM
 C OF APPROACH ROADWAY

ALL EXPOSED CORNERS OF 90° OR SHARPER ARE TO BE FILLETED WITH A $\frac{3}{4}$ " DRESSED AND BEVELED STRIP.

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN. REINFORCING STEEL IS TO BE SECURELY TIED IN PLACE BEFORE CONCRETE IS PLACED.

ALL BACKFILL BEHIND THE ABUTMENT BETWEEN WINGS IS TO BE AS SHOWN. THE REMAINDER OF THE ABUTMENT EXCAVATION IS TO BE BACKFILLED WITH SOIL.

THE DESIGN BEARING FOR THE ABUTMENT PILES IS 37 TONS.
THE COST OF FURNISHING AND PLACING SUBDRAIN (INCLUDING EXCAVATION,
GRANULAR BACKFILL AND POROUS BACKFILL IS TO BE INCLUDED IN THE PRICE
BID FOR "STRUCTURAL CONCRETE".



GRANULAR BACKFILL DETAIL

DESIGN FOR 0° SKEW
288'-0 x 40' PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE

ABUTMENT DETAILS

STATION: 121 + 88.20 (E IOWA NO. 5) DECEMBER, 1994

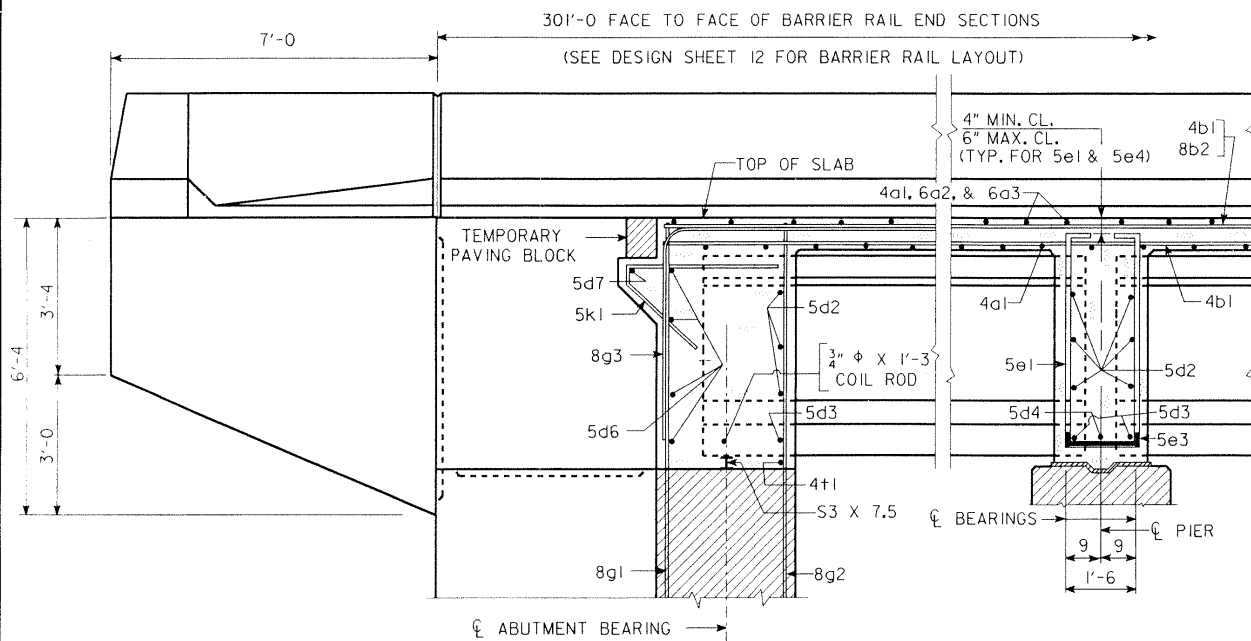
WARREN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION

DESIGN SHEET NO. 4 OF 13 FILE NO. 28241 DESIGN NO. 195

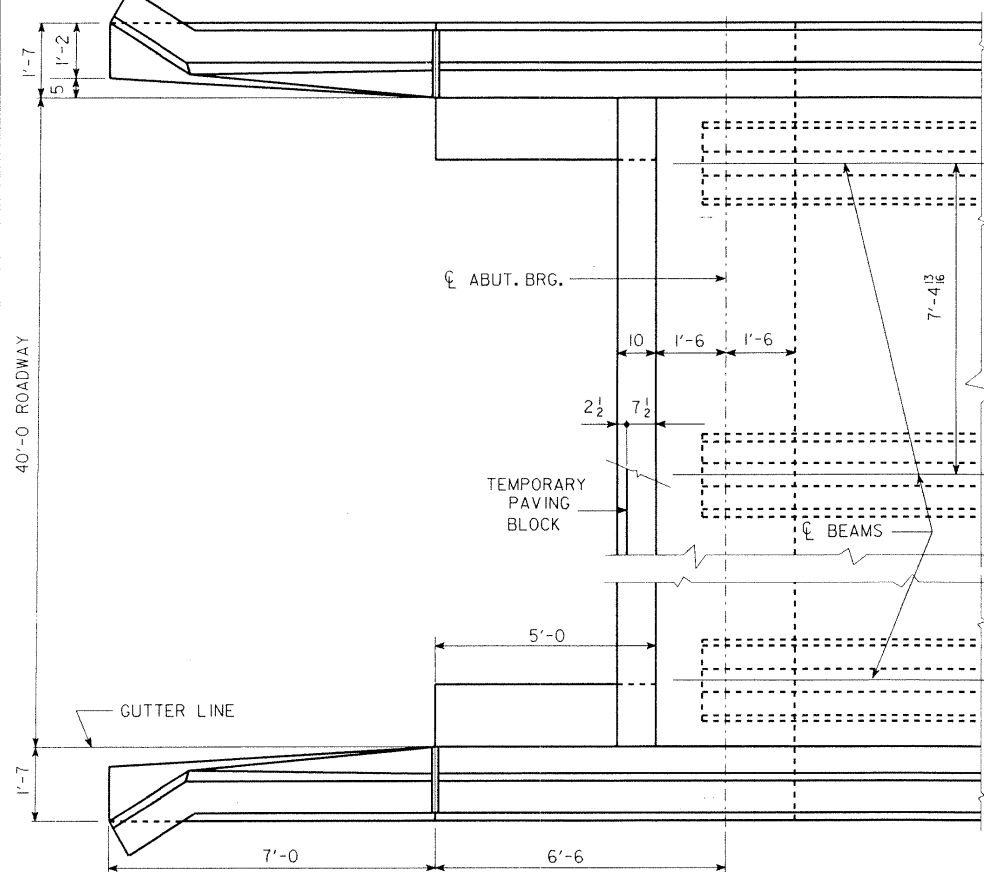
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
INDA	7		5	14

REVISED: 5c & 6g4 BAR EMBEDMENTS AND COIL ROD DETAILS CHANGED. TAPE NO. 16 DATED 5-5--91
REVISED: 6" MAX. CL. ADDED FOR 5e1 BARS. ARCH. TAPE NO. 14 DATED 5-23-89
HSTD04507.S01--LEP: THIS SHEET REDRAWN, DEVICE: ZGAH(200,004) ARCH. TAPE NO. 15 DATE 9-8-88

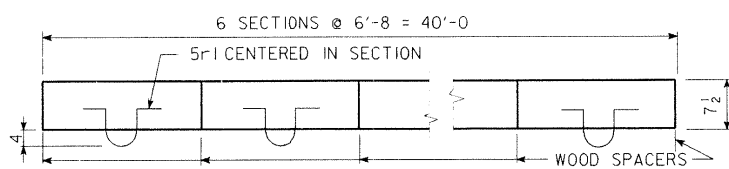


PART LONGITUDINAL SECTION NEAR GUTTER

(FOR DETAILS OF INTERMEDIATE DIAPHRAGM SEE DESIGN SHEET 9)

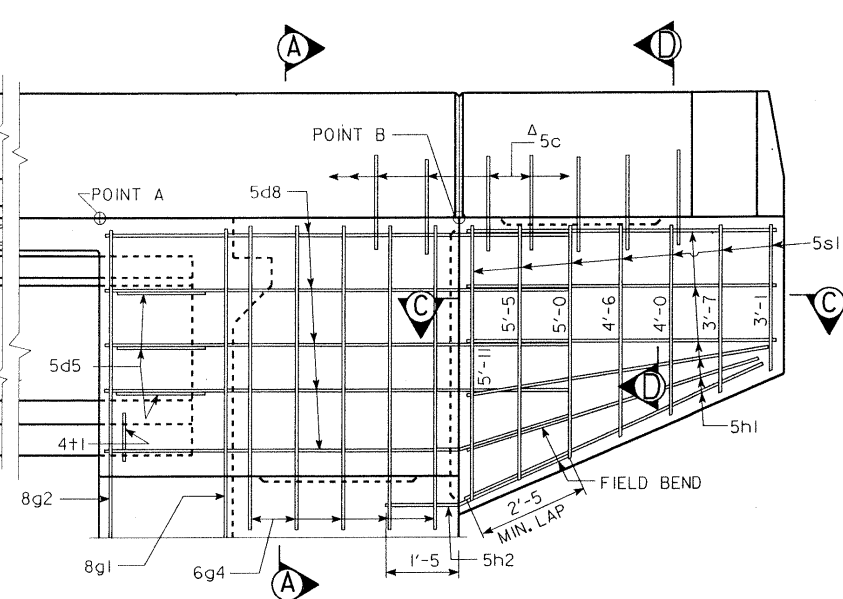


PART PLAN

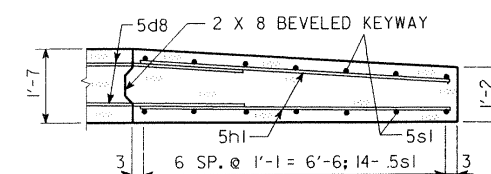


PLAN OF TEMPORARY PAVING BLOCK

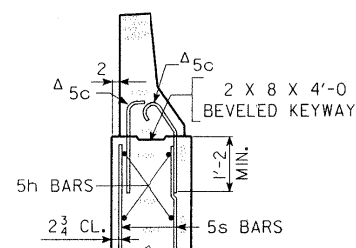
NOTE: LINE PAVING NOTCH WITH TAR PAPER BEFORE PLACING THE TEMPORARY PAVING BLOCK.



PART END VIEW AT ABUTMENT

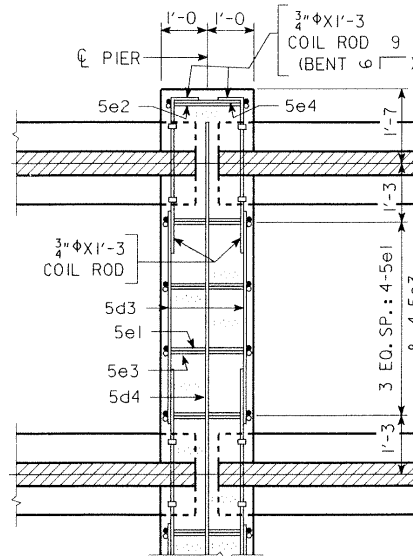


PART SECTION C-C

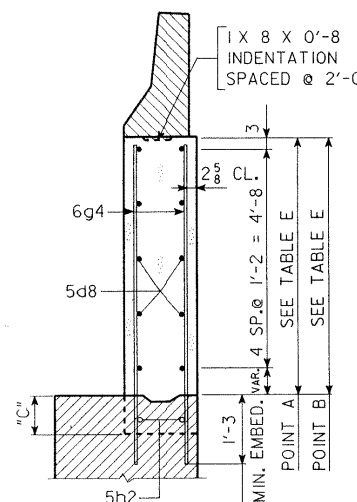


SECTION D-D

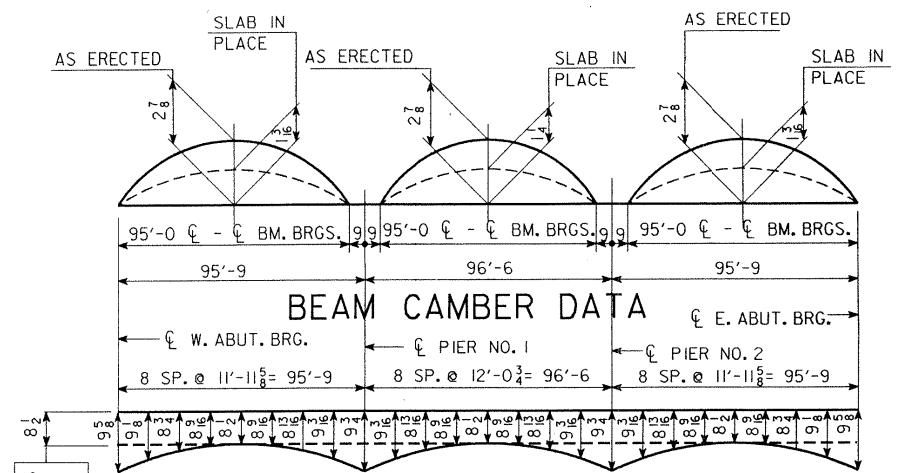
NOTE:
SEE DESIGN SHEET NO. 12 FOR
DETAILS OF BARRIER RAIL AND SPACING
FOR 5c BARRIER RAIL BARS. REINFORCING
BARS "5c" ARE INCLUDED IN THE SUPER-
STRUCTURE QUANTITIES.



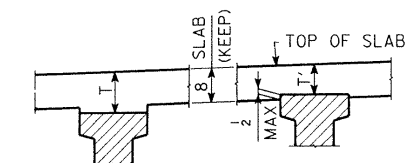
PART SECTION
AT PIER



SECTION A-A

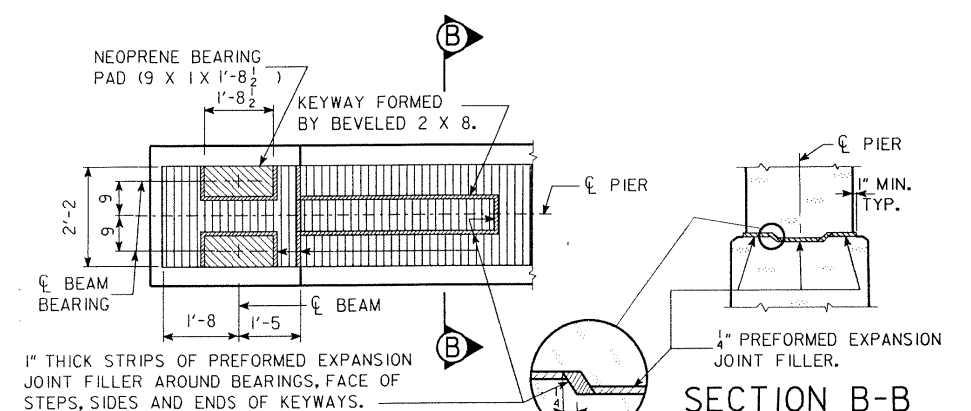


SLAB THICKNESS AT BEAMS (T)



SLAB THICKNESS DETAILS

NOTE: THE SLAB THICKNESS (T) AT BEAMS IS BASED ON THE ANTICIPATED BEAM CAMBER REMAINING AFTER PLACING THE SLAB, BUT IS NOT GUARANTEED FOR CONSTRUCTION. IF BEAM IS UNDER CAMBERED, INCREASE SLAB THICKNESS (T) AT BEAMS TO COMPENSATE. IF BEAM IS OVER CAMBERED, THE SLAB THICKNESS (T) MAY BE DECREASED TO A MAXIMUM OF 1/2" EMBEDMENT AT THE BEAM (T). IF MORE THAN 1/2" EMBEDMENT IS REQUIRED OR IF THE HAUNCH EXCEEDS 2", THE GRADE LINE IS TO BE REVISED.



PART PLAN

TOP OF PIER DETAILS

TABLE E			
LOCATION	"C"	POINT A	POINT B
N.W. CORNER	10 5/8"	790.33	790.29
S.W. CORNER	10 5/8"	790.25	790.21
N.E. CORNER	8 7/8"	791.87	791.92
S.E. CORNER	8 7/8"	791.79	791.84

DESIGN FOR 0° SKEW			
288'-0 x 40' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE			
95'-9 END SPANS		96'-6 CENTER SPAN	
SUPERSTRUCTURE DETAILS			
STATION: 121 + 88.20 (C IOWA NO. 5)		DECEMBER, 1994	
WARREN COUNTY			
IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION			
DESIGN SHEET NO. 6 OF 13		FILE NO. 28241	DESIGN NO. 195

DESIGNED BY M.M.CHACKO
CHECKED BY J.S.LEAHY
DATE 10/19/95

DETAILED BY C.E.COLE
CADD FILE H910195.C06

"D" BEAMS - PART PLAN & LONGIT. SECTION - 0° SKEW

STANDARD SHEET 4507

WARREN COUNTY

PROJECT NUMBER

STATE

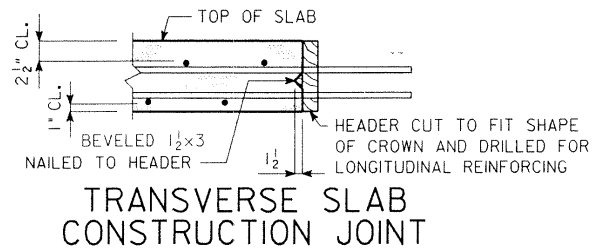
FHWA

FISCAL

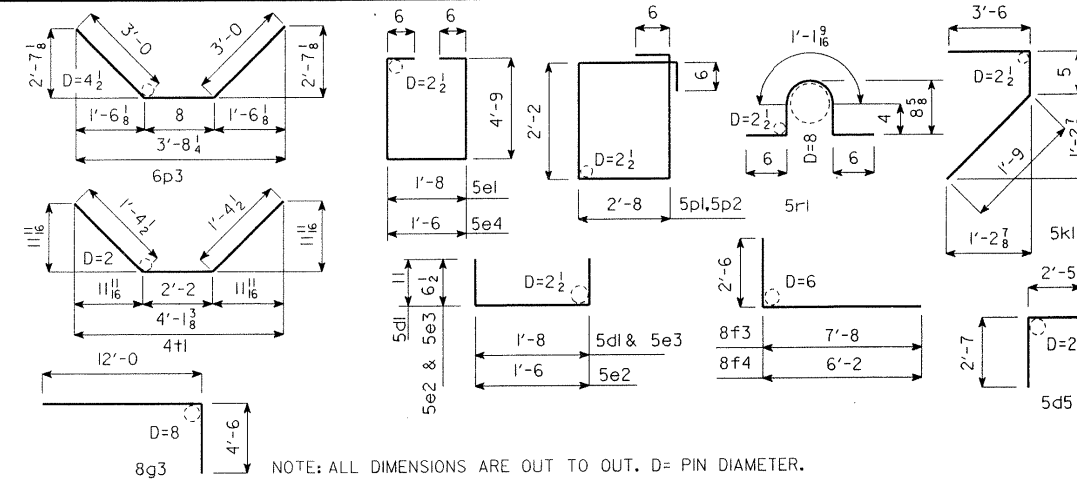
SHEET

TOTAL

DEVICE : ZGAH(200,003)ARCH. TAPE NO. DATE

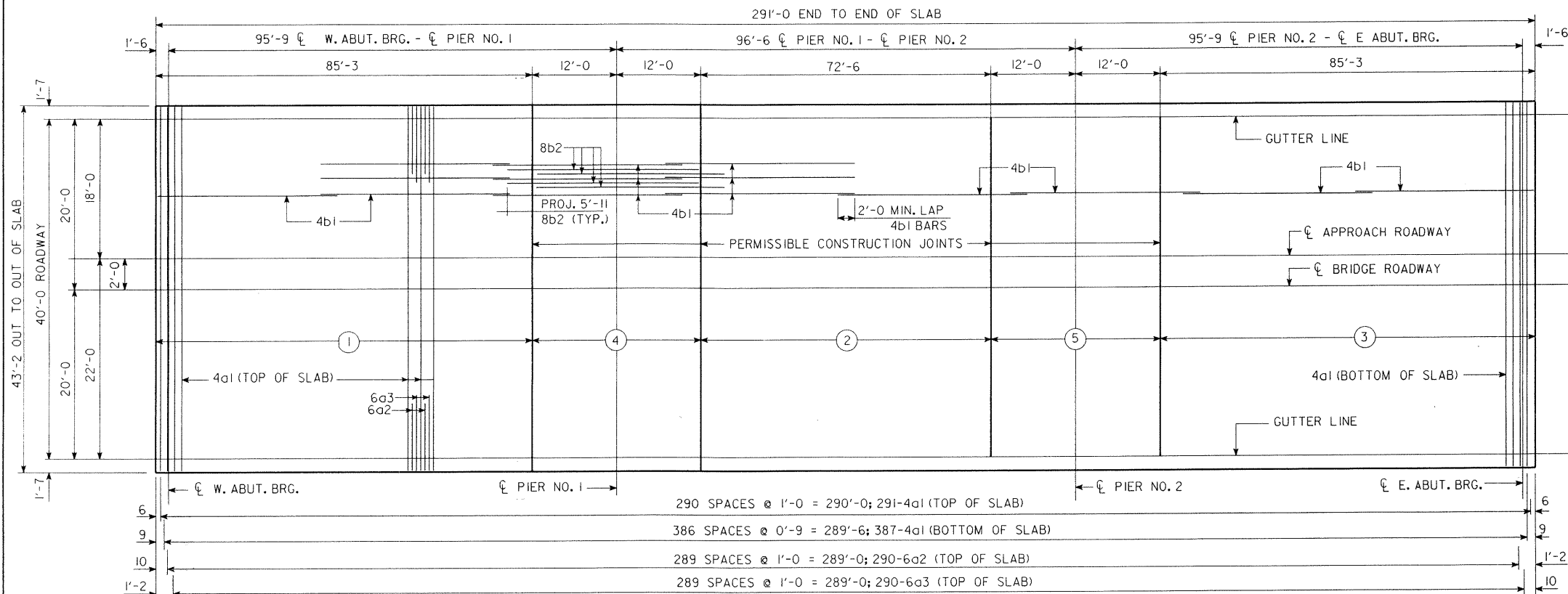


BENT BAR DETAILS



REINF.BAR LIST-ONE SUPER.&TWO ABUTS.

EPOXY COATED REINFORCING		BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
	4al	SLAB TRANSV. TOP & BOTT.	—	678	42'-10	19,399	
	6a2	SLAB TRANSV. TOP	—	580	8'-0	6969	
	6a3	SLAB TRANSV. TOP	—	580	9'-0	7840	
	4bl	SLAB LONGIT. TOP & BOTT.	—	736	38'-1	18,723	
	8b2	SLAB LONGIT. TOP AT PIERS	—	66	29'-9	5242	
	5d6	ABUT. DIAPH. LONGIT. B.F.	—	16	22'-6	375	
	5d7	PAVING NOTCH LONGIT.	—	4	22'-2	92	
	8fi	ABUT. FOOTING LONGIT. B.F.	—	16	23'-10	1018	
	8gi	ABUT. VERT. B.F.	—	70	8'-7	1604	
	8g3	ABUT. DIAPH. VERT. B.F.	—	62	16'-6	2731	
	5ki	PAVING NOTCH TRANSV.	—	66	5'-8	390	
	5pi	ABUT. HOOPS	—	136	10'-8	1513	
	6p3	ABUT. BOTT. AT PILES	—	44	6'-8	441	
	BARRIER RAIL - SEE DESIGN SHT. NO. 12						10,146
	REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)						76,483
NON-COATED REINFORCING	5dl	PIER DIAPH. ENDS	—	12	3'-6	44	
	5d2	PIER & ABUT. DIAPH. LONGIT.	—	90	6'-6	610	
	5d3	PIER & ABUT. DIAPH. LONGIT.	—	30	5'-3	164	
	5d4	PIER DIAPH. LONGIT.	—	2	38'-10	81	
	5d5	ABUT. DIAPH. ENDS	—	12	5'-0	63	
	5d8	ABUT. DIAPH. WING EXT. LONGIT.	—	40	10'-6	438	
	5el	PIER DIAPH. HOOPS	—	40	12'-2	508	
	5e2	PIER DIAPH. TIES ENDS	—	4	2'-7	11	
	5e3	PIER DIAPH. TIES	—	40	2'-9	115	
	5e4	PIER DIAPH. HOOPS ENDS	—	4	12'-0	50	
	8f2	ABUT. FOOTING LONGIT. F.F.	—	20	23'-5	1250	
	8f3	ABUT. EXTENSION LONGIT.	—	16	10'-2	434	
	8f4	ABUT. EXTENSION LONGIT.	—	16	8'-8	370	
	8g2	ABUT. VERT. F.F.	—	62	7'-6	1242	
	6g4	ABUT. DIAPH. WING EXT. VERT.	—	40	6'-9	406	
	5hi	ABUT. WING HORIZ.	—	48	6'-8	334	
	5h2	ABUT. TO WING ANCHOR	—	8	4'-0	33	
	5p2	ABUT. EXTENSION HOOPS	—	24	10'-8	267	
	5ri	PAVING BLOCK LIFTING LOOPS	—	12	2'-10	35	
	5si	WING VERT.	—	56	VARIES	263	
	4ti	UNDER BEAMS AT ABUTMENTS	—	12	4'-11	39	
		#2	PILE SPIRAL	—	26	38'-6	165
		SPIRAL SPACERS, $L \frac{1}{2} \times \frac{1}{2} \times \frac{1}{8} \times 0.70$	—	52	1'-10	67	
	NTERM. DIAPH. - SEE DES. SHT. NO. 9						
	REINFORCING STEEL - TOTAL (LBS.)						6989



CONCRETE PLACEMENT DIAGRAM

NOTE: ROADWAY SLAB SHALL BE PLACED IN SECTIONS AND SEQUENCES 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 RESULTS.

CONC. PLACEMENT QUANTITIES		ONE SUPER. & TWO ABUTS.
LOCATION		QUANTITY
SECTION 1, SLAB & ABUT. DIAPH.		120
SECTION 2, SLAB		80.6
SECTION 3, SLAB & ABUT. DIAPH.		120
SECTION 4, SLAB & PIER DIAPH.		40.2
SECTION 5, SLAB & PIER DIAPH.		40.2
ABUTMENT FOOTINGS		43.1
ABUTMENT WINGS	4 AT 1.7	6.8
PAVING BLOCKS	2 AT 0.8	1.6
TOTAL (CU. YDS.)		452.5

ESTIMATED QUANTITIES				ONE SUPER. & TWO ABUTS	
ITEM			UNIT	QUANTITY	
STRUCTURAL CONCRETE, CLASS "C"			CU. YD.	452.5	
STRUCTURAL STEEL			LBS.	5913	
REINFORCING STEEL EPOXY COATED			LBS.	76,483	
REINFORCING STEEL			LBS.	6989	
PRETENSIONED PRESTRESSED CONCRETE BEAMS			LXD95	NO.	18
CLASS 20 EXCAVATION				CU. YD.	122
HP10x42 STEEL	FURNISH	26 @ 60'		L.F.	1560
BEARING PILING	DRIVE	26 @ 60'		L.F.	1560
PREBORED HOLES AS PIER PLAN		26 @ 8'		L.F.	208

DESIGN FOR 0° SKEW

288'-0" x 40' PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE

95'-9" END SPANS 96'-6" CENTER SPAN

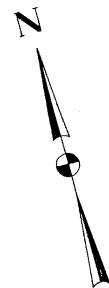
SUPERSTRUCTURE DETAILS

STATION: 121 + 88.20 (1/4 MILE IOWA NO. 5) DECEMBER, 1994

WARREN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION

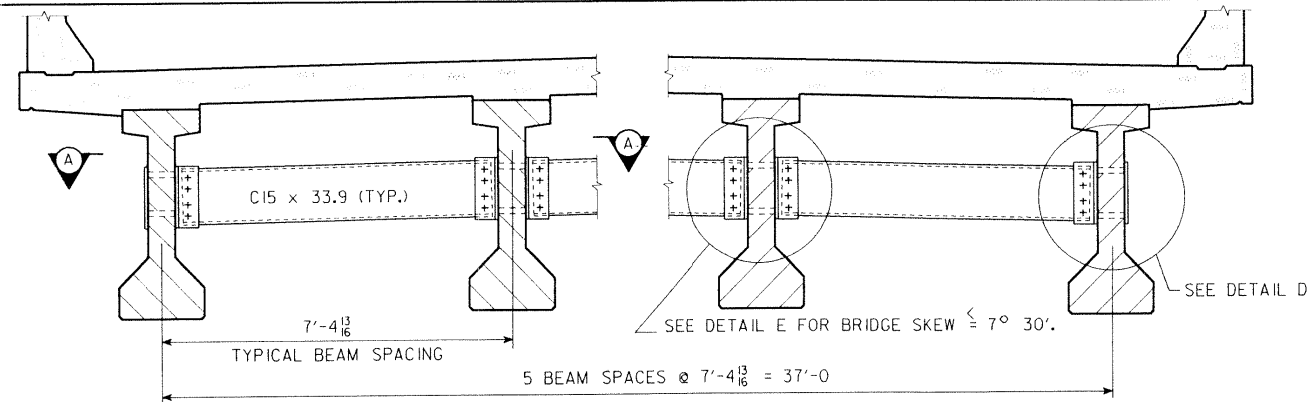
DESIGN SHEET NO. 7 OF 13 FILE NO. 28241 DESIGN NO. 195



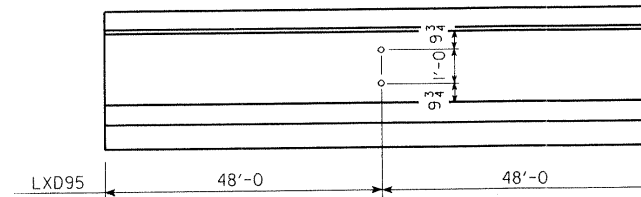
NOTE: ADD 700 TO THE ELEVATIONS SHOWN

DESIGN SHEET NO. 8 OF 13 FILE NO. 28241 DESIGN NO. 195

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		9	14

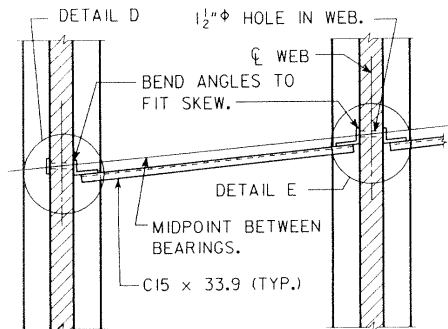


SECTION SHOWING INTERMEDIATE DIAPHRAGM

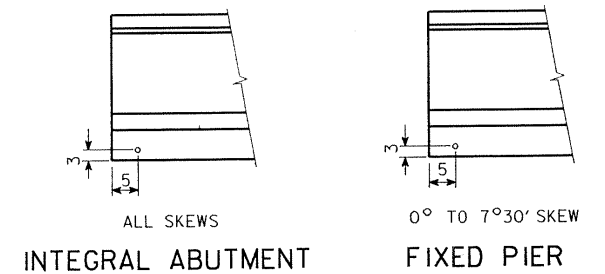


INTERMEDIATE DIAPHRAGM BOLT LOCATION

NOTES:
ALL DIAPHRAGM MATERIALS, INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED.
SHOP DRAWINGS OF THE STEEL DIAPHRAGMS SHOWING LAYOUT AND DETAILS OF THE DIAPHRAGMS SHALL BE SUBMITTED FOR APPROVAL.
ALL COSTS FOR FURNISHING AND INSTALLING STEEL INTERMEDIATE DIAPHRAGMS SHALL BE INCLUDED IN THE PRICE BID FOR STRUCTURAL STEEL.
THE 1 1/2" Ø HOLES FOR THE 7/8" Ø H.T.S. BOLTS SHALL BE CAST INTO THE WEB. DRILLING IS NOT ALLOWED.
THE 7/8" Ø H.T.S. BOLTS THROUGH THE WEB SHALL HAVE A THREAD LENGTH OF 3" MIN. AND 4" MAX.

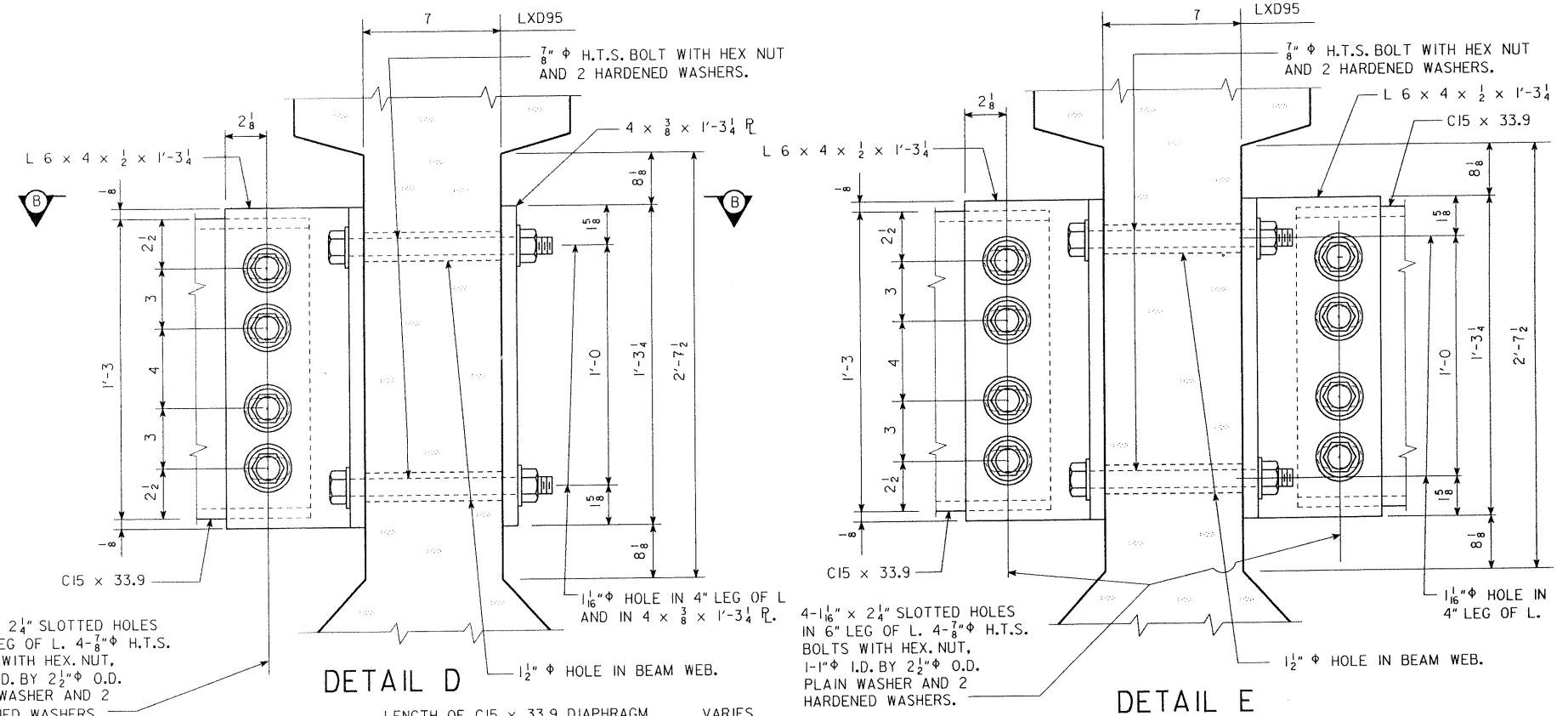


SECTION A-A
FOR BRIDGES SKEWED ≤ 7° 30'



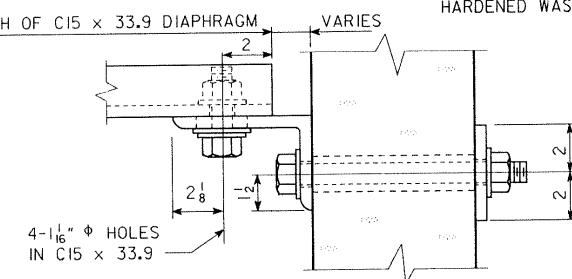
BEAM COIL TIE LOCATIONS

INTERMEDIATE DIAPHRAGM STRUCTURAL STEEL															
ONE CONNECTION DETAIL "E"								WEIGHT							
								2 - $\frac{7}{8}\phi \times$ LENGTH H.T.S. BOLTS WITH NUTS AND WASHERS							
								WEB THICKNESS		LENGTH OF H.T.S. BOLTS		WEIGHT PER DETAIL "E"		NUMBER OF DETAIL "E"	
								7"		10"		4.66 LB		12	
								32		32		128		55.9	
2 - L 6 x 4 x $\frac{1}{2} \times 1'-3\frac{1}{4} =$								41.2 LB	12	494.4					
ONE CONNECTION DETAIL "D"															
								2 - $\frac{7}{8}\phi \times$ LENGTH H.T.S. BOLTS WITH NUTS AND WASHERS							
								WEB THICKNESS		LENGTH OF H.T.S. BOLTS		WEIGHT PER DETAIL "D"		NUMBER OF DETAIL "D"	
								7"		10"		4.66 LB		6	
								32		32		128		28.0	
1 - BACKING PL 4 x $\frac{3}{8} \times 1'-3\frac{1}{4} =$								6.5 LB	6	39.0					
1 - L 6 x 4 x $\frac{1}{2} \times 1'-3\frac{1}{4} =$								20.6 LB	6	123.6					
ONE C15 x 33.9 DIAPHRAGM															
BEAM SPACING								7'-4 $\frac{13}{16}$							
WEB THICKNESS								* LENGTH							
								UNIT WEIGHT (LB)							
7"								6'-6 $\frac{7}{16}$ 221.5							
* THE LENGTH OF THE C15 x 33.9 SHOWN IN THE TABLE IS BASED ON A VARIABLE CLEARANCE OF $\frac{1}{16}$ TO $\frac{2}{16}$ BETWEEN THE FACE OF BEAM WEB AND END OF C15 x 33.9.								DIAPHRAGM WEIGHTS							
								UNIT WEIGHT		NUMBER OF DIAPHRAGMS					
								221.5 LB		15		3322.5			
DIAPHRAGM CONNECTION BOLTS															
								8 - $\frac{7}{8}\phi \times 0'-2\frac{3}{4}$ H.T.S. BOLTS WITH NUTS AND WASHERS, PER UNIT DIAPHRAGM		NUMBER OF DIAPHRAGMS					
								10.3 LB		15		154.5			
INTERMEDIATE DIAPHRAGM STRUCTURAL STEEL (TOTAL LB) =										4217.9					



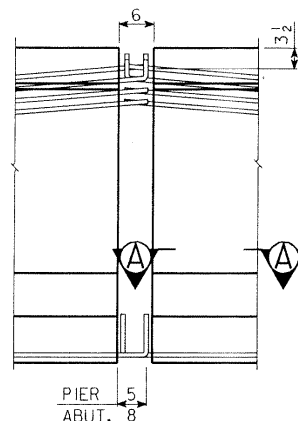
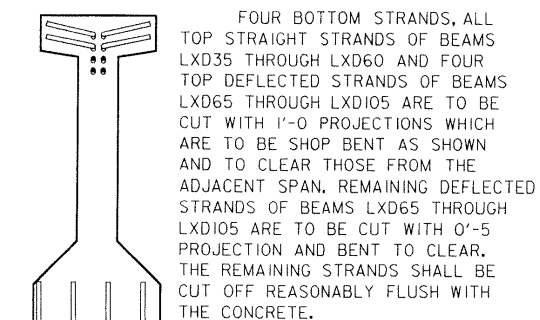
DETAIL D

DETAIL E

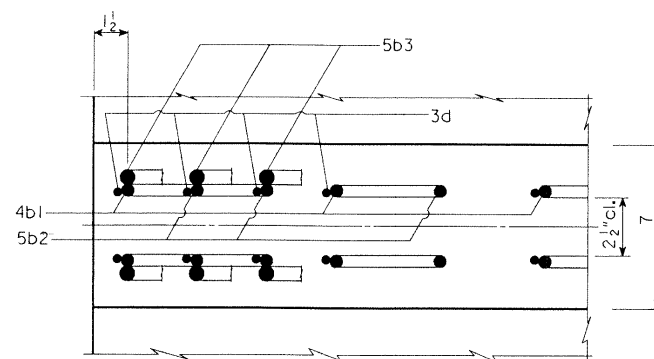


SECTION B-B

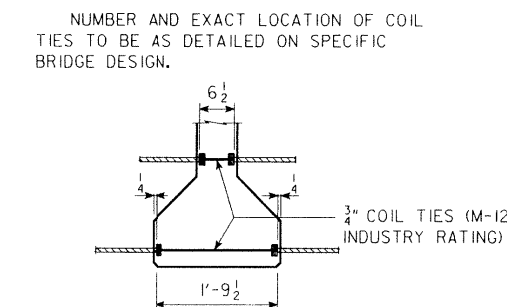
DESIGN FOR 0° SKEW
288'-0" x 40' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
95'-9" END SPANS 96'-6" CENTER SPAN
INTERMEDIATE STEEL DIAPHRAGM DETAILS
STATION: 121 + 88.20 (© IOWA NO. 5) DECEMBER, 1994
WARREN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION
DESIGN SHEET NO. 9 OF 13 FILE NO. 28241 DESIGN NO. 195



STRAND PROJECTION AT BEAM ENDS WHEN EMBEDDED IN CONCRETE END DIAPHRAGMS



SECTION A-A SHOWING PLACEMENT
OF STIRRUPS NEAR END OF BEAM



COIL TIE DETAIL:
SPECIFICATIONS:

CONSTRUCTION: STANDARD SPECIFICATIONS OF THE IOWA
DEPARTMENT OF TRANSPORTATION, CURRENT SERIES, WITH
CURRENT APPLICABLE SPECIAL PROVISIONS AND SUPPLE-
MENTAL SPECIFICATIONS.

DESIGN: A.A.S.H.T.O., SERIES OF 1989, WITH MINOR MODIFICATIONS.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE TO BE
IN ACCORDANCE WITH A.A.S.H.T.O. STANDARD SPECIFICATIONS
FOR HIGHWAY BRIDGES, SERIES OF 1989:
REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60.
CONCRETE IN ACCORDANCE WITH SECTION 9, $f'_c = 5000$ psi. (EXCEPT
AS NOTED).
PRESTRESSING STEEL IN ACCORDANCE WITH SECTION 9,
 $f_s = 270,000$ psi.

NOTES:

IF THE STEEL DIAPHRAGM OPTION IS ALLOWED AND USED, HOLES MUST BE CAST IN THE WEB TO ACCOMMODATE THE STEEL DIAPHRAGM ATTACHMENTS. AS DETAILED ON THE STEEL DIAPHRAGM DETAIL SHEET.

LXD BEAM DATA

BEAM	SPAN LENGTH ℓ - ℓ _b BEARING	OVERALL BEAM LENGTH (L)	# STRAND SIZE	NO. OF STRANDS		TOTAL INITIAL PRESTRESS KIPS ③	HOLD DOWN FORCE-KIPS	CAMBER (in.)		DEFLECTION (in.) Δ ₀				PERMISSIBLE SPACING		WEIGHT (TONS)	CONCRETE (C.Y.)	REINFORCING (STEEL) (LBS.)
				STRAIGHT	DEFLECTED			AT RELEASE	AFTER LOSSES	IMMEDIATE ① (ELASTIC) Δ _i		TIME ② (PLASTIC) Δ _T		HS20 LOADING				
										CONC. DIAPH.	STEEL DIAPH.	CONC. DIAPH.	STEEL DIAPH.		CONC. DIAPH.	STEEL DIAPH.		
LXD95	95'-0	96'-0	1/2" Φ	24	8	991	26.2	1.62	2.85	1.42	0.36	7'-4 13/16	31.9	15.8	1411			

① DEFLECTIONS AT MID-SPAN DUE TO WEIGHT OF SLAB AND DIAPHRAGM. THE DEFLECTIONS SHOWN ARE FOR A SLAB WEIGHT OF 160 #/FT. (8" SLAB AND Δ^7-6 BEAM SPACING) AND ONE CONCRETE DIAPHRAGM (3191 #) OR ONE STEEL DIAPHRAGM (285 #) AT $\frac{1}{2}$ OF SPAN. FOR DIFFERENT SLAB AND DIAPHRAGM WEIGHTS, DEFLECTIONS WILL BE DIRECTLY PROPORTIONAL.

② DEFLECTIONS DUE TO THE COMBINED EFFECT OF CREEP DUE TO WEIGHT OF SLAB AND SHRINKAGE OF SLAB.

TOTAL BEAM DEFLECTIONS AT $\frac{L}{4}$ OF SPAN, Δ_D , DUE TO WEIGHT OF SLAB AND DIAPHRAGMS FOR DETAILING PURPOSE:

(C) $\Delta_D = \Delta_I + \frac{1}{2}\Delta_T$ FOR INTERIOR SPANS OF CONTINUOUS BRIDGE

③ TOTAL INITIAL PRESTRESS FOR LXD35 THRU LXD85 INCLUSIVE IS BASED ON 72.664% F_{su} , AND FOR LXD90 THRU LXD105 ON 75% F_{su} . $F_{su} = 270$ ksi AND $A_s = 0.153$ sq. in.

NOTES:

THESE BEAMS ARE DESIGNED FOR AASHTO LIVE LOADS AS INDICATED IN ABOVE TABLE WITH AN ALLOWANCE OF 20 lb. PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE.

HOLD DOWN POINTS FOR DEFLECTED STRANDS MAY BE
MOVED TOWARD ENDS OF BEAM A DISTANCE OF 0.05 L MAXIMUM
AT PRODUCER'S OPTION.

ALL PRESTRESSING STRANDS SHALL CONFORM TO ASTM A416
GRADE 270 LOW RELAXATION STRANDS.

TOPS OF BEAMS ARE TO BE STRUCK OFF LEVEL AND INTENTIONALLY
ROUGHENED TO A FULL AMPLITUDE OF APPROXIMATELY $\frac{1}{4}$ INCH.

BEARINGS SHALL BE AS DETAILED ON OTHER DESIGN SHEETS.

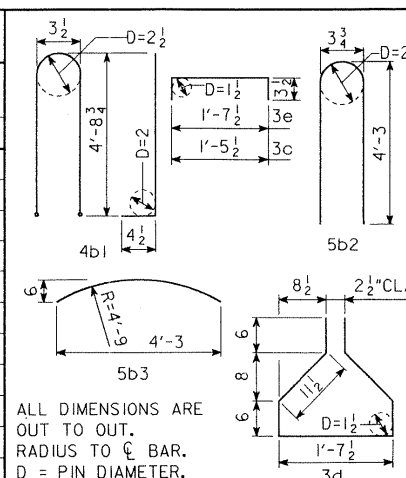
BEAMS TO BE USED IN BRIDGES MADE CONTINUOUS BY THE POURED IN PLACE FLOOR, ARE TO BE AT LEAST 28 DAYS OLD BEFORE THE FLOOR IS PLACED UNLESS A SHORTER CURING TIME IS APPROVED BY THE BRIDGE ENGINEER.

THE PORTIONS OF THE PRESTRESS BEAMS THAT ARE TO BE EMBEDDED IN THE ABUTMENT AND PIER DIAPHRAGMS SHALL BE ROUGHENED FOR A DISTANCE OF 10" FROM THE BEAM END BY SANDBLASTING OR OTHER APPROVED METHODS TO PROVIDE SUITABLE BOND BETWEEN THE BEAM AND THE DIAPHRAGM IN ACCORDANCE WITH ARTICLE 2403.14 OF THE SPECIFICATIONS.

UNLESS OTHERWISE NOTED ALL BEAMS ARE TO BE INCREASED IN LENGTH BY .0005L TO COMPENSATE FOR ELASTIC SHORTENING, CREEP AND SHRINKAGE.

FOR TRANSPORTING, THE OVERHANG SHALL BE IN ACCORDANCE WITH ART. 2407.13 OF STD. SPEC., EXCEPT THE OVERHANG MAY BE INCREASED TO A MAXIMUM OF 8 FEET FOR THE LXD85 BEAM, 9 FEET FOR THE LXD90 BEAM, 11 FEET FOR THE LXD95 BEAM.

REINFORCING BAR LIST																						
BEAM	SPAN																	LXD95				
																		95'-0				
BAR	SHAPE																	NO.	LENGTH			
4a1																		2	20'-0			
a2																		6 4	32'-10			
a3																		8 2	36'-0			
4b1																		80	10'-4			
5b2																		12	8'-8			
5b3																		20	4'-4			
3c																		80	2'-1			
3d																		80	5'-7			
3e																		16	2'-3			



DESIGN FOR 0° SKEW
288'-0 x 40' PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE

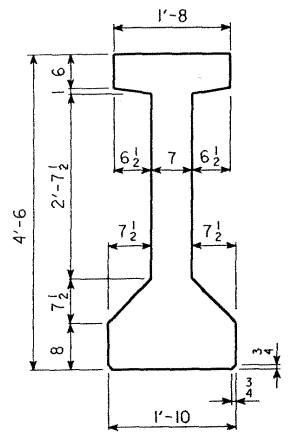
95'-9 END SPANS 96'-6 CENTER SPAN

LXD BEAM DETAILS

IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION
DESIGN SHEET NO. 10 OF 13 FILE NO. 28241 DESIGN NO. 195

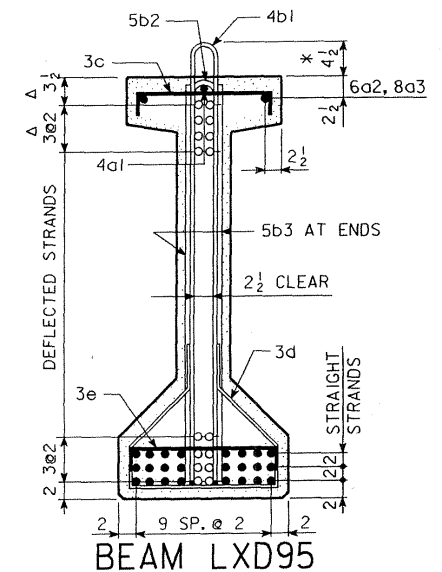
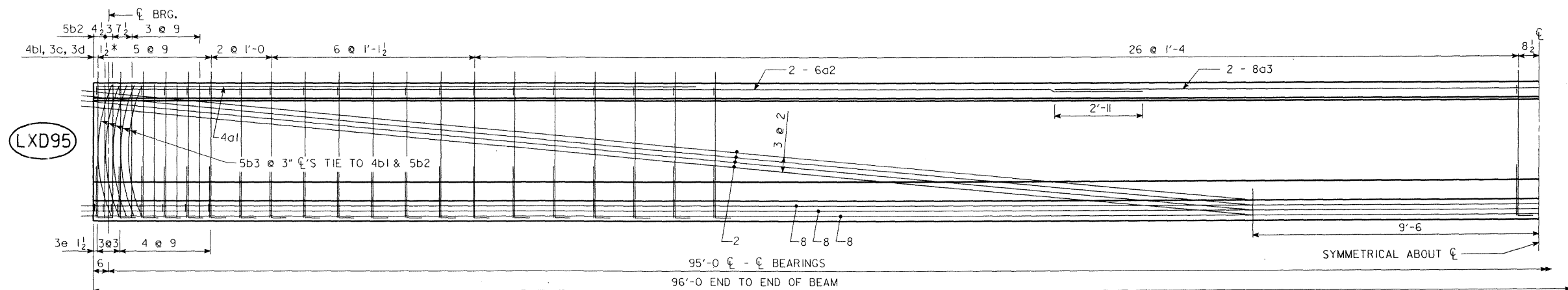
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		11	14

NOTE: DIMENSIONS FOR THE LOCATION OF THE DEFLECTED STRANDS
ARE AT ϕ BEAM AND END OF BEAM.



TYPICAL "LXD" BEAM
CROSS SECTION

AREA = 638.75 in.²
Y_b = 24.37 in.
I = 214,974 in.⁴



- DEFLECTED STRANDS
- * KEEP
- △ DIMENSIONS AT END OF BEAM

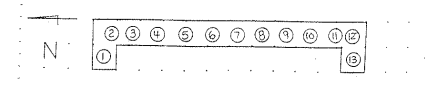
DESIGN FOR 0° SKEW
288'-0 x 40' PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE
95'-9 END SPANS 96'-6 CENTER SPAN
LXD95 BEAM DETAILS
STATION: 121 + 88.20 (ϕ IOWA NO. 5) DECEMBER, 1994
WARREN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION
DESIGN SHEET NO. 11 OF 13 FILE NO. 28241 DESIGN NO. 195

DESIGNED BY M.M.CHACKO	CHECKED BY J.S.LEAHY	LXD BEAMS	STANDARD SHEET 4634	warren COUNTY	PROJECT NUMBER	STATE IOWA	FHWA REGION 7	FISCAL YEAR	SHEET NO. 12	TOTAL SHEETS 14
DETAILED BY C.E.COLE	CADD FILE H910195.C11		ISSUE DATE 06-01-90							

HLXD04634.S01--GJP: THIS SHEET REISSUED, DEVICE: ZHA1(200,005) ARCH. TAPE 9 DATE 05-24-90.

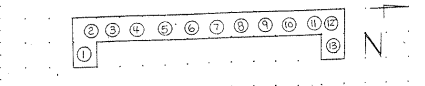
DEVICE: ZHA1(200,005) ARCH. TAPE No. DATE

12-16-90 LOG OF PILING DRIVEN
Type of Piling: HP 10x42
County: WARREN
Design No: 195
Sta. of Foundation: 120+44.20
Location: WEST ABUTMENT
Contractor: UNITED CONTRACTORS
Driving Graph No: 91-0195-01-486
Type of Piling: HP 10x42
Hammer Model & Type: D100 DIESEL
Plan Tip Elevation: 754.40 ft
Plan Driving Resistance: 37 tons
Observed Blows/Min.: 50
Hammer Energy: 25,428 ft-kips



Pile No.	Blow Count	Length (ft)	Tip Elevation (ft)	Remarks
1	2-3-4	60	754.40	REF
2	2-3-4	60	754.40	REF
3	2-3-4	60	754.40	REF
4	2-3-4	60	754.40	REF
5	2-3-4	60	754.40	REF
6	2-3-4	60	754.40	REF
7	2-3-4	60	754.40	REF
8	2-3-4	60	754.40	REF
9	2-3-4	60	754.40	REF
10	2-3-4	60	754.40	REF
11	2-3-4	60	754.40	REF
12	2-3-4	60	754.40	REF
13	2-3-4	60	754.40	REF
14	2-3-4	60	754.40	REF
15	2-3-4	60	754.40	REF
16	2-3-4	60	754.40	REF

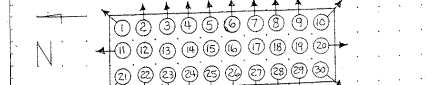
12-16-90 LOG OF PILING DRIVEN
Type of Piling: HP 10x42
County: WARREN
Design No: 195
Sta. of Foundation: 123+52.20
Location: EAST ABUTMENT
Contractor: UNITED CONTRACTORS
Driving Graph No: 91-0195-01-486
Type of Piling: HP 10x42
Hammer Model & Type: D100 DIESEL
Plan Tip Elevation: 754.40 ft
Plan Driving Resistance: 37 tons
Observed Blows/Min.: 50
Hammer Energy: 25,428 ft-kips



Pile No.	Blow Count	Length (ft)	Tip Elevation (ft)	Remarks
1	1-1-5-35	60	754.40	REF
2	1-1-5-35	60	754.40	REF
3	1-1-5-35	60	754.40	REF
4	1-1-5-35	60	754.40	REF
5	1-1-5-35	60	754.40	REF
6	1-1-5-35	60	754.40	REF
7	1-1-5-35	60	754.40	REF
8	1-1-5-35	60	754.40	REF
9	1-1-5-35	60	754.40	REF
10	1-1-5-35	60	754.40	REF
11	1-1-5-35	60	754.40	REF
12	1-1-5-35	60	754.40	REF
13	1-1-5-35	60	754.40	REF
14	1-1-5-35	60	754.40	REF
15	1-1-5-35	60	754.40	REF
16	1-1-5-35	60	754.40	REF

Pile No.	Blow Count	Length (ft)	Tip Elevation (ft)	Remarks
17	1-1-5-35	60	754.40	REF
18	1-1-5-35	60	754.40	REF
19	1-1-5-35	60	754.40	REF
20	1-1-5-35	60	754.40	REF
21	1-1-5-35	60	754.40	REF
22	1-1-5-35	60	754.40	REF
23	1-1-5-35	60	754.40	REF
24	1-1-5-35	60	754.40	REF
25	1-1-5-35	60	754.40	REF
26	1-1-5-35	60	754.40	REF
27	1-1-5-35	60	754.40	REF
28	1-1-5-35	60	754.40	REF
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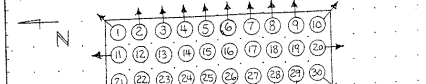
12-16-90 LOG OF PILING DRIVEN
Type of Piling: HP 10x42
County: WARREN
Design No: 195
Sta. of Foundation: 127+39.95
Location: PIER 1
Contractor: UNITED CONTRACTORS
Driving Graph No: 91-0195-02-487
Type of Piling: HP 10x42
Hammer Model & Type: D100 DIESEL
Plan Tip Elevation: 754.40 ft
Plan Driving Resistance: 37 tons
Observed Blows/Min.: 50
Hammer Energy: 25,428 ft-kips



Pile No.	Blow Count	Length (ft)	Tip Elevation (ft)	Remarks
1	2-4-36	30	754.40	REF
2	2-4-36	30	754.40	REF
3	2-4-36	30	754.40	REF
4	2-4-36	30	754.40	REF
5	2-4-36	30	754.40	REF
6	2-4-36	30	754.40	REF
7	2-4-36	30	754.40	REF
8	2-4-36	30	754.40	REF
9	2-4-36	30	754.40	REF
10	2-4-36	30	754.40	REF
11	2-4-36	30	754.40	REF
12	2-4-36	30	754.40	REF
13	2-4-36	30	754.40	REF
14	2-4-36	30	754.40	REF
15	2-4-36	30	754.40	REF
16	2-4-36	30	754.40	REF

Pile No.	Blow Count	Length (ft)	Tip Elevation (ft)	Remarks
17	2-4-36	30	754.40	REF
18	2-4-36	30	754.40	REF
19	2-4-36	30	754.40	REF
20	2-4-36	30	754.40	REF
21	2-4-36	30	754.40	REF
22	2-4-36	30	754.40	REF
23	2-4-36	30	754.40	REF
24	2-4-36	30	754.40	REF
25	2-4-36	30	754.40	REF
26	2-4-36	30	754.40	REF
27	2-4-36	30	754.40	REF
28	2-4-36	30	754.40	REF
29	2-4-36	30	754.40	REF
30	2-4-36	30	754.40	REF

12-16-90 LOG OF PILING DRIVEN
Type of Piling: HP 10x42
County: WARREN
Design No: 195
Sta. of Foundation: 127+36.45
Location: PIER 2
Contractor: UNITED CONTRACTORS
Driving Graph No: 91-0195-02-487
Type of Piling: HP 10x42
Hammer Model & Type: D100 DIESEL
Plan Tip Elevation: 754.40 ft
Plan Driving Resistance: 37 tons
Observed Blows/Min.: 50
Hammer Energy: 25,428 ft-kips



Pile No.	Blow Count	Length (ft)	Tip Elevation (ft)	Remarks
1	1-1-5-35	60	754.40	REF
2	1-1-5-35	60	754.40	REF
3	1-1-5-35	60	754.40	REF
4	1-1-5-35	60	754.40	REF
5	1-1-5-35	60	754.40	REF
6	1-1-5-35	60	754.40	REF
7	1-1-5-35	60	754.40	REF
8	1-1-5-35	60	754.40	REF
9	1-1-5-35	60	754.40	REF
10	1-1-5-35	60	754.40	REF
11	1-1-5-35	60	754.40	REF
12	1-1-5-35	60	754.40	REF
13	1-1-5-35	60	754.40	REF
14	1-1-5-35	60	754.40	REF
15	1-1-5-35	60	754.40	REF
16	1-1-5-35	60	754.40	REF

Pile No.	Blow Count	Length (ft)	Tip Elevation (ft)	Remarks
17	1-1-5-35	60	754.40	REF
18	1-1-5-35	60	754.40	REF
19	1-1-5-35	60	754.40	REF
20	1-1-5-35	60	754.40	REF
21	1-1-5-35	60	754.40	REF
22	1-1-5-35	60	754.40	REF
23	1-1-5-35	60	754.40	REF
24	1-1-5-35	60	754.40	REF
25	1-1-5-35	60	754.40	REF
26	1-1-5-35	60	754.40	REF
27	1-1-5-35	60	754.40	REF
28	1-1-5-35	60	754.40	REF
29	1-1-5-35	60	754.40	REF
30	1-1-5-35	60	754.40	REF