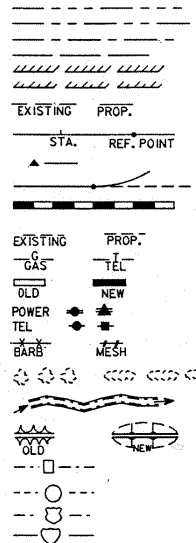


BRIDGE
F-RP-500-K(14)--36-77

POLK COUNTY

CONVENTIONAL SIGNS



STATE LINE
COUNTY LINE
TOWNSHIP LINE
SECTION LINE
CORPORATION LINE
URBAN BOUNDARY
R.O.W. LINES
SURVEY LINES
SECTION CORNER
PROPOSED PROFILE GRADE
RAILROAD
FIELD TILE
UNDERGROUND LINES
CULVERTS
UTILITY POLES
FENCES
TREES OR BRUSH
STREAM
DIKE
COUNTY ROAD NUMBER
PRIMARY ROAD NUMBER
U.S. ROAD NUMBER
INTERSTATE ROAD NUMBER

IOWA
DEPARTMENT OF TRANSPORTATION
Highway Division
PLANS OF PROPOSED IMPROVEMENTS ON THE
PRIMARY ROAD SYSTEM
POLK COUNTY

BRIDGE
ON RELOCATED U.S. 65 - OVER IOWA 163 -
IN THE CITY OF PLEASANT HILL

SCALES: As Noted

The standard specifications, series of 1984 of the Iowa Department of Transportation, shall apply to construction work on this project.

(PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS)

MILEAGE SUMMARY			
DIV.	LOCATION	LIN. FT.	MILES
	BRIDGE AT STA. 440+64.20	N. Bound 282.5 S. Bound 282.5	0.05 0.05
	TOTAL LENGTH OF PROJECT	565.0	0.10

Form 620003 12-97

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.

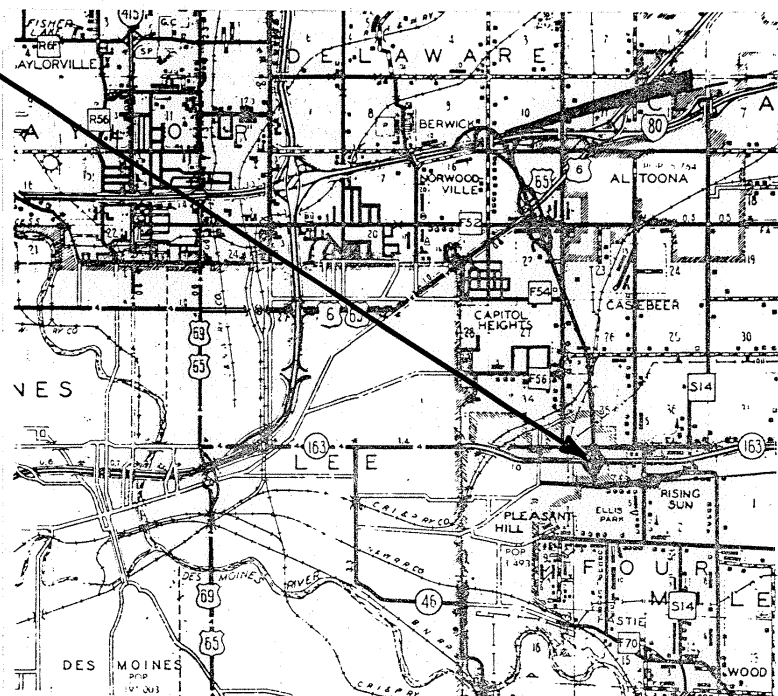
Mitchell J. Dillavou 11/6/2000
Project Engineer Date

My license renewal date is December 31, 2001.

1993 Hartland Dan Meeker
Year Contractor Project Inspector

INDEX OF SHEETS	
NO.	DESCRIPTION
1	TITLE SHEET
2	BRIDGE ESTIMATE SHEET
2-28	BRIDGE DESIGN NO. 588
4	Extra Work Orders
10A	Plane Logs

DESIGN NO. 588



NOT TO SCALE

R-23W

Form 200003 11-94

CONSTRUCTION "AS BUILT" PLANS

As-Built Preparation Supervised By: _____ (Project Engineer)

Date: _____

REVIEWED AND FORWARDED TO AMES

(Transportation Center Construction Engineer) Date: _____

AFTER MICROFILMING RETURN ORIGINAL.
Full-Size Prints To: _____ Iowa Transportation Center

THIS AS BUILT PLAN INCLUDES		
YEAR	WORK	CONTRACTOR
1993	Structuring New	Hartland

PROJ. INSPECTOR
Dan Meeker

changed by: Steve Ulrich
Inspected by:
checked by: Amanda Downey

MICROFILMED

STANDARD ROAD PLANS				STANDARD BRIDGE PLANS		
IDENT	DATE	IDENT	DATE	STANDARD	ISSUED	REVISED
RS-62	10-11-88					

REVISIONS

Iowa Department of Transportation

AUTHORIZED FOR LETTING
George F. Lissner 11-1-11
DEPUTY CHIEF 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 Wendal Johnston
Iowa Registration No. 4316 Date 11/30/91

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

FOR THE DIVISION ADMINISTRATOR DATE

As built TOTAL ESTIMATED QUANTITIES - TWO BRIDGES					
ITEM NO.	ITEM	UNITS	6 PIERS	4 ABUTS. & 2 SUPER.	TOTAL
1	STRUCTURAL CONCRETE	CU. YDS.	423.7	937.1	1,360.8
2	REINFORCING STEEL	LBS.	49,143	18,260	67,403
3	REINFORCING STEEL - EPOXY COATED	LBS.	8,700	200,110	208,810
4	PRETENSIONED PRESTRESSED CONCRETE BEAMS	D40	NO.	12	12
5		D45	NO.	12	12
6		D95	NO.	24	24
7	HP 10x42 STEEL	FURNISH	8610	3,460	12,070
8	BEARING PILES	DRIVE	854,8610	34073,460	11,9118,12070
9	PREBORED HOLES, AS PER PLAN	LIN. FT.		790	790
10	GRANULAR BACKFILL	TONS		401	401
11	EXCAVATION, CLASS 20	CU. YDS.	665	252	917
12	CONCRETE SLOPE PROTECTION	SQ. YD.	121134,1231	121134,1231	
13	CONCRETE BARRIER RAIL	LIN. FT.		1,226	1,226
14	SUBDRAIN, AS PER PLAN	LIN. FT.		400,208	400,208
15	2" RIGID STEEL CONDUIT	LIN. FT.		622	622
16	1" RIGID STEEL CONDUIT	LIN. FT.		478	478
17	STRUCTURAL STEEL	LBS.		1,696	1,696
18	TRAFFIC CONTROL				\$10,000 TYP SUM
19	TEMPORARY BARRIER RAIL, PLACE	LIN. FT.			550,600
20	TEMPORARY BARRIER RAIL, FURNISH	LIN. FT.			650,600
21	4" STD Non Perforated Subdrain	Lin Ft			60
22	Flags	Days			4
23	Mobilization	LS			\$85,200

ITEM NO.	ITEM REFERENCE INFORMATION FOR TWO BRIDGES
1	INCLUDES 1312.0 CU.YDS. OF CLASS "C" AND 48.8 CU.YDS. OF CLASS "D" CONCRETE. INCLUDE COST OF ANCHOR BOLTS AND PLATE AT LIGHT POLE BASE.
3	INCLUDES 80,452 LIN.FT. OF NO.5 BARS, 58,806 LIN.FT. OF NO.6 BARS, AND 10,442 LIN.FT. OF NO.8 BARS, AND 1,083 LIN. FT. OF NO. 9BAR, 1114 LIN. FT. OF COLUMN SPIRAL AND 456 LIN. FT. OF SPIRAL SPACER.
4,5,6	INCLUDES COST OF BEARING MATERIAL REQUIRED.
12	INCLUDES 1329 SQ. YD. OF ENGINEERING FABRIC, 505 TONS OF POROUS BACKFILL, 130 CU. YD. OF EXCAVATION AND 200 LIN. FT. OF 4" O PERFORATED SUBDRAIN.
14	INCLUDES MATERIAL, LABOR, AND EXCAVATION NECESSARY FOR SUBDRAIN INSTALLATION. INCLUDES APPROX. 53 TONS OF POROUS BACKFILL.
19,20	WORK STORAGE AREA IS 200± FT.

GENERAL NOTES:

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

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

GUARD RAIL IS TO BE PLACED BY OTHERS.

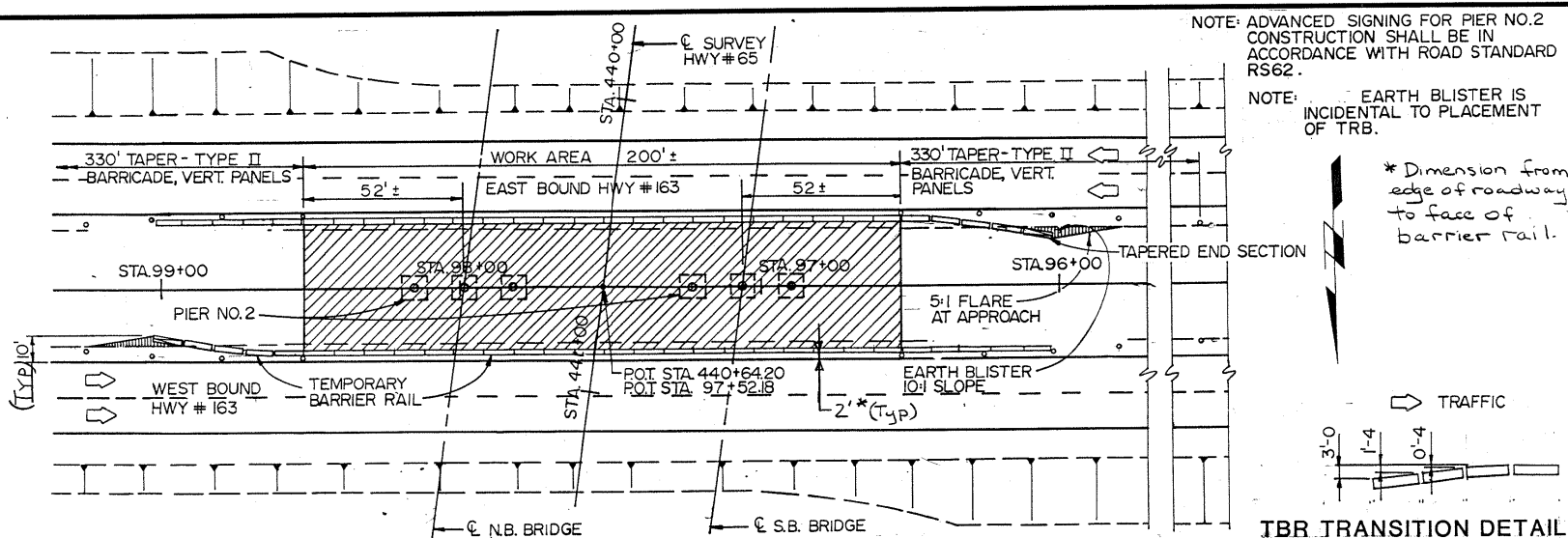
THE BRIDGE CONTRACTOR IS TO INSTALL SUBDRAINS BEHIND THE ABUTMENTS AS DETAILED. THE SUBDRAINS SHALL BE AT LEAST 4" IN DIAMETER AND MEET THE REQUIREMENTS OF THE TYPES PERMITTED IN SECTION 4143.01C. WHEN THE SUBDRAINS ARE INSTALLED WITH CORRUGATED PE TUBING, THEY ARE TO BE 4" WITH THE ENDS MADE OF 6' LENGTHS OF CORRUGATED METAL PIPE (CMP) THAT PROTRUDE A MINIMUM THROUGH THE FORESLOPE. THE CONNECTION BETWEEN THE PE TUBING AND THE CMP CAN BE MADE WITH A REDUCER COUPLING OR BY EXTENDING THE PE TUBING INTO THE CMP A MINIMUM OF ONE FOOT AND PACKING THE OPEN SPACE BETWEEN THE PIPES WITH GROUT. A REMOVABLE 1/2" MESH GALVANIZED SCREEN, OR OTHER APPROVED RODENT GUARD, IS TO BE FASTENED TO THE END OF EACH OUTLET PIPE. THE PRICE BID FOR "SUBDRAIN, AS PER PLAN" IS TO INCLUDE ALL MATERIAL, LABOR, AND EXCAVATION NECESSARY FOR THE INSTALLATION.

THIS APPROACH FILLS AS SHOWN ARE NOT A PART OF THIS CONTRACT, BUT ARE TO BE IN PLACE BEFORE ANY ABUTMENT PLIES 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.

THE PIER EXCAVATION QUANTITIES ASSUME THAT THE GRADING WILL BE COMPLETED PRIOR TO THE START OF PIER EXCAVATION.

ROADWAY EXCAVATION IS TO BE DONE BY OTHERS AND IS NOT A PART OF THIS CONTRACT.

THE CONTRACTOR SHALL PREBORE HOLES FOR THE ABUTMENT PILES. THE TOP 8' OF THE PREBORE SHALL BE A MINIMUM OF 16" IN DIAMETER. HOLES SHALL BE BORED TO THE ELEVATIONS SHOWN ON THE "LONGITUDINAL SECTION ALONG CENTERLINE OF ROADWAY" ON DESIGN SHEET 3. HOLES SHALL BE FILLED WITH A NATURAL BENTONITE SLURRY. PILES SHALL BE DRIVEN THROUGH THE HOLES TO AT LEAST THE SPECIFIED DESIGN BEARING. FOR HOLES DRILLED IN NON-COLLAPSING SOILS THE BENTONITE SLURRY MAY BE PLACED AFTER PILES ARE DRIVEN. IN COLLAPSING SOILS THE BENTONITE SLURRY SHALL BE PLACED AT THE TIME THE HOLE IS DRILLED. THE COST OF FURNISHING AND PLACING THE BENTONITE SLURRY SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "PREBORED HOLES, AS PER PLAN".



TRAFFIC CONTROL PLAN FOR PIER NO. 2 CONSTRUCTION

During construction of this project the contractor will be required to coordinate his operations with those of other contractors working within the same area. Other work in progress during the same period of time will include construction of the following projects:

Designer to List Projects
F-RP-500-1(2)-36-77 GRADING

The contractor shall submit to the engineer a schedule for performance of work items, the completion of which is dependent on completion of prior work by other contractors, at the time work begins. This schedule will be coordinated with the schedules of others by the engineer to obtain a schedule that is mutually acceptable. The contractor shall then perform the work as to conform to the accepted schedule.

THE BRIDGE CONTRACTOR IS TO CONSTRUCT CONCRETE SLOPE PROTECTION AS SHOWN ON DES. SHT. 3 AND AS DETAILED ON DES. SHT. 24.

EXCEPT FOR PRESTRESSED CONCRETE BEAMS, ALL REINFORCING SHALL BE GRADE 60.

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT MANY OF THE SLAB & SOME OF THE PIER COLUMN REINFORCING BARS AND ALL OF THE BARRIER RAIL REINFORCING BARS ARE TO BE EPOXY COATED. SEE EPOXY COATED REINFORCING BAR LIST AND NOTES DESIGN SHT. 6,12,21. EPOXY COATING SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS OF THE IOWA D.O.T. - HIGHWAY DIVISION.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1989.

REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60.

CONCRETE IN ACCORDANCE WITH SECTION 8. f'c = 3,500 PSI.

PRESTRESSED CONCRETE BEAMS, SEE DESIGN SHEETS 17 THRU 20.

STRUCTURAL STEEL IN ACCORDANCE WITH SECTION 10, ASTM-A36,

SPECIFICATIONS:

DESIGN: AASHTO SERIES OF 1989.

CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION SPECIFICATION, SERIES OF 1984, PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

NOTE: PROPOSED CHANGES IN THE TRAFFIC CONTROL PLAN SHALL BE REVIEWED WITH THE OFFICE OF CONSTRUCTION BEFORE CHANGES ARE MADE.

TRAFFIC CONTROL NOTES:

TRAFFIC CONTROL ON THIS PROJECT SHALL BE IN ACCORDANCE WITH STANDARD ROAD PLAN RS62, DETAIL SHEET 521-15A AND

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. REFER TO NOTES AND DETAILS ON THIS SHEET FOR SPECIFIC REQUIREMENTS. TRAFFIC WILL BE MAINTAINED ON EXISTING HIGHWAY NO. 163 AT ALL TIMES EXCEPT AS NOTED.

TEMPORARY ROAD CLOSURE OF EXISTING HIGHWAY NO. 163 DURING INSTALLATION OF PRESTRESSED CONCRETE BEAMS SHALL BE IN ACCORDANCE WITH DESIGN SHEET NO. 25.

THE CONTRACTOR SHALL WORK IN SUCH A MANNER THAT THE TRAFFIC ON EXISTING HIGHWAY NO. 163 IS PROTECTED FROM FALLING OBJECTS OR MATERIALS DURING CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT PLANS FOR SUCH PROTECTION TO THE ENGINEER FOR PRIOR APPROVAL. COST OF ITEMS REQUIRED TO PROTECT PROPERTY AND LIFE SHALL BE CONSIDERED INCIDENTAL TO THE PRICE BID FOR OTHER QUANTITY ITEMS.

SINCE HIGHWAY NO. 163 WILL BE OPEN TO TRAFFIC, IT WILL BE NECESSARY FOR THE CONTRACTOR TO PROVIDE TEMPORARY SHORING (SHEET PILE OR OTHER) TO ENSURE THAT THE SHOULDER WILL NOT SLOUGH IN WHILE THE CENTER PIER FOOTING EXCAVATION IS OPEN. COST OF TEMPORARY SHORING IS CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE NO DIRECT PAYMENT WILL BE MADE. ALL MATERIAL USED FOR SHORING SHALL REMAIN THE PROPERTY OF THE CONTRACTOR.

TEMPORARY BARRIER RAIL IS TO REMAIN IN PLACE UNTIL THE ROAD CONTRACTOR COMPLETES GUARDRAIL WORK.

TRAFFIC CONTROL FOR CONSTRUCTION OF PIER NO. 1 AND PIER NO. 3 SHALL BE IN ACCORDANCE WITH THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD ROAD PLAN RS-62 DATED 10-11-88.

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

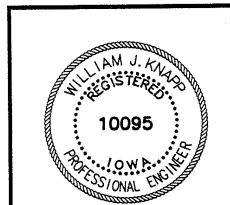
THE LOCATION FOR STORAGE OF EQUIPMENT BY THE CONTRACTOR DURING NON-WORKING HOURS SHALL BE AS APPROVED BY THE ENGINEER IN CHARGE OF CONSTRUCTION.

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

WHERE POSSIBLE, ALL POST MOUNTED SIGNS SHALL BE PLACED A MINIMUM OF 2 FEET CLEAR OF THE SHOULDER.

PROPOSED SIGN SPACING MAY BE MODIFIED AS APPROVED BY THE ENGINEER TO MEET EXISTING FIELD CONDITIONS OR TO PREVENT OBSTRUCTION OF THE MOTORIST'S VIEW OF PERMANENT SIGNING.

PERMANENT SIGNING THAT CONVEYS A MESSAGE CONTRARY TO THE MESSAGE OF THE TEMPORARY SIGNING AND NOT APPLICABLE TO THE WORKING CONDITIONS SHALL BE COVERED BY THE CONTRACTOR WHEN DIRECTED BY THE ENGINEER.



I HEREBY CERTIFY THAT THE PORTION OF THIS TECHNICAL SUBMISSION DESCRIBED BELOW WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND RESPONSIBLE CHARGE. I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

WILLIAM J. KNAPP
Printed name
Signature
PAGES OR SHEETS COVERED BY THIS SEAL: 1 THRU 27

DATE ISSUED: 9/27/90

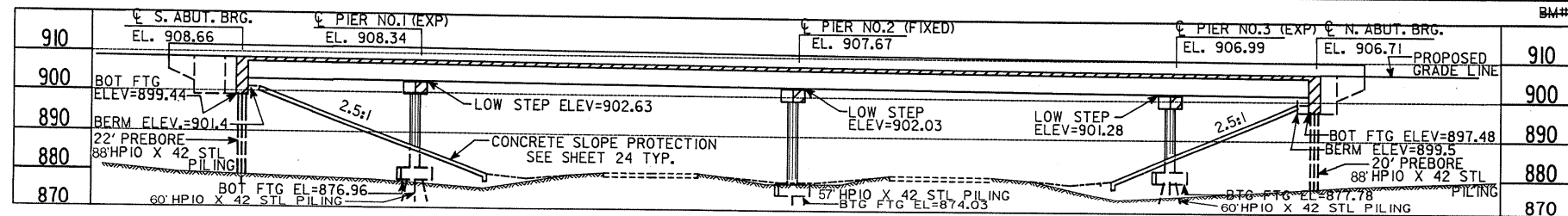
DESIGN FOR 7'20"06" SKEW
279'-6" X 40' PRETENSIONED PRESTRESSED DUAL CONCRETE BEAM BRIDGES
40'-9" & 45'-9" END SPANS 96'-6" CENTER SPAN
QUANTITIES AND NOTES
STATION: 440+64.20
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 2 OF 27 FILE NO. 26601 DESIGN NO. 588

DRAWN BY: J.H.H.
CHECKED BY: [Signature]
APPROVED BY: [Signature]

SHIVE-HATTERY ENGINEERS AND ARCHITECTS, Inc.

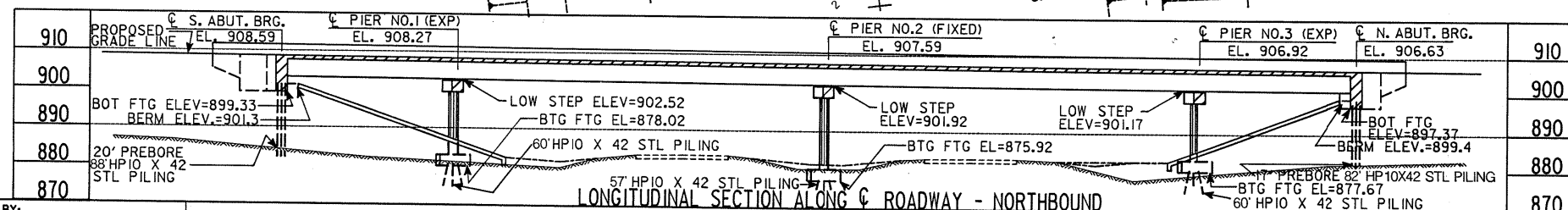
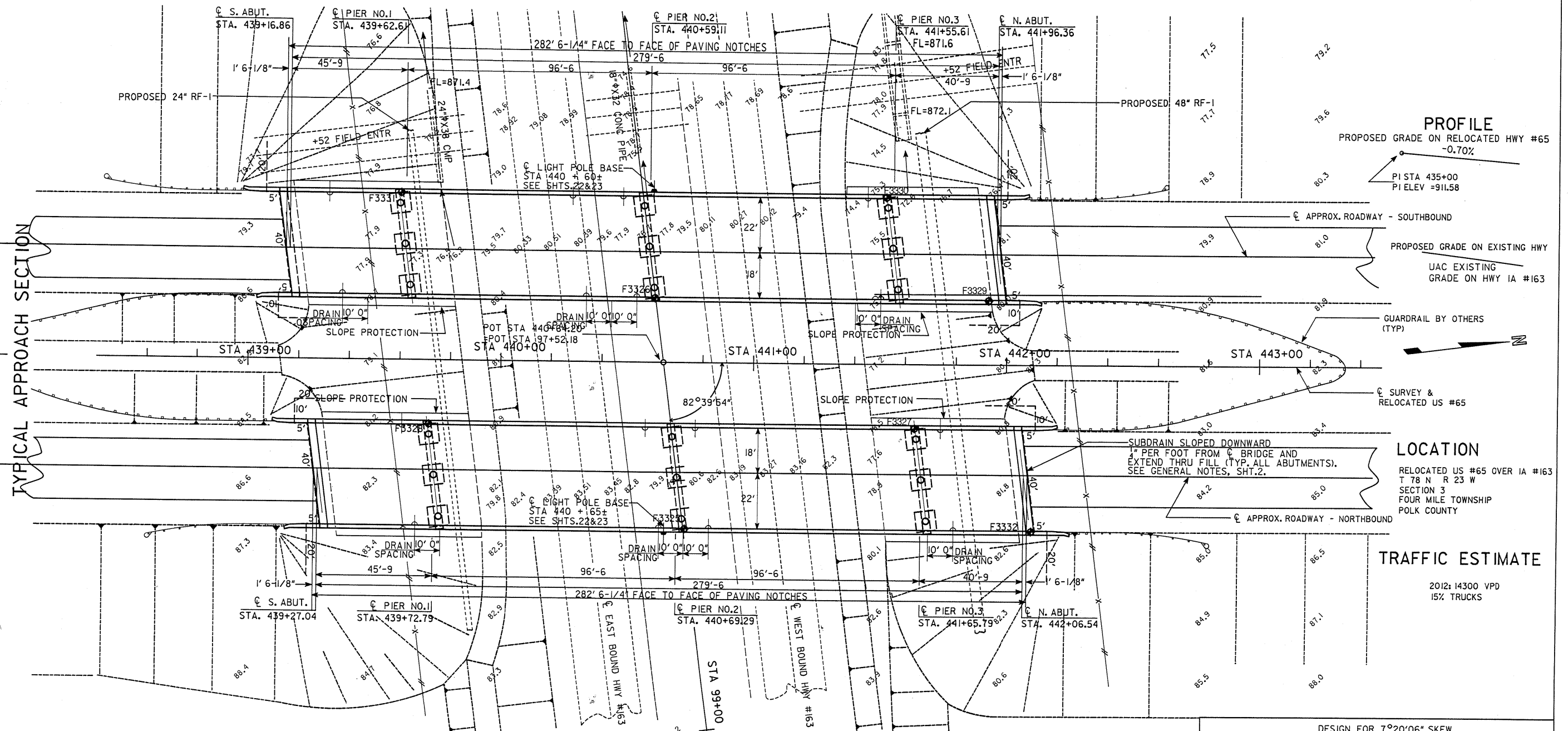
POLK COUNTY

PROJECT NUMBER	STATE	FTHA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		2	28



BM#1 STA 444+14.9 20' RT CUT X IN N. HDWL 2X2 RCB BM#32 F 500-1 ELEV=908.90
 BM#1A 1993 DATUM
 I DOT Plug NW Handrail SB Bridge over IA 163 ELEV. 909.18

LONGITUDINAL SECTION ALONG CL ROADWAY - SOUTHBOUND



LONGITUDINAL SECTION ALONG CL ROADWAY - NORTHBOUND

DESIGN FOR 7°20'06" SKEW
279'-6X40 PRETENSIONED PRESTRESSED DUAL CONCRETE BEAM BRIDGE
 40'-9 & 45'-9 END SPANS 96'-6 CENTER SPAN
SITUATION PLAN
 STATION: 440+64.20 MARCH 1990
POLK COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION--HIGHWAY DIVISION
 DESIGN SHEET NO. 3 OF 27 FILE NO. 26601 DESIGN NO. 588

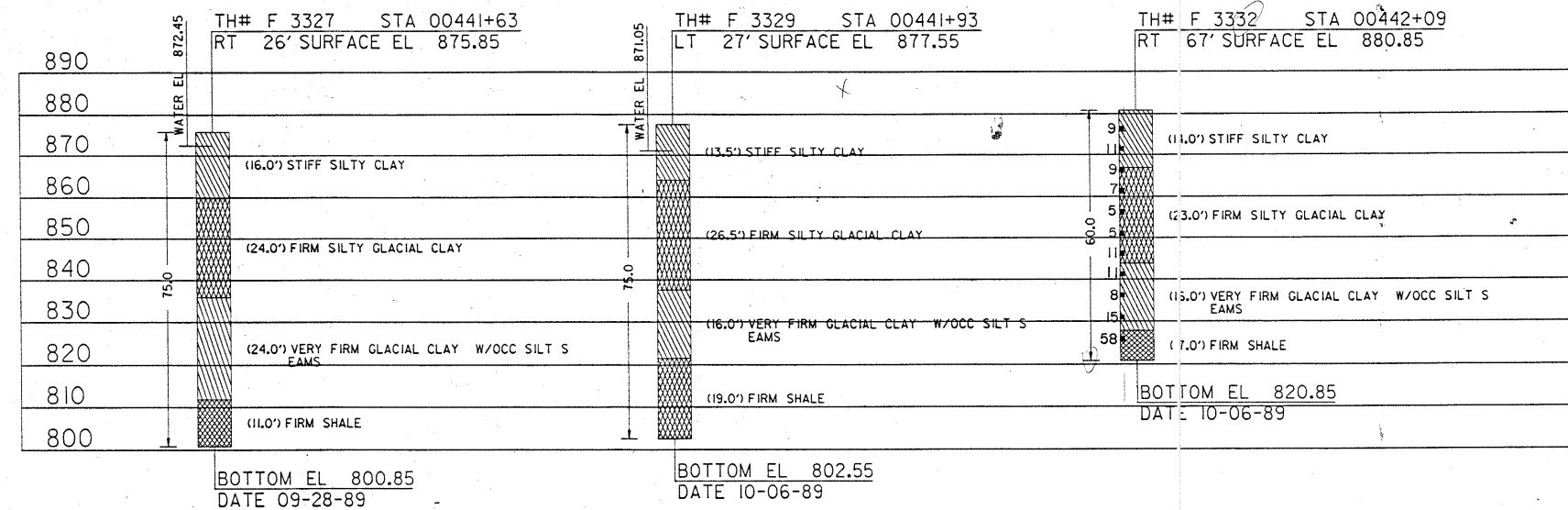
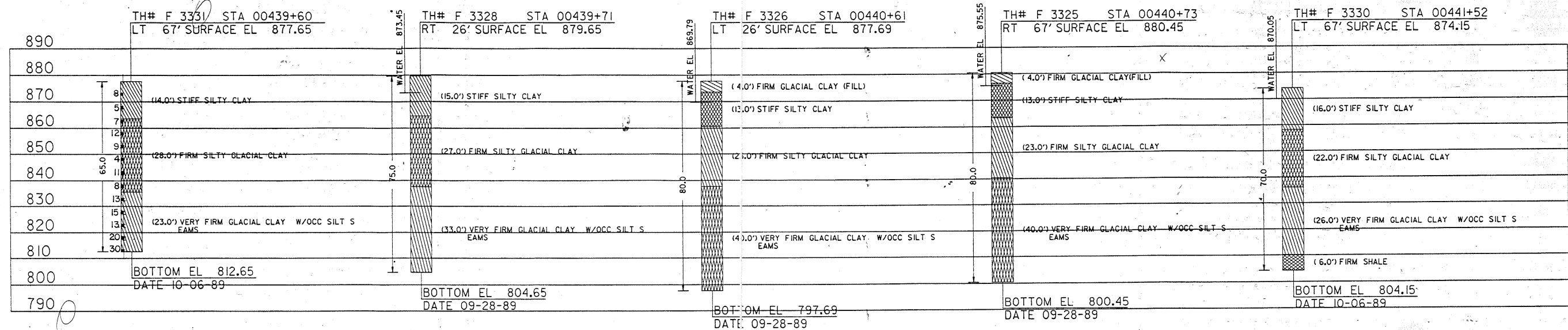
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		3	28

DESIGNED BY: *Don Bradley*
 DETAILED BY: J.H.H.
 TRACED BY:
 CHECKED BY: *D. Knapp*

POLK COUNTY

PROJECT NUMBER

F 500-1 (14)--20-77



EXTRA WORK ORDERS			
No.	Description	Unit	Total
8001	Cold weather Protection	Cu. Yds.	86.7
8002	Heating	Cu. Yds.	96.7
8003	Admixture, Retarder	Cu. Yds.	801.4
8004	Shoulder repair, Class A crushed stone	tons	100.77
8999	Stockpiled Materials	Lump Sum	0

SOUNDING DATA

SCALE: 1" = 20'

DATED AS SHOWN

N# = NUMBER OF BLOWS PER FOOT OF PENETRATION

DESIGN FOR 7' 20' 06" SKEW				
279' 6" X 40' PRETENSIONED PRESTRESSED				
DUAL CONCRETE BEAM BRIDGES				
40' 9" & 45' 9" END SPANS			96' 6" CENTER SPAN	
SOUNDING DATA				
STATION: 440+64.20			MARCH, 1990	
POLK COUNTY				
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION				
DESIGN SHEET NO. 4 OF 27		FILE NO. 26601	DESIGN NO. 00588	
STATE	FWHA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		4	28

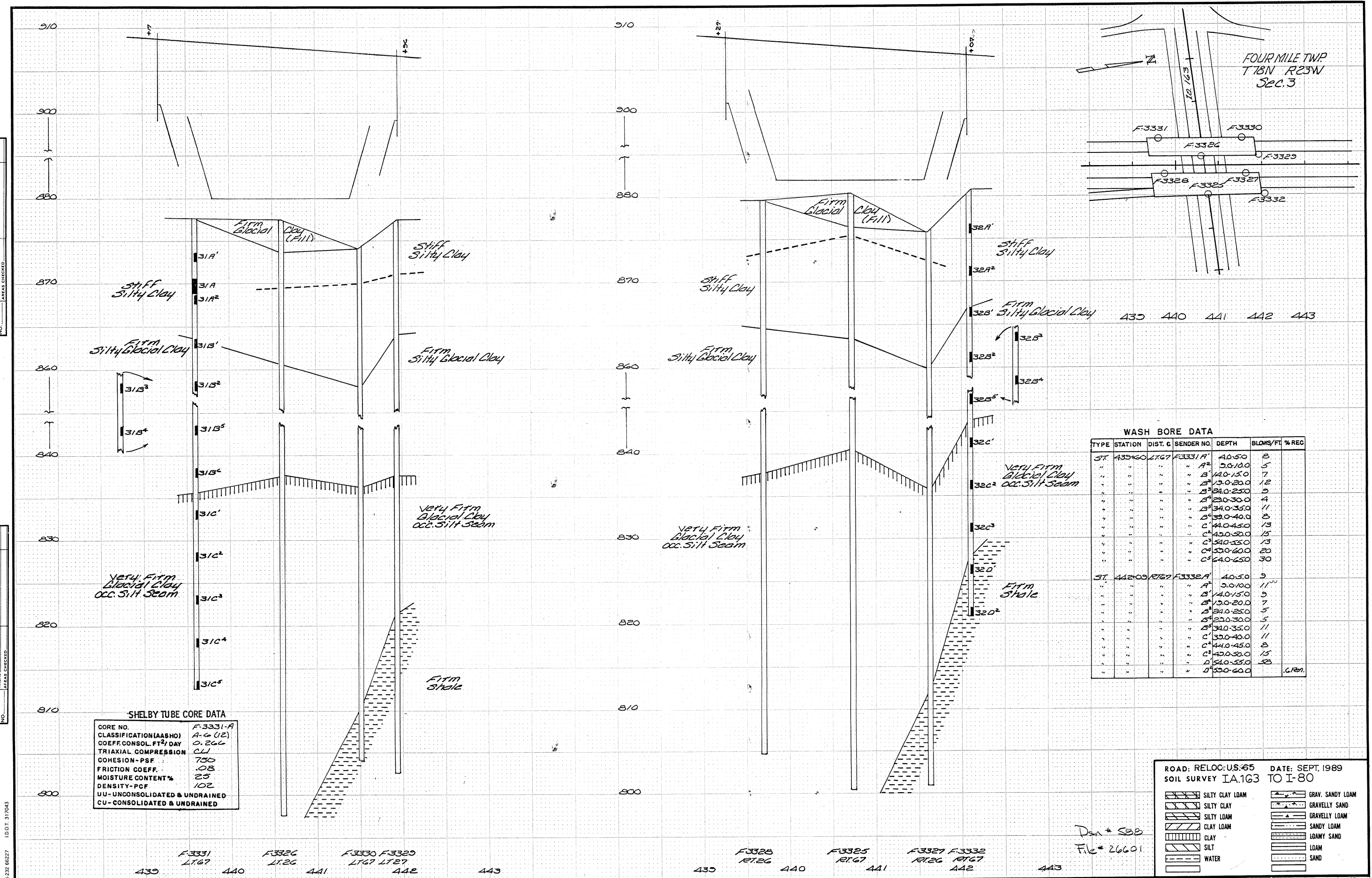
DESIGNED BY John C. Bradley TRACED BY John C. Bradley
 DETAILED BY John C. Bradley CHECKED BY John C. Bradley

POLK COUNTY

PROJECT NUMBER

DATE	BY	SURVEYED	PLOTTED	NOTED	AREAS CHECKED
FINAL SURVEY	NO.	NO.	NO.	NO.	NO.

DATE	BY	SURVEYED	PLOTTED	NOTED	AREAS CHECKED
9/89	3/10/89				
ORIGINAL SURVEY	NO.	NO.	NO.	NO.	NO.



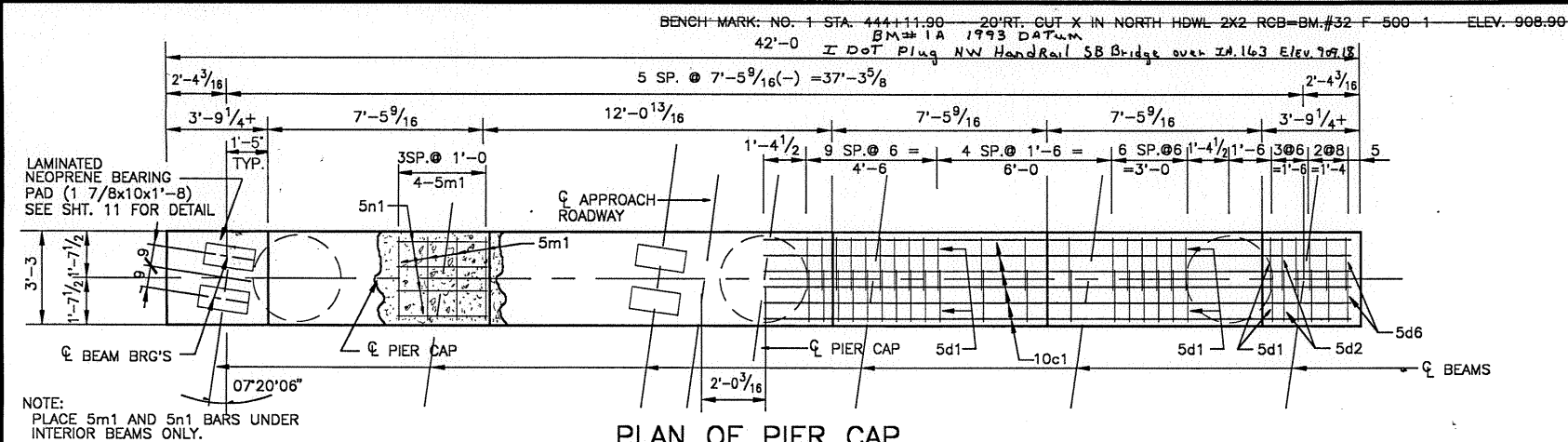
BRUNING 44-232 6627 I.D.O.T. 317043

SOILS DESIGN

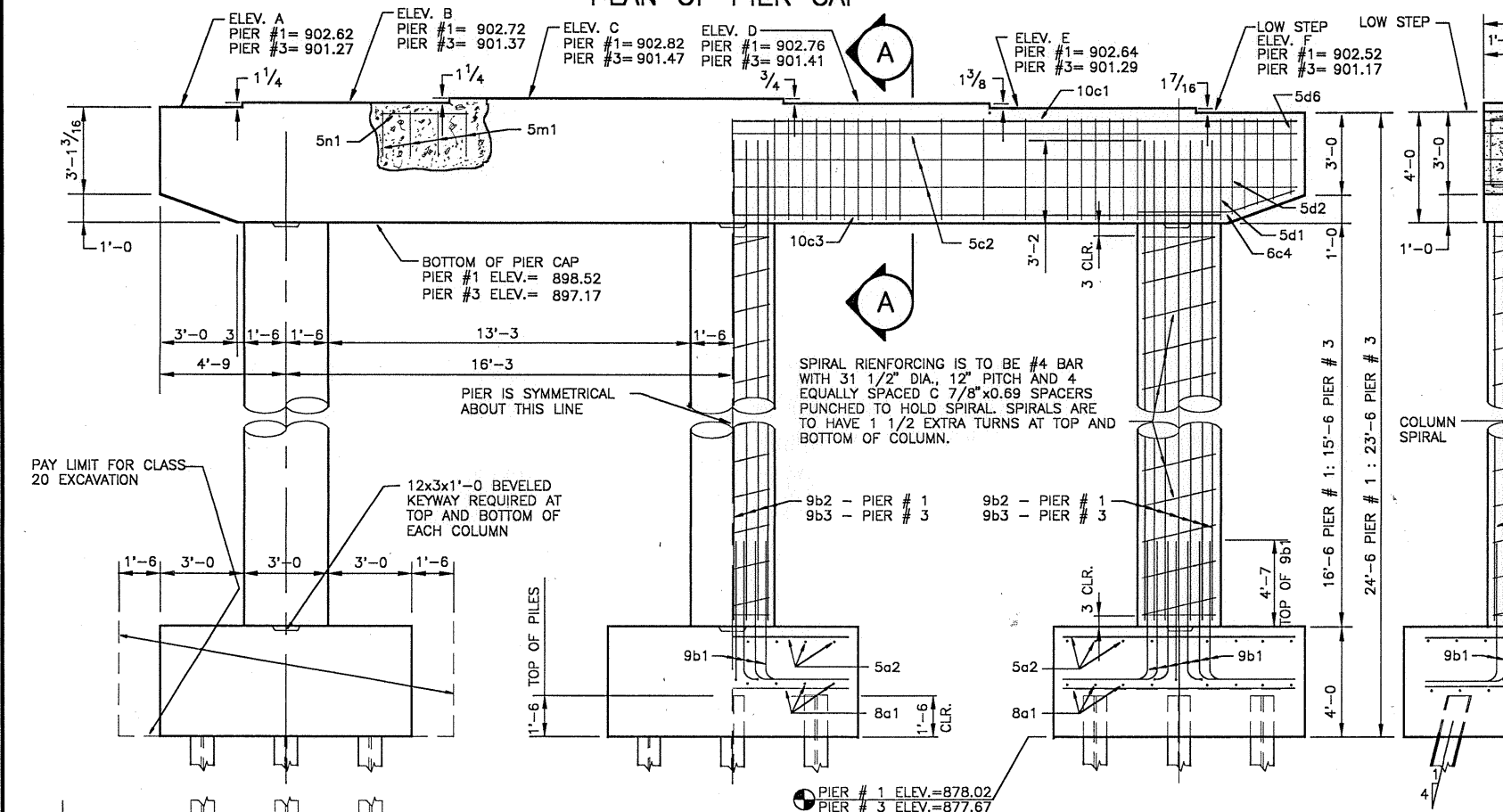
COUNTY POLK

PROJECT NUMBER

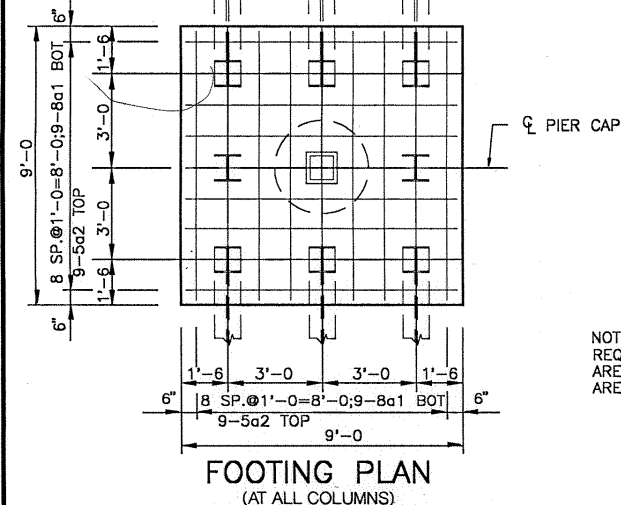
ROAD: RELOC. U.S. 45		DATE: SEPT. 1989	
SOIL SURVEY IA.163 TO I-80			
STATE	FHWA Region	FISCAL YEAR	SHEET NO.
IOWA	7		445 28
TOTAL SHEETS		445 28	



PLAN OF PIER CAP

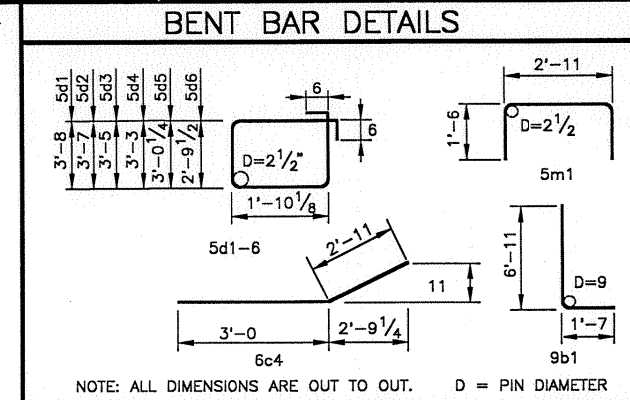


ELEVATION
(LOOKING NORTH)



FOOTING PLAN
(AT ALL COLUMNS)

NOTE: 8-HP10x42 STEEL BEARING PILES ARE REQUIRED FOR EACH FOOTING. PILE DIMENSIONS ARE AT BOTTOM OF FOOTING. BATTERED PILES ARE TO BE BATTERED 1:4 IN DIRECTION INDICATED.



REINFORCING STEEL - PIER NO. 1 N.B.						
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	
8a1	FOOTING, BOTTOM, LONGIT. & TRANSV.	—	54	8'-8"	1250	
5a2	FOOTING, TOP, LONGIT. & TRANSV.	—	54	8'-8"	488	
9b1	FOOTING TO COLUMN DOWELS	L	36	8'-6"	1040	
9b2	COLUMN, VERTICAL	—	36	19'-8"	2407	
10c1	CAP, TOP, LONGITUDINAL	—	6	41'-8"	1076	
5c2	CAP, SIDE, LONGITUDINAL	—	6	41'-8"	261	
10c3	CAP, BOTTOM, LONGITUDINAL	—	6	36'-0"	929	
6c4	CANTILEVER, BOTTOM, LONGITUDINAL	—	8	5'-11"	71	
5d1	CAP HOOPS	□	84	12'-0"	1051	
5d2-6	CANTILEVER HOOPS	□	20	VARIES	232	
5m1	STEP TRANSVERSE	—	16	5'-11"	99	
5n1	STEP LONGITUDINAL	—	16	3'-0"	50	
	* COLUMN SPIRAL	—	3	164'-11"	330	
	SPIRAL SPACER, C 7/8"x0.69	—	12	16'-6"	137	
* SEE PIER NOTES					TOTAL (LBS.)	9421

REINFORCING STEEL - PIER NO. 3 N.B.						
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	
8a1	FOOTING, BOTTOM, LONGIT. & TRANSV.	—	54	8'-8"	1250	
5a2	FOOTING, TOP, LONGIT. & TRANSV.	—	54	8'-8"	488	
9b1	FOOTING TO COLUMN DOWELS	L	36	8'-6"	1040	
9b3	COLUMN, VERTICAL	—	36	18'-8"	2285	
10c1	CAP, TOP, LONGITUDINAL	—	6	41'-8"	1076	
5c2	CAP, SIDE, LONGITUDINAL	—	6	41'-8"	261	
10c3	CAP, BOTTOM, LONGITUDINAL	—	6	36'-0"	929	
6c4	CANTILEVER, BOTTOM, LONGITUDINAL	—	8	5'-11"	71	
5d1	CAP HOOPS	□	84	12'-0"	1051	
5d2-6	CANTILEVER HOOPS	□	20	VARIES	232	
5m1	STEP TRANSVERSE	—	16	5'-11"	99	
5n1	STEP LONGITUDINAL	—	16	3'-0"	50	
	* COLUMN SPIRAL	—	3	156'-8"	314	
	SPIRAL SPACER, C 7/8"x0.69	—	12	15'-6"	128	
* SEE PIER NOTES					TOTAL (LBS.)	9299

CONCRETE PLACEMENT QUANTITIES - PIER NO. 1 - N.B.		UNITS	TOTAL
CAP		CU. YDS.	21.1
COLUMN		CU. YDS.	13.0
FOOTING		CU. YDS.	36.0
TOTAL (CU. YDS.)			70.1

ESTIMATED QUANTITIES - PIER NO. 1- N.B.		UNITS	TOTAL
STRUCTURAL CONCRETE, CLASS C		CU. YDS.	70.1
REINFORCING STEEL		LBS.	9,421
HP10x42 STEEL	FURNISH 24 @ 60'	LIN. FT.	1440
BEARING PILING	DRIVE 24 @ 60'	LIN. FT.	1440
CLASS 20 EXCAVATION		CU. YDS.	119

CONCRETE PLACEMENT QUANTITIES - PIER NO. 3 - N.B.		UNITS	TOTAL
CAP		CU. YDS.	21.1
COLUMN		CU. YDS.	12.2
FOOTING		CU. YDS.	36.0
TOTAL (CU. YDS.)			69.3

ESTIMATED QUANTITIES - PIER NO. 3- N.B.		UNITS	TOTAL
STRUCTURAL CONCRETE, CLASS C		CU. YDS.	69.3
REINFORCING STEEL		LBS.	9,299
HP10x42 STEEL	FURNISH 24 @ 60'	LIN. FT.	1440
BEARING PILING	DRIVE 24 @ 60'	LIN. FT.	1440
CLASS 20 EXCAVATION		CU. YDS.	125

PIER NOTES:

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

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

REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE BEFORE CONCRETE IS POURED.

THE SPIRAL REINFORCING MAY BE MADE OF PLAIN STRUCTURAL GRADE REINFORCING STEEL AND MAY BE SPLICED BY LAPPING 24". THE LENGTH OF SPIRAL SHOWN DOES NOT INCLUDE THE LAPPED LENGTH FOR SPLICE. THE COST OF LAPS OF SPLICES IS TO BE INCLUDED IN PRICE BID FOR OTHER REINFORCEMENT.

THE BOTTOM LONGITUDINAL CAP BARS (10c3) MAY BE SHIFTED TO MISS VERTICAL COLUMN BARS (9b2 OR 9b3).

THE PIER DESIGN BEARING FOR PIER PILES IS 37 TONS. 3.1 TONS OF THIS BEARING IS END BEARING.

WAVE EQUATION ANALYSIS WILL BE USED AT THE TIME OF DRIVING TO DETERMINE PILE BEARING. THE CONTRACTOR SHALL SUBMIT ADEQUATE HAMMER INFORMATION THAT THE PROPER ANALYSIS CAN BE PERFORMED.

TOTAL DRIVING RESISTANCE FOR PILING IS ESTIMATED AT 37 TONS.

DESIGN FOR 7'20"06" SKEW

279'6"X40'PRETENSION PRESTRESSED DUAL CONCRETE BEAM BRIDGES

40'-9" & 45'-9" END SPANS 96'-6" CENTER SPAN

PIERS NO. 1 & NO. 3 N.B. DETAILS

STATION: 440+64.20 MARCH,1990

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 5 OF 27 FILE NO. 26601 DESIGN NO. 588

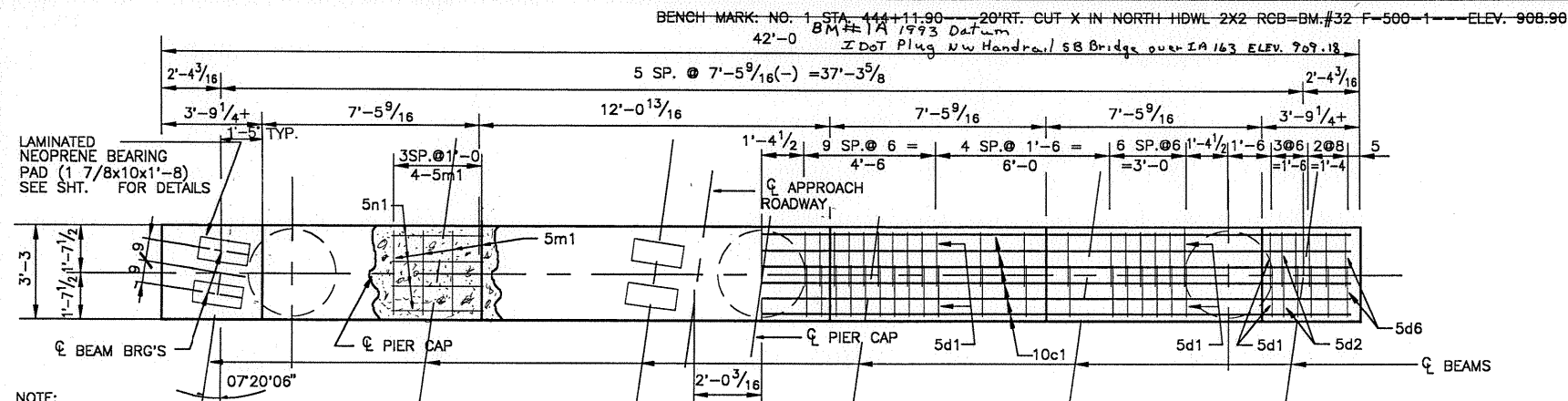
DRAWN BY: J.H.H.
CHECKED BY: Kevin Bradley
APPROVED BY: J. Huipp

SHIVE-HATTERY ENGINEERS AND ARCHITECTS, Inc.

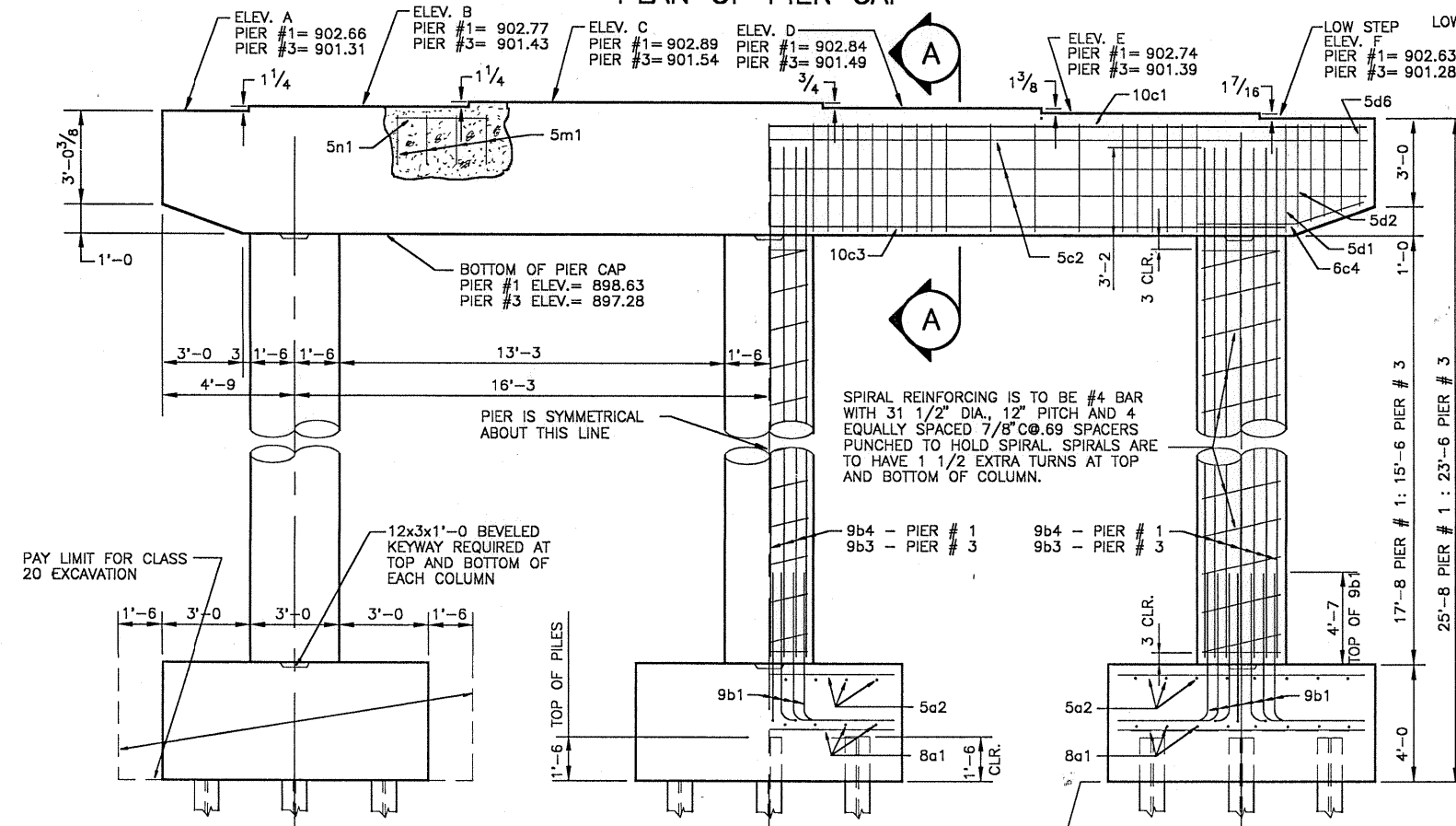
POLK COUNTY

PROJECT NUMBER

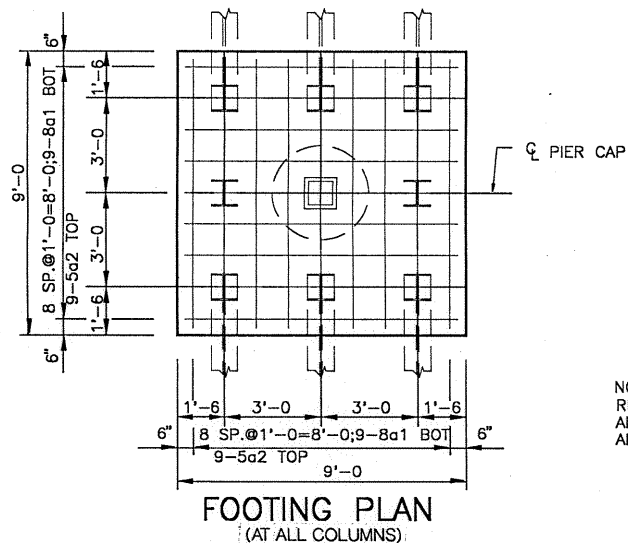
STATE: IOWA FHWA Region: 7 FISCAL YEAR: SHEET NO.: 56 TOTAL SHEETS: 28



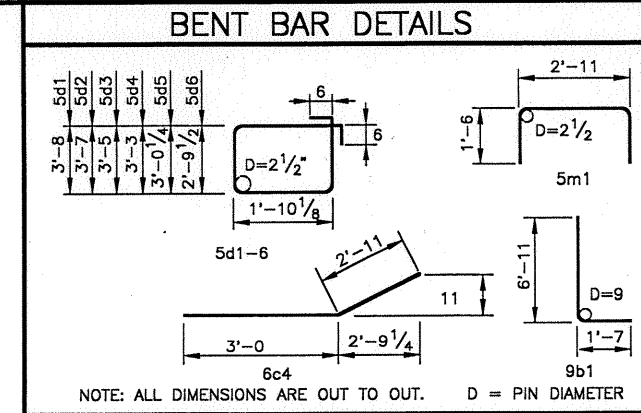
PLAN OF PIER CAP



ELEVATION
(LOOKING SOUTH)



NOTE: 8-HP10x42 STEEL BEARING PILES ARE REQUIRED FOR EACH FOOTING. PILE DIMENSIONS ARE AT BOTTOM OF FOOTING. BATTERED PILES ARE TO BE BATTERED 1:4 IN DIRECTION INDICATED.



REINFORCING STEEL - PIER NO. 1 S.B.					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
8a1	FOOTING, BOTTOM, LONGIT. & TRANSV.		54	8'-8"	1250
5a2	FOOTING, TOP, LONGIT. & TRANSV.		54	8'-8"	488
9b1	FOOTING TO COLUMN DOWELS	L	36	8'-6"	1040
9b4	COLUMN, VERTICAL		36	20'-10"	2550
10c1	CAP, TOP, LONGITUDINAL		6	41'-8"	1076
5c2	CAP, SIDE, LONGITUDINAL		6	41'-8"	261
10c3	CAP, BOTTOM, LONGITUDINAL		6	36'-0"	929
6c4	CANTILEVER, BOTTOM, LONGITUDINAL		8	5'-11"	71
5d1	CAP HOOPS	□	84	12'-0"	1051
5d2-6	CANTILEVER HOOPS	□	20	VARIES	232
5m1	STEP TRANSVERSE		16	5'-11"	99
5n1	STEP LONGITUDINAL		16	3'-0"	50
	*COLUMN SPIRAL	○	3	174'-10"	350
	SPIRAL SPACER, C7/8x0.69		12	17'-8"	146
* SEE PIER NOTES				TOTAL (LBS.)	9593

REINFORCING STEEL - PIER NO. 3 S.B.					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
8a1	FOOTING, BOTTOM, LONGIT. & TRANSV.		54	8'-8"	1250
5a2	FOOTING, TOP, LONGIT. & TRANSV.		54	8'-8"	488
9b1	FOOTING TO COLUMN DOWELS	L	36	8'-6"	1040
9b3	COLUMN, VERTICAL		36	18'-8"	2285
10c1	CAP, TOP, LONGITUDINAL		6	41'-8"	1076
5c2	CAP, SIDE, LONGITUDINAL		6	41'-8"	261
10c3	CAP, BOTTOM, LONGITUDINAL		6	36'-0"	929
6c4	CANTILEVER, BOTTOM, LONGITUDINAL		8	5'-11"	71
5d1	CAP HOOPS	□	84	12'-0"	1051
5d2-6	CANTILEVER HOOPS	□	20	VARIES	232
5m1	STEP TRANSVERSE		16	5'-11"	99
5n1	STEP LONGITUDINAL		16	3'-0"	50
	*COLUMN SPIRAL	○	3	156'-8"	314
	SPIRAL SPACER, C7/8x0.69		12	15'-6"	128
* SEE PIER NOTES				TOTAL (LBS.)	9274

CONCRETE PLACEMENT QUANTITIES - PIER NO. 1 - S.B.	
CAP	21.1
COLUMN	13.9
FOOTING	36.0
TOTAL (CU. YDS.)	71.0

ESTIMATED QUANTITIES - PIER NO. 1- S.B.		
ITEM	UNITS	TOTAL
STRUCTURAL CONCRETE, CLASS C	CU. YDS.	71.0
REINFORCING STEEL	LBS.	9593
HP10x42 STEEL	FURNISH 24 @ 60'	LIN. FT. 1440
BEARING PILING	DRIVE 24 @ 60'	LIN. FT. 1440
CLASS 20 EXCAVATION	CU. YDS.	136

CONCRETE PLACEMENT QUANTITIES - PIER NO. 3 - S.B.	
CAP	21.1
COLUMN	12.2
FOOTING	36.0
TOTAL (CU. YDS.)	69.3

ESTIMATED QUANTITIES - PIER NO. 3- S.B.		
ITEM	UNITS	TOTAL
STRUCTURAL CONCRETE, CLASS C	CU. YDS.	69.3
REINFORCING STEEL	LBS.	9274
HP10x42 STEEL	FURNISH 24 @ 60'	LIN. FT. 1440
BEARING PILING	DRIVE 24 @ 60'	LIN. FT. 1440
CLASS 20 EXCAVATION	CU. YDS.	125

PIER NOTES:

ALL EXPOSED CORNERS OF 90° OR SHARPER ARE TO BE FILLETED WITH A 3/4" DRESSED AND BEVELED STRIP.
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 THE BOTTOM LONGITUDINAL CAP BARS (10c3) MAY BE SHIFTED TO MISS VERTICAL COLUMN BARS (9b3 OR 9b4).
 THE PIER DESIGN BEARING FOR PIER PILES IS 37 TONS. 3.1 TONS OF THIS BEARING IS END BEARING.
 WAVE EQUATION ANALYSIS WILL BE USED AT THE TIME OF DRIVING TO DETERMINE PILE BEARING. THE CONTRACTOR SHALL SUBMIT ADEQUATE HAMMER INFORMATION THAT THE PROPER ANALYSIS CAN BE PERFORMED.
 TOTAL DRIVING RESISTANCE FOR PILING IS ESTIMATED AT 37 TONS.

DESIGN FOR 7'20"06" SKEW
**279'6"X40'PRETENSION PRESTRESSED
 DUAL CONCRETE BEAM BRIDGES**
 40'-9" & 45'-9" END SPANS 96'-6" CENTER SPAN
PIERS NO. 1 & NO. 3 S.B. DETAILS
 STATION: 440+64.20 MARCH, 1990

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 6 OF 27 FILE NO. 26601 DESIGN NO. 588

DRAWN BY: J.H.H.
 CHECKED BY: [Signature] APPROVED BY: [Signature]

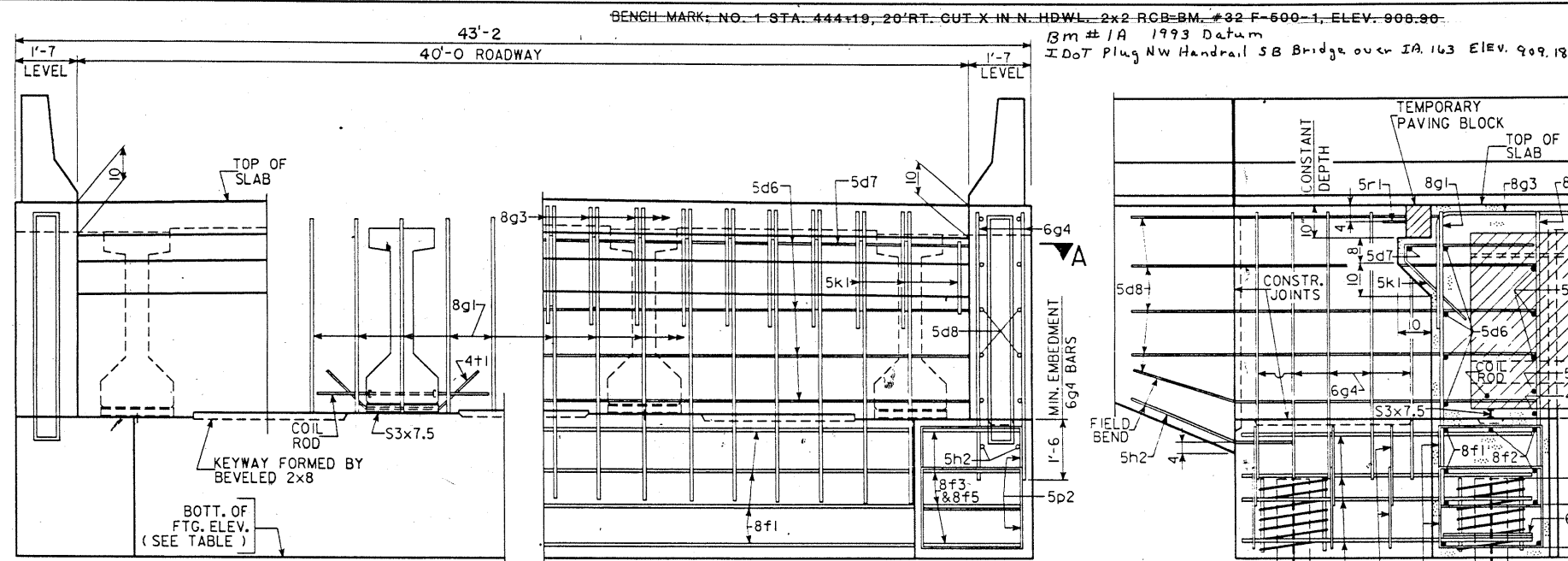
SHIVE-HATTERY ENGINEERS AND ARCHITECTS, inc.

POLK COUNTY

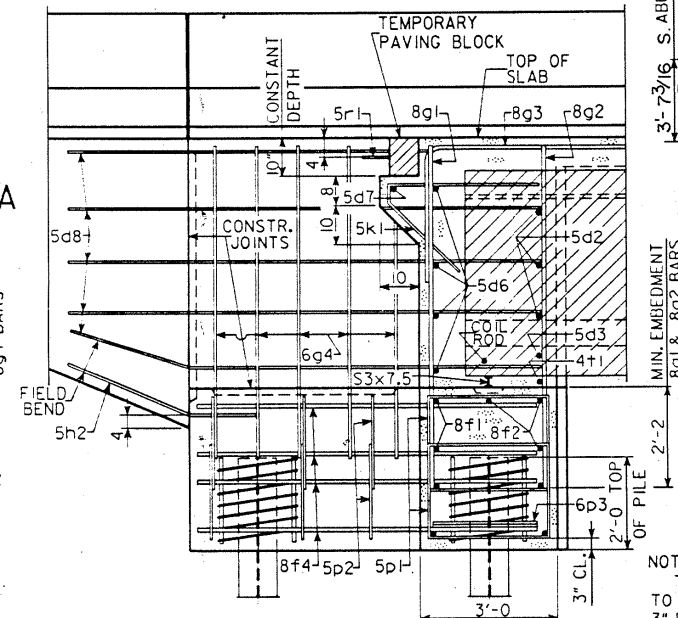
PROJECT NUMBER

STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		67	28

HSD02089.S01--WRJ:THIS SHEET REDRAWN, DEVICE:ZCAI:200,003JARCH:TAPE N°. 000015 DATE 9-8-88



PART REAR ELEVATION AT ABUTMENT
(WINGS NOT SHOWN)



PART SECTION B - B

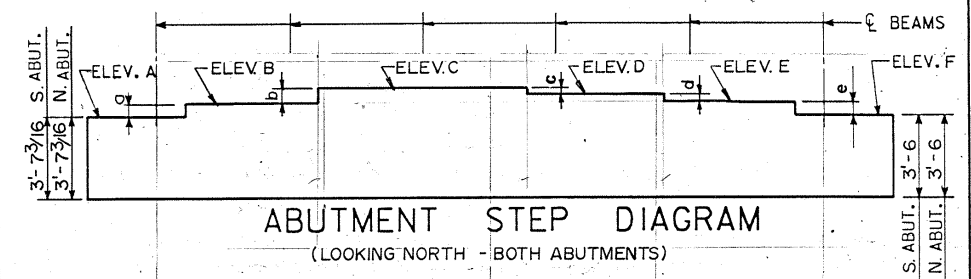
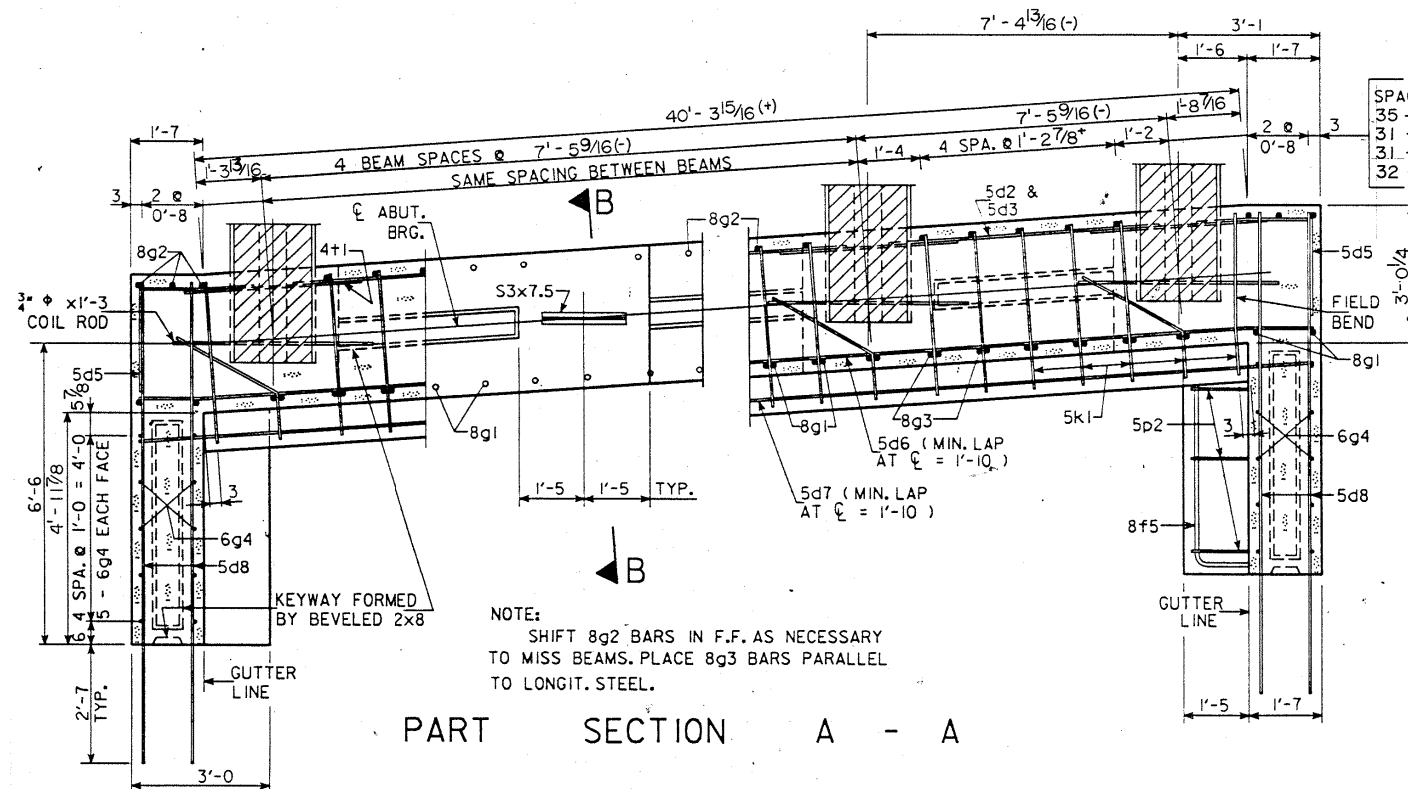


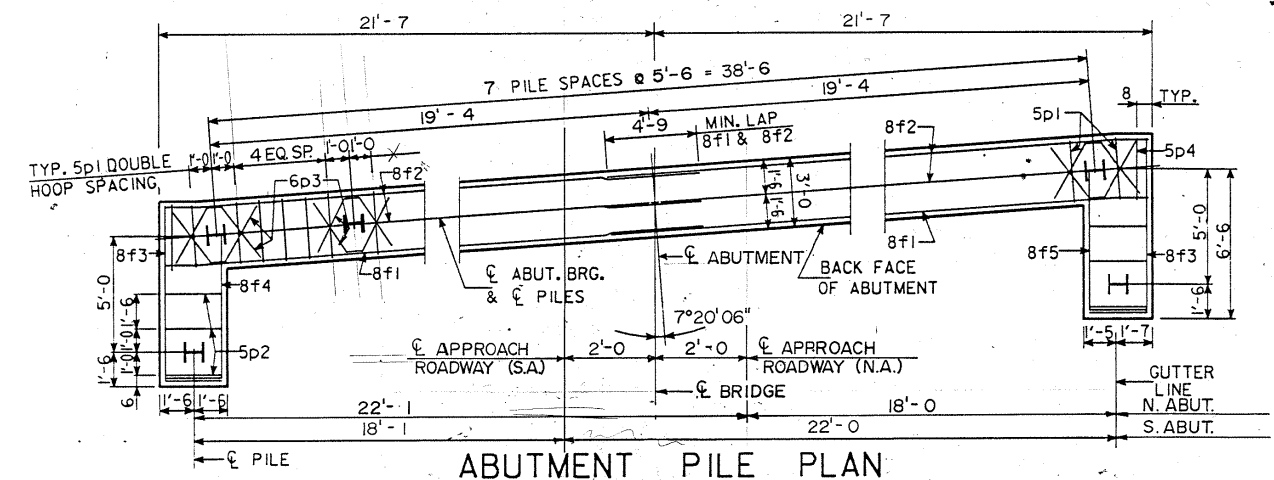
TABLE OF ABUTMENT STEPS		
STEP	SOUTH ABUTMENT	NORTH ABUTMENT
a	1/4	1/4
b	1/4	1/4
c	3/4	3/4
d	1/8	1/8
e	1/6	1/6

TABLE OF ABUTMENT ELEVATIONS		
POINT	SOUTH ABUTMENT	NORTH ABUTMENT
ELEV. A	902.92	900.97
" B	903.03	901.07
" C	903.13	901.17
" D	903.07	901.11
" E	902.95	900.99
" F	902.83	900.87
BOTTOM FTG. ELEV.	899.33	897.37

NOTE:
THE SPIRAL AT THE TOP OF EACH PILE
TO BE 7 TURNS OF NO. 2 BAR, 21" DIAMETER,
3" PITCH WITH 2 - C₁ X 0.65 SPACERS PUNCHED
TO HOLD SPIRAL.



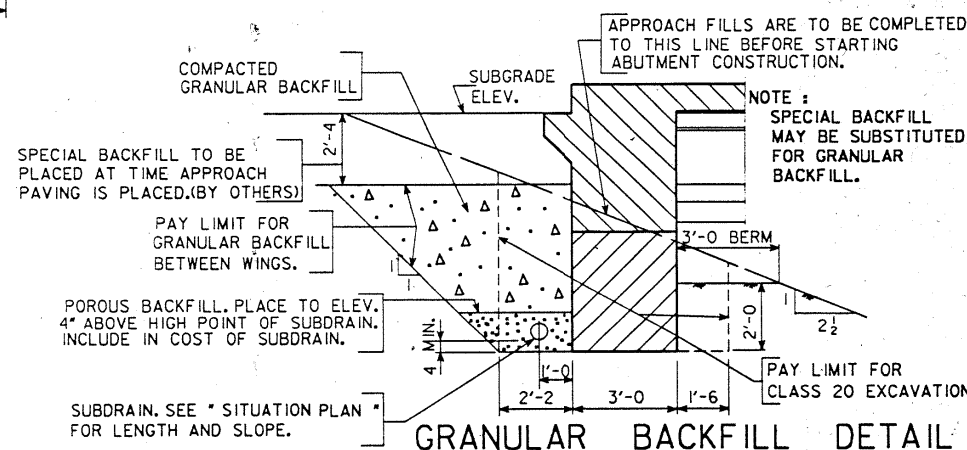
PART SECTION A - A



ABUTMENT PILE PLAN

ABUTMENT NOTES :

- ALL EXPOSED CORNERS OF 90° OR SHARPER ARE TO BE FILLETED WITH A 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.
- ALL REINFORCING STEEL IS TO BE GRADE 60.
- THE DESIGN BEARING FOR ABUTMENT PILES IS 37 TONS. (C₂ Ten of this brg is end brg.
- TOTAL DRIVING RESISTANCE FOR PILING IS ESTIMATED AT 50 TONS @ S. ABUT; 57 TONS @ N. ABUT.
- "WAVE" EQUATION ANALYSIS WILL BE USED AT THE TIME OF PILE DRIVING TO DETERMINE PILE BEARING. THE CONTRACTOR SHALL SUBMIT ADEQUATE HAMMER INFORMATION THAT THE PROPER ANALYSIS CAN BE PERFORMED.



GRANULAR BACKFILL DETAIL

NOTE:
10 - HP10x42 STEEL BEARING PILING REQUIRED
AT EACH ABUTMENT. PILE LENGTH = 88'-0" @
SOUTH ABUT. & 82'-0" @ NORTH ABUT.

DESIGN FOR 7 20'06" SKEW		
279'6"X40'PRETENSIONED PRESTRESSED DUAL CONCRETE BEAM BRIDGES		
40' 9" & 45' 8" END SPANS	96' 6" CENTER SPAN	
ABUTMENT DETAILS - NORTH BOUND		
STATION: 440+64.20	MARCH, 1990	
POLK COUNTY		
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION		
DESIGN SHEET NO. 8 OF 27	FILE NO. 26601	DESIGN NO. 588
STATE	FHWA REGION	FISCAL YEAR
IOWA	7	
SHEET NO.	TOTAL SHEETS	
59	28	

* D * BEAMS - INTEGRAL ABUT. DETAILS - (R. A.) 0°01' - 7°30' SKEW

STANDARD SHEET 2089

POLK COUNTY

PROJECT NUMBER

STATE

FHWA REGION

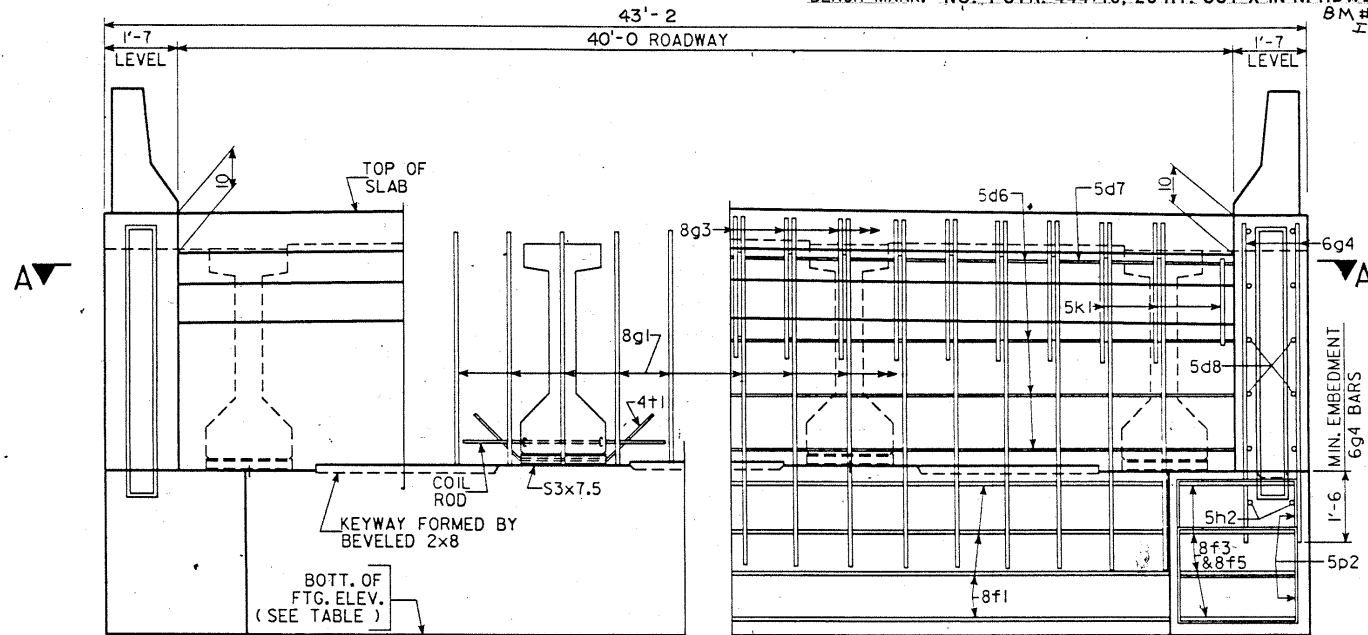
FISCAL YEAR

SHEET NO.

TOTAL SHEETS

HSTD02089.S01-WR1THIS SHEET REDRAWN, DEVICE:ZGALH200,003ARCH.TAPE N°. 000015 DATE 9-8-88

BENCH MARK: NO. 1 STA. 444+19, 20' RT. CUT X IN N. HDWL. 2x2 RCB-BM. #32 F-500-1, ELEV. 908.90
BM #1A 1993 Datum
DOT Plug NW Handrail SB Bridge over I.A. 143 Elev. 909.18



12-16-90

LOG OF PILING DRIVEN

DATE EQUATION

Proj. No: F-R-500-114A--36-77

County: Polk

Design No: 588

Sta. of Foundation f: 439+27.04

Location: Northbound Super Abutment
SECTION 2 OF 2

Contractor: Marshall Construction

Driving Graph No: 77-0588-01-660

Type of Pile: Steel HP10x42
W22 PILES @ 32", 1/2" & 1/4" DRIVEN 1/2" & 1/4"

Hammer (Model & Type): Diesel
DAVID B. DIESEL

Plan Top Elevation: ft

Plan Driving Resistance: 5.0 tons

Observed Blows/Min: 42-60

Hammer Energy: 2.6 ft-kips.

NOTED: FOUNDATION BELOW LOCATE ONE PILE BY CIRCLES WITH NUMBERS THEREIN. NOTE BATTERED PILES ON SITE, DRIVEN OVER THE FRONT OF BATTER. PLACE NAME AND CERTIFICATE NUMBER OF WELDER BEHIND IF WELDING WAS NECESSARY. FORWARD EYES AS BUILT IN THE ESTABLISHED MANUAL. NOTE ON DRIVING GRAPH FILE WAS WITH LOGS.

Pile No	Date Driven	Pile Extending ①				Pile Extending ②				REMARKS
		Length per Foot (ft)	Length per Foot (ft)	Length per Foot (ft)	Length per Foot (ft)	Length per Foot (ft)	Length per Foot (ft)	Length per Foot (ft)	Length per Foot (ft)	
1	11-6-92	88.0	1.0	87.0	1	6	43			24125/24123
2	11-6-92	88.0	0.9	87.1	57	6	47			24125/24123
3	11-6-92	88.0	1.0	87.0	3	7	47			24125/24123
4	11-6-92	88.0	2.9	85.0	53	7	46			24125/24123
5	11-6-92	88.0	1.1	86.9	63	6	45			24125/24123
6	11-6-92	88.0	1.1	86.9	28	6	44	52		24125/24123
7	11-6-92	88.0	0.7	87.3	5	7	47			24125/24123
8	11-6-92	88.0	1.8	86.2	33	6	47			24125/24123
9	11-6-92	88.0	1.6	86.4	31	7	47			24125/24123
10	11-5-93	88.0	1.2	86.8	57	7	47	11-6 6 1/2 200	OK	24125/24123

Sub-totals: 880-12 1/2 37 1/2

total driven = 880.0

total force = 12 1/2 6 1/2

total drive = 867.6

Notes: This Foundation approved by R.C.E. Sunday/ on basis of RETAP at Pile No. 10; also the RETAP at Pile No. 2 and 11.2 at the Southbound Super Abutment. Basis of pile uniformity throughout the Abutment also confirmed.

1. NO. 10 PILE WAS DRIVEN IN DRUG PILE LENGTH IN DRUG PILE

2. NO. 10 PILE WAS DRIVEN IN DRUG PILE LENGTH IN DRUG PILE

3. NO. 10 PILE WAS DRIVEN IN DRUG PILE LENGTH IN DRUG PILE

on 9/11/92

2-16-93

Inspector & Date

Ben Behnani

Assistant R.C.E. Engineer

Pile No	Date Driven	Pile Extending ①				Pile Extending ②				REMARKS
		Length per Foot (ft)	Length per Foot (ft)	Length per Foot (ft)	Length per Foot (ft)	Length per Foot (ft)	Length per Foot (ft)	Length per Foot (ft)		
5	11-6-92			55	13	5	17			Notes: Pile Log for Pile No. 5
				63	15	5	17			
				75	20	6	25			
				90	23	6	26			
				92	24	6	27			
				97	23	6	32			
				96	23	6	38			
				94.9	23	6	43			
				92.9	63	6	45			

12-16-90

Proj. No: F-RP-500-1(1A)--36-77

County: Polk

Design No: 588

Sta. of Foundation: 442+06.34

Locations: N.B. North Atlantic

Contractor: Hartland

Driving Graph No: 77-0588-02-661

TYPE OF PILING: Steel HP10x42
WIDE FLANGES IN HEAD BUT A TAPERED FLANGE FOR 8 FT.

Hammer Model & Type: Disc L
(DRIVE IN SERIES)

Plan Tip Elevation: _____ ft.

Plan Driving Resistance: 57 tons

Observed Blows/Min.: 42-60

Hammer Energy: _____ ft.-Kips.

NOTE: BATTERED PILES ON BIDDING GIVE THE AMOUNT OF BATTER.

NOTE: FOUNDATION BELLOUS LOCATE EACH PILE BY CENTER WITH MARKERS THEREIN.

NOTE: BATTERED PILES ON BIDDING GIVE THE AMOUNT OF BATTER.

NOTE ON DRIVING WHICH PILE HAS BEEN LOGGED.

Pile No.	Date Driven	Length per Blow (Feet)	Length per Blow (Feet) to 100 Blows	Blow per Foot	Blow per Foot	Drum Revolutions	RECAP ②		PILE EXTENDING ③		REMARKS
							Blow per Foot	Drum Revolutions	Length (Feet) to 100 Blows	Length (Feet) to 100 Blows	
1	10-27-98	8.2	2.67	34.11	6%	61					HART/MS
2	10-27-98	8.2	1.9	30.1	77	57					2235/RE124
3	10-27-98	8.2	0.3	3.7	83	53					2235/RE124
4	10-27-98	8.2	1.0	3.0	91	62					2235/RE124
5	10-27-98	8.2	0.6	3.4	52	68	10-27	6 1/2	91	50	2235/RE124
6	10-27-98	8.2	0.9	3.1	53	6	10-27	7	76	50	2235/RE124
7	10-27-98	8.2	1.2	3.0	143	61					2235/RE124
8	10-27-98	8.2	2.4	7.6	11	65					2235/RE124
9	10-27-98	8.2	3.0	7.0	200	7	Re F				2235/RE124
10	10-27-98	8.2	4.8	7.72	200	6	Re F				2235/RE124
							NOTE: Pile No. 3 Bidding Approved by Roy Kuhn, R.E.C.E. & Co. "Const. Based on Re-Tap Values of Piles No. 5 and 6."				

TOTAL = 0.70' 1.87' 3.01'

TOTAL FURTER = 0.83' L.F.

TOTAL CUTOFF = 1.87' L.F.

TOTAL DRIVE = 3.84' L.F.

Barclay G. Schwartz

INSPECTOR & DATE

Bruce Behrman 2-11-93

Assistant R.E.C.E. ENGINEER

Pile No.	Date Driven	Length per Blow (Feet)	Length per Blow (Feet) to 100 Blows	Blow per Foot	Blow per Foot	Drum Revolutions	REMARKS
6	10-27-98	8.2	0.9	4.8	9	15	Piling Lag for Pile 6
				5.8	13	18	
				6.3	11	17	
				6.5	12	17.5	
				6.7	14	25	
				7.2	16	29	
				7.4	3	36	
				7.6	28	3	
				7.8	26	35.5	
				7.9	43	42	
				7.9	5.3	44	

1. RECORD PILE DRIVE LENGTH IN DRIVING PILE LENGTH IN STRUCTURE

2. RECORD DATE OF PILE IN DRIVING GRAPH. LIST DRIVING PILES LIST DATE AND PILE ACTUALLY

3. ADDITIONAL PILE LENGTH TO BE AUTHORIZED BY CONTRACTOR'S PILE.

[illegible][illegible][illegible][illegible][illegible]

12-12-40

LOG OF PILING DRIVEN

WRITE EXHAUSTIVELY

Proj. No. F.R.P. 500-(114)-33-577

Type of Piling: STEEL HP 10x42

County: Duke

SPEC. ORDER IN FIELD, BUT A TYPE SPEC. LIST IS

Design No. 528

Hammer Model & Type, Pile Driver

Site of Foundation: E. 4411-65.79

Plan Type Elevation: ft

Location: Pier 2, 122

Plan Driving Resistance: 37 tons

Contractor: HART AND CONST.

Observed Blow/Min: 35-160

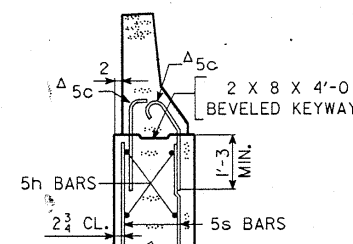
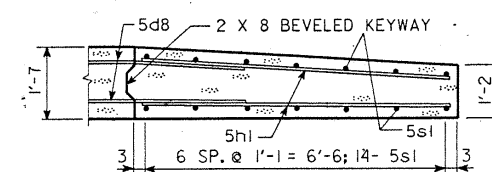
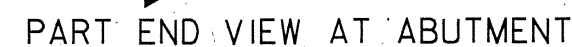
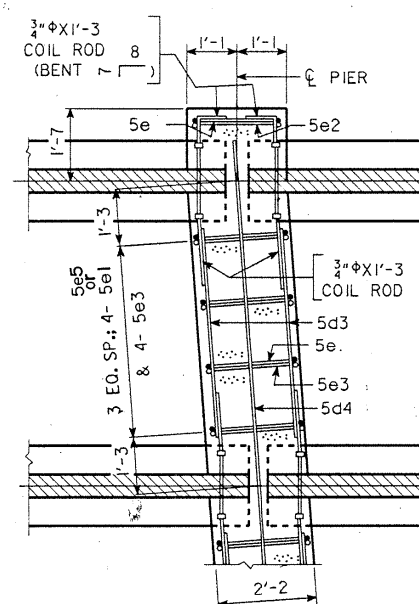
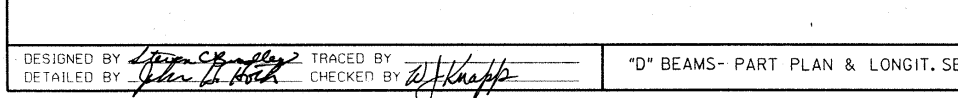
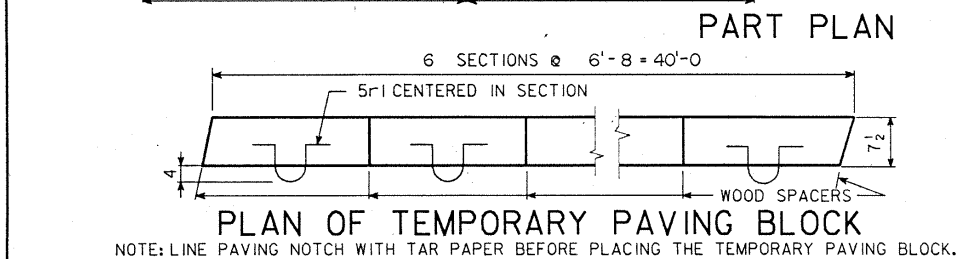
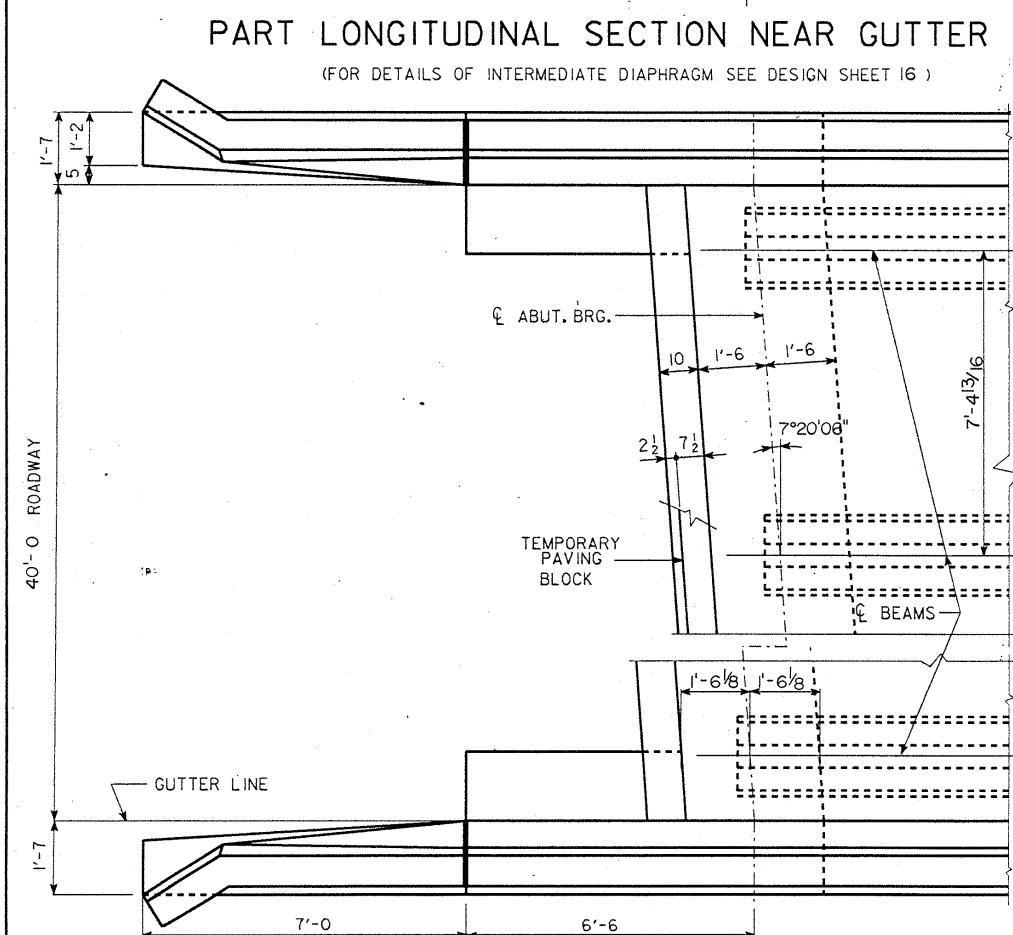
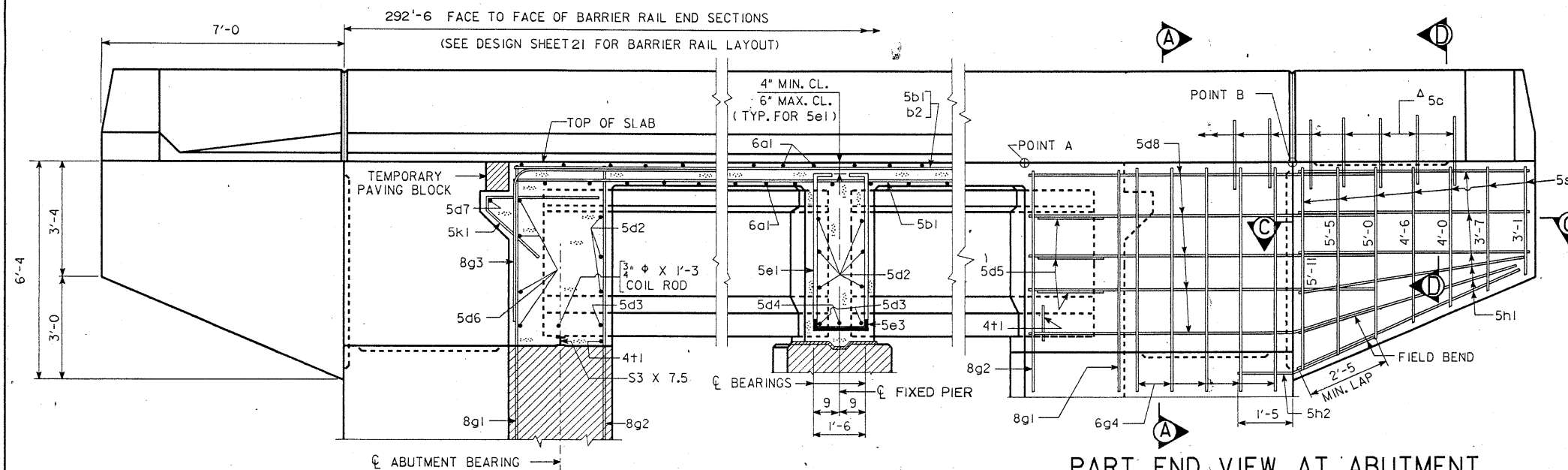
Driving Graph No. 100-20-710

Hammer Energy: 40.3 MAX (ft-lbs)

NOTE: INFORMATION HEREIN IS BASED UPON DATA AS SUPPLIED BY CONTRACTOR. WHILE SUFFICIENT PILES IN EXISTENCE ARE THE RESULT OF A FIELD AND LOG RECORD, THESE RECORDS ARE NOT A GUARANTEE OF THE EXISTENCE THEREOF. NOTE: IN DRIVING WITH PILE AND BATTERIES.

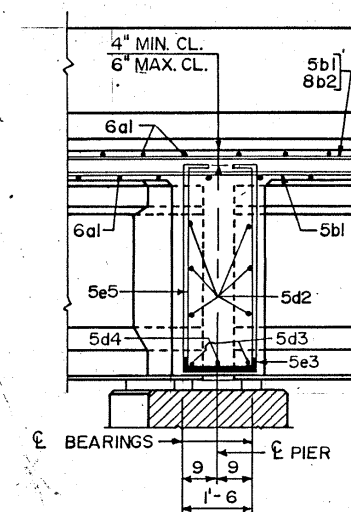
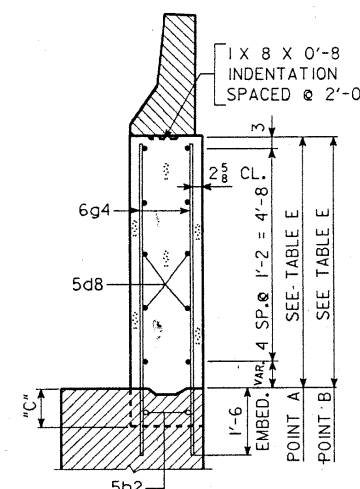
Pile		Length		Length		Blow		Blow		Pile Elevation		Remarks	
No.		Feet		Feet		Per Foot		Per Foot		Feet		Feet	
1	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
2	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
3	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
4	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
5	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
6	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
7	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
8	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
9	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
10	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
11	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
12	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
13	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
14	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
15	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
16	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
17	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
18	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
19	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
20	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
21	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
22	8-4-39	60	6.8	60	6.8	2.1	2.1	2.1	2.1	4-17.4	67	50	24.85
23	8-4-39	60	6.										

[illegible]

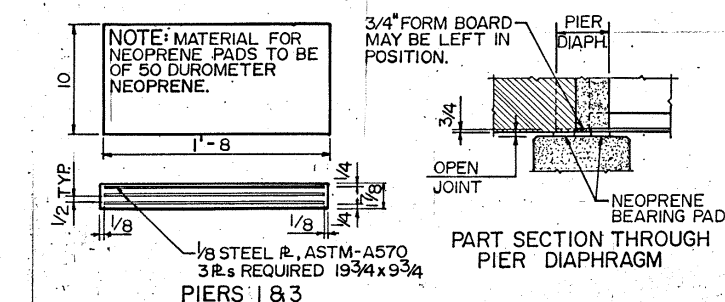


SECTION D-D

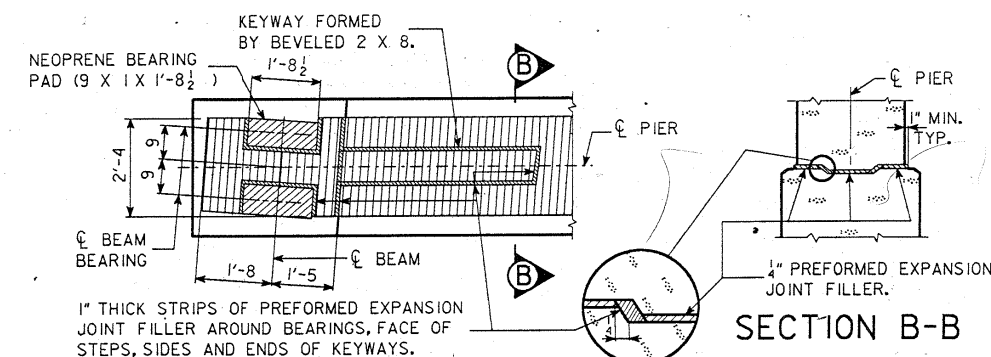
^A NOTE:
SEE DESIGN SHEET NO. 21 FOR
DETAILS OF BARRIER RAIL AND SPACING
FOR 5c BARRIER RAIL BARS. REINFORCING
BARS "5c" ARE INCLUDED IN THE SUPER-
STRUCTURE QUANTITIES.



PART SECTION AT EXPANSION PIER



EXPANSION PIER BEARING DETAILS



PART PLAN

TOP OF FIXED PEIR DETAILS

TABLE E.N.B			
LOCATION	"C"	POINT A	POINT
S.W. CORNER	103 ¹ / ₆	5'-5 1/8"	5'-5 13/16"
N.W. CORNER	115 ¹ / ₆	5'-5 3/8"	5'-4 1/4"
S.E. CORNER	104 ¹ / ₆	5'-5 5/8"	5'-5 3/8"
N.E. CORNER	115 ¹ / ₆	5'-5 5/8"	5'-4 1/4"

LOCATION	"C"	POINT A	POINT
S.W. CORNER	103 ¹⁶	5'-5 ¹ / ₈	5'-5 ¹ / ₈
N.W. CORNER	115 ¹⁶	5'-5 ¹ / ₈	5'-4 ¹ / ₂
S.E. CORNER	104 ¹⁴	5'-5 ¹ / ₈	5'-5 ¹ / ₈
N.E. CORNER	117 ¹⁶	5'-5 ¹ / ₈	5'-4 ¹ / ₂

DESIGN FOR 7 20'06" SKEW

279'6"X40'PRETENSIONED PRESTRESSED
DUAL CONCRETE BEAM BRIDGES

40' 9" & 45' 9" END SPANS 96' 6" CENTER SPAN
SUPERSTRUCTURE DETAILS
 STATION: 440+64.20 MARCH 1990

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 10 OF 27 FILE NO. 26601 DESIGN NO. 588

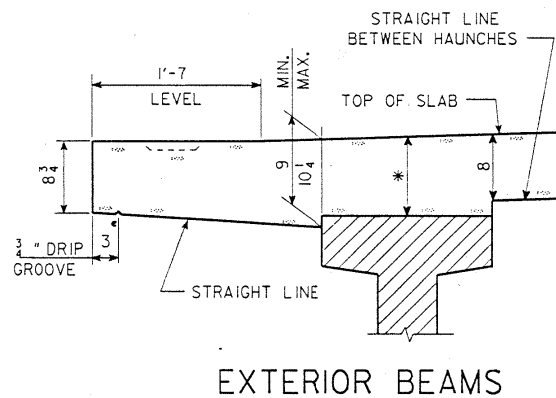
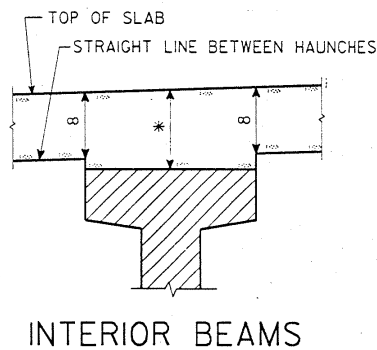
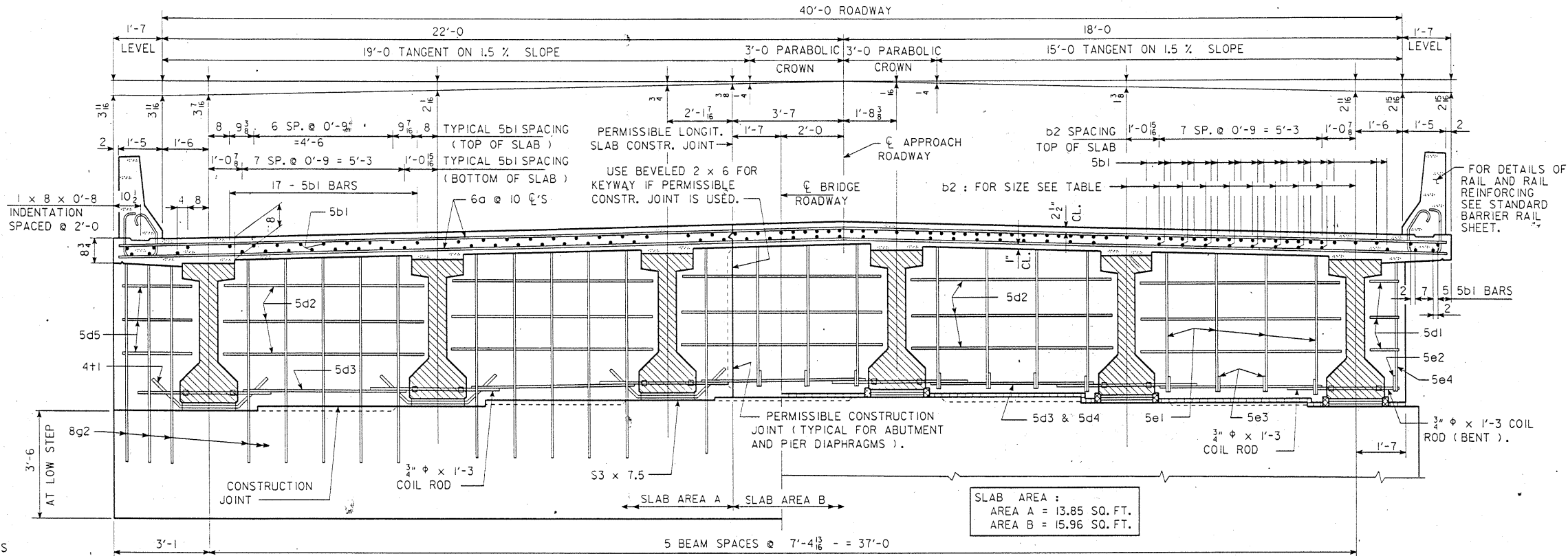
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		1011	28

REVISED: 6" MAX. CL. ADDED FOR 5el BARS. ARCH. TAPE NO. 14 DATE 5-23-89
THIS SHEET REDRAWN, DEVICE:ZHA0:(200,004) ARCH. TAPE NO. 15 DATE 9-8-88

HSTD04511.S01 --LEP:

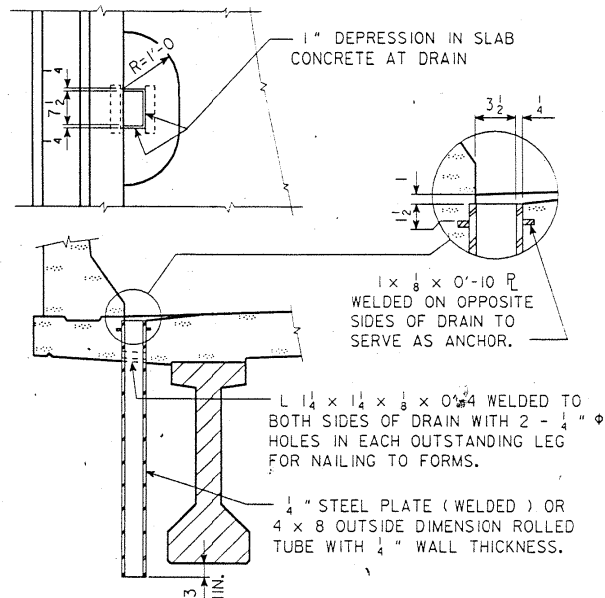
TABLE OF SIZE OF 'b2' BAR	
LONGEST ADJACENT SPAN BEAM	BAR SIZE
A, B & C	D
30'-0"	5
34'-2"	5
38'-4"	5
42'-6"	5
46'-8"	5
50'-10"	6
55'-0"	6
59'-2"	6
63'-4"	7
67'-6"	7
71'-8"	7
75'-10"	8
80'-0"	8
85'-0"	8
90'-0"	8
95'-0"	8

THE MIDPOINT OF THE 'b2' BAR IS TO BE PLACED AT THE C OF PIER.



TYPICAL SLAB AND HAUNCH DETAIL

* FOR SLAB THICKNESS OVER BEAMS SEE "SLAB THICKNESS DETAILS" ON DESIGN SHEET NO. 14 & 15



NOTE : DRAINS ARE TO BE GALVANIZED. 16 DRAINS REQUIRED. SEE "SITUATION PLAN" ON DESIGN SHEET 3 FOR LOCATION. WEIGHT OF DRAINS IS INCLUDED IN THE QUANTITY FOR "STRUCTURAL STEEL". WEIGHT IS BASED ON ROLLED TUBE.

DATA FOR ONE DRAIN				
BEAM SIZE	A	B	C	D
WT. LBS.	106	106	106	106
LENGTH FT.	3'-7 1/2	4'-2 1/2	4'-8 1/2	5'-5 1/2

HALF SECTION NEAR ABUTMENT

LENGTH OF S3 x 7.5 (ABUTMENT BEAM SEAT)	
BEAM BOTTOM FLANGE WIDTH	LENGTH OF S3 x 7.5
1'-6	1'-3 1/2
1'-8	1'-6 1/2
1'-10	1'-8 1/2

SUPERSTRUCTURE NOTES:

THE FLOOR SLAB AS SHOWN INCLUDES 1/2" INTEGRAL WEARING SURFACE.

THE PIER AND ABUTMENT DIAPHRAGM CONCRETE IS TO BE PLACED MONOLITHICALLY WITH THE FLOOR SLAB.

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

ALL BEAMS ARE TO BE SET VERTICAL.

FORMS FOR THE SLAB AND BARRIER RAIL ARE TO BE SUPPORTED BY THE PRESTRESSED CONCRETE BEAMS.

CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR SHALL BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.

ALL SLAB AND DIAPHRAGM REINFORCING IS TO BE WIRED IN PLACE AND ADEQUATELY SUPPORTED BEFORE CONCRETE IS PLACED.

TOP TRANSVERSE REINFORCING STEEL IS TO BE PARALLEL TO AND 2 1/2" CLEAR BELOW TOP OF SLAB. BOTTOM TRANSVERSE REINFORCING STEEL IS TO BE PARALLEL TO AND 1" CLEAR ABOVE BOTTOM OF SLAB. TOP AND BOTTOM REINFORCING STEEL IS TO BE SUPPORTED BY INDIVIDUAL EPOXY COATED METAL BAR CHAIRS SPACED AT NOT MORE THAN 3'-0" CENTERS LONGITUDINALLY AND TRANSVERSELY, OR BY CONTINUOUS ROWS OF EPOXY COATED METAL BAR HIGH CHAIRS OR SLAB BOLSTERS SPACED 4'-0" APART.

COST OF BEARING MATERIAL IS TO BE INCLUDED IN THE PRICE BID FOR "PRETENSIONED PRESTRESSED CONCRETE BEAMS".

TRANSVERSE SLAB REINFORCING MAY BE SPLICED WITH ONE LAP LOCATED AS FOLLOWS:

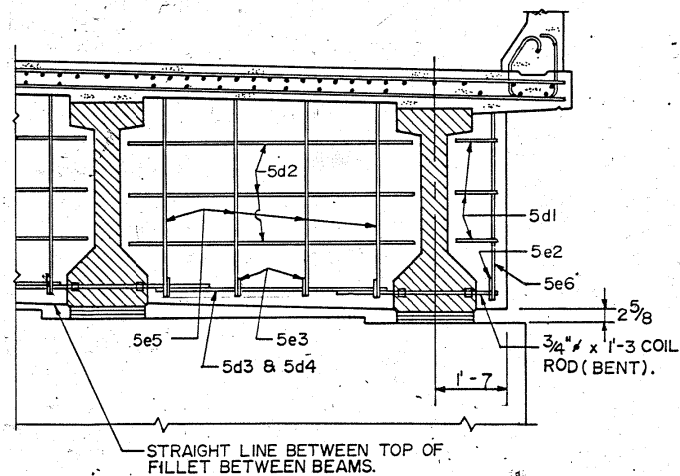
TOP BARS - LAP MIDWAY BETWEEN BEAMS (MIN. LAP = 2'-6).

BOTTOM BARS - LAP OVER BEAMS (MIN. LAP = 2'-6).

PAYMENT FOR REINFORCING BARS SHALL BE BASED ON NO SPLICES, AND NO ALLOWANCE SHALL BE MADE FOR THE ADDITIONAL LENGTH OF BAR REQUIRED FOR THE USE OF SPLICES.

HALF SECTION NEAR FIXED PIER (LOOKING SOUTH-NORTH BOUND; LOOKING NORTH-SOUTH BOUND)

NOTE : FOR DETAILS OF INTERMEDIATE DIAPHRAGMS SEE DESIGN SHEET 16



HALF SECTION NEAR EXPANSION PIER

DESIGN FOR 7 20'06" SKEW			
279'6"X40'PRETENSIONED PRESTRESSED DUAL CONCRETE BEAM BRIDGES			
40' 9" & 45' 9" END SPANS		96' 6" CENTER SPAN	
SUPERSTRUCTURE DETAILS			
STATION: 440+64.20		MARCH, 1990	
POLK COUNTY			
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION			
DESIGN SHEET NO. 11 OF 27		FILE NO. 26601	DESIGN NO. 588

DESIGNED BY *John P. Smith* TRACED BY *John P. Smith*
 CHECKED BY *John P. Smith*

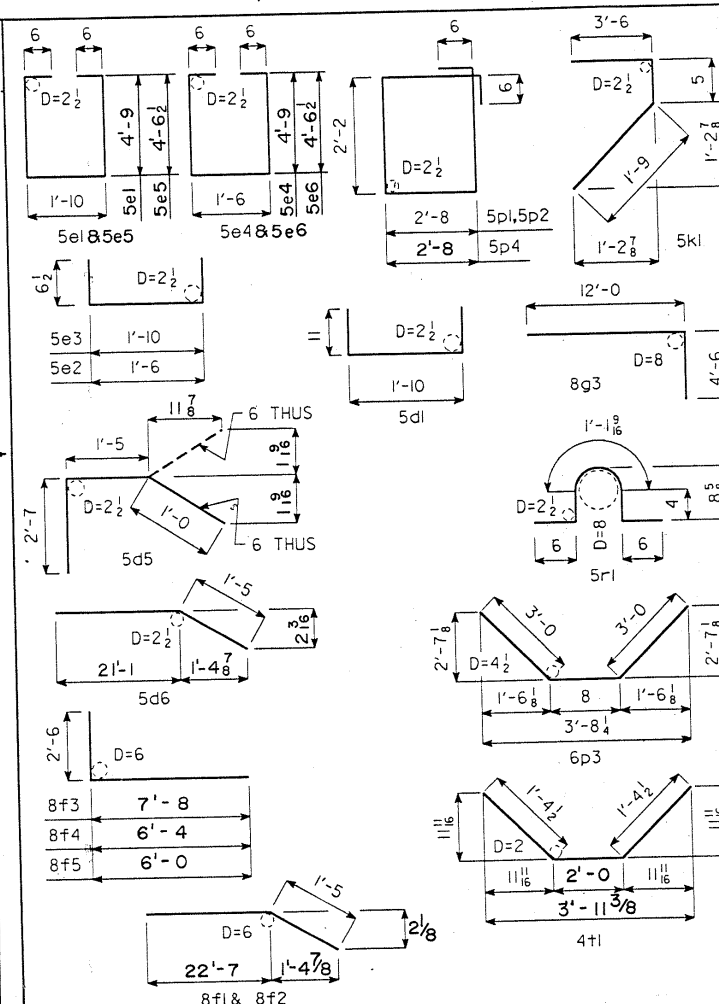
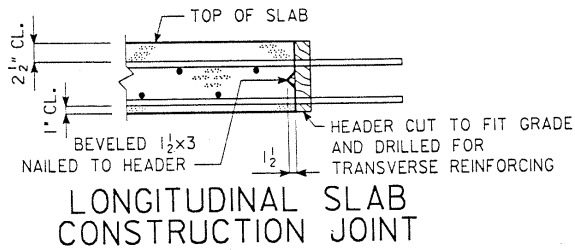
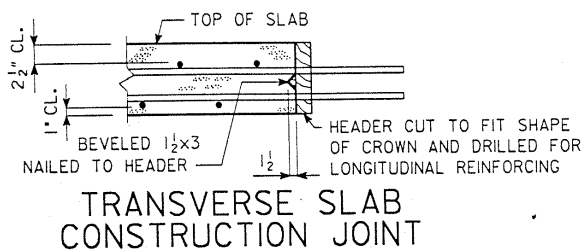
40' RDWY. PPCB (ALL BEAMS - INTEGRAL ABUT.) CROSS SECTION

STANDARD SHEET 4383

POLK COUNTY

PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		11	28



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

BENT BAR DETAILS

CONC. PLACEMENT QUANTITIES

LOCATION	SIDE A	SIDE B	CLASS 'C' CLASS 'D'
SECTION 1, SLAB & ABUT. DIAPH.	29.5	33.8	63.3
SECTION 2, SLAB	37.2	42.9	80.1
SECTION 3, SLAB	37.2	42.9	80.1
SECTION 4, SLAB & ABUT. DIAPH.	26.7	30.9	57.6
SECTION 5, SLAB & PIER DIAPH.	18.3	21.4	39.7
SECTION 6, SLAB & PIER DIAPH.	18.5	21.6	40.1
SECTION 7, SLAB & PIER DIAPH.	18.3	21.4	39.7
LIGHT POLE BLISTER	0.2		0.2
ABUTMENT FOOTINGS			43.5
ABUTMENT WINGS *	4 AT 1.7		6.8
PAVING BLOCKS *	2 AT 0.8		1.6
INTERMEDIATE DIAPH. *	4 AT 4.0		16.0
TOTAL (CU. YDS.)	444.3	24.4	

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE, CLASS 'C'	CU. YD.	444.3
STRUCTURAL CONCRETE, CLASS 'D'	CU. YD.	24.4
STRUCTURAL STEEL	LBS.	848
REINFORCING STEEL	LBS.	9130
REINFORCING STEEL EPOXY COATED	LBS.	100,055
PRETENSIONED CONCRETE BEAMS	NO.	6
CLASS 20 EXCAVATION	CU. YD.	126
GRANULAR BACKFILL	TONS	200
SUBDRAIN AS PER PLAN	L.F.	104
HPI0x42 STEEL	L.F.	1,700
BEARING PILE	L.F.	1,700
PREBORED HOLES AS PER PLAN	L.F.	370
RIGID STEEL CONDUIT - SEE DSN. SHT. NO. 22		

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

EPOXY COATED REINFORCING

BAR	LOCATION	SHAPE	NO.	LENGTH	LIN. FT.	WEIGHT
6a1	SLAB TRANSV. TOP & BOTT.	——	665	42'-10	28,484	42,783
6a2	SLAB TRANSV. TOP ENDS	——	12	VARIES	242	363
6a3	SLAB TRANSV. BOTT. ENDS	——	12	VARIES	281	422
5b1	SLAB LONGIT. TOP & BOTT.	——	776	36'-7	28,389	29,609
5b2	SLAB LONGIT. TOP AT PIERS	——	138	23'-8	3266	8720
5d6	ABUT. DIAPH. LONGIT. B.F.	⌒	16	22'-6	360	375
5d7	PAVING NOTCH LONGIT.	——	4	22'-6	90	94
8f1	ABUT. FOOTING LONGIT. B.F.	⌒	16	24'-0	384	1025
8g1	ABUT. VERT. B.F.	——	70	7'-6	525	1402
8g3	ABUT. DIAPH. VERT. B.F.	┌┐	62	16'-6	1023	2731
5k1	PAVING NOTCH TRANSV.	└┘	64	5'-8	363	378
5p1	ABUT. HOOPS	□	148	10'-8	1365	1647
6p3	ABUT. BOTT. AT PIERS	⌒	28	6'-8	187	280
5p4	ABUT. HOOPS AT ENDS	□	8	10'-8	86	89

BARRIER RAIL - SEE DESIGN SHT. NO. 21

LIGHT POLE BASE - SEE DESIGN SHT. NO. 22

REINFORCING STEEL EPOXY COATED - TOTAL (LBS.) 100,055

REINFORCING STEEL EPOXY COATED - TOTAL (LBS.) 100,055

5d1	PIER DIAPH. ENDS	18	3'-8"	69
5d2	PIER & ABUT. DIAPH. LONGIT.	120	6'-6"	814
5d3	PIER & ABUT. DIAPH. LONGIT.	40	5'-3"	219
5d4	PIER DIAPH. LONGIT.	3	39'-2"	123
5d5	ABUT. DIAPH. ENDS	12	5'-0"	63
5d8	ABUT. DIAPH. WING EXT. LONGIT.	40	10'-6"	438

5e1 PIER DIAPH. HOOPS-FIXED

5e2 PIER DIAPH. TIES ENDS

5e3 PIER DIAPH. TIES

5e4 PIER DIAPH. HOOPS ENDS-FIXED

5e5 PIER DIAPH. HOOPS-EXPANSION

5e6 PIER DIAPH. HOOPS ENDS-EXPAN.

8f2 ABUT. FOOTING LONGIT. F.F.

8f3 ABUT. EXTENSION LONGIT.

8f4 ABUT. EXTENSION LONGIT.

8f5 ABUT. EXTENSION LONGIT.

8g2 ABUT. VERT. F.F.

6g4 ABUT. DIAPH. WING EXT. VERT.

5h1 ABUT. WING HORIZ.

5h2 ABUT. TO WING ANCHOR

5p2 ABUT. EXTENSION HOOPS

5f1 PAVING BLOCK LIFTING LOOPS

5f2 WING VERT.

4t1 UNDER BEAMS AT ABUTMENTS

#2 PILE SPIRAL

SPIRAL SPACERS, C₁x0.65

INTERM. DIAPH. - SEE DES. SHT. NO. 16

REINFORCING STEEL - TOTAL (LBS.) 9130

DESIGN FOR 7 20'06" SKEW

279'6"X40'PRETENSIONED PRESTRESSED

DUAL CONCRETE BEAM BRIDGES

40' 9" & 45' 9" END SPANS

96' 6" CENTER SPAN

SUPERSTRUCTURE DETAILS N. BOUND

STATION: 440+64.20

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 12 OF 27

FILE NO. 26601

DESIGN NO. 588

STATE IOWA

REGION 7

YEAR 1990

SHEET NO. 12

TOTAL SHEETS 28

NORTH BOUND CONCRETE PLACEMENT DIAGRAM & SLAB REINFORCING LAYOUT

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.

DESIGNED BY *[Signature]* TRACED BY *[Signature]*
 CHECKED BY *[Signature]*

INTEGRAL ABUT. "D" BEAMS - BAR LIST & SUPER. DETAILS - 0°01' - 7°30' SKEW

STANDARD SHEET 4519

POLK COUNTY

PROJECT NUMBER

STATE

REGION

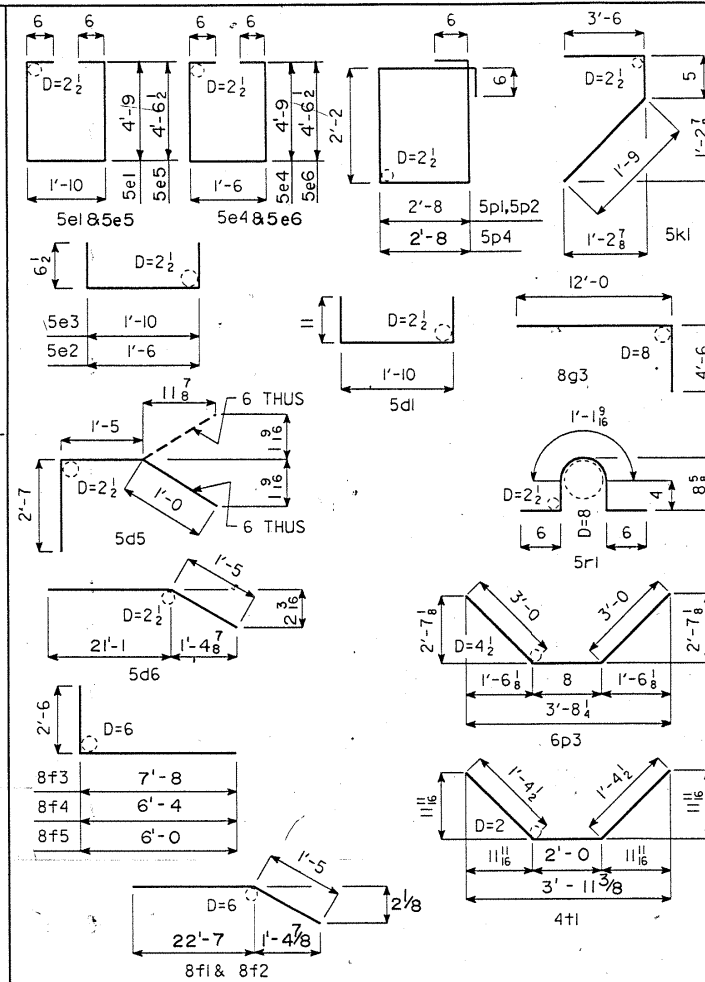
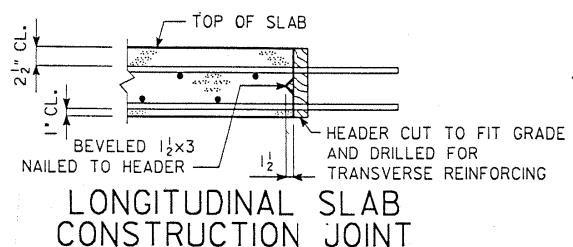
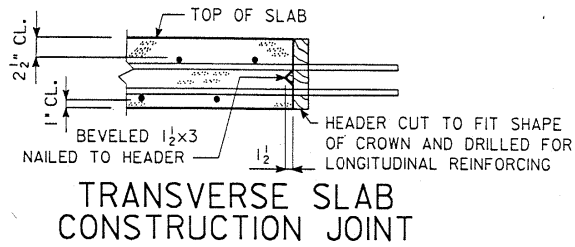
YEAR

SHEET NO.

TOTAL SHEETS

REVISED: GRANULAR BACKFILL UNIT DESIGNATION CHANGED, ARCH. TAPE NO. 2 DATED 1-12-89
 HSTD004519.S01 --LEP: THIS SHEET REDRAWN, DEVICE: HAO3(200,004) ARCH. TAPE NO. 15 DATE 3-8-88

REVISED: GRANULAR BACKFILL UNIT DESIGNATION CHANGED. ARCH. TAPE NO. 9 DATED 7-12-89
 HSTND04519 SOI -- I P: THIS SHEET REDRAWN. DEVICEZHA0:(200,004) ARCH.TAPE NO. 15 DATE 9-8-88



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

BENT BAR DETAILS

CONC. PLACEMENT QUANTITIES ONE SUPER. & TWO ABUTS.

LOCATION	SIDE B	SIDE A	CLASS 'C'	CLASS 'D'
SECTION 1, SLAB & ABUT. DIAPH.	30.9	26.7	57.6	
SECTION 2, SLAB	42.9	37.2	80.1	
SECTION 3, SLAB &	42.9	37.2	80.1	
SECTION 4, SLAB & ABUT. DIAPH.	33.8	29.5	63.3	
SECTION 5, SLAB & PIER DIAPH.	21.4	18.3	39.7	
SECTION 6, SLAB & PIER DIAPH.	21.6	18.5	40.1	
SECTION 7, SLAB & PIER DIAPH.	21.4	18.3	39.7	
LIGHT-POLE-BLISTER		0.2	0.2	
ABUTMENT FOOTINGS			43.2	
ABUTMENT WINGS 4 AT 1.7				6.8
PAVING BLOCKS * 2 AT 0.8				1.6
INTERMEDIATE DIAPH. 4 AT 4.0				16.0

6	* MAY BE CLASS 'C' OR 'D'	TOTAL (CU. YDS.)	444.0	24.4
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ESTIMATED QUANTITIES ONE SUPER. & TWO ABUTS.

ITEM		UNIT	QUANTITY
STRUCTURAL CONCRETE, CLASS "C"		CU. YD.	444.0
STRUCTURAL CONCRETE, CLASS "D"		CU. YD.	24.4
STRUCTURAL STEEL		LBS.	848
REINFORCING STEEL		LBS.	9,130
REINFORCING STEEL EPOXY COATED		LBS.	100,055
PRETENSIONED	D40	NO.	6
PRESTRESSED	D45	NO.	6
CONCRETE BEAMS	D95	NO.	12
CLASS 20 EXCAVATION		CU. YD.	126
GRANULAR BACKFILL		TONS	200
SUBDRAIN AS PER PLAN		L.F.	104
HPI0x42 STEEL	FURNISH 10 @ 88 10 @ 88	L.F.	1,760
BEARING PILE	DRIVE 10 @ 88 10 @ 88	L.F.	1,760
PREBORED HOLES AS PER PLAN 10 @ 22 10 @ 20		L.F.	420
RIGID STEEL CONDUIT-- SEE DSN.SHT. NO. 22			

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

BAR	LOCATION	SHAPE	NO.	LENGTH	LN. FT.	WEIGHT
6a1	SLAB TRANSV. TOP & BOTT.	—	665	42'-10	28,484	42,783
6a2	SLAB TRANSV. TOP ENDS	—	12	VARIES	242	363
6a3	SLAB TRANSV. BOTT. ENDS	—	12	VARIES	281	422
5b1	SLAB LONGIT. TOP & BOTT.	—	776	36'-7	28,389	29,609
8b2	SLAB LONGIT. TOP AT PIERS	—	138	23'-8	3,266	8,720
5d6	ABUT. DIAPH. LONGIT. B.F.	—	16	22'-6	360	375
5d7	PAVING NOTCH LONGIT.	—	4	22'-6	90	94
8f1	ABUT. FOOTING LONGIT. B.F.	—	16	24'-0	384	1025
8g1	ABUT. VERT. B.F.	—	70	7'-6	525	1402
8g3	ABUT. DIAPH. VERT. B.F.	—	62	16'-6	1023	2731
5k1	PAVING NOTCH TRANSV.	—	64	5'-8	363	378
5p1	ABUT. HOOPS	□	148	10'-8	1579	1647
6p3	ABUT. BOTT. AT PILES	—	28	6'-8	187	280
5p4	ABUT. HOOPS AT ENDS	□	8	10'-8	86	89

BARRIER RAIL - SEE DESIGN SHT. NO. 21

LIGHT POLE BASE - SEE DESIGN SHT. NO. 2

REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)	100,055
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5d1	PIER DIAPH. ENDS		18	3'-8	—	69
5d2	PIER & ABUT. DIAPH. LONGIT.		120	6'-6	—	814
5d3	PIER & ABUT. DIAPH. LONGIT.		40	5'-3	—	219
5d4	PIER DIAPH. LONGIT.		3	39'-2	—	123
5d5	ABUT. DIAPH. ENDS		12	5'-0	—	63
5d8	ABUT. DIAPH. WING EXT. LONGIT.		40	10'-6	—	438

NON-COATED REINFORCING

5e1	PIER DIAPH. HOOPS-FIXED		20	12'-4	—	247
5e2	PIER DIAPH. TIES- ENDS		6	2'-7	—	16
5e3	PIER DIAPH. TIES		60	2'-11	—	183
5e4	PIER DIAPH. HOOPS END-FIXED		2	12'-0	—	25
5e5	PIER DIAPH. HOOPS-EXPANSION		40	11'-11	—	497
5e6	PIER DIAPH. HOOPS END-EXPANSION		4	11'-7	—	48
8f2	ABUT. FOOTING LONGIT. F.F.		20	24'-0	—	1282
8f3	ABUT. EXTENSION LONGIT.		16	10'-2	—	434
8f4	ABUT. EXTENSION LONGIT.		8	8'-10	—	189
8f5	ABUT. EXTENSION LONGIT.		8	8'-6	—	182

8g2	ABUT. VERT. F.F.	—	62	7'-6	—	1242
6g4	ABUT. DIAPH. WING EXT. VERT.	—	40	6'-10	—	411

5h1	ABUT. WING HORIZ.	—	48	6'-8	—	334
5h2	ABUT. TO WING ANCHOR	—	8	4'-0	—	33

5p2	ABUT. EXTENSION HOOPS	☐	24	10'-8	—	267
-----	-----------------------	--------------------------	----	-------	---	-----

5r1	PAVING BLOCK LIFTING LOOPS		12	2'-10"	—	35
5s1	WING VERT.		56	VARIES	—	263
4t1	UNDER BEAMS AT ABUTMENTS		12	4'-9"	—	38

#2	PILE SPIRAL		18	38'-6	—	116
	SPIRAL SPACERS, C ₇ x 0.65	—	36	1'-10	—	43
	INTERM. DIAPH. - SEE DES. SHT. NO. 16			#5 BAR	—	1509

DESIGN FOR 7' 20'06" SKEW

279'6"X40'PRETENSIONED PRESTRESSED
DUAL CONCRETE BEAM BRIDGES

40' 9" & 45' 9" END SPANS 96' 6" CENTER SPAN

SUPERSTRUCTURE DETAIL S.S. BOUND

STATION: 440+64.20 MARCH, 1990

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 13 OF 27 FILE NO. 26601 DESIGN NO. 588

SOUTH BOUND CONCRETE PLACEMENT DIAGRAM & SLAB REINFORCING LAYOUT

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.

INTEGRAL ABUT. "D" BEAMS - BAR LIST & SUPER. DETAILS - 0°01' - 7°30' SKEW

STANDARD SHEET 4519

POLK COUNTY

PROJECT NUMBER

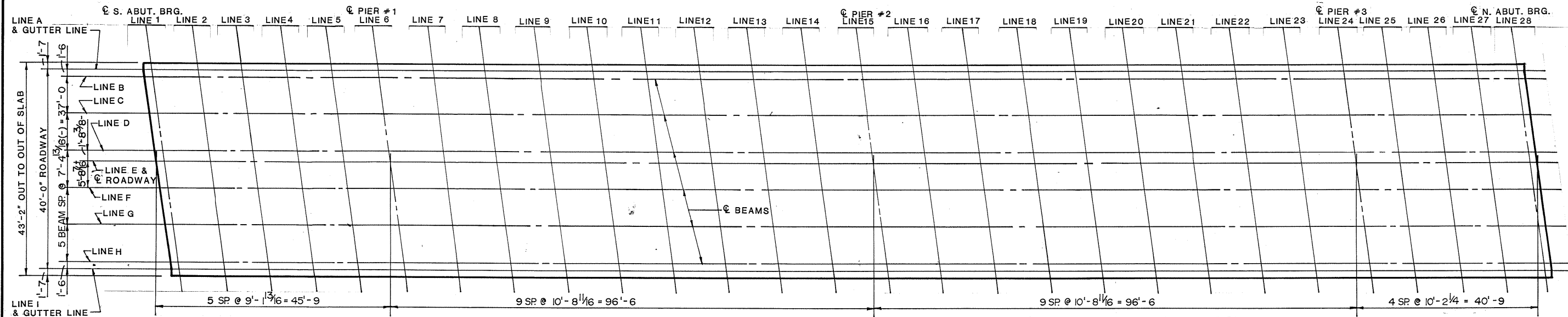
STATE	
10-10	

FISCAL YEAR	
----------------	--

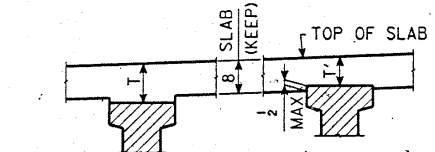
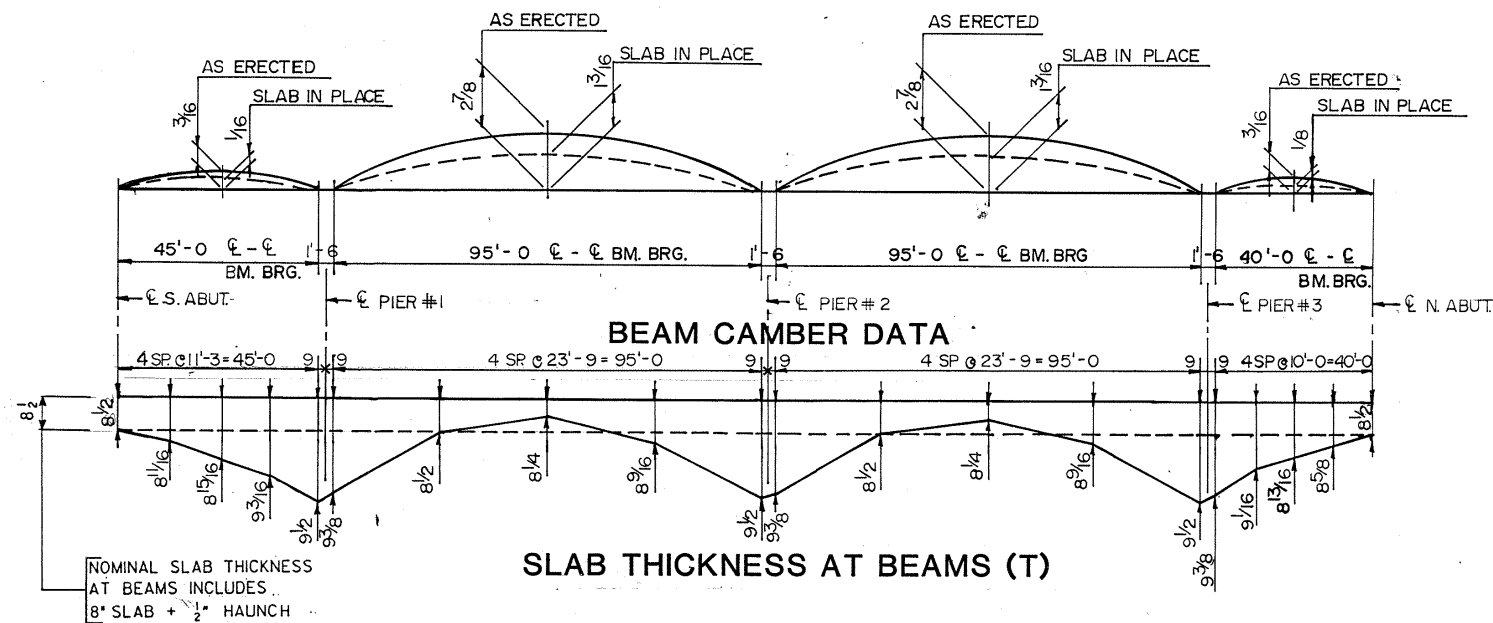
TOTAL SHEETS	20
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BENCH MARK #1 STA. 444+11.9 --- 20' RT CUT X IN N. HDWL 2X2 RGB-BM. #32 F 500-1 --- ELEV. 908.90
BM #1A 1993 Datum
I DOT Plug NW Handrail SB Bridge over IA 163 Elev. 909.18

	C S. ABUT					C PIER #1									C PIER #2									C PIER #3				C N. ABUT			
LOCATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28			
A	908.36	908.30	908.23	908.17	908.11	908.04	907.97	907.89	907.82	907.74	907.67	907.59	907.52	907.44	907.37	907.29	907.22	907.14	907.07	906.99	906.92	906.84	906.77	906.69	906.62	906.55	906.48	906.41			
B	908.38	908.32	908.25	908.19	908.13	908.06	907.99	907.91	907.84	907.76	907.69	907.61	907.54	907.46	907.39	907.31	907.24	907.16	907.09	907.01	906.94	906.86	906.79	906.71	906.64	906.57	906.50	906.43			
C	908.48	908.42	908.36	908.29	908.23	908.16	908.09	908.01	907.94	907.86	907.79	907.71	907.64	907.56	907.49	907.41	907.34	907.26	907.19	907.11	907.04	906.96	906.89	906.81	906.74	906.67	906.60	906.53			
D	908.59	908.52	908.46	908.39	908.33	908.27	908.19	908.12	908.04	907.97	907.89	907.82	907.74	907.67	907.59	907.52	907.44	907.37	907.29	907.22	907.14	907.07	906.99	906.92	906.84	906.77	906.70	906.63			
E	908.59	908.53	908.46	908.40	908.33	908.27	908.20	908.12	908.05	907.97	907.90	907.82	907.75	907.67	907.60	907.52	907.44	907.37	907.29	907.22	907.14	907.07	906.99	906.92	906.85	906.78	906.71	906.63			
F	908.52	908.46	908.39	908.33	908.27	908.20	908.13	908.05	907.98	907.90	907.83	907.75	907.68	907.60	907.53	907.45	907.38	907.30	907.23	907.15	907.08	907.00	906.93	906.85	906.78	906.71	906.64	906.57			
G	908.41	908.34	908.28	908.21	908.15	908.09	908.01	907.94	907.86	907.79	907.71	907.64	907.56	907.49	907.41	907.34	907.26	907.19	907.11	907.04	906.96	906.89	906.81	906.74	906.66	906.59	906.52	906.45			
H	908.29	908.22	908.16	908.09	908.03	907.97	907.89	907.82	907.74	907.67	907.59	907.52	907.44	907.37	907.29	907.21	907.14	907.06	906.99	906.91	906.84	906.76	906.69	906.61	906.54	906.47	906.40	906.33			
I	908.26	908.20	908.14	908.07	908.01	907.94	907.87	907.79	907.72	907.64	907.57	907.49	907.42	907.34	907.27	907.19	907.12	907.04	906.97	906.89	906.82	906.74	906.67	906.59	906.52	906.45	906.38	906.31			



NORTH BOUND BRIDGE - TOP OF SLAB ELEVATIONS



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 $\frac{1}{2}$ \"

DESIGN FOR 7 20'06\"				
279'6\"X40'PRETENSIONED PRESTRESSED				
DUAL CONCRETE BEAM BRIDGES				
40' 9\" & 45' 9\" END SPANS	96' 6\" CENTER SPAN			
TOP OF SLAB ELEVATIONS N.B.				
STATION: 440+64.20				
MARCH, 1990				
POLK COUNTY				
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION				
DESIGN SHEET NO. 14	OF 27			
FILE NO. 26601	DESIGN NO. 588			
STATE	PRWA	FISCAL	SHEET	TOTAL
IOWA	7	YEAR	NO.	SHEETS
			7415	23

DESIGNED BY *John C. Hattery*
DETAILED BY *John H. Hattery*
CHECKED BY *John H. Hattery*

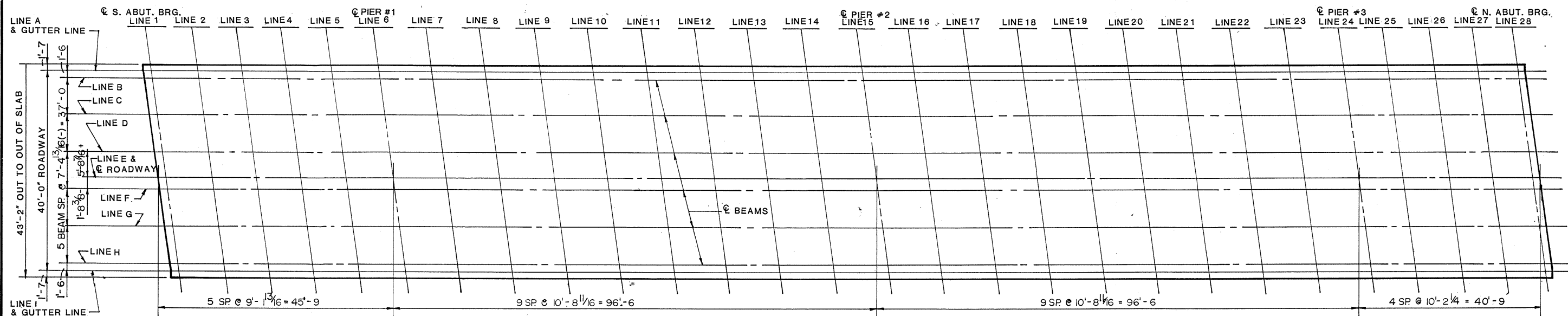
SHIVE-HATTERY ENGINEERS AND ARCHITECTS, inc.

POLK COUNTY

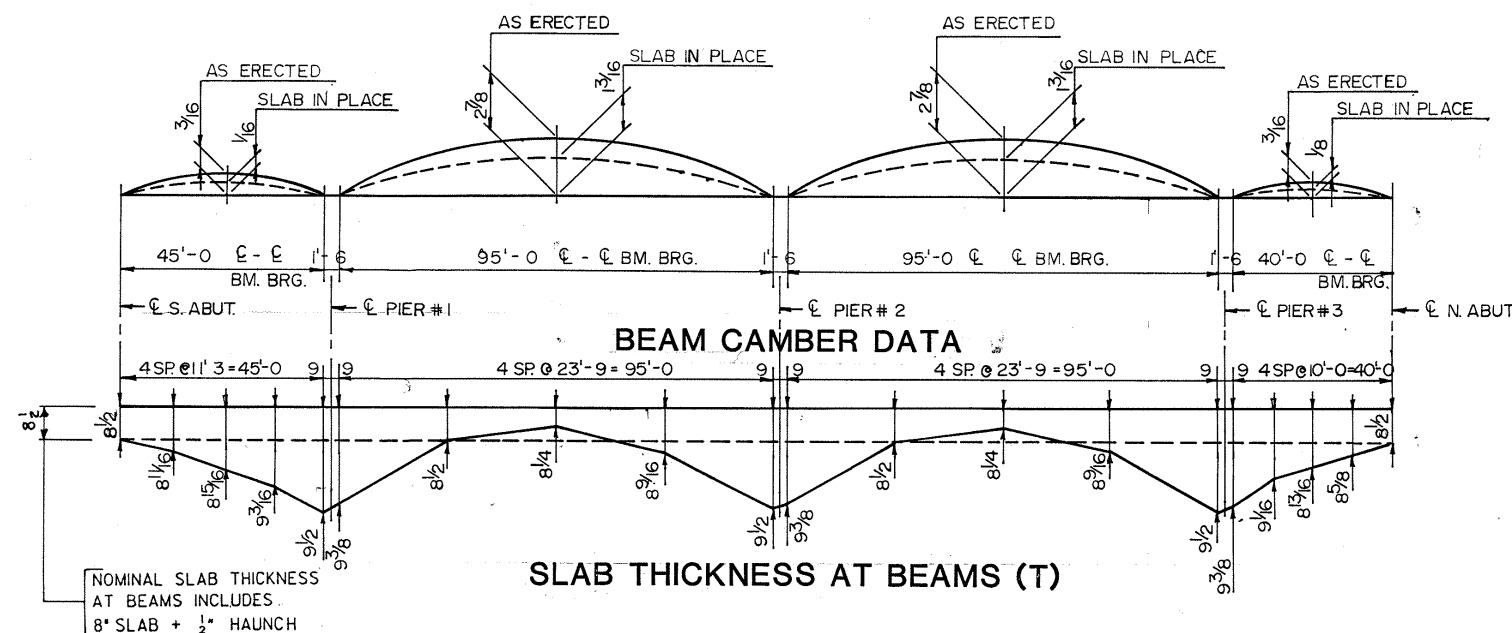
PROJECT NUMBER

BENCH MARK #1 STA. 444+11.0 --- 20' RT CUT X IN N. HDWL 2X2 RCB-BM-#32 F-500-1 --- ELEV. 908.90
Bm #1A 1993 Datum
I DOT Plug NW Handrail SB Bridge over IA 163 Elev. 909.18

	S. ABUT.					PIER #1								PIER #2								PIER #3				N. ABUT.			
LOCATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
A	908.37	908.31	908.25	908.18	908.12	908.05	907.98	907.90	907.83	907.75	907.68	907.60	907.53	907.45	907.38	907.30	907.23	907.15	907.08	907.00	906.93	906.85	906.78	906.70	906.63	906.56	906.49	906.42	
B	908.39	908.33	908.27	908.20	908.14	908.07	908.00	907.92	907.85	907.77	907.70	907.62	907.55	907.47	907.40	907.32	907.25	907.17	907.10	907.02	906.95	906.87	906.80	906.72	906.65	906.58	906.51	906.44	
C	908.50	908.44	908.37	908.31	908.25	908.18	908.11	908.03	907.96	907.88	907.81	907.73	907.66	907.58	907.51	907.43	907.36	907.28	907.21	907.13	907.06	906.98	906.91	906.83	906.76	906.69	906.62	906.55	
D	908.60	908.54	908.48	908.41	908.35	908.28	908.21	908.13	908.06	907.98	907.91	907.83	907.76	907.68	907.61	907.53	907.46	907.38	907.31	907.23	907.16	907.08	907.01	906.93	906.86	906.79	906.72	906.65	
E	908.66	908.60	908.53	908.47	908.41	908.34	908.27	908.19	908.12	908.04	907.97	907.89	907.82	907.74	907.67	907.59	907.52	907.44	907.37	907.29	907.22	907.14	907.07	906.99	906.92	906.85	906.78	906.71	
F	908.66	908.59	908.53	908.46	908.40	908.34	908.26	908.18	908.11	908.03	907.96	907.88	907.81	907.73	907.66	907.58	907.51	907.43	907.36	907.28	907.21	907.13	907.06	906.98	906.91	906.84	906.77	906.70	
G	908.54	908.48	908.41	908.35	908.28	908.22	908.14	908.07	907.99	907.92	907.84	907.77	907.69	907.62	907.54	907.47	907.39	907.32	907.24	907.17	907.09	907.02	906.94	906.87	906.80	906.73	906.65	906.58	
H	908.42	908.36	908.30	908.23	908.17	908.10	908.03	907.95	907.88	907.80	907.73	907.65	907.58	907.50	907.43	907.35	907.28	907.20	907.13	907.05	906.98	906.90	906.83	906.75	906.68	906.61	906.54	906.47	
I	908.40	908.34	908.27	908.21	908.14	908.08	908.01	907.93	907.86	907.78	907.71	907.63	907.56	907.48	907.41	907.33	907.26	907.18	907.11	907.03	906.95	906.88	906.80	906.73	906.66	906.59	906.52	906.44	



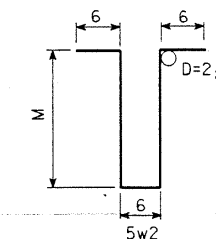
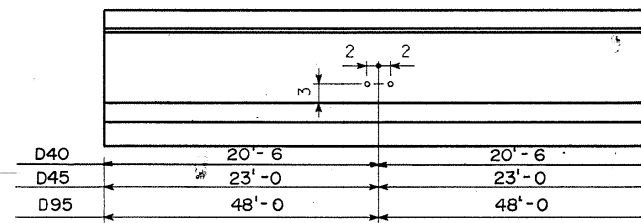
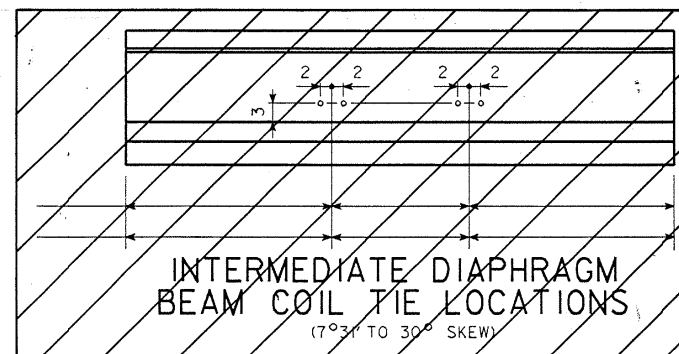
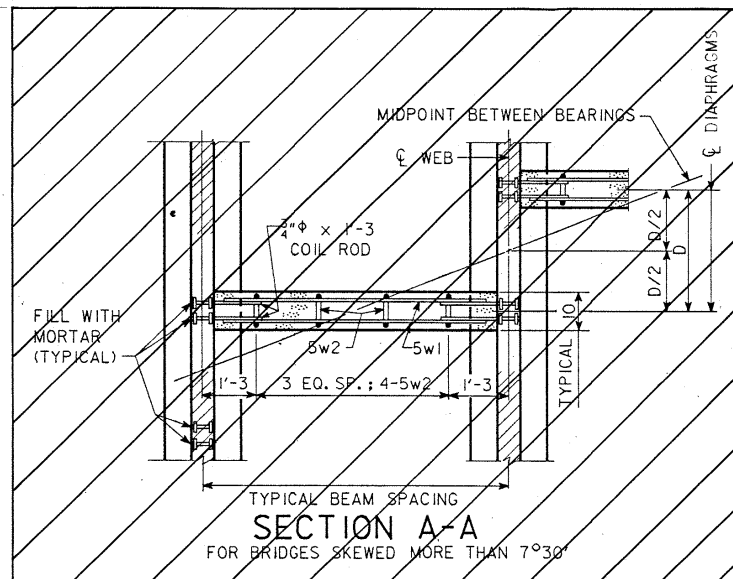
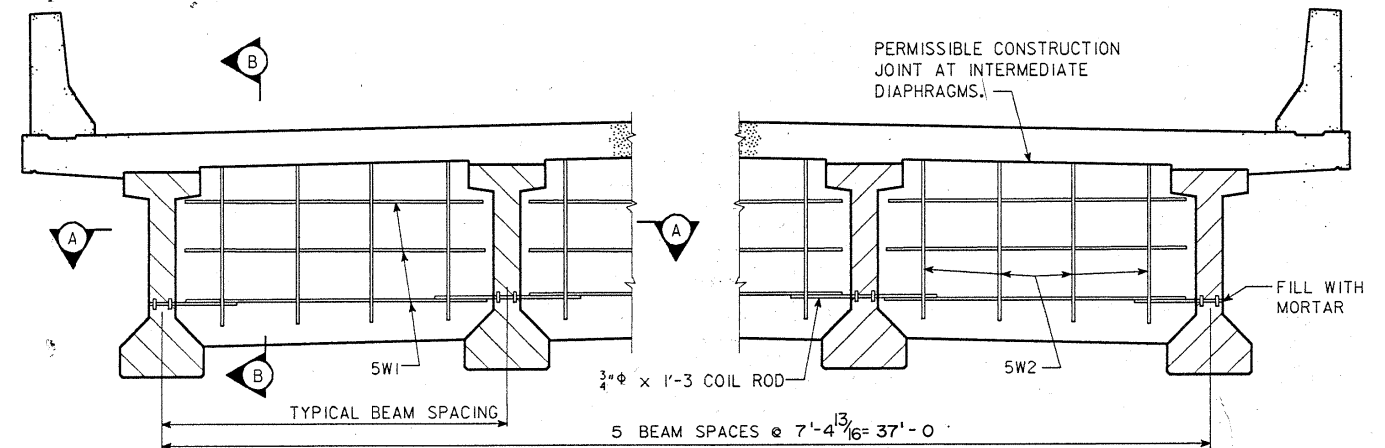
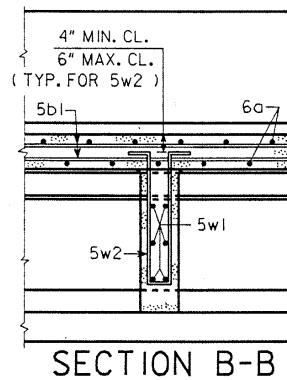
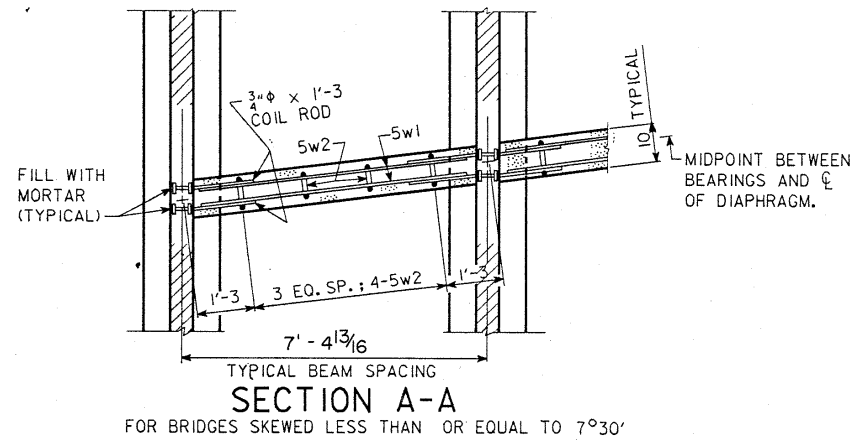
SOUTH BOUND BRIDGE - TOP OF SLAB ELEVATIONS



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.

DESIGN FOR 7 20'06" SKEW
279'6"X40'PRETENSIONED PRESTRESSED
DUAL CONCRETE BEAM BRIDGES
40' 9" & 45' 9" END SPANS 96' 6" CENTER SPAN
TOP OF SLAB ELEVATIONS S.B.
STATION: 440+64.20 MARCH, 1990
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 15 OF 27 FILE NO. 26601 DESIGN NO. 588



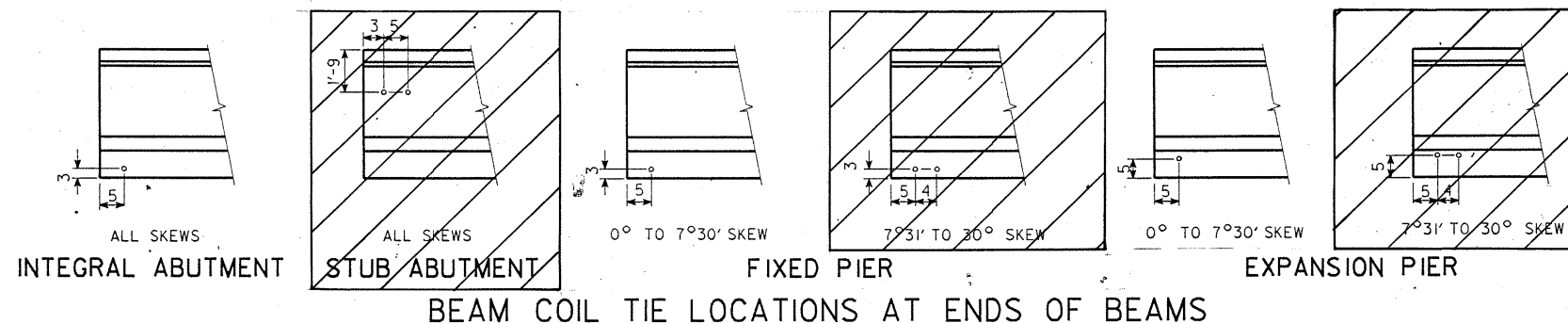
NOTE: ALL DIMENSIONS ARE OUT TO OUT. D=PIN DIAMETER.

BEAM SIZE	M	BAR LENGTH
A	1'-11"	4'-4"
B	2'-4"	6'-2"
C	2'-9"	7'-0"
D	3'-5"	8'-4"

REINFORCING BAR LIST INTERMEDIATE DIAPHRAGMS-ONE SUPER.						
BAR	LOCATION	SHAPE	NO.	LENGTH	LIN. FT.	WEIGHT
5w1	INTERMEDIATE DIAPH. LONGIT./BRIDGE	—	120	6'-6"	780	814
5w2	INTERMEDIATE DIAPH. HOOPS/BRIDGE	U	80	8'-4"	667	695
REINFORCING STEEL-TOTAL (LBS.)						1509

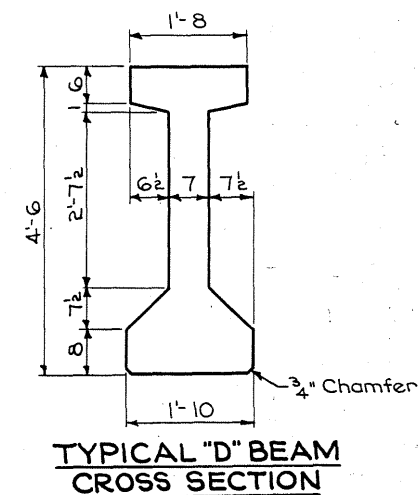
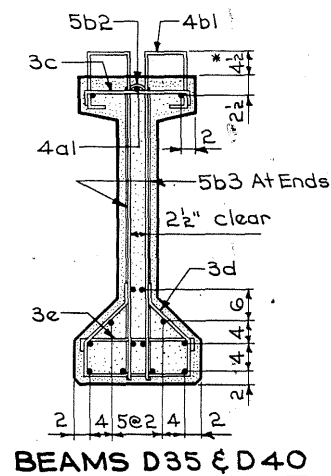
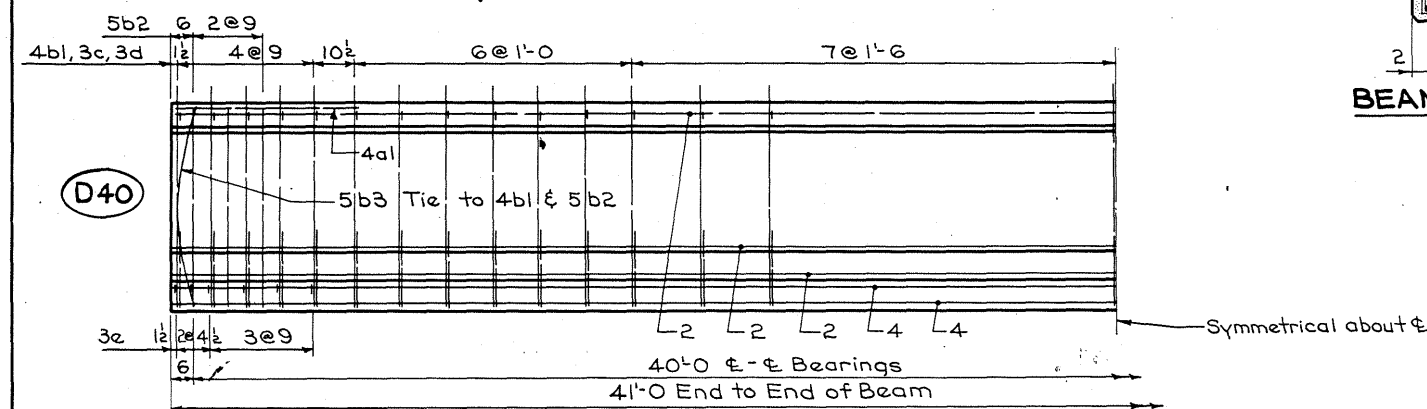
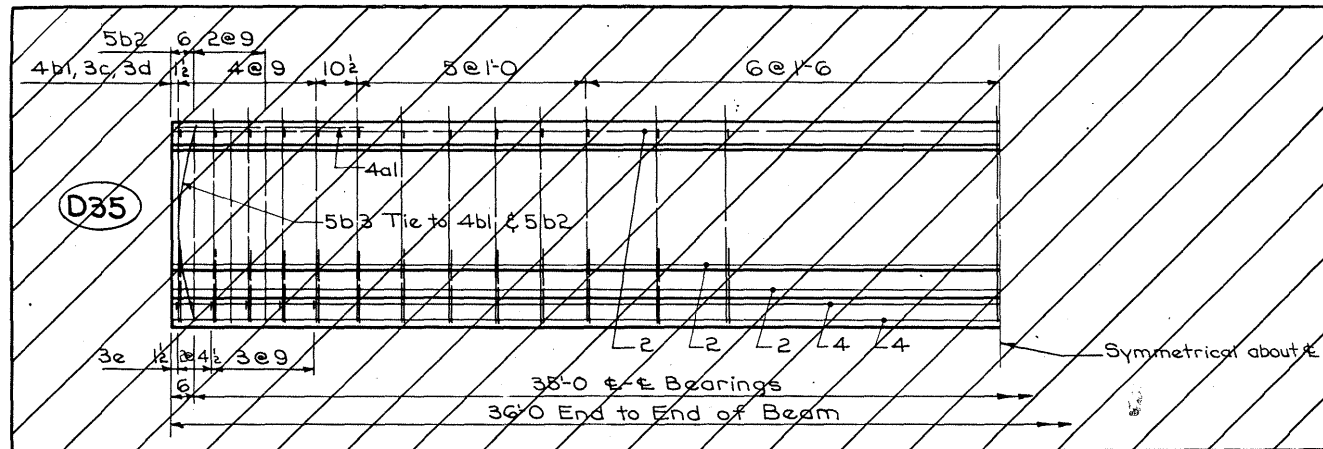
CONCRETE PLACEMENT QUANTITIES INTERMEDIATE DIAPHRAGMS			TOTAL
QUANTITY			
4 @ 4.0 CU.YD.	ONE SUPERSTRUCTURE		16.0

NOTE:
MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.
ALL INTERMEDIATE DIAPHRAGM QUANTITIES FOR STRUCTURAL CONCRETE AND REINFORCING STEEL ARE INCLUDED IN THE SUPERSTRUCTURE QUANTITIES ON DES. SH 12 & 13
STRUCTURAL STEEL DIAPHRAGMS ARE NOT ALLOWED AS AN ALTERNATE.



DESIGN FOR 7 20'06" SKEW
**279'6"X40'PRETENSIONED PRESTRESSED
DUAL CONCRETE BEAM BRIDGES**
40' 9" & 45' 9" END SPANS 96' 6" CENTER SPAN
SUPERSTRUCTURE DETAILS
STATION: 440+64.20 MARCH, 1990
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 16 OF 27 FILE NO. 26601 DESIGN NO. 588

Revised 3-6-69 : Beam designation numbers changed.

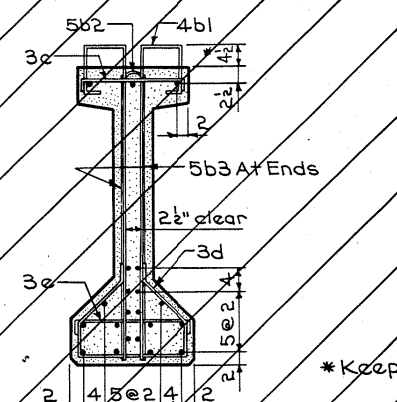
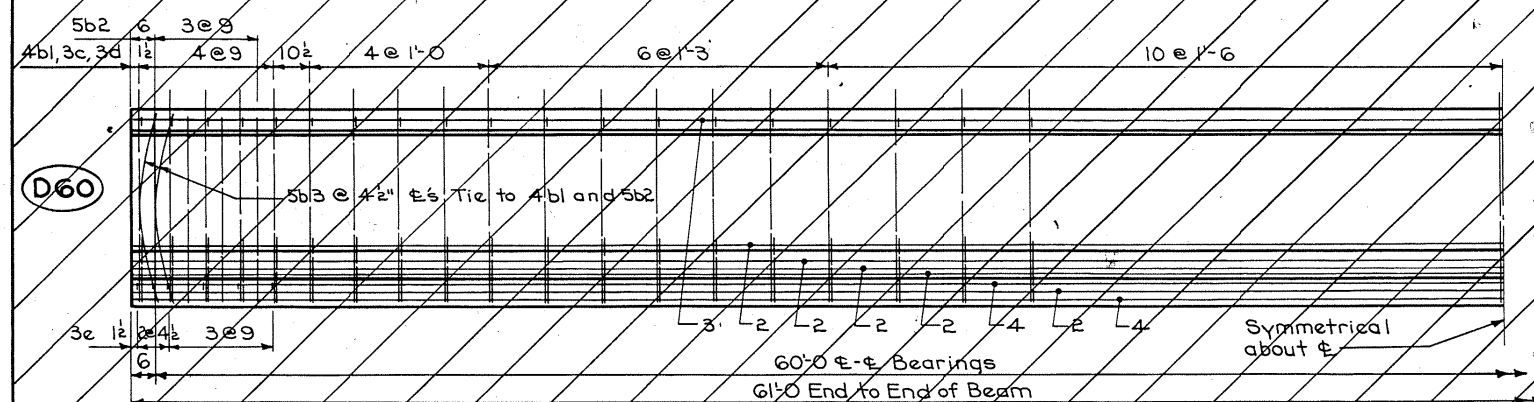
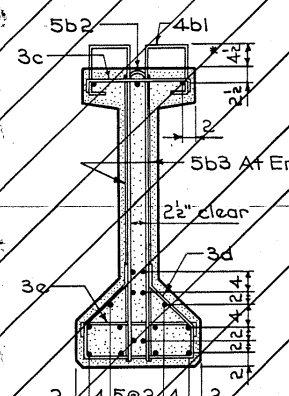
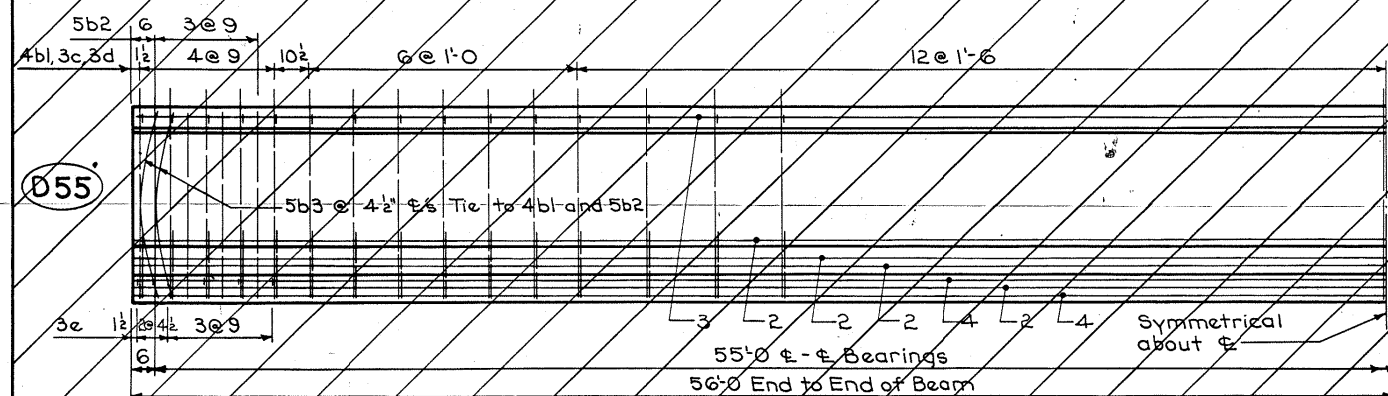
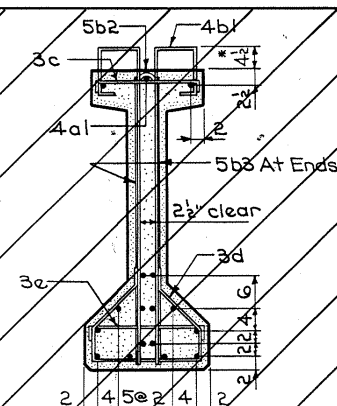
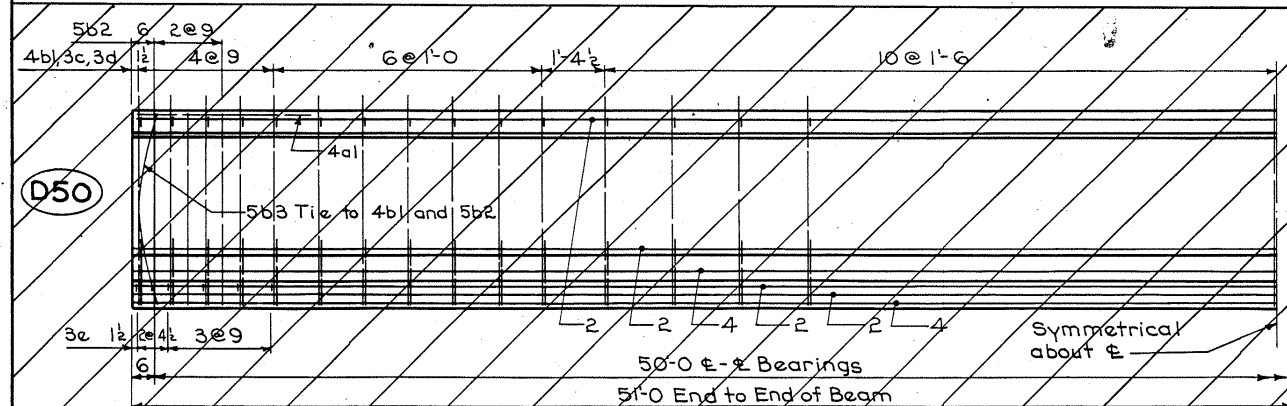
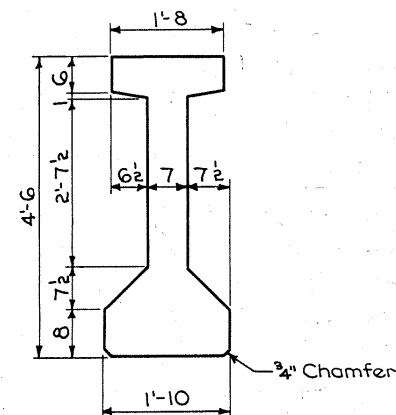
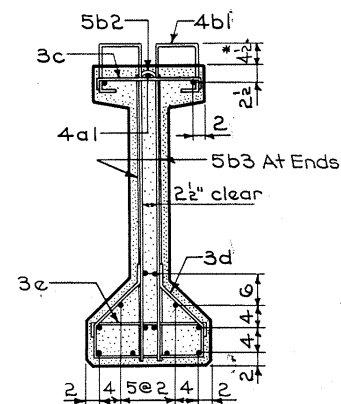
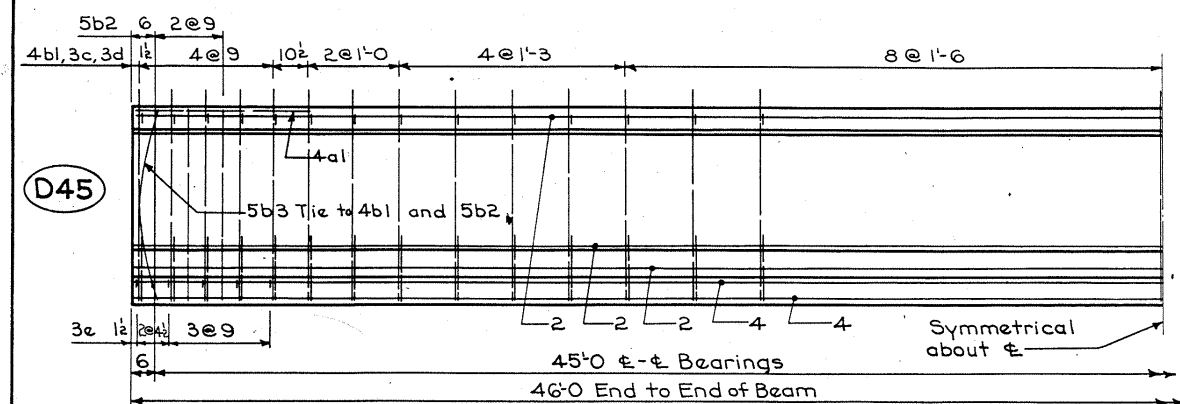


Area = 638.75 in.²
Y_b = 24.37 in.
I = 214,974 in.⁴

* Keep

DESIGN FOR 7 20'06" SKEW				
279'6"X40'PRETENSIONED PRESTRESSED DUAL CONCRETE BEAM BRIDGES				
40' 9" & 45' 9" END SPANS		96' 6" CENTER SPAN		
BEAM D40 DETAILS				
STATION: 440+64.20		MARCH, 1990		
POLK COUNTY				
IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION				
Design Sheet No. 17 Of 27		File No. 26601		Design No. 588

DESIGNED BY: <i>Steve C. Buehler</i>	TRACED BY: <i>Steve C. Buehler</i>	PRESTRESSED BEAM DETAILS - PC75D	STANDARD SHEET 4066	POLK COUNTY	PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
DETAILED BY: <i>John H. Keith</i>	CHECKED BY: <i>John H. Keith</i>					IOWA	5		47	48



Revised 3-6-69: Beam designation numbers changed.

DESIGNED BY: Steven C. Bradley TRACED BY: _____
DETAILED BY: John D. Roth CHECKED BY: D. J. Knapp

PRESTRESSED BEAM DETAILS - PC 75D

STANDARD SHEET 4067

POLK COUNTY

PROJECT NUMBER

DESIGN FOR 7' 20" 06" SKEW

279'6" X 40' PRETENSIONED PRESTRESSED DUAL CONCRETE BEAM BRIDGES

40' 9" & 45' 9" END SPANS 96' 6" CENTER SPAN

BEAM D45 DETAILS

STATION: 440+64.20 MARCH, 1990

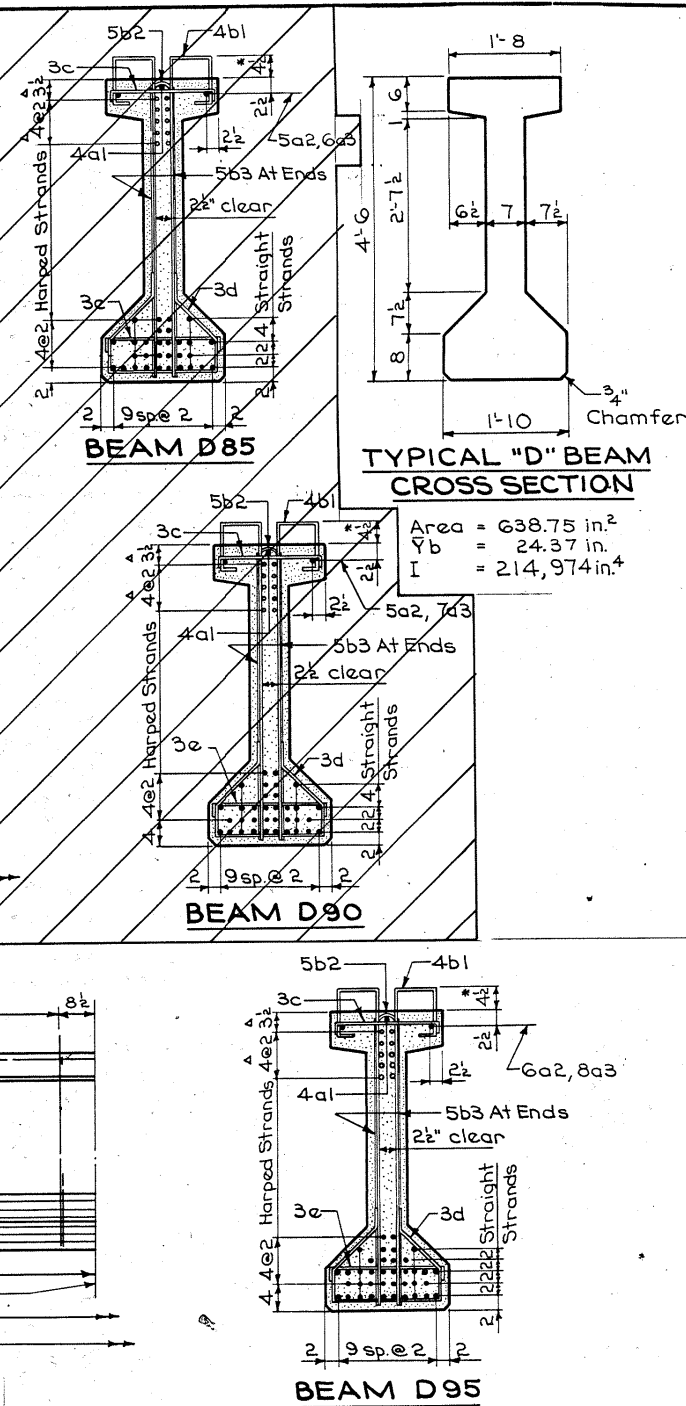
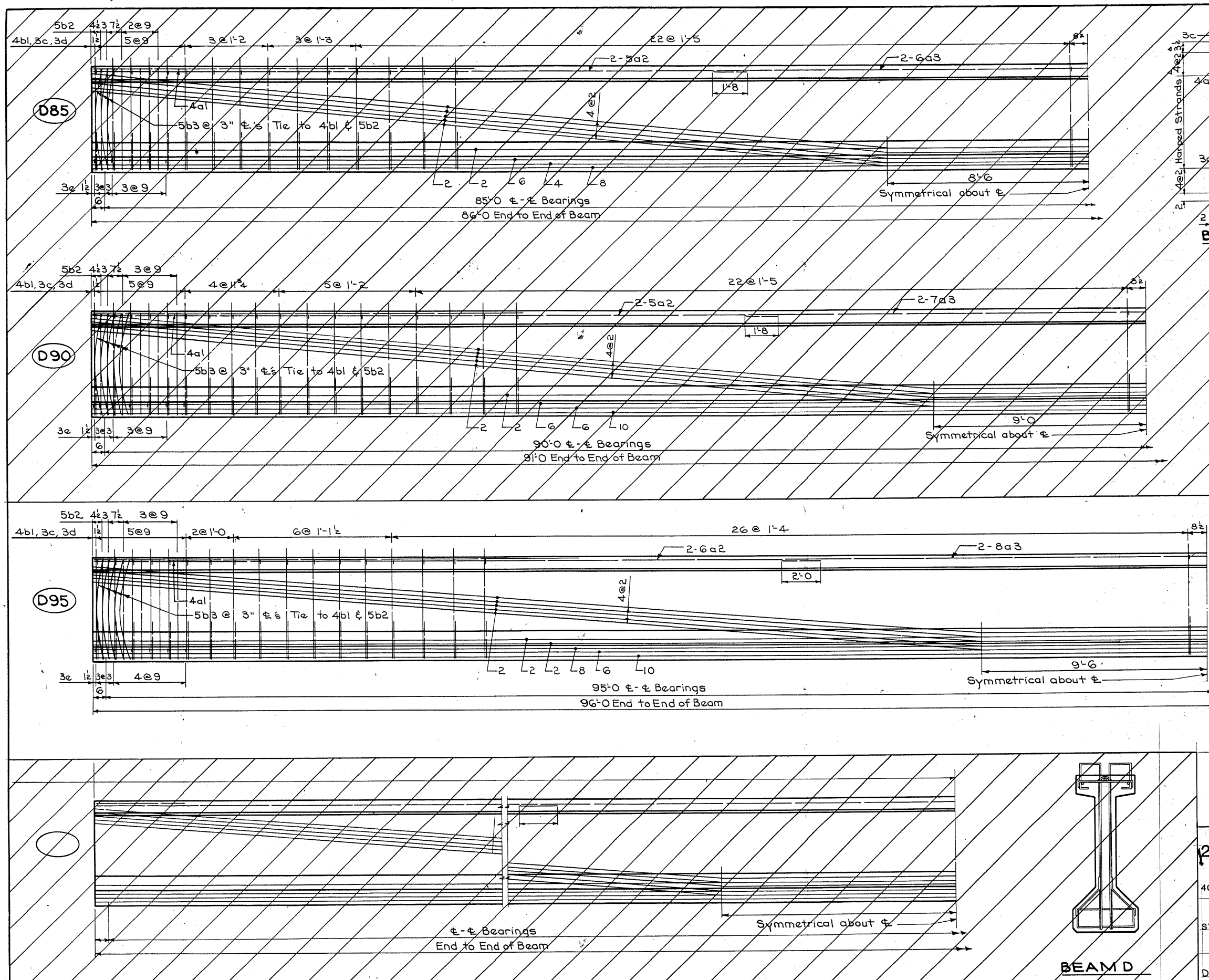
POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION

Design Sheet No. 18 Of 27 File No. 2660-1 Design No. 588

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		~~109~~	28

Revised (2-1-69): Number of strands in D11, D12 and D13 changed.
 Revised 3-6-69: Beam designation numbers changed.
 Revised 8-22-69: Length of Bar 4a1 in Beams D95, D90 and D85 changed.
 Revised 5-2-75: Two strands added to D95, four 5b3 bars added to D90 and D95.

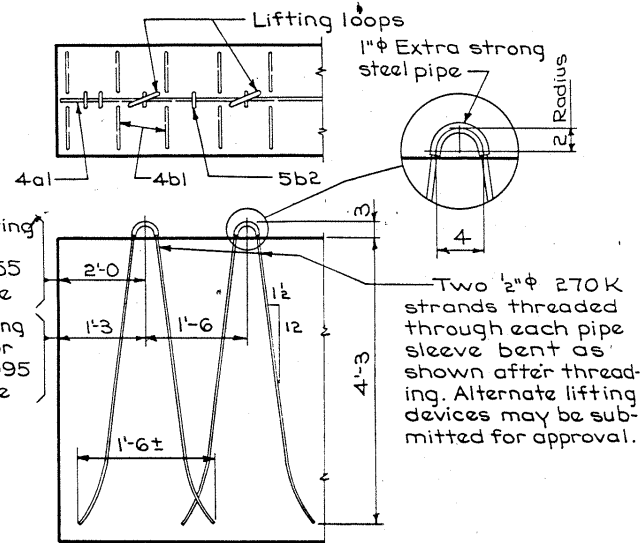


^ DIMENSIONS AT END OF BEAM
 * KEEP

DESIGN FOR 7' 20" 06" SKEW
279' 6" X 40' PRETENSIONED PRESTRESSED DUAL CONCRETE BEAM BRIDGES
 40' 9" & 45' 9" END SPANS 96' 6" CENTER SPAN
BEAM D95 DETAILS
 STATION: 440+64.20 MARCH, 1990
POLK COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION
 Design Sheet No. 19 Of 27 File No. 26601 Design No. 588

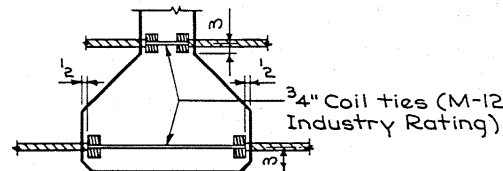
Revised 12-15-78: Note deleted concerning allowance for second P.C. lift in design of beams.
Revised 1-22-79: Beam deflections for 8" slab shown.
Revised 6-8-79: Lengths of bent bars changed to conform with ACI Std.
Revised 8-10-79: Beam deflections changed to reflect remaining harped strands of Beams D65 through D95 are to be cut with 1'-0" projections which are to be shop bent as shown and to clear those from the adjacent span. Remaining harped strands of Beams D65 through D95 are to be cut with 0'-5" projection and bent to clear. The remaining strands shall be cut off reasonably flush with the concrete.
Revised 11-9-83: Note concerning beam overhang in transporting added.

Revised (2-1-69): Section A-A added. Beam Data and Reinforcing Bar List revised.
Revised 3-6-69: Beam designation numbers changed.
Revised 8-22-69: Length of Bar 4a1 and total reinforcing steel quantities for Beams D95, D90 and D85 changed.
Revised 1-14-70: Design Stresses & Specifications updated.
Revised 7-5-74: Note concerning roughening of beams at diaphragms changed.
Revised 5-2-75: Two strands added to D90 and D95. Tabular Beam Data and notes changed.
Revised 8-20-77: Agency updated. Four 5b3 bars added to D95. Four 5b3 bars added to D90 and D95. Beam camber and deflection data changed.
Revised 6-1-78: Design Stresses & Specifications updated.

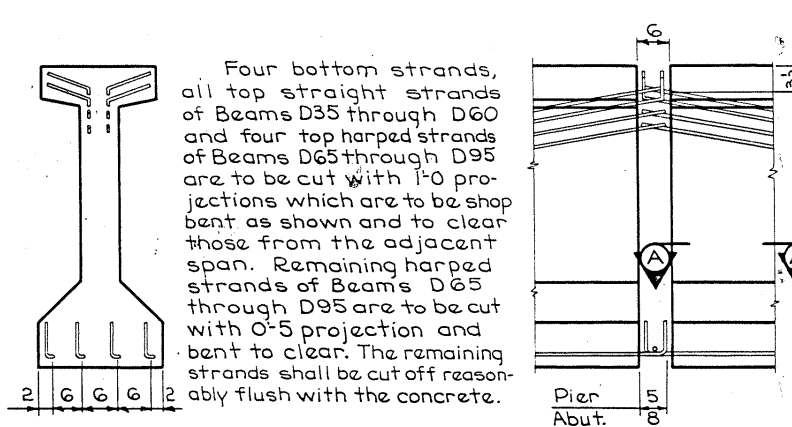


LIFTING LOOP DETAIL

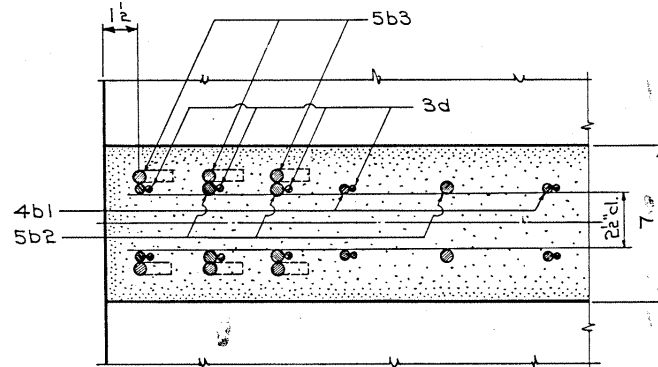
Number and exact location of coil ties to be as detailed on specific bridge design.



COIL TIE DETAIL



STRAND PROJECTION AT BEAM ENDS WHEN EMBEDDED IN CONCRETE END DIAPHRAGMS



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

		REINFORCING BAR LIST																													
Beam	Span	D35	35'-0	D40	40'-0	D45	45'-0	D50	50'-0	D55	55'-0	D60	60'-0	D65	65'-0	D70	70'-0	D75	75'-0	D80	80'-0	D85	85'-0	D90	90'-0	D95	95'-0				
Bar	Shape	Nº	Length	Nº	Length	Nº	Length	Nº	Length	Nº	Length	Nº	Length	Nº	Length	Nº	Length	Nº	Length	Nº	Length	Nº	Length	Nº	Length	Nº	Length				
4a1	—	2	4'-0	2	4'-0	2	4'-0	2	4'-0	—	—	—	—	2	4'-0	2	4'-0	2	4'-0	2	4'-0	2	16'-0	2	18'-0	2	20'-0				
a2	—	—	—	—	—	—	—	—	—	—	—	—	—	5/4	22'-1	5/4	23'-7	5/4	25'-1	5/4	26'-7	5/4	28'-7	5/4	30'-1	5/4	31'-11				
a3	—	—	—	—	—	—	—	—	—	—	—	—	—	6/2	25'-0	6/2	27'-0	6/2	29'-0	6/2	31'-0	6/2	32'-0	7/2	34'-0	8/2	36'-0				
4b1	□	66	6'-5	74	6'-5	74	6'-5	86	6'-5	94	6'-5	102	6'-5	106	6'-5	114	6'-5	124	6'-5	132	6'-5	136	6'-5	148	6'-5	160	6'-5				
5b2	□	6	8'-10	6	8'-10	6	8'-10	6	8'-10	8	8'-10	8	8'-10	8	8'-10	10	8'-10	10	8'-10	10	8'-10	10	8'-10	12	8'-10	12	8'-10				
5b3	□	4	4'-5	4	4'-5	4	4'-5	4	4'-5	8	4'-5	8	4'-5	8	4'-5	12	4'-5	12	4'-5	12	4'-5	12	4'-5	20	4'-5	20	4'-5				
3c	□	33	2'-0	37	2'-0	39	2'-0	43	2'-0	47	2'-0	51	2'-0	53	2'-0	57	2'-0	62	2'-0	66	2'-0	68	2'-0	74	2'-0	80	2'-0				
3d	△	33	5'-7	37	5'-7	39	5'-7	43	5'-7	47	5'-7	51	5'-7	53	5'-7	57	5'-7	62	5'-7	66	5'-7	68	5'-7	74	5'-7	80	5'-7				
3e	□	12	2'-2	12	2'-2	12	2'-2	12	2'-2	12	2'-2	12	2'-2	12	2'-2	12	2'-2	14	2'-2	14	2'-2	14	2'-2	14	2'-2	16	2'-2				

DESIGNED BY: *Steven Bradbury*
DETAILED BY: *John W. Roth*

TRACED BY:
CHECKED BY: *John W. Roth*

PRESTRESSED BEAM DETAILS - PC 75D

STANDARD SHEET 4070

COUNTY

PROJECT NUMBER

DESIGN FOR 7' 20" 06" SKEW

279' 6" X 40' PRETENSIONED PRESTRESSED
DUAL CONCRETE BEAM BRIDGES

40' 9" & 45' 9" END SPANS 96' 6" CENTER SPAN

BEAM D40, D45, D95 DETAILS

STATION: 440+64.20

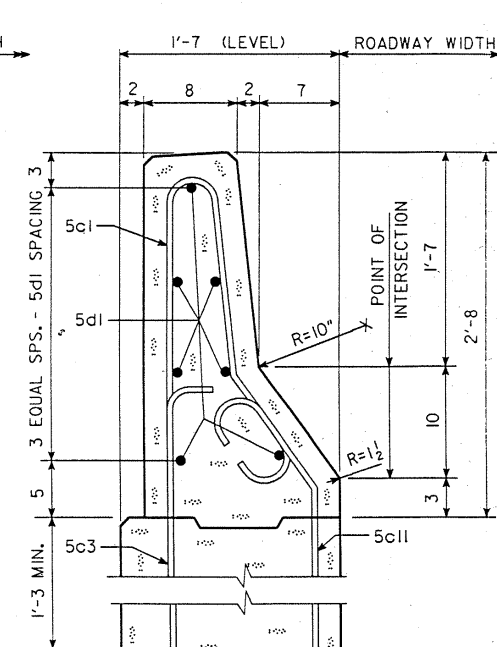
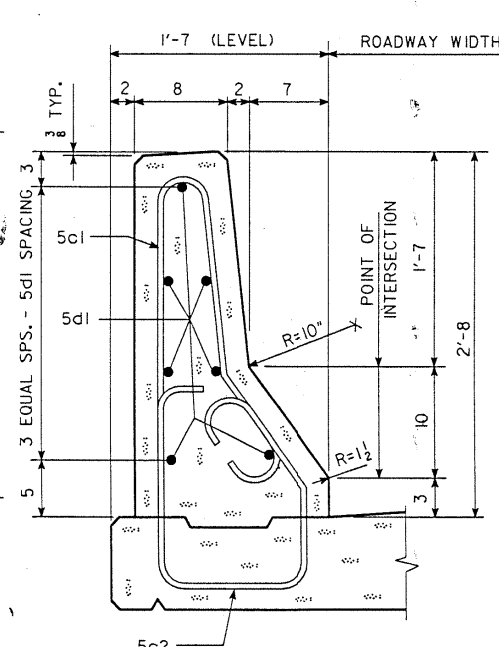
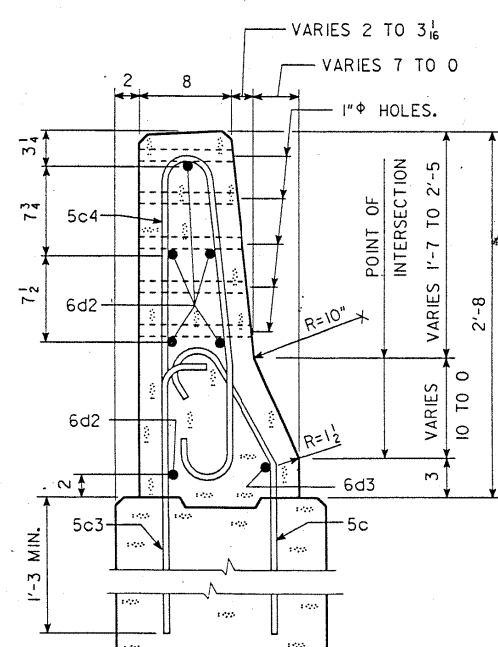
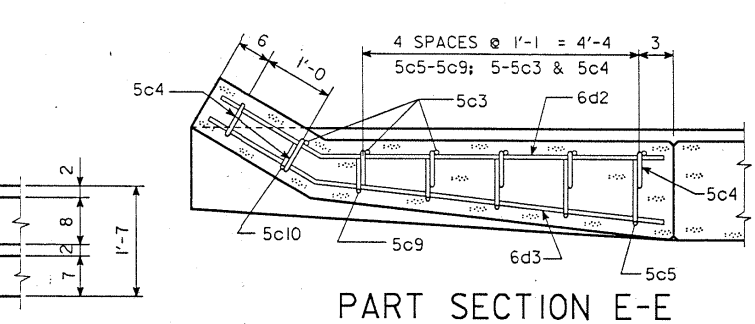
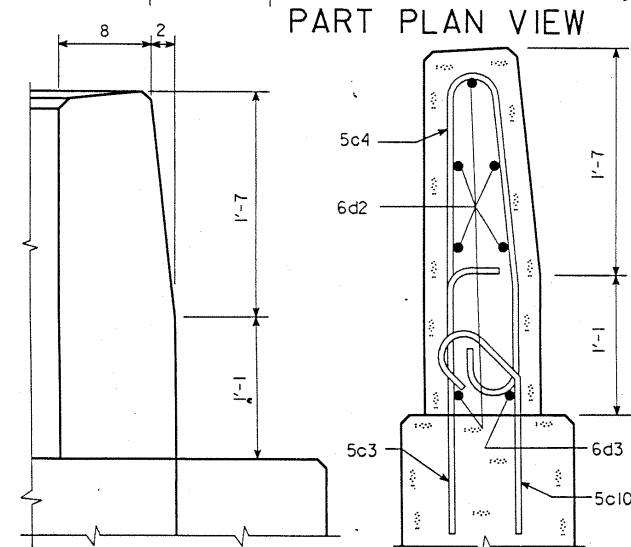
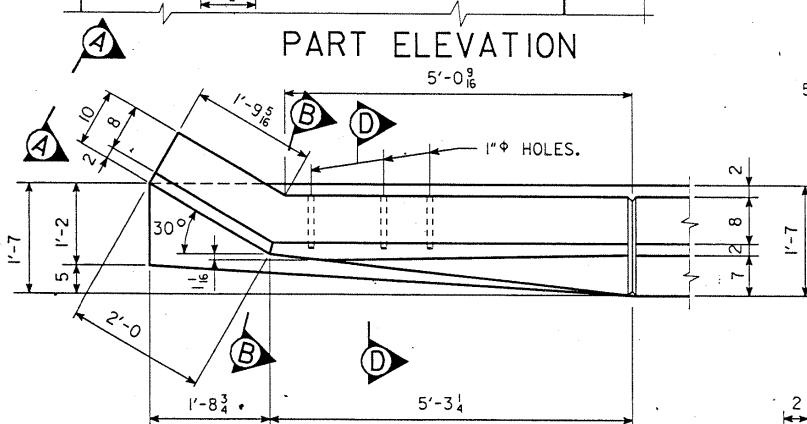
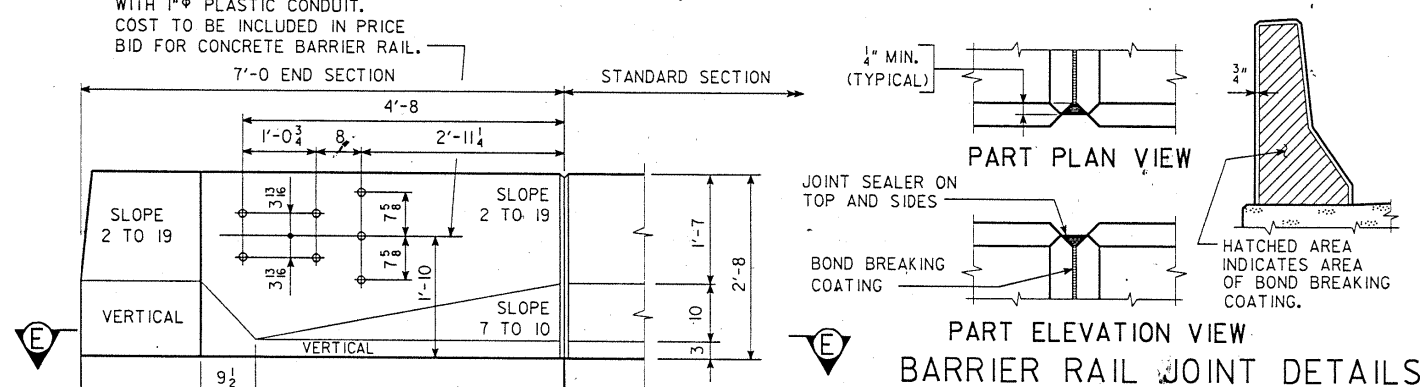
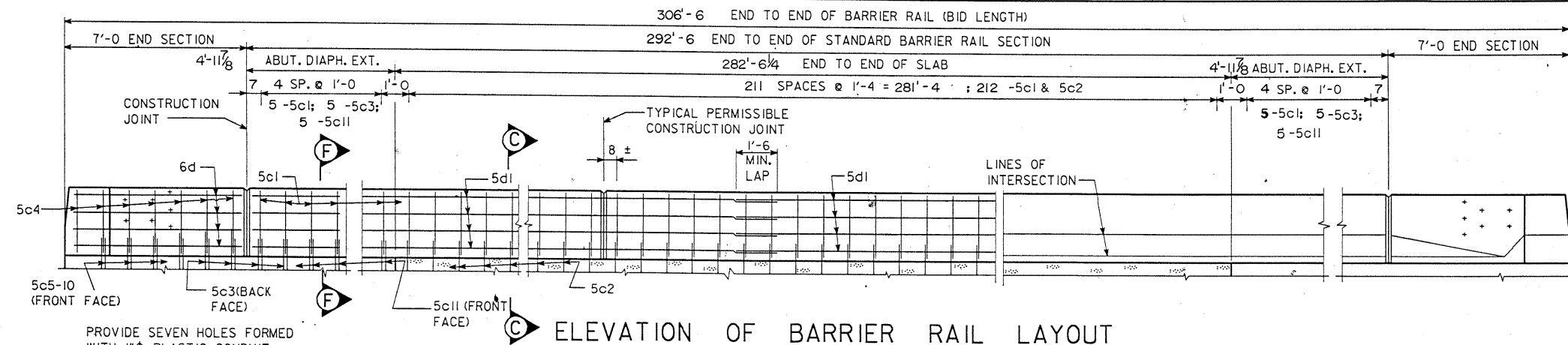
MARCH, 1990

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION

Design Sheet N^o 20 Of 27 File N^o 26601 Design N^o 588

STATE	FED. ROAD DIST. N ^o	FISCAL YEAR	SHEET N ^o	TOTAL SHEETS
IOWA	5		221	228



BARRIER RAIL NOTES:

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

THE PERMISSIBLE CONSTRUCTION JOINTS ARE TO BE PLACED BETWEEN VERTICAL BARS AT A MINIMUM SPACING OF 20 FEET. CONSTRUCTION JOINT CONTACT SURFACES ARE TO BE COATED WITH AN APPROVED BOND BREAKER. COST OF THE JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

ALL BARRIER RAIL CONCRETE IS TO BE CLASS D.

ALL REINFORCING STEEL IS TO BE GRADE 60.

ALL BARRIER RAIL REINFORCING STEEL IS TO BE EPOXY COATED.

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 BASED ON PLAN QUANTITIES. 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.

THE JOINT SEALER SHALL CONFORM TO FED. SPEC. TT-S00230

OR TT-S00227 FOR TYPE II, CLASS A OR B.

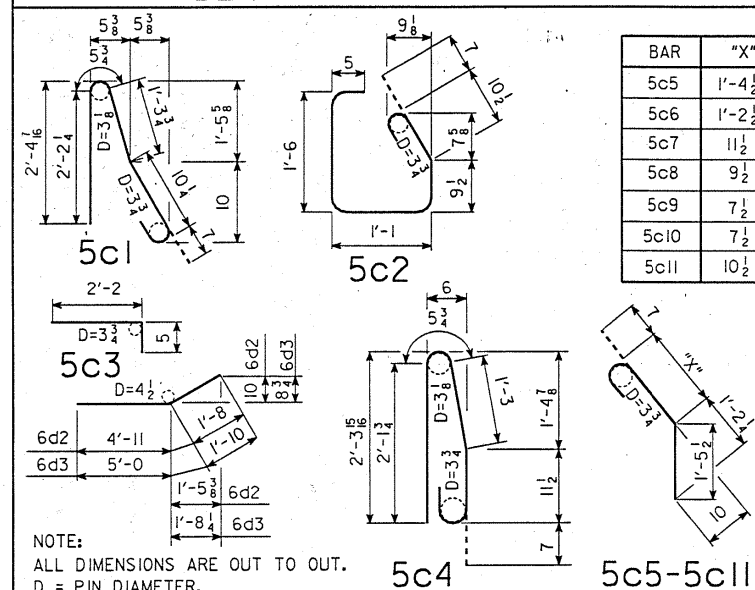
TOP OF THE BARRIER RAIL IS TO BE PARALLEL TO THE THEORETICAL C GRADE.

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

EPOXY REINF. STEEL-FOUR BARRIER RAILS

SECTION	BAR	LOCATION	SHAPE	NO.	LENGTH	LIN.FT.	WEIGHT
STANDARD SECTION	5c1	VERTICAL	⏏	888	5'-5	4810	5017
	5c2	VERTICAL	⏏	848	5'-3	4452	4643
	5c3	VERTICAL	⏏	40	2'-7	103	108
	5c11	VERTICAL	⏏	40	2'-11	117	122
	5d1	LONGITUDINAL	—	224	37'-10	8475	8839
8 - 7'-0 END SECTIONS	5c3	VERTICAL	⏏	48	2'-7	124	130
	5c4	VERTICAL	⏏	56	5'-5	304	316
	5c5-10	VERTICAL	⏏	48	VARIES	142	148
	6d2	LONGITUDINAL	⏏	48	6'-7	316	474
	6d3	LONGITUDINAL	⏏	8	6'-10	54	82
(INCLUDE WITH SUPERSTRUCTURE REINFORCING)					TOTAL (LB.)		19879

BENT BAR DETAILS



BAR	"X"
5c5	1'-4
5c6	1'-2
5c7	11½
5c8	9½
5c9	7½
5c10	7½
5c11	10½

CONCRETE PLACEMENT SUMMARY

SECTION		TOTAL
STANDARD SECTION (NORTH BOUND)	585 @ .0915 CU. YD. PER FT.	53.5
END SECTION (NORTH BOUND)	4 @ 0.58 CU. YD.	2.3
STANDARD SECTION (SOUTH BOUND)	585 @ .0915 CU. YD. PER FT.	53.5
END SECTION (SOUTH BOUND)	4 @ 0.58 CU. YD.	2.3
TOTAL (CU. YD.)		111.6

CONCRETE BARRIER RAIL QUANTITIES

ITEM	UNIT	QUANTITY
CONCRETE BARRIER RAIL (NORTH BOUND)	L.F.	613.0
CONCRETE BARRIER RAIL (SOUTH BOUND)	L.F.	613.0

DESIGN FOR 7' 20" 06" SKEW

279'6"X40'PRETENSIONED PRESTRESSED
DUAL CONCRETE BEAM BRIDGES

40' 9" & 45' 9" END SPANS 96' 6" CENTER SPAN

BARRIER RAIL DETAILS

STATION: 440+64.20 MARCH 1990

STATION: 440+64.20

POLK COUNTY

MARCH, 1990

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

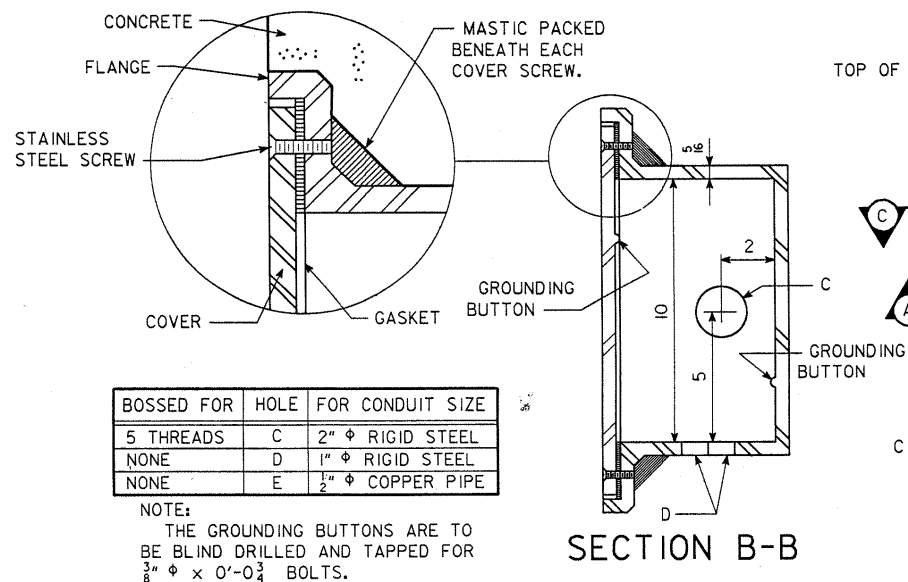
DESIGN SHEET NO. 21 OF 27 FILE NO. 26601 DESIGN NO. 588

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEET
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IOWA	7		#22	28
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REVISED: GUARDRAIL MOUNTING HEIGHT CHANGED, DETAILS CHANGED ACCORDINGLY. TAPE NO. 9 DATE 7-12-89
 --LEP; THIS SHEET REDRAWN, DEVICE:ZHA0:(200.004) ARCH; TAPE NO. 000016 DATE 11-3-88

REVISED : 5-23-91; POLE BASE EXTENDED. DEVICE:ZHA04(200,004) ARCH.TAPE NO.000016. DATE 5-23-91
HSTD1030A.S01--LEP; THIS SHEET REDRAWN, DEVICE:ZHA04(200,004) ARCH.TAPE NO. 15 DATE 9-8-88



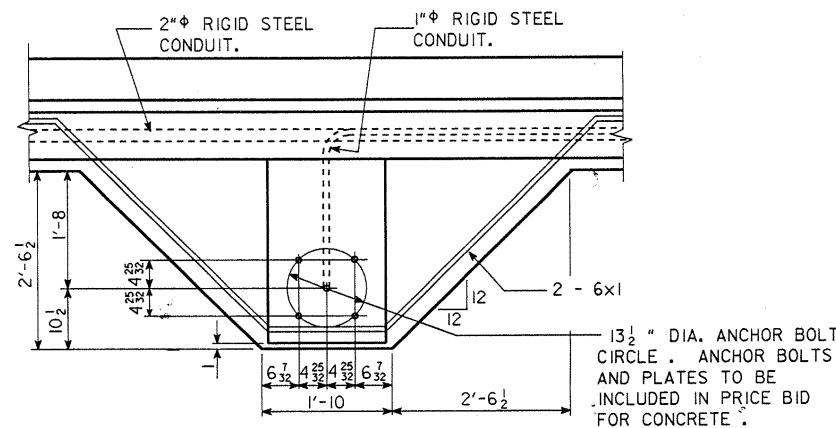
SECTION B-B

VIEW A-A

SECTION C-C

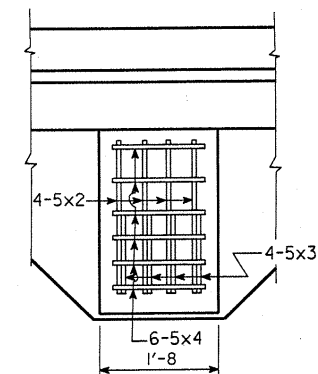
RM-9, TYPE I JUNCTION BOX

WATERTIGHT, CAST IRON - FLUSH MOUNT

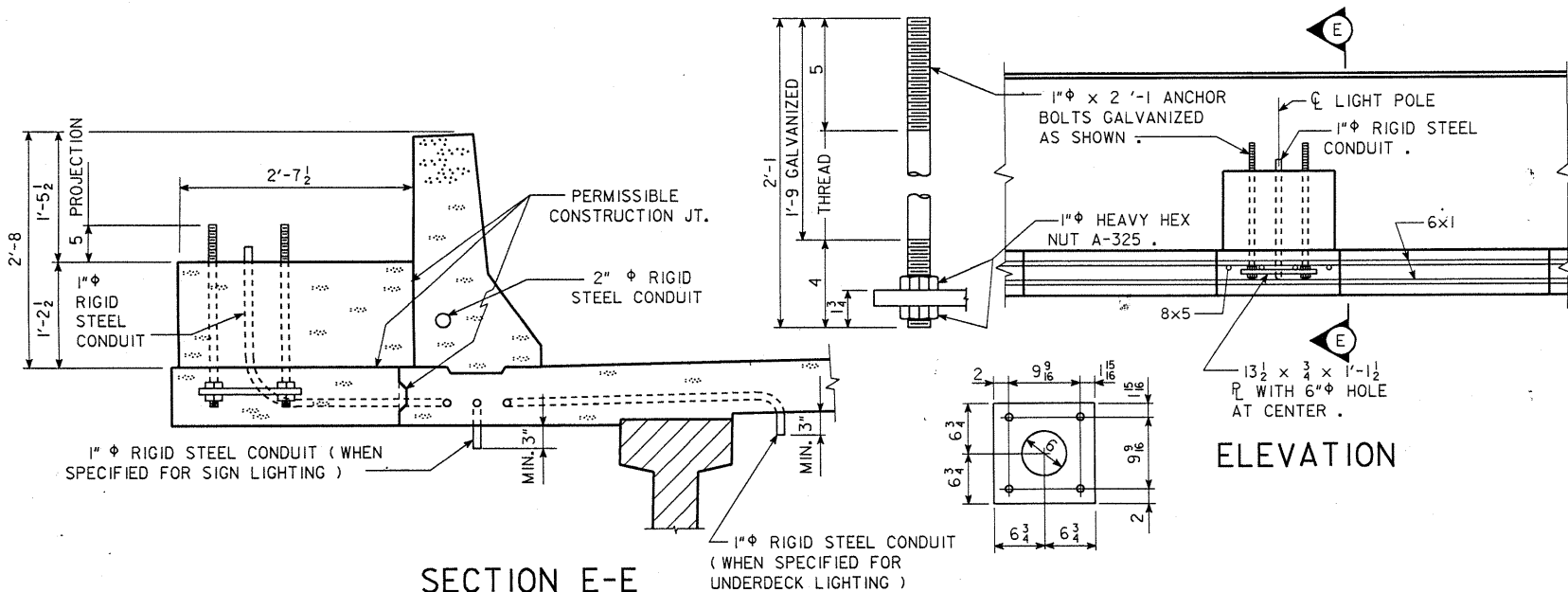


PLAN OF POLE BASE

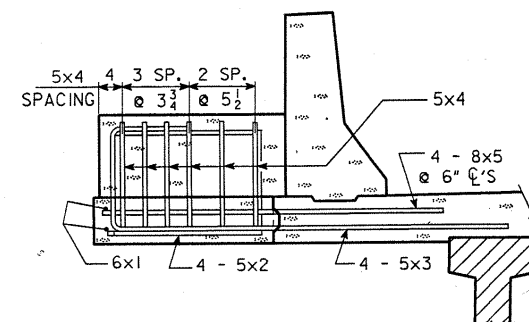
BASE REINFORCING BARS NOT SHOWN



PLAN OF POLE BASE REINFORCING



SECTION E-E



SECTION THROUGH BASE SHOWING REINFORCING

ELEVATION

LIGHTING NOTES :

CONSTRUCTION SHALL CONFORM TO THE CURRENT IOWA D.O.T. STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS AND CURRENT SUPPLEMENTAL SPECIFICATIONS FOR HIGHWAY LIGHTING .

CONDUIT INSTALLATION SHALL COMPLY WITH THE ARTICLE " ELECTRICAL DUCTS " , SECTION 2523 .

ALL " C " ENTRANCE HOLES IN JUNCTION BOXES SHALL BE DRILLED AND TAPPED FOR THE SPECIFIED CONDUIT SIZE . ALL OTHER HOLES SHALL HAVE A CONCRETE - TIGHT SLIP FIT . CONDUIT ENDS SHALL NOT PROTRUDE INTO JUNCTION BOX MORE THAN 1/4" . DRAIN PIPE END SHALL BE FLUSH WITH INSIDE SURFACE OF BOX . GROUNDING BUTTONS SHALL BE LOCATED APPROXIMATELY 3" FROM THE INSIDE SURFACE OF THE BOX WALL , AND NOT CLOSER THAN 3" TO THE EDGE OF ANY HOLE IN THE BOX FLOOR . HOLES FOR DRAIN PIPE SHALL BE PLACED IN THE LOW CORNER OF THE BOX , WITH A MINIMUM CLEARANCE OF 1" BETWEEN THE EDGE OF THE HOLE AND THE INSIDE SURFACE OF THE BOX WALL . TYPICAL DETAILS ARE SHOWN ON THIS SHEET .

THE CONTRACT UNIT PRICE PER LINEAL FOOT OF CONDUIT SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL (INCLUDING JUNCTION BOXES AND FITTINGS) , LABOR AND ANY WORK INCIDENTAL TO THE INSTALLATION . THE CONCRETE AND WEIGHT OF REINFORCING STEEL IS INCLUDED IN THE SUPERSTRUCTURE ESTIMATED QUANTITIES .

THE LENGTH OF CONDUIT INSTALLED SHALL BE MEASURED IN FEET BY THE ENGINEER .

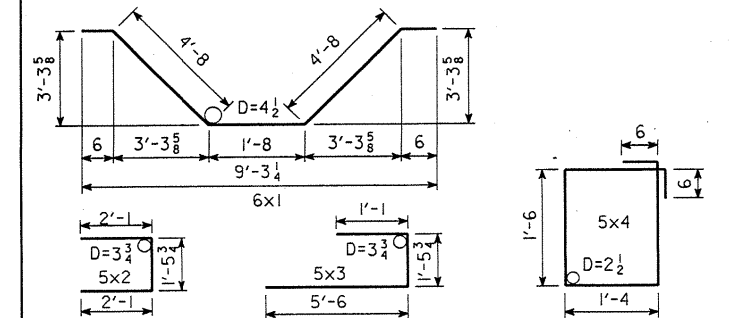
COST OF FURNISHING AND INSTALLING POLES , LIGHTS AND LIGHTING CONDUCTOR IS NOT A PART OF THIS ESTIMATE .

ANCHOR BOLT MATERIAL SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A-325 OR A-193 GRADE B7 . ANCHOR BOLT NUTS SHALL COMPLY WITH ASTM A-325 . ANCHOR BOLTS SHALL BE GALVANIZED .

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

EPOXY REINFORCING STEEL-ONE BASE

BAR	LOCATION	SHAPE	NO.	LENGTH	LIN. FT.	WEIGHT
6x1	SLAB ANCHORS		2	12'-0	24	36
5x2	POLE BASE TO SLAB		4	5'-8	23	24
5x3	POLE BASE TO SLAB		4	8'-1	32	34
5x4	POLE BASE HOOP		6	6'-8	40	42
8x5	SLAB TRANSVERSE		4	5'-8	23	61
TOTAL WEIGHT (LBS.)						197



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

LIGHTING QUANTITIES - TWO SUPER

ITEM	AMOUNT
* STRUCTURAL CONCRETE CLASS C 2 @ 0.2	0.4 C.Y.
REINFORCING STEEL - EPOXY COATED	394 LBS.
2" RIGID STEEL CONDUIT	622 L.F.
1" RIGID STEEL CONDUIT	478 L.F.

* INCLUDES ONLY THE PORTION ABOVE THE SLAB AND MAY BE EITHER CLASS "C" OR CLASS "D".

NOTE : FOR LOCATION AND LENGTHS OF CONDUITS NEEDED SEE DESIGN SHEET 23 . TOTAL QUANTITIES FOR CONCRETE AND REINFORCING STEEL FOR POLE BASES ARE INCLUDED IN THE SUPERSTRUCTURE QUANTITIES ON ANOTHER SHEET .

DESIGN FOR X°20'06" SKEW

279'-6x40' PRETENSIONED PRESTRESSED DUAL CONCRETE BEAM BRIDGES

40'-9 & 45'-9 END SPANS 96'-6 CENTER SPAN

LIGHTING DETAILS

STATION : 440 + 64.20 MARCH, 1990

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 22 OF 27 FILE NO. 26601 DESIGN NO. 588

DESIGNED BY X TRACED BY
DETAILED BY G. DURBIN CHECKED BY X

LIGHTING

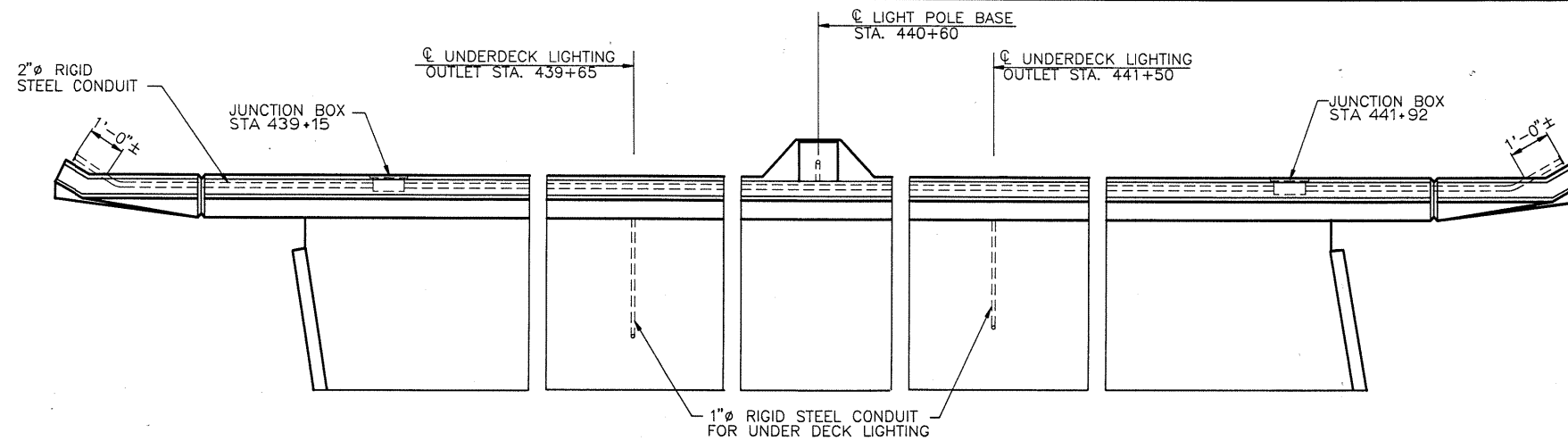
STANDARD SHEET 1030A

POLK COUNTY

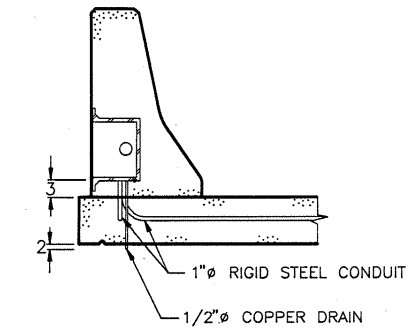
PROJECT NUMBER

STATE IOWA FHWA REGION 7 FISCAL YEAR SHEET NO. 223 TOTAL SHEETS 28

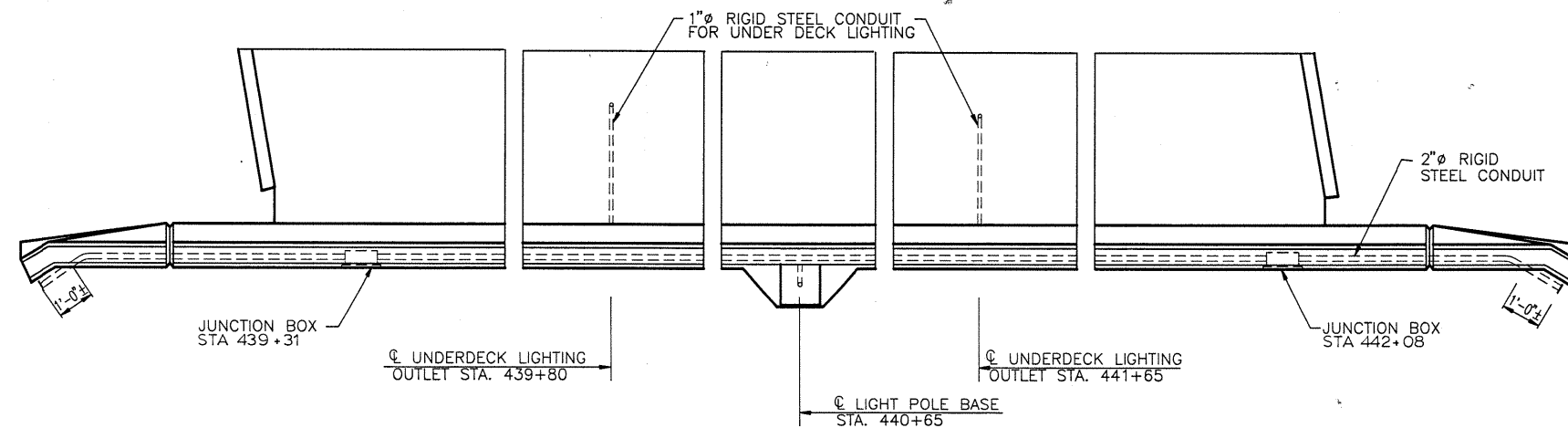
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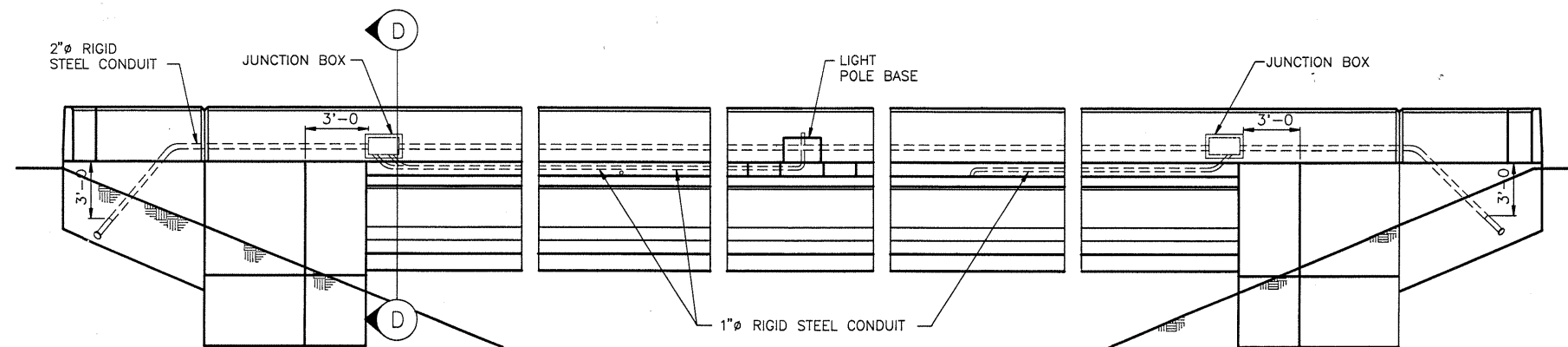
PART PLAN VIEW SOUTH BOUND



SECTION D-D



PART PLAN VIEW NORTH BOUND



PART ELEVATION VIEW

(NORTH BOUND BRIDGE - EAST BARRIER RAIL - LOOKING WEST)
(SOUTH BOUND BRIDGE - WEST BARRIER RAIL - LOOKING EAST)

DESIGN FOR 7'20'06" SKEW

**279'-6" X 40' PRETENSIONED PRESTRESSED
DUAL CONCRETE BEAM BRIDGES**

40'-9" & 45'-9" END SPANS 96'-6" CENTER SPAN

LIGHTING DETAILS

STATION: 440+64.20 MARCH, 1990

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 23 OF 27 FILE NO. 26601 DESIGN NO. 588

DRAWN BY: *W. H. Hark*
CHECKED BY: *Steven C. Buehler*
APPROVED BY: *R. J. Knapp*

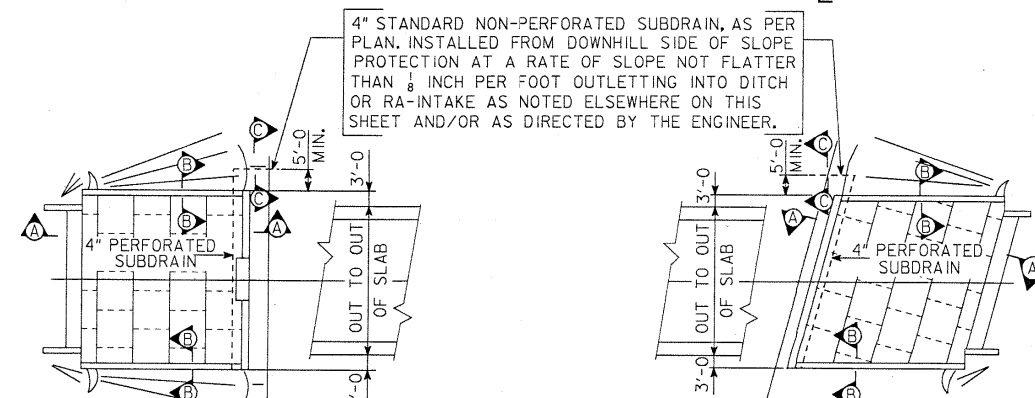
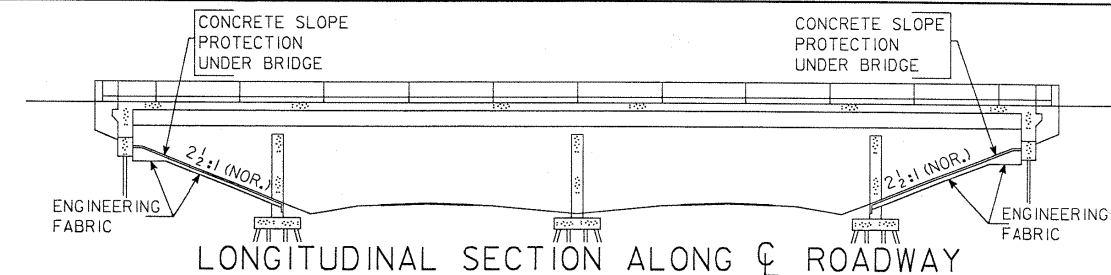
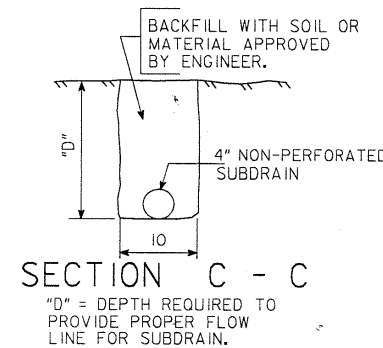
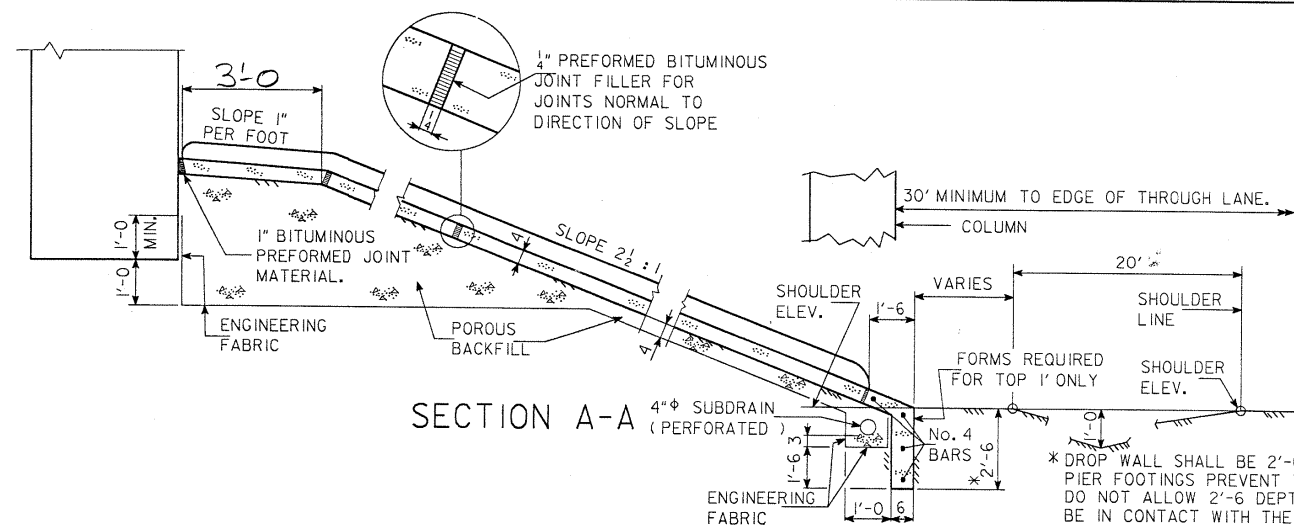
SHIVE-HATTERY ENGINEERS AND ARCHITECTS, inc.

POLK COUNTY

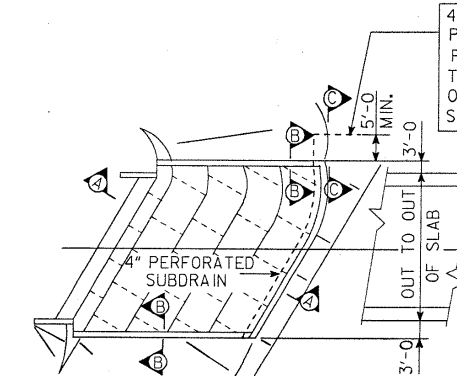
PROJECT NUMBER

STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		234	28

HSTD1006A.S01--CAN ; REVISED : 8-23-91; THIS SHEET REDRAWN, DEVICE : ZCAH200.003JARCH, TAPE NO. 000011, DATE 8-27-91



SLOPE PROTECTION LAYOUT 15° SKEW



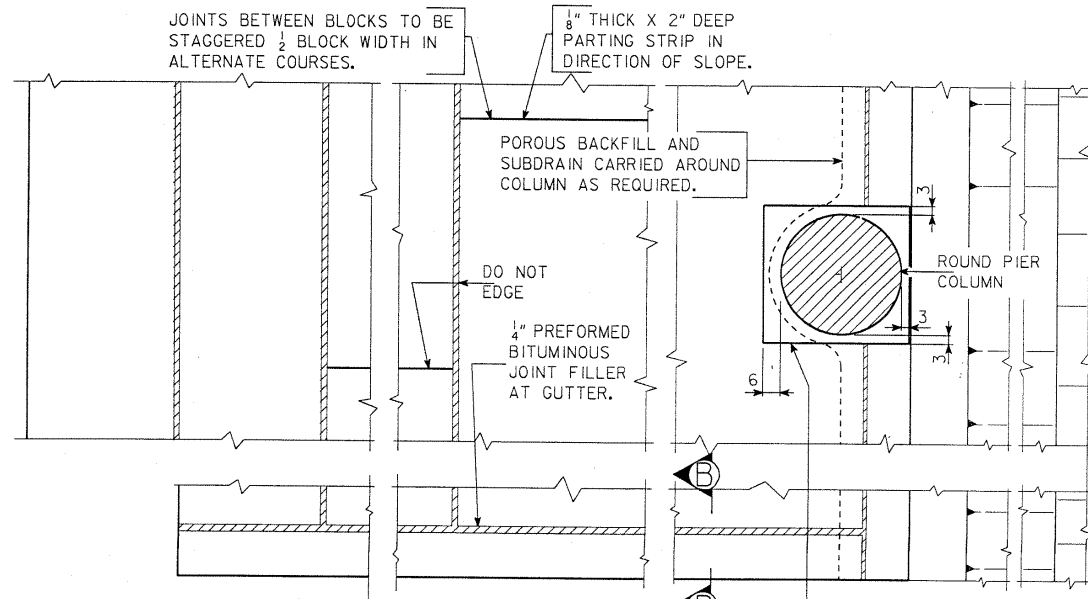
SLOPE PROTECTION LAYOUT 45° SKEW

SLOPE PROTECTION LAYOUT 0° SKEW

ESTIMATED QUANTITIES

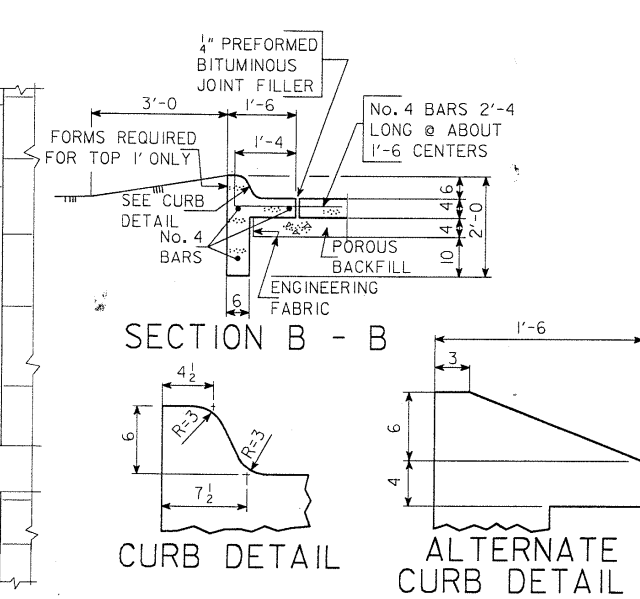
DESCRIPTION	LOCATION	QUANTITY
CONCRETE SLOPE PROTECTION	N.ABUT.N.BOUND	272 SQ.YDS.
4 IN. STANDARD NON-PERFORATED SUBDRAIN, AS PER PLAN	N.ABUT.N.BOUND	15 LIN.FT.
CONCRETE SLOPE PROTECTION	S.ABUT.N.BOUND	302 SQ.YDS.
4 IN. STANDARD NON-PERFORATED SUBDRAIN, AS PER PLAN	S.ABUT.N.BOUND	15 LIN.FT.
CONCRETE SLOPE PROTECTION	N.ABUT.S.BOUND	313 SQ.YDS.
4 IN. STANDARD NON-PERFORATED SUBDRAIN, AS PER PLAN	N.ABUT.S.BOUND	15 LIN.FT.
CONCRETE SLOPE PROTECTION	S.ABUT.S.BOUND	344 SQ.YDS.
4 IN. STANDARD NON-PERFORATED SUBDRAIN, AS PER PLAN	S.ABUT.S.BOUND	15 LIN.FT.

DESIGN FOR 7°20'06" SKEW
279'-6x40' PRETENSIONED PRESTRESSED
DUAL CONCRETE BEAM BRIDGES
40'-9 & 45'-9 END SPANS 96'-6 CENTER SPAN
CONCRETE SLOPE PROTECTION
STATION : 440+64.20 OCTOBER, 1991
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 24 OF 27 FILE NO. 26601 DESIGN NO. 588



NOMINAL DIMENSION OF CAST IN PLACE CONCRETE BLOCKS = 10" X 10"

PART SLOPE PROTECTION PLAN FOR COLUMNS IN SLOPE (0° SKEW)



CURB DETAIL

ALTERNATE CURB DETAIL

GENERAL NOTES :

THIS SHEET SHOWS DETAILS FOR PLACING A BERM TOE SUBDRAIN, ENGINEERING FABRIC, POROUS BACKFILL, AND PORTLAND CEMENT CONCRETE SLOPE PROTECTION UNDER OVERHEAD STRUCTURES.

THE CURRENT SPECIFICATIONS OF THE IOWA DEPARTMENT OF TRANSPORTATION SHALL APPLY WITH MODIFICATIONS OR ADDITIONS LISTED BELOW :

CONCRETE - CLASS C STRUCTURAL.
FINISH - CLASS 1, FLOATED SURFACE FINISH.
CURE - CURE AS PER CURRENT SPECIFICATIONS.
SUBGRADE PREPARATION - THE SUBGRADE SHALL BE COMPACTED AND SHAPED AS SHOWN IN SECTION A-A ON THIS SHEET. THE SUBGRADE SHALL BE FIRM WHEN ENGINEERING FABRIC AND POROUS BACKFILL ARE PLACED.
ENGINEERING FABRIC SHALL MEET REQUIREMENTS OF 4196.01B.
4" PERFORATED SUBDRAIN SHALL BE PE TUBING OR PLASTIC PIPE PER ARTICLE 4143.01C.

THE CAST IN PLACE CONCRETE IS TO BE POURED IN APPROXIMATELY 10" WIDE COURSES, BUT ALL COURSES ON ONE SLOPE SHOULD HAVE APPROXIMATELY EQUAL WIDTHS. ADJACENT COURSES SHALL NOT BE POURED WITHIN 15 HOURS OF ONE ANOTHER. THE JOINTS IN THE DIRECTION OF THE SLOPE ARE TO BE STAGGERED ABOUT 1/2 BLOCK WIDTH.

THE UPHILL END OF THE PERFORATED SUBDRAIN UNDER THE CONCRETE SLOPE PROTECTION SHALL BE CAPPED AS APPROVED BY THE ENGINEER.

PAYMENT FOR "CONCRETE SLOPE PROTECTION" WILL BE MADE ON A SQUARE YARD BASIS FOR SLOPE PROTECTION CONSTRUCTED. THE UNIT PRICE BID PER SQUARE YARD IS TO INCLUDE COSTS OF ALL MATERIALS AND LABOR (INCLUDING EXCAVATION REQUIRED FOR POROUS BACKFILL, ENGINEERING FABRIC, POROUS BACKFILL AND 4" PERFORATED SUBDRAIN BENEATH THE SLOPE PROTECTION) REQUIRED TO CONSTRUCT THIS PROTECTION AS SHOWN OR INTENDED BY THESE PLANS. THE SUBGRADE PREPARATION AND DISPOSAL OF EXCESS EARTH EXCAVATED, AS DIRECTED BY THE ENGINEER, ARE CONSIDERED INCIDENTAL TO PLACING THE CONCRETE SLOPE PROTECTION.

THE 4" NON-PERFORATED SUBDRAIN SHALL BE PE TUBING OR PLASTIC PIPE PER ARTICLE 4143.01C AND SHALL BE PLACED IN ACCORDANCE WITH 2502.03.

ALL TUBING OR PIPE AND FITTINGS FOR THE PERFORATED AND NON-PERFORATED SUBDRAIN SHALL BE OF THE SAME MATERIAL.

WHEN SUBDRAIN IS TO OUTLET INTO A DITCH THE OUTLET SHALL CONSIST OF A 6' LENGTH OF 6" CORRUGATED METAL PIPE (CMP) THAT PROTRUDES A MINIMUM THROUGH THE FORESLOPE. WHEN SUBDRAIN IS TO OUTLET INTO AN RA-INTAKE THE OUTLET SHALL CONSIST OF A 2' LENGTH OF 6" CMP INSTALLED INTO THE RA-INTAKE. THE CONNECTION BETWEEN THE SUBDRAIN AND THE CMP MAY BE MADE WITH A REDUCER COUPLING OR BY EXTENDING THE SUBDRAIN INTO THE CMP A MINIMUM OF 6 INCHES AND PACKING THE OPEN SPACE BETWEEN THE PIPES WITH GROUT. A REMOVABLE 3/8 INCH MESH GALVANIZED SCREEN IS TO BE FASTENED TO THE END OF EITHER TYPE OF OUTLET PIPE.

PAYMENT FOR "4 IN. STANDARD NON-PERFORATED SUBDRAIN, AS PER PLAN" WILL BE MADE ON A LINEAL FOOT BASIS FOR NON-PERFORATED SUBDRAIN INSTALLED. THE UNIT PRICE BID PER LINEAL FOOT IS TO INCLUDE COSTS OF ALL MATERIALS AND LABOR (INCLUDING ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING THE SPECIFIED TYPE OF OUTLET) REQUIRED TO INSTALL THIS SUBDRAIN AS SHOWN AND NOTED ON THESE PLANS AND AS DIRECTED BY THE ENGINEER.

PAY QUANTITIES ARE TO BE BASED ON FIELD MEASURED OUT TO OUT DIMENSIONS.

WHERE EROSION CONTROL WORK IS COMPLETED THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY PLANT MATERIALS DESTROYED ADJACENT TO SLOPE PROTECTION AREA. THE CONTRACTOR SHALL REPLANT, RESEED AND REMULCH ALL AREAS IN ACCORDANCE WITH SECTION 2601 OF THE CURRENT STANDARD SPECIFICATIONS, AT HIS EXPENSE.

QUANTITIES TO BE INCLUDED IN "CONCRETE SLOPE PROTECTION":
ENGINEERING FABRIC - 1329 SQ. YDS.
POROUS BACKFILL - 505 TONS
EXCAVATION - 130 CU. YDS.
4" PERFORATED SUBDRAIN - 200 LIN. FT.

DESIGNED BY _____ TRACED BY _____
DETAILED BY _____ CHECKED BY _____

CONCRETE SLOPE PROTECTION

STANDARD SHEET 1006A

POLK COUNTY

PROJECT NUMBER

STATE IOWA REGION 7 FISCAL YEAR SHEET NO. 24 OF 27 TOTAL SHEETS 20