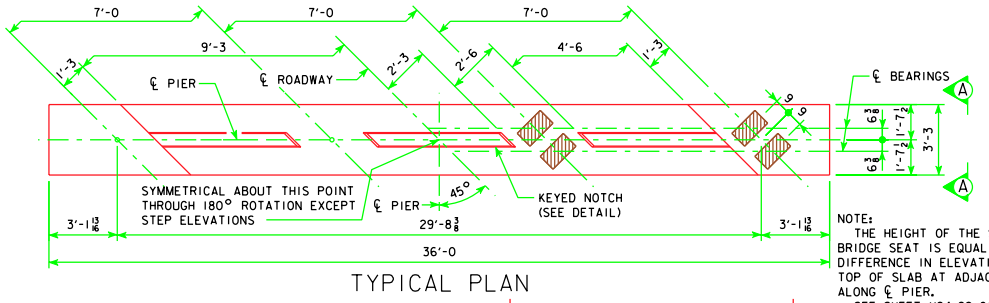
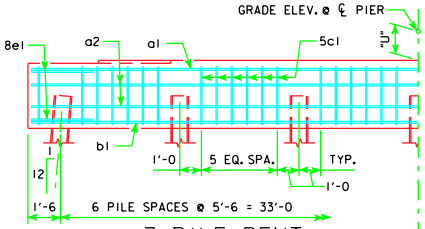
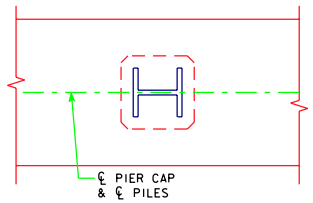


TYPICAL PLAN

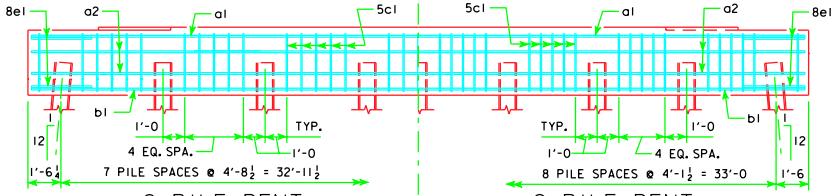
NOTE:
THE HEIGHT OF THE STEPS ON THE BRIDGE SEAT IS EQUAL TO THE DIFFERENCE IN ELEVATIONS OF THE TOP OF SLAB AT ADJACENT BEAMS ALONG ℄ PIER.
SEE SHEET H24-29-06 FOR "U" DIMENSION.



7 PILE BENT



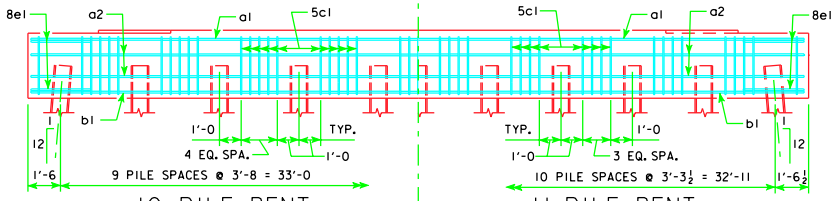
PILE ORIENTATION DETAIL FOR TYPE 3 TRESTLE BENT PILES



8 PILE BENT

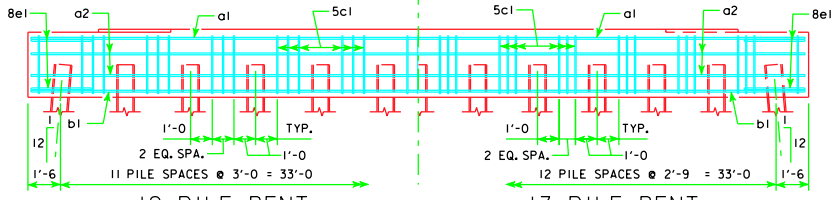
9 PILE BENT

SYMMETRICAL ABOUT ℄ PIER EXCEPT STEPS



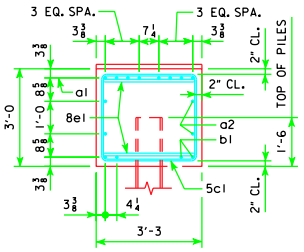
10 PILE BENT

11 PILE BENT

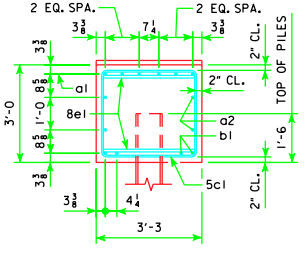


12 PILE BENT

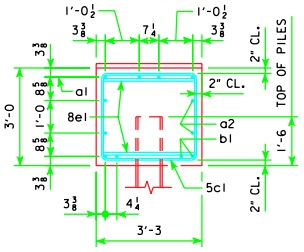
13 PILE BENT



VIEW A-A
FOR 7 PILE BENT



VIEW A-A
FOR 8, 9, 10 & 11 PILE BENTS



VIEW A-A
FOR 12 & 13 PILE BENTS

REINFORCING BAR LIST AND ESTIMATED QUANTITIES - PER PILE BENT

BAR	LENGTH	SHAPE	7 PILE BENT NO.	7 PILE BENT SIZE	7 PILE BENT WEIGHT	8 PILE BENT NO.	8 PILE BENT SIZE	8 PILE BENT WEIGHT	9 PILE BENT NO.	9 PILE BENT SIZE	9 PILE BENT WEIGHT	10 PILE BENT NO.	10 PILE BENT SIZE	10 PILE BENT WEIGHT	11 PILE BENT NO.	11 PILE BENT SIZE	11 PILE BENT WEIGHT	12 PILE BENT NO.	12 PILE BENT SIZE	12 PILE BENT WEIGHT	13 PILE BENT NO.	13 PILE BENT SIZE	13 PILE BENT WEIGHT
a1	35'-8		8	9	970	6	9	728	6	9	728	6	9	728	6	9	728	4	9	485	4	9	485
a2	35'-8		4	8	381	4	8	381	4	8	381	4	8	381	4	8	381	4	8	381	4	8	381
b1	35'-8		4	9	485	4	9	485	4	9	485	4	9	485	4	9	485	4	8	381	4	8	381
5c1	12'-2		38	5	482	37	5	470	42	5	533	47	5	596	42	5	533	35	5	444	38	5	482
8e1	8'-4		4	8	89	4	8	89	4	8	89	4	8	89	4	8	89	4	8	89	4	8	89
(1) REINFORCING STEEL (LB.)			2407			2153			2216			2279			2216			1780			1818		
STRUCTURAL CONCRETE (CY) (2) PILE TYPE 1, 2			-----			-----			13.2			13.1			13.1			13.1			13.0		
STRUCTURAL CONCRETE (CY) (2) PILE TYPE 3			13.6			13.6			13.6			13.6			13.6			-----			-----		

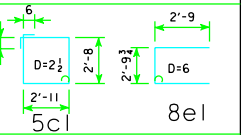
PILE BENT NOTES:

THESE PIER BENTS ARE DESIGNED FOR USE IN LOCATIONS WHERE ICE AND DRIFT CONDITIONS ARE NOT SEVERE.

FOR DETAILS OF TRESTLE PILES, TYPES 1, 2 AND 3, SEE STANDARD PIOL.

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

BENT BAR DETAILS



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

℄-℄ ABUTMENT BEARING	FRICTION BEARING PILING PIOL TYPE 1 OR 2 NUMBER OF TRESTLE PILES	(3) "K" (INCHES)	(4) DES. PILE BRG. (TONS)	(5) LRFD DES. BRG. (KIPS)	FRICTION OR POINT BEARING PILING PIOL TYPE 3 NUMBER OF TRESTLE PILES	PILE SIZE	(4) DES. PILE BRG. (TONS)	(5) LRFD DES. BRG. (KIPS)
138'-10	10	14	31	89	7	HP10x57	44	127
	9	16	34	99	7	HP12x53	44	127
151'-4	10	14	32	93	7	HP10x57	46	133
	9	16	36	104	7	HP12x53	46	133
163'-10	11	14	32	91	7	HP10x57	50	144
	10	16	35	101	8	HP12x53	43	126
176'-4	12	14	30	87	8	HP10x57	45	131
	10	16	36	105	8	HP12x53	45	131
188'-10	12	14	31	91	8	HP10x57	47	137
	10	16	38	109	9	HP12x53	42	121
201'-4	13	14	32	93	9	HP10x57	46	134
	12	16	35	101	9	HP12x53	46	134
213'-10	12	16	36	105	9	HP10x57	48	141
					10	HP12x53	44	127
226'-4	13	16	35	102	10	HP10x57	46	133
					10	HP12x53	46	133
243'-0	13	16	37	108	10	HP10x57	48	140
					11	HP12x53	44	127

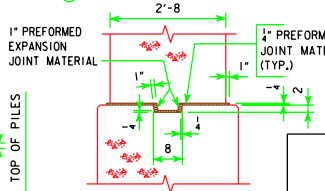
(1) SEE SHEET H24-31-06 FOR STEP REINFORCING STEEL QUANTITIES AND DETAILS.

(2) CONCRETE QUANTITIES SHOWN HAVE HAD THE VOLUME OF EMBEDDED PILES DEDUCTED FOR TYPES 1 AND 2 BASED ON 0.8 FT³ PER FOOT OF EMBEDMENT. THE CONCRETE QUANTITIES FOR TYPE 3 PILES DO NOT REQUIRE REDUCTION FOR PILE EMBEDMENT.

(3) SEE STANDARD PIOL FOR "K" DIMENSION.

(4) FOR DETERMINING ACTUAL PILE LENGTHS IN FIELD.

(5) FOR ESTIMATING PILE LENGTHS USING AASHTO LRFD SPECIFICATIONS.



KEYED NOTCH DETAIL

NOTE: FRICTION BEARING INCLUDES SIDE FRICTION AND END BEARING IN SOIL. POINT BEARING INCLUDES SIDE FRICTION AND POINT BEARING IN ROCK.

01-10
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

Iowa Department of Transportation
Highway Division

STANDARD DESIGN - 24' ROADWAY, THREE SPAN BRIDGE

PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

DECEMBER, 2006

PILE BENT PIERS

45° SKEW

H24-48-06

REVISED 01-10 - SHEET WAS REVISED TO MEET LRFD SPECIFICATIONS. PILE ORIENTATION DETAIL ADDED.