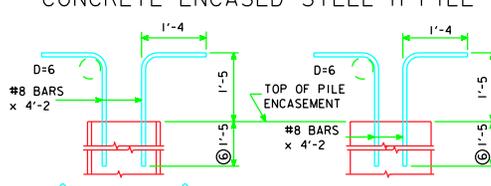
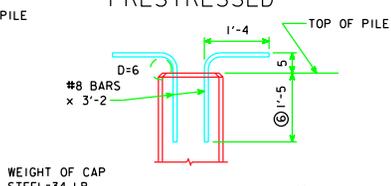
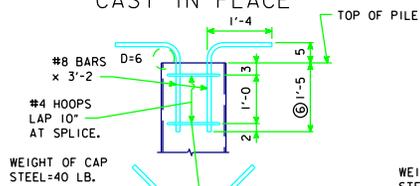


REVISION 07-09 - ADDED ALTERNATE OPTION TO DRILL & GROUT CAP STEEL NOTES © & © ADDED. TYPE 3 DIMENSION ADDED FOR MONOLITHIC & NON-MONOLITHIC PIER CAPS. ENGLISH/SCALE/DESIGN/PIOA - THIS SHEET REISSUED 08-12-88.

CAST IN PLACE

PRESTRESSED

CONCRETE ENCASED STEEL H PILE

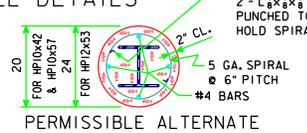
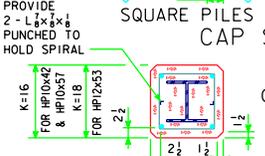
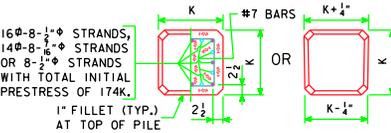


CAP STEEL DETAILS

CAP STEEL DETAILS

SQUARE PILES CAP STEEL DETAILS

ROUND PILES CAP STEEL DETAILS



SPIRAL WELDED OR SEAMLESS STEEL PIPE ASTM A252 GR. 2 OR GR. 3

16#-8-1/2" STRANDS, 14#-8-1/2" STRANDS OR 8-1/2" STRANDS WITH TOTAL INITIAL PRESTRESS OF 174K.

PROVIDE 2 - L 1/2" x 1/2" x 1/2" PUNCHED TO HOLD SPIRAL

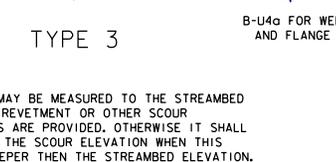
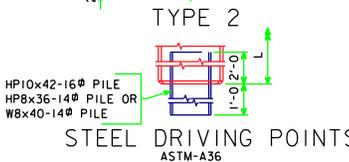
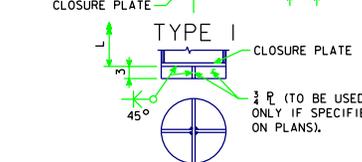
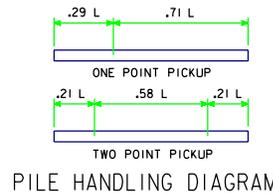
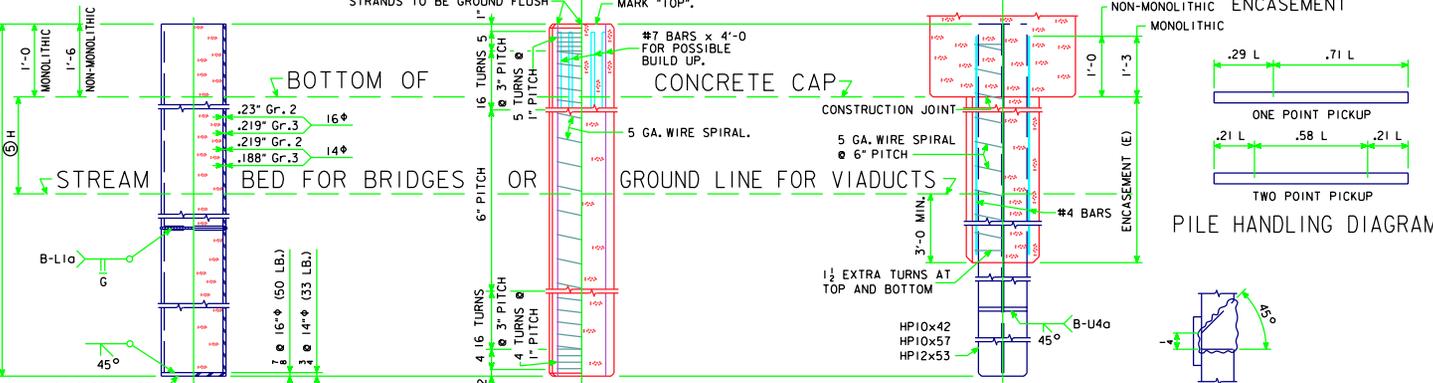
PROVIDE 2 - L 1/2" x 1/2" x 1/2" PUNCHED TO HOLD SPIRAL

GENERAL NOTES:
 EXCEPT AS NOTED ELSEWHERE, MATERIAL, CONSTRUCTION, DRIVING AND EXTENSIONS OR BUILD UPS WHEN NECESSARY SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS OF THE IOWA D.O.T. AND CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS APPLICABLE.
 CAP STEEL SHALL BE AS DETAILED ON THIS SHEET (D=PIN DIAMETER). IT SHOULD BE USED IF PILE EMBEDMENT IS LESS THAN 1'-6".
 "BEARING VALUE" AND "H" AS GIVEN IN TABLES ARE RECOMMENDED DESIGN VALUES FOR ORDINARY CONDITIONS, BUT MAY BE MODIFIED FOR SPECIAL CONDITIONS ON ANY GIVEN JOB.
 BEARING VALUE AND PILE SIZE REQUIRED SHALL IN ALL CASES BE AS SPECIFIED ON THE PLANS.
 BEARING VALUES SHOWN ARE FOR FRICTION TYPE BEARING EXCEPT FOR TYPE 3 PILING WHERE THE BEARING VALUES SHOWN COULD BE EITHER FRICTION OR POINT BEARING.
 COST OF ALL DRIVING POINTS AND CAP STEEL IS TO BE INCLUDED IN THE PRICE BID PER LINEAL FOOT FOR PILING.
 WIRE SPIRAL SHALL CONFORM TO ASTM A-82.

CAST IN PLACE PILE NOTES:
 SHELL THICKNESSES SHOWN ARE MINIMUM REQUIREMENTS. THE METHOD OF DRIVING STEEL SHELL PILES SHALL BE ADAPTED TO THE TYPE AND THICKNESS OF SHELL SPECIFIED. ANY SHELLS WHICH HAVE BEEN IMPROPERLY DRIVEN, BROKEN OR ARE OTHERWISE DEFECTIVE SHALL BE REMOVED AND REPLACED BY THE BRIDGE CONTRACTOR.
 ALL CAST IN PLACE PILES SHALL HAVE A CLOSURE PLATE. DRIVING POINTS SHALL BE USED IF SPECIFIED ON THE PLANS.

PRESTRESSED PILE NOTES:
 EXCEPT AS OTHERWISE NOTED ALL EXPOSED CORNERS 90° OR SHARPER SHALL BE FILLETED 1/4".
 DRIVING POINTS FOR PRESTRESSED PILES, IF CALLED FOR ON THE PLANS, SHALL BE AS DETAILED.
 HEADS OF PRESTRESSED PILES TO BE FINISHED SMOOTH AND NORMAL TO AXIS OF PILE.

BIDDING NOTES:
 THE PLANS SHALL DESIGNATE THE SIZE OF PILE TO BE USED. THEY SHALL ALSO SPECIFY THE TYPE, EITHER TYPE 1, TYPE 2, OR TYPE 3. IF THE OPTION OF TYPE 1 OR 2 IS GIVEN ON THE PLANS, THE CONTRACTOR SHALL CHOOSE THE TYPE TO BE USED, IF TYPE 3 IS SPECIFIED, TYPE 3 SHALL BE USED, BUT THE CONTRACTOR MAY CHOOSE THE SHAPE OF THE ENCASEMENT. IT SHOULD BE KEPT IN MIND THAT FOR A GIVEN SIZE AND BEARING VALUE, LENGTH MAY VARY WITH THE SHAPE (SQUARE OR ROUND).
 PILES SHALL BE BID DESIGNATING THE SIZE, TYPE AND LENGTH.
 TYPE 1 PILING WILL BE BID PER LINEAL FOOT OF PILE.
 TYPE 2 PILING WILL BE BID PER LINEAL FOOT OF PILE.
 TYPE 3 PILING WILL BE BID PER LINEAL FOOT OF PILE AND LINEAL FOOT OF ENCASEMENT. PRICE BID FOR ENCASEMENT SHALL BE FULL PAYMENT FOR NECESSARY EXCAVATION AND FOR FURNISHING AND PLACING ALL MATERIAL.



STEEL DRIVING POINTS

K DIMENSION	14"		16"	
	GR. 2	GR. 3	GR. 2	GR. 3
SHELL ASTM A-252				
CONCRETE (L=40')	C.Y.	1.49	1.50	1.95
CONCRETE 1' CHANGE	C.Y.	0.0372	0.0375	0.0488
WT. OF SHELL (L=40')	LB.	1321	1139	1600
WT. OF SHELL 1' CHANGE	LB.	32.20	27.66	38.74
f'c	PSI	3500	3500	3500
BEARING VALUE	TON	30T	30T	36T

STRAND STRENGTH	270K	
	14"	16"
⑤ H MAXIMUM	FT.	13
CONCRETE (L=40')	C.Y.	2.01
CONCRETE 1' CHANGE	C.Y.	0.050
REINFORCING (L=40')	LB.	232
REINFORCING 1' CHANGE	LB.	3.93
MAX. L 1 PT. PICK-UP	FT.	57
MAX. L 2 PT. PICK-UP	FT.	82
f'c	PSI	5000
BEARING VALUE	TON	33T
③ INITIAL PRESTRESS	KIPS	174

STEEL H PILE	HP10x42			HP10x57			HP12x53		
	FT.	16	16	16	16	26	16	16	26
⑤ H MAXIMUM	FT.	13	22	1.12	1.10	1.41	0.062	0.061	0.078
CONCRETE (E=18')	C.Y.	0.050	0.066	0.96	0.96	0.99	4.98	4.98	5.13
CONCRETE 1' CHANGE	C.Y.	0.050	0.066	1.40	1.38	2.02	0.078	0.076	0.112
REINFORCING (E=18')	LB.	57	60	97	97	102	5.02	5.02	5.26
REINFORCING 1' CHANGE	LB.	82	86	377	50T	46T			
MAX. L 1 PT. PICK-UP	FT.	57	60						
MAX. L 2 PT. PICK-UP	FT.	82	86						
f'c	PSI	5000	5000						
BEARING VALUE	TON	33T	38T						
③ INITIAL PRESTRESS	KIPS	174	231						

⑤ THE MAXIMUM H MAY BE MEASURED TO THE STREAMBED ELEVATION WHEN REVETMENT OR OTHER SCOUR COUNTERMEASURES ARE PROVIDED. OTHERWISE IT SHALL BE MEASURED TO THE SCOUR ELEVATION WHEN THIS ELEVATION IS DEEPER THEN THE STREAMBED ELEVATION.

DOWEL SETTING PROCEDURE:
 IF CAP STEEL IS REQUIRED FOR THE PRESTRESSED PILES THE #8 DEFORMED BARS ARE TO BE SET AS DOWELS INTO THE PILES WITH POLYMER GROUT IN ACCORDANCE WITH ARTICLE 2301.03, E, OF THE STANDARD SPECIFICATIONS OR BY THE FOLLOWING PROCEDURE.
 A. DRILL HOLE APPROXIMATELY TWICE THE DIAMETER OF THE DOWEL BAR AND TO THE DEPTH INDICATED.
 B. FILL HOLE WITH WATER AND ALLOW TO STAND LONG ENOUGH TO THOROUGHLY SATURATE THE SURROUNDING CONCRETE (ABOUT FOUR HOURS).
 C. BLOW OUT ALL FREE WATER AND FILL HOLE 2/3 FULL OF MORTAR.
 D. INSERT DOWEL BY DRIVING, IF NECESSARY, AND MANIPULATE OR TAP WITH A HAMMER TO CONSOLIDATE MORTAR AND SECURE COMPLETE EMBEDMENT.
 E. ADD MORE MORTAR, IF NECESSARY, TO FILL HOLE.
 F. MORTAR SHALL CONSIST OF EQUAL PARTS PORTLAND CEMENT AND SAND WITH JUST ENOUGH WATER TO MAKE A WORKABLE MIX.

APPROVED BY: *Norman E. Mc Donald*
 BRIDGE ENGINEER

LATEST REVISION: 07-09

DATE: 07-09

STANDARD DESIGN
CONCRETE AND STEEL PILES
 CAST IN PLACE, PRESTRESSED AND ENCASED
 FOR USE IN
TRESTLE PILE BENTS - P10A

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. ___ OF ___ FILE NO. ___ DESIGN NO. ___