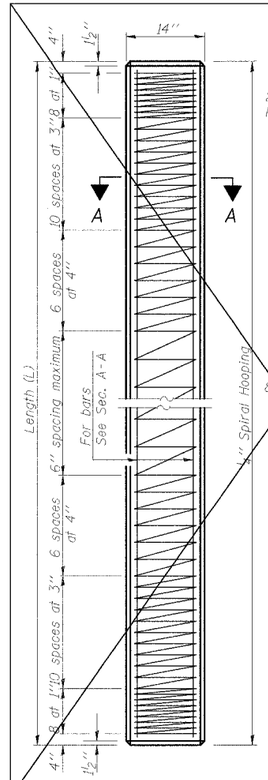
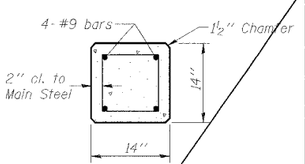
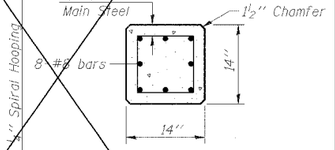
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2666	00-00254-01-BR	LAKE	70	54
STA. 98+50		TO STA. 107+57		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

Sheet 31 of 35 Sheets
PROJECT NO. BHM-8003(213)
CONTRACT NO. 83875





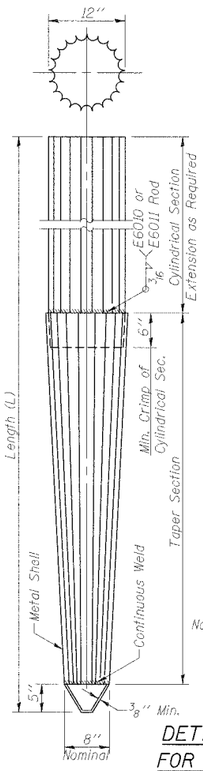
SECTION A-A FOR PILES UNDER 45' LONG

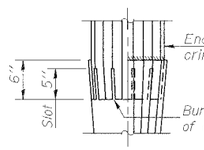


SECTION A-A FOR PILES 45' OR MORE

Handling: For Pile lengths up to 45' use two slings placed at a distance of 0.21L from each end. For Piles longer than 45', use three slings placed at a distance of 0.12L from each end and at mid point of pile.

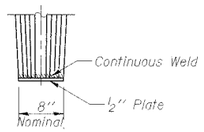
DETAIL OF PRECAST CONCRETE PILES





FIELD CRIMP DETAIL

Note: 6'' Crimp shall either be supplied on the cylindrical section or made in the field as detailed.



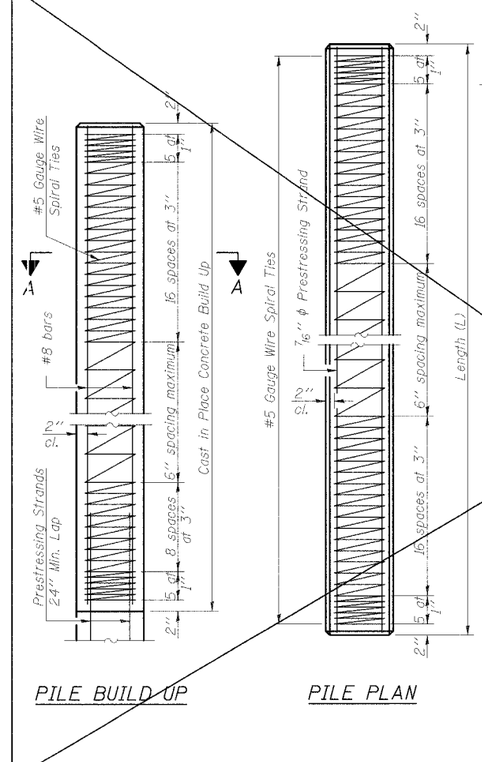
OPTIONAL FLAT END

ALLOWABLE TAPER SECTIONS

10' Length-Taper 1'' in 2'-6''
17' Length-Taper 1'' in 4'-0''
25' Length-Taper 1'' in 7'-0''
30' Length-Taper 1'' in 7'-0''

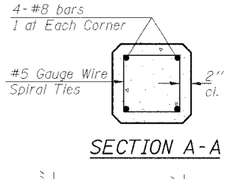
Note: The thickness of the shell shall be 0.1495 inches with a tolerance of 5%. The shell shall be according to Article 1006.05(a) of the Standard Specification except that minimum yield strength for the steel after cold working shall be 50,000 p.s.i.

DETAIL OF TAPERED METAL SHELLS FOR CAST IN PLACE CONCRETE PILES

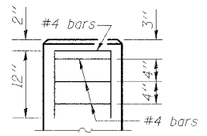


PILE BUILD UP

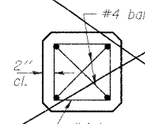
PILE PLAN



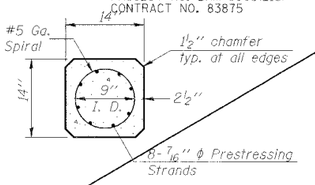
SECTION A-A



ELEVATION (End Reinforcement)



PLAN (End Reinforcement)



SECTION THRU PILE

DESIGN STRESSES

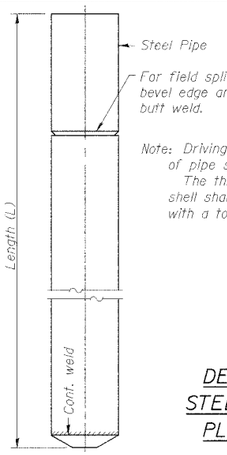
f'_c = 5,000 p.s.i.
f_{ci} = 4,000 p.s.i.
f'_s = 270,000 p.s.i. (31,000 lbs.-7/16'' ϕ or 41,300 lbs.-½'' ϕ)
f_{si} = 189,000 p.s.i. (21,700 lbs.-7/16'' ϕ or 28,900 lbs.-½'' ϕ)

NOTES

Prestressing steel shall be uncoated high strength, stress-relieved 7-wire strand. An equal substitution of low-relaxation strands for the stress-relieved strands will be permitted, provided the initial prestressing force applied to each strand is the same as that shown for stress-relieved strands. The nominal diameter shall be ½'' and the nominal cross-sectional area shall be 0.115 in² or the equivalent 6-½'' ϕ strands with a cross-sectional area of 0.153 in² may be used.

For Pile lengths up to 65', use two slings placed at a distance of 0.21 L* from each end. For Piles longer than 65', use three slings placed at a distance of 0.12 L* from each end and at midpoint of pile. *L= Overall length of pile to be handled.

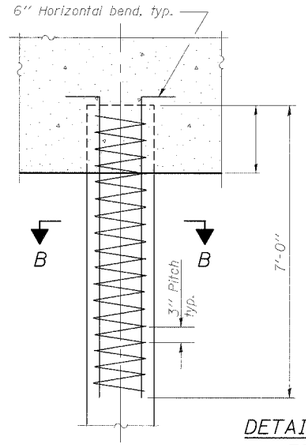
PRECAST PRESTRESSED CONCRETE PILE

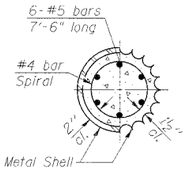


Note: Driving and bearing ends of pipe shall be cut square. The thickness of the shell shall be 0.1793 inches with a tolerance of 5 %.

OPTIONAL FLAT END

DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES

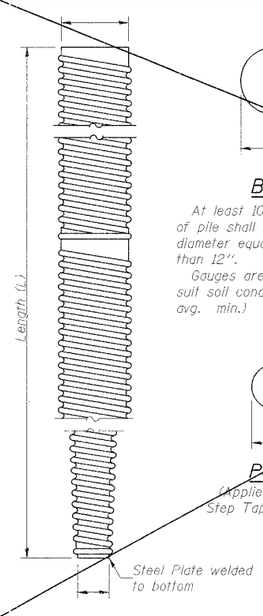




SECTION B-B

Reinforcement in top of pile shall be omitted under pier footings when placed in natural ground.

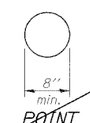
DETAIL OF REINFORCEMENT FOR METAL SHELLS



BUTT

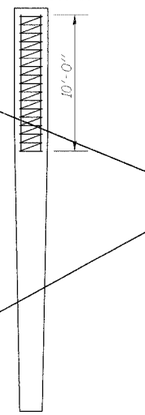
At least 10% of the length of pile shall have a Butt diameter equal to or greater than 12''.

Gauges are furnished to suit soil conditions (16 Gauge avg. min.)

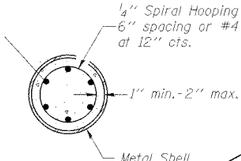


POINT

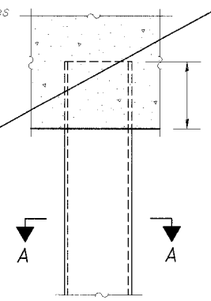
(Applies only to Step Taper type pile)



PILE REINFORCEMENT



SECTION A-A



DETAIL OF MANDREL DRIVEN STRAIGHT OR STEP-TAPER PILES FOR CAST IN PLACE CONCRETE PILES

REVISIONS NAME	DATE

CMT
CRAWFORD MURPHY & TILLY, INC.
CONSULTING ENGINEERS
SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

LAKE COUNTY DIVISION OF TRANSPORTATION
CONCRETE PILE DETAILS

BUFFALO GROVE ROAD
AT INDIAN CREEK BRIDGE
SECTION 00-00254-01-BR STATION 101+50.00
LAKE COUNTY STRUCTURE NO. 049-3043
SCALE: NONE DRAWN BY: IBW
DATE: 7/21/06 CHECKED BY: ATI, WK

PLAN: SURVEYED, DATED, ALIGNMENT CHECKED, GRADES CHECKED, NO. OF TRK. LANES, FED. RTE. NAME, BY, DATE
PROFILE: SURVEYED, DATED, GRADES CHECKED, NO. TRK. LANES, STRUCTURE NO(S), NOTATIONS CKHD, NOTE BOOK, NO., BY, DATE

I:\lakeco\02201113\draw\sheets\struct\6-16-06\concrete pile details.dgn

X-3 10-31-02