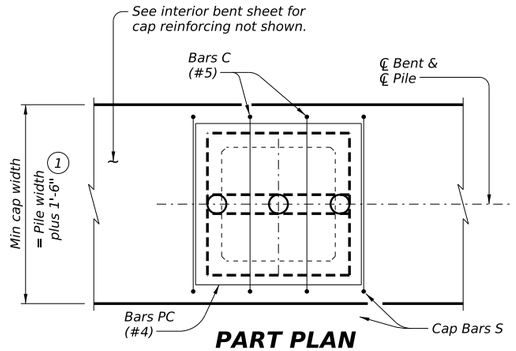
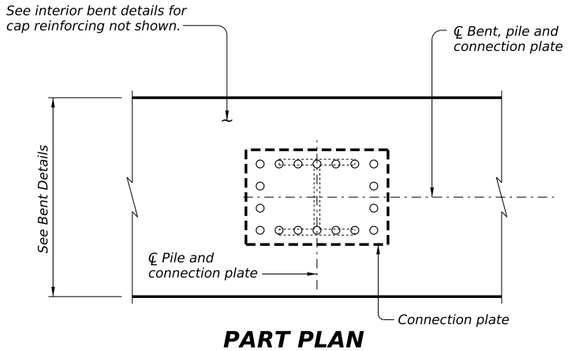


PART PLAN
CONCRETE PILE

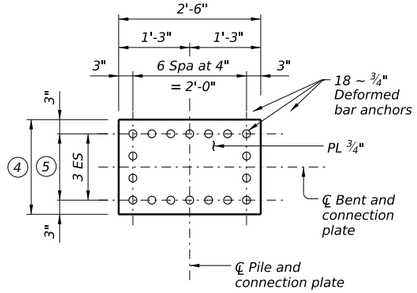
(1) Provide wider cap if necessary. Adjust cap Bars S dimensions accordingly. All quantity adjustments are at the Contractor's expense.

(2) 1'-0" (+2 ½", -0") with 16" and 18" piles; 1'-6" (+2 ½", -0") with 20" and 24" piles

(3) 1'-3" with 16" and 18" piles; 1'-9" with 20" and 24" piles

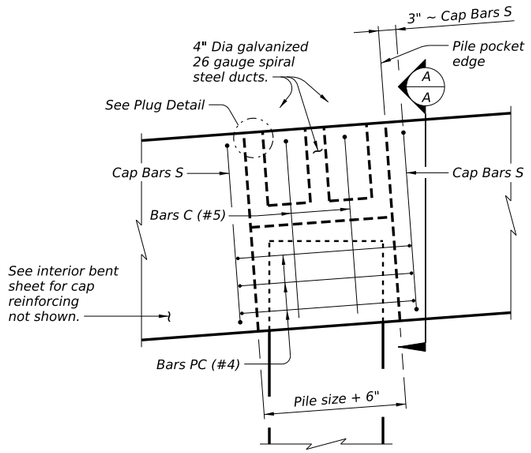


PART PLAN
STEEL H-PILE

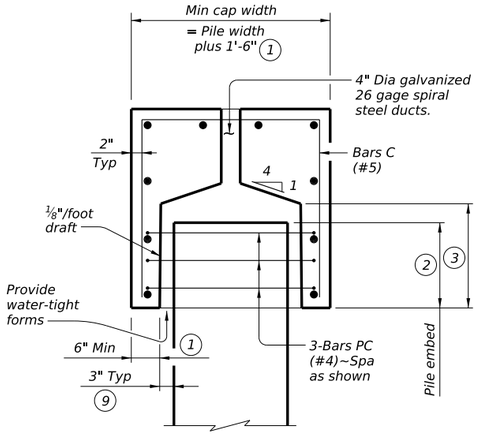


PLAN

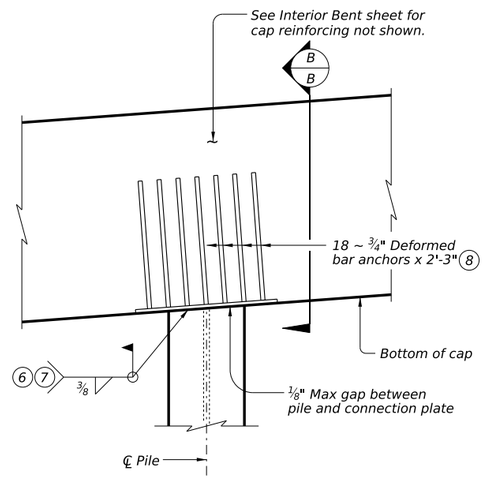
CONNECTION PLATE DETAIL
Electric arc end weld deformed bar anchors with complete fusion.



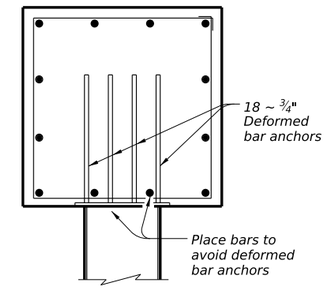
PART ELEVATION
CONCRETE PILE



SECTION A-A
Showing example cap reinforcing



PART ELEVATION
STEEL H-PILE



SECTION B-B
Showing example cap reinforcing

(4) Pile size plus 6"

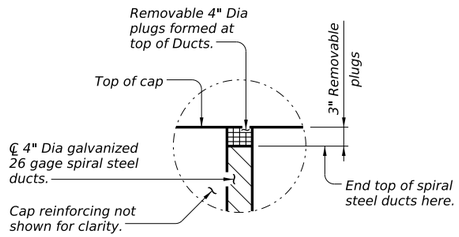
(5) Pile size (Example: 1'-2" for HP14)

(6) Increase weld size by amount of gap.

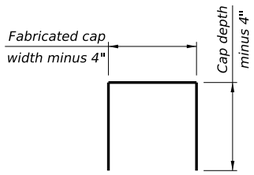
(7) A certified welder is required.

(8) If cap height is less than 2'-9", deformed bar anchor length is 6" less than cap height.

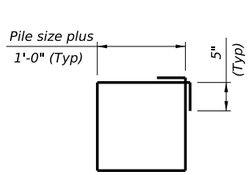
(9) 1" Min between pile and cap pocket for grout placement, typical all sides.



PLUG DETAIL
(Plug is used to keep concrete out of ducts during concrete placement. Remove prior to grouting.)



BARS C (#5)
2 Required per pile pocket



BARS PC (#4)
3 Required per pile pocket

HL93 LOADING **SHEET 1 OF 2**

Texas Department of Transportation | Bridge Division Standard

PRECAST CONCRETE BENT CAP OPTION
FOR CONCRETE PILES AND STEEL H-PILES
PBC-P

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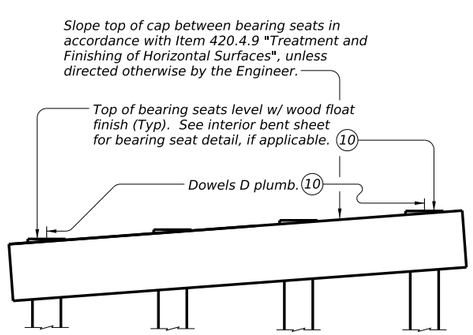
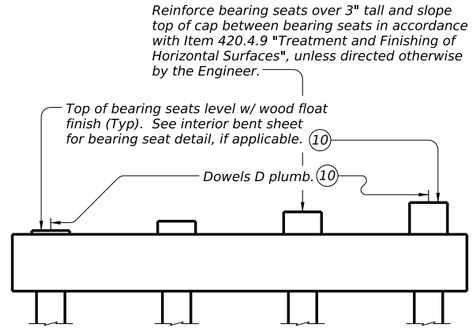


CAP SET AT SLOPE



CAP SET LEVEL

EXAMPLES OF PRECAST BENTS WITH DOWELS D

(10) Unless otherwise shown

CONSTRUCTION NOTES:

Cap Fabrication:

Construct and cure cap in accordance with Item 420, "Concrete Substructures." If fabricated at an offsite location, construct and cure cap in accordance with Item 424, "Precast Concrete Structural Members (Fabrication)." Secure ducts, pile pockets, and connection plates to prevent their movement during concrete placement. Location tolerance of ducts, pile pockets and connection plates is ¼" from plan location, transversely and longitudinally. Seal ducts and pile pockets to prevent intrusion of concrete.

Bearing seats may be precast with the cap. Bearing seats over 3" in height must be reinforced as per Item 420.4.9. Do not locate lift points at bearing seats if bearing seats are precast.

Cap concrete must achieve a compressive strength of 2,500 psi prior to lifting. Limit flexural stress in cap to 250 psi during handling and storage. Store and handle caps in accordance with Item 424, "Precast Concrete Structural Members (Fabrication)." Do not stack caps. Caps that become cracked or otherwise damaged may be rejected.

Top of piling may be no more than 2" from plan location, both transverse and longitudinal to bent centerline, after driving.

Cap-to-Concrete Pile Connection:

Make a trial batch of grout using the same material, equipment and personnel to be used for actual grouting operations and grout a mock-up of the connection at least one week before grouting and in the presence of the Engineer. This mock-up test must demonstrate the reliability of the Contractor's grouting procedures to provide a connection free of voids. Field test the trial batch grout to the same level required for the actual grouting.

Surfaces in contact with grout must be clean and in a saturated, surface-dry condition, immediately prior to grouting. Provide water tight forms. Fill the forms with water and drain just prior to grouting. Ponding or free-standing water is not permitted. Use compressed air to blow out excess water.

Mix grout in accordance with the manufacturer's directions. Evidence of frothing, foaming, or segregation is cause for rejection. Transport grout from mixer to final location by wheel barrow, bucket or pumping.

Perform sampling and testing of grout by trained personnel at the Contractor's expense and while witnessed by the Engineer. Grouted connections must be free of voids.

Trowel finish top surface of cap anchorage ducts flush with top of cap. Wet mat cure these locations for at least 48 hours. Recess lifting loops 1-inch minimum using exothermic cutting rods. Do not overheat or damage the surrounding concrete. Abrade the concrete surfaces of excavation and end of the lifting loop to remove all slag with a needle gun, steel brush, or other suitable means. Coat the inside of the recessed area, including the lifting loops, with 10 mils (minimum) of neat, Type VIII epoxy and patch the recess with epoxy mortar.

Friction collars may be removed, if used, and beams placed on the cap after the grout obtains a compressive strength of 2,500 psi. Subsequent loading can occur when the grout reaches its final required 28 day compressive strength.

Cap-to-Steel Pile Connection:

After field welding is complete, clean and paint top of pile and connection plate as specified in Item 407.3.2.

Beams may be set on cap after all cap to pile welds are complete.

MATERIAL NOTES:

Provide a pre-qualified grout from TxDOT's Material Producer List "Cementitious Grouts and Mortars for Miscellaneous Applications", conforming to DMS-4675.

Provide semi-rigid spirally crimped, corrugated duct of galvanized, cold rolled steel conforming to ASTM A653. Corrugations must have a minimum amplitude of 0.094".

Grout tubes and forms must be approved prior to grouting.

Provide deformed bar anchors conforming to ASTM A496 and connection plates conforming to ASTM A36.

Provide Grade 60 reinforcing steel.

GENERAL NOTES:

Designed in accordance with AASHTO LRFD Bridge Design Specifications.

The Contractor has the option to provide precast bent caps in accordance with the details shown. No additional payment will be made if the Contractor uses precast caps.

Submit shop drawings of precast caps for approval prior to construction. Indicate lifting attachments and locations on the shop drawings.

Precast Concrete Bent Cap Option shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

See Interior Bent sheet for details and notes not shown.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

HL93 LOADING **SHEET 2 OF 2**

Texas Department of Transportation

Bridge Division Standard

PRECAST CONCRETE BENT CAP OPTION
FOR CONCRETE PILES AND STEEL H-PILES
PBC-P

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