

## **Part 1 General**

### **1.1 RELATED SECTIONS**

- .1 Section 31 61 13 - Pile Foundations, General.

### **1.2 MEASUREMENT PROCEDURES**

- .1 Consider shoes, cap plates, straps and preservative treatment incidental to supply of piles.
- .2 Mobilization of equipment will not be considered as a separate item and will be incidental to supply of piles.
- .3 Departmental Representative will establish actual number and lengths of piles installed from driving records.
- .4 Unit of measurement for driving piles will be per meter measured from tip elevation to cut-off elevation at pile cap.
- .5 Unit of measurement for supplying piles will be based on per meter measurement from estimated tip elevation to design cut-off plus 1 m. Any additional length supplied due to market availability shall not be paid extra and shall be accounted for at the bid price.

### **1.3 REFERENCES**

- .1 American Society for Testing and Materials (ASTM).
  - .1 ASTM A153-82 (1987), Specification for Zinc (Hot-Dip) Coating on Iron and Steel hardware.
  - .2 ASTM A307-92, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile.
- .2 Canadian Standards Association (CSA).
  - .1 CSA B111-1974, Wire Nails, Spikes and Staples.
  - .2 CAN/CSA-G164-M92, Hot Dip Galvanizing of Irregularly Shaped Articles.
  - .3 CAN/CSA-O80 Series-M89, Wood Preservation (including CSA Preliminary Standard 080.31-M1989).

### **1.4 PROTECTION**

- .1 Avoid dropping, bruising or breaking of wood fibres.
- .2 Do not damage surfaces of treated piles.
- .3 Treat cuts, breaks or abrasions on surfaces of treated piles, bolt holes and field cuts in accordance with CAN/CSA-O80.18 Series.

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## **Part 2 Products**

### **2.1 MATERIALS**

- .1 All piles to conform to the requirements of CAN3-056, with minimum butt size of 330 mm, and tip diameter related to length as indicated in Table A-1 of CAN3-056.
- .2 All piles to be peeled and shod with a steel point as shown on plans or a substitute point approved by Engineer.
- .3 Pile species will be Red Pine. The preservative pressure treatment will be CCA to CAN/CSA-080.18 Series (latest revision).
- .4 Preservative Treatment shall be tested as per CAN/CSA-080.18 by the timber supplier or contractor. Detailed test results need to be submitted to the Engineer for approval prior to timber pile supply.
- .5 Departmental Representative will be sole judge of quality and dimension of piles to be incorporated in the work.
- .6 Wire nails, spikes, staples: to CSA B111.
- .7 Bolts, nuts and washers: to ASTM A307.
- .8 Hot dip galvanize bolts, nuts and washers and unless otherwise specified, staples, cable clamps, pipe sleeves, spikes and nails to CAN/CSA-G164. Other hardware to be galvanized to ASTM A 123.

## **Part 3 Execution**

### **3.1 WOOD PRESERVATION**

- .1 Treat wood piles with wood preservative treatment as specified herein.

### **3.2 PREPARATION**

- .1 Select piles in each bent group for uniformity of size and straightness to facilitate placing of brace timbers.
- .2 When necessary, protect pile heads by means of heavy steel straps or wrought iron rings.
- .3 Equip piles with metal shoes or other tip protection of approved design. Submit details of proposed method of tip protection to Engineer for approval.
- .4 Treat exposed ends of cut off piles as follows:
  - .1 Apply heavy application of ACA-5% minimum solution, which shall be applied until visible evidence of further penetration has ceased.

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- .2 Seal the surface of the piling with a heavy application of coal tar pitch.
  - .3 Place 12 mil felt over top of cut off pile. Felt is to be saturated with a preservative. Fold the felt over the sides a minimum of 75 mm.
  - .4 Cover the pile with a 20 gauge aluminum sheet cap to form a tight connection. Connect as outlined on drawings.

### **3.3 INSTALLATION**

- .1 Install piles in accordance with Section 31 61 13 - Pile Foundations, General.
- .2 Submit full details of method and sequence of installation of piling to Engineer for approval prior to start of pile installation work.
- .3 Provide temporary guide frames and/or bracing to hold piles in proper alignment during setting and driving.
- .4 Should an obstruction be encountered during driving, leave obstructed pile and proceed to drive remaining piles. Return and attempt to complete driving of pile later.
- .5 Secure a hardened steel point to each pile before driving.
- .6 Treat all end cut offs and field drilled bolt holes with preservative.

### **3.4 SPLICES**

- .1 Splices of wood piles will not be permitted.

**END OF SECTION**