

ITEM 10551.8901 M - THREE PILE CLUSTER TIMBER DOLPHIN

DESCRIPTION

The work under this item shall consist of furnishing all materials and installing three pile cluster timber dolphins of the type required at the locations shown on the Contract Plans or where ordered by the Engineer.

MATERIALS

Timber piles shall conform to the requirements of Subsection 720-02 Treated Timber Piles.

All timber piles shall have a butt diameter of not less than 356 mm and a tip diameter of not less than 178 mm.

Timber Blocking shall be Southern Yellow Pine or Douglas Fir treated in accordance with Subsection 708-31 Wood Preservative - Water Borne.

Sizes of lateral bracing shown on the plans are nominal size.

Galvanizing wire rope shall conform to the requirements of ASTM A603, Zinc Coated Steel Structural Wire Rope. Galvanized Steel Wire Staples - ASTM A641.

Stainless Steel Cable Clamps shall conform to the requirements of ASTM F593 Stainless Steel Bolts, Hex Cap Screws and Studs.

CONSTRUCTION DETAILS

A. Preparation of Piles

1. Points - The pile tips shall be sawed square so that, when cut off, the end is perpendicular to the longitudinal axis of the pile or tapered to a point not less than 100 mm in diameter.
2. Butts - The butts of the piles shall be sawed square.
3. Splices - The piles shall not be spliced.

B. Methods of Driving. The driving of piles shall be done with an air/steam, diesel, or hydraulic hammer. The order of driving will be determined by the Engineer. Equipment utilized for driving timber piles shall conform to the requirements of Section 551-3.01.D with the exception that the minimum rated striking energy of the hammer to be used in driving piles shall be 9.5 KJ per blow, and the maximum rated striking energy shall be 18.3 KJ per blow.

C. Length of piles. All piles shall be driven to the depth as shown on the contract plans.

D. Allowable variation in pile alignment. Piles shall be truly vertical or accurately battered as shown on the plans. The top of any pile driven its full length into the ground shall not vary from the plan location by more than 100 mm, unless otherwise shown on the plans.

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E. **Defective piles.** All piles forced up by any cause shall be driven down again, as directed by the Engineer. The following shall be causes for rejection of a pile:

A. Pile location or batter is incorrect

B. Pile is damaged from any cause whatsoever.

C. Pile tip elevation is not within the limits called for on the plans, or specified by the Engineer.

D. Pile is determined by the Engineer to be unserviceable for other reasons related to the furnishing and installing of the pile.

The Contractor shall withdraw such rejected piles and replace them with new longer piles (if necessary) at the Contractors expense.

Piles that are split, splintered or broomed from driving operations are not acceptable. Any pile broken by reason of internal defects (even though the Engineer permitted it to be put in the leads), or by improper driving shall be rejected.

F. **Cutting off piles.** The tops of all piles shall be cut off at the elevation indicated on the contract plans or as specified by the Engineer. The cut shall be clean and to a true plane, in accordance with the detail shown on the plans. The sawed surface shall be treated in accordance with section 708-31. All cut off lengths shall become the property of the Contractor and shall be removed by him from the site of the work.

G. **Associated work.** All cavities or voids, left by the extraction of damaged piles or from auger bolts or soil deformations necessary to place piles, shall be backfilled as specified by the Engineer.

H. **Storage and Handling.** The method of storing and handling of piles shall be such as to avoid injury to the piles.

After each pile in the cluster has been driven to its specified depth, the Contractor shall insert the timber blocking in the positions shown on the plans. The pile cluster shall then be clamped so that the tops of the piles abut each other, and with the clamp in place, the Contractor shall wind the galvanized wire rope around the cluster three times at each of the locations shown on the plans. The leading end of the rope shall be fastened to one pile by inserting the end of the rope through a hole to be drilled into the pile. The trailing end of the wire rope shall be clamped as shown on the plans. After wrapping, the top clamp shall be removed.

The tightness of the wire rope shall be subject to the approval of the Engineer. After the Contractor receives approval of the tightness of the wire rope, he shall install a stainless steel cable clamp and the galvanized steel wire staples as shown on the plans.

METHOD OF MEASUREMENT

The quantity to be paid for under this item shall be the number of three pile cluster timber dolphins installed.

BASIS OF PAYMENT

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The unit price bid per three pile cluster timber dolphin shall include all labor, materials, equipment and incidentals necessary to complete the work.

Furnishing equipment for driving piles will be paid for under Item 551.13M.