

ARCHITECTURE

SECTION 02458

STEEL H PILES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes steel H piles.

1.2 UNIT PRICES

- A. The Contract Sum: Base the Contract Sum on number and dimensions of piles as recommended by the Geotechnical Engineering Summary Report, from tip to cutoff, plus not less than **12 inches (300 mm)** of overlength for cutting piles at cutoff elevations.
- B. Measurement: Using data obtained during pile driving, Architect will calculate actual total net length of piles installed. Measurements will be based on effective length of piles in place, with lengths measured to nearest **12 inches (300 mm)**.
 - 1. Additional payment for pile lengths in excess of that indicated, and credit for pile lengths less than that indicated, will be calculated at unit prices stated in the Contract, based on net addition or deduction to total pile length.
 - 2. Unit prices include labor, materials, tools, equipment, and incidentals for furnishing, driving, cutting off, capping, and splicing piles and disposing of cutoffs.
 - 3. No payment will be made for rejected piles, including piles driven out of tolerance, defective piles, or piles damaged during handling or driving.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show fabrication and installation details for piles, including driving points, splices, field-cut holes, and pile caps.
- C. Welding certificates.
- D. Mill test reports.
- E. Pile-Driving Equipment: Include type, make, maximum rated energy, and rated energy per blow of hammer; weight of striking part of hammer; weight of drive cap; details, type, and structural properties of hammer cushion; and details of follower and jetting equipment.
- F. Pile-driving records.

1.4 QUALITY ASSURANCE

- A. Welding Standards: Qualify welding procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel."
- B. Handle and store piles at Project site to prevent physical damage. Support piles with webs in vertical position.

PART 2 - PRODUCTS

2.1 STEEL H PILES

- A. High-Strength, Low-Alloy, H-Pile Steel: ASTM A 690/A 690M.
- B. High-Strength, Low-Alloy, Structural Steel: ASTM A 588/A 588M.

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2.2 PILE ACCESSORIES

- A. Driving Points: Manufacturer's standard one-piece driving point, fabricated from steel castings to provide full bearing of web and flange of pile tip. Cast driving point with integral tapered cutting wedges and with top alignment curbs to encase web and flanges of pile.
- B. Splice Unit: Manufacturer's standard splice unit, fabricated from two connected steel plates, of same material as H pile, shaped and tapered to encase web and part of each flange.

2.3 FABRICATION

- A. Fabricate full-length piles to eliminate splicing during driving, with ends square.
- B. Fabricate full-length piles by splicing lengths of H pile together. Accurately mill meeting ends of piles and bevel for welding. Maintain axial alignment of pile lengths.
- C. Fit and weld driving points to tip of pile according to manufacturer's written instructions and AWS D1.1 for procedures, appearance and quality of welds, and methods used in correcting welding work.
- D. Pile-Length Markings: Permanently mark each pile with horizontal lines at **12-inch (300-mm)** intervals; mark the distance from pile tip at **60-inch (1500-mm)** intervals.

PART 3 - EXECUTION

3.1 DRIVING PILES

- A. General: Continuously drive piles to elevations and capacity indicated on drawings. Establish and maintain axial alignment of leads and pile before and during driving.
- B. Heaved Piles: Redrive heaved piles to tip elevation at least as deep as original tip elevation with a driving resistance at least as great as original driving resistance.
- C. Driving Tolerances: Drive piles without exceeding the following tolerances, measured at pile heads:
 - 1. Location: **4 inches (100 mm)** from location indicated after initial driving, and **6 inches (150 mm)** after pile driving is completed.
 - 2. Plumb: Maintain **1 inch (25 mm)** in **10 feet (3 m)** from vertical, or a maximum of **4 inches (100 mm)**, measured when pile is above ground in leads.
 - 3. Batter Angle: Maximum **1 inch (25 mm)** in **10 feet (3 m)** from required angle, measured when pile is above ground in leads.
- D. Withdraw damaged or defective piles and piles that exceed driving tolerances and install new piles within driving tolerances. Fill holes left by withdrawn piles as directed by Architect.
- E. Cutting Off: Cut off tops of driven piles square with pile axis and at elevations indicated.
 - 1. Pile Caps: Weld steel plates, of same material as H pile, to top of steel pile square and level.
- F. Pile-Driving Records: Maintain accurate driving records for each pile, compiled and attested to by a qualified professional engineer.

3.2 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing agency to perform field quality-control testing.
- B. Weld Testing: In addition to visual inspection, welds shall be tested and inspected according to AWS D1.1.

END OF SECTION 02458