

SECTION 403 – HELICAL PILES

403.01 DESCRIPTION

This work consists of furnishing and installing helical pile support systems at locations shown on the plans and in accordance with the Contract Documents. The completed system shall be installed to meet all design loadings for each boardwalk or bridge abutment location.

403.02 REFERENCE STANDARDS

ASW D1.1

403.03 DEFINITIONS

Not applicable.

403.04 MATERIALS

A. Helical piles suggested suppliers:

Chance Foundation Solutions
A Division of Hubbell Power Systems, Inc
Centralia, MO
855-477-2121.
www.hubbell.com/chancefoundationsolutions

Premium Technical Services Corp.
13 Rockwood Avenue
Massapequa, NY 11758
(516) 409 6000
premiumtechnical.com

MacLean Power Systems
Civil Products Group
481 Munn Road
Fort Mill, SC 29715
800-325-5360
www.macleandixie.com

or approved equal.

1. Helical pile leads shall be:

Chance Foundation Solutions, Model RS2875.203 Pipe Leads or approved equal. Helical pile lead sections shall be a (2.875) inches round shaft 60" long with 8",10",12" helices or approved equal.

Chance, Model RS3500.300 Pipe Leads or approved equal. Helical pile lead sections shall be a three and a half (3-1/2) inches round shaft lead section 5' long with 10" - 12" Helices or approved equal.

2. Lead sections shall be minimum five (5) feet long. The length of helix pile extension is depending on vertical clearance. Each extension is to be provided with a means for

coupling to the lead or to another extension. Each coupling is to be provided with the proper bolts and nuts.

3. Helical pile cap for concrete pier sill caps or abutment shall be Chance Foundation Solutions C1500781 for (2.875) inches round shaft, C1500782 for (3.5) inches round shaft or approved equal.
4. Helical pile bracket for timber pier sill caps or boardwalk walkway support shall be Chance Foundation Solutions C1100936 & C1100925 or approved equal.
5. Helical piles, extensions and appurtenances shall be fabricated of steel and hot-dipped galvanized in accordance with ASTM A153 (latest revision) after fabrication. Post fabrication welds made after the hot-dipped galvanizing process shall be cleaned and coated with approved cold galvanizing compound.
6. All welding shall be done by certified welders in accordance with ASW D1.1.
7. Helical piles shall be installed to the manufacturer's recommended torque to support the design loads specified on the approved plans and shop drawings. The design capacity of the pile-group must provide a safety factor of at least two (2).

413.05 SUBMITTALS

- A. Contractor shall submit Maryland State P.E. sealed shop drawings and support information for review and approval prior to installation.
- B. Contractor shall submit a list of all equipment that will be used to install piles.
- C. Contractor shall submit welder's certification.
- D. The Contractor shall submit to the Construction Manager complete and accurate records of the pile installation operation. Written installation records shall be prepared for each helical pile. These records shall include, but are not limited to the following:
 1. Project name and/or location.
 2. Name of Contractor who installed the piles.
 3. Description of lead section and extensions installed.
 4. Overall depth of installations referenced from bottom of the supported element.
 5. Torque reading for the last three feet of installation if practical. In lieu of this requirement, the terminal torque shall be recorded as a minimum.
 6. Any other relevant information relating to the installation including Manufacturer's Literature and Data. The Contractor shall provide manufacturer's information with material properties and characteristics to the M-NCPPC Construction Manager.

7. Warranty Information.

413.06 QUALITY ASSURANCE

The company installing the helical piles shall have at least five (5) years of experience installing this type of work and shall provide a copy of the manufacturer's certification as a qualified installer of their products.

413.07 CONSTRUCTION

- A. Any modifications to system installation due to field conditions shall be approved by M-NCPPC CM prior to installation.
- B. The Contractor shall be responsible for accurately locating the installation point of each foundation anchor and to record this information. Contractor shall test pit all utilities that might be present in the area and adjust pile locations to maintain required clearances and design requirements.
- C. Helical piles shall be installed as shown on the Contract Documents and as per the manufacturer's specifications. All changes in pile location must be approved by the M-NCPPC CM. The piles shall be installed to a depth required to achieve or exceed the design loadings indicated in the approved construction document shop drawings. If previously unknown underground obstructions (other than utilities) are discovered during installation, the Contractor shall notify the CM immediately.
- D. Fabrication Tolerances. The Contractor shall comply with the following construction Tolerances:
 - 1. Angle of helical pile foundation from vertical = $\pm 5^\circ$.
 - 2. Location of helical piles = $\pm 3/4$ “.
 - 3. Elevation of top of helical piles = $\pm 1/4$ “.

413.08 MEASUREMENT AND PAYMENT

The price for helical piles shall include the cost of furnishing all labor, material, tools, equipment including pile driving machinery and incidentals necessary to complete the work. Payment for helical piers (both vertical and skewed) shall be for each helical pier including additional bracing, hardware, and appurtenances assuming an average height of ten (10) feet for boardwalks and fifteen (15) for bridges as measured from the underground tip to the cap. In the event, that field conditions require additional pier heights, the payment will be for each additional vertical foot, as directed by the M-NCPPC CM. Payment shall be made on a unit rate or lump sum basis as shown in the bid proposal.