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ESR-3623

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Reissued 04/2015
This report is subject to renewal 04/2016

DIVISION: 31 00 00—EARTHWORK
SECTION: 31 63 00—BORED PILES

REPORT HOLDER:

GEOTECH ENTERPRISES, INC.

38-23 24TH STREET
LONG ISLAND, NEW YORK 11101

EVALUATION SUBJECT:

GEOTECH ENTERPRISES HELICAL PILE FOUNDATIONS SYSTEMS

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ICC-ES Evaluation Report

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Issued April 2015

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DIVISION: 31 00 00—EARTHWORK
Section: 31 63 00—Bored Piles

REPORT HOLDER:

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LONG ISLAND CITY, NEW YORK 11101
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www.geotechnyc.com
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EVALUATION SUBJECT:

GEOTECH ENTERPRISES HELICAL PILE FOUNDATION SYSTEMS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2012 and 2009 *International Building Code*® (IBC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)†

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Properties evaluated:

Structural and geotechnical

2.0 USES

Geotech Enterprises Helical Pile Foundation Systems are used either to underpin foundations of existing structures or to form deep foundations for new structures, and are designed to transfer compression, tension, and lateral loads from supported structures to soil bearing strata suitable for the applied loads. Deep foundations for new construction are obtained by attaching the helical piles to new construction brackets (direct-load brackets) that are embedded in concrete pile caps or grade beams, which support compression, tension and lateral loads.

3.0 DESCRIPTION

3.1 General:

The Geotech Enterprises Helical Pile Foundation Systems consist of a helical pile connected to a bracket that is in contact and connected with the load-bearing foundation of a supported structure. Each helical pile consists of a central lead shaft with one or more helical-shaped steel bearing plates, extension shafts, and shaft couplings that connect multiple shaft sections. The shafts with helix bearing plates are screwed into the ground until a suitable soil or bedrock bearing stratum is reached. The bracket is then installed to connect the pile to the concrete foundation of the supported structure.

3.2 System Components:

3.2.1 Helical Pile Lead Shafts and Extensions: The helical pile lead shafts consist of a central steel shaft of 3½-inch-outside-diameter (89 mm) steel pipe having a nominal shaft thickness of 0.3 inch (7.6 mm) and one or more helical-shaped bearing plates (discs) shop-welded to the shaft. The helical plates are 8, 10, 12 or 14 inches (203, 254, 305 or 356 mm) in diameter, and are cut from $^{1}/_{2}$-inch-thick (12.7 mm) steel plate. The helical plates have a 3-inch (76 mm) pitch, which is the distance between the leading and trailing edges. Figure 1 illustrates a typical helical pile assembly. The extensions have shafts similar to the helical lead shaft section, except without helical plates. The helical pile lead shaft and extensions are connected together at the job site by using a steel coupler with bolts shown in Figure 1. The coupler is made from a steel pipe with an outside diameter of 2.75 inches having a nominal wall thickness of $^{3}/_{8}$ inch, that fits into the inside of the two shaft sections so as to provide a through-bolt connection between the two shaft sections.

3.2.2 New Construction Bracket: This bracket, as shown in Figure 2, is shop-welded and is used in new construction where the steel bearing plate of the bracket is cast into the new concrete foundations. The brackets can transfer compression, tension and lateral loads between the pile and the concrete foundation. The new construction bracket is a ¾-inch-thick-by-8-inch-wide-by-8-inch-long (19.1 by 203 by 203 mm) bearing plate shop-welded to a steel sleeve with a 4.5-inch (114 mm) outside diameter and a 0.237-inch nominal wall thickness, which has a $^{13}/_{16}$-inch-diameter (20.6 mm) predrilled hole at the steel pipe sleeve. The bracket is cast into a concrete foundation to provide the effective cover depth and to transfer the applicable forces between the steel bracket and the surrounding concrete. The bracket is field-attached to the helical pile shaft with one ¾-inch-diameter (19.1 mm) through-bolt for resisting tension forces. The top of the helical pile shaft must be fully bearing against the bracket plate.

3.3 Material Specifications:

3.3.1 Helical Plates: The steel plates conform to ASTM A36, with a minimum yield strength of 36 ksi (248 MPa) and a minimum tensile strength of 58 ksi (400 MPa).

3.3.2 Helical Pile Shafts and Extensions: The shafts and extensions are steel round tubes that conform to ASTM A53, Type E, Grade B, except with a minimum yield strength of 64 ksi (441 MPa) and a minimum tensile strength of 71 ksi (489 MPa).

Helical Pile Coupler: The helical pile couplers are carbon steel round tubing that conforms to ASTM

A513,Type 5, Drawn Over a Mandrel (DOM), Grade 1026, except with a minimum yield strength of 84 ksi (578 MPa) and a minimum tensile strength of 94 ksi (647 MPa).

3.3.4 New Construction Brackets:

3.3.4.1 Plates: The steel plates used to fabricate the bracket bearing plates conform to ASTM A36, with a minimum yield strength of 36,000 psi (248 MPa) and a minimum tensile strength of 58,000 psi (400 MPa).

3.3.4.2 Sleeves: The sleeve of the new construction bracket is carbon steel round tubing conforming to ASTM A500, Grade B, with a minimum yield strength of 42,000 psi (290 MPa) and a minimum tensile strength of 58,000 psi (400 MPa).

3.3.5 Bolts and Nuts: The heavy hex structural bolts, used to connect the helical pile lead shaft to the extension shafts or between two extension shafts, and to connect the helical pile shaft to the new construction bracket sleeve, conform to ASTM A354, Grade BD, with a minimum yield strength of 130 ksi (896 MPa) and a minimum tensile strength of 150 ksi (1034 MPa). The matching heavy hex nuts conform to ASTM A563 Grade DH.

4.0 DESIGN AND INSTALLATION

4.1 Design:

Structural calculations and drawings, prepared by a registered design professional, must be submitted to the code official for each project, based on accepted engineering principles, as described in IBC Sections 1604.4 and 1810. The load values (capacities) shown in this report are based on the Allowable Strength Design (ASD) method. The structural analysis must consider all applicable internal forces (shear, bending moments and torsional moments, if applicable) due to applied loads, structural eccentricity and maximum span(s) between helical foundations. The result of the analysis and the structural capacities must be used to select a helical foundation system based on the structural and geotechnical demands. The minimum embedment depth for various loading conditions must be included based on the most stringent requirements of the following: engineering analysis, tested conditions described in this report, site-specific geotechnical investigation report, and site-specific load tests, if applicable. For helical foundation systems subject to combined lateral and axial (compression or tension) loads, the allowable strength of the shaft under combined loads must be determined using the interaction equation prescribed in Chapter H of AISC 360.

A soils investigation report (geotechnical report) must be submitted to the code official as part of the required submittal documents, prescribed in Section 107 of the IBC, at the time of permit application. The geotechnical report must include, but is not limited to, all of the following:

1. A plot showing the location of the soil investigation.
2. A complete record of the soil boring and penetration test logs and soil samples.
3. A record of soil profile.
4. Information on groundwater table, frost depth and corrosion-related parameters, as described in Section 5.5 of this report.
5. Soil properties, including those affecting the design such as support conditions of the piles.
6. Allowable soil bearing pressure.
7. Confirmation of the suitability of helical foundation systems for the specific project.
8. Recommendations for design criteria, including but not limited to, mitigation of effects of differential settlement and varying soil strength; and effects of adjacent loads.
9. Recommended center-to-center spacing of helical pile foundations, if different from spacing noted in Section 5.11 of this report; and reduction of allowable loads due to the group action, if necessary.
10. Field inspection and reporting procedures (to include procedures for verification of the installed bearing capacity, when required).
11. Load test requirements.
12. Any questionable soil characteristics and special design provisions, as necessary.
13. Expected total and differential settlement.
14. The axial compression, axial tension and lateral load soil capacities if values cannot be determined from this evaluation report.

The allowable axial compressive or tensile load of the helical pile system must be based on the least of the following in accordance with IBC Section 1810.3.3.1.9:

- Sum of the areas of the helical bearing plates times the ultimate bearing capacity of the soil or rock comprising the bearing stratum divided by a safety factor of 2. This capacity will be determined by a registered design professional based on site-specific soil conditions.
- Allowable capacity determined from well-documented correlations with installation torque. Section 4.1.4 of this report includes torque correlation factors used to establish pile axial load capacities based on documented correlations.
- Allowable capacity from load tests. This capacity will be determined by a registered design professional for each site-specific condition.
- Allowable axial capacity of pile shaft. Section 4.1.2 of this report includes pile shaft capacities.
- Allowable axial capacity of pile shaft couplings. Section 4.1.2 of this report includes pile shaft coupling capacities.
- Sum of the allowable axial capacity of helical bearing plates affixed to pile. Section 4.1.3 of this report includes helical plate axial capacities.
- Allowable axial capacity of the bracket. Section 4.1.1 of this report includes bracket capacities.

4.1.1 Bracket Capacity: The concrete foundation must be designed and justified to the satisfaction of the code official with due consideration to the eccentricity of applied loads, including reactions provided by the brackets, acting on the concrete foundation, and all applicable limit states. Only localized limit states of supporting concrete foundation, including bearing and punching shear, have been evaluated in this evaluation report. Other limit states are outside the scope of this evaluation report and must be determined by the registered design professional. Reference Table 1 for the allowable bracket capacity ratings.

4.1.2 Pile Shaft Capacity: The top of shafts must be braced as described in IBC Section 1810.2.2 and the supported foundation structures such as concrete footings

and concrete pile caps are assumed to be adequately braced such that the supported foundation structures provide lateral stability for the pile systems. In accordance with IBC Section 1810.2.1, any soil other than fluid soil must be deemed to afford sufficient lateral support to prevent buckling of the systems that are braced, and the unbraced length is defined as the length of piles standing in air, water, or in fluid soils plus an additional 5 feet (1524 mm) when embedded into firm soil or an additional 10 feet (3048 mm) when embedded into soft soil. Firm soils must be defined as any soil with a Standard Penetration Test blow count of five or greater. Soft soils must be defined as any soil with a Standard Penetration Test blow count greater than zero and less than five. Fluid soils must be defined as any soil with a Standard Penetration Test blow count of zero [weight of hammer (WOH) or weight of rods (WOR)]. Standard Penetration Test blow count must be determined in accordance with ASTM D1586. The shaft capacity of the helical foundation systems in air, water, and fluid soils must be determined by a registered design professional. The following are the allowable stress design (ASD) shaft capacities:

- Allowable compression capacity: 60 kips (267 kN) for fully supported piles
- Allowable tension capacity: 47.4 kips (211 kN)
- Allowable bending moment: 4.74 k-ft (6.43 kN-m)
- Allowable lateral shear: 28.3 kips (126 kN)
- Torque rating: 12,500 ft-lb (1667 N-m)

The elastic shortening/lengthening of the pile shaft will be controlled by the strength and section properties of the 3½-inch-diameter (89 mm) shaft sections. The mechanical properties of the shaft sections are shown in Table 2 and can be used to calculate the anticipated settlements due to elastic shortening/lengthening of the pile shaft. The slip of the helical pile coupler is 0.135 inch (3.4 mm) per coupler at rated maximum allowable compression or tension load.

4.1.3 Helical Plate Capacity: Up to four helix plates can be placed on a single helical pile. The helix plates are spaced three times the diameter of the lowest plate apart starting at the toe of the lead section. For helical piles with more than one helix, the allowable helix capacity for the helical pile foundation systems supporting axial compression and tension loads may be taken as the sum of the least allowable capacity of each individual helix. The helical plate ASD axial capacities are the following:

- 8-inch (203 mm) diameter: ±47,355 lbf (211 kPa)
- 10-inch (254 mm) diameter: ±47,172 lbf (210 kPa)
- 12-inch (305 mm) diameter: ±39,890 lbf (177 kPa)
- 14-inch (355 mm) diameter: ±39,472 lbf (176 kPa)

± applies to axial tension or compressive loading

4.1.4 Soil Capacity: The allowable axial compressive or tensile soils capacity of helical piles must be determined by a registered design professional in accordance with a site-specific geotechnical report, as described in Section 4.1.1, combined with the individual helix bearing method (Method 1), or from field loading tests conducted under the supervision of a registered design professional (Method 2). For either Method 1 or Method 2, the predicted axial load capacities must be confirmed during the site-specific production installation, such that the axial load capacities predicted by the torque correlation method are equal to or greater than what is predicted by Method 1 or 2, described above. The individual bearing method is determined as the sum of the individual areas of the helical bearing plates times the ultimate bearing capacity of the soil or rock comprising the bearing stratum. The design allowable axial load must be determined by dividing the total ultimate axial load capacity predicted by either Method 1 or 2, above, divided by a safety factor of at least 2. The torque correlation method must be used to predict the ultimate capacity (Q_{ult}) of the pile and the minimum installation torque (Equation 1). A factor of safety of 2 must be applied to the ultimate capacity to determine the allowable soil capacity (Q_{all}) of the pile (Equation 2).

$$Q_{ult} = K_t\, T \qquad \text{(Equation 1)}$$

$$Q_{all} = 0.5\, Q_{ult} \qquad \text{(Equation 2)}$$

where:

K_t = Torque correlation factor of 7 ft^{-1} (22.9 m^{-1}) for 3½-inch-diameter (89 mm) pile.

T = Final installation torque in ft-lbf or N-m. The final installation torque is defined as the last torque reading taken during the pile installation, using the torque reading instruments connected to the installation equipment.

The axial tension soil capacity of the 3½-inch-diameter pile must not exceed an ultimate axial tension capacity of 80.8 kips (360 kN) and a maximum allowable axial tension load of 40.4 kips (180 kN).

The allowable lateral soil capacity of the pile is 2.54 kips (11.3 kN) based on field testing of the 3½-inch-diameter helical pile with a single 8-inch-diameter (203 mm) helix plate installed in a firm clay soil, having an average standard penetration test blow count of 20 blows per foot, at a minimum embedment of 15 feet (4.57 m). For soil conditions other than firm clay, the lateral capacity of the pile must be determined by a registered design professional.

4.2 Installation:

The Geotech Enterprises Helical Pile Foundation Systems must be installed by trained pile installers approved by Geotech Enterprises. The Geotech Enterprises helical pile foundation systems must be installed in accordance with this section (Section 4.2), the manufacturer's installation instructions, IBC Section 1810.4.11 and site-specific approved construction documents. In case of a conflict, the most stringent requirement governs. For tension application, the helical pile must be installed such that the minimum depth from the ground surface to the uppermost helix is 12*D*, where *D* is the diameter of the largest helix. All field-cut or drilled pilings must be protected from corrosion as recommended by the registered design professional and approved by the code official.

4.2.1 Helical Pile Installation with New Construction Bracket: The installation of the bracket to support cast-in-place concrete foundations must be in accordance with the site-specific construction documents and calculations prepared by a registered design professional. Installation must conform to the geotechnical engineering reports and this evaluation report.

4.3 Special Inspection:

Continuous special inspection in accordance with 2012 IBC Section 1705.9 (2009 IBC Section 1704.10) is required for installation of the Geotech Enterprises Helical Pile foundation system. Where on-site welding is required,

special inspection in accordance with 2012 IBC Section 1705.2 (2009 IBC Section 1704.3) is required. Items to be confirmed by the special inspector must include, but are not necessarily limited to, the following:

1. Verification of the product manufacturer.
2. Verification of product types, configurations and identification (including model numbers) for helical pile shaft sections, extensions, brackets, bolts and torque as specified in this report and the construction documents.
3. Installation procedures for helical pile shaft and brackets as indicated in this report and the Geotech Enterprises installation instructions.
4. Anticipated and actual piling depth.
5. Required target installation torque of piles and depth of the helical foundation system.
6. Inclination and position of helical piles; hub of pile extension in full contact with bracket; tightness of all bolts; and evidence that the helical pile foundation systems are installed by an approved Geotech Enterprises installer.
7. Compliance of installation with the approved geotechnical report and construction documents and this evaluation report.

5.0 CONDITIONS OF USE

The Geotech Enterprises Helical Pile Foundation Systems described in this report comply with, or are suitable alternatives to what is specified in, those codes indicated in Section 1.0 of this report, subject to the following conditions:

5.1 The foundation systems are manufactured, identified and installed in accordance with this report, the approved construction documents and the manufacturer's published installation instructions, which must be available at the jobsite at all times during installation. In the event of a conflict between this report, the approved construction documents and the manufacturer's published installation instructions, the most restrictive governs.

5.2 Helical pile systems have been evaluated to support structures in Seismic Design Categories (SDCs) A, B and C. Use of the systems to support structures assigned to SDC D, E or F, or which are located in Site Class E or F, are outside the scope of this report and are subject to the approval of the building official, based upon submission of a design in accordance with the code by a registered design professional.

5.3 Installation of the helical pile systems must be limited to support of uncracked normal-weight concrete, as determined in accordance with the applicable code.

5.4 The new construction bracket must be used only to support structures that are laterally braced as defined in IBC Section 1810.2.2.

5.5 The helical pile must not be used in conditions that are indicative of a potential pile corrosion situation as defined by the following: (1) soil resistivity of less than 1000 ohm-cm; (2) soil pH less than 5.5; (3) soils with high organic content; (4) soil sulfate concentrations greater than 1000 ppm; (5) soils located in landfills; or (6) soil containing mine waste.

5.6 Zinc-coated steel and bare steel components must not be combined in the same system. All helical foundation components must be galvanically isolated from concrete reinforcing steel, building structural steel, or any other metal building components.

5.7 The helical piles must be installed vertically into the ground with a maximum allowable angle of inclination of 1 degree. To comply with the requirements found in IBC Section 1810.3.1.3, the superstructure must be designed to resist the effects of helical pile mislocation.

5.8 Special inspection is provided in accordance with Section 4.3 of this report.

5.9 Engineering calculations and drawings, in accordance with recognized engineering principles and design parameters as described in IBC Section 1604.4, and in compliance with Section 4.1 of this report, are prepared by a registered design professional and approved by the building official.

5.10 A soils investigation for each project site must be provided to the building official for approval in accordance with Section 4.1.1 of this report.

5.11 In order to avoid group efficiency effects, an analysis prepared by a registered design professional must be submitted where the center-to-center spacing of axially loaded helical piles is less than three times the diameter of the largest helix plate at the depth of bearing. An analysis prepared by a registered design professional must also be submitted where the center-to-center spacing of laterally loaded helical piles is less than eight times the least horizontal dimension of the pile shaft at the ground surface. For laterally loaded piles, spacing between helical plates must not be less than 3*D*, where *D* is the diameter of the largest helical plate measured from the edge of the helical plate to the edge of the helical plate of the adjacent helical pile; or 4*D*, where the spacing is measured from the center-to-center of the adjacent helical pile plates.

5.12 Connection of the new construction bracket as it relates to seismic forces and the provisions found in IBC Section 1810.3.11.1 for buildings assigned to Seismic Design Category (SDC) C, and with IBC Section 1810.3.6 for all buildings, is outside the scope of this evaluation report. Compliance must be addressed by the registered design professional for each site, and the work of the design professional is subject to approval by the code official.

5.13 When using the alternative basis load combinations prescribed in IBC Section 1605.3.2, the allowable stress increases permitted by material chapters of the IBC or the referenced standards are prohibited.

5.14 Settlement of the helical pile is outside the scope of this evaluation report and must be determined by a registered design professional as required in IBC Section 1810.2.3.

5.15 The Geotech Enterprises Helical Pile Foundation Systems are manufactured in Long Island City, New York, under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Helical Pile Systems and Devices (AC358), dated June 2013.

7.0 IDENTIFICATION

The Geotech Enterprises Helical Pile Foundation System components described in this report are identified by a tag or label bearing the name and address of Geotech Enterprises, Inc., a product description, and the evaluation report number (ESR-3623).

TABLE 1—NEW CONSTRUCTION BRACKET ALLOWABLE LOAD CAPACITIES (kips)

COMPRESSION[1]	TENSION[2]	LATERAL[3]
60	18.3	1.43

For **SI:** 1 kip = 1000 lbf = 4.45 kN.

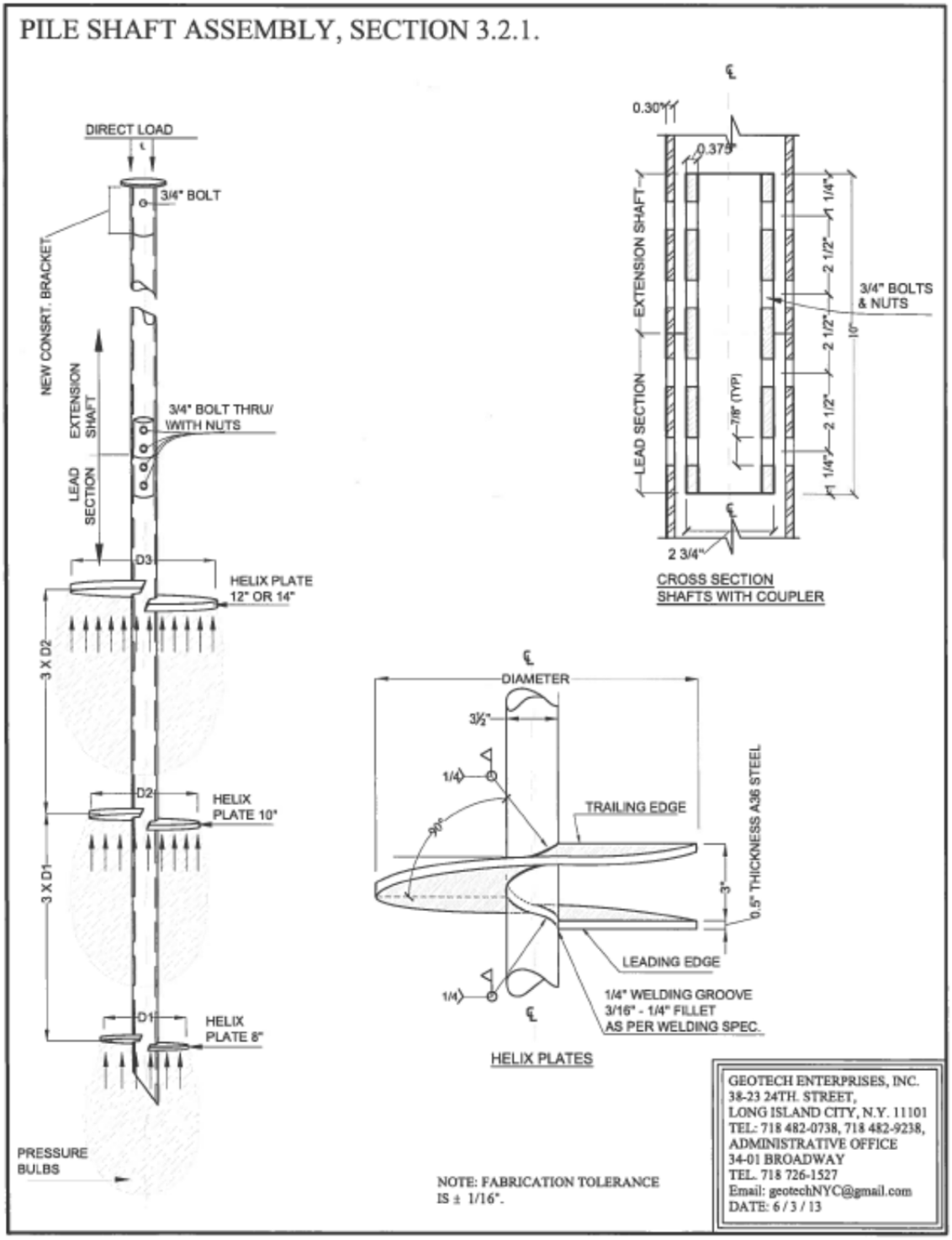
[1]The allowable compressive load capacity is based only on the mechanical strength of the steel bracket. End of helical pile shaft must be fully bearing on bracket plate. Capacity of bracket related to interaction between bracket and its surrounding concrete must be determined by a registered design professional in accordance with ACI 318.
[2]The allowable tensile load capacity is based only on the mechanical strength of the steel bracket using one ¾-inch through bolt as described in Section 3.3.5 of this report. Capacity of bracket related to interaction between bracket and its surrounding concrete must be determined by a registered design professional in accordance with ACI 318.
[3]The allowable lateral capacity is based on limit states associated with mechanical steel strength, concrete breakout and concrete pryout in accordance with Appendix D of ACI 318, and bracket bearing on unreinforced concrete in accordance with Chapter 22 of ACI 318. The bracket must be installed with a minimum embedment depth of 4 inches measured from the bottom edge of the bracket plate, a minimum edge distance of 4 inches, and a minimum of 10 inches of concrete cover measured from the top of the bracket plate. The concrete footing must have a minimum width of 16 inches and a minimum depth of 14 inches, and must be normal-weight concrete having a minimum compressive strength of 3000 psi.
[4]The capacities listed in Table 1 assume the structure is sidesway braced per IBC Section 1810.2.2 (see Section 4.1.2 of this report).

TABLE 2—MECHANICAL PROPERTIES AFTER CORROSION LOSS[1] OF 3.5-INCH-DIAMETER HELICAL PILE SHAFT

PARAMETER	VALUE
Steel yield strength, F_y	64 ksi
Steel ultimate strength, F_u	71 ksi
Modulus of Elasticity, E	29,000 ksi
Design wall thickness	0.243 inch
Outside diameter	3.464 inches
Inside diameter	2.978 inches
Cross-sectional area	2.46 inches^2
Moment of Inertia, I	3.21 inches^4
Radius of Gyration, r	1.14 inches
Section Modulus, S	1.85 inches^3
Plastic Section Modulus, Z	2.53 inches^3

For SI: 1 inch= 25.4 mm; 1 ksi= 6.89 MPa.

[1]Dimensional properties are based on bare steel losing 0.036 inch steel thickness as indicated in Section 3.9 of AC358 for a 50-year service life.


PILE SHAFT ASSEMBLY, SECTION 3.2.1.
DIRECT LOAD
3/4" BOLT
NEW CONSRT. BRACKET
EXTENSION SHAFT
LEAD SECTION
3/4" BOLT THRU/ WITH NUTS
D3
HELIX PLATE 12" OR 14"
3 X D2
D2
HELIX PLATE 10"
3 X D1
D1
HELIX PLATE 8"
PRESSURE BULBS
0.30"
0.375"
EXTENSION SHAFT
LEAD SECTION
1/4"
2 1/2"
2 1/2"
2 1/2"
1/4"
3/4" BOLTS & NUTS
10'
7/8" (TYP)
2 3/4"
CROSS SECTION SHAFTS WITH COUPLER
DIAMETER
3½"
1/4
TRAILING EDGE
90°
3"
0.5" THICKNESS A36 STEEL
LEADING EDGE
1/4
1/4" WELDING GROOVE
3/16" - 1/4" FILLET
AS PER WELDING SPEC.
HELIX PLATES
NOTE: FABRICATION TOLERANCE IS ± 1/16".
GEOTECH ENTERPRISES, INC.
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Email: geotechNYC@gmail.com
DATE: 6 / 3 / 13

FIGURE 1

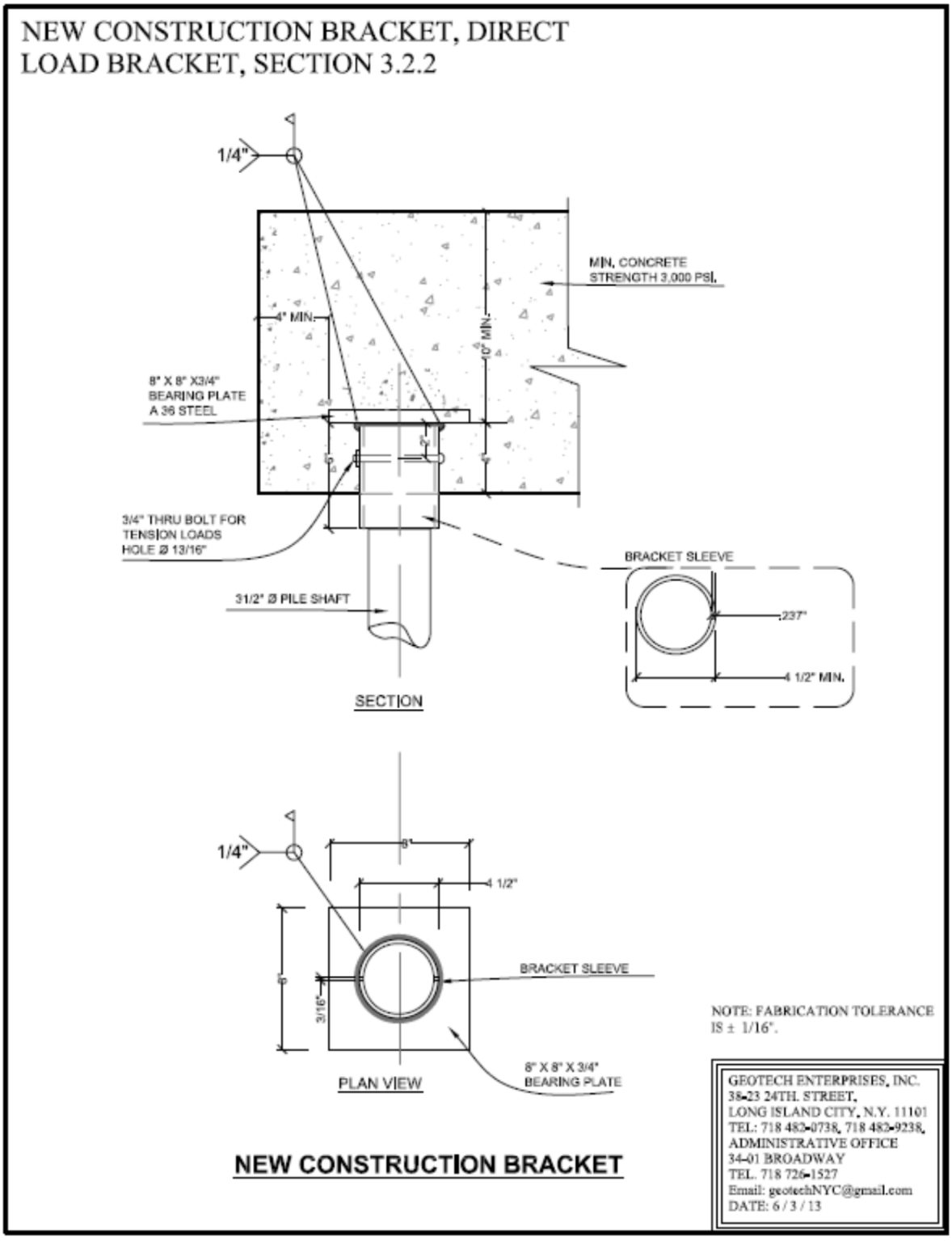
NEW CONSTRUCTION BRACKET, DIRECT LOAD BRACKET, SECTION 3.2.2
1/4"
MIN. CONCRETE STRENGTH 3,000 PSI.
4" MIN.
10" MIN.
8" X 8" X3/4" BEARING PLATE A 36 STEEL
3/4" THRU BOLT FOR TENSION LOADS HOLE Ø 13/16"
BRACKET SLEEVE
31/2" Ø PILE SHAFT
.237"
4 1/2" MIN.
SECTION
1/4"
8"
4 1/2"
6"
3/16"
BRACKET SLEEVE
8" X 8" X 3/4" BEARING PLATE
PLAN VIEW
NOTE: FABRICATION TOLERANCE IS ± 1/16".
NEW CONSTRUCTION BRACKET
GEOTECH ENTERPRISES, INC.
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FIGURE 2

ICC-ES Evaluation Report

ESR-3623 FBC Supplement

Issued April 2015

This report is subject to renewal April 2016.

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DIVISION: 31 00 00—EARTHWORK
Section: 31 63 00—Bored Piles

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EVALUATION SUBJECT:

GEOTECH ENTERPRISES HELICAL PILE FOUNDATION SYSTEMS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the Geotech Enterprises Helical Pile Foundation Systems, recognized in ICC-ES master report ESR-3623, have also been evaluated for compliance with the code noted below.

Applicable code edition:

2010 *Florida Building Code—Building*

2.0 CONCLUSIONS

The Geotech Enterprises Helical Pile Foundation Systems, described in Sections 2.0 through 7.0 of the master evaluation report ESR-3623, comply with the 2010 *Florida Building Code—Building*, provided the design and installation are in accordance with the *International Building Code®* provisions noted in the master report and the following conditions apply:

- Design wind loads must be based on Section 1609 of the 2010 *Florida Building Code—Building*.
- Load combinations must be in accordance with Section 1605.2 or Section 1605.3 of the 2010 *Florida Building Code—Building*, as applicable.

Use of the Geotech Enterprises Helical Pile Foundation Systems for compliance with the High-Velocity Hurricane Zone provisions of the 2010 *Florida Building Code—Building* has not been evaluated, and is outside the scope of this evaluation report.

For products falling under Florida Rule 9N-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the master report issued April 2015.