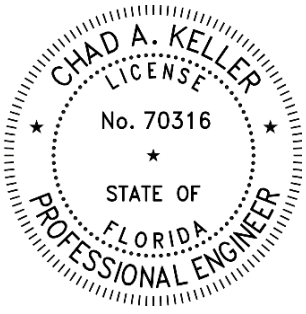
Date: December 28, 2023
Project: Wright Residence
Address: 185 SW Woodleaf Ct
Lake City, FL 32024

Helical Pier Foundation Support System Analysis

This report is prepared for Alpha Foundation Specialists (contractor) by FDN Engineering (engineer). Helical piers are proposed for installation at the above referenced project. The foundation support system is intended to stabilize and potentially lift the existing foundation structure – reducing pressure on existing soils. Load requirements for the helical piers were calculated at areas identified by the contractor. See page 2 for engineering analysis assumptions and results. See page 3 for details for the helical pier foundation supports. See page 4 for a layout of the supports proposed by contractor on a footprint of the structure.

To the best of my professional knowledge and belief, the design of the helical pier support system meets the structural requirements of the 2020 Florida Building Code, Seventh Edition to the extent that it applies to our scope of work. The helical pier foundation support system is a supplemental stabilization system to the existing structure.

Upon completion of foundation support system, the contractor shall supply engineer a log of the installed locations, depth, and final torque of the helical piers. Engineer will evaluate the log and prepare a letter of completion for closeout, if necessary.



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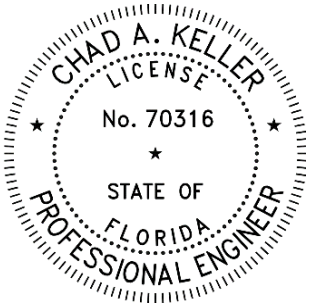
FDN Engineering, LLC
2412 N 179th St.
Omaha, NE 68116
(402) 739-9642

Helical Pier Project Assumptions (contractor to confirm assumptions):

1. Structure is one-story, residential with wood-framed floor & stucco walls.
2. Contractor will install helical piers, brackets, and all related components per the support manufacturer's current installation instructions and technical manual, and according to the latest ICC-ES AC358 and ESR-3533.
3. Helical piers shall have a center-to-center spacing at the helix depth of at least three (3) times the diameter of the largest helix plate.
4. Pier is not installed in recently backfilled sites, in bedrock soils, or where there is possible sinkhole activity. Notify engineer if foundation is cracked between piers.
5. When the product is installed in a soil where the conditions are considered corrosive to steel, adequate protection to the exposed steel must be provided.
6. The capacity of the existing foundation and supported structure has not been checked and is assumed to be adequate to transfer the design loads to the helical pier support system.
7. Where voids are created below slab during lifting, fill with Poly. (Compacted soils at footing.)

Helical Pier Analysis Notes and Results:

8. All design loads are based on guidance from the applicable building code.
9. Helical piers are designed to support axial compression load only.
10. Maximum, worst-case, total load on a helical pier is **11,200 lbs** (allowable stress combinations).
11. We recommend installation of piers with a 2-7/8" diameter shaft (GTRDS2875) with 8" and 10" diameter (minimum) helix plates.
12. Minimum helical pier tip depth is 8 ft.
13. An installation torque of **2,500 ft-lbs** should be applied to achieve an allowable capacity greater than the total load.
14. Do not place pier directly under door or window (near footing). Contact engineer if condition exists.
15. Helical pier spacing along the foundation shall not exceed 6'-0" O.C. and 2-ft from a corner, typ.
16. A factor of safety of 2.0 is typically used to calculate the allowable soil bearing capacity. Geotechnical testing information was not provided for this design.



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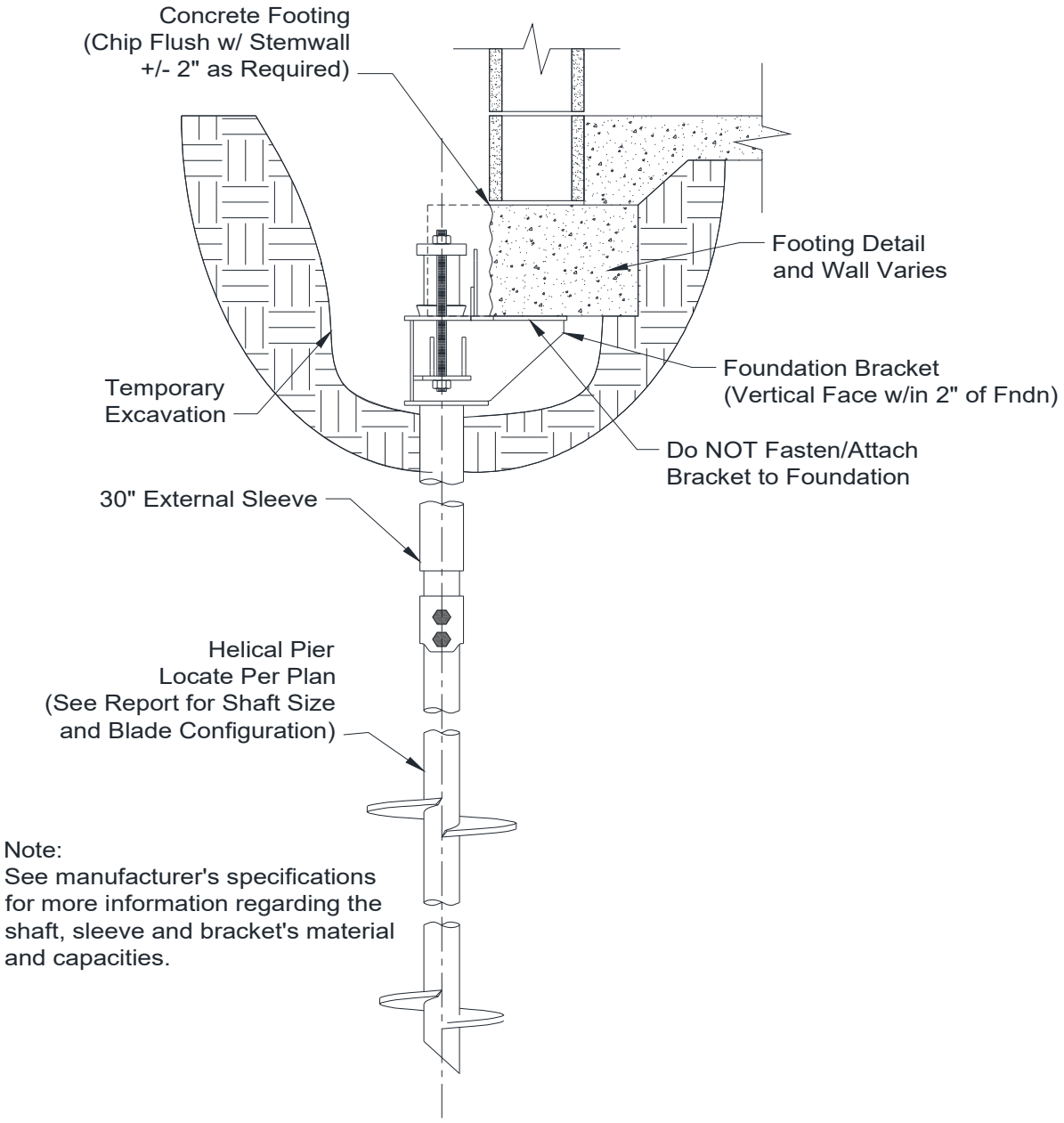
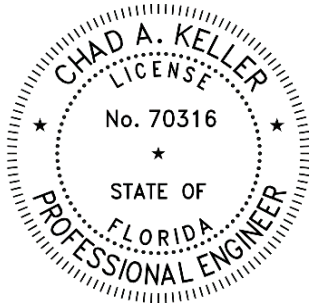


HELICAL PIER TO FOOTING DETAIL



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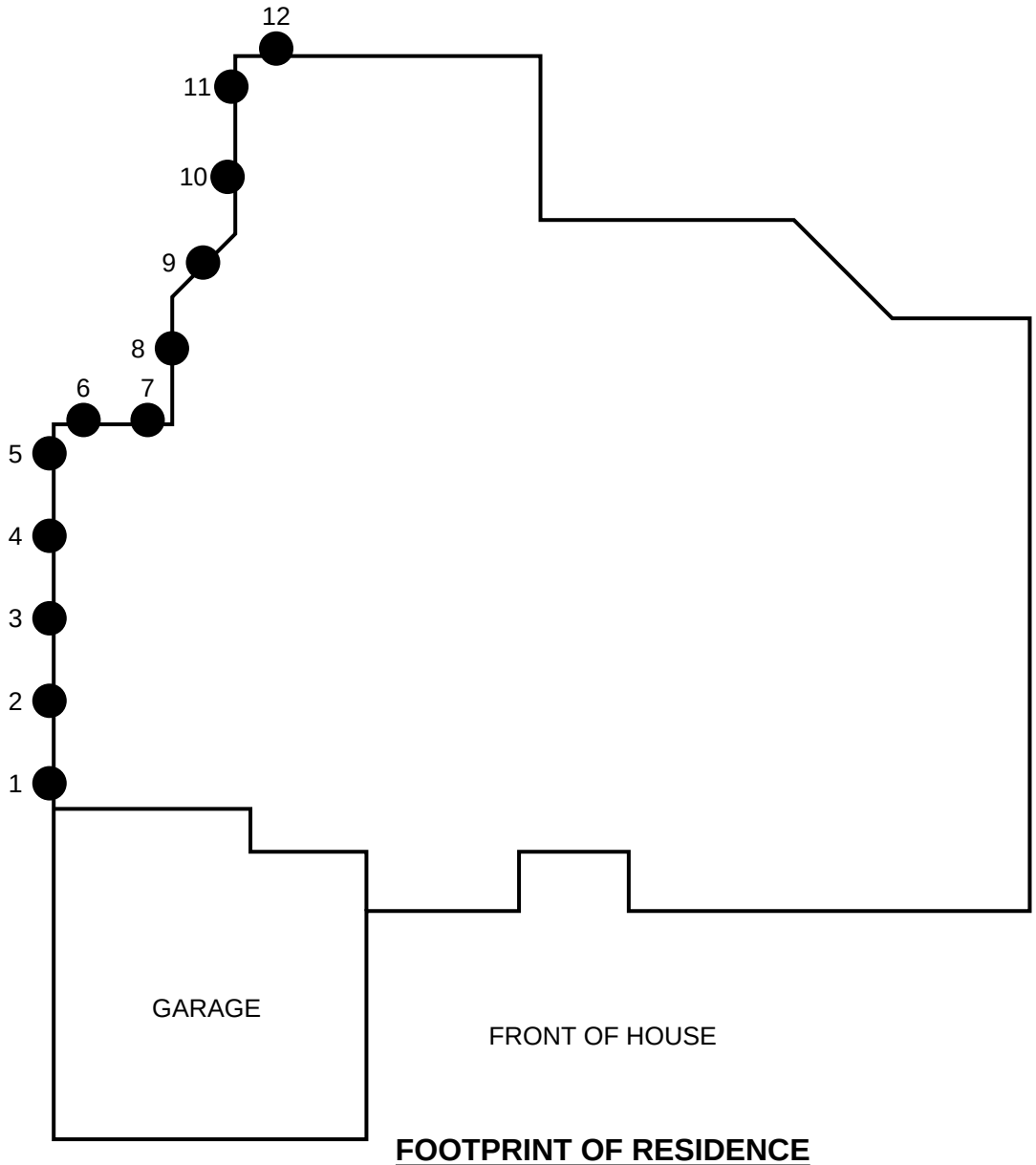
Helical Pier Notes:

1. Residential construction, one-story.
2. Layout of (12) Helical Piers, GTRDS2875 for foundation support - 8'-0'' min depth.
3. Installation torque of **2,500 ft-lbs.**
4. Pier max spacing is 6'-0", UNO. Start 2' from corners.
5. Install per helical pier manufacturer's instructions and technical specifications.
6. Recommended to use spreader beams when pier is placed below an opening near ftg.
7. Notify engineer if design assumptions are discovered inaccurate.

LEGEND:

● Indicates Helical Pier and Mark Number



FOOTPRINT OF RESIDENCE

DRAWING NOT TO SCALE

Project:

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CHAD A. KELLER LICENSE No. 70316 STATE OF FLORIDA PROFESSIONAL ENGINEER

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