

Date: October 8, 2018

Attention: Perma-Pier Foundation Repair of Texas and Property Owner (via email)

Subject: Post-Repair Foundation Repair Evaluation
Pier and Beam Foundation
3505 Royal Ln, Dallas, TX 75229

Good Afternoon:

Perma-Pier Foundation Repair of Texas (the contractor) retained Crosstown Engineering (CE) to evaluate the foundation in conjunction with foundation repairs implemented.

This report provides our reasonable professional opinion of the condition of the foundation on the date of our inspection and does not take into consideration any changes in the condition of the foundation or soils after that date.

Scope of Work Limitations:

This report is for informational purposes only and is not intended to provide a detailed inventory of defects or a technical evaluation of the property. The inspection excludes the framed superstructure, detached buildings, privacy or retaining walls, general site drainage away from the structure, material and soil sampling/testing, and verification of concrete reinforcement or knowledge of the location of interior grade beams, boxed structural members not in plain sight or previous repair work. Removal of floor coverings or performance of invasive tests or procedures is not included. Some areas of the crawlspace were inaccessible at the time of inspection and thus a full visual inspection was limited to the areas observed.

Document Review:

The contractor provided a pre-installation limited repair plan. No other information was provided regarding prior engineering reports, recommendations for foundation repairs or construction documents relative to this structure. If existing piers are shown in the limited repair plan, their locations were provided by the client and are approximated. We do not certify their performance or existence. If the reader would like to determine if they are present, they must contact the owner or contractor to obtain an engineering certificate for them.

General Observations:

For the purposes of this report directions will be described using the terms left, right, front, and back with the front referring to the side of the structure indicated on the limited repair plan.

The structure is one story tall with a pier and beam foundation. The primary structural system of the structure is a wood framed system with exterior brick veneer, exterior wood siding, exterior vinyl siding and interior drywall with various finishes. The foundation was not exposed during our inspection.

Grading, Drainage, Erosion and Vegetation Observations:

The terrain immediately surrounding the structure was visually observed during the inspection. We observed the following:

- The gutter system is adequate.
- The drainage system is adequate.
- The terrain is landscaped with grass, several trees, and some shrubbery. Some trees and/or shrubs are close to the foundation.

Floor Elevation Discussion:

A relative elevation floor survey was performed using a Zipllevel Pro-2000B to map the surface topography of the floor of the living area and garage (if present). The floor plans and the elevations are illustrated in the attached relative elevation map. The elevations were adjusted based on the flooring type encountered to be on the same plane as the base point floor type. If a garage was present, the garage ceiling was measured and adjusted to be on the same plane as the foundation. Garage floors are designed to slope and are not as effective in measuring foundation movement.

Visual Observations:

Based on our observations of the structure and a review of the limited repair plan provided by the contractor, the structure has experienced general foundation movement over the life of the structure, resulting in differential movement within the pier and beam structure. Brick cracks, drywall cracks, ceiling cracks, foundation cracks, window separations, frieze board separations, and trim separations were observed.

Foundation Repair Details:

Perma-Pier Foundation Repair of Texas performed the following in the approximate location of the structure as indicated on the pre-repair reports:

- Installed 11 total pilings (6 exterior, 5 breakouts)
- Installed 20 LF of sill plate.
- Reset/re-shimmed the entire front beam with steel to improve leveling.

The purpose of the installation was to provide support and mitigate downward movement in the areas of the installation. The foundation repairs meet or exceed industry engineering standards.

To the best of our knowledge, the contractor has performed the limited repairs in substantial conformance with their provided limited repair plan and our initial report dated 7/30/18, including any approved changes.

Maintenance Opportunities:

We recommend post-lift plumbing tests be performed on the sewer and potable plumbing lines and any leak be immediately repaired. The results of the tests should be provided to our office.

Maintaining a fully functioning gutter system will minimize ponding, soil loss and erosion, and will help control seasonal movement near the foundation. The gutter system should direct storm-water discharge away from the foundation through downspouts to a well-drained area that is graded away from the foundation. Optimally, we recommend the gutter system discharge via in-ground solid pipe to a low-lying area far away from the foundation.

Vegetation maintenance and a foundation and yard-watering program will also help control seasonal movement. Maintaining consistent moisture levels in supporting soils at all times of the year is necessary. It is important that the soils be stabilized and maintained with grass or ground cover around the perimeter of the structure to prevent erosion and an exposed or improperly embedded foundation. Large to medium-sized trees, and even large or numerous shrubs, growing too close to a foundation can dramatically effect the moisture content of the soils within the zone of influence beneath the structure. Root systems extract large quantities of water from underlying soils and result in large volumetric changes in the soils (shrinkage). As the tree absorbs water from the soil and the soil volume decreases, the foundation will settle in unsupported. If problematic roots are observed, we recommend removal or installation of tree root barriers.

Grading of the soils around the foundation is a critical element to your foundations health. Sloping the soils away from the home and preventing water from ponding near the foundation is needed to prevent soil "heave". If ponding is noticed near the foundation during the rainy season, consult with an engineer or a drainage contractor immediately. Over-saturated soils can cause "heave" or settlement and contribute to foundation movement.

Expectations of the Limited Foundation Repairs:

This limited repair plan is intended to provide a reasonable repair to improve the performance of the foundation and is not intended to level the foundation. The contractor determined the amount of elevation correction needed based on the reaction of the structure during the lift in order to minimize damages and additional stress. Because the structure has endured pre-repair foundation differential movement, residual differential elevation and other cosmetic issues may remain following the foundation limited repairs, such as interior and exterior wall distress, door sticking, and doorway leaning. In addition, complete leveling of the foundation should not be expected. Structures are often built out of level and fully leveling structures is often not economically reasonable and may cause more damage than not. The soils beneath and surrounding the structure are known to shrink and swell as the seasonal soil moisture content fluctuates. Moving forward, we anticipate that some cracks in the interior and exterior walls will surface due to seasonal movement within the soils, even after foundation repair. Periodic repair of this type of cracking will be required.

Disclaimer:



We do not warrant the future performance of the subject foundation and the reader is urged to review the Disclosure & Disclaimer for other limitations and standard recommendations. The limit of liability is limited to the fee paid for this opinion. No further agreement shall be made, altered, or varied except by written instrument.

The above referenced inspection was to document the repairs implemented by the contractor. Neither Crosstown Engineering, its sub-consultants, nor Adam Green, P.E., are responsible for liability to the owner or others for acts or omissions of the contractor to carry out the repairs in accordance with their agreement or for the construction means, methods, techniques, sequences, procedures or the safety precautions incident thereto. The contractor is solely responsible for the warranty of the work they performed in accordance with their agreement. Thank you for choosing us to evaluate your foundation.

Sincerely,

Crosstown Land Development Services
Texas Engineering Firm (F-15944)

Adam Green, P.E., MBA
Professional Engineer (TX #116597)

10/08/2018

DISCLOSURE & DISCLAIMER

It is known to knowledgeable professional engineers that the soils in this area are subject to movement due to expansion, contraction or densification of the soils etc. This soil movement could possibly cause the foundation to move after the remediation plan within the attached report has been implemented and may impact the stability of the foundation and cause damage.

NO WARRANTY IS EXPRESSED OR IMPLIED BY THIS ENGINEER AS TO THE PERFORMANCE OF THIS FOUNDATION OR THE REPAIRS THERETO. Diligent foundation maintenance to maintain consistent soil conditions along the perimeter should reduce further problems after the recommendations within this report have been implemented. However, seasonal moisture variations, water leaks, erosion and other factors may affect the stability of the foundation and put it in danger of further damage.

REPORT LIMITATIONS

This report is written for informational purposes only and is not intended to be a detailed technical evaluation of the property or an inventory of defects. The opinions expressed in this report are based on a visual evaluation of current conditions observed at the time of the inspection. **THERE IS NO WARRANTY, EXPRESSED OR IMPLIED, CONCERNING THIS ENGINEERING REPORT.**

The information in this report supersedes any verbal comments, expressed or implied, made by Crosstown Land Development Services or its principals, agents or employees. The client agrees that neither CLDS nor its employees or owners will be responsible for:

1. Knowledge of the subsurface conditions without extensive geotechnical data obtained from onsite drilling and testing of the recovered samples,
2. Knowledge of cracks, vertical differential displacement of floors without uncovering of the floor by the client; and
3. Any other element such as joists or beams and other structural members that is boxed or otherwise not readily available to CE for viewing, and releases CE from any liability attributable to such knowledge or conditions.

Any prescribed repair or maintenance plan detailed by this report is based on observations of apparent performance of the facility at the time of this structural survey. Compliance with any code or specification other than as expressly noted is specifically excluded.

The provided Floor Elevation Map and resulting recommendations are based on conditions as they now exist and **DOES NOT IMPLY OR WARRANT THAT OTHER PROBLEMS AND OR AREAS MAY NOT MANIFEST IN THE FUTURE.**

This report was prepared expressly for the client and expressly for the purposes indicated by the client. Permission for use by any other person for any purpose, or by the client for different purpose is denied unless otherwise stated in writing by CE.

CE SHALL HAVE NO LIABILITY FOR ACTS OR OMISSIONS BY THE CONTRACTOR OR HIS SUBCONTRACTORS PERFORMING WORK ON THIS PROJECT, OR THE FAILURE OF THE CONTRACTOR TO PERFORM THE WORK IN ACCORDANCE WITH THE REPAIR PLAN. CE IS NOT RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCE OR PROCEDURES OR THE PRECAUTIONS INCIDENTAL THERETO.

CE expressly **DISCLAIMS ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE** and the client expressly disclaims that it has contracted for or received any warranty of fitness for a particular purpose with respect to this report. **THE REPORT UNDER THIS AGREEMENT IS THE OPINION OF CE AND THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE OF THIS AGREEMENT.**

PermaPier

Foundation Repair of Texas

Dallas/Ft. Worth Service Center
 2821 E. Randol Mill Rd. • Arlington, TX 76011
 (214) 637-1444 • (877)840-9993 • FAX (214) 637-0440

6 / 22 / 18
 Month / Day / Year

STRUCTURE DESCRIPTION

Name _____

3505 Royal Lane Dallas 75229

City Zip

Phone 2 _____

E-mail _____

Veneer:

brick	brick	brick
Front	Back	Sides
pier and beam		1
Foundation Type		Stories

Greg Cole
 Assessor

LEGEND

- Hybrid Pier
- Steel Pier
- Drilled Pier
- Concrete Pressed Pier
- ⊗ Pier w/Breakout
- ⊕ Existing Pier
- ⊙ Sonotube
- Column
- ⊕ Reference Point

- Downspout
- ⊕ Surface Drain/Catch Basin
- ⊕ French Drain
- ▨ Swales
- Water Flow in Drainage
- ↘ Surface Water Flow
- ⊕ Clean-out
- ▭ Concrete Pad
- ▬ Supporting Beams
- Joist / Sill Plate

DISTRESS

- ejs expansion joint separation
- ws window separation
- gd ghost door
- nsd non striking door
- sc slab crack
- gbf grade beam fracture
- ds door separation
- fs fascia separation
- ts trim separation
- src sheet rock crack
- ss stair step brick crack
- hbc horizontal brick crack
- vbc vertical brick crack

SPRINKLER SYSTEM

