

Date: June 30, 2017

Attention: David Schneider (via d.schneider@beverly-oaks.org)

Subject: Standard Initial Foundation Repair Evaluation
Slab Foundation
2023 Wilshire Dr, Irving, TX

Crosstown Engineering (CE) was retained to inspect the subject foundation and to provide an opinion regarding the performance of the foundation. This report has been prepared in accordance with the requirements of a “Level B” survey as defined by the Texas Chapter of the American Society of Civil Engineers and the Texas Board of Professional Engineers.

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. The contents of this report supersede any verbal comments made regarding the structure before, during or after the inspection and this report was prepared for exclusive use of the person or persons this report was prepared for and we do not have any obligation or contractual relationship to any other party other than the party this report was prepared for. Observations for compliance with any code or specification other than those explicitly stated are not included.

Scope of Work:

The subject foundation was visually inspected and a floor elevations survey was performed in areas that were accessible at the time of the inspection. The opinions provided within this report are based on the experience and judgment of the inspector and the information provided at the time of the inspection. This report also gives engineering advice with regard to the best and most economical repair method assuming normally expected subsurface conditions and conventional construction methods. It is known to all educated engineers with knowledge of the active soil supporting the structure that a full repair plan would include the underpinning of the entire structure and is not economically feasible due to the cost vs. benefit and the risk of resulting damages.

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 structure, drainage system or the overall property. The inspection excludes plumbing tests or procedures, verification of previous foundation repairs, 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.

The client or individual ordering this report agree that Crosstown Engineering is not responsible for knowledge of the subsurface conditions without extensive geotechnical investigation including on-site drilling or testing of samples.

The future performance of this foundation cannot be predicted due to variables out of the control of the inspector. Therefore, this report does not predict or warrant the future performance of the subject foundation and the reader is encouraged to read the entire report.

Document Review:

Documents were not provided for review. Documents that provide original structural design drawings, design conditions, or “as-built” drawings or slab elevations at the time of construction were not available at the time of the inspection. Therefore, knowledge of interior grade beam locations or other foundation information is unknown. 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 slab foundation. The primary structural system of the structure is a wood framed system with exterior brick veneer and interior drywall with various finishes. The foundation was exposed during our inspection and was not covered with various floor-covering types.

Guttering, Foundation Watering, Grading, and Vegetation Observations:

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

- Full gutters were not present. Complete downspouts were not present. Downspout extensions do not discharge all roof runoff away from the foundation to well-drained areas.
- A full foundation watering system was not in place.
- The grading on-site was generally flat or sloped away from the structure.
- The terrain is landscaped with grass, several trees, and some shrubbery. Some trees and 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 on the limited repair plan. 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:

Brick cracks, foundation cracks, brick line deflection, and ponding water were observed. Based on our observations of the structure, the structure’s physical damage, and review of the elevation map, we believe the structure has experienced foundation movement over the life of the structure, resulting in differential movement of the slab on grade foundation.

Damage observations were most notable on the back and left sides of the structure and are correlated with floor elevation data.

Foundation Repair Recommendations:

We recommend installing 8 exterior pilings in the approximate locations of the structure as indicated on the limited repair plan. We also recommend installing and maintaining a full guttering system with downspout extensions and a foundation watering system. The purpose of the piling installations is to support the failed areas and improve elevations in areas of differential settlement if possible. Please see the limited repair plan for more information. The foundation repairs are to meet or exceed 2015 IRC.

In order to minimize future movement, maintenance of consistent moisture levels in supporting soils at all times of the year is necessary. Tree root maintenance or removal and a foundation and yard-watering program will help control seasonal movement. 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 exposed or improperly embedded foundations. Maintaining a fully functioning gutter system, which directs storm water discharge through downspouts away from the foundation to a well-drained area, which is graded away from the foundation in order to minimize ponding near the foundation, soil loss and erosion around the foundation, will also help control seasonal movement. Optimally, the gutter system is recommended to discharge via in-ground solid pipe to a low-lying area far away from the 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 and swelling). As the tree absorbs water from the soil the foundation will settle in unsupported areas because the soil volume will decrease. If problematic roots are observed in the future, we recommend removal or installation of tree root barriers.

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. 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 “heaving” of the soils.

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

The fees collected are for this report and inspection only and does not include additional services. Additional engineering services, such as construction compliance inspections, are available at an additional cost and must be made in a timely manner before commencement of repair work. Otherwise, we accept no responsibility for the proper execution of the repairs. Crosstown Engineering will only perform the final inspection if the proper paperwork is provided upon request. The paperwork should include the type of piling installed, the piling installation depth, the final pressure and the final scope of work. If the scope of work is to be altered by the contractor, we must be notified prior to installation.

Expectations of the Limited Foundation Repairs:

The proposed limited repair plan is intended to provide a reasonable plan to improve the performance of the foundation and is not intended to level the foundation. The contractor shall determine 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 foundation movement and framing distress, residual differential elevation and perceptible floor slope or some leaning door frames/windows or other re-occurring damages and noticeable issues may remain following the foundation repairs.

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 may be needed.

Underpins (a.k.a. Pilings or Piers) are constructed of steel or concrete and cost and performance will vary. Generally speaking, the deeper a piling is installed, the better it will perform. Shallow installations may be acceptable if they are terminated into rock. This information is meant to serve as a guideline and the owner must decide a reasonable cost/benefit on the property. Piling design is best done with data from a site-specific soils investigation. Such an investigation was not provided and is not a part of this scope of work but is data we strongly recommend be obtained. If this data is not provided, our pier design is only intended to be a minimum standard based solely upon average soil conditions in the general location of the property and as such, may not necessarily provide maximum performance.

Disclaimer and Disclosure:

It is known to educated 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 has been implemented and may impact the stability of the foundation and cause damage.

We do not warrant the future performance of the subject foundation and the reader is urged to review this entire report. 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. 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.



Neither Crosstown Engineering, its sub-contractors, 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 performed in accordance with their agreement.

Please see the attached specifications and repair plan for more information.

Sincerely,

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

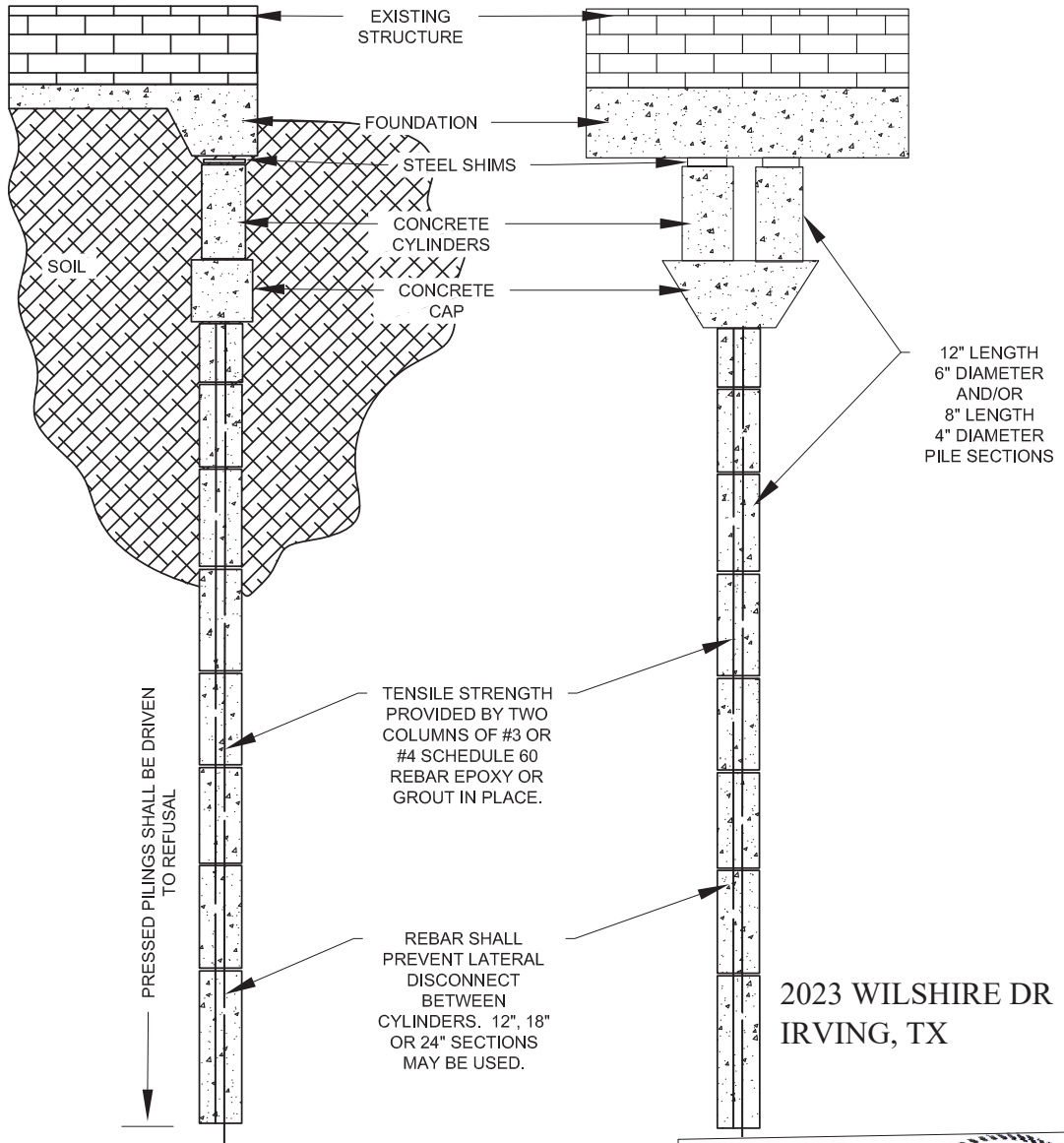
Adam Green, P.E., MBA
Professional Engineer (TX #116597)


6/30/17 

PRESSED PILING SPECIFICATIONS

SIDE VIEW

FRONT VIEW



Adam Green
6/30/17

STATE OF TEXAS
ADAM A. GREEN
116597
LICENSED PROFESSIONAL ENGINEER

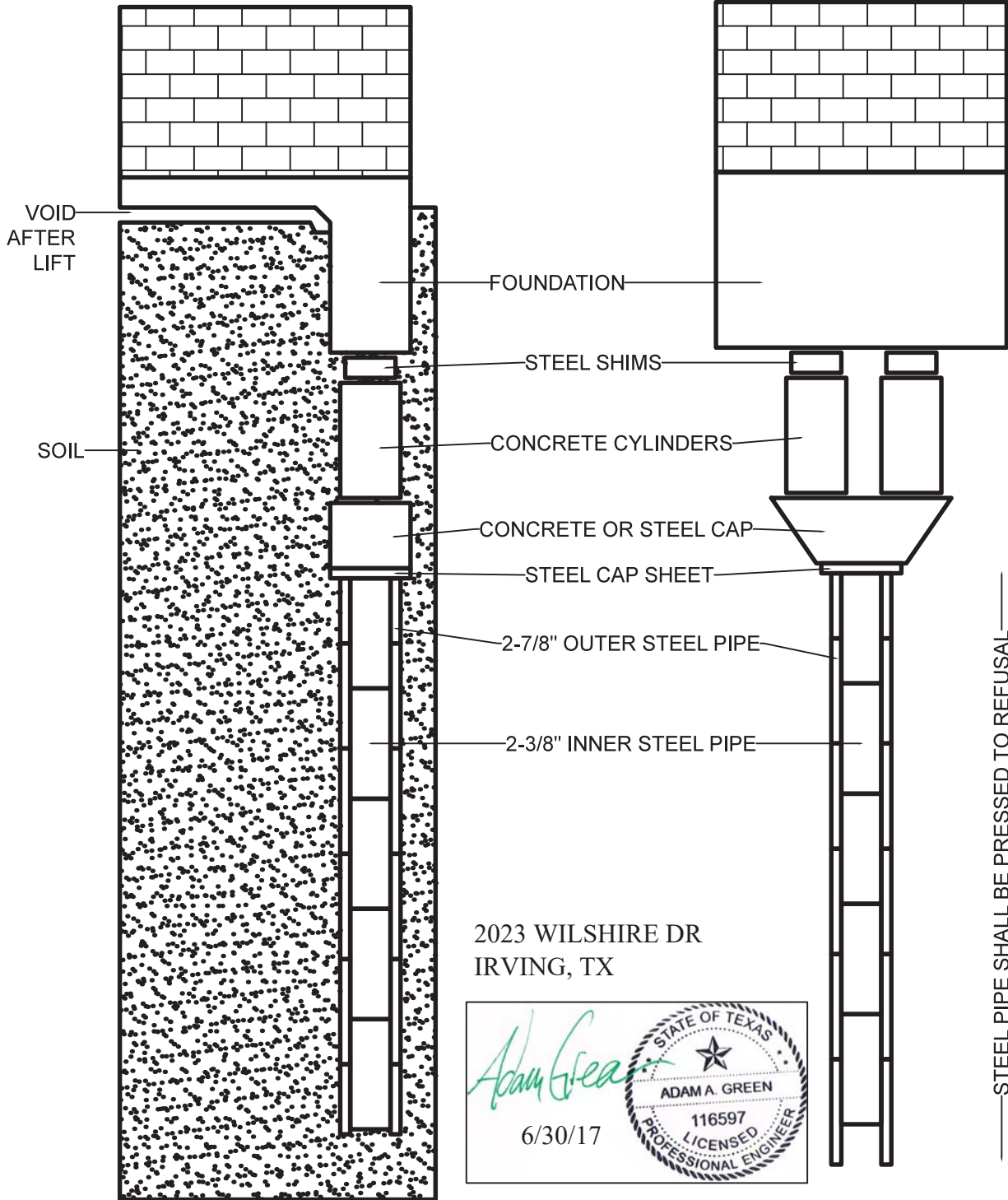


CROSSTOWN ENGINEERING

TBPE FIRM F-15944 - WWW.CROSSTOWNENGINEERING.COM
(469) 751-7694 - DALLAS METROPLEX

FRONT VIEW

SIDE VIEW

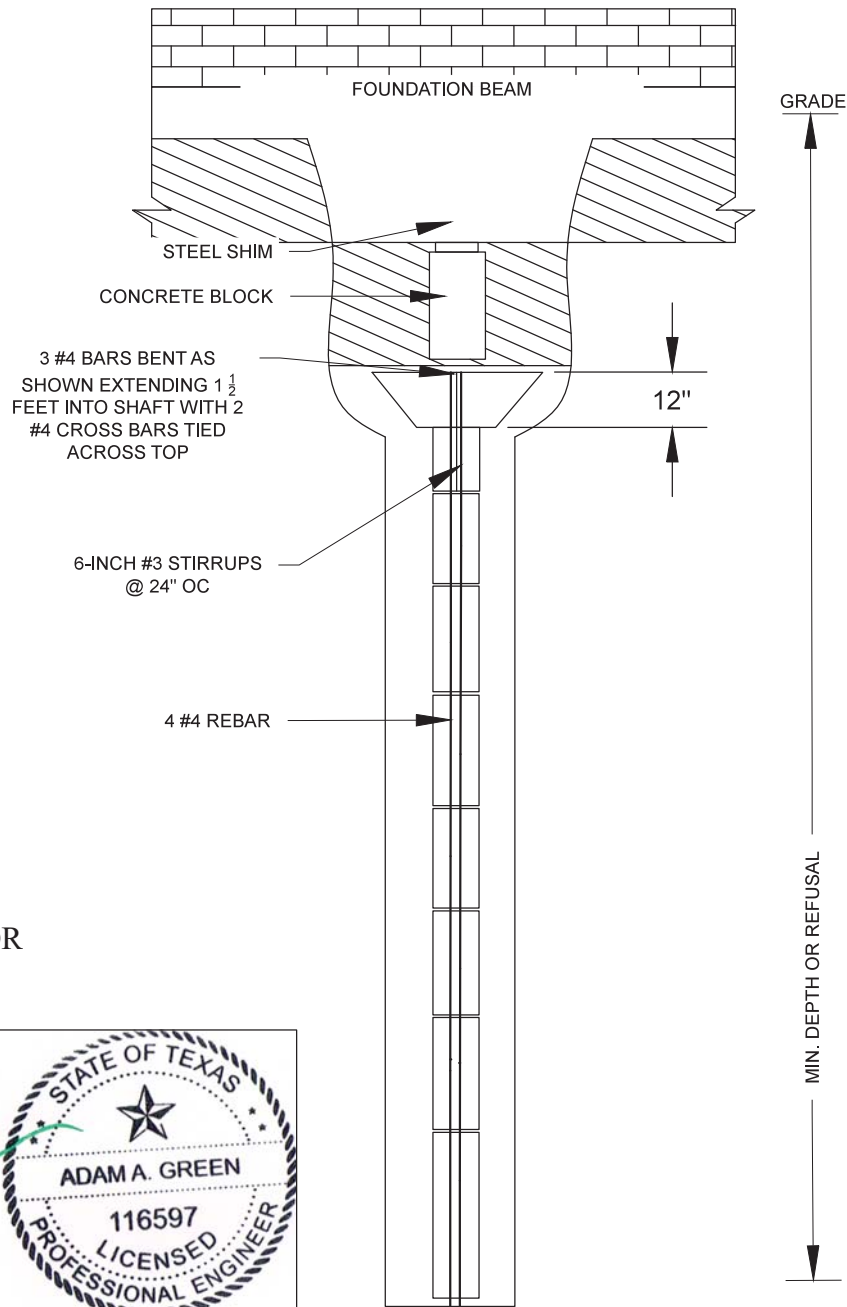


CROSSTOWN ENGINEERING

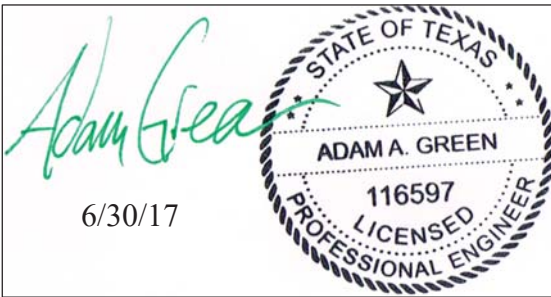
TBPE FIRM F-15944 - WWW.CROSSTOWNENGINEERING.COM
(469) 751-7694 - DALLAS METROPLEX

STEEL PRESSED PILING DIAGRAM

PIER SPECIFICATIONS



2023 WILSHIRE DR
IRVING, TX



DRAWING NOT TO SCALE

Pier depth may be less than specified if refusal occurs or if rock is encountered at a shallower depth. The pier should have a maximum vertical deviation of 8 degrees. All piers shall be poured the same day they are drilled and the pier shafts shall be clean and free of mud, debris, water, or any foreign material. All concrete shall be of hardrock aggregate developing a minimum 28-day compressive strength of at least 3000 psi and will be placed at a maximum slump of five (5) inches. The reinforcing steel, conforming to ASTM A-615, Grade 40, shall extend the full depth of the shaft and shall be firmly secured in place, free of contact with the sides of the hole. After the piers have adequately cured for a minimum of seven (7) days, the foundation shall be leveled to the extent practicable by raising simultaneously at multiple locations with jacks and supported on the piers by cast-in-place columns or solid concrete blocks and steel shims.

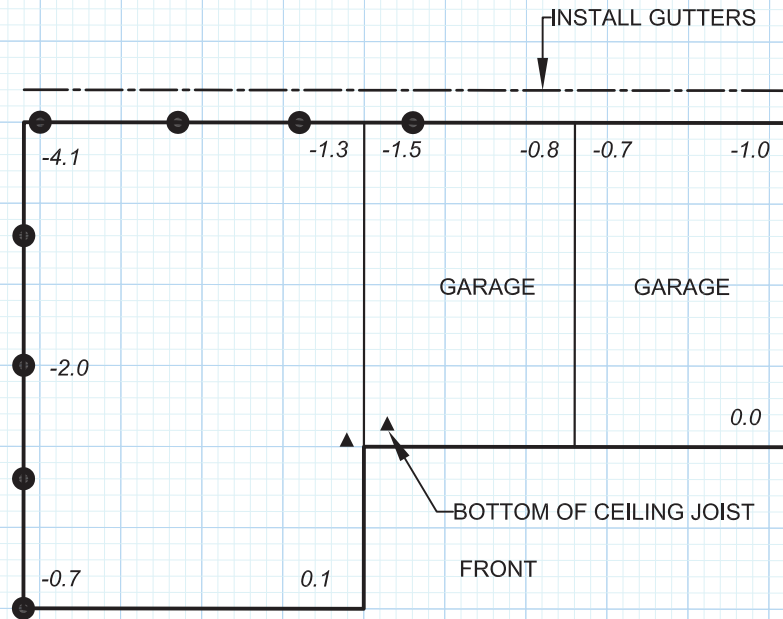


CROSSTOWN ENGINEERING

TBPE FIRM F-15944 - WWW.CROSSTOWNENGINEERING.COM
(469) 751-7694 - DALLAS METROPLEX

CONSTRUCTION NOTE: IF INTERIOR PILING LOCATIONS ARE SHOWN ON THIS MAP THEY ARE APPROXIMATED AND ARE LOCATED WITHOUT KNOWLEDGE OF THE LOCATIONS OF THE INTERIOR GRADE BEAMS. THE CONTRACTOR SHALL MAKE FIELD JUDGEMENTS BASED OFF OF THEIR GRADE BEAM INVESTIGATIONS AND OBSERVED SLAB QUALITIES TO FIELD LOCATE THE FINAL INTERIOR PIER LOCATIONS. FINAL SCOPE CHANGES SHALL BE APPROVED BY THE ENGINEER OF RECORD.

PLEASE NOTE: IF EXISTING PILINGS ARE SHOWN ON THIS MAP, THEIR LOCATION WAS PROVIDED BY THE CLIENT AND IS APPROXIMATE. CE DOES NOT CERTIFY THEIR PERFORMANCE OR EXISTENCE. IF THE READER WOULD LIKE TO DETERMINE IF THEY ARE ACTUALLY PRESENT, THEY MUST CONTACT THE OWNER OR CONTRACTOR TO OBTAIN AN ENGINEERING CERTIFICATE FOR THEM.



INSTALL 8 EXTERIOR PILINGS, FULL GUTTERING SYSTEM W/ DOWNSPOUT EXTENSIONS, FOUNDATION WATERING SYSTEM

LIMITED REPAIR PLAN

NOT TO SCALE - ALL LOCATIONS APPROXIMATE

PRE-LIFT ELEVATIONS BY CE (06.30.17) 0.0

POST-LIFT ELEVATIONS BY CE (_____)

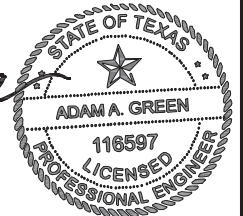
LEGEND

- ▲ ELEVATION BASEPOINT
- PROPOSED BEAM
- EXISTING BEAM
- PROPOSED PAD/BLOCK
- EXISTING PAD/BLOCK
- PROPOSED PIER

- ⊗ EXISTING PIER
- ⊙ PROPOSED BREAKOUT
- ⊗ EXISTING BREAKOUT

Adam Green

6/30/17



CROSSTOWN ENGINEERING
 TBPE FIRM F-15944 - WWW.CROSSTOWNENGINEERING.COM
 (469)-751-7694 - DALLAS METROPLEX

2023 WILSHIRE DR, IRVING, TX