

BEDROCK FOUNDATION REPAIR, LLC (F-10832)

Engineering Division

1018 Fletcher, Dallas, Texas 75223 (972) 261-4711 (800) 880-1811 fax
www.bedrockfoundation.com email: office@bedrockfoundation.com

General Structural Initial Foundation Inspection

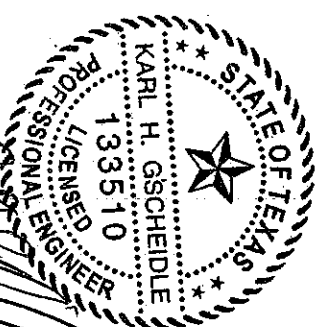
10004 Robin
La Porte, Texas 77571

July 2, 2019

Client:

Chuck Barton
2318 MICLiff
Houston, Texas 77068

Karl H. Gscheidle, P. E.
(214) 824-1211



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9-11-19

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Re: 10004 Robin – La Porte, Texas

The foundation of the structure at 10004 Robin, La Porte, Texas was inspected on July 1, 2019. This is a two story brick siding structure with reinforced concrete perimeter grade beams and a concrete slab type foundation. For orientation purposes the structure faces approximately north.

OBSERVATIONS:

A visual inspection of the foundation included the following observations:

The structure sits on relatively level to sloping terrain. There is a garage on the right front with a front entrance. There is an open slab patio at the back right of the structure. There are no gutters around the structure.

The overall grade of the property appears to flow from the back to front. The grade appears to flow away from the structure on the left, front and right sides of the structure. There grade appears to be flat at the back of the structure.

Exterior:

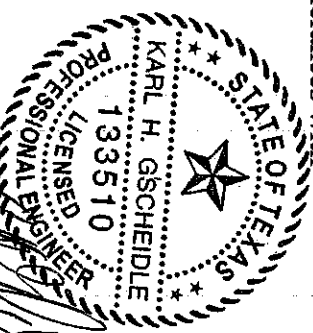
There are cracks in the masonry at the front left corner, between the front door and the garage, at the front right corner, at the back right corner, at the back between the back garage door and the kitchen window and at the back left under the dining room window. There are no current window pulls or other signs of movement around the exterior.

Interior:

There are repaired cracks at the back garage door, the front door and the upstairs bedroom door at the left. A closet door at the upstairs bedroom at the left, the front door and the downstairs half bath doors are out of frame.

Interior floors:

The only area where the floors deflect down exceeding the tolerance of 1/16" per foot is at the front left corner of the structure. Other areas are within tolerances with minimal minor deviations.



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CONCLUSIONS:

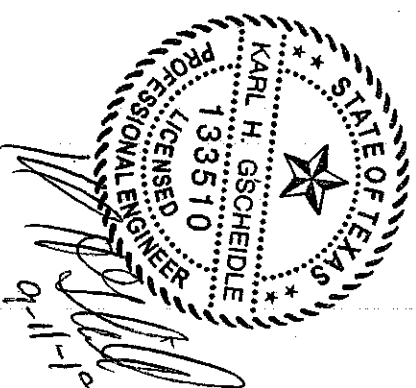
As a result of this inspection, the following conclusions were developed:

The structure has experienced movement. The movement exceeds normal construction standards. With proper maintenance, foundation movement can be held to a minimum.

The distress noted is attributed to the normal volume change of the clay soil due to moisture fluctuations. Clay soil swells when wet and shrinks when dry. The soil in this area is predominantly clay. Piers are necessary to raise and stabilize the foundation.

Adequate drainage around the structure is recommended to minimize the moisture fluctuations of the soil minimizing the movement of the perimeter grade beam. Most of the drainage appears to be adequate around the structure. Comments on site drainage are based on visual inspection of the property and any drainage corrections are to address drainage conditions that may negatively affect the structure. It is impossible to predict how drainage corrections will function in heavy rain events.

Seasonal moisture fluctuations cause minor foundation movements on all structures built on clay soils. It should be understood that most structures have some tolerance to unequal settlement, but when the support is stressed beyond the elastic limit, ultimate failure is unavoidable without the immediate strengthening of the foundation.



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RECOMMENDATIONS:

Stabilize the structure utilizing the following methods (or approved equivalent):

Install 4 double concrete pilings driven to a substantial point of refusal, or 40 feet, whichever comes first at approximate 8 foot centers in the locations shown at the left front of the structure. The specifications are included in this report.

Concrete should be a minimum of 5 sacks per cubic yard mix, 2500 psi @ 28 days and reinforcing steel 40 ksi.

Once pilings are installed, all cosmetic repairs, such as expansion joint cracks recaulked and brick/mortar cracks repaired can be made

Foundation maintenance procedures should be followed at all times.

Ensure that there is no pooling of drainage along the perimeter or under the structure.

Establish a water maintenance program to ensure the trees/shrubs are adequately watered during the dry seasons.



Karl H. Gscheidle
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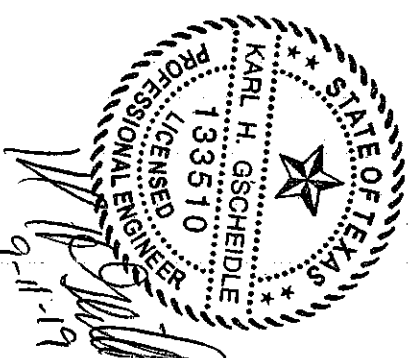
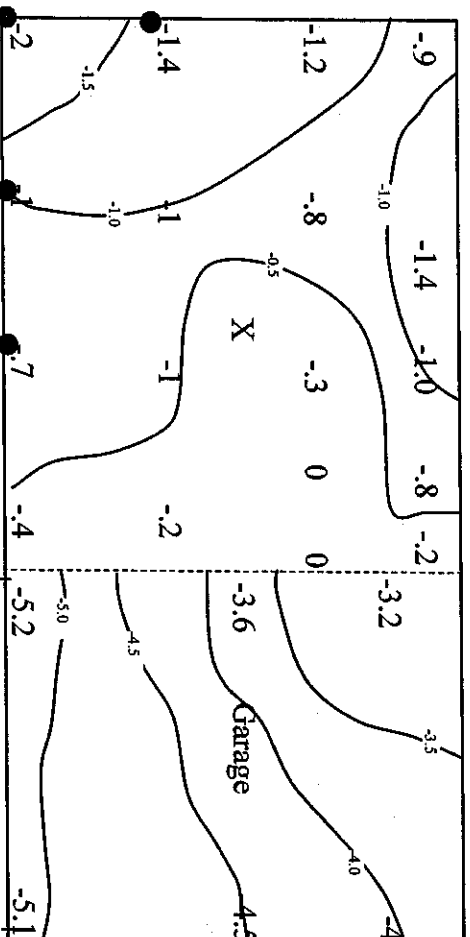
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X = Approximate location of base unit

● = piling locations

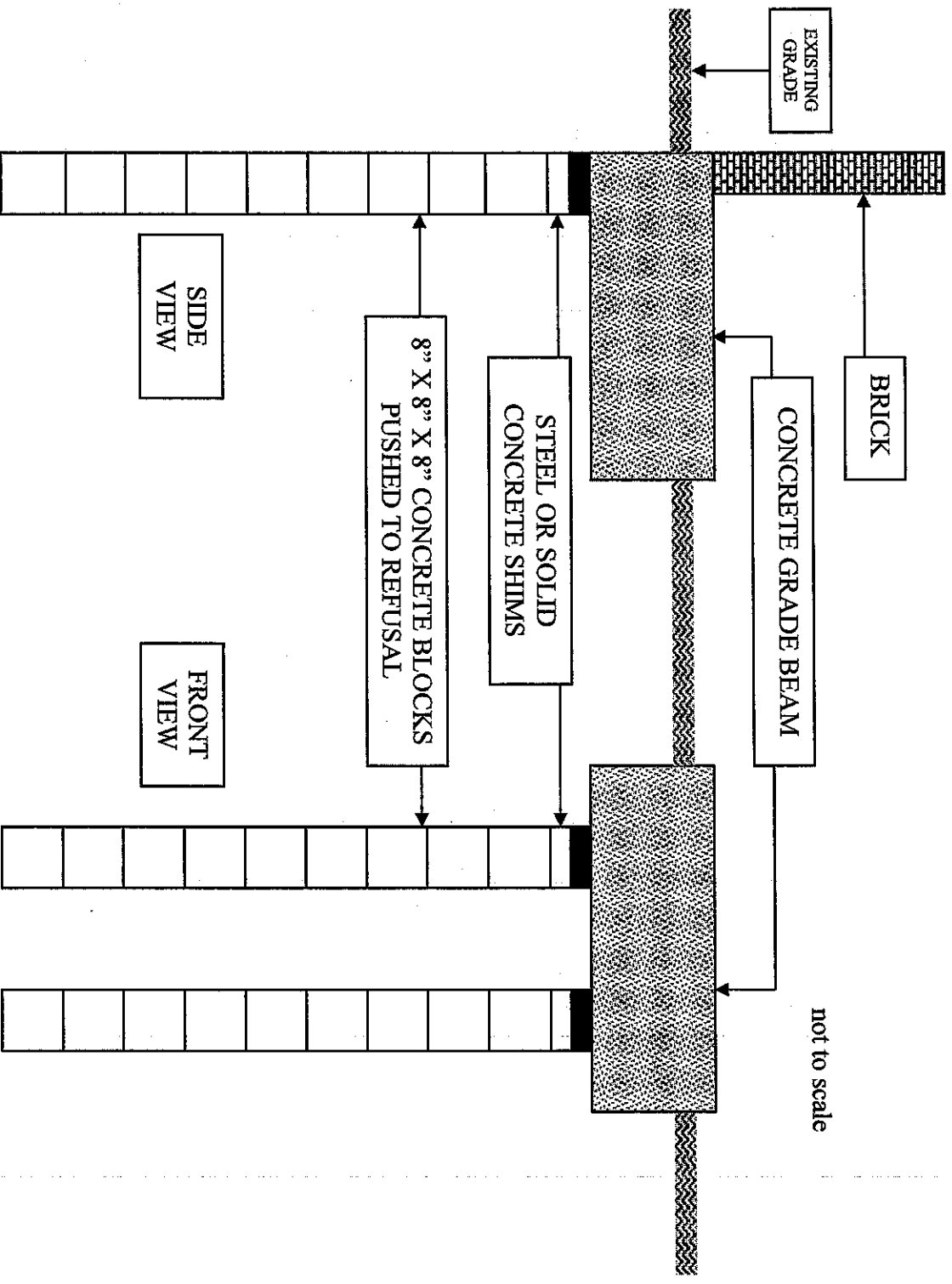


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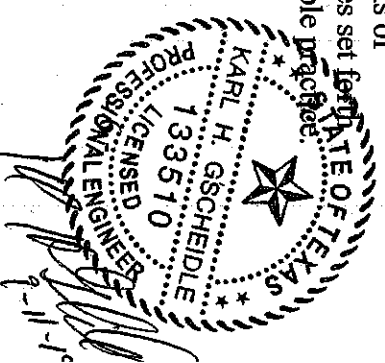
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PRESSED PILING TECHNICAL SPECIFICATIONS



Concrete Specifications

Unless noted otherwise, all concrete shall be a mix design to have a compressive strength of approximately 2500 psi at 28 days and shall consist of no fewer than 5 sacks of concrete per cubic yard. Concrete shall be mixed and placed per the guidelines set forth in the latest edition of the American Concrete Institute (ACI) code of acceptable practice.



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AGREEMENTS:

Opinions expressed in this report are based on sound engineering judgment and evaluation regarding past performance of the property inspected on the day of this inspection.

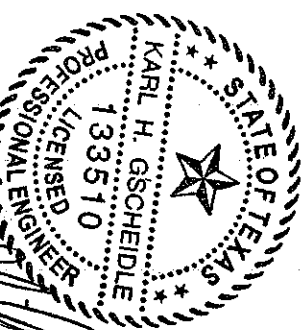
The report also gives engineering advice with regard to the best and most economical method to stabilize and maintain the property.

This advice assumes normally expected subsurface conditions and conventional construction methods.

No warranty is expressed or implied as to the performance of this foundation. Bedrock Foundation Repair, LLC report does not warrant or predict the future performance of the structure.

The information provided in this report is intended for the private use of our client. If you have any questions or comments regarding this report or if we can be of further assistance, please call.

Karl H. Gscheidle, P. E.



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Maintenance Procedures for Foundations on Expansive Clay Soils

Foundation problems caused by expansive clay soils usually develop when the amount of water in the soil changes non-uniformly under the foundation structure. The climate is such that these clay soils shrink when dry and swell when wet, resulting in up and down movement of the house. If this occurs unevenly (one area of the soil under the house gets more water or dries out faster), the house may become twisted, strained and damaged. Foundation maintenance, in general, consists of one major concept: The moisture in the soil under the house and around the house should be as uniform as possible at all times. Some measures to help accomplish this are:

1. **Install good ground cover.** This will prevent excessive moisture from seeping deep into the soil, causing problems to the foundation structure. This will also prevent erosion of the soil. Good ground cover also prevents excessive "drying out" of the soil through evaporation. Good ground cover will help maintain a more constant uniform moisture level in the soil beneath.
2. **Water the soil around the house during dry periods just enough to keep the grass green.** More watering is needed in areas with more abundant shrubbery, plants, and trees. The south and west sides of the house are more exposed to the sun, and may need more watering to offset rapid evaporation.

3. **NEVER water too close to the foundation.**
Stay about 3 feet away with the water.

NEVER pour water into the cracks of the ground.
These cracks usually go a few feet deep, and the water will reach soil that is normally undisturbed by concentrated amounts of moisture. Depending upon the shrink/swell potential of the soil, the soil may upheave, or it may consolidate and lose volume; either way, undermining the foundation and causing problems.

NEVER place sand, sandy loam, or rocks around the foundation.
They are very porous, and allow water to pass quickly to the soil below, where the sun and wind cannot dry it out. Clay soils are non-porous, and are recommended for proper water drainage away from the foundation.

NEVER allow water to pond around the foundation.
If water stands for very long, it will seep under the foundation, causing problems.

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