GILES FLYTHE
ENGINEERS

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April 16, 2019

Tyson Sellers

Re: Limited Structural Inspection
2720 Glastonbury Road
Apex, NC

Dear Mr. Sellers:

At your request, a limited structural inspection of the above property was performed on April 12, 2019. The report that follows has been prepared based on that inspection. The inspection was performed by Harrison N. Luttman, EI of Giles Flythe Engineers.

The scope of this project was limited to inspection and evaluation of a crack in the foundation wall along the left perimeter of the garage. The report is intended to cover only those premises that may be examined visually without excavation, removing surface materials, and disassembling components.

No tests, measurements, or calculations have been made except as described in this report. We have not investigated for toxic materials or wastes, or examined public records regarding this property. The scope of the inspection does not assure that the property conforms to any regulations, restrictions, or building codes that may be in effect at its location.

DESCRIPTION

The 1-story wood-framed home was built in 1999 according to Wake County Real Estate Tax Records. For purposes of this report, all directions (left, right, rear, etc.) are taken from the viewpoint of an observer standing outside and facing the front door of the home.

Upon our arrival, access to the interior was provided by the current homeowner. The interior and exterior walls, foundation, and other conditions around the garage foundation were subsequently inspected.

Note that the builder was not interviewed and no plans for construction of this home were provided. The information presented in this report is gathered from the conditions visible at the site, as they existed at the time of the inspection. A limited photo log is included with this report.

OBSERVATIONS

1. In the interior of the garage, along the left perimeter wall, a vertical crack (less than 1/8" wide) was noted approximately 8' from the rear corner of the home. No significant finish material cracks were observed adjacent to the crack foundation wall damage. An uncontrolled crack (less than 1/8" wide) in the garage infill slab was observed approximately 2' forward (spanning left to right) of the foundation crack.
2. On the exterior, a vertical crack (approximately 1/8" wide) was noted in the left perimeter wall corresponding to the location of the aforementioned foundation wall crack. No other significant cracks were noted in the foundation walls associated with the garage.
3. Gutters and downspouts were noted installed on the home. Grade was noted with relatively neutral slope along the perimeter wall(s) of the home.

DISCUSSION

The crack in the foundation wall noted above is likely due to limited differential foundation settlement. The clay soils in this area are considered "expansive" type soils and will typically expand and contract with fluctuations in the moisture content. This expansion and contraction of load-bearing soil materials can lead to soil consolidation and foundation cracking. The condition of the foundation wall does not appear to be a significant structural deficiency at this time. If conditions around the foundation remain relatively dry, the likelihood of future significant settlement will be reduced, but we cannot predict the extent of future settlement. Improving exterior drainage and monitoring cracks for additional settlement is an acceptable approach at this time.

Positive grade away from the foundation should be created to reduce moisture infiltration under the foundation. Additional soil consolidation and settlement can occur due to water infiltration into soils and subsequent drought conditions which dry out the soils below foundations. Creating positive drainage away from the perimeter foundation wall(s) is vital to the long-term structural integrity of the foundation.

The crack in the garage concrete floor slab is likely the result of limited differential settlement of the underlying soil materials. The settlement is likely the combination of the clay type soils in the area (discussed above), poorly compacted subgrade at the time of construction, and concrete shrinkage. Concrete has a tendency to shrink as it dries and saw cut joints (control joints) are typically installed to help control the location of the cracking as a result of this shrinkage. The lack of control joints typically leads to randomized cracking of the concrete. Generally, garage infill slabs are not considered integrated structural components of the home, as such, the cracks in the slab are not considered a structural concern. No structural repairs are required.

The recommendations presented in this report are based on our experience and understanding of the concerns to provide a reasonable solution based on the conditions that were visible and/or known to us on the date of inspection. As this report is based on the circumstances at one point in time, conditions may change which may result in additional repair recommendations. Further, the recommendations are the opinion of the Engineer to address significant structural-related concerns and may not rectify cosmetic issues.

RECOMMENDATIONS

1. No structural repairs are required at this time.
2. We recommend ensuring that stormwater drains positively away from the home to minimize the risk of future water infiltration. This can be accomplished by installing leaders on downspouts and ensuring gutters, downspouts, and leaders remain clear of debris and properly functioning to direct the drainage away from the home. Also, creating a positive grade around the perimeter of the home will aid in stormwater evacuation. Water infiltration can cause further undermining of the soil and foundation settlement.
3. Monitor the crack in the foundation wall. If the crack widens significantly (expands by additional 1/8") or additional significant cracks (greater than 1/4" wide) propagate, then further evaluation by a structural engineer may be needed at that time.

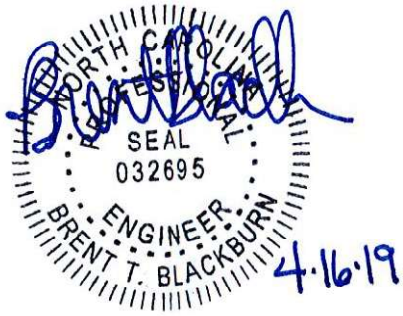
CONCLUSION

We trust that this report provides the information you require. Please contact us 919-465-3801 if you have any questions. Thank you for the opportunity to be of assistance to you.

Sincerely,

4.16.19

Harrison N. Luttman, EI
Project Engineer
Giles Flythe Engineers Inc.
NC Lic. No. C-2871



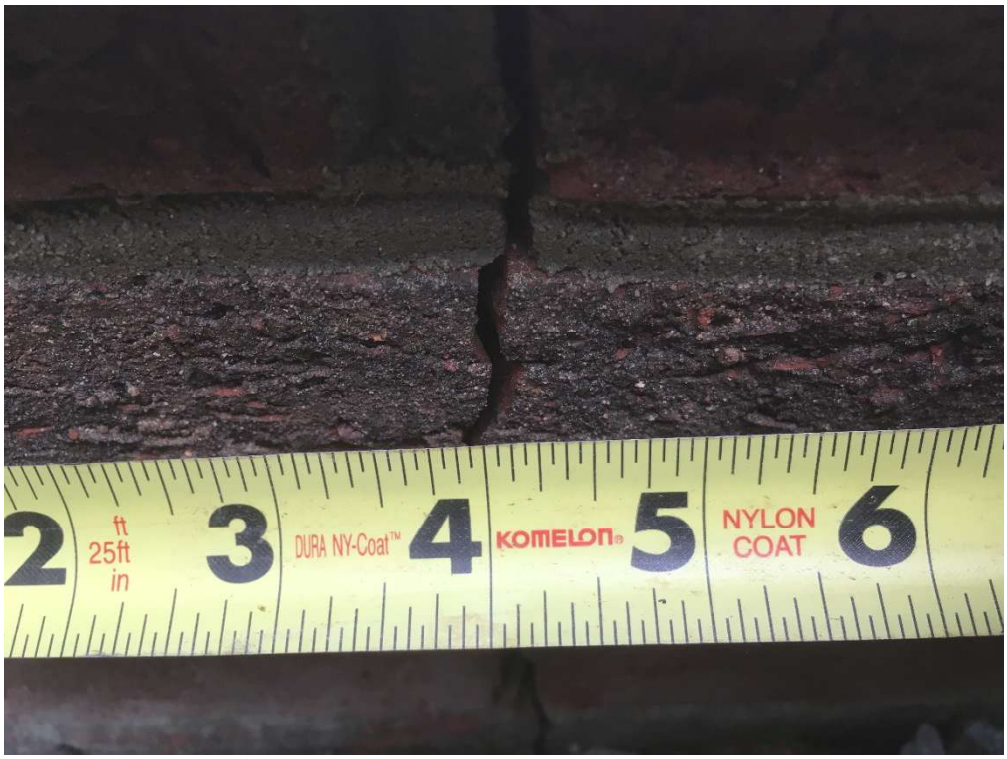
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Brent T. Blackburn, PE
Project Manager
Giles Flythe Engineers Inc.
NC Lic. No. C-2871

Enclosed: Limited Photo Log

Description Front view of the home (for reference)	
Photo No. **1**	

Description Crack in the foundation wall as observed from the interior of the garage	
Photo No. **2**	

Description Crack in the foundation wall as observed from the exterior	
Photo No. **3**	

Description Rear view of the home showing drainage and grade typical at the garage	
Photo No. **4**	

Description Uncontrolled crack in the garage infill slab	
Photo No. **5**	