

November 25, 2022

Gary Robinson
Gary Robinson Homes

Re: Undermined Footing – Foundation Support
156 Heatherspring Way
Spring Lake, North Carolina

Mr. Robinson,

OTG Consulting, LLC (OTG) visited the site on November 23, 2022 to determine stability of the footings after support soils were eroded.

Based on our conversations with your staff and our recent site visit, we understand that the soils have eroded away after several rain events at the Southeast corner of the home. The building official has requested an engineer review the onsite conditions to determine stability and repair recommendations.

From our review of the onsite conditions, it appears that while the overall grading of the lot has positive drainage away from the building, areas directly adjacent to the foundation walls (within approximately 2 to 3 feet) are trenched to allow construction of the foundation walls and veneer (Pictures 1, 3, and 7). While this trenching is standard practice and not typically detrimental, it can result in undermining of the footings when the site is sloped. The extents of the undermining are approximately 30 inches long, 24 inches high, and 10 inches deep (Pictures 4, 5, and 6).

Recommendations

To provide support for the undermined footing, we recommend that the cavity be backfilled with flowable fill. Prior to placement, we recommend that the undermined area be cleared of loose soil and debris and the bottom of the excavation probed to verify stability. The area of repair should extend 3 feet beyond the edge of the existing footing (Figure 1, below) and the flowable fill should extend/make full contact with the bottom of the existing footing.

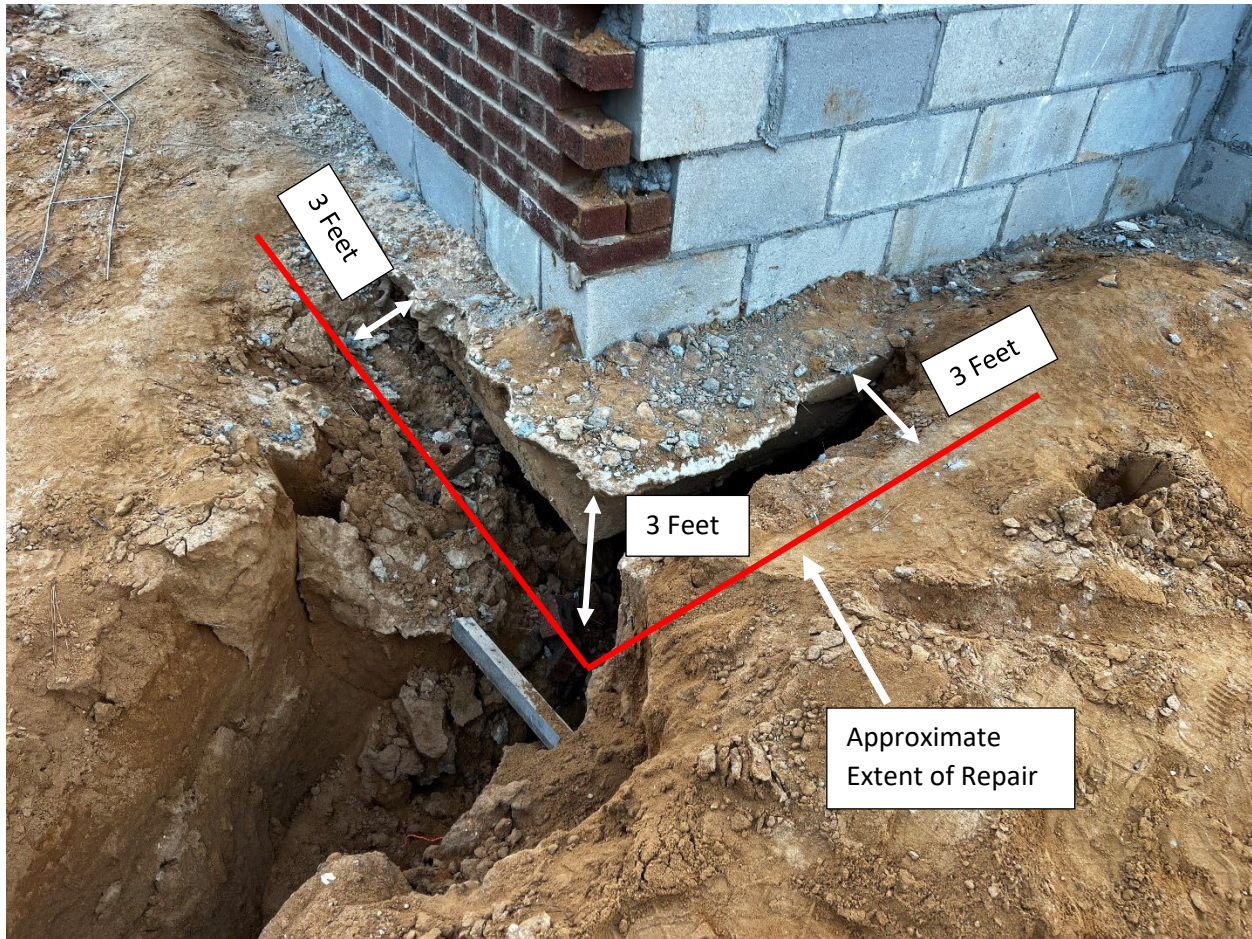


Figure 1: Approximate Extents of Repair (Not to Scale)

In addition, we recommend that a drainage swale be constructed from the front of the house, along the East side, and extend towards creek at the back of the property. Similarly, a drainage swale should be installed along the rear of the home (South side) to divert water away from the foundation. It is suggested that the bare soils around the foundation be covered with erosion control matting or grasses to help minimize erosion.

Photographs



Picture 1: Foundation Support Eroded, Trench/Slope Along Foundation



Picture 2: Foundation Support Eroded



Picture 3: Location of Footing Undermine, Negative Slope/Trench



Picture 4: Depth of Footing Undermine



Picture 5: Depth of Footing Undermine



Picture 6: Depth of Footing Undermine



Picture 7: Trench Along Footing

We appreciate the opportunity to help you with this. Should you have any questions or need additional information, please contact me at your earliest convenience. We can be reached at 336-414-1179 or at otgconsulting@protonmail.com.

Sincerely,
OTG Consulting, PLLC

Scott G. Dowell, PE
President

NC PE License No. 037387



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