



Joseph L. Laws Engineering

November 22, 2016

Jason and Liz Petree
514 Carroll Street
Statesville, North Carolina 28677

Subject: Foundation Wall Evaluation

Dear Mr. and Mrs. Petree,

I conducted an evaluation of the foundation wall of your home along with Mr. Jody Parks of Parks' Masonry, LLC November 17, 2016. During our evaluation, I noted the following:

- The foundation wall measured approximately 8'-0" in height from the basement concrete floor slab to the bottom of the wood main floor system above.
- The foundation wall is constructed with concrete masonry units (concrete block).
- The foundation wall contained multiple horizontal cracks that measured less than 1/4" in width, were located in the mortar joints, and extend along length of the wall.
- The foundation wall contained several vertical cracks that were discovered in a subsequent inspection when repairs had begun that had cracked the concrete block.
- No displacement was observed in the foundation wall.

After assessing the current condition of the subject foundation wall I have determined the following:

- The concrete footing which provides support for the subject foundation wall did not exhibit any signs of unusual settlement or inadequate support as evidenced by the absence of cracking in the basement floor slab.
- The horizontal and vertical cracks contained in the subject foundation wall are likely the result of excessive hydrostatic pressure from saturation of the backfill soil on the exterior of the foundation wall. Poor surface drainage, poor gutter drainage, or non-functioning downspout drains could all be contributing factors to excessive water accumulation in the backfill soil on the exterior of the subject foundation wall.

The following corrective actions should be taken in the immediate future to prevent any further damage to the house. It is recommended that:

- **Remove the soil backfill from against the subject foundation wall to remove pressure. This will allow the wall to return to its original position which should close the horizontal cracks.**


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- **Repair the subject foundation wall by removing sections of the concrete blocks and installing No. 6 reinforcing bars vertically from the concrete footing to the top course of concrete block. The vertical reinforcing bars should have a maximum spacing of approximately 48" on-center.**
- **Remove the section of the concrete blocks that contain vertical cracks and install No. 6 reinforcing bars vertically from the concrete footing to the top course. Install No. 4 reinforcing bars horizontally between the vertical reinforcing bars. The horizontal reinforcing bars should have a maximum spacing of approximately 48" on-center and these areas should contain a minimum of three (3) horizontal bars.**
- **Form the areas of the subject foundation wall that have been removed and then place concrete grout in said areas.**
- **Install Park's Free-flowing Waterproofing System on the exterior of the foundation wall.**
- **Insure positive surface drainage, proper gutter function, and adequate downspout drainage.**

After careful examination, I have determined that Parks' Masonry, LLC performed the corrective actions in accordance with the recommendations as contained herein. Therefore, it is my professional opinion that the subject foundation wall with the recommended repairs, will provide the necessary structural support to meet minimum engineering standards. Any warranty or guarantee for these repairs shall be the responsibility of Parks' Masonry, LLC.

Should you need any additional information or have questions regarding this project, please contact me by phone or email.

Sincerely,


Joseph L. Laws, PE

