



June 5, 2023

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Reference: Engineering Services
7934 NC-210
Bunnlevel, NC 28323
TE&D Project No.: 2301-020499

To Whom It May Concern;

As requested by the client, a representative of Tyndall Engineering & Design, PA (TE&D) was on-site to inspect and observe the existing footing and foundation. We understand the previous home was severely damaged by a fire (as well as the subsequent fire suppression) and was completely removed from the lot. We inspected and observed the following:

- 1) Analysis of the existing soil underlying the existing remaining footing.
- 2) Observe the materials/condition of the existing remaining foundation.

The following conclusions and recommendations were noted:

- 1) The underlying soils were visually observed, qualitatively probed, and subjected to Dynamic Cone Penetrometer (DCP) testing in multiple locations at depths to 2'-0" below existing grade. Hand augers were also advanced to depths of 2'-0" below existing grade. The existing soils were found to equal or be in excess of the minimum 2000 psf bearing capacity required by the 2018 North Carolina Residential Building Code. Based on our observations, analysis, and the results of our field-testing program, the underlying soils are structurally adequate to support the anticipated loading conditions of the existing footing.
- 2) We visually observed the foundation as consisting of 8" x 16" CMU walls at the interior and exterior and 16" x 16" CMU piers at the porches. The foundation was observed to be supported by concrete footings. The existing foundation was visually observed and inspected for damage as well as subjected to non-destructive (Schmidt rebound hammer) testing at the garage slab. The concrete at the garage slab was found to equal or be in excess of the minimum 2500 psi compressive strength required by the 2018 North Carolina Residential Building Code. Based on our observations, analysis, and the results of our field-testing, the existing foundation is to be repaired/enhanced per the following:
 - a. At multiple locations, we observed severe deterioration of the existing mortar joints. Based on our observations and analysis, we recommend the deteriorated mortar joints be removed and repointed with mortar as needed.



- b. At the front porch piers, we observed several piers as being damaged at the top course. Based on our observations and analysis, we recommend the damaged piers be repaired as needed by removing the topmost course and replacing it with new 16" x 16" CMU blocks.
- c. We also recommend the remaining sill plates be removed and replaced with new pressure treated 2 x 8 sill plates. New sill plates are to be installed so that the existing anchor bolts are within 1'-0" of plate splices. If this cannot be achieved, or the existing anchor bolts are damaged during removal, the sill plate may be fastened to the existing foundation with 1/2" x 8" Simpson Titen HD screws or 1/2" x 12" threaded rods with nuts and washers. The rods are to be embedded a minimum 10" into the turned down footing with Hilti HIT-HY 200 Epoxy per the manufacturer's specifications. Screws and/or rods are to be installed with spacing no greater than 6'-0" o.c. and within 12" of plate splices.

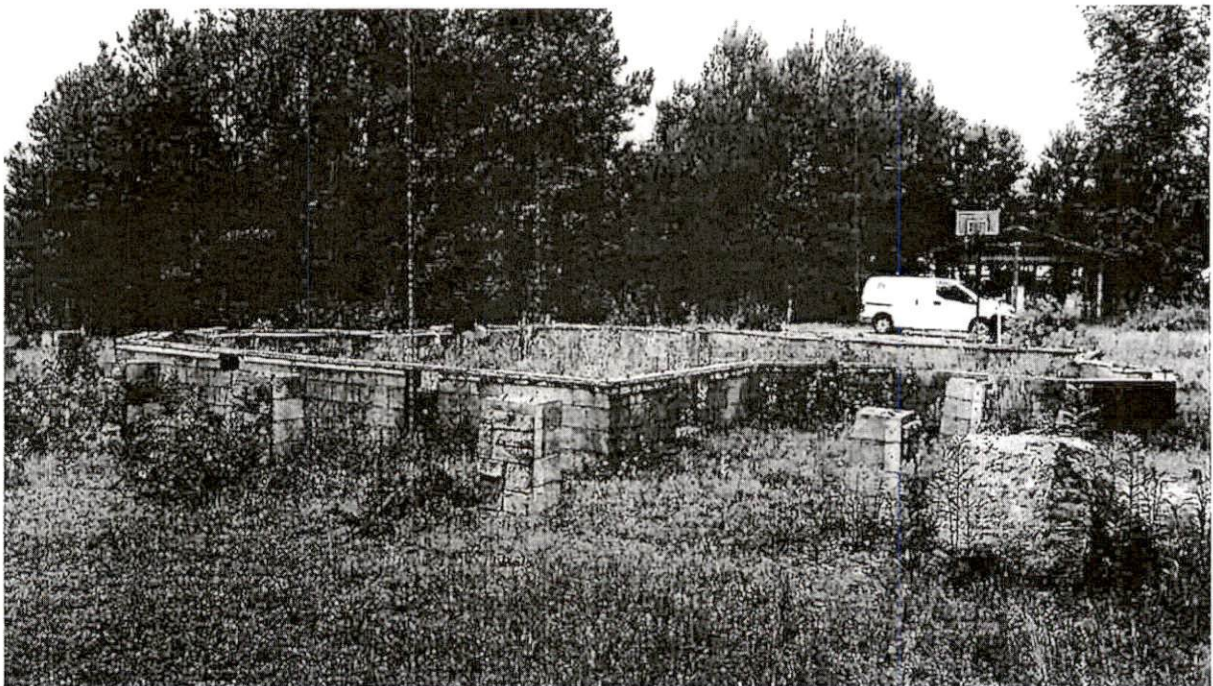
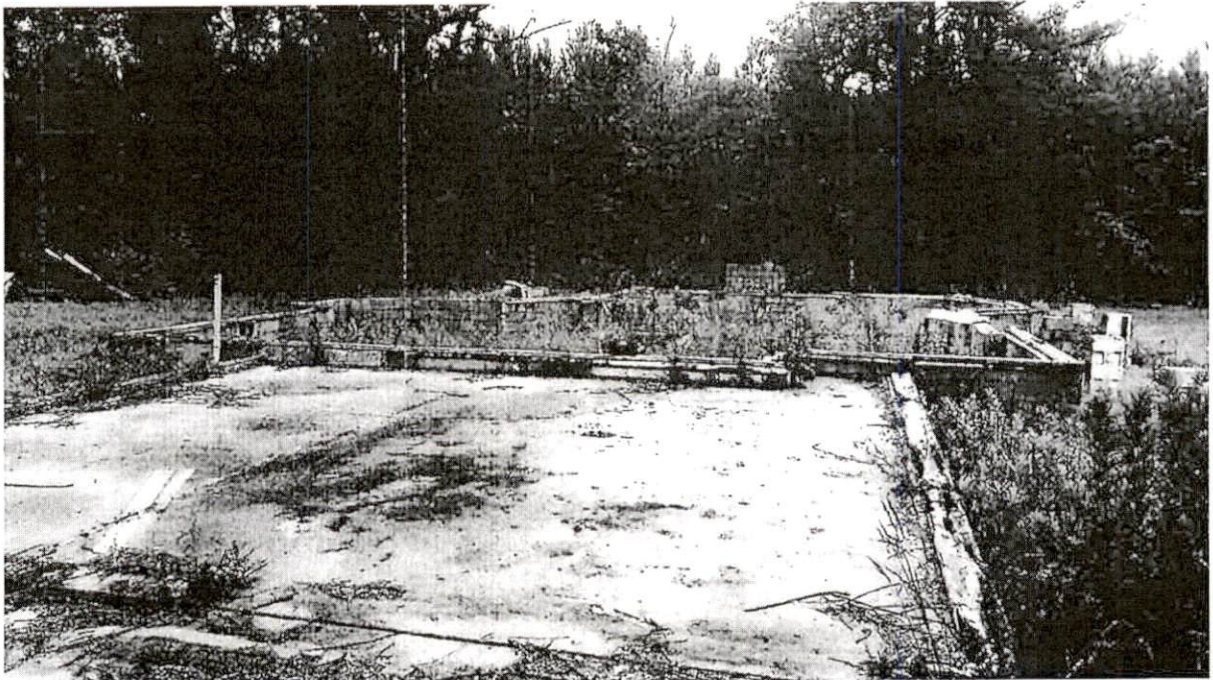
We appreciate being able to assist you during this phase of the project. If you need further assistance or require additional information, please do not hesitate to contact us.

Sincerely,
Tyndall Engineering & Design

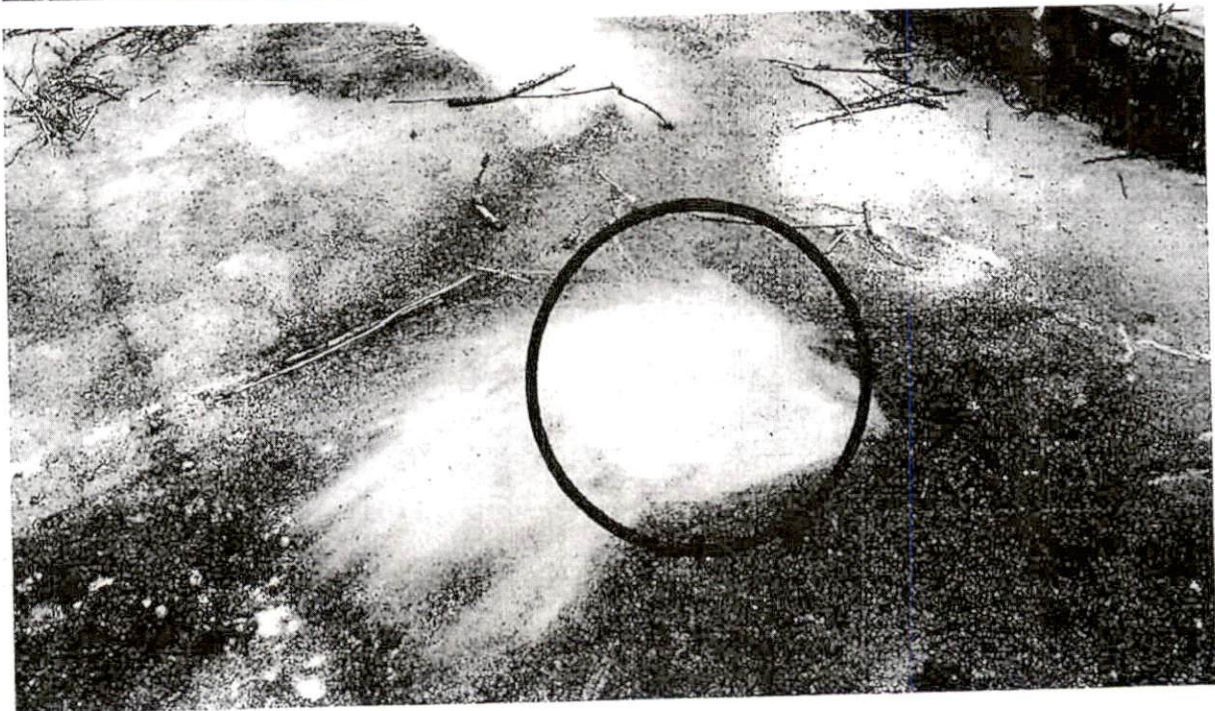
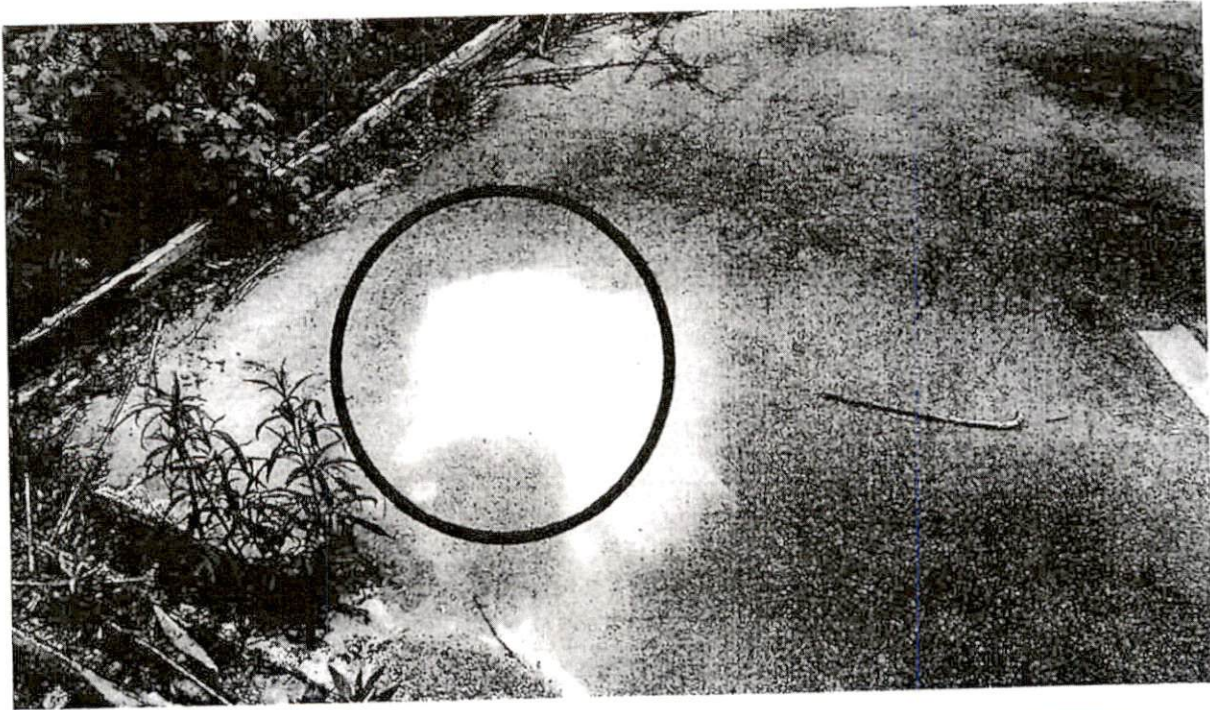
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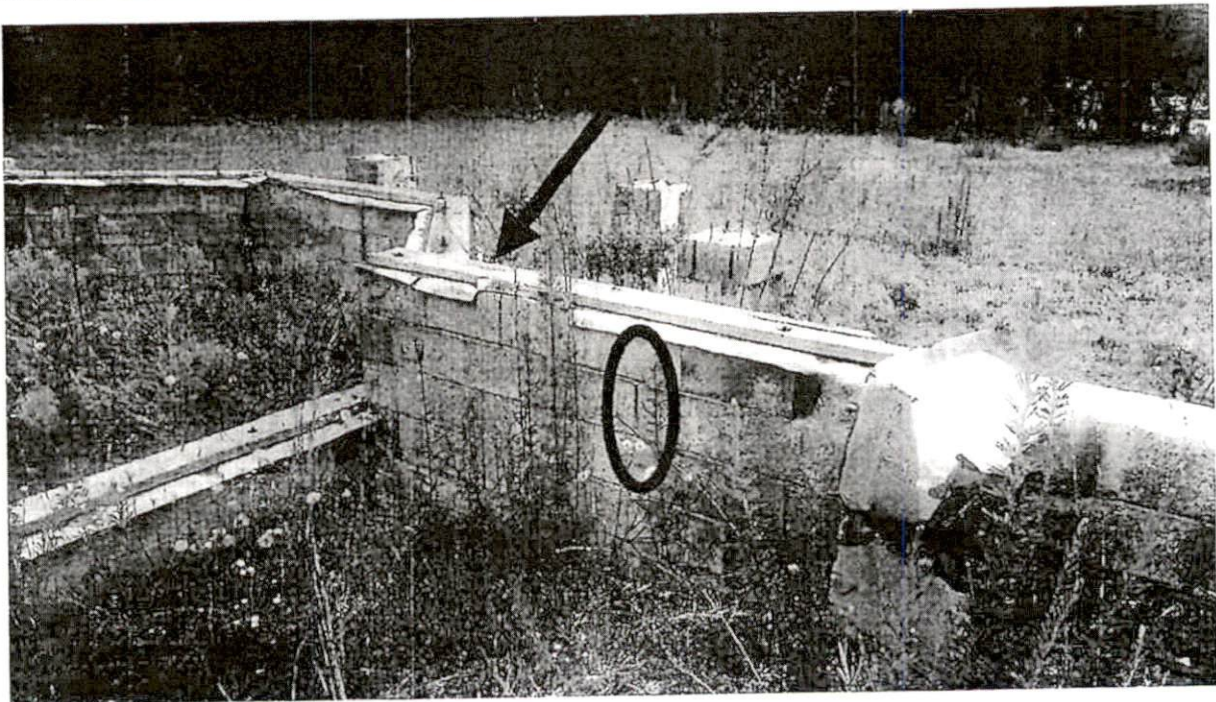
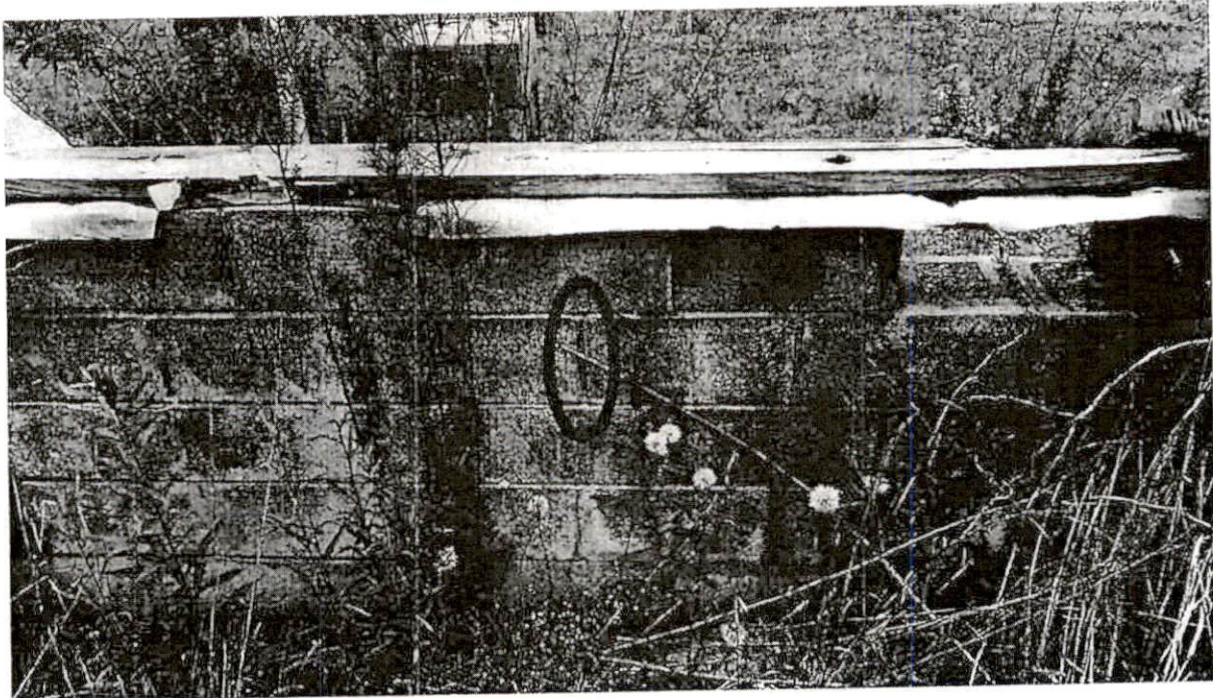




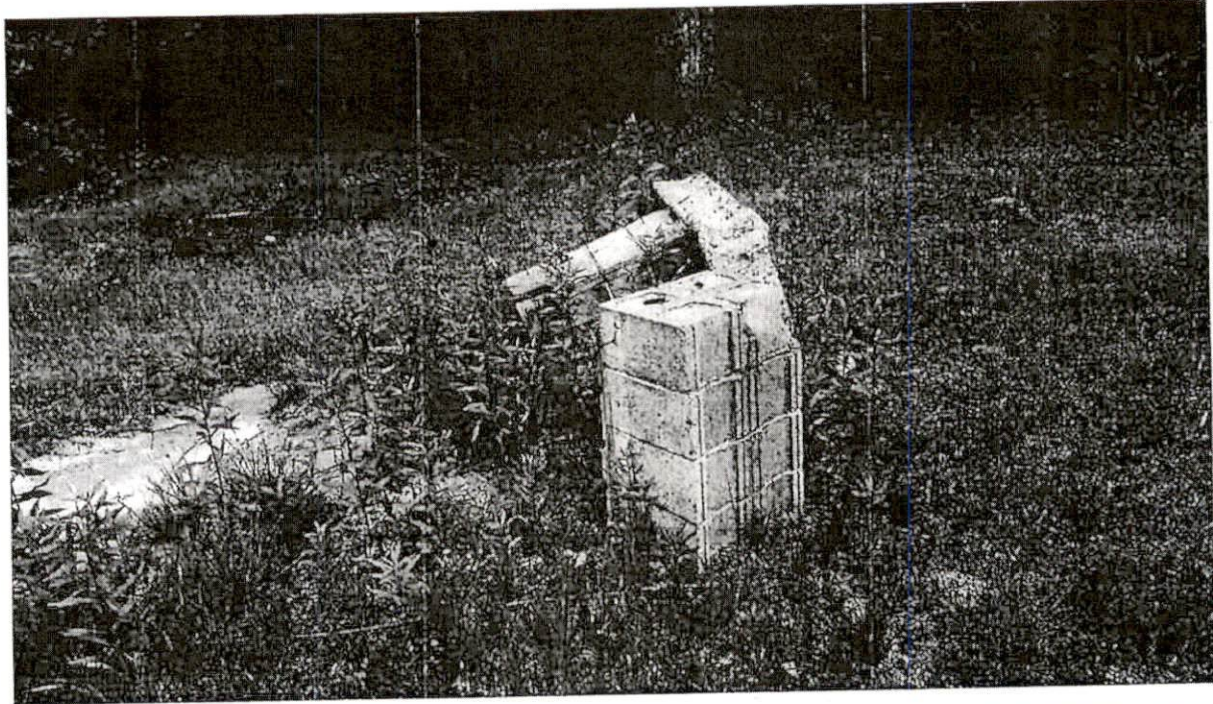
Site of Inspection



Example of Schmidt rebound hammer testing at garage slab



Items 2a and 2c) Examples of deteriorated mortar joints and sill plates to be replaced



Item 2b) Examples of damaged piers to be repaired