



February 16, 2021

Mr. Austin Brown
Capital City Homes
5711 Six Forks Road, Suite #200
Raleigh, North Carolina 27609

**Subject: Summary of Foundation Bearing Material Evaluation
Lot No. 1164 – (104 Spruce Hollow Circle)
Academy at Anderson Creek Subdivision
Spring Lake, North Carolina
Permit Number: N/A
Project Number: 6033.500 (31360-00)**

Dear Mr. Brown:

On February 9 and 15, 2021, SUMMIT Engineering, Laboratory and Testing, P.C. (SUMMIT) visited the subject site for the purpose of observing and evaluating the near surface foundation bearing materials for the proposed residential structure. The following is a summary of our onsite observations and evaluation

Our work included testing and bearing grade evaluations of the in-place soil at the bottom of the foundation excavations. Hand auger borings were incrementally advanced by manually twisting a sharpened steel auger into the soil at selected locations along the footing excavation. The soil consistency in the bottom of the excavation and at selected intervals below the bearing grade was evaluated by Dynamic Cone Penetrometer (DCP) testing. The conical point of the DCP was first seated to penetrate any loose cuttings and then driven three additional 1-3/4 inch increments with blows from a 15-pound hammer falling 20 inches. The soil's strength characteristics and foundation support capability was determined based on the average blows per increment (bpi) over the last two increments to achieve this penetration. Additionally, the entire excavated foundation was evaluated by hand probing using a 1/2 inch diameter steel probe rod to check for soft areas at the surface intermediate of our hand auger boring locations.

The materials encountered in our hand auger borings generally consisted of brown-tan, silty-sand (fill soils) and were free of significant quantities of organics and debris. It should be noted that a slope was observed within 10 feet of the rear exterior wall footing line. The contractor was informed and SUMMIT recommended excavating to an approximate depth of 2 feet along the rear exterior wall footing line due to the close proximity to the existing slope and soft soils. Additionally, SUMMIT observed some areas where the minimum 12 inches of embedment was not met. We recommend excavating the footings to a minimum depth of 12 inches in order to meet the minimum embedment requirements. SUMMIT returned to the site on February 15,

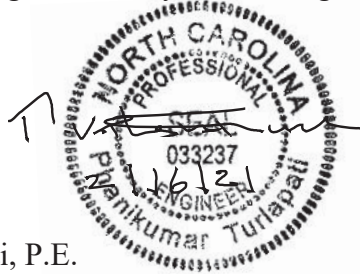
2021 and observed that the recommended over-excavations were completed. We recommend backfilling the over-excavated areas along the rear exterior wall footing line with full depth concrete due to the close proximity of the existing slope. If additional testing for the purpose of estimating volumetric change (shrink/swell) potential or to estimate consolidation is desired, **SUMMIT** can provide these services.

SUMMIT tested the four exterior wall corners of the residential foundation and fill soils were encountered to a minimum approximate depth of 3 feet below the foundation bearing elevation. **SUMMIT** assumes that the fill placement was observed and tested to verify that the fill material was placed and compacted properly. Based on the results of our DCP testing, the completed remedial measures, and the assumption that the fill placed throughout the building pad is similar or better than the properly compacted fill material encountered in the hand auger borings, the soils encountered are suitable for support of the residential structure utilizing a net allowable soil bearing pressure of **2,000 pounds-per-square-foot**.

If foundation bearing materials are exposed to inclement weather or adverse construction activities, **SUMMIT** should be contacted to re-evaluate the foundation bearing materials prior to concrete placement. If it is imminent that inclement weather is forecasted prior to concrete placement, then the footings can be over-excavated (deepened) approximately 2 to 4 inches and a mud-mat (lean concrete) can be placed up to the foundation bearing elevation to help protect the foundation bearing materials from softening.

SUMMIT appreciates the opportunity to provide our professional services to you on this project. If you have any questions concerning the information in this report or if we can be of further service, please contact us.

Sincerely,
SUMMIT Engineering, Laboratory and Testing, P.C.



Phanikumar Turlapati, P.E.
Project Engineer

Adam D. Perry, E.I.
Staff Professional