

March 7, 2024

Mr. Luis Martinez  
KB Homes  
4506 South Miami Boulevard, Suite 100A  
Durham, North Carolina 27703



**Subject: Summary of Foundation Bearing Material Evaluation  
Lot No. 162 – (249 Tarleton Drive)  
Birchwood Grove Subdivision  
Fuquay-Varina, North Carolina  
Permit Number: N/A  
SUMMIT Project Number: 9372.F0017 (39957-00)**

Dear Mr. Martinez:

On February 29, 2024, a representative of SUMMIT Engineering, Laboratory and Testing, Inc. (SUMMIT) visited the subject site for the purpose of observing the near surface foundation bearing materials for the proposed residential structure. The following is a summary our onsite observations and evaluations.

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 exposed at the bottom of footing excavations generally consisted of brown-tan, sandy-clay (fill soils) and were free of significant quantities of organics and debris. If additional testing for the purpose of estimating volumetric change (shrink/swell) potential or to estimate consolidation of the tested soils 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 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.

**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, Inc.



Jeff A. Taylor, P.E.  
Geotechnical Engineer

Adam D. Perry, E.I.  
Staff Professional