



MEMORANDUM

TO: Shawn Ankeny
FROM: Colter H. Lane
DATE: June 28, 2019
SUBJECT: Review of Preliminary Foundation Plan (06/25/2019)
PROJECT NO.: 15413

At your request, we have reviewed the preliminary structural plan set issued by KL&A dated June 25, 2019. The purpose of the review is to verify the design conforms to the recommendations of the Geotechnical Investigation Report issued on May 15, 2015, by Jorgensen Geotechnical. Review of the plan set has generally been limited to information pertaining to the foundation system or Sheets S1.0, S1.1, and S2.1.

The notes on S1.0 and S1.1 appear to be in general conformance with the Geotechnical Report. We offer the following comments and recommendations based on our review of the foundation plan (S2.1):

- Continuous, spread footings appear to range in width from 16-inches in basement areas to 22-inches in crawlspace areas.
- Isolated column loads appear to be supported by 34-inch square footings.
- Several rectangular footings are shown with dimensions 3'-8" x 5'-2", 4'-3" x 7'-7", and 5'-6" x 15'-9" (presumably for the fireplace).
- Section 6.1.2 of the Geotechnical Report describes the process for over-excavation and re-compaction of the native loess soils. Loess should be removed from the zone of influence of all footings, which is defined for continuous footings as two footing widths below and one footing width on either side and for square footings as one footing width below and one-half footing width on all sides. Stresses under the load of rectangular footings are generally distributed like square footings.
- In general, this results in over-excavation of 44-inches (3'-8") under continuous crawlspace footings, 32-inches (2'-8") under continuous basement footings, and 34-inches (2'-10") under square footings. For rectangular footings, we recommend over-excavation to a depth of the footing width to a maximum of 48-inches.
- Excavation may occur under each individual footing element, but it may be more economical to excavate below the entire footprint of the building, which allows for use of larger excavation and compaction equipment to perform the work more efficiently.

- Compaction of loess shall follow the recommendations of Section 6.1.2. Nuclear density testing should be performed at regular intervals during compaction to verify soil moisture and density of the placed fill. We recommend a minimum of one test for each 1,500 ft² of area.
- Compaction will be the most efficient with a large sheeps-foot roller.
- Jorgensen will be prepared to observe foundation subgrade preparation and test compaction of native fills.