MDOT REQUIREMENTS FOR PRELIMINARY GEOTECHNICAL INVESTIGATIONS FOR SIGNAL FOUNDATIONS

A. Description

1. The work performed by the consultant geotechnical engineer under these requirements shall consist of making a preliminary foundation investigation to determine the appropriate design and construction of the proposed signal foundations.

   A preliminary foundation investigation shall consist of an adequate program of field sampling, with the results presented in report form. The investigation shall be performed in compliance with the procedures outlined in this document and generally accepted principles of sound engineering practice. The investigation shall be under the general supervision of and subject to the approval of the MDOT Foundation Analysis Engineer.

B. Equipment

1. The equipment used shall be hand operated or power drilling and/or driving equipment, or other tools or equipment considered suitable or necessary for determination of the limits and conditions of the various soil strata, and for obtaining samples for examination and field classification.

C. Location and Depth of Borings

1. Location

   A minimum of one soil boring within three (3) meters [ten (10) feet] of the footprint of each proposed foundation is required. If the foundation is located in an area not accessible to a power auger, one hand boring shall be taken within the footprint of the foundation and one auger boring taken at the closest point of access.

2. Depth of Exploration

   Hand borings shall extend a minimum of 2.15 meters [seven (7) feet] below the ground surface elevation at the proposed foundation.

   Power auger borings shall extend 7.6 meters (25 feet) below the ground surface elevation at the proposed foundation.

D. Boring and Sampling

1. Standard Penetration Tests

   Generally, all borings should be performed with split-spoon sampling. Samples should be taken at 750 mm [two and one-half (2½) foot] intervals.

Split-spoon samples shall be obtained with the standard spoon of 50 mm [two (2) inches] O.D. and 35 mm [one and three-eighths (1 3/8) inches] I.D., driven with a 63.5 kg (140 pound) hammer, dropped 750 mm (30 inches). The number of blows of the drop hammer to drive the spoon 450 mm (18 inches), measured in 150 mm [six (6) inch] increments, shall be recorded. The penetration resistance, or N-value, shall be as defined as ASTMD 1586, and is normally the number of blows to drive the sampler the last 300 mm (12 inches).

2. Ground Water Readings and Backfilling Bore Holes

After measuring the ground water level at completion of the borings, the bore holes shall be filled in such a manner as to prevent a hazard. Borings drilled through existing pavement should be suitably patched. Backfilling and plugging of all borings shall be in accordance with all Department of Natural Resources regulations.

3. Field Record

All material encountered in each boring shall be carefully examined and visually described at the time of boring, and a written record (boring log) should be prepared. The boring log shall be on a sheet 213 mm x 275 mm (8½ x 11 inches) in size and shall show the following information: (a) project designation and project location; (b) boring number; (c) final location of boring; (d) method of boring, type of drill rig, and sampling; (e) date of boring and weather; (f) numerical thickness and depth of various soil layers to be shown in meters (feet) below ground surface; (g) a complete description of each soil layer including color, moisture, consistency or density, and visual grain size classification; (h) the elevation of free water during drilling and at the completion of drilling; (i) blows per 150 mm [six (6) inch] increment of drive of split-spoon sampler, sample number, and depth of top and bottom of samples taken; and (k) percent recovery on split-spoon.

E. Geotechnical Report

1. General

The geotechnical report shall be the presentation of all data obtained during the investigation of identification of various soils and soil condition encountered on the project. A minimum of three (3) copies of the geotechnical report will be required.

2. The geotechnical report shall include logs of all borings. The logs shall contain all the information recorded as specified in Section D.3. Field Record.

F. Permit Requirements

The consultant shall obtain an approved permit to work on state trunkline right-of-way through the Region Utility-Permit Engineer. The traffic control measures must be in accordance with all permit requirements, Sections 103 and 812 of the *MDOT Standard Specifications for Road Construction* and the *Michigan Manual on Uniform Traffic Control Devices (latest editions)*.