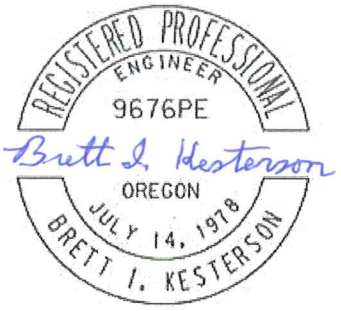
Standard Drawing Report

Date: October 2, 2017

Technical Owner: Civil – Brett I. Kesterson, P.E.

Standard Drawing No. P-509 **Calculation Book No.** 509

Drawing Title: Pothole/Subgrade Subsurface Investigation Pavement Restoration



Expires 06/30/19

Background Information, Including Reference Material:

The pavement design was developed by using the concrete pavement design in the WinPAS 12 pavement thickness design of pavement structures developed by the American Concrete Association based on the 1993 AASHTO Guide for Design of Pavement Structures.

American Concrete Pavement Association strength converter using the ACI 330 method to determine flexural strength from compression strength.

Assumption Made:

Flexural strength of 580psi from 4000psi compressive strength.

Design Narrative:

Typically, drillers put back the core pavement plug. For cores used to locate utilities or determine the depth of existing pavement, the plug would settle. For cores used to determine groundwater levels or soil investigations at depth, the plug would pop out due to expansion of the bentonite required for backfill.

The borehole/pavement coring section is designed to prevent settlement of the replacement pavement. Sand is used for backfill to provide a dense material requiring little compaction effort. The concrete provides a pavement base that does not settle. The asphalt depth is as deep as that can easily be compacted with hand tools. The subsurface coring section is designed in a similar manner as the borehole section, except backfill is per regulatory requirements and pavement depth is designed to resist the expansion of the backfill to expel the pavement section.