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3745-510-350

Geotechnical investigation data and results.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, test methods, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-500-03 of the Administrative Code titled "Incorporation by reference."]

The report on the geotechnical investigation identified in rule 3745-510-100 of the Administrative Code shall include labeled and tabbed pages for the section titled "Geotechnical Investigation Data and Results," and shall include the following:

(A) A brief description of each field test method and each laboratory test method used to characterize the geotechnical properties for the purpose of preparing the sections specified in rules 3745-510-331 to 3745-510-335 of the Administrative Code.

(B) Information and results from each field test, laboratory test, or screening activity that was conducted, including completed, failed, or incomplete results. An explanation shall be provided for any test result that was not used. The results shall include the following information:

(1) Quality assurance and quality control testing conducted by the laboratory to verify the accuracy and precision of testing methods and equipment.

(2) The results of data validation.

(3) The characterization of each specimen used in each test.

(4) Intermediate data produced during testing.

(5) The final results of each test.

(C) All figures, drawings, or references used and marked to show how they relate to the characterization of the geotechnical properties.

(D) Logs, including field notes and other pertinent information, from each subsurface investigatory site used to obtain information, data, or samples for the site investigation. As appropriate for the method, logs shall include the following:

(1) Information on the site where information, data, or samples were obtained, including, as appropriate, the following:

(a) The location of each site with northings and eastings referenced to the facility grid system or referenced to the following if a facility grid system was not established:

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- (i) Horizontally to the "1927 North American Datum," "1983 North American Datum," or "State Plane Coordinate System."
 - (ii) Vertically to the "1929 or 1988 North American Vertical Sea Level Datum" as identified on the USGS 7.5 minute (topographic) map.
- (b) The surface elevation of each site to the nearest tenth of a foot.
- (c) The depth interval of all samples collected including those submitted for laboratory testing.
- (2) Information related to the subsurface investigatory method, including, as appropriate, the following:
 - (a) The diameter, or the width and length at the surface, of the boring.
 - (b) The total depth of the boring.
 - (c) The type of hammer.
 - (d) Method of advancing and cleaning the boring.
 - (e) Method of keeping the boring open.
 - (f) Size of casing and depth of the cased portion of boring.
 - (g) Equipment and method of driving the sampler.
 - (h) Type of sampler, length and inside diameter of barrel, and if liners were used.
 - (i) Size, type, and section length of sampling rods.
 - (j) Description of cone penetrometer, including, as appropriate, the penetrometer tip, friction sleeve, pressure transducer, and inclinometer.
 - (k) Type of thrust machine.
 - (l) Tip and thrust calibration information.
 - (m) Any occurrence of zero-drift.
 - (n) Condition of the rods and tip after withdrawal.
 - (o) Whether a friction reducer was used.

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- (p) Proximity of any existing borehole that is unbackfilled and uncased.
- (3) The top and bottom elevations for each consolidated and unconsolidated stratigraphic unit.
- (4) Information or data on the characteristics, composition, and features for each consolidated and unconsolidated stratigraphic unit, including the following:

 - (a) Variations in texture, saturation, stratigraphy, structure, or mineralogy within each stratigraphic unit that could influence the strength or compressibility of the material.
 - (b) For unconsolidated stratigraphic units, the textural classification using the Unified Soil Classification System (USCS), as described in ASTM D2487.
 - (c) For fine-grained unconsolidated stratigraphic units (e.g., silts and clays), field descriptions of consistency, plasticity, and dilatancy.
 - (d) For consolidated stratigraphic units, the rock type (such as limestone, dolomite, coal, shale, siltstone, or sandstone).
 - (e) Color.
 - (f) Moisture content.
 - (g) Lateral extent.
 - (h) The results from continuous penetration sampling following ASTM D1586 and the corrected and normalized standard penetration number, or results from continuous mechanical cone penetration testing following ASTM D3441.
 - (i) Atterberg limits.
 - (j) In situ unit weight.
 - (k) Dry unit weight.
- (E) The following information on each unconsolidated stratigraphic unit:

 - (1) For unconsolidated stratigraphic units susceptible to bearing capacity failure, the effective drained or undrained peak shear strength parameters, as appropriate, shall be provided on three representative samples using ASTM D3080 (direct shear), ASTM D2850 (unconsolidated undrained compression), or ASTM D4767 (consolidated undrained triaxial compression).

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- (2) For unconsolidated stratigraphic units susceptible to failure under static conditions or failure under seismic conditions, the effective shear strength shall be provided on three representative samples using ASTM D3080 (direct shear), ASTM D4767 (consolidated undrained triaxial compression), or ASTM D6467 (torsional ring shear).
- (3) For saturated unconsolidated stratigraphic units susceptible to failure under static conditions or failure under seismic conditions, the undrained shear strength using fully saturated samples shall be provided on three representative samples using ASTM D2850 (unconsolidated-undrained triaxial compression).
- (4) For all unconsolidated stratigraphic units consisting of fine-grained soils, all of the inputs, intermediate results, outputs, calculations, and parameters resulting from testing samples using ASTM D2435 (one-dimensional consolidation) on one representative sample.