

Part 531 – Geology

Subpart B – Geologic Investigation of Group A Structure Sites

§IA531.10 Geologic Investigations of Group A Structure Sites

A. General

- (4) The geologist will supervise NRCS geologic investigations. Contract drilling will be done in accordance with contract provisions. The field engineer will be present or readily available for consultation during site investigation.
- (5) The geologist is responsible for the completion of the SCS-ENG-533T, Log of Test Holes. Each test hole, trench, or pit will be logged in sufficient detail so that adequate detail is recorded for design purposes. The Unified Soil Classification System (USCS) will be used.
- (6) The Cooperator on CO-01 work is expected to furnish any special exploratory equipment (dozers, backhoes, and so on) needed for an adequate site investigation and not available through NRCS. The Cooperator is also expected to provide access roads and temporary channel crossings for investigation equipment where needed. The District Conservationist is responsible for notifying affected parties of these needs.

B. Subsurface Exploration

- (3) The location of the test holes is the responsibility of the geologist, who will consult with the design engineer in advance. The number of test holes, trenches, or pits will be adequate to enable interpretation and correlation of the foundation beneath all elements of the structure, including dam or structure centerline, principal spillway, auxiliary spillway, and drains. At a minimum, they must include:
 - (i) A test hole as near as possible to each channel bank
 - (ii) A test hole at each abutment
 - (iii) Test holes no more than 150 feet apart on structure centerline
 - (iv) A test hole in the channel bottom
 - (v) Two or more test holes on the auxiliary spillway
 - (vi) At least three test holes on the principal spillway, including one at the riser, one at the intersection of the centerlines of dam and conduit, and one at the outlet
 - (vii) At least two test holes downstream of the structure centerline. One of these may be the outlet test hole as required in (vi).
 - (viii) At least one test hole in each potential borrow area
 - (ix) A test hole at the relief well location where applicable

C. Sampling and Testing

- (4) The geologist is responsible for adequate on-site geologic determinations in consultation with the design and field engineers. The geologist will identify materials, obtain samples for laboratory analysis, and direct onsite geological and geophysical tests. The minimum requirements for sampling and testing for Group A structures are:
 - (i) Two undisturbed samples on structure centerline. If samples are unobtainable, down-hole vane shear tests will be substituted for undisturbed samples in saturated soils.
 - (ii) Two cone penetration tests on structure centerline
 - (iii) One undisturbed sample at the downstream prop location of concrete principal spillways
 - (iv) One large disturbed sample from each potential borrow area
 - (v) A small undisturbed sample at the relief well location where applicable

§IA531.11 Requirements for Geologic Investigation of Group A Structures During Construction (As-Built)

A. Requirements

- (3) A geologist must inspect the core trench after it is excavated and before any placement of drains, compacted fill, or other treatment. The purpose is to verify the validity of all assumptions and interpretations made in previous investigations and to identify differing conditions that may impact the long-term performance of the structure. Differing conditions that require design modifications must be documented in the as-built records.
- (4) The geologist must prepare an as-built geologic report which identifies and explains conditions and/or interpretations that differ from those reported in previous investigations. These differences must be documented through logs, cross-sections, maps, and photographs.