

\_\_\_\_\_ CONCRETE QUALITY CONTROL MEASURES AND CONCRETE QUALITY ASSURANCE TEST PROGRAM

NOTE TO SPECIFIERS: Use this paragraph in all jobs when long forms [other than Conc. 28 (short) and Conc. 31 (very short)] are used. Check with the concrete laboratories to see what test facilities will be required.

a. Concrete quality control measures. - As stated in the clause in subsection I.3 entitled "Inspection of Construction," the Contractor shall be responsible for providing quality control measures to assure compliance of the concrete with the contract requirements.

b. Concrete quality assurance program. - Independently of the Contractor's concrete quality control measures, the Government will conduct a concrete quality assurance program incorporating the tests and Contractor-furnished <sup>1</sup>(test facilities and) sampling equipment specified below. As a part of its concrete quality assurance program, the Government will conduct tests, to the extent and frequency necessary to ascertain that the concrete constituents, as well as fresh and hardened concrete, meet the specified levels of quality.

(1) Tests. - The Government will obtain samples and conduct tests in accordance with the test methods listed in paragraphs \_\_\_\_\_ (Sand) and \_\_\_\_\_ (Coarse Aggregate) and the test methods and specifications listed below:

- (a) Sampling hydraulic cement. - ASTM designation: C 183.
- (b) Sampling pozzolan. - ASTM designation: C 311.
- (c) Sampling aggregate. - ASTM designation: D 75.
- (d) Reducing field samples of aggregate to testing size. - ASTM designation: C 702.
- (e) Absorption of fine aggregate. - ASTM designation: C 128.
- (f) Absorption of coarse aggregate. - ASTM designation: C 127.
- (g) Total moisture content of aggregate. - ASTM designation: C 566.
- (h) Sampling fresh concrete. - ASTM designation: C 172.
- (i) Concrete uniformity. - ASTM designation: C 94, annex A1.
- (j) Density (unit weight) and yield. - ASTM designation: C 138, except that a 0.25-cubic-foot container may be used for nominal aggregate sizes up to 1-1/2-inches <sup>2</sup>(and a 0.5-cubic-foot container may be used for nominal aggregate sizes up to 3 inches).

(k) Air content. - ASTM designation: C 231.

(l) Slump. - ASTM designation: C 143.

(m) Temperature. - Temperature will be determined by placing a thermometer in the concrete at the placement.

(n) Making and curing concrete test specimens in the field. ASTM designation: C 31, except that the frequency of internal vibrators shall be 10,000 revolutions per minute or greater while in use.

(o) Capping cylindrical concrete specimens. - ASTM designation: C 617.

(p) Compressive strength of cylindrical concrete specimens. ASTM designation: C 39 for cast cylinders and ASTM designation: C 42 for cores.

(2) <sup>1</sup>(Test facilities and) sampling equipment. - The Contractor shall provide sampling equipment <sup>1</sup>(and testing facilities), for use by the Government as listed below:

<sup>1</sup>[(a) Building. - An enclosed building of not less than 200 square feet adjacent to the batch plant, free from plant vibration and excessive plant noises, and furnished with all necessary utilities including lights, compressed air, water, room temperature control, and electrical power.]

<sup>3</sup>[(b) Mechanical sampling device. - Mechanical sampling devices for safely obtaining and handling representative test samples of aggregates and other concrete materials during batching and, at central mix plants, mechanical sampling devices for safely obtaining representative concrete samples from a point in the discharge stream as the concrete is discharged from the mixers.]

<sup>3</sup>[(c) Working space and means for handling samples. - Ample and protected working space near the placement site and a means for safely procuring and handling representative concrete samples.]

<sup>1</sup>[(d) Removal of test facilities. - After tests are completed, the Contractor-furnished test facilities shall remain the property of the Contractor and shall be removed from the worksite.]

(3) Contractor-furnished drawings and data. - The Contractor shall submit drawings and data to the <sup>4</sup>[(Project) Construction Engineer], for approval, showing locations and descriptions of Contractor-furnished <sup>1</sup>(test facilities and) sampling equipment for Government sampling and testing of concrete and concrete materials not less than 30 days prior to start of installation of the Contractor's plants and equipment for processing, handling, transporting, storing, and proportioning concrete ingredients, and for mixing, transporting, and placing concrete. The drawings and data shall provide a description in

sufficient detail for an adequate review of the facilities and equipment the Contractor proposes to provide the Government for use in the Government's concrete quality assurance program.

One copy of the drawings and data shall be sent to the <sup>4</sup>[(Project) Construction Engineer], Bureau of Reclamation, \_\_\_\_\_, and one copy of the letter transmitting the drawings and data to the <sup>4</sup>[(Project) Construction Engineer] shall be sent to the Contracting Officer.

c. Cost. - The cost of furnishing drawings and data, sampling equipment, <sup>1</sup>(and testing facilities) shall be included in the applicable prices bid in the schedule for concrete.

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<sup>1</sup>Delete if no test facilities are required.

<sup>2</sup>Delete if concrete containing aggregate larger than 1-1/2 inches is not specified.

<sup>3</sup>Revise subparagraph number if required.

<sup>4</sup>Delete or revise as required.

3-15-85 Revisions: Revised throughout.