

Kansas Administrative Regulations

Kansas Department of Agriculture—Division of Water Resources

Article 40.—Design of Earth Dams

5-40-2a. Benchmarks.

(a) At least two permanent benchmarks shall be installed for future reference at each dam. Each benchmark shall be located according to the following criteria:

(1) In an area where the benchmark will not be disturbed, destroyed, or inundated after the dam is complete; and

(2) along the centerline of the dam on either end of the dam, if practical, and in undisturbed soil.

(b) On high-impact dams, each permanent benchmark shall also meet the following criteria:

(1) Be installed in a hole that meets the following criteria:

(A) Is 12 inches in diameter; and

(B) is at least 42 inches deep or is drilled to bedrock, whichever is less;

(2) be constructed of one or more steel reinforcing bars at least $\frac{3}{8}$ inch in diameter and 36 inches in length or the length of the depth of the hole, whichever is less. The reinforcing bar or bars shall be placed in the hole and the hole backfilled with concrete rounded off flush with the ground;

(3) be capped by a metal survey marker; and

(4) be either marked by a witness post or survey marker sign or tied to at least two objects in the vicinity by distance and bearing.

(c) On low-impact dams, each permanent benchmark shall also meet the following minimum requirements:

(1) Be constructed of a reinforcing bar that is 36 inches long, one-half inch in diameter, and driven flush with the surface of the ground;

(2) be installed at a location protected from grazing animals and vehicular traffic; and

(3) be either marked by a witness post or survey marker sign or tied to at least two objects in the vicinity by distance and bearing.

(d)(1) The elevation and horizontal location of each permanent benchmark shall be shown on the as-built drawings or the construction inspection report. The location of each permanent benchmark shall be described in reference to centerline stationing and offset from the centerline. The elevation of each permanent benchmark for all of the following classes of dams shall be referenced to the national geodetic vertical datum of 1988, or other acceptable national vertical datum, to a tolerance of plus or minus 0.5 foot:

(A) Class size two, hazard classes B and C;

(B) class size three dams; and

(C) class size four dams.

(2) The elevation of each benchmark for class sizes one and two, hazard class A dams may be referenced to an assumed datum.

(e) Horizontal control shall be referenced to the Kansas state plane coordinate system as set forth in K.S.A. 58-20a01 et seq., and amendments thereto. The location of each benchmark shall be shown on the as-built drawings or the notice of completion by using either of the following:

(1) The plane coordinate values consisting of a northing and an easting from the appropriate monumented point according to K.S.A. 58-20a03, and amendments thereto; or

(2) the feet distances north or south, and east or west, from the nearest or most convenient section corner.

(Authorized by K.S.A. 2006 Supp. 82a-303a; implementing K.S.A. 2006 Supp. 82a-302 and 82a-303a; effective May 18, 2007.)

***** Authenticated Kansas Administrative Regulation *****