K.S.A. 24-126 Regulations

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K.A.R. 5-45-1. Levees and floodplain fills; definitions. As used in K.S.A. 24-126 and amendments thereto, in the regulations adopted pursuant to that statute, and by the division of water resources in administering K.S.A. 24-126 and amendments thereto, unless the context clearly requires otherwise, the following words and phrases shall have the meanings specified in this regulation: (a) "Approval" means the written approval of plans and specifications by the chief engineer authorizing the applicant to proceed with the construction and maintenance of a levee or floodplain fill project.

(b) "Authorized representative" means any staff employee designated by the chief engineer to perform duties and functions on behalf of the chief engineer.

(c) "Base flood" means a flood having a one percent chance of being equaled or exceeded in any one year.

(d) "Benchmark" means a reference point or object of known elevation and location that is not expected to move horizontally or vertically during the life of the project.

(e) "Chief engineer" means the chief engineer, division of water resources, Kansas department of agriculture.

(f) "Design flood" means a flood having a selected probability of being equaled or exceeded in any one year for the degree of protection required.

(g) "Environmental mitigation" means any of the following:
(1) Site-specific modification of a project;
(2) implementation of a practice or management; or
(3) the reservation of a part of the project to protect or replace environmental values destroyed or adversely affected by the project.

(h) "Equal and opposite conveyance" means the location of development offsets from stream banks so that floodplain lands on each side of a stream outside the stream channel convey a share of the flood flows proportionate to the total conveyance available on each respective side of the stream.

(i) "Floodplain" means the land in and adjacent to a stream that is inundated by a base flood.

(j) "Floodplain fill" means material, usually soil, rock, or rubble, that is placed in a floodplain to an average height of greater than one foot above the existing ground and that has the effect of diverting, restricting, or raising the level of floodwaters on a stream.

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(k) "Floodway" means the channel of a stream and adjacent land areas that have been determined as being necessary to convey the base flood, as calculated using the minimum requirements of the national flood insurance act of 1968, 42 U.S.C. 4001 et seq., as amended September 23, 1994, and 44 C.F.R. part 59, subpart A, sec. 59.1 and 44 C.F.R. part 60, subpart A, sec. 60.3, as amended October 1, 2007.

(l) "Floodway fill" means floodplain fills, other than a levee, placed wholly or partially within the boundaries of the floodway at locations where the floodway has been identified.

(m) "Floodway fringe" means those portions of a floodplain outside of the boundaries of a regulatory floodway within reaches of a stream where a floodway has been established.

(n) "Floodway fringe fill" means floodplain fills, other than a levee, placed wholly outside the floodway boundaries at locations where the floodway has been identified.

(o) "Geometric analysis" means a determination of the cross-sectional area of a valley below the base flood elevation that will be blocked by a proposed floodplain fill or levee. The resulting area is then divided by the width of the water surface of the base flood at that location. This value is an estimate of how much the proposed project will increase the base flood elevation.

(p) "Levee" means any floodplain fill with an average height of more than one foot above the surrounding terrain constructed generally parallel to a water course and whose purpose is to repel floodwaters.

(q) "Perennial stream" means a stream, or a part of a stream, that flows continuously during all of the calendar year, except during an extended drought.

(r) "Person" means a natural person, partnership, organization, or other similar entity.

(s) "Safety berm" means a linear soil mound, guardrail, or similar traffic barrier located on the bank of a traffic way to prevent a vehicle from overturning or endangering persons in the vehicle.

(t) "Stream" means any watercourse that has a well-defined bed and well-defined banks~~,~~ and that has a watershed above the point in question marking the site of the project that exceeds the following number of acres in the zones specified:

(1) Zone three: 640 acres for all geographic points within any county west of a line formed by the adjoining eastern boundaries of Phillips, Rooks, Ellis, Rush, Pawnee, Edwards, Kiowa, and Comanche counties;

(2) zone two: 320 acres for all geographic points within any county located east of zone three and west of a line formed by the adjoining eastern boundaries of Republic, Cloud, Ottawa, Saline, McPherson, Reno, Kingman, and Harper counties; and

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(3) zone one: 240 acres for all geographic points within any county located east of zone two.

The flow of a stream is not necessarily continuous and can occur only briefly after a rain in the watershed. If the site of the project has been altered so that a determination of whether the well-defined bed and banks did exist is not possible, it shall be presumed that the bed and banks did exist if the watershed acreage criteria specified in this subsection have been met, unless the owner of the project conclusively demonstrates that the well-defined bed and banks did not exist when the project site was in its natural state and had not yet been altered by human activity.

(u) "Unconsolidated material storage stockpile" and "UMSS" mean a collection of material that is placed in a floodplain to an average height of greater than one foot above the existing ground, has the potential to divert, restrict, or cause an unreasonable effect on a base flood, and is one of the following:

(1) A pile of sand or gravel that meets all of the following requirements:

(A) Is not mechanically compacted;

(B) is not cemented together;

(C) is not covered or coated with a substance increasing the structural integrity of the pile; and

(D) is not placed as fill for grading or a foundation; or

(2) a pile of nonsoil material consisting of discrete units meeting all of the following requirements:

(A) Are not fastened or cemented together;

(B) are not anchored to the ground;

(C) are not mechanically compacted; and

(D) are not dense enough or arranged in a manner to resist the hydraulic force of a base flood.

(v) "Unreasonable effect," if caused by a levee or floodplain fill, means any of the following:

(1) An increase in the elevation of the design and base flood profiles of more than one foot at any location outside a floodway;

(2) any increase in the elevation of the design and base flood profiles within a floodway; or

(3) a cumulative increase of more than one foot in the elevation of the design and base flood profiles.

(w) "Watershed" means all of the area draining toward a selected point on a stream. (Authorized by and implementing K.S.A. 2007 Supp. 24-126; effective May 1, 1987; amended, T-5-12-30-91, Jan. 1, 1992; amended April 27, 1992; amended Sept. 22, 2000; amended Oct. 3, 2008.)

K.A.R. 5-45-2. Levees and floodplain fills; plans and specifications. Plans for a levee or a floodplain fill must be submitted on clearly legible prints (maximum size 24 inches by 36 inches)

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of the original tracings which are capable of reproduction. Plans for a levee or a floodplain fill shall include: (a) A general location map or aerial photograph showing:

(1) the stream;
(2) location of the proposed levee or floodplain fill;
(3) floodway limits where available;
(4) floodplain limits where available;
(5) section lines;
(6) property lines with names and addresses of adjoining landowners and any other landowners whose land may be hydraulically affected by the proposed levee or floodplain fill;
(7) drainage area;
(8) a bar scale;
(9) a north arrow;
(10) existing and proposed surface drainage flow patterns; and
(11) any other prominent features;

(b) a detailed plan view fully describing the levee or floodplain fill and the site, including:

(1) the design flood elevation and frequency;
(2) the base flood or floodplain limits where available;
(3) floodway limits where available;
(4) two-foot ground contours of the levee or floodplain fill and areas with local drainage problems; and
(5) the area reserved for environmental mitigation with a description of any necessary environmental mitigation measures to be implemented, if those measures may affect the hydraulics used to evaluate the project;

(c) a profile showing the proposed elevation of the top and base of the levee or floodplain fill, the design flood, the base flood, the stream bed and both banks;

(d) an elevation view at the most hydraulically restrictive location in the valley affected by the project, showing the levee or floodplain fill on a cross section of the stream and the valley up to the post project base flood elevation at the site. This cross section shall show:

(1) the stream;
(2) floodway limits where available;
(3) floodplain limits where available;
(4) base flood elevation; and
(5) design flood elevation;

(e) at least one permanent benchmark conveniently located for use after construction. The benchmark shall be placed where it is not likely to be destroyed. A three foot minimum length of pipe or steel driven flush with the ground in an area which is unlikely to be disturbed may be used. Wood or plastic stakes, nails or marks in trees shall not be considered as permanent benchmarks. The location and description of the benchmark shall be shown on the plans. They shall be properly referenced so they can be easily found in the field. The location, description

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and elevation of the permanent benchmark shall be shown on the plans. The benchmark may be a benchmark identified in the community's flood insurance rate map if the benchmark is less than 500 feet from the fill. Reference to the national geodetic vertical datum of 1988, or other acceptable national vertical datum, to a tolerance of plus or minus one half foot is required for all levees and floodplain fills on perennial streams. Reference to a tolerance of 0.05 foot is required where detailed floodplain data are available. Project datum is acceptable on all other levee and floodplain fill projects; and

(f) the land for which easements or rights-of-way have been acquired when the proposed levee or floodplain fill will affect land other than that owned by the applicant. (Authorized by and implementing K.S.A. 1991 Supp. 24-126; effective May 1, 1987; amended, T-5-12-30-91, Jan. 1, 1992; amended April 27, 1992.)

K.A.R. 5-45-3. Levees and floodplain fills; specifications. The specifications for levees and floodplain fills shall be prepared on 81/2 by 11 inch sheets of a good grade of white bond paper. The specifications shall be in sufficient detail to assure that the works will be properly executed and shall comply with currently accepted engineering practices. The specifications shall include provisions for: (a) adequate supervision during the period of construction by a person qualified to design the levee or floodplain fill;

(b) notification of the division of water resources of the status of construction; and

(c) inspection by a representative of the division of water resources. (Authorized by and implementing K.S.A. 24-126 as amended by L. 1991, ch. 56, sec. 27; effective May 1, 1987; amended, T-5-12-30-91, Jan. 1, 1992; amended April 27, 1992.)

K.A.R. 5-45-4. Levees and floodplain fills; preparer of maps, plans, profiles, and specifications. In addition to the requirements of the Kansas board of technical professions, the following requirements shall apply: (a) Each map, plan, profile, and specification submitted to the chief engineer for approval pursuant to K.S.A. 24-126 and amendments thereto shall be prepared by a person who is competent in levee or floodplain fill design and construction.

(b) Map, plans, profiles, and specifications for any of the following described levees and floodplain fills shall be prepared by a licensed professional engineer that is competent in levee or floodplain fill design and construction:

(1) Class C levees;

(2) floodplain fills located in whole or in part in identified floodways; and

(3) floodplain fills, except safety berms and UMSSs, that meet the following criteria:

(A) Are located in areas without a designated floodway;

(B) are greater than 3,200 cubic yards in volume;

(C) are more than four feet in height; and

(D) are more than 100 feet from other floodplain fills.

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(c) No provision of this regulation, and no decision made by the chief engineer pursuant to this regulation, shall alter the responsibilities or duties of any licensee of the Kansas board of technical professions to comply with that board's requirements. (Authorized by and implementing K.S.A. 2007 Supp. 24-126; effective May 1, 1987; amended, T-5-12-30-91, Jan. 1, 1992; amended April 27, 1992; amended Sept. 22, 2000; amended Oct. 3, 2008.)

K.A.R. 5-45-5. Levees; waiver and stricter requirements. The chief engineer may waive any of the regulations adopted under this article if it is shown to the satisfaction of the chief engineer that the waiver of the regulation will not pose a hazard to the public safety and that the waiver is in the public interest. The chief engineer may also invoke any jurisdiction granted by statute to impose stricter requirements than those required by rules and regulations where such jurisdiction or additional requirements are necessary to protect the public interest, protect the public safety or prevent damage to property. (Authorized by and implementing K.S.A. 24-126; effective May 1, 1987.)

K.A.R. 5-45-6. Levees and floodplain fills; other maps, plans, profiles, data and specifications. The applicant shall also submit any other maps, plans, profiles and specifications of the levee or floodplain fill project and any other data which the chief engineer may require. (Authorized by and implementing K.S.A. 24-126 as amended by L. 1991, ch. 56, sec. 27; effective May 1, 1987; amended, T-5-12-30-91, Jan. 1, 1992; amended April 27, 1992.)

K.A.R. 5-45-7. Levees and floodplain fills; application. (a) The application for approval of plans to construct a levee or floodplain fill shall be filed on the form(s) prescribed by the chief engineer, including application supplements, and shall be completed in proper form according to the instructions. To be complete, the application shall include:

(1) application DWR No. 3-100.1;

(2) the application supplement, DWR Form No. 2-102;

(3) plans fully complying with requirements of K.A.R. 5-45-2;

(4) specifications fully complying with requirements of K.A.R. 5-45-3; and

(5) a copy of an application to the governing body for a floodplain development permit, if the proposed levee or floodplain fill will change the limits of the floodplain or floodway boundaries, or both.

(b) The statutory time limit on the chief engineer's deliberation for approval for floodway fringe fills shall not begin until the application is complete. When such a floodway fringe fill application is received by the chief engineer, it will be reviewed to determine whether or not it is complete. If the application is complete, the chief engineer will notify the applicant when the 90-day review period began and will end. If the application is not complete, the additional information will be requested and the applicant informed that the 90-day statutory review period has not yet begun. For a floodway fringe fill application, when comments are received as a result of the water projects environmental coordination act review under K.S.A.

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82a-325, et seq., which require modification of the plans, the 90-day statutory time limit shall be suspended from the time the modifications are requested by the chief engineer until satisfactory modifications of the plans are received by the division of water resources. When the appropriate modifications have been received, the 90-day time limit will begin again with the same number of days remaining as were remaining at the time of the suspension. The applicant shall be notified in writing as to the dates of the suspension and restart of the 90-day time limit. (Authorized by and implementing K.S.A. 1991 Supp. 24-126; effective May 1, 1987; amended, T-5-12-30-91, Jan. 1, 1992; amended April 27, 1992.)

K.A.R. 5-45-8. Levees; hazard classes. The following levee hazard classes are established: (a) Class A levee--failure of levee may allow damage to farm buildings, limited agricultural grounds or private roads.

(b) Class B levee--failure of levee may endanger extensive agricultural land, or damage isolated homes, secondary highways or minor railroads.

(c) Class C levee--failure of levee may cause loss of life, or cause serious damage to private, commercial or public property. (Authorized by and implementing K.S.A. 24-126; effective May 1, 1987.)

K.A.R. 5-45-9. Levees; design storm flow determination. (a) In determining design storm flow magnitude, the applicant shall use an accepted engineering method.

(b) For drainage areas of less than 2 square miles the following methods are acceptable, where appropriate:

(1) The rational formula for flow magnitude determination when used according to the following formula:

Q = CIA

Where C = the runoff coefficient

I = intensity of rainfall in inches per hour and

A = drainage area in acres.

To determine the proper intensity of rainfall for use with the formula, first determine the appropriate total rainfall from ``Technical Paper Number 40, Rainfall Frequency Atlas of the United States, *Department of Commerce*, May 1961," and the time of concentration from the Kirpich nomograph and then obtain the intensity from the standard rainfall intensity-duration curves;

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(2) The SCS method for estimating direct runoff, United States department of agriculture, soil conservation service;

(3) ``Technical Release 55, Hydrology for Urban Areas, *United States Department of Agriculture, Soil Conservation Service."*

(c) For drainage areas two square miles or greater, the following methods of determining flow magnitude shall be acceptable, where appropriate:

(1) the publication ``Magnitude and Frequency of Floods in Kansas, Unregulated Streams, Technical Report 11, *Kansas Water Resources Board,* February 1975";

(2) ``Technical Release 20, Computer Program for Project Formulation, Hydrology, *United States Department of Agriculture, Soil Conservation Service";* or

(3) ``HEC-1 Flood Hydrograph Package, *Corps of Engineers Hydrologic Engineering Center."* (Authorized by and implementing K.S.A. 24-126; effective May 1, 1987.)

K.A.R. 5-45-10. Levees; design criteria. Design for levees shall meet or exceed the following criteria: (a) Class A levee--the levee shall safely repel the appropriate design storm.

(b) Class B levee--the levee shall safely repel at least the ten year design storm.

(c) Class C levee--the levee shall safely repel at least the 100 year design storm. For class C levees the applicant shall submit complete water surface water profiles of both the ten and 100 year events, both before and after construction. (Authorized by and implementing K.S.A. 24-126; effective May 1, 1987.)

K.A.R. 5-45-11. Levees; freeboard requirements. (a) Levees not within a floodway designated by the chief engineer are required to have the following freeboard:

Design flood frequency	*Freeboard required*
10 years	1 foot
25 years	2 feet
50 years or more	3 feet

(b) Levees constructed within a floodway designated by the chief engineer shall have a freeboard requirement designated on a site specific basis. (Authorized by and implementing K.S.A. 24-126; effective May 1, 1987.)

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K.A.R. 5-45-12. Levees and floodplain fills; setback. Except for highway and road crossings of streams, the minimum setback distance from the top of the stream bank to the nearest toe of the levee or the edge of the floodplain fill shall be 100 feet, or twice the width of the stream measured from the top of one bank to the top of the opposite bank, whichever distance is less, unless the applicant demonstrates that adequate bank protection will be utilized. (Authorized by and implementing K.S.A. 1991 Supp. 24-126; effective May 1, 1987; amended, T-5-12-30-91, Jan. 1, 1992; amended April 27, 1992.)

K.A.R. 5-45-13. Levees; floodplain fills; unreasonable effect. (a) Except as set forth in subsection (b), no plans for any levee or floodplain fill that has an unreasonable effect on another shall be approved by the chief engineer. An unreasonable effect caused by a levee or floodplain fill shall be deemed any of the following:

(1) An increase in the elevation of the design and base flood profiles of more than one foot at any location outside a floodway;

(2) any increase in the elevation of the design and base flood profiles within a floodway; or

(3) a cumulative increase of more than one foot in the elevation of the design and base flood profiles.

(b) A levee or floodplain fill that has an unreasonable effect on another may be approved by the chief engineer subject to any conditions necessary to protect the public interest if either of the following criteria is met:

(1) The applicant demonstrates to the chief engineer that the applicant has obtained legal authorization from any landowner whose land is unreasonably hydraulically affected by a greater increase in the elevation of the design and base flood profile.

(2) The following conditions are met:

(A) The owner of the undeveloped, unplatted land that will be hydraulically affected by an increase in the design and base flood profiles of more than one foot by a federal or state cost-shared roadfill, bridge, or culvert replacement project has been notified of the proposed hydraulic effects by the chief engineer.

(B) The owner has failed to object within the time limit set forth in the notice.

(C) The chief engineer determines that the increase will not be likely to materially damage the private or public property. (Authorized by and implementing K.S.A. 24-126; effective May 1, 1987; amended, T-5-12-30-91, Jan. 1, 1992; amended April 27, 1992; amended Sept. 22, 2000.)

K.A.R. 5-45-14. Levees and floodplain fills; hydrologic and hydraulic analysis. (a) The applicant shall submit a hydrologic and hydraulic analysis for every levee and floodplain fill project except floodway fringe fill projects and those levee projects and floodplain fill projects not identified in K.A.R. 5-45-4(b). The hydrologic and hydraulic analysis shall include the design and base floods for main streams, tributary streams, and local drainage, describing the existing and proposed conditions with the application and plans.

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(b) The effect of a proposed levee or floodplain fill shall be calculated by the technique of equal conveyance reduction, except as provided in subsections (c) and (d), unless it meets either of the following criteria:

(1) The applicant demonstrates that the applicant has obtained legal authorization from any landowner whose land is unreasonably hydraulically affected by a greater encroachment toward the channel.

(2) The following conditions are met:

(A) The owner of the undeveloped, unplatted land that will be hydraulically affected by an increase in the elevation of the base flood profile of more than one foot by a federal or state cost-shared roadfill, bridge, or culvert project has been notified of the proposed hydraulic effects by the chief engineer.

(B) The owner has failed to object within the time limit set forth in the notice.

(C) The chief engineer determines that the increase will not be likely to materially damage the private or public property.

(c) For a class A or class B levee, the effect of the proposed levee on the design flood profile shall be evaluated with the assumption that an equal setback levee is in place on the opposite side of the stream.

(d) For a class C levee, the effect of the proposed levee on the design flood profile shall be calculated by the technique of equal conveyance reduction from the outer floodplain limits outside the channel, unless the applicant demonstrates that the applicant has obtained legal authorization from all landowners whose land would be unreasonably hydraulically affected by a greater encroachment toward the channel. (Authorized by and implementing K.S.A. 24-126; effective, T-5-12-30-91, Jan. 1, 1992; effective April 27, 1992; amended Sept. 22, 2000.)

K.A.R. 5-45-15. Floodplain fills; design criteria. Floodplain fills shall meet or exceed the following design criteria: (a) the sideslopes shall not be steeper than one vertical to three horizontal, unless the applicant submits data and analysis to show that a steeper slope will be stable.

(b) Floodplain fills shall be adequately protected from erosion and undermining from floods up to the level of the base flood elevation and surface drainage by the use of vegetative cover, riprap or other means.

(c) Floodplain fills shall not unreasonably obstruct or divert the flow of surface water and other waters from the main stream and tributaries to the main stream to the detriment of adjacent or hydraulically affected property owners.

(d) Floodplain fills shall not obstruct utility or other easements without proper authorization.

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(e) Floodplain fills shall not unreasonably affect the environment without adequate environmental mitigation.

(f) Floodplain fills, other than levees, for residential buildings, including manufactured housing, are required to be of adequate height to raise the lowest floor, including the basement, at least one foot above the base flood elevation, unless:

(1) an exception has been granted by the flood insurance administrator of the flood insurance administration within the FEMA for the allowance of a basement; or

(2) the chief engineer has approved a community standard at or above base flood elevation.

(g) Floodplain fills other than levees for sewage lagoons and sanitary landfills are required to have at least one foot of freeboard above the base flood.

(h) Except for fills for highways and roads, all other floodplain fills other than levees are required to have at least one foot of freeboard above the design flood.

(i) If subsequent to approval of the floodplain fill by the chief engineer, a letter of map revision or letter of amendment is obtained from FEMA removing an area of the approved or permitted fill from the floodplain, then any permit or approval issued by the chief engineer no longer applies to that area removed from the floodplain. (Authorized by and implementing K.S.A. 1991 Supp. 24-126; effective, T-5-12-30-91, Jan. 1, 1992; effective April 27, 1992.)

K.A.R. 5-45-16. Floodplain fills; disapproval. (a) A levee or floodplain fill should not have an unreasonable effect on adjacent landowners, be adverse to the public interest and environmental concerns or lack required environmental mitigation.

(b) Within six months of the disapproval, the applicant may make a written request to the chief engineer to rescind the disapproval by providing information or modifications of the plans requested by the chief engineer. (Authorized by and implementing K.S.A. 24-126 as amended by L. 1991, ch. 56, sec. 27; effective, T-5-12-30-91, Jan. 1, 1992; effective April 27, 1992.)

K.A.R. 5-45-17. Exemption--floodway fringe fills. Floodway fringe fills are exempt from applying for and obtaining approval from the chief engineer if: (a) they are:

(1) up to 1600 cubic yards in size;

(2) with a maximum height of two feet;

(3) more than 100 feet away from any other floodplain fills; and

(4) constructed according to the design criteria in K.A.R. 5-45-15; or

(b) they are located in communities which have adopted local standards for floodway fringe fills approved by the chief engineer which meet or exceed the standards adopted by the chief engineer for individual floodway fringe fills. The standards shall include an appeal process,

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an environmental assessment and a review of local drainage. (Authorized by and implementing K.S.A. 1991 Supp. 24-126; effective, T-5-12-30-91, Jan. 1, 1992; effective April 27, 1992.)

K.A.R. 5-45-18. Floodplain fills; incidental to bridge and culvert replacement projects. Each floodplain fill constructed incidental to a bridge or culvert replacement project that otherwise meets the requirements of K.A.R. 5-46-1 shall be considered to have the necessary approval of plans pursuant to K.S.A. 24-126, and amendments thereto, and article 45 of the rules and regulations adopted by the Kansas department of agriculture, division of water resources. (Authorized by and implementing K.S.A. 24-126; effective Sept. 22, 2000.)

K.A.R. 5-45-19. Unconsolidated material storage stockpiles and safety berms. Except as provided in K.A.R. 5-45-21 and K.A.R. 5-45-22, the prior written approval of the chief engineer shall be required before placing an unconsolidated material storage stockpile in a floodplain or constructing a safety berm in a floodplain. (Authorized by and implementing K.S.A. 2007 Supp. 24-126; effective Oct. 3, 2008.)

K.A.R. 5-45-20. Application to place an unconsolidated material storage stockpile or safety berm. (a) In lieu of the maps, plans, profiles, data, and specifications required for other floodplain fills, each request for approval to place an unconsolidated material storage stockpile (UMSS) or safety berm shall contain the following:

(1) A completed application filed on a form prescribed by the chief engineer; and

(2) the statutorily required filing fee.

(b) If the proposed UMSS or safety berm will be constructed wholly or partially within a floodway, the request for approval shall also contain a copy of the no-rise certification, hydraulic analysis, maps, cross sections, and other supporting information required for local governmental approval of a floodway fill pursuant to the following:

(1) 44 C.F.R. 60.3, dated October 1, 2007; and

(2) the "procedures for 'no-rise' certification for proposed development in the regulatory floodway," dated October 12, 1995, by the federal emergency management agency (FEMA), region VII.

(c) If the proposed UMSS or safety berm will be constructed completely outside a floodway, the request for approval shall also contain the following:

(1) A map or aerial photograph with a scale of not less than one to 3,600 showing the location and extent of the proposed UMSS or safety berm during the initial year of operation and the location and maximum aerial extent of the proposed UMSS or safety berm over the life of the project;

(2) a scale drawing of a cross section of the floodplain perpendicular to the stream showing the following:

(A) The streambed;

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(B) the ground surface;

(C) levees and other features defining the edges of the floodplain;

(D) the base flood elevation; and

(E) the location of any other levees, floodplain fills, UMSSs, and safety berms at or below the base flood elevation and located within five times the width of the water surface during the base flood or 1,320 feet, whichever is less, of the proposed project both upstream and downstream from the boundaries of the proposed project superimposed on the cross section, using the centerline of the stream as the horizontal reference; and

(3) a geometric analysis, or a more accurate hydraulic analysis, showing that the proposed UMSS or safety berm will not cause an unreasonable effect. The geometric or more accurate analysis shall include the cumulative effects of all existing and proposed levees, floodplain fills, UMSSs, and safety berms located within five times the width of the water surface or 1,320 feet, whichever is less, of the proposed project both upstream and downstream from the boundaries of the proposed project. (Authorized by and implementing K.S.A. 2007 Supp. 24-126; effective Oct. 3, 2008.)

K.A.R. 5-45-21. Safety berm. A safety berm shall not be deemed a levee or any other such improvement subject to regulation pursuant to K.S.A. 24-126, and amendments thereto, if the safety berm meets one of the conditions in subsection (a) and all of the requirements in subsection (b). (a)(1) The safety berm is a guardrail that would not divert, restrict, or raise the floodwaters of a stream.

(2) The safety berm is at least six inches below the base flood elevation.

(3) The safety berm will contain gaps from the ground surface to the top of the berm spaced at intervals of 100 feet or less. The gaps shall be sufficiently wide to allow floodwaters to breach the safety berm.

(b) The safety berm meets the following requirements:

(1) Does not obstruct normal streamflow;

(2) does not redirect normal streamflow;

(3) does not block culverts and drainage channels; and

(4) does not cause other hydraulic problems, including causing an unreasonable effect. (Authorized by and implementing K.S.A. 2007 Supp. 24-126; effective Oct. 3, 2008.)

K.A.R. 5-45-22. Unconsolidated material storage stockpile. An unconsolidated material storage stockpile (UMSS) may exist in a floodplain without the approval of the chief engineer if the UMSS meets one of the conditions in subsection (a) and all of the requirements of subsection (b). (a)(1) The UMSS existed before 1929.

(2) In counties or cities with flood insurance rate maps, the UMSS existed before the creation of the most recent flood hazard map, and the UMSS's impact on flooding was analyzed in creating the map.

(3) The UMSS existed before January 1, 2006 at a sand and gravel mining site.

(4) The UMSS is located outside a floodway and meets both of the following conditions:

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(A) The UMSS will be present at that location for less than 270 days.

(B) The site will be restored to its original condition within 90 days after the UMSS is removed.

(b) The UMSS meets the following requirements:

(1) Does not obstruct normal streamflow;

(2) does not redirect normal streamflow;

(3) does not block culverts and drainage channels; and

(4) does not cause other hydraulic problems, including an unreasonable effect.

(c) Each UMSS that is not a levee or any other such improvement subject to regulation pursuant to K.S.A. 24-126, and amendments thereto, except a temporary UMSS meeting the standards of paragraph (a)(4), shall become subject to regulation when the areal extent of the UMSS increases or the location changes in whole or in part. (Authorized by and implementing K.S.A. 2007 Supp. 24-126; effective Oct. 3, 2008.)

K.A.R. 5-45-23. Use of geometric analysis. (a)(1) A geometric analysis shall not be used if any existing or proposed levees or floodplain fills are located, or proposed to be located, within the lesser of the following distances measured from the boundaries of the proposed levee or floodplain fill:

(A) Five times the width of the water surface during a base flood, as measured both upstream and downstream; and

(B) 1,320 feet, as measured both upstream and downstream.

(2) The prohibition specified in paragraph (a)(1) shall not apply if the applicant demonstrates that the effects of the existing or proposed levee or floodplain fill projects are included in the analysis in a technically valid manner.

(b) If the geometric analysis shows that the increase in the base flood elevation that will be caused by the proposed project will cause an unreasonable effect, the applicant shall meet one of the following requirements:

(1) Submit a hydrologic analysis meeting the requirements of K.A.R. 5-45-14 and demonstrating that the proposed project will not cause an unreasonable effect, as determined by the geometric analysis; or

(2) modify the design of the proposed floodplain fill or levee so that the proposed project will not cause an unreasonable effect, as determined by the applicant's geometric or hydrologic analysis. If the project cannot be modified so that it will not cause an unreasonable effect, the application for the approval shall be denied. (Authorized by and implementing K.S.A. 2007 Supp. 24-126; effective Oct. 3, 2008.)

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