

A landscape photograph showing a grassy hillside in the foreground. In the middle ground, there is a calm pond reflecting the sky. To the right of the pond, a large, light-colored building with a dark roof is visible. The background is filled with a dense line of trees, some bare and some with green foliage, under an overcast sky.

NC Dam Safety Permitting Process

Presented by: Angela D. Greene, P.E.

Dam Safety Law of 1967

Dam Safety Law

§ 143-215.23. Short title.

This Part shall be known and may be cited as the Dam Safety Law of 1967. (1967, c. 1068, s. 1.)

§ 143-215.24. Declaration of purpose.

It is the purpose of this Part to provide for the certification and inspection of dams in the interest of public health, safety, and welfare, in order to reduce the risk of failure of dams; to prevent injuries to persons, damage to downstream property and loss of reservoir storage; and to ensure maintenance of minimum stream flows of adequate quantity and quality below dams.

(1967, c. 1068, s. 2; 1977, c. 878, s. 1; 1993, c. 394, s. 1.)

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF LAND RESOURCES
LAND QUALITY SECTION
DAM SAFETY PROGRAM

**Data Needed to Determine if a Dam is Governed
by the Dam Safety Law of 1967 (as Amended)**

Overview:

If you wish the Land Quality Section's Dam Safety Program staff to determine if your dam is governed by the Dam Safety Law of 1967 (as amended) - General Statute 143-215.23-37), please complete this form and return to:

State Dam Safety Engineer
North Carolina Department of Environment
and Natural Resources
Division of Land Resources
Land Quality section
1612 Mail Service Center
Raleigh, NC 27699-1612

Data Needed to Determine if a Dam is Governed by the Dam Safety Law of 1967 (as amended)

- Name of owner
- Owner address
- Owner telephone
- County in which dam is located
- Brief description of dam location
- Name of stream
- Nearest State Road Number (SR)
- Impoundment area at Normal Pool (in acres)
- Impoundment area at Top of Dam (in acres)
- Depth of water at Normal Pool (in feet)
- Depth of water at Top of Dam (in feet)
- Height of dam from highest point on the top of dam to the lowest point on the downstream toe of the dam (in feet)
- Other information to describe what is located downstream from the dam such as structures, roads, etc.
- Location map (1:24,000-scale USGS topographic map preferred)

North Carolina Administrative Code - Title 15A, Department of Environment and Natural Resources, Subchapter 2K - Dam Safety

SECTION .0100 - GENERAL PROVISIONS

.0101 DEFINITIONS

.0102 DAM SAFETY ORDERS

*History Note: Statutory Authority G.S. 143-215.25; 143-215.32; 143-215.34; Eff. January 22, 1977;
Amended Eff. November 1, 1978; Repealed Eff. June 15, 1980.*

.0103 PURPOSE

The rules and regulations contained in this Subchapter are intended to carry out the purposes of the Dam Safety Law of 1967, as expressed in G.S. 143-215.24 which authorizes the implementation of a dam inspection and certification program in the interest of public health, safety and welfare.

History Note: Statutory Authority G.S. 143-215.31; 143-215.34; Eff. June 15, 1980.

North Carolina Administrative Code - Title 15A, Department of Environment and Natural Resources, Subchapter 2K - Dam Safety

SECTION .0200 - OBTAINING APPROVAL FOR DAM CONSTRUCTION: REPAIR OR REMOVAL

.0201 APPLICATIONS

(a) Any person(s) who proposes to construct, repair, alter or remove a dam must file with the Director a statement concerning the location of the dam, including the name of the stream and county, height, purpose, and impoundment capacity, 10 days before start of construction. If the Director determines that the proposed dam is exempt from the law, the applicant will be notified and he may then proceed with the construction.

(b) If the Director determines that the proposed dam is not exempt from the Dam Safety Law of 1967, the applicant will be so notified within 10 days of receipt of the statement described in (a) of this Rule and construction may not commence until a full and complete application has been filed and approved. This application must be filed at least 60 days before the proposed start of construction:

(1) When an application to construct a dam has been completed pursuant to Subsection (a) of this Rule, the department shall refer copies of the completed application papers to the Department of Human Resources, the Wildlife Resources Commission, the Department of Transportation, and such other state and local agencies as it deems appropriate for review and comment.

North Carolina Administrative Code - Title 15A, Department of Environment and Natural Resources, Subchapter 2K - Dam Safety

.0201 APPLICATIONS (Continued)

(2) Before commencing the repair, alteration, or removal of a dam, application shall be made for written approval by the department, except as otherwise provided by this Subchapter or in accordance with G.S. 143-215.27(b). The application shall state the name and address of the applicant; shall adequately detail the changes it proposes to effect; and shall be accompanied by maps, plans, and specifications setting forth such details and dimensions as the department requires. The department may waive such requirements in accordance with G.S. 143-215.27(a). The application shall give such other information concerning the dam and reservoir required by the department concerning the safety of any change as it may require, and shall state the proposed time of commencement and completion of the work. When an application has been completed, it may be referred by the department for agency review and report as provided by G.S. 143-215.26(b) in the case of original construction.

**North Carolina Administrative Code - Title 15A,
Department of Environment and Natural Resources,
Subchapter 2K - Dam Safety**

.0203 PROFESSIONAL ENGINEER REQUIREMENTS

The design, preparation of the plans and specifications, inspection of the construction of or on the dam, and certification that the dam was constructed, repaired, altered, or removed according to the plans approved by the Director and that the dam or its remains are safe shall be done by a legally qualified engineer and shall bear his professional seal unless exempted under the provisions of G.S. 89C-25.

History Note: Statutory Authority G.S. 143-215.29,-31; Eff. June 15, 1980.



NRCS and NC DAM SAFETY HAZARD CLASSIFICATION

INSTRUCTIONS FOR COMPLETING NRCS FORM NC-ENG-34, HAZARD CLASSIFICATION DATA SHEET FOR DAMS

INSTRUCTIONS

Natural Resources
Conservation Service



All dams built with technical assistance from the Soil Conservation Service must have a hazard classification assigned by the person responsible for approving the design. Most farm ponds, except in borderline cases, can be classified after a complete field investigation without assuming failure and making breach studies. This data sheet is to be used for recording the information obtained through field studies and for documenting the hazard classification. Where there is a possibility for loss of life or major property damage from a dam failure, an approved breach routing procedure is to be used. (Consult with the area engineer.)

Hazard classifications of dams are made by evaluating the possibility for loss of life and the extent of damage that would result if the dam should suddenly breach--that is--a section of the dam be suddenly and completely washed out. It is to be assumed that a wall of water will be released equal to the height of the dam. This flood wave will be reduced in height as it moves down the flood plain. The wave height (depth of flooding) should be evaluated for a sufficient distance downstream until the estimated flood level will not cause significant damage to improvements, such as homes, buildings, roads, utilities, reservoirs, etc. The breach flood level will be reduced depending on the valley storage, slope, and openness of the flood plain; however, in a narrow steep valley slopes steeper than 10% should be given special consideration. One method of evaluation is to compare available valley storage (under flood conditions) to impoundment storage (figured to the top of the dam) for each reach evaluated with a judgment estimate made of the flood wave height at all critical points downstream.

Should there be any questions about the hazard classification for a dam, the area engineer should be consulted before making design commitments.

NRCS Form NC-ENG-34 HAZARD CLASSIFICATION DATA SHEET FOR DAMS

Title 210 Engineering
National Engineering Manual
Part 520 Soil and Water Resource Development

Subpart C – Dams 520.21 Definition and Classes

E. Dams are classified according to the potential hazard to life and property if the dam should suddenly breach or fail. Existing and future downstream development, including controls for future development, must be considered when classifying the dam. The classification of a dam is determined only by the potential hazard from failure, not by the criteria.

(1) Low Hazard.—Dams in rural or agricultural areas where failure may damage farm buildings, agricultural land, or township and country roads.

(2) Significant Hazard.—Dams in predominantly rural or agricultural areas where failure may damage isolated homes, main highways, or minor railroads or interrupt service of relatively important public utilities.

(3) High Hazard.—Dams where failure may cause loss of life or serious damage to homes, industrial and commercial buildings, important public utilities, main highways, or railroads.

U. S. Department of Agriculture
Soil Conservation Service

NC-ENG-34
September 1980

HAZARD CLASSIFICATION DATA SHEET FOR DAMS

Landowner _____ County _____

Community or Group No. _____ Conservation Plan No. _____

Estimated Depth of Water to Top of Dam _____ Ft. Length of Flood Pool _____ Ft.

Date of Field Hazard Investigation _____

Evaluation by reach of flood plain downstream to the point of estimated minor effect from sudden dam failure.

Reach:	Length:	Width:	Slope:	Land Use	Kind of Improvements	Est. Elev. Improvements Above Flood Plain:	Est. Elevation of Breach Floodwater Above Flood Plain:
	Ft.	Ft.	%			Ft.	Ft.
1							
2							
3							

Describe potential for loss of life and damage to existing or probable future downstream improvements from a sudden breach _____

Hazard Classification of Dam (a, b, c) (see NEM-Part 520.21) _____

Dam Classification (I, II, III, IV, V) _____

By _____
(name) (title)

Date _____

Concurred By _____
(name) (title)

Date _____

NOTE: 1. Instructions on reverse side.
2. Attach additional sheets as needed.

North Carolina Administrative Code - Title 15A, Department of Environment and Natural Resources, Subchapter 2K - Dam Safety

.0105 CLASSIFICATION OF DAMS

(a) For the purposes of this Subchapter, dams shall be divided into three classes, which shall be known as class A (low hazard), class B (intermediate hazard), and class C (high hazard):

(1) Class A includes dams located where failure may damage uninhabited low value non-residential buildings, agricultural land, or low volume roads.

(2) Class B includes dams located where failure may damage highways or secondary railroads, cause interruption of use or service of public utilities, cause minor damage to isolated homes, or cause minor damage to commercial and industrial buildings. Damage to these structures will be considered minor only when they are located in back water areas not subjected to the direct path of the breach flood wave; and they will experience no more than 1.5 feet of flood rise due to breaching above the lowest ground elevation adjacent to the outside foundation walls or no more than 1.5 feet of flood rise due to breaching above the lowest floor elevation of the structure, the lower of the two elevations governing. All other damage potential will be considered serious.

(3) Class C includes dams located where failure will likely cause loss of life or serious damage to homes, industrial and commercial buildings, important public utilities, primary highways, or major railroads.

North Carolina Administrative Code - Title 15A, Department of Environment and Natural Resources, Subchapter 2K - Dam Safety

.0105 CLASSIFICATION OF DAMS (continued)

(b) Classifications shall be proposed by the design engineer and are subject to approval by the Director.

(c) Probable future development of the area downstream from the dam that would be affected by its failure shall be considered in determining the classification.

(d) Dams will be subject to reclassification if the Director determines that the hazard potential has changed. Non-structural provisions of adequately demonstrated effectiveness and reliability such as flood plain zoning, and early warning systems may be considered by the Director in making this determination.

(e) When dams are spaced so that the failure of an upper dam would likely fail a lower dam, the consequence of the lower dam's failure shall be a determining factor for the upper dam's hazard classification.

(f) In assigning a hazard classification where a bridge or roadway is the only damageable property below a dam, consideration shall be given to the possibility of loss of human life, indirect economic impact through loss of service, and direct cost of damage to the bridge or roadway.

History Note: Statutory Authority G.S. 143-215.31; 143-215.34; Eff. June 15, 1980.

Guidelines for Determining NC Dam Safety Hazard Classification

Dam Hazards Classification

Hazard Classification	Description	Quantitative Guidelines
Low	Interruption of road service, low volume roads	Less than 25 vehicles per day
	Economic damage	Less than \$30,000
	Damage to highways, Interruption of service	25 to less than 250 vehicles per day
Intermediate	Economic damage	\$30,000 to less than \$200,000
	Loss of human life*	Probable loss of 1 or more human lives
High	Economic damage	More than \$200,000
	*Probable loss of human life due to breached roadway or bridge on or below the dam.	250 or more vehicles per day

NOTE: Cost of dam repair and loss of services should be included in economic loss estimate if the dam is a publicly owned utility, such as a municipal water supply dam.

QUESTIONS ?