North Carolina
Department of Environment and Natural Resources

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Division of Land Resources

RE: Application Checklist for Permit to Construct a Dam

The following checklist is intended to give you an idea of the information required by the "Dam Safety Law of 1967" and the "North Carolina Administrative Code, Title 15A, Subchapter 2K Dam Safety" in order to obtain a permit to construct a dam in North Carolina.

Naturally, the checklist cannot list every possible requirement for the hazard classifications and is not a substitute for good engineering judgment. However, the purpose of the list is to outline the most commonly required information which should be included in the application. The amount of detail required will depend on the particular dam. If all the required information is submitted with the application, the review and approval time can be minimized.

Should you have any questions concerning the requirements, please consult the "Dam Safety Law of 1967," the "North Carolina Administrative Code, Title 15A, Subchapter 2K - Dam Safety," or contact the State Dam Safety Engineer, Land Quality Section at the address below or at (919) 733-4574.

Dam Safety Application Checklist.wpd
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Land Quality Section (919) 733-4574 Fax (919) 733-2876 Geological Survey Section (919) 733-2423 Fax (919) 733-0900
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CHECKLIST FOR
APPLICATION TO CONSTRUCT A DAM

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KEY "N" - Not Required
"M" - May be Required
"R" - Required

	HAZARD CLASS		
	LOW	INTERMEDIATE	HIGH
GENERAL REQUIREMENTS			
Owners Name, Address & Phone No	R	R	R
Location Road Map	R	R	R
Topographic Map Location Showing Outline of Impoundment & Vicinity	R	R	R
Name of Watercourse to be Impounded	R	R	R
5 Copies of Plans	R	R	R
2 Copies of Construction Specifications	R	R	R
2 Copies of Engineering Design Data	R	R	R
Narrative of Project Including Any Unusual Design Considerations	R	R	R
Purpose of Impoundment	R	R	R
Dam Hazard Classification Including Brief Description of Evaluations Made *(1)	R	R	R
Construction Sequence	R	R	R
Engineer's Name, Address & Phone No	R	R	R
Engineer's N.C. Seal, Signature and Date on Plans & Specifications	R	R	R

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	HAZARD CLASS		
	LOW	INTERMEDIATE	HIGH
Erosion Control Plan *(2)	R	R	R
Plan View of Dam, Appurtenant Structures, Emergency Spillways, Etc.	R	R	R
Cross Section of Dam	R	R	R
Profile Section of Dam	R	R	R
Emergency Action Plan	N	R	R
Operations & Maintenance Schedule	R	R	R
Minimum Stream Flow Release (Will be Determined During Application Review)	M	M	M
Bottom Drain w/Valve on Upstream Side	R	R	R
Construction Quality Control Testing/Inspection	R	R	R
Upstream Slope Wave Protection	M	M	M
Vegetative Specifications for Earthen Portions of Structure Borrow Areas, and Other Disturbed Areas	R	R	R
Check or Money Order for $200.00 Initial Application Processing Fee	R	R	R
Estimate of Cost of Construction (Includes All Labor and Materials Costs for Dam and Appurtenances; Does Not Include Costs of Land, Rights-of-Way, Design, Quality Control or Roadway Across Dam)	R	R	R
Diversion During Construction	R	R	R

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	HAZARD CLASS		
	LOW	INTERMEDIATE	HIGH
HYDROLOGIC/HYDRAULIC REQUIREMENTS *(3)			
Drainage Area (Acres)	R	R	R
Map of Watershed	R	R	R
Basic Hydrologic Findings (Ground Cover, Slope, etc	R	R	R
Method Used to Calculate Peak Inflow	R	R	R
Hydrograph	N	R	R
Spillway Outflows - Assumptions and Calculations	R	R	R
Calculations for Frequency of Use of Vegetated Emergency Spillway and Velocities of Flows Through Emergency Spillway	R	R	R
Dimensions of All Outlet Structures	R	R	R
ASTM Spec. of Pipe(s) (if Used)	R	R	R
Detail of Pipe Joint	R	R	R
Detail of Bottom Drain & Valve Stem	R	R	R
Detail of Trash Rack	R	R	R
Detail of Anti-Seepage Collars (if Used)	R	R	R
Detail of Seepage Diaphragm (if Used)	R	R	R
Detail of Foundation Drains (if Used)	R	R	R

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	HAZARD CLASS		
	LOW	INTERMEDIATE	HIGH
Size and Schedule of Toe Drain Pipe Including Size of Holes and Number of Holes per Lineal Foot (if Used)	R	R	R
Varmint Guard for Toe Drain	R	R	R
Detail of Concrete Cradle (if RCP Used)	R	R	R
Riser Uplift Prevention (Anti-Flotation) Calculation	R	R	R
Detail of Energy Dissipating Device(s), Graded Gravel Bedding Or Geofabric Under Riprap Including Length of Overlap for Geofabric	R	R	R
Cross Section of Emergency Spillway Control Section	R	R	R
Plan View of Emergency Spillway Showing Direction Of Flow Away From Dam	R	R	R
Typical Cross Sections and Profile Of Emergency Spillway Channel	R	R	R
Detail of Emergency Spillway Lining if Used, Including Bedding, Underdrainage, Etc.	R	R	R
Detail of Construction Joints and Waterstops for Concrete-Lined Channels (if Used)	R	R	R
Breach Routing	N	M	M
Specifications for Geofabric(s) (if Used)	R	R	R

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	HAZARD CLASS		
	LOW	INTERMEDIATE	HIGH
FOUNDATION EMBANKMENT REQUIREMENTS			
Two Copies of Geotechnical Report Including Frequency of Testing	N	R	R
Description of Each Type of Borrow Material	R	R	R
Specific Locations and Quantities of Borrow	M	R	R
Subsurface Investigation (Hand-Auger/Test Pits) Showing Location and Description of Soils	R	R	R
Compaction Specifications Including Any Special Provisions For Manual Compaction in the Vicinity of Pipes, Anti-Seep Collars, Etc.	R	R	R
Dam Crest to be Sloped to Drain Toward Lake	R	R	R
Soil Borings w/Standard Penetration Tests	N	R	R
Rock Coring/Pressure Testing	N	M	M
Subsurface Profiles	N	M	R
Borrow Material Proctor Tests	N	R	R
Borrow Material Classification Tests	N	R	R
Borrow Material Triaxial Shear Tests	N	R	R
Borrow and Foundation Laboratory Permeability Tests	N	R	R
Seepage Analysis	N	R	R

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	HAZARD CLASS		
	LOW	INTERMEDIATE	HIGH
Slope Stability Analysis Showing Soil Parameters, Phreatic Surface Assumed, Stability Computations, Etc.	N	R	R
Piezometers & Proposed Piezometer Monitoring Plan	N	M	R
Requirement for Density Testing and Other Construction Quality Control	M	R	R
Geologic Report	N	M	R

Footnotes

See 15A NCAC 2K .0105 for definitions of hazard classes

A formal erosion and sediment control plan is required, unless the dam is exempt from the Sedimentation Pollution Control Act of 1973.

See 15A NCAC 2K .0205 for spillway design requirements and 15A NCAC 2K .0206 for conduit requirements.

(4) Applicant should determine if a Section 404 wetlands permit is required from the United States Army Corps of Engineers.

Applicant should determine if a Section 401 Water Quality Certification is required from the Division of Water Quality.

Pressurized lines, such as water main, sewer force main, natural gas, etc., should be located outside the limits of the dam embankment. If installation of a pressurized line within the dam embankment is unavoidable, then the pressurized line must be encased in a carrier pipe extending beyond each abutment contact, capped at each end and fully supported within the carrier pipe, and at least one observation vent must be provided.