PERMITTING REQUIREMENTS

There are many requirements when building a pond.

Some ponds may fill wet areas (wetlands) or dam a stream; contact the Army Corp of Engineers (ACOE) and Virginia Department of Environmental Quality (DEQ).

If the pond construction disturbs more than 10,000 square feet an Erosion and Sediment Control Plan is required by the County. Contact your County or the District.

Ponds with a dam 25 feet or greater in height and with an impoundment capacity of more than 15 acre-feet, and ponds with a dam 6 feet or greater in height and with an impoundment capacity of more than 50 acre-feet are regulated by the Department of Conservation and Recreation, Division of Dam Safety. These regulations require obtaining an operating permit, conducting annual inspections and developing an emergency action plan.

Dams in watersheds known to support andromous fish (shad, herring) spawning, requires construction of a fishway by Virginia Game and Inland Fisheries (VGIF).

STILL THINKING ABOUT CONSTRUCTING A POND?

If you are intending to build a private pond, always consult a licensed Engineer for embankment and spillway design. For technical advice or questions regarding Ponds contact the Culpeper SWCD and the Natural Resource Conservation Service (NRCS) at (540) 825-8591 and (540) 825-4200.

Questions of zoning and setbacks contact your County's Planning and Zoning Department.

Contacts:

Culpeper County
Planning & Zoning: (540) 727-3404
Hal Wiggins, ACOE (540) 548-2517
Joan Crowther, DEQ (703) 583-3800

Greene County
Planning & Zoning (434) 985-5282
Hal Wiggins, ACOE (540) 548-2517
Keith Fowler, DEQ (540) 574-7812

Madison County
Zoning Administration (540) 948-6102
Hal Wiggins, ACOE (540) 548-2517
Joan Crowther, DEQ (703) 583-3800

Orange County
Planning & Zoning: (540) 672-4347
Hal Wiggins, ACOE (540) 548-2517
Joan Crowther, DEQ (703) 583-3800

Rappahannock County
Zoning Administration (540) 675-5330
Anna Lawston, ACOE (540) 428-2864
Joan Crowther, DEQ (703) 583-3800

Culpeper Soil and Water Conservation District
351 Lakeside Drive
Culpeper, Va. 22701
Phone (540) 825-8591
Fax (540) 825-8637

CULPEPER SOIL AND WATER CONSERVATION DISTRICT

SERVING CULPEPER, GREENE, MADISON, ORANGE, AND RAPPAHANNOCK

Pond Construction!

A Landowner's Guide to Designing Private Ponds

A Typical Earthen Dam. Picture of Mountain Run Lake Dam in Culpeper.

PRIVATE PONDS:

A private pond may be constructed for a variety of uses such as recreation, fire suppression and agricultural/fish production. Private ponds should always be designed by an engineer to insure safety and longevity. This brochure is intended as a guide to landowners for pond planning and design.

UNDERSTANDING PONDS

There are two types of pond construction:

1. Embankment ponds
A pond formed by the construction of a dam across a stream or watercourse. The stream valley is depressed enough to allow storing 5 feet or more of water.
2. Excavated Ponds
A hole dug out of nearly level ground. These ponds are more expensive and can only accommodate a small supply of water.

Both of ponds require a source of water, usually from a spring or live water course.

CHOOSING A SITE

The pond site selection needs to consider adequate water supply, type of watershed, topography and soils.

There should be adequate water supply to handle all of your needs, whether its irrigation, livestock or recreation. Factors that influence water supply include base-flow of the stream/spring, rainfall, evaporation and drainage area size and characteristics.

The watershed can determine the quality of your water supply. An urban watershed may have more impacts on water quality than a predominantly rural or forested watershed.

Topography determines the length of the permanent pool and height of the dam. Steep side slopes and high grade changes can affect construction and use of the pond.

Good soil quality is needed for an adequate dam. The soil needs 20 percent clay to provide proper compaction and prevent seepage through the dam. Soils with a plasticity index of 10 percent or more and at least 20 percent passing No. 200 sieve is preferred.

WATER NEEDS

The amount of designed water storage is determined by the intended use of the pond.

Livestock watering:	
Beef cattle/horses	15 gal/head/day
Dairy Cows (drinking)	15 gal/head/day
Dairy Operations	35 gal/head/day
Hogs	4 gal/head/day
Sheep	2 gal/head/day

Irrigation:
Depends on effective rainfall, evaporation, crop usage, growing season and efficiency of irrigation method.

Fire Suppression:
At least ¼ acre-feet of storage.

ESTIMATING POND CAPACITY IN ACRE-FEET

1. Establish normal pool elevation and stake the waterline at this elevation.

2. Measure width of valley at this elevation and compute the surface area in acres (43, 560 square feet per acre).

3. Multiple surface area by 0.4 times maximum water depth in feet. (325,900 gallons in one acre-ft)

DETERMINING DRAINAGE AREA SIZE

To estimate the approximate drainage area size based on water storage capacity (acre-feet) use the figure below. Find your county and multiple the value by the storage capacity to determine minimum drainage area size.

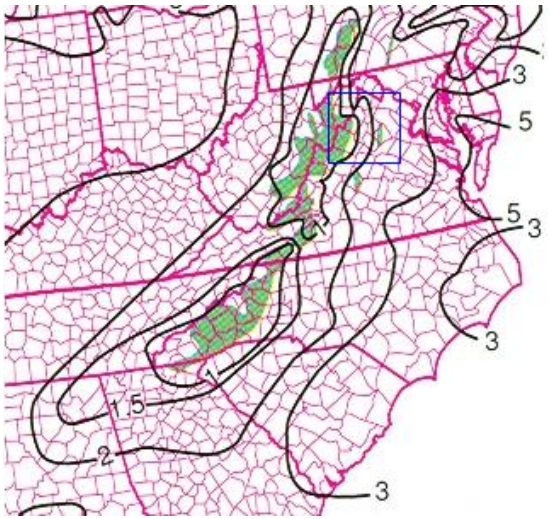

Figure 11, Ponds- Planning, Design and Construction. USDA manual