Design from Patterns to Details
Without an effective flood management strategy, not much else was possible. The June 27, 1998 flood inundated the property to an average depth of 3' of fast moving water. Considerable damage resulted.

**Floods Flows**

Get A Yield
New production guild under development. Fruits, hazelnuts, windbreak.....

Use and Value Edges
Managing west and northwest winds is one of the major objectives and this young windbreak is a design response.

Sand Prairie
This is a dry-prairie was established on top of hundreds of cubic yards of sterile sand washed in during the 1998 flood. The diversity of prairie plants and seeds offers considerable habitat for insects and birds.

Pond—Multiple Functions
Stores extra water, grows fish, which fertilize the water, which goes on the garden.....

Rainwater Harvest from Roof:
A 500 gallon tank stores runoff from the roof. Then using the existing irrigation system it can be routed to any hydrant by gravity. It will also be possible to use river water to fill the tank. The annual garden is the primary use of the stored water.

Chickens!
*Animals are the moveable parts!* — Bill Mollison.
*Run everything you can through a chicken.* — Bruce Blair.

Chickens, and what they do, is integral to the design and especially to our gardening. They eat practically anything we can't/don't want to, making valuable manure, eating bugs and more.

Their function in an ecosystem is to recycle and distribute nutrients and seeds. They can greatly enhance the yield of a system when feeding on things we are unable to consume directly ourselves.

Irrigation From River
A pump at the river sends water through the system and hydrants discharge into portable hoses. Eventually, due to soil improvement and planting the right species to begin with, it is hoped that the need for the system will diminish. Use of the river water is restricted to lower flow periods when the water is less polluted with predominantly agricultural chemicals (per MN Dept. of Health).

Get A Yield
Woody biomass production for soapstone wood stove in the house.

Design from Patterns to Details
The wooden flood fence is intended to split flows around the house and create a quiet backwater around the house. This way the destructive energy problem is removed from this backwater.

Forest Garden
A forest garden is an edible ecosystem, a consciously designed community of mutually beneficial plants and animals intended for human food production. (Dave Jacke). A well functioning forest garden is self-renewing, self-fertilizing with low maintenance. So forest gardening is attempting to garden like the forest.

Get A Yield
Annual garden.

Coops (“Deep Litter Mulch System”)
The two coops (one for mature birds and one for chicks) occupy the edge between annual garden and free range pastures. The southwest stone wall doubles as part of the flood fence system. A mulberry tree is planted on the outside edge to eventually supply shade and fruit to drop to the birds. The coop is three feet off the ground to avoid the floods.

Obtain a Yield—Orchard
The free-range paddocks have fruit trees. They are widely spaced to avoid root and sunlight competition and are standard varieties (not dwarfs). Standard sizes are tougher and will likely survive flooding. Each has nearby a shrub that fixes nitrogen to share with the fruit tree.