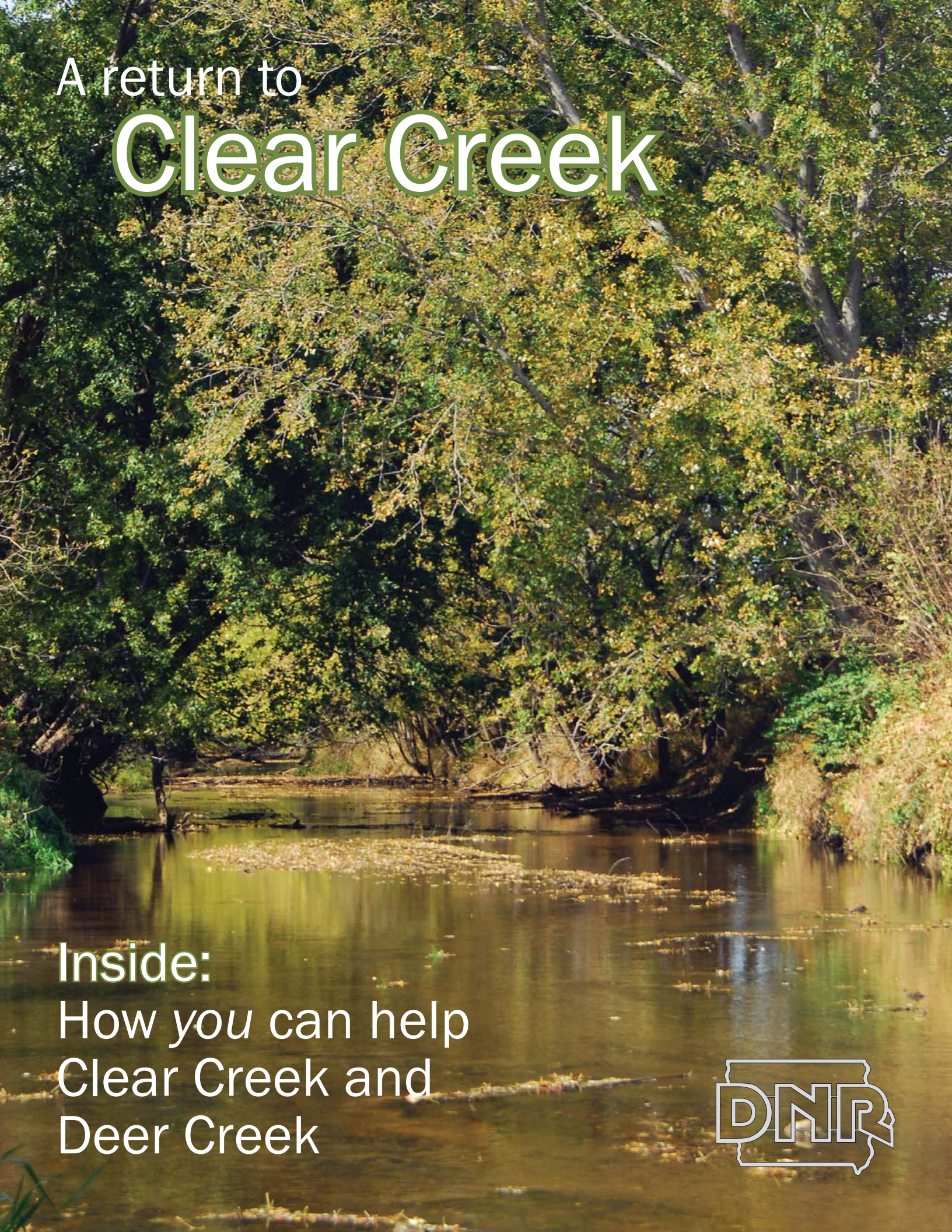


A return to

Clear Creek

Inside:
How *you* can help
Clear Creek and
Deer Creek

DNR

Working for a cleaner Clear Creek

At one time, Clear Creek lived up to its name.

Originally set among the prairie and oak savannah of the Iowa River valley, legend has it that early settler and Johnson County sheriff Samuel Trowbridge gave the creek its name because of its pristine waters.

However, the stream's natural protections began to weaken as more settlers moved into Iowa. Over time, the prairie disappeared, livestock trampled streambanks, the creek was dredged and straightened, wetlands were drained and urban areas began to take their toll.

Clear Creek

With these changes, the stream — and its tributary streams — clouded over from excess soil and began to have problems with bacteria and nutrients.

Waders and others who use the stream for recreation today are concerned about E. coli bacteria and nutrients in North Branch, a tributary to Clear Creek. This stream flows through Tiffin and Coralville, where many people access the stream from public areas and trails.

In just one rainfall event — a six-inch rain in May 2004 — 239,559 tons of soil washed into Clear Creek. That's like 16,000 dump truck loads of soil being dumped into the creek in *one* day. And it's not just soil. Bacteria and nutrients can attach to soil and wash into streams.

Clear Creek can be clear again with the help of rural landowners and urban residents like you. The Clear Creek Watershed Enhancement Board is launching a watershed project that will help stop pollution from reaching Clear Creek.

The watershed project will focus on three smaller drainage areas of the larger Clear Creek watershed. These smaller watersheds are not on the state's impaired waters list. However, they flow into Clear Creek and the Iowa River, both of which are on the impaired list.

By improving water in these smaller watersheds, the water entering Clear Creek will be cleaner. That means Clear Creek will send cleaner water to the Iowa River. Clear Creek joins the river in Coralville, just four miles upstream of where the University of Iowa draws its drinking water.

The watershed project will focus on the Deer Creek watershed, which covers 6,444 acres and flows into Clear Creek in Coralville, just west of Coral Ridge Mall. The project will also work to improve the North Branch Clear Creek watershed, which covers 8,090 acres and is located northeast of the small town of Conroy. In addition, the watershed project will work on a 2,765-acre floodplain area located between Deer Creek and the main Clear Creek channel.

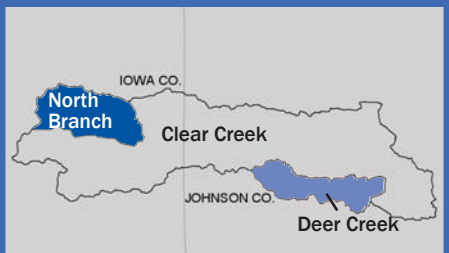
Please read on to learn more about how you can work toward a cleaner, healthier Clear Creek watershed.

What's a watershed?

A watershed is an area of land that drains water into the lowest point – a body of water, such as a stream, lake or marsh.

During a rainfall, water either travels over the surface or seeps into the ground. Water traveling over the surface may pick up contaminants like sediment, chemicals and waste and deposit them in a body of water.

The Clear Creek watershed covers 65,000 acres in Iowa and Johnson Counties. The Deer Creek and North Branch Clear Creek watersheds are smaller subwatersheds which are part of the larger Clear Creek watershed. The Deer Creek watershed covers 6,444 acres while the North Branch Clear Creek watershed covers 8,090 acres.



The North Branch, Deer Creek and Clear Creek watersheds in relation to Iowa and Johnson Counties.

Get involved in the Clear Creek Watershed Enhancement Project

As a landowner in the Deer Creek and North Branch Clear Creek watersheds, you have a unique opportunity to help improve your streams. By partnering with the Clear Creek Watershed Enhancement Project, you gain access to a number of resources.

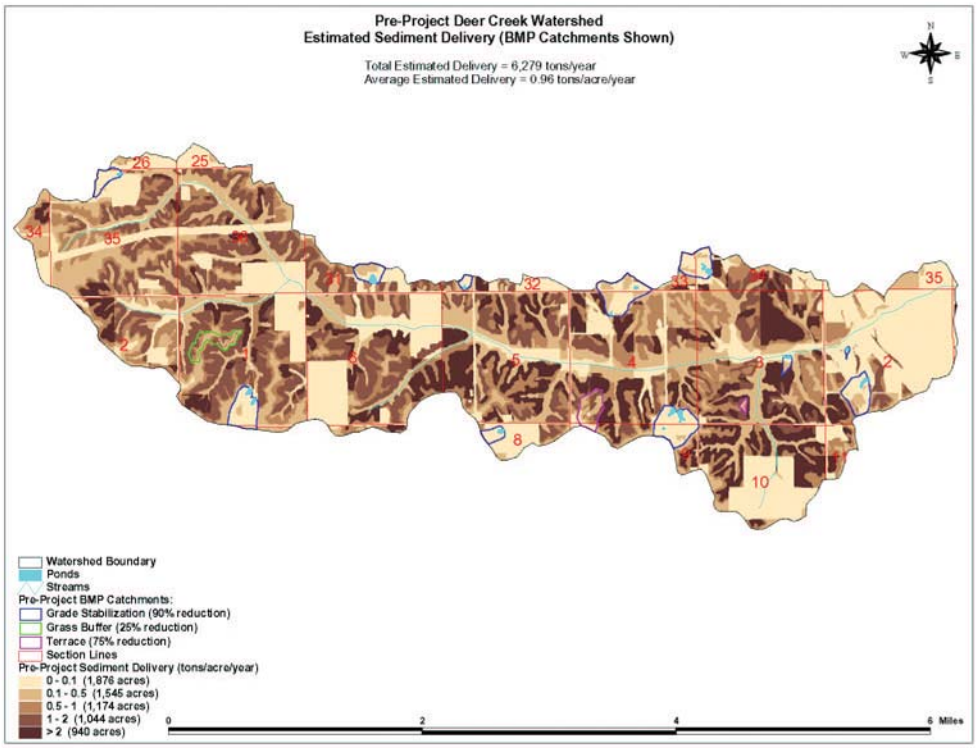
James Martin

James Martin coordinates the watershed project and can work with you to evaluate your land and identify conservation practices that can help both the streams and your property.

The coordinator can also help find financial assistance to install those practices. Landowners participating in the watershed project can generally get improved financial assistance opportunities.

Now is the time to get involved. This is a limited year project, and the streams need your help now. For more information on how you can help, contact project coordinator James Martin in Iowa City at (319) 337-2322, in Williamsburg at (319) 668-2359, at James.Martin@ia.nacdnet.net or visit www.jcswcd.org.

Partners in the Clear Creek Watershed Enhancement Board include: Iowa and Johnson County SWCD commissioners, City of Coralville, City of Tiffin, the University of Iowa, Clear Creek Amana Community Schools, Johnson County Conservation Board, business leaders, farmers, landowners and residents.



The Geographic Information Systems (GIS) map to the left shows estimated sediment delivery, or the amount of soil currently reaching Deer Creek from surrounding land.

Areas in tan send the least amount of sediment to Deer Creek, while areas in dark brown send the most. Please see the next page to learn why excess sediment causes water quality problems.

Maps like this one can help pinpoint critical areas in the watershed and help landowners locate the best places to install conservation practices.

The map at left takes into account existing conservation practices.

Project goals

1. Reduce sediment delivered to the streams by 30 percent.
2. Reduce E. coli bacteria levels to routinely meet state standards.
3. Long term goal: neither watershed will exceed an annual average soil loss of five tons per acre.

Problem pollutants: sediment, nutrients, bacteria

Sediment

When rain falls on land, it erodes valuable topsoil and washes it into streams. In one year, an estimated 6,279 tons of sediment can reach Deer Creek. That's like dumping almost eight dump truck loads of soil into Deer Creek every week, or about 418 dump truck loads every year. In addition, 84 percent of the North Branch watershed is considered highly erodible land.

Excess sediment can:

- Reduce water clarity
- Damage the habitat of aquatic life, like fish
- Fill in streambeds
- Clog drainageways
- Deliver phosphorus to streams

Sediment reaches the streams through these types of erosion:

- *Sheet erosion* occurs when rainfall and runoff remove a thin layer of soil from the surface of the land.
- *Rill erosion* forms small channels with a concentrated flow of water on sloping fields.
- *Gully erosion* happens after heavy rains or snowmelts and the concentrated runoff creates channels or ditches in the soil.
- *Streambank erosion* occurs when water in streams removes soil from the streambank. Some streambank erosion happens naturally, but livestock using the streams can trample the banks, which can result in a higher rate of erosion.

Nutrients

High nutrient levels can lead to poor water quality and:

- Cloud the water
- Create low oxygen and high ammonia levels, which is harmful to fish and other aquatic life
- Lead to poor diversity of aquatic life
- Lead to nuisance levels of algae and aquatic plants that interfere with recreation
- Lead to potentially toxic algae blooms

Due to Iowa's naturally rich soils and intensive agriculture, the state has very high levels of nitrogen and phosphorus in its water. About 90 percent of nitrogen and 80 percent of phosphorus in Iowa's water come from "nonpoint" sources like agriculture. "Point" sources, like municipal and industrial wastewater treatment plants, account for the rest. However, there are no point sources in the Deer Creek or North Branch Clear Creek watersheds.

Bacteria and fecal contamination

Clear Creek is listed as "impaired" because of high bacteria levels, which come from fecal contamination. Failing and outdated septic systems and livestock in streams are the two largest sources of fecal contamination in the Deer and North Branch watersheds. These streams go through developed areas with creek access, creating a risk when people come in contact with bacteria in the water. It is also a concern for drinking water, whether it is private wells or where the University of Iowa pulls its drinking water.

Solutions for cleaner water

By using farming conservation practices, you can help reduce the amount of sediment, nutrients and bacteria reaching your streams. Help with choosing and installing the best practices for your land is available, along with a number of cost-share, low-interest loan and other programs. For more information on these programs, contact watershed coordinator James Martin at (319) 337-2322 or (319) 668-2359 or at James.Martin@ia.nacdnet.net.

No-till

No-till practices use last year's crop residue to provide ground cover, protecting against soil erosion from wind and water. When nutrients and pesticides are applied properly, no-till also controls loss of nutrients and pesticides that attach to soil particles. Watershed project goal: use no-till practices on 900 acres.

Photo by NRCS

Livestock management

These practices reduce pollutants that result from livestock access to streams. Rotational grazing and fencing livestock out of streams limit the time cattle can access a stream, allowing the streambanks to heal, and reduces erosion. It also increases a pasture's carrying capacity. Buffer areas along the stream filter runoff water and provide wildlife habitat. Watershed project goal: install 11,000 feet of fencing to control livestock stream access.

Grade stabilization structures

Grade stabilization structures are usually a dam, embankment or other structure that reduces water flow. The structures are built across a grass waterway or other gully to slow water. Watershed project goal: install 10 grade stabilization structures.

Wetlands

Wetlands were once widespread across Iowa, but many were drained for agricultural uses. Wetlands are being restored and rebuilt today to help filter out nutrients and sediment. Project goal: construct 17 acres of wetlands.

Buffers and filters

Vegetative conservation buffers slow sediment and filter runoff water before it reaches a stream. In addition, buffers reduce erosion from wind, help stabilize streambanks and provide habitat for wildlife. Watershed project goal: plant 30 acres of filter strips and 90 acres of contour buffer strips.

Photo by NRCS

Nutrient management

Nutrient management helps keep excess nutrients out of surface water and groundwater. Monitoring soil and plant needs allows landowners to use only the necessary amounts and types of fertilizer. Pesticides are used only when a pest problem is identified. Excess nutrients and chemicals are not wasted, reducing costs. Watershed project goal: use nutrient management on 2,000 acres.

Other watershed project goals:

Water and sediment basins
34 planned to trap sediment and nutrients

Conservation cover
Planned on 50 acres to convert cropland to permanent vegetation

Pasture and hayland planting
Planned on 100 acres of critical areas to reduce erosion

Tree and shrub establishment
To reduce erosion and nutrients on 10 acres

Grassed waterways
Plant 60 acres to reduce gully erosion and trap nutrients

Animal waste facilities
Plan to install three facilities to store manure until conditions are right for land-applying

Problems and practices for rural, urban living

Excess sediment, nutrients and bacteria are not just a problem on farmland. A rural home, whether a small acreage, farmstead or part of a housing subdivision, can impact water by sending its own sediment, nutrients and bacteria into streams. Urban homes and businesses can have an impact, too.

Similarly, conservation practices are not just for farmers. There are a number of ways you can improve your own land and improve Clear Creek at the same time. Assistance is available for landowners who would like help learning to manage their land or help in installing conservation practices to benefit Clear Creek. A CD is also available from the Clear Creek Watershed Project that offers a residential rainwater audit, a story and field guide of wetland activities for elementary school students, and a video and publication on building a rain garden. Copies are available at www.jcswcd.org/rainwater_audit/rain-audit.html or by contacting James Martin at the phone numbers below.

To learn more about conservation practices, programs and funding assistance, please contact watershed coordinator James Martin at (319) 337-2322 or (319) 668-2359 or at James.Martin@ia.nacdnet.net.

Septic systems

Failing and outdated septic systems can send human wastewater – along with bacteria and nutrients – into streams, groundwater and lakes. Low-interest loans may be available for homeowners to replace outdated or failing septic systems through the DNR's Onsite Wastewater Systems Assistance Program. For more information, visit www.iowadnr.gov/water/septic/ or contact the Iowa or Johnson county sanitarians.

Lawn and land management

While a lawn in town may be all grass, that doesn't mean a rural lawn should be the same. A larger property has options beyond turf grass. Longer grasses, including prairie plants, have deeper roots which allow them to absorb more water and use more nutrients than a standard grass lawn. These taller plants, as well as trees, wetlands and rain gardens, help reduce the amount of runoff reaching streams and provide wildlife habitat.

Lawn fertilizers

Using too much lawn fertilizer or fertilizing too often can allow rain to wash the excess nutrients into streams. Test your lawn's soil to determine the appropriate type and amount of fertilizer to apply. For information about soil tests, contact Iowa State Extension at (319) 642-5504 (Iowa County) or (319) 337-2145 (Johnson County) or www.agron.iastate.edu/soiltesting/

Construction erosion

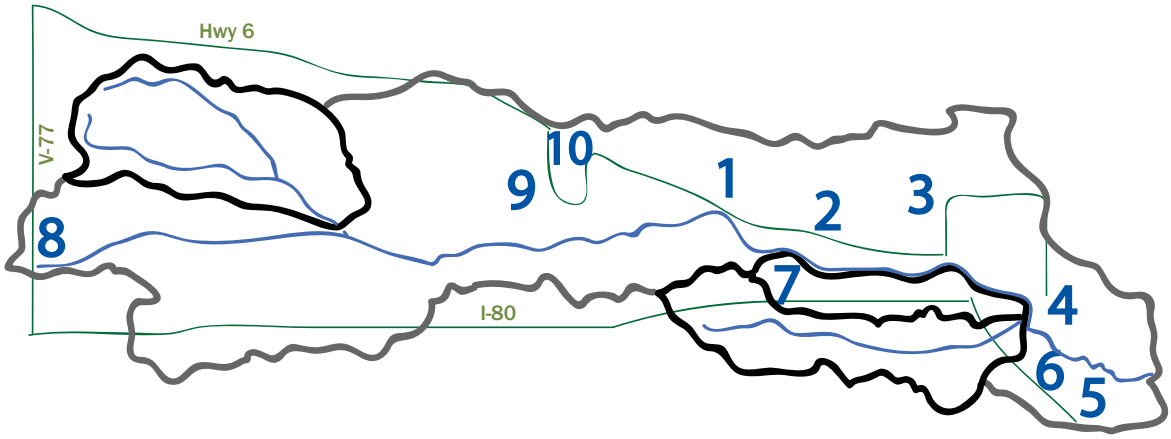
Developers should use proper erosion and sediment control methods at construction sites to prevent excess soil from washing into streams. State regulations require sites that disturb more than one acre of soil to obtain a permit and implement a storm water pollution prevention plan.

Low-impact developments

Low-impact developments add housing with minimum impact to surroundings. This strategic placing of housing reduces land disturbance and soil leaving the property. It also leaves more open green space, ponds and rain gardens for the community to enjoy. Permeable concrete parking areas reduces runoff. The goal is to infiltrate as much rainfall and snowmelt as possible onsite, reducing erosion and pollutant runoff.

Tour of demonstration sites

See for yourself how your neighbors are helping to improve North Branch Clear Creek, Deer Creek and Clear Creek. A number of demonstration sites throughout the Clear Creek watershed are living examples of using conservation practices on your land. Follow the route marked in green on the map below to view the sites.



F.W. Kent Park

Wetland, silt deposit pond and playground built from recycled materials. Project of Johnson County Conservation Board.

Clear Creek Amana

West campus, high school: view from Highway 6 west of Tiffin.
Rain garden.

John Lovetinsky farm

View from Jasper Ave.
Farm wetland pilot project.

City of Coralville

View from North Ridge Park, Holiday Road.
Water infiltration with native plants roof and permeable parking lot.

University of Iowa

View from Hawkeye Athletics Complex, north of Melrose Ave. on Mormon Trek Blvd.
Storm water infiltration with native plants.

City of Coralville

View from Camp Cardinal Blvd, just south of Highway 6.
Trail provides visitor access to Clear Creek corridor, woodlands, prairie and wetlands.

Robert and Lee Meade

View from westbound I-80 at rest stop (mile marker 235).
Filter strips and grassed waterways.

Clear Creek headwaters

View from County Road V-77 near Conroy.
Beginning of Clear Creek.

Rhine Ridge Farm

View from Rhine Creek, northwest of Oxford.
Native buffer strips and grassed waterways.

Fiz Faz Farms

View from Highway 109 north of Oxford.
Riparian buffer strips.

Photos this page courtesy Clear Creek Watershed Enhancement Project

Continuing a conservation legacy

Robert Meade's father installed one of the first conservation practices in the Deer Creek watershed in 1953. Today, Meade is continuing his father's effort and working to save the soil and water for future generations.


Robert Meade

Farming just west of Iowa City, Meade and his wife, Lee, raise cattle, corn and beans. Their sons farm nearby on land that has been in the family since 1860.

"It's nice to see the ground farmed so it's able to be passed down," Meade said.

Meade added to his father's conservation practices with water and sediment control basins and filter strips. He is working with the Clear Creek Watershed Enhancement Project to add 3.5 acres of grass waterways. He's also practiced no-till methods for the past 18 years.

"With the right equipment, you get the same yields (as traditional tillage)," Meade said. "It doesn't seem to cost more. It offsets fuel costs, there's less time in the field and it takes less time to get crops in."

The benefits of practices go beyond water quality and soil conservation, as one of Meade's sidehill buffer strips shows.

"It stops erosion before it can really get started, and it's beneficial for wildlife. Before the filter strips, there were hardly any pheasant."

Meade serves on the board of the Clear Creek Watershed Enhancement Project, providing a farmer's take on water quality improvement.

There's room for improvement, he notes. Streams in the watershed are still being abused, and there could be greater use of no-till and grassed waterways, he added.

However, conservation practices need to be affordable to be feasible for many farmers, he said, and the watershed project is a benefit to farmers in that way.

"It's a real plus. With the extra funding from the watershed project, it's your best opportunity to get in and do something."


A grassed waterway on the Robert and Lee Meade farm near Iowa City slows and filters runoff before it can reach Deer Creek.

Meade also uses no-till practices, filter strips, and water and sediment control basins.

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