Guide to Tiles and Drainage in Howard County

Natural Drainage

Natural drainage is a combination of water movement over the land surface (runoff) and down into the soil (infiltration). Runoff feeds surface waters (streams, rivers, and lakes), while infiltration contributes to both surface waters and groundwater aquifers that supply wells.

There are many natural surface waters in Howard County. Most of the county drains into the Wildcat Creek. The headwaters of the Wildcat originate in Tipton and Grant counties and flow west to meet the Wabash River near the city of Lafayette. The northern part of the county drains toward Deer Creek which also flows west to the Wabash River. Small streams are scattered over a landscape that is mostly level to gently sloping.

Howard County has large areas of soils that do not drain quickly after rainfall. These poorly drained soils were formed from the rock debris left behind by retreating glaciers. These soils have a high content of very fine, clay particles that tend to hold water tightly in the spaces between particles; thus, water does not move quickly through the soil. Instead, water tends to back up and collect (or "pond") on the soil surface until it moves downward, runs off over the land surface, or evaporates. Information about specific soil types and characteristics in Howard County is available from the Howard County Soil and Water Conservation District (see Contacts).

Flooding occurs when rainfall exceeds the capacity of surface waters and soils to store the extra water. Flooding may have costly impacts on many land uses including agriculture, roads, utilities, and homes. These impacts can be greatly reduced by keeping natural surface drainages free-flowing and, in some places, altering the drainage using buried tiles (essentially hollow pipes) to speed up the water movement toward streams, ponds, or lakes.

Ponding water can cause crop loss.

Flooding around homes may damage structures and cause septic systems to fail.

History of Drainage

Indiana was once covered by vast hardwood forests and scattered wetlands and marshes. Immigrant settlers looking for productive farmland first cleared the forests then began to drain the wet areas. The earliest drains from the 1800s followed natural streams. Since that time open surface drains continue to be primary receiving waters for buried tiles that extend out into farm fields and residential lots. Tiles were originally made from wood or clay, but now are made of plastic with perforated slots to allow water to enter.

Types of tile. Left to right: Plastic, clay and an old flat bottom clay tile.

Plastic tile of different diameters is used in most drainage projects.

Ditching machine installing new plastic tile in a farm field.

Pieces of broken clay tile. Most tile installed today is plastic instead of clay.

Definition and Identification of Drains

The term “drain” refers to both natural streams and buried tiles. While all natural streams provide drainage, not all of these streams are officially designated as drains that are regulated b state law. The status of buried tiles also depends on ownership and other factors. The following definitions separate regulated drains from other drains.

Public or Regulated Drain: This is a drain that benefits more than one landowner and is managed by the County Drainage Board according to Indiana drainage law. Regulated drains may include a portion of the length of a stream.

Private or Mutual Drain: This is a drain that benefits one or more landowners and is not managed by the County Drainage Board.

A list of regulated drains in Howard County is available from the County Surveyor's office. Maps of regulated drains for any part of the County are also available on the Howard County website (http://co.howard.in.us/). Click on the "Property & Tax Information" title in the left sidebar to go to the "Beacon" window. Select "regulated drains" in the "Layers" listed in the left sidebar. Select "Map" from the buttons at the top of the window. A map of the county will appear with regulated drains displayed. The user can manipulate the map with the tools at the top.

Identifying private drains is much more difficult. These drains have been managed by private landowners over the last several decades and there are no public records of these drains. Tiles located on agricultural ground are usually documented in farm records, but these records may not always be available.

Ownership and Responsibility for Drains

Both regulated and non-regulated drains are located on private land. A key difference is that the operation and maintenance of a regulated drain is the responsibility of the County Surveyor and County Drainage Board. Operation and maintenance of a non-regulated drain is the responsibility of the landowner on whose land the private drain is located.

For regulated drains, the County Surveyor supervises drainage work, keeps financial records, and submits plans to the County

Drainage Board. The Drainage Board approves the assessments for drains, resolves problems and disputes, and approves drainage work (construction, maintenance, and vacation of regulated drains).

The Surveyor is an elected position serving a term of four years. The County Drainage Board currently consists of two county commissioners plus one appointed member. The elected Surveyor is a non-voting member of the board. The Drainage Board meets on the first and third Monday of every month.

Maintenance of Regulated Drains

Issues to be discussed by the Board should submitted to the Surveyor one week prior to these meetings.

Maintenance of any drain is essential to keep it in working order. For an open surface drain ('drainage ditch"), maintenance is in the form of dredging and clearing debris that interferes with water flow. The purpose of dredging is to remove sediment that builds up on the bottom of the ditch. This has to be done periodically to maintain water flow.

Buried drainage tiles, especially those made of older materials such as clay, sometimes break or become clogged with sediment. A broken tile has to be excavated and replaced. Plugged tiles are often difficult to find; however, standing water is usually an indicator that the tile down gradient is not functioning and should be excavated and replaced.

This clay tile is filling with sediment and gravel. It will eventually stop working properly.

Minor maintenance of regulated drains includes dredging, removing debris, and routine repairs. Landowners who benefit from a regulated drain include residents of the watershed around the drain, not just those who live adjacent to the drain. These landowners pay an annual assessment to the County Drainage Board and receive maintenance on the drain in return. It may take several years for a drain's assessment fund to accumulate enough money to cover the cost of maintenance. When it is time for minor drain maintenance landowners are notified by the Surveyor.

Major maintenance includes construction or re-construction. The cost of these activities is usually greater than the assessment fund. If major maintenance and additional assessments are required, landowners will be notified of a hearing on the proposed action. If a majority of landowners agree to the construction/re-construction, a bank loan is obtained to fund the work and landowners pay an additional assessment to re-pay the loan.

Both minor and major maintenance activities usually require the use of heavy equipment such as a backhoe. There are several methods that can be used for drain maintenance. Some are less invasive than others. Removal of trees and other vegetation is sometimes required but not always. The strategy for using this equipment is at the discretion of the Surveyor, but landowners may discuss the strategy with the Surveyor prior to the work. The cost of this work is usually a major factor in choosing a maintenance strategy.

Broken tile does not function properly, causing flooding in adjacent areas.

After drain maintenance on non-agricultural land, the disturbed area will be graded with a bulldozer and re-seeded by the Surveyor's office.

After drain maintenance on agricultural land, the landowner is strongly encouraged to plant a grass buffer strip of at least 30 feet in width from the edge of the ditch bank extending out into the field. The Surveyor's office recommends a 66 foot width to comply with Atrazine chemical application areas. If the landowner does not plant a grass buffer strip and is responsible for activity along a ditch that contributes to bank collapse and erosion, the landowners may be charged for additional ditch maintenance costs.

Financial assistance for establishing grass buffer strips is available from the U.S. Department of Agriculture Farm Service Agency, Howard County office. (see Contacts).

Looking down into a hole caused by a broken clay tile. This tile has collapsed and created a "suck" hole. Soil washes down into the tile and may cause more breakdowns along the tile line. These holes are also hazards for machinery and livestock.

Maintenance of Non-regulated Drains

Maintenance of a non-regulated drain is the responsibility of the private landowners on whose land the drain is located. If there is a problem with flow due to debris or broken tile, the decision to perform maintenance and the cost of maintenance fall to the private landowners.

Indiana drainage law allows for individuals to use several methods of dealing with surface water on private land; however, if these methods negatively impact a neighboring property owner there may be trouble. An example would be creating a berm that directs surface runoff to collect on a neighbor's residential lot.

Similarly, if a landowner creates a pond to store surface water, that landowner is responsible to any neighbors who may be impacted if the pond were to fail and release water.

Problems related to private drains should be resolved in a civil manner by those involved. Consult your neighbors before you begin a project that affects drainage. If anyone has questions about potential impacts, seek advice from the Surveyor or a qualified drainage contractor first.

Outlets for Tiles

Subsurface drainage tiles usually have an outlet into a natural stream or surface drain. Their purpose is simply to aid in draining the soil and prevent flooding. In some cases, particularly for older rural homes, drainage tiles were installed as a direct outlet to carry household wastewater to the nearest stream or ditch. This situation contributes to surface water pollution and is not legal according to Indiana public health laws. Household wastewater must be treated or cleaned. It is illegal to discharge untreated wastewater directly into a stream or ditch. Treatment is usually achieved by a septic system on the residential lot that includes a septic tank, flow distribution box, and an infiltration field.

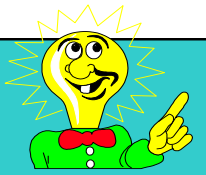
Tile outlet along an open ditch in the county.

Yellow "Bar Guard" covers tile inlet. This protects the tile from debris entering into the tile and potentially plugging up the underground tile system

Photo of tile outlets along an open ditch in Howard County. Outlets receive water from several tiles draining a field.

Tiles draining both agricultural and residential land also pose a pollution threat under certain circumstances. Pesticides and fertilizers may leach through the soil to buried tiles and move with drainage water to surface waters. These chemicals can also reach nearby streams and ditches if they are spilled or heavily applied near tile inlets. There are many factors involved in how chemicals move through the environment. Proper application of chemicals according to the label is always best to reduce the chance of pollution.

Before you buy or build . . .



People who are moving to a rural lot or building a home on former agricultural land should attempt to identify the private drains and consider other drainage issues. Keep in mind that maintenance of any private drains will be the responsibility of the landowner.

Can I build or plant on or near my drain?

The County Drainage Board controls land use on 75 feet of either side of a regulated drain. This is a public easement held for access to perform maintenance on the drain. The easement extends from the center of a tile drain, or the top of the bank of an open ditch. Permanent structures within this easement are discouraged because they may have to be removed when it is time to clean the drain. This includes tree plantings and certain buildings. Permission from the Surveyor is required before building any structure, such as a storage shed, within the easement.

May I attach my private drain onto a regulated drain?

Yes, if the regulated drain can handle the extra water flow. You must get permission from the Surveyor first. If the regulated drain cannot handle the extra flow, you may petition the Drainage Board for reconstruction of the drain to accommodate more water flow. There may be a fine for a landowner who attaches a private drain onto a regulated drain without permission from the County Drainage Board.

May I work on my regulated drain?

Light maintenance such as clearing brush is encouraged. Other types of activity may require permission from the Surveyor.

To repair a county tile, the landowner should contact the Surveyor before any repair work begins. The Surveyor will take a look at the problem and create a work order. Once this process is complete, the tile can be repaired.

Why did my assessment change?

Annual assessments may be collected until the drain fund accumulates eight times the estimated annual cost of maintaining the drain. When this amount is reached, assessments are not collected until the fund is used. A large increase in the assessment (up to 25%) may be made but this can only be done one time. Decreases in the assessment can always be made; however, this is unlikely due to inflation and increasing costs associated with maintenance work.

Throughout the state of Indiana, changes in the way assessments are calculated are being made in order to reflect better the type of land use and soil that have the greatest drainage need. For example, a paved parking lot sends more water to a drainage tile than a grassy meadow, so the owner of the paved lot would pay a greater assessment.

How do I report problems or get help with my drain?

Contact the **Surveyor** if…

...you know or suspect the drain is regulated.

...you are not sure of the drain's status.

...you have questions about drainage.

Contact the **Howard County Soil and Water Conservation District** for soil and water information, and a list of contractors who can repair private drains.

Contact **Purdue Extension** for publications and information about drainage tile installation.

Contacts:

Howard County Surveyor
Howard County Administration Center
232 N Main
Kokomo, IN 46901
(765) 457-2217 (http://co.howard.in.us.surveyor/)

Howard County Soil and Water Conservation District
1103 S. Goyer Road
Kokomo, IN 46902-2777
(765) 457-2114 x3 (www.howardswcd.com)

U.S. Department of Agriculture
Natural Resource Conservation Service
(765) 457-2114 x3
1103 S. Goyer Road
Kokomo, IN 46902-2777 (www.in.nrcs.usda.gov/)
Farm Service Agency
(765) 457-2114 x2 (www.fsa.usda.gov/indc/)

Purdue Extension of Howard County
120 E. Mulberry
Kokomo, IN 46901
(765) 456-2213 (www.extension.purdue.edu/howard)

Sources:

Fast Facts: The Drains of Montgomery County. Montgomery County Drainage Board, SWCD, and League of Women Voters, Crawfordsville, IN (May 2006).

Drainage 101. Indiana Farm Bureau, Inc., Indianapolis, IN (August 2004).

A Checklist of Legal Theories for Solving Drainage Problems, M. Owen Mohler. Indiana Farm Bureau, Inc., Indianapolis, IN (2003).

Howard County
Soil and Water
Conservation District

Printed on recycled paper.

This publication is a joint project between the Howard County Soil and Water Conservation District and the Howard County Surveyor's

"All programs and services of the SWCD are available without regard to race, color, national origin, religion, sex, age, marital status, or handicap."

This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement #C9975482-06 to the Indiana Department of Environmental Management. The contents of this document does not necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.