

Fixing Tile Blowouts: What You Need to Know

Eric Cooley & Callie Herron, Winter 2015

Tile blowouts in Wisconsin are increasing in occurrence as older clay and concrete tile drainage systems continue to age. The gradual expansion of tile lines to an existing system, without proper resizing or venting, has only exacerbated this problem. Tile blowouts can introduce soil and nutrients into the tile drainage system and increase the potential for nutrient loss and tile blockage (Figure 1).

Blowouts result from excessively high flow velocity or pressure inside the tile, causing it to crack or burst. Blowouts will often create a direct conduit to the soil surface when the surrounding material is drawn into the tile and transported downstream. They range in size from a few inches to several feet and can be hard to find.

Causes of Tile Blowouts

- Collapse of tiles from degradation over time
- Inadequate venting
- Expansion of tile system without adequately resizing main or sub-mains
- Outlet blockages
- Improper joint connections or junctions between old/new tile lines
- Contact of deep tillage equipment with shallow tile lines
- Animal burrows

Keys to Identifying Blowouts

- Identify blowouts during the late stages of spring snowmelt or after subsequent rain events, if possible. These periods are generally times of high flow and reduced soil cover, making blowouts more obvious.
- Listen for a 'sucking' noise that is caused by air and water being drawn into the blowout (Figure 2).
- Look for upwelling water or water draining through a hole in the ground during high flow periods (Figure 3).
- During times of low flow, look for holes in the ground above the tile drains (Figure 4).
- Use GPS technology and/or accurate maps that identify tile line locations to greatly expedite the inspection process.



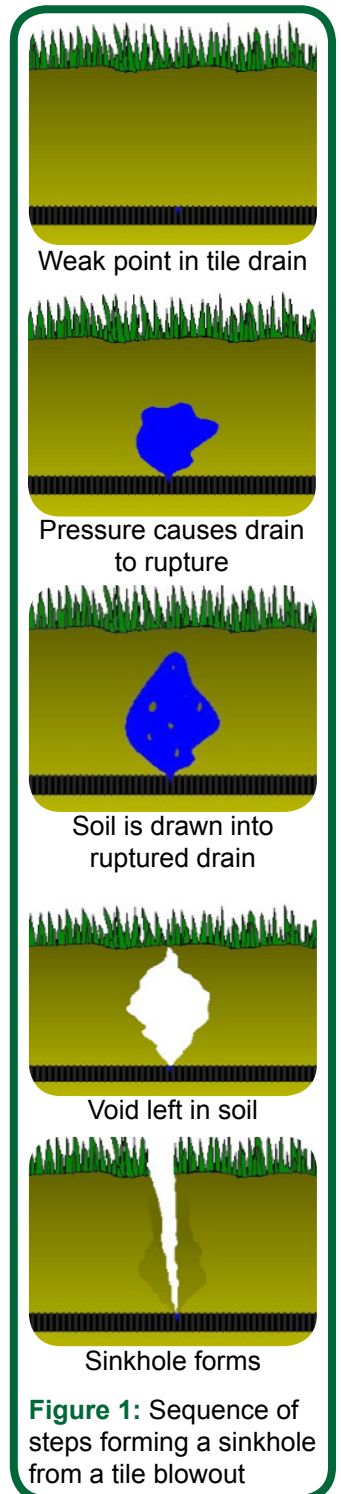
Figure 2: Hole identified by 'sucking' noise



Figure 3: Hole identified during high flow



Figure 4: Hole identified during low flow



Blowouts in tile systems should be well marked when identified and repaired promptly by knowledgeable individuals. The direct pathways from the soil surface to the tile system created by these features can result in large amounts of sediment, debris, manure, fertilizer, or chemicals entering tiles. University of Wisconsin Discovery Farms (uwdiscoveryfarms.org) tile drainage research has observed increased soil and nutrient loss to tile systems from blowouts. Improper repairs and quick fixes can result in on-going problems with blowout development and tile system blockages.

What to Consider Before Fixing Tile Blowouts

- 1. What caused the blowout to develop?** Determining the cause of a blowout is critical to the prevention of additional blowouts. Tile age degradation, improper venting, and/or undersized tile drains are common issues that will result in persistent development of blowouts. If tile system issues are not remedied in conjunction with the tile blowout, the problems will persist.
- 2. Is the tile system within a drainage district that is governed by county drainage boards?** If so, the local drainage board needs to be contacted prior to tile system maintenance. Cost-sharing for the tile system repair might be available through the drainage board. To determine if your tile system resides in a drainage district, visit the Wisconsin Department of Agriculture, Trade and Consumer Protection Drainage District Program at: http://datcp.wi.gov/Environment/Drainage_Programs for a web map and additional information.
- 3. Is the location of the blowout within a designated wetland?** Contact your local United States Department of Agriculture - Natural Resources Conservation Service (USDA-NRCS) field office for wetland determination, including the identification of farmed wetlands (FWs), farmed wetland pastures (FWPs), and farmed prior converted cropland (PC). USDA benefits may be affected with non-compliance of rules: www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_020717.pdf.
 - FWs and FWPs are areas that were cropped or grazed prior to December 23, 1985, and are saturated for at least 14 consecutive days during the growing season. Drainage systems in these areas may be maintained as originally constructed (fixing of tile blowouts allowed), but may not be improved beyond the scope & effect of the originally installed system.
 - If operating on PC there are no restrictions on drainage maintenance or improvements, as long as adjacent wetlands are not adversely impacted.
 - To maintain USDA benefit eligibility, producers must certify that they have not:
 - » planted an agricultural commodity on a converted wetland that was converted by drainage, dredging, leveling, or any other means (after December 23, 1985).
 - » converted a wetland to make agricultural commodity production possible (after November 28, 1990) ([US EPA, 2012](http://www.epa.gov)).

Always contact Diggers Hotline (800.242.8511 or dial 811 on a cell phone) prior to excavation for tile repairs.

For more information on managing tile-drained lands, visit the Cooperative Extension Tile Drainage Resources website:

<http://fyi.uwex.edu/drainage>