

Drainage Water Management Plan

South Dakota Fact Sheet

 March 2012

 SD-FS-78

USDA's Natural Resources Conservation Service (NRCS) offers technical and financial assistance for Drainage Water Management (DWM). Installation and implementation of DWM begins with a DWM Conservation Plan. Your plan can be prepared by local NRCS Field Office staff, private Technical Service Providers or a professional drainage contractor. NRCS program incentives can make managing farm tile drainage systems more productive and more profitable.

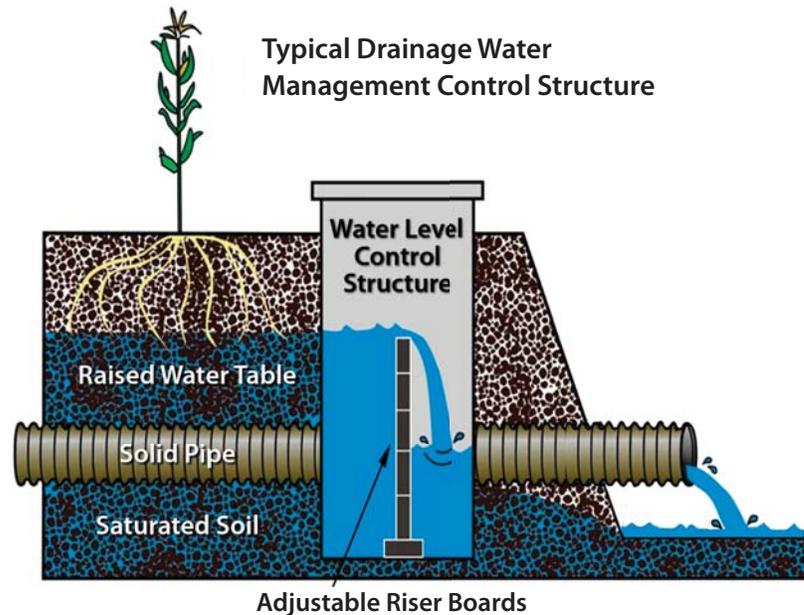
What is DWM?

DWM is the process of managing the timing and the amount of water discharged from agricultural drainage systems. DWM is based on the premise that the same drainage intensity is not required at all times during the year. With DWM, both water quality improvement and production benefits are possible. Water quality benefits are derived by minimizing unnecessary tile drainage and may reduce the amount of nitrate that leaves farm fields. DWM systems can also retain water in fields that can be used for crop production later in the season when needed.

Get a Plan!

To successfully construct or retrofit a DWM system on existing tile drainage systems requires careful planning. When applying for NRCS programs, producers are more likely to be funded if they have a DWM plan. A successful DWM system can help private landowners:

- Protect and improve water quality
- Potentially enhance crop production
- Improve soil productivity and carbon sequestration
- Reduce erosion and loss of valuable soil and nutrients
- Enable seasonal shallow flooding for wildlife habitat



Where does DWM work?

- The flatter the topography, the better
- To be cost-effective, fields should be 20 acres or more in size

DWM is the process of managing the timing and the amount of water discharging from agricultural drainage systems. A water level control structure is installed in the tile line and allows for management of the tile outlet elevation.

What's In a DWM Plan?

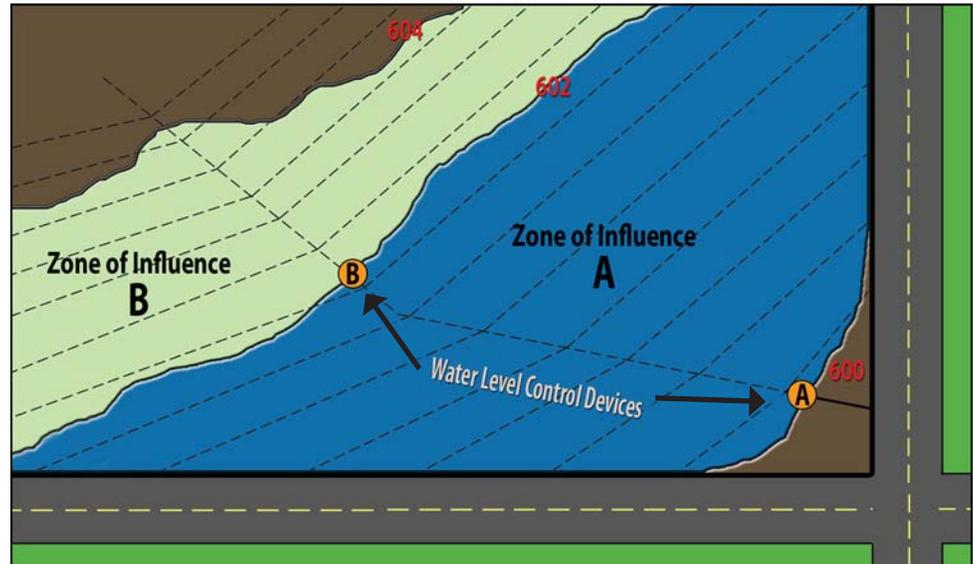
A properly prepared DWM Plan ensures factors of landscape, soils, slope, and current drainage systems are taken into consideration and incorporated into the function of your DWM System. A typical DWM plan would include:

- farm and field identification
- landowner goals and objectives
- detailed topographic map
- soil map and soil profile information
- field maps with field boundaries and sensitive resources areas
- tile map, outlets, and control structure locations
- crop system description, risk assessments, and a nutrient management plan
- operational and maintenance instructions

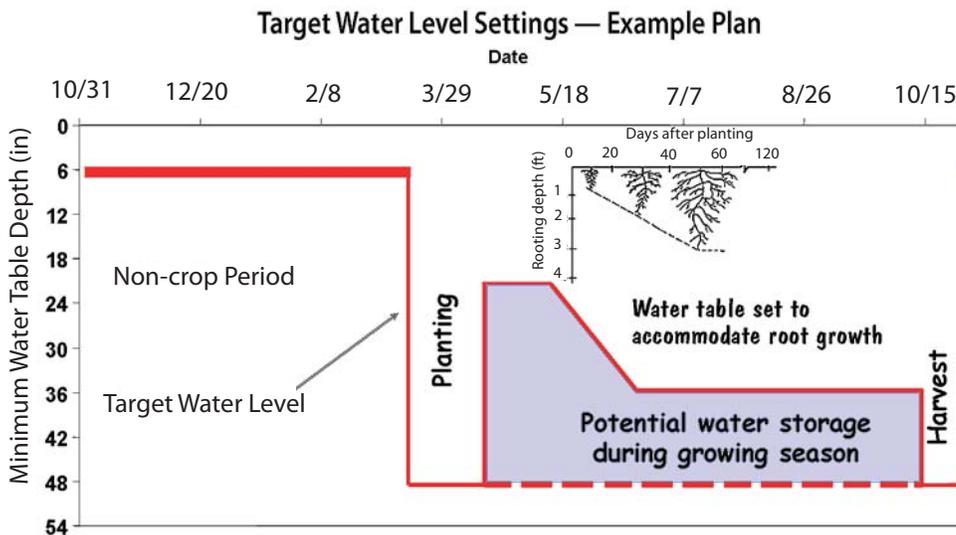
DWM plans provide the location and size for each planned water level control structure. Also, to effectively use and benefit from a DWM system, it is crucial that the plan includes a detailed set of instructions for **operation** and **maintenance**. A tile drainage system with water level control structures is most beneficial if operated properly. Remember, the most important word in Drainage Water Management is MANAGEMENT. This means MANAGED by YOU.

An essential component of the DWM plan is a determination of the area of the field impacted by each water level control structure (zone of influence). The DWM Plan will clearly identify critical dates and target water level elevation levels needed to accomplish management goals and objectives. Details of Operation and Maintenance include:

- Target water elevations PRIOR to tillage, planting or harvest operations. Manage water levels that allow performance of needed field work.
- Target water elevations AFTER seasonal field work. Manage water levels that permit infiltration of rainfall and bring water to crop root zones. Water level targets vary with crop, growth stage, and soil type.
- Target water level is managed is near the soil surface or to a prescribed level during the non-crop period.



Lines labeled 600, 602, and 604 represent ground surface elevation levels.



The Golden Rule of Drainage:
Only release the amount of water necessary to ensure trafficable conditions for field operations and to provide an aerated crop root zone—any drainage in excess of this rule likely carries away nitrate and water that is no longer available for crop uptake.

**Is YOUR land suitable for a DWM System?
 Visit your county NRCS office for a field evaluation!**