

DRAINAGE WATER MANAGEMENT PLAN CRITERIA PRACTICE/ACTIVITY CODE (130) (NO.)

1. Definition of a Drainage Water Management Plan

The objective of Drainage Water Management (DWM) is to control soil water table elevations and the timing of water discharges from subsurface or surface agricultural drainage systems for the following purposes:

- Reduce nutrient, pathogen, and pesticide loading from drainage systems into downstream receiving waters.
- Improve productivity, health, and vigor of plants.
- Reduce the rate of oxidation of organic soils.

The objective of a Drainage Water Management Plan (DWMP) is to provide the producer a framework for the implementation of DWM on existing artificially drained land. The desirability and potential benefits of a DWM system can be effectively determined by interviewing the producer, identifying field boundaries and soil types, obtaining a drain map, developing a topographic map, and then combining these components to produce a DWMP for the field or farm.

2. DWMP Criteria

This section establishes the minimum criteria to be addressed in the development of Drainage Water Management Plans.

A. General Criteria: In accordance with Section 1240 (A), the Environmental Quality Incentives Program (EQIP) provides funding support through contracts with eligible producers to obtain services of certified TSPs for development of Drainage Water Management Plans. The specific TSP criteria required for DWMP development is located on the TSP registry (TechReg) web site at:

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/technical/tsp>

B. DWMP Technical Criteria: The DWMP includes, but is not limited to, the following components:

1. Plan development, farm and field information:
 - a. Name of producer
 - b. Location of field (County/Township, latitude and longitude)
 - c. Farm number
 - d. Field and/or Tract number(s)
 - e. Crops grown, and planned rotation by field
 - f. Name and address of contractor or consultant developing plan
 - g. Date of plan development
 - h. Total acres of the DWMP. The DWMP includes all adjacent acres drained by the same system and under the same land ownership.
2. A narrative statement about the proposed management of the field, including related practices that the producer plans to implement (such as Nutrient Management) along with drainage water management. Include a statement about the objectives of the producer, involving at least one of the purposes

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listed in section 1. *Definitions of a Drainage Water Management Plan*. Include the resource concerns identified, and the conservation practices needed to comprise a conservation system for DWM.

3. A soil map that includes field boundaries, with the predominant soils listed and area of each predominant soil quantified. Include a listing of the drainage class of the predominant soils.
4. A drainage system map that includes the materials, diameters or dimensions, and locations of the laterals and mains. List the flowline elevation of any tile line that crosses the field boundary (depth and grade of tile lines or ditches not leaving the field are not required for the DWMP) and the flowline elevation of tile at proposed structure locations. List the general drain depth and spacing for the patterned drainage system. If any changes to an existing drainage system are proposed to facilitate drainage water management, include the proposed configuration as a separate map.
5. A separate map outlining the area within the field drained by the system, also showing the drainage system. The definition of the drained area is taken from the lateral spacing recommendations of the soil, as specified in the NRCS or State Drainage Guide. The outer boundary of the drained area is delineated by a line around the drained area (tiled or ditched), at a distance of one-half of the tile or ditch lateral spacing.
6. A Topographic Map that shows elevation contours on an increment appropriate for the topography, but no greater than 1 foot. To determine the appropriate maximum contour interval, ensure that the contours are no farther than 100 feet apart in the plan view, where slopes exceed 0.75%. Allowable topographic contour interval is 6 inches (0.5 feet) for land slopes 0.75% and flatter, and 1 foot for steeper land slopes. The drainage system map and topographic map need to be the same scale, and the scale must be at least 1:3,600 (1 inch = 300 feet) or closer. The topographic map will include, at a minimum, all of the drained area as defined above. Include at least one point identified at the site (e.g., Benchmark) with a known elevation and coordinates to facilitate final design of the DWM system at a later date. Set the known reference point on a surface where the elevation will not change for at least a year (ground surface is not suitable), and include a description of the point for future reference in the field. Topography generated from LiDAR data is allowed if the LiDAR data were collected at a density and precision to support the contour intervals required above, or if an independent field survey is included demonstrating the accuracy of the LiDAR data.
7. An overlay of the above maps (e.g., field boundaries, drain locations, contour map) with the location, size, control elevation and impacted area identified for each planned control structure.
 - The control zone (or impacted area) of each structure is defined as the area draining to that structure (see item 5) that is contained within the 2- foot contour above the control elevation. The impacted area of the structure does not include any area impacted by the next structure in the system (if there is one).

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- The control elevation is the elevation of the soil surface at the lowest spot in the area of the field (control zone) impacted by the operation of the water control structure.
8. The management instructions will follow the Operation and Maintenance section of CPS 554. The DWMP must be written such that implementation will not adversely affect the drainage of adjacent fields. The DWMP also must include the following instructions:
 - The time after harvest to replace boards and the designated outlet elevation during the fallow season,
 - The time prior to tillage, harvest, and other field operations to release water (this will vary depending on the crop: e.g. March for corn and April for soybeans), and
 - Guidelines for the control of drainage and the management of the water table during the growing season (see CPS 554).
 9. A summary sheet that lists the pipe diameter and height (depth to drain) or dimensions of each planned water control structure and the area impacted by each structure. Provide the GPS coordinates for each planned structure and the elevation of the tile at the structure location.
 10. A signature page, with names, dates and signatures of all contract holders and the person who prepared the plan. The signatures are to be done after the person preparing the plan explains the contents and ensures that the contract holder(s) are in agreement with the plan. The signature page must also contain a space for approval by NRCS.
 11. Include a checklist for NRCS field office use, covering each component of the DWMP. Use the checklist available in the State’s Field Office Technical Guide, Section III, with CAP-130.
 12. The DWMP is to be packaged as one plan. Larger format maps, if needed, may be packaged separately and referred to in the plan. A template of a DWMP is available on the Illinois Drainage Guide (Online), on the webpage “Related Information”, in the references.

C. Associated Practice Standards: In addition to the water control structures as described in CPS 554, Drainage Water Management, existing drainage systems may require augmentation, modification, or replacement of existing components. Typical NRCS Conservation Practice Standards to be incorporated in a DWMP could include:

| Code | Practice name |
|------|---------------------------|
| 340 | Cover Crop |
| 554 | Drainage Water Management |
| 604 | Saturated Buffer |

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| 605 | Denitrifying Bioreactor |
| 606 | Subsurface Drain |
| 607 | Surface Drain, Field Ditch |
| 608 | Surface Drainage, Main or Lateral |
| 587 | Structure for Water Control |
| 590 | Nutrient Management |

D. References:

USDA-NRCS, National Engineering Handbook, Part 624, Section 16, Drainage.

USDA-NRCS, National Engineering Handbook, Part 650, Engineering Field Handbook, Chapter 14, Water Management (Drainage).

University of Illinois, Department of Agricultural and Biological Engineering, Illinois Drainage Guide. <http://www.wq.illinois.edu/DG/>

3. Deliverables for the Client – a hardcopy of the DWMP that includes:

- Cover page – identification information: all items in the Criteria section B.1.
- Objectives of the producer addressed in the DWMP, as listed in the Criteria section B.2.
- All maps, delineations and appropriate soil descriptions as listed in the Criteria sections B.3, 4, 5, 6, 7 and 8. Include locations and details for any supporting practices in the DWMP, as described in section C.
- Management instructions as listed in the Criteria section B.9.
- Water control structure summary sheet as listed in the Criteria section B.10. Include sizing and quantity information for any supporting practices in the DWMP, as described in section C.
- Signature page, as listed in the Criteria section B.11.
- Checklist for NRCS use, as listed in the Criteria section B.12.

4. Deliverables for NRCS Field Office:

- Complete Hardcopy and Electronic copy (MS Word format) of the client’s plan.