

CRANBERRY CONSTRUCTION PROJECTS

COE AND WDNR REGULATIONS AND PERMIT INFORMATION

INTRODUCTION

This packet provides information on regulations, permit applications, and permit considerations relevant to cranberry operations and proposed expansions. The packet has been developed in cooperation with the Wisconsin State Cranberry Growers Association, Environmental Protection Agency (EPA), St. Paul District Corps of Engineers (COE), and Wisconsin Department of Natural Resources (WDNR).

While cranberry production has special status in state law, it is important to be aware that, depending on the location and/or design of a project, state and federal regulations may apply, as well as floodplain and shoreland zoning ordinances.

To save time and be cost effective it is very important that the applicant or agent contact the WDNR, COE, the county zoning office, and any other local zoning or regulatory body as early in the planning process as possible.

STATE AND FEDERAL REGULATIONS

Upland Areas (not wetland) – In general, cranberry expansion in upland areas can be done without permit requirements. Other permits may, however, be required for some special upland settings with archeological, historical, or endangered species associated with the location. It is always a good idea to check with federal, state, and county officials before starting a project.

Wetlands/Waterways – If the project affects a wetland or waterway, the project must comply with federal and/or state laws. It is important to contact the COE to find out if the proposed expansion impacts a federal or non-federal wetland.

While some wetland types can be easy to identify, other wetland types may not be as obvious. The owner is responsible for providing accurate wetland descriptions and wetland delineations prepared by a professional wetland delineator. Impacts to wetlands must be avoided to the extent as practicable. Where it is not practicable to avoid impacts, impacts must be minimized. A practicable alternatives analysis is required by COE and WDNR for any proposed wetland impact.

Federal Wetland - If the project affects a federal wetland both COE and WDNR permit approval is required. The project must comply with Section 404 of the Clean Water Act and state water quality standards for wetlands s. NR 103. If there are significant adverse impacts to wetlands, the Wisconsin water quality certification cannot be approved and the COE permit would not be issued.

Note: The COE, WDNR and EPA consider the construction of cranberry beds, including associated dikes and water control structures associated with dikes (i.e., headgates, weirs, drop inlet structures), to be a water dependent activity. (*Regulatory Guidance Letter 92-02 "Water Dependency and Cranberry Production", June 26, 1992*) Further analysis of water dependency is provided by COE in "*St. Paul District Analysis Regarding Section 404 Review of Commercial Cranberry Operation, September 1995*".

Note: The COE requires off-site properties be considered as part of the alternative analysis for federal wetlands. The COE requires compensatory mitigation generally a 1.5 to 1 ratio for wetland impacts.¹

Non-Federal Wetlands are not regulated by the COE, but are regulated by WDNR and a state water quality certification is required for non-federal wetlands.

Note: Wisconsin Water Quality Standards for Wetlands NR 103 defines expansion activities of cranberry operations and water dependency (NR 103.07) and allows for limiting the scope of alternatives analysis for expansion projects. For the expansion of cranberry marshes the alternatives analysis shall be limited to alternatives within the boundaries of the property where the existing cranberry operation is located and on property immediately adjacent to the existing cranberry operation.

Shoreland Zoning or Floodplain Zoning – Although some cranberry activities, such as dikes, dams, and ditching, are specifically exempt from shoreland zoning regulations, the construction of buildings or other structures is not exempt and may require a shoreland zoning permit from the county. Cranberry operations are not exempt from floodplain requirements, and must comply with local ordinances and state (NR 116 WI Adm. Code) and federal floodplain regulations.

Dams or Waterway Structures – COE authorization and corresponding WDNR water quality certification will be required for new dams (discharge of fill into waters of the United States) or waterway structures. No WDNR ch. 30 (waterways) or ch. 31 (dams) permits are required for cranberry water diversions, dam construction or maintenance.

Note: Wisconsin Statue 94.26 Cranberry culture: maintenance of dams, etc. Any person owning lands adapted to the culture of cranberries may build and maintain on any land owned by the person such dams upon any watercourse or ditch as shall be necessary for the purpose of flowing such lands, and construct and keep open upon, across and through any lands such drains and ditches as shall be necessary for the purpose of bringing and flooding or draining and carrying off the water from such cranberry growing lands, or for the purpose of irrigation, fertilization and drainage of any other lands owned by the person; provided, that no such dams or ditches shall injure any other dams or ditches theretofore lawfully constructed and maintained for a like purpose by any other person.

Drainage District (ch 88, Stats.) – If the project is located in a drainage district and involves a change in ditch configuration or water use, authorization by the Drainage District Board and Department of Agriculture, Trade & Consumer Protection may be required.

¹ Guidelines for Wetland Compensatory Mitigation Publication SS-961-2002

WETLAND PERMIT APPLICATION INFORMATION

This section outlines the information that is needed for a complete permit application by the Wisconsin Department of Natural Resources (WDNR) and by the St Paul District Corps of Engineers (COE). It is highly recommended to contact the WDNR, COE, the county zoning office, and any other local zoning or regulatory body as early in the planning process as possible.

If a new cranberry operation or the expansion of an existing cranberry operation impacts a federal wetland, both federal and state regulations apply. If the project impacts are limited to a non-federal wetland, only a state water quality certification is required. No two landscapes and no two cranberry operations are alike; therefore each decision is made on a case-by-case basis. A complete application is critical to the agencies providing a timely review of the proposed project.

- 1) **Pre-application Meeting:** A pre-application meeting with the applicant, WDNR and COE is highly recommended. The Waterway and Wetland Pre-application Conference Preparation and Advice Worksheet contains a list of information that will be needed for the pre-application meeting with the WDNR and COE.

One of the purposes of the meeting will be to identify any potential issues or problem areas that may require additional analysis and may affect the permit process. Based on the information provided, the WDNR and COE will communicate a preliminary decision or point of concurrence to the applicant. A final decision can not be determined until the permitting process is complete.

- 2) **Application Materials:** The WDNR and COE have a joint state/federal application form and have identified the following list of application materials that will help provide a timely review. Depending on the complexity of the project, additional information may be required. The permit application is available at:

<http://dnr.wi.gov/topic/waterways/construction/cranberry.html>

- a) **COE/WDNR joint permit application** - (Form 3500-53 and Water Quality Certification Supplement 3500-53N) must include:
 - i) Property boundary information for: (1) the proposed project in relation to (2) all property owned by the applicant as a part of, or adjacent to, the proposed project. Identify the owners of lands adjacent to your property and any lands recently bought or sold adjacent to your property.
 - ii) Photographs of project area.
 - iii) Completed application Forms 3500-53 and 3500-53N which must include applicant information and project plans.
 - iv) Narrative description and drawings of proposed project. A *water budget* (see Appendix A), description of the *best management* practices and, history of previous expansions must be included with the project proposal.

- v) Wetland boundary information: Submit a wetland delineation for the proposed project in accordance with the COE 1987 Delineation Manual². For a list of State Assured Delineators please visit <http://dnr.wi.gov/topic/wetlands/assurance.html>
 - vi) Practicable Alternatives Analysis (see section 3 below)
 - vii) Site Maps: Relevant site maps including USGS topographic, Wetland Inventory, FEMA floodplain, soil, zoning, previous expansions.
 - viii) Proposed Mitigation Plan: The COE requires compensatory mitigation generally a 1.5 to 1 ratio for wetland impacts. COE requires a mitigation plan be approved by COE prior to issuance of a permit.
- 3) **Practicable Alternatives Analysis** – The intent of the practicable alternatives analysis is to determine the practicability of the Applicant’s proposal (including avoidance and minimization of wetland impacts that were considered by the Applicant). Then, after an agency reviews the application, the agency may require a supplementary alternatives analysis by the Applicant if there are additional options that may be available to the Applicant (in the alternative to the Applicant’s proposed expansion plan) that first *completely avoid and, then minimize* impacts to wetlands, and that were either not considered or were rejected by the Applicant.

Applicant must show no significant adverse impacts to wetland functional values.

Note: Alternatives that Minimize Wetland Impacts - If wetland avoidance is not practicable then the practicability of wetland impact minimization must be evaluated pursuant to 3)a)i) thru v). Minimization alternatives will each include some wetland impact and could include the same alternatives listed in 3)d)i) thru vii).

Note: There may be circumstances under which an upland site alternative for cranberry bed construction may, if developed, present environmental impacts that are greater than the impacts that would result from a wetland site alternative. If such upland impact concerns exist then the Applicant should describe them, in detail, in the application.

a) Applicant’s Proposal--Directions

Following the Pre-Application Meeting (see item 1) above) the applicant may, at the applicant’s election, choose to proceed with the permit application process. If the applicant submits a permit application then the applicant is strongly encouraged to address the wetland avoidance and minimization issues (especially if any were raised during the Pre-Application meeting) in the application. This “alternatives analysis” should be presented as part of the original application as follows:

The Applicant should present the alternatives analysis by including the following in the application:

² "Corps of Engineers Wetland Delineation Manual", Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. Guidelines for Submitting Wetland Delineations in Wisconsin to the St. Paul District Corps of Engineers (Public Notice, 96-01078-SDE, May 22, 1996).

- i) **The Plan.** Explain the practicability of the development plan using the criteria in 3)c)ii) thru v) below.
- ii) **Avoidance Alternatives Rejected.** Explain which of the wetland avoidance alternatives in 3)d) are not adopted in your plan. To the degree appropriate to each wetland avoidance alternative you rejected, use the criteria in 3)c)ii) thru v) to explain why the alternative was not practicable.
- iii) **Avoidance Alternatives Adopted.** Explain the practicability (use 3)c)ii) thru v) criteria) of each wetland avoidance alternative in 3)d), if any, that is adopted in the proposal.
- iv) **Minimization Alternatives Rejected.** If the proposal does not fully avoid wetland impacts, and the Applicant has rejected one or more minimization alternatives in 3)d) then the Applicant should explain why the rejected alternatives are not practicable using the criteria stated in 3)c)ii) thru v).
- v) **Minimization Alternatives Adopted.** If the proposal does not fully avoid wetland impacts then the applicant shall present the practicability of each minimization alternative of 3)d) incorporated in the proposal and explain why those alternatives are practicable using the criteria stated in 3)c)ii) thru v).

b) Agency Response

If, upon evaluation of applicant's proposal, an agency seeks further evaluation of the practicability of additional avoidance or mitigation alternatives then:

- i) The agency should advise the applicant of the avoidance or minimization alternative(s) (in 3)d)) about which it seeks further information; and
- ii) The applicant shall provide to the agency supplementary information on the applicant's practicable alternative analysis for each such alternative, using the criteria provided in 3)c)ii) thru v).

c) Evaluation of the Practicability of the Applicant's Proposal - Information Included in Application.

- i) Explanation of the wetland avoidance and/or minimization (see d) below) included in the applicant's proposal AND explanation of wetland avoidance and/or minimization considered but not included in the Applicant's proposal.
- ii) Number of cranberry producing acres resulting from the proposal.
- iii) Number and type of other wetland acres impacted by the proposal for all alternatives analyzed.

Wetland Type	Acres	Wetland Type	Acres
Shallow, Open Water	_____	Coniferous Bog	_____
Deep Marsh	_____	Shrub-Carr	_____
Shallow Marsh	_____	Alder Thicket	_____
Sedge Meadow	_____	Hardwood Swamp	_____
Fresh (Wet) Meadow	_____	Coniferous Swamp	_____
Wet to Wet-Mesic Prairie	_____	Floodplain Forest	_____
Calcareous Fen	_____	Seasonally Flooded Basin	_____
Open Bog	_____	Other	_____
		(i.e., farmed wetlands artificial wetlands, etc.)	
Total Acres:	_____		

- iv) Estimated construction cost of the project and alternatives.
- v) Cranberry farming/logistical and technological advantage/disadvantages of the proposal.
 - Annual fuel costs resulting from the proposal (for water pumping, vehicle and machinery operation, etc.) advantage/disadvantage.
 - Annual worker hours expense needed for farming operations under this proposal—advantages/disadvantages.
 - Worker safety considerations—advantages/disadvantages of this proposal.
 - Water budget impacts—advantages/disadvantages of the proposal.
 - Drainage and flooding system design efficiency.
 - Irrigation system design and efficiency.
 - Equipment use (logistical & technological) advantages/disadvantages of the proposal.
 - Cost and volume of crop inputs.
 - Cranberry bed productivity—advantages/disadvantages of this proposal.
 - Integrated pest management.
 - Efficient use of available land.
 - Other crop production and other practicability considerations—advantages/disadvantages of this proposal.

d) Wetland Avoidance and Minimization Alternatives.

While there is no set number of avoidance or minimization alternatives that need to be explored, and evaluated to determine if they are practicable, some examples of what should be considered are provided here:

- i) Narrowing and/or shortening of beds
- ii) Relocation of beds to another site on the property or immediately adjacent property
- iii) Reorientation of beds
- iv) Rehabilitation of existing beds on the farm to more productive vines or more efficient operations
- v) Purchasing land from adjacent property owners

- vi) The use of other off-site properties that may be suitable for cranberry production as required by COE.
- vii) Reservoir Construction – If reservoir construction in wetlands is proposed, alternatives including upland alternatives, adjacent property acquisition, high capacity wells, and increasing existing reservoir capacity.

COE AND WDNR PERMIT APPLICATION REVIEW CONSIDERATIONS

- 1) **Wetland avoidance and minimization alternatives** - Analysis of the proposed project and the practicability of alternatives available to the applicant.
- 2) **Downstream, upstream and onsite impacts** (if any)
 - a) Public interest/rights
 - b) Biological needs/impacts
 - c) Existing beneficial water users downstream from project site
- 3) **Impacts to Wetland Functions**
 - a) Flood/storm water retention and storage and moderation of water level fluctuations
 - b) Hydrologic functions including maintenance of streamflows, groundwater recharge and discharge and groundwater flow through a wetland
 - c) Water Quality including, filtration or storage of sediments, thermal, nutrients, and/or pollutants
 - d) Shoreline protection and erosion
 - e) Habitat for aquatic organisms
 - f) Habitat for resident and transient wildlife
 - g) Recreational, cultural, educational, scientific, and natural scenic beauty values and uses
- 4) **Available Water**
 - a) Evaluation of the Appendix A “Cranberry Operation Water Budget Data Sheet”
 - b) Consideration of the stream/lake/flowage needs vs. operational needs of the applicant
- 5) **Secondary Impacts**
 - a) Secondary impacts can involve a wide range of unforeseen consequences and could include
 - i) Upstream concerns (flooding, neighbor impacts, etc.)
 - ii) Downstream (sedimentation, recreational impacts, water shortages, excess water, etc.)
 - iii) Drainage of wetlands
- 6) **Cumulative Impacts**
 - a) Total impact over time
 - b) Similar projects/impact in the watershed area
- 7) **Areas of Special Environmental Concern**

The presence of one or more of the following environmental concerns will make it difficult to avoid significant adverse impacts and therefore difficult to meet the standards.

- a) Historical/Archeological Resources

- b) Threatened and Endangered Resources
- c) Significant Wetland Functions
- d) Areas of Special Natural Resource Interest (ASNRI) - Wetlands in areas of special natural resource interest includes those wetlands both within the boundary of designated areas of special natural resource interest and those wetlands which are in proximity to or have a direct hydrologic connection to such designated areas. The following are designated areas of special natural resource interest:
 - i) Cold water communities as including all trout streams and their tributaries and trout lakes;
 - ii) Lakes Michigan and Superior and the Mississippi River;
 - iii) State and federal designated wild and scenic rivers, designated state riverways and state designated scenic urban waterways,
 - iv) Unique and significant wetlands identified in special area management plans, special wetland inventory studies, advanced delineation and identification studies and areas designated by the United States Environmental Protection Agency;
 - v) Calcareous fens;
 - vi) Habitat used by state or federally designated threatened or endangered species;
 - vii) State parks, forests, trails and recreation areas;
 - viii) State and federal fish and wildlife refuges and fish and wildlife management areas;
 - ix) State and federal designated wilderness;
 - x) Designated or dedicated state natural areas;
 - xi) Wild rice waters; and
 - xii) Any other surface waters identified as outstanding or exceptional resource waters.

*For a complete list of ASNRI areas and definitions please refer to NR 103.04.

APPENDIX A

Cranberry Operation Water Budget Data Sheet

Directions: Every cranberry operation is different. Answer only the questions that pertain to your proposal (e.g., if your cranberry operation has a river as its water source, answer the questions under River / Stream and ignore those under Groundwater and Lake). This analysis must also be done for ditches connected to these waterbodies. On separate sheets of paper, be sure to show all calculations and explain all assumptions and sources of information.

I. DESCRIBE YOUR WATER SOURCE(S)

A. River / Stream

- 1. Name of waterbody _____
- 2. Use gauging data if available (see <http://waterdata.usgs.gov/wi/nwis/sw>); if not available, provide best calculations based on drainage area, land use, etc., or data from a similar stream and watershed located as near as possible to the project site.
 - a. Average annual flow in cubic feet per second (CFS) _____
 - b. CFS flow and elevation for 100 year flood event _____
 - c. 7Q10 flow (lowest 7-day flow in a 10-year period) _____
7Q2 flow (lowest 7-day flow in a 2-year period) _____
 - d. Anticipated stream diversion: CFS, and number of days.
- 3. Provide a map (to scale, 1"=1,000') showing that portion of the project area within the 100-year floodplain and / or floodway.
- 4. Cross-sectional drawing of the stream upstream and downstream of the operation, showing water level at average annual flow and at 7Q2 and 7Q10.

B. Lake / Reservoir

- 1. Name of waterbody _____
- 2. Surface elevation (MSL), surface acreage, and acre-feet (AF) of storage of the lake / reservoir during
 - a. Average conditions
 - b. High water conditions

c. Drought conditions (e.g., 1976 and 1988)

3. Is the lake / reservoir isolated or is it connected to other lakes and / or river systems? Describe. Provide map as appropriate.

C. Groundwater

1. Average depth to water table _____

2. Describe springs and seeps (number, location, estimated flow in gallons per minute (gpm) etc.)

3. Describe the permeability rate of the soil(s) at your site (refer to county soil survey information).

If your plans include reservoir construction or enhancement, include the permeability rate of soils in the reservoir area. If a county soil survey is not available, representative core samples of the reservoir area should be taken so that soil permeability can be estimated.

4. If a well will be used for a portion of the water supply, provide the following information;

- a. Location of surface water source identified on a map
- b. Depth and diameter
- c. Pumping rate
- d. Maximum daily pumping rate
- e. Average annual withdrawal volume

II. WATERSHED INFORMATION

A. Size of watershed (acres or square miles) _____

B. Average slope _____

C. Soils (% peat, % sand, % clay, % impervious surfaces, etc.) using the county soil survey (if none has been prepared for your county, provide best available information). (See <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>)

D. Land use (% upland forested, % wetland, % lakes, % cranberry reservoirs, % cranberry beds, % agricultural (other than cranberry), % urban, etc.)

E. If there are existing cranberry reservoir(s) on site, upstream or downstream, how far are they from the project area, and what are the surface elevation (MSL), surface acreage, and AF of storage capacity of each during:

1. Average conditions
2. High water conditions
3. Drought conditions (e.g., 1976 and 1988)

III. DESCRIBE HOW YOUR WATER SUPPLY SYSTEM WOULD WORK

A. What would be your total water supply (in AF) combining river / stream, lake / reservoir and groundwater sources? What percentage would each contribute to your water supply?

B. If your proposal is an expansion of an existing cranberry operation, describe how the proposed expansion would tie in.

C. Where would water be discharged (if discharging to more than one place, give percentages for an average year):

1. Reservoir(s) (if a reservoir is used as a temporary detention basin, please indicate and estimate detention time)
2. Natural lake
3. Stream / river
4. Wetland complex

Identify the location of each discharge point on the site plan and indicate frequency and duration of discharge.

IV. WATER USE

The following questions pertain to water use in one year of operation. The averages are reasonably accurate for the part of Wisconsin where most cranberry operations are located. Use these figures unless you have more site-specific information.

Average annual water use:	6 acre-ft
Average annual precipitation:	30 inches
Average annual evapotranspiration:	21 inches
Net runoff:	9 inches

A. Water requirements (in AF) of your cranberry operation, both proposed and existing (acres of beds multiplied by 6 ft) _____

B. Estimate, in AF and percentage of total water use, how much water would be reused (i.e., pumped back into reservoir), during what time period

C. Estimated water lost to seepage

D. Estimated water discharged in AF (e.g., to river or lake)

E. Balance sheet showing water sources for your cranberry operation (river, lake, reservoir, groundwater, net precipitation, etc.) and subtracting water uses (6 AF per bed, seepage, discharged outside of cranberry operation, etc.). This should be calculated for an average year.

V. IMPACT ANALYSIS

A. River / Stream Water Source

1. Provide a water quantity analysis evaluating the in-stream impacts, both upstream and downstream, of withdrawing water for your cranberry operation.
2. In a worst-case situation, such as the drought of 1976 or 1988, what percentage of the river or stream flow would be diverted to your cranberry operation?

Use cross-sectional drawings similar to those in part I.A.4. to show downstream water levels under average conditions and at 7Q2 with the proposed project in place.

B. Lake / Reservoir Water Source

1. How much would the surface elevation be lowered during the maximum short-term withdrawal (e.g., putting on the winter flood?)
2. If a reservoir (impoundment) is used, what is the distance and what is the difference in elevation to the nearest occupied building located downstream as well as adjacent to the reservoir (adjacent to the reservoir)? Consider buildings on your property or neighboring properties.

C. Groundwater Water Source

Describe the effect on the groundwater elevation due to proposed dikes, reservoirs, etc. Would the proposed reservoir raise the groundwater elevation, and if so by how much? Describe the anticipated impact to the groundwater if a well is used for a water source.

D. Summary

Describe how your water use could affect neighboring property owners. How would your operation affect other users both upstream and downstream: wildlife refuges, recreational areas, public or private water supplies, other cranberry operations, other agricultural uses?