Wetland Enhancement (Acre) 659

DEFINITION

The rehabilitation or reestablishment of a degraded wetland, and/or the modification of an existing wetland.

PURPOSES

To provide specific wetland conditions to favor specific wetland functions and targeted species by:

- Hydrologic enhancement (depth, duration and season of inundation, and/or duration and season of soil saturation).

- Vegetative enhancement (including the removal of undesired species, and/or seeding or planting of desired species).

CONDITIONS WHERE PRACTICE APPLIES

This practice applies on any degraded or non-degraded existing wetland where the objective is to specifically enhance a selected wetland function(s) and/or value(s).

This practice does not apply to unique or high quality natural wetlands such as calcareous fens, bogs, or coastal lakeplain prairies.

Upon completion of the enhancement, the site will meet current Natural Resources Conservation Service (NRCS) soils, hydrology, and vegetation criteria of a wetland.

This practice does not apply to: Constructed Wetland Standard (656) intended to treat point and non-point sources of water pollution; Wetland Restoration Standard (657) intended to rehabilitate a degraded wetland where the soils, hydrology, vegetative community, and biological habitat are returned to original conditions; or Wetland Creation Standard (658) for creating a wetland on a site location which historically was not a wetland.

CRITERIA

General Criteria

The purpose, goals, and objectives of the enhancement shall be clearly outlined, including the soils, hydrology, and vegetation criteria that are to be met and are appropriate for the site and the project purpose. Refer to the Wetland Wildlife Habitat Management Standard (644) for specific criteria to meet the landowner's objectives.

Any use of fertilizers, mechanical treatments, prescribed burning, pesticides, and other chemicals shall be done in a manner that ensures that the intended purpose of the wetland enhancement will not be compromised.

The landowner shall obtain necessary local, tribal, state, and federal permits that apply before the practice is applied. The planned enhancement shall not adversely impact existing easements, rights-of-ways, and deed restrictions.

The wetland enhancement will not impact adjacent land without written permission from the landowner.

Enhanced wetlands will only be located where the soils, hydrology, and vegetation meet NRCS criteria for a wetland.

A vegetative buffer on surrounding upland will be established to reduce sediment and soluble and sediment-attached substances from being carried into the wetland. Use the Filter Strip Standard (393A) to determine the minimum width of the vegetative buffer.

Document the soil, hydrology, and vegetative characteristics of the site before alteration.

Invasive and undesirable plant species (whose presence or overpopulation jeopardize the practice) shall be controlled on the site.

If the presence of hazardous waste materials in the sediment or fill is suspected by a governmental

agency, then soil samples will be collected and analyzed for the presence of hazardous waste as defined by local, state, or federal authorities. Sites containing hazardous waste will not be enhanced under this standard.

Consider the impacts of this practice on cultural resources. The planned enhancement shall follow the Michigan NRCS policy for Cultural Resources review.

Criteria for Hydric Soil

Enhancement sites will be located on hydric soils. If the hydric soil is excavated to improve wetland hydrology, hydric soil will be stockpiled and reapplied over the area to a minimum depth of 4 inches.

If the topsoil is likely to contain a predominance of non-native invasive species such as purple loosestrife or aggressive species such as reed canary grass or phragmites, then it is best to remove the top 6 inches of soil and vegetation to an upland site, and redistribute the remaining topsoil over the disturbed areas.

Criteria for Hydologic Enhancement

The hydrology of the site is defined as the rate and timing of inflow and outflow, source, duration, frequency and depth of flooding, and ponding or saturation. An adequate source of water must be available to meet designs for increased hydrology.

Wetland hydrology should be reestablished or enhanced that will support the wetland type being established. Existing drainage systems will be utilized, removed, or modified as needed to achieve the intended purpose.

If embankments, water control structures, surface or subsurface drainage manipulation, or grade stabilization structures are required, the standards and specifications for Wetland Restoration Standard (657) will be followed as appropriate.

The effect of any modification to the existing surface and/or subsurface drainage system on upstream and downstream landowners shall be evaluated.

Criteria for Vegetative Enhancement

Vegetation will be established which is native and typical for the wetland type(s) being created.

Preference is given to topdressing at least 60% of the site with soil containing seedbanks of desired species to a minimum depth of 4 inches. The soil will not contain seeds of non-native invasive species such as purple loosestrife or aggressive native species such as reed canarygrass or phragmites. If natural colonization will realistically dominate within 5 years, then natural regeneration can be left to occur.

Preference is given to allowing natural regeneration to occur. If natural regeneration will not occur, then the following requirements apply:

- If the targeted hydrophytic vegetation is predominately herbaceous, then a minimum of five plant species adapted to the site will be planted. Herbaceous vegetation may be established by a variety of methods including: mechanical seeding, broadcast seeding, or plug plantings. Site preparation will be conducted to prepare a seedbed adequate for proper establishment.

- Forested wetland plantings will include a minimum of three species adapted to the site. Where appropriate, two of the species will be mast producing species. Tree planting will meet the criteria in the Tree/Shrub Establishment Standard (612).

- Preference will be given to native plant species which are collected or grown from material collected within 200 miles from the site being created. If native plant materials are not adaptable or proven effective for the planned use, then non-native, non-invasive species may be used. Refer to the Field Office Technical Guide, Section I, Invasive Plant Species for plant materials identified as invasive species.

Wetland Functions Criteria

Project goals and objectives should include targeted wetland functions for the enhanced wetland. When possible, wetland functions not targeted for enhancement should also be maximized.

A functional assessment shall be performed on the site prior to enhancement using the Hydrogeomorphic approach, as identified in the National Food Security Act Manual, or similar method.

CONSIDERATIONS

If practical, this practice should be applied to sites that are adjacent to existing wetlands to increase wetland system complexity and diversity, decrease habitat fragmentation, and ensure colonization of the site by wetland flora and fauna.

When possible, link wetlands together by using corridors (see NRCS-Michigan Conservation Sheet Corridor Establishment).

Adverse effects on downstream flows or aquifers that would impact other water uses will be considered.

Consider the effect restoration will have on mosquitoes. Develop at least one area which is 5-6 feet deep of permanent water to provide habitat for predators of mosquitoes.

Nutrients and pesticides contained in surface and ground water, as well as accumulated sediments, may have an adverse effect on wetland vegetation. The nutrient and pesticide tolerance of the species planned along with the wetland objectives should be considered where known nutrient and pesticide contamination exists.

Sediment delivery to wetlands from surface water inflow should be reduced when low maintenance is required. This may be accomplished with watershed treatment, or the establishment of such practices as grassed waterways, riparian filter strips, or sediment basins.

Embankments and excavated slopes should be located and shaped in a manner that is compatible with the existing landscape.

Consider the impacts upon both state and federally listed threatened and endangered species. Use the Natural Features Database as the first level of review. Any potential impacts, positive or negative, to threatened and endangered species will need to be reviewed with the appropriate federal or state agency.

PLANS AND SPECIFICATIONS

Plans and specifications for this practice will be prepared for each site. Specifications shall be recorded using conservation sheets, narrative statements in the conservation plan, engineering designs, or other documentation. Specifications shall describe the requirements for applying this practice to achieve its intended purpose.

As a minimum, specifications will include the objective of the practice, location map, permit requirements, survey notes, design records, construction specifications, vegetative requirements, and construction inspection records.

OPERATION AND MAINTENANCE

An operation and maintenance plan will be prepared for each wetland enhancement site.

The following activities will be addressed in the plan: (1) timing and level setting of water control structures required for establishment of desired vegetation; (2) inspection schedule of embankments and structures for damage assessment and maintenance; (3) depth of sediment accumulation allowed before removal required; (4) management needed to maintain vegetation, including control of unwanted vegetation or pests; and (5) acceptable uses and timing (grazing and haying).

REFERENCES

USDA, NRCS, 2003. ECS 190-15: Wetland Restoration, Enhancement, Management & Monitoring. 425pp.

USDA, NRCS, 1992. Wetland Restoration, Enhancement, or Creation, Engineering Field Handbook, Chapter 13. 79pp.