NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

WETLAND ENHANCEMENT

(Acre)

CODE 659

DEFINITION

The modification or rehabilitation of an existing or degraded wetland, where specific functions and/or values are modified for the purpose of meeting specific project objectives. Some functions may remain unchanged while others may be degraded.

PURPOSE

To modify the hydrologic condition, hydrophytic plant communities, and/or other biological habitat components of a wetland for the purpose of favoring specific wetland functions or values. For example; managing site hydrology for waterfowl or amphibian use, or managing plant community composition for native wetland hay production.

CONDITIONS WHERE PRACTICE APPLIES

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

Enhancement should not significantly change the primary wetland functions provided at the site. If the project area is degraded, functions and values may be increased or improved with the project.

Upon completion of the enhancement the site will meet the current NRCS soils, hydrology, and vegetation criteria of a wetland.

This practice does not apply to Conservation Practice Standards 656,Constructed Wetland, intended to treat point and non-point sources of water pollution; 657, Wetland Restoration, intended to rehabilitate a degraded wetland where the soils, hydrology, vegetative community, and biological habitat are returned to original conditions; or 658, Wetland Creation, for creating a wetland on a site location which historically was not a wetland or on a site which was formerly a wetland but will be replaced with a wetland type not naturally occurring on the site.

CRITERIA

General Criteria

The landowner shall obtain local, state, and federal permits that apply before wetland enhancement.

Water rights are assured prior to enhancement, if required.

The design will not back water on neighboring land without an easement.

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

The potential for occurrence of threatened or endangered species shall be evaluated for each site proposed for enhancement. Sites containing threatened or endangered species will not be enhanced under this standard unless it can be demonstrated that the impact will benefit the species at risk.

If the presence of hazardous waste materials in the sediment or fill is suspected, 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.

Criteria for Hydrology Enhancement

The hydrology of the site (defined as the rate and timing of inflow and outflow, source, duration, frequency, and depth of flooding ponding or saturation) is modified to meet the project objectives. An adequate source of

water must be available to meet designs for increased hydrology.

The Conservation Practice Standards and Construction Specifications 356, Dike, and 587, Structure for Water Control, will be used as appropriate. Refer to the Engineering Field Handbook, Chapter 13, "Wetland Restoration, Enhancement, and Creation," and Chapter 6, "Structures," for additional design information. Existing drainage systems will be utilized, removed, or modified as needed to achieve the intended purpose.

On soil regimes (Osage, as an example) where dams and/or dike are cost prohibitive or not feasible, depressional areas may be used to provide storage to meet the criteria in the Engineering Field Manual. Depressions can be constructed 3 to 12 inches deep on 15 to 25 percent of the total area. Excavation material can be used as fill or spread evenly outside the excavated area.

Criteria for Vegetation Enhancement

Preference shall be given to adapted native wetland plants. Introduced or cultivated plant species can be used to meet specific project objectives. Introduced species may become invasive or detrimental and caution must be exercised. Request approval of introduced plants from the Assistant State Conservationist for Technology on a case-by-case basis.

Adequate substrate material and site preparation necessary for proper establishment of the selected plant species shall be included in the design.

Herbaceous vegetation may be established by a variety of methods including: seeding, planting, placement of hydric topsoil containing propagules and seed, organic mats, etc., distributed over the entire site, or a portion of the site. Where desired plant species are present on site or adjacent areas in sufficient quantity, natural colonization can be considered as an establishment option.

A combination of natural succession and other methods of vegetation establishment are permitted when the plan meets landowner objectives and program criteria.

Forested wetland establishment will include a minimum of three species, where possible. Seeding preparation and planting will follow the criteria outlined in Construction Specification 612, Tree Planting.

Seed planting rates and site preparation will meet the criteria outlined in Conservation Practice Standard 652, Woodland Direct Seeding.

Criteria for Wetland Functions

A functional assessment (Hydrogeomorphic approach or similar method) shall be performed on the site prior to enhancement.

Project goals and objectives shall minimize adverse impacts to wetland functions not specifically targeted for enhancement.

Where possible, wetland functions not targeted for enhancement should also be maximized.

CONSIDERATIONS

Consider existing wetland functions and/or values that may be adversely impacted.

Consider effect of volumes and rates of runoff, infiltration, evaporation, and transpiration on the water budget.

Consider the potential for a change in rates of plant growth and transpiration because of changes in the volume of available soil water.

Consider effects on downstream flows or aquifers that would affect other water uses or users.

Consider effects on wetlands or water-related resources wildlife habitats that would be associated with the practice.

Consider linking wetlands by corridors wherever appropriate to enhance the wetland's use and colonization by the flora and fauna.

Consider establishing vegetative buffers on adjacent cropland to reduce sediment and soluble and sediment-attached substance carried by runoff and/or wind.

The nutrient and pesticide tolerance of the species planned should be considered where known nutrient and pesticide contamination exists.

Consider effects on temperature of water resources to prevent undesired effects on aquatic and wildlife communities.

Consider the invasive or nuisance potential of selected plant species on other aquatic systems.

Consider the effect of the constructed wetland on possible pest problems, i.e. mosquitoes.

PLANS AND SPECIFICATIONS

Specifications for this practice shall be prepared for each site. Specifications shall be recorded using approved specifications sheets, job sheets, narrative statements in the conservation plan, and other documentation such as topographic maps, soils information, drainage area, seeding and fencing plans, and water management plans. Requirements for the operation and maintenance of the practice shall be incorporated into site specifications.

OPERATION AND MAINTENANCE

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance):

- Any use of fertilizers, mechanical treatments, prescribed burning, pesticides, and other chemicals to assure the wetland enhancement function shall not compromise the intended purpose.
- Biological control of undesirable plant species and pests (e.g., using predator or parasitic species) shall be implemented where available and feasible.
- Timing and level setting of water control structures is required for the establishment of desired hydrologic conditions, for management of vegetation and for optimum wildlife use.
- Inspection schedule for embankments and structures for damage assessment.
- Depth of sediment accumulation to be allowed before removal is required.
- Management needed to maintain vegetation, including control of unwanted vegetation and noxious weeds will be conducted. If chemicals are used as a control measure, all chemicals will be applied according to label directions.
- Haying and livestock grazing will be managed to protect and enhance established and emerging vegetation.