NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

STREAM HABITAT IMPROVEMENT AND MANAGEMENT

(Ac.)

CODE 395

DEFINITION

Maintain, improve or restore physical, chemical and biological functions of a stream, and its associated riparian zone, necessary for meeting the life history requirements of desired aquatic species.

PURPOSE

1. Provide suitable habitat for desired aquatic species.
2. Provide stream channel and associated riparian conditions that maintain ecological processes and connections of diverse stream habitat types important to aquatic species.

CONDITIONS WHERE PRACTICE APPLIES

All streams and their adjoining backwaters, floodplains, associated wetlands, and riparian areas where geomorphic conditions or habitat deficiencies limit reproduction, growth, survival and diversity of aquatic species.

CRITERIA

All measures implemented under this practice shall comply with all applicable federal, state and local laws, rules and regulations. The owner or operator shall be responsible for securing all required permits or approvals including, but not limited to, permits pertaining to the Clean Water Act sections 404 and 401, Public Lands Corporation and sedimentation and erosion control. All required permits will be obtained prior to installation of any stream improvement measures. Any permit requirements will be incorporated into the design, operation and/or maintenance requirements of the specification.

Stream habitat management shall be applied within the context of the overall watershed conditions and with clear objectives for stream management goals.

Planned stream habitat improvements will

- address the aquatic species and life history stages for which the stream is being managed,
- be based on a site-specific assessment of local hydrology, channel morphology, geomorphic setting, aquatic species, riparian and floodplain conditions, and any habitat limitations including water quantity and quality, food supply, and restriction of upstream and downstream movement of aquatic species using the NRCS Stream Visual Assessment Protocol or comparable evaluation tool.
- when applied, result in a conservation system that meets or exceeds the minimum quality criteria for stream habitat established in Section III of the FOTG.

Manage adjoining riparian areas to support diverse natural vegetation suitable for the site conditions and desired ecological benefits. Such benefits include stream temperature moderation, recruitment of instream large wood and fine organic matter, input of riparian nutrients and terrestrial insects, streambank stability, and filtration of contaminants from surface runoff. ***Refer to NRCS WV conservation practice standard Riparian Forest Buffer (391) or Riparian Herbaceous Buffer (390).***

A soils and/or geologic investigation will be performed prior to installation of any structure and channel stability will be evaluated to ensure that excessive streambank scour and erosion will not occur.

Design in-stream structures that are compatible with the dynamic nature of streams and rivers, encourage natural geomorphic recovery when possible and minimize disruption of recreational and other traditional uses of the stream corridor.

Planned structures and management shall emphasize the establishment of an ecologically self-sustaining stream-riparian-system consistent with the watershed conditions and landscape setting.

Structures installed for the purposes of this standard will not

- impede or prevent passage of fish and other aquatic organisms at any time;
- cause excessive bank erosion;
- cause unintentional lateral migration, aggradation or degradation of the channel;
- hinder channel-floodplain interactions.

Where practical, restore or maintain stream habitat and channel forming processes such as natural flow regime, meander migration, sediment transport, recruitment and storage of large wood, and floodplain interactions with the stream.

All stream and riparian activities will occur within state and federal guidelines with regard to timing of spawning, incubation, and rearing of aquatic organisms, and breeding and nesting of terrestrial organisms ***or as specified by the WV Division of Natural Resources Biologist.***

Livestock shall be managed to sustain a healthy stream corridor and associated habitats.

CONSIDERATIONS

Consider aesthetic values and recreation opportunities associated with stream habitats such as angling and fish viewing.

Any stream habitat management project is most effective when applied within the context of overall watershed conditions and with clear objectives for stream management goals. Stream habitat management provisions should be planned in relation to other land uses that may affect stream corridors.

Before designing and implementing stream habitat improvements, consider the known or expected concerns within the watershed, such as: point and non-point source pollution, water diversions, and land management activities likely to influence stream habitat conditions. Additional measures that should be taken singularly or in combination to improve stream habitat include:

1. Complete a general assessment of watershed conditions that are likely to affect the functions of the stream and its riparian area.
2. Incorporate stream habitat improvements into a conservation plan that addresses soil quality, nutrient management, pest management and other management practices for reducing non-point sources of pollution.
3. Provide fish passage upstream and downstream and allow movement of other aquatic species and organic matter to the extent possible and when compatible with state and federal fish management objectives (see Code 396 – Fish Passage). ***(See USACE Nationwide Permits, West Virginia 401 Water Quality Certification Special Conditions, Appendix A. "Culvert Installation Recommendations to Fully Comply with Aquatic Life Passage".***).
4. Reduce or manage excessive runoff due to watershed development, roads or land-use activities.
5. Restore or protect riparian and floodplain vegetation and associated riverine wetlands.
6. Maintain adequate in-stream flows to sustain diverse habitats for aquatic species, especially during critical life history stages of spawning, incubation and rearing.

7. Provide heterogeneous and complex physical habitat components consistent with the physiographic setting and important to aquatic species in the watershed. These include suitable spawning substrates, structural elements such as boulders and/or large wood where appropriate, resting pools, overhead cover, and riparian vegetation.
8. Provide barriers to exclude aquatic nuisance species from stream habitats where prescribed by the appropriate state and federal fish management agencies.
9. Provide screens on water pumps, diversion ditches, or any area where unintentional entrapment of aquatic species is likely to occur
10. Improve floodplain-to-channel connectivity for development of seasonal or permanent backwater, wetland and off-channel habitats consistent with the local climate and hydrology of the stream.
11. Maintain natural surface water and ground water interactions to the extent possible.
12. Control spread of exotic plant and animal species.
13. Manage other land use activities to minimize impacts on stream banks, riparian vegetation and water quality.

PLANS AND SPECIFICATIONS

Plans and specifications shall be developed for each site where management and improvement actions are to be implemented.

The plan will include a detailed site description, the sequence in which improvements or management actions will be completed and maintenance requirements.

Specifications shall include:

(a) ***An assessment of current stream and riparian conditions. This assessment shall evaluate channel morphology, landscape setting, aquatic species, riparian and/or floodplain conditions, and any habitat limitations including restriction of upstream and downstream movement of aquatic species (see Stream Visual Assessment Protocol SVAP or similar State equivalent).***

(b) Location and extent of modification of the stream reach to accomplish the planned purpose;

(c) ***All component practices and their respective specifications.***

(d) ***Any drawings and/or job sheets that document quality, quantity, placement and dimensions of structures including the timing and location of practices and management strategies.***

(e) Suitable environmental documentation is required including but not limited to the WV CPA-052 documenting impacts to stream and adjacent resources. Include any required permits and agency contacts.

(f) A soils and/or geologic investigation of the proposed area of improvement and/or management

(g) *The aquatic species and life history stage for which the stream is being managed; and* ***if applicable, methods for fish passage and other aquatic species (including stream organic matter) upstream and downstream. Refer to USACE Nationwide Permits, West Virginia 401 Water Quality Certification Special Conditions, Appendix A. "Culvert Installation Recommendations to Fully Comply with Aquatic Life Passage".***

OPERATION AND MAINTENANCE

A detailed operation and maintenance plan shall be developed for all applications. The plan shall provide for periodic inspection and prompt repair or modification of any structures that are found to cause excessive streambank or streambed instability. All structural measures shall be evaluated on an annual basis. Any repair actions, if needed, shall comply with state and federal guidelines for protecting spawning, incubation and rearing times of aquatic species and breeding and nesting times of terrestrial species.

All vegetative and structural measures shall at a minimum be evaluated on an annual basis and after high water events.

Additional periodic monitoring may be required to determine the effects of this practice on stream stability, capacity, temperature and sediment transport as appropriate.

REFERENCES

Bureau of Land Management. 1998. Riparian Area Management: A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas. TR-1737-15.

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NRCS. 2005. National Biology Handbook, Aquatic and Terrestrial Habitat Resources.

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NEH-653 - Stream Corridor Restoration: Principles, Processes, and Practices. Federal Interagency Stream Restoration Working Group (FISRWG) (15 Federal agencies of the US Government). Stream Corridor Restoration Handbook. October 1998.

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Helfrich, L.A., Weigmann, D.L. Landowner's Guide to Managing Streams in the Eastern United States, VA Cooperative Fish and Wildlife Research Unit, Publication Number 420-141, December 1998.

USACE., Nationwide Permits for West Virginia, 401 Water Quality Certification Special Conditions. Appendix A. "Culvert Installation Recommendations to Fully Comply with Aquatic Life Passage". 2002

**** Bold italics indicate modifications of the National Standard by WV.***