##### MDC Scorecard for Stormwater Wetlands

| Blue = From MDC for Wet Detention Ponds developed by the MDC Team  Black = From BMP Manual | | **Is this proposed MDC necessary for the Stormwater Wetland to:** | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Function in perpetuity? | Protect WQ standards? | Remove TSS? | Optimize TN & TP removal? | Optimize bacteria removal? | Not necessary, just a good idea |
| 1. | SITING. If the stormwater wetland is within ? feet of a jurisdictional wetland, then the design permanent pool elevation (the first outlet of the wetland outlet structure) shall not be greater than ? inches below the SHWT elevation. NCSU-BAE professors will be consulted to fill in the blanks. |  |  |  |  |  |  |
| 2. | TEMPORARY PONDING DEPTH AND SURFACE AREA. The maximum depth ponding depth for the design storm shall be 12 inches above the permanent pool. The surface area of the wetland is based on the surface area at the designed temporary pool elevation. The surface area shall be sized sufficiently to limit the ponding depth to 12 inches. The wetland may be designed to pond storms exceeding the design storm at a greater depth for flood control. |  |  |  |  |  |  |
| 3. | MAINTENANCE OF THE PERMANENT POOL. The permanent pool shall be maintained by either:   * Installing a natural or synthetic liner with a minimum infiltration rate of 0.01 in/hr beneath the bottom of the deep pools and shallow water areas. * Locating the permanent pool elevation within six inches of the SHWT. |  |  |  |  |  |  |
| 4. | TOPSOIL. At least 4 inches of appropriate topsoil must be added to the planting surfaces to promote plant growth. |  |  |  |  |  |  |
| 5. | MINIMUM TREATMENT VOLUME. The minimum treatment volume for a stormwater wetland shall be 3,360 cubic feet. Lesser volumes may be approved on a case-by-case basis. |  |  |  |  |  |  |
| 6. | LOCATION OF INLET AND OUTLET STRUCTURES. The inlet and outlet structures shall be located in a manner that avoids short circuiting in the wetland. |  |  |  |  |  |  |
| 7. | FOREBAY. A forebay shall be provided at the inlet to the stormwater wetland. The forebay shall comprise approximately 10-15% of the wetland surface area. The forebay depth shall be 24-40” deep with respect to the permanent pool. The forebay entrance shall be deeper than the exit. |  |  |  |  |  |  |
| 8. | NON-FOREBAY DEEP POOLS. Deep pools shall be provided throughout the wetland. A deep pool shall be located adjacent to the outlet structure to prevent clogging. The non-forebay deep pools shall comprise 5-15% of the wetland surface area and shall be 18-36” deep with respect to the permanent pool. |  |  |  |  |  |  |
| 9. | SHALLOW WATER ZONES. Shallow water zones shall comprise approximately 40% of the wetland surface area and shall be 3-6” deep with respect to the permanent pool. |  |  |  |  |  |  |
| 10. | TEMPORARY INUNDATION ZONES. Temporary inundation zones shall comprise 30-40% of the surface area of the stormwater wetland. They shall be 0-12” above the permanent pool elevation. |  |  |  |  |  |  |
| 11. | CONVEYANCE OF STORMS EXCEEDING THE DESIGN STORM. The stormwater wetland shall include a method for safely conveying storm events exceeding the design storm in a manner that prevents catastrophic failure of the device. |  |  |  |  |  |  |
| 12. | DRAWDOWN TIME. The stormwater wetland shall be designed so that it draws down to its permanent pool level between 2 and 5 days after the design storm. |  |  |  |  |  |  |
| 13. | DISCHARGE RATE. The wetland shall discharge the storage volume at a rate equal to or less than the predevelopment discharge rate for the one-year, 24-hour storm. Dr. Bill Hunt will propose an alternative by December 1, 2014 and present it to the MDC Team. |  |  |  |  |  |  |
| 14. | LANDSCAPING PLAN. A landscape plan prepared by a qualified design professional licensed in North Carolina must be provided. The landscaping plan shall include:   * Delineation of planting zones * Plant layout with species names and locations * Total number and sizes of all plant species * Source of plant materials * Sequence and timing for planting activities (including soil amendments, initial fertilization, watering, etc.) * Specifications for growing medium * Specification of supplementary plantings to replenish losses. |  |  |  |  |  |  |
| 15. | SHALLOW WATER PLANTINGS. The shallow water zone shall be planted at a density of 50 herbaceous plants per 200 square feet (equivalent to 2 foot on center spacing). The minimum size of plants shall be 4 cubic inch containers. |  |  |  |  |  |  |
| 16. | TEMPORARY INUNDATION ZONE PLANTINGS. The temporary inundation zone shall be planted according to one of the following options:   * 50 herbaceous plants per 200 square feet (equivalent to 2 foot on center spacing). The minimum container size is 4 cubic inches. * 8 shrubs per 200 square feet (equivalent to 5 foot on center spacing). * 1 tree and 40 grass-like herbaceous plants per 200 square feet. The minimum container size for the herbaceous plants is 4 inches. |  |  |  |  |  |  |
| 17. | EMERGENT WETLAND PLANTS. Five or more species of emergent wetland plants shall be selected. |  |  |  |  |  |  |
| 18. | VEGETATION 1. Trees and woody shrubs shall not be planted on the dam structure. |  |  |  |  |  |  |
| 19. | VEGETATION 2. Cattails are not to be planted. |  |  |  |  |  |  |
| 20. | VEGETATION 3. All trees and shrubs should be set back so that the branches will not extend over the basin. The team discussed removing this during the meeting, but since then one team member has expressed concern that doing so could compromise side slopes. DEMLR will check into this and get back to the team. |  |  |  |  |  |  |
| 21. | VEGETATION 4. Turf grass shall be provided on the tops of berms and on the exterior slopes of containment berms. Centipede grass is recommended. |  |  |  |  |  |  |
| 22. | VEGETATION 5. Weeping love grass on the vegetated side slopes because it does not provide long-term slope stabilization. |  |  |  |  |  |  |
| 23. | TRASH RACK. A trash rack or other device shall be provided to prevent large debris from entering the outlet system. |  |  |  |  |  |  |
| 24. | MAINTENANCE. The stormwater wetland shall be maintained in accordance with Table 12-6 of this chapter. |  |  |  |  |  |  |
| REC | OUTLET 1. A drawdown orifice should have a turned-down elbow in order to prevent trash or other material floating on the surface from clogging the pipe. |  |  |  |  |  |  |
| REC | OUTLET 2. The design engineer should calculate flotation force for any outlet design subject to flotation forces. |  |  |  |  |  |  |
| REC | OUTLET 3. Measures should be provided along the barrel of the principal spillway to prevent piping. |  |  |  |  |  |  |
| REC | Soil bioengineering techniques such as the use of fascines, stumps, logs and coconut fiber roles can be used to create shallow land cells in areas of the wetland that may be subject to high flow velocities. |  |  |  |  |  |  |
| Temp REC | SHADING. Trees and shrubs can be planted to maximize wetland shading, primarily along the south, east, and west sides of the basin to reduce temperature impacts. |  |  |  |  |  |  |