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## APPENDIX F – POST-CONSTRUCTION BMP TABLES

### Table F.1 Standard Application Permanent Structural Controls

- Grassed Channels and Swales
- Vegetated Filter Strips
- Dissolved Oxygen Enhancement Structures
- Dry Detention Basins
- Wet Detention Basins
- Infiltration Trench

### Table F.2 Limited Structural Controls

- Bioretention Areas
- Bio-Swales
- Natural Infiltration
- Stormwater MTDs

**TABLE F.1: STANDARD APPLICATION PERMANENT STRUCTURAL CONTROLS**

BMP	General Description	Appropriate Application	General Design, Site, and Additional Considerations	Detail Drawing	SCDOT Specification
Grassed Channels and Swales	Grassed channels and swales provide filtering of stormwater runoff as it flows across the vegetation and are capable of achieving 80% TSS removal. The standard application for water quality applies only to the last 100 feet of grassed channels and swales prior to outfall and does not include the entire conveyance.	<p>Grassed Channels and Swales can be designed and installed as a stormwater conveyance system. Grassed Channels and Swales improve water quality by providing pollutant removal as runoff is filtered by the vegetation and by the opportunity to infiltrate into the underlying soil layer. Grassed Channels and Swales also reduce flow velocities in comparison to hard piping systems.</p> <p>Grassed channels and swales must be a minimum of 100 feet long with 0.5-foot high earthen flow control structures installed to provide effective treatment. The maximum DOT right-of way (ROW) drainage area to grassed channels and swales is 5 acres. If site constraints do not allow 100 feet, grassed channels and swales with a slope less than or equal to 1% and a DOT ROW drainage area less than or equal to 0.5 acres may be 75 feet long with a minimum of five 0.5-foot high earthen flow control structures installed.</p>	<p>Grassed Channels and Swales are designed to generate a relatively slow flow velocity to facilitate water quality treatment for the water quality storm event.</p> <p>Design criteria for grassed channels and swales are provided in Appendix E.</p>	<p><i>SCDOT Standard Drawings 815-008-01 and 815-008-02 Grassed Channels and Swales, or latest revision.</i></p>	<p><i>No</i></p>
Vegetated Filter Strips	Vegetated filter strips provide filtering of stormwater runoff as it flows across the vegetation and are capable of achieving 80% TSS removal.	Vegetated filter strips are used to treat small drainage areas. Runoff enters the vegetated filter strip as overland sheet flow spread out over the width of the strip at a shallow depth.	Design criteria for vegetated filter strips are provided in Appendix E.	<p><i>No</i></p>	<p><i>No</i></p>
Dissolved Oxygen Enhancement Structures	Dissolved Oxygen Enhancement Structures are enhanced riprap structures and aeration pads which provide aeration of stormwater runoff as it flows through and across the structure, causing an increase to DO levels.	Use Dissolved Oxygen Enhancement Structures in medians and drainage conveyance swales or ditches as an enhancement to vegetated swales when discharging to water bodies impaired for Dissolved Oxygen (DO).	<p>Typical Dissolved Oxygen Enhancement Structures have a minimum bottom width between two (2) and eight (8) feet, depending on channel dimensions.</p> <p>Design criteria for Dissolved Oxygen Enhancement Structures are provided in Appendix E.</p>	<p><i>SCDOT Standard Drawing 815-007-00 Dissolved Oxygen Enhancement Structures, or latest revision.</i></p>	<p><i>No</i></p>

BMP	General Description	Appropriate Application	General Design, Site, and Additional Considerations	Detail Drawing	SCDOT Specification
Dry Ponds	Dry stormwater ponds are constructed stormwater basins that do not have a permanent pool of water. The water quality volume from stormwater runoff from each rain event is temporarily detained, and released at a designed rate to achieve 80% TSS removal.	A Dry Detention Basin is intended to manage both the quantity and quality of stormwater runoff before discharging off site.	Design criteria for dry detention ponds are provided in Appendix E.	No	No
Wet Ponds	Wet stormwater ponds are constructed stormwater basins that have a permanent pool or micro pool of water. The water quality volume from stormwater runoff from each rain event is detained and treated in the pool, and released at a designed rate to achieve 80% TSS removal.	Wet Detention Basins are applicable where larger developments in a watershed substantially modify the hydrology and pollutant loading of a watershed. Because wet detention basins are area-intensive, their use in drainage areas smaller than 10 acres is not recommended.	Design criteria for wet detention ponds are provided in Appendix E.	No	No
Infiltration Trenches	An infiltration trench is an excavated trench filled with stone aggregate used to capture and allow infiltration of water quality volume from stormwater runoff into the surrounding soils from the bottom and sides of the trench to achieve 80% TSS removal.	Use Infiltration Trenches to capture sheet flow from a drainage area or function as an off-line device. Due to the relatively narrow shape, Infiltration Trenches can be adapted to many different types of sites and can be utilized in retrofit situations. Because Infiltration Trenches are sensitive to fine sediments, do not install them on sites where the contributing area is not completely stabilized or is periodically being disturbed.	Infiltration Trenches are limited to areas with highly porous soils where the water table and or bedrock are located well below the trench bottom.  Design criteria for infiltration trenches are provided in Appendix E.	<i>SCDOT Standard Drawing 815-911-00 Infiltration Trenches, or latest revision.</i>	No

**TABLE F.2: LIMITED STRUCTURAL CONTROLS**

BMP	General Description	Appropriate Application	General Design, Site, and Additional Considerations	Detail Drawing	SCDOT Specification
Bioretention Areas	Bioretention Areas are shallow stormwater basins or landscaped areas that utilize engineered soils and vegetation to capture and treat stormwater runoff to achieve 80% TSS removal. Runoff may be returned to the conveyance system or partially exfiltration into the soil.	<p>Bioretention areas are stormwater basins intended to provide water quality management by filtering stormwater runoff before release into a stormwater conveyance system or stabilized outfall. Use individual Bioretention areas for drainage areas up to two (2) acres in size.</p> <p>Bioretention is applicable for small sites where stormwater runoff rates are low and can be received into the Bioretention area as sheet flow. Because Bioretention areas are sensitive to fine sediments, do not install them on sites where the contributing area is not completely stabilized or is periodically being disturbed.</p>	Stormwater runoff enters Bioretention areas and is temporarily stored in a shallow pond on top of a filter media layer. The ponded water then slowly filters down through the filter media and is absorbed by the plantings. As the excess water filters through the system, it is temporarily stored and collected by an underdrain system that eventually discharges to a designed storm conveyance system. Design criteria for bioretention areas are provided in Appendix E.	No	No
Bio-Swales	Bio-Swales are vegetated open channels that are explicitly designed and constructed to capture and treat stormwater runoff within dry or wet cells formed by flow control structures to achieve 80% TSS removal.	Use Bio-Swales in medians and drainage conveyance swales or ditches as an enhancement to vegetated swales. Bio-Swales are useful along roads that have driveway entrances crossing the swale. The maximum contributing drainage area for Bio-Swales is five (5) acres.	Design Bio-Swales to treat the water quality volume of runoff from the entire drainage basin. Typical Bio-Swales have a minimum bottom width between two (2) and eight (8) feet and minimum filter media depth of two (2) feet. Design criteria for Bio-Swales are provided in Appendix E.	No	No
Natural Infiltration Areas	Natural infiltration is a method in which an undisturbed land area covered with natural vegetation accepts runoff from and infiltrates the runoff into the soil to achieve 80% TSS removal.	Natural infiltration areas should only be used where the soils are suitable for infiltration. The area should be in a forested condition with the land surface covered by leaves, pine needles, and other forest floor organic materials.	Design criteria for Natural Infiltration areas are provided in Appendix E.	No	No
Manufactured Treatment Devices	MTDs use the movement of stormwater runoff through a specially designed structure to achieve 80% TSS removal. MTDs are not designed or intended to store a water quality volume. MTD Pollutant removal efficiencies are variable and are highly dependent on storm size, influent pollutant concentrations, rainfall intensity, and other factors.	<p>Manufactured water quality structures are classified in following categories:</p> <ul style="list-style-type: none"> <li>•Type 1- Separation Devices</li> <li>•Type 3 - Catch Basin Inserts</li> </ul>	Design and select Stormwater Manufactured Treatment Devices (MTDs) to treat at a minimum the peak flow rate of the stormwater runoff from the 1.8-inch, 1-year, 24-hour storm event for the entire drainage area to the BMP.	No	<p><i>Supplemental Technical Specification for Manufactured Treatment Devices (MTDs) (SC-M-815-13), or latest revision.</i></p>