## Standard Details

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WQ-01</td>
<td>Stream Buffer</td>
</tr>
<tr>
<td>WQ-02</td>
<td>Wet Detention Pond</td>
</tr>
<tr>
<td>WQ-02</td>
<td>Wet Detention Pond (page 2)</td>
</tr>
<tr>
<td>WQ-02A</td>
<td>Extended Detention Shallow Wetland</td>
</tr>
<tr>
<td>WQ-02A</td>
<td>Extended Detention Shallow Wetland (page 2)</td>
</tr>
<tr>
<td>WQ-02B</td>
<td>Micropool Extended Detention Pond</td>
</tr>
<tr>
<td>WQ-02B</td>
<td>Micropool Extended Detention Pond (page 2)</td>
</tr>
<tr>
<td>WQ-03</td>
<td>Dry Ponds</td>
</tr>
<tr>
<td>WQ-03</td>
<td>Dry Ponds (page 2)</td>
</tr>
<tr>
<td>WQ-03</td>
<td>Dry Ponds (page 3)</td>
</tr>
<tr>
<td>WQ-04A</td>
<td>Shallow Wetland</td>
</tr>
<tr>
<td>WQ-04A</td>
<td>Shallow Wetland (page 2)</td>
</tr>
<tr>
<td>WQ-04B</td>
<td>Wet Extended Detention Pond</td>
</tr>
<tr>
<td>WQ-04B</td>
<td>Wet Extended Detention Pond (page 2)</td>
</tr>
<tr>
<td>WQ-04C</td>
<td>Pond/Wetland System</td>
</tr>
<tr>
<td>WQ-04C</td>
<td>Pond/Wetland System (page 2)</td>
</tr>
<tr>
<td>WQ-04D</td>
<td>Pocket Wetland</td>
</tr>
<tr>
<td>WQ-04D</td>
<td>Pocket Wetland (page 2)</td>
</tr>
<tr>
<td>WQ-05</td>
<td>Typical Bioretention Area</td>
</tr>
<tr>
<td>WQ-05</td>
<td>Typical Bioretention Area (page 2)</td>
</tr>
<tr>
<td>WQ-05</td>
<td>Typical Bioretention Area (page 3)</td>
</tr>
<tr>
<td>WQ-06</td>
<td>Infiltration Trench</td>
</tr>
<tr>
<td>WQ-06</td>
<td>Infiltration Trench (page 2)</td>
</tr>
<tr>
<td>WQ-07</td>
<td>Enhanced Dry Swale</td>
</tr>
<tr>
<td>WQ-07</td>
<td>Enhanced Dry Swale (page 2)</td>
</tr>
<tr>
<td>WQ-08</td>
<td>Vegetated Filter Strip</td>
</tr>
</tbody>
</table>
Three Zone Urban Stream Buffer

Class 1: Streams that have a drainage area greater than or equal to 100 acres.
Class 2: Streams that have a drainage area greater than or equal to 300 acres.
Class 3: Streams that have a drainage area greater than 640 acres.

** All buffer widths shall be measured from the top of the stream bank.

<table>
<thead>
<tr>
<th>Zone</th>
<th>Stream Side Managed Use</th>
<th>Up gradient Zone</th>
<th>Stream Side Managed Use</th>
<th>Up gradient Zone</th>
<th>Stream Side Managed Use</th>
<th>Stream Side Managed Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>25</td>
<td>45</td>
<td>30</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>15</td>
<td>20</td>
<td>30</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>15</td>
<td>None</td>
<td>30</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Legend:
- Stream
- Zone
- Managed Use
- Up gradient Zone
- Stream Side Managed Use
- Up gradient Zone
- Stream Side Managed Use
WET DETENTION POND

Health and Environmental Control
South Carolina Department of

Permament pool volume has been significantly filled and/or the pond becomes eutrophic.

Sediment accumulations in the main pond area shall be monitored and sediment shall be removed when the
A sediment marker shall be placed in the roadway to determine when sediment removal is required.

All roads or unpaved areas shall be repaired as needed.

Debris shall be cleared from all inlet and outlet structures monthly.

The debris from the pond shall be moved monthly.

Trash boxes made of sturdy wire mesh.

The permanent pool shall be four (4) to six (6) feet in depth.

Acceptable trash guards include:

The debris from the pond shall be moved monthly.
Report all areas of under-cut or needed areas as needed.

and invasive vegetation shall be removed annually.

Vegetation shall be inspected and maintained monthly. The depth of the zones within the wetland shall be inspected and maintained annually. The depth of the zones shall be measured from the first 2–6 months during the first 2–6 months.

Depths shall be removed from inlet and outlet structures monthly.

A sediment entrenchment spike shall be placed in the roadway area to determine when sediment removal is required.

Inspection and Maintenance

six (6) inches below the normal pool surface of the wetland.

The wetland outlet structure shall be protected from damage by incorporating an appropriate check gaurd. The check gaurd selected shall be durable and extend at least 4–6 feet deep.

The outlet micropool shall be protected from damage by incorporating an appropriate check gaurd. The check gaurd selected shall extend at least 4–6 feet deep.

All inlet and outlet structures to the roadway and be protected with a properly designed drainagement system. The roadway shall be constructed on a 2% berm.
Permanent pool volume has been significantly filled and/or the pond becomes eutrophic.

Sediment accumulations in the main pond area shall be monitored and sediment shall be removed when the

A sediment marker shall be placed in the roadway to determine when sediment removal is required.

All eroded or undercut areas shall be repaired as needed.

Debris shall be cleaned from all inlet and outlet structures monthly.

Otherwise the decaying vegetation can export pollutants out of the pond and can cause nuisance conditions to occur.

Since decomposing vegetation contained in the water can release pollutants, especially nutrients, it may be necessary to harvest dead vegetation manually.

The side slopes of the pond shall be mowed monthly.

Inspection and Maintenance:

Emergency spillways shall be installed to safely pass the post-development 100-year 24-hour storm event without overtopping any dam structures.

Hoods that extend at least 6-inches below the water quality pool water surface elevation.

Hoods that extend at least 6-inches below the water quality pool water surface elevation

A low flow orifice shall be installed to slowly release the water quality volume. The low flow orifice shall be protected from clogging by designing appropriate trash grates. Acceptable trash grates include:

A manual control gate for all inlets to the micropool extended water quality pond and shall be placed upstream of the micropool area. The reservoir is separated.

Life Safety
DRY PONDS

Health and Environmental Control
South Carolina Department of

Management is required that the pond operators completely to prevent mosquito and other hazards, management and basic housekeeping practices such as removal of debris, accumulation and vegetation
management programs. Effective and efficient programs will need to be directed toward vegetation

Inspections should be conducted semi-annually and after significant storm events to identity

Ineffective or malfunctioning equipment is required a condition of plant approval.

Regular inspection and maintenance is critical to the effective operation of dry ponds as designed. Maintenance

Seepage control or outlet control should be provided for all outlet pipes.

An emergency spillway must be included to pass the 100-year storm event. The spillway prevents pond water levels from overtopping the embankment and

Emergency Spillway

An emergency spillway must be included to pass the 100-year storm event. The spillway prevents pond water levels from overtopping the embankment. The outlet control should be designed and installed to protect against erosion problems.

In an emergency spillway must be included to pass the 100-year storm event. The spillway prevents pond water levels from overtopping the embankment and

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

The outlet control should be designed and installing to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.

Emergency Spillway

The outlet control should be designed and installed to protect against erosion problems.
Pond/Wetland System

Health and Environmental Control

South Carolina Department of

Repairs or reinforcement of embankments or berms as needed.

Invasive vegetation shall be removed and maintained annually.

The depth of the zone within the wetland shall be inspected and maintained annually, and

Wetland vegetation shall be monitored and replaced as necessary once every 5–6 months during the first 2–3 years.

Debris shall be removed from inlet and outlet structures monthly.

A sediment control stake shall be placed in the roadway area to determine when sediment removed is required.

Cyclone fencing and sediment accumulation. Inspection shall be made at least once every 6–months during the first 2–3 years of establishment.

To the success of the wetland. Wetlands shall be monitored after all storm events greater than 2–inches of rainfall during the first year to assess erosion. Evaluation during the first year is critical.

Maintenance requirements for constructed storm water wetlands are particularly high while vegetation is being established. Monitoring during the first year is critical.

In an emergency spillway shall be installed to carry convey discharge resulting from the 100–year 24–hour storm event.

The spillway shall be equipped with a trash rack.

A pipeline shall convey the constructed storm water wetland shall be installed to satisfy the 25–year 24–hour storm event.

The spillway shall be protected from collision by constructing an appropriate guard. The road guard selected shall be double and extend at least six (6) inches below the normal pool surface of the wetland.

The spillway shall be protected from collision by constructing an appropriate guard. The road guard selected shall be double and extend at least six (6) inches below the normal pool surface of the wetland.

A drain to be installed to drain the wetland when needed. The outlet micro pool shall be at least 6 feet deep.

The outlet micro pool shall be required to allow adequate depth for the extended detention. Failure to function properly and allow

A drainage pool shall be a to 6 feet deep that having a head flow channel to convey flow from the drainage pool to the micro pool area.

All inlet shall discharge to wet pond area and be protected with a properly designed influent reinforcement. Most or other acceptable inlet

Pond/Wetland System
SHALLOW WETLAND

Health and Environmental Control
South Carolina Department of

Repair all eroded or undercut areas as needed.

Invasive vegetation shall be removed annually.

Vegetation and sediment accumulation. Inspection shall be made at least once every 6-months during the first 2-years of establishment. The depth of the zones within the wetland shall be inspected and maintained annually, and

Wetland vegetation shall be monitored and replaced as necessary once every 6-months during the first 2-years.

Debris shall be removed from inlet and outlet structure monthly.

A sediment cleanout side shall be placed in the footprint area to determine when sediment removal is required.

Re-establishment and sediment accumulation. Inspection shall be made at least once every 2-years during the first 2-years of establishment. A sediment cleanout shall be placed in the footprint area to determine when sediment removal is required.

Inspection and Maintenance

An emergency spillway shall be installed to allow conveyance discharge resulting from the 100-year 24-hour storm event.

A spillway shall be equipped with a trash rack.

A gravel fillway of the constructed storm water wetland shall be installed to satisfy the 25-year 24-hour storm event. The spillway shall be equipped with a gravel fillway of the constructed storm water wetland shall be installed to satisfy the 25-year 24-hour storm event.

The gravel fillway shall be protected from cropping by a grading control in an appropriate fashion. The finished grade selected shall be durable and exhibit at least

The water quality outlet shall be protected from cropping by an appropriate fashion. The finished grade selected shall be durable and exhibit at least

The outlet micropool shall be constructed of a rock beam that small be no lower than the water quality pool depth.

All inlet and discharge to the roadway and be protected with a properly designed Turf Reinforcement Mat. The roadway shall be constructed of a rock beam that would be no lower than the water quality pool depth.
permanent pool volume has been significantly filled and/or the pond becomes eutrophic.

Sediment accumulations in the main pond area shall be monitored and sediment removal be performed when the

depths shall be cleared from all inlet and outlet structures monthly.

Dikes shall be removed as needed.

Ditches shall be cleared from all inlet and outlet structures monthly.

Since decomposing vegetation can export pollutants out of the pond and also can cause nuisance conditions to occur,

The side slopes of the pond shall be mowed monthly.

**Infiltration and Discharge**

Emergency spillways shall be installed to satisfy pass the post-development 100-year 24-hour storm event without overtopping any downstream structures.

Trash boxes made of sturdy wire mesh.

**Outlet Structures**

Outlet structures that extend at least 6-inches below the permanent pool water surface elevation.

Hoods that extend at least 6-inches below the permanent pool water surface elevation.

A low flow office shall be installed to slowly release the water and rally volume. The low flow office shall be protected from clogging by designing appropriate trash guards.

**Overflow**

A overflow shall be installed to convey flow from the overflow to the wet detention pond area.

Overflow shall be extended above the elevation of the permanent pool. A spillway shall be constructed to convey overflow from the overflow to the wet detention pond area.

From the lower wet detention pond area by a weir that may be constructed of earthen slopes, rock昴, gabions, or rock slabs. The top of the rock slabs shall be flush with the top of the rock slabs.

A Forever shall be provided for all inlets to the wet detention pond area along the perimeter of the main pond area. The Forever is separated.

**Installation**

WET EXTENDED DETENTION POND
Report all erosion or undercutting areas as needed.

Intensive vegetation should be removed completely.

The depth of the zones within the wetland should be inspected and monitored annually, and
vegetation which is considered to be unhealthy should be removed or treated as necessary. During the first 2-3 years of establishment:

- Sediment control should be placed in the wetland to determine when sediment removal is required.
- Monitoring during the first year is critical.
- Resistances may also be monitored for consistent stream water levels and productivity. High stream levels can lead to serious erosion.

An emergency spillway should be installed to safely convey discharges resulting from the 100-500-year 24-hour storm event.

The spillway shall be equipped with a trash rack.

A portion of the constructed storm water wetland shall be installed to satisfy the 100-500-year 24-hour storm event.

- The spillway of the constructed wetland will be installed to satisfy the 100-500-year 24-hour storm event.
- The trash guard selected shall be constructed of at least 6 inches below the normal pool surface of the wetland.
- The water quality office shall be designed to allow adequate depth for the constructed detention wetland to function properly and allow 90% of flow to be discharged to wetland areas and be protected with properly closed entrance gates or other acceptable inundation gates.
- All inlet area shall consist of an outlet structure, with a weir of at least 60 inches below the downstream pool level.

The system has two separate cells, a wet pond and a shallow marsh. The wet pond is designed to trap sediment and reduce runoff velocities before the runoff enters the pond/wetland system and the constructed detention wetland system.

The system will be designed to capture and treat all storm water from a designated area.

When and where is used for...
Pocket Wetland

Health and Environmental Control
South Carolina Department of

Invasive vegetation must be removed annually.

Weed and vegetation shall be monitored and removed annually, and
inspections shall be made at least once every 5 years during the first 2 years of establishment.

A sediment control stake shall be placed in the roadway area to determine when sediment removal is required.

Construction and Sediment Accumulation: Inspections shall be made at least once every 5 years during the first 2 years of establishment. Monitor dwelling during the first 2 years to assess erosion. In the absence of the wetland, the wetland shall be monitored after all storm events greater than 2 inches of rain fall during the first year. Establishment of the first year is critical to the success of the wetland. Wetlands shall be monitored after all storm events greater than 2 inches of rain fall during the first year. Establishment of the first year is critical.

Monitoring requirements for constructed storm water wetlands are particularly high where vegetation is being established. Monitoring during the first year is critical.

An emergency spillway shall be included to allow conveyance discharges resulting from the 100-year 24-hour storm event.

Pocket Wetland

A properly designed of the constructed storm water wetland shall be installed to safely pass the 10-year 24-hour storm event. The spillway shall be equipped with a trash rack.

Ninety percent (90%) of the normal pool surface of the micropool.

The trash guard specified shall be durable and extend at east of the wetland. The wetland shall be equipped of the constructed storm water wetland shall be installed to safely pass the 10-year 24-hour storm event. The trash guard specified shall be durable and extend at east of the wetland. The wetland shall be equipped of the constructed storm water wetland shall be installed to safely pass the 10-year 24-hour storm event. The trash guard specified shall be durable and extend at east of the wetland. The wetland shall be equipped of the constructed storm water wetland shall be installed to safely pass the 10-year 24-hour storm event. The trash guard specified shall be durable and extend at east of the wetland.
Typical Bioretention Area

Health and Environmental Control

Typical Bioretention Area

South Carolina Department of

The ponding area may become obstructed with time, care should be exercised in maintaining an adequate access for inspection and maintenance.

4.0 ft - Depth of the plating mix shall be based on the following:

- The minimum depth of the plating mix shall be less than 10%.
- The maximum depth of the plating mix shall be approximately 25% sand, 75% soil or compost.

The minimum width of the plating area shall be ten (10) feet and the minimum length shall be forty (40) feet.

Inspection and Maintenance:

* 1.0 ft - For grass only bioretention areas.
* 2.0 ft - For bioretention areas that utilize shrubs and trees.
* 4.0 ft - For plating areas that utilize shrubs and trees.
Infiltration Trench

Heath and Environmental Control
South Carolina Department of

If complete failure is observed, local rehabilitation of the trench shall be performed by excavating the trench.

*Tree's shrubs or invasive vegetation shall be removed semi-annually.*

*Complete de-watering is not desired. These may droping and regular maintenance shall be performed.*

The observation well shall be checked following 72 hours (2-49) or day weather after a rain fall event. If debris and trash shall be cleared from all inlet and outlet structures monthly.

*When full of sediment.*

The top 6-inch layer of pea gravel and the geotextile separating the pea gravel from the stone media serve as a sediment barrier and will be required to be replaced.

A record shall be kept of the overall de-watering time of the infiltration trench to determine if maintenance is required.

Regular inspection and maintenance is critical to the effective operation of infiltration trenches as designed. Maintenance responsibility shall be vested with a responsible authority by means of a legally binding and enforceable maintenance agreement that is executed as a condition of the Storm Water Management Permit approval.

*Regulation and Maintenance.*

The piping will be capped and locked to discourage vandalism and tampering.

*Observation well a maximum of 100-L water shall be installed in every infiltration trench and shall be made of 4-10 inch PVC pipe.*

The stone fill material shall consist of 1.0-2.5 inch 250-300 sized stone with 6 inches of pea gravel located on top separated by a permeable filter fabric.

A 6-inch sand filter shall be located on the bottom of the trench.
Health and Environmental Control
South Carolina Department of

A record shall be kept of the amount of wetting of the sand filter media to determine if maintenance is required. When the filtering capacity of the sand media is reduced, the sand filter shall be recharged by the owner or operator of the sand filter media. Maintenance and recharging of the sand filter media shall be performed monthly, observing all safety precautions. The sand filter chamber shall be inspected and cleaned by a responsible authority by means of an leaky binding or enclosed maintenance agreement that is executed as a condition of plan approval. A typical inspection and maintenance program is as follows:

- Remove all debris and trash from the sand chamber.
- Remove all sediment from the sand chamber manually.
- Clean the sand filter media using a vacuum cleaner or a pressure washer.
- Check the sand filter media for any cracks or holes.
- Record the amount of wetting of the sand filter media.
- Replace the sand filter media if necessary.

A 5-foot minimum clearance height shall be provided between the top of the sand bed and the bottom of the concrete slab to provide clearance for maintenance.

It is recommended that individual sand filters be designed to their natural drainage area of 1 to 2 acres. The implementation of several filters on the site will prevent the entire site from being impacted if one of the filters becomes clogged, requiring maintenance.

The practice of recharging the filter will remain with the owner after the construction phase to prevent excess sediment and debris from prematurely using sand filters. Maintenance requirements are most applicable for smaller sites of 5 acres or less where the percent impermeability of the site is very high. Sand filters shall be used on sites where the drainage area to the dryland will remain well designed after the construction phase to prevent excess sediment and debris from prematurely using sand filters.

SAND FILTERS
ENHANCED DRY SWALE

Health and Environmental Control
South Carolina Department of

The surface of the filter bed may become clogged with fine sediments over time. Light core action may be required to ensure adequate filtration.

The filter bed for an enhanced dry swale should consist of a permeable soil layer at least 2.5-feet deep. The drainage pipe shall be a minimum 4-inch diameter perforated PVC pipe (AASHTO M 252) in a 6-inch gravel layer.

The side slopes of the swale shall not exceed 2H:1V and 4H:1V is recommended for ease of maintenance and for side flow to remain as sheet flow.

The bottom width of the swale shall range between 2- and 6-feet, where applicable to ensure an adequate filtration area.

The overall depth of the water quality outlet volume delineated in the channel shall not exceed 1.5-feet.

Removal of trash and debris as needed.

Other required maintenance includes but is not limited to periodic mowing to maintain the storage volume and to maintain appearance and the periodic flushing of the filter bed as needed.