Notice of Proposed Change	Metropolitan Government of Nashville and Davidson County METRO WATER SERVICES

Date: July 2, 2013	Division: Stormwater	CM-SW03

Proposed Change:
Metro Water Services (MWS) is updating Volumes 1, 4, and 5 of the Stormwater Management Manual (SWMM) to improve the proprietary device approval policy, to align the regulations with the Tennessee Department of Environment and Conservation, and to correct mistakes and omissions in the Low Impact Development (LID) Manual.

Description of Proposed Changes:
Under current MWS regulations, only one proprietary stormwater device is approved for full treatment and those approved for pre-treatment were past due for review. MWS adopted an interim policy to accept the certifications of the New Jersey Department of Environmental Protection (NJDEP), which has a nationally recognized certification program for proprietary stormwater devices. Additionally, MWS will consider the results of other certifications on a case-by-case basis. As a result, seven units now meet the full treatment requirements. Ten are now approved for pre-treatment.

Other Changes:

- Aligns the language in the SWMM to TDEC's Construction General Permit. It imposes stricter requirements on Exceptional Tennessee waters (formerly called high quality waters) and those listed as impaired for siltation or habitat alteration. These restrictions are already in the SWMM; however, the terminology does not match.
- Adds the requirement that post construction stormwater BMPs are to be inspected by a qualified professional every five years. This is a requirement of our MS4 permit with TDEC.
- Removes references to Metro websites that have changed or may change in the future.
- Adds the requirement that sites receiving grading permits should require water quality. The SWMM states that only new development and significant redevelopment projects are required (possibly are required) to install quality controls. In most cases, this would cover all grading permit projects. However, MWS determined that water quality may not be required on some large additions which could degrade water quality and be a violation of the MS4 permit.
- Simplifies the Water Quality Buffer section.
- Adds language to match current policy and practices.
- Removes alternate member designation in Stormwater Management Committee. Alternate members could not be nominated for Office and their votes would only count if they were substituting for a regular member. The Committee and staff felt that alternate members weren't being allowed to be fully participate in the decision making process.
- Updates the Temporary Construction Practices specifications to match TDEC's.
- Adds clarifications and corrected mistakes and omissions discovered in the LID Manual.

Summary of Known Effects of the Proposed Change
Increasing the number full treatment proprietary units available to developers should result in better competition and pricing. Additionally, having a greater variety of units should give engineers more flexibility with site design.

Having a qualified professional inspect post construction stormwater BMPs every five years will ensure the design performance of the BMPs and result in improved water quality. Property owners of sites developed since 2007 are already required to submit annual reports. This additional inspection requirement should not create an undue burden for property owners.

By reviewing the LID Manual and correcting any mistakes, MWS will have a tested methodology to implement when the one inch requirement becomes mandatory in 2016. Since the LID Manual is currently a voluntary compliance path, this should have little impact on the development community.

Notification/Transition:
This Notice of Proposed Change (CM-SW03) meets the requirements of the Change Management Plan and complies with the notification requirements.

The "Notice" is posted on the following MWS websites:

http://www.nashville.gov/Water-Services.aspx

http://www.nashville.gov/Water-Services/Developers/Stormwater-Review/Stormwater-Management-Manual.aspx

The comment period regarding the proposed changes is 30 days. Comments will be reviewed and proposed changes updated as appropriate.

Effective Date of Change: Changes will go into effect following approval by the Mayor.

Comments:
Please send written comments to:

Sue Amos, Metro Water Services, 1600 Second Avenue North, Nashville, TN 37208
sue.amos@nashville.gov

2013 SWMM Revisions

Volume 1, Chapter 2
Pg. 2-3, Item #14: replace "high quality" with "Exceptional Tennessee waters"

Volume 1, Chapter 3
Pg. 3-2: delete "at the Planning Department's website: http://www.nashville.gov/mpc/" and replace with "from the Planning Department."
Pg. 3-13: Add to end of last paragraph "MWS reserves the right to require electronic as-built submittals."

Volume 1, Chapter 4
Pg. 4-4: delete "a TDEC 303(d) listed stream segment" and replace with "waters identified by TDEC as Exceptional Tennessee waters or impaired for siltation or habitat alteration"
Pg. 4-11: delete "(www.nashville.gov/stormwater/forms/swgrprecon.aspx) must be completed" and replace with "should be completed online"
Pg. 4-13: Add to the end of 4.3.7, "MWS reserves the right to require installed stormwater features to be removed and/or replaced that are not per approved grading permit plans and/or are not performing as designed."

Volume 1, Chapter 6
Pg. 6-9: Add after last paragraph:
A comprehensive inspection of BMPs must be performed every 5 years by a qualified professional as specified by MWS or a professional engineer or a landscape architect. The inspection report shall be submitted to MWS and shall include the following:

- Facility Type,
- Inspection date,
- Latitude and longitude and nearest street address,
- BMP owner information (e.g., name, address, phone number, email)
- A description of BMP condition including: vegetation and soils; inlet and outlet channels and structures; embankments, slopes, and safety benches; spillways, weirs, and other control structures; and any sediment and debris accumulation,
- Photographic documentation of BMPs, and
- Specific maintenance items or violations that need to be corrected by the BMP owner along with deadlines and re-inspection dates.

Pg. 6-11: Delete paragraph starting with, "An alteration…"
Pg. 6-11: Delete paragraph starting with, "In addition to buffering…" and replace it with "Channels identified on Metro's GIS layer as streams or as draining 40 acres or more must be buffered unless the developer can clearly demonstrate the watercourse in question is not a community water. Hydrologic determinations can be performed by qualified staff either using MWS' Hydrologic Determination Policy or TDEC's Guidance for Making Hydrologic Determinations. These hydrologic determinations must be

submitted to MWS for review prior to acceptance. MWS will also accept determinations performed by TDEC. Please contact MWS for additional information."
Pg. 6-12: Delete "on streams impaired by sediment as identified in the 303(d) list," from the first sentence.
Pg. 6-12: Add "This includes Permanent Treatment Practices (SWMM Vol. 4) and Green Infrastructure Practices (SWMM Vol. 5) that are being used to meet a site's water quality and/or quantity requirements." After "However, no structures or impervious surfaces shall be placed in Zone 2."
Pg. 6-14: Replace #2 with "For single family residential grading permits, water quality buffers shall be placed in open space / public utility and drainage easements. "
Pg. 6-14: replace "More detailed information about the signs can be found at www.nashville.gov/stormwater/WQBuffers.asp." with "Please contact MWS for the sign requirements."
Pg. 6-14: Insert "An alteration to a community water also requires a variance from the Stormwater Management Committee." Before the last sentence.
Pg. 6-17: delete "Suitable native plants may be found at the Tennessee Valley Authority's native plant finder (www.tva.com/river/landandshore/stabilization/plantsearch.htm), Tennessee Exotic Pest Plant Council's Landscaping with Native Plants [in] Middle Tennessee (www.tneppc.org/Landscaping/Middle_Tennessee.htm) or from the Natural Resources Conservation Service. (Please contact MWS if these sites are unavailable)."and replace with "Please contact MWS for native plants lists."
Pg. 6-18: add "or habitat alteration" after "by sediment" and replace "high quality streams" with "Exceptional Tennessee waters" in first paragraph
Pg. 6-20: add "for sediment or habitat alteration" after "impaired" and replace "high quality waters" with "Exceptional Tennessee waters" in 6.10.5

Volume 1, Chapter 7
Pg. 7-1: Change "New developments and significant redevelopments" to read "New developments, significant redevelopments, and grading permit sites"
Pg. 7-1: delete ": http://www.nashville.gov/stormwater"
Pg. 7-1: delete "(www.nashville.gov/stormwater/LIDManual.asp)"
Pg. 7-2: Change "new development and redevelopment" to read "new development, significant redevelopment, and grading permit sites"
Pg. 7-2: delete "(www.nashville.gov/stormwater/regs/index.asp)"
Pg. 7-4: delete "(www.nashville.gov/stormwater/LIDManual.asp)"
Pg. 7-5: Replace 7.6 with Section 7.6 Final Edits.doc

Volume 1, Appendix A
Appendix A: update with Application & new NOC page
Pg. A-2, #16, #17, #18: add "including drainage maps" after "calculations"

Volume 1, Appendix C
Pgs. C-13 to C-16: Add Grading Permit No. line and adjust formatting of the DECLARATION OF RESTRICTIONS AND COVENANTS

Pgs. C-23 to C-60: Add "(required)" after "annual" & "(recommended)"after "monthly" & "after major storms". Add an "A" to all rows.
Pg. C-33: Change "Sedimentation chamber not more than 50% full?" to "Sediment and/or trash below manufacturer's recommended clean out level?"

Volume 1, Appendix D
Pg. D-10: Add "(Ord. BL2007-1440 § 6, 2007)" to end of 15.64.034
Pg. D-11: Update 15.64.040, 15.64.050, 15.64.090 to match current M.C.L.

Volume 1, Appendix F
Pg. F-6: delete "The vote of an alternate member shall be counted in the tabulation of the result only if she or he is substituting for a regular member. If the alternate member is not substituting for a regular member, the vote shall be recorded but not counted in the decision of the Committee."
Pg. F-7: delete "An alternate member shall replace any member who has a conflict of interest."
Pg. F-10: delete "(www.nashville.gov/stormwater)"

Volume 4
TCP-03 Stabilized Construction Entrance: increase depth from 6" to 8" and length from 50' to 100'
TCP-17 Sediment Traps: 2 porous baffles required
TCP-18 Temporary Sediment / Detention Basin: remove Sediment Basin Riser Pipe Outlet Structure B
TCP-24 Temporary Inlet Protection: eliminate the silt fence inlet control

LID Manual Volume 5
Pg. 12, Table 1: Add "if the site's pre-development Rv > 0.4." after "80%)" in Infill Water Quality
Pg. 14: Add to end of first paragraph "A LID Site Design Tool has been created to aid engineers in designing the water quality treatment for a project in accordance with the methodology in the LID Manual. Please see MWS LID Manual website for more information."
Pg. 16: Insert "Previously preserved areas or areas that cannot be developed should be excluded from the site Rv calculation. These areas may include, but are not limited to, water quality buffers, parkland, playgrounds, sport fields, floodway, preserved floodplain, and steep slopes." After Figure 2
Pg. 17: Insert "For impervious areas draining directly to the MS4 without passing through water quality or quantity controls, MWS reserves the right to require treatment if a negative impact is perceived." After the first sentence in Section 3.2.2
Pg. 17: Insert "The exception to this is Permeable Pavement (GIP-03), which is assigned the Rv values of 0.55 and 0.25 for Levels 1 and 2, respectively." After "Table 2."
Pg. 22, Step 4: Change "Equation 3.9" to "Equation 3.8"
GIP-03, pg. 9: Change "-" to "+" in Eq. 3.5
GIP – 09, pg. 3, Table 9.2: Change "Overall Slope and Width (perpendicular to the flow)" to "Overall Slope and Length (parallel to flow)" and replace "width" with "length"
GIP – 09, pg. 3, Table 9.2: Add row "Width (perpendicular to flow) Equal to the width of the contributing drainage area. When this is not practical, a level spreader should be used to reduce the flow width to that of the filter strip."

GIP – 09, pg. 3, Table 9.2: add “and Level Spreaders” after “Concentrated Flow” and superscript “6”
GIP – 09, pg. 10: Replace “widths” with “lengths”

7.6 Proprietary BMPs

Many proprietary BMPs are available to treat stormwater runoff. However, some of these BMPs do not have established pollutant removal data. As indicated in Table 7-2 above, Metro considers proprietary BMPs as Limited Application BMPs. Pollutant-removal capability shall be determined as percent total suspended solids (TSS) removal by both field testing and laboratory testing.

Proprietary devices shall be approved by MWS, through an application and acceptance process, prior to consideration for use in Metro. Metro requires applicant manufacturers to conduct testing to demonstrate the pollutant-removal capability of proprietary BMPs. Metro has established submittal requirements and guidelines for test protocol. Qualified laboratories, which follow the applicable requirements and guidelines, should be utilized to ensure the usefulness and accuracy of the data submitted. Additionally, manufacturers' claims for BMP performance must be verified through data that is obtained in independent, third-party testing. More specific application requirements can be found in section 7.6.1; however, manufacturers are to contact MWS prior to application to ensure that the most recent application requirements are obtained.

MWS may additionally accept manufacturers operating under current proprietary BMP certifications from the New Jersey Department of Environmental Protection (NJDEP). MWS may consider the results of other certification systems and review each on a case-by-case basis. If MWS accepts such a certification, the acceptance shall be based on the same conditions for performance, including deadlines for documentation that are defined in the issuer's certification letter.

7.6.1 Submittal Requirements

The application for consideration of proprietary BMP approval by Metro shall include the following:

1. Statement of the intended use of the device. Intended uses may include pretreatment (for floatables, oil and grease, or sediment, for example), water quality treatment, hydraulic detention, velocity dissipation, an element of a comprehensive treatment train, etc.

2. Statement of the TSS removal performance at the flow rate specified in the equation in Section 7.6.2, certified by an independent testing laboratory.

3. A report of the results of the independent testing laboratory satisfying the requirements of Section 7.6.3.1.

4. Published technical papers, if available, documenting performance of the device.

5. Engineering drawing of the assembled device.

6. Installation, repair, and maintenance instructions and schedule.

7. Parts list including materials of construction and recommended manufacturers.

8. Certified tests of load bearing capacity for traffic bearing devices.

9. A sample device should be made available to Metro Water Services Stormwater Division upon request.

10. A list of locations where the device is installed and operational. The list should include the customer's name, agency, telephone number, and address.

11. Other relevant information requested by Metro from the manufacturer.

Any device found not to meet the certified performance criteria may be removed from the approved list. Submittals containing unsubstantiated or unrealistic claims shall be returned without further review pending receipt of a resubmittal without such claims. An approved device may not be suitable for use in all applications. Metro may reject the use of an otherwise approved device, if a specific application is determined by Metro to be not suitable.

7.6.2 Design Guidance for Water Quality Treatment

Most proprietary BMPs are flow-through-type BMPs and rated for TSS removal based upon a specified flow rate. The WQv equation, which forms the foundation of Metro's stormwater quality program, establishes a volume that must be treated. In an effort to simulate the WQv approach for proprietary BMPs, the following peak flow design equation must be used to develop the stormwater quality treatment required.

$$Qp = C * I * A$$

Where:
Qp = the peak flow through the proprietary BMP in cfs
C = runoff coefficient
I = rainfall intensity, 2.45 inches/hour for Metro
A = the contributing drainage area for the BMP, in acres

7.6.3 Performance Standards for Proprietary BMPs

Water quality treatment for Metro is defined as a goal of (80%) TSS removal. Treatment may be achieved using a single treatment method, such as a wet pond, or by using a treatment train. A treatment train achieves eighty percent (80%) removal of TSS using a combination of pretreatment and/or treatment methods. Manufacturers of proprietary BMPs may apply for either 1) pretreatment approval (50% TSS removal); or 2) full treatment approval (80% TSS removal).

Proprietary BMP approval shall last for four (4) years, unless the terms of certification provide for a shorter period, for devices approved under the application and approval procedures

contained herein, after which time reapplication is required. Applicants are required to meet any and all Metro rules, regulations, and policies in effect. Proprietary BMP approval for devices certified by NJDEP shall expire as stated in such certification letter.

Metro reserves the right to terminate approvals for reasons including, but not limited to: 1) restrictions placed by the Tennessee Department of Environment and Conservation; 2) product modifications or system failures indicating questionable performance capability; 3) changes in Metro stormwater regulations or policy, or 4) changes in the Technology Acceptance Reciprocity Partnership (TARP) or NJDEP protocols.

7.6.3.1 Testing Requirements for Proprietary BMPs

It is the responsibility of the manufacturer to develop and implement technically-valid plans for laboratory and field testing. The following guidelines are provided as minimum considerations for an approvable testing program. Metro reserves the right to reject any data submitted, including invalid or undocumented testing procedures. Metro may provide review of test plans, as staff time allows.

All testing plans must include a Quality Assurance Plan, which defines testing and analysis methods. The Quality Assurance Plan must be prepared by a qualified testing laboratory. Examples of a Quality Assurance Plan are provided, among other sources, in *The Technology Acceptance Reciprocity Partnership Protocol for Stormwater BMP Demonstrations, August 2001 (updated July 2003).*

7.6.3.1.a Field Testing

Metro requires that field testing conform to *The Technology Acceptance Reciprocity Partnership Protocol for Stormwater BMP Demonstrations, August 2001 (updated July 2003) and the NJDEP Protocol for Total Suspended Solids Removal Based on Field Testing Amendments to TARP Protocol Dated August 5, 2009, Revised December 15, 2009*, and that conformation with and deviations from the TARP be noted in an applicant's protocol and test report.

The following items are required in addition to the TARP procedure:

1. Results are to be reported in mg/L TSS, which is consistent with the requirements of the MWS NPDES Discharge Permit. TSS shall be analyzed in accordance with Standard Method APHA 2540D. Reporting in both total suspended solids, TSS, and suspended sediment concentration, SSC, is recommended by TARP procedure.

4. All data collected must be reported. All maintenance performed on the tested device at any time during the overall field testing program shall be reported. This reporting shall include a description of each task performed, reason(s) for the maintenance, the quantities of any sediment removed, and a discussion of any anomalous, irregular, or missing maintenance data.

5. Particles larger than 1000 microns must be excluded from the analysis results.

6. At a minimum, the peak runoff rate from at least three of the sampled storms shall exceed seventy-five percent (75%) of the design flow of the unit. At least five (5) of the flows must exceed fifty percent (50%) of the design flow of the unit.

7. Field tests must be conducted without adding sediment to the influent or augmenting flow. Sediment must be naturally-occurring, undisturbed, on-site sediment.

8. Rainfall data from a site gauge must be provided for each sampled storm event.

9. In order to determine the tested device's required maintenance interval, the minimum duration of the overall field testing program shall be one (1) year beginning at the time of the device's installation, commissioning, or the beginning of the removal rate testing, whichever is greater.

7.6.3.1.b Laboratory Testing

Metro requires that laboratory testing conform to the following NJDEP protocols:

- *NJDEP Protocol for Manufactured Hydrodynamic Sedimentation Devices for Total Suspended Solids Based on Laboratory Analysis, August 5, 2009 (Revised December 15, 2009)*
- *NJDEP Protocol for Manufactured Filtration Devices for Total Suspended Solids Based on Laboratory Analysis, August 5, 2009 (Revised December 15, 2009)*

As of January 25, 2015 all devices must have either a current NJDEP certification or comply with the following laboratory testing protocols:

- *NJDEP to Assess Total Suspended Solids Removal by a Hydrodynamic Sedimentation Manufactured Treatment Device, January 25, 2013*
- *NJDEP Laboratory Protocol to Assess Total Suspended Solids Removal by a Filtration Manufactured Treatment Device, January 25, 2013*

Conformation with and deviations from the NJDEP protocol should be noted in an applicant's protocol and test report.