

**LMSD-DESIGN AND CONSTRUCTION STANDARDS
CROSSWALK DOCUMENT-DESIGN MANUAL**

16-Dec-2013

Design Manual

Chapter		Title	Major Revision	Reason for Revision
Original	Revised			
13	13	Native Revegetation	1. Section 13.1 - Native Plants: Incorporated additional photos, added paragraphs on importance of native plants, and added information on aesthetics and application in green infrastructure. Additional minor changes were made as needed.	1. Updated to incorporate plants used in Chapter 18.
			2. Appendix I - Plant List: Adjustments to the salinity tolerance data were made.	2. Upon review, several salinity tolerance values needed to be adjusted.
18	18	Green Infrastructure Design Manual	1. Section 18.1: Minor Changes	1. Add clarity to document.
			2. Section 18.2: -Updated per Draft WDR. - Clarification on disturbed area - Additional Minor changes.	2. Updated based on revised WDR. Other minor changes to add clarity to document. Disturbed area classification updated on 18.2-2.
			3. Section 18.3: Minor Changes	3. Add clarity to document.
			4. Section 18.3 - GMP Selection Process: Language added explaining flow chart	4. Explains how developers and designers should use flow chart. Specifies difference between water quality and water quantity. Added reference to 18.2-2 for disturbance area requirements.
			5. Section 18.3 - GMP Selection Process - Step 2: Changed value for Required WQ _v . Step 3 added to determine adjusted disturbed drainage area.	5. Step 2 was changed to clarify difference with MSD Financial Incentive projects. Step 3 was added to allow reduction in impervious area to credit WQ _v .
			6. Section 18.3 - GMP Selection Process - Step 4: Constructed Wetlands, Green Wet Basins, Green Dry Basins, and Proprietary Water Quality Units removed.	6. Add clarity to flow chart. Keeps practices that deal with water volume separate from water quality.
			7. Section 18.3 - GMP Selection Process - Step 5: Add criteria for 10% of stormwater not flowing into GMP.	7. Allows more flexibility in site design without reducing requirements.
			8. Section 18.3 - GMP Selection Process - Step 6: RWQ _v factor changed from 5 to 2	8. Reduce its amount of penalty to allow for more affordable flexibility.
			9. Section 18.3 -Table 18.3-C: Updated percent runoff reduced by practices	9. Provide better alignment with revised GMP design criteria and incorporation of infiltration volume.

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18	18	Green Infrastructure Design Manual	10. Section 18.3-Table 18.3-C: Changed criteria for Proprietary Water Quality Units, Bioswales, Blue Roof, Planters, Rainwater Harvesting, Vegetated Buffer, and Infiltration Drain	10. Change to flow based criteria or % management capacity requirements.
			11. Section 18.3 - Example Section: Updated drawings to include color and make example more realistic. Added infiltration drain example.	11. Provide examples that are clearer and easier to understand.
			12. Section 18.4.1: Reference Metro Public Works	12. Add clarity to section
			13. Section 18.4.2: Added that pervious pavers, permeable concrete, and porous asphalt are not recommended in roads or under tree canopy	13. Add clarity to section
			14. Section 18.4.9: "Example Island Water Sinks" Replaced with "Concepts Uses of Urban Forestry"	14. Keep section uniform
			15. Section 18.4.10: Incorporated APCD into section	15. Referenced Louisville Metro
			16. Section 18.4.14: Picture added on page 6 to incorporate Infiltration Drains	16. Updated to give better and more complete examples.
			17. Section 18.5.1: Minor Changes	17. N/A
			18. Section 18.5.4 - Physical Requirements Section: Added sub-section called Outlet Structure with small write-up	18. Included in this section instead of refining to Chapter 10.3.8 of MSD's Design Manual.

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18	18	Green Infrastructure Design Manual	19. Section 18.5.9-throughout section: - Articulated concrete blocks with arches removed from section -Added information about grass and gravel pavers, maintenance, and drawings -Updated maintenance type and frequency -Updated design details for: blocks, pavers, grids, perched underdrain, and state roadway section. -Updates were made to underdrain location and arrangement. -Incorporated applications from Reading Rock -Updated drawings to incorporate lessons learned, add grass and gravel pavers drawing, make changes to underdrain location and arrangement. -Ratio of drainage area to area of pavers should be small incorporated into document -Drainage area with tree canopy increases clogging incorporated into document	19. Updated based on new studies and lessons learned about the practice.
			20. Section 18.5.15: Updated the 'Step by Step Design Procedures'	20. The criteria for the GMP management capacity was changed. Added clarity to calculating dimensions for a vegetated buffer.
			21. Section 18.5.16: Updated the 'Step by Step Design Procedures'	21. The criteria for the GMP management capacity was changed. Added clarity to calculating dimensions for a vegetated swale.
			22. Section 18.5.17: Added criteria to avoid injection well classifications.	22. Add clarity of specifications to document
			23. Section 18.5.20 -throughout section: - Title updated to 'Infiltration Drains' -New drawings were incorporated to reflect trench, sump and water quality options - Updated Class V Injection rules per EPA - Incorporated new drawing - Updated drawings - Added new pictures	23. Updated based on lessons learned about practice.

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18	18	Green Infrastructure Design Manual	24. Section 18.5.21 - New section created: Includes sizing chart, legend, standardize aggregate used in picture, picture of aggregate projects, and a small write up. Detail added on clean versus dirty rock	24. Standardize aggregate used in projects.
			25. Section 18.6 - New section created: Includes Green Infrastructure Construction Inspection Form, Green Infrastructure Plan Review Checklist, Operation & Maintenance Inspection, and calculation sheets.	25. Promote uniformity, consistency, and better designs and better streamlines MSD's review process.
			26. Section 18.7-Throughout section: - Pictures added to help increase clarity of proper O&M techniques. - Additional minor changes. - Tables updated per latest MSD contracts and are consistent with the Maintenance Fact Sheets prepared for the Board.	26. Provide latest information and lessons learned. Additional minor changes to add clarity.
			27. Section 18.8 - New section created which includes table of requirements and write up of other considerations for infiltration testing.	27. Provide standards for proper infiltration testing of soil.
			28. Section 18.9 - New section created: Section Help in Reserve and Memorandum of agreement (Stipend)/(Credit).	28. New section explaining financial incentive program and the GMP requirements for this program.
			29. Section 18.10 - New section created: Section Held in Reserve	29. This is a new MSD program.
			30. Section 18.11 - New section created. Includes Plan Review Rejection Letter, Stormwater Quality Maintenance Agreement, Soil Characterization and Infiltration Testing Form, and Detention Analysis Checklist.	30. Promote standardization of program elements. Updates to maintenance agreements.