UNIFORM STORMWATER STANDARD 1: WATER QUALITY TREATMENT VOLUME WORKSHEET	THE CITY OF Kalamazoo
Applies to development/re-development Sites ≥ 1/2 acre and parking lots with ≥20 parking spaces and/or exceeding 6,000 square-foot area ("larger parking area")	
Developer must treat first 1-inch of stormwater runoff to remove 80% of total suspended solids (TSS) and any other identified pollutants of concern. One-inch of runoff also equals the 90% non-exceedance storm, based on the closest weather station (Gull Lake).	
	Result
1. Calculate the *volume* of one-inch of stormwater runoff, multiply area contributing runoff (ft^2) by 1/12 foot (0.083).	ft^2
The Rational Method Equation will be used to calculate BMP design flow rates: Wq-CIA, where C = Runoff Coefficient; I = Rainfall Intensity (inches per hour); A = Drainage Area (Acres)	
2. Calculate Area (A) of site in square feet and divide by 43,560 ft^2.	acres
3. Calculate rainfall intensity in inches/hours by using 1.44 inches/hour (1-yr/30-minute storm)	1.44 inches/hour
4. Calculate Runoff Coefficient by using a weighted average that is based on the appropriate percentage of different surface types existing at the site. Runoff Coefficient ranges for various ground cover are shown in the table below.	
5. Use the Rational Method Equation: Wq = Area (acres) x 1.44 inches/hour x Runoff Coefficient =	ft^3/sec
	(treatment volume)
Simplified Table of Rational Method Runoff Coefficients (C)	
Surface Cover	Runoff Coefficient, C
Lawns	0.1
Forest	0.15
Cultivated land/gardens	0.25
Meadow	0.3
Asphalt streets and parking lots	0.9
Brick streets	0.8
Roofs	0.9
Concrete streets and parking lots	0.9
6. List and provide a Figure showing the locations of all proposed BMPs to meet the Water Quality Treatment Volume.	BMP Treatment Volume (ft^3)
Manufactured Treatment Device (MTD) (e.g. Hydrodynamic Separators)[See MTD WORKSHEET]	
Constructed Wetland	
Wet Ponds/Retention Basins	
Extended Detention/Dry Pond	
Vegetated Filter Strip	
Vegetated Filter Swale	
Constructed Filters	
Vegetated Roofs	
Other (list)	
Total Treatment Volume (ft^3)	
If Treatment Volume ≥ 1-inch volume for project site, Uniform Stormwater Standard 1 is met.	
7. A signed Stormwater Best Management Practices Operations & Maintenance Agreement between the City and the Landowner or Designee is required (City Form provided).	
PROJECT NAME:	
PROJECT ADDRESS: DATE:	