

Design Calculations

The Stormwater Management Plan should include the following design calculations to demonstrate that the proposed stormwater management measures meet the standards and performance criteria described in [Chapter 4 - Stormwater Management Standards and](#)

⁷⁶ Per the CTDOT MS4 Permit, linear projects have alternative standards and may take an alternative approach to address constraints that are different than those that affect traditional parcel development projects. These alternative linear project standards can be found in the CTDOT drainage manual, the CTDOT MS4 General Permit, the General Construction Permit and in the supporting materials that CTDOT has developed.

[Performance Criteria](#) and are designed in accordance with the guidance contained in this Manual.

- Standard 1 – Runoff Volume and Pollutant Reduction (for each design point)
 - LID Site Planning and Design Credit Calculations
 - Impervious area and Directly Connected Impervious Area (DCIA)
 - Water Quality Volume, Water Quality Flow, and Required Retention Volume
 - Structural Stormwater BMP Sizing Calculations
 - Static and dynamic sizing methods (infiltration systems)
 - Drain time and groundwater mounding analysis (infiltration systems)
 - Required versus provided design volumes
 - Pollutant specific load reductions (BMP performance curves) where Standard 1 cannot be met by retention alone

- Standard 2 – Stormwater Runoff Quantity Control (for each design point)
 - Stormwater Runoff Calculations for Pre-Development and Post-Development (with and without stormwater BMPs) Conditions
 - Design storm depth and duration, recurrence interval, and rainfall distribution
 - Runoff volume and peak flow rate (2-year, 10-year, and potentially the 25-year, 100-year, 24-hour storms)
 - Runoff Curve Number
 - Time of Concentration (and associated flow paths)
 - Routing analysis for proposed stormwater BMPs including drainage routing diagram
 - Conveyance protection (including flow velocity calculations and outlet protection sizing) and emergency outlet sizing calculations
 - Downstream analysis hydrograph routing calculations
 - Storm drain system conveyance calculations