



**City of Phoenix**  
OFFICE OF THE CITY ENGINEER

**To:** Ken Alexander  
Planning & Development Deputy Director

**Date:** April 4, 2022

**From:** Eric Froberg  
City Engineer 

**Subject:** REVISIONS TO STORM WATER POLICIES AND STANDARDS

The purpose of this memorandum is to establish minor revision to 3<sup>rd</sup> edition of the City of Phoenix Storm Water Policies and Standards (published December 2013). The following changes provide clarity as to types of storm drain headwalls, access barriers, and erosion protection, and establishes vertical drop heights at which handrails are required.

**6.1.7 Grates and Barriers**

Grates or trash racks (inlet end) and access barriers (outlet end) are required on exposed inlet or outlet ends of all storm drains 18 inches or greater in diameter. Access barriers shall be constructed in accordance with City Standard Detail P1562 and P1563. Trash racks shall be constructed in accordance with MAG Standard Detail 502-1 or 502-2. **For flared end sections, trash racks must also be designed as an access barrier. Inlet and outlet trash racks/access barriers must be secured at the bottom per MAG Standard Detail 502-2.**

**6.4.14 Storm Drain Outfalls**

Where storm drain systems discharge into undisturbed or naturalistic drainageways, headwalls shall have aesthetic treatment to blend with the surroundings. The area surrounding the headwall (exclusive of the wash bottom) shall be revegetated and landscaped using boulders and native stone where indigenous. Railings shall be designed compatible with the colors and form of the surrounding area and the development or village theme.

The depth of cut-off walls for storm drain outfall headwalls shall be a minimum of 2.5 feet below the invert of 36 inch diameter pipe and smaller. Cut off wall depth shall be a minimum of 6 feet below the invert for pipe diameters greater than 36 inch, up to and including 84 inch. For pipe diameters greater than 84 inch, minimum cut-off wall depth shall be per ADOT Standards. **Storm drain outfalls in private retention basins may use riprap aprons in lieu of cutoff walls for storm drain pipes 36-inch diameter pipe and smaller.**

Concrete flared end section inlet and outlet structures may be used on private property. Flared end sections are to be constructed per MAG Standard Detail 545 or approved equal.

Handrails are required for vertical drops greater than 30 inches. Vertical drops are measured from top of headwall or storm drain to invert.

#### **6.5.5 Culvert Headwalls**

Concrete headwalls are required on all culvert installations at both ends. All culvert headwalls shall have beveled edges. Culvert headwalls shall have cut-off walls. Cut-off wall depths shall be a minimum of 2.5 feet below the invert for 36-inch diameter pipe and smaller. Minimum cut-off wall depths for all box culverts shall be per ADOT standards. Culvert outfalls in private retention basins may use riprap aprons in lieu of cutoff walls for storm drain pipes 36-inch diameter pipe and smaller.

Concrete flared end section inlet and outlet structures may be used on private property. Flared end sections are to be constructed per MAG Standard Detail 545 or approved equal.

Handrails are required for vertical drops greater than 30 inches. Vertical drops are measured from top of headwall or culvert to invert.