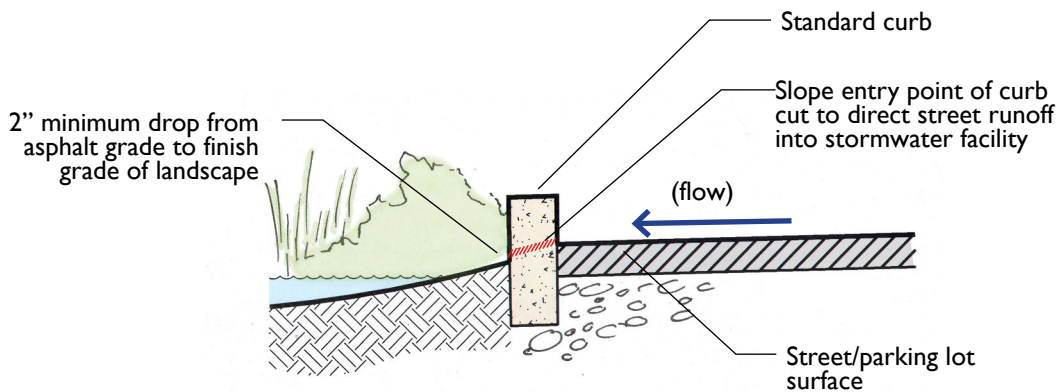
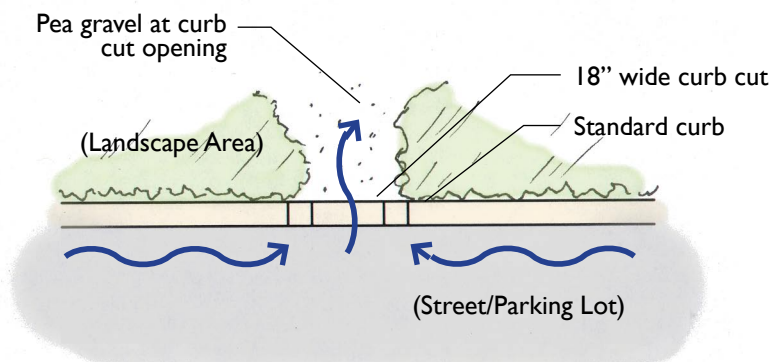


DESIGN DETAILS: Types of Curb Cuts



Standard Curb Cut Section View

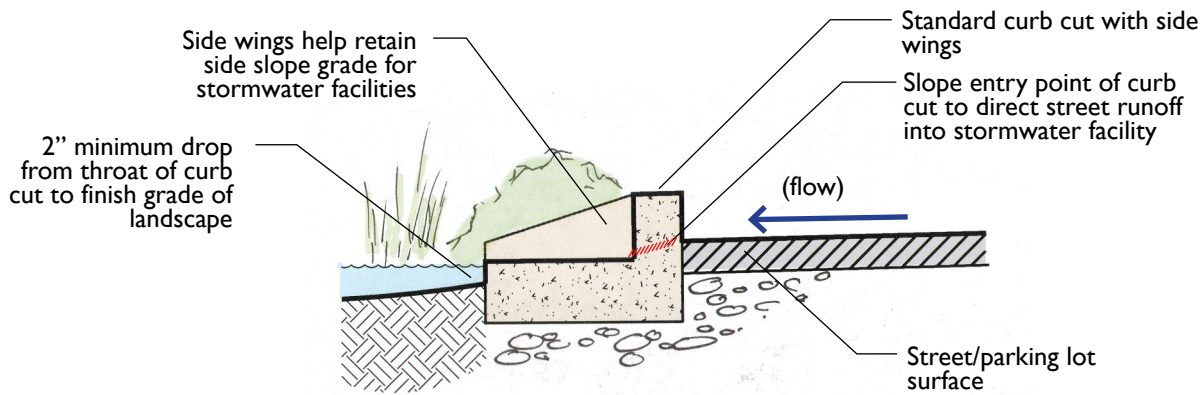


Standard Curb Cut Plan View

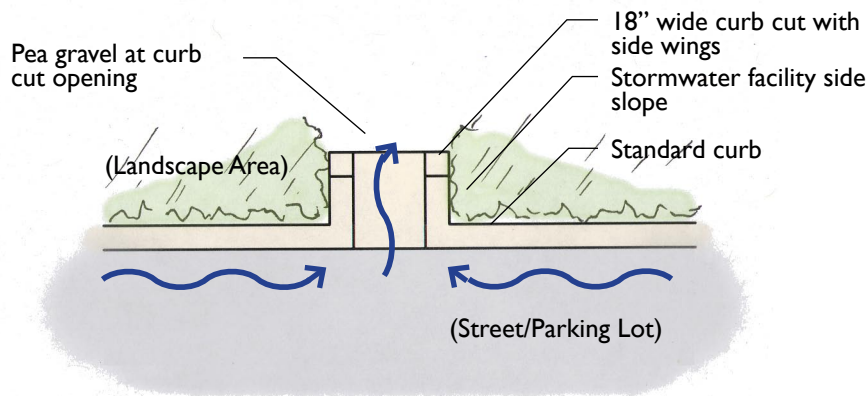


Figure 5-32: A standard curb cut allows stormwater runoff to enter a parking lot rain garden. This curb cut has 45 degree chamfered sides.

- Opening should be at least 18 inches wide
- The curb cut can have vertical sides or have chamfered sides at 45 degrees (as shown)
- Works well with relatively shallow stormwater facilities that do not have steep side slope conditions
- Need to slope the bottom of the concrete curb cut toward the stormwater facility
- A minimum 2 inch drop in grade should occur between the curb cut entry point and the finish grade of the stormwater facility
- Pea gravel can be used as a stable mulch material at the curb cut opening to prevent erosion



Standard Curb With Side Wings Cut Section View



Standard Curb Cut With Side Wings Plan View

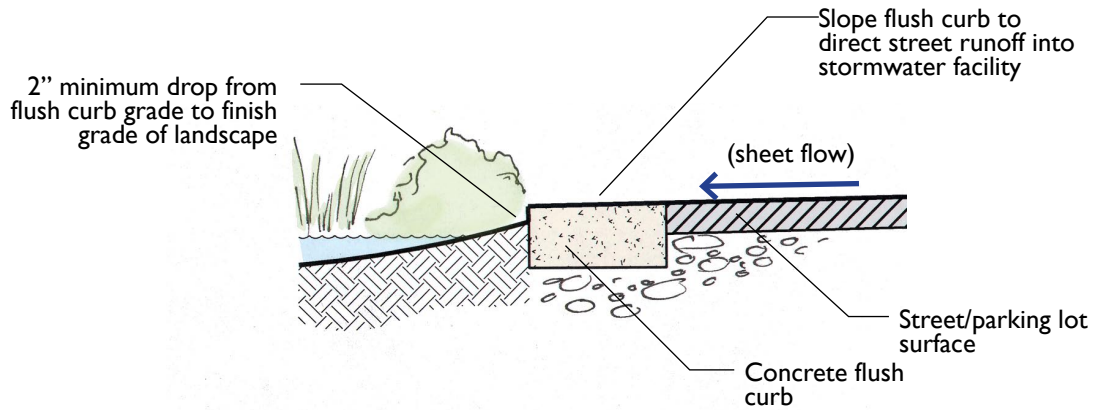
- Opening should be at least 18 inches wide
- Works well with stormwater facilities that have steeper side slope conditions
- Need to slope the bottom of the concrete curb cut toward the stormwater facility
- A minimum 2 inch drop in grade should occur between the curb cut entry point and the finish grade of the stormwater facility
- Pea gravel can be used as a stable mulch material at the curb cut opening to prevent erosion



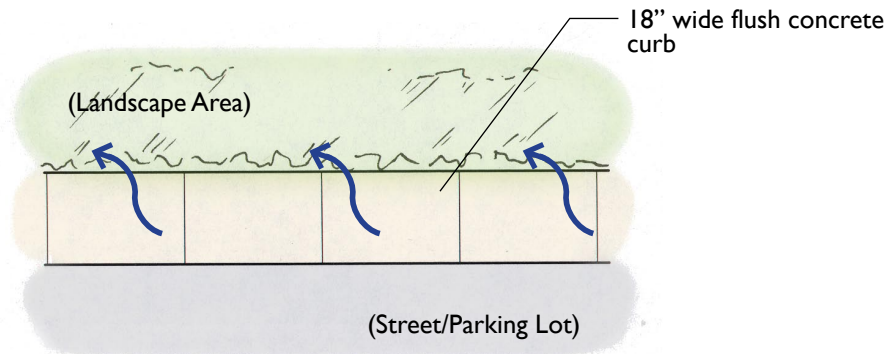
SOURCE: KEVIN ROBERT PERRY - CITY OF PORTLAND

Figure 5-33: A standard curb with wings allows stormwater runoff to enter a stormwater facility. The wings help retain the side slope grade on each side of the curb cut opening.

DESIGN DETAILS: Types of Curb Cuts



Concrete Flush Curb Section View



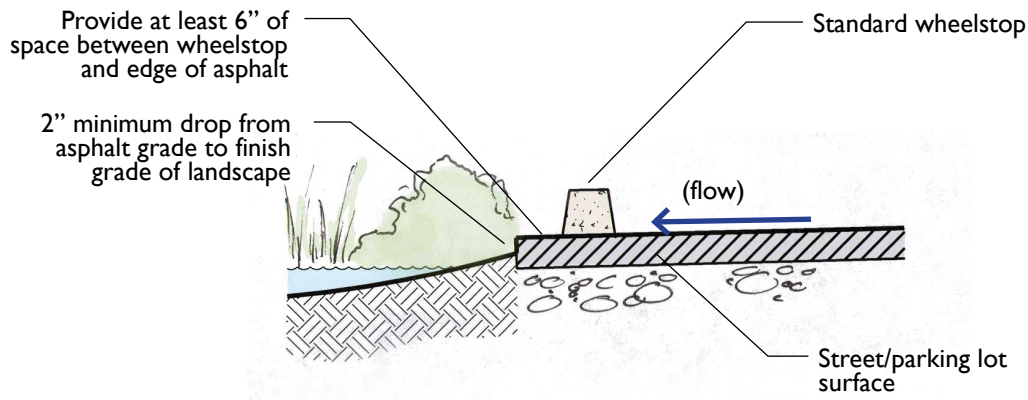
Concrete Flush Curb Plan View



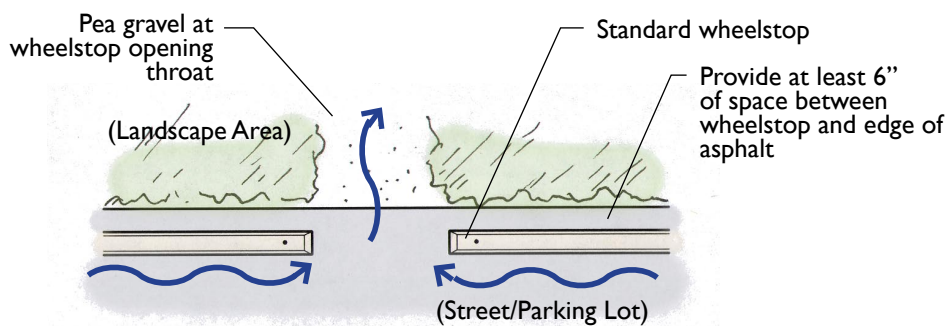
SOURCE: [HTTP://WWW.COLVER.CA/ENGINEERING/STREETS/DESIGN/ENVIRO.HTM](http://www.colver.ca/engineering/streets/design/ENVIRO.HTM)

Figure 5-34: This flush concrete curb allows stormwater runoff to enter, evenly distributed, within a vegetated swale.

- Concrete flush curbs allow stormwater runoff to enter a stormwater facility evenly alongside a street or parking lot edge
- Need to slope the concrete flush curb toward the stormwater facility
- A minimum 2 inch drop in grade should occur between the flush curb and the finish grade of the stormwater facility
- There is no need for pea gravel along the curb edge for dissipating concentrated flow



Opening Between Wheelstops Section View



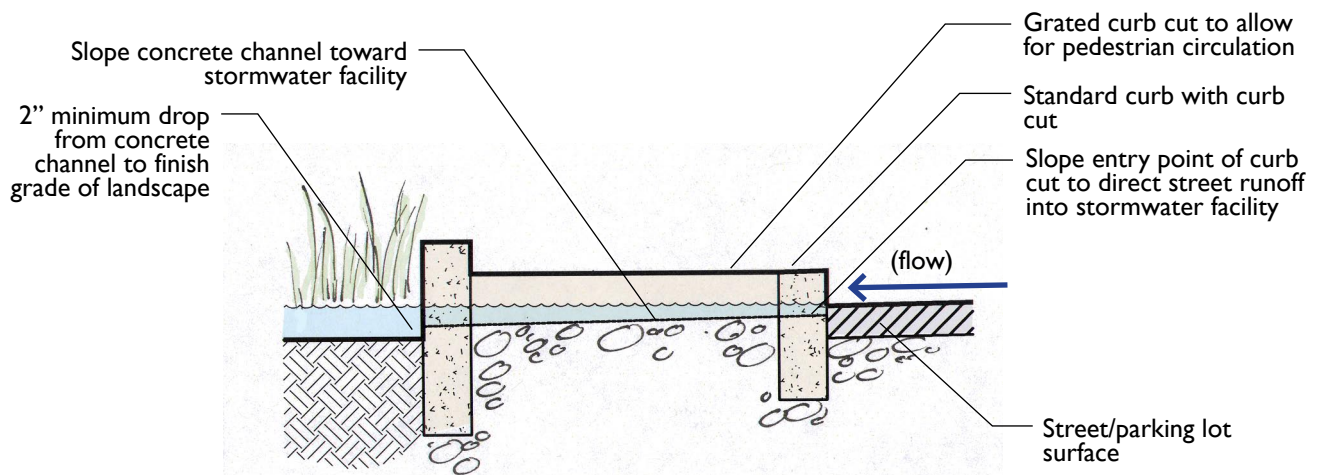
Opening Between Wheelstops Curb Plan View

- Wheelstops allow water to flow through frequently spaced openings.
- Wheelstops are most common in parking lot applications, but they can also be applied to certain street conditions
- Need to provide a minimum of 6 inches of space between the wheelstop edge and edge of asphalt paving. This is to provide structural support for the wheelstop
- A minimum 2 inch drop in grade should occur between the edge of paving and the finish grade of the stormwater facility
- Pea gravel can be used as a stable mulch material at the wheelstop opening to prevent erosion

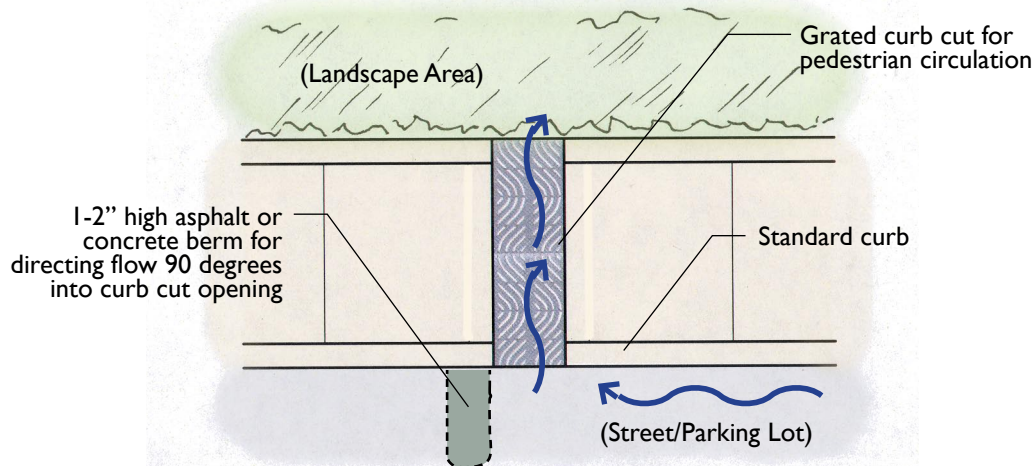


Figure 5-35: The 3 foot space in between these wheelstops allows stormwater runoff to enter a vegetated swale within a parking lot. This design could be improved by including more of a drop in grade between the asphalt and the landscape area.

DESIGN DETAILS: Types of Curb Cuts



Grated Curb Cut Section View



Grated Curb Cut Plan View



SOURCE: KEVIN ROBERT PERRY - CITY OF PORTLAND

Figure 5-36: A graded curb cut allows stormwater to pass under a pedestrian egress zone to the stormwater facility.

- Grated curb cuts allow stormwater to be conveyed under a pedestrian walkway. The curb cut opening should be at least 18 inches wide
- Grates need to be ADA compliant and have sufficient slip resistance
- A 1-2 inch high asphalt or concrete berm should be placed on the downstream side of the curb cut to help direct runoff into the curb cut
- A minimum 2 inch drop in grade should occur between the concrete channel and the finish grade of the stormwater facility.