



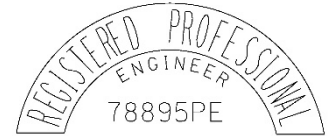
# Standard Drawing Report

**Date:** August 16, 2022

**Technical Owner:** Civil – John Wilson, PE

**Standard Drawing No.** P-550      **Calculation Book No.** n/a

**Drawing Title:** Miscellaneous Curb Ramp Details



Expires 06/30/2024

## Background Information, Including Reference Material:

This is a new standard drawing showing detectable warning surface placement, installation, and dimensional requirements. This drawing is required to replace reference to now obsolete ODOT Standard Drawing RD759. It is based on Seattle DOT Standard Plan No. 422k.

This drawing is the detail for detectable warning surfaces that PBOT currently uses. Each manufacturer of this product provides difference in the domes and spacing. This drawing gives the ranges that are acceptable by US DOT Standards. All products on the Construction Products List (CPL) must meet these criteria.

## Assumption Made:

The drawing meets 2010 ADA Standards and FHWA guidelines.

The specified color is Safety Yellow and meets US DOT Specification 705.1.3 for contrast when placed on portland cement concrete or asphaltic concrete pavements. Safety Yellow includes the following six colors from the Federal Standard 595C Colors: FS 33538, FS 13655, FS 23640, FS 23655, FS 33655, and FS 38907.

The drawing is used with the City of Portland Standard Construction Specifications.

## Design Narrative:

Detectable warning surfaces are required to be installed on curb ramps by FHWA since July 26, 2001 and are intended to serve primarily the low vision and blind traveler. Detectable warning surfaces provide cues underfoot of the pedestrian, must not impede mobility devices from traveling across them, and must be of high contrasting color to adjacent surfaces. For deaf blind travelers, detectability underfoot is paramount.

Detectable warning surfaces also produce unique and distinct sounds by caning devices for blind travelers that is distinct from other common materials.

The detectable warnings indicate that the pedestrian is about to enter a hazardous area and is effectively a stop bar. The minimum depth requirement for 2 feet in the direction of pedestrian travel for installation assumes pedestrians will make contact underfoot when walking based on the average pedestrian stride length of 2 feet. The design requirement for DWS is to be the full width of the curb ramp opening or location where the pedestrian facility is flush with the road, such as at the lower landing of a parallel ramp. The maximum construction tolerance for the leading edge and sides of the ramp is 2 inches, which is less than the maximum allowable horizontal center to center dome spacing of 2.4 inches. Installation depths exceeding 2 feet can be a nuisance for the mobility device user traversing over the DWS hindering turning maneuverability and locomotion. The truncated domes are ideally oriented parallel to the direction of travel to reduce impacts on wheeled devices.

Radial products do not meet dome spacing requirements for all radii and cutting domes may invalidate the warranty in some configurations. Rectangular domes are preferred as they are easier to maintain and source replacement products. DWS product installation typically require a 1/4-inch allowance for expansion and contraction. Some manufacturers have score marks for trimming to fit radial placement and ensure dome spacing is maintained.

Detectable warning surfaces were previously specified along multi-use or bicycle paths but are no longer acceptable due to limited replacement product availability.