

## BMP T5.10C: Downspout Dispersion

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### Purpose and Description

Downspout dispersion systems are splash blocks or gravel-filled trenches, which serve to spread roof runoff over vegetated pervious areas. These BMPs reduce peak flows and provide some infiltration and water quality benefits. The primary difference between a dispersion trench and a full infiltration trench is that the dispersion trench can be used in any soil type because overflow is expected.

### Cross Reference Guide

Soils Assessment	NA
Meets Minimum Requirements	#5
Related BMPs	None
Selection Criteria	<a href="#">Book 1, Sections 2.2 and 2.5.1</a>
Maintenance	<a href="#">Book 4</a>

### Applications, Limitations and Setbacks

Downspout dispersion where feasible, must be used in lots where downspout full infiltration, full dispersion, and bioretention/rain gardens are not feasible.

#### Setbacks

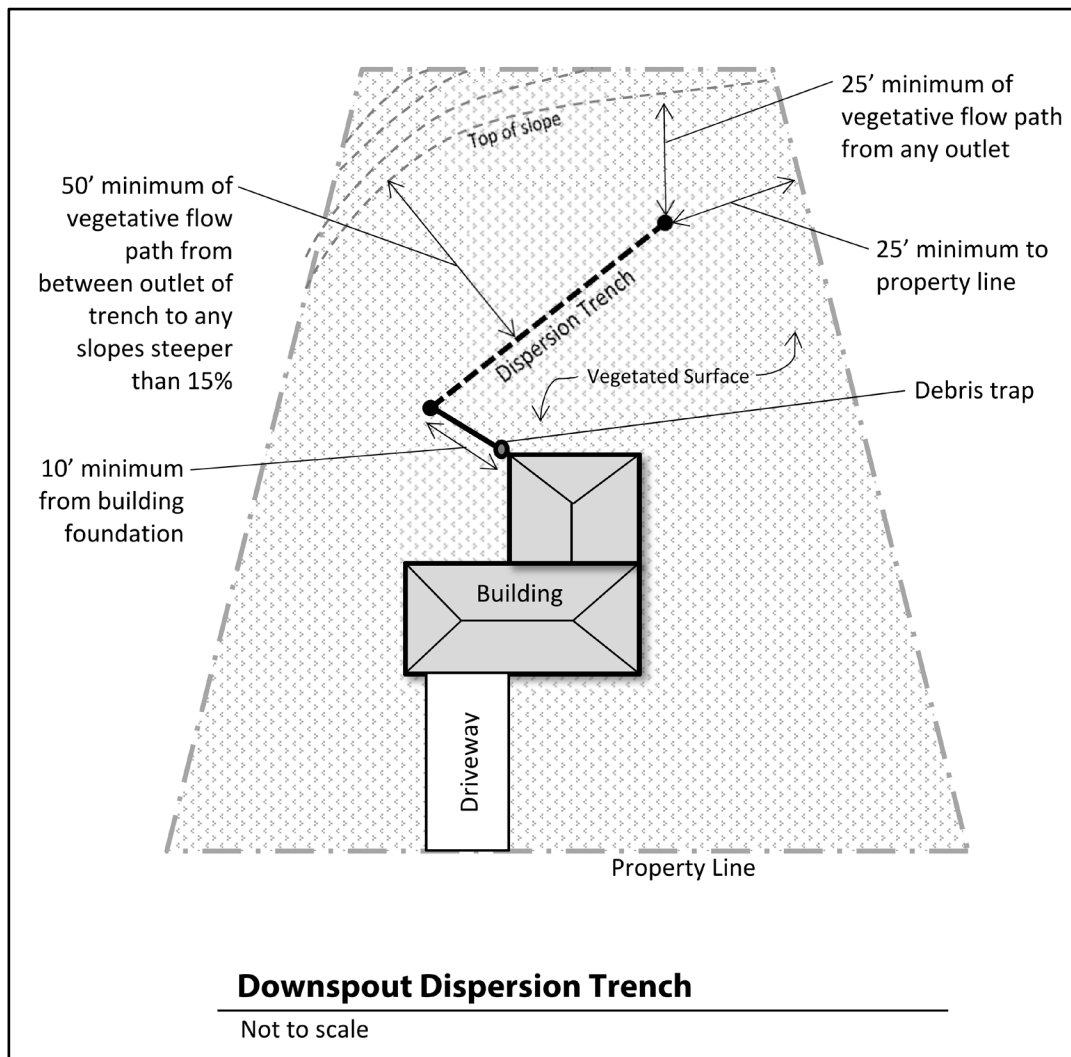
- 10 feet from any sewage disposal drainfield, including reserve areas and grey water reuse systems.
- 100 feet upgradient from any septic system unless site topography clearly indicates that subsurface flows will not intersect the drainfield.
- 10 feet from any structure, property line, or sensitive area.
- 50 feet from the top of any slope over 15%. This setback may be reduced to 15 feet based on a geotechnical evaluation.

### Design Criteria

#### Dispersion Trenches

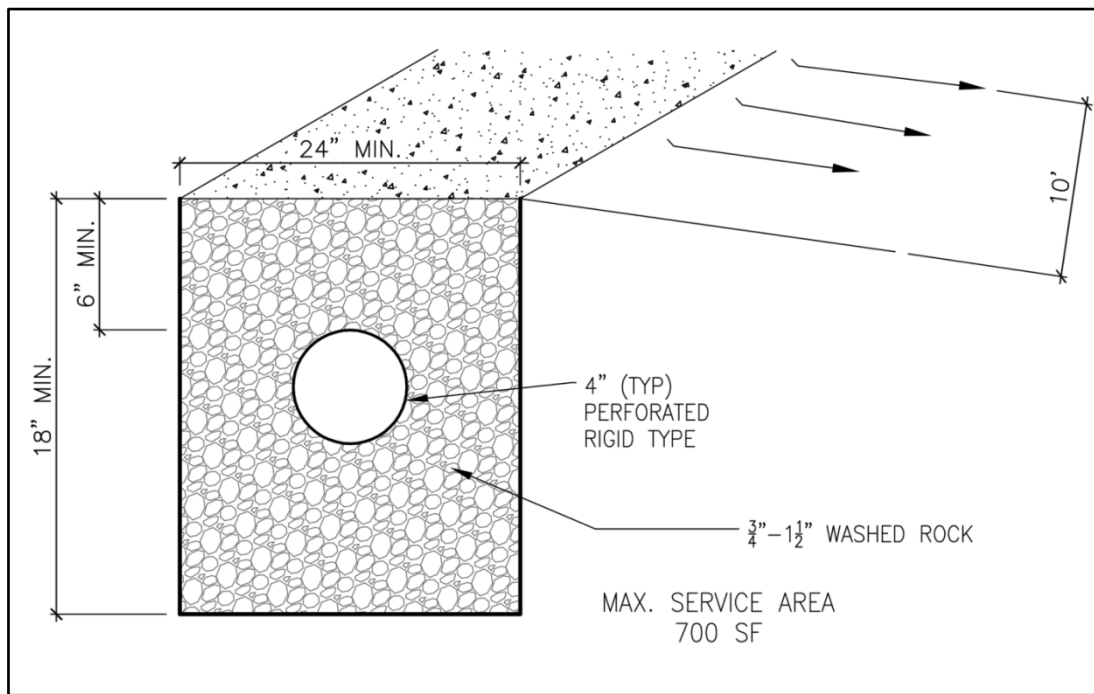
- A vegetated flow path of at least 25 feet shall be maintained between the outlet of the trench and any property line, structure, stream, wetland, or impervious surface.

- A vegetated flow path of at least 50 feet in length shall be maintained between the outlet of the trench and any slope steeper than 15%. Sensitive area buffers may count towards flow path lengths.
- Trenches serving up to 700 square feet of roof area shall be at least 10 feet long by 2 feet wide.
- For roof areas larger than 700 square feet, a dispersion trench with notched grade board or alternative material approved by Clark County may be used. The total length of this design shall not exceed 50 feet and shall provide at least 10 feet of trench length per 700 square feet of roof area.
- No erosion or flooding of downstream properties may result.



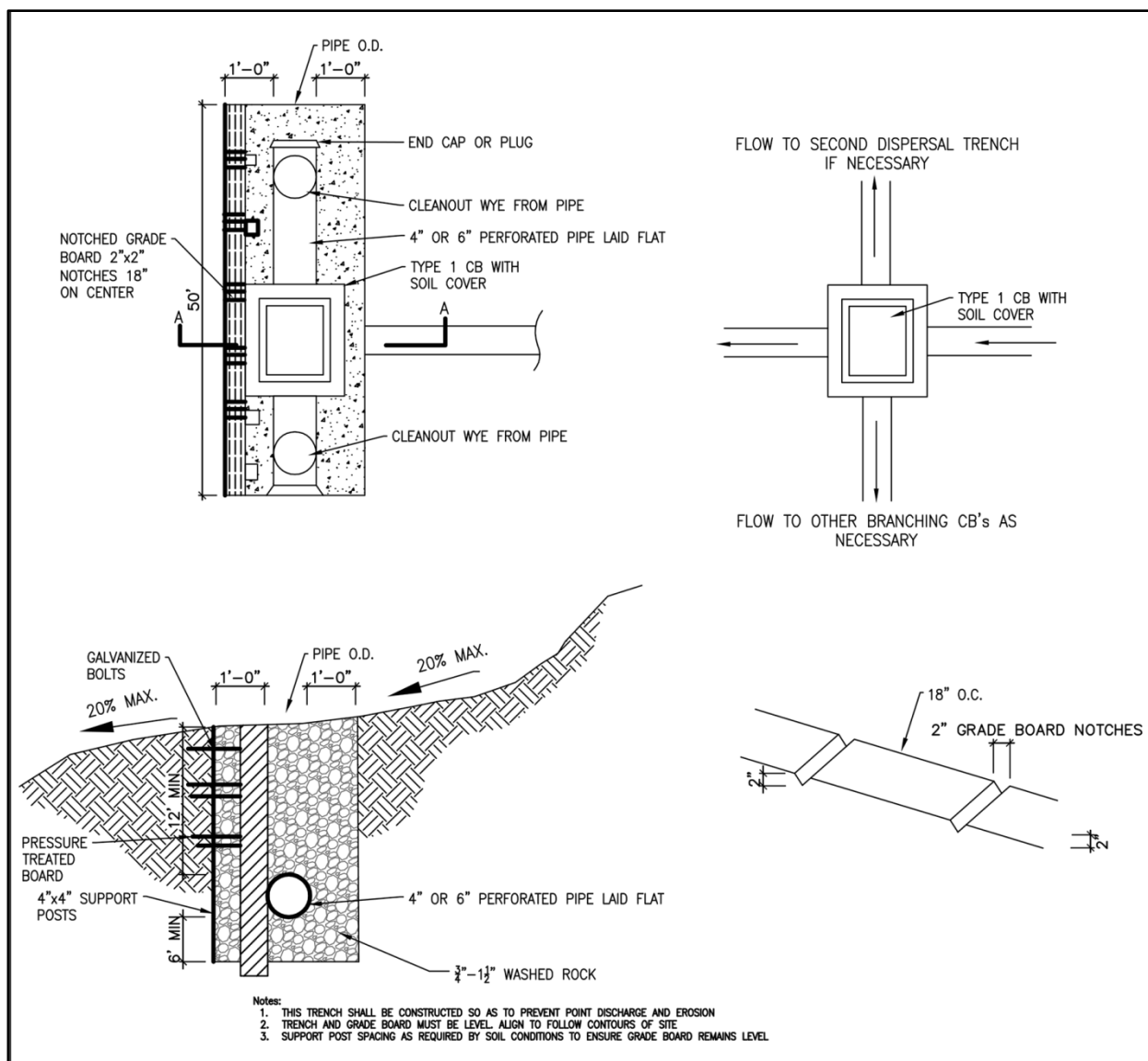
**Figure 2.3: Typical Downspout Dispersion Trench Site Plan**

(Source: Clark County)



**Figure 2.4: Downspout Dispersion Trench Cross-Section**

(Source: modified from Department of Ecology)



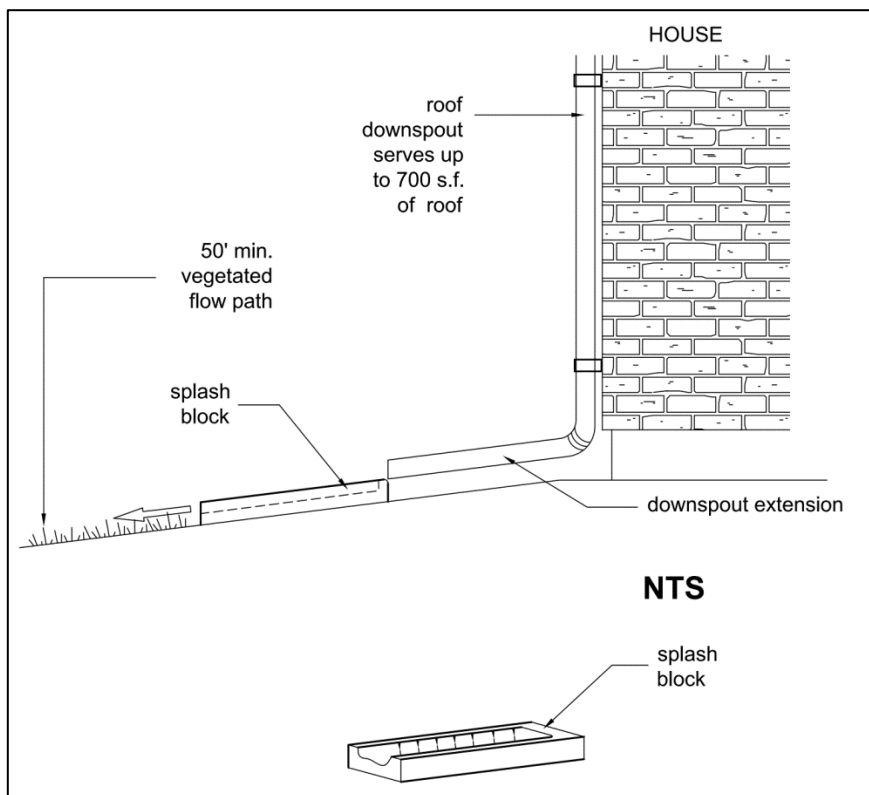
**Figure 2.5: Dispersion Trench with Notched Grade Board**

(Source: modified from Department of Ecology)

### Splashblocks

- A vegetated flow path of at least 50 feet shall be maintained between the discharge point and any property line, structure, slope steeper than 15%, stream, wetland, lake, or other impervious surface. Sensitive area buffers may count toward flow path lengths.
- Each splashblock shall drain a maximum area of 700 square feet.
- For purposes of maintaining adequate separation of flows discharged from adjacent dispersion devices, the vegetated flow path segment for the splashblock shall not overlap with other flow path segments, except those associated with sheet flow from a constructed pervious surface.

- A splashblock or a pad of crushed rock (2 feet wide by 3 feet long by 6 inches deep) shall be placed at each downspout discharge point.
- No erosion or flooding of downstream properties shall result.



**Figure 2.6: Typical Splashblock**

(Source: redrawn from King County Surface Water Design Manual 2009)

### Runoff Modeling Representation

Where [BMP T5.10C](#) disperses runoff into an undisturbed native landscape area or an area that meets [BMP T5.13](#) Soil Quality and Depth, and the vegetated flow path is at least 50 feet, the connected roof area should be modeled as a lateral flow impervious area. Do this in WWHM on the Mitigated Scenario screen by connecting the dispersed impervious area to the lawn/landscape lateral flow soil basin element representing the area that will be used for dispersion.

Ecology may develop guidance for representing multiple downspout dispersions in a project site. Until that time, in situations where multiple downspout dispersions will occur, the roof area can be modeled as a landscaped area (where the 50 foot flow path requirement is met), or as 50% landscape/50% lawn (where a gravel trench is used to disperse into a vegetated area with a 25 to 50 foot flow path) so that the project schematic in the approved continuous flow model is manageable.