

Checklist LID.11

Full Dispersion

This checklist reflects most, but not necessarily all of the items that will be reviewed by the Development Review. It is intended to be used as an aid by us to provide a consistent review of development work in Thurston County. All items may not be applicable in the review of each project and all items of concern to this office may not be covered on this checklist.

Y	N	
		MODELING AND SIZING
		Full Dispersion meets Core Requirements #5, #6, and #7. Areas that are fully dispersed in accordance with LID.11 Full Dispersion do not have to use approved runoff models to demonstrate compliance. They are presumed to fully meet the Runoff Treatment and Flow Control requirements in Core Requirements #6 and #7.
		DESIGN CRITERIA
		Setbacks and Site Constraints
		The dispersion of runoff does not create flooding or erosion impacts.
		The discharge point is not located within 300 feet of erosion hazard, or landslide hazard area.
		The discharge point is not located in critical area buffers or on slopes steeper than 20%.
		The discharge point is downgradient of the drainfield primary and reserve areas. In addition, the flow path does not intersect with the drainfield primary and reserve area. These requirements can be waived if site topography will clearly prohibit flows from intersecting the drainfield or where site conditions (soil permeability, distance between systems, etc.) indicate that this is unnecessary.
		General Design Criteria
		Dispersion area is preserved as forest or native vegetation.
		The dispersion of runoff does not create flooding or erosion impacts of downstream properties.
		Fully dispersed impervious surfaces are within a TDA less than 10% impervious, or if the TDA has more than 10% impervious area, the design may still fully disperse up to 10% of the TDA's area.
		The dispersion area is placed in a separate tract or protected through recorded easements for individual lots.
		All trees within the dispersion area at the time of permit application are retained, aside from the removal of dangerous or diseased trees.
		Cleared areas and areas of compacted soil associated with passive recreation (e.g., pedestrian and bike trails, nature viewing, and other similar activities that do not require permanent structures) and related facilities do not exceed 8% of the dispersion area.
		Discharge point is downslope of the primary and reserve drainfield areas for sites with septic systems. This requirement can be waived if site topography

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		will clearly prohibit flows from intersecting the drainfield or where site conditions (soil permeability, distance between systems, etc.) indicate that this is unnecessary.
		Conversion of a previously developed surface to a native vegetation landscape for purposes of meeting full dispersion requirements or code requirements for forest retention follow native vegetation landscape specifications per Volume V, section 2.2.11.4.
		Residential Design Criteria <i>Applies to rural single family residential developments</i>
		Meets all Design Criteria listed above.
		Lawn and landscaping areas (associated with the impervious area being mitigated) may be dispersed into the dispersion area. The lawn and landscaped area comply with BMP LID.02: Post-Construction Soil Quality and Depth.
		The dispersion area has a minimum area of 6.5 times the area of the impervious surface draining to it.
		The flow path from the impervious surface through the area preserved as forest or native vegetation is at least 100 feet in length (25 feet for sheet flow from lawn and landscaping areas associated with the impervious area being mitigated).
		The flow path is located onsite or in a reserved offsite tract or easement area.
		The slope of the flow path or dispersal area is no steeper than 15% for any 20-foot reach of the flow path. If a level spreader is used upstream and vegetation is established, the slope of the flow path is no steeper than 20%.
		The flow paths for adjacent dispersion devices are sufficiently spaced to prevent overlap of flows in the flow path areas.
		Runoff from contributing impervious surfaces is dispersed through the area preserved as forest or native vegetation using the dispersion approaches outlined in the following sections (i.e., Roof Downspout Dispersion, Driveway Dispersion, Roadway Dispersion, or Cleared Area Dispersion).
		Roof Downspout Dispersion
		Downspout dispersion systems are gravel-filled trenches or splash blocks that spread roof runoff over vegetated, pervious areas.
		The vegetated flow path consists of well-established lawn or pasture, landscaping with well-established groundcover, native vegetation with natural groundcover, or an area that meets the requirements of BMP LID.02: Post-Construction Soil Quality and Depth.
		Roof downspouts are dispersed in accordance with BMP LID.05: Downspout Dispersion Systems.
		Driveway Dispersion
		Driveway surfaces are dispersed in accordance with BMP LID.06: Sheet Flow Dispersion or BMP LID.07: Concentrated Flow Dispersion prior to the runoff entering the dispersion area, OR driveway surfaces are dispersed along with the road runoff in accordance with the roadway dispersion design requirements below.

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		Roadway Dispersion
		The road section is designed to minimize collection and concentration of roadway runoff.
		Concentrated flows are incrementally discharged from the ditch via cross culverts or at the ends of cut cross-sections at a maximum rate of 0.5 cfs for the peak 100-year flow.
		For discharge locations with up to 0.2 cfs for the peak 100-year flow, rock pads or dispersion trenches are used to disperse flows.
		For discharge locations with between 0.2 and 0.5 cfs discharge for the 100-year peak flow, dispersion trenches are used to disperse flows.
		If included, dispersion trenches meet the following design criteria: <ul style="list-style-type: none"> • Designed to accept surface flows (free discharge) from a pipe, culvert, or ditch end and aligned perpendicular to the flow path • Minimum of 2 feet wide by 2 feet deep • Minimum of 50 feet in length • Filled with 0.75-inch to 1.5-inch washed rock • Minimum spacing of 50 feet between centerlines
		Flow paths from adjacent discharge points do not intersect within the 100-foot flow path lengths, and dispersed flow from a discharge point is not intercepted by another discharge point.
		There is no County-determined potential for significant downstream impacts.
		Impervious (or Cleared) Area Dispersion
		The width of the of the dispersion area is equal to the width of the cleared area.
		The flow path through the cleared area (and leading to the dispersion area) is not greater than 25 feet.
		If the cleared area has a width of 25 to 250 feet, the minimum flow path length from the cleared area is 25 feet, plus an additional 1 foot for every 3 feet of width of the cleared area (beyond the initial 25 feet) up to a maximum width of 250 feet.
		The topography of cleared area does not allow runoff to concentrate prior to discharge to the dispersion area.
		Roadway Project Design Criteria <i>Applies to public and private roads, typically on roads outside of the urban growth areas.</i>
		Full Dispersion by Sheet Flow from Uncollected, Unconcentrated Runoff into the Dispersion Area
		Depth to the average annual maximum groundwater elevation is at least 3 feet.
		The contributing impervious surface flow path length is less than 75 feet.
		The flow path through any pervious area leading to the dispersion area is less than 150 feet.
		The lateral slope of the impervious area is less than 8%.

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		The longitudinal slope of road is less than or equal to 5%.
		Road side slopes are less than 25%.
		Dispersion area does not include road side slopes unless native vegetation is re-established and slopes are less than 15%.
		Road shoulders that are paved or graveled are counted as impervious surface. (Permeable pavement shoulders are considered a hard surface, not an impervious surface.)
		The width of the dispersion area is equivalent to the width of impervious surface sheet flowing into it.
		The average longitudinal (parallel to road) slope of the dispersion area is less than or equal to 15%.
		The average lateral slope of the dispersion area is less than or equal to 15%.
		For sites with outwash soils with initial hydraulic conductivity of 4 inches per hour or greater, the following criteria are met: <ul style="list-style-type: none"> • If the impervious area has a flow path length of up to 20, feet, the flow path length through the dispersion area is at least 10 feet. • Each additional foot of contributing impervious width includes an additional 0.25 feet of dispersion area flow path.
		For sites with soils not meeting the above criteria (Types C and D, and some Type B), the following criteria are met: <ul style="list-style-type: none"> • 6.5 feet of flow path is included for every 1 foot of contributing impervious width draining to it. • A minimum flow path distance of 100 feet is provided.
		Full Dispersion of Channelized (Collected and Re-dispersed) Stormwater into the Dispersion Area
		Depth to the average annual maximum groundwater elevation is at least 3 feet.
		Channelized flow is re-dispersed to produce the longest possible flow path.
		Flows are evenly dispersed across the dispersion area.
		The width of the dispersion area is equivalent to length of the road from which runoff is collected.
		The average longitudinal and lateral slopes of the dispersion area are less than or equal to 8%.
		The slope of any flow path segment is no steeper than 15% for any 20-foot reach of the flow path segment.
		Ditch discharge points with up to 0.2 cfs discharge for the peak 100-year flow use rock pads or dispersion trenches to disperse flows into the dispersion area. Ditch discharge points with between 0.2 and 0.5 cfs discharge for the 100-year peak flow use dispersion trenches to disperse flows into the dispersion areas.

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		For sites with outwash soils with initial hydraulic conductivity of 4 inches per hour or greater, the dispersion area flow path is at least half the width of the contributing impervious drainage area.
		For sites with soils not meeting the above criteria (Types C and D, and some Type B), the following criteria are met: <ul style="list-style-type: none"> • 6.5 feet of flow path is included for every 1 foot of contributing impervious width draining to it. • A minimum flow path distance of 100 feet is provided.
		Limited to on-site (associated with the road) flows.
		Full Dispersion by Engineered Dispersion
		Depth to the average annual maximum groundwater elevation is at least 3 feet.
		Average longitudinal (parallel to road) slope of dispersion area is less than or equal to 15%.
		Average lateral slope of dispersion area is less than or equal to 15%.
		The dispersion area is planted with native trees and shrubs.
		Stormwater is dispersed via sheet flow or via collection and re-dispersion in accordance with the techniques specified under the Roadway Project Design Criteria (see above).
		For sites with outwash soils with initial hydraulic conductivity of 4 inches per hour or greater, the following criteria are met: <ul style="list-style-type: none"> • Soil are amended to meet BMP LID.02: Post-Construction Soil Quality and Depth. • 10 feet of dispersion area flow path is provided for up to 20 feet of impervious width. • An additional 0.25 feet of dispersion area flow path is provided for each additional foot of impervious width beyond 20 feet.
		For sites with soils not meeting the above criteria (Types C and D, and some Type B), the following criteria are met: <ul style="list-style-type: none"> • Soil are amended to meet BMP LID.02: Post-Construction Soil Quality and Depth. • The dispersion area must be 6.5 times the area of the surface(s) draining to it.
		CONSTRUCTION CRITERIA
		The preserved area is shown on all property maps.
		The dispersion area is clearly identified (e.g., using flagging or high visibility fencing) and protected prior to and during construction.
		A soil and vegetation management plan is provided showing areas to be protected and restoration methods for disturbed areas.
		Construction SWPPP sheets outline construction sequencing that will protect the dispersion area during construction.

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		Construction SWPPP BMPs and protection techniques are implemented as applicable. The upslope of construction areas are stabilized and overland flow distances are minimized.
		Operate machinery outside of dispersion area during construction.
		INSPECTION CRITERIA
		The dispersion facility meets applicable design and construction criteria (see Design Criteria above).