Sizing Worksheet - INF-5 Permeable Pavers

Designer: Project Proponent: Date: Project: Location: *The design of the permeable pavement shall not receive runoff from landscape areas. Incidental landscape areas, such as an island planter, shall be designed so that the soils are contained inside the planter.*		
Pretreatment Feature (if applicable):		
Outflow Collection:		
Step 1: Determine water quality design volume		
1-1. Enter Project area (acres), $A_{project}$ If this BMP captures runoff from a portion of the project area, enter the tributary area	$A_{project}$ =	acres
1-2. Enter Project impervious fraction, *Imp* (for the permeable pavement BMP, this fraction is 100% as no pervious areas should drain to it and risk clogging)	Imp=	
1-3. Determine pervious runoff coefficient using Table C-1, C_p	C_p =	
1-4. Calculate runoff coefficient, $C = 0.95*imp + C_p\ (1-imp)$	C =	
1-5. Enter design rainfall depth of the storm (in), P_i	P_i =	in
1-6. Calculate rainfall depth (ft), $P = P_i/12$	P =	ft
1-7. Calculate water quality design volume (ft^3), $SQDV=43560\times C*P*A_{project}$	SQDV=	ft^3
Step 2: Determine the design percolation rate		
2-1. Enter measured soil infiltration rate (0.3 in/hr minimum), $P_{measured}$	$P_{measured}$ =	in/hr
2-2. Determine percolation rate correction factor, S_A based on suitability assessment (see Section 6 INF-5)	S_A =	
2-3. Determine percolation rate correction factor, S_B based on design (see Section 6 INF-5)	S_B =	
2-4. Calculate combined safety factor, $S = S_A \times S_b$	S =	
2-5. Calculate the design percolation rate (in/hr), $P_{design} = P_{measured}/S$	P_{design} =	in/hr
Step 3: Determine the Gravel Drainage Layer Depth		

3-1. Enter drawdown time (hours, 72 hrs max.), *t*	t =	hours
3-2. Calculate max. depth of runoff (ft) that can be infiltrated within the t, $d_{max}=P_{design}t/12$	d_{max} =	ft
3-3. Enter the gravel drainage layer porosity, *n* (typically 32% or 0.32 for gravel)	n =	
3-4. Select the gravel drainage layer depth (ft) such that $d_{max} \geq n \times l$	l =	ft
Step 4: Determine infiltrating surface area		
4-1. Enter gravel drainage layer porosity, *n*	n =	
4-2. Enter depth of gravel drainage layer (ft), *l*	l =	ft
4-3. Enter the time to fill the gravel drainage layer with water (Use 2 hours for most designs), *T*	T =	hrs
4-4. Calculate infiltrating surface area (ft^3): $A=SQDV/((TP_{design}/12)+nl)$	A =	ft^2
Check that the maximum ratio of impervious area (Aproject impervious) to permeable pavement (A) is no greater than 2:1 to minimize sediment loading.		
Step 5: Provide conveyance capacity for clogging		
5-1. The permeable pavement must have an emergency overflow for storm events greater than the design and in the event the permeable pavement becomes clogged.		