

### Sizing Worksheet - INF-1 Infiltration Basin/ INF-2 Subsurface Infiltration / INF-4 Drywell/ INF-6 Proprietary Infiltration

Designer:	
Project Proponent:	
Date:	
Project:	
Location:	
Type of Vegetation: (Check type used or describe "Other")	<input type="checkbox"/> Native Grasses <input type="checkbox"/> Irrigated Turf Grass <input type="checkbox"/> Other
Pretreatment Feature:	
Outflow Collection:	
<b>Step 1: Determine water quality design volume</b>	
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, $Imp$ (e.g. 60% = 0.60)	$Imp =$ _____
1-3. Determine pervious runoff coefficient using <a href="#">Table C-1</a> , $C_p$	$C_p =$ _____
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 <sup>3</sup> ), $SQDV = 43560 * C * P * A_{project}$	$SQDV =$ _____ ft <sup>3</sup>
<b>Step 2: Determine the design percolation rate</b>	
2-1. Enter measured soil infiltration rate (in/hr, 0.3 in/hr min.), $P_{measured}$	$P_{measured} =$ _____ in/hr
2-2. Determine percolation rate correction factor, $S_A$ based on suitability assessment (see Appendix C.2)	$S_A =$ _____
2-3. Determine percolation rate correction factor, $S_B$ based on design (see Appendix C.2)	$S_b =$ _____
2-4. Calculate combined safety factor, $S = S_A * S_b$	$S =$ _____

2-5. Calculate the design percolation rate (in/hr), $P_{design} = P_{measured}/S$	$P_{design} =$	in/hr
<b>Step 3: Calculate the surface area</b>		
3-1. Enter required drain time (hours, 72 hrs max.), $t$	$t =$	hrs
3-2. Calculate max. depth of runoff that can be infiltrated within the $t$ (ft), $d_{max} = P_{design} t/12$	$d_{max} =$	ft
3-3. For basins, select ponding depth (ft), $d_p$ , such that $d_p \leq d_{max}$	$d_p =$	ft
3-4. For trenches, enter trench fill aggregate porosity, $n_t$	$n_t =$	
3-5. For trenches, enter depth of trench fill (ft), $d_t$	$d_t =$	ft
3-5. For trenches, select ponding depth $d_p$ such that $d_p \leq d_{max} - n_t d_t$	$d_p =$	ft
3-6. Enter the time to fill infiltration basin or trench with water (Use 2 hours for most designs), $T$	$T =$	hrs
3-7. Calculate infiltrating surface area for infiltration basin (ft <sup>2</sup> ): $A_b = SQDV/((T P_{design}/12) + d_p)$ OR Calculate infiltrating surface area for subsurface infiltration facilities or aggregate-filled drywells (ft <sup>2</sup> ): $A_t = SQDV/((T P_{design}/12) + n_t d_t + d_p)$	$A_b =$  $A_t =$	ft <sup>2</sup>  ft <sup>2</sup>
<b>Step 4: Size the forebay (infiltration basins or trenches)</b>		
If a separate pre-treatment unit is designed for the infiltration facility, skip to Step 5. If not, continue through 4-1 through 4-4.		
4-1. Calculate the volume of the forebay (ft <sup>3</sup> ), $V_{forebay} = 0.25 * SQDV$	$V_{forebay} =$	= ft <sup>3</sup>
4-2. Determine forebay depth (ft), $d_{forebay}$	$d_{forebay} =$	ft
4-3. Calculate forebay bottom surface area (ft <sup>2</sup> ), $A_{forebay} = V_{forebay}/d_{forebay}$	$A_{forebay} =$	ft <sup>2</sup>
4-4. Provide outlet pipe such that the forebay drains to the infiltration facility within 10 minutes.		
<b>Step 5: Provide conveyance capacity for filter clogging</b>		
5-1. The infiltration facility should be placed off-line, but an emergency overflow must still be provided in the event the filter becomes clogged. Design emergency overflow in accordance with applicable standards of the Ventura County Flood Control District or local jurisdiction.		