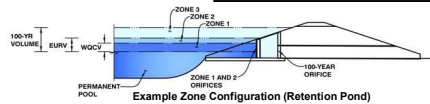# DETENTION BASIN STAGE-STORAGE TABLE BUILDER

UD-Detention, Version 3.07 (February 2017)

Project: The Glen at Widefield Filing No. 12 (as-built condition)

Basin ID: Detention Basin "D" (Ultimate Condition) (as-built 06-25-24)

Example Zone Configuration (Retention Pond)

Required Volume Calculation

Selected BMP Type =	**EDB**	
Watershed Area =	62.07	acres
Watershed Length =	1,660	ft
Watershed Slope =	0.017	ft/ft
Watershed Imperviousness =	32.90%	percent
Percentage Hydrologic Soil Group A =	0.0%	percent
Percentage Hydrologic Soil Group B =	0.0%	percent
Percentage Hydrologic Soil Groups C/D =	100.0%	percent
Desired WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	User Input	
Water Quality Capture Volume (WQCV) =	0.829	acre-feet
Excess Urban Runoff Volume (EURV) =	1.868	acre-feet
2-yr Runoff Volume (P1 = 1.19 in.) =	1.721	acre-feet
5-yr Runoff Volume (P1 = 1.5 in.) =	2.791	acre-feet
10-yr Runoff Volume (P1 = 1.75 in.) =	3.912	acre-feet
25-yr Runoff Volume (P1 = 2 in.) =	6.011	acre-feet
50-yr Runoff Volume (P1 = 2.25 in.) =	7.512	acre-feet
100-yr Runoff Volume (P1 = 2.52 in.) =	9.410	acre-feet
500-yr Runoff Volume (P1 = 3.2 in.) =	13.347	acre-feet
Approximate 2-yr Detention Volume =	1.612	acre-feet
Approximate 5-yr Detention Volume =	2.635	acre-feet
Approximate 10-yr Detention Volume =	3.040	acre-feet
Approximate 25-yr Detention Volume =	3.393	acre-feet
Approximate 50-yr Detention Volume =	3.544	acre-feet
Approximate 100-yr Detention Volume =	4.285	acre-feet

Optional User Override 1-hr Precipitation

1.19	inches
1.50	inches
1.75	inches
2.00	inches
2.25	inches
2.52	inches
3.20	inches

Stage-Storage Calculation

Zone 1 Volume (WQCV) =	0.829	acre-feet
Zone 2 Volume (EURV - Zone 1) =	1.040	acre-feet
Zone 3 (100yr + 1 / 2 WQCV - Zones 1 & 2) =	2.831	acre-feet
Total Detention Basin Volume =	4.699	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H$_{total}$) =	user	ft
Depth of Trickle Channel (H$_{TC}$) =	user	ft
Slope of Trickle Channel (S$_{TC}$) =	user	ft/ft
Slopes of Main Basin Sides (S$_{main}$) =	user	H:V
Basin Length-to-Width Ratio (R$_{L/W}$) =	user	
Initial Surcharge Area (A$_{ISV}$) =	user	ft^2
Surcharge Volume Length (L$_{ISV}$) =	user	ft
Surcharge Volume Width (W$_{ISV}$) =	user	ft
Depth of Basin Floor (H$_{FLOOR}$) =	user	ft
Length of Basin Floor (L$_{FLOOR}$) =	user	ft
Width of Basin Floor (W$_{FLOOR}$) =	user	ft
Area of Basin Floor (A$_{FLOOR}$) =	user	ft^2
Volume of Basin Floor (V$_{FLOOR}$) =	user	ft^3
Depth of Main Basin (H$_{MAIN}$) =	user	ft
Length of Main Basin (L$_{MAIN}$) =	user	ft
Width of Main Basin (W$_{MAIN}$) =	user	ft
Area of Main Basin (A$_{MAIN}$) =	user	ft^2
Volume of Main Basin (V$_{MAIN}$) =	user	ft^3
Calculated Total Basin Volume (V$_{total}$) =	**user**	acre-feet

Depth Increment = _____ ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Top of Micropool	--	0.00	--	--	--	26	0.001		
5671	--	0.33	--	--	--	162	0.004	29	0.001
5671.25	--	0.58	--	--	--	264	0.006	82	0.002
5671.5	--	0.83	--	--	--	3,810	0.087	556	0.013
5671.75	--	1.08	--	--	--	4,359	0.100	1,571	0.036
5672	--	1.33	--	--	--	5,510	0.126	2,793	0.064
5672.25	--	1.58	--	--	--	10,331	0.237	4,726	0.108
5672.5	--	1.83	--	--	--	15,195	0.349	7,868	0.181
5672.75	--	2.08	--	--	--	20,346	0.467	12,461	0.286
5673	--	2.33	--	--	--	27,100	0.622	18,392	0.422
5673.25	--	2.58	--	--	--	38,024	0.873	26,533	0.609
5673.5	--	2.83	--	--	--	49,486	1.136	37,471	0.860
5673.75	--	3.08	--	--	--	57,733	1.325	50,874	1.168
5674	--	3.33	--	--	--	64,343	1.477	66,133	1.518
5674.25	--	3.58	--	--	--	67,346	1.546	82,594	1.896
5674.5	--	3.83	--	--	--	69,310	1.591	99,676	2.288
5674.75	--	4.08	--	--	--	71,079	1.632	117,225	2.691
5675	--	4.33	--	--	--	72,688	1.669	135,196	3.104
5675.25	--	4.58	--	--	--	74,266	1.705	153,565	3.525
5675.5	--	4.83	--	--	--	75,828	1.741	172,327	3.956
5675.75	--	5.08	--	--	--	77,377	1.776	191,477	4.396
5676	--	5.33	--	--	--	78,927	1.812	211,015	4.844
5676.25	--	5.58	--	--	--	80,469	1.847	230,940	5.302
5676.5	--	5.83	--	--	--	82,017	1.883	251,251	5.768
5676.75	--	6.08	--	--	--	83,651	1.920	271,959	6.243
5677	--	6.33	--	--	--	85,300	1.958	293,078	6.728
5677.25	--	6.58	--	--	--	86,865	1.994	314,599	7.222
5677.5	--	6.83	--	--	--	86,865	1.994	336,315	7.721
5677.75	--	7.08	--	--	--	90,105	2.069	358,436	8.229
5678	--	7.33	--	--	--	91,000	2.089	381,074	8.748
5679	--	8.33	--	--	--	96,541	2.216	474,845	10.901
5679.14	--	8.47	--	--	--	98,509	2.261	488,498	11.214