

POLLUTANT CALCULATION WORKBOOK

GENERAL PROJECT INFORMATION	
Project Name:	Residences at Ashland
SMMA Job No.:	24142
Project Address:	61 Waverly Street
Parcel ID:	15-12-0000
Applicant Name:	
Applicant Phone Number:	
Designer Name:	Katrina Correa
Designer Phone Number:	
Project Type:	New Development
Total Watershed Area (ft ²):	441,160
Total Lot Area (ft ²):	559,521
Total Site/Disturbed Area (ft ²):	379,010

TABLE 1 – PERVIOUS AND IMPERVIOUS AREA								
Ground Cover	IA	PA	Existing Area		Proposed Area		Change (+/-)	
			ft ²	%	ft ²	%	ft ²	%
Roadway / Parking Lot / Driveway / Sidewalk	x		2,552	0.6%	175,387	39.8%	172,835	39.2%
Porous Asphalt / Pavers	x		-	-	1,450	0.3%	1,450	0.3%
Rooftops	x		-	-	55,562	12.6%	55,562	12.6%
Grass / Landscaped		x	41,927	9.5%	145,564	33.0%	103,637	23.5%
Wooded		x	396,682	89.9%	63,198	14.3%	-333,484	-75.6%
Other			-	-	-	-	-	-
Impervious Area:			2,552	0.58%	232,398	52.68%	229,847	52.10%
Pervious Area:			438,609	99.42%	208,762	47.32%	-229,847	-52.10%
TOTALS:			441,160	100%	441,160	100%	0	0.00%

TABLE 2 – SITE LAND USE CATEGORY AND POLLUTANT LOADING, BEFORE BMPS																				
Site Land Use Category	IA	PA	Load Export Rates (Lbs/acre/yr)			Existing					Proposed					Change (+/-)				
			P	N	TSS	Area		Load (Lbs/yr)			Area		Load (Lbs/yr)			Area		Load (Lbs/yr)		
						ft ²	%	P	N	TSS	ft ²	%	P	N	TSS	ft ²	%	P	N	TSS
Commercial (COM) and Industrial (IND)	x		1.78	15.00	377.39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Multi-Family Residential (MFR)	x		2.32	14.10	438.95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
High-Density Residential (HDR)	x		2.32	14.10	438.95	-	-	-	-	-	232,398	52.7%	12.38	75.23	2,341.86	232,398	52.7%	12.38	75.23	2,341.86
Medium-Density Residential (MDR)	x		1.96	14.10	438.95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Low-Density Residential (LDR)	x		1.52	14.10	438.95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Highway (HWY)	x		1.34	10.50	1480.13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Agriculture (AG) - Impervious	x		1.52	11.30	649.51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Forest (FOR) - Impervious	x		1.52	11.30	649.51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Open Land (OPEN) - Impervious	x		1.52	11.30	649.51	2,552	0.6%	0.09	0.66	38.05	-	-	-	-	-	-2,552	-0.6%	-0.09	-0.66	-38.05
Developed Land Pervious (DevPERV) - HSG A		x	0.03	0.30	7.14	37,063	8.4%	0.03	0.26	6.08	122,914	27.9%	0.08	0.85	20.15	85,851	19.5%	0.06	0.59	14.07
Developed Land Pervious (DevPERV) - HSG B		x	0.12	1.20	29.44	4,864	1.1%	0.01	0.13	3.29	22,650	5.1%	0.06	0.62	15.31	17,786	4.0%	0.05	0.49	12.02
Developed Land Pervious (DevPERV) - HSG C		x	0.21	2.40	59.78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Developed Land Pervious (DevPERV) - HSG C/D		x	0.29	3.10	75.84	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Developed Land Pervious (DevPERV) - HSG D		x	0.37	3.60	91.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Agriculture (AG) - Pervious		x	0.45	2.60	29.44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forest (FOR) - Pervious		x	0.13	0.50	29.44	396,682	89.9%	1.18	4.55	268.10	63,198	14.3%	0.19	0.73	42.71	-333,484	-75.6%	-1.00	-3.83	-225.38
Other			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Impervious Area:			2,552	0.58%	0.09	0.66	38.05	232,398	52.68%	12.38	75.23	2,341.86	229,847	52.10%	12.29	74.56	2,303.81			
Pervious Area:			438,609	99.42%	1.22	4.94	277.46	208,762	47.32%	0.34	2.20	78.17	-229,847	-52.10%	-0.89	-2.75	-199.29			
TOTALS:			441,160	100%	1.31	5.60	315.51	441,160	100%	12.71	77.42	2,420.02	0	0.00%	11.40	71.82	2,104.52			

IS THERE IMPERVIOUS AREA TO PERVIOUS AREA CONVERSION?			
No			
IA to PA Conversion Area (ft ²)	IA TO PA Load Reduction		
	P	N	TSS
0	0.00	0.00	0.00

TABLE 3 – BMP POLLUTANT REMOVALS

BMP Type / Name	Treated Area		Load Export Rates (Lbs/acre/yr)			BMP Load (Lbs/yr)			DSV (cf)	PSC (in)	% Removal Efficiency			BMP Load Reduction (Lbs/yr)			
	IA/PA	Area (ft ²)	Site Land Use Category	P	N	TSS	P	N			TSS	P	N	TSS	P	N	TSS
Pre-treatment: Deep Sump Catch Basins (SIS-1, SIS-2)	IA	167,402	High-Density Residential (HDR)	2.32	14.10	438.95	8.92	54.19	1,686.89	-	-	-	-	25%	-	-	421.72
	PA	57,926	Developed Land Pervious (DevPERV) - HSG A	0.03	0.30	7.14	0.04	0.40	9.49						-	-	2.37
	-	-	-	0.00	0.00	0.00	-	-	-						-	-	-
	-	-	-	0.00	0.00	0.00	-	-	-						-	-	-
	-	-	-	0.00	0.00	0.00	-	-	-						-	-	-
	-	-	-	0.00	0.00	0.00	-	-	-						-	-	-
	-	-	-	0.00	0.00	0.00	-	-	-						-	-	-
	-	-	-	0.00	0.00	0.00	-	-	-						-	-	-
	-	-	-	0.00	0.00	0.00	-	-	-						-	-	-
Pre-treatment: Proprietary Separators (SIS-1, SIS-2)	IA	167,402	High-Density Residential (HDR)	N/A	N/A	N/A	8.92	54.19	1,265.17	-	-	-	-	50%	-	-	632.59
	PA	57,926	Developed Land Pervious (DevPERV) - HSG A	N/A	N/A	N/A	0.04	0.40	7.12						-	-	3.56
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
Subsurface Infiltration Basins (SIS-1, SIS-2)	IA	167,402	High-Density Residential (HDR)	N/A	N/A	N/A	8.92	54.19	632.59	30,952	2.16	100%	100%	100%	8.92	54.19	632.59
	PA	57,926	Developed Land Pervious (DevPERV) - HSG A	N/A	N/A	N/A	0.04	0.40	3.56						0.04	0.40	3.56
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
Pre-treatment: Deep Sump Catch Basins (WQU 1-1, WQU 1-2)	IA	61,704	High-Density Residential (HDR)	2.32	14.10	438.95	3.29	19.97	621.79	-	-	-	-	25%	-	-	155.45
	PA	25,150	Developed Land Pervious (DevPERV) - HSG A	0.03	0.30	7.14	0.02	0.17	4.12						-	-	1.03
	PA	2,548	Developed Land Pervious (DevPERV) - HSG B	0.12	1.20	29.44	0.01	0.07	1.72						-	-	0.43
	PA	759	Forest (FOR) - Pervious	0.13	0.50	29.44	0.00	0.01	0.51						-	-	0.13
	-	-	-	0.00	0.00	0.00	-	-	-						-	-	-
	-	-	-	0.00	0.00	0.00	-	-	-						-	-	-
	-	-	-	0.00	0.00	0.00	-	-	-						-	-	-
	-	-	-	0.00	0.00	0.00	-	-	-						-	-	-
	-	-	-	0.00	0.00	0.00	-	-	-						-	-	-
Proprietary Separators (WQU 1-1, WQU 1-2)	IA	61,704	High-Density Residential (HDR)	N/A	N/A	N/A	3.29	19.97	466.34	-	-	-	-	50%	-	-	233.17
	PA	25,150	Developed Land Pervious (DevPERV) - HSG A	N/A	N/A	N/A	0.02	0.17	3.09						-	-	1.55
	PA	2,548	Developed Land Pervious (DevPERV) - HSG B	N/A	N/A	N/A	0.01	0.07	1.29						-	-	0.65
	PA	759	Forest (FOR) - Pervious	N/A	N/A	N/A	0.00	0.01	0.38						-	-	0.19
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
	-	-	-	N/A	N/A	N/A	-	-	-						-	-	-
Impervious Area:	229,106		-	-	-	12.20	74.16	1,098.93	-	-	-	-	-	-	8.92	54.19	2,075.51
Pervious Area:	86,383		-	-	-	0.07	0.65	8.33	-	-	-	-	-	-	0.04	0.40	13.47
TOTALS:	315,489		-	-	-	12.27	74.81	1,107.25	-	-	-	-	-	-	8.96	54.59	2,088.98

DOES THE PROJECT MEET REQUIREMENTS FOR GROUNDWATER RECHARGE VOLUME?		
Existing IA + PA to IA Conversion (ft ²)	Only PA to IA Conversion (ft ²)	Site HSG (Recharge Depth)
232,398	229,847	A (Rd = 0.60 in)
GRV Required (< 40% Existing IA) (cf)	GRV Provided (cf)	
11,620	30,952	
New Development		Yes

TABLE 4a – LOAD SUMMARY (Impervious Areas Only)														
Existing Total Load (Lbs/yr)			Proposed Total Load (Lbs/yr)			BMP Load Reduction (Lbs/yr)			Overall Load Mass Balance (+/- Lbs/yr)			Overall Load Mass Balance (+/- %)		
P	N	TSS	P	N	TSS	P	N	TSS	P	N	TSS	P	N	TSS
0.09	0.66	38.05	12.38	75.23	2,341.86	8.92	54.19	2,075.51	3.37	20.38	228.30	3788%	3078%	600%

TABLE 4b – LOAD SUMMARY (Impervious and Pervious Areas)														
Existing Total Load (Lbs/yr)			Proposed Total Load (Lbs/yr)			BMP Load Reduction (Lbs/yr)			Overall Load Mass Balance (+/- Lbs/yr)			Overall Load Mass Balance (+/- %)		
P	N	TSS	P	N	TSS	P	N	TSS	P	N	TSS	P	N	TSS
1.31	5.60	315.51	12.71	77.42	2,420.02	8.96	54.59	2,088.98	2.45	17.23	15.54	186%	307%	5%

TABLE 4c – PRE-TREATMENT LOAD SUMMARY (Impervious Areas Only)			
Proposed Infiltrating BMP Total Load (Lbs/yr)	Pre-Treatment Infiltrating BMP Load Reduction (Lbs/yr)	Overall Load Mass Balance (+/- Lbs/yr)	Overall Load Mass Balance (+/- Lbs/yr)
TSS	TSS	TSS	TSS
1,686.89	1,054.31	632.59	1663%

TABLE 4d – PRE-TREATMENT LOAD SUMMARY (Impervious and Pervious Areas)			
Proposed Infiltrating BMP Total Load (Lbs/yr)	Pre-Treatment Infiltrating BMP Load Reduction (Lbs/yr)	Overall Load Mass Balance (+/- Lbs/yr)	Overall Load Mass Balance (+/- Lbs/yr)
TSS	TSS	TSS	TSS
1,696.39	1,060.24	636.15	202%

DOES THIS PROJECT MEET MSH STORMWATER MANAGEMENT STANDARD 4?										
PROJECT TYPE --->		New Development								
WAIVER REQUEST SUBMITTED? --->		No								
New Development Treat the Total Prop. IA	Standard	Treated IA (ft2)	TP (Lbs/yr & %) Reduction from IA		TN (Lbs/yr & %) Reduction from IA		TSS (Lbs/yr & %) Reduction from IA			
	Required -->	N/A	0.00	0%	0.00	0%	Pre-Treatment		Treatment	
	Achieved -->	229,106	8.92	72%	54.19	72%	1,054.31	63%	2,075.51	89%