

**APPENDIX D**

**UPDATED POLLUTANT LOADING ESTIMATES FOR  
MUNICIPAL STORM OUTFALLS**

Estimates Grouped by Practice Type, Showing:

1. Total Loadings without BMPs
2. Total Loadings with BMPs
3. Total Removal of Pollutants by BMP
4. Percent Removal of Pollutants
5. Amount of Pollutants Removed
6. Percent Removal of Pollutants per Acre



Table D-1. Total loadings without BMP

Practice Type MDE	Total Area, ac	Drainage Area, ac	BOD (lbs)	TKN (lbs)	Diss P (lbs)	TN (lbs)	TP (lbs)	TSS (lbs)	Cd (lbs)	Cu (lbs)	Pb (lbs)	Zn (lbs)	COD (lbs)	TDS (lbs)
Sum (BIO)	63.61	54.97	1,143.38	271.36	23.71	474.21	34.25	4,007.11	0.11	2.50	1.21	16.97	3,596.13	24,869.92
Sum (BIO,EDSD)	72.30	72.30	897.19	212.93	18.61	372.10	26.87	3,144.28	0.08	1.96	0.95	13.31	2,821.79	19,514.82
Sum (DP)	2,471.66	2,071.17	40,910.48	9,709.17	848.37	16,967.48	1,225.43	143,375.19	3.77	89.55	43.36	607.06	128,670.04	889,849.98
Sum (DP,IT)	8.20	4.20	216.23	51.32	4.48	89.68	6.48	757.80	0.02	0.47	0.23	3.21	680.08	4,703.26
Sum (EDD)	117.52	117.52	2,666.53	632.84	55.30	1,105.93	79.87	9,345.14	0.25	5.84	2.83	39.57	8,386.66	58,000.08
Sum (EDD,OTH)	38.90	38.90	482.72	114.56	10.01	200.21	14.46	1,691.74	0.04	1.06	0.51	7.16	1,518.23	10,499.67
Sum (EDSD)	3,999.87	3,566.32	68,131.29	16,169.41	1,412.86	28,257.22	2,040.80	238,773.48	6.28	149.14	72.21	1,010.98	214,283.90	1,481,934.05
Sum (EDSD,OGS)	2.44	2.44	64.34	15.27	1.33	26.69	1.93	225.49	0.01	0.14	0.07	0.95	202.37	1,399.51
Sum (EDSD,SM)	9.70	9.70	120.37	28.57	2.50	49.92	3.61	421.85	0.01	0.26	0.13	1.79	378.58	2,618.17
Sum (EDSD,UGS)	2.05	2.05	54.06	12.83	1.12	22.42	1.62	189.45	0.00	0.12	0.06	0.80	0	0
Sum (EDSD,VEG)	36.00	36.00	446.73	106.02	9.26	185.28	13.38	1,565.62	0.04	0.98	0.47	6.63	1,405.04	9,716.92
Sum (EDSW)	3,055.29	1,893.98	47,619.87	11,301.49	987.51	19,750.18	1,426.40	166,888.99	4.39	104.24	50.47	706.62	149,772.17	1,035,787.02
Sum (EDSW,SM)	1,144.80	376.70	19,594.76	4,650.37	406.34	8,126.86	586.94	68,671.95	1.81	42.89	20.77	290.76	61,628.67	426,208.53
Sum (IB)	24.55	24.32	437.76	103.89	9.08	181.56	13.11	1,534.17	0.04	0.96	0.46	6.50	1,376.82	9,521.74
Sum (IB,DP)	32.74	32.74	863.34	204.89	17.90	358.07	25.86	3,025.67	0.08	1.89	0.92	12.81	2,715.34	18,778.63
Sum (IT)	350.90	249.58	5,729.83	1,359.85	118.82	2,376.43	171.63	20,080.83	0.53	12.54	6.07	85.02	18,021.25	124,630.50
Sum (IT,OGS)	7.04	7.04	185.64	44.06	3.85	76.99	5.56	650.60	0.02	0.41	0.20	2.75	583.87	4,037.92
Sum (IT,OGS,UGS)	0.54	0.54	14.24	3.38	0.30	5.91	0.43	49.90	0.00	0.03	0.02	0.21	44.79	309.73
Sum (ITCE)	4.01	4.01	97.23	23.07	2.02	40.32	2.91	340.74	0.01	0.21	0.10	1.44	305.79	2,114.78
Sum (ITCE,VEG)	1.9	1.9	36.84	8.74	0.76	15.28	1.10	129.11	0.00	0.08	0.04	0.55	0	0
Sum (ITWQE)	106.95	104.45	1,505.37	357.26	31.22	624.35	45.09	5,275.73	0.14	3.30	1.60	22.34	4,734.63	32,743.50
Sum (OGS)	73.97	73.74	1,798.32	426.79	37.29	745.85	53.87	6,302.40	0.17	3.94	1.91	26.68	5,656.00	39,115.51
Sum (OGS,UNG)	2.82	2.82	44.63	10.59	0.93	18.51	1.34	156.40	0.00	0.10	0.05	0.66	140.36	970.68
Sum (OGS,UGS,VEG)	2.84	2.84	74.89	17.77	1.55	31.06	2.24	262.46	0.01	0.16	0.08	1.11	235.54	1,628.93
Sum (RTN)	73.10	73.10	1,927.61	457.48	39.97	799.47	57.74	6,755.54	0.18	4.22	2.04	28.60	6,062.66	41,927.85
Sum (SF)	49.15	49.15	1,074.54	255.02	22.28	445.66	32.19	3,765.84	0.10	2.35	1.14	15.94	3,379.60	23,372.47
Sum (SF,SW)	7.95	7.95	154.15	36.58	3.20	63.93	4.62	540.22	0.01	0.34	0.16	2.29	484.81	3,352.84
Sum (SM)	267.31	205.42	4,527.61	1,074.52	93.89	1,877.81	135.62	15,867.49	0.42	9.91	4.80	67.18	14,240.06	98,480.67
Sum (SM,DP)	62.50	62.50	775.58	184.07	16.08	321.67	23.23	2,718.09	0.07	1.70	0.82	11.51	2,439.31	16,869.66
Sum (SW)	14.22	10.69	265.18	62.93	5.50	109.98	7.94	929.34	0.02	0.58	0.28	3.93	834.02	5,767.90
Sum (UNG)	31.42	15.62	514.42	122.09	10.67	213.36	15.41	1,802.85	0.05	1.13	0.55	7.63	1,617.95	11,189.31
Sum (UNG,IT)	0.34	0.34	6.59	1.56	0.14	2.73	0.20	23.10	0.00	0.01	0.01	0.10	20.73	143.39
Sum (VEG)	13.54	12.02	357.04	84.74	7.40	148.08	10.69	1,251.30	0.03	0.78	0.38	5.30	1,122.96	7,766.12
Sum (VEG,SM,EDSD)	598.00	598.00	7,420.71	1,761.14	153.89	3,077.71	222.28	26,006.66	0.68	16.24	7.87	110.11	23,339.31	161,408.88
Sum (WP)	58.00	29.00	1,529.43	362.98	31.72	634.33	45.81	5,360.07	0.14	3.35	1.62	22.69	4,810.32	33,266.96
Total	12,806.13	9,814.02	210,159.45	50,239.53	4,389.86	87,797.23	6,340.91	741,886.61	19.51	463.37	224.37	3,141.19	665,795.67	4,604,477.04

Table D-2. Total loadings with BMP															
Practice Type MDE	Total Area, ac	Drainage Area, ac	BOD (lbs)	TKN (lbs)	Diss P (lbs)	TN (lbs)	TP (lbs)	TSS (lbs)	Cd (lbs)	Cu (lbs)	Pb (lbs)	Zn (lbs)	COD (lbs)	TDS (lbs)	
Sum (BIO)	Bioretention	63.61	54.97	463.09	271.36	23.71	267.87	14.48	4,007.11	0.07	0.35	0.49	2.65	1,456.49	24,869.92
Sum (BIO,EDSD)	Bioretention, Extended Dry Detention Pond	72.30	72.30	71.77	212.93	20.65	74.42	4.03	1,226.27	0.00	0.02	0.01	0.13	225.74	19,514.82
Sum (DP)	Dry Pond	2,471.66	2,071.17	41,258.27	9,709.17	848.37	16,246.24	1,027.49	139,718.51	2.04	81.94	27.51	581.25	129,763.92	889,849.98
Sum (DP,IT)	Dry Pond, Infiltration Trench	8.20	4.20	144.24	51.32	2.19	68.09	3.19	408.47	0.01	0.37	0.11	1.81	453.66	4,703.26
Sum (EDD)	Extended Detention Device	117.52	117.52	1,999.90	632.84	61.38	763.09	63.90	3,644.60	0.11	4.32	1.61	29.28	6,290.00	58,000.08
Sum (EDD,OTH)	Extended Detention Device, Other	38.90	38.90	362.04	114.56	11.11	138.14	11.57	659.78	0.02	0.78	0.29	5.30	1,138.67	10,499.67
Sum (EDSD)	Extended Dry Detention Pond	3,999.87	3,566.32	53,550.68	16,169.41	1,545.90	20,758.62	1,691.40	114,091.16	3.38	115.94	45.63	785.97	168,425.54	1,481,934.05
Sum (EDSD,OGS)	Extended Dry Detention Pond, Oil/Grit Separator	2.44	2.44	48.26	12.06	0.95	14.41	2.33	105.98	0.00	0.12	0.03	0.54	151.77	1,399.51
Sum (EDSD,SM)	Extended Dry Detention Pond, Shallow Marsh	9.70	9.70	65.00	28.57	2.05	21.47	1.33	4.22	0.00	0.11	0.00	0.57	204.43	2,618.17
Sum (EDSD,UGS)	Extended Dry Detention Pond, Underground Structure	2.05	2.05	40.54	12.83	1.24	15.47	1.30	73.89	0.00	0.09	0.03	0.59	127.51	1,175.82
Sum (EDSD,VEG)	Extended Dry Detention Pond, Vegetative Filter	36.00	36.00	35.74	106.02	6.76	1.85	6.16	15.66	0.00	0.22	0.00	0.20	112.40	9,716.92
Sum (EDSW)	Extended Wet Detention Pond	3,055.29	1,893.98	39,594.91	11,301.49	574.55	15,435.68	936.74	83,557.66	3.73	75.61	27.48	402.30	124,532.39	1,035,787.02
Sum (EDSW,SM)	Extended Wet Detention Pond, Shallow Marsh	1,144.80	376.70	16,512.01	4,650.37	278.49	6,502.02	398.41	46,389.08	1.26	32.07	14.03	196.41	51,932.94	426,208.53
Sum (IB)	Infiltration Basin	24.55	24.32	92.40	103.89	9.08	83.08	6.00	323.84	0.01	0.25	0.12	1.69	290.62	9,521.74
Sum (IB,DP)	Infiltration Basin, Dry Pond	32.74	32.74	181.30	204.89	17.90	143.23	6.72	514.36	0.00	0.28	0.01	2.56	570.22	18,778.63
Sum (IT)	Infiltration Trench	350.90	249.58	2,900.76	1,359.85	118.82	1,518.31	89.42	20,080.83	0.36	3.58	3.07	25.50	9,123.35	124,630.50
Sum (IT,OGS)	Infiltration Trench, Oil/Grit Separator	7.04	7.04	63.12	34.81	0.04	33.11	2.28	136.63	0.02	0.31	0.04	0.08	198.52	4,037.92
Sum (IT,OGS,UGS)	Infiltration Trench, Oil/Grit Separator, Underground Structure	0.54	0.54	4.84	2.67	0.00	2.54	0.17	10.48	0.00	0.02	0.00	0.01	15.23	309.73
Sum (ITCE)	Complete Exfiltration	4.01	4.01	33.06	23.07	0.00	23.39	0.00	44.30	0.01	0.14	0.03	0.29	103.97	2,114.78
Sum (ITCE,VEG)	Complete Exfiltration, Vegetative Filter	1.9	1.9	0.37	8.74	0.01	0.15	0.01	1.29	0.00	0.01	0.00	0.01	-38.24	801.31
Sum (ITWQE)	Water Quality Exfiltration	106.95	104.45	555.34	357.26	30.32	397.48	19.65	937.29	0.14	1.75	0.51	3.54	1,746.62	32,743.50
Sum (OGS)	Oil/Grit Separator	73.97	73.74	1,798.32	337.47	22.43	634.35	75.88	6,804.89	0.17	4.37	1.72	22.16	5,656.00	39,115.51
Sum (OGS,UNG)	Oil/Grit Separator, Underground Device	2.82	2.82	44.63	6.14	0.19	12.96	2.43	181.42	0.00	0.12	0.04	0.44	140.36	970.68
Sum (OGS,UGS,VEG)	Oil/Grit Separator, Underground Structure, and Vegetative Filter	2.84	2.84	24.71	14.04	0.34	0.31	2.40	70.86	0.00	0.10	0.02	0.13	77.73	1,628.93
Sum (RTN)	Retention	73.10	73.10	1,060.19	457.48	15.19	543.64	29.45	1,418.66	0.14	1.77	0.55	10.01	3,334.46	41,927.85
Sum (SF)	Sand Filter	49.15	49.15	354.60	255.02	21.61	276.31	13.20	527.22	0.10	1.20	1.14	1.91	1,115.27	23,372.47
Sum (SF,SW)	Sand Filter and Swale	7.95	7.95	1.54	36.58	1.89	0.64	0.32	5.40	0.01	0.00	0.05	0.02	4.85	3,352.84
Sum (SM)	Shallow Marsh	267.31	205.42	3,797.02	1,074.52	72.97	1,502.65	90.81	5,747.69	0.20	7.40	2.48	45.50	11,942.23	98,480.67
Sum (SM,DP)	Shallow Marsh, Dry Pond	62.50	62.50	620.46	184.07	11.42	221.95	8.83	380.53	0.00	0.97	0.01	6.10	1,951.45	16,869.66
Sum (SW)	Swale	14.22	10.69	116.86	62.93	3.75	32.86	5.69	300.92	0.02	0.33	0.12	1.60	367.54	5,767.90
Sum (UNG)	Underground Device	31.42	15.62	514.42	106.22	8.03	193.55	19.32	1,892.11	0.05	1.20	0.51	6.83	1,617.95	11,189.31
Sum (UNG,IT)	Underground Device, Infiltration Trench	0.34	0.34	2.24	1.24	0.00	1.18	0.08	4.85	0.00	0.01	0.00	0.00	7.05	143.39
Sum (VEG)	Vegetative Filter	13.54	12.02	144.68	84.74	4.91	37.66	7.47	351.53	0.02	0.43	0.15	1.96	455.04	7,766.12
Sum (VEG,SM,EDSD)	Vegetative Filter, Shallow Marsh, Extended Dry Detention Pond	598.00	598.00	74.21	1,761.14	67.71	30.78	6.67	260.07	0.01	0.16	0.08	1.10	233.39	161,408.88
Sum (WP)	Wet Pond	58.00	29.00	1,185.31	362.98	21.88	532.84	34.59	3,242.84	0.12	2.38	1.03	15.32	3,728.00	33,266.96
Total		12,806.13	9,814.02	167,716.83	50,112.66	3,805.84	66,530.33	4,583.72	437,140.42	12.00	338.72	128.92	2,153.80	527,457.08	4,604,477.04

Table D-3. Total removal of pollutants by BMP

		Total Area, ac	Drainage Area, ac	BOD (lbs)	TKN (lbs)	Diss P (lbs)	TN (lbs)	TP (lbs)	TSS (lbs)	Cd (lbs)	Cu (lbs)	Pb (lbs)	Zn (lbs)	COD (lbs)	TDS (lbs)
Sum (BIO)	Bioretention	63.61	54.97	680.30	0.00	0.00	206.35	19.77	0.00	0.04	2.16	0.72	14.31	2,139.64	0.00
Sum (BIO,EDSD)	Bioretention, Extended Dry Detention Pond	72.30	72.30	825.41	0.00	-2.05	297.68	22.84	1,918.01	0.08	1.94	0.94	13.18	2,596.05	0.00
Sum (DP)	Dry Pond	2,471.66	2,071.17	-347.80	0.00	0.00	721.24	197.94	3,656.68	1.73	7.61	15.85	25.80	-1,093.88	0.00
Sum (DP,IT)	Dry Pond, Infiltration Trench	8.20	4.20	71.99	0.00	2.30	21.59	3.28	349.33	0.01	0.11	0.12	1.40	226.42	0.00
Sum (EDD)	Extended Detention Device	117.52	117.52	666.63	0.00	-6.08	342.84	15.97	5,700.54	0.13	1.52	1.22	10.29	2,096.67	0.00
Sum (EDD,OTH)	Extended Detention Device, Other	38.90	38.90	120.68	0.00	-1.10	62.06	2.89	1,031.96	0.02	0.27	0.22	1.86	379.56	0.00
Sum (EDSD)	Extended Dry Detention Pond	3,999.87	3,566.32	15,247.24	0.00	-139.12	7,841.44	365.37	130,382.86	3.04	34.71	27.80	235.30	47,955.02	0.00
Sum (EDSD,OGS)	Extended Dry Detention Pond, Oil/Grit Separator	2.44	2.44	16.09	3.21	0.39	12.28	-0.40	119.51	0.00	0.02	0.04	0.41	50.59	0.00
Sum (EDSD,SM)	Extended Dry Detention Pond, Shallow Marsh	9.70	9.70	55.37	0.00	0.45	28.46	2.27	417.63	0.01	0.16	0.13	1.21	174.15	0.00
Sum (EDSD,UGS)	Extended Dry Detention Pond, Underground Structure	2.05	2.05	13.51	0.00	-0.12	6.95	0.32	115.56	0.00	0.03	0.02	0.21	42.50	0.00
Sum (EDSD,VEG)	Extended Dry Detention Pond, Vegetative Filter	36.00	36.00	410.99	0.00	2.50	183.43	7.23	1,549.96	0.04	0.75	0.47	6.43	1,292.64	0.00
Sum (EDSW)	Extended Wet Detention Pond	3,055.29	1,893.98	8,024.96	0.00	412.96	4,314.49	489.66	83,331.33	0.66	28.63	23.00	304.32	25,239.78	0.00
Sum (EDSW,SM)	Extended Wet Detention Pond, Shallow Marsh	1,144.80	376.70	3,082.74	0.00	127.86	1,624.83	188.53	22,282.86	0.55	10.82	6.74	94.35	9,695.73	0.00
Sum (IB)	Infiltration Basin	24.55	24.32	345.35	0.00	0.00	98.47	7.11	1,210.33	0.03	0.71	0.34	4.80	1,086.20	0.00
Sum (IB,DP)	Infiltration Basin, Dry Pond	32.74	32.74	682.04	0.00	0.00	214.84	19.14	2,511.30	0.08	1.61	0.91	10.25	2,145.12	0.00
Sum (IT)	Infiltration Trench	350.90	249.58	2,829.08	0.00	0.00	858.12	82.21	0.00	0.16	8.97	3.00	59.52	8,897.90	0.00
Sum (IT,OGS)	Infiltration Trench, Oil/Grit Separator	7.04	7.04	122.52	9.25	3.81	43.89	3.28	513.98	0.00	0.09	0.16	2.67	385.36	0.00
Sum (IT,OGS,UGS)	Infiltration Trench, Oil/Grit Separator, Underground Structure	0.54	0.54	9.40	0.71	0.29	3.37	0.25	39.42	0.00	0.01	0.01	0.20	29.56	0.00
Sum (ITCE)	Complete Exfiltration	4.01	4.01	64.17	0.00	2.02	16.94	2.91	296.44	0.00	0.07	0.07	1.15	201.82	0.00
Sum (ITCE,VEG)	Complete Exfiltration, Vegetative Filter	1.90	1.90	36.47	0.00	0.76	15.13	1.09	127.82	0.00	0.07	0.04	0.54	154.10	0.00
Sum (ITWQE)	Water Quality Exfiltration	106.95	104.45	950.03	0.00	0.90	226.86	25.44	4,338.43	0.00	1.54	1.08	18.80	2,988.01	0.00
Sum (OGS)	Oil/Grit Separator	73.97	73.74	0.00	89.32	14.87	111.50	-22.01	-502.49	0.00	-0.43	0.19	4.52	0.00	0.00
Sum (OGS,UNG)	Oil/Grit Separator, Underground Device	2.82	2.82	0.00	4.45	0.74	5.55	-1.10	-25.02	0.00	-0.02	0.01	0.23	0.00	0.00
Sum (OGS,UGS,VEG)	Oil/Grit Separator, Underground Structure, and Vegetative Filter	2.84	2.84	50.18	3.73	1.21	30.75	-0.16	191.59	0.00	0.07	0.06	0.98	157.81	0.00
Sum (RTN)	Retention	73.10	73.10	867.43	0.00	24.78	255.83	28.29	5,336.87	0.04	2.45	1.49	18.59	2,728.20	0.00
Sum (SF)	Sand Filter	49.15	49.15	719.94	0.00	0.67	169.35	18.99	3,238.62	0.00	1.15	0.00	14.03	2,264.33	0.00
Sum (SF,SW)	Sand Filter and Swale	7.95	7.95	152.60	0.00	1.31	63.29	4.29	534.82	0.01	0.34	0.11	2.26	479.96	0.00
Sum (SM)	Shallow Marsh	267.31	205.42	730.59	0.00	20.92	375.15	44.81	10,119.80	0.22	2.51	2.32	21.68	2,297.82	0.00
Sum (SM,DP)	Shallow Marsh, Dry Pond	62.50	62.50	155.12	0.00	4.66	99.72	14.40	2,337.56	0.07	0.73	0.81	5.41	487.86	0.00
Sum (SW)	Swale	14.22	10.69	148.32	0.00	1.74	77.12	2.25	628.42	0.01	0.25	0.16	2.33	466.49	0.00
Sum (UNG)	Underground Device	31.42	15.62	0.00	15.87	2.64	19.81	-3.91	-89.26	0.00	-0.08	0.03	0.80	0.00	0.00
Sum (UNG,IT)	Underground Device, Infiltration Trench	0.34	0.34	4.35	0.33	0.14	1.56	0.12	18.25	0.00	0.00	0.01	0.09	13.68	0.00
Sum (VEG)	Vegetative Filter	13.54	12.02	212.36	0.00	2.50	110.43	3.23	899.77	0.01	0.35	0.23	3.34	667.92	0.00
Sum (VEG,SM,EDSD)	Vegetative Filter, Shallow Marsh, Extended Dry Detention Pond	598.00	598.00	7,346.50	0.00	86.18	3,046.93	215.61	25,746.60	0.68	16.08	7.79	109.01	23,105.92	0.00
Sum (WP)	Wet Pond	58.00	29.00	344.12	0.00	9.83	101.49	11.22	2,117.23	0.02	0.97	0.59	7.38	1,082.32	0.00
Total		12,806.13	9,814.02	43,972.05	126.87	584.02	21,266.90	1,757.19	304,746.19	7.51	124.65	95.45	987.39	138,338.60	0.00

Table D-4. Percent removal of pollutants

Practice Type MDE	Total Area, ac	Drainage Area, ac	BOD (%)	COD (%)	TSS (%)	TN (%)	Total Phos (lbs.)	Diss Phos (lbs.)	Cadmium (lbs.)	Copper (lbs.)	Lead (lbs.)	Zinc (lbs.)	Average
Sum (BIO)	63.61	54.97	1.55%	1.55%	0.00%	0.97%	1.13%	0.00%	0.52%	1.73%	0.76%	1.45%	1.0%
Sum (BIO,EDSD)	72.30	72.30	1.88%	1.88%	0.63%	1.40%	1.30%	-0.35%	1.06%	1.56%	0.99%	1.33%	1.2%
Sum (DP)	2,471.66	2,071.17	-0.79%	-0.79%	1.20%	3.39%	11.26%	0.00%	23.05%	6.11%	16.61%	2.61%	6.3%
Sum (DP,IT)	8.20	4.20	0.16%	0.16%	0.11%	0.10%	0.19%	0.39%	0.07%	0.09%	0.12%	0.14%	0.2%
Sum (EDD)	117.52	117.52	1.52%	1.52%	1.87%	1.61%	0.91%	-1.04%	1.77%	1.22%	1.27%	1.04%	1.2%
Sum (EDD,OTH)	38.90	38.90	0.27%	0.27%	0.34%	0.29%	0.16%	-0.19%	0.32%	0.22%	0.23%	0.19%	0.2%
Sum (EDSD)	3,999.87	3,566.32	34.67%	34.66%	42.78%	36.87%	20.79%	-23.82%	40.41%	27.85%	29.12%	23.83%	26.7%
Sum (EDSD,OGS)	2.44	2.44	0.04%	0.04%	0.04%	0.06%	-0.02%	0.07%	0.04%	0.02%	0.04%	0.04%	0.0%
Sum (EDSD,SM)	9.70	9.70	0.13%	0.13%	0.14%	0.13%	0.13%	0.08%	0.15%	0.12%	0.13%	0.12%	0.1%
Sum (EDSD,UGS)	2.05	2.05	0.03%	0.03%	0.04%	0.03%	0.02%	-0.02%	0.04%	0.02%	0.03%	0.02%	0.0%
Sum (EDSD,VEG)	36.00	36.00	0.93%	0.93%	0.51%	0.86%	0.41%	0.43%	0.53%	0.60%	0.49%	0.65%	0.6%
Sum (EDSW)	3,055.29	1,893.98	18.25%	18.24%	27.34%	20.29%	27.87%	70.71%	8.75%	22.96%	24.09%	30.82%	26.9%
Sum (EDSW,SM)	1,144.80	376.70	7.01%	7.01%	7.31%	7.64%	10.73%	21.89%	7.33%	8.68%	7.06%	9.56%	9.4%
Sum (IB)	24.55	24.32	0.79%	0.79%	0.40%	0.46%	0.40%	0.00%	0.40%	0.57%	0.36%	0.49%	0.5%
Sum (IB,DP)	32.74	32.74	1.55%	1.55%	0.82%	1.01%	1.09%	0.00%	1.05%	1.29%	0.95%	1.04%	1.0%
Sum (IT)	350.90	249.58	6.43%	6.43%	0.00%	4.04%	4.68%	0.00%	2.18%	7.19%	3.14%	6.03%	4.0%
Sum (IT,OGS)	7.04	7.04	0.28%	0.28%	0.17%	0.21%	0.19%	0.65%	0.00%	0.07%	0.17%	0.27%	0.2%
Sum (IT,OGS,UGS)	0.54	0.54	0.02%	0.02%	0.01%	0.02%	0.01%	0.05%	0.00%	0.01%	0.01%	0.02%	0.0%
Sum (ITCE)	4.01	4.01	0.15%	0.15%	0.10%	0.08%	0.17%	0.35%	0.00%	0.06%	0.08%	0.12%	0.1%
Sum (ITCE,VEG)	1.90	1.90	0.08%	0.11%	0.04%	0.07%	0.06%	0.13%	0.02%	0.05%	0.04%	0.05%	0.1%
Sum (ITWQE)	106.95	104.45	2.16%	2.16%	1.42%	1.07%	1.45%	0.15%	0.00%	1.24%	1.13%	1.90%	1.3%
Sum (OGS)	73.97	73.74	0.00%	0.00%	-0.16%	0.52%	-1.25%	2.55%	0.00%	-0.35%	0.20%	0.46%	0.2%
Sum (OGS,UNG)	2.82	2.82	0.00%	0.00%	-0.01%	0.03%	-0.06%	0.13%	0.00%	-0.02%	0.01%	0.02%	0.0%
Sum (OGS,UGS,VEG)	2.84	2.84	0.11%	0.11%	0.06%	0.14%	-0.01%	0.21%	0.04%	0.05%	0.06%	0.10%	0.1%
Sum (RTN)	73.10	73.10	1.97%	1.97%	1.75%	1.20%	1.61%	4.24%	0.57%	1.96%	1.56%	1.88%	1.9%
Sum (SF)	49.15	49.15	1.64%	1.64%	1.06%	0.80%	1.08%	0.11%	0.00%	0.92%	0.00%	1.42%	0.9%
Sum (SF,SW)	7.95	7.95	0.35%	0.35%	0.18%	0.30%	0.24%	0.22%	0.08%	0.27%	0.11%	0.23%	0.2%
Sum (SM)	267.31	205.42	1.66%	1.66%	3.32%	1.76%	2.55%	3.58%	2.95%	2.02%	2.43%	2.20%	2.4%
Sum (SM,DP)	62.50	62.50	0.35%	0.35%	0.77%	0.47%	0.82%	0.80%	0.94%	0.59%	0.85%	0.55%	0.6%
Sum (SW)	14.22	10.69	0.34%	0.34%	0.21%	0.36%	0.13%	0.30%	0.11%	0.20%	0.16%	0.24%	0.2%
Sum (UNG)	31.42	15.62	0.00%	0.00%	-0.03%	0.09%	-0.22%	0.45%	0.00%	-0.06%	0.04%	0.08%	0.0%
Sum (UNG,IT)	0.34	0.34	0.01%	0.01%	0.01%	0.01%	0.01%	0.02%	0.00%	0.00%	0.01%	0.01%	0.0%
Sum (VEG)	13.54	12.02	0.48%	0.48%	0.30%	0.52%	0.18%	0.43%	0.16%	0.28%	0.24%	0.34%	0.3%
Sum (VEG,SM,EDSD)	598.00	598.00	16.71%	16.70%	8.45%	14.33%	12.27%	14.76%	9.01%	12.90%	8.16%	11.04%	12.4%
Sum (WP)	58.00	29.00	0.78%	0.78%	0.69%	0.48%	0.64%	1.68%	0.23%	0.78%	0.62%	0.75%	0.7%
Total	12,806.13	9,814.02	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100.0%

Table D-5. Amount of pollutants removed (pounds per acre)

Practice Type MDE	Total Area, ac	Drainage Area, ac	L (BOD) lbs.	L (TKN) lbs.	L (DISS PHOS) lbs.	L (TN) lbs.	L (PHOS_T) lbs.	L (TSS) lbs.	L (CAD_TOT) lbs.	L (COP_TOT) lbs.	L (LEAD_TOT) lbs.	L (ZINC_TOT) lbs.	L (COD) lbs.	L (TDS) lbs.
Sum (BIO)	63.61	54.97	12.38	0.00	0.00	3.75	0.36	0.00	0.00072	0.039	0.013	0.26	38.92	0.00
Sum (BIO, EDSO)	72.30	72.30	11.42	0.00	-0.03	4.12	0.32	26.53	0.00110	0.027	0.013	0.18	35.91	0.00
Sum (DP)	2,471.66	2,071.17	-0.17	0.00	0.00	0.35	0.10	1.77	0.00084	0.004	0.008	0.01	-0.53	0.00
Sum (DP,IT)	8.20	4.20	17.14	0.00	0.55	5.14	0.78	83.17	0.00131	0.025	0.028	0.33	53.91	0.00
Sum (EDD)	117.52	117.52	5.67	0.00	-0.05	2.92	0.14	48.51	0.00113	0.013	0.010	0.09	17.84	0.00
Sum (EDD,OTH)	38.90	38.90	3.10	0.00	-0.03	1.60	0.07	26.53	0.00062	0.007	0.006	0.05	9.76	0.00
Sum (EDSD)	3,999.87	3,566.32	4.28	0.00	-0.04	2.20	0.10	36.56	0.00085	0.010	0.008	0.07	13.45	0.00
Sum (EDSD,OGS)	2.44	2.44	6.59	1.31	0.16	5.03	-0.17	48.98	0.00131	0.009	0.015	0.17	20.73	0.00
Sum (EDSD,SM)	9.70	9.70	5.71	0.00	0.05	2.93	0.23	43.05	0.00113	0.016	0.013	0.13	17.95	0.00
Sum (EDSD,UGS)	2.05	2.05	6.59	0.00	-0.06	3.39	0.16	56.37	0.00131	0.015	0.012	0.10	20.73	0.00
Sum (EDSD,VEG)	36.00	36.00	11.42	0.00	0.07	5.10	0.20	43.05	0.00110	0.021	0.013	0.18	35.91	0.00
Sum (EDSW)	3,055.29	1,893.98	4.24	0.00	0.22	2.28	0.26	44.00	0.00035	0.015	0.012	0.16	13.33	0.00
Sum (EDSW,SM)	1,144.80	376.70	8.18	0.00	0.34	4.31	0.50	59.15	0.00146	0.029	0.018	0.25	25.74	0.00
Sum (IB)	24.55	24.32	14.20	0.00	0.00	4.05	0.29	49.77	0.00123	0.029	0.014	0.20	44.66	0.00
Sum (IB,DP)	32.74	32.74	20.83	0.00	0.00	6.56	0.58	76.70	0.00241	0.049	0.028	0.31	65.52	0.00
Sum (IT)	350.90	249.58	11.34	0.00	0.00	3.44	0.33	0.00	0.00065	0.036	0.012	0.24	35.65	0.00
Sum (IT,OGS)	7.04	7.04	17.40	1.31	0.54	6.23	0.47	73.01	0.00000	0.013	0.023	0.38	54.74	0.00
Sum (IT,OGS,UGS)	0.54	0.54	17.40	1.31	0.54	6.23	0.47	73.01	0.00000	0.013	0.023	0.38	54.74	0.00
Sum (ITCE)	4.01	4.01	16.00	0.00	0.50	4.22	0.73	73.93	0.00000	0.018	0.018	0.29	50.33	0.00
Sum (ITCE,VEG)	1.90	1.90	19.20	0.00	0.40	7.96	0.57	67.27	0.00075	0.036	0.020	0.28	81.11	0.00
Sum (ITWQE)	106.95	104.45	9.10	0.00	0.01	2.17	0.24	41.54	0.00000	0.015	0.010	0.18	28.61	0.00
Sum (OGS)	73.97	73.74	0.00	1.21	0.20	1.51	-0.30	-6.81	0.00000	-0.006	0.003	0.06	0.00	0.00
Sum (OGS,UNG)	2.82	2.82	0.00	1.58	0.26	1.97	-0.39	-8.87	0.00000	-0.008	0.003	0.08	0.00	0.00
Sum (OGS,UGS,VEG)	2.84	2.84	17.67	1.31	0.43	10.83	-0.06	67.46	0.00102	0.023	0.022	0.34	55.57	0.00
Sum (RTN)	73.10	73.10	11.87	0.00	0.34	3.50	0.39	73.01	0.00058	0.033	0.020	0.25	37.32	0.00
Sum (SF)	49.15	49.15	14.65	0.00	0.01	3.45	0.39	65.89	0.00000	0.023	0.000	0.29	46.07	0.00
Sum (SF,SW)	7.95	7.95	19.20	0.00	0.16	7.96	0.54	67.27	0.00075	0.042	0.014	0.28	60.37	0.00
Sum (SM)	267.31	205.42	3.56	0.00	0.10	1.83	0.22	49.26	0.00108	0.012	0.011	0.11	11.19	0.00
Sum (SM,DP)	62.50	62.50	2.48	0.00	0.07	1.60	0.23	37.40	0.00113	0.012	0.013	0.09	7.81	0.00
Sum (SW)	14.22	10.69	13.87	0.00	0.16	7.21	0.21	58.79	0.00080	0.023	0.015	0.22	43.64	0.00
Sum (UNG)	31.42	15.62	0.00	1.02	0.17	1.27	-0.25	-5.71	0.00000	-0.005	0.002	0.05	0.00	0.00
Sum (UNG,IT)	0.34	0.34	12.80	0.97	0.40	4.58	0.34	53.68	0.00000	0.010	0.017	0.28	40.25	0.00
Sum (VEG)	13.54	12.02	17.67	0.00	0.21	9.19	0.27	74.86	0.00102	0.029	0.019	0.28	55.57	0.00
Sum (VEG,SM,EDSD)	598.00	598.00	12.29	0.00	0.14	5.10	0.36	43.05	0.00113	0.027	0.013	0.18	38.64	0.00
Sum (WP)	58.00	29.00	11.87	0.00	0.34	3.50	0.39	73.01	0.00058	0.033	0.020	0.25	37.32	0.00
Total	12,806.13	9,814.02	354.25	10.03	6.22	144.55	8.94	1,566.67	0.03	0.68	0.48	6.91	1,134.90	0.00



**APPENDIX E**  
**METHODS FOR ESTIMATING POLLUTANT LOADING**  
**IN PETER PAN RUN**



## Methods for Estimating Pollutant Loading in Peter Pan Run

Calculation factors used to estimate pollutant loadings at Peter Pan Run and at Pond R Outfall were determined as follows:

- × Flow rate data (in cfs) used for loading determination were measured from October 1, 2006 to September 30, 2007, by an ISCO flowmeter. Stormflow and baseflow were separated by noting where the hydrograph increased due to rain and then decreased back down to a base level. Stormflows are considered flows that occurred during periods of elevated level due to rain. Baseflows are the flows measured at all other times. The average stormflow and baseflow were calculated for each month. Those averages were averaged together to obtain a stormflow average and baseflow average for the period of record. The proportion of discharge characterized as baseflow and stormflow are given in Table E-1. Note: the calculated number of days of baseflow also includes time periods where no flow (*i.e.*, zero flow rate) was recorded at Pond R.

Table E-1. Proportion of discharge characterized as baseflow and stormflow at both Peter Pan Run stations.						
Location	Percent Baseflow	Percent Stormflow	Days Baseflow	Days Stormflow	Volume Baseflow (acre ft)	Volume Stormflow (acre ft)
Outfall	67	33	245	120	3	11
Instream	75	25	275	90	919	1,282

- × With the total volume of water calculated, and the concentrations given, the total pollutant loads were calculated.
- × Some pollutant concentrations were below the detection limit for the method used to analyze the pollutant in the sample. In these cases a range of values are offered. The lower value was calculated assuming the pollutant concentration was zero. The higher value was calculated assuming the pollutant concentration was the concentration of the detection limit.

