

Result report StormTac Web

In this result report input and output data are compiled from simulation with StormTac Web.

1. Runoff

1.1 Input data

Runoff areas

Volume runoff coefficient ϕ_v and area per land use (ha).

Land use	ϕ_v	ϕ	A1 befintligt med dike	A2 Framtida med makadamdike	A3 framtida. obehandlat	A4 befintligt, obehandlat	A5 framtida med gräsdike	Tot
Road 1	0.80	0.85	0.11	0.082	0.081	0.061	0.072	0.41
Road 4	0.80	0.85	0.25	0.22	0.066	0.15	0.16	0.85
Mixed green area	0.12	0.10	0.28	0.10	0.20	0.33	0.20	1.1
Parking	0.80	0.85	0	0.021	0.22	0.24	0	0.48
Roof	0.90	0.90	0	0	0.14	0.14	0	0.28
Total	0.57	0.59	0.64	0.42	0.71	0.93	0.43	3.1
Reduced watershed area (ha_{red})			0.32	0.27	0.44	0.53	0.21	1.8
Reduced design area (ha_{red})			0.34	0.29	0.46	0.55	0.22	1.8

Other design input data

		A1 befintligt med dike	A2 Framtida med makadamdike	A3 framtida. obehandlat	A4 befintligt, obehandlat	A5 framtida med gräsdike
Return time	years	10.0	10.0	10.0	10.0	10.0
Climate factor	f_c	1.00	1.00	1.00	1.00	1.00
Transport distance	m	700	700	700	700	700
Water velocity	m/s	1.0	1.0	1.0	1.0	1.0
Design rain duration	min	12	12	12	12	12

1.2 Output data

Flows

		A1 befintligt med dike	A2 Framtida med makadamdike	A3 framtida. obehandlat	A4 befintligt, obehandlat	A5 framtida med gräsdike	Tot
Tot. runoff annual average (base flow + runoff flow)	m ³ /year	2300	1800	3000	3700	1500	12000
Tot. runoff annual average (base flow + runoff flow)	l/s	0.072	0.058	0.096	0.12	0.048	
Average runoff	l/s	0.98	0.82	1.3	1.6	0.64	
Design flow	l/s	70	60	96	110	46	

Design flow total **360** l/s at Design rain duration **10** min

This summed flow is based on the Rational method where subflows per duration are summed for different areas (same flows as shown in the Design Flow table)

and the value does not apply if the function for Runoff from natural grounds has been used (specified in the box Design Flow).

2. Pollutant transport

2.1 Output data

Pollutant loads (stormwater + base flow) without treatment

Pollutant loads (kg/year).

#	Comment	P	N	Pb	Cu	Zn	Cd	Cr	Ni	SS	BaP
A1	befintligt med dike	0.26	3.5	0.017	0.042	0.13	0.00084	0.030	0.017	140	0.00015
A2	Framtida med makadamdike	0.22	2.9	0.016	0.038	0.12	0.00072	0.026	0.015	120	0.00013
A3	framtida. obehandlat	0.32	4.6	0.032	0.077	0.26	0.0013	0.037	0.017	230	0.00013
A4	befintligt, obehandlat	0.40	5.6	0.038	0.091	0.31	0.0016	0.045	0.021	270	0.00017
A5	framtida med gräsdike	0.17	2.3	0.011	0.027	0.083	0.00055	0.019	0.011	89	0.000096
	Total	1.4	19	0.11	0.28	0.90	0.0050	0.16	0.080	840	0.00067

Pollutant loads (kg/ha/year) (stormwater + base flow) without treatment

P	N	Pb	Cu	Zn	Cd	Cr	Ni	SS	BaP
kg/ha/year	kg/ha/year	kg/ha/year	kg/ha/year	kg/ha/year	kg/ha/year	kg/ha/year	kg/ha/year	kg/ha/year	kg/ha/year
0.44	6.0	0.037	0.088	0.29	0.0016	0.050	0.025	270	0.00021

Pollutant concentrations (µg/l) (stormwater + base flow) without treatment

Comparison against target value where the greyed/bold cells show exceeding target value. Total fractions are referred to where nothing else is stated.

#	Comment	P	N	Pb	Cu	Zn	Cd	Cr	Ni	SS	BaP
A1	befintligt med dike	110	1500	7.5	18	56	0.37	13	7.4	59000	0.065
A2	Framtida med makadamdike	120	1600	8.7	21	65	0.39	14	8.0	67000	0.071
A3	framtida. obehandlat	110	1500	11	26	86	0.44	12	5.5	75000	0.042
A4	befintligt, obehandlat	110	1500	11	25	85	0.43	12	5.7	74000	0.046
A5	framtida med gräsdike	110	1500	7.4	18	55	0.36	13	7.3	59000	0.064
	Total	110	1500	9.3	22	73	0.41	13	6.5	69000	0.054
Criteria		160	2000	8.0	18	75	0.40	10	15	40000	0.030

3. Transport and flow detention

3.1 Input data

Flow detention

		A1	A2	A3	A4	A5
Maximum outflow	Q_{out}	190	190	200	200	190
Climate factor	f_c	1.00	1.00	1.00	1.00	1.00

3.2 Output data

Flow detention

		A1	A2	A3	A4	A5
Required flow detention volume	$V_{d,max}$	0	0	0	0	0

4. Pollutant reduction

4.2 Output data

Reduction efficiencies (%)

#	Comment	P	N	Pb	Cu	Zn	Cd	Cr	Ni	SS	BaP
A1	befintligt med dike	27	34	47	35	64	40	51	56	71	27
A2	Framtida med makadamdike	70	65	91	82	91	82	90	81	95	80
A3	framtida. obehandlat	0	0	0	0	0	0	0	0	0	0
A4	befintligt, obehandlat	0	0	0	0	0	0	0	0	0	0
A5	framtida med gräsdike	27	33	46	35	63	40	50	56	70	26

Reduced load (kg/year) (stormwater + base flow) after treatment

#	Comment	P	N	Pb	Cu	Zn	Cd	Cr	Ni	SS	BaP
A1	befintligt med dike	0.070	1.2	0.0080	0.015	0.082	0.00033	0.015	0.0095	96	0.000039
A2	Framtida med makadamdike	0.15	1.9	0.014	0.031	0.11	0.00059	0.024	0.012	120	0.00010
A3	framtida. obehandlat	0	0	0	0	0	0	0	0	0	0
A4	befintligt, obehandlat	0	0	0	0	0	0	0	0	0	0
A5	framtida med gräsdike	0.046	0.76	0.0052	0.0096	0.052	0.00022	0.0098	0.0061	62	0.000025
	Total	0.27	3.8	0.028	0.056	0.24	0.0011	0.049	0.027	280	0.00017

Total load kg/year after treatment

#	Comment	P	N	Pb	Cu	Zn	Cd	Cr	Ni	SS	BaP
A1	befintligt med dike	0.19	2.3	0.0091	0.027	0.045	0.00050	0.015	0.0073	39	0.00011
A2	Framtida med makadamdike	0.065	1.0	0.0014	0.0068	0.011	0.00013	0.0026	0.0027	6.2	0.000026
A3	framtida. obehandlat	0.32	4.6	0.032	0.077	0.26	0.0013	0.037	0.017	230	0.00013
A4	befintligt, obehandlat	0.40	5.6	0.038	0.091	0.31	0.0016	0.045	0.021	270	0.00017
A5	framtida med gräsdike	0.12	1.5	0.0060	0.018	0.031	0.00033	0.0097	0.0049	26	0.000071
	Total	1.1	15	0.087	0.22	0.66	0.0039	0.11	0.053	570	0.00050

Total load kg/ha/year after treatment

#	Comment	P	N	Pb	Cu	Zn	Cd	Cr	Ni	SS	BaP
A1	befintligt med dike	0.29	3.6	0.014	0.042	0.071	0.00078	0.023	0.011	61	0.00017
A2	Framtida med makadamdike	0.15	2.4	0.0034	0.016	0.025	0.00031	0.0062	0.0065	15	0.000061
A3	framtida. obehandlat	0.46	6.5	0.045	0.11	0.36	0.0019	0.052	0.024	320	0.00018
A4	befintligt, obehandlat	0.43	6.0	0.041	0.098	0.33	0.0017	0.048	0.022	290	0.00018
A5	framtida med gräsdike	0.28	3.5	0.014	0.041	0.071	0.00076	0.022	0.011	61	0.00016

Total concentration µg/l after treatment

#	Comment	P	N	Pb	Cu	Zn	Cd	Cr	Ni	SS	BaP
A1	befintligt med dike	82	1000	4.0	12	20	0.22	6.4	3.2	17000	0.047
A2	Framtida med makadamdike	36	560	0.78	3.7	5.9	0.072	1.4	1.5	3400	0.014
A3	framtida. obehandlat	110	1500	11	26	86	0.44	12	5.5	75000	0.042
A4	befintligt, obehandlat	110	1500	11	25	85	0.43	12	5.7	74000	0.046
A5	framtida med gräsdike	82	1000	4.0	12	20	0.22	6.4	3.2	18000	0.047
	Total	90	1200	7.1	18	53	0.31	8.9	4.3	46000	0.041
Criteria		160	2000	8.0	18	75	0.40	10	15	40000	0.030

Export output to Qgis. The file that is created is in CSV format (comma separated) and has been tested with Qgis but can work in similar software.

(You can also load the file as data -> From text/CSV in Excel).

Export: Total load kg/year after treatment

Export: Total load kg/ha/year after treatment

Export: Total concentration $\mu\text{g/l}$ after treatment

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