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4 November 2010

Ref:
File:

Glenn Colquhoun
Development Director - Shell Cove
Australand Corporation (NSW) Pty Ltd
Address

Dear Glenn,

RESPONSES TO DEPARTMENT OF PLANNING AND COUNCIL COMMENTS ON THE BOAT HARBOUR PRECINCT ENVIRONMENTAL ASSESSMENT

1 INTRODUCTION

This letter has been prepared to provide responses to issues raised by the New South Wales Department of Planning (*DoP*) and Shellharbour City Council (*Council*) regarding the Environmental Assessment (*EA*) submitted for the Shell Cove Boat Harbour Precinct.

The EA was submitted by LFA on behalf of Australand in March 2010. Issues addressed within this letter can be referenced within correspondence received from the DoP and Council dated 4 June 2010 and 23 April 2010 respectively. This letter will address comments made in the aforementioned correspondence regarding flooding and water cycle management.

2 FLOODING

Both DoP and Council have commented on the flooding component of the EA. Flooding comments relate to, viz:

- Flood Planning Levels and Climate Change;
- additional flood mapping information;
- Council's Floodplain Risk Management DCP and flood risk; and
- clarification of 1-Dimensional and 2-Dimensional modelling.

Responses addressing the issues raised by the DoP and Council are addressed under the following sub-headings.

2.1 Department of Planning Comments

The DoP engaged an external consultant to provide specialist advice on the hydrological and some geo-technical aspects of the EA. The DoP consolidated these comments into a list of key

issues provided in correspondence dated 4 June 2010. The key issues are stated and addressed individually under the following sub-headings.

2.1.1 Provide a full explanation of the Flood Planning Level. It would be more prudent to use 0.9m in accordance with the *Draft NSW Coastal Planning Guideline Adapting to Sea Level Rise*

The EA documents the evolution of flood modelling within the Boat Harbour Precinct. At the time of preparing the Boat Harbour Precinct flood model, sea level rise was addressed by the 2007 Department of Environment and Climate Change publication, '*Practical Considerations of Climate Change*'. This document provided low, medium and high climate change scenarios.

The EA adopted the medium range scenario to incorporate the impacts of climate change into the Flood Planning Level and additionally assessed the sensitivity of the high climate change scenario coupled with an increase in rainfall intensity of 30%.

Since the submission of the EA, the NSW DoP has issued the '*NSW Coastal Planning Guideline Adapting Sea Level Rise, August 2010*'. This guideline recommends that a year 2100 sea level rise of 0.90 m should be incorporated into Flood Planning Levels. Accordingly, the Boat Harbour Precinct will adopt this recommendation into Flood Planning Levels adjacent to Boat Harbour and the major overland flow paths identified in the EA submission.

In summary, the revised Flood Planning Level for areas adjacent to the Boat Harbour and major overland flow paths will be based upon:

- the 100 year ARI flood level plus 0.90 m sea level rise (*for the year 2100*) plus 0.50 m (*to comply with Council's freeboard requirement*).

2.1.2 Provide a map showing the FPL (refer to Figure 5 of *Draft NSW Coastal Planning Guideline Adapting to Sea Level Rise*)

The Boat Harbour Precinct will adopt a Flood Planning Level equivalent to the 100 year Average Recurrence Interval (*ARI*) peak water surface level with an additional 0.90 m (*provided for the year 2100 sea level rise prediction*) and a further 0.50 m freeboard (*in accordance with Council guidelines*).

The preparation of a FPL map in accordance with Figure 5 of the *NSW Coastal Planning Guideline Adapting to Sea Level Rise* is proposed to be undertaken with the subsequent project applications when more detailed definition of final design levels is available. This will include localised flood modelling for each stage of the Boat Harbour Precinct to demonstrate compliance with the *NSW Coastal Planning Guideline Adapting to Sea Level Rise*.

2.1.3 The mitigation measures identified to reduce impacts on flood levels in the vicinity of Ron Costello Oval should be covered in the Statement of Commitments

There are some minor increases and decreases in flood levels within Shellharbour Village for the 100 year ARI event. A decrease in the range of 0.01m to 0.05m is predicted along the northern boundary of the site and part of Boollwarroo Parade. The maximum increase is predicted to be 0.02m to 0.03m to the north of Ron Costello Oval. These increases are not significant; consequently mitigation measures are not proposed because:

- The predicted minor increases are localised to a small area and unlikely to have any significant or measurable impact;
- The increase is negligible in the context of sea level rise impacts of up to 0.9m; and
- The overall result is positive with most effected properties within Shellharbour Village benefiting from a minor reduction in flood levels in the 100 year ARI event and a significant reduction in the PMF event.

2.2 Shellharbour City Council Comments

The DoP has provided the responses to the Boat Harbour Precinct for both public and agency submissions in a letter dated 23 April 2010. Within this letter, Council provides a series of comments about flooding assessment contained within the EA. Responses to Council's comments are provided below under the relevant sub-headings.

2.2.1 Council's Flood Policy

The Boat Harbour Precinct has been prepared with due consideration of flood risk, as required by Council's Flood Plain Risk Management Development Control Plan (and the NSW Flood Plain Development Manual, 2005).

The external consultant engaged by DoP to provide specialist advice has commented that Appendix F of the EA provides a comprehensive assessment of flood risk and compliance is satisfactorily demonstrated with the NSW Flood Plain Development Manual and Council's Flood Plain Risk Management DCP.

Flood risk will be assessed in all future project plan applications for consistency with the concept plan and compliance against the NSW FDM, 2005 and Council's FRM DCP.

2.2.2 1-Dimensional and 2-Dimensional flood modelling techniques

Flood modelling was undertaken by Cardno Lawson Treloar using SOBEK modelling software.

SOBEK utilises both 1-Dimensional and 2-Dimensional modelling techniques. Flow within dedicated water courses (*i.e., creeks, culverts, channels, etc*) are modelled as 1-Dimensional until such a time when the bank of the water course is overtopped. Flood behaviour beyond the banks is modelled as 2-Dimensional. The flooding extents documented within **Appendix F** of the EA are 2-Dimensional.

2.2.3 Climate Change

As outlined in **Section 2.1.1** the incorporation of sea level rise for the Boat Harbour Precinct will adopt a year 2100 sea level rise of 0.90 m. This is in accordance with the recommendations made in the *NSW Coastal Planning Guideline Adapting to Sea Level Rise, August 2010*.

The impacts of climate change have been considered for the 5 year and 100 year ARI and PMF event. The 100 year ARI flood is the basis for flood planning. The impact of 0.9m sea level rise on the 5 year and 100 year ARI and PMF storm events will be undertaken during detailed design phases of the Boat Harbour Precinct.

3 WATER CYCLE MANAGEMENT

Both DoP and Council have commented on the above report as part of their respective responses to the Boat Habour Precinct EA. Comments relate to, viz:

- how proposed Water Sensitive Urban Design (*WSUD*) measures will meet reduction targets;
- clarification of the extent of pollutant reductions from the pre-development and post-development condition;
- efficiency and hydraulic residence time of constructed wetlands;
- compliance with pollutant reduction targets for all stages of the development; and
- details of stormwater quality modelling provided.

While responses to the detailed issues raised are set out below, it is important to acknowledge that the detailed stormwater quality management processes, including the stormwater treatment train system, have formed an integral part of the detailed stormwater quality assessments that have resulted in Ministerial consents including:

- Determination of Development Application No. 95/133 (26 November 1996); and
- Notice of Modification to Development Consent (6 September 2004).

The objective of the adopted stormwater management strategies has been to match the pre-development pollutant concentrations at the Shellharbour Swamp / Tasman Sea confluence.

Accordingly, part of the defined stormwater quality control treatment train has already been implemented with approximately 36% of the total wetland area already in place. A further 38% is planned to be constructed in association with the development of Shell Cove Stages 9 and 10, which lay outside the Boat Harbour Precinct. The balance of the wetlands (*i.e., 26%*) will be located within the Boat Harbour Precinct.

3.1 Department of Planning Comments

The DoP engaged an external consultant to provide specialist advice on the hydrological and some geo-technical aspects of the EA. The DoP consolidated these comments into a list of key issues provided in correspondence dated 4 June 2010. The key issues are stated and addressed individually under the following sub-headings.

3.1.1 Clarify how you are proposing to link the various water treatment measures and demonstrate how the measures will meet the reduction targets of TSS 85%, TP 45% and TN 45% for annual pollutant loads

It is important to note that the Stormwater Quality Management Strategy considered the Department of Environment and Conservation (*DEC*) guidelines as presented in '*Managing Urban Stormwater: Council Handbook*', Environmental Protection Authority (1996). This document states the following reduction targets:

- 80% reduction in average annual loads for Total Suspended Solids;

- 45% reduction in average annual loads for Total Phosphorus; and
- 45% reduction in average annual loads for Total Nitrogen.

The stormwater quality modelling tool MUSIC was used to estimate the average annual pollutant loads generated by the proposed development and to determine the efficiency of the proposed WSUD measures.

The Boat Harbour Precinct will include a suite of WSUD measures, including rainwater tanks, bio-retention swales, bio-retention basins, gross pollutant traps and constructed wetlands. The Stormwater Quality Management Strategy proposes arrangement of these measures in a strategic fashion throughout the development to utilise a "*treatment train*" approach to stormwater quality improvement. Rainwater tanks will be provided on each residential lot and other measures will be incorporated into the Boat Harbour Precinct in accordance with **Figure 2** of **Sub-Appendix B** of **Appendix B** of the EA.

A site grading plan has been developed for the Boat Harbour Precinct that considers the requirement to drain stormwater runoff to the Harbour via the proposed WSUD measures. The proposed drainage network and WSUD "*treatment train*" result in the following average annual reductions in pollutant loads:

- Total Suspended Solids 82%;
- Total Phosphorus 57%; and
- Total Nitrogen 47%.

3.1.2 Clarification is required on Table 3.1 and 3.2 (page 22 of main Appendix B). The reduction percentages in Table 3.2 do not appear to match with the pollutant load removal values in Table 3.1

The Stormwater Quality Management Strategy had been prepared to demonstrate that the Boat Harbour Precinct development does not discharge increased volumes of Total Suspended Solids, Total Phosphorus and Total Nitrogen at Shellharbour South Beach than in the existing scenario. Additionally, the Stormwater Quality Management Strategy satisfies the DEC guidelines.

The existing (*i.e., pre-development*) pollutant concentrations were subject to thorough investigation and modelling works. **Section 3** of **Sub-Appendix B** of **Appendix B** of the EA details the measures that were taken to verify the existing Event Mean Concentrations for the pre-development catchment. The efficiency of Shellharbour Swamp was included when estimating the existing stormwater pollutants being discharged at Shellharbour South Beach. Extensive documentation has been prepared on the derivation of existing stormwater pollutant loads, such documentation includes:

- '*Shell Cove Boat Harbour Precinct Stormwater Quality Management Strategy*', WorleyParsons, September 2009;
- '*Shell Cove Stormwater Quality Management Issue No. 1*', Patterson Britton and Partners, 2005;
- '*Shell Cove Master Plan Review, final report on water management*', GHD, 1999; and

- '*Shell Cove Commission of Inquiry, Report on Stormwater Issues for Submission in Reply*', GHD, 1996.

By way of clarification **Table 1** below nominates the average annual pollutant loads arriving at Shellharbour South Beach for the existing, the developed (untreated) and developed (treated). The percentage reductions between the existing and developed (treated); and between developed (untreated) and developed (treated) are shown in **Table 2**.

Table 1 Average Annual Pollutant Loads – Shellharbour South Beach

Location	Average Annual Pollutant Load (kg/year)								
	Suspended Solids			Total Phosphorus			Total Nitrogen		
	Existing	Developed (untreated)	Developed (treated)	Existing	Developed (untreated)	Developed (treated)	Existing	Developed (untreated)	Developed (treated)
Shellharbour South Beach	70,700	262,000	46,700	202	429	185	1,840	3,290	1,750

Table 2 Pollutant Reductions at Shellharbour South Beach

Existing	and Developed (treated)	Developed (untreated) and Developed (treated)
Suspended Solids	34%	82%
Total Phosphorus	8%	57%
Total Nitrogen	5%	47%

3.1.3 Consideration of additional aspects

The DoP has identified a series of items that should be considered. These items are nominated and responded to under the following sub-headings.

3.1.3.1 Construction impacts on water quality for different stages of the development

It is proposed to stage the construction of the Boat Harbour Precinct. The nature of the staging plan will require the bulk of stormwater infrastructure to be built during the early stages of the development. Thus, it is likely that the stormwater quality will exceed the anticipated performance up until the construction of the Boat Harbour Precinct is finalised.

Supporting documentation for the interim scenarios (*i.e., each stage*) will also address Sediment and Erosion Control in accordance with Council's requirements and the "*Blue Book*".

3.1.3.2 Impact of major flood events on the proposed systems

The majority of WSUD mechanisms within the Boat Harbour Precinct are "on-line". That is, they coincide with designated overland flow paths. Thus, WSUD mechanisms will need to be designed to accommodate storm events up to the 100 year ARI event. This can be readily achieved by:

- appropriate design of inlet structures;
- appropriate design of outlet structures;

- provision of adequate deep water zones to limit damage to macrophytes within the constructed wetlands;

3.1.3.3 Whether on-site detention is proposed

Given the downstream location of the Boat Harbour Precinct catchment (*i.e., immediately adjacent to the ocean*) there is no requirement to preserve existing downstream flow regimes or infrastructure. Thus, on-site detention is not proposed. However, the flooding extents documented within the EA include existing on-site detention upslope of the Boat Harbour Precinct.

3.1.3.4.1 Impacts of seepage of flows from stormwater treatment devices and the impact on local ground water quality

The proposed WSUD features do not intercept the proposed ground water table for the Boat Harbour Precinct. Thus, the stormwater treatment devices are expected to have no significant impact on ground water quality.

3.1.3.5.1 A water quality monitoring program during and post construction to ensure the proposed treatment rates will be met

A water quality monitoring program has previously been undertaken on Wetland #1 to assess urban pollutant loads and wetland treatment efficiency for a typical residential catchment. This monitoring confirms the conservative basis of the treatment train proposed in the EA. An ongoing water quality monitoring program is required under the Boat Harbour Consent. No further post construction monitoring is proposed.

3.1.4 The MUSIC predictions are less than the EPA curves which indicates that the wetlands are not sufficient enough. Table 5.6 (page 18 of sub Appendix B) presents MUSIC predictions for the pollutant reductions for the wetlands for the TSS, TP and TN parameters. From a comparison of the MUSIC predictions versus the EPA curves it appears that many of the wetlands are not meeting EPA curves. Clarify this issue

The topography of the Boat Harbour Precinct has provided a number of constraints that control the placement of wetlands. Whilst individual constructed wetlands may not, when viewed in isolation meet the performance of the EPA curves, they form a necessary component of the overall treatment train which achieves the required pollutant reduction targets.

3.1.5 Some of the wetland properties are not consistent e.g. wetland no. 1 is not the largest wetland and it does not have the greatest volume yet its hydraulic residence time specified in Table 5.9 is between 3-7 times larger than other wetlands. Provide an explanation of how hydraulic residence times were estimated in sub-Appendix B Table 5.9

The hydraulic residence times nominated in Table 5.9 of **Sub-Appendix B** of **Appendix B** of the EA were approximated based upon the permanent pool volume within each wetland and based upon the mean daily runoff into the corresponding constructed wetland. **Table 3** below summarises the hydraulic residence times for each of the constructed wetlands.

Table 3 Constructed Wetlands Hydraulic Residence Times

Wetland Estimated Hydraulic Residence Time (days)	Permanent Pool Volume (m^3)	Average Annual Runoff (ML/year)
1 19	5955	113
1a 6	1655	94
2 1	514	168
2b 2	925	168
3a 2	3430	503
3b 3	3570	497
5 5	8000	648
6a 1	1750	742
6b 2	3220	739
7 12	3500	103

The hydraulic residence times nominated above in **Table 3** have not been used to estimate the efficiency of a constructed wetland in removing stormwater pollutants. MUSIC utilises accepted algorithms to estimate the hydraulic residence time and performance of a constructed wetland based upon surface area, permanent pool volume, outlet characteristics and extended detention depth.

3.2 Shellharbour City Council Comments

Council has provided the responses to the Boat Harbour Precinct for both public and agency submissions in a letter dated 23 April 2010. Within this letter, Council provides a series of comments about the stormwater quality management strategy contained within the EA. Responses to Council's comments are provided below under the relevant sub-headings.

3.2.1 Staging

Refer **Section 3.1.3.1**.

3.2.2 Existing water quality data

The approach to estimating existing stormwater runoff pollutant concentrations was outlined in **Section 3** of Sub-Appendix B of Appendix B of the EA.

In summary, it was decided to adopt existing EMC values based on the statistical overview undertaken by Duncan in 1999 and then updated in 2004. The adopted EMC values generated lower concentrations of stormwater pollutants than the collected data. Thus, the adoption of Duncan's EMC values should be considered as conservative (*i.e., the EMC values are under estimating existing pollutant loads which must not be exceeded in the proposed scenario*).

3.2.3 MUSIC results

The MUSIC results are summarised in **Table 1** and **Table 2** of this letter. Additionally, MUSIC outputs have been included as **Attachment 1** for information.

4 CONCLUSION

We trust that the information contained within this letter is to your satisfaction. Should you require any additional information please do not hesitate to contact me on (02) 8456 7225.

Yours faithfully
WorleyParsons

Sean PORTER
Engineer

WorleyParsons
resources & energy

EcoNomics

ATTACHMENT 1 MUSIC OUTPUTS

4 November 2010

Source nodes

Location	Sub-Catch M	Sub-Catch N	Sub-Catch O	Sub-Catch P	Remant Vegetation P	Sub-Catch L	Sub-Catch Q	Sub-Catch B	Sub-Catch C	Sub-Catch K2	Sub-Catch K1	Sub-Catch D	Sub-Catch H	Sub-Catch G1	Sub-Catch J2	Sub-Catch F2
ID	1	2	3	4	5	6	7	8	9	19	20	21	22	23	24	25
Node Type	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	ForestSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode
Total Area (ha)	18.683	30.873	6.205	5.266	3.52	28.169	13.897	2.758	2.848	10.601	21.028	6.585	2.4	1.054	1.377	7.419
Area Impervious (ha)	9.3415	15.4365	3.075012939	2.633	0	13.95971627	6.9485	1.122433421	1.133828772	5.34746057	10.42084965	3.525863158	0.955473684	0.433619298	0.566502632	4.432527105
Area Pervious (ha)	9.3415	15.4365	3.129987061	2.633	3.52	14.20928373	6.9485	1.635566579	1.714171228	5.25353943	10.60715035	3.059136842	1.444526316	0.620380702	0.810497368	2.986472895
Field Capacity (mm)	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
Pervious Area Infiltration Capacity coefficient - a	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Pervious Area Infiltration Capacity exponent - b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Impervious Area Rainfall Threshold (mm/day)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Pervious Area Soil Storage Capacity (mm)	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
Pervious Area Soil Initial Storage (% of Capacity)	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Groundwater Initial Depth (mm)	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Groundwater Daily Recharge Rate (%)	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Groundwater Daily Baseflow Rate (%)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Groundwater Daily Deep Seepage Rate (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stormflow Total Suspended Solids Mean (log mg/L)	2.15	2.15	2.15	2.15	1.9	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15
Stormflow Total Suspended Solids Standard Deviation (log mg/L)	0.39	0.39	0.39	0.39	0.2	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Stormflow Total Suspended Solids Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Stormflow Total Suspended Solids Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stormflow Total Phosphorus Mean (log mg/L)	-0.6	-0.6	-0.6	-0.6	-1.1	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
Stormflow Total Phosphorus Standard Deviation (log mg/L)	0.31	0.31	0.31	0.31	0.22	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Stormflow Total Phosphorus Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Stormflow Total Phosphorus Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stormflow Total Nitrogen Mean (log mg/L)	0.3	0.3	0.3	0.3	-0.075	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Stormflow Total Nitrogen Standard Deviation (log mg/L)	0.23	0.23	0.23	0.23	0.24	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Stormflow Total Nitrogen Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Stormflow Total Nitrogen Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Total Suspended Solids Mean (log mg/L)	1.1	1.1	1.1	1.1	0.51	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Baseflow Total Suspended Solids Standard Deviation (log mg/L)	0.34	0.34	0.34	0.34	0.28	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Baseflow Total Suspended Solids Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Suspended Solids Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Total Phosphorus Mean (log mg/L)	-0.97	-0.97	-0.97	-0.97	-1.79	-0.97	-0.97	-0.97	-0.97	-0.97	-0.97	-0.97	-0.97	-0.97	-0.97	-0.97
Baseflow Total Phosphorus Standard Deviation (log mg/L)	0.31	0.31	0.31	0.31	0.28	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Baseflow Total Phosphorus Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Phosphorus Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Total Nitrogen Mean (log mg/L)	0.2	0.2	0.2	0.2	-0.59	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Baseflow Total Nitrogen Standard Deviation (log mg/L)	0.2	0.2	0.2	0.2	0.22	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Baseflow Total Nitrogen Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Nitrogen Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OUT - Mean Annual Flow (ML/yr)	91.5	151	30.4	25.8	8.03	138	68	12.2	12.5	51.9	103	33.6	10.5	4.66	6.09	40.2
OUT - TSS Mean Annual Load (kg/yr)	1.73E+04	2.82E+04	5.83E+03	4.92E+03	441	2.61E+04	1.32E+04	2.25E+03	2.31E+03	9.86E+03	1.91E+04	6.50E+03	2.03E+03	896	1.14E+03	7.93E+03
OUT - TP Mean Annual Load (kg/yr)	28	47.1	9.33	8.02	0.526	44.1	20.8	3.83	3.76	16	31.4	10.5	3.12	1.42	1.83	12.6
OUT - TN Mean Annual Load (kg/yr)	201	341	68.1	58.5	5.83	318	155	26.9	27.9	118	230	76.6	23.6	10.4	13.5	92.3
OUT - Gross Pollutant Mean Annual Load (kg/yr)	2.38E+03	3.94E+03	791	671	0	3.59E+03	1.77E+03	315	321	1.35E+03	2.68E+03	874	270	120	157	1.04E+03
Rain In (ML/yr)	189.431	313.028	62.9139	53.3932	35.6901	285.612	140.905	27.964	28.8765	107.486	213.208	66.7669	24.3341	10.8868	13.9617	75.2229
ET Loss (ML/yr)	97.1418	160.524	32.2629	27.3805	27.3493	146.464	72.257	15.6161	16.2721	55.1199	109.335	32.8847	13.7126	5.96789	7.79676	34.7613
Deep Seepage Loss (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Out (ML/yr)	7.74239	12.794	2.5714	2.18227	2.91744	11.6735	5.75903	1.34867	1.41628	4.39314	8.71417	2.51057	1.1935	0.515408	0.673355	2.4596
Imp. Stormflow Out (ML/yr)	70.1544	115.928	23.2997	19.7738	0	105.774	52.1831	8.49213	8.55536	39.8066	78.9599	26.7047	7.20958	3.24536	4.23991	33.4299
Perv. Stormflow Out (ML/yr)	13.5687	22.4219	4.50645	3.82449	5.11288	20.4581	10.0929	2.36357	2.48207	7.6991	15.2718	4.39984	2.09163	0.903266	1.18007	4.31051
Total Stormflow Out (ML/yr)	83.7231	138.35	27.8061	23.5983	5.11288	126.232	62.2759	10.8557	11.0374	47.5057	94.2317	31.1046	9.30121	4.14863	5.41998	37.7404
Total Outflow (ML/yr)	91.4655	151.144	30.3775	25.7805	8.03032	137.906	68.035	12.2044	12.4537	51.8989	102.946	33.6151	10.4947	4.66403	6.09334	40.2
Change in Soil Storage (ML/yr)	0.823636	1.36103	0.273546	0.23215	0.310357	1.24182	0.612646	0.143471	0.150664	0.467343	0.927015	0.267074	0.126964	0.0548291	0.0716316	0.261652
TSS Baseflow Out (ML/yr)	132.405	218.218	43.8227	37.1392	11.6106	199.095	98.9173	23.0237	24.2175	74.8617	149.343	42.7594	20.4004	8.79819	11.5348	41.9128
TSS Total Stormflow Out (ML/yr)	17196.6	28021.3	5781.56	4886.3	429.468	25894.3	13090.2	2231.92	2284.8	9781.42	18934.9	6457.6	2006.34	886.776	1124.52	7886.69
TSS Total Outflow (ML/yr)	17329	28239.5	5825.38	4923.44	441.079	26093.4	13189.1	2254.94	2309.01	9856.29	19084.2	6500.36	2026.74	895.574	1136.05	7926.6
TP Baseflow Out (ML/yr)	1.06926	1.76341	0.355471	0.301249	0.0583727	1.60698	0.798634	0.186744	0.19565	0.609884	1.2055	0.345564	0.164852	0.0709735	0.0930038	0.338499
TP Total Stormflow Out (ML/yr)	26.8884	45.3177	8.97724	7.71466	0.467555	42.5363	19.9977	3.64215	3.56493	15.3605	30.1517	10.1934	2.95359	1.34934	1.73848	12.3064
TP Total Outflow (ML/yr)	27.9577	47.0811	9.33271	8.01591	0.525927	44.1432	20.7963	3.8289	3.76058	15.9702	31.3572	10.539	3.11844	1.42031	1.83148	12.6449
TN Baseflow Out (ML/yr)	13.6321	22.4781	4.53843	3.843	0.850422	20.5855	10.1415	2.37542	2.49066	7.74682	15.3617	4.42204	2.10557	0.907369	1.18605	4.33107
TN Total Stormflow Out (ML/yr)	187.54	316.404	63.5178	54.6473	4.98384	297.431	144.669	24.4832	25.4367	110.51	214.962	72.1528	21.5188	9.53794	12.3239	87.9537
TN Total Outflow (ML/yr)	201.172	340.882	68.0563	58.4903	5.83427	318.017	154.81	26.8586	27.9273	118.257	230.324	76.5748	23.6243	10.4453	13.51	92.2848
GP Total Outflow (ML/yr)	2382.01	3936.19	791.113	671.394	0	3591.44	1771.81	315.163	320.862	1351.59	2680.99	874.055	270.39	120.443	157.353	1038.44

Source nodes

Location	Sub-Catch I	Riparian Zone K2	Riparian Zone D	Sub-Catch E1	Riparian Zone (n)	Riparian Zone P	Riparian Zone Q	Wetland 7A	Bioretention E1 (west)	Bio-retention F (F2)	Rec a (F2)	MDB1pond 1 and 2 (n)	Wetland 3a and 3b Area (Q)	Wetland Area 1 and 5 (K2)
ID	26	27	28	35	36	37	38	39	40	41	42	47	48	49
Node Type	UrbanSourceNode	ForestSourceNode	ForestSourceNode	UrbanSourceNode	ForestSourceNode	ForestSourceNode	ForestSourceNode	ForestSourceNode	ForestSourceNode	ForestSourceNode	ForestSourceNode	UserDefinedSourceNode	UserDefinedSourceNode	UserDefinedSourceNode
Total Area (ha)	1.161	2.302	0.5	10.694	4.846	4.57	1.98	0.5	0.083	0.15	7.33	0.612	1	1.396
Area Impervious (ha)	0.451924342	0.122369474	0.026578947	6.436568509	0.729875614	0.222687281	0.096481579	0	0	0	1.104000877	0.612	1	1.396
Area Pervious (ha)	0.709075658	2.179630526	0.473421053	4.257431491	4.116124386	4.347312719	1.883518421	0.5	0.083	0.15	6.225999123	0	0	0
Field Capacity (mm)	135	135	135	135	135	135	135	135	135	135	135	135	135	135
Pervious Area Infiltration Capacity coefficient - a	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Pervious Area Infiltration Capacity exponent - b	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Impervious Area Rainfall Threshold (mm/day)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Pervious Area Soil Storage Capacity (mm)	170	170	170	170	170	170	170	170	170	170	170	175	175	175
Pervious Area Soil Initial Storage (% of Capacity)	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Groundwater Initial Depth (mm)	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Groundwater Daily Recharge Rate (%)	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Groundwater Daily Baseflow Rate (%)	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Groundwater Daily Deep Seepage Rate (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stormflow Total Suspended Solids Mean (log mg/L)	2.15	1.96	1.96	2.15	1.96	1.96	1.96	1.9	1.9	1.9	1.96	-1	-1	-1
Stormflow Total Suspended Solids Standard Deviation (log mg/L)	0.39	0.51	0.51	0.39	0.51	0.51	0.51	0.2	0.2	0.2	0.51	0	0	0
Stormflow Total Suspended Solids Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Stormflow Total Suspended Solids Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stormflow Total Phosphorus Mean (log mg/L)	-0.6	-0.65	-0.65	-0.6	-0.65	-0.65	-0.65	-1.1	-1.1	-1.1	-0.65	-1	-1	-1
Stormflow Total Phosphorus Standard Deviation (log mg/L)	0.31	0.28	0.28	0.31	0.28	0.28	0.28	0.22	0.22	0.22	0.28	0	0	0
Stormflow Total Phosphorus Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Stormflow Total Phosphorus Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stormflow Total Nitrogen Mean (log mg/L)	0.3	0.32	0.32	0.3	0.32	0.32	0.32	-0.075	-0.075	-0.075	0.32	-1	-1	-1
Stormflow Total Nitrogen Standard Deviation (log mg/L)	0.23	0.3	0.3	0.23	0.3	0.3	0.3	0.24	0.24	0.24	0.3	0	0	0
Stormflow Total Nitrogen Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Stormflow Total Nitrogen Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Total Suspended Solids Mean (log mg/L)	1.1	0.51	0.51	1.1	0.51	0.51	0.51	0.51	0.51	0.51	0.51	-1	-1	-1
Baseflow Total Suspended Solids Standard Deviation (log mg/L)	0.34	0.28	0.28	0.34	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0	0	0
Baseflow Total Suspended Solids Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Suspended Solids Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Total Phosphorus Mean (log mg/L)	-0.97	-1.79	-1.79	-0.97	-1.79	-1.79	-1.79	-1.79	-1.79	-1.79	-1.79	-1	-1	-1
Baseflow Total Phosphorus Standard Deviation (log mg/L)	0.31	0.28	0.28	0.31	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0	0	0
Baseflow Total Phosphorus Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Phosphorus Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Total Nitrogen Mean (log mg/L)	0.2	-0.59	-0.59	0.2	-0.59	-0.59	-0.59	-0.59	-0.59	-0.59	-0.59	-1	-1	-1
Baseflow Total Nitrogen Standard Deviation (log mg/L)	0.2	0.22	0.22	0.2	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0	0	0
Baseflow Total Nitrogen Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Nitrogen Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OUT - Mean Annual Flow (ML/yr)	5.02	5.85	1.27	57.9	14.9	11.6	5.03	1.14	0.189	0.342	22.5	4.6	7.51	10.5
OUT - TSS Mean Annual Load (kg/yr)	950	751	155	1.17E+04	2.05E+03	1.57E+03	648	64.7	10.6	20	3.19E+03	0.46	0.751	1.05
OUT - TP Mean Annual Load (kg/yr)	1.48	1.15	0.242	18.1	3.22	2.22	0.993	7.31E-02	1.23E-02	2.23E-02	4.91	0.46	0.751	1.05
OUT - TN Mean Annual Load (kg/yr)	11.4	11.6	2.54	131	30.3	22.3	9.85	0.843	0.141	0.252	46.6	0.46	0.751	1.05
OUT - Gross Pollutant Mean Annual Load (kg/yr)	129	39.2	8.51	1.50E+03	272	77.7	33.7	0	0	0	411	108	176	246
Rain In (ML/yr)	11.7716	23.3405	5.06961	108.429	49.1347	46.3363	20.0757	5.06901	0.841556	1.52088	74.3206	6.20521	10.1392	14.1544
ET Loss (ML/yr)	6.69309	17.2942	3.75634	50.106	33.9154	34.333	14.8752	3.88487	0.64489	1.16546	51.3	1.6091	2.62925	3.67044
Deep Seepage Loss (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Out (ML/yr)	0.586976	1.81254	0.393688	3.54535	3.41398	3.5983	1.559	0.414408	0.0687917	0.124322	5.16394	0	0	0
Imp. Stormflow Out (ML/yr)	3.40044	0.864398	0.187749	48.187	5.459	1.71603	0.743488	0	0	0	8.25722	4.5961	7.50997	10.4839
Perv. Stormflow Out (ML/yr)	1.02869	3.17652	0.689948	6.21331	5.98309	6.30613	2.73219	0.726261	0.120559	0.217878	9.04994	0	0	0
Total Stormflow Out (ML/yr)	4.42913	4.04092	0.877698	54.4003	11.4421	8.02216	3.47568	0.726261	0.120559	0.217878	17.3072	4.5961	7.50997	10.4839
Total Outflow (ML/yr)	5.01611	5.85346	1.27139	57.9457	14.8561	11.6205	5.03468	1.14067	0.189351	0.342201	22.4711	4.5961	7.50997	10.4839
Change in Soil Storage (ML/yr)	0.0624426	0.192818	0.0418806	0.377154	0.363179	0.382788	0.165847	0.0440848	0.00731802	0.0132254	0.54934	0	0	0
TSS Baseflow Out (ML/yr)	9.99265	7.2276	1.56115	60.6084	13.6293	14.3486	6.18858	1.65148	0.273846	0.497386	20.5996	0	0	0
TSS Total Stormflow Out (ML/yr)	940.206	743.365	153.395	11643	2040.93	1559.21	641.721	63.0782	10.3225	19.5246	3166.17	0.459611	0.750997	1.04839
TSS Total Outflow (ML/yr)	950.198	750.592	154.956	11703.6	2054.56	1573.56	647.91	64.7296	10.5963	20.022	3186.77	0.459611	0.750997	1.04839
TP Baseflow Out (ML/yr)	0.0809891	0.0362073	0.00787159	0.489491	0.0682782	0.0716594	0.0311371	0.0082938	0.00136784	0.0024856	0.102826	0	0	0
TP Total Stormflow Out (ML/yr)	1.40256	1.10887	0.234544	17.6095	3.147	2.14931	0.962194	0.0648529	0.0109773	0.019796	4.80406	0.459611	0.750997	1.04839
TP Total Outflow (ML/yr)	1.48355	1.14508	0.242416	18.099	3.21528	2.22097	0.993331	0.0731467	0.0123451	0.0222816	4.90689	0.459611	0.750997	1.04839
TN Baseflow Out (ML/yr)	1.03497	0.529134	0.115063	6.25084	1.00072	1.04755	0.455434	0.120947	0.0200731	0.0364239	1.50639	0	0	0
TN Total Stormflow Out (ML/yr)	10.3531	11.0296	2.42149	125.155	29.3375	21.249	9.39214	0.722408	0.120897	0.215938	45.1015	0.459611	0.750997	1.04839
TN Total Outflow (ML/yr)	11.3881	11.5588	2.53656	131.406	30.3383	22.2965	9.84757	0.843355	0.14097	0.252362	46.6079	0.459611	0.750997	1.04839
GP Total Outflow (ML/yr)	128.897	39.1582	8.50525	1496.85	271.549	77.738	33.6808	0	0	0	410.742	107.832	176.196	245.969

Source nodes

Location	Sub-Catch E2	Sub-Catch A2	Swale A2	Bio-retention G2	Bioretention G1	Bio-retention F2	Bio-retention H	Sub-Catch F1	Bio-retention (E1 east)	Sub-Catch G2	Sub-Catch A comm east	Sub-Catch A commercial West	Sub-Catch J1	Sub-Catch A3	Sub-Catch A4
ID	50	54	55	61	62	63	65	67	68	69	70	71	75	77	78
Node Type	UrbanSourceNode	UrbanSourceNode	ForestSourceNode	ForestSourceNode	ForestSourceNode	ForestSourceNode	ForestSourceNode	UrbanSourceNode	ForestSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode
Total Area (ha)	10.905	9.267	0.164	0.199	0.109	0.235	0.218	9.748	0.083	0.869	7.555	2.044	4.873	3.238	3.744
Area Impervious (ha)	5.935572368	3.648271579	0	0	0	0	0	5.867184386	0	0.345961096	5.283529605	1.429455263	1.918423158	1.303437018	1.540294737
Area Pervious (ha)	4.969427632	5.618728421	0.164	0.199	0.109	0.235	0.218	3.880815614	0.083	0.523038904	2.271470395	0.614544737	2.954576842	1.934562982	2.203705263
Field Capacity (mm)	135	135	135	120	135	135	135	135	135	135	135	135	135	135	135
Pervious Area Infiltration Capacity coefficient - a	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Pervious Area Infiltration Capacity exponent - b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Impervious Area Rainfall Threshold (mm/day)	3.5	3.5	3.5	1	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Pervious Area Soil Storage Capacity (mm)	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
Pervious Area Soil Initial Storage (% of Capacity)	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Groundwater Initial Depth (mm)	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Groundwater Daily Recharge Rate (%)	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Groundwater Daily Baseflow Rate (%)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Groundwater Daily Deep Seepage Rate (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stormflow Total Suspended Solids Mean (log mg/L)	2.15	2.15	1.9	1.9	1.9	1.9	1.9	2.15	1.9	2.15	2.15	2.15	2.15	2.15	2.15
Stormflow Total Suspended Solids Standard Deviation (log mg/L)	0.39	0.39	0.2	0.2	0.2	0.2	0.2	0.39	0.2	0.39	0.39	0.39	0.39	0.39	0.39
Stormflow Total Suspended Solids Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Stormflow Total Suspended Solids Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stormflow Total Phosphorus Mean (log mg/L)	-0.6	-0.6	-1.1	-1.1	-1.1	-1.1	-1.1	-0.6	-1.1	-0.6	-0.6	0.31	0.31	0.31	0.31
Stormflow Total Phosphorus Standard Deviation (log mg/L)	0.31	0.31	0.22	0.22	0.22	0.22	0.22	0.31	0.22	0.31	0.31	0.31	0.31	0.31	0.31
Stormflow Total Phosphorus Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Stormflow Total Phosphorus Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stormflow Total Nitrogen Mean (log mg/L)	0.3	0.3	-0.075	-0.075	-0.075	-0.075	-0.075	0.3	-0.075	0.3	0.3	0.3	0.3	0.3	0.3
Stormflow Total Nitrogen Standard Deviation (log mg/L)	0.23	0.23	0.24	0.24	0.24	0.24	0.24	0.23	0.24	0.23	0.23	0.23	0.23	0.23	0.23
Stormflow Total Nitrogen Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Stormflow Total Nitrogen Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Total Suspended Solids Mean (log mg/L)	1.1	1.1	0.51	0.51	0.51	0.51	0.51	1.1	0.51	1.1	1.1	1.1	1.1	1.1	1.1
Baseflow Total Suspended Solids Standard Deviation (log mg/L)	0.34	0.34	0.28	0.28	0.28	0.28	0.28	0.34	0.28	0.34	0.34	0.34	0.34	0.34	0.34
Baseflow Total Suspended Solids Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Suspended Solids Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Total Phosphorus Mean (log mg/L)	-0.97	-0.97	-1.79	-1.79	-1.79	-1.79	-1.79	-0.97	-1.79	-0.97	-0.97	0.31	0.31	0.31	0.31
Baseflow Total Phosphorus Standard Deviation (log mg/L)	0.31	0.31	0.28	0.28	0.28	0.28	0.28	0.31	0.28	0.31	0.31	0.31	0.31	0.31	0.31
Baseflow Total Phosphorus Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Phosphorus Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Total Nitrogen Mean (log mg/L)	0.2	0.2	-0.59	-0.59	-0.59	-0.59	-0.59	0.2	-0.59	0.2	0.2	0.2	0.2	0.2	0.2
Baseflow Total Nitrogen Standard Deviation (log mg/L)	0.2	0.2	0.22	0.22	0.22	0.22	0.22	0.2	0.22	0.2	0.2	0.2	0.2	0.2	0.2
Baseflow Total Nitrogen Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Nitrogen Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OUT - Mean Annual Flow (ML/yr)	55.7	40	0.374	0.489	0.249	0.536	0.497	52.8	0.189	3.8	44.9	12.1	21.1	14.2	16.6
OUT - TSS Mean Annual Load (kg/yr)	1.08E+04	7.82E+03	21.4	23.2	14.5	31.1	28.9	1.06E+04	10.7	698	9.28E+03	2.44E+03	4.04E+03	2.74E+03	3.23E+03
OUT - TP Mean Annual Load (kg/yr)	17.5	12.4	2.39E-02	2.77E-02	1.63E-02	3.43E-02	3.29E-02	16.4	1.24E-02	1.14	14.1	3.91	6.52	4.27	5
OUT - TN Mean Annual Load (kg/yr)	125	89.6	0.271	0.305	0.185	0.384	0.37	119	0.143	8.63	103	27.5	46.9	31.4	37.7
OUT - Gross Pollutant Mean Annual Load (kg/yr)	1.45E+03	1.03E+03	0	0	0	0	0	1.36E+03	0	97.9	1.14E+03	308	541	365	428
Rain In (ML/yr)	110.568	93.9602	1.66283	2.01771	1.10518	2.38272	2.21035	98.8372	0.841556	8.81099	76.6019	20.7246	49.4084	32.8308	37.9613
ET Loss (ML/yr)	54.4585	53.4235	1.27423	1.51213	0.846898	1.82589	1.6938	45.6736	0.64489	4.96507	31.5147	8.52631	28.0925	16.5004	21.1991
Deep Seepage Loss (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Out (ML/yr)	4.15759	4.68519	0.135926	0.243388	0.0903411	0.194772	0.180682	3.23172	0.0687917	0.432145	1.87851	0.50823	2.46368	1.61022	1.83082
Imp. Stormflow Out (ML/yr)	44.224	27.142	0	0	0	0	0	43.9243	0	2.61047	39.7165	10.7453	14.2725	9.72692	11.5281
Perv. Stormflow Out (ML/yr)	7.28629	8.21092	0.238214	0.246042	0.158325	0.341343	0.31665	5.66367	0.120559	0.757345	3.29214	0.890687	4.31767	2.82196	3.20856
Total Stormflow Out (ML/yr)	51.5103	35.3529	0.238214	0.246042	0.158325	0.341343	0.31665	49.588	0.120559	3.36781	43.0086	11.636	18.5902	12.5489	14.7367
Total Outflow (ML/yr)	55.6679	40.0381	0.37414	0.489429	0.248666	0.536115	0.497332	52.6197	0.189351	3.79996	44.8871	12.1442	21.0538	14.1591	16.5675
Change in Soil Storage (ML/yr)	0.442285	0.498411	0.0144599	0.0161566	0.00961045	0.0207198	0.0192209	0.343791	0.00731802	0.0459717	0.199836	0.0540656	0.262087	0.171296	0.194763
TSS Baseflow Out (ML/yr)	70.8662	79.7719	0.540942	0.966429	0.36019	0.776994	0.719908	55.2371	0.273509	7.38265	32.2756	8.66801	42.0838	27.4827	31.194
TSS Total Stormflow Out (ML/yr)	10770.3	7741.04	20.8613	22.1953	14.1388	30.3397	28.1394	10503.5	10.431	690.634	9249.46	2436.12	4000.08	2713.54	3197.09
TSS Total Outflow (ML/yr)	10841.2	7820.81	21.4023	23.1618	14.499	31.1167	28.8593	10558.8	10.7045	698.016	9281.74	2444.79	4042.16	2741.02	3228.28
TP Baseflow Out (ML/yr)	0.577184	0.64534	0.00271278	0.00485886	0.00179999	0.00387685	0.00360268	0.446127	0.00137542	0.0598301	0.260463	0.0699881	0.340356	0.223621	0.252371
TP Total Stormflow Out (ML/yr)	16.881	11.758	0.0212344	0.0228108	0.0145042	0.0304055	0.0293022	15.9555	0.0110586	1.08346	13.8713	3.83893	6.17661	4.04679	4.74989
TP Total Outflow (ML/yr)	17.4582	12.4033	0.0239472	0.0276696	0.0163042	0.0342823	0.0329049	16.4016	0.012434	1.14329	14.1317	3.90892	6.51696	4.27041	5.00227
TN Baseflow Out (ML/yr)	7.356	8.24805	0.0397401	0.071187	0.0264126	0.0567826	0.0529958	5.70503	0.0200862	0.761891	3.31084	0.892933	4.3377	2.83706	3.22791
TN Total Stormflow Out (ML/yr)	117.661	81.3747	0.230907	0.233734	0.158534	0.327038	0.316805	113.708	0.123412	7.8642	99.2355	26.5759	42.5977	28.5741	34.5117
TN Total Outflow (ML/yr)	125.017	89.6227	0.270647	0.304921	0.184947	0.38382	0.369801	119.413	0.143498	8.62609	102.546	27.4688	46.9354	31.4112	37.7396
GP Total Outflow (ML/yr)	1447.47	1028.85	0	0	0	0	0	1364.44	0	97.9036	1138.37	307.986	541.012	364.801	427.835

Source nodes

Location	A Rural 2	Sub-Catch A1	A rural 3	Sub-Catch E3	Sub-Catch E4	Sub-Catch E5	Sub-Catch E6	Welland 1a (M)	Welland 6a and 6b (D)	A Rural 1	Sub-Catch B roof	Sub-Catch C roof	Sub-Catch D roof	Sub-Catch G-2 roof	Sub-Catch H roof
ID	82	85	89	92	93	94	95	96	97	98	99	101	103	106	108
Node Type	ForestSourceNode	UrbanSourceNode	ForestSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UserDefinedSourceNode	UserDefinedSourceNode	ForestSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode
Total Area (ha)	7.123	10.511	5.693	3.956	9.869	2.607	2.566	0.331	0.71	7.409	0.546	0.57	1.008	0.174	0.4
Area Impervious (ha)	0.378643684	4.324262281	0.277408904	2.118195088	5.284243509	1.407436974	1.021560614	0.331	0.71	0.393846842	0.546	0.57	1.008	0.174	0.4
Area Pervious (ha)	6.744356316	6.186737719	5.415591096	1.837804912	4.584756491	1.199563026	1.544439386	0	0	7.015153158	0	0	0	0	0
Field Capacity (mm)	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
Pervious Area Infiltration Capacity coefficient - a	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Pervious Area Infiltration Capacity exponent - b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Impervious Area Rainfall Threshold (mm/day)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Pervious Area Soil Storage Capacity (mm)	170	170	170	170	170	170	170	175	175	170	170	170	170	170	170
Pervious Area Soil Initial Storage (% of Capacity)	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Groundwater Initial Depth (mm)	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Groundwater Daily Recharge Rate (%)	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Groundwater Daily Baseflow Rate (%)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Groundwater Daily Deep Seepage Rate (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stormflow Total Suspended Solids Mean (log mg/L)	1.96	2.15	1.96	2.15	2.15	2.15	2.15	-1	-1	1.96	1.301	1.301	1.301	1.301	1.301
Stormflow Total Suspended Solids Standard Deviation (log mg/L)	0.51	0.39	0.51	0.39	0.39	0.39	0.39	0	0	0.51	0.39	0.39	0.39	0.39	0.39
Stormflow Total Suspended Solids Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Stormflow Total Suspended Solids Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stormflow Total Phosphorus Mean (log mg/L)	-0.65	-0.6	-0.65	-0.6	-0.6	-0.6	-0.6	-1	-1	-0.65	-0.886	-0.886	-0.886	-0.886	-0.886
Stormflow Total Phosphorus Standard Deviation (log mg/L)	0.28	0.31	0.28	0.31	0.31	0.31	0.31	0	0	0.28	0.31	0.31	0.31	0.31	0.31
Stormflow Total Phosphorus Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Stormflow Total Phosphorus Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stormflow Total Nitrogen Mean (log mg/L)	0.301	0.3	0.301	0.3	0.3	0.3	0.3	-1	-1	0.301	0.301	0.301	0.301	0.301	0.301
Stormflow Total Nitrogen Standard Deviation (log mg/L)	0.3	0.23	0.3	0.23	0.23	0.23	0.23	0	0	0.3	0.23	0.23	0.23	0.23	0.23
Stormflow Total Nitrogen Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Stormflow Total Nitrogen Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Total Suspended Solids Mean (log mg/L)	0.51	1.1	0.51	1.1	1.1	1.1	1.1	-1	-1	0.51	-10	-10	-10	-10	-10
Baseflow Total Suspended Solids Standard Deviation (log mg/L)	0.28	0.34	0.28	0.34	0.34	0.34	0.34	0	0	0.28	0.34	0.34	0.34	0.34	0.34
Baseflow Total Suspended Solids Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Suspended Solids Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Total Phosphorus Mean (log mg/L)	-1.79	-0.97	-1.79	-0.97	-0.97	-0.97	-0.97	-1	-1	-1.79	-10	-10	-10	-10	-10
Baseflow Total Phosphorus Standard Deviation (log mg/L)	0.28	0.31	0.28	0.31	0.31	0.31	0.31	0	0	0.28	0.31	0.31	0.31	0.31	0.31
Baseflow Total Phosphorus Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Phosphorus Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Total Nitrogen Mean (log mg/L)	-0.59	0.2	-0.59	0.2	0.2	0.2	0.2	-1	-1	-0.59	-10	-10	-10	-10	-10
Baseflow Total Nitrogen Standard Deviation (log mg/L)	0.22	0.2	0.22	0.2	0.2	0.2	0.2	0	0	0.22	0.2	0.2	0.2	0.2	0.2
Baseflow Total Nitrogen Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Nitrogen Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OUT - Mean Annual Flow (ML/yr)	18.1	46.5	14.5	20.2	50.4	13.3	11.2	2.49	5.33	18.8	4.1	4.28	7.57	1.31	3
OUT - TSS Mean Annual Load (kg/yr)	2.33E+03	8.85E+03	1.94E+03	4.00E+03	1.00E+04	2.62E+03	2.16E+03	0.249	0.533	2.43E+03	118	127	226	39.2	93.2
OUT - TP Mean Annual Load (kg/yr)	3.71	14	2.81	6.34	15.7	4.14	3.44	0.249	0.533	3.61	0.697	0.702	1.28	0.22	0.506
OUT - TN Mean Annual Load (kg/yr)	32	103	25.6	44.5	116	30.2	24.7	0.249	0.533	35.6	9.43	9.82	17.4	3	6.8
OUT - Gross Pollutant Mean Annual Load (kg/yr)	121	1.20E+03	96.8	525	1.31E+03	346	289	58.3	125	126	96.2	100	178	30.7	70.5
Rain In (ML/yr)	72.2217	108.573	57.7226	40.1108	100.064	26.433	26.0173	3.35608	7.19885	75.1216	5.53602	5.77936	10.2203	1.76423	4.05569
ET Loss (ML/yr)	53.5129	59.5146	42.7699	19.7557	49.2846	13.019	14.6609	0.870286	1.86677	55.6615	1.43558	1.49867	2.6503	0.457489	1.0517
Deep Seepage Loss (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Out (ML/yr)	5.60848	5.1399	4.48253	1.50825	3.76261	0.993933	1.27605	0	0	5.83367	0	0	0	0	0
Imp. Stormflow Out (ML/yr)	2.67468	32.3643	2.13771	16.0431	40.0226	10.5724	7.70823	2.4858	5.33208	2.78207	4.10045	4.28068	7.57005	1.30674	3.00399
Perv. Stormflow Out (ML/yr)	9.829	9.0078	7.85575	2.64324	6.59407	1.74189	2.2363	0	0	10.2237	0	0	0	0	0
Total Stormflow Out (ML/yr)	12.5037	41.3721	9.99347	18.6863	46.6167	12.3143	9.94454	2.4858	5.33208	13.0057	4.10045	4.28068	7.57005	1.30674	3.00399
Total Outflow (ML/yr)	18.1122	46.512	14.476	20.1946	50.3793	13.3082	11.2206	2.4858	5.33208	18.8394	4.10045	4.28068	7.57005	1.30674	3.00399
Change in Soil Storage (ML/yr)	0.59663	0.546782	0.476852	0.160447	0.400267	0.105735	0.135746	0	0	0.620586	0	0	0	0	0
TSS Baseflow Out (ML/yr)	22.3311	88.0928	17.8445	25.7819	64.3929	16.9365	21.7731	0	0	23.2941	0	0	0	0	0
TSS Total Stormflow Out (ML/yr)	2309.61	8764.75	1917.58	3978.93	9952.12	2601.05	2133.47	0.24858	0.533208	2406.07	118.361	126.737	226.102	39.1941	93.2007
TSS Total Outflow (ML/yr)	2331.94	8852.84	1935.42	4004.71	10016.5	2617.98	2155.25	0.24858	0.533208	2429.36	118.361	126.737	226.102	39.1941	93.2007
TP Baseflow Out (ML/yr)	0.111644	0.70907	0.089148	0.208294	0.520791	0.136876	0.176369	0	0	0.116557	0	0	0	0	0
TP Total Stormflow Out (ML/yr)	3.59412	13.3299	2.72322	6.12727	15.1618	4.00002	3.26346	0.24858	0.533208	3.48873	0.696968	0.702487	1.2833	0.220104	0.506319
TP Total Outflow (ML/yr)	3.70577	14.039	2.81237	6.33557	15.6826	4.1369	3.43983	0.24858	0.533208	3.60529	0.696968	0.702487	1.2833	0.220104	0.506319
TN Baseflow Out (ML/yr)	1.64103	9.05119	1.31088	2.65275	6.62922	1.74909	2.24743	0	0	1.70101	0	0	0	0	0
TN Total Stormflow Out (ML/yr)	30.323	94.0028	24.2866	41.8494	109.613	28.4865	22.4774	0.24858	0.533208	33.854	9.43142	9.82126	17.3892	3.00414	6.80201
TN Total Outflow (ML/yr)	31.9641	103.054	25.5975	44.5021	116.242	30.2356	24.7248	0.24858	0.533208	35.555	9.43142	9.82126	17.3892	3.00414	6.80201
GP Total Outflow (ML/yr)	121.166	1201.11	96.8408	525.097	1309.95	346.038	289.092	58.3208	125.099	126.031	96.2029	100.432	177.605	30.6581	70.4783

Source nodes

Location	Sub-Catch G1 roof	Sub-Catch J2 roof	Sub-Catch J1 roof	Sub-Catch I roof	Sub-Catch E2 roof	Sub-Catch A3 roof	Sub-Catch A2 roof	Sub-Catch A1 roof	Sub-Catch A4 roof	Sub-Catch E3 roof	Sub-Catch E5 roof	Sub-Catch E4 roof	Sub-Catch E6 roof
ID	110	112	114	116	118	119	121	123	125	127	129	131	133
Node Type	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode
Total Area (ha)	0.208	0.272	0.985	0.237	1.668	0.648	1.873	2.088	0.741	0.605	0.399	1.594	0.513
Area Impervious (ha)	0.208	0.272	0.985	0.237	1.668	0.648	1.873	2.088	0.741	0.605	0.399	1.594	0.513
Area Pervious (ha)	0	0	0	0	0	0	0	0	0	0	0	0	0
Field Capacity (mm)	135	135	135	135	135	135	135	135	135	135	135	135	135
Pervious Area Infiltration Capacity coefficient - a	200	200	200	200	200	200	200	200	200	200	200	200	200
Pervious Area Infiltration Capacity exponent - b	1	1	1	1	1	1	1	1	1	1	1	1	1
Impervious Area Rainfall Threshold (mm/day)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Pervious Area Soil Storage Capacity (mm)	170	170	170	170	170	170	170	170	170	170	170	170	170
Pervious Area Soil Initial Storage (% of Capacity)	30	30	30	30	30	30	30	30	30	30	30	30	30
Groundwater Initial Depth (mm)	50	50	50	50	50	50	50	50	50	50	50	50	50
Groundwater Daily Recharge Rate (%)	25	25	25	25	25	25	25	25	25	25	25	25	25
Groundwater Daily Baseflow Rate (%)	5	5	5	5	5	5	5	5	5	5	5	5	5
Groundwater Daily Deep Seepage Rate (%)	0	0	0	0	0	0	0	0	0	0	0	0	0
Stormflow Total Suspended Solids Mean (log mg/L)	1.301	1.301	1.301	1.301	1.301	1.301	1.301	1.301	1.301	1.301	1.301	1.301	1.301
Stormflow Total Suspended Solids Standard Deviation (log mg/L)	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Stormflow Total Suspended Solids Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Stormflow Total Suspended Solids Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0
Stormflow Total Phosphorus Mean (log mg/L)	-0.886	-0.886	-0.886	-0.886	-0.886	-0.886	-0.886	-0.886	-0.886	-0.886	-0.886	-0.886	-0.886
Stormflow Total Phosphorus Standard Deviation (log mg/L)	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Stormflow Total Phosphorus Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Stormflow Total Phosphorus Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0
Stormflow Total Nitrogen Mean (log mg/L)	0.301	0.301	0.301	0.301	0.301	0.301	0.301	0.301	0.301	0.301	0.301	0.301	0.301
Stormflow Total Nitrogen Standard Deviation (log mg/L)	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Stormflow Total Nitrogen Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Stormflow Total Nitrogen Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Total Suspended Solids Mean (log mg/L)	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10
Baseflow Total Suspended Solids Standard Deviation (log mg/L)	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Baseflow Total Suspended Solids Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Suspended Solids Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Total Phosphorus Mean (log mg/L)	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10
Baseflow Total Phosphorus Standard Deviation (log mg/L)	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Baseflow Total Phosphorus Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Phosphorus Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Total Nitrogen Mean (log mg/L)	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10
Baseflow Total Nitrogen Standard Deviation (log mg/L)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Baseflow Total Nitrogen Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Nitrogen Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0	0
OUT - Mean Annual Flow (ML/yr)	1.56	2.04	7.4	1.78	12.5	4.87	14.1	15.7	5.56	4.54	3	12	3.85
OUT - TSS Mean Annual Load (kg/yr)	48.1	59.7	213	52.4	369	146	413	472	163	140	87.2	354	115
OUT - TP Mean Annual Load (kg/yr)	0.263	0.339	1.23	0.3	2.08	0.802	2.37	2.61	0.917	0.757	0.498	1.97	0.631
OUT - TN Mean Annual Load (kg/yr)	3.61	4.74	17.1	4.11	28.8	11.2	32.9	35.8	12.9	10.3	6.83	27.8	8.9
OUT - Gross Pollutant Mean Annual Load (kg/yr)	36.6	47.9	174	41.8	294	114	330	368	131	107	70.3	281	90.4
Rain In (ML/yr)	2.10896	2.75787	9.98714	2.403	16.9122	6.57022	18.9908	21.1707	7.51316	6.13423	4.04555	16.1619	5.20143
ET Loss (ML/yr)	0.546886	0.715159	2.58982	0.623135	4.3856	1.70376	4.9246	5.48988	1.94828	1.5907	1.04907	4.19103	1.3488
Deep Seepage Loss (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Out (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0
Imp. Stormflow Out (ML/yr)	1.56207	2.04271	7.39733	1.77986	12.5266	4.86646	14.0662	15.6808	5.56489	4.54354	2.99648	11.9709	3.85262
Perv. Stormflow Out (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Stormflow Out (ML/yr)	1.56207	2.04271	7.39733	1.77986	12.5266	4.86646	14.0662	15.6808	5.56489	4.54354	2.99648	11.9709	3.85262
Total Outflow (ML/yr)	1.56207	2.04271	7.39733	1.77986	12.5266	4.86646	14.0662	15.6808	5.56489	4.54354	2.99648	11.9709	3.85262
Change in Soil Storage (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS Baseflow Out (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS Total Stormflow Out (ML/yr)	48.0804	59.7286	213.211	52.3863	369.212	146.059	412.754	472.455	162.656	140.032	87.212	353.549	114.841
TSS Total Outflow (ML/yr)	48.0804	59.7286	213.211	52.3863	369.212	146.059	412.754	472.455	162.656	140.032	87.212	353.549	114.841
TP Baseflow Out (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0
TP Total Stormflow Out (ML/yr)	0.263356	0.338689	1.22693	0.300021	2.07747	0.802396	2.365	2.61306	0.917368	0.757078	0.497935	1.97	0.630619
TP Total Outflow (ML/yr)	0.263356	0.338689	1.22693	0.300021	2.07747	0.802396	2.365	2.61306	0.917368	0.757078	0.497935	1.97	0.630619
TN Baseflow Out (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0
TN Total Stormflow Out (ML/yr)	3.60766	4.74266	17.1172	4.11191	28.7867	11.1732	32.8679	35.8435	12.8635	10.2936	6.82734	27.8463	8.89641
TN Total Outflow (ML/yr)	3.60766	4.74266	17.1172	4.11191	28.7867	11.1732	32.8679	35.8435	12.8635	10.2936	6.82734	27.8463	8.89641
GP Total Outflow (ML/yr)	36.6487	47.9252	173.553	41.7584	293.895	114.175	330.015	367.897	130.561	106.598	70.3021	280.656	90.3885

USTM treatment nodes																						
Location	MDB1 - Pond 1	MDB1 - Pond 2	Wetland No.3a	Natural Swale 1	Natural Swale 2	Natural Swale 3	Natural Swale 4	Wetland No.1	Wetland No. 5	Wetland No. 6a	Natural Swale 8	Bio-Retention F - V3	Bio-Retention E1 (west) - V3	Wetland No.1a	Wetland No. 2 (Pond 1)	Wetland No. 2 (Pond 2)	Wetland No. 7a	Bio-swale 6 - V3	Bio-swale 7 - V3	Bio-swale 22 - V3	Bio-Retention F2 - V3	Bio-Retention G1 - V3
ID	11	12	13	15	16	17	18	29	30	31	32	33	34	43	44	45	51	52	53	57	58	59
Node Type	WetlandNode	WetlandNode	WetlandNode	SwaleNode	SwaleNode	SwaleNode	SwaleNode	WetlandNode	WetlandNode	WetlandNode	SwaleNode	BioRetentionNode	BioRetentionNode	WetlandNode	WetlandNode	WetlandNode	WetlandNode	BioRetentionNode	BioRetentionNode	BioRetentionNode	BioRetentionNode	BioRetentionNode
Lo-flow bypass rate (cum/sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hi-flow bypass rate (cum/sec)	100	100	100					100	100	100		100	100	100	100	100	100	100	100	100	100	100
Inlet pond volume	0	0	0					0	0	0				0	0	0	0					
Area (sqm)	3520	2600	4900					5955	8000	2500		1910	832.5	3310	608	1001	5000	1200	600	1640	2347.5	1094
Extended detention depth (m)	0.5	2.7	0.4	1.5	1.5	0.5	0.6	1	0.4	0.4	1.2	0.3	0.15	0.5	0.4	1	0.3	0.3	0.3	0.15		0.15
Permanent pool volume (cum)	3520	7020	3430					5955	8000	1750				1655	514	925	3500					
Proportion vegetated	0.5	0.5	0.5					0.5	0.5	0.5				0.5	0.5	0.5	0.5					
Equivalent pipe diameter (mm)	90	120	100					125	162	65				225	76	42	118					
Overflow weir width (m)	10	12	20					17	20	10		5	18	10	6	8	6	4	4	4	5	5
Notional Detention Time (hrs)	36.6	35.4	36.9					45.4	23	44.6				5.51	7.94	67.7	23.4					
Orifice discharge coefficient	0.6	0.6	0.6					0.6	0.6	0.6				0.6	0.6	0.6	0.6					
Weir coefficient	1.7	1.7	1.7					1.7	1.7	1.7		1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Number of CSTR cells	5	5	5	10	10	10	10	5	5	5	10	3	3	5	5	5	5	3	3	3	3	3
Total Suspended Solids k (m/yr)	5000	5000	5000	15000	15000	15000	15000	5000	5000	5000	15000	1000	1000	5000	5000	5000	5000	1000	1000	1000	1000	1000
Total Suspended Solids C* (mg/L)	6	6	6	30	30	30	30	6	6	6	30	12	12	6	6	6	6	12	12	12	12	12
Total Suspended Solids C** (mg/L)	6	6	6	13.6	13.6	13.6	13.6	6	6	6	13.6			6	6	6	6					
Total Phosphorus k (m/yr)	2800	2800	2800	12000	12000	12000	12000	2800	2800	2800	12000	500	500	2800	2800	2800	2800	500	500	500	500	500
Total Phosphorus C* (mg/L)	0.09	0.09	0.06	0.18	0.18	0.18	0.18	0.09	0.06	0.06	0.18	0.13	0.13	0.09	0.09	0.09	0.09	0.13	0.13	0.13	0.13	0.13
Total Phosphorus C** (mg/L)	0.09	0.09	0.09	0.143	0.143	0.143	0.143	0.09	0.09	0.09	0.143			0.09	0.09	0.09	0.09					
Total Nitrogen k (m/yr)	500	500	500	1000	1000	1000	1000	500	500	500	1000	50	50	500	500	500	500	50	50	50	50	50
Total Nitrogen C* (mg/L)	0.4	0.4	0.4	0.7	0.7	0.7	0.9	0.4	0.4	0.4	0.7	1.3	1.3	0.4	0.4	0.4	0.4	1.3	1.3	1.3	1.3	1.3
Total Nitrogen C** (mg/L)	1.3	1.3	1.3	0.7	0.7	0.7	0.9	1.3	1.3	1.3	0.7			1.3	1.3	1.3	1.3					
Threshold hydraulic loading for C** (m/yr)	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500			3500	3500	3500	3500					
Horizontal Flow Coefficient																						
Extraction for Re-use	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
Annual Re-use Demand - scaled by daily PET (ML)																						
Annual Re-use Demand - scaled by daily PET - Rain (ML)																						
Constant Daily Re-use Demand (kL)																						
User-defined Annual Re-use Demand (ML)																						
Percentage of User-defined Annual Re-use Demand Jan																						
Percentage of User-defined Annual Re-use Demand Feb																						
Percentage of User-defined Annual Re-use Demand Mar																						
Percentage of User-defined Annual Re-use Demand Apr																						
Percentage of User-defined Annual Re-use Demand May																						
Percentage of User-defined Annual Re-use Demand Jun																						
Percentage of User-defined Annual Re-use Demand Jul																						
Percentage of User-defined Annual Re-use Demand Aug																						
Percentage of User-defined Annual Re-use Demand Sep																						
Percentage of User-defined Annual Re-use Demand Oct																						
Percentage of User-defined Annual Re-use Demand Nov																						
Percentage of User-defined Annual Re-use Demand Dec																						
User-defined Re-use File																						
Filter area (sqm)												1460		582.7				150	75	410	587	273.5
Filter perimeter (m)																						
Filter depth (m)												0.7		0.7				0.7	0.7	0.7	0.7	0.7
Filter median particle diameter (mm)												5		5				5	5	5	5	5
Saturated hydraulic conductivity (mm/hr)												100		100				100	100	100	100	100
Infiltration Media Porosity												0.3		0.3				0.3	0.3	0.3	0.3	0.3
Length (m)				550	820	50	50				150											
Bed slope				0.023	0.023	0.025	0.03				0.03											
Base Width (m)				0.3	0.3	3	3				3											
Top width (m)				20	20	15	15				20											
Vegetation height (m)				0.25	0.25	0.2	0.2				0.2											
Vegetation Type																						
Total Nitrogen Content in Filter (mg/kg)																						
Proportion of Organic Material in Filter (%)																						
Orthophosphate Content in Filter (mg/kg)																						
Is Base Lined?																						
Is Underdrain Present?																						
Is Submerged Zone Present?																						
Submerged Zone Depth (m)																						
B for Media Soil Texture	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
Proportion of upstream impervious area treated																						
Exfiltration Rate (mm/hr)	0	0	0	4	4	4	4	0	0	0	4	4	4	0	0	0	0	4	4	4	4	4
Evap Loss as proportion of PET	1	1	1					1	1	1				1.25	1	1	1					
Depth in metres below the drain pipe												0	0					0	0	0	0	0
TSS A Coefficient																						
TSS B Coefficient																						
TP A Coefficient																						
TP B Coefficient																						
TN A Coefficient																						
TN B Coefficient																						
Sfc																						
S*																						
Sw																						
Sh																						
Emax (m/day)																						
Ew (m/day)																						
IN - Mean Annual Flow (ML/yr)	249	244	503	255	286	166	73.1	113	648	742	106	63	56.1	94	168	168	103	15.2	27.5	49.6	102	157
IN - TSS Mean Annual Load (kg/yr)	6.10E+03	5.24E+03	1.43E+04	1.25E+04	7.66E+03	7.51E+03	4.60E+03	5.73E+03	1.75E+04	2.00E+04	2.07E+03	5.59E+03	3.52E+03	5.20E+03	9.58E+03	8.61E+03	5.42E+03	2.39E+03	2.87E+03	8.10E+03	6.83E+03	5.70E+03
IN - TP Mean Annual Load (kg/yr)	41	36.1	86.8	47.9	39.5	32.3	15.6	23	96.6	104	13.5	13.8	12.7	19.8	37.4	35.3	21.1	4.21	6.02	14	16.8	24.6
IN - TN Mean Annual Load (kg/yr)	339	298	678	425	335	278	145	201	794	914	95.8	127	114	175	438	309	200	34.2	53.8	111	170	226
IN - Gross Pollutant Mean Annual Load (kg/yr)	108	0	176	4.21E+03	749	0	1.81E+03	2.93E+03	1.39E+03	2.32E+03	0	1.45E+03	1.50E+03	2.44E+03	4.38E+03	0	2.32E+03	321	315	1.03E+03	0	120
OUT - Mean Annual Flow (ML/yr)	244	241	497	244	262	162	71	106	639	739	100	53.1	53.6	89	168	166	97.3	12.6	25	44.1	96.6	150
OUT - TSS Mean Annual Load (kg/yr)	5.24E+03	4.17E+03	1.25E+04	6.10E+03	5.46E+03	5.96E+03	2.89E+03	2.07E+03	1.49E+04	1.91E+04	2.09E+03	2.03E+03	1.78E+03	1.93E+03	8.61E+03	7.51E+03	2.99E+03	540	1.46E+03	3.10E+03	4.58E+03	4.68E+03
OUT - TP Mean Annual Load (kg/yr)	36.1	31.2	73	40.6	41.2	31.5	13.4	13.5	83.7	101	15.9	6.8	8.19	11.7	35.3	32.3	14.8	1.74	4.2	7.5	13.6	21.6
OUT - TN Mean Annual Load (kg/yr)	298	256	610	339	286	264	128	95.8	718	889	99.4	60.5	86.4	98.3	309	278	127	20.8	42.7	78.5	144	209
OUT - Gross Pollutant Mean Annual Load (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Flow In (ML/yr)	248.547	244.107	502.731	254.838	286.307	166.23	73.0233	113.369	648.024	741.877	106.17	62.9787	58.1054	93.9055	168.196	167.507	103.334	15.2409	27.4787	49.5812	102.206	156.784
ET Loss (ML/yr)	4.23989	3.12226	5.89671	0	0	0	0	7.15883	9.6032	3.00536	0	0	0	4.98459	0.730497	1.20141	6.01073	0	0	0	0	0
Infiltration Loss (ML/yr)	0	0	0	10.9901	24.3841	3.97732	2.09013	0	0	0	6.06554	9.94809	4.57966	0	0	0	0	2.64126	2.53112	5.45967	5.66382	6.65305
Low Flow Bypass Out (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
High Flow Bypass Out (ML/yr)	0	0	0	0	0	59.7712	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orifice / Filter Out (ML/yr)	75.1281	148.86	142.556	243.957	262.045	162.182	70.9742	76.7355	267.987	100.654	100.104	36.3256	23.4254	65.1365	32.9081	42.4246	45.3232	7.77617	9.20998	22.7838	37.2433	42.8716
Weir Out (ML/yr)	169.005	92.1431	354.11	0	0	0	0	29.4384	370.586	638.053	0	16.783	30.1436	23.8279	134.635	123.821	51.9974	6.83562	15.7417	21.3564	59.337	107.271
Transfer Function Out (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reuse Supplied (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reuse Requested (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Reuse Demand Met	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Load Reduction	1.77612	1.2633	1.2064	4.26894	8.47423	-33.5216	2.80612	6.34697	1.48151	0.400511	5.71306	15.6721	7.80708	5.26163	0.387699	0.752779	5.81918	17.2501	9.19659	10.9379	5.50442	4.23575
TSS Flow In (kg/yr)	6101.58	5237.92	14307.5	12450.2	7659.91	7503.83	4601.52	5722.39	17475.5	20001.9	2065.54	5581.38	3519.22	5195.53	9569.36	8605.15	5412.97	2387.07	2865.66	8092.2	6829.89	5700.76
TSS ET Loss (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS Infiltration Loss (kg/yr)	0	0	0	165.878	340.735	59.1215	32.316	0	0	0	83.9017	162.574	79.6509	0	0	0	0	72.1049	62.7619	167.849	108.34	88.7189
TSS Low Flow Bypass Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS High Flow Bypass Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS Orifice / Filter Out (kg/yr)	481.094	1039.18	904.547	6101.12	5458.46	5953.41	2893.74	479.87	1715.15	647.687	2088.17	340.759	142.002	510.464	376.806	307.237	288.936	59.3263	42.7602	232.037	129.058	99.1157
TSS Weir Out (kg/yr)	4757.66	3131.92	11562.8	0	0	2.19932	0	1585.85	13174.9	18455.6	0	1691.15	1633.71	1421.08	6232.44	7197.73	2698.33	480.254	1415.32	2863.2	4447.04	4577.74
TSS Transfer Function Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS Reuse Supplied (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS Reuse Requested (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS % Reuse Demand Met	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS % Load Reduction	14.141	20.3672	12.8632	50.9958	28.74	20.6323	37.1133	63.9011	14.7945	4.49269	-1.09542	63.595	49.5425	62.8231	10.0332	12.7851	44.8127	77.3957	49.1188	61.7503	32.999	17.9611

USTM treatment nodes																			
Location	Bio-Retention G2 - V3	Bio-Retention H - V3	Bio-Retention E1 (east) - V3	Bio-swale 23 - V3	Bio-swale 24 - V3	Wetland No. 6b	Wetland No.3b	Bio-swale 1 - V3	Bio-swale 2 - V3	Bio-Retention J2 - V3	Rainwater Tank B	Rainwater Tank C	Rainwater Tank D	Rainwater Tank G2	Rainwater Tank H	Rainwater Tank G1	Rainwater Tank J2	Rainwater Tank J1	Rainwater Tank I
ID	60	64	66	72	74	79	80	83	84	91	100	102	104	105	107	109	111	113	115
Node Type	BioRetentionNode	BioRetentionNode	BioRetentionNode	BioRetentionNode	BioRetentionNode	WetlandNode	WetlandNode	BioRetentionNode	BioRetentionNode	BioRetentionNode	RainWaterTankNode	RainWaterTankNode	RainWaterTankNode	RainWaterTankNode	RainWaterTankNode	RainWaterTankNode	RainWaterTankNode	RainWaterTankNode	RainWaterTankNode
Lo-flow bypass rate (cum/sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hi-flow bypass rate (cum/sec)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Inlet pond volume						0	0				0	0	0	0	0	0	0	0	0
Area (sqm)	1995	2175	832.5	2000	1000	4600	5100	2442	1818	900	5	5	5	5	5	5	5	5	5
Extended detention depth (m)	0.15	0.3	0.15	0.4	0.4	0.4	0.4	0.3	0.3	0.15	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Permanent pool volume (cum)						3220	3570				109	114	202	35	80	42	54	197	47
Proportion vegetated						0.5	0.5				0	0	0	0	0	0	0	0	0
Equivalent pipe diameter (mm)						90	95				4000	4200	7500	1304	3000	1584	2043	7387	1778
Overflow weir width (m)	5	5	18	6	6	10	20	4	4	5	10	10	10	10	10	10	10	10	10
Notional Detention Time (hrs)						42.8	42.6				1.67E-05	1.51E-05	4.74E-06	1.57E-04	2.96E-05	1.09E-04	6.39E-05	4.69E-06	8.43E-05
Orifice discharge coefficient						0.6	0.6				0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Weir coefficient	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Number of CSTR cells	3	3	3	3	3	5	5	3	3	3	2	2	2	2	2	2	2	2	2
Total Suspended Solids k (m/yr)	1000	1000	1000	1000	1000	5000	5000	1000	1000	1000	400	400	400	400	400	400	400	400	400
Total Suspended Solids C* (mg/L)	12	12	12	12	12	6	6	12	12	12	12	12	12	12	12	12	12	12	12
Total Suspended Solids C** (mg/L)						6	6				12	12	12	12	12	12	12	12	12
Total Phosphorus k (m/yr)	500	500	500	500	500	2800	2800	500	500	500	300	300	300	300	300	300	300	300	300
Total Phosphorus C* (mg/L)	0.13	0.13	0.13	0.13	0.13	0.06	0.06	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Total Phosphorus C** (mg/L)						0.09	0.09				0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Total Nitrogen k (m/yr)	50	50	50	50	50	500	500	50	50	50	40	40	40	40	40	40	40	40	40
Total Nitrogen C* (mg/L)	1.3	1.3	1.3	1.3	1.3	0.4	0.4	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Total Nitrogen C** (mg/L)						1.3	1.3				1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Threshold hydraulic loading for C** (m/yr)						3500	3500				3500	3500	3500	3500	3500	3500	3500	3500	3500
Horizontal Flow Coefficient																			
Extraction for Re-use	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	On	On	On	On	On	On	On	On	On
Annual Re-use Demand - scaled by daily PET (ML)											0.6	0.634	1.476	0.25476	0.58622	0.30552	0.399	1.44353	0.34752
Annual Re-use Demand - scaled by daily PET - Rain (ML)											-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
Constant Daily Re-use Demand (kL)											3.378	3.527	6.258	1.076	2.476	1.291	1.666	6.098	1.468
User-defined Annual Re-use Demand (ML)											0	0	0	0	0	0	0	0	0
Percentage of User-defined Annual Re-use Demand Jan											8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Feb											8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Mar											8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Apr											8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand May											8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Jun											8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Jul											8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Aug											8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Sep											8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Oct											8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Nov																			
Percentage of User-defined Annual Re-use Demand Dec																			
User-defined Re-use File																			
Filter area (sqm)	498.7	543.7	582.7	500	250			814	606	450									
Filter perimeter (m)																			
Filter depth (m)	0.7	0.7	0.7	0.7	0.7			0.7	0.7	0.5									
Filter median particle diameter (mm)	5	5	5	5	5			5	5	5									
Saturated hydraulic conductivity (mm/hr)	100	100	100	100	100			100	100	100									
Infiltration Media Porosity	0.3	0.3	0.3	0.3	0.3			0.3	0.3	0.3									
Length (m)																			
Bed slope																			
Base Width (m)																			
Top width (m)																			
Vegetation height (m)																			
Vegetation Type																			
Total Nitrogen Content in Filter (mg/kg)																			
Proportion of Organic Material in Filter (%)																			
Orthophosphate Content in Filter (mg/kg)																			
Is Base Lined?																			
Is Underdrain Present?																			
Is Submerged Zone Present?											-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
Submerged Zone Depth (m)																			
B for Media Soil Texture	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	0	0	0	0	0	0	0	0	0
Proportion of upstream impervious area treated											0	0	0	0	0	0	0	0	0
Exfiltration Rate (mm/hr)	4	4	4	3.5	4	0	0	4	4	4									
Evap Loss as proportion of PET						1	1												
Depth in metres below the drain pipe	0	0	0	0	0			0	0	0									
TSS A Coefficient																			
TSS B Coefficient																			
TP A Coefficient																			
TP B Coefficient																			
TN A Coefficient																			
TN B Coefficient																			
Sfc																			
S*																			
Sw																			
Sh																			
Emax (m/day)											4.1	4.28	7.57	1.31	3	1.56	2.04	7.4	1.78
Ew (m/day)											118	127	226	39.2	93.2	48.1	59.7	213	52.4
IN - Mean Annual Flow (ML/yr)	164	97.1	53	44.9	12.1	739	497	18.8	18.1	7.43	0.697	0.702	1.28	0.22	0.506	0.269	0.339	1.23	0.3
IN - TSS Mean Annual Load (kg/yr)	5.37E+03	4.60E+03	1.06E+04	9.28E+03	1.26E+03	1.91E+04	1.25E+04	2.43E+03	2.33E+03	1.17E+03	9.43	9.82	17.4	3	6.8	3.61	4.74	17.1	4.11
IN - TP Mean Annual Load (kg/yr)	24.4	13.6	16.4	14.1	3.2	101	73	3.61	3.71	2.05	96.2	100	176	30.7	70.5	38.6	47.8	174	41.8
IN - TN Mean Annual Load (kg/yr)	236	144	120	103	25.4	889	610	35.6	32	16.6	2.68	2.79	4.94	0.852	1.96	1.02	1.33	4.83	1.16
IN - Gross Pollutant Mean Annual Load (kg/yr)	289	0	1.36E+03	1.14E+03	308	0	0	126	121	157	2.68	2.79	4.94	23.7	58.7	29.4	36.4	135	31.7
OUT - Mean Annual Flow (ML/yr)	156	91.6	48.6	40.2	10.5	733	490	13.1	13.3	5.96	73.1	79.6	144	23.7	58.7	29.4	36.4	135	31.7
OUT - TSS Mean Annual Load (kg/yr)	4.09E+03	3.38E+03	4.77E+03	2.06E+03	171	1.81E+04	1.17E+04	826	932	202	0.449	0.451	0.832	0.138	0.321	0.166	0.215	0.795	0.193
OUT - TP Mean Annual Load (kg/yr)	20.5	11.2	10	5.81	1.07	98	68.4	1.88	2.14	0.758	6.11	6.32	11.3	1.93	4.34	2.33	3.05	11.1	2.67
OUT - TN Mean Annual Load (kg/yr)	209	122	89.4	65.3	14.2	860	580	23.7	22.3	9.01	0	0	0	0	0	0	0	0	0
OUT - Gross Pollutant Mean Annual Load (kg/yr)	0	0	0	0	0	0	0	0	0	0	4.10075	4.281	7.56984	1.30658	3.00414	1.56213	2.04286	7.3977	1.77896
Flow In (ML/yr)	164.258	97.0142	52.9735	44.8654	12.1378	738.693	496.58	18.837	18.107	7.42462	0	0	0	0	0	0	0	0	0
ET Loss (ML/yr)	0	0	0	0	0	5.6322	6.14025	0	0	0	0	0	0	0	0	0	0	0	0
Infiltration Loss (ML/yr)	8.39408	5.52114	4.39911	4.71371	1.66638	0	0	5.72856	4.82093	1.48142	0	0	0	0	0	0	0	0	0
Low Flow Bypass Out (ML/yr)	0	0	0	0	0	0	0	0	0	0	2.6773	2.7848	4.93765	0.852417	1.96079	1.01757	1.3345	4.82806	1.16315
High Flow Bypass Out (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orifice / Filter Out (ML/yr)	58.3784	41.6749	22.4033	27.7834	8.758	171.631	147.101	7.47222	7.02009	5.06115	0	0	0	0	0	0	0	0	0
Weir Out (ML/yr)	99.5811	49.8754	26.2204	12.3996	1.69717	561.388	343.248	5.6661	6.28695	0.895109	0	0	0	0	0	0	0	0	0
Transfer Function Out (ML/yr)	0	0	0	0	0	0	0	0	0	0	1.42442	1.48657	2.63202	0.454266	1.04156	0.543341	0.708942	2.56959	0.616237
Reuse Supplied (ML/yr)	0	0	0	0	0	0	0	0	0	0	2.04052	2.12376	3.76027	0.648451	1.48956	0.77512	1.01595	3.6797	0.883941
Reuse Requested (ML/yr)	0	0	0	0	0	0	0	0	0	0	69.8068	69.9973	69.9956	70.0508	69.9242	70.0976	69.7814	69.8314	69.7147
% Reuse Demand Met	0	0	0	0	0	0	0	0	0	0	34.7121	34.7209	34.7721	34.7597	34.7305	34.8599	34.6748	34.7356	34.6531
% Load Reduction	5.05146	5.63199	8.21126	10.4366	13.7802	0.768196	1.25471	30.2526	26.4976	19.777	118.361	126.737	226.101	39.1941	93.2005	48.0803	59.7287	213.211	52.3868
TSS Flow In (kg/yr)	5365.03	4603.99	10562.7	9275.62	1259.65	19100.1	12464.6	2427.7	2330.25	1171.66	0	0	0	0	0	0	0	0	0
TSS ET Loss (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS Infiltration Loss (kg/yr)	116.877	84.9543	143.414	194.117	39.8517	0	0	96.4481	81.5681	27.8171	0	0	0	0	0	0	0	0	0
TSS Low Flow Bypass Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	73.0782	79.5946	144.314	23.6702	56.6662	29.4397	36.3944	135.456	31.6683
TSS High Flow Bypass Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS Orifice / Filter Out (kg/yr)	106.041	108.618	424.556	318.49	61.1917	1087.96	923.031	90.2582	83.1104	106.002	0	0	0	0	0	0	0	0	0
TSS Weir Out (kg/yr)	3982.93	3268.15	4343.63	1740.84	109.631	17035.6	10761.8	736.039	849.23	95.683	0	0	0	0	0	0	0	0	0
TSS Transfer Function Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	30.5059	31.9981	63.3222	7.84336	22.137	9.63529	13.0544	60.1264	11.1294
TSS Reuse Supplied (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS Reuse Requested (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS % Reuse Demand Met	0	0	0	0	0	0	0	0	0	0	38.258	37.1968	38.1728	39.6079	39.1997	38.7698	39.0671	36.4685	39.5486
TSS % Load Reduction	23.7648	26.6557	54.8582	77.8006	86.4388	5.11265	6.25611	65.9638	59.9896	82.788	0.696969	0.702486	1.2833	0.220105	0.506319	0.263356	0.338589	1.22693	0.300022

USTM treatment nodes

Location	Rainwater Tank E2	Rainwater Tank A3	Rainwater Tank A2	Rainwater Tank A1	Rainwater Tank A4	Rainwater Tank E3	Rainwater Tank E5	Rainwater Tank E4	Rainwater Tank E6
ID	117	120	122	124	126	128	130	132	134
Node Type	RainWaterTankNode	RainWaterTankNode	RainWaterTankNode	RainWaterTankNode	RainWaterTankNode	RainWaterTankNode	RainWaterTankNode	RainWaterTankNode	RainWaterTankNode
Lo-flow bypass rate (cum/sec)	0	0	0	0	0	0	0	0	0
Hi-flow bypass rate (cum/sec)	100	100	100	100	100	100	100	100	100
Inlet pond volume	0	0	0	0	0	0	0	0	0
Area (sqm)	5	5	20	5	5	5	5	5	5
Extended detention depth (m)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Permanent pool volume (cum)	334	130	375	418	148	121	80	319	103
Proportion vegetated	0	0	0	0	0	0	0	0	0
Equivalent pipe diameter (mm)	12514	4858	14048	15659	5557	4539	2992	11956	3849
Overflow weir width (m)	10	10	10	10	10	10	10	10	10
Notional Detention Time (hrs)	1.70E-06	1.13E-05	5.40E-06	1.09E-06	8.63E-06	1.29E-05	2.98E-05	1.86E-06	1.80E-05
Orifice discharge coefficient	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Weir coefficient	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Number of CSTR cells	2	2	2	2	2	2	2	2	2
Total Suspended Solids k (m/yr)	400	400	400	400	400	400	400	400	400
Total Suspended Solids C* (mg/L)	12	12	12	12	12	12	12	12	12
Total Suspended Solids C** (mg/L)	12	12	12	12	12	12	12	12	12
Total Phosphorus k (m/yr)	300	300	300	300	300	300	300	300	300
Total Phosphorus C* (mg/L)	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Total Phosphorus C** (mg/L)	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Total Nitrogen k (m/yr)	40	40	40	40	40	40	40	40	40
Total Nitrogen C* (mg/L)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Total Nitrogen C** (mg/L)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Threshold hydraulic loading for C** (m/yr)	3500	3500	3500	3500	3500	3500	3500	3500	3500
Horizontal Flow Coefficient									
Extraction for Re-use	On	On	On	On	On	On	On	On	On
Annual Re-use Demand - scaled by daily PET (ML)	2.445	0.94918	2.745	3.059	1.085	0.887	0.58462	2.336	0.752
Annual Re-use Demand - scaled by daily PET - Rain (ML)	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
Constant Daily Re-use Demand (kL)	10.329	4.01	11.596	12.925	4.587	3.747	2.47	9.869	3.177
User-defined Annual Re-use Demand (ML)	0	0	0	0	0	0	0	0	0
Percentage of User-defined Annual Re-use Demand Jan	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Feb	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Mar	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Apr	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand May	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Jun	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Jul	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Aug	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Sep	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Oct	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Nov	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333	8.333333333
Percentage of User-defined Annual Re-use Demand Dec									
User-defined Re-use File									
Filter area (sqm)									
Filter perimeter (m)									
Filter depth (m)									
Filter median particle diameter (mm)									
Saturated hydraulic conductivity (mm/hr)									
Infiltration Media Porosity									
Length (m)									
Bed slope									
Base Width (m)									
Top width (m)									
Vegetation height (m)									
Vegetation Type									
Total Nitrogen Content in Filter (mg/kg)									
Proportion of Organic Material in Filter (%)									
Orthophosphate Content in Filter (mg/kg)									
Is Base Lined?									
Is Underdrain Present?									
Is Submerged Zone Present?									
Submerged Zone Depth (m)	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
B for Media Soil Texture									
Proportion of upstream impervious area treated	0	0	0	0	0	0	0	0	0
Exfiltration Rate (mm/hr)	0	0	0	0	0	0	0	0	0
Evap Loss as proportion of PET									
Depth in metres below the drain pipe									
TSS A Coefficient									
TSS B Coefficient									
TP A Coefficient									
TP B Coefficient									
TN A Coefficient									
TN B Coefficient									
Sfc									
S*									
Sw									
Sh									
Emax (m/day)									
Ew (m/day)	12.5	4.87	14.1	15.7	5.56	4.54	3	12	3.85
IN - Mean Annual Flow (ML/yr)	369	146	413	472	163	140	87.2	354	115
IN - TSS Mean Annual Load (kg/yr)	2.08	0.802	2.37	2.61	0.917	0.757	0.498	1.97	0.631
IN - TP Mean Annual Load (kg/yr)	28.8	11.2	32.9	35.8	12.9	10.3	6.83	27.8	8.9
IN - TN Mean Annual Load (kg/yr)	294	114	330	368	131	107	70.3	281	90.4
IN - Gross Pollutant Mean Annual Load (kg/yr)	8.17	3.18	9.18	10.2	3.63	2.97	1.96	7.81	2.51
OUT - Mean Annual Flow (ML/yr)	234	89.3	256	301	102	87.3	53.3	226	71
OUT - TSS Mean Annual Load (kg/yr)	1.34	0.522	1.53	1.71	0.591	0.492	0.316	1.28	0.406
OUT - TP Mean Annual Load (kg/yr)	18.5	7.28	21.4	23.4	8.37	6.66	4.43	18.1	5.76
OUT - TN Mean Annual Load (kg/yr)	0	0	0	0	0	0	0	0	0
OUT - Gross Pollutant Mean Annual Load (kg/yr)	12.527	4.8667	14.0663	15.6801	5.56509	4.54353	2.99668	11.9718	3.85289
Flow In (ML/yr)	0	0	0	0	0	0	0	0	0
ET Loss (ML/yr)	0	0	0	0	0	0	0	0	0
Infiltration Loss (ML/yr)	0	0	0	0	0	0	0	0	0
Low Flow Bypass Out (ML/yr)	0	0	0	0	0	0	0	0	0
High Flow Bypass Out (ML/yr)	8.17327	3.1752	9.17784	10.232	3.63321	2.96529	1.95516	7.81174	2.51298
Orifice / Filter Out (ML/yr)	0	0	0	0	0	0	0	0	0
Weir Out (ML/yr)	0	0	0	0	0	0	0	0	0
Transfer Function Out (ML/yr)	4.3451	1.69068	4.88046	5.44535	1.92972	1.57762	1.04033	4.1539	1.33784
Reuse Supplied (ML/yr)	6.20785	2.41111	6.97545	7.77747	2.75856	2.25566	1.48626	5.93913	1.91416
Reuse Requested (ML/yr)	69.9936	70.1204	69.9663	70.0144	69.9539	69.9404	69.9969	69.9412	69.8918
% Reuse Demand Met	34.7546	34.7565	34.753	34.7452	34.7142	34.7359	34.7554	34.7488	34.7767
% Load Reduction	369.213	146.059	412.755	472.458	162.656	140.031	87.212	353.55	114.841
TSS Flow In (kg/yr)	0	0	0	0	0	0	0	0	0
TSS ET Loss (kg/yr)	0	0	0	0	0	0	0	0	0
TSS Infiltration Loss (kg/yr)	0	0	0	0	0	0	0	0	0
TSS Low Flow Bypass Out (kg/yr)	0	0	0	0	0	0	0	0	0
TSS High Flow Bypass Out (kg/yr)	234.189	89.2648	255.899	300.747	101.574	87.3413	53.264	225.676	71.0461
TSS Orifice / Filter Out (kg/yr)	0	0	0	0	0	0	0	0	0
TSS Weir Out (kg/yr)	0	0	0	0	0	0	0	0	0
TSS Transfer Function Out (kg/yr)	113.382	39.6161	101.712	147.115	44.2396	35.9934	21.1804	106.904	29.1164
TSS Reuse Supplied (kg/yr)	0	0	0	0	0	0	0	0	0
TSS Reuse Requested (kg/yr)	0	0	0	0	0	0	0	0	0
TSS % Reuse Demand Met	36.5709	38.8845	38.0021	36.3441	37.5528	37.6273	38.9258	36.1685	38.1353
TSS % Load Reduction	2.07748	0.802393	2.36499	2.61307	0.917369	0.757077	0.497936	1.97	0.630617

Generic treatment nodes

Location	GPT	GPT	GPT	GPT	GPT US	GPT	GPT US	GPT US	GPT US	GPT US	GPT US	GPT US	GPT US	GPT US	GPT US	GPT US	GPT US	GPT US	GPT US	GPT US
ID	46	56	73	81	88	88	135	136	137	138	139	140	141	142	143	144	145	146	147	148
Node Type	GPTNode	GPTNode	GPTNode	GPTNode	GPTNode	GPTNode	GPTNode	GPTNode	GPTNode	GPTNode	GPTNode	GPTNode	GPTNode	GPTNode	GPTNode	GPTNode	GPTNode	GPTNode	GPTNode	GPTNode
Lo-flow bypass rate (cum/sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hi-flow bypass rate (cum/sec)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Flow Transfer Function																				
Input (cum/sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Output (cum/sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Input (cum/sec)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Output (cum/sec)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Gross Pollutant Transfer Function																				
Input (kg/ML)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Output (kg/ML)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Input (kg/ML)	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Output (kg/ML)	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Total Nitrogen Transfer Function																				
Input (mg/L)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Output (mg/L)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Input (mg/L)	49.87222057	49.87222057	49.87222057	49.87222057	100	49.87222057	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Output (mg/L)	46.13932854	46.13932854	46.13932854	46.13932854	87	46.13932854	87	87	87	87	87	87	87	87	87	87	87	87	87	87
Total Phosphorus Transfer Function																				
Input (mg/L)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Output (mg/L)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Input (mg/L)	5.014131495	5.014131495	5.014131495	5.014131495	10	5.014131495	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Output (mg/L)	4.107393184	4.107393184	4.107393184	4.107393184	7	4.107393184	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Total Suspended Solids Transfer Function																				
Input (mg/L)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Output (mg/L)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Input (mg/L)	1002.869437	1002.869437	1002.869437	1002.869437	100	1002.869437	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Output (mg/L)	517.037633	517.037633	517.037633	517.037633	30	517.037633	30	30	30	30	30	30	30	30	30	30	30	30	30	30
IN - Mean Annual Flow (ML/yr)	25	101	40.2	12.1	91.5	26.4	151	103	51.9	25.8	138	30.4	68	39.8	102	57.9	13.7	40.2	37.5	58.2
IN - TSS Mean Annual Load (kg/yr)	1.48E+03	1.22E+04	2.06E+03	2.44E+03	1.73E+04	1.76E+03	2.82E+04	1.91E+04	9.88E+03	4.92E+03	2.61E+04	5.83E+03	1.32E+04	6.60E+03	1.78E+04	1.17E+04	2.23E+03	7.93E+03	6.16E+03	1.02E+04
IN - TP Mean Annual Load (kg/yr)	4.2	23.2	5.81	3.91	28	4.03	47.1	31.4	16	8.02	44.1	9.33	20.8	11.6	30.1	18.1	3.85	12.6	10.4	17
IN - TN Mean Annual Load (kg/yr)	42.7	205	65.3	27.5	201	46	341	230	118	58.5	318	68.1	155	90.5	229	131	30.5	92.3	84.8	134
IN - Gross Pollutant Mean Annual Load (kg/yr)	0	1.20E+03	0	308	2.38E+03	0	3.94E+03	2.68E+03	1.35E+03	671	3.59E+03	791	1.77E+03	883	2.32E+03	1.50E+03	289	1.04E+03	793	1.31E+03
OUT - Mean Annual Flow (ML/yr)	25	101	40.2	12.1	91.5	26.4	151	103	51.9	25.8	138	30.4	68	39.8	102	57.9	13.7	40.2	37.5	58.2
OUT - TSS Mean Annual Load (kg/yr)	752	6.31E+03	1.06E+03	1.26E+03	5.20E+03	907	8.47E+03	5.73E+03	2.96E+03	1.48E+03	7.83E+03	1.75E+03	3.96E+03	2.04E+03	5.35E+03	3.51E+03	668	2.38E+03	1.85E+03	3.07E+03
OUT - TP Mean Annual Load (kg/yr)	3.44	19	4.76	3.2	19.6	3.3	33	22	11.2	5.61	30.9	6.53	14.6	8.13	21.1	12.7	2.69	8.85	7.27	11.9
OUT - TN Mean Annual Load (kg/yr)	39.5	190	60.4	25.4	175	42.6	297	200	103	50.9	277	59.2	135	78.7	200	114	26.5	80.3	73.8	117
OUT - Gross Pollutant Mean Annual Load (kg/yr)	0	1.20E+03	0	308	2.38E+03	0	3.94E+03	2.68E+03	1.35E+03	671	3.59E+03	791	1.77E+03	883	2.32E+03	1.50E+03	289	1.04E+03	793	1.31E+03
Flow In (ML/yr)	24.9515	100.836	40.1829	12.1378	91.4236	26.4472	151.049	102.881	51.8748	25.7685	137.848	30.3614	68.0033	39.8083	102.203	57.9061	13.726	40.179	37.513	58.164
ET Loss (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infiltration Loss (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Low Flow Bypass Out (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
High Flow Bypass Out (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orifice / Filter Out (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Weir Out (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfer Function Out (ML/yr)	24.9515	100.836	40.1829	12.1378	91.4236	26.4472	151.049	102.881	51.8748	25.7685	137.848	30.3614	68.0033	39.8083	102.203	57.9061	13.726	40.179	37.513	58.164
Reuse Supplied (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reuse Requested (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Reuse Demand Met	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Load Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS Flow In (kg/yr)	1457.64	12240.3	2058.95	2443.23	17317.2	1758.17	28220	19071.9	9850.05	4920.31	26074.7	5821.45	13179.6	6794.74	17828.3	11695.7	2224.76	7923.35	6155.75	10235.9
TSS ET Loss (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS Infiltration Loss (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS Low Flow Bypass Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS High Flow Bypass Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS Orifice / Filter Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS Weir Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS Transfer Function Out (kg/yr)	751.506	6310.3	1061.49	1259.65	5195.29	906.45	8465.98	5721.35	2954.93	1476.06	7822.65	1746.39	3954.08	2038.41	5348.23	3508.64	667.472	2377	1846.85	3070.5
TSS Reuse Supplied (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS Reuse Requested (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS % Reuse Demand Met	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS % Load Reduction	48.4435	48.4465	48.4453	48.4433	69.9993	48.4435	70.0001	70.0012	70.0008	70.0007	69.9983	70.0007	69.9984	70.0002	69.9981	70.0005	69.998	70	69.998	70.0026
TP Flow In (kg/yr)	4.1957	23.2358	5.81053	3.90637	27.9418	4.02541	47.0533	31.3369	15.9602	8.01079	44.1155	9.32648	20.7827	11.6067	30.0652	18.0874	3.84318	12.6367	10.3781	16.9498
TP ET Loss (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TP Infiltration Loss (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TP Low Flow Bypass Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TP High Flow Bypass Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TP Orifice / Filter Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TP Weir Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TP Transfer Function Out (kg/yr)	3.43696	19.0322	4.75975	3.19982	19.5579	3.29746	32.9367	21.9362	11.1723	5.60766	30.8819	6.52687	14.5494	8.12427	21.0435	12.6609	2.69032	8.846	7.26556	11.8651
TP Reuse Supplied (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TP Reuse Requested (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TP % Reuse Demand Met	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TP % Load Reduction	18.0838	18.0911	18.084	18.0871	30.0048	18.084	30.0014	29.9987	29.999	29.9986	29.9977	29.9964	29.993	30.0034	30.0071	30.0016	29.9974	29.9978	29.9914	29.9987
TN Flow In (kg/yr)	42.6759	204.837	65.2688	27.4528	201.056	46.039	340.688	230.208	118.19	58.4613	317.831	68.0188	154.72	90.4034	229.272	131.329	30.4711	92.2328	84.7517	134.244
TN ET Loss (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TN Infiltration Loss (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TN Low Flow Bypass Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TN High Flow Bypass Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TN Orifice / Filter Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TN Weir Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TN Transfer Function Out (kg/yr)	39.4817	189.512	60.3843	25.3969	174.924	42.5936	296.385	200.268	102.827	50.8584	276.531	59.1794	134.609	78.645	199.455	114.262	26.511	80.2377	73.7293	116.796
TN Reuse Supplied (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TN Reuse Requested (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TN % Reuse Demand Met	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TN % Load Reduction	7.48499	7.48175	7.4837	7.48889	12.9975	7.48364	13.0039	13.0056	12.9986	13.0051	12.9946	12.9955	12.9982	13.0066	13.0052	12.9962	12.9964	13.0053	13.0055	12.9976
GP Flow In (kg/yr)	0	1201.1	0	307.985	2382.04	0	3936.16	2680.98	1351.58	671.387	3591.47	791.116	1771.81	882.558	2318.59	1496.85	289.091	1038.42	792.623	1309.97
GP ET Loss (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GP Infiltration Loss (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GP Low Flow Bypass Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GP High Flow Bypass Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GP Orifice / Filter Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GP Weir Out (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GP Transfer Function Out (kg/yr)	0	1201.12	0	307.986	2382.01	0	3936.19	2680.99	1351.59	671.394	3591.44	791.113	1771.81	882.56	2318.6	1496.85	289.092	1038.44	792.636	1309.95
GP Reuse Supplied (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GP Reuse Requested (kg/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GP % Reuse Demand Met	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GP % Load Reduction	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Other nodes

Location	OCEAN	Total s-c 4	Ocean	HARBOUR	Junction
ID	10	14	76	87	90
Node Type	ReceivingNode	JunctionNode	JunctionNode	JunctionNode	JunctionNode
IN - Mean Annual Flow (ML/yr)	1.29E+03	45.4	40.2	1.23E+03	54.7
IN - TSS Mean Annual Load (kg/yr)	4.67E+04	3.49E+03	1.06E+03	4.35E+04	3.00E+03
IN - TP Mean Annual Load (kg/yr)	186	8.36	4.76	177	7.57
IN - TN Mean Annual Load (kg/yr)	1.76E+03	79	60.4	1.66E+03	86
IN - Gross Pollutant Mean Annual Load (kg/yr)	3.13E+03	749	0	3.03E+03	96.8
OUT - Mean Annual Flow (ML/yr)	0	45.4	40.2	1.23E+03	54.7
OUT - TSS Mean Annual Load (kg/yr)	0	3.49E+03	1.06E+03	4.35E+04	3.00E+03
OUT - TP Mean Annual Load (kg/yr)	0	8.36	4.76	177	7.57
OUT - TN Mean Annual Load (kg/yr)	0	79	60.4	1.66E+03	86
OUT - Gross Pollutant Mean Annual Load (kg/yr)	0	749	0	3.03E+03	96.8