CAPITA SYMONDS

Planning, Environment & Design



Quality Management

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Appendix I

1. Executive Summary

1.1 Overview

- 1.1.1 This Flood Risk Assessment (FRA) has been prepared by Capita Symonds, on behalf of Northwest Haverhill Consortium of Landowners, in relation to a planning application for the first phase of a residential development comprising circa 460 properties.
- 1.1.2 The Report presents an independent assessment of site specific flood risk in accordance with the documents 'National Planning Policy Framework' and 'Technical Guidance to the National Planning Policy Framework' published by the Department of Communities and Local Government in March 2012.
- 1.1.3 The proposed development is located on the northern extent of Haverhill, Suffolk with an approximate site centre National Grid Reference of TL 673 467.
- 1.1.4 The British Geological Survey maps identify the geology of the application area as the Lowestoft Formation comprising an extensive sheet of chalky till, together with outwash sands and gravels, silts and clays.
- 1.1.5 The River Stour, designated a primary river, is located approximately 450 m south west of the development site. Three culverted watercourses, which originate within the site boundary, outfall to the River Stour via two outfalls.
- 1.1.6 The scheme comprises circa 460 residential properties and associated highway infrastructure.
- 1.1.7 A review of the publically available Environment Agency Flood Data Map shows that the application site is within Flood Zone 1.
- 1.1.8 No historic flood events have been identified or recorded on the Environment Agency Historic Flood Map for either the culverted sections of watercourse or the watercourses themselves.
- 1.1.9 The surface water discharge from the site will be restricted to the 1 in 1 year Greenfield Runoff Rate for the site in its undeveloped form, the total rate for the first phase of development has been calculated at 37.4 l/s.
- 1.1.10 The development will incorporate a series of Sustainable Drainage Systems to attenuate and treat surface water runoff generated by the impermeable surfaces.
- 1.1.11 The strategy comprises restricting the rate of runoff, from the residential development cells, to the 1 in 1 year undeveloped Greenfield runoff rate. Surface water will be attenuated up to the 1 in 100 year plus climate change (30%) rainfall event
- 1.1.12 In summary the proposed development will not be subject to unacceptable flood risk and with careful design of surface water systems to current best practise should not increase the risk of flooding elsewhere.

2. Introduction

2.1 Commission

2.1.1 Capita Symonds has been commissioned by Northwest Haverhill Consortium of Landowners to provide supplementary information, for the planning application associated with the initial phase of the proposed residential development, in the form of a Level 2 Flood Risk Assessment (FRA).

2.2 Background

- 2.2.1 The site has historically been used for arable farming.
- 2.2.2 The 'Technical Guidance to the National Planning Policy Framework' (TGNPPF), published in March 2012 by the Department for Communities and Local Government, defines the requirement for a Flood Risk Assessment as sites comprising one hectare or more within Flood Zone 1 and all sites within Flood Zone 2 and 3.
- 2.2.3 The guidance document TGNPPF defines Flood Zone 1 as:

 'land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%)'
- 2.2.4 A review of the publically available Environment Agency Flood Data Map indicates that the site is within Flood Zone 1, a copy of the Flood Data Map is reproduced within the appendices of this report. Considering the overall site area associated with the development a Flood Risk Assessment is required.

2.3 Methodology

- 2.3.1 The purpose of an FRA is to assess the risks of all forms of flooding to and arising from a development.
- 2.3.2 The Source-Pathway-Receptor model, used within this assessment, looks to initially identify the cause(s) or 'Source(s)' of flooding to and arising from a development. The identification is based on a review of local conditions and consideration of the effects of climate change.
- 2.3.3 The presence of a source of flooding does not always imply a risk. It is the flooding mechanism(s) or 'Pathway(s)' that determines the risk to the Receptor and the extent of any consequence.
- 2.3.4 Receptors include any people or structures within the range of the Source which are also connected to the Source by a viable Pathway. The varying effect of flooding on the 'Receptor' is subject to its sensitivity, for example if the Receptor is permanently occupied, such as a residential property, or partially occupied, such as an office building.
- 2.3.5 In order for there to be a flood risk, all elements of the model must be present and connected. It therefore follows that effective mitigation can be provided by removing one element of the model, for example removing the Pathway or Receptor.

2.4 Aims and Objectives

- 2.4.1 The purposes of the Report are as follows:
 - (i) To confirm that the proposed development will not be subject to unacceptable flood risk or to show that flood risk can be managed acceptably.
 - (ii) To demonstrate that the proposed development will not increase risk of flooding elsewhere.
 - (iii) To confirm that satisfactory strategies for disposal of wastewater and surface water runoff from the proposed development are achievable.

3. Site Description

3.1 Location

- 3.1.1 The proposed development is located on the northern extent of Haverhill, Suffolk. The approximate site centre is located at National Grid Reference TL 673 467.
- 3.1.2 A site location map is provided as Figure 3-1 with the approximate site boundary shown blue.



Contains Ordnance Survey data © Crown Copyright and database right 2013

Figure 3-1: Site Location Plan

3.2 Site Description

- 3.2.1 The site comprises an area of approximately 26.4 ha of gently sloping arable farm land with valleys.
- 3.2.2 It is bounded by residential development to the south, the A143 Wratting Road to the east and arable farmland to the north and west
- 3.2.3 From detailed topographical survey, contours indicate three distinct catchments with two watersheds. Elevations across the site range from 108 to 82 m AOD with the highest elevations located at the northern boundary and the lowest on the southern boundary.
- 3.2.4 The topographical survey is reproduced at **Appendix A** for reference.

3.3 Geology & Hydrogeology

- 3.3.1 The British Geological Survey maps identify the geology of the application area as the Lowestoft Formation comprising an extensive sheet of chalky till, together with outwash sands and gravels, silts and clays. The till is characterised by its chalk and flint content.
- 3.3.2 Ground conditions at the site are characterised by stiff gravelly Clay and it is considered that infiltration of surface water will not be viable.
- 3.3.3 A proportion of the site is within an area designated by the Environment Agency as the outer zone of a groundwater protection zone.

3.4 Local Water Features

- 3.4.1 The River Stour, designated a primary river, is located approximately 450 m south west of the development site.
- 3.4.2 A watercourse designated as an unnamed tertiary river, shown with a source located south of Norney Plantation, runs in a south westerly direction towards the existing residential development. Prior to reaching the development the watercourse passes into an extended culvert and continues beneath the development on a south westerly alignment. The culvert emerges into open watercourse, again designated as a unnamed tertiary river, for a short distance before returning to culvert. The lower section of culvert passes beneath Howe Road prior to reaching what is presumed to be its point of outfall with the River Stour. For the purposes of identification within this report the watercourse will be referred to as 'watercourse one'.
- 3.4.3 Parallel to this watercourse, further to the east, a second unnamed tertiary river runs in a south westerly direction and forms the boundary of Phase 1 of the proposed development. As with the previous watercourse it enters an extended culvert that passes beneath the existing residential development prior to its presumed point of outfall with the River Stour. For the purposes of identification within this report the watercourse will be referred to as 'watercourse two'.
- 3.4.4 A third watercourse, parallel to watercourse one and two and aligned in approximately the same direction, is designated as a tertiary river but referred to as a drain. The watercourse passes into an extended culvert at Chapel Farm which connects to the extended culvert section of watercourse two. For the purposes of identification within this report the watercourse will be referred to as 'watercourse three'.
- 3.4.5 A series of field ditches connect to both watercourses two and three, each section of field ditch is shown with an individual source.
- 3.4.6 The site is located within an area designated by the Environment Agency as a 'surface water safeguard zone'. These zones are currently indicative and subject to refinement, however the proposed development will look to incorporate water quality control measures where feasible to mitigate against pollution typically attributable to residential developments.

4. Development Proposals

4.1 Scheme Description

- 4.1.1 The scheme proposal comprises circa 460 residential units and associated highway infrastructure, playing fields / public open space and new relief road.
- 4.1.2 A copy of the masterplan plan is reproduced at **Appendix B** for reference.

Potential Sources of Flooding and Flood Risk Assessment

5.1 Coastal and Fluvial Flooding

- 5.1.1 Flood Zones shown on the publically available Environment Agency Flood Map represent annual probability of flooding. Zone 2 shows the theoretical extent of an extreme flood and is quantified as an area that has up to a 1 in 1000 (0.1%) chance of flooding. Similarly, Zone 3 shows the theoretical extent of flooding and is quantified as a risk that has a 1 in 100 (1%) or greater chance of occurrence each year for floods attributable to a river. For both zones the extent of the natural floodplain is shown as if there were no flood defences or other manmade structures or channel improvements.
- 5.1.2 A review of the publically available Environment Agency Flood Data Map indicates that the site is within Flood Zone 1.
- 5.1.3 A copy of the Environment Agency Flood Data Map is reproduced at **Appendix C** for reference.

5.2 Flood plain storage and flood flows

5.2.1 The site is located outside of the flood plain and will not impact on flood plain storage.

5.3 Historical Flooding

- 5.3.1 No historic flood events have been identified or recorded on the Environment Agency Historic Flood Map for either the culverted sections of watercourse or the watercourses themselves.
- 5.3.2 A copy of the Environment Agency Historic Flood Map is reproduced at **Appendix D** for reference.

5.4 Groundwater Flooding

- 5.4.1 Groundwater flooding can be highly disruptive as once triggered it can continue for several days or weeks depending on the catchment size.
- 5.4.2 The British Geological Society (BGS) Flood Data suggests negligible susceptibility to groundwater flooding across the entire site.
- 5.4.3 A copy of the BGS Flood Data is reproduced at **Appendix E** for reference.

5.5 Pluvial Flooding (overland flow)

April 2013

- 5.5.1 Pluvial flooding occurs when the intensity of rainfall exceeds infiltration into the ground. Typically, this happens where the ground surface is impermeable, such as urban districts that have roads and paved areas. Pluvial flooding may occur where there are impermeable soils, such as clay.
- 5.5.2 The topography and geology of the site is such that either in its undeveloped or developed state a risk to the existing residential development, to the south exists, from overland flow.
- 5.5.3 It is recommended that careful consideration is given to exceedance routes for overland flow resulting from both the arable land at higher elevations and the development drainage. These routes should consider the existing adjacent residential development and look to utilise natural pathways where feasible.

5.6 Surface Water Runoff

- 5.6.1 Increased impermeable areas are associated with most forms of development and without careful control result in an increased rate and volume of surface water runoff.
- 5.6.2 The proposed development will incorporate sustainable drainage systems to restrict the rate of surface water runoff to the greenfield rate for a 1 in 1 year rainfall event of the undeveloped site. Refer to Section 6 of the report for details of the rainfall management train.

5.7 **Artificial Sources & Structures**

- 5.7.1 The Environment Agency Detailed River Network Data indicates four sections of extended culvert located to the south of the site with two inlets located within or adjacent to the boundary of Phase 1. The condition and size of these culvert pipes and inlets are unknown.
- 5.7.2 The Anglian Water Wastewater Asset Record Plan shows surface water sewers within Ann Suckling Road and Howe Road, the size and depth of these sewers are not recorded on the plan. Several of the sewer runs appear to coincide with the route of the extended culverts and the culverts may have been historically maintained by Anglian Water, however this will require confirmation by onsite investigation as it is unusual for a Water Authority to accept land drainage into their network.
- 5.7.3 An extract of the Anglian Water Wastewater Asset Record Plan is reproduced at Appendix F for reference.
- 5.7.4 A water tower and covered reservoir is shown located to the north of the development, the Environment Agency records do not identify any flood routes associated with a theoretical failure of the infrastructure.

6. Proposed Surface Water Drainage

6.1 Disposal principle

- 6.1.1 The proposed residential development will incorporate Sustainable Drainage Systems into the surface water drainage strategy.
- 6.1.2 The drainage strategy identifies nine development catchment areas each with their own surface water storage provision.
- 6.1.3 The surface water runoff from the residential development will be restricted to the 1 in 1 year Greenfield Runoff Rate, for the undeveloped site, calculated in accordance with the Institute of Hydrology Report 124 methodology. A rate has been calculated for each of the nine development catchment areas (A to I) and the highway corridor. The results are summarised in Table 6-1 below.

Catchment Area	1 in 1 year Greenfield Runoff Rate (I/s)
А	1.0
В	4.8
С	5.8
D	2.6
Е	7.1
F	2.5
G	2.2
Н	1.8
I	6.1
Highway	3.5 (9.6 l/s 1 in 30 yr)
Total	37.4

Table 6-1: Greenfield Runoff Rates

- 6.1.4 A copy of the MicroDrainage calculations are reproduced in **Appendix G** for reference.
- 6.1.5 Surface water generated in each residential catchment (A-I) will be stored for rainfall events up to the 1 in 100 year plus climate change (30%) and released at the corresponding greenfield runoff rate above.
- 6.1.6 The volume of storage required for each catchment area has been calculated using the MicroDrainage source control module and the results summarised below in Table 6-2.

Catchment Area	1 in 100 year plus climate change storage volume (m³)	Primary Storage Structure
Α	141	Cellular Tank
В	795	Basin
С	959	Basin
D	427	Basin
Е	1166	Basin
F	415	Basin
G	384	Cellular Tank
Н	502	Cellular Tank
I	851	Basin
Highway	990 - 1296	Filter Trench / Basin / Swale
Total	6630 - 6936	

Table 6-2: Storage Volumes

- 6.1.7 A copy of the MicroDrainage calculations are reproduced in **Appendix H** for reference.
- 6.1.8 The basins and cellular tanks shown on the drainage strategy have been sized to accommodate the calculated 1 in 100 year plus climate change storage volumes with no allowance for storage within the upstream pipe network. With detailed scheme layouts the preliminary design can be rationalised and the storage structure footprint potentially reduced.
- 6.1.9 An opportunity to incorporate tanked permeable paving systems into parking courts would provide additional storage to further reduce the primary storage structure footprint. The use of permeable paving also offers the benefit of water quality control by intercepting and trapping / treating grits and hydrocarbons before they can enter the downstream watercourses.
- 6.1.10 Preliminary basin design comprises of a 1 in 4 side slope steepening to 1 in 3 where a 1.0 m wide ledge is provided. Storage depths range between 0.9 and 1.5 m with a freeboard of 0.2m.
- 6.1.11 Basin E, F and I along with Cellular Tank G and H outfall to Watercourse 2 via either a new section of ditch or swale.
- 6.1.12 Basin B, C, and D along with Cellular Tank A outfall to the field ditch forming the eastern boundary of the site.
- 6.1.13 To provide water quality management the surface water runoff from the main highway corridors will be conveyed to filter trenches and swales to intercept grits and other suspended pollutants.

- 6.1.14 Although a single theoretical greenfield runoff rate has been calculated for the overall estimated area of highway corridor, in practise the vertical alignment of the road may require several outfalls. To divide the 1 in 1 year greenfield runoff rate over several outfalls will result in low discharge rates that either cannot be physically provided by a vortex control or risk blockage of an orifice control. It is therefore recommended that the highway is restricted to a rate equivalent to the 1 in 30 year greenfield runoff rate, 9.6 l/s.
- 6.1.15 A copy of the drainage strategy is reproduced at **Appendix I**.

7. Summary & Conclusions

7.1 Flood Risk

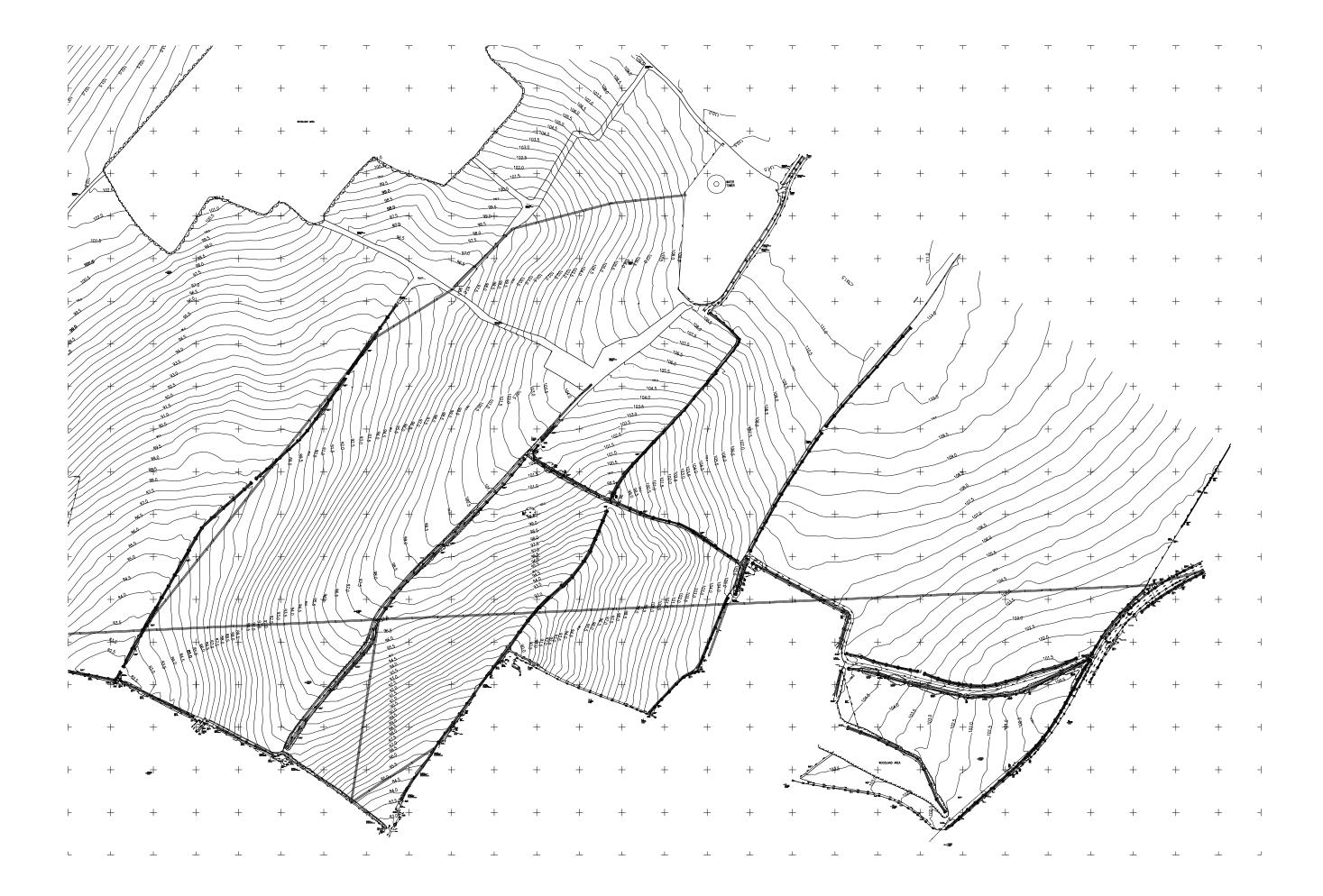
- 7.1.1 A review of the publically available Environment Agency Flood Data Map shows that the application site is within Flood Zone 1.
- 7.1.2 No historic flood events have been identified or recorded on the Environment Agency Historic Flood Map for either the culverted sections of watercourse or the watercourses themselves.
- 7.1.3 The British Geological Society (BGS) Flood Data suggests negligible susceptibility to groundwater flooding across the entire site.
- 7.1.4 It is recommended that careful consideration is given to exceedance routes for overland flow resulting from both the arable land at higher elevations and the development drainage. These routes should consider the existing adjacent residential development and look to utilise natural pathways where feasible.
- 7.1.5 The proposed development will incorporate sustainable drainage systems to restrict the rate of surface water runoff to the greenfield rate for a 1 in 1 year rainfall event of the undeveloped site. Refer to Section 5 of the report for details of the rainfall management train.
- 7.1.6 The Anglian Water Wastewater Asset Record Plan shows surface water sewers within Ann Suckling Road and Howe Road, the size and depth of these sewers are not recorded on the plan. Several of the sewer runs appear to coincide with the route of the extended culverts and the culverts may have been historically maintained by Anglian Water, however this will require confirmation by onsite investigation as it is unusual for a Water Authority to accept land drainage into their network
- 7.1.7 A water tower and covered reservoir is shown located to the north of the development, the Environment Agency records do not identify any flood routes associated with a theoretical failure of the infrastructure
- 7.1.8 In conclusion the proposed extension of the existing quarry will not be subject to unacceptable flood risk and does not increase the risk of flooding elsewhere.

7.2 Surface Water Disposal

- 7.2.1 The proposed residential development will incorporate Sustainable Drainage Systems into the surface water drainage strategy.
- 7.2.2 The strategy comprises restricting the rate of runoff, from the residential development cells, to the 1 in 1 year undeveloped Greenfield runoff rate. Surface water will be attenuated up to the 1 in 100 year plus climate change (30%) rainfall event.

- 7.2.3 The surface water will be discharged into watercourses within the site boundary via new sections of ditches.
- 7.2.4 The highway corridors will incorporate filter trenches and swales to manage water quality control.
- 7.2.5 In conclusion surface water runoff, generated within the boundaries of the site, will be intercepted and stored within either above or below ground structures to minimise any impact on the downstream watercourses.

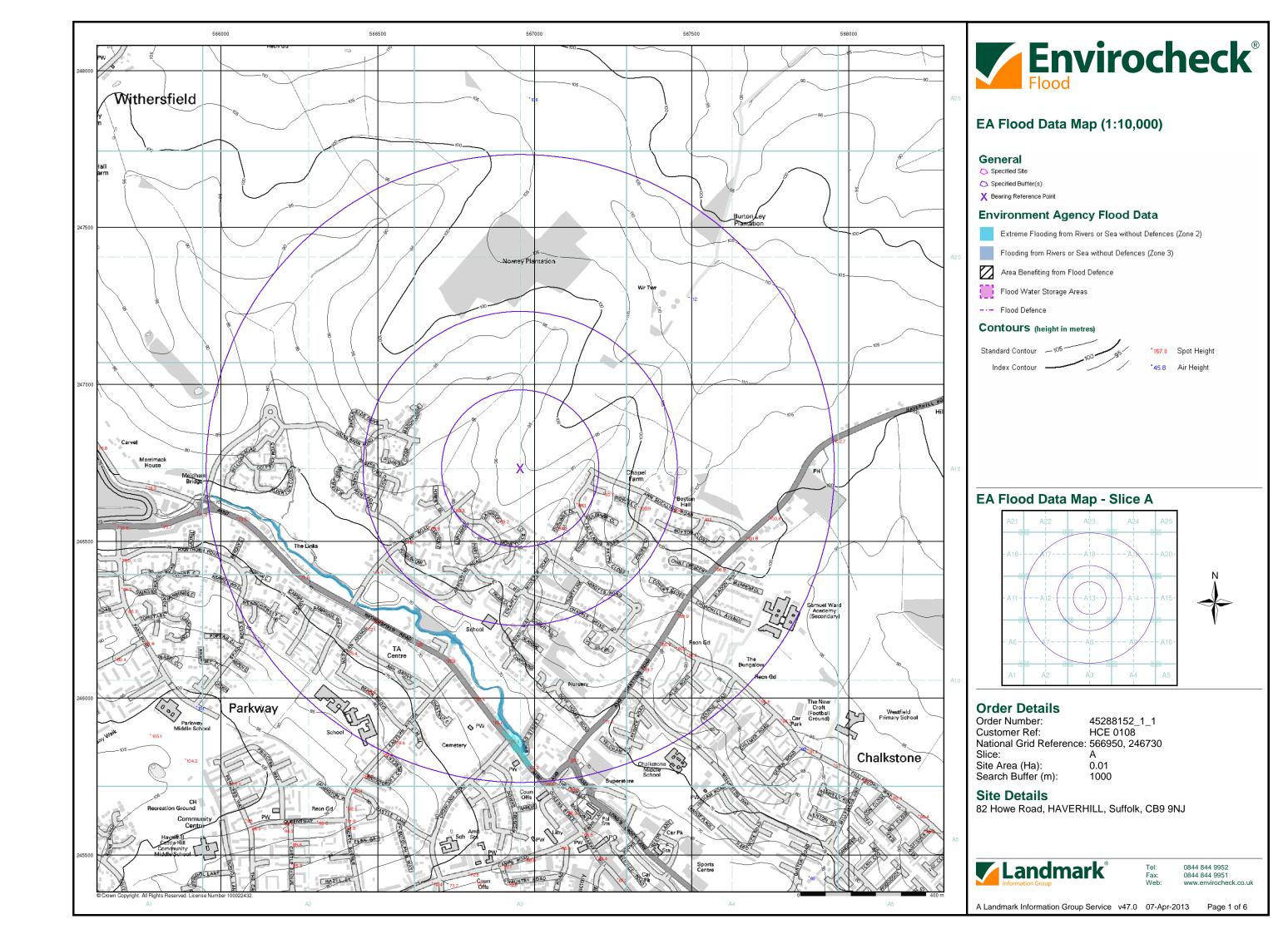
Appendix A Topographical Survey



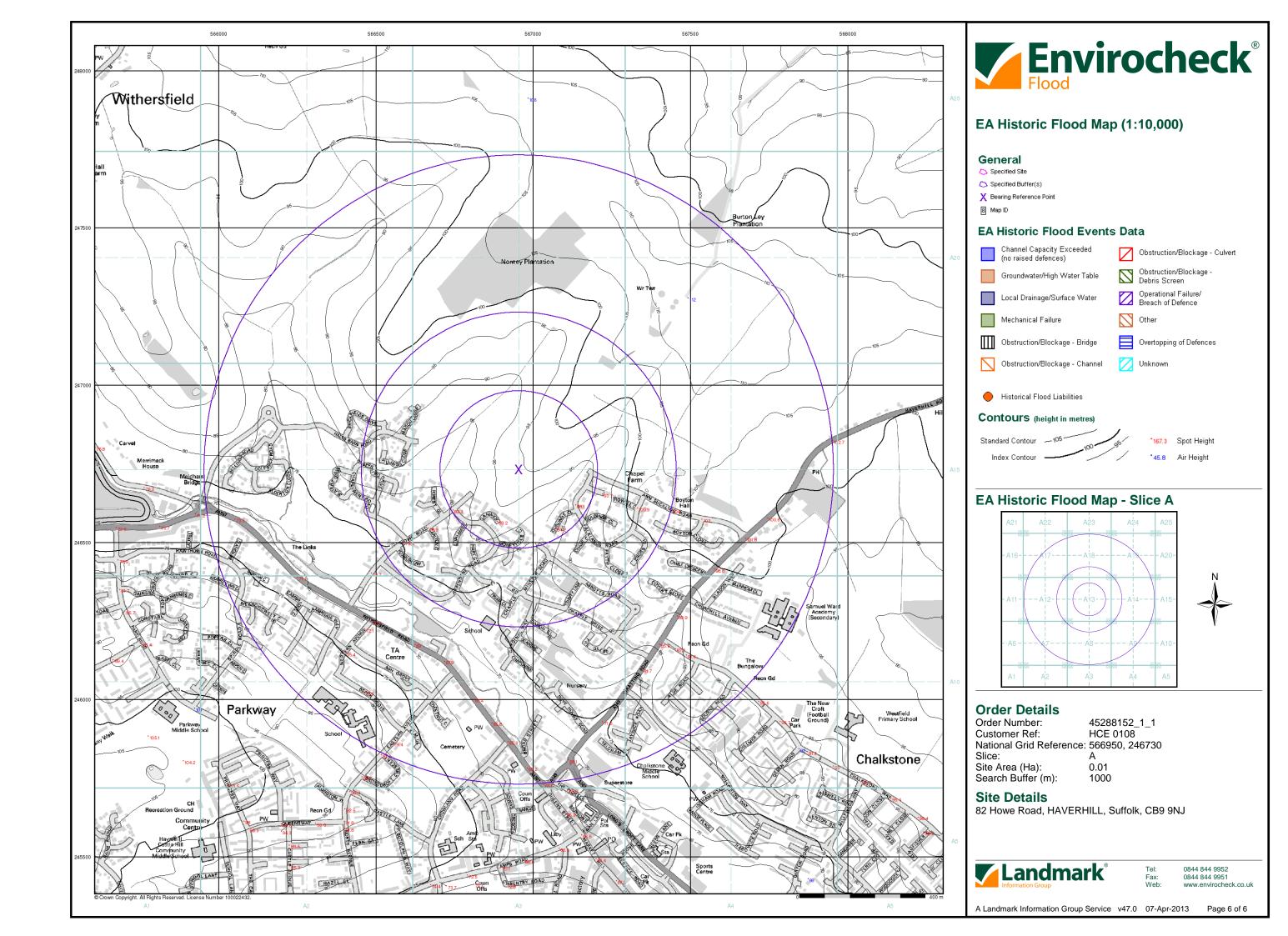
Appendix B Development Masterplan



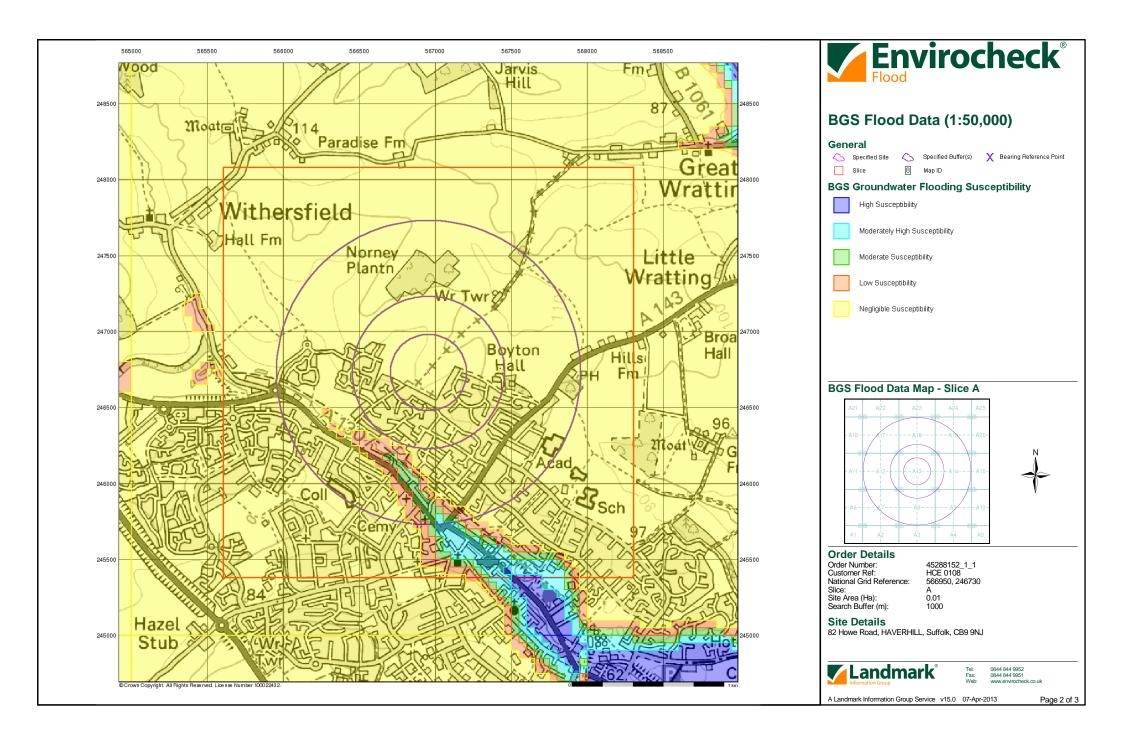
Appendix C Environment Agency Flood Data Map



Appendix D Environment Agency Historic Flood Map



Appendix E BGS Groundwater Flooding Susceptibility



Appendix F Wastewater Asset Record Plan



Appendix G MicroDrainage Greenfield Runoff Calculation

Horizon Consulting Engineers Ltd		Page 1
Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Catchment A	
Date 11/04/2013 10:47	Designed by Jim Tamblyn	
File	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Input

Return Period (years) 2 SAAR (mm) 600 Urban 0.000 Area (ha) 0.420 Soil 0.400 Region Number Region 5

Results 1/s

QBAR Rural 1.2

QBAR Urban 1.2

Q2 years 1.1

Q1 year 1.0

Q30 years 2.9

Q100 years 4.2

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Catchment B	
Date 25/04/2013 12:09	Designed by Jim Tamblyn	
File	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Input

Return Period (years) 2 SAAR (mm) 600 Urban 0.000 Area (ha) 1.950 Soil 0.400 Region Number Region 5

Results 1/s
QBAR Rural 5.5
QBAR Urban 5.5
Q2 years 5.0

Q1 year 4.8 Q30 years 13.3 Q100 years 19.7

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Catchment C	
Date 25/04/2013 12:10	Designed by Jim Tamblyn	
File	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Input

Return Period (years) 2 SAAR (mm) 600 Urban 0.000 Area (ha) 2.360 Soil 0.400 Region Number Region 5

Results 1/s

QBAR Rural 6.7

QBAR Urban 6.7

Q2 years 6.0

Q1 year 5.8 Q30 years 16.1 Q100 years 23.9

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Catchment D	
Date 11/04/2013 11:03	Designed by Jim Tamblyn	
File	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Input

Return Period (years) 2 SAAR (mm) 600 Urban 0.000 Area (ha) 1.040 Soil 0.400 Region Number Region 5

Results 1/s

QBAR Rural 3.0
QBAR Urban 3.0

Q2 years 2.6

Q1 year 2.6
Q30 years 7.1

Q100 years 10.5

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Catchment E	
Date 25/04/2013 12:11	Designed by Jim Tamblyn	
File	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Input

Return Period (years) 2 SAAR (mm) 600 Urban 0.000 Area (ha) 2.860 Soil 0.400 Region Number Region 5

Results 1/s

QBAR Rural 8.1

QBAR Urban 8.1

Q2 years 7.3

Q1 year 7.1 Q30 years 19.5 Q100 years 28.9

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Catchment F	
Date 25/04/2013 12:13	Designed by Jim Tamblyn	
File	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Input

Return Period (years) 2 SAAR (mm) 600 Urban 0.000 Area (ha) 1.020 Soil 0.400 Region Number Region 5

Results 1/s

QBAR Rural 2.9
QBAR Urban 2.9

Q2 years 2.6

Q1 year 2.5
Q30 years 7.0

Q100 years 10.3

Horizon Consulting Engineers Ltd	1	Page 1
Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Catchment G	
Date 25/04/2013 12:14	Designed by Jim Tamblyn	
File	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Input

Return Period (years) 2 SAAR (mm) 600 Urban 0.000 Area (ha) 0.910 Soil 0.400 Region Number Region 5

Results 1/s

QBAR Rural 2.6 QBAR Urban 2.6

Q2 years 2.3

Q1 year 2.2

Q30 years 6.2

Q100 years 9.2

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Catchment H	
Date 25/04/2013 12:15	Designed by Jim Tamblyn	
File	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Input

Return Period (years) 2 SAAR (mm) 600 Urban 0.000 Area (ha) 0.730 Soil 0.400 Region Number Region 5

Results 1/s

QBAR Rural 2.1 QBAR Urban 2.1

Q2 years 1.9

Q1 year 1.8 Q30 years 5.0 Q100 years 7.4

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Catchment I	
Date 25/04/2013 12:16	Designed by Jim Tamblyn	
File	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Input

Return Period (years) 2 SAAR (mm) 600 Urban 0.000 Area (ha) 2.480 Soil 0.400 Region Number Region 5

Results 1/s

QBAR Rural 7.0
QBAR Urban 7.0

Q2 years 6.3

Q1 year 6.1
Q30 years 16.9

Q100 years 25.1

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Highway Infrastructure	
Date 25/04/2013 12:22	Designed by Jim Tamblyn	
File	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Input

Return Period (years) 2 SAAR (mm) 600 Urban 0.000 Area (ha) 1.410 Soil 0.400 Region Number Region 5

Results 1/s

QBAR Rural 4.0
QBAR Urban 4.0

Q2 years 3.6

Q1 year 3.5
Q30 years 9.6
Q100 years 14.3

Appendix H MicroDrainage Storage Calculations

Horizon Consulting Engineers Ltd		Page 1
Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Tank A Volume	
Date 25/04/2013 11:26	Designed by Jim Tamblyn	
File Catchment A Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Half Drain Time : 1439 minutes.

Half Drain Time : 1439 minutes.												
Storm		Max 1		Max		Max	Max		Max	Max	Status	
	Even	t	Lev	el	Dept	th Infil	tration	Control	Σ	Outflow	Volume	
			(m	1)	(m)	(l/s)	(1/s)		(1/s)	(m³)	
15	min	Summer	101.	883	0.28	33	0.0	0.6		0.6	53.8	ок
		Summer					0.0	0.7		0.7	69.6	ОК
60	min	Summer	102.	049	0.44	19	0.0	0.7		0.7	85.2	ОК
120	min	Summer	102.	126	0.52	26	0.0	0.8		0.8	100.0	O K
180	min	Summer	102.	166	0.56	56	0.0	0.8		0.8	107.5	O K
240	min	Summer	102.	190	0.59	90	0.0	0.9		0.9	112.1	O K
		Summer					0.0	0.9		0.9	117.9	O K
		Summer					0.0	0.9		0.9	121.1	O K
		Summer					0.0	0.9		0.9	122.7	O K
		Summer					0.0	0.9		0.9	123.4	0 K
		Summer					0.0	0.9		0.9	122.8	0 K
		Summer Summer					0.0	0.9		0.9	120.0 115.4	0 K 0 K
		Summer					0.0	0.9		0.9	110.5	O K
		Summer					0.0	0.8		0.8	100.9	ОК
		Summer					0.0	0.8		0.8	92.5	ОК
		Summer					0.0	0.7		0.7		ОК
		Summer					0.0	0.7		0.7		ОК
		Summer					0.0	0.7		0.7		ОК
15	min	Winter	101.	917	0.31	L7	0.0	0.6		0.6	60.3	ОК
30	min	Winter	102.	011	0.41	L1	0.0	0.7		0.7	78.0	O K
60	min	Winter	102.	103	0.50	03	0.0	0.8		0.8	95.6	O K
120	min	Winter	102.	191	0.59	91	0.0	0.9		0.9	112.3	O K
180	min	Winter	102.	237	0.63	37	0.0	0.9		0.9	121.0	O K
		Winter					0.0	0.9		0.9		O K
		Winter					0.0	0.9		0.9	133.2	O K
		Winter					0.0	0.9		0.9		O K
600	mın	Winter	102.	334	0.73	۲4		1.0			139.4	ОК
							0.0			1.0		0 10
			Stor	m		Rain	Flooded	Dischar	rge	Time-Pe	ak	O IC
				m		Rain	Flooded Volume	Dischar Volum	rge ie		ak	O R
			Stor	m		Rain	Flooded	Dischar	rge ie	Time-Pe	ak	O K
		15	Stor	rm it		Rain	Flooded Volume (m³)	Discha: Volum (m³)	rge ie	Time-Pe (mins)	ak	O R
			Stor	rm it Sum	mer	Rain (mm/hr) 137.759	Flooded Volume (m³)	Dischar Volum (m³)	rge ie	Time-Pe (mins)	ak)	O R
		30 60	min min min	Sum Sum Sum	mer mer mer	Rain (mm/hr) 137.759 89.551 55.351	Flooded Volume (m³) 0.0 0.0	Volum (m³) 4: 4'	rge 3.4 7.5	Time-Pe (mins)	20 35 66	O R
		30 60 120	min min min min min	Sumi Sumi Sumi Sumi	mer mer mer	Rain (mm/hr) 137.759 89.551 55.351 33.014	Flooded Volume (m³) 0.0 0.0 0.0	Volum (m³) 4: 4: 8:	rge 3.4 7.5 4.5	Time-Pe (mins)	20 35 66 24	O K
		30 60 120 180	min min min min min min	Sum Sum Sum Sum Sum Sum	mer mer mer mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0	Discha: Volum (m³) 4: 4: 8: 98 10:	3.4 7.5 4.5 8.0	Time-Pe (mins)	20 35 66 24 84	
		30 60 120 180 240	min min min min min min min	Sumi Sumi Sumi Sumi Sumi Sumi	mer mer mer mer mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Dischar Volum (m³) 4: 4: 8: 9: 10: 10:	3.4 7.5 4.5 8.0 3.4 6.2	Time-Pe (mins)	20 35 66 24 84 44	
		30 60 120 180 240 360	min min min min min min min min	Sumi Sumi Sumi Sumi Sumi Sumi Sumi	mer mer mer mer mer mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Discha: Volum (m³) 4: 4: 8: 9: 10: 10: 10:	3.4 7.5 4.5 8.0 3.4 6.2	Time-Pe (mins)	20 35 66 24 84 44 62	
		30 60 120 180 240 360 480	min min min min min min min min min	Sumi Sumi Sumi Sumi Sumi Sumi Sumi Sumi	mer mer mer mer mer mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Volum (m³) 4: 4: 8: 9: 10: 10: 11:	3.4 7.5 4.5 8.0 3.4 6.2 9.8	Time-Pe (mins) 1 1 2 3 4	20 35 66 24 84 44 62 82	
		30 60 120 180 240 360 480	min min min min min min min min min	Sum Sum Sum Sum Sum Sum Sum Sum Sum	mer mer mer mer mer mer mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Discha: Volum (m³) 4: 4: 8: 9: 10: 10: 11:	3.4 7.5 4.5 8.0 3.4 6.2 9.8 2.4	Time-Pe (mins) 1 1 2 3 4 6	20 35 66 24 84 44 62 82 02	
		30 60 120 180 240 360 480 600 720	min min min min min min min min min min	Sumi Sumi Sumi Sumi Sumi Sumi Sumi Sumi	mer mer mer mer mer mer mer mer mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Discha: Volum (m³) 4: 4: 8: 9: 10: 10: 11: 11:	3.4 7.5 4.5 8.0 3.4 6.2 9.8 2.4 4.3 5.6	Time-Pe (mins) 1 1 2 3 4 6 7	20 35 66 24 84 44 62 82 02 20	
		30 60 120 180 240 360 480 600 720 960	min min min min min min min min min min	Sumi Sumi Sumi Sumi Sumi Sumi Sumi Sumi	mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Discha: Volum (m³) 4: 4: 8: 9: 10: 10: 11: 11: 11:	3.4 7.5 4.5 8.0 3.4 6.2 9.8 2.4	Time-Pe (mins) 1 1 2 3 4 6 7 9	20 35 66 24 84 44 62 82 02	
		30 60 120 180 240 360 480 600 720 960 1440	min min min min min min min min min min	Sumi Sumi Sumi Sumi Sumi Sumi Sumi Sumi	mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Discha: Volum (m³) 4: 4: 8: 9: 10: 10: 11: 11: 11: 11:	rge 3.4 7.5 4.5 8.0 3.4 6.2 9.8 2.4 4.3 5.6	Time-Pe (mins) 1 1 2 3 4 6 7 9 11	20 35 66 24 84 44 62 82 02 20 52	
		30 60 120 180 240 360 480 600 720 960 1440 2160	min min min min min min min min min min	Sum	mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Discha: Volum (m³) 4: 4: 8: 9: 10: 10: 11: 11: 11: 11: 18:	3.4 7.5 4.5 8.0 3.4 6.2 9.8 4.3 5.6 7.0	Time-Pe (mins) 1 1 2 3 4 6 7 9 11 15	20 35 66 24 84 44 62 82 02 20 52 68	
		30 60 120 180 240 360 480 600 720 960 1440 2160	min min min min min min min min min min	Sum	mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Discha: Volum (m³) 4: 4: 8: 9: 10: 10: 11: 11: 11: 11: 11: 18: 19:	7.5 4.5 8.0 3.4 4.3 5.6 7.0 6.6 2.5	Time-Pe (mins) 1 1 2 3 4 6 7 9 11 15	20 35 66 24 84 44 62 82 02 20 52 68 44	
		30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320	min	Sum	mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Discha: Volum (m³) 4: 4: 8: 9: 10: 10: 11: 11: 11: 18: 19: 18:	3.4 77.5 4.5 8.0 3.4 6.2 9.8 4.3 5.6 6.6 7.0 6.6 6.6	Time-Pe (mins) 1 1 2 3 4 6 7 9 11 15 19 27	20 35 66 24 84 44 62 82 02 20 52 68 44 60	
		30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200	min	Summ Summ Summ Summ Summ Summ Summ Summ	mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Discha: Volum (m³) 4: 4: 8: 9: 10: 10: 11: 11: 11: 11: 11: 18: 19: 18: 21: 22:	3.4 7.5 4.5 8.0 3.4 4.3 5.6 6.2 9.8 4.3 5.6 6.6 6.6 6.6 7.2 8.7 7.2	Time-Pe (mins) 1 1 2 3 4 6 7 9 11 15 19 27 36 44	20 35 66 24 84 44 62 20 52 20 52 68 44 60 72 24	
		30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640	min	Sum	mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Discha: Volum (m³) 4: 4: 8: 9: 10: 10: 11: 11: 11: 11: 11: 18: 19: 18: 21: 22: 23:	3.4 7.5 4.5 8.0 3.4 6.2 9.8 8.7 7.0 6.6 7.2 8.7 7.2 4.3	Time-Pe (mins) 1 1 2 3 4 6 7 9 11 15 19 27 36 44 51	20 35 66 24 84 44 62 82 02 20 55 68 44 60 72 24 00 92	
		30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080	min	Summ Summ Summ Summ Summ Summ Summ Summ	mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Discha: Volum (m³) 4: 4: 8: 9: 10: 10: 11: 11: 11: 11: 12: 13: 19: 18: 22: 23: 24:	3.4 7.5 4.5 8.0 3.4 4.5 8.0 6.2 5.6 6.6 7.2 8.7 7.2 4.3 0.2	Time-Pe (mins) 1 1 1 2 3 4 6 7 9 11 15 19 27 36 44 51	20 35 66 24 84 44 62 82 02 20 55 26 88 44 60 72 24 00 92 60	
		30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080	min	Sum	mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Discha: Volum (m³) 4: 4: 8: 9: 10: 10: 11: 11: 11: 11: 12: 13: 14: 18: 19: 18: 21: 22: 23: 24: 4:	3.4 7.5 4.5 8.0 3.4 6.2 9.8 2.4 4.3 5.6 6.2 5.6 6.2 5.6 7.2 8.7 7.2 8.7 7.2 8.7	Time-Pe (mins) 1 1 2 3 4 6 7 9 11 15 19 27 36 44 51	20 35 66 24 84 44 62 82 02 20 55 26 84 44 60 72 24 00 92 60 20	
		30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080	min	Summ Summ Summ Summ Summ Summ Summ Summ	mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Discha: Volum (m³) 4: 4: 8: 9: 10: 10: 11: 11: 11: 11: 12: 13: 19: 18: 22: 23: 24: 4: 5:	3.4 7.5 4.5 8.0 3.4 6.2 9.8 8.7 0.6 6.2 5.6 6.2 5.6 6.2 7.2 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7	Time-Pe (mins) 1 1 2 3 4 6 7 9 11 15 19 27 36 44 51	20 35 66 24 84 44 62 82 02 20 55 68 44 60 72 24 00 92 60 20 34	
		30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60	min	Summ Summ Summ Summ Summ Summ Summ Summ	mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Discha: Volum (m³) 4: 4: 8: 9: 10: 10: 11: 11: 11: 11: 12: 18: 19: 21: 22: 23: 24: 4: 5: 9:	3.4.5.6.6.6.6.6.7.2.8.7.2.4.3.0.2.5.0.2.5.0.2.3.5	Time-Pe (mins) 1 1 2 3 4 6 7 9 11 15 19 27 36 44 51	20 35 66 24 84 44 62 82 02 20 52 68 44 60 72 24 00 92 60 20 34 64	
		30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120	min	Summ Summ Summ Summ Summ Summ Summ Summ	mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Discha: Volum (m³) 4: 4: 8: 9: 10: 10: 11: 11: 11: 12: 13: 19: 18: 21: 22: 23: 24: 4: 5: 9: 10: 10: 10: 11: 11: 11: 11: 11: 11: 11	3.4.5.6.6.6.6.6.7.2.2.5.0.6.2.5.0.2.3.5.4	Time-Pe (mins) 1 1 2 3 4 6 7 9 11 15 19 27 36 44 51 59	20 35 66 24 84 44 62 82 02 20 52 68 44 60 72 24 00 92 60 20 34 64 22	
		30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180	min	Summ Summ Summ Summ Summ Summ Summ Summ	mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Discha: Volum (m³) 4: 4: 8: 9: 10: 10: 11: 11: 11: 12: 13: 19: 18: 21: 22: 23: 24: 4: 5: 9: 10: 11: 11:	3.4 77.5 8.0 4.5 8.0 9.8 8.0 9.8 4.3 5.6 6.6 5.6 7.0 6.6 7.0 6.6 7.0 9.8 7.0 9.8 7.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9	Time-Pe (mins) 1 1 2 3 4 6 7 9 11 15 19 27 36 44 51 59	20 35 66 24 84 44 62 82 02 20 52 68 44 60 72 24 00 92 60 20 34 64 22 82	
		30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240	min	Summ Summ Summ Summ Summ Summ Summ Summ	mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Discha: Volum (m³) 4: 4: 8: 9: 10: 10: 11: 11: 11: 22: 23: 24: 4: 5: 9: 10: 11: 11: 11: 11: 11: 11: 11: 11: 11	3.4 7.5 4.5 8.0 3.4 4.3 6.2 9.8 8.7 7.0 6.6 6.6 7.0 6.6 7.2 8.7 7.2 8.7 7.2 8.7 7.2 8.7 7.2 8.7 7.2 8.7 7.7 8.7 8.7 9.7 9.7 9.7 9.7 9.7 9.7 9.7 9.7 9.7 9	Time-Pe (mins) 1 1 2 3 4 6 7 9 11 15 19 27 36 44 51 59	20 35 66 24 84 44 62 82 02 20 52 68 44 60 72 24 00 92 60 20 34 64 22 82 40	
		30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240	min	Summ Summ Summ Summ Summ Summ Summ Summ	mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Discha: Volum (m³) 4: 4: 8: 9: 10: 11: 11: 11: 12: 22: 23: 24: 4: 5: 9: 10: 11: 11: 11: 11: 11: 11: 11: 11: 11	3.4 7.5 4.5 8.0 9.8 8.0 9.8 4.3 5.6 6.6 2.5 6.6 2.5 6.6 2.5 6.0 2.5 4.3 3.5 4.3 6.2 2.5 6.0 6.0 2.5 6.0 6.0 2.5 6.0 2.5 6.0 2.5 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0	Time-Pe (mins) 1 1 2 3 4 6 7 9 11 15 19 27 36 44 51 59	20 35 66 24 84 44 62 82 02 20 52 68 44 60 72 24 00 92 60 20 34 64 22 82 40 56	
		30 60 120 180 240 360 480 600 720 960 1440 2160 2880 7200 8640 10080 15 30 60 120 180 240 360 480	min	Summ Summ Summ Summ Summ Summ Summ Summ	mer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Discha: Volum (m³) 4: 4: 8: 9: 10: 11: 11: 11: 12: 22: 23: 24: 4: 5: 9: 10: 11: 11: 11: 11: 11: 12: 13: 14: 15: 15: 16: 17: 17: 18: 18: 19: 18: 19: 18: 19: 18: 19: 18: 19: 18: 19: 18: 19: 18: 19: 18: 19: 18: 19: 18: 19: 18: 19: 18: 19: 18: 19: 18: 19: 18: 19: 18: 19: 18: 19: 18: 19: 10: 11: 11: 11: 12: 12: 12: 13: 14: 14: 15: 16: 17: 17: 18: 18: 19: 18: 18: 19: 18: 18: 19: 18: 18: 19: 18: 18: 19: 18: 18: 19: 18: 18: 19: 18: 18: 19: 18: 18: 19: 18: 18: 19: 18: 18: 18: 19: 18: 18: 18: 19: 18: 18: 18: 18: 19: 18: 18: 18: 18: 18: 18: 18: 18: 18: 18	3.4 7.5 4.5 8.0 3.4 4.3 6.2 9.8 8.7 7.0 6.6 6.6 7.0 6.6 7.2 8.7 7.2 8.7 7.2 8.7 7.2 8.7 7.2 8.7 7.2 8.7 7.7 8.7 8.7 9.7 9.7 9.7 9.7 9.7 9.7 9.7 9.7 9.7 9	Time-Pe (mins) 1 1 2 3 4 6 7 9 11 15 19 27 36 44 51 59	20 35 66 24 84 44 62 82 02 20 52 68 44 60 72 24 00 92 60 20 34 64 22 82 40	

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Tank A Volume	
Date 25/04/2013 11:26	Designed by Jim Tamblyn	
File Catchment A Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

	Storm				Max	ax Max oth Infiltration		Max		Max	Max	Status
	Fven	L	Lev		(m)		(1/s)			(1/s)	(m³)	
			,	•	\ <i>,</i>	`	_, _,	(1/s)		, -,	\ ,	
720	min	Winter	102.	340	0.74	0	0.0	1.0		1.0	140.6	O K
960	min	Winter	102.	342	0.74	2	0.0	1.0		1.0	140.9	O K
1440	min	Winter	102.	324	0.72	4	0.0	0.9		0.9	137.5	O K
2160	min	Winter	102.	294	0.69	4	0.0	0.9		0.9	131.8	O K
2880	min	Winter	102.	260	0.66)	0.0	0.9		0.9	125.4	O K
4320	min	Winter	102.	190	0.59)	0.0	0.9		0.9	112.1	O K
5760	min	Winter	102.	127	0.52	7	0.0	0.8		0.8	100.1	O K
7200	min	Winter	102.	071	0.47	1	0.0	0.8		0.8	89.5	O K
8640	min	Winter	102.	023	0.42	3	0.0	0.7		0.7	80.3	O K
10080	min	Winter	101.	980	0.38)	0.0	0.7		0.7	72.1	O K
			Stor	m		Rain	Flooded	Dischar	ge	Time-Pe	ak	
			Even	t	(mm/hr)	Volume	Volume	•	(mins))	
							(m³)	(m³)				
					ter		0.0				00	
			min			6.282	0.0				22	
					ter		0.0				24	
			min			3.245	0.0				44	
			min			2.563	0.0			21		
			min			1.836	0.0				24	
					ter		0.0				64	
			min			1.204	0.0			46		
			min			1.035	0.0				36	
		10080	min	Win	ter	0.910	0.0	268	. 9	63	52	

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Basepoint Centre	0108				
Yeoford Way	Haverhill, Suffolk				
Exeter EX2 8LB	Preliminary Tank A Volume				
Date 25/04/2013 11:26	Designed by Jim Tamblyn				
File Catchment A Storage Volume.s	Checked by JM				
Micro Drainage	Source Control 2013.1.1				

Return Period (years) 100 Cv (Summer) 0.750
Region England and Wales Cv (Winter) 0.840
M5-60 (mm) 21.000 Shortest Storm (mins) 15
Ratio R 0.421 Longest Storm (mins) 10080
Summer Storms Yes Climate Change % +30

Time Area Diagram

Total Area (ha) 0.210

 Time
 (mins)
 Area

 From:
 To:
 (ha)

 0
 5
 0.210

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Tank A Volume	
Date 25/04/2013 11:26	Designed by Jim Tamblyn	
File Catchment A Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Storage is Online Cover Level (m) 103.000

Cellular Storage Structure

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²) Inf	. Area (m²)
0.000	200.0	0.0	3.600	0.0	0.0	7.200	0.0	0.0
0.400	200.0	0.0	4.000	0.0	0.0	7.600	0.0	0.0
0.800	200.0	0.0	4.400	0.0	0.0	8.000	0.0	0.0
1.200	0.0	0.0	4.800	0.0	0.0	8.400	0.0	0.0
1.600	0.0	0.0	5.200	0.0	0.0	8.800	0.0	0.0
2.000	0.0	0.0	5.600	0.0	0.0	9.200	0.0	0.0
2.400	0.0	0.0	6.000	0.0	0.0	9.600	0.0	0.0
2.800	0.0	0.0	6.400	0.0	0.0	10.000	0.0	0.0
3.200	0.0	0.0	6.800	0.0	0.0			

Hydro-Brake® Outflow Control

Design Head (m) 0.800 Hydro-Brake® Type Md5 SW Only Invert Level (m) 101.600 Design Flow (l/s) 1.0 Diameter (mm) 43

Depth (m)	Flow (1/s)	Depth (m)	Flow $(1/s)$	Depth (m)	Flow $(1/s)$	Depth (m)	Flow (1/s)	Depth (m)	Flow (1/s)
0.100	0.5	0.800	1.0	2.000	1.6	4.000	2.2	7.000	2.9
0.200	0.5	1.000	1.1	2.200	1.7	4.500	2.4	7.500	3.0
0.300	0.6	1.200	1.2	2.400	1.7	5.000	2.5	8.000	3.1
0.400	0.7	1.400	1.3	2.600	1.8	5.500	2.6	8.500	3.2
0.500	0.8	1.600	1.4	3.000	1.9	6.000	2.7	9.000	3.3
0.600	0.9	1.800	1.5	3.500	2.1	6.500	2.8	9.500	3.4

Horizon Consulting Engineers Ltd		Page 1
Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond B Volume	
Date 25/04/2013 12:51	Designed by Jim Tamblyn	
File Catchment B Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

	Stor		Max Level (m)	Max Depth (m)	Max Control (1/s)	Max Volume (m³)	Status
		Summer	99.261	0.461	3.3	299.6	O K
		Summer	99.375	0.575	3.6	387.8	O K
		Summer	99.480	0.680	3.9	475.0	O K
		Summer	99.574	0.774	4.2	557.5	O K
		Summer Summer	99.620	0.820	4.3	600.1	0 K
		Summer	99.648 99.683	0.848	4.4 4.5	625.8 659.6	0 K 0 K
		Summer	99.703	0.883	4.5	678.4	O K
		Summer	99.714	0.914	4.6	688.6	ОК
		Summer	99.718	0.918	4.6	693.3	ОК
		Summer	99.717	0.917	4.6	692.4	ОК
1440	min	Summer	99.700	0.900	4.5	675.1	O K
2160	min	Summer	99.671	0.871	4.4	647.4	O K
2880	min	Summer	99.641	0.841	4.4	619.2	O K
		Summer	99.582	0.782	4.2	565.0	O K
		Summer	99.528	0.728	4.1	516.7	O K
		Summer	99.478	0.678	3.9	473.1	O K
		Summer	99.431	0.631	3.8	433.9	0 K
		Summer	99.388	0.588	3.7	398.3	0 K
		Winter Winter	99.309 99.432	0.509	3.4	335.7 434.7	0 K 0 K
		Winter	99.546	0.746	4.1	533.0	O K
		Winter	99.649	0.849	4.4	626.4	ОК
		Winter	99.700	0.900	4.5	675.3	ОК
		Winter	99.731	0.931	4.6	705.2	ОК
360	min	Winter	99.771	0.971	4.7	745.4	ОК
480	min	Winter	99.794	0.994	4.8	768.8	O K
600	min	Winter	99.808	1.008	4.8	782.7	O K
720	min	Winter	99.816	1.016	4.8	790.6	O K
	Stor	m	Rain	Flood	ed Disch	arge Ti	me-Peak
:	Even	t	(mm/hr)	Volum	e Vol	ıme	(mins)
						unic	(11111111111111111111111111111111111111
			,	(m³)			(MIII)
15	min	Cummer		(m³)	(m	³)	
		Summer	137.759	(m³)	(m	³) !53.2	20
30	min	Summer	137.759 89.551	(m³) 0	(m .0 2 .0 2	3) 253.2 271.6	20 35
30 60	min min	Summer Summer	137.759 89.551 55.351	(m³) 0 0	(m .0 2 .0 2	3) 253.2 271.6 272.2	20 35 66
30 60 120	min min min	Summer	137.759 89.551	(m³) 0 0 0	(m .0 2 .0 2 .0 4	3) 253.2 271.6	20 35
30 60 120 180	min min min min	Summer Summer Summer	137.759 89.551 55.351 33.014	(m ³) 0 0 0 0 0	(m .0 2 .0 2 .0 4 .0 5	3) 253.2 271.6 272.2 448.8	20 35 66 124
30 60 120 180 240	min min min min min	Summer Summer Summer	137.759 89.551 55.351 33.014 24.067	(m³) 0 0 0 0 0 0	(m .0 2 .0 2 .0 4 .0 5 .0 5	253.2 271.6 272.2 348.8 379.5	20 35 66 124 184
30 60 120 180 240 360	min min min min min	Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117	(m³) 0 0 0 0 0 0 0 0	(m .0 2 .0 2 .0 4 .0 5 .0 5 .0 5	253.2 271.6 272.2 48.8 279.5	20 35 66 124 184 244
30 60 120 180 240 360 480 600	min min min min min min min	Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186	(m³) 0 0 0 0 0 0 0 0 0 0 0	(m	3) 253.2 271.6 .72.2 448.8 .79.5 .92.5 .06.9 .16.4 .23.2	20 35 66 124 184 244 362 482 602
30 60 120 180 240 360 480 600 720	min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929	(m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m .0 2 .0 2 .0 4 .0 5 .0 5 .0 6 .0 6 .0 6	3) 253.2 271.6 272.2 48.8 279.5 292.5 206.9 216.4 223.2 227.8	20 35 66 124 184 244 362 482 602 722
30 60 120 180 240 360 480 600 720 960	min min min min min min min min min	Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282	(m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m	3) 253.2 271.6 272.2 48.8 279.5 292.5 206.9 216.4 223.2 227.8	20 35 66 124 184 244 362 482 602 722 960
30 60 120 180 240 360 480 600 720 960 1440	min min min min min min min min min	Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519	(m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m	3) 253.2 271.6 272.2 48.8 279.5 292.5 206.9 216.4 223.2 227.8 331.8 225.7	20 35 66 124 184 244 362 482 602 722 960 1216
30 60 120 180 240 360 480 600 720 960 1440 2160	min	Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245	(m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m .0 2 .0 2 .0 4 .0 5 .0 5 .0 6 .0 6 .0 6 .0 6 .0 6 .0 6 .0 6 .0 6	3) 253.2 271.6 272.2 48.8 279.5 292.5 206.9 216.4 223.2 227.8 331.8 225.7 215.9	20 35 66 124 184 244 362 482 602 722 960 1216 1584
30 60 120 180 240 360 480 600 720 960 1440 2160 2880	min	Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563	(m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m .0 2 .0 2 .0 4 .0 5 .0 5 .0 6 .0 6 .0 6 .0 6 .0 6 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 10	3) 253.2 271.6 272.2 48.8 279.5 292.5 206.9 216.4 223.2 227.8 231.8 225.7 225.7 226.3	20 35 66 124 184 244 362 482 602 722 960 1216 1584 1992
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320	min	Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836	(m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m .0 2 .0 2 .0 4 .0 5 .0 5 .0 6 .0 6 .0 6 .0 6 .0 6 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 6 .0 .0 10	3) 253.2 271.6 272.2 48.8 279.5 292.5 206.9 216.4 223.2 227.8 231.8 225.7 225.7 236.3 236.2	20 35 66 124 184 244 362 482 602 722 960 1216 1584 1992 2812
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760	min	Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448	(m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m .0	3) 253.2 271.6 272.2 48.8 79.5 92.5 606.9 116.4 623.2 127.8 131.8 125.7 115.9 160.3 136.2 1218.7	20 35 66 124 184 244 362 482 602 722 960 1216 1584 1992 2812 3632
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200	min	Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204	(m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m .0	3) 253.2 271.6 272.2 448.8 279.5 292.5 206.9 216.4 223.2 227.8 231.8 225.7 215.9 260.3 260.3 27.8 28.8 28.8 29.8 20.8 20.8 20.8 20.8 20.8 20.8	20 35 66 124 184 244 362 482 602 722 960 1216 1584 1992 2812 3632 4464
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640	min	Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204	(m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m .0	3) 253.2 271.6 272.2 48.8 79.5 92.5 606.9 116.4 623.2 127.8 131.8 125.7 115.9 160.3 136.2 1218.7	20 35 66 124 184 244 362 482 602 722 960 1216 1584 1992 2812 3632
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080	min	Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035	(m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m .0	3) 253.2 271.6 272.2 448.8 279.5 292.5 206.9 216.4 223.2 227.8 231.8 225.7 215.9 260.3 260.3 260.3 27.8 28.8 28.8 29.5 20.5	20 35 66 124 184 244 362 482 602 722 960 1216 1584 1992 2812 3632 4464 5264
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30	min	Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551	(m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m .0	3) 253.2 271.6 272.2 448.8 179.5 192.5 106.9 116.4 123.2 127.8 131.8 125.7 115.9 160.3 136.2 118.7 166.1 105.5 138.1	20 35 66 124 184 244 362 482 602 722 960 1216 1584 1992 2812 3632 4464 5264 6048
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30	min	Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759	(m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m .0 (2 .0 .2 .0 .4 .0 .5 .0 .5 .0 .6 .0 .6 .0 .6 .0 .6 .0 .0 .0 .0 .0 .10 .0 .0 .10 .0 .12 .0 .13 .0 .13	3) 253.2 271.6 272.2 448.8 179.5 192.5 106.9 116.4 123.2 127.8 131.8 125.7 115.9 160.3 136.2 118.7 166.1 105.5 138.1 162.9	20 35 66 124 184 244 362 482 602 722 960 1216 1584 1992 2812 3632 4464 5264 6048
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120	min	Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014	(m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m .0	3) 253.2 271.6 272.2 448.8 179.5 192.5 106.9 116.4 123.2 127.8 131.8 125.7 115.9 160.3 136.2 118.7 166.1 105.5 138.1 162.9 181.6 182.6 189.2	20 35 66 124 184 244 362 482 602 722 960 1216 1584 1992 2812 3632 4464 5264 6048 20 34 64 122
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180	min	Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067	(m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m .0	3) 253.2 271.6 272.2 448.8 179.5 192.5 106.9 116.4 123.2 127.8 131.8 125.7 115.9 160.3 136.2 118.7 166.1 105.5 138.1 162.9 181.6 182.9 181.6 182.6 189.2 199.6	20 35 66 124 184 244 362 482 602 722 960 1216 1584 1992 2812 3632 4464 5264 6048 20 34 64 122 182
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240	min	Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117	(m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m .0	3) 253.2 271.6 272.2 448.8 179.5 192.5 106.9 116.4 123.2 127.8 131.8 125.7 115.9 160.3 136.2 118.7 166.1 105.5 138.1 162.9 181.6 182.6 189.2 199.6 199.6 199.6 199.6 199.6 199.6 199.6	20 35 66 124 184 244 362 482 602 722 960 1216 1584 1992 2812 3632 4464 5264 6048 20 34 64 122 182 240
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 1008 15 30 60 120 180 240	min	Summer Su	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842	(m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m .0 (m .0 2 .0 .0 4 .0 .5 .0 .5 .0 .6 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	3) 253.2 271.6 272.2 448.8 179.5 192.5 106.9 116.4 123.2 127.8 131.8 125.7 115.9 160.3 136.2 118.7 160.3 136.2 118.7 160.5	20 35 66 124 184 244 362 482 602 722 960 1216 1584 1992 2812 3632 4464 5264 6048 20 34 64 122 182 240 358
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240 360 480	min	Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992	(m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m .0 (m .0 2 .0 .0 4 .0 .5 .0 .5 .0 .6 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	3) 253.2 271.6 272.2 448.8 179.5 192.5 106.9 116.4 123.2 127.8 131.8 125.7 115.9 160.3 136.2 118.7 160.3 136.2 118.7 160.5 138.1 162.9 181.6 182.6 189.2 199.6	20 35 66 124 184 244 362 482 602 722 960 1216 1584 1992 2812 3632 4464 5264 6048 20 34 64 122 182 240 358 474
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 1008 15 30 60 120 180 240 360 480 600	min	Summer Su	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992	(m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m .0 (m .0 .2	3) 253.2 271.6 272.2 448.8 179.5 192.5 106.9 116.4 123.2 127.8 131.8 125.7 115.9 160.3 136.2 118.7 160.3 136.2 118.7 160.5	20 35 66 124 184 244 362 482 602 722 960 1216 1584 1992 2812 3632 4464 5264 6048 20 34 64 122 182 240 358

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Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond B Volume	
Date 25/04/2013 12:51	Designed by Jim Tamblyn	
File Catchment B Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

	Stor		Max Level (m)	Max Depth (m)	Max Control (1/s)	Max Volume (m³)	Status
960	min	Winter	99.820	1.020	4.8	794.9	ОК
1440	min	Winter	99.805	1.005	4.8	779.4	ОК
2160	min	Winter	99.769	0.969	4.7	743.6	ОК
2880	min	Winter	99.733	0.933	4.6	707.6	O K
4320	min	Winter	99.655	0.855	4.4	632.7	O K
5760	min	Winter	99.580	0.780	4.2	563.4	O K
7200	min	Winter	99.510	0.710	4.0	501.3	O K
8640	min	Winter	99.445	0.645	3.8	446.0	O K
10080	min	Winter	99.385	0.585	3.7	396.3	ОК
Storm							
	Stor	m	Rain	Flood	ed Disch	arge Ti	ime-Peak
	Stor Even		Rain (mm/hr)			-	ime-Peak (mins)
					ne Vol	ume	
	Even	t	(mm/hr)	Volum (m³)	ne Vol	ume ³)	(mins)
960	Even min	t Winter	(mm/hr)	Volum (m³)	ne Vol	ume ³) 570.3	(mins)
960 1440	min min	t Winter Winter	(mm/hr) 6.282 4.519	Volum (m³) 0	.0 6	ume ³) 570.3 662.6	(mins) 926 1354
960 1440 2160	min min min	Winter Winter Winter	(mm/hr) 6.282 4.519 3.245	Volum (m³) 0 0 0	.0 (m .0 (m .0 (6	570.3 662.6	926 1354 1684
960 1440 2160 2880	min min min min min	Winter Winter Winter Winter	(mm/hr) 6.282 4.519 3.245 2.563	Volum (m³) 0 0 0 0	.0 (m .0 (m .0 (a .0 11	570.3 662.6 .31.2	926 1354 1684 2136
960 1440 2160 2880 4320	min min min min min	Winter Winter Winter Winter Winter	(mm/hr) 6.282 4.519 3.245 2.563 1.836	Volum (m³)	.0 (m .0 (m .0 (6 .0 11 .0 11	570.3 662.6 .31.2 .61.6	926 1354 1684 2136 3064
960 1440 2160 2880 4320 5760	min min min min min min min	Winter Winter Winter Winter Winter Winter	(mm/hr) 6.282 4.519 3.245 2.563 1.836 1.448	Volum (m³) 0 0 0 0 0 0 0	.0 (m .0 6 .0 11 .0 11 .0 13	570.3 662.6 31.2 661.6 08.9	926 1354 1684 2136 3064 3920
960 1440 2160 2880 4320 5760 7200	min min min min min min min	Winter Winter Winter Winter Winter Winter Winter Winter	(mm/hr) 6.282 4.519 3.245 2.563 1.836 1.448 1.204	Volum (m³) 0 0 0 0 0 0 0 0 0	.0 (m .0 6 .0 11 .0 11 .0 13 .0 14	570.3 662.6 .31.2 .61.6 .08.9 .65.0	926 1354 1684 2136 3064 3920 4760
960 1440 2160 2880 4320 5760 7200 8640	min min min min min min min min	Winter Winter Winter Winter Winter Winter	(mm/hr) 6.282 4.519 3.245 2.563 1.836 1.448	Volum (m³) 0 0 0 0 0 0 0 0 0 0	.0 (m .0 6 .0 11 .0 11 .0 12 .0 13 .0 14 .0 14	570.3 662.6 31.2 661.6 08.9	926 1354 1684 2136 3064 3920

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond B Volume	
Date 25/04/2013 12:51	Designed by Jim Tamblyn	
File Catchment B Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

 Return
 Repriod (years)
 100
 Cv (Summer)
 0.750

 Region
 England and Wales
 Cv (Winter)
 0.840

 M5-60 (mm)
 21.000
 Shortest Storm (mins)
 15

 Ratio R
 0.421
 Longest Storm (mins)
 10080

 Summer Storms
 Yes
 Climate Change %
 +30

Time Area Diagram

Total Area (ha) 1.170

Time (mins) Area From: To: (ha)

0 5 1.170

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond B Volume	
Date 25/04/2013 12:51	Designed by Jim Tamblyn	
File Catchment B Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Storage is Offline Cover Level (m) 100.025 Dividing Weir Level (m) 98.800

Tank or Pond Structure

Invert Level (m) 98.800

Depth (m)	Area (m²)								
0.000	550.0	2.400	0.0	4.800	0.0	7.200	0.0	9.600	0.0
0.400	725.0	2.800	0.0	5.200	0.0	7.600	0.0	10.000	0.0
0.800	915.0	3.200	0.0	5.600	0.0	8.000	0.0		
1.200	1122.0	3.600	0.0	6.000	0.0	8.400	0.0		
1.600	0.0	4.000	0.0	6.400	0.0	8.800	0.0		
2.000	0.0	4.400	0.0	6.800	0.0	9.200	0.0		

Hydro-Brake® Outflow Control

Design Head (m) 1.000 Hydro-Brake® Type Md5 SW Only Invert Level (m) 98.800 Design Flow (1/s) 4.8 Diameter (mm) 89

Depth (m)	Flow (1/s)								
0.100	2.4	0.800	4.3	2.000	6.7	4.000	9.5	7.000	12.6
0.200	3.0	1.000	4.8	2.200	7.1	4.500	10.1	7.500	13.1
0.300	2.9	1.200	5.2	2.400	7.4	5.000	10.7	8.000	13.5
0.400	3.1	1.400	5.6	2.600	7.7	5.500	11.2	8.500	13.9
0.500	3.4	1.600	6.0	3.000	8.3	6.000	11.7	9.000	14.3
0.600	3.7	1.800	6.4	3.500	8.9	6.500	12.2	9.500	14.7

Horizon Consulting Engineers Ltd		Page 1
Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond C Volume	
Date 24/04/2013 16:52	Designed by Jim Tamblyn	
File Catchment C Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

	-						
	Stor	m	Max	Max	Max	Max	Status
	Even	t	Level	Depth	Control	Volume	
			(m)	(m)	(1/s)	(m³)	
15	min	Summer	101.126	0.526	4.2	363.4	O K
30	min	Summer	101.238	0.638	4.5	470.3	O K
60	min	Summer	101.340	0.740	4.9	575.8	O K
120	min	Summer	101.429	0.829	5.2	675.4	O K
180	min	Summer	101.473	0.873	5.3	726.6	O K
240	min	Summer	101.498	0.898	5.4	757.3	ОК
360	min	Summer	101.531	0.931	5.5	797.5	ОК
480	min	Summer	101.549	0.949	5.5	819.6	ОК
600	min	Summer	101.558	0.958	5.5	831.2	ОК
720	min	Summer	101.562	0.962	5.6	836.2	ОК
960	min	Summer	101.560	0.960	5.5	833.7	ОК
1440	min	Summer	101.541	0.941	5.5	810.2	ОК
2160	min	Summer	101.512	0.912	5.4	773.5	ОК
		Summer	101.482	0.882	5.3	737.0	ОК
		Summer	101.424	0.824	5.1	668.9	ОК
		Summer	101.370	0.770	5.0	608.9	ОК
		Summer	101.321	0.721	4.8	555.0	ОК
		Summer	101.274	0.674	4.7	506.3	ОК
		Summer	101.274	0.630	4.5	462.1	ОК
		Winter	101.230	0.573	4.3	407.3	
			101.173				O K
		Winter		0.694	4.7	527.3	O K
		Winter	101.404	0.804	5.1	646.3	O K
		Winter	101.500	0.900	5.4	759.2	O K
		Winter	101.548	0.948	5.5	818.1	O K
		Winter	101.576	0.976	5.6	854.1	0 K
		Winter	101.613	1.013	5.7	902.2	O K
		Winter	101.634	1.034	5.8	929.9	ОК
		Winter	101.646	1.046	5.8	946.2	ОК
720	min	Winter	101.653	1.053	5.8	955.1	ОК
							_
	Stor		Rain		d Disch	_	
	Stor Even		Rain (mm/hr)	Volume	e Volu	ıme (me-Peak mins)
						ıme (
15	Even	t	(mm/hr)	Volumo (m³)	e Volu (m³	ime (mins)
	Even	t Summer	(mm/hr)	Volumo (m³)	e Volu (m ³	ume (mins) 20
30	min min	Summer Summer	(mm/hr) 137.759 89.551	Volumo (m³) 0. 0.	e Volu (m ³ 0 3 0 3	17.6 40.3	mins) 20 35
30 60	min min min	Summer Summer Summer	(mm/hr) 137.759 89.551 55.351	Volumo (m³) 0. 0. 0.	e Volu (m ² 0 3 0 3 0 5	17.6 40.3 79.5	20 35 66
30 60 120	min min min min	Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014	Volume (m³) 0. 0. 0. 0.	0 3 3 0 5 0 6	17.6 40.3 79.5 78.3	20 35 66 124
30 60 120 180	min min min min min	Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067	Volume (m³) 0. 0. 0. 0. 0.	0 3 3 0 5 0 6 0 7	17.6 40.3 79.5 78.3 19.5	20 35 66 124 184
30 60 120 180 240	min min min min min min	Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117	Volume (m³) 0. 0. 0. 0. 0. 0.	0 3 3 5 6 6 7 7 0 7	17.6 40.3 79.5 78.3 19.5 36.0	20 35 66 124 184 244
30 60 120 180 240 360	min min min min min min min	Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842	Volume (m³) 0. 0. 0. 0. 0. 0. 0. 0.	0 3 3 0 5 0 6 0 7 0 7 0 7	17.6 40.3 79.5 78.3 19.5 36.0 53.2	20 35 66 124 184 244 362
30 60 120 180 240 360 480	min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992	Volume (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0 3 3 0 5 0 6 0 7 0 7 0 7	17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5	20 35 66 124 184 244 362 482
30 60 120 180 240 360 480 600	min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186	Volume (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0 3 3 0 5 0 6 0 7 0 7 0 7 0 7	17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 72.5	20 35 66 124 184 244 362 482 602
30 60 120 180 240 360 480 600 720	min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929	Volumm (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	e Volume (m ³ 0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7	17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 72.5	20 35 66 124 184 244 362 482 602 722
30 60 120 180 240 360 480 600 720 960	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282	Volumm (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	e Volu (m ³ 0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7	17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 72.5 77.8	20 35 66 124 184 244 362 482 602 722 960
30 60 120 180 240 360 480 600 720 960 1440	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519	Volumm (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	e Volu (m ³ 0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7	17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 72.5 77.8 82.2 74.1	20 35 66 124 184 244 362 482 602 722 960 1214
30 60 120 180 240 360 480 600 720 960 1440 2160	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245	Volumm (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	e Volu (m ³ 0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7	17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 72.5 77.8 82.2 74.1 38.0	20 35 66 124 184 244 362 482 602 722 960 1214 1584
30 60 120 180 240 360 480 600 720 960 1440 2160 2880	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563	Volum (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	e Volu (m³ 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7	me (*) 17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 72.5 77.8 82.2 74.1 38.0 97.1	20 35 66 124 184 244 362 482 602 722 960 1214 1584 1988
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836	Volumm (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	e Volu (m ³ 0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7	me (*) 17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 72.5 77.8 82.2 74.1 38.0 97.1 84.8	20 35 66 124 184 244 362 482 602 722 960 1214 1584 1988 2812
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448	Volum(m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	Pe Volu (m ³ 0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7	mme (4) 17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 772.5 772.8 82.2 74.1 38.0 97.1 84.8 79.7	20 35 66 124 184 244 362 482 602 722 960 1214 1584 1988
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204	Volumm (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	e Volu (m ³ 0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7	mme (4) 17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 77.8 82.2 74.1 38.0 97.1 84.8 79.7 37.3	20 35 66 124 184 244 362 482 602 722 960 1214 1584 1988 2812 3632 4464
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448	Volum(m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	Pe Volu (m ³ 0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7	mme (4) 17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 772.5 772.8 82.2 74.1 38.0 97.1 84.8 79.7	20 35 66 124 184 244 362 482 602 722 960 1214 1584 1988 2812 3632
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204	Volum(m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0 3 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 12 0 12 0 14 0 15 0 15	mme (4) 17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 77.8 82.2 74.1 38.0 97.1 84.8 79.7 37.3	20 35 66 124 184 244 362 482 602 722 960 1214 1584 1988 2812 3632 4464
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035	Volume (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	Pe Volu (m ³ 0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 7	mme (4) 17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 77.8 82.2 74.1 38.0 97.1 84.8 79.7 37.3 85.4	20 35 66 124 184 244 362 482 602 722 960 1214 1584 1988 2812 3632 4464 5192
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910	Volume (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	Pe Volu (m ³ 0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7	mme (4) 17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 77.8 82.2 74.1 38.0 97.1 84.8 79.7 37.3 85.4 25.9	20 35 66 124 184 244 362 482 602 722 960 1214 1584 1988 2812 3632 4464 5192 6048
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 7200 8640 10080 15 30	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759	Volume (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	Pe Volu (m ³ 0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 7	me (4) 17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 72.5 77.8 82.2 74.1 38.0 97.1 84.8 79.7 37.3 85.4 25.9 29.3	20 35 66 124 184 244 362 482 602 722 960 1214 1584 1988 2812 3632 4464 5192 6048
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 7200 8640 10080 15 30 60	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551	Volume (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 12 0 12 0 12 0 14 0 15 0 16 0 3 0 3 0 6	me (4) 17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 72.5 77.8 82.2 74.1 38.0 97.1 84.8 79.7 37.3 85.4 25.9 29.3 52.8	20 35 66 124 184 244 362 482 602 722 960 1214 1584 1988 2812 3632 4464 5192 6048 20 34
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351	Volume (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 12 0 12 0 12 0 14 0 15 0 16 0 3 0 3 0 6 0 7	me (4) 17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 77.8 82.2 77.1 88.2 274.1 38.0 97.1 84.8 79.7 37.3 85.4 25.9 29.3 52.8 43.7	20 35 66 124 184 244 362 482 602 722 960 1214 1584 1988 2812 3632 4464 5192 6048 20 34 64
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180	min	Summer Su	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014	Volume (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 12 0 12 0 12 0 12 0 14 0 15 0 16 0 3 0 3 0 6 0 7	me (4) 17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 77.8 82.2 74.1 38.0 97.1 84.8 79.7 37.3 85.4 25.9 29.3 52.8 43.7 31.3	20 35 66 124 184 244 362 482 602 722 960 1214 1584 1988 2812 3632 4464 5192 6048 20 34 64
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240	min	Summer Su	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067	Volume (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 12 0 12 0 12 0 12 0 14 0 15 0 16 0 3 0 3 0 6 0 7 0 7	me (4) 17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 72.5 77.8 82.2 74.1 38.0 97.1 84.8 79.7 37.3 85.4 25.9 29.3 52.8 43.7 31.3 56.1	20 35 66 124 184 244 362 482 602 722 960 1214 1584 1988 2812 3632 4464 5192 6048 20 34 64 122 182
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240 360	min	Summer Su	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117	Volum(m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 12 0 12 0 12 0 12 0 12 0 15 0 16 0 3 0 3 0 6 0 7 0 7	me (4) 17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 72.5 77.8 82.2 74.1 38.0 97.1 84.8 79.7 37.3 85.4 25.9 29.3 52.8 43.7 31.3 56.1 70.2	mins) 20 35 66 124 184 244 362 482 602 722 960 1214 1584 1988 2812 3632 4464 5192 6048 20 34 64 122 182 240
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240	min	Summer Su	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842	Volume (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 12 0 12 0 12 0 12 0 12 0 15 0 16 0 3 0 3 0 6 0 7 0 7 0 7 0 8	me (4) 17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 72.5 77.8 82.2 74.1 38.0 97.1 84.8 79.7 37.3 85.4 25.9 29.3 52.8 43.7 31.3 56.1 70.2	mins) 20 35 66 124 184 244 362 482 602 722 960 1214 1584 1988 2812 3632 4464 5192 6048 20 34 64 122 182 240 358
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240 360 480 600	min	Summer Su	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992	Volume (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	e Volu (m ³ 0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 12 0 12 0 12 0 12 0 12 0 15 0 16 0 3 0 3 0 6 0 7 0 7 0 7 0 7 0 8 0 8	me (**) 17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 72.5 77.8 82.2 74.1 38.0 97.1 84.8 79.7 37.3 85.4 25.9 29.3 52.8 43.7 31.3 56.1 70.2 92.0 06.4	mins) 20 35 66 124 184 244 362 482 602 722 960 1214 1584 1988 2812 3632 4464 5192 6048 20 34 64 122 182 240 358 474
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240 360 480 600	min	Summer Su	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929	Volume (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 12 0 12 0 12 0 12 0 14 0 15 0 16 0 3 0 3 0 6 0 7 0 7 0 7 0 7 0 8 0 8	me (4) 17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 77.8 82.2 74.1 38.0 97.1 84.8 79.7 37.3 85.4 25.9 29.3 52.8 43.7 31.3 56.1 70.2 92.0 06.4 15.8	mins) 20 35 66 124 184 244 362 482 602 722 960 1214 1584 1988 2812 3632 4464 5192 6048 20 34 64 122 182 240 358 474 590
30 60 120 180 240 360 480 600 720 960 1440 2160 2880 7200 8640 10080 15 30 60 120 180 240 360 480 600	min	Summer Su	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186	Volume (m³) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0 3 0 3 0 5 0 6 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 12 0 12 0 12 0 12 0 14 0 15 0 16 0 3 0 3 0 6 0 7 0 7 0 7 0 7 0 8 0 8	me (4) 17.6 40.3 79.5 78.3 19.5 36.0 53.2 64.5 77.8 82.2 74.1 38.0 97.1 84.8 79.7 37.3 85.4 25.9 29.3 52.8 43.7 31.3 56.1 70.2 92.0 06.4 15.8	mins) 20 35 66 124 184 244 362 482 602 722 960 1214 1584 1988 2812 3632 4464 5192 6048 20 34 64 122 182 240 358 474 590

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond C Volume	
Date 24/04/2013 16:52	Designed by Jim Tamblyn	
File Catchment C Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

	Stor Even		Max Level (m)	Max Depth (m)	Max Control (1/s)	Max Volume (m³)	Status
960	min	Winter	101.656	1.056	5.8	959.2	ОК
1440	min	Winter	101.640	1.040	5.8	938.2	ОК
2160	min	Winter	101.605	1.005	5.7	891.3	ОК
2880	min	Winter	101.569	0.969	5.6	844.9	ОК
4320	min	Winter	101.493	0.893	5.4	750.3	O K
5760	min	Winter	101.419	0.819	5.1	663.9	O K
7200	min	Winter	101.350	0.750	4.9	586.7	O K
8640	min	Winter	101.285	0.685	4.7	517.8	O K
10080	min	Winter	101.224	0.624	4.5	456.1	O K
	Stor	m	Rain	Floode	d Disch	arge Ti	ne-Peak
	Even	.t	(mm/hr)	Volum	e Volu	me (mins)
				(m³)	(m ³)	
060	min	Winter	6.282	0.	0 0	25.6	926
		Winter	4.519	0.		15.4	1354
		Winter	3.245	0.		81.6	1684
		Winter	2.563	0.		30.2	2136
		Winter	1.836	0.		70.9	3064
		Winter	1.448	0.		57.2	3920
5,50						J . • 2	2220
7200	min	Winter	1.204	0.	0 17	21.8	4760
		Winter Winter	1.204	0.		21.8 75.6	4760 5616

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond C Volume	
Date 24/04/2013 16:52	Designed by Jim Tamblyn	
File Catchment C Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

 Return
 Repriod (years)
 100
 Cv (Summer)
 0.750

 Region
 England and Wales
 Cv (Winter)
 0.840

 M5-60 (mm)
 21.000
 Shortest Storm (mins)
 15

 Ratio R
 0.421
 Longest Storm (mins)
 10080

 Summer Storms
 Yes
 Climate Change %
 +30

Time Area Diagram

Total Area (ha) 1.420

Time (mins) Area From: To: (ha)

0 5 1.420

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Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond C Volume	
Date 24/04/2013 16:52	Designed by Jim Tamblyn	
File Catchment C Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Storage is Offline Cover Level (m) 101.860 Dividing Weir Level (m) 100.600

Tank or Pond Structure

Invert Level (m) 100.600

Depth (m)	Area (m²)								
0.000	488.0	1.200	1476.0	2.400	0.0	3.600	0.0	4.800	0.0
0.200	642.0	1.400	1654.0	2.600	0.0	3.800	0.0	5.000	0.0
0.400	801.0	1.600	0.0	2.800	0.0	4.000	0.0		
0.600	964.0	1.800	0.0	3.000	0.0	4.200	0.0		
0.800	1130.0	2.000	0.0	3.200	0.0	4.400	0.0		
1.000	1301.0	2.200	0.0	3.400	0.0	4.600	0.0		

Hydro-Brake® Outflow Control

Design Head (m) 1.020 Hydro-Brake® Type Md5 SW Only Invert Level (m) 100.600 Design Flow (l/s) 5.8 Diameter (mm) 97

Depth (m)	Flow (1/s)								
0.100	2.7	0.800	5.1	2.000	8.0	4.000	11.3	7.000	15.0
0.200	3.7	1.000	5.7	2.200	8.4	4.500	12.0	7.500	15.5
0.300	3.6	1.200	6.2	2.400	8.8	5.000	12.7	8.000	16.0
0.400	3.8	1.400	6.7	2.600	9.1	5.500	13.3	8.500	16.5
0.500	4.1	1.600	7.2	3.000	9.8	6.000	13.9	9.000	17.0
0.600	4.4	1.800	7.6	3.500	10.6	6.500	14.4	9.500	17.5

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond D Volume	
Date 25/04/2013 08:54	Designed by Jim Tamblyn	
File Catchment D Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

	Stor	m	Max	Max	Max	Max	Status
	Even	.t	Level	Depth (Control	Volume	
			(m)	(m)	(1/s)	(m³)	
15	min	Summer	104.418	0.418	1.6	158.8	ОК
		Summer	104.517	0.517	1.8	205.6	ОК
		Summer	104.608	0.608	2.0	252.0	ОК
		Summer	104.690	0.690	2.1	296.0	ОК
		Summer	104.730	0.730	2.2	318.9	ОК
		Summer	104.754	0.754	2.2	332.8	ОК
360	min	Summer	104.786	0.786	2.3	351.4	ОК
		Summer	104.804	0.804	2.3	362.0	ОК
600	min	Summer	104.814	0.814	2.3	368.1	ОК
720	min	Summer	104.819	0.819	2.3	371.2	O K
960	min	Summer	104.820	0.820	2.3	371.9	O K
1440	min	Summer	104.806	0.806	2.3	363.7	O K
2160	min	Summer	104.783	0.783	2.3	349.7	O K
2880	min	Summer	104.759	0.759	2.2	335.3	O K
4320	min	Summer	104.710	0.710	2.1	307.5	O K
5760	min	Summer	104.666	0.666	2.1	282.7	O K
7200	min	Summer	104.625	0.625	2.0	260.6	O K
8640	min	Summer	104.587	0.587	1.9	240.6	O K
10080	min	Summer	104.551	0.551	1.9	222.5	O K
15	min	Winter	104.459	0.459	1.7	178.0	O K
30	min	Winter	104.567	0.567	1.9	230.5	O K
60	min	Winter	104.666	0.666	2.1	282.7	O K
		Winter	104.754	0.754	2.2	332.5	O K
		Winter	104.798	0.798	2.3	358.8	O K
			104.825	0.825	2.3	375.0	O K
		Winter	104.861	0.861	2.4	397.0	O K
		Winter	104.881	0.881	2.4	410.1	O K
		Winter	104.894	0.894	2.4	418.1	0 K
720	mın		104.902	0.902	·) /1		
		Winter			2.4	422.9	0 K
	Stor	m	Rain	Flooded	d Discha	arge Tir	ne-Peak
		m		Flooded Volume	l Discha Volu	arge Tin me (
	Stor	m	Rain	Flooded	d Discha	arge Tin me (ne-Peak
15	Stor Even	m t Summer	Rain	Flooded Volume	l Discha Volu (m³	arge Tin me (ne-Peak
15	Stor Even	m it	Rain (mm/hr)	Flooded Volume (m³)	d Discha Volu (m³	arge Tin me ()	me-Peak mins)
15 30 60	min min min	summer Summer Summer	Rain (mm/hr) 137.759	Flooded Volume (m³) 0.0 0.0	Discha Volum (m³	arge Tin me () 23.1 33.9 48.4	ne-Peak mins) 20 35 66
15 30 60 120	min min min min min	Summer Summer Summer Summer Summer	Rain (mm/hr) 137.759 89.551 55.351 33.014	Flooded Volume (m³) 0.0 0.0 0.0	Volu (m³) 12) 24) 27	arge Tir me () 23.1 33.9 48.4 79.5	ne-Peak mins) 20 35 66 124
15 30 60 120 180	min min min min min min	Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0	1 Discha Volu (m³) 12) 13) 24) 25) 28	arge Time () 23.1 33.9 48.4 79.5	ne-Peak mins) 20 35 66 124 184
15 30 60 120 180 240	min min min min min min min	Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0	1 Discha Volu (m³) 12) 13) 24) 25) 28) 29) 29)	arge Time () 23.1 33.9 48.4 79.5 39.5	20 35 66 124 184 244
15 30 60 120 180 240 360	min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842	Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0	1 Discha Volu (m³) 12 13 13 14 15 15 15 15 15 15 15	arge Tir me () 23.1 33.9 48.4 79.5 39.5 96.0	20 35 66 124 184 244 364
15 30 60 120 180 240 360 480	min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	1 Discha Volu (m³) 12) 13) 24) 25) 26) 26) 30) 31)	arge Timme () 23.1 33.9 48.4 79.5 39.5 96.0 95.9	20 35 66 124 184 244 364 482
15 30 60 120 180 240 360 480 600	min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186	Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	1 Discha Volu (m³) 12 13 13 14 15 15 15 15 15 15 15	arge Timme () 23.1 33.9 48.4 79.5 39.5 96.0 95.9 42.4	ne-Peak mins) 20 35 66 124 184 244 364 482 602
15 30 60 120 180 240 360 480 600 720	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929	Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	1 Discha Volu (m³) 12 (13) 13 (13) 1	arge Timme () 23.1 33.9 48.4 79.5 39.5 96.0 05.9 42.4 46.6	ne-Peak mins) 20 35 66 124 184 244 364 482 602 722
15 30 60 120 180 240 360 480 600 720 960	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282	Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	1 Discha Volu (m³) 12 (13) 13 (13) 1	arge Timme () 23.1 33.9 48.4 79.5 39.5 96.0 95.9 42.4 46.6	ne-Peak mins) 20 35 66 124 184 244 364 482 602 722 960
15 30 60 120 180 240 360 480 600 720 960 1440	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519	Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	1 Discha Volu (m³) 12 (13) 13 (13) 1	arge Timme () 23.1 33.9 48.4 79.5 39.5 96.0 05.9 42.4 46.6 49.4 21.6	me-Peak mins) 20 35 66 124 184 244 364 482 602 722 960 1244
15 30 60 120 180 240 360 480 600 720 960 1440 2160	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	1 Discha Volu (m³) 12 (13) 13 (13) 1	arge Timme () 23.1 33.9 48.4 79.5 39.5 96.0 05.9 12.4 16.6 19.4 21.6 18.1 36.8	me-Peak mins) 20 35 66 124 184 244 364 482 602 722 960 1244 1620
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	1 Discha Volu (m³) 12 (13) 13 (13) 1	arge Time () 23.1 33.9 48.4 79.5 39.5 96.0 95.9 42.4 46.6 49.4 21.6 48.1 36.8	me-Peak mins) 20 35 66 124 184 244 364 482 602 722 960 1244 1620 2016
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836	Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	H Dische Volum (m³ 1 12 2 13 2 25 3 26 3 30 3 31 3 32 3 33 3 34 3 35	arge Timme () 23.1 33.9 48.4 79.5 39.5 96.0 91.2.4 46.6 49.4 21.6 48.1 86.8 52.3	me-Peak mins) 20 35 66 124 184 244 364 482 602 722 960 1244 1620 2016 2852
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448	Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	## Dischar Volument Volument	arge Timme () 23.1 33.9 48.4 79.5 39.5 96.0 95.9 42.4 46.6 49.4 21.6 48.1 86.8 52.3	me-Peak mins) 20 35 66 124 184 244 364 482 722 960 1244 1620 2016 2852 3640
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204	Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	## Dischar Volument Volument	arge Timme () 23.1 33.9 48.4 79.5 39.5 96.0 95.9 42.4 46.6 49.4 21.6 48.1 86.8 52.3 28.8 45.9	me-Peak mins) 20 35 66 124 184 244 364 482 602 722 960 1244 1620 2016 2852 3640 4472
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	## Dischar Volument Volument	arge Timme () 23.1 33.9 48.4 79.5 39.5 96.0 95.9 42.4 46.6 49.4 21.6 48.1 36.8 32.3 28.8 45.9 71.1	me-Peak mins) 20 35 66 124 184 244 364 482 602 722 960 1244 1620 2016 2852 3640 4472 5272
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	## Dischar Volument Volument	arge Timme () 23.1 33.9 48.4 79.5 39.5 96.0 95.9 42.4 46.6 48.1 36.8 52.3 28.8 45.9 71.1 91.9	me-Peak mins) 20 35 66 124 184 244 364 482 602 722 960 1244 1620 2016 2852 3640 4472 5272 6056
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	## Dischar Volum (m³ 12 13 13 13 13 13 13 13	arge Timme () 23.1 33.9 18.4 79.5 39.5 96.0 95.9 12.4 16.6 18.1 36.8 52.3 28.8 15.9 71.1 91.9 99.4 27.0	me-Peak mins) 20 35 66 124 184 244 364 482 602 722 960 1244 1620 2016 2852 3640 4472 5272 6056 20
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	Rain (mm/hr) 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	## Dischar Volum (m3	arge Timme () 23.1 33.9 18.4 79.5 39.5 96.0 95.9 12.4 16.6 19.4 21.6 18.1 36.8 52.3 28.8 45.9 71.1 91.9 99.4 27.0 10.9	me-Peak mins) 20 35 66 124 184 244 364 482 602 722 960 1244 1620 2016 2852 3640 4472 5272 6056 20 34
15 30 60 120 180 240 360 480 600 720 960 2880 4320 5760 7200 8640 10080 15 30 60	min	Summer Su	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	## Dischar Volum (m3 12 13 13 13 13 13 13 1	arge Timme () 23.1 33.9 18.4 79.5 39.5 66.0 05.9 12.4 16.6 19.4 21.6 18.1 36.8 52.3 28.8 45.9 71.1 91.9 99.4 27.0 10.9	me-Peak mins) 20 35 66 124 184 244 364 482 602 722 960 1244 1620 2016 2852 3640 4472 5272 6056 20 34 64
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 5760 7200 8640 10080 15 30 60 120	min	Summer Su	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	1 Dische Volum (m³ 12 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	arge Timme () 23.1 33.9 18.4 79.5 39.5 26.0 21.4 21.6 21	me-Peak mins) 20 35 66 124 184 244 364 482 602 722 960 1244 1620 2016 2852 3640 4472 5272 6056 20 34 64 122
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180	min	Summer Su	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	## Dischar Volum (m3 12 13 13 13 13 13 13 1	arge Timme () 23.1 33.9 18.4 79.5 39.5 96.0 95.9 12.4 16.6 19.4 21.6 21.6 21.6 21.6 21.7 21.9 21	me-Peak mins) 20 35 66 124 184 244 364 482 602 722 960 1244 1620 2016 2852 3640 4472 5272 6056 20 34 64 122 182
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240	min	Summer Su	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	## Dischar Volum (m3 12 13 13 13 13 13 13 1	arge Timme () 23.1 33.9 18.4 79.5 39.5 96.0 95.9 12.4 16.6 19.4 21.6 21.6 21.6 21.7 21.9 21.1 21.9 21.9 21.9 21.9 21.9 21.9 21.9 21.9 21.9 21.9 21.9 21.9 21.9 21.9 21.9 21.9 21.9 21.9	me-Peak mins) 20 35 66 124 184 244 364 482 602 722 960 1244 1620 2016 2852 3640 4472 5272 6056 20 34 64 122 182 240
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240 360 480 480 480 480 480 480 480 480 480 48	min	Summer Su	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	## Dischar Volum (m3 12 13 13 13 13 13 13 1	arge Timme () 23.1 33.9 18.4 79.5 39.5 96.0 95.9 12.4 16.6 19.4 21.6 21.6 21.6 21.6 21.7 21.9 21	me-Peak mins) 20 35 66 124 184 244 364 482 602 722 960 1244 1620 2016 2852 3640 4472 5272 6056 20 34 64 122 182
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240 360 480 480 480 480 480 480 480 480 480 48	min	Summer Su	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	## Dischar Volum (m3 12 13 13 13 13 13 13 1	arge Timme () 23.1 33.9 18.4 79.5 39.5 96.0 95.9 12.4 16.6 19.4 21.6 21.6 22.4 21.6 21.7 21.9 21.9 21.9 21.9 21.9 22.3 22.8 23.9 24.2 25.9 25.2	me-Peak mins) 20 35 66 124 184 244 364 482 602 722 960 1244 1620 2016 2852 3640 4472 5272 6056 20 34 64 122 182 240 358
15 30 60 120 180 240 360 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240 360 600 600 600 720 720 860 600 600 600 600 600 600 600 600 60	min	Summer Winter Wi	Rain (mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992	Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	## Dischar Volum (m3 12 13 13 13 13 13 13 1	arge Timme () 23.1 33.9 48.4 79.5 39.5 96.0 95.9 12.4 16.6 19.4 21.6 21.6 22.4 21.6 21.7 21.9 21.9 21.9 21.9 21.9 21.9 22.3 23.1	me-Peak mins) 20 35 66 124 184 244 364 482 602 722 960 1244 1620 2016 2852 3640 4472 5272 6056 20 34 64 122 182 240 358 474

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond D Volume	
Date 25/04/2013 08:54	Designed by Jim Tamblyn	
File Catchment D Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

	Storm		Max	Max	Max	Max	Status
	Event		Level	Depth	Control	Volume	
			(m)	(m)	(l/s)	(m³)	
960	min	Winter	104.907	0.907	2.4	426.5	O K
1440	min	Winter	104.898	0.898	2.4	420.4	O K
2160	min	Winter	104.869	0.869	2.4	402.2	O K
2880	min	Winter	104.840	0.840	2.3	384.3	O K
4320	min	Winter	104.778	0.778	2.2	346.5	O K
5760	min	Winter	104.716	0.716	2.2	311.0	O K
7200	min	Winter	104.659	0.659	2.1	279.2	O K
8640	min	Winter	104.606	0.606	2.0	250.9	O K
10080	min	Winter	104.557	0.557	1.9	225.6	O K
	Stor	m	Rain	Floode	d Discha	arge Ti	me-Peak
	Stor Even		Rain (mm/hr)			-	me-Peak mins)
					e Volu	me (
				Volume	e Volu	me (
	Even	t		Volume (m³)	e Volu (m³	me (
960	Even	t	(mm/hr)	Volume (m³)	volu (m³	me (mins)
960 1440	min min	t Winter	(mm/hr) 6.282 4.519	Volume (m³) 0. 0.	volu (m³ 0 34 0 33	me () 40.7	mins) 930
960 1440 2160	min min min	t Winter Winter	(mm/hr) 6.282 4.519 3.245	Volume (m³) 0. 0. 0.	Volu (m³ 0 34 0 35 0 55	me () 40.7 36.0	930 1358
960 1440 2160 2880	min min min min	Winter Winter Winter	(mm/hr) 6.282 4.519 3.245	Volume (m³) 0. 0. 0.	Volu (m³ 0 34 0 35 0 55 0 55	me () 40.7 36.0 91.0	930 1358 1708
960 1440 2160 2880 4320	min min min min min	Winter Winter Winter Winter	(mm/hr) 6.282 4.519 3.245 2.563	Volume (m³) 0. 0. 0. 0.	Volu (m³ 0 34 0 35 0 55 0 55 0 56	me () 40.7 36.0 91.0	930 1358 1708 2164
960 1440 2160 2880 4320 5760	min min min min min min	Winter Winter Winter Winter Winter	(mm/hr) 6.282 4.519 3.245 2.563 1.836	Volume (m³) 0. 0. 0. 0. 0.	volu (m³ 0 34 0 35 0 55 0 56 0 75	me () 40.7 36.0 91.0 90.2 57.8	930 1358 1708 2164 3072
960 1440 2160 2880 4320 5760 7200	min min min min min min min	Winter Winter Winter Winter Winter Winter	(mm/hr) 6.282 4.519 3.245 2.563 1.836 1.448	Volume (m³) 0. 0. 0. 0. 0. 0.	Volu (m³ 0 3.0 0 5.0 0 5.0 0 7.0 0 7.0	me () 40.7 36.0 91.0 90.2 57.8 23.4	930 1358 1708 2164 3072 3968

Horizon Consulting Engineers Ltd		Page 3
Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond D Volume	
Date 25/04/2013 08:54	Designed by Jim Tamblyn	
File Catchment D Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

 Return
 Repriod (years)
 100
 Cv (Summer)
 0.750

 Region
 England and Wales
 Cv (Winter)
 0.840

 M5-60 (mm)
 21.000
 Shortest Storm (mins)
 15

 Ratio R
 0.421
 Longest Storm (mins)
 10080

 Summer Storms
 Yes
 Climate Change %
 +30

Time Area Diagram

Total Area (ha) 0.620

Time (mins) Area From: To: (ha)

0 5 0.620

Horizon Consulting Engineers Ltd		Page 4
Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond D Volume	
Date 25/04/2013 08:54	Designed by Jim Tamblyn	
File Catchment D Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Storage is Offline Cover Level (m) 105.200 Dividing Weir Level (m) 104.000

Tank or Pond Structure

Invert Level (m) 104.000

Depth (m)	Area (m²)								
0.000	310.0	2.400	0.0	4.800	0.0	7.200	0.0	9.600	0.0
0.400	448.0	2.800	0.0	5.200	0.0	7.600	0.0	10.000	0.0
0.800	601.0	3.200	0.0	5.600	0.0	8.000	0.0		
1.200	771.0	3.600	0.0	6.000	0.0	8.400	0.0		
1.600	0.0	4.000	0.0	6.400	0.0	8.800	0.0		
2.000	0.0	4.400	0.0	6.800	0.0	9.200	0.0		

Hydro-Brake® Outflow Control

Design Head (m) 1.000 Hydro-Brake® Type Md5 SW Only Invert Level (m) 104.000 Design Flow (l/s) 2.6 Diameter (mm) 65

Depth (m)	Flow (1/s)								
0.100	1.3	0.800	2.3	2.000	3.6	4.000	5.1	7.000	6.7
0.200	1.3	1.000	2.5	2.200	3.8	4.500	5.4	7.500	7.0
0.300	1.4	1.200	2.8	2.400	3.9	5.000	5.7	8.000	7.2
0.400	1.6	1.400	3.0	2.600	4.1	5.500	6.0	8.500	7.4
0.500	1.8	1.600	3.2	3.000	4.4	6.000	6.2	9.000	7.6
0.600	2.0	1.800	3.4	3.500	4.8	6.500	6.5	9.500	7.8

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond E Volume	
Date 25/04/2013 12:54	Designed by Jim Tamblyn	
File Catchment E Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

	Stor	rm	Max	Max	Max	Max	Status
	Ever	ıt	Level	Depth	Control	Volume	
			(m)	(m)	(1/s)	(m³)	
		Summer	91.232	0.732	5.0	440.3	O K
		Summer	91.396	0.896	5.5	569.8	ОК
		Summer	91.545	1.045	5.9	697.7	O K
		Summer	91.675	1.175	6.3	818.7	O K
		Summer	91.740	1.240	6.4	881.1	0 K
		Summer	91.777	1.277	6.5	918.6	0 K
		Summer	91.826	1.326	6.7	968.0	0 K
		Summer	91.852	1.352	6.7	995.3	0 K
		Summer Summer	91.866 91.872	1.366	6.8 6.8	1010.0 1016.6	O K O K
		Summer	91.872	1.372	6.8	1010.6	O K
		Summer	91.846	1.346	6.7	988.6	O K
		Summer	91.805	1.305	6.6	946.6	O K
		Summer	91.762	1.262	6.5	903.6	O K
		Summer	91.679	1.179	6.3	822.5	ОК
		Summer	91.604	1.104	6.1	751.8	O K
		Summer	91.535	1.035	5.9	688.8	ОК
		Summer	91.471	0.971	5.7	632.6	O K
		Summer	91.410	0.910	5.5	581.7	O K
		Winter	91.301	0.801	5.2	493.5	O K
		Winter	91.478	0.978	5.7	638.9	ОК
		Winter	91.638	1.138	6.2	783.2	O K
		Winter	91.779	1.279	6.5	920.3	O K
		Winter	91.779	1.349	6.7	991.9	O K
		Winter	91.849	1.390	6.8	1035.7	O K
		Winter	91.945	1.445	6.9	1094.6	O K
		Winter	91.976	1.476	7.0	1128.7	O K
		Winter	91.995	1.495	7.1	1149.0	ОК
		Winter	92.005	1.505	7.1		ОК
, 20							0 10
	Stor	m.	Rain	Flood	ed Disch	arge Ti	me-Peak
	Stor. Even		Rain (mm/hr)	Flood Volum		arge Ti ume (me-Peak (mins)
					ne Vol	ıme	
				Volum	ne Vol	ıme	
	Even			Volum (m³)	ne Volu	ıme	
15	Even	t	(mm/hr)	Volum (m³)	me Volu	ime ((mins)
15 30	Even min min	t Summer	(mm/hr)	Volum (m³) 0	ne Volume (m0 3 .0 3	ime (3)	(mins)
15 30 60	min min min	Summer Summer	(mm/hr) 137.759 89.551	Volum (m³) 0 0 0	.0 3 .0 3 .0 7	ime (3) 56.6 93.7	(mins) 20 35
15 30 60 120	min min min min	Summer Summer Summer	(mm/hr) 137.759 89.551 55.351	Volum (m³)	.0 3 .0 3 .0 7 .0 8	56.6 93.7 00.6	(mins) 20 35 66
15 30 60 120 180	min min min min min	Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014	Volum (m³) 0 0 0 0 0 0	.0 3 .0 3 .0 7 .0 8 .0 8	56.6 93.7 00.6	(mins) 20 35 66 124
15 30 60 120 180 240 360	min min min min min	Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842	Volum (m³)	.0 3 .0 3 .0 7 .0 8 .0 8 .0 8	56.6 93.7 00.6 07.1 42.1 61.9 92.0	(mins) 20 35 66 124 184 244 362
15 30 60 120 180 240 360 480	min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992	Volum (m³)	.0 3 .0 3 .0 7 .0 8 .0 8 .0 8 .0 8	56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1	20 35 66 124 184 244 362 482
15 30 60 120 180 240 360 480 600	min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186	Volum (m³)	.0 3 .0 3 .0 7 .0 8 .0 8 .0 8 .0 9 .0 9	56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5	20 35 66 124 184 244 362 482 602
15 30 60 120 180 240 360 480 600 720	min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929	Volum (m³)	.0 3 .0 3 .0 7 .0 8 .0 8 .0 8 .0 9 .0 9	56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0	20 35 66 124 184 244 362 482 602 722
15 30 60 120 180 240 360 480 600 720 960	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282	Volum (m³)	.0 3 .0 3 .0 7 .0 8 .0 8 .0 8 .0 9 .0 9 .0 9	56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4	20 35 66 124 184 244 362 482 602 722 960
15 30 60 120 180 240 360 480 600 720 960 1440	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519	Volum (m³)	.0 3 .0 3 .0 7 .0 8 .0 8 .0 8 .0 9 .0 9 .0 9 .0 9	56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 32.1	20 35 66 124 184 244 362 482 602 722 960 1212
15 30 60 120 180 240 360 480 600 720 960 1440 2160	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245	Volum (m³)	.0 3 .0 7 .0 8 .0 8 .0 8 .0 9 .0 9 .0 9 .0 9 .0 9	56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 32.1 99.5	20 35 66 124 184 244 362 482 602 722 960 1212 1580
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563	Volum (m³)	.0 3 .0 3 .0 7 .0 8 .0 8 .0 8 .0 9 .0 9 .0 9 .0 9 .0 9 .0 14 .0 15	56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 32.1 99.5 66.5	20 35 66 124 184 244 362 482 602 722 960 1212 1580 1988
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836	Volum (m³)	.0 3 .0 7 .0 8 .0 8 .0 9 .0 9 .0 9 .0 9 .0 9 .0 14 .0 15	56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 32.1 99.5 66.5 28.9	20 35 66 124 184 244 362 482 602 722 960 1212 1580 1988 2812
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448	Volum (m³)	ne Volu (m) .0 3 .0 3 .0 7 .0 8 .0 8 .0 8 .0 9 .0 9 .0 9 .0 9 .0 9 .0 9 .0 14 .0 15 .0 17	56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 32.1 99.5 66.5 28.9 92.4	20 35 66 124 184 244 362 482 602 722 960 1212 1580 1988 2812 3632
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204	Volum (m³)	ne Volu (m) .0 3 .0 3 .0 7 .0 8 .0 8 .0 8 .0 9 .0 9 .0 9 .0 9 .0 9 .0 14 .0 15 .0 17 .0 18	56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 32.1 99.5 66.5 28.9 92.4 62.4	20 35 66 124 184 244 362 482 602 722 960 1212 1580 1988 2812 3632 4400
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640	min	Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035	Volum (m³)	.0 (m) .0 (3) .0 (3) .0 (7) .0 (8) .0 (8) .0 (8) .0 (9) .0 (9) .0 (9) .0 (9) .0 (14) .0 (15) .0 (15) .0 (17) .0 (18) .0 (19)	56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 32.1 99.5 66.5 28.9 92.4 62.4 20.7	20 35 66 124 184 244 362 482 602 722 960 1212 1580 1988 2812 3632 4400 5192
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910	Volum (m³)	.0 3 .0 3 .0 7 .0 8 .0 8 .0 8 .0 9 .0 9 .0 9 .0 9 .0 14 .0 15 .0 17 .0 18 .0 19	56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 32.1 99.5 66.5 28.9 92.4 62.4 20.7 70.1	(mins) 20 35 66 124 184 244 362 482 602 722 960 1212 1580 1988 2812 3632 4400 5192 6048
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759	Volum (m³)	ne Volu (m) .0 3 .0 3 .0 7 .0 8 .0 8 .0 8 .0 9 .0 9 .0 9 .0 9 .0 14 .0 15 .0 17 .0 18 .0 19 .0 19 .0 3	me (93) 56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 32.1 99.5 66.5 28.9 92.4 62.4 20.7 70.1 70.5	(mins) 20 35 66 124 184 244 362 482 602 722 960 1212 1580 1988 2812 3632 4400 5192 6048 20
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551	Volum (m³)	ne Volu (m) .0 3 .0 3 .0 7 .0 8 .0 8 .0 8 .0 9 .0 9 .0 9 .0 14 .0 15 .0 17 .0 18 .0 19 .0 19 .0 19 .0 19 .0 19 .0 19 .0 19 .0 19 .0 19 .0 19	me (93) 56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 32.1 99.5 66.5 28.9 92.4 62.4 20.7 70.1 70.5 15.6	(mins) 20 35 66 124 184 244 362 482 602 722 960 1212 1580 1988 2812 3632 4400 5192 6048 20 34
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60	min	Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351	Volum (m³)	ne Volu (m) (m) (m) (m) (m) (m) (m) (m)	me (93) 56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 399.5 66.5 28.9 92.4 62.4 20.7 70.1 70.5 15.6 73.5	(mins) 20 35 66 124 184 244 362 482 602 722 960 1212 1580 1988 2812 3632 4400 5192 6048 20 34 64
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120	min	Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014	Volum (m³)	.0 (m) .0 (3) .0 (3) .0 (7) .0 (8) .0 (8) .0 (9) .0 (9) .0 (9) .0 (9) .0 (14) .0 (15) .0 (15) .0 (17) .0 (18) .0 (19)	me (93) 56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 32.1 99.5 66.5 28.9 92.4 62.4 20.7 70.1 70.5 15.6 73.5 55.7	(mins) 20 35 66 124 184 244 362 482 602 722 960 1212 1580 1988 2812 3632 4400 5192 6048 20 34 64 122
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180	min	Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067	Volum (m³)	ne Volu (m) (m) (m) (m) (m) (m) (m) (m)	me (93) 56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 32.1 99.5 66.5 28.9 92.4 62.4 20.7 70.1 70.5 15.6 73.5 55.7 91.2	(mins) 20 35 66 124 184 244 362 482 602 722 960 1212 1580 1988 2812 3632 4400 5192 6048 20 34 64 122 182
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240	min	Summer Su	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117	Volum (m³)	ne Volu (m) (m) (m) (m) (m) (m) (m) (m)	me (93.7) 56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 32.1 99.5 66.5 28.9 92.4 62.4 20.7 70.1 70.5 15.6 73.5 55.7 91.2 15.3	(mins) 20 35 66 124 184 244 362 482 602 722 960 1212 1580 1988 2812 3632 4400 5192 6048 20 34 64 122 182 240
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240	min	Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842	Volum (m³)	ne Volu (m) (m) (m) (m) (m) (m) (m) (m)	me (93) 56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 32.1 99.5 66.5 28.9 92.4 62.4 20.7 70.1 70.5 15.6 73.5 55.7 91.2 15.3 49.5	(mins) 20 35 66 124 184 244 362 482 602 722 960 1212 1580 1988 2812 3632 4400 5192 6048 20 34 64 122 182 240 358
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240	min	Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992	Volum (m³)	ne Volu (m) (m) (m) (m) (m) (m) (m) (m)	me (93) 56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 32.1 99.5 66.5 28.9 92.4 62.4 20.7 70.1 70.5 15.6 73.5 55.7 91.2 15.3 49.5 70.5	(mins) 20 35 66 124 184 244 362 482 602 722 960 1212 1580 1988 2812 3632 4400 5192 6048 20 34 64 122 182 240 358 474
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240	min	Summer Winter	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186	Volum (m³)	ne Volu (m) (m) (m) (m) (m) (m) (m) (m)	me (93) 56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 32.1 99.5 66.5 28.9 92.4 62.4 20.7 70.1 70.5 15.6 73.5 55.7 91.2 15.3 49.5 70.5 83.6	(mins) 20 35 66 124 184 244 362 482 602 722 960 1212 1580 1988 2812 3632 4400 5192 6048 20 34 64 122 182 240 358 474 588
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240	min	Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992	Volum (m³)	ne Volu (m) (m) (m) (m) (m) (m) (m) (m)	me (93) 56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 32.1 99.5 66.5 28.9 92.4 62.4 20.7 70.1 70.5 15.6 73.5 55.7 91.2 15.3 49.5 70.5	(mins) 20 35 66 124 184 244 362 482 602 722 960 1212 1580 1988 2812 3632 4400 5192 6048 20 34 64 122 182 240 358 474
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240	min	Summer Su	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929	Volum (m³)	ne Volu (m) (m) (m) (m) (m) (m) (m) (m)	me (93) 56.6 93.7 00.6 07.1 42.1 61.9 92.0 12.1 25.5 34.0 41.4 399.5 66.5 28.9 92.4 62.4 20.7 70.1 70.5 15.6 73.5 55.7 91.2 15.3 49.5 70.5 83.6 91.5	(mins) 20 35 66 124 184 244 362 482 602 722 960 1212 1580 1988 2812 3632 4400 5192 6048 20 34 64 122 182 240 358 474 588

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Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond E Volume	
Date 25/04/2013 12:54	Designed by Jim Tamblyn	
File Catchment E Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Storm Event	Max Level (m)	Max Depth C (m)	Max ontrol (1/s)	Max Volume (m³)	Status
960 min Winter				1166.3	
1440 min Winter	91.989	1.489	7.1		O K
2160 min Winter				1089.3	
2880 min Winter		1.390	6.8		
4320 min Winter		1.281	6.5		O K
5760 min Winter	91.678	1.178	6.3	821.1	O K
7200 min Winter	91.582	1.082	6.0	731.3	O K
8640 min Winter	91.493	0.993	5.8	651.6	O K
10080 min Winter	91.410	0.910	5.5	581.5	ОК
Storm	Rain	Flooded	l Disch	arge Ti	me-Peak
Storm Event		Flooded Volume		_	me-Peak (mins)
				ıme	
		Volume	Volu (m [:]	ıme	
Event	(mm/hr)	Volume (m³)	Volu (m ³	ıme	(mins)
Event 960 min Winter	(mm/hr)	Volume (m³)	Volu (m ²) 9	me 3) 97.1	(mins)
Event 960 min Winter 1440 min Winter	(mm/hr) 6.282 4.519	Volume (m³) 0.0 0.0	Volu (m ³) 9) 16	97.1 84.0	(mins) 926 1354
Fvent 960 min Winter 1440 min Winter 2160 min Winter	(mm/hr) 6.282 4.519 3.245	Volume (m³) 0.0 0.0 0.0	Volu (m ³) 9) 9) 16) 17	97.1 84.0 70.4	926 1354 1684
Fvent 960 min Winter 1440 min Winter 2160 min Winter 2880 min Winter	(mm/hr) 6.282 4.519 3.245 2.563	Volume (m³) 0.0 0.0 0.0 0.0	Volu (m ³) 9) 9) 16) 17) 16	97.1 84.0 70.4 03.3	926 1354 1684 2136
Fvent 960 min Winter 1440 min Winter 2160 min Winter 2880 min Winter 4320 min Winter	(mm/hr) 6.282 4.519 3.245 2.563 1.836	Volume (m³) 0.0 0.0 0.0 0.0 0.0	Volu (m ³) 9 0 16 0 17 10 16 0 20	97.1 84.0 70.4 03.3 44.6	926 1354 1684 2136 3032
Fvent 960 min Winter 1440 min Winter 2160 min Winter 2880 min Winter 4320 min Winter 5760 min Winter	(mm/hr) 6.282 4.519 3.245 2.563 1.836 1.448	Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Volu (m ³) 9 0 9 0 16 0 17 0 16 0 20	97.1 84.0 70.4 03.3 44.6 07.5	926 1354 1684 2136 3032 3920

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond E Volume	
Date 25/04/2013 12:54	Designed by Jim Tamblyn	
File Catchment E Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

 Return
 Repriod (years)
 100
 Cv (Summer)
 0.750

 Region
 England and Wales
 Cv (Winter)
 0.840

 M5-60 (mm)
 21.000
 Shortest Storm (mins)
 15

 Ratio R
 0.421
 Longest Storm (mins)
 10080

 Summer Storms
 Yes
 Climate Change %
 +30

Time Area Diagram

Total Area (ha) 1.720

Time (mins) Area From: To: (ha)

0 5 1.720

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Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond E Volume	
Date 25/04/2013 12:54	Designed by Jim Tamblyn	
File Catchment E Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Storage is Offline Cover Level (m) 92.260 Dividing Weir Level (m) 90.500

Tank or Pond Structure

Invert Level (m) 90.500

Depth (m)	Area (m²)								
0.000	460.0	1.200	969.0	2.400	0.0	3.600	0.0	4.800	0.0
0.200	535.0	1.400	1067.0	2.600	0.0	3.800	0.0	5.000	0.0
0.400	612.0	1.600	1170.0	2.800	0.0	4.000	0.0		
0.600	696.0	1.800	1170.0	3.000	0.0	4.200	0.0		
0.800	783.0	2.000	0.0	3.200	0.0	4.400	0.0		
1.000	874.0	2.200	0.0	3.400	0.0	4.600	0.0		

Hydro-Brake® Outflow Control

Design Head (m) 1.500 Hydro-Brake® Type Md5 SW Only Invert Level (m) 90.500 Design Flow (1/s) 7.1 Diameter (mm) 98

Depth (m)	Flow (1/s)								
0.100	2.8	0.800	5.2	2.000	8.2	4.000	11.6	7.000	15.3
0.200	3.8	1.000	5.8	2.200	8.6	4.500	12.3	7.500	15.8
0.300	3.7	1.200	6.3	2.400	9.0	5.000	12.9	8.000	16.3
0.400	3.9	1.400	6.8	2.600	9.3	5.500	13.6	8.500	16.9
0.500	4.2	1.600	7.3	3.000	10.0	6.000	14.2	9.000	17.3
0.600	4.5	1.800	7.8	3.500	10.8	6.500	14.7	9.500	17.8

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Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond F Volume	
Date 25/04/2013 12:55	Designed by Jim Tamblyn	
File Catchment F Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

	Stor	rm	Max	Max	Max	Max	Status
	Ever	ıt	Level	Depth		Volume	
			(m)	(m)	(l/s)	(m³)	
15	min	Summer	98.370	0.570	1.7	156.2	ОК
30	min	Summer	98.494	0.694	1.9	202.1	O K
60	min	Summer	98.606	0.806	2.1	247.5	O K
120	min	Summer	98.703	0.903	2.2	290.5	O K
180	min	Summer	98.751	0.951	2.3	312.7	O K
240	min	Summer	98.780	0.980	2.3	326.1	O K
360	min	Summer	98.816	1.016	2.3	343.9	O K
		Summer	98.836	1.036	2.4	353.8	O K
		Summer	98.847	1.047	2.4	359.2	O K
		Summer	98.852	1.052	2.4	361.7	O K
		Summer	98.851	1.051	2.4	361.4	0 K
		Summer Summer	98.834 98.804	1.034	2.4	352.6 338.1	0 K 0 K
		Summer	98.773	0.973	2.3	322.9	0 K 0 K
		Summer	98.711	0.911	2.2	294.1	ОК
		Summer	98.656	0.856	2.1	269.1	O K
		Summer	98.604	0.804	2.1	246.9	ОК
		Summer	98.557	0.757	2.0	227.2	ОК
		Summer	98.513	0.713	2.0	209.4	ОК
		Winter	98.423	0.623	1.8	175.0	ОК
30	min	Winter	98.556	0.756	2.0	226.6	ОК
60	min	Winter	98.675	0.875	2.2	277.8	ОК
120	min	Winter	98.780	0.980	2.3	326.5	O K
180	min	Winter	98.832	1.032	2.4	352.0	O K
240	min	Winter	98.864	1.064	2.4	367.7	O K
360	min	Winter	98.904	1.104	2.4	388.8	O K
480	min	Winter	98.928	1.128	2.5	401.1	O K
		Winter	98.942	1.142	2.5	408.5	O K
	min	Winter	98.949	1.149	2.5	412.7	ОК
	Stor		Rain	Flood		_	me-Peak
	Stor Even		Rain (mm/hr)	Volum	ne Vol	ume	me-Peak (mins)
					ne Vol	ume	
15	Even	t Summer	(mm/hr)	Volum (m³)	me Volume (m	ume ³)	(mins)
15 30	min min	summer	(mm/hr) 137.759 89.551	Volum (m³) 0	ne Volume (m0 .1 .0 .1	22.3 .38.3	(mins) 20 35
15 30 60	min min min	Summer Summer Summer	(mm/hr) 137.759 89.551 55.351	Volum (m³) 0 0 0	.0 1 .0 2	22.3 .38.3 .48.5	(mins) 20 35 66
15 30 60 120	min min min min	Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014	Volum (m³) 0 0 0 0	.0 1 .0 1 .0 2 .0 2	.22.3 .38.3 .248.5	(mins) 20 35 66 124
15 30 60 120 180	min min min min min	Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067	Volum (m³) 0 0 0 0 0	.0 1 .0 1 .0 2 .0 2 .0 2	22.3 .38.3 .448.5 .881.5	(mins) 20 35 66 124 184
15 30 60 120 180 240	min min min min min min	Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117	Volum (m³) 0 0 0 0 0 0 0	.0 1 .0 1 .0 2 .0 2 .0 2 .0 3	22.3 .38.3 .48.5 .81.5 .93.6	(mins) 20 35 66 124 184 244
15 30 60 120 180 240 360	min min min min min min min	Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842	Volum (m³) 0 0 0 0 0 0 0 0	.0 1 .0 1 .0 2 .0 2 .0 2 .0 3 .0 3	22.3 .38.3 .48.5 .81.5 .93.6 .01.9	(mins) 20 35 66 124 184 244 362
15 30 60 120 180 240 360 480	min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992	Volum (m³) 0 0 0 0 0 0 0 0	.0 1 .0 2 .0 2 .0 2 .0 3 .0 3	22.3 .38.3 .448.5 .881.5 .993.6 .601.9 .813.8	(mins) 20 35 66 124 184 244 362 482
15 30 60 120 180 240 360 480 600	min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0	.0 1 .0 2 .0 2 .0 2 .0 3 .0 3 .0 3	22.3 .38.3 .48.5 .81.5 .93.6 .801.9 .813.8 .821.3	(mins) 20 35 66 124 184 244 362 482 602
15 30 60 120 180 240 360 480 600 720	min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	.0 1 .0 2 .0 2 .0 2 .0 3 .0 3 .0 3 .0 3	22.3 .38.3 .48.5 .81.5 .93.6 .801.9 .813.8 .821.3 .826.0	(mins) 20 35 66 124 184 244 362 482 602 722
15 30 60 120 180 240 360 480 600 720 960	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Volum .0 1 .0 2 .0 2 .0 2 .0 3 .0 3 .0 3 .0 3 .0 3	22.3 .38.3 .48.5 .81.5 .93.6 .801.9 .813.8 .821.3 .826.0 .828.9 .831.2	(mins) 20 35 66 124 184 244 362 482 602 722 960
15 30 60 120 180 240 360 480 600 720 960 1440	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Volum .0 1 .0 2 .0 2 .0 2 .0 3 .0 3 .0 3 .0 3 .0 3 .0 3	22.3 .38.3 .48.5 .81.5 .93.6 .801.9 .813.8 .821.3 .826.0	(mins) 20 35 66 124 184 244 362 482 602 722
15 30 60 120 180 240 360 480 600 720 960 1440 2160	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	.0 1 .0 2 .0 2 .0 2 .0 3 .0 3 .0 3 .0 3 .0 3 .0 3 .0 3	22.3 38.3 448.5 881.5 893.6 801.9 813.8 821.3 826.0 828.9 831.2	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	.0 1 .0 2 .0 2 .0 2 .0 3 .0 3 .0 3 .0 3 .0 3 .0 3 .0 3 .0 5 .0 5	22.3 38.3 48.5 881.5 893.6 801.9 813.8 821.3 826.0 832.1	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	.0 1 .0 2 .0 2 .0 2 .0 3 .0 3 .0 3 .0 3 .0 3 .0 3 .0 5 .0 5	22.3 38.3 448.5 881.5 893.6 801.9 813.8 821.3 826.0 832.1 832.7 832.1	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1988
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Volt (m) .0	22.3 .38.3 .448.5 .881.5 .993.6 .001.9 .813.8 .821.3 .826.0 .828.9 .331.2 .627.4 .632.1 .633.7 .633.8 .660.6	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1988 2812
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640	min	Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Volt (m) .0	22.3 38.3 448.5 881.5 893.6 801.9 813.8 821.3 822.3 822.1 832.1 853.7 838.6 835.8	(mins) 20 35 66 124 184 244 362 482 722 960 1224 1584 1988 2812 3632
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080	min	Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Volt (m) .0	22.3 .38.3 .448.5 .881.5 .93.6 .001.9 .13.8 .22.3 .38.3 .448.5 .893.6 .001.9 .13.8 .201.3 .20	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1988 2812 3632 4464 5192 6048
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15	min	Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Volt (m) .0	22.3 .38.3 .448.5 .881.5 .93.6 .01.9 .13.8 .21.3 .22.3 .38.3 .448.5 .893.6 .01.9 .13.8 .21.3 .22.3 .23	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1988 2812 3632 4464 5192 6048 20
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30	min	Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Volt (m) .0	22.3 .38.3 .48.5 .881.5 .93.6 .01.9 .13.8 .21.3 .22.3 .38.3 .48.5 .893.6 .01.9 .13.8 .21.3 .22.3 .38.6 .33.2 .33.7 .38.6 .35.8 .60.6 .681.3 .699.0 .28.7 .46.5	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1988 2812 3632 4464 5192 6048 20 34
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60	min	Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Volt (m) .0	22.3 .38.3 .48.5 .881.5 .993.6 .801.9 .13.8 .21.3 .26.0 .28.9 .331.2 .32.1 .533.7 .338.6 .35.8 .60.6 .681.3 .699.0 .28.7 .46.5 .27.4	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1988 2812 3632 4464 5192 6048 20 34 64
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120	min	Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0	22.3 .38.3 .48.5 .881.5 .993.6 .801.9 .13.8 .21.3 .22.3 .38.3 .48.5 .893.6 .801.9 .13.8 .21.3 .22.4 .23.1 .2	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1988 2812 3632 4464 5192 6048 20 34 64 122
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180	min	Summer Su	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0	22.3 .38.3 .48.5 .881.5 .993.6 .801.9 .13.8 .22.3 .38.3 .48.5 .893.6 .801.9 .13.8 .20.0 .20.7 .40.0 .20.7 .40.0 .20.7 .40.0 .20.7 .40.5 .20.7 .40.5 .20.7 .40.5 .20.7 .40.5 .20.7 .40.5 .20.7 .40.5 .20.7 .40.5 .20.7 .40.5	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1988 2812 3632 4464 5192 6048 20 34 64 122 182
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240	min	Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0	22.3 .38.3 .48.5 .881.5 .893.6 .601.9 .813.8 .821.3 .826.0 .828.9 .831.2 .827.4 .832.1 .833.7 .836.6 .848.9 .831.2 .827.4 .832.1 .832.1 .832.1 .832.1 .832.1 .832.1 .833.7	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1988 2812 3632 4464 5192 6048 20 34 64 122 182 240
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240	min	Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0	22.3 .38.3 .48.5 .881.5 .993.6 .601.9 .813.8 .821.3 .826.0 .828.9 .831.2 .827.4 .832.1 .833.7 .836.6 .848.9 .831.2 .827.4 .832.1 .832.1 .832.1 .832.1 .832.1 .833.7	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1988 2812 3632 4464 5192 6048 20 34 64 122 182 240 358
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240	min	Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0	22.3 .38.3 .48.5 .881.5 .893.6 .801.9 .813.8 .821.3 .826.0 .828.9 .831.2 .827.4 .832.1 .833.7 .838.6 .831.2 .827.4 .833.1 .833.8 .831.2 .837.4 .833.1 .838.6 .838.6 .831.3 .838.6 .838.8 .831.3 .838.8 .848.8 .848.8	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1988 2812 3632 4464 5192 6048 20 34 64 122 182 240 358 474
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 480 600	min	Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0	22.3 .38.3 .48.5 .881.5 .993.6 .601.9 .813.8 .821.3 .826.0 .828.9 .831.2 .827.4 .832.1 .833.7 .836.6 .848.9 .831.2 .827.4 .832.1 .832.1 .832.1 .832.1 .832.1 .833.7	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1988 2812 3632 4464 5192 6048 20 34 64 122 182 240 358

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Horizon Consulting Engineers Ltd		Page 2
Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond F Volume	
Date 25/04/2013 12:55	Designed by Jim Tamblyn	
File Catchment F Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

	Stor		Max Level (m)	Max Depth (m)	Max Control (1/s)	Max Volume (m³)	Status
1440 2160 2880 4320 5760 7200	min min min min min	Winter Winter Winter Winter Winter Winter	98.905 98.868 98.788 98.712 98.641	1.140 1.105 1.068 0.988 0.912 0.841	2.5 2.5 2.4 2.4 2.3 2.2	407.6 389.0 370.0 330.4 294.4 262.8	O K O K O K O K O K
10080		Winter m	98.575 98.515 Rain (mm/hr)	0.715 Flood	2.0 2.0 ed Disch	210.1 arge Ti	ОК
960	min	Winter	6 282	(m³)			926
1440	min	Winter Winter Winter	6.282 4.519 3.245	0	.0 3	50.3 45.1 91.1	9 <mark>26</mark> 1356 1688
1440 2160 2880 4320	min min min min	Winter	4.519	0 0 0 0	.0 3 .0 3 .0 5 .0 5	50.3 45.1	1356

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond F Volume	
Date 25/04/2013 12:55	Designed by Jim Tamblyn	
File Catchment F Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

 Rainfall Model
 FSR
 Winter Storms
 Yes

 Return Period (years)
 100
 Cv (Summer)
 0.750

 Region England and Wales
 Cv (Winter)
 0.840

 M5-60 (mm)
 21.000
 Shortest Storm (mins)
 15

 Ratio R
 0.421
 Longest Storm (mins)
 10080

 Summer Storms
 Yes
 Climate Change %
 +30

Time Area Diagram

Total Area (ha) 0.610

Time (mins) Area From: To: (ha)

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond F Volume	
Date 25/04/2013 12:55	Designed by Jim Tamblyn	
File Catchment F Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Storage is Online Cover Level (m) 99.170

Tank or Pond Structure

Invert Level (m) 97.800

Depth (m)	Area (m²)								
0.000	201.0	2.400	0.0	4.800	0.0	7.200	0.0	9.600	0.0
0.400	304.0	2.800	0.0	5.200	0.0	7.600	0.0	10.000	0.0
0.800	423.0	3.200	0.0	5.600	0.0	8.000	0.0		
1.200	557.0	3.600	0.0	6.000	0.0	8.400	0.0		
1.600	0.0	4.000	0.0	6.400	0.0	8.800	0.0		
2.000	0.0	4.400	0.0	6.800	0.0	9.200	0.0		

Hydro-Brake® Outflow Control

Design Head (m) 1.150 Hydro-Brake® Type Md5 SW Only Invert Level (m) 97.800 Design Flow (1/s) 2.5 Diameter (mm) 62

Depth (m)	Flow (1/s)								
0.100	1.2	0.800	2.1	2.000	3.3	4.000	4.6	7.000	6.1
0.200	1.2	1.000	2.3	2.200	3.4	4.500	4.9	7.500	6.3
0.300	1.3	1.200	2.5	2.400	3.6	5.000	5.2	8.000	6.5
0.400	1.5	1.400	2.7	2.600	3.7	5.500	5.4	8.500	6.7
0.500	1.6	1.600	2.9	3.000	4.0	6.000	5.7	9.000	6.9
0.600	1.8	1.800	3.1	3.500	4.3	6.500	5.9	9.500	7.1

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Tank G Volume	
Date 25/04/2013 12:57	Designed by Jim Tamblyn	
File Catchment G Storage Volume	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Half Drain Time : 1754 minutes.

Half Drain Time : 1754 minutes.									
Storm Event	Max Level (m)	Max Depth (m)	Infilt	ax cration /s)	Max Control (1/s)	Σ	Max Outflow (1/s)	Max Volume (m³)	Status
15 min Summer	89.642	0.442		0.0	1.3		1.3	141.1	ОК
30 min Summer				0.0	1.5		1.5	182.7	ОК
60 min Summer				0.0	1.6		1.6	224.0	ОК
120 min Summer	90.026	0.826		0.0	1.8		1.8	263.5	ОК
180 min Summer	90.091	0.891		0.0	1.8		1.8	284.3	O K
240 min Summer	90.131	0.931		0.0	1.9		1.9	297.0	O K
360 min Summer	90.185	0.985		0.0	1.9		1.9	314.3	O K
480 min Summer				0.0	2.0		2.0	324.4	O K
600 min Summer				0.0	2.0		2.0	330.5	O K
720 min Summer				0.0	2.0		2.0	334.0	0 K
960 min Summer				0.0	2.0		2.0	336.0	0 K
1440 min Summer 2160 min Summer				0.0	2.0		2.0	330.7 320.9	0 K 0 K
2880 min Summer				0.0	1.9		1.9	310.3	O K
4320 min Summer				0.0	1.9		1.9	288.1	ОК
5760 min Summer				0.0	1.8		1.8	267.6	ОК
7200 min Summer				0.0	1.7		1.7	249.3	ОК
8640 min Summer	89.929	0.729		0.0	1.7		1.7	232.8	ОК
10080 min Summer	89.883	0.683		0.0	1.6		1.6	217.9	O K
15 min Winter	89.695	0.495		0.0	1.4		1.4	158.1	O K
30 min Winter				0.0	1.6		1.6	204.7	O K
60 min Winter				0.0	1.7		1.7	251.3	O K
120 min Winter				0.0	1.9		1.9	295.9	ОК
180 min Winter				0.0	2.0		2.0	319.6	O K
240 min Winter				0.0	2.0		2.0	334.3	0 K
360 min Winter	90.311	T.TTT		0.0	2.1		2.1	354.5	O K
100 min Winton	00 2/0	1 1/0			2 1		2 1	266 7	O 17
480 min Winter				0.0	2.1		2.1	366.7 374.4	0 K
600 min Winter	90.373	1.173	Rain	0.0	2.1	rge	2.1	374.4	0 K 0 K
600 min Winter		1.173	Rain nm/hr)	0.0		-	2.1	374.4 eak	
600 min Winter	90.373 Storm	1.173		0.0 0.0 Floode	2.1 l Discha	-	2.1 Time-Pe	374.4 eak	
600 min Winter	90.373 Storm Event	1.173 (n	nm/hr)	0.0 0.0 Flooded Volume (m³)	2.1 N Dischar Volum (m³)	ie	2.1 Time-Pe	374.4 eak)	
600 min Winter	90.373 Storm Event min Sur	1.173 (n	nm/hr)	0.0 0.0 Flooded Volume (m³)	2.1 l Discha: Volum (m³)	.e 3.5	2.1 Time-Pe	374.4 eak)	
600 min Winter	90.373 Storm Event min Sur min Sur	1.173 (m	37.759 39.551	0.0 0.0 Flooded Volume (m³)	2.1 Discha: Volum (m³) 92	3.5 6.1	2.1 Time-Pe	374.4 aak) 20 35	
600 min Winter 15 30 60	90.373 Storm Event min Sur min Sur min Sur	1.173 (m mmer 13 mmer 8 mmer 5	37.759 39.551 55.351	0.0 0.0 Flooded Volume (m³) 0.0 0.0	2.1 Dischar Volum (m³) 9: 100 20!	3.5 6.1 5.5	2.1 Time-Pe (mins	374.4 eak) 20 35 66	
600 min Winter 15 30 60 120	90.373 Storm Event min Sur min Sur min Sur min Sur	1.173 (m mmer 13 mmer 8 mmer 5 mmer 3	37.759 39.551 55.351 33.014	0.0 0.0 Flooded Volume (m³) 0.0 0.0	2.1 Dischar Volum (m³) 9: 100 209 220	3.5 6.1 5.5	2.1 Time-Pe (mins	374.4 aak) 20 35	
600 min Winter 15 30 60 120 180	90.373 Storm Event min Sur min Sur min Sur	1.173 (mmer 13 mmer 8 mmer 5 mmer 5 mmer 2	37.759 39.551 55.351 33.014 24.067	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0	2.1 Discha: Volum (m³) 9: 1 00: 20: 22: 23:	3.5 6.1 5.5 4.3	2.1 Time-Pe (mins	374.4 eak) 20 35 66	
15 30 60 120 180 240	90.373 Storm Event min Sur min Sur min Sur min Sur min Sur min Sur	1.173 (mmer 13 mmer 8 mmer 8 mmer 8 mmer 2 mmer 2 mmer 1	37.759 39.551 55.351 33.014	0.0 0.0 Flooded Volume (m³) 0.0 0.0	2.1 Discha: Volum (m³) 9: 1 00: 20: 22: 23: 24:	3.5 6.1 5.5	2.1 Time-Pe (mins	374.4 eak) 20 35 66 124 184	
15 30 60 120 180 240 360	90.373 Storm Event min Sur	1.173 (m mmer 13 mmer 8 mmer 5 mmer 3 mmer 2 mmer 1 mmer 1 mmer 1	37.759 39.551 55.351 33.014 24.067 19.117	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0	2.1 Discha: Volum (m³) 9: 1 00: 20: 22: 23: 24: 25:	3.5 6.1 5.5 4.3 5.3	2.1 Time-Pe (mins	374.4 aak) 20 35 66 124 184 244	
15 30 60 120 180 240 360 480	90.373 Storm Event min Sur	1.173 (mmer 13 mmer 8 mmer 5 mmer 5 mmer 2 mmer 13 mmer 13 mmer 13 mmer 13 mmer 13 mmer 13	37.759 39.551 55.351 33.014 24.067 19.117	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0	2.1 Discha: Volum (m³) 9: 1.00 20: 2.20 23: 2.31 24: 2.52 26:	3.5 6.1 5.5 4.3 5.3 2.7	2.1 Time-Pe (mins	374.4 eak) 20 35 66 124 184 244 364	
15 30 60 120 180 240 360 480 600	90.373 Storm Event min Sur	1.173 (mmer 13 mmer 8 mmer 5 mmer 5 mmer 2 mmer 1 mmer 1 mmer 1 mmer 1 mmer 1 mmer 1	37.759 39.551 55.351 33.014 24.067 19.117 13.842 10.992	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0	2.1 Dischair Volum (m³) 9: 100 20: 22: 23: 24: 25: 26: 26: 26:	3.5 6.1 5.5 4.3 5.3 2.7 3.3	2.1 Time-Pe (mins	374.4 eak) 20 35 66 124 184 244 364 182	
15 30 60 120 180 240 360 480 600 720 960	90.373 Storm Event min Sur	1.173 (manuar 13 mmer 15 mmer 5 mmer 2 mmer 1	37.759 39.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	2.1 Discha: Volum (m³) 9: 100 20: 224 23: 24: 25: 26: 26: 26: 26: 26: 26: 26: 26: 26: 26	33.5 6.1 5.5 4.3 5.3 2.7 3.3 0.0 4.4 7.3	2.1 Time-Pe (mins	374.4 eak) 20 35 66 124 184 244 364 482 502 722	
15 30 60 120 180 240 360 480 600 720 960 1440	90.373 Storm Event min Sur	1.173 (manuer 13 mmer 8 mmer 5 mmer 5 mmer 1 mmer	37.759 39.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	2.1 Dischair Volum (m³) 9: 100 200 224 233 241 253 260 260 260 260 260 260	33.5 6.1 5.5 4.3 5.3 2.7 3.3 0.0 4.4 47.3 9.9	2.1 Time-Pe (mins	374.4 eak) 20 35 66 124 184 244 364 482 502 722 960 256	
15 30 60 120 180 240 360 480 600 720 960 1440 2160	90.373 Storm Event min Sur	1.173 (matter 13 matter 2 matter 3 mat	37.759 39.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	2.1 Discha: Volum (m³) 9. 100 209 224 239 241 250 260 260 260 260 260 450	33.5 6.1 5.5 4.3 5.3 5.3 2.7 3.3 0.0 4.4 4.7 7.5 9.9	2.1 Time-Pe (mins	374.4 eak) 20 35 66 124 184 244 364 482 602 722 960 256	
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880	90.373 Storm Event min Sur	1.173 (m mmer 13 mmer 8 mmer 5 mmer 2 mmer 1 mmer	37.759 39.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	2.1 Discha: Volum (m³) 9. 100 209 224 239 240 260 260 260 260 260 450 450	33.5 6.1 55.5 5.3 5.3 22.7 33.3 0.0 4.4 47.3 9.9 77.5 9.8 88.9	2.1 Time-Pe (mins	374.4 aak) 20 35 66 124 184 244 364 482 602 722 960 256 524 020	
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320	90.373 Storm Event min Sur	1.173 (mmer 13 mmer 8 mmer 5 mmer 2 mmer 1 mmer 1 mmer 1 mmer 1 mmer mmer mmer mmer mmer mmer mmer mmer	37.759 39.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	2.1 Discha: Volum (m³) 1 100 200 224 233 241 255 260 260 260 260 260 260 450 450 450 450 450	33.5 66.1 55.5 4.3 5.3 22.7 33.3 0.0 4.4 7.3 9.9 7.5 9.8 8.9	2.1 Time-Pe (mins 1 1 2 2 3 4 6 7 9 1 2 2 2 2 2 2 2 8	374.4 aak) 20 35 66 124 184 244 364 364 365 722 960 256 524 020 352	
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760	90.373 Storm Event min Sur	1.173 (mmer 13 mmer 8 mmer 5 mmer 3 mmer 13 m	37.759 39.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 9.186 1.282 4.519 3.245 2.563 1.836 1.448	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	2.1 Discha: Volum (m³) 9: 100 200 224 233 246 255 266 266 266 266 458 458 448 577	3.5 6.1 5.5 5.3 5.3 3.3 0.0 4.4 4.7 7.3 9.9 9.8 8.9 9.8	2.1 Time-Pe (mins 1 1 2 3 4 6 7 1 1 2 2 2 3 3 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	374.4 aak) 20 35 66 124 184 244 364 482 602 722 960 256 524 020 352	
15 30 600 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200	90.373 Storm Event min Sur	1.173 (manuer 13 mmer 15 mmer 2 mmer 3 mmer 3 mmer 3 mmer 17 mmer 17 mmer 18	37.759 39.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	2.1 Discha: Volum (m³) 9: 100 200 224 233 246 255 260 260 260 260 459 450 450 450 450 577 596	3.5 6.1 5.5 4.3 5.3 5.3 0.0 4.4 7.3 9.9 7.5 9.8 8.9 4.2 8.8	2.1 Time-Pe (mins 1 1 2 3 4 6 7 1 2 1 6 2 2 8 3 4 4 4 4 4 4	374.4 aak) 20 35 66 124 184 244 364 360 2722 960 256 524 020 352 588	
15 30 600 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640	90.373 Storm Event min Sur	1.173 (manumer 13 mmer 8 mmer 8 mmer 2 mmer 3 mmer 13	37.759 39.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.992 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	2.1 Discha: Volum (m³) 9: 100 200 220 233 244 255 260 266 266 266 266 459 459 459 615	3.5 6.1 5.5 5.3 5.3 3.3 0.0 4.4 7.3 9.9 9.8 8.9 9.8 8.9 9.3 4.9	2.1 Time-Pe (mins 11 12 23 34 46 52 28 36 44 52	374.4 aak) 20 35 66 124 184 244 864 182 602 722 960 256 524 020 852 588 172 280	
15 30 600 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080	90.373 Storm Event min Sur	1.173 (manuer 13 mmer 13 mmer 2 mmer 3 mmer 3 mmer 13 mmer 1 mme	37.759 39.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	2.1 Discha: Volum (m³) 9: 100 200 220 233 244 255 260 266 266 266 266 459 459 459 459 61: 626	3.5 6.1 5.5 4.3 5.3 5.3 0.0 4.4 7.3 9.9 7.5 9.8 8.9 4.2 8.8	2.1 Time-Pe (mins 11 12 23 34 46 52 28 36 44 52	374.4 aak) 20 35 66 124 184 244 364 360 2722 960 256 524 020 352 588	
15 30 600 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080	90.373 Storm Event min Sur	1.173 (manuer 13 mmer 13 mmer 2 mmer 3 mmer 3 mmer 3 mmer 13	37.759 39.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	2.1 Discha: Volum (m³) 9: 100 200 220 233 244 255 260 266 266 266 266 266 266 266 266 266	3.5 6.1 5.5 4.3 5.3 5.3 3.3 0.0 4.4 7.3 9.9 9.9 7.5 9.8 9.8 9.9 9.8 9.8 9.8 9.8 9.8 9.8 9.8	2.1 Time-Pe (mins 11 12 23 34 46 52 28 36 44 52	374.4 aak) 20 35 66 124 184 244 364 482 602 722 960 256 524 020 352 588 472 280 056	
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15	90.373 Storm Event min Sur	1.173 (manumer 13 mmer 8 mmer 8 mmer 9 mmer 13 mmer 14 mmer 15 mmer 1	37.759 39.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.448 1.204 1.035 0.910 37.759	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	2.1 Discha: Volum (m³) 9: 100 20: 22- 23: 24: 25: 260 266 266 266 266 266 266 266 266 266	3.5 6.1 5.5 5.3 5.3 3.3 0.0 4.4 7.3 9.9 9.9 7.5 9.8 8.9 9.3 1.0 6.8 8.3	2.1 Time-Pe (mins 11 12 23 34 46 52 28 36 44 52	374.4 eak) 20 35 66 124 184 244 864 482 602 722 960 256 524 020 852 688 472 280 056 20	
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60	90.373 Storm Event min Sur	1.173 (manumer 13 mmer 15 mmer 2 mmer 2 mmer 3 mmer 3 mmer 3 mmer 1 mme	37.759 39.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 2.563 1.836 1.448 1.204 1.035 0.910 37.759 39.551	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	2.1 Discha: Volum (m³) 9: 100 20! 22- 23: 24: 25: 260 266 266 266 266 266 266 266 266 266	3.5 6.1 5.5 5.3 5.3 3.3 0.0 4.4 7.3 9.9 7.5 8.9 9.8 8.9 3.4 4.9 6.8 8.3	2.1 Time-Pe (mins 1 1 2 3 4 6 7 1 2 2 8 4 4 5 6 6 6 6 6 6	374.4 aak) 20 35 66 L24 L84 244 864 482 602 722 960 256 524 020 852 688 472 280 056 20 35	
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180	90.373 Storm Event min Sur	1.173 (material states of the	37.759 39.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 37.759 39.551 55.351 33.014 24.067	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	2.1 Discha: Volum (m³) 9: 100 209 224 23: 240 260 260 260 260 260 260 260 260 260 26	3.5 6.1 5.5 4.3 5.3 3.3 5.3 3.3 2.7 7.5 9.8 8.9 9.8 8.9 9.8 8.3 3.4 4.9 9.9 6.8 8.3 3.1 7.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	2.1 Time-Pe (mins 1 1 2 3 4 6 1 2 2 8 3 4 4 5 2 6 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	374.4 aak) 20 35 66 124 184 244 364 482 602 722 960 256 524 020 355 64 122 182	
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240	90.373 Storm Event min Sur	1.173 (material states of the	mm/hr) 37.759 39.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 37.759 39.551 55.351 33.014 24.067 19.117	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	2.1 Discha: Volum (m³) 9: 100 209 224 23: 240 260 260 260 260 260 260 260 260 260 26	3.5 6.1 5.5 4.3 5.3 7.3 3.3 0.0 4.4 7.3 9.9 9.8 8.9 4.9 9.8 8.3 4.9 9.0 6.8 8.3 1.7 7.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	2.1 Time-Pe (mins 11 23 34 46 35 26 36 44 52 66	374.4 aak) 20 35 66 124 184 244 364 482 602 722 960 256 524 020 355 288 472 280 056 20 35 64 122 182 240	
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240 360	90.373 Storm Event min Sur	1.173 (material states of the	mm/hr) 37.759 39.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 37.759 39.551 55.351 33.014 24.067 19.117	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	2.1 Discha: Volum (m³) 9: 100 209 224 255 260 266 266 266 266 266 266 266 266 266	3.5 6.1 5.5 5.3 5.3 3.0 0.0 4.4 7.3 9.9 9.8 8.9 4.9 9.8 8.9 4.9 9.0 6.8 8.3 3.1 7.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	2.1 Time-Pe (mins 1 1 2 3 4 6 1 2 2 8 4 5 2 6 6 1 1 2 3 3 4 4 5 2 6 6 1 1 2 3 3 4 4 5 2 6 6 6 6 6 6 6 7 7 8 8 8 8 8 8 8 8 8 8 8	374.4 aak) 20 35 66 124 184 244 364 482 602 722 960 256 524 020 355 64 122 182 240 358	
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240 360 480	90.373 Storm Event min Sur	1.173 (material states of the	mm/hr) 37.759 39.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 37.759 39.551 55.351 33.014 24.067 19.117	0.0 0.0 Flooded Volume (m³) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	2.1 Discha: Volum (m³) 9: 100 200 224 235 260 260 260 260 260 260 260 260 260 260	3.5 6.1 5.5 4.3 5.3 7.3 3.3 0.0 4.4 7.3 9.9 9.8 8.9 4.9 9.8 8.3 4.9 9.0 6.8 8.3 1.7 7.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	2.1 Time-Pe (mins 1 1 2 3 4 6 5 2 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	374.4 aak) 20 35 66 124 184 244 364 482 602 722 960 256 524 020 355 288 472 280 056 20 35 64 122 182 240	

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Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Tank G Volume	
Date 25/04/2013 12:57	Designed by Jim Tamblyn	
File Catchment G Storage Volume	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Storm	Max	Мах		ax	Max	Ma		Max	Statu	ıs
Event	Level	-			Control :					
	(m)	(m)	(1	/s)	(1/s)	(1/	s)	(m³)		
720 min Winter	90.388	1.188		0.0	2.1		2.1	379.3	0	K
960 min Winter	90.402	1.202		0.0	2.1		2.1	383.5	0	K
1440 min Winter	90.391	1.191		0.0	2.1		2.1	380.3	0	K
2160 min Winter	90.350	1.150		0.0	2.1		2.1	367.0	0	K
2880 min Winter	90.308	1.108		0.0	2.1		2.1	353.8	0	K
4320 min Winter	90.215	1.015		0.0	2.0		2.0	324.1	0	K
5760 min Winter	90.125	0.925		0.0	1.9		1.9	295.3	0	K
7200 min Winter	90.044	0.844		0.0	1.8		1.8	269.3	0	K
8640 min Winter	89.971	0.771		0.0	1.7		1.7	246.0	0	K
10080 min Winter	89.906	0.706		0.0	1.6		1.6	225.2	0	K
	Storm		Rain	Flooded	Dischar	ge Ti	me-Pe	eak		
	Event	(r	mm/hr)	Volume	Volume		(mins)		
				(m³)	(m³)					
720	min Wi	nter	7.929	0.0	286	. 9	,	704		
960	min Wi	nter	6.282	0.0	289	. 2	9	932		
1440	min Wi	nter	4.519	0.0	286	. 0	13	358		
2160) min Wi	nter	3.245	0.0	495	. 3	1'	708		
2880) min Wi	nter	2.563	0.0	496	. 2	2.	164		
4320) min Wi	nter	1.836	0.0	479	. 5	30	072		
5760) min Wi	nter	1.448	0.0	641	. 4	39	976		
7200	min Wi	nter	1.204	0.0	666	. 1	48	324		
8640	min Wi	nter	1.035	0.0	686	. 1	56	524		
10080) min Wi	nter	0.910	0.0	699	. 1	64	456		

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Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Tank G Volume	
Date 25/04/2013 12:57	Designed by Jim Tamblyn	
File Catchment G Storage Volume	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Return Period (years) 100 Cv (Summer) 0.750
Region England and Wales Cv (Winter) 0.840
M5-60 (mm) 21.000 Shortest Storm (mins) 15
Ratio R 0.421 Longest Storm (mins) 10080
Summer Storms Yes Climate Change % +30

Time Area Diagram

Total Area (ha) 0.550

 Time
 (mins)
 Area

 From:
 To:
 (ha)

 0
 5
 0.550

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Exeter EX2 8LB	Preliminary Tank G Volume	
Date 25/04/2013 12:57	Designed by Jim Tamblyn	
File Catchment G Storage Volume	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Storage is Offline Cover Level (m) 91.000 Dividing Weir Level (m) 89.200

Cellular Storage Structure

Invert Level (m) 89.200 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²) Inf.	Area (m²)
0.000	336.0	0.0	3.600	0.0	0.0	7.200	0.0	0.0
0.400	336.0	0.0	4.000	0.0	0.0	7.600	0.0	0.0
0.800	336.0	0.0	4.400	0.0	0.0	8.000	0.0	0.0
1.200	336.0	0.0	4.800	0.0	0.0	8.400	0.0	0.0
1.600	0.0	0.0	5.200	0.0	0.0	8.800	0.0	0.0
2.000	0.0	0.0	5.600	0.0	0.0	9.200	0.0	0.0
2.400	0.0	0.0	6.000	0.0	0.0	9.600	0.0	0.0
2.800	0.0	0.0	6.400	0.0	0.0	10.000	0.0	0.0
3.200	0.0	0.0	6.800	0.0	0.0			

Hydro-Brake® Outflow Control

Design Head (m) 1.200 Hydro-Brake® Type Md5 SW Only Invert Level (m) 89.200 Design Flow (1/s) 2.2 Diameter (mm) 57

Depth (m)	Flow (1/s)								
0.100	1.0	0.800	1.7	2.000	2.8	4.000	3.9	7.000	5.2
0.200	1.0	1.000	2.0	2.200	2.9	4.500	4.1	7.500	5.4
0.300	1.1	1.200	2.1	2.400	3.0	5.000	4.4	8.000	5.5
0.400	1.2	1.400	2.3	2.600	3.2	5.500	4.6	8.500	5.7
0.500	1.4	1.600	2.5	3.000	3.4	6.000	4.8	9.000	5.9
0.600	1.5	1.800	2.6	3.500	3.7	6.500	5.0	9.500	6.0

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Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Tank H Volume	
Date 24/04/2013 15:09	Designed by Jim Tamblyn	
File Catchment H Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

	Half Drain Time : 2778 minutes.											
	Storm	ı	Ma	x	Max	·	ſax	Max		Max	Max	Status
	Event		Lev	el	Dept	h Infil	tration	Control	Σ	Outflow	Volume	
			(m		(m)		/s)	(1/s)		(1/s)	(m³)	
			•			,	• •	, , ,			, ,	
15	min :	Summer	91.5	99	0.39	9	0.0	1.0		1.0	169.7	O K
30	min :	Summer	91.7	117	0.51	7	0.0	1.2		1.2	220.1	O K
60	min :	Summer	91.8	336	0.63	6	0.0	1.3		1.3	270.6	O K
120	min :	Summer	91.9	951	0.75	1	0.0	1.4		1.4	319.8	O K
180	min :	Summer	92.0	14	0.81	4	0.0	1.5		1.5	346.6	O K
240	min :	Summer	92.0)55	0.85	5	0.0	1.5		1.5	363.8	O K
360	min :	Summer	92.1	.13	0.91	3	0.0	1.6		1.6	388.5	O K
480	min :	Summer	92.1	.51	0.95	1	0.0	1.6		1.6	404.6	O K
600	min :	Summer	92.1	.77	0.97	7	0.0	1.6		1.6	415.8	O K
720	min :	Summer	92.1	.96	0.99	6	0.0	1.6		1.6	423.9	O K
		Summer					0.0	1.6		1.6	433.9	O K
1440	min :	Summer	92.2	234	1.03	4	0.0	1.7		1.7	439.9	O K
2160	min :	Summer	92.2	219	1.01	9	0.0	1.6		1.6	433.5	O K
2880	min :	Summer	92.1	.99	0.99	9	0.0	1.6		1.6	425.3	O K
4320	min :	Summer	92.1	.57	0.95	7	0.0	1.6		1.6	407.4	O K
5760	min :	Summer	92.1	.13	0.91	3	0.0	1.6		1.6	388.7	O K
7200	min :	Summer	92.0	70	0.87	0	0.0	1.5		1.5	370.3	O K
		Summer					0.0	1.5		1.5	353.2	O K
10080	min :	Summer	91.9	92	0.79	2	0.0	1.4		1.4	337.2	O K
15	min N	Winter	91.6	47	0.44	7	0.0	1.1		1.1	190.1	O K
30	min N	Winter	91.7	779	0.57	9	0.0	1.2		1.2	246.6	O K
60	min N	Winter	91.9	913	0.71	3	0.0	1.4		1.4	303.3	O K
120	min N	Winter	92.0	143	0.84	3	0.0	1.5		1.5	358.8	O K
180	min N	Winter	92.1	.14	0.91	4	0.0	1.6		1.6	389.1	O K
240	min N	Winter	92.1	.60	0.96	0	0.0	1.6		1.6	408.8	O K
360	min N	Winter	92.2	227	1.02	7	0.0	1.6		1.6	437.0	O K
480	min N	Winter	92.2	271	1.07	1	0.0	1.7		1.7	455.7	O K
600	min N	Winter	92.3	302	1.10	2	0.0	1.7		1.7	469.0	O K
			Stor	m		Rain	Flooded	d Discha	rge	Time-Pe	eak	
			Even	t		(mm/hr)	Volume	Volum	ıe	(mins)	
							(m³)	(m³)				
		1.5	min	Sum	mer	137.759	0.0) 7'	7.9		20	
			min			89.551	0.0		9.3		35	
			min			55.351	0.0		9.0		66	

	Event		(mm/hr)	Volume	Volume	(mins)
				(m³)	(m³)	
15	min	Summer	137.759	0.0	77.9	20
30	min	Summer	89.551	0.0	89.3	35
60	min	Summer	55.351	0.0	179.0	66
120	min	Summer	33.014	0.0	197.9	126
180	min	Summer	24.067	0.0	207.7	184
240	min	Summer	19.117	0.0	213.8	244
360	min	Summer	13.842	0.0	221.9	364
480	min	Summer	10.992	0.0	226.7	484
600	min	Summer	9.186	0.0	229.6	604
720	\min	Summer	7.929	0.0	231.2	722
960	\min	Summer	6.282	0.0	232.1	962
1440	min	Summer	4.519	0.0	228.1	1440
2160	min	Summer	3.245	0.0	427.7	1964
2880	min	Summer	2.563	0.0	425.1	2284
4320	min	Summer	1.836	0.0	403.6	3068
5760	min	Summer	1.448	0.0	679.6	3872
7200	min	Summer	1.204	0.0	686.7	4688
8640	min	Summer	1.035	0.0	670.4	5536
10080	min	Summer	0.910	0.0	649.0	6352
15	min	Winter	137.759	0.0	82.6	20
30	min	Winter	89.551	0.0	95.1	35
60	min	Winter	55.351	0.0	191.5	64
120	min	Winter	33.014	0.0	211.9	124
180	min	Winter	24.067	0.0	222.3	182
240	min	Winter	19.117	0.0	228.7	242
360	min	Winter	13.842	0.0	237.1	360
480	min	Winter	10.992	0.0	242.1	476
600	min	Winter	9.186	0.0	245.0	594

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Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Tank H Volume	
Date 24/04/2013 15:09	Designed by Jim Tamblyn	
File Catchment H Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

	Stor	m	Ma	x	Max	M	lax	Max		Max	Max	Status
	Even	t	Lev	el	Depth	Infil	tration	Control	ΣΟ	utflow	Volume	
			(m)	(m)		/s)	(1/s)		(1/s)	(m³)	
			•	•	` '	,		, , -,			• •	
720	min	Winter	92.3	325	1.125		0.0	1.7		1.7	478.8	ОК
960	min	Winter	92.3	355	1.155		0.0	1.7		1.7	491.5	O K
1440	min	Winter	92.3	378	1.178		0.0	1.8		1.8	501.5	ОК
2160	min	Winter	92.3	371	1.171		0.0	1.8		1.8	498.5	O K
2880	min	Winter	92.3	343	1.143		0.0	1.7		1.7	486.4	O K
4320	min	Winter	92.2	292	1.092		0.0	1.7		1.7	464.9	O K
5760	min	Winter	92.2	235	1.035		0.0	1.7		1.7	440.3	O K
7200	min	Winter	92.3	L76	0.976		0.0	1.6		1.6	415.3	O K
8640	min	Winter	92.3	L19	0.919		0.0	1.6		1.6	391.2	O K
10080	min	Winter	92.0	066	0.866		0.0	1.5		1.5	368.7	O K
			Stor	m		Rain	Flooded	l Dischar	rge	Time-Pe	eak	
			Even	t	(mm/hr)	Volume	Volum	e	(mins)	
							(m³)	(m³)				
		720	min	Wir	nter	7.929	0.0	246	5.7	-	710	
		960	min	Wir	nter	6.282	0.0	24	7.3	9	942	
		1440	min	Wir	nter	4.519	0.0	242	2.6	13	398	
		2160	min	Wir	nter	3.245	0.0	460	0.1	20	052	
		2880	min	Wir	nter	2.563	0.0	456	5.4	25	596	
		4320	min	Wir	nter	1.836	0.0	433	1.9	32	284	
		5760	min	Wir	nter	1.448	0.0	750	0.0	42	200	
		7200	min	Wir	nter	1.204	0.0	743	3.0	51	L12	
		8640	min	Wir	nter	1.035	0.0	728	3.6	59	968	
		10080	min	Wir	nter	0.910	0.0	705	5.6	68	356	

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Tank H Volume	
Date 24/04/2013 15:09	Designed by Jim Tamblyn	
File Catchment H Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

 Rainfall Model
 FSR
 Winter Storms
 Yes

 Return Period (years)
 100
 Cv (Summer)
 0.750

 Region England and Wales
 Cv (Winter)
 0.840

 M5-60 (mm)
 21.000
 Shortest Storm (mins)
 15

 Ratio R
 0.421
 Longest Storm (mins)
 10080

 Summer Storms
 Yes
 Climate Change %
 +30

Time Area Diagram

Total Area (ha) 0.660

Time (mins) Area From: To: (ha)

5 0.660

0

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Tank H Volume	
Date 24/04/2013 15:09	Designed by Jim Tamblyn	
File Catchment H Storage Volume.s	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Storage is Offline Cover Level (m) 93.000 Dividing Weir Level (m) 91.200

Cellular Storage Structure

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²) I	nf. Area (m²)	Depth (m)	Area (m²) Inf	. Area (m²)
0.000	448.0	0.0	3.600	448.0	0.0	7.200	448.0	0.0
0.400	448.0	0.0	4.000	448.0	0.0	7.600	448.0	0.0
0.800	448.0	0.0	4.400	448.0	0.0	8.000	448.0	0.0
1.200	448.0	0.0	4.800	448.0	0.0	8.400	448.0	0.0
1.600	448.0	0.0	5.200	448.0	0.0	8.800	448.0	0.0
2.000	448.0	0.0	5.600	448.0	0.0	9.200	448.0	0.0
2.400	448.0	0.0	6.000	448.0	0.0	9.600	448.0	0.0
2.800	448.0	0.0	6.400	448.0	0.0	10.000	448.0	0.0
3.200	448.0	0.0	6.800	448.0	0.0			

Hydro-Brake® Outflow Control

Design Head (m) 1.200 Hydro-Brake® Type Md5 SW Only Invert Level (m) 91.200 Design Flow (1/s) 1.8 Diameter (mm) 52

Depth (m)	Flow (1/s)	Depth (m)	Flow $(1/s)$	Depth (m)	Flow (1/s)	Depth (m)	Flow (1/s)	Depth (m)	Flow (1/s)
0.100	0.8	0.800	1.5	2.000	2.3	4.000	3.3	7.000	4.3
0.200	0.8	1.000	1.6	2.200	2.4	4.500	3.5	7.500	4.5
0.300	0.9	1.200	1.8	2.400	2.5	5.000	3.6	8.000	4.6
0.400	1.0	1.400	1.9	2.600	2.6	5.500	3.8	8.500	4.7
0.500	1.2	1.600	2.1	3.000	2.8	6.000	4.0	9.000	4.9
0.600	1.3	1.800	2.2	3.500	3.0	6.500	4.1	9.500	5.0

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Basepoint Centre	0108	
Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond I Volume	
Date 25/04/2013 12:58	Designed by Jim Tamblyn	
File Catchment I Storage Volume.sr	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

	Stor		Max	Max	Max	Max	Status
	Even	it	Level (m)	Depth (m)	Control (1/s)	Volume (m³)	
			(111)	(111)	(1/5)	(1111-)	
15	min	Summer	84.134	0.434	4.2	381.5	O K
		Summer	84.246	0.546	4.6	494.0	O K
		Summer	84.351	0.651	5.0	605.1	O K
		Summer	84.446	0.746	5.3	710.4	O K
		Summer	84.494	0.794	5.5	764.8	0 K
		Summer Summer	84.522 84.558	0.822	5.6 5.7	797.6	0 K 0 K
		Summer	84.579	0.879	5.8	840.9 865.0	OK
		Summer	84.590	0.890	5.8	878.2	ОК
		Summer	84.595	0.895	5.8	884.4	ОК
		Summer	84.594	0.894	5.8	883.5	ОК
1440	min	Summer	84.576	0.876	5.7	862.1	ОК
2160	min	Summer	84.547	0.847	5.7	827.6	O K
2880	min	Summer	84.517	0.817	5.6	792.2	O K
4320	min	Summer	84.457	0.757	5.3	723.3	O K
5760	min	Summer	84.402	0.702	5.2	661.0	O K
7200	min	Summer	84.350	0.650	5.0	604.4	O K
		Summer	84.303	0.603	4.8	553.2	O K
		Summer	84.258	0.558	4.6	506.4	O K
		Winter	84.181	0.481	4.4	427.6	O K
		Winter	84.303	0.603	4.8	553.7	O K
		Winter	84.418	0.718	5.2	679.0	0 K
		Winter Winter	84.522	0.822	5.6	798.0	0 K
		Winter		0.875	5.7 5.8	860.4 898.6	0 K 0 K
		Winter	84.648	0.948	6.0	949.9	ОК
		Winter		0.972	6.1	979.8	ОК
		Winter		0.987	6.1	997.6	ОК
		Winter	84.695	0.995	6.1		ОК
2	Stor	m.	Rain	FTOOG	ed Disch	arge Ti	me-Peak
	Stor Even		Rain (mm/hr)	Volum		_	me-Peak (mins)
					ne Vol	ume	
I	Even	t	(mm/hr)	Volum (m³)	ne Vol	ume ³)	(mins)
15	Even	t Summer	(mm/hr)	Volum (m³)	me Volume (m	ume ³)	(mins)
15 30	Even min min	Summer Summer	(mm/hr) 137.759 89.551	Volum (m³) 0	ne Volume (m0 .3 .0 .3	226.9	(mins) 20 35
15 30 60	Even min min min	Summer Summer Summer	(mm/hr) 137.759 89.551 55.351	Volum (m³) 0 0 0	.0 3 .0 5	26.9 57.7	(mins) 20 35 66
15 30 60 120	min min min min	Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014	Volum (m³)	.0 3 .0 3 .0 5 .0 6	226.9 557.7 597.9	(mins) 20 35 66 124
15 30 60 120 180	min min min min min	Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351	Volum (m³) 0 0 0 0 0	.0 3 .0 3 .0 5 .0 6 .0 7	26.9 57.7	(mins) 20 35 66
15 30 60 120 180 240	min min min min min min	Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067	Volum (m³)	.0 3 .0 3 .0 5 .0 6 .0 7	226.9 557.7 97.9 42.8	(mins) 20 35 66 124 184
15 30 60 120 180 240 360	min min min min min min	Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117	Volum (m³)	.0 3 .0 3 .0 5 .0 6 .0 7 .0 7	226.9 257.7 297.9 297.8 42.8 63.9	(mins) 20 35 66 124 184 244
15 30 60 120 180 240 360 480	min min min min min min min	Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842	Volum (m³) 0 0 0 0 0 0 0 0 0	.0 3 .0 3 .0 5 .0 6 .0 7 .0 7	226.9 557.7 997.9 997.8 42.8 63.9 82.3	20 35 66 124 184 244 362
15 30 60 120 180 240 360 480 600 720	min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	.0 3 .0 3 .0 5 .0 6 .0 7 .0 7 .0 7 .0 7 .0 7	226.9 557.7 597.9 597.8 442.8 63.9 82.3 990.8 96.3	20 35 66 124 184 244 362 482 602 722
15 30 60 120 180 240 360 480 600 720 960	min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	.0 3 .0 3 .0 5 .0 6 .0 7 .0 7 .0 7 .0 7 .0 7 .0 8 .0 8	226.9 57.7 597.9 597.8 42.8 63.9 82.3 990.8 996.3 100.0 102.6	20 35 66 124 184 244 362 482 602 722 960
15 30 60 120 180 240 360 480 600 720 960 1440	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	.0 3 .0 5 .0 6 .0 7 .0 7 .0 7 .0 7 .0 7 .0 8 .0 8 .0 8	26.9 57.7 997.9 997.8 42.8 63.9 82.3 990.8 96.3 100.0 102.6 992.8	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224
15 30 60 120 180 240 360 480 600 720 960 1440 2160	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	.0 3 .0 5 .0 6 .0 7 .0 7 .0 7 .0 7 .0 8 .0 8 .0 8 .0 7	26.9 57.7 97.9 97.8 42.8 63.9 82.3 990.8 96.3 100.0 102.6 92.8	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880	min min min min min min min min min min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	.0 3 .0 5 .0 6 .0 7 .0 7 .0 7 .0 7 .0 8 .0 8 .0 8 .0 12	26.9 57.7 97.9 97.8 42.8 63.9 82.3 90.8 96.3 90.0 92.8 990.4 446.6	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1992
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	.0 3 .0 5 .0 6 .0 7 .0 7 .0 7 .0 7 .0 7 .0 8 .0 8 .0 8 .0 12 .0 13	26.9 57.7 97.9 97.8 42.8 63.9 82.3 90.8 96.3 90.0 92.8 990.4 446.6 926.4	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1992 2812
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0 3 .0 3 .0 5 .0 6 .0 7 .0 7 .0 7 .0 7 .0 7 .0 10 8 .0 8 .0 8 .0 12 .0 13 .0 13	26.9 57.7 97.9 97.8 42.8 63.9 82.3 90.8 90.8 90.0 002.6 92.8 90.4 46.6 626.4 551.4	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1992 2812 3632
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0 3 .0 3 .0 5 .0 6 .0 7 .0 7 .0 7 .0 7 .0 7 .0 12 .0 13 .0 15 .0 16	26.9 57.7 97.9 97.8 42.8 63.9 82.3 90.8 90.0 00.0 00.0 00.0 02.6 92.8 990.4 46.6 626.4 551.4 611.6	20 35 66 124 184 244 362 482 602 722 960 1224 1584 1992 2812 3632 4464
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0 3 .0 3 .0 5 .0 6 .0 7 .0 7 .0 7 .0 7 .0 12 .0 13 .0 15 .0 16 .0 16	26.9 57.7 197.9 197.8 42.8 63.9 182.3 190.8 190.0 100.0	20 35 66 124 184 244 362 482 602 722 960 1224 1584 1992 2812 3632 4464 5272
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080	min	Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0 3 .0 3 .0 5 .0 6 .0 7 .0 7 .0 7 .0 7 .0 12 .0 13 .0 15 .0 16 .0 16	26.9 157.7 197.9 197.8 42.8 163.9 182.3 190.8 190.0 1002.6 192.8 190.4 146.6 126.4 151.4 111.6 161.4 102.0	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1992 2812 3632 4464 5272 6048
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0 3 .0 .3 .0 .5 .0 .6 .0 .7 .0 .7 .0 .7 .0 .7 .0 .12 .0 .13 .0 .15 .0 .16 .0 .16 .0 .17 .0 .17 .0 .18 .15 .15 .16 .16 .17 .18 .18 .18 .18 .18 .18 .18 .18 .18 .18	26.9 157.7 197.9 197.8 142.8 163.9 182.3 190.8 190.8 190.0 100	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1992 2812 3632 4464 5272 6048 20
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30	min	Summer	137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0 3 .0 .3 .0 .5 .0 .6 .0 .7 .0 .7 .0 .7 .0 .7 .0 .7 .0 .12 .0 .13 .0 .15 .0 .16 .0 .16 .0 .17 .0 .3	26.9 157.7 197.9 197.8 42.8 163.9 182.3 190.8 190.0 1002.6 192.8 190.4 146.6 126.4 151.4 111.6 161.4 102.0	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1992 2812 3632 4464 5272 6048
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60	min	Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0 3 .0 .0 5 .0 .0 7 .0 7 .0 7 .0 7 .0 12 .0 13 .0 15 .0 16 .0 16 .0 17 .0 3 .0 16	26.9 57.7 97.9 97.8 42.8 63.9 82.3 90.8 90.8 90.0 002.6 92.8 99.3 46.6 46.6 46.6 46.1 46.6	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1992 2812 3632 4464 5272 6048 20 34
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120	min	Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0 3 .0 .0 5 .0 .6 .0 7 .0 7 .0 7 .0 12 .0 13 .0 15 .0 16 .0 17 .0 3 .0 15 .0 16 .0 17 .0 3	26.9 57.7 97.9 197.8 42.8 63.9 82.3 90.8 190.0 102.6 192.8 190.4 146.6 126.4 151.4 161.6 161.4 102.0 145.6 166.3 162.8	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1992 2812 3632 4464 5272 6048 20 34 64
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 5760 7200 8640 10080 15 30 60 120 180	min	Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0 3 .0 .0 5 .0 .6 .0 7 .0 7 .0 7 .0 12 .0 13 .0 15 .0 16 .0 17 .0 3 .0 16 .0 17 .0 3	26.9 57.7 97.9 97.8 42.8 63.9 82.3 90.8 90.8 90.8 90.9 100.0	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1992 2812 3632 4464 5272 6048 20 34 64 122
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 7200 8640 10080 15 30 60 120 180 240	min	Summer Summer	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0 3 .0 .0 5 .0 .6 .0 7 .0 7 .0 7 .0 7 .0 12 .0 13 .0 15 .0 16 .0 17 .0 16 .0 17 .0 17 .0 18	126.9 157.7 197.9 197.8 142.8 163.9 182.3 190.8 190.8 190.6 192.8 190.4 146.6 192.8 151.4 111.6 161.4 102.0 145.6 166.3 162.8 156.5 187.0	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1992 2812 3632 4464 5272 6048 20 34 64 122 182
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 7200 8640 10080 15 30 60 120 180 240	min	Summer Su	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0 3 .0 3 .0 5 .0 6 .0 7 .0 7 .0 7 .0 12 .0 13 .0 16 .0 16 .0 17 .0 3 .0 16 .0 17 .0 3 .0 16 .0 17 .0 3	26.9 57.7 97.9 97.8 42.8 63.9 82.3 90.8 90.8 90.6 92.8 90.4 46.6 92.8 151.4 111.6 161.4 102.0 145.6 166.3 16	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1992 2812 3632 4464 5272 6048 20 34 64 122 182 240
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240 360 480 600 720 720 720 720 720 860 720 720 720 860 720 720 860 720 720 860 720 720 860 720 720 720 720 720 720 720 720 720 72	min	Summer Su	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0 3 .0 3 .0 5 .0 6 .0 7 .0 7 .0 7 .0 8 .0 8 .0 12 .0 13 .0 16 .0 16 .0 17 .0 3 .0 16 .0 17 .0 3 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18	126.9 157.7 197.9 197.8 142.8 163.9 182.3 190.8 190.8 190.6 192.8 190.4 146.6 126.4 151.6 161.4 102.0 145.6 166.3 162.8 156.5 187.0 190.7 190.0 131.8 140.6	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1992 2812 3632 4464 5272 6048 20 34 64 122 182 240 358 474 590
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240 360 480 600 720 720 720 860 720 720 860 720 720 860 720 860 720 860 720 860 860 860 860 860 860 860 860 860 86	min	Summer Su	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0 3 .0 3 .0 5 .0 6 .0 7 .0 7 .0 7 .0 8 .0 8 .0 12 .0 13 .0 16 .0 16 .0 17 .0 3 .0 16 .0 17 .0 3 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18	226.9 57.7 97.9 97.8 42.8 63.9 82.3 90.8 90.8 90.6 92.8 90.4 46.6 92.8 91.4 91.6 92.8 90.4 91.6 92.8 90.7 91.6	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1992 2812 3632 4464 5272 6048 20 34 64 122 182 240 358 474
15 30 60 120 180 240 360 480 600 720 960 1440 2160 2880 4320 5760 7200 8640 10080 15 30 60 120 180 240 360 480 600 720 720 720 860 720 720 860 720 720 860 720 860 720 860 720 860 860 860 860 860 860 860 860 860 86	min	Summer Su	(mm/hr) 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186 7.929 6.282 4.519 3.245 2.563 1.836 1.448 1.204 1.035 0.910 137.759 89.551 55.351 33.014 24.067 19.117 13.842 10.992 9.186	Volum (m³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ne Voli (m) .0 3 .0 3 .0 5 .0 6 .0 7 .0 7 .0 7 .0 8 .0 8 .0 12 .0 13 .0 16 .0 16 .0 17 .0 3 .0 16 .0 17 .0 3 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18 .0 18	26.9 57.7 97.9 97.8 42.8 63.9 82.3 90.8 96.3 90.0 602.6 992.8 990.4 46.6 451.4 611.6 661.4 702.0 445.6 666.3 662.8 756.5 87.0 8	(mins) 20 35 66 124 184 244 362 482 602 722 960 1224 1584 1992 2812 3632 4464 5272 6048 20 34 64 122 182 240 358 474 590

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Yeoford Way	Haverhill, Suffolk	
Exeter EX2 8LB	Preliminary Pond I Volume	
Date 25/04/2013 12:58	Designed by Jim Tamblyn	
File Catchment I Storage Volume.sr	Checked by JM	
Micro Drainage	Source Control 2013.1.1	

Storm Event		Max Level	-		Max l Volu		
			(m)	(m)	(l/s)	(m³)
960	min	Winter	84.699	0.999	6.	1 1013	.3 ок
1440	min	Winter	84.684	0.984	6.		
2160	min	Winter	84.647	0.947	6.	0 948	.8 ок
2880	min	Winter	84.610	0.910	5.	9 903	.3 O K
4320	min	Winter	84.531	0.831	5.	6 808	.0 O K
5760	min	Winter	84.453	0.753	5.	3 718	.8 O K
7200	min	Winter	84.381	0.681	5.	1 638	.2 O K
8640	min	Winter	84.314	0.614	4.	8 565	.7 O K
10080	min	Winter	84.252	0.552	4.	6 499	.7 O K
	Stor	m	Rain	Flood	ed Dis	charge	Time-Peak
	Event		(mm/hr)	Volum	ie Vo	lume	(mins)
				(m³)	(m³)	
0.50				0	•	050.0	006
		Winter	6.282		. 0	850.8	926
		Winter	4.519		. 0	840.8	1354
2160							
		Winter	3.245	-		1436.9	1684
	min	Winter	2.563	0	.0	1481.6	2136
4320	min min	Winter Winter	2.563 1.836	0	.0	1481.6 1413.1	2136 3064
4320 5760	min min min	Winter Winter Winter	2.563 1.836 1.448	0 0	.0	1481.6 1413.1 1737.6	2136 3064 3920
4320 5760 7200	min min min min	Winter Winter Winter Winter	2.563 1.836 1.448 1.204	0 0 0	.0 .0 .0 .0 .0	1481.6 1413.1 1737.6 1804.9	2136 3064 3920 4760
4320 5760 7200 8640	min min min min min	Winter Winter Winter	2.563 1.836 1.448	0 0 0	.0 .0 .0 .0 .0 .0 .0	1481.6 1413.1 1737.6	2136 3064 3920

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Exeter EX2 8LB	Preliminary Pond I Volume			
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File Catchment I Storage Volume.sr	Checked by JM			
Micro Drainage	Source Control 2013.1.1			

 Rainfall Model
 FSR
 Winter Storms
 Yes

 Return Period (years)
 100
 Cv (Summer)
 0.750

 Region England and Wales
 Cv (Winter)
 0.840

 M5-60 (mm)
 21.000
 Shortest Storm (mins)
 15

 Ratio R
 0.421
 Longest Storm (mins)
 10080

 Summer Storms
 Yes
 Climate Change %
 +30

Time Area Diagram

Total Area (ha) 1.490

Time (mins) Area From: To: (ha)

0 5 1.490

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Yeoford Way	Haverhill, Suffolk			
Exeter EX2 8LB	Preliminary Pond I Volume			
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File Catchment I Storage Volume.sr	Checked by JM			
Micro Drainage	Source Control 2013.1.1			

Storage is Offline Cover Level (m) 84.910 Dividing Weir Level (m) 83.700

Tank or Pond Structure

Invert Level (m) 83.700

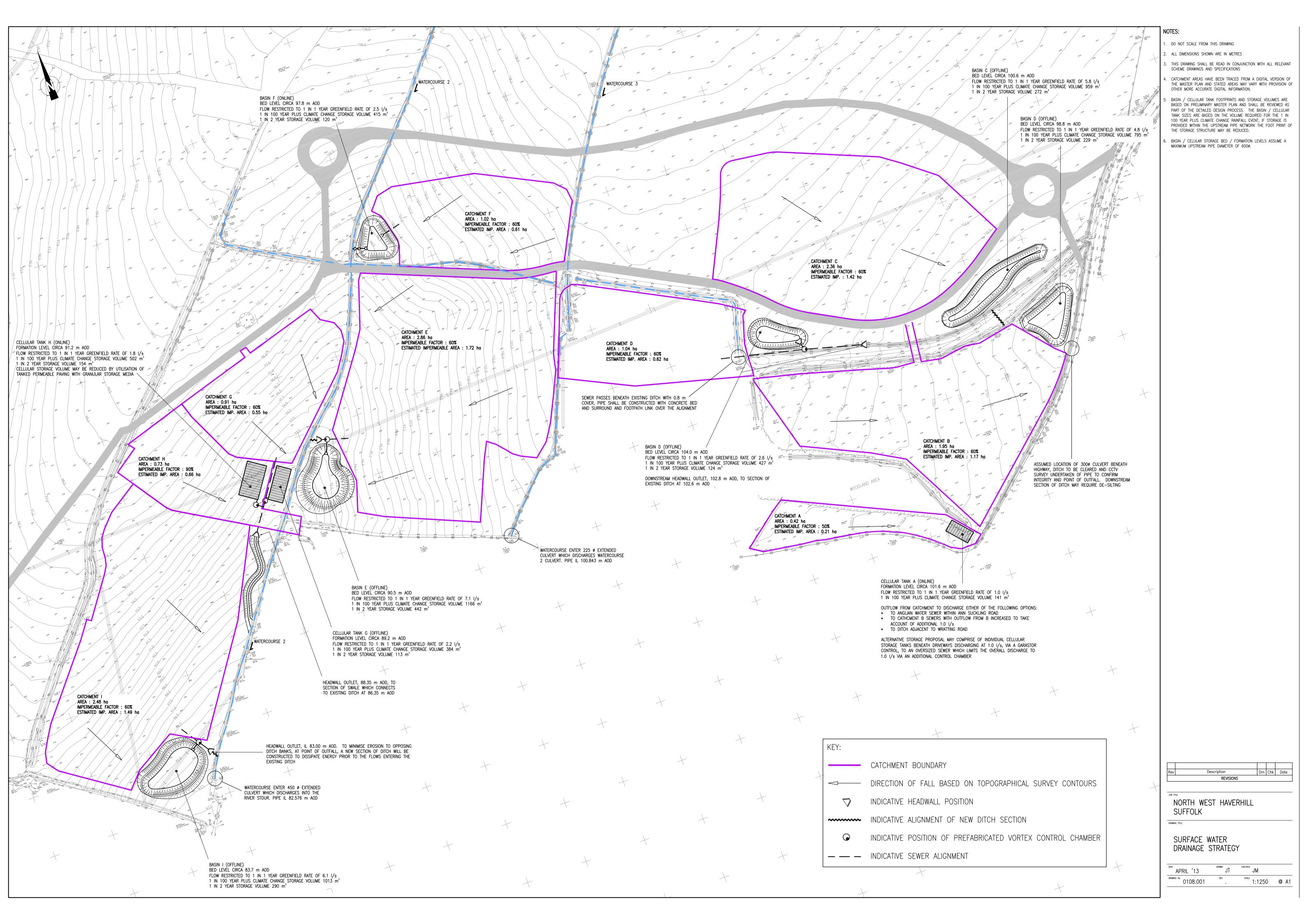
Depth (m)	Area (m²)								
0.000	780.9	2.400	0.0	4.800	0.0	7.200	0.0	9.600	0.0
0.400	963.3	2.800	0.0	5.200	0.0	7.600	0.0	10.000	0.0
0.800	1159.8	3.200	0.0	5.600	0.0	8.000	0.0		
1.200	1371.2	3.600	0.0	6.000	0.0	8.400	0.0		
1.600	0.0	4.000	0.0	6.400	0.0	8.800	0.0		
2.000	0.0	4.400	0.0	6.800	0.0	9.200	0.0		

Hydro-Brake® Outflow Control

Design Head (m) 0.950 Hydro-Brake® Type Md5 SW Only Invert Level (m) 83.700 Design Flow (l/s) 6.1 Diameter (mm) 101

Depth (m)	Flow (1/s)								
0.100	2.9	0.800	5.5	2.000	8.7	4.000	12.3	7.000	16.2
0.200	4.1	1.000	6.1	2.200	9.1	4.500	13.0	7.500	16.8
0.300	4.0	1.200	6.7	2.400	9.5	5.000	13.7	8.000	17.4
0.400	4.1	1.400	7.3	2.600	9.9	5.500	14.4	8.500	17.9
0.500	4.4	1.600	7.8	3.000	10.6	6.000	15.0	9.000	18.4
0.600	4.8	1.800	8.2	3.500	11.5	6.500	15.7	9.500	18.9

Appendix I Surface Water Drainage Strategy



CAPITA SYMONDS

Capita Symonds Ltd Clarendon House Clarendon Road Cambridge CB2 8FH