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QuadConsult
ENGINEERS IN PARTNERSHIP
Consulting Civil & Structural Engineers

Flood Risk Assessment & Drainage Strategy

Report

on

Pineapple Farm, Congresbury

for

M7 Planning

Date	December 2020
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Project 20116

Flood Risk Assessment & Drainage Strategy

Document Control

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Revision History

Revision	Date	Purpose/Status	Approved
0		First Issue	SPM
1	08/12/2020	Updated following Client Comments	ACV
2	09/03/2021	Updated Appendix E	SPM
3	22/11/2022	Update Pollution Prevention section	ACV
4			
5			
6			

Distribution

	Function Title	Company	Name
0			
1			
2			
3			

CONTENTS

List of Figures

References

The National Planning Policy Framework (NPPF)

The National Planning Practice Guidance (NPPG)

EA Flood Map for Planning (Rivers and Sea)

Abbreviations

A.O.D	Above Ordnance Datum
FW	Foul Water
SW	Surface Water
Ha	Hectares
EA	Environment Agency
BGL	Below Ground Level

1.0 INTRODUCTION

QuadConsult Limited has been commissioned by M7 Planning to prepare a Flood Risk Assessment and drainage strategy in support of an outline application for up to a 90 unit residential development in Congresbury, North Somerset.

This report aims to demonstrate how the proposed development complies with the National Planning Policy Framework on Flood Risk examining potential sources of flooding and, if present, how flood risks can be mitigated. It goes on to describe how both foul and surface water drainage strategies can be implemented to service the site.

The proposed development site is situated wholly within Zone 1 although the application boundary encroaches partially into EA Flood Zone 3 (at less than 1:100 probability of fluvial flooding). Other sources of flooding are also considered in the report.

2.0   SITE LOCATION & DESCRIPTION

The application site is approximately 3.3ha in area, it is situated in the small town of Congresbury, North Somerset. The site is broadly rectangular in shape and falls from South West to North East at an average gradient of 1:43 and is open agricultural land. It is bounded by hedgerows and ditches/watercourses and has isolated ditches contained within the site itself.

See Appendix A for Location plan

3.0   PLANNING POLICY

The National Planning Policy Framework supported by the Planning Practice Guidance (PPG) and Table 3 of the 'Technical Guidance to the National Planning Policy Framework' defines the Flood Zones and classifies the level of vulnerability as follows:

<u>PPG Flood Risk and Coastal Change Table 3: Flood Risk Vulnerability and flood zone 'compatibility'</u>

Flood Zone	Flood Risk Vulnerability Classification				
	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
1	✓	✓	✓	✓	✓
2	✓	Exception Test Required	✓	✓	✓
3a ^	Exception Test Required ^	✗	Exception Test Required	✓	✓
3b *	Exception Test Required *	✗	✗	✗	✓*

KEY: ✓   Development is appropriate
              ✗   Development Should not be permitted

Residential developments are classified as more vulnerable, therefore using the NPPF guidance it is appropriate to locate housing within Flood Zone 1.

4.0 SITE INVESTIGATION & TESTING

M7 Planning has commissioned a Desktop Study which has been provided by Clarke Bond. The anticipated ground conditions stated therein suggest soft clays over silt, over stiff clays which are likely to preclude the use of infiltration systems (soakaways, etc.) as a surface water disposal mechanism in its entirety.

For the purposes of this report to ensure that an adequate area has been set aside for attenuation features, QuadConsult Limited have assumed that infiltration is not viable. If subsequent investigations prove otherwise the land take required for attenuation could be reduced accordingly.

All infiltration tests should be undertaken in accordance with the BRE 365 method.

5.0 HYDROLOGY

The site has a watercourse running along the eastern boundary although the primary watercourse (and source of the Zone 3 flooding) is the River Yeo situated 170m to the north (See Appendix B EA Flood Map)

The site also has two outfalls (blue dashed line below) discharging surface water to the south-eastern watercourse via headwalls and investigations have revealed that these originate from highway drainage as shown on the extract below.

Furthermore, there appears to be 2 private surface water outfalls on to the western boundary (dotted blue) which will need to be accommodated in the final drainage design layout; we believe that these currently run overland or possibly below ground along the northern and southern boundaries respectively. QuadConsult Limited would recommend that these are retained in their current locations although some minor works, such as localised diversion, may be required dependant on the proposed housing layout; these are not seen as problematic (as they lie within the site demise) but may require consents in advance.
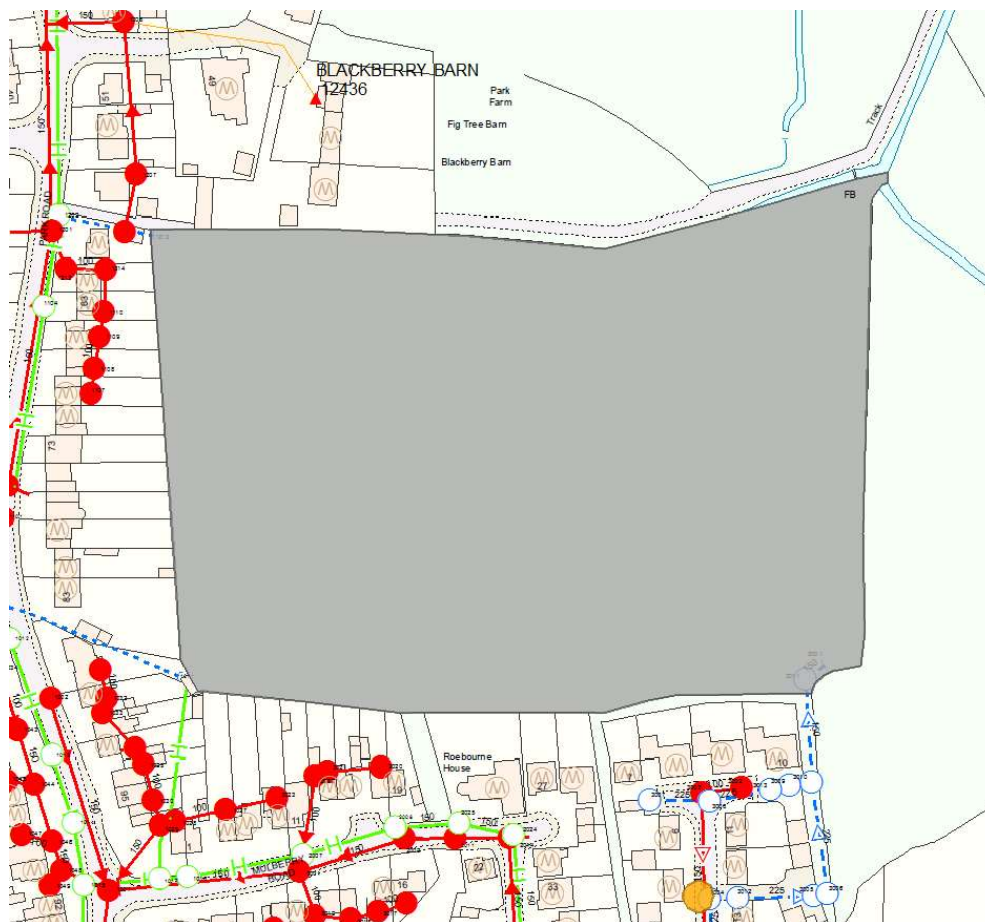
6.0   EXISTING FLOOD RISKS

The EA Map (*Fig 1.0*) only takes into consideration fluvial and tidal flooding and prospective development should also refer to the Strategic Flood Risk Assessment undertaken by Local Authorities. These SFRA's assess risks from all sources of flooding including runoff, overland flows, ground water and other sources such as infrastructure failures. QuadConsult Limited have reviewed the North Somerset Development and Flood Issues Advice Note (November 2019) and also sourced flood data from the Environment Agency which is included in Appendix C.

In addition to this, the Level 2 SRFA (September 2009) has been reviewed which discusses the land around Yatton/Congresbury (Area 4) and re-affirms the limitation of development to Flood Zone 1.

7.0   SOURCES OF FLOODING

In accordance with Planning Practice Guidance Table 3, land within Flood Zone 1 is appropriate for all forms of development in terms of flood risk vulnerability. Therefore, the proposed development meets the requirements of the Sequential test. The Exception Test does not therefore need to be applied for the development.

The proposed application boundary is situated on the outside extremity of the EA Zone 3 flood plain, as indicated in Appendix B; the main proposed development site lies within Zone 1. EA flood modelling data (Appendix C) confirms predicted flood levels within the site demise to be Q_{100} + CC 8.36m AOD and Q_{1000} 8.51m AOD. The slabs and highways are to be set a minimum height of 600mm above 100 Year flood +CC levels (i.e. 8.96m AOD) to ensure a satisfactory level of protection.

Two culverts (150mmØ and 300mmØ) are present in the south east corner with associated headwalls which outfall into the eastern ditch and a risk of flood potentially arises if these became blocked. To safeguard against this the existing ditch network on the site boundaries will be retained at their current levels, well below any proposed development. Similarly, the SW outfalls entering the site on the western boundary may present a potential threat so will be retained in their current form. **As these structures/watercourses lie wholly within the development site a pro-active approach to continued future maintenance can be offered.**

Other Sources of Flooding

The site lies approximately 9km away from the coast and the EA Planning Flood map shows no risk from the sea. Tidal flooding is therefore not a concern.

Apart from the potential flood risk presented by the River Yeo only the watercourses and outfalls described in the above are the main flood risk due to potential blockage. There are no other recorded drainage systems that could escape and pass on to the site and no evidence of flood risk from groundwater.

Blagdon Lake is situated approximately 5 miles to the East of the site and discharges into the River Yeovil. The risk of failure of this publicly funded asset is deemed low and manageable due to its status and distance from the development site.

8.0   PROPOSED SURFACE WATER DRAINAGE STRATEGY

Building Regulation Part H promotes the ethos for sustainable drainage techniques to be implemented wherever possible to manage and treat surface water runoff as close to the source as possible. A hierarchal approach is adopted and prioritised as follows:

Priority Level:

1. Surface Water Collected
2. Surface Water Infiltrated
3. Discharge to a Surface Water Body
4. Discharge to a Surface Water Sewer
5. Discharge to a Combined Sewer

Surface Water Collected

The level of occupation of an individual property in relation to the roof area and likely yield of runoff volume associated with this, is deemed too low to make the harvesting of rainwater a viable option for non-potable supply. Furthermore, the absence of a firm maintenance plan being in place suggests that systems could fall into a state of disrepair and subsequently present a potential health hazard for future residents. The balance of risk and low yield values preclude the use of rainwater harvesting as a viable option although the provision of water butts for gardening purposes will reduce total runoff volumes

Surface Water Infiltrated

Initial desktop studies suggest the presence of underlying clays and that infiltration is not feasible although this can be validated at preliminary design stage.

Disposal to a Surface Water Body

The site is currently undeveloped, comprising greenfield with no buildings or hard surfaces recorded.

Calculations have been undertaken to determine Greenfield rates using the ReFEH v2.2 and industry standard software WINDES which are included in Appendix D. We propose to limit surface water discharge to Greenfield run off rates of Q_{bar} as infiltration is not considered viable across the site at this stage.

We propose to cater for Long Term Storage adopting the calculation methods described in Chapter 24.10 in The SuDS Manual (CIRIA 753). Here it states that the alternative approach to managing the additional run off volumes for extreme events is to release <u>all</u> the runoff above the one-year events from the site at a maximum rate of 2 litres per second per hectare or Q_{bar} (whichever is the higher value). This avoids the need to undertake more detailed calculations and modelling. This section of the CIRIA manual reaffirms that this is generally accepted as an appropriate industry standard approach within the UK.

There is an additional benefit to the wider catchment by restricting the peak flows to Q_{bar} for the more extreme storm events within the detention basin, in that the surface water flow rates exiting the site are greatly reduced for more severe storm events and are regulated in a controlled manner.

A summary of the existing greenfield rates are tabulated below:

Return Period	Discharge Rate
Q_{bar}	9 l/s
Q_{2year}	7.9 l/s
Q_{30year}	18.6 l/s
Q_{100}	25.8 l/s

Proposed Surface Water Drainage

The new development can be served by a new SW gravity system draining to a detention basin where the volume of water attenuated and discharged to Greenfield runoff rates of 9 l/s. The detention basin has been proposed with 0.3m freeboard and a small swale proposed to convey SW to the existing watercourse. This swale will improve the water quality by assisting in the removal of contaminants prior to outfall to the existing watercourse. This basic outline strategy is included in Appendix E.

Whilst the site layout is yet to be finalised, we have assumed a total impermeable area of 1.25 ha assuming a 55% density of development area (2.25 ha) which yields a required storage volume of 924m³ for the 100 year + CC event (see Appendix D). This figure will need to be adjusted for 10% urban creep when the layout has been fixed.

Note also that the outlet flow control device from the basin will be designed to cater for discharge against a static discharge head of approximately 0.5m to simulate water levels when the River Yeo is in the flood condition.

It is the applicants intention to offer this basin and the associated swale to Wessex Water (in accordance with DCG) or a management company for adoption purposes and future ongoing maintenance.

Proposed Outfall

It is evident from analysis of the EA flood maps that the land to the north east of the development consists of a Zone 3 Flood zone. The proposed design will ensure that all attenuation features are situated outside this area including, where possible, the conveyance swale from the basin.

Flood Routing/Exceedance Flows

Both the foul and surface water networks will be designed in accordance with Design and Construction Guidance DCG and the SW modelled for the 1:100 year + 40%CC event.

The design of the site will be undertaken to take into consideration potential flood routes should the drainage system become surcharged or fail. The levels of the plots will be elevated above existing ground level and are then individually checked to ensure that flood risk remains at a minimum. The predominant flood routes will direct overland flows onto the main highways where they will be ultimately directed down to the north east of the site where it will subsequently discharge into the basin and ultimately the stream. An acceptable level of protection against flooding to the properties can therefore be afforded.

This flood routing diagram will also consider if there was a failure of the existing drainage network; plot levels will be individually checked to ensure that they do not fall within low lying areas within the site where surface water escape via an overland route is not possible.

9.0 POLLUTION PREVENTION AND WATER QUALITY MANAGEMENT

CIRIA 753 The SuDS Manual Chapter 26, provides design advice to meet water quality standards by adopting the SuDS train treatment mechanism and thereby reduce the risk of pollution by evaluating potential pollution hazards at the outset.

As the proposed drainage strategy proposes to discharge runoff to ground, Chapter 26.3 'Protecting Groundwater' is particularly relevant.

Runoff from residential developments and associated highway is generally viewed as low risk (Table 4.3) and the proposed site layout provides the opportunity to introduce SuDS into the scheme to reduce potential contaminant risk still further. For example, the use of a swale off site reduces flow velocities and increase retention times promoting a level of absorption into the upper soils (intergranular flow) and subsequent microbial action.

Surface water will exit the detention basin and be conveyed via a swale to its outfall into the existing ditch on the eastern boundary

We propose to apply a simple qualitative method to assess the risk (Simple Index Approach) and proposed mitigation measures as defined in Table 26.1 CIRIA SuDS Manual.

Total SuDS Mitigation Index = Mitigation Index$_1$ + 0.5 Mitigation Index$_2$

Residential Roof	Total Suspended Solids	Metals	Hydrocarbons
	0.2	0.2	0.05
Residential hardstandings & Roads	Total Suspended Solids	Metals	Hydrocarbons
	0.5	0.4	0.4
Total Hazard Index	**0.70**	**0.60**	**0.45**

Pollution Hazard Index Summary (Residential)

	Basin	Swale 0.5 × index	TOTAL
TSS	0.5	0.5 × 0.5 = 0.25	**0.75**
Metals	0.5	0.5 × 0.6 = 0.30	**0.80**
Hydrocarbons	0.6	0.5 × 0.6 = 0.30	**0.90**

Mitigation Index Summary

Comparing against the <u>mitigation</u> indices shown **bold** below (Ref Table 26.3) means:

TSS	Detention Basin	**0.75**	>	0.70	OK
Metals	Detention Basin	**0.80**	>	0.60	OK
H/C	Detention Basin	**0.90**	>	0.45	OK

Furthermore, the gullies and catch pits that form an integral part of the engineering design offer a degree of interception and treatment close to the source.

Pollution Prevention Strategy

Risks of potential contamination from householders will be reduced by removing external openings to the piped systems where possible (such as gully grating at the foot of RWP's) reducing the tendency for irresponsible disposal of household contaminants (oil, paint, etc.).

Pollution Prevention and Water Quality Management

The applicants intend to offer the SuDS features for adoption by Wessex Water (in accordance with the Design & Construction Guidance DCG) or a Management Company, although this has yet to be confirmed. The structures being incorporated into the scheme comprise:

- Swales
- Detention basins

The relevant maintenance schedule of works and frequency have been extracted from CIRIA 753 and set out below for reference.

TABLE 17.1	Operation and maintenance requirements for swales	
Maintenance schedule	**Required action**	**Typical frequency**
Regular maintenance	Remove litter and debris	Monthly, or as required
	Cut grass – to retain grass height within specified design range	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for > 48 hours	Monthly, or when required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required or if bare soil is exposed over 10% or more of the swale treatment area
Remedial actions	Repair erosion or other damage by re-turfing or reseeding	As required
	Relevel uneven surfaces and reinstate design levels	As required
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	As required
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
	Remove and dispose of oils or petrol residues using safe standard practices	As required

TABLE 22.1	Operation and maintenance requirements for detention basins	
Maintenance schedule	**Required action**	**Typical frequency**
Regular maintenance	Remove litter and debris	Monthly
	Cut grass – for spillways and access routes	Monthly (during growing season), or as required
	Cut grass – meadow grass in and around basin	Half yearly (spring – before nesting season, and autumn)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Monthly (for first year), then annually or as required
	Check any penstocks and other mechanical devices	Annually
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets, outlet and forebay	Annually (or as required)
	Manage wetland plants in outlet pool – where provided	Annually (as set out in Chapter 23)
Occasional maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every 2 years, or as required
	Remove sediment from inlets, outlets, forebay and main basin when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial actions	Repair erosion or other damage by reseeding or re-turfing	As required
	Realignment of rip-rap	As required
	Repair/rehabilitation of inlets, outlets and overflows	As required
	Relevel uneven surfaces and reinstate design levels	As required

10.0   FOUL DRAINAGE STRATEGY

Due to the topography, it is not practical to drain the entire site to any existing foul water network via a traditional gravity system

It is therefore proposed to drain the FW to a pumping station situated to the north east of the development (wholly within Flood Zone 1) and pump the effluent to a FW manhole located within Mulberry Road to the South of the site. See correspondence and sewer plans in Appendix F.

Any proposed layout must be cognisant of the fact that an appropriate tanker access and turning facility is provided.

Other potential connection points are currently being explored with Wessex Water including a potential gravity connection (in part) into an existing pumping station situated in Blackberry Barn to the north of the site. This gravity solution is <u>unlikely</u> to prove viable due to the limited capacity at the Blackberry Barn pump station.

The proposed wet well / chamber shall be designed and checked to ensure floatation is not possible and situated at least 15m away from proposed properties.

Anticipated foul flows entering the wet well are likely to be circa 4.62 l/s although for design purposes rates of between 4 l/s and 6 l/s should be used for the receiving Wessex Water network.

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11.0   SUMMARY & CONCLUSIONS

The site proves compatible for essential infrastructure (residential) under PPG 25 and NPPF. The entire development is deemed compliant as it is within Flood Zone 1 (i.e. meets the requirement of the Sequential Test) and therefore appropriate for a residential development.

The primary source of potential flooding is the River Yeo to the north east of the development. This however is deemed to be unlikely as the development itself would be flood free up to and including the 1 in 1000-year flood event. This falls well within the limits of acceptability stipulated in the Technical Guidance to the NPPF & PP525.

Flood risk via other mechanisms such as coastal, groundwater or surface, foul, combined sewer infrastructure flows have been considered and deemed to be negligible and manageable.

The FRA demonstrates that the proposed property will be flood-free for the 100-year (+ CC) and 1000-year events and that safe routes of access and egress can be provided.

Surface water runoff from the site will be restricted to Q_{bar} greenfield rates and attenuated to accommodate the 100 year + 40% CC storm event in the form of a detention basin situated wholly within Zone 1. Discharge will be to the existing watercourse and formalised by construction of a swale which will in turn improve water quality.

Foul flows will be collected in a new pumping station in the NE corner of the site which can be located entirely within Zone 1. From here it is intended to pump discharge to the Wessex Water FW network in Mulberry Road to the south of the site. Capacity issues are not envisaged at this stage but will need to be investigated further with Wessex Water (refer to correspondence in Appendix F).

It can be concluded that in terms of flood risk the proposed development is acceptable. We believe that a robust drainage strategy has been developed and presented that can deliver the required drainage infrastructure to service the development without any significant increase in risk to flooding or pollution.

APPENDIX A
SITE LOCATION PLAN

APPENDIX B
EA Flood Map for Planning (Rivers and Sea)

Legend:
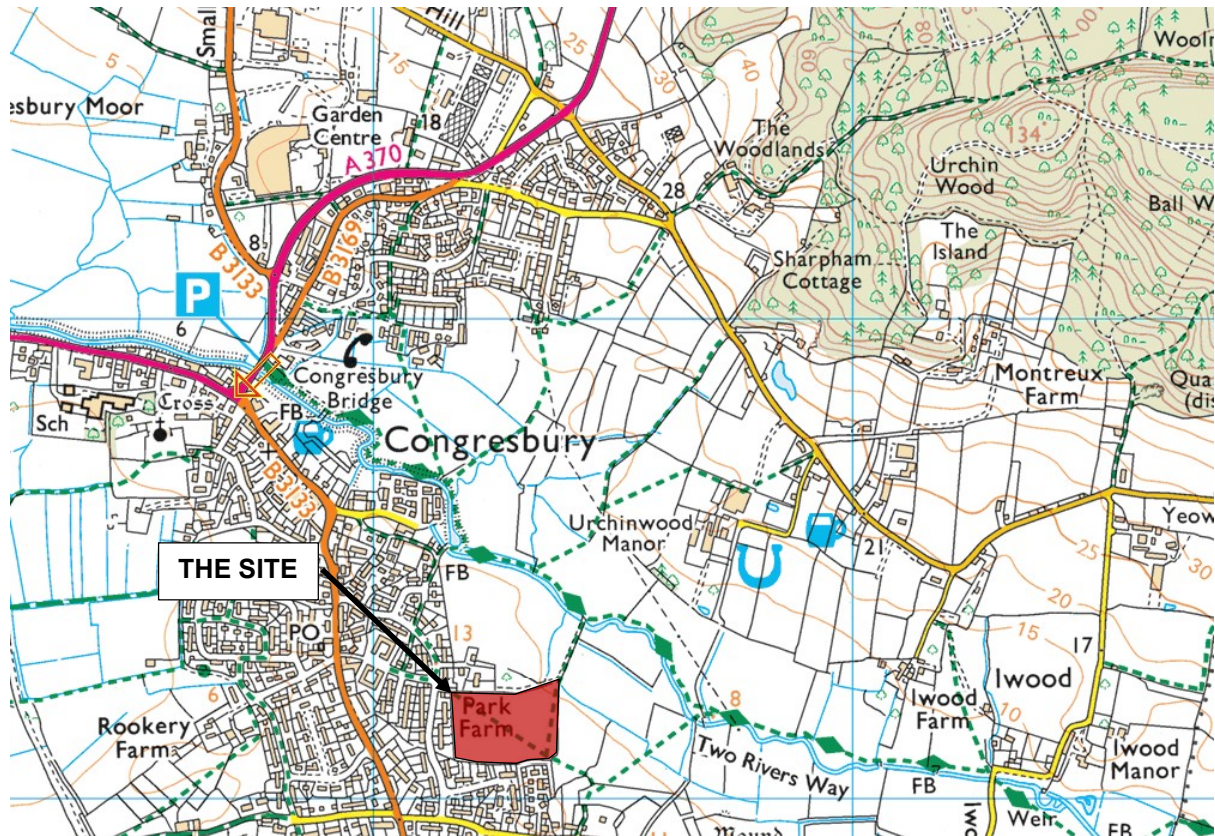
- Development location
- Flood zone 3
- Flood zone 2
- Flood zone 1
- Areas benefiting from flood defences
- Flood defence
- Main river
- Flood storage area
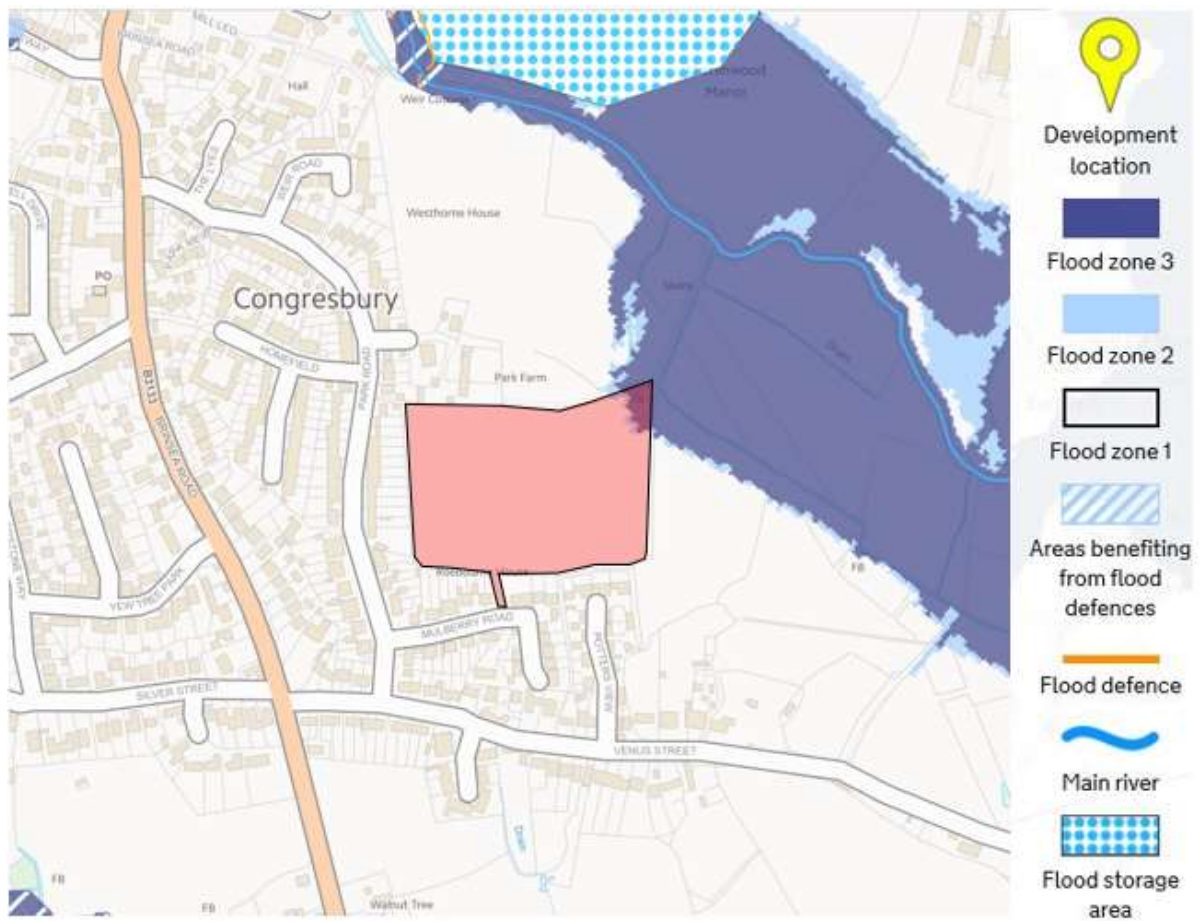
APPENDIX C
Environment Agency Data

		Our ref:	188597-WX
Steve McCarthy		**Your ref:**	
QuadConsult Ltd		**Date:**	26 October 2020
Steve.mccarthy@quadconsult.co.uk			

Dear Steve

Thank you for your enquiry which was received on 08 October 2020.

Abstract

Name	Product 4
Description	Detailed Flood Risk Assessment Map for **Mulberry Road, Congresbury**
Information Warnings	*The mapping of features provided as a background in this product is © Ordnance Survey. It is provided to give context to this product. The Open Government Licence does not apply.*
Attribution	Contains Environment Agency information © Environment Agency and/or database rights. Contains Ordnance Survey data © Crown copyright 2019 Ordnance Survey 100024198.

Flood Map for Planning

The Flood Map for Planning is now classed as Open Data. It can be downloaded free of charge under an open data licence from the following link https://data.gov.uk/publisher/environment-agency

If you search for the 'flood map for planning' in the search box the following datasets will be available for you select and download the data:

- Flood Map for Planning (Rivers and the Sea) – Flood Zones 2 and 3
- Flood Map for Planning (Rives and Sea) – Areas Benefiting from Defences
- Flood Map for Planning (Rivers and Sea) Flood Storage Areas
- Flood Map for Planning – Spatial Flood Defences (without Standard attributes)
- Recorded Flood Outlines
- Historic Flood Map
- Risk of Flooding from Surface Water Extent for:
  - → 3 percent annual chance
  - → 1 percent annual chance
  - → 0.1 percent annual chance

If you have requested this information to help inform a development proposal, then you should also note the detail in the attached advisory text on the use of Environment Agency Information and Further Guidance for FRAs.

Customer & Engagement, Wessex
Rivers House, East Quay, Bridgwater, Somerset, TA6 4YS
Phone: 02030 250 376
Email: wessexenquiries@environment-agency.gov.uk
www.environment-agency.gov.uk

Flooding history
We no longer produce pdf copies of the Historic Flood Map. This information is available to search select, and download free of charge as part of the Government's 'open data' as
- Recorded Flood Outlines
- the Historic Flood Map

These are GIS layers and can be download from: https://data.gov.uk/publisher/environment-agency

If you have requested this information to help inform a development proposal, then you should also note the detail in the attached advisory text on the use of Environment Agency Information and Further Guidance for FRAs.

Strategic Flood Risk Assessment (SFRA)

Planning
If you have questions regarding the planning nature of your enquiry, or require advice on floor levels, please contact our Sustainable Places team on NWX.SP@environment-agency.gov.uk. Please be aware that we now charge for planning advice when consulted on pre-application enquiries. This new approach provides advice to developers in two ways. Firstly there is the provision of 'free' advice available to everyone where we give a preliminary opinion on a proposed development. This sets out the environmental constraints together with any issues this raises for us. Should you wish us to review in detail any of these issues then we can do this through a chargeable scheme aimed at recovering our costs.

Flood Levels
Fluvial flood levels and depths
The attached map contains a set of modelled fluvial flood level node locations/unique identifiers, for the main river Congresbury Yeo, taken from our Congresbury Yeo and Hydrology Update 2015 model. A sheet is also attached providing the associated flood levels, NGRs and further information for the river channel relating to each of these nodes. Please note that the labels annotated to the Node Location Map are unique node identifiers and not the associated flood levels.

Node type information:
- 1D_fluvial
  - In channel nodes, no 2D element to the modelling
- 2D_fluvial
  - In channel nodes, 2D data available from the modelling
- Interpolated sections
  - Calculated weighted averages of the river or conduit section properties upstream and downstream to produce a hybrid section according to the location of the interpolated section. They are used to ensure a smooth gradation or transition between cross sections to avoid sudden variations which can cause instability in a model. This may be where the distance between surveyed cross sections is large and there is a steep gradient to the channel or other distinct changes between the two sections.
- Replicate sections
  - Used to copy the preceding river or conduit section at a distance further along the reach and at a lower level. The Replicated Section is a quick method for adding a cross-section which has exactly the same dimensions as the cross-section immediately upstream.
- Reservoir
  - Modelled measurements outside the boundary of the river channel

Interpolated and Replicate sections are not surveyed sections, however they are based on surveyed section data and the results from them can be used as long as their limitations are understood.

Please see the table below for maximum 2D depth and level information for your site for a range of return periods. Please note that the maximum flood depths include all low points within your site of interest, which include watercourses, ditches, rhynes and low ground spots.

Please be aware that models of this type could have climate change allowances of 20% and 30% applied to the current day 1% AEP (1 in 100 year) flood flow estimates. However, not all models are run for all climate change allowances. We have supplied the data that is available to us at this time.

If you intend undertaking a FRA for a planning application using climate change flood level information supplied in this letter, you should consider whether it is appropriate in light of a range of potential allowances for fluvial flood flow now advised in curent planning guidance on 'Flood risk assessments: climate change allowances'.

The relevant guidance is available at the following website address:
https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

DEFENDED

5% (1 in 20) AEP Fluvial Depth	0.89m
1% (1 in 100) AEP Fluvial Depth	0.96m
1% (1 in 100) AEP +20%CC Fluvial Depth	1.00m
1% (1 in 100) AEP +30%CC Fluvial Depth	1.01m
0.1% (1 in 1000) AEP Fluvial Depth	1.17m

5% (1 in 20) AEP Fluvial Level	8.23mAOD
1% (1 in 100) AEP Fluvial Level	8.31mAOD
1% (1 in 100) AEP +20%CC Fluvial Level	8.34mAOD
1% (1 in 100) AEP +30%CC Fluvial Level	8.36mAOD
0.1% (1 in 1000) AEP Fluvial Level	8.51mAOD

UNDEFENDED

5% (1 in 20) AEP Fluvial Depth	0.89m
1% (1 in 100) AEP Fluvial Depth	0.96m
0.1% (1 in 1000) AEP Fluvial Depth	1.06m

5% (1 in 20) AEP Fluvial Level	8.23mAOD
1% (1 in 100) AEP Fluvial Level	8.31mAOD
0.1% (1 in 1000) AEP Fluvial Level	8.41mAOD

NB 0.00 (m or mAOD) indicates the data does not reach the site

The modelled extent of the River Congresbury Yeo is from upstream at ST 38159 65841 to downstream at ST 45567 62841. Levels and depths have been extracted based upon the site boundary plan provided.

Flood Defences
Please find enclosed details of Flood Defences within the vicinity of the site boundary. This information has been taken from our Asset Information Management System database(AIMS).

Please note that flood defences can increase water levels elsewhere eg through channels being restricted by defences, or because defences prevent flood water flowing back into the river channel.

Environmental Permit for Flood Risk Activities
In addition to any other permission(s) that you may have already obtained e.g. planning permission, you may need an environmental permit for flood risk activities (formerly known as Flood Defence Consent prior to 06 April 2016) if you want to do work:

- in, under, over or near a main river (including where the river is in a culvert)
- on or near a flood defence on a main river
- in the flood plain of a main river
- on or near a sea defence

For further information and to check whether a permit is required please visit: https://www.gov.uk/guidance/flood-risk-activities-environmental-permits.

For any further advice, please contact your local Environment Agency Office, at bridgwater.frap@environment-agency.gov.uk.

Further Information
We advise that you also contact the Flood Risk Department, floodrisk@n-somerset.gov.uk , telephone 01275 888802, at North Somerset Council, Walliscote Grove Road, Weston-super-Mare, BS23 1UJ as they may be able to provide further advice with respect to localised flooding and drainage issues.

Further details about the Environment Agency information supplied can be found on our website: https://www.gov.uk/browse/environment-countryside/flooding-extreme-weather
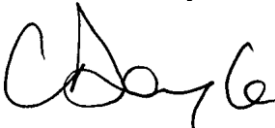
If you have requested this information to help inform a development proposal, then you should note the information on GOV.UK on the use of Environment Agency Information for FRAs:
https://www.gov.uk/planning-applications-assessing-flood-risk
https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion

We hope you find this information helpful and it is provided subject to the guidance below, which we strongly recommend you read.

Yours sincerely

Chris Doyle
Customer & Engagement, Wessex
Rivers House, East Quay, Bridgwater, Somerset, TA6 4YS
Email: wessexenquiries@environment-agency.gov.uk
Telephone number: 03708 506 506

Enc: Use of Environment Agency Information for Flood Risk Assessments (below)
            188597-WX Node Location Map
            188597-WX Node Data
            188597-WX Defence Map
            188597-WX Defence Data

Customer & Engagement, Wessex
Rivers House, East Quay, Bridgwater, Somerset, TA6 4YS
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Email: wessexenquiries@environment-agency.gov.uk
www.environment-agency.gov.uk

Use of Environment Agency Information for Flood Risk Assessments (FRAs)

Important
Use of Environment Agency data: you should note that

1. Information supplied by the Environment Agency may be used to assist in producing a Flood Risk Assessment (FRA) where one is required, but the use of Environment Agency information does not constitute such an assessment on its own.

2. As part of your data request, we have provided all of the modelled data we hold for your location. Please note that some of our modelled information may have been produced for purposes other than for flood zone generation. This may mean that some of the modelled data you have been provided with has a lower confidence level, and has not been used in producing our flood map, nor definitively reflects the predicted flood water level at the property/development site scale. To check the suitability of the use of this information in your FRA please contact your local Partnership & Strategic Overview (PSO) team.

3. This information covers flood risk from main rivers and the sea, and you will need to consider other potential sources of flooding, such as groundwater or surface water runoff. The information produced by the Local Planning Authority and the Lead Local Flood Authority (LLFA) may assist in assessing other sources of flood risk.

4. Where a planning application requires a FRA and this is not submitted or deficient, the Environment Agency may well raise an objection.

5. For more significant proposals in higher flood risk areas, we would be pleased to discuss details with you ahead of making any planning application, and you should also discuss the matter with your Local Planning Authority.

Pre-Planning Advice from the Environment Agency
If you have requested this information to help inform a development proposal, then we recommend that you undertake a formal pre-application enquiry using the form available from our website:

Pre-application Preliminary Opinion:
https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion

Pre-application Charged Service:
https://www.gov.uk/government/publications/planning-advice-environment-agency-standard-terms-and-conditions

Depending on the enquiry we may also provide advice on other issues related to our responsibilities, including flooding, waste, land contamination, water quality, biodiversity, navigation, pollution, water resources, foul drainage or Environmental Impact Assessment.

Flood Risk Assessment (FRA) Guidance
You should refer to the Planning Practice Guidance of the National Planning Policy Framework (NPPF) and the Environment Agency's Flood Risk Standing Advice for information about Flood Risk Assessment (FRA) for new development in the different Flood Zones. These documents can be accessed via:

National Planning Policy Framework Planning Practice Guidance:
http://planningguidance.planningportal.gov.uk/

Environment Agency advice on FRAs:
https://www.gov.uk/flood-risk-assessment-for-planning-applications#when-to-follow-standing-advice

https://www.gov.uk/government/publications/planning-applications-assessing-flood-risk

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Node location map centred on ST 44285 63145 - created 26/10/2020 [Ref: 188597-WX]

Environment Agency

Scale:1:8,000   at A3
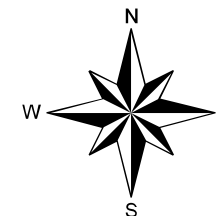
Legend

NODE_TYPE

- ★ 1D_RiverSection
- ★ 2D_RiverSection
- ★ Interpolate
- ★ Replicate
- ● Reservoir
- ▢ 188597-WX_site_boundary
- ▬ Main Rivers

Modelled Flood Level Nodes

A table that references the node locations/unique identifiers is also attached, giving associated flood levels, NGRs and further information for the river channel and model.

Map node labels: CY08709, CY09002, RBINT, CY09132, CY09197u, CY09364, CY09660u, CY09660d, CY10000, CY10262, CY10368
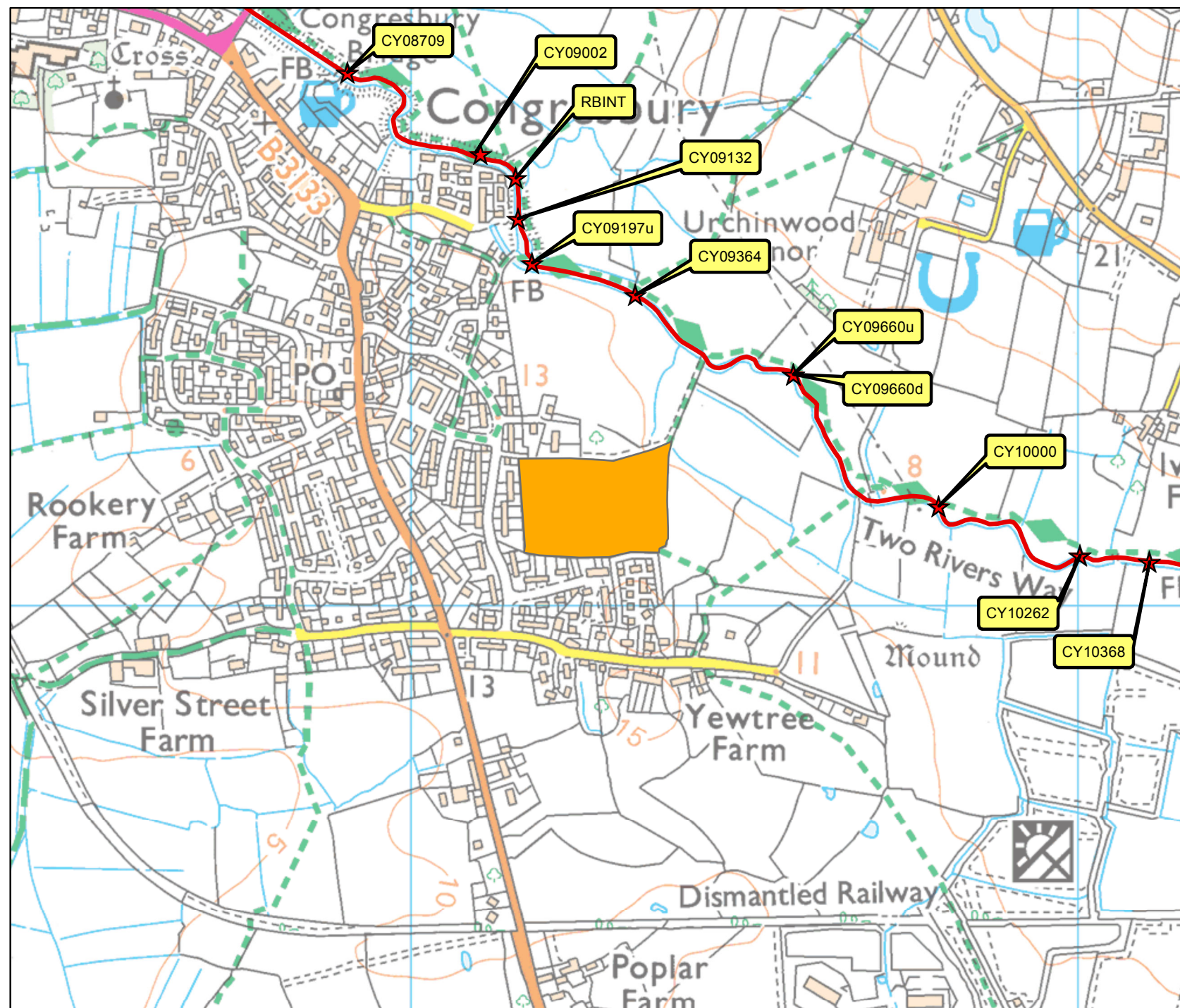
Product 4 - AIMS Information   188597-WX   Date: 19/10/2020

Map Ref	Asset ID	Asset Type	Asset Description	Approx length (m)	Right or left bank	Actual fluvial downstream crest level (mAOD)	Actual fluvial downstream crest level accuracy	Actual fluvial upstream crest level (mAOD)	Actual fluvial upstream crest level accuracy	Actual fluvial coastal crest level (mAOD)	Actual fluvial coastal crest level accuracy	NGR	Most recent inspection	Overall condition
13	117492	high_ground	Natural Bank	1128.95	left	8.01	+/->75cm	8.05	+/->75cm	DNR	DNR	ST4464663194	12/10/2020	2
14	119236	high_ground	Natural Bank	717.41	right	8.85	+/->75cm	8.90	+/->75cm	DNR	DNR	ST4480263137	12/10/2020	2
19	165340	high_ground	Natural Channel	2193.18	left	DNR	DNR	DNR	DNR	DNR	DNR	ST4601762443	12/10/2020	3
20	166742	high_ground	Natural Channel	2182.66	right	DNR	DNR	DNR	DNR	DNR	DNR	ST4599762474	12/10/2020	3
24	2726	embankment	Embankment	210.56	left	8.39	+/- 1 to 5cm	9.10	+/- 1 to 5cm	DNR	DNR	ST4397363760	12/10/2020	2
26	2674	embankment	Embankment	9.31	right	8.03	+/- 1 to 5cm	7.94	+/- 1 to 5cm	DNR	DNR	ST4375063913	14/09/2020	3
27	2675	embankment	Embankment	13.41	left	8.11	+/- 1 to 5cm	8.14	+/- 1 to 5cm	DNR	DNR	ST4373363899	14/09/2020	2
28	2725	embankment	Embankment	150.65	left	8.56	+/- 1 to 5cm	8.22	+/- 1 to 5cm	DNR	DNR	ST4375663885	12/10/2020	3
29	2727	embankment	Embankment	39.34	right	8.58	+/- 1 to 5cm	8.52	+/- 1 to 5cm	DNR	DNR	ST4376963899	12/10/2020	3
31	3389	high_ground	Natural Bank	240.54	left	8.05	+/->75cm	8.62	+/->75cm	DNR	DNR	ST4516963052	12/10/2020	3
32	3390	high_ground	Natural Bank	245.05	right	8.90	+/->75cm	9.01	+/->75cm	DNR	DNR	ST4514363069	12/10/2020	2
35	40816	wall	Abutment	14.84	left	8.08	+/- 1 to 5cm	8.15	+/- 1 to 5cm	DNR	DNR	ST4374563891	12/10/2020	2
36	41624	wall	Flood Wall (Embankment)	228.74	left	8.65	+/- 1 to 5cm	8.62	+/- 1 to 5cm	DNR	DNR	ST4412263659	12/10/2020	2
37	41625	embankment	Embankment	12.17	left	7.74	+/- 1 to 5cm	7.64	+/- 1 to 5cm	DNR	DNR	ST4417863514	12/10/2020	3
38	41626	high_ground	Natural Bank	407.98	right	7.79	+/->75cm	8.52	+/->75cm	DNR	DNR	ST4437963444	12/10/2020	2
40	45444	embankment	Floodbank used as bund for storage area.	236.64	right	8.50	+/- 1 to 5cm	8.61	+/- 1 to 5cm	DNR	DNR	ST4401763916	12/10/2020	2
43	45707	high_ground	Natural channel	70.79	left	DNR	DNR	DNR	DNR	DNR	DNR	ST4387063919	12/10/2020	2
44	45708	high_ground	Natural channel	195.26	left	DNR	DNR	DNR	DNR	DNR	DNR	ST4396963910	12/10/2020	2
45	45709	embankment	Embankment	60.80	right	8.60	+/- 1 to 5cm	8.62	+/- 1 to 5cm	DNR	DNR	ST4383463913	12/10/2020	2
46	56680	high_ground	Redundant old masonry wall	68.48	left	8.60	+/- 1 to 5cm	7.91	+/- 1 to 5cm	DNR	DNR	ST4415563533	12/10/2020	3
48	57077	embankment	Embankment	863.88	right	7.93	+/- 1 to 5cm	7.69	+/- 1 to 5cm	DNR	DNR	ST4331664004	14/09/2020	2
49	57393	embankment	Embankment	644.19	right	7.46	+/- 1 to 5cm	8.60	+/- 1 to 5cm	DNR	DNR	ST4398863727	12/10/2020	4
50	58043	embankment	Embankment	643.39	left	7.67	+/- 1 to 5cm	8.01	+/- 1 to 5cm	DNR	DNR	ST4330963982	14/09/2020	3
51	58101	embankment	Embankment	205.13	left	8.09	+/- 1 to 5cm	8.18	+/- 1 to 5cm	DNR	DNR	ST4363363921	14/09/2020	2
52	58145	wall	Abutment	14.13	right	8.20	+/- 1 to 5cm	8.05	+/- 1 to 5cm	DNR	DNR	ST4376363905	12/10/2020	2

Notes
* Overall Condition has been taken from the most recent inspection
* Inspections are of a purely visual nature and do not necessarily reflect the true condition of the asset
* Condition 1 = very good, Condtion 2 = good, Condition 3 = fair, Condition 4 = poor, Condition 5 = very
DNR = data not recorded

Environment Agency

Scale: 1:10,000

N
W   E
S

Legend

Defences

◇ bridge_abutment

◇ barrier_beach

◇ cliff

◇ demountable

◆ embankment

● flood_gate

◆ high_ground

◆ promenade

◆ quay

◆ wall

◡ beach

◡◆ dunes

Channels

◆ open_channel

◆ simple_culvert

This data has been extracted from the Asset Information Management System (AIMS) which was created to draw various data sources into one database and has been populated with information of varying quality.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk
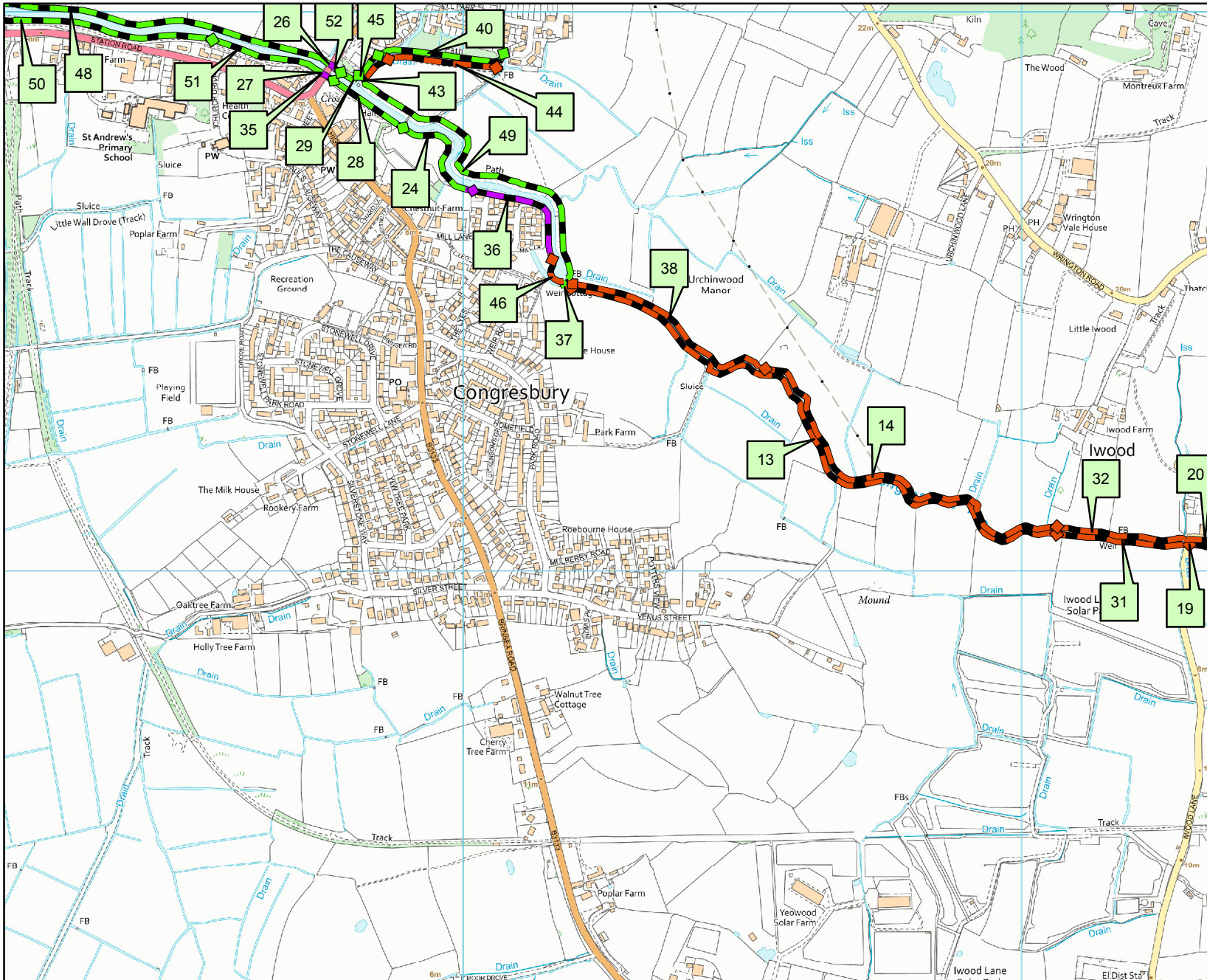
TITLE	**Congresbury Yeo 2015 update**	
MODEL DATE	**01/06/2015**	
SOFTWARE	**TUFLOW**	

SCENARIO	**Defended**

NODE	CY08709	CY09002	CY09132	CY09197u	CY09364	CY09660d	CY09660u	CY10000	CY10262	CY10368	RBINT
WATERCOURSE	Congresbury Yeo	Congresbury Yeo	Congresbury Yeo	Congresbury Yeo	Congresbury Yeo	Congresbury Yeo	Congresbury Yeo	Congresbury Yeo	Congresbury Yeo	Congresbury Yeo	Congresbury Yeo
2YR Level	6.67	6.70	6.71	7.91	7.95	8.06	8.06	8.17	8.28	8.39	6.71
2YR Flow	11.42	11.49	11.52	11.53	11.36	11.02	11.02	10.03	10.05	10.06	11.51
5YR Level	6.90	6.93	6.94	7.99	8.04	8.16	8.16	8.30	8.41	8.56	6.93
5YR Flow	13.47	13.55	13.58	13.59	13.40	13.21	13.21	11.79	11.64	11.66	13.57
10YR Level	7.06	7.09	7.10	8.03	8.07	8.21	8.21	8.35	8.47	8.63	7.09
10YR Flow	15.89	15.84	15.03	14.54	14.61	13.80	13.80	12.94	12.44	12.70	15.85
20YR Level	7.43	7.46	7.48	8.05	8.10	8.25	8.25	8.39	8.53	8.68	7.47
20YR Flow	20.38	19.60	17.43	15.36	15.82	14.60	14.60	13.83	12.84	13.46	19.63
20YR 20%CC Level	7.64	7.68	7.69	8.08	8.12	8.29	8.29	8.45	8.58	8.71	7.68
20YR 20%CC Flow	25.14	22.68	19.54	16.14	17.26	15.84	15.84	14.77	13.12	14.37	22.80
25YR Level	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
25YR Flow	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
30YR Level	7.54	7.57	7.58	8.07	8.11	8.27	8.27	8.42	8.55	8.69	7.57
30YR Flow	22.66	21.14	18.54	15.73	16.47	15.18	15.18	14.24	12.99	13.87	21.20
50YR Level	7.64	7.68	7.69	8.08	8.12	8.29	8.29	8.44	8.58	8.71	7.68
50YR Flow	25.15	22.67	19.54	16.14	17.25	15.84	15.84	14.76	13.14	14.37	22.77
75YR Level	7.71	7.75	7.76	8.09	8.13	8.31	8.31	8.47	8.61	8.72	7.76
75YR Flow	26.62	23.55	20.13	16.46	17.87	16.38	16.38	15.20	13.19	14.75	23.67
100YR Level	7.77	7.81	7.81	8.10	8.14	8.32	8.32	8.48	8.62	8.73	7.81
100YR Flow	27.35	24.06	20.48	16.69	18.32	16.79	16.79	15.51	13.23	15.03	24.22
100YR 20%CC Level	7.97	8.01	8.01	8.14	8.17	8.36	8.36	8.53	8.68	8.76	8.00
100YR 20%CC Flow	28.41	25.24	21.37	17.28	19.66	18.31	18.31	16.73	13.39	15.96	25.56
100YR 30%CC Level	8.08	8.10	8.10	8.18	8.19	8.37	8.37	8.55	8.71	8.77	8.10
100YR 30%CC Flow	29.08	25.67	21.69	17.49	20.16	19.12	19.13	17.30	13.46	16.35	26.05
100YR 40%CC Level	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
100YR 40%CC Flow	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
100YR 85%CC Level	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
100YR 85%CC Flow	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
200YR Level	7.94	7.98	7.97	8.13	8.16	8.35	8.35	8.52	8.67	8.76	7.97
200YR Flow	28.24	25.05	21.25	17.22	19.45	18.03	18.03	16.52	13.38	15.83	25.38
200YR 20%CC Level	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
200YR 20%CC Flow	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD

500YR Level	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
500YR Flow	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
1000YR Level	8.41	8.41	8.43	8.44	8.43	8.51	8.51	8.62	8.79	8.83	8.43
1000YR Flow	31.40	31.33	23.05	17.95	21.49	20.12	20.12	19.69	13.67	17.53	27.95
1000YR 20%CC Level	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
1000YR 20%CC Flow	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
TIDE 200YR	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
TIDE 1000YR	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
Eastings	343905	344105	344161	344182	344337	344574	344574	344792	345004	345108	344158
Northings	163800	163678	163580	163514	163466	163347	163347	163149	163075	163066	163641

SCENARIO **Undefended**

NODE	CY08709	CY09002	CY09132	CY09197u	CY09364	CY09660d	CY09660u	CY10000	CY10262	CY10368	RBINT
WATERCOURSE	Congresbury Yeo	Congresbury Yeo	Congresbury Yeo	Congresbury Yeo	Congresbury Yeo	Congresbury Yeo	Congresbury Yeo	Congresbury Yeo	Congresbury Yeo	Congresbury Yeo	Congresbury Yeo
2YR Level	6.08	6.16	6.19	7.91	7.95	8.06	8.06	8.17	8.28	8.39	6.17
2YR Flow	11.53	11.53	11.53	11.53	11.36	11.02	11.02	10.03	10.05	10.06	11.53
5YR Level	6.28	6.37	6.39	7.99	8.04	8.16	8.16	8.30	8.41	8.56	6.38
5YR Flow	14.50	13.69	13.59	13.59	13.40	13.21	13.21	11.79	11.64	11.66	13.70
10YR Level	6.41	6.50	6.53	8.03	8.07	8.21	8.21	8.35	8.47	8.63	6.52
10YR Flow	16.95	15.27	14.58	14.54	14.61	13.80	13.80	12.94	12.44	12.70	15.23
20YR Level	6.54	6.67	6.70	8.05	8.10	8.25	8.25	8.39	8.53	8.68	6.68
20YR Flow	19.64	17.01	15.45	15.36	15.82	14.60	14.60	13.83	12.84	13.46	16.83
20YR 20%CC Level	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
20YR 20%CC Flow	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
25YR Level	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
25YR Flow	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
30YR Level	6.61	6.74	6.78	8.07	8.11	8.27	8.27	8.42	8.55	8.69	6.76
30YR Flow	21.20	18.00	15.84	15.73	16.47	15.18	15.18	14.24	12.99	13.87	17.75
50YR Level	6.70	6.83	6.87	8.08	8.12	8.29	8.29	8.44	8.58	8.71	6.85
50YR Flow	23.27	19.18	16.32	16.14	17.25	15.84	15.84	14.76	13.14	14.37	18.84
75YR Level	6.78	6.92	6.96	8.09	8.13	8.31	8.31	8.47	8.61	8.72	6.93
75YR Flow	25.36	20.34	16.76	16.46	17.87	16.39	16.39	15.20	13.19	14.75	19.89
100YR Level	6.85	6.98	7.02	8.10	8.14	8.32	8.32	8.48	8.62	8.73	7.00
100YR Flow	26.91	21.25	17.15	16.69	18.31	16.80	16.80	15.50	13.23	15.04	20.71
100YR 20%CC Level	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
100YR 20%CC Flow	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
100YR 30%CC Level	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
100YR 30%CC Flow	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
100YR 40%CC Level	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
100YR 40%CC Flow	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
100YR 85%CC Level	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
100YR 85%CC Flow	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
200YR Level	7.01	7.11	7.16	8.11	8.16	8.35	8.35	8.52	8.67	8.76	7.13
200YR Flow	28.27	24.07	18.28	17.22	19.48	17.77	17.77	16.52	13.38	15.83	23.17
200YR 20%CC Level	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
200YR 20%CC Flow	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
500YR Level	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
500YR Flow	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD

1000YR Level	7.29	7.32	7.39	8.15	8.19	8.43	8.43	8.60	8.79	8.83	7.34
1000YR Flow	28.59	33.90	22.39	18.28	22.22	19.63	19.63	19.73	13.67	17.52	31.54
1000YR 20%CC Level	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
1000YR 20%CC Flow	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
TIDE 200YR	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
TIDE 1000YR	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD	NMD
Eastings	343905	344105	344161	344182	344337	344574	344574	344792	345004	345108	344158
Northings	163800	163678	163580	163514	163466	163347	163347	163149	163075	163066	163641

Level of confidence   **Moderate**

The model was produced to assess our flood risk management assets and the results are fit for this purpose. We have MODERATE confidence in its input data, and subsequently its results. The reason that we have MODERATE confidence in the model and its results is because the model requires verification against a known flood event. You will need to contact our Partnership and Strategic Overview Team to discuss whether the flood levels from this model are suitable for your FRA or whether they require you to carry out further work to update the modelling.

NMD   No Modelled Data

UNITS   LEVELS: mAOD

               FLOW: cumecs

Using 'Flood risk assessments: climate change allowances' following publication of new climate projections in UKCP18

Who are these messages for?

These messages are for local planning authorities and developers preparing Strategic Flood Risk Assessments (SFRAs) and site specific flood risk assessments (FRAs).

How to use these messages

These messages advise developers who need to prepare site specific flood risk assessments and all local planning authorities how to use 'Flood risk assessments: climate change allowances' (published 2016) to account for the impact of climate change on flood risk now UKCP18 has been published.

Main messages

- UKCP18 was published on 26th November 2018.

- UKCP18 is the official source of information on how the climate of the UK may change over the rest of this century. The UKCP18 projections replace the UKCP09 projections.

- The allowances in 'Flood risk assessments: climate change allowances' (published Feb 2016) are still the best national representation of how climate change is likely to affect flood risk for:

    o peak river flow

    o peak rainfall intensity

- Research that is due to be published in 2019 may result in changes to these allowances[1]. We will provide customers with more information regarding the need to update peak river flow and peak rainfall intensity allowances in due course.

- The climate change allowances for sea level rise in 'Flood risk assessments: climate change allowances' will be updated and published as early as possible in 2019. Until then, it is reasonable to continue to use the sea level rise allowances in 'Flood risk assessments: climate change allowances' (published in 2016) for planning decision making, because the allowances that have been used to date represent the high end of the range of sea level rise projected by UKCP18.

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[1] High resolution mapping providing peak river flow allowances at 1km grid resolution due to be published Spring 2019. We do not expect the peak river flow allowances provided at a regional scale in 'Flood risk assessments: climate change allowances' to change as a result of this information, however, planners and developers may need to take account of this information where it shows a significant difference to the regional allowances. High resolution (daily and sub daily) rainfall projections is due to be published in the second half of 2019. These are used to understand the impact of climate change on peak rainfall. Following this, the peak rainfall allowances in 'Flood risk assessments: climate change allowances' may need to be updated, but this will not be until late 2019 at the earliest.

- However, in exceptional cases where developments are very sensitive to flood risk and have a lifetime of at least 100 years[2], we recommend you assess the impact of both the current allowance in 'Flood risk assessments: climate change allowances' and the 95th percentile of UKCP18 'RCP 8.5' scenario (high emissions scenario) **standard method** sea level rise projections of UKCP18, and plan according to this assessed risk. You will need to calculate sea level rise allowances beyond 2100 by extrapolating the UKCP18 dataset. The Environment Agency will check your extrapolation methodology and provide advice.

- UKCP18 provides sea level rise projections for 2100 – 2300. The update of 'Flood risk assessments: climate change allowances' will include advice on using these projections. In the meantime, for development with a longer than 100 year lifetime e.g. large urban extensions, new settlements, major infrastructure, you should contact your local the Environment Agency office for advice on how to calculate such allowances.

- Where it is appropriate to use the sea level rise information in UKCP18 as described in this briefing note, planning decisions should do so from now onwards, in order to ensure planning decisions are in line with policies in the National Planning Policy Framework. However, where local plans or development proposals and associated flood risk assessments are well advanced, it will usually be acceptable make decisions based on the allowances and advice in 'Flood risk assessments: climate change allowances' (published Feb 2016) in the following circumstances:

  - local plan has been submitted for examination (before or on the day UKCP18 is published); or

  - development proposals are well advanced or where a valid planning application has already been submitted to the local planning authority (before or on the day UKCP18 is published).

- When the climate change allowances are updated, the supporting guidance will be updated at the same time to address user feedback collated since Feb 2016.

- Once 'Flood risk assessments: climate change allowances' has been updated, over time we will update our flood risk modelling to reflect the revised climate change projections. This modelling work is principally done to inform our flood risk management activities, but we will continue to share this work with planners (for SFRAs) and developers (for site-specific FRAs) when it becomes available. Where the modelling needed by planners and developers has not yet been undertaken, we may be able to work together to do this work more quickly and to share the costs. Where this is not possible, the onus will be on planners and developers to undertake the necessary work at their own cost. Contact your local Environment Agency office to find out when they plan to update their flood risk modelling and to discuss working together.

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[2] Such as infrastructure projects or developments that significantly change existing settlement patterns including urban extensions and new settlements

customer service line   **03706 506 506**   **floodline**   **03459 88 11 88**

incident hotline   **0800 80 70 60**

APPENDIX D
Greenfield Runoff & Attenuation Calculations

Description	Return period (yrs)	Urbanised peak flow (m^3/s)	Urbanised direct runoff (ML)	As-rural peak flow (m^3/s)	l/s	As-rural direct runnof (ML)
2 year	2	0.007879346	0.04874657	0.007879346	7.879346079	0.04874657
30 year	30	0.018666078	0.120743523	0.018666078	18.66607761	0.120743523
100 year	100	0.025828816	0.16867743	0.025828816	25.82881619	0.16867743

Qbar = 2year x 1.14 (Growth factor) =   8.98245453

UK Design Flood Estimation

Summary of estimate using the Flood Estimation Handbook revitalised flood hydrograph method (ReFH2)

Site details

Checksum: 4440-491E

Site name: FEH_Point_Descriptors_344227_163134

Easting: 344227

Northing: 163134

Country: England, Wales or Northern Ireland

Catchment Area (km²): 0.02

Using plot scale calculations: Yes

Model: ReFH2.3

Site description:　　　None

Model run: 2 year

Summary of results

Rainfall - FEH 2013 model (mm):	16.28	Total runoff (ML):	0.05
Total Rainfall (mm):	10.59	Total flow (ML):	0.18
Peak Rainfall (mm):	1.44	Peak flow (m³/s):	0.01

Parameters

Where the user has overriden a system-generated value, this original value is shown in square brackets after the value used.
* Indicates that the user locked the duration/timestep

Rainfall parameters (Rainfall - FEH 2013 model)

Name	Value	User-defined?
Duration (hh:mm:ss)	01:54:00	No
Timestep (hh:mm:ss)	00:06:00	No
SCF (Seasonal correction factor)	0.66	No
ARF (Areal reduction factor)	0.99	No
Seasonality	Winter	No

Loss model parameters

Name	Value	User-defined?
Cini (mm)	89.04	No
Cmax (mm)	461.09	No
Use alpha correction factor	No	No
Alpha correction factor	n/a	No

Routing model parameters

Name	Value	User-defined?
Tp (hr)	1	No
Up	0.65	No
Uk	0.8	No

Baseflow model parameters

Name	Value	User-defined?
BF0 (m³/s)	0	No
BL (hr)	32.55	No
BR	2.64	No

Urbanisation parameters

Name	Value	User-defined?
Urban area (km²)	0	No
Urbext 2000	0	No
Impervious runoff factor	0.7	No
Imperviousness factor	0.4	No
Tp scaling factor	0.75	No
Depression storage depth (mm)	0.5	No
Exporting drained area (km²)	0.00	Yes
Sewer capacity (m³/s)	0.00	Yes

Time series data

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
00:00:00	0.1198	0.0000	0.0232	0.0000	0.000585	0.000585
00:06:00	0.1617	0.0000	0.0313	0.0000	0.000583	0.000588
00:12:00	0.2179	0.0000	0.0423	0.0000	0.000582	0.000602
00:18:00	0.2932	0.0000	0.0570	0.0001	0.00058	0.000631
00:24:00	0.3937	0.0000	0.0769	0.0001	0.000579	0.000681
00:30:00	0.5273	0.0000	0.1035	0.0002	0.000578	0.000759
00:36:00	0.7035	0.0000	0.1390	0.0003	0.000579	0.000873
00:42:00	0.9332	0.0000	0.1860	0.0005	0.00058	0.00104
00:48:00	1.2223	0.0000	0.2466	0.0007	0.000583	0.00127
00:54:00	1.4438	0.0000	0.2954	0.0010	0.000588	0.00159
01:00:00	1.2223	0.0000	0.2536	0.0014	0.000596	0.00203
01:06:00	0.9332	0.0000	0.1958	0.0020	0.000608	0.00257
01:12:00	0.7035	0.0000	0.1489	0.0026	0.000624	0.0032
01:18:00	0.5273	0.0000	0.1123	0.0032	0.000646	0.00387
01:24:00	0.3937	0.0000	0.0842	0.0039	0.000673	0.00457
01:30:00	0.2932	0.0000	0.0629	0.0046	0.000705	0.00527
01:36:00	0.2179	0.0000	0.0469	0.0052	0.000743	0.00595
01:42:00	0.1617	0.0000	0.0349	0.0058	0.000785	0.00658
01:48:00	0.1198	0.0000	0.0259	0.0063	0.000832	0.00713
01:54:00	0.0000	0.0000	0.0000	0.0067	0.000882	0.00755
02:00:00	0.0000	0.0000	0.0000	0.0069	0.000934	0.0078
02:06:00	0.0000	0.0000	0.0000	0.0069	0.000987	0.00788
02:12:00	0.0000	0.0000	0.0000	0.0068	0.00104	0.00782
02:18:00	0.0000	0.0000	0.0000	0.0066	0.00109	0.00765
02:24:00	0.0000	0.0000	0.0000	0.0063	0.00114	0.0074
02:30:00	0.0000	0.0000	0.0000	0.0059	0.00118	0.00709
02:36:00	0.0000	0.0000	0.0000	0.0055	0.00123	0.00675
02:42:00	0.0000	0.0000	0.0000	0.0051	0.00127	0.00638
02:48:00	0.0000	0.0000	0.0000	0.0047	0.0013	0.006
02:54:00	0.0000	0.0000	0.0000	0.0043	0.00133	0.00563
03:00:00	0.0000	0.0000	0.0000	0.0039	0.00136	0.00528
03:06:00	0.0000	0.0000	0.0000	0.0036	0.00139	0.00497
03:12:00	0.0000	0.0000	0.0000	0.0033	0.00141	0.00468
03:18:00	0.0000	0.0000	0.0000	0.0030	0.00143	0.00442
03:24:00	0.0000	0.0000	0.0000	0.0027	0.00145	0.00417

Printed from the ReFH2 Flood Modelling software package, version 3.1.7439.12207

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
03:30:00	0.0000	0.0000	0.0000	0.0025	0.00147	0.00393
03:36:00	0.0000	0.0000	0.0000	0.0022	0.00148	0.00369
03:42:00	0.0000	0.0000	0.0000	0.0020	0.0015	0.00347
03:48:00	0.0000	0.0000	0.0000	0.0017	0.00151	0.00325
03:54:00	0.0000	0.0000	0.0000	0.0015	0.00152	0.00303
04:00:00	0.0000	0.0000	0.0000	0.0013	0.00152	0.00283
04:06:00	0.0000	0.0000	0.0000	0.0011	0.00153	0.00262
04:12:00	0.0000	0.0000	0.0000	0.0009	0.00153	0.00243
04:18:00	0.0000	0.0000	0.0000	0.0007	0.00153	0.00224
04:24:00	0.0000	0.0000	0.0000	0.0005	0.00153	0.00208
04:30:00	0.0000	0.0000	0.0000	0.0004	0.00153	0.00193
04:36:00	0.0000	0.0000	0.0000	0.0003	0.00153	0.00181
04:42:00	0.0000	0.0000	0.0000	0.0002	0.00153	0.00172
04:48:00	0.0000	0.0000	0.0000	0.0001	0.00152	0.00165
04:54:00	0.0000	0.0000	0.0000	0.0001	0.00152	0.0016
05:00:00	0.0000	0.0000	0.0000	0.0001	0.00152	0.00157
05:06:00	0.0000	0.0000	0.0000	0.0000	0.00151	0.00154
05:12:00	0.0000	0.0000	0.0000	0.0000	0.00151	0.00152
05:18:00	0.0000	0.0000	0.0000	0.0000	0.0015	0.00151
05:24:00	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015
05:30:00	0.0000	0.0000	0.0000	0.0000	0.00149	0.00149
05:36:00	0.0000	0.0000	0.0000	0.0000	0.00149	0.00149
05:42:00	0.0000	0.0000	0.0000	0.0000	0.00148	0.00148
05:48:00	0.0000	0.0000	0.0000	0.0000	0.00148	0.00148
05:54:00	0.0000	0.0000	0.0000	0.0000	0.00148	0.00148
06:00:00	0.0000	0.0000	0.0000	0.0000	0.00147	0.00147
06:06:00	0.0000	0.0000	0.0000	0.0000	0.00147	0.00147
06:12:00	0.0000	0.0000	0.0000	0.0000	0.00146	0.00146
06:18:00	0.0000	0.0000	0.0000	0.0000	0.00146	0.00146
06:24:00	0.0000	0.0000	0.0000	0.0000	0.00145	0.00145
06:30:00	0.0000	0.0000	0.0000	0.0000	0.00145	0.00145
06:36:00	0.0000	0.0000	0.0000	0.0000	0.00144	0.00144
06:42:00	0.0000	0.0000	0.0000	0.0000	0.00144	0.00144
06:48:00	0.0000	0.0000	0.0000	0.0000	0.00144	0.00144
06:54:00	0.0000	0.0000	0.0000	0.0000	0.00143	0.00143
07:00:00	0.0000	0.0000	0.0000	0.0000	0.00143	0.00143

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
07:06:00	0.0000	0.0000	0.0000	0.0000	0.00142	0.00142
07:12:00	0.0000	0.0000	0.0000	0.0000	0.00142	0.00142
07:18:00	0.0000	0.0000	0.0000	0.0000	0.00141	0.00141
07:24:00	0.0000	0.0000	0.0000	0.0000	0.00141	0.00141
07:30:00	0.0000	0.0000	0.0000	0.0000	0.0014	0.0014
07:36:00	0.0000	0.0000	0.0000	0.0000	0.0014	0.0014
07:42:00	0.0000	0.0000	0.0000	0.0000	0.0014	0.0014
07:48:00	0.0000	0.0000	0.0000	0.0000	0.00139	0.00139
07:54:00	0.0000	0.0000	0.0000	0.0000	0.00139	0.00139
08:00:00	0.0000	0.0000	0.0000	0.0000	0.00138	0.00138
08:06:00	0.0000	0.0000	0.0000	0.0000	0.00138	0.00138
08:12:00	0.0000	0.0000	0.0000	0.0000	0.00137	0.00137
08:18:00	0.0000	0.0000	0.0000	0.0000	0.00137	0.00137
08:24:00	0.0000	0.0000	0.0000	0.0000	0.00137	0.00137
08:30:00	0.0000	0.0000	0.0000	0.0000	0.00136	0.00136
08:36:00	0.0000	0.0000	0.0000	0.0000	0.00136	0.00136
08:42:00	0.0000	0.0000	0.0000	0.0000	0.00135	0.00135
08:48:00	0.0000	0.0000	0.0000	0.0000	0.00135	0.00135
08:54:00	0.0000	0.0000	0.0000	0.0000	0.00135	0.00135
09:00:00	0.0000	0.0000	0.0000	0.0000	0.00134	0.00134
09:06:00	0.0000	0.0000	0.0000	0.0000	0.00134	0.00134
09:12:00	0.0000	0.0000	0.0000	0.0000	0.00133	0.00133
09:18:00	0.0000	0.0000	0.0000	0.0000	0.00133	0.00133
09:24:00	0.0000	0.0000	0.0000	0.0000	0.00132	0.00132
09:30:00	0.0000	0.0000	0.0000	0.0000	0.00132	0.00132
09:36:00	0.0000	0.0000	0.0000	0.0000	0.00132	0.00132
09:42:00	0.0000	0.0000	0.0000	0.0000	0.00131	0.00131
09:48:00	0.0000	0.0000	0.0000	0.0000	0.00131	0.00131
09:54:00	0.0000	0.0000	0.0000	0.0000	0.0013	0.0013
10:00:00	0.0000	0.0000	0.0000	0.0000	0.0013	0.0013
10:06:00	0.0000	0.0000	0.0000	0.0000	0.0013	0.0013
10:12:00	0.0000	0.0000	0.0000	0.0000	0.00129	0.00129
10:18:00	0.0000	0.0000	0.0000	0.0000	0.00129	0.00129
10:24:00	0.0000	0.0000	0.0000	0.0000	0.00128	0.00128
10:30:00	0.0000	0.0000	0.0000	0.0000	0.00128	0.00128
10:36:00	0.0000	0.0000	0.0000	0.0000	0.00128	0.00128

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
10:42:00	0.0000	0.0000	0.0000	0.0000	0.00127	0.00127
10:48:00	0.0000	0.0000	0.0000	0.0000	0.00127	0.00127
10:54:00	0.0000	0.0000	0.0000	0.0000	0.00127	0.00127
11:00:00	0.0000	0.0000	0.0000	0.0000	0.00126	0.00126
11:06:00	0.0000	0.0000	0.0000	0.0000	0.00126	0.00126
11:12:00	0.0000	0.0000	0.0000	0.0000	0.00125	0.00125
11:18:00	0.0000	0.0000	0.0000	0.0000	0.00125	0.00125
11:24:00	0.0000	0.0000	0.0000	0.0000	0.00125	0.00125
11:30:00	0.0000	0.0000	0.0000	0.0000	0.00124	0.00124
11:36:00	0.0000	0.0000	0.0000	0.0000	0.00124	0.00124
11:42:00	0.0000	0.0000	0.0000	0.0000	0.00123	0.00123
11:48:00	0.0000	0.0000	0.0000	0.0000	0.00123	0.00123
11:54:00	0.0000	0.0000	0.0000	0.0000	0.00123	0.00123
12:00:00	0.0000	0.0000	0.0000	0.0000	0.00122	0.00122
12:06:00	0.0000	0.0000	0.0000	0.0000	0.00122	0.00122
12:12:00	0.0000	0.0000	0.0000	0.0000	0.00122	0.00122
12:18:00	0.0000	0.0000	0.0000	0.0000	0.00121	0.00121
12:24:00	0.0000	0.0000	0.0000	0.0000	0.00121	0.00121
12:30:00	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012
12:36:00	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012
12:42:00	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012
12:48:00	0.0000	0.0000	0.0000	0.0000	0.00119	0.00119
12:54:00	0.0000	0.0000	0.0000	0.0000	0.00119	0.00119
13:00:00	0.0000	0.0000	0.0000	0.0000	0.00119	0.00119
13:06:00	0.0000	0.0000	0.0000	0.0000	0.00118	0.00118
13:12:00	0.0000	0.0000	0.0000	0.0000	0.00118	0.00118
13:18:00	0.0000	0.0000	0.0000	0.0000	0.00118	0.00118
13:24:00	0.0000	0.0000	0.0000	0.0000	0.00117	0.00117
13:30:00	0.0000	0.0000	0.0000	0.0000	0.00117	0.00117
13:36:00	0.0000	0.0000	0.0000	0.0000	0.00116	0.00116
13:42:00	0.0000	0.0000	0.0000	0.0000	0.00116	0.00116
13:48:00	0.0000	0.0000	0.0000	0.0000	0.00116	0.00116
13:54:00	0.0000	0.0000	0.0000	0.0000	0.00115	0.00115
14:00:00	0.0000	0.0000	0.0000	0.0000	0.00115	0.00115
14:06:00	0.0000	0.0000	0.0000	0.0000	0.00115	0.00115
14:12:00	0.0000	0.0000	0.0000	0.0000	0.00114	0.00114

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
14:18:00	0.0000	0.0000	0.0000	0.0000	0.00114	0.00114
14:24:00	0.0000	0.0000	0.0000	0.0000	0.00114	0.00114
14:30:00	0.0000	0.0000	0.0000	0.0000	0.00113	0.00113
14:36:00	0.0000	0.0000	0.0000	0.0000	0.00113	0.00113
14:42:00	0.0000	0.0000	0.0000	0.0000	0.00113	0.00113
14:48:00	0.0000	0.0000	0.0000	0.0000	0.00112	0.00112
14:54:00	0.0000	0.0000	0.0000	0.0000	0.00112	0.00112
15:00:00	0.0000	0.0000	0.0000	0.0000	0.00112	0.00112
15:06:00	0.0000	0.0000	0.0000	0.0000	0.00111	0.00111
15:12:00	0.0000	0.0000	0.0000	0.0000	0.00111	0.00111
15:18:00	0.0000	0.0000	0.0000	0.0000	0.00111	0.00111
15:24:00	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011
15:30:00	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011
15:36:00	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011
15:42:00	0.0000	0.0000	0.0000	0.0000	0.00109	0.00109
15:48:00	0.0000	0.0000	0.0000	0.0000	0.00109	0.00109
15:54:00	0.0000	0.0000	0.0000	0.0000	0.00109	0.00109
16:00:00	0.0000	0.0000	0.0000	0.0000	0.00108	0.00108
16:06:00	0.0000	0.0000	0.0000	0.0000	0.00108	0.00108
16:12:00	0.0000	0.0000	0.0000	0.0000	0.00108	0.00108
16:18:00	0.0000	0.0000	0.0000	0.0000	0.00107	0.00107
16:24:00	0.0000	0.0000	0.0000	0.0000	0.00107	0.00107
16:30:00	0.0000	0.0000	0.0000	0.0000	0.00107	0.00107
16:36:00	0.0000	0.0000	0.0000	0.0000	0.00106	0.00106
16:42:00	0.0000	0.0000	0.0000	0.0000	0.00106	0.00106
16:48:00	0.0000	0.0000	0.0000	0.0000	0.00106	0.00106
16:54:00	0.0000	0.0000	0.0000	0.0000	0.00105	0.00105
17:00:00	0.0000	0.0000	0.0000	0.0000	0.00105	0.00105
17:06:00	0.0000	0.0000	0.0000	0.0000	0.00105	0.00105
17:12:00	0.0000	0.0000	0.0000	0.0000	0.00104	0.00104
17:18:00	0.0000	0.0000	0.0000	0.0000	0.00104	0.00104
17:24:00	0.0000	0.0000	0.0000	0.0000	0.00104	0.00104
17:30:00	0.0000	0.0000	0.0000	0.0000	0.00103	0.00103
17:36:00	0.0000	0.0000	0.0000	0.0000	0.00103	0.00103
17:42:00	0.0000	0.0000	0.0000	0.0000	0.00103	0.00103
17:48:00	0.0000	0.0000	0.0000	0.0000	0.00102	0.00102

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
17:54:00	0.0000	0.0000	0.0000	0.0000	0.00102	0.00102
18:00:00	0.0000	0.0000	0.0000	0.0000	0.00102	0.00102
18:06:00	0.0000	0.0000	0.0000	0.0000	0.00101	0.00101
18:12:00	0.0000	0.0000	0.0000	0.0000	0.00101	0.00101
18:18:00	0.0000	0.0000	0.0000	0.0000	0.00101	0.00101
18:24:00	0.0000	0.0000	0.0000	0.0000	0.001	0.001
18:30:00	0.0000	0.0000	0.0000	0.0000	0.001	0.001
18:36:00	0.0000	0.0000	0.0000	0.0000	0.000999	0.000999
18:42:00	0.0000	0.0000	0.0000	0.0000	0.000996	0.000996
18:48:00	0.0000	0.0000	0.0000	0.0000	0.000993	0.000993
18:54:00	0.0000	0.0000	0.0000	0.0000	0.00099	0.00099
19:00:00	0.0000	0.0000	0.0000	0.0000	0.000987	0.000987
19:06:00	0.0000	0.0000	0.0000	0.0000	0.000984	0.000984
19:12:00	0.0000	0.0000	0.0000	0.0000	0.00098	0.00098
19:18:00	0.0000	0.0000	0.0000	0.0000	0.000977	0.000977
19:24:00	0.0000	0.0000	0.0000	0.0000	0.000974	0.000974
19:30:00	0.0000	0.0000	0.0000	0.0000	0.000971	0.000971
19:36:00	0.0000	0.0000	0.0000	0.0000	0.000969	0.000969
19:42:00	0.0000	0.0000	0.0000	0.0000	0.000966	0.000966
19:48:00	0.0000	0.0000	0.0000	0.0000	0.000963	0.000963
19:54:00	0.0000	0.0000	0.0000	0.0000	0.00096	0.00096
20:00:00	0.0000	0.0000	0.0000	0.0000	0.000957	0.000957
20:06:00	0.0000	0.0000	0.0000	0.0000	0.000954	0.000954
20:12:00	0.0000	0.0000	0.0000	0.0000	0.000951	0.000951
20:18:00	0.0000	0.0000	0.0000	0.0000	0.000948	0.000948
20:24:00	0.0000	0.0000	0.0000	0.0000	0.000945	0.000945
20:30:00	0.0000	0.0000	0.0000	0.0000	0.000942	0.000942
20:36:00	0.0000	0.0000	0.0000	0.0000	0.000939	0.000939
20:42:00	0.0000	0.0000	0.0000	0.0000	0.000936	0.000936
20:48:00	0.0000	0.0000	0.0000	0.0000	0.000933	0.000933
20:54:00	0.0000	0.0000	0.0000	0.0000	0.000931	0.000931
21:00:00	0.0000	0.0000	0.0000	0.0000	0.000928	0.000928
21:06:00	0.0000	0.0000	0.0000	0.0000	0.000925	0.000925
21:12:00	0.0000	0.0000	0.0000	0.0000	0.000922	0.000922
21:18:00	0.0000	0.0000	0.0000	0.0000	0.000919	0.000919
21:24:00	0.0000	0.0000	0.0000	0.0000	0.000916	0.000916

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
21:30:00	0.0000	0.0000	0.0000	0.0000	0.000914	0.000914
21:36:00	0.0000	0.0000	0.0000	0.0000	0.000911	0.000911
21:42:00	0.0000	0.0000	0.0000	0.0000	0.000908	0.000908
21:48:00	0.0000	0.0000	0.0000	0.0000	0.000905	0.000905
21:54:00	0.0000	0.0000	0.0000	0.0000	0.000902	0.000902
22:00:00	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
22:06:00	0.0000	0.0000	0.0000	0.0000	0.000897	0.000897
22:12:00	0.0000	0.0000	0.0000	0.0000	0.000894	0.000894
22:18:00	0.0000	0.0000	0.0000	0.0000	0.000891	0.000891
22:24:00	0.0000	0.0000	0.0000	0.0000	0.000889	0.000889
22:30:00	0.0000	0.0000	0.0000	0.0000	0.000886	0.000886
22:36:00	0.0000	0.0000	0.0000	0.0000	0.000883	0.000883
22:42:00	0.0000	0.0000	0.0000	0.0000	0.000881	0.000881
22:48:00	0.0000	0.0000	0.0000	0.0000	0.000878	0.000878
22:54:00	0.0000	0.0000	0.0000	0.0000	0.000875	0.000875
23:00:00	0.0000	0.0000	0.0000	0.0000	0.000872	0.000872
23:06:00	0.0000	0.0000	0.0000	0.0000	0.00087	0.00087
23:12:00	0.0000	0.0000	0.0000	0.0000	0.000867	0.000867
23:18:00	0.0000	0.0000	0.0000	0.0000	0.000864	0.000864
23:24:00	0.0000	0.0000	0.0000	0.0000	0.000862	0.000862
23:30:00	0.0000	0.0000	0.0000	0.0000	0.000859	0.000859
23:36:00	0.0000	0.0000	0.0000	0.0000	0.000857	0.000857
23:42:00	0.0000	0.0000	0.0000	0.0000	0.000854	0.000854
23:48:00	0.0000	0.0000	0.0000	0.0000	0.000851	0.000851
23:54:00	0.0000	0.0000	0.0000	0.0000	0.000849	0.000849
24:00:00	0.0000	0.0000	0.0000	0.0000	0.000846	0.000846
24:06:00	0.0000	0.0000	0.0000	0.0000	0.000843	0.000843
24:12:00	0.0000	0.0000	0.0000	0.0000	0.000841	0.000841
24:18:00	0.0000	0.0000	0.0000	0.0000	0.000838	0.000838
24:24:00	0.0000	0.0000	0.0000	0.0000	0.000836	0.000836
24:30:00	0.0000	0.0000	0.0000	0.0000	0.000833	0.000833
24:36:00	0.0000	0.0000	0.0000	0.0000	0.000831	0.000831
24:42:00	0.0000	0.0000	0.0000	0.0000	0.000828	0.000828
24:48:00	0.0000	0.0000	0.0000	0.0000	0.000826	0.000826
24:54:00	0.0000	0.0000	0.0000	0.0000	0.000823	0.000823
25:00:00	0.0000	0.0000	0.0000	0.0000	0.00082	0.00082

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
25:06:00	0.0000	0.0000	0.0000	0.0000	0.000818	0.000818
25:12:00	0.0000	0.0000	0.0000	0.0000	0.000815	0.000815
25:18:00	0.0000	0.0000	0.0000	0.0000	0.000813	0.000813
25:24:00	0.0000	0.0000	0.0000	0.0000	0.00081	0.00081
25:30:00	0.0000	0.0000	0.0000	0.0000	0.000808	0.000808
25:36:00	0.0000	0.0000	0.0000	0.0000	0.000805	0.000805
25:42:00	0.0000	0.0000	0.0000	0.0000	0.000803	0.000803
25:48:00	0.0000	0.0000	0.0000	0.0000	0.000801	0.000801
25:54:00	0.0000	0.0000	0.0000	0.0000	0.000798	0.000798
26:00:00	0.0000	0.0000	0.0000	0.0000	0.000796	0.000796
26:06:00	0.0000	0.0000	0.0000	0.0000	0.000793	0.000793
26:12:00	0.0000	0.0000	0.0000	0.0000	0.000791	0.000791
26:18:00	0.0000	0.0000	0.0000	0.0000	0.000788	0.000788
26:24:00	0.0000	0.0000	0.0000	0.0000	0.000786	0.000786
26:30:00	0.0000	0.0000	0.0000	0.0000	0.000784	0.000784
26:36:00	0.0000	0.0000	0.0000	0.0000	0.000781	0.000781
26:42:00	0.0000	0.0000	0.0000	0.0000	0.000779	0.000779
26:48:00	0.0000	0.0000	0.0000	0.0000	0.000776	0.000776
26:54:00	0.0000	0.0000	0.0000	0.0000	0.000774	0.000774
27:00:00	0.0000	0.0000	0.0000	0.0000	0.000772	0.000772
27:06:00	0.0000	0.0000	0.0000	0.0000	0.000769	0.000769
27:12:00	0.0000	0.0000	0.0000	0.0000	0.000767	0.000767
27:18:00	0.0000	0.0000	0.0000	0.0000	0.000764	0.000764
27:24:00	0.0000	0.0000	0.0000	0.0000	0.000762	0.000762
27:30:00	0.0000	0.0000	0.0000	0.0000	0.00076	0.00076
27:36:00	0.0000	0.0000	0.0000	0.0000	0.000757	0.000757
27:42:00	0.0000	0.0000	0.0000	0.0000	0.000755	0.000755
27:48:00	0.0000	0.0000	0.0000	0.0000	0.000753	0.000753
27:54:00	0.0000	0.0000	0.0000	0.0000	0.000751	0.000751
28:00:00	0.0000	0.0000	0.0000	0.0000	0.000748	0.000748
28:06:00	0.0000	0.0000	0.0000	0.0000	0.000746	0.000746
28:12:00	0.0000	0.0000	0.0000	0.0000	0.000744	0.000744
28:18:00	0.0000	0.0000	0.0000	0.0000	0.000741	0.000741
28:24:00	0.0000	0.0000	0.0000	0.0000	0.000739	0.000739
28:30:00	0.0000	0.0000	0.0000	0.0000	0.000737	0.000737
28:36:00	0.0000	0.0000	0.0000	0.0000	0.000735	0.000735

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
28:42:00	0.0000	0.0000	0.0000	0.0000	0.000732	0.000732
28:48:00	0.0000	0.0000	0.0000	0.0000	0.00073	0.00073
28:54:00	0.0000	0.0000	0.0000	0.0000	0.000728	0.000728
29:00:00	0.0000	0.0000	0.0000	0.0000	0.000726	0.000726
29:06:00	0.0000	0.0000	0.0000	0.0000	0.000723	0.000723
29:12:00	0.0000	0.0000	0.0000	0.0000	0.000721	0.000721
29:18:00	0.0000	0.0000	0.0000	0.0000	0.000719	0.000719
29:24:00	0.0000	0.0000	0.0000	0.0000	0.000717	0.000717
29:30:00	0.0000	0.0000	0.0000	0.0000	0.000715	0.000715
29:36:00	0.0000	0.0000	0.0000	0.0000	0.000712	0.000712
29:42:00	0.0000	0.0000	0.0000	0.0000	0.00071	0.00071
29:48:00	0.0000	0.0000	0.0000	0.0000	0.000708	0.000708
29:54:00	0.0000	0.0000	0.0000	0.0000	0.000706	0.000706
30:00:00	0.0000	0.0000	0.0000	0.0000	0.000704	0.000704
30:06:00	0.0000	0.0000	0.0000	0.0000	0.000701	0.000701
30:12:00	0.0000	0.0000	0.0000	0.0000	0.000699	0.000699
30:18:00	0.0000	0.0000	0.0000	0.0000	0.000697	0.000697
30:24:00	0.0000	0.0000	0.0000	0.0000	0.000695	0.000695
30:30:00	0.0000	0.0000	0.0000	0.0000	0.000693	0.000693
30:36:00	0.0000	0.0000	0.0000	0.0000	0.000691	0.000691
30:42:00	0.0000	0.0000	0.0000	0.0000	0.000689	0.000689
30:48:00	0.0000	0.0000	0.0000	0.0000	0.000687	0.000687
30:54:00	0.0000	0.0000	0.0000	0.0000	0.000684	0.000684
31:00:00	0.0000	0.0000	0.0000	0.0000	0.000682	0.000682
31:06:00	0.0000	0.0000	0.0000	0.0000	0.00068	0.00068
31:12:00	0.0000	0.0000	0.0000	0.0000	0.000678	0.000678
31:18:00	0.0000	0.0000	0.0000	0.0000	0.000676	0.000676
31:24:00	0.0000	0.0000	0.0000	0.0000	0.000674	0.000674
31:30:00	0.0000	0.0000	0.0000	0.0000	0.000672	0.000672
31:36:00	0.0000	0.0000	0.0000	0.0000	0.00067	0.00067
31:42:00	0.0000	0.0000	0.0000	0.0000	0.000668	0.000668
31:48:00	0.0000	0.0000	0.0000	0.0000	0.000666	0.000666
31:54:00	0.0000	0.0000	0.0000	0.0000	0.000664	0.000664
32:00:00	0.0000	0.0000	0.0000	0.0000	0.000662	0.000662
32:06:00	0.0000	0.0000	0.0000	0.0000	0.00066	0.00066
32:12:00	0.0000	0.0000	0.0000	0.0000	0.000658	0.000658

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
32:18:00	0.0000	0.0000	0.0000	0.0000	0.000656	0.000656
32:24:00	0.0000	0.0000	0.0000	0.0000	0.000654	0.000654
32:30:00	0.0000	0.0000	0.0000	0.0000	0.000652	0.000652
32:36:00	0.0000	0.0000	0.0000	0.0000	0.00065	0.00065
32:42:00	0.0000	0.0000	0.0000	0.0000	0.000648	0.000648
32:48:00	0.0000	0.0000	0.0000	0.0000	0.000646	0.000646
32:54:00	0.0000	0.0000	0.0000	0.0000	0.000644	0.000644
33:00:00	0.0000	0.0000	0.0000	0.0000	0.000642	0.000642
33:06:00	0.0000	0.0000	0.0000	0.0000	0.00064	0.00064
33:12:00	0.0000	0.0000	0.0000	0.0000	0.000638	0.000638
33:18:00	0.0000	0.0000	0.0000	0.0000	0.000636	0.000636
33:24:00	0.0000	0.0000	0.0000	0.0000	0.000634	0.000634
33:30:00	0.0000	0.0000	0.0000	0.0000	0.000632	0.000632
33:36:00	0.0000	0.0000	0.0000	0.0000	0.00063	0.00063
33:42:00	0.0000	0.0000	0.0000	0.0000	0.000628	0.000628
33:48:00	0.0000	0.0000	0.0000	0.0000	0.000626	0.000626
33:54:00	0.0000	0.0000	0.0000	0.0000	0.000624	0.000624
34:00:00	0.0000	0.0000	0.0000	0.0000	0.000622	0.000622
34:06:00	0.0000	0.0000	0.0000	0.0000	0.00062	0.00062
34:12:00	0.0000	0.0000	0.0000	0.0000	0.000618	0.000618
34:18:00	0.0000	0.0000	0.0000	0.0000	0.000617	0.000617
34:24:00	0.0000	0.0000	0.0000	0.0000	0.000615	0.000615
34:30:00	0.0000	0.0000	0.0000	0.0000	0.000613	0.000613
34:36:00	0.0000	0.0000	0.0000	0.0000	0.000611	0.000611
34:42:00	0.0000	0.0000	0.0000	0.0000	0.000609	0.000609
34:48:00	0.0000	0.0000	0.0000	0.0000	0.000607	0.000607
34:54:00	0.0000	0.0000	0.0000	0.0000	0.000605	0.000605
35:00:00	0.0000	0.0000	0.0000	0.0000	0.000603	0.000603
35:06:00	0.0000	0.0000	0.0000	0.0000	0.000602	0.000602
35:12:00	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
35:18:00	0.0000	0.0000	0.0000	0.0000	0.000598	0.000598
35:24:00	0.0000	0.0000	0.0000	0.0000	0.000596	0.000596
35:30:00	0.0000	0.0000	0.0000	0.0000	0.000594	0.000594
35:36:00	0.0000	0.0000	0.0000	0.0000	0.000592	0.000592
35:42:00	0.0000	0.0000	0.0000	0.0000	0.000591	0.000591
35:48:00	0.0000	0.0000	0.0000	0.0000	0.000589	0.000589

Appendix

Catchment descriptors

Name	Value	User-defined value used?
BFIHOST	0.57	No
BFIHOST19	0.55	No
PROPWET (mm)	0.35	No
SAAR (mm)	835	No

UK Design Flood Estimation

Summary of estimate using the Flood Estimation Handbook revitalised flood hydrograph method (ReFH2)

Site details

Checksum: 4440-491E

Site name: FEH_Point_Descriptors_344227_163134

Easting: 344227

Northing: 163134

Country: England, Wales or Northern Ireland

Catchment Area (km²): 0.02

Using plot scale calculations: Yes

Model: ReFH2.3

Site description:　　　None

Model run: 30 year

Summary of results

Rainfall - FEH 2013 model (mm):	37.58	Total runoff (ML):	0.12
Total Rainfall (mm):	24.44	Total flow (ML):	0.43
Peak Rainfall (mm):	3.33	Peak flow (m³/s):	0.02

Parameters

Where the user has overriden a system-generated value, this original value is shown in square brackets after the value used.
* Indicates that the user locked the duration/timestep

Rainfall parameters (Rainfall - FEH 2013 model)

Name	Value	User-defined?
Duration (hh:mm:ss)	01:54:00	No
Timestep (hh:mm:ss)	00:06:00	No
SCF (Seasonal correction factor)	0.66	No
ARF (Areal reduction factor)	0.99	No
Seasonality	Winter	No

Loss model parameters

Name	Value	User-defined?
Cini (mm)	89.04	No
Cmax (mm)	461.09	No
Use alpha correction factor	No	No
Alpha correction factor	n/a	No

Routing model parameters

Name	Value	User-defined?
Tp (hr)	1	No
Up	0.65	No
Uk	0.8	No

Baseflow model parameters

Name	Value	User-defined?
BF0 (m³/s)	0	No
BL (hr)	32.55	No
BR	2.54	No

Urbanisation parameters

Name	Value	User-defined?
Urban area (km²)	0	No
Urbext 2000	0	No
Impervious runoff factor	0.7	No
Imperviousness factor	0.4	No
Tp scaling factor	0.75	No
Depression storage depth (mm)	0.5	No
Exporting drained area (km²)	0.00	Yes
Sewer capacity (m³/s)	0.00	Yes

Time series data

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
00:00:00	0.2764	0.0000	0.0535	0.0000	0.000585	0.000585
00:06:00	0.3731	0.0000	0.0724	0.0000	0.000583	0.000594
00:12:00	0.5029	0.0000	0.0981	0.0000	0.000582	0.000629
00:18:00	0.6766	0.0000	0.1329	0.0001	0.000581	0.000699
00:24:00	0.9085	0.0000	0.1800	0.0002	0.00058	0.000817
00:30:00	1.2167	0.0000	0.2438	0.0004	0.000581	0.000999
00:36:00	1.6234	0.0000	0.3303	0.0007	0.000584	0.00127
00:42:00	2.1534	0.0000	0.4469	0.0011	0.000589	0.00166
00:48:00	2.8207	0.0000	0.6006	0.0016	0.000597	0.00221
00:54:00	3.3318	0.0000	0.7317	0.0024	0.000611	0.00298
01:00:00	2.8207	0.0000	0.6383	0.0034	0.000632	0.00402
01:06:00	2.1534	0.0000	0.4989	0.0047	0.000661	0.00534
01:12:00	1.6234	0.0000	0.3828	0.0062	0.000701	0.00686
01:18:00	1.2167	0.0000	0.2906	0.0078	0.000753	0.00851
01:24:00	0.9085	0.0000	0.2191	0.0094	0.000818	0.0102
01:30:00	0.6766	0.0000	0.1643	0.0111	0.000895	0.012
01:36:00	0.5029	0.0000	0.1228	0.0127	0.000985	0.0137
01:42:00	0.3731	0.0000	0.0915	0.0142	0.00109	0.0153
01:48:00	0.2764	0.0000	0.0680	0.0155	0.0012	0.0167
01:54:00	0.0000	0.0000	0.0000	0.0164	0.00132	0.0177
02:00:00	0.0000	0.0000	0.0000	0.0170	0.00145	0.0184
02:06:00	0.0000	0.0000	0.0000	0.0171	0.00157	0.0187
02:12:00	0.0000	0.0000	0.0000	0.0169	0.0017	0.0186
02:18:00	0.0000	0.0000	0.0000	0.0163	0.00183	0.0182
02:24:00	0.0000	0.0000	0.0000	0.0156	0.00194	0.0176
02:30:00	0.0000	0.0000	0.0000	0.0148	0.00206	0.0168
02:36:00	0.0000	0.0000	0.0000	0.0138	0.00216	0.016
02:42:00	0.0000	0.0000	0.0000	0.0128	0.00226	0.0151
02:48:00	0.0000	0.0000	0.0000	0.0118	0.00235	0.0141
02:54:00	0.0000	0.0000	0.0000	0.0108	0.00243	0.0132
03:00:00	0.0000	0.0000	0.0000	0.0098	0.0025	0.0123
03:06:00	0.0000	0.0000	0.0000	0.0090	0.00257	0.0115
03:12:00	0.0000	0.0000	0.0000	0.0082	0.00263	0.0108
03:18:00	0.0000	0.0000	0.0000	0.0075	0.00268	0.0102
03:24:00	0.0000	0.0000	0.0000	0.0068	0.00273	0.00953

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
03:30:00	0.0000	0.0000	0.0000	0.0062	0.00277	0.00893
03:36:00	0.0000	0.0000	0.0000	0.0055	0.00281	0.00836
03:42:00	0.0000	0.0000	0.0000	0.0050	0.00284	0.0078
03:48:00	0.0000	0.0000	0.0000	0.0044	0.00287	0.00725
03:54:00	0.0000	0.0000	0.0000	0.0038	0.00289	0.00672
04:00:00	0.0000	0.0000	0.0000	0.0033	0.00291	0.00621
04:06:00	0.0000	0.0000	0.0000	0.0028	0.00292	0.0057
04:12:00	0.0000	0.0000	0.0000	0.0023	0.00293	0.00522
04:18:00	0.0000	0.0000	0.0000	0.0018	0.00294	0.00476
04:24:00	0.0000	0.0000	0.0000	0.0014	0.00294	0.00434
04:30:00	0.0000	0.0000	0.0000	0.0010	0.00294	0.00397
04:36:00	0.0000	0.0000	0.0000	0.0007	0.00294	0.00367
04:42:00	0.0000	0.0000	0.0000	0.0005	0.00294	0.00344
04:48:00	0.0000	0.0000	0.0000	0.0003	0.00293	0.00327
04:54:00	0.0000	0.0000	0.0000	0.0002	0.00293	0.00314
05:00:00	0.0000	0.0000	0.0000	0.0001	0.00292	0.00305
05:06:00	0.0000	0.0000	0.0000	0.0001	0.00291	0.00299
05:12:00	0.0000	0.0000	0.0000	0.0000	0.0029	0.00294
05:18:00	0.0000	0.0000	0.0000	0.0000	0.00289	0.00291
05:24:00	0.0000	0.0000	0.0000	0.0000	0.00288	0.00289
05:30:00	0.0000	0.0000	0.0000	0.0000	0.00288	0.00288
05:36:00	0.0000	0.0000	0.0000	0.0000	0.00287	0.00287
05:42:00	0.0000	0.0000	0.0000	0.0000	0.00286	0.00286
05:48:00	0.0000	0.0000	0.0000	0.0000	0.00285	0.00285
05:54:00	0.0000	0.0000	0.0000	0.0000	0.00284	0.00284
06:00:00	0.0000	0.0000	0.0000	0.0000	0.00283	0.00283
06:06:00	0.0000	0.0000	0.0000	0.0000	0.00282	0.00282
06:12:00	0.0000	0.0000	0.0000	0.0000	0.00281	0.00281
06:18:00	0.0000	0.0000	0.0000	0.0000	0.00281	0.00281
06:24:00	0.0000	0.0000	0.0000	0.0000	0.0028	0.0028
06:30:00	0.0000	0.0000	0.0000	0.0000	0.00279	0.00279
06:36:00	0.0000	0.0000	0.0000	0.0000	0.00278	0.00278
06:42:00	0.0000	0.0000	0.0000	0.0000	0.00277	0.00277
06:48:00	0.0000	0.0000	0.0000	0.0000	0.00276	0.00276
06:54:00	0.0000	0.0000	0.0000	0.0000	0.00275	0.00275
07:00:00	0.0000	0.0000	0.0000	0.0000	0.00275	0.00275

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
07:06:00	0.0000	0.0000	0.0000	0.0000	0.00274	0.00274
07:12:00	0.0000	0.0000	0.0000	0.0000	0.00273	0.00273
07:18:00	0.0000	0.0000	0.0000	0.0000	0.00272	0.00272
07:24:00	0.0000	0.0000	0.0000	0.0000	0.00271	0.00271
07:30:00	0.0000	0.0000	0.0000	0.0000	0.0027	0.0027
07:36:00	0.0000	0.0000	0.0000	0.0000	0.0027	0.0027
07:42:00	0.0000	0.0000	0.0000	0.0000	0.00269	0.00269
07:48:00	0.0000	0.0000	0.0000	0.0000	0.00268	0.00268
07:54:00	0.0000	0.0000	0.0000	0.0000	0.00267	0.00267
08:00:00	0.0000	0.0000	0.0000	0.0000	0.00266	0.00266
08:06:00	0.0000	0.0000	0.0000	0.0000	0.00265	0.00265
08:12:00	0.0000	0.0000	0.0000	0.0000	0.00265	0.00265
08:18:00	0.0000	0.0000	0.0000	0.0000	0.00264	0.00264
08:24:00	0.0000	0.0000	0.0000	0.0000	0.00263	0.00263
08:30:00	0.0000	0.0000	0.0000	0.0000	0.00262	0.00262
08:36:00	0.0000	0.0000	0.0000	0.0000	0.00261	0.00261
08:42:00	0.0000	0.0000	0.0000	0.0000	0.00261	0.00261
08:48:00	0.0000	0.0000	0.0000	0.0000	0.0026	0.0026
08:54:00	0.0000	0.0000	0.0000	0.0000	0.00259	0.00259
09:00:00	0.0000	0.0000	0.0000	0.0000	0.00258	0.00258
09:06:00	0.0000	0.0000	0.0000	0.0000	0.00257	0.00257
09:12:00	0.0000	0.0000	0.0000	0.0000	0.00257	0.00257
09:18:00	0.0000	0.0000	0.0000	0.0000	0.00256	0.00256
09:24:00	0.0000	0.0000	0.0000	0.0000	0.00255	0.00255
09:30:00	0.0000	0.0000	0.0000	0.0000	0.00254	0.00254
09:36:00	0.0000	0.0000	0.0000	0.0000	0.00253	0.00253
09:42:00	0.0000	0.0000	0.0000	0.0000	0.00253	0.00253
09:48:00	0.0000	0.0000	0.0000	0.0000	0.00252	0.00252
09:54:00	0.0000	0.0000	0.0000	0.0000	0.00251	0.00251
10:00:00	0.0000	0.0000	0.0000	0.0000	0.0025	0.0025
10:06:00	0.0000	0.0000	0.0000	0.0000	0.0025	0.0025
10:12:00	0.0000	0.0000	0.0000	0.0000	0.00249	0.00249
10:18:00	0.0000	0.0000	0.0000	0.0000	0.00248	0.00248
10:24:00	0.0000	0.0000	0.0000	0.0000	0.00247	0.00247
10:30:00	0.0000	0.0000	0.0000	0.0000	0.00247	0.00247
10:36:00	0.0000	0.0000	0.0000	0.0000	0.00246	0.00246

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
10:42:00	0.0000	0.0000	0.0000	0.0000	0.00245	0.00245
10:48:00	0.0000	0.0000	0.0000	0.0000	0.00244	0.00244
10:54:00	0.0000	0.0000	0.0000	0.0000	0.00244	0.00244
11:00:00	0.0000	0.0000	0.0000	0.0000	0.00243	0.00243
11:06:00	0.0000	0.0000	0.0000	0.0000	0.00242	0.00242
11:12:00	0.0000	0.0000	0.0000	0.0000	0.00241	0.00241
11:18:00	0.0000	0.0000	0.0000	0.0000	0.00241	0.00241
11:24:00	0.0000	0.0000	0.0000	0.0000	0.0024	0.0024
11:30:00	0.0000	0.0000	0.0000	0.0000	0.00239	0.00239
11:36:00	0.0000	0.0000	0.0000	0.0000	0.00238	0.00238
11:42:00	0.0000	0.0000	0.0000	0.0000	0.00238	0.00238
11:48:00	0.0000	0.0000	0.0000	0.0000	0.00237	0.00237
11:54:00	0.0000	0.0000	0.0000	0.0000	0.00236	0.00236
12:00:00	0.0000	0.0000	0.0000	0.0000	0.00235	0.00235
12:06:00	0.0000	0.0000	0.0000	0.0000	0.00235	0.00235
12:12:00	0.0000	0.0000	0.0000	0.0000	0.00234	0.00234
12:18:00	0.0000	0.0000	0.0000	0.0000	0.00233	0.00233
12:24:00	0.0000	0.0000	0.0000	0.0000	0.00233	0.00233
12:30:00	0.0000	0.0000	0.0000	0.0000	0.00232	0.00232
12:36:00	0.0000	0.0000	0.0000	0.0000	0.00231	0.00231
12:42:00	0.0000	0.0000	0.0000	0.0000	0.0023	0.0023
12:48:00	0.0000	0.0000	0.0000	0.0000	0.0023	0.0023
12:54:00	0.0000	0.0000	0.0000	0.0000	0.00229	0.00229
13:00:00	0.0000	0.0000	0.0000	0.0000	0.00228	0.00228
13:06:00	0.0000	0.0000	0.0000	0.0000	0.00228	0.00228
13:12:00	0.0000	0.0000	0.0000	0.0000	0.00227	0.00227
13:18:00	0.0000	0.0000	0.0000	0.0000	0.00226	0.00226
13:24:00	0.0000	0.0000	0.0000	0.0000	0.00226	0.00226
13:30:00	0.0000	0.0000	0.0000	0.0000	0.00225	0.00225
13:36:00	0.0000	0.0000	0.0000	0.0000	0.00224	0.00224
13:42:00	0.0000	0.0000	0.0000	0.0000	0.00223	0.00223
13:48:00	0.0000	0.0000	0.0000	0.0000	0.00223	0.00223
13:54:00	0.0000	0.0000	0.0000	0.0000	0.00222	0.00222
14:00:00	0.0000	0.0000	0.0000	0.0000	0.00221	0.00221
14:06:00	0.0000	0.0000	0.0000	0.0000	0.00221	0.00221
14:12:00	0.0000	0.0000	0.0000	0.0000	0.0022	0.0022

Printed from the ReFH2 Flood Modelling software package, version 3.1.7439.12207

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
14:18:00	0.0000	0.0000	0.0000	0.0000	0.00219	0.00219
14:24:00	0.0000	0.0000	0.0000	0.0000	0.00219	0.00219
14:30:00	0.0000	0.0000	0.0000	0.0000	0.00218	0.00218
14:36:00	0.0000	0.0000	0.0000	0.0000	0.00217	0.00217
14:42:00	0.0000	0.0000	0.0000	0.0000	0.00217	0.00217
14:48:00	0.0000	0.0000	0.0000	0.0000	0.00216	0.00216
14:54:00	0.0000	0.0000	0.0000	0.0000	0.00215	0.00215
15:00:00	0.0000	0.0000	0.0000	0.0000	0.00215	0.00215
15:06:00	0.0000	0.0000	0.0000	0.0000	0.00214	0.00214
15:12:00	0.0000	0.0000	0.0000	0.0000	0.00213	0.00213
15:18:00	0.0000	0.0000	0.0000	0.0000	0.00213	0.00213
15:24:00	0.0000	0.0000	0.0000	0.0000	0.00212	0.00212
15:30:00	0.0000	0.0000	0.0000	0.0000	0.00211	0.00211
15:36:00	0.0000	0.0000	0.0000	0.0000	0.00211	0.00211
15:42:00	0.0000	0.0000	0.0000	0.0000	0.0021	0.0021
15:48:00	0.0000	0.0000	0.0000	0.0000	0.0021	0.0021
15:54:00	0.0000	0.0000	0.0000	0.0000	0.00209	0.00209
16:00:00	0.0000	0.0000	0.0000	0.0000	0.00208	0.00208
16:06:00	0.0000	0.0000	0.0000	0.0000	0.00208	0.00208
16:12:00	0.0000	0.0000	0.0000	0.0000	0.00207	0.00207
16:18:00	0.0000	0.0000	0.0000	0.0000	0.00206	0.00206
16:24:00	0.0000	0.0000	0.0000	0.0000	0.00206	0.00206
16:30:00	0.0000	0.0000	0.0000	0.0000	0.00205	0.00205
16:36:00	0.0000	0.0000	0.0000	0.0000	0.00204	0.00204
16:42:00	0.0000	0.0000	0.0000	0.0000	0.00204	0.00204
16:48:00	0.0000	0.0000	0.0000	0.0000	0.00203	0.00203
16:54:00	0.0000	0.0000	0.0000	0.0000	0.00203	0.00203
17:00:00	0.0000	0.0000	0.0000	0.0000	0.00202	0.00202
17:06:00	0.0000	0.0000	0.0000	0.0000	0.00201	0.00201
17:12:00	0.0000	0.0000	0.0000	0.0000	0.00201	0.00201
17:18:00	0.0000	0.0000	0.0000	0.0000	0.002	0.002
17:24:00	0.0000	0.0000	0.0000	0.0000	0.00199	0.00199
17:30:00	0.0000	0.0000	0.0000	0.0000	0.00199	0.00199
17:36:00	0.0000	0.0000	0.0000	0.0000	0.00198	0.00198
17:42:00	0.0000	0.0000	0.0000	0.0000	0.00198	0.00198
17:48:00	0.0000	0.0000	0.0000	0.0000	0.00197	0.00197

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
17:54:00	0.0000	0.0000	0.0000	0.0000	0.00196	0.00196
18:00:00	0.0000	0.0000	0.0000	0.0000	0.00196	0.00196
18:06:00	0.0000	0.0000	0.0000	0.0000	0.00195	0.00195
18:12:00	0.0000	0.0000	0.0000	0.0000	0.00195	0.00195
18:18:00	0.0000	0.0000	0.0000	0.0000	0.00194	0.00194
18:24:00	0.0000	0.0000	0.0000	0.0000	0.00193	0.00193
18:30:00	0.0000	0.0000	0.0000	0.0000	0.00193	0.00193
18:36:00	0.0000	0.0000	0.0000	0.0000	0.00192	0.00192
18:42:00	0.0000	0.0000	0.0000	0.0000	0.00192	0.00192
18:48:00	0.0000	0.0000	0.0000	0.0000	0.00191	0.00191
18:54:00	0.0000	0.0000	0.0000	0.0000	0.0019	0.0019
19:00:00	0.0000	0.0000	0.0000	0.0000	0.0019	0.0019
19:06:00	0.0000	0.0000	0.0000	0.0000	0.00189	0.00189
19:12:00	0.0000	0.0000	0.0000	0.0000	0.00189	0.00189
19:18:00	0.0000	0.0000	0.0000	0.0000	0.00188	0.00188
19:24:00	0.0000	0.0000	0.0000	0.0000	0.00188	0.00188
19:30:00	0.0000	0.0000	0.0000	0.0000	0.00187	0.00187
19:36:00	0.0000	0.0000	0.0000	0.0000	0.00186	0.00186
19:42:00	0.0000	0.0000	0.0000	0.0000	0.00186	0.00186
19:48:00	0.0000	0.0000	0.0000	0.0000	0.00185	0.00185
19:54:00	0.0000	0.0000	0.0000	0.0000	0.00185	0.00185
20:00:00	0.0000	0.0000	0.0000	0.0000	0.00184	0.00184
20:06:00	0.0000	0.0000	0.0000	0.0000	0.00184	0.00184
20:12:00	0.0000	0.0000	0.0000	0.0000	0.00183	0.00183
20:18:00	0.0000	0.0000	0.0000	0.0000	0.00182	0.00182
20:24:00	0.0000	0.0000	0.0000	0.0000	0.00182	0.00182
20:30:00	0.0000	0.0000	0.0000	0.0000	0.00181	0.00181
20:36:00	0.0000	0.0000	0.0000	0.0000	0.00181	0.00181
20:42:00	0.0000	0.0000	0.0000	0.0000	0.0018	0.0018
20:48:00	0.0000	0.0000	0.0000	0.0000	0.0018	0.0018
20:54:00	0.0000	0.0000	0.0000	0.0000	0.00179	0.00179
21:00:00	0.0000	0.0000	0.0000	0.0000	0.00179	0.00179
21:06:00	0.0000	0.0000	0.0000	0.0000	0.00178	0.00178
21:12:00	0.0000	0.0000	0.0000	0.0000	0.00177	0.00177
21:18:00	0.0000	0.0000	0.0000	0.0000	0.00177	0.00177
21:24:00	0.0000	0.0000	0.0000	0.0000	0.00176	0.00176

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
21:30:00	0.0000	0.0000	0.0000	0.0000	0.00176	0.00176
21:36:00	0.0000	0.0000	0.0000	0.0000	0.00175	0.00175
21:42:00	0.0000	0.0000	0.0000	0.0000	0.00175	0.00175
21:48:00	0.0000	0.0000	0.0000	0.0000	0.00174	0.00174
21:54:00	0.0000	0.0000	0.0000	0.0000	0.00174	0.00174
22:00:00	0.0000	0.0000	0.0000	0.0000	0.00173	0.00173
22:06:00	0.0000	0.0000	0.0000	0.0000	0.00173	0.00173
22:12:00	0.0000	0.0000	0.0000	0.0000	0.00172	0.00172
22:18:00	0.0000	0.0000	0.0000	0.0000	0.00172	0.00172
22:24:00	0.0000	0.0000	0.0000	0.0000	0.00171	0.00171
22:30:00	0.0000	0.0000	0.0000	0.0000	0.00171	0.00171
22:36:00	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017
22:42:00	0.0000	0.0000	0.0000	0.0000	0.00169	0.00169
22:48:00	0.0000	0.0000	0.0000	0.0000	0.00169	0.00169
22:54:00	0.0000	0.0000	0.0000	0.0000	0.00168	0.00168
23:00:00	0.0000	0.0000	0.0000	0.0000	0.00168	0.00168
23:06:00	0.0000	0.0000	0.0000	0.0000	0.00167	0.00167
23:12:00	0.0000	0.0000	0.0000	0.0000	0.00167	0.00167
23:18:00	0.0000	0.0000	0.0000	0.0000	0.00166	0.00166
23:24:00	0.0000	0.0000	0.0000	0.0000	0.00166	0.00166
23:30:00	0.0000	0.0000	0.0000	0.0000	0.00165	0.00165
23:36:00	0.0000	0.0000	0.0000	0.0000	0.00165	0.00165
23:42:00	0.0000	0.0000	0.0000	0.0000	0.00164	0.00164
23:48:00	0.0000	0.0000	0.0000	0.0000	0.00164	0.00164
23:54:00	0.0000	0.0000	0.0000	0.0000	0.00163	0.00163
24:00:00	0.0000	0.0000	0.0000	0.0000	0.00163	0.00163
24:06:00	0.0000	0.0000	0.0000	0.0000	0.00162	0.00162
24:12:00	0.0000	0.0000	0.0000	0.0000	0.00162	0.00162
24:18:00	0.0000	0.0000	0.0000	0.0000	0.00161	0.00161
24:24:00	0.0000	0.0000	0.0000	0.0000	0.00161	0.00161
24:30:00	0.0000	0.0000	0.0000	0.0000	0.0016	0.0016
24:36:00	0.0000	0.0000	0.0000	0.0000	0.0016	0.0016
24:42:00	0.0000	0.0000	0.0000	0.0000	0.00159	0.00159
24:48:00	0.0000	0.0000	0.0000	0.0000	0.00159	0.00159
24:54:00	0.0000	0.0000	0.0000	0.0000	0.00158	0.00158
25:00:00	0.0000	0.0000	0.0000	0.0000	0.00158	0.00158

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
25:06:00	0.0000	0.0000	0.0000	0.0000	0.00157	0.00157
25:12:00	0.0000	0.0000	0.0000	0.0000	0.00157	0.00157
25:18:00	0.0000	0.0000	0.0000	0.0000	0.00156	0.00156
25:24:00	0.0000	0.0000	0.0000	0.0000	0.00156	0.00156
25:30:00	0.0000	0.0000	0.0000	0.0000	0.00156	0.00156
25:36:00	0.0000	0.0000	0.0000	0.0000	0.00155	0.00155
25:42:00	0.0000	0.0000	0.0000	0.0000	0.00155	0.00155
25:48:00	0.0000	0.0000	0.0000	0.0000	0.00154	0.00154
25:54:00	0.0000	0.0000	0.0000	0.0000	0.00154	0.00154
26:00:00	0.0000	0.0000	0.0000	0.0000	0.00153	0.00153
26:06:00	0.0000	0.0000	0.0000	0.0000	0.00153	0.00153
26:12:00	0.0000	0.0000	0.0000	0.0000	0.00152	0.00152
26:18:00	0.0000	0.0000	0.0000	0.0000	0.00152	0.00152
26:24:00	0.0000	0.0000	0.0000	0.0000	0.00151	0.00151
26:30:00	0.0000	0.0000	0.0000	0.0000	0.00151	0.00151
26:36:00	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015
26:42:00	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015
26:48:00	0.0000	0.0000	0.0000	0.0000	0.00149	0.00149
26:54:00	0.0000	0.0000	0.0000	0.0000	0.00149	0.00149
27:00:00	0.0000	0.0000	0.0000	0.0000	0.00149	0.00149
27:06:00	0.0000	0.0000	0.0000	0.0000	0.00148	0.00148
27:12:00	0.0000	0.0000	0.0000	0.0000	0.00148	0.00148
27:18:00	0.0000	0.0000	0.0000	0.0000	0.00147	0.00147
27:24:00	0.0000	0.0000	0.0000	0.0000	0.00147	0.00147
27:30:00	0.0000	0.0000	0.0000	0.0000	0.00146	0.00146
27:36:00	0.0000	0.0000	0.0000	0.0000	0.00146	0.00146
27:42:00	0.0000	0.0000	0.0000	0.0000	0.00145	0.00145
27:48:00	0.0000	0.0000	0.0000	0.0000	0.00145	0.00145
27:54:00	0.0000	0.0000	0.0000	0.0000	0.00144	0.00144
28:00:00	0.0000	0.0000	0.0000	0.0000	0.00144	0.00144
28:06:00	0.0000	0.0000	0.0000	0.0000	0.00144	0.00144
28:12:00	0.0000	0.0000	0.0000	0.0000	0.00143	0.00143
28:18:00	0.0000	0.0000	0.0000	0.0000	0.00143	0.00143
28:24:00	0.0000	0.0000	0.0000	0.0000	0.00142	0.00142
28:30:00	0.0000	0.0000	0.0000	0.0000	0.00142	0.00142
28:36:00	0.0000	0.0000	0.0000	0.0000	0.00141	0.00141

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
28:42:00	0.0000	0.0000	0.0000	0.0000	0.00141	0.00141
28:48:00	0.0000	0.0000	0.0000	0.0000	0.00141	0.00141
28:54:00	0.0000	0.0000	0.0000	0.0000	0.0014	0.0014
29:00:00	0.0000	0.0000	0.0000	0.0000	0.0014	0.0014
29:06:00	0.0000	0.0000	0.0000	0.0000	0.00139	0.00139
29:12:00	0.0000	0.0000	0.0000	0.0000	0.00139	0.00139
29:18:00	0.0000	0.0000	0.0000	0.0000	0.00138	0.00138
29:24:00	0.0000	0.0000	0.0000	0.0000	0.00138	0.00138
29:30:00	0.0000	0.0000	0.0000	0.0000	0.00138	0.00138
29:36:00	0.0000	0.0000	0.0000	0.0000	0.00137	0.00137
29:42:00	0.0000	0.0000	0.0000	0.0000	0.00137	0.00137
29:48:00	0.0000	0.0000	0.0000	0.0000	0.00136	0.00136
29:54:00	0.0000	0.0000	0.0000	0.0000	0.00136	0.00136
30:00:00	0.0000	0.0000	0.0000	0.0000	0.00135	0.00135
30:06:00	0.0000	0.0000	0.0000	0.0000	0.00135	0.00135
30:12:00	0.0000	0.0000	0.0000	0.0000	0.00135	0.00135
30:18:00	0.0000	0.0000	0.0000	0.0000	0.00134	0.00134
30:24:00	0.0000	0.0000	0.0000	0.0000	0.00134	0.00134
30:30:00	0.0000	0.0000	0.0000	0.0000	0.00133	0.00133
30:36:00	0.0000	0.0000	0.0000	0.0000	0.00133	0.00133
30:42:00	0.0000	0.0000	0.0000	0.0000	0.00133	0.00133
30:48:00	0.0000	0.0000	0.0000	0.0000	0.00132	0.00132
30:54:00	0.0000	0.0000	0.0000	0.0000	0.00132	0.00132
31:00:00	0.0000	0.0000	0.0000	0.0000	0.00131	0.00131
31:06:00	0.0000	0.0000	0.0000	0.0000	0.00131	0.00131
31:12:00	0.0000	0.0000	0.0000	0.0000	0.00131	0.00131
31:18:00	0.0000	0.0000	0.0000	0.0000	0.0013	0.0013
31:24:00	0.0000	0.0000	0.0000	0.0000	0.0013	0.0013
31:30:00	0.0000	0.0000	0.0000	0.0000	0.00129	0.00129
31:36:00	0.0000	0.0000	0.0000	0.0000	0.00129	0.00129
31:42:00	0.0000	0.0000	0.0000	0.0000	0.00129	0.00129
31:48:00	0.0000	0.0000	0.0000	0.0000	0.00128	0.00128
31:54:00	0.0000	0.0000	0.0000	0.0000	0.00128	0.00128
32:00:00	0.0000	0.0000	0.0000	0.0000	0.00127	0.00127
32:06:00	0.0000	0.0000	0.0000	0.0000	0.00127	0.00127
32:12:00	0.0000	0.0000	0.0000	0.0000	0.00127	0.00127

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
32:18:00	0.0000	0.0000	0.0000	0.0000	0.00126	0.00126
32:24:00	0.0000	0.0000	0.0000	0.0000	0.00126	0.00126
32:30:00	0.0000	0.0000	0.0000	0.0000	0.00125	0.00125
32:36:00	0.0000	0.0000	0.0000	0.0000	0.00125	0.00125
32:42:00	0.0000	0.0000	0.0000	0.0000	0.00125	0.00125
32:48:00	0.0000	0.0000	0.0000	0.0000	0.00124	0.00124
32:54:00	0.0000	0.0000	0.0000	0.0000	0.00124	0.00124
33:00:00	0.0000	0.0000	0.0000	0.0000	0.00124	0.00124
33:06:00	0.0000	0.0000	0.0000	0.0000	0.00123	0.00123
33:12:00	0.0000	0.0000	0.0000	0.0000	0.00123	0.00123
33:18:00	0.0000	0.0000	0.0000	0.0000	0.00122	0.00122
33:24:00	0.0000	0.0000	0.0000	0.0000	0.00122	0.00122
33:30:00	0.0000	0.0000	0.0000	0.0000	0.00122	0.00122
33:36:00	0.0000	0.0000	0.0000	0.0000	0.00121	0.00121
33:42:00	0.0000	0.0000	0.0000	0.0000	0.00121	0.00121
33:48:00	0.0000	0.0000	0.0000	0.0000	0.00121	0.00121
33:54:00	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012
34:00:00	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012
34:06:00	0.0000	0.0000	0.0000	0.0000	0.00119	0.00119
34:12:00	0.0000	0.0000	0.0000	0.0000	0.00119	0.00119
34:18:00	0.0000	0.0000	0.0000	0.0000	0.00119	0.00119
34:24:00	0.0000	0.0000	0.0000	0.0000	0.00118	0.00118
34:30:00	0.0000	0.0000	0.0000	0.0000	0.00118	0.00118
34:36:00	0.0000	0.0000	0.0000	0.0000	0.00118	0.00118
34:42:00	0.0000	0.0000	0.0000	0.0000	0.00117	0.00117
34:48:00	0.0000	0.0000	0.0000	0.0000	0.00117	0.00117
34:54:00	0.0000	0.0000	0.0000	0.0000	0.00117	0.00117
35:00:00	0.0000	0.0000	0.0000	0.0000	0.00116	0.00116
35:06:00	0.0000	0.0000	0.0000	0.0000	0.00116	0.00116
35:12:00	0.0000	0.0000	0.0000	0.0000	0.00115	0.00115
35:18:00	0.0000	0.0000	0.0000	0.0000	0.00115	0.00115
35:24:00	0.0000	0.0000	0.0000	0.0000	0.00115	0.00115
35:30:00	0.0000	0.0000	0.0000	0.0000	0.00114	0.00114
35:36:00	0.0000	0.0000	0.0000	0.0000	0.00114	0.00114
35:42:00	0.0000	0.0000	0.0000	0.0000	0.00114	0.00114
35:48:00	0.0000	0.0000	0.0000	0.0000	0.00113	0.00113

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
35:54:00	0.0000	0.0000	0.0000	0.0000	0.00113	0.00113
36:00:00	0.0000	0.0000	0.0000	0.0000	0.00113	0.00113
36:06:00	0.0000	0.0000	0.0000	0.0000	0.00112	0.00112
36:12:00	0.0000	0.0000	0.0000	0.0000	0.00112	0.00112
36:18:00	0.0000	0.0000	0.0000	0.0000	0.00112	0.00112
36:24:00	0.0000	0.0000	0.0000	0.0000	0.00111	0.00111
36:30:00	0.0000	0.0000	0.0000	0.0000	0.00111	0.00111
36:36:00	0.0000	0.0000	0.0000	0.0000	0.00111	0.00111
36:42:00	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011
36:48:00	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011
36:54:00	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011
37:00:00	0.0000	0.0000	0.0000	0.0000	0.00109	0.00109
37:06:00	0.0000	0.0000	0.0000	0.0000	0.00109	0.00109
37:12:00	0.0000	0.0000	0.0000	0.0000	0.00109	0.00109
37:18:00	0.0000	0.0000	0.0000	0.0000	0.00108	0.00108
37:24:00	0.0000	0.0000	0.0000	0.0000	0.00108	0.00108
37:30:00	0.0000	0.0000	0.0000	0.0000	0.00108	0.00108
37:36:00	0.0000	0.0000	0.0000	0.0000	0.00107	0.00107
37:42:00	0.0000	0.0000	0.0000	0.0000	0.00107	0.00107
37:48:00	0.0000	0.0000	0.0000	0.0000	0.00107	0.00107
37:54:00	0.0000	0.0000	0.0000	0.0000	0.00106	0.00106
38:00:00	0.0000	0.0000	0.0000	0.0000	0.00106	0.00106
38:06:00	0.0000	0.0000	0.0000	0.0000	0.00106	0.00106
38:12:00	0.0000	0.0000	0.0000	0.0000	0.00105	0.00105
38:18:00	0.0000	0.0000	0.0000	0.0000	0.00105	0.00105
38:24:00	0.0000	0.0000	0.0000	0.0000	0.00105	0.00105
38:30:00	0.0000	0.0000	0.0000	0.0000	0.00104	0.00104
38:36:00	0.0000	0.0000	0.0000	0.0000	0.00104	0.00104
38:42:00	0.0000	0.0000	0.0000	0.0000	0.00104	0.00104
38:48:00	0.0000	0.0000	0.0000	0.0000	0.00103	0.00103
38:54:00	0.0000	0.0000	0.0000	0.0000	0.00103	0.00103
39:00:00	0.0000	0.0000	0.0000	0.0000	0.00103	0.00103
39:06:00	0.0000	0.0000	0.0000	0.0000	0.00102	0.00102
39:12:00	0.0000	0.0000	0.0000	0.0000	0.00102	0.00102
39:18:00	0.0000	0.0000	0.0000	0.0000	0.00102	0.00102
39:24:00	0.0000	0.0000	0.0000	0.0000	0.00101	0.00101

Printed from the ReFH2 Flood Modelling software package, version 3.1.7439.12207

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
39:30:00	0.0000	0.0000	0.0000	0.0000	0.00101	0.00101
39:36:00	0.0000	0.0000	0.0000	0.0000	0.00101	0.00101
39:42:00	0.0000	0.0000	0.0000	0.0000	0.00101	0.00101
39:48:00	0.0000	0.0000	0.0000	0.0000	0.001	0.001
39:54:00	0.0000	0.0000	0.0000	0.0000	0.000999	0.000999
40:00:00	0.0000	0.0000	0.0000	0.0000	0.000996	0.000996
40:06:00	0.0000	0.0000	0.0000	0.0000	0.000993	0.000993
40:12:00	0.0000	0.0000	0.0000	0.0000	0.00099	0.00099
40:18:00	0.0000	0.0000	0.0000	0.0000	0.000987	0.000987
40:24:00	0.0000	0.0000	0.0000	0.0000	0.000984	0.000984
40:30:00	0.0000	0.0000	0.0000	0.0000	0.000981	0.000981
40:36:00	0.0000	0.0000	0.0000	0.0000	0.000978	0.000978
40:42:00	0.0000	0.0000	0.0000	0.0000	0.000975	0.000975
40:48:00	0.0000	0.0000	0.0000	0.0000	0.000972	0.000972
40:54:00	0.0000	0.0000	0.0000	0.0000	0.000969	0.000969
41:00:00	0.0000	0.0000	0.0000	0.0000	0.000966	0.000966
41:06:00	0.0000	0.0000	0.0000	0.0000	0.000963	0.000963
41:12:00	0.0000	0.0000	0.0000	0.0000	0.00096	0.00096
41:18:00	0.0000	0.0000	0.0000	0.0000	0.000957	0.000957
41:24:00	0.0000	0.0000	0.0000	0.0000	0.000954	0.000954
41:30:00	0.0000	0.0000	0.0000	0.0000	0.000951	0.000951
41:36:00	0.0000	0.0000	0.0000	0.0000	0.000948	0.000948
41:42:00	0.0000	0.0000	0.0000	0.0000	0.000945	0.000945
41:48:00	0.0000	0.0000	0.0000	0.0000	0.000943	0.000943
41:54:00	0.0000	0.0000	0.0000	0.0000	0.00094	0.00094
42:00:00	0.0000	0.0000	0.0000	0.0000	0.000937	0.000937
42:06:00	0.0000	0.0000	0.0000	0.0000	0.000934	0.000934
42:12:00	0.0000	0.0000	0.0000	0.0000	0.000931	0.000931
42:18:00	0.0000	0.0000	0.0000	0.0000	0.000928	0.000928
42:24:00	0.0000	0.0000	0.0000	0.0000	0.000925	0.000925
42:30:00	0.0000	0.0000	0.0000	0.0000	0.000923	0.000923
42:36:00	0.0000	0.0000	0.0000	0.0000	0.00092	0.00092
42:42:00	0.0000	0.0000	0.0000	0.0000	0.000917	0.000917
42:48:00	0.0000	0.0000	0.0000	0.0000	0.000914	0.000914
42:54:00	0.0000	0.0000	0.0000	0.0000	0.000911	0.000911
43:00:00	0.0000	0.0000	0.0000	0.0000	0.000908	0.000908

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
43:06:00	0.0000	0.0000	0.0000	0.0000	0.000906	0.000906
43:12:00	0.0000	0.0000	0.0000	0.0000	0.000903	0.000903
43:18:00	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009
43:24:00	0.0000	0.0000	0.0000	0.0000	0.000897	0.000897
43:30:00	0.0000	0.0000	0.0000	0.0000	0.000895	0.000895
43:36:00	0.0000	0.0000	0.0000	0.0000	0.000892	0.000892
43:42:00	0.0000	0.0000	0.0000	0.0000	0.000889	0.000889
43:48:00	0.0000	0.0000	0.0000	0.0000	0.000886	0.000886
43:54:00	0.0000	0.0000	0.0000	0.0000	0.000884	0.000884
44:00:00	0.0000	0.0000	0.0000	0.0000	0.000881	0.000881
44:06:00	0.0000	0.0000	0.0000	0.0000	0.000878	0.000878
44:12:00	0.0000	0.0000	0.0000	0.0000	0.000876	0.000876
44:18:00	0.0000	0.0000	0.0000	0.0000	0.000873	0.000873
44:24:00	0.0000	0.0000	0.0000	0.0000	0.00087	0.00087
44:30:00	0.0000	0.0000	0.0000	0.0000	0.000868	0.000868
44:36:00	0.0000	0.0000	0.0000	0.0000	0.000865	0.000865
44:42:00	0.0000	0.0000	0.0000	0.0000	0.000862	0.000862
44:48:00	0.0000	0.0000	0.0000	0.0000	0.00086	0.00086
44:54:00	0.0000	0.0000	0.0000	0.0000	0.000857	0.000857
45:00:00	0.0000	0.0000	0.0000	0.0000	0.000854	0.000854
45:06:00	0.0000	0.0000	0.0000	0.0000	0.000852	0.000852
45:12:00	0.0000	0.0000	0.0000	0.0000	0.000849	0.000849
45:18:00	0.0000	0.0000	0.0000	0.0000	0.000847	0.000847
45:24:00	0.0000	0.0000	0.0000	0.0000	0.000844	0.000844
45:30:00	0.0000	0.0000	0.0000	0.0000	0.000841	0.000841
45:36:00	0.0000	0.0000	0.0000	0.0000	0.000839	0.000839
45:42:00	0.0000	0.0000	0.0000	0.0000	0.000836	0.000836
45:48:00	0.0000	0.0000	0.0000	0.0000	0.000834	0.000834
45:54:00	0.0000	0.0000	0.0000	0.0000	0.000831	0.000831
46:00:00	0.0000	0.0000	0.0000	0.0000	0.000828	0.000828
46:06:00	0.0000	0.0000	0.0000	0.0000	0.000826	0.000826
46:12:00	0.0000	0.0000	0.0000	0.0000	0.000823	0.000823
46:18:00	0.0000	0.0000	0.0000	0.0000	0.000821	0.000821
46:24:00	0.0000	0.0000	0.0000	0.0000	0.000818	0.000818
46:30:00	0.0000	0.0000	0.0000	0.0000	0.000816	0.000816
46:36:00	0.0000	0.0000	0.0000	0.0000	0.000813	0.000813

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
46:42:00	0.0000	0.0000	0.0000	0.0000	0.000811	0.000811
46:48:00	0.0000	0.0000	0.0000	0.0000	0.000808	0.000808
46:54:00	0.0000	0.0000	0.0000	0.0000	0.000806	0.000806
47:00:00	0.0000	0.0000	0.0000	0.0000	0.000803	0.000803
47:06:00	0.0000	0.0000	0.0000	0.0000	0.000801	0.000801
47:12:00	0.0000	0.0000	0.0000	0.0000	0.000799	0.000799
47:18:00	0.0000	0.0000	0.0000	0.0000	0.000796	0.000796
47:24:00	0.0000	0.0000	0.0000	0.0000	0.000794	0.000794
47:30:00	0.0000	0.0000	0.0000	0.0000	0.000791	0.000791
47:36:00	0.0000	0.0000	0.0000	0.0000	0.000789	0.000789
47:42:00	0.0000	0.0000	0.0000	0.0000	0.000786	0.000786
47:48:00	0.0000	0.0000	0.0000	0.0000	0.000784	0.000784
47:54:00	0.0000	0.0000	0.0000	0.0000	0.000782	0.000782
48:00:00	0.0000	0.0000	0.0000	0.0000	0.000779	0.000779
48:06:00	0.0000	0.0000	0.0000	0.0000	0.000777	0.000777
48:12:00	0.0000	0.0000	0.0000	0.0000	0.000774	0.000774
48:18:00	0.0000	0.0000	0.0000	0.0000	0.000772	0.000772
48:24:00	0.0000	0.0000	0.0000	0.0000	0.00077	0.00077
48:30:00	0.0000	0.0000	0.0000	0.0000	0.000767	0.000767
48:36:00	0.0000	0.0000	0.0000	0.0000	0.000765	0.000765
48:42:00	0.0000	0.0000	0.0000	0.0000	0.000763	0.000763
48:48:00	0.0000	0.0000	0.0000	0.0000	0.00076	0.00076
48:54:00	0.0000	0.0000	0.0000	0.0000	0.000758	0.000758
49:00:00	0.0000	0.0000	0.0000	0.0000	0.000756	0.000756
49:06:00	0.0000	0.0000	0.0000	0.0000	0.000753	0.000753
49:12:00	0.0000	0.0000	0.0000	0.0000	0.000751	0.000751
49:18:00	0.0000	0.0000	0.0000	0.0000	0.000749	0.000749
49:24:00	0.0000	0.0000	0.0000	0.0000	0.000746	0.000746
49:30:00	0.0000	0.0000	0.0000	0.0000	0.000744	0.000744
49:36:00	0.0000	0.0000	0.0000	0.0000	0.000742	0.000742
49:42:00	0.0000	0.0000	0.0000	0.0000	0.000739	0.000739
49:48:00	0.0000	0.0000	0.0000	0.0000	0.000737	0.000737
49:54:00	0.0000	0.0000	0.0000	0.0000	0.000735	0.000735
50:00:00	0.0000	0.0000	0.0000	0.0000	0.000733	0.000733
50:06:00	0.0000	0.0000	0.0000	0.0000	0.00073	0.00073
50:12:00	0.0000	0.0000	0.0000	0.0000	0.000728	0.000728

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
50:18:00	0.0000	0.0000	0.0000	0.0000	0.000726	0.000726
50:24:00	0.0000	0.0000	0.0000	0.0000	0.000724	0.000724
50:30:00	0.0000	0.0000	0.0000	0.0000	0.000722	0.000722
50:36:00	0.0000	0.0000	0.0000	0.0000	0.000719	0.000719
50:42:00	0.0000	0.0000	0.0000	0.0000	0.000717	0.000717
50:48:00	0.0000	0.0000	0.0000	0.0000	0.000715	0.000715
50:54:00	0.0000	0.0000	0.0000	0.0000	0.000713	0.000713
51:00:00	0.0000	0.0000	0.0000	0.0000	0.000711	0.000711
51:06:00	0.0000	0.0000	0.0000	0.0000	0.000708	0.000708
51:12:00	0.0000	0.0000	0.0000	0.0000	0.000706	0.000706
51:18:00	0.0000	0.0000	0.0000	0.0000	0.000704	0.000704
51:24:00	0.0000	0.0000	0.0000	0.0000	0.000702	0.000702
51:30:00	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007
51:36:00	0.0000	0.0000	0.0000	0.0000	0.000698	0.000698
51:42:00	0.0000	0.0000	0.0000	0.0000	0.000695	0.000695
51:48:00	0.0000	0.0000	0.0000	0.0000	0.000693	0.000693
51:54:00	0.0000	0.0000	0.0000	0.0000	0.000691	0.000691
52:00:00	0.0000	0.0000	0.0000	0.0000	0.000689	0.000689
52:06:00	0.0000	0.0000	0.0000	0.0000	0.000687	0.000687
52:12:00	0.0000	0.0000	0.0000	0.0000	0.000685	0.000685
52:18:00	0.0000	0.0000	0.0000	0.0000	0.000683	0.000683
52:24:00	0.0000	0.0000	0.0000	0.0000	0.000681	0.000681
52:30:00	0.0000	0.0000	0.0000	0.0000	0.000679	0.000679
52:36:00	0.0000	0.0000	0.0000	0.0000	0.000676	0.000676
52:42:00	0.0000	0.0000	0.0000	0.0000	0.000674	0.000674
52:48:00	0.0000	0.0000	0.0000	0.0000	0.000672	0.000672
52:54:00	0.0000	0.0000	0.0000	0.0000	0.00067	0.00067
53:00:00	0.0000	0.0000	0.0000	0.0000	0.000668	0.000668
53:06:00	0.0000	0.0000	0.0000	0.0000	0.000666	0.000666
53:12:00	0.0000	0.0000	0.0000	0.0000	0.000664	0.000664
53:18:00	0.0000	0.0000	0.0000	0.0000	0.000662	0.000662
53:24:00	0.0000	0.0000	0.0000	0.0000	0.00066	0.00066
53:30:00	0.0000	0.0000	0.0000	0.0000	0.000658	0.000658
53:36:00	0.0000	0.0000	0.0000	0.0000	0.000656	0.000656
53:42:00	0.0000	0.0000	0.0000	0.0000	0.000654	0.000654
53:48:00	0.0000	0.0000	0.0000	0.0000	0.000652	0.000652

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
53:54:00	0.0000	0.0000	0.0000	0.0000	0.00065	0.00065
54:00:00	0.0000	0.0000	0.0000	0.0000	0.000648	0.000648
54:06:00	0.0000	0.0000	0.0000	0.0000	0.000646	0.000646
54:12:00	0.0000	0.0000	0.0000	0.0000	0.000644	0.000644
54:18:00	0.0000	0.0000	0.0000	0.0000	0.000642	0.000642
54:24:00	0.0000	0.0000	0.0000	0.0000	0.00064	0.00064
54:30:00	0.0000	0.0000	0.0000	0.0000	0.000638	0.000638
54:36:00	0.0000	0.0000	0.0000	0.0000	0.000636	0.000636
54:42:00	0.0000	0.0000	0.0000	0.0000	0.000634	0.000634
54:48:00	0.0000	0.0000	0.0000	0.0000	0.000632	0.000632
54:54:00	0.0000	0.0000	0.0000	0.0000	0.00063	0.00063
55:00:00	0.0000	0.0000	0.0000	0.0000	0.000628	0.000628
55:06:00	0.0000	0.0000	0.0000	0.0000	0.000626	0.000626
55:12:00	0.0000	0.0000	0.0000	0.0000	0.000625	0.000625
55:18:00	0.0000	0.0000	0.0000	0.0000	0.000623	0.000623
55:24:00	0.0000	0.0000	0.0000	0.0000	0.000621	0.000621
55:30:00	0.0000	0.0000	0.0000	0.0000	0.000619	0.000619
55:36:00	0.0000	0.0000	0.0000	0.0000	0.000617	0.000617
55:42:00	0.0000	0.0000	0.0000	0.0000	0.000615	0.000615
55:48:00	0.0000	0.0000	0.0000	0.0000	0.000613	0.000613
55:54:00	0.0000	0.0000	0.0000	0.0000	0.000611	0.000611
56:00:00	0.0000	0.0000	0.0000	0.0000	0.000609	0.000609
56:06:00	0.0000	0.0000	0.0000	0.0000	0.000607	0.000607
56:12:00	0.0000	0.0000	0.0000	0.0000	0.000606	0.000606
56:18:00	0.0000	0.0000	0.0000	0.0000	0.000604	0.000604
56:24:00	0.0000	0.0000	0.0000	0.0000	0.000602	0.000602
56:30:00	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006
56:36:00	0.0000	0.0000	0.0000	0.0000	0.000598	0.000598
56:42:00	0.0000	0.0000	0.0000	0.0000	0.000596	0.000596
56:48:00	0.0000	0.0000	0.0000	0.0000	0.000595	0.000595
56:54:00	0.0000	0.0000	0.0000	0.0000	0.000593	0.000593
57:00:00	0.0000	0.0000	0.0000	0.0000	0.000591	0.000591
57:06:00	0.0000	0.0000	0.0000	0.0000	0.000589	0.000589

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Appendix

Catchment descriptors

Name	Value	User-defined value used?
BFIHOST	0.57	No
BFIHOST19	0.55	No
PROPWET (mm)	0.35	No
SAAR (mm)	835	No

UK Design Flood Estimation

Summary of estimate using the Flood Estimation Handbook revitalised flood hydrograph method (ReFH2)

Site details   Checksum: 4440-491E

Site name: FEH_Point_Descriptors_344227_163134

Easting: 344227

Northing: 163134

Country: England, Wales or Northern Ireland

Catchment Area (km²): 0.02

Using plot scale calculations: Yes

Model: ReFH2.3

Site description: None

Model run: 100 year

Summary of results

Rainfall - FEH 2013 model (mm):	50.41	Total runoff (ML):	0.17
Total Rainfall (mm):	32.78	Total flow (ML):	0.59
Peak Rainfall (mm):	4.47	Peak flow (m³/s):	0.03

Parameters

Where the user has overriden a system-generated value, this original value is shown in square brackets after the value used.
* Indicates that the user locked the duration/timestep

Rainfall parameters (Rainfall - FEH 2013 model)

Name	Value	User-defined?
Duration (hh:mm:ss)	01:54:00	No
Timestep (hh:mm:ss)	00:06:00	No
SCF (Seasonal correction factor)	0.66	No
ARF (Areal reduction factor)	0.99	No
Seasonality	Winter	No

Loss model parameters

Name	Value	User-defined?
Cini (mm)	89.04	No
Cmax (mm)	461.09	No
Use alpha correction factor	No	No
Alpha correction factor	n/a	No

Routing model parameters

Name	Value	User-defined?
Tp (hr)	1	No
Up	0.65	No
Uk	0.8	No

Baseflow model parameters

Name	Value	User-defined?
BF0 (m³/s)	0	No
BL (hr)	32.55	No
BR	2.49	No

Urbanisation parameters

Name	Value	User-defined?
Urban area (km²)	0	No
Urbext 2000	0	No
Impervious runoff factor	0.7	No
Imperviousness factor	0.4	No
Tp scaling factor	0.75	No
Depression storage depth (mm)	0.5	No
Exporting drained area (km²)	0.00	Yes
Sewer capacity (m³/s)	0.00	Yes

Time series data

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
00:00:00	0.3709	0.0000	0.0718	0.0000	0.000585	0.000585
00:06:00	0.5006	0.0000	0.0973	0.0000	0.000583	0.000598
00:12:00	0.6747	0.0000	0.1321	0.0001	0.000582	0.000645
00:18:00	0.9078	0.0000	0.1793	0.0002	0.000581	0.00074
00:24:00	1.2190	0.0000	0.2435	0.0003	0.000581	0.000899
00:30:00	1.6324	0.0000	0.3311	0.0006	0.000583	0.00115
00:36:00	2.1781	0.0000	0.4508	0.0009	0.000587	0.00151
00:42:00	2.8891	0.0000	0.6139	0.0014	0.000594	0.00204
00:48:00	3.7845	0.0000	0.8315	0.0022	0.000606	0.00279
00:54:00	4.4702	0.0000	1.0222	0.0032	0.000624	0.00384
01:00:00	3.7845	0.0000	0.8993	0.0046	0.000652	0.00527
01:06:00	2.8891	0.0000	0.7074	0.0064	0.000692	0.00708
01:12:00	2.1781	0.0000	0.5453	0.0084	0.000747	0.00918
01:18:00	1.6324	0.0000	0.4154	0.0107	0.000817	0.0115
01:24:00	1.2190	0.0000	0.3140	0.0130	0.000905	0.0139
01:30:00	0.9078	0.0000	0.2359	0.0153	0.00101	0.0163
01:36:00	0.6747	0.0000	0.1765	0.0176	0.00113	0.0187
01:42:00	0.5006	0.0000	0.1316	0.0197	0.00127	0.0209
01:48:00	0.3709	0.0000	0.0978	0.0215	0.00142	0.0229
01:54:00	0.0000	0.0000	0.0000	0.0229	0.00159	0.0245
02:00:00	0.0000	0.0000	0.0000	0.0237	0.00176	0.0255
02:06:00	0.0000	0.0000	0.0000	0.0239	0.00194	0.0258
02:12:00	0.0000	0.0000	0.0000	0.0236	0.00211	0.0257
02:18:00	0.0000	0.0000	0.0000	0.0229	0.00228	0.0252
02:24:00	0.0000	0.0000	0.0000	0.0219	0.00245	0.0244
02:30:00	0.0000	0.0000	0.0000	0.0207	0.0026	0.0233
02:36:00	0.0000	0.0000	0.0000	0.0194	0.00275	0.0221
02:42:00	0.0000	0.0000	0.0000	0.0180	0.00288	0.0209
02:48:00	0.0000	0.0000	0.0000	0.0166	0.003	0.0196
02:54:00	0.0000	0.0000	0.0000	0.0151	0.00312	0.0183
03:00:00	0.0000	0.0000	0.0000	0.0138	0.00322	0.017
03:06:00	0.0000	0.0000	0.0000	0.0126	0.00331	0.0159
03:12:00	0.0000	0.0000	0.0000	0.0115	0.00339	0.0149
03:18:00	0.0000	0.0000	0.0000	0.0105	0.00346	0.014
03:24:00	0.0000	0.0000	0.0000	0.0096	0.00353	0.0131

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
03:30:00	0.0000	0.0000	0.0000	0.0087	0.00359	0.0123
03:36:00	0.0000	0.0000	0.0000	0.0078	0.00364	0.0115
03:42:00	0.0000	0.0000	0.0000	0.0070	0.00368	0.0107
03:48:00	0.0000	0.0000	0.0000	0.0062	0.00372	0.00991
03:54:00	0.0000	0.0000	0.0000	0.0054	0.00376	0.00917
04:00:00	0.0000	0.0000	0.0000	0.0047	0.00378	0.00844
04:06:00	0.0000	0.0000	0.0000	0.0039	0.0038	0.00774
04:12:00	0.0000	0.0000	0.0000	0.0032	0.00382	0.00706
04:18:00	0.0000	0.0000	0.0000	0.0026	0.00383	0.00641
04:24:00	0.0000	0.0000	0.0000	0.0020	0.00384	0.00582
04:30:00	0.0000	0.0000	0.0000	0.0015	0.00384	0.0053
04:36:00	0.0000	0.0000	0.0000	0.0010	0.00384	0.00488
04:42:00	0.0000	0.0000	0.0000	0.0007	0.00383	0.00455
04:48:00	0.0000	0.0000	0.0000	0.0005	0.00382	0.00431
04:54:00	0.0000	0.0000	0.0000	0.0003	0.00381	0.00413
05:00:00	0.0000	0.0000	0.0000	0.0002	0.0038	0.004
05:06:00	0.0000	0.0000	0.0000	0.0001	0.00379	0.0039
05:12:00	0.0000	0.0000	0.0000	0.0001	0.00378	0.00384
05:18:00	0.0000	0.0000	0.0000	0.0000	0.00377	0.00379
05:24:00	0.0000	0.0000	0.0000	0.0000	0.00376	0.00377
05:30:00	0.0000	0.0000	0.0000	0.0000	0.00375	0.00375
05:36:00	0.0000	0.0000	0.0000	0.0000	0.00374	0.00374
05:42:00	0.0000	0.0000	0.0000	0.0000	0.00373	0.00373
05:48:00	0.0000	0.0000	0.0000	0.0000	0.00371	0.00371
05:54:00	0.0000	0.0000	0.0000	0.0000	0.0037	0.0037
06:00:00	0.0000	0.0000	0.0000	0.0000	0.00369	0.00369
06:06:00	0.0000	0.0000	0.0000	0.0000	0.00368	0.00368
06:12:00	0.0000	0.0000	0.0000	0.0000	0.00367	0.00367
06:18:00	0.0000	0.0000	0.0000	0.0000	0.00366	0.00366
06:24:00	0.0000	0.0000	0.0000	0.0000	0.00365	0.00365
06:30:00	0.0000	0.0000	0.0000	0.0000	0.00364	0.00364
06:36:00	0.0000	0.0000	0.0000	0.0000	0.00362	0.00362
06:42:00	0.0000	0.0000	0.0000	0.0000	0.00361	0.00361
06:48:00	0.0000	0.0000	0.0000	0.0000	0.0036	0.0036
06:54:00	0.0000	0.0000	0.0000	0.0000	0.00359	0.00359
07:00:00	0.0000	0.0000	0.0000	0.0000	0.00358	0.00358

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
07:06:00	0.0000	0.0000	0.0000	0.0000	0.00357	0.00357
07:12:00	0.0000	0.0000	0.0000	0.0000	0.00356	0.00356
07:18:00	0.0000	0.0000	0.0000	0.0000	0.00355	0.00355
07:24:00	0.0000	0.0000	0.0000	0.0000	0.00354	0.00354
07:30:00	0.0000	0.0000	0.0000	0.0000	0.00353	0.00353
07:36:00	0.0000	0.0000	0.0000	0.0000	0.00351	0.00351
07:42:00	0.0000	0.0000	0.0000	0.0000	0.0035	0.0035
07:48:00	0.0000	0.0000	0.0000	0.0000	0.00349	0.00349
07:54:00	0.0000	0.0000	0.0000	0.0000	0.00348	0.00348
08:00:00	0.0000	0.0000	0.0000	0.0000	0.00347	0.00347
08:06:00	0.0000	0.0000	0.0000	0.0000	0.00346	0.00346
08:12:00	0.0000	0.0000	0.0000	0.0000	0.00345	0.00345
08:18:00	0.0000	0.0000	0.0000	0.0000	0.00344	0.00344
08:24:00	0.0000	0.0000	0.0000	0.0000	0.00343	0.00343
08:30:00	0.0000	0.0000	0.0000	0.0000	0.00342	0.00342
08:36:00	0.0000	0.0000	0.0000	0.0000	0.00341	0.00341
08:42:00	0.0000	0.0000	0.0000	0.0000	0.0034	0.0034
08:48:00	0.0000	0.0000	0.0000	0.0000	0.00339	0.00339
08:54:00	0.0000	0.0000	0.0000	0.0000	0.00338	0.00338
09:00:00	0.0000	0.0000	0.0000	0.0000	0.00337	0.00337
09:06:00	0.0000	0.0000	0.0000	0.0000	0.00336	0.00336
09:12:00	0.0000	0.0000	0.0000	0.0000	0.00335	0.00335
09:18:00	0.0000	0.0000	0.0000	0.0000	0.00334	0.00334
09:24:00	0.0000	0.0000	0.0000	0.0000	0.00333	0.00333
09:30:00	0.0000	0.0000	0.0000	0.0000	0.00332	0.00332
09:36:00	0.0000	0.0000	0.0000	0.0000	0.00331	0.00331
09:42:00	0.0000	0.0000	0.0000	0.0000	0.0033	0.0033
09:48:00	0.0000	0.0000	0.0000	0.0000	0.00329	0.00329
09:54:00	0.0000	0.0000	0.0000	0.0000	0.00327	0.00327
10:00:00	0.0000	0.0000	0.0000	0.0000	0.00326	0.00326
10:06:00	0.0000	0.0000	0.0000	0.0000	0.00325	0.00325
10:12:00	0.0000	0.0000	0.0000	0.0000	0.00324	0.00324
10:18:00	0.0000	0.0000	0.0000	0.0000	0.00323	0.00323
10:24:00	0.0000	0.0000	0.0000	0.0000	0.00323	0.00323
10:30:00	0.0000	0.0000	0.0000	0.0000	0.00322	0.00322
10:36:00	0.0000	0.0000	0.0000	0.0000	0.00321	0.00321

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
10:42:00	0.0000	0.0000	0.0000	0.0000	0.0032	0.0032
10:48:00	0.0000	0.0000	0.0000	0.0000	0.00319	0.00319
10:54:00	0.0000	0.0000	0.0000	0.0000	0.00318	0.00318
11:00:00	0.0000	0.0000	0.0000	0.0000	0.00317	0.00317
11:06:00	0.0000	0.0000	0.0000	0.0000	0.00316	0.00316
11:12:00	0.0000	0.0000	0.0000	0.0000	0.00315	0.00315
11:18:00	0.0000	0.0000	0.0000	0.0000	0.00314	0.00314
11:24:00	0.0000	0.0000	0.0000	0.0000	0.00313	0.00313
11:30:00	0.0000	0.0000	0.0000	0.0000	0.00312	0.00312
11:36:00	0.0000	0.0000	0.0000	0.0000	0.00311	0.00311
11:42:00	0.0000	0.0000	0.0000	0.0000	0.0031	0.0031
11:48:00	0.0000	0.0000	0.0000	0.0000	0.00309	0.00309
11:54:00	0.0000	0.0000	0.0000	0.0000	0.00308	0.00308
12:00:00	0.0000	0.0000	0.0000	0.0000	0.00307	0.00307
12:06:00	0.0000	0.0000	0.0000	0.0000	0.00306	0.00306
12:12:00	0.0000	0.0000	0.0000	0.0000	0.00305	0.00305
12:18:00	0.0000	0.0000	0.0000	0.0000	0.00304	0.00304
12:24:00	0.0000	0.0000	0.0000	0.0000	0.00303	0.00303
12:30:00	0.0000	0.0000	0.0000	0.0000	0.00302	0.00302
12:36:00	0.0000	0.0000	0.0000	0.0000	0.00301	0.00301
12:42:00	0.0000	0.0000	0.0000	0.0000	0.00301	0.00301
12:48:00	0.0000	0.0000	0.0000	0.0000	0.003	0.003
12:54:00	0.0000	0.0000	0.0000	0.0000	0.00299	0.00299
13:00:00	0.0000	0.0000	0.0000	0.0000	0.00298	0.00298
13:06:00	0.0000	0.0000	0.0000	0.0000	0.00297	0.00297
13:12:00	0.0000	0.0000	0.0000	0.0000	0.00296	0.00296
13:18:00	0.0000	0.0000	0.0000	0.0000	0.00295	0.00295
13:24:00	0.0000	0.0000	0.0000	0.0000	0.00294	0.00294
13:30:00	0.0000	0.0000	0.0000	0.0000	0.00293	0.00293
13:36:00	0.0000	0.0000	0.0000	0.0000	0.00292	0.00292
13:42:00	0.0000	0.0000	0.0000	0.0000	0.00291	0.00291
13:48:00	0.0000	0.0000	0.0000	0.0000	0.00291	0.00291
13:54:00	0.0000	0.0000	0.0000	0.0000	0.0029	0.0029
14:00:00	0.0000	0.0000	0.0000	0.0000	0.00289	0.00289
14:06:00	0.0000	0.0000	0.0000	0.0000	0.00288	0.00288
14:12:00	0.0000	0.0000	0.0000	0.0000	0.00287	0.00287

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
14:18:00	0.0000	0.0000	0.0000	0.0000	0.00286	0.00286
14:24:00	0.0000	0.0000	0.0000	0.0000	0.00285	0.00285
14:30:00	0.0000	0.0000	0.0000	0.0000	0.00284	0.00284
14:36:00	0.0000	0.0000	0.0000	0.0000	0.00283	0.00283
14:42:00	0.0000	0.0000	0.0000	0.0000	0.00283	0.00283
14:48:00	0.0000	0.0000	0.0000	0.0000	0.00282	0.00282
14:54:00	0.0000	0.0000	0.0000	0.0000	0.00281	0.00281
15:00:00	0.0000	0.0000	0.0000	0.0000	0.0028	0.0028
15:06:00	0.0000	0.0000	0.0000	0.0000	0.00279	0.00279
15:12:00	0.0000	0.0000	0.0000	0.0000	0.00278	0.00278
15:18:00	0.0000	0.0000	0.0000	0.0000	0.00277	0.00277
15:24:00	0.0000	0.0000	0.0000	0.0000	0.00277	0.00277
15:30:00	0.0000	0.0000	0.0000	0.0000	0.00276	0.00276
15:36:00	0.0000	0.0000	0.0000	0.0000	0.00275	0.00275
15:42:00	0.0000	0.0000	0.0000	0.0000	0.00274	0.00274
15:48:00	0.0000	0.0000	0.0000	0.0000	0.00273	0.00273
15:54:00	0.0000	0.0000	0.0000	0.0000	0.00272	0.00272
16:00:00	0.0000	0.0000	0.0000	0.0000	0.00272	0.00272
16:06:00	0.0000	0.0000	0.0000	0.0000	0.00271	0.00271
16:12:00	0.0000	0.0000	0.0000	0.0000	0.0027	0.0027
16:18:00	0.0000	0.0000	0.0000	0.0000	0.00269	0.00269
16:24:00	0.0000	0.0000	0.0000	0.0000	0.00268	0.00268
16:30:00	0.0000	0.0000	0.0000	0.0000	0.00267	0.00267
16:36:00	0.0000	0.0000	0.0000	0.0000	0.00267	0.00267
16:42:00	0.0000	0.0000	0.0000	0.0000	0.00266	0.00266
16:48:00	0.0000	0.0000	0.0000	0.0000	0.00265	0.00265
16:54:00	0.0000	0.0000	0.0000	0.0000	0.00264	0.00264
17:00:00	0.0000	0.0000	0.0000	0.0000	0.00263	0.00263
17:06:00	0.0000	0.0000	0.0000	0.0000	0.00263	0.00263
17:12:00	0.0000	0.0000	0.0000	0.0000	0.00262	0.00262
17:18:00	0.0000	0.0000	0.0000	0.0000	0.00261	0.00261
17:24:00	0.0000	0.0000	0.0000	0.0000	0.0026	0.0026
17:30:00	0.0000	0.0000	0.0000	0.0000	0.00259	0.00259
17:36:00	0.0000	0.0000	0.0000	0.0000	0.00259	0.00259
17:42:00	0.0000	0.0000	0.0000	0.0000	0.00258	0.00258
17:48:00	0.0000	0.0000	0.0000	0.0000	0.00257	0.00257

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
17:54:00	0.0000	0.0000	0.0000	0.0000	0.00256	0.00256
18:00:00	0.0000	0.0000	0.0000	0.0000	0.00255	0.00255
18:06:00	0.0000	0.0000	0.0000	0.0000	0.00255	0.00255
18:12:00	0.0000	0.0000	0.0000	0.0000	0.00254	0.00254
18:18:00	0.0000	0.0000	0.0000	0.0000	0.00253	0.00253
18:24:00	0.0000	0.0000	0.0000	0.0000	0.00252	0.00252
18:30:00	0.0000	0.0000	0.0000	0.0000	0.00251	0.00251
18:36:00	0.0000	0.0000	0.0000	0.0000	0.00251	0.00251
18:42:00	0.0000	0.0000	0.0000	0.0000	0.0025	0.0025
18:48:00	0.0000	0.0000	0.0000	0.0000	0.00249	0.00249
18:54:00	0.0000	0.0000	0.0000	0.0000	0.00248	0.00248
19:00:00	0.0000	0.0000	0.0000	0.0000	0.00248	0.00248
19:06:00	0.0000	0.0000	0.0000	0.0000	0.00247	0.00247
19:12:00	0.0000	0.0000	0.0000	0.0000	0.00246	0.00246
19:18:00	0.0000	0.0000	0.0000	0.0000	0.00245	0.00245
19:24:00	0.0000	0.0000	0.0000	0.0000	0.00245	0.00245
19:30:00	0.0000	0.0000	0.0000	0.0000	0.00244	0.00244
19:36:00	0.0000	0.0000	0.0000	0.0000	0.00243	0.00243
19:42:00	0.0000	0.0000	0.0000	0.0000	0.00242	0.00242
19:48:00	0.0000	0.0000	0.0000	0.0000	0.00242	0.00242
19:54:00	0.0000	0.0000	0.0000	0.0000	0.00241	0.00241
20:00:00	0.0000	0.0000	0.0000	0.0000	0.0024	0.0024
20:06:00	0.0000	0.0000	0.0000	0.0000	0.00239	0.00239
20:12:00	0.0000	0.0000	0.0000	0.0000	0.00239	0.00239
20:18:00	0.0000	0.0000	0.0000	0.0000	0.00238	0.00238
20:24:00	0.0000	0.0000	0.0000	0.0000	0.00237	0.00237
20:30:00	0.0000	0.0000	0.0000	0.0000	0.00236	0.00236
20:36:00	0.0000	0.0000	0.0000	0.0000	0.00236	0.00236
20:42:00	0.0000	0.0000	0.0000	0.0000	0.00235	0.00235
20:48:00	0.0000	0.0000	0.0000	0.0000	0.00234	0.00234
20:54:00	0.0000	0.0000	0.0000	0.0000	0.00234	0.00234
21:00:00	0.0000	0.0000	0.0000	0.0000	0.00233	0.00233
21:06:00	0.0000	0.0000	0.0000	0.0000	0.00232	0.00232
21:12:00	0.0000	0.0000	0.0000	0.0000	0.00231	0.00231
21:18:00	0.0000	0.0000	0.0000	0.0000	0.00231	0.00231
21:24:00	0.0000	0.0000	0.0000	0.0000	0.0023	0.0023

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
21:30:00	0.0000	0.0000	0.0000	0.0000	0.00229	0.00229
21:36:00	0.0000	0.0000	0.0000	0.0000	0.00229	0.00229
21:42:00	0.0000	0.0000	0.0000	0.0000	0.00228	0.00228
21:48:00	0.0000	0.0000	0.0000	0.0000	0.00227	0.00227
21:54:00	0.0000	0.0000	0.0000	0.0000	0.00227	0.00227
22:00:00	0.0000	0.0000	0.0000	0.0000	0.00226	0.00226
22:06:00	0.0000	0.0000	0.0000	0.0000	0.00225	0.00225
22:12:00	0.0000	0.0000	0.0000	0.0000	0.00224	0.00224
22:18:00	0.0000	0.0000	0.0000	0.0000	0.00224	0.00224
22:24:00	0.0000	0.0000	0.0000	0.0000	0.00223	0.00223
22:30:00	0.0000	0.0000	0.0000	0.0000	0.00222	0.00222
22:36:00	0.0000	0.0000	0.0000	0.0000	0.00222	0.00222
22:42:00	0.0000	0.0000	0.0000	0.0000	0.00221	0.00221
22:48:00	0.0000	0.0000	0.0000	0.0000	0.0022	0.0022
22:54:00	0.0000	0.0000	0.0000	0.0000	0.0022	0.0022
23:00:00	0.0000	0.0000	0.0000	0.0000	0.00219	0.00219
23:06:00	0.0000	0.0000	0.0000	0.0000	0.00218	0.00218
23:12:00	0.0000	0.0000	0.0000	0.0000	0.00218	0.00218
23:18:00	0.0000	0.0000	0.0000	0.0000	0.00217	0.00217
23:24:00	0.0000	0.0000	0.0000	0.0000	0.00216	0.00216
23:30:00	0.0000	0.0000	0.0000	0.0000	0.00216	0.00216
23:36:00	0.0000	0.0000	0.0000	0.0000	0.00215	0.00215
23:42:00	0.0000	0.0000	0.0000	0.0000	0.00214	0.00214
23:48:00	0.0000	0.0000	0.0000	0.0000	0.00214	0.00214
23:54:00	0.0000	0.0000	0.0000	0.0000	0.00213	0.00213
24:00:00	0.0000	0.0000	0.0000	0.0000	0.00212	0.00212
24:06:00	0.0000	0.0000	0.0000	0.0000	0.00212	0.00212
24:12:00	0.0000	0.0000	0.0000	0.0000	0.00211	0.00211
24:18:00	0.0000	0.0000	0.0000	0.0000	0.0021	0.0021
24:24:00	0.0000	0.0000	0.0000	0.0000	0.0021	0.0021
24:30:00	0.0000	0.0000	0.0000	0.0000	0.00209	0.00209
24:36:00	0.0000	0.0000	0.0000	0.0000	0.00208	0.00208
24:42:00	0.0000	0.0000	0.0000	0.0000	0.00208	0.00208
24:48:00	0.0000	0.0000	0.0000	0.0000	0.00207	0.00207
24:54:00	0.0000	0.0000	0.0000	0.0000	0.00207	0.00207
25:00:00	0.0000	0.0000	0.0000	0.0000	0.00206	0.00206

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
25:06:00	0.0000	0.0000	0.0000	0.0000	0.00205	0.00205
25:12:00	0.0000	0.0000	0.0000	0.0000	0.00205	0.00205
25:18:00	0.0000	0.0000	0.0000	0.0000	0.00204	0.00204
25:24:00	0.0000	0.0000	0.0000	0.0000	0.00203	0.00203
25:30:00	0.0000	0.0000	0.0000	0.0000	0.00203	0.00203
25:36:00	0.0000	0.0000	0.0000	0.0000	0.00202	0.00202
25:42:00	0.0000	0.0000	0.0000	0.0000	0.00202	0.00202
25:48:00	0.0000	0.0000	0.0000	0.0000	0.00201	0.00201
25:54:00	0.0000	0.0000	0.0000	0.0000	0.002	0.002
26:00:00	0.0000	0.0000	0.0000	0.0000	0.002	0.002
26:06:00	0.0000	0.0000	0.0000	0.0000	0.00199	0.00199
26:12:00	0.0000	0.0000	0.0000	0.0000	0.00198	0.00198
26:18:00	0.0000	0.0000	0.0000	0.0000	0.00198	0.00198
26:24:00	0.0000	0.0000	0.0000	0.0000	0.00197	0.00197
26:30:00	0.0000	0.0000	0.0000	0.0000	0.00197	0.00197
26:36:00	0.0000	0.0000	0.0000	0.0000	0.00196	0.00196
26:42:00	0.0000	0.0000	0.0000	0.0000	0.00195	0.00195
26:48:00	0.0000	0.0000	0.0000	0.0000	0.00195	0.00195
26:54:00	0.0000	0.0000	0.0000	0.0000	0.00194	0.00194
27:00:00	0.0000	0.0000	0.0000	0.0000	0.00194	0.00194
27:06:00	0.0000	0.0000	0.0000	0.0000	0.00193	0.00193
27:12:00	0.0000	0.0000	0.0000	0.0000	0.00192	0.00192
27:18:00	0.0000	0.0000	0.0000	0.0000	0.00192	0.00192
27:24:00	0.0000	0.0000	0.0000	0.0000	0.00191	0.00191
27:30:00	0.0000	0.0000	0.0000	0.0000	0.00191	0.00191
27:36:00	0.0000	0.0000	0.0000	0.0000	0.0019	0.0019
27:42:00	0.0000	0.0000	0.0000	0.0000	0.0019	0.0019
27:48:00	0.0000	0.0000	0.0000	0.0000	0.00189	0.00189
27:54:00	0.0000	0.0000	0.0000	0.0000	0.00188	0.00188
28:00:00	0.0000	0.0000	0.0000	0.0000	0.00188	0.00188
28:06:00	0.0000	0.0000	0.0000	0.0000	0.00187	0.00187
28:12:00	0.0000	0.0000	0.0000	0.0000	0.00187	0.00187
28:18:00	0.0000	0.0000	0.0000	0.0000	0.00186	0.00186
28:24:00	0.0000	0.0000	0.0000	0.0000	0.00186	0.00186
28:30:00	0.0000	0.0000	0.0000	0.0000	0.00185	0.00185
28:36:00	0.0000	0.0000	0.0000	0.0000	0.00184	0.00184

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
28:42:00	0.0000	0.0000	0.0000	0.0000	0.00184	0.00184
28:48:00	0.0000	0.0000	0.0000	0.0000	0.00183	0.00183
28:54:00	0.0000	0.0000	0.0000	0.0000	0.00183	0.00183
29:00:00	0.0000	0.0000	0.0000	0.0000	0.00182	0.00182
29:06:00	0.0000	0.0000	0.0000	0.0000	0.00182	0.00182
29:12:00	0.0000	0.0000	0.0000	0.0000	0.00181	0.00181
29:18:00	0.0000	0.0000	0.0000	0.0000	0.0018	0.0018
29:24:00	0.0000	0.0000	0.0000	0.0000	0.0018	0.0018
29:30:00	0.0000	0.0000	0.0000	0.0000	0.00179	0.00179
29:36:00	0.0000	0.0000	0.0000	0.0000	0.00179	0.00179
29:42:00	0.0000	0.0000	0.0000	0.0000	0.00178	0.00178
29:48:00	0.0000	0.0000	0.0000	0.0000	0.00178	0.00178
29:54:00	0.0000	0.0000	0.0000	0.0000	0.00177	0.00177
30:00:00	0.0000	0.0000	0.0000	0.0000	0.00177	0.00177
30:06:00	0.0000	0.0000	0.0000	0.0000	0.00176	0.00176
30:12:00	0.0000	0.0000	0.0000	0.0000	0.00176	0.00176
30:18:00	0.0000	0.0000	0.0000	0.0000	0.00175	0.00175
30:24:00	0.0000	0.0000	0.0000	0.0000	0.00174	0.00174
30:30:00	0.0000	0.0000	0.0000	0.0000	0.00174	0.00174
30:36:00	0.0000	0.0000	0.0000	0.0000	0.00173	0.00173
30:42:00	0.0000	0.0000	0.0000	0.0000	0.00173	0.00173
30:48:00	0.0000	0.0000	0.0000	0.0000	0.00172	0.00172
30:54:00	0.0000	0.0000	0.0000	0.0000	0.00172	0.00172
31:00:00	0.0000	0.0000	0.0000	0.0000	0.00171	0.00171
31:06:00	0.0000	0.0000	0.0000	0.0000	0.00171	0.00171
31:12:00	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017
31:18:00	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017
31:24:00	0.0000	0.0000	0.0000	0.0000	0.00169	0.00169
31:30:00	0.0000	0.0000	0.0000	0.0000	0.00169	0.00169
31:36:00	0.0000	0.0000	0.0000	0.0000	0.00168	0.00168
31:42:00	0.0000	0.0000	0.0000	0.0000	0.00168	0.00168
31:48:00	0.0000	0.0000	0.0000	0.0000	0.00167	0.00167
31:54:00	0.0000	0.0000	0.0000	0.0000	0.00167	0.00167
32:00:00	0.0000	0.0000	0.0000	0.0000	0.00166	0.00166
32:06:00	0.0000	0.0000	0.0000	0.0000	0.00166	0.00166
32:12:00	0.0000	0.0000	0.0000	0.0000	0.00165	0.00165

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
32:18:00	0.0000	0.0000	0.0000	0.0000	0.00165	0.00165
32:24:00	0.0000	0.0000	0.0000	0.0000	0.00164	0.00164
32:30:00	0.0000	0.0000	0.0000	0.0000	0.00164	0.00164
32:36:00	0.0000	0.0000	0.0000	0.0000	0.00163	0.00163
32:42:00	0.0000	0.0000	0.0000	0.0000	0.00163	0.00163
32:48:00	0.0000	0.0000	0.0000	0.0000	0.00162	0.00162
32:54:00	0.0000	0.0000	0.0000	0.0000	0.00162	0.00162
33:00:00	0.0000	0.0000	0.0000	0.0000	0.00161	0.00161
33:06:00	0.0000	0.0000	0.0000	0.0000	0.00161	0.00161
33:12:00	0.0000	0.0000	0.0000	0.0000	0.0016	0.0016
33:18:00	0.0000	0.0000	0.0000	0.0000	0.0016	0.0016
33:24:00	0.0000	0.0000	0.0000	0.0000	0.00159	0.00159
33:30:00	0.0000	0.0000	0.0000	0.0000	0.00159	0.00159
33:36:00	0.0000	0.0000	0.0000	0.0000	0.00158	0.00158
33:42:00	0.0000	0.0000	0.0000	0.0000	0.00158	0.00158
33:48:00	0.0000	0.0000	0.0000	0.0000	0.00157	0.00157
33:54:00	0.0000	0.0000	0.0000	0.0000	0.00157	0.00157
34:00:00	0.0000	0.0000	0.0000	0.0000	0.00156	0.00156
34:06:00	0.0000	0.0000	0.0000	0.0000	0.00156	0.00156
34:12:00	0.0000	0.0000	0.0000	0.0000	0.00155	0.00155
34:18:00	0.0000	0.0000	0.0000	0.0000	0.00155	0.00155
34:24:00	0.0000	0.0000	0.0000	0.0000	0.00154	0.00154
34:30:00	0.0000	0.0000	0.0000	0.0000	0.00154	0.00154
34:36:00	0.0000	0.0000	0.0000	0.0000	0.00153	0.00153
34:42:00	0.0000	0.0000	0.0000	0.0000	0.00153	0.00153
34:48:00	0.0000	0.0000	0.0000	0.0000	0.00152	0.00152
34:54:00	0.0000	0.0000	0.0000	0.0000	0.00152	0.00152
35:00:00	0.0000	0.0000	0.0000	0.0000	0.00151	0.00151
35:06:00	0.0000	0.0000	0.0000	0.0000	0.00151	0.00151
35:12:00	0.0000	0.0000	0.0000	0.0000	0.00151	0.00151
35:18:00	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015
35:24:00	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015
35:30:00	0.0000	0.0000	0.0000	0.0000	0.00149	0.00149
35:36:00	0.0000	0.0000	0.0000	0.0000	0.00149	0.00149
35:42:00	0.0000	0.0000	0.0000	0.0000	0.00148	0.00148
35:48:00	0.0000	0.0000	0.0000	0.0000	0.00148	0.00148

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
35:54:00	0.0000	0.0000	0.0000	0.0000	0.00147	0.00147
36:00:00	0.0000	0.0000	0.0000	0.0000	0.00147	0.00147
36:06:00	0.0000	0.0000	0.0000	0.0000	0.00146	0.00146
36:12:00	0.0000	0.0000	0.0000	0.0000	0.00146	0.00146
36:18:00	0.0000	0.0000	0.0000	0.0000	0.00146	0.00146
36:24:00	0.0000	0.0000	0.0000	0.0000	0.00145	0.00145
36:30:00	0.0000	0.0000	0.0000	0.0000	0.00145	0.00145
36:36:00	0.0000	0.0000	0.0000	0.0000	0.00144	0.00144
36:42:00	0.0000	0.0000	0.0000	0.0000	0.00144	0.00144
36:48:00	0.0000	0.0000	0.0000	0.0000	0.00143	0.00143
36:54:00	0.0000	0.0000	0.0000	0.0000	0.00143	0.00143
37:00:00	0.0000	0.0000	0.0000	0.0000	0.00142	0.00142
37:06:00	0.0000	0.0000	0.0000	0.0000	0.00142	0.00142
37:12:00	0.0000	0.0000	0.0000	0.0000	0.00142	0.00142
37:18:00	0.0000	0.0000	0.0000	0.0000	0.00141	0.00141
37:24:00	0.0000	0.0000	0.0000	0.0000	0.00141	0.00141
37:30:00	0.0000	0.0000	0.0000	0.0000	0.0014	0.0014
37:36:00	0.0000	0.0000	0.0000	0.0000	0.0014	0.0014
37:42:00	0.0000	0.0000	0.0000	0.0000	0.00139	0.00139
37:48:00	0.0000	0.0000	0.0000	0.0000	0.00139	0.00139
37:54:00	0.0000	0.0000	0.0000	0.0000	0.00139	0.00139
38:00:00	0.0000	0.0000	0.0000	0.0000	0.00138	0.00138
38:06:00	0.0000	0.0000	0.0000	0.0000	0.00138	0.00138
38:12:00	0.0000	0.0000	0.0000	0.0000	0.00137	0.00137
38:18:00	0.0000	0.0000	0.0000	0.0000	0.00137	0.00137
38:24:00	0.0000	0.0000	0.0000	0.0000	0.00136	0.00136
38:30:00	0.0000	0.0000	0.0000	0.0000	0.00136	0.00136
38:36:00	0.0000	0.0000	0.0000	0.0000	0.00136	0.00136
38:42:00	0.0000	0.0000	0.0000	0.0000	0.00135	0.00135
38:48:00	0.0000	0.0000	0.0000	0.0000	0.00135	0.00135
38:54:00	0.0000	0.0000	0.0000	0.0000	0.00134	0.00134
39:00:00	0.0000	0.0000	0.0000	0.0000	0.00134	0.00134
39:06:00	0.0000	0.0000	0.0000	0.0000	0.00134	0.00134
39:12:00	0.0000	0.0000	0.0000	0.0000	0.00133	0.00133
39:18:00	0.0000	0.0000	0.0000	0.0000	0.00133	0.00133
39:24:00	0.0000	0.0000	0.0000	0.0000	0.00132	0.00132

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
39:30:00	0.0000	0.0000	0.0000	0.0000	0.00132	0.00132
39:36:00	0.0000	0.0000	0.0000	0.0000	0.00132	0.00132
39:42:00	0.0000	0.0000	0.0000	0.0000	0.00131	0.00131
39:48:00	0.0000	0.0000	0.0000	0.0000	0.00131	0.00131
39:54:00	0.0000	0.0000	0.0000	0.0000	0.0013	0.0013
40:00:00	0.0000	0.0000	0.0000	0.0000	0.0013	0.0013
40:06:00	0.0000	0.0000	0.0000	0.0000	0.00129	0.00129
40:12:00	0.0000	0.0000	0.0000	0.0000	0.00129	0.00129
40:18:00	0.0000	0.0000	0.0000	0.0000	0.00129	0.00129
40:24:00	0.0000	0.0000	0.0000	0.0000	0.00128	0.00128
40:30:00	0.0000	0.0000	0.0000	0.0000	0.00128	0.00128
40:36:00	0.0000	0.0000	0.0000	0.0000	0.00128	0.00128
40:42:00	0.0000	0.0000	0.0000	0.0000	0.00127	0.00127
40:48:00	0.0000	0.0000	0.0000	0.0000	0.00127	0.00127
40:54:00	0.0000	0.0000	0.0000	0.0000	0.00126	0.00126
41:00:00	0.0000	0.0000	0.0000	0.0000	0.00126	0.00126
41:06:00	0.0000	0.0000	0.0000	0.0000	0.00126	0.00126
41:12:00	0.0000	0.0000	0.0000	0.0000	0.00125	0.00125
41:18:00	0.0000	0.0000	0.0000	0.0000	0.00125	0.00125
41:24:00	0.0000	0.0000	0.0000	0.0000	0.00124	0.00124
41:30:00	0.0000	0.0000	0.0000	0.0000	0.00124	0.00124
41:36:00	0.0000	0.0000	0.0000	0.0000	0.00124	0.00124
41:42:00	0.0000	0.0000	0.0000	0.0000	0.00123	0.00123
41:48:00	0.0000	0.0000	0.0000	0.0000	0.00123	0.00123
41:54:00	0.0000	0.0000	0.0000	0.0000	0.00123	0.00123
42:00:00	0.0000	0.0000	0.0000	0.0000	0.00122	0.00122
42:06:00	0.0000	0.0000	0.0000	0.0000	0.00122	0.00122
42:12:00	0.0000	0.0000	0.0000	0.0000	0.00121	0.00121
42:18:00	0.0000	0.0000	0.0000	0.0000	0.00121	0.00121
42:24:00	0.0000	0.0000	0.0000	0.0000	0.00121	0.00121
42:30:00	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012
42:36:00	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012
42:42:00	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012
42:48:00	0.0000	0.0000	0.0000	0.0000	0.00119	0.00119
42:54:00	0.0000	0.0000	0.0000	0.0000	0.00119	0.00119
43:00:00	0.0000	0.0000	0.0000	0.0000	0.00118	0.00118

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
43:06:00	0.0000	0.0000	0.0000	0.0000	0.00118	0.00118
43:12:00	0.0000	0.0000	0.0000	0.0000	0.00118	0.00118
43:18:00	0.0000	0.0000	0.0000	0.0000	0.00117	0.00117
43:24:00	0.0000	0.0000	0.0000	0.0000	0.00117	0.00117
43:30:00	0.0000	0.0000	0.0000	0.0000	0.00117	0.00117
43:36:00	0.0000	0.0000	0.0000	0.0000	0.00116	0.00116
43:42:00	0.0000	0.0000	0.0000	0.0000	0.00116	0.00116
43:48:00	0.0000	0.0000	0.0000	0.0000	0.00116	0.00116
43:54:00	0.0000	0.0000	0.0000	0.0000	0.00115	0.00115
44:00:00	0.0000	0.0000	0.0000	0.0000	0.00115	0.00115
44:06:00	0.0000	0.0000	0.0000	0.0000	0.00115	0.00115
44:12:00	0.0000	0.0000	0.0000	0.0000	0.00114	0.00114
44:18:00	0.0000	0.0000	0.0000	0.0000	0.00114	0.00114
44:24:00	0.0000	0.0000	0.0000	0.0000	0.00113	0.00113
44:30:00	0.0000	0.0000	0.0000	0.0000	0.00113	0.00113
44:36:00	0.0000	0.0000	0.0000	0.0000	0.00113	0.00113
44:42:00	0.0000	0.0000	0.0000	0.0000	0.00112	0.00112
44:48:00	0.0000	0.0000	0.0000	0.0000	0.00112	0.00112
44:54:00	0.0000	0.0000	0.0000	0.0000	0.00112	0.00112
45:00:00	0.0000	0.0000	0.0000	0.0000	0.00111	0.00111
45:06:00	0.0000	0.0000	0.0000	0.0000	0.00111	0.00111
45:12:00	0.0000	0.0000	0.0000	0.0000	0.00111	0.00111
45:18:00	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011
45:24:00	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011
45:30:00	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011
45:36:00	0.0000	0.0000	0.0000	0.0000	0.00109	0.00109
45:42:00	0.0000	0.0000	0.0000	0.0000	0.00109	0.00109
45:48:00	0.0000	0.0000	0.0000	0.0000	0.00109	0.00109
45:54:00	0.0000	0.0000	0.0000	0.0000	0.00108	0.00108
46:00:00	0.0000	0.0000	0.0000	0.0000	0.00108	0.00108
46:06:00	0.0000	0.0000	0.0000	0.0000	0.00108	0.00108
46:12:00	0.0000	0.0000	0.0000	0.0000	0.00107	0.00107
46:18:00	0.0000	0.0000	0.0000	0.0000	0.00107	0.00107
46:24:00	0.0000	0.0000	0.0000	0.0000	0.00107	0.00107
46:30:00	0.0000	0.0000	0.0000	0.0000	0.00106	0.00106
46:36:00	0.0000	0.0000	0.0000	0.0000	0.00106	0.00106

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
46:42:00	0.0000	0.0000	0.0000	0.0000	0.00106	0.00106
46:48:00	0.0000	0.0000	0.0000	0.0000	0.00105	0.00105
46:54:00	0.0000	0.0000	0.0000	0.0000	0.00105	0.00105
47:00:00	0.0000	0.0000	0.0000	0.0000	0.00105	0.00105
47:06:00	0.0000	0.0000	0.0000	0.0000	0.00104	0.00104
47:12:00	0.0000	0.0000	0.0000	0.0000	0.00104	0.00104
47:18:00	0.0000	0.0000	0.0000	0.0000	0.00104	0.00104
47:24:00	0.0000	0.0000	0.0000	0.0000	0.00103	0.00103
47:30:00	0.0000	0.0000	0.0000	0.0000	0.00103	0.00103
47:36:00	0.0000	0.0000	0.0000	0.0000	0.00103	0.00103
47:42:00	0.0000	0.0000	0.0000	0.0000	0.00103	0.00103
47:48:00	0.0000	0.0000	0.0000	0.0000	0.00102	0.00102
47:54:00	0.0000	0.0000	0.0000	0.0000	0.00102	0.00102
48:00:00	0.0000	0.0000	0.0000	0.0000	0.00102	0.00102
48:06:00	0.0000	0.0000	0.0000	0.0000	0.00101	0.00101
48:12:00	0.0000	0.0000	0.0000	0.0000	0.00101	0.00101
48:18:00	0.0000	0.0000	0.0000	0.0000	0.00101	0.00101
48:24:00	0.0000	0.0000	0.0000	0.0000	0.001	0.001
48:30:00	0.0000	0.0000	0.0000	0.0000	0.001	0.001
48:36:00	0.0000	0.0000	0.0000	0.0000	0.000997	0.000997
48:42:00	0.0000	0.0000	0.0000	0.0000	0.000994	0.000994
48:48:00	0.0000	0.0000	0.0000	0.0000	0.000991	0.000991
48:54:00	0.0000	0.0000	0.0000	0.0000	0.000988	0.000988
49:00:00	0.0000	0.0000	0.0000	0.0000	0.000985	0.000985
49:06:00	0.0000	0.0000	0.0000	0.0000	0.000982	0.000982
49:12:00	0.0000	0.0000	0.0000	0.0000	0.000979	0.000979
49:18:00	0.0000	0.0000	0.0000	0.0000	0.000976	0.000976
49:24:00	0.0000	0.0000	0.0000	0.0000	0.000973	0.000973
49:30:00	0.0000	0.0000	0.0000	0.0000	0.00097	0.00097
49:36:00	0.0000	0.0000	0.0000	0.0000	0.000967	0.000967
49:42:00	0.0000	0.0000	0.0000	0.0000	0.000964	0.000964
49:48:00	0.0000	0.0000	0.0000	0.0000	0.000961	0.000961
49:54:00	0.0000	0.0000	0.0000	0.0000	0.000958	0.000958
50:00:00	0.0000	0.0000	0.0000	0.0000	0.000955	0.000955
50:06:00	0.0000	0.0000	0.0000	0.0000	0.000952	0.000952
50:12:00	0.0000	0.0000	0.0000	0.0000	0.00095	0.00095

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
50:18:00	0.0000	0.0000	0.0000	0.0000	0.000947	0.000947
50:24:00	0.0000	0.0000	0.0000	0.0000	0.000944	0.000944
50:30:00	0.0000	0.0000	0.0000	0.0000	0.000941	0.000941
50:36:00	0.0000	0.0000	0.0000	0.0000	0.000938	0.000938
50:42:00	0.0000	0.0000	0.0000	0.0000	0.000935	0.000935
50:48:00	0.0000	0.0000	0.0000	0.0000	0.000932	0.000932
50:54:00	0.0000	0.0000	0.0000	0.0000	0.000929	0.000929
51:00:00	0.0000	0.0000	0.0000	0.0000	0.000926	0.000926
51:06:00	0.0000	0.0000	0.0000	0.0000	0.000924	0.000924
51:12:00	0.0000	0.0000	0.0000	0.0000	0.000921	0.000921
51:18:00	0.0000	0.0000	0.0000	0.0000	0.000918	0.000918
51:24:00	0.0000	0.0000	0.0000	0.0000	0.000915	0.000915
51:30:00	0.0000	0.0000	0.0000	0.0000	0.000912	0.000912
51:36:00	0.0000	0.0000	0.0000	0.0000	0.00091	0.00091
51:42:00	0.0000	0.0000	0.0000	0.0000	0.000907	0.000907
51:48:00	0.0000	0.0000	0.0000	0.0000	0.000904	0.000904
51:54:00	0.0000	0.0000	0.0000	0.0000	0.000901	0.000901
52:00:00	0.0000	0.0000	0.0000	0.0000	0.000898	0.000898
52:06:00	0.0000	0.0000	0.0000	0.0000	0.000896	0.000896
52:12:00	0.0000	0.0000	0.0000	0.0000	0.000893	0.000893
52:18:00	0.0000	0.0000	0.0000	0.0000	0.00089	0.00089
52:24:00	0.0000	0.0000	0.0000	0.0000	0.000887	0.000887
52:30:00	0.0000	0.0000	0.0000	0.0000	0.000885	0.000885
52:36:00	0.0000	0.0000	0.0000	0.0000	0.000882	0.000882
52:42:00	0.0000	0.0000	0.0000	0.0000	0.000879	0.000879
52:48:00	0.0000	0.0000	0.0000	0.0000	0.000877	0.000877
52:54:00	0.0000	0.0000	0.0000	0.0000	0.000874	0.000874
53:00:00	0.0000	0.0000	0.0000	0.0000	0.000871	0.000871
53:06:00	0.0000	0.0000	0.0000	0.0000	0.000869	0.000869
53:12:00	0.0000	0.0000	0.0000	0.0000	0.000866	0.000866
53:18:00	0.0000	0.0000	0.0000	0.0000	0.000863	0.000863
53:24:00	0.0000	0.0000	0.0000	0.0000	0.000861	0.000861
53:30:00	0.0000	0.0000	0.0000	0.0000	0.000858	0.000858
53:36:00	0.0000	0.0000	0.0000	0.0000	0.000855	0.000855
53:42:00	0.0000	0.0000	0.0000	0.0000	0.000853	0.000853
53:48:00	0.0000	0.0000	0.0000	0.0000	0.00085	0.00085

Printed from the ReFH2 Flood Modelling software package, version 3.1.7439.12207

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
53:54:00	0.0000	0.0000	0.0000	0.0000	0.000848	0.000848
54:00:00	0.0000	0.0000	0.0000	0.0000	0.000845	0.000845
54:06:00	0.0000	0.0000	0.0000	0.0000	0.000842	0.000842
54:12:00	0.0000	0.0000	0.0000	0.0000	0.00084	0.00084
54:18:00	0.0000	0.0000	0.0000	0.0000	0.000837	0.000837
54:24:00	0.0000	0.0000	0.0000	0.0000	0.000835	0.000835
54:30:00	0.0000	0.0000	0.0000	0.0000	0.000832	0.000832
54:36:00	0.0000	0.0000	0.0000	0.0000	0.000829	0.000829
54:42:00	0.0000	0.0000	0.0000	0.0000	0.000827	0.000827
54:48:00	0.0000	0.0000	0.0000	0.0000	0.000824	0.000824
54:54:00	0.0000	0.0000	0.0000	0.0000	0.000822	0.000822
55:00:00	0.0000	0.0000	0.0000	0.0000	0.000819	0.000819
55:06:00	0.0000	0.0000	0.0000	0.0000	0.000817	0.000817
55:12:00	0.0000	0.0000	0.0000	0.0000	0.000814	0.000814
55:18:00	0.0000	0.0000	0.0000	0.0000	0.000812	0.000812
55:24:00	0.0000	0.0000	0.0000	0.0000	0.000809	0.000809
55:30:00	0.0000	0.0000	0.0000	0.0000	0.000807	0.000807
55:36:00	0.0000	0.0000	0.0000	0.0000	0.000804	0.000804
55:42:00	0.0000	0.0000	0.0000	0.0000	0.000802	0.000802
55:48:00	0.0000	0.0000	0.0000	0.0000	0.000799	0.000799
55:54:00	0.0000	0.0000	0.0000	0.0000	0.000797	0.000797
56:00:00	0.0000	0.0000	0.0000	0.0000	0.000795	0.000795
56:06:00	0.0000	0.0000	0.0000	0.0000	0.000792	0.000792
56:12:00	0.0000	0.0000	0.0000	0.0000	0.00079	0.00079
56:18:00	0.0000	0.0000	0.0000	0.0000	0.000787	0.000787
56:24:00	0.0000	0.0000	0.0000	0.0000	0.000785	0.000785
56:30:00	0.0000	0.0000	0.0000	0.0000	0.000782	0.000782
56:36:00	0.0000	0.0000	0.0000	0.0000	0.00078	0.00078
56:42:00	0.0000	0.0000	0.0000	0.0000	0.000778	0.000778
56:48:00	0.0000	0.0000	0.0000	0.0000	0.000775	0.000775
56:54:00	0.0000	0.0000	0.0000	0.0000	0.000773	0.000773
57:00:00	0.0000	0.0000	0.0000	0.0000	0.000771	0.000771
57:06:00	0.0000	0.0000	0.0000	0.0000	0.000768	0.000768
57:12:00	0.0000	0.0000	0.0000	0.0000	0.000766	0.000766
57:18:00	0.0000	0.0000	0.0000	0.0000	0.000763	0.000763
57:24:00	0.0000	0.0000	0.0000	0.0000	0.000761	0.000761

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
57:30:00	0.0000	0.0000	0.0000	0.0000	0.000759	0.000759
57:36:00	0.0000	0.0000	0.0000	0.0000	0.000756	0.000756
57:42:00	0.0000	0.0000	0.0000	0.0000	0.000754	0.000754
57:48:00	0.0000	0.0000	0.0000	0.0000	0.000752	0.000752
57:54:00	0.0000	0.0000	0.0000	0.0000	0.00075	0.00075
58:00:00	0.0000	0.0000	0.0000	0.0000	0.000747	0.000747
58:06:00	0.0000	0.0000	0.0000	0.0000	0.000745	0.000745
58:12:00	0.0000	0.0000	0.0000	0.0000	0.000743	0.000743
58:18:00	0.0000	0.0000	0.0000	0.0000	0.00074	0.00074
58:24:00	0.0000	0.0000	0.0000	0.0000	0.000738	0.000738
58:30:00	0.0000	0.0000	0.0000	0.0000	0.000736	0.000736
58:36:00	0.0000	0.0000	0.0000	0.0000	0.000734	0.000734
58:42:00	0.0000	0.0000	0.0000	0.0000	0.000731	0.000731
58:48:00	0.0000	0.0000	0.0000	0.0000	0.000729	0.000729
58:54:00	0.0000	0.0000	0.0000	0.0000	0.000727	0.000727
59:00:00	0.0000	0.0000	0.0000	0.0000	0.000725	0.000725
59:06:00	0.0000	0.0000	0.0000	0.0000	0.000722	0.000722
59:12:00	0.0000	0.0000	0.0000	0.0000	0.00072	0.00072
59:18:00	0.0000	0.0000	0.0000	0.0000	0.000718	0.000718
59:24:00	0.0000	0.0000	0.0000	0.0000	0.000716	0.000716
59:30:00	0.0000	0.0000	0.0000	0.0000	0.000714	0.000714
59:36:00	0.0000	0.0000	0.0000	0.0000	0.000711	0.000711
59:42:00	0.0000	0.0000	0.0000	0.0000	0.000709	0.000709
59:48:00	0.0000	0.0000	0.0000	0.0000	0.000707	0.000707
59:54:00	0.0000	0.0000	0.0000	0.0000	0.000705	0.000705
60:00:00	0.0000	0.0000	0.0000	0.0000	0.000703	0.000703
60:06:00	0.0000	0.0000	0.0000	0.0000	0.000701	0.000701
60:12:00	0.0000	0.0000	0.0000	0.0000	0.000698	0.000698
60:18:00	0.0000	0.0000	0.0000	0.0000	0.000696	0.000696
60:24:00	0.0000	0.0000	0.0000	0.0000	0.000694	0.000694
60:30:00	0.0000	0.0000	0.0000	0.0000	0.000692	0.000692
60:36:00	0.0000	0.0000	0.0000	0.0000	0.00069	0.00069
60:42:00	0.0000	0.0000	0.0000	0.0000	0.000688	0.000688
60:48:00	0.0000	0.0000	0.0000	0.0000	0.000686	0.000686
60:54:00	0.0000	0.0000	0.0000	0.0000	0.000684	0.000684
61:00:00	0.0000	0.0000	0.0000	0.0000	0.000681	0.000681

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
61:06:00	0.0000	0.0000	0.0000	0.0000	0.000679	0.000679
61:12:00	0.0000	0.0000	0.0000	0.0000	0.000677	0.000677
61:18:00	0.0000	0.0000	0.0000	0.0000	0.000675	0.000675
61:24:00	0.0000	0.0000	0.0000	0.0000	0.000673	0.000673
61:30:00	0.0000	0.0000	0.0000	0.0000	0.000671	0.000671
61:36:00	0.0000	0.0000	0.0000	0.0000	0.000669	0.000669
61:42:00	0.0000	0.0000	0.0000	0.0000	0.000667	0.000667
61:48:00	0.0000	0.0000	0.0000	0.0000	0.000665	0.000665
61:54:00	0.0000	0.0000	0.0000	0.0000	0.000663	0.000663
62:00:00	0.0000	0.0000	0.0000	0.0000	0.000661	0.000661
62:06:00	0.0000	0.0000	0.0000	0.0000	0.000659	0.000659
62:12:00	0.0000	0.0000	0.0000	0.0000	0.000657	0.000657
62:18:00	0.0000	0.0000	0.0000	0.0000	0.000655	0.000655
62:24:00	0.0000	0.0000	0.0000	0.0000	0.000653	0.000653
62:30:00	0.0000	0.0000	0.0000	0.0000	0.000651	0.000651
62:36:00	0.0000	0.0000	0.0000	0.0000	0.000649	0.000649
62:42:00	0.0000	0.0000	0.0000	0.0000	0.000647	0.000647
62:48:00	0.0000	0.0000	0.0000	0.0000	0.000645	0.000645
62:54:00	0.0000	0.0000	0.0000	0.0000	0.000643	0.000643
63:00:00	0.0000	0.0000	0.0000	0.0000	0.000641	0.000641
63:06:00	0.0000	0.0000	0.0000	0.0000	0.000639	0.000639
63:12:00	0.0000	0.0000	0.0000	0.0000	0.000637	0.000637
63:18:00	0.0000	0.0000	0.0000	0.0000	0.000635	0.000635
63:24:00	0.0000	0.0000	0.0000	0.0000	0.000633	0.000633
63:30:00	0.0000	0.0000	0.0000	0.0000	0.000631	0.000631
63:36:00	0.0000	0.0000	0.0000	0.0000	0.000629	0.000629
63:42:00	0.0000	0.0000	0.0000	0.0000	0.000627	0.000627
63:48:00	0.0000	0.0000	0.0000	0.0000	0.000625	0.000625
63:54:00	0.0000	0.0000	0.0000	0.0000	0.000623	0.000623
64:00:00	0.0000	0.0000	0.0000	0.0000	0.000621	0.000621
64:06:00	0.0000	0.0000	0.0000	0.0000	0.00062	0.00062
64:12:00	0.0000	0.0000	0.0000	0.0000	0.000618	0.000618
64:18:00	0.0000	0.0000	0.0000	0.0000	0.000616	0.000616
64:24:00	0.0000	0.0000	0.0000	0.0000	0.000614	0.000614
64:30:00	0.0000	0.0000	0.0000	0.0000	0.000612	0.000612
64:36:00	0.0000	0.0000	0.0000	0.0000	0.00061	0.00061

Printed from the ReFH2 Flood Modelling software package, version 3.1.7439.12207

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m³/s)	Baseflow (m³/s)	Total Flow (m³/s)
64:42:00	0.0000	0.0000	0.0000	0.0000	0.000608	0.000608
64:48:00	0.0000	0.0000	0.0000	0.0000	0.000606	0.000606
64:54:00	0.0000	0.0000	0.0000	0.0000	0.000604	0.000604
65:00:00	0.0000	0.0000	0.0000	0.0000	0.000603	0.000603
65:06:00	0.0000	0.0000	0.0000	0.0000	0.000601	0.000601
65:12:00	0.0000	0.0000	0.0000	0.0000	0.000599	0.000599
65:18:00	0.0000	0.0000	0.0000	0.0000	0.000597	0.000597
65:24:00	0.0000	0.0000	0.0000	0.0000	0.000595	0.000595
65:30:00	0.0000	0.0000	0.0000	0.0000	0.000593	0.000593
65:36:00	0.0000	0.0000	0.0000	0.0000	0.000592	0.000592
65:42:00	0.0000	0.0000	0.0000	0.0000	0.00059	0.00059

Appendix

Catchment descriptors

Name	Value	User-defined value used?
BFIHOST	0.57	No
BFIHOST19	0.55	No
PROPWET (mm)	0.35	No
SAAR (mm)	835	No

Printed from the ReFH2 Flood Modelling software package, version 3.1.7439.12207

QuadConsult Ltd		Page 1
Columbus House	Pineapple Farm	
Greenmeadow Springs Business...	Prelim Attenuation	
Cardiff, CF15 7NE		
Date 26/10/2020 12:28	Designed by SPM	
File	Checked by SPM	
Innovyze	Source Control 2020.1	

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	100.323	0.323	9.0	321.2	O K
30 min Summer	100.432	0.432	9.0	429.5	O K
60 min Summer	100.545	0.545	9.0	542.6	O K
120 min Summer	100.655	0.655	9.0	651.3	O K
180 min Summer	100.709	0.709	9.0	705.4	O K
240 min Summer	100.745	0.745	9.0	740.9	O K
360 min Summer	100.785	0.785	9.0	781.5	O K
480 min Summer	100.804	0.804	9.0	800.1	O K
600 min Summer	100.810	0.810	9.0	806.4	O K
720 min Summer	100.809	0.809	9.0	804.8	O K
960 min Summer	100.799	0.799	9.0	794.6	O K
1440 min Summer	100.770	0.770	9.0	766.5	O K
2160 min Summer	100.719	0.719	9.0	715.1	O K
2880 min Summer	100.659	0.659	9.0	655.8	O K
4320 min Summer	100.539	0.539	9.0	536.5	O K
5760 min Summer	100.440	0.440	9.0	438.1	O K
7200 min Summer	100.359	0.359	9.0	356.8	O K
8640 min Summer	100.294	0.294	9.0	292.2	O K
10080 min Summer	100.244	0.244	8.9	243.2	O K
15 min Winter	100.362	0.362	9.0	360.6	O K
30 min Winter	100.485	0.485	9.0	482.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	140.707	0.0	308.1	26
30 min Summer	94.565	0.0	416.7	41
60 min Summer	60.469	0.0	555.2	70
120 min Summer	37.153	0.0	683.2	130
180 min Summer	27.437	0.0	756.7	188
240 min Summer	22.118	0.0	813.2	246
360 min Summer	16.280	0.0	896.9	364
480 min Summer	13.075	0.0	959.3	484
600 min Summer	11.021	0.0	1009.2	602
720 min Summer	9.579	0.0	1050.6	716
960 min Summer	7.670	0.0	1116.1	822
1440 min Summer	5.596	0.0	1197.5	1074
2160 min Summer	4.073	0.0	1365.9	1480
2880 min Summer	3.247	0.0	1451.2	1904
4320 min Summer	2.355	0.0	1575.0	2644
5760 min Summer	1.876	0.0	1684.4	3408
7200 min Summer	1.573	0.0	1765.0	4112
8640 min Summer	1.363	0.0	1832.8	4768
10080 min Summer	1.207	0.0	1889.2	5448
15 min Winter	140.707	0.0	346.3	26
30 min Winter	94.565	0.0	466.7	40

QuadConsult Ltd		Page 2
Columbus House	Pineapple Farm	
Greenmeadow Springs Business...	Prelim Attenuation	
Cardiff, CF15 7NE		
Date 26/10/2020 12:28	Designed by SPM	
File	Checked by SPM	
Innovyze	Source Control 2020.1	

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
60 min Winter	100.613	0.613	9.0	610.4	O K
120 min Winter	100.738	0.738	9.0	734.7	O K
180 min Winter	100.800	0.800	9.0	796.0	O K
240 min Winter	100.841	0.841	9.0	837.2	O K
360 min Winter	100.891	0.891	9.0	886.1	O K
480 min Winter	100.915	0.915	9.0	910.7	O K
600 min Winter	100.926	0.926	9.0	921.6	O K
720 min Winter	100.929	0.929	9.0	924.0	O K
960 min Winter	100.918	0.918	9.0	913.4	O K
1440 min Winter	100.879	0.879	9.0	874.3	O K
2160 min Winter	100.809	0.809	9.0	804.8	O K
2880 min Winter	100.728	0.728	9.0	724.7	O K
4320 min Winter	100.541	0.541	9.0	537.8	O K
5760 min Winter	100.390	0.390	9.0	388.5	O K
7200 min Winter	100.279	0.279	9.0	277.7	O K
8640 min Winter	100.205	0.205	8.8	204.4	O K
10080 min Winter	100.161	0.161	8.4	160.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
60 min Winter	60.469	0.0	622.5	70
120 min Winter	37.153	0.0	765.3	126
180 min Winter	27.437	0.0	847.4	184
240 min Winter	22.118	0.0	910.3	242
360 min Winter	16.280	0.0	1003.4	358
480 min Winter	13.075	0.0	1072.3	472
600 min Winter	11.021	0.0	1126.9	584
720 min Winter	9.579	0.0	1171.7	694
960 min Winter	7.670	0.0	1239.6	906
1440 min Winter	5.596	0.0	1294.7	1130
2160 min Winter	4.073	0.0	1530.1	1600
2880 min Winter	3.247	0.0	1625.2	2056
4320 min Winter	2.355	0.0	1764.7	2860
5760 min Winter	1.876	0.0	1887.0	3576
7200 min Winter	1.573	0.0	1977.5	4248
8640 min Winter	1.363	0.0	2053.8	4840
10080 min Winter	1.207	0.0	2118.1	5352

Rainfall Details

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)	21.300	Shortest Storm (mins)	15
Ratio R	0.346	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 1.250

Time (mins)		Area	Time (mins)		Area	Time (mins)		Area
From:	To:	(ha)	From:	To:	(ha)	From:	To:	(ha)
0	4	0.417	4	8	0.417	8	12	0.417

QuadConsult Ltd		Page 4
Columbus House	Pineapple Farm	
Greenmeadow Springs Business...	Prelim Attenuation	
Cardiff, CF15 7NE		
Date 26/10/2020 12:28	Designed by SPM	
File	Checked by SPM	
Innovyze	Source Control 2020.1	

Model Details

Storage is Online Cover Level (m) 101.500

Tank or Pond Structure

Invert Level (m) 100.000

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	995.0	1.000	995.0

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0139-9000-1000-9000
Design Head (m)	1.000
Design Flow (l/s)	9.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	139
Invert Level (m)	100.000
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	9.0
Flush-Flo™	0.301	9.0
Kick-Flo®	0.668	7.5
Mean Flow over Head Range	-	7.7

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	5.0	1.200	9.8	3.000	15.1	7.000	22.7
0.200	8.7	1.400	10.5	3.500	16.3	7.500	23.5
0.300	9.0	1.600	11.2	4.000	17.4	8.000	24.2
0.400	8.9	1.800	11.9	4.500	18.4	8.500	24.9
0.500	8.6	2.000	12.5	5.000	19.3	9.000	25.6
0.600	8.2	2.200	13.1	5.500	20.2	9.500	26.3
0.800	8.1	2.400	13.6	6.000	21.1		
1.000	9.0	2.600	14.1	6.500	21.9		

APPENDIX E
Drainage Strategy Drawing
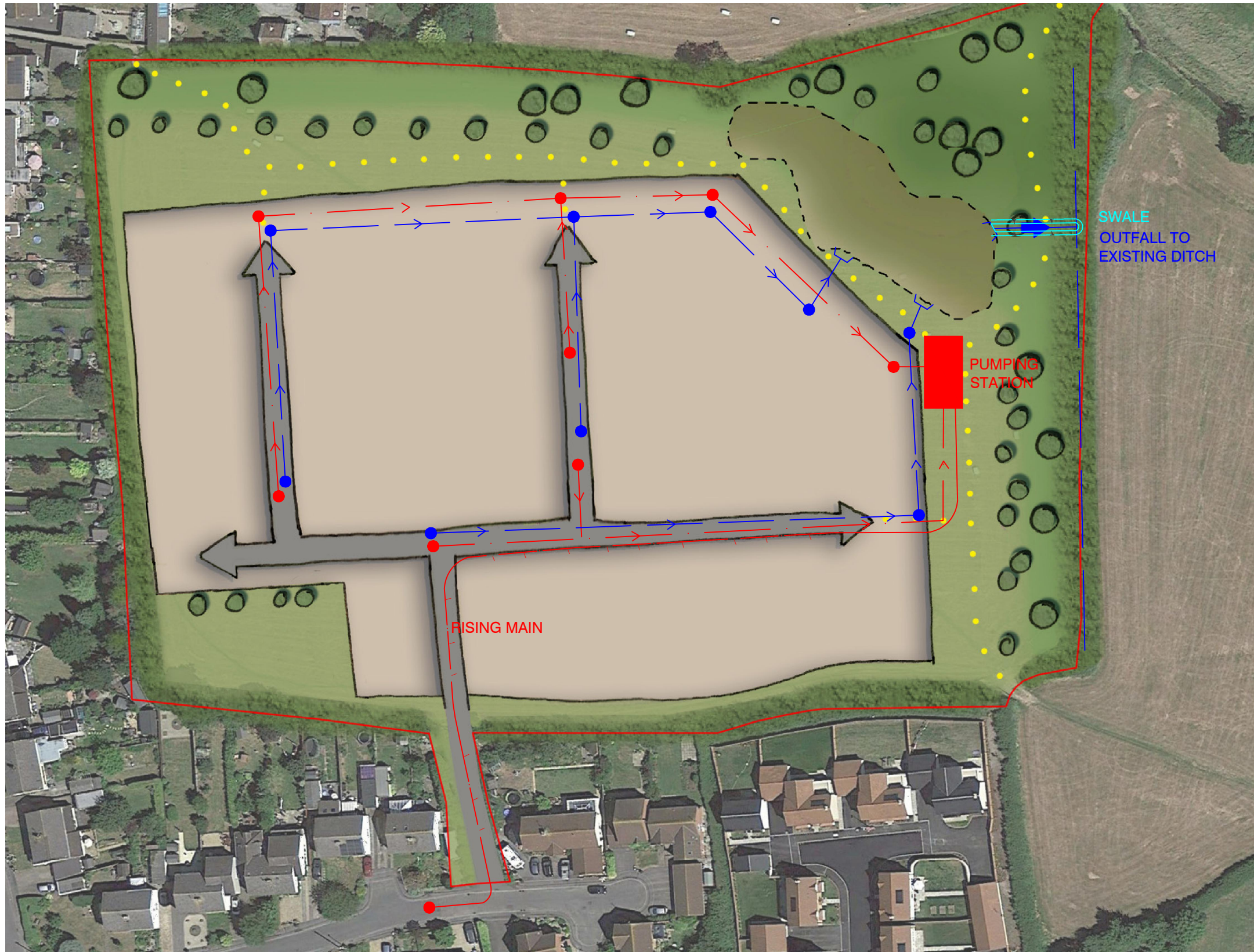
LEGEND -

— · — · — FOUL WATER DRAINAGE

— — — SURFACE WATER DRAINAGE

———— RISING MAIN

SWALE
OUTFALL TO
EXISTING DITCH

PUMPING
STATION

RISING MAIN

THIS DRAWING IS FOR
INFORMATIVE PURPOSE

N
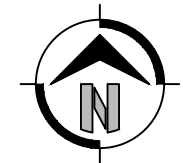
INFORMATION

| 01 | 09.03.2021 | UPDATED TO SUIT NEW ARCHITECTS DRAWING | SJ |
| Rev | Date | Description | By |

Dimensions to be verified on site.
This drawing should not be scaled. Use figured dimensions only
Any discrepancies should be referred to the Engineer prior to work being put in hand.
This drawing is copyright.

Drawing Status

INFORMATION

QuadConsult Limited
Columbus House, Village Way
Greenmeadow Business Park
Cardiff
CF15 7NE

029 2077 9644
contactus@quadconsult.co.uk
www.quadconsult.co.uk

QuadConsult
ENGINEERS IN PARTNERSHIP
Consulting Civil & Structural Engineers

Client

M7 Planning
Professional Land Promotion

Project

PINEAPPLE FARM

Title

PROPOSED
DRAINAGE SCHEMATIC

| Designed by | Drawn by | Checked by | Date | Scales @ A3 size |
| SM | LF | SM | DEC '20 | 1:1000 |

Drawing No

20116   SK002   1

File name: 20116-Rev1-SK002-Proposed Drainage Schematic.dwg

APPENDIX F
Wessex Water Correspondence

Steve McCarthy

From:	Teddy Takyi-Amuah <Teddy.Takyi-Amuah@wessexwater.co.uk>
Sent:	26 October 2020 11:59
To:	Steve McCarthy
Subject:	WW RESP : ST46SW/ 34 : Pineapple Farm, Congresbury BS49 5HE
Attachments:	WWMAP1.PDF; WWMAP2.PDF; WWMAP3.PDF; WWMAP4.PDF

Good afternoon Steve,

Re: 90 new dwellings proposed at Pineapple Farm, Congresbury BS49 5HE

Many thanks for enquiry and earlier discussions on the above proposal. Please note the comments below as discussed.

Foul drainage

- The site must be served by a separate system of drainage; The developer should maintain the integrity of a separate foul and surface water sewer systems and is responsible for any blockages, pumping station breakdown, cross-connections, etc., and any impact (e.g., flooding or pollution, etc.) up to the time the sewers are adopted.

- There is a general lack of capacity within the receiving public foul network. A point of connection based on local topography, proposed site entrance and the proposed 90 dwellings can be considered to the 150 mm dia public fouls sewers within Mulberry Road. Please review the manhole levels below for the nearest manholes on this sewer line and note that any changes to the proposed method of conveyance and points of connection will need to be discussed with Wessex Water.

    o   Manhole: ST4463 2002
        - Cover level: 14.64
        - Invert level: 12.60

    o   Manhole: ST4463 2011
        - Cover level: 14.37
        - Invert level: 12.99

- As well as crossing existing ditches to facilitate a connection, Wessex water also notes that pumping may be required to reach either manhole 2002 or manhole 2011 in Mulberry Road. We, therefore, recommend that a suitable compound measuring is reserved within the site to accommodate an adequately sized foul water pumping station, The wet well of the pumping station should be sited not less than 15.0m from a habitable building.

Surface water

- The site is predominantly greenfield with no obvious connections to the public surface water network.

- Wessex Water anticipates that a catchment approach which considers flood risk measures will be reviewed with the LLFA and in line with the NPPF and the Suds hierarchy and local flood risk measures.

I hope the above is enough to proceed with the design. A review of the contents of this email will be required where 18 months or more have elapsed. In the light of significant changes, any variations that are likely to impact upon the response (e.g. changes drainage strategy, development numbers or phasing) will need to be discussed with Wessex Water.

Kind regards,

Teddy Takyi-Amuah
Wessex Water / Planning Liaison
Claverton Down Bath BA2 7WW
wessexwater.co.uk

We are always looking to improve our level of service and we would appreciate your feedback. Please click here to tell us more about your experience with us.   Please enter reference ST46SW/ 34 when prompted. The survey should take no more than two minutes to complete.

_____

_____

WWMAP2

WATER MAINS

———	Distribution Main
———	Washout Main
– – –	Raw Water Main
·······	Abandoned Main
– – –	Private Main

SITES

Ⓢ	Source
Ⓡ	Reservoir
Ⓟ	Pump
TW	Treatment Works

FITTINGS

✕	Valve - Open
✕	Valve - Closed
●	Fire Hydrant
►	Pressure Reducing Valve
Ⓜ	Meter

SEWERS

	PUBLIC	PRIVATE	SECTION 104
Foul			
Surface			
Combined			
Abandoned			

Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow) styles of line are shown on the key in sample/typical colours.

STRUCTURES

●	Manhole - Foul
○	Manhole - Surface
●	Manhole - Combined
– – –	Outfall
– – –	Inlet
	Lamphole
■	Bifurcation - Foul
□	Bifurcation - Surface
▬	Bifurcation - Combined
CSO	Combined Sewage Overflow

△	Pumping Station - Surface
▲	Pumping Stn - Foul/Combined
	Gully
	Vent Column
	Rodding Eye
	Catchpit
	Flushing Chamber
	Soakaway
►	Non Return Valve
✕	Washout
◆	Air Valve
HB	Hatch Box

OTHER WESSEX PIPES

———	Rising Mains
—EDM—	Effluent Disposal
——▷—	Overflow
—S—	Syphon

NON-WESSEX / UNKNOWN

·······	Private Rising Mains
·CW·	Culverted Watercourse
—H—	Highway Drain
—?—	Use Unknown
—SU—	Status Unknown

OTHER STRUCTURES

	Attenuation Tank
	Storage Tank
	Chamber
	Tunnel
	Interceptor

Wessex Water
a YTL company

Date: 26/10/2020, 11:50:29
Scale: 1:1250
Centre: 344174, 163135

WWMAP3

BLACKBERRY BARN
12436

Park
Farm

Fig Tree Barn

Blackberry Barn

Track

FB

3001
3011   150
160

3011

Roebourne
House

2021   2020
2022
3023   19
3000
2025

27

7

3003   100   3002
3007   225   225   3013   3009   3010
3008

10

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WATER MAINS
—— Distribution Main
—— Washout Main
– – – Raw Water Main
· · · Abandoned Main
· · · Private Main

SITES
Ⓢ Source
Ⓡ Reservoir
Ⓟ Pump
ⓉⓌ Treatment Works

FITTINGS
✕ Valve - Open
✕ Valve - Closed
● Fire Hydrant
▷ Pressure Reducing Valve
Ⓜ Meter

SEWERS   PUBLIC   PRIVATE   SECTION 104
Foul
Surface
Combined
Abandoned
Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface,
Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow) styles of line are shown on the key in sample/typical colours.

STRUCTURES
● Manhole - Foul
○ Manhole - Surface
● Manhole - Combined
– –(Outfall
– –] Inlet
Lamphole
■ Bifurcation - Foul
□ Bifurcation - Surface
■ Bifurcation - Combined
Combined Sewage Overflow

△ Pumping Station - Surface
▲ Pumping Stn - Foul/Combined
Gully
Vent Column
Rodding Eye
Catchpit
Flushing Chamber
Soakaway
▶ Non Return Valve
✕ Washout
◆ Air Valve   HB Hatch Box

OTHER WESSEX PIPES
—— Rising Mains
—EDM— Effluent Disposal
—▷— Overflow
—S— Syphon

NON-WESSEX / UNKNOWN
· · · Private Rising Mains
· CW · Culverted Watercourse
—H— Highway Drain
—?— Use Unknown
—SU— Status Unknown

OTHER STRUCTURES
Attenuation Tank   Chamber
Storage Tank   Tunnel
                          Interceptor

Information in this plan is provided for identification purposes only. No warranty as to accuracy is given or implied. The precise route of
pipe work may not exactly match that shown. Wessex Water does not accept liability for inaccuracies. Sewers and lateral drains adopted by
Wessex Water under the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011 are to be plotted over time and may
not yet be shown. In carrying out any works, you accept liability for the cost of any repairs to Wessex Water apparatus damaged as a result
of your works. You are advised to commence excavations using hand tools only. Mechanical digging equipment should not be used until
pipe work has been precisely located. If you are considering any form of building works and pipe work is shown within the boundary of
your property or a property to be purchased (or very close by) a surveyor should plot its exact position prior to commencing works
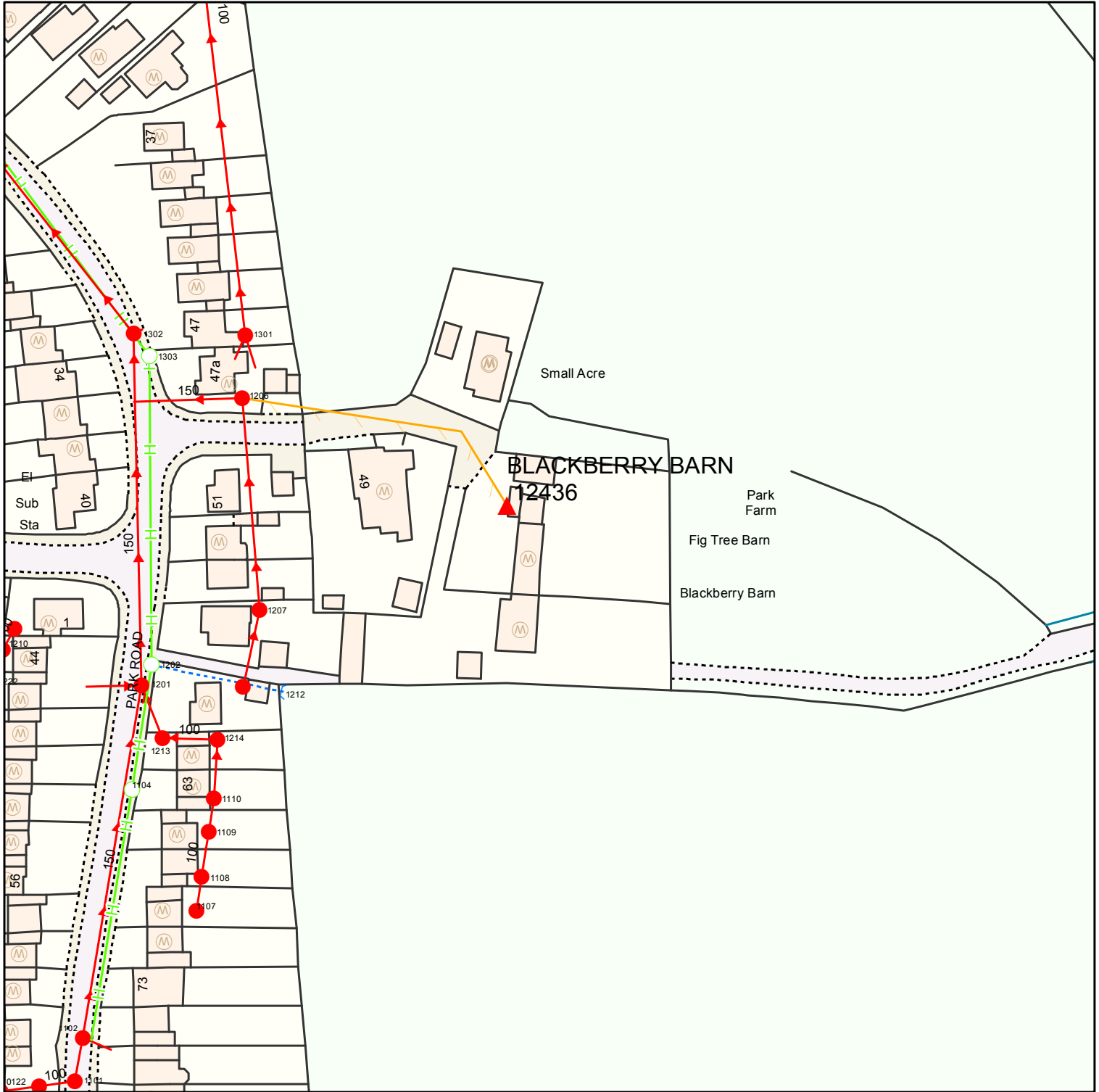or purchase. Building over or near Wessex Water's apparatus is not normally permitted.

Wessex Water
a YTL company

Date: 26/10/2020, 11:54:42
Scale: 1:1250
Centre: 344323, 163164

WWMAP4

Small Acre

BLACKBERRY BARN
12436

Park Farm

Fig Tree Barn

Blackberry Barn

PARK ROAD

El Sub Sta

100, 150, 49, 51, 47, 47a, 37, 34, 40, 44, 1, 56, 63, 73, 100, 102

1301, 1302, 1303, 1206, 1207, 1201, 1202, 1210, 1212, 1213, 1214, 1104, 1110, 1109, 1108, 1107, 1101

WATER MAINS
- Distribution Main
- Washout Main
- Raw Water Main
- Abandoned Main
- Private Main

SITES
- S Source
- R Reservoir
- P Pump
- TW Treatment Works

FITTINGS
- × Valve - Open
- × Valve - Closed
- ● Fire Hydrant
- ▷ Pressure Reducing Valve
- M Meter

SEWERS
	PUBLIC	PRIVATE	SECTION 104
Foul			
Surface			
Combined			
Abandoned			

Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow) styles of line are shown on the key in sample/typical colours.

STRUCTURES
- ● Manhole - Foul
- ○ Manhole - Surface
- ● Manhole - Combined
- Outfall
- Inlet
- Lamphole
- ■ Bifurcation - Foul
- □ Bifurcation - Surface
- Bifurcation - Combined
- Combined Sewage Overflow
- △ Pumping Station - Surface
- ▲ Pumping Stn - Foul/Combined
- Gully
- Vent Column
- Rodding Eye
- Catchpit
- Flushing Chamber
- Soakaway
- ▶ Non Return Valve
- × Washout
- ◆ Air Valve
- HB Hatch Box

OTHER WESSEX PIPES
- Rising Mains
- EDM Effluent Disposal
- ▷ Overflow
- S Syphon

NON-WESSEX / UNKNOWN
- Private Rising Mains
- CW Culverted Watercourse
- H Highway Drain
- ? Use Unknown
- SU Status Unknown

OTHER STRUCTURES
- Attenuation Tank
- Storage Tank
- Chamber
- Tunnel
- Interceptor

Wessex Water
a YTL company

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Centre: 344225, 163255