



Appendix C

Site walkover photographs

Earl Shilton Site Visit Photographs – 10/03/12

Plate 1 – Start of the Earl Shilton Brook – surface water outlet – note rag debris



Plate 2 – upper section of the Earl Shilton Brook



Plate 3 – upper section of the Earl Shilton Brook



Plate 4 – upper section of the Earl Shilton Brook (structure 1)



Plate 5 – upper section of the Earl Shilton Brook – surface water drain outlet from the north



Plate 6 – Earl Shilton Brook central section (structure 2 inlet)



Plate 7 – Earl Shilton Brook (structure 2 outlet)



Plate 8 – Earl Shilton Brook (structure 3)



Plate 9 – Earl Shilton Brook – overgrown section just west of WwTW



Plate 10 – Earl Shilton Brook (structure 4 – deck bridge)



Plate 11 – Earl Shilton Brook (WwTW CSO outlet)



Plate 12 – Earl Shilton Brook (treated effluent outlet)



Plate 13 – Earl Shilton Brook downstream of WwTW outlets



Plate 14 – Earl Shilton Brook (structure 5)



Plate 15 – Earl Shilton Brook (inlet to concrete channel through underpass beneath A47)



Plate 16 – Earl Shilton Brook view upstream (outlet from concrete channel through underpass beneath A47) – structure 6 in foreground



Plate 17 – Earl Shilton Brook view upstream from east of A47 (structure 6 and A47 underpass at back of pictures). Outlet structures are associated with A47 bypass SuDS



Plate 18 – Earl Shilton Brook view downstream from A47 (structure 7 in distance)



Plate 19 – view from south of site towards WwTW



Plate 20 – view from southeast of site towards recreation area



Plate 21 view north along A47 towards A47 underpass (in distance)



Plate 22 – view from northeast portion of the site southwards (A47 on left)



Appendix D

Evidence of consultation process

Ms Rebecca Grant
Hinckley & Bosworth Borough Council
(Leisure Services)
Council Offices Argents Mead
Hinckley
Leicestershire
LE10 1BZ

Our ref: LT/2012/114530/01-L01
Your ref: 12/10161/PREAPP
Date: 27 April 2012

Dear Ms Grant

**EARL SHILTON SUSTAINABLE URBAN EXTENSION - LAND TO THE EAST OF
EARL SHILTON**

Thank you for your request for scoping opinion on the Sustainable Urban extension, received 12 April 2012.

The Environment Agency has reviewed the scoping document and we have the following comments to make.

Water quality

The EIA process should consider the impact on foul water infrastructure resulting from the increased demand. This should include the impact on the receiving Sewage Treatment Works as a result of the additional sewage effluent produced by the proposal.

There should be consideration within the EIA of water quality as an indicator of the sustainability of the proposals. This should address potential effects at various phases of development on surface and groundwater in the area.

Under the Water Framework Directive, water quality assessments use a methodology which focuses on the ecological health of waters. The aim is to achieve good ecological status of water bodies by 2015. The Water Framework Directive also requires that there is no deterioration in the ecological status of water bodies.

The current status and objectives for each water body in Leicestershire is reported in Annex B of the Humber River Basin Management Plan (available from the Environment Agency's website) and Annex C includes the specific actions to deliver the objectives.

Biodiversity

Environment Agency
Trent Side North, West Bridgford, Nottingham, NG2 5FA.
Customer services line: 03708 506 506
www.environment-agency.gov.uk
Cont/d..

The Ecological Impact Assessment should adhere to the most current IEEM guidelines for such assessments. The development proposed is large and we would expect to see a good proportion of retained, created habitat on the site. It should also be noted that the benefits to wildlife should be intrinsic to the development for example, the site has the potential to create new environmental assets i.e. biodiversity gains through habitat creation, good quality design and the use of sustainable construction methods and the use of locally sourced materials i.e. green roofs and contribute to ecological networks and create habitat corridors, especially linking fragmented habitats of high wildlife value.

We also recommend that the following be investigated:

- Assessment of protected species i.e. badger, water vole and otter within the site (to include all open watercourses within the site)
- A construction method statement to protect biodiversity, ground and surface waters

Flood Risk

The scoping opinion refers to the production of a full flood risk assessment for the site which contains a variety of hydrological features, and on that basis we agree with the study.

The FRA will be required to demonstrate that there is no increase in flood risk to third parties as a result of the scheme. Impacts upon the local watercourses should be avoided or minimised wherever possible.

We are encouraged by the inclusion of above ground attenuation features, however there should be a commitment to further sustainable drainage techniques as part of the EIA, which should be clearly detailed in the Environment Statement.

We would expect a detailed assessment upon the hydrological impacts which will include a comparison of the pre development scenario with during and post development arrangements.

Other considerations

All other considerations with the scoping documents are adequate.

Yours sincerely

Mr Andrew Pitts
Planning Liaison Officer (Derbyshire)

Direct dial
Direct fax
Direct e-m





FW: Flooding dData Request for site west of A 47, Earl Shilton,

Chris Brown

19/03/2012 16:24

Cc: Rob Parkinson

Dear Dr Breakspear,

I'm sorry to have taken so long to respond to your request for information on the above site, and I hope your compilation of data has not been unduly delayed because of it.

Possibly because the area in question has always been in agricultural use there is no recorded history of flooding. However, the easterly flowing tributary of Thurlaston Brook (itself a tributary of the River Soar) is the receiving watercourse for most of the area of Earl Shilton south of its main axis road (the former A47). A large fraction of this urban area is drained by combined sewer networks, so surface water exceeding six times dry weather flow from these areas discharges direct to the brook, and three times dry weather flow via the storm tanks at Earl Shilton sewage treatment works, having received only partial treatment. Post-war development is drained on both the partially separate and separate systems.

The brook's course takes it along the southern boundary of the treatment works, and on to the culvert under Earl Shilton Bypass (the new A47). I recall advising the county council's consultants to take account of the large variations of flow – and high peak flows – in this brook when designing the waterway area of the culvert; although I'm sure they ascertained the flow rates for themselves. The brook also receives pumped sewage from the neighbouring village of Barwell, up to a multiple of (I think) 6 x dry weather flow, much of the village being drained by combined systems. Three pumping stations, in parallel operation, lift combined sewage flows from the remote drainage areas to the treatment works or its main feeder sewer.

It is quite likely that most of the brook's base flow comprises treated sewage, but urban runoff discharges to it very quickly, partly because of steep gradients and partly because there is so little attenuation in the pipe systems. For actual brook flows and the timing of major discharges to it please contact Severn Trent at Leicester Water Centre.

Kind Regards,
Chris Brown

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RE: Earl Shilton WwTW - discharge data request

Arkesden, James to: [REDACTED]

07/11/2012 09:54

History:

This message has been forwarded.

Richard,

Please accept my apologies for the delay I have had to have this modelled and seek some guidance on the results.

Please bear in mind that these flows were required for flood risk so the modeller has disconnected the storm tank from the model and provided flows directly from the overflow as a worse case. We currently do not run climate change on our models and would not run a 1000yr storm as it would not be representative for the model, The results for 20 and 100 year events are as follows;

20yrs 90min - peak flow=1.094m³/s; max discharge=5336m³

100yrs 90min - peak flow=1.2m³/s; max discharge=7467m³

The maximum flow of treated effluent during the storms would be 155l/s

'The information is provided for use in the flood risk assessment only and should not be used for any other purpose'

Regards

James Arkesden

Planning & Performance

Severn trent Water

From: [REDACTED]

Sent: 07 November 2012 09:12

To: Sewer Capacity Assessment

Cc: [REDACTED]

Subject: Re: Earl Shilton WwTW - discharge data request

Hi,

Just wondering if there had been any progress on this query? Would it be possible to respond with the flow values in the next few days?

Best regards,

Richard

Dr Richard Breakspear

Senior Consultant (Flood Risk, Hydrology and Geomorphology)

AMEC

AMEC Environment & Infrastructure UK Limited

155 Aztec West, Park Avenue, Almondsbury, Bristol, BS32 4UB, UK

Tel: [REDACTED]

Dir: [REDACTED]

amec.com/uk/environment

Be more sustainable - think before you print

From: [REDACTED]
To: [REDACTED]
Cc: [REDACTED]
Date: [REDACTED]
Subject: Re: Earl Shilton WwTW - discharge data request

Richard

We are currently looking into this for you and I will respond accordingly

Regards

James Arkesden
Modelling Specialist
Planning and Performance | Waste Water Services
Severn Trent Water Ltd
Email: sewer.capacity@severntrent.co.uk

[REDACTED]
16/10/2012 10:07

cc: [REDACTED]
Subject: Earl Shilton WwTW - discharge data request

Dear David,

I've been speaking with James Arkesden at Severn Trent and Iris Isaken (AMEC, on the STWL framework for other catchments), and have been pointed in your direction with regards to Earl Shilton WwTW.

AMEC are undertaking a range of environmental studies associated with the proposed development of adjacent greenfield land at Earl Shilton, Leicestershire. The Earl Shilton WwTW are situated adjacent to this site, and discharges treated effluent that enters a watercourse which passes through the site.

Grid ref: SP 47590 97497

Aerial image:

http://gridreferencefinder.com/?gr=SP4759097497%7CPoint_s_D%7C0&z=15&v=h&t=Point_s_D

The watercourse (a tributary of the Thurlaston Brook) flows through the site west to east, immediately to the south of the sewage treatment works. I'm a hydrologist looking at flood risk to the proposed development, I'm building a hydraulic model of the watercourse to model the extent of flooding along the watercourse, and need to establish the inflows to undertake this. The watercourse rises a little to the west, and during dry periods the majority of the flow in the watercourse is the treated effluent discharge from the sewage works. The works also has a second storm overflow outlet, which when

visited was dry, although there was a notable amount of 'rag' debris in the bank vegetation downstream of this - clearly it can discharge a notable amount of flow. Both of the discharge pipes have a diameter of 0.9m where they outfall to the watercourse.

I'm trying to get an idea of the maximum discharges from the works into the watercourse during a flood event. Ideally I'd be interested in the following events (total discharge):

- 1 in 20 year / 5% AEP
- 1 in 100 year / 1% AEP
- 1 in 100 year / 1% AEP + climate change
- (1 in 1000 year / 0.1% AEP - I suspect this isn't considered though)

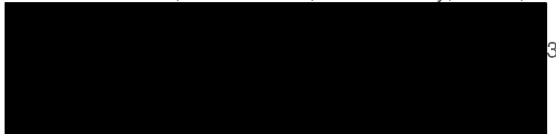
Would you be able to supply this discharge information?

Best regards,

Richard

Dr Richard Breakspear
Senior Consultant (Flood Risk, Hydrology and Geomorphology)
AMEC

AMEC Environment & Infrastructure UK Limited
155 Aztec West, Park Avenue, Almondsbury, Bristol, BS32 4UB, UK



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02290928



AMEC E & I UK Ltd/Bloor Homes
Gables House
Kenilworth Road
Leamington Spa
Warwickshire
CV32 6JX

F.A.O: Mr Phill Clay

Severn Trent Water Ltd
Leicester Water Centre
Gorse Hill
Anstey
Leicester
LE7 7GU

Tel: 0116 234 3834

Fax: 0116 234 3035

www.stwater.co.uk

net.dev.east@severntrent.co.uk

26th July 2012

Contact: Keith Baker

Direct line: 0116 234 3786

Mobile no: 07889 631417

Your ref:

Our ref: WT26777 / 8092948

Dear Sirs,

Land at Earl Shilton, Leicestershire
Proposed residential and commercial development
(447298, 297437)

I refer to your recent Development Enquiry Request in respect of the above site. Please find a copy of the sewer records and 'Additional Guidance Notes' enclosed for your information.

Sewer Crossing

There are several public sewers shown located within the proposed development area. These sewers include the following:

825mm dia Combined inlet sewer to the sewage treatment works (STW)

375mm dia combined inlet sewer to the STW

825mm dia surface water sewer outfall

300mm dia surface water outfall

300mm dia combined sewer

150mm dia foul rising main

Appropriate sewer easements will be required for public sewers crossing the site, alternatively some of these sewers may require diverting. Please ensure early discussions with Severn Trent if sewer diversions are to be considered.

Foul Water Drainage

Due to the large size and location of this proposed development sewer modelling will be required. The modelling will establish the limits of the existing sewerage network, and will enable us to understand what improvements are required to enable this development to drain to the public sewerage system. The size of the development would suggest that the existing treatment works may require some measure of upgrading to accept the increased volumes of sewage flows from the development. Sewer modelling is developer funded, however network improvements will be funded by Severn Trent. It is likely that some phasing of this development will be necessary.

Surface Water Drainage

Under the terms of Section H of the Building Regulations 2000, the disposal of surface water by means of soakaways should be considered as the primary method. If this is not practical and no watercourse is available as an alternative, the use of sewerage should be considered. In addition, other sustainable drainage methods should also be explored before a discharge to the public sewerage system is considered.

The application states that surface water run-off from the impermeable areas of the proposed development will be dealt with using SUDs techniques. There are suitable watercourses and drainage ditches located adjacent and within the site boundaries for the disposal of surface water run-off.

Any flows generated by the site in excess of the permitted discharge rate will have to be attenuated within the development site. Discharge and balancing requirements will be determined by the Environment Agency and the Local Planning Authority.

For any new connection(s) into the public sewer network **or the reuse of an existing sewer connection(s)**, you will need to apply under Section 106 Water Industry Act 1991 as amended by the Water Act 2003. Our New Connections Team currently processes Section 106 applications, please contact them on 0800 707 6600 for an application pack and guidance notes (or visit www.stwater.co.uk). For the avoidance of doubt, it is suggested that you quote the reference number above. Applications to make such connections should be made separately from any application for adoption of the related sewers under Section 104 Water Industry Act 1991 as amended by the Water Act 2003.

Additional Guidance Notes

If you experience difficulty in the provision of off-site sewers to serve your proposed development, an application for requisition sewers under Section 98 Water Act 2003 may be appropriate on request to this office.

If there are existing public sewers within the curtilage of the development site that may affect the proposed development, the option to divert them under Section 185 Water Act 2003 may be available. All costs incurred would lay with the Applicant.

All potentially adoptable sewers must be designed and constructed in accordance with the guidelines in Sewers for Adoption (6th Edition), after 1st May 2006. A Severn Trent Water Addendum for Foul Sewage Pumping Stations will be available at www.wrcplc.co.uk/sfa.

If the sewers are to be offered for adoption or if the development works could affect the public sewerage system, the Developer should approach Severn Trent Water Ltd to discuss their proposals in detail. This is to ensure the Developer is aware of the Company's requirements which could affect the development design and/or programme.

In cases where the complexity of both the existing receiving sewerage system and the proposed additional sewerage necessitates the construction of a suitable computer model, Severn Trent Water can offer this service. Enquiries should be addressed to James Arkesden in our Infrastructure Strategy Team who can be contacted on 07854 405055 or email to: sewer.capacity@severntrent.co.uk.

Severn Trent Water has no knowledge of any specific land drainage issues involving this site. The Developer is to contact and seek approval of The Environment Agency, Local Authority etc. regarding any means of surface water disposal to the land drainage system, required attenuation, discharge consent etc.

All enquiries with respect to the supply of sewer records only should be directed to Severn Trent Water Limited, Asset Data Management, PO Box 5344, Coventry. CV3 9FT (Tel. 0845 601 6616).

Asset Protection
Waste Water East

creating a better place



**Environment
Agency**

Katie Anderton
BWB Consulting
3-4 Kayes Walk
The Lace Market
Nottingham
NG1 1PY

BWB CONSULTING LTD	
NTE173	
RECD 28 APR 2008	
TO SEE	SEEN
KA	2/5/08

Our Ref: CS 25514/EC/RE
Your Ref: KA/NTE173/080328

Date: 24th April 2008

Dear Ms Anderton,

Request for information –Earl Shilton, Leicestershire

Thank you for your letter requesting information about the above and acknowledge your payment of £61.75 for your request.

The site falls outside the extreme flood risk area. This area has an annual chance of flooding of ≤ 1000 to 1 (or $\leq 0.1\%$). The Environment Agency maps do not show all minor watercourses or canal floodplains and you should contact your Local Authority/Internal Drainage Board for clarification.

We have no records of historic flooding at this location. However, we would advise that this does not mean there has never been historic flooding in this location or that the area is automatically free from a risk of flooding. We do not claim that all flood events have been recorded.

As this site is located in Flood Zone 1, development in this category (i.e. over 1 ha) can generate significant volumes of surface water. The impact and risks posed by this will vary according to both the type of development and the characteristics of the catchment. The size of the site and associated development may present a significant flood risk from the generation of surface water run-off and would require a Flood Risk Assessment (FRA) as required by PPS 25.

Also, any water conveying ditches or swales must be included within the FRA to ascertain whether they would pose a flood risk to the site. The term watercourse includes all open, bridged, culverted or piped rivers, streams, ditches, drains, cuts, dykes, sluices and passages through which water flows.

You must ensure that the run-off will be attenuated to existing greenfield run-off rate, typically considered to be 4-5l/s/ha, and for the drainage system to be designed to a 1:100 year standard, with an additional 20% capacity to account for climate change. Flows in excess of the permitted discharge rate need to be attenuated on site, up to a 1:100 year (return period) flood event.

Please note that we have no objections, in principle, to storing surface water surcharge in an appropriate environment such as hard paved areas, not immediately surrounding properties, public open space and highways, on the understanding that water levels are not high and will be contained in these areas for only short periods.

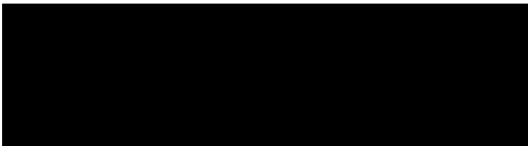
Environment Agency, Trentside Offices, Scarrington Road, West Bridgford, Nottingham, NG2 5FA
Customer services line: 08708 506 506
Email: enquiries@environment-agency.gov.uk
www.environment-agency.gov.uk



INVESTOR IN PEOPLE

Please contact the relevant Development Control Officers for Leicestershire - Hannah Hogan or Jon Vann on 0115 846 3652 or via e-mail hannah.hogan@environment-agency.gov.uk

Yours sincerely,



STEVEN TUPPER
Team Leader - External Relations

For further information please contact Ruth Elliott/Neha Atri on 0115 846 3696/3682
Direct fax 0115 846 2681
Direct e-mail midseast@environment-agency.gov.uk

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From: Jack Harriman [REDACTED]
Sent: 04 September 2020 10:37
To: Grange, Chris
Cc: Breakspear, Richard
Subject: RE: Earl Shilton development, LLFA pre application advice request

CAUTION: External email. Please do not click on links/attachments unless you know the content is genuine and safe.

Hi Chris

Thank you for request for pre-application advice. Following review of the submitted documents, I can confirm the following.

When determining planning applications, the local planning authority should ensure flood risk is not increased elsewhere and only consider development appropriate in areas at risk of flooding where informed by a site-specific flood risk assessment (FRA) confirming it will not put the users of the development at risk. Where a FRA is applicable this should be undertaken in accordance with the National Planning Policy Framework (NPPF) and accompanying Planning Practice Guidance (PPG).

Leicestershire County Council's Infrastructure Planning (Flood Risk Management) team has no records of flooding incidents within close proximity to the site. However, it is advised that not all instances of flooding are reported to Leicestershire County Council and as such, there may be a history of flooding for which we have no record.

All development has the potential to increase flood risk so it is essential that all forms of flooding are taken into consideration within any flood risk assessment (where required) or planning application. Where there is insufficient information regarding any aspect of risk, the responsibility to investigate falls to the applicant.

Leicestershire County Council as the Lead Local Flood Authority (LLFA) would expect a sequential approach to masterplan development, locating development in areas at lowest risk of flooding. For development within or in close proximity to Flood Zone 2, or the risk of flooding from surface water is medium or high risk as identifies on the risk of flooding from surface water map, the LLFA would expect finished floor levels to be set at a minimum of the highest level of the following;

- 300mm above the general ground level of the site OR
- 600mm above the Flood Zone 2 water level.

In order to deliver safe development, we advise that single storey buildings or ground floor subdivisions with no access to higher floors, should have access to a refuge set above the 1 in 1,000 annual probability (0.1%) in any year flood level including an allowance for climate change. Basement rooms should have unimpeded access internally to an upper level

From review of the submitted masterplan, the proposed development does not identify the use of any sustainable drainage systems (SuDS) features for surface water drainage. Given the currently undeveloped nature of the site, the LLFA would expect surface water runoff from the site to be suitably managed as per best practice guidance given in the CIRIA C753 The SuDS Manual.

The LLFA would expect any surface water drainage proposal to seek to infiltrate unless demonstrated to be unfeasible. Such demonstration should include infiltration testing in accordance with BRE Digest 365

Soakaway Design. At outline stage this is only required should the site propose infiltration techniques. If not proposed then infiltration testing may be conditioned to demonstrate that is not viable to use them.

Should this not be appropriate, the LLFA would expect runoff from site to be discharge to the next most appropriate receptor at rates no greater than the specific QBar greenfield value. Appropriate SuDS should be utilised to achieve this with attenuation provided up to the peak return periods plus a 40% allowance for climate change.

Over the lifetime of a development, it is possible that the overall impermeable area contributing to surface water runoff within the site could significantly increase (known as 'urban creep'). Sensitivity testing of a 10% increase in impermeable area should therefore be included where appropriate to ensure that surface water drainage designs can cope with future increases in impermeable areas.

The unnamed watercourse running through the centre of the site, as well as any adjacent field ditches, is classified as an ordinary watercourse; as such consent may be required from Leicestershire County Council in their role as LLFA, under the Land Drainage Act (1991) for any activities within close proximity. Further information on the types of work/structure which require consent together with a template application form can be found on our website under the section 'Regulation of activities on watercourses'.

Leicestershire County Council opposes the culverting of watercourses; however, we recognise there are instances where culverting may be unavoidable. Any applicant will be required to justify the use of culverts and provide information demonstrating that there will be no detrimental effect on flood risk. Please refer to the County Council's Local Flood Risk Management Strategy which contains the culverting policy (Appendix 3) which can also be found on our website.

To safeguard access to watercourses or ditches for future maintenance, inspection and improvement works in the future; clear margins should be provided from the top of banks. A minimum clear margin of 3m should be provided from each top of bank for watercourses less than 2 metres in width, a minimum clear margin of 4.5m should be provided for watercourses 2 metres or greater in width.

The LLFA would expect any future surface water drainage scheme to assess the use of SuDS including but not limited to swales, attenuation basins and permeable paving in line with 'CIRIA C753 The SuDS Manual'. Such above ground SuDS structures would also provide one of the required treatment trains to manage water quality. It should be noted that the LLFA do not consider the use of underground storage tanks or oversize pipes as a suitable treatment train and as such where these are proposed, additional treatment trains should be implemented. Leicestershire County Council, in their role as LLFA, does not adopt SuDS. For enquiries regarding the proposed development and future adoption and maintenance of SuDS features, please direct these to your local District or Borough Council.

Any surface water drainage features should be located within the areas at lowest risk of flooding to ensure they remain operational during an extreme event. Any drainage features should also consider how an extreme event may constrain the discharge from any proposed drainage system and ensure the drainage infrastructure can adequately manage surface water runoff regardless (for example a surcharged outfall).

Where a site-specific flood risk assessment (FRA) is required by NPPF the associated drainage strategy should also provide outline operation and maintenance details along with an indicative proposal of who will maintain any SuDS features over the lifetime of the development.

For more information on requirements on surface water runoff and SuDS design the LLFA planning checklist and guidance which provides further details can be found [here](#).

If you have any further questions, please do not hesitate to contact us.

Kind regards

Flood Risk Management (Infrastructure Planning)

Environment & Transport Department

Leicestershire County Council

e. llfa@leics.gov.uk

t. 0116 305 0001

From: Grange, Chris
Sent: 18 August 2020 12:16
To: Flooding
Cc: Breakspear, Richard
Subject: Earl Shilton development, LLFA pre application advice request

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hello,

Can I request pre-application advice for a residential development in Earl Shilton?

Wood are currently supporting our clients Bloor Homes / Jelson Homes / Barwood Strategic Land II, in the undertaking of a Flood Risk Assessment and Environmental Impact Assessment (EIA) for development in Earl Shilton, Leicestershire. The land in question is located to the east of the current extent of Earl Shilton (see location on attached file).

The development would be for

- Up to 1,600 dwellings;
- Up to 4.5 hectares of employment uses comprising a mix of B1, B2 and B8 uses;
- A primary school;
- Up to 2,000 m² of local retail floor space;
- Up to 18.9 hectares of recreational, informal and formal green space including areas of new planting and landscaping; and
- New services such as gas, electricity, water, telecommunications and drainage

The site is currently greenfield.

If possible, would you be able to provide the following advice:

- Criteria for managing runoff from the development:

- When designing the SuDS, what climate change allowance should be used (should it be 40%?);
- Will the on-site SuDS be required to be designed to the Qbar greenfield runoff rate and volume?;
- Are infiltration tests required at the outline planning permission stage? Geological mapping indicates that the strata (Edwalton member, Mudstone – Mudstone bedrock geology, with bands of alluvium and no superficial deposits) beneath the site may not support infiltration; and
- Is there any other information relevant to flood risk or SuDS design at this site?

Additionally:

- Has Leicestershire County Council, as LLFA any other requirements for SuDS design?; and
- Does Leicestershire County Council have any historical, highways, surface water or groundwater flood risk records for this location?

Please let me know if you require any further information
Kind regards,

Chris Grange

Consultant, Water Management

Environment and Infrastructure Solutions

T +44 (0)117317 8961 M +44 (0)7811 980295

www.woodplc.com

The logo for Wood, featuring the word "wood." in a bold, lowercase, sans-serif font. The dot on the "d" is a small square.

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You'll no doubt be aware that the coronavirus pandemic is affecting all public services.

At Leicestershire County Council, we're currently working hard to maintain our critical services. Because of this we're having to prioritise all our work and you may not get a reply as quick as usual.

We're really sorry for any delay - and we hope to reply as soon as we can. Thank you for your support and understanding.

For the latest updates visit: www.leicestershire.gov.uk/coronavirus-covid-19

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Appendix E

Service plan



Sewer Node

REFERENCE	COVER LEVEL	INV LEVEL UPSTR	INV LEVEL DOWNSTR	PURP	MATL	SHAPE	MAX SIZE	MIN SIZE	GRADIENT	YEAR LAID
SP46976303	105.40	103.28	100.02	F	VC	C	225	nil	21.08	nil
SP46976304	105.39	103.72	100.85	S	VC	C	225	nil	22.25	nil
SP46976305	104.35	103.14	102.49	F	VC	C	150	nil	74.31	nil
SP46976306	104.33	103.07	102.34	S	VC	C	150	nil	72.29	nil
SP46977201	103.23	102.21	101.84	S	VC	C	225	nil	118.05	nil
SP46977202	103.72	102.95	102.49	F	VC	C	150	nil	91.41	nil
SP46977203	103.70	102.78	102.34	S	VC	C	150	nil	95.48	nil
SP46977204	104.29	103.09	102.95	F	VC	C	150	nil	58.93	nil
SP46977205	104.28	103.20	102.81	S	VC	C	150	nil	37.33	nil
SP46977206	104.33	nil	103.14	F	nil	nil	nil	nil	0.00	nil
SP46977301	104.62	101.90	101.44	F	VC	C	225	nil	69.87	nil
SP46977302	103.85	101.78	99.30	S	VC	C	300	nil	44.72	nil
SP46977303	103.84	102.31	101.94	F	VC	C	225	nil	97.32	nil
SP46977304	103.39	101.40	99.61	F	VC	C	225	nil	22.52	nil
SP46977305	103.49	101.75	100.00	S	VC	C	225	nil	23.65	nil
SP46977306	101.90	99.61	96.28	F	VC	C	225	nil	24.04	nil
SP46977307	101.81	99.96	96.75	S	CO	C	300	nil	25.66	nil
SP46977308	104.09	102.31	101.84	S	VC	C	225	nil	18.38	nil
SP46977309	104.08	102.48	102.38	F	VC	C	150	nil	72.10	nil
SP46977401	102.49	98.54	98.11	S	VC	C	225	nil	93.47	nil
SP46977402	102.32	97.81	97.39	F	VC	C	225	nil	55.67	nil
SP46977408	101.29	99.00	98.54	S	VC	C	225	nil	102.11	nil
SP46977409	101.32	98.70	97.92	F	VC	C	225	nil	58.15	nil
SP46978301	100.42	99.30	99.06	S	VC	C	300	nil	78.63	nil
SP46978302	99.94	99.01	94.82	S	VC	C	300	nil	23.40	nil
SP46978401	99.62	98.50	96.66	S	VC	C	150	nil	20.04	nil
SP46978402	97.98	96.65	95.80	S	VC	C	150	nil	24.73	nil
SP46978404	98.46	96.27	95.26	F	VC	C	225	nil	30.83	nil
SP46978405	98.44	96.63	95.78	S	CO	C	375	nil	35.86	nil
SP46978406	97.49	95.73	95.64	S	CO	C	450	nil	920.89	nil
SP46978407	97.44	95.24	95.19	F	VC	C	225	nil	1588.20	nil
SP46979301	96.03	94.78	92.79	S	VC	C	300	nil	87.02	nil
SP47971402	95.00	92.49	nil	S	CO	C	450	nil	0.00	nil
SP47971402	95.00	92.48	92.33	S	CO	C	825	nil	34.00	nil

- Abandoned Gravity Sewer
- Private Combined Gravity Sewer
- Private Foul Gravity Sewer
- Private Surface Water Gravity Sewer
- Public Combined Gravity Sewer
- Public Foul Gravity Sewer
- Public Surface Water Gravity Sewer
- Trunk Combined Gravity Sewer
- Trunk Foul Use Gravity Sewer
- Trunk Surface Water Gravity Sewer
- Combined Use Pressurised Sewer
- Foul Use Pressurised Sewer
- Surface Water Pressurised Sewer
- Highway Drain
- Combined Lateral Drain (SS)
- Foul Lateral Drain (SS)
- Surface Water Lateral Drain (SS)

- Culverted Watercourse
- Cable, Earthing
- Cable Junction
- Cable, Optical Fibre/Instrumentation
- Cable, Low Voltage
- Cable, High Voltage
- Cable, Other
- Housing, Building
- Housing, Kiosk
- Disposal Site
- Sewage Treatment Works
- Housing, Other
- Pipe Support Structure
- Sewage Pumping Facility
- Sewer Facility Connection Inlet / Outlet

- Blind Shaft
- Combined Use Manhole
- Flushing Chamber
- Foul Use Manhole
- Grease Trap
- Head Node
- Hydrobrake
- Lampole
- Outfall
- Overflow
- Penstock
- Petrol Interceptor

- Sewer Chemical Injection Point
- Sewer Junction
- Sewerage Air Valve
- Sewerage Hatch Box Point
- Sewerage Isolation Valve
- Soakaway
- Surface Water Manhole
- Vent Column
- Waste Water Storage
- Pre-1937 Properties

TABULAR KEY
Sewer pipe data refers to downstream sewer pipe.
Where the node bifurcates (splits) X and Y indicates downstream sewer pipe.
Gradient is stated a 1 in...

MATERIALS

- NONE
- AC - ASBESTOS CEMENT
- BR - BRICK
- CC - CONCRETE BOX CULVERT
- CI - CAST IRON
- CO - CONCRETE
- CSB - CONCRETE SEGMENTS (BOLTED)
- CSU - CONCRETE SEGMENTS (UNBOLTED)
- DI - DUCTILE IRON
- GRP - GLASS REINFORCED CONCRETE
- GRP - GLASS REINFORCED PLASTIC
- MAC - MASONRY IN REGULAR COURSES
- MAR - MASONRY RANDOMLY COURSED
- PE - POLYETHYLENE
- PF - PITCH
- PP - POLYPROPYLENE
- PSC - PLASTIC STEEL COMPOSITE
- PVC - POLYVINYL CHLORIDE
- RPM - REINFORCED PLASTIC MATRIX
- SI - SPUN (GREY) IRON
- ST - STEEL
- U - UNKNOWN
- VC - VITRIFIED CLAY
- XXX - OTHER

SHAPE

- C - CIRCULAR
- E - EGG SHAPED
- O - OTHER
- R - RECTANGLE
- S - SQUARE
- T - TRAPEZOIDAL
- U - UNKNOWN

PURPOSE

- C - COMBINED
- E - FINAL EFFLUENT
- F - FOUL
- L - SLUDGE
- S - SURFACE WATER

CATEGORIES

- WEIR
- CASCADE
- DAMBOARD
- FLAP VALVE
- BACK DROP
- SIPHON
- HIGHWAY DRAIN
- SECTION 104

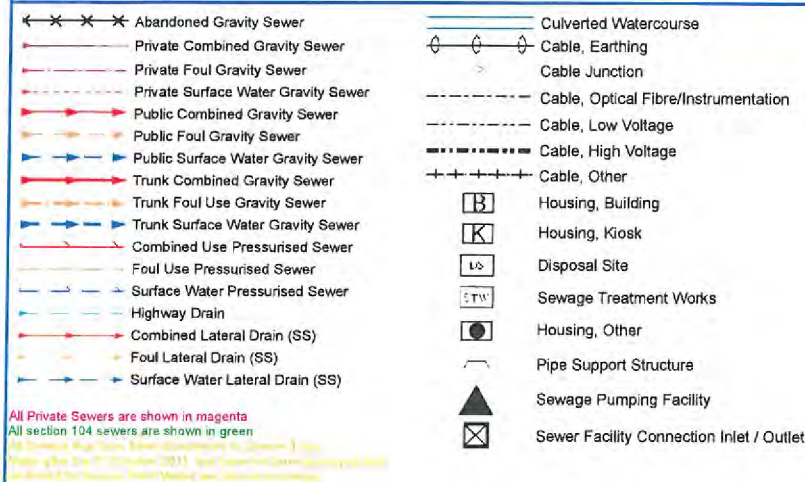


Severn Trent Water Limited
Asset Data Management
PO Box 5344
Coventry
CV3 9FT
Telephone: 0845 801 6616

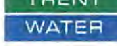
SEWER RECORD (Tabular)

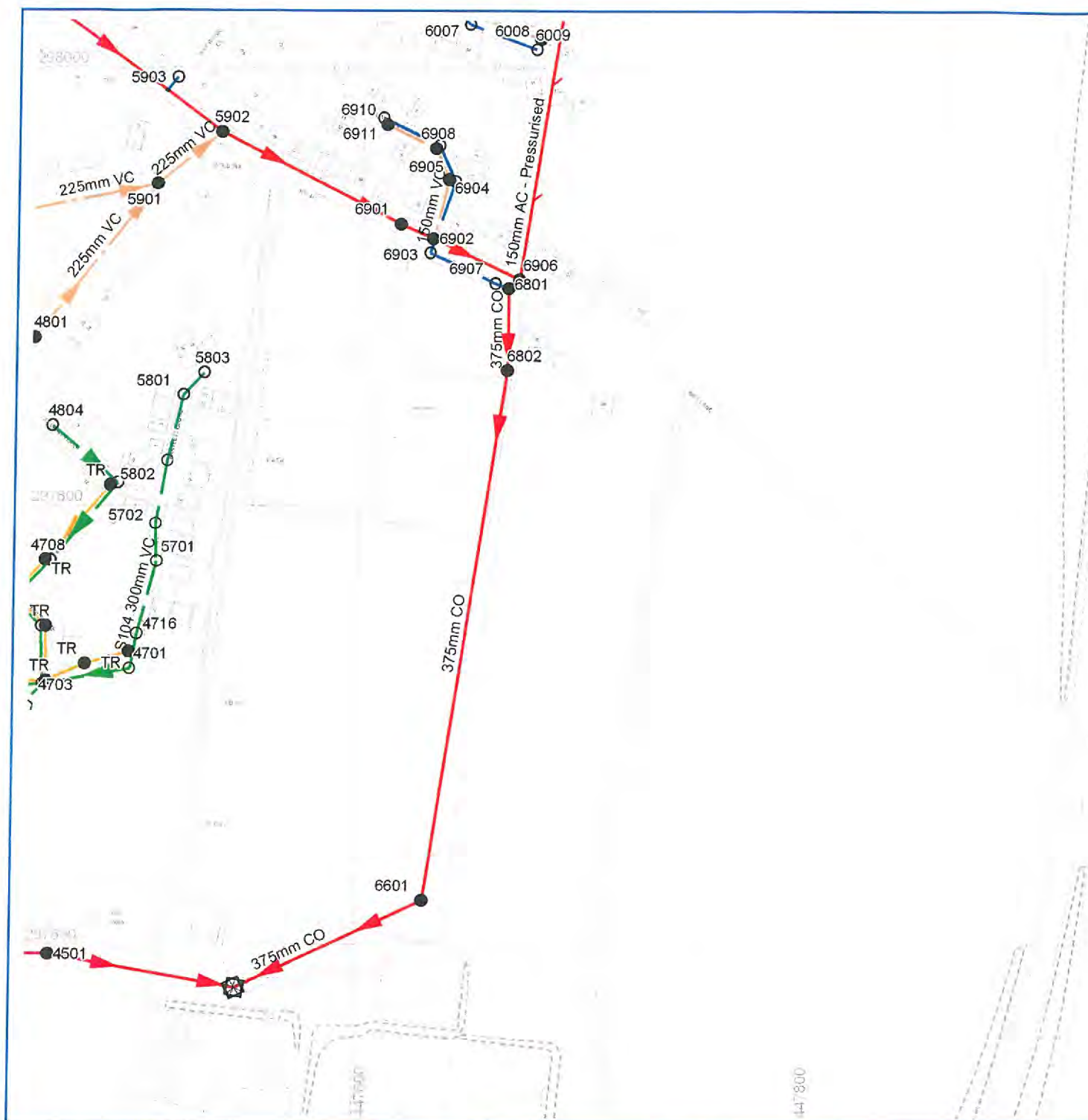
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Date of issue: 31.07.12
Sheet No. 1 of 1
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O / S Grid reference:
x: 446896
y: 297203

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3. On 1 October 2011 most private sewers and private lateral drains in Severn Trent Water's sewerage area, which were connected to a public sewer as at 1 July 2011, transferred to the ownership of Severn Trent Water and became public sewers and public lateral drains. A further transfer takes place on 1 October 2012 (date to be confirmed). Private pumping stations, which form part of these sewers or lateral drains, will transfer to the ownership of Severn Trent Water on or before 1 October 2016. These assets may not be displayed on this Map.
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Sewer Node		Sewer Pipe Data								
REFERENCE	COVER LEVEL	INV LEVEL UPSTR	INV LEVEL DOWNSTR	PURP	MATL	SHAPE	MAX SIZE	MIN SIZE	GRADIENT	YEAR LAID
SP47970403	95.30	93.58	93.15	S	CO	C	825	nil	132.58	nil
SP47971401	94.76	93.10	92.51	S	CO	C	825	nil	89.97	nil
SP47971402	95.00	92.49	nil	S	CO	C	450	nil	0.00	nil
SP47971402	95.00	92.48	92.33	S	CO	C	825	nil	34.00	nil
SP47971501	97.97	96.27	nil	C	CO	R	1710	930	0.00	nil
SP47971601	98.41	97.27	96.63	C	VC	C	300	nil	25.44	nil
SP47971602	98.96	97.19	nil	S	VC	C	225	nil	0.00	nil
SP47971603	100.94	99.58	97.28	C	VC	C	300	nil	25.24	nil
SP47972602	98.07	96.00	nil	C	CO	R	1700	1000	0.00	nil
SP47972603	99.34	nil	96.76	S	nil	nil	nil	nil	0.00	nil
SP47972604	101.90	99.09	98.95	S	VC	nil	nil	nil	141.14	2006
SP47972703	103.28	99.62	99.52	S	VC	nil	nil	nil	149.90	2006
SP47972704	103.48	99.52	99.29	S	VC	nil	nil	nil	180.65	2006
SP47972705	103.03	nil	101.38	S	VC	nil	nil	nil	0.00	2006
SP47972706	101.42	99.29	99.09	S	VC	nil	nil	nil	179.89	2006
SP47972707	103.27	101.30	101.15	S	CO	nil	nil	nil	317.40	2006
SP47972708	103.22	101.38	101.30	S	CO	nil	nil	nil	165.63	2006
SP47973501	nil	nil	nil	C	nil	nil	nil	nil	0.00	nil
SP47973801	102.50	101.31	101.15	S	VC	nil	nil	nil	289.25	2006
SP47973801	102.50	101.31	101.10	S	CO	nil	nil	nil	13.29	2006
SP47973602	102.34	nil	99.62	S	VC	nil	nil	nil	0.00	2006
SP47973602	102.34	nil	nil	S	VC	nil	nil	nil	0.00	2006
SP47973606	103.21	100.88	100.65	F	VC	C	150	nil	199.26	2006
SP47973608	102.20	101.10	101.08	F	VC	C	150	nil	190.37	2006
SP47973609	102.34	101.15	nil	S	VC	nil	nil	nil	0.25	2006
SP47973609	102.34	101.15	nil	S	CO	nil	nil	nil	0.03	2006
SP47974501	nil	nil	nil	C	nil	nil	nil	nil	0.00	nil
nil	nil	101.29	nil	F	VC	C	225	nil	0.00	nil
nil	nil	100.39	100.25	F	VC	C	150	nil	181.14	2006
nil	nil	100.65	100.57	F	VC	C	150	nil	203.97	2006
nil	nil	101.08	100.88	F	VC	C	150	nil	199.10	2006

	Severn Trent Water Limited Asset Data Management PO Box 5344 Coventry CV3 9FT Telephone: 0845 601 6616	
	SEWER RECORD (Tabular)	
O/S Map scale:	1:2500	This map is centred upon:
Date of issue:	31.07.12	O / S Grid reference:
Sheet No.	1 of 1	x : 447283 y : 297464
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Sewer Node		Sewer Pipe Data								
REFERENCE	COVER LEVEL	INV LEVEL UPSTR	INV LEVEL DOWNSTR	PURP	MATL	SHAPE	MAX SIZE	MIN SIZE	GRADIENT	YEAR LAID
SP47974501	nil	nil	nil	C	nil	nil	nil	nil	0.00	nil
SP47974701	103.05	102.02	101.88	S	VC	nil	nil	nil	269.07	2006
SP47974702	103.45	101.80	101.40	S	VC	nil	nil	nil	156.58	2006
SP47974702	103.45	101.80	101.10	S	nil	nil	nil	nil	9.69	2006
SP47974706	103.66	101.88	101.80	S	CO	nil	nil	nil	330.50	2006
SP47974708	104.30	102.75	102.10	S	VC	nil	nil	nil	37.77	2006
SP47974716	103.13	102.08	102.02	S	nil	nil	nil	nil	270.00	2006
SP47974801	109.17	107.54	nil	F	VC	C	225	nil	0.00	nil
SP47974804	107.88	106.30	103.60	S	VC	nil	nil	nil	14.75	2006
SP47974805	105.24	103.60	102.75	S	VC	nil	nil	nil	54.86	2006
SP47975701	103.65	102.27	102.08	S	VC	nil	nil	nil	178.68	2006
SP47975702	104.10	104.42	102.35	S	VC	nil	nil	nil	8.43	2006
SP47975801	106.04	104.82	103.52	S	VC	nil	nil	nil	27.89	2006
SP47975802	104.99	103.52	102.42	S	VC	nil	nil	nil	26.59	2006
SP47975803	106.18	104.82	104.62	S	VC	nil	nil	nil	70.35	2006
SP47975901	nil	nil	nil	F	VC	C	225	nil	0.00	nil
SP47975902	nil	nil	nil	C	VC	C	225	nil	0.00	nil
SP47975903	nil	nil	nil	S	VC	C	150	nil	0.00	nil
SP47976601	nil	nil	nil	C	CO	C	375	nil	0.00	nil
SP47976801	nil	nil	nil	C	CO	C	375	nil	0.00	nil
SP47976802	nil	nil	nil	C	CO	C	375	nil	0.00	nil
SP47976901	nil	nil	nil	C	VC	C	225	nil	0.00	nil
SP47976902	nil	nil	nil	C	VC	C	225	nil	0.00	nil
SP47976903	nil	nil	nil	S	CO	C	900	nil	0.00	nil
SP47976904	nil	nil	nil	F	VC	C	150	nil	0.00	nil
SP47976905	nil	nil	nil	S	VC	C	225	nil	0.00	nil
SP47976906	nil	nil	nil	C	VC	C	225	nil	0.00	nil
SP47976907	nil	nil	nil	S	ST	C	150	nil	0.00	nil
SP47976908	nil	nil	nil	F	VC	C	150	nil	0.00	nil
SP47976909	nil	nil	nil	S	VC	C	225	nil	0.00	nil
SP47976910	nil	nil	nil	F	VC	C	150	nil	0.00	nil
SP47976911	nil	nil	nil	S	VC	C	150	nil	0.00	nil
SP47986007	105.10	102.52	102.21	S	VC	C	225	nil	89.00	nil
SP47986008	104.44	101.93	101.63	F	VC	C	225	nil	123.33	nil
SP47986009	104.58	102.80	102.56	S	VC	C	225	nil	138.50	nil
nil	nil	101.56	101.24	F	VC	C	150	nil	201.81	2006
nil	nil	102.41	101.56	F	VC	C	150	nil	29.35	2006
nil	nil	103.29	102.75	F	VC	C	150	nil	39.50	2006
nil	nil	101.66	101.56	F	VC	C	150	nil	191.09	2006
nil	nil	101.77	101.66	F	VC	O	150	nil	200.19	2006
nil	nil	103.60	103.29	F	VC	C	150	nil	144.74	2006

Abandoned Gravity Sewer

Private Combined Gravity Sewer

Private Foul Gravity Sewer

Private Surface Water Gravity Sewer

Public Combined Gravity Sewer

Public Foul Gravity Sewer

Public Surface Water Gravity Sewer

Trunk Combined Gravity Sewer

Trunk Foul Use Gravity Sewer

Trunk Surface Water Gravity Sewer

Combined Use Pressurised Sewer

Foul Use Pressurised Sewer

Surface Water Pressurised Sewer

Highway Drain

Combined Lateral Drain (SS)

Foul Lateral Drain (SS)

Surface Water Lateral Drain (SS)

Culverted Watercourse

Cable, Earthing

Cable Junction

Cable, Optical Fibre/Instrumentation

Cable, Low Voltage

Cable, High Voltage

Cable, Other

Housing, Building

Housing, Kiosk

Disposal Site

Sewage Treatment Works

Housing, Other

Pipe Support Structure

Sewage Pumping Facility

Sewer Facility Connection Inlet / Outlet

Blind Shaft

Combined Use Manhole

Flushing Chamber

Foul Use Manhole

Grease Trap

Head Node

Hydrobrake

Lamphole

Outfall

Overflow

Penstock

Petrol Interceptor

Sewer Chemical Injection Point

Sewer Junction

Sewerage Air Valve

Sewerage Hatch Box Point

Sewerage Isolation Valve

Soakaway

Surface Water Manhole

Vent Column

Waste Water Storage

Pre-1937 Properties

MATERIALS

- NONE
AC - ASBESTOS CEMENT
BR - BRICK
CC - CONCRETE BOX CULVERT
CI - CAST IRON
CO - CONCRETE
CSB - CONCRETE SEGMENTS (BOLTED)
CSU - CONCRETE SEGMENTS (UNBOLTED)
DI - DUCTILE IRON
GRC - GLASS REINFORCED CONCRETE
GRP - GLASS REINFORCED PLASTIC
MAC - MASONRY IN REGULAR COURSES
MAR - MASONRY RANDOMLY COURSED
PE - POLYETHYLENE
PF - PITCH
PP - POLYPROPYLENE
PSC - PLASTIC STEEL COMPOSITE
PVC - POLYVINYL CHLORIDE
RPM - REINFORCED PLASTIC MATRIX
SI - SPUN (GREY) IRON
ST - STEEL
U - UNKNOWN
VC - VITRIFIED CLAY
XXX - OTHER

SHAPE
C - CIRCULAR
E - EGG SHAPED
O - OTHER
R - RECTANGLE
S - SQUARE
T - TRAPEZOIDAL
U - UNKNOWN

PURPOSE
C - COMBINED
E - FINAL EFFLUENT
F - FOUL
L - SLUDGE
S - SURFACE WATER

CATEGORIES

W - WEIR
C - CASCADE
DB - DAMBOARD
SE - SIDE ENTRY
FV - FLAP VALVE
BD - BACK DROP
S - SIPHON
HD - HIGHWAY DRAIN
S104 - SECTION 104

TABULAR KEY

A. Sewer pipe data refers to downstream sewer pipe.

B. Where the node bifurcates (splits) X and Y indicates downstream sewer pipe.

C. Gradient is stated as 1 in...

SEVERN
TRENT
WATER

Sewern Trent Water Limited

Asset Data Management

PO Box 5344

Coventry

CV3 9FT

Telephone: 0845 601 6616

SEWER RECORD (Tabular)

O/S Map scale: 1:2500

Date of issue: 31.07.12

Sheet No. 1 of 1

This map is centred upon:

O / S Grid reference:

x : 447693

y : 297771

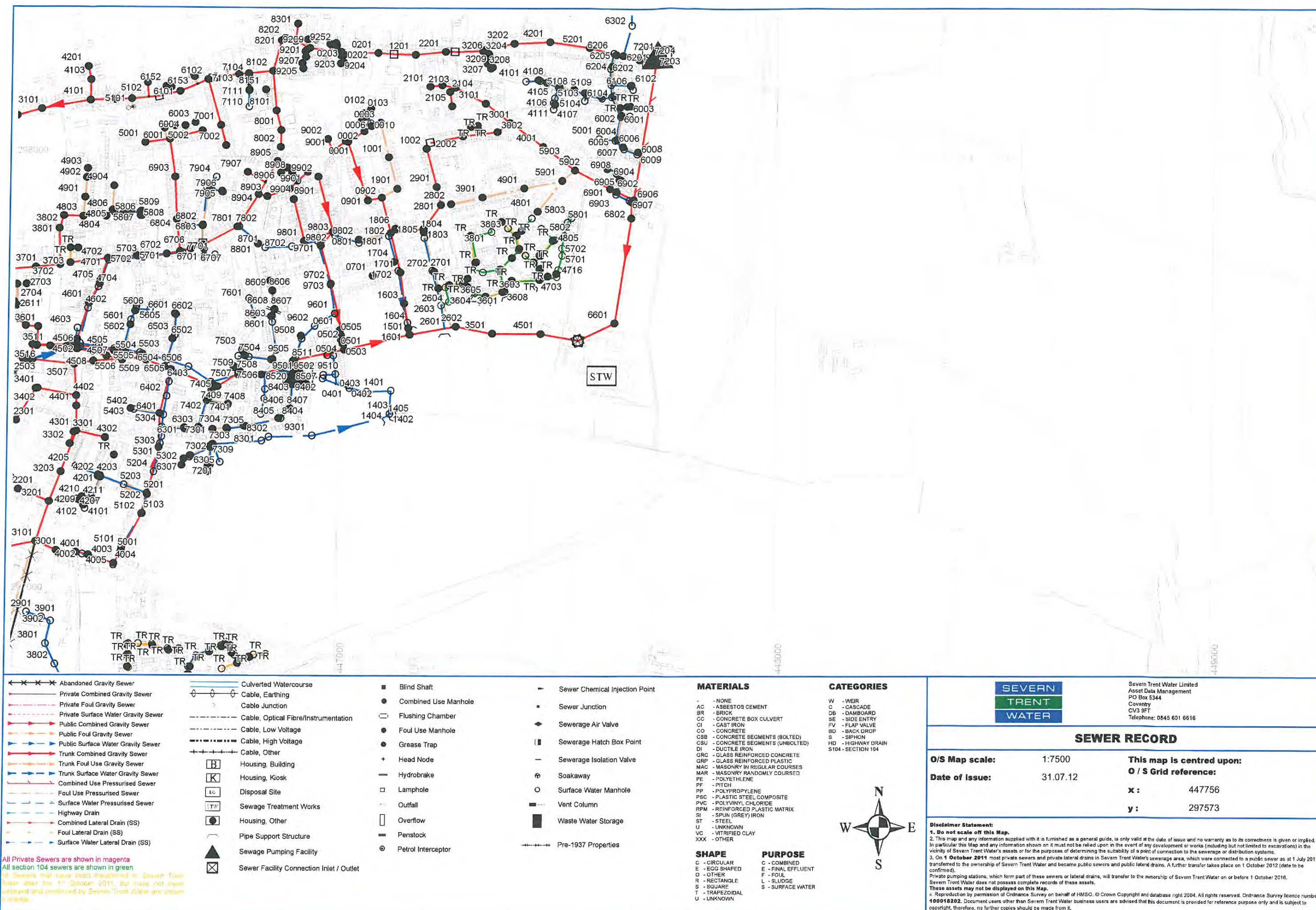
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3. On 1 October 2011 most private sewers and private lateral drains in Severn Trent Water's sewerage area, which were connected to a public sewer as at 1 July 2011, transferred to the ownership of Severn Trent Water and became public sewers and public lateral drains. A further transfer takes place on 1 October 2012 (date to be confirmed). Private pumping stations, which form part of these sewers or lateral drains, will transfer to the ownership of Severn Trent Water on or before 1 October 2016. These assets may not be displayed on this Map.

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298300

297900



- | | | | |
|--|-------------------------------------|--|----------------------------------|
| | Abandoned Gravity Sewer | | Combined Lateral Drain (SS) |
| | Private Combined Gravity Sewer | | Foul Lateral Drain (SS) |
| | Private Foul Gravity Sewer | | Surface Water Lateral Drain (SS) |
| | Private Surface Water Gravity Sewer | | |
| | Public Combined Gravity Sewer | | |
| | Public Foul Gravity Sewer | | |
| | Public Surface Water Gravity Sewer | | |
| | Trunk Combined Gravity Sewer | | |
| | Trunk Foul Use Gravity Sewer | | |
| | Trunk Surface water Gravity Sewer | | |
| | Abandoned Pressurised Sewer | | |
| | Combined Use Pressurised Sewer | | |
| | Foul Use Pressurised Sewer | | |
| | Surface Water Pressurised Sewer | | |
| | Highway Drain | | |

All Private Sewers are shown in magenta

All Section 104 sewers are shown in green

All Non-Sewer Standard (NSS) Lateral Drains are shown in orange

- | | | | |
|--|---|--|------------------------|
| | Culverted Watercourse | | Blind Shaft |
| | Access Right | | Combined Use Manhole |
| | Cable, Earthing | | Disposal Site |
| | Cable Junction | | Flushing Chamber |
| | Cable, Optical Fibre / Instrumentation | | Foul Use Manhole |
| | Cable, Low Voltage | | Grease Trap |
| | Cable, High Voltage | | Head Node |
| | Cable, Other | | Hydrobrake |
| | Housing, Building | | Lamp pole |
| | Housing, Kiosk | | Outfall |
| | Housing, Other | | Overflow |
| | Pipe Support Structure | | Penstock |
| | Sewage Pumping Facility | | Petrol Interceptor |
| | Sewer Facility Connection
(Sewer Pumping Facility Inlet / Outlet,
Sewer Treatment Works Inlet / Outlet) | | Sewage Treatment Works |
| | | | Zone Boundary |

SP4897

448100

REFERENCE	COVER LEVEL	INV LEVEL UPSTR	INV LEVEL DOWNSTR	PURP	MATL	SHAPE	MAX SIZE	MIN SIZE	GRADIENT	YEAR LAID
SP47974801 X	109.17	107.54	nil	F	VC	C	225	nil	0	nil
SP47974901 X	111.12	109.18	nil	F	VC	C	225	nil	0	nil
SP47975901 X	nil	nil	nil	F	VC	C	225	nil	0	nil
SP47975902 X	nil	nil	nil	C	VC	C	225	nil	0	nil
SP47975903 X	nil	nil	nil	S	VC	C	150	nil	0	nil
SP47976801 X	nil	nil	nil	C	CO	C	375	nil	0	nil
SP47976802 X	nil	nil	nil	C	CO	C	375	nil	0	nil
SP47976901 X	nil	nil	nil	C	VC	C	225	nil	0	nil
SP47976902 X	nil	nil	nil	C	VC	C	225	nil	0	nil
SP47976903 X	nil	nil	nil	S	CO	C	900	nil	0	nil
SP47976904 X	nil	nil	nil	F	VC	C	150	nil	0	nil
SP47976905 X	nil	nil	nil	S	VC	C	225	nil	0	nil
SP47976906 X	nil	nil	nil	C	VC	C	225	nil	0	nil
SP47976907 X	nil	nil	nil	S	ST	C	150	nil	0	nil
SP47976908 X	nil	nil	nil	F	VC	C	150	nil	0	nil
SP47976909 X	nil	nil	nil	S	VC	C	225	nil	0	nil
SP47976910 X	nil	nil	nil	F	VC	C	150	nil	0	nil
SP47976911 X	nil	nil	nil	S	VC	C	150	nil	0	nil
SP47983202 X	nil	nil	99.84	C	nil	nil	nil	nil	0	nil
SP47984001 X	110.71	nil	nil	C	nil	nil	nil	nil	0	nil
SP47984101 X	110.129	108.529	106.749	S	VC	C	225	nil	17.87	nil
SP47984102 X	108.529	106.729	105.849	S	VC	C	225	nil	17.28	nil
SP47984103 X	107.719	105.829	103.809	S	VC	C	225	nil	14.52	nil
SP47984104 X	106.759	103.789	102.959	S	VC	C	225	nil	45.72	nil
SP47984105 X	107.999	106.189	103.829	S	VC	C	225	nil	10.94	nil
SP47984106 X	108.919	107.299	106.209	S	VC	C	225	nil	10.04	nil
SP47984107 X	109.499	107.929	107.319	S	VC	C	225	nil	24.26	nil
SP47984108 X	108.599	106.449	105.389	F	VC	C	150	nil	20.09	nil
SP47984109 X	107.539	105.369	103.249	F	VC	C	150	nil	13.62	nil
SP47984110 X	106.549	103.229	102.809	F	VC	C	150	nil	82.14	nil
SP47984111 X	108.909	106.439	103.269	F	VC	C	150	nil	13.08	nil
SP47984201 X	101.98	99.79	95.46	C	VC	C	225	nil	21.26	nil
SP47985001 X	105.99	104.15	102.21	S	VC	C	225	nil	19.7	nil
SP47985101 X	101.49	98.93	nil	F	VC	C	225	nil	0	nil
SP47985102 X	101.5	99.73	98.73	S	VC	C	300	nil	23.18	nil
SP47985103 X	104.16	101.5	98.96	F	VC	C	225	nil	15.84	nil
SP47985104 X	104.07	101.51	99.73	S	VC	C	300	nil	20.58	nil
SP47985105 X	104.73	102.26	101.73	S	VC	C	225	nil	26.32	nil
SP47985108 X	105.349	nil	101.57	F	nil	nil	nil	nil	0	nil
SP47985109 X	105.509	nil	101.56	S	nil	nil	nil	nil	0	nil
SP47985201 X	97.76	95.45	92.44	C	VC	C	225	nil	21.27	nil
SP47986001 X	101.52	99.49	98.73	S	VC	C	300	nil	65.34	nil
SP47986002 X	101.44	98.62	97.52	F	VC	C	225	nil	43.22	nil
SP47986003 X	101.21	99.73	99.56	S	VC	C	225	nil	124.12	nil
SP47986004 X	104.04	101.37	98.62	F	VC					

[illegible]

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Appendix F

Hydraulic modelling report

Hydraulic Modelling Technical note:

Development at Weavers Meadow, Earl Shilton

1. Introduction

This report has been produced for the purpose of describing the hydraulic modelling undertaken to support the Weavers Meadow flood risk assessment (FRA), accompanying the Earl Shilton Sustainable Urban Extension. This technical note details the hydraulic modelling methods applied and the data used.

1.1 Purpose of modelling

The Site is not covered by the Environment Agency's (EA) Flood Map for Planning since the Earl Shilton Brook has a catchment area of less than 3km². The nearest extent of modelled fluvial flood risk being loan the main Thurslaston Brook, just over 1km downstream from the lowest eastern point of the Site. Therefore detailed hydraulic modelling has therefore been undertaken to provide an understanding of fluvial flood risk at the Site so as to inform development plans.

1.2 Overview of modelling approach

A 1D-2D modelling approach has been utilised using HEC-RAS (Hydraulic Engineering Centre – River Analysis System) version 5.0.7, to provide design flood extents upstream of the A47 embankment. The model is 1D only downstream of the A47 road embankment since this area is outside of the available EA LiDAR coverage, and this off-site area was not covered by the topographical survey undertaken in 2012. The 2D model upstream of the A47 embankment makes use of the EA 2m LiDAR data where available and is supplemented by the topographical survey collected for the project by SV Surveying Ltd in 2012 (Appendix B of the FRA) where there is no LiDAR coverage.

HEC-RAS is an open-source flood modelling software capable of both 1D and 2D computations. Both 1D and 2D components of HEC-RAS have been benchmarked by the EA to satisfy the suitability of the software to accurately predict flood inundation.

1.3 Available data

The hydraulic model has been underpinned by a variety of data. Table 1.1 below lists the data sets used and provides a description of the contents of each dataset.

Table 1.1 Available Data

Item	Comments
Topographic Data	LiDAR data of 2m resolution, flown in 2019 obtained from the EA Topographic survey data of variable resolution, surveyed for the Site in 2012 (Survey reference: 11131-12-01)
River Cross Section Survey	Channel cross section data covering approximately 970m of the Earl Shilton Brook, surveyed for the Site in 2012 (Survey reference: 11131-12)
Fluvial Hydrographs	Design inflow hydrographs derived using ReFH2 for this project, detailed in Section 2.

2. Hydrological analysis

2.1 Introduction

This section summarises the hydrological assessment and resulting hydrology used in the Earl Shilton flood modelling study.

The Thurlaston Brook is the nearest EA main river to the site, located 1.3 km downstream (east) of the site. This watercourse drains to the River Soar. A minor watercourse – the Earl Shilton Brook - (tributary to the Thurlaston Brook) issues on site and flows east through the middle of the site, under the A47 and down to the Thurlaston Brook. This watercourse falls from around 93mAOD in its upper reaches within the site, to 88mAOD halfway upstream of where it joins the Thurlaston Brook. This tributary has a catchment area of around 1.7 km² at the A47 road crossing of the watercourse. This tributary drains the south-eastern areas of Earl Shilton. In terms of piped drainage, the older parts of Earl Shilton and Barwell are drained by a combined sewer network (i.e. a single pipe which takes both foul and surface water), which will rapidly (where pipe capacity allows) convey some storm water towards the adjacent Severn Trent Water Ltd (STWL) WwTW, and depending on the available storage capacity, directly into the Earl Shilton Brook (via combined sewer overflow (CSO)). The more modern areas of development in the parts of Earl Shilton that about the Weavers Meadow site drain via separate foul and surface water drains. Three of the surface water drains serving these areas discharge into the Earl Shilton Brook. Flows in excess of the system's capacity will drain overland towards the receiving watercourses within their natural topographical catchments. As well as CSOs from the STWL WwTW, treated effluent is discharged into the Earl Shilton Brook. On the day of the site visit by a Wood hydrologist (10 March 2012) these flows made up around 75% of the dry weather flow in the watercourse (observe plates 8 to 14 in Appendix C of the FRA). A smaller northern portion of the site drains northwards to the Thurlaston Brook.

In summary, draining to the Earl Shilton Brook onsite, there is:

- a) a natural catchment (topographically defined) draining directly to the watercourse; and
- b) a combined sewer serving a larger area, and routing these flows via pipes to the WwTW. It should however be noted that:
 - i. The rate at which flows from these sewers can reach the watercourse will be determined by the pipe capacity and arrangements within the WwTW;
 - ii. Exceedance flows for areas outside of the onsite watercourse's topographic catchment (but served by the combined sewer) will follow local drainage routes in these respective catchments, and drain to other watercourses; and

STWL has provided details of the discharge rates from the WwTW (see Table 2.2). Along the course of the tributary there are a series of small culverts at bridge crossings. Details of their dimensions can be found on the topographic Survey (Appendix A of the FRA), Table 3.2, and photographs in Appendix C of the FRA.

The Flood Estimation Handbook (FEH) catchment descriptors, to the downstream edge of the site give the Standard Average Annual Rainfall (SAAR) as 623 mm for the site.

2.2 Flood Estimation Handbook (FEH) approach

The input fluvial hydrology to the Earl Shilton Flood model was produced using the second iteration of the Revitalised Flood Hydrograph (ReFH2) model. This is an industry standard rainfall-runoff approach, approved by the Environment Agency (EA) and Lead Local Flood Authorities (LLFAs), for generating design event flood hydrographs. The ReFH2 model is parameterised using regionalised statistics that can be purchased from

the FEH web service¹. The FEH statistical approach for estimating flood peaks was not deemed appropriate for a catchment of this small spatial scale (1.68 km²).

FEH Catchment descriptor review

To ensure the catchment descriptors downloaded for the site for the site were appropriate they were compared against open source data, including geological maps² and soil maps³ to ensure the HOST values are appropriate, the catchment boundary was compared against the available LiDAR. The Hydrology of Soil Types (HOST) values were deemed appropriate; however, the catchment area was marginally increased from 1.65 km² to 1.68 km².

An urban expansion factor was applied to the URBEXT2000 parameter to reflect potential increases in impermeable area, between 2000 and 2020, as advised by the EA⁴. This resulted in an increase in the URBEXT2000 parameter from 0.3367 to 0.4035.

The principal FEH catchment descriptors, and their values, used in the ReFH2 modelling are listed in Table 2.1.

Table 2.1 FEH Catchment descriptors used to populate the ReFH2 rainfall-runoff model

Catchment descriptor	Parameter value
Area (km ²)	1.68
SAAR (mm)	623
BFIHOST (-)	0.682
ALTBAR (mAOD)	105
DPLBAR (km)	1.08
FPEXT (-)	0.0613
PROPWET (-)	0.3

2.3 Results

A summary of the model inflow hydrology is provided in Table 2.2.

¹ FEH web-service. Available at <https://fehweb.ceh.ac.uk/>. Accessed 06/20.

² British Geological Survey Geology of Britain viewer. Available at <https://mapapps.bgs.ac.uk/geologyofbritain/home.html>. Accessed 06/20

³ Cranfield Soil and Agrifood Institute – Soilsdapes. Available at <http://www.landis.org.uk/soilsdapes/>. Accessed 06/20.

⁴ Joint Defra/EA Flood and Coastal Erosion Risk Management R&D Programme. URBEXT - A new FEH catchment descriptor Calculation, dissemination and application. Available at http://sciencesearch.defra.gov.uk/Document.aspx?Document=FD1919_5228_TRP.pdf%20. Accessed 06/20

Table 2.2 Model inflow summary

Event	ReFH hydrograph peak flow (m ³ /s)	WwTW CSO (m ³ /s)	WwTW treated effluent (m ³ /s)
5% AEP**	1.17	1.1*	0.155
1% AEP	1.79	1.2*	0.155
1% AEP CC (50%)†	2.68	1.8††	0.155
0.1% AEP	3.36	2.04	0.155

*These values were supplied by STWL's sewer modelling team (see Appendix D of the FRA).

**AEP = Annual Exceedance Probability. This expression of the probability of flooding is used in preference to "X in X" years as it better conveys the level of risk in any one year.

†To account for climate change an of 50% has been applied to the 1% AEP event, in accordance with National Planning Policy Framework (NPPF, 2019) for a residential development in the Humber river basin district assuming the upper estimate. Since this modelling has occurred, updated 2021 climate change uplifts have been released. For 'highly vulnerable' infrastructure only the central allowance (now 28%) should be used. As such the modelling here presents a conservative estimate.

††No values were provided for these events (which exceed the return period that the sewer system is designed for). The values provided for the 1% AEP event have been multiplied by 1.5 to include an allowance for climate change. For the 0.1% AEP event a more conservative uplift of 1.7 has been used.

3. Model set-up

The hydraulic model has been built and run in version 5.0.7 of HEC-RAS. The following sub-sections detail the different components which make up the 1D and 2D elements of the model.

3.1 1D model

The river channel cross-section survey (reference: 11131-12; surveyed 2012, included in Appendix B of the FRA) forms the basis of the 1D model for this study. The survey data covers approximately 970m of the Earl Shilton Brook, stretching from agricultural land East of Astley Road (SP 47127 97413) to downstream of the A47 road embankment (SP 48073 97254). The cross sections define the in-channel shape geometry and flow characteristics of the channel along its course. Where cross sectional data exists only for one face of a structure, the section has been copied to the corresponding face.

Several cross sections have been extended based on the available topographic survey (reference: 11131-12-01; surveyed 2012) and LiDAR data (EA, 2019) to minimise significant changes in channel widths **Table 3.1** provides a summary of the Earl Shilton Brook 1D representation, and Figure F1 displays the 1D model extent.

Table 3.1 1D model summary

Watercourse name	Earl Shilton Brook		
Inflow boundaries	Flow-time hydrograph applied at cross section 25		
Lateral Inflow boundaries	Flow-time hydrographs representing the combined sewer overflow (CSO) and treated effluent associated with the wastewater treatment works (WwTW), applied at cross sections 12 and 11.		
Downstream boundary	Normal depth boundary applied, assuming a slope of 0.0055 taken from between the two lowest cross sections in the model. A backwater calculation provides a potential backwater length of 0.14km from the downstream boundary. Therefore, any backwater effects of the downstream boundary would extend upstream to cross section 3 only.		
Reach Length (km)	970m		
Total Number of cross sections and structures	River reaches	1	
	River sections (survey)	25	
	River sections (copied)	4	
Hydraulic roughness values	Channel roughness values have been represented in the models by Manning’s ‘n’. Descriptions in Chow (1959) ⁵ were examined against photos and available imagery of the reach to determine uniform channel and bank values below.		
			Roughness value
	Channel		0.035
	Bank		0.06

The channel bank markers have been set to the end of the 1D cross sections due to model stability issues encountered when set to represent the top of bank. This is deemed to have negligible impact to the simulated results.

⁵ Chow V.T. (1959) Open Channel Hydraulics McGraw Hill Kogakusha Ltd, 1959

Figure F1 1D model overview



There are eight 1D structures that have been represented on the river reach, detailed in Table 3.2 below.

Table 3.2 1D structures included in the model

Structure Reference	HEC-RAS cross section	Chainage	Details
1	21.5	70	Farm crossing, pipe culvert ($\varnothing = 1.2\text{m}$) Deck width: 5.4m Weir coefficient: 1.5
2	15.5	344	Farm crossing, pipe culvert ($\varnothing = 1.2\text{m}$) Deck width: 8.06m Weir coefficient: 1.5
3	14.005	381	Farm crossing, pipe culvert ($\varnothing = 0.6\text{m}$) Deck width: 0.35m Weir coefficient: 1.5
4	12.97	415	Footbridge crossing, wooden deck Deck width: 0.6 Weir coefficient: 1.5
5	7.9	613	Farm crossing, box culvert (1.25m x 0.95m) Deck width: 3.75 Weir coefficient: 1.5
6	-	650	A47 crossing – represented in the channel cross section dimensions since the opening is well in excess of the watercourse's discharge.
7	6.13	700	Farm crossing, concrete deck (constructed in 2010/11 as part of the A47 bypass works) Deck width: 4.25

Structure Reference	HEC-RAS cross section	Chainage	Details
			Weir coefficient: 1.5
8	3.93	738	Farm crossing, concrete deck (constructed in 2010/11 as part of the A47 bypass works) Deck width: 5.88 Weir coefficient: 1.5

Lateral structures

The 1D model has been linked to the 2D domain via a lateral weir embankment representing the top of bank between the open channel cross section ends. The section data has been informed from the underlying topography, made up of EA LiDAR data and topographic survey data.

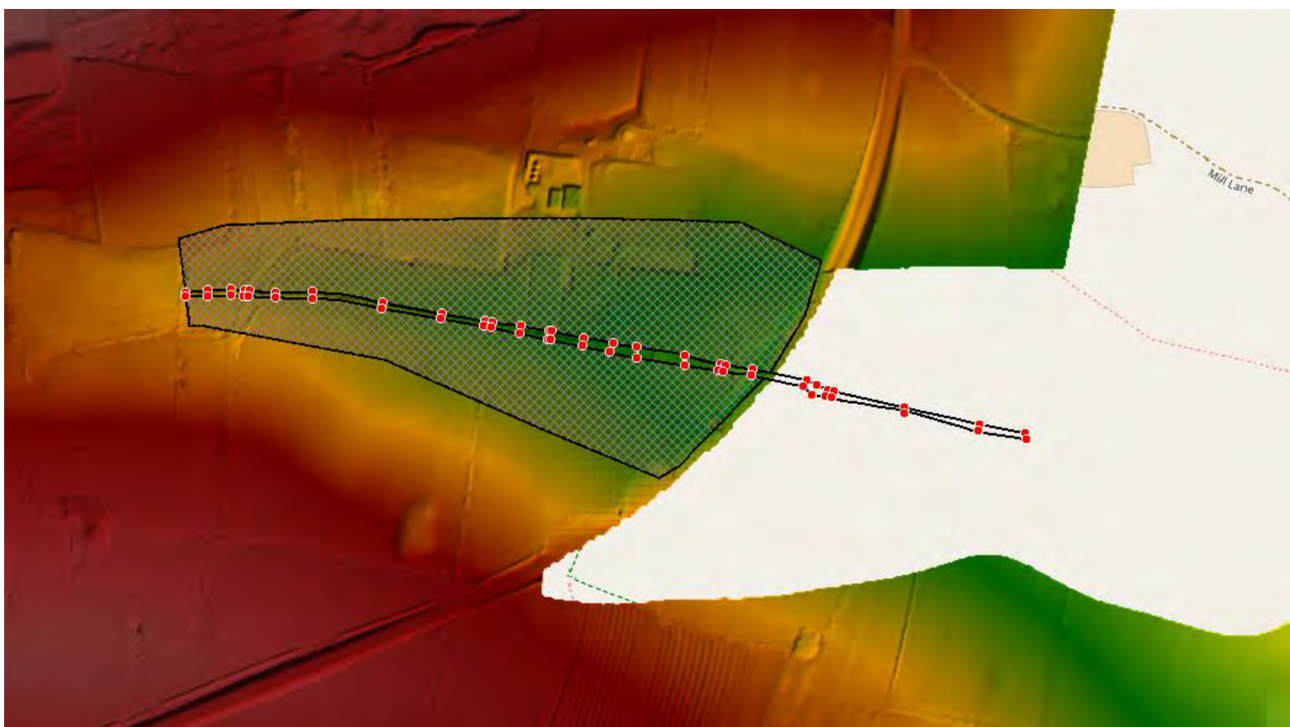
The lateral structure section data has been modified to align to the 1D cross section bank elevations, in regions where the structure elevation sits below the 1D cross section bank. Where the 1D cross section bank sits below the section elevation, HEC-RAS will interpolate a water level until water reaches the lateral structure elevation.

3.2 2D model

The 2D model consists of 2D flow areas on the right and left banks, covering the extent of the floodplain upstream of the A47 road embankment. Figure F2 shows the extent of the 2D model on both banks.

The 2D domain is made up of an irregular grid that is generated at a regular 4m scale. 4m was deemed appropriate for the purpose of this study considering the resolution of the underlying DTM data.

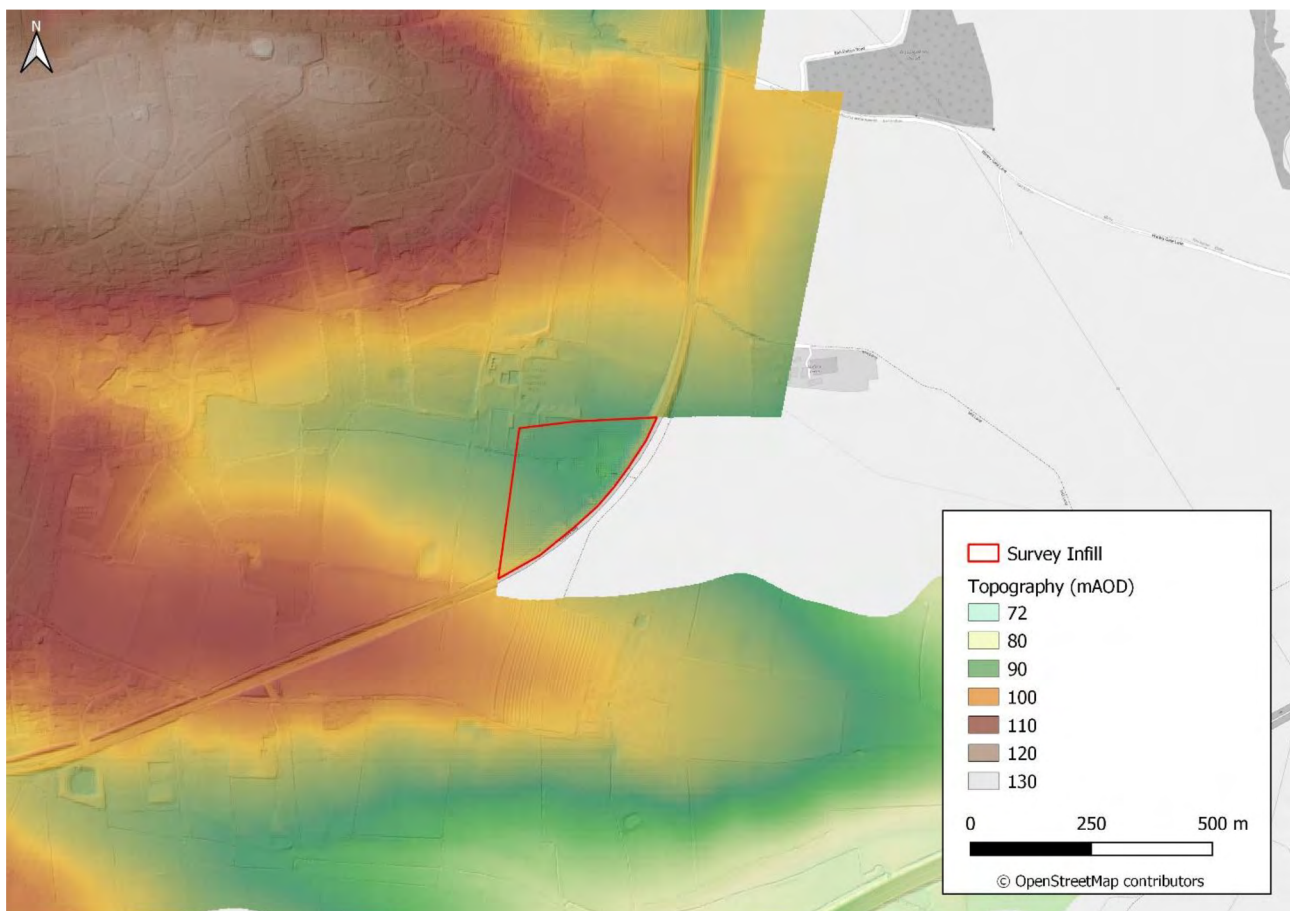
Figure F2 2D model extent



The topography data used to inform the model mesh has been derived from available 2m resolution LiDAR data, and infilled with topographical survey data where there is no LiDAR coverage. The extent of the LiDAR coverage and infilled region can be seen in Figure F3 below. No LiDAR or topographic survey data is available for the region downstream of the A47 embankment, and therefore the model is 1D only from this point.

The survey elevation spot heights have been analysed against the LiDAR elevation where available. Both the mean and median elevation divergence between the two datasets is 0.01m, indicating good correlation between the datasets. As such, no modifications were made to the LiDAR before performing the merge, and the transition between the two datasets appears smooth.

Figure F3 Topographic overview and survey infill



No breaklines or topographic modifications have been used to adjust the topographic surface.

A single 2D roughness value of 0.05 has been applied to the 2D domain, on the conservative assumption of mature field crops across the floodplain.

3.3 Model boundary data

The model boundary type determines if and how water can flow into and out of the model area. There are several different boundary condition options within HEC-RAS, and those used in the model are detailed in Table 3.3 below.

Table 3.3 Boundary condition classification

Boundary Type	Description
Downstream boundary - Normal Depth	It is assumed that slope balances friction forces (normal flow). Depth and velocity are kept constant when water reaches the boundary, so water can flow out without losses.
Inflow - Flow	Inflow into the 1D river reach model at a point is defined by a Time-Flow profile. See section 2.

Downstream boundaries

A normal depth outflow boundary has been applied to the downstream limit of the 1D river reach, with a user specified slope of 0.0055. This has been taken between the two lowest cross sections in the model and is considered sufficiently far downstream from the site to avoid any impact to modelled results in the area of interest.

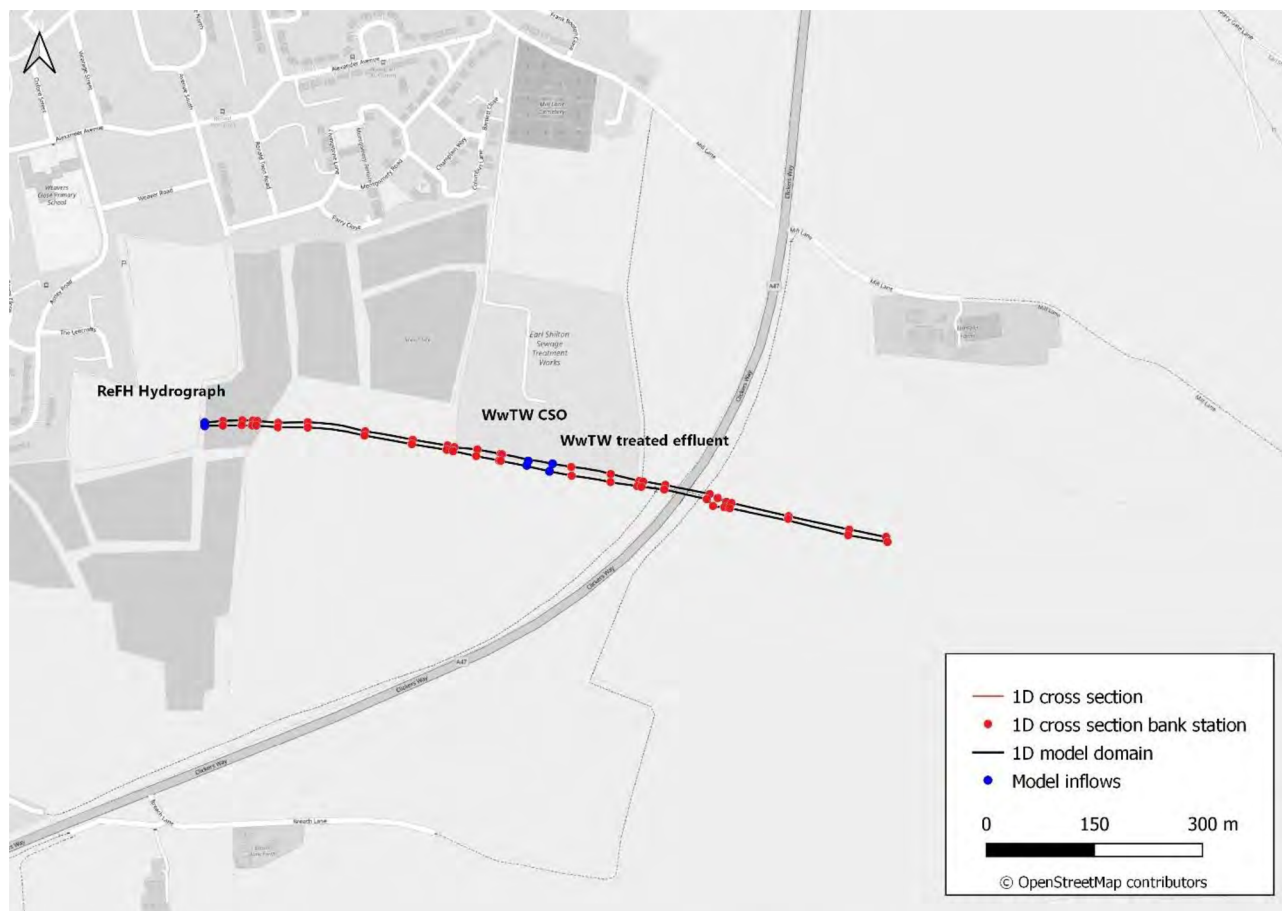
No boundary condition has been applied to the 2D model areas, assuming an impermeable infinitely high barrier at the extent. There is no evidence of additional flow routes or underpasses through the A47 road embankment within the 2D model domain, aside from the main channel underpass that has been explicitly represented in the 1D model.

Fluvial hydrographs

Inflow hydrographs have been used representing each of the fluvial events modelled and applied at the upstream extent of the model to cross section 25.

Two lateral inflows have been applied to the model at cross sections 12 and 11, representing the CSO and treated effluent associated with the WwTW respectively. These have been applied as steady state inflows. The spatial location of the inflows within the 1D model are shown in Figure F4 below, and the peak flows used are shown Table 2.2

Figure F4 Model inflows



4. Model results summary

The modelled flood extents for the site have been plotted in Figure 3.2 of the FRA. Table 4.1 details the simulated peak flood level at each model cross section for each design event.

Table 4.1 1D modelled peak water levels

River Station	5% AEP	1% AEP	1% AEP (50% CC)	0.1% AEP
25	93.59	93.73	93.83	93.87
24	93.2	93.27	93.33	93.37
23	93.01	93.06	93.08	93.1
22	93.01	93.06	93.09	93.12
21	92.47	92.61	92.73	92.77
20	92.18	92.33	92.43	92.49
19	91.70	91.87	91.95	91.97

River Station	5% AEP	1% AEP	1% AEP (50% CC)	0.1% AEP
18	90.97	91.18	91.28	91.33
17	90.33	90.42	90.47	90.50
16	90.10	90.19	90.26	90.30
15	89.89	89.98	90.07	90.11
14	89.25	89.44	89.53	89.62
13	89.04	89.18	89.29	89.35
12	88.76	88.87	89.07	89.15
11	88.14	88.26	88.40	88.46
10	87.82	88.02	88.18	88.23
9	87.60	87.84	87.97	88.01
8	87.36	87.50	87.52	87.52
7	86.38	86.53	86.70	86.77
6	85.94	86.03	86.23	86.31
5	85.93	86.03	86.24	86.34
4	85.92	86.02	86.21	86.31
3	84.86	84.94	85.08	85.13
2	83.67	83.78	83.97	84.04
1	83.32	83.44	83.64	83.73

5. Sensitivity tests

The objective of sensitivity testing is to test the validity of the underlying assumptions in the model, and ensure the model is behaving as expected. Sensitivity testing provides a means of assessing how sensitive the predicted flood depths are to changes the model parameters and assumptions. It is expected that if a parameter is changed then the resultant flood depth will change. The aim of the sensitivity testing is to highlight the potential degree of change associated with adjusted parameters to provide confidence in the value selected.

Four sensitivity tests have been run using the baseline model and 1% AEP event outlined in Table 5.1.

Table 5.1 Sensitivity test details

Sensitivity Parameter	Description	Test
Manning's n roughness	Manning's n roughness coefficients are used in the 1D river reaches and the 2D model to represent the variable roughness across the model domain. The Manning's n values applied to the hydraulic model were chosen based on published information, modeller experience and judgement. 1D values were chosen based on channel photographs at the time of the survey. The values were varied by $\pm 50\%$ to determine what the potential change could be, were there to be significant changes in the level of vegetation in the channel. 2D values have been chosen representing the dominant land-use on the floodplain. The sensitivity tests apply a reasonable upper and lower limit for each land cover type.	1D roughness values increased by 20%. 2D roughness values increased to reasonable upper limit for land cover type 1D roughness values decreased by 20%. 2D roughness values decreased to reasonable lower limit for land cover type.
Downstream boundary slope	The normal depth boundary condition has been set assuming a slope of 0.0055 taken between the two lowest model cross sections. The slope has been varied by $\pm 30\%$ to test the sensitivity of the model to this assumption.	- Normal depth slope increased by 30%. - Normal depth slope decreased by 30%
Storm critical duration	The baseline model hydrology has been run with hydrographs assuming a 4hr 30mins critical storm duration estimated in ReFH. The inflows associated with the wastewater treatment works have been produced based on a 1hr 30 mins event. The model has been run with an additional set of hydrographs assuming a 1hr 30mins storm duration.	Model run with 1hr 30mins storm duration hydrographs

5.1 Sensitivity test results

Manning's n roughness

Table 5.2 details the changes to 1D river reach peak water levels for sensitivity tests 1 and 2 at selected cross sections. The increased roughness values leads to an increase in peak flood levels ranging between 0.03m and 0.07m in comparison to the baseline model. Decreased roughness values lead to reductions in peak flood levels ranging between 0.03m and 0.12m. These differences are within the range that would be expected for the associated changes to Manning's n values, deeming the baseline values appropriate.

Table 5.2 Manning's n roughness sensitivity test results

Cross section	Baseline model peak water level (mAOD)	Manning's Coefficient +20% peak water level (mAOD)	Difference (m)
24	93.27	93.31	+0.04
20	92.33	92.36	+0.03
15	89.98	90.00	+0.02
10	88.02	88.07	+0.05
5	86.03	86.05	+0.02
1	83.44	83.51	+0.07
Cross section	Baseline model peak water level (mAOD)	Manning's Coefficient -20% peak water level (mAOD)	Difference (m)
24	93.27	93.21	-0.06
20	92.33	92.23	-0.10
15	89.98	89.93	-0.05
10	88.02	87.90	-0.12
5	86.03	86.00	-0.03
1	83.44	83.33	-0.11

Downstream boundary

Table 5.3 details the changes to 1D river reach peak water levels for sensitivity tests 3 and 4 at selected cross sections. The results indicate that the impact of the tests upon the modelled peak water levels is localised, with peak water levels anticipated to be elevated by up to 0.04m at the downstream cross section 1. No impact to peak water levels is anticipated upstream of cross section 6 that is situated on the downstream face of the A47 embankment. The modelled differences in peak water levels are commensurate with what is expected of the model and indicate that the downstream boundary assumption is appropriate.

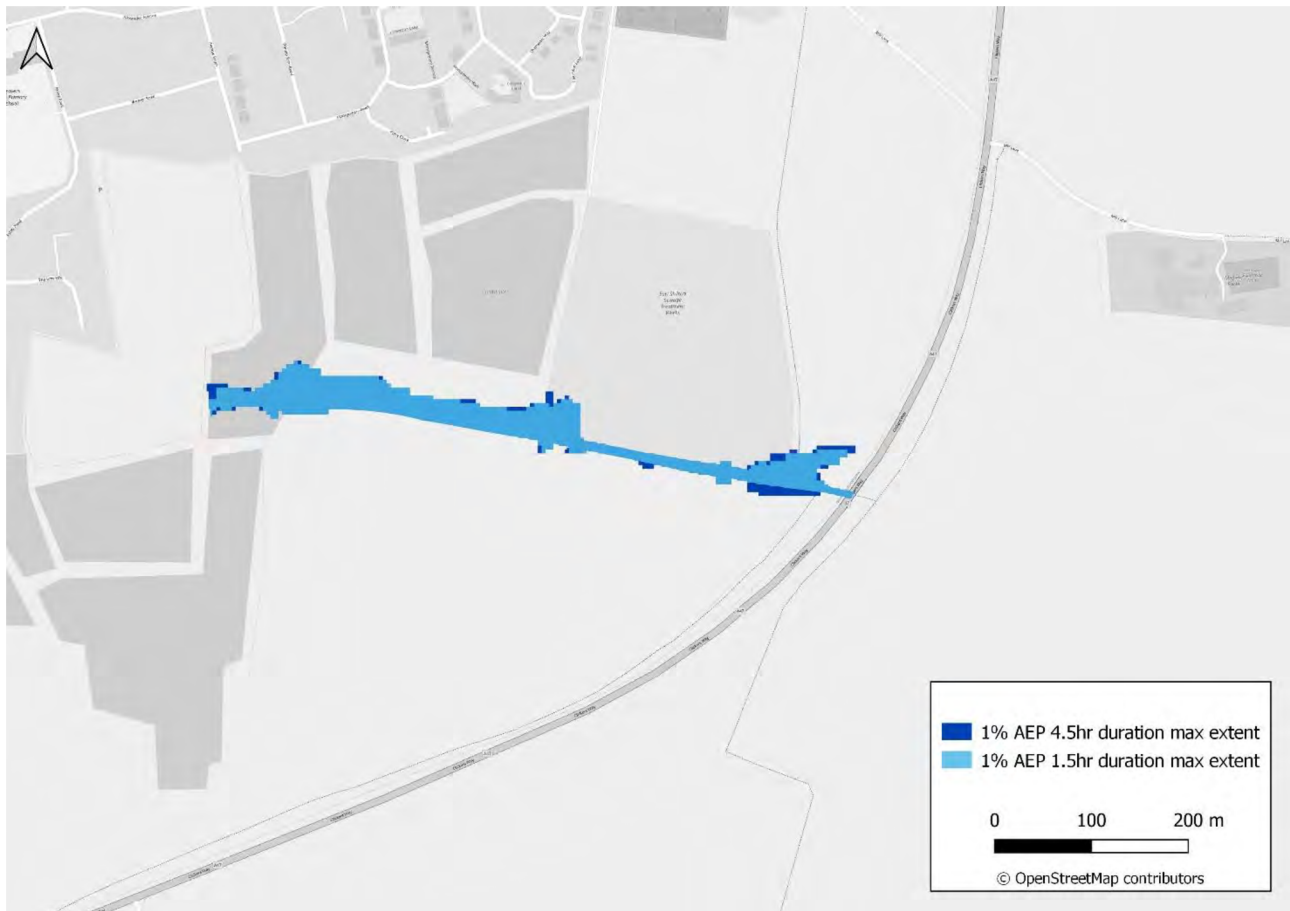
Table 5.3 Downstream boundary sensitivity test results

Cross section	Baseline model peak water level (mAOD)	Downstream boundary +30% peak water level (mAOD)	Difference (m)
24	93.27	93.27	0.00
20	92.33	92.33	0.00
15	89.98	89.98	0.00
10	88.02	88.02	0.00
5	86.03	86.04	0.01
1	83.44	83.38	-0.06
Cross section	Baseline model peak water level (mAOD)	Downstream boundary -30% peak water level (mAOD)	Difference (m)
24	93.27	93.27	0.00
20	92.33	92.33	0.00
15	89.98	89.98	0.00
10	88.02	88.02	0.00
5	86.03	86.03	0.00
1	83.44	83.48	0.04

Critical duration

The modelled peak flood extents for the 1 ½ hour duration and 4 ½ hour duration runs can be seen in Figure 5. The 4 ½ hour duration produces the greatest flood extent, thereby justifying its selection to provide the most conservative estimate.

Figure F5 Critical storm duration sensitivity flood extents



6. Model runs

Table 6.1 below summarises the general model run parameters and model health.

Table 6.1 Model run summary

Item	Comments
Design events	5% AEP 1% AEP 1% AEP (50% CC) 0.1% AEP
Scenarios	Baseline Sensitivity
Model run parameters	Timestep: 2s Output interval: 15mins Run time: 10hrs
Model name	Earl_Shilton_2
Model health	Mass Balance: 0

No further model runs have been undertaken. The baseline fluvial flood extents have been taken forward to support setting out the development so as to preferentially direct new built development to areas with less than 0.1% AEP risk of fluvial flooding.

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Appendix G

Outline Drainage Strategy

Technical Note:

Earl Shilton Development, Leicestershire - Drainage Strategy for an Outline Planning Application

1. Introduction

Hydraulic drainage modelling has been carried out to estimate the likely surface water management requirements to support an outline planning application for a proposed residential redevelopment of the site at Earl Shilton, Leicestershire. This outline drainage strategy has been carried out in accordance with National Planning Policy Framework (NPPF), Defra, LLFA and CIRIA guidance. The total area covering this outline application is 65.4ha.

The illustrative masterplan (Appendix A of the FRA) should be referenced when reading this Technical Note.

The development will comprise a mixture of residential, commercial, and also and civic developments at a location to the west of the A47 at Earl Shilton. It includes:

- Up to 1,500 dwellings, the envisaged nature of which is set out below;
- Up to 5.3ha of employment uses comprising a mix of B1, B2 and B8 uses;
- A primary school;
- Up to 2,000m² of local retail floor space and community hub;
- Up to 16.7ha of public open space, including areas of new planting, landscaping and 3.26ha for SuDS;
- Up to 2.5ha of recreational open space; and
- New services such as gas, electricity, water, telecommunications and drainage.

1.1 Consultation

A pre-development enquiry was submitted to Leicestershire Country Council (LCC) who are the Lead Local Flood Authority (LLFA). The request was submitted on 18 August 2020 and received on 4 September 2020. The full response from the LLFA can be viewed in Appendix D of the FRA, with the key points listed below:

- From review of the submitted masterplan, the proposed development does not identify the use of any sustainable drainage systems (SuDS) features for surface water drainage. Given the currently undeveloped nature of the site, the LLFA would expect surface water runoff from the site to be suitably managed as per best practice guidance given in the CIRIA C753 The SuDS Manual.
- The LLFA would expect any surface water drainage proposal to seek to infiltrate unless demonstrated to be unfeasible. Such demonstration should include infiltration testing in accordance with BRE Digest 365 Soakaway Design. At outline stage this is only required should the site propose infiltration techniques. If not proposed then infiltration testing may be conditioned to demonstrate that is not viable to use them.

- Should this not be appropriate, the LLFA would expect runoff from site to be discharge to the next most appropriate receptor at rates no greater than the specific Q_{Bar} greenfield value. Appropriate SuDS should be utilised to achieve this with attenuation provided up to the peak return periods plus a 40% allowance for climate change.
- Over the lifetime of a development, it is possible that the overall impermeable area contributing to surface water runoff within the site could significantly increase (known as 'urban creep'). Sensitivity testing of a 10% increase in impermeable area should therefore be included where appropriate to ensure that surface water drainage designs can cope with future increases in impermeable areas.
- The unnamed watercourse running through the centre of the site, as well as any adjacent field ditches, is classified as an ordinary watercourse; as such consent may be required from Leicestershire County Council in their role as LLFA, under the Land Drainage Act (1991) for any activities within close proximity. Further information on the types of work/structure which require consent together with a template application form can be found on our website under the section 'Regulation of activities on watercourses'.
- Leicestershire County Council opposes the culverting of watercourses; however, we recognise there are instances where culverting may be unavoidable. Any applicant will be required to justify the use of culverts and provide information demonstrating that there will be no detrimental effect on flood risk. Please refer to the County Council's Local Flood Risk Management Strategy which contains the culverting policy (Appendix 3) which can also be found on our website.
- To safeguard access to watercourses or ditches for future maintenance, inspection and improvement works in the future; clear margins should be provided from the top of banks. A minimum clear margin of 3m should be provided from each top of bank for watercourses less than 2 metres in width, a minimum clear margin of 4.5m should be provided for watercourses 2 metres or greater in width.
- The LLFA would expect any future surface water drainage scheme to assess the use of SuDS including but not limited to swales, attenuation basins and permeable paving in line with 'CIRIA C753 The SuDS Manual'. Such above ground SuDS structures would also provide one of the required treatment trains to manage water quality. It should be noted that the LLFA do not consider the use of underground storage tanks or oversize pipes as a suitable treatment train and as such where these are proposed, additional treatment trains should be implemented. With regards to the geocellular storage tanks which are proposed on the commercial areas of the Site only, there will be conveyance swales present between them and the receiving watercourse which will provide additional stages of water quality treatment to provide a full SuDS management train. Leicestershire County Council, in their role as LLFA, does not adopt SuDS. For enquiries regarding the proposed development and future adoption and maintenance of SuDS features, please direct these to your local District or Borough Council.
- Any surface water drainage features should be located within the areas at lowest risk of flooding to ensure they remain operational during an extreme event. Any drainage features should also consider how an extreme event may constrain the discharge from any proposed drainage system and ensure the drainage infrastructure can adequately manage surface water runoff regardless (for example a surcharged outfall).
- Where a site-specific flood risk assessment (FRA) is required by NPPF the associated drainage strategy should also provide outline operation and maintenance details along with an indicative proposal of who will maintain any SuDS features over the lifetime of the development.

2. Outline Drainage Strategy

2.1 Surface Water Disposal Hierarchy

For developments, there must be sufficient evidence provided to prove that all surface water disposal routes have been explored. This includes demonstration that the surface water disposal hierarchy has been considered.

The disposal hierarchy is as follows:

- Discharge by infiltration to the ground;
- Discharge to an open surface water body;
- Discharge to a surface water sewer; and
- Discharge to a combined or foul sewer.

It should be noted that a surface water connection to the combined or foul sewer can only be permitted under exceptional circumstances, if evidence shows that the previous site was connected to the same sewer and there are no other new feasible discharge options.

Discharge by Infiltration to the Ground

During earlier phases of the development design, and an investigation into the underlying soil and geology types it was concluded that infiltration cannot be relied on to as a method of surface water drainage. Due to the 'average' drainage nature of the three soil types across the study area, it was decided that infiltration testing should not be carried out. Consultation with the LLFA determined that they only require infiltration testing to have been undertaken at the Outline Planning stage, if infiltration techniques are proposed. This may however be conditioned at the subsequent design stage.

Discharge to an Open Surface Water Body

On inspection of OS mapping there is a surface water body (the Earl Shilton Brook) which runs through the middle of the Site. In accordance with the surface water disposal hierarchy, it is anticipated that this will be the primary route for the discharge of any surface water flows from the development.

Discharge to a Surface Water Sewer

Utilities information confirmed that there are surface water sewers located to the norther and west of the development, which serve the existing properties. No further details are known on the sizes and capacities of these sewers, but due to presence of the nearby watercourse these are not expected to be required for discharging surface water

2.2 Climate Change

In accordance with LLFA guidance and uplift on rainfall intensities of 40% is to be applied to the 1% Annual Exceedance Probability (AEP) event.

2.3 Assumption

The key assumption for this outline drainage strategy, are as follows:

- All flows from the development are to discharge at the greenfield discharge rates;
- An uplift of 40% on rainfall intensities has been assumed to account for climate change and a 10% increase in impermeable area has been allowed to account for urban creep; and
- Volumetric runoff coefficients for both summer and winter profiles have been taken as 0.85 and 0.74 respective.

2.4 Software

The calculations undertaken have been carried out using Innovyze's MicroDrainage (Version 2018.1.1) and using the Source Control module.

3. Modelling of Surface Runoff

3.1 Approach to Calculating Greenfield Runoff Rates

The undeveloped 'greenfield' runoff rate has been estimated using the ICP SUDS Method. The calculation is based upon the following factors:

- ▶ SAAR: Standard Average Annual Rainfall from the Flood Estimation Handbook website¹, which is **623mm** for this location (approximate **NGR: SP 47432 97432**);
- ▶ Soil: Soil index of the catchment from Flood Studies Report Figure I.4.18 or Wallingford Procedure Volume 3. Soil Types 1 to 5 have Soil Index Values of 0.15, 0.30, 0.40, 0.45 and 0.50 respectively. For the Wallingford maps, this Site was established to have a **soil type 4**, with a **Soil Index Value of 0.45**;
- ▶ Region Number: Region number of the catchment based on **FSR Figure I.2.4**, which is **4** for this Site; and
- ▶ Generally **FEH 2013** data has been used to generate rainfall for the Site, however in cases when greenfield contributions are required due to restriction in the modelling software rainfall has been reverted back to FEH 1999.

3.2 Approach to Modelling the Developed Site

This outline drainage strategy has been developed through hydraulic and hydrological modelling of the proposed development. The Site has been divided into 7 land parcels, each of which would need to restrict pass-forward surface water flows to greenfield rates. Ultimately, all surface water runoff from the developments will be disposed of into the Earl Shilton Brook, which bi-sects the Site.

The post development impermeable areas were estimated from the most recent version of the Site masterplan (42523-WOOD-XX-XX-DR-A-0005_S1_P01.1). These were established with and without a 10% allowance for urban creep and also include any significant areas of greenfield runoff contribution identified in the Land Parcel (LP). In addition there are proposed new site access junctions which are located over existing roads. These have not been included in the calculations as it is assumed they will utilise existing highways drainage. At the detailed design stage a full survey of existing assets and the final impermeable area will be used to size any supplementary storage required if any net increases in impermeable surfaces result.

Data relating to the Site areas are shown in Table 3.1 below, which yields a total catchment runoff area of 39.4ha.

¹ Centre for Ecology and Hydrology (2020), Flood Estimation Handbook Web Service. Available at: <https://fehweb.ceh.ac.uk/> [Checked 08/09/21]

Table 3.1 Development Total and Impermeable Areas

Site	Total Area (ha)	Impermeable Area (ha)	10% Urban Creep (ha)	Final Impermeable Area (ha)	Contributing Greenfield Area (ha) 2	Total Attenuated Area (ha)
Land Parcel 1	4.8	2.3	0.2	2.5	NA	2.5
Land Parcel 2	5.8	3.3	0.3	3.6	NA	3.6
Land Parcel 3	2.3	0.9	0.1	1.0	NA	1.0
Land Parcel 4	5.9	2.1	0.2	2.3		3.2
Land Parcel 5	16.3	7.3	0.7	8.0		10.5
Land Parcel 6	13.2	5.8	0.6	6.4	4.9	11.3
Land Parcel 7	10.7	4.7	0.5	5.2	0.0	5.2
New access junctions ¹	1.2	N/A	N/A	N/A	N/A	N/A
Total	65.37	26.2	2.6	28.8	10.6	37.3

1. The area is not part of the full area which needs attenuated as part of this proposal
2. The upslope greenfield area is represented as a FEH Unit Hydrograph

3.3 Existing Site Greenfield Runoff Rate

The calculated greenfield runoff rates in the unit rates of l/s/ha for the existing site were undertaken using MicroDrainage version 2018 and are shown in Table 3.2.

Table 3.2 Existing Site Greenfield Runoff Rates

Annual Exceedance Probability (%)	Return Period (1 in.....)	Unit GF Runoff (l/s/ha)
100	1	9.9
3.33	30	7.5
1	100	3.2
QBAR	-	3.8

In line with the LLFA guidance, flows from the site will be restricted to the Q_{BAR} discharge rates. The M100-360 (1% AEP and 6 hour) greenfield runoff volumes was also been calculated for the 39.4ha total catchment area can found to be 6,903.4m³.

The calculation to support the greenfield runoff rates and volume are shown in Annex A.

3.4 Propose Site Runoff and Attenuation

A conceptual model of the proposed system has been run with a range of durations from 15 minutes up to 10080 minutes, or 7 days. This is checked to ensure that the critical duration event is included within the analysis. Analysis resulted in a half drain down (HDD) in excess of 24hrs and additional checks were undertaken to test against a subsequent storm. The proposed storage volume was tested against a critical 1% AEP 720 minute duration event (plus 40% climate change), followed by 24hrs drain down and then followed by a critical 10% AEP 1440 minute duration event. In the event that the proposed volume was insufficient for this scenario then additional volume was considered.

The outline planning land parcels have been assessed on an individual basis. The summary of the results is shown in Table 3.3. The full modelling outputs for the sites are included in Annex.

It is proposed the majority of the attenuation is provided in SuDS basin, swales, or within geocellular storage if above ground space is limited (such as LP 2). In addition, it is recommended that where possible attenuation is also provided at source, which will help to reduce the size of the proposed attenuation structures. This could include features such as rain gardens, green roofs or permeable paving. This will be confirmed during later design stages.

A drainage strategy drawing has been prepared to accompany the assessment to illustrate the proposed layout of the SuDS. This can be viewed in Annex B (42523-Wood-XX-XX-DR-A-0005_S1_P01.1)

Table 3.3 Attenuation Volumes for Earl Shilton

Land Parcel (LP)	Total GF Q_{BAR} Discharge Rate from LP (l/s) ¹	Total Attenuation Vol. within LP (m ³)	Attenuation and Discharge Details
Land Parcel 1	9.5	1,900	Attenuation within SuDS Basins located in the north and south of LP1 with the northern pond discharging to a drain adjacent to Thurlaston Lane. It is assumed that some ground reprofiling will be required to maximise the amount of area that can drain to the north. For the remaining area draining south, a number of options have been considered, including: - Discharge into existing or proposed highway drainage infrastructure on the A47; - Construction of a dedicated off site surface water sewer along the A47 to discharge flows in the watercourse; - Discharge of flows from LP1 into LP2; and, - Discharge into the local combined network to the west of Mill Lane.
Land Parcel 2	13.8	2,800	Attenuation within geocellular storage underneath car parking areas. Discharge into LP3.
Land Parcel 3	3.9	800	Attenuation within SuDS basins located in the south of the LP3 with discharges into watercourse.
Land Parcel 4	12.4	1,850	Attenuation within SuDS basins located in the east of the LP4 with discharges into watercourse.

Land Parcel (LP)	Total GF Q_{BAR} Discharge Rate from LP (l/s) ¹	Total Attenuation Vol. within LP (m ³)	Attenuation and Discharge Details
Land Parcel 5	40.4	7,850	Attenuation within SuDS basins located in the north of LP5 with discharges into watercourse.
Land Parcel 6	43.5	5,900	Attenuation within SuDS basins located in the east of LP6 with discharges into watercourse. An additional, SuDS basin could be provided in the south, adjacent to LP7. Some attenuation could also be provided in geocellular storage underneath the sport pitches in the north west of the LP.
Land Parcel 7	20.0	4,600	Attenuation within SuDS basins located in the south of LP7 with discharges into LP5. Minor ground reprofiling may be required in the north of the LP to ensure gravity connection to basins.

1. Discharge rate is based upon the unit Q_{BAR} rate of 3.8l/s/ha

4. Summary

This outline drainage strategy has been undertaken in accordance with the NPPF, Defra, LLFA and CIRIA guidance. It demonstrates that surface water from the proposed development can be managed within the confines of the development.

The outline drainage strategy for the development is as follows:

- Infiltration has not been considered at these sites and all flows are to be attenuated to greenfield levels before discharge into the local watercourse;
- The equivalent greenfield runoff rates, which have been calculated as 9.9l/s/ha, 7.5/s/ha, 3.2l/s/ha and 3.8l/s/ha for the 1% AEP, 3.33%AEP, 100% AEP and Q_{BAR} scenarios;
- The 1% AEP rainfall intensities are subject to an 40% uplift to account for climate change and all proposed impermeable areas are subject to a 10% increase to account for urban creep;
- The drainage strategy recommends the discharges are split into 7 separate land parcels which all ultimately discharge into the same watercourse;
- Within these land parcels, attenuation will be provided in the form of either SuDS basin/swale or within geocellular storage tanks where land available is restricted;
- Further attenuation could be provided at source including rain gardens, green roofs or permeable paving;
- 1% AEP or 1% AEP (plus 40% for climate change) attenuation volumes for the land parcels 1 to 7 are 1,900m³, 2,800m³, 800m³, 1,850m³, 7,850m³, 5,900m³ and 4,600m³ respectively. A total attenuation volume of approximately 25,700 m³ has been estimated at this stage. This would need to be further refined as the design is finalised for construction;
- All the Land parcels will discharge directly into the watercourse that bisects the site, with the exception of:
 - i. LP1 will drain a portion of the area north to the drain adjacent to Thurlaston Lane which could be maximised with some local land reprofiling. The remaining area will drain south into either LP2 or into the new drainage infrastructures provided on the A47;
 - ii. LP2 will drain indirectly to the watercourse via LP3; and
 - iii. LP7 will drain indirectly to the watercourse via LP5, which will require some local land reprofiling.
- Where half drain down time exceeds 24hrs an additional check was undertaken to ensure the attenuation structure was sized sufficiently to retain the 1% AEP event followed by a 10% AEP event after 24hrs drain down.

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Ian Wilson**Approved by**.....
Chris Grange**Copyright and non-disclosure notice**

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Annex A

Drainage Calculations

AMEC Foster Wheeler Group Ltd		Page 1
Booths Park Chelford Road Knutsford Cheshire WA16 8QZ	Earl Shilton Greefield Runoff Rates	
Date 30/11/2020 File	Designed by AS Checked by IW	
Innovyze	Source Control 2018.1.1	
<u>ICP SUDS Mean Annual Flood</u> Input Return Period (years) 100 SAAR (mm) 623 Urban 0.000 Area (ha) 39.355 Soil 0.450 Region Number Region 4 Results 1/s QBAR Rural 150.9 QBAR Urban 150.9 Q100 years 387.7 Q1 year 125.2 Q30 years 295.6 Q100 years 387.7		
©1982-2018 Innovyze		

AMEC Foster Wheeler Group Ltd		Page 1																										
Booths Park Chelford Road Knutsford Cheshire WA16 8QZ	Earl Shilton Greenfield Runoff Volumes																											
Date 30/11/2020 File	Designed by AS Checked by IW																											
Innovyze Source Control 2018.1.1																												
<u>Greenfield Runoff Volume</u> FEH Data <table> <tr> <td>Return Period (years)</td> <td>100</td> </tr> <tr> <td>Storm Duration (mins)</td> <td>360</td> </tr> <tr> <td>FEH Rainfall Version</td> <td>2013</td> </tr> <tr> <td>Site Location</td> <td>GB 447750 297300 SP 47750 97300</td> </tr> <tr> <td>Data Type</td> <td>Catchment</td> </tr> <tr> <td>Areal Reduction Factor</td> <td>1.00</td> </tr> <tr> <td>Area (ha)</td> <td>39.355</td> </tr> <tr> <td>SAAR (mm)</td> <td>623</td> </tr> <tr> <td>CWI</td> <td>91.140</td> </tr> <tr> <td>SPR Host</td> <td>30.330</td> </tr> <tr> <td>URBEXT (USER)</td> <td>0.0000</td> </tr> </table> Results <table> <tr> <td>Percentage Runoff (%)</td> <td>26.34</td> </tr> <tr> <td>Greenfield Runoff Volume (m³)</td> <td>6903.386</td> </tr> </table>			Return Period (years)	100	Storm Duration (mins)	360	FEH Rainfall Version	2013	Site Location	GB 447750 297300 SP 47750 97300	Data Type	Catchment	Areal Reduction Factor	1.00	Area (ha)	39.355	SAAR (mm)	623	CWI	91.140	SPR Host	30.330	URBEXT (USER)	0.0000	Percentage Runoff (%)	26.34	Greenfield Runoff Volume (m³)	6903.386
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Greenfield Runoff Volume (m³)	6903.386																											
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP1 Atten. M100-720 & M10-1440						
Date 30/11/2020					Designed by AS						
File LP_1_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
<u>Rainfall Profile</u>											
Cv 0.840 Climate Change % +0											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1	0.290	43	3.198	85	3.931	127	3.986	169	5.004	211	7.773
2	0.290	44	3.409	86	3.931	128	3.986	170	5.004	212	7.773
3	0.290	45	3.462	87	3.931	129	3.986	171	5.004	213	7.773
4	0.290	46	3.462	88	3.933	130	4.014	172	5.004	214	7.773
5	0.290	47	3.462	89	3.933	131	4.056	173	5.071	215	7.773
6	0.290	48	3.462	90	3.933	132	4.056	174	5.335	216	7.773
7	0.290	49	3.462	91	3.933	133	4.056	175	5.335	217	8.413
8	0.965	50	3.462	92	3.933	134	4.056	176	5.335	218	8.413
9	1.133	51	3.577	93	3.933	135	4.056	177	5.335	219	8.413
10	1.133	52	3.654	94	3.930	136	4.056	178	5.335	220	8.413
11	1.133	53	3.654	95	3.926	137	4.077	179	5.335	221	8.413
12	1.133	54	3.654	96	3.926	138	4.161	180	5.335	222	8.413
13	1.133	55	3.654	97	3.926	139	4.161	181	5.719	223	8.413
14	1.133	56	3.654	98	3.926	140	4.161	182	5.719	224	8.960
15	1.550	57	3.654	99	3.926	141	4.161	183	5.719	225	9.097
16	1.828	58	3.707	100	3.926	142	4.161	184	5.719	226	9.097
17	1.828	59	3.786	101	3.924	143	4.161	185	5.719	227	9.097
18	1.828	60	3.786	102	3.920	144	4.161	186	5.719	228	9.097
19	1.828	61	3.786	103	3.920	145	4.305	187	5.719	229	9.097
20	1.828	62	3.786	104	3.920	146	4.305	188	6.068	230	9.097
21	1.828	63	3.786	105	3.920	147	4.305	189	6.154	231	9.534
22	2.055	64	3.786	106	3.920	148	4.305	190	6.154	232	9.825
23	2.395	65	3.802	107	3.920	149	4.305	191	6.154	233	9.825
24	2.395	66	3.868	108	3.920	150	4.305	192	6.154	234	9.825
25	2.395	67	3.868	109	3.923	151	4.305	193	6.154	235	9.825
26	2.395	68	3.868	110	3.923	152	4.453	194	6.154	236	9.825
27	2.395	69	3.868	111	3.923	153	4.491	195	6.447	237	9.825
28	2.395	70	3.868	112	3.923	154	4.491	196	6.643	238	10.132
29	2.485	71	3.868	113	3.923	155	4.491	197	6.643	239	10.592
30	2.846	72	3.868	114	3.923	156	4.491	198	6.643	240	10.592
31	2.846	73	3.913	115	3.923	157	4.491	199	6.643	241	10.592
32	2.846	74	3.913	116	3.940	158	4.491	200	6.643	242	10.592
33	2.846	75	3.913	117	3.942	159	4.630	201	6.643	243	10.592
34	2.846	76	3.913	118	3.942	160	4.724	202	6.859	244	10.592
35	2.846	77	3.913	119	3.942	161	4.724	203	7.182	245	10.752
36	2.846	78	3.913	120	3.942	162	4.724	204	7.182	246	11.392
37	3.198	79	3.913	121	3.942	163	4.724	205	7.182	247	11.392
38	3.198	80	3.927	122	3.942	164	4.724	206	7.182	248	11.392
39	3.198	81	3.931	123	3.968	165	4.724	207	7.182	249	11.392
40	3.198	82	3.931	124	3.986	166	4.836	208	7.182	250	11.392
41	3.198	83	3.931	125	3.986	167	5.004	209	7.301	251	11.392
42	3.198	84	3.931	126	3.986	168	5.004	210	7.773	252	11.392
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP1 Atten. M100-720 & M10-1440						
Date 30/11/2020					Designed by AS						
File LP_1_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
253	12.222	298	17.420	343	21.582	388	21.062	433	15.695	478	10.592
254	12.222	299	17.420	344	21.582	389	20.940	434	15.695	479	10.592
255	12.222	300	17.420	345	21.582	390	20.455	435	15.695	480	10.592
256	12.222	301	17.420	346	21.750	391	20.455	436	15.695	481	10.592
257	12.222	302	17.420	347	22.002	392	20.455	437	15.695	482	10.592
258	12.222	303	17.916	348	22.002	393	20.455	438	15.695	483	10.132
259	12.222	304	18.246	349	22.002	394	20.455	439	15.695	484	9.825
260	12.902	305	18.246	350	22.002	395	20.455	440	14.994	485	9.825
261	13.073	306	18.246	351	22.002	396	20.455	441	14.819	486	9.825
262	13.073	307	18.246	352	22.002	397	19.775	442	14.819	487	9.825
263	13.073	308	18.246	353	22.063	398	19.775	443	14.819	488	9.825
264	13.073	309	18.246	354	22.308	399	19.775	444	14.819	489	9.825
265	13.073	310	18.561	355	22.308	400	19.775	445	14.819	490	9.534
266	13.073	311	19.034	356	22.308	401	19.775	446	14.819	491	9.097
267	13.594	312	19.034	357	22.308	402	19.775	447	14.293	492	9.097
268	13.941	313	19.034	358	22.308	403	19.775	448	13.941	493	9.097
269	13.941	314	19.034	359	22.308	404	19.183	449	13.941	494	9.097
270	13.941	315	19.034	360	22.308	405	19.034	450	13.941	495	9.097
271	13.941	316	19.034	361	22.308	406	19.034	451	13.941	496	9.097
272	13.941	317	19.183	362	22.308	407	19.034	452	13.941	497	8.960
273	13.941	318	19.775	363	22.308	408	19.034	453	13.941	498	8.413
274	14.293	319	19.775	364	22.308	409	19.034	454	13.594	499	8.413
275	14.818	320	19.775	365	22.308	410	19.034	455	13.073	500	8.413
276	14.818	321	19.775	366	22.308	411	18.561	456	13.073	501	8.413
277	14.818	322	19.775	367	22.308	412	18.246	457	13.073	502	8.413
278	14.818	323	19.775	368	22.063	413	18.246	458	13.073	503	8.413
279	14.818	324	19.775	369	22.002	414	18.246	459	13.073	504	8.413
280	14.818	325	20.455	370	22.002	415	18.246	460	13.073	505	7.773
281	14.994	326	20.455	371	22.002	416	18.246	461	12.902	506	7.773
282	15.697	327	20.455	372	22.002	417	18.246	462	12.222	507	7.773
283	15.697	328	20.455	373	22.002	418	17.916	463	12.222	508	7.773
284	15.697	329	20.455	374	22.002	419	17.420	464	12.222	509	7.773
285	15.697	330	20.455	375	21.750	420	17.420	465	12.222	510	7.773
286	15.697	331	20.455	376	21.582	421	17.420	466	12.222	511	7.773
287	15.697	332	20.940	377	21.582	422	17.420	467	12.222	512	7.301
288	15.697	333	21.062	378	21.582	423	17.420	468	12.222	513	7.182
289	16.566	334	21.062	379	21.582	424	17.420	469	11.392	514	7.182
290	16.566	335	21.062	380	21.582	425	17.249	470	11.392	515	7.182
291	16.566	336	21.062	381	21.582	426	16.566	471	11.392	516	7.182
292	16.566	337	21.062	382	21.374	427	16.566	472	11.392	517	7.182
293	16.566	338	21.062	383	21.062	428	16.566	473	11.392	518	7.182
294	16.566	339	21.374	384	21.062	429	16.566	474	11.392	519	6.859
295	16.566	340	21.582	385	21.062	430	16.566	475	11.392	520	6.643
296	17.249	341	21.582	386	21.062	431	16.566	476	10.752	521	6.643
297	17.420	342	21.582	387	21.062	432	16.566	477	10.592	522	6.643
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AMEC Foster Wheeler Group Ltd										Page 4	
Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP1 Atten. M100-720 & M10-1440						
Date 30/11/2020					Designed by AS						
File LP_1_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
523	6.643	568	4.491	613	3.920	658	3.786	703	1.828	748	0.000
524	6.643	569	4.453	614	3.920	659	3.786	704	1.828	749	0.000
525	6.643	570	4.305	615	3.920	660	3.786	705	1.828	750	0.000
526	6.447	571	4.305	616	3.920	661	3.786	706	1.550	751	0.000
527	6.154	572	4.305	617	3.920	662	3.786	707	1.133	752	0.000
528	6.154	573	4.305	618	3.920	663	3.707	708	1.133	753	0.000
529	6.154	574	4.305	619	3.920	664	3.654	709	1.133	754	0.000
530	6.154	575	4.305	620	3.924	665	3.654	710	1.133	755	0.000
531	6.154	576	4.305	621	3.926	666	3.654	711	1.133	756	0.000
532	6.154	577	4.161	622	3.926	667	3.654	712	1.133	757	0.000
533	6.068	578	4.161	623	3.926	668	3.654	713	0.963	758	0.000
534	5.719	579	4.161	624	3.926	669	3.654	714	0.290	759	0.000
535	5.719	580	4.161	625	3.926	670	3.577	715	0.290	760	0.000
536	5.719	581	4.161	626	3.926	671	3.462	716	0.290	761	0.000
537	5.719	582	4.161	627	3.930	672	3.462	717	0.290	762	0.000
538	5.719	583	4.161	628	3.933	673	3.462	718	0.290	763	0.000
539	5.719	584	4.077	629	3.933	674	3.462	719	0.290	764	0.000
540	5.719	585	4.056	630	3.933	675	3.462	720	0.290	765	0.000
541	5.335	586	4.056	631	3.933	676	3.462	721	0.000	766	0.000
542	5.335	587	4.056	632	3.933	677	3.409	722	0.000	767	0.000
543	5.335	588	4.056	633	3.933	678	3.198	723	0.000	768	0.000
544	5.335	589	4.056	634	3.931	679	3.198	724	0.000	769	0.000
545	5.335	590	4.056	635	3.931	680	3.198	725	0.000	770	0.000
546	5.335	591	4.014	636	3.931	681	3.198	726	0.000	771	0.000
547	5.335	592	3.986	637	3.931	682	3.198	727	0.000	772	0.000
548	5.071	593	3.986	638	3.931	683	3.198	728	0.000	773	0.000
549	5.004	594	3.986	639	3.931	684	3.198	729	0.000	774	0.000
550	5.004	595	3.986	640	3.931	685	2.846	730	0.000	775	0.000
551	5.004	596	3.986	641	3.927	686	2.846	731	0.000	776	0.000
552	5.004	597	3.986	642	3.913	687	2.846	732	0.000	777	0.000
553	5.004	598	3.968	643	3.913	688	2.846	733	0.000	778	0.000
554	5.004	599	3.942	644	3.913	689	2.846	734	0.000	779	0.000
555	4.836	600	3.942	645	3.913	690	2.846	735	0.000	780	0.000
556	4.724	601	3.942	646	3.913	691	2.846	736	0.000	781	0.000
557	4.724	602	3.942	647	3.913	692	2.485	737	0.000	782	0.000
558	4.724	603	3.942	648	3.913	693	2.395	738	0.000	783	0.000
559	4.724	604	3.942	649	3.868	694	2.395	739	0.000	784	0.000
560	4.724	605	3.940	650	3.868	695	2.395	740	0.000	785	0.000
561	4.724	606	3.923	651	3.868	696	2.395	741	0.000	786	0.000
562	4.630	607	3.923	652	3.868	697	2.395	742	0.000	787	0.000
563	4.491	608	3.923	653	3.868	698	2.395	743	0.000	788	0.000
564	4.491	609	3.923	654	3.868	699	2.055	744	0.000	789	0.000
565	4.491	610	3.923	655	3.868	700	1.828	745	0.000	790	0.000
566	4.491	611	3.923	656	3.802	701	1.828	746	0.000	791	0.000
567	4.491	612	3.923	657	3.786	702	1.828	747	0.000	792	0.000
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AMEC Foster Wheeler Group Ltd										Page 5	
Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP1 Atten. M100-720 & M10-1440						
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File LP_1_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
793	0.000	838	0.000	883	0.000	928	0.000	973	0.000	1018	0.000
794	0.000	839	0.000	884	0.000	929	0.000	974	0.000	1019	0.000
795	0.000	840	0.000	885	0.000	930	0.000	975	0.000	1020	0.000
796	0.000	841	0.000	886	0.000	931	0.000	976	0.000	1021	0.000
797	0.000	842	0.000	887	0.000	932	0.000	977	0.000	1022	0.000
798	0.000	843	0.000	888	0.000	933	0.000	978	0.000	1023	0.000
799	0.000	844	0.000	889	0.000	934	0.000	979	0.000	1024	0.000
800	0.000	845	0.000	890	0.000	935	0.000	980	0.000	1025	0.000
801	0.000	846	0.000	891	0.000	936	0.000	981	0.000	1026	0.000
802	0.000	847	0.000	892	0.000	937	0.000	982	0.000	1027	0.000
803	0.000	848	0.000	893	0.000	938	0.000	983	0.000	1028	0.000
804	0.000	849	0.000	894	0.000	939	0.000	984	0.000	1029	0.000
805	0.000	850	0.000	895	0.000	940	0.000	985	0.000	1030	0.000
806	0.000	851	0.000	896	0.000	941	0.000	986	0.000	1031	0.000
807	0.000	852	0.000	897	0.000	942	0.000	987	0.000	1032	0.000
808	0.000	853	0.000	898	0.000	943	0.000	988	0.000	1033	0.000
809	0.000	854	0.000	899	0.000	944	0.000	989	0.000	1034	0.000
810	0.000	855	0.000	900	0.000	945	0.000	990	0.000	1035	0.000
811	0.000	856	0.000	901	0.000	946	0.000	991	0.000	1036	0.000
812	0.000	857	0.000	902	0.000	947	0.000	992	0.000	1037	0.000
813	0.000	858	0.000	903	0.000	948	0.000	993	0.000	1038	0.000
814	0.000	859	0.000	904	0.000	949	0.000	994	0.000	1039	0.000
815	0.000	860	0.000	905	0.000	950	0.000	995	0.000	1040	0.000
816	0.000	861	0.000	906	0.000	951	0.000	996	0.000	1041	0.000
817	0.000	862	0.000	907	0.000	952	0.000	997	0.000	1042	0.000
818	0.000	863	0.000	908	0.000	953	0.000	998	0.000	1043	0.000
819	0.000	864	0.000	909	0.000	954	0.000	999	0.000	1044	0.000
820	0.000	865	0.000	910	0.000	955	0.000	1000	0.000	1045	0.000
821	0.000	866	0.000	911	0.000	956	0.000	1001	0.000	1046	0.000
822	0.000	867	0.000	912	0.000	957	0.000	1002	0.000	1047	0.000
823	0.000	868	0.000	913	0.000	958	0.000	1003	0.000	1048	0.000
824	0.000	869	0.000	914	0.000	959	0.000	1004	0.000	1049	0.000
825	0.000	870	0.000	915	0.000	960	0.000	1005	0.000	1050	0.000
826	0.000	871	0.000	916	0.000	961	0.000	1006	0.000	1051	0.000
827	0.000	872	0.000	917	0.000	962	0.000	1007	0.000	1052	0.000
828	0.000	873	0.000	918	0.000	963	0.000	1008	0.000	1053	0.000
829	0.000	874	0.000	919	0.000	964	0.000	1009	0.000	1054	0.000
830	0.000	875	0.000	920	0.000	965	0.000	1010	0.000	1055	0.000
831	0.000	876	0.000	921	0.000	966	0.000	1011	0.000	1056	0.000
832	0.000	877	0.000	922	0.000	967	0.000	1012	0.000	1057	0.000
833	0.000	878	0.000	923	0.000	968	0.000	1013	0.000	1058	0.000
834	0.000	879	0.000	924	0.000	969	0.000	1014	0.000	1059	0.000
835	0.000	880	0.000	925	0.000	970	0.000	1015	0.000	1060	0.000
836	0.000	881	0.000	926	0.000	971	0.000	1016	0.000	1061	0.000
837	0.000	882	0.000	927	0.000	972	0.000	1017	0.000	1062	0.000
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP1 Atten. M100-720 & M10-1440						
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1063	0.000	1108	0.000	1153	0.000	1198	0.000	1243	0.000	1288	0.000
1064	0.000	1109	0.000	1154	0.000	1199	0.000	1244	0.000	1289	0.000
1065	0.000	1110	0.000	1155	0.000	1200	0.000	1245	0.000	1290	0.000
1066	0.000	1111	0.000	1156	0.000	1201	0.000	1246	0.000	1291	0.000
1067	0.000	1112	0.000	1157	0.000	1202	0.000	1247	0.000	1292	0.000
1068	0.000	1113	0.000	1158	0.000	1203	0.000	1248	0.000	1293	0.000
1069	0.000	1114	0.000	1159	0.000	1204	0.000	1249	0.000	1294	0.000
1070	0.000	1115	0.000	1160	0.000	1205	0.000	1250	0.000	1295	0.000
1071	0.000	1116	0.000	1161	0.000	1206	0.000	1251	0.000	1296	0.000
1072	0.000	1117	0.000	1162	0.000	1207	0.000	1252	0.000	1297	0.000
1073	0.000	1118	0.000	1163	0.000	1208	0.000	1253	0.000	1298	0.000
1074	0.000	1119	0.000	1164	0.000	1209	0.000	1254	0.000	1299	0.000
1075	0.000	1120	0.000	1165	0.000	1210	0.000	1255	0.000	1300	0.000
1076	0.000	1121	0.000	1166	0.000	1211	0.000	1256	0.000	1301	0.000
1077	0.000	1122	0.000	1167	0.000	1212	0.000	1257	0.000	1302	0.000
1078	0.000	1123	0.000	1168	0.000	1213	0.000	1258	0.000	1303	0.000
1079	0.000	1124	0.000	1169	0.000	1214	0.000	1259	0.000	1304	0.000
1080	0.000	1125	0.000	1170	0.000	1215	0.000	1260	0.000	1305	0.000
1081	0.000	1126	0.000	1171	0.000	1216	0.000	1261	0.000	1306	0.000
1082	0.000	1127	0.000	1172	0.000	1217	0.000	1262	0.000	1307	0.000
1083	0.000	1128	0.000	1173	0.000	1218	0.000	1263	0.000	1308	0.000
1084	0.000	1129	0.000	1174	0.000	1219	0.000	1264	0.000	1309	0.000
1085	0.000	1130	0.000	1175	0.000	1220	0.000	1265	0.000	1310	0.000
1086	0.000	1131	0.000	1176	0.000	1221	0.000	1266	0.000	1311	0.000
1087	0.000	1132	0.000	1177	0.000	1222	0.000	1267	0.000	1312	0.000
1088	0.000	1133	0.000	1178	0.000	1223	0.000	1268	0.000	1313	0.000
1089	0.000	1134	0.000	1179	0.000	1224	0.000	1269	0.000	1314	0.000
1090	0.000	1135	0.000	1180	0.000	1225	0.000	1270	0.000	1315	0.000
1091	0.000	1136	0.000	1181	0.000	1226	0.000	1271	0.000	1316	0.000
1092	0.000	1137	0.000	1182	0.000	1227	0.000	1272	0.000	1317	0.000
1093	0.000	1138	0.000	1183	0.000	1228	0.000	1273	0.000	1318	0.000
1094	0.000	1139	0.000	1184	0.000	1229	0.000	1274	0.000	1319	0.000
1095	0.000	1140	0.000	1185	0.000	1230	0.000	1275	0.000	1320	0.000
1096	0.000	1141	0.000	1186	0.000	1231	0.000	1276	0.000	1321	0.000
1097	0.000	1142	0.000	1187	0.000	1232	0.000	1277	0.000	1322	0.000
1098	0.000	1143	0.000	1188	0.000	1233	0.000	1278	0.000	1323	0.000
1099	0.000	1144	0.000	1189	0.000	1234	0.000	1279	0.000	1324	0.000
1100	0.000	1145	0.000	1190	0.000	1235	0.000	1280	0.000	1325	0.000
1101	0.000	1146	0.000	1191	0.000	1236	0.000	1281	0.000	1326	0.000
1102	0.000	1147	0.000	1192	0.000	1237	0.000	1282	0.000	1327	0.000
1103	0.000	1148	0.000	1193	0.000	1238	0.000	1283	0.000	1328	0.000
1104	0.000	1149	0.000	1194	0.000	1239	0.000	1284	0.000	1329	0.000
1105	0.000	1150	0.000	1195	0.000	1240	0.000	1285	0.000	1330	0.000
1106	0.000	1151	0.000	1196	0.000	1241	0.000	1286	0.000	1331	0.000
1107	0.000	1152	0.000	1197	0.000	1242	0.000	1287	0.000	1332	0.000
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP1 Atten. M100-720 & M10-1440						
Date 30/11/2020 File LP_1_M100 + 40% CC + 144...					Designed by AS Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1603	0.000	1648	0.000	1693	0.000	1738	0.000	1783	0.000	1828	0.000
1604	0.000	1649	0.000	1694	0.000	1739	0.000	1784	0.000	1829	0.000
1605	0.000	1650	0.000	1695	0.000	1740	0.000	1785	0.000	1830	0.000
1606	0.000	1651	0.000	1696	0.000	1741	0.000	1786	0.000	1831	0.000
1607	0.000	1652	0.000	1697	0.000	1742	0.000	1787	0.000	1832	0.000
1608	0.000	1653	0.000	1698	0.000	1743	0.000	1788	0.000	1833	0.000
1609	0.000	1654	0.000	1699	0.000	1744	0.000	1789	0.000	1834	0.000
1610	0.000	1655	0.000	1700	0.000	1745	0.000	1790	0.000	1835	0.000
1611	0.000	1656	0.000	1701	0.000	1746	0.000	1791	0.000	1836	0.000
1612	0.000	1657	0.000	1702	0.000	1747	0.000	1792	0.000	1837	0.000
1613	0.000	1658	0.000	1703	0.000	1748	0.000	1793	0.000	1838	0.000
1614	0.000	1659	0.000	1704	0.000	1749	0.000	1794	0.000	1839	0.000
1615	0.000	1660	0.000	1705	0.000	1750	0.000	1795	0.000	1840	0.000
1616	0.000	1661	0.000	1706	0.000	1751	0.000	1796	0.000	1841	0.000
1617	0.000	1662	0.000	1707	0.000	1752	0.000	1797	0.000	1842	0.000
1618	0.000	1663	0.000	1708	0.000	1753	0.000	1798	0.000	1843	0.000
1619	0.000	1664	0.000	1709	0.000	1754	0.000	1799	0.000	1844	0.000
1620	0.000	1665	0.000	1710	0.000	1755	0.000	1800	0.000	1845	0.000
1621	0.000	1666	0.000	1711	0.000	1756	0.000	1801	0.000	1846	0.000
1622	0.000	1667	0.000	1712	0.000	1757	0.000	1802	0.000	1847	0.000
1623	0.000	1668	0.000	1713	0.000	1758	0.000	1803	0.000	1848	0.000
1624	0.000	1669	0.000	1714	0.000	1759	0.000	1804	0.000	1849	0.000
1625	0.000	1670	0.000	1715	0.000	1760	0.000	1805	0.000	1850	0.000
1626	0.000	1671	0.000	1716	0.000	1761	0.000	1806	0.000	1851	0.000
1627	0.000	1672	0.000	1717	0.000	1762	0.000	1807	0.000	1852	0.000
1628	0.000	1673	0.000	1718	0.000	1763	0.000	1808	0.000	1853	0.000
1629	0.000	1674	0.000	1719	0.000	1764	0.000	1809	0.000	1854	0.000
1630	0.000	1675	0.000	1720	0.000	1765	0.000	1810	0.000	1855	0.000
1631	0.000	1676	0.000	1721	0.000	1766	0.000	1811	0.000	1856	0.000
1632	0.000	1677	0.000	1722	0.000	1767	0.000	1812	0.000	1857	0.000
1633	0.000	1678	0.000	1723	0.000	1768	0.000	1813	0.000	1858	0.000
1634	0.000	1679	0.000	1724	0.000	1769	0.000	1814	0.000	1859	0.000
1635	0.000	1680	0.000	1725	0.000	1770	0.000	1815	0.000	1860	0.000
1636	0.000	1681	0.000	1726	0.000	1771	0.000	1816	0.000	1861	0.000
1637	0.000	1682	0.000	1727	0.000	1772	0.000	1817	0.000	1862	0.000
1638	0.000	1683	0.000	1728	0.000	1773	0.000	1818	0.000	1863	0.000
1639	0.000	1684	0.000	1729	0.000	1774	0.000	1819	0.000	1864	0.000
1640	0.000	1685	0.000	1730	0.000	1775	0.000	1820	0.000	1865	0.000
1641	0.000	1686	0.000	1731	0.000	1776	0.000	1821	0.000	1866	0.000
1642	0.000	1687	0.000	1732	0.000	1777	0.000	1822	0.000	1867	0.000
1643	0.000	1688	0.000	1733	0.000	1778	0.000	1823	0.000	1868	0.000
1644	0.000	1689	0.000	1734	0.000	1779	0.000	1824	0.000	1869	0.000
1645	0.000	1690	0.000	1735	0.000	1780	0.000	1825	0.000	1870	0.000
1646	0.000	1691	0.000	1736	0.000	1781	0.000	1826	0.000	1871	0.000
1647	0.000	1692	0.000	1737	0.000	1782	0.000	1827	0.000	1872	0.000
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Date 30/11/2020					Designed by AS						
File LP_1_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1873	0.000	1918	0.000	1963	0.000	2008	0.000	2053	0.000	2098	0.000
1874	0.000	1919	0.000	1964	0.000	2009	0.000	2054	0.000	2099	0.000
1875	0.000	1920	0.000	1965	0.000	2010	0.000	2055	0.000	2100	0.000
1876	0.000	1921	0.000	1966	0.000	2011	0.000	2056	0.000	2101	0.000
1877	0.000	1922	0.000	1967	0.000	2012	0.000	2057	0.000	2102	0.000
1878	0.000	1923	0.000	1968	0.000	2013	0.000	2058	0.000	2103	0.000
1879	0.000	1924	0.000	1969	0.000	2014	0.000	2059	0.000	2104	0.000
1880	0.000	1925	0.000	1970	0.000	2015	0.000	2060	0.000	2105	0.000
1881	0.000	1926	0.000	1971	0.000	2016	0.000	2061	0.000	2106	0.000
1882	0.000	1927	0.000	1972	0.000	2017	0.000	2062	0.000	2107	0.000
1883	0.000	1928	0.000	1973	0.000	2018	0.000	2063	0.000	2108	0.000
1884	0.000	1929	0.000	1974	0.000	2019	0.000	2064	0.000	2109	0.000
1885	0.000	1930	0.000	1975	0.000	2020	0.000	2065	0.000	2110	0.000
1886	0.000	1931	0.000	1976	0.000	2021	0.000	2066	0.000	2111	0.000
1887	0.000	1932	0.000	1977	0.000	2022	0.000	2067	0.000	2112	0.000
1888	0.000	1933	0.000	1978	0.000	2023	0.000	2068	0.000	2113	0.000
1889	0.000	1934	0.000	1979	0.000	2024	0.000	2069	0.000	2114	0.000
1890	0.000	1935	0.000	1980	0.000	2025	0.000	2070	0.000	2115	0.000
1891	0.000	1936	0.000	1981	0.000	2026	0.000	2071	0.000	2116	0.000
1892	0.000	1937	0.000	1982	0.000	2027	0.000	2072	0.000	2117	0.000
1893	0.000	1938	0.000	1983	0.000	2028	0.000	2073	0.000	2118	0.000
1894	0.000	1939	0.000	1984	0.000	2029	0.000	2074	0.000	2119	0.000
1895	0.000	1940	0.000	1985	0.000	2030	0.000	2075	0.000	2120	0.000
1896	0.000	1941	0.000	1986	0.000	2031	0.000	2076	0.000	2121	0.000
1897	0.000	1942	0.000	1987	0.000	2032	0.000	2077	0.000	2122	0.000
1898	0.000	1943	0.000	1988	0.000	2033	0.000	2078	0.000	2123	0.000
1899	0.000	1944	0.000	1989	0.000	2034	0.000	2079	0.000	2124	0.000
1900	0.000	1945	0.000	1990	0.000	2035	0.000	2080	0.000	2125	0.000
1901	0.000	1946	0.000	1991	0.000	2036	0.000	2081	0.000	2126	0.000
1902	0.000	1947	0.000	1992	0.000	2037	0.000	2082	0.000	2127	0.000
1903	0.000	1948	0.000	1993	0.000	2038	0.000	2083	0.000	2128	0.000
1904	0.000	1949	0.000	1994	0.000	2039	0.000	2084	0.000	2129	0.000
1905	0.000	1950	0.000	1995	0.000	2040	0.000	2085	0.000	2130	0.000
1906	0.000	1951	0.000	1996	0.000	2041	0.000	2086	0.000	2131	0.000
1907	0.000	1952	0.000	1997	0.000	2042	0.000	2087	0.000	2132	0.000
1908	0.000	1953	0.000	1998	0.000	2043	0.000	2088	0.000	2133	0.000
1909	0.000	1954	0.000	1999	0.000	2044	0.000	2089	0.000	2134	0.000
1910	0.000	1955	0.000	2000	0.000	2045	0.000	2090	0.000	2135	0.000
1911	0.000	1956	0.000	2001	0.000	2046	0.000	2091	0.000	2136	0.000
1912	0.000	1957	0.000	2002	0.000	2047	0.000	2092	0.000	2137	0.000
1913	0.000	1958	0.000	2003	0.000	2048	0.000	2093	0.000	2138	0.000
1914	0.000	1959	0.000	2004	0.000	2049	0.000	2094	0.000	2139	0.000
1915	0.000	1960	0.000	2005	0.000	2050	0.000	2095	0.000	2140	0.000
1916	0.000	1961	0.000	2006	0.000	2051	0.000	2096	0.000	2141	0.000
1917	0.000	1962	0.000	2007	0.000	2052	0.000	2097	0.000	2142	0.000
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Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
2143	0.000	2188	1.888	2233	2.316	2278	3.150	2323	6.253	2368	11.237
2144	0.000	2189	1.919	2234	2.316	2279	3.150	2324	6.631	2369	11.237
2145	0.000	2190	2.044	2235	2.316	2280	3.150	2325	6.725	2370	11.237
2146	0.000	2191	2.044	2236	2.316	2281	3.376	2326	6.725	2371	11.237
2147	0.000	2192	2.044	2237	2.318	2282	3.376	2327	6.725	2372	11.587
2148	0.000	2193	2.044	2238	2.328	2283	3.376	2328	6.725	2373	11.674
2149	0.000	2194	2.089	2239	2.328	2284	3.376	2329	7.215	2374	11.674
2150	0.000	2195	2.157	2240	2.328	2285	3.427	2330	7.215	2375	11.674
2151	0.000	2196	2.157	2241	2.328	2286	3.633	2331	7.215	2376	11.674
2152	0.000	2197	2.157	2242	2.338	2287	3.633	2332	7.215	2377	12.075
2153	0.000	2198	2.157	2243	2.353	2288	3.633	2333	7.315	2378	12.075
2154	0.000	2199	2.204	2244	2.353	2289	3.633	2334	7.718	2379	12.075
2155	0.000	2200	2.235	2245	2.353	2290	3.748	2335	7.718	2380	12.075
2156	0.000	2201	2.235	2246	2.353	2291	3.921	2336	7.718	2381	12.147
2157	0.000	2202	2.235	2247	2.378	2292	3.921	2337	7.718	2382	12.433
2158	0.000	2203	2.235	2248	2.395	2293	3.921	2338	7.923	2383	12.433
2159	0.000	2204	2.273	2249	2.395	2294	3.921	2339	8.230	2384	12.433
2160	0.000	2205	2.283	2250	2.395	2295	4.113	2340	8.230	2385	12.433
2161	0.171	2206	2.283	2251	2.395	2296	4.240	2341	8.230	2386	12.556
2162	0.171	2207	2.283	2252	2.444	2297	4.240	2342	8.230	2387	12.741
2163	0.171	2208	2.283	2253	2.457	2298	4.240	2343	8.541	2388	12.741
2164	0.171	2209	2.310	2254	2.457	2299	4.240	2344	8.748	2389	12.741
2165	0.271	2210	2.310	2255	2.457	2300	4.519	2345	8.748	2390	12.741
2166	0.668	2211	2.310	2256	2.457	2301	4.589	2346	8.748	2391	12.889
2167	0.668	2212	2.310	2257	2.541	2302	4.589	2347	8.748	2392	12.988
2168	0.668	2213	2.312	2258	2.541	2303	4.589	2348	9.162	2393	12.988
2169	0.668	2214	2.320	2259	2.541	2304	4.589	2349	9.266	2394	12.988
2170	0.833	2215	2.320	2260	2.541	2305	4.966	2350	9.266	2395	12.988
2171	1.080	2216	2.320	2261	2.563	2306	4.966	2351	9.266	2396	13.133
2172	1.080	2217	2.320	2262	2.651	2307	4.966	2352	9.266	2397	13.169
2173	1.080	2218	2.321	2263	2.651	2308	4.966	2353	9.780	2398	13.169
2174	1.080	2219	2.321	2264	2.651	2309	5.047	2354	9.780	2399	13.169
2175	1.280	2220	2.321	2265	2.651	2310	5.371	2355	9.780	2400	13.169
2176	1.414	2221	2.321	2266	2.706	2311	5.371	2356	9.780	2401	13.169
2177	1.414	2222	2.321	2267	2.788	2312	5.371	2357	9.880	2402	13.169
2178	1.414	2223	2.319	2268	2.788	2313	5.371	2358	10.283	2403	13.169
2179	1.414	2224	2.317	2269	2.788	2314	5.543	2359	10.283	2404	13.169
2180	1.627	2225	2.317	2270	2.788	2315	5.800	2360	10.283	2405	13.133
2181	1.680	2226	2.317	2271	2.888	2316	5.800	2361	10.283	2406	12.988
2182	1.680	2227	2.317	2272	2.954	2317	5.800	2362	10.479	2407	12.988
2183	1.680	2228	2.315	2273	2.954	2318	5.800	2363	10.771	2408	12.988
2184	1.680	2229	2.314	2274	2.954	2319	6.072	2364	10.771	2409	12.988
2185	1.888	2230	2.314	2275	2.954	2320	6.253	2365	10.771	2410	12.889
2186	1.888	2231	2.314	2276	3.111	2321	6.253	2366	10.771	2411	12.741
2187	1.888	2232	2.314	2277	3.150	2322	6.253	2367	11.051	2412	12.741
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Booths Park Chelford Road

Earl Shilton
LP1 Atten.
M100-720 & M10-1440



Date	30/11/2020
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Designed by AS

File LP_1_M100 + 40% CC + 144...

Checked by IW

Innovyze

Source Control 2018.1.1

Rainfall Profile

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
2413	12.741	2451	9.266	2489	5.371	2527	2.954	2565	2.316	2603	2.157
2414	12.741	2452	9.266	2490	5.371	2528	2.954	2566	2.316	2604	2.157
2415	12.556	2453	9.162	2491	5.371	2529	2.954	2567	2.316	2605	2.157
2416	12.433	2454	8.748	2492	5.047	2530	2.888	2568	2.316	2606	2.157
2417	12.433	2455	8.748	2493	4.966	2531	2.788	2569	2.314	2607	2.089
2418	12.433	2456	8.748	2494	4.966	2532	2.788	2570	2.314	2608	2.044
2419	12.433	2457	8.748	2495	4.966	2533	2.788	2571	2.314	2609	2.044
2420	12.147	2458	8.541	2496	4.966	2534	2.788	2572	2.314	2610	2.044
2421	12.075	2459	8.230	2497	4.589	2535	2.706	2573	2.315	2611	2.044
2422	12.075	2460	8.230	2498	4.589	2536	2.651	2574	2.317	2612	1.919
2423	12.075	2461	8.230	2499	4.589	2537	2.651	2575	2.317	2613	1.888
2424	12.075	2462	8.230	2500	4.589	2538	2.651	2576	2.317	2614	1.888
2425	11.674	2463	7.923	2501	4.519	2539	2.651	2577	2.317	2615	1.888
2426	11.674	2464	7.718	2502	4.240	2540	2.563	2578	2.319	2616	1.888
2427	11.674	2465	7.718	2503	4.240	2541	2.541	2579	2.321	2617	1.680
2428	11.674	2466	7.718	2504	4.240	2542	2.541	2580	2.321	2618	1.680
2429	11.587	2467	7.718	2505	4.240	2543	2.541	2581	2.321	2619	1.680
2430	11.237	2468	7.315	2506	4.113	2544	2.541	2582	2.321	2620	1.680
2431	11.237	2469	7.215	2507	3.921	2545	2.456	2583	2.321	2621	1.627
2432	11.237	2470	7.215	2508	3.921	2546	2.456	2584	2.320	2622	1.414
2433	11.237	2471	7.215	2509	3.921	2547	2.456	2585	2.320	2623	1.414
2434	11.051	2472	7.215	2510	3.921	2548	2.456	2586	2.320	2624	1.414
2435	10.771	2473	6.725	2511	3.748	2549	2.444	2587	2.320	2625	1.414
2436	10.771	2474	6.725	2512	3.633	2550	2.395	2588	2.312	2626	1.280
2437	10.771	2475	6.725	2513	3.633	2551	2.395	2589	2.310	2627	1.080
2438	10.771	2476	6.725	2514	3.633	2552	2.395	2590	2.310	2628	1.080
2439	10.479	2477	6.631	2515	3.633	2553	2.395	2591	2.310	2629	1.080
2440	10.283	2478	6.253	2516	3.427	2554	2.378	2592	2.310	2630	1.080
2441	10.283	2479	6.253	2517	3.376	2555	2.353	2593	2.283	2631	0.833
2442	10.283	2480	6.253	2518	3.376	2556	2.353	2594	2.283	2632	0.668
2443	10.283	2481	6.253	2519	3.376	2557	2.353	2595	2.283	2633	0.668
2444	9.880	2482	6.072	2520	3.376	2558	2.353	2596	2.283	2634	0.668
2445	9.780	2483	5.800	2521	3.150	2559	2.338	2597	2.273	2635	0.668
2446	9.780	2484	5.800	2522	3.150	2560	2.328	2598	2.235	2636	0.271
2447	9.780	2485	5.800	2523	3.150	2561	2.328	2599	2.235	2637	0.171
2448	9.780	2486	5.800	2524	3.150	2562	2.328	2600	2.235	2638	0.171
2449	9.266	2487	5.543	2525	3.111	2563	2.328	2601	2.235	2639	0.171
2450	9.266	2488	5.371	2526	2.954	2564	2.318	2602	2.204	2640	0.171

Time Area Diagram

Total Area (ha) 2.475

Earl Shilton
LP1 Atten.
M100-720 & M10-1440



Designed by AS

Checked by IW

Source Control 2018.1.1

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From: To:	(ha)	From: To:	(ha)	From: To:	(ha)
0	2 0.495	4	6 0.495	8	10 0.495
2	4 0.495	6	8 0.495		

AMEC Foster Wheeler Group Ltd			Page 13																																																																																																																																				
Booths Park Chelford Road Knutsford Cheshire WA16 8QZ		Earl Shilton LP1 Atten. M100-720 & M10-1440																																																																																																																																					
Date 30/11/2020		Designed by AS																																																																																																																																					
File LP_1_M100 + 40% CC + 144...		Checked by IW																																																																																																																																					
Innovyze			Source Control 2018.1.1																																																																																																																																				
<u>Model Details</u> Storage is Online Cover Level (m) 100.000 <u>Infiltration Basin Structure</u> Invert Level (m) 99.000 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 1.00 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th></tr><tr><td>0.000</td><td>1594.7</td><td>0.400</td><td>1829.2</td><td>0.800</td><td>2079.8</td></tr><tr><td>0.200</td><td>1709.9</td><td>0.600</td><td>1952.5</td><td>1.000</td><td>2211.2</td></tr></table> <u>Hydro-Brake® Optimum Outflow Control</u> <table><tr><td>Unit Reference</td><td>MD-SHE-0142-9500-1000-9500</td></tr><tr><td>Design Head (m)</td><td>1.000</td></tr><tr><td>Design Flow (l/s)</td><td>9.5</td></tr><tr><td>Flush-Flo™</td><td>Calculated</td></tr><tr><td>Objective</td><td>Minimise upstream storage</td></tr><tr><td>Application</td><td>Surface</td></tr><tr><td>Sump Available</td><td>Yes</td></tr><tr><td>Diameter (mm)</td><td>142</td></tr><tr><td>Invert Level (m)</td><td>99.000</td></tr><tr><td>Minimum Outlet Pipe Diameter (mm)</td><td>225</td></tr><tr><td>Suggested Manhole Diameter (mm)</td><td>1200</td></tr></table> <table><tr><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th></tr><tr><td>Design Point (Calculated)</td><td>1.000</td><td>9.5</td><td>Kick-Flo®</td><td>0.675</td><td>7.9</td></tr><tr><td>Flush-Flo™</td><td>0.305</td><td>9.5</td><td>Mean Flow over Head Range</td><td>-</td><td>8.2</td></tr></table> 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 <table><tr><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th></tr><tr><td>0.100</td><td>5.1</td><td>1.200</td><td>10.4</td><td>3.000</td><td>16.0</td><td>7.000</td><td>24.0</td></tr><tr><td>0.200</td><td>9.2</td><td>1.400</td><td>11.1</td><td>3.500</td><td>17.2</td><td>7.500</td><td>24.8</td></tr><tr><td>0.300</td><td>9.5</td><td>1.600</td><td>11.9</td><td>4.000</td><td>18.3</td><td>8.000</td><td>25.6</td></tr><tr><td>0.400</td><td>9.4</td><td>1.800</td><td>12.5</td><td>4.500</td><td>19.4</td><td>8.500</td><td>26.3</td></tr><tr><td>0.500</td><td>9.2</td><td>2.000</td><td>13.2</td><td>5.000</td><td>20.4</td><td>9.000</td><td>27.1</td></tr><tr><td>0.600</td><td>8.7</td><td>2.200</td><td>13.8</td><td>5.500</td><td>21.4</td><td>9.500</td><td>27.8</td></tr><tr><td>0.800</td><td>8.6</td><td>2.400</td><td>14.4</td><td>6.000</td><td>22.3</td><td></td><td></td></tr><tr><td>1.000</td><td>9.5</td><td>2.600</td><td>14.9</td><td>6.500</td><td>23.1</td><td></td><td></td></tr></table>						Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	0.000	1594.7	0.400	1829.2	0.800	2079.8	0.200	1709.9	0.600	1952.5	1.000	2211.2	Unit Reference	MD-SHE-0142-9500-1000-9500	Design Head (m)	1.000	Design Flow (l/s)	9.5	Flush-Flo™	Calculated	Objective	Minimise upstream storage	Application	Surface	Sump Available	Yes	Diameter (mm)	142	Invert Level (m)	99.000	Minimum Outlet Pipe Diameter (mm)	225	Suggested Manhole Diameter (mm)	1200	Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)	Design Point (Calculated)	1.000	9.5	Kick-Flo®	0.675	7.9	Flush-Flo™	0.305	9.5	Mean Flow over Head Range	-	8.2	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	5.1	1.200	10.4	3.000	16.0	7.000	24.0	0.200	9.2	1.400	11.1	3.500	17.2	7.500	24.8	0.300	9.5	1.600	11.9	4.000	18.3	8.000	25.6	0.400	9.4	1.800	12.5	4.500	19.4	8.500	26.3	0.500	9.2	2.000	13.2	5.000	20.4	9.000	27.1	0.600	8.7	2.200	13.8	5.500	21.4	9.500	27.8	0.800	8.6	2.400	14.4	6.000	22.3			1.000	9.5	2.600	14.9	6.500	23.1		
Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)																																																																																																																																		
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0.600	8.7	2.200	13.8	5.500	21.4	9.500	27.8																																																																																																																																
0.800	8.6	2.400	14.4	6.000	22.3																																																																																																																																		
1.000	9.5	2.600	14.9	6.500	23.1																																																																																																																																		

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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ				Earl Shilton LP2 Atten. M100-720							
Date 30/11/2020 07:54				Designed by AS							
File LP_2_M100 + 40% CC + 144...				Checked by IW							
Innovyze				Source Control 2018.1.1							
<u>Rainfall Profile</u>											
Cv 0.840 Climate Change % +0											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1	0.290	43	3.198	85	3.931	127	3.986	169	5.004	211	7.773
2	0.290	44	3.409	86	3.931	128	3.986	170	5.004	212	7.773
3	0.290	45	3.462	87	3.931	129	3.986	171	5.004	213	7.773
4	0.290	46	3.462	88	3.933	130	4.014	172	5.004	214	7.773
5	0.290	47	3.462	89	3.933	131	4.056	173	5.071	215	7.773
6	0.290	48	3.462	90	3.933	132	4.056	174	5.335	216	7.773
7	0.290	49	3.462	91	3.933	133	4.056	175	5.335	217	8.413
8	0.965	50	3.462	92	3.933	134	4.056	176	5.335	218	8.413
9	1.133	51	3.577	93	3.933	135	4.056	177	5.335	219	8.413
10	1.133	52	3.654	94	3.930	136	4.056	178	5.335	220	8.413
11	1.133	53	3.654	95	3.926	137	4.077	179	5.335	221	8.413
12	1.133	54	3.654	96	3.926	138	4.161	180	5.335	222	8.413
13	1.133	55	3.654	97	3.926	139	4.161	181	5.719	223	8.413
14	1.133	56	3.654	98	3.926	140	4.161	182	5.719	224	8.960
15	1.550	57	3.654	99	3.926	141	4.161	183	5.719	225	9.097
16	1.828	58	3.707	100	3.926	142	4.161	184	5.719	226	9.097
17	1.828	59	3.786	101	3.924	143	4.161	185	5.719	227	9.097
18	1.828	60	3.786	102	3.920	144	4.161	186	5.719	228	9.097
19	1.828	61	3.786	103	3.920	145	4.305	187	5.719	229	9.097
20	1.828	62	3.786	104	3.920	146	4.305	188	6.068	230	9.097
21	1.828	63	3.786	105	3.920	147	4.305	189	6.154	231	9.534
22	2.055	64	3.786	106	3.920	148	4.305	190	6.154	232	9.825
23	2.395	65	3.802	107	3.920	149	4.305	191	6.154	233	9.825
24	2.395	66	3.868	108	3.920	150	4.305	192	6.154	234	9.825
25	2.395	67	3.868	109	3.923	151	4.305	193	6.154	235	9.825
26	2.395	68	3.868	110	3.923	152	4.453	194	6.154	236	9.825
27	2.395	69	3.868	111	3.923	153	4.491	195	6.447	237	9.825
28	2.395	70	3.868	112	3.923	154	4.491	196	6.643	238	10.132
29	2.485	71	3.868	113	3.923	155	4.491	197	6.643	239	10.592
30	2.846	72	3.868	114	3.923	156	4.491	198	6.643	240	10.592
31	2.846	73	3.913	115	3.923	157	4.491	199	6.643	241	10.592
32	2.846	74	3.913	116	3.940	158	4.491	200	6.643	242	10.592
33	2.846	75	3.913	117	3.942	159	4.630	201	6.643	243	10.592
34	2.846	76	3.913	118	3.942	160	4.724	202	6.859	244	10.592
35	2.846	77	3.913	119	3.942	161	4.724	203	7.182	245	10.752
36	2.846	78	3.913	120	3.942	162	4.724	204	7.182	246	11.392
37	3.198	79	3.913	121	3.942	163	4.724	205	7.182	247	11.392
38	3.198	80	3.927	122	3.942	164	4.724	206	7.182	248	11.392
39	3.198	81	3.931	123	3.968	165	4.724	207	7.182	249	11.392
40	3.198	82	3.931	124	3.986	166	4.836	208	7.182	250	11.392
41	3.198	83	3.931	125	3.986	167	5.004	209	7.301	251	11.392
42	3.198	84	3.931	126	3.986	168	5.004	210	7.773	252	11.392
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP2 Atten. M100-720						
Date 30/11/2020 07:54					Designed by AS						
File LP_2_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
<u>Rainfall Profile</u>											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
253	12.222	298	17.420	343	21.582	388	21.062	433	15.695	478	10.592
254	12.222	299	17.420	344	21.582	389	20.940	434	15.695	479	10.592
255	12.222	300	17.420	345	21.582	390	20.455	435	15.695	480	10.592
256	12.222	301	17.420	346	21.750	391	20.455	436	15.695	481	10.592
257	12.222	302	17.420	347	22.002	392	20.455	437	15.695	482	10.592
258	12.222	303	17.916	348	22.002	393	20.455	438	15.695	483	10.132
259	12.222	304	18.246	349	22.002	394	20.455	439	15.695	484	9.825
260	12.902	305	18.246	350	22.002	395	20.455	440	14.994	485	9.825
261	13.073	306	18.246	351	22.002	396	20.455	441	14.819	486	9.825
262	13.073	307	18.246	352	22.002	397	19.775	442	14.819	487	9.825
263	13.073	308	18.246	353	22.063	398	19.775	443	14.819	488	9.825
264	13.073	309	18.246	354	22.308	399	19.775	444	14.819	489	9.825
265	13.073	310	18.561	355	22.308	400	19.775	445	14.819	490	9.534
266	13.073	311	19.034	356	22.308	401	19.775	446	14.819	491	9.097
267	13.594	312	19.034	357	22.308	402	19.775	447	14.293	492	9.097
268	13.941	313	19.034	358	22.308	403	19.775	448	13.941	493	9.097
269	13.941	314	19.034	359	22.308	404	19.183	449	13.941	494	9.097
270	13.941	315	19.034	360	22.308	405	19.034	450	13.941	495	9.097
271	13.941	316	19.034	361	22.308	406	19.034	451	13.941	496	9.097
272	13.941	317	19.183	362	22.308	407	19.034	452	13.941	497	8.960
273	13.941	318	19.775	363	22.308	408	19.034	453	13.941	498	8.413
274	14.293	319	19.775	364	22.308	409	19.034	454	13.594	499	8.413
275	14.818	320	19.775	365	22.308	410	19.034	455	13.073	500	8.413
276	14.818	321	19.775	366	22.308	411	18.561	456	13.073	501	8.413
277	14.818	322	19.775	367	22.308	412	18.246	457	13.073	502	8.413
278	14.818	323	19.775	368	22.063	413	18.246	458	13.073	503	8.413
279	14.818	324	19.775	369	22.002	414	18.246	459	13.073	504	8.413
280	14.818	325	20.455	370	22.002	415	18.246	460	13.073	505	7.773
281	14.994	326	20.455	371	22.002	416	18.246	461	12.902	506	7.773
282	15.697	327	20.455	372	22.002	417	18.246	462	12.222	507	7.

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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP2 Atten. M100-720						
Date 30/11/2020 07:54					Designed by AS						
File LP_2_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
523	6.643	568	4.491	613	3.920	658	3.786	703	1.828	748	0.000
524	6.643	569	4.453	614	3.920	659	3.786	704	1.828	749	0.000
525	6.643	570	4.305	615	3.920	660	3.786	705	1.828	750	0.000
526	6.447	571	4.305	616	3.920	661	3.786	706	1.550	751	0.000
527	6.154	572	4.305	617	3.920	662	3.786	707	1.133	752	0.000
528	6.154	573	4.305	618	3.920	663	3.707	708	1.133	753	0.000
529	6.154	574	4.305	619	3.920	664	3.654	709	1.133	754	0.000
530	6.154	575	4.305	620	3.924	665	3.654	710	1.133	755	0.000
531	6.154	576	4.305	621	3.926	666	3.654	711	1.133	756	0.000
532	6.154	577	4.161	622	3.926	667	3.654	712	1.133	757	0.000
533	6.068	578	4.161	623	3.926	668	3.654	713	0.963	758	0.000
534	5.719	579	4.161	624	3.926	669	3.654	714	0.290	759	0.000
535	5.719	580	4.161	625	3.926	670	3.577	715	0.290	760	0.000
536	5.719	581	4.161	626	3.926	671	3.462	716	0.290	761	0.000
537	5.719	582	4.161	627	3.930	672	3.462	717	0.290	762	0.000
538	5.719	583	4.161	628	3.933	673	3.462	718	0.290	763	0.000
539	5.719	584	4.077	629	3.933	674	3.462	719	0.290	764	0.000
540	5.719	585	4.056	630	3.933	675	3.462	720	0.290	765	0.000
541	5.335	586	4.056	631	3.933	676	3.462	721	0.000	766	0.000
542	5.335	587	4.056	632	3.933	677	3.409	722	0.000	767	0.000
543	5.335	588	4.056	633	3.933	678	3.198	723	0.000	768	0.000
544	5.335	589	4.056	634	3.931	679	3.198	724	0.000	769	0.000
545	5.335	590	4.056	635	3.931	680	3.198	725	0.000	770	0.000
546	5.335	591	4.014	636	3.931	681	3.198	726	0.000	771	0.000
547	5.335	592	3.986	637	3.931	682	3.198	727	0.000	772	0.000
548	5.071	593	3.986	638	3.931	683	3.198	728	0.000	773	0.000
549	5.004	594	3.986	639	3.931	684	3.198	729	0.000	774	0.000
550	5.004	595	3.986	640	3.931	685	2.846	730	0.000	775	0.000
551	5.004	596	3.986	641	3.927	686	2.846	731	0.000	776	0.000
552	5.004	597	3.986	642	3.913	687	2.846	732	0.000	777	0.000
553	5.004	598	3.968	643	3.913	688	2.846	733	0.000	778	0.000
554	5.004	599	3.942	644	3.913	689	2.846	734	0.000	779	0.000
555	4.836	600	3.942	645	3.913	690	2.846	735	0.000	780	0.000
556	4.724	601	3.942	646	3.913	691	2.846	736	0.000	781	0.000
557	4.724	602	3.942	647	3.913	692	2.485	737	0.000	782	0.000
558	4.724	603	3.942	648	3.913	693	2.395	738	0.000	783	0.000
559	4.724	604	3.942	649	3.868	694	2.395	739	0.000	784	0.000
560	4.724	605	3.940	650	3.868	695	2.395	740	0.000	785	0.000
561	4.724	606	3.923	651	3.868	696	2.395	741	0.000	786	0.000
562	4.630	607	3.923	652	3.868	697	2.395	742	0.000	787	0.000
563	4.491	608	3.923	653	3.868	698	2.395	743	0.000	788	0.000
564	4.491	609	3.923	654	3.868	699	2.055	744	0.000	789	0.000
565	4.491	610	3.923	655	3.868	700	1.828	745	0.000	790	0.000
566	4.491	611	3.923	656	3.802	701	1.828	746	0.000	791	0.000
567	4.491	612	3.923	657	3.786	702	1.828	747	0.000	792	0.000
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Date 30/11/2020 07:54					Designed by AS						
File LP_2_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
793	0.000	838	0.000	883	0.000	928	0.000	973	0.000	1018	0.000
794	0.000	839	0.000	884	0.000	929	0.000	974	0.000	1019	0.000
795	0.000	840	0.000	885	0.000	930	0.000	975	0.000	1020	0.000
796	0.000	841	0.000	886	0.000	931	0.000	976	0.000	1021	0.000
797	0.000	842	0.000	887	0.000	932	0.000	977	0.000	1022	0.000
798	0.000	843	0.000	888	0.000	933	0.000	978	0.000	1023	0.000
799	0.000	844	0.000	889	0.000	934	0.000	979	0.000	1024	0.000
800	0.000	845	0.000	890	0.000	935	0.000	980	0.000	1025	0.000
801	0.000	846	0.000	891	0.000	936	0.000	981	0.000	1026	0.000
802	0.000	847	0.000	892	0.000	937	0.000	982	0.000	1027	0.000
803	0.000	848	0.000	893	0.000	938	0.000	983	0.000	1028	0.000
804	0.000	849	0.000	894	0.000	939	0.000	984	0.000	1029	0.000
805	0.000	850	0.000	895	0.000	940	0.000	985	0.000	1030	0.000
806	0.000	851	0.000	896	0.000	941	0.000	986	0.000	1031	0.000
807	0.000	852	0.000	897	0.000	942	0.000	987	0.000	1032	0.000
808	0.000	853	0.000	898	0.000	943	0.000	988	0.000	1033	0.000
809	0.000	854	0.000	899	0.000	944	0.000	989	0.000	1034	0.000
810	0.000	855	0.000	900	0.000	945	0.000	990	0.000	1035	0.000
811	0.000	856	0.000	901	0.000	946	0.000	991	0.000	1036	0.000
812	0.000	857	0.000	902	0.000	947	0.000	992	0.000	1037	0.000
813	0.000	858	0.000	903	0.000	948	0.000	993	0.000	1038	0.000
814	0.000	859	0.000	904	0.000	949	0.000	994	0.000	1039	0.000
815	0.000	860	0.000	905	0.000	950	0.000	995	0.000	1040	0.000
816	0.000	861	0.000	906	0.000	951	0.000	996	0.000	1041	0.000
817	0.000	862	0.000	907	0.000	952	0.000	997	0.000	1042	0.000
818	0.000	863	0.000	908	0.000	953	0.000	998	0.000	1043	0.000
819	0.000	864	0.000	909	0.000	954	0.000	999	0.000	1044	0.000
820	0.000	865	0.000	910	0.000	955	0.000	1000	0.000	1045	0.000
821	0.000	866	0.000	911	0.000	956	0.000	1001	0.000	1046	0.000
822	0.000	867	0.000	912	0.000	957	0.000	1002	0.000	1047	0.000
823	0.000	868	0.000	913	0.000	958	0.000	1003	0.000	1048	0.000
824	0.000	869	0.000	914	0.000	959	0.000	1004	0.000	1049	0.000
825	0.000	870	0.000	915	0.000	960	0.000	1005	0.000	1050	0.000
826	0.000	871	0.000	916	0.000	961	0.000	1006	0.000	1051	0.000
827	0.000	872	0.000	917	0.000	962	0.000	1007	0.000	1052	0.000
828	0.000	873	0.000	918	0.000	963	0.000	1008	0.000	1053	0.000
829	0.000	874	0.000	919	0.000	964	0.000	1009	0.000	1054	0.000
830	0.000	875	0.000	920	0.000	965	0.000	1010	0.000	1055	0.000
831	0.000	876	0.000	921	0.000	966	0.000	1011	0.000	1056	0.000
832	0.000	877	0.000	922	0.000	967	0.000	1012	0.000	1057	0.000
833	0.000	878	0.000	923	0.000	968	0.000	1013	0.000	1058	0.000
834	0.000	879	0.000	924	0.000	969	0.000	1014	0.000	1059	0.000
835	0.000	880	0.000	925	0.000	970	0.000	1015	0.000	1060	0.000
836	0.000	881	0.000	926	0.000	971	0.000	1016	0.000	1061	0.000
837	0.000	882	0.000	927	0.000	972	0.000	1017	0.000	1062	0.000
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Date 30/11/2020 07:54 File LP_2_M100 + 40% CC + 144...					Designed by AS Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1063	0.000	1108	0.000	1153	0.000	1198	0.000	1243	0.000	1288	0.000
1064	0.000	1109	0.000	1154	0.000	1199	0.000	1244	0.000	1289	0.000
1065	0.000	1110	0.000	1155	0.000	1200	0.000	1245	0.000	1290	0.000
1066	0.000	1111	0.000	1156	0.000	1201	0.000	1246	0.000	1291	0.000
1067	0.000	1112	0.000	1157	0.000	1202	0.000	1247	0.000	1292	0.000
1068	0.000	1113	0.000	1158	0.000	1203	0.000	1248	0.000	1293	0.000
1069	0.000	1114	0.000	1159	0.000	1204	0.000	1249	0.000	1294	0.000
1070	0.000	1115	0.000	1160	0.000	1205	0.000	1250	0.000	1295	0.000
1071	0.000	1116	0.000	1161	0.000	1206	0.000	1251	0.000	1296	0.000
1072	0.000	1117	0.000	1162	0.000	1207	0.000	1252	0.000	1297	0.000
1073	0.000	1118	0.000	1163	0.000	1208	0.000	1253	0.000	1298	0.000
1074	0.000	1119	0.000	1164	0.000	1209	0.000	1254	0.000	1299	0.000
1075	0.000	1120	0.000	1165	0.000	1210	0.000	1255	0.000	1300	0.000
1076	0.000	1121	0.000	1166	0.000	1211	0.000	1256	0.000	1301	0.000
1077	0.000	1122	0.000	1167	0.000	1212	0.000	1257	0.000	1302	0.000
1078	0.000	1123	0.000	1168	0.000	1213	0.000	1258	0.000	1303	0.000
1079	0.000	1124	0.000	1169	0.000	1214	0.000	1259	0.000	1304	0.000
1080	0.000	1125	0.000	1170	0.000	1215	0.000	1260	0.000	1305	0.000
1081	0.000	1126	0.000	1171	0.000	1216	0.000	1261	0.000	1306	0.000
1082	0.000	1127	0.000	1172	0.000	1217	0.000	1262	0.000	1307	0.000
1083	0.000	1128	0.000	1173	0.000	1218	0.000	1263	0.000	1308	0.000
1084	0.000	1129	0.000	1174	0.000	1219	0.000	1264	0.000	1309	0.000
1085	0.000	1130	0.000	1175	0.000	1220	0.000	1265	0.000	1310	0.000
1086	0.000	1131	0.000	1176	0.000	1221	0.000	1266	0.000	1311	0.000
1087	0.000	1132	0.000	1177	0.000	1222	0.000	1267	0.000	1312	0.000
1088	0.000	1133	0.000	1178	0.000	1223	0.000	1268	0.000	1313	0.000
1089	0.000	1134	0.000	1179	0.000	1224	0.000	1269	0.000	1314	0.000
1090	0.000	1135	0.000	1180	0.000	1225	0.000	1270	0.000	1315	0.000
1091	0.000	1136	0.000	1181	0.000	1226	0.000	1271	0.000	1316	0.000
1092	0.000	1137	0.000	1182	0.000	1227	0.000	1272	0.000	1317	0.000
1093	0.000	1138	0.000	1183	0.000	1228	0.000	1273	0.000	1318	0.000
1094	0.000	1139	0.000	1184	0.000	1229	0.000	1274	0.000	1319	0.000
1095	0.000	1140	0.000	1185	0.000	1230	0.000	1275	0.000	1320	0.000
1096	0.000	1141	0.000	1186	0.000	1231	0.000	1276	0.000	1321	0.000
1097	0.000	1142	0.000	1187	0.000	1232	0.000	1277	0.000	1322	0.000
1098	0.000	1143	0.000	1188	0.000	1233	0.000	1278	0.000	1323	0.000
1099	0.000	1144	0.000	1189	0.000	1234	0.000	1279	0.000	1324	0.000
1100	0.000	1145	0.000	1190	0.000	1235	0.000	1280	0.000	1325	0.000
1101	0.000	1146	0.000	1191	0.000	1236	0.000	1281	0.000	1326	0.000
1102	0.000	1147	0.000	1192	0.000	1237	0.000	1282	0.000	1327	0.000
1103	0.000	1148	0.000	1193	0.000	1238	0.000	1283	0.000	1328	0.000
1104	0.000	1149	0.000	1194	0.000	1239	0.000	1284	0.000	1329	0.000
1105	0.000	1150	0.000	1195	0.000	1240	0.000	1285	0.000	1330	0.000
1106	0.000	1151	0.000	1196	0.000	1241	0.000	1286	0.000	1331	0.000
1107	0.000	1152	0.000	1197	0.000	1242	0.000	1287	0.000	1332	0.000
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP2 Atten. M100-720						
Date 30/11/2020 07:54 File LP_2_M100 + 40% CC + 144...					Designed by AS Checked by IW						
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Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1333	0.000	1378	0.000	1423	0.000	1468	0.000	1513	0.000	1558	0.000
1334	0.000	1379	0.000	1424	0.000	1469	0.000	1514	0.000	1559	0.000
1335	0.000	1380	0.000	1425	0.000	1470	0.000	1515	0.000	1560	0.000
1336	0.000	1381	0.000	1426	0.000	1471	0.000	1516	0.000	1561	0.000
1337	0.000	1382	0.000	1427	0.000	1472	0.000	1517	0.000	1562	0.000
1338	0.000	1383	0.000	1428	0.000	1473	0.000	1518	0.000	1563	0.000
1339	0.000	1384	0.000	1429	0.000	1474	0.000	1519	0.000	1564	0.000
1340	0.000	1385	0.000	1430	0.000	1475	0.000	1520	0.000	1565	0.000
1341	0.000	1386	0.000	1431	0.000	1476	0.000	1521	0.000	1566	0.000
1342	0.000	1387	0.000	1432	0.000	1477	0.000	1522	0.000	1567	0.000
1343	0.000	1388	0.000	1433	0.000	1478	0.000	1523	0.000	1568	0.000
1344	0.000	1389	0.000	1434	0.000	1479	0.000	1524	0.000	1569	0.000
1345	0.000	1390	0.000	1435	0.000	1480	0.000	1525	0.000	1570	0.000
1346	0.000	1391	0.000	1436	0.000	1481	0.000	1526	0.000	1571	0.000
1347	0.000	1392	0.000	1437	0.000	1482	0.000	1527	0.000	1572	0.000
1348	0.000	1393	0.000	1438	0.000	1483	0.000	1528	0.000	1573	0.000
1349	0.000	1394	0.000	1439	0.000	1484	0.000	1529	0.000	1574	0.000
1350	0.000	1395	0.000	1440	0.000	1485	0.000	1530	0.000	1575	0.000
1351	0.000	1396	0.000	1441	0.000	1486	0.000	1531	0.000	1576	0.000
1352	0.000	1397	0.000	1442	0.000	1487	0.000	1532	0.000	1577	0.000
1353	0.000	1398	0.000	1443	0.000	1488	0.000	1533	0.000	1578	0.000
1354	0.000	1399	0.000	1444	0.000	1489	0.000	1534	0.000	1579	0.000
1355	0.000	1400	0.000	1445	0.000	1490	0.000	1535	0.000	1580	0.000
1356	0.000	1401	0.000	1446	0.000	1491	0.000	1536	0.000	1581	0.000
1357	0.000	1402	0.000	1447	0.000	1492	0.000	1537	0.000	1582	0.000
1358	0.000	1403	0.000	1448	0.000	1493	0.000	1538	0.000	1583	0.000
1359	0.000	1404	0.000	1449	0.000	1494	0.000	1539	0.000	1584	0.000
1360	0.000	1405	0.000	1450	0.000	1495	0.000	1540	0.000	1585	0.000
1361	0.000	1406	0.000	1451	0.000	1496	0.000	1541	0.000	1586	0.000
1362	0.000	1407	0.000	1452	0.000	1497	0.000	1542	0.000	1587	0.000
1363	0.000	1408	0.000	1453	0.000	1498	0.000	1543	0.000	1588	0.000
1364	0.000	1409	0.000	1454	0.000	1499	0.000	1544	0.000	1589	0.000
1365	0.000	1410	0.000	1455	0.000	1500	0.000	1545	0.000	1590	0.000
1366	0.000	1411	0.000	1456	0.000	1501	0.000	1546	0.000	1591	0.000
1367	0.000	1412	0.000	1457	0.000	1502	0.000	1547	0.000	1592	0.000
1368	0.000	1413	0.000	1458	0.000	1503	0.000	1548	0.000	1593	0.000
1369	0.000	1414	0.000	1459	0.000	1504	0.000	1549	0.000	1594	0.000
1370	0.000	1415	0.000	1460	0.000	1505	0.000	1550	0.000	1595	0.000
1371	0.000	1416	0.000	1461	0.000	1506	0.000	1551	0.000	1596	0.000
1372	0.000	1417	0.000	1462	0.000	1507	0.000	1552	0.000	1597	0.000
1373	0.000	1418	0.000	1463	0.000	1508	0.000	1553	0.000	1598	0.000
1374	0.000	1419	0.000	1464	0.000	1509	0.000	1554	0.000	1599	0.000
1375	0.000	1420	0.000	1465	0.000	1510	0.000	1555	0.000	1600	0.000
1376	0.000	1421	0.000	1466	0.000	1511	0.000	1556	0.000	1601	0.000
1377	0.000	1422	0.000	1467	0.000	1512	0.000	1557	0.000	1602	0.000
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP2 Atten. M100-720						
Date 30/11/2020 07:54					Designed by AS						
File LP_2_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1603	0.000	1648	0.000	1693	0.000	1738	0.000	1783	0.000	1828	0.000
1604	0.000	1649	0.000	1694	0.000	1739	0.000	1784	0.000	1829	0.000
1605	0.000	1650	0.000	1695	0.000	1740	0.000	1785	0.000	1830	0.000
1606	0.000	1651	0.000	1696	0.000	1741	0.000	1786	0.000	1831	0.000
1607	0.000	1652	0.000	1697	0.000	1742	0.000	1787	0.000	1832	0.000
1608	0.000	1653	0.000	1698	0.000	1743	0.000	1788	0.000	1833	0.000
1609	0.000	1654	0.000	1699	0.000	1744	0.000	1789	0.000	1834	0.000
1610	0.000	1655	0.000	1700	0.000	1745	0.000	1790	0.000	1835	0.000
1611	0.000	1656	0.000	1701	0.000	1746	0.000	1791	0.000	1836	0.000
1612	0.000	1657	0.000	1702	0.000	1747	0.000	1792	0.000	1837	0.000
1613	0.000	1658	0.000	1703	0.000	1748	0.000	1793	0.000	1838	0.000
1614	0.000	1659	0.000	1704	0.000	1749	0.000	1794	0.000	1839	0.000
1615	0.000	1660	0.000	1705	0.000	1750	0.000	1795	0.000	1840	0.000
1616	0.000	1661	0.000	1706	0.000	1751	0.000	1796	0.000	1841	0.000
1617	0.000	1662	0.000	1707	0.000	1752	0.000	1797	0.000	1842	0.000
1618	0.000	1663	0.000	1708	0.000	1753	0.000	1798	0.000	1843	0.000
1619	0.000	1664	0.000	1709	0.000	1754	0.000	1799	0.000	1844	0.000
1620	0.000	1665	0.000	1710	0.000	1755	0.000	1800	0.000	1845	0.000
1621	0.000	1666	0.000	1711	0.000	1756	0.000	1801	0.000	1846	0.000
1622	0.000	1667	0.000	1712	0.000	1757	0.000	1802	0.000	1847	0.000
1623	0.000	1668	0.000	1713	0.000	1758	0.000	1803	0.000	1848	0.000
1624	0.000	1669	0.000	1714	0.000	1759	0.000	1804	0.000	1849	0.000
1625	0.000	1670	0.000	1715	0.000	1760	0.000	1805	0.000	1850	0.000
1626	0.000	1671	0.000	1716	0.000	1761	0.000	1806	0.000	1851	0.000
1627	0.000	1672	0.000	1717	0.000	1762	0.000	1807	0.000	1852	0.000
1628	0.000	1673	0.000	1718	0.000	1763	0.000	1808	0.000	1853	0.000
1629	0.000	1674	0.000	1719	0.000	1764	0.000	1809	0.000	1854	0.000
1630	0.000	1675	0.000	1720	0.000	1765	0.000	1810	0.000	1855	0.000
1631	0.000	1676	0.000	1721	0.000	1766	0.000	1811	0.000	1856	0.000
1632	0.000	1677	0.000	1722	0.000	1767	0.000	1812	0.000	1857	0.000
1633	0.000	1678	0.000	1723	0.000	1768	0.000	1813	0.000	1858	0.000
1634	0.000	1679	0.000	1724	0.000	1769	0.000	1814	0.000	1859	0.000
1635	0.000	1680	0.000	1725	0.000	1770	0.000	1815	0.000	1860	0.000
1636	0.000	1681	0.000	1726	0.000	1771	0.000	1816	0.000	1861	0.000
1637	0.000	1682	0.000	1727	0.000	1772	0.000	1817	0.000	1862	0.000
1638	0.000	1683	0.000	1728	0.000	1773	0.000	1818	0.000	1863	0.000
1639	0.000	1684	0.000	1729	0.000	1774	0.000	1819	0.000	1864	0.000
1640	0.000	1685	0.000	1730	0.000	1775	0.000	1820	0.000	1865	0.000
1641	0.000	1686	0.000	1731	0.000	1776	0.000	1821	0.000	1866	0.000
1642	0.000	1687	0.000	1732	0.000	1777	0.000	1822	0.000	1867	0.000
1643	0.000	1688	0.000	1733	0.000	1778	0.000	1823	0.000	1868	0.000
1644	0.000	1689	0.000	1734	0.000	1779	0.000	1824	0.000	1869	0.000
1645	0.000	1690	0.000	1735	0.000	1780	0.000	1825	0.000	1870	0.000
1646	0.000	1691	0.000	1736	0.000	1781	0.000	1826	0.000	1871	0.000
1647	0.000	1692	0.000	1737	0.000	1782	0.000	1827	0.000	1872	0.000
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP2 Atten. M100-720						
Date 30/11/2020 07:54					Designed by AS						
File LP_2_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
2413	5.595	2458	7.809	2503	9.443	2548	8.464	2593	6.342	2638	4.205
2414	5.595	2459	7.809	2504	9.548	2549	8.464	2594	6.342	2639	4.205
2415	5.595	2460	7.944	2505	9.548	2550	8.464	2595	6.342	2640	4.081
2416	5.595	2461	8.147	2506	9.548	2551	8.464	2596	6.342	2641	3.894
2417	5.818	2462	8.147	2507	9.548	2552	8.464	2597	6.117	2642	3.894
2418	5.967	2463	8.147	2508	9.548	2553	8.464	2598	5.967	2643	3.894
2419	5.967	2464	8.147	2509	9.548	2554	8.210	2599	5.967	2644	3.894
2420	5.967	2465	8.147	2510	9.548	2555	8.147	2600	5.967	2645	3.894
2421	5.967	2466	8.147	2511	9.548	2556	8.147	2601	5.967	2646	3.894
2422	5.967	2467	8.210	2512	9.548	2557	8.147	2602	5.967	2647	3.835
2423	5.967	2468	8.464	2513	9.548	2558	8.147	2603	5.967	2648	3.601
2424	6.117	2469	8.464	2514	9.548	2559	8.147	2604	5.818	2649	3.601
2425	6.342	2470	8.464	2515	9.548	2560	8.147	2605	5.595	2650	3.601
2426	6.342	2471	8.464	2516	9.548	2561	7.944	2606	5.595	2651	3.601
2427	6.342	2472	8.464	2517	9.548	2562	7.809	2607	5.595	2652	3.601
2428	6.342	2473	8.464	2518	9.443	2563	7.809	2608	5.595	2653	3.601
2429	6.342	2474	8.464	2519	9.417	2564	7.809	2609	5.595	2654	3.601
2430	6.342	2475	8.755	2520	9.417	2565	7.809	2610	5.595	2655	3.327
2431	6.417	2476	8.755	2521	9.417	2566	7.809	2611	5.522	2656	3.327
2432	6.718	2477	8.755	2522	9.417	2567	7.809	2612	5.231	2657	3.327
2433	6.718	2478	8.755	2523	9.417	2568	7.668	2613	5.231	2658	3.327
2434	6.718	2479	8.755	2524	9.417	2569	7.456	2614	5.231	2659	3.327
2435	6.718	2480	8.755	2525	9.309	2570	7.456	2615	5.231	2660	3.327
2436	6.718	2481	8.755	2526	9.237	2571	7.456	2616	5.231	2661	3.327
2437	6.718	2482	8.963	2527	9.237	2572	7.456	2617	5.231	2662	3.125
2438	6.718	2483	9.015	2528	9.237	2573	7.456	2618	5.231	2663	3.074
2439	7.090	2484	9.015	2529	9.237	2574	7.456	2619	4.876	2664	3.074
2440	7.090	2485	9.015	2530	9.237	2575	7.383	2620	4.876	2665	3.074
2441	7.090	2486	9.015	2531	9.237	2576	7.090	2621	4.876	2666	3.074
2442	7.090	2487	9.015	2532	9.148	2577	7.090	2622	4.876	2667	3.074
2443	7.090	2488	9.015	2533	9.015	2578	7.090	2623	4.876	2668	3.074
2444	7.090	2489	9.148	2534	9.015	2579	7.090	2624	4.876	2669	2.936
2445	7.090	2490	9.237	2535	9.015	2580	7.090	2625	4.876	2670	2.843
2446	7.383	2491	9.237	2536	9.015	2581	7.090	2626	4.602	2671	2.843
2447	7.456	2492	9.237	2537	9.015	2582	7.090	2627	4.533	2672	2.843
2448	7.456	2493	9.237	2538	9.015	2583	6.718	2628	4.533	2673	2.843
2449	7.456	2494	9.237	2539	8.963	2584	6.718	2629	4.533	2674	2.843
2450	7.456	2495	9.237	2540	8.755	2585	6.718	2630	4.533	2675	2.843
2451	7.456	2496	9.309	2541	8.755	2586	6.718	2631	4.533	2676	2.759
2452	7.456	2497	9.417	2542	8.755	2587	6.718	2632	4.533	2677	2.634
2453	7.668	2498	9.417	2543	8.755	2588	6.718	2633	4.337	2678	2.634
2454	7.809	2499	9.417	2544	8.755	2589	6.718	2634	4.205	2679	2.634
2455	7.809	2500	9.417	2545	8.755	2590	6.417	2635	4.205	2680	2.634
2456	7.809	2501	9.417	2546	8.755	2591	6.342	2636	4.205	2681	2.634
2457	7.809	2502	9.417	2547	8.464	2592	6.342	2637	4.205	2682	2.634
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ	Earl Shilton LP2 Atten. M100-720	
Date 30/11/2020 07:54 File LP_2_M100 + 40% CC + 144...	Designed by AS Checked by IW	
Innovyze	Source Control 2018.1.1	

Model Details

Storage is Online Cover Level (m) 100.000

Infiltration Basin Structure

Invert Level (m) 98.000 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	2429.0	1.200	2429.0	1.201	0.0	2.000	0.0

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0154-1380-2000-1380
Design Head (m) 2.000
Design Flow (l/s) 13.8
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 154
Invert Level (m) 98.000
Minimum Outlet Pipe Diameter (mm) 225
Suggested Manhole Diameter (mm) 1500

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.000	13.8	Kick-Flo®	1.211	10.9
Flush-Flo™	0.584	13.7	Mean Flow over Head Range	-	12.0

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	5.5	1.200	11.0	3.000	16.7	7.000	25.1
0.200	11.4	1.400	11.6	3.500	18.0	7.500	25.9
0.300	12.7	1.600	12.4	4.000	19.2	8.000	26.7
0.400	13.4	1.800	13.1	4.500	20.3	8.500	27.5
0.500	13.6	2.000	13.8	5.000	21.3	9.000	28.3
0.600	13.7	2.200	14.4	5.500	22.3	9.500	29.0
0.800	13.5	2.400	15.0	6.000	23.3		
1.000	12.7	2.600	15.6	6.500	24.2		

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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ				Earl Shilton LP 3 Atten. M100-720 & M10-1440							
Date 30/11/2020				Designed by AS							
File LP_3_M100 + 40% CC + 144...				Checked by IW							
Innovyze				Source Control 2018.1.1							
<u>Rainfall Profile</u> Cv 0.840 Climate Change % +0											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1	0.290	43	3.198	85	3.931	127	3.986	169	5.004	211	7.773
2	0.290	44	3.409	86	3.931	128	3.986	170	5.004	212	7.773
3	0.290	45	3.462	87	3.931	129	3.986	171	5.004	213	7.773
4	0.290	46	3.462	88	3.933	130	4.014	172	5.004	214	7.773
5	0.290	47	3.462	89	3.933	131	4.056	173	5.071	215	7.773
6	0.290	48	3.462	90	3.933	132	4.056	174	5.335	216	7.773
7	0.290	49	3.462	91	3.933	133	4.056	175	5.335	217	8.413
8	0.965	50	3.462	92	3.933	134	4.056	176	5.335	218	8.413
9	1.133	51	3.577	93	3.933	135	4.056	177	5.335	219	8.413
10	1.133	52	3.654	94	3.930	136	4.056	178	5.335	220	8.413
11	1.133	53	3.654	95	3.926	137	4.077	179	5.335	221	8.413
12	1.133	54	3.654	96	3.926	138	4.161	180	5.335	222	8.413
13	1.133	55	3.654	97	3.926	139	4.161	181	5.719	223	8.413
14	1.133	56	3.654	98	3.926	140	4.161	182	5.719	224	8.960
15	1.550	57	3.654	99	3.926	141	4.161	183	5.719	225	9.097
16	1.828	58	3.707	100	3.926	142	4.161	184	5.719	226	9.097
17	1.828	59	3.786	101	3.924	143	4.161	185	5.719	227	9.097
18	1.828	60	3.786	102	3.920	144	4.161	186	5.719	228	9.097
19	1.828	61	3.786	103	3.920	145	4.305	187	5.719	229	9.097
20	1.828	62	3.786	104	3.920	146	4.305	188	6.068	230	9.097
21	1.828	63	3.786	105	3.920	147	4.305	189	6.154	231	9.534
22	2.055	64	3.786	106	3.920	148	4.305	190	6.154	232	9.825
23	2.395	65	3.802	107	3.920	149	4.305	191	6.154	233	9.825
24	2.395	66	3.868	108	3.920	150	4.305	192	6.154	234	9.825
25	2.395	67	3.868	109	3.923	151	4.305	193	6.154	235	9.825
26	2.395	68	3.868	110	3.923	152	4.453	194	6.154	236	9.825
27	2.395	69	3.868	111	3.923	153	4.491	195	6.447	237	9.825
28	2.395	70	3.868	112	3.923	154	4.491	196	6.643	238	10.132
29	2.485	71	3.868	113	3.923	155	4.491	197	6.643	239	10.592
30	2.846	72	3.868	114	3.923	156	4.491	198	6.643	240	10.592
31	2.846	73	3.913	115	3.923	157	4.491	199	6.643	241	10.592
32	2.846	74	3.913	116	3.940	158	4.491	200	6.643	242	10.592
33	2.846	75	3.913	117	3.942	159	4.630	201	6.643	243	10.592
34	2.846	76	3.913	118	3.942	160	4.724	202	6.859	244	10.592
35	2.846	77	3.913	119	3.942	161	4.724	203	7.182	245	10.752
36	2.846	78	3.913	120	3.942	162	4.724	204	7.182	246	11.392
37	3.198	79	3.913	121	3.942	163	4.724	205	7.182	247	11.392
38	3.198	80	3.927	122	3.942	164	4.724	206	7.182	248	11.392
39	3.198	81	3.931	123	3.968	165	4.724	207	7.182	249	11.392
40	3.198	82	3.931	124	3.986	166	4.836	208	7.182	250	11.392
41	3.198	83	3.931	125	3.986	167	5.004	209	7.301	251	11.392
42	3.198	84	3.931	126	3.986	168	5.004	210	7.773	252	11.392
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP 3 Atten. M100-720 & M10-1440						
Date 30/11/2020					Designed by AS						
File LP_3_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
<u>Rainfall Profile</u>											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
253	12.222	298	17.420	343	21.582	388	21.062	433	15.695	478	10.592
254	12.222	299	17.420	344	21.582	389	20.940	434	15.695	479	10.592
255	12.222	300	17.420	345	21.582	390	20.455	435	15.695	480	10.592
256	12.222	301	17.420	346	21.750	391	20.455	436	15.695	481	10.592
257	12.222	302	17.420	347	22.002	392	20.455	437	15.695	482	10.592
258	12.222	303	17.916	348	22.002	393	20.455	438	15.695	483	10.132
259	12.222	304	18.246	349	22.002	394	20.455	439	15.695	484	9.825
260	12.902	305	18.246	350	22.002	395	20.455	440	14.994	485	9.825
261	13.073	306	18.246	351	22.002	396	20.455	441	14.819	486	9.825
262	13.073	307	18.246	352	22.002	397	19.775	442	14.819	487	9.825
263	13.073	308	18.246	353	22.063	398	19.775	443	14.819	488	9.825
264	13.073	309	18.246	354	22.308	399	19.775	444	14.819	489	9.825
265	13.073	310	18.561	355	22.308	400	19.775	445	14.819	490	9.534
266	13.073	311	19.034	356	22.308	401	19.775	446	14.819	491	9.097
267	13.594	312	19.034	357	22.308	402	19.775	447	14.293	492	9.097
268	13.941	313	19.034	358	22.308	403	19.775	448	13.941	493	9.097
269	13.941	314	19.034	359	22.308	404	19.183	449	13.941	494	9.097
270	13.941	315	19.034	360	22.308	405	19.034	450	13.941	495	9.097
271	13.941	316	19.034	361	22.308	406	19.034	451	13.941	496	9.097
272	13.941	317	19.183	362	22.308	407	19.034	452	13.941	497	8.960
273	13.941	318	19.775	363	22.308	408	19.034	453	13.941	498	8.413
274	14.293	319	19.775	364	22.308	409	19.034	454	13.594	499	8.413
275	14.818	320	19.775	365	22.308	410	19.034	455	13.073	500	8.413
276	14.818	321	19.775	366	22.308	411	18.561	456	13.073	501	8.413
277	14.818	322	19.775	367	22.308	412	18.246	457	13.073	502	8.413
278	14.818	323	19.775	368	22.063	413	18.246	458	13.073	503	8.413
279	14.818	324	19.775	369	22.002	414	18.246	459	13.073	504	8.413
280	14.818	325	20.455	370	22.002	415	18.246	460	13.073	505	7.773
281	14.994	326	20.455	371	22.002	416	18.246	461	12.902	506	7.773
282	15.697	327	20.455	372	22.002	417	18.246	462	12.222	507	7.773
283	15.697	328	20.455	373	22.002	418	17.916	463	12.222	508	7.773
284	15.697	329	20.455	374	22.002	419	17.420	464	12.222	509	7.773
285	15.697	330	20.455	375	21.750	420	17.420	465	12.222	510	7.773
286	15.697	331	20.455	376	21.582	421	17.420	466	12.222	511	7.773
287	15.697	332	20.940	377	21.582	422	17.420	467	12.222	512	7.301
288	15.697	333	21.062	378	21.582	423	17.420	468	12.222	513	7.182
289	16.566	334	21.062	379	21.582	424	17.420	469	11.392	514	7.182
290	16.566	335	21.062	380	21.582	425	17.249	470	11.392	515	7.182
291	16.566	336	21.062	381	21.582	426	16.566	471	11.392	516	7.182
292	16.566	337	21.062	382	21.374	427	16.566	472	11.392	517	7.182
293	16.566	338	21.062	383	21.062	428	16.566	473	11.392	518	7.182
294	16.566	339	21.374	384	21.062	429	16.566	474	11.392	519	6.859
295	16.566	340	21.582	385	21.062	430	16.566	475	11.392	520	6.643
296	17.249	341	21.582	386	21.062	431	16.566	476	10.752	521	6.643
297	17.420	342	21.582	387	21.062	432	16.566	477	10.592	522	6.643
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP 3 Atten. M100-720 & M10-1440						
Date 30/11/2020					Designed by AS						
File LP_3_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
523	6.643	568	4.491	613	3.920	658	3.786	703	1.828	748	0.000
524	6.643	569	4.453	614	3.920	659	3.786	704	1.828	749	0.000
525	6.643	570	4.305	615	3.920	660	3.786	705	1.828	750	0.000
526	6.447	571	4.305	616	3.920	661	3.786	706	1.550	751	0.000
527	6.154	572	4.305	617	3.920	662	3.786	707	1.133	752	0.000
528	6.154	573	4.305	618	3.920	663	3.707	708	1.133	753	0.000
529	6.154	574	4.305	619	3.920	664	3.654	709	1.133	754	0.000
530	6.154	575	4.305	620	3.924	665	3.654	710	1.133	755	0.000
531	6.154	576	4.305	621	3.926	666	3.654	711	1.133	756	0.000
532	6.154	577	4.161	622	3.926	667	3.654	712	1.133	757	0.000
533	6.068	578	4.161	623	3.926	668	3.654	713	0.963	758	0.000
534	5.719	579	4.161	624	3.926	669	3.654	714	0.290	759	0.000
535	5.719	580	4.161	625	3.926	670	3.577	715	0.290	760	0.000
536	5.719	581	4.161	626	3.926	671	3.462	716	0.290	761	0.000
537	5.719	582	4.161	627	3.930	672	3.462	717	0.290	762	0.000
538	5.719	583	4.161	628	3.933	673	3.462	718	0.290	763	0.000
539	5.719	584	4.077	629	3.933	674	3.462	719	0.290	764	0.000
540	5.719	585	4.056	630	3.933	675	3.462	720	0.290	765	0.000
541	5.335	586	4.056	631	3.933	676	3.462	721	0.000	766	0.000
542	5.335	587	4.056	632	3.933	677	3.409	722	0.000	767	0.000
543	5.335	588	4.056	633	3.933	678	3.198	723	0.000	768	0.000
544	5.335	589	4.056	634	3.931	679	3.198	724	0.000	769	0.000
545	5.335	590	4.056	635	3.931	680	3.198	725	0.000	770	0.000
546	5.335	591	4.014	636	3.931	681	3.198	726	0.000	771	0.000
547	5.335	592	3.986	637	3.931	682	3.198	727	0.000	772	0.000
548	5.071	593	3.986	638	3.931	683	3.198	728	0.000	773	0.000
549	5.004	594	3.986	639	3.931	684	3.198	729	0.000	774	0.000
550	5.004	595	3.986	640	3.931	685	2.846	730	0.000	775	0.000
551	5.004	596	3.986	641	3.927	686	2.846	731	0.000	776	0.000
552	5.004	597	3.986	642	3.913	687	2.846	732	0.000	777	0.000
553	5.004	598	3.968	643	3.913	688	2.846	733	0.000	778	0.000
554	5.004	599	3.942	644	3.913	689	2.846	734	0.000	779	0.000
555	4.836	600	3.942	645	3.913	690	2.846	735	0.000	780	0.000
556	4.724	601	3.942	646	3.913	691	2.846	736	0.000	781	0.000
557	4.724	602	3.942	647	3.913	692	2.485	737	0.000	782	0.000
558	4.724	603	3.942	648	3.913	693	2.395	738	0.000	783	0.000
559	4.724	604	3.942	649	3.868	694	2.395	739	0.000	784	0.000
560	4.724	605	3.940	650	3.868	695	2.395	740	0.000	785	0.000
561	4.724	606	3.923	651	3.868	696	2.395	741	0.000	786	0.000
562	4.630	607	3.923	652	3.868	697	2.395	742	0.000	787	0.000
563	4.491	608	3.923	653	3.868	698	2.395	743	0.000	788	0.000
564	4.491	609	3.923	654	3.868	699	2.055	744	0.000	789	0.000
565	4.491	610	3.923	655	3.868	700	1.828	745	0.000	790	0.000
566	4.491	611	3.923	656	3.802	701	1.828	746	0.000	791	0.000
567	4.491	612	3.923	657	3.786	702	1.828	747	0.000	792	0.000
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP 3 Atten. M100-720 & M10-1440						
Date 30/11/2020					Designed by AS						
File LP_3_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
793	0.000	838	0.000	883	0.000	928	0.000	973	0.000	1018	0.000
794	0.000	839	0.000	884	0.000	929	0.000	974	0.000	1019	0.000
795	0.000	840	0.000	885	0.000	930	0.000	975	0.000	1020	0.000
796	0.000	841	0.000	886	0.000	931	0.000	976	0.000	1021	0.000
797	0.000	842	0.000	887	0.000	932	0.000	977	0.000	1022	0.000
798	0.000	843	0.000	888	0.000	933	0.000	978	0.000	1023	0.000
799	0.000	844	0.000	889	0.000	934	0.000	979	0.000	1024	0.000
800	0.000	845	0.000	890	0.000	935	0.000	980	0.000	1025	0.000
801	0.000	846	0.000	891	0.000	936	0.000	981	0.000	1026	0.000
802	0.000	847	0.000	892	0.000	937	0.000	982	0.000	1027	0.000
803	0.000	848	0.000	893	0.000	938	0.000	983	0.000	1028	0.000
804	0.000	849	0.000	894	0.000	939	0.000	984	0.000	1029	0.000
805	0.000	850	0.000	895	0.000	940	0.000	985	0.000	1030	0.000
806	0.000	851	0.000	896	0.000	941	0.000	986	0.000	1031	0.000
807	0.000	852	0.000	897	0.000	942	0.000	987	0.000	1032	0.000
808	0.000	853	0.000	898	0.000	943	0.000	988	0.000	1033	0.000
809	0.000	854	0.000	899	0.000	944	0.000	989	0.000	1034	0.000
810	0.000	855	0.000	900	0.000	945	0.000	990	0.000	1035	0.000
811	0.000	856	0.000	901	0.000	946	0.000	991	0.000	1036	0.000
812	0.000	857	0.000	902	0.000	947	0.000	992	0.000	1037	0.000
813	0.000	858	0.000	903	0.000	948	0.000	993	0.000	1038	0.000
814	0.000	859	0.000	904	0.000	949	0.000	994	0.000	1039	0.000
815	0.000	860	0.000	905	0.000	950	0.000	995	0.000	1040	0.000
816	0.000	861	0.000	906	0.000	951	0.000	996	0.000	1041	0.000
817	0.000	862	0.000	907	0.000	952	0.000	997	0.000	1042	0.000
818	0.000	863	0.000	908	0.000	953	0.000	998	0.000	1043	0.000
819	0.000	864	0.000	909	0.000	954	0.000	999	0.000	1044	0.000
820	0.000	865	0.000	910	0.000	955	0.000	1000	0.000	1045	0.000
821	0.000	866	0.000	911	0.000	956	0.000	1001	0.000	1046	0.000
822	0.000	867	0.000	912	0.000	957	0.000	1002	0.000	1047	0.000
823	0.000	868	0.000	913	0.000	958	0.000	1003	0.000	1048	0.000
824	0.000	869	0.000	914	0.000	959	0.000	1004	0.000	1049	0.000
825	0.000	870	0.000	915	0.000	960	0.000	1005	0.000	1050	0.000
826	0.000	871	0.000	916	0.000	961	0.000	1006	0.000	1051	0.000
827	0.000	872	0.000	917	0.000	962	0.000	1007	0.000	1052	0.000
828	0.000	873	0.000	918	0.000	963	0.000	1008	0.000	1053	0.000
829	0.000	874	0.000	919	0.000	964	0.000	1009	0.000	1054	0.000
830	0.000	875	0.000	920	0.000	965	0.000	1010	0.000	1055	0.000
831	0.000	876	0.000	921	0.000	966	0.000	1011	0.000	1056	0.000
832	0.000	877	0.000	922	0.000	967	0.000	1012	0.000	1057	0.000
833	0.000	878	0.000	923	0.000	968	0.000	1013	0.000	1058	0.000
834	0.000	879	0.000	924	0.000	969	0.000	1014	0.000	1059	0.000
835	0.000	880	0.000	925	0.000	970	0.000	1015	0.000	1060	0.000
836	0.000	881	0.000	926	0.000	971	0.000	1016	0.000	1061	0.000
837	0.000	882	0.000	927	0.000	972	0.000	1017	0.000	1062	0.000
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP 3 Atten. M100-720 & M10-1440						
Date 30/11/2020					Designed by AS						
File LP_3_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1063	0.000	1108	0.000	1153	0.000	1198	0.000	1243	0.000	1288	0.000
1064	0.000	1109	0.000	1154	0.000	1199	0.000	1244	0.000	1289	0.000
1065	0.000	1110	0.000	1155	0.000	1200	0.000	1245	0.000	1290	0.000
1066	0.000	1111	0.000	1156	0.000	1201	0.000	1246	0.000	1291	0.000
1067	0.000	1112	0.000	1157	0.000	1202	0.000	1247	0.000	1292	0.000
1068	0.000	1113	0.000	1158	0.000	1203	0.000	1248	0.000	1293	0.000
1069	0.000	1114	0.000	1159	0.000	1204	0.000	1249	0.000	1294	0.000
1070	0.000	1115	0.000	1160	0.000	1205	0.000	1250	0.000	1295	0.000
1071	0.000	1116	0.000	1161	0.000	1206	0.000	1251	0.000	1296	0.000
1072	0.000	1117	0.000	1162	0.000	1207	0.000	1252	0.000	1297	0.000
1073	0.000	1118	0.000	1163	0.000	1208	0.000	1253	0.000	1298	0.000
1074	0.000	1119	0.000	1164	0.000	1209	0.000	1254	0.000	1299	0.000
1075	0.000	1120	0.000	1165	0.000	1210	0.000	1255	0.000	1300	0.000
1076	0.000	1121	0.000	1166	0.000	1211	0.000	1256	0.000	1301	0.000
1077	0.000	1122	0.000	1167	0.000	1212	0.000	1257	0.000	1302	0.000
1078	0.000	1123	0.000	1168	0.000	1213	0.000	1258	0.000	1303	0.000
1079	0.000	1124	0.000	1169	0.000	1214	0.000	1259	0.000	1304	0.000
1080	0.000	1125	0.000	1170	0.000	1215	0.000	1260	0.000	1305	0.000
1081	0.000	1126	0.000	1171	0.000	1216	0.000	1261	0.000	1306	0.000
1082	0.000	1127	0.000	1172	0.000	1217	0.000	1262	0.000	1307	0.000
1083	0.000	1128	0.000	1173	0.000	1218	0.000	1263	0.000	1308	0.000
1084	0.000	1129	0.000	1174	0.000	1219	0.000	1264	0.000	1309	0.000
1085	0.000	1130	0.000	1175	0.000	1220	0.000	1265	0.000	1310	0.000
1086	0.000	1131	0.000	1176	0.000	1221	0.000	1266	0.000	1311	0.000
1087	0.000	1132	0.000	1177	0.000	1222	0.000	1267	0.000	1312	0.000
1088	0.000	1133	0.000	1178	0.000	1223	0.000	1268	0.000	1313	0.000
1089	0.000	1134	0.000	1179	0.000	1224	0.000	1269	0.000	1314	0.000
1090	0.000	1135	0.000	1180	0.000	1225	0.000	1270	0.000	1315	0.000
1091	0.000	1136	0.000	1181	0.000	1226	0.000	1271	0.000	1316	0.000
1092	0.000	1137	0.000	1182	0.000	1227	0.000	1272	0.000	1317	0.000
1093	0.000	1138	0.000	1183	0.000	1228	0.000	1273	0.000	1318	0.000
1094	0.000	1139	0.000	1184	0.000	1229	0.000	1274	0.000	1319	0.000
1095	0.000	1140	0.000	1185	0.000	1230	0.000	1275	0.000	1320	0.000
1096	0.000	1141	0.000	1186	0.000	1231	0.000	1276	0.000	1321	0.000
1097	0.000	1142	0.000	1187	0.000	1232	0.000	1277	0.000	1322	0.000
1098	0.000	1143	0.000	1188	0.000	1233	0.000	1278	0.000	1323	0.000
1099	0.000	1144	0.000	1189	0.000	1234	0.000	1279	0.000	1324	0.000
1100	0.000	1145	0.000	1190	0.000	1235	0.000	1280	0.000	1325	0.000
1101	0.000	1146	0.000	1191	0.000	1236	0.000	1281	0.000	1326	0.000
1102	0.000	1147	0.000	1192	0.000	1237	0.000	1282	0.000	1327	0.000
1103	0.000	1148	0.000	1193	0.000	1238	0.000	1283	0.000	1328	0.000
1104	0.000	1149	0.000	1194	0.000	1239	0.000	1284	0.000	1329	0.000
1105	0.000	1150	0.000	1195	0.000	1240	0.000	1285	0.000	1330	0.000
1106	0.000	1151	0.000	1196	0.000	1241	0.000	1286	0.000	1331	0.000
1107	0.000	1152	0.000	1197	0.000	1242	0.000	1287	0.000	1332	0.000
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP 3 Atten. M100-720 & M10-1440						
Date 30/11/2020					Designed by AS						
File LP_3_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1333	0.000	1378	0.000	1423	0.000	1468	0.000	1513	0.000	1558	0.000
1334	0.000	1379	0.000	1424	0.000	1469	0.000	1514	0.000	1559	0.000
1335	0.000	1380	0.000	1425	0.000	1470	0.000	1515	0.000	1560	0.000
1336	0.000	1381	0.000	1426	0.000	1471	0.000	1516	0.000	1561	0.000
1337	0.000	1382	0.000	1427	0.000	1472	0.000	1517	0.000	1562	0.000
1338	0.000	1383	0.000	1428	0.000	1473	0.000	1518	0.000	1563	0.000
1339	0.000	1384	0.000	1429	0.000	1474	0.000	1519	0.000	1564	0.000
1340	0.000	1385	0.000	1430	0.000	1475	0.000	1520	0.000	1565	0.000
1341	0.000	1386	0.000	1431	0.000	1476	0.000	1521	0.000	1566	0.000
1342	0.000	1387	0.000	1432	0.000	1477	0.000	1522	0.000	1567	0.000
1343	0.000	1388	0.000	1433	0.000	1478	0.000	1523	0.000	1568	0.000
1344	0.000	1389	0.000	1434	0.000	1479	0.000	1524	0.000	1569	0.000
1345	0.000	1390	0.000	1435	0.000	1480	0.000	1525	0.000	1570	0.000
1346	0.000	1391	0.000	1436	0.000	1481	0.000	1526	0.000	1571	0.000
1347	0.000	1392	0.000	1437	0.000	1482	0.000	1527	0.000	1572	0.000
1348	0.000	1393	0.000	1438	0.000	1483	0.000	1528	0.000	1573	0.000
1349	0.000	1394	0.000	1439	0.000	1484	0.000	1529	0.000	1574	0.000
1350	0.000	1395	0.000	1440	0.000	1485	0.000	1530	0.000	1575	0.000
1351	0.000	1396	0.000	1441	0.000	1486	0.000	1531	0.000	1576	0.000
1352	0.000	1397	0.000	1442	0.000	1487	0.000	1532	0.000	1577	0.000
1353	0.000	1398	0.000	1443	0.000	1488	0.000	1533	0.000	1578	0.000
1354	0.000	1399	0.000	1444	0.000	1489	0.000	1534	0.000	1579	0.000
1355	0.000	1400	0.000	1445	0.000	1490	0.000	1535	0.000	1580	0.000
1356	0.000	1401	0.000	1446	0.000	1491	0.000	1536	0.000	1581	0.000
1357	0.000	1402	0.000	1447	0.000	1492	0.000	1537	0.000	1582	0.000
1358	0.000	1403	0.000	1448	0.000	1493	0.000	1538	0.000	1583	0.000
1359	0.000	1404	0.000	1449	0.000	1494	0.000	1539	0.000	1584	0.000
1360	0.000	1405	0.000	1450	0.000	1495	0.000	1540	0.000	1585	0.000
1361	0.000	1406	0.000	1451	0.000	1496	0.000	1541	0.000	1586	0.000
1362	0.000	1407	0.000	1452	0.000	1497	0.000	1542	0.000	1587	0.000
1363	0.000	1408	0.000	1453	0.000	1498	0.000	1543	0.000	1588	0.000
1364	0.000	1409	0.000	1454	0.000	1499	0.000	1544	0.000	1589	0.000
1365	0.000	1410	0.000	1455	0.000	1500	0.000	1545	0.000	1590	0.000
1366	0.000	1411	0.000	1456	0.000	1501	0.000	1546	0.000	1591	0.000
1367	0.000	1412	0.000	1457	0.000	1502	0.000	1547	0.000	1592	0.000
1368	0.000	1413	0.000	1458	0.000	1503	0.000	1548	0.000	1593	0.000
1369	0.000	1414	0.000	1459	0.000	1504	0.000	1549	0.000	1594	0.000
1370	0.000	1415	0.000	1460	0.000	1505	0.000	1550	0.000	1595	0.000
1371	0.000	1416	0.000	1461	0.000	1506	0.000	1551	0.000	1596	0.000
1372	0.000	1417	0.000	1462	0.000	1507	0.000	1552	0.000	1597	0.000
1373	0.000	1418	0.000	1463	0.000	1508	0.000	1553	0.000	1598	0.000
1374	0.000	1419	0.000	1464	0.000	1509	0.000	1554	0.000	1599	0.000
1375	0.000	1420	0.000	1465	0.000	1510	0.000	1555	0.000	1600	0.000
1376	0.000	1421	0.000	1466	0.000	1511	0.000	1556	0.000	1601	0.000
1377	0.000	1422	0.000	1467	0.000	1512	0.000	1557	0.000	1602	0.000
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP 3 Atten. M100-720 & M10-1440						
Date 30/11/2020					Designed by AS						
File LP_3_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
<u>Rainfall Profile</u>											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1603	0.000	1648	0.000	1693	0.000	1738	0.000	1783	0.000	1828	0.000
1604	0.000	1649	0.000	1694	0.000	1739	0.000	1784	0.000	1829	0.000
1605	0.000	1650	0.000	1695	0.000	1740	0.000	1785	0.000	1830	0.000
1606	0.000	1651	0.000	1696	0.000	1741	0.000	1786	0.000	1831	0.000
1607	0.000	1652	0.000	1697	0.000	1742	0.000	1787	0.000	1832	0.000
1608	0.000	1653	0.000	1698	0.000	1743	0.000	1788	0.000	1833	0.000
1609	0.000	1654	0.000	1699	0.000	1744	0.000	1789	0.000	1834	0.000
1610	0.000	1655	0.000	1700	0.000	1745	0.000	1790	0.000	1835	0.000
1611	0.000	1656	0.000	1701	0.000	1746	0.000	1791	0.000	1836	0.000
1612	0.000	1657	0.000	1702	0.000	1747	0.000	1792	0.000	1837	0.000
1613	0.000	1658	0.000	1703	0.000	1748	0.000	1793	0.000	1838	0.000
1614	0.000	1659	0.000	1704	0.000	1749	0.000	1794	0.000	1839	0.000
1615	0.000	1660	0.000	1705	0.000	1750	0.000	1795	0.000	1840	0.000
1616	0.000	1661	0.000	1706	0.000	1751	0.000	1796	0.000	1841	0.000
1617	0.000	1662	0.000	1707	0.000	1752	0.000	1797	0.000	1842	0.000
1618	0.000	1663	0.000	1708	0.000	1753	0.000	1798	0.000	1843	0.000
1619	0.000	1664	0.000	1709	0.000	1754	0.000	1799	0.000	1844	0.000
1620	0.000	1665	0.000	1710	0.000	1755	0.000	1800	0.000	1845	0.000
1621	0.000	1666	0.000	1711	0.000	1756	0.000	1801	0.000	1846	0.000
1622	0.000	1667	0.000	1712	0.000	1757	0.000	1802	0.000	1847	0.000
1623	0.000	1668	0.000	1713	0.000	1758	0.000	1803	0.000	1848	0.000
1624	0.000	1669	0.000	1714	0.000	1759	0.000	1804	0.000	1849	0.000
1625	0.000	1670	0.000	1715	0.000	1760	0.000	1805	0.000	1850	0.000
1626	0.000	1671	0.000	1716	0.000	1761	0.000	1806	0.000	1851	0.000
1627	0.000	1672	0.000	1717	0.000	1762	0.000	1807	0.000	1852	0.000
1628	0.000	1673	0.000	1718	0.000	1763	0.000	1808	0.000	1853	0.000
1629	0.000	1674	0.000	1719	0.000	1764	0.000	1809	0.000	1854	0.000
1630	0.000	1675	0.000	1720	0.000	1765	0.000	1810	0.000	1855	0.000
1631	0.000	1676	0.000	1721	0.000	1766	0.000	1811	0.000	1856	0.000
1632	0.000	1677	0.000	1722	0.000	1767	0.000	1812	0.000	1857	0.000
1633	0.000	1678	0.000	1723	0.000	1768	0.000	1813	0.000	1858	0.000
1634	0.000	1679	0.000	1724	0.000	1769	0.000	1814	0.000	1859	0.000
1635	0.000	1680	0.000	1725	0.000	1770	0.000	1815	0.000	1860	0.000
1636	0.000	1681	0.000	1726	0.000	1771	0.000	1816	0.000	1861	0.000
1637	0.000	1682	0.000	1727	0.000	1772	0.000	1817	0.000	1862	0.000
1638	0.000	1683	0.000	1728	0.000	1773	0.000	1818	0.000	1863	0.000
1639	0.000	1684	0.000	1729	0.000	1774	0.000	1819	0.000	1864	0.000
1640	0.000	1685	0.000	1730	0.000	1775	0.000	1820	0.000	1865	0.000
1641	0.000	1686	0.000	1731	0.000	1776	0.000	1821	0.000	1866	0.000
1642	0.000	1687	0.000	1732	0.000	1777	0.000	1822	0.000	1867	0.000
1643	0.000	1688	0.000	1733	0.000	1778	0.000	1823	0.000	1868	0.000
1644	0.000	1689	0.000	1734	0.000	1779	0.000	1824	0.000	1869	0.000
1645	0.000	1690	0.000	1735	0.000	1780	0.000	1825	0.000	1870	0.000
1646	0.000	1691	0.000	1736	0.000	1781	0.000	1826	0.000	1871	0.000
1647	0.000	1692	0.000	1737	0.000	1782	0.000	1827	0.000	1872	0.000
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP 3 Atten. M100-720 & M10-1440						
Date 30/11/2020					Designed by AS						
File LP_3_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
<u>Rainfall Profile</u>											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1873	0.000	1918	0.000	1963	0.000	2008	0.000	2053	0.000	2098	0.000
1874	0.000	1919	0.000	1964	0.000	2009	0.000	2054	0.000	2099	0.000
1875	0.000	1920	0.000	1965	0.000	2010	0.000	2055	0.000	2100	0.000
1876	0.000	1921	0.000	1966	0.000	2011	0.000	2056	0.000	2101	0.000
1877	0.000	1922	0.000	1967	0.000	2012	0.000	2057	0.000	2102	0.000
1878	0.000	1923	0.000	1968	0.000	2013	0.000	2058	0.000	2103	0.000
1879	0.000	1924	0.000	1969	0.000	2014	0.000	2059	0.000	2104	0.000
1880	0.000	1925	0.000	1970	0.000	2015	0.000	2060	0.000	2105	0.000
1881	0.000	1926	0.000	1971	0.000	2016	0.000	2061	0.000	2106	0.000
1882	0.000	1927	0.000	1972	0.000	2017	0.000	2062	0.000	2107	0.000
1883	0.000	1928	0.000	1973	0.000	2018	0.000	2063	0.000	2108	0.000
1884	0.000	1929	0.000	1974	0.000	2019	0.000	2064	0.000	2109	0.000
1885	0.000	1930	0.000	1975	0.000	2020	0.000	2065	0.000	2110	0.000
1886	0.000	1931	0.000	1976	0.000	2021	0.000	2066	0.000	2111	0.000
1887	0.000	1932	0.000	1977	0.000	2022	0.000	2067	0.000	2112	0.000
1888	0.000	1933	0.000	1978	0.000	2023	0.000	2068	0.000	2113	0.000
1889	0.000	1934	0.000	1979	0.000	2024	0.000	2069	0.000	2114	0.000
1890	0.000	1935	0.000	1980	0.000	2025	0.000	2070	0.000	2115	0.000
1891	0.000	1936	0.000	1981	0.000	2026	0.000	2071	0.000	2116	0.000
1892	0.000	1937	0.000	1982	0.000	2027	0.000	2072	0.000	2117	0.000
1893	0.000	1938	0.000	1983	0.000	2028	0.000	2073	0.000	2118	0.000
1894	0.000	1939	0.000	1984	0.000	2029	0.000	2074	0.000	2119	0.000
1895	0.000	1940	0.000	1985	0.000	2030	0.000	2075	0.000	2120	0.000
1896	0.000	1941	0.000	1986	0.000	2031	0.000	2076	0.000	2121	0.000
1897	0.000	1942	0.000	1987	0.000	2032	0.000	2077	0.000	2122	0.000
1898	0.000	1943	0.000	1988	0.000	2033	0.000	2078	0.000	2123	0.000
1899	0.000	1944	0.000	1989	0.000	2034	0.000	2079	0.000	2124	0.000
1900	0.000	1945	0.000	1990	0.000	2035	0.000	2080	0.000	2125	0.000
1901	0.000	1946	0.000	1991	0.000	2036	0.000	2081	0.000	2126	0.000
1902	0.000	1947	0.000	1992	0.000	2037	0.000	2082	0.000	2127	0.000
1903	0.000	1948	0.000	1993	0.000	2038	0.000	2083	0.000	2128	0.000
1904	0.000	1949	0.000	1994	0.000	2039	0.000	2084	0.000	2129	0.000
1905	0.000	1950	0.000	1995	0.000	2040	0.000	2085	0.000	2130	0.000
1906	0.000	1951	0.000	1996	0.000	2041	0.000	2086	0.000	2131	0.000
1907	0.000	1952	0.000	1997	0.000	2042	0.000	2087	0.000	2132	0.000
1908	0.000	1953	0.000	1998	0.000	2043	0.000	2088	0.000	2133	0.000
1909	0.000	1954	0.000	1999	0.000	2044	0.000	2089	0.000	2134	0.000
1910	0.000	1955	0.000	2000	0.000	2045	0.000	2090	0.000	2135	0.000
1911	0.000	1956	0.000	2001	0.000	2046	0.000	2091	0.000	2136	0.000
1912	0.000	1957	0.000	2002	0.000	2047	0.000	2092	0.000	2137	0.000
1913	0.000	1958	0.000	2003	0.000	2048	0.000	2093	0.000	2138	0.000
1914	0.000	1959	0.000	2004	0.000	2049	0.000	2094	0.000	2139	0.000
1915	0.000	1960	0.000	2005	0.000	2050	0.000	2095	0.000	2140	0.000
1916	0.000	1961	0.000	2006	0.000	2051	0.000	2096	0.000	2141	0.000
1917	0.000	1962	0.000	2007	0.000	2052	0.000	2097	0.000	2142	0.000
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP 3 Atten. M100-720 & M10-1440						
Date 30/11/2020					Designed by AS						
File LP_3_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
2413	5.595	2458	7.809	2503	9.443	2548	8.464	2593	6.342	2638	4.205
2414	5.595	2459	7.809	2504	9.548	2549	8.464	2594	6.342	2639	4.205
2415	5.595	2460	7.944	2505	9.548	2550	8.464	2595	6.342	2640	4.081
2416	5.595	2461	8.147	2506	9.548	2551	8.464	2596	6.342	2641	3.894
2417	5.818	2462	8.147	2507	9.548	2552	8.464	2597	6.117	2642	3.894
2418	5.967	2463	8.147	2508	9.548	2553	8.464	2598	5.967	2643	3.894
2419	5.967	2464	8.147	2509	9.548	2554	8.210	2599	5.967	2644	3.894
2420	5.967	2465	8.147	2510	9.548	2555	8.147	2600	5.967	2645	3.894
2421	5.967	2466	8.147	2511	9.548	2556	8.147	2601	5.967	2646	3.894
2422	5.967	2467	8.210	2512	9.548	2557	8.147	2602	5.967	2647	3.835
2423	5.967	2468	8.464	2513	9.548	2558	8.147	2603	5.967	2648	3.601
2424	6.117	2469	8.464	2514	9.548	2559	8.147	2604	5.818	2649	3.601
2425	6.342	2470	8.464	2515	9.548	2560	8.147	2605	5.595	2650	3.601
2426	6.342	2471	8.464	2516	9.548	2561	7.944	2606	5.595	2651	3.601
2427	6.342	2472	8.464	2517	9.548	2562	7.809	2607	5.595	2652	3.601
2428	6.342	2473	8.464	2518	9.443	2563	7.809	2608	5.595	2653	3.601
2429	6.342	2474	8.464	2519	9.417	2564	7.809	2609	5.595	2654	3.601
2430	6.342	2475	8.755	2520	9.417	2565	7.809	2610	5.595	2655	3.327
2431	6.417	2476	8.755	2521	9.417	2566	7.809	2611	5.522	2656	3.327
2432	6.718	2477	8.755	2522	9.417	2567	7.809	2612	5.231	2657	3.327
2433	6.718	2478	8.755	2523	9.417	2568	7.668	2613	5.231	2658	3.327
2434	6.718	2479	8.755	2524	9.417	2569	7.456	2614	5.231	2659	3.327
2435	6.718	2480	8.755	2525	9.309	2570	7.456	2615	5.231	2660	3.327
2436	6.718	2481	8.755	2526	9.237	2571	7.456	2616	5.231	2661	3.327
2437	6.718	2482	8.963	2527	9.237	2572	7.456	2617	5.231	2662	3.125
2438	6.718	2483	9.015	2528	9.237	2573	7.456	2618	5.231	2663	3.074
2439	7.090	2484	9.015	2529	9.237	2574	7.456	2619	4.876	2664	3.074
2440	7.090	2485	9.015	2530	9.237	2575	7.383	2620	4.876	2665	3.074
2441	7.090	2486	9.015	2531	9.237	2576	7.090	2621	4.876	2666	3.074
2442	7.090	2487	9.015	2532	9.148	2577	7.090	2622	4.876	2667	3.074
2443	7.090	2488	9.015	2533	9.015	2578	7.090	2623	4.876	2668	3.074
2444	7.090	2489	9.148	2534	9.015	2579	7.090	2624	4.876	2669	2.936
2445	7.090	2490	9.237	2535	9.015	2580	7.090	2625	4.876	2670	2.843
2446	7.383	2491	9.237	2536	9.015	2581	7.090	2626	4.602	2671	2.843
2447	7.456	2492	9.237	2537	9.015	2582	7.090	2627	4.533	2672	2.843
2448	7.456	2493	9.237	2538	9.015	2583	6.718	2628	4.533	2673	2.843
2449	7.456	2494	9.237	2539	8.963	2584	6.718	2629	4.533	2674	2.843
2450	7.456	2495	9.237	2540	8.755	2585	6.718	2630	4.533	2675	2.843
2451	7.456	2496	9.309	2541	8.755	2586	6.718	2631	4.533	2676	2.759
2452	7.456	2497	9.417	2542	8.755	2587	6.718	2632	4.533	2677	2.634
2453	7.668	2498	9.417	2543	8.755	2588	6.718	2633	4.337	2678	2.634
2454	7.809	2499	9.417	2544	8.755	2589	6.718	2634	4.205	2679	2.634
2455	7.809	2500	9.417	2545	8.755	2590	6.417	2635	4.205	2680	2.634
2456	7.809	2501	9.417	2546	8.755	2591	6.342	2636	4.205	2681	2.634
2457	7.809	2502	9.417	2547	8.464	2592	6.342	2637	4.205	2682	2.634
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ	Earl Shilton LP 3 Atten. M100-720 & M10-1440	
Date 30/11/2020 File LP_3_M100 + 40% CC + 144...	Designed by AS Checked by IW	
Innovyze	Source Control 2018.1.1	

Model Details

Storage is Online Cover Level (m) 100.000

Infiltration Basin Structure

Invert Level (m) 99.000 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 1.00
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	588.0	0.400	733.6	0.800	895.2
0.200	658.8	0.600	812.4	1.000	982.1

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0094-3900-1000-3900
Design Head (m) 1.000
Design Flow (l/s) 3.9
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 94
Invert Level (m) 99.000
Minimum Outlet Pipe Diameter (mm) 150
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	3.9	Kick-Flo®	0.632	3.2
Flush-Flo™	0.297	3.9	Mean Flow over Head Range	-	3.4

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	3.0	1.200	4.2	3.000	6.5	7.000	9.7
0.200	3.8	1.400	4.6	3.500	7.0	7.500	10.0
0.300	3.9	1.600	4.8	4.000	7.4	8.000	10.4
0.400	3.8	1.800	5.1	4.500	7.9	8.500	10.7
0.500	3.7	2.000	5.4	5.000	8.3	9.000	10.9
0.600	3.4	2.200	5.6	5.500	8.7	9.500	11.2
0.800	3.5	2.400	5.9	6.000	9.0		
1.000	3.9	2.600	6.1	6.500	9.4		

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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ				Earl Shilton LP4 Atten. M100-720 & M10-720							
Date 30/11/2020				Designed by AS							
File LP_4_M100 + 40% CC + 144...				Checked by IW							
Innovyze				Source Control 2018.1.1							
<u>Rainfall Profile</u>											
Cv 0.840 Climate Change % +0											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1	0.290	43	3.198	85	3.931	127	3.986	169	5.004	211	7.773
2	0.290	44	3.409	86	3.931	128	3.986	170	5.004	212	7.773
3	0.290	45	3.462	87	3.931	129	3.986	171	5.004	213	7.773
4	0.290	46	3.462	88	3.933	130	4.014	172	5.004	214	7.773
5	0.290	47	3.462	89	3.933	131	4.056	173	5.071	215	7.773
6	0.290	48	3.462	90	3.933	132	4.056	174	5.335	216	7.773
7	0.290	49	3.462	91	3.933	133	4.056	175	5.335	217	8.413
8	0.965	50	3.462	92	3.933	134	4.056	176	5.335	218	8.413
9	1.133	51	3.577	93	3.933	135	4.056	177	5.335	219	8.413
10	1.133	52	3.654	94	3.930	136	4.056	178	5.335	220	8.413
11	1.133	53	3.654	95	3.926	137	4.077	179	5.335	221	8.413
12	1.133	54	3.654	96	3.926	138	4.161	180	5.335	222	8.413
13	1.133	55	3.654	97	3.926	139	4.161	181	5.719	223	8.413
14	1.133	56	3.654	98	3.926	140	4.161	182	5.719	224	8.960
15	1.550	57	3.654	99	3.926	141	4.161	183	5.719	225	9.097
16	1.828	58	3.707	100	3.926	142	4.161	184	5.719	226	9.097
17	1.828	59	3.786	101	3.924	143	4.161	185	5.719	227	9.097
18	1.828	60	3.786	102	3.920	144	4.161	186	5.719	228	9.097
19	1.828	61	3.786	103	3.920	145	4.305	187	5.719	229	9.097
20	1.828	62	3.786	104	3.920	146	4.305	188	6.068	230	9.097
21	1.828	63	3.786	105	3.920	147	4.305	189	6.154	231	9.534
22	2.055	64	3.786	106	3.920	148	4.305	190	6.154	232	9.825
23	2.395	65	3.802	107	3.920	149	4.305	191	6.154	233	9.825
24	2.395	66	3.868	108	3.920	150	4.305	192	6.154	234	9.825
25	2.395	67	3.868	109	3.923	151	4.305	193	6.154	235	9.825
26	2.395	68	3.868	110	3.923	152	4.453	194	6.154	236	9.825
27	2.395	69	3.868	111	3.923	153	4.491	195	6.447	237	9.825
28	2.395	70	3.868	112	3.923	154	4.491	196	6.643	238	10.132
29	2.485	71	3.868	113	3.923	155	4.491	197	6.643	239	10.592
30	2.846	72	3.868	114	3.923	156	4.491	198	6.643	240	10.592
31	2.846	73	3.913	115	3.923	157	4.491	199	6.643	241	10.592
32	2.846	74	3.913	116	3.940	158	4.491	200	6.643	242	10.592
33	2.846	75	3.913	117	3.942	159	4.630	201	6.643	243	10.592
34	2.846	76	3.913	118	3.942	160	4.724	202	6.859	244	10.592
35	2.846	77	3.913	119	3.942	161	4.724	203	7.182	245	10.752
36	2.846	78	3.913	120	3.942	162	4.724	204	7.182	246	11.392
37	3.198	79	3.913	121	3.942	163	4.724	205	7.182	247	11.392
38	3.198	80	3.927	122	3.942	164	4.724	206	7.182	248	11.392
39	3.198	81	3.931	123	3.968	165	4.724	207	7.182	249	11.392
40	3.198	82	3.931	124	3.986	166	4.836	208	7.182	250	11.392
41	3.198	83	3.931	125	3.986	167	5.004	209	7.301	251	11.392
42	3.198	84	3.931	126	3.986	168	5.004	210	7.773	252	11.392
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP4 Atten. M100-720 & M10-720						
Date 30/11/2020					Designed by AS						
File LP_4_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
253	12.222	298	17.420	343	21.582	388	21.062	433	15.695	478	10.592
254	12.222	299	17.420	344	21.582	389	20.940	434	15.695	479	10.592
255	12.222	300	17.420	345	21.582	390	20.455	435	15.695	480	10.592
256	12.222	301	17.420	346	21.750	391	20.455	436	15.695	481	10.592
257	12.222	302	17.420	347	22.002	392	20.455	437	15.695	482	10.592
258	12.222	303	17.916	348	22.002	393	20.455	438	15.695	483	10.132
259	12.222	304	18.246	349	22.002	394	20.455	439	15.695	484	9.825
260	12.902	305	18.246	350	22.002	395	20.455	440	14.994	485	9.825
261	13.073	306	18.246	351	22.002	396	20.455	441	14.819	486	9.825
262	13.073	307	18.246	352	22.002	397	19.775	442	14.819	487	9.825
263	13.073	308	18.246	353	22.063	398	19.775	443	14.819	488	9.825
264	13.073	309	18.246	354	22.308	399	19.775	444	14.819	489	9.825
265	13.073	310	18.561	355	22.308	400	19.775	445	14.819	490	9.534
266	13.073	311	19.034	356	22.308	401	19.775	446	14.819	491	9.097
267	13.594	312	19.034	357	22.308	402	19.775	447	14.293	492	9.097
268	13.941	313	19.034	358	22.308	403	19.775	448	13.941	493	9.097
269	13.941	314	19.034	359	22.308	404	19.183	449	13.941	494	9.097
270	13.941	315	19.034	360	22.308	405	19.034	450	13.941	495	9.097
271	13.941	316	19.034	361	22.308	406	19.034	451	13.941	496	9.097
272	13.941	317	19.183	362	22.308	407	19.034	452	13.941	497	8.960
273	13.941	318	19.775	363	22.308	408	19.034	453	13.941	498	8.413
274	14.293	319	19.775	364	22.308	409	19.034	454	13.594	499	8.413
275	14.818	320	19.775	365	22.308	410	19.034	455	13.073	500	8.413
276	14.818	321	19.775	366	22.308	411	18.561	456	13.073	501	8.413
277	14.818	322	19.775	367	22.308	412	18.246	457	13.073	502	8.413
278	14.818	323	19.775	368	22.063	413	18.246	458	13.073	503	8.413
279	14.818	324	19.775	369	22.002	414	18.246	459	13.073	504	8.413
280	14.818	325	20.455	370	22.002	415	18.246	460	13.073	505	7.773
281	14.994	326	20.455	371	22.002	416	18.246	461	12.902	506	7.773
282	15.697	327	20.455	372	22.002	417	18.246	462	12.222	507	7.773
283	15.697	328	20.455	373	22.002	418	17.916	463	12.222	508	7.773
284	15.697	329	20.455	374	22.002	419	17.420	464	12.222	509	7.773
285	15.697	330	20.455	375	21.750	420	17.420	465	12.222	510	7.773
286	15.697	331	20.455	376	21.582	421	17.420	466	12.222	511	7.773
287	15.697	332	20.940	377	21.582	422	17.420	467	12.222	512	7.301
288	15.697	333	21.062	378	21.582	423	17.420	468	12.222	513	7.182
289	16.566	334	21.062	379	21.582	424	17.420	469	11.392	514	7.182
290	16.566	335	21.062	380	21.582	425	17.249	470	11.392	515	7.182
291	16.566	336	21.062	381	21.582	426	16.566	471	11.392	516	7.182
292	16.566	337	21.062	382	21.374	427	16.566	472	11.392	517	7.182
293	16.566	338	21.062	383	21.062	428	16.566	473	11.392	518	7.182
294	16.566	339	21.374	384	21.062	429	16.566	474	11.392	519	6.859
295	16.566	340	21.582	385	21.062	430	16.566	475	11.392	520	6.643
296	17.249	341	21.582	386	21.062	431	16.566	476	10.752	521	6.643
297	17.420	342	21.582	387	21.062	432	16.566	477	10.592	522	6.643
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File LP_4_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
523	6.643	568	4.491	613	3.920	658	3.786	703	1.828	748	0.000
524	6.643	569	4.453	614	3.920	659	3.786	704	1.828	749	0.000
525	6.643	570	4.305	615	3.920	660	3.786	705	1.828	750	0.000
526	6.447	571	4.305	616	3.920	661	3.786	706	1.550	751	0.000
527	6.154	572	4.305	617	3.920	662	3.786	707	1.133	752	0.000
528	6.154	573	4.305	618	3.920	663	3.707	708	1.133	753	0.000
529	6.154	574	4.305	619	3.920	664	3.654	709	1.133	754	0.000
530	6.154	575	4.305	620	3.924	665	3.654	710	1.133	755	0.000
531	6.154	576	4.305	621	3.926	666	3.654	711	1.133	756	0.000
532	6.154	577	4.161	622	3.926	667	3.654	712	1.133	757	0.000
533	6.068	578	4.161	623	3.926	668	3.654	713	0.963	758	0.000
534	5.719	579	4.161	624	3.926	669	3.654	714	0.290	759	0.000
535	5.719	580	4.161	625	3.926	670	3.577	715	0.290	760	0.000
536	5.719	581	4.161	626	3.926	671	3.462	716	0.290	761	0.000
537	5.719	582	4.161	627	3.930	672	3.462	717	0.290	762	0.000
538	5.719	583	4.161	628	3.933	673	3.462	718	0.290	763	0.000
539	5.719	584	4.077	629	3.933	674	3.462	719	0.290	764	0.000
540	5.719	585	4.056	630	3.933	675	3.462	720	0.290	765	0.000
541	5.335	586	4.056	631	3.933	676	3.462	721	0.000	766	0.000
542	5.335	587	4.056	632	3.933	677	3.409	722	0.000	767	0.000
543	5.335	588	4.056	633	3.933	678	3.198	723	0.000	768	0.000
544	5.335	589	4.056	634	3.931	679	3.198	724	0.000	769	0.000
545	5.335	590	4.056	635	3.931	680	3.198	725	0.000	770	0.000
546	5.335	591	4.014	636	3.931	681	3.198	726	0.000	771	0.000
547	5.335	592	3.986	637	3.931	682	3.198	727	0.000	772	0.000
548	5.071	593	3.986	638	3.931	683	3.198	728	0.000	773	0.000
549	5.004	594	3.986	639	3.931	684	3.198	729	0.000	774	0.000
550	5.004	595	3.986	640	3.931	685	2.846	730	0.000	775	0.000
551	5.004	596	3.986	641	3.927	686	2.846	731	0.000	776	0.000
552	5.004	597	3.986	642	3.913	687	2.846	732	0.000	777	0.000
553	5.004	598	3.968	643	3.913	688	2.846	733	0.000	778	0.000
554	5.004	599	3.942	644	3.913	689	2.846	734	0.000	779	0.000
555	4.836	600	3.942	645	3.913	690	2.846	735	0.000	780	0.000
556	4.724	601	3.942	646	3.913	691	2.846	736	0.000	781	0.000
557	4.724	602	3.942	647	3.913	692	2.485	737	0.000	782	0.000
558	4.724	603	3.942	648	3.913	693	2.395	738	0.000	783	0.000
559	4.724	604	3.942	649	3.868	694	2.395	739	0.000	784	0.000
560	4.724	605	3.940	650	3.868	695	2.395	740	0.000	785	0.000
561	4.724	606	3.923	651	3.868	696	2.395	741	0.000	786	0.000
562	4.630	607	3.923	652	3.868	697	2.395	742	0.000	787	0.000
563	4.491	608	3.923	653	3.868	698	2.395	743	0.000	788	0.000
564	4.491	609	3.923	654	3.868	699	2.055	744	0.000	789	0.000
565	4.491	610	3.923	655	3.868	700	1.828	745	0.000	790	0.000
566	4.491	611	3.923	656	3.802	701	1.828	746	0.000	791	0.000
567	4.491	612	3.923	657	3.786	702	1.828	747	0.000	792	0.000
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP4 Atten. M100-720 & M10-720						
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Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
793	0.000	838	0.000	883	0.000	928	0.000	973	0.000	1018	0.000
794	0.000	839	0.000	884	0.000	929	0.000	974	0.000	1019	0.000
795	0.000	840	0.000	885	0.000	930	0.000	975	0.000	1020	0.000
796	0.000	841	0.000	886	0.000	931	0.000	976	0.000	1021	0.000
797	0.000	842	0.000	887	0.000	932	0.000	977	0.000	1022	0.000
798	0.000	843	0.000	888	0.000	933	0.000	978	0.000	1023	0.000
799	0.000	844	0.000	889	0.000	934	0.000	979	0.000	1024	0.000
800	0.000	845	0.000	890	0.000	935	0.000	980	0.000	1025	0.000
801	0.000	846	0.000	891	0.000	936	0.000	981	0.000	1026	0.000
802	0.000	847	0.000	892	0.000	937	0.000	982	0.000	1027	0.000
803	0.000	848	0.000	893	0.000	938	0.000	983	0.000	1028	0.000
804	0.000	849	0.000	894	0.000	939	0.000	984	0.000	1029	0.000
805	0.000	850	0.000	895	0.000	940	0.000	985	0.000	1030	0.000
806	0.000	851	0.000	896	0.000	941	0.000	986	0.000	1031	0.000
807	0.000	852	0.000	897	0.000	942	0.000	987	0.000	1032	0.000
808	0.000	853	0.000	898	0.000	943	0.000	988	0.000	1033	0.000
809	0.000	854	0.000	899	0.000	944	0.000	989	0.000	1034	0.000
810	0.000	855	0.000	900	0.000	945	0.000	990	0.000	1035	0.000
811	0.000	856	0.000	901	0.000	946	0.000	991	0.000	1036	0.000
812	0.000	857	0.000	902	0.000	947	0.000	992	0.000	1037	0.000
813	0.000	858	0.000	903	0.000	948	0.000	993	0.000	1038	0.000
814	0.000	859	0.000	904	0.000	949	0.000	994	0.000	1039	0.000
815	0.000	860	0.000	905	0.000	950	0.000	995	0.000	1040	0.000
816	0.000	861	0.000	906	0.000	951	0.000	996	0.000	1041	0.000
817	0.000	862	0.000	907	0.000	952	0.000	997	0.000	1042	0.000
818	0.000	863	0.000	908	0.000	953	0.000	998	0.000	1043	0.000
819	0.000	864	0.000	909	0.000	954	0.000	999	0.000	1044	0.000
820	0.000	865	0.000	910	0.000	955	0.000	1000	0.000	1045	0.000
821	0.000	866	0.000	911	0.000	956	0.000	1001	0.000	1046	0.000
822	0.000	867	0.000	912	0.000	957	0.000	1002	0.000	1047	0.000
823	0.000	868	0.000	913	0.000	958	0.000	1003	0.000	1048	0.000
824	0.000	869	0.000	914	0.000	959	0.000	1004	0.000	1049	0.000
825	0.000	870	0.000	915	0.000	960	0.000	1005	0.000	1050	0.000
826	0.000	871	0.000	916	0.000	961	0.000	1006	0.000	1051	0.000
827	0.000	872	0.000	917	0.000	962	0.000	1007	0.000	1052	0.000
828	0.000	873	0.000	918	0.000	963	0.000	1008	0.000	1053	0.000
829	0.000	874	0.000	919	0.000	964	0.000	1009	0.000	1054	0.000
830	0.000	875	0.000	920	0.000	965	0.000	1010	0.000	1055	0.000
831	0.000	876	0.000	921	0.000	966	0.000	1011	0.000	1056	0.000
832	0.000	877	0.000	922	0.000	967	0.000	1012	0.000	1057	0.000
833	0.000	878	0.000	923	0.000	968	0.000	1013	0.000	1058	0.000
834	0.000	879	0.000	924	0.000	969	0.000	1014	0.000	1059	0.000
835	0.000	880	0.000	925	0.000	970	0.000	1015	0.000	1060	0.000
836	0.000	881	0.000	926	0.000	971	0.000	1016	0.000	1061	0.000
837	0.000	882	0.000	927	0.000	972	0.000	1017	0.000	1062	0.000
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP4 Atten. M100-720 & M10-720						
Date 30/11/2020					Designed by AS						
File LP_4_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1063	0.000	1108	0.000	1153	0.000	1198	0.000	1243	0.000	1288	0.000
1064	0.000	1109	0.000	1154	0.000	1199	0.000	1244	0.000	1289	0.000
1065	0.000	1110	0.000	1155	0.000	1200	0.000	1245	0.000	1290	0.000
1066	0.000	1111	0.000	1156	0.000	1201	0.000	1246	0.000	1291	0.000
1067	0.000	1112	0.000	1157	0.000	1202	0.000	1247	0.000	1292	0.000
1068	0.000	1113	0.000	1158	0.000	1203	0.000	1248	0.000	1293	0.000
1069	0.000	1114	0.000	1159	0.000	1204	0.000	1249	0.000	1294	0.000
1070	0.000	1115	0.000	1160	0.000	1205	0.000	1250	0.000	1295	0.000
1071	0.000	1116	0.000	1161	0.000	1206	0.000	1251	0.000	1296	0.000
1072	0.000	1117	0.000	1162	0.000	1207	0.000	1252	0.000	1297	0.000
1073	0.000	1118	0.000	1163	0.000	1208	0.000	1253	0.000	1298	0.000
1074	0.000	1119	0.000	1164	0.000	1209	0.000	1254	0.000	1299	0.000
1075	0.000	1120	0.000	1165	0.000	1210	0.000	1255	0.000	1300	0.000
1076	0.000	1121	0.000	1166	0.000	1211	0.000	1256	0.000	1301	0.000
1077	0.000	1122	0.000	1167	0.000	1212	0.000	1257	0.000	1302	0.000
1078	0.000	1123	0.000	1168	0.000	1213	0.000	1258	0.000	1303	0.000
1079	0.000	1124	0.000	1169	0.000	1214	0.000	1259	0.000	1304	0.000
1080	0.000	1125	0.000	1170	0.000	1215	0.000	1260	0.000	1305	0.000
1081	0.000	1126	0.000	1171	0.000	1216	0.000	1261	0.000	1306	0.000
1082	0.000	1127	0.000	1172	0.000	1217	0.000	1262	0.000	1307	0.000
1083	0.000	1128	0.000	1173	0.000	1218	0.000	1263	0.000	1308	0.000
1084	0.000	1129	0.000	1174	0.000	1219	0.000	1264	0.000	1309	0.000
1085	0.000	1130	0.000	1175	0.000	1220	0.000	1265	0.000	1310	0.000
1086	0.000	1131	0.000	1176	0.000	1221	0.000	1266	0.000	1311	0.000
1087	0.000	1132	0.000	1177	0.000	1222	0.000	1267	0.000	1312	0.000
1088	0.000	1133	0.000	1178	0.000	1223	0.000	1268	0.000	1313	0.000
1089	0.000	1134	0.000	1179	0.000	1224	0.000	1269	0.000	1314	0.000
1090	0.000	1135	0.000	1180	0.000	1225	0.000	1270	0.000	1315	0.000
1091	0.000	1136	0.000	1181	0.000	1226	0.000	1271	0.000	1316	0.000
1092	0.000	1137	0.000	1182	0.000	1227	0.000	1272	0.000	1317	0.000
1093	0.000	1138	0.000	1183	0.000	1228	0.000	1273	0.000	1318	0.000
1094	0.000	1139	0.000	1184	0.000	1229	0.000	1274	0.000	1319	0.000
1095	0.000	1140	0.000	1185	0.000	1230	0.000	1275	0.000	1320	0.000
1096	0.000	1141	0.000	1186	0.000	1231	0.000	1276	0.000	1321	0.000
1097	0.000	1142	0.000	1187	0.000	1232	0.000	1277	0.000	1322	0.000
1098	0.000	1143	0.000	1188	0.000	1233	0.000	1278	0.000	1323	0.000
1099	0.000	1144	0.000	1189	0.000	1234	0.000	1279	0.000	1324	0.000
1100	0.000	1145	0.000	1190	0.000	1235	0.000	1280	0.000	1325	0.000
1101	0.000	1146	0.000	1191	0.000	1236	0.000	1281	0.000	1326	0.000
1102	0.000	1147	0.000	1192	0.000	1237	0.000	1282	0.000	1327	0.000
1103	0.000	1148	0.000	1193	0.000	1238	0.000	1283	0.000	1328	0.000
1104	0.000	1149	0.000	1194	0.000	1239	0.000	1284	0.000	1329	0.000
1105	0.000	1150	0.000	1195	0.000	1240	0.000	1285	0.000	1330	0.000
1106	0.000	1151	0.000	1196	0.000	1241	0.000	1286	0.000	1331	0.000
1107	0.000	1152	0.000	1197	0.000	1242	0.000	1287	0.000	1332	0.000
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP4 Atten. M100-720 & M10-720						
Date 30/11/2020					Designed by AS						
File LP_4_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
<u>Rainfall Profile</u>											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1333	0.000	1378	0.000	1423	0.000	1468	0.000	1513	0.000	1558	0.000
1334	0.000	1379	0.000	1424	0.000	1469	0.000	1514	0.000	1559	0.000
1335	0.000	1380	0.000	1425	0.000	1470	0.000	1515	0.000	1560	0.000
1336	0.000	1381	0.000	1426	0.000	1471	0.000	1516	0.000	1561	0.000
1337	0.000	1382	0.000	1427	0.000	1472	0.000	1517	0.000	1562	0.000
1338	0.000	1383	0.000	1428	0.000	1473	0.000	1518	0.000	1563	0.000
1339	0.000	1384	0.000	1429	0.000	1474	0.000	1519	0.000	1564	0.000
1340	0.000	1385	0.000	1430	0.000	1475	0.000	1520	0.000	1565	0.000
1341	0.000	1386	0.000	1431	0.000	1476	0.000	1521	0.000	1566	0.000
1342	0.000	1387	0.000	1432	0.000	1477	0.000	1522	0.000	1567	0.000
1343	0.000	1388	0.000	1433	0.000	1478	0.000	1523	0.000	1568	0.000
1344	0.000	1389	0.000	1434	0.000	1479	0.000	1524	0.000	1569	0.000
1345	0.000	1390	0.000	1435	0.000	1480	0.000	1525	0.000	1570	0.000
1346	0.000	1391	0.000	1436	0.000	1481	0.000	1526	0.000	1571	0.000
1347	0.000	1392	0.000	1437	0.000	1482	0.000	1527	0.000	1572	0.000
1348	0.000	1393	0.000	1438	0.000	1483	0.000	1528	0.000	1573	0.000
1349	0.000	1394	0.000	1439	0.000	1484	0.000	1529	0.000	1574	0.000
1350	0.000	1395	0.000	1440	0.000	1485	0.000	1530	0.000	1575	0.000
1351	0.000	1396	0.000	1441	0.000	1486	0.000	1531	0.000	1576	0.000
1352	0.000	1397	0.000	1442	0.000	1487	0.000	1532	0.000	1577	0.000
1353	0.000	1398	0.000	1443	0.000	1488	0.000	1533	0.000	1578	0.000
1354	0.000	1399	0.000	1444	0.000	1489	0.000	1534	0.000	1579	0.000
1355	0.000	1400	0.000	1445	0.000	1490	0.000	1535	0.000	1580	0.000
1356	0.000	1401	0.000	1446	0.000	1491	0.000	1536	0.000	1581	0.000
1357	0.000	1402	0.000	1447	0.000	1492	0.000	1537	0.000	1582	0.000
1358	0.000	1403	0.000	1448	0.000	1493	0.000	1538	0.000	1583	0.000
1359	0.000	1404	0.000	1449	0.000	1494	0.000	1539	0.000	1584	0.000
1360	0.000	1405	0.000	1450	0.000	1495	0.000	1540	0.000	1585	0.000
1361	0.000	1406	0.000	1451	0.000	1496	0.000	1541	0.000	1586	0.000
1362	0.000	1407	0.000	1452	0.000	1497	0.000	1542	0.000	1587	0.000
1363	0.000	1408	0.000	1453	0.000	1498	0.000	1543	0.000	1588	0.000
1364	0.000	1409	0.000	1454	0.000	1499	0.000	1544	0.000	1589	0.000
1365	0.000	1410	0.000	1455	0.000	1500	0.000	1545	0.000	1590	0.000
1366	0.000	1411	0.000	1456	0.000	1501	0.000	1546	0.000	1591	0.000
1367	0.000	1412	0.000	1457	0.000	1502	0.000	1547	0.000	1592	0.000
1368	0.000	1413	0.000	1458	0.000	1503	0.000	1548	0.000	1593	0.000
1369	0.000	1414	0.000	1459	0.000	1504	0.000	1549	0.000	1594	0.000
1370	0.000	1415	0.000	1460	0.000	1505	0.000	1550	0.000	1595	0.000
1371	0.000	1416	0.000	1461	0.000	1506	0.000	1551	0.000	1596	0.000
1372	0.000	1417	0.000	1462	0.000	1507	0.000	1552	0.000	1597	0.000
1373	0.000	1418	0.000	1463	0.000	1508	0.000	1553	0.000	1598	0.000
1374	0.000	1419	0.000	1464	0.000	1509	0.000	1554	0.000	1599	0.000
1375	0.000	1420	0.000	1465	0.000	1510	0.000	1555	0.000	1600	0.000
1376	0.000	1421	0.000	1466	0.000	1511	0.000	1556	0.000	1601	0.000
1377	0.000	1422	0.000	1467	0.000	1512	0.000	1557	0.000	1602	0.000
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Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1603	0.000	1648	0.000	1693	0.000	1738	0.000	1783	0.000	1828	0.000
1604	0.000	1649	0.000	1694	0.000	1739	0.000	1784	0.000	1829	0.000
1605	0.000	1650	0.000	1695	0.000	1740	0.000	1785	0.000	1830	0.000
1606	0.000	1651	0.000	1696	0.000	1741	0.000	1786	0.000	1831	0.000
1607	0.000	1652	0.000	1697	0.000	1742	0.000	1787	0.000	1832	0.000
1608	0.000	1653	0.000	1698	0.000	1743	0.000	1788	0.000	1833	0.000
1609	0.000	1654	0.000	1699	0.000	1744	0.000	1789	0.000	1834	0.000
1610	0.000	1655	0.000	1700	0.000	1745	0.000	1790	0.000	1835	0.000
1611	0.000	1656	0.000	1701	0.000	1746	0.000	1791	0.000	1836	0.000
1612	0.000	1657	0.000	1702	0.000	1747	0.000	1792	0.000	1837	0.000
1613	0.000	1658	0.000	1703	0.000	1748	0.000	1793	0.000	1838	0.000
1614	0.000	1659	0.000	1704	0.000	1749	0.000	1794	0.000	1839	0.000
1615	0.000	1660	0.000	1705	0.000	1750	0.000	1795	0.000	1840	0.000
1616	0.000	1661	0.000	1706	0.000	1751	0.000	1796	0.000	1841	0.000
1617	0.000	1662	0.000	1707	0.000	1752	0.000	1797	0.000	1842	0.000
1618	0.000	1663	0.000	1708	0.000	1753	0.000	1798	0.000	1843	0.000
1619	0.000	1664	0.000	1709	0.000	1754	0.000	1799	0.000	1844	0.000
1620	0.000	1665	0.000	1710	0.000	1755	0.000	1800	0.000	1845	0.000
1621	0.000	1666	0.000	1711	0.000	1756	0.000	1801	0.000	1846	0.000
1622	0.000	1667	0.000	1712	0.000	1757	0.000	1802	0.000	1847	0.000
1623	0.000	1668	0.000	1713	0.000	1758	0.000	1803	0.000	1848	0.000
1624	0.000	1669	0.000	1714	0.000	1759	0.000	1804	0.000	1849	0.000
1625	0.000	1670	0.000	1715	0.000	1760	0.000	1805	0.000	1850	0.000
1626	0.000	1671	0.000	1716	0.000	1761	0.000	1806	0.000	1851	0.000
1627	0.000	1672	0.000	1717	0.000	1762	0.000	1807	0.000	1852	0.000
1628	0.000	1673	0.000	1718	0.000	1763	0.000	1808	0.000	1853	0.000
1629	0.000	1674	0.000	1719	0.000	1764	0.000	1809	0.000	1854	0.000
1630	0.000	1675	0.000	1720	0.000	1765	0.000	1810	0.000	1855	0.000
1631	0.000	1676	0.000	1721	0.000	1766	0.000	1811	0.000	1856	0.000
1632	0.000	1677	0.000	1722	0.000	1767	0.000	1812	0.000	1857	0.000
1633	0.000	1678	0.000	1723	0.000	1768	0.000	1813	0.000	1858	0.000
1634	0.000	1679	0.000	1724	0.000	1769	0.000	1814	0.000	1859	0.000
1635	0.000	1680	0.000	1725	0.000	1770	0.000	1815	0.000	1860	0.000
1636	0.000	1681	0.000	1726	0.000	1771	0.000	1816	0.000	1861	0.000
1637	0.000	1682	0.000	1727	0.000	1772	0.000	1817	0.000	1862	0.000
1638	0.000	1683	0.000	1728	0.000	1773	0.000	1818	0.000	1863	0.000
1639	0.000	1684	0.000	1729	0.000	1774	0.000	1819	0.000	1864	0.000
1640	0.000	1685	0.000	1730	0.000	1775	0.000	1820	0.000	1865	0.000
1641	0.000	1686	0.000	1731	0.000	1776	0.000	1821	0.000	1866	0.000
1642	0.000	1687	0.000	1732	0.000	1777	0.000	1822	0.000	1867	0.000
1643	0.000	1688	0.000	1733	0.000	1778	0.000	1823	0.000	1868	0.000
1644	0.000	1689	0.000	1734	0.000	1779	0.000	1824	0.000	1869	0.000
1645	0.000	1690	0.000	1735	0.000	1780	0.000	1825	0.000	1870	0.000
1646	0.000	1691	0.000	1736	0.000	1781	0.000	1826	0.000	1871	0.000
1647	0.000	1692	0.000	1737	0.000	1782	0.000	1827	0.000	1872	0.000
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1873	0.000	1918	0.000	1963	0.000	2008	0.000	2053	0.000	2098	0.000
1874	0.000	1919	0.000	1964	0.000	2009	0.000	2054	0.000	2099	0.000
1875	0.000	1920	0.000	1965	0.000	2010	0.000	2055	0.000	2100	0.000
1876	0.000	1921	0.000	1966	0.000	2011	0.000	2056	0.000	2101	0.000
1877	0.000	1922	0.000	1967	0.000	2012	0.000	2057	0.000	2102	0.000
1878	0.000	1923	0.000	1968	0.000	2013	0.000	2058	0.000	2103	0.000
1879	0.000	1924	0.000	1969	0.000	2014	0.000	2059	0.000	2104	0.000
1880	0.000	1925	0.000	1970	0.000	2015	0.000	2060	0.000	2105	0.000
1881	0.000	1926	0.000	1971	0.000	2016	0.000	2061	0.000	2106	0.000
1882	0.000	1927	0.000	1972	0.000	2017	0.000	2062	0.000	2107	0.000
1883	0.000	1928	0.000	1973	0.000	2018	0.000	2063	0.000	2108	0.000
1884	0.000	1929	0.000	1974	0.000	2019	0.000	2064	0.000	2109	0.000
1885	0.000	1930	0.000	1975	0.000	2020	0.000	2065	0.000	2110	0.000
1886	0.000	1931	0.000	1976	0.000	2021	0.000	2066	0.000	2111	0.000
1887	0.000	1932	0.000	1977	0.000	2022	0.000	2067	0.000	2112	0.000
1888	0.000	1933	0.000	1978	0.000	2023	0.000	2068	0.000	2113	0.000
1889	0.000	1934	0.000	1979	0.000	2024	0.000	2069	0.000	2114	0.000
1890	0.000	1935	0.000	1980	0.000	2025	0.000	2070	0.000	2115	0.000
1891	0.000	1936	0.000	1981	0.000	2026	0.000	2071	0.000	2116	0.000
1892	0.000	1937	0.000	1982	0.000	2027	0.000	2072	0.000	2117	0.000
1893	0.000	1938	0.000	1983	0.000	2028	0.000	2073	0.000	2118	0.000
1894	0.000	1939	0.000	1984	0.000	2029	0.000	2074	0.000	2119	0.000
1895	0.000	1940	0.000	1985	0.000	2030	0.000	2075	0.000	2120	0.000
1896	0.000	1941	0.000	1986	0.000	2031	0.000	2076	0.000	2121	0.000
1897	0.000	1942	0.000	1987	0.000	2032	0.000	2077	0.000	2122	0.000
1898	0.000	1943	0.000	1988	0.000	2033	0.000	2078	0.000	2123	0.000
1899	0.000	1944	0.000	1989	0.000	2034	0.000	2079	0.000	2124	0.000
1900	0.000	1945	0.000	1990	0.000	2035	0.000	2080	0.000	2125	0.000
1901	0.000	1946	0.000	1991	0.000	2036	0.000	2081	0.000	2126	0.000
1902	0.000	1947	0.000	1992	0.000	2037	0.000	2082	0.000	2127	0.000
1903	0.000	1948	0.000	1993	0.000	2038	0.000	2083	0.000	2128	0.000
1904	0.000	1949	0.000	1994	0.000	2039	0.000	2084	0.000	2129	0.000
1905	0.000	1950	0.000	1995	0.000	2040	0.000	2085	0.000	2130	0.000
1906	0.000	1951	0.000	1996	0.000	2041	0.000	2086	0.000	2131	0.000
1907	0.000	1952	0.000	1997	0.000	2042	0.000	2087	0.000	2132	0.000
1908	0.000	1953	0.000	1998	0.000	2043	0.000	2088	0.000	2133	0.000
1909	0.000	1954	0.000	1999	0.000	2044	0.000	2089	0.000	2134	0.000
1910	0.000	1955	0.000	2000	0.000	2045	0.000	2090	0.000	2135	0.000
1911	0.000	1956	0.000	2001	0.000	2046	0.000	2091	0.000	2136	0.000
1912	0.000	1957	0.000	2002	0.000	2047	0.000	2092	0.000	2137	0.000
1913	0.000	1958	0.000	2003	0.000	2048	0.000	2093	0.000	2138	0.000
1914	0.000	1959	0.000	2004	0.000	2049	0.000	2094	0.000	2139	0.000
1915	0.000	1960	0.000	2005	0.000	2050	0.000	2095	0.000	2140	0.000
1916	0.000	1961	0.000	2006	0.000	2051	0.000	2096	0.000	2141	0.000
1917	0.000	1962	0.000	2007	0.000	2052	0.000	2097	0.000	2142	0.000
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Booths Park Chelford Road

Earl Shilton
LP4 Atten.
M100-720 & M10-720



Date	30/11/2020
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Designed by AS

File LP 4 M100 + 40% CC + 144...

Checked by IW

Innovyze

Source Control 2018.1.1

Rainfall Profile

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
2143	0.000	2188	1.369	2233	1.682	2278	1.706	2323	2.170	2368	3.601
2144	0.000	2189	1.369	2234	1.682	2279	1.706	2324	2.284	2369	3.601
2145	0.000	2190	1.369	2235	1.682	2280	1.718	2325	2.284	2370	3.601
2146	0.000	2191	1.369	2236	1.682	2281	1.736	2326	2.284	2371	3.601
2147	0.000	2192	1.369	2237	1.683	2282	1.736	2327	2.284	2372	3.601
2148	0.000	2193	1.369	2238	1.683	2283	1.736	2328	2.284	2373	3.60
2149	0.000	2194	1.459	2239	1.683	2284	1.736	2329	2.284	2374	3.835
2150	0.000	2195	1.482	2240	1.683	2285	1.736	2330	2.284	2375	3.894
2151	0.124	2196	1.482	2241	1.683	2286	1.736	2331	2.448	2376	3.894
2152	0.124	2197	1.482	2242	1.683	2287	1.745	2332	2.448	2377	3.894
2153	0.124	2198	1.482	2243	1.683	2288	1.781	2333	2.448	2378	3.894
2154	0.124	2199	1.482	2244	1.682	2289	1.781	2334	2.448	2379	3.894
2155	0.124	2200	1.482	2245	1.680	2290	1.781	2335	2.448	2380	3.894
2156	0.124	2201	1.531	2246	1.680	2291	1.781	2336	2.448	2381	4.081
2157	0.124	2202	1.564	2247	1.680	2292	1.781	2337	2.448	2382	4.205
2158	0.413	2203	1.564	2248	1.680	2293	1.781	2338	2.597	2383	4.205
2159	0.485	2204	1.564	2249	1.680	2294	1.781	2339	2.634	2384	4.205
2160	0.485	2205	1.564	2250	1.680	2295	1.843	2340	2.634	2385	4.205
2161	0.485	2206	1.564	2251	1.680	2296	1.843	2341	2.634	2386	4.205
2162	0.485	2207	1.564	2252	1.678	2297	1.843	2342	2.634	2387	4.205
2163	0.485	2208	1.586	2253	1.678	2298	1.843	2343	2.634	2388	4.337
2164	0.485	2209	1.620	2254	1.678	2299	1.843	2344	2.634	2389	4.533
2165	0.663	2210	1.620	2255	1.678	2300	1.843	2345	2.759	2390	4.533
2166	0.783	2211	1.620	2256	1.678	2301	1.843	2346	2.843	2391	4.533
2167	0.783	2212	1.620	2257	1.678	2302	1.906	2347	2.843	2392	4.533
2168	0.783	2213	1.620	2258	1.678	2303	1.922	2348	2.843	2393	4.533
2169	0.783	2214	1.620	2259	1.679	2304	1.922	2349	2.843	2394	4.533
2170	0.783	2215	1.627	2260	1.679	2305	1.922	2350	2.843	2395	4.602
2171	0.783	2216	1.655	2261	1.679	2306	1.922	2351	2.843	2396	4.876
2172	0.880	2217	1.655	2262	1.679	2307	1.922	2352	2.936	2397	4.876
2173	1.025	2218	1.655	2263	1.679	2308	1.922	2353	3.074	2398	4.876
2174	1.025	2219	1.655	2264	1.679	2309	1.982	2354	3.074	2399	4.876
2175	1.025	2220	1.655	2265	1.679	2310	2.022	2355	3.074	2400	4.876
2176	1.025	2221	1.655	2266	1.686	2311	2.022	2356	3.074	2401	4.876
2177	1.025	2222	1.655	2267	1.688	2312	2.022	2357	3.074	2402	4.876
2178	1.025	2223	1.675	2268	1.688	2313	2.022	2358	3.074	2403	5.231
2179	1.064	2224	1.675	2269	1.688	2314	2.022	2359	3.125	2404	5.231
2180	1.218	2225	1.675	2270	1.688	2315	2.022	2360	3.327	2405	5.231
2181	1.218	2226	1.675	2271	1.688	2316	2.070	2361	3.327	2406	5.231
2182	1.218	2227	1.675	2272	1.688	2317	2.142	2362	3.327	2407	5.231
2183	1.218	2228	1.675	2273	1.698	2318	2.142	2363	3.327	2408	5.231
2184	1.218	2229	1.675	2274	1.706	2319	2.142	2364	3.327	2409	5.231
2185	1.218	2230	1.681	2275	1.706	2320	2.142	2365	3.327	2410	5.522
2186	1.218	2231	1.682	2276	1.706	2321	2.142	2366	3.327	2411	5.595
2187	1.369	2232	1.682	2277	1.706	2322	2.142	2367	3.601	2412	5.595

AMEC Foster Wheeler Group Ltd										Page 11	
Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP4 Atten. M100-720 & M10-720						
Date 30/11/2020					Designed by AS						
File LP_4_M100 + 40% CC + 144...					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
2413	5.595	2458	7.809	2503	9.443	2548	8.464	2593	6.342	2638	4.205
2414	5.595	2459	7.809	2504	9.548	2549	8.464	2594	6.342	2639	4.205
2415	5.595	2460	7.944	2505	9.548	2550	8.464	2595	6.342	2640	4.081
2416	5.595	2461	8.147	2506	9.548	2551	8.464	2596	6.342	2641	3.894
2417	5.818	2462	8.147	2507	9.548	2552	8.464	2597	6.117	2642	3.894
2418	5.967	2463	8.147	2508	9.548	2553	8.464	2598	5.967	2643	3.894
2419	5.967	2464	8.147	2509	9.548	2554	8.210	2599	5.967	2644	3.894
2420	5.967	2465	8.147	2510	9.548	2555	8.147	2600	5.967	2645	3.894
2421	5.967	2466	8.147	2511	9.548	2556	8.147	2601	5.967	2646	3.894
2422	5.967	2467	8.210	2512	9.548	2557	8.147	2602	5.967	2647	3.835
2423	5.967	2468	8.464	2513	9.548	2558	8.147	2603	5.967	2648	3.601
2424	6.117	2469	8.464	2514	9.548	2559	8.147	2604	5.818	2649	3.601
2425	6.342	2470	8.464	2515	9.548	2560	8.147	2605	5.595	2650	3.601
2426	6.342	2471	8.464	2516	9.548	2561	7.944	2606	5.595	2651	3.601
2427	6.342	2472	8.464	2517	9.548	2562	7.809	2607	5.595	2652	3.601
2428	6.342	2473	8.464	2518	9.443	2563	7.809	2608	5.595	2653	3.601
2429	6.342	2474	8.464	2519	9.417	2564	7.809	2609	5.595	2654	3.601
2430	6.342	2475	8.755	2520	9.417	2565	7.809	2610	5.595	2655	3.327
2431	6.417	2476	8.755	2521	9.417	2566	7.809	2611	5.522	2656	3.327
2432	6.718	2477	8.755	2522	9.417	2567	7.809	2612	5.231	2657	3.327
2433	6.718	2478	8.755	2523	9.417	2568	7.668	2613	5.231	2658	3.327
2434	6.718	2479	8.755	2524	9.417	2569	7.456	2614	5.231	2659	3.327
2435	6.718	2480	8.755	2525	9.309	2570	7.456	2615	5.231	2660	3.327
2436	6.718	2481	8.755	2526	9.237	2571	7.456	2616	5.231	2661	3.327
2437	6.718	2482	8.963	2527	9.237	2572	7.456	2617	5.231	2662	3.125
2438	6.718	2483	9.015	2528	9.237	2573	7.456	2618	5.231	2663	3.074
2439	7.090	2484	9.015	2529	9.237	2574	7.456	2619	4.876	2664	3.074
2440	7.090	2485	9.015	2530	9.237	2575	7.383	2620	4.876	2665	3.074
2441	7.090	2486	9.015	2531	9.237	2576	7.090	2621	4.876	2666	3.074
2442	7.090	2487	9.015	2532	9.148	2577	7.090	2622	4.876	2667	3.074
2443	7.090	2488	9.015	2533	9.015	2578	7.090	2623	4.876	2668	3.074
2444	7.090	2489	9.148	2534	9.015	2579	7.090	2624	4.876	2669	2.936
2445	7.090	2490	9.237	2535	9.015	2580	7.090	2625	4.876	2670	2.843
2446	7.383	2491	9.237	2536	9.015	2581	7.090	2626	4.602	2671	2.843
2447	7.456	2492	9.237	2537	9.015	2582	7.090	2627	4.533	2672	2.843
2448	7.456	2493	9.237	2538	9.015	2583	6.718	2628	4.533	2673	2.843
2449	7.456	2494	9.237	2539	8.963	2584	6.718	2629	4.533	2674	2.843
2450	7.456	2495	9.237	2540	8.755	2585	6.718	2630	4.533	2675	2.843
2451	7.456	2496	9.309	2541	8.755	2586	6.718	2631	4.533	2676	2.759
2452	7.456	2497	9.417	2542	8.755	2587	6.718	2632	4.533	2677	2.634
2453	7.668	2498	9.417	2543	8.755	2588	6.718	2633	4.337	2678	2.634
2454	7.809	2499	9.417	2544	8.755	2589	6.718	2634	4.205	2679	2.634
2455	7.809	2500	9.417	2545	8.755	2590	6.417	2635	4.205	2680	2.634
2456	7.809	2501	9.417	2546	8.755	2591	6.342	2636	4.205	2681	2.634
2457	7.809	2502	9.417	2547	8.464	2592	6.342	2637	4.205	2682	2.634
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AMEC Foster Wheeler Group Ltd		Page 13
Booths Park Chelford Road Knutsford Cheshire WA16 8QZ	Earl Shilton LP4 Atten. M100-720 & M10-720	
Date 30/11/2020 File LP_4_M100 + 40% CC + 144...	Designed by AS Checked by IW	
Innovyze	Source Control 2018.1.1	

Model Details

Storage is Online Cover Level (m) 100.000

Infiltration Basin Structure

Invert Level (m) 99.000 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 1.00
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	2154.2	0.400	2434.1	0.800	2731.1
0.200	2292.1	0.600	2580.5	1.000	2886.0

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0176-1530-1000-1530
Design Head (m) 1.000
Design Flow (l/s) 15.3
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 176
Invert Level (m) 99.000
Minimum Outlet Pipe Diameter (mm) 225
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	15.3	Kick-Flo®	0.704	12.9
Flush-Flo™	0.324	15.3	Mean Flow over Head Range	-	13.0

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	6.2	1.200	16.7	3.000	25.8	7.000	38.8
0.200	14.7	1.400	17.9	3.500	27.8	7.500	40.1
0.300	15.2	1.600	19.1	4.000	29.6	8.000	41.4
0.400	15.1	1.800	20.2	4.500	31.4	8.500	42.6
0.500	14.8	2.000	21.2	5.000	33.0	9.000	43.8
0.600	14.3	2.200	22.2	5.500	34.5	9.500	45.0
0.800	13.8	2.400	23.2	6.000	36.0		
1.000	15.3	2.600	24.1	6.500	37.5		

AMEC Foster Wheeler Group Ltd						Page 1
Booths Park Chelford Road Knutsford Cheshire WA16 8QZ			Earl Shilton LP 5 Atten. Full Range of Storms			
Date 30/11/2020 File LP_5_M100 + 40% CC_V3.SRCX			Designed by AS Checked by IW			
Innovyze			Source Control 2018.1.1			
Summary of Results for 100 year Return Period (+40%)						
Half Drain Time : 1404 minutes.						
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³) Status
15 min Summer	99.412	0.412	0.0	42.6	42.6	2787.4 O K
30 min Summer	99.484	0.484	0.0	42.6	42.6	3295.4 O K
60 min Summer	99.565	0.565	0.0	42.6	42.6	3878.5 O K
120 min Summer	99.656	0.656	0.0	42.6	42.6	4533.5 O K
180 min Summer	99.711	0.711	0.0	42.6	42.6	4939.5 O K
240 min Summer	99.750	0.750	0.0	42.6	42.6	5232.2 O K
360 min Summer	99.805	0.805	0.0	42.6	42.6	5637.1 O K
480 min Summer	99.839	0.839	0.0	42.6	42.6	5896.8 O K
600 min Summer	99.862	0.862	0.0	42.6	42.6	6071.3 O K
720 min Summer	99.878	0.878	0.0	42.6	42.6	6189.0 O K
960 min Summer	99.886	0.886	0.0	42.6	42.6	6255.8 O K
1440 min Summer	99.881	0.881	0.0	42.6	42.6	6215.8 O K
2160 min Summer	99.864	0.864	0.0	42.6	42.6	6085.4 O K
2880 min Summer	99.840	0.840	0.0	42.6	42.6	5906.3 O K
4320 min Summer	99.739	0.739	0.0	42.6	42.6	5148.4 O K
5760 min Summer	99.644	0.644	0.0	42.6	42.6	4450.5 O K
7200 min Summer	99.562	0.562	0.0	42.6	42.6	3855.7 O K
8640 min Summer	99.491	0.491	0.0	42.6	42.6	3348.0 O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)		
15 min Summer	175.469	0.0	2216.1	25		
30 min Summer	104.219	0.0	2634.6	39		
60 min Summer	61.900	0.0	3634.8	68		
120 min Summer	36.765	0.0	4323.9	128		
180 min Summer	27.107	0.0	4770.5	188		
240 min Summer	21.836	0.0	5102.3	246		
360 min Summer	16.100	0.0	5577.2	366		
480 min Summer	12.970	0.0	5901.9	484		
600 min Summer	10.967	0.0	6123.4	604		
720 min Summer	9.563	0.0	6259.4	722		
960 min Summer	7.641	0.0	6287.4	960		
1440 min Summer	5.570	0.0	5936.8	1232		
2160 min Summer	4.061	0.0	9058.7	1604		
2880 min Summer	3.245	0.0	9578.6	2016		
4320 min Summer	2.274	0.0	9853.7	2812		
5760 min Summer	1.767	0.0	10796.5	3576		
7200 min Summer	1.453	0.0	11077.9	4328		
8640 min Summer	1.239	0.0	11288.0	5024		
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AMEC Foster Wheeler Group Ltd		Page 4																																																										
Booths Park Chelford Road Knutsford Cheshire WA16 8QZ	Earl Shilton LP 5 Atten. Full Range of Storms																																																											
Date 30/11/2020 File LP_5_M100 + 40% CC_V3.SRCX	Designed by AS Checked by IW																																																											
Innovyze Source Control 2018.1.1																																																												
Rainfall Details <table><tr><td>Rainfall Model</td><td>FEH</td></tr><tr><td>Return Period (years)</td><td>100</td></tr><tr><td>FEH Rainfall Version</td><td>1999</td></tr><tr><td>Site Location</td><td>GB 447750 297300 SP 47750 97300</td></tr><tr><td>C (1km)</td><td>-0.026</td></tr><tr><td>D1 (1km)</td><td>0.368</td></tr><tr><td>D2 (1km)</td><td>0.340</td></tr><tr><td>D3 (1km)</td><td>0.243</td></tr><tr><td>E (1km)</td><td>0.305</td></tr><tr><td>F (1km)</td><td>2.386</td></tr><tr><td>Summer Storms</td><td>Yes</td></tr><tr><td>Winter Storms</td><td>Yes</td></tr><tr><td>Cv (Summer)</td><td>0.750</td></tr><tr><td>Cv (Winter)</td><td>0.840</td></tr><tr><td>Shortest Storm (mins)</td><td>15</td></tr><tr><td>Longest Storm (mins)</td><td>10080</td></tr><tr><td>Climate Change %</td><td>+40</td></tr></table> Time Area Diagram Total Area (ha) 8.580 <table><thead><tr><th>Time (mins)</th><th>Area</th><th>Time (mins)</th><th>Area</th><th>Time (mins)</th><th>Area</th></tr><tr><th>From: To: (ha)</th><th></th><th>From: To: (ha)</th><th></th><th>From: To: (ha)</th><th></th></tr></thead><tbody><tr><td>0 2 1.716</td><td></td><td>4 6 1.716</td><td></td><td>8 10 1.716</td><td></td></tr><tr><td>2 4 1.716</td><td></td><td>6 8 1.716</td><td></td><td></td><td></td></tr></tbody></table>			Rainfall Model	FEH	Return Period (years)	100	FEH Rainfall Version	1999	Site Location	GB 447750 297300 SP 47750 97300	C (1km)	-0.026	D1 (1km)	0.368	D2 (1km)	0.340	D3 (1km)	0.243	E (1km)	0.305	F (1km)	2.386	Summer Storms	Yes	Winter Storms	Yes	Cv (Summer)	0.750	Cv (Winter)	0.840	Shortest Storm (mins)	15	Longest Storm (mins)	10080	Climate Change %	+40	Time (mins)	Area	Time (mins)	Area	Time (mins)	Area	From: To: (ha)		From: To: (ha)		From: To: (ha)		0 2 1.716		4 6 1.716		8 10 1.716		2 4 1.716		6 8 1.716			
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Climate Change %	+40																																																											
Time (mins)	Area	Time (mins)	Area	Time (mins)	Area																																																							
From: To: (ha)		From: To: (ha)		From: To: (ha)																																																								
0 2 1.716		4 6 1.716		8 10 1.716																																																								
2 4 1.716		6 8 1.716																																																										
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AMEC Foster Wheeler Group Ltd		Page 5
Booths Park Chelford Road Knutsford Cheshire WA16 8QZ	Earl Shilton LP 5 Atten. Full Range of Storms	
Date 30/11/2020 File LP_5_M100 + 40% CC_V3.SRCX	Designed by AS Checked by IW	
Innovyze	Source Control 2018.1.1	

Model Details

Storage is Online Cover Level (m) 100.000

Infiltration Basin Structure

Invert Level (m) 99.000 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 1.00
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	6518.2	0.400	7000.6	0.800	7500.1
0.200	6757.3	0.600	7248.2	1.000	7756.4

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0275-4260-1000-4260
Design Head (m) 1.000
Design Flow (l/s) 42.6
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 275
Invert Level (m) 99.000
Minimum Outlet Pipe Diameter (mm) 300
Suggested Manhole Diameter (mm) 1800

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	42.6	Kick-Flo®	0.770	37.6
Flush-Flo™	0.422	42.6	Mean Flow over Head Range	-	34.5

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	8.7	1.200	46.5	3.000	72.4	7.000	109.4
0.200	28.3	1.400	50.1	3.500	78.1	7.500	113.2
0.300	41.6	1.600	53.4	4.000	83.3	8.000	116.8
0.400	42.5	1.800	56.6	4.500	88.2	8.500	120.3
0.500	42.3	2.000	59.5	5.000	92.9	9.000	123.7
0.600	41.4	2.200	62.3	5.500	97.3	9.500	127.1
0.800	38.3	2.400	65.0	6.000	101.5		
1.000	42.6	2.600	67.6	6.500	105.5		

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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ			Earl Shilton LP6 Atten M100-960				
Date 30/11/2020 File LP_6_M100 + 40% CC V2.SRCX			Designed by AS Checked by IW				
Innovyze			Source Control 2018.1.1				
<u>Summary of Results for 100 year Return Period (+40%)</u>							
Half Drain Time : 1058 minutes.							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	98.407	0.407	0.0	34.0	34.0	1488.3	O K
30 min Summer	98.503	0.503	0.0	34.6	34.6	1841.4	O K
60 min Summer	98.618	0.618	0.0	34.8	34.8	2261.5	O K
120 min Summer	98.753	0.753	0.0	34.8	34.8	2753.2	O K
180 min Summer	98.838	0.838	0.0	34.8	34.8	3064.0	O K
240 min Summer	98.899	0.899	0.0	34.8	34.8	3286.5	O K
360 min Summer	98.982	0.982	0.0	34.8	34.8	3590.1	O K
480 min Summer	99.037	1.037	0.0	34.8	34.8	3791.2	O K
600 min Summer	99.073	1.073	0.0	34.8	34.8	3925.9	O K
720 min Summer	99.098	1.098	0.0	34.8	34.8	4015.1	O K
960 min Summer	99.108	1.108	0.0	34.8	34.8	4052.8	O K
1440 min Summer	99.097	1.097	0.0	34.8	34.8	4010.7	O K
2160 min Summer	99.061	1.061	0.0	34.8	34.8	3882.1	O K
2880 min Summer	99.016	1.016	0.0	34.8	34.8	3715.5	O K
4320 min Summer	98.867	0.867	0.0	34.8	34.8	3171.6	O K
5760 min Summer	98.739	0.739	0.0	34.8	34.8	2702.1	O K
7200 min Summer	98.630	0.630	0.0	34.8	34.8	2302.8	O K
8640 min Summer	98.539	0.539	0.0	34.7	34.7	1969.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
15 min Summer	175.469	0.0	1585.8	153			
30 min Summer	104.219	0.0	1912.8	165			
60 min Summer	61.900	0.0	2534.3	184			
120 min Summer	36.765	0.0	3048.0	222			
180 min Summer	27.107	0.0	3392.5	262			
240 min Summer	21.836	0.0	3657.7	306			
360 min Summer	16.100	0.0	4059.9	396			
480 min Summer	12.970	0.0	4361.3	490			
600 min Summer	10.967	0.0	4597.4	606			
720 min Summer	9.563	0.0	4783.1	724			
960 min Summer	7.641	0.0	4990.2	960			
1440 min Summer	5.570	0.0	4958.4	1198			
2160 min Summer	4.061	0.0	6615.1	1580			
2880 min Summer	3.245	0.0	7065.5	1980			
4320 min Summer	2.274	0.0	7455.7	2768			
5760 min Summer	1.767	0.0	8074.9	3528			
7200 min Summer	1.453	0.0	8345.6	4264			
8640 min Summer	1.239	0.0	8566.8	5008			
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Booths Park
Chelford Road
Knutsford Cheshire WA16 8QZ

Date 30/11/2020
File LP_6_M100 + 40% CC V2.SRCX

Innovyze

Earl Shilton
LP6 Atten
M100-960

Designed by AS
Checked by IW

Source Control 2018.1.1

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Summary of Results for 100 year Return Period (+40%)							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
10080 min Summer	98.464	0.464	0.0	34.4	34.4	1697.1	O K
15 min Winter	98.439	0.439	0.0	34.3	34.3	1605.9	O K
30 min Winter	98.542	0.542	0.0	34.7	34.7	1982.8	O K
60 min Winter	98.664	0.664	0.0	34.8	34.8	2429.4	O K
120 min Winter	98.807	0.807	0.0	34.8	34.8	2950.1	O K
180 min Winter	98.897	0.897	0.0	34.8	34.8	3279.9	O K
240 min Winter	98.962	0.962	0.0	34.8	34.8	3518.1	O K
360 min Winter	99.052	1.052	0.0	34.8	34.8	3846.8	O K
480 min Winter	99.112	1.112	0.0	34.8	34.8	4065.5	O K
600 min Winter	99.154	1.154	0.0	34.8	34.8	4219.4	O K
720 min Winter	99.183	1.183	0.0	34.8	34.8	4326.0	O K
960 min Winter	99.963	1.963	0.0	34.8	34.8	4390.3	O K
1440 min Winter	99.184	1.184	0.0	34.8	34.8	4329.7	O K
2160 min Winter	99.126	1.126	0.0	34.8	34.8	4116.7	O K
2880 min Winter	99.054	1.054	0.0	34.8	34.8	3856.1	O K
4320 min Winter	98.840	0.840	0.0	34.8	34.8	3074.1	O K
5760 min Winter	98.658	0.658	0.0	34.8	34.8	2408.1	O K
7200 min Winter	98.513	0.513	0.0	34.7	34.7	1877.6	O K
8640 min Winter	98.404	0.404	0.0	33.9	33.9	1478.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
10080 min Summer	1.082	0.0	8735.6	5664			
15 min Winter	175.469	0.0	1696.6	153			
30 min Winter	104.219	0.0	2038.6	164			
60 min Winter	61.900	0.0	2702.8	184			
120 min Winter	36.765	0.0	3246.2	222			
180 min Winter	27.107	0.0	3609.4	264			
240 min Winter	21.836	0.0	3888.0	308			
360 min Winter	16.100	0.0	4306.9	402			
480 min Winter	12.970	0.0	4614.9	496			
600 min Winter	10.967	0.0	4847.3	602			
720 min Winter	9.563	0.0	5016.1	716			
960 min Winter	7.641	0.0	5147.7	940			
1440 min Winter	5.570	0.0	4977.0	1356			
2160 min Winter	4.061	0.0	7016.2	1692			
2880 min Winter	3.245	0.0	7490.7	2136			
4320 min Winter	2.274	0.0	7899.2	2968			
5760 min Winter	1.767	0.0	8548.3	3744			
7200 min Winter	1.453	0.0	8832.5	4448			
8640 min Winter	1.239	0.0	9065.7	5104			

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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ	Earl Shilton LP6 Atten M100-960	
Date 30/11/2020 File LP_6_M100 + 40% CC V2.SRCX	Designed by AS Checked by IW	
Innovyze Source Control 2018.1.1		

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	1999
Site Location	GB 447750 297300 SP 47750 97300
C (1km)	-0.026
D1 (1km)	0.368
D2 (1km)	0.340
D3 (1km)	0.243
E (1km)	0.305
F (1km)	2.386
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 3.100

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From:	To: (ha)	From:	To: (ha)	From:	To: (ha)
0	2 0.620	4	6 0.620	8	10 0.620
2	4 0.620	6	8 0.620		

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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ	Earl Shilton LP6 Atten M100-960	
Date 30/11/2020 File LP_6_M100 + 40% CC V2.SRCX	Designed by AS Checked by IW	
Innovyze	Source Control 2018.1.1	

Model Details

Storage is Online Cover Level (m) 100.000

Infiltration Basin Structure

Invert Level (m) 98.000 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 1.00
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	3657.6	1.200	3657.6	1.201	0.0	2.000	0.0

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0238-3480-2000-3480
Design Head (m) 2.000
Design Flow (l/s) 34.8
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 238
Invert Level (m) 98.000
Minimum Outlet Pipe Diameter (mm) 300
Suggested Manhole Diameter (mm) 2100

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.000	34.8	Kick-Flo®	1.284	28.1
Flush-Flo™	0.591	34.8	Mean Flow over Head Range	-	30.1

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	7.9	1.200	30.3	3.000	42.2	7.000	63.7
0.200	24.1	1.400	29.3	3.500	45.5	7.500	65.8
0.300	32.2	1.600	31.2	4.000	48.5	8.000	67.9
0.400	33.9	1.800	33.0	4.500	51.4	8.500	70.0
0.500	34.6	2.000	34.8	5.000	54.1	9.000	71.9
0.600	34.8	2.200	36.4	5.500	56.6	9.500	73.8
0.800	34.3	2.400	37.9	6.000	59.1		
1.000	33.0	2.600	39.4	6.500	61.4		



Micro
Drainage

AMEC Foster Wheeler Group Ltd								Page 2			
Booths Park Chelford Road Knutsford Cheshire WA16 8QZ				Earl Shilton LP7 Atten. M100_720 & M10_720							
Date 30/11/2020				Designed by AS							
File LP_7_M100 + 40% CC_V2.SRCX				Checked by IW							
Innovyze				Source Control 2018.1.1							
<u>Rainfall Profile</u>											
Cv 0.750 Climate Change % +0											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1	0.290	43	3.198	85	3.931	127	3.986	169	5.004	211	7.773
2	0.290	44	3.409	86	3.931	128	3.986	170	5.004	212	7.773
3	0.290	45	3.462	87	3.931	129	3.986	171	5.004	213	7.773
4	0.290	46	3.462	88	3.933	130	4.014	172	5.004	214	7.773
5	0.290	47	3.462	89	3.933	131	4.056	173	5.071	215	7.773
6	0.290	48	3.462	90	3.933	132	4.056	174	5.335	216	7.773
7	0.290	49	3.462	91	3.933	133	4.056	175	5.335	217	8.413
8	0.965	50	3.462	92	3.933	134	4.056	176	5.335	218	8.413
9	1.133	51	3.577	93	3.933	135	4.056	177	5.335	219	8.413
10	1.133	52	3.654	94	3.930	136	4.056	178	5.335	220	8.413
11	1.133	53	3.654	95	3.926	137	4.077	179	5.335	221	8.413
12	1.133	54	3.654	96	3.926	138	4.161	180	5.335	222	8.413
13	1.133	55	3.654	97	3.926	139	4.161	181	5.719	223	8.413
14	1.133	56	3.654	98	3.926	140	4.161	182	5.719	224	8.960
15	1.550	57	3.654	99	3.926	141	4.161	183	5.719	225	9.097
16	1.828	58	3.707	100	3.926	142	4.161	184	5.719	226	9.097
17	1.828	59	3.786	101	3.924	143	4.161	185	5.719	227	9.097
18	1.828	60	3.786	102	3.920	144	4.161	186	5.719	228	9.097
19	1.828	61	3.786	103	3.920	145	4.305	187	5.719	229	9.097
20	1.828	62	3.786	104	3.920	146	4.305	188	6.068	230	9.097
21	1.828	63	3.786	105	3.920	147	4.305	189	6.154	231	9.534
22	2.055	64	3.786	106	3.920	148	4.305	190	6.154	232	9.825
23	2.395	65	3.802	107	3.920	149	4.305	191	6.154	233	9.825
24	2.395	66	3.868	108	3.920	150	4.305	192	6.154	234	9.825
25	2.395	67	3.868	109	3.923	151	4.305	193	6.154	235	9.825
26	2.395	68	3.868	110	3.923	152	4.453	194	6.154	236	9.825
27	2.395	69	3.868	111	3.923	153	4.491	195	6.447	237	9.825
28	2.395	70	3.868	112	3.923	154	4.491	196	6.643	238	10.132
29	2.485	71	3.868	113	3.923	155	4.491	197	6.643	239	10.592
30	2.846	72	3.868	114	3.923	156	4.491	198	6.643	240	10.592
31	2.846	73	3.913	115	3.923	157	4.491	199	6.643	241	10.592
32	2.846	74	3.913	116	3.940	158	4.491	200	6.643	242	10.592
33	2.846	75	3.913	117	3.942	159	4.630	201	6.643	243	10.592
34	2.846	76	3.913	118	3.942	160	4.724	202	6.859	244	10.592
35	2.846	77	3.913	119	3.942	161	4.724	203	7.182	245	10.752
36	2.846	78	3.913	120	3.942	162	4.724	204	7.182	246	11.392
37	3.198	79	3.913	121	3.942	163	4.724	205	7.182	247	11.392
38	3.198	80	3.927	122	3.942	164	4.724	206	7.182	248	11.392
39	3.198	81	3.931	123	3.968	165	4.724	207	7.182	249	11.392
40	3.198	82	3.931	124	3.986	166	4.836	208	7.182	250	11.392
41	3.198	83	3.931	125	3.986	167	5.004	209	7.301	251	11.392
42	3.198	84	3.931	126	3.986	168	5.004	210	7.773	252	11.392
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AMEC Foster Wheeler Group Ltd										Page 3	
Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP7 Atten. M100_720 & M10_720						
Date 30/11/2020					Designed by AS						
File LP_7_M100 + 40% CC_V2.SRCX					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
253	12.222	298	17.420	343	21.582	388	21.062	433	15.695	478	10.592
254	12.222	299	17.420	344	21.582	389	20.940	434	15.695	479	10.592
255	12.222	300	17.420	345	21.582	390	20.455	435	15.695	480	10.592
256	12.222	301	17.420	346	21.750	391	20.455	436	15.695	481	10.592
257	12.222	302	17.420	347	22.002	392	20.455	437	15.695	482	10.592
258	12.222	303	17.916	348	22.002	393	20.455	438	15.695	483	10.132
259	12.222	304	18.246	349	22.002	394	20.455	439	15.695	484	9.825
260	12.902	305	18.246	350	22.002	395	20.455	440	14.994	485	9.825
261	13.073	306	18.246	351	22.002	396	20.455	441	14.819	486	9.825
262	13.073	307	18.246	352	22.002	397	19.775	442	14.819	487	9.825
263	13.073	308	18.246	353	22.063	398	19.775	443	14.819	488	9.825
264	13.073	309	18.246	354	22.308	399	19.775	444	14.819	489	9.825
265	13.073	310	18.561	355	22.308	400	19.775	445	14.819	490	9.534
266	13.073	311	19.034	356	22.308	401	19.775	446	14.819	491	9.097
267	13.594	312	19.034	357	22.308	402	19.775	447	14.293	492	9.097
268	13.941	313	19.034	358	22.308	403	19.775	448	13.941	493	9.097
269	13.941	314	19.034	359	22.308	404	19.183	449	13.941	494	9.097
270	13.941	315	19.034	360	22.308	405	19.034	450	13.941	495	9.097
271	13.941	316	19.034	361	22.308	406	19.034	451	13.941	496	9.097
272	13.941	317	19.183	362	22.308	407	19.034	452	13.941	497	8.960
273	13.941	318	19.775	363	22.308	408	19.034	453	13.941	498	8.413
274	14.293	319	19.775	364	22.308	409	19.034	454	13.594	499	8.413
275	14.818	320	19.775	365	22.308	410	19.034	455	13.073	500	8.413
276	14.818	321	19.775	366	22.308	411	18.561	456	13.073	501	8.413
277	14.818	322	19.775	367	22.308	412	18.246	457	13.073	502	8.413
278	14.818	323	19.775	368	22.063	413	18.246	458	13.073	503	8.413
279	14.818	324	19.775	369	22.002	414	18.246	459	13.073	504	8.413
280	14.818	325	20.455	370	22.002	415	18.246	460	13.073	505	7.773
281	14.994	326	20.455	371	22.002	416	18.246	461	12.902	506	7.773
282	15.697	327	20.455	372	22.002	417	18.246	462	12.222	507	7.773
283	15.697	328	20.455	373	22.002	418	17.916	463	12.222	508	7.773
284	15.697	329	20.455	374	22.002	419	17.420	464	12.222	509	7.773
285	15.697	330	20.455	375	21.750	420	17.420	465	12.222	510	7.773
286	15.697	331	20.455	376	21.582	421	17.420	466	12.222	511	7.773
287	15.697	332	20.940	377	21.582	422	17.420	467	12.222	512	7.301
288	15.697	333	21.062	378	21.582	423	17.420	468	12.222	513	7.182
289	16.566	334	21.062	379	21.582	424	17.420	469	11.392	514	7.182
290	16.566	335	21.062	380	21.582	425	17.249	470	11.392	515	7.182
291	16.566	336	21.062	381	21.582	426	16.566	471	11.392	516	7.182
292	16.566	337	21.062	382	21.374	427	16.566	472	11.392	517	7.182
293	16.566	338	21.062	383	21.062	428	16.566	473	11.392	518	7.182
294	16.566	339	21.374	384	21.062	429	16.566	474	11.392	519	6.859
295	16.566	340	21.582	385	21.062	430	16.566	475	11.392	520	6.643
296	17.249	341	21.582	386	21.062	431	16.566	476	10.752	521	6.643
297	17.420	342	21.582	387	21.062	432	16.566	477	10.592	522	6.643
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP7 Atten. M100_720 & M10_720						
Date 30/11/2020					Designed by AS						
File LP_7_M100 + 40% CC_V2.SRCX					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
523	6.643	568	4.491	613	3.920	658	3.786	703	1.828	748	0.000
524	6.643	569	4.453	614	3.920	659	3.786	704	1.828	749	0.000
525	6.643	570	4.305	615	3.920	660	3.786	705	1.828	750	0.000
526	6.447	571	4.305	616	3.920	661	3.786	706	1.550	751	0.000
527	6.154	572	4.305	617	3.920	662	3.786	707	1.133	752	0.000
528	6.154	573	4.305	618	3.920	663	3.707	708	1.133	753	0.000
529	6.154	574	4.305	619	3.920	664	3.654	709	1.133	754	0.000
530	6.154	575	4.305	620	3.924	665	3.654	710	1.133	755	0.000
531	6.154	576	4.305	621	3.926	666	3.654	711	1.133	756	0.000
532	6.154	577	4.161	622	3.926	667	3.654	712	1.133	757	0.000
533	6.068	578	4.161	623	3.926	668	3.654	713	0.963	758	0.000
534	5.719	579	4.161	624	3.926	669	3.654	714	0.290	759	0.000
535	5.719	580	4.161	625	3.926	670	3.577	715	0.290	760	0.000
536	5.719	581	4.161	626	3.926	671	3.462	716	0.290	761	0.000
537	5.719	582	4.161	627	3.930	672	3.462	717	0.290	762	0.000
538	5.719	583	4.161	628	3.933	673	3.462	718	0.290	763	0.000
539	5.719	584	4.077	629	3.933	674	3.462	719	0.290	764	0.000
540	5.719	585	4.056	630	3.933	675	3.462	720	0.290	765	0.000
541	5.335	586	4.056	631	3.933	676	3.462	721	0.000	766	0.000
542	5.335	587	4.056	632	3.933	677	3.409	722	0.000	767	0.000
543	5.335	588	4.056	633	3.933	678	3.198	723	0.000	768	0.000
544	5.335	589	4.056	634	3.931	679	3.198	724	0.000	769	0.000
545	5.335	590	4.056	635	3.931	680	3.198	725	0.000	770	0.000
546	5.335	591	4.014	636	3.931	681	3.198	726	0.000	771	0.000
547	5.335	592	3.986	637	3.931	682	3.198	727	0.000	772	0.000
548	5.071	593	3.986	638	3.931	683	3.198	728	0.000	773	0.000
549	5.004	594	3.986	639	3.931	684	3.198	729	0.000	774	0.000
550	5.004	595	3.986	640	3.931	685	2.846	730	0.000	775	0.000
551	5.004	596	3.986	641	3.927	686	2.846	731	0.000	776	0.000
552	5.004	597	3.986	642	3.913	687	2.846	732	0.000	777	0.000
553	5.004	598	3.968	643	3.913	688	2.846	733	0.000	778	0.000
554	5.004	599	3.942	644	3.913	689	2.846	734	0.000	779	0.000
555	4.836	600	3.942	645	3.913	690	2.846	735	0.000	780	0.000
556	4.724	601	3.942	646	3.913	691	2.846	736	0.000	781	0.000
557	4.724	602	3.942	647	3.913	692	2.485	737	0.000	782	0.000
558	4.724	603	3.942	648	3.913	693	2.395	738	0.000	783	0.000
559	4.724	604	3.942	649	3.868	694	2.395	739	0.000	784	0.000
560	4.724	605	3.940	650	3.868	695	2.395	740	0.000	785	0.000
561	4.724	606	3.923	651	3.868	696	2.395	741	0.000	786	0.000
562	4.630	607	3.923	652	3.868	697	2.395	742	0.000	787	0.000
563	4.491	608	3.923	653	3.868	698	2.395	743	0.000	788	0.000
564	4.491	609	3.923	654	3.868	699	2.055	744	0.000	789	0.000
565	4.491	610	3.923	655	3.868	700	1.828	745	0.000	790	0.000
566	4.491	611	3.923	656	3.802	701	1.828	746	0.000	791	0.000
567	4.491	612	3.923	657	3.786	702	1.828	747	0.000	792	0.000
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File LP_7_M100 + 40% CC_V2.SRCX					Checked by IW						
Innovyze					Source Control 2018.1.1						
Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
793	0.000	838	0.000	883	0.000	928	0.000	973	0.000	1018	0.000
794	0.000	839	0.000	884	0.000	929	0.000	974	0.000	1019	0.000
795	0.000	840	0.000	885	0.000	930	0.000	975	0.000	1020	0.000
796	0.000	841	0.000	886	0.000	931	0.000	976	0.000	1021	0.000
797	0.000	842	0.000	887	0.000	932	0.000	977	0.000	1022	0.000
798	0.000	843	0.000	888	0.000	933	0.000	978	0.000	1023	0.000
799	0.000	844	0.000	889	0.000	934	0.000	979	0.000	1024	0.000
800	0.000	845	0.000	890	0.000	935	0.000	980	0.000	1025	0.000
801	0.000	846	0.000	891	0.000	936	0.000	981	0.000	1026	0.000
802	0.000	847	0.000	892	0.000	937	0.000	982	0.000	1027	0.000
803	0.000	848	0.000	893	0.000	938	0.000	983	0.000	1028	0.000
804	0.000	849	0.000	894	0.000	939	0.000	984	0.000	1029	0.000
805	0.000	850	0.000	895	0.000	940	0.000	985	0.000	1030	0.000
806	0.000	851	0.000	896	0.000	941	0.000	986	0.000	1031	0.000
807	0.000	852	0.000	897	0.000	942	0.000	987	0.000	1032	0.000
808	0.000	853	0.000	898	0.000	943	0.000	988	0.000	1033	0.000
809	0.000	854	0.000	899	0.000	944	0.000	989	0.000	1034	0.000
810	0.000	855	0.000	900	0.000	945	0.000	990	0.000	1035	0.000
811	0.000	856	0.000	901	0.000	946	0.000	991	0.000	1036	0.000
812	0.000	857	0.000	902	0.000	947	0.000	992	0.000	1037	0.000
813	0.000	858	0.000	903	0.000	948	0.000	993	0.000	1038	0.000
814	0.000	859	0.000	904	0.000	949	0.000	994	0.000	1039	0.000
815	0.000	860	0.000	905	0.000	950	0.000	995	0.000	1040	0.000
816	0.000	861	0.000	906	0.000	951	0.000	996	0.000	1041	0.000
817	0.000	862	0.000	907	0.000	952	0.000	997	0.000	1042	0.000
818	0.000	863	0.000	908	0.000	953	0.000	998	0.000	1043	0.000
819	0.000	864	0.000	909	0.000	954	0.000	999	0.000	1044	0.000
820	0.000	865	0.000	910	0.000	955	0.000	1000	0.000	1045	0.000
821	0.000	866	0.000	911	0.000	956	0.000	1001	0.000	1046	0.000
822	0.000	867	0.000	912	0.000	957	0.000	1002	0.000	1047	0.000
823	0.000	868	0.000	913	0.000	958	0.000	1003	0.000	1048	0.000
824	0.000	869	0.000	914	0.000	959	0.000	1004	0.000	1049	0.000
825	0.000	870	0.000	915	0.000	960	0.000	1005	0.000	1050	0.000
826	0.000	871	0.000	916	0.000	961	0.000	1006	0.000	1051	0.000
827	0.000	872	0.000	917	0.000	962	0.000	1007	0.000	1052	0.000
828	0.000	873	0.000	918	0.000	963	0.000	1008	0.000	1053	0.000
829	0.000	874	0.000	919	0.000	964	0.000	1009	0.000	1054	0.000
830	0.000	875	0.000	920	0.000	965	0.000	1010	0.000	1055	0.000
831	0.000	876	0.000	921	0.000	966	0.000	1011	0.000	1056	0.000
832	0.000	877	0.000	922	0.000	967	0.000	1012	0.000	1057	0.000
833	0.000	878	0.000	923	0.000	968	0.000	1013	0.000	1058	0.000
834	0.000	879	0.000	924	0.000	969	0.000	1014	0.000	1059	0.000
835	0.000	880	0.000	925	0.000	970	0.000	1015	0.000	1060	0.000
836	0.000	881	0.000	926	0.000	971	0.000	1016	0.000	1061	0.000
837	0.000	882	0.000	927	0.000	972	0.000	1017	0.000	1062	0.000
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Innovyze					Source Control 2018.1.1						
Rainfall Profile											
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1063	0.000	1108	0.000	1153	0.000	1198	0.000	1243	0.000	1288	0.000
1064	0.000	1109	0.000	1154	0.000	1199	0.000	1244	0.000	1289	0.000
1065	0.000	1110	0.000	1155	0.000	1200	0.000	1245	0.000	1290	0.000
1066	0.000	1111	0.000	1156	0.000	1201	0.000	1246	0.000	1291	0.000
1067	0.000	1112	0.000	1157	0.000	1202	0.000	1247	0.000	1292	0.000
1068	0.000	1113	0.000	1158	0.000	1203	0.000	1248	0.000	1293	0.000
1069	0.000	1114	0.000	1159	0.000	1204	0.000	1249	0.000	1294	0.000
1070	0.000	1115	0.000	1160	0.000	1205	0.000	1250	0.000	1295	0.000
1071	0.000	1116	0.000	1161	0.000	1206	0.000	1251	0.000	1296	0.000
1072	0.000	1117	0.000	1162	0.000	1207	0.000	1252	0.000	1297	0.000
1073	0.000	1118	0.000	1163	0.000	1208	0.000	1253	0.000	1298	0.000
1074	0.000	1119	0.000	1164	0.000	1209	0.000	1254	0.000	1299	0.000
1075	0.000	1120	0.000	1165	0.000	1210	0.000	1255	0.000	1300	0.000
1076	0.000	1121	0.000	1166	0.000	1211	0.000	1256	0.000	1301	0.000
1077	0.000	1122	0.000	1167	0.000	1212	0.000	1257	0.000	1302	0.000
1078	0.000	1123	0.000	1168	0.000	1213	0.000	1258	0.000	1303	0.000
1079	0.000	1124	0.000	1169	0.000	1214	0.000	1259	0.000	1304	0.000
1080	0.000	1125	0.000	1170	0.000	1215	0.000	1260	0.000	1305	0.000
1081	0.000	1126	0.000	1171	0.000	1216	0.000	1261	0.000	1306	0.000
1082	0.000	1127	0.000	1172	0.000	1217	0.000	1262	0.000	1307	0.000
1083	0.000	1128	0.000	1173	0.000	1218	0.000	1263	0.000	1308	0.000
1084	0.000	1129	0.000	1174	0.000	1219	0.000	1264	0.000	1309	0.000
1085	0.000	1130	0.000	1175	0.000	1220	0.000	1265	0.000	1310	0.000
1086	0.000	1131	0.000	1176	0.000	1221	0.000	1266	0.000	1311	0.000
1087	0.000	1132	0.000	1177	0.000	1222	0.000	1267	0.000	1312	0.000
1088	0.000	1133	0.000	1178	0.000	1223	0.000	1268	0.000	1313	0.000
1089	0.000	1134	0.000	1179	0.000	1224	0.000	1269	0.000	1314	0.000
1090	0.000	1135	0.000	1180	0.000	1225	0.000	1270	0.000	1315	0.000
1091	0.000	1136	0.000	1181	0.000	1226	0.000	1271	0.000	1316	0.000
1092	0.000	1137	0.000	1182	0.000	1227	0.000	1272	0.000	1317	0.000
1093	0.000	1138	0.000	1183	0.000	1228	0.000	1273	0.000	1318	0.000
1094	0.000	1139	0.000	1184	0.000	1229	0.000	1274	0.000	1319	0.000
1095	0.000	1140	0.000	1185	0.000	1230	0.000	1275	0.000	1320	0.000
1096	0.000	1141	0.000	1186	0.000	1231	0.000	1276	0.000	1321	0.000
1097	0.000	1142	0.000	1187	0.000	1232	0.000	1277	0.000	1322	0.000
1098	0.000	1143	0.000	1188	0.000	1233	0.000	1278	0.000	1323	0.000
1099	0.000	1144	0.000	1189	0.000	1234	0.000	1279	0.000	1324	0.000
1100	0.000	1145	0.000	1190	0.000	1235	0.000	1280	0.000	1325	0.000
1101	0.000	1146	0.000	1191	0.000	1236	0.000	1281	0.000	1326	0.000
1102	0.000	1147	0.000	1192	0.000	1237	0.000	1282	0.000	1327	0.000
1103	0.000	1148	0.000	1193	0.000	1238	0.000	1283	0.000	1328	0.000
1104	0.000	1149	0.000	1194	0.000	1239	0.000	1284	0.000	1329	0.000
1105	0.000	1150	0.000	1195	0.000	1240	0.000	1285	0.000	1330	0.000
1106	0.000	1151	0.000	1196	0.000	1241	0.000	1286	0.000	1331	0.000
1107	0.000	1152	0.000	1197	0.000	1242	0.000	1287	0.000	1332	0.000
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1333	0.000	1378	0.000	1423	0.000	1468	0.000	1513	0.000	1558	0.000
1334	0.000	1379	0.000	1424	0.000	1469	0.000	1514	0.000	1559	0.000
1335	0.000	1380	0.000	1425	0.000	1470	0.000	1515	0.000	1560	0.000
1336	0.000	1381	0.000	1426	0.000	1471	0.000	1516	0.000	1561	0.000
1337	0.000	1382	0.000	1427	0.000	1472	0.000	1517	0.000	1562	0.000
1338	0.000	1383	0.000	1428	0.000	1473	0.000	1518	0.000	1563	0.000
1339	0.000	1384	0.000	1429	0.000	1474	0.000	1519	0.000	1564	0.000
1340	0.000	1385	0.000	1430	0.000	1475	0.000	1520	0.000	1565	0.000
1341	0.000	1386	0.000	1431	0.000	1476	0.000	1521	0.000	1566	0.000
1342	0.000	1387	0.000	1432	0.000	1477	0.000	1522	0.000	1567	0.000
1343	0.000	1388	0.000	1433	0.000	1478	0.000	1523	0.000	1568	0.000
1344	0.000	1389	0.000	1434	0.000	1479	0.000	1524	0.000	1569	0.000
1345	0.000	1390	0.000	1435	0.000	1480	0.000	1525	0.000	1570	0.000
1346	0.000	1391	0.000	1436	0.000	1481	0.000	1526	0.000	1571	0.000
1347	0.000	1392	0.000	1437	0.000	1482	0.000	1527	0.000	1572	0.000
1348	0.000	1393	0.000	1438	0.000	1483	0.000	1528	0.000	1573	0.000
1349	0.000	1394	0.000	1439	0.000	1484	0.000	1529	0.000	1574	0.000
1350	0.000	1395	0.000	1440	0.000	1485	0.000	1530	0.000	1575	0.000
1351	0.000	1396	0.000	1441	0.000	1486	0.000	1531	0.000	1576	0.000
1352	0.000	1397	0.000	1442	0.000	1487	0.000	1532	0.000	1577	0.000
1353	0.000	1398	0.000	1443	0.000	1488	0.000	1533	0.000	1578	0.000
1354	0.000	1399	0.000	1444	0.000	1489	0.000	1534	0.000	1579	0.000
1355	0.000	1400	0.000	1445	0.000	1490	0.000	1535	0.000	1580	0.000
1356	0.000	1401	0.000	1446	0.000	1491	0.000	1536	0.000	1581	0.000
1357	0.000	1402	0.000	1447	0.000	1492	0.000	1537	0.000	1582	0.000
1358	0.000	1403	0.000	1448	0.000	1493	0.000	1538	0.000	1583	0.000
1359	0.000	1404	0.000	1449	0.000	1494	0.000	1539	0.000	1584	0.000
1360	0.000	1405	0.000	1450	0.000	1495	0.000	1540	0.000	1585	0.000
1361	0.000	1406	0.000	1451	0.000	1496	0.000	1541	0.000	1586	0.000
1362	0.000	1407	0.000	1452	0.000	1497	0.000	1542	0.000	1587	0.000
1363	0.000	1408	0.000	1453	0.000	1498	0.000	1543	0.000	1588	0.000
1364	0.000	1409	0.000	1454	0.000	1499	0.000	1544	0.000	1589	0.000
1365	0.000	1410	0.000	1455	0.000	1500	0.000	1545	0.000	1590	0.000
1366	0.000	1411	0.000	1456	0.000	1501	0.000	1546	0.000	1591	0.000
1367	0.000	1412	0.000	1457	0.000	1502	0.000	1547	0.000	1592	0.000
1368	0.000	1413	0.000	1458	0.000	1503	0.000	1548	0.000	1593	0.000
1369	0.000	1414	0.000	1459	0.000	1504	0.000	1549	0.000	1594	0.000
1370	0.000	1415	0.000	1460	0.000	1505	0.000	1550	0.000	1595	0.000
1371	0.000	1416	0.000	1461	0.000	1506	0.000	1551	0.000	1596	0.000
1372	0.000	1417	0.000	1462	0.000	1507	0.000	1552	0.000	1597	0.000
1373	0.000	1418	0.000	1463	0.000	1508	0.000	1553	0.000	1598	0.000
1374	0.000	1419	0.000	1464	0.000	1509	0.000	1554	0.000	1599	0.000
1375	0.000	1420	0.000	1465	0.000	1510	0.000	1555	0.000	1600	0.000
1376	0.000	1421	0.000	1466	0.000	1511	0.000	1556	0.000	1601	0.000
1377	0.000	1422	0.000	1467	0.000	1512	0.000	1557	0.000	1602	0.000
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Booths Park Chelford Road Knutsford Cheshire WA16 8QZ					Earl Shilton LP7 Atten. M100_720 & M10_720						
Date 30/11/2020					Designed by AS						
File LP_7_M100 + 40% CC_V2.SRCX					Checked by IW						
Innovyze					Source Control 2018.1.1						
<u>Rainfall Profile</u>											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1603	0.000	1648	0.000	1693	0.000	1738	0.000	1783	0.000	1828	0.000
1604	0.000	1649	0.000	1694	0.000	1739	0.000	1784	0.000	1829	0.000
1605	0.000	1650	0.000	1695	0.000	1740	0.000	1785	0.000	1830	0.000
1606	0.000	1651	0.000	1696	0.000	1741	0.000	1786	0.000	1831	0.000
1607	0.000	1652	0.000	1697	0.000	1742	0.000	1787	0.000	1832	0.000
1608	0.000	1653	0.000	1698	0.000	1743	0.000	1788	0.000	1833	0.000
1609	0.000	1654	0.000	1699	0.000	1744	0.000	1789	0.000	1834	0.000
1610	0.000	1655	0.000	1700	0.000	1745	0.000	1790	0.000	1835	0.000
1611	0.000	1656	0.000	1701	0.000	1746	0.000	1791	0.000	1836	0.000
1612	0.000	1657	0.000	1702	0.000	1747	0.000	1792	0.000	1837	0.000
1613	0.000	1658	0.000	1703	0.000	1748	0.000	1793	0.000	1838	0.000
1614	0.000	1659	0.000	1704	0.000	1749	0.000	1794	0.000	1839	0.000
1615	0.000	1660	0.000	1705	0.000	1750	0.000	1795	0.000	1840	0.000
1616	0.000	1661	0.000	1706	0.000	1751	0.000	1796	0.000	1841	0.000
1617	0.000	1662	0.000	1707	0.000	1752	0.000	1797	0.000	1842	0.000
1618	0.000	1663	0.000	1708	0.000	1753	0.000	1798	0.000	1843	0.000
1619	0.000	1664	0.000	1709	0.000	1754	0.000	1799	0.000	1844	0.000
1620	0.000	1665	0.000	1710	0.000	1755	0.000	1800	0.000	1845	0.000
1621	0.000	1666	0.000	1711	0.000	1756	0.000	1801	0.000	1846	0.000
1622	0.000	1667	0.000	1712	0.000	1757	0.000	1802	0.000	1847	0.000
1623	0.000	1668	0.000	1713	0.000	1758	0.000	1803	0.000	1848	0.000
1624	0.000	1669	0.000	1714	0.000	1759	0.000	1804	0.000	1849	0.000
1625	0.000	1670	0.000	1715	0.000	1760	0.000	1805	0.000	1850	0.000
1626	0.000	1671	0.000	1716	0.000	1761	0.000	1806	0.000	1851	0.000
1627	0.000	1672	0.000	1717	0.000	1762	0.000	1807	0.000	1852	0.000
1628	0.000	1673	0.000	1718	0.000	1763	0.000	1808	0.000	1853	0.000
1629	0.000	1674	0.000	1719	0.000	1764	0.000	1809	0.000	1854	0.000
1630	0.000	1675	0.000	1720	0.000	1765	0.000	1810	0.000	1855	0.000
1631	0.000	1676	0.000	1721	0.000	1766	0.000	1811	0.000	1856	0.000
1632	0.000	1677	0.000	1722	0.000	1767	0.000	1812	0.000	1857	0.000
1633	0.000	1678	0.000	1723	0.000	1768	0.000	1813	0.000	1858	0.000
1634	0.000	1679	0.000	1724	0.000	1769	0.000	1814	0.000	1859	0.000
1635	0.000	1680	0.000	1725	0.000	1770	0.000	1815	0.000	1860	0.000
1636	0.000	1681	0.000	1726	0.000	1771	0.000	1816	0.000	1861	0.000
1637	0.000	1682	0.000	1727	0.000	1772	0.000	1817	0.000	1862	0.000
1638	0.000	1683	0.000	1728	0.000	1773	0.000	1818	0.000	1863	0.000
1639	0.000	1684	0.000	1729	0.000	1774	0.000	1819	0.000	1864	0.000
1640	0.000	1685	0.000	1730	0.000	1775	0.000	1820	0.000	1865	0.000
1641	0.000	1686	0.000	1731	0.000	1776	0.000	1821	0.000	1866	0.000
1642	0.000	1687	0.000	1732	0.000	1777	0.000	1822	0.000	1867	0.000
1643	0.000	1688	0.000	1733	0.000	1778	0.000	1823	0.000	1868	0.000
1644	0.000	1689	0.000	1734	0.000	1779	0.000	1824	0.000	1869	0.000
1645	0.000	1690	0.000	1735	0.000	1780	0.000	1825	0.000	1870	0.000
1646	0.000	1691	0.000	1736	0.000	1781	0.000	1826	0.000	1871	0.000
1647	0.000	1692	0.000	1737	0.000	1782	0.000	1827	0.000	1872	0.000
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<u>Rainfall Profile</u>											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1873	0.000	1918	0.000	1963	0.000	2008	0.000	2053	0.000	2098	0.000
1874	0.000	1919	0.000	1964	0.000	2009	0.000	2054	0.000	2099	0.000
1875	0.000	1920	0.000	1965	0.000	2010	0.000	2055	0.000	2100	0.000
1876	0.000	1921	0.000	1966	0.000	2011	0.000	2056	0.000	2101	0.000
1877	0.000	1922	0.000	1967	0.000	2012	0.000	2057	0.000	2102	0.000
1878	0.000	1923	0.000	1968	0.000	2013	0.000	2058	0.000	2103	0.000
1879	0.000	1924	0.000	1969	0.000	2014	0.000	2059	0.000	2104	0.000
1880	0.000	1925	0.000	1970	0.000	2015	0.000	2060	0.000	2105	0.000
1881	0.000	1926	0.000	1971	0.000	2016	0.000	2061	0.000	2106	0.000
1882	0.000	1927	0.000	1972	0.000	2017	0.000	2062	0.000	2107	0.000
1883	0.000	1928	0.000	1973	0.000	2018	0.000	2063	0.000	2108	0.000
1884	0.000	1929	0.000	1974	0.000	2019	0.000	2064	0.000	2109	0.000
1885	0.000	1930	0.000	1975	0.000	2020	0.000	2065	0.000	2110	0.000
1886	0.000	1931	0.000	1976	0.000	2021	0.000	2066	0.000	2111	0.000
1887	0.000	1932	0.000	1977	0.000	2022	0.000	2067	0.000	2112	0.000
1888	0.000	1933	0.000	1978	0.000	2023	0.000	2068	0.000	2113	0.000
1889	0.000	1934	0.000	1979	0.000	2024	0.000	2069	0.000	2114	0.000
1890	0.000	1935	0.000	1980	0.000	2025	0.000	2070	0.000	2115	0.000
1891	0.000	1936	0.000	1981	0.000	2026	0.000	2071	0.000	2116	0.000
1892	0.000	1937	0.000	1982	0.000	2027	0.000	2072	0.000	2117	0.000
1893	0.000	1938	0.000	1983	0.000	2028	0.000	2073	0.000	2118	0.000
1894	0.000	1939	0.000	1984	0.000	2029	0.000	2074	0.000	2119	0.000
1895	0.000	1940	0.000	1985	0.000	2030	0.000	2075	0.000	2120	0.000
1896	0.000	1941	0.000	1986	0.000	2031	0.000	2076	0.000	2121	0.000
1897	0.000	1942	0.000	1987	0.000	2032	0.000	2077	0.000	2122	0.000
1898	0.000	1943	0.000	1988	0.000	2033	0.000	2078	0.000	2123	0.000
1899	0.000	1944	0.000	1989	0.000	2034	0.000	2079	0.000	2124	0.000
1900	0.000	1945	0.000	1990	0.000	2035	0.000	2080	0.000	2125	0.000
1901	0.000	1946	0.000	1991	0.000	2036	0.000	2081	0.000	2126	0.000
1902	0.000	1947	0.000	1992	0.000	2037	0.000	2082	0.000	2127	0.000
1903	0.000	1948	0.000	1993	0.000	2038	0.000	2083	0.000	2128	0.000
1904	0.000	1949	0.000	1994	0.000	2039	0.000	2084	0.000	2129	0.000
1905	0.000	1950	0.000	1995	0.000	2040	0.000	2085	0.000	2130	0.000
1906	0.000	1951	0.000	1996	0.000	2041	0.000	2086	0.000	2131	0.000
1907	0.000	1952	0.000	1997	0.000	2042	0.000	2087	0.000	2132	0.000
1908	0.000	1953	0.000	1998	0.000	2043	0.000	2088	0.000	2133	0.000
1909	0.000	1954	0.000	1999	0.000	2044	0.000	2089	0.000	2134	0.000
1910	0.000	1955	0.000	2000	0.000	2045	0.000	2090	0.000	2135	0.000
1911	0.000	1956	0.000	2001	0.000	2046	0.000	2091	0.000	2136	0.000
1912	0.000	1957	0.000	2002	0.000	2047	0.000	2092	0.000	2137	0.000
1913	0.000	1958	0.000	2003	0.000	2048	0.000	2093	0.000	2138	0.000
1914	0.000	1959	0.000	2004	0.000	2049	0.000	2094	0.000	2139	0.000
1915	0.000	1960	0.000	2005	0.000	2050	0.000	2095	0.000	2140	0.000
1916	0.000	1961	0.000	2006	0.000	2051	0.000	2096	0.000	2141	0.000
1917	0.000	1962	0.000	2007	0.000	2052	0.000	2097	0.000	2142	0.000
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Rainfall Profile											
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
2413	5.595	2458	7.809	2503	9.443	2548	8.464	2593	6.342	2638	4.205
2414	5.595	2459	7.809	2504	9.548	2549	8.464	2594	6.342	2639	4.205
2415	5.595	2460	7.944	2505	9.548	2550	8.464	2595	6.342	2640	4.081
2416	5.595	2461	8.147	2506	9.548	2551	8.464	2596	6.342	2641	3.894
2417	5.818	2462	8.147	2507	9.548	2552	8.464	2597	6.117	2642	3.894
2418	5.967	2463	8.147	2508	9.548	2553	8.464	2598	5.967	2643	3.894
2419	5.967	2464	8.147	2509	9.548	2554	8.210	2599	5.967	2644	3.894
2420	5.967	2465	8.147	2510	9.548	2555	8.147	2600	5.967	2645	3.894
2421	5.967	2466	8.147	2511	9.548	2556	8.147	2601	5.967	2646	3.894
2422	5.967	2467	8.210	2512	9.548	2557	8.147	2602	5.967	2647	3.835
2423	5.967	2468	8.464	2513	9.548	2558	8.147	2603	5.967	2648	3.601
2424	6.117	2469	8.464	2514	9.548	2559	8.147	2604	5.818	2649	3.601
2425	6.342	2470	8.464	2515	9.548	2560	8.147	2605	5.595	2650	3.601
2426	6.342	2471	8.464	2516	9.548	2561	7.944	2606	5.595	2651	3.601
2427	6.342	2472	8.464	2517	9.548	2562	7.809	2607	5.595	2652	3.601
2428	6.342	2473	8.464	2518	9.443	2563	7.809	2608	5.595	2653	3.601
2429	6.342	2474	8.464	2519	9.417	2564	7.809	2609	5.595	2654	3.601
2430	6.342	2475	8.755	2520	9.417	2565	7.809	2610	5.595	2655	3.327
2431	6.417	2476	8.755	2521	9.417	2566	7.809	2611	5.522	2656	3.327
2432	6.718	2477	8.755	2522	9.417	2567	7.809	2612	5.231	2657	3.327
2433	6.718	2478	8.755	2523	9.417	2568	7.668	2613	5.231	2658	3.327
2434	6.718	2479	8.755	2524	9.417	2569	7.456	2614	5.231	2659	3.327
2435	6.718	2480	8.755	2525	9.309	2570	7.456	2615	5.231	2660	3.327
2436	6.718	2481	8.755	2526	9.237	2571	7.456	2616	5.231	2661	3.327
2437	6.718	2482	8.963	2527	9.237	2572	7.456	2617	5.231	2662	3.125
2438	6.718	2483	9.015	2528	9.237	2573	7.456	2618	5.231	2663	3.074
2439	7.090	2484	9.015	2529	9.237	2574	7.456	2619	4.876	2664	3.074
2440	7.090	2485	9.015	2530	9.237	2575	7.383	2620	4.876	2665	3.074
2441	7.090	2486	9.015	2531	9.237	2576	7.090	2621	4.876	2666	3.074
2442	7.090	2487	9.015	2532	9.148	2577	7.090	2622	4.876	2667	3.074
2443	7.090	2488	9.015	2533	9.015	2578	7.090	2623	4.876	2668	3.074
2444	7.090	2489	9.148	2534	9.015	2579	7.090	2624	4.876	2669	2.936
2445	7.090	2490	9.237	2535	9.015	2580	7.090	2625	4.876	2670	2.843
2446	7.383	2491	9.237	2536	9.015	2581	7.090	2626	4.602	2671	2.843
2447	7.456	2492	9.237	2537	9.015	2582	7.090	2627	4.533	2672	2.843
2448	7.456	2493	9.237	2538	9.015	2583	6.718	2628	4.533	2673	2.843
2449	7.456	2494	9.237	2539	8.963	2584	6.718	2629	4.533	2674	2.843
2450	7.456	2495	9.237	2540	8.755	2585	6.718	2630	4.533	2675	2.843
2451	7.456	2496	9.309	2541	8.755	2586	6.718	2631	4.533	2676	2.759
2452	7.456	2497	9.417	2542	8.755	2587	6.718	2632	4.533	2677	2.634
2453	7.668	2498	9.417	2543	8.755	2588	6.718	2633	4.337	2678	2.634
2454	7.809	2499	9.417	2544	8.755	2589	6.718	2634	4.205	2679	2.634
2455	7.809	2500	9.417	2545	8.755	2590	6.417	2635	4.205	2680	2.634
2456	7.809	2501	9.417	2546	8.755	2591	6.342	2636	4.205	2681	2.634
2457	7.809	2502	9.417	2547	8.464	2592	6.342	2637	4.205	2682	2.634
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Innovyze			Source Control 2018.1.1																																																																										
<u>Model Details</u>																																																																													
Storage is Online Cover Level (m) 100.000																																																																													
<u>Infiltration Basin Structure</u>																																																																													
Invert Level (m) 99.000 Safety Factor 2.0																																																																													
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 1.00																																																																													
Infiltration Coefficient Side (m/hr) 0.00000																																																																													
<table><tr><td>Depth (m)</td><td>Area (m²)</td><td>Depth (m)</td><td>Area (m²)</td><td>Depth (m)</td><td>Area (m²)</td></tr><tr><td>0.000</td><td>4479.1</td><td>0.400</td><td>4815.9</td><td>0.800</td><td>5164.9</td></tr><tr><td>0.200</td><td>4646.0</td><td>0.600</td><td>4988.9</td><td>1.000</td><td>5343.9</td></tr></table>						Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	0.000	4479.1	0.400	4815.9	0.800	5164.9	0.200	4646.0	0.600	4988.9	1.000	5343.9																																																						
Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)																																																																								
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<u>Hydro-Brake® Optimum Outflow Control</u>																																																																													
Unit Reference MD-SHE-0240-3100-1000-3100																																																																													
Design Head (m) 1.000																																																																													
Design Flow (l/s) 31.0																																																																													
Flush-Flo™ Calculated																																																																													
Objective Minimise upstream storage																																																																													
Application Surface																																																																													
Sump Available Yes																																																																													
Diameter (mm) 240																																																																													
Invert Level (m) 99.000																																																																													
Minimum Outlet Pipe Diameter (mm) 300																																																																													
Suggested Manhole Diameter (mm) 1500																																																																													
<table><tr><td>Control Points</td><td>Head (m)</td><td>Flow (l/s)</td><td>Control Points</td><td>Head (m)</td><td>Flow (l/s)</td></tr><tr><td>Design Point (Calculated)</td><td>1.000</td><td>31.0</td><td>Kick-Flo®</td><td>0.747</td><td>27.0</td></tr><tr><td>Flush-Flo™</td><td>0.382</td><td>31.0</td><td>Mean Flow over Head Range</td><td>-</td><td>25.6</td></tr></table>						Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)	Design Point (Calculated)	1.000	31.0	Kick-Flo®	0.747	27.0	Flush-Flo™	0.382	31.0	Mean Flow over Head Range	-	25.6																																																						
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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																																																																													
<table><tr><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td></tr><tr><td>0.100</td><td>7.9</td><td>1.200</td><td>33.8</td><td>3.000</td><td>52.6</td><td>7.000</td><td>79.4</td></tr><tr><td>0.200</td><td>24.3</td><td>1.400</td><td>36.4</td><td>3.500</td><td>56.7</td><td>7.500</td><td>82.1</td></tr><tr><td>0.300</td><td>30.7</td><td>1.600</td><td>38.8</td><td>4.000</td><td>60.5</td><td>8.000</td><td>84.7</td></tr><tr><td>0.400</td><td>31.0</td><td>1.800</td><td>41.1</td><td>4.500</td><td>64.0</td><td>8.500</td><td>87.3</td></tr><tr><td>0.500</td><td>30.6</td><td>2.000</td><td>43.2</td><td>5.000</td><td>67.4</td><td>9.000</td><td>89.7</td></tr><tr><td>0.600</td><td>29.8</td><td>2.200</td><td>45.3</td><td>5.500</td><td>70.6</td><td>9.500</td><td>92.1</td></tr><tr><td>0.800</td><td>27.9</td><td>2.400</td><td>47.2</td><td>6.000</td><td>73.6</td><td></td><td></td></tr><tr><td>1.000</td><td>31.0</td><td>2.600</td><td>49.1</td><td>6.500</td><td>76.6</td><td></td><td></td></tr></table>						Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	7.9	1.200	33.8	3.000	52.6	7.000	79.4	0.200	24.3	1.400	36.4	3.500	56.7	7.500	82.1	0.300	30.7	1.600	38.8	4.000	60.5	8.000	84.7	0.400	31.0	1.800	41.1	4.500	64.0	8.500	87.3	0.500	30.6	2.000	43.2	5.000	67.4	9.000	89.7	0.600	29.8	2.200	45.3	5.500	70.6	9.500	92.1	0.800	27.9	2.400	47.2	6.000	73.6			1.000	31.0	2.600	49.1	6.500	76.6		
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Annex B

Drawing

\\war-fs1-global.amec.com\shared\Projects\42523 Earl Shilton\Deliver Stage\Design_Technical\Surface Water\3. Outline Drainage Strategy\42523-WOOD-XX-XX-DR-A-0005_S1_P01.1_DS SKETCH_V2.dwg Originator: IAN.WILSON



Key

- Site boundary (65.37ha)
- Land parcel boundaries

0 m 300 m

Scale 1:5000 @ A3

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Earl Shilton

Drainage Strategy
SuDS Locations and Volumes

November 2021

wood.

