

Land at High Street, Dilton Marsh, Westbury

Drainage Technical Note

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1. Introduction

- 1.1 Morgan Civil & Structural were instructed by Redcliffe Homes Ltd to produce a foul and surface water drainage strategy for a development on Land at High Street, Dilton Marsh, Westbury.
- 1.2 The development will consist of 54 dwellings with associated drainage, access, hard and soft landscaping.
- 1.3 This Technical Note and accompanying drainage strategy have been prepared following the grant of outline planning permission via appeal (APP/Y3940/W/24/3352160, dated 12th March 2025), subsequent to the earlier refusal under application Ref: PL/2023/01880.
- 1.4 The drainage design has been developed in line with LLFA guidance and Sustainable Drainage Systems (SuDS) principles.

Background

- 1.5 The purpose of this Technical Note is to further develop the drainage design principles established as part of the outline planning permission granted on appeal (Ref: APP/Y3940/W/24/3352160), subsequent to the earlier refusal under application Ref: PL/2023/01880 and considering subsequent correspondence between Morgans C&S and the LLFA.
- 1.6 As part of refusal application PL/2023/01880, Andy Clay consulting produced a Flood Risk Assessment, ref CD2.18 – FRA compressed.
- 1.7 Key information extracted from Phoenix Design's approved documentation, is as follows:
 - The site area is 3.0 ha of existing agricultural land (greenfield), located on the edge of Dilton Marsh.
 - Existing topography falls from south to north.
 - Ground levels fall from south/south-east to north/north-east (approx. 78m AOD to 73m AOD).
 - Underlying geology is Gault Formation (mudstone) with clayey soils.
 - Soakaway testing confirmed infiltration is not feasible due to low permeability and high groundwater.
 - Site located within Flood Zone 1 (low risk).
 - Low overall flood risk, with localised surface water flow paths along minor watercourses.
 - Site drains to existing minor watercourses, connecting to a tributary of Biss Brook.
 - No surface water sewers in vicinity; foul sewers present on/near site.

Version: 1.0324

- Surface water discharge to watercourses in accordance with drainage hierarchy.
- SuDS proposed including detention basins, swales, permeable paving, and geocellular storage.
- Post-development runoff will be attenuated to QBAR, which has been calculated at 5.5l/s/Ha, via flow control.
- Foul drainage to connect to Wessex Water network (likely pumped system).

2. Existing Site Conditions & Drainage

- 2.1 The existing site conditions and drainage are key to how the proposed drainage system should function for this development.
- 2.2 The site is located on the North-Western edge of Dilton Marsh, Wiltshire, and comprises approximately 3Ha of greenfield agricultural land, bounded by existing residential development to the south and east, and farmland to the West and North-West.
- 2.3 Site levels generally fall from the South and South-East towards the North and North-East (approx. 78m AOD to 73m AOD), directing surface water runoff towards adjacent watercourses. A topographical survey is provided in **Appendix 1**.

Ground Conditions

- 2.4 The site is underlain by the Gault Formation (mudstone) with overlying clayey soils. Ground investigations and soakaway testing confirmed low permeability and a relatively high groundwater table, indicating that infiltration drainage is not feasible.
- 2.5 The Flood Risk Assessment confirms the site is within Flood Zone 1 and is therefore at low risk of flooding from fluvial and tidal sources. There are no significant risks identified from groundwater, reservoir, or sewer flooding.
- 2.6 There are no recorded historic flood events affecting the site. The site is hydraulically connected to minor watercourses within and adjacent to the site, which ultimately drain to a tributary of Biss Brook.

Surface Water Drainage

- 2.7 There are no formal surface water drainage systems on-site. Surface water runoff currently drains into existing minor watercourses located along the site boundaries and within the site.
- 2.8 Minor watercourses are present along the Western, Northern, and Eastern boundaries, with an additional flow path through the centre of the site. These features convey runoff towards downstream catchments.
- 2.9 Wessex Water asset plans, included in **Appendix 2**, confirm no public surface water infrastructure exists on-site.
- 2.10 Existing drainage infrastructure in the vicinity includes highway drainage to the south, which may contribute flows to the central watercourse via culverted connections.

Foul Water Drainage

- 2.11 Public foul sewers are present within and adjacent to the site, including along the southern boundary.

3. Proposed Surface Water Drainage

- 3.1 In July 2025, DEFRA updated the National Standards for Sustainable Drainage Systems (SuDS).
- 3.2 Typically, an application post DEFRA would incorporate the new Standards, however the following was confirmed by Wiltshire CC on the 1st July 2026;

"As the 2023 was decided before the new guidelines came into effect, then I would agree that they can continue the reserved matters application in accordance with the outline and therefore do not have to abide by the 2025 Defra guidelines."

- 3.3 As such, The drainage standard will progress based on the principles of the outline application.
- 3.4 Where possible, betterments conducive with DEFRA will be provided.

Site Discharge

- 3.5 Per the FRA provided as part of outline, the outfall for the site has been through the SuDS hierarchy of discharge, and discharge is to be via positive outfall to the onsite ditch.
- 3.6 The greenfield runoff rate has been calculated at 5.5l/s/Ha.
- 3.7 The total site area is approximately 3Ha, but per HR Wallingford, the greenfield runoff rate should be calculated as follows;

"The greenfield runoff rate, which is usually used for assessing the requirements for the limiting discharge flow rate (and subsequently the attenuation storage volume), for a site should be calculated for the whole development area as submitted for planning (including all houses, gardens, roads/paved surfaces, and all open space) that is within the area served by the drainage network and that could generate runoff to the proposed drainage system, even if this is only likely to occur during very extreme rainfall events (this may be the case for grassed/vegetated areas)."

Significant green areas such as recreation parks, general public open space etc., which are not served by the drainage system and do not play a part in the runoff management for the site, and which can be assumed to have a runoff response which is similar to that prior to the development taking place, can be excluded from the greenfield analysis

- 3.8 Based on the above, the developable area for the site is 1.78Ha. Applying the greenfield runoff rate of 5.5l/s/Ha to 1.78Ha, the discharge rate for the site is **9.7l/s**.

- 3.9 It is understood that the latest Wiltshire CC guidance requires a betterment of 30% against QBar for the 1 in 1 year storm event. This equates to a 6.7l/s discharge rate for the 1 year event.
- 3.10 This is a greater reduction than the 20% betterment previously proposed in the outline planning application.

Surface Water Drainage

- 3.11 Per the outline strategy surface water is to be directed via gravity to an attenuation basin located in the north of the site.
- 3.12 The FRA calculated that per hectare of catchment area, 690-969m³ of attenuation volume would be required. This does not account for higher Cv values of 1, or the MADD factor set to 0m³/Ha, as required by Wiltshire CC.
- 3.13 As a result, the area allocated for attenuation in the FRA is insufficient, and additional tanked volume has been incorporated to the drainage strategy.
- 3.14 Due to ecological constraints of the site, and site levels, multiple attenuation basins have been utilised with orifice controls. This is to maximise volume in the open attenuation features and minimise underground tanks.
- 3.15 In total, 1219m³ of attenuation volume is required for 1.00Ha of impermeable site area. This is achieved through six open basin features, and five underground attenuation tanks.
- 3.16 Numerous flow controls are utilised throughout site, but ultimately the site discharges to the ditch in the north at 9.7l/s, QBar.
- 3.17 In accordance with Wiltshire CC guidance, discharge in the 1 year storm event is 6.7l/s, a 30% betterment on QBar.
- 3.18 The supporting impermeable areas plan and drainage layout can be found in **Appendices 3 and 4**, respectively.
- 3.19 Supporting hydraulic calculations can be found in **Appendix 5**. These calculations include the following parameters:
- MADD Factor set to 0m³/Ha
 - Cv set to 1
 - 45% climate change included on the 100 year event.
 - 10% additional area included on the 100 year event.
- 3.20 Whilst DEFRA standards are not required for this site, it is proposed for all properties to incorporate rainwater butts for rainwater harvesting and re-use.

Flood Routing

- 3.21 It is noted that flooding has been recorded at chambers S11, S12 and S22. These flooded values are 6.5m³, 0.8m³ and 1.5m³ respectively in the 100 year + 45% CC + 10% Urban Creep event.
- 3.22 Flood flows from S11 and S12 will travel east along the internal highway until it reaches the ramp located by S13. Here flows will be intercepted by a double highway gully and/or temporarily stored in the carriageway.
- 3.23 Flood flows from S22 will route northwest to the low spot within the adjacent visitor parking bays. There flows will be intercepted by a double highway gully and/or temporarily stored in the carriageway.

Exceedance Flows:

- 3.24 In the case of system failure, or an event beyond the 1 in 100 Year + 40% Climate Change Storm, exceedance flows for the site must be considered.
- 3.25 The proposed levels will maintain this drainage pattern; routing exceedance flows along the site road network to the north and west. The majority of flows will be directed towards the attenuation basins, with localised flows at the western extent of the site directed towards, and intercepted by, the existing ditch along the site boundary.
- 3.26 An exceedance flow plan has been included in **Appendix 6**.

4. Water Quality

- 4.1 The SuDS Manual (CIRIA C753) states that the design of surface water drainage should consider minimising contaminants in surface water runoff discharged from site. The level of treatment required depends on the proposed land use, according to the pollution hazard indices.
- 4.2 The site will comprise of 54 plots with associated access roads and private drives/driveways. As per Table 26.2 of the SuDS Manual this is classified as a low pollution hazard level.
- 4.3 Using Tables 26.2 and 26.4 of the SuDS Manual the water quality mitigation has been assessed in the following table:

Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydro-carbons
Low traffic roads (e.g. Cul de sacs, homezones and general access roads)	Low	0.5	0.4	0.4
SuDS Component & Mitigation Indices				
Detention Basin		0.5	0.5	0.6
Mitigation Indices $\geq$ Pollutants		Yes	Yes	Yes

- 4.4 As per the above table, the detention basin provides suitable mitigation for Water Quality on site.
- 4.5 In any case, further methods of good practise shall still be utilised across site.
- 4.6 It is recommended that any gullies have suitable silt traps/catchpits to reduce sediments entering the system.
- 4.7 It is advised that for maintenance, and the reduction of blockage risk to control devices, upstream and downstream chambers of SuDS and/or attenuation features have suitable catchpits to reduce sediments/particles and their associated risk of blockage.
- 4.8 All properties are to have water butts installed to intercept rainwater for re-use.

Maintenance Regime:

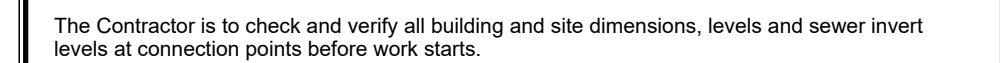
- 4.9 Morgan Civil and Structural have provided an Operations and Maintenance Manual to accompany this technical note to support planning, ref 148009-MCS-XX-RP-OM-01.

5. Proposed Foul Water Drainage

- 5.1 It is proposed to drain the foul sewerage for the site via pump package system with connections to the public foul network crossing the Southern extent of the site.
- 5.2 As per Sewerage Sector Guidance, proposed foul flows based on 4000l/dwelling/day equates to 2.5l/s for 54 dwellings.
- 5.3 The drainage strategy is included in **Appendix 4** and confirms the proposed connection point.

APPENDIX 1

Topographical Survey



B	Bollard.
BH	Borehole
BPav.	Block Paving.
BS	Bus Stop.
BT	British Telecom.
CB	Channel Block.
Conc.	Concrete.
CT	Cable TV.
EP	Electricity pole.
FH	Fire Hydrant
FP	Footpath.
FS	Footstyle.
GT	Gate.
GV	Gas Valve.
G	Gully
IC	Inspection Chamber.
LB	Letter Box.
LP	Existing Street Light.
MH	Manhole.
OBM	Ordinance Bench Mark.
OH	Overhead Cable.
PM	Parking Meter.
PO	Pole.
PY	Fylon.
RS	Road Sign.
RW	Retaining Wall.
Sap.	Sapling.
Slab.	Concrete Paving Slab.
SS	Electricity Sub-Station.
SV	Stop Valve.
Tar.	Tarmac.
TB	Telephone Box.
TL	Traffic Lights.
TP	Telegraph Pole.
WM	Water Meter.
WV	Water valve.
No. 1	Survey Station.

CL	Manhole Cover Level.
IL	Manhole Invert Level.
SL	Manhole Soffit Level.
BL	Stream Bed Level.
+123.45	Spot Level.
T.O.K.	Top of Kerb.
T.O.W.	Top of Wall.
T.O.B.	Top of Bank.
+123.45	Top of Wall level.

1. Some of these abbreviations may not appear on this drawing.
2. Contour interval:- 0.25m.
3. All levels in metres related on OSBM.
4. Ridge and eaves Hts indicative.

[illegible]

Project **HIGH STREET
DILTON MARSH**

MIKE PRINGLE
DEVELOPMENT SERVICES



DRN BY MJP	SCALE 1/500	DRAWING NUMBER DIL-01	REV
DATE 07/08/25			

APPENDIX 2

Drainage and Water Search – Wessex Searches

Requested on: 07/05/2021

Produced on: 11/05/2021

Our reference: 83809002
Your reference: SF30137708000

COMMERCIAL DRAINAGE AND WATER ENQUIRY – EXTRA

SEARCH ADDRESS

Land at the rear of,
117, High Street,
Dilton Marsh,
Westbury,
BA13 4DP

For any queries please contact our dedicated customer service team on **01225 526206**.

Our standard terms and conditions for Commercial Drainage and Water - Extra enquiries apply to this report. They are included in this document and are available on our website www.wessexsearches.co.uk.

The following records are searched in compiling this drainage and water report:

- The public sewer maps.
- The maps of public water mains.
- Water and sewerage billing records.
- The register of properties subject to internal foul flooding.
- The register of properties subject to poor water pressure.
- The records of build over consents.
- The records of sewer adoption agreements.

Where relevant; information is provided from Bristol Water, Bournemouth Water and Wessex Water.

INTRODUCTION

Dear Sir/Madam,

RE: Land at the rear of, 117, High Street, Dilton Marsh, Westbury, BA13 4DP – 83809002

Please find enclosed the results of your Drainage and Water Search request for the above site dated 11/05/2021.

Wessex Searches has made all reasonable efforts to ensure the accuracy of this information, but provides it subject to the following conditions:

- Service pipes and drainage connections may not be shown.
- Our liability for any inaccuracies or omissions in the information is limited and your attention is drawn to the terms and conditions attached to this search and those on the CON29DW order form.
- No reference is made in the information to any interest or right of the Company on any land, this is not to be taken as conclusive evidence that no such interest or right exists.

These reservations are in addition to any statutory regulations which may apply. Please refer to notes at the end of this search report for further information and advice on sewers and water mains and for the full terms and conditions under which this report is supplied.

The person who prepared this report has not knowingly had any personal or business relationship with any individual involved in the sale of the property.

Records searched in order to compile this report, including the public sewer and water maps, customer account information and any other statutory registers, together with records on build-over consents and sewer adoption agreements, are all held by the relevant water and/or drainage company identified in this report.

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For more information on the searches & services offered by Wessex Searches, please visit www.wessexsearches.co.uk.

Thank you for your enquiry. If you require further assistance, please contact us by emailing contactus@wessexsearches.co.uk or phone **01225 526206**.

Yours faithfully,

Laura Taylor
Wessex Searches

Did you know?

Wessex Searches is a trading name for Wessex Water Enterprises limited

We are the official provider of the CON29DW and Commercial Drainage and Water Enquiry for Wessex Water Services Limited, Bournemouth Water Limited and Bristol Water Limited.

We can also provide you with a one stop shop for all your residential and commercial property searches across England and Wales.

Your guide to changes in private sewers and pumping stations.

On 1 October 2011 ownership of private sewers and lateral drains changed in accordance with The Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011. The contents of this search may not reflect all of these changes. Please visit <http://www.wessexwater.co.uk/about-us/publications/private-sewers-leaflet/> for more details.

Further information is also supplied in Appendix 4.

SEARCH SUMMARY

Question		Response
MAPS		
1.1	Where relevant, please include a copy of an extract from the public sewer map.	See Details
1.2	Where relevant, please include a copy of an extract from the map of waterworks.	See Details
DRAINAGE		
2.1	Does foul water from the property drain to a public sewer?	See Details
2.2	Does surface water from the property drain to a public sewer?	See Details
2.3	Is a surface water drainage charge applicable?	See Details
2.4	Does the public sewer map indicate any public sewer, disposal main or lateral drain within the boundaries of the property?	Yes
2.4.1	Does the sewer map indicate any public pumping station or any other ancillary apparatus within the boundaries of the property?	No
2.5	Does the public sewer map indicate any public sewer within 30.48 meters (100 feet) of any buildings within the property?	Yes
2.5.1	Does the public sewer map indicate any public pumping station or any other ancillary apparatus within 50 metres of any buildings within the property?	No
2.6	Are any sewers or lateral drains serving or which are proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?	No
2.7	Has the sewerage undertaker approved or been consulted about any plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain?	No
2.8	Is the normally occupied building which is or forms part of the property at risk of internal flooding due to overloaded public sewers?	No
2.9	Please state the distance from the property to the nearest boundary of the nearest sewage treatment works.	See Details
WATER		
3.1	Is the property connected to mains water supply?	See Details
3.2	Are there any water mains, resource mains or discharge pipes within the boundaries of the property?	No
3.3	Is any water main or service pipe serving or which is proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?	No
3.4	Is the property at risk of receiving low water pressure or flow?	No
3.5	What is the classification of the water supply for the property?	See Details
3.6	Please include details of the location of any water meter serving the property.	See Details
CHARGING		
4.1.1	Who is responsible for providing the sewerage services for the property?	See Details
4.1.2	Who is responsible for providing the water services for the property?	See Details
4.2	Who bills the property for sewerage services?	See Details
4.3	Who bills the property for water services?	See Details
4.4	Is there a meter installed at this property?	See Details
4.5	Is there a Consent, on this property, to discharge Trade Effluent under S118 of the Water Industry Act (1991) into the public sewerage system?	No

MAPS

1.1 PUBLIC SEWER MAP

Where relevant, please include a copy of an extract from the public sewer map.

A copy of an extract from the public sewer map is included in which the location of the property is identified.

- 1) *The Water Industry Act 1991 defines Public Sewers as those which Wessex Water Services Limited have responsibility for. Other assets and rivers, watercourses, ponds, culverts or highway drains may be shown for information purposes only.*
- 2) *Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.*

1.2 MAP OF WATERWORKS

Where relevant, please include a copy of an extract from the map of waterworks.

A copy of an extract of the map of waterworks is included, showing water mains, resource drains or discharge pipes in the vicinity of the property.

- 1) *The "water mains" in this context are those which are vested in and maintainable by the water company under statute.*
- 2) *Assets other than public water mains may be shown on the plan, for information only.*
- 3) *Water companies are not responsible for private supply pipes connecting the property to the public water main and do not hold details of these. These may pass through land outside of the control of the seller, or may be shared with adjacent properties. The buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.*
- 4) *The copy extract will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.*

DRAINAGE

2.1 FOUL WATER

Does foul water from the property drain to a public sewer?

Land at the rear of,117,High Street,Dilton Marsh,Westbury,BA13 4DP

Records indicate that this enquiry relates to a plot of land or recently built property.

It is recommended that the drainage proposals are checked with the vendor/developer.

- 1) *Water companies are not normally responsible for any private drains serving the property and do not hold details of these. The property owner will normally have sole responsibility for private drains serving the property. From 1st October 2011, lateral drains and private sewers serving the property may become public.*
- 2) *An extract from the public sewer map is enclosed. This will show known public sewers in the vicinity of the property and it should be possible to estimate the likely length and route of any private drains and/or sewers connecting the property to the public sewerage system.*
- 3) *If foul water does not drain to the public sewerage system the property may have private facilities in the form of a cesspit, septic tank or other type of treatment plant.*

2.2 SURFACE WATER

Does surface water from the property drain to a public sewer?

Land at the rear of,117,High Street,Dilton Marsh,Westbury,BA13 4DP

Records indicate that this enquiry relates to a plot of land or recently built property.

It is recommended that the drainage proposals are checked with the vendor/developer.

- 1) *Water companies are not responsible for private drains and sewers that connect the property to the public sewerage system and do not hold details of these. From 1st October 2011, lateral drains and private sewers serving the property may become public.*
- 2) *The property owner will normally have sole responsibility for private drains serving the property and may have shared responsibility with other users, if the property is served by a private sewer which also serves other properties. These may pass through land outside of the control of the seller and the buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal*
- 3) *In some cases, water company records do not distinguish between foul and surface water connections to the public sewerage system*

- 4) *If on inspection the buyer finds that the property is not connected for surface water drainage, the property may be eligible for a rebate of the surface water drainage charge. Details can be obtained from the company*
- 5) *An extract from the public sewer map is enclosed. This will show known public sewers in the vicinity of the property and it should be possible to estimate the likely length and route of any private drains and/or sewers connecting the property to the public sewerage system.*

2.3 SURFACE WATER DRAINAGE CHARGES

Is a surface water drainage charge applicable?

Land at the rear of, 117, High Street, Dilton Marsh, Westbury, BA13 4DP

Records indicate that this enquiry relates to a plot of land or recently built property.

It is recommended that the drainage proposals are checked with the vendor/developer.

- 1) *Where surface water from a property does not drain to the public sewerage system no surface water drainage charges are payable.*
- 2) *Where surface water drainage charges are payable but upon inspection the property owner believes that surface water does not drain to the public sewerage system, application can be made to the company to end surface water charges.*
- 3) *This charge forms part of the annual water and sewerage service charge.*

2.4 PUBLIC SEWERS WITHIN THE BOUNDARY OF THE PROPERTY

Does the public sewer map indicate any public sewer, disposal main or lateral drain within the boundaries of the property?

The public sewer map indicates that there is a public sewer, disposal main or lateral drain within the boundaries of the property. However, from the 1st October 2011 there may be additional public sewers, disposal mains or lateral drains which are not recorded on the public sewer map but may prevent or restrict further development of the property.

- 1) *Wessex Water Services Limited has a statutory right of access to carry out work on its assets. Employees of Wessex Water Services Limited or its contractors may, therefore, need to enter the property to carry out work.*
- 2) *The approximate boundary of the property has been determined by reference to the Ordnance Survey record or the map supplied.*
- 3) *Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991*

are not an 'as constructed' record. It is recommended these details be checked with the developer.

- 4) *Please note if the property was constructed after 1st July 2011 any sewers and/or lateral drain within the boundary of the property are the responsibility of the householder.*
- 5) *A Strategic sewer is a public sewer of critical importance. Wessex Water will not normally permit any works over or within 6M (measured horizontally) of such an asset. In some circumstances, Wessex Water may permit certain build over or build near proposals subject to a number of conditions.*
Please contact Wessex Water Developer Services for further information.

2.4.1 PUBLIC SEWER APPARATUS WITHIN THE BOUNDARY OF THE PROPERTY

Does the sewer map indicate any public pumping station or any other ancillary apparatus within the boundaries of the property?

Land at the rear of, 117, High Street, Dilton Marsh, Westbury, BA13 4DP

The public sewer map included indicates that there is no public pumping station or other ancillary apparatus within the boundaries of the property. However, from the 1st October 2016 private pumping stations which serve more than one property will be transferred into public ownership but may not be recorded on the public sewer map until that time. Any other ancillary apparatus is shown on the public sewer map and referenced in the legend.

2.5 PUBLIC SEWERS NEAR TO THE PROPERTY

Does the public sewer map indicate any public sewer within 30.48 metres (100 feet) of any buildings within the property?

The public sewer map included indicates that there is a public sewer and/or strategic sewer within 30.48 metres (100 feet) of the property boundary.

- 1) *From 1st October 2011 there may be additional lateral drains and/or public sewers which are not recorded on the public sewer map but are also within 30.48 metres (100 feet) of a building within the property.*
- 2) *The presence of a public sewer within 30.48 metres (100 feet) of the building(s) within the property can result in the Local Authority requiring a property to be connected to the public sewer.*
- 3) *The measure is estimated from the Ordnance Survey record, between the building(s) within the boundary of the property and the nearest public sewer.*
- 4) *Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.*

2.5.1 PUBLIC SEWER APPARATUS NEAR TO THE PROPERTY

Does the public sewer map indicate any public pumping station or any other ancillary apparatus within 50 metres of any buildings within the property?

Land at the rear of, 117, High Street, Dilton Marsh, Westbury, BA13 4DP

The public sewer map included indicates that there is no public pumping station or other ancillary apparatus within 50 metres of any buildings within the property. However, from the 1st October 2016 private pumping stations which serve more than one property will be transferred into public ownership but may not be recorded on the public sewer map until that time. Any other ancillary apparatus is shown on the public sewer map and referenced on the legend.

2.6 PUBLIC ADOPTION OF SEWERS AND LATERAL DRAINS

Are any sewers or lateral drains serving or which are proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?

Records indicate that sewers serving the development, of which the property forms part, are not the subject of an existing adoption agreement or an application for such an agreement.

- 1) *Please see Appendix 4 - PRIVATE SEWER TRANSFER for more information relating to changes to S104 agreements following 1st October 2011.*
- 2) *This enquiry is of interest to purchasers of new homes who will want to know whether or not the property will be linked to a public sewer.*
- 3) *Where the property is part of a very recent or ongoing development and the sewers are not the subject of an adoption application, buyers should consult with the developer to ascertain the extent of private drains and sewers for which they will hold maintenance and renewal liabilities.*

2.7 BUILDING OVER OR NEAR A PUBLIC SEWER, DISPOSAL MAIN OR DRAIN

Has a sewerage undertaker approved or been consulted about any plans to erect a building or extension on the property over or in the vicinity of a public sewer,

disposal main or drain?

There are no records in relation to any approval or consultation about any plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain. However, the sewerage undertaker might not be aware of a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain.

- 1) *Buildings or extensions erected over a sewer in contravention of building controls may have to be removed or altered.*
- 2) *From 1st October 2011 private sewers, disposal mains and lateral drains were transferred into public ownership and the sewerage undertaker may not have been approved or consulted about any plans to erect a building or extension on the property over or in the vicinity of these.*

2.8 RISK OF FLOODING DUE TO OVERLOADED PUBLIC SEWERS

Is the building which is or forms part of the property at risk of internal flooding due to overloaded public sewers?

Land at the rear of, 117, High Street, Dilton Marsh, Westbury, BA13 4DP

The property is not recorded as being at risk of internal flooding due to overloaded public sewers. From 1st October 2011 private sewers, disposal mains and lateral drains were transferred into public ownership. It is therefore possible that a property may be at risk of internal flooding due to an overloaded public sewer which the sewerage undertaker is not aware of. For further information, it is recommended that enquiries are made of the vendor.

- 1) *A sewer is "overloaded" when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation collapses and equipment or operational failures are excluded.*
- 2) *"Internal flooding" from public sewers is defined as flooding which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.*
- 3) *"At Risk" properties are those that the water company is required to include in the Regulatory Register that is reported annually to the Water Services Regulatory Authority (OFWAT). These are defined as properties that have suffered or are likely to suffer internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company's reporting procedure.*
- 4) *Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the at Risk register.*
- 5) *Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.*

- 6) *Public sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.*
- 7) *It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.*
- 8) *For reporting purposes buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.*

2.9 SEWAGE TREATMENT WORKS

Please state the distance from the property to the nearest boundary of the nearest sewage treatment works

The nearest sewage treatment works is 0.724 km to the West of the property.
The name of the sewage treatment works is DILTON MARSH

- 1) *The nearest sewage treatment works will not always be the sewage treatment works serving the catchment within which the property is situated.*
- 2) *The Sewerage undertaker's records were inspected to determine the nearest sewage treatment works.*
- 3) *It should be noted therefore that there may be a private sewage treatment works closer than the one detailed above that have not been identified.*
- 4) *As a responsible utility operator, Wessex Water seeks on all its operational sites to manage the impact of odour from our sewage works on the surrounding area in accordance with the Code of Practice on Odour Nuisance from Sewage Treatment Works issued via the Department of Food and Rural Affairs (DEFRA). This Code recognises that odour from sewage treatment works can have a detrimental impact on the quality of the local environment for those living close to works. However, DEFRA also recognises that sewage treatment works provide important services to communities and are essential for maintaining standards in water quality and protecting aquatic based environments.*

WATER

3.1 CONNECTION TO MAINS WATER SUPPLY

Is the property connected to mains water supply?

Land at the rear of, 117, High Street, Dilton Marsh, Westbury, BA13 4DP

This enquiry relates to a plot of land or recently built property. It is recommended that the water supply proposals are checked with the developer.

- 1) Details of troughs are not supplied. As they have no permanent location, we are unable to confirm what they serve. Any information relating to troughs should be checked with the current owner of the property.*

3.2 WATERS MAINS, RESOURCE MAINS OR DISCHARGE PIPES

Are there any water mains, resource mains or discharge pipes within the boundaries of the property?

The map of waterworks does not indicate any water mains, resource mains or discharge pipes within the boundaries of the property.

- 1) The boundary of the property has been determined by reference to the Ordnance Survey record.*
- 2) The presence of a public water main within the boundary of the property may restrict further development within it. Water companies have a statutory right of access to carry out work on their assets, subject to notice. This may result in employees of the company or its contractors needing to enter the property to carry out work.*

3.3 ADOPTION OF WATER MAINS AND SERVICE PIPES

Is any water main or service pipe serving or which is proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?

Records confirm that water mains or service pipes serving the property are not the subject of an existing adoption agreement or an application for such an agreement.

- 1) This enquiry is only of interest to buyers of new homes who will want to know whether or not the property will be linked to the mains water supply.*

3.4 RISK OF LOW WATER PRESSURE OR FLOW

Is the property at risk of receiving low water pressure or flow?

Land at the rear of, 117, High Street, Dilton Marsh, Westbury, BA13 4DP

Records confirm that the property is not recorded on a register kept by the water undertaker as being at risk of receiving low water pressure or flow.

- 1) *1) The boundary of the property has been determined by reference to the Ordnance Survey record.*
- 2) *"Low water pressure" means water pressure below the regulatory reference level which is the minimum pressure when demand on the system is not abnormal.*
- 3) *Water Companies are required to include in the Regulatory Register that is reported annually to the Water Services Regulatory Authority (OFWAT) properties receiving pressure below the reference level, provided that allowable exclusions do not apply (i.e. events which can cause pressure to temporarily fall below the reference level).*
- 4) *The reference level of service is a flow of 9 litres/minute at a pressure of 10metres head on the customer's side of the main stop tap (mst). The reference level of service must be applied on the customer's side of a meter or any other company fittings that are on the customer's side of the main stop tap.*
The reference level applies to a single property. Where more than one property is served by a common service pipe, the flow assumed in the reference level must be appropriately increased to take account of the total number of properties served.
For two properties, a flow of 18 litres/minute at a pressure of 10metres head on the customers' side of the mst is appropriate. For three or more properties the appropriate flow should be calculated from the standard loadings provided in BS806-3 or the Institute of Plumbing handbook
- 5) *Allowable exclusions*
The Company is required to include in the Regulatory Register properties receiving pressure below the reference level, provided that allowable exclusions listed below do not apply.
- 6) *One-off incidents:*
This exclusion covers a number of causes of low pressure; mains bursts; Failures of company equipment (such as PRVs or booster pumps); Firefighting; and Action by a third party.
However, if problems of this type affect a property frequently, they cannot be classed as one-off events and further investigation will be required before they can be excluded.

3.5 WATER HARDNESS ANALYSIS

What is the classification of the water supply for the property?

Land at the rear of, 117, High Street, Dilton Marsh, Westbury, BA13 4DP

The water supplied to the property has an average water hardness of 325 mg/l of Calcium Carbonate which is defined as Very hard by Wessex Water Services Ltd.

Water hardness can be expressed in various indices for example the hardness settings for dishwashers are commonly expressed in Clark's degrees, but check with the manufacturer as there are also other units. The following table shows the normal ranges of hardness

Hardness category	Calcium (mg/l)	Calcium carbonate (mg/l)	English Clarke degrees	French degrees	General/ German degrees
Soft	0 to 20	0 to 50	0 to 3.5	0 to 5	0 to 2.8
Moderately soft	21 to 40	51 to 100	3.6 to 7	6 to 10	2.9 to 5.6
Slightly hard	41 to 60	101 to 150	8 to 10.5	11 to 15	5.7 to 8.4
Moderately hard	61 to 80	151 to 200	10.6 to 14	16 to 20	8.5 to 11.2
Hard	81 to 120	201 to 300	15 to 21	21 to 30	11.3 to 16.8
Very hard	Over 120	Over 300	Over 21	Over 30	Over 16.8

SAMPLE TABLE FOR INFORMATION ONLY

3.6 WATER METERS

Please include details of the location of any water meter serving the property

Land at the rear of,117,High Street,Dilton Marsh,Westbury,BA13 4DP

Records indicate that this enquiry relates to a plot of land or recently built property.

It is recommended that the charging proposals are checked with the vendor/developer.

CHARGING

4.1.1 SEWERAGE UNDERTAKER

Who is responsible for providing the sewerage services for the property?

Wessex Water Services Limited, Operations Centre, Claverton Down Road, Bath, BA2 7WW is responsible for providing the sewerage services for the property.

4.1.2 WATER UNDERTAKER

Who is responsible for providing the water services for the property?

Wessex Water Services Limited, Operations Centre, Claverton Down Road, Bath, BA2 7WW is responsible for providing the water services for the property.

4.2 SEWERAGE BILLS

Who bills the property for sewerage services?

Land at the rear of, 117, High Street, Dilton Marsh, Westbury, BA13 4DP

Records indicate that this enquiry relates to a plot of land or a recently built property. It is recommended that the charging proposals are checked with the developer.

It is policy to meter all new water connections which would result in charges being levied according to the measured tariff

4.3 WATER BILLS

Who bills the property for water services?

Land at the rear of, 117, High Street, Dilton Marsh, Westbury, BA13 4DP

Records indicate that this enquiry relates to a plot of land or a recently built property. It is recommended that the charging proposals are checked with the developer.

It is policy to meter all new water connections which would result in charges being levied according to the measured tariff

4.4 METERS

Is there a meter installed at this property?

Land at the rear of, 117, High Street, Dilton Marsh, Westbury, BA13 4DP

Records indicate that this enquiry relates to a plot of land or recently built property. It is recommended that the charging proposals are checked with the developer.

- 1) *Water and Sewerage companies' full charges are set out in their charges schemes which are available from the company free of charge upon request.*
- 2) *It is policy to meter all new water connections which would result in charges being levied according to the measured tariff*

4.5 TRADE EFFLUENT

Is there a Consent , on this property, to discharge Trade Effluent under S118 of the Water Industry Act (1991) into the public sewerage system?

No, records indicate that there is no consent on this property to discharge Trade effluent into the public sewerage system however should be reminded that it is an offence under S118 of the Water industry act to discharge Trade Effluent into a public sewer vested in Wessex Water without consent.

ADDITIONAL

INTERPRETATION of Drainage and Water Search

Appendix 1 of this report contains definitions of terms and expressions referred to within the search result.

ENQUIRIES AND RESPONSES

The search report on the above property was completed on 11/05/2021

In the event of any queries about the preparation of this search report, enquiries should be directed to contactus@wessexsearches.co.uk or the Wessex Searches Manager, Wessex Water Enterprises at the address below.

Wessex Water Enterprises has put in place procedures to ensure that customers receive support in the event of any complaint. Our formal Complaints Procedure is set out in Appendix 3.

The address for all correspondence is Wessex Water Enterprises Ltd, Wessex Water Operations Centre, Claverton Down, Bath BA2 7WW.

APPENDIX 1

COMMON TERMS

"**the 1991 Act**" means the Water Industry Act 1991[61];

"**the 2000 Regulations**" means the Water Supply (Water Quality) Regulations 2000[62];

"**the 2001 Regulations**" means the Water Supply (Water Quality) Regulations 2001[63];

"**adoption agreement**" means an agreement made or to be made under section 51A(1) or 104(1) of the 1991 Act[64];

"**bond**" means a surety granted by a developer who is a party to an adoption agreement;

"**bond waiver**" means an agreement with a developer for the provision of a form of financial security as a substitute for a bond;

"**calendar year**" means the twelve months ending with 31st December;

"**discharge pipe**" means a pipe from which discharges are made or are to be made under section 165(1) of the 1991 Act;

"**disposal main**" means (subject to section 219(2) of the 1991 Act) any outfall pipe or other pipe which—

(a) is a pipe for the conveyance of effluent to or from any sewage disposal works, whether of a sewerage undertaker or of any other person; and

(b) is not a public sewer;

"drain" means (subject to section 219(2) of the 1991 Act) a drain used for the drainage of one building or of any buildings or yards appurtenant to buildings within the same curtilage;

"combined Sewer" A sewer carrying both foul water as well as surface water.

"effluent" means any liquid, including particles of matter and other substances in suspension in the liquid;

"financial year" means the twelve months ending with 31st March;

"lateral drain" means—

(a) that part of a drain which runs from the curtilage of a building (or buildings or yards within the same curtilage) to the sewer with which the drain communicates or is to communicate; or

(b) (if different and the context so requires) the part of a drain identified in a declaration of vesting made under section 102 of the 1991 Act or in an agreement made under section 104 of that Act[65];

"licensed water supplier" means a company which is the holder for the time being of a water supply licence under section 17A(1) of the 1991 Act[66];

"maintenance period" means the period so specified in an adoption agreement as a period of time—

(a) from the date of issue of a certificate by a sewerage undertaker to the effect that a developer has built (or substantially built) a private sewer or lateral drain to that undertaker's satisfaction; and

(b) until the date that private sewer or lateral drain is vested in the sewerage undertaker;

"map of waterworks" means the map made available under section 198(3) of the 1991 Act [67] in relation to the information specified in subsection (1A);

"private sewer" means a pipe or pipes which drain foul or surface water, or both, from premises, and are not vested in a sewerage undertaker;

"private sewage treatment plant" Generally a small treatment works (which could be a septic tank) owned and operated by a community, hotel or household. Treatment plants should conform to the same operational and environmental standards applied to sewage works operated by the water company. Accordingly, the running costs for small plants can be substantial and as environmental standards are raised there may be a need for additional capital investment.

"private water supply" Where a property has no connection to the water mains, a suitable private spring or surface water source may be used. This may require extensive treatment to make the supplies safe and will be subject to examination and control by the local environmental health officer. Approval under the Building Act 1984 for new building work for domestic properties will not be granted unless adequate water supplies and drainage facilities are available,.

"public sewer" means, subject to section 106(1A) of the 1991 Act[68], a sewer for the time being vested in a sewerage undertaker in its capacity as such, whether vested in that undertaker—

(a) by virtue of a scheme under Schedule 2 to the Water Act 1989[69];

(b) by virtue of a scheme under Schedule 2 to the 1991 Act[70];

(c) under section 179 of the 1991 Act[71]; or

(d) otherwise;

"public sewer map" means the map made available under section 199(5) of the 1991 Act[72];

"pre-1936 Sewers" The Public health Act of 1936 set out a range of responsibilities for the operation and maintenance of sewerage systems but the Act recognised that little was known about the existing sewer network. Some had been maintained by private individuals and others by local authorities. Some of the costs had been re-charged to the owners and the location of all these early sewers had not been surveyed and was unknown. The Act acknowledged the different status of these early sewers and made different provisions in respect of them.

"resource main" means (subject to section 219(2) of the 1991 Act) any pipe, not being a trunk main, which is or is to be used for the purpose of—

(a) conveying water from one source of supply to another, from a source of supply to a regulating reservoir or from a regulating reservoir to a source of supply; or

(b) giving or taking a supply of water in bulk;

"rising mains/pumping mains" These are pipes carrying untreated sewage pumped under pressure. There is no right to connect into them.

"septic tank" A settlement chamber, which provides treatment to sewage and drainage waters. Overflow from the tank goes to a soak-away or drainage field, occasionally to a sewer. Septic tanks are unpowered. Properties operating then are responsible for the operation, the maintenance and occasional emptying of the chamber. Septic tanks function excellently in well drained land. It is becoming less acceptable to operate a septic tank in low-lying land, particularly near rivers and streams. Any pollution problems precipitated by poorly performing septic tanks may mean they need to be decommissioned and connections to the public sewer network need to be undertaken.

"sewerage services" includes the collection and disposal of foul and surface water and any other services which are required to be provided by a sewerage undertaker for the purpose of carrying out its functions;

"sewerage undertaker" means the company appointed to be the sewerage undertaker under section 6(1) of the 1991 Act for the area in which the property is or will be situated;

"soakaway or drainage field" Buried pipes or aggregates that allow treated effluents or surface waters to disperse. They are owned and maintained by the property owner.

"Strategic Sewers" means sewers critical to the running of the sewerage network. No work permitted over or within 6m (horizontal) of this asset

"surface water" includes water from roofs and other impermeable surfaces within the curtilage of the property;

"water main" means (subject to section 219(2) of the 1991 Act) any pipe, not being a pipe for the time being vested in a person other than the water undertaker, which is used or to be used by a water undertaker or licensed water supplier for the purpose of making a general supply of water available to customers or potential customers of the undertaker or supplier, as distinct from for the purpose of providing a supply to particular customers;

"water meter" means any apparatus for measuring or showing the volume of water supplied to, or of effluent discharged from any premises;

"water supplier" means the company supplying water in the water supply zone, whether a water undertaker or licensed water supplier;

"water supply zone" in relation to a calendar year means the names and areas designated by a water undertaker within its area of supply that are to be its water supply zones for that year; and

"water undertaker" means the company appointed to be the water undertaker under section 6(1) of the 1991 Act for the area in which the property is or will be situated.

APPENDIX 2

Wessex Searches General Terms and Conditions

These terms and conditions (the **General Terms**) set out the terms and conditions which will apply to any orders placed either through the Wessex Searches website (the **Website**) or when ordering by post, Xml or email.

If you register as a user of the Website and / or you place an order with Wessex Searches, you agree to be bound by these General Terms. If you do not accept these General Terms, please do not place an order.

The General Terms apply in addition to either the CON29DW Terms, the Commercial DW Terms, and / or Third Party terms as applicable, depending on the search ordered (the **Report Terms**). Together, the General Terms and the relevant Report Terms are referred to as the **Terms**.

Please read the Terms carefully, as by using the Website and our services, you agree to the Terms.

1 About us

- 1.1 Wessex Searches (we, us, our) is a trading name of Wessex Water Enterprises Limited, company registration number 02279151 and registered office address Operations Centre, Claverton Down Road, Claverton Down, Bath BA2 7WW. We can be emailed at contactus@wessexsearches.co.uk, or contacted by telephone on 01225 526 206.

2 About our services

- 2.1 We are the official producer of the CON29DW Drainage and Water enquiry and the Commercial Drainage and Water enquiry in the Wessex Water, Bristol Water and Bournemouth Water areas. Searches can be requested for residential properties (**CON29DW Search**) or commercial properties (**Commercial DW Search**).
- 2.2 We also offer a number of third party searches through our Website (**Third Party Searches**). CON29DW Searches, Commercial DW Searches and Third Party Searches are referred to together as **Searches**.
- 2.3 Searches can be ordered by any person, company, firm or legal body (a **Client**) either on their own behalf or through their authorised representative(s). References to **you** and **your** in the Terms are references to the person, firm or company requesting the provision of search information and reports from us.

3 Your account and data protection

- 3.1 You will need to set up an account to use our services. To do this you will need to provide us with some information, which we will treat in accordance with our Privacy Policy (available on the Website). You will have a password, which you are responsible for keeping secure.
- 3.2 By signing up for an account, you warrant that you have the necessary capacity, authority and consents to request Searches from us. If you are acting on behalf of a Client, you are also responsible for ensuring that you have the necessary consent for names, addresses, and other personal information to be submitted to us when you request Searches and agree that you will comply with all applicable data protection legislation (including, without limitation the Data Protection Act 2018. The Privacy and Electronic Communications (EC Directive) Regulations 2003 and General Data Protection Regulation EU 2016/679) at all times.
- 3.3 You acknowledge that some or all information needed to provide a Search may come from a third party (**Third Party**). Where this is the case, we will pass on your request (and where necessary personal data) to the relevant Third Party.

4 Use of our Website

- 4.1 You must not use our Website for fraudulent or illegal purposes, or in any way that would interrupt or damage the Website. In particular you must not knowingly transmit viruses, Trojan horses, worms or any other malicious code.
- 4.2 You are responsible for ensuring that your computer is secure and you have up-to-date antivirus protection. We accept no liability for viruses transmitted through our Website.
- 4.3 Our Website is intended for use in the UK and we make no guarantee that the Website will be available or appropriate for use in other locations.
- 4.4 We give no guarantees as to the operation, availability or functionality of the Website or that it will be error-free.
- 4.5 Information on our Website is not intended as advice which you should rely on.
- 4.6 We can change the content of our Website at any time but are under no obligation to update it.

5 Ordering services

- 5.1 You can order Searches through our Website by submitting an electronic search request or by post, Xml or email (a **Request**).
- 5.2 For Requests by post, xml or email you must complete our order form, including full details of the Search(es) you would like to order. You can find a copy of the order form on our Website or alternatively can request a copy by email or by telephone using the contact details in 1.1 above.
- 5.3 Requests by post or email should be sent to the postal or email address below:

Wessex Searches
Operations Centre
Claverton Down Road
Bath BA2 7WW

contactus@wessexsearches.co.uk

We cannot accept liability in the event that you order a Search by post or email and the letter or email is not received by us.

- 5.4 If the Search you have ordered is a Third Party Search, we will pass your Request on to the relevant search provider (each a **Provider**).
- 5.5 Third Party Searches are subject to the relevant Provider's terms and conditions. You can view their terms on our Website before you submit a Request, and if you submit a Request you agree to their terms. We are not responsible for any Third Party Searches and accept no liability in relation to Third Party Searches or the terms on which they are provided. If there is any conflict or inconsistency between these General Terms and the Provider's terms, the provisions of the Provider's terms shall apply in relation to the provision of the Third Party Search.
- 5.6 We may choose not to accept a Request, in which case we will notify you within 48 hours.

6 Cancelling services

- 6.1 You are always entitled to cancel any Requests you have submitted at any time before we start to process it.
- 6.2 If you are a business customer, you can cancel your Request after we have started to process it, but we may charge a cancellation fee. Where a Search has been ordered, and has been fulfilled or partly fulfilled prior to cancellation, then the full price of the Search shall be payable.
- 6.3 If you are a consumer (and not trading as a business), you can cancel your Request within 14 days of the date of your Request. You can tell us of your decision to cancel by post or email and you can (but you don't have to) use our cancellation form (available on the Website).
- 6.4 If you are a consumer, due to your cancellation rights, we won't start to process your Request until the 14-day cancellation period is up, unless you expressly tell us to do so and acknowledge that you waive your cancellation rights. If you waive these rights, you can still cancel after we have started to process your Request, but we may charge a cancellation fee. Where a Third Party Search has been ordered, and has been fulfilled or partly fulfilled prior to cancellation, then the full price of the search shall be payable.

7 Services and standards

- 7.1 If we accept your Request, we will perform the Search you have requested and will produce an electronic report (a **Report**). If you have ordered a Third Party Search, and this has been

accepted by the Provider, the Provider will produce an electronic report in response to your order (a **Third Party Report**).

- 7.2 We will use reasonable skill and care when we perform Searches and produce Reports.
- 7.3 Reports and Third Party Reports provided in response to your requests will be sent to the contact details provided in your request. We will provide Reports within a reasonable period of time and we won't be responsible for delays in providing Third Party Reports.
- 7.4 It is your responsibility to ensure that the Searches and Reports meet your or your Client's requirements.

8 Accuracy of information

- 8.1 We will prepare Reports using the details you provide when you submit a Request. You must make sure all details you submit with your Request are accurate and complete.

9 Prices and payment

- 9.1 All prices for Searches are published on our Website. Prices are in pounds sterling and include VAT unless otherwise stated.
- 9.2 Our prices may change from time to time and our Website will be updated to reflect those changes. The price you pay will be the price stated on our Website at the time the Request is submitted.
- 9.3 Unless you have an account with us, we must receive payment for Searches in full before the Report is produced.
- 9.4 If you have an account with us, we will invoice you in arrears for Searches which may be weekly, monthly or in relation to each Search. Invoices are payable within 30 days of the date of the invoice. You acknowledge and agree that if payment is not made in full by the due date for payment, we may at our discretion, and without prejudice to our right to seek recovery of late payment through the courts or any other appropriate means: (a) charge you interest on any overdue amounts at the rate of 4% per annum above HSBC's base lending rate from time to time, calculated from the date of the invoice to the date actual payment is received, whether before or after judgment; and/or (b) put your account on hold until such time as all overdue amounts (including interest due) are paid in full.
- 9.5 In respect of LLC1 searches we provide to you, you acknowledge and agree that these will be treated as disbursements in line with current HMRC guidance. Should HMRC change their guidance, we reserve the right to recover any output tax due on these from you.

10 Intellectual property rights

- 10.1 All intellectual property rights in the Website are owned by us and/or our licensors.
- 10.2 You may only print out or copy any pages from our Website for your own personal use. You can link to our homepage but only if this is legal and fair and doesn't damage our reputation or suggest an endorsement by us. You must not frame our site on any other site or link to any part other than our homepage.
- 10.3 Except as set out in this clause, neither you nor your Client (if applicable) obtains any rights in any intellectual or other property.

11 Limitation of liability

- 11.1 Nothing in the Terms limits our liability for death or personal injury arising from our negligence.
- 11.2 As far as we are allowed to do so, we exclude:
 - 11.2.1 liability for errors, omissions and/or inconsistencies in the content of Reports or Third Party Reports unless these are directly due to our negligent acts or omissions;
 - 11.2.2 all conditions, warranties and other implied terms; and
 - 11.2.3 all liability for direct, indirect or consequential loss or damage you incur in connection with our Website; and
 - 11.2.4 all liability for indirect or consequential loss or damage you incur in connection with the Reports.
- 11.3 Our entire liability in respect of all causes of action arising by reason of or in connection with a CON29DW Search Report or a Commercial DW Search Report shall be limited as set out in the relevant Report Terms. It is your responsibility to ensure that you order the correct Report in relation to the property in accordance with the Report Terms.
- 11.4 All other liability which we may incur under or in connection with the Terms shall be limited to £250,000.
- 11.5 Transmission of information via the internet is never completely secure and we will not be liable to you for any loss, expense or damage you incur or suffer as a result of electronic transmission of information being intercepted by unauthorised third parties.

12 Complaints

- 12.1 If you need to send us a complaint, please follow our Complaints Procedure (available on the Website).
- 12.2 If you are still not satisfied with our response or action, you can refer your complaint to The Property Ombudsman scheme at Milford House, 43-55 Milford Street, Salisbury, Wiltshire SP1 2BP or by email to admin@tpos.co.uk.

13 Termination

- 13.1 If you breach the Terms, we may take any appropriate action, including but not limited to closing your account, suspending the provision of our services, withdrawing your right to use the Website and/or taking legal proceedings against you.
- 13.2 You can close your account and terminate any Requests if we materially breach the Terms.
- 13.3 You can stop using our services at any time by using our “unsubscribe” procedure.

14 General

- 14.1 We reserve the right to modify, add to or change the Terms at any time. Any changes will be effective as soon as they are posted on our Website. If you continue to use the Website you will be deemed to have accepted the changes.
- 14.2 If you are acting on behalf of a Client, your Client is entitled to the benefit of the Terms.
- 14.3 Our Website may contain links to third party websites. These websites are not under our control and we accept no responsibility for them.
- 14.4 You may not assign, sub-license or otherwise transfer your rights under the Terms.
- 14.5 If any provision of the Terms is invalid or unenforceable, it will be taken to be removed from the rest of the Terms to the extent it is invalid or unenforceable.
- 14.6 The Terms (including, for the avoidance of doubt, both the General Terms and the Report Terms) are the only terms that apply to any Request you make and any Report we produce and are the entire agreement between us relating to such Requests and Reports.
- 14.7 The Terms and any disputes or claims in connection with them (including non-contractual disputes or claims) are governed by English law. Any disputes or claims (including non-contractual disputes or claims) will be subject to the exclusive jurisdiction of the courts of England and Wales.

Version 1st March 2019

Commercial DW Terms and Conditions

1 About these Terms

- 1.1 These terms and conditions (the **Commercial DW Terms**) apply to the provision of reports resulting from Commercial Drainage and Water enquiries (**Commercial DW Reports**).
- 1.2 Please read the Commercial DW Terms carefully. By ordering a Commercial DW Report you agree to the General Terms and the Commercial DW Terms (together, the **Terms**).
- 1.3 If you have ordered a Commercial DW Report on behalf of your Client, you are responsible for bringing the Commercial DW Terms to your Client's attention.
- 1.4 Unless otherwise specified, capitalised words have the same meanings as in the General Terms.

2 About Commercial Reports

- 2.1 We use reasonable skill and care in producing Commercial DW Reports, but please note that information in a Commercial DW Report can change on a regular basis. We cannot be responsible to you or to your Client for any change in information after the Commercial DW Report was produced.
- 2.2 The Commercial DW Report does not give details about the state or condition of the property. It should not be relied on to indicate suitability or saleability of the property.
- 2.3 The Commercial DW Report provides information as to the location and connection of existing services and other information in relation to drainage and water enquiries and should not be relied on for any other purpose.
- 2.4 The position and depth of apparatus shown on any Ordnance Survey maps attached to the Commercial DW Report (**Maps**) are approximate and are provided as a general guide only. The exact positions and depths should be obtained by excavating trial holes carried out by appropriately skilled and experienced engineers.
- 2.5 The Commercial DW Report may contain opinions or general advice which we cannot ensure is accurate, complete or valid and for which we accept no liability.
- 2.6 We will not be liable to you or your Client for any failure, defect or non-performance of our obligations arising from any failure of or defect in any machine, processing system or transmission

link or anything beyond our reasonable control or the acts or omissions of any party for whom we are not responsible.

- 2.7 If you sell a Commercial DW Report to a Client (other than in the case of a bona fide legal adviser or authorised representative acting on behalf of a legal adviser recharging the cost of the Report as a disbursement), we will not be liable for any loss or damage whatsoever and you indemnify us in respect of any claim by the Client.
- 2.8 Where we provide a Report for a Commercial Property which receives either water or drainage services from us, and another company ("**other service provider**") provides the other service, then our total liability, whether for breach of contract, tort, negligence, breach of statutory duty, misrepresentation or otherwise, arising under or in connection with the supply of the information from the other service provider is limited to such sums as we are entitled to and able to recover from the other service provider.

3 How you can use the Commercial DW Report

- 3.1 Commercial DW Reports should be used in relation to individual property transactions where the property is not a single residential, domestic property and for land to be developed for commercial gain.
- 3.2 Commercial DW Reports may only be used in relation to the property which the Search was carried out against. The Commercial DW Report you receive will be relevant to the Search that you submitted. The provisions of clauses 3.3 to 3.5 shall also apply.
- 3.3 "Basic Commercial DW Reports" may only be used for small properties or land occupying a site of less than 100m².
- 3.4 "Standard Commercial DW Reports" may only be used where a property occupies a site of less than 1 hectare. Where the property has more than two connections, the report will be restricted to two connections.
- 3.5 "Commercial Extra DW Reports" may only be used where a property:
 - 3.5.1 Occupies a site of 1 hectare or more; and/or
 - 3.5.2 Has multiple connections.

Where the property has more than four connections, the report will be restricted to four connections.

4 Intellectual property rights

- 4.1 Commercial DW Reports are confidential and intended for your and your Client's own internal purposes or personal use. You and your Client must not use or copy any part of a Commercial DW Report for any other reason.
- 4.2 All intellectual property rights in Commercial DW Reports are owned by us and/or our licensors.
- 4.3 Maps are protected by Crown copyright and must not be used for any purpose other than as part of a Commercial DW Report.
- 4.4 The enquiries in Commercial DW Reports are protected by copyright by the Law Society of 113 Chancery Lane, London WC2A 1PL and must not be used for any purpose outside the context of the Commercial DW Report.
- 4.5 You may:
 - 4.5.1 make copies of the Commercial DW Report (except any Maps) for your own internal purposes;
 - 4.5.2 incorporate the Commercial DW Report (other than Maps) into any written advice you provide in the normal course of your business; and
 - 4.5.3 disclose the Commercial DW Report in the normal course of your business to your Client and/or to anyone who is interested in the property to which the relevant Commercial DW Report relates, and their professional advisers.
- 4.6 You and/or your Client must not change any part of any Commercial DW Report, including altering, removing or obscuring any logos and/or branding in a Commercial DW Report.

5 Limitation of liability

- 5.1 Please note in particular the provisions regarding limitation of liability in the General Terms, which apply in addition to this clause.
- 5.2 Our entire liability in respect of all causes of action arising by reason of or in connection with a Commercial DW Report shall be limited to:
- 5.2.1 the sum of £500,000 in respect of Basic Commercial DW Reports;
- 5.2.2 the sum of £2 million in respect of Standard Commercial DW Reports; and
- 5.2.3 the sum of £5 million in respect of Commercial Extra DW Reports.

Version 1
1st October 2017

APPENDIX 3

COMPLAINTS PROCEDURE

If you want to make a complaint, we will:

- Acknowledge it within 5 working days of receipt.
- Normally deal with it fully and provide a final response, in writing, within 20 working days of receipt.
- Keep you informed by letter, telephone or e-mail, as you prefer, if we need more time.
- Provide a final response, in writing, at the latest within 40 working days of receipt.
- Liaise, at your request, with anyone acting formally on your behalf.

Complaints should be sent to: Laura Taylor, Searches Operations Manager, Wessex Searches, Operations Centre, Claverton Down Road, Bath, BA2 7WW. Phone number: 01225 526206, Fax: 01225 528994, email: contactus@wessexsearches.co.uk.

If you are not satisfied with our final response, or if we exceed the response timescales, you may refer the complaint to The Property Ombudsman scheme (TPOs): Tel: 01722 333306, www.tpos.co.uk, E-mail: admin@tpos.co.uk.

We will co-operate fully with the Ombudsman during an investigation and comply with his final decision.

APPENDIX 4

Sewer Protection – Building over or close to a public sewerage system

Wessex Water is responsible for maintaining public sewers that have sometimes been laid within the boundaries of properties. Agreement will be required to carry out any building work over or within three metres of a public sewer to ensure no damage is caused to it or restrictions made to the way it is used and maintained.

Wessex Water is normally willing to consider building over or near non-strategic public sewers up to 225mm in diameter where diversion is not practical and the building cannot be redesigned.

However, building over a public sewer will not be permitted where the following criteria apply.

- The sewer has a formal easement preventing overbuilding – this is normally shown in the deeds of the property.
- The sewer is greater than 300mm in diameter or above.
- The sewer depth is in excess of three metres.
- The sewer is a pressurised pumping main.
- The building will span or cover any existing public sewer access chamber.
- The building is a 'new build' property.

Building within fifteen metres of a public sewerage pumping station will also not be permitted due to potential nuisance arising from odour, noise and vibration.

In the case of strategically important or deep sewers, generally greater than 300mm in diameter or in excess of 3.0m deep, the minimum distance between any building work and the sewer will be greater than 3.0 metres. You will need to seek guidance from the Sewer Protection Team on 01225 526000.

Wessex Water should be consulted early on in the design process where building work is proposed near or over a public sewer to agree any necessary arrangements for the protection of infrastructure crossing the site.

An application form for building over a public sewer is available from the Sewer Protection Team on 01225 526000.

The information included in this report does not constitute an approval to alter, divert, build over, or connect to, any public apparatus.

Depending on your proposals, you may need to contact our Planning Liaison Team on 01225 526000 and/or the Local Authority.

Sewer Protection – Discharges

Section 111 of the Water Industry Act (1991) places an absolute prohibition on the discharge of the following into a public sewer or drain or sewer communicating with a public sewer.

- Any matter likely to injure the sewer or drain, to interfere with free flow of its contents, or to affect prejudicially the treatment or disposal of its contents.
- Any chemical refuse or waste steam or any liquid of temperature higher than 110 degrees Fahrenheit.
- Any petroleum spirit or carbide of calcium.

On conviction in the Magistrates' court, offences under this section carry a fine of up to £5,000 and to a further fine of up to £50 for each day on which the offence continues after conviction.

On conviction in the Crown Court, offences can lead to imprisonment for a term not exceeding two years, or to a fine, or both.

Water Main Protection - Building over or close to a public water main

Building over water mains presents two principal problems.

1. They become completely inaccessible for maintenance and repair.
2. Should they burst, water discharging under pressure may cause significant damage to property and may endanger the structure of the building, possibly to the point of collapse. Even a small-volume, undetected, long-term leak on a built over main can erode foundations to the point of collapse.

Accordingly:-

- Building over a water main is not permitted.
- Building alongside a water main is permitted provided a minimum distance of 3.0 metres each side is maintained from any part of the structure. In the case of large-diameter mains (any main over 300mm nominal bore) and strategically important or deep mains, a minimum distance of 5.0 metres is required.
- Where development has taken place and buildovers have occurred, it is likely that diversion at the landowner's expense will be required.

Wessex Water Services Ltd should be consulted early on in the design process where building work is proposed near a public water main to agree any necessary arrangements for the protection of infrastructure crossing the site.

Private Sewer Transfer

From 1 October 2011 by virtue of a scheme made under the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011 ("the 2011 Regulations") and by virtue of section 105A of the Water Industry Act 1991 ("the 1991 Act") private sewers and lateral drains which immediately before 1 July 2011 communicated with a public sewer became vested in sewerage undertakers.

Under the 2011 Regulations adoptable private sewers and private lateral drains the subject of an agreement under section 104 also vest in sewerage undertakers if immediately before 1 July 2011 they communicated with a public sewer. The section 104 agreement insofar as it relates to that sewer or lateral drain is treated as terminating on that date.

Where adoptable private sewers and private lateral drains the subject of an agreement under section 104 did not immediately before 1 July 2011 communicate with a public sewer they will vest on the earlier of the date of vesting under the agreement or the date of vesting pursuant to a supplementary scheme made under Regulation 4 to the 2011 Regulations. The section 104 agreement insofar as it relates to that sewer or lateral drain is treated as terminating on the date of vesting.

Where an agreement covers assets which do not and will not communicate with a public sewer those assets will remain private and subject to the provisions of the agreement.

The attached extracts from the public sewer map may show sewers and private laterals the subject of an agreement under section 104 of the Act as being private notwithstanding the fact that they may have vested in Wessex Water pursuant to the 2011 Regulations. Wessex Water is in the process of

confirming with developers the date of communication with public sewerage and will be updating the public sewer map when this information is known.

Where there is any doubt as to the status of a particular length of pipe it is recommended that Wessex Water is contacted for advice.

Details of sewers and private laterals the subject of an agreement under section 104 of the Act have not been compiled from an "as constructed" record and Wessex Water will be updating the sewer map when that information is provided by developers. Until then it is recommended that details of the route these pipes follow be checked with the developer.

IMPORTANT CONSUMER PROTECTION INFORMATION

IMPORTANT CONSUMER PROTECTION INFORMATION

This search has been produced by Wessex Searches, Wessex Water Operations Centre, Claverton Down, Bath, BA2 7WW, phone number: 01225 526206, fax: 01225 528994, email: contactus@wessexsearches.co.uk.

Complaints

If you have a query or complaint about your search, you should raise it directly with the search firm, and if appropriate ask for any complaint to be considered under their formal internal complaints procedure. If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award compensation of up to £5,000 to you if he finds that you have suffered actual loss as a result of your search provider failing to keep to the Code.

Please note that all queries or complaints regarding your search should be directed to your search provider in the first instance, not to TPOs.

TPOs Contact Details:

The Property Ombudsman scheme
Milford House
43-55 Milford Street
Salisbury
Wiltshire SP1 2BP
Tel: 01722 333306
Fax: 01722 332296
Website: www.tpos.co.uk
Email: admin@tpos.co.uk



CONTACT US

Telephone: 01225 526 206

Post:

Wessex Searches, Wessex Water Operations Centre, Claverton Down, Bath BA2 7WW

Email: Contactus@wessexsearches.co.uk

Web: www.wessexsearches.co.uk



Twitter:
@wessexsearches



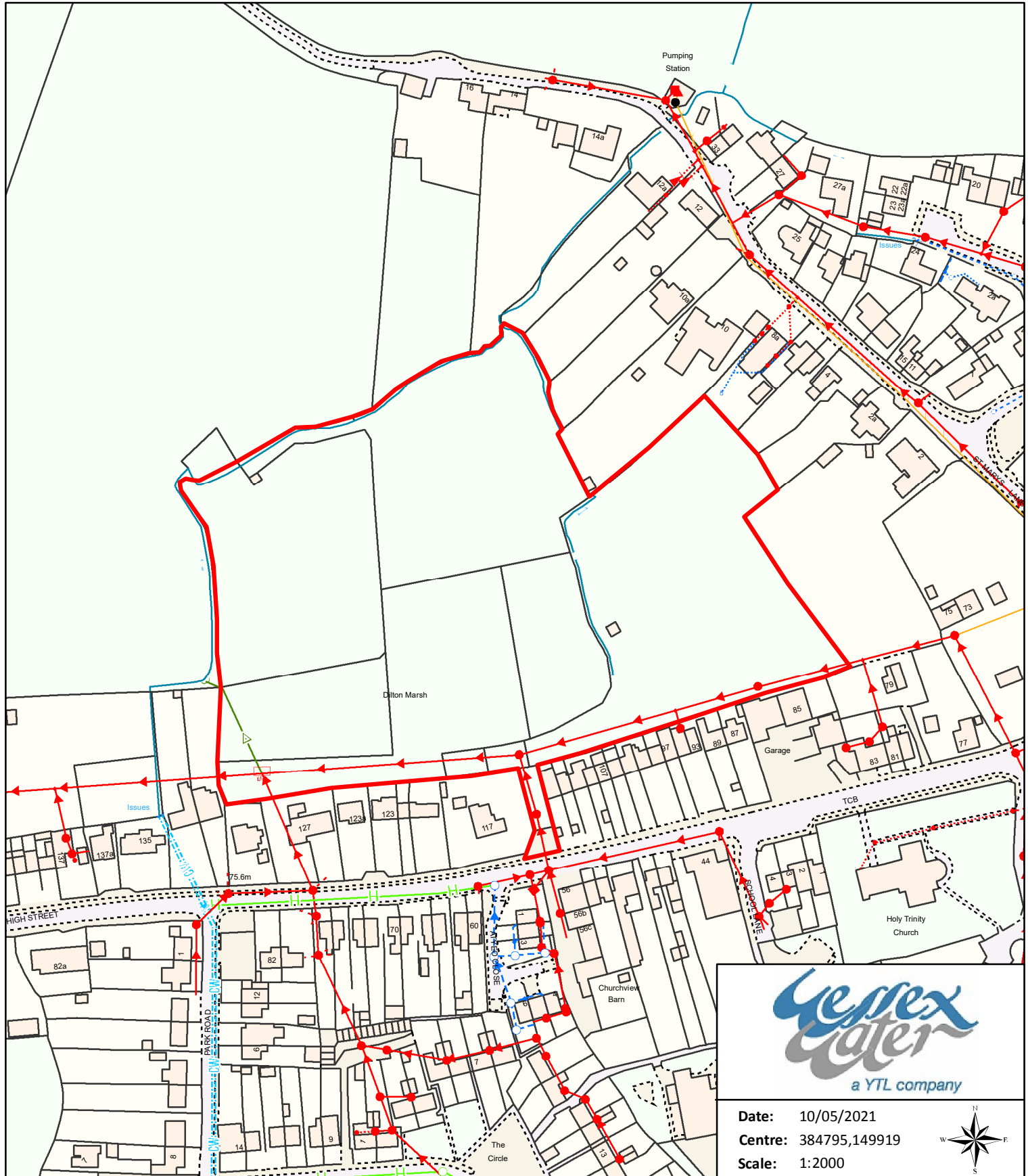
LinkedIn:
Wessex Searches

Order all your searches from www.wessexsearches.co.uk

You can order all your searches from us quickly and simply at
www.wessexsearches.co.uk



117, Land at the rear of, High Street, Dilton Marsh, Westbury, BA13 4DP



**Wessex
Water**
a YTL company

Date: 10/05/2021

Centre: 384795,149919

Scale: 1:2000



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



Sewerage Key

Types of Sewer:

	Public Foul Sewer A sewer that carries waste water from domestic and commercial sources to a Sewage Treatment Works.
	Public Combined Sewer An older sewer that carries a combined flow of surface water and foul sewer to a Sewage Treatment Works.
	Public Surface Water Sewer A sewer that carries surface water (e.g. rain water from roofs, yards, car parks etc) to a point of discharge.
	Strategic Sewer Sewers essential to the running of the sewerage network. No work permitted over or within 6m (horizontal) of this asset.
	Abandoned Sewer Sewers abandoned in situ. These sewers are sealed and should not be used for connections.
	Private Sewer Sewers not in the ownership of Wessex Water, but recorded to assist work in the geographical vicinity. Wessex Water does not know ownership.

Other Wessex Pipes:

	Public Rising Main A pipe that carries a pressurised pumped flow to another part of the sewerage system.
	Public Overflow A pipe that relieves upstream sewers of flows in excess of the hydraulic capacity (e.g. from a CSO).
	Effluent Disposal Main A pipe that carries treated effluent from a Sewage Treatment Works to a watercourse or other point of discharge.

Non-Wessex Pipes:

	Culverted Watercourse A natural (or diverted) watercourse which has been piped.
	Highway Drain Part of drainage system maintained by the highway authority to drain surface water from the highway.

Sewer Annotation:

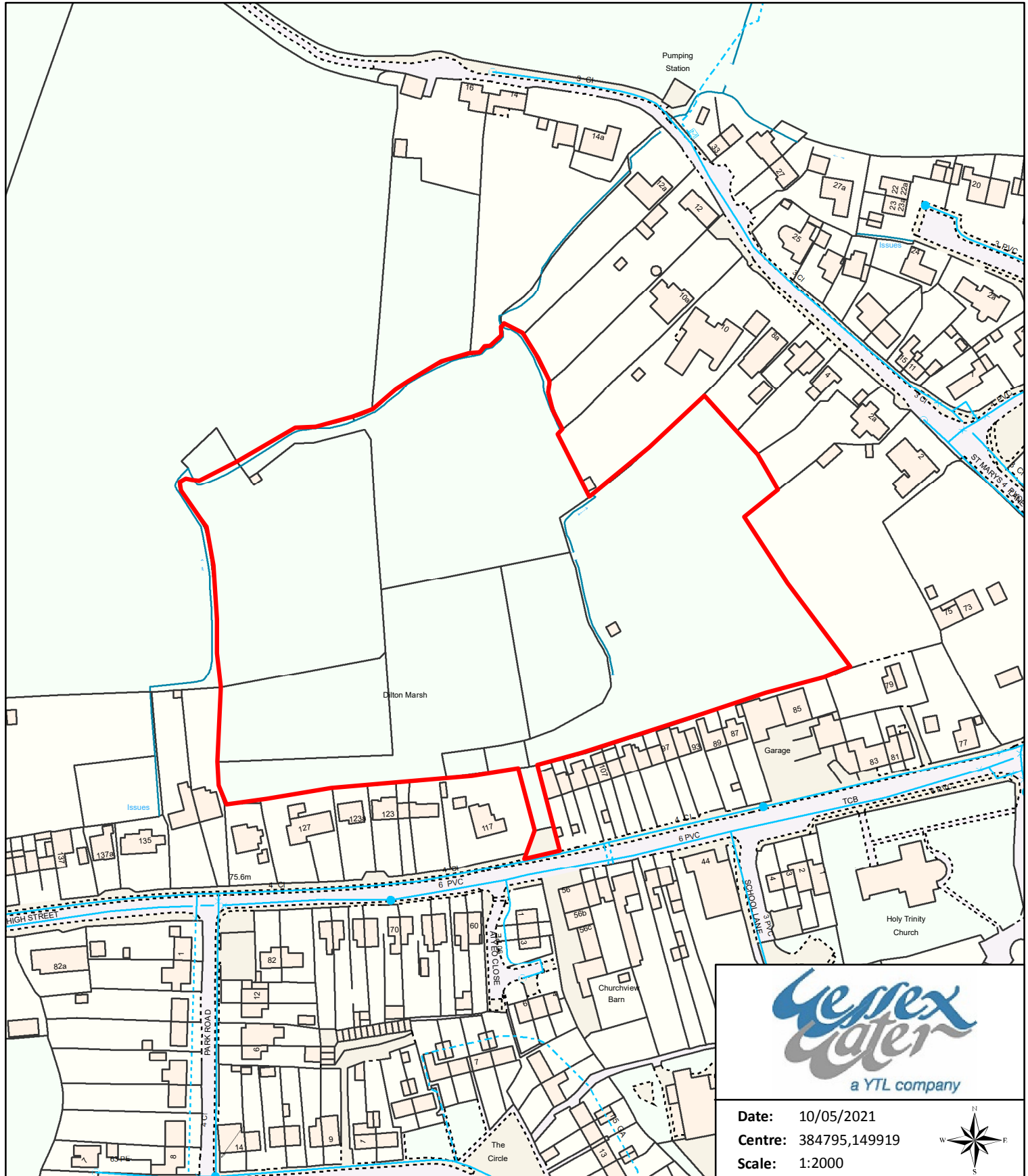
The sizes of the individual sewers are shown as annotations on the map. A non-circular pipe is indicated by two dimensions (e.g. 600x400).

Sewerage Apparatus:

The following are the most common type of apparatus found on the Wessex Water sewerage network;

	Manhole - An access chamber to the sewerage network.
	Pumping Station - Facility used to lift sewer flows to a higher point in the gravity system, or to pump to another facility.
	NRV (Non-return valve) - Valve that allows flow to pass in only one direction.
	CSO (Combined Sewer Overflow) - Chamber where excess sewage can be discharged when the capacity of the network is exceeded.
	Bifurcation - Chamber where flow may be split into two or more channels. May operate in both dry and wet weather conditions.
	Lamphole - A small shaft between manholes that is used to illuminate sewer lengths for inspection.
	Rodding Eye - A small hatch in the drainage system that is used for inspection or cleaning.
	Catchpit - A pit on the sewerage network in which matter, that may otherwise block a sewer, is collected and periodically removed.
	Vent Column - An above-ground structure that vents odours from the sewerage network away from ground level.
	Soakaway - A form of infiltration drainage that allows water (usually surface water) to infiltrate into the ground rather than discharge directly into a sewer.

117, Land at the rear of, High Street, Dilton Marsh, Westbury, BA13 4DP



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



Water Supply Key

Types of Water Main:

	Distribution Main A distribution main carries treated water to customers. With few exceptions, domestic water connections are only made to distribution mains.
	Raw Water Main A raw water main carries untreated (raw) water to a Water Treatment Works.
	Washout Main A main used for maintenance and management of the water supply network, to flush out or empty connected assets.
	Abandoned Main Abandoned mains are not in use, but may still be in the ground.
	Private Main Mains not in the ownership of Wessex Water, but are recorded to assist work in the geographical vicinity. Wessex Water does not know ownership.

Water Main Annotation:

The size and material of the individual water mains are shown as an annotation on the map. The main's material is shown as an abbreviation with the most common materials being;

AC	Asbestos Cement	CI	Cast Iron	DI	Ductile Iron
SI	Spun Iron	ST	Steel	PE	Polyethylene
PVC	uPVC	POLY	Plastic/Polythene	UNK	Unknown

A main's diameter will fall between 0.25" - 24" for imperial sizes, and 50mm - 1200mm for metric sizes.

Water Main Apparatus:

The following are the most common type of apparatus found on the Wessex Water supply network;

- Open Valve - Open sluice valve used to regulate the flow of water.
- Closed Valve - Closed sluice valve used to regulate the flow of water.
- Closed Valve (DMA) - Closed sluice valve that denotes the boundary of a metered area.
- Closed Valve (Black Cap) - Permanently closed sluice valve.
- Washout Valve - Valve that is occasionally used to clear out sediment or drain-down part of the network.
- Fire Hydrant -
- Washout Hydrant - Hydrant that is occasionally used to clear out sediment or drain-down part of the network.
- Air Valve - Valve used to remove (bleed) air from the mains network.
- PRV (Pressure reducing valve) - Valve used to control or limit the pressure in the mains network.
- PSV (Pressure sustaining valve) - Valve used to maintain a set pressure at a specific point in the mains network.
- NRV (Non-return valve) - Valve that allows water to flow in only one direction.
- End Cap - Fitting used to terminate (cap-off) a main.
- Network Meter - Meter used to internally manage\monitor the mains network.
- Booster Pump - Pump used to maintain pressure in the mains network.

APPENDIX 3

Impermeable Areas Plan



DO NOT SCALE this drawing. Use figured dimensions only.
The Contractor must check & verify all dimensions on site.
Any discrepancies must be reported immediately to the Engineer for clarification before proceeding.
This drawing is copyright and owned by Morgan Civil + Structural.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
Refer to the relevant Construction (Design and Management) documentation where applicable.
It is assumed that all works on this drawing will be carried out by a competent contractor, working where appropriate to an approved method statement.

Key:

- Impermeable area - Road (0.27 ha)
- Impermeable area - Housing (0.36ha)
- Impermeable area - Private Drive (0.36ha)
- Total Impermeable area - 1.00ha



P04	17/08/20	Updated to include Architect's latest layout	AM
P03	11/08/20	Updated to suit latest architect's layout	AM
P02	29/04/20	Drawing title amended	AM
P01	01/04/20	First issue	AM

Rev	Date	Description	By
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Client

Redcliffe Homes Ltd

Project

Dilton Marsh

Title

Impermeable Area Plan

Drawing Status

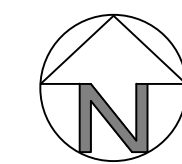
PLANNING

Drawn	Checked	Approved	Date	Scale @ A1
AM	OT	NT	MAR 2026	1:500
Project No.		Drawing No.		Revision
148009		148009-MCS-XX-DR-C-5200		P04



APPENDIX 4

Proposed Drainage Strategy



DO NOT SCALE this drawing. Use figured dimensions only. The Contractor must check & verify all dimensions on site. Any discrepancies must be reported immediately to the Engineer for clarification before proceeding. This drawing is copyright and owned by Morgan Civil + Structural.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
Refer to the relevant Construction (Design and Management) documentation where applicable.
It is assumed that all works on this drawing will be carried out by a competent contractor, working where appropriate to an approved method statement.

- Notes**
- The drawing is to be read in conjunction with all other relevant drawings/offsets.
 - Do not scale from this drawing. Use figured dimensions only. All dimensions are in meters.
 - All applicable highway works shall be carried out in accordance with the specific requirements of Highway Construction (Design and Management) and the general requirements of the Highway Agency's (HWA) 'Manual of Contract Documents for Highway Works and any amendments thereto' current at the time of tender submission.
 - All the above requirements shall apply unless otherwise stated in the general management documentation. If the event of a contradiction the contract specific documents shall be deemed to prevail.
 - The contractor is to check and verify all site dimensions and levels, including existing sewer invert levels and offsets, prior to start on site.
 - Positions of existing semi-enclosed underground apparatus adjacent to or crossing proposed excavations are to be confirmed prior to start on site.
 - This drawing is to be read in conjunction with and checked against all engineering details, specifications, geotechnical and other relevant documentation provided.
 - Where items adjacent to highways or drainage are proposed, not barriers (type to be approved) are required to prevent structural damage.
 - Any anomaly or contradictions between any of the above is to be reported immediately.
 - The contractor is to comply in all aspects with the current British standards, building regulations and building legislation etc.
 - All proposed excavations, trench, access arrangements, gradients and materials are to comply with DCS requirements and with the applicable standards and technical specifications of the relevant standards.



- Key:**
- Site Boundary
 - Major Contour (0.25m)
 - Minor Contour (0.05m)
 - Plot Finished Floor Level
 - Garage Finished Floor Level
 - Centreline
 - Existing Wessex Foul Water Sewer
 - Foul Water Manhole (S104 Adoptable)
 - Foul Water Sewer (S104 Adoptable)
 - Foul Water Rising Main
 - Surface Water Sewer (S104 Adoptable)
 - Surface Water Manhole (S104 Adoptable)
 - Hydrobrake Flow Control (S104 Adoptable)
 - Orifice Flow Control (S104 Adoptable)
 - Headwall
 - Highway Gully and Connection
 - Easement
 - Wavin AquaCell Core R Attenuation tanks
 - ACO HB305 Kerb Drain



0m 5 10 15 20 25
SCALE 1 : 250

Redcliffe Homes Ltd

Project: **Dilton Marsh**

Title: **Drainage Layout**

Drawing Status: **PLANNING**

Drawn	Checked	Approved	Date	Scale
AM	OT	NT	FEB 2026	1:250

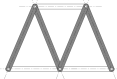
Project No: 148009 Drawing No: 148009-MCS-XX-DR-C-5100 Revision: P05

Morgan Civil + Structural

www.morgancivil-structural.com | enquiries@morgancivil-structural.com
Company Registered in England and Wales No: 1416454

APPENDIX 5

Causeway Flow Calculations

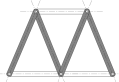


Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S1	0.072	5.00	74.327	1200	384711.536	149879.704	2.752
S2 - CP	0.094	5.00	74.601	1200	384737.230	149882.553	3.331
S3 - Orifice	0.056	5.00	74.733	1200	384764.837	149884.824	3.581
S4	0.056	5.00	74.085	1200	384764.300	149905.668	3.022
S5	0.037	5.00	73.344	1350	384758.000	149922.606	2.433
S6	0.048	5.00	72.568	1350	384750.631	149946.342	1.736
S7 - CP	0.056	5.00	72.474	1350	384784.137	149956.977	1.754
Headwall 1	0.010	5.00	72.100		384805.238	149962.883	1.616
S8	0.042	5.00	75.695	1200	384801.167	149858.013	0.987
S9 - CP	0.015	5.00	75.062	1200	384840.340	149868.898	0.600
S11	0.057	5.00	74.910	1200	384788.243	149883.191	1.350
S10	0.003	5.00	74.650	1200	384833.857	149892.351	1.425
S12	0.065	5.00	74.702	1200	384804.550	149889.786	1.425
S13 - CP	0.038	5.00	74.467	1200	384828.613	149895.288	1.425
S14	0.044	5.00	74.300		384825.776	149907.695	1.483
Headwall 3	0.062	5.00	73.300		384813.809	149940.054	1.500
S16	0.000	5.00	73.200	1200	384811.096	149943.249	1.428
S17	0.015	5.00	72.797	1200	384809.740	149948.062	1.275
S18 - CP	0.054	5.00	74.109	1200	384862.923	149905.918	1.350
S19 - Orifice	0.076	5.00	73.890	1350	384865.800	149914.893	1.783
S20	0.054	5.00	73.404	1350	384860.552	149933.971	1.500
S22 - Orifice	0.074	5.00	72.683	1350	384848.829	149958.373	1.690
S23 - CP			72.498	1200	384825.465	149952.288	1.608
Headwall 6			71.100		384794.536	150009.194	1.000
S26			71.246	2700	384794.125	150013.739	1.169
Headwall 7			71.000	1350	384792.952	150020.511	0.969
S15	0.035	5.00	73.800		384820.323	149928.486	1.575
S24	0.024	5.00	71.600		384800.897	149992.199	1.464
Tank 2		5.00	74.300	450	384738.924	149887.895	2.700
Dummy 2			74.300	450	384729.960	149887.095	2.700
Tank 3		5.00	74.000	450	384872.074	149916.557	1.850
Dummy 3			74.300	450	384895.273	149922.708	2.150
Dummy 1			74.300	450	384724.972	149886.652	2.600
Tank 1		5.00	74.300	450	384710.530	149885.363	2.600



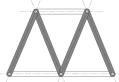
Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S21 - CP			72.865	1200	384854.545	149955.286	1.844
Tank 4		5.00	73.020	450	384863.615	149957.692	1.920
Dummy 4			73.120	450	384873.281	149960.255	2.020
Tank 5		5.00	73.000	450	384850.740	149951.311	1.900
Dummy 5			73.170	450	384853.559	149940.679	2.070

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	S1	S2 - CP	25.851	0.600	71.575	71.420	0.155	167.0	225	5.53	50.0
1.001	S2 - CP	S3 - Orifice	27.700	0.600	71.270	71.152	0.118	235.0	300	5.98	50.0
1.002	S3 - Orifice	S4	20.851	0.600	71.152	71.063	0.089	235.0	300	6.32	50.0
1.003	S4	S5	18.072	0.600	71.063	70.986	0.077	235.0	300	6.62	50.0
1.004	S5	S6	24.854	0.600	70.911	70.832	0.079	315.0	375	7.02	50.0
1.005	S6	S7 - CP	35.153	0.600	70.832	70.720	0.112	315.0	375	7.60	50.0
1.006	S7 - CP	Headwall 1	22.415	0.600	70.720	70.649	0.071	315.0	375	7.97	50.0
2.000	S8	S9 - CP	40.657	0.600	74.708	74.462	0.246	165.0	300	5.55	50.0
3.000	S11	S12	17.590	0.600	73.560	73.352	0.208	84.6	150	5.27	50.0
3.001	S12	S13 - CP	24.684	0.600	73.277	73.042	0.235	105.0	225	5.59	50.0
2.004	S13 - CP	S14	13.229	0.600	73.042	72.892	0.150	88.2	225	5.82	50.0
4.000	S18 - CP	S19 - Orifice	9.425	0.600	72.759	72.182	0.577	16.3	150	5.06	50.0
4.001	S19 - Orifice	S20	19.787	0.600	72.107	71.979	0.128	154.6	225	5.42	50.0
4.002	S20	S21 - CP	22.145	0.600	71.904	71.021	0.883	25.1	300	5.53	50.0
4.004	S22 - Orifice	S23 - CP	24.143	0.600	70.993	70.890	0.103	234.4	300	6.03	50.0
4.005	S23 - CP	Headwall 1	12.876	0.600	70.890	70.709	0.181	71.1	300	6.15	50.0
1.009	Headwall 6	S26	4.564	0.600	70.100	70.077	0.023	200.0	525	8.86	50.0
1.010	S26	Headwall 7	6.873	0.600	70.077	70.031	0.046	149.4	375	8.94	50.0

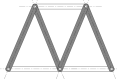
Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.009	40.1	9.8	2.527	2.956	0.072	0.0	75	0.834
1.001	1.021	72.2	22.5	3.031	3.281	0.166	0.0	115	0.904
1.002	1.021	72.2	30.1	3.281	2.722	0.222	0.0	135	0.976
1.003	1.021	72.2	37.7	2.722	2.058	0.278	0.0	154	1.031
1.004	1.015	112.1	42.7	2.058	1.361	0.315	0.0	160	0.948
1.005	1.015	112.1	49.2	1.361	1.379	0.363	0.0	174	0.984
1.006	1.015	112.1	56.8	1.379	1.076	0.419	0.0	189	1.018
2.000	1.221	86.3	5.7	0.687	0.300	0.042	0.0	52	0.698
3.000	1.094	19.3	7.7	1.200	1.200	0.057	0.0	66	1.033
3.001	1.275	50.7	16.5	1.200	1.200	0.122	0.0	88	1.144
2.004	1.393	55.4	29.8	1.200	1.183	0.220	0.0	117	1.416
4.000	2.504	44.3	7.3	1.200	1.558	0.054	0.0	41	1.863
4.001	1.049	41.7	17.6	1.558	1.200	0.130	0.0	102	1.007
4.002	3.152	222.8	24.9	1.200	1.544	0.184	0.0	67	2.103
4.004	1.022	72.3	35.0	1.390	1.308	0.258	0.0	147	1.015
4.005	1.866	131.9	35.0	1.308	1.091	0.258	0.0	105	1.585
1.009	1.580	342.0	147.3	0.475	0.644	1.087	0.0	241	1.524
1.010	1.480	163.4	147.3	0.794	0.594	1.087	0.0	280	1.666



Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
2.009	Headwall 3	S16	4.685	0.600	71.800	71.772	0.028	167.3	300	6.32	50.0
2.010	S16	S17	5.000	0.600	71.772	71.522	0.250	20.0	300	6.35	50.0
2.011	S17	Headwall 1	8.127	0.600	71.522	71.458	0.064	127.0	300	6.45	50.0
2.001	S9 - CP	S10	13.703	0.600	74.462	74.011	0.451	30.4	500	5.59	50.0
2.003	S10	S13 - CP	6.010	0.600	73.225	73.117	0.108	55.7	150	5.66	50.0
2.008	S15	Headwall 3	13.276	0.600	72.225	71.800	0.425	31.2	300	6.26	50.0
2.005	S14	S15	21.494	0.600	72.817	72.731	0.086	249.9	300	6.18	50.0
1.007	Headwall 1	S24	29.636	0.600	70.484	70.434	0.050	592.7	525	8.51	50.0
1.008	S24	Headwall 6	18.146	0.600	70.136	70.100	0.036	500.0	525	8.82	50.0
7.000	Tank 2	S2 - CP	5.604	0.600	71.600	71.420	0.180	31.1	150	5.05	50.0
5.000	Tank 3	S19 - Orifice	6.491	0.600	72.150	72.107	0.043	150.0	225	5.10	50.0
6.000	Tank 1	S1	5.748	0.600	71.700	71.650	0.050	115.0	150	5.10	50.0
4.003	S21 - CP	S22 - Orifice	6.496	0.600	71.021	70.993	0.028	235.0	300	5.64	50.0
9.000	Tank 5	S22 - Orifice	7.316	0.600	71.100	70.993	0.107	68.4	300	5.06	50.0
8.000	Tank 4	S21 - CP	9.384	0.600	71.100	71.037	0.063	150.0	300	5.12	50.0

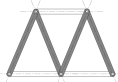
Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
2.009	1.212	85.7	48.9	1.200	1.128	0.361	0.0	163	1.251
2.010	3.531	249.6	48.9	1.128	0.975	0.361	0.0	89	2.759
2.011	1.394	98.5	51.0	0.975	0.342	0.376	0.0	153	1.406
2.001	7.090	9783.8	7.7	0.000	0.039	0.057	0.0	15	0.938
2.003	1.351	23.9	8.1	1.275	1.200	0.060	0.0	60	1.222
2.008	2.823	199.5	40.5	1.275	1.200	0.299	0.0	91	2.228
2.005	0.990	70.0	35.8	1.183	0.769	0.264	0.0	152	0.995
1.007	0.913	197.5	144.1	1.091	0.641	1.063	0.0	334	0.992
1.008	0.995	215.3	147.3	0.939	0.475	1.087	0.0	320	1.068
7.000	1.810	32.0	0.0	2.550	3.031	0.000	0.0	0	0.000
5.000	1.065	42.3	0.0	1.625	1.558	0.000	0.0	0	0.000
6.000	0.936	16.5	0.0	2.450	2.527	0.000	0.0	0	0.000
4.003	1.021	72.2	24.9	1.544	1.390	0.184	0.0	122	0.930
9.000	1.904	134.6	0.0	1.600	1.390	0.000	0.0	0	0.000
8.000	1.281	90.6	0.0	1.620	1.528	0.000	0.0	0	0.000



Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	25.851	167.0	225	Circular	74.327	71.575	2.527	74.601	71.420	2.956
1.001	27.700	235.0	300	Circular	74.601	71.270	3.031	74.733	71.152	3.281
1.002	20.851	235.0	300	Circular	74.733	71.152	3.281	74.085	71.063	2.722
1.003	18.072	235.0	300	Circular	74.085	71.063	2.722	73.344	70.986	2.058
1.004	24.854	315.0	375	Circular	73.344	70.911	2.058	72.568	70.832	1.361
1.005	35.153	315.0	375	Circular	72.568	70.832	1.361	72.474	70.720	1.379
1.006	22.415	315.0	375	Circular	72.474	70.720	1.379	72.100	70.649	1.076
2.000	40.657	165.0	300	Circular	75.695	74.708	0.687	75.062	74.462	0.300
3.000	17.590	84.6	150	Circular	74.910	73.560	1.200	74.702	73.352	1.200
3.001	24.684	105.0	225	Circular	74.702	73.277	1.200	74.467	73.042	1.200
2.004	13.229	88.2	225	Circular	74.467	73.042	1.200	74.300	72.892	1.183
4.000	9.425	16.3	150	Circular	74.109	72.759	1.200	73.890	72.182	1.558
4.001	19.787	154.6	225	Circular	73.890	72.107	1.558	73.404	71.979	1.200
4.002	22.145	25.1	300	Circular	73.404	71.904	1.200	72.865	71.021	1.544
4.004	24.143	234.4	300	Circular	72.683	70.993	1.390	72.498	70.890	1.308
4.005	12.876	71.1	300	Circular	72.498	70.890	1.308	72.100	70.709	1.091
1.009	4.564	200.0	525	Circular	71.100	70.100	0.475	71.246	70.077	0.644
1.010	6.873	149.4	375	Circular	71.246	70.077	0.794	71.000	70.031	0.594
2.009	4.685	167.3	300	Circular	73.300	71.800	1.200	73.200	71.772	1.128
2.010	5.000	20.0	300	Circular	73.200	71.772	1.128	72.797	71.522	0.975
2.011	8.127	127.0	300	Circular	72.797	71.522	0.975	72.100	71.458	0.342
2.001	13.703	30.4	500	Swale	75.062	74.462	0.000	74.650	74.011	0.039
2.003	6.010	55.7	150	Circular	74.650	73.225	1.275	74.467	73.117	1.200

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S1	1200	Manhole	Adoptable	S2 - CP	1200	Manhole	Adoptable
1.001	S2 - CP	1200	Manhole	Adoptable	S3 - Orifice	1200	Manhole	Adoptable
1.002	S3 - Orifice	1200	Manhole	Adoptable	S4	1200	Manhole	Adoptable
1.003	S4	1200	Manhole	Adoptable	S5	1350	Manhole	Adoptable
1.004	S5	1350	Manhole	Adoptable	S6	1350	Manhole	Adoptable
1.005	S6	1350	Manhole	Adoptable	S7 - CP	1350	Manhole	Adoptable
1.006	S7 - CP	1350	Manhole	Adoptable	Headwall 1		Junction	
2.000	S8	1200	Manhole	Adoptable	S9 - CP	1200	Manhole	Adoptable
3.000	S11	1200	Manhole	Adoptable	S12	1200	Manhole	Adoptable
3.001	S12	1200	Manhole	Adoptable	S13 - CP	1200	Manhole	Adoptable
2.004	S13 - CP	1200	Manhole	Adoptable	S14		Junction	
4.000	S18 - CP	1200	Manhole	Adoptable	S19 - Orifice	1350	Manhole	Adoptable
4.001	S19 - Orifice	1350	Manhole	Adoptable	S20	1350	Manhole	Adoptable
4.002	S20	1350	Manhole	Adoptable	S21 - CP	1200	Manhole	Adoptable
4.004	S22 - Orifice	1350	Manhole	Adoptable	S23 - CP	1200	Manhole	Adoptable
4.005	S23 - CP	1200	Manhole	Adoptable	Headwall 1		Junction	
1.009	Headwall 6		Junction		S26	2700	Manhole	Adoptable
1.010	S26	2700	Manhole	Adoptable	Headwall 7	1350	Manhole	Adoptable
2.009	Headwall 3		Junction		S16	1200	Manhole	Adoptable
2.010	S16	1200	Manhole	Adoptable	S17	1200	Manhole	Adoptable
2.011	S17	1200	Manhole	Adoptable	Headwall 1		Junction	
2.001	S9 - CP	1200	Manhole	Adoptable	S10	1200	Manhole	Adoptable
2.003	S10	1200	Manhole	Adoptable	S13 - CP	1200	Manhole	Adoptable

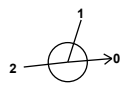


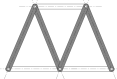
Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
2.008	13.276	31.2	300	Circular	73.800	72.225	1.275	73.300	71.800	1.200
2.005	21.494	249.9	300	Circular	74.300	72.817	1.183	73.800	72.731	0.769
1.007	29.636	592.7	525	Circular	72.100	70.484	1.091	71.600	70.434	0.641
1.008	18.146	500.0	525	Circular	71.600	70.136	0.939	71.100	70.100	0.475
7.000	5.604	31.1	150	Circular	74.300	71.600	2.550	74.601	71.420	3.031
5.000	6.491	150.0	225	Circular	74.000	72.150	1.625	73.890	72.107	1.558
6.000	5.748	115.0	150	Circular	74.300	71.700	2.450	74.327	71.650	2.527
4.003	6.496	235.0	300	Circular	72.865	71.021	1.544	72.683	70.993	1.390
9.000	7.316	68.4	300	Circular	73.000	71.100	1.600	72.683	70.993	1.390
8.000	9.384	150.0	300	Circular	73.020	71.100	1.620	72.865	71.037	1.528

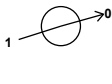
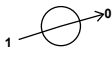
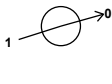
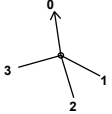
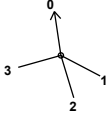
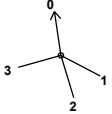
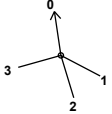
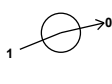
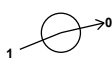
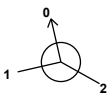
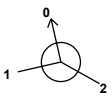
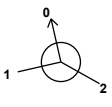
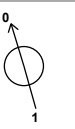
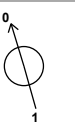
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
2.008	S15		Junction		Headwall 3		Junction	
2.005	S14		Junction		S15		Junction	
1.007	Headwall 1		Junction		S24		Junction	
1.008	S24		Junction		Headwall 6		Junction	
7.000	Tank 2	450	Manhole	Adoptable	S2 - CP	1200	Manhole	Adoptable
5.000	Tank 3	450	Manhole	Adoptable	S19 - Orifice	1350	Manhole	Adoptable
6.000	Tank 1	450	Manhole	Adoptable	S1	1200	Manhole	Adoptable
4.003	S21 - CP	1200	Manhole	Adoptable	S22 - Orifice	1350	Manhole	Adoptable
9.000	Tank 5	450	Manhole	Adoptable	S22 - Orifice	1350	Manhole	Adoptable
8.000	Tank 4	450	Manhole	Adoptable	S21 - CP	1200	Manhole	Adoptable

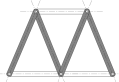
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S1	384711.536	149879.704	74.327	2.752	1200		1 6.000	71.650	150
							0 1.000	71.575	225
S2 - CP	384737.230	149882.553	74.601	3.331	1200		1 7.000	71.420	150
							2 1.000	71.420	225
							0 1.001	71.270	300
S3 - Orifice	384764.837	149884.824	74.733	3.581	1200		1 1.001	71.152	300
							0 1.002	71.152	300
S4	384764.300	149905.668	74.085	3.022	1200		1 1.002	71.063	300
							0 1.003	71.063	300
S5	384758.000	149922.606	73.344	2.433	1350		1 1.003	70.986	300
							0 1.004	70.911	375



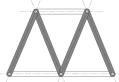
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S6	384750.631	149946.342	72.568	1.736	1350	 1	1.004	70.832	375
S7 - CP	384784.137	149956.977	72.474	1.754	1350	 0	1.005	70.832	375
						 1	1.005	70.720	375
						 0	1.006	70.720	375
Headwall 1	384805.238	149962.883	72.100	1.616		 1	4.005	70.709	300
						 2	2.011	71.458	300
						 3	1.006	70.649	375
						 0	1.007	70.484	525
S8	384801.167	149858.013	75.695	0.987	1200	 0	2.000	74.708	300
S9 - CP	384840.340	149868.898	75.062	0.600	1200	 1	2.000	74.462	300
						 0	2.001	74.462	500
S11	384788.243	149883.191	74.910	1.350	1200	 0	3.000	73.560	150
S10	384833.857	149892.351	74.650	1.425	1200	 1	2.001	74.011	500
						 0	2.003	73.225	150
S12	384804.550	149889.786	74.702	1.425	1200	 1	3.000	73.352	150
						 0	3.001	73.277	225
S13 - CP	384828.613	149895.288	74.467	1.425	1200	 1	3.001	73.042	225
						 2	2.003	73.117	150
						 0	2.004	73.042	225
S14	384825.776	149907.695	74.300	1.483		 1	2.004	72.892	225
						 0	2.005	72.817	300
Headwall 3	384813.809	149940.054	73.300	1.500		 1	2.008	71.800	300
						 0	2.009	71.800	300
S16	384811.096	149943.249	73.200	1.428	1200	 1	2.009	71.772	300
						 0	2.010	71.772	300
S17	384809.740	149948.062	72.797	1.275	1200	 1	2.010	71.522	300
						 0	2.011	71.522	300

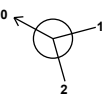


Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S18 - CP	384862.923	149905.918	74.109	1.350	1200				
						0	4.000	72.759	150
S19 - Orifice	384865.800	149914.893	73.890	1.783	1350		1	5.000	72.107
						2	4.000	72.182	150
						0	4.001	72.107	225
S20	384860.552	149933.971	73.404	1.500	1350		1	4.001	71.979
						0	4.002	71.904	300
S22 - Orifice	384848.829	149958.373	72.683	1.690	1350		1	9.000	70.993
						2	4.003	70.993	300
						0	4.004	70.993	300
S23 - CP	384825.465	149952.288	72.498	1.608	1200		1	4.004	70.890
						0	4.005	70.890	300
Headwall 6	384794.536	150009.194	71.100	1.000			1	1.008	70.100
						0	1.009	70.100	525
S26	384794.125	150013.739	71.246	1.169	2700		1	1.009	70.077
						0	1.010	70.077	375
Headwall 7	384792.952	150020.511	71.000	0.969	1350		1	1.010	70.031
						0	2.005	72.731	300
S15	384820.323	149928.486	73.800	1.575			1	2.008	72.225
						0	2.007	70.434	525
S24	384800.897	149992.199	71.600	1.464			1	1.007	70.434
						0	1.008	70.136	525
Tank 2	384738.924	149887.895	74.300	2.700	450		0	7.000	71.600
Dummy 2	384729.960	149887.095	74.300	2.700	450				
Tank 3	384872.074	149916.557	74.000	1.850	450		0	5.000	72.150
						0	5.000	72.150	225



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
Dummy 3	384895.273	149922.708	74.300	2.150	450				
Dummy 1	384724.972	149886.652	74.300	2.600	450				
Tank 1	384710.530	149885.363	74.300	2.600	450				
S21 - CP	384854.545	149955.286	72.865	1.844	1200		0	6.000	71.700
							1	8.000	71.037
							2	4.002	71.021
							0	4.003	71.021
Tank 4	384863.615	149957.692	73.020	1.920	450				
							0	8.000	71.100
Dummy 4	384873.281	149960.255	73.120	2.020	450				
Tank 5	384850.740	149951.311	73.000	1.900	450				
							0	9.000	71.100
Dummy 5	384853.559	149940.679	73.170	2.070	450				

SuDS Carriers

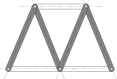
Link	US Node	DS Node	Link Type	Base Inf Coef (m/hr)	Sides Inf Coef (m/hr)	Safety Factor	Time to Half Empty (mins)
2.001	S9 - CP	S10	Swale	0.0000	0.0000	2.0	1

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Starting Level (m)
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s) x
Summer CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume x
Winter CV	1.000	Additional Storage (m³/ha)	0.0	

Storm Durations

15	60	240	480	960	2880	10080
30	120	360	720	1440	7200	



Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
30	0	0	0
100	45	10	0

Node S26 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	70.077	Product Number	CTL-SHE-0144-9700-1000-9700
Design Depth (m)	1.000	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	9.7	Min Node Diameter (mm)	1200

Node S14 Online Orifice Control

Flap Valve	x	Invert Level (m)	72.817	Diameter (m)	0.134
Downstream Link	2.005	Design Depth (m)	1.200	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	40.0		

Node S15 Online Orifice Control

Flap Valve	x	Invert Level (m)	72.225	Diameter (m)	0.077
Downstream Link	2.008	Design Depth (m)	1.200	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	13.5		

Node S16 Online Orifice Control

Flap Valve	x	Invert Level (m)	71.772	Diameter (m)	0.056
Downstream Link	2.010	Design Depth (m)	1.300	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	7.5		

Node S3 - Orifice Online Orifice Control

Flap Valve	x	Invert Level (m)	71.152	Diameter (m)	0.029
Downstream Link	1.002	Design Depth (m)	2.600	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	3.0		

Node S19 - Orifice Online Orifice Control

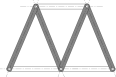
Flap Valve	x	Invert Level (m)	72.107	Diameter (m)	0.020
Downstream Link	4.001	Design Depth (m)	1.250	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		

Node Headwall 1 Online Orifice Control

Flap Valve	x	Invert Level (m)	70.484	Diameter (m)	0.088
Downstream Link	1.007	Design Depth (m)	1.200	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	17.5		

Node S24 Online Orifice Control

Flap Valve	x	Invert Level (m)	70.136	Diameter (m)	0.081
Downstream Link	1.008	Design Depth (m)	1.200	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	15.0		



Node S22 - Orifice Online Orifice Control

Flap Valve	x	Invert Level (m)	70.993	Diameter (m)	0.027
Downstream Link	4.004	Design Depth (m)	1.550	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	2.0		

Node Headwall 3 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	71.800
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	50.9	50.9	1.500	205.4	215.6

Node S15 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	72.300
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	240

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	53.0	53.0	1.500	172.4	184.2

Node S24 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	70.100
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	41.3	41.3	1.500	236.3	244.7

Node Headwall 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	70.600
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	58.6	58.6	1.500	223.4	234.0

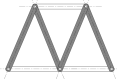
Node Headwall 6 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	70.100
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	71.0	71.0	0.200	134.0	134.5	0.400	169.3	170.9
0.100	112.5	112.6	0.300	151.6	152.6	1.000	371.6	376.0

Node S14 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	72.800
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	37



Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	20.2	20.2	1.500	162.0	169.2

Node Tank 2 Tank Storage Structure

Invert Level (m) 71.600 | Time to half empty (mins) | Analyse flow through structure x

Inlets

Dummy 2

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	36.0	2.000	36.0

Node Tank 3 Tank Storage Structure

Invert Level (m) 72.150 | Time to half empty (mins) | Analyse flow through structure x

Inlets

Dummy 3

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	120.0	1.200	120.0

Node Tank 1 Tank Storage Structure

Invert Level (m) 71.700 | Time to half empty (mins) | Analyse flow through structure x

Inlets

Dummy 1

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	58.0	2.000	58.0

Node Tank 4 Tank Storage Structure

Invert Level (m) 71.100 | Time to half empty (mins) | Analyse flow through structure x

Inlets

Dummy 4

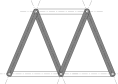
Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	58.0	1.200	58.0

Node Tank 5 Tank Storage Structure

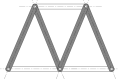
Invert Level (m) 71.100 | Time to half empty (mins) | Analyse flow through structure x

Inlets

Dummy 5

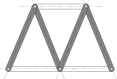


Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	50.0	1.200	50.0



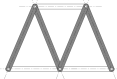
Results for 1 year Critical Storm Duration. Lowest mass balance: 99.95%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S1	18	71.855	0.280	6.2	0.3172	0.0000	SURCHARGED
15 minute summer	S2 - CP	11	71.860	0.590	16.2	0.6672	0.0000	SURCHARGED
15 minute summer	S3 - Orifice	11	71.890	0.738	11.4	0.8341	0.0000	SURCHARGED
15 minute summer	S4	11	71.125	0.062	6.6	0.0703	0.0000	OK
15 minute summer	S5	11	70.985	0.074	9.9	0.1065	0.0000	OK
15 minute summer	S6	11	70.921	0.089	14.3	0.1273	0.0000	OK
15 minute summer	S7 - CP	11	70.824	0.104	19.3	0.1488	0.0000	OK
360 minute summer	Headwall 1	232	70.801	0.317	11.8	14.0089	0.0000	OK
15 minute summer	S8	10	74.758	0.050	4.0	0.0571	0.0000	OK
15 minute summer	S9 - CP	11	74.474	0.012	5.3	0.0138	0.0000	OK
15 minute summer	S11	10	73.616	0.056	5.5	0.0633	0.0000	OK
15 minute summer	S10	11	73.278	0.053	5.6	0.0603	0.0000	OK
15 minute summer	S12	10	73.350	0.073	11.6	0.0822	0.0000	OK
15 minute summer	S13 - CP	11	73.140	0.098	20.4	0.1107	0.0000	OK
30 minute summer	S14	22	73.010	0.193	22.6	5.9443	0.0000	OK
360 minute summer	Headwall 3	280	72.139	0.339	7.0	23.1994	0.0000	SURCHARGED
360 minute summer	S16	280	72.139	0.367	5.8	0.4153	0.0000	SURCHARGED
360 minute summer	S17	280	71.563	0.041	3.9	0.0469	0.0000	OK
15 minute summer	S18 - CP	10	72.794	0.035	5.2	0.0392	0.0000	OK
15 minute summer	S19 - Orifice	9	72.322	0.215	12.5	0.3081	0.0000	OK
15 minute summer	S20	10	71.936	0.032	5.6	0.0465	0.0000	OK
720 minute summer	S22 - Orifice	555	71.247	0.254	1.7	0.3637	0.0000	OK
480 minute winter	S23 - CP	448	70.906	0.016	0.7	0.0183	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S1	1.000	S2 - CP	6.0	0.569	0.151	1.0281	
15 minute summer	S2 - CP	1.001	S3 - Orifice	-8.0	0.304	-0.111	1.9506	
15 minute summer	S3 - Orifice	1.002	S4	1.4	0.387	0.020	0.1453	
15 minute summer	S4	1.003	S5	6.5	0.632	0.090	0.1857	
15 minute summer	S5	1.004	S6	9.9	0.560	0.088	0.4401	
15 minute summer	S6	1.005	S7 - CP	14.2	0.634	0.127	0.7877	
15 minute summer	S7 - CP	1.006	Headwall 1	18.8	0.790	0.167	0.5324	
360 minute summer	Headwall 1	1.007	S24	8.0	0.532	0.041	0.5087	
15 minute summer	S8	2.000	S9 - CP	3.9	1.001	0.045	0.1775	
15 minute summer	S9 - CP	2.001	S10	5.3	0.817	0.001	0.0889	
15 minute summer	S11	3.000	S12	5.4	0.921	0.279	0.1028	
15 minute summer	S10	2.003	S13 - CP	5.6	1.052	0.235	0.0320	
15 minute summer	S12	3.001	S13 - CP	11.5	0.839	0.226	0.3388	
15 minute summer	S13 - CP	2.004	S14	20.6	1.274	0.372	0.2138	
30 minute summer	S14	2.005	S15	12.4	0.766	0.177	0.3467	
360 minute summer	Headwall 3	2.009	S16	5.8	0.315	0.068	0.3299	
360 minute summer	S16	2.010	S17	3.8	0.885	0.015	0.0219	
360 minute summer	S17	2.011	Headwall 1	3.9	0.679	0.040	0.0468	
15 minute summer	S18 - CP	4.000	S19 - Orifice	5.2	0.931	0.117	0.0945	
15 minute summer	S19 - Orifice	4.001	S20	0.4	0.333	0.009	0.0220	
15 minute summer	S20	4.002	S21 - CP	5.5	0.720	0.025	0.4740	
720 minute summer	S22 - Orifice	4.004	S23 - CP	0.7	0.392	0.010	0.0460	
480 minute winter	S23 - CP	4.005	Headwall 1	0.7	0.504	0.006	0.0956	



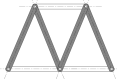
Results for 1 year Critical Storm Duration. Lowest mass balance: 99.95%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute summer	Headwall 6	464	70.255	0.155	7.0	15.6492	0.0000	OK
480 minute summer	S26	464	70.255	0.178	6.9	1.0170	0.0000	OK
480 minute summer	Headwall 7	464	70.083	0.052	6.9	0.0000	0.0000	OK
240 minute summer	S15	152	72.496	0.271	11.3	11.9676	0.0000	OK
480 minute summer	S24	424	70.513	0.377	8.2	26.5187	0.0000	OK
480 minute summer	Tank 2	320	71.837	0.237	2.9	8.4763	0.0000	SURCHARGED
480 minute summer	Dummy 2	328	71.836	0.236	1.4	0.0000	0.0000	OK
960 minute winter	Tank 3	720	72.315	0.165	1.2	19.4837	0.0000	OK
960 minute winter	Dummy 3	735	72.315	0.165	0.6	0.0000	0.0000	OK
480 minute summer	Dummy 1	328	71.836	0.136	1.9	0.0000	0.0000	OK
480 minute summer	Tank 1	320	71.837	0.137	3.9	7.8661	0.0000	OK
720 minute summer	S21 - CP	555	71.247	0.226	1.4	0.2558	0.0000	OK
720 minute summer	Tank 4	555	71.247	0.147	1.1	8.4054	0.0000	OK
720 minute summer	Dummy 4	570	71.247	0.147	0.5	0.0000	0.0000	OK
720 minute summer	Tank 5	555	71.247	0.147	1.0	7.2514	0.0000	OK
720 minute summer	Dummy 5	570	71.247	0.147	0.5	0.0000	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute summer	Headwall 6	1.009	S26	6.9	0.235	0.020	0.2676	
480 minute summer	S26	1.010	Headwall 7	6.9	0.715	0.042	0.0661	185.8
240 minute summer	S15	2.008	Headwall 3	6.0	0.802	0.030	0.4958	
480 minute summer	S24	1.008	Headwall 6	7.0	0.431	0.032	0.8151	
480 minute summer	Tank 2	7.000	S2 - CP	-2.9	0.320	-0.090	0.0987	
960 minute winter	Tank 3	5.000	S19 - Orifice	-1.2	-0.089	-0.028	0.2263	
480 minute summer	Tank 1	6.000	S1	-3.9	-0.391	-0.238	0.0990	
720 minute summer	S21 - CP	4.003	S22 - Orifice	0.6	0.054	0.008	0.3918	
720 minute summer	Tank 4	8.000	S21 - CP	-1.1	-0.058	-0.012	0.4086	
720 minute summer	Tank 5	9.000	S22 - Orifice	-1.0	-0.035	-0.007	0.3585	

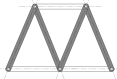


Results for 30 year Critical Storm Duration. Lowest mass balance: 99.78%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	S1	336	72.462	0.887	7.0	1.0031	0.0000	SURCHARGED
360 minute winter	S2 - CP	336	72.462	1.192	7.2	1.3480	0.0000	SURCHARGED
360 minute winter	S3 - Orifice	336	72.462	1.310	3.4	1.4814	0.0000	SURCHARGED
15 minute summer	S4	11	71.191	0.128	25.1	0.1444	0.0000	OK
360 minute winter	S5	344	71.171	0.260	7.3	0.3717	0.0000	OK
360 minute winter	S6	344	71.171	0.339	9.9	0.4847	0.0000	OK
360 minute winter	S7 - CP	344	71.171	0.451	12.3	0.6448	0.0000	SURCHARGED
360 minute winter	Headwall 1	344	71.171	0.687	17.6	51.3433	0.0000	SURCHARGED
15 minute summer	S8	10	74.812	0.104	17.6	0.1181	0.0000	OK
15 minute summer	S9 - CP	10	74.492	0.030	23.6	0.0337	0.0000	OK
15 minute summer	S11	11	74.194	0.634	23.9	0.7170	0.0000	SURCHARGED
15 minute summer	S10	12	73.841	0.616	24.7	0.6964	0.0000	SURCHARGED
15 minute summer	S12	12	73.902	0.625	46.8	0.7072	0.0000	SURCHARGED
15 minute summer	S13 - CP	12	73.698	0.656	83.3	0.7419	0.0000	SURCHARGED
30 minute summer	S14	24	73.473	0.656	92.4	34.6257	0.0000	SURCHARGED
360 minute winter	Headwall 3	352	72.566	0.766	12.1	69.1607	0.0000	SURCHARGED
360 minute winter	S16	352	72.565	0.793	5.7	0.8974	0.0000	SURCHARGED
15 minute summer	S17	11	71.582	0.060	8.4	0.0683	0.0000	OK
15 minute summer	S18 - CP	10	72.839	0.080	22.6	0.0901	0.0000	OK
720 minute winter	S19 - Orifice	690	72.653	0.546	4.5	0.7813	0.0000	SURCHARGED
15 minute summer	S20	10	71.969	0.065	23.0	0.0924	0.0000	OK
720 minute winter	S22 - Orifice	705	71.629	0.636	2.8	0.9100	0.0000	SURCHARGED
360 minute winter	S23 - CP	344	71.171	0.281	1.1	0.3173	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	S1	1.000	S2 - CP	-2.7	0.393	-0.068	1.0281	
360 minute winter	S2 - CP	1.001	S3 - Orifice	1.9	0.133	0.027	1.9506	
360 minute winter	S3 - Orifice	1.002	S4	2.0	0.438	0.027	0.2832	
15 minute summer	S4	1.003	S5	24.9	0.908	0.345	0.4957	
360 minute winter	S5	1.004	S6	7.1	0.500	0.063	2.3145	
360 minute winter	S6	1.005	S7 - CP	9.0	0.509	0.081	3.7806	
360 minute winter	S7 - CP	1.006	Headwall 1	11.5	0.554	0.102	2.4723	
360 minute winter	Headwall 1	1.007	S24	11.2	0.566	0.057	4.0593	
15 minute summer	S8	2.000	S9 - CP	17.3	1.479	0.201	0.5162	
15 minute summer	S9 - CP	2.001	S10	23.4	1.364	0.002	0.2352	
15 minute summer	S11	3.000	S12	20.8	1.181	1.076	0.3097	
15 minute summer	S10	2.003	S13 - CP	22.9	1.301	0.959	0.1058	
15 minute summer	S12	3.001	S13 - CP	45.2	1.136	0.891	0.9817	
15 minute summer	S13 - CP	2.004	S14	81.7	2.055	1.476	0.5261	
30 minute summer	S14	2.005	S15	27.2	0.960	0.389	0.6098	
360 minute winter	Headwall 3	2.009	S16	5.7	0.312	0.067	0.3299	
360 minute winter	S16	2.010	S17	5.7	1.004	0.023	0.0293	
15 minute summer	S17	2.011	Headwall 1	8.4	0.847	0.085	0.0804	
15 minute summer	S18 - CP	4.000	S19 - Orifice	22.5	1.465	0.509	0.1277	
720 minute winter	S19 - Orifice	4.001	S20	0.6	0.379	0.015	0.0316	
15 minute summer	S20	4.002	S21 - CP	22.9	1.028	0.103	0.7953	
720 minute winter	S22 - Orifice	4.004	S23 - CP	1.2	0.409	0.016	1.2245	
360 minute winter	S23 - CP	4.005	Headwall 1	1.2	0.475	0.009	0.8944	

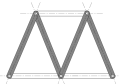

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.78%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	Headwall 6	825	70.321	0.221	9.4	24.3589	0.0000	OK
720 minute winter	S26	825	70.321	0.244	9.3	1.3969	0.0000	OK
720 minute winter	Headwall 7	825	70.091	0.060	9.3	0.0000	0.0000	OK
120 minute summer	S15	114	73.012	0.787	29.7	57.9889	0.0000	SURCHARGED
720 minute winter	S24	720	70.790	0.654	10.9	57.8967	0.0000	SURCHARGED
360 minute winter	Tank 2	336	72.462	0.862	4.3	30.8860	0.0000	SURCHARGED
360 minute winter	Dummy 2	344	72.461	0.861	2.2	0.0000	0.0000	OK
720 minute winter	Tank 3	690	72.653	0.503	4.0	59.2705	0.0000	SURCHARGED
720 minute winter	Dummy 3	705	72.653	0.503	2.0	0.0000	0.0000	OK
360 minute winter	Dummy 1	344	72.461	0.761	3.4	0.0000	0.0000	OK
360 minute winter	Tank 1	336	72.462	0.762	6.9	43.8979	0.0000	SURCHARGED
720 minute winter	S21 - CP	705	71.629	0.608	2.4	0.6876	0.0000	SURCHARGED
720 minute winter	Tank 4	705	71.629	0.529	2.1	30.2254	0.0000	SURCHARGED
720 minute winter	Dummy 4	720	71.628	0.528	1.0	0.0000	0.0000	OK
720 minute winter	Tank 5	705	71.629	0.529	1.8	26.0757	0.0000	SURCHARGED
720 minute winter	Dummy 5	705	71.628	0.528	0.9	0.0000	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute winter	Headwall 6	1.009	S26	9.3	0.258	0.027	0.4210	
720 minute winter	S26	1.010	Headwall 7	9.3	0.776	0.057	0.0820	388.2
120 minute summer	S15	2.008	Headwall 3	10.5	1.117	0.053	0.9059	
720 minute winter	S24	1.008	Headwall 6	9.4	0.499	0.044	1.4003	
360 minute winter	Tank 2	7.000	S2 - CP	-4.3	-0.245	-0.135	0.0987	
720 minute winter	Tank 3	5.000	S19 - Orifice	-4.0	-0.143	-0.094	0.2582	
360 minute winter	Tank 1	6.000	S1	-6.9	-0.392	-0.417	0.1012	
720 minute winter	S21 - CP	4.003	S22 - Orifice	0.9	0.022	0.012	0.4574	
720 minute winter	Tank 4	8.000	S21 - CP	-2.1	-0.045	-0.023	0.6608	
720 minute winter	Tank 5	9.000	S22 - Orifice	-1.8	-0.027	-0.013	0.5152	



Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.65%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S1	11	73.996	2.421	88.2	2.7386	0.0000	SURCHARGED
15 minute summer	S2 - CP	11	74.095	2.825	115.9	3.1948	0.0000	SURCHARGED
15 minute summer	S3 - Orifice	11	74.140	2.988	47.5	3.3794	0.0000	SURCHARGED
960 minute winter	S4	930	71.746	0.683	5.1	0.7720	0.0000	SURCHARGED
960 minute winter	S5	930	71.745	0.834	7.0	1.1941	0.0000	SURCHARGED
960 minute winter	S6	930	71.745	0.913	9.6	1.3070	0.0000	SURCHARGED
960 minute winter	S7 - CP	930	71.745	1.025	12.7	1.4671	0.0000	SURCHARGED
960 minute winter	Headwall 1	930	71.745	1.261	20.8	139.1788	0.0000	SURCHARGED
15 minute summer	S8	10	74.860	0.152	35.6	0.1721	0.0000	OK
30 minute summer	S9 - CP	21	74.520	0.058	44.5	0.0655	0.0000	OK
30 minute summer	S11	16	74.910	1.350	44.5	1.5269	6.5313	FLOOD
30 minute summer	S10	21	74.522	1.297	46.8	1.4673	0.0000	FLOOD RISK
15 minute summer	S12	10	74.702	1.425	74.6	1.6117	0.8380	FLOOD
30 minute summer	S13 - CP	20	74.326	1.284	113.0	1.4522	0.0000	FLOOD RISK
60 minute winter	S14	47	73.954	1.137	104.1	85.9364	0.0000	SURCHARGED
480 minute winter	Headwall 3	504	72.967	1.167	15.1	129.5883	0.0000	SURCHARGED
480 minute winter	S16	504	72.967	1.195	7.1	1.3515	0.0000	FLOOD RISK
960 minute winter	S17	930	71.745	0.223	7.2	0.2527	0.0000	OK
15 minute summer	S18 - CP	11	73.587	0.828	45.8	0.9365	0.0000	SURCHARGED
1440 minute winter	S19 - Orifice	1380	73.301	1.194	5.3	1.7086	0.0000	SURCHARGED
960 minute winter	S20	855	72.683	0.779	3.8	1.1152	0.0000	SURCHARGED
960 minute winter	S22 - Orifice	855	72.683	1.690	4.2	2.4184	1.5045	FLOOD
960 minute winter	S23 - CP	930	71.745	0.855	1.5	0.9672	0.0000	SURCHARGED
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1	1.000	S2 - CP	-28.9	-0.727	-0.721	1.0281	
15 minute summer	S2 - CP	1.001	S3 - Orifice	-39.6	-0.562	-0.548	1.9506	
15 minute summer	S3 - Orifice	1.002	S4	6.8	0.441	0.094	1.3422	
960 minute winter	S4	1.003	S5	5.0	0.564	0.070	1.2726	
960 minute winter	S5	1.004	S6	7.0	0.452	0.062	2.7413	
960 minute winter	S6	1.005	S7 - CP	9.6	0.442	0.085	3.8773	
960 minute winter	S7 - CP	1.006	Headwall 1	12.6	0.491	0.113	2.4723	
960 minute winter	Headwall 1	1.007	S24	13.3	0.531	0.067	6.4023	
15 minute summer	S8	2.000	S9 - CP	35.2	1.773	0.407	0.8548	
30 minute summer	S9 - CP	2.001	S10	44.5	1.448	0.005	7.3949	
30 minute summer	S11	3.000	S12	24.6	1.398	1.274	0.3097	
30 minute summer	S10	2.003	S13 - CP	33.2	1.885	1.390	0.1058	
15 minute summer	S12	3.001	S13 - CP	68.4	1.720	1.349	0.9817	
30 minute summer	S13 - CP	2.004	S14	110.6	2.782	1.998	0.5261	
60 minute winter	S14	2.005	S15	36.2	1.030	0.518	1.5136	
480 minute winter	Headwall 3	2.009	S16	7.1	0.216	0.082	0.3299	
480 minute winter	S16	2.010	S17	7.1	0.988	0.028	0.1317	
960 minute winter	S17	2.011	Headwall 1	7.2	0.802	0.073	0.5106	
15 minute summer	S18 - CP	4.000	S19 - Orifice	43.3	2.457	0.977	0.1659	
1440 minute winter	S19 - Orifice	4.001	S20	0.9	0.406	0.020	0.7870	
960 minute winter	S20	4.002	S21 - CP	3.8	0.187	0.017	1.5594	
960 minute winter	S22 - Orifice	4.004	S23 - CP	1.5	0.408	0.020	1.7001	
960 minute winter	S23 - CP	4.005	Headwall 1	1.5	0.482	0.011	0.9067	



Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.65%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute summer	Headwall 6	1680	70.673	0.573	11.1	86.0595	0.0000	SURCHARGED
1440 minute summer	S26	1680	70.673	0.596	9.7	3.4100	0.0000	SURCHARGED
360 minute summer	Headwall 7	536	70.092	0.061	9.7	0.0000	0.0000	OK
240 minute summer	S15	216	73.493	1.268	36.3	119.8373	0.0000	SURCHARGED
1440 minute winter	S24	1530	71.226	1.090	13.4	127.2361	0.0000	SURCHARGED
720 minute winter	Tank 2	675	73.597	1.997	5.0	71.5679	0.0000	SURCHARGED
720 minute winter	Dummy 2	690	73.596	1.996	2.5	0.0000	0.0000	OK
1440 minute winter	Tank 3	1380	73.301	1.151	4.6	135.6921	0.0000	SURCHARGED
1440 minute winter	Dummy 3	1380	73.300	1.150	2.3	0.0000	0.0000	OK
720 minute winter	Dummy 1	690	73.596	1.896	4.0	0.0000	0.0000	OK
720 minute winter	Tank 1	675	73.597	1.897	8.0	109.3105	0.0000	SURCHARGED
1440 minute winter	S21 - CP	1320	72.683	1.662	2.9	1.8798	0.0000	FLOOD RISK
960 minute summer	Tank 4	915	72.683	1.583	5.5	69.4483	0.0000	SURCHARGED
960 minute winter	Dummy 4	900	72.683	1.583	1.8	0.0000	0.0000	OK
960 minute winter	Tank 5	930	72.683	1.583	3.1	59.9255	0.0000	SURCHARGED
960 minute winter	Dummy 5	930	72.683	1.583	1.6	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute summer	Headwall 6	1.009	S26	9.7	0.282	0.029	0.9860	
1440 minute summer	S26	1.010	Headwall 7	9.7	0.786	0.059	0.0848	749.1
240 minute summer	S15	2.008	Headwall 3	10.8	1.066	0.054	0.9349	
1440 minute winter	S24	1.008	Headwall 6	11.1	0.481	0.052	3.9201	
720 minute winter	Tank 2	7.000	S2 - CP	-5.0	-0.286	-0.157	0.0987	
1440 minute winter	Tank 3	5.000	S19 - Orifice	-4.6	-0.133	-0.108	0.2582	
720 minute winter	Tank 1	6.000	S1	-8.0	-0.456	-0.486	0.1012	
1440 minute winter	S21 - CP	4.003	S22 - Orifice	1.1	0.016	0.016	0.4574	
960 minute summer	Tank 4	8.000	S21 - CP	-5.5	-0.078	-0.060	0.6608	
960 minute winter	Tank 5	9.000	S22 - Orifice	-3.1	-0.044	-0.023	0.5152	

APPENDIX 6

Exceedance Flow Plan

