The Old Chapel
Station Road, Hugglescote
Leicestershire
LE67 2GB

T: 01530 264 753
group@m-ec.co.uk
www.m-ec.co.uk

Offices also at **Birmingham, Milton Keynes, Nottingham** and **Leeds**

PROPOSED RESIDENTIAL DEVELOPMENT AT HEMPTON ROAD, DEDDINGTON
FLOOD RISK AND DRAINAGE TECHNICAL NOTE
FEBRUARY 2019
REF. 23933/05-18/6010 - REV C

Introduction

Mewies Engineering Consultants Ltd (M-EC) has been instructed to produce this Technical Note to describe the drainage strategy designed for a proposed residential development of 21 units on land off Hempton Road, Deddington, Oxfordshire.

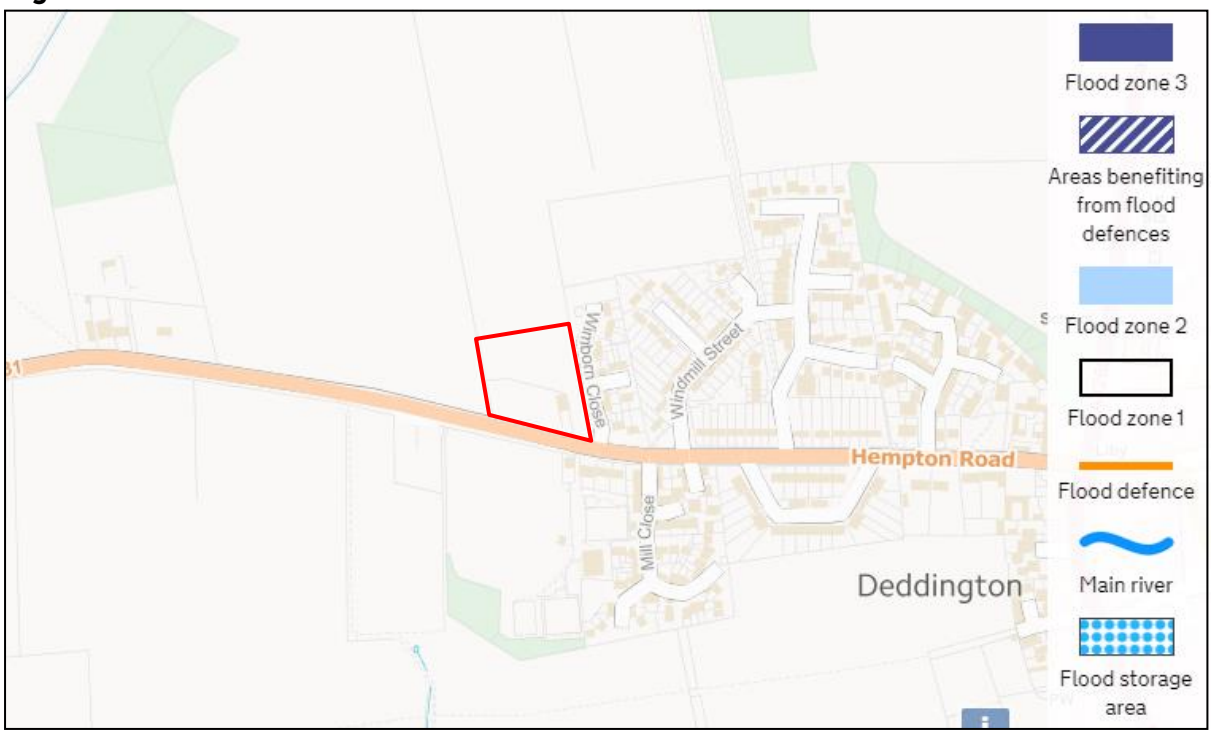
Site Location & Description

The site is mostly comprised of undeveloped agricultural land although its southern half is currently used as a vegetable garden. A single large corrugated iron shed is present on the site accessed from a gate in the south-east corner. The site measures approximately 1.177ha. The site falls from north to south towards Hempton Road with a fall of 2.5m from a high point around 139.2m AOD in its north-west corner to a low point of 136.7m AOD in the centre of its southern boundary.

Flood Risk

Based on the latest Flood Zone Mapping issued by the Environment Agency, the site area is located entirely in Flood Zone 1. The closest designated flood zones are over a kilometre to the north.

Figure 1: EA Flood Zones



Environment Agency Surface Water Flood Risk Mapping shows that there are no areas of designated surface water flood risk within the site's boundaries. There are small areas of low risk extending along Hempton Road further east. All development will be located a sufficient distance from these areas to negate any risk.

The proposed development area will be located wholly within Flood Zone 1 (less than 0.1% chance of flooding). In accordance with Table 3 of the Planning Practice Guidance the development is therefore "sequentially acceptable".

Geology & Ground Conditions

Geological mapping indicates that the site is underlain by two types of solid geology; the north of the site is underlain by Whitby Mudstone Formation while the south of the site is Marlstone Rock Formation – Ferruginous Limestone and Ironstone. No superficial deposits are present within the site's boundaries.

Soakage testing was undertaken in June 2018 with two trial pits in the site's south-east corner. Both pits were found to infiltrate very well (findings are summarised in Table 1). As a result of this the site's proposed drainage strategy has been revised to be based on infiltration.

Table 1: Soakage Test Summary

SA01		SA02	
m/s	m/hr	m/s	m/hr
1.27×10^{-3}	4.572	5.93×10^{-3}	21.348
9.55×10^{-4}	3.438	7.35×10^{-3}	26.460
7.77×10^{-4}	2.797	1.84×10^{-3}	6.624
		1.67×10^{-3}	6.012
		1.57×10^{-3}	5.652
		1.67×10^{-3}	6.012
		1.66×10^{-3}	5.976

Drainage Strategy

No ditches or significant drainage features are located within the site and therefore existing surface water runs off directly downhill towards Hempton Road along the southern boundary.

Given the confirmation of viable infiltration and the lack of nearby watercourses, surface water runoff from the site will be attenuated on-site and then discharged into the underlying ironstone bedrock. No existing public surface water sewers are present within the site's boundaries.

The proposed surface water strategy for the site will comprise of a single infiltration basin with a total storage capacity of 156m^3 based on an impermeable area of 0.74ha inclusive of 10% urban creep. This system will have sufficient capacity for the 1 in 100 year storm event (plus a 40% allowance of climate change).

The SUDS scheme will be offered to the Borough Council or other local bodies such as the Town or Parish Council for adoption and future maintenance. A proposed maintenance plan shown in Table 2 breaks down the maintenance responsibility of the various assets.

Table 2: Proposed Maintenance Regime

Drainage Asset	Responsible Organisation	Maintenance Work	Frequency
Pipework / Manholes	Private Ownership / Management Company / Water Authority / Developer	Inspect pipe work and clear blockages	Annually or after severe storms.
		Inspect manholes and clear blockages	
		Repair any defects in network	
Headwalls	Private Ownership / Water Authority / Management Company	Inspect structure and remove any debris/litter on structure	Monthly or after severe storms.
Infiltration Basin	Borough Council / Management Company	Amenity grass cutting of surrounding green spaces	As required
		Litter and Debris removal	Monthly
		Inspect and clear inlets, outlets and overflows	6 Monthly
Catch Pit	Private Ownership / Management Company	Inspect structure and remove excessive silt build up	Annually or after severe storms.

Foul Drainage
Foul sewage from the site will be gathered by a gravity based foul sewerage network and outfall to an existing foul sewer in Wimborn Close to the east connecting at manhole ref. 0701. Connection will be subject to a S106 application with Thames Water.

Summary
To summarise the key points outlined above:

- All development will be contained in Flood Zone 1 and is therefore sequentially acceptable. Other sources of flood risk to the site are considered to be low to very low.
- The site's surface water will be attenuated by a drainage network with an infiltration basin.
- The development will not increase runoff or flood risk downstream by utilising a sustainable drainage system to store runoff and discharge into the underlying bedrock.
- Foul drainage for the site will entail a gravity based system gathering to the existing foul sewer in Wimborn Close south-east of the site.

Overall it is considered there are no insurmountable Flood Risk and Drainage constraints to the development of this site for residential use.

Report Prepared By:

[redacted]

Dave Moffatt

Report Checked By:

[redacted]

Alexander Bennett BSc MCIHT, MTPS

APPENDICES

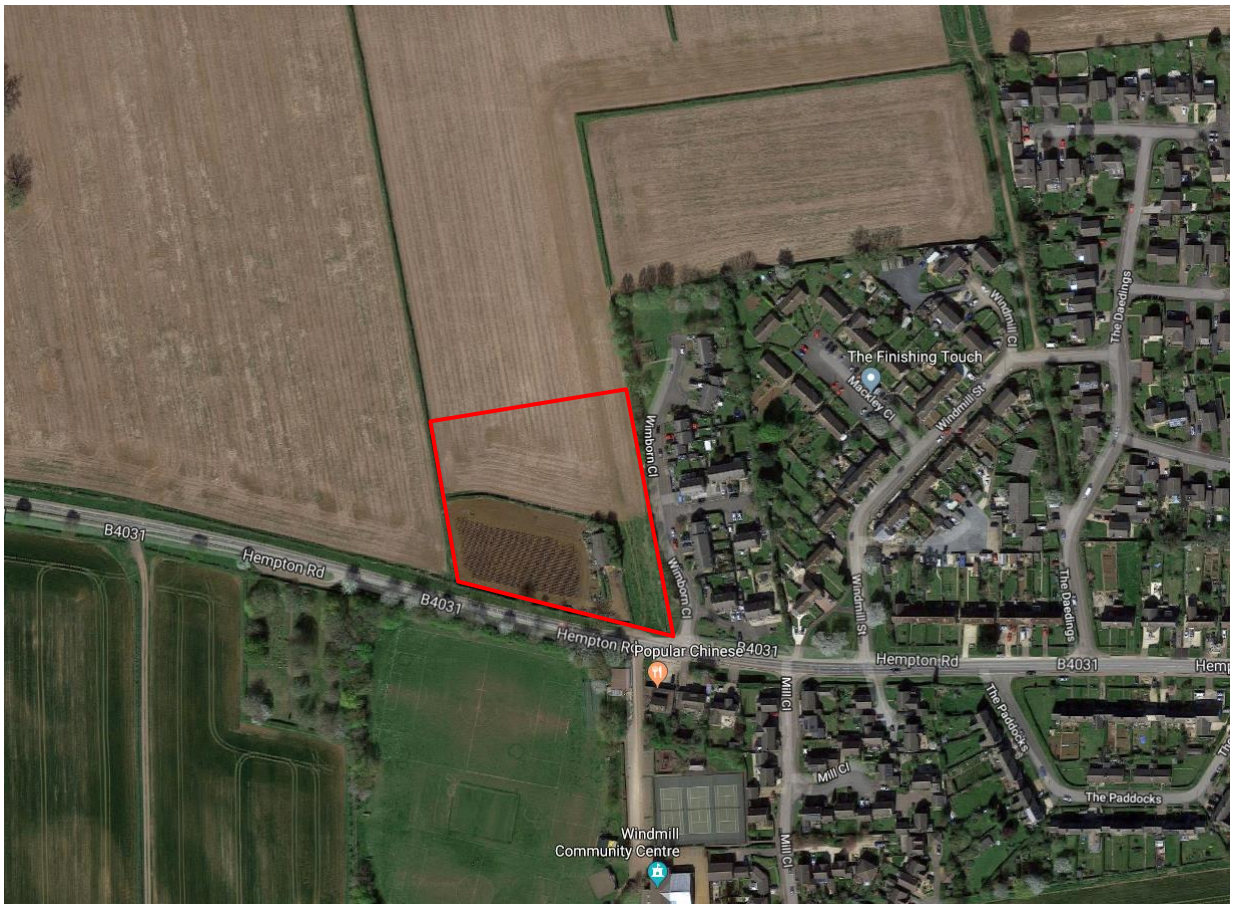
A. Site Location Plan
B. Proposed Site Layout
C. Topographical Survey
D. Water Authority Correspondence
E. Microdrainage Calculations
F. Strategy Drawing
G. Soakage Testing Results

APPENDIX A

M-EC
The Old Chapel
Station Road
Hugglescote
Leicestershire
LE67 2GB

SITE LOCATION PLAN

Project:	**LAND AT HEMPTON ROAD, DEDDINGTON**
File Ref:	**23933**
O.S. Grid Ref:	**445952, 231916**
Postcode:	**OX15 0QJ**



APPENDIX B

NOTES:

AT ARCHITECTURE LIMITED
WWW.ATARCHITECTURELTD.COM
26 THE RIDE, THE GRANGE, DESBOROUGH, NN14 2HZ
ASHLEY.THOMPSON@AT-ARCHITECTURE.UK

NO DIMENSIONS TO BE SCALED FROM DRAWING
ALL DIMENSIONS ARE APPROXIMATE AND TO BE CHECKED ON SITE

THIS DRAWING IS FOR PLANNING PURPOSES ONLY SUBJECT TO BUILDING CONTROL STANDARDS AND COMMENTS

REV:	BY:	DATE:	DETAILS:

AT ARCHITECTURE
www.atarchitectureltd.com

PROJECT:

Hempton Road
DEDDINGTON

DRAWING TITLE:

Illustrative Concept Plan

SCALE:	STAGE:	DATE:
1:1000 (A3)	Prelim	March 2018

DRAWING NO:	REVISION:
A_1807 P100	.

APPENDIX C

445900E

445950E

446000E

446050E

231950N

231900N

231850N

231800N

231750N

N

Station Information:

Station	Easting (m)	Northing (m)	Level (m)
GH1	445923.387	231775.714	138.730
GH2	446024.264	231764.244	137.023
GH3	446098.551	231744.779	135.773

OS Note:

Some services may have been omitted due to parked vehicles. The Ordnance Survey tile is to be used as a guide only.

OS Buildings *Surveyed Buildings*

This survey has been orientated to the Ordnance Survey (O.S) National Grid OSGB36(15) via Global Navigational Satellite Systems (GNSS) and the O.S. Active Network (OS Net).

A true OSGB36 coordinate has been established near to the site centre via a transformation using the OSTN15GB & OSGM15GB transformation models.

The survey has been correlated to this point and a further one or more OSGB36 (15) points established to create a true O.S. bearing for angle orientation.

No scale factor has been applied to the survey therefore the coordinates shown are arbitrary & not true O.S. Coordinates which have a scale factor applied.

Please refer to Survey Station Table to enable establishment of the on-site grid and datum.

Legend:

Buildings, Wall, Kerb line, Line marking, Drop kerb, Centre line, Top of bank, Station and Name, Station Level, Tree / Bush / Sapling, Area of Undergrowth, Woodland, R: Ridge Level, E: Eaves Level, F: Flat Roof Level, Gate

Overhead Cable, Concrete edge, Tarmac edge, Grass verge, Canopy/Overhang, Verge, Bottom of bank

Fence types: IW Interwoven, IR Iron Railings, WM Wire Mesh, P/R Post & Rail, P/W Post & Wire, C/L Chain Link, WP Wooden Panels, CB Close Boarded, SP Steel Palisade

IC	Inspection chamber	Bo	Bollard		
PInv	Pipe invert	IB	Illuminated bollard		
Gy	Gully	Bin	Rubbish bin		
Bg	Back gully	Vp	Vent pipe		
Dp	Down pipe	Grl	Ground light		
Pipe	Pipe above ground	Lbox	Letter box		
MH	Manhole	Stmp	Tree Stump		
WL	Water level	Sty	Stile		
Fl	Flood light	IFL	Internal floor level		
Lp	Lamp post	THL	Threshold level		
Tp	Telegraph post	Sp	Sign post		
Ep	Electricity post	TH	Trialhole		
Tl	Traffic light	BH	Borehole		
Bus	Bus stop	ELC	Electric		
Sv	Stop valve	BT	British Telecom		
St	Stop tap	C'box	Control box		
Er	Earth rod	TT	Tactile		
Wm	Water meter	BP	Brick paved		
Gas	Gas valve	CPS	Concrete paving slabs		
Av	Air valve	CVR	Cover		
ICU	Unidentified inspection	R/wall	Retaining wall		
Wo	Wash out	TWL	Top of Wall Level		
Re	Rodding eye	TCL	Tree canopy level		
BB	Bellsha beacon	G:	Girth		
CTV	Cable tv	MG	Multi girth		
Mkr	Marker post	IC	Inspection chamber		
Gmkr	Gas marker post	CL:	Cover level		
So	Soffit	IL:	Invert level		
Fh	Fire hydrant	UTL	Unable to lift		

Rev	Date	Description	Drawn	Q. Ref.

greenhatch group

- Topographical Surveys
- Site Engineering
- Utility / CCTV Surveys
- Measured Building Surveys
- 3D Laser Scanning
- Revit & BIM Models

Rowan House
Duffield Road
Little Eaton
Derby
DE21 5DR
Tel (01332) 830044 Fax (01332) 830055
admin@greenhatch-group.co.uk
www.greenhatch-group.co.uk

St Albans: Unit B, The Courtyard, Alban Park, St Albans, Hertfordshire, AL4 0LA, t. (01727) 854481

Newcastle: 24 Riverside Studios, Amethyst Road, Newcastle Bus. Park, Newcastle-U-Tyne, NE4 7YL, t. (01912) 736391

London: 27, Cornwall Terrace Mews, Regents Park, London, NW1 5LL, t. (02072) 241806

CLIENT

Webb Developments Ltd

PROJECT

Hempton Road Deddington, Banbury

TITLE

Topographical Survey

SCALE	DATE
A2@ 1: 500	23/03/18
DRAWN: LUP	QUALITY REF: GH2683

Level datum	See note
Grid orientation	See note
Job number	29833

Drawing No.: *29833_T* Rev.: *0*

Comments

This plan should only be used for its original purpose. Greenhatch Group accepts no responsibility for this plan if supplied to any party other than the original client.

All dimensions should be checked on site prior to design and construction.

Drainage information (where applicable) has been visually inspected from the surface and therefore should be treated as approximate only.

Notes:

APPENDIX D

Asset location search

Property Searches

Infrastructure Gateway Ltd
Kettering Parkway Kettering V
Vantage House
KETTERING
NN15 6XR

Search address supplied

Hepmton Road
Hempton Road
Deddington
Oxfordshire
OX15 0QH

Your reference w18-3231

Our reference ALS/ALS Standard/2018_3774307

Search date 13 April 2018

Keeping you up-to-date

Knowledge of features below the surface is essential in every development. The benefits of this not only include ensuring due diligence and avoiding risk, but also being able to ascertain the feasibility for any commercial or residential project.

An asset location search provides information on the location of known Thames Water clean and/or wastewater assets, including details of pipe sizes, direction of flow and depth. Please note that information on cover and invert levels will only be provided where the data is available.

Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13

searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk

0845 070 9148

searchcode

Asset location search

Property Searches

Search address supplied: Hepmton Road, Hempton Road, Deddington, Oxfordshire, OX15 0QH

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This searchprovides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0845 070 9148, or use the address below:

Thames Water Utilities Ltd
Property Searches
PO Box 3189
Slough
SL1 4WW

Email: searches@thameswater.co.uk
Web: www.thameswater-propertysearches.co.uk

Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- 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.

Clean Water Services

Please provide a copy extract from the public water main map.

Enclosed is a map showing the approximate positions of our water mains and associated apparatus. Please note that records are not kept of the positions of individual domestic supplies.

For your information, there will be a pressure of at least 10m head at the outside stop valve. If you would like to know the static pressure, please contact our Customer Centre on 0800 316 9800. The Customer Centre can also arrange for a full flow and

pressure test to be carried out for a fee.

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this 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.

Payment for this Search

A charge will be added to your suppliers account.

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

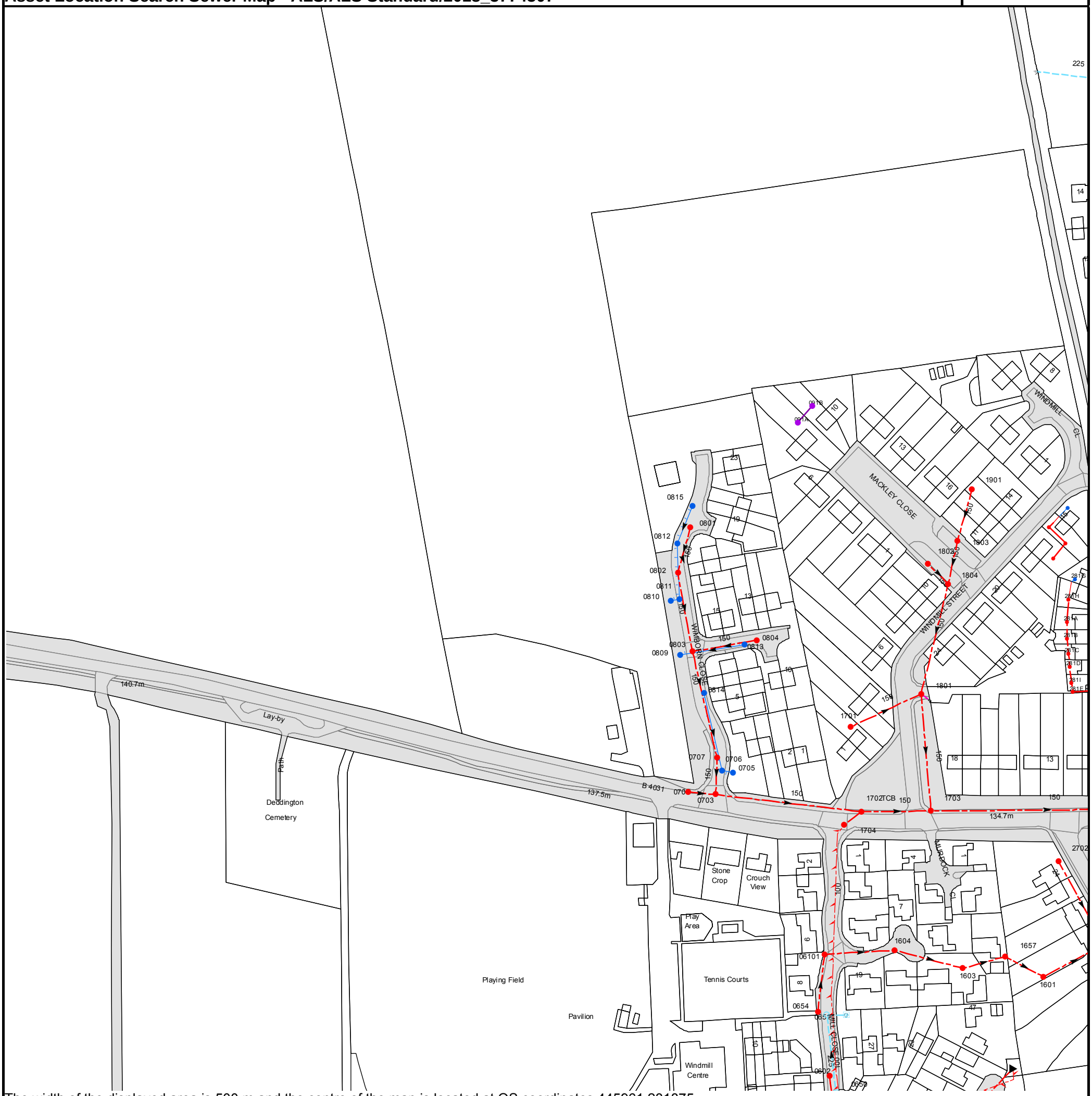
Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Asset Location Search Sewer Map - ALS/ALS Standard/2018_3774307



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 445961,231875

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
281H	n/a	n/a
281G	n/a	n/a
281K	n/a	n/a
281A	n/a	n/a
281C	n/a	n/a
281D	n/a	n/a
281I	n/a	n/a
281E	n/a	n/a
0810	n/a	n/a
0812	n/a	n/a
0802	137.22	135.98
0811	n/a	n/a
0809	n/a	n/a
0701	n/a	n/a
0801	137.37	136.47
0803	n/a	n/a
0815	n/a	n/a
0814	n/a	n/a
0703	n/a	n/a
0707	136.45	135.05
0706	n/a	n/a
0705	n/a	n/a
0813	n/a	n/a
0804	136.79	135.87
091A	n/a	n/a
091B	n/a	n/a
1701	135.86	134.66
1801	135.68	133.97
1802	136.23	134.66
1804	136.13	134.47
1803	136.03	134.67
1901	136.31	134.94
181A	n/a	n/a
181B	n/a	n/a
281L	n/a	n/a
281B	n/a	n/a
0654	134.88	133.97
06101	134.65	n/a
0651	134.84	132.52
0602	134.5	132.69
1704	135.89	134.06
1653	n/a	132.81
1702	135.88	133.95
1604	134.17	n/a
1703	135.41	133.36
1603	133.87	n/a
1657	133.82	132.94
1601	n/a	n/a
2702	134.08	132.84

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

- Trunk Surface Water
- Trunk Foul
- Storm Relief
- Trunk Combined
- Vent Pipe
- Bio-solids (Sludge)
- Proposed Thames Surface Water Sewer
- Proposed Thames Water Foul Sewer
- Gallery
- Foul Rising Main
- Surface Water Rising Main
- Combined Rising Main
- Sludge Rising Main
- Proposed Thames Water Rising Main
- Vacuum

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

- Air Valve
- Dam Chase
- Fitting
- Meter
- Vent Column

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

- Control Valve
- Drop Pipe
- Ancillary
- Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

- Outfall
- Undefined End
- Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

- Public/Private Pumping Station
- Change of characteristic indicator (C.O.C.I.)
- Invert Level
- Summit

Areas

Lines denoting areas of underground surveys, etc.

- Agreement
- Operational Site
- Chamber
- Tunnel
- Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

- Foul Sewer
- Surface Water Sewer
- Combined Sewer
- Gulley
- Culverted Watercourse
- Proposed
- Abandoned Sewer

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.
2) All measurements on the plans are metric.
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
5) 'na' or '0' on a manhole level indicates that data is unavailable.
6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in milimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Insight on 0845 070 9148.

Asset Location Search Water Map - ALS/ALS Standard/2018_3774307

The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 445961, 231875.

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

ALS Water Map Key

Water Pipes (Operated & Maintained by Thames Water)

4"

Distribution Main: The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.

16"

Trunk Main: A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.

3" SUPPLY

Supply Main: A supply main indicates that the water main is used as a supply for a single property or group of properties.

3" FIRE

Fire Main: Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.

3" METERED

Metered Pipe: A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.

Transmission Tunnel: A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.

Proposed Main: A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

Valves

- General Purpose Valve
- Air Valve
- Pressure Control Valve
- Customer Valve

Hydrants

- Single Hydrant

Meters

- Meter

End Items

Symbol indicating what happens at the end of a water main.

- Blank Flange
- Capped End
- Emptying Pit
- Undefined End
- Manifold
- Customer Supply
- Fire Supply

Operational Sites

- Booster Station
- Other
- Other (Proposed)
- Pumping Station
- Service Reservoir
- Shaft Inspection
- Treatment Works
- Unknown
- Water Tower

Other Symbols

- Data Logger

PIPE DIAMETER	DEPTH BELOW GROUND
Up to 300mm (12")	900mm (3')
300mm - 600mm (12" - 24")	1100mm (3' 8")
600mm and bigger (24" plus)	1200mm (4')

Other Water Pipes (Not Operated or Maintained by Thames Water)

Other Water Company Main: Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.

Private Main: Indiates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.

Terms and Conditions

All sales are made in accordance with Thames Water Utilities Limited (TWUL) standard terms and conditions unless previously agreed in writing.

1. All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
2. Provision of service will be in accordance with all legal requirements and published TWUL policies.
3. All invoices are strictly due for payment 14 days from due date of the invoice. Any other terms must be accepted/agreed in writing prior to provision of goods or service, or will be held to be invalid.
4. Thames Water does not accept post-dated cheques-any cheques received will be processed for payment on date of receipt.
5. In case of dispute TWUL`s terms and conditions shall apply.
6. Penalty interest may be invoked by TWUL in the event of unjustifiable payment delay. Interest charges will be in line with UK Statute Law 'The Late Payment of Commercial Debts (Interest) Act 1998'.
7. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
8. A charge may be made at the discretion of the company for increased administration costs.

A copy of Thames Water's standard terms and conditions are available from the Commercial Billing Team (cashoperations@thameswater.co.uk).

We publish several Codes of Practice including a guaranteed standards scheme. You can obtain copies of these leaflets by calling us on 0800 316 9800

If you are unhappy with our service you can speak to your original goods or customer service provider. If you are not satisfied with the response, your complaint will be reviewed by the Customer Services Director. You can write to her at: Thames Water Utilities Ltd. PO Box 492, Swindon, SN38 8TU.

If the Goods or Services covered by this invoice falls under the regulation of the 1991 Water Industry Act, and you remain dissatisfied you can refer your complaint to Consumer Council for Water on 0121 345 1000 or write to them at Consumer Council for Water, 1st Floor, Victoria Square House, Victoria Square, Birmingham, B2 4AJ.

Ways to pay your bill

Credit Card	**BACS Payment**	**Telephone Banking**	**Cheque**
Call **0845 070 9148** quoting your invoice number starting CBA or ADS / OSS	Account number **90478703** Sort code **60-00-01** A remittance advice must be sent to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW.** or email **ps.billing@thameswater.co.uk**	By calling your bank and quoting: Account number **90478703** Sort code **60-00-01** and your invoice number	Made payable to '**Thames Water Utilities Ltd**' Write your Thames Water account number on the back. Send to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW** or by DX to **151280 Slough 13**

Thames Water Utilities Ltd Registered in England & Wales No. 2366661 Registered Office Clearwater Court, Vastern Rd, Reading, Berks, RG1 8DB.

Search Code

IMPORTANT CONSUMER PROTECTION INFORMATION

This search has been produced by Thames Water Property Searches, Clearwater Court, Vastern Road, Reading RG1 8DB, which is registered with the Property Codes Compliance Board (PCCB) as a subscriber to the Search Code. The PCCB independently monitors how registered search firms maintain compliance with the Code.

The Search Code:

- provides protection for homebuyers, sellers, estate agents, conveyancers and mortgage lenders who rely on the information included in property search reports undertaken by subscribers on residential and commercial property within the United Kingdom
- sets out minimum standards which firms compiling and selling search reports have to meet
- promotes the best practise and quality standards within the industry for the benefit of consumers and property professionals
- enables consumers and property professionals to have confidence in firms which subscribe to the code, their products and services.

By giving you this information, the search firm is confirming that they keep to the principles of the Code. This provides important protection for you.

The Code's core principles

Firms which subscribe to the Search Code will:

- display the Search Code logo prominently on their search reports
- act with integrity and carry out work with due skill, care and diligence
- at all times maintain adequate and appropriate insurance to protect consumers
- conduct business in an honest, fair and professional manner
- handle complaints speedily and fairly
- ensure that products and services comply with industry registration rules and standards and relevant laws
- monitor their compliance with the Code

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 or to the PCCB.

TPOs Contact Details

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

You can get more information about the PCCB from www.propertycodes.org.uk

PLEASE ASK YOUR SEARCH PROVIDER IF YOU WOULD LIKE A COPY OF THE SEARCH CODE

Mr Shyam Joshi
The Old Chapel
Station Road
Hugglescote
LE67 2GB

Wastewater pre-planning
Our ref DS6048759

26 May 2018

Pre-planning enquiry: Confirmation of sufficient capacity

Dear Mr Joshi

Thank you for providing information on your development at **Land off Hempton Road, Deddignton, OX15 0NA, OS grid ref. 445962, 231842.**

Residential development comprising 20 dwellings. Foul water to be discharged by gravity into foul water sewer in Hempton Road. Surface Water to be disposed via suds.

We're pleased to confirm that there will be sufficient foul and surface water capacity in our sewerage network to serve your development, so long as your phasing follows the timescale you've suggested.

This confirmation is valid for 12 months or for the life of any planning approval that this information is used to support, to a maximum of three years.

You'll need to keep us informed of any changes to your design – for example, an increase in the number or density of homes. Such changes could mean there is no longer sufficient capacity.

What happens next?

Please make sure you submit your connection application, giving us at least 21 days' notice of the date you wish to make your new connection/s.

If you've any further questions, please contact me on 0203 577 8082.

Yours sincerely

Artur Jaroma

Thames Water

APPENDIX E

HR Wallingford
Working with water

Greenfield runoff estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	Ben Donoghue
Site name:	Hempton Rd
Site location:	Deddington

This is an estimation of the greenfield runoff rate limits that are needed to meet normal best practice criteria in line with Environment Agency guidance "Preliminary rainfall runoff management for developments", W5-074/A/TR1/1 rev. E (2012) and the SuDS Manual, C753 (Ciria, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site coordinates

Latitude:	51.98349° N
Longitude:	1.33243° W

Reference:	6365492
Date:	2018-05-17T13:17:06

Methodology	IH124

Site characteristics

Total site area (ha)	1.56

Methodology

Qbar estimation method	Calculate from SPR and SAAR
SPR estimation method	Calculate from SOIL type

	Default	Edited
SOIL type	1	1
HOST class	---	---
SPR/SPRHOST	0.1	0.1

Hydrological characteristics

	Default	Edited
SAAR (mm)	661	661
Hydrological region	6	6
Growth curve factor: 1 year	0.85	0.85
Growth curve factor: 30 year	2.3	2.3
Growth curve factor: 100 year	3.19	3.19

Notes:

(1) Is Q_{BAR} < 2.0 l/s/ha?

Normally limiting discharge rates which are less than 2.0 l/s/ha are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consents are usually set at 5.0l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set in which case blockage work must be addressed by using appropriate drainage elements

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite may be a requirement for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited
Qbar (l/s)	0.25	0.25
1 in 1 year (l/s)	0.21	0.21
1 in 30 years (l/s)	0.56	0.56
1 in 100 years (l/s)	0.78	0.78

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

Half Drain Time : 7 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m^3)	Status
15 min Summer	136.660	0.960	212.0	143.1	O K
30 min Summer	136.628	0.928	202.8	134.0	O K
60 min Summer	136.548	0.848	180.4	112.7	O K
120 min Summer	136.418	0.718	146.4	82.8	O K
180 min Summer	136.322	0.622	123.4	64.2	O K
240 min Summer	136.249	0.549	107.2	51.9	O K
360 min Summer	136.144	0.444	85.4	36.7	O K
480 min Summer	136.070	0.370	71.4	27.8	O K
600 min Summer	136.016	0.316	61.7	22.0	O K
720 min Summer	135.973	0.273	54.4	17.8	O K
960 min Summer	135.906	0.206	44.0	12.2	O K
1440 min Summer	135.824	0.124	32.1	6.5	O K
2160 min Summer	135.755	0.055	23.2	2.6	O K
2880 min Summer	135.742	0.042	18.4	1.9	O K
4320 min Summer	135.731	0.031	13.1	1.4	O K
5760 min Summer	135.725	0.025	10.4	1.1	O K
7200 min Summer	135.721	0.021	8.6	0.9	O K
8640 min Summer	135.718	0.018	7.5	0.8	O K
10080 min Summer	135.716	0.016	6.6	0.7	O K
15 min Winter	136.700	1.000	276.1	155.7	Flood Risk
30 min Winter	136.669	0.969	214.7	145.8	O K
60 min Winter	136.551	0.851	181.2	113.5	O K
120 min Winter	136.373	0.673	135.3	73.7	O K
180 min Winter	136.252	0.552	107.8	52.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m^3)	Time-Peak (mins)
15 min Summer	187.093	0.0	16
30 min Summer	109.471	0.0	24
60 min Summer	64.053	0.0	40
120 min Summer	37.479	0.0	70
180 min Summer	27.392	0.0	100
240 min Summer	21.929	0.0	132
360 min Summer	16.028	0.0	190
480 min Summer	12.831	0.0	250
600 min Summer	10.798	0.0	312
720 min Summer	9.378	0.0	370
960 min Summer	7.418	0.0	492
1440 min Summer	5.330	0.0	734
2160 min Summer	3.830	0.0	1100
2880 min Summer	3.029	0.0	1432
4320 min Summer	2.155	0.0	2160
5760 min Summer	1.693	0.0	2928
7200 min Summer	1.404	0.0	3544
8640 min Summer	1.205	0.0	4392
10080 min Summer	1.059	0.0	5128
15 min Winter	187.093	0.0	16
30 min Winter	109.471	0.0	25
60 min Winter	64.053	0.0	42
120 min Winter	37.479	0.0	72
180 min Winter	27.392	0.0	102

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	136.166	0.466	89.8	39.7	O K
360 min Winter	136.051	0.351	67.9	25.7	O K
480 min Winter	135.977	0.277	55.1	18.2	O K
600 min Winter	135.924	0.224	46.7	13.6	O K
720 min Winter	135.884	0.184	40.7	10.5	O K
960 min Winter	135.826	0.126	32.3	6.6	O K
1440 min Winter	135.756	0.056	23.3	2.6	O K
2160 min Winter	135.739	0.039	16.9	1.8	O K
2880 min Winter	135.731	0.031	13.4	1.4	O K
4320 min Winter	135.723	0.023	9.5	1.0	O K
5760 min Winter	135.718	0.018	7.5	0.8	O K
7200 min Winter	135.715	0.015	6.2	0.7	O K
8640 min Winter	135.713	0.013	5.4	0.6	O K
10080 min Winter	135.712	0.012	4.7	0.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	21.929	0.0	132
360 min Winter	16.028	0.0	192
480 min Winter	12.831	0.0	252
600 min Winter	10.798	0.0	312
720 min Winter	9.378	0.0	372
960 min Winter	7.418	0.0	492
1440 min Winter	5.330	0.0	730
2160 min Winter	3.830	0.0	1084
2880 min Winter	3.029	0.0	1428
4320 min Winter	2.155	0.0	2200
5760 min Winter	1.693	0.0	2840
7200 min Winter	1.404	0.0	3632
8640 min Winter	1.205	0.0	4112
10080 min Winter	1.059	0.0	5336

The Old Chapel Station Road, Hugglescote Leicestershire LE67 2GB	23933 Hempton Rd, Deddington Design Calculations - Infilt
Date 18.06.2018 File 2018-06-18 INFILTRATION	Designed by BD Checked by WD
XP Solutions	Source Control 2016.1

Rainfall Details

Rainfall Model	FEH	F (1km)	2.480
Return Period (years)	100	Summer Storms	Yes
Site Location	GB 446100 232550 SP 46100 32550	Winter Storms	Yes
C (1km)	-0.022	Cv (Summer)	0.750
D1 (1km)	0.328	Cv (Winter)	0.840
D2 (1km)	0.286	Shortest Storm (mins)	15
D3 (1km)	0.262	Longest Storm (mins)	10080
E (1km)	0.292	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.740

Time From:	(mins) To:	Area (ha)	Time From:	(mins) To:	Area (ha)
0	4	0.370	4	8	0.370

Model Details

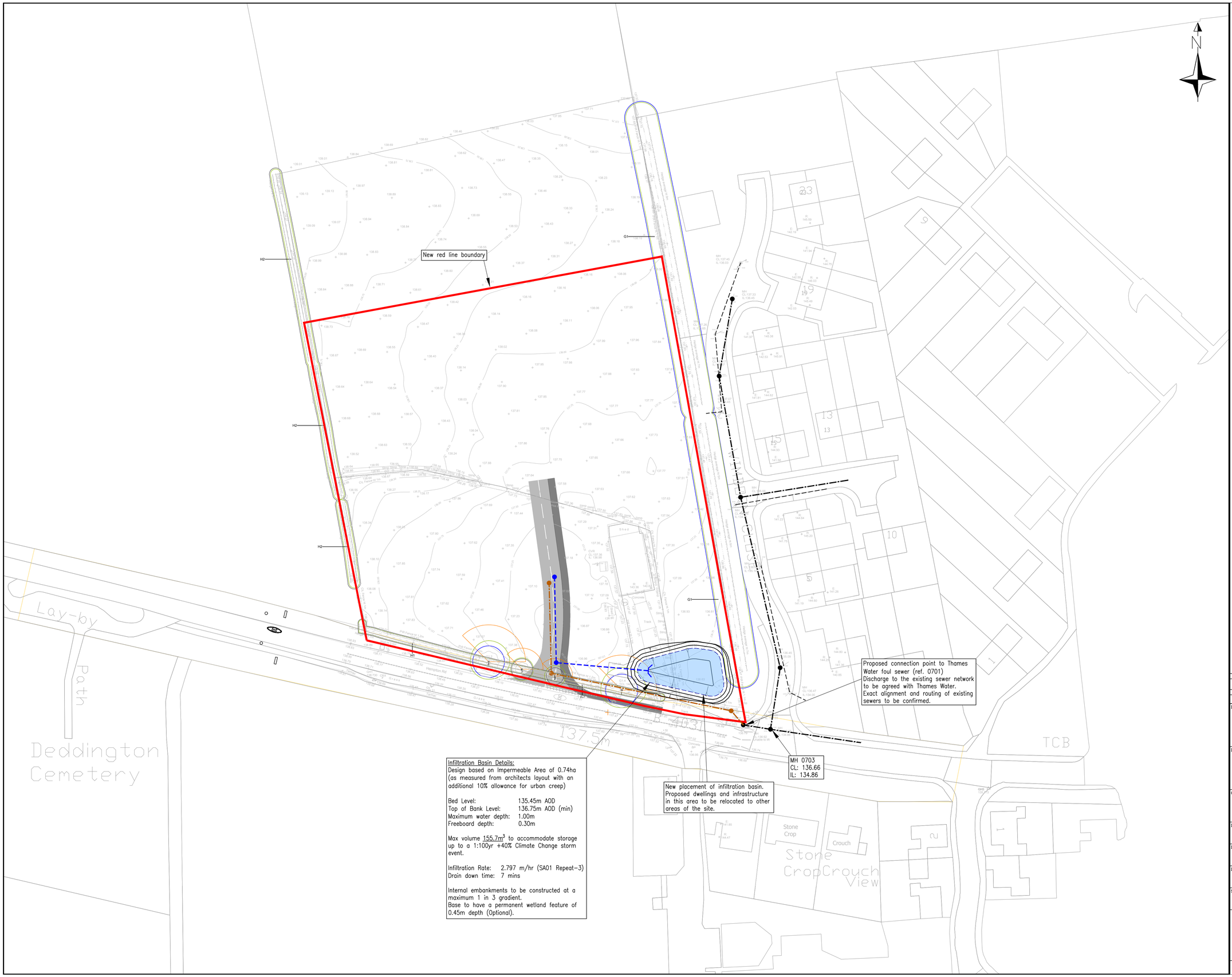
Storage is Online Cover Level (m) 137.000

Infiltration Basin Structure

Invert Level (m) 135.700 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 2.79700 Porosity 1.00
Infiltration Coefficient Side (m/hr) 2.79700

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	42.8	0.600	172.9	1.200	0.0	1.800	0.0	2.400	0.0
0.100	58.2	0.700	202.9	1.300	0.0	1.900	0.0	2.500	0.0
0.200	76.6	0.800	235.4	1.400	0.0	2.000	0.0		
0.300	96.7	0.900	270.5	1.500	0.0	2.100	0.0		
0.400	119.8	1.000	307.7	1.600	0.0	2.200	0.0		
0.500	145.1	1.001	0.0	1.700	0.0	2.300	0.0		

APPENDIX F



GENERAL NOTES

1. DO NOT SCALE THIS DRAWING.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ENGINEERS, ARCHITECTS AND SPECIALIST DESIGN DRAWINGS AND DETAILS.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE. ALL LEVELS ARE IN METRES UNLESS NOTED OTHERWISE.
4. THIS DRAWING IS FOR STRATEGY PURPOSES ONLY AND IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

KEY

- SITE BOUNDARY
- EXISTING SURFACE WATER DRAIN
- EXISTING FOUL WATER DRAIN
- PROPOSED SURFACE WATER DRAIN
- PROPOSED FOUL WATER DRAIN
- PROPOSED HEADWALL
- PROPOSED INFILTRATION BASIN AND BANKING (MAXIMUM 1 : 3 GRADIENT)
- INDICATIVE OVERLAND FLOW DIRECTION
- ASSUMED IMPERMEABLE AREAS

REV:	AMENDMENTS:	DRN:	CHK:	DATE:
C	Pond amended	MD	WD	22.02.19
B	Infiltration rates incorperated in design Basin redesigned into Infiltration.	BD	WD	18.06.18
A	Basin relocated to south-west corner	BD	WD	05.06.18

PROJECT:
HEMPTON ROAD
DEDDINGTON

DRAWING TITLE:
PRELIMINARY DRAINAGE STRATEGY

CLIENT:
WEBB DEVELOPMENTS

DRAWING NUMBER:
23933_01_230_01

REVISION:	SHEET SIZE:	SCALE:
C	A1	1:500

DRAWN BY:	CHECKED BY:	DATE:
BD	WD	21.05.18

STATUS:
PRELIMINARY

M-EC Consulting Development Engineers
Leicester T: 01530 264 753
Birmingham T: 0121 7264 888
Milton Keynes T: 01908 440 042
Nottingham T: 0115 838 0990
Leeds T: 0113 468 1127
E: group@m-ec.co.uk
www.m-ec.co.uk

APPENDIX G

Mewies Engineering Consultants Ltd
The Old Chapel, Station Road, Hugglescote, Leicestershire, LE67 2GB
Telephone 01530 264753 email group@m-ec.co.uk

Scheme	**Hempton Road, Deddington**	Page No.	1
Client	**Robert Webb**	Calcs by	CN
Job ref.	**23933**	Date	14/06/18
		Test Number	1

Soil infiltration test

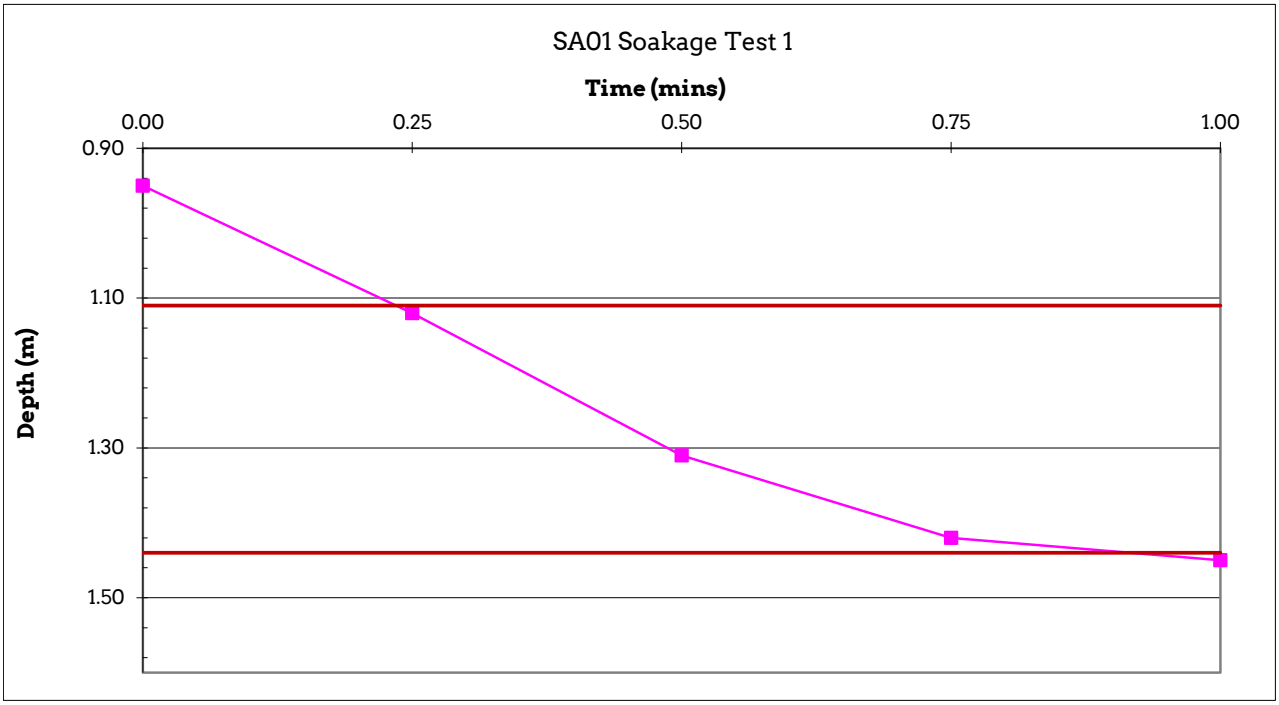
(In general accordance with BRE Digest 365, 2016, Soakaway Design)

Trial pit ref.	**SA01**	
Length	**1.80**	m
Width	**0.45**	m
Depth	**1.60**	m
Ground water level	**N/A**	
Ground conditions	**0.00 - 0.20**	**TOPSOIL comprising reddish brown, clayey, gravelly, SAND.**
	0.20 - 0.50	**Reddish brown, gravelly SAND with a low cobble content.**
	0.50 - 1.60	**Reddish brown, sandy, fine to coarse angular GRAVEL with high cobble and low boulder content.**

Weather Conditions: Overcast

Time mins	Depth to water
0.00	0.95
0.25	1.12
0.50	1.31
0.75	1.42
1.00	1.45

Effective storage depth =	0.65	m
75% effective storage depth =	0.49	m
(ie depth below GL) =	1.11	m
25% effective storage depth =	0.16	m
(ie depth below GL) =	1.44	m
effective storage depth 75%-25% =	0.33	m
Time to fall to 75% effective depth =	0.24	mins
Time to fall to 25% effective depth =	0.85	mins
Void Ratio =	40%	
V (75%-25%) =	0.1053	m3
a (50%) =	2.2725	m2
t (75%-25%) =	0.61	mins
SOIL INFILTRATION RATE =	**1.27E-03**	**m/s**



Mewies Engineering Consultants Ltd
The Old Chapel, Station Road, Hugglescote, Leicestershire, LE67 2GB
Telephone 01530 264753 email group@m-ec.co.uk

Scheme	**Hempton Road, Deddington**	Page No.	2
Client	**Robert Webb**	Calcs by	CN
Job ref.	**23933**	Date	14/06/18
		Test Number	2

Soil infiltration test

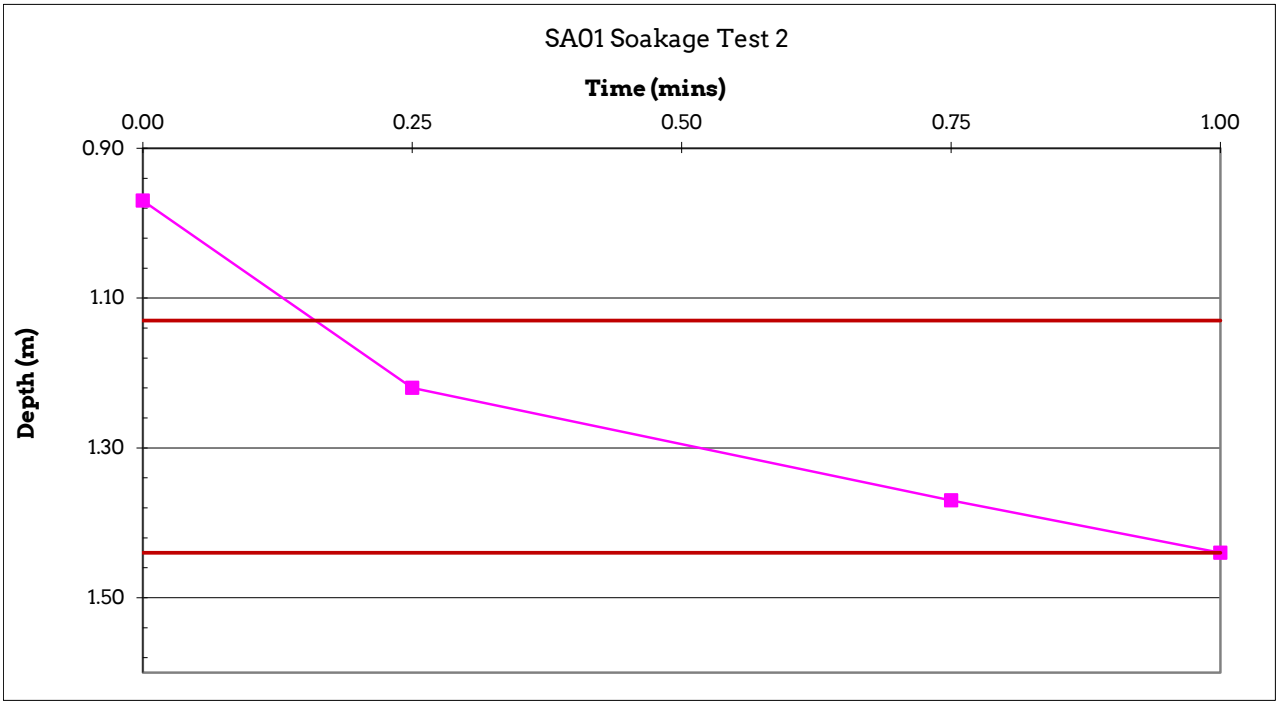
(In general accordance with BRE Digest 365, 2016, Soakaway Design)

Trial pit ref.	**SA01**	
Length	**1.80**	m
Width	**0.45**	m
Depth	**1.60**	m
Ground water level	**N/A**	
Ground conditions	**0.00 - 0.20**	**TOPSOIL comprising reddish brown, clayey, gravelly, SAND.**
	0.20 - 0.50	**Reddish brown, gravelly SAND with a low cobble content.**
	0.50 - 1.60	**Reddish brown, sandy, fine to coarse angular GRAVEL with high cobble and low boulder content.**

Weather Conditions: Overcast

Time mins	Depth to water
0.00	0.97
0.25	1.22
0.75	1.37
1.00	1.44

Effective storage depth =	0.63	m
75% effective storage depth =	0.47	m
(ie depth below GL) =	1.13	m
25% effective storage depth =	0.16	m
(ie depth below GL) =	1.44	m
effective storage depth 75%-25% =	0.32	m
Time to fall to 75% effective depth =	0.20	mins
Time to fall to 25% effective depth =	1.00	mins
Void Ratio =	40%	
V (75%-25%) =	0.1021	m3
a (50%) =	2.2275	m2
t (75%-25%) =	0.80	mins
SOIL INFILTRATION RATE =	**9.55E-04**	**m/s**



Mewies Engineering Consultants Ltd
The Old Chapel, Station Road, Hugglescote, Leicestershire, LE67 2GB
Telephone 01530 264753 email group@m-ec.co.uk

Scheme	**Hempton Road, Deddington**	Page No.	3
Client	**Robert Webb**	Calcs by	CN
Job ref.	**23933**	Date	14/06/18
		Test Number	3

Soil infiltration test

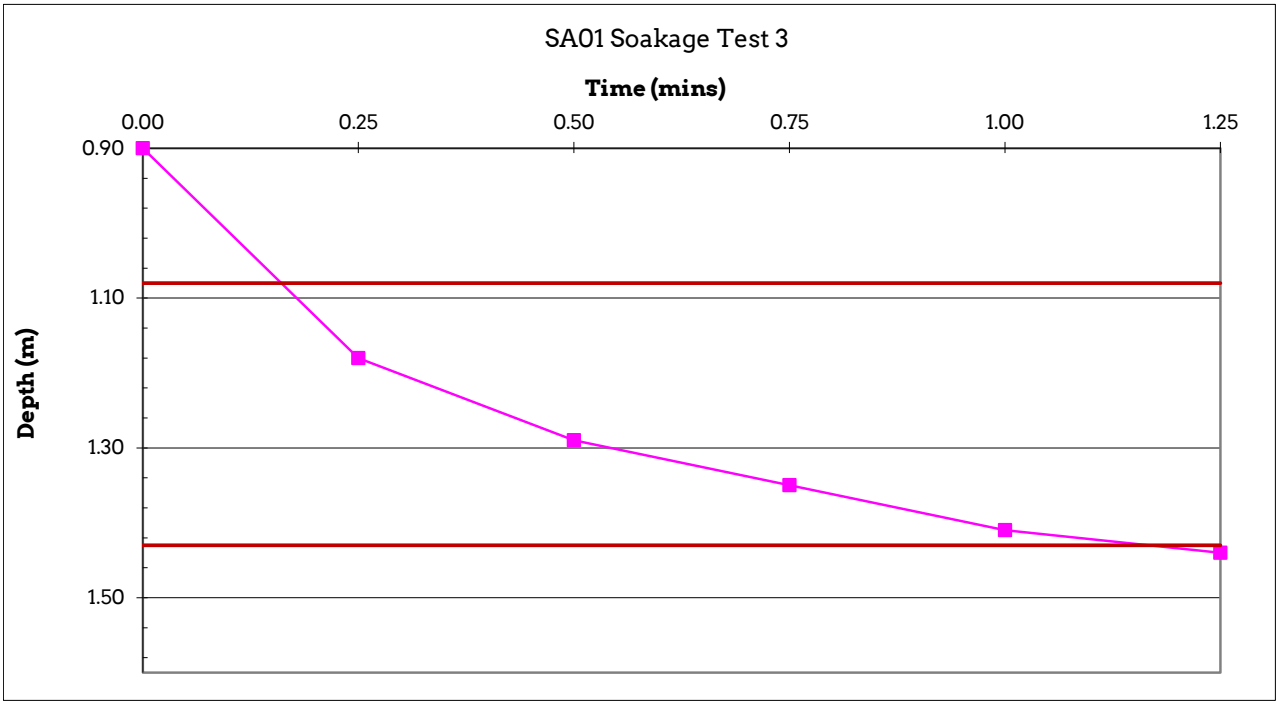
(In general accordance with BRE Digest 365, 2016, Soakaway Design)

Trial pit ref.	**SA01**	
Length	**1.80**	m
Width	**0.45**	m
Depth	**1.60**	m
Ground water level	**N/A**	
Ground conditions	**0.00 - 0.20**	**TOPSOIL comprising reddish brown, clayey, gravelly, SAND.**
	0.20 - 0.50	**Reddish brown, gravelly SAND with a low cobble content.**
	0.50 - 1.60	**Reddish brown, sandy, fine to coarse angular GRAVEL with high cobble and low boulder content.**

Weather Conditions: Overcast

Time mins	Depth to water
0.00	0.90
0.25	1.18
0.50	1.29
0.75	1.35
1.00	1.41
1.25	1.44

Effective storage depth =	0.70	m
75% effective storage depth =	0.53	m
(ie depth below GL) =	1.08	m
25% effective storage depth =	0.18	m
(ie depth below GL) =	1.43	m
effective storage depth 75%-25% =	0.35	m
Time to fall to 75% effective depth =	0.13	mins
Time to fall to 25% effective depth =	1.15	mins
Void Ratio =	40%	
V (75%-25%) =	0.1134	m3
a (50%) =	2.3850	m2
t (75%-25%) =	1.02	mins
SOIL INFILTRATION RATE =	**7.77E-04**	**m/s**



Mewies Engineering Consultants Ltd
The Old Chapel, Station Road, Hugglescote, Leicestershire, LE67 2GB
Telephone 01530 264753 email group@m-ec.co.uk

Scheme	**Hempton Road, Deddington**	Page No.	1
Client	**Robert Webb**	Calcs by	CN
Job ref.	**23933**	Date	14/06/18
		Test Number	1

Soil infiltration test

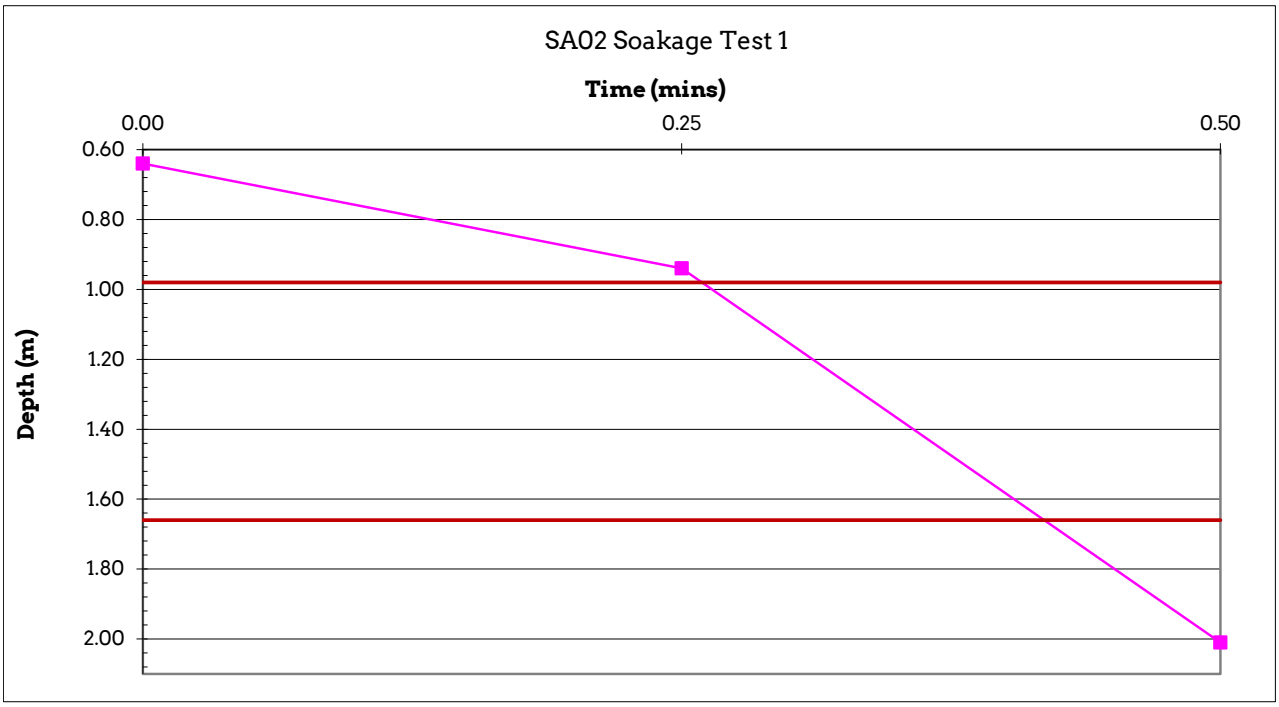
(In general accordance with BRE Digest 365, 2016, Soakaway Design)

Trial pit ref.	**SA02**	
Length	**1.80**	m
Width	**0.45**	m
Depth	**2.00**	m
Ground water level	**N/A**	
Ground conditions	**0.00 - 0.20**	**TOPSOIL comprising reddish brown, clayey, gravelly, SAND.**
	0.20 - 0.60	**Reddish brown, clayey, gravelly SAND with a low cobble content.**
	0.60 - 0.90	**Reddish brown, sandy, fine to coarse angular GRAVEL with a high cobble and low boulder content.**
	0.90 - 2.00	**Reddish brown, clayey, sandy, fine to coarse angular GRAVEL with a high cobble and low boulder content.**

Weather Conditions: Overcast

Time mins	Depth to water
0.00	0.64
0.25	0.94
0.50	2.01

Effective storage depth =	1.36	m
75% effective storage depth =	1.02	m
(ie depth below GL) =	0.98	m
25% effective storage depth =	0.34	m
(ie depth below GL) =	1.66	m
effective storage depth 75%-25% =	0.68	m
Time to fall to 75% effective depth =	0.26	mins
Time to fall to 25% effective depth =	0.42	mins
Void Ratio =	40%	
V (75%-25%) =	0.2203	m3
a (50%) =	3.8700	m2
t (75%-25%) =	0.16	mins
SOIL INFILTRATION RATE =	**5.93E-03**	**m/s**



Mewies Engineering Consultants Ltd
The Old Chapel, Station Road, Hugglescote, Leicestershire, LE67 2GB
Telephone 01530 264753 email group@m-ec.co.uk

Scheme	**Hempton Road, Deddington**	Page No.	2
Client	**Robert Webb**	Calcs by	CN
Job ref.	**23933**	Date	14/06/18
		Test Number	2

Soil infiltration test

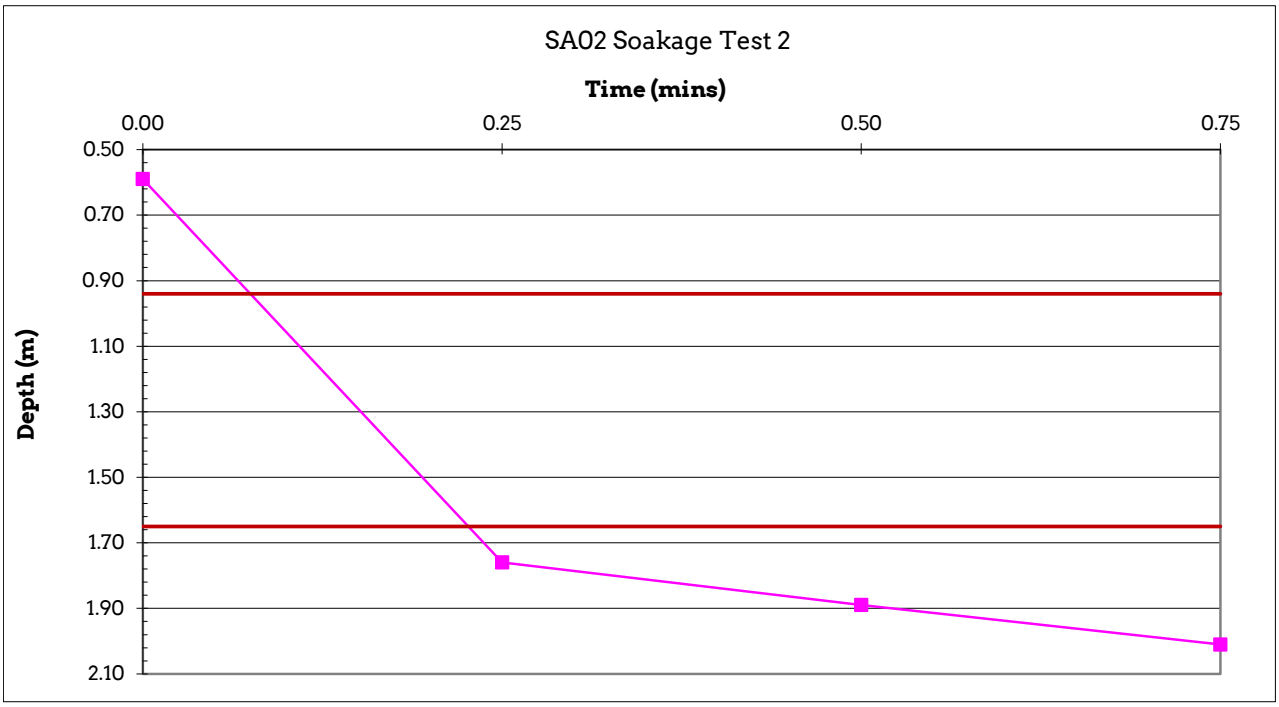
(In general accordance with BRE Digest 365, 2016, Soakaway Design)

Trial pit ref.	**SA02**	
Length	**1.80**	m
Width	**0.45**	m
Depth	**2.00**	m
Ground water level	**N/A**	
Ground conditions	**0.00 - 0.20**	**TOPSOIL comprising reddish brown, clayey, gravelly, SAND.**
	0.20 - 0.60	**Reddish brown, clayey, gravelly SAND with a low cobble content.**
	0.60 - 0.90	**Reddish brown, sandy, fine to coarse angular GRAVEL with a high cobble and low boulder content.**
	0.90 - 2.00	**Reddish brown, clayey, sandy, fine to coarse angular GRAVEL with a high cobble and low boulder content.**

Weather Conditions: Overcast

Time mins	Depth to water
0.00	0.59
0.25	1.76
0.50	1.89
0.75	2.01

Effective storage depth =	1.41	m
75% effective storage depth =	1.06	m
(ie depth below GL) =	0.94	m
25% effective storage depth =	0.35	m
(ie depth below GL) =	1.65	m
effective storage depth 75%-25% =	0.71	m
Time to fall to 75% effective depth =	0.08	mins
Time to fall to 25% effective depth =	0.21	mins
Void Ratio =	40%	
V (75%-25%) =	0.2284	m3
a (50%) =	3.9825	m2
t (75%-25%) =	0.13	mins
SOIL INFILTRATION RATE =	**7.35E-03**	**m/s**



Mewies Engineering Consultants Ltd
The Old Chapel, Station Road, Hugglescote, Leicestershire, LE67 2GB
Telephone 01530 264753 email group@m-ec.co.uk

Scheme	**Hempton Road, Deddington**	Page No.	3
Client	**Robert Webb**	Calcs by	CN
Job ref.	**23933**	Date	14/06/18
		Test Number	3

Soil infiltration test

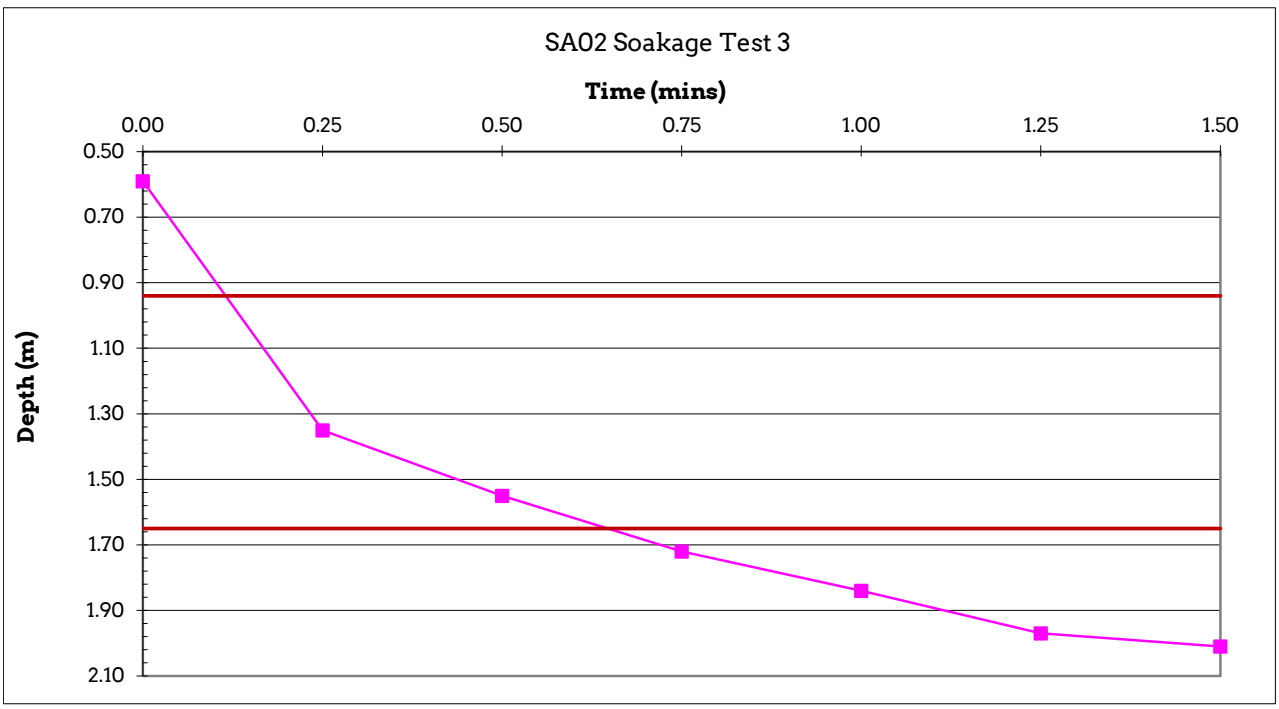
(In general accordance with BRE Digest 365, 2016, Soakaway Design)

Trial pit ref.	**SA02**	
Length	**1.80**	m
Width	**0.45**	m
Depth	**2.00**	m
Ground water level	**N/A**	
Ground conditions	**0.00 - 0.20**	**TOPSOIL comprising reddish brown, clayey, gravelly, SAND.**
	0.20 - 0.60	**Reddish brown, clayey, gravelly SAND with a low cobble content.**
	0.60 - 0.90	**Reddish brown, sandy, fine to coarse angular GRAVEL with a high cobble and low boulder content.**
	0.90 - 2.00	**Reddish brown, clayey, sandy, fine to coarse angular GRAVEL with a high cobble and low boulder content.**

Weather Conditions: Overcast

Time mins	Depth to water
0.00	0.59
0.25	1.35
0.50	1.55
0.75	1.72
1.00	1.84
1.25	1.97
1.50	2.01

Effective storage depth =	1.41	m
75% effective storage depth =	1.06	m
(ie depth below GL) =	0.94	m
25% effective storage depth =	0.35	m
(ie depth below GL) =	1.65	m
effective storage depth 75%-25% =	0.71	m
Time to fall to 75% effective depth =	0.12	mins
Time to fall to 25% effective depth =	0.64	mins
Void Ratio =	40%	
V (75%-25%) =	0.2284	m3
a (50%) =	3.9825	m2
t (75%-25%) =	0.52	mins
SOIL INFILTRATION RATE =	**1.84E-03**	**m/s**



Mewies Engineering Consultants Ltd
The Old Chapel, Station Road, Hugglescote, Leicestershire, LE67 2GB
Telephone 01530 264753 email group@m-ec.co.uk

Scheme	**Hempton Road, Deddington**	Page No.	4
Client	**Robert Webb**	Calcs by	CN
Job ref.	**23933**	Date	14/06/18
		Test Number	4

Soil infiltration test

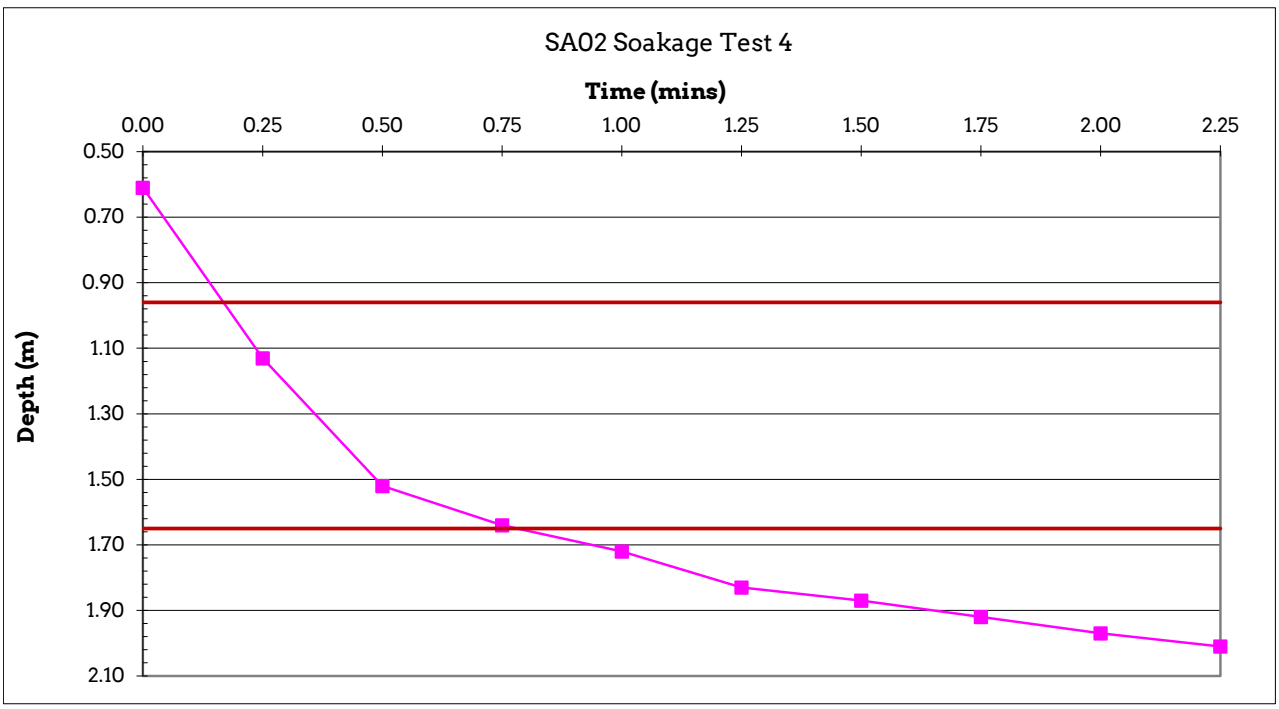
(In general accordance with BRE Digest 365, 2016, Soakaway Design)

Trial pit ref.	**SA02**	
Length	**1.80**	m
Width	**0.45**	m
Depth	**2.00**	m
Ground water level	**N/A**	
Ground conditions	**0.00 - 0.20**	**TOPSOIL comprising reddish brown, clayey, gravelly, SAND.**
	0.20 - 0.60	**Reddish brown, clayey, gravelly SAND with a low cobble content.**
	0.60 - 0.90	**Reddish brown, sandy, fine to coarse angular GRAVEL with a high cobble and low boulder content.**
	0.90 - 2.00	**Reddish brown, clayey, sandy, fine to coarse angular GRAVEL with a high cobble and low boulder content.**

Weather Conditions: Overcast

Time mins	Depth to water
0.00	0.61
0.25	1.13
0.50	1.52
0.75	1.64
1.00	1.72
1.25	1.83
1.50	1.87
1.75	1.92
2.00	1.97
2.25	2.01

Effective storage depth =	1.39	m
75% effective storage depth =	1.04	m
(ie depth below GL) =	0.96	m
25% effective storage depth =	0.35	m
(ie depth below GL) =	1.65	m
effective storage depth 75%-25% =	0.70	m
Time to fall to 75% effective depth =	0.19	mins
Time to fall to 25% effective depth =	0.76	mins
Void Ratio =	40%	
V (75%-25%) =	0.2252	m3
a (50%) =	3.9375	m2
t (75%-25%) =	0.57	mins
SOIL INFILTRATION RATE =	**1.67E-03**	**m/s**



Mewies Engineering Consultants Ltd
The Old Chapel, Station Road, Hugglescote, Leicestershire, LE67 2GB
Telephone 01530 264753 email group@m-ec.co.uk

Scheme	**Hempton Road, Deddington**	Page No.	5
Client	**Robert Webb**	Calcs by	CN
Job ref.	**23933**	Date	14/06/18
		Test Number	5

Soil infiltration test

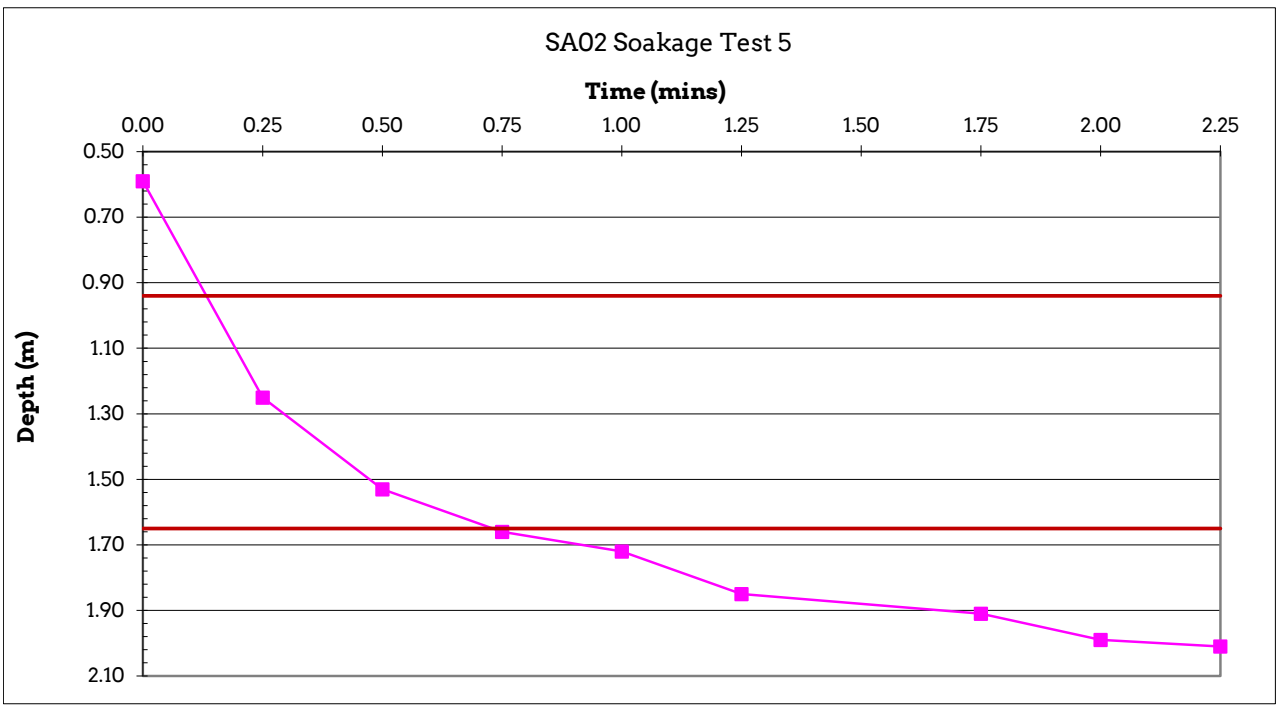
(In general accordance with BRE Digest 365, 2016, Soakaway Design)

Trial pit ref.	**SA02**	
Length	**1.80**	m
Width	**0.45**	m
Depth	**2.00**	m
Ground water level	**N/A**	
Ground conditions	**0.00 - 0.20**	**TOPSOIL comprising reddish brown, clayey, gravelly, SAND.**
	0.20 - 0.60	**Reddish brown, clayey, gravelly SAND with a low cobble content.**
	0.60 - 0.90	**Reddish brown, sandy, fine to coarse angular GRAVEL with a high cobble and low boulder content.**
	0.90 - 2.00	**Reddish brown, clayey, sandy, fine to coarse angular GRAVEL with a high cobble and low boulder content.**

Weather Conditions: Overcast

Time mins	Depth to water
0.00	0.59
0.25	1.25
0.50	1.53
0.75	1.66
1.00	1.72
1.25	1.85
1.75	1.91
2.00	1.99
2.25	2.01

Effective storage depth =	1.41	m
75% effective storage depth =	1.06	m
(ie depth below GL) =	0.94	m
25% effective storage depth =	0.35	m
(ie depth below GL) =	1.65	m
effective storage depth 75%-25% =	0.71	m
Time to fall to 75% effective depth =	0.13	mins
Time to fall to 25% effective depth =	0.74	mins
Void Ratio =	40%	
V (75%-25%) =	0.2284	m3
a (50%) =	3.9825	m2
t (75%-25%) =	0.61	mins
SOIL INFILTRATION RATE =	**1.57E-03**	**m/s**



Mewies Engineering Consultants Ltd
The Old Chapel, Station Road, Hugglescote, Leicestershire, LE67 2GB
Telephone 01530 264753 email group@m-ec.co.uk

Scheme	**Hempton Road, Deddington**	Page No.	6
Client	**Robert Webb**	Calcs by	CN
Job ref.	**23933**	Date	14/06/18
		Test Number	6

Soil infiltration test

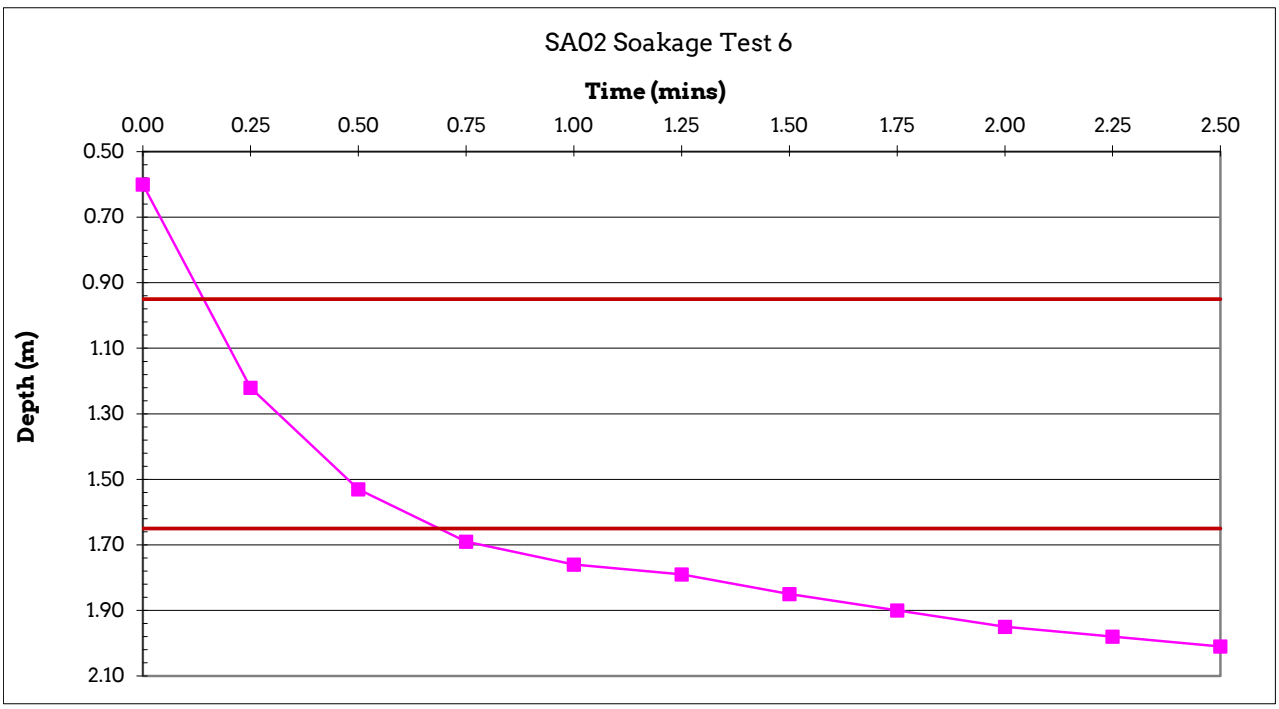
(In general accordance with BRE Digest 365, 2016, Soakaway Design)

Trial pit ref.	**SA02**	
Length	**1.80**	m
Width	**0.45**	m
Depth	**2.00**	m
Ground water level	**N/A**	
Ground conditions	**0.00 - 0.20**	**TOPSOIL comprising reddish brown, clayey, gravelly, SAND.**
	0.20 - 0.60	**Reddish brown, clayey, gravelly SAND with a low cobble content.**
	0.60 - 0.90	**Reddish brown, sandy, fine to coarse angular GRAVEL with a high cobble and low boulder content.**
	0.90 - 2.00	**Reddish brown, clayey, sandy, fine to coarse angular GRAVEL with a high cobble and low boulder content.**

Weather Conditions: Overcast

Time mins	Depth to water
0.00	0.60
0.25	1.22
0.50	1.53
0.75	1.69
1.00	1.76
1.25	1.79
1.50	1.85
1.75	1.90
2.00	1.95
2.25	1.98
2.50	2.01

Effective storage depth =	1.40	m
75% effective storage depth =	1.05	m
(ie depth below GL) =	0.95	m
25% effective storage depth =	0.35	m
(ie depth below GL) =	1.65	m
effective storage depth 75%-25% =	0.70	m
Time to fall to 75% effective depth =	0.13	mins
Time to fall to 25% effective depth =	0.70	mins
Void Ratio =	40%	
V (75%-25%) =	0.2268	m3
a (50%) =	3.9600	m2
t (75%-25%) =	0.57	mins
SOIL INFILTRATION RATE =	**1.67E-03**	**m/s**



Mewies Engineering Consultants Ltd
The Old Chapel, Station Road, Hugglescote, Leicestershire, LE67 2GB
Telephone 01530 264753 email group@m-ec.co.uk

Scheme	**Hempton Road, Deddington**	Page No.	7
Client	**Robert Webb**	Calcs by	CN
Job ref.	**23933**	Date	14/06/18
		Test Number	7

Soil infiltration test

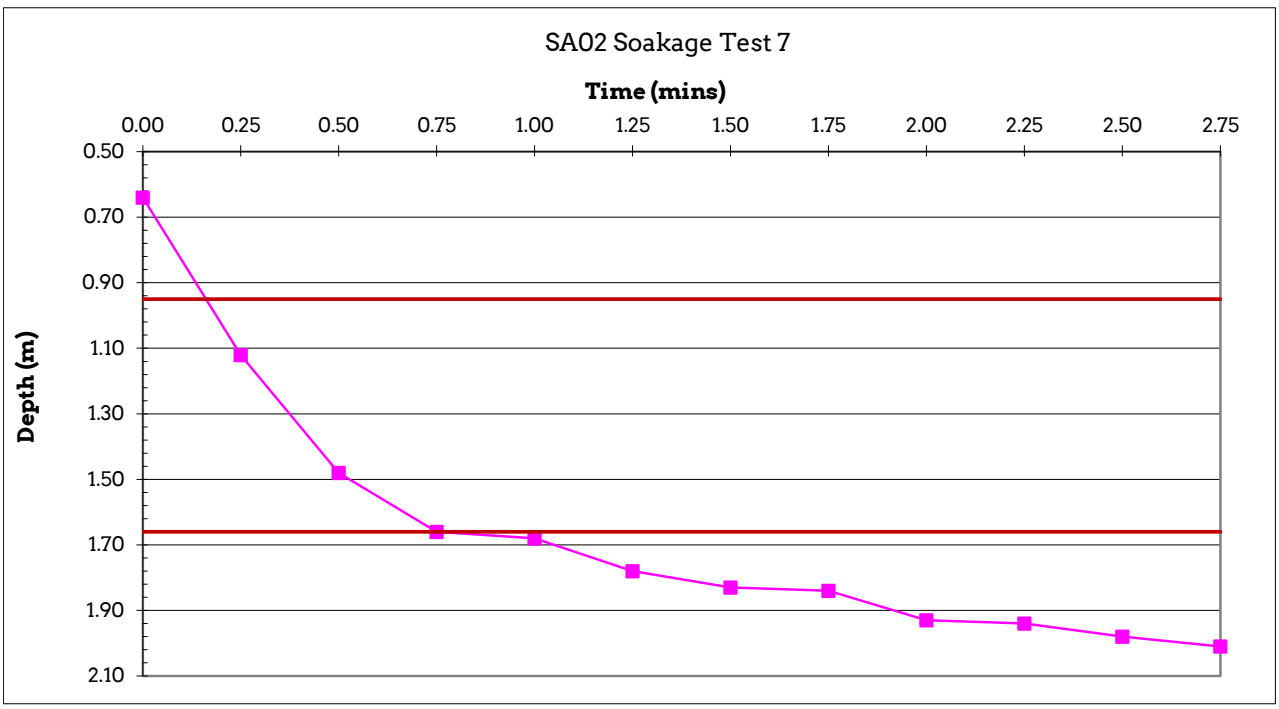
(In general accordance with BRE Digest 365, 2016, Soakaway Design)

Trial pit ref.	**SA02**	
Length	**1.80**	m
Width	**0.45**	m
Depth	**2.00**	m
Ground water level	**N/A**	
Ground conditions	**0.00 - 0.20**	**TOPSOIL comprising reddish brown, clayey, gravelly, SAND.**
	0.20 - 0.60	**Reddish brown, clayey, gravelly SAND with a low cobble content.**
	0.60 - 0.90	**Reddish brown, sandy, fine to coarse angular GRAVEL with a high cobble and low boulder content.**
	0.90 - 2.00	**Reddish brown, clayey, sandy, fine to coarse angular GRAVEL with a high cobble and low boulder content.**

Weather Conditions: Overcast

Time mins	Depth to water
0.00	0.64
0.25	1.12
0.50	1.48
0.75	1.66
1.00	1.68
1.25	1.78
1.50	1.83
1.75	1.84
2.00	1.93
2.25	1.94
2.50	1.98
2.75	2.01

Effective storage depth =	1.36	m
75% effective storage depth =	1.02	m
(ie depth below GL) =	0.98	m
25% effective storage depth =	0.34	m
(ie depth below GL) =	1.66	m
effective storage depth 75%-25% =	0.68	m
Time to fall to 75% effective depth =	0.18	mins
Time to fall to 25% effective depth =	0.75	mins
Void Ratio =	40%	
V (75%-25%) =	0.2203	m3
a (50%) =	3.8700	m2
t (75%-25%) =	0.57	mins
SOIL INFILTRATION RATE =	**1.66E-03**	**m/s**



Civil Engineering

Drainage

Flood Risk

Transport

Highways

Structures

Geotechnics

Contamination

Sustainability

Noise & Air Quality

Utilities

Geomatics

M-EC

Leicester
Birmingham
Milton Keynes
Nottingham
Leeds

T: 01530 264 753
group@m-ec.co.uk
www.m-ec.co.uk

Consulting Development Engineers