

## ***Appendix B – Consultations***

### ***Anglian Water Pre-planning assessment report Environment Agency Hazard Mapping Fra024 site***



# **Pre-Planning Assessment Report**

**Middlegate Road West, Frampton**

## Section 1: Proposed Development

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Thank you for submitting a pre-planning enquiry. This has been produced for Millward. Your reference number is **00012738**. If you have any questions upon receipt of this report, please contact Mark Rhodes on 01733 414690 or email [planningliaison@anglianwater.co.uk](mailto:planningliaison@anglianwater.co.uk).

The response within this report has been based on the following information which was submitted as part of your application:

List of Planned Developments	
Type of Development	No. Of Units
C3 Dwellings	200

The anticipated residential build rate is:

Year	2016	2017	2018
Build Rate	50	100	50

- The grid reference for the site is TF3102739172.

## Section 2: Assets Affected

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Our records indicate that there are no public water mains or public sewers or other assets owned by Anglian Water within the boundary or overlapping your development site. However, it is recommended that you carry out a thorough investigation of your proposed working area to establish whether any unmapped public or private sewers and lateral drains are in existence.

Due to the private sewer transfer in October 2011 many newly adopted public used water assets and their history are not indicated on our records. You also need to be aware that your development site may contain private water mains, drains or other assets not shown on our records. These are private assets and not the responsibility of Anglian Water but that of the landowner.

## Section 3: Water Recycling Services

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In examining the used water system we assess the ability for your site to connect to the public sewerage network without causing a detriment to the operation of the system. We also assess the receiving water recycling centre and determine whether the water recycling centre can cope with the increased flow and influent quality arising from your development.

### Water Recycling Centre

The foul drainage from the proposed development is in the catchment of Frampton Water Recycling Centre, which currently has capacity to treat the flows from your development site. Anglian Water cannot reserve capacity and the available capacity at the water recycling centre can be reduced at any time due to growth, environmental and regulation driven changes.

### Used Water Network

Anglian Water has assessed a gravity connection from your site to the public foul sewer network. Unfortunately, a desktop study has shown that a gravity connection to the foul public sewers may not be achievable due to site topography so we next assessed a pumped connection at 3.8 l/s to the network. Unfortunately, there is insufficient capacity in this sewer to accommodate your site as there are known flooding issues in the area that would require extensive mitigation work to counteract.

We have therefore decided to look at the alternative solution for you to pump direct to Frampton Water Recycling Centre. Max Shone is the Senior Growth Planning Engineer who is responsible for this additional work and will send you this information in due course. Should you need to contact Max to provide any other information, his phone number is 07712 876 139 and his email address is [mshone@anglianwater.co.uk](mailto:mshone@anglianwater.co.uk)

### Surface Water Disposal

There are no public surface water sewers within the vicinity of the proposed development. Therefore Anglian Water will be unable to provide the site with a feasible solution of surface water disposal within the current assets. Alternative methods of surface water disposal will need to be investigated such as infiltration techniques or a discharge to a watercourse in accordance with the surface water management hierarchy as outlined in Building Regulations Part H.

The alternative is that a new surface water sewer is constructed which is used to convey your surface water to a watercourse or as part of a SuDs scheme, where appropriate. Subject to the sewer being designed in accordance with the current version of Sewers For Adoption, the sewer can be put forward for adoption by Anglian Water under Section 104 of the Water Industry Act 1991. If the outfall is to a watercourse, the applicant will be required to obtain consent to discharge via the appropriate body.

If your site has no means of drainage due to third party land then you may be able to requisition Anglian Water, under Section 98, to provide a connection to the public sewer for domestic drainage purposes. As part of this option, you may wish to enter into a works agreement in accordance with Section 30 of the Anglian Water Authority Act 1977. This will allow you to design and construct the public sewer using Anglian Waters' statutory powers in accordance with Section 159/168 of the Water Industry Act 1991.

As you may be aware, Anglian Water will consider the adoption of SuDs provided that they meet the criteria outline in our SuDs adoption manual. This can be found on our website at <http://www.anglianwater.co.uk/developers/suds.aspx>. We will adopt features located in public open space that are designed and constructed, in conjunction with the Local Authority and Lead Local Flood Authority (LLFA), to the criteria within our SuDs adoption manual. Specifically, developers must be able to demonstrate:

1. Effective upstream source control,
2. Effective exceedance design, and
3. Effective maintenance schedule demonstrating that the assets can be maintained both now and in the future with adequate access.

If you wish to look at the adoption of any SuDs then an expression of interest form can be found on our website at: <http://www.anglianwater.co.uk/developers/suds.aspx>

### **Trade Effluent**

We note that you do not have any trade effluent requirements. Should this be required in the future you will need our written formal consent. This is in accordance with Section 118 of the Water Industry Act (1991).

### **Used Water Budget Costs**

It has been assumed that the onsite used water network will be provided under a section 104 Water Industry Act application. It is recommended that you also budget for both infrastructure charges and connection costs. The 2015/16 charges are:

Infrastructure Charge	£351.00 per connection
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Please note that we offer alternative types of connections depending on your needs and these costs are available in our annual charges booklet, which can be downloaded from [www.anglianwater.co.uk/developers/charges](http://www.anglianwater.co.uk/developers/charges).

## Section 4: Useful Information

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### Water

#### Water Industry Act – Key Water Sections:

- **Section 41:** This provides you with the right to requisition a new water main for domestic purposes to connect your site to the public water network.
- **Section 45:** This provides you with the right to have a connection for domestic purposes from a building or part of a building to the public water main.
- **Section 51A:** This provides you with the right to provide the water main or service connection yourself and for us to vest them into our company.
- **Section 55:** This applies where you request a supply of water for non domestic premises.
- **Section 185:** This provides you with the right to make a reasonable request to have a public water main, sewer or public lateral drain removed or altered, at your expense. Details on how to make an application and the s185 form is available on our website at <http://www.anglianwater.co.uk20/developers> or via our Developer Services team on 08457 60 66 087.

Details on how you can make a formal application for a new water main, new connection or diversion are available on from our Developer Services team on 08457 60 66 087 or via our website at [www.anglianwater.co.uk/developers](http://www.anglianwater.co.uk/developers)

If you have any other queries on the rights to requisition or connect your housing to the public water and sewerage infrastructure then please contact our developer services team at: Developer Services, Anglian Water, PO Box 495, Huntingdon, PE29 6YY or Telephone: 0845 60 66 087 or Email: [developerservices@anglianwater.co.uk](mailto:developerservices@anglianwater.co.uk)

**Water pressure and flow rate:** The water pressure and consistency that we must meet for your site is laid out in the Water Industry Act (1991). This states that we must supply a flow rate of 9 litres per minute at a pressure of 10 metres of head to the external stop tap. If your water pressure requirements exceed this then you will need to provide and maintain any booster requirements to the development site.

**Self Lay of Water Mains:** A list of accredited Self Lay Organisations can be found at [www.lloydsregister.co.uk/schemes/WIRS/providers-list.aspx](http://www.lloydsregister.co.uk/schemes/WIRS/providers-list.aspx).

### Used Water

#### Water Industry Act – Key Used Water Sections:

- **Section 98:** This provides you with the right to requisition a new public sewer. The new public sewer can be constructed by Anglian Water on your behalf. Alternatively, you can construct the sewer yourself under section 30 of the Anglian Water Authority Act 1977.

- **Section 102:** This provides you with the right to have an existing sewerage asset vested by us. It is your responsibility to bring the infrastructure to an adoptable condition ahead of the asset being vested.
- **Section 104:** This provides you with the right to have a design technically vetted and an agreement reached that will see us adopt your assets following their satisfactory construction and connection to the public sewer.
- **Section 106:** This provides you with the right to have your constructed sewer connected to the public sewer.
- **Section 185:** This provides you with the right to have a public sewerage asset diverted.

Details on how to make a formal application for a new sewer, new connection or diversion are available on our website at [www.anglianwater.co.uk/developers](http://www.anglianwater.co.uk/developers) or via our Developer Services team on 08457 60 66 087.

#### Sustainable Drainage Systems:

Many existing urban drainage systems can cause problems of flooding, pollution or damage to the environment and are not resilient to climate change in the long term. Therefore our preferred method of surface water disposal is through the use of Sustainable Drainage Systems (SuDS). SuDS are a range of techniques that aim to mimic the way surface water drains in natural systems within urban areas. For more information on SuDS, please visit our website at <http://www.anglianwater.co.uk/developers/suds.aspx>. We also recommend that you contact the Local Authority and Lead Local Flood Authority (LLFA) for the area to discuss your application.

**Private Sewer Transfers:** Sewers and lateral drains connected to the public sewer on the 1 July 2011 transferred into Water Company ownership on the 1 October 2011. This follows the implementation of the Floods and Water Management Act (FWMA). This included sewers and lateral drains that were subject to an existing Section 104 Adoption Agreement and those that were not. There were exemptions and the main non-transferable assets were as follows:

- Surface water sewers and lateral drains that did not discharge to the public sewer, e.g. those that discharged to a watercourse.
- Foul sewers and lateral drains that discharged to a privately owned sewage treatment/collection facility.
- Pumping stations and rising mains will transfer between 1 October 2011 and 1 October 2016.

The implementation of Section 42 of the FWMA will ensure that future private sewers will not be created. It is anticipated that all new sewer applications will need to have an approved section 104 application ahead of a section 106 connection.

**Encroachment:** Anglian Water operates a risk based approach to development encroaching close to our used water infrastructure. We assess the issue of encroachment if you are



planning to build within 400 metres of a water recycling centre or, within 15 metres to 100 metres of a pumping station. We have more information available on our website at <http://anglianwater.co.uk/developers/encroachment.aspx>

**Locating our assets:** Maps detailing the location of our water and used water infrastructure including both underground assets and above ground assets such as pumping stations and recycling centres are available from [www.digdat.co.uk](http://www.digdat.co.uk). All requests from members of the public or non-statutory bodies for maps showing the location of our assets will be subject to an appropriate administrative charge. We have more information on our website at: [www.anglianwater.co.uk/developers/our-assets/](http://www.anglianwater.co.uk/developers/our-assets/)

**Summary of charges:** A summary of this year's water and used water connection and infrastructure charges can be found at <http://www.anglianwater.co.uk/developers/charges/>

**Disclaimer:** The information provided within this report is based on the best data currently recorded, recorded within the last 12 months or provided by a third party. The position must be regarded as approximate. If there is further development in the area or for other reasons the position may change.

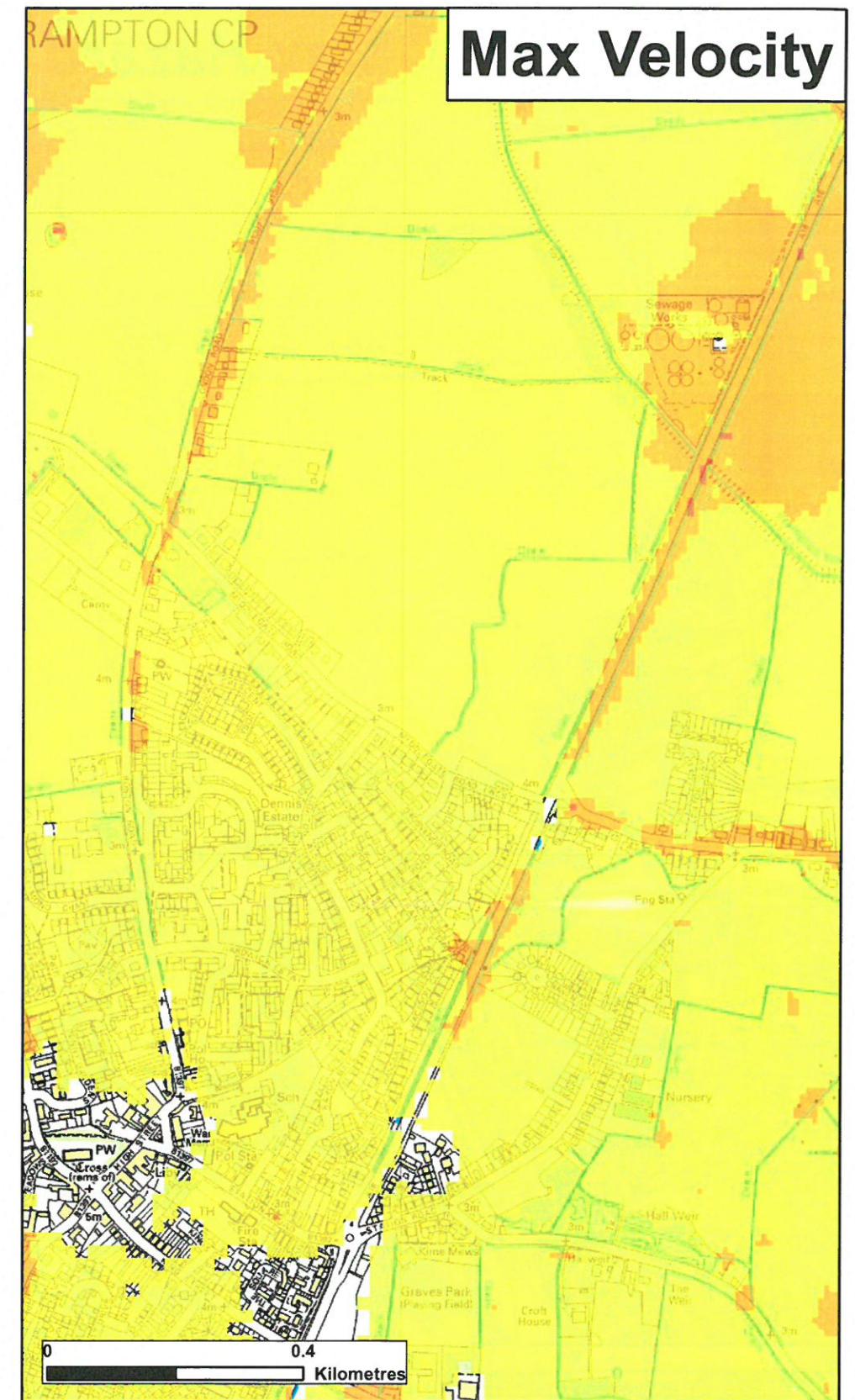
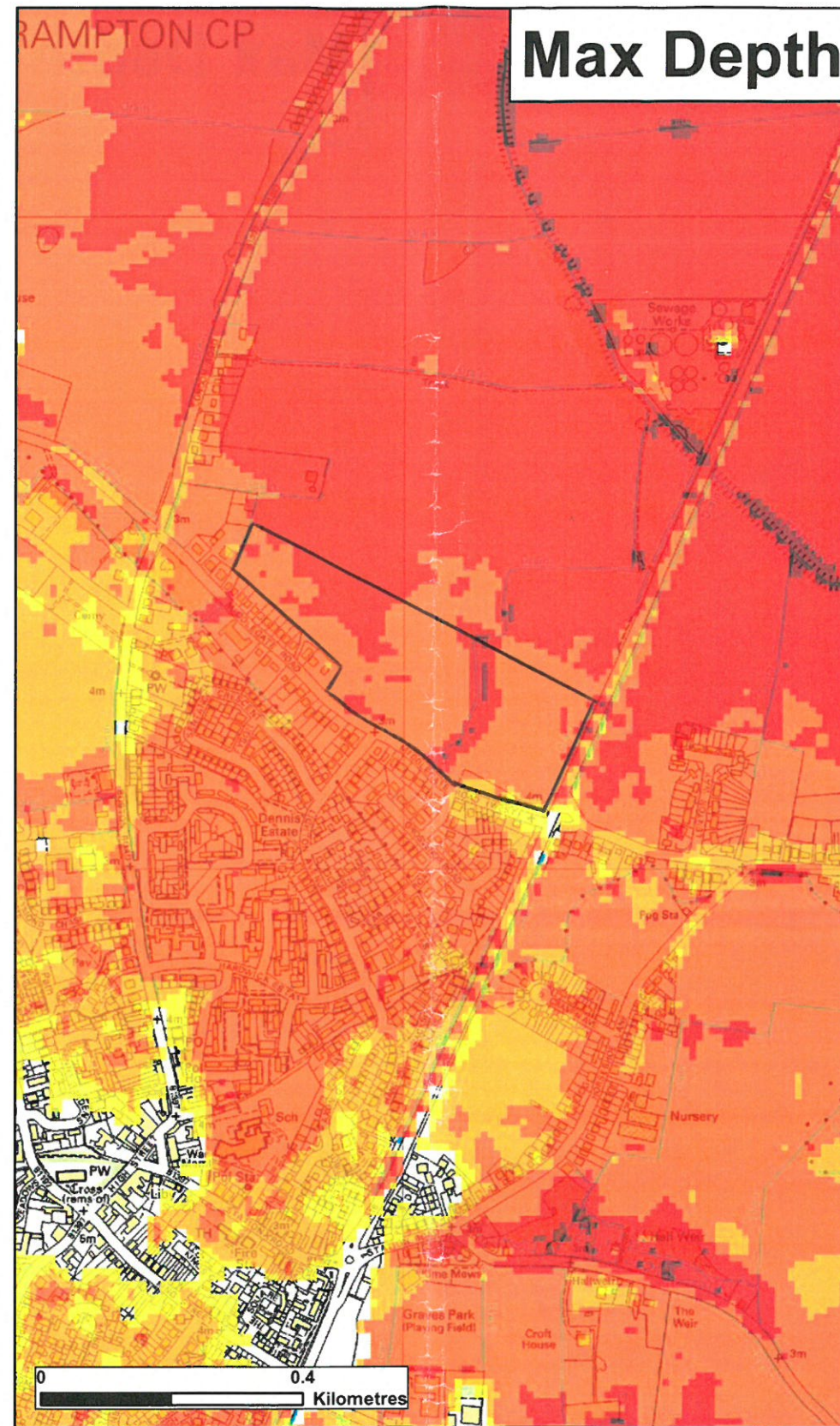
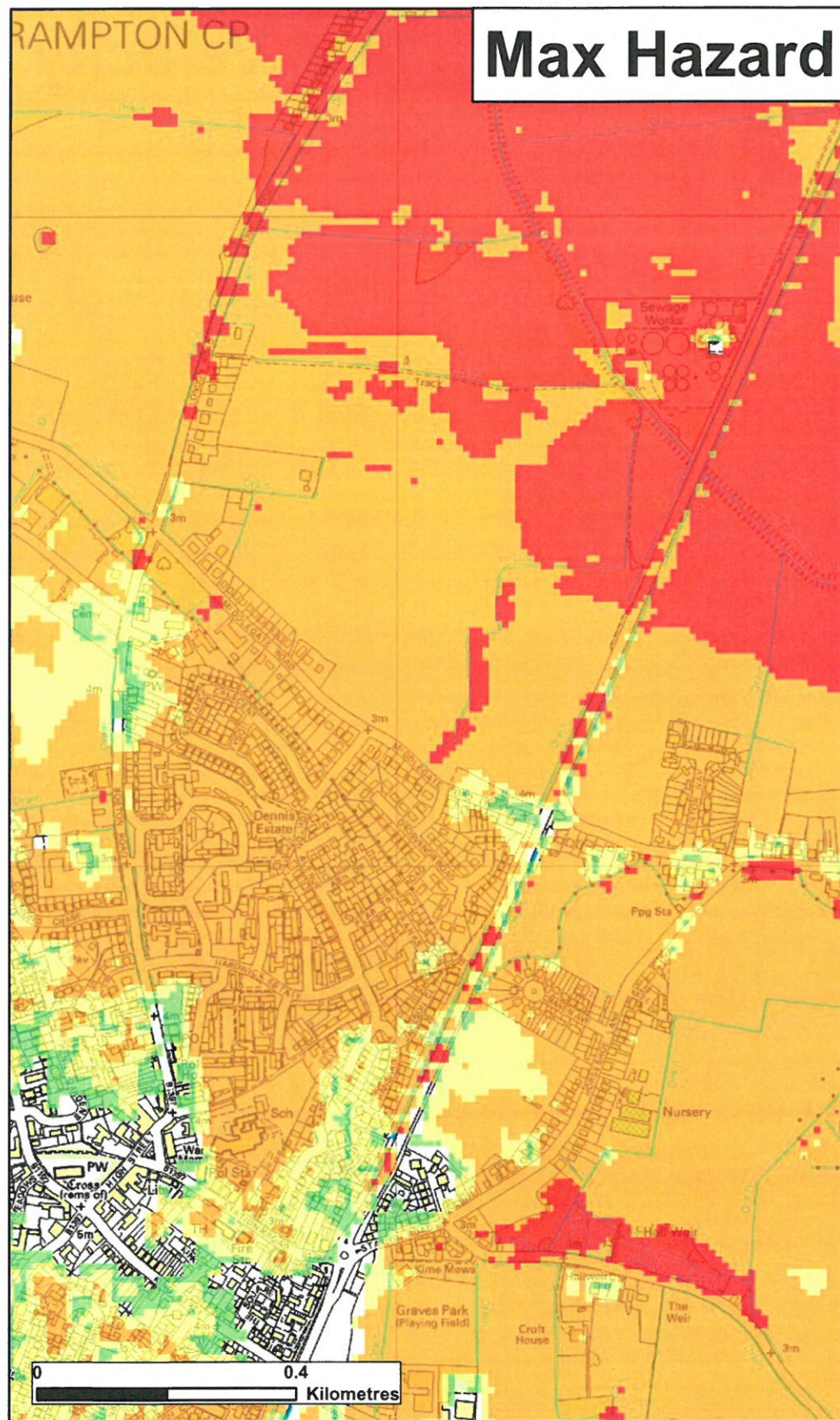
The accuracy of this report is therefore not guaranteed and does not obviate the need to make additional appropriate searches, inspections and enquiries. You are advised therefore to renew your enquiry should there be a delay in submitting your application for water supply/sewer connection to re-confirm the situation.

















Any cost calculations provided within the report are estimated only and may be subject to change.

The responses made in this report are based on the presumption that your proposed development obtains planning permission. Whilst this report has been prepared to help assess the viability of your proposal, it must not be considered in isolation. Anglian Water supports the plan led approach to sustainable development that is set out in the National Planning Policy Framework (NPPF). As a spatial planning statutory consultee, we assist planning authorities in the preparation of a sustainable local plan on the basis of capacity within our water and water recycling (formerly referred to as wastewater) infrastructure. Consequently, any infrastructure needs identified in this report must only be considered in the context of up to date, adopted or emerging local plans. Where local plans are absent, silent or out of date these needs should be considered against the definition of sustainability set out in the NPPF as a whole.

No liability whatsoever including liability for negligence is accepted by Anglian Water Services Limited for any error or inaccuracy or omission including the failure to accurately record or record at all, the location of any water main, discharge pipe, sewer, or drain or disposal main or any item of apparatus.





★ Modelled Breach Locations - see also the accompanying plan "Location of Modelled Breaches"							<div></div> <div>Lincolnshire and Northamptonshire Tidal Breaching Hazard Mapping</div> <div>Map Centred on TF 31047 39230</div> <div><small>This map is reproduced by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationary Office. Crown copyright. All rights reserved. Environment Agency 100026380, 2016. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.</small></div>	
Max Hazard (Flood Risk to People : FD2320)		Max Depth (m)		Max Velocity (m/s)		<p>This map shows the level of flood hazard to people (called a hazard rating) if our flood defences are breached at certain locations, for a range of scenarios. The hazard rating depends on the depth and velocity of floodwater, and maximum values of these are also mapped.</p> <p>The map is based on computer modelling of simulated breaches at specific locations. Each breach has been modelled individually and the results combined to create this map. Multiple breaches, other combinations of breaches, different sized tidal surges or flood flows may all give different results.</p> <p>The map only considers the consequences of a breach, it does not make any assumption about the likelihood of a breach occurring. The likelihood of a breach occurring will depend on a number of different factors, including the construction and condition of the defences in the area. A breach is less likely where defences are of a good standard, but a risk of breaching remains.</p>		
 Less than 0.75 (Low Hazard)	 0 - 0.25	 0 - 0.3						
 Between 0.75 and 1.25 (Danger for Some)	 0.25 - 0.50	 0.3 - 1.0						
 Between 1.25 and 2.0 (Danger for Most)	 0.50 - 1.0	 1.0 - 1.5						
 Greater than 2.0 (Danger for All)	 1.0 - 2.0	 1.5 - 2.5						
 Greater than 2.0 (Danger for All)	 2.0 +	 2.5 +						
Date Printed	May 2016	Scenario year	2115	Scenario Annual Chance	0.5% (1 in 200)	CCN Number	CCN-2016-13486	<p>General Enquiries No: 03708 506 506. Weekday Daytime calls cost 5p plus up to 6p per minute from BT Weekend Unlimited. Mobile and other providers' charges may vary</p>



## Lincolnshire and Northamptonshire Tidal Breaching Hazard Mapping

Map Centred on TF 31047 39230

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## ***Appendix C – WinDES Calculation Results***

### ***ICP SUDS Greenfield Run Off Calculations***

#### ***Source Control Surface Water Drainage – Provisional Attenuation Volumes required***



The Millward Partnership Ltd		Page 1																								
2nd Floor 3-7 Middle Pavement Nottingham NG1 7DX	Middlegate Road W Kirton ICP SUDS Run Off																									
Date June 2016 File	Designed By JMcK Checked By																									
Micro Drainage		Source Control W.12.4																								
<p align="center"><u>ICP SUDS Mean Annual Flood</u></p> <p align="center">Input</p> <table> <tr> <td>Return Period (years)</td> <td>1</td> <td>Soil</td> <td>0.300</td> </tr> <tr> <td>Area (ha)</td> <td>9.737</td> <td>Urban</td> <td>0.000</td> </tr> <tr> <td>SAAR (mm)</td> <td>600</td> <td>Region Number</td> <td>Region 5</td> </tr> </table> <p align="center"><b>Results    l/s</b></p> <table> <tr> <td>QBAR Rural</td> <td>14.8</td> </tr> <tr> <td>QBAR Urban</td> <td>14.8</td> </tr> <tr> <td>Q1 year</td> <td>12.9</td> </tr> <tr> <td>Q1 year</td> <td>12.9</td> </tr> <tr> <td>Q30 years</td> <td>35.6</td> </tr> <tr> <td>Q100 years</td> <td>52.7</td> </tr> </table>			Return Period (years)	1	Soil	0.300	Area (ha)	9.737	Urban	0.000	SAAR (mm)	600	Region Number	Region 5	QBAR Rural	14.8	QBAR Urban	14.8	Q1 year	12.9	Q1 year	12.9	Q30 years	35.6	Q100 years	52.7
Return Period (years)	1	Soil	0.300																							
Area (ha)	9.737	Urban	0.000																							
SAAR (mm)	600	Region Number	Region 5																							
QBAR Rural	14.8																									
QBAR Urban	14.8																									
Q1 year	12.9																									
Q1 year	12.9																									
Q30 years	35.6																									
Q100 years	52.7																									
©1982-2010 Micro Drainage Ltd																										

## Quick Storage Estimate

Variables

**Results**

Design

Overview 2D

Overview 3D

Vt

### Results

**Global Variables require approximate storage of between 4688 m<sup>3</sup> and 6235 m<sup>3</sup>.**

**These values are estimates only and should not be used for design purposes.**

Analyse

OK

Cancel

Help

Enter Safety Factor between 1.0 and 50.0

## Quick Storage Estimate

**Variables**

Results

Design

Overview 2D

Overview 3D

Vt

### Variables

FSR Rainfall

Cv (Summer)

0.750

Return Period (years)

100

Cv (Winter)

0.840

Region

England and Wales

Impermeable Area (ha)

6.329

Map

M5-60 (mm)

18.500

Maximum Allowable Discharge (l/s)

12.9

Ratio R

0.400

Infiltration Coefficient (m/hr)

0.00000

Safety Factor

1.0

Climate Change (%)

40

Analyse

OK

Cancel

Help

Enter Safety Factor between 1.0 and 50.0

## ***Appendix D – Ground Investigation***

### ***British Geological Survey - Trial Pit Logs TF33NW/12, TF33NW/13 and TF33NW/14***

#### ***Extracts from the EPS Phase 1 and 2 Geo Environmental Report***









HZ 302 6487

TF 33 NW/14

LINCOLNSHIRE COUNTY COUNCIL MATERIALS LABORATORY

TRIAL PIT/BORE HOLE LOG

COMME  
IN CONF

BH/TP No.	15	Machine Type	Back Actor
Site	A(16T) Boston to Algarkirk		
Remarks	No ground water encountered AL; Alluvium		

Dimension of Hole  
Location

Dimension of Casing

[illegible]

## MIDDLEGATE ROAD - KIRTON

### NON TECHNICAL SUMMARY

This report presents the findings of a combined Phase I Desk Study and Phase II Geo-Environmental assessment undertaken to determine ground conditions, establish if there are any environmental risks associated with the site and its development and provide a geotechnical appraisal. Pertinent findings and conclusions may be summarised as follows:

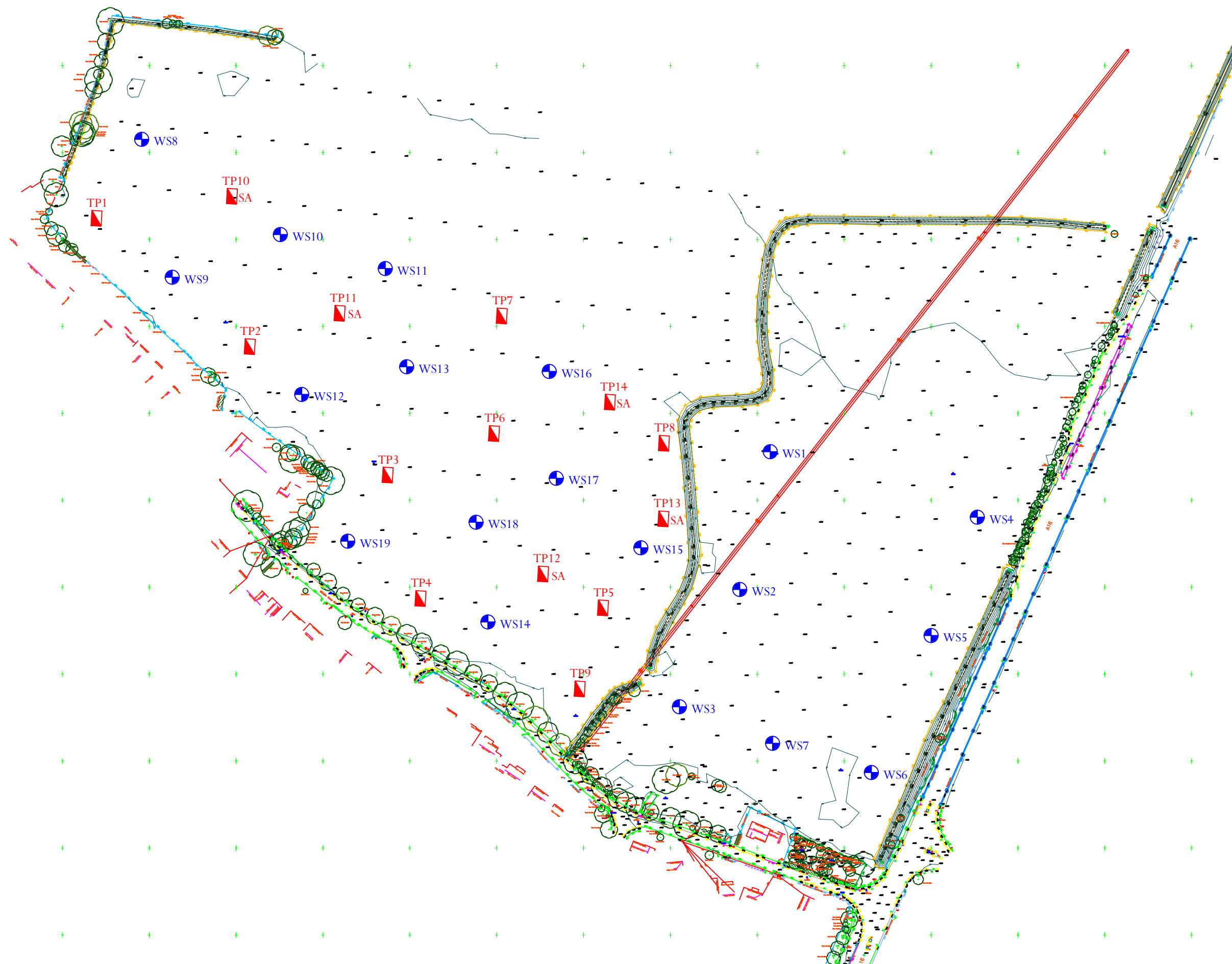
- The Phase I Desk Study established the site to have remained as undeveloped agricultural land up to the present day, with the exception of some former farm buildings on the western boundary. Historic maps suggest a number of former on-site infilled ponds / drainage ditches which are no longer present, which raises the potential for risks associated with the general quality and ground gassing potential from pockets of infilled ground.
- Intrusive investigations comprised the forming of nineteen window sampler boreholes to 4m and fourteen trial pits to a maximum depth of 3.0m. Ground conditions were found to be consistent and comprised a surface layer of topsoil underlain by generally very loose to loose clayey silty sands (Tidal Flat Deposits). Groundwater was encountered at approximately 2.0-3.0m across the site.
- All soakage tests confirmed extremely low rates of infiltration and soakaways are not recommended as part of any drainage strategy for the site.
- Whilst no evidence of historic infilled ponds or drainage ditches were encountered during the investigation it is not possible to fully discount the potential for localised infilling with organic rich / putrefiable material, so it has been recommended that if any such areas were to be encountered during site development then either gassing potential is further assessed or precautionary gas protection measures be employed for localised plots.
- Waste classification has been undertaken on two samples of the underlying soils, the results can be summarised as follows:

Description	Waste Classification
Topsoil	INERT
Tidal Flat Deposits	INERT



### ENGINEERING SUMMARY

- Shallow ground conditions were found to comprise generally low strength soils. The ground conditions are considered suitable for the use of conventional spread foundations, bearing upon the underlying Tidal Flat Deposits adopting an allowable bearing pressure of 50kN/m<sup>2</sup>. Should structural loads exceed the allowable bearing capacity and / or if site levels are raised, the use of a deep foundation solution, such as piles should be considered.
- A design sulphate class of DS-1 is considered suitable for shallow buried concrete, with an aggressive chemical environment for concrete (ACEC) of AC-1d.
- A CBR value of <1% has currently been recommended for the site for the underlying Tidal Flat Deposits. Due to the very soft nature of the underlying soils it is recommended that once final site levels and development plans are available, further CBR testing be undertaken in order to provide more detailed information on CBR values.

The above points represent a simplified summary of the findings of this assessment and should not form the basis for key decisions for the proposed development. A thorough review of the details is contained within the following report, or alternatively get in touch and we'll talk you through it.



**KEY:**

-  Approximate EPS Borehole Locations
-  Approximate EPS Trial Pit Locations
- SA Soakaway Testing Locations

**Title:** Borehole & Trial Pit Location Plan  
**Project:** Middlegate Road, Kirton  
**Client:** Larkfleet Homes

Scale: NTS - For Illustration purposes only  
Drawn By: JG  
Job No: UK16.2241  
Dwg No: Larkfleet/Kirton/0516  
Date: May 2016





Environmental Protection Strategies  
Tel: 01954 710666  
email: info@epstrategies.co.uk  
www.epstrategies.co.uk

Borehole No

**WS1**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA



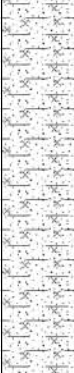
Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 09/05/2016

Logged By  
JG

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10-0.30	ES	N=8 (2,2/ 2,2,2,2)	0.30		Medium brown silty TOPSOIL.	1	
		0.80-1.00	ES						
		1.00	CPT						
		1.20-1.40	D						
		2.00	CPT	N=9 (2,2/ 2,2,2,3)			2		
		3.00	CPT	N=7 (2,1/ 2,1,2,2)				3	
		4.00	CPT	N=8 (1,1/ 2,1,2,3)	4.00		End of Borehole at 4.00 m	4	
			Type	Results					



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www.epstrategies.co.uk

Borehole No

**WS2**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA

Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 09/05/2016

Logged By  
JG

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20-0.40	ES		0.30			Medium brown silty TOPSOIL.
		0.70-0.90	D					Loose to medium dense brown and grey clayey silty SAND, becoming darker grey with depth.
		1.00	CPT	N=12 (2,2/ 3,3,3,3)				
		2.00	CPT	N=10 (2,2/ 3,3,2,2)				
		3.00	CPT	N=5 (2,2/ 1,2,1,1)				
		4.00	CPT	N=8 (2,2/ 2,2,2,2)	4.00			End of Borehole at 4.00 m
		Type	Results					

Remarks:





Environmental Protection Strategies  
Tel: 01954 710666  
email: info@epstrategies.co.uk  
www.epstrategies.co.uk

Borehole No

**WS3**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA

Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 09/05/2016

Logged By  
JG

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30-0.50	ES		0.40			Medium brown silty TOPSOIL.	
		1.00	CPT	N=8 (2,2/ 2,2,2,2)				Loose brown and grey clayey silty SAND, becoming darker grey with depth.	1
		1.40-1.60	ES						
		2.00	CPT	N=6 (1,0/ 1,2,1,2)					2
		3.00	CPT	N=4 (2,1/ 1,1,1,1)					3
		4.00	CPT	N=4 (2,1/ 1,1,1,1)	4.00				4
								End of Borehole at 4.00 m	
			Type	Results					

Remarks:





Environmental Protection Strategies  
Tel: 01954 710666  
email: info@epstrategies.co.uk  
www.epstrategies.co.uk

Borehole No

**WS4**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA

Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 09/05/2016

Logged By  
JG

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20-0.40	ES		0.40			Medium brown silty TOPSOIL.	
		1.00	CPT	N=11 (3,2/ 2,3,3,3)				Loose to medium dense brown and grey clayey silty SAND, becoming darker grey with depth.	1
		2.00 2.00-2.20	CPT D	N=8 (2,2/ 1,2,2,3)					2
		3.00	CPT	N=4 (2,1/ 1,1,1,1)					3
		4.00	CPT	N=9 (2,2/ 2,2,2,3)	4.00				4
								End of Borehole at 4.00 m	
			Type	Results					

Remarks:







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Borehole No

**WS5**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA



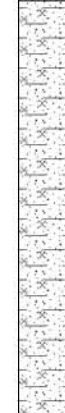


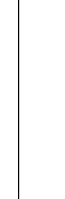
Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 09/05/2016

Logged By  
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Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30			Medium brown silty TOPSOIL.	1
		0.40-1.00	ES					Loose to medium dense brown and grey clayey silty SAND, becoming darker grey with depth.	
		1.00	CPT	N=9 (3,2/					
		1.00-1.20	ES	3,2,2,2)					
		2.00	CPT	N=7 (3,3/ 2,3,1,1)			2		
		3.00	CPT	N=4 (1,1/ 1,1,1,1)			3		
4.00	CPT	N=12 (2,1/ 3,3,3,3)	4.00		End of Borehole at 4.00 m	4			
		Type	Results						

Remarks:







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Borehole No

**WS6**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA




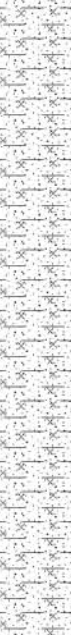

Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 09/05/2016

Logged By  
JG

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10-0.30	ES		0.50			Medium brown silty very clayey TOPSOIL.	
		0.80-1.00 1.00	D CPT	N=9 (3,2/ 2,3,2,2)				Loose to medium dense brown and grey clayey silty SAND, becoming darker grey with depth.	1
		2.00	CPT	N=8 (1,1/ 1,2,3,2)					2
		3.00	CPT	N=6 (2,2/ 1,2,1,2)					3
		4.00	CPT	N=15 (3,2/ 4,4,3,4)	4.00			End of Borehole at 4.00 m	4
			Type	Results					

Remarks:





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Borehole No

**WS7**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA

Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 09/05/2016

Logged By  
JG

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30-0.50	ES		0.40			Medium brown silty TOPSOIL.	
		1.00	CPT	N=6 (1,0/ 1,1,2,2)				Loose brown and grey clayey silty SAND, becoming darker grey with depth.	
		1.40-1.60	D					Very silty sandy CLAY	1
		1.80-2.00	ES						
		2.00	CPT	N=2 (1,1/ 0,1,0,1)					2
		3.00	CPT	N=2 (2,1/ 1,0,0,1)					3
		4.00	CPT	N=9 (2,1/ 2,2,2,3)	4.00			End of Borehole at 4.00 m	4
		Type	Results						

Remarks:





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Borehole No

**WS8**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA


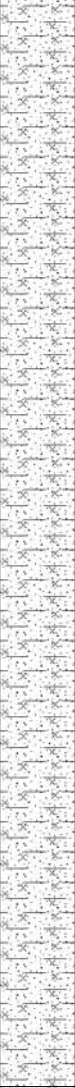

Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 10/05/2016

Logged By  
JG

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10-0.30	ES		0.40			Medium brown silty TOPSOIL.	
		0.80-1.00 1.00	D CPT	N=13 (3,2/ 3,4,3,3)				Loose to medium dense brown and grey clayey silty SAND, becoming darker grey with depth.	1
		2.00	CPT	N=7 (2,2/ 1,2,2,2)					2
		3.00	CPT	N=4 (1,1/ 1,1,1,1)					3
		4.00	CPT	N=10 (3,2/ 3,2,2,3)	4.00			End of Borehole at 4.00 m	4
			Type	Results					

Remarks:





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Borehole No

**WS9**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA

Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 10/05/2016

Logged By  
JG

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10-0.40	ES		0.40			Medium brown silty TOPSOIL.	
		1.00 1.00-1.20	CPT ES	N=9 (3,2/ 1,2,2,4)	1.00			Soft to firm light brown and grey very sandy silty CLAY.	
		2.00	CPT	N=2 (1,1/ 0,1,0,1)				Loose brown and grey clayey silty SAND, becoming darker grey with depth.	1
		3.00	CPT	N=3 (2,1/ 0,1,0,2)					2
		4.00	CPT	N=9 (3,3/ 2,2,2,3)	4.00				3
								End of Borehole at 4.00 m	4
			Type	Results					

Remarks:





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Borehole No

**WS10**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA

Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 10/05/2016

Logged By  
JG

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20-0.40	ES		0.40			Medium brown silty TOPSOIL.	
		1.00	CPT	N=10 (2,1/ 2,2,3,3)				Loose brown and grey clayey silty SAND, becoming darker grey with depth.	1
	▼	2.00	CPT	N=4 (2,1/ 1,1,1,1)					2
		2.80-3.00 3.00	D CPT	N=3 (1,1/ 1,1,1,0)					3
		4.00	CPT	N=5 (2,2/ 1,2,1,1)	4.00			End of Borehole at 4.00 m	4
			Type	Results					

Remarks:





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Borehole No

**WS11**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA

Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 10/05/2016

Logged By  
JG

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30-0.60	ES		0.40			Medium brown silty TOPSOIL.	
		0.80-1.00 1.00	ES CPT	N=12 (3,2/ 2,3,3,4)				Loose to medium dense brown and grey clayey silty SAND, becoming darker grey with depth.	1
		2.00	CPT	N=6 (1,1/ 2,1,1,2)					2
		3.00	CPT	N=2 (1,1/ 0,1,0,1)					3
		4.00	CPT	N=10 (3,3/ 2,2,3,3)	4.00			End of Borehole at 4.00 m	4
			Type	Results					

Remarks:





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Borehole No

**WS12**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA

Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 10/05/2016

Logged By  
JG

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Medium brown silty TOPSOIL.	
		0.40-0.60	ES		0.30			MADE GROUND: Black gravel containing brick fragments and clinker material.	
					0.60				
		1.00	CPT	N=9 (2,2/ 2,2,2,3)				Loose to medium dense brown and grey clayey silty SAND, becoming darker grey with depth.	1
		1.60-1.80	D						
		2.00	CPT	N=11 (3,2/ 3,3,2,3)					2
		3.00	CPT	N=6 (1,1/ 1,1,2,2)					3
		4.00	CPT	N=16 (3,3/ 3,4,4,5)	4.00			End of Borehole at 4.00 m	4
			Type	Results					

Remarks:





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Borehole No

**WS13**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA

Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 10/05/2016

Logged By  
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Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10-0.30	ES		0.40			Medium brown silty TOPSOIL.	
		1.00	CPT	N=9 (2,2/ 2,2,2,3)				Loose to medium dense brown and grey clayey silty SAND, becoming darker grey with depth.	1
		1.50-1.70	ES						
	▼	2.00	CPT	N=8 (2,1/ 1,2,2,3)					2
		3.00	CPT	N=1 (1,1/ 1,0,0,0)					3
		4.00	CPT	N=22 (3,3/ 5,6,5,6)	4.00			End of Borehole at 4.00 m	4
			Type	Results					

Remarks:







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Borehole No

**WS14**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA

Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 11/05/2016

Logged By  
JG

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20-0.40	ES		0.30			Medium brown silty TOPSOIL.	
		0.70-0.90	D					Loose to medium dense brown and grey clayey silty SAND, becoming darker grey with depth.	
		1.00	CPT	N=11 (3,2/ 3,3,2,3)					1
		2.00	CPT	N=11 (3,3/ 2,3,3,3)					2
		3.00	CPT	N=4 (2,1/ 1,1,1,1)					3
		4.00	CPT	N=19 (5,4/ 5,5,4,5)	4.00				4
								End of Borehole at 4.00 m	
			Type	Results					

Remarks:





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Borehole No

**WS15**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA

Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 11/05/2016

Logged By  
JG

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30			Medium brown silty TOPSOIL.	
		1.00	CPT	N=10 (2,2/ 2,2,3,3)				Loose to medium dense brown and grey clayey silty SAND, becoming darker grey with depth.	1
	▼	1.80-2.00 2.00	ES CPT	N=8 (2,3/ 2,2,2,2)					2
		3.00	CPT	N=7 (2,2/ 1,2,2,2)					3
		4.00	CPT	N=14 (3,3/ 2,3,4,5)	4.00			End of Borehole at 4.00 m	4
			Type	Results					

Remarks:





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Borehole No

**WS16**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA

Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 11/05/2016

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Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10-0.30	ES		0.40			Medium brown silty TOPSOIL.	
					0.80			Soft light brown and grey very sandy silty CLAY.	
		1.00	CPT	N=5 (1,1/ 1,1,1,2)				Loose brown and grey clayey silty SAND, becoming darker grey with depth.	1
	▼	2.00	CPT	N=10 (2,2/ 2,2,3,3)					2
		2.40-2.60	D						
		3.00	CPT	N=6 (0,0/ 1,1,2,2)					3
		4.00	CPT	N=5 (1,1/ 1,1,1,2)	4.00				4
								End of Borehole at 4.00 m	
			Type	Results					

Remarks:





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Borehole No

**WS17**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA

Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 11/05/2016

Logged By  
JG

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.40			Medium brown silty TOPSOIL.	
					0.90			Soft light brown and grey very sandy silty CLAY.	
		1.00	CPT	N=9 (2,2/ 2,3,2,2)				Loose to medium dense brown and grey clayey silty SAND, becoming darker grey with depth.	1
		1.40-1.60	D						
		2.00	CPT	N=7 (1,1/ 2,1,2,2)					2
		3.00	CPT	N=10 (3,3/ 2,2,3,3)					3
		4.00	CPT	N=13 (4,4/ 3,3,3,4)	4.00				4
								End of Borehole at 4.00 m	
			Type	Results					

Remarks:





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Borehole No

**WS18**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA

Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 11/05/2016

Logged By  
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Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30-0.50	ES		0.40			Medium brown silty TOPSOIL.	
		1.00 1.00-1.20	CPT ES	N=10 (2,2/ 2,2,3,3)	1.00			Soft to firm light brown and grey very sandy silty CLAY.	
		2.00	CPT	N=4 (2,1/ 1,1,1,1)				Loose brown and grey clayey silty SAND, becoming darker grey with depth.	1
		3.00	CPT	N=4 (1,1/ 1,1,1,1)					2
		4.00	CPT	N=9 (2,2/ 2,2,2,3)	4.00				3
								End of Borehole at 4.00 m	4
			Type	Results					

Remarks:





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Borehole No

**WS19**

Sheet 1 of 1

Project Name  
Middlegate Road, Kirton

Project No.  
UK16.2241

Co-ords: -

Hole Type  
WLS

Location: PE20 1DA

Level: -

Scale  
1:25

Client: Larkfleet Homes

Dates: 11/05/2016

Logged By  
JG

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10-0.30	ES		0.40			Medium brown silty TOPSOIL.	
		1.00 0.90-1.10	CPT D	N=7 (2,2/ 2,2,2,1)				Loose to medium dense brown and grey clayey silty SAND, becoming darker grey with depth.	1
		2.00	CPT	N=8 (2,2/ 3,2,2,1)					2
		3.00	CPT	N=10 (3,3/ 3,3,2,2)					3
		4.00	CPT	N=17 (4,4/ 5,4,4,4)	4.00			End of Borehole at 4.00 m	4
			Type	Results					

Remarks:

