

SUPERSEDED

ROY LOBLEY CONSULTING

Specialists in Flood Risk Management

OUTLINE SUSTAINABLE DRAINAGE STRATEGY

Residential Development
Main Street, Sturton

Qudos Property
September 2021

DOCUMENT ISSUE RECORD

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Author



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Limitations

The conclusions drawn by Roy Lobley Consulting are based on information supplied and could differ if the information is found to be inaccurate or misleading. In which case Roy Lobley Consulting accepts no liability should additional information exist or becomes available with respect to this project.

The information in this report is based on statistical data and qualitative analysis which are for guidance purposes only. This study provides no guarantee against flooding or of the absolute accuracy of water levels, flows and associated probabilities.

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1.0 INTRODUCTION

1.1 This Outline Sustainable Drainage Strategy, (OSDS), has been produced on behalf of Qudos Property in respect of a planning application for a residential development at Main Street, Sturton.

Data Used

1.2 This OSDS is based on the following information:

- Proposed Plans
- British Geological Survey Drift & Geology Maps
- British Geological Survey Hydrogeology Data
- Anglian Water Sewer Records

Existing Site

1.3 The site is located at grid reference SE9696404471 as shown in **Figure 1.1** below and covers an area of approximately 1.1ha.

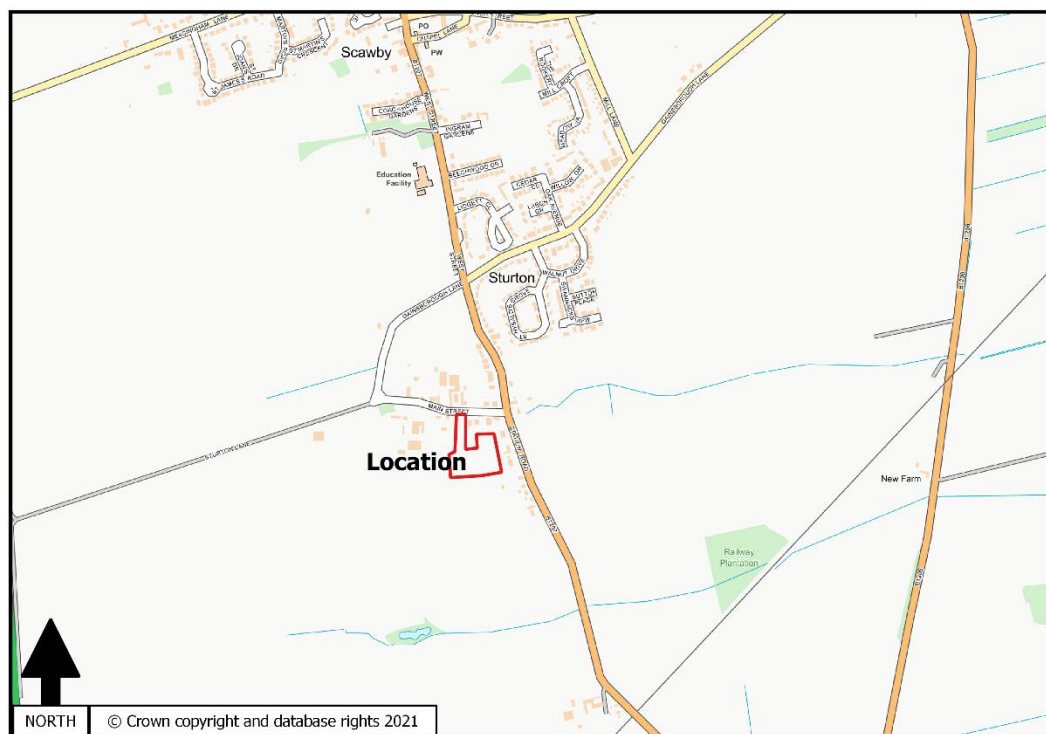


Figure 1.1 Site Location

- 1.4 The online British Geological Survey maps indicates that the site is located on a bedrock of mudstone and limestone.

Proposed Development

- 1.5 The proposed development consists of a residential development as shown on the extract of the proposed plan below in **Figure 1.2**



Figure 1.2 Proposed Plan

Development Foul & Surface Water

- 1.6 The proposed development will require the disposal of foul and surface water which could impact on existing systems and developments. This OSDS will demonstrate that the development will not increase flood risk elsewhere.

2.0 CLIMATE CHANGE

- 2.1 The NPPF sets out how the planning system should help minimise vulnerability and provide resilience to the impacts of climate change.
- 2.2 As the Government's expert on flood risk on 19th February 2016 the Environment Agency, (EA), published revised climate change allowances to support the NPPF. The sea level rise allowances were revised on the 17th December 2019 and the peak river flows revised on the 20th July 2021.
- 2.3 The climate change allowances are based on projections and different scenarios of carbon dioxide (CO₂) emissions to the atmosphere and provide predictions of anticipated change for:
- peak river flow by river basin district;
 - peak rainfall intensity;
 - sea level rise;
 - offshore wind speed and extreme wave height.
- 2.4 The peak river flow allowances, sea level rise; and offshore wind speed and extreme wave height allowances a form part of the FRA and only the peak rainfall intensity allowances are relevant to the OSDS .

Peak Rainfall Intensity Allowance

- 2.5 Increased rainfall affects river levels and land and urban drainage and should be applied to surface water drainage systems.
- 2.6 These allowances are uniform across England and change over three periods of time over the next century. The appropriate period should be chosen based on the expected lifetime of the development and for residential that is 100 years.
- 2.7 Surface water drainage strategies and detailed designs need to assess both the central and upper end allowances to understand the range of impact. The following climate change allowances in peak rainfall intensity therefore need to be applied:

Allowance Category	Percentage Increase
Upper End	40
Central	20

Table 2.1 Climate Change Allowances for Peak Rainfall Intensity

3.0 SURFACE WATER DRAINAGE

- 3.1 When rain falls on a natural landscape it soaks into the ground, evaporates, is taken up by plants and some of it eventually finds its way into streams and rivers.
- 3.2 These stages of the water cycle can be impeded when land is developed and there tends to be less permeable ground available for infiltration and less vegetation for evapotranspiration. When rain falls on impermeable surfaces much more of it turns to surface water runoff, which can cause flooding, pollution and erosion problems.
- 3.3 Sustainable drainage systems, (SuDS), are designed to maximise the opportunities and benefits that can be secured from surface water management.

Hierarchy of Surface Water Drainage

- 3.4 The recommended surface water drainage hierarchy is to utilise soakaway, or infiltration as the preferred option, followed by discharging to an appropriate watercourse or if this is not available the final option is to an existing public sewer.
- 3.5 Ground investigation in the form of percolation tests undertaken to BRE Digest 365 across the site has identified that soakaways would be suitable and the test results are included as **Appendix 1** with a summary below in **Table 3.1**.

Test Location	Infiltration Rate (m/sec)
SA01	0.00000087
SA02	0.00065
SA03	0.00017

Table 3.1 Infiltration Test Results

- 3.6 The majority of the site is covered by SA02 and SA03 with an average infiltration rate of 0.00041m/sec.

Surface Water Discharge via Infiltration

- 3.7 The sizing of soakaways has been undertaken using a software tool developed by HR Wallingford based on the method provided in CIRIA report 156 and a summary is included below with the full results included in **Appendix 2**.

Porosity of Fill Material

- 3.8 Typical values for the porosity of fill materials are:
- High Void Structure 0.90 - 0.95
 - Single Size Clean Stones 0.30 - 0.40
 - Graded Sand/Gravel 0.20 - 0.30
- 3.9 In this instance it is proposed to use plastic soakaway crates with a high void structure of 0.95 for the roof soakaways and the gravel sub base with a void ratio of 0.30 for the roads and private parking areas.

Soakaways Size

3.10 A factor of safety of 1.5 has been chosen based on the table below.

Total Area to be Drained	CONSEQUENCE OF FAILURE		
	No damage or inconvenience	Minor Inconvenience e.g. SW on Car Park	Damage to Buildings or Major Inconvenience e.g. SW on Roads
<100m ²	1.5	2.0	10.0
100m ² to 1000m ²	1.5	3.0	10.0
>1000m ²	1.5	5.0	10.0

Table 3.2 Infiltration Factor of Safety

- 3.11 The size of soakaways has been calculated for the 1:100 year return period, (although Building Regulations Part H3 only requires a 1:10 year return period), with a 40% climate change allowances in peak rainfall intensity.
- 3.12 50m² of roof area will require a soakaway 1.0m x 1.0m x 1.0m.
- 3.13 The depth of sub base under the permeable road and parking areas on the majority of the site is minimal. However, at the entrance where the SA01 infiltration rate was 0.00000087 the sub base will need to be 0.23m thick.

4.0 FOUL WATER DRAINAGE

4.1 The foul water from the proposed development will be discharge to the Anglian Water foul sewer as shown in **Figure 4.1** below.

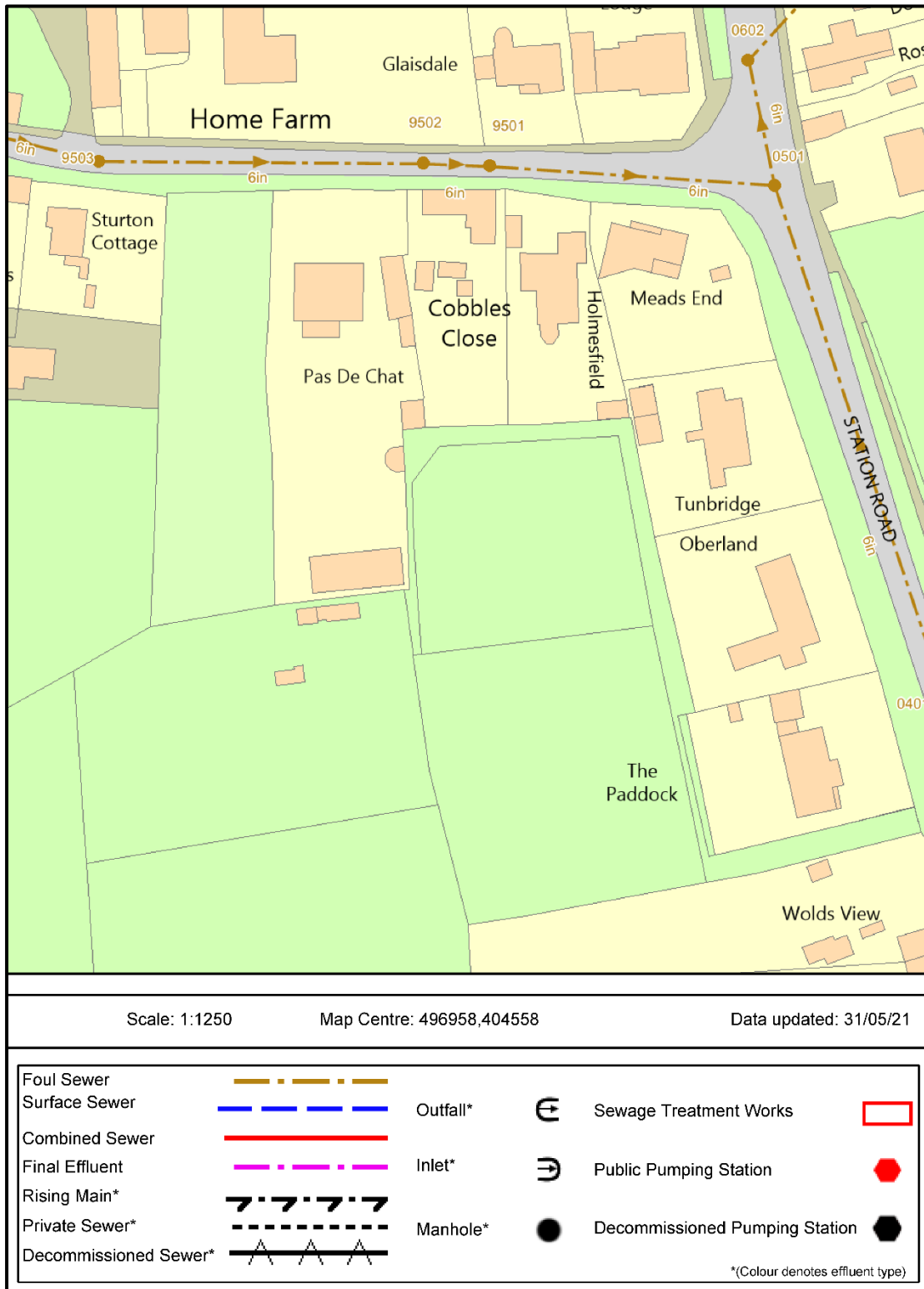


Figure 4.1 Foul Water Sewers

Appendix 1
Infiltration Test Results

Limited Factual Soakaway Infiltration Report

Main Street, Scawby

Presented to Qudos Property

Issued: April 2021

Delta-Simons Project Number: 21-0813.01

Issue No.	Status	Issue Date	Comments	Author	Technical Review	Authorised
1	Final	23/04/2021	-	[REDACTED]	[REDACTED]	[REDACTED]
				James Brown Technician	Paul Huteson Associate	Paul Huteson Associate

1.0 Context and Purpose

Delta-Simons Environmental Consultants Limited (Delta-Simons) has been requested by Qudos Property (the “Client”) to undertake three (3 no.) BRE365 compliant infiltration tests in order to obtain information to assist in the design of the surface water drainage strategy associated with the development design at Main St, Sturton Scawby, North Lincolnshire, DN20 9DL (hereafter referred to as the “Site”). A Site Location Map is included as Figure 1.

The location of the infiltration tests are shown on Figure 2.

2.0 Limitations

Delta-Simons standard limitations are included as Appendix A.

3.0 Scope of Works

Site works included the monitoring of and the supervision of the construction of three (3 no.) soakaways (SA101 to SA103) at locations and depths provided by Delta Simons. The depths and locations were chosen to provide a good example of the overall ground conditions across the Site and from what was encountered on Site during the investigation.

4.0 Mapped Ground Conditions

From online British Geological Survey mapping, the Site is indicated as being directly underlain by bedrock of the Kirton Cementstone Formation – Mudstone and Limestone interbedded. No superficial deposits are mapped. The natural soil was generally representative of the published geology for the Site. Groundwater was not encountered during the investigation.

Trial pit logs are included as Appendix B.

5.0 Soakage Testing

Soakage testing was undertaken in general accordance with BRE Digest 365: Soakaway Design ^[Ref. 1], between the 12th and 13th April 2021.

The soakage testing comprised of excavating trial pits to depths of approximately 1 no. to 1.0m bgl, 1 no. 1.5m bgl and 1 no. to 1.6m bgl. The geology at each trial pit location was logged as seen in Appendix B. A gravel pack and monitoring pipes were then installed in the trial pits and the remaining void was backfilled with arisings. The remaining spoil was graded back to original ground level where possible. Any remaining spoil was left for the client to remove.

The gravel pack in each test location was then filled with water to the top of the installed gravel pack and the depth to water from ground level recorded at intervals over a period of up to 24 hours, where required.

The soakage test data was recorded and used to calculate the soil infiltration rate for each location.

Test results are provided in Appendix C and summarised below. The approximate locations of the soakage tests are shown in Figure 2.

Summary of Testing in General Accordance with BRE 365

Test Location	Test Depth Range (m bgl)	Recommended Soil Infiltration Rate (m/s)	Geology
SA101	0.7 – 1.0	8.7×10^{-07}	Slightly clayey sandy fine to coarse limestone gravel (Weathered Kirton Cementstone Formation)
SA102	0.7 – 1.5	6.5×10^{-04}	Slightly clayey sandy medium to cobble limestone gravel (Weathered Kirton Cementstone Formation)
SA103	0.9 – 1.6	1.7×10^{-04}	Slightly clayey sandy medium to cobble limestone gravel (Weathered Kirton Cementstone Formation)

6.0 References

Ref 1: BRE Digest 365: Soakaway Design, BRE 2016.

Enclosed:

Figures

Figure 1 Location Map

Figure 2 Approximate Intrusive Location Plan

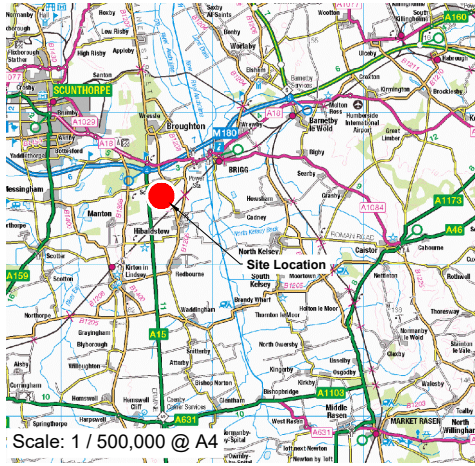
Appendices

Appendix A Limitations


Appendix B Trial Pit Logs

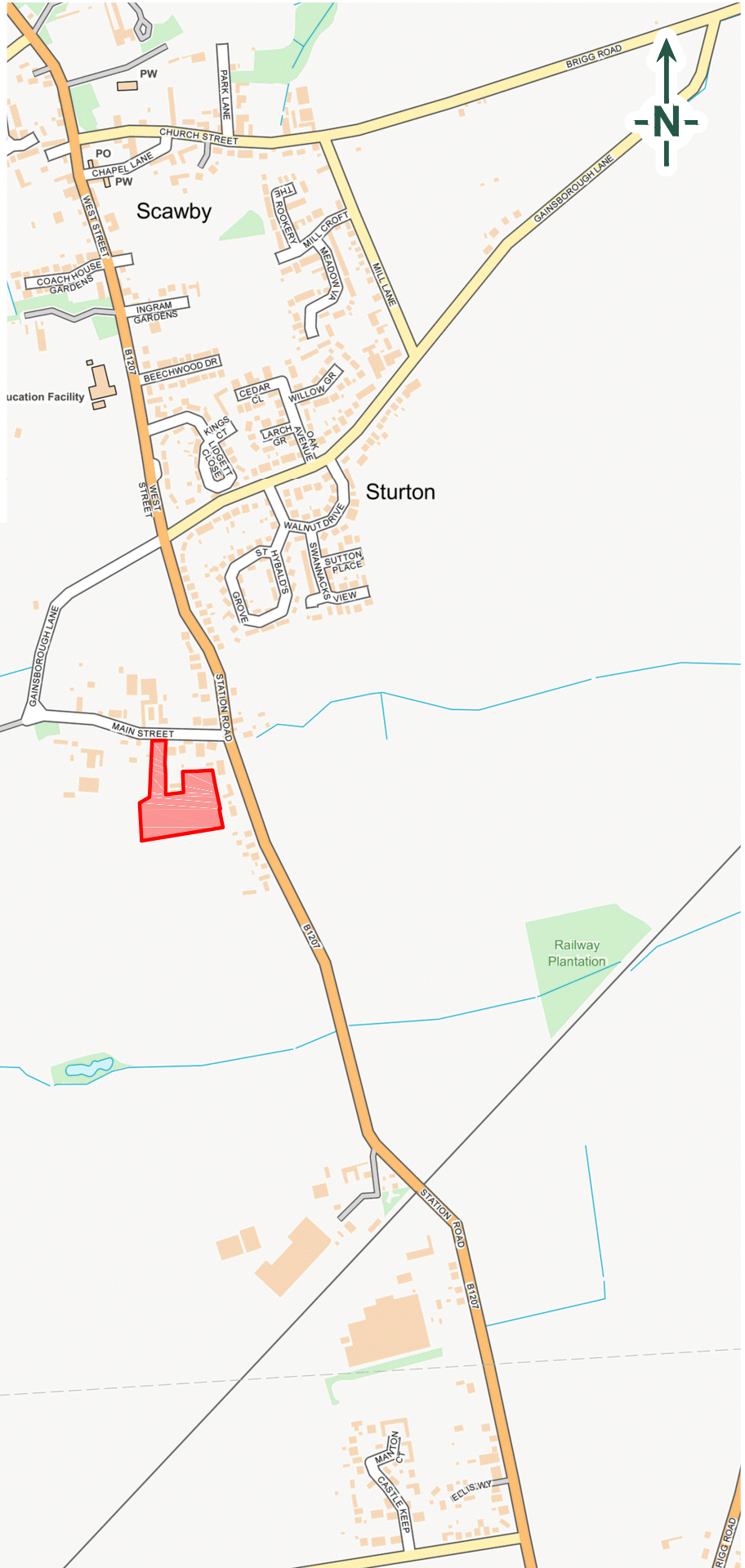
Appendix C Soakaway Test Results

Figure 1 – Location Map



LEGEND

 Site Boundary



Scale: 1 / 5,000 @ A4

Contains OS data © , Crown Copyright and Database Right (2020)



TITLE:
 Site Location Map
 Main Street
 Sturton, Scawby


DRAWN BY: NW	SCALE: To Scale@A4
CHECKED BY: JB	REVISION: 1
DATE: 14 April 2021	

PROJECT NO: 21-0813
FIGURE NO: 1

Figure 2 – Approximate Intrusive Location Plan



LEGEND

 Site Boundary

1:500 @ A2

Hyde
Architecture

with: hydearch@hydearch.com
tel: 01509346545
email: daniel@hydearch.com

Site Plan Provided by Client

© HydeArchitecture 2020



TITLE:
Approximate Intrusive Location Plan
Main Street
Sturton, Scawby

DRAWN BY: NW	SCALE: Not to Scale
CHECKED BY: JB	REVISION: 1
DATE: 14 April 2021	

PROJECT NO: 21-0813.01
FIGURE NO: 2

Appendix A – Limitations

Limitations

The recommendations contained in this Report represent Delta-Simons professional opinions, based upon the information listed in the Report, exercising the duty of care required of an experienced Environmental Consultant. Delta-Simons does not warrant or guarantee that the Site is free of hazardous or potentially hazardous materials or conditions.

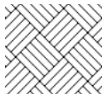
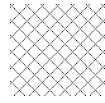
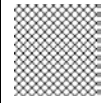







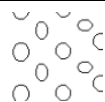
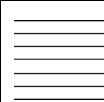


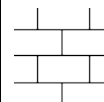
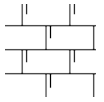



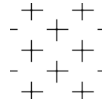

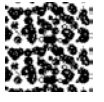


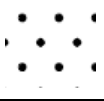

Delta-Simons obtained, reviewed and evaluated information in preparing this Report from the Client and others. Delta-Simons conclusions, opinions and recommendations has been determined using this information. Delta-Simons does not warrant the accuracy of the information provided to it and will not be responsible for any opinions which Delta-Simons has expressed, or conclusions which it has reached in reliance upon information which is subsequently proven to be inaccurate.

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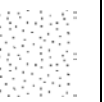


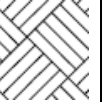

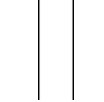
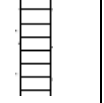
Appendix B – Trial Pit Logs

KEY TO BOREHOLE AND TRIAL PIT LOGS

MATERIAL LEGENDS

	Topsoil		Made Ground		Bituminous Material
	Concrete		Clay		Silt
	Sand		Gravel		Peat
	Cobbles		Boulders		Mudstone
	Siltstone		Sandstone		Limestone
	Chalk		Coal		Breccia
	Conglomerate		Igneous		Metamorphic
	Pyroclastic (volcanic ash)		Gypsum		Shale
	Ironstone		Bedrock (Unidentified)		Void

INSTALLATION/BACKFILL LEGENDS

	Sand		Gravel		Bentonite/Grout
	Arisings		Concrete		Plain Pipe
	Slotted Pipe				

Legend symbols in general accordance with BS 5930:1999+A2:2010 and standard industry practice.

KEY TO BOREHOLE AND TRIAL PIT LOGS

SAMPLE TYPES

ACM	Asbestos Containing Material Sample
B	Bulk Disturbed Sample
BLK	Block Sample
C	Core Sample
CBR	Undisturbed Sample for California Bearing Ratio Test – 154mm diameter
D	Disturbed Sample - Tub
ES	Soil Sample for Environmental Testing
EW	Water Sample for Environmental Testing
G	Gas Sample
U	Undisturbed Driven Tube Sample – 70/102mm diameter, 450mm long
W	Water Sample



TEST TYPES

CPT	Cone Penetrometer Test (kN/m ²)
FID	Flame Ionisation Detector Test (ppm)
HV	In-Situ Hand Sheer Vane Test (kN/m ²)
PID	Photoionisation Detector Test (ppm)
SPT (S)	Standard Penetration Test – Split Spoon Sampler
SPT (C)	Standard Penetration Test – Solid 60 Degree Cone

CORE DETAILS

If	Fracture Spacing (mm) – Minimum, Average, Maximum
NI	Non-Intact where >25 fracture spacings per metre
TCR	Total Core Recovery (%)
SCR	Solid Core Recovery (%)
RQD	Rock Quality Designation (%)
AF	Air Flush Return (%)
WF	Water Flush Return (%)

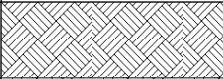
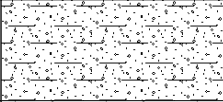
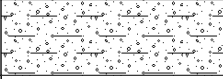
WATER COLUMN DETAILS

	Water Strike
	Water Level

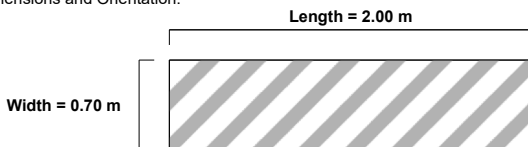
Trial Pit Log

Date: **12/04/2021**

Client: **Qudos Property**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type & Ref	Depth (m)	Results
TOPSOIL: Dark brown slightly clayey slightly gravelly fine SAND with roots. Gravel is fine angular limestone.		0.30	20.70					
Black slightly clayey gravelly fine SAND. Gravel is fine to cobble subrounded limestone.(SUBSOIL)		0.70	20.30					
Orange and grey mottled clayey sandy fine to cobble subrounded limestone GRAVEL. Sand is fine. (WEATHERED KIRTON CEMENTSTONE BEDROCK)		1.00	20.00					
Trial pit complete at 1.00 m bgl.								

Dimensions and Orientation:



Orientation:

80°

Inclination:

Remarks:

1. Engineer verified logged in general accordance to BS 5930:2015 +A1:2020. 2. Services during the excavation are the responsibility of the client. 3. Trial pit remained dry upon completion. 4. Backfilled with gravel to 0.7m bgl and completed with arisings.

Coordinates:
E496935.00 N404564.00

Elevation (mAOD):
21.00

Excavated By:
Qudos Property

Plant Used:
Kubota 360

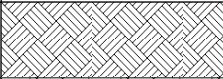
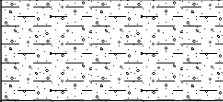
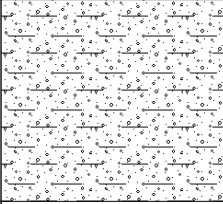
Logged:
JB

Checked:

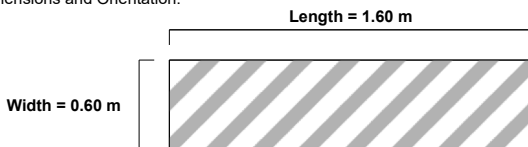
Approved:

Scale:
1:30

Trial Pit Log

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type & Ref	Depth (m)	Results
TOPSOIL: Dark brown slightly clayey slightly gravelly fine SAND with roots. Gravel is fine angular limestone.		0.30	20.70					
Soft orangeish brown sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse subangular limestone. (WEATHERED KIRTON CEMENTSTONE BEDROCK)		0.70	20.30					
Cream to brown slightly clayey sandy medium to cobble subangular limestone GRAVEL. Sand is medium. (WEATHERED KIRTON CEMENTSTONE BEDROCK)		1.50	19.50					
Trial pit complete at 1.50 m bgl.								

Dimensions and Orientation:



Orientation:

348°

Inclination:

Remarks:

1. Engineer verified logged in general accordance to BS 5930:2015 +A1:2020. 2. Services during the excavation are the responsibility of the client. 3. Trial pit remained dry upon completion. 4. Backfilled with gravel to 0.9m bgl and completed with arisings.

Coordinates:
E496993.00 N404507.00

Elevation (mAOD):
21.00

Excavated By:
Qudos Property

Plant Used:
Kubota 361


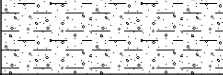
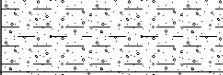
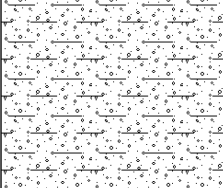
Logged:
JB

Checked:

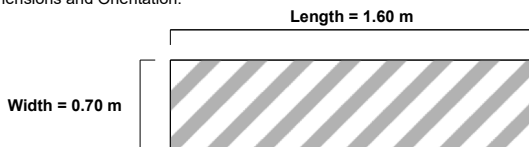
Approved:

Scale:
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Trial Pit Log

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type & Ref	Depth (m)	Results
TOPSOIL: Dark brown slightly clayey slightly gravelly fine SAND with roots. Gravel is fine angular limestone.		0.20	21.80					
Soft orangeish brown sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse subangular limestone. (WEATHERED KIRTON CEMENTSTONE BEDROCK)		0.50	21.50					
Firm cream to brown mottled sandy gravelly CLAY. Sand is medium. Gravel is fine to coarse subangular limestone. (WEATHERED KIRTON CEMENTSTONE BEDROCK)		0.80	21.20					
Cream to brown slightly clayey sandy medium to cobble subangular limestone GRAVEL. Sand is medium. (WEATHERED KIRTON CEMENTSTONE BEDROCK)		1.60	20.40					
Trial pit complete at 1.60 m bgl.								

Dimensions and Orientation:



Orientation:

346°

Inclination:

Remarks:

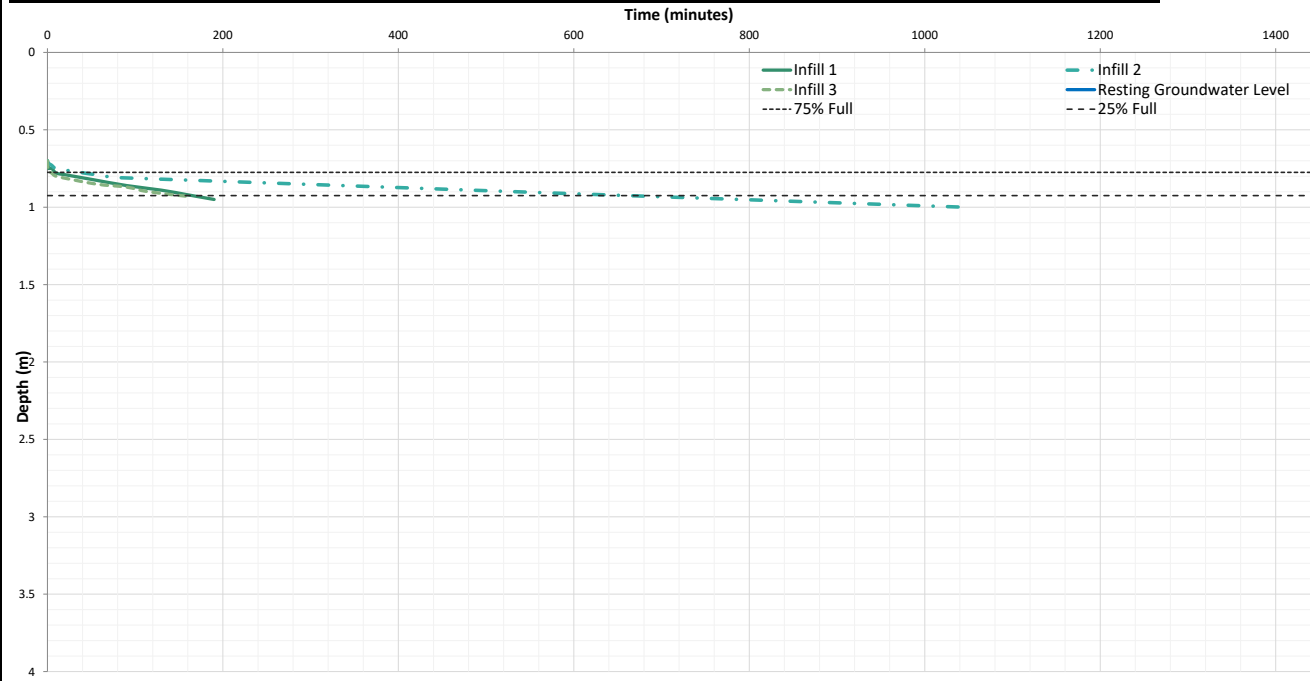
1. Engineer verified logged in general accordance to BS 5930:2015 +A1:2020. 2. Services during the excavation are the responsibility of the client. 3. Trial pit remained dry upon completion. 4. Backfilled with gravel to 0.7m bgl and completed with arisings.

Appendix C – BRE365 Infiltration Test Results

	units	Infill 1	Infill 2	Infill 3
Length	m		2.00	
Width	m		0.60	
Depth	m		1.00	
Gravel type			Standard	
Voids ratio			0.35	
Resting groundwater level at time of testing	m		5.00	
Depth of first reading	m	0.70	0.70	0.70
Depth of final reading	m	0.95	1.00	0.93
Did soakage test reach 25% of maximum fill depth?		Yes	Yes	Yes
Did soakage test reach near empty?		No	Yes	No
Depth at 75% full/effective depth	m	0.76	0.78	0.76
Depth at 25% full/effective depth	m	0.89	0.93	0.87
Time at 75% full/effective depth	mins	7.08	38.12	1.37
Time at 25% full/effective depth	mins	126.67	666.05	92.08
Vp75 - 25 (volume outflowing between 75% and 25% full/effective depth)	m ³	0.05	0.06	0.05
Mean surface area for outflow (50% full/effective depth)	m ²	1.85	1.98	1.80
tp75 (time for the water level to fall from 75% to 25% full/effective depth)	mins	119.58	627.93	90.71
Soil infiltration rate, f =	m/s	0.00000396	0.0000084	0.00000494
or	m/s	4.0E-06	8.4E-07	4.9E-06

Recommended soil infiltration rate	
8.4E-07	m/s

Note:
Where water level reaches nearly empty (5% full), soil infiltration based on 'Full' depth. Where water level did not reach nearly empty (5% full), soil infiltration rate is based on 'Effective' drainage achieved only. Where water level did not fall below 25% of the maximum fill level, this is considered to be a 'Failed' test.



LOG		BACKFILL	
DEPTH (m)		DEPTH (m)	
0.0	TOPSOIL	0.0	Arisings
0.3	Clayey gravel fine SAND		
0.7	Slightly clayey sandy fine to coarse limestone GRAVEL	0.7	Gravel
1.0		1.0	



TITLE: Soakaway Test Results
Main st, Sturton, Scawby
Qudos Property

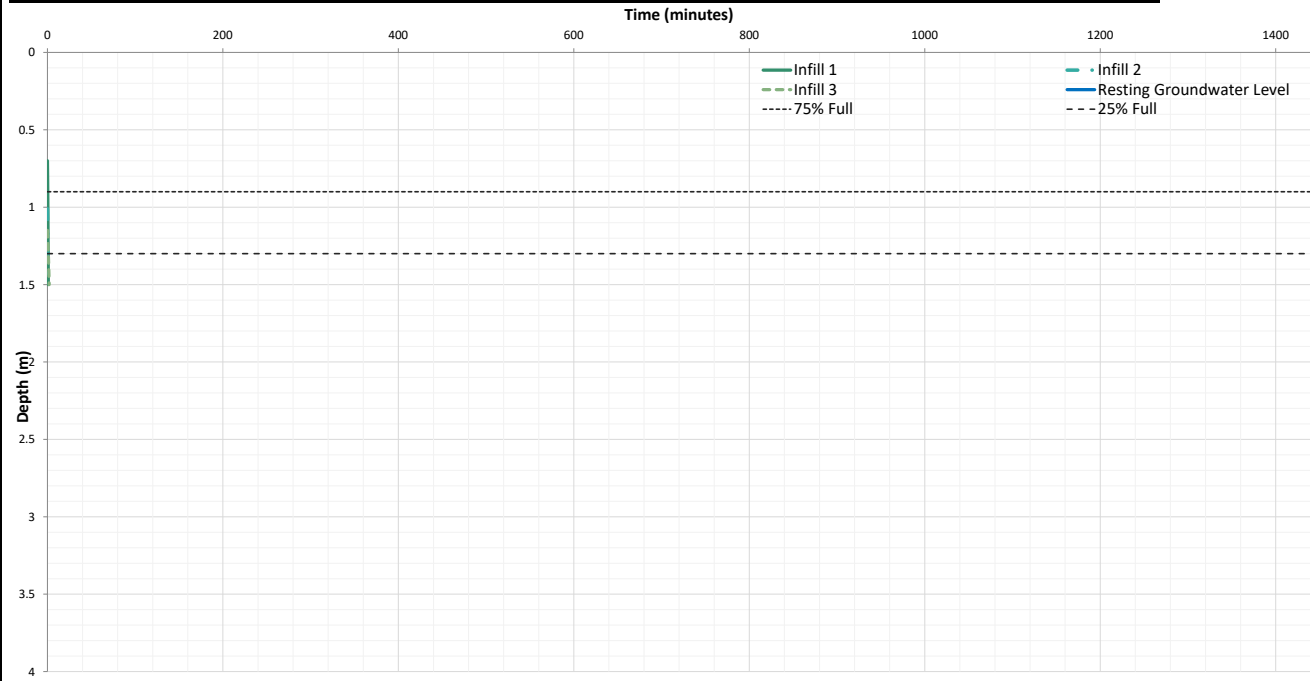
In accordance with BRE Digest 365 (2016)

DRAWN BY: CB	SCALE: Not to Scale	PROJECT NUMBER: 21-0813.01
CHECKED BY: SS	REVISION: 1	SOAKAWAY NUMBER: SA101
DATE: 12/04/2021		

	units	Infill 1	Infill 2	Infill 3
Length	m		1.60	
Width	m		0.60	
Depth	m		1.50	
Gravel type			Standard	
Voids ratio			0.35	
Resting groundwater level at time of testing	m		5.00	
Depth of first reading	m	0.70	1.01	1.15
Depth of final reading	m	1.50	1.50	1.50
Did soakage test reach 25% of maximum fill depth?		Yes	Yes	Yes
Did soakage test reach near empty?		Yes	Yes	Yes
Depth at 75% full/effective depth	m	0.90	1.13	1.24
Depth at 25% full/effective depth	m	1.30	1.38	1.41
Time at 75% full/effective depth	mins	0.33	0.25	0.69
Time at 25% full/effective depth	mins	0.80	0.75	1.56
Vp75 - 25 (volume outflowing between 75% and 25% full/effective depth)	m ³	0.13	0.08	0.06
Mean surface area for outflow (50% full/effective depth)	m ²	2.72	2.04	1.73
tp75 (time for the water level to fall from 75% to 25% full/effective depth)	mins	0.47	0.50	0.88
Soil infiltration rate, f =	m/s	0.00176471	0.00134642	0.00064740
or	m/s	1.8E-03	1.3E-03	6.5E-04

Recommended soil infiltration rate	
6.5E-04	m/s

Note:
Where water level reaches nearly empty (5% full), soil infiltration based on 'Full' depth. Where water level did not reach nearly empty (5% full), soil infiltration rate is based on 'Effective' drainage achieved only. Where water level did not fall below 25% of the maximum fill level, this is considered to be a 'Failed' test.



LOG		BACKFILL	
DEPTH (m)		DEPTH (m)	
0.0	TOPSOIL	0.0	Arisings
0.3	Sandy gravelly CLAY		
0.7	Slightly clayey sandy medium to cobble limestone GRAVEL	0.7	Gravel
1.5		1.5	



TITLE: Soakaway Test Results
 Main St, Sturton, Scawby
 Qudos Property

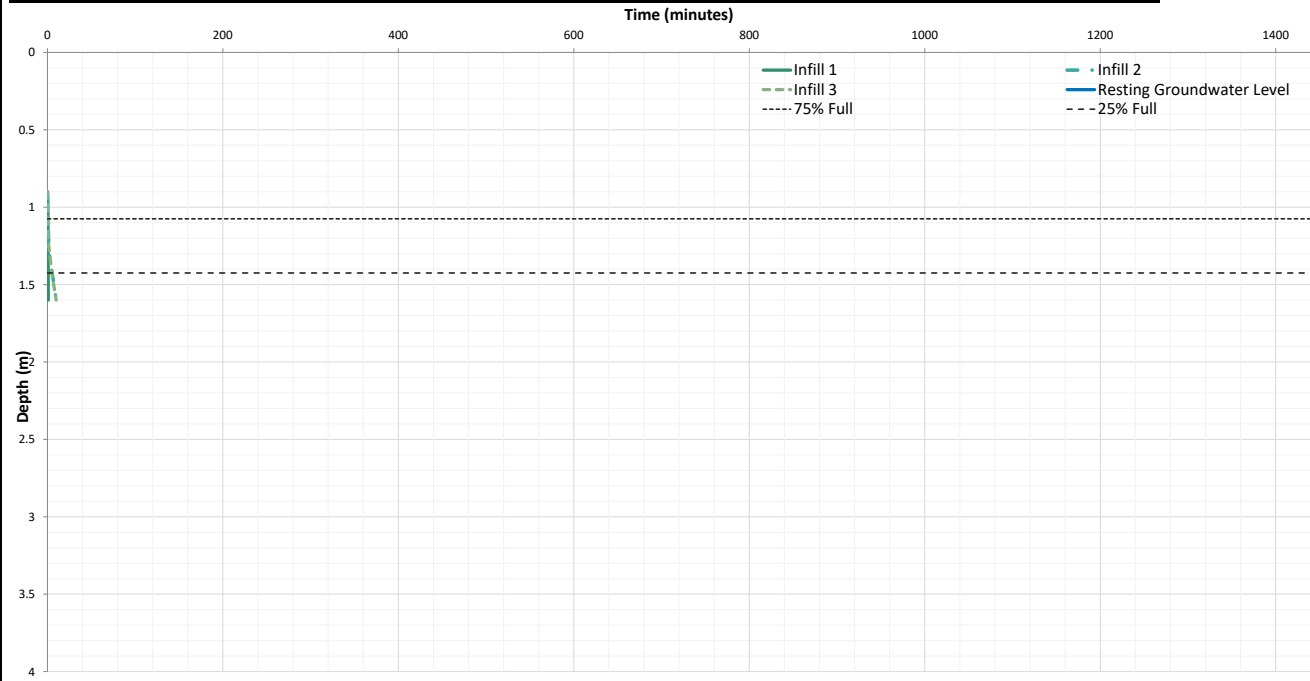
In accordance with BRE Digest 365 (2016)

DRAWN BY: CB	SCALE: Not to Scale	PROJECT NUMBER: 21-0813.01
CHECKED BY: SS	REVISION: 1	SOAKAWAY NUMBER: SA102
DATE: 12/04/2021		

	units	Infill 1	Infill 2	Infill 3
Length	m	1.60		
Width	m	0.70		
Depth	m	1.60		
Gravel type		Standard		
Voids ratio		0.35		
Resting groundwater level at time of testing	m	5.00		
Depth of first reading	m	0.90	0.90	0.90
Depth of final reading	m	1.60	1.60	1.60
Did soakage test reach 25% of maximum fill depth?		Yes	Yes	Yes
Did soakage test reach near empty?		Yes	Yes	Yes
Depth at 75% full/effective depth	m	1.08	1.08	1.08
Depth at 25% full/effective depth	m	1.43	1.43	1.43
Time at 75% full/effective depth	mins	0.56	0.44	0.35
Time at 25% full/effective depth	mins	0.85	5.39	5.14
Vp75 - 25 (volume outflowing between 75% and 25% full/effective depth)	m ³	0.14	0.14	0.14
Mean surface area for outflow (50% full/effective depth)	m ²	2.73	2.73	2.73
tp75 (time for the water level to fall from 75% to 25% full/effective depth)	mins	0.29	4.96	4.79
Soil infiltration rate, f =	m/s	0.00287179	0.00016897	0.00017491
or	m/s	2.9E-03	1.7E-04	1.7E-04

Recommended soil infiltration rate	
1.7E-04	m/s

Note:
Where water level reaches nearly empty (5% full), soil infiltration based on 'Full' depth. Where water level did not reach nearly empty (5% full), soil infiltration rate is based on 'Effective' drainage achieved only. Where water level did not fall below 25% of the maximum fill level, this is considered to be a 'Failed' test.



LOG		BACKFILL	
DEPTH (m)		DEPTH (m)	
0.0	TOPSOIL	0.0	Arisings
0.2	Sandy CLAY		
0.5	Soft sandy gravelly CLAY		
0.8	Slightly clayey sandy medium to cobble limestone GRAVEL	0.9	Gravel
1.6		1.6	



TITLE: Soakaway Test Results
 Main St, Sturton, Scawby
 Qudos Property

In accordance with BRE Digest 365 (2016)

DRAWN BY: CB	SCALE: Not to Scale	PROJECT NUMBER: 21-0813.01
CHECKED BY: SS	REVISION: 1	SOAKAWAY NUMBER: SA103
DATE: 12/04/2021		

Appendix 2

Soakaway Size

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