DRAINAGE STATEMENT

KENT COUNTY COUNCIL
LAND ADJACENT TO GREAT CHART PRIMARY SCHOOL, ASHFORD, KENT.

APRIL 2017

CS/12268

Contents

APPENDICES

1 EXECUTIVE SUMMARY

1.1.1 This Drainage Statement has been prepared in relation to a proposed 12 unit residential development at land adjacent to Great Chart Primary School, Ashford, Kent.

1.1.2 The site specific Flood Risk Assessment determined that the potential development site in question is located in Zone 1; low risk of flooding from rivers or other sources of flooding.

1.1.3 Planning Practice Guidance Table 2, "Flood Risk Vulnerability Classification", states that buildings used for dwellings are classified as “more vulnerable”.

1.1.4 The development is located entirely within Flood Zone 1 and as such is considered to satisfy the sequential test. Planning Practice Guidance Table 1, "Flood Zones", determines all classes of land development are appropriate in Flood Zone 1 and an exception test is not required.

1.1.5 A Sustainable Urban Drainage System with an allowance for climate change will be provided to deal with the surface water generated from the development to ensure that flood risk is not increased elsewhere. This is in accordance with the guidance given in the Ashford Borough Council Sustainable Drainage SPD dated October 2010.

2 INTRODUCTION

2.1 General

2.1.1 DHA Environment have been engaged by Kent County Council to prepare a statement relating to foul and surface water drainage to accompany a Reserved Matters Application, which also seeks to discharge conditions 11 and 12 of Outline Planning Permission Reference 11/01045/AS.

2.1.2 Given the site consists of more than 10 units, it is considered to be major development as set out in Article 2(1) of the Town and Country Planning (Development Management Procedure) (England) Order 2010 and as such this report has been prepared to outline the foul and surface water drainage for the site.

2.1.3 This report provides the following information:

(i) An assessment of the flood risk to the site based upon flood data and the flood maps provided by the EA and Strategic Flood Risk Assessment;

(ii) An assessment of the impact of the new development in terms of surface water runoff;

(iii) Proposals for measures to mitigate the generation of surface water runoff from the proposed development;

(iv) Proposals to mitigate any residual flood risks to the development; and

(v) Proposal to mitigate any contamination to groundwater or the water course.

2.1.4 The findings, recommendations and conclusions of this report are based on information obtained from a variety of external sources which are understood to be reputable. DHA Environment cannot guarantee the reliability of any data from third parties and no liability can be accepted for any erroneous information or the conclusions drawn from it.

3 EXISTING DEVELOPMENT

3.1 Location

3.1.1 The site is located adjacent to Great Chart Primary School, Ashford, Kent and is centred on approximate grid reference 598967, 141509. The developable part of the site is shown bounded red on Figure 3-1 below.

Figure 3-1: Site Location

3.2 Existing Site

3.2.1 A topographical survey of the site was originally carried out by Hook Surveys in January 2011 and is shown on drawing S10/2533/01 contained in **Appendix 1**. An additional topographical survey was carried out by Sitech in April to pick up details of the adjacent school playing fields and watercourse. This is shown on drawing 11029/17 contained in **Appendix 1.**

3.2.2 Drawing 12268-TS-01 contained in **Appendix 1** shows the two separate topographical surveys combined on a single plan (blue and grey). It should be noted the original survey shown grey was based on an arbitrary datum whereas the more recent survey, shown blue to an OS datum.

3.2.3 Using a common reference point on the boundary between the two surveys, it has been calculated that the levels shown on the grey survey are 4.72m higher than OS datum. Typical site levels have been converted to OS Datum and are shown red.

3.2.4 The site falls from a high point of 45.52m AOD in the South Western corner of the site to a low point of 42.55m AOD on the North boundary of the site. From the site boundary levels continue to fall away to the North.

3.2.5 The site has the following boundary conditions:

- North - Residential properties on Butt Field Road and Great Chart Primary School playing fields.
- East - Residential properties on Butt Field Road and Bishops Green.
- South - Residential properties on Longacre Road.
- West - Great Chart Primary School playing fields.

3.3 Existing Drainage Regime and Surface Water Runoff

3.3.1 Based on the existing topography, the site can be seen to drain overland from South to North and during periods of heavy rainfall water is likely to discharge onto Butt Field Road and enter the existing surface water sewerage system.

3.3.2 The proposed catchment plan can be seen on drawing 11268-D-01 contained in **Appendix 2**. The existing green field (pre-development) peak discharge rates from the catchment have been calculated by using the Flood Studies Report ICP (SuDS) method based on the total catchment area of 0.465 hectares. The calculations can be seen in **Appendix 2** and have been summarised in table 3-1 below:

Catchment Reference	*Qbar (l/s)*	*1 in 1 year*	*1 in 30 years*	*1 in100 years*
Total	**2.0**	1.7	4.6	6.5

Table 3-1 - Summary of pre-development greenfield runoff rates

3.3.1 Table 3.2 of Ashford Borough Council Sustainable Drainage SPD provides acceptable post development run-off rates for various areas within the borough. This site falls into the category of a green field site in the 'rest of the borough' and as such this table encourages an acceptable runoff rate of 4l/s/ha, but must avoid any run-off rate in excess of the existing rate (where this can be established). Based on a total catchment area of 0.465 hectares this would equate to a rate of 1.86 l/s.

3.3.2 Paragraph 3.16 of the Ashford Borough Council Sustainable Drainage SPD recognises the particular challenges of controlling runoff from small catchments. The minimum flow rate which it is practical to control is considered to be 2 l/s and as such this has been taken as the post development rate from the site.

Existing Drainage

3.3.3 Southern Water asset plans are shown in **Appendix 3** and indicate the location of public foul and surface water sewers in the area. These records do not indicate any private drainage that may be present.

3.3.4 In October 2011 the ownership of any private sewer serving more than one property was automatically transferred to the Water Authority although many of these sewers are yet to be recorded on the asset plans.

Surface Water

3.3.5 Southern Water asset plans show there to be no public surface water sewers within the development site itself however there is a network of surface water sewers draining the surrounding area away to the Stour to the North. Sewers in the immediate vicinity can be described as follows;

- A 675mm diameter sewer to the West of the site running from South to North along the boundary of the school playing fields before upsizing to a 750mm diameter sewer to the North of the playing fields before draining away to the North.
- A 150mm sewer in Butt Field Road running from South to North upsizing to a 225mm diameter sewer before connecting into the 750mm diameter sewer described above.
- A 225mm sewer in Bishops Green also draining to the North.

Foul Water

3.3.6 Southern Water asset plans show there to be no public foul water sewers within the development site itself however there is a network of foul water sewers draining the surrounding area away to the North. Sewers in the immediate vicinity can be described as follows;

- A 225mm sewer to the West of the site running from South to North along the boundary of the school playing fields.
- A 150mm sewer in Butt Field Road running East before draining away to the North.
- A 150mm sewer in Bishops Green also draining to the East before draining to the North.

3.4 Suitability for Infiltration SUDs

3.4.1 A report from the British Geology Survey has been obtained to assess the properties of the sub surface and the suitability for the installation of infiltration SUDs on the site. This assesses constraints such as geology, ground stability and groundwater quality

protection. A copy of the report is contained in **Appendix 4** and can be summarised as follows.

Geology

3.4.2 The report summarised that the site is underlain by the Weald Clay Formation made up of mudstone. There are no records of any superficial deposits.

Ground Instability

3.4.3 The report summarised that ground stability problems may be present but increased infiltration is unlikely to result in ground instability.

Groundwater

3.4.4 Information published by the Environment Agency shows the site to lay outside any source protection zones and that groundwater is likely to be less than 3m for at least part of the year.

Permeability

3.4.5 The report indicates that the bedrock deposits under the development site are likely to be poorly draining with low to very low infiltration rates expected.

Summary

3.4.6 Based on the above, the report concluded that there are opportunities bespoke infiltration SuDS. This is due to the shallow groundwater alongside poorly draining bedrock. It is therefore recommended that specific onsite infiltration testing is carried out at the detailed design stage with a view of assessing whether shallow infiltration features could be implemented.

4 SITE SPECIFIC FLOOD RISK ASSESSMENT

4.1 Proposed Development

4.1.1 The proposed development consists of the provision of 12 residential units and associated roads and car parking on a green field site at land adjacent to Great Chart Primary School, Ashford, Kent. The proposed master plan is shown within **Appendix 5**.

4.2 Flood Risk Zones

4.2.1 The National Planning Policy Framework provides guidance on assessing flood risk and seeks to guide development away from areas at risk of flooding from all sources. Planning Practice Guidance defines a number of Flood Zones based on the probability of flooding and provides guidance on the most appropriate form of development within each zone. The flood risk can be summarised as follows:

Zone	Annual probability in any year	
	River Flooding	**Sea Flooding**
Zone 1 : Low probability	Less than 1:1000 (<0.1%)	Less than 1:1000 (<0.1%)
Zone 2: Medium probability	Between 1:1000 and 1 in 100 (0.1% -1%)	Between 1:1000 and 1 in 200 (0.1% - 0.5%)
Zone 3a : High probability	Greater than 1:100 (>1%)	Greater than 1:200 (>0.5%)
Zone 3b: functional Floodplain	Greater than 1 in 20 (>5%)	N/A

Table 4-1: NPPF Guidance

4.2.2 Reference has been made to the Environment Agency flood risk map shown in **Appendix 6.** This indicates that the proposed development is situated within Flood Zone 1. This zone comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding (<0.1%) in any year.

4.3 Sequential Test

4.3.1 The National Planning Policy Framework (paragraph 100), states that a risk based Sequential Test should be applied at all stages of planning with the aim of steering new development to areas at the lowest probability of flooding (Flood Zone 1).

4.3.2 The proposed development is located entirely within Flood Zone 1 and as such it is considered to satisfy the Sequential Test.

4.4 Vulnerability Classification

4.4.1 Planning Practice Guidance Table 2, "Flood Risk Vulnerability Classification", states that buildings used for dwellings are classified as “more vulnerable”.

4.4.2 Planning Practice Guidance Table 3, "Flood Risk Vulnerability and Flood Zone Compatibility", confirms that 'more vulnerable' developments situated in Flood Zone 1 are appropriate and an exception test is not required for this development.

4.5 Strategic Flood Risk Assessment

4.5.1 Reference has been made to the Ashford Stage 1 Surface Water Management Plan produced by JBA Consulting in October 2013. This report shows no records of flooding from any source including rivers, sewers, surface and groundwater.

River and Tidal Flooding

4.5.2 Environment Agency maps show the development site to be located within Flood Zone 1 and remote from the sea, and as such the risk of flooding from this source can be viewed as low risk.

Flooding from Sewer

4.5.3 Sewer flooding can occur due to the limited capacity of the sewer system causing backing up, blockages along the system, or high water levels at the sewer outlet. There are no records in the SFRA of flooding from sewers and as such the risk of flooding from sewers can be viewed as low.

Flooding from Artificial Sources

4.5.4 There are no artificial sources in the locality of the site and as such the risk from this source can be viewed as low.

Flooding from Groundwater

4.5.5 There are no records in the SFRA regarding ground water flooding in the vicinity of the site and as such the risk from this source can be viewed as low.

Surface Water Flooding

4.5.6 The proposed development will result in an increase in the impermeable area on the site. Surface water generated by the proposed development will be dealt with on site via a Sustainable Urban Drainage System (SuDS). As such, there is low risk of causing or increasing off-site flooding as a result of the development and this can therefore be viewed as low risk.

Flood Risk summary

Sources	High	Medium	Low	
River and Tidal Flooding			X	Site located within Flood Zone 1, at low risk from tidal and fluvial flooding.
Flooding from Sewer			X	No recorded instances of surface water or sewer flooding in site area.
Flooding from Ground Water			X	No recorded instances of ground water flooding in site area.
Flooding from artificial sources			X	None in the area.
Surface Water Flooding			X	SuDs scheme to be implemented to restrict flows to green field rate.

Table 4-2 – Summary of potential Flooding Sources

5 MANAGEMENT OF DRAINAGE ON THE DEVELOPMENT

5.1 Proposed Development

5.1.1 The proposed development consists of a 12 unit residential development a 0.465 hectare greenfield site of which approximately 0.222 hectares will consist of impermeable areas such as roofs, roads and parking areas. Drawing 12268-D-01 contained in **Appendix 2** shows a summary of the proposed contributing areas.

5.2 Aims

5.2.1 Sustainable Urban Drainage (SUDs) techniques will be used to deal with the surface water generated by the development. This will replicate the existing drainage regime by dealing with the surface water at source, as not to increase the risk of downstream flooding. The SUDs scheme has the following aims:

- To reduce the water demand arising from the development;
- To minimise the surface water runoff from the site;
- To mitigate the loss of water to ground waters through urban runoff;
- To incorporate infiltration systems where practicable;
- To prevent contamination to water course and ground water.

5.3 Proposed Drainage Strategy

5.3.1 The principles of the proposed drainage are shown on drawing 12268-D-02 in **Appendix 7**. As recommended in the Ashford Borough Council Sustainable Drainage SPD, Sustainable Urban Drainage (SuDs) techniques will be used to deal with the surface water drainage generated by the development. This will replicate the existing drainage regime by dealing with the surface water at source as not to increase the risk of downstream flooding.

5.3.2 As indicated in the report from the British Geology Survey, the use of infiltration SuDs on the site are unlikely to be suitable due to the low infiltration rates of the clay bedrock and the shallow water table. Infiltration testing may be carried out to determine whether private areas of hardstanding can drain to porous paving, however this has not been accounted for in the proposed drainage strategy.

5.3.3 An existing watercourse running South to North can be seen to West of the site, however it is not possible to discharge here due to the level constraints and also because of the existing foul and surface water sewers running parallel to the watercourse that would obstruct any proposed connection.

5.3.1 It is proposed to drain the site via a network of surface water sewers before discharging into the existing 225mm sewer located to the North (MH-0651). Other surface water connection points were considered such as the 150mm sewer (MH-0554) in Butt Field Road and the 225mm sewer (reference MH-0457) in Bishops Green however these were ruled out due to level constraints.

5.3.2 Flows into the existing system will be controlled to the existing green field runoff rate of 2l/s via a Hydrobrake flow control. An attenuation volume 118m^3 of will be provided in an 80m long 1.375m diameter storage pipe.

5.3.3 The proposed pipe has been designed to provide 118m^3 of attenuation to accommodate runoff for 0.222 ha of impermeable areas. The pipe has been modelled using Windes and has been designed to all return periods up to and including the 1:100 year plus a 40% allowance for climate change. Drainage calculations can be seen in **Appendix 7.**

5.3.4 Subject to onsite testing, it may be possible to drain private areas to porous paving which will reduce the amount of attenuation required. This will not reduce the outflow rate to the existing sewer which is based on the minimum that can be practically controlled.

5.3.5 Connection to the existing surface water sewer is dependent on obtaining the necessary approvals from Southern Water and there being available capacity in the network for the surface water flow of 2.0 l/s generated by the development. A capacity check has been commissioned on which the results are currently awaited. Any upgrade works required as a result of the development would normally need to be carried out at the cost of the developer.

5.3.6 The proposed attenuation and Hydrobrake flow control will need to be constructed prior to any surface water from the development being connected to ensure no increase in downstream surface water flows.

5.3.7 The proposed surface water system will be offered for adoption to Southern Water who will maintain in perpetuity.

6 FOUL DRAINAGE

6.1 Proposed Foul Drainage

6.1.1 A peak foul water flow of 0.56 l/s has been calculated for a development of 12 units based on the daily flow rate of 4000 litres given in Sewers for Adoption 7th Edition.

6.1.2 Foul water will drain by gravity and connect into the existing foul water sewer MH-0409 located in Bishops Green.

6.1.3 Connection to the existing foul water sewer is dependent on obtaining the necessary approvals from Southern Water and there being available capacity in the network for the foul flow of 0.56 l/s generated by the development. A capacity check has been commissioned on which the results are currently awaited. Any upgrade works required as a result of the development would normally need to be carried out at the cost of the developer.

7 CONCLUSIONS AND RECOMMENDATIONS

7.1.1 The outline planning proposals are to develop a green field site of 0.465 hectares with a 12 unit residential development at land adjacent to Great Chart Primary School, Ashford, Kent.

7.1.2 This Flood Risk Assessment confirms that the development is located in Flood Zone 1 which is defined as having a low risk of flooding from rivers and sea.

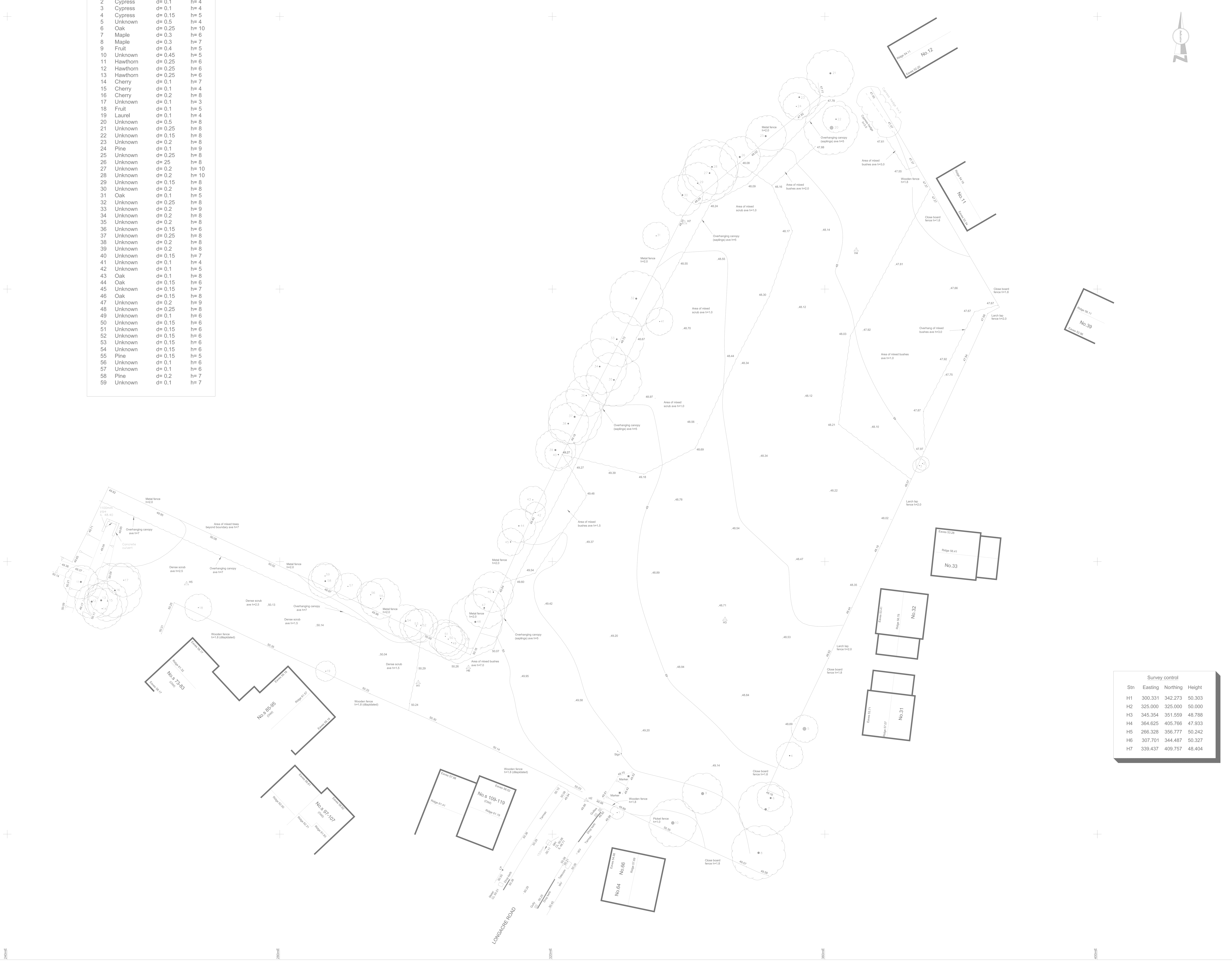
7.1.3 The Flood Risk Assessment also demonstrates that there is a low risk of flooding due to other sources.

7.1.4 A Sustainable Urban Drainage System will be incorporated to accommodate the 1 in 100 year rainfall event with a 40% allowance for climate change.

APPENDIX 1.0 - EXISTING TOPOGRAPHICAL SURVEY

Tree schedule

1	Palm	d= 2x0.1	h= 3
2	Cypress	d= 0.1	h= 4
3	Cypress	d= 0.1	h= 4
4	Cypress	d= 0.15	h= 5
5	Unknown	d= 0.5	h= 4
6	Oak	d= 0.25	h= 10
7	Maple	d= 0.3	h= 6
8	Maple	d= 0.3	h= 7
9	Fruit	d= 0.4	h= 5
10	Unknown	d= 0.45	h= 5
11	Hawthorn	d= 0.25	h= 6
12	Hawthorn	d= 0.25	h= 6
13	Hawthorn	d= 0.25	h= 6
14	Cherry	d= 0.1	h= 7
15	Cherry	d= 0.1	h= 4
16	Cherry	d= 0.2	h= 8
17	Unknown	d= 0.1	h= 3
18	Fruit	d= 0.1	h= 5
19	Laurel	d= 0.1	h= 4
20	Unknown	d= 0.5	h= 8
21	Unknown	d= 0.25	h= 8
22	Unknown	d= 0.15	h= 8
23	Unknown	d= 0.2	h= 8
24	Pine	d= 0.1	h= 9
25	Unknown	d= 0.25	h= 8
26	Unknown	d= 25	h= 8
27	Unknown	d= 0.2	h= 10
28	Unknown	d= 0.2	h= 10
29	Unknown	d= 0.15	h= 8
30	Unknown	d= 0.2	h= 8
31	Oak	d= 0.1	h= 5
32	Unknown	d= 0.25	h= 8
33	Unknown	d= 0.2	h= 9
34	Unknown	d= 0.2	h= 8
35	Unknown	d= 0.2	h= 8
36	Unknown	d= 0.15	h= 6
37	Unknown	d= 0.25	h= 8
38	Unknown	d= 0.2	h= 8
39	Unknown	d= 0.2	h= 8
40	Unknown	d= 0.15	h= 7
41	Unknown	d= 0.1	h= 4
42	Unknown	d= 0.1	h= 5
43	Oak	d= 0.1	h= 8
44	Oak	d= 0.15	h= 6
45	Unknown	d= 0.15	h= 7
46	Oak	d= 0.15	h= 8
47	Unknown	d= 0.2	h= 9
48	Unknown	d= 0.25	h= 8
49	Unknown	d= 0.1	h= 6
50	Unknown	d= 0.15	h= 6
51	Unknown	d= 0.15	h= 6
52	Unknown	d= 0.15	h= 6
53	Unknown	d= 0.15	h= 6
54	Unknown	d= 0.15	h= 6
55	Pine	d= 0.15	h= 5
56	Unknown	d= 0.1	h= 6
57	Unknown	d= 0.1	h= 6
58	Pine	d= 0.2	h= 7
59	Unknown	d= 0.1	h= 7



Survey control

Stn	Easting	Northing	Height
H1	300.331	342.273	50.303
H2	325.000	325.000	50.000
H3	345.354	351.559	48.788
H4	364.625	405.766	47.933
H5	266.328	356.777	50.242
H6	307.701	344.487	50.327
H7	339.437	409.757	48.404

Hook Survey Legend

Hedge — Telephone line
Undergrowth — Power line
Tree — Banking
Bush — Contour line
Building — Survey Station
Glass Building — Gate
Open Building — Level
Ordnance Survey Benchmark — OSBM
Foul Drainage — 100mm — FW MH CL 117.10 IL 116.75
Storm Drainage — 100mm — SW MH CL 117.10 IL 116.75

Abbreviations

Animal Sett	Sett
Air Valve	AV
Borehole	BH
Bus Stop	BS
Cover Level	CL
Earth Rod	ER
Electricity Pole	EP
Fire Hydrant	FH
Inspection Cover	IC
Invert Level	IL
Lamp Post	LP
Manhole	MH
Marker	MK
Name Plate	RNP
Power Pole	PP
Rain water Pipe	RWP
Road Sign	RS
Rodding Eye	RE
Reinforced Steel Joint	RSJ
Soil Vent Pipe	SVP
Stop Valve	SV
Survey Station	STN
Telegraph Pole	TP
Tree Stump	Stump
Trial Hole	TH
Unable To Lift	UTL
Vent Pipe	VP
Water Valve	WV

Notes

All trees are identified where possible. Species, spread, height and girth are indicative only.

Drainage has been surveyed where found, and traced where possible.

Eaves and ridge heights of surrounding buildings have been surveyed where possible.

HOOK SURVEY PARTNERSHIP

Project :
Land adjacent to
GREAT CHART PRIMARY SCHOOL

Client :
Kent County Council Property Group

Drawing title :
Topographical Survey

Job No. :	Dwg No. :	Revision :
S10/2533	S10/2533/01	-
Scale :	Date :	Drawn by :
1:200	January 2011	N.B.

Grid & Levels related to :
Grid is arbitrary and is shown at 40m intervals.
Assumed datum for Survey Station H2 value 50.000m

HOOK SURVEY PARTNERSHIP
Unit 3 Whiffens Farm
Clement Street
Hextable, Nr Swanley
Kent BR8 7PQ

Tel: 01322 660662
Fax : 01322 618651
Email : mail@hooksurvey.com
Website : www.hooksurvey.com

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MAIDSTONE, KENT. ME14 1RU
TEL/FAX 01622 678900
Email info@sitechsurveying.co.uk

LAND AT GREAT CHART

CLIENT **GEN²**

THE SURVEY ASSOCIATION	SHEET 1 OF 1	SCALE 1:100	11029 / 17
	DRAWN AutoCAD	SURVEY JOB No. 9184	
	SEE ALSO	SURVEYED - APRIL 2017	

STANDARD REFERENCE

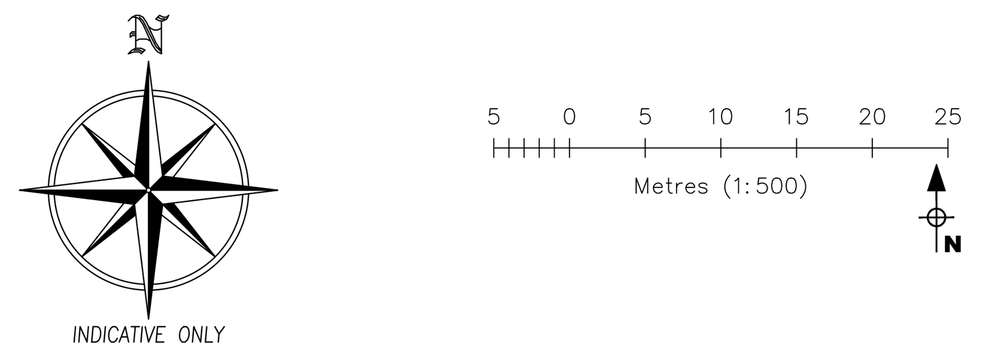
DATUM USED - ORDNANCE SURVEY OSGM 15 TM GPS
BENCH MARKS USED - OSBM 02 TM GPS

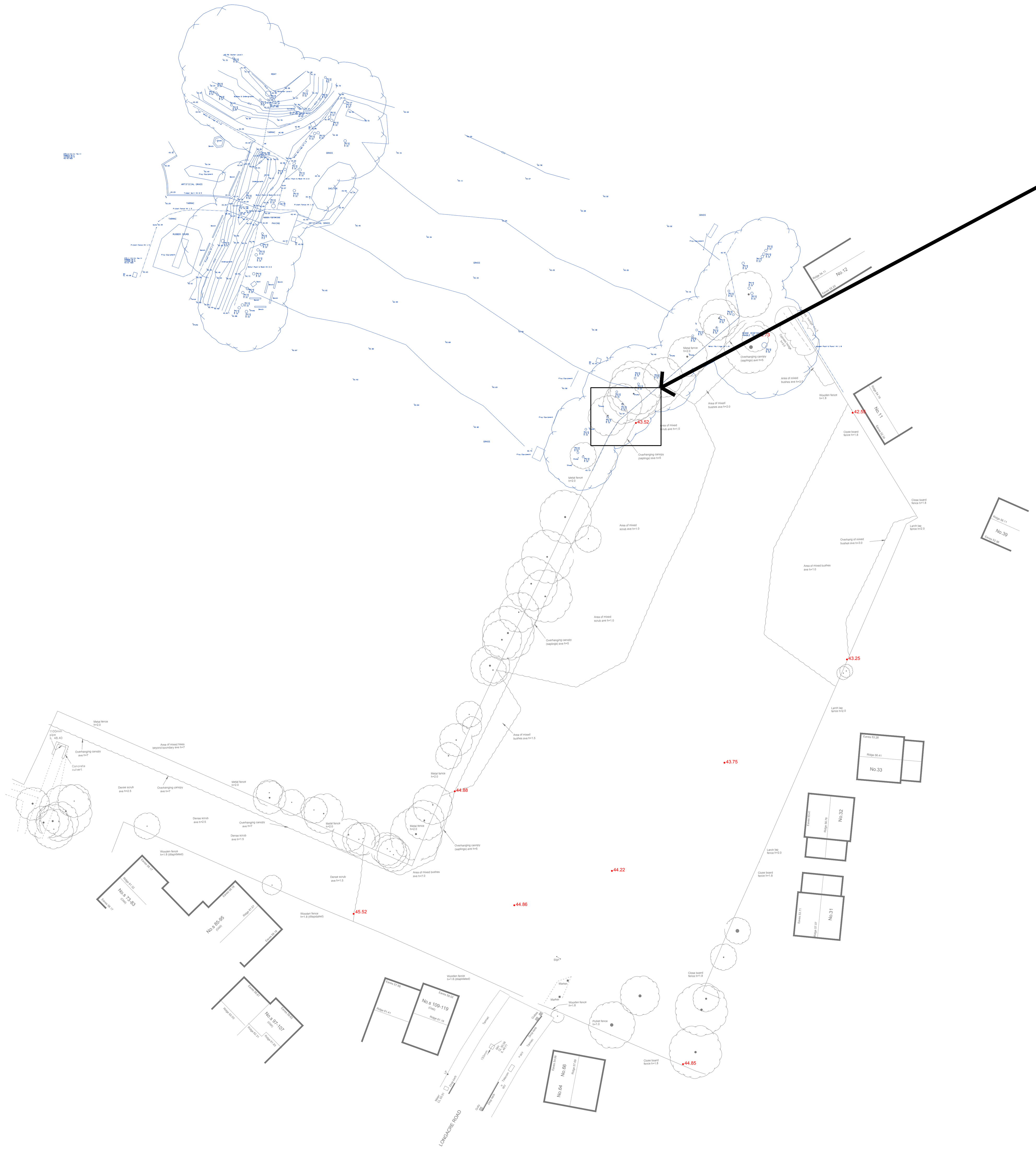
SITE BENCH MARKS ESTABLISHED - SURVEY STATIONS (SEE PLAN)

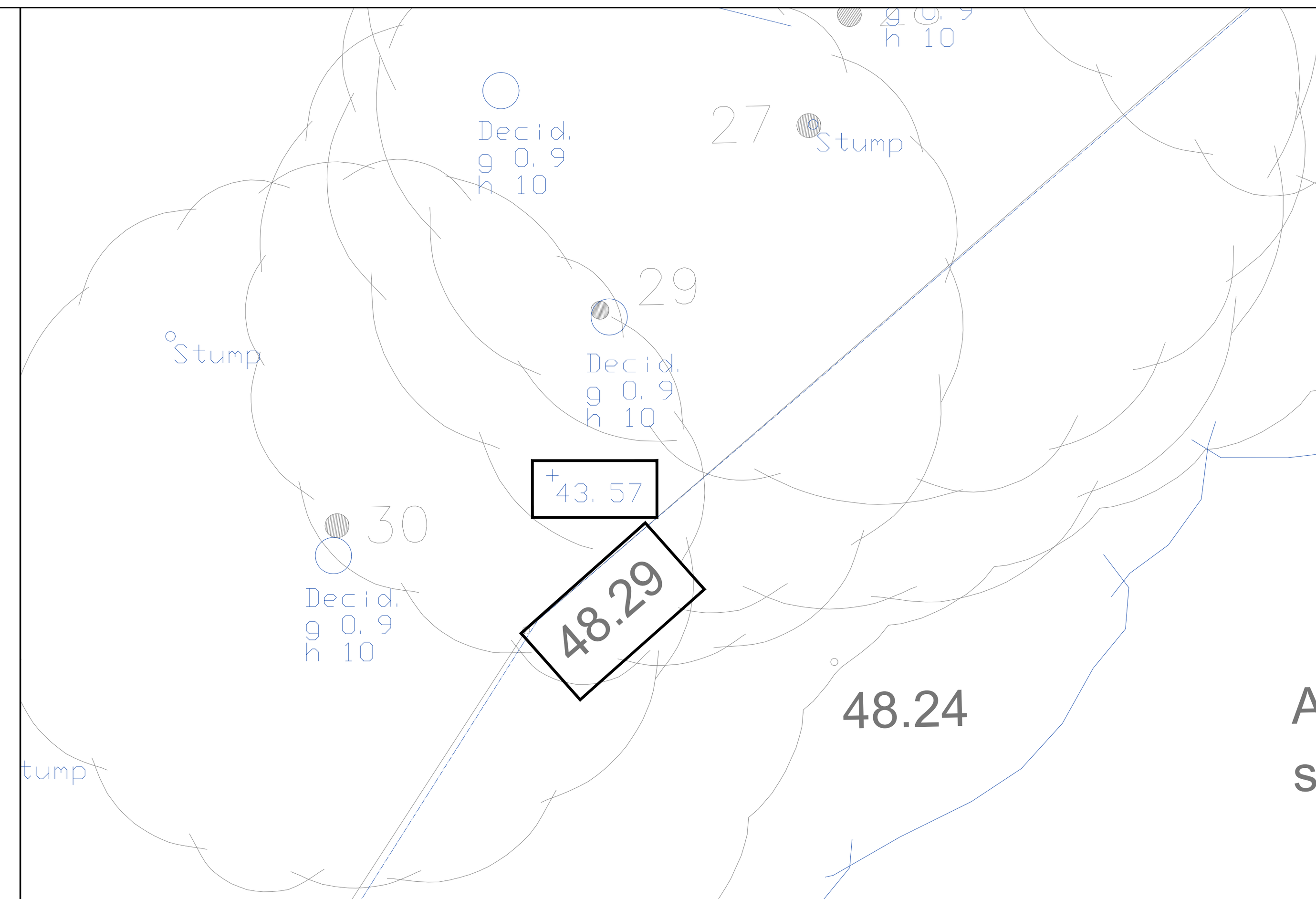
SURVEY STATIONS INDICATED THUS △
PROJECTION - OSBM 15 TM GPS (Scale factor not applied)

ABBREVIATIONS

ACU	AIR CONDITIONING UNIT	KO	KERB OUTLET	RWP	RAIN WATER PIPE
CL	COVER LEVEL	L	LIGHT	SC	STOP COCK
E	EARTH POINT	LP	LAMPPOST	SL	SUMP LEVEL
ECP	ELECTRICITY CABLE PIT	MH	MANHOLE	SP	SOIL PIPE
EP	ELECTRICITY POLE	Mkr	SERVICE MARKER	SV	SLUICE VALVE
FH	FIRE HYDRANT	NB	NOTICE BOARD	TCB	TELEPHONE CALL BOX
FL	FLOOR LEVEL	NFI	NO FURTHER INFORMATION	TIC	TELEPHONE INSPECTION COVER
G	GULLY	OSBM	ORDNANCE SURVEY BENCH MARK	TP	TELEPHONE POLE
GC	GAS COCK	P	POST OR PILLAR	UTL	UNABLE TO LIFT
GV	GAS VALVE	RE	RODDING EYE	VP	VENT PIPE
IC	INSPECTION COVER	RG	ROAD GULLY	WO	WASH OUT
IL	INVERT LEVEL	RS	ROAD SIGN	WM	WATER METER







Common refence point on surveys: 48.29 - 43.57 = 4.72

SCALE 1:50

SURVEY WITH AMENDED LEVELS
SCALE 1:500

NOTES

NOTES

Two topographical surveys have been shown on this plan (blue and grey) which were undertaken by separate survey companies. The blue survey has been tied to OS datum, whereas the grey survey has been tied to an arbitrary datum.

Using a common reference point on the boundary between the two surveys, it has been calculated that the levels shown on the grey survey are 4.72m higher than OS datum.

The red spot levels indicate on site levels converted to OS datum.

REV	AMENDMENTS	DATE	CHK
P1	FIRST ISSUE	27/04/17	SM

Client
GEN2 PROPERTY

Project
LAND ADJACENT TO GREAT CHART PRIMARY SCHOOL

Title
EXISTING TOPOGRAPHICAL SURVEY

Drwg	Rev	Scale	Date
12268-T-01	P1	VARIES	27.04.2017

dha transport

Eclipse House, Eclipse Park, Sittingbourne Road
Maidstone, Kent. ME14 3EN
t: 01622 776226 f: 01622 776227
e: info@dhaplanning.co.uk w: www.dhatransport.co.uk

CAD Reference:

A1

APPENDIX 2.0 – PROPOSED CONTRIBUTING AREAS AND RUNOFF RATES

Total Catchment Area (m²)	Private Hardstanding (m²)	Adoptable Highway (m²)	Roof Area (m²)	Total Impermeable Areas (m²)	Landscaping (m²)
4653	475	742	1004	2221	2432

DO NOT SCALE

Key

- Private Hardstanding/Porous
- Adoptable Highway
- Roof Area
- Catchment Boundary

REV	DATE	BY	DESCRIPTION	CHK	APD
P1	03.05.17	SS	First Issue	CS	CS

client

KENT COUNTY COUNCIL

project

LAND ADJACENT TO GREAT CHART PRIMARY SCHOOL

title

PROPOSED CONTRIBUTING AREAS PLAN

project	drwg	rev
12268	D-01	P1

Drawn	Checked	Approved	scale @ A3	date
SS	CS	CS	1:500	03.05.17

status: FOR INFORMATION — P

dha transport
Eclipse House, Eclipse Park. Sittingbourne Road
Maidstone, Kent. ME14 3EN
t: 01622 776226 f: 01622 776227
e: info@dhaplanning.co.uk w: www.dhatransport.co.uk

CAD Reference: A3

ICP SUDS Mean Annual Flood

Input

Return Period (years)	100	Soil	0.450
Area (ha)	0.465	Urban	0.000
SAAR (mm)	700	Region Number	Region 7

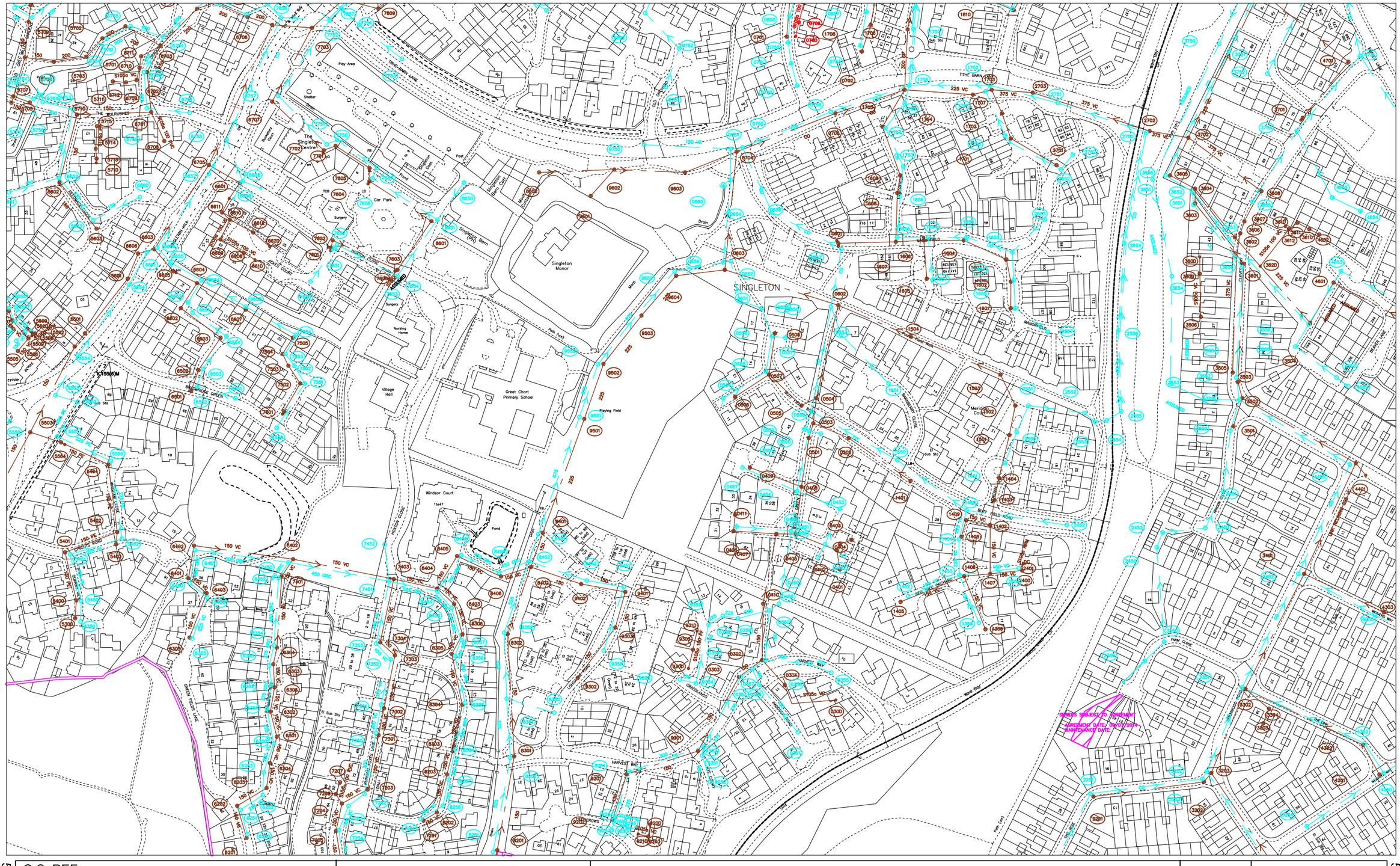
Results l/s

QBAR Rural	2.0
QBAR Urban	2.0
Q100 years	6.5
Q1 year	1.7
Q30 years	4.6
Q100 years	6.5

APPENDIX 3.0 – SOUTHERN WATER RECORD DRAWINGS

SEWER RECORDS PAGE 1 OF 2

141811



141233

598516

599456

O.S. REF. TQ9841NE	Drawn by: yadavsa	The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determnined on site. WARNING: BAC pipes are constructed of Bonded Asbestos Cement WARNING: Unknown (UNK) materials may Include Bonded Asbestos Cement
	Scale: 1:2500	
Title: 241471_Land off Bishops Green,	Date: 19/04/2017	Based upon Ordnance Survey Digital Data with the permission of the controller of H.M.S.O. Crown Copyright Reserved Licence No. WU 298530.

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Southern Water

SEWER RECORDS PAGE 2 OF 2

Node	Cover	Invert	Size	Material	Shape
0302X	46.355	42.765	150	UNK	CIRC
0303X	46.671	42.991	150	UNK	CIRC
0304X			UNK	VC	CIRC
030DX			UNK	VC	CIRC
0351X	48.368	45.998	150	UNK	CIRC
0352X	46.45	45.04	150	UNK	CIRC
0353X	46.732	44.482	375	UNK	CIRC
0354X	46.491		400	UNK	CIRC
0355X	46.213	44.943	225	UNK	CIRC
0356X	45.933	44.728	300	UNK	CIRC
0357X	46.299		150	UNK	CIRC
0358X	45.746	44.551	225	UNK	CIRC
0359X	45.923	44.523	225	UNK	CIRC
0360X	45.586		UNK	UNK	CIRC
0401X	43.94	42.26	150	VC	CIRC
0402X	43.52	41.97	150	VC	CIRC
0403X	43.67	42.29	150	VC	CIRC
0404X	43.41	42.16	150	VC	CIRC
0405X	43.52	41.5	150	VC	CIRC
0406X	43.88	42.2	150	VC	CIRC
0407X	43.58	41.68	150	VC	CIRC
0408X	42.82	41.01	150	VC	CIRC
0409X	43.13	41.61	150	VC	CIRC
0410X	45.468		UNK	UNK	CIRC
0411X	43.64	42.41	150	VC	CIRC
0450X	43.94	42.42	150	VC	CIRC
0451X	43.61	42.23	225	VC	CIRC
0452X	43.64	42.46	150	VC	CIRC
0453X	43.09	41.97	225	VC	CIRC
0454X	42.85	41.51	300	VC	CIRC
0455X	43.78	42.33	225	VC	CIRC
0456X	43.41	42	225	VC	CIRC
0457X	43.15	41.72	225	VC	CIRC
0458X	45.24	44.09	UNK	UNK	CIRC
0501X	42.18	40.51	150	VC	CIRC
0502X	42.18	40.98	150	VC	CIRC
0503X	42.02	40.27	150	VC	CIRC
0504X	42.01	40.17	150	VC	CIRC
0505X	41.98	40.36	150	VC	CIRC
0506X	42.39	41.33	150	VC	CIRC
0507X	42.2	40.69	150	VC	CIRC
0508X	41.74	40.95	150	VC	CIRC
0550X	42.17	41.31	150	VC	CIRC
0551X	42.04	41.03	375	VC	CIRC
0552X	42.15	41	375	VC	CIRC
0553X	41.27	40.03	225	VC	CIRC
0554X	42.46	41.32	150	VC	CIRC
0555X	42.22	41.01	225	VC	CIRC
0556X	41.8	40.59	225	VC	CIRC
0557X	41.63	40.72	150	VC	CIRC
0558X	41.92	40.78	375	CP	CIRC
0601X	40.68	39.22	150	VC	CIRC
0602X	41.18	39.36	150	VC	CIRC
0603X	41.85	38.69	225	CP	CIRC
0650X	41.99	40.32	225	VC	CIRC
0651X	42.05	40.06	225	VC	CIRC
0652X	41.6	39.9	225	VC	CIRC
0654X	40.75	38.42	750	CP	CIRC
0656X	41.25	39.78	450	CP	CIRC
0657X	40.89	39.45	450	CP	CIRC
0658X	40.48	38.75	525	CP	CIRC
0659X	41.75	39.33	750	CP	CIRC
065IX		39.83	300	CP	CIRC
0660X	40.76	39.8	300	CP	CIRC
0701X	39.91	38.4	150	VC	CIRC
0702X	39.83	38.89	150	VC	CIRC
0704X	40.84	37.34	300	CP	CIRC
0705X	40.12	37.16	300	CP	CIRC
0706X			100	PVC	CIRC
0750X	39.96	38.75	225	VC	CIRC
0751X	40.05	38.67	225	VC	CIRC
0752X	39.99	38.65	225	VC	CIRC
0753X	39.87	38.81	150	VC	CIRC
0754X	40.72	38.07	825	CP	CIRC
0755X	40.93	38.08	825	CP	CIRC
0756X	40.16	37.93	825	CP	CIRC
0850X	39.86	38.54	300	CP	CIRC
0857X	39.56	38.49	150	VC	CIRC
1300X		43.15	150	VC	CIRC
1350X		43	150	VC	CIRC
1401X	42.63	41.79	150	VC	CIRC
1402X	42.83	41.38	150	VC	CIRC
1403X	42.72	41.23	150	VC	CIRC
1404X	42.34	40.94	150	VC	CIRC
1405X		42.65	150	VC	CIRC
1406X		42.03	150	VC	CIRC
1407X		41.84	150	VC	CIRC
1408X		41.95	150	VC	CIRC
1409X		41.7	150	VC	CIRC
1450X	42.89	41.43	375	CP	CIRC
1451X	42.14	41.18	225	VC	CIRC
1452X		42.9	150	VC	CIRC
1453X		42.3	225	VC	CIRC
1454X		41.85	225	VC	CIRC
1501X	41.89	40.66	150	VC	CIRC
1502X	41.75	40.44	150	VC	CIRC
1503X	41.45	40.3	150	VC	CIRC
1504X	41.16	39.81	150	VC	CIRC
1550X	42.45	41.11	375	CP	CIRC
1551X	41.44	40.22	225	VC	CIRC
1601X	41.68	40.45	150	VC	CIRC
1602X	41.6	40.04	150	VC	CIRC
1603X	41.37	39.75	150	VC	CIRC
1604X	41.12	39.16	150	VC	CIRC
1605X	40.84	39.43	150	VC	CIRC
1606X	41	38.77	150	VC	CIRC
1607X	40.82	38.5	150	VC	CIRC
1608X	40.3	38.16	150	VC	CIRC
1609X	40.21	37.88	150	VC	CIRC
1650X	41.7	39.65	225	VC	CIRC
1651X	41.64	39.32	300	CP	CIRC
1652X	41.32	38.98	375	CP	CIRC
1653X	41.08	38.84	375	CP	CIRC
1654X	41	38.66	450	CP	CIRC
1655X	40.86	38.53	450	CP	CIRC
1656X	40.37	38.38	450	CP	CIRC
1657X	40.86	39.82	225	VC	CIRC
1701X	40.64	38.93	150	VC	CIRC
1702X	40.5	38.02	150	VC	CIRC
1703X	40.13	37.916	225	VC	CIRC
1704X	39.94		300	CP	CIRC
1705X	40.01	37.61	150	VC	CIRC
1706X	39.67	36.91	375	CP	CIRC
1707X	40.23	37.835	225	VC	CIRC
1708X	39.73	38.27	150	VC	CIRC
1750X	40.64	39.26	225	VC	CIRC
1751X	40.18	38.4	225	VC	CIRC
1752X	40.16	38.06	525	CP	CIRC
1753X	40.23	38.21	450	CP	CIRC
1754X	40.03	38.08	450	VC	CIRC
1755X	40.08	38.06	600	CP	CIRC
1756X	39.93		825	CP	CIRC *
1756Y	39.93		825	CP	CIRC *
1757X	39.76		825	CP	CIRC *
1757Y	39.76		825	CP	CIRC *
175DX			225	VC	CIRC
1810X	40.23	37.62	150	VC	CIRC
1852X	40.19	37.92	375	CP	CIRC
2201X	51.96	49.6	225	VC	CIRC
2251X	51.95	49.66	225	CP	CIRC
2350X	49.35	47.72	225	VC	CIRC *
2350Y	49.35		UNK	UNK	CIRC *
235DX			UNK	UNK	CIRC
2400X		42.14	150	VC	CIRC
2401X			UNK	RPM	CIRC
2450X	45	44.38	225	VC	CIRC
2452X	43.27	42	150	VC	CIRC
2453X	44.93	43.97	225	VC	CIRC
2454X		42.7	150	VC	CIRC
2550X	41.76	40.91	300	VC	CIRC
2551X	41.96	40.81	300	VC	CIRC
2552X	42.1	40.59	300	VC	CIRC
2553X	42.38	40.54	300	VC	CIRC
2554X	42.84	40.52	300	VC	CIRC
2555X	42.89	40.37	375	CP	CIRC *
2555Y	42.89	40.94	100	PF	CIRC *
2556Y	42.18	40.68	100	PF	CIRC *
2556X	42.18	40.07	375	CP	CIRC *
2557X	41.91	40.66	150	VC	CIRC
2651X			UNK	UNK	CIRC
2652X	41.72	40.24	225	VC	CIRC
2653X	41.53	39.95	225	VC	CIRC
2654X			375	CP	CIRC *
2654Y			100	PF	CIRC *
2701X	41.62	40.04	150	VC	CIRC
2702X	41.42	38.888	375	VC	CIRC
2703X	40.67	38.048	375	VC	CIRC
2750X	41.01	38.7	525	CP	CIRC
2751X	40.89	38.34	525	CP	CIRC
2752X	41.54	40.52	150	VC	CIRC
3202X	51.11	47.41	225	VC	CIRC
3203X	51.08	47.32	225	VC	CIRC
3252X	51.07	47.96	225	CP	CIRC
3253X	51.1	48.09	225	CP	CIRC
3254X	50.31	48.63	225	CP	CIRC
3302X	50.42	46.73	225	VC	CIRC
3303X			UNK	VC	CIRC
3304X			UNK	VC	CIRC
3350X	49.18	47.49	225	VC	CIRC
3351X	50.41	47.43	225	CP	CIRC
3401X	48.84	45.9	225	VC	CIRC
3450X	45.1	43.41	225	VC	CIRC
3451X	44.42	42.63	225	VC	CIRC
3452X	48.84	46.7	300	CP	CIRC
3501X	43.77	42.63	225	VC	CIRC
3502X	43.83	42.53	225	VC	CIRC
3503X	43.75	42.43	225	VC	CIRC
3504X	44.66	43.06	225	VC	CIRC
3505X	43.83	41.74	375	VC	CIRC
3506X			UNK	VC	CIRC
3550X	43.8	42.51	225	VC	CIRC
3551X	43.82	42.45	375	CP	CIRC
3552X	43.41	42.44	300	CP	CIRC
3553X			300	CO	CIRC
3554X	43.77	42.19	450	CP	CIRC
3555X	44.56	42.82	225	VC	CIRC
3556X	44.69	42.67	225	VC	CIRC
3601X	44.57	42.06	225	VC	CIRC
3602X	44.73	42.07	225	VC	CIRC
3603X	44.15	41.74	225	VC	CIRC
3604X	43.57	41.34	225	VC	CIRC
3605X	43.594	41.654	225	VC	CIRC
3606X	44.71	41.219	375	VC	CIRC
3607X	44.65	41.135	375	VC	CIRC
3608X	44.44	40.945	375	VC	CIRC
3609X			UNK	VC	CIRC
3610X			100	VC	CIRC
3611X			100	VC	CIRC
3612X			100	VC	CIRC
361DX			100	VC	CIRC
362DX			225	VC	CIRC
3650X	44.59	41.99	450	CP	CIRC
3651X	44.1	41.63	450	CP	CIRC
3652X	43.85	41.41	450	CP	CIRC
3653X	44.69	41.88	225	VC	CIRC
3654X			UNK	UNK	CIRC
3655X	44.63	43.46	225	VC	CIRC
3656X			600	CP	CIRC
3701X	43.99	42.17	225	VC	CIRC
3702Y	43.58		225	VC	CIRC *
3702X	43.58	40.3	375	VC	CIRC *
3750X			UNK	UNK	CIRC
3751X	42.34	39.8	600	CP	CIRC
3752X	43.03	41.37	225	VC	CIRC
3753X	44.02	42.63	225	VC	CIRC
4201X	50.54	48.26	225	VC	CIRC
4250X	50.53	48.63	225	CP	CIRC
4302X	50.54	48.1	225	VC	CIRC
4303X	49.69	46.98	225	VC	CIRC
4352X	50.54	48.54	225	CP	CIRC
4353X	49.68	47.17	225	VC	CIRC
4401X	46.95	43.33	225	VC	CIRC
440DX			225	VC	CIRC
4450X	46.95	43.54	300	CP	CIRC
4552X	44.83	43.39	225	VC	CIRC
4553X	44.69	43.28	225	VC	CIRC
4601X			UNK	UNK	CIRC
4602X			100	VC	CIRC
4653X	44.77	43.34	225	VC	CIRC
4654X	44.95	44.04	150	VC	CIRC
4655X	44.97	43.75	225	VC	CIRC
4701X	43.16	41.67	225	VC	CIRC
4751X	43.14	41.41	300	CP	CIRC
5300X	64.26	62.28	150	PE	CIRC
5350X	64.32	62.69	150	PE	CIRC
5400X	63.81	61.87	150	PE	CIRC
5401X	62.03	59.86	150	PE	CIRC
5402X	62.08	59.12	150	PE	CIRC
5403X	62.3	60.38	150	PE	CIRC
5404X	59.33	56.5	150	PE	CIRC
5450X	63.92	62.22	150	PE	CIRC
5451X	62.27	60.22	225	PE	CIRC
5452X	62.08	59.66	225	PE	CIRC
5501X	50.2	47.9	150	PVC	CIRC
5502X	50.78	48.8	150	PVC	CIRC
5503X	50.4	52.023	150	UNK	CIRC
5504X	56.61	53.05	150	PE	CIRC
5505X	52.653	50.684	150	VC	CIRC
5506X	51.91	48.265	150	VC	CIRC
5507X	51.048	48.059	150	VC	CIRC

LINE STYLES / COLOURS

Brown — Foul
Foul Syphon Sewer
Foul Vacuum Main
Foul Rising Main
Red — Combined
Combined Syphon Sewer
Combined Rising Main
Lateral Drain
Orange — Building Over Agreement Area
Dark Blue — Treated Effluent
Purple — Sludge
Sewer Catchment
Section 104 Area
Light Blue — Surface Water
Surface Water Rising Main
Yellow — Private
Green — Access Shaft
Decommissioned

MATERIALS

AK	Alkathene
BAC	Bonded Asbestos Cement
BRC	Brick (Common)
BRE	Brick (Engineering)
CC	Concrete Box Culvert
CI	Cast Iron
CO	Concrete (In-Situ)
CP	Concrete (Pre-Cast)
CSB	Concrete Segments (bolted)
CSU	Concrete Segments (unbolted)
DI	Ductile Iron
GRC	Glass Reinforced Concrete
GRP	Glass Reinforced Plastic
MAC	Masonry in regular Courses
MAR	Masonry in random Courses
PE	Polyethylene
PF	Pitch Fibre
PP	Polypropylene
PVC	Polyvinyl Chloride
RPM	Reinforced Plastic Matrix
SI	Spun Iron
ST	Steel
VC	Vitrified Clay
XXX	Other
ZZZ	Unknown

Manhole (SW)
Manhole (F&C)
Lamp hole (SW)
Lamp hole (F&C)
Pumping Station (SW)
Pumping Station (F&C)
Side entry manhole (SW)
Side entry Manhole (F&C)
Blind shaft (SW)
Blind shaft (F&C)
Ejector station (SW)
Ejector station (F&C)
Watertight door (SW)
Watertight door (F&C)
Flushing ch. Mn-e (SW)
Flushing ch. Mn-e (F&C)
Flushing ch. No-e (SW)
Flushing ch. No-e (F&C)
Demarcation Chamber

LEGEND - SEWERS

Washout (SW)
Washout (F&C)
Rodding Eye (SW)
Rodding Eye (F&C)
Gauging point (SW)
Gauging point (F&C)
Intercept chamber (SW)
Intercept chamber (F&C)
Storm Tank (SW)
Storm Tank (F&C)
Vortex chamber (SW)
Vortex chamber (F&C)
Label ellipse
Dummy/S24 manhole
Outfall
Penstock chamber
Damboards
Storm Overflow
Backdrop manhole

Other (s)
Other
Change In sewer (s)
Change in sewer
Reflux valve
Flap valve
Cascade
Anode
Valve
Closed Valve
Air Valve
Hatch box (SW)
Hatch box (F&C)
Direction arrow
Emptying valve
Catchpit
Soakaway
Inlet
Balancing Pond

Wastewater treatment works
Marine treatment works
Outfall headworks
Vent
Vent column
Tidal storage tank
Blank end
Head of Public Sewer
Micro Pumping Station

SHAPES (S)

A	Arched	R	Rectangular
B	Barrel	S	Square
C	Circular	T	Trapezoidal
E	Egg	U	U Shape
H	Horseshoe	X	Other

NODE REFERENCING SYSTEM

1st digit: hundred metre easting identifier
2nd digit: hundred metre northing identifier
3rd digit: sewer type identifier
0-4 = Foul/Combined
5-9 = Surface Water
4th digit: next sequential node

Drawn by:	yadavsa
Title:	241471_Land off Bishops Green,
Date:	19/04/2017

Southern Water

SEWER RECORDS PAGE 2 OF 2

Node	Cover	Invert	Size	Material	Shape
0401X	43.94	42.26	150	VC	CIRC
0402X	43.52	41.97	150	VC	CIRC
0403X	43.67	42.29	150	VC	CIRC
0404X	43.41	42.16	150	VC	CIRC
0405X	43.52	41.5	150	VC	CIRC
0406X	43.88	42.2	150	VC	CIRC
0407X	43.58	41.68	150	VC	CIRC
0408X	42.82	41.01	150	VC	CIRC
0409X	43.13	41.61	150	VC	CIRC
0410X	45.468		UNK	UNK	CIRC
0411X	43.64	42.41	150	VC	CIRC
0450X	43.94	42.42	150	VC	CIRC
0451X	43.61	42.23	225	VC	CIRC
0452X	43.64	42.46	150	VC	CIRC
0453X	43.09	41.97	225	VC	CIRC
0454X	42.85	41.51	300	VC	CIRC
0455X	43.78	42.33	225	VC	CIRC
0456X	43.41	42	225	VC	CIRC
0457X	43.15	41.72	225	VC	CIRC
0458X	45.24	44.09	UNK	UNK	CIRC
0501X	42.18	40.51	150	VC	CIRC
0502X	42.18	40.98	150	VC	CIRC
0503X	42.02	40.27	150	VC	CIRC
0504X	42.01	40.17	150	VC	CIRC
0505X	41.98	40.36	150	VC	CIRC
0506X	42.39	41.33	150	VC	CIRC
0507X	42.2	40.69	150	VC	CIRC
0508X	41.74	40.95	150	VC	CIRC
0550X	42.17	41.31	150	VC	CIRC
0551X	42.04	41.03	375	VC	CIRC
0552X	42.15	41	375	VC	CIRC
0553X	41.27	40.03	225	VC	CIRC
0554X	42.46	41.32	150	VC	CIRC
0555X	42.22	41.01	225	VC	CIRC
0556X	41.8	40.59	225	VC	CIRC
0557X	41.63	40.72	150	VC	CIRC
0558X	41.92	40.78	375	CP	CIRC
0601X	40.68	39.22	150	VC	CIRC
0602X	41.18	39.36	150	VC	CIRC
0603X	41.85	38.69	225	CP	CIRC
0650X	41.99	40.32	225	VC	CIRC
0651X	42.05	40.06	225	VC	CIRC
0652X	41.6	39.9	225	VC	CIRC
0656X	41.25	39.78	450	CP	CIRC
0657X	40.89	39.45	450	CP	CIRC
0658X	40.48	38.75	525	CP	CIRC
0659X	41.75	39.33	750	CP	CIRC
065IX		39.83	300	CP	CIRC
0660X	40.76	39.8	300	CP	CIRC
1401X	42.63	41.79	150	VC	CIRC
1402X	42.83	41.38	150	VC	CIRC
1403X	42.72	41.23	150	VC	CIRC
1404X	42.34	40.94	150	VC	CIRC
1405X		42.65	150	VC	CIRC
1406X		42.03	150	VC	CIRC
1407X		41.84	150	VC	CIRC
1408X		41.95	150	VC	CIRC
1409X		41.7	150	VC	CIRC
1450X	42.89	41.43	375	CP	CIRC
1451X	42.14	41.18	225	VC	CIRC
1452X		42.9	150	VC	CIRC
1453X		42.3	225	VC	CIRC
1454X		41.85	225	VC	CIRC
1501X	41.89	40.66	150	VC	CIRC
1502X	41.75	40.44	150	VC	CIRC
1503X	41.45	40.3	150	VC	CIRC
1504X	41.16	39.81	150	VC	CIRC
1550X	42.45	41.11	375	CP	CIRC
1551X	41.44	40.22	225	VC	CIRC
1601X	41.68	40.45	150	VC	CIRC
1602X	41.6	40.04	150	VC	CIRC
1603X	41.37	39.75	150	VC	CIRC
1604X	41.12	39.16	150	VC	CIRC
1605X	40.84	39.43	150	VC	CIRC
1606X	41	38.77	150	VC	CIRC
1607X	40.82	38.5	150	VC	CIRC
1608X	40.3	38.16	150	VC	CIRC
1650X	41.7	39.65	225	VC	CIRC
1651X	41.64	39.32	300	CP	CIRC
1652X	41.32	38.98	375	CP	CIRC
1653X	41.08	38.84	375	CP	CIRC
1654X	41	38.66	450	CP	CIRC
1655X	40.86	38.53	450	CP	CIRC
1656X	40.37	38.38	450	CP	CIRC
1657X	40.86	39.82	225	VC	CIRC
2400X		42.14	150	VC	CIRC
2401X			UNK	RPM	CIRC
2454X		42.7	150	VC	CIRC
2550X	41.76	40.91	300	VC	CIRC
2551X	41.96	40.81	300	VC	CIRC
2557X	41.91	40.66	150	VC	CIRC
2653X	41.53	39.95	225	VC	CIRC
7403X	48.725	45.863	150	VC	CIRC
7451X	48.8	46.163	525	GRC	CIRC
7452X	48.5	46.697	225	UNK	CIRC
7603X	43.51	41.02	150	VC	CIRC
7606X			UNK	UNK	CIRC
7653X	43.88	41.52	300	CP	CIRC
7654X	43.56	41.47	300	CP	CIRC
8401X	46.2	42.3	225	UNK	CIRC
8402X	46.3	43.52	150	UNK	CIRC
8403X	47.775	44.707	150	VC	CIRC
8404X	47.125	44.452	150	VC	CIRC
8405X	46.625	44.245	150	VC	CIRC
8406X	46.2	44.038	150	VC	CIRC
8451X	46.2	42.515	675	UNK	CIRC
8452X	46.2	42.919	525	UNK	CIRC
8453X	47.11	45.021	525	GRC	CIRC
8454X	47.11	44.752	750	GRC	CIRC
8455X	46.6	44.663	450	GRC	CIRC
8456X	46.2	44.523	450	GRC	CIRC
8601X	42.48	40.58	150	VC	CIRC
8651X	42.48	40.91	300	CP	CIRC
9401X	45.97	43.69	150	UNK	CIRC
9402X	46.31	43.52	150	UNK	CIRC
9451X	46.06	43.76	UNK	UNK	CIRC
9452X	46.3	43.52	UNK	UNK	CIRC
9501X	44.2	41.38	225	UNK	CIRC
9502X	42.9	40.06	225	UNK	CIRC
9503X		39.886	225	UNK	CIRC
9551X	44.2	41.203	675	UNK	CIRC
9552X	42.9	40.718	675	UNK	CIRC
9601X			150	VC	CIRC
9604X	42.443	39.95	225	CP	CIRC
9650X	42.431	39.93	750	CP	CIRC

LINE STYLES / COLOURS

Brown — Foul
Foul Syphon Sewer
Foul Vacuum Main
Foul Rising Main
Red — Combined
Combined Syphon Sewer
Combined Rising Main
Lateral Drain
Orange — Building Over Agreement Area
Dark Blue — Treated Effluent
Purple — Sludge
Sewer Catchment
Section 104 Area
Light Blue — Surface Water
Surface Water Rising Main
Yellow — Private
Green — Access Shaft
Decommissioned

MATERIALS

AK	Alkathene
BAC	Bonded Asbestos Cement
BRC	Brick (Common)
BRE	Brick (Engineering)
CC	Concrete Box Culvert
CI	Cast Iron
CO	Concrete (In-Situ)
CP	Concrete (Pre-Cast)
CSB	Concrete Segments (bolted)
CSU	Concrete Segments (unbolted)
DI	Ductile Iron
GRC	Glass Reinforced Concrete
GRP	Glass Reinforced Plastic
MAC	Masonry in regular Courses
MAR	Masonry in random Courses
PE	Polyethylene
PF	Pitch Fibre
PP	Polypropylene
PVC	Polyvinyl Chloride
RPM	Reinforced Plastic Matrix
SI	Spun Iron
ST	Steel
VC	Vitrified Clay
XXX	Other
ZZZ	Unknown

LEGEND - SEWERS

Manhole (SW)
Manhole (F&C)
Lamp hole (SW)
Lamp hole (F&C)
Pumping Station (SW)
Pumping Station (F&C)
Side entry manhole (SW)
Side entry Manhole (F&C)
Blind shaft (SW)
Blind shaft (F&C)
Ejector station (SW)
Ejector station (F&C)
Watertight door (SW)
Watertight door (F&C)
Flushing ch. Mn-e (SW)
Flushing ch. Mn-e (F&C)
Flushing ch. No-e (SW)
Flushing ch. No-e (F&C)
Demarcation Chamber

Washout (SW)
Washout (F&C)
Rodding Eye (SW)
Rodding Eye (F&C)
Gauging point (SW)
Gauging point (F&C)
Intercept chamber (SW)
Intercept chamber (F&C)
Storm Tank (SW)
Storm Tank (F&C)
Vortex chamber (SW)
Vortex chamber (F&C)
Label ellipse
Dummy/S24 manhole
Outfall
Penstock chamber
Damboards
Storm Overflow
Backdrop manhole

Other (s)
Other
Change In sewer (s)
Change in sewer
Reflux valve
Flap valve
Cascade
Anode
Valve
Closed Valve
Air Valve
Hatch box (SW)
Hatch box (F&C)
Direction arrow
Emptying valve
Catchpit
Soakaway
Inlet
Balancing Pond

Wastewater treatment works
Marine treatment works
Outfall headworks
Vent
Vent column
Tidal storage tank
Blank end
Head of Public Sewer
Micro Pumping Station

SHAPES (S)

A	Arched	R	Rectangular
B	Barrel	S	Square
C	Circular	T	Trapezoidal
E	Egg	U	U Shape
H	Horseshoe	X	Other

NODE REFERENCING SYSTEM

1st digit: hundred metre easting identifier
2nd digit: hundred metre northing identifier
3rd digit: sewer type identifier
0-4 = Foul/Combined
5-9 = Surface Water
4th digit: next sequential node

Drawn by:	gujskew
Title:	241471_Land off Bishops
Date:	21/04/2017

Southern Water