SuDS Drainage Statement

Barn Cottage, Cuckfield Road, Ansty, RH17 5AG

Client

Places Architecture

Ref: 13829

Date: July 2025

Consulting Engineers

GTA Civils & Transport Ltd

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Index

Schedule of Appendices

Issue	Issue date	Compiled	Checked
First Issue	04.07.2025	FVV	MR

1 Introduction

1.1 GTA Civils Ltd. was appointed by the Client to prepare a SuDS Drainage Statement in relation to the proposed development at Barn Cottage, Cuckfield Road, Ansty, RH17 5AG. No responsibility is accepted to any third party for all or part of this study in connection with this or any other development.

1.2 The objective of this Statement is to support a planning application to Mid Sussex District Council and demonstrate that the foul and surface water drainage networks comply with the current national and local drainage policies.

2 Existing Site

2.1 The application site falls within the area administered by Mid Sussex District Council (MSDC). The site, accessed from Cuckfield Road, is currently vacant with the exception of a small outbuilding. Site location maps and an aerial view are shown in Appendix A.

2.2 Hydrology: there is no watercourses within the site or in the immediate vicinity. The existing runoff from the outbuilding discharge unrestricted to ground. Ansty sits on a high point, with land falling both north and south towards two ordinary watercourse, approximately 350m north and 450m south of the site. These ultimately drain to the River Adur, to the west.

2.3 Topography: a topographic survey is included in Appendix B. The site slopes gently from west to east, with levels ranging from approximately 79.30m Above Ordnance Datum (AOD) to 77m AOD where it meets Cuckfield Road (B2036). There is an existing raised bund in the western corner of the site with a top level of 80.20m AOD.

2.4 Geology: The BGS's online geology map shows the area is underlain by Upper Tunbridge Wells Sand (sandstone and siltstone) with no recorded superficial deposits.

2.5 Soakage testing was carried out at the site location in June 2025 within a trial pit located central to the site. The investigation found a 200mm layer of topsoil directly over Upper Tunbridge Wells sand (slightly gravelly silty clay). A marginal infiltration rate of 9.45×10^{-7} m/s was calculated.

2.6 Public sewers: Southern Water's records (see Appendix B) show a 150mm diameter foul sewer flowing north-south on the west side of Cuckfield Road, with two manholes (1201 and 1202) located directly at the site entrance.

2.7 The greenfield runoff rates for the contributing area of 0.026ha were calculated using the UK SuDS Tool, IH124 method. The rates for the 4 main storm return periods are as follows:

Event	**Greenfield Rates (l/s)**
QBAR	0.15
1 in 1 yr	0.13
1 in 30 yrs	0.34
1 in 100 yrs	0.48

3 Proposed SuDS Strategy and Foul Drainage

3.1 A drainage strategy layout has been developed for the proposed new dwelling, based on applying the SuDS Hierarchy (infiltration, watercourses, public sewers).

3.2 As discussed in Section 1, the site investigation indicates that infiltration in marginal, despite the sandy geology. It is assumed on that basis that nearby houses likely outfall to the existing Southern Water sewer on Cuckfield Road (effectively acting as a combined sewer).

3.3 In order to maximise the infiltration potential on this site, a large infiltration blanket is proposed beneath the proposed driveway. This will drain both the roof runoff (80m^2 + 10% urban creep = 88m^2) and the driveway runoff (172m^2).

3.4 The blanket shall have a minimum depth of 700mm with concrete baffles to achieve a flat formation. This is shown on the drainage layout in Appendix D. Calculations are included in Appendix E, using FEH22 rainfall data, which demonstrate that the infiltration blanket can contain all storm events up to and including the 1 in 100+45% climate change event.

3.5 A high-level overflow has also been shown, with a controlled outfall via a 20mm orifice to the combined sewer. This has been provided as the drainage blanket does not meet the criterion of half draining within 24 hours under the design storm conditions (1 in 100yr +45% climate change. The controlled overflow will ensure that the flow rates to the existing sewer is contained in repeated storm conditions. The drainage calculations also show that in the 1 in 30yr storm + 40% climate change, the critical water level in the subbase is 76.876 (426mm depth), which means 39% of the subbase is still available for subsequent storms.

3.6 Any exceedance flow which bypasses the driveway would drain overland towards Cuckfield Road, as per the existing situation, with no increase in flood risks downstream. The use of infiltration also means that the proposal meets the interception requirements of the current National Standards for SuDS published by DEFRA.

3.7 Water quality: the proposed permeable driveway will provide pollutant controls for the driveway runoff; with the pollution hazard of the residential roof expected to be very low. This is in line with the Simple Index approach as described in the SuDS manual.

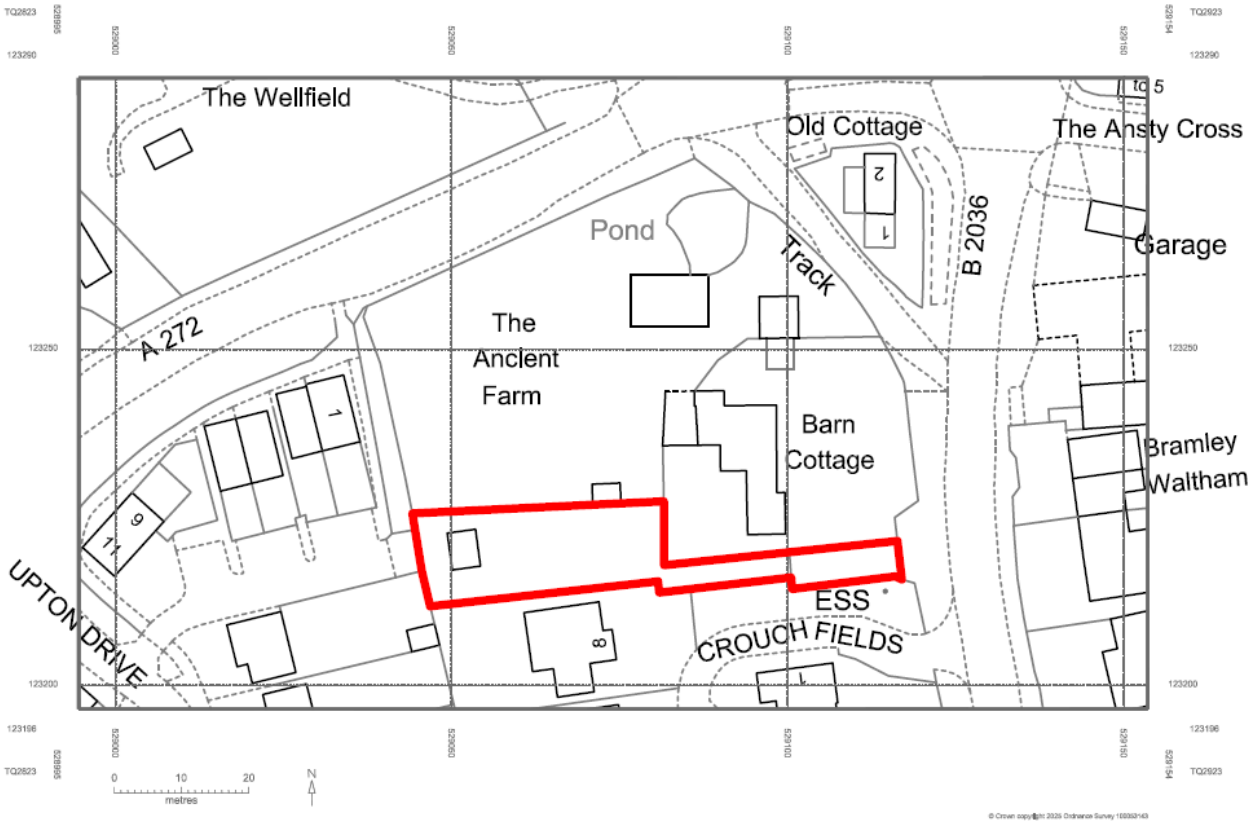
3.8 It is proposed to route the new unit's foul effluent to the public sewer, via a new connection to the existing manhole at the site entrance. This will be subject to a S106 application in due course with Southern Water.

3.9 Maintenance: the drainage system will be owned and maintained by the landowner. A planning stage drainage maintenance schedule is included in Appendix F.

- End of Report -

Appendix A

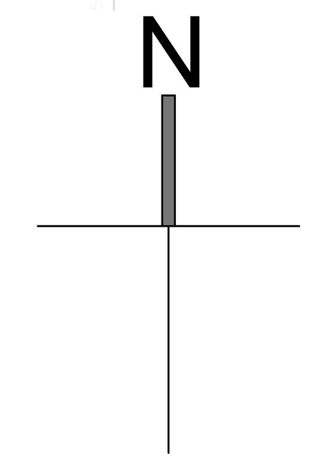
Site Location Maps & Aerial Photo



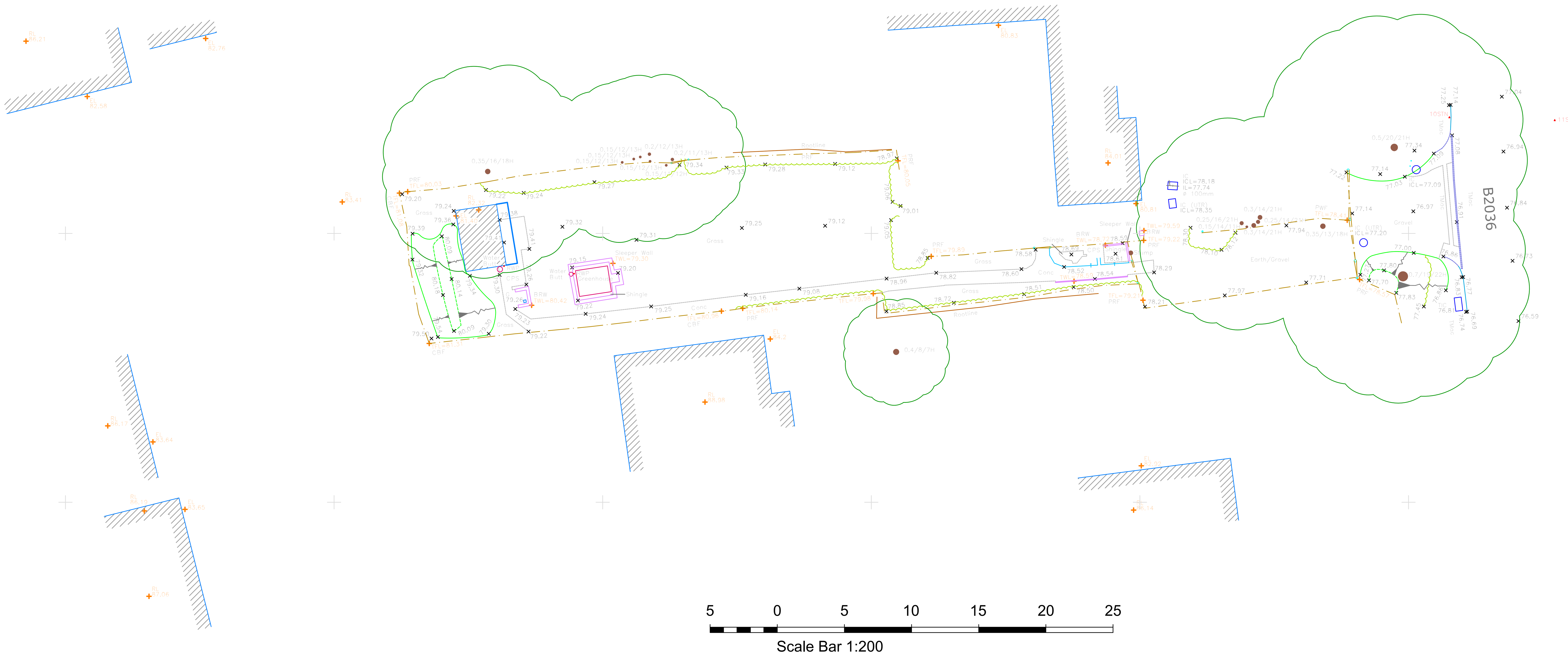

Site
Location

Appendix B

Topographic Survey & Sewer Records



SURVEY STATIONS			
Name	Easting	Northing	Height
10STN	529123.045	123228.639	77.231
11STN	529130.888	123228.422	76.999



SURVEY GRID:
All information is to Ordnance Survey National Grid, computed using Leica Smartnet RTK Network

SURVEY DATUM:

All Levels are Orthometric Heights Related To OSGM15 Datum.

NOTES:

- Surveyed boundaries may not be legal boundaries.
- Dimensions should not be scaled. All information contained in the drawing should be checked and verified on site prior to any fabrication/construction.
- All utilities have been identified to the best of the surveyors knowledge but cannot be guaranteed. Due to non entry of inspection chambers all pipe sizes should be checked and verified before any works commence.
- Services such as Inspection Chambers and Water Meters etc may be obscured by parked cars or debris.

Topo Key

STREET FURNITURE
BB Belisha Beacon
BL Basement Light
Bin Litter Bin
BO Bollard
BS Bus Stop
CPO Concrete Post
EC Electric Cupboard
EP Electric Pole
FB Flower Bed
FHM Fire Hydrant Marker
FL Flood Light
FP Flag Pole
FPO Fence Post
JB Junction Box
GB Grit Box
GMK Gas Marker Post
GPO Gate Post
IBO Illuminating Bollard
LH Lamp Hole
LP Lamp Post
LPO Lockable Post
MK Marker
MPO Metal Post
NP Name Plate
PB Post Box
PM Parking Meter
RPO Reflector Post
RS Road Sign
SI Sign
STN Survey Station
Tap Water Tap
TCB Telephone Call Box
TL Traffic Light
TLCB Traffic Light Control Box
TP Telegraph Post
TPO Timber Post

PIPES & CABLES
DBC Directly Buried Cable
DP Down Pipe
FWP Foul Water Pipe
GP Gas Pipe
RWP Rain Water Pipe
SP Stand Pipe
SVP Soil Vent Pipe
UTT Unable to Trace
VP Vent Pipe
WP Waste Pipe

LEVELS & DEPTHS
A Approximate
BD Back Drop Depth
BDL Back Drop Level
CD Chamber Depth
DHL Door Head Level
DSL Door Sill Level
DPC Damp Proof Course
EL Eaves Level
FFL Finished Floor Level
FRL Flat Roof Level
ICL Cover Level
ID Invert Depth
IL Invert Level
OD Outlet Depth
OL Outlet Level
PWL Parapet Wall Level
RL Ridge Level
SD Sump Depth
SFD Soffit Depth
SFL Soffit Level
SiltL Silt Level
SL Sump Level
SSL Structural Slab Level
TFL Top of Fence Level
THL Threshold Level
TTL Top of Tree Level
TWL Top of Wall Level
USL Underside Level
WL Water Level
WHL Window Head Level
WSL Window Sill Level

FENCES & WALLS
BW Block Wall
BRP Brick Pier
BRTW Brick Retaining Wall
BRW Brick Wall
BWF Barbed Wire Fence
CBF Close Board Fence
CIF Corrugated Iron Fence
CLF Chain Link Fence
CPF Chestnut Pailing Fence
CRW Concrete Retaining Wall
CW Concrete Wall
CWF Chicken Wire Fence
Dil Dilapidated
HR Handrail
IWF Interwoven Fence
LF Lattice Fence
MF Miscellaneous Fence
MRF Metal Railing Fence
OBF Open Board Fence
PCF Post & Chain Fence
PNF Panel Fence
PRF Post & Rail Fence
PWF Post & Wire Fence
RTW Retaining Wall
STW Stone Wall
SRTW Stone Retaining Wall
WMF Wire Mesh Fence

INSPECTION CHAMBERS
AC Access Cover
BH Borehole
CDC Concrete Drainage Channel
EIC Electric Inspection Cover
ER Earth Rod
FH Fire Hydrant
FWIC Foul Water Inspection Cover
GIC Gas Inspection Cover
GM Gas Meter
GV Gas Valve
G Gully
IC Inspection Cover
KI Kerb Inlet
LHP London Hydraulic Power
MDC Metal Drainage Channel
MW Monitoring Well
NFI No Further Information
RE Rodding Eye
SDIC Service Duct Inspection Cover
SV Stop Valve
SWCP Storm Water Catch Pit
SWIC Storm Water Inspection Cover
TCIC Traffic Control Inspection Cover
TIC Telecom Inspection Cover
UIC Unidentified Inspectional Cover
UTR Unable to Raise
WIC Water Inspection Cover
WM Water Meter
WWO Water Wash Out
WSV Water Stop Valve

SURFACES
BPav Brick Paving
Conc Concrete
CPav Crazy Paving
CPS Concrete Paving Slabs
FB Flower\Shrub Border
KFC Kidney Flint Cobbles
SPS Stone Paving Slabs
T Tiles
Tmac Tarmac
TPav Tactile Paving
TS Trench Scar

MEASUREMENTS
d Depth(m)
Ø Diameter (mm)
Ext.Ø External Diameter (mm)
H Object Height (m)

Trees

Tree canopies an heights shown as indicative only. Tree species identified to the best of the Surveyors knowledge. If tree species are important than the services of an Arborist should be employed. Individual tree canopies are shown in a separate layer, called TREES which is turned off for presentation purposes.

Tree Notation: Trunk/Canopy/Height

Symbology

Single Gate
Double Gate
Banking
Step Up
Diameter shown in mm
Survey Station

Linetypes

Telecom Overhead
Power Overhead
Foul Water
Surface Water
Combined Water
Unknown Services
Change of Surface
Drop Kerb
Fence
Wall
Kerb
Building Face
Overhead Feature
Trench Scar
Tree Canopy
Bushes\Foliage\Overgrowth
Tree Canopy Extents

rev	description	by	date
REV:	DESCRIPTION:	BY:	DATE:

FORESITE GEOMATICS
SURVEYING & SITE ENGINEERING

The Forum, 277 London Road
Burgess Hill
West Sussex
RH15 9QU
T: 01444 672090
E:office@foresitegeomatics.co.uk

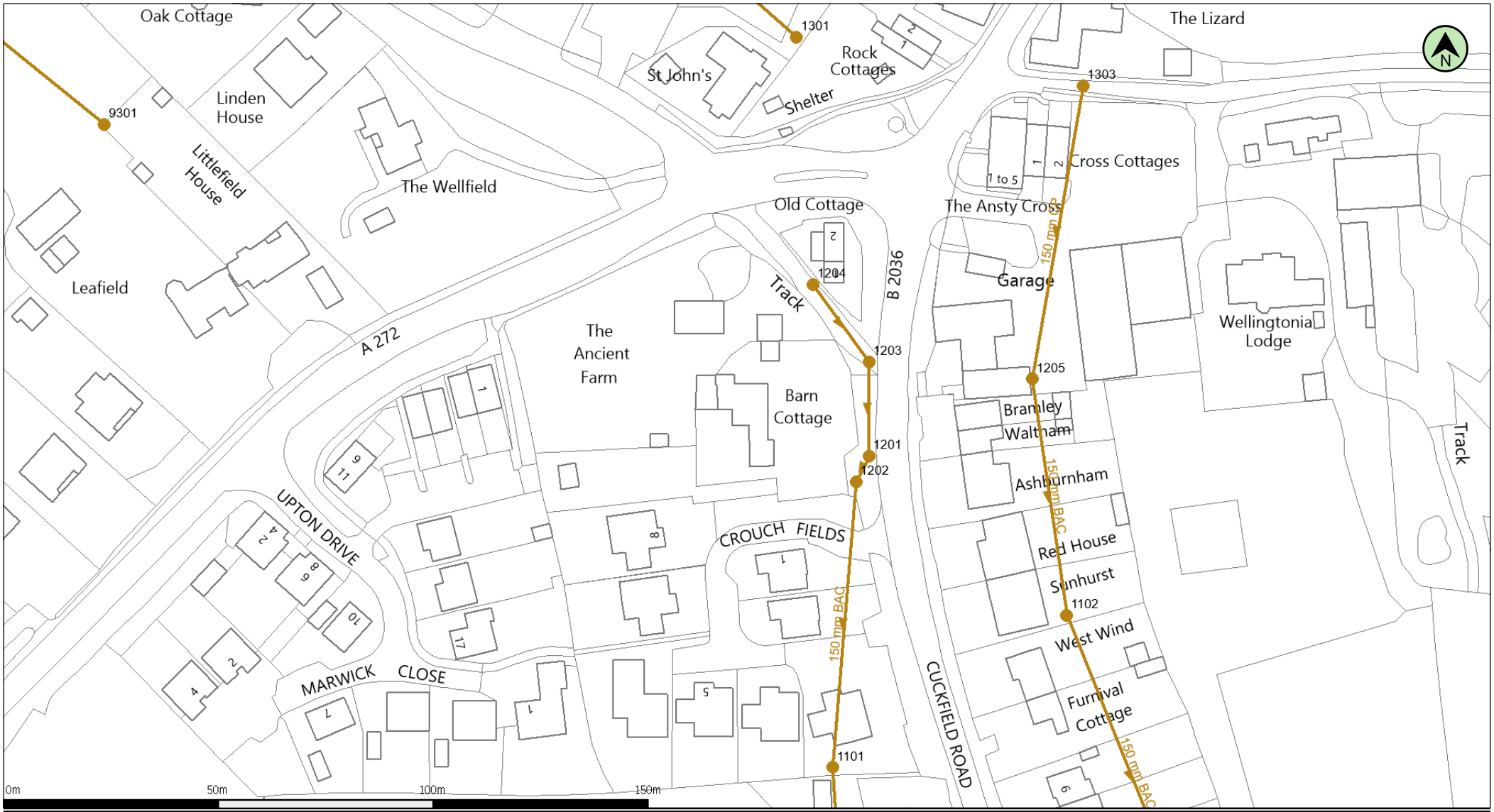
CLIENT: Adam Hollingdale

SITE: Land at Barn Cottage
Ansty
Haywards Heath
RH17 6AG

TITLE: Topographical Survey

SCALE AT A1:	DATE:	SURVEYED:	DRAWN:	CHECKED:
1:200	July 2024	HH	HH	KD

PROJECT NO:	DRAWING NO:	REVISION:
24072	24072_01	-

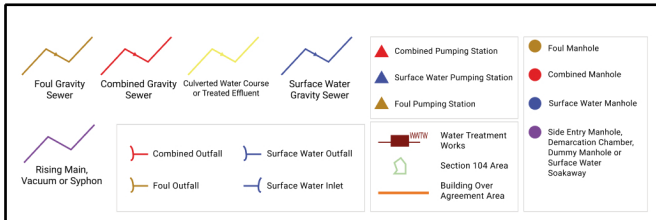


(c) Crown copyright and database rights 2025 Ordnance Survey AC0000808122 | Date: 23/05/25 | Scale: 1:1250 | Map Centre: 529093,123237 | Data updated: 20/05/25 | Our Ref: 1778415 - 1 | Wastewater Plan A4 Powered by digdat

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 determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2025 Ordnance Survey AC0000808122 .This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement.



kdaines@gtacivils.co.uk

13829/FVV

WATER for LIFE from Southern Water

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
1101	F	75.36	73.27	-
1102	F	75.44	73.87	-
1201	F	77.01	75.63	-
1202	F	77.11	75.52	-
1203	F	77.52	76.12	-
1204	F	78.19	76.54	-
1205	F	77.50	75.34	-
1301	F	79.37	77.86	-
1303	F	0.00	78.15	-
9301	F	0.00	64.64	-

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert

Appendix C

Excerpts from Site Investigation

3. SITE WORKS

The intrusive site works comprised the excavation of a single hand dug trial pit, designated TP01, which was dug to an average depth of 1.21m below ground level. The intrusive work was carried out on the 13th June 2025. The location of the exploratory hole is shown on Figure 2.

Falling head soakage testing was undertaken in the trial pit in general accordance with the test methodology given by BRE guidance[1], other than the pit was filled only once rather than the three times suggested by the digest, due to the slow draining characteristics of the soils. The results of the testing along with the infiltration rate calculations are included in the appendices.

Descriptions of the strata encountered and comments on groundwater conditions are shown in the appended exploratory hole record, together with explanatory notes to assist in their interpretation.

[1] Section 3.2.3 of Building Research Establishment (BRE) Digest 365, 2016.

4. GROUND CONDITIONS

4.1 Stratigraphy

4.1.1 Surface Covering

A 200mm thick surface covering of topsoil was encountered at the surface of the exploratory hole.

4.1.2 Upper Tunbridge Wells Sand

Underlying the topsoil, the investigation generally progressed into slightly gravelly silty clay deposits which persisted to the full extent of the trial pit, averaging 1.21m below ground level. The gravel content comprised initially of siltstone to 0.50m depth, with mudstone and siltstone present below.

These deposits are considered to represent the Upper Tunbridge Wells Sand indicated to underlie the site on BGS geological maps.

4.2 Groundwater Conditions and Stability

The trial pit was recorded to be dry and stable during excavation.

It should be noted that water levels within the exploratory hole may not have equilibrated with the groundwater table at the time the readings were recorded and that groundwater levels should be expected to fluctuate seasonally.

5. STORMWATER INFILTRATION SYSTEMS

In-situ infiltration testing[2] was carried out in trial pit TP01. From the test results a calculation was made to determine the infiltration rate that could be expected for infiltration systems constructed into the underlying Upper Tunbridge Wells Sand soils.

During the test performed within trial pit TP01 the water level within the test pit only fell to 87% of the initial test depth, and as such the calculation of the soil infiltration rates in accordance with the BRE digest was not possible. The soil infiltration rate has therefore been calculated by dividing the volume of water lost during the test by the product of the average surface area of the trial pit in contact with water during the test period and the test duration in seconds.

The infiltration rate derived from the test is summarised in the following table.

Table 2. Calculated Infiltration Rate

Exploratory Hole	Top of Response Zone (m bgl)	Bottom of Response Zone (m bgl)*	Stratum	Infiltration Rate (f) (m/sec)
TP01	0.59	1.21	Upper Tunbridge Wells Sand	9.45×10^{-7}

Notes: *Average pit base depth

The value 'f' is equivalent to the soil infiltration coefficient 'q' quoted in the Construction Industry Research and Information Association (CIRIA) Report 156.

The results from the infiltration tests should be provided to engineers responsible for the design of the drainage system.

To comply with building regulations[3], point discharging infiltration systems (conventional ring or trench soakaways) are required to be constructed a minimum of 5.0m away from proposed or existing buildings.

The infiltration testing conducted in the trial pit is intended to provide calculated soil infiltration rates to assist in the preliminary design of infiltration systems at the site. However, it should be noted that Regulators/Local Authorities may require further testing to be undertaken at a later stage in accordance with the BRE365 guidance. This guidance states the testing should be carried out at the locations and depths of the proposed soakaways, which will not be known until preliminary drainage design has been undertaken.

Monitoring of groundwater levels during the worst annual case (winter period) is often a requirement of Local Authorities and the BRE365 guidance suggests this should be undertaken prior to finalising design of infiltration systems.

In the event that discharge to ground via infiltration systems is proposed, it is recommended that designers of the system provide for the prevention of pollution of groundwater. In this regard due consideration should be given to guidance provided within BRE 365 and by the Environment Agency.

[2] Conducted in general accordance with the requirements of BRE 365, Soakaway Design.
[3] The Building Regulations 2010; Part H; Drainage and Waste Disposal

Hand Pit

TP01

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
HP				1:25

Project Name	Project No.	Start Date	End Date
Barn Cottage, Cuckfield Road, Ansty, West Sussex	P17248	2025-06-13	2025-06-13

Client | **Consultant** | **Contractor**

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Samples and Tests: Type/ Ref	Samples and Tests: Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Strata: Description
						(0.20) 0.20		Topsoil with rare gravel of flint and charcoal-like material.
		0.40	D			(0.30) 0.50		Light brown and brown slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to coarse siltstone. [Upper Tunbridge Wells Sand]
		1.10	D			(0.71) 1.21		Light brown, orange brown and grey mottled slightly gravelly silty CLAY with occasional iron staining. Gravel is subangular to subrounded fine to coarse siltstone and mudstone. [Upper Tunbridge Wells Sand]
								End of Trial Pit at 1.21m

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

Remarks
Trial pit dry on completion.

Method, Plant, Stability, Dimensions
0.00 - 1.21m HP
Trial pit stable on completion.
L = 1.03m
W = 0.32m

Logger
GRD

TRIAL PIT INFILTRATION TEST RESULTS

Site: Barn Cottage, Cuckfield Road, Ansty, West Sussex **Project Ref:** P17248

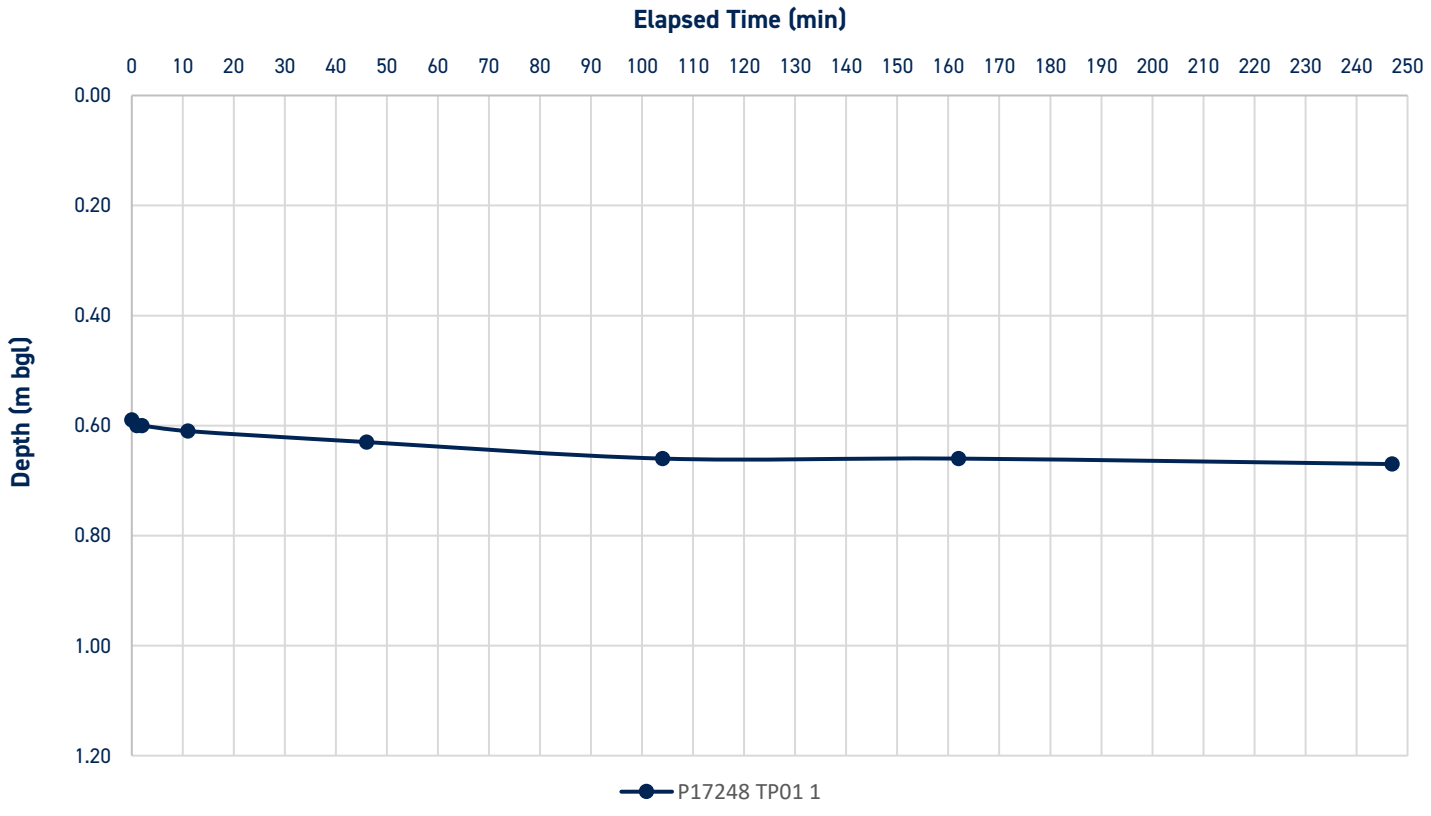
Test Location Reference	**TP01**
Test Number	**1**

Width of Pit	0.32 m	W
Length of Pit	1.03 m	L
Depth of Pit	1.21 m	D
Pit type	Open	

Volume of water introduced into pit	0.203	m^3	
Initial head of water	0.62	m	h_o
Water level at start of test	0.59	m	
Water level at end of test	0.67	m	
Volume of water discharged from pit	0.026	m^3	
Duration of test	247	min	
Average soaked surface area	1.88	m^2	
Time for water level to fall to 75% of initial head	Not reached	min	t_{p75}
Time for water level to fall to 25% of initial head	Not reached	min	t_{p25}
Depth to water at 75% of initial head	Not reached	m	d_{75}
Depth to water at 25% of initial head	Not reached	m	d_{25}
Time for the water level to fall from 75% to 25% of initial head	Not reached	min	t_{p75-25}
Effective storage volume of water in the soakage trial pit between 75% and 25% of initial head	Not reached	m^3	V_{p75-25}
Internal surface area of the soakage trial pit up to 50% of initial head and including the base area	1.16	m^2	a_{s50}

Infiltration rate **9.45E-07 m/sec** **f**

Calculation method: The water level did not fall below 25% of the effective storage depth. 'f' has been calculated by dividing the volume of water lost during the test by the product of the average surface area in contact with water during the test and the test duration.



Appendix D

Proposed Drainage Strategy Layout

DESIGN NOTES

1. STORAGE DESIGN BASED ON 1 IN 100 YR STORM + 45 %.

2. DRAIN POINTS AND LOCATIONS TO BE CONFIRMED BY ARCHITECT. PROPOSED FINISHED LEVELS ASSUMED BASED ON EXISTING SITE LEVELS. TO BE CONFIRMED THROUGH THE DETAILED DESIGN.

3. CONTRACTOR TO ESTABLISH LOCATIONS OF ALL EXISTING SERVICES PRIOR TO COMMENCING.

4. EXISTING TREES TO BE PROTECTED WHERE EXCAVATIONS RUN CLOSE. ANY DRAIN ROUTE THROUGH ROOT PROTECTION AREAS TO BE INSTALLED IN ACCORDANCE WITH ARBORICULTURAL SPECIALIST REQUIREMENTS.

5. APPROVAL TO BE GAINED FROM SOUTHERN WATER FOR CONNECTIONS TO SEWERS AND DISCHARGE RATES

KEY

- Existing surface water drain
- Existing foul water drain
- Private surface water drain
- Private foul drain
- SVP — Foul drain point
- RWP — SW Drain point for RWP
- FIC — Foul Plastic Inspection Chamber
- PPCP — Surface Water Plastic Catchpit
- RP — Rodding point
- DT — Distribution/ collection tank in permeable paving sub-base
- Infiltration blanket beneath permeable driveway
- Concrete baffle
- Site Boundary

ABBREVIATIONS

D307.0	DETAIL NUMBER - SEE DRAINAGE DETAIL SHEET
FD	FOUL DRAIN
SWD	SURFACE WATER DRAIN
FWS	ADOPTABLE FOUL WATER SEWER
SWS	ADOPTABLE SURFACE WATER SEWER
MH	MANHOLE
IC	INSPECTION CHAMBER
SA	SOAKAWAY
FIC	450mm DIA. FOUL INSPECTION CHAMBER - D202.6
SIC	450mm DIA. SURFACE WATER INSPECTION CHAMBER - D202.6
FAC	300mm DIA. FOUL ACCESS CHAMBER - D202.18
SAC	300mm DIA. SURFACE WATER ACCESS CHAMBER - D202.18
CI	CAST IRON
VC	VITRIFIED CLAY
CONC	CONCRETE
PVC-U	POLYVINYL CHLORIDE - UNPLASTICISED
G	SMALL GULLY - D209.0
YG	YARD GULLY - D209.2
RG	ROAD GULLY - D208.1
CPG	CAR PARK GULLY - D208.2
DP	BELOW GROUND DRAIN POINT
SVP	SOIL VENT PIPE DROP
SS	STUB STACK OR DIRECT DRAIN CONNECTION
RP	EXTERNAL RODDING POINT - D213.1
DT	SURFACE WATER DISTRIBUTION TANK
FFL	FINISHED FLOOR LEVEL
SSL	STRUCTURAL SLAB LEVEL
GL	GROUND LEVEL
CL	COVER LEVEL
IL	INVERT LEVEL
SL	SUMP LEVEL
BL	BASE LEVEL
HL	HIGH LEVEL
BD	BACKDROP
CBS	CONCRETE BED & SURROUND
CLASS S	GRANULAR BED & SURROUND
CLASS B	GRANULAR BED

SPECIFICATION NOTES

All drainage shall be constructed and commissioned in accordance with BS EN 295 & BS EN752, Building Regulations Doc. H and any particular requirements of the Building Control Officer.

Drainage pipelines shall be in PVC-u below ground as Marley or similar approved, or vitrified clay.
All sewer pipelines to be VC only.

This drawing shall be read in conjunction with all other relevant drainage drawings, architectural drawings and structural drawings.

For manhole details, gully details, bedding etc, refer to gta detail sheets.

All foul water drain runs shall have a fall of 1:40 or steeper, unless noted otherwise.

All cement used for concrete drainage installations shall be sulphate resistant to class 3 of BRE Digest 363. (Grade ST5)

The use of short radius or 90º bends for changes in direction is not permitted, only long or medium radius 45º bends shall be used. All junctions shall be 45º.

All drains shall have granular bed and surround as class `S` bedding, unless noted otherwise.

All drainage works shall commence from the downstream end first unless agreed otherwise. Outfall level to be checked by contractor prior to any works commencing and any discrepancy identified to engineer prior to laying and drainage.

GENERAL NOTES

1. The location, size, depth and identification of existing services that may be shown or referred to on this drawing have been assessed from non intrusive observations , record drawings or the like. The contractor shall safely carry out intrusive investigations, trial holes or soundings prior to commencing work to satisfy himself that it is safe to proceed and that the assessments are accurate. any discrepancies shall be notified to gta prior to works commencing.

2. Tender or billing drawings shall not be used for construction or the ordering of materials.

3. Do not scale. All dimensions and levels to be site confirmed.

4. This drawing shall be read in conjunction with all relevant architects, consultants drawings and specifications, together with H&S plan requirements.

5. Copyright : This drawing must not be copied, amended nor reproduced without the prior written agreement of gta.

6. All drawings specifications and recommendations made by gta are subject to Local Authority and other relevant Statutory Authorities approval. Any works or services made abortive due to the client proceeding prior to these approvals is considered wholly at the Clients risk. gta hold no responsibility for resulting abortive works or costs.

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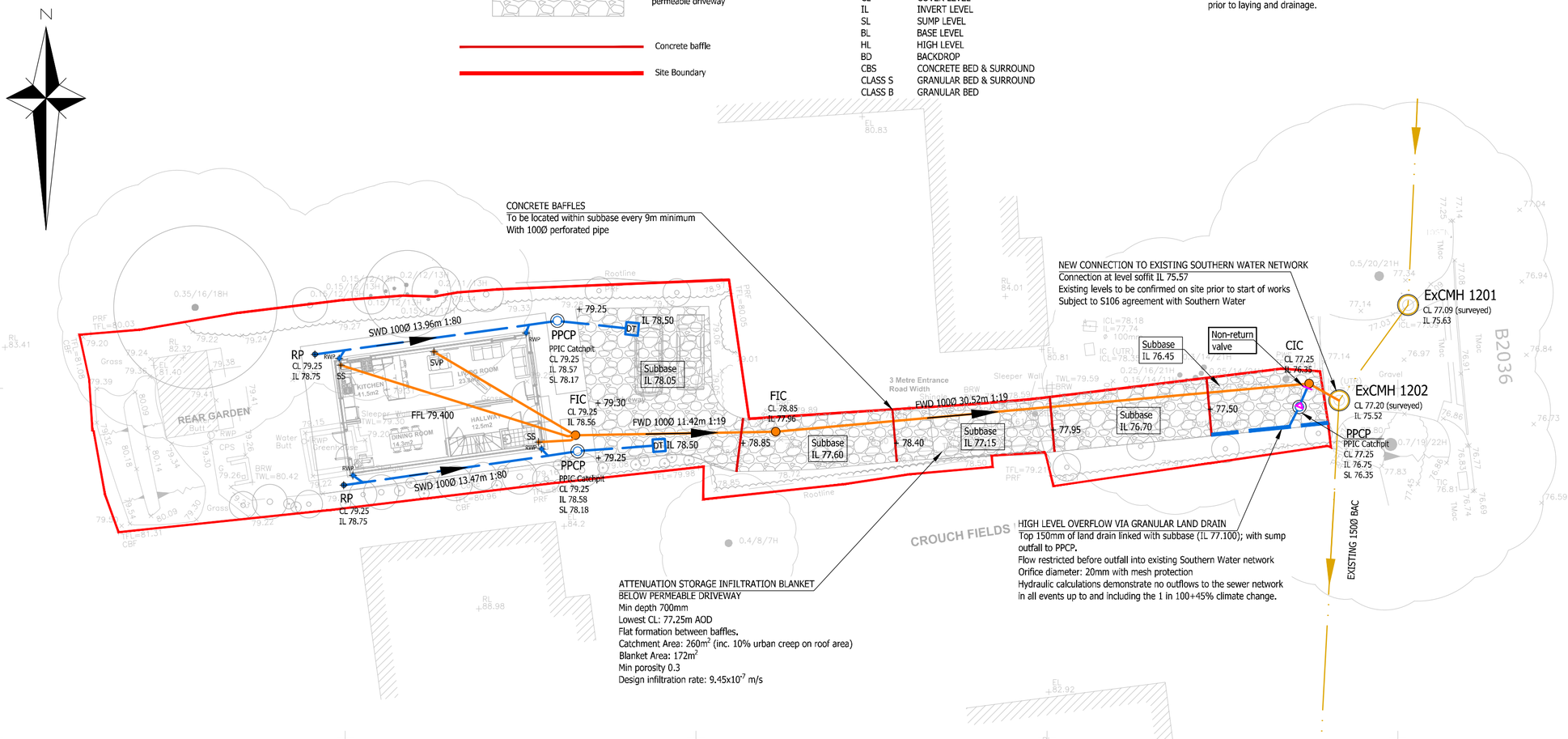
8. Your attention is also drawn to the fact that the information contained within this file may be subject to alteration at any time, pending technical approval from an approving authority or at the client's instruction. It is therefore strongly recommended that multiple and regular cross checks are made against the current contract drawings.
It is your responsibility to ensure that the correct issue or revision of the DWG data file is being used and requests for updated information made accordingly.

9. Should any apparent discrepancies between the data contained within the DWG file and the current contract drawings become evident, it must be reported back to GTA Civils & Transport as soon as reasonably practicable. Precedence should be given to the current contract drawings (PDF) unless advised otherwise.



Rev	Amendments	Date	Dsn	Chk
P1	FIRST ISSUE	04.07.25	FVV	MR

Status: PLANNING

Client: PLACES ARCHITECTURE

Architect:

Project: BARN COTTAGE
ANSTY, RH17 5AG

Title: DRAINAGE STRATEGY

Date	Scale @ A2
JULY 2025	1:200
Clients Ref.	Project Ref. 13829

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Drawing Number	Rev.
13829_1100	P1

Appendix E

Drainage Calculation Sheets

Greenfield runoff rate estimation tool

www.uksuds.com | Greenfield runoff rate estimation tool (https://www.uksuds.com/)

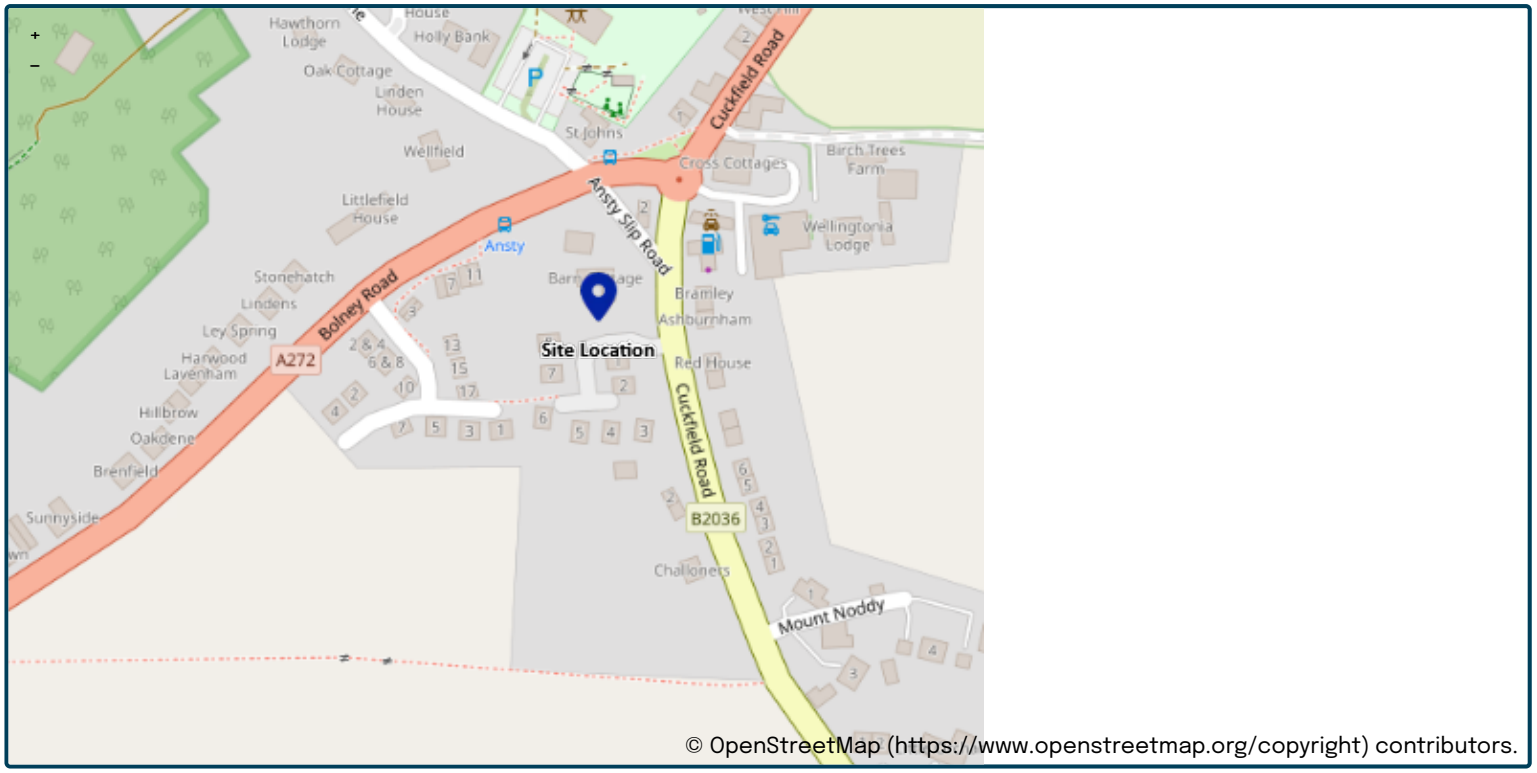
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	04/07/2025
Calculated by	FVV
Reference	13829
Model version	2.0.1

Location

Site name	Barn Cottage
Site location	Ansty



Site easting	529095
Site northing	123207

Site details

Total site area (ha)	0.026 ha

Greenfield runoff

Method

Method	IH124

IH124

	My value		Map value
SAAR (mm)	815 mm		815
How should SPR be derived?	WRAP soil type		
WRAP soil type	4		4
SPR	0.47		
QBar (IH124) (l/s)	0.15 l/s		

Growth curve factors

	My value		Map value
Hydrological region	7		7
1 year growth factor	0.85		
2 year growth factor	0.88		
10 year growth factor	1.62		
30 year growth factor	2.3		
100 year growth factor	3.19		
200 year growth factor	3.74		

Results

Method	IH124
Flow rate 1 year (l/s)	0.13 l/s
Flow rate 2 year (l/s)	0.13 l/s
Flow rate 10 years (l/s)	0.24 l/s
Flow rate 30 years (l/s)	0.34 l/s
Flow rate 100 years (l/s)	0.48 l/s
Flow rate 200 years (l/s)	0.56 l/s

Disclaimer

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Node Type	Depth (m)
Infiltration Blanket	0.026	5.00	77.250	Junction	0.150
Overflow			77.250	Manhole	0.500
Outfall			77.250	Manhole	0.900

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)
1.000	Infiltration Blanket	Overflow	2.000	0.600	77.100	76.750	0.350	5.7	100	5.01
1.001	Overflow	Outfall	2.000	0.600	76.750	76.350	0.400	5.0	100	5.02

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	Σ Area (ha)
1.000	3.256	25.6	6.8	0.026
1.001	3.482	27.3	6.8	0.026

Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	1.000	Drain Down Time (mins)	2880	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Normal	Additional Storage (m³/ha)	20.0	Check Discharge Volume	x
Summer CV	1.000	Skip Steady State	x	Starting Level (m)			

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440	2160	2880

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0	100	45	0	0
30	40	0	0				

Node Overflow Online Orifice Control

Flap Valve	x	Invert Level (m)	76.750	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.020		

Node Infiltration Blanket Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00340	Porosity	0.30	Width (m)	4.000	Depth (m)	0.700
Side Inf Coefficient (m/hr)	0.00340	Invert Level (m)	76.450	Length (m)	43.000	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)	2550	Slope (1:X)	1000.0		

Results for 2 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute summer	Infiltration Blanket	960	76.596	-0.504	0.6	6.4347	0.0000	OK
15 minute summer	Overflow	1	76.750	0.000	0.0	0.0000	0.0000	OK
15 minute summer	Outfall	1	76.350	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
960 minute summer	Infiltration Blanket	1.000	Overflow	0.0	0.000	0.000	0.0000
960 minute summer	Infiltration Blanket	Infiltration		0.1			
15 minute summer	Overflow	Orifice	Outfall	0.0			

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute summer	Infiltration Blanket	960	76.876	-0.224	1.7	20.8768	0.0000	OK
15 minute summer	Overflow	1	76.750	0.000	0.0	0.0000	0.0000	OK
15 minute summer	Outfall	1	76.350	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
960 minute summer	Infiltration Blanket	1.000	Overflow	0.0	0.000	0.000	0.0000
960 minute summer	Infiltration Blanket	Infiltration		0.1			
15 minute summer	Overflow	Orifice	Outfall	0.0			

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute summer	Infiltration Blanket	1380	77.041	-0.059	1.6	29.3799	0.0000	OK
15 minute summer	Overflow	1	76.750	0.000	0.0	0.0000	0.0000	OK
15 minute summer	Outfall	1	76.350	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
1440 minute summer	Infiltration Blanket	1.000	Overflow	0.0	0.000	0.000	0.0000
1440 minute summer	Infiltration Blanket	Infiltration		0.1			
15 minute summer	Overflow	Orifice	Outfall	0.0			

Appendix F

SuDS Maintenance Plan

1. Introduction

This Plan sets out the framework for the management of the proposed sustainable drainage systems (SuDS) and foul drainage network. The document will be updated with further information through the next stage of detailed design and coordination. At this stage, what is set out herein is intended to be sufficient to demonstrate the viability of the proposed SuDS and foul drainage maintenance regime for planning purposes.

2. Ownership & Maintenance Responsibilities

The development is a single private dwelling and responsibility for the maintenance of the drainage system will be borne solely by the Owner.

Key elements of the drainage system which require maintenance are:

- Infiltration Blanket
- Pipes and Chambers

The following sections show schedules detailing the maintenance requirements for each of the main drainage items used within the scheme. The Owner will undertake the inspections and maintenance activities in accordance with these schedules or engage with specialist maintenance contractors to undertake maintenance tasks on their behalf.

Additional reference has been made to currently established best practice and guidance documents such as The SuDS Manual (CIRIA C753, 2015) and other resources available at the susdrain website.

This Plan is to be a live document. The frequency of maintenance intervals may need to be increased or decreased based on the observed performance of the drainage systems over time.

3. Health and Safety

All those responsible for and involved in the maintenance of the site drainage systems should be safety-conscious and comply with the relevant health and safety legislation. This includes:

- The Health and Safety at Work etc Act 1974
- The Management of Health and Safety at Work Regulations 1999
- The Workplace (Health, Safety and Welfare) Regulations 1992

The Employer of maintenance operatives is responsible for suitable risk assessment and management to ensure safe working conditions and practices. Measures to protect potential visitors must also be drawn up.

Specialist contractors used should work to industry guidelines and be able to demonstrate safe working practices.

Employers have a duty to employees to inform them about the risks of their work environment and to decrease the risk as far as reasonably practicable. Appropriate personal protective equipment (PPE) should be provided and practices/policies implemented based on risk assessments.

Operatives should be trained for working near water. Risks of contaminated water should be considered. Checking for open cuts and using nitrile gloves, waterproof plasters etc is advised.

Entry of pipes, chambers and culverts should be avoided. Work should be carried out from the surface using appropriate equipment. In the event that entry cannot be avoided to perform a critical task, the required safety training, protection measures and precautions must be implemented prior to entry. Lone working should never be attempted.

For further information refer to Section 36 of The SuDS Manual (CIRIA C753).

4. Schedule A – Sewers, Manholes, Gullies, Channel Drains

Regular inspection and maintenance are required to ensure the effective long-term operation of private drains, manholes, gullies & channel drains.

All gullies and drainage are private and to be maintained by the homeowner. Operation and maintenance requirements for all sewers, manholes, gullies and channel drains are described in the following table:

Schedule	Action	Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	6 Monthly intervals
	Common yard & car park & other hard standing areas to be swept clear of debris, to prevent possibility of blockages to the receiving drainage systems	Monthly
	Debris removal from gullies & channel drains (where may cause risks to performance)	Monthly intervals, after autumn leaf fall, or as required based on specific observations
	Lift and inspect receiving manholes to check for any blockages	Monthly
Remedial Actions	Repair any damaged gully or channel drain gratings.	As required
	Replace / fix any loose channel drain covers	As required

Where appropriate refer also to specialist drainage manufacturer's information and maintenance requirements.

In all instances, inspection and cleaning should be carried out only by a specialist contractor and in accordance with the guidelines given in `Safe Working in Sewers and at Sewage Works' published by National Joint Health and Safety Committee for the Water Services.

5. Schedule B – Infiltration Blanket

Inspection Frequency and Maintenance Requirements: as per table below.

Schedule	Action	Frequency
Regular Maintenance	Inspect for sediment and debris in pre-treatment components	Annually
	Cleaning of gutters and any filters on downpipes	Annually (or as required based on inspections)
	Trimming any roots that may be causing blockages	Annually (or as required based on inspections)
Occasional Maintenance	Removal of sediment from pre-treatment devices (silt trap/catchpit)	Six monthly
	Remove tree roots or trees that are close to the blanket	As required
Remedial Actions	Rehabilitate infiltration or filtration surfaces	As required
	Inspect surface for clogging, standing water and structural damage	Monthly
Monitoring	Inspect pre-treatment devices (silt trap/ catchpit) and ground surface for silt accumulation. Establish appropriate silt removal frequencies	Half-yearly

Sediments excavated from upstream pre-treatment devices that receive runoff from residential roof areas are generally not toxic or hazardous material and can be safely disposed of by either land application or landfilling. However, consultation should take place with the environmental regulator to confirm appropriate protocols. Sediment testing may be required before sediment excavation to determine its classification and appropriate disposal method.

6. Contamination or Dilution of Spillage

In the event of a spillage, it is the responsibility of the landowner to clear up any spillage before it enters the drainage system. The primary method of dealing with any spillage of hydrocarbons should be using sand to soak up the leak and prevent any hydrocarbons entering the drainage system. Once sand has been contaminated it should not be washed into the drainage system but disposed of by a Licensed Contractor.

Environment Agency – Emergency Contact Number

In the event of a spillage the Environment Agency should be contacted to notify the event and seek advice. The Environment Agency Incident Hotline is **0800 80 70 60** (Freephone 24hrs).