cgs civils
Consulting Civil Engineers

SuDS and Drainage Report

Land Adj Old Mill House, Cowfold Road, Bolney RH17 5SE

Rev: **P**

Ref: **C3938**

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Document Control

Project Number	**C3938**		
Date	18th December 2025	**Revision**	P
Author	Luke Honeywill	**Signature**	

Revision History

Date	Revision	Author	Approved
18/12/2025	**P**	**LH**	**CS**

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Contents

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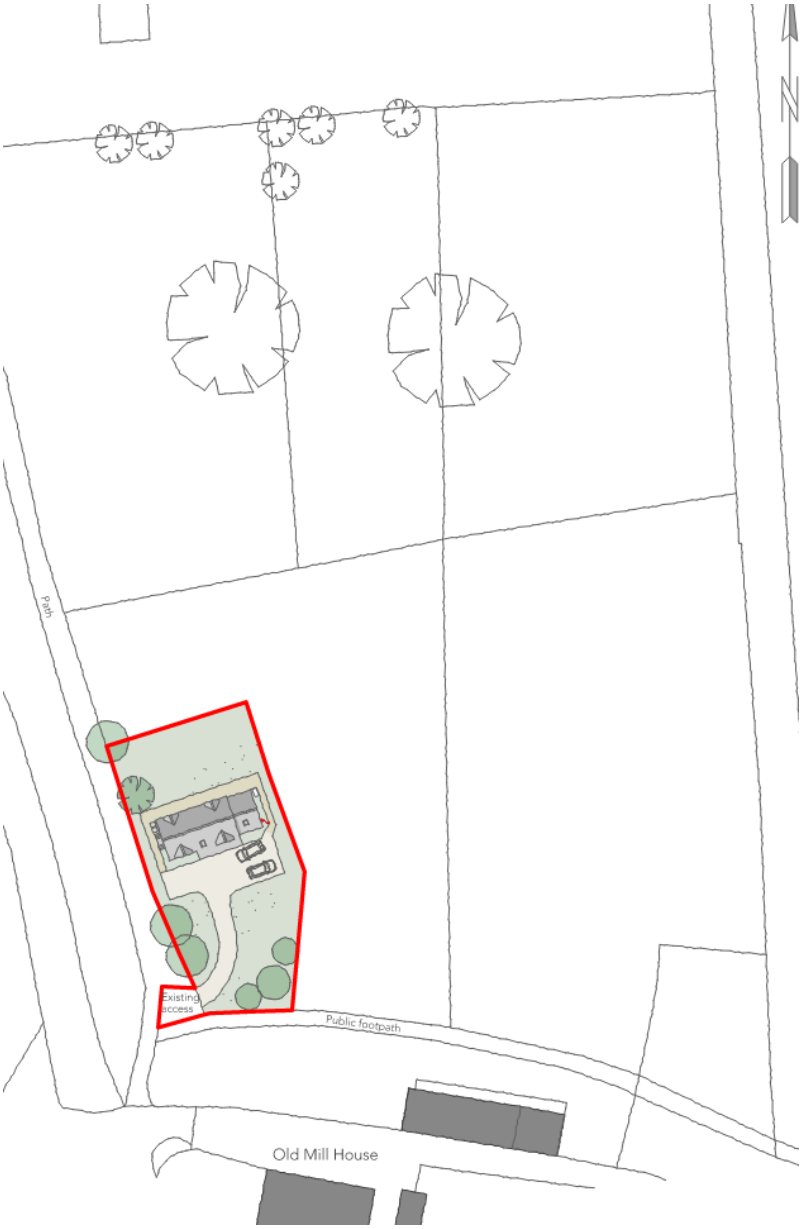
1 Introduction

1.1.1 CGS Civils Ltd has been appointed to undertake a drainage strategy report for a proposed development at Land adj to Old Mill House, Cowfold Road in Bolney, West Sussex.

1.1.2 The proposed development will consist of the demolition of existing stables and outbuilding followed by the construction of a single dwelling. The proposed development is located as OS Grid Reference TQ 25045 23379 and has the post code RH17 5SE.

1.1.3 The purpose of this drainage scheme is to demonstrate how the proposed development can be satisfactorily drained without increasing flood risk onsite and where appropriate, providing betterment over the existing site to reduce flood risk in the region.

Fig 1. Site Location



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2 Executive Summary:

2.1.1 An infiltration test to BRE365 was carried out on site by CGS Civils Ltd in December 2025. The test yielded a worst case infiltration fate of 5.1×10^{-6}m/s, which is deemed suitable for discharge of surface water via infiltration.

2.1.2 It is therefore proposed that all runoff is discharged to ground via infiltration, with the roof area runoff discharging to ground via the use of a new raingarden within the site which will not only cater for the 1 in 100-year +45% storm period +10% urban creep but will also promote biodiversity and sustainability.

2.1.3 The hard paved areas are to be constructed from a permeable surface to allow runoff to discharge freely to ground via infiltration.

2.1.4 The Foul water will discharge into a cesspool on site. It is proposed that a CCTV drainage survey is conducted on the network serving the existing Old Mill House to confirm if a connection into the existing network is viable.

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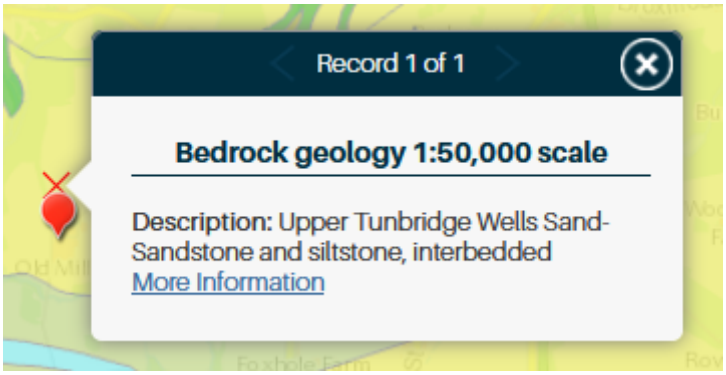
3 Site Geology

3.1 British Geological Survey information

3.1.1 The British Geological Survey confirms the bedrock geology to be made up of Upper Tunbridge Wells Sand, which is comprised of Sandstone and Siltstone. At the time of writing the British Geological Survey website does not have any recorded information of the Superficial deposits on site.

Fig 2. British Geological Survey



3.2 Geological Assessment

3.2.1 In December 2025, CGS Civils Ltd conducted an infiltration test to BRE365 on site which yielded a worst-case infiltration rate of 5.1×10^{-6}m/s which is deemed suitable for infiltration.

3.2.2 During testing, the underlying geology was noted to be comprised of clay with some sand present within the clay layer.

Fig 3. Inf test photographs

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4 Existing Drainage

4.1.1 It is not currently known how the existing site discharges surface and foul water runoff, however, the topographical survey picked up a single chamber within the site which is to be investigated to confirm what it serves and if a network can be re-used.

5 Proposed Drainage Strategy

5.1 SuDS Hierarchy

5.1.1 All options for the destination of run-off generated on site have been assessed in line with the SuDS hierarchy as set out in Building Regulations Part H document and DEFRA's Draft National Standards for SuDS.

Table 1. SuDS Hierarchy

Discharge Destination	
Rainwater Harvesting	Yes rainwater harvesting is proposed
Discharge to Ground	Yes – discharge to ground at recorded infiltration rate of 5.1×10^{-6}m/s. Site to utilise a shallow raingarden as an infiltration feature.
Discharge to Watercourse	N/A
Discharge to Surface Water Sewer	N/A
Discharge to Other Sewer	N/A

5.2 Proposed Hydraulic Calculation Specifications:

Table 2. SuDS Hierarchy

Hydraulic Calculations Settings:	
Rainfall Methodology	**FEH-22**
Volumetric Run-off Coefficient Cv	**1**
CV Winter and Summer	**1**
Additional Storage (m^3 / ha)	**0.0**
Maximum Rainfall (mm/hr)	**75**
Raingarden Design	Base Coefficient (m/hr): **0.01836**
	Side Coefficient (m/hr): **0.00000**
	Factor of Safety: **2**
	Porosity: **100%**
	Time to Half Empty (mins): **966**

5.3 Surface Water Drainage

5.3.1 Based upon the results of the onsite soakage testing to BRE365, which yielded an infiltration rate of 5.1×10^{-6}m/s, it is proposed that the site will discharge all surface water to ground via infiltration. All runoff from roof areas are to be captured into a positive drainage network prior to discharging into a rain garden which will allow the runoff to infiltrate to ground whilst also promoting biodiversity and sustainability.

5.3.2 The hard paved access road is to be constructed from a permeable surface to allow all runoff to discharge freely to ground via infiltration.

5.3.3 All SuDS features have been designed to the recorded infiltration rate and to cater for the 1 in 100-year +45% storm +10% for urban creep.

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5.4 Foul water drainage

5.4.1 Due to the lack of foul water infrastructure near the site and lack of any other discharge option, it is proposed that the foul water is to be discharged into a cesspool on site.

5.4.2 It is proposed that a CCTV drainage survey is to be conducted on the network serving the existing Old Mill House to confirm if a connection into the existing network is viable and if any remedial works are required.

6 Summary and Conclusions

6.1.1 CGS Civils has been instructed to produce a Drainage statement under National Planning Policy Framework (NPPF) to support the Planning Application for the demolition of existing outbuildings and stables followed by the construction of a single dwelling.

6.1.2 The Surface Water will discharge to ground via infiltration. On-site infiltration test recorded rate of 5.1×10^{-6}m/s which is deemed viable. Roof area runoff will discharge to ground via a raingarden, and the hard paved areas are to be constructed from permeable surface. All SuDS features have been designed to cater for the 1 in 100-year +45% storm and 10% urban creep.

6.1.3 The Foul water will discharge into a cesspool on site. It is proposed that a CCTV drainage survey is conducted on the network serving the existing Old Mill House to confirm if a connection into the existing network is viable.

6.1.4 The report has demonstrated that the proposed drainage measures ensure that suitable means of surface water and foul drainage can be achieved for the proposed development.

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7 Appendices

7.1 Appendix A – Site Plan

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N

Track

Path

Key:
Site boundary
Existing trees
New tree planting
Electric car chargers
Recycling & refuse bins

Existing access

Public footpath

Old Mill House

0 10 20 M

Site area: 740 m2

Proposed New dwelling on Land Adjacent to Old Mill House, Cowfold Road, Bolney, West Sussex, RH17 5SE for Mr and Mrs Watts

SITE PLAN 1:500 ON A3 . September 2025 M6169.2A

Revision A: 27.10.25 Curtilage & house amended

7.2 Appendix B – Drainage Layout

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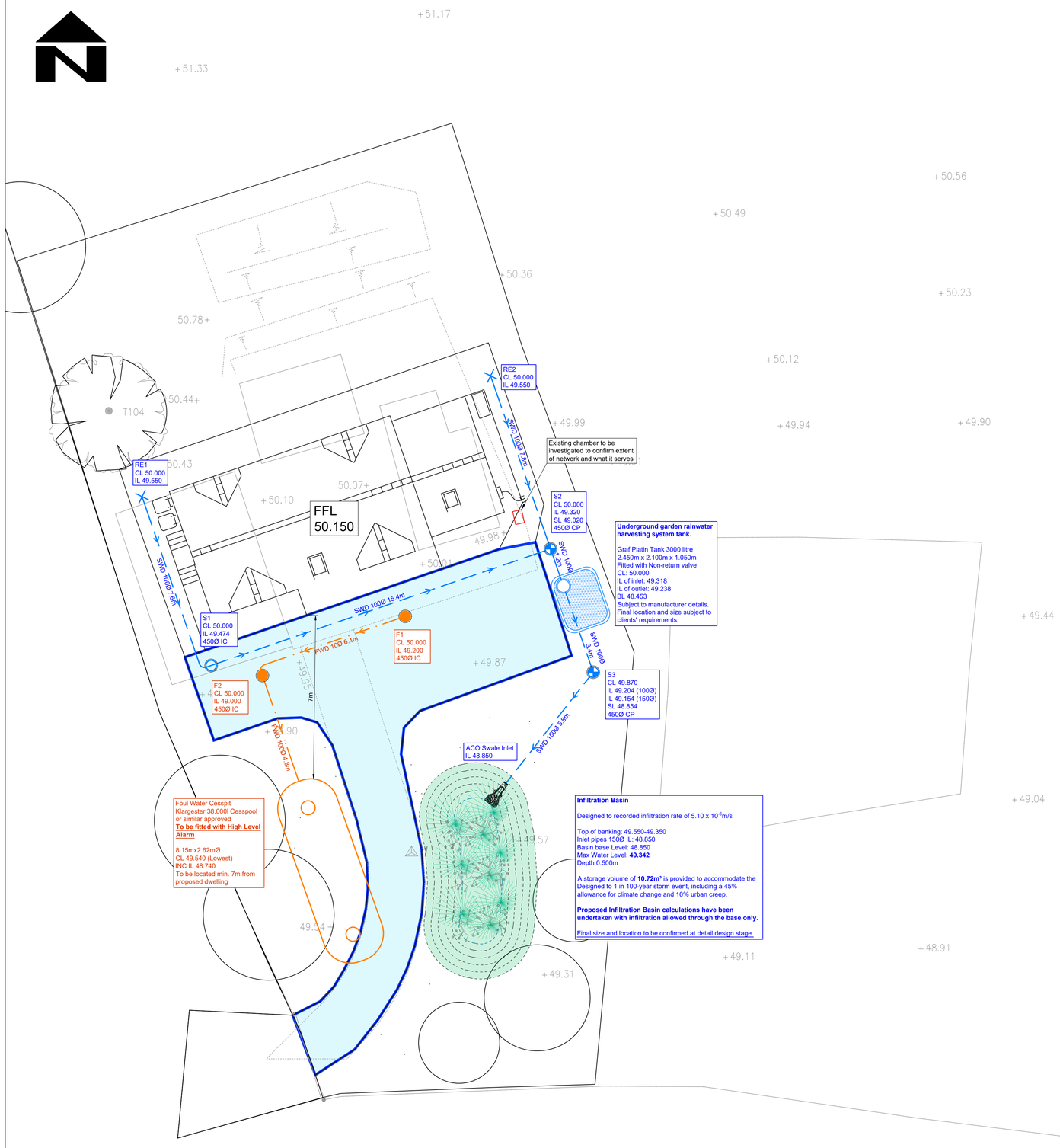

DRAINAGE LEGEND

EXISTING FEATURES

Existing foul/surface water manhole to be abandoned

PROPOSED FEATURES

FWD — Foul Drainage

SWD — Surface Water Drainage

Storm water inspection chamber (450Ø)

Storm water catchpit chamber (450Ø)

Storm water rodding eye

Extent of permeable paving with porous sub-base

Foul water inspection chamber (450Ø)

00.000 — Finished floor level

100Ø 4.5m 1:100 Z BED — Pipe info - diameter, length, gradient, bedding type

ABBREVIATIONS

MH	- MANHOLE
IC	- INSPECTION CHAMBER
AC	- ACCESS CHAMBER
CP	- CATCHPIT
BC	- BRAKE CHAMBER
RE	- RODDING EYE
IL	- INVERT LEVEL
SL	- SUMP LEVEL
RA	- RESTRICTED ACCESS COVER
CL	- COVER LEVEL
TL	- TOP OF CELLULAR SA
BL	- BASE OF CELLULAR SA
FL	- FORMATION LEVEL

STANDARD DRAINAGE NOTES

1. DO NOT SCALE FROM THIS DRAWING, REFER TO FIGURED DIMENSIONS ONLY. THE CONTRACTOR SHOULD CHECK ALL DIMENSIONS ON SITE.
2. ALL DIMENSIONS IN MILLIMETRES AND ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
3. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECT AND ENGINEERING DETAILS, DRAWINGS AND SPECIFICATIONS.
4. ANY DISCREPANCIES SHOULD BE REPORTED TO THE ARCHITECT AND/OR ENGINEER IMMEDIATELY, SO THAT CLARIFICATION CAN BE SOUGHT PRIOR TO THE COMMENCEMENT OF WORK.
5. BEFORE COMMENCING CONSTRUCTION THE CONTRACTOR MUST CHECK THE INVERT LEVELS OF EXISTING SEWERS TO WHICH CONNECTIONS ARE MADE. IN ADDITION THE CONTRACTOR MUST LOCATE AND DETERMINE INVERT LEVELS OF THE EXISTING SPURS TO WHICH CONNECTIONS ARE PROPOSED. ANY DISCREPANCIES ARE TO BE NOTIFIED TO THE ENGINEER IMMEDIATELY, PRIOR TO CONSTRUCTION.
6. ALL DRAINAGE WORKS SHOULD COMMENCE AT THE PROPOSED DOWNSTREAM CONNECTION POINT, THE WORKS CONTINUING UPSTREAM FOLLOWING CONFIRMATION OF THE TIE-IN INVERT LEVELS TO THE ENGINEER. CONNECTIONS TO MANHOLES OR LARGER SIZED PIPES ETC. SHOULD BE SOFFIT TO SOFFIT UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER, IF THIS IS NOT POSSIBLE INFORM THE ENGINEER IMMEDIATELY.
7. COVER LEVELS SHOWN ARE APPROXIMATE. COVERS AND FRAMES SHALL BE SET TO FINISHED GROUND LEVELS AND FALLS.
8. ALL UN-REFERENCED PIPES ARE TO BE 100mm DIA
9. ALL PIPES TO BE ADOPTED, OR CONNECTING TO ADOPTED SEWERS, TO BE VITRIFIED CLAY TO BS EN 295 AND BS65 (SWS ONLY), OR CONCRETE PIPES TO BE EN 1916 AND BS5911:PART 1.
10. ROAD GULLY OUTLET PIPES ARE TO BE 150mm DIA. WITH CONCRETE SURROUND AND FLEXIBLE JOINTS. ALL GULLIES SHALL BE FITTED WITH GRADE D400 GRATINGS AND FRAMES TO BS EN124, UNLESS OTHERWISE STATED.
11. ALL ADOPTABLE SEWERS SHALL BE CONSTRUCTED TO THE STANDARDS AND SPECIFICATION LAID DOWN DOWN IN 'SEWERS FOR ADOPTION' 6th EDITION, WITH A VIEW TO ADOPTION UPON COMPLETION OF WORKS.
12. ALL PRIVATE DRAINAGE TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS APPROVED DOCUMENT PART-H, AND TO THE SATISFACTION OF THE BUILDING CONTROL INSPECTOR.
13. THE CONTRACTOR IS TO KEEP A RECORD OF ANY VARIATIONS MADE ON SITE, INCLUDING THE RELOCATION OF SEWERS OR DRAINS, SO THAT AN AS CONSTRUCTED DRAWING CAN BE PREPARED UPON COMPLETION OF THE PROJECT.
14. STUB CONNECTIONS TO ADOPTABLE MANHOLES SHALL BE MADE FROM VITRIFIED CLAY AND CONSIST OF TWO ROCKER PIPES LAID AT THE SAME GRADIENT AS THE UP OR DOWNSTREAM PIPE.
15. IF ANY SUB SOIL DRAINAGE SYSTEMS ARE UNCOVERED DURING THE WORKS CONTACT THE ENGINEER FOR INSTRUCTIONS. SUB SOIL DRAINS ARE TO BE DIVERTED AROUND NEW WORKS AND CONNECTED INTO THE SURFACE WATER.
16. NO PRIVATE AREAS ARE TO DRAIN ONTO ADOPTABLE AREAS AND VICE VERSA.
17. ALL EXISTING MANHOLE COVER'S, GULLIES, ETC, ARE TO BE RAISED/LOWERED TO SUIT NEW LEVELS.
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19. UPON COMPLETION BUT PRIOR TO HANDOVER, CONTRACTOR TO CARRY OUT FULL CCTV SURVEY OF DRAINAGE SYSTEM WHICH IS TO BE REVIEWED BY ENGINEER TO ENSURE SATISFACTORY INSTALLATION
20. PROPRIETARY PRODUCTS TO BE INSTALLED IN FULL ACCORDANCE WITH MANUFACTURER'S GUIDANCE.
21. MANHOLE AND CHAMBER COVER GRADES:
    - "A15" IN ALL LANDSCAPED AREAS AND ON FOOTPATHS
    - "B125" IN ALL DRIVEWAYS
    - "C250" IN PRIVATE PARKING AREAS
    - "D400" IN CARRIAGEWAY/ACCESS ROAD

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DESIGN SUBJECT TO THE APPROVAL OF:
PLANNING AUTHORITY
BUILDING CONTROL
WATER AUTHORITY

DESIGN SUBJECT TO THE CONFIRMATION OF:
EXTERNAL LEVELS DESIGN
GROUNDWATER DEPTH
ROOT PROTECTION AREAS

Site Specific Notes

1. The proposed scheme is comprised of the demolition of an existing outbuilding and stable blocks followed by the construction of a single dwelling.
2. The underlying geology is noted to be comprised of Upper Tunbridge Wells Sand which is a mixture of Sandstone and Siltstone.
3. An infiltration test to BRE365 was conducted on site in December 2025 by CGS Civils Ltd. The test yielded a worst-case infiltration rate of $5.1x10^{-6}$m/s which is deemed a fair rate.
4. It is therefore proposed that all surface water runoff is discharged to ground via infiltration. All runoff from roof areas is to be captured into a positive drainage network and discharged to ground via infiltration through the use of a raingarden. The hard paved areas are to be constructed from a permeable surface to allow runoff to freely drain to ground via infiltration.
5. Due to the lack of other discharge options, the foul water is to be discharged into a new cesspool.

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REV	DATE	DESCRIPTION	BY	CHK	APP
P-	19.12.25	PRELIMINARY ISSUE	LH	CS	CS

cgs civils
Consulting Civil Engineers

CLIENT: MR & MRS WATTS

ARCHITECT: BORDER OAK DESIGN & CONSTRUCTION

JOB TITLE: LAND ADJ OLD MILL HOUSE BOLNEY

DRAWING TITLE: DRAINAGE STRATEGY

DRAWN	ENGINEER	CHECKED	APPROVED
LH	C SLADE	CS	CS

DATE	SCALE @ A1
DEC 2025	1:100

JOB No.	STATUS	DRAWING No.	REV.
C3938	PL	101	PL-

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MR & MRS WATTS

ARCHITECT
BORDER OAK DESIGN & CONSTRUCTION

JOB TITLE
LAND ADJ OLD MILL HOUSE
BOLNEY

DRAWING TITLE
IMPERMEABLE AREAS &
OVERLAND FLOW ROUTE PLAN

DRAWN	ENGINEER	CHECKED	APPROVED
LH	C SLADE	CS	CS

DATE	SCALE @ A1
DEC 2025	1:100

JOB No.	STATUS	DRAWING No.	REV.
C3938	PL	401	PL-

7.3 Appendix C – Surface Water Calculations

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Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	0.350
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	75.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Node Type	Manhole Type	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S3	0.008	5.00	49.870	Manhole	Adoptable	500	1007.790	1007.736	0.716
INF BASIN	0.000		49.350	Manhole	Adoptable	150	1002.975	1001.629	0.500

Links (Input)

Name	US Node	DS Node	Length (m)	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)
1.000	S3	INF BASIN	7.777	49.154	48.850	0.304	25.6	150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	MH Type	Connections	Link	IL (m)	Dia (mm)	Link Type
S3	1007.790	1007.736	49.870	0.716	500	Adoptable	 0	1.000	49.154	150	Circular
INF BASIN	1002.975	1001.629	49.350	0.500	150	Adoptable	 1	1.000	48.850	150	Circular

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	0.0		

Storm Durations

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

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	45	10	0

Node INF BASIN Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.01836	Safety Factor	2.0	Invert Level (m)	48.850
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	966

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	10.0	10.0	0.500	33.9	35.2

Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 98.86%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	S3	1380	49.342	0.188	0.4	0.0369	0.0000	SURCHARGED
1440 minute winter	INF BASIN	1380	49.342	0.492	0.4	10.7199	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 winter	S3	1.000	INF BASIN	0.4	0.347	0.011	0.1369
1440 minute winter	INF BASIN	Infiltration		0.0			

7.4 Appendix D – Soakage Test Results

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Job: Old Mill House, Bolney - Test 1

Infiltration Calculator

$$f = \frac{Vp75\text{-}25}{ap50 \times tp75\text{-}25}$$

Vp 75-25	=	Effective storage volume between 75% and 25% effective depth
ap50	=	Internal surface area of the trial pit up to 50% effective depth and including the base area
tp75-25	=	The time for the water level to fall from 75% to 25% effective depth
f	=	Infilitration rate

Trial pit width	=	0.3
Trial pit depth	=	0.9
Trial pit length	=	1
ap50	=	1.47 m/squared
tp75-25	=	12000 seconds
Vp 75-25	=	0.135 m/cubed
F	=	7.65E-06

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Job: Old Mill House, Bolney - Test 2

Infiltration Calculator

$$f = \frac{Vp75\text{-}25}{ap50 \times tp75\text{-}25}$$

Vp 75-25	=	Effective storage volume between 75% and 25% effective depth
ap50	=	Internal surface area of the trial pit up to 50% effective depth and including the base area
tp75-25	=	The time for the water level to fall from 75% to 25% effective depth
f	=	Infilitration rate

Trial pit width	=	0.3
Trial pit depth	=	0.9
Trial pit length	=	1
ap50	=	1.47 m/squared
tp75-25	=	15500 seconds
Vp 75-25	=	0.135 m/cubed
F	=	5.92E-06

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Job: Old Mill House, Bolney - Test 3

Infiltration Calculator

$$f = \frac{Vp75\text{-}25}{ap50 \times tp75\text{-}25}$$

Vp 75-25	=	Effective storage volume between 75% and 25% effective depth
ap50	=	Internal surface area of the trial pit up to 50% effective depth and including the base area
tp75-25	=	The time for the water level to fall from 75% to 25% effective depth
f	=	Infilitration rate

Trial pit width	=	0.3
Trial pit depth	=	0.9
Trial pit length	=	1
ap50	=	1.47 m/squared
tp75-25	=	18000 seconds
Vp 75-25	=	0.135 m/cubed
F	=	5.1E-06