

Drainage Verification Report

Barnfield House, Arundel Road, Fontwell BN18 0SD

Planning Ref: WA/80/22/PL

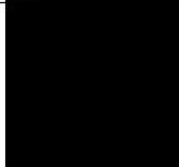
Rev: **P2**

Ref: **C2911**

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Document Control

Project Number	C2911		
Date	19 th September 2025	Revision	P2
Author	LH	Signature	

Revision History

Date	Revision	Author	Approved
19 th September 2025	P1	LH	CS
21 st November 2025	P2	LH	CS

I Introduction

- 1.1.1 CGS Civils Ltd has been appointed to undertake a drainage verification report to confirm that the 'as-built' surface water drainage for the above development has been installed as per the agreed plans and that it functions adequately.
- 1.1.2 This report will look at the drainage that has been installed whilst highlighting any deviations from the approved planning drawings. The deviations will be investigated to confirm if they affect how the drainage network will function. This report will be used to clear condition 9 of the planning conditions. The exact wording of this condition is noted below:

Fig I. Planning condition 9

- 9 Immediately following implementation of the approved surface water drainage system and prior to occupation of any part of the development, the developer/applicant shall provide the local planning authority with as-built drawings of the implemented scheme together with a completion report prepared by an independent engineer that confirms that the scheme was built in accordance with the approved drawing/s and is fit for purpose. The scheme shall thereafter be maintained in perpetuity.

Reason: To ensure that the proposed development is satisfactorily drained and in accordance with policies W SP1, W DM1, W DM2 and W DM3 of the Arun Local Plan, and policy VE7 of the Walberton Neighbourhood Development Plan.

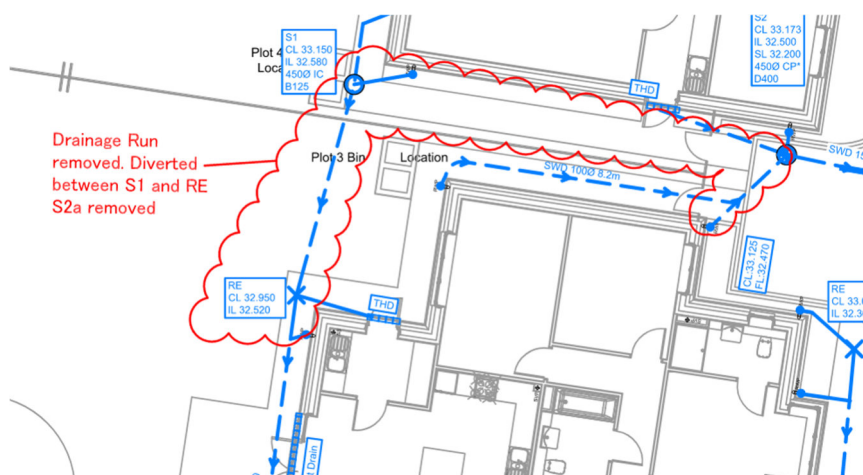
2 Information Verified

- 2.1.1 To undertake a meaningful assessment of the drainage system, it has been necessary to obtain, review and verify the following:
- i. Full CCTV drainage survey of the 'as built' surface water system.
 - ii. Photographs of:
 - Permavoid installation
 - Permeable Paving installation
 - Road formation
 - Concrete dam installation
 - Chambers and pipes for Surface water
 - Flow control chamber – S14 & S18
 - Orifice Drain

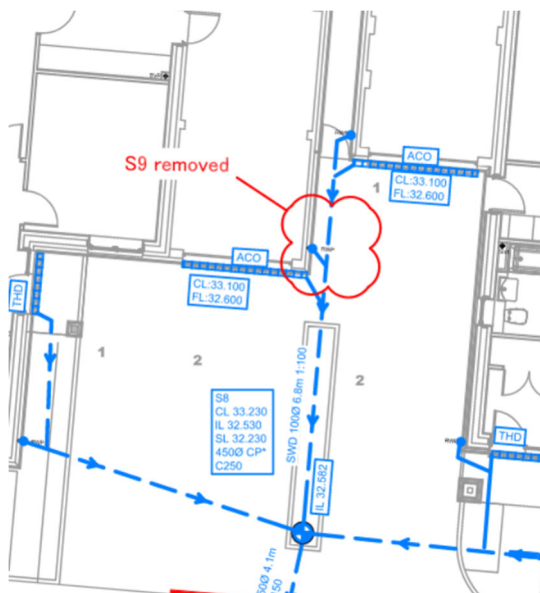
3 CCTV Drainage Survey

- 3.1.1 An initial drainage CCTV survey was undertaken in June 2025 of the 'as built' surface water drainage system. The CCTV survey confirmed that the majority of the system was generally in good working order however the survey did note some issues within the network.
- 3.1.2 The CCTV Drainage survey picked up on faults within the system, such as debris within the system and indicates some structural damage within the pipework. Remedial works were subsequently undertaken and a secondary CCTV drainage survey was conducted in September 2025 which confirms that all remedial works were undertaken and the system is clear of debris and structurally sound. A copy of this report can be found in **Appendix A**.
- 3.1.3 The CCTV Drainage survey also notes that the following chambers have not been installed, and the drainage runs deviate from the approved drainage layout:

- S1 - S2a:



- S9



- 3.1.4 These changes have been highlighted by the survey company and a copy of the revised plans can be found within **Appendix B**

4 Installed Drainage

4.1 The installation of the drainage is well documented and all of the drainage features have been installed in accordance with the approved designs and as per the manufacturer's specifications. This section will be sub-divided into the following categories:

- Permavoid installation
- Permeable Paving installation
- Road formation
- Concrete dam installation
- Chambers and pipes for Surface water
- Flow control chamber – S14 & S18
- Orifice Drain

4.2 The proposed drainage network utilises Permavoid crates to provide additional storage. A review of the installation photographs confirms that the Permavoid system has been installed correctly using the clips and it is wrapped in a permeable geotextile allowing infiltration into ground as designed.

Fig 2. Installation of permavoids

No.1 (Drainage Plan Sheet 3)



No.2 (Drainage Plan Sheet 3)



No.3 (Drainage Plan Sheet 3)



No.4 (Drainage Plan Sheet 3)



No.5 (Drainage Plan Sheet 3)



No.6 (Drainage Plan Sheet 3)



- 4.3 The main SuDS feature on this site is the permeable paved area; the site photographs of the installation of the permeable paved areas confirm the correct installation of a permeable sub-base using the specified aggregate and grading alongside the installation of the correct non-woven geotextile. It is clear that the base course has also been core drilled as per the proposed construction details.

Fig 3. Permeable Parking Areas

No. 7 (Drainage Plan Sheet 1)



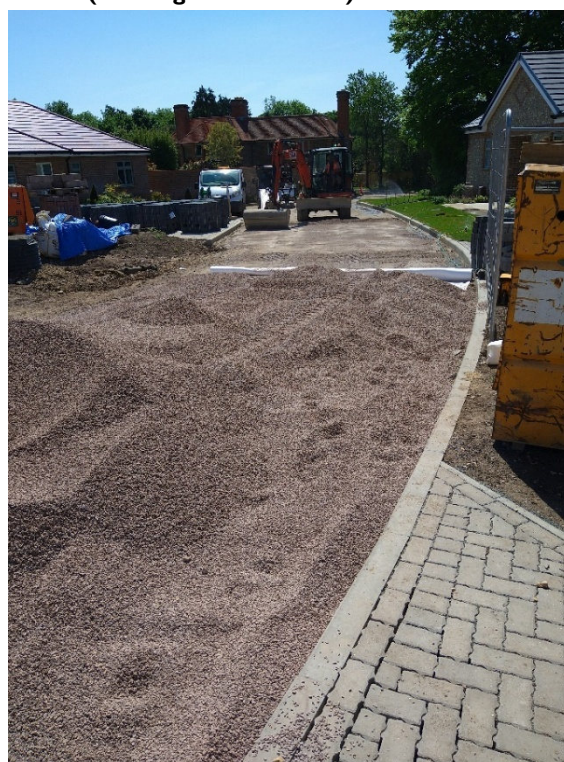
No.8 (Drainage Plan Sheet 1)



No.9 (Drainage Plan Sheet 3)

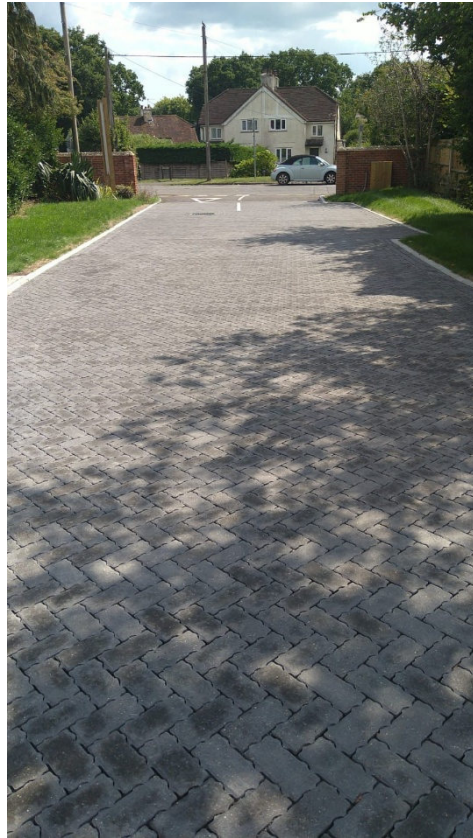


No.10 (Drainage Plan Sheet 2)



4.4 The following photographs are of the as constructed permeable parking areas the day following heavy downpour:

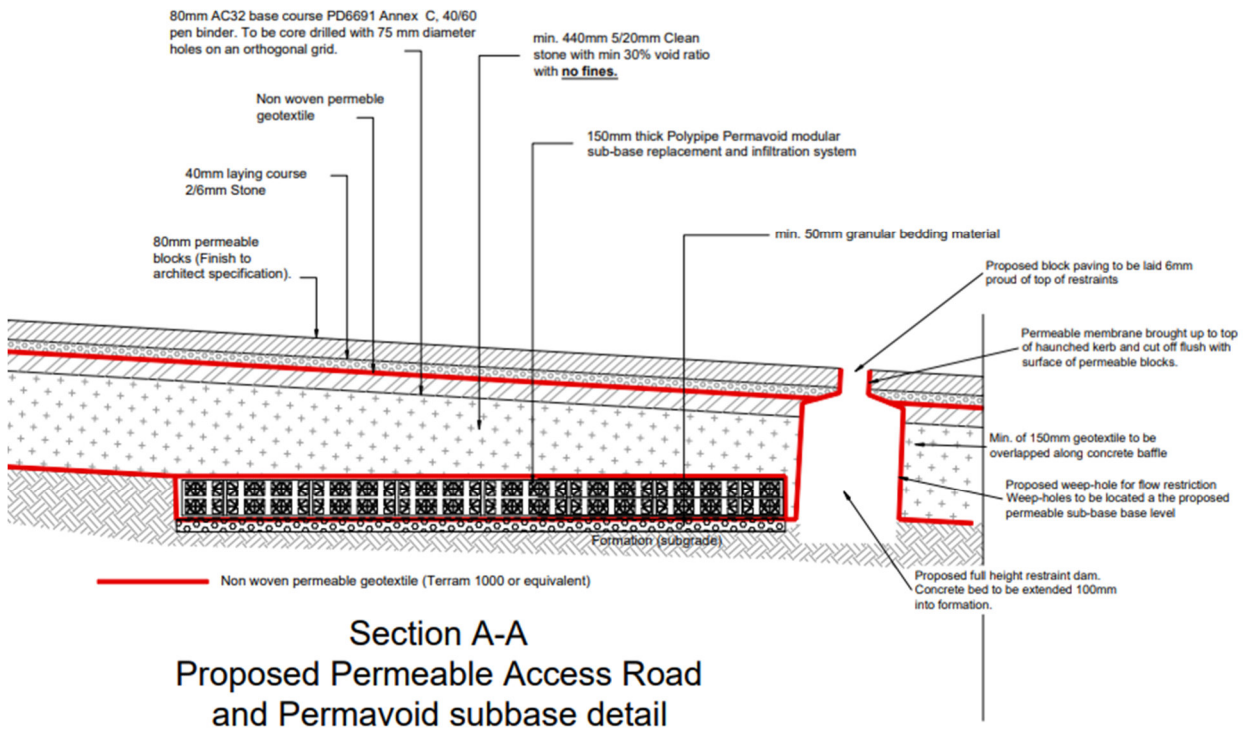
Fig 4. Permeable Parking Areas Cont.



- 4.5 It was proposed that concrete dams were installed within the access road of the site to allow as much storage as possible with the sub-base of the paving. The photographs indicate that this was installed within the access road as per the design.

Fig 5. Road Formation.

All roads have been constructed in accordance with the Proposed Permeable Access Road and Permavoid subbase detail shown below and installed as shown in the photographs provided:



No.11 (Drainage Plan Sheet 3)



No.12 (Drainage Plan Sheet 3)



No.13 (Drainage Plan Sheet 3)



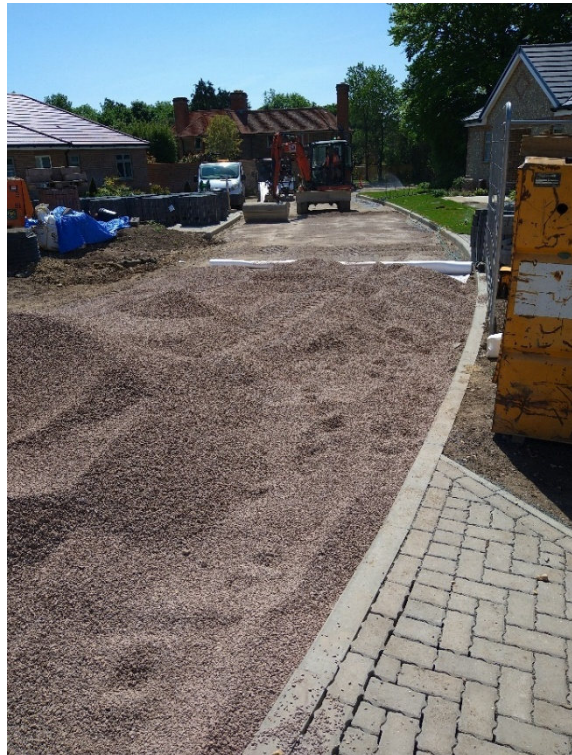
No.14 (Drainage Plan Sheet 3)



No.15 (Drainage Plan Sheet 3)



No.10 (repeat) (Drainage Plan Sheet 2)



No.16 (Drainage Plan Sheet 3)



No.17 (Drainage Plan Sheet 3)



Fig 6. Concrete Dam

All concrete dams have been installed in accordance with the approved designs and as shown in the following photographs.

No.18 (Drainage Plan Sheet 1)



No.19 (Drainage Plan Sheet 1)



No.20 (Drainage Plan Sheet 1)



No.21 (Drainage Plan Sheet 1)



No.22 (Drainage Plan Sheet 1)



No.23 (Drainage Plan Sheet 2)



No.24 (Drainage Plan Sheet 1)



No.25 (Drainage Plan Sheet 3)



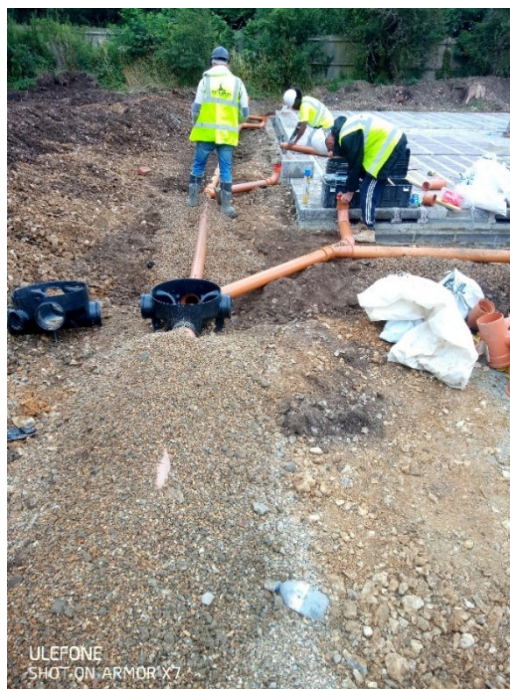
- 4.6 This section will look at the installed chambers on site, in particular, the orifice flow control chambers that are proposed at the gravel trenches. The chambers looked to be installed correctly, and the drainage runs incoming align with what was on the proposed drainage layout.

Fig 7. Surface water inspection chambers

No.26 (Drainage Plan Sheet 1)



No.27 (Drainage Plan Sheet 1)



No.28 (Drainage Plan Sheet 1)



No.29 (Drainage Plan Sheet 1)



Fig 8. Orifice Drain

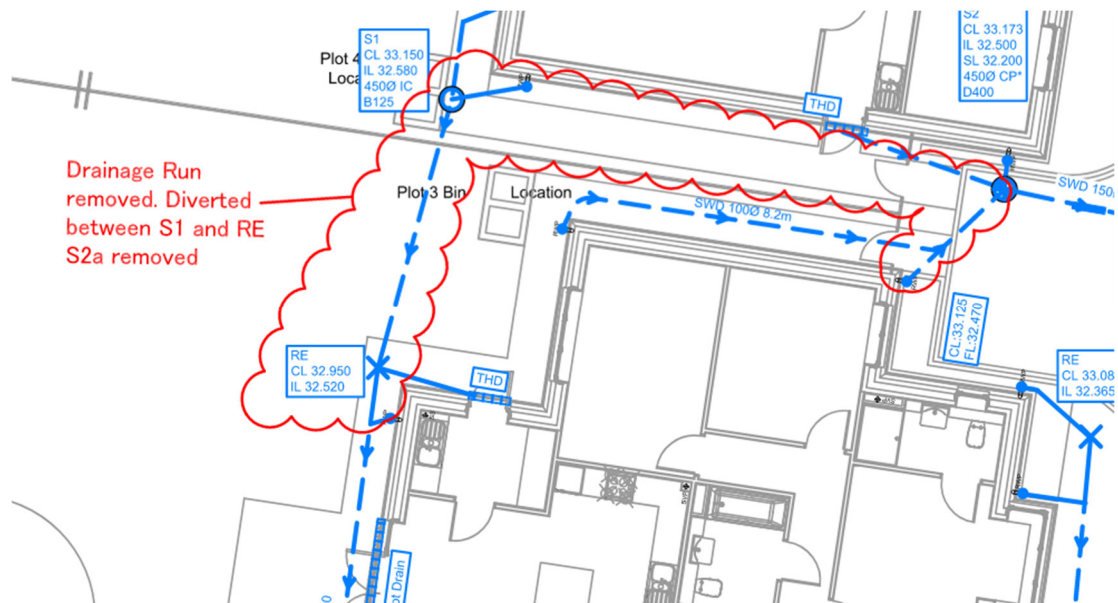
An orifice drain has been installed as shown below and marked as located on Drainage Plan Sheet 2.

No.30 (Drainage Plan Sheet 2)



5 Discrepancies

- 5.1 There are a few discrepancies between the approved drainage design and the drainage network that was installed on site. A copy of the marked up plan from the CCTV Surveyors will be supplied within **Appendix B**.
1. Chambers S1, S2a and S9 have not been installed on site with the associated drainage making the same connection downstream apart from S1 which has been diverted into the rodding eye which then discharges into S12. It should be noted that this has no impact on the effectiveness of the drainage network as the changes are minor.



6 Conclusion and Recommendations

- 6.1 A phase I drainage verification report was undertaken for the surface water drainage for the site at Barnfield House in Fontwell.
- 6.2 An 'as built' CCTV survey was completed in June 2025 which identified that the system is in good working order, however, debris was noted within the system in addition to structural damage to some of the pipework. Remedial works were subsequently undertaken and a secondary CCTV survey was completed in September 2025 which confirms that remedial works were carried out and that the system is free from debris and structurally sound.
- 6.3 Some discrepancies between the proposed plans and the final installed drainage were identified; however, these changes have no impact on the effectiveness of the drainage network.
- 6.4 The SuDS features appear to be in good working order, with the permeable areas being dry following a heavy downpour the night prior. The drainage runs were noted to be clear with no standing water or debris confirming that the network is working as intended.

7 Appendices

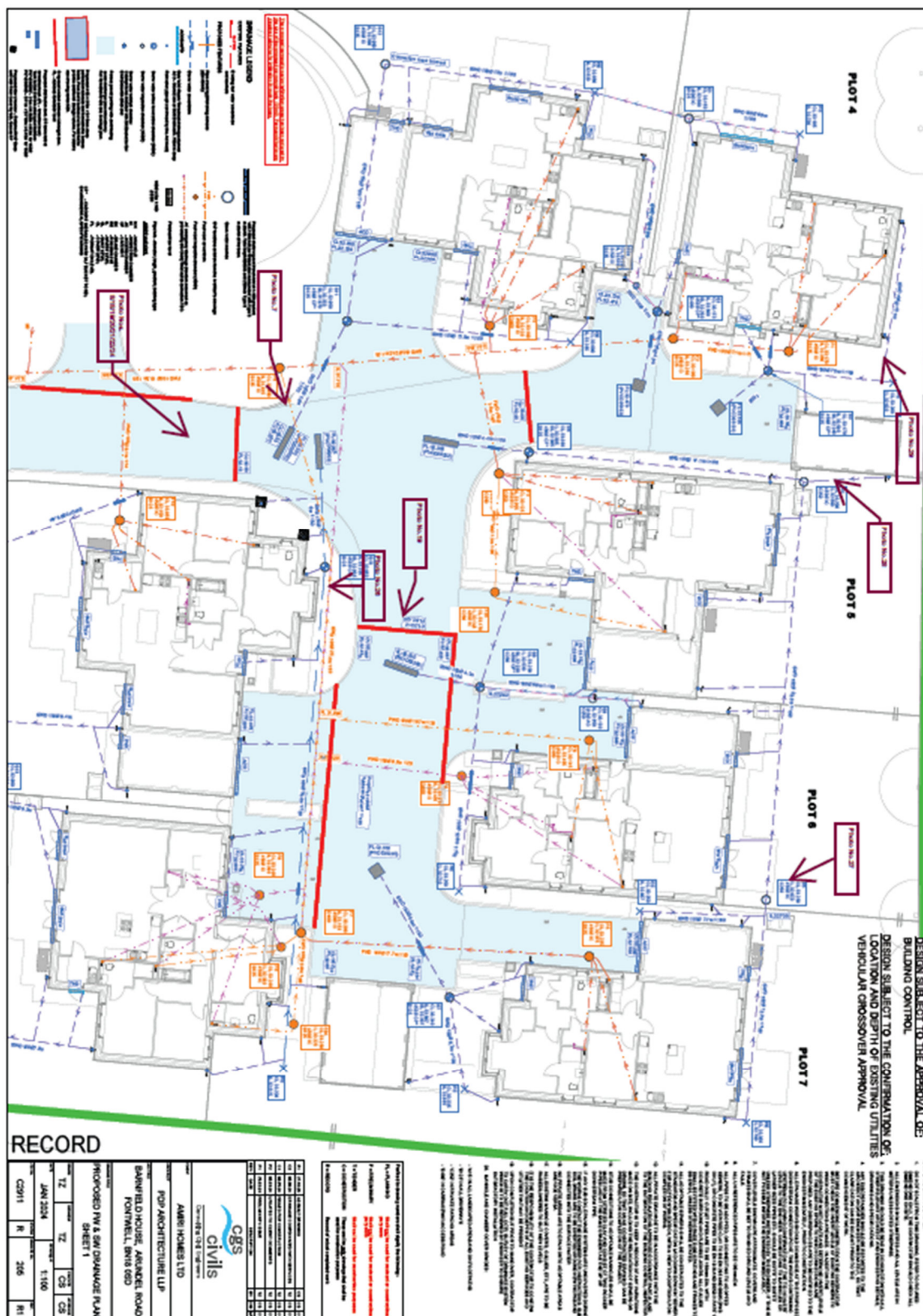
7.1 Appendix A:

CCTV Drainage Survey Report

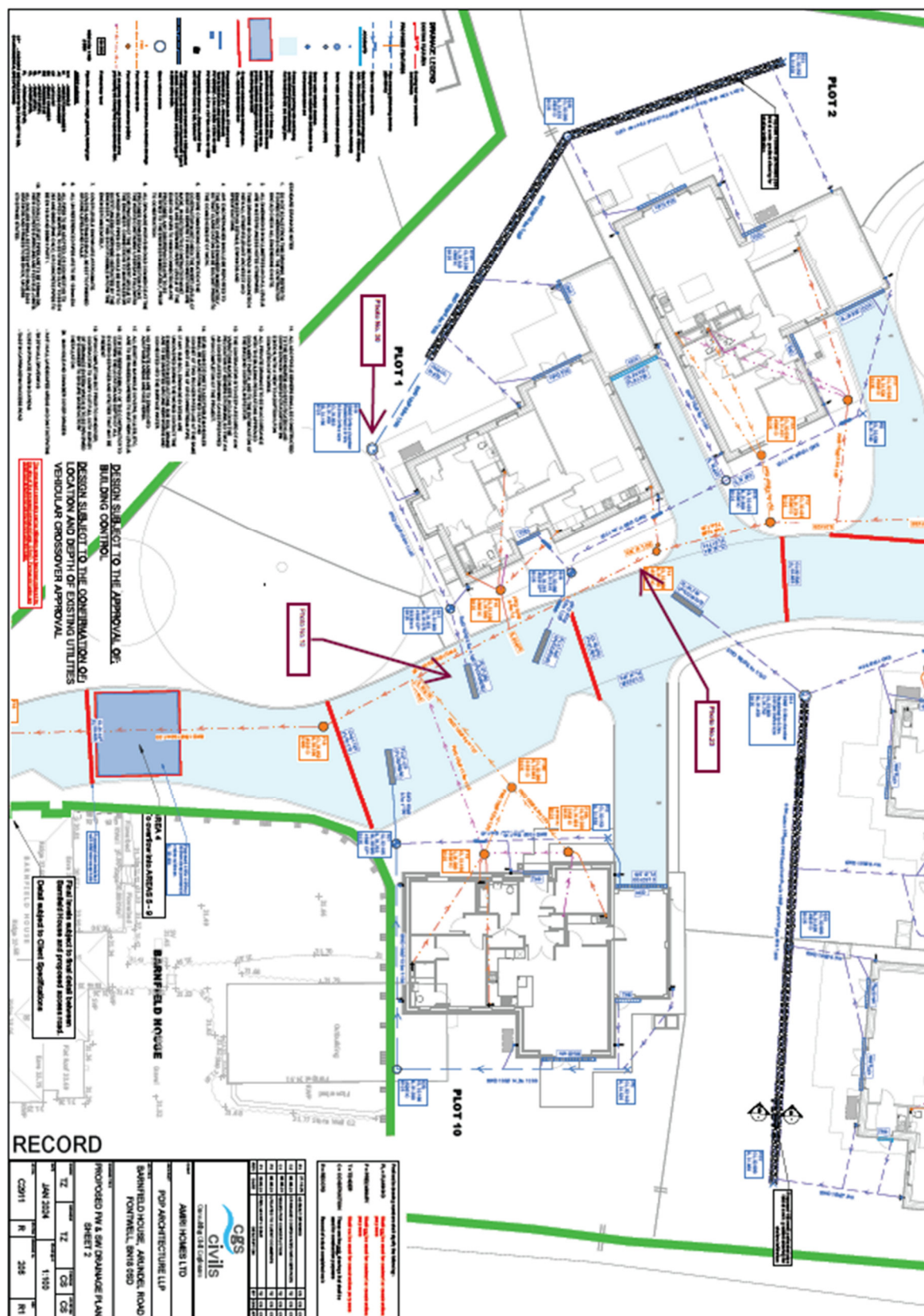
7.2 Appendix B:

As built mark-up:

Drainage Layout Sheet 1



Drainage Layout Sheet 2



DESIGN SUBJECT TO THE APPROVAL OF BUILDING CONTROL.

LOCATION AND DEPTH OF EXISTING UTILITIES VEHICLE CROSSOVER APPROVAL

BANFIELD HOUSE

PROPOSED PWS & SW DRAINAGE MAIN SHEET 3

CONSTRUCTION

CBS civils

PWP ARCHITECTURE LLP

BANFIELD HOUSE, ARUNDEL ROAD, FONTWELL, BN9 6DD

JUN 2024

1:100

C2811 C 207 R1

7.3 Appendix C:

Addendum:

Following the release of the Drainage Verification checklist on 24th October 2025 – it was noted that new information required was missing from this report. This information has been supplied below in the form of an Addendum and the checklist can be found on the next page.

- **Indemnity Insurance Supplied.** The authors insurance covers the verification works completed.
- **Author is Luke Honeywill, a Senior Engineering Technician who works are CGS Civils Ltd, with 6 years of experience in Civil Engineering.** CGS Civils Ltd is a separate entity to the developer – Amiri Homes. This report has been signed off by Christopher Slade who has 22 years of experience in Civil Engineering.
- **Health & Safety Guidelines for residents supplied at Appendix D.**
- **No trees or landscaping components are located within areas that would be detrimental to the drainage infrastructure.**
- **Key materials are unable to be verified as the groundwork who undertook the construction works has since gone into insolvency and relevant information such as invoices, and purchase information is unavailable.**
- **It is confirmed that the drainage has been installed within a reasonable tolerance. The acceptable tolerances are as follows for a drainage system:**
 - **Pipe Gradient $\pm 10\%$ of designed gradient up to $\pm 25\text{mm}$.**
 - **Invert Level $\pm 20\text{mm}$**
 - **Horizontal Alignment $\pm 10\text{-}20\text{mm}$ between inspection chamber**
 - **Pipe jointing tolerance (angular deviation) $2\text{-}3^\circ$**
 - **Bedding thickness $\pm 10\text{mm}$**
 - **Trench Width $+100\text{m -}0\text{mm}$. Overwide trenches reduced side support; under width prevents installation.**
 - **Trench depth $\pm 50\text{mm}$**
 - **Inspection chamber position – Horizontal $\pm 50\text{mm}$ and shaft verticality $\pm 10\text{mm}$ per meter, max $\pm 25\text{mm}$.**
 - **Cover level $\pm 5\text{mm}$**
- **The contents of this report are correct and a true reflection of what has happened on site.**

7.4 Appendix D:

Health & Safety Guidelines for Residents:

Amiri Homes Limited have set up a Management Company which will be administered by KTS Estate Management Ltd upon completion of the last plot sale. A copy of the wording of the letter which will be provided to all residents on their occupation and details the health and safety rules to be adhered to, is shown below. A duplicate copy of the letter will be provided to each resident which they will be required to sign and return to KTS Estate Management Ltd.

Address Line 1

Address Line 2

Address Line 3

Address Line 4

Dear Resident

Health and Safety Guidelines

As you are already aware, there is a drainage system installed across the development and the purpose of this is to regulate all surface water and ensure that it infiltrates through and into the drainage system without any issues. We would like to highlight some health and safety guidelines that we kindly ask are always adhered to along with further guidance on what to do in the event of a spillage or the disposal of your general waste.

1. Do not attempt to investigate any pipes or openings, and instead report any blockages as a matter of urgency to KTS Estate Management Ltd.
2. In the event of a chemical or hazardous substance spillage, this should be reported immediately KTS Estate Management Ltd who will advise further action. Spillages by third parties should also be reported to KTS Estate Management Ltd.
3. Domestic Waste and recycling should be disposed of through your waste collection service (details available through arun.gov.uk) or Bognor Regis Waste and Recycling Centre, Shirpney Road, Bognor Regis PO22 9SX.
4. Arun operates a Garden Waste Club. Please refer to arun.gov.uk and search 'garden waste'.

As a home owner on this development, you are responsible for informing all visitors of the potential dangers above, including family, friends and tenants if your property is rented.

If you have any questions about the contents of this letter, please do not hesitate to contact KTS Management on 01903 889799.

Yours faithfully

KTS Estate Management Ltd