

Site: Land at Eastlands Lane, Cowfold, West Sussex
Prepared by: Phil Allen MCIWEM C.WEM
Approved by: Neil Jaques
Date: 29 April 2026

1.0 Introduction

- 1.1 This technical note follows Horsham District Council's (HDC's) review of Motion's drainage strategy for the proposed development on Land at Eastlands Lane, Cowfold, West Sussex.
- 1.2 HDC have recommended a conditional consent and that more information can be provided at condition discharge. To minimise the information required to be established and produced through conditions, this technical note will provide the required information as noted in HDC's communication of 15th April 2026 (this is appended in [Appendix A](#)).

2.0 Further Information

- 2.1 This section will present the information requested by HDC. HDC's information requests and comments will be in *bold italic font*, with Motion's response below.

The applicant should provide a measurement of the total site area...

- 2.2 Table 2.1 of the FRA and Drainage Strategy provided the total site area of 5,000m² (0.5 ha). This remains an accurate measure of the total site area.

...all pre-development permeable and impermeable areas within the red line boundary...

- 2.3 The site is greenfield, and thus pre-development impermeable areas are zero. The site is all permeable.

...all post-development permeable and impermeable areas within the red line boundary...

- 2.4 Paragraph 7.4 of the FRA and Drainage Strategy stated that the developed site's impermeable areas would be 0.311 ha. This remains accurate.

...with supporting catchment plans and calculation.

- 2.5 The impermeable areas are all the roofs, driveways, accesses and patios within the site boundary. It drains as a single catchment, so for impermeable catchment plans, please refer to the site layout and areas shaded blue in [Appendix B](#) of this report, which total 0.311ha.

As connections to Southern Water Utilities are proposed as part of the development, supporting plans and assumed points of connection must be provided as well as expected flow rates. Connection to the public sewerage network is advised, wherever it is reasonable to do so.

- 2.6 Southern Water's Asset Location Plan was provided in Appendix F of the FRA and Drainage Strategy and is included in [Appendix C](#) of this technical note. This shows the local foul sewer network.

- 2.7 Section 12.0 of the FRA and Drainage Strategy detailed the Foul Drainage Strategy. It stated that, using Southern Water's foul sewerage modelling criteria, the calculated design foul flow from the proposed development is 0.07 l/s.

- 2.8 Section 12 of the FRA and Drainage Strategy also stated that "*The initial foul drainage from the site will be via gravity drainage to the south via Eastlands Lane. Where the road turns 90-degrees to the west represents a low point and, therefore, foul water will be pumped from this point to the west along Eastlands Lane. The location where the foul sewer from Acorn Avenue crosses Eastlands Lane by gravity, just prior to the Southern Water WTW, represents a viable connection point for the site's foul water. Therefore, it is proposed to connect foul water from the site at this location.*"

- 2.9 The foul drainage layout was detailed in Appendix D of the FRA and Drainage Strategy, and has been re-included in **Appendix D** of this Technical Note for completeness. This layout shows the proposed point of connection to the foul sewer and all levels of infrastructure.

- 2.10 Surface water is not connecting to the public sewerage system.

The following flow and volume rates must be provided:

Existing runoff rates during a 100 % Annual Exceedance Probability (AEP), 3.33 % AEP, 1 % AEP storm events

- 2.11 The Greenfield QMED runoff rates for the site were provided in Appendix I and Table 7.1 of the FRA and Drainage Strategy. The QMED (Rural) Greenfield Runoff Rate for the 0.311 ha of impermeable, contributing areas on site is 4.4 l/s, and this was used to set the maximum discharge rate for the site.

- 2.12 MicroDrainage does not generate undeveloped runoff rates for the 1 in 30-year or 1 in 100-year events for this site, as it is classified as greenfield. Furthermore, the proposed development does not utilise these return period runoff rates to establish the allowable discharge regime. Consequently, the QMED greenfield runoff rate is considered the sole relevant pre-development runoff parameter for this assessment.

Post development discharge rates during a 100 % AEP, 3.33 % AEP, 1 % AEP and 1 % AEP + 45 % for Climate Change storm events

- 2.13 Proposed runoff rates for all storm events were provided in Table 7.2 of the FRA and Drainage Strategy, and are included below:

Return Period	Proposed Runoff Rate (l/s)
1 in 1	N/A
1 in 2	4.4
1 in 10 (+ 40%)	4.4
1 in 30 (+ 40%)	4.4
1 in 100 (+ 45%)	4.4

Greenfield runoff rate (QBAR)

- 2.14 As noted above, the Greenfield QMED runoff rates for the site were provided in Appendix I and Table 7.1 of the FRA and Drainage Strategy. This is 4.4 l/s. It should be noted that current standard is to use FEH data, and this generates QMED (rather than QBAR) and this is the current standard for setting the post-development greenfield runoff rate.

Water storage capacity volumes of the proposed drainage features, to attenuate the 1 % AEP + climate change storm event (see details below).

- 2.15 The drainage strategy for the development has been designed to attenuate the 1 in 100-year + 45% rainfall event, inclusive of urban creep, without flooding. Paragraphs 7.9 to 7.20 of the FRA and Drainage Strategy fully detail the drainage strategy and proposed SuDS features, as well as the design criteria used. Urban creep is included and discussed in Paragraphs 7.21 to 7.23 and broken down in Table 7.3 of the FRA and Drainage Strategy.
- 2.16 Paragraphs 7.27 to 7.30 of the FRA and Drainage Strategy detail the MicroDrainage hydraulic modelling used, and the results of the modelling are included in Appendix K of the FRA and Drainage Strategy.
- 2.17 The modelling data in Appendix K (printout Page 11) show the volumes of the attenuation structures on the developed site. These total 383.73m³.

The runoff from the proposed development should, where possible, be restricted to the greenfield 1 in 1 year runoff rate (100% AEP) during all events up to and including the 1 in 100-year rainfall event (1% AEP) + 45% allowance for climate change. Where this is not possible, the runoff from the proposed development should restrict flows to as close as reasonably practical to the greenfield runoff rate for the site.

- 2.18 As noted in Section 7.0 of the FRA and Drainage Strategy and specifically in Paragraphs 7.8, 7.13, 7.17 and Table 7.2 of the FRA and Drainage Strategy, the developed site will discharge surface water from all rainfall events, inclusive of climate change and urban creep, at no greater than the QMED Greenfield Runoff Rate for the site of 4.4 l/s.

HDC Drainage note the applicant has provided justification for the use of QMed however request that the surface water drainage strategy be revised to restrict flow to the 1 in 1-year greenfield runoff rate instead.

QMED represents the median annual flood (equivalent to between a 1 in 1-year to 1 in 1 in 2-year event) and is commonly adopted when estimating greenfield runoff rates using FEH methods. Current guidance favours the use of FEH-based approaches over the older FSR method for hydrological estimation. While QBAR was traditionally used to define greenfield runoff, FEH methods derive QMED directly; therefore, QMED is used as the appropriate means for establishing greenfield runoff rates in drainage assessments.

HDC Drainage note that the applicant has demonstrated their understanding of the following, but to confirm... The surface water drainage strategy must demonstrate that the proposed SuDS attenuate all runoff from all impermeable areas (with an additional area equivalent to +10% of the area of any residential development, factored into the sum of the total impermeable areas on site, allowing for urban creep) for the 1 in 100-year rainfall event (1% AEP) + 45% allowance for climate change (upper end).

- 2.19 As noted above, the 1 in 100-year rainfall event, inclusive of the upper end climate change allowance (45%) was used to determine attenuation volumes. All impermeable areas were used to input to the hydraulic model. As noted in Paragraphs 7.21 to 7.23 and Table 7.3 of the FRA and Drainage Strategy, urban creep was included in full in the hydraulic model.

Attenuation should be provided on site to ensure that the 100% AEP storm event does not generate excessive surcharging in the drainage system. The 3.33% AEP storm event is safely contained underground with no flooding. The 1% AEP + climate change storm event is safely contained within the site without risk to persons or property.

- 2.20 As noted above, in Paragraph 7.29 of the FRA and Drainage Strategy, and from the MicroDrainage hydraulic modelling outputs in Appendix K of the FRA and Drainage Strategy, the proposed drainage system can attenuate the 1 in 100-year + 45% rainfall event, inclusive of urban creep, without flooding. Therefore, the drainage strategy complies with HDC's standard on this matter.

The Drainage Strategy must demonstrate that the surface water runoff from storm events greater than the 1% AEP + climate change storm events (exceedance) can be controlled, to confirm there is no adverse flood risk to the development or elsewhere. Evidence of appropriate management and mitigation of exceedance flows are expected within the Drainage Strategy, to demonstrate that the proposed conveyance systems have considered the risks associated to nature, people and property during the event of failure and/or exceedance.

- 2.21 Exceedance was discussed in Section 10.0 of the FRA and Drainage Strategy, and an Exceedance Plan was included in Appendix M. This showed that exceedance of the drainage system would have no impact and that there are no receptors of exceedance flows, thus exceedance is of no consequence to the site or the local area.

Supporting foul flow calculations, in line with Sewerage Sector Guidance and/or Building Regulations Part H, is to be provided. It should be noted that any proposed foul water system and

foul water treatment unit should be in line with current legislation and best practice for the management of domestic waste, with any method for disposal justified and appropriate permits sought.

- 2.22 As noted above and in Section 12.0 of the FRA and Drainage Strategy, the foul flows for the development were calculated using Southern Water's own foul sewerage modelling criteria.

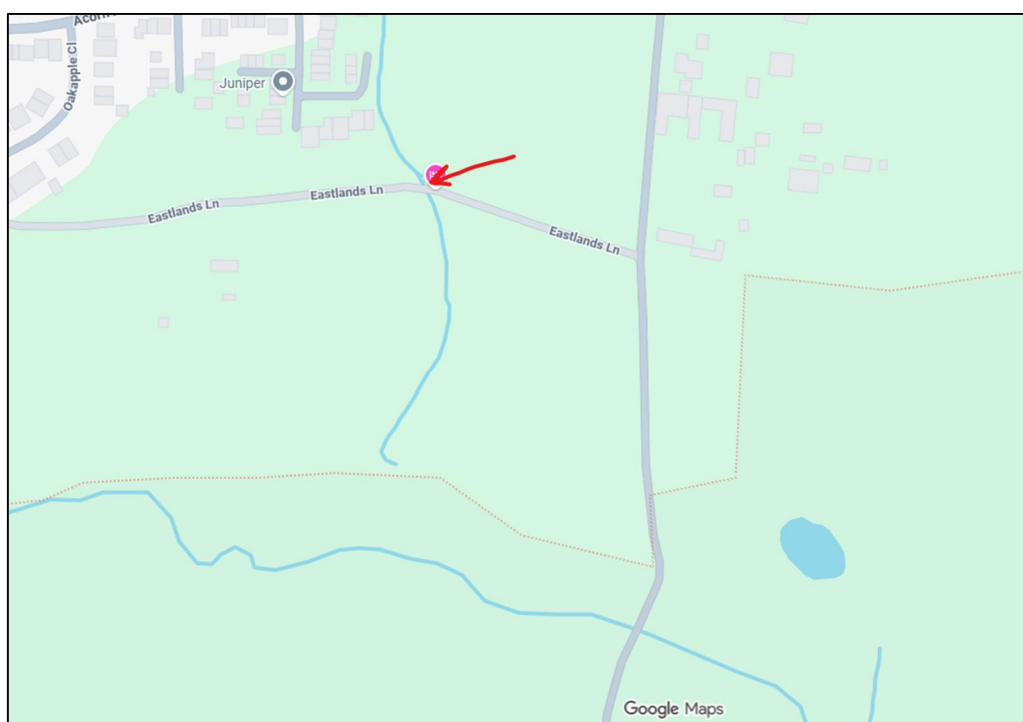
As a ditch/ watercourse is to be the intended outfall location for surface water from the proposed development, an assessment of the ditch/ watercourse must be provided, to identify whether the feature is expected...

§ *to contain flowing water throughout the year (unless there is a drought or an unusually long period of dry weather). The range of expected water levels should be provided.*

§ *to seasonally dry up or to stay dry for most of the year.*

§ *Context must be provided regarding the connectivity of the ditch and/or watercourse to waterways within in the wider landscape, as well as influences which might affect water levels in the feature, both upstream and downstream.*

- 2.23 The drainage ditch is an established part of the local hydraulic network. The connection point on the plan below shows the line of the watercourse, which flows south, before a short, culverted section within farmland after which it joins the Cowfold Stream, which is a designated Main River. Full and ongoing connectivity is confirmed.



- 2.24 There is no policy requirement for a receiving ditch or ordinary watercourse to convey continuous (perennial) flow in order to accept surface water runoff. Such requirements are generally associated with foul effluent discharges (e.g. from small sewage treatment plants), rather than surface water drainage. For surface water, the primary consideration is the presence of a functioning outfall with hydraulic connectivity to the wider catchment, which is demonstrated in this case.
- 2.25 The detailed assessment of water level changes within the receiving ditch is not typically required where discharge is limited to the greenfield runoff rate. By restricting post-development flows to greenfield

conditions, the scheme replicates the pre-development hydrological response and is designed to avoid any increase in flood risk elsewhere, in line with national planning policy and local SuDS guidance.

There is no statutory requirement to undertake detailed hydraulic modelling of a receiving ditch for surface water discharge to an ordinary watercourse. Such modelling would generally be associated with site-specific fluvial flood risk assessments where there is interaction with a designated Main River or known flood mechanism. For developments of this scale, a proportionate approach—based on greenfield runoff control and appropriate outfall design—is typically considered sufficient by Horsham District Council in consultation with the LLFA.

HDC Drainage note that it is intended for SuDS to be maintained by the site management company: “The site management company and/or their agents are responsible for the maintenance of the surface water drainage system”.

- 2.26 Noted. There is no action related to this comment.

The final drainage strategy must marry with the Landscape Strategy.

- 2.27 Noted, and has been done so to date. Any updates to the Landscape Strategy that materially affect the drainage strategy will be incorporated and designed for going forward.

The applicant must consider the use of tree planting carefully in accordance with the advice issued by Southern Water.

- 2.28 Noted.

3.0 Summary

- 3.1 This technical note has responded in full to HDC’s request for additional information following their review of the proposed drainage strategy for Land at Eastlands Lane, Cowfold. The key parameters of the development have been clarified. The foul drainage proposals have been reaffirmed, demonstrating a compliant connection to the Southern Water network with a low design flow of 0.07 l/s and a clearly defined point of discharge.
- 3.2 The surface water drainage strategy has been demonstrated to accord with current best practice and policy expectations. Discharge from the site is restricted to the greenfield QMED runoff rate of 4.4 l/s for all events up to and including the 1 in 100-year rainfall event plus 45% climate change. The proposed SuDS design provides sufficient on-site attenuation to accommodate these events, including an allowance for urban creep, without flooding. Hydraulic modelling confirms that all design criteria are satisfied. Exceedance routing has also been considered and shown to pose no risk to people, property, or the surrounding area.
- 3.3 In respect of the receiving watercourse, it has been established that the site discharges to an existing drainage ditch with confirmed connectivity to the wider catchment via the Cowfold Stream. Continuous flow within the ditch is not a requirement for surface water discharge, and that hydraulic impact is appropriately controlled through adherence to greenfield runoff rates. A proportionate approach has been adopted, and further detailed watercourse modelling is not required for a development of this scale discharging at greenfield rates.
- 3.4 Overall, the proposed drainage strategy is robust, policy-compliant, and proportionate. It maintains pre-development runoff characteristics, provides sufficient attenuation and exceedance management, and ensures that there is no increased risk of flooding on or off site. The additional information provided addresses HDC’s queries in full and confirms that the scheme is suitable for approval without the need for extensive additional conditions.

Appendix A

Horsham District Council Comments

TO:	Horsham District Council – Planning Dept
LOCATION:	Land at 521816 122277 Eastlands Lane Cowfold West Sussex
DESCRIPTION:	Erection of 9no. dwellings with associated car parking spaces, detached carports, garages and landscaping.
REFERENCE:	DC/26/0472
RECOMMENDATION:	More Information - Conditions
SUMMARY OF COMMENTS & RECOMMENDATION: The following documents have been reviewed: - Flood Risk Assessment and Drainage Strategy, Dated: 10th February 2026, Author: Motion (Appendix L of FRA) Drainage Management and Maintenance Plan, Dated 10th February 2026, Author: Motion - Proposed Site Plan, Drawing No: 2562-03 Rev: B, Date: 21.11.25, Author: Lloyd Harden - Letter of correspondence from Southern Water to Horsham District Council, Dated: 30th of March 2026. HDC Drainage require more information, (which can be conditioned) to determine that the site drainage meets the requirements of the NPPF and PPG, National standards for sustainable drainage systems (June 2025), and the Horsham District Planning Framework (2015) – Policy 35 and Policy 38.	
MAIN COMMENTS: - The applicant should provide a measurement of the total site area, all pre-development permeable and impermeable areas within the red line boundary, all post-development permeable and impermeable areas within the red line boundary, with supporting catchment plans and calculations. - As connections to Southern Water Utilities are proposed as part of the development, supporting plans and assumed points of connection must be provided as well as expected flow rates. Connection to the public sewerage network is advised, wherever it is reasonable to do so. - The following flow and volume rates must be provided: - existing runoff rates during a 100% Annual Exceedance Probability (AEP), 3.33% AEP, 1% AEP storm events - post development discharge rates during a 100% AEP, 3.33% AEP, 1% AEP and 1% AEP + 45% for Climate Change storm events - greenfield runoff rate (QBAR) - water storage capacity volumes of the proposed drainage features, to attenuate the 1% AEP + climate change storm event (see details below). - The runoff from the proposed development should, where possible, be restricted to the greenfield 1 in 1 year runoff rate (100% AEP) during all events up to and including the 1 in 100-year rainfall event (1% AEP) + 45% allowance for climate change. Where this is not possible, the runoff from the proposed development should restrict flows to as close as reasonably practical to the greenfield runoff rate for the site. HDC Drainage note the applicant has provided justification for the use of QMed	

however request that the surface water drainage strategy be revised to restrict flow to the 1 in 1-year greenfield runoff rate instead.

- HDC Drainage note that the applicant has demonstrated their understanding of the following, but to confirm... The surface water drainage strategy must demonstrate that the proposed SuDS attenuate all runoff from all impermeable areas (with an additional area equivalent to +10% of the area of any residential development, factored into the sum of the total impermeable areas on site, allowing for urban creep) for the 1 in 100-year rainfall event (1% AEP) + 45% allowance for climate change (upper end). Attenuation should be provided on site to ensure that:
 - The 100% AEP storm event does not generate excessive surcharging in the drainage system.
 - The 3.33% AEP storm event is safely contained underground with no flooding.
 - The 1% AEP + climate change storm event is safely contained within the site without risk to persons or property.
- The Drainage Strategy must demonstrate that the surface water runoff from storm events greater than the 1% AEP + climate change storm events (exceedance) can be controlled, to confirm there is no adverse flood risk to the development or elsewhere. Evidence of appropriate management and mitigation of exceedance flows are expected within the Drainage Strategy, to demonstrate that the proposed conveyance systems have considered the risks associated to nature, people and property during the event of failure and/or exceedance.
- Supporting foul flow calculations, in line with Sewerage Sector Guidance and/or Building Regulations Part H, is to be provided. It should be noted that any proposed foul water system and foul water treatment unit should be in line with current legislation and best practice for the management of domestic waste, with any method for disposal justified and appropriate permits sought.
- As a ditch/ watercourse is to be the intended outfall location for surface water from the proposed development, an assessment of the ditch/ watercourse must be provided, to identify whether the feature is expected...
 - to contain flowing water throughout the year (unless there is a drought or an unusually long period of dry weather). The range of expected water levels should be provided.
 - to seasonally dry up
 - to stay dry for most of the year.
- Context must be provided regarding the connectivity of the ditch and/or watercourse to waterways within in the wider landscape, as well as influences which might affect water levels in the feature, both upstream and downstream.
- HDC Drainage note that it is intended for SuDS to be maintained by the site management company: *"The site management company and/or their agents are responsible for the maintenance of the surface water drainage system"*.
- The final drainage strategy must marry with the Landscape Strategy. The applicant must consider the use of tree planting carefully in accordance with the advice issued by Southern Water.

Further evidence in addition to that requested above may be required once the additional information is submitted.

Advisory notes:

- In addition to Planning Permission, the applicant may additionally require Ordinary Watercourse Consent (OWC) from the Lead Local Flood Authority at West Sussex County Council, to consent to any works adjacent to or within an ordinary watercourse.
- Whilst not a mandatory requirement, HDC Drainage welcome and encourage the consideration of rainwater harvesting within the proposed development.

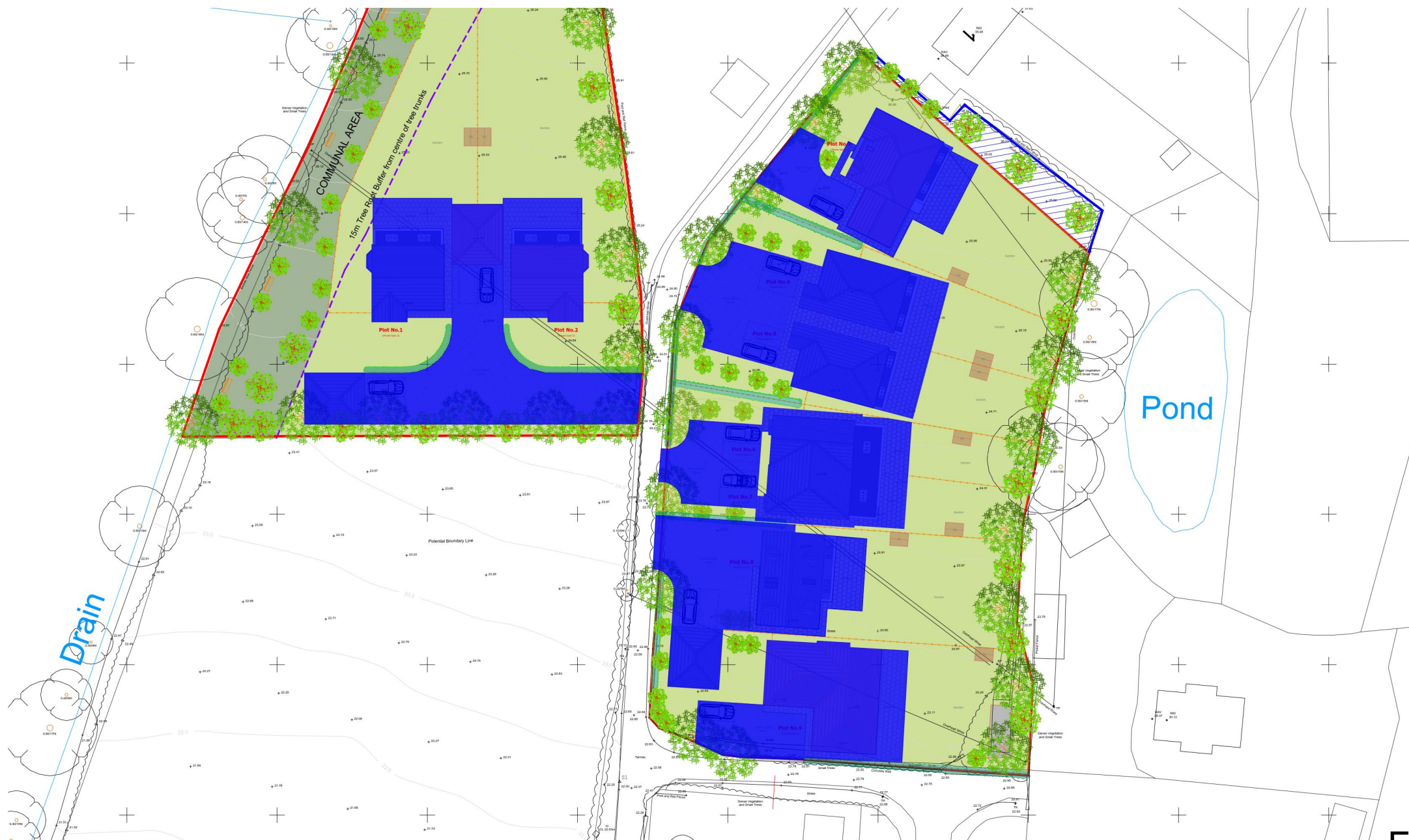
ANY RECOMMENDED CONDITIONS:

The details requested above must be provided to Horsham District Council – Drainage for review, prior to Planning Permission being granted. This may be provided at the discharge of conditions stage.

NAME:	A.Furness
DEPARTMENT:	Horsham District Council - Drainage
DATE:	15/04/2026

Appendix B

Impermeable Area Plan



Appendix C

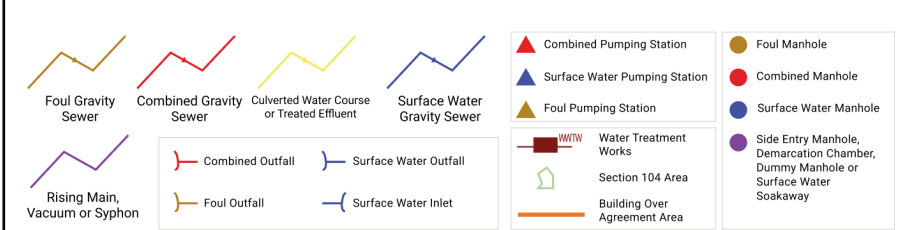
Southern Water Asset Location Plan



(c) Crown copyright and database rights 2026 Ordnance Survey AC0000808122 Date: 10/02/26 Scale: 1:1250 Map Centre: 521497,122224 Data updated: 16/01/26 Our Ref: 2023496 - 1 Wastewater Plan A2 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 2026 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.



allen@motion.co.uk

lecco2



Appendix D

Drainage Strategy Layout



- Notes
1. This Drainage Strategy Plan is for planning purposes and does not constitute detailed designs and should not be used for construction purposes.
 2. All levels and dimensions are to be checked on site before any work commences. All dimensions are in metres unless stated otherwise.
 3. This drawing has been based upon survey supplied information and Motion cannot guarantee the accuracy of the data provided.
 4. The drainage levels are based on existing levels, but also proposed levels where existing site features present unusual changes in gradient.
 5. Any discrepancies should be reported to the engineer immediately, so that clarification can be sought prior to the commencement of works.
 6. This drawing should be read in conjunction with all other relevant engineering details, drawings and specification.
 7. 350mm minimum cover is to be provided for private pipes laid in soft/paved areas, with 900mm minimum cover to be provided for private pipes laid beneath roads / driveways unless not practicable. Where unachievable, shallow pipe drains may require protection using concrete surround or paving slabs bridging the trench, subject to the HWBC Inspector's requirements.
 8. Manholes situated within areas accessible to motor vehicles are to be fitted with suitable strength covers and frames.
 9. All foul sewage to have levels confirmed once detailed design commences and slab/FFL's are finalised.

Legend

- Site Boundary
- Permeable Paviments
- Surface Water Gravity Pipe
- Surface Water Manhole
- Orifice Flow Control
- Hydrobrake Flow Control
- Proposed Headwall
- Foul Water Inspection Chamber (600mmØ)
- Foul Water Manhole (1200mmØ)
- Foul Gravity Pipe
- Foul Rising Main
- Existing Public Foul Gravity Sewer
- Existing Public Foul Inspection Chamber / Manhole

P02	Second Issue	PA	PA	PA	10.02.2026
P01	First Issue	PA	PA	PA	21.01.2026
Rev.	Description	Drm	Chk	App	Date

Drawing Status:

FOR PLANNING
NOT FOR CONSTRUCTION



Client:
Lee Goossens

Project:
Eastlands Lane, Cowfold

Title:
Drainage Strategy Layout

Scale: 500 (@ A1)

Drawing:
2510088-0500

Revision:
P02

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