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Sustainable Drainage (SuDS) Statement for: Proposed development of 9 dwellings on land at the former Heathlands Riding Establishment, Hatch Ride, Wokingham, RG40 3AS

Date of this Statement

;

8th May 2025

INTRODUCTION

The site is on the South side of Hatch Ride, an unmade road, and is some 180 metres South East from its junction with Heathlands Road & 380 metres from the junction of Hatch Ride with Nine Mile Ride and Honey Hill to the South East. There are a number of existing buildings on the site which form the existing Heathlands Riding Establishment equestrian centre.

Hatch Ride is an established Public Right of Way.

The site is not listed and is not within a Conservation Area. No trees on the site, or adjoining it are TPO protected.

This Sustainable Drainage, (SuDS), statement considers Local and Regional planning policy relating to the proposed surface water management & disposal on the site and describes materials & systems to achieve that goal.

Best technical practice was employed to inform the selection of materials, systems and policies used herein.

In general, all dwellings are to be built to current Building Regulations Approved Documents :2023 updates & Regulation 7. The dwellings have been designed to aim for Code for Sustainable Homes Level 4 accreditation.

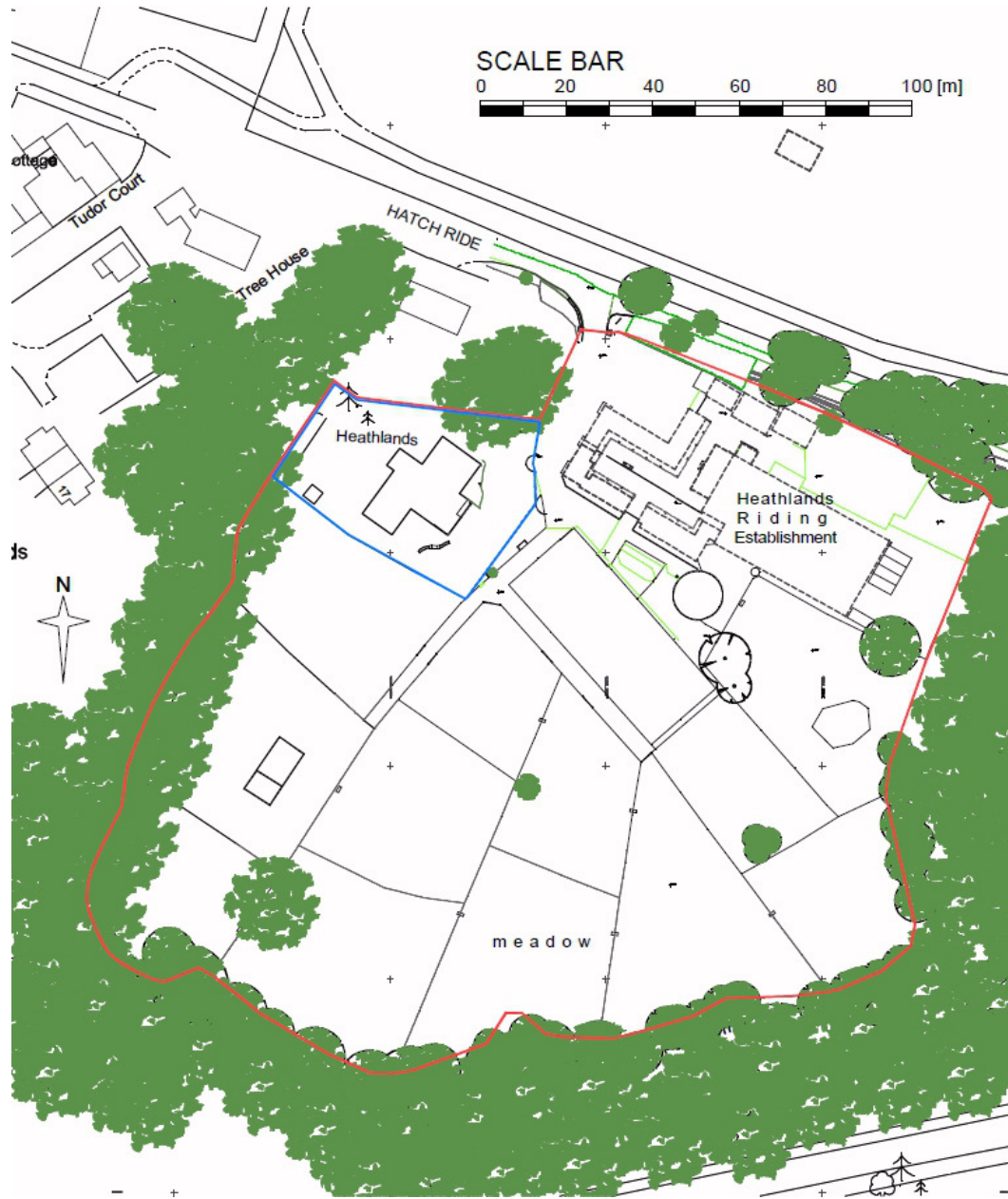
Subsequent assessments of the site subsoil will be undertaken and a final SuDS design produced based on full site tests for percolation, water table and subsoil characteristics following Planning approval .

There are separate Design + Access statements, Flood Risk Assessment, Biodiversity and Arboricultural + Environmental Survey reports which also accompany this application.

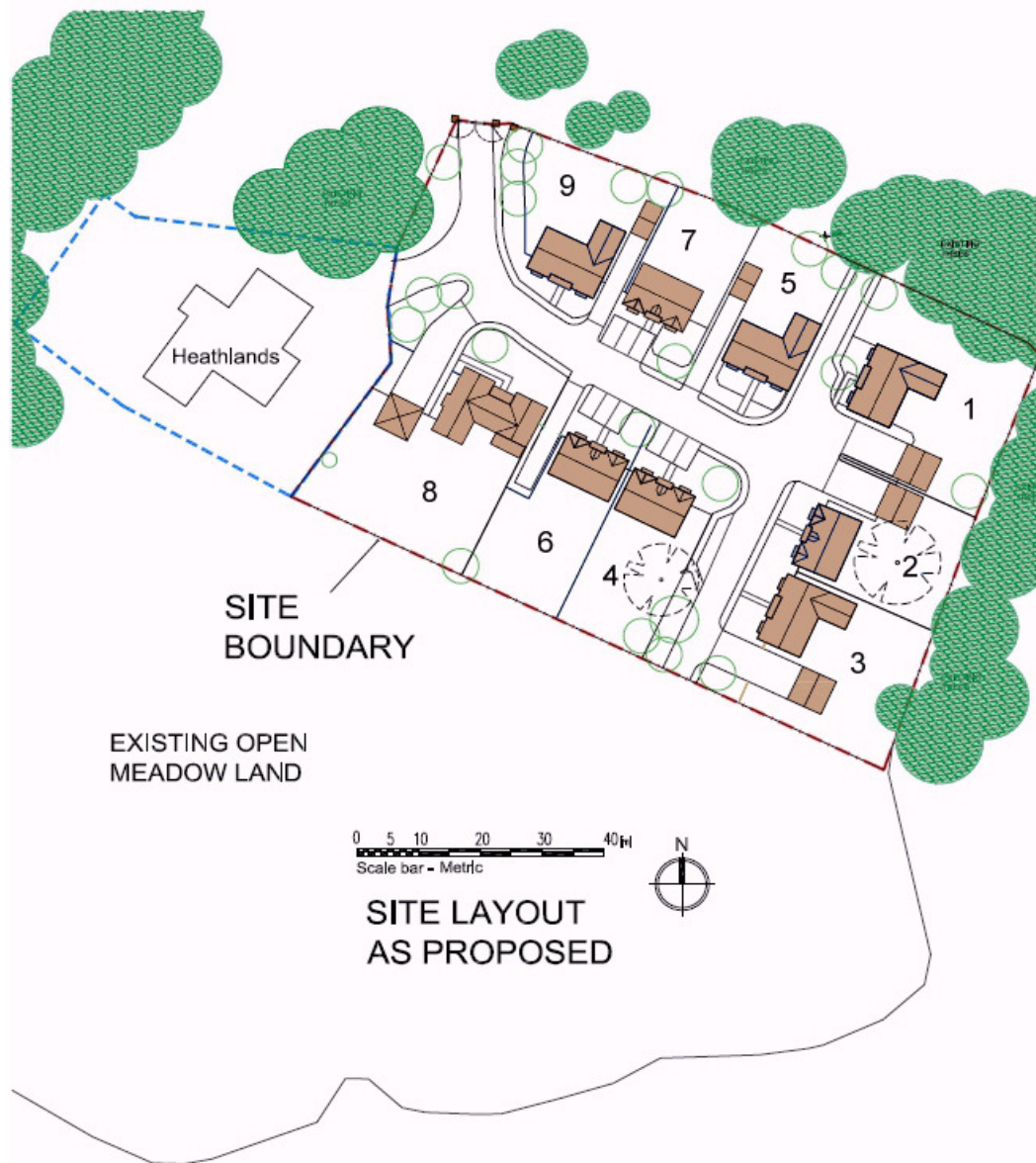
The site foul water disposal system will be separately designed by a drainage engineer to collect foul water and discharge to existing sewers. The foul water will not enter the surface water system outlined herein.

A preliminary SuDS layout is attached as Appendix 1, as an A3 size drawing. Please note this is a preliminary layout, full details are subject to detailed site investigations which cannot be carried out at present as the site has an occupied and working equestrian use.

SITE PLAN AS EXISTING - Not to scale – please see scale bar



SITE PLAN AS PROPOSED - Not to scale – please see scale bar



2. DRAINAGE STRATEGY

2.1 Flood Risk Assessment

The site is listed on the Environment Agency RoFRS flood map as being in Zone 1 in an area of very low risk. It is highly unlikely to flood, even in extreme weather events. However, under the Flood Risk Regulations, 2009 a change from the current equestrian use to residential will require a flood risk assessment to be commissioned. Site maps are attached as Appendix 3 which were obtained using the on-line RoFRS flood map facility.

2.2 Soil Type Assumptions.

Geologically, Wokingham sits at the northern end of the Bagshot Formation, overlying London clay, suggesting a prehistorical origin as a marine estuary. The area is therefore assumed to be predominantly sandy gravel over clay with a CBR of between 15 – 30%. Site checks are to be carried out on site to establish the exact local soil type and percolation performance and results informed to the Engineer designing the final SuDS.

2.3 Surface Water Disposal Proposed

Surface water for impermeable surfaces and run-off from permeable surfaces will be directed to discharge into attenuation cells as later described. One 250 ltr rainwater butt per property is proposed for rainwater retention, with overflows into the gravity surface water disposal system & into the soak away attenuation cells as later described.

2.4 Permeable Areas – Materials proposed.

It is proposed to use permeable tarmac surfacing for access roads, footways & parking areas, permeable block or brick paving for private paths & patios and to provide grass surfacing & planting areas. Contrasting colour tarmac is proposed to differentiate parking areas from the highway. Each property is provided with a proposed EV charging space. Proposed access drive is to be edged in British standard bullnose kerbs with cross-overs and demarcation paving in the Marshalls Piora system or similar approved studded pavings in contrasting colours.

2.6 Drainage Areas for Surface Water

The overall site area is 7515.8 sq. metres (m²) – or just over 0.75 ha. Much of this will remain as rear gardens, grass & planting areas.

The impervious surfaces areas /footprint areas are as follows -

Residential area – 9 Units	951.0 m ²
Residential area – garages	179.6 m ²
	1130.6 m ²

an allowance for possible
impervious surfacing introduced post-development :-

Private paths, binstores etc -	108 m ²	(12 m ² per dwelling allowance, bins,
	1238.6 m ²	Total Impervious

Permeable areas -

Permeable drive -	1048.70 m ²
Parking areas -	571.70 m ² permeable paving
Footways -	212.22 m ² permeable paving
	1832.62 m ² Total x 40% = 733 m ² (see below)

Grass frontages -	1031.20 m ² (not included above as fully permeable)
	4102.42 m ² Total

Natural areas -

Site planting areas retained = 7515 m² – 4102.42 = 3412.6 m² (0.52 ha).

The fully impermeable area for the site is to be drained to the SuDS system, along with approximately 40% run-off from permeable paved areas to account for rainfall / surface water not passing directly through permeable areas which adds 733 m².

Added together, impermeable footprint plus run-off & including allowances for future impermeable areas of 12m² per unit = 1238.6 + 733.6 = 1972 m²

Storm flow from this area will need collecting (via trapped interceptor gulleys) to the proposed attenuation tanks.

To use calculations based on the

*For a 2 minute storm with a 5 year return period = (0.032 l/s per m² to BSEN 12056-3:2000) this equates to a rainwater / surface water storage capacity required of;
 $1972 \times (50/3000) = 32.87 \text{ m}^3 \text{ total} - \text{say } 36 \text{ m}^3.$*

3. SURFACE WATER STORAGE SYSTEM PROPOSED

3.1 Attenuation Cells Proposed

It is proposed that the areas as indicated on the Proposed SuDS Site Plan attached can house the proprietary attenuation cells to store the rainwater run-off from the site temporarily and to allow this to filter into the ground beneath naturally through a geotextile membrane into the existing subsoil below. Wavin Aquacell units are the proposed specification.

Aquacells are a plastic open crate, 1.0m in length x 0.5m wide x 0.4m deep. Each is designed to provide a void space of 0.2 m³ each.

The proposal will require banks of these in a formation based on the number of cells required by calculation. The cells need 900mm cover in grass / non vehicle areas and 1200mm cover in vehicle areas.

They must be 5 metres from any buildings and 2.5 metres from any boundary. The cells are to be wrapped in a suitable geotextile membrane. Soil tests on site following a Planning Approval will be taken to provide input data for membrane selection and final SuDS design.

3.2 Attenuation calculation for 100 year storms;

The basis for calculating the expected flow used above is the 5 year return 2 minute storm (0.032 l/s per m² to BSEN 12056-3:2000).

As the climate changes a better basis is a 2 minute storm with a 100 year return period -

Storage Volumes ;

1. Input for less frequent storms -

From surface water drainage to impermeable areas for a 2 minute storm with a 100 year return period = (0.064 l/s per m² to BSEN 12056-3:2000) this equates to a storage capacity required of double the previous calculation result -

$$= 72 \text{ m}^3 \text{ total} = 72 / 0.2. = 360 \text{ number cells.}$$

2. *This would suggest that 360 cells are adequate, and it would be best to site these by forming 2 separate tank arrays on site, in locations & sizes indicated on the last page.*

This equates to 2 arrays of a matrix of 180 cells installed with 0.9m cover in pedestrian / garden areas and 1.2 metre cover under road and / or parking areas.

An array of 180 cells can be installed in positions as indicated on the attached SuDS layout drawing 2409/01 which is also included at reduced scale on the last page of this statement.

4.4 Areas on Site for Attenuation Cells.

The technical requirements under the Building Regulations for positioning means that the arrays can be sited with appropriate cover as indicated on the drawing on the last page of this statement.

The geotextile filter membrane around the proposed cells must be designed to release the stored water into the subsoil at a rate to be agreed based on the general capacity of the soil type subject to the final soil tests on site. Final calculations for the system must be carried out by the site Engineer following full site testing.

As a check, a calculation sheet using the Wavin Aquacell sizing system is also attached as Appendix 2.

NOTES:

This statement, the layout plan and the Wavin approximation attached are based on a number of assumptions which are made at this pre-application design stage for this project. No site specific investigations have been carried out to form this information or for any final designs for the project. The Wavin Aquacell calculation attached as Appendix 2 is a preliminary base calculation made by the author using the Wavin on-line calculation tool. It is not to be used for construction information.