
Blackmore Farm, Melksham

Drainage Technical Note 10466 – TN – 002

Introduction

This technical note has been prepared on behalf of David Wilson Homes in relation to the proposed residential development at Blackmore Farm, Melksham. The purpose of this note is to set out the proposed drainage strategy, specifically responding to the comments raised by LLfA.

Comments were received from the LLfA dated 12th May 2026 which broadly accepted the drainage proposals, however sought further clarification in relation to existing surface water catchments, flood exceedance flows and confirmation of how the proposals will adhere to the SUDS National Guidance.

Catchment Analysis

The wider site generally falls from north to south, however there is a small area of the site (2.2Ha) that has been identified as falling in a northwest direction identified in drawing 10466 – 111 – 01. The LLfA claims that draining the whole site to the south per the approved drainage strategy contradicts the natural catchments, thus increasing flows to the southern watercourse. During a meeting with Ben Wilding of the LLfA, and subsequent emails, it was suggested that Phoenix Design demonstrate what the increase in flows to the south upon completion of the development. This was shown on drawing 10466 – 111 – 01 demonstrating that the area in question will contribute 6.5l/s in the 1 year event and 11.9l/s at Qbar, however, since the site is restricted to these flows, the increase in flow will have no impact in the less frequent events maintaining the improvements the LLfA seek.

Drawing 10466 – 111 – 01 was issued to Ben Wilding on the 17th June 2026 with confirmation that the proposals were deemed acceptable on the 19th June 2026.

National SuDS Standards

In line with the introduction of the National SuDS Standards, we propose to substitute all grass verges with bioretention verges, all on plot parking will consist of permeable paving at the attenuation will be provided in the form of dry basins. The interception (first 5mm) will be achieved via volumetric calculations as has been agreed with the LLfA.

The water quality aspect will be confirmed using the 'Simplified Index Approach' per Ciria SuDS Manual.

The SuDS features used are as follows:

Permeable Paving

Permeable paving systems provide an effective means of managing surface water runoff at source by promoting interception, storage and controlled conveyance within the underlying sub-base. By retaining runoff close to where it is generated, permeable paving assists in reducing peak flow rates and runoff volumes entering the wider drainage network.

In addition to their hydraulic benefits, permeable paving systems provide a degree of water quality treatment through the filtration and settlement of pollutants within the pavement structure. Numerous studies have demonstrated their effectiveness in reducing concentrations of sediments, hydrocarbons and heavy metals commonly associated with urban runoff. As such, permeable paving can contribute towards satisfying both the hydraulic control and water quality objectives of the National SuDS Standards.

Bioretention Verges

Bioretention verges are proposed alongside the principal access routes in the form of landscaped verges. These shallow vegetated features provide source control by intercepting, conveying and temporarily storing surface water runoff whilst promoting treatment close to where runoff is generated.

The systems are particularly effective at managing frequent rainfall events by providing interception storage within the engineered soil profile. Surface water is subsequently lost through evapotranspiration, uptake by vegetation and controlled conveyance to downstream SuDS features.

Bioretention verges also provide a high level of water quality treatment. Sediment is captured at the surface whilst the underlying filter media assists in the removal of pollutants commonly associated with urban runoff, including hydrocarbons, nutrients and heavy metals.

In addition to their drainage function, bioretention verges can deliver significant amenity and biodiversity benefits through the incorporation of native planting and habitat creation. The flexibility of these systems allows them to be integrated within the streetscape whilst contributing to the requirements of the National SuDS Standards.

The detailed design of the bioretention verges will be undertaken in accordance with the CIRIA SuDS Manual (C753) and relevant industry guidance, including *Designing Bioretention Verges: A Practical Guide* published by Urban Design London.

Swales/ Ditches

Swales and conveyance channels will be used to convey surface water from the basins to the receiving watercourse. These shallow, vegetated systems typically comprise broad, flat bases and gently sloping sides which enable them to convey runoff efficiently whilst providing opportunities for temporary storage and treatment.

Due to their shallow gradients and larger cross-sectional area, swales are capable of conveying greater flow volumes than conventional piped drainage systems whilst maintaining a visible, above-ground drainage pathway. Where designed appropriately, the systems can

reduce flow velocities, increase detention times and promote the settlement of suspended solids.

Water quality treatment is provided through filtration within the vegetation and underlying soils, with performance enhanced where shallow longitudinal gradients can be achieved. In locations where steeper gradients occur, the incorporation of check dams may be required to reduce flow velocities, increase storage volumes and maximise treatment performance.

In addition to their hydraulic and water quality functions, swales can provide significant biodiversity and amenity benefits through the use of native planting and integration within the site's green infrastructure network.

All swales and conveyance channels will be designed in accordance with the CIRIA SuDS Manual (C753), with sufficient capacity provided to accommodate the 1 in 100 year rainfall event, including an appropriate allowance for climate change.

Detention Basins

Detention basins are proposed as the principal regional attenuation features within the site-wide drainage strategy. These above-ground SuDS components provide temporary storage of surface water runoff where discharge rates are restricted to greenfield conditions prior to release to the receiving watercourse network.

Detention basins are typically dry under normal conditions and only retain water during and immediately following rainfall events. By temporarily storing runoff and releasing it at a controlled rate, the systems reduce peak flow rates and downstream flood risk whilst contributing towards compliance with National SuDS Standards

In addition to their hydraulic function, detention basins provide a degree of water quality treatment through the settlement of suspended solids and removal of buoyant materials. The level of treatment generally increases with detention time, making these features particularly effective when integrated with upstream source control and conveyance SuDS components.

Detention basins can also provide significant amenity and biodiversity benefits when incorporated within the site's green infrastructure network. Through appropriate landscaping and planting, the features can create attractive public open spaces whilst contributing to habitat creation and ecological enhancement. Where appropriate, detention basins may incorporate permanent wet areas, ponds or wetlands to further enhance biodiversity and water quality performance.

All detention basins will be designed in accordance with the CIRIA SuDS Manual (C753), with sufficient capacity provided to accommodate the 1 in 100 year rainfall event, including an appropriate allowance for climate change.

Conclusion

- Potential increase in flows to the south have been calculated as being negligible and agreed with the LLfA.
- National SuDS Standards will be adhered to, using volumetric calculation and the Simplified Index Approach to demonstrate adherence.