Engineers Comments Regarding Surface Water Drainage

Application Reference:	BE/44/25/PL	**Reviewer Reference:**	ADC/PC
Planning Officer:	Hannah Kersley	**Date of Review:**	31/07/2025 & 04/11/2025
Site Name:	Land adjacent to 21 Greencourt Drive Bersted PO21 5EU		
Application Description:	2 No 2 bedroom detached bungalows with associated car parking and bin and bike stores (resubmission following BE/70/24/PL. This application is in CIL Zone 4 and is CIL Liable as new dwellings.		
Assessment Number:	1 of 1		

Policy and Guidance Information

Arun District Council Surface Water Drainage Guidance - https://www.arun.gov.uk/surfacewater

Land Drainage Consent – https://www.westsussex.gov.uk/fire-emergencies-and-crime/dealing-with-extreme-weather/flooding/flood-risk-management/ordinary-watercourse-land-drainage-consent/
and
https://www.arun.gov.uk/land-drainage-consent/

Arun District Council surface water pre-commencement conditions -
https://www.arun.gov.uk/planning-pre-commencement-conditions

The SuDs Manual [C753] by CIRIA

Sustainable drainage systems: non-statutory technical standards'
https://assets.publishing.service.gov.uk/media/5a815646ed915d74e6231b43/sustainable-drainage-technical-standards.pdf

National standards for sustainable drainage systems
National standards for sustainable drainage systems - GOV.UK

Response	**Objection**

Critical Items for Surface Water Drainage Design Conditions

The failure to adequately address the following items will result in an objection to a surface water drainage design.

If any of these items are inadequately addressed by the submission, then their correction may result in a redesign of the surface water drainage scheme. A redesign is likely to have site wide implications such as the potential for storage structures to increase in volume or plan area.

Critical Item	Reason	Status
Winter groundwater monitoring data.	Adequate winter groundwater monitoring data must be supplied to evidence that infiltration designs have sufficient freeboard from the base of structures and the peak groundwater level.	**Sufficient**

	The same data is necessary to ensure that the potential for buoyancy has been adequately considered in attenuation designs.	
Winter infiltration testing data.	Adequate winter infiltration testing must be supplied to justify the proposed discharge method and design infiltration rates. Infiltration tests must be completed strictly in accordance with BRE DG 365, CIRIA R156 or a similar approved method. Testing depths must account for peak groundwater levels and correspond with the location and depth of proposed infiltration features. Designs must be based upon the slowest infiltration rate evidenced closest to a proposed infiltration feature. Average design rates will not be accepted. The results of incomplete tests should not be extrapolated to obtain design values for infiltration rates.	**Sufficient – infiltration not deemed feasible due to high groundwater and difficulty to achieve one metre freeboard.**
The hierarchy for sustainable drainage.	The proposed discharge method must accord with the SuDS hierarchy as given below. Evidence must be supplied to justify the proposed discharge method. 1. Rainwater reuse where possible. 2. Complete discharge into the ground (infiltration). 3. Hybrid infiltration and restricted discharge to an appropriate water body or surface water sewer. 4. Restricted discharge to an appropriate water body. 5. Restricted discharge to a surface water sewer. 6. Restricted discharge to a combined sewer. A water body may be defined as a river, watercourse, ditch, culverted watercourse, reservoir, wetland or the sea. **Engineers cannot support any proposed connection of surface water to the foul sewer.**	**Sufficient – the provision of rainwater harvesting facilities (in addition to smart water butts) will be required but can be dealt with via condition.**
Calculations	Calculations for pre-development run off rates must be based upon the positively drained area only.	**Sufficient**

	Proposed discharge rates must not increase flood risk on site or elsewhere. Discharge rates must be restricted to QBAR or 2 l/s/ha, depending on whichever is higher.	
	Designs must be based on the most recently available rainfall data at the time of conditions being applied. **FSR rainfall data will not be accepted.** FEH rainfall data is based upon more recent records and continues to be updated.	**Sufficient**
	Designs must use the correct climate change allowances at the time of determination of the outline or full planning application. CV values for all events must be set to 1. This includes summer, winter, design, and simulation events. The correct allowance for urban creep must be applied. Additional storage must be set to zero unless it can be evidenced where this is provided. Infiltration half-drain times must be less than 24 hours. Infiltration design rates must be applied to the sides of soakaways, or to the base of infiltration blankets. Design rates must not be applied to both the base and sides of infiltration structures. A surcharged outfall must be modelled.	**Insufficient- refer to comments below.**
Natural catchments design.	The submission must define the natural drainage characteristics within, and hydraulically linked to, the site and demonstrate that the drainage proposals will integrate with and not compromise the function of the natural and existing drainage systems. The condition, performance (including capacity where appropriate) and ownership of any existing site surface water drainage infrastructure must be accurately reported. Appropriate easements to watercourses and other services must be shown on all plans.	**Sufficient**

	Where there are areas of flood risk from any source on the site, it must be shown how a sustainable surface water drainage design can be accommodated on the site without conflicting with those areas of flood risk. Designs must replicate the natural drainage catchments of the site. All surface water drainage designs must therefore drain via gravity to corresponding points of discharge. **The use of pumps for surface water drainage is not sustainable and will not be supported**. .	
Plans	Plan areas, depths and levels of drainage infrastructure must accurately correspond with the supporting calculations.	**Sufficient**
Water quality benefits.	An assessment of water quality is necessary to evidence that the proposed design provides adequate treatment of surface water.	**Sufficient**
Trees and planting	There should be no conflict between surface water drainage infrastructure and existing or proposed trees or planting. The design must consider the potential growth of proposed trees and adequate mitigation must be provided to protect drainage infrastructure where conflict **cannot** be avoided.	**Sufficient**

Additional comments to the planning officer

The NPPF states that when determining any planning application, local planning authorities should ensure that flood risk is not increased elsewhere (paragraph 173 and 180e). The PPG guides local planning authorities to refer to 'Sustainable drainage systems: non-statutory technical standards' and detailed industry guidance like The SuDS Manual [C753] by CIRIA to guide decisions about the design, maintenance, and operation of sustainable drainage systems for non-major development.

This consultation has been primarily informed by The SuDS Manual.

Further comments beyond our previous consultation have been detailed in red highlighted text.

Essentially, further information is required so that we can adequately assess if flood risk will be increased by the proposed development. **As a result, this application does not accord with the NPPF as set out above.**

Overcoming our objection

As this is not a holding objection or a request for further information, I am not listing requested conditions. If you are minded to approve this application, please reconsult me for a list of suggested conditions to ensure that the development is adequately drained and does not increase flood risk elsewhere.

The imposition of conditions at this stage rather than overcoming my objection could result in a circumstance where the condition cannot be discharged. In the event of attaching a condition that cannot be discharged, permission may be invalid.

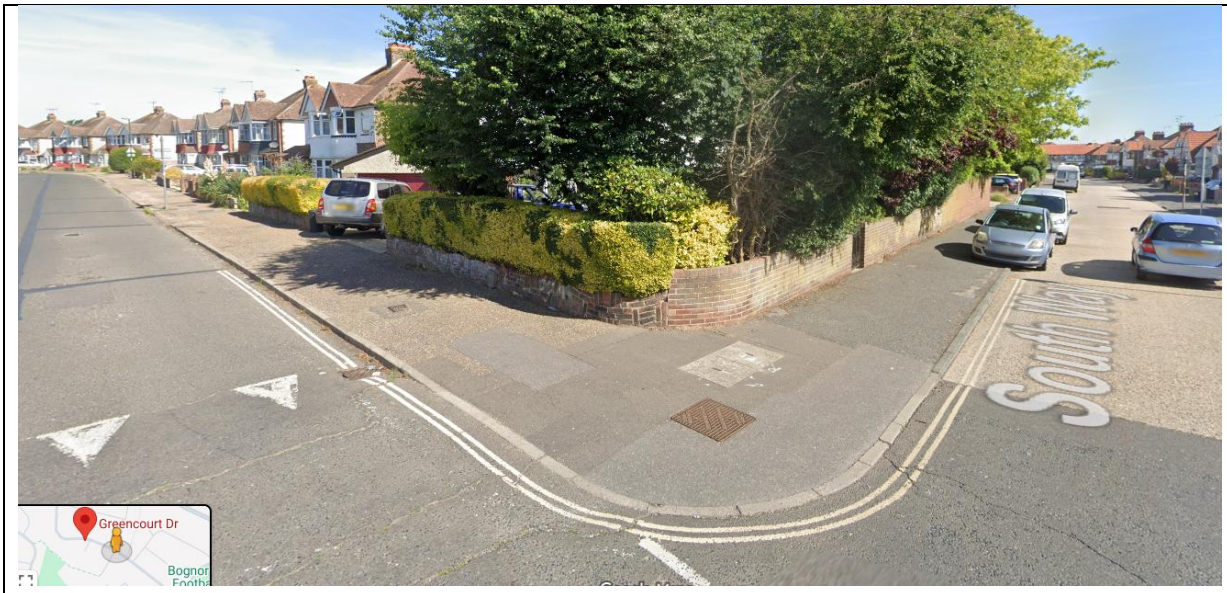
If the planning officer is minded to allow the applicant additional time to submit further documents to support this application, then the following evidence may overcome our objection. Please do not submit further documents without prior discussion with the planning officer as to whether it will be possible for these to be assessed or influence their determination.

The matters listed below need to be resolved/agreed in order for our objection to be reconsidered;

1. The proposed discharge rate is excessive for a development of this scale and exceeds the requirements of the National Standards . In this instance, we are prepared to agree a rate of 0.5 l/s in order to help provide a practical solution. Restricting flows to such rates, will result in a flow control device of a small diameter, which needs protection from blockage. However, provided all flows pass through the permeable paving, as currently proposed, then this will act as a means to reduce the risk of blockage. Additional measures can be incorporated as part of the detailed design at a later stage. A suitable revised scheme therefore needs to be provided, to accommodate the increase in storage required, etc. Resolved – 0.5 l/s now proposed

2. Evidence of permission in principle from Southern Water is required, in respect to the proposed connection of surface water to the Public Surface Water sewer, at the discharge rate discussed above. Unresolved – evidence not received

3. The applicant should note that the existing manhole being connected to at the junction of Greencourt Drive and South Way may be at a slightly different location to that shown on the drainage layout plan ie. more into the footpath. Also, it would be advisable to ensure that no third party utility mains/services, including the existing highway drainage in Greencourt Drive, conflict with the routing and levels of the proposed pipework, etc. This matters may result in having to reconfigure the proposed offsite pipework to enable a suitable connection. Unresolved – no response received – see image below of the actual manhole position.



4. It is noted that there will be a considerable length of 'offsite' pipework and associated manhole/s. Confirmation is required as to whether these assets are to be adopted by a Water Company. Evidence of agreement in principle from the Water Company will be required. It is unlikely, that West Sussex County Council (WSCC), as Highway Authority will permit an unadopted arrangement in the public highway and therefore it is important to establish its future status. If adoption is not sought, then confirmation will be required from WSCC that the principle of the arrangement is acceptable to them. Unresolved – no response/evidence received

5. The hydraulic calculations have not been checked as a result of item 1. However, they will need to be altered to reflect the revised scheme that is now required. Urban creep at 10% must be included, irrespective of the sites perceived constraints. A surcharged outfall must also be modelled. Ensure that the calculations reflect the invert level of the proposed flow control devices. Provide a copy of the FEH point descriptors file, so they parameters can be checked. Urban creep noted as included in the catchment plan calculations (overestimated due to being applied to areas beyond just the roofs).

   The proposed pipe network around the two properties should be included in the hydraulic model.

   A surcharged outfall has been indicated but there is no evidence to suggest how this level has been determined. If Southern Water do not have a modelled water level within the existing public surface water sewer for the 1 in 100 year storm event + climate change, then worst case scenario needs to be assumed ie. cover level of 7.70

   The hydraulic modelling provided has not included any storm simulations. These need to be provided in accordance with the following;

   50% Annual Exceedance Probability [AEP] + Climate Change Allowance [CCA] (1 in 2 year) event calculations provided.

3.33% AEP + CCA (1 in 30 year) event calculations provided showing that the full surface water volume is contained within the designed system without flooding.

1% AEP + CCA (1 in 100 year) event calculations provided showing that the full surface water volume is contained safely on site, without flooding any part of a building or utility plant susceptible to water or affecting safe access or egress.

6. Provide an impermeable area plan to support the hydraulic calculations. Resolved

7. The drainage layout must include the pipework/manhole arrangements around the two dwellings and show the connectivity to the permeable paving. Manhole cover levels, invert levels, pipe diameters and gradients to be included. All diffuser units (including those linking the permeable pavements) to have inverts specified. Indicate diameters/gradients of all link pipes. Silt traps to be incorporated prior to any discharge into permeable paving. Resolved

8. Provide a location plan for the water table monitoring boreholes, to confirm that they are located on site. Resolved

9. Interception drainage needs to be considered. This could take the form of smart water butts and/or other methods of rainwater harvesting. Indicate on drainage layout. Resolved – additional rainwater harvesting facilities to BS EN 16941 to be provided, in addition to the smart water butts proposed – To be dealt with via condition.

A surface water design checklist is available on our website at https://www.arun.gov.uk/surfacewater/. **If the design is amended following receipt of our consultation the designer may need to refer to the full checklist to ensure that the revised design meets our requirements.**

This checklist is designed to aid an applicant with their submission. The list is not exhaustive, and our engineers may request additional information to enable them to review a proposal to their satisfaction.

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Arun District Council, Civic Centre, Maltravers Rd
Littlehampton, West Sussex, BN17 5LF
www.arun.gov.uk

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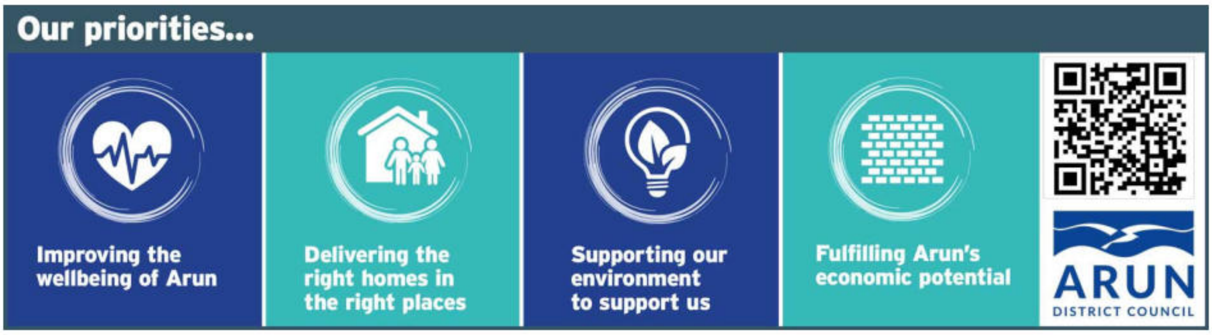

From: Paul Cann <Paul.Cann@arun.gov.uk>
Sent: 05 November 2025 10:44
To: Planning.Responses <Planning.Responses@arun.gov.uk>
Cc: Sarah Burrow <Sarah.Burrow@arun.gov.uk>; Hannah Kersley <Hannah.Kersley@arun.gov.uk>
Subject: RE: Planning Consultation on: BE/44/25/PL

Please find enclosed my consultation, sustained objection.

Regards

Paul Cann

Principal Drainage Engineer, Coastal Engineers and Flood Prevention

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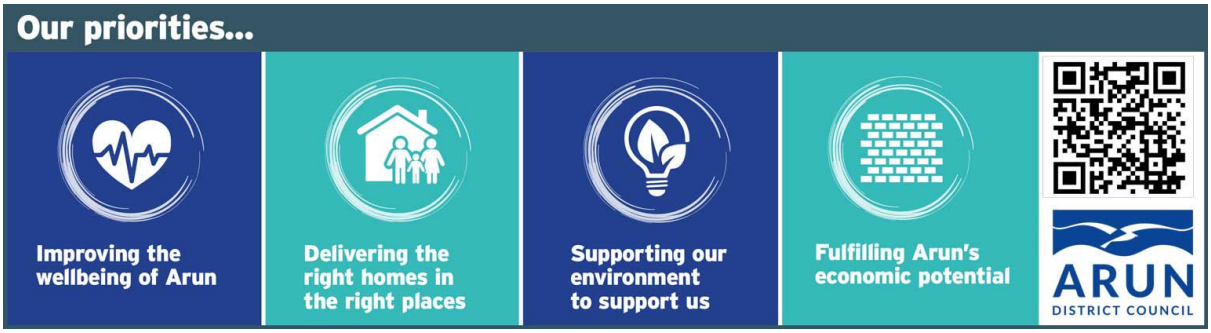

From: Planning.Responses <Planning.Responses@arun.gov.uk>
Sent: Thursday, August 28, 2025 9:33:51 AM (UTC+00:00) Monrovia, Reykjavik
To: Land Drainage <Land.Drainage@arun.gov.uk>
Subject: Planning Consultation on: BE/44/25/PL

To: **Engineers (Drainage)**

NOTIFICATION FROM ARUN DISTRICT COUNCIL

TOWN AND COUNTRY PLANNING ACT 1990

Application No:	**BE/44/25/PL**
Registered:	14th April 2025
Site Address:	Land adjacent to 21 Greencourt Drive Bersted PO21 5EU
Grid Reference:	492190 100365
Category:	Plan Applicat'n
Description of Works:	2 x No. 2 bedroom detached bungalows with associated car parking and bin and bike stores (resubmission following BE/70/24/PL). This application is in CIL Zone 4 and is CIL Liable as new dwellings.

I am able to inform you that I have received an amendment to the above application dated 28th August 2025 relating to:- Additional and amended drainage information.

If you should wish to make further representations as a result of this amendment, please make any further comment by **18th September 2025.**

Click here to view the application, documents and make further comments

Please be aware that Planning Services operate an 'open file' policy and will publish your comments including your name and address on the website. We will aim to redact signatures, telephone numbers and email addresses but please help us by not incorporating them in the body of your text. Please make sure that you only include information that you are happy will be published in this way. If you supply information belonging to a third party, you must make sure you have their permission to do so.

Yours sincerely

Hannah Kersley

Planning Case Officer- Arun District Council

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