

Engineers Comments Regarding Surface Water Drainage

Application Reference:	M/39/24/DOC	Reviewer Reference:	ADC/PC
Planning Officer:	Kathryn Welch	Date of Review:	21/01/2025
Site Name:	117 Elmer Road Middleton-on-Sea PO22 6LH		
Application Description:	Approval of details reserved by condition imposed under reference M/84/23/PL relating to condition number 7 - surface water drainage scheme.		
Assessment Number:	2 of 2		

Policy and Guidance Information

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

WSCC Policy for the Management of Surface Water-

https://www.westsussex.gov.uk/media/12230/ws_ifa_policy_for_management_of_surface_water.pdf

Land Drainage Consent - <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>

Response

Condition 7: **Objection**

Critical Items for Surface Water Drainage Design Conditions

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

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.

Items are further elaborated upon in the attached comment tracker where necessary.

Further comments which are unlikely to impact the design methodology will be provided in the comment tracker, these relate to the detailed design. Unless clearly stated, it is considered that these additional comments are unlikely to result in a redesign of the system. These can be addressed following a second consultation to prevent unnecessary refusals.

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. The same data is necessary to ensure that the potential for buoyancy has been adequately considered in attenuation designs.	Compliant – as previously agreed

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.	Compliant
The hierarchy for sustainable drainage	The proposed discharge method must accord with the Building Regulations & SuDS hierarchy, evidence must be supplied to justify the proposed discharge method.	Compliant
Calculations	Calculations for pre-development run off rates must be based upon the positively drained area only. Proposed discharge rates must not increase flood risk on site or elsewhere. A minimum discharge rate of 2 l/s/ha must be applied.	Compliant
	Designs must be based on the most up to date 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.	Compliant
	Designs must use the correct climate change allowances at the time of conditions being applied. 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.	Insufficient – CV values unclear. Other elements compliant.

	A surcharged outfall must be modelled.	
Natural catchments design	Designs must replicate the natural drainage catchments of the site. All surface water drainage designs must therefore drain via gravity. The use of pumps for surface water drainage is not sustainable and will not be accepted.	Compliant
Plans	Plan areas and depths of drainage infrastructure must accurately correspond with the supporting calculations. A 3m easement must be provided from all watercourses and open SuDS features for maintenance purposes. This easement must be clearly shown on all plans.	Compliant
Water quality benefits	An assessment of water quality is necessary to evidence that the proposed design provides adequate treatment of surface water.	Insufficient but not required as silt traps will capture debris from residential roofs.
Trees	There should be no conflict between surface water drainage infrastructure and existing or proposed trees. 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.	Not supplied - assumed to be compliant.

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 information is required to ensure that the proposed soakaway has been designed correctly and that it can be constructed as designed without increasing flood risk on site or elsewhere.

Please see the attached comment tracker for further detail.

Application Reference: M/39/24/DOC Site Name: 117 Elmer Road Middleton-on-sea PO22 6LH	Initial Issue Date: 03/09/2024 Issue Date: 21/01/2025 Reviewer Reference: ADC/PC
---	--

Summary and Recommendation:

Condition 7: **Further information required.**

Please note: Any DOC application should only have a maximum of two consultation responses. If this is the second response for an open application and there are still comments outstanding, then please recommend that the application is refused.

	ADC Drainage Comments	ADC Further Comment	ADC Drainage Comments	ADC Drainage Comments	
Date:	26/02/2024 [M/5/24/DOC – ADC/SB]	[M/5/24/DOC – ADC/SB]	03/09/2024	21/01/2025	

Condition Number: 7

Comment Number					
	Groundwater monitoring and infiltration testing results are accepted. [The design rate of 8.2 x 10 ⁻⁶ m/s at a design depth of 1.2m].				
1.	Calculations should be based upon FEH rainfall data. (Currently FSR).	Thank you – point closed.			
2.	The proposed soakaways appear to be undersized. The calculations specify a total volume of 6.28m ² per housing unit. The layout shows a total volume of 2.28m ³ per unit (split between two soakaways,	Thank you – point closed.			

Surface Water Drainage Comment Tracker

	one at the front and one at the rear).				
3.	The soakaways at the front of the proposed properties are positioned too close together, ideally these should be 5m apart.	Thank you – described in method but not shown clearly on the layout. Please mark.	Thank you – point closed.		
4.	Please provide catchpits/silt traps upstream of all soakaways.	Thank you – point closed.			
5.	The drainage layout requires further detail. Please see guidance note k on the attached drainage checklist for the level of detail required.	Soakaways need to be labelled with base levels and cover levels. Silt traps (which will also be inspection chambers) need to be labelled with cover levels and pipe invert levels. The invert level of '300' given for the soakaways is unclear if it relates to the incoming pipe invert level – which we need, or the base of the soakaway. It is unclear what the 300 relates to, mm below ground level?	Please see points 10 and 11 below regarding 'levels' vs 'depths below ground level' and the risk involved with this descriptor.	Please see comments 14, 17, 19, 20-23 below.	
6.	Please supply construction detail drawings of soakaways, pipe bed and surround, and catchpits/silt traps.	Not provided – the description of the scheme is noted but technical drawings are required.	Outstanding, please see points 12 and 14 below.	Provided – see comments 14, 15, (19), 22, (23), 26-28 below.	

Surface Water Drainage Comment Tracker

7.	Please ensure that your drainage layout clearly indicates that soakaways are positioned 5m from the proposed properties.	Thank you – point closed.			
8.			Please provide the winter storm profile calculations as they currently only appear show the summer results. Please confirm and show that the CV value is 1 – this is not shown on the calculation output. It would be helpful if the full calculations output or copy of the program was provided for both summer and winter storms as the format is unfamiliar.	Summer CV is 0.75, please correct to 1.	
9.			The soakaways dimensions in the calculations do not reflect the soakaways that are proposed on the layout and section. Please submit revised calculations.	New design, point closed.	
10.			Please stipulate the gradient of the pipe between the silt trap and the soakaway on the soakaway section drawing	Gradients provided. Pipe upstream of SWM1 does not include gradient and is likely steeper than 1 in 100 as described by the notes.	

Surface Water Drainage Comment Tracker

			as the current drawing assumes level ground. If the ground is not level, then basing the design drawings only on dimensions below ground level can risk an inadequate gradient and siltation of the pipes.		
11.			The cover level of the soakaway is likely to be more than 400mm to achieve a 1 in 40 gradient for the length of pipe proposed. Please adjust the design as necessary.	New design. Point closed.	
12.			Please provide full construction details for the silt traps.	Point closed.	
13.			Please specify the distance of the vertical pipe drop into the soakaway (from the top of the soakaway to the top of the pipe. [An alternative option is to have the incoming pipe at the side of the soakaway into one of the likely prefabricated inlets. This will aid the designer in achieving the specified gradients without altering the depth of the soakaway.]	New design. Point closed.	

Surface Water Drainage Comment Tracker

14.			Please specify the manufacturer and model of the crates being used, these need to be checked to ensure that they are capable of carrying the loads at the specified depth, particularly under the driveway.	Notes state 'or similar'. The exact crate must be specified, or the specifications of an alternative. Is capable of withstanding vehicular loading at 1.2m depth.	
15.			Please specify that the non-woven geotextile is <u>permeable</u> and make it clear on the soakaway section that this is a full wrap, not just cover.	Please also label the membrane below the tarmacadam on the permeable paving detail.	
16.			Please specify the subbase material beneath the driveway including its depth. [Natural ground is unlikely to support a vehicle. Please note that Type 1 material will not be acceptable as it is not permeable.]	New design. Point closed.	
17.				Why is there no rodding eye or inspection chamber north of proposed 117a at the junction of the RWP? Upstream of SWM1.	
18.				The design has changed to two (rather than 4) soakaways. These are in the centre of the	

				divided front and rear gardens. How will management and maintenance be organised between the future homeowners?	
19.				Please provide a plan and details showing how that the new design for the rear soakaways will not be structurally impacted by boundary treatments – particularly in the rear gardens.	
20.				Suggested: include dimensions of the soakaways rather than just plan areas.	
21.				Soakaways must be set at 1.2m below ground level to accord with the infiltration testing (see point 1). Therefore, the soakaways must be set deeper.	
22.				Soakaway base levels appear to not be consistent between the construction details and the layout. It is assumed that the IL labelled directly next to the soakaways relate to the incoming pipe invert levels . Please clarify. It is suggested that the incoming pipe invert level, or the base of the soakaway are labelled with different notation on the layout to avoid confusion.	

Surface Water Drainage Comment Tracker

23.				Suggested: A link could be provided between the permeable paving subbase with a diffuser unit connected to SWM6 so that the two systems are linked to maximise infiltration and storage. This is suggested on the basis of a lack of design infiltration rate at the proposed depth of the now formal permeable paving construction. If provided, please provide a construction detail drawing, to include base level of diffuser, and invert level at the point of connection of the catchpit.	
24.				Climate change allowance for the 1% AEP event must be 45%.	
25.				Please provide 10% + CCA and 3.33% AEP + CCA calculations.	
26.				Please specify catch pit diameter.	
27.				Typical crate soakaway refers to a slotted pipe, it is not clear why. Please adjust.	
28.				Rodding eye detail, the pipe diameter needs to be corrected to 100mm in accordance with the design.	

Surface Water Drainage Comment Tracker

29.				The design infiltration rate has been applied to the base and the sides of the soakaways and permeable paving in the calculations. Please apply to the base OR the sides, not both. The design infiltration rate must be 0.02952m/hr or 8.2×10^{-6}m/s (as per point 1).	
30.				Please provide construction detail for oblique pipe to pipe connections/junctions.	
31.				Please illustrate exceedance flow routes.	

From: Nicola Oktay on behalf of Planning.Responses
Sent: 22 January 2025 10:04
To: Planning Scanning
Subject: FW: Planning Re-Consultation on: M/39/24/DOC
Attachments: M-39-24-DOC - 117 Elmer Road 2.docx; M-39-24-DOC - 117 Elmer Road Comment Tracker.docx

Drainage Engineers response

Nikki Oktay
Planning Receptionist, Planning Department

T: 01903 737965
E: Nicola.Oktay@arun.gov.uk

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

To register to receive notifications of planning applications in your area please go to <https://www1.arun.gov.uk/planning-application-finder>



Our priorities...



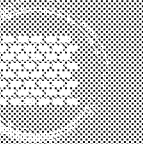
Improving the wellbeing of Arun



Delivering the right homes in the right places



Supporting our environment to support us



Fulfilling Arun's economic potential




From: Paul Cann <Paul.Cann@arun.gov.uk>
Sent: 21 January 2025 14:21
To: Planning.Responses <Planning.Responses@arun.gov.uk>
Cc: Sarah Burrow <Sarah.Burrow@arun.gov.uk>; Karl McLaughlin <Karl.McLaughlin@arun.gov.uk>
Subject: RE: Planning Re-Consultation on: M/39/24/DOC

Please find enclosed our response.

Regards

Paul Cann
Principal Drainage Engineer, Coastal Engineers and Flood Prevention

T: 01903 737819
E: paul.cann@arun.gov.uk

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



Our priorities...



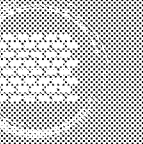
Improving the wellbeing of Arun



Delivering the right homes in the right places



Supporting our environment to support us



Fulfilling Arun's economic potential




.....
From: Planning.Responses <Planning.Responses@arun.gov.uk>
Sent: Tuesday, November 5, 2024 12:48:33 PM (UTC+00:00) Monrovia, Reykjavik
To: Land Drainage <Land.Drainage@arun.gov.uk>
Subject: Planning Re-Consultation on: M/39/24/DOC

To: **Engineers (Drainage)**

NOTIFICATION FROM ARUN DISTRICT COUNCIL

TOWN AND COUNTRY PLANNING ACT 1990

Application No:	M/39/24/DOC
Registered:	31st May 2024
Site Address:	117 Elmer Road Middleton-on-Sea PO22 6LH
Grid Reference:	498284 100135
Category:	Discharge of Condi
Description of Works:	Approval of details reserved by condition imposed under reference M/84/23/PL relating to condition number 7 - surface water drainage scheme.

I am able to inform you that I have received an amendment to the above application dated 1st November 2024 relating to: Additional plans and soakway calculations

[Click here to view the plans and documents](#)

If you should wish to make further representations as a result of this amendment you should click the link below and then click on 'Enter comment'.

[Click here to make further comments](#)

Please make any further comment by **19th November 2024**.

Please be aware that any comments you may make will be available on our website so please do not insert personal details or signatures on your reply.

Yours sincerely

Kathryn Welch

Planning Case Officer-Arun District Council

Telephone: 01903 737789

Email: kathryn.welch@arun.gov.uk

PLRECON_DOC (ODS) 2020