

## Engineers Comments Regarding Surface Water Drainage

<b>Application Reference:</b>	LU/93/25/PL	<b>Reviewer Reference:</b>	ADC/EXT2/D2134/75
<b>Planning Officer:</b>	Emma Sheppard	<b>Date of Review:</b>	03.09.2025
<b>Site Name:</b>	Units 5-7 Watersmead Business Park Norway Lane/Worthing Road Littlehampton BN17 6LS		
<b>Application Description:</b>	Part demolition, conversion, refurbishment and re-elevation of Units 5 and 6 and construction of retail (food and non-food), leisure and food & beverage units (Use Class E), together with associated car parking, access, loading areas, landscaping and associated works. This application is in CIL Zone 2 and is CIL Liable.		
<b>Assessment Number:</b>	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>

Response	Objection
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### 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
<b>Winter groundwater monitoring data.</b>	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.	<b>Compliant</b>

	The same data is necessary to ensure that the potential for buoyancy has been adequately considered in attenuation designs.	
<b>Winter infiltration testing data.</b>	<p>Adequate winter infiltration testing must be supplied to justify the proposed discharge method and design infiltration rates.</p> <p>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.</p> <p>Designs must be based upon the <u>slowest</u> infiltration rate evidenced closest to a proposed infiltration feature. Average design rates will not be accepted.</p> <p>The results of incomplete tests should not be extrapolated to obtain design values for infiltration rates.</p>	<b>Compliant</b>
<b>The hierarchy for sustainable drainage.</b>	<p>The proposed discharge method must accord with the SuDS hierarchy as given below. Evidence must be supplied to justify the proposed discharge method.</p> <ol style="list-style-type: none"> <li>1. Rainwater reuse where possible.</li> <li>2. Complete discharge into the ground (infiltration).</li> <li>3. Hybrid infiltration and restricted discharge to an appropriate water body or surface water sewer.</li> <li>4. Restricted discharge to an appropriate water body.</li> <li>5. Restricted discharge to a surface water sewer.</li> <li>6. Restricted discharge to a combined sewer.</li> </ol> <p>A water body may be defined as a river, watercourse, ditch, culverted watercourse, reservoir, wetland or the sea.</p> <p><b>Engineers cannot support any proposed connection of surface water to the foul sewer.</b></p>	<b>Compliant</b>
<b>Calculations</b>	Calculations for pre-development run off rates must be based upon the positively drained area only.	<b>Insufficient</b>

	<p>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.</p>	
	<p>Designs must be based on the most recently available rainfall data at the time of conditions being applied. <b><u>FSR rainfall data will not be accepted.</u></b> FEH rainfall data is based upon more recent records and continues to be updated.</p>	<p><b>Insufficient, latest version of FEH data must be used.</b></p> <p><b>Insufficient data on brownfield/greenfield strategy in accordance with National Standards.</b></p>
	<p>Designs must use the correct climate change allowances at the time of determination of the outline or full planning application.</p> <p>CV values for all events must be set to 1. This includes summer, winter, design, and simulation events.</p> <p>The correct allowance for urban creep must be applied.</p> <p>Additional storage must be set to zero unless it can be evidenced where this is provided.</p> <p>Infiltration half-drain times must be less than 24 hours.</p> <p>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.</p> <p>A surcharged outfall must be modelled.</p>	<p><b>Insufficient</b></p> <p><b>Design criteria is not complaint.</b></p> <p><b>Latest version of FEH data must be used.</b></p> <p><b>MADD factor must be omitted.</b></p> <p><b>Summary of half drain down required.</b></p>
<p><b>Natural catchments design.</b></p>	<p>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.</p> <p>The condition, performance (including capacity where appropriate) and ownership of any existing site surface water drainage infrastructure must be accurately reported.</p> <p>Appropriate easements to watercourses and other services must be shown on all plans.</p>	<p><b>Insufficient</b></p>

	<p>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.</p> <p>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.</p> <p><b>The use of pumps for surface water drainage is not sustainable and will only be considered where the designer has fully demonstrated that they are proposed as a last resort.</b></p>	
<b>Plans</b>	Plan areas, depths and levels of drainage infrastructure must accurately correspond with the supporting calculations.	<b>Insufficient</b>
<b>Water quality benefits.</b>	An assessment of water quality is necessary to evidence that the proposed design provides adequate treatment of surface water.	<b>Insufficient</b>
<b>Biodiversity and amenity benefits.</b>	The surface water drainage design must provide biodiversity and amenity benefits.	<b>Insufficient</b>
<b>Trees and planting</b>	<p>There should be no conflict between surface water drainage infrastructure and existing or proposed trees or planting.</p> <p>The design must consider the potential growth of proposed trees and adequate mitigation must be provided to protect drainage infrastructure where conflict <b>cannot</b> be avoided.</p>	<b>Not supplied</b>

#### Drainage Impact on Other Planning Matters

This application has been assessed with regards to surface water drainage design only.

Other planning matters occasionally effect the surface water drainage design. If plans relating to other matters have been assessed for their impact on the proposed drainage, then it must not be assumed that they have been assessed for any other purpose. The planning officer is advised to check for conflicts with any existing approved plans and to consult any relevant consultees as appropriate.

It has been identified that the following consultees may have comments about the plans that have been submitted and reviewed for this application:

- Landscaping officer (proposed trees and landscaping)
- Tree officer (existing trees)
- Environment Agency (main rivers and fluvial/tidal flood risk, groundwater source protection zones)
- Southern Water (foul drainage and surface water disposal to public sewer network)
- Portsmouth Water (groundwater source protection zones)
- Lead local flood authority (all other sources of flooding and ordinary watercourses)
- Other:
- None

#### **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 181, 182 and 187e). 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.

The following documents have been submitted and reviewed to inform this consultation with reference to surface water drainage:

- **FRA and Drainage Strategy Report 24 April 2025 (C240600684)**

The flood risk data available on gov.uk has recently been updated September 2025 in respect of Flood Zones 2 & 3 and the climate change factors. Whilst the Environment Agency as consultee has commented, it can be seen that the future plume flood risk areas affect the application site. It is recommended that the designer reviews updated Product 4 data and the EA is re-consulted in this respect.

Noting the date on consultation, it shall be noted that the National Standards now apply, therefore it is prudent that the above report is updated to align with the following sections. This is particularly relevant to previously developed (brownfield) sites. The planning officer is advised to consider if, at this stage, a departure from the National Standards regarding the permissible discharge rate (if infiltration is not viable) from the site is appropriate given the timing of the submission of the application.

#### **STANDARD 1: RUNOFF DISPOSAL LOCATIONS**

The designer has indicated that infiltration is possible on this site due, however a hybrid approach will be used where the existing site currently discharges to the existing lake. It remains unclear if the lake can/will also infiltration or if this outfalls to the Black Ditch. The lake is also noted to falls within

a flood zone area (see above). It is agreed that a hybrid connection to the lake can be utilised if necessary however further evidence is required and additional geotechnical testing may be required.

Whilst the report mentions the use of tree pits and rain gardens, no evidence has been submitted to demonstrate these location and quantity of said features. Furthermore nothing is shown within the 1D modelling in this respect.

The proposed drainage layout drawing 02300/P02 highlights areas of the car park to be tanked permeable pavement. Noting the levels proposal on drawing 02100/P0 these features are located on elevated parts of the site hence will provide little benefit in draining the hard standing areas or providing complaint water quality for ALL run-off.

If infiltration is viable then it is expected that the scale and layout of the development is designed to maximise its use.

If the designer concludes groundwater risks may be high enough to enter the subbase, tanked features can be accepted, however the strategy must demonstrate compliance for interception.

## **STANDARD 2: INTERCEPTION**

The development must demonstrate that the first 5mm of rainfall for the majority of rainfall events does not result in any runoff from the site. This is to replicate greenfield conditions.

In this instance the existing site is almost entirely impermeable. Therefore, the failure to adequately demonstrate interception drainage conflicts with guidance, national standards and best practice, rather than representing an increase in flood risk.

A departure from national standards has not been sought and agreed to our knowledge.

As cited above, whilst tree pits and rain gardens are discussed in the report no formal assessment of interception drainage has been submitted.

Interception can only be achieved through the use of infiltration, evapotranspiration and water reuse. The only opportunities for evapotranspiration are via the limited area of permeable paving. The surface water drainage system provides no open features or vegetated surfaces, nor is infiltration explored further to provide interception drainage.

The permeable paving will achieve interception for the rainwater that falls on its surface. However, as cited above the roof and other hard standing areas appear to achieve no interception drainage.

Green roofs can be useful features to achieve interception. However, their use must be planned for at the conceptual development stage and cannot be agreed via condition when the roof plans and elevations are approved as part of the permission.

The applicant is expected to demonstrate compliance with this standard with a formal assessment in accordance with the NSfS and The SuDS Manual. When interception drainage standards are complied with, it is expected that the scale, appearance and layout of the proposed development will be impacted by changes to the surface water drainage scheme.

### **STANDARD 3: EXTREME RAINFALL AND FLOODING**

#### **Proposed Discharge Rates and Volumes**

It is not possible to accurately assess whether the proposed discharge rates and volumes will increase flood risk. This is because a summary of the greenfield and pre-development runoff rate calculations (QBAR, etc) has not been provided. Where infiltration may be discounted and/or a hybrid system is used, confirmation of potential flow control features will be required.

It is critical to understand how the proposed discharge rates and volumes compare to the greenfield runoff rates as this will dictate which standards need to be met. The pre-development (brownfield) discharge rates are not required by the new National Standards and the proposed discharge rate related to the brownfield rate to illustrate betterment, is not a requirement. This marks a strengthening in guidance when compared with The SuDS Manual.

The designer has used FEH 1999 data which is not acceptable. The latest date must be used which is currently FEH 22. Therefore, it is unclear why this data has not been used to ensure that the greenfield model is as accurate as possible.

As cited above, if discharge rates are to be applied (where infiltration is not wholly viable), then additional storage may be required to ensure that flood risk will not be increased. This may impact the scale and layout of the proposed development.

#### **Plans and Modelling**

The proposed design settings on the model are not accepted. MADD factors must be set to zero. Runtime shall be set to 1440mins to observe half drain scenarios. Updated 1D modelling is therefore to ensure that the correct inputs have been entered.

It is also not possible to corroborate the 1D modelling and levels information. A supporting plan shall be provided in supporting of the 1D modelling outputs with any qualification of the build/assumptions.

### **STANDARD 4: WATER QUALITY**

A water quality assessment is not included within the Drainage Strategy. If additional SUDS features are provided this may impact the scale and layout of the development.

### **STANDARD 5: AMENITY**

No assessment of amenity benefit has been submitted. If amenity benefits are provided this may impact the scale and layout of the development and is unlikely to be included via condition.

### **STANDARD 6: BIODIVERSITY**

It is unclear how the surface water drainage for the site will add biodiversity value. No assessment or statement regarding SuDS biodiversity has been submitted. It is expected that SuDS provide biodiversity benefits, features that do this may also assist in meeting amenity and interception standards. If open features are needed to meet those standards, then this will affect the scale and layout of the development.

**STANDARD 7: CONSTRUCTION, OPERATION, MAINTENANCE, DECOMMISSIONING AND STRUCTURAL INTEGRITY**

There is the potential for conflict between proposed trees and drainage infrastructure on the site. As landscaping is to be determined by this application it is expected that these conflicts are resolved.

**OVERCOMING THE OBJECTION**

Multiple conflicts with National Standards for SuDS have been identified. To achieve compliance with national standards and demonstrate that flood risk is not increased, it is highly likely that the scale and layout of the proposed development may need to be reconsidered.

Therefore, we **object** to the proposed development.

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 full surface water design checklist is available on our website at <https://www.arun.gov.uk/surfacewater/>.

## Units 5-7 Watersmead Designer Checklist

### Ground Investigation Results

#### Groundwater monitoring

- Plan showing location of monitoring points provided.
- Depths of holes detailed.
- Dates of observations and depth to groundwater recorded.
- Evidence of the strata within borehole or monitoring pits provided.

#### Requested to aid speed of assessment

- Plan showing the peak groundwater levels at each monitoring point in mAOD.
- Peak groundwater levels recorded in metres below ground level and mAOD.
- If in an area of possible tidal influence, provide a comparison of readings against tide times/levels.

#### Infiltration testing

- Completed strictly in accordance with BRE DG 365, CIRIA R156 or a similar approved method.
- Plan showing location of trial pits provided.
- Pit dimensions provided.
- Depths of testing provided.
- Dates, times and readings of each test recorded.
- Calculations for the infiltration rate for each test provided.
- Evidence of the strata within trial pits provided.
- Test locations, and depths correspond with the expected location and depths of proposed infiltration features. **(Further testing may be required as advised)**

#### Requested to aid speed of assessment

- Depths of testing provided in m below ground level and mAOD.

#### Other

##### As appropriate, dependent upon specific site conditions

- Geotechnical advice relating to the siting of infiltration features and risk of dissolution. (Usually where chalk strata is evidenced.)
- Geotechnical advice relating to the risk of slope instability due to infiltration.
- Geotechnical and structural advice where infiltration is proposed closer than 5m to buildings or structures.
- Contamination evaluation assessment where infiltration is proposed in ground that may be contaminated.
- Geotechnical advice where infiltration is proposed into made ground (to be generally avoided).
- Geotechnical advice relating to infiltration capacity, and risk of settlement or instability where careful use of ground raising is proposed.
- Specialist advice and confirmation of acceptability from the Environment Agency where the use of deep bore soakaways is proposed.

### Surface Water Drainage Statement

#### Disposal method (Select as appropriate)

- Rainwater reuse is proposed where possible.
- Infiltration is proposed and maximised wherever possible.

- Hybrid infiltration and restricted discharge to an appropriate water body or surface water sewer is proposed where a full infiltration design is not possible.
- Restricted discharge to a water body is proposed where a full infiltration design is not possible.
- Restricted discharge to a surface water sewer is proposed where a full infiltration design is not possible and there are no nearby water bodies.
- Restricted discharge to a public or private highway drainage network is proposed where a full infiltration design is not possible and there are no nearby water bodies or surface water sewers.
- Restricted discharge to a public combined sewer is proposed where a full infiltration design is not possible and there are no water bodies, surface water sewers, highway, or private drainage systems nearby.

#### **Disposal method justification**

- Infiltration has been adequately investigated, in winter, at appropriate and varying depths where appropriate, above peak recorded winter groundwater levels at the given location.
- Onsite and boundary, open and culverted water bodies are investigated (location, mapping, network, flow direction, ownership/responsibility, depth, and condition).
- Offsite nearby downstream water bodies are investigated (location, mapping, network, flow direction, ownership/responsibility, depth, and condition).
- Surface water sewer network is investigated (location, mapping, network, flow direction, ownership/responsibility, depth, capacity, and condition).
- Public and private downstream highway drainage networks are investigated (location, mapping, network, flow direction, ownership/responsibility, depth, capacity, and condition).
- Combined downstream sewer network is investigated (location, mapping, network, flow direction, ownership/responsibility, depth, capacity, and condition).
- Any relevant permissions or legal agreements from asset or landowners that are needed are identified and evidence of consents provided.

#### **Requested to aid speed of assessment**

- Any previous relevant correspondence or pre-application advice from the Local Planning Authority [LPA] or the Lead Local Flood Authority [LLFA] regarding the surface water drainage design is included with the statement.

#### **Existing Site**

##### **Essential**

- It is clear what the natural drainage characteristics of the site and hydraulically linked areas are.
- Natural flow paths are identified on a plan (where applicable).
- Existing site drainage features are investigated – condition, performance, and ownership.
- Environmentally sensitive receiving water bodies are identified – for example groundwater source protection zones.
- Any appropriate easements to watercourses or other infrastructure are investigated.
- Existing and future flood risk from any source is detailed.

It is suggested that the above is achieved with the following, which may be combined where appropriate:

- An existing topographical plan.
- An existing drainage catchment plan.
- An existing site surface water drainage plan (where applicable).
- Flood maps (fluvial, tidal, pluvial, groundwater, sewer, and reservoir) are supplied (or Flood Risk Assessment referred to).
- Confirmation and surveys of any existing drainage infrastructure on the site.

Full details of any known flooding on the site.

### **Proposed Design**

#### Essential

Statement confirming the proposed design criteria including fixed design calculation inputs for the SuDS system. Examples include:

- Climate change allowances,
- Urban creep allowance,
- CV values,
- Rainfall data,
- MADD factor or additional storage.

Natural catchments are followed.

Where phased construction is proposed, the phases correspond to natural catchments and can function independently from each other.

The design is gravity based with no use of pumps.

Natural systems that deliver specific hydrological function, such as watercourses or wetlands, are preserved.

Where there is existing drainage infrastructure on the site it is clearly explained or illustrated what is being retained, upgraded, or removed.

Relevant restrictions relating to discharging to an environmentally sensitive receiving water body – for example a groundwater source protection zone - are investigated, reported and adhered to.

Details of necessary off-site works and consents are provided.

It is shown how a surface water drainage design will not conflict with additional areas of flood storage or compensation.

Surface water flow entering the site from elsewhere is conveyed safely around or through the site without compromising the SuDS system.

Where runoff from elsewhere is drained together with the site runoff, the contributing catchment is modelled as part of the drainage system.

If the surface water drainage is designed to flood in the 1% Annual Exceedance Probability [AEP] + Climate Change Allowance [CCA] event, then the flood 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.

The design provides and evidences interception drainage and is able to capture and retain on site the first 5mm of the majority of all rainfall events.

Water quality and treatment is adequately assessed – with an assessment appropriate for the scale and proposed use of the site.

Adequate freeboard is provided between the top water level of any open storage features and the top of the bank.

There are no clashes with other infrastructure.

Self-cleansing velocities are achieved where pipes are proposed.

1m freeboard is provided between peak groundwater levels and the base of any infiltration feature.

The proposed discharge rate is explained and justified (for attenuation designs).

Where discharge is proposed to a public surface water or combined sewer, a capacity check confirming that the sewer can receive the proposed flows is submitted.

Adequate freeboard is provided between peak groundwater levels and the base of any attenuation feature (refer below if this is not possible).

- Where there is a risk that the base of an attenuation feature may penetrate peak groundwater levels, additional mitigation measures to prevent groundwater ingress are incorporated into the design and construction method statement.
- Where there is a risk that the base of an attenuation feature may penetrate peak groundwater levels the effects of buoyancy have been considered in the design.
- Amenity benefits are provided by the drainage system (assessed by others).
- Biodiversity benefits are provided by the drainage system (assessed by others).
- Landscaping has been designed to ensure ease of maintenance of drainage assets.
- The justification and criteria for tree root avoidance and mitigation measures is clear, referencing adopting body standards where applicable.
- Biodiversity and ecological enhancements do not impede the functionality, maintenance or capacity of the drainage system.
  
- It is confirmed what elements of the SuDS will be private.
- It is confirmed what the adoption arrangements for SuDS components will be.
- A construction method statement for the SuDS system, appropriate to the scale of the development, is submitted.
- A maintenance plan for the SuDS system, appropriate to the scale of the development, is submitted. [Please refer to our SuDS Maintenance Checklist where this is stipulated by condition.]
- Any potential health and safety issues relating to SuDS implementation and management have been considered and managed.

Preferred

- Ground raising is avoided where possible.
- The drainage system is considered by and contributes to the biodiversity net gain statement (assessed by others).

**Impermeable Area/Catchment Plan**

Essential

- Different drainage catchments are demarcated.
- Where phased construction is proposed, each phase is shown on a plan.
- An impermeable area plan is provided showing all positively drained areas including open surface water storage plan areas.

Preferred

- Impermeable areas are shown in m<sup>2</sup> on the impermeable areas plan(s).
- Demarcated impermeable areas correspond with the distribution of those areas in the supporting calculations.

**Surface Water Drainage Calculations**

**General**

- The most recently applicable, or previously agreed FEH rainfall data is used.
- CV values for all events are set to 1. This includes summer, winter, design, and simulation events.
- The correct climate change allowances, appropriate for the full lifetime of the development, have been applied to all calculations.
- A 10% allowance for urban creep is applied to all residential roof areas.

- 100% Annual Exceedance Probability [AEP] + Climate Change Allowance [CCA] (1 in 1 year) event calculations provided.
- 10% AEP + CCA (1 in 10 year) event calculations provided showing that the incoming pipe to any infiltration feature is above this level.
- 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.

#### **Infiltration**

- Half drain times do not exceed 24 hours for the 10% AEP + CCA and 1% AEP + CCA events.
- If half drain times exceed 24 hours for the 1% AEP + CCA event, then advice and agreement from the LPA has been sought and submitted.
- The most precautionary design infiltration rate is used.
- Design infiltration rates are applied to the sides of soakaways only.
- Design infiltration rates are applied to the base of permeable paving, infiltration blankets or basins only.
- Where the design infiltration rate is applied to the base an appropriate factor of safety is applied.

#### **Attenuation and Restricted Discharge**

- Greenfield run off rates are based upon the positively drained area of the site only.
- Discharge rates are restricted to QBAR or 2 l/s/ha, depending on whichever is higher, for all storms up to the 1% AEP + CCA event.
- Half drain times and available capacity in the drainage system for subsequent storms are considered.
- Brownfield run off rates are based upon the positively drained area of the site only.
- Brownfield sites aspire to achieve greenfield runoff rates and volumes, where infiltration is not viable. If the proposed run off rate is higher than the greenfield run off rate, then an acceptable justification is provided, and the rate has been agreed with any relevant bodies.
- A surcharged outfall to a watercourse or sewer has been modelled. The surcharge level is the 1% AEP + CCA flood event for the receiving watercourse, or to the top of the bank if appropriate hydraulic modelling is not available.
- A surcharged outfall to a tidal waterbody has been modelled. The surcharge level is based upon present day extreme sea levels with an allowance for sea level rise applied.

#### Requested to aid assessment

- FEH22 point descriptors for the site are provided.

### **Drainage Plans and Specifications**

#### Essential

Plans are provided showing:

- The proposed design within the proposed site layout.
- Existing site sections and levels.
- Proposed site sections and levels.
- Long and cross sections for the proposed drainage system including final finished floor levels.
- Exceedance flow management routes.
- Details of connections to watercourses and sewers.
- Maintenance access and any arisings storage and disposal arrangements.

These plans must be of sufficient detail that a reviewer can be confident that the design can be constructed without flood risk being increased on site or elsewhere.

Specifications are required for all materials used in the design. We suggest that this is best achieved and illustrated with site specific construction detail drawings. The combination of construction details, with plans and sections, ensure that the proposed standard of construction will facilitate adoption and maintenance by an appropriate body and have structural integrity.

The following checklist is designed to demonstrate the level of detail required:

### Easements

- 3m easements are shown from the top of the bank of all ordinary watercourses, and from the edge of all culverted watercourses on all plans.
- 8m easements are shown from the top of the bank of all main rivers on all plans - unless an alternative easement has been stipulated by the Environment Agency.
- Any appropriate easements as stipulated by any public or private utility provider shown on all plans.
- Infiltration features (aside from permeable paving that does not take any extra impermeable catchment such as a roof) are shown at least 5m from buildings or structures.
- Maintenance easements are shown from the top of the bank from all open SuDS features on all plans.
- Existing trees and their root protection zones are shown on any drainage layout.
- Proposed trees and appropriate easements are shown on any drainage layout.

### Detail

- It can be clearly determined what a pipe's diameter, pipe materials, gradients, flow directions and invert levels are from the plans.
- It can be clearly determined what an inspection chamber or manhole's cover level, invert level, cover loading grade and sump depth (where applicable) are from the plans.
- All infiltration or attenuation features (including permeable paving) are clearly labelled with their dimensions, invert/base levels and cover levels.
- Control structures are labelled with discharge rates, hydraulic head, invert and cover levels and ideally model number.
- Operational characteristics of any other mechanical features are detailed.
- Measures to protect drainage from tree root damage are clearly shown on any drainage layout.
- Any areas of necessary ground raising are clearly justified and demarked on a plan, with depths and levels.
- If the 1% AEP + CCA event floods, then the extent and depth of the flooding is shown on a site plan. This plan includes proposed external ground levels and finished floor levels of buildings.
- Potential flow routes off site are shown. The plan also includes proposed external ground levels, finished floor levels of buildings and designed slopes on all impermeable surfaces such as highways or car parks.
- Cross sections and long sections of all open features are provided.
- Construction detail drawings are site specific.
- Construction detail drawings are provided for all components including but not limited to:
  - Infiltration structures
  - Attenuation structures
  - Manholes/inspection chambers
  - Catchpits/silt traps
  - Flow control devices

- Permeable paving
- Headwalls
- Channel drains
- Gullies
- Pipe bed and surround
- Pipe to pipe connections
- Filter strips or drains
- Swales
- Bio-retention systems
- Ponds and wetlands
- Tree pits and measures to protect drainage from root incursion
- Water treatment features
- Green roofs
- Measures to protect drainage from tree roots.
- Water butts or alternative methods of water reuse – also to be shown on plans.

The following items are requested to aid assessment or confidence in construction:

- Where features have a non-uniform plan area, a plan showing the coordinates of the perimeter is provided.
- All drainage infrastructure is labelled to correspond with the supporting calculations.

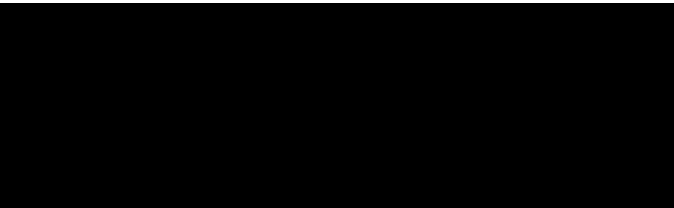
**Other**

- Open feature planting specification is provided (to be assessed by others).

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.

The checklist may also request information that an applicant does not feel is relevant to their submission. In this case the applicant can provide an explanation as to why they have omitted certain information in their drainage statement. However, the appraising engineer reserves the right to request this information if they believe it is necessary for their review.

Drainage Engineers response









Arun District Council, Civic Centre, Maltravers Rd  
Littlehampton, West Sussex, BN17 5LF  
[www.arun.gov.uk](http://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	 
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**From:** Paul Cann <Paul.Cann@arun.gov.uk>  
**Sent:** 04 September 2025 12:52  
**To:** Planning.Responses <Planning.Responses@arun.gov.uk>  
**Cc:** Sarah Burrow <Sarah.Burrow@arun.gov.uk>  
**Subject:** RE: Planning Consultation on: LU/93/25/PL

Please find enclosed our external consultants response, an objection.

Regards

**Paul Cann**

## Principal Drainage Engineer, Coastal Engineers and Flood Prevention

T: 01903 737819

E: [paul.cann@arun.gov.uk](mailto:paul.cann@arun.gov.uk)

Arun District Council, Civic Centre, Maltravers Rd  
Littlehampton, West Sussex, BN17 5LF

[www.arun.gov.uk](http://www.arun.gov.uk)



**Our priorities...**

 <p>Improving the wellbeing of Arun</p>	 <p>Delivering the right homes in the right places</p>	 <p>Supporting our environment to support us</p>	 <p>Fulfilling Arun's economic potential</p>	 
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**From:** Planning.Responses <[Planning.Responses@arun.gov.uk](mailto:Planning.Responses@arun.gov.uk)>

**Sent:** Thursday, May 29, 2025 7:33:41 AM (UTC+00:00) Monrovia, Reykjavik

**To:** Land Drainage <[Land.Drainage@arun.gov.uk](mailto:Land.Drainage@arun.gov.uk)>

**Subject:** Planning Consultation on: LU/93/25/PL

To: **Engineers (Drainage)**

### NOTIFICATION FROM ARUN DISTRICT COUNCIL

**Town & Country Planning Act 1990 (as amended)**

**Town and Country Planning (Development Management Procedure) (England) Order 2015**

#### Planning Permission

**Application No:** LU/93/25/PL

**Registered:** 28th May 2025

**Site Address:** Units 5-7 Watersmead Business Park Norway Lane/Worthing Road  
Littlehampton BN17 6LS

**Grid Reference:** 503817 103549

**Description of Works:** Part demolition, conversion, refurbishment and re-elevation of Units 5 and 6 and construction of retail (food and non-food), leisure and food & beverage units (Use Class E), together with associated car parking, access, loading areas, landscaping and associated works. This application is in CIL Zone 2 and is CIL Liable.

The Council have received the above application.

[Click here to view the application and documents](#) The website is updated once a day in the evening, so you may need to wait until the day after this notification to view the documents.

This application has been identified as CIL Liable. Therefore please be aware that, in accordance with Appendix 2 of the Arun CIL Charging Schedule, your consultation response should only include requests for Section 106 for on site mitigation, Pagham Harbour Management Contributions (if applicable) or Affordable Housing. "Off" Site mitigation measures directly related to this development should be dealt with by condition if possible to ensure the scaling back of Section 106 if possible. CIL contributions will be used for "off" site infrastructure mitigation schemes. Therefore if this proposal triggers the need for "off" site mitigation, please ensure that you engage in the CIL Infrastructure List Consultation process upon receipt of a consultation letter.

Should you have any comments to make, these should be sent by replying to this email by 4th June 2025 . You can also monitor the progress of this application through the Council web site:

<https://www.arun.gov.uk/planning-application-search>

The application will be determined having regard to the development plan policies (if any are relevant) and other material considerations. The development plan can be accessed via the website

<https://www.arun.gov.uk/development-plan> as can information on what comments we can consider

<https://www.arun.gov.uk/planning-application-comments>

**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.**

Should the application go to appeal the Planning Inspectorate will publish any comments made to the Council on their website: <https://acp.planninginspectorate.gov.uk/> but they will protect personal details.

In the absence of a reply within the period stated, I shall assume that you have no observations to make.

Yours sincerely

Kathryn Welch

Planning Officer- Arun District Council

Telephone: 01903 737789

Email: [kathryn.welch@arun.gov.uk](mailto:kathryn.welch@arun.gov.uk)

PLCONSULT (ODB) 2020