Engineers Comments Regarding Surface Water Drainage

Application Reference:	BE/16/25/RES	**Reviewer Reference:**	ADC/SB
Planning Officer:	Emma Sheppard	**Date of Review:**	13/08/2025
Site Name:	Land at Oldlands Farm Newlands Road Bognor Regis PO22 9NN		
Application Description:	Approval of reserved matters following outline consent BE/150/22/OUT comprising of 3 No. units within Class B2 and/or B8 of the Use Classes Order (including ancillary office provision) with associated enabling works, parking, landscaping and sustainable drainage system with access off Newlands Road. This application is in CIL Zone 4 (Zero Rated) as other development.		
Assessment Number:	2 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/

Arun District Council Land Drainage Byelaws - https://www.arun.gov.uk/byelaws/

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

The National Standards for SuDS - https://www.gov.uk/government/publications/national-standards-for-sustainable-drainage-systems/national-standards-for-sustainable-drainage-systems-suds

The SuDs Manual [C753] by CIRIA

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.	**Compliant**

	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.	**Compliant**
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.**	**Insufficient**
Calculations	Calculations for pre-development run off rates must be based upon the positively drained area only.	**Not supplied and Insufficient – see**

	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.	**comments below due to new standards.**
	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.	**Compliant**
	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.	**Compliant**
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.	**Compliant**

	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 only be considered where the designer has fully demonstrated that they are proposed as a last resort.**	
Plans	Plan areas, depths and levels of drainage infrastructure must accurately correspond with the supporting calculations.	**Insufficient**
Water quality benefits.	An assessment of water quality is necessary to evidence that the proposed design provides adequate treatment of surface water.	**Insufficient**
Biodiversity and amenity benefits.	The surface water drainage design must provide biodiversity and amenity benefits.	**Insufficient**
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.	**Insufficient**

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:

- LOCATION PLAN 0503 REV P01
- SITE LAYOUT 0601 REV P03
- Response to LLFA and Arun District Council Drainage Engineer comments 07.07.25. Referred to as the **BWB July Response.**
- BWB Response to LLFA Objection linked to sup 1.8.25. Referred to as the **BWB August Response.**
- Drainage Catchment Plan Dwg. No. 243912-BWB-EXT-XX-D-C-0530 Rev P01 **(x2) both need to be superseded as substitute plan Rev C02 is contained within "Response to LLFA and Arun District Council Drainage Engineer comments 07.07.25".**
- Drainage Layout Dwg. No. 243912-BWB-EXT-XX-D-C-0500 S3 Rev. P01
- FRA and Drainage Strategy **– appears to be mislabelled on the portal as this is in fact "Oldlands Farm Phase 3 Foul Water Drainage Strategy"**
- Provisional Topographical Survey Drg. No. 657OF001B Provisional Issue 3. Sheet 5 of 35
- Hydraulic Flow Report (Model 241) dated 3rd December 2024 **(x2) both need to be superseded as substitute modelling is contained in "Response to LLFA and Arun District Council Drainage Engineer comments 07.07.25". That is then superseded by the modelling contained within "BWB Response to LLFA Objection linked to sup 1.8.25"**

GENERAL

The BWB July Response indicates that there is a previously approved greenfield runoff rate of 12.5l/s for this site. The approval cannot be located. The decision notice for BE/150/22/OUT does not reference a flood risk assessment or drainage strategy as approved.

The same response refers to an 'approved quantum of development' to justify the lack of open and sustainable drainage features on the site. The decision notice for BE/150/22/OUT, states that the reserved maters of layout, scale, appearance and landscaping must be approved by a later application (which this application is seeking to achieve). The description of the development on the outline application was for **up to** 18,580sqm of new industrial/warehouse and ancillary offices floorspace (my emphasis). Therefore, it is unclear how the quantum of development is approved.

It is understood that the scale and layout are not approved and that if sustainable drainage standards are not met, or flood risk is increased by the proposed development, then both the scale and layout may need to be reconsidered.

STANDARD 1: RUNOFF DISPOSAL LOCATIONS

There is no justification for water to not be collected for non-potable reuse. There is a need for landscape irrigation on this site and therefore rainwater harvesting must be considered and maximised. It is acknowledged that rainwater harvesting generally does not provide a complete surface water drainage solution, however it's use must be prioritised.

The applicant has demonstrated that shallow infiltration is achievable in parts of the site. However, due to very high groundwater levels in 2 of the 3 boundary monitoring points infiltration has been discounted. This is because 1m of unsaturated ground cannot be achieved between the base of an infiltration feature and the peak groundwater level.

There is the potential for shallow infiltration in the south-west of the site. No groundwater monitoring data has been submitted for the centre of the site.

It is agreed that infiltration cannot provide a total disposal solution for the site, however, there is scope for infiltration to be used for interception drainage (see standard 2) in parts of the site. This potential is restricted by the lack of groundwater monitoring data in the centre of the site.

It is agreed that a connection to the surface water sewer is required, however, the capacity and ownership of this sewer is unknown. If the sewer is, or connects to a public surface water sewer, then a capacity check is required to confirm that there is adequate capacity to receive the proposed flows and volumes. This is because the receiving sewer capacity may mean that the discharge rate must be further restricted to ensure that flood risk is not increased. If the discharge rate must be restricted this will increase the volume of storage that is required on the site, which may impact the scale and layout of the proposed development.

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. If all rainwater from frequent events is allowed to discharge from the site when it would not naturally then this will increase flood risk.

No 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 applicant is expected to demonstrate compliance with this standard with a formal assessment in accordance with The National Standards for SuDS [NSfS] and The SuDS Manual. When interception drainage standards are complied with, it is expected that the scale and layout of the proposed development will be impacted by changes to the surface water drainage scheme.

STANDARD 3: EXTREME RAINFALL AND FLOODING

Greenfield runoff rate and volume calculations have not been submitted. Therefore, it is not possible to accurately assess whether the proposed discharge rates and volumes will increase flood risk.

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 NSfS offer the option to demonstrate compliance on both rates and volumes by restricting discharge rates to 3l/s/ha. For this site, of a contributing area of 3.69ha, that would equate to 11.07l/s. This is a slower rate than the 12.5l/s that is proposed. If discharge rates need to be restricted further then additional storage will be required to ensure that flood risk will not be increased. This may impact the scale and layout of the proposed development.

The modelling shows that there is a total flooded volume of 26.5428m^3 on the critical 3.3% AEP + 40% event. This conflicts with standard 3.35 which states that:

“The surface water drainage system shall be designed so that, unless an area is designed to hold or convey water as part of the design, flooding does not occur on any part of the development for rainfall events up to the 3.3% AEP event.”

And standard 3.8 which states that:

“The most up to date guidance on climate change allowances shall be used for the 3.3% AEP and 1% AEP design events unless stated otherwise. The Upper End Allowance shall be used for the relevant epoch based on the design lifetime of the proposed development.”

The designer has attempted to justify the design by submitting a model which shows no flooding but also does not include an allowance for climate change for the 3.3% AEP event. However, the standards are clear that a climate change allowance must be applied to the model for that event for assessment.

The flooded volume, which is spread over various nodes in the model, is referred to as ‘ponding’ in the BWB August Response. BN EN 752 is referred to, however, it is critical to note that the NPPG does not refer to this standard. The NPPG guides the local planning authority to The SuDS Manual and the non-statutory technical standards for SuDS (which have now been superseded by the NSfS). None of these documents make any allowance for ponding.

It is disputed that temporary ponding or flooded volumes on the 3.3% AEP + climate change allowance [CCA] event can be evidenced on the supporting modelling and accepted. It has never

been known for this approach and deviance from recognised national guidance to be argued in this district.

Insufficient information has been presented to demonstrate that the temporary flooding allowed for within the design for the critical 1% AEP + 45% event meets national standards. Where flooding is allowed for this event, it must be controlled as prescribed. There is flooding from multiple nodes across the proposed development. The designer has explained that some of this flood water will be stored within the lower dock area of units 2 and 3, and within unit 1 service yard. This may yet prove to be acceptable, however, there are other areas of flooding on the site, most notably at node 50, the Hydrobrake prior to the outfall at the access to the site. This node shows a flooded volume of 25.8989m^3 and cover levels appear to fall off site.

Where a system is allowed to flood on the 1% AEP + 45% event, detailed levels information is expected to be submitted to ensure that the flooding is controlled and will remain on site. The designer is expected to accurately demonstrate where flooded runoff will flow, be stored and then collected by the SuDS system.

There must be no flooding of any of the utility plant, nor any route that is designed to provide safe access and egress during flooding. The designer must also demonstrate that freeboard is provided to utility plant susceptible to water. Flood water must be demonstrated to be shallow, slow flowing and represent a low hazard when it is within a highway.

There appear to be inaccuracies in the submitted model, with some nodes modelled larger than shown on the plans and the permeable paving porosity shown as 1.00. Both factors will artificially increase the storage that is modelled and therefore the flooded volume is likely to be underestimated. Cover levels are not identical between the model and the layout; however, these tend to be cautiously modelled. Every node and pipe within the model have not been assessed due to the anticipated changes required to the design.

The submission lacks sufficient detail to demonstrate that it will not increase flood risk in extreme events.

STANDARD 4: WATER QUALITY

The BWB July Response references water treatment without submitting a formal water treatment assessment. The response does not demonstrate that runoff is adequately treated to protect the ultimate receiving surface water.

A simple index approach should be used as a minimum requirement to demonstrate compliance with water quality standards. This approach should be applied to each relevant sub-catchment where different water treatment components are used.

The only source control features on the site are the limited areas of permeable paving.

When water treatment has been adequately assessed the surface water drainage design may need to be reconsidered. This may impact scale and layout if open features are required for water treatment.

STANDARD 5: AMENITY

No assessment of amenity benefit has been submitted. Some of the areas that are designed to flood in the critical 1% AEP + CCA event will provide multifunctional benefit, as they are used for both flood storage and for vehicle docking. However, the surface water drainage design does little to contribute towards placemaking and environmental enhancement. Water is not kept at or close to the surface and the design is of a conventional subterranean piped network with tanks forming the bulk of the storage.

STANDARD 6: BIODIVERISTY

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 and the response to the ecology officer acknowledges that the SuDS scheme does not contribute towards the Biodiversity Enhancement Strategy. 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, DECOMISSIONING 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. Most notably on the east side of the site where a tree is proposed over an inspection chamber. There are also trees positioned near the lined permeable paving without an indication of their potential growth.

It is unclear if this development will be constructed in phases. If it is to be phased, then the designer is expected to provide a phased management plan to demonstrate how the surface water drainage design will operate during each phase of construction. This should include detail on how flow control will be managed across the phases.

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 will need to be reconsidered.

Therefore, we **object in principle** 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.

- Revised surface water drainage design and accompanying calculations showing surface water drainage requirements can be met within the proposed layout. Please see checklist below.

Checklist

A reduced **site-specific** version of our full surface water drainage design checklist is provided below. This has been edited to remove elements that are not applicable to this site, either due to

the scale of the proposal or the method of disposal. The checklist is provided to assist the applicant and designer in preparing a revised design to meet our requirements. It is applicable to Oldlands Farm (Pannetoni) only.

- Items highlighted as ☐ must be provided prior to determination to overcome our objection.
- Additional comments or notes are provided by the reviewer **in bold**.
- If an item has been submitted this is checked: ☒
- For HH, OUT, RES and PL applications only: All other items are assumed to be handled via a condition applied to the permission if given.

Our requirements and comments are elaborated upon or condensed within a separate comment tracker where necessary. If a comment tracker is provided a designer is encouraged to refer to this and respond to comments to aid further review. Please request a .docx version of this document to by email to land.drainage@arun.gov.uk if needed.

The full unedited 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.**

Oldlands Farm (Pannetoni) Designer Checklist

Ground Investigation Results

Groundwater monitoring – accepted to rule out infiltration as a total means of disposal – further evidence may be required for infiltrating interception drainage due to high variability on the site.

☒ 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 – accepted.

☒ 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.

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.

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.
☒ Surface water 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 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.
☐ Flood maps (fluvial, tidal, pluvial, groundwater, sewer, and reservoir) are supplied (or Flood Risk Assessment referred to).
☐ 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.
☐ 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.
☐ 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.
☐ There are no clashes with other infrastructure.
☐ Self-cleansing velocities are achieved where pipes are proposed.

☐ The proposed discharge rate is explained and justified (for attenuation designs). **Inadequately.**
☐ 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.
☐ 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^2 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.
☒ 100% Annual Exceedance Probability [AEP] + Climate Change Allowance [CCA] (1 in 1 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. **Flooding is not demonstrated to be controlled for all nodes. Detailed levels information is required, assessment of impact on highway and utility plant.**

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 3 l/s/ha, depending on whichever is higher, for all storms up to the 1% AEP + CCA event.

☐ 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.

☐ 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. **Not all.**

☐ Proposed site sections and levels. **Further detail required.**

☐ 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

☐ Any appropriate easements as stipulated by any public or private utility provider shown on all plans.

☐ 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. **Further detail required via condition**

☒ 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. **Further detail required via condition**

☒ All 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. **Further detail required via condition**
☐ 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. **Further detail required via condition**
☐ Construction detail drawings are provided for all components including but not limited to:
Further detail required via condition

- ☐ 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.

<u>The following items are requested to aid assessment or confidence in construction:</u>

☐ 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.

[redacted]

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[redacted]

[redacted]

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Littlehampton, West Sussex, BN17 5LF
www.arun.gov.uk

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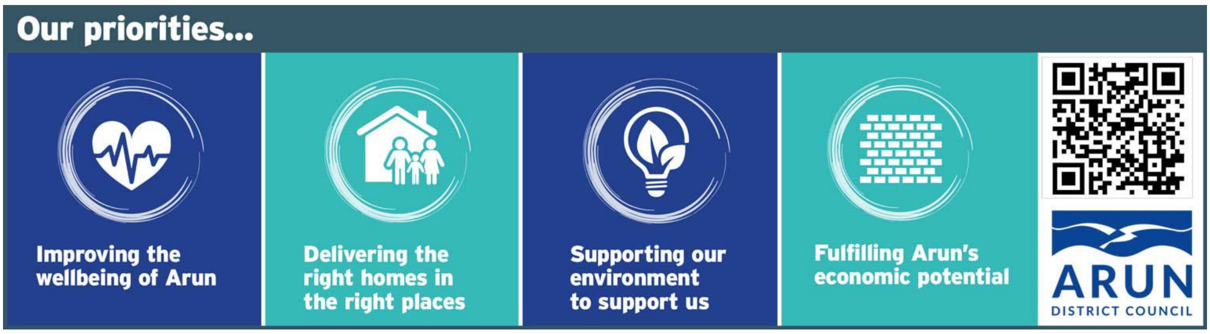

From: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Sent: 14 August 2025 15:14
To: Planning.Responses <Planning.Responses@arun.gov.uk>
Cc: Emma Sheppard <Emma.Sheppard@arun.gov.uk>; David Easton <David.Easton@arun.gov.uk>; Paul Cann <Paul.Cann@arun.gov.uk>
Subject: RE: Planning Consultation on: BE/16/25/RES

Dear Emma,

The drainage consultation for BE/16/25/RES is attached. This is an objection in principle. Apologies for the delay in response.

Kind regards

Sarah Burrow
Flood Risk and Drainage Engineer, Coastal Engineers and Flood Prevention

T: 01903 737815
E: sarah.burrow@arun.gov.uk
[redacted]

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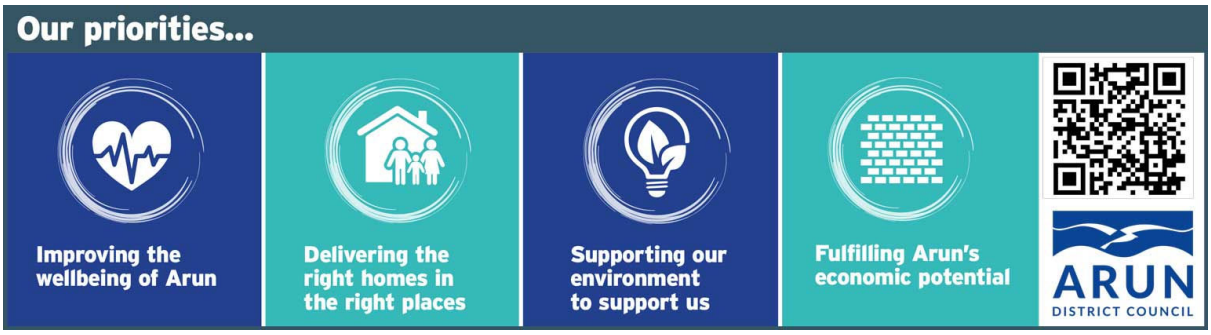

From: Planning.Responses <Planning.Responses@arun.gov.uk>
Sent: 10 June 2025 14:18
To: Land Drainage <Land.Drainage@arun.gov.uk>
Subject: Planning Consultation on: BE/16/25/RES

To: **Engineers (Drainage)**

NOTIFICATION FROM ARUN DISTRICT COUNCIL

TOWN AND COUNTRY PLANNING ACT 1990

Application No:	**BE/16/25/RES**
Registered:	3rd March 2025
Site Address:	Land at Oldlands Farm Newlands Road Bognor Regis PO22 9NN
Grid Reference:	494177 101453
Category:	Plan Applicat'n
Description of Works:	Approval of reserved matters following outline consent BE/150/22/OUT comprising of 3 No. units within Class B2 and/or B8 of the Use Classes Order (including ancillary office provision) with associated enabling works, parking,

landscaping and sustainable drainage system with access off Newlands Road. This application is in CIL Zone 4 (Zero Rated) as other development.

I am able to inform you that I have received an amendment to the above application dated 6th June 2025 relating to:- Substitute Drainage Plans. Supplementary Drainage Plans.

If you should wish to make further representations as a result of this amendment, please make any further comment by **1st July 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

Emma Sheppard

Planning Case Officer- Arun District Council

Telephone:

Email: emma.sheppard@arun.gov.uk

PLRECON (ODB) 2018