[redacted]

From: Paul Cann <Paul.Cann@arun.gov.uk>
Sent: 01 June 2022 11:38
To: Planning.Responses <Planning.Responses@arun.gov.uk>
Subject: RE: Planning Consultation on: P/68/22/DOC

Please find enclosed our consultants response in respect to conditions 10, 11 and 12.

Please consult Southern Water in respect to condition 14.

Regards

Paul Cann
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Engineering Services

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From: Planning.Responses <Planning.Responses@arun.gov.uk>
Sent: Friday, April 29, 2022 8:03:33 AM (UTC+00:00) Monrovia, Reykjavik
To: Land Drainage [redacted]
Subject: Planning Consultation on: P/68/22/DOC

To: **Engineers (Drainage)**

NOTIFICATION FROM ARUN DISTRICT COUNCIL

TOWN AND COUNTRY PLANNING ACT 1990

Application No:	**P/68/22/DOC**
Registered:	27th April 2022
Site Address:	Land North of Hook Lane Pagham Road PO21 3PD
Description of Works:	Approval of details reserved by condition imposed under ref P/30/19/OUT relating to Condition Nos 10 - surface water drainage, 11 - discharge flows, 12 - maintenance & management of the surface water drainage and 14 - foul drainage system.

The Council have received the above application to discharge conditions. I shall be pleased to receive any observations you may wish to make in respect of those conditions relating to your field of expertise.

Click here to view the Discharge of Condition application

Click here to view conditions on original application - click on decision tab

Should you wish to make any comments click on the link www.arun.gov.uk/planning and click into ?Enter Comment? or if this is not possible email your response to planning.responses@arun.gov.uk by **14th May 2022.**

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.

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

Yours sincerely

Mr D Easton

Planning Case Officer- Arun District Council

Telephone: 01903 737500 ex37361

Email: david.easton@arun.gov.uk

PLCONDOC (CDS) 2020

Please find below our comments on the proposed planning application reference: **P/42/22/DOC**

We would not recommend Discharging Conditions due to insufficient detail being provided and the following points which must first be addressed.

1) Application is not accompanied by drainage calculations or a drainage report.

- Insufficient information has been provided to determine this application to discharge conditions.

We would recommend the applicant consult our checklist for further details expected for DOC applications. Drainage Planning Consultations | Arun District Council.

2) In addition, to give a more detailed review of the information submitted we have provided detailed comments for **P/68/22/DOC** which shares drawings with this application, as many of the points are likely to be identical.

3) It will be necessary to obtain Ordinary Watercourse Consent (OWC) for the outfall and any works in or near to the existing watercourse, prior to construction. As changes needed to meet the requirements of the OWC could result in the necessity to amend the scheme or drawings that have been submitted and on this basis, it is recommended that the applicant apply for OWC as early as possible in the development process. In this case it is recognised that this includes agreement for the watercourse realignment and culverts which could have implications for the final layout and drainage design.

Please find below our comments on the proposed planning application reference: **P/68/22/DOC**

We would not recommend Discharging Conditions due to insufficient detail being provided. The following points must first be addressed.

1) The existing drainage infrastructure to the southeast of the development site (gulley mentioned in Section 4.19 of the FRA) has not been investigated in full. Particularly MH S7 and MH S21.

- The applicant should investigate the gulley and the existing drainage network in this area to ensure that it presents no risk to the development. This should include a full survey of these features.

- It is possible that these features drain a groundwater spring, or high groundwater levels in this area. This should be investigated, and evidence provided as to how this has been ruled out. If a spring is discovered, suitable changes to the scheme may need to be made to manage flows / floodwater from this area.

- The possibility of using the existing drain to discharge runoff from the southwestern catchment area should be considered, as this could better mimic the existing natural drainage catchments for the site. If this is ruled out, evidence should be provided to confirm why draining this part of the development to this infrastructure is unviable. Currently the submitted documentation only states; *"A review of the proposed layout and levels suggests that this is not feasible".* The applicant should confirm why the design cannot be amended so that parts of the scheme can drain via this alternative connection point. It is considered necessary to rule this option out first, as the additional volume of water drained to the northern catchment may contribute to flows and flooding (which is known to occur within this catchment).

2) Inflows into the watercourse crossing the site must be quantified and calculations undertaken to ensure that the new culverted sections, and vegetated channel, have sufficient hydraulic conductivity to convey flows through the development site during the design pluvial event.

- The topographic survey does not confirm the inlet diameter of the drainage system from further up in the catchment. Therefore, it cannot be confirmed that the proposed 450mm diameter culverts will be sufficient to manage flows through the site. If inflows are greater than flows through these culverts, the design of the realigned channel may need to be revised so that additional flows can be conveyed safely through the site without increasing the risk of flooding onsite, or to the northeast (by the existing cottage).

- If calculations suggest the realigned channel may be sensitive to flooding from flows entering the channel, it is possible a hydrodynamic flood model may be required to assess this impact in further detail. Any further modelling should include sensitivity testing.

3) The calculations are based on an assumed impermeable percentage of 60% and use CV values of 0.75, which could lead to an underestimate of the required storage volumes.

- CV values of 0.75 and 0.84 have been applied within the calculations, this only accounts for runoff from impermeable surfaces within the site. As a result, this is likely to lead to an underestimate of the required storage volumes within any SuDS.

- Current guidance from HR Wallingford concludes that the assumption of 0.84 runoff from impermeable / paved surfaces is "not particularly conservative" for sizing SuDS, and a value of CV = 1 should be used in situations where runoff from only the impermeable areas is considered.

Consequently, the applicant should either.

- Include pervious areas such as gardens within the drainage catchments and use an appropriate CV for the whole site.

Or

- Adjust the CV value to 1.0 and use a confirmed value for the total proposed impermeable area.

It is acknowledged that this adjustment is only required for sizing the SuDS attenuation volumes and not the pipework within the development.

4) The applicant has not confirmed that a suitable allowance for urban creep has been allowed for within the drainage calculations. Calculations should be undertaken and evidence provided to show how this has been calculated.

5) More information is required to confirm how the proposals will manage the high groundwater levels encountered across the site.

- The inlet and outlets from both attenuation basins are potentially below the groundwater table. It is acknowledged that the FRA states the basins will be lined, however, it will also be necessary to provide evidence as to how this will be achieved. Buoyancy calculations and detailed design drawings will need to be provided.

- Buoyancy calculations will also be required for all other elements of the SuDS and drainage throughout the site, where groundwater is found to be elevated.

6) The drainage design should take into consideration the risk of the system becoming hydraulically locked (i.e. the outfalls unable to discharge freely or surcharged).

- The outlets from the proposed drainage network may be subject to surcharge conditions, due to rising water levels in the ditch / watercourse. This could result in the outfalls becoming surcharged for an extended period, resulting in water levels backing up within the SuDS as the outflow rate reduces or stops. If this occurs additional drainage calculations must be undertaken to model this surcharge scenario.

- In addition to undertaking calculations to assess the performance of the drainage system, if the outlet becomes surcharged, the applicant should provide details of the method for determining the design flood level and duration used within these calculations, e.g. REFH2 analysis of the ditch / watercourse, or reliance on peak flows from the inlet (size and properties to be confirmed as discussed in point 2 above).

7) We note that the 'sump available' option has been selected as yes in the drainage calculations. If a Hydro-Brake with sump available is specified, as is indicated by the calculations, this sump will need to be included on the drainage drawings.

8) The applicant should confirm that the SuDS have been excluded from the open space allowance calculations by providing a summary table of the developed and open space allowance areas.

9) The proposed SuDS basins do not contain low flow channels, or other internal structures, such as sediment forebays.

- The design of the attenuation basins should include low flow channels and sediment forebays to reduce the risk of scour.

- Runoff from across the site does not appear to receive any pre-treatment prior to draining to the SuDS basins. Planting vegetation, or a sediment forebay, should be included within the design to provide suitable treatment to the runoff draining through the basins. The original FRA mentions planting in the basins ahead of the inlet headwalls, to provide pollution control benefits. If so, this should be shown on the detailed drainage drawings and details of the plants and soil depth above any liner provided.

- If significant vegetation is to be used as a means of providing water quality benefits, the overall porosity of the basin should be reduced to factor in sufficient vegetation growth for this to be achieved effectively.

- If the intention is for the basins to be permanently wet, due to their invert level being located below the groundwater table, the basins will be classified as a pond. In this case, additional upstream treatment should be provided, or the pond should be designed to retain sediment, as denoted in Note 3 of C753 Table 26.3.

10) Details of the ditch removal / infilling need to be provided. This needs to be undertaken in a way which ensures that a pathway is not available to allow water to migrate through the ground towards the northwest corner of the site post development.

11) A detailed exceedance plan based on the proposed site levels must be provided.

- The exceedance plan showing flow across the site appears to rely on the existing topographic survey, rather than taking consideration of the proposed site levels. In addition, some of the directions of flow are not shown orthogonal to the contour lines, suggesting they may be inaccurate. A more detailed plan is required and should show the exceedance flow routes in relation to the proposed development and proposed drainage features.

12) Bespoke details for unique structures should be provided, e.g. the headwall for the culvert and basin outfall, located at MH S119. Detailed drawings of these will be required. The applicant should consult our checklist for further details expected for DOC applications, which require full detailed construction drawings and specifications to be provided for the entire proposed drainage system. Drainage Planning Consultations | Arun District Council.

13) It will be necessary to obtain Ordinary Watercourse Consent (OWC) for the outfall and any works in or near to the existing watercourse, prior to construction. As changes needed to meet the requirements of the OWC could result in the necessity to amend the scheme or drawings that have been submitted and on this basis, it is recommended that the applicant apply for OWC as early as possible in the development process. In this case it is recognised that this includes agreement for the watercourse realignment and culverts which could have implications for the final layout and drainage design.

14) Cover levels need to be included on all manholes and the type of manhole should be label so that it can be identifies on the drainage layout drawings and cross sections.

15) A maintenance manual is required and must contain details of the proposed maintenance and management tasks, as well as information on who will be responsible for ongoing maintenance.

    - All elements of the proposed drainage system must be included within the maintenance plan.

    - The maintenance tables / schedules must be bespoke, based on the proposed SuDS included within the scheme. e.g. if a basin has a sediment forebay, maintenance specific to the forebay must be discussed.

    - A plan should be provided showing the drainage for the development site, labelling each of the SuDS and key features that need ongoing maintenance e.g. flow control devices.

    - The maintenance plan must discuss how remediation will be carried out if the drainage system needs to be repaired.

    - The maintenance plan must include details of the financing arrangements to ensure maintenance is carried out.

    - Bespoke maintenance details for the watercourse and culverted sections of watercourse should be provided. This should include details of vegetation management, as well as an inspection program following large storms or flood events.

    - Details of emergency procedures and contact details should be provided.

    - Details of any intended logbooks or record keeping of maintenance activities, or details of issues as and when they occur.

- Where it is intended for another organisation to adopt part of the drainage network, and where this organisation has their own maintenance program (e.g. a management company or sewerage undertaker), we will require the following:

    A) Confirmation from the organisation that they will adopt the drainage system as designed, (this is due to some organisations requiring more onerous maintenance than Arun DC requirements, which could potentially prohibit adoption).

    B) Details from the organisation of their intended maintenance for the elements to be adopted.

    C) Details of how any areas of joint responsibility, e.g. landscaping adjacent to SuDS, will be managed. This is to ensure one management authority does not prejudice another, e.g. by grass cuttings from landscaped areas being deposited on the banks of the SuDS.

- We appreciate that drawings detailing the private and public ownership of the drainage system have been provided. These should be referenced in the maintenance plan document.