

Arun District Council, Civic Centre, Maltravers Rd, Littlehampton, West Sussex, BN17 5LF
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From: Laura Gibbons <Laura.Gibbons@arun.gov.uk>
Sent: 07 April 2021 09:46
To: Simon Davis <Simon.Davis@arun.gov.uk>
Cc: Planning.Responses <Planning.Responses@arun.gov.uk>
Subject: RE: Y/155/20/DOC and Y/3/21/DOC - Condition 10 and 9

Hi Simon,

Thanks for sending this over and sorry that it has taken some time to get comments back to you. My comments are shown below, in summary there are a lot of points outstanding with a large degree of information still not supplied. I've got a meeting with the applicant's consultant later today where I will run through my comments with them.

Key
16/02/21 ADC Comments

1. Infiltration testing was completed in February 2019. Only one test was completed in each location and tests were abandoned quickly. It can be observed that some test pits did show a decrease in water level over the monitoring period and the tests appear to have been terminated because of time constraints rather than evidence of water not falling. I note that in previous correspondence with the applicant it was agreed to ignore infiltration in site design. In the future it should be noted that a greater allowance of time should be given for infiltration testing. *The infiltration testing principles were previously agreed with ADC. No further comments.*
2. Groundwater monitoring results must be provided and should be overlaid on detailed drainage layout drawings. *The results of groundwater monitoring are provided in Drawings 19-326/009 and 19-326/010 in Appendix B. Okay, thank you.*
3. Detailed layout plans must be provided.
 - a. All pipes must be labelled with diameters and falls. *The diameters of the proposed pipes were included in the submitted drainage strategy drawings. The falls have been added to show the gradient of the pipes, and are shown in Appendix B. Okay, to be reviewed (see below for details of why this hasn't been reviewed yet).*
 - b. Manhole invert and cover levels must be provided. *The invert and of cover levels of the proposed manholes are shown in Appendix B. Okay, to be reviewed (see below for details of why this hasn't been reviewed yet).*
 - c. Catchpits must be clearly identified. *Catchpits would be identified on drawings at detailed design stage. This information must be provided now in order to assess the adequacy of design and to ensure details can be listed on approvals and are enforceable.*
 - d. Finish and formation levels of permeable paving must be detailed on plan. *The finish and formation levels of permeable paving would be provided on drawings at detailed design stage. This information must be provided now in order to assess the adequacy of design and to ensure details can be listed on approvals and are enforceable.*
 - e. Layout plans must show connections from roads, driveways and plots to the drainage network. *Drainage connections for roads, driveways and plots would be identified at the detailed design stage. This information must be provided now in order to assess the adequacy of design and to ensure details can be listed on approvals and are enforceable.*
 - f. Hydrobrake unit references must be detailed on plans and construction detail drawings. *Specific Hydrobrake unit references would be provided at the detailed design stage. This information must be provided now in order to assess the adequacy of design and to ensure details can be listed on approvals and are enforceable.*
 - g. The invert level of the proposed connections to the culvert and watercourse must be provided, along with the invert level of these existing features at the proposed points of connection. Upstream and downstream bed levels of watercourses must also be provided on plans. *The invert levels of the proposed connections are provided within the drainage calculations in Appendix C. The invert level of the connection to the culvert has been interpolated using drainage survey data, and the invert level of the connection to the watercourse has been identified from the topographical survey included on the drawings in Appendix B. The invert levels must be provided on layout drawings. The*

achievability of the ditch outlet level of 4.41 is highly questionable with ditch bed levels in this area of at least 4.51, and a minimum of 150mm required between ditch bed and outlet invert level.

4. **A surcharged outfall should be included in calculations where discharge is to open watercourse.** *A surcharged outfall has been included in the calculations where Basin 3 discharges to the adjacent watercourse. The calculations are provided in Appendix C. This needs to be discussed, it appears that a surcharge depth of 4.837 with invert of 4.41 has been used. Surcharged level should be equivalent to top of bank level in proximity to point of connection, which appears to be 5.51m.*
5. **Greenfield runoff rate calculations must be supplied. These calculations must be based upon the proposed impermeable area which is to be positively drained, not entire site area.** *The proposed runoff rate calculations were provided in the approved Flood Risk Assessment (FRA) and Drainage Strategy and were not queried in previous correspondence with ADC. No drainage strategy was approved prior to this DOC. A full package of information must be supplied as part of this discharge of conditions application. I believe that the FRA referred to utilised the entire site area, and not the area that is being positively drained. Please supply full new greenfield runoff calculations where the area used to calculate runoff tallies with that shown on your impermeable areas layouts, and in calculations.*
6. **An impermeable areas diagram/ catchment plan must be provided.** *An impermeable area catchment plan is provided in Appendix D. The catchment areas for each manhole and sustainable drainage systems (SuDS) feature are provided within the drainage calculations. Where basins are to be lined these should be included in impermeable areas.*
7. **Calculations must use latest FEH rainfall, or apply a cv of 1.** *The calculations have been rerun using the latest FEH rainfall data. Results printouts appear to show FEH 1999 has been used for outfall 1.*
8. **Results have not been included within calculation printouts. Please include full calculation printouts.** *The full drainage calculation printouts are provided in Appendix C. Okay, calculations have not been reviewed to date as some of the other points (runoff rate, impermeable areas, etc.) will directly affect these and a lack of information is preventing a thorough review.*
9. **A detailed review of calculations has not yet been undertaken due to the above. Please ensure that pipe reference numbers are included on layouts to facilitate review.** *The reference numbers of the proposed pipes have been added to the drainage strategy drawings and are shown in Appendix B. Okay, to be reviewed once further points are resolved.*
10. **300mm freeboard must be provided on all basins.** *At least 300mm freeboard is provided for two of the basins. Where less than 300mm is provided on the remaining basins, exceedance flows would be directed away from the new homes and as such would not impact on the proposed development. A minimum of 300mm freeboard is required on all basins and is non-negotiable.*
11. **Construction detail drawings must be supplied. Please supply construction detail drawings of basins, permeable paving, manholes, catchpits, flow control devices, headwalls, pipe bed and surround, etc.** *Basin construction details must include a minimum of two perpendicular cross sections per basin. Details should be site specific. Construction detail drawings of the proposed drainage features would be provided at the detailed design stage. This information must be provided now in order to assess the adequacy of design and to ensure details can be listed on approvals and are enforceable.*
12. **Please clearly identify which features are to be lined and which are not. Please supply flotation calculations for lined features.** *The basins would require lining to protect against buoyancy. The flotation calculations are*

provided in Appendix E. A hybrid approach would be adopted with the permeable paving, whereby surface water runoff would be attenuated and discharged at the approved QBar rate to the watercourse network, whilst allowing infiltration in areas where permeable paving is located above groundwater levels. Calculations look okay, to be reviewed again once further information on basins has been provided. I.e. depths of all basins labelled on plans and cross sections provided.

13. Exceedance flow route drawings must be provided. *Exceedance flow route drawings are provided in Appendix F. To be reviewed once further information has been supplied.*
14. A maintenance manual must be submitted which is site specific and details maintenance requirements for all proposed drainage features. It must give a brief outline of the drainage strategy used, detail who will complete maintenance and how this will be funded, detail actions and frequencies for maintenance of all drainage elements, and detail expected design lifetimes/ requirements for replacement of elements. *The typical maintenance requirements were set out in the Drainage Strategy and MMP report. A comprehensive maintenance manual would be provided at the detailed design stage. This information must be provided now in order to assess the adequacy of design for the lifetime of development and to ensure details can be listed on approvals and are enforceable. Under CDM maintenance must be considered as part of design.*
15. Root potential areas of trees must not conflict with basins which require liners. Proposed trees must not be located over or in close proximity to the surface water drainage network. *The root protection areas of existing trees do not conflict with the basins, and the proposed trees would be moved further away from the basins and surface water drainage network. Please supply further information now, this is fundamental to demonstrating you have a drainage design that is suitable for the lifetime of development.*
16. As previously discussed with the Principal Drainage Engineer, please include details of your proposed improvements to the main river behind the millers within the information supplied. This should include removal of the undersized culvert and replacement with a bridge. *There would be no improvements to the main river. Flood risk would not be increased in upstream or downstream areas. This is highly disappointing given previous correspondence on this point. You will require Flood Risk Activity Permits/ Ordinary Watercourse Land Drainage Consents for all of your proposed outfalls and crossings.*
17. Note to be added to drawing to state that watercourses will be cleared of vegetation and silt as part of works. These works must be completed near the beginning of construction to ensure the free flow of water. *A note detailing the works to the watercourses has been added to the drawings in Appendix B. Okay.*
18. Details of how the proposed surface water drainage scheme will provide adequate treatment of surface water prior to discharge should be provided. *Water quality information and the pollution mitigation indices of the proposed drainage features were provided within the approved FRA. No drainage strategy was approved prior to this DOC. A full package of information must be supplied as part of this discharge of conditions application.*

Kind regards,

Laura Gibbons

Drainage Engineer

Engineering Services

Please note that I work Tuesdays 08:00-16:00 for Arun only.



T: 01903 221374

E: laura.gibbons@arun.gov.uk or [REDACTED]

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

From: Simon Davis <Simon.Davis@arun.gov.uk>
Sent: 16 March 2021 12:59
To: Laura Gibbons <Laura.Gibbons@arun.gov.uk>
Subject: FW: Y/155/20/DOC and Y/3/21/DOC - Condition 10 and 9

Hi Laura,

This has been received re Y/155/20/DOC (condition 10) and Y/3/21/DOC (condition 9). Can you review and respond.

Note that we are allowing this application to go out of date so no need to look at today if you have other commitments.

Thanks

From: Mykena Mortimer-Davies [REDACTED]
Sent: 16 March 2021 12:24
To: Simon Davis <Simon.Davis@arun.gov.uk>
Cc: Zoe Knott [REDACTED]
Subject: Y/155/20/DOC and Y/3/21/DOC - Condition 9 and 10

Dear Simon,

I hope you are well.

In response to the Drainage Engineers response for Condition 9 and 10, please find attached a response from our Drainage engineer.

If you have any further questions, please don't hesitate to contact Zoe or myself.

Kind regards,

Mykena Mortimer-Davies
Planner

[REDACTED]

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Carbon 
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Nexus Planning - Reading
5th Floor
Thames Tower
Station Road
Reading
Berkshire RG1 1LX



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