

Application Reference: P/29/25/DOC Site Name: Land North of Hook Lane Pagham PO21 3PB	Initial Issue Date: 18/07/2025 Issue Date: 18/07/2025 Reviewer Reference: ADC/EXT2/D2134/73
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Summary and Recommendation:

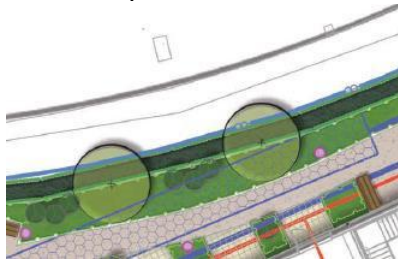
Condition 9: **Further information required**

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

	ADC Drainage Comments	Designer Response	ADC Drainage Comments	Designer Response	ADC Drainage Comments
Date:	12/07/2024				
Condition Number: 9 [Surface water Drainage Design]					
Comment Number					
1.	It is recommended that the applicant reviews the surface water drainage design checklist provided on the Arun District Council website and makes a full resubmission including all required data , even if it has been submitted under previous applications. The comments below are given on the information that has been submitted to date, further information is required as listed on the checklist.	1. Note explains that these points have been answered already but still require more information to be supplied despite previous satisfactory responses.			
2.	Groundwater monitoring data has been submitted which shows groundwater level varies at depths of approximately 1 – 1.4m below ground level. This rules out the use of infiltration. Provide details of counter-buoyancy measures and calculations and for the proposed cellular storage tanks	2. CSP have provided flotation calculations in Appendix A.			
3.	The calculations provided are not consistent with the drawings and appear to include errors: a) The permeable paving area in the calculation is stated as 30x25=750m2 whereas the catchment drawing states 641m2 b) Demonstrate that the 1:150 gradient used for the permeable paving is representative of the levels c) The porosity used in the calculation for the permeable paving is 1. This should reflect the void ratio of the sub base d) The permeable paving invert level used in the calculations will cause the software to use a depth of 742mm. The depth on the construction details is 200-300mm	A. Updated Drawings & Calculations. B. Updated Drawings & Calculations. C. Responded in previous Rev. C calculations. Updated Drawings & Calculations. D. If you review C003 drawing – it is greater than 742mm invert. No impact. Updated Drawings & Calculations.			

	e) Tank SW1 appears to be oversized in the calculations. The drawing states 21.6x3.6=77.76m². The calculations use an area of 82.1m² f) Calculations use a design head of 1.5m for the flow control, 1m is stated on the drainage plan g) The final connection is shown as 150mm dia on the drainage plan but 300mm dia in the calculations. It is shown with a gradient of 1:200. Demonstrate that this will be self cleansing with the proposed 2l/s flow rate. h) The calculations do not confirm pipe gradients or lengths i) The calculations do not include invert levels but a check using the chamber depth shows that that invert levels in the calculations are not consistent with the drawings. j) The calculations do not include results for all required design storm events k) The calculations do not include the FEH22 point descriptor information. Ensure calculations are consistent with the drawings and show all information	E. This will have no impact on calculations or drawings. Updated Drawings & Calculations. F. This was answered in Rev. C calculations. Updated Drawings & Calculations. G. Responded in previous Rev. C calculations. Updated Drawings & Calculations. H. These details are ALL in the Rev. C calculations. Pg25-28 including other sections. Updated Drawings & Calculations. I. These details are ALL in the Rev. C calculations. Pg25-28 including other sections. Updated Drawings & Calculations. J. Replied in Rev. C calculations. Updated Drawings & Calculations. K. These details were included in Rev. C calculations. Updated Drawings & Calculations.			
4.	Whilst a catchment drawing has been provided it does not clearly split the catchment into nodes. eg. a) Area 8 catchment is collected by 2 nodes. b) Similarly, whilst the total permeable paving area is shown, it is collected by 3 nodes. Provide a catchment drawing demonstrating the catchment for each node in the calculations	A. Updated Drawings & Calculations. B. Updated Drawings & Calculations.			
5.	The design proposals should clearly demonstrate its relationship with the surrounding Bellway's development, especially as its proposing to connect to a surface water manhole provided within that development. In addition, confirmation of acceptance of these flows, based on the proposed contributing areas from this development should be provided	5. This was provided in Rev. A calculations. See Appendix E.			

6.	The drainage construction details are not consistent with the others plans and the calculations. a) The tank detail shows a manifold arrangement for the tank connections, the plan shows a single pipe b) The tank detail shows catchpits upstream and downstream of the tanks, they are not shown on the plan or manhole schedule c) The volume stated for tank ST2 is not consistent with the plan d) Vent pipes are shown on the top of the tank “by others” connecting to the upstream and downstream chambers, no details are provided showing how these chambers are vented e) The tank detail suggest that pipes run through it at base level, this is not shown on the plan f) The tank detail refers to Ecobloc and Stormcell, the plan refers to Aco Stormbrix. g) The tank detail does not state which specific product in the range it to be used. eg. There are 3 types of Stormbrixx h) The tank detail specifies a plan size that is not consistent with the drainage plan i) The tank detail makes reference to “final detailed design by Ecobloc. Provide the final design j) The permeable paving detail shows a 150mm perforated pipe, the calculations and plan show a 225mm perforated pipe k) The flow control chamber detail does not appear to reflect what is shown on the plan l) Provide details of how the flow control device will be protected from blockage given that its pass through is less than the recommended 75mm m) The typical manhole detail states a range of diameters that are dependant on depth and contradict the manhole schedule n) Demonstrate that sufficient working space will be available under the cover slab in the 1200mm dia manholes (usually	A. These details were provided in Rev. C. calculations. Updated Drawings & Calculations. B. These were provided in Rev. C calculations. Updated Drawings & Calculations. C. This was provided in Rev. C calculations. Updated Drawings & Calculations. D. Updated Drawings & Calculations.. E. Updated Drawings & Calculations. F. Rev. C calculations. GRAF ECO block MAXX clearly shown. Updated Drawings & Calculations. G. Updated Drawings & Calculations. H. Rev. C Calculations. Updated Drawings & Calculations. I. We have removed this note. This should be forwarded later after PLANNING. J. No impact. Updated Drawings & Calculations. K. Rev. C Calculations - Updated Drawings & Calculations. L. As shown on details – steel cable connected to pivoting bypass door for blockages as shown on C003 drawing. M. These are standard details. Updated Drawings & Calculations. N. Manhole Details show rungs at 300mm centres. There is greater than 1m height (5no). The note also indicates step irons not required where <1m.			
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	900mm is required from top of benching to underside of cover slab) o) The typical manhole detail shows a grade D400 cover which contradicts the manhole schedule p) The Typical inspection chamber detail appears to show a light duty cover which contradicts the manhole schedule Provide revised drawings and calculations that are coordinated and consistent	O. D400 covers are only shown on Manholes in Road/Parking areas. See Drainage Plan for details. Updated Drawings & Calculations. P. Inspection chamber covers are not shown on the Manhole Schedules. Updated Drawings & Calculations.			
7.	The drainage construction details are unclear, not comprehensive or site specific. Details should be accurately drawn, readable and include: a) Fully dimensioned details for all component in the drainage system b) Base and top levels for all tanks c) Flow control chamber cover level, invert level, weir level, sump dimensions, flow control model number and flow characteristics	A. Fully dimensioned drawings are shown. Updated Drawings & Calculations. B. Base and cover levels are fully shown on the drainage plan. Updated Drawings & Calculations. C. Updated Drawings & Calculations.			
8.	Detailed landscaping proposals are required to demonstrate that the landscaping and drainage proposals are coordinated. a) The indicative landscape proposal drawing shows a tree very close to tank ST1. Section A-A provided does not appear to represent this.  b) Provide information from the root barrier manufacturer and the tank manufacturer that the proposal is acceptable. c) Demonstrate that the tanks are structurally sufficient given the close proximity of the trees.	A. Rev C Calculations - Updated Drawings & Calculations. B. See Appendix G. C. See Appendix G.			

	d) Provide accurate cross sections showing that there is adequate space for the building foundations, foul and surface water drainage pipes, tree pits e) Demonstrate that the roots of the trees planted close to the permeable paving will not damage the impermeable liner f) Show on plan the measures proposed to protect the drainage components from root damage	D. Updated Drawings & Calculations. E. See Appendix G. F. Updated Drawings & Calculations.			
9.	Drainage long sections and manhole schedules have been provided but do not contain sufficient information and appear to contain errors. a) The manhole schedules do not identify the type of chamber b) The coordinates on the manhole schedule do not match the coordinates in the calculations c) The invert levels on the manhole schedules and long sections are not consistent with the plan d) The long sections do not include levels for the drainage components e) See comment 6 Provide accurate and coordinated drawings	A. Updated Drawings & Calculations. B. Updated Drawings & Calculations. C. Updated Drawings & Calculations. D. Updated Drawings & Calculations. E. Point 6 has various responses that have been answered.			
10.	The current level of detail provided on the Drainage layout drawing 9418-C002 is insufficient. a) There is no north point or key b) There is potential for surface water to enter the foul pumping station via the turret/cover, where it passes through the permeable paving. Provide a detail showing how this will be prevented c) There is potential for surface water to enter the foul water system via FW MH-02.05, as it is located within the permeable paving. Provide a detail showing how this will be prevented. d) There are some large areas of paving around the building which do not appear to be drained e) The drawing of manholes/ inspection chambers is	A. Updated Drawings & Calculations. B. See Appendix I. C. See Appendix F. D. Rev. C calculations. See levels and Drainage drawings provided. E. Updated Drawings & Calculations.			

	inconsistent with the schedule size f) The invert levels are not consistent with the manhole schedules, long sections or calculations g) Make it clear on the plan where the flow control chamber is h) The point of connection to the existing manhole is not clear and the existing manhole data is missing Provide accurate and coordinated drawings	F. See Rev. C calculations updated previously. Updated Drawings & Calculations. G. Responded in Rev. C Calcs. Flow control is clearly marked on Drainage plan and Construction details. H. See Rev. A calculation provided previously. Updated Drawing.			
11.	Provide a detailed level design to clearly demonstrate that surface water run off will discharge to the proposed gullies/permeable paving etc. and not cause a risk of flooding to the building or off site. A) There are some large areas of paving around the buildings where levels have not been shown or are sparse. Please demonstrate that there are adequate falls for these areas to be drained as intended. The manhole cover levels on the drainage drawing suggest some of these areas are flat B) Levels of the formation of the permeable paving must be provided	A. See Rev. C Calculations - Updated Drawings & Calculations. B. The minimum thickness of subbase is 300mm thick and is graded out to low points. Contractor will install pipes accordingly to suit services.			