

Project Name: Acre Field

Planning Reference: Y_55_22_DOC

Formal Requests

- **The new information has been accepted and we recommend Discharge of Conditions 8 and 10.**

17/02/2023 – Robert West Comments

25/05/2023 – Robert West Second Round Comments

Accepted Responses are in GREEN and Further Action Required in RED.

We would not recommend approval until the following points have been addressed;

Condition 8

- Point 1 - Further information required:
 - i. Whilst reference has been made to the Factual Ground Investigation Report GL24235 by Harrisons dated May 2021, (ref. note 15, drawing CRH-XX-XX-DR-C-5050-P8_Proposed Drainage Layout (Sheet 1)), this information does not appear to have been submitted for review. The value specified in the applicant's response (infiltration rate of 2.37×10^{-6} m/s), has been applied to the model (calculation pack 0008 - utilising infiltration in the bases of the attenuation basin and the areas of permeable paving as requested). The results of groundwater testing have not been provided.
 - Without the test results to verify the infiltration rates applied to model 0008, the results cannot be verified. This infiltration testing is required to confirm that infiltration rates at this location are sufficient to allow for runoff to discharge to the ground as designed. Providing the rates match the testing, the calculations provided are considered acceptable.

Infiltration testing supplied. Accepted.

Location ID	Test Depth/ Soil Type	Elapsed Time		Vp (s/mm)	Equivalent Infiltration Rate (m/s)
		Minutes	Seconds		
PO02	0.30m - 0.60m / Slightly sandy CLAY	05Hrs 19mins 19secs	19159	127.73	2.61E-06
		06Hrs 31mins 45secs	23505	156.70	2.13E-06
		Insufficient time to complete third infilling			
			Average	142.21	2.37E-06

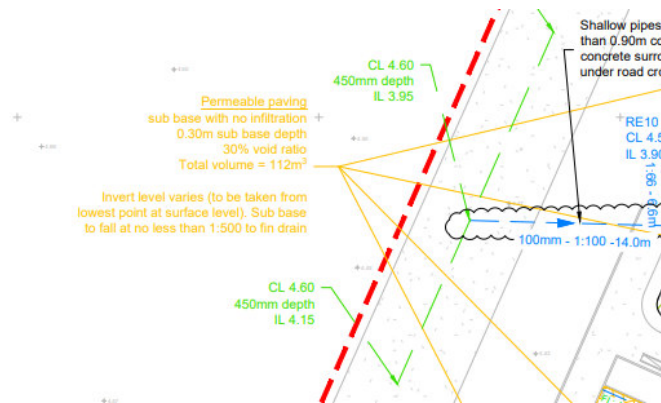
- Groundwater monitoring results over the winter period should also be provided by the applicant, to confirm the assumptions made in the drainage design are correct.

Ground water monitoring has now been provided.

- Whilst the applicant's response states that the "*attenuation basin and swales are to be unlined, while all permeable paving is proposed to be lined with permeable membranes*", drawing CRH-XX-XX-DR-C-5051-P7_Proposed Drainage Layout (Sheet 2) has a label which states "Sealed sub base with no infiltration". This drawing is required to be updated.

Label still states, 'subbase with no infiltration'. Please update the drawing for further clarity. It was explained that this refers to the calculations and not the liner. Please state which type of liner is used here, permeable / non permeable.

Closed.



- Points 2 through 7 (inclusive) - applicant's response is acceptable to address these points. **Closed.**
- Point 8 - Further information required.
 - ii. Previous comments have not been suitably addressed: *"We [ADC] do not accept the proposals, as detailed previously "Pipework should be exposed and within headwalls. To bury pipework within a gabion will prevent visual inspections for blockage being undertaken. The permeable membrane surrounding the pipe and gabion will likely silt up. Design must be maintainable".* This design unnecessarily increases the risk of failure by encasing the pipework. Please revise the design as requested.

We would still urge you to reconsider this design as it adds an extra level of complexity to the maintenance of the drainage. However, should you still wish to provide the above proposals then a robust method statement of how these features will be monitored and maintained will need to be included within the Maintenance Manual. (Also see response to Condition 10 below)

Closed.

- Point 9 - applicant's response is acceptable to address this point. **Closed.**
- Additional concerns based on the information submitted by the applicant:
 - iii. Calculations for the 1:2, 1:10, 1:30 year return period rainfall events INCLUDING climate change, should be provided, as the system is shown to flood under design event conditions. Currently 40% climate change has only been applied to the 1:100 year return period event in the Micro Drainage model.

Calculations now provided as per above.

- iv. With reference to the SFRA, the site is shown to partially flood under the design flood event (i.e. 1:100 year event, include climate change). The submitted FRA does not address this, and moreover, the drainage model does not appear to take into consideration the impact of a surcharge event. The system should be tested for a surcharge event based on the estimated flood levels under design conditions (including the appropriate allowance for climate change).

As you have explained the outfall of the storage is located above the predicted water level within the ditch / watercourse this comment is now **Closed.**

- v. The calculations show Node SW2 to flood under the 1:100+cc design event, by 23.409m³. A plan should be provided to show how this floodwater can be contained safely onsite, without increasing the risk of flooding (both on and offsite). This plan should be based on the final site levels plan.

Closed.

- vi. The Micro Drainage model results show an Orifice set to 0.001 – the use of this flow control needs to be clarified by the applicant.

Noted and accepted.

- vii. The applicant's drawings are not labelled for construction (C), but instead marked as 'preliminary - P'. All drawings submitted to discharge conditions are expected to be issued as 'construction' drawings, to avoid any changes from occurring when the construction drawings are issued.

Accepted. Plans now issued for construction.

Condition 9

- Applicant has provided sufficient information to discharge condition 9. Closed.

Condition 10 - Maintenance

- The applicant should provide details of how the maintenance will be funded, (e.g. who will be paying for the ongoing maintenance, will costs will be levied on residents and paid to the management company?).

Closed.

- Details of the management company are required to be provided. This must include the name and contact details for any proposed management company.

Closed.

- Several maintenance frequencies are listed as "as required", which at DOC should be defined for each maintainable part of the system. This is to ensure that maintenance personnel are aware of the threshold for damage / issues that would trigger maintenance tasks or remedial work to be carried out.

Items that state actions 'as required' should be included within the monitoring section stating how often this monitoring needs to take place. Then for remedial action this should state 'as required based on results of monitoring' to indicate that should the monitoring highlight an issue then the action should be performed. Please update the schedule to include this.

Closed.

- A statement should be included detailing when each feature may need replacing, e.g. if performance or structure is compromised by damage.

This comment has not been satisfied. Please include detailing when each feature may need replacing, e.g. if performance or structure is compromised by damage.

Closed.

- Product specific maintenance details should be also be provided for all of the proposed SuDS (unless those specific details are identical to the Tables in C753).

Closed.

- For the Permeable Paving, please include an additional line confirming that the joining aggregate should be replaced as required. A further note should be included to highlight the risk that this aggregate can be removed if jetting and suction equipment is used, and should therefore be replaced/reinstated. *(Note that if the type of surfacing used does not require this maintenance to be carried out, this comment can be withdrawn)*

Closed.

- The Maintenance Plan refers to a sediment forebay "Remove sediment from any forebay", however, one does not appear to be present on the drainage layout plans, or cross section. The drawing or maintenance plan should be amended so that they are consistent.

Closed.

- For the ditches and watercourses, please ensure maintenance details are provided and that these include annual removal of tree saplings.

Please include that annual removal of tree saplings is required.

Closed.

- A section detailing maintenance and inspection of silt traps should be provided. This should include information on how to properly test and dispose of any silt removed from the site.

Closed.

- Maintenance of the headwalls should include details of maintenance to be carried out on any flap valves or other non-return valves.

Closed.

- Please include maintenance details which are specific to each of the proposed flow control devices, as well as details of the model, make and manufacturer. The flow control maintenance will also need to include detail inspection, greasing and movement of bypass door on any Hydro-Brakes and the frequency of this.

Information is still required.

Closed.

- Details of the maintenance for the gabion outlets must be provided and must be of sufficient detail to ensure they can be maintained, desilted, and replaced if necessary. We are opposed to the use of gabions as outlets, unless it can be proven to a high degree of certainty that these features can be easily maintained and replaced by maintenance staff, and that performance of these outlets will not be reduced between proposed maintenance periods.

A sufficient level of information is still required. Please supply a robust solution / method statement for the ongoing monitoring and maintenance of the gabion units.

Closed.

- Advisory note only: We would recommend that a plan of the drainage system, showing each of the proposed maintenance tasks / key features requiring maintenance is included within the maintenance document for the site. We would also recommend a maintenance checklist is included.

Not required.

Based on the above comments, we **recommend discharge of conditions 8 & 10.**

We can confirm that the requirements of Condition 9 have been previously met/discharged.