

WA/75/22/DOC

Infiltration has previously been discounted and agreed with the council.

A proposed drainage strategy for the whole site and some detailed information has been provided. As has a verification report for a first phase of development (installed).

At this time, we **do not** recommend discharge of conditions until the following has been provided:

- 1) The applicant should confirm the SPR value used for the IH124 greenfield runoff rate calculations as this does not appear to be stipulated in the report.
- 2) The drainage strategy included within the FRA provides storage volumes for the site as a whole but does not detail exactly how volumes for each tank have been calculated and whether additional calculations (not submitted) have been carried out. We require:

Calculations to be carried out for each tank to confirm the following.

- The upper orifice plate will not activate when the tank is filled by rainfall events less than the 1:30 year storm (i.e. it is only activated for higher return period rainfall events). This requires calculations confirming the water level within each tank at intermediate return periods including the 1:1, 1:10, 1:30 and 1:100-year storms.
 - The water level and volume expected within each tank during the 1:100 year + CC event.
 - Confirmation that the pipes used between the tanks are sufficiently sized to manage the flow rates expected.
- 3) Applicant was previously requested to ensure that the “1 in 100 year + 40% allowances for climate change storm event must be provided in any reservoir being used for irrigation purposes”, this is also stipulated in the planning condition. The applicants’ calculations use a 20% allowance for increases in peak rainfall intensity due to climate change based on a 20-year development lifetime. The application was submitted after the Environment Agency updated the climate change allowances for Arun District, which suggest that a 45% upper end allowance should be applied to developments up to 2050. We require calculations based on the higher more contemporary estimates for climate change or a suitable argument as to why this is inappropriate. If such an argument is presented, we would still expect to have further evidence of the proposed 20-year development lifetime including confirmation from the planners that permission will be rescinded or impossible post this deadline. This is to ensure the effects of climate change are suitably considered for the period the development is located onsite irrespective of any estimated timescales.
 - 4) Details of exactly how the sump and pump system operate are required to better understand how this is used to drain down the outfall from each tank, and why this is required. This is to ensure that the tanks cannot be full prior to the onset of an extreme rainfall event.
 - Before we are able to discharge condition 7 details of the maintenance and management of the drainage system must be provided. As stated “*The scheme shall also include details of how the scheme shall be maintained and managed after completion*”.
 - 5) Additional drawings and information should be provided to allow our engineers to better understand the drainage system (as proposed and installed). This includes but may not be limited to:
 - Full construction drawings in addition to the product specific schematics provided.
 - Details of the pump.
 - Drawings of the outfall from the tanks must be provided, this should include a cross section / long section showing the tank in relation to the sump pump (for drain down) and the flow control devices (orifice plates), and outfall. It is currently unclear how the orifice plates relate to the sump / pump system and thus there is uncertainty whether the pumped runoff could enter the ditch during an extreme rainfall event.
 - The proposed orifice diameters are (in some cases) smaller than 50mm. The applicant should provide details to demonstrate how silt and other materials, that could block the outfalls, will be prevented from entering the storage tank.
 - Ground levels, invert levels, and cover levels must be provided on the drainage drawings.
 - Technical drawings for the outfall(s) must be provided.
 - 6) A flap valve on the outfall(s) must be provided (to prevent backflow of water from the ditch network(s) entering the drainage system)

- 7) We have previously requested information relating to exceedance events and possible failure of the tanks. Given the large volumes of storage involved we would expect details of the exceedance flow routes and safety practices to be carried out to protect on and offsite occupants from the potential failure of the tanks.
- 8) The FRA report makes reference to trafficked areas being, “stoned or permeable tarmac”, these areas need further consideration and details of the surfacing and sub-base material needs to be provided. As infiltration has been ruled out it is also likely that a separate outfall for these areas will be required and details of this should be available for review.

Please note, if Type 1 MOT, other impermeable, or high fines materials are proposed, these may need to be drained formally to avoid increased runoff to the streams / surrounding ditch network. If the roads are simply to be made from gravel, calculations are not required, but this must be confirmed and shown on the associated drawings.

- 9) Tanks H and I state a 45l/s discharge rate, please confirm this is a typo and is meant to read 4.5l/s.
 - 10) The activation depth of the implemented tanks upper orifice plate is stated as 500mm, rather than the 750mm stated in the original FRA. The verification report should confirm that this has no detrimental impact on the proposed discharge rates for intermediate return period events (see point 3 above for further details).
 - 11) Land Drainage Consent is required for any outfalls into the existing ditches / watercourses and should be obtained prior to conditions 7 and 4 being discharged. This is because any changes resulting from the LDC approval will need to feed back into the design which has a bearing on these conditions.
- It appears from the photographs included with the application, that an outfall has been constructed in contravention of the Land Drainage Act 1991. The applicant should be aware that Land Drainage Consent is required prior to outfalls being constructed and cannot be issued retrospectively. Drawings of the constructed outfall must be provided so that our Land Drainage Consent (LDC) team can review these and ensure there are no issues with the design. Furthermore, the LDC team may request an onsite meeting or inspection to review the unconsented outfall and any works in and around the existing ditches. We cannot recommend discharge of conditions until the LDC team are satisfied that no further changes to the outfall are required. For any new outfalls (as part of future phases of development) the applicant should apply for consent prior to construction, in accordance with the Land Drainage Act 1991.