

LLFA Response

Evidence that the applicant understands the sensitivity of any of the discharge points in relation to the sensitivity of the receptor. Where this is main river or discharging through contaminated land the LPA may have to consult the EA.

We are aware that the point of discharge into Hermitage Stream is sensitive however we will not be increasing the risk of an pollution into the watercourse. The proposed surface water drainage regime will also allow for a reduction in surface water discharge rates for all storm events.

The existing flow paths and drainage regime of the developed (brownfield) site

The existing flow paths and drainage regime have been considered and the proposed drainage routing utilises the same philosophy with the foul water connecting back into the on-site foul water system and the surface water connecting back into the surface water system via attenuation however to reduce discharge rates. The only area that is recorded to occasionally flood is the hard paved play ground which is now being constructed over with the new junior block. All surrounding new hard standing will be directed to new gullies.

Areas that may have been affected by existing failures in the existing drainage regime

As above, the only known area to fail is the playground which will be constructed over and directed into the new SW system. A drainage CCTV survey was undertaken of the whole site's drainage network and remedial recommendations have been made and forwarded onto the school so that these remedial works can be carried out within an acceptable timeframe.

The total permeable and impermeable area by the proposals

The existing impermeable area is 11,104m² and the proposed is 11,579m². There is an increase of impermeable areas by 475m².

Where infiltration is used for sustainable drainage of the site, evidence must be provided that shows that a suitable number of tests have been completed across the whole site within different geology and to a suitable depth (i.e. a similar depth to the proposed infiltration devices) The tests should be completed according to the BRE 365 method.

Attached are the test results from the site. The results are poor however they are sufficient enough to drain the multi use games area (MUGA) due to its large surface area.

Existing and proposed run-off rate calculations should be provided, along with evidence that these calculations have been completed according to a suitable method (eg. IH124 or FEH available from UK Sustainable Drainage: Guidance and Tools). These calculations should demonstrate that the proposed run off rate for a one in one year event and a one in one hundred year event plus climate change do not exceed the existing run-off rates

Whilst the total site is 3.65 ha in size, the additional impermeable area coming about as a result of the proposals is only 475m². This therefore precludes the usage of any of the above runoff estimation methods as the results will be inaccurate.

Using the simple formula of $r = a \times i$ (rainfall rate = Area x Intensity) we are able to calculate the runoff rate for the existing and proposed areas for the 1 in 1 year storm and 1 in 100 year storm.

As the proposed development effectively consists of small areas of new impermeable area scattered around the site in the form of extensions of buildings and hard paved areas, it was decided that the existing playground to the south west was to be diverted into an attenuation tank with restricted outfall to ensure that there would be no net increase in discharge rates from the total site for all storm return periods.

By reducing the discharge rate from this area to 2.6l/s we were able to maintain or reduce the overall discharge rate from the site as demonstrated in the below table.

	1 in 1 year storm 39.85mm/hr	1 in 100 year storm 117.29mm/hr	1 in 100 year storm + 40% 164.2mm/hr
Existing Site 11,104m ² (1.11ha)	122.9l/s	361.8l/s	506.47l/s
Proposed Site 11,579m ² (1.16ha)	128.17l/s	377.25l/s	528.13l/s
Existing Playground 800m ² (0.08ha)	8.86l/s	26.06l/s	36.49l/s
Playground with storage	2.6l/s	2.6l/s	2.6l/s
Total proposed site runoff	121.9l/s	353.8l/s	494.24l/s

Where proposed, proposed storage calculations should be provided along with evidence that these calculations have been completed according to a suitable method

Calculations attached. The storage has been designed to cater for the 1 in 30 year storm. Over and above that up to the 1 in 100 + 40% will be stored above ground within the existing bunded playground.

Evidence that exceedance flows and runoff in excess of design criteria have been considered - calculations and plans should be provided to show where above ground flooding might occur and where this would pool and flow.

The revised attached layout indicates the exceedance flow routes from the site. These will be formalised within the Stage F levels design.

Sufficient information on the correct number of treatment stages in the surface water management train, for further information see the Ciria SuDS Manual (C753)

Within Ciria 753 there are no practical mitigation techniques for possible pollution generated from the site. As the only runoff will be from roofs and foot traffic pollution risk will be very low. The use of trapped gullies and channel drains will collect any potential contaminants before discharging into the surface water outfall.

Information on general maintenance regimes of the surface water management train including SuDS features, and who is going to be undertaking it – evidence that those maintaining the drainage system are in discussion with the developer.

The school has an onsite caretaker and he will be informed of the necessary maintenance procedures.

Please note, surface water drainage proposals will need to be assessed in relation to the impacts of climate change. The appropriate allowances are detailed in the latest advice from the Environment Agency Flood risk assessments: climate change allowances. This updates previous climate change allowances to support NPPF.

The storage has been designed to cater for the 1 in 30 year storm. Volumes over and above this up to the 1 in 100 + 40% will be stored above ground in the existing bunded playground.

The proposed system should be tested for the peak rainfall intensity for the central and upper band in relation to the relevant development lifetime.

The storage has been designed to cater for the 1 in 30 year storm. Volumes over and above this up to the 1 in 100 + 40% will be stored above ground in the existing bunded playground.

We would also expect to see a suitable allowance for urban creep, this factor reflects the future predicted increase of urban development, and with it, the increase of the impervious area. An allowance of 10% on impermeable areas is suitable in relation to confirming that the proposed system is acceptable.

The most recent issue now includes for urban creep within the calculations although any further modifications will be subject to a planning application and thus the same procedure.

Where the proposals are connecting to an existing drainage system it is likely that the authorities responsible for maintaining those systems will have their own design requirements. These requirements will need to be reviewed and agreed as part of any surface water drainage scheme.

The scheme has been reviewed by Southern Water and they had no comments pertaining to the foul or surface water connection arrangements proposed.

Please note that the mechanism for securing long-term maintenance will need to be considered and agreed between the applicant and the Local Planning Authority. This may involve discussions with those adopting and/or maintaining the proposed systems, which could include the Highway Authority, Planning Authority, Parish Councils, Water Companies and private management companies.

The school has an onsite caretaker and he will be informed of the necessary maintenance procedures.