Reserved Matters Applications: Flood Risk and Drainage Checklist

This document provides a list of the information that, in general, must be submitted to support reserved matters applications in relation to flood risk and drainage. Note that this checklist must be read alongside the checklist for outline planning applications that should have been completed previously.

Application details

SITE:	Land off Rosemary Lane, Leintwardine, Herefordshire
DESCRIPTION:	Application for approval of reserved matters following Outline approval for a development of up to 45 dwellings with means of access and associated works
APPLICATION NO:	190161
GRID REFERENCE:	OS 340721, 273988
APPLICANT:	Mr Richard Cambray
DATE OF THIS RESPONSE:	05/06/2020

Outline planning approval has been granted for this development subject to a number of conditions. Conditions relating to flood risk and drainage aspects include:

7. No development in relation to the provision of roads and drainage infrastructure shall take place until details of the engineering and specification of the roads and highway drains have been submitted to and approved in writing by the local planning authority. None of the dwellings hereby permitted shall be occupied until the development has been carried out in full accordance with the details as approved.

13. None of the dwellings hereby permitted shall be occupied until a scheme for the drainage of surface water, including surface water run-off, and works for the disposal of foul sewage have been provided on site, in accordance with details that shall have been first submitted to and approved in writing by the local planning authority.

This is our third response for the reserved matters application for this development. Information that has been provided by the applicant to address our previous concerns includes:

- Application for discharge of reserved matters
- Drainage Layout Sheet 1 and Sheet 2 (Ref: 55-01_P6 and 55-02_P4)
- Site Contours Sheet 1 and Sheet 2 (Ref: 60-19_P3 and 60-12_P4)
- Drainage Longsection Sheet 1 and Sheet 2 (Ref: 55-04_P3 and 55-10 P2)
- Consultants Response (dated 15/05/2020)
- Attenuation Pond Sections (Ref: 55-09 P1)
- Attenuation Details (Ref: 55-09_P2)
- Drainage Construction Details (Ref: 55-03_P2)
- Flow Control Manhole Details (ref: 55-05_P3)
- Updated Calculations (dated 11/05/2020)

We highlight that any planning application should be submitted in accordance with the Herefordshire SuDS Handbook and the Herefordshire Council Planning Applications Flood Risk & Drainage Checklist available on the Council's website:
https://www.herefordshire.gov.uk/info/200142/planning_services/66/about_planning_services/11

Development description

The Applicant proposes a development comprising of up to 57 dwelling, public open space and associated infrastructure on a currently greenfield site used for agriculture. The site measures approximately 2.6 hectares (ha). The site slopes from approximately 130mAOD in the north western corner to approximately 120m AOD in the south-eastern corner. A minor watercourse flows through the field to the east of the site and discharges to the River Teme to the south.

Surface Water Management Strategy

A surface water management strategy should be submitted that includes the following information:

✓ Information provided is considered sufficient

✘ Information provided is not considered sufficient and further information will be required

Comments that were adequately addressed in our previous responses have been greyed out but kept in the response for completeness. Only text in black is relevant to this latest response.

Information required	Reviewer comments	✓✘
Strategy		
Detailed drawings of the proposed surface water drainage system including location of SuDS features, manholes, external pipework, attenuation features, pumping stations (if required) and discharge locations	The amended drainage plan shows the surface water design to discharge into an existing ordinary watercourse located in the south-west corner of the site that in turn discharges to the River Teme. The layout also shows manhole S22 discharging to the headwall located in the watercourse at the previously confirmed Qbar rate of 5.7l/s. In our previous response we raised concerns regarding the clarity of the existing STW sewer that passes east of the site and is to be diverted; this has been confirmed by the applicant as an existing SW sewer, in writing and in the legend on drawing 55-02. We note however that the legend on drawing 55-01 still notes the discharge sewer as a combined sewer. We suggest this is amended to provide clarity. Attenuation is proposed in a mixture of offline attenuation ponds, oversized pipes and offline below ground crates. However, in their written response the Applicant states: 'We have kept the 1500mm pipes and pond to discharge the planning conditions but it will be beneficial to revised once approved to unlined crates and swale above for cost purposes.' **Prior to the Council approving the reserved matters application, we recommend that the Applicant agrees and demonstrates (with supporting details and calculations) the drainage solution that will be implemented when the works are built.** The applicant had also noted that the permeable paving located in the driveways and private access areas as part of the original design was omitted by mistake and this has been provided on the amended plans.	✘
Detailed drawings of proposed features such as infiltration structures, attenuation features, pumping stations and outfall structures	In our previous response we highlighted that the detailed drawings for the proposed attenuation cellular system did not correlate to the information on the layout drawings. Manhole references and invert levels have not been updated to tie together all the drawings. We recommend this is clarified. We also requested that the applicant provides further details for the proposed attenuations ponds and their outfall headwalls. The applicant has provided sections for both. It is also noted that the size of the most northern pond has been increased. Levels for both features have been provided which correlate to the information on the layout drawing as well as demonstrating appropriate slope levels for the ponds. The applicant as addressed our previous concern for one of the headwalls to not be located so far above the invert level of the pond.	✓ **(with note)**
Demonstration that best practice SuDS have been promoted, appropriate to the size and nature of development	The applicant has confirmed that previously designed permeable paving for the driveways and private access roads had been omitted by mistake and these are included within the strategy.	✓

Information required	Reviewer comments	✓✘
Infiltration rates at the location(s) and proposed depth(s) of any proposed infiltration or attenuation structure(s), undertaken in accordance with BRE Digest 365 methodology	In our previous response we recommended clarification as to whether the attenuation features are unlined and this has been confirmed by the applicant.	✓
Trial pit/borehole logs demonstrating that the depth to groundwater below the base of any proposed infiltration or unlined attenuation structure(s) is greater than 1m at the location(s) and proposed depth(s) of the proposed structure(s)	The ground investigation report states that groundwater was encountered at 3m below ground level in one of the monitoring boreholes, although not in any of the remaining monitoring boreholes.	✓
Calculations to demonstrate that the proposed surface water drainage system has been designed to prevent the surcharging of any below ground drainage network elements in all events up to an including the 1 in 2 annual probability storm event	Calculations have been provided that show the majority of the system does not surcharge up to and including the 1 in 2 annual probability storm event with the exception of pipes 1.012 and 1.013 and pipes 3.004 and 3.005. This is likely to be due to the location of the offline storage systems relative to the flow controls. We do not have any objections to the surcharging shown in the Applicant's current calculations.	✓
Calculations to demonstrate that the proposed surface water management system will prevent any flooding of the site in all events up to an including the 1 in 30 annual probability storm event	Calculations have been provided that show the system does not flood in all events up to and including the 1 in 30 annual event.	✓
Off-site discharge		
For discharge to a watercourse, sewer or local authority asset, detailed calculations of greenfield and, if relevant, current runoff rates calculated using the methods outlined in The SuDS Manual 2015 for the 1 in 1 year, Qbar, 1 in 30 and 1 in 100 year events	The FRA submitted as part of the outline application provided greenfield runoff rates as follows: 1 year = 4.8 l/s/ha Qbar = 5.7 l/s/ha 30 year = 11.2 l/s/ha 100 year = 14.7 l/s/ha We understand from the submitted Microdrainage calculations that the site will introduce approximately 0.91ha of impermeable surface.	✓
For discharge to a watercourse, sewer or local authority asset, detailed calculations of proposed discharge rates and volumes calculated using the methods outlined in The SuDS Manual 2015 for the 1 in 1 year, Qbar, 1 in 30 and 1 in 100 year events	The submitted drainage plans and Microdrainage calculations indicate a maximum discharge rate from the entire site of 5.7 l/s. This is similar to the equivalent Qbar rate for the impermeable area of the site and is therefore considered acceptable.	✓
For discharge to a watercourse, sewer or local authority asset, detailed calculations of proposed attenuation volume to manage the rate and volume of runoff to greenfield or current rates and	<u>As noted above, manhole references and invert levels have not been updated to tie together all the drawings. We recommend this is clarified.</u>	✓ **(with note)**

Information required	Reviewer comments	✓✘
volumes, allowing for climate change effects		
Demonstration that a viable connection can be made and that the suitability and capacity of the downstream system has been explored in consultation with the relevant authority	The Applicant now shows their surface water system connecting to an existing watercourse. It is likely that this watercourse is the discharge point for the site at the moment, and the applicant proposes to discharge at the greenfield runoff rate.	✓
Pollution		
Confirmation of the proposed methods of treating surface water runoff to ensure no risk of pollution is introduced to groundwater or watercourses both locally and downstream of the site, especially from proposed parking and vehicular areas	The applicant has confirmed that previously designed permeable paving for the driveways and private access roads had been omitted by mistake and these are included within the strategy.	✓
Exceedance		
Description and drawing demonstrating the management of surface water runoff during events that may temporarily exceed the capacity of the drainage system, such as temporary exceedance of gullies during events greater than the 1 in 5 annual probability event, up to the 1 in 100 annual probability event with an allowance for climate change.	The applicant has stated that the strategy has been designed for the 1 in 100 year event + 40% CC. However, gullies are typically designed for relatively small rainfall events and are often surcharged during events much smaller than this (particularly those with short duration and high intensity). Consideration should therefore be given to events that may exceed the capacity of the collection system. In our previous response we outlined our concerns with water being directed off site and towards Rosemary Lane. As mentioned in our previous response, the ponds will help to capture some of the water however it is still unclear how water will be conveyed into the ponds, whilst any water not directed towards the ponds will flow towards the south-eastern part of the site and off onto the public highway. It is also unclear how water on the western part of the site will be stored. The applicant has stated that any runoff will run towards Rosemary Lane and the watercourse and we stress that any excess water needs to be kept wholly within the site boundary. **Prior to the Council approving the reserved matters application we recommend that the applicant either demonstrates how exceedance flows will be captured and stored within the site, or demonstrates that their water collection system has capacity for all events up to and including the 1 in 100 year event + 40% CC rainfall event.** It is noted that a Section 38 agreement does not necessarily guarantee that gullies will collect all water landing on the site in all events up to and including the 1 in 100 year event + 40% CC rainfall event.	✘
Access, adoption and maintenance		
If access or works to third party land is required, details of these works and confirmation that an agreement has been made with the necessary landowners/consenting authorities to cross third party land and/or make a connection	No access to third party land will be required.	✓

Information required	Reviewer comments	✓✘
to the proposed watercourse/sewer		
Confirmation that the adoption and maintenance of the surface water drainage system has been agreed with the relevant authority	The applicant has stated that the email dated 11.12.2019 indicating STW would not adopt is out of date. The most recent response is that STW has confirmed 'an option' to adopt. **Prior to the Council approving the reserved matters application we recommend that the applicant confirms that adoption has been agreed in principle with STW.**	✘
Demonstration that appropriate access is available to maintain SuDS features (including pumping stations)	Appropriate access to SuDS features is available.	✓
Operational and maintenance manual for all proposed drainage features that are to be adopted and maintained by a third party management company	If maintenance by a third party management company is proposed we highlight that the applicant will be required to submit an operation and maintenance manual for these elements.	✓ (with note)

Foul Water Management Strategy

A foul water management strategy should be submitted that includes the following information:

✓ Information provided is considered sufficient

✘ Information provided is not considered sufficient and further information will be required

Comments that were adequately addressed in our previous responses have been greyed out but kept in the response for completeness. Only text in black is relevant to this latest response.

Information required	Reviewers comments	✓✘
Strategy		
Detailed construction drawings of the proposed foul water drainage system including location manholes, external pipework, package treatment plants, drainage fields, pumping stations and discharge locations	In our previous response we requested that the location of the foul drainage connection is clarified. The applicant has stated that a requisition will be required with STW and that this cannot process until planning conditions are resolved. **Whilst we agree with the proposals in principle, we still recommend that the location of the foul drainage connection is clarified prior to the Council approving the reserved matters application.** While we understand that it may not be possible to reach a full agreement with STW prior to planning conditions being discharged, the Applicant should be able to show the location of the outfall manhole on a drawing and confirm its invert level. This is important to confirm the viability of the foul drainage connection.	✘
Discharge to a sewer		
If discharge to the public sewerage system is proposed, confirmation that this has been agreed with the relevant authority	The email from STW dated 11.12.2019 suggests that they approve of the proposed connection to the foul sewer.	✓

Information required	Reviewers comments	✓✘
Access, adoption and maintenance		
If access or works to third party land is required, details of these works and confirmation that an agreement has been made with the necessary landowners/consenting authorities to cross third party land and/or make a connection to the proposed watercourse/sewer	As the connection to the existing STW foul sewer is not known it is not clear if access to third party land is required. **We recommend that this is clarified by the applicant prior to the Council approving the reserved matters application.**	✘
Confirmation that the adoption and maintenance of the foul water drainage system has been agreed with the relevant authority	The email from STW dated 11.12.2019 suggests that they approve of the proposed connection to the foul sewer and we assume that this also includes agreement in principle to adopt the foul drainage system.	✓
Operational and maintenance manual for all proposed drainage features that are to be adopted and maintained by a third party management company	If the drainage system is adopted by STW a maintenance plan is not required.	✓

Overall Comment

Prior to the Council approving the reserved matters application, we recommend that the applicant:

- Demonstrates (with supporting details) the drainage solution that will be implemented when the works are built.
- Demonstrates how exceedance flows will be captured and stored within the site, or demonstrates that their water collection system has capacity for the 1 in 100 year (+ 40% CC) rainfall event.
- Confirms that adoption of the surface water drainage system has been agreed in principle with STW.
- Clarifies the location of the foul drainage connection and confirms that the connection will not require access to third party land.