Memo

SUBJECT
Drainage and Flooding Consultation Comments

TO
D. Parr, D. MacFadyen

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OUR REF
30210292

DEPARTMENT
Enabling Infrastructure

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COPIES TO
R. Hales, N. Plumley, G. Care, A. Zorluntuna, M. Davies, M. Davies, B. Allen, M. Hamsworth

FROM
Daniel Hadaway

Response to Daniel Parr Comments letter 16.8.2024

Comment	Response
The strategy notes that due to soluble ground strata soakaways will be designed to only allow infiltration through the base. This will require careful consideration of the effect of siltation on the performance of the soakaway, robust silt control and maintenance procedures will be required, soakaways need to be designed to allow inspection and desilting.	The geo-cellar crates will have an impermeable liner on the sides and sit on a permeable geotextile membrane on the base, this will prevent silt directly entering the crates. Additionally, in the case of the overland flows drainage a catchpit is proposed between the gravel blanket and the Geo cellar crates which will remove any silt from surface water prior to it entering the geo cellar crates. The maintenance and management schedule will remove silt and prevent build up. The surface water is either conveyed through sealed SuDs features or SuDs features with silt traps and via catchpit chambers within the drainage system. These will prevent silt entering the soakaway features and reduce frequency of maintenance and desilting being required. The SuDs and drainage features will require regular and routine management and maintenance, a schedule of works for the SuDs, drainage features, including the infiltration blanket and cellular storage is included in section 7 of the drainage strategy report.
When designing the soakaway the correct factor of safety needs to be used, please refer to table 25.2 of CIRIAs SuDS Manual, design calculations will need to be updated.	There are infiltration features proposed for management of surface water runoff from new development, and separately infiltration to help manage upstream overland flows affecting downstream properties. Regarding overland flows the proposed system has been sized to provide attenuation for up to and including the 1 in 100 year rainfall event (including an allowance for climate change). A management and maintenance schedule has been prepared to ensure frequent and proactive maintenance of the infiltration feature. In addition, an overflow has been proposed to manage residual risk such as more extreme rainfall events or in the unlikely failure of the soakaway. Therefore, overall risk of siltation and failure has been assessed to be low to medium. However, following comment and to provide further robustness

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	to the drainage design for managing the overland flows from the upstream catchment, the attenuation crates designed for storm events greater than 1in1yr up to 100 yr plus 45% climate change has had a safety factor of 5 applied. The gravel blanket is designed for up to 1in1yr events, as such following the above the safety factor of 2 has been retained, as there is the overflow into the cellular storage infiltration as a redundancy measure. The 'on-site' drainage networks are relatively small, and taking into consideration the management regime for these features coupled with the proposed overflow we have assessed these features to have a factor of safety of 1.5 (min).
prior to commencement repeat infiltration testing (to BRE Digest 365) at the location and depth of each proposed soakaway will be required to confirm/inform the final design.	Noted. It is also noted that conservative infiltration rates have been used for calculation of the storage volumes for the management of onsite drainage, and the infiltration rates at deeper depths are anticipated to be higher, and therefore storage requirements for the 1 in 100 year rainfall event (+CC) to be lower than set out at this stage. Further Infiltration testing in due course will confirm this.
The system at the end of the access road appears to be dual use in managing both "on site" and "above site" flows, this needs clarification, it would be preferable to keep the systems separate.	The systems are now shown as separate, the arrangement of the drainage may be subject to change following the technical approval process by Wessex Water.
Above Site Surface Water Drainage Strategy - Strategy proposed to maximise infiltration to the ground via provision of an infiltration blanket. A detail of this structure is required. This structure will likely require periodic maintenance/replacement, strategy is to reflect this.	Detailed of the infiltration blanket has been added to Appendix B drawing reference '30210292-ARC-XX-XX-SK-CE-0507' The report has been updated to include maintenance requirements for the infiltration blankets.
The "above Site" infiltration crate is to be provided with a high level overflow to the public surface water sewer. This is acceptable pending approval from Wessex Water.	As noted above the overflow pipes are now shown as separate and the new connections to the Wessex Water network will be dealt with through S106 application in due course. As noted previously Wessex Water have noted that they will follow the LLFA recommendations in this matter
The strategy document does not include reference to a flow control on this overflow yet the drawing does, this needs to be clarified. Given that this system won't be used unless the attenuation is fully utilised our preference would be for no flow control.	Noted, reference of flow control has been removed from drawing.
A bund is proposed to protect the down slope properties, this feature is to be clearly shown on the plans and a typical section provided.	The proposed access road forms a bund, as shown on the section now provided in appendix B. The levels transition between the residential clusters places the access road 0.8m above the bottom of the central channel & top of the infiltration blanket. The road has a cross fall towards the central watercourse and is a permeable paved surface. A further landscaping bund is to be provided north of the road to deflect surface water, a section for this is detailed on drawing '30210292-ARC-XX-XX-SK-CE-0509'