Applicants Notes added Drainage Consultation Response

24th October 2024

Drafted by Creating Spaces.

Condition 4 – Foul and surface water disposal

4. No development shall commence until a drainage strategy detailing the proposed means of foul and surface water disposal has been submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved scheme.

We have reviewed the evidence provided by the applicant in support of this planning application and we are not satisfied with the provided evidence.

The following recommendations to the LPA are made:

• The applicant must provide site drainage patterns, i.e. an assessment of the current and proposed drainage patterns entering, within, and leaving site including an understanding of how surface water would flow across the site in normal and rainfall event conditions.

This is now detailed in part 2 of the drainage design.

• The applicant must provide supporting catchment plans and calculations to show the proposed areas of impermeable and permeable development falling to the proposed drainage network.

This is now detailed in part 2 of the drainage design and marked up on the drainage drawing CV.DRAIN.002

• The level of information provided with regards to the feasibility of infiltration drainage at the site is incomplete as the groundwater level at the site has not been confirmed. In case surface water drainage via infiltration is not viable, then the applicant must provide an alternative drainage strategy. In that case, the applicant would also need to provide the existing and post-development discharge rates for the 100% AEP, 3.33% AEP, 1% AEP and 1% AEP + climate change storm events.

This is now detailed in part 6 of the drainage design. Infiltration is proposed

• The applicant must reference the rationale for SuDS selected (soakaway) in line with the West Sussex LLFA Policy for the Management of Surface Water (2018), Horsham District Planning Framework (2015) – Policy 38 and the Industry best practice, such as The SuDS Manual (C753).

We understand that Suds and on site soakaways is the first and preferred choice for dealing with surface water drainage, which is our proposal.

• The applicant must provide evidence of measures to prevent pollution of the receiving groundwater.

This is now detailed in part 2 of the drainage design and marked up on the drainage drawing CV.DRAIN.002. It includes filters, silt traps, and none return valves .

• The applicant has provided modelling calculations which include the 100yr rainfall event with a 40% climate change allowance assessed for a 180 m2 catchment, draining to a soakaway. The soakaway has an available volume 9.12m3. However, according to the EA guidance, for the Adur and Ouse Management catchment, the Upper End peak rainfall allowances for the 100yr event (assuming a design life of 100 years) is 45%. The applicant must re-calculate the proposed soakaway dimensions with the correct climate change allowance.

The Wallingford calculation in the drainage design document now allows for a 50% variation

• For infiltration rates applied in the design, not all the soakaway faces should be considered for infiltration. - linear filter drains, only the sides (not the base) - infiltrating basins and permeable paving, only the base (not the sides)

The Wallingford calculation in the drainage design document now allows for a 50% variation

• In the case of this proposed size, the base is the larger face and so only the base should be considered for infiltration. • The infiltration rate for bases should be reduced to account for siltation, to a maximum rate of 1x10-5 m/s as per Section 25.4 of the CIRIA guidance.

The Wallingford calculation in the drainage design document now allows for a 50% variation

• Table 25.2 of the Suds Manual provides appropriate factors of safety to apply in infiltration rates for infiltration device design. Devices below access or upstream residential dwellings need to consider failure as a major inconvenience with appropriate factor of safety

This is now detailed in part 2 of the drainage design, the geology and bore holes show the ground is free draining so presents no downstream risks

• The applicant must make an allowance for urban creep in the surface water drainage model. • The Drainage Design report notes that the surface drainage pipes are proposed to be 110mm in diameter. The report also notes that the proposed pipe gradients are minimum 1:100 and maximum 1:200. The pipe materials are not specified. Manhole types and sizes are noted in the Drainage Design report. Finally, the dimensions of the rainwater harvesting (RWH) system are not provided.

This is now detailed in part 2 of the drainage design and marked up on the drainage drawing CV.DRAIN.002. We have allowed an enlarge catchment areas to allow for urban creep, but give the rural location urban creep is not expected.

• Suitable cover depth to allow expected traffic loadings and invert levels of the proposed soakaway must also be provided.

This is now detailed in part 2 of the drainage design and marked up on the drainage drawing CV.DRAIN.002. Fo the small section of drain running under the drive this will be built using HDPE and encased in concrete to provide full protection in addition to the depth of cover

• According to the Drawing 'Drainage: Foul and Rainwater', the soakaway proposed is 2m deep. Assuming 0.5m of cover above the soffit of the soakaway, the total depth below ground for the invert could be approximately 2.5m bgl. However, infiltration testing was only undertaken to 1.3m bgl and no indication of the groundwater levels has been provided.

Bore holes and further excavation show the ground condition little change over the first 2m, as the soakaway is calculated to drain through the sides the 1.3m test seems to be a good low to mid way point.

• The applicant must indicate the groundwater levels for the area where the soakaway is proposed. If the groundwater is higher than the anticipated invert currently proposed for the soakaway, a shallower soakaway feature must be considered with a minimum buffer distance of 1 m between the invert of the soakaway and the highest recorded groundwater level.

This is now detailed in part 6 of the drainage design.

• The applicant must provide a detailed drainage layout plan that must reference all assets showing characteristics such as; pipe sizes and materials, gradients, and manhole type, depth, size, SuDS dimensions, materials and depths.

This is now detailed in part 2 of the drainage design and marked up on the drainage drawing CV.DRAIN.002

• The Tree Root Protection Zones must be added in the detailed drainage layout plan, as shown in the Site Plan, Tree Protection and Landscaping (April 2024), submitted as part of the application DC/22/0867.

No drainage is being placed within root protection zones

• The applicant must also provide a full surface water network, including the upstream pipes.

The whole areas is free draining and our site is not affected by anything upstream

• The applicant must provide a Maintenance and Management Plan including maintenance frequency and responsibility and proprietary device manuals, for all drainage features and SuDS devices.

This is now detailed in part 7 of the drainage design.

• The applicant must provide drawings showing conveyance routes for flows exceeding the 1 in 100 year plus climate change event.

This is detailed in part 2 of the drainage design and marked up on the drainage drawing CV.DRAIN.002. The soakaway is sized to deal with extreme events..

• The applicant must: o estimate the proposed foul loading using the Sewerage Sector Guidance and/or Building Regulations part H. o provide a detailed foul drainage layout, showing pipe sizes, materials, gradients and outfall location. o show the appropriate easements from all the foul sewer pipes serving the proposed development on the detailed foul drainage layout. o provide evidence of a Section 106 agreement with Southern Water for adding an additional discharge load.

This is now detailed in part 8 of the drainage design and marked up on the drainage drawing CV.DRAIN.002. Work would be governed and require approval by Southern Water, New Home Warranty Provider and Building Control.