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MJA Ref: SS/22:0133/6430
HCC Ref: SWM/2021/0660
Email: stewarts@mjaconsulting.co.uk

04th April 2022

Dear Leanne,

Outline planning application for up to 43 dwellings, with access from Lower Road and associated landscaping, open space and allotments, and all other matters reserved at Land south of, Lower Road, and west of Old Manor Farm, Havant. APP/21/01071

We refer to the LLFA's comments in regards to the planning application for the above scheme. This letter considers the drainage related comments made on the 2nd November 2021. For convenience, the responses are set out below, in the same order as the comments were made, while the corresponding responses are shown in bold text.

LLFA's Comment:

The information submitted by the applicant in support of this planning application indicates that surface water runoff from the application site will be managed through swales, permeable paving and an attenuation basin. Additionally, surface water will be discharged into 3 deep bore soakaways (16m).

However, there is no information within the planning website which demonstrates that infiltration is feasible at the application site and the applicant is using the ground investigation report from the adjacent site to support the proposed drainage strategy, which is something that we would not support.

The proposed deep bore soakaways system raises concerns since the information submitted by the applicant indicates that groundwater levels were found at 3.52m BGL at the adjacent site. We would not support this as the 1m unsaturated zone below the infiltration features will not be achieved. Additionally, discharging surface water into the water table should be consulted and agreed by the Environment Agency regarding any potential for contamination.

Therefore, at this stage we request a specific ground investigation report for the application site. This should include:

- Infiltration testing in accordance with the BRE365 methodology at different depths and locations where infiltration is proposed.*



- A groundwater assessment which demonstrates that there will be 1m unsaturated zone between the base of the infiltration features and the highest groundwater level recorded.

If the specific ground investigation report establishes that infiltration is not feasible at the application site, the applicant should propose an alternative secure outfall in accordance with the drainage hierarchy for surface water disposals.

MJA Response:

Please see the infiltration test results and groundwater monitoring report. Groundwater levels were found to be circa 2m below ground level, with a top winter groundwater level recorded on site of 1.71m BGL.

On Phase 1 the Environment Agency was consulted and ultimately approved a design of deep borehole soakaways into the saturated chalk. This decision was based on the location not being within a Source Protection Zone and have a multistage treatment system and emergency penstock valve prior to the boreholes. This design mimics Phase 1 by utilising the same drainage features of: swales, reedbeds, an infiltration basin, a hydrobrake to limit the flow into an Up-Flo filter, a ringed soakaway, and a penstock valve, before finally boreholes. We are currently consulting the EA to ensure they are as equally satisfied with our Phase 2 design and we will provide written confirmation of their approval.

The shallow infiltration tests undertaken on Phase 2 failed BRE365 and deep borehole falling head tests show an infiltration rate of $1.41 \times 10^{-7} \text{m/s}$. These tests were undertaken at 7m-10m BGL. The 10^{-4}m/s rates on Phase 1 were achieved at circa 15m BGL. Further testing is currently being undertaken at Phase 2 at deeper depths to ascertain the required depth of borehole to allow for a practicable drainage design.

Furthermore, we'd like to clarify that the design boreholes will be 10m apart as requested by the LLFA on Phase 1 and that there will be a penstock valve to isolate the system from the deep borehole chambers in a pollution event.

I trust that the above and enclosed provides you with sufficient information for your purposes. If you need any more details, please do not hesitate to contact us.

Yours sincerely,



Stewart Smith
Drainage Engineer
FOR MJA CONSULTING

