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TECHNICAL NOTE

PROJECT	**:**	**Bell Farm, Barming**
JOB NO.	**:**	**14-021**
NOTE TITLE	**:**	**Drainage Strategy Response**
AUTHOR	**:**	**Glenn Charles**
APPROVED	**:**	**John Wilde**
DATE	**:**	**29th September 2015**

1.0 INTRODUCTION

1.1 This Technical note has been prepared to demonstrate that preliminary surface water management proposal set out in the planning application for the above development makes use best use of the available opportunities for sustainable drainage on the site and is thus SuDS compliant.

2.0 PROPOSED DRAINAGE STRATEGY

2.1 A drainage strategy was detailed in the document submitted with the planning application entitled 'Flood Risk Assessment and Preliminary Drainage Strategy – May 2015'. The report was reviewed by the Environment Agency, the local Water Authority and Kent County Council's sustainable drainage department (although they deferred to the EA given the timing of the application) and was accepted, giving rise to no objections.

2.2 The strategy was based on three keys aspects of the site:

- The site has no existing, established water course in which to discharge to directly;
- There are is no existing surface water drainage network in the immediate vicinity of the site;

- The ground conditions are such that infiltration can be achieved but at comparably limited rates.

2.3 With these in mind and noting the aim to deliver a SuDs compliant scheme, it became apparent early in the process that use of infiltration techniques would likely be the most effective approach.

2.4 While full details of the strategy can be found in the aforementioned documents; in brief terms the SuDs management train was based on control at source before recharging the underlying ground water in line with good SuDs practise. The train commences with the use of water butts to down pipes to collect roof drainage before discharging to either domestic infiltration structures within private gardens or porous paving within parking areas which allows infiltration into the subsoil.

2.5 The use of sealed pipes from the roof water to the infiltration structure and/or porous paving ensures only clean water enters these systems from the roof thus negating the need for secondary or tertiary pollution control measures. Runoff that is collected from the paved areas will discharge to the porous paving that will provide tertiary pollution control within the sand and granular layers to collect heavy metals and aerobic breakdown of hydrocarbons etc. It should be noted that this is a small domestic estate and the likelihood of pollutants is negligible.

2.6 Runoff from the proposed adopted highway will be collected within trapped gullies and a piped system to independent infiltration structures. Tertiary treatment is provided within the trapped gullies to collect sediment and heavy metals, before discharging to the infiltration structure.

3.0 SUDS COMPLIANCE

3.1 Whilst only recently adopted, Kent County Council's Drainage and Planning Policy Statement states within its SuDS Policy that the following the drainage hierarchy must be followed:

Surface runoff not collected for use must be discharged according to the following discharge hierarchy:

- *to ground,*
- *to a surface water body*
- *a surface water sewer, highway drain, or another drainage system, or*
- *to a combined sewer where there is absolutely no other options, and only where agreed in advance with the relevant sewerage undertaker.*

3.2 Given that the proposed drainage methodology for this development is to drain the site to ground via the aforementioned infiltration techniques, it can be seen that this falls within the highest level of the hierarchy and Kent County Council's preferred option. This also complies with the requirements of CIRIA SuDS Manual (C753).

4.0 ALTERNATIVE 'OPEN' SUDS FEATURES

4.1 Comments received on the planning application from Members of the planning committee questioned the lack of 'open' SUDS features on the site and the scope for this to undermine the compliance of the scheme. While the above paragraphs address any doubt as the compliance of the scheme, there value in considering the merit of open features as suggested.

4.2 One feature highlight by Members was the lack of open attenuation, such as ponds. Such facilities are typically used to store excess storm event surface water in a manner that avoid flooding of properties on site and those in neighbouring the site. They allow the surface water to be stored and discharged from the site, in many cases in to established water courses, at an appropriate discharge rate, typically the 'green field' equivalent. The 'balancing' aspect of the pond allows the difference between the faster discharge of the hard standings and the 'green field' to retain and limit the discharge to acceptable levels that will not cause or exacerbate issues downstream.

4.3 As stated above there are no existing over ground flow path routes on the development site with rainfall soaking into the ground in the existing condition. Utilising good practise, it is proposed to mimic, as close as possible the existing conditions utilising infiltration structures accordingly.

4.4 Members also highlighted the scope for a swale to be introduced along the eastern boundary with North Street, running along the back of the existing hedge/tree line which that wish to see retained (albeit this is a separate planning matter not covered here).

4.5 Swales are a similar form of attenuation and/or conveyancing structure, to that described above and can fulfil a similar role; thus the introduction of a swale for attenuation purposes would be similarly unjustified on the basis set out above. They are also often applied for the purposes of conveyance; that is moving surface water from the source to either a discharge point or an attenuation pond.

4.6 A swale in the suggested location would not fulfil a useful conveyance role as it would simply be moving surface water to the bottom corner of the site, where no discharge option is available. The topography of the site in this location also has a general fall to the south, so substantial regrading of the site would be needed to avoid this conveyance function; i.e. to make the swale level. In addition for a swale to operate efficiently as an infiltration structure a clean gravel filled trench of approximately 1 to 2 metres deep would be required beneath the swale to accommodate the required infiltration to the subsoil due to the lack of an outfall. This level of regrading and digging would be at odds with the Members other wish to retain the hedge/trees in this location.

4.7 Finally – with reference to the hedge/trees, these retain a significant root protection area that extends in to the site. The introduction of a swale in this location would require a substantial set back to avoid impacting on these areas, significantly undermining the viability of the development for no actual gain in effectiveness of compliance of the scheme.

5.0 CONCLUSIONS

5.1 This note has been produced following comments received from Member of the planning committee, which led to a deferment of the application on a number of grounds, including drainage.

5.2 This note clarifies items discussed at a subsequent meeting with Member representatives, during which an explanation of the drainage strategy and its SuDs compliance was provided, to the satisfaction of those present.

5.3 It has been confirmed that a comprehensive drainage strategy was submitted with the application as part of the FRA. This strategy is demonstrated to be SuDs compliant to the satisfaction of the EA and this note also introduces the most recent KCC guidance on drainage, which it also remains compliant with.

5.4 An explanation has been provided as to why open SuDs features are not required in this case to deliver a compliant scheme and why such open features are potentially inappropriate.