

13847 – Ennor Farm

Civil Engineering Design Risks

Revision: P1

Date: 28/03/2022

1.0 SUMMARY

- 1.1. The following Table 1.1 outlines the design risks identified with the Civil Engineering aspects of the proposed works at Ennor Farm.
- 1.2. The following risks are associated with project cost, programme and technical application only. These risks are **not** related to Health, Safety and Welfare or risk to the environment. Health and Safety risks and hazards are covered in the Designer's Risk Assessment *13847-CRH-XX-XX-HS-C-0002*.

Reference	Risk to Design	Date added/reviewed
1.	The site is located within a Source Protection Zone II, and approximately 200mm from Zone I, and an abstraction point is located approximately 30m to the north-west of the site. The site is considered to lie in an area of high groundwater sensitivity. The only surface water being discharged via infiltration is roof water from residential dwellings (Very Low Pollution Hazard Level), therefore there is minimal risk of pollution of groundwater. The EA will likely require a discharge permit to infiltrate in this area if it deems there is a risk of pollution.	28/03/2022
2.	An infiltration capacity of 3.44×10^{-6} m/s has been assumed for all proposed private soakaways serving Plots 03 – 12. However, of the two infiltration tests performed by Wheal Jane Group in August 2019, only one reported this value, with the other test, in the north west corner of the site, failing. The private soakaways have been placed in an area that yielded the best infiltration result. Building regulations requires BRE365 testing at the proposed location and depth of each soakaway. Subject to the final result, updates to the drainage strategy might be required.	28/03/2022
3.	The private plot soakaways have been designed with sufficient capacity for storm events up to and including the 100 year return period, with a 40% allowance for climate change. Due to space constraints, a half drain time of less than 24 hrs was only achievable for the 1 in 30 year storm event.	28/03/2022
4.	Geocellular soakaways have been located a minimum of 1m above existing groundwater level where known, and a minimum of 5m from any proposed or existing structure, as stipulated in CIRIA C753 The SuDS Manual. Any adjustment to the proposed layout may infringe on this minimum standoff distance.	28/03/2022
5.	The foul water pumping station and rising main have been shown indicatively in drawing 13847-CRH-XX-XX-DR-C-5050.	28/03/2022

Reference	Risk to Design	Date added/reviewed
	These are subject to detailed design and approval by the adopting local water authority.	
6.	Invert levels of the existing South West Water combined sewer are currently unknown, to be supplied by South West Water. The invert level of the proposed connection point should be confirmed by the contractor prior to the commencement of works.	28/03/2022
7.	The proposed connection of the on-site foul water network to the existing South West Water combined sewer in Old Town Lane has received approval in principle from South West Water via Pre-Planning Enquiry, however it is still subject to a Section 106 Application.	28/03/2022
8.	<p>Adoption of the on-site drainage networks by South West Water is subject to a Section 104 Application. South West Water's adoption policy with regards to surface water follows the Sewerage Sector Guidance, which states that sewerage undertakers are obliged to adopt a 'sewer' where they meet the following criteria:</p> <ul style="list-style-type: none"> • Constructed for the drainage of buildings and yards appurtenant to buildings • Has a channel • Conveys and returns flows to a sewer or to a surface water body or to groundwater • Has an effective point of discharge, which must have lawful authority to discharge into a watercourse or other water body or onto or into land • May allow some infiltration into the system – provided that is not the designed purpose of the system <p>As such, it is a possibility that elements of the surface water network will be un-adoptable to the local water authority.</p>	28/03/2022
9.	The proposed site road layout has been designed to reflect the proposals of the architects within the constraints of the existing and proposed site. With the intention to put forward the new roads for both Section 38 and 278 adoption, these roads will be subject to technical approval. In order to satisfy the requirements of the highway authority amendments to the layout might be required.	28/03/2022
10.	The proposed SuDS strategy has been proposed to maximise the treatment of runoff prior to discharging to the surface. Due to the SSSI downstream of the site, it is likely approval will need to be granted for the discharge of highways runoff.	28/03/2022
11.	The proposed levels strategy aims to respect the extent of root protection areas and boundary levels whilst achieving the minimum requirements set out by industry guidance. The introduction of additional constraints might result in the need for additional retaining features and/or departures from standards as part of the levels design.	28/03/2022

Table 1.1: Risks to Civil Engineering Design