

Steve Jones
D.S.Jones & Co
Architectural & Planning Consultants
26 Prospect Drive
Coedpoeth
Wrexham
LL11 3PE

Land at Station Rd, Chirk, Wrexham

23 October 2019

Ref: 108287.002

Dear Steve,

Below is a brief description of our Drainage Design works for the proposed residential development at the Land at Station Rd, Chirk, Wrexham.

The proposed development consists of 24 residential dwellings, with associated access road, driveways, parking bays and open spaces.

Permeability testing has proven that the infiltration-based systems are a viable drainage option for the site and the use of soakaways have been maximised throughout the site as described below.

1.1 Highway Drainage

- 1.1.1 The proposed access road will benefit of an infiltration feature located to the eastern bank. In order to achieve the adequate train of treatments, the surface runoff from the proposed access road will be collected via a piped system to the proposed swale running adjacent to the road embankments to the east; the swale ultimately discharge into an infiltration based crate system which will provide attenuation for storm events up to 1 in 100yrs + 40% Climate Change.

1.2 Residential Properties

- 1.2.1 The proposed residential development consists of 24 habitable dwellings, which will be drained by individual infiltration systems, to the back of the properties. Due to the minimum distance between infiltration features and the foot print of the any structure, the plots 8,14, 15 16 will utilise a shared infiltration tank located beneath the proposed access road branch adjacent to the property 8 and 14. Each individual drainage system has been designed to provide attenuation storage for storm events up to 1 in 100yrs + 40% Climate Change.

1.3 Foul Water drainage

- 1.3.1 Due to the topography of the site and the elevation of the existing public foul sewer, plots 1 to 6 will be drained via a gravity fed system, plots 7 to 24 will utilise a Type2 pumping station,



1 Edmund Gardens, 121 Edmund Street, Birmingham B3 2HJ, United Kingdom
Telephone +44 (0)121 393 4841
Registered Office SYSTRA Ltd, 3rd Floor 5 Old Bailey, London, England, EC4M 7BA.
Registered Number 3383212

www.systra.co.uk

located in the proposed open space areas to the north of the site. A minimum distance of 15m minimum distance from the nearest habitable dwelling to provide a noise and odour free buffer zone.

- 1.3.2 The proposed foul drainage system and its associated rising main, have been routed to follow the proposed road channel, however in order to impact on the existing Root Protection Area, for the existing trees, a deviation of the route has become necessary in proximity of the plots 18 to 20 and plot 24.

1.4 Comments & Recommendations

- 1.4.1 The design of the infiltration features is based upon in-situ infiltration testing data, carried out in accordance to the BRE-Digest 365 procedure. The infiltration rates are expected to be the same throughout the site, however, due to the inhomogeneous nature soils, additional storage volume has been considered at the design stage. Following extreme weather conditions, the level of debris inside the crates may increase, above all in the first year of life of any development, which may affect the infiltration rates of each unit; Therefore the use of a Catch-Pit chambers upstream each unit, has been considered and it is recommended that regular inspections and maintenance take place, in order to reduce any risk of failure of the systems.

Yours sincerely

Gaetano Pellegrino
Associate

Enc. Calculations

