

8801-Downley Drive - Response to Pre App Condition 5

14th July 2022

Drainage Engineers comments (Carley Daines)

'We've seen this and are able to answer the majority of the queries, there are two points which require us to re-consult with the Canals and Rivers Trust, which we will do so and provide their response accordingly as and when it comes in. As they only make reference to the FRA - have they seen our latest drainage drawings?'

I would imagine that the S104 approval and the associated drawings would also tick off some of the points raised as we have designed the system fully to their requirements below.

I've put some comments below to point 5 in red. We've also noticed point 23, relating to highways, but we're still awaiting a response from highways although we are working alongside them.

5) Notwithstanding the Flood Risk and Drainage Strategy prepared by Carley Daines and Partners stamped as received by the City Council, as Local Planning Authority, on the 13 May 2021, (a) the development shall not commence (other than site clearance and demolition) until a scheme for the drainage of surface water for the development has been submitted for approval in writing by the City Council as the Local Planning Authority. This shall include:

- Drainage layout showing all components, levels, connectivity;

Drawing 20-B-12490-200C

- Maximised integration of green SuDS components (utilising infiltration or attenuation) if practicable;

Infiltration is not possible on this site, due to the poor ground conditions discovered in the Phase 2 site investigation. The landscape architect is exploring any soft landscaping proposals that reduce the run off into the surface water system, to be provided on a landscaping plan.

- Details of surface water attenuation that offers greenfield runoff rates which shall be no greater than 5 l/s;

As shown on the general drainage drawing 20-B-12490-200C, and the adoptable drainage plan 20-B-12490-201A (and supported in the MicroDrainage calculations), the flow rate is restricted to a maximum pass forward flow of 5l/s, which has been agreed by United Utilities from both their pre development engineer and their adoptions engineer, in lieu of being able to infiltrate; discharge to a waterbody or discharge to a public surface water sewer.

- Runoff volume in the 1 in 100 year, 6 hours rainfall shall be constrained to a value as close as is reasonable practicable to the greenfield runoff volume for the same event, but never to exceed the runoff volume from the development site prior to redevelopment;

As above, the hydraulic calculations have been run to these storm frequencies and restricts the flow to 5l/s without flooding in any case - as assessed and approved by United Utilities' adoptions engineer.

- Evidence that the drainage system has been designed (unless an area is designated to hold and/or convey water as part of the design) so that flooding does not occur during a 1 in 100 year rainfall event with allowance for 40% climate change in any part of a building;

As above, I can confirm that this is the case, using oversized below ground pipes to store storm water up to and including the 1 in 30 year event, with below ground off line attenuation for storms exceeding this, up to and including the 1 in 100 year plus 40% climate change event - as approved by UU S104.

- Assessment of overland flow routes for extreme events that is diverted away from buildings (including basements). Overland flow routes need to be designed to convey the flood water in a safe manner in the event of a blockage or exceedance of the proposed drainage system capacity including inlet structures. A layout with overland flow routes needs to be presented with appreciation of these overland flow routes with regards to the properties on site and adjacent properties off site;

The hydraulic calculations produced via MicroDrainage show no flooding up to and including the 1 in 100 year event.

- CRT data (modelled or historic incident) relevant to canal flood risk at the site; including that produced by the flood study & modelling referenced in CRT correspondence (Appendix K of 20-B-12490.100B Flood Risk Assessment and Drainage Strategy Report); shall be requested from CRT and assessed;

Carley Daines to re-approach the CRT for this information and it shall be provided in due course once received.

- In accordance with the drainage Hierarchy, the CRT shall be approached again at detailed design to ascertain if they are ready to accept discharge connections. An email of outcome will suffice. If discharge to the canal remains infeasible, evidence of alternative surface water disposal routes (as follows) is required;

As above, Carley Daines shall approach CRT for confirmation and confirm upon receipt.

- Where surface water is connected to the public sewer, agreement in principle from United Utilities is required that there is adequate spare capacity in the existing system taking future development requirements into account. An email of acceptance of proposed flows and/or new connection will suffice;

Email attached to confirm both pre-development engineers acceptance of the proposal, and the adoptions engineer who had granted the scheme technical approval.

- Hydraulic calculation of the proposed drainage system; and

- Construction details of flow control and SuDS elements.

Attached for review are the MicroDrainage hydraulic calculations for the surface water system which are as per the adoptable drainage drawing, and drawing 20-B-12490-207 Flow Control Chamber Detail, which are both as approved by UU under the S104.