

Video 3: Flooding and Drainage

You will now hear from Mark Fitzsimons, from HL Engineers.

HL Engineers have been appointed as structural engineers for the site and are advising on issues of floor risk and drainage.

We understand that flooding is a concern for many local residents in West Derby and are aware of recent flooding events close to the site. We understand this issue is a recurring one therefore, we are working closely with United Utilities, and Liverpool City Council as the lead local flood authority to review the site and ensure that the development of Melwood does not exacerbate the issue.

We understand that the lead local flood authority has launched a Section 19 flood investigation, looking in to the flooding events of December 2020. This investigation will involve multiple agencies, and the findings of the investigation will be published in late spring.

We will review the findings once published to ensure that our development proposals are consistent with any recommendations made.

We have completed surveys of the drainage infrastructure on site, including the public sewers which surround Melwood. These surveys show that the whole site, including football pitches, are drained, unrestricted, into the public sewers, meaning there is no rainwater storage on site and during extreme storm events, rainwater leaves the site quickly, in large volumes, contributing to downstream flooding.

With this in mind, each proposed design for the site incorporates sustainable urban drainage systems, known as SuDs, which we will go on to explain in more detail.

The use of SuDs will actively reduce the amount of water leaving the site during storm events. This is achieved by storing rainwater on the site and then slowly releasing it when the storms have passed.

The use of SUDs will provide a minimum 30% reduction in rainwater leaving the site, helping reduce any flooding in the area. The use of SUDs is a key part of United Utilities and Liverpool City Council policies. Both have expressed support for our proposals, and we will continue to consult with them on our approach to drainage for the site.

The existing Melwood site has a conventional private drainage system, where all surfaces, including the pitches are positively drained by an underground network of drainage pipes.

These underground pipes connect to the public sewers below Daysbrook Lane and Melwood Drive. The existing private network is designed to collect rainwater and dispose of it off site quickly. It is not designed to store any water on site.

In the most severe storm events, large volumes of water discharge from the site unrestricted. This is known as the peak run off. During storm events, the collective peak run off from the existing site and surrounding areas can overwhelm the public sewer network, which can result in flooding at vulnerable low point in the system, for example, at the junction of Daysbrook Lane and Melwood Drive.

The proposed drainage network for the site will incorporate Sustainable Urban Drainage Systems, known as SuDS, and principles are to not only ensure existing drainage issues related to the site are not made worse by the development but to also offer a significant improvement over the existing.

The four key objectives of using SuDS are quantity, amenity, biodiversity and quality. The primary function of the SuDS on most developments is to reduce flood risk by managing water quantity. SuDS systems reduce the volume and speed of water discharging off site by storing it during storm periods and releasing it slowly. This reduces pressure on the existing downstream public networks and helps alleviate existing flooding issues.

With regard to amenity, as the use of SuDS involves creating natural green spaces to manage the surface water runoff from the site, they also provide beautiful, usable natural environments for people to enjoy.

For biodiversity, the new green spaces created by SuDS offer new habitats for a variety of plants and wildlife, which can add value to urban living by assisting residents with wildlife connectivity.

And finally, with quality, the use of SuDS provides water quality enhancement over existing by naturally filtering out sediment and pollutants such as oil spills from vehicles, which would otherwise end up in the downstream drainage network and natural water courses.

The proposed SuDS features for the site consist of Swales, Detention Basins, Bio-Retention Areas and Permeable Paving systems.

Swales are dry, shallow, vegetated open channels which convey rainwater from the hard surfaces through the site, typically alongside the highways. They provide water storage during the storm events and improve water quality by catching pollutants within the vegetation.

Detention Basins, similar to Swales, convey water through the site, however, these are much larger in size compared to Swales as they are designed to provide a higher volume of attenuation storage during storm events. Water is held in these areas and slowly released once the storm has passed, although they are generally dry and therefore usable green spaces for the local community to enjoy.

Bio-Retention Areas are vegetated areas which rainwater from hard surfaces is drained directly in to. These transform standard planting areas into functional drainage components which water filters through the soils which sustain the vegetation, and the excess has pollutants removed before continuing along the drainage network before leaving site.

And finally, Permeable Paving systems. The rainwater between the small gaps in the pavement joints and is stored in the stone base layer underground during storm periods. Permeable Paving also improves the quality of the water being discharged from site by filtering out pollutants which get trapped in the stone layer.

The combined use of all these features within the Melwood development provide all of the benefits associated with the SuDS key objectives of quantity, amenity, biodiversity and quality.

So over to you, have your say today and together, we will build a legacy beyond football at Melwood.

www.torus.co.uk