Drainage and Flood Risk

Flood Risk

Fluvial (river) Flooding
- Regional data available suggests that there is no history of fluvial flooding (caused by a main river) incidents in Sheerwater.

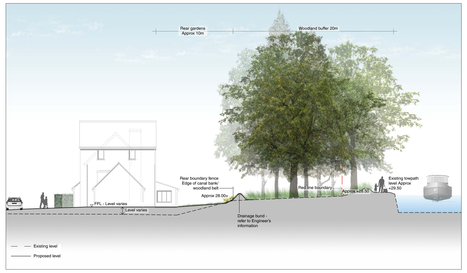
Groundwater Flooding
- Where potential risk exists, it is to below-ground structures such as basements, which are not proposed.
- The flood risk from groundwater is low.

Sewer Flooding
- In the past Sheerwater has been subject to flooding from surface and foul water sewers.
- We will reduce this risk by reducing the flow rate of surface water entering the public sewer through Sustainable Drainage Systems (SUDS).
- Thames Water have confirmed that there is sufficient capacity in the foul water network for the development.

Overland & Surface Water Flooding
- Flood maps show that areas of the site are at risk of surface water flooding. This could be due to the culverted Rive ditch which now forms the surface water public sewer network.
- The surface water sewer network is being re-designed and will therefore be able to accept overland flows. Furthermore the network will be able to accommodate more extreme storm events.
- Levels will be designed such that overland flows are directed away from properties and towards landscaped areas.

Artificial Source Flooding
- Available data suggests that there is a potential for a part of the site to flood from the Basingstoke Canal, although the Basingstoke Canal Authority have confirmed that they do not believe this is likely.
- However, for extra protection a bund is proposed around the canal boundary. In the unlikely event of the canal overtopping, the bund will hold flood waters out from the site, and direct the water to swales located within the parks.

Canal bund on site boudary



Rain garden

Surface Water

It is proposed that the masterplan will drain surface water run-off to the existing Thames Water surface water public sewer.

It has been agreed with Woking Borough Council during the outline planning permission that surface water run-off rates will be reduced by a minimum of 50% prior to discharging into the sewers, therefore reducing the strain on the existing network and the likelihood of flooding. This is in accordance with best practice guidelines.

The site has been designed so that, at a minimum, the surface water sewers are capable of carrying surface water from a 1 in 30 year storm event without causing flooding to any part of the site.

A number of SUDS will be used on site in order to provide temporary storage of surface water, reducing the peak discharge rates into the existing public sewer.

These SUDS include:

Permeable Paving
Located in pedestrianised and trafficked hard landscaped areas. Permeable paving provide treatment and temporarily store surface water run-off.

Rain gardens
Will be used in public open spaces. A Rain Garden is a planted bed that allows rainwater run-off from impermeable urban areas to be absorbed or attenuated.

Swales
The park areas will utilise swales, which are shallow vegetated open channels designed to convey, treat and attenuate surface water run-off. These will also be used to convey any water from the Basingstoke Canal in the unlikely event of it flooding.

Attenuation Tank
Temporary surface water storage will be provided in below-ground attenuation storage tanks which are geocellular modular plastic units. These provide large volumes of storage and are hidden below the ground.

Pond
Ponds/wetlands can be located within the park to provide surface water storage. They can contain a permanent body of water where they provide storage above with a varying water level during storm events. Or they could be a depression in the ground which will normally be dry, except during storm events when it is used for temporary storage. During dry weather this space can be used for other purposes.

Rooftops
Rooftop areas, including podium decks, can be utilised to temporarily store surface water run-off above ground. These areas can be planted vegetation or hard landscaped.

Permeable Paving

Rain Garden

Swales

Attenuation Tank

Pond

Foul Water

A new foul water network will be constructed as part of the masterplan and will run underneath the proposed road network where it will connect into the existing foul water public sewers.

A foul water impact study has been undertaken by Thames Water and confirms that the additional foul water flows can be accommodated within the existing network.