Drakes House, Gatcombe, Blakeney

Design and Access Statement.

Gatcombe pill at high tide. Drakes house is the pink house on the right.

1. Setting

Drakes House is located in the picturesque hamlet of Gatcombe, in the parish of Awre. The pill which connects to the River Severn was partially cut off by the construction of the South Wales Railway in 1851, although there remains public and private access to river bank. With sufficient high tides, the centre of the hamlet is flooded for around 40 mins – this occurs around 10 times a year. Nowadays Gatcombe is a popular place for walkers, following the Severn Way, which passes through. The twice hourly trains also provide passengers a fleeting view. More significant are perhaps the views across the river, from the Purton Hulks, where the house, and the pink Drakes House are a visible landmark.

Drakes house is currently painted in a very dark pink red colour, using a 'Santex' paint. This is a plastic coating, which traps water. The paint was applied in the 2000's and replaced a paler emulsion. The present colour is not historic. We will replace this with a much paler

and historically more authentic pale pink, included as a pigment in the lime render / limewash coating.

2. Tidal and drainage issues

The proposed work to the building is very urgent as a result of flooding issues in, and around the house.

The drainage system around Drakes House dates to the 1970's. One of the key issues is back flow through the system at high water, which can flood the drains and deposit Severn mud, which can easily cause blockages. While there are two non-return valves neither is particularly effective, and need to be kept permanently clean. In addition to blocked drains, we also discovered that the ceramic pipes had collapsed, leaving the foundations exposed to water at every high tide

Over the 3 years that we have lived in Drakes House, we experienced significant damp issues on the ground floor. For most of this time, there has been up to 100mm of standing water below the wooden floor in the hall, and we believe this was also the case during the Thomas occupancy. We have used a system of pumping to ensure it does not overtop the floor, which it has on several occasions after heavy rain. The wooden floor rests on a concrete base which traps the water, while the standing water being taken-up by the walls, with the failure of concrete render and Drywall. The floor, laid in 1985, is buckled and rotten, and effected by mould and fungus growth, making the room (and ground floor) uninhabitable. We have removed the wooden floor, to observe where the water is coming in from. This includes the east wall, where the drain has failed, as well as the west wall, when the tide is in. In addition, the slab in the dining room is saturated, with extensive rising damp along the interior walls.

Our proposal is to rebuild the drains around the house and where possible to replace the ceramic pipes with open channels, formed by blockwork with lime render. These can be inspected and flushed clear of Severn mud on a regular basis, removing standing water from the exterior wall faces. The drains will be capped by stone slabs and will be largely invisible.

3. **Sea-Level Rise and Tidal Surges**.

Drakes House lies adjacent to the River Severn, where there is a tidal range of over 10m. The ground floor is 1.6m below normal high tide level, but the house is protected by a quayside wall, which was raised after the 1981 flood, and which is 11.20m above the Sharpness Harbour Sill - the local datum employed by the Arrowsmith tide tables giving the property around 700mm clearance in normal tides. However, the Severn is also subjected to storm surges with a risk of flooding if a surge coincides with a high tide. Surges can be up to 1m, although very rarely at High Water, where 0.5m is normal. The risk of flooding occurs when there is a very high tide (normally 2-3 times a year) coinciding with a storm surge. [1]

[1] Fortunately, the UK National Oceanography Centre closely monitors storm surges, and publishes an accurate model for Avonmouth that predicts levels up to 4 days in advance. This enables adequate warning for any potential flooding episode. https://ntslf.org/storm-surges/latest-surge-forecast?port=Avonmouth

The tides also experience 18.6 year cycle known as the nodal cycle. In 2024, we will be at the bottom of this cycle, and we can expect tides to rise up to 300mm during the following 9 years. Sea-levels in the Severn Estuary are also rising 0.8mm / annum / 80mm / decade. By 2032, we will expect to be close to the top of the protecting wall during astronomical tides. Predicting local sea levels is however very uncertain, and the 8mm is a rough estimate based on a 30-year time series, and many predict the rate will increase due to global warming.

We are conscious that we need to ensure that the property is flood resilient in the long-term future. We need to have a flooring and drainage system that will ensure rapid recovery from any flooding episode, while being able to drain out any moisture that might accumulate under the floor and in the walls.

Drakes House, from the Gatcombe 'turning circle' and Severn Way. The exterior view will be unaffected, with the exception of a historically informed paint.

4. Changes to external appearance to Drakes House

As part of this application we intend to enhance the heritage aspects of the property, by restoring a more authentic colour scheme for the exterior and replacing three unsightly UPVC windows on the East Wall with wooden mullions. A neutral, but minimal change, will involve the relocation of the present Aga flue to service the restored ground floor fireplace on the east wall of the house. Otherwise, the external appearance of the building will remain unchanged.

Professor Mark Horton
Drakes House
Gatcombe