

e e l p i e b o a t y a r d

[Re : London Borough of Richmond Upon Thames \(Twickenham Riverside\) Compulsory Purchase Order 2021, Compulsory Purchase of Land and New Rights in Twickenham Riverside](#)

11/05/23

Additional notes regarding factors effecting water levels locally:

We are owners and managers of one of the 4 boatyards on Eel Pie Island, we have been running Eel Pie Boatyard Ltd for 25 years. We share access with the other boatyards and have an everyday working knowledge of the other boatyards and river related activities on Eel Pie Island.

In our letter of 08/05/23 we touched upon water levels relative to the road and turning circle.

We wish to expand a little on this.

The water level at Twickenham is dictated by combination factors.

There are Weirs at Richmond, designed to keep the water at Richmond at A Maintained Level even when the tide downstream is out. When the tide comes in higher than the Maintained level, the Weirs are lifted out of the way, until the water level drops again.

As a river, the level is influenced by the volume of water coming down from upstream.

As a tidal river, the level is influenced by the level of the water downstream, which is affected by the tidal surges coming up the Thames Estuary from the North Sea.

Tidal Variation:

The tidal variation is primarily caused by the gravitational pull of the moon, the sun, and other planets. It is also affected by surges on the North Sea created by barometric pressure gradients across the North Sea, and wind.

In the course of running Eel Pie Boatyard and a tugboat company on the Thames, a significant part of the job involves moving vessels from berths which are aground a great deal of the time, to other berths or wharves or repair facilities which are only accessible on high tides. So, the level of the water at a given time is important.

Much of the time, the water levels are predictable. In forward planning, the tide tables are consulted, and jobs planned for days in which the water levels are expected to accommodate the planned vessel movements. However, it does not always go to plan. Sometimes the tide

simply does not come in. And sometimes the tide is early and above prediction. Deviations from the predicted levels of around a metre occur several times a year, and smaller deviations on a regular basis. A small deviation at the coast is magnified as the tide moves up the river Thames because of the funnelling of the river and because of the inertia of the water volume and complicated harmonics of the tidal wave.

Typical explanations for a below prediction water level will either be that there has been an exceptionally high surge, and that the Environment Agency has taken the decision to close the Thames Barrier, or the complete opposite, that exceptionally low atmospheric pressure in the north part of The North Sea, in Scotland, has caused a surge there, and a corresponding exceptionally low tide in the Thames Estuary. As there is only so much water in the North Sea and if there is more in Scotland there is less in the Thames Estuary.

Typical explanations for an above prediction water level will be that a combination of barometric pressures and or strong winds has caused a surge in the water level in the Thames Estuary, but not sufficient to trigger a Thames Barrier Closure, but still well above prediction and surprising.

A useful picture might be to think of the North Sea as a big bowl of water slopping about under the influence of the moon, sun, other planets, and a small child helping hold it representing the weather.

Fluvial Variation:

By Fluvial variation I mean the volume of water coming down from Teddington and above. This is dictated primarily by the amount of rainfall in the Thames Valley catchment area, and by the manner in which the managing authority, the Environment Agency, control the runoff.

When there is a greater than average rainfall in the Thames Valley catchment area, the Environment Agency operate the locks and sluices in The Upper Thames and The Kennet and Avon and other tributaries to best control the water levels and flooding risk to property and infrastructure up stream of Teddington. They go to a great deal of trouble to send the water downstream through Teddington Weirs as quickly as they can.

At such times, the water level in Twickenham rises above The Maintained Level. The weirs at Richmond are adjusted by the PLA to keep as close as practicable to Maintained level in Richmond, but the volume of water flowing can be such that there is a significant gradient from Teddington to Richmond. As the volume of flow increases, the weirs at Richmond may be completely lifted, and the level of the river still be above Maintained Level throughout the whole 24-hour tidal period. This situation occurs every winter, and occasionally in Summer also.

Specifically, during April 2023, the water level stayed above the level of the road by The Ice Cream Van, even at what would 'normally' be low tide, were it not for the rain induced flooding for several days.

In those circumstances, when the tide does come in, the Water Level increases further, not directly because the tide rise itself is necessarily very big. Down river at Tower Pier for example it may be a small tide that day, but because it is somewhat higher than low tide, the volume of water escaping from Teddington meets the higher level and backs up, and up goes the Water Level in Twickenham. Further covering The Embankment Road, particularly at the bottom of Water Lane, the lowest point.

The Future

Climate Change, The River Thames Scheme, The Thames Barrier, Thames Water Teddington Extraction

The precise water level around the Twickenham Embankment can have a big effect on the useability of the land.

When the level comes up to the kerb by the ice cream van and above, the edge of the road is no longer visible and the useable area decreases. Another 400mm or so of water and the water level is at the kerb stones all along The Embankment. And then very small further level rises see the water creep over the edge and encroach over the area of The Embankment. A few millimetres of height represents a metre of ground covered.

We all live under the spectre of Climate Change and the threat of rising sea levels and erratic weather patterns.

The River Thames Scheme is a planned big infra structure scheme extending from Staines to Teddington. The primary function of which is to reduce the flood risk to property and infrastructure further upriver. It includes five new weir gates at Teddington to increase run off capacity.

The Thames Water Teddington Extraction Scheme is another large infrastructure scheme being planned upriver. To take water from the Thames at Teddington to supply reservoirs and replace with treated water from Mogden Sewage Treatment Works. Historically Mogden is known to have overflows into the Thames at periods of heavy rainfall. We do not know at this stage what effect the proposed Thames Water Extraction Scheme will have on water flow through Twickenham.

The Thames Barrier. The Thames Barrier is under constant review by the EA, with discussions regarding its use and its long-term future and or replacement. Even small policy decisions regarding the use of the Thames Barrier can have big effects on the water level at Twickenham. We have been caught out several times when the Barrier is used on a large tide, so that expected high water levels at Twickenham do not occur, and then for whatever reason, on a seemingly similar tide, the barrier is not deployed, and we do have an exceptionally high water level.

All the above factors contribute to uncertainty about the frequency with which The Embankment at Twickenham is likely to be subject to water encroachment in the future. The only thing we know for certain is that we don't know.

The Trusts exchange land is therefore an 'unknown' whereas all the Lost Open Space is a known in terms of flooding.

Helen Montgomery-Smith
Eel Pie Boatyard and for EPIA

Mark Montgomery-Smith
Eel Pie Boatyard and for EPIA

eel pie boatyard ltd. eel pie island. twickenham. middlesex. tw1 3dy
registered no: 3344832. england. registered office: eel pie island. twickenham

www.eelpieboatyard.co.uk

directors: helen montgomery-smith. mark montgomery-smith