Dear Callum

Re: Save the Teifi's '5 asks'

Further to our response to dated 21st February 2024, please see below, as promised, more detail on several points raised.

In reference to Ask 1

As stated in our initial response, we plan to update the local community on our progress with the Cardigan flow scheme. One of our essential next steps is to gain planning approval from the local authority and I can confirm that our planning application has now been submitted.

Whilst the start date for site work remains as April 2025, we will continue to explore avenues of bringing this date forward, which in part is dependent on our planning application approval. We will continue to keep you informed via the Afon Teifi Working Group as well as local newsletters of our progress and any changes to timescales.

We actively consider nature-based solutions in our optioneering and feasibility design stages for schemes and progress a 'green first' screening approach. But due to the flow and quality permit requirements, level of saline intrusion and land requirements, Cardigan was unsuitable for a nature-based solution. We are incorporating sustainable drainage on site as well as biodiversity requirements, such as a replacing hedgerow with full Pembrokeshire hedgerow at approximately a 2:1 ratio and trees at a 3:1 ratio.

We are at the early stages of assessing if a constructed treatment wetlands would be able to meet the environmental phosphorus permit requirement at other sites within the wider Teifi catchment, for example Talgarreg and Newchapel. There are potentially more sites to be confirmed as our site assessments progress for the next investment cycle. We can keep the group updated on these in due course.

In reference to Ask 2

As stated in point 2 of the '5 asks', and previously conversations between yourself and Kelly Jordan, we have looked to give a written description of the estuary behaviour, provided by our Lead River & Coastal Modeller.

<u>The tidal movements</u>
At the coordinates displayed in Figure 1, the water quality (hydrodynamic) model is shown to predict peak flow velocity values of 0.3m/s for the flooding phase, while for the ebbing phase the model displays speeds between 0.1m/s and 0.15m/s.

Figure 1. Monitoring point where the hydrodynamic model shows peak flow velocities at flooding and ebb phases.

Movement of pollutants in the water

Pollutants are washed out with the tides, but it is important to highlight that every water environment will benefit from the positive influence that coastal waters have. The higher salinity, higher oxygenation and water recirculation help dilute any potential impact of any pollutant. There is plenty of scientific evidence in literature supporting these facts but a simple way to establish this, is the fact that the water quality targets are considerably tighter for riverine waters, whereas there are fewer and more relaxed targets in estuarine and coastal waters. The particular case of the Cardigan Bay and the Teifi estuary is no different, being favoured by the great tidal range in Wales and the West coast of the UK.

Changes during high tides

We understand that the discharge plume could be held and could even bring the flow towards the river mouth for a few hours. However, when this occurs, dilution factors increase as the water level and therefore water volume are higher at the flooding stage.

Behaviour of Cardigan discharges

We do not have data to show with an animation how the plume is distributed and dispersed in coastal waters, but it is our understanding that Cardigan discharges disperse out to sea. This brings a positive effect to the environment as explained above (higher salinity, higher oxygenation, and water recirculation).

According to the Water Framework Directive (WFD) classifications, the water quality in the **Teifi Estuary** is not in a critical situation. The regulator has been sampling at different locations across the estuary for different biological and chemical parameters and, out of 28 parameters, only 1 parameter is below Good, which is Dissolved Inorganic Nitrogen (DIN). See below map with the locations where the regulator has been carrying out different types of sampling (figure 2).

Performance of the Cardigan WwTW (Wastewater Treatment Works)

The report specifies that the performance of the Cardigan WwTW did not have a significant impact on the bacteria levels at the Poppit West Bathing Water under modelled conditions. In terms of the main contributors to bacteria at the Bathing Water under the Baseline scenario, Poppit West Bathing Water was mainly impacted by diffuse sources coming from the Afon Teifi. It is very important to clarify that

having a Bathing Water consistently classified as Excellent a few kilometres downstream, does not confirm the level impact on the environment from the asset. However, we believe this fact supports the view that overall impact is likely to be low.

It is also important to understand the impact of our discharges considering the difference between riverine water quality and estuarine water quality.

Riverine water quality has more strict targets that estuarine waters. Nutrients and oxygen levels are key to protect and enhance every environmental aspect. In riverine waters, we will have an increased number of permits in reference to phosphorus loads that are currently being discharged by wastewater treatment works and will continue to investigate in the next AMP (Asset Management Plan) whether other limits for nutrients are needed. In addition to this work for continuous assets, we will carry out a water quality assessment for every storm overflow, including storm tanks, to make sure that the levels of oxygen and nutrients are within the limits corresponding to a healthy river.

As estuarine waters benefit from the positive influence that coastal waters have on the environment, WFD targets and water quality assessments have not been as urgent as for riverine waters, and both the regulators and water companies have been focusing on bacteria assessments for Bathing Waters and Shellfish Waters. As mentioned before, having Bathing Waters classified as Excellent does not mean that there is no environmental impact, but it does provide a certain level of certainty behind the impact of wastewater assets.

Finally, we will carry out a water quality investigation for estuaries where an WFD parameters is below Good, named Dissolved Inorganic Nitrogen (DIN). This is a leading exercise, and it has not been carried out before, but Welsh Water and the regulator are committed to better understand the impact of wastewater assets for this particular determinand.

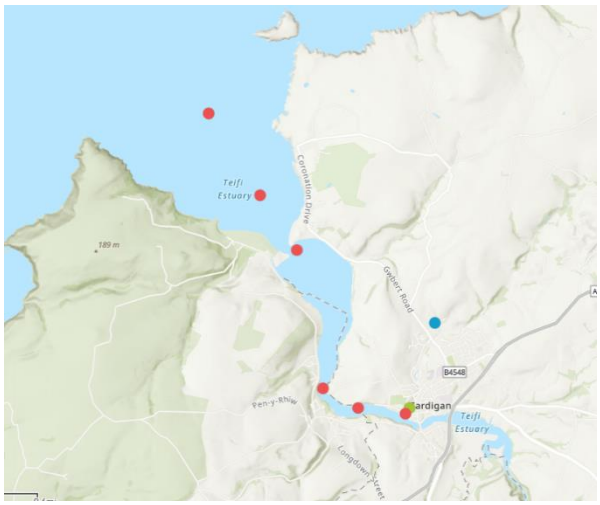

Figure 2. NRW (Natural Resources Wales) sampling locations for different WFD parameters in the Teifi Estuary. Source (Cyfoeth Naturiol Cymru (naturalresourceswales.gov.uk))

In reference to Ask 3

As you will be aware, Welsh Water are supporting NRW's demonstrator catchment project on the Teifi river. There have been multiple meetings in recent weeks including a 2-day hackathon, held by NRW in Aberystwyth University. Welsh Water were in attendance, presented and contributed to a

successful 2 days of information sharing and solution building discussion including potential actions. We will continue to support this project as appropriate and look to the conclusions from that event, including the incorporation of Citizen Science and community engagement.

Please do not hesitate to contact us if you require any further information.

Signed,

Kelly Jordan
River Quality Liaison Manager – Southwest
Rheolwr Cyswllt Ansawdd Afonydd - Y De-orllewin