

The Examining Authority
The Planning Inspectorate
National Infrastructure Planning
Temple Quay House
2 The Square
Bristol
BS1 6PN

Interested Party ref: F1C2DDF91
Your ref: EN010148

Date: 05 May 2026

Dear Sir

Application by RWE Renewables UK Solar and Storage Limited for an order granting development consent for the Tween Bridge Solar Farm Project

Please see below a summary of the oral submissions made on behalf of the Environment Agency (EA) during Issue Specific Hearing 1 (ISH1) for the above project, together with additional information/explanation requested by the Examining Authority.

Item 4b: Flood risk, hydrology and water resources

Isle of Axhole water catchment

The Isle of Axholme (IoA) is an area in between the towns of Doncaster, Scunthorpe and Gainsborough. More than 20,000 properties and 45,000 hectares of agricultural land are at risk of flooding in this low lying, artificially drained area. The modified rivers Torne and Idle lie at the heart of this heavily engineered and complex drainage system, served by more than 60 pumping stations and approximately 160 kilometres of flood defences.

It is therefore recognised that there is a clear link between land drainage and flood risk management activities in controlling flood risk. Most of this area is also at risk from tidal or fluvial flooding from the Rivers Trent, Ouse and Don and is protected from this by large flood banks adjacent to these rivers.

Figure 1 below shows the outline of the catchment and the key flood risk management assets within it.

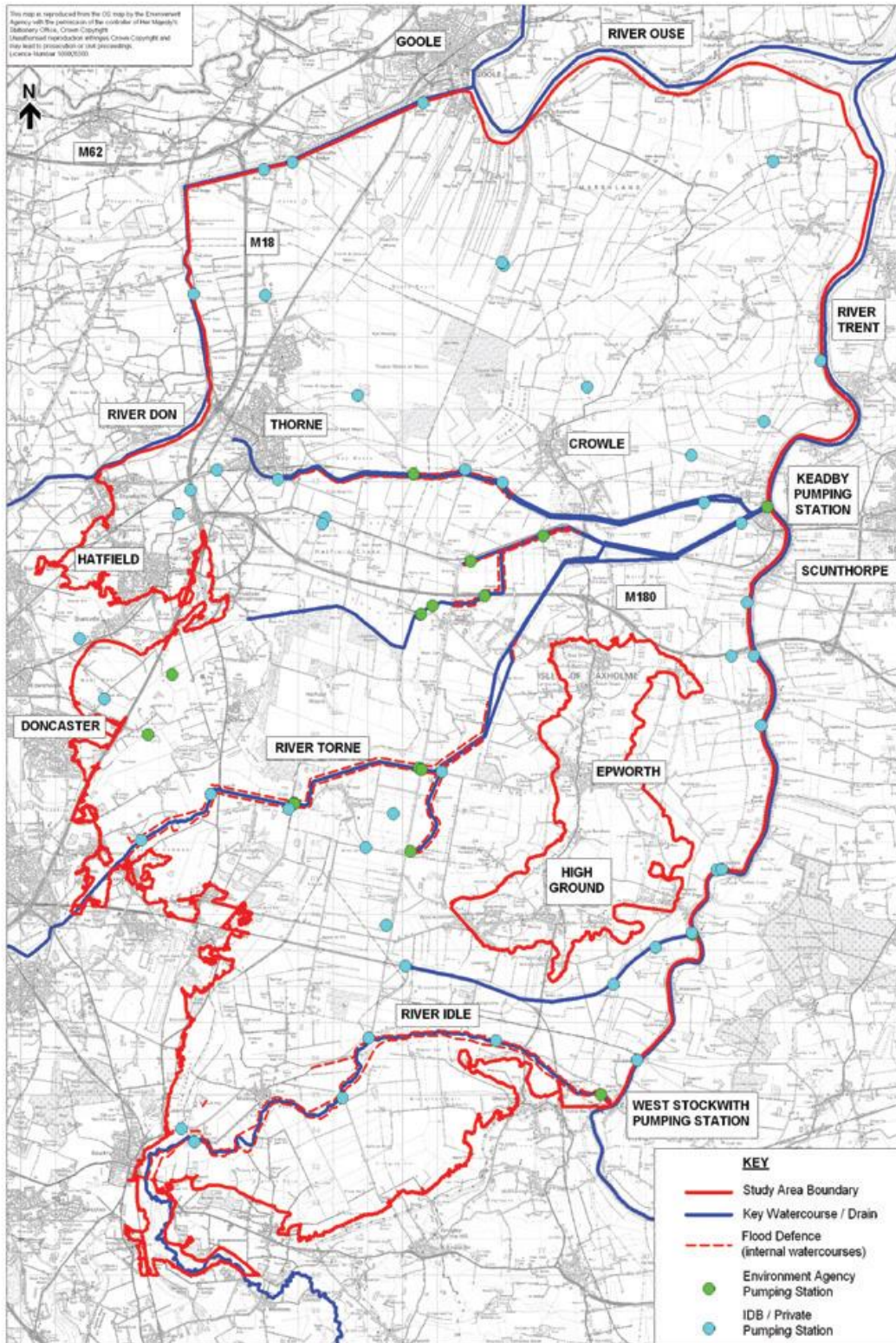


Figure 1

Tween Bridge site area

The proposed Tween Bridge Solar farm is located within the area of the Dirtness pumping station rationalisation project ('the project'). The project is being undertaken in partnership with the Doncaster East Internal Drainage Board (IDB), the Coal Authority and the EA.

The Isle of Axholme Flood Risk Management Strategy is the over-arching strategy that is guiding this work. This stated that there is significant redundant capacity in the pumping station network and multiple assets could be combined into a simpler, more efficient and affordable network. This would reduce operating regime, reduce carbon usage, reduce costs and lower energy consumption. This is what we refer to as asset “rationalisation”. Adjusting inland pumping stations’ capacity and layout will be explored in a way that does not increase flood risk or reduce land drainage capabilities.

The project (which is part of a wider pump rationalisation programme of works to be undertaken during the coming years) covers 9 pumping stations; with a mixture of IDB and EA owned pumping stations. This covers the Dirtness sub-catchment, within the wider IoA catchment.

The Dirtness sub-catchment does not drain via gravity, it is entirely pumped.

The project aims to continue to manage the flood risk in the Isle of Axholme and seeks to maintain the same standard of service in the pumped network – this would be to either increase capacity of a downstream pumping station following upstream pumping station rationalisation, or to demonstrate that the network currently has an over-capacity and therefore the large number of assets in the network at present are not all required (and the same standard of service can still be met by removing some of them).

Through asset rationalisation, the Dirtness project will enable a more affordable, sustainable and resilient pumped network, ensuring pumping stations can continue to operate into the future. Without rationalisation, the operation of the pumped network, in its current layout, is unaffordable to maintain in the long term. Along with rationalisation, the project is also looking at the condition of the assets and where pumping station refurbishment is required, as well as how to make certain pumping stations compliant with the Eels Regulations (2009).

The Tween Bridge site area also lies within the Elmhurst/New Zealand pumping station sub-catchment, which is a separate pumping rationalisation project. This project is in its infancy and we have not yet developed any options; hydraulic modelling is currently being undertaken.

The Critical Flood Level

The Critical Flood Level (CFL) is set out in both North Lincolnshire and City of Doncaster Strategic Flood Risk Assessments (SFRAs). The CFL is a level that provides guidance on what levels of mitigation are necessary in order to make development ‘safe’. It is a level based on the potential flooding to the IoA from multiple sources. The geography of the area forms a basin below the level of surrounding rivers, which would result in prolonged flooding beginning to build up flood levels over a period of time.

In 2009 modelling of the IoA was undertaken as part of the IoA strategy to understand the implications if the pump/defence network was not maintained and operated over a period of years. The model results show the build-up of water within the Isle of Axholme basin over a number of years.

For the period up to 9 years, levels across the IoA increase at various rates and it is not until a 9 year period is reached that a uniform level of 3.141mAOD (above Ordnance Datum) is experienced across the majority of the floodplain. At 12 years the entire floodplain experiences a uniform depth of 3.707mAOD and goes onto reach a peak level of 5.25mAOD at around 15 years; at this level the water begins to spill back into the River Trent.

The CFL in the SFRAs was set using engineering judgement and the data and information available when the CFL was first established (circa 2011). We hold no records to confirm if the 2009 IoA modelling was used at that time in the consideration of/setting of the CFL.

The current CFL is set at 3.8mAOD in both SFRAs, with a requirement for a further 300mm of freeboard, so critical equipment for essential infrastructure should be set at 4.1mAOD. This level was set following a review of new modelling, including the Tidal River Trent modelling, River Torne modelling and wider IoA modelling. The CFL is applied to residential development and essential infrastructure, with lower levels often being accepted for 'less vulnerable' development which needs a lower floor level for operational reasons.

North Lincolnshire Council SFRA has an Appendix which sets out more detail on its approach to the CFL. In terms of 'essential infrastructure' it states the following:

"The LPA should consult the Environment Agency.

Planning practice guidance states that essential infrastructure should remain operational at times of flood. Critical equipment should therefore be 300mm above the critical flood level of 3.8m AOD.

Developments should, where practicable, have finished floor levels above the critical flood level. Where this is impracticable, appropriate mitigation measures/flood resilience techniques should be identified and incorporated into the development. Please refer to the following document for information on flood resilience and resistance techniques to be included: 'Improving Flood Performance of New Buildings - Flood Resilient Construction' (DCLG 2007).

All development proposals within 500m of the River Trent defences should be accompanied by a hydraulic assessment appropriate to the scale of the proposals showing they will not be adversely affected by rapid flowing water from a potential breach. Flood risk data is available from the Environment Agency to inform the assessment.

In the case of single storey buildings where FFLs are not above the critical flood level, an area of safe refuge will need to be provided or an appropriate flood warning and evacuation plan will need to demonstrate how this risk will be managed. It is the responsibility of the Local Planning Authority to determine the adequacy of the plan."

Reasoning behind the CFL

The ongoing maintenance and improvement of the various flood risk infrastructure (pump stations, outfalls and flood embankments and channel conveyance) is delivered at great cost. Government Capital and Revenue funding to Defra organisations like the EA are set in cycles, and prioritisation decisions always have to be made. The EA is unable to guarantee that the level of investment currently afforded to this infrastructure will be available for the perceived lifetime of new developments, given the current mechanisms of funding available (i.e. 100 years for residential development etc).

Many of the pumping stations are due or even overdue investment; but public finances are stretched and there is a need to undertake refurbishment investment strategically rather than purely maintaining the current practices, so the possibility of pump failure is

reasonably high and is something both the EA and IDB tackle in their incident response annually.

Complications remain with regards to long term funding, as well as asset ownership. As part of the Isle of Axholme Strategy a review was undertaken to assess the affordability of the area. The conclusion broadly was that current Policy and funding mechanisms would only fund approximately one third of the investment needed to keep the infrastructure that currently exists working. A different approach was needed.

The direction of the loA Strategy was to rationalise the assets and standardise the equipment, to make the area more efficient and affordable. This is underway but is not quick work and will take many decades and substantial partnership working to achieve. The technical feasibility needs to be proven, landowner engagement considered, and the funding to carry out the civil and non-civil engineering (Mechanical, Electrical, Instrumentation, Control & Automation – ‘MEICA’) work found – sources of potential funding, i.e Flood Defence Grant in Aid, IDBs revenue sources, 3rd party contributions etc are currently unknown and will potentially take many years to raise and programme. Additionally, some assets are owned by the Mining Remediation Authority, and ultimately asset transfers to the most appropriate authority with legal agreements managing the transfer of liabilities will need to occur, as well as the capital project work itself.

Even once pumped catchments are rationalised, or upgraded where rationalisation is not possible, such MEICA capital work only has a finite lifespan – typically 25 years before further investment needs to be sought. Over the lifetime of a project (for example, a 40-year solar farm or a 100-year residential development), a planning decision that assumes the current policy direction to keeping land in the loA dry can be maintained, would rely on repeated asset investments across multiple pumping-station catchments between Doncaster and the ultimate outfall into the River Trent.

It would also assume Policy direction continues to support keeping land in the loA dry and protected, over the lifetime of the project

Substantial engagement with different parties would be needed to achieve this, with no guarantee all would agree or be able to contribute the funding required.

In summary, it is considered an optimistic assumption that all of these issues can be overcome, that the pumping infrastructure that keeps the Isle of Axholme dry will continue to be supported from a Policy, Government and Risk Management Authority partner funding perspective for the lifetime of all development such that infrastructure failure would never occur. As new 'Essential Infrastructure' should remain operational during times of flooding, we advise the Local Planning Authorities not to assume the risk of pump failure would not occur and should consider it as a mechanism of flood risk as they do other sources in this area. This has led to the formation of the CFL and the associated guidance in the two SFRA's.

We hope that the above explanation is helpful and assists the Examining Authority and the Secretary of State in considering the CFL and residual flood risk.

Yours sincerely

Danielle Maclean-Spencer
Planning Adviser

Direct dial: [REDACTED]

Direct e-mail: [REDACTED][@environment-agency.gov.uk](mailto:[REDACTED]@environment-agency.gov.uk)

Team e-mail: LNplanning@environment-agency.gov.uk