

Flood Risk Assessment

Proposed Replacement Wind Turbine at Bank House Farm, The Delph, Spalding, Lincolnshire, PE11 3JH

1. Introduction

This Flood Risk Assessment (FRA) has been prepared in support of a planning application for the replacement of an existing wind turbine Bank House Farm, The Delph, Spalding. The site lies within Flood Zone 3, as defined by the Environment Agency Flood Map for Planning.

The purpose of this assessment is to demonstrate that the proposed replacement turbine:

- Is appropriate in flood risk terms in accordance with the National Planning Policy Framework (NPPF, 2026);
- Will be safe for its lifetime, taking account of climate change;
- Will not increase flood risk elsewhere; and
- Satisfies the requirements of the Sequential Test and Exception Test, where applicable.

The proposal involves the repowering of an existing, lawfully established wind turbine, with no change in location and no intensification of flood risk.

2. Site Description and Flood Risk Context

The turbine is located approximately 120 metres northwest of the main farmstead, within flat, low-lying agricultural land at approximately 3 metres Above Ordnance Datum (AOD). The surrounding landscape is drained by a network of watercourses and drainage channels typical of the Fenland environment.

The site is identified as being within Flood Zone 3, meaning it has a high probability of flooding from fluvial and/or tidal sources. However, the turbine has been operational at this location for a number of years without any recorded flooding-related failures or impacts on surrounding land.

The proposal does not introduce any new land take beyond the existing turbine footprint and foundations.

3. Proposed Development and Vulnerability Classification

The development comprises the removal of an existing Endurance E-3120 (50kW) turbine and its replacement with a Vestas V29 turbine (225kW), located in the same position as the existing turbine.

Annex F, Table 2 lists wind turbines expressly within the Essential Infrastructure class. Under Annex F, Table 3 essential infrastructure is not incompatible with any flood zone, but in Flood Zones 3a and 3b it requires the exception test, and requires that in Zone 3a it be designed and constructed to remain operational and safe in times of flood. Were the site to fall within Zone 3b, the development would additionally require no net loss of floodplain storage and no impedance of water flows. Those requirements are addressed at Section 6.

4. Sequential Test

Policy F5(1) steers development to areas with the lowest risk of flooding, but provides that the area to which the test is applied should not be greater than the anticipated catchment of the development in terms of its likely occupiers or users. The turbine serves the farm business at Bank House Farm, so the catchment is the applicant's holding. None of the exemptions in Policy F5(2) applies, and the test is therefore applied.

There is no reasonably available alternative site at lower risk. The position is fixed by the consented turbine location, the existing foundations, the grid connection and the established access; relocation would require new foundations, cabling and access and a fresh assessment of landscape, noise and ecological effects, forfeiting the re-powering benefit to which Policy W3(1)(b) attaches substantial weight. In any event the holding and the surrounding fen lie within the same flood zone, so relocation would move an identical structure within an identical zone while adding new construction impacts. The sequential test is satisfied.

5. Exception Test

Policy F6(1)(b) requires all three of the following to be demonstrated.

Wider sustainability benefits to the community that outweigh the flood risk. Output rises from 50kW to 225kW at an established site with no extension of its footprint. Policy W3(1)(a) requires substantial weight to be given to energy security and the transition to a net zero future, and Policy W3(1)(b) separately to the benefit of utilising an established site for re-powering. Policy CC2(2) requires substantial weight to the benefits of renewable generation and Policy CC2(1)(d) supports the reuse of existing structures; Policy E4 supports farm viability; no additional agricultural land is taken, engaging Policy N2(1)(b); and Policy 31 of the South East Lincolnshire Local Plan supports renewable energy development.

Safe for its anticipated lifetime, and no increase in flood risk elsewhere. Both are addressed at Section 6 below. The exception test is satisfied.

6. Assessment of Flood Risk Impacts

6.1 Flood Risk to the Development

Policy F7(2) sets five criteria.

(a) The only flood-sensitive plant will be mounted at **6.5 AOD**, equivalent to the **0.1% annual probability flood level plus 600mm freeboard**, the tower position is fixed by the existing foundation, which is an overriding reason justifying that arrangement. (b) The turbine has no habitable accommodation, is unoccupied and is remotely monitored and controlled, so the vulnerability of its users is minimal. (c) Residual risk is limited to temporary loss of vehicular access along the private drove, which would delay non-urgent maintenance without creating a hazard; no safe access, escape route or evacuation plan is required. (d) The tower and nacelle are sealed structures with sealed cable entries; the foundation is designed to perform under fully saturated ground conditions. (e) Risk elsewhere is addressed below.

6.2 Risk elsewhere.

The existing foundations are reused, so the volume of structure occupying the floodplain is effectively unchanged and there is no net loss of floodplain storage. Ground levels are not raised, no impermeable area is added, and a single slender tower of substantially the same plan area presents no material obstruction to overland flow.

7. Surface Water and Drainage

The turbine does not generate surface water runoff requiring formal drainage infrastructure. No new minor hardstanding is associated with the development.

8. Residual Risk, Access and Emergency Planning

The turbine is not occupied during flood events, and no safe access or egress is required for users during periods of flooding. Routine maintenance activities can be planned outside forecast flood events.

Residual risks are therefore minimal and manageable. No emergency flood evacuation plan is required.

9. Climate Change Considerations

Climate change has been taken into account through:

- Use of the **0.1% annual probability flood level** plus freeboard;
- Design of foundations to accommodate saturated ground conditions;
- Placement of vulnerable electrical components well above predicted flood levels.

The development is therefore robust to future flood risk scenarios over its operational lifetime.

10. Conclusion

This Flood Risk Assessment demonstrates that the proposed replacement turbine at Bank House Farm is acceptable in flood risk terms and accords with Chapter 18 and Annex F of the National Planning Policy Framework (August 2026) and with Policy 4 of the South East Lincolnshire Local Plan. The development is essential infrastructure. It passes the sequential test, its position being fixed by an existing consented turbine with no lower-risk alternative available within the anticipated catchment. It passes the exception test, the benefits of increasing renewable generation fivefold at an established site plainly outweighing a modest flood risk to an unmanned and inherently resilient structure which will remain operational in times of flood and will not increase flood risk elsewhere.

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