

LAND TO THE EAST OF GREAT WYMONDLEY, HERTFORDSHIRE

SUMMARY PROOF OF EVIDENCE OF

KEVIN TILFORD BSc(Hons) MSc(Eng) PhD MBA CWEM CEnv FCIWEM

Relating to

FLOOD RISK AND DRAINAGE

Called In Planning Inquiry

Planning application reference: 21/03380/FP

Planning Inspectorate reference: APP/X1925/V/23/3323321

Final Version 1.0

August 2023

Report Title **Land to the East of Great Wymondley, Hertfordshire**
Summary Proof of Evidence - Flood Risk and Drainage
Final Version 1.0

Client AGR 4 Solar Ltd

Date of issue 15 August 2023

Prepared by Dr Kevin Tilford BSc MSc PhD MBA C.WEM FCIWEM CEnv
Managing Director, Weetwood Services Ltd

1 SUMMARY

- 1.1 My name is Dr Kevin Tilford. I am Managing Director of Weetwood Services Ltd, a consultancy firm specialising in flood risk and drainage.
- 1.2 I hold a BSc(Hons) in Environmental Science, an MSc(Eng) in Water Resources Technology, a PhD in Flood Forecasting, and an MBA. I am a Chartered Water and Environmental Manager, a Fellow of the Chartered Institution of Water and Environmental Management (CIWEM), and a Chartered Environmentalist.
- 1.3 I currently serve as an elected member of the CIWEM Professional Standards Committee, a committee responsible for overseeing the maintenance of professional standards and ethics within the water and environmental management profession.
- 1.4 I have worked in the field of hydrology and flood risk management since 1988, and provide flood risk and drainage advice on a wide range of development projects, including many solar farm developments.
- 1.5 I have been the technical lead for Weetwood on this project from inception. I have personally reviewed flood risk at and in the vicinity of the site, undertaken a walkover survey of the site, and visited the local area including Little Wymondley. I have also overseen site specific hydraulic modelling and the development of a scheme to manage surface water runoff from the developed site.
- 1.6 The evidence and opinions presented in my Proof of Evidence are true and professional judgements, based on the scientific evidence and professional experience.
- 1.7 The planning application was accompanied by a Flood Risk Assessment report (**CD6**) and a Technical Note (**CD31**). The flood risk assessment was informed by planning policy, relevant technical guidance, and also considerable experience of solar farm developments.
- 1.8 As I confirm in my Proof of Evidence, the Environment Agency does not object to the proposals on flood risk grounds.
- 1.9 The Lead Local Flood Authority (Hertfordshire County Council) however, has “*maintain[ed] its recommendation of objection*”, even though the matters it raised in its consultation letter dated 14 February 2022 are addressed in the aforementioned Technical Note (**CD31**).

-
- 1.10 Notwithstanding this, the Lead Local Flood Authority has accepted that if the Local Planning Authority approved the application, the requirement for further detail could be secured through the imposition of planning conditions.
- 1.11 The basis of the Lead Local Flood Authority objection relates not to flood risk to the proposed solar farm itself which is at a low risk of flooding from all sources, but that development of the site for use as a solar farm would increase off-site flood risk. This is a concern shared by a number of local residents as articulated in their letters of objection to the proposed development.
- 1.12 As I set out in my Proof of Evidence, there is a long history of flooding in Little Wymondley, including along Priory Lane to the west of the development, most recently in 2014 and 2016.
- 1.13 A detailed investigation commissioned by the Lead Local Flood Authority following the 2014 flood event confirmed the source of flooding to be Ash Brook, a watercourse that drains land to the north and north-east of Little Wymondley. The report identified a number of causes including insufficiently sized culverts, blocked debris screens, and inadequate maintenance, along/of Ash Brook and a tributary watercourse often referred to as Priory Lane Stream. (Priory Lane Stream discharges into Ash Brook in Little Wymondley.)
- 1.14 The site drains to Priory Lane Stream. Concerns that the proposals would increase the risk of flooding along Priory Lane and Little Wymondley due to an increase in surface water runoff from the developed site is therefore understandable.
- 1.15 To address the concerns of the Lead Local Flood Authority, and of local residents, a detailed scheme for managing surface water runoff from the proposed solar farm has been developed. The scheme is effectively in two parts, an element to manage surface water runoff from the access tracks and areas of hardstanding, and an element to manage overland flow generated from the panelled part of the site.
- 1.16 The scheme is presented in detail in the Technical Note (**CD31**), and is summarised in my Proof of Evidence. In brief though, the scheme includes the provision of three flood storage basins, and three surface water drainage (SuDS) basins. These storage facilities would temporarily store runoff from the site, and release it at a controlled, and restricted rate.
- 1.17 I am unaware of any empirical evidence of the effect of solar farms on surface water runoff and (hence) flood risk. However, the definitive research work on the matter was published in an American research paper in 2013 (**CD89**).

- 1.18 The paper recognises that rainfall would run down the face of the panels and drip off the lower edge onto the ground below; and thereafter infiltrate into the ground and/or flow overland as would be case if the panels were not present.
- 1.19 The research presented in the paper demonstrates that the effect of solar panels on surface water runoff is negligible if the panelled site comprises well managed grassland (which would prevent the formation of a distinct “drip line”), but that peak runoff rates and volumes may increase significantly if the panelled site comprises of bare earth.
- 1.20 My Proof of Evidence presents findings based on detailed site specific hydraulic modelling. The findings demonstrate that the implementation of the proposed mitigation measure would provide a reduction in peak runoff from the developed site for the 1 in 30 and 1 in 100 storm events (both present day and including an allowance for climate change for the lifetime of the development) as long as the site comprises managed grassland.
- 1.21 In reality, the reduction in peak runoff resulting from the development is likely to greater than that presented in my Proof of Evidence because the site is currently farmed and comprises bare earth for a significant part of the year.
- 1.22 Whilst the analysis demonstrates that the proposed development will reduce peak runoff from the site and therefore reduce off-site flood risk, the reduction will not solve the pre-existing flooding issue along Priory Lane and in Little Wymondley. This is principally because the site constitutes only 5% of the total catchment of Ash Brook draining to Little Wymondley.
- 1.23 Nevertheless, the aforementioned analysis does demonstrate that the proposals comply fully with national planning policy (including NPPF para’s 159, 167 and 169), local planning policy (including policies SP11, NE7 and NE8 of the North Hertfordshire District Local Plan, and policies FR1 and FR2 of the Wymondley Parish Neighbourhood Plan), the Lead Local Flood Authority’s 2021 guidance for developers on the management of surface water drainage, and DEFRA’s 2015 Non Statutory Technical Standards for Sustainable Drainage Systems.
- 1.24 North Hertfordshire District Council’s position in respect of flood risk is summarised in its Statement of Case in which it states:
- *“The effect upon flood risk was also carefully considered, with amendments to the Proposal made to address the comments of the Lead Local Flood Authority (LLFA). The Council considers that these amendments along with conditions suggested by the LLFA would ensure that the impacts of the development upon flood risk would be adequately mitigated and a limited benefit*

would arise from the Proposal based upon the attenuation ponds and water detention areas potentially reducing overland flow of storm water from the site.”

- *“The proposed drainage strategy is intended to improve drainage compared to the existing greenfield situation, through reducing the flow of water from the site during and following storm events. This would make a contribution towards reducing flood risk or its effects in Little Wymondley, where there is a history of flooding. Whilst the overall effect is likely to be modest, it would nevertheless be an improvement to the existing situation, and this is a planning benefit to which limited weight should be attributed.”*

1.25 In conclusion I believe that:

- That the proposed solar farm would be safe from flood risk for its lifetime;
- Implementation of the measures presented in the submitted evidence would reduce peak runoff rates from the developed site and accordingly, that the proposed solar farm would (i) not increase off-site flood risk, and (ii) would contribute to a reduction in off-site flood risk; and
- The proposals comply fully with national and local planning policy, and relevant technical guidance.

1.26 In my opinion there is no reason why the application should not be approved as a result of flood risk or drainage matters.

Weetwood

Development • Planning • Environment

Delivering client focussed services nationwide

Flood Risk Assessments
Flood Consequences Assessments
Surface Water Drainage
Foul Water Drainage
Environmental Impact Assessments
River Realignment and Restoration
Water Framework Directive Assessments
Environmental Permit and Land Drainage Applications
Sequential, Justification and Exception Tests
Utility Assessments
Expert Witness and Planning Appeals
Discharge of Planning Conditions

www.weetwood.net