

Elwy Solar Energy Farm

FLOOD RISK JUSTIFICATION TEST

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DRAFT

CONTENTS:

Page No:

1.0 INTRODUCTION 1
2.0 DEVELOPMENT PROPOSALS AND SITE CONTEXT 2
3.0 PLANNING POLICY CONTEXT 4
4.0 FLOOD RISK JUSTIFICATION TEST 7
5.0 CONCLUSIONS 12

1.0 INTRODUCTION

- 1.1 This report sets out the Flood Risk Justification Test prepared by Pegasus Group on behalf of Solarcentury ("the Applicant") in support of a planning application for a Development of National Significance (DNS) for Elwy Solar Energy Farm on land at Gwernigron Farm, St Asaph, Denbighshire ("the Application Site").
- 1.2 The Test has been carried out in accordance with the process set out in Planning Policy Wales, Technical Advice Note 15: Development and Flood Risk. This document should be read in conjunction with the Sequential Analysis Study, which accompanies the application.

2.0 DEVELOPMENT PROPOSALS AND SITE CONTEXT

2.1 This report accompanies a planning application for the Elwy Solar Energy Farm. The main element of the proposal is the installation of a ground mounted solar farm to achieve a generating capacity of approximately 62MW, offering significant CO₂ savings during the operational life of the development. The electrical connection infrastructure also forms part of this planning application.

2.2 The proposed installation, as shown on the accompanying drawings, would consist of:

- Photovoltaic (PV) arrays (fixed panels);
- 25 Substations (40ft) positioned around the site;
- Exporting Substation;
- Battery Storage Compound;
- Boundary fencing;
- A CCTV system on c.3m high poles, located at strategic points around the site;
- Associated access tracks, this will include a permanent access track as well as a temporary construction only access track. The main site access will be into the south-eastern boundary of the site from St Asaph Road (A525). An additional access has been proposed into the north-eastern site boundary, this access is intended for use during the construction phase only;
- Storage container(s) for spare parts etc.;
- Relevant communications and monitoring equipment.

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- Underground cable connection to Bodelwyddan substation
- 2.3 A detailed description of the proposal is provided in the Planning Statement which accompanies this planning application.
- 2.4 Parts of the site fall within DAM Zone C1 being defined as an area at risk of flooding served by significant flood defence infrastructure. At the margins of Zone C1 on slightly elevated ground are areas defined as falling within Flood Zone B. The remainder of the site is defined as falling within Zone A.
- 2.5 Welsh Government's Technical Advice Note 15 (TAN 15), describes Zone C1 as **"Areas of the floodplain which are developed and served by significant infrastructure, including flood defences."** This indicates that **"development can take place subject to the application of the justification test, including acceptability of consequences."**

3.0 PLANNING POLICY CONTEXT

Denbighshire County Council Local Development Plan 2006-2021

- 3.1 The Denbighshire County Council Local Development Plan (LDP) was adopted on 4th June 2013 and provides a range of policies to influence development in Denbighshire. Objective 14 of the LDP states:- ***"The Local Development Plan will ensure that new developments are sustainable and of good quality design whilst taking into account the requirements of flood risk."***
- 3.2 The LDP goes on to confirm that:- ***"Development in Denbighshire also needs to ensure that it can adapt to the impacts of climate change, such as increased flood risk, extreme weather events and rise in sea levels, by ensuring that new development is located away from those areas that are susceptible to flooding. The use of sustainable drainage systems will be encouraged within all new development proposals."***
- 3.3 In terms of managing flood risk, Denbighshire's LDP states that:- ***"The use of Sustainable Drainage Systems (SuDS) to manage surface water flows can also be an important tool in minimising flood risk by increasing permeable surfaces in an area which allows water to seep into the ground rather than running off into the drainage system. The effective use of permeable surfaces, soakaways and water storage areas should be incorporated in all new development where technically possible. SuDS can also reduce the impact of diffuse pollution from runoff and flooding securing environmental, biodiversity and aesthetic benefits. Early consideration of SuDS is required in order that a range of techniques can be considered and developers are encouraged to enter into early discussions with the Council."***

Denbighshire County Council Renewable Energy Supplementary Planning Guide (SPG) (April 2016)

3.4 Details specifically relating to renewable energy projects are set out in the Denbighshire County Council Renewable Energy SPG, which helps to direct development to the most suitable areas. The SPG should be read in conjunction with the LDF as well as Welsh Government's published guidance.

3.5 Paragraph 7.12.4 states:- ***"In all cases, mitigation measures to minimise the potential of flood risk and surface water runoff should be applied, and in some cases a drainage report may be requested to ensure no increase in land runoff rates or modifications to local drainage patterns as a result of development may be required."***

Technical Advice Note (TAN) 15

3.6 TAN 15 (Development and Flood Risk)¹ ***"provides a framework within which risks arising from both river and coastal flooding, and from additional run-off from development in any location can be assessed."***

3.7 Additionally, TAN 15 explains that ***"where development has to be considered in high risk areas (Zone C) only those developments which can be justified on the basis of the tests outlined in section 6 and section 7 are located within such areas."*** These tests form the Flood Risk Justification Test.

3.8 A consultation version of TAN 15 (development, flooding and coastal

¹ <https://gov.wales/sites/default/files/publications/2018-09/tan15-development-flood-risk.pdf>

erosion)² was published in October 2019. Consultation on the revised TAN 15 (development, flooding and coastal erosion) was undertaken by Welsh Government between October 2019 and January 2020. The consultation version of TAN 15 (October 2019) has not yet been finalised and therefore does not replace the previous version of the document.

² <https://gov.wales/sites/default/files/consultations/2019-10/technical-advice-note-15-development-flooding-and-coastal-erosion.pdf>

4.0 FLOOD RISK JUSTIFICATION TEST

Category of the proposed development

- 4.1 TAN 15 recognises that where possible new development should be directed away from Zone C towards Zone A or Zone B where flooding will be less of an issue.
- 4.2 Paragraph 6.2 of TAN 15 confirms that: ***"In zone C the tests outlined in sections 6 and 7 will be applied, recognising, however, that highly vulnerable development and Emergency Services in zone C2 should not be permitted. All other new development should only be permitted within zones C1 and C2 if determined by the planning authority to be justified in that location."***
- 4.3 In order to clarify which category the proposals would be classified as, Figure 2 of TAN 15 identifies the vulnerability of different land uses from 'Highly Vulnerable' to 'Less Vulnerable' forms of development. Not all types of development fall within the categories identified and there is no reference to solar generation or any form of renewable energy. In figure 2 TAN 15 classifies '*especially vulnerable industrial development (e.g. power stations)*' as a Highly Vulnerable form of development.
- 4.4 TAN 15 was published in July 2004 prior to the increase in large scale solar farm developments. It is considered that TAN 15 does not currently account for the proposed type of development, and the '*especially vulnerable industrial development (e.g. power stations)*' referenced in Figure 2 is not applicable to the proposed large-scale solar development.
- 4.5 It is noted that within the October 2019 consultation version of TAN 15 (development flooding and coastal erosion), the vulnerability categories

have been redefined and the consultation document identifies 'renewable energy generation facilities' as 'less vulnerable development'.

4.6 Although the consultation version of TAN 15 defines the proposed development as 'less vulnerable development' this version of TAN 15 has not yet replaced the 2004 published version. Therefore, as the proposed development is not classified within the current version of TAN 15, this section seeks to determine the classification of the proposed development based on the site characteristics reviewed against the development descriptions set out in TAN 15.

4.7 TAN 15 (paragraph 5.2) confirms: ***"Highly vulnerable development describes development where the ability of occupants to decide on whether they wish to accept the risks to life and property associated with flooding, or be able to manage the consequences of such a risk, is limited. It also includes those industrial uses where there would be an attendant risk to the public and the water environment should the site be inundated."***

4.8 A review of the above definition of 'Highly Vulnerable' development confirms that the proposed development would not be classed as 'Highly Vulnerable' based on the following reasons:

- Due to the nature of the proposed development, once operational the site will be unmanned with only c.10-20 routine maintenance visits per year. Therefore, there will be no occupants based on site and no one will need to decide whether they wish to accept the risks to life and property associated with flooding.
- The panels are inert and in the event of flooding they would not represent a safety risk.

- Mitigation measures have been proposed, all containers and other equipment will be placed on concrete slabs and raised off the ground. The solar panel edges and vulnerable infrastructure will be raised by 300mm above the predicted 1 in 100 year +30% flood levels in the event of a breach of the earth embankments on the Afon Elwy. The measures would also serve to mitigate the risk of flooding from a reservoir breach or groundwater flooding.
- There are a number of solar farms operating within areas at risk of flooding, which act as a precedent for the proposed development.
- The proposed development doesn't require hazardous or toxic substances which could potentially be a risk to the public.

4.9 Based on the description of the proposal set out in chapter 2 of this report and the above characteristics of the site, it is considered that the proposed development should be classified as a 'Less Vulnerable' form of development. TAN 15 (Figure 2) identifies 'General Industrial' and 'Utilities Infrastructure' as 'Less Vulnerable Development', it is considered that the proposed development should also be classed as 'Less Vulnerable' development. This is also consistent with the consultation version (October 2019) of TAN 15 which defines 'renewable energy generation facilities' as 'Less Vulnerable' development.

Justifying the location of development

4.10 Section 6 of Tan 15 refers to 'Justifying the location of development' and paragraph 6.2 confirms that ***"New development should be directed away from zone C and towards suitable land in zone A, otherwise to zone B, where river or coastal flooding will be less of an issue...All other new development should only be***

permitted within zones C1 and C2 if determined by the planning authority to be justified in that location."

- 4.11 A Sequential Analysis Study has been prepared and submitted to accompany this planning application. The Sequential Analysis Study establishes whether there is a sequentially preferable site than the proposed application site which would be capable of accommodating the proposed development. The Sequential Analysis Study confirms that there is no available previously development land and there is no available/deliverable land of a lower agricultural grade, explaining why the proposed development must be sited in the proposed location. Within the area in which an economically viable grid connection for the proposed development is achievable lower quality agricultural land typically aligns with areas of greater risk of flooding.

Findings of the Flood Consequences Assessment

- 4.12 Paragraph 7.4 of TAN 15 confirms that ***"before deciding whether a development can take place an assessment, which examines the likely mechanisms that cause the flooding, and the consequences on the development of those floods, must be undertaken, which is appropriate to the size and scale of the proposed development."*** The Flood Consequences Assessment will assess whether suitable mitigation measures are proposed to ensure that the development is as safe as possible.
- 4.13 A Flood Consequences Assessment has been carried out and has been submitted as part of this planning application. The Flood Consequences Assessment considers the flood risk to the site in accordance with TAN 15. The Assessment addresses the concerns relating to the potential flood risk associated with the proposed development.

- 4.14 The Assessment has been prepared in consultation with Natural Resources Wales (NRW) who provided advice on preparing the Flood Consequences Assessment.
- 4.15 The Flood Consequences Assessment confirms that by raising the panels and vulnerable infrastructure by 300mm above the predicted 1 in 100 year +30% flood levels the risk to the proposed site would be mitigated even in the unlikely event of a severe breach of the existing flood defences or reservoir failure. The Flood Consequences Assessment concludes that the proposals will be safe from all forms of flooding and provide betterment in terms of downstream flood risk and pollution therefore meeting the aims of TAN 15.

5.0 CONCLUSIONS

- 5.1 This document provides a Flood Risk Justification Test as set out within TAN 15 of Planning Policy Wales.
- 5.2 This report confirms that the proposed development is not considered to be a 'highly vulnerable' form of development in accordance with the definitions set out in TAN 15. The proposed development is considered to represent a 'less vulnerable' form of development. Additionally, a consultation version of TAN 15 was published in October 2019 and this draft document identifies 'renewable energy generation facilities' as 'less vulnerable development'. 'Less vulnerable' forms of development are permitted in flood zones C1 and C2 providing that they are determined by the planning authority as justified in these areas.
- 5.3 The submitted Sequential Analysis Study explains that the proposed site is the most suitable land for the proposed development.
- 5.4 A Flood Consequences Assessment has also been completed to support this planning application. The Flood Consequences Assessment concludes that the proposals will be safe from all forms of flooding and provide a betterment in terms of downstream flood risk and pollution. The risk of flooding will be appropriately mitigated through raising the solar panel edges and vulnerable infrastructure by 300mm above the predicted 1 in 100 year +30% flood levels in the event of a breach of the earth embankments on the Afon Elwy. The measures would also serve to mitigate the risk of flooding from a reservoir breach or groundwater flooding.
- 5.5 Overall, the proposals demonstrate that the development is justified as well as safe in the proposed location.