

**PROPOSED SOLAR ARRAY
AT MOULTON BULB CO. LTD
LONG LANE, MOULTON
SPALDING, PE12 6PP
FLOOD RISK ASSESSMENT**

**FOR
SOLAR ADVANCED SYSTEMS LTD**

15th November 2022

Report No.: 5153 FRA

P01

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1. Introduction and Brief

This report has been prepared for Solar Advanced Systems Ltd to assess Flood Risk for the proposed solar array at Moulton Bulb Co. Ltd, Long Lane, Moulton, Spalding, PE12 6PP. The proposal is to construct a photovoltaic (PV) array within an enclosure equating to approximately 1.98ha.

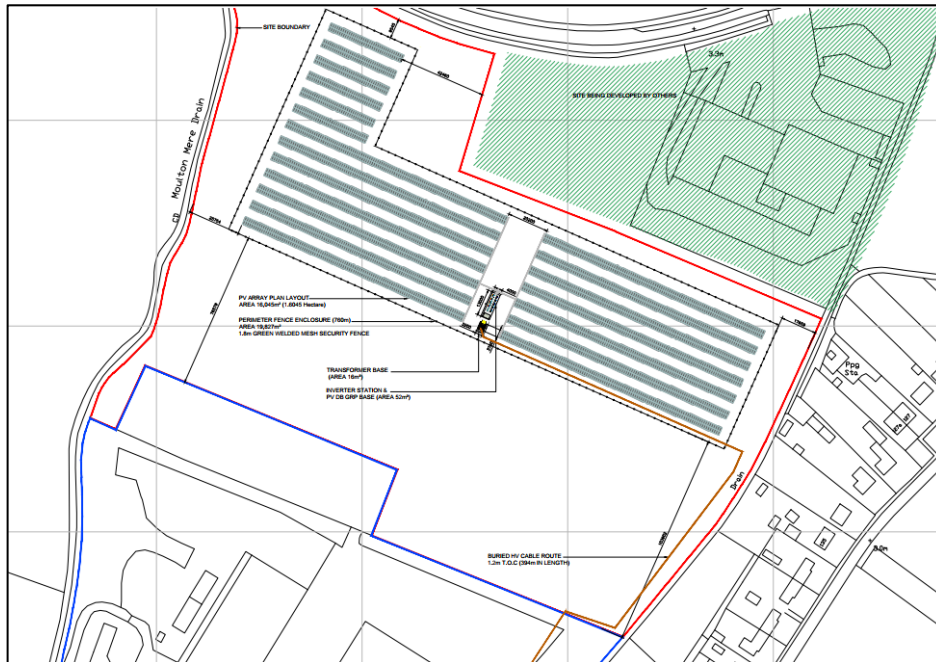


Figure 1.1 – Development Proposals – full drawings within Appendix 1

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2. Existing Site Conditions

2.1 Location

The development site is located at Moulton Bulb Co. Ltd, Long Lane, Moulton, Spalding, PE12 6PP. The British National Grid Reference is: E: 529735, N: 323416. The figures below show the site in the wider area, more locally and then an aerial image to show the site in its current context.

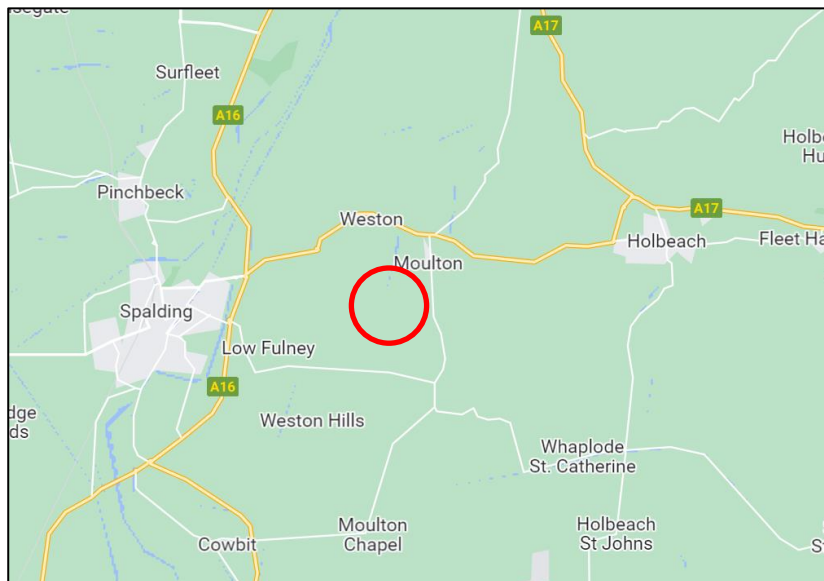


Figure 2.1 – Site location general area. Location shown by red circle. © Google Maps

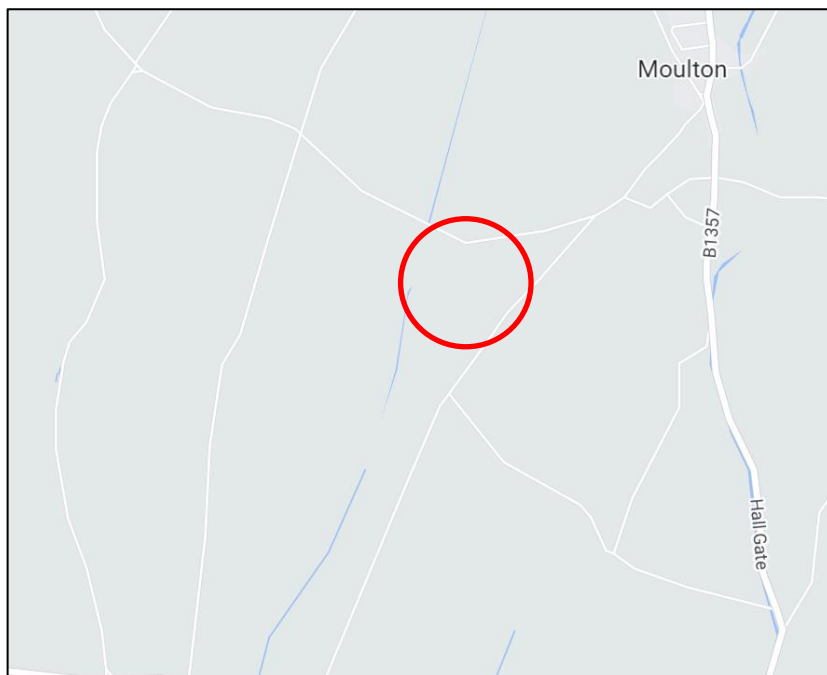


Figure 2.2 – Site Location shown by red circle. © Google Maps

The following aerial image provides additional information about the context of the site and surrounding areas.



Figure 2.3 – Aerial image of site © Google Maps. Approximate site boundary shown in red.

The site is currently undeveloped. It is bounded by the Moulton Bulb Co. Ltd to the south, Peloton Produce to the north east, Whaplode River to the west and residential dwellings to the east.

3. Proposed Development

The proposal is to construct a photovoltaic (PV) array within an enclosure equating to approximately 1.98ha. The figure below shows the Architect's current proposals.

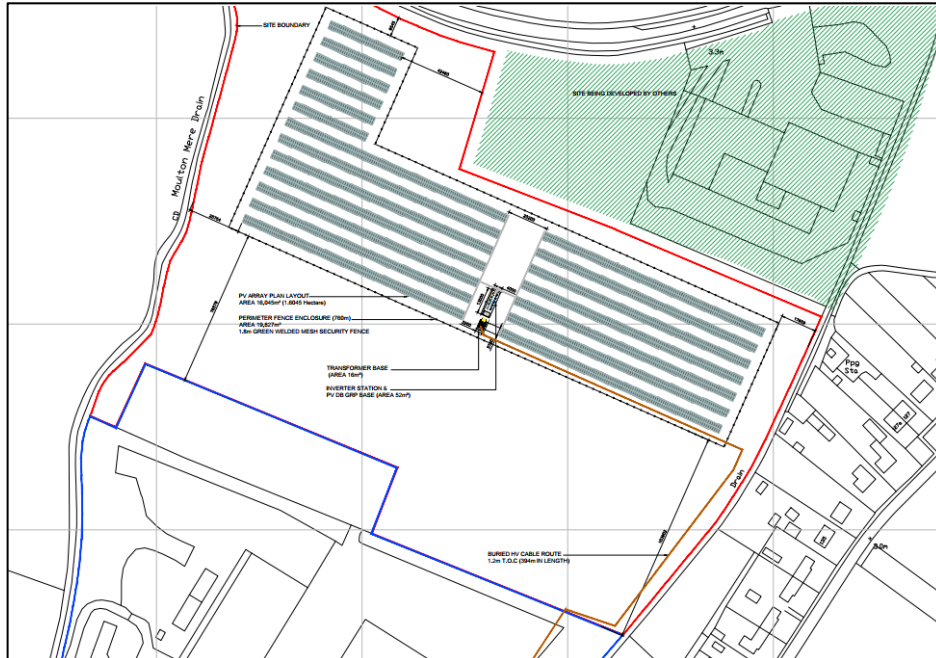


Figure 3.1 – Proposed Site Plan – full drawing within Appendix 1.

4. Flood Risk

This Flood Risk Assessment (FRA) is based on the guidance provided within the NPPF and accompanying Planning Practice Guidance (PPG).

4.1 Criteria

As according to the PPG, a site typically requires a specific detailed FRA where the total site area is greater than 1ha or the site is found to be at risk of flooding.

The site is greater than 1ha and, therefore, an FRA is required, regardless of whether the site is within a Flood Risk Zone.

Therefore, the site has been assessed for Flood Risk using the following hierarchy:

- Level 1 can be described as a screening study to identify whether any flood issues should be considered. The purpose of a Level 1 FRA is to determine:
 - the potential flooding hazards which may pose a risk to the development, or which the development may affect so as to increase flood risk elsewhere;
 - whether the proposed development may obstruct access to watercourses or flood defences or affect the integrity of a flood defence; and
 - whether the development may lead to an increase in runoff.
- Level 2 can be described as a scoping study to follow on from a Level 1 assessment. The study should include the following:
 - an assessment of the availability and adequacy of existing information;
 - a qualitative assessment of the flood risk to the site,
 - the impact of the site on flood risk elsewhere;
 - and an assessment of the possible scope for appropriate development design and to scope additional work required.
- Level 3 can be described as a detailed study to follow on from a Level 2 assessment and should include a quantitative assessment of the potential flood risk to the development; a quantitative assessment of the potential impact of the development site on flood risk elsewhere; and a quantitative demonstration of the effectiveness of any proposed mitigation measures.

Flooding can occur from a range of individual and/or a combination of sources that include fluvial (main river), tidal (sea), land, groundwater, sewers, infrastructure, reservoirs and other artificial sources.

Therefore, each potential source of flooding on the site has been considered in further detail below.

4.2 Flood Risk Zones

The PPG defines a number of flood zones based on the probability of flooding, and provides guidance on the most appropriate form of development within each zone. The flood risk is summarised below:

Table 4.1 – Flood Zone Definitions

Flood Zone	Definition
Zone 1 – Low Probability	Land having a less than 1 in 1000 annual probability of river or sea flooding.
Zone 2 – Medium Probability	Land having between 1 in 100 and 1 in 1000 annual probability of river flooding, or land having between 1 in 200 and 1 in 1000 annual probability of sea flooding.
Zone 3a – High Probability	Land having a 1 in 100 or greater annual probability of river flooding, or Land having a 1 in 200 or greater annual probability of sea flooding.
Zone 3b – The Functional Floodplain	This zone comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessment (SFRA) areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency.

4.3 Tidal and Fluvial Flooding

A review of the Environment Agency's online mapping tool has also identified that the development site is predominantly within Flood Zone 1, an area with a low probability of flooding from Rivers and Sea. It can be seen below that the site boundary shows minor encroachment into Flood Zone 2, although it should be noted that there is to be no development within this area.

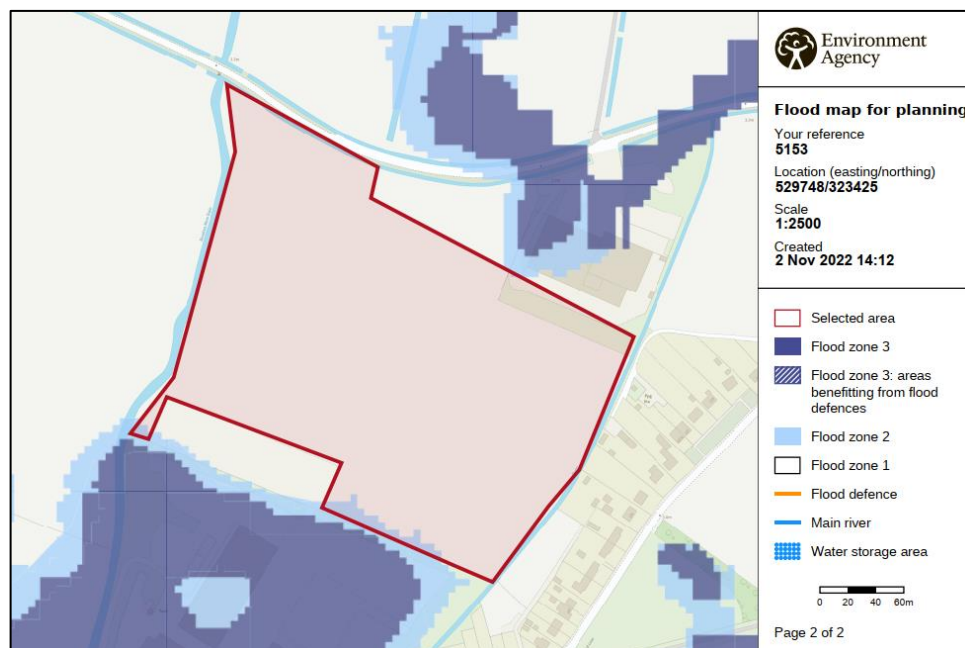


Figure 4.1 – Extract of Environment Agency's Flood Map for Planning (boundary is approximate)

Flood Zone 1 comprises land assessed as having a <0.1% (1 in 1000) AEP of flooding from rivers or sea. Therefore, the risk of flooding from Fluvial or Tidal Sources is considered to be negligible.

4.4 The Sequential Test

The NPPF requires that a risk based Sequential Test should be applied at all stages of planning with the aim of steering new development to areas at the lowest probability of flooding (Zone 1).

The proposed development is located entirely within Flood Zone 1 and as such it is considered to satisfy the Sequential Test.

4.5 Vulnerability Classification

Annex 3 of the NPPF indicates that solar farms are classified as “essential infrastructure”.

Table 3 of the NPPF includes a list of appropriate land uses in each flood zone dependant on vulnerability to flooding. In applying the Sequential Test, reference is made to Table 3 of the NPPF below.

Table 4.2 – Flood Risk Vulnerability and Flood Zone ‘Compatibility’

Flood Risk Vulnerability Classification		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Zone1	Development is appropriate	Development is appropriate	Development is appropriate	Development is appropriate	Development is appropriate
	Zone 2	Development is appropriate	Development is appropriate	Exception Test Required	Development is appropriate	Development is appropriate
	Zone 3a	Exception Test Required	Development is appropriate	Development should not be permitted	Exception Test Required	Development is appropriate
	Zone 3b Functional Floodplain	Exception Test Required	Development is appropriate	Development should not be permitted	Development should not be permitted	Development should not be permitted

As noted within Table 4.2, the development should be deemed appropriate without further assessment of flood risk.

4.6 Flooding from the Land

Although the site should be considered appropriate, the risk of flooding from surface water has been assessed to provide a robust approach.

Intense rainfall, often short duration, that is unable to soak into the ground or enter a drainage system can quickly run off the land and result in localised flooding. Local topography and buildings can influence the direction and depth of flow. It is inevitable that as a result of extreme rainfall, the capacities of existing sewers, surface water attenuation features and other drainage systems will be exceeded on occasion.

The Environment Agency website provides surface water flood risk information based on information provided by the Lead Local Flood Authority. This highlights areas at risk from surface water flooding from overland flows.

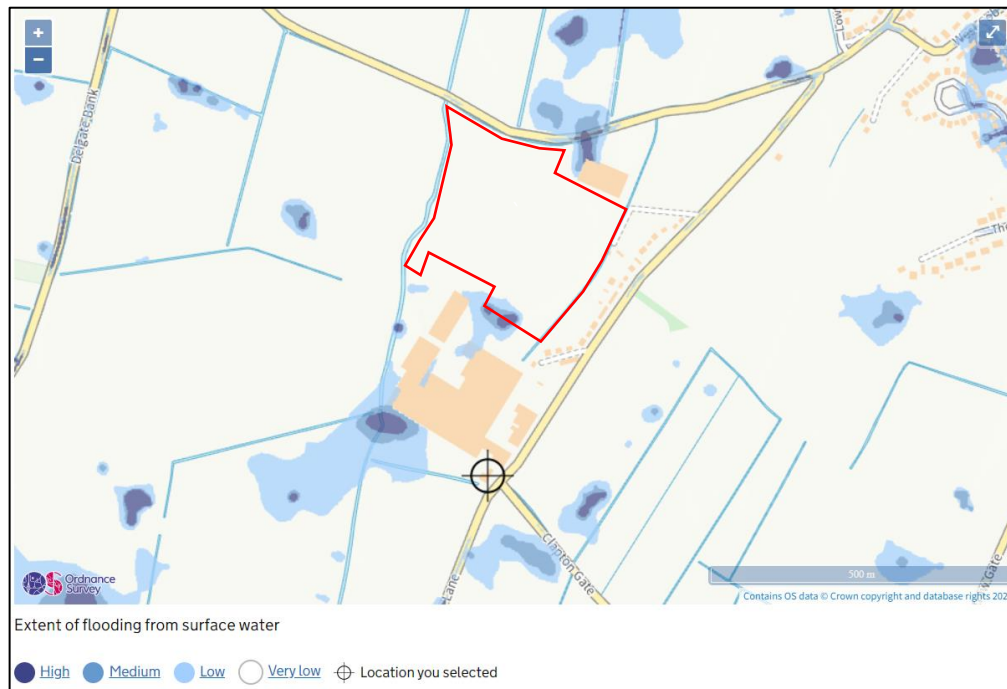


Figure 4.2 – Extract of Environment Agency Surface Water Flood Map (Extents of Flooding) (site boundary is approximate)

It is evident from the previous extract that the development area is at very low risk of flooding from surface water. Very low risk is defined as a probability of flooding of less than 0.1%.

4.7 Flooding from Reservoirs and other Artificial Sources

Non-natural or artificial sources of flooding can include reservoirs, canals and lakes, where water is retained above natural ground level. Reservoir or canal flooding can occur as a result of the facility being overwhelmed and or as a result of dam or bank failure. The latter can happen suddenly resulting in rapidly flowing, deep water that can cause significant threat to life and major property damage.



Figure 4.3 – Extract of Environment Agency Reservoir Flood Map (Extents of Flooding) (site boundary is approximate)

As identified within the previous extract, a small portion of the site is at risk of flooding from reservoir failure. However, this area is not proposed for development. Therefore, the risk is considered low.

4.8 Flood Risk Summary

This site has been assessed in accordance with the guidance provided within the NPPF, accompanying Planning Practice Guidance (PPG).

Accordingly, the potential flood risk to the proposed development site has been summarised below:

Fluvial flood risk	Low Risk
Tidal flood risk	Low Risk
Flooding from the land	Low Risk
Flooding from artificial sources	Low Risk

Having considered the potential sources of flooding, all have been identified as having a low risk to the development site.

5. Conclusions

This document has been produced in accordance with current best practice and recommendations and guidance set out in the National Planning Policy Framework (NPPF).

The report concludes:

- The site is currently undeveloped. It is bounded by the Moulton Bulb Co. Ltd to the south, Peloton Produce to the north east, Whaplode River to the west and residential dwellings to the east.
- A review of the Environment Agency's online mapping tool has also identified that the development site is within Flood Zone 1, an area with a low probability of flooding from Rivers and Sea.
- It is evident from the previous extract that the development area is at very low risk of flooding from surface water. Very low risk is defined as a probability of flooding of less than 0.1%.
- The proposal is to construct a photovoltaic (PV) array within an enclosure equating to approximately 1.98ha.
- It is evident that the development should be considered appropriate when considering flood risk.

Appendix 1 – Proposed Site Plan



This drawing is property of SAS ENERGY Ltd. No attempt should be made to copy or re-sell the drawing without prior written authorisation by the Managing Director.
This drawing is not to be scaled - written dimensions only to be used. Plan drawings indicative for reference only.

Notes:



REV	REVISION DETAIL	BY	APV	DATE



JOB
MOULTON BULB CO. LTD
LONG LANE, MOULTON
SPALDING. PE12 6PP

TITLE
PROPOSED SITE PLAN

STATUS
FOR PLANNING

DRAWN/CHKD
NT

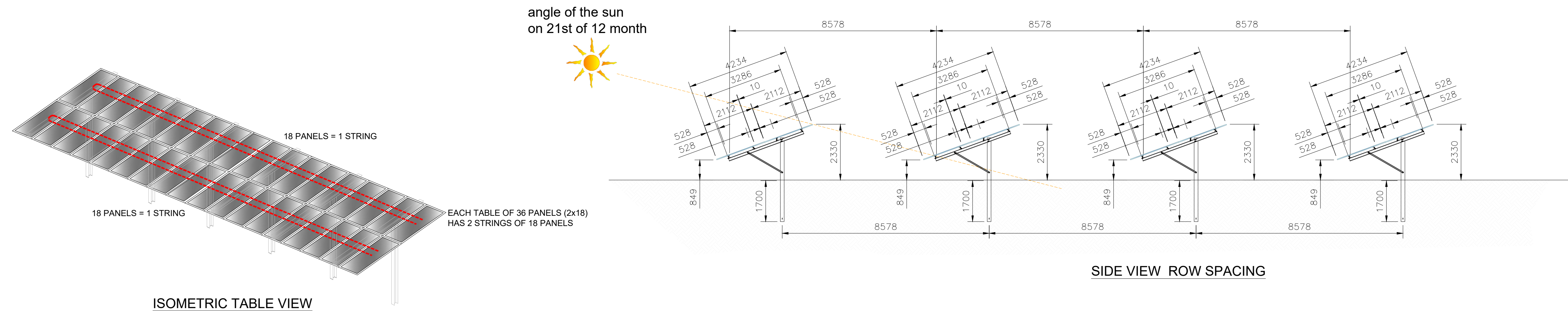
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26.9.2022

SCALE
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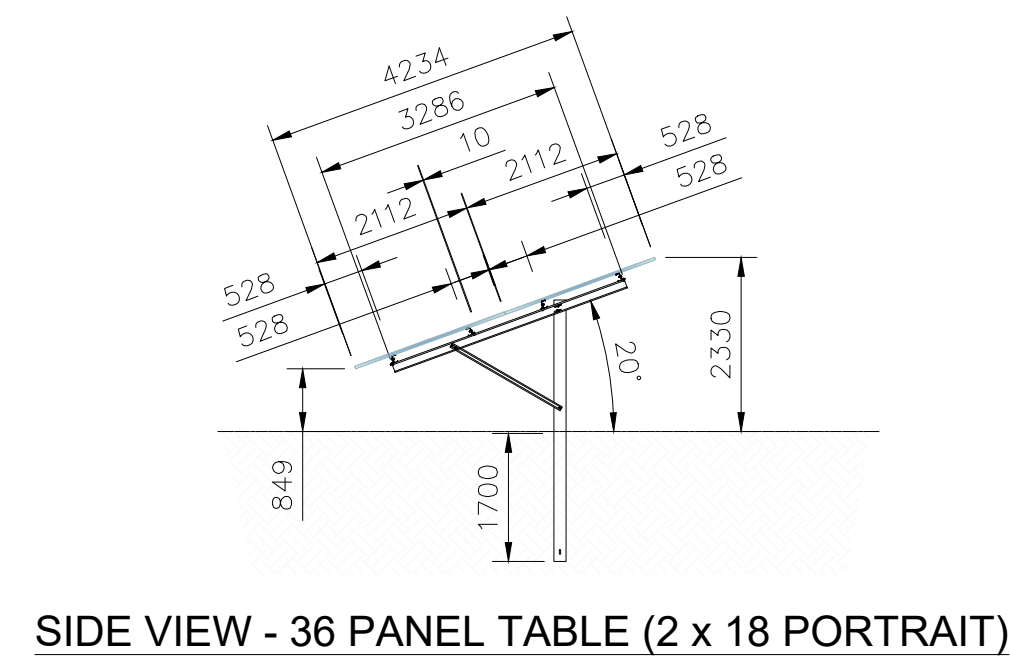
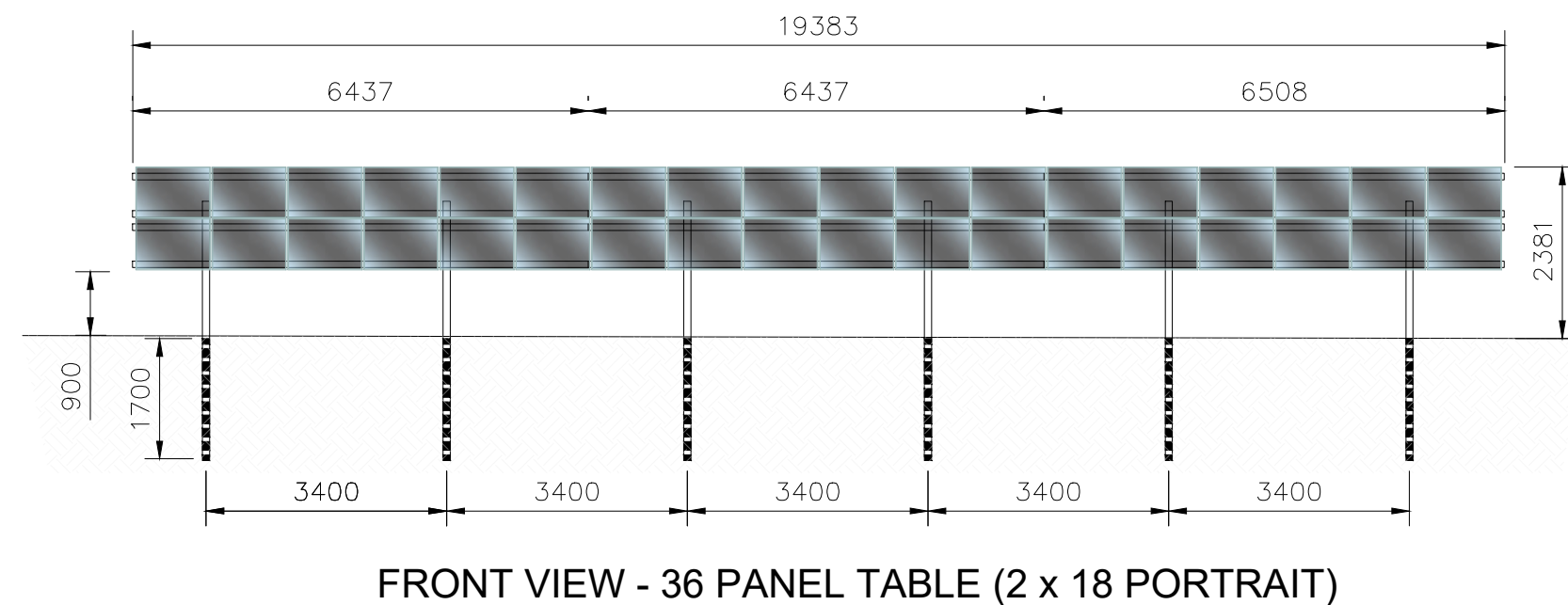
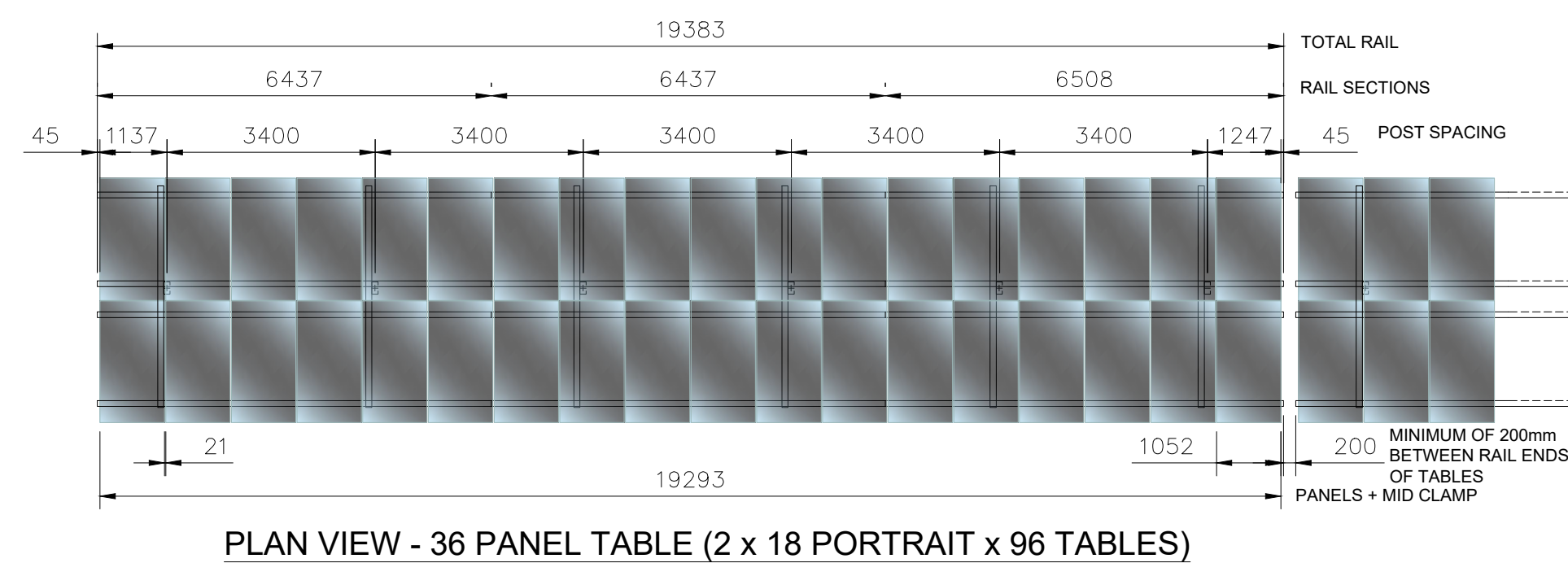
DRAWING No.
SOLDOM11813 PSP

REV

Notes:



GROUND ARRAY IMAGES



REV	REVISION DETAIL	BY	APV	DATE

SAS ENERGY

CLIENT



JOB

MOULTON BULB CO. LTD
LONG LANE, MOULTON
SPALDING. PE12 6PP

TITLE

PV ARRAY FRAMING
DETAILS

STATUS

FOR PLANNING

DRAWN/CHKD	DATE	SCALE
NT	26.9.2022	1:100 @ A1

DRAWING No.	REV
SOLDOM11813 PVAFD	

Appendix 2 – Environment Agency Flood Map for Planning

Flood map for planning

Your reference
5153

Location (easting/northing)
529748/323425

Created
2 Nov 2022 14:12

Your selected location is in flood zone 2, an area with a medium probability of flooding.

This means:

- you must complete a flood risk assessment for development in this area
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (see www.gov.uk/guidance/flood-risk-assessment-standing-advice)

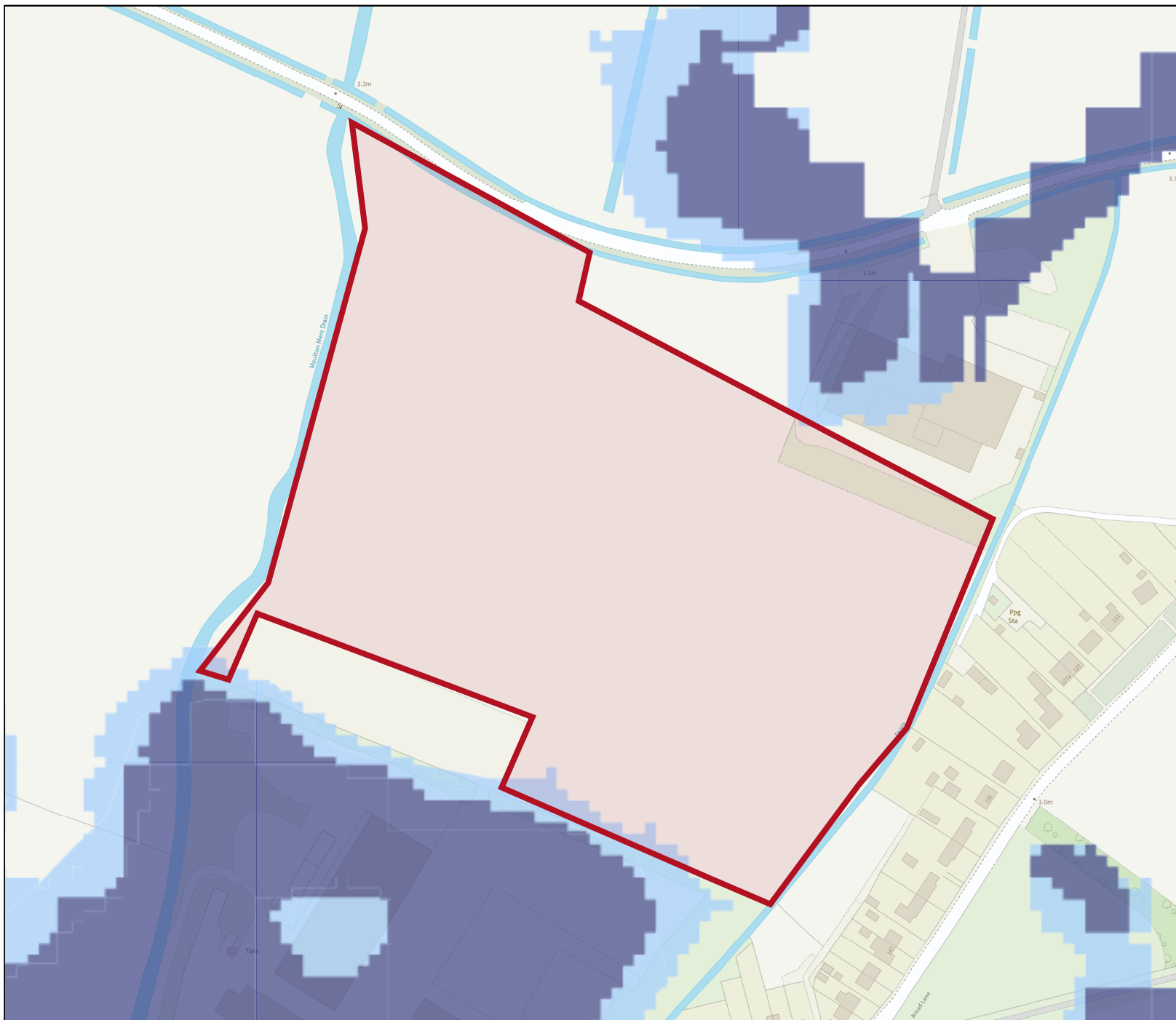
Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2021 OS 100024198. <https://flood-map-for-planning.service.gov.uk/os-terms>



Flood map for planning

Your reference
5153

Location (easting/northing)
529748/323425

Scale
1:2500

Created
2 Nov 2022 14:12

-  Selected area
-  Flood zone 3
-  Flood zone 3: areas benefitting from flood defences
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area

