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VineMAP Report

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Reference:	8873
Date:	9 April 2019

Products:

1. **Topographic suitability & grading**
2. Soil suitability information
3. Landcover suitability and designated 'protected' areas
4. Cold air flow and accumulation/frost risk areas
5. Flood risk
6. Recent climate
7. Frost risk
8. Future climate

Area coverage:	64.8 hectares (ha)
Location:	Pulborough, England, United Kingdom
National Grid reference:	TQ 50 220

Report description:

This report was generated using Vinescapes' Vineyard suitability Mapping and Assessment Platform (VineMAP), powered by maploom. Maps, data, scoring and results within this report are provided to assist in viticulture suitability assessments. Where serious consideration is being given to establishing a vineyard on land evaluated within this report professional expertise should be sought from Vinescapes to advise on and undertake additional analysis. This includes detailed soil assessments, site and soil amelioration requirements, vineyard design, variety and planting material recommendations, business planning and project management. This report should not be relied on as the sole determinant for viticulture suitability, vineyard establishment or wine production business ventures.

Site Overview – Pulborough, England, United Kingdom

Results summary

Variable	Suitability score	Suitable area (ha)
Topography	2.2/20	9.2
Elevation	11.7/20	45.8
Aspect	4.5/20	22.0
Slope	12.4/20	51.6
Soil	Undetermined	Undetermined
Landcover		-
Protected status		-
Suitable vineyard area		-

Site Overview: Access

Resolution:
Data source: Ordnance Survey

Topographic suitability criteria for cool-climate viticulture

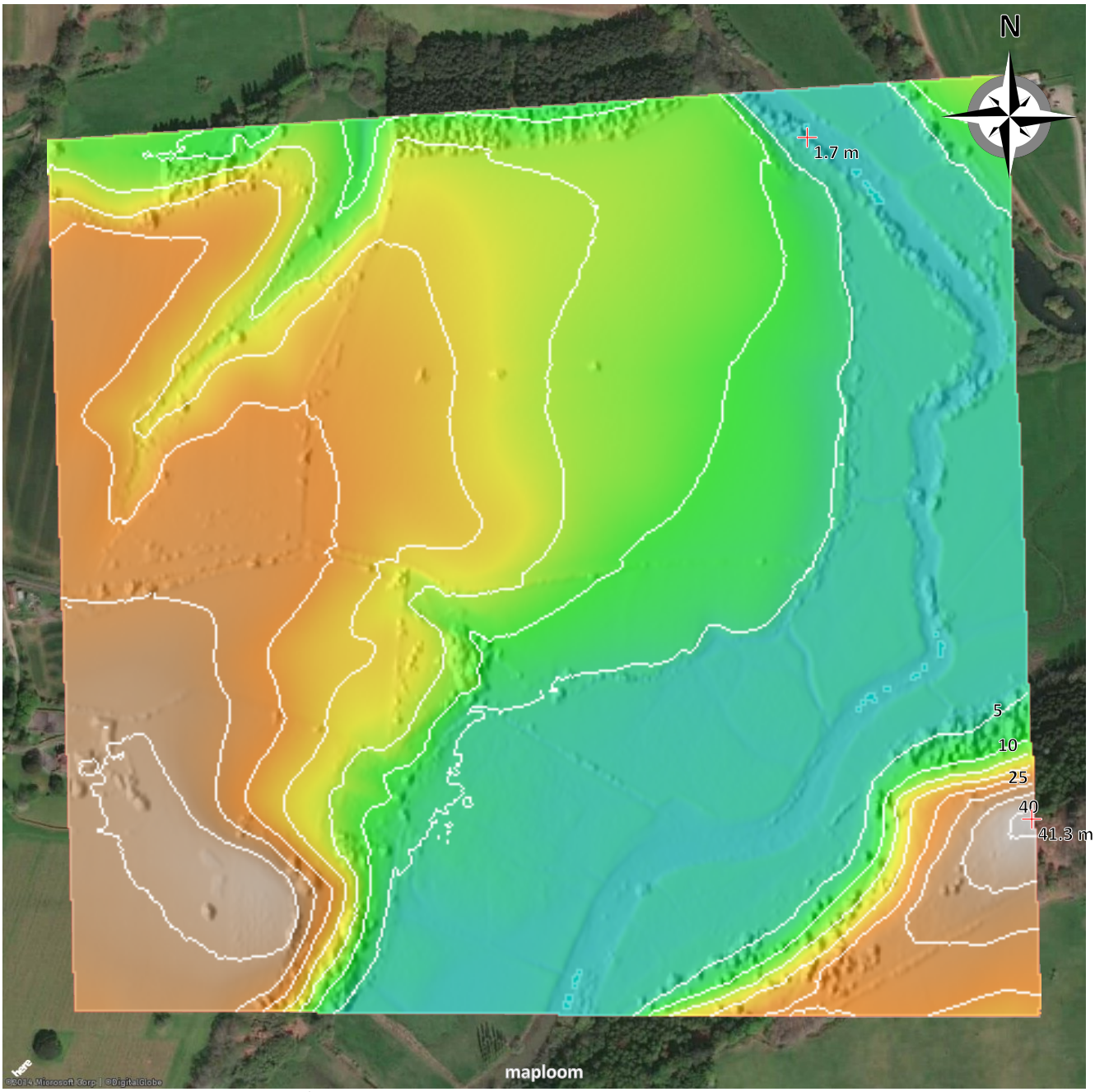
Elevation: Vineyards in England and Wales are best sited below 100 and not above 150m, with between 25 – 75m being the preferred range. Elevation suitability is restricted by decreasing temperatures at higher altitudes and the greater potential for wind exposure where the surrounding terrain does not afford shelter. Both these variables can reduce yield and quality parameters which in turn may threaten commercial viticulture viability.

Aspect: At higher latitudes south facing slopes (in the northern hemisphere) have greater direct solar radiation gain potential due to their reduced angle of incidence (the angle between the sun's beam and an imaginary line perpendicular to the slope), particularly during the ripening period when the sun is higher in the sky. They are also conducive to reducing the lag phase during which a site heats up and dries out after a cold night. All else being equal such slope aspects are favourable to both yield and grape berry quality parameters. South-westerly facing slopes are at a higher risk of exposure to prevailing south westerly winds.

Slope: Optimum slopes for viticulture are 5 – 10%. The potential for mechanical vineyard-management activity becomes limited on slopes greater than 10% and erosion risk increases. Below 1% there is an increased risk of cold air accumulation and potential frost damage.

Elevation and contour map

Resolution: 2m, Contour spacing: 5m
Data source: LiDAR Digital Terrain Model



Elevation suitability for English and Welsh vineyards is between 5 – 150m.

However, for land above 125m please contact the Vinescapes for additional advice.

Elevation range: 1.7 - 41.3m

Elevation (m)	Score	Area (ha)
< 5	0/20	19.0
5-20	15/20	32.1
25-75	20/20	13.7
75-100	10/20	0.0
100-125	5/20	0.0
125-150	0/20	0.0

Elevation legend

- 1.7-8.3 m
- 9.6-16.2 m
- 17.6-24.2 m
- 25.5-32.1 m
- 33.4-40.0 m
- 41.3-47.9 m

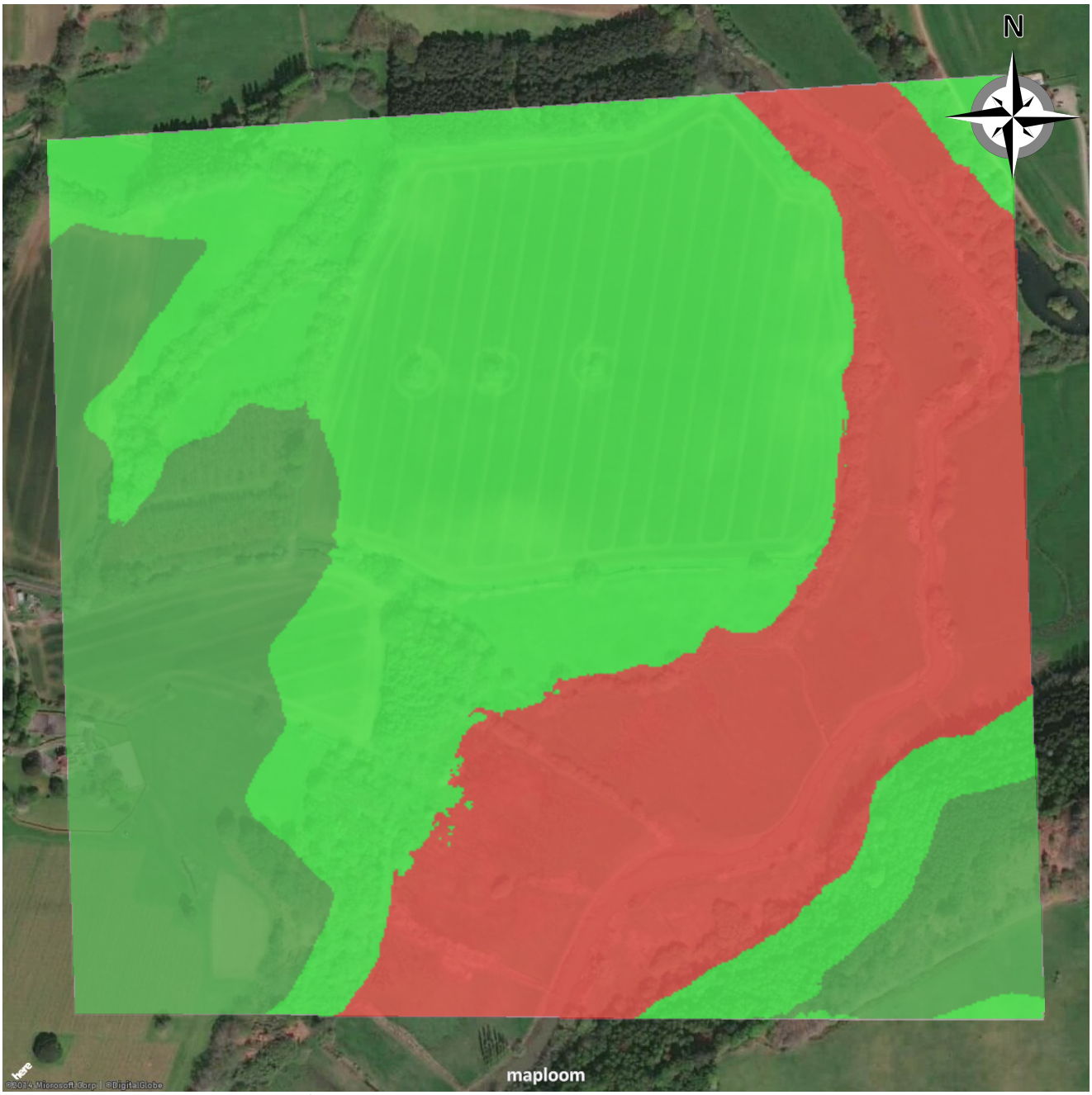
Suitable area: 45.8 ha

Area average elevation suitability score: 11.7/20

Elevation Suitability map

Resolution: 2m
Data source: LiDAR Digital Terrain Model

0 m — 400 m



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25-75	20/20	13.7
75-100	10/20	0.0
100-125	5/20	0.0
125-150	0/20	0.0

Suitability legend

0 Least
5
10
15
20 Most

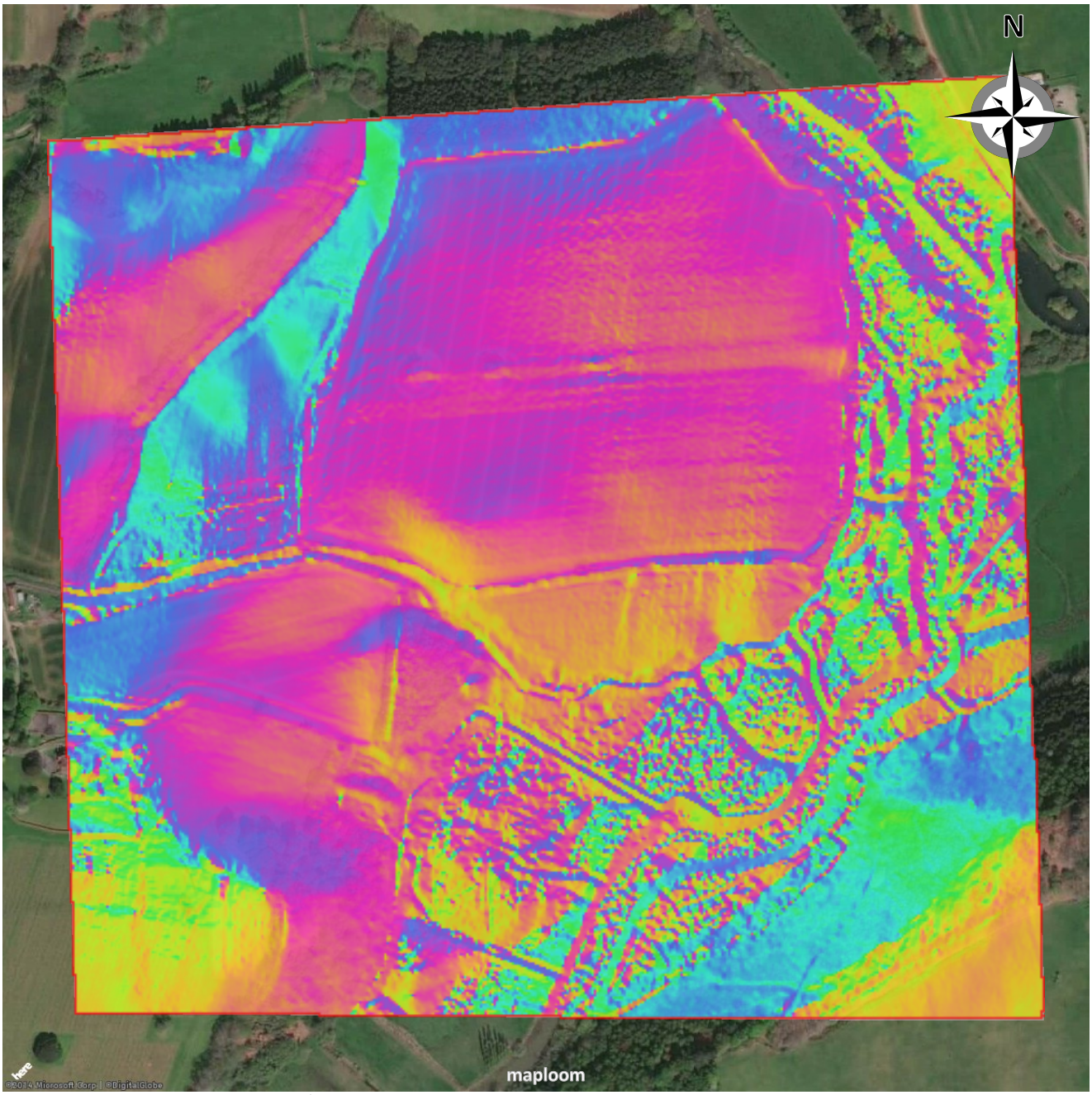
Suitable area: 45.8 ha

Area average elevation suitability score: 11.7/20

Aspect map

Resolution: 2m
Data source: LiDAR Digital Terrain Model

0 m 400 m



Aspect suitability for English and Welsh vineyards is southerly, between 90° – 270° (East – West).

For specialist advice on land with other aspects please contact the Vinescapes.

*higher scores can be awarded if the land is not exposed to prevailing south-westerly winds.

Aspect range: 0.0-360.0 degrees

Aspect (°)	Score	Area (ha)
< 90	0/20	18.3
90-125	15/20	6.1
125-180	20/20	6.9
180-225	10/20*	3.6
225-270	5/20*	5.4
> 270	0/20	24.5

Suitable area: 22.0 ha

Area average aspect suitability score: 4.5/20

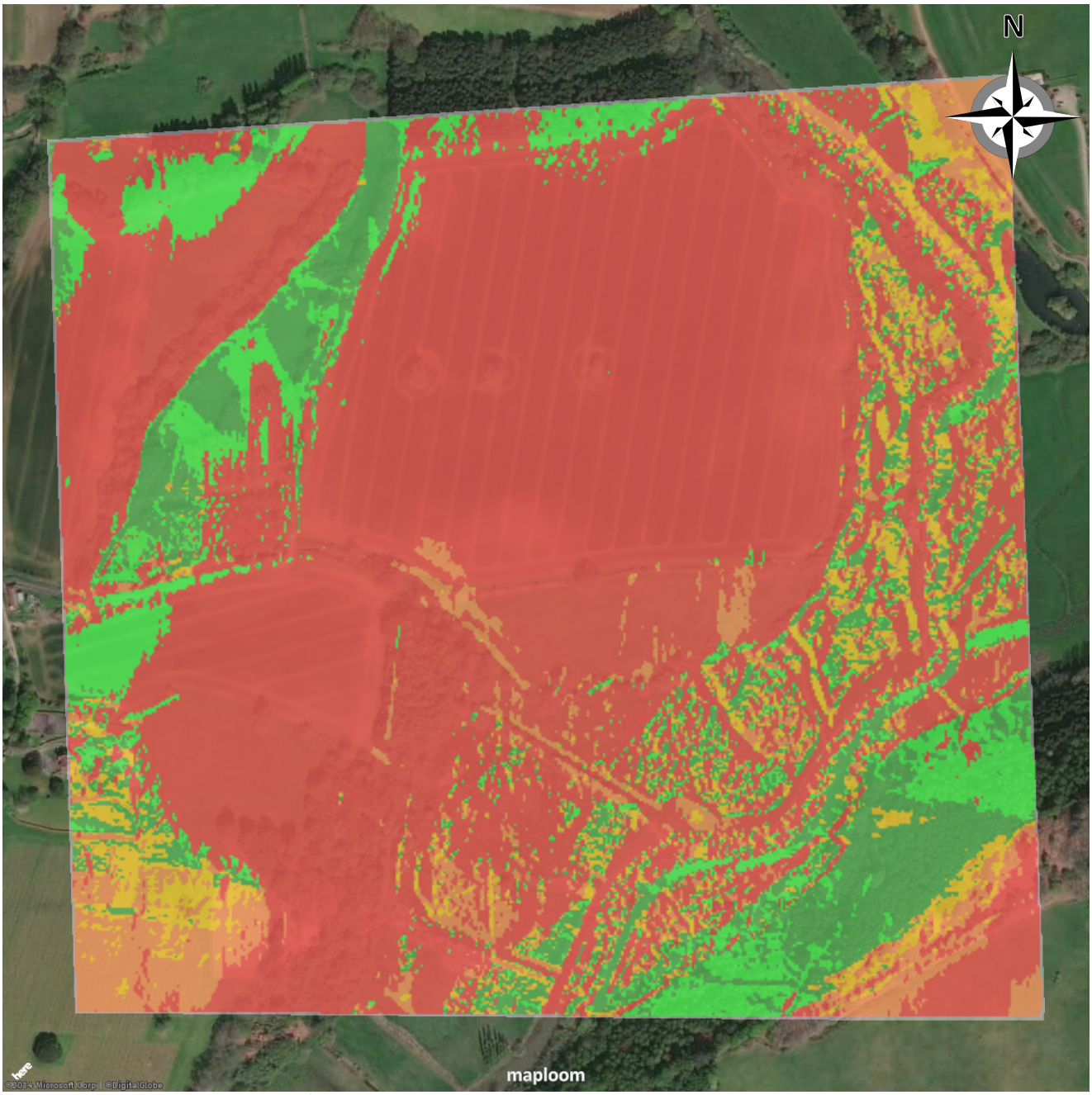
Aspect (degrees)

0
90
135
180
225
270
360

Aspect Suitability map

Resolution: 2m
Data source: LiDAR Digital Terrain Model

0 m — 400 m



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225-270	5/20*	5.4
> 270	0/20	24.5

Suitability legend

0 Least
5
10
15
20 Most

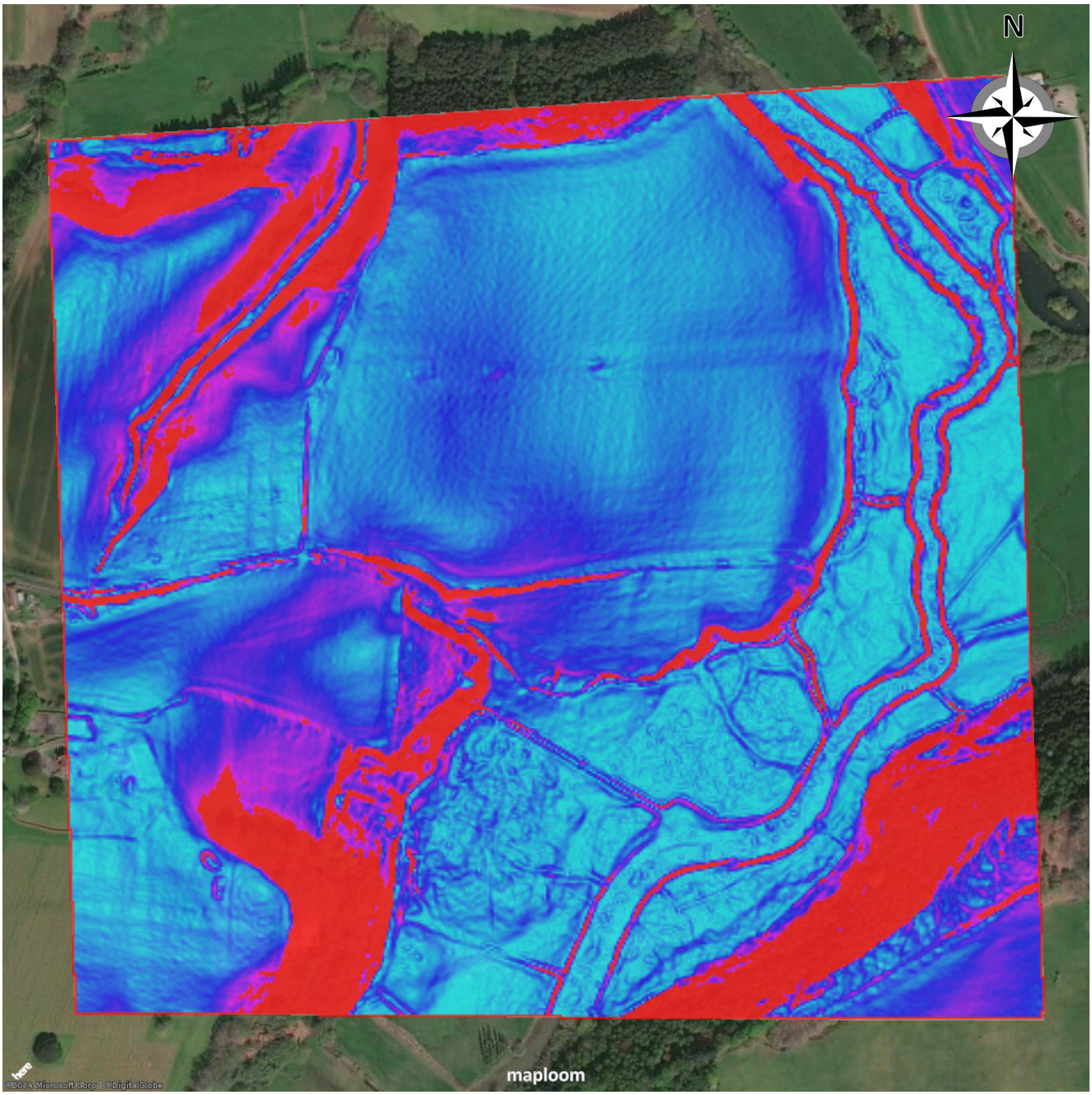
Suitable area: 22.0 ha

Area average aspect suitability score: 4.5/20

Slope map

Resolution: 2m
Data source: LiDAR Digital Terrain Model

0 m 400 m



Slope suitability for English and Welsh vineyards is between 1 – 15% (~0.5 – 8.5 degrees).

For advice on land with a flatter or steeper slope please contact the Vinescapes.

* Vineyard sites with such steep slopes can be dangerous and specialist equipment or terracing may be required.

Slope range: 0.0-40.8%

Slope (%)	Score	Area (ha)
< 1	0/20	8.0
1-5	15/20	35.4
5-10	20/20	12.0
10-12.5	10/20	2.5
12.5-15	5/20*	1.7
> 15	0/20	5.2

Slope (percent rise)

0.0%
5.0%
10.0%

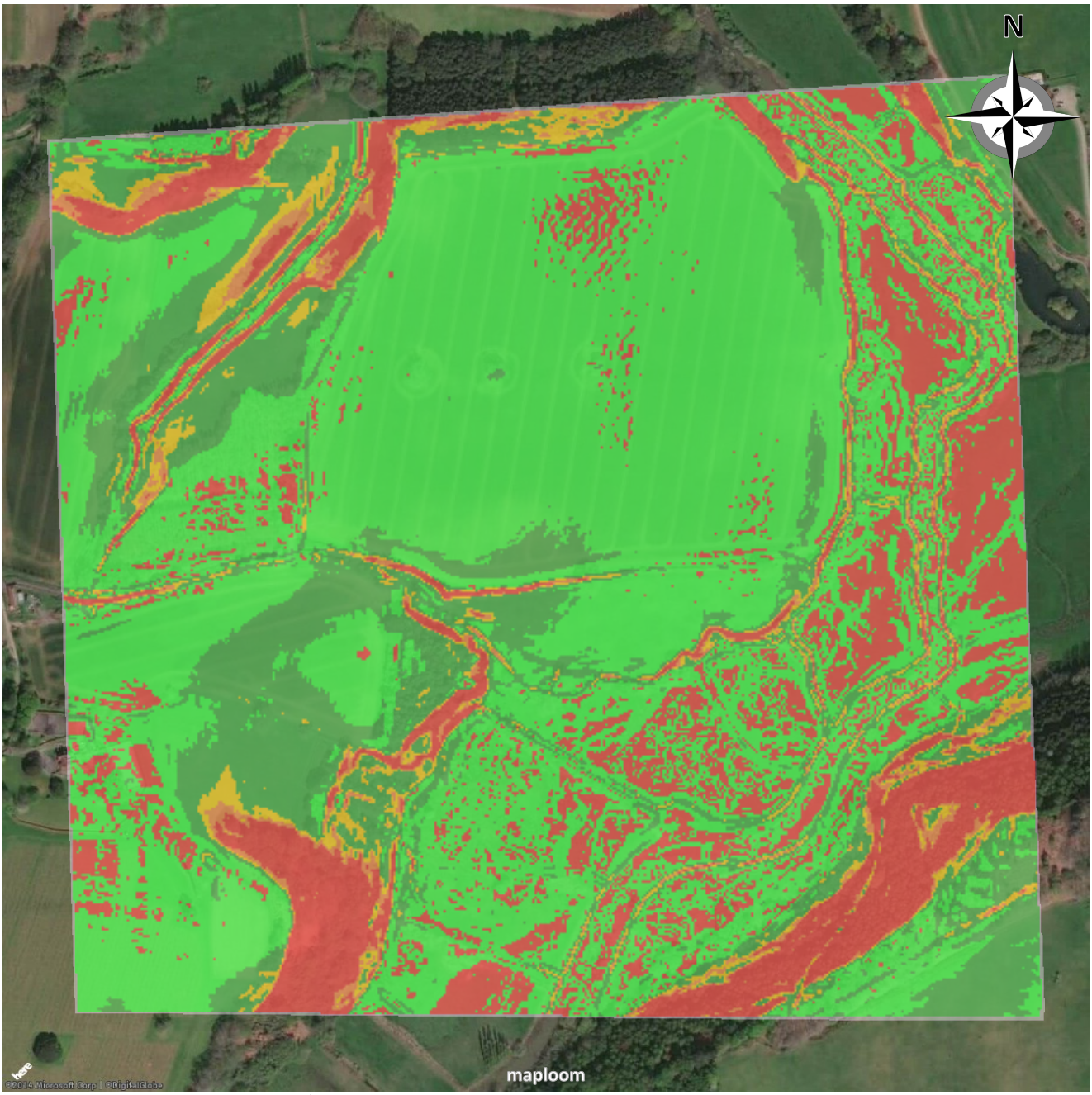
Suitable area: 51.6 ha

Area average slope suitability score: 12.4/20

Slope Suitability map

Resolution: 2m
Data source: LiDAR Digital Terrain Model

0 m — 400 m



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10-12.5	10/20	2.5
12.5-15	5/20*	1.7
> 15	0/20	5.2

Suitability legend

0 Least
5
10
15
20 Most

Suitable area: 51.6 ha

Area average slope suitability score: 12.4/20

Combined topographic suitability map

Resolution: 2m
Data source: LiDAR Digital Terrain Model

0 m 400 m

The map shows the high and low topographically suitable viticulture areas, overlain with the land cover and protected status zones, as described in the legend.

Please note that soil suitability is excluded from this model. See next page for further information on soils.

Score	Area (ha)
0/20	55.6
5/20	0.0
10/20	3.6
15/20	5.4
20/20	0.2

Suitability legend

0 Least
5
10
15
20 Most

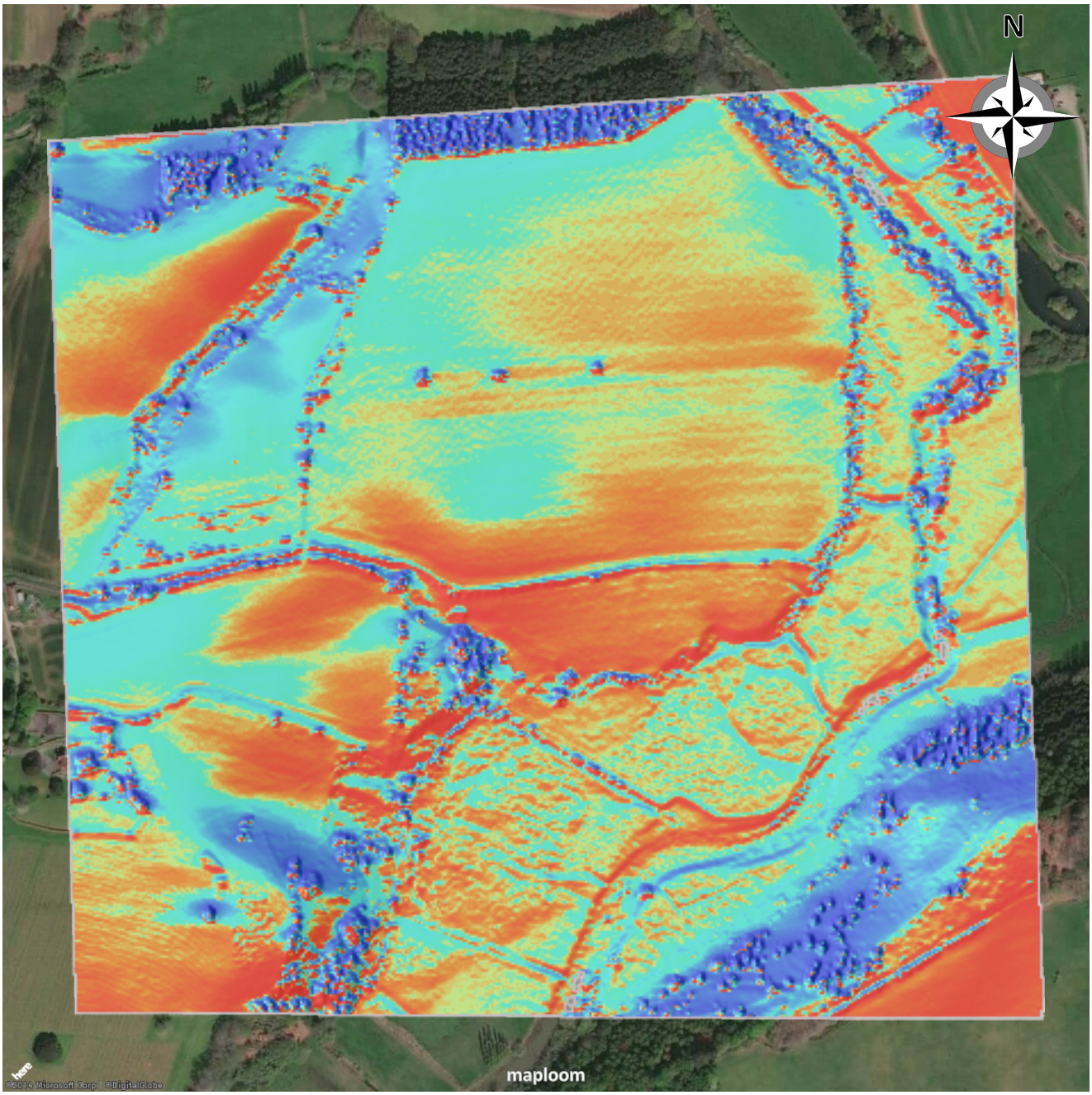
Suitable area: 9.2 ha

Area average combined topography suitability score: 2.2/20

Solar radiation

Resolution: 2m
Data source: LiDAR Digital Terrain Model

0 m 400 m



Solar radiation.

The measure of the potential solar radiation is calculated for the site based on an average of 3 specific days selected by our viticulture specialists (15 May, 15 July, 15 Sept). The calculation models the sun's track across the sky on these days and the potential solar radiation that would be received across the land surface. This varies based on the shading and scattering caused by surface features, particularly vegetation. The map shows variation of low (blue) to high (red) solar radiation values measured in (Wh/sqm). Areas which are potentially more in shade are shown in blue.

Solar Radiation (Wh/sqm)

613 Least

8173 Most

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Mapping

Overview

Mapping for this report was generated using the maploom platform. This is a cloud based geospatial analysis and modelling platform that uses open standards and open source analysis tools to deliver a wide range of location-based insights to non-specialist users. Further details can be found at www.maploom.com.

Mapping Datasets

The geospatial datasets used within the report are predominantly drawn from open source datasets. For each map, the data sources and relevant citations are provided.

Further details are summarised below:

Dataset	Map In report	Source	Credit / Disclaimer
Aerial Photography	Extensive use throughout the report	HERE	© HERE, 2019
LiDAR	Extensive use throughout the report	Environment Agency	© Environment Agency copyright and/or database right 2019. All rights reserved.
SSSI - Sites of Special Scientific Interest LNR - Local Nature Reserves NNR – National Nature Reserves SAC – Special Areas of Conservation SPA – Special Protection Areas	Environmental designations	Natural England	© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2019.
Registered Battlefields Registered Parks and Gardens Listed Buildings Scheduled Monuments Building Preservation Notices Certificates of Immunity	Historical Designations	Historic England	© Historic England 2019. Contains Ordnance Survey data © Crown copyright and database right 2019.
World Heritage Sites	Historical Designations	UNESCO	© Historic England 2019 / UNESCO. Contains Ordnance Survey data © Crown copyright and database right 2019.
OpenMap Local	Site Overview: Access	Ordnance Survey	Contains OS data © Crown copyright and database right 2019.
Flood zones 2 and 3	Flood Risk	Environment Agency	© Environment Agency copyright and/or database right 2019. All rights reserved.
CEH Land Cover Map 2015	Land Cover	Centre for Ecology and Hydrology	Rowland, C.S.; Morton, R.D.; Carrasco, L.; McShane, G.; O'Neil, A.W.; Wood, C.M. (2017) Land Cover Map 2015 (25m raster, GB). NERC Environmental Information Data Centre. https://doi.org/10.5285/bb15e200-9349-403c-bda9-b430093807c7