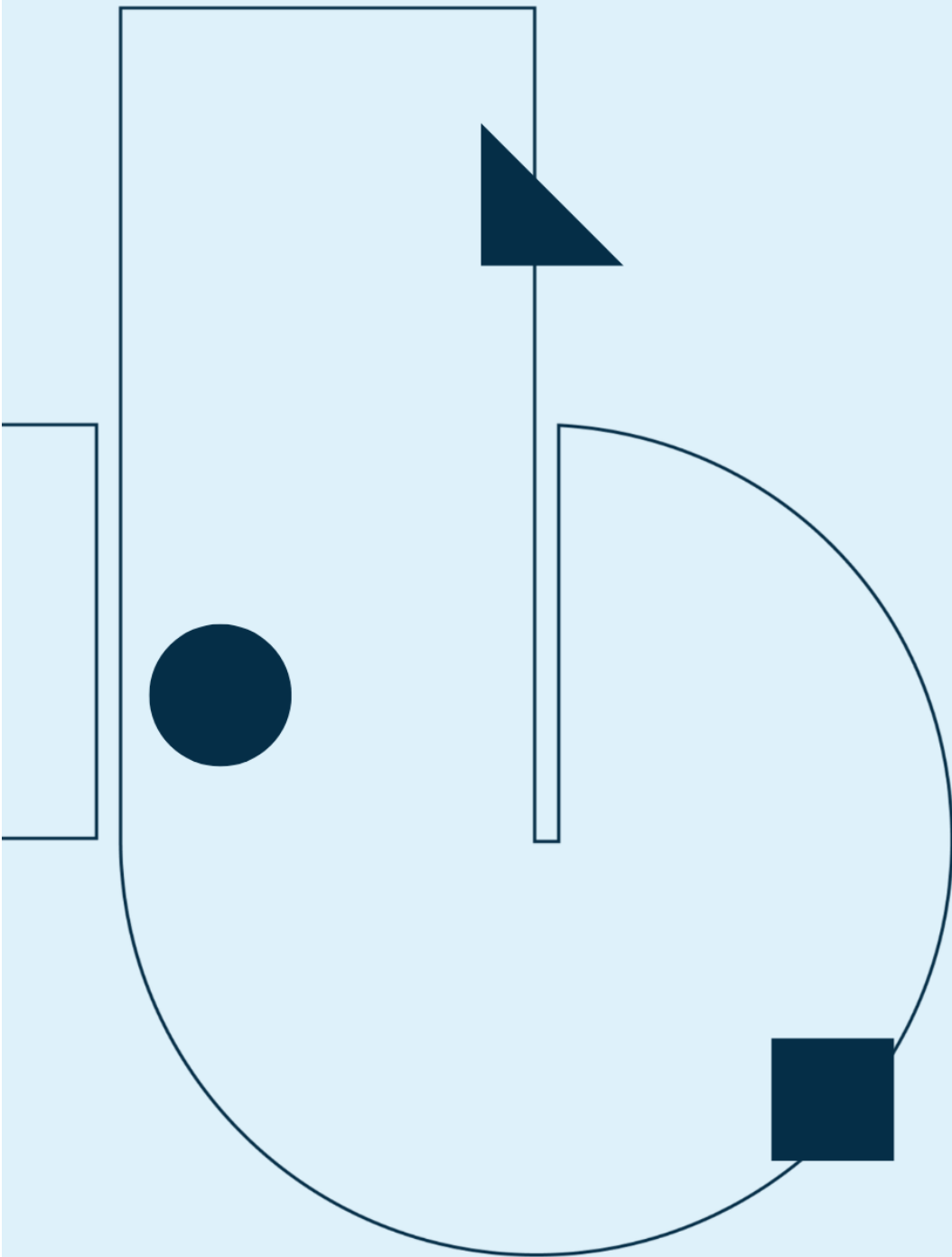




Hinckley and Bosworth

Work Package 5: Renewable Energy Spatial Assessment

July 2026

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1. Introduction

1.1 Bioregional has been commissioned by Hinckley and Bosworth Borough Council (Hinckley and Bosworth) to produce a Renewable Energy Spatial Assessment (RESA). The scope of the RESA is to identify suitable broad locations for renewable energy development. It is not intended to pinpoint specific locations for renewable energy sites at a granular level.

1.2 It is important to note that this study does not intend to rule out areas for renewable energy development where they have been found to be unsuitable. It is the right of the developer to produce a case to justify whether a specific renewable energy site is suitable or not, under site-specific conditions at a more granular level than the RESA addresses, which subsequently may comprise an area identified as unsuitable in this study.

1.3 However, for the purpose of planning decision-making, the RESA acts as a mechanism to accord with paragraph 165(b) of the December 2024 National Planning Policy Framework, which states local plans should “consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development”.

1.4 The intended use of the RESA is for Development Management officers and developers to ensure a common resource is available to enable consistent decision-making, encourage applications and help secure development of renewable energy schemes in Hinckley and Bosworth.

1.5 All renewable energy development remains subject to detailed assessment at the planning application stage, and being situated in an appropriate location does not immediately determine an application’s suitability. In addition, this RESA does not restrict applications within areas identified as unsuitable. As noted above, it is the responsibility of the developer to produce a case to justify whether a specific renewable energy site is suitable or not.

1.6 The RESA assesses various renewable energy technologies, which are as follows:

- Ground-mounted solar photovoltaics (PV) – various sizes.
- Onshore wind – various sizes
- Battery energy storage systems
- District heating
- Hydropower

1.7 The RESA takes into account planning, spatial and technical constraints of the various technologies. The methodology process is set out below, with additional justification on input and data selection found in Appendix 1.

1.8 This document outlines the methodology used to complete the RESA. A methodology is provided for each individual technology, including ground-mounted solar PV, onshore wind, battery energy storage systems, district heating and hydro power.

1.9 This methodology visualises the potential constraints at different levels:

- Primary constraints, designated areas considered to be unsuitable at a national level and areas where renewable energy systems exist currently.
- Buffer and exclusion zones, areas excluded to minimise potential impacts on residents or infrastructure.
- Technological performance, landscape factors that impact a technologies potential performance.
- Secondary constraints, features that will have an impact on planning application decision-making, but do not strictly rule out areas.
- Grid constraints, a capacity map displaying the potential for a renewable energy project to connect to the national grid.

2 Ground-mounted solar PV

2.1 Methodology

- 2.1.1 Ground-mounted solar PV development consists of a large number of solar panels often located in rural areas away from urban settlements. Areas of suitability for ground-mounted solar PV has been determined based on a layer analysis by adding different constrain layers and removing unsuitable areas, leaving only areas potentially more suitable for ground-mounted solar PV.
- 2.1.2 It is estimated that any site of 1 hectare or smaller would only be able to support up to 1 MW of solar PV capacity. As such, any suitable areas that are less than 1 hectare in size have been excluded based on their limited capacity.
- 2.1.3 The methodology described as follows provides multiple outputs to Hinckley and Bosworth to use. These begin with the key primary constraints layer that intends to provide a strong view on whether areas are suitable or not. Subsequent layers have explored additional scopes of suitability that include the technical performance of solar PV and secondary constraints that should be considered at the planning application stage.

2.2 Primary constraints

- 2.2.1 The primary constraints layer directly rules out designated areas considered to be unsuitable at a national level. Additionally, any land that already has an operational or consented renewable energy development site is excluded. The following areas are therefore ruled out for ground-mounted solar PV development:
- Registered battlefields
 - Site of Special Scientific Interest (SSSI)
 - Scheduled monuments
 - Operational/consented renewable energy development sites.
 - Bodies of water (rivers, canals, lakes and reservoirs)
 - Local Nature reserves
- 2.2.2 A review of publicly accessible national datasets¹ show that Special Protection Areas, Special Areas of Conservation, National Nature Reserves, Registered Historic Parks and Gardens, and RAMSAR sites are not located within Hinckley and Bosworth.
- 2.2.3 There are no European sites (Special Areas of Conservation (SAC), Special Protection Areas or Ramsar sites) located wholly within the Hinckley and Bosworth Borough. However, a small western portion of the Borough falls within the catchment of the River Mease, which is designated as both a Special Area of Conservation (SAC) and a Site of

Special Scientific Interest (SSSI). The River Mease is a highly protected lowland clay river that supports nationally and internationally important species, including spined loach, bullhead, white-clawed crayfish and otter. Due to its protected status, development within the River Mease catchment is subject to strict water quality controls, particularly in relation to phosphorus levels. Development proposals must comply with the River Mease Developer Contribution Strategy and demonstrate that they will not result in adverse effects on the integrity of the SAC, with mitigation measures required to ensure nutrient neutrality where necessary.

- 2.2.4 The River Mease SAC Catchment area has been included within this analysis as a secondary constraint, ensuring that the impact on the River Mease SAC is considered when identifying opportunity areas for renewable energy.

2.3 Buffer and exclusion zones

- 2.3.1 The second layer, buffer and exclusion zones intends to minimise the potential impacts on residents or infrastructure by applying various buffers. The following buffers or exclusion zones have been applied:
- Ancient woodland – 15 metres to avoid root damage.
 - Residential and non-residential buildings – 20 metres to avoid disruption.
 - Major and minor transport infrastructure (open roads² and railway lines) – 20 metres
 - MoD sites and safeguarded zones – specific buffer zones according to site size (not included in publicly available outputs owing to sensitivity reasons)
 - Airports/aerodromes

¹ Available from the Department for Environment, Food and Rural Affairs Multi Agency Geographic Information Countryside Map: <https://magic.defra.gov.uk/>

² Dataset utilised is the OS Open Roads: <https://www.ordnancesurvey.co.uk/products/os-open-roads>. This dataset includes Motorways, A roads, B roads, Classified unnumbered roads (smaller roads connecting A and B roads), Unclassified roads (roads intended for local traffic) and Not classified roads (roads with no designation).

2.4 Key output: Overall constraints map

- 2.4.1 The overall constraints map combines the primary constraints with the buffer and exclusions zones to produce an output of potentially suitable and unsuitable land for ground-mounted solar PV development. Additional toggleable layers have been provided showing technical, grid and secondary constraints.
- 2.4.2 As noted in paragraph 2.1.2, any land identified as potentially suitable that does not meet the minimum size (1 hectare) will be removed.
- 2.4.3 Land identified as unsuitable in the overall constraints map output is highly unlikely to be suitable for solar PV development.
- 2.4.4 Mapping outputs for ground-mounted PV are shown within section 8.2 of this report. In addition, GIS data files have been shared with Hinckley and Bosworth Borough Council.

2.5 Technical performance

- 2.5.1 An additional layer has been created to map landscape factors that impact solar PV's technical performance to ensure that subsequent land identified as suitable in the overall constraints map is appropriate from an efficiency perspective.
- 2.5.2 It is important to note that it is the choice and responsibility of the developer to determine whether a suitable area would enable high solar PV efficiency. However, the technical performance layer is a useful resource for both Development Management officers and developers to better understand the potential technical performance of suitable areas.
- 2.5.3 The following assumptions have been made:
- All areas with inclinations of 0 – 3° from the horizontal are assumed suitable and optimal for solar PV development.
 - For areas with inclination between 3 – 15° from the horizontal, only south-west to south-east facing areas are assumed to be suitable for solar PV development.
 - All other areas (15° inclination or higher) were deemed unsuitable for solar PV development.

2.6 Secondary constraints

- 2.6.1 An additional secondary constraints layer has been created for features that will have an impact on planning application decision-making, but do not strictly rule out areas that have been identified by preceding layers. The following secondary constraints have been applied and mapped:
- a. Charnwood forest – 15 metres buffer zone to avoid root damage.
 - b. The National Forest - 15 metres buffer zone to avoid root damage.
 - c. Flood Zones 2 and 3
 - d. Conservation Areas
 - e. Best and most versatile agricultural land (only land of grades 2 and 3a is within Hinckley and Bosworth)
 - f. Mineral safeguarding areas
 - g. Local Nature Recovery Strategy
 - h. River Mease SAC catchment area.
- 2.6.2 Medium and high sensitivity areas from the 2017 Landscape Sensitivity Analysis have been considered for inclusion within this analysis, however, at the time of writing [June 2026] the landscape sensitivity areas are in the process being updated and as such have not been included within this analysis. Developers should give due consideration to any updated landscape sensitivity areas when identifying suitable locations for renewable energy developments.
- 2.6.3 The Leicestershire Local Nature Recovery Strategy has been included as a separate secondary constraints layer to ensure that all relevant biodiversity layers are included within this assessment.

2.7 Grid constraints

- 2.7.1 A grid constraints layer has been created to address the feasibility of grid connection. As with the assumptions made in the technical performance layer, it is the decision of the developer to determine which areas are feasible and viable for a renewable energy development site, in liaison with the Distribution Network Operator (DNO). However, the grid constraints layer is a useful addition to preceding layers to understand the likelihood of whether a suitable area determined by this assessment currently has the grid capacity available to facilitate the connection of additional renewable energy generation sites.
- 2.7.2 The DNO for Hinckley and Bosworth is National Grid Electricity Distribution. Headroom has been identified at a Primary Substation level, to identify this, the following data sets have been used:
- a. Network Opportunity Map Headroom
 - b. Network Capacity
- 2.7.3 The DNO provides a Generation Contraction Headroom RAG rating, it is assumed that any Primary substations listed as 'Red' have no available headroom for additional renewable energy projects in their current form.

3 Onshore wind

3.1 Methodology

3.1.1 Onshore wind development consists of wind turbines placed inland, often in remote rural areas away from urban settlements. Areas of suitability for onshore wind has been determined according to three thresholds of onshore wind development sites.

Code name	Onshore wind turbine size – tip height	Approximate MW capacity
OW1	25 – 100 metres	Between 500 kW and 1 MW
OW2	100 – 150 metres	Between 1 and 2.5 MW
OW3	150 – 220 metres	Over 2.5 MW

3.1.2 The methodology described as follows provides multiple outputs to Hinckley and Bosworth to use. These range from the key primary constraints layer that intends to provide a strong view on whether areas are suitable or not. Subsequent layers, using the primary constraints layer as a foundation, explore additional scopes of suitability that involve technical performance of onshore wind and secondary constraints that should be considered at the planning application stage.

3.1.3 The following methodology for onshore wind is applied to all three thresholds of onshore wind development sites.

3.2 Primary constraints

3.2.1 The primary constraints layer directly rules out designated areas considered to be unsuitable at a national level. Additionally, any land that already has an operational or consented renewable energy development site is excluded. The following areas are therefore ruled out for onshore wind development:

- Registered battlefields
- Site of Special Scientific Interest (SSSI)
- Scheduled monuments
- Operational/consented renewable energy development sites.
- Bodies of water (rivers, canals, lakes and reservoirs)
- Local Nature reserves

3.2.2 A review of publicly accessible national datasets³ show that Special Protection Areas, Special Areas of Conservation, National Nature Reserves, Registered Historic Parks and Gardens, and RAMSAR sites are not located within Hinckley and Bosworth.

3.2.3 There are no European sites (Special Areas of Conservation (SAC), Special Protection Areas or Ramsar sites) located wholly within the Hinckley and Bosworth Borough. However, a small western portion of the Borough falls within the catchment of the River Mease, which is designated as both a Special Area of Conservation (SAC) and a Site of Special Scientific Interest (SSSI). The River Mease is a highly protected lowland clay river that supports nationally and internationally important species, including spined loach, bullhead, white-clawed crayfish and otter. Due to its protected status, development within the River Mease catchment is subject to strict water quality controls, particularly in relation to phosphorus levels. Development proposals must comply with the River Mease Developer Contribution Strategy and demonstrate that they will not result in adverse effects on the integrity of the SAC, with mitigation measures required to ensure nutrient neutrality where necessary.

3.2.4 The River Mease SAC Catchment area has been included within this analysis as a secondary constraint, ensuring that the impact on the River Mease SAC is considered when identifying opportunity areas for renewable energy.

³ Available from the Department for Environment, Food and Rural Affairs Multi Agency Geographic Information Countryside Map: <https://magic.defra.gov.uk/>

3.3 Buffer and exclusion zones

3.3.1 The second layer, buffer and exclusion zones intends to minimise potential impacts on residents or infrastructure by applying various buffers. The following buffers or exclusion zones are applied:

- a. Ancient woodland – 15 metres to avoid root damage.
- b. Residential and non-residential buildings
 - Noise buffer⁴:
 - o **OW1**: 400m
 - o **OW2**: 500m
 - o **OW3**: 600m
 - Topple distance – tip height + 10%.
- c. Major and minor transport infrastructure (open roads⁵ and railway lines)
 - Topple distance – tip height + 10%.
- d. MoD sites and safeguarded zones – specific buffer zones according to site size (not included in publicly available outputs owing to sensitivity reasons)
- e. Airports/aerodromes

3.4 Key output: Overall constraints map

- 3.4.1 The overall constraints map combines the primary constraints and the buffer and exclusion zones layers to produce an output of potentially suitable land for onshore wind development. Additional toggleable layers have been provided showing technical, grid and secondary constraints.
- 3.4.2 Land identified as unsuitable in the Overall constraints map output is highly unlikely to be suitable for onshore wind development. The onshore wind Overall constraints map should be used as a tool to determine whether planning applications for renewable energy development are located in suitable areas.
- 3.4.3 Mapping outputs for onshore wind are shown within sections 8.3 (OW1), 8.4 (OW2) and 8.5 (OW3) of this report. In addition, GIS data files have been shared with Hinckley and Bosworth Borough Council.

⁴ Noise buffers are applied based on turbine size, as larger turbines will create more noise than smaller turbines. These assumptions have been based on a judgement of typical wind turbine requirements to mitigate audible impacts from onshore wind turbines to building occupiers. In practice, the required minimum distance between a wind farm and residential properties is site-specific, influenced by the proposed turbine and the ambient background noise.

3.5 Technical performance

- 3.5.1 The technical performance layer maps factors that impact onshore winds technical performance to ensure that subsequent land identified as suitable in buffer and exclusion zones layer is appropriate from an efficiency perspective.
- 3.5.2 It is important to note that it is the choice and responsibility of the developer to determine whether an area would enable high onshore wind efficiency. However, the technical performance layer is a useful resource for both Development Management officers and developers to better understand the potential technical performance of suitable areas.
- 3.5.3 Using average wind speed, with speed measured at 50m above ground level, it is assumed that 5.0 metres/second is sufficient to determine an area as suitable for onshore wind development from a technical performance perspective. Any areas with wind speeds of less than 5.0 metres/second have been classed as unsuitable.
- 3.5.4 Whilst many developers will focus on locating onshore wind sites in the windiest locations, often exceeding 6 metres/second at 50 meters above ground level, it is technically feasible to locate onshore wind sites in areas with wind speeds of 5 metres/second. As areas with wind speeds of 5 metres/second at 50 meters above ground do not technically prohibit onshore wind this threshold has been chosen to not exclude technically feasible locations.

⁵ Dataset utilised is the OS Open Roads: <https://www.ordnancesurvey.co.uk/products/os-open-roads>. This dataset includes Motorways, A roads, B roads, Classified unnumbered roads (smaller roads connecting A and B roads), Unclassified roads (roads intended for local traffic) and Not classified roads (roads with no designation).

3.6 Secondary constraints

- 3.6.1 An additional secondary constraints layer has been created for features that will have an impact on planning application decision-making, but do not strictly rule out areas that have been identified by preceding layers. The following secondary constraints will be applied and mapped for this layer:
- a. Charnwood forest – 15 metres buffer zone to avoid root damage.
 - b. The National Forest - 15 metres buffer zone to avoid root damage.
 - c. Flood Zones 2 and 3
 - d. Conservation Areas
 - e. Best and most versatile agricultural land (only land of grades 2 and 3a is within Hinckley and Bosworth)
 - f. Mineral safeguarding areas
 - g. Local Nature Recovery Strategy
 - h. River Mease SAC catchment area.
- 3.6.2 Medium and high sensitivity areas from the 2017 Landscape Sensitivity Analysis have been considered for inclusion within this analysis, however, at the time of writing [June 2026] the landscape sensitivity areas are in the process being updated and as such have not been included within this analysis. Developers should give due consideration to any updated Landscape Sensitivity areas when identifying suitable locations for renewable energy developments.
- 3.6.3 The Leicestershire Local Nature Recovery Strategy has been included as a separate secondary constraints layer to ensure that all relevant biodiversity layers are included within this assessment.

3.7 Grid constraints

- 3.7.1 A grid constraints layer has been created to address the feasibility of grid connection. As with the assumptions made in technical performance layer, it is the decision of the developer to determine which areas are feasible and viable for a renewable energy development site, in liaison with the Distribution Network Operator (DNO). However, the grid constraints layer is a useful addition to preceding layers to understand the likelihood of whether a suitable area determined by this assessment currently has the grid capacity available to facilitate the connection of additional renewable energy generation sites.
- 3.7.2 The DNO for Hinckley and Bosworth is National Grid Electricity Distribution. Headroom has been identified at a Primary Substation level; to identify this, the following data sets have been used:
- Network Opportunity Map Headroom
 - Network Capacity
- 3.7.3 The DNO provides a Generation Contraction Headroom RAG rating, it is assumed that any Primary substations listed as 'Red' have no available headroom for additional renewable energy projects in their current form.

4 Battery storage

4.1 Methodology

- 4.1.1 Battery storage development, or battery energy storage systems (BESS), consists of a number of batteries that store large quantities of electricity, often generated by renewable energy sources. This electricity can be stored during periods of high electricity generation and utilised during periods of high consumer demand. BESS sites can range in size from small domestic units to the UK's largest currently operational site with a capacity of 300MW⁶. This assessment focuses on identifying the broad optimal locations for standalone BESS sites rather than domestic units.
- 4.1.2 Suitable areas for BESS have been broadly identified through the mapping exercises described below. As BESS developments can vary significantly in size, typically ranging from less than 1 acre to over 30 acres, this analysis seeks to identify broad areas of potential suitability rather than applying size-specific development assumptions. Unlike ground-mounted solar PV and onshore wind developments, BESS facilities can be delivered on relatively small parcels of land, with many operating on sites smaller than 30 acres. Consequently, applying a minimum site threshold of 1 hectare, the same as is used for onshore wind and ground-mounted solar PV, would unnecessarily restrict the amount of potentially suitable land identified.
- 4.1.3 To avoid including very small areas that are unlikely to accommodate a viable BESS development, parcels of land with a size of less than 1 acre have been excluded from the analysis. A threshold of 1 acre was selected as it may still be capable of accommodating smaller-scale BESS facilities and associated infrastructure, while reflecting the comparatively modest land requirements of this technology.
- While sites smaller than 1 acre may be technically viable in some circumstances, assessing the suitability and deliverability of individual sites remains the responsibility of the developer.
- 4.1.4 BESS sites capacity in MW per acre is dependent on the specifics of proposed sites. As such, the below methodology does not assume a certain level of battery storage capacity (MW).

4.2 Primary constraints

- 4.2.1 The primary constraints layer directly rules out designated areas considered to be unsuitable at a national level. Additionally, any land that already has an operational or consented renewable energy development site is excluded. The following areas are therefore ruled out for BESS development:
- Registered battlefields
 - Site of Special Scientific Interest (SSSI)
 - Scheduled monuments
 - Operational/consented renewable energy development sites.
 - Bodies of water (rivers, canals, lakes and reservoirs)
 - Local nature reserves
- 4.2.2 A review of publicly accessible national datasets⁷ show that Special Protection Areas, Special Areas of Conservation, National Nature Reserves, Registered Historic Parks and Gardens, and RAMSAR sites are not located wholly within Hinckley and Bosworth.
- 4.2.3 There are no European sites (Special Areas of Conservation (SAC), Special Protection Areas or Ramsar sites) located wholly within the Hinckley and Bosworth Borough. However, a small western portion of the Borough falls within the catchment of the River Mease, which is designated as both a Special Area of Conservation (SAC) and a Site of Special Scientific Interest (SSSI). The River Mease is a highly protected lowland clay river that supports nationally and internationally important species, including spined loach, bullhead, white-clawed crayfish and otter. Due to its protected status, development within the River Mease catchment is subject to strict water quality controls, particularly in relation to phosphorus levels. Development proposals must comply with the River Mease Developer Contribution Strategy and demonstrate that they will not result in adverse effects on the integrity of the SAC, with mitigation measures required to ensure nutrient neutrality where necessary.
- 4.2.4 The River Mease SAC Catchment area has been included within this analysis as a secondary constraint, ensuring that the impact on the River Mease SAC is considered when identifying opportunity areas for renewable energy.

⁶ <https://www.nationalgrid.com/national-grid-connects-uks-largest-battery-storage-facility-tilbury-substation>

⁷ Available from the Department for Environment, Food and Rural Affairs Multi Agency Geographic Information Countryside Map: <https://magic.defra.gov.uk/>

4.3 Buffer and exclusion zones

4.3.1 The buffer and exclusion zone layer intends to minimise potential impacts on residents or infrastructure by applying various buffers onto the Primary constraints layer. The following buffers are applied:

- a. Ancient woodland – 15 metres to avoid root damage.
- b. Residential and non-residential buildings – 100 metres noise buffer and to minimise disruption to residents.
- c. Major and minor transport infrastructure (open roads⁸ and railway lines) – 20 metres
- d. MoD sites and safeguarded zones – specific buffer zones according to site size (not included in publicly available outputs due to sensitivity reasons)
- e. Airports/aerodromes

4.4 Key output: Overall constraints map

4.4.1 The overall constraints map combines the primary constraints and buffer and exclusion zones to produce an output of potentially suitable and unsuitable land for battery storage development. Additional toggleable layers have been provided showing technical, grid and secondary constraints.

4.4.2 Land identified as unsuitable in the overall constraints map output is highly unlikely to be suitable for battery storage development in any case. The overall constraints map should be used as a tool to determine if planning applications for renewable energy development are located in suitable areas.

4.4.3 Mapping outputs for BESS are shown within section 8.6 of this report. In addition, GIS data files have been shared with Hinckley and Bosworth Borough Council.

4.5 Slope angle suitability.

4.5.1 The Slope angle suitability layer draws on the buffer and exclusion zone layer by mapping landscape factors that impact the suitability of BESS sites. The primary landscape factor is slope angle, since BESS sites must be situated on flat land. Therefore, the following assumption is made:

- All areas with inclinations of 0 – 3° from the horizontal are assumed suitable and optimal for BESS sites. All other areas are marked as unsuitable.

4.6 Secondary constraints

4.6.1 An additional secondary constraints layer has been created for features that will have an impact on planning application decision-making, but do not strictly rule out areas that have been identified by preceding layers. The following secondary constraints have been applied:

- a. Charnwood forest – 15 metres buffer zone to avoid root damage.
- b. The National Forest - 15 metres buffer zone to avoid root damage.
- c. Flood Zones 2 and 3
- d. Conservation Areas
- e. Best and most versatile agricultural land (only land of grades 2 and 3a is within Hinckley and Bosworth)
- f. Mineral safeguarding areas
- g. Local Nature Recovery Strategy
- h. River Mease SAC catchment area.

4.6.2 Medium and high sensitivity areas from the 2017 Landscape Sensitivity Analysis have been considered for inclusion within this analysis, however, at the time of writing [June 2026] the landscape sensitivity areas are in the process being updated and as such have not been included within this analysis. Developers should give due consideration to any updated landscape sensitivity areas when identifying suitable locations for renewable energy developments.

4.6.3 The Leicestershire Local Nature Recovery Strategy has been included as a separate secondary constraints layer to ensure that all relevant biodiversity layers are included within this assessment.

⁸ Dataset utilised is the OS Open Roads: <https://www.ordnancesurvey.co.uk/products/os-open-roads>. This dataset includes Motorways, A roads, B roads, Classified unnumbered roads (smaller roads connecting A and B roads), Unclassified roads (roads intended for local traffic) and Not classified roads (roads with no designation).

4.7 Grid constraints

4.7.1 A grid constraints layer has been created to address the feasibility of grid connection. As with the assumptions made in the technical performance layer, it is the decision of the developer to determine which areas are feasible and viable for a renewable energy development site, in liaison with the Distribution Network Operator (DNO). However, the grid constraints layer is a useful addition to preceding layers to understand the likelihood of whether a suitable area determined by this assessment currently has the grid capacity available to facilitate the connection of additional renewable energy generation sites.

4.7.2 The DNO for Hinckley and Bosworth is National Grid Electricity Distribution. Headroom has been identified at a Primary Substation level, to identify this, the following data sets have been used:

- Network Opportunity Map Headroom
- Network Capacity

4.7.3 The DNO provides a Generation Contraction Headroom RAG rating, it is assumed that any Primary substations listed as 'Red' have no available headroom for additional renewable energy projects in their current form.

5 District heating / Decentralised Energy Network

5.1 Methodology

- 5.1.1 District heating, also known as heat networks or decentralised energy networks, are systems for distributing heat and/or cooling from a centralised source to multiple buildings (commercial, residential or a mix of both). Heat has typically been obtained from a combined heat and power from burning fossil fuels or biomass, but geothermal heating and large heat pumps are being increasingly selected as heat generation sources for district heating.
- 5.1.2 District heating works by generating heat, or using waste heat, and feeding this to consumers through a system of highly insulated pipes.
- 5.1.3 District heating systems can provide higher efficiencies and better pollution control than individual unit boilers. They are a particularly attractive option in dense urban areas and represent one approach to tackle fuel poverty and reduce housing maintenance costs.
- 5.1.4 In the UK, there is considerable support for the expansion of such heating networks. As the UK transitions to net zero over the coming decades, more connections to district heating networks are expected.
- 5.1.5 Please note that, in line with the proposed policy B2 from the evidence base report⁹, which states “The use of fossil fuels and connection to the gas grid will not be considered acceptable”, this study does not support the development of new gas-powered combined heat and power district heating networks. This study supports the development of large-scale heat pump heat networks, alongside geothermal networks where appropriate, and/or networks that would utilise rejected waste heat.
- 5.1.6 It is important to state that heat pump district heating networks are only zero carbon if powered entirely by renewable energy. If powered by the electricity grid, these networks are considered low carbon as the UK grid is currently still partially powered by fossil fuels¹⁰.

5.2 Heat density

- 5.2.1 To identify areas with potential for district heat networks within Hinckley and Bosworth Borough, heat density has been assessed. For the purposes of this study, heat density refers to the amount of heat demand within a given area and is expressed as annual heat demand per hectare. Areas containing large numbers of buildings and/or buildings with high heat demands, such as industrial or commercial premises, will typically exhibit higher heat densities.
- 5.2.2 Heat density data is available from the CitiWatts¹¹ database which estimates annual heat demand for domestic and non-domestic buildings and reports heat density at a hectare scale in MWh per hectare (MWh/ha).
- 5.2.3 While the CitiWatts dataset provides estimates of heat density, it does not specify the minimum density required for heat network development. Therefore, reference has been made to the Greater London Authority's *Decentralised Energy Capacity Study Phase 1* (2011)¹², which identifies a practical minimum heat density threshold of **50 kWh/m²** for further investigation of district heat networks
- 5.2.4 To apply this threshold to the CitiWatts dataset, the GLA threshold was converted to the same units used within the heat density mapping. As one hectare contains 10,000 m², a heat density of 50 kWh/m² equates to 500,000 kWh/ha, or 500 MWh/ha. Areas with a heat density of 500 MWh/ha or greater have therefore been identified as potentially suitable for further investigation of district heat network opportunities within Hinckley and Bosworth Borough.

5.3 Opportunities from heat waste sites

- 5.3.1 To identify opportunities for use of waste heat, existing facilities will be identified. These plants generate heat when producing energy and therefore present an opportunity for district heating in some cases. A 1km buffer is applied to identified sites to determine whether any 1ha grid squares that have sufficient heat density fall within this range. The following areas have been identified as potential heat waste sites:
- Southwest of Hinckley
 - East of Earl Shilton
 - South of Newbold Verdon
 - South of Barlestone
 - West of Market Bosworth

⁹ Policy B2, Evidence base report, Bioregional, May 2026

¹⁰ Fossil gas generated 26.8% of grid electricity in 2025. Coal and oil were not part of the mix.

<https://www.neso.energy/news/britains-energy-explained-2025-review>

¹¹ <https://citiwatts.eu/map>

¹² Microsoft Word - DE Study Phase 1 report - Technical assessment vFinal.doc It is noted this source is dated to 2011; however, it sets a methodology for use up to 2031: <https://www.london.gov.uk/programmes-and-strategies/environment-and-climate-change/environment-publications/decentralised-energy-capacity-study-0>

5.4 Locational factors

5.4.1 Locational factors can impact the potential for district heating networks as constraints may be evident that limit pipework to end users. Such implications are likely to primarily consist of transport infrastructure and surface water. Therefore, the following layers are presented on the map alongside heat density and heat waste opportunities:

- Major and minor transport infrastructure (open roads¹³ and railway lines)
- Bodies of water (e.g. lakes, rivers, reservoirs etc.)

5.4.2 These layers are not assessed further as assumptions around district heating pipework are highly variable based on the specific scheme. They should also not be viewed as hard constraints since surface water features can also provide opportunities for water-source heat pumps.

5.5 Previously identified district heating opportunities

5.5.1 A previous report completing in 2014 by LUC and CSE showed the following areas were potentially suitable for district heat networks¹⁴:

- Hinckley
- Burbage
- Barwell and Earl Shilton wards
- Market Bosworth
- Newbold Verdon
- Desford
- Ratby
- Groby
- Markfield

5.5.2 Although the study was produced in 2014, the opportunity areas are likely to still be potentially suitable for heat networks as many of the identified areas are more densely occupied. In addition, only Burbage was identified within the 2014 and not within this study, indicating that most sites remain suitable for further investigation into the feasibility of heat networks.

5.6 Identified district heating opportunities.

5.6.1 This analysis has identified areas that are potentially suitable for further investigation into the viability of district heating systems:

- Stanton Under Barton
- Bagworth
- Markfield
- Groby
- Ratby
- Desford
- Barlestone
- Newbold Verdon
- Market Bosworth
- Barwell
- Earl Shilton
- Hinckley
- Stoke Golding
- Dadlington

5.6.2 Many areas have been identified as potentially suitable within both the 2014 study and this study. Areas commonly identified across both studies may warrant further investigation.

¹³ Dataset utilised is the OS Open Roads: <https://www.ordnancesurvey.co.uk/products/os-open-roads>. This dataset includes Motorways, A roads, B roads, Classified unnumbered roads (smaller roads connecting A and B roads), Unclassified roads (roads intended for local traffic) and Not classified roads (roads with no designation).

¹⁴ https://www.hinckley-bosworth.gov.uk/downloads/file/4482/renewable_energy_capacity_study_-_december_2014

6 Hydropower

6.1 Methodology

6.1.1 Hydropower is a form of electricity generation that occurs through the movement of water. Opportunities have been identified at a high level through identifying river obstacles, which are the following features:

- Waterfalls
- Weirs
- Locks

6.1.2 These river obstacles offer potential opportunities for hydro technology to be installed as these are features that often result in enhanced water flow.

6.1.3 Please note that the identification of these river obstacles does not determine a site suitable for hydropower. Further site-specific investigation and feasibility assessments will be required to determine whether a river obstacle site is suitable in practice for hydropower development.

6.1.4 River flow data from the Department for Environment Food & Rural Affairs is recorded at specific data stations. Within Hinckley and Bosworth water speed flow data in m³ was only available for the River Anker. The River Anker briefly passes through Hinckley and Bosworth's Southern border and will be highlighted. Verified data between 1966 – 2024 shows a mean river flow of 3.157 m³/second¹⁵. It should be noted that whilst the river Anker is the only river with a recovered speed within Hinckley and Bosworth Borough other rivers such as the Mease, Sence, Tweed and Rothley Brook, among others, pass through Hinckley and Bosworth and may warrant further investigation despite not having local river speed data. To account for this rivers have been highlighted within the maps, shown in section 8.8 of this report.

6.2 Water-source heat pump opportunities

6.2.1 Potential opportunities where water-source heat pumps could be utilised for district heating networks have been identified by applying a 500m buffer area around large bodies of potentially suitable water.

7 Data limitations

7.1 The methodology developed for this desk-based study is appropriate for locating high-level suitable areas for renewable energy generation technologies. Local conditions and factors at a granular level have not been taken into account, whilst no site visits of identified suitable locations have occurred. The outputs produced are directly informed by the methodology set, with no further analysis undertaken on suitable areas. Therefore, it is possible that some areas identified as suitable will be found to be unsuitable once site-level detail has been considered.

7.2 No manual data cleaning of the GIS shapefiles downloaded has been undertaken. Therefore, some data inaccuracies may occur and result in constraints not being visible on areas where constraints are in fact present upon a site visit or once a site-specific assessment has been completed.

7.3 This RESA identifies broad suitable locations, should sites be brought forward for any renewable energy technologies planning permission will be required and site specific data, context and justification should be provided. Additional levels of detail and increased consideration of the local setting should also be applied when assessing an area identified as suitable in this study. For example, the river data used is line data and does not consider the full width of rivers in practice, although a 5m buffer is applied to account for some river extent. Additionally, some data may be missing in particularly dynamic river areas where flow levels vary significantly.

¹⁵ <https://nrfa.ceh.ac.uk/data/station/meanflow/28026>

8 Renewable energy spatial assessment

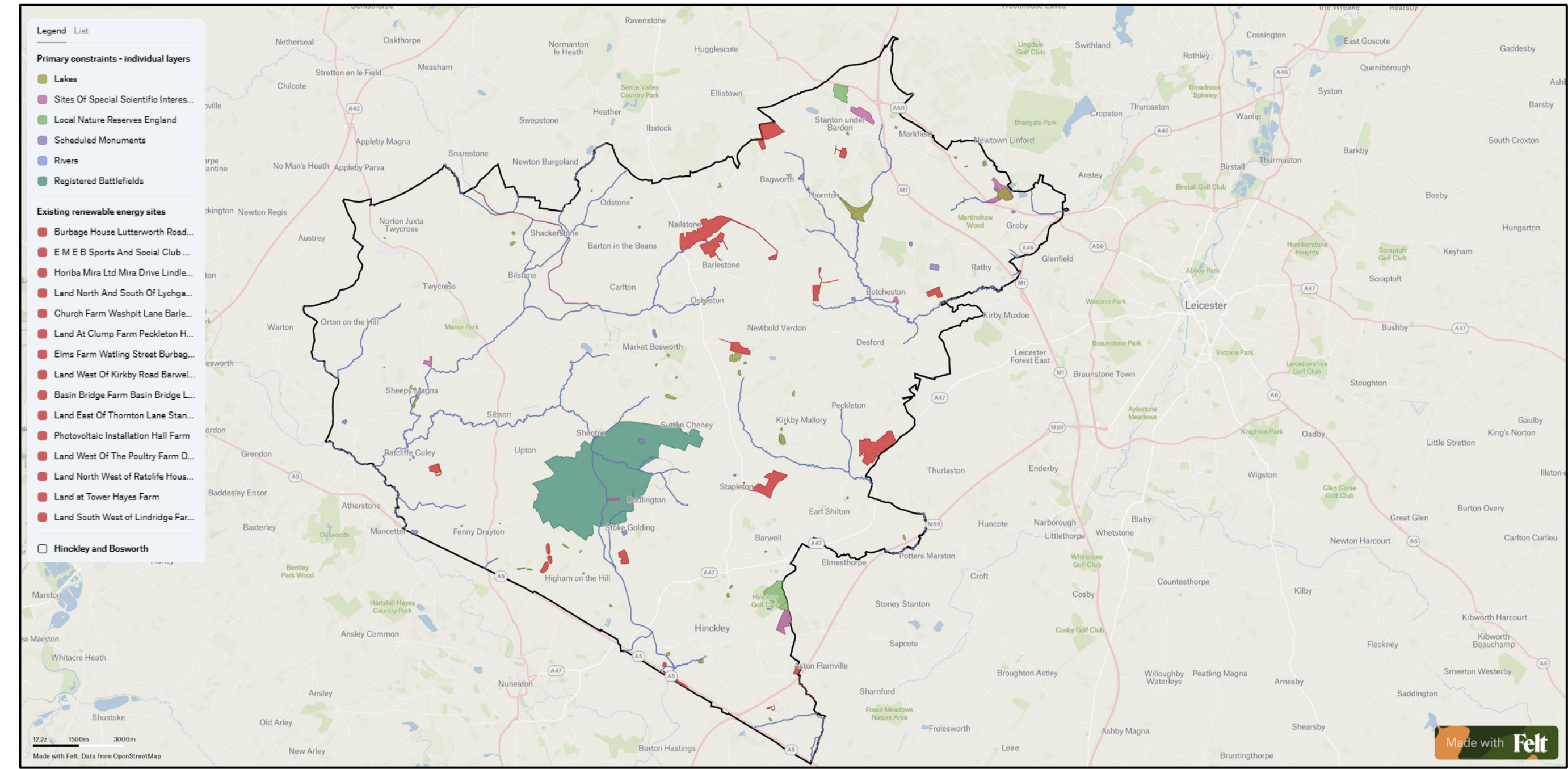
8.1 The outputs of this Renewable energy spatial assessment are presented within this section, split by technology type. GIS files have been provided to Hinckley and Bosworth Borough Council separately. The GIS files are available online however, there is a limited viewership of online maps hosted by Bioregional, as such, should data files be required they should be requested through Hinckley and Bosworth Borough Council.

8.2 Ground-mounted solar PV.

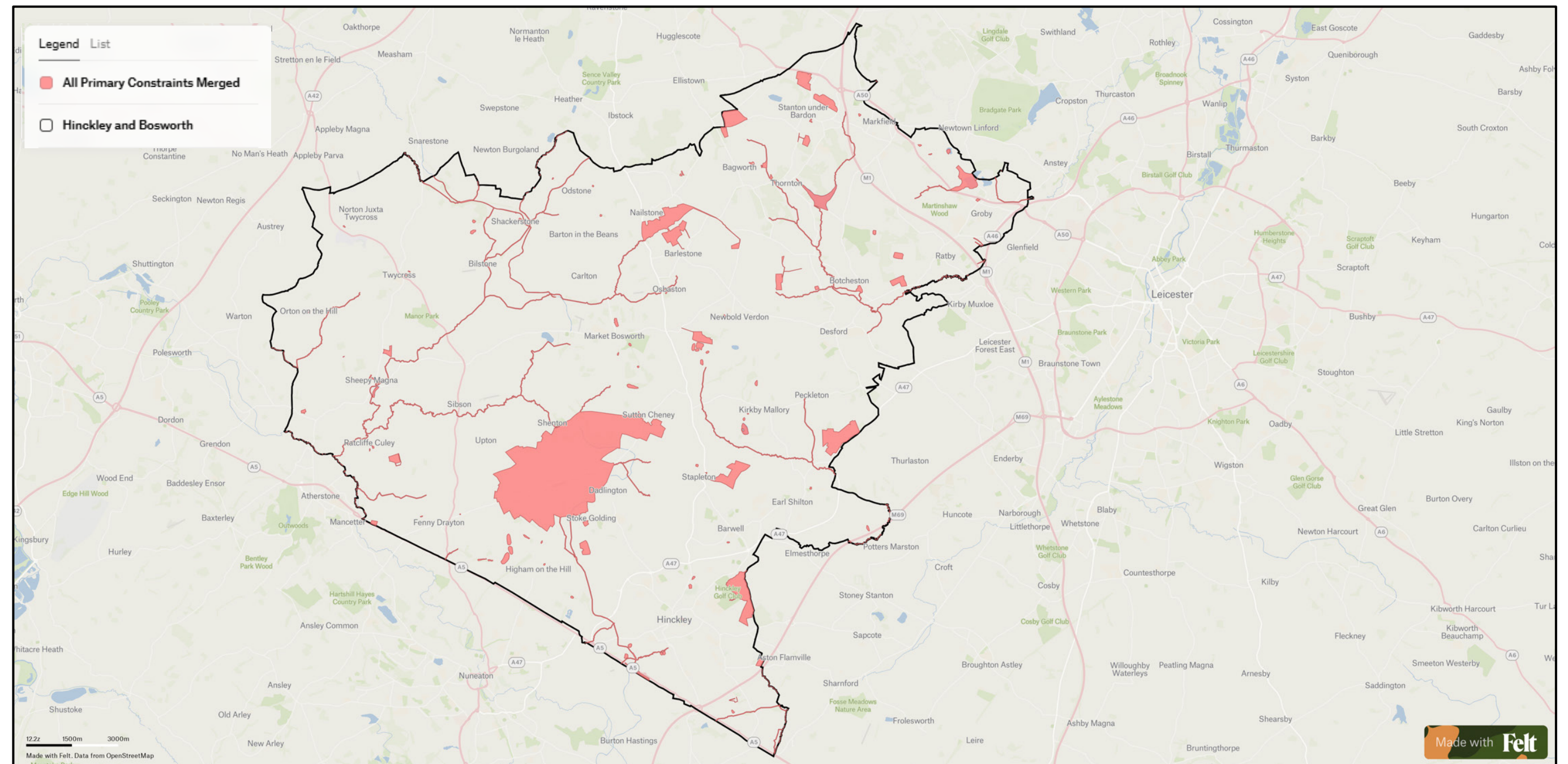
8.2.1 An assessment of the viability of ground-mounted PV within Hinckley and Bosworth has been conducted in line with the methodology above. Section 8.2 below provides screenshots of the maps and a detailed breakdown of the data layers used to form the primary and secondary and technical constraints, buffer and exclusion zones. The final map within section 8.2 shows the potentially suitable 'opportunity areas' for ground mounted PV.

8.2.2 Primary constraints

8.2.2.1 Map 1, below, shows the primary constraints within Hinckley and Bosworth where ground-mounted solar PV is highly unlikely to be feasible owing to national and statutory designations. Map 1 shows the different primary constraints whilst map 2 merges all the primary constraints into one layer with all elements shown as red. The legend in Map 1 identifies the colour associated with the primary constraints, the primary constraints shown below are as outlined within the methodology above.



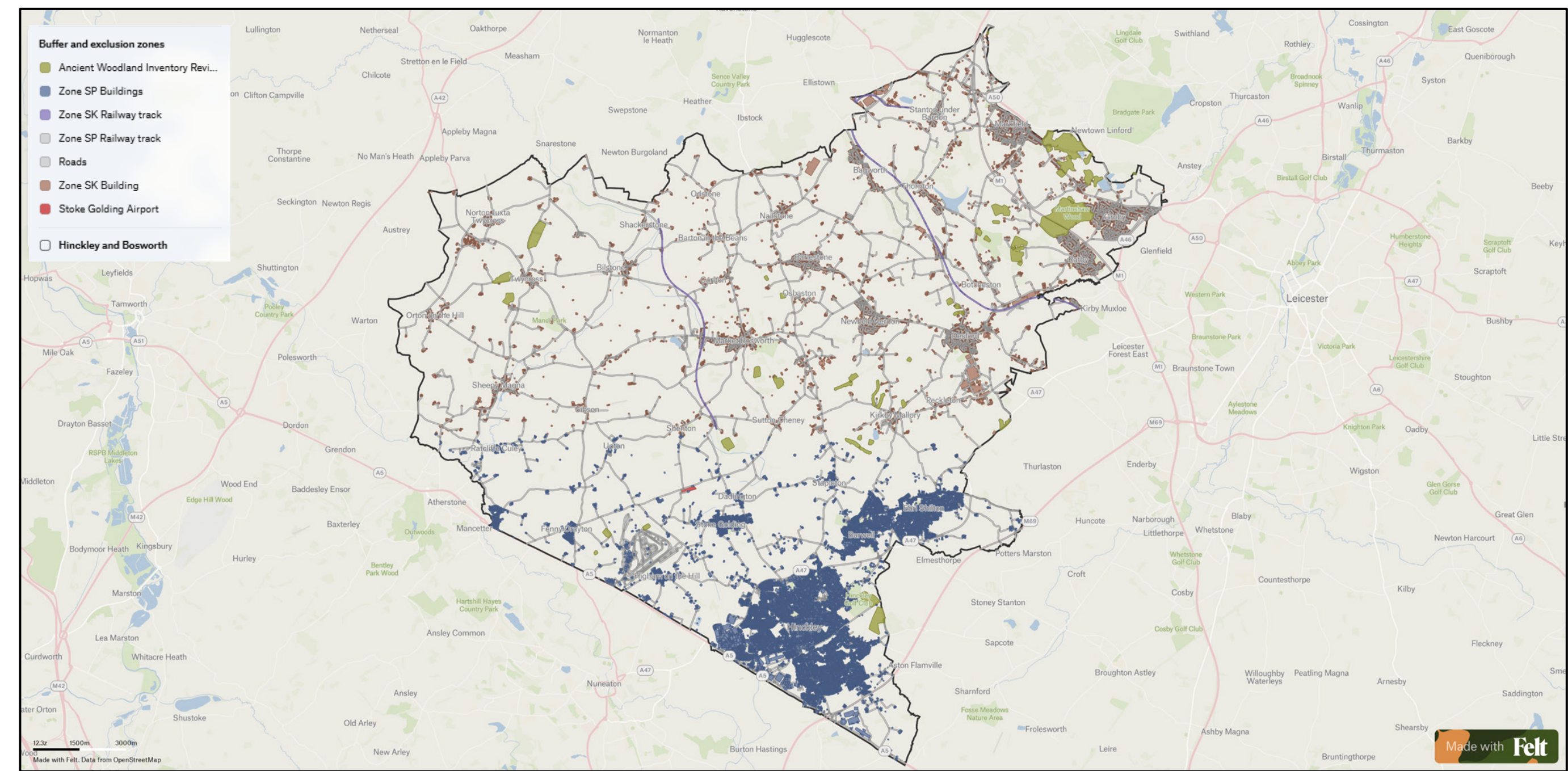
Map 1, primary constraints – Constituent elements



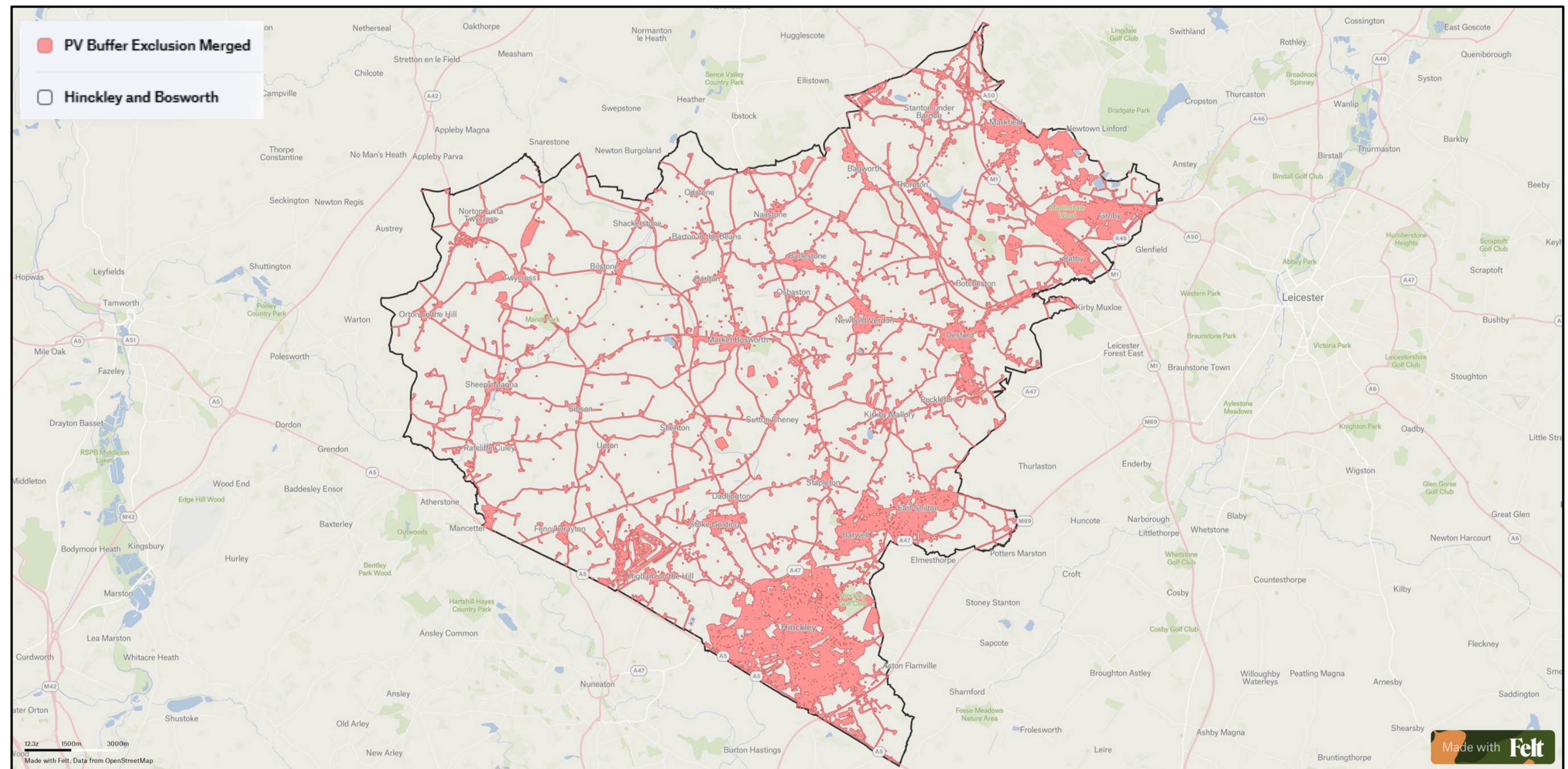
Map 2, primary constraints – Merged.

8.2.3 Buffer and exclusion zones

8.2.3.1 Map 3, below, shows the buffer and exclusions zones within Hinckley and Bosworth. The buffer and exclusion zone layer intends to minimise potential impacts on residents or infrastructure by applying various buffers onto the Primary constraints layer. The first map shows the different data layers used, including their buffers, with the legend identifying specific data sources and associated colours, whilst map 4 merges all the buffer and exclusion zones into one layer, shown as red.



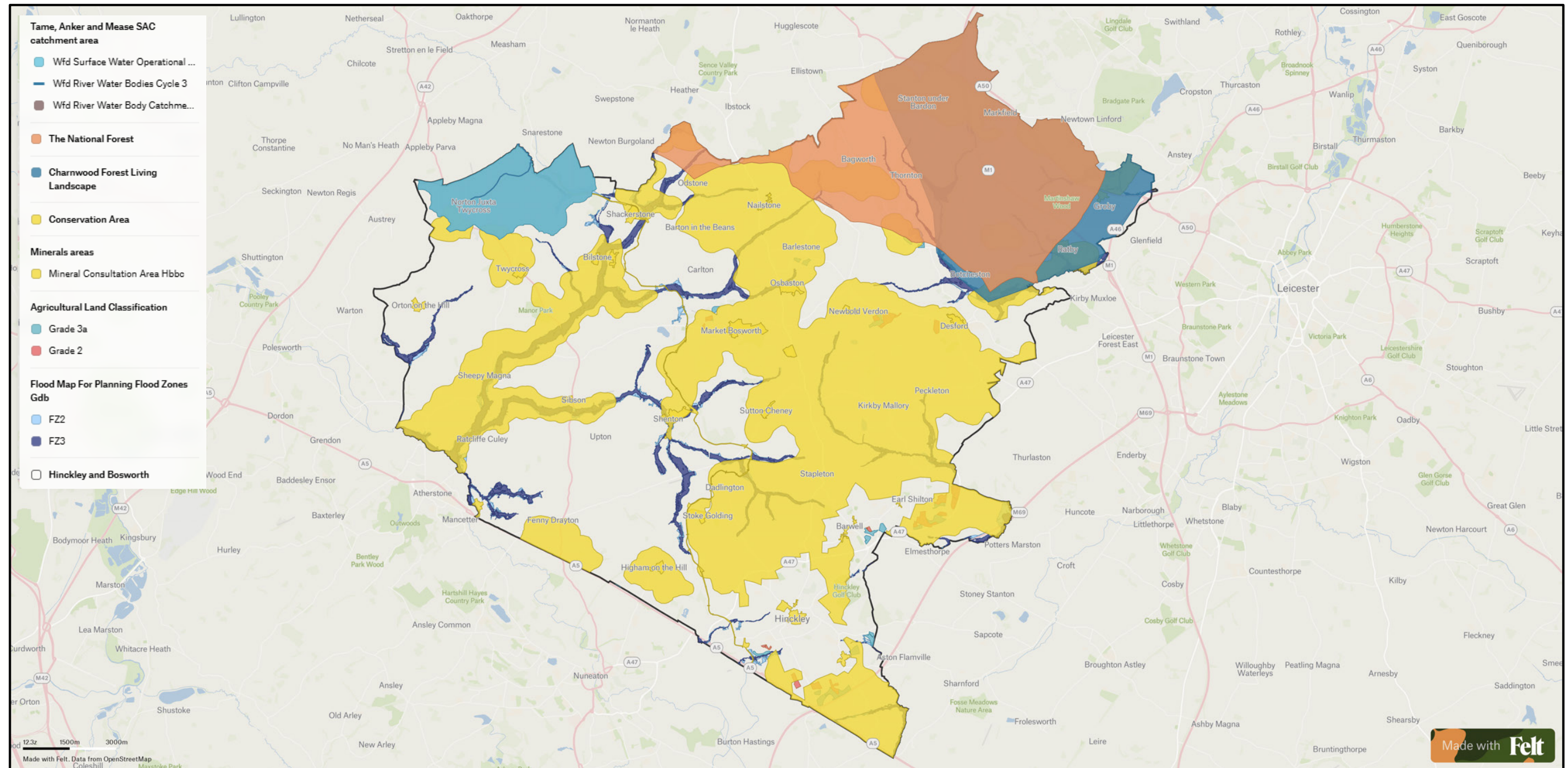
Map 3, buffer and exclusion zones – Constituent parts



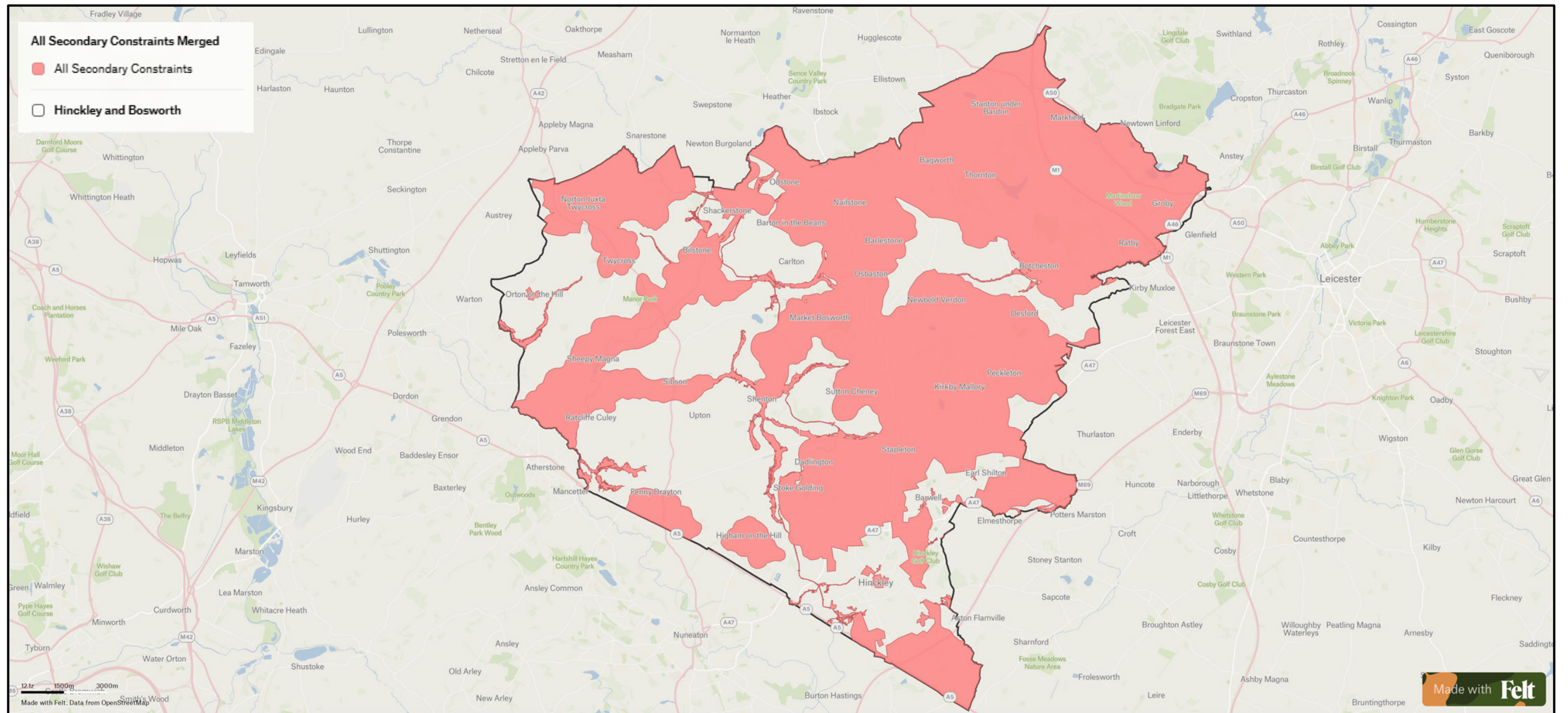
Map 4, buffer and exclusion zones – Merged.

8.2.4 Secondary constraints

8.2.4.1 Map 5 below shows the secondary constraints within Hinckley and Bosworth. Areas highlighted as secondary constraints will have an impact on planning application decision-making, but do not strictly rule out areas. Map 5 shows the different secondary constraints whilst map 6 merges all the secondary constraints into one layer. The individual colours of map 42 are identified within the legend and each represent a different data layer. Map 6 shows all the different layers merged, areas excluded at this level are shown in red.



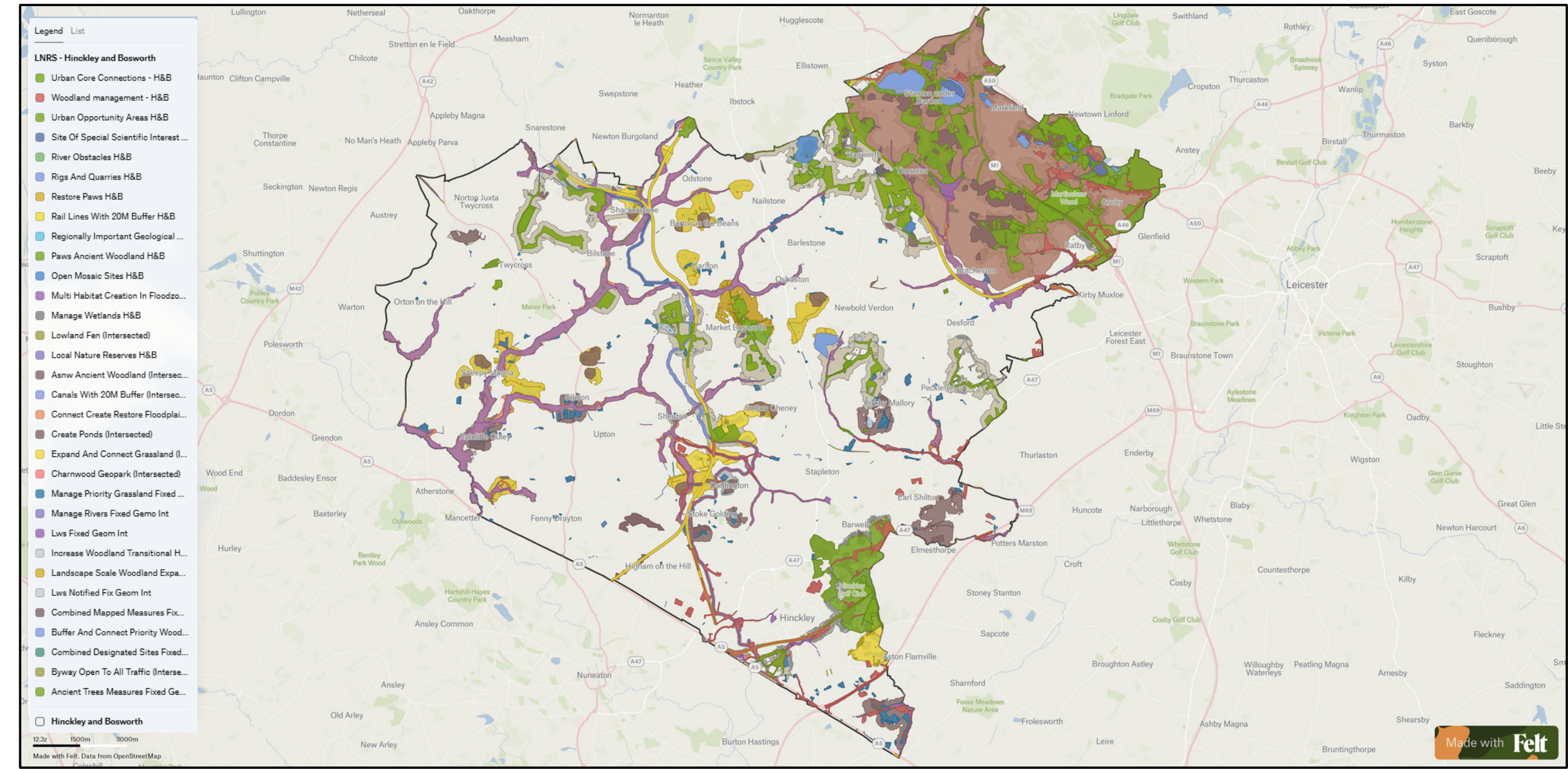
Map 5, Secondary constraints



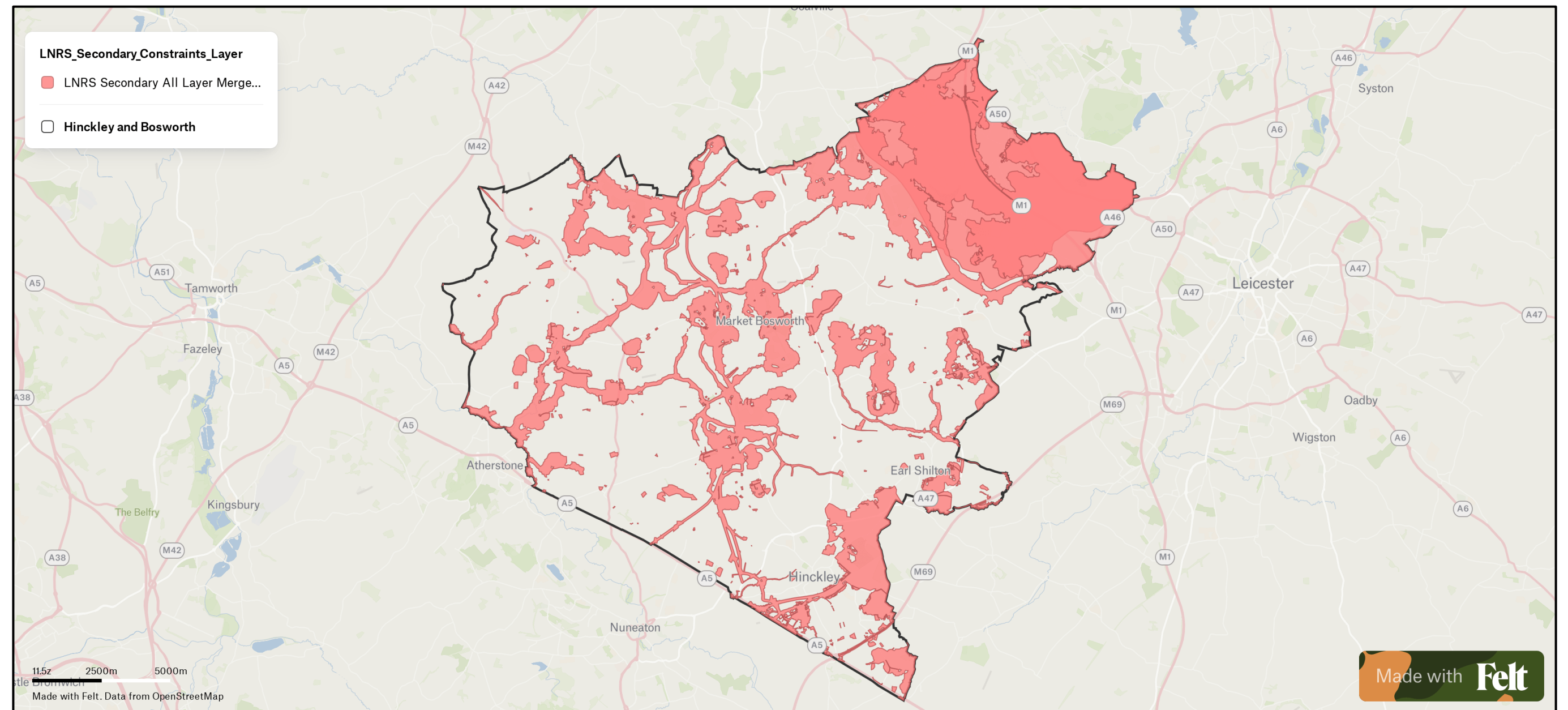
Map 6, All secondary constraints - Merged.

8.2.5 LNRS Secondary constraints

8.2.5.1 Map 7 below shows the Local Nature Recovery Strategy (LNRS) layers within Hinckley and Bosworth. The LNRS forms part of the secondary constraints layer and shows areas included within the LNRS which may impact planning application decision-making in relation to renewable energy, the legend below identifies the colours associated with individual LNRS layers. Map 8 merges all the LNRS layers into one LNRS secondary constraints layer, shown in red.



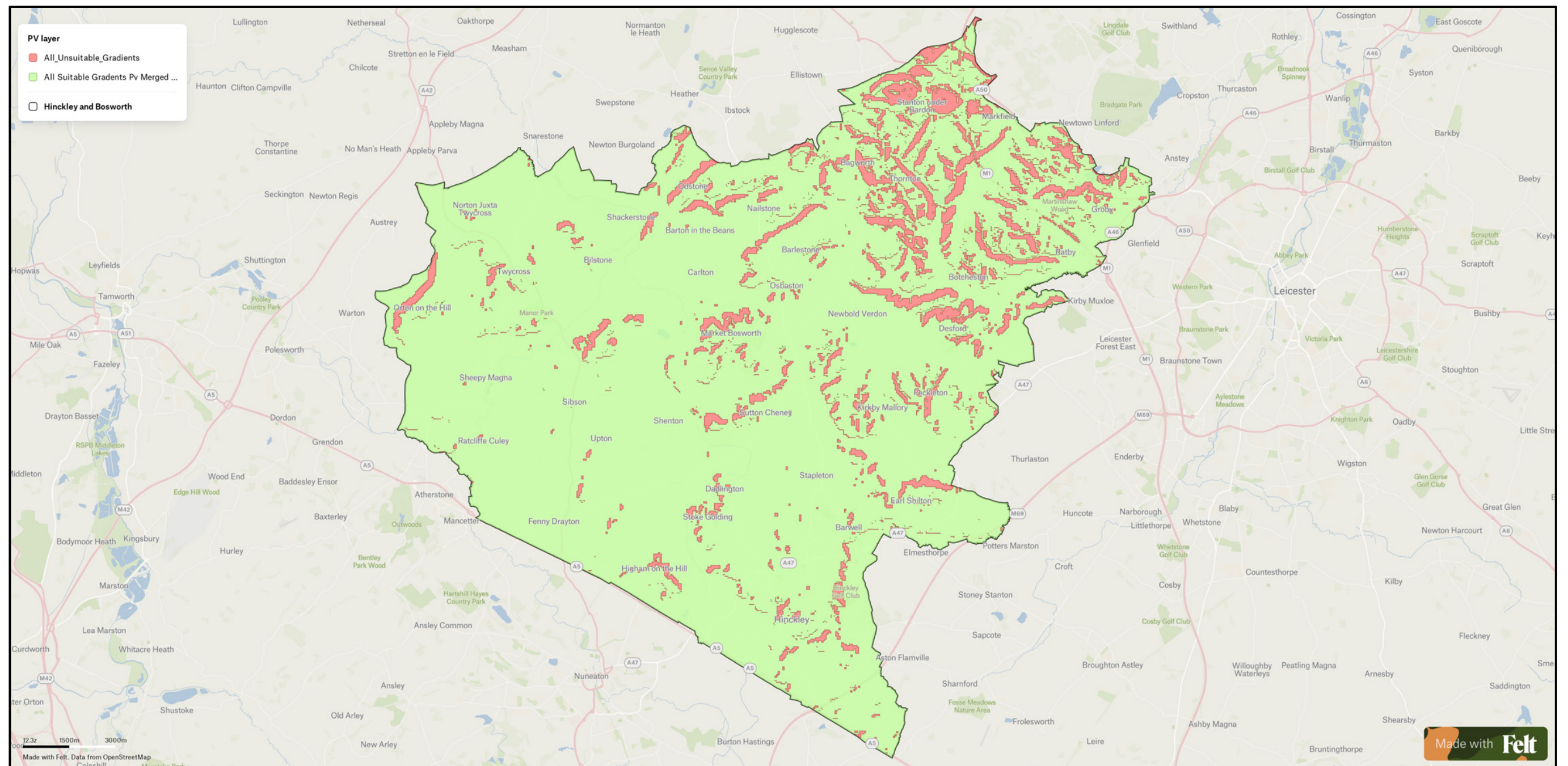
Map 7, LNRS layers in Hinckley and Bosworth



Map 8, LNRS secondary constraints – Merged.

8.2.6 Gradient

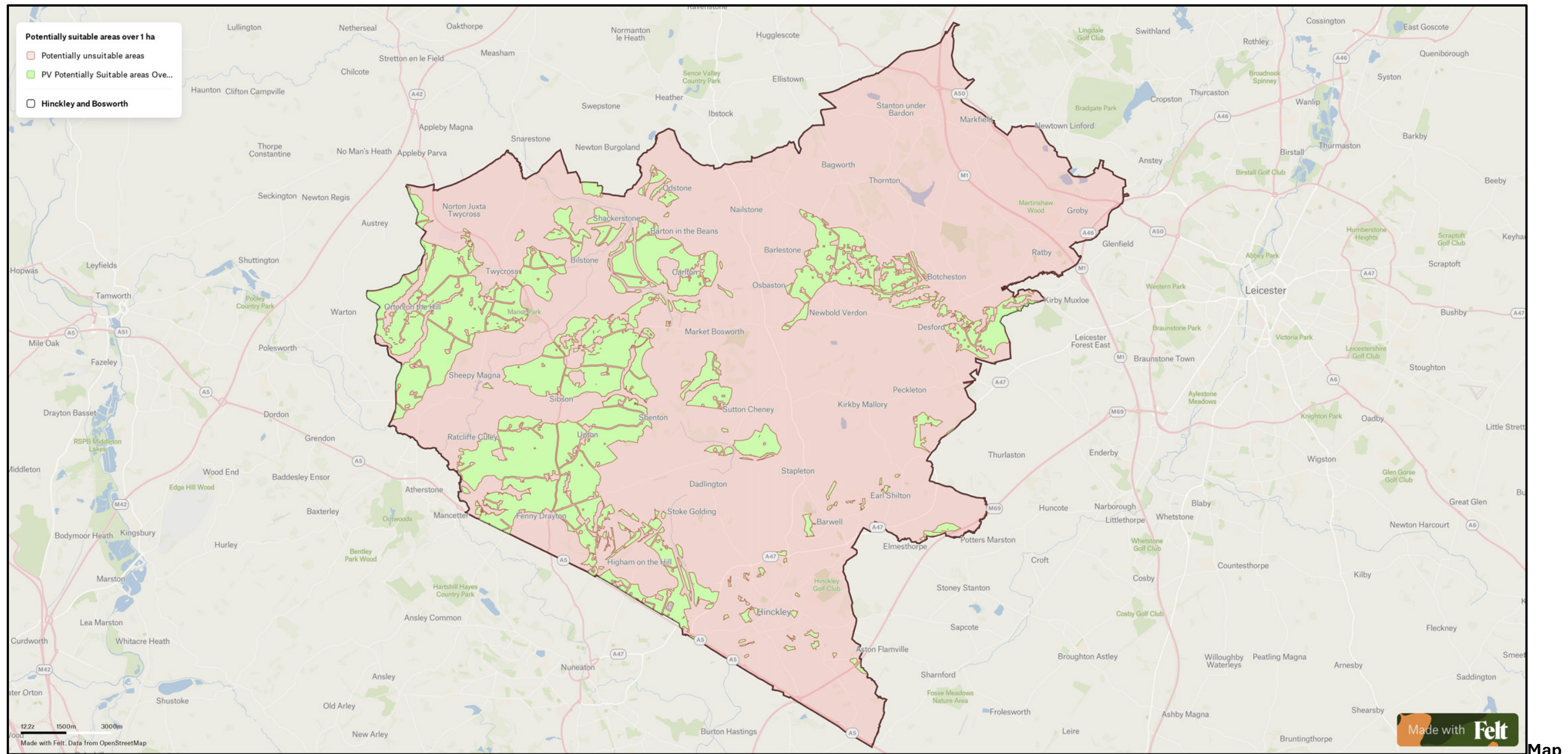
8.2.6.1 Map 9, below, shows areas of suitable and unsuitable gradients. Gradients are considered suitable, shown below in green, either if they are on a slope of 0-3° or if the slope is between 3-15° on a south west-east facing elevation. All unsuitable areas are shown in the map below in red. It is important to note that it is the choice and responsibility of the renewable energy development to determine whether a suitable area would enable high solar PV efficiency. However, the technical performance layer is a useful resource for both Development Management officers and developers to better understand the potential technical performance of suitable areas.



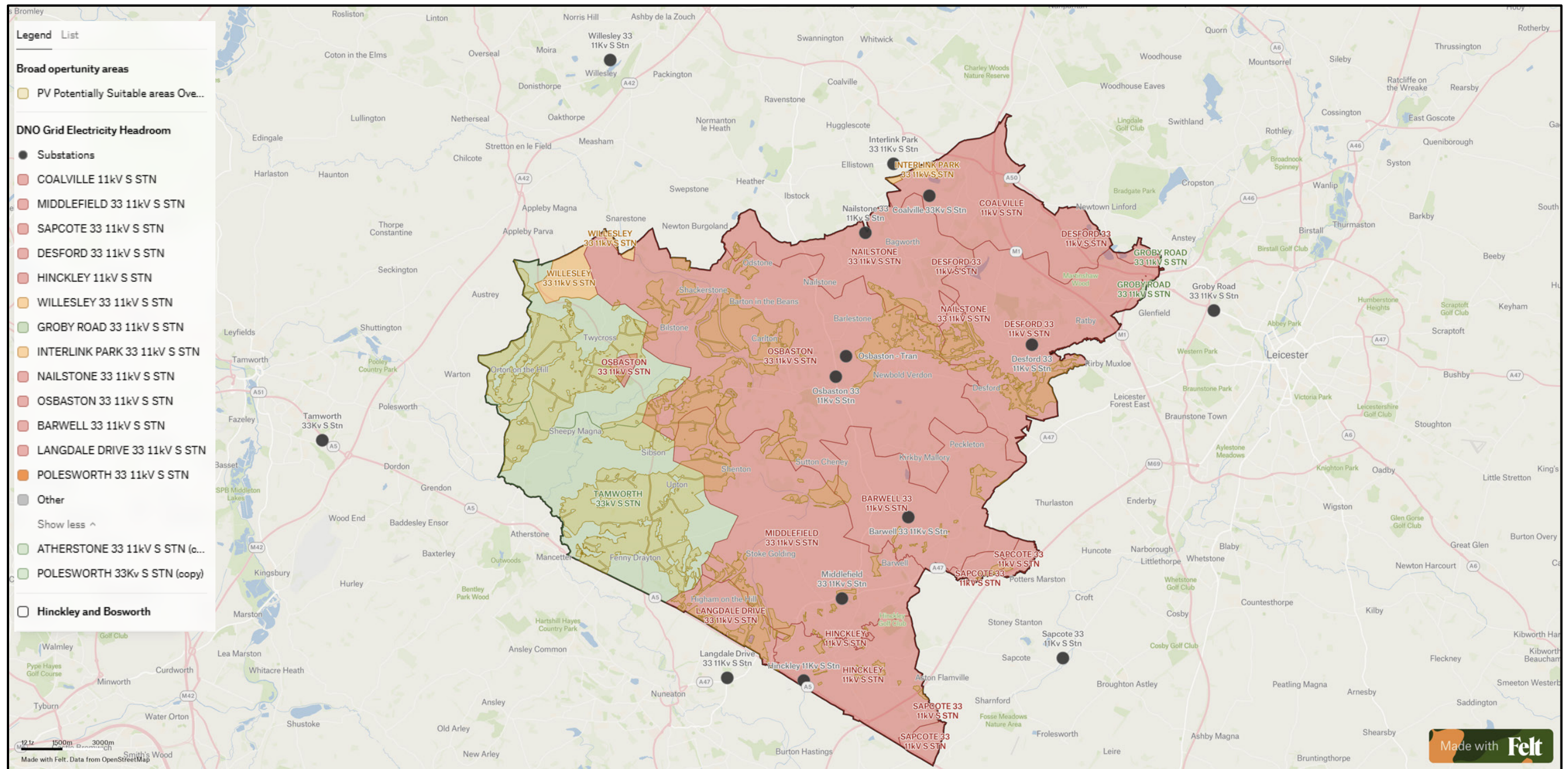
Map 9, Gradient map - PV

8.2.7 All constraints

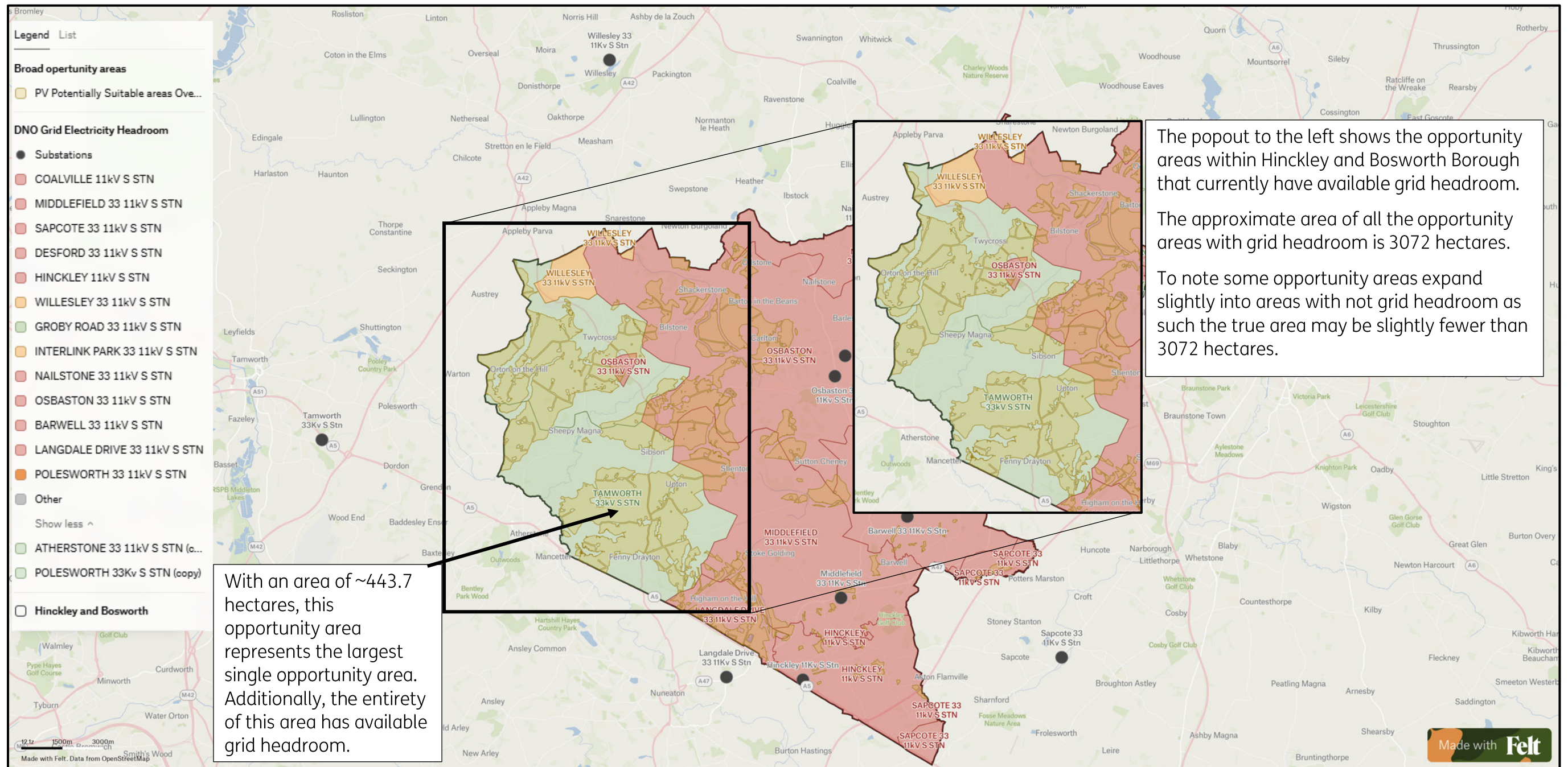
- 8.2.7.1 Map 10 below combines all of the ground-mounted solar PV suitability layers described above to create an overall suitability map. Areas shown in green indicate land with no identified constraints and therefore represent the most suitable opportunity areas for ground-mounted solar PV development within Hinckley and Bosworth Borough. Parcels of land smaller than 1 hectare have been excluded from the analysis, as these were considered unlikely to be capable of accommodating a viable ground-mounted solar PV development. However, determining the suitability and viability of individual sites remains the responsibility of the developer.
- 8.2.7.2 The opportunity areas shown in Map 10 represent land with no identified constraints, in accordance with the methodology set out in this report. Following the application of all constraints, a total of approximately **5,835 hectares of land** within Hinckley and Bosworth Borough has been identified as suitable for ground-mounted solar PV development. The largest individual opportunity area extends to **443.7 hectares** and is shown in Map 12. This area is located between Ratcliffe Culey and the A444.
- 8.2.7.3 Owing to their proximity away from urban centres and secondary constraints, such as best and most versatile agricultural land, and biodiversity layers there are considerable opportunity areas in the West of Hinckley and Bosworth Borough between Higham on the hill and Shackerstone. There is an additional band of opportunity areas in the North East of Hinckley and Bosworth between Barlestone and Desford. Whilst there are some opportunity areas within the more urban areas of Hinckley and Market Bosworth, the opportunity areas for solar PV are located more significantly in less urban areas with no biodiversity constraints.
- 8.2.7.4 Resulting from the proximity to roads and residential/non-residential buildings many urban areas are designated as primary constraints or buffer zones. Additional large scale secondary constraints surrounding Charnwood forest and the National forest reduce opportunity areas in the North of Hinckley and Bosworth with the suitable gradients layer further reducing opportunity areas based on the natural landscape.
- 8.2.7.5 Map 11 below overlays the identified ground-mounted solar PV opportunity areas with available distribution network operator (DNO) grid headroom at primary substation and bulk supply point level. As shown on Map 11, a number of opportunity areas in the south-west of Hinckley and Bosworth Borough are located within areas where grid headroom is currently available. This may represent a relative advantage for future renewable energy development. Conversely, opportunity areas located to the north-east of Bilstone and Shenton are not currently associated with available grid headroom at primary substation level. However, this should not preclude development, as grid availability is subject to change and connection opportunities are assessed on a site-specific basis. Developers should engage directly with the relevant DNO to confirm available capacity and connection requirements rather than relying solely on the information presented in this report.
- 8.2.7.6 Whilst all opportunity areas identified through this assessment are considered equally suitable in terms of the mapped constraints, differences in grid availability and proximity to existing network infrastructure may influence their relative attractiveness for development. Opportunity areas in the south-west of the borough are associated with currently available grid headroom, although they are located approximately 6.2 km from Tamworth Primary Substation and 3.4 km from Langdale Drive Primary Substation, which may affect connection requirements and costs. Other opportunity areas are located in closer proximity to the Osbaston, Desford, Barwell, Middlefield, Langdale Drive and Hinckley Primary Substations. Whilst proximity to existing substations may be beneficial, these substations are currently reported as having limited or no available grid headroom. As a result, both network capacity and distance to a suitable connection point should be considered when assessing potential development opportunities. This assessment does not seek to provide grid connection advice, and applicants should confirm all connection requirements directly with the relevant DNO.
- 8.2.7.7 Map 12 below shows the identified ground-mounted solar PV opportunity areas overlaid with available grid headroom and includes annotations highlighting key characteristics of the principal opportunity areas. The planning policy context relating to these opportunity areas is discussed in Section 8.12.



10, PV areas with no constraints



11, PV areas with no constraints with grid headroom overlaid



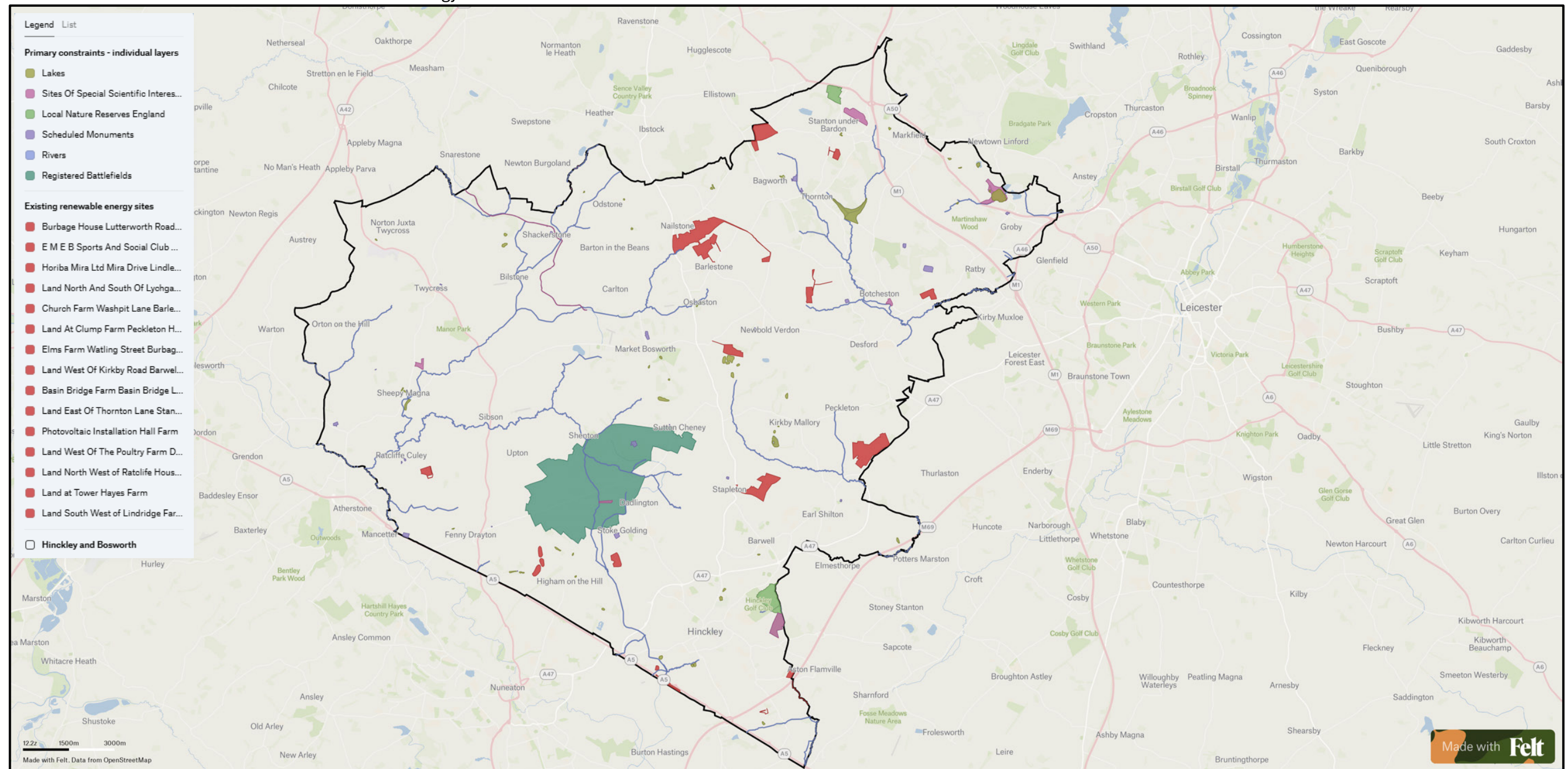
12, Annotated PV areas with no constraints with grid headroom overlaid

8.3 OW1 Onshore wind

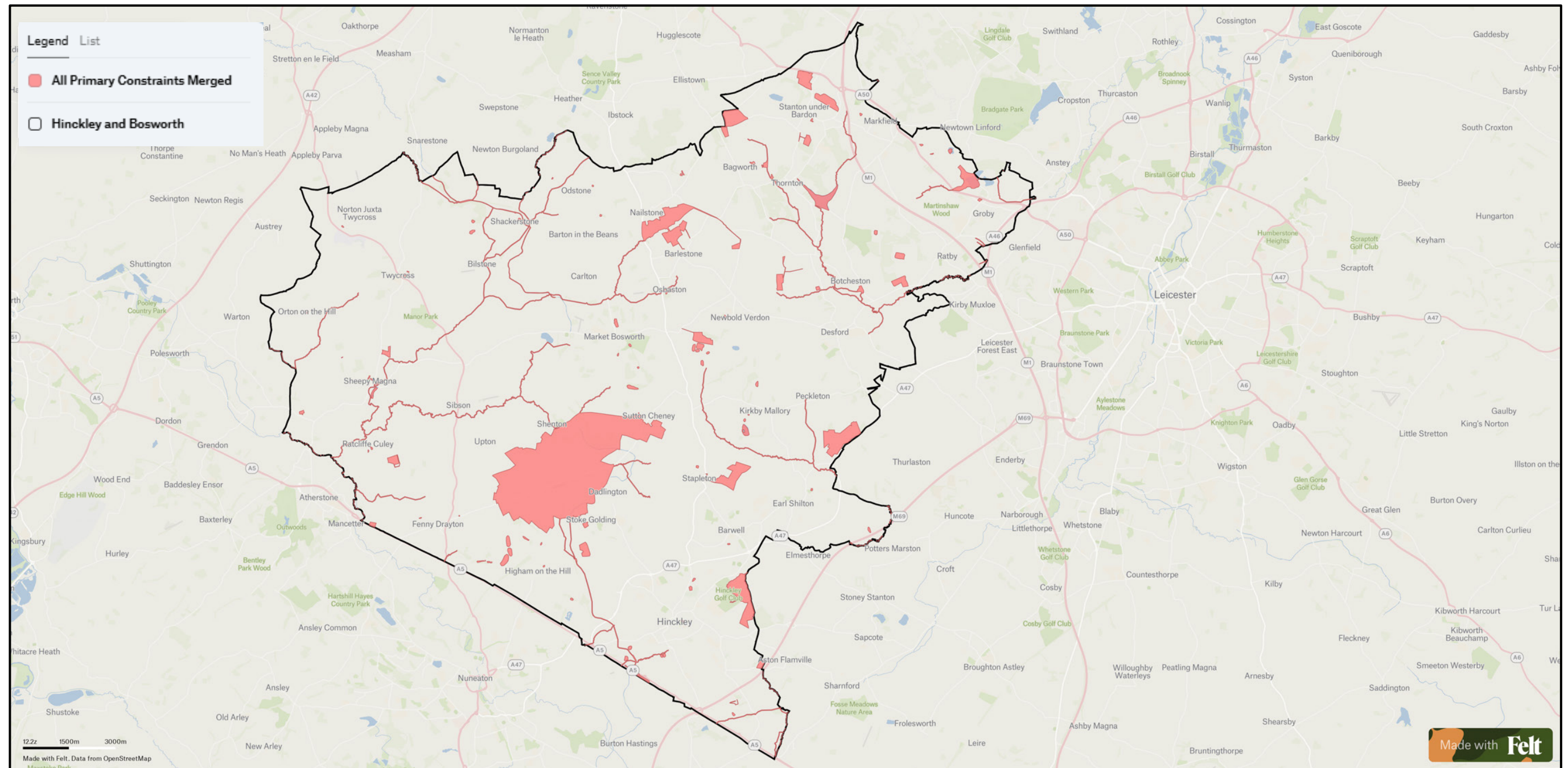
8.3.1 An assessment of the viability of onshore wind with a tip height of 25 - 100m within Hinckley and Bosworth has been conducted in line with the methodology within section 3 of this report.

8.3.2 Primary constraints

8.3.2.1 Map 13 below shows the individual layers that form the primary constraints within Hinckley and Bosworth where onshore wind is highly unlikely to be feasible owing to national and statutory designations. Map 14 merges all the primary constraints into one layer, shown in red. The legend in Map 13 identifies the colour associated with the primary constraints, the primary constraints shown below are as outlined within the methodology above.



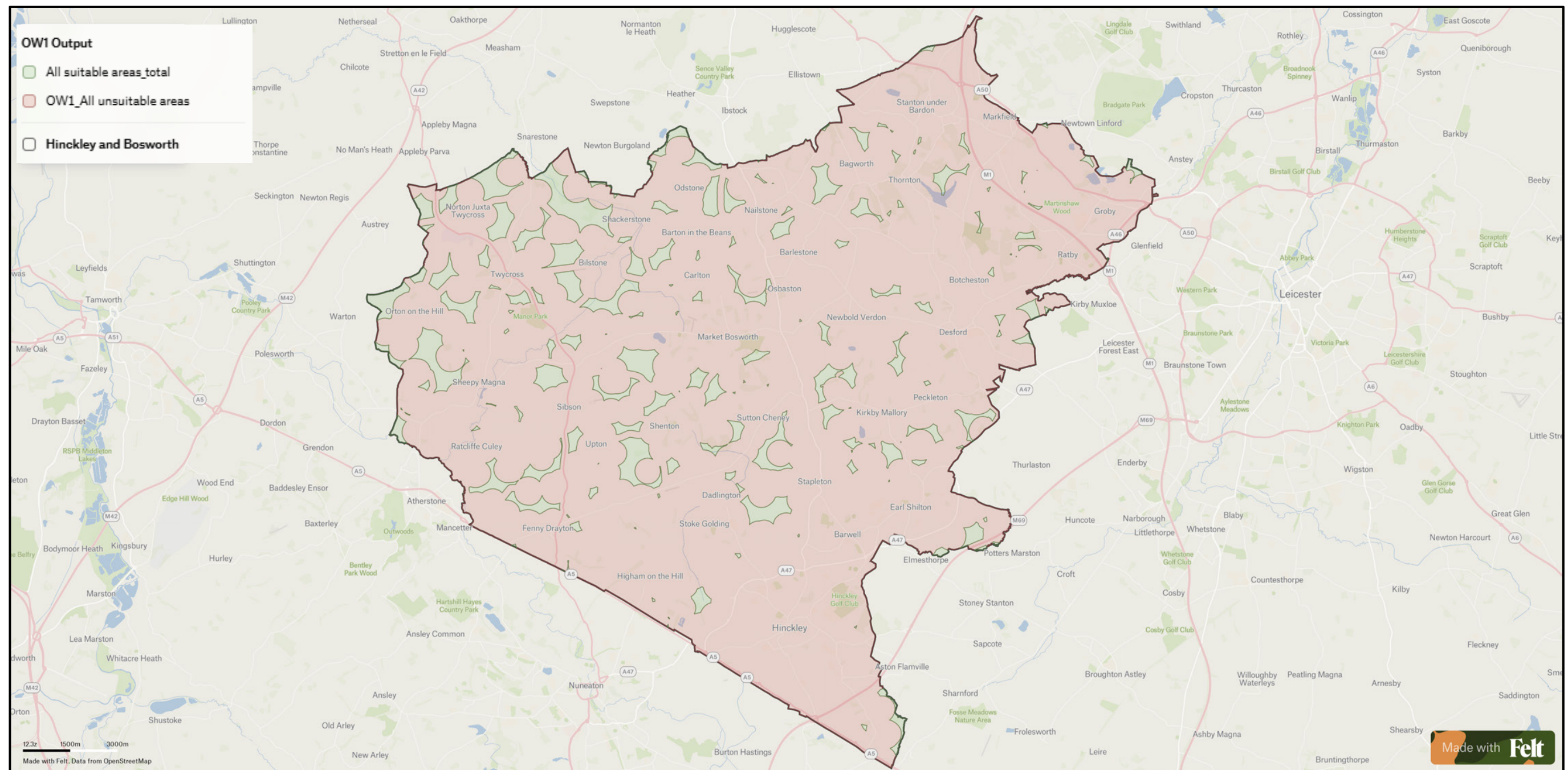
Map 13, primary constraints – Constituent elements



Map 14, primary constraints – Merged.

8.3.3 Buffer and exclusion zones

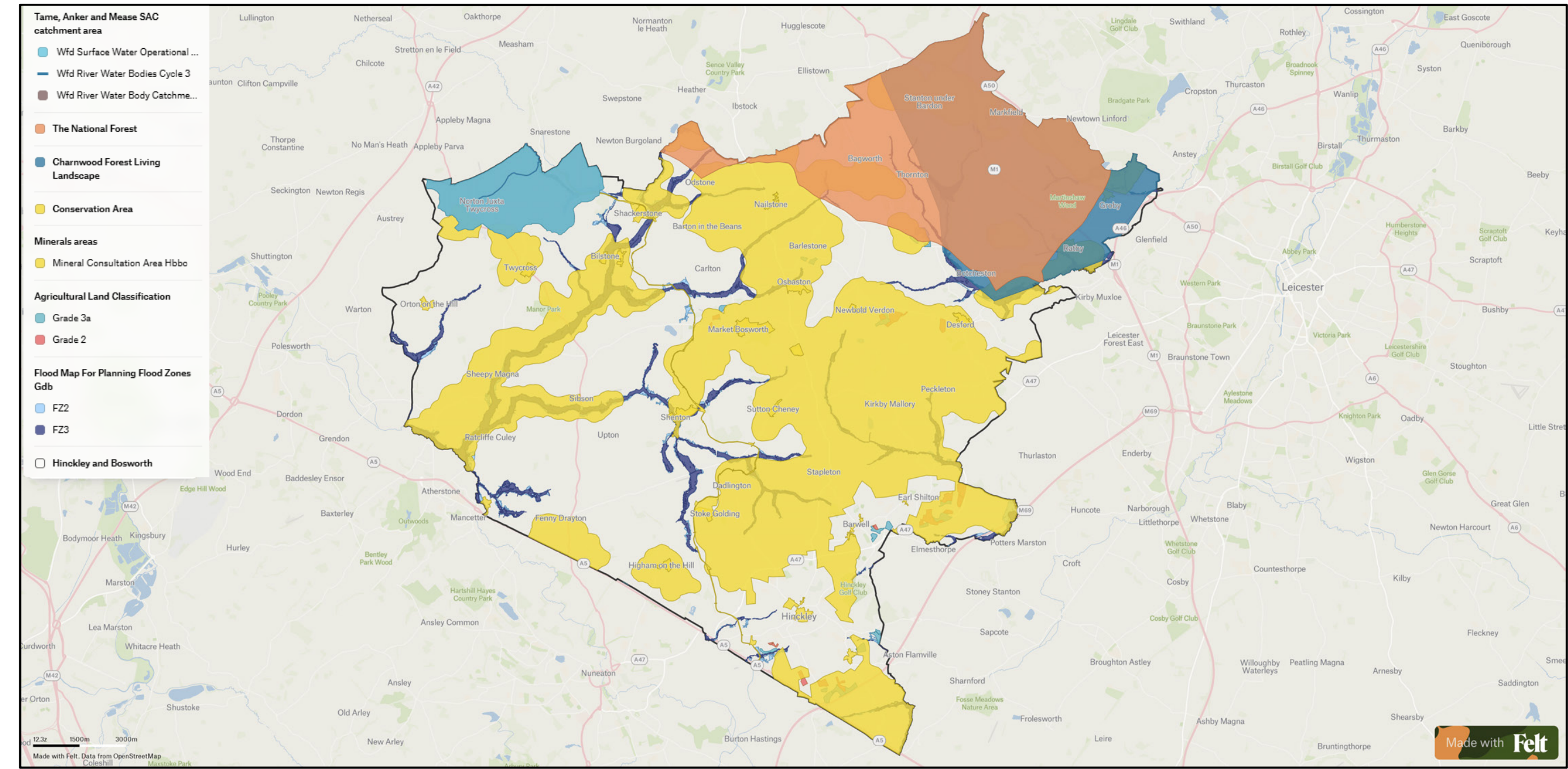
8.3.3.1 Map 15 below shows the buffer and exclusions zones within Hinckley and Bosworth for wind turbines with a height of 25 -100 meters. The buffer and exclusion zone layer intends to minimise potential impacts on residents or infrastructure by applying various buffers onto the Primary constraints layer. There are a significant number of features within the individual buffer zones layer, as such this layer has not been displayed within the report. Map 15 shows the suitable areas once all buffer zones have been applied in line with the methodology presented in section 3 of this report. Areas that are excluded at this level are shown in red with areas suitable at this level shown in green.



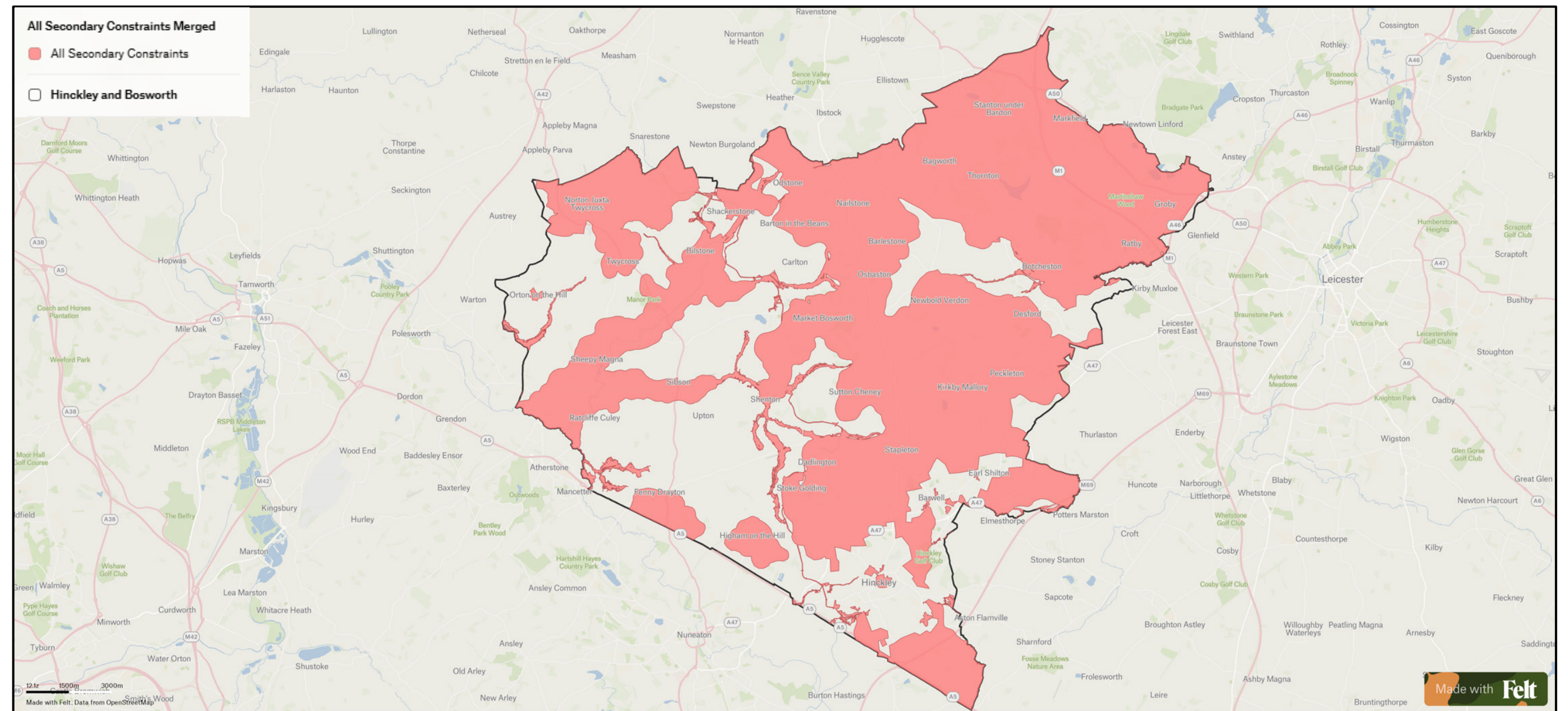
Map 15, Onshore wind (OW1) buffer and exclusion zones

8.3.4 Secondary constraints

8.3.4.1 Map 16, below, shows the individual layers that form secondary constraints within Hinckley and Bosworth. Areas highlighted as secondary constraints will have an impact on planning application decision-making, but do not strictly rule out areas that have been identified by preceding layers. The individual colours of map 16 are identified within the legend and each represent a different data layer. Map 17 shows all the different layers merged, areas excluded at this level are shown in red.



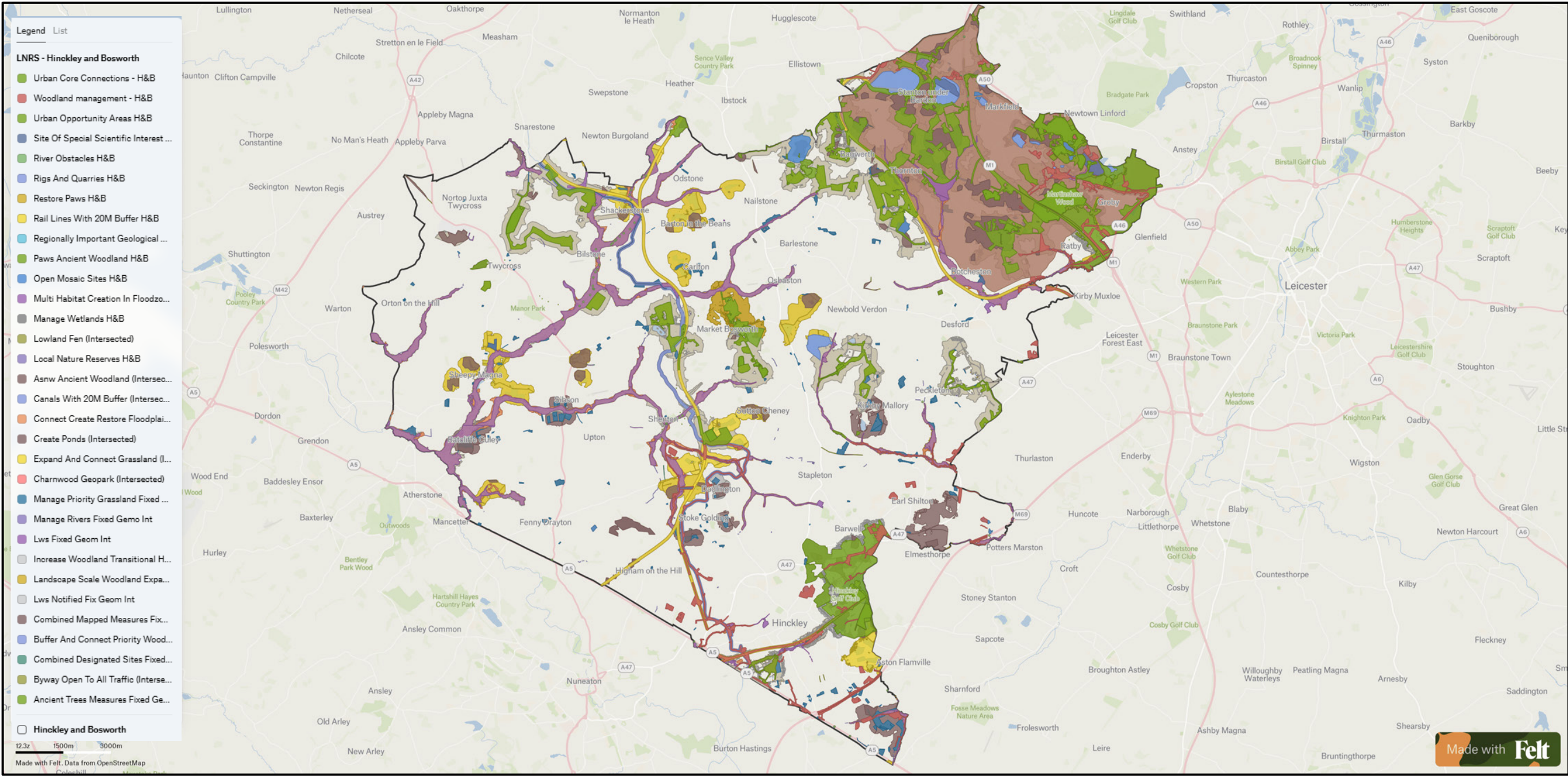
Map 16, Secondary constraints



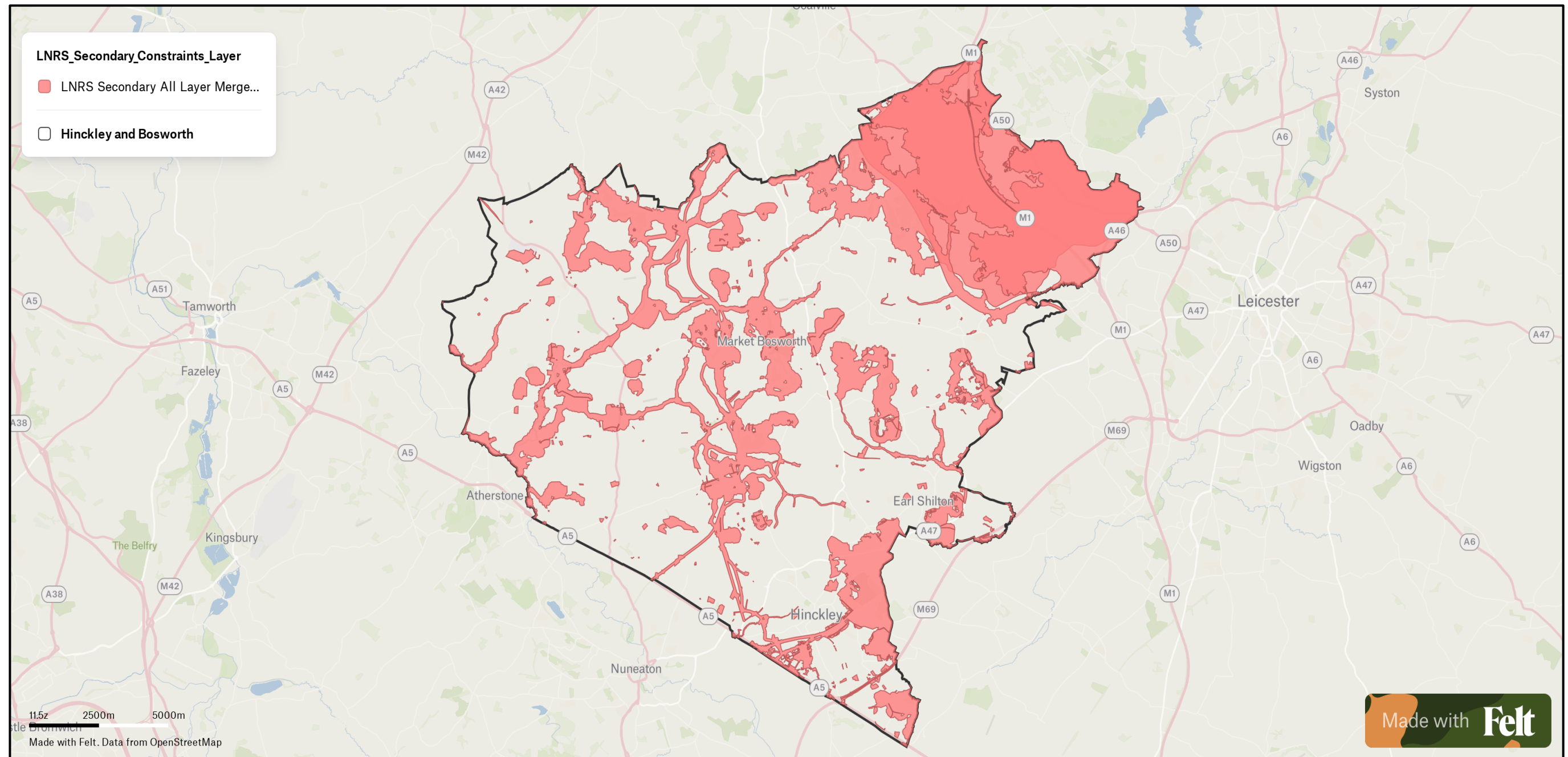
Map 17, All secondary constraints - Merged.

8.3.5 LNRS Secondary constraints

8.3.5.1 Map 18, below, shows the LNRS secondary constraints within Hinckley and Bosworth. This map shows areas of the LNRS within Hinckley and Bosworth which may impact planning application decision-making. Map 18 shows the different LNRS layers, the legend in map 18 below identifies the colours associated with individual LNRS layers. Map 19 merges all the LNRS layers into one LNRS secondary constraints layer, shown in red.

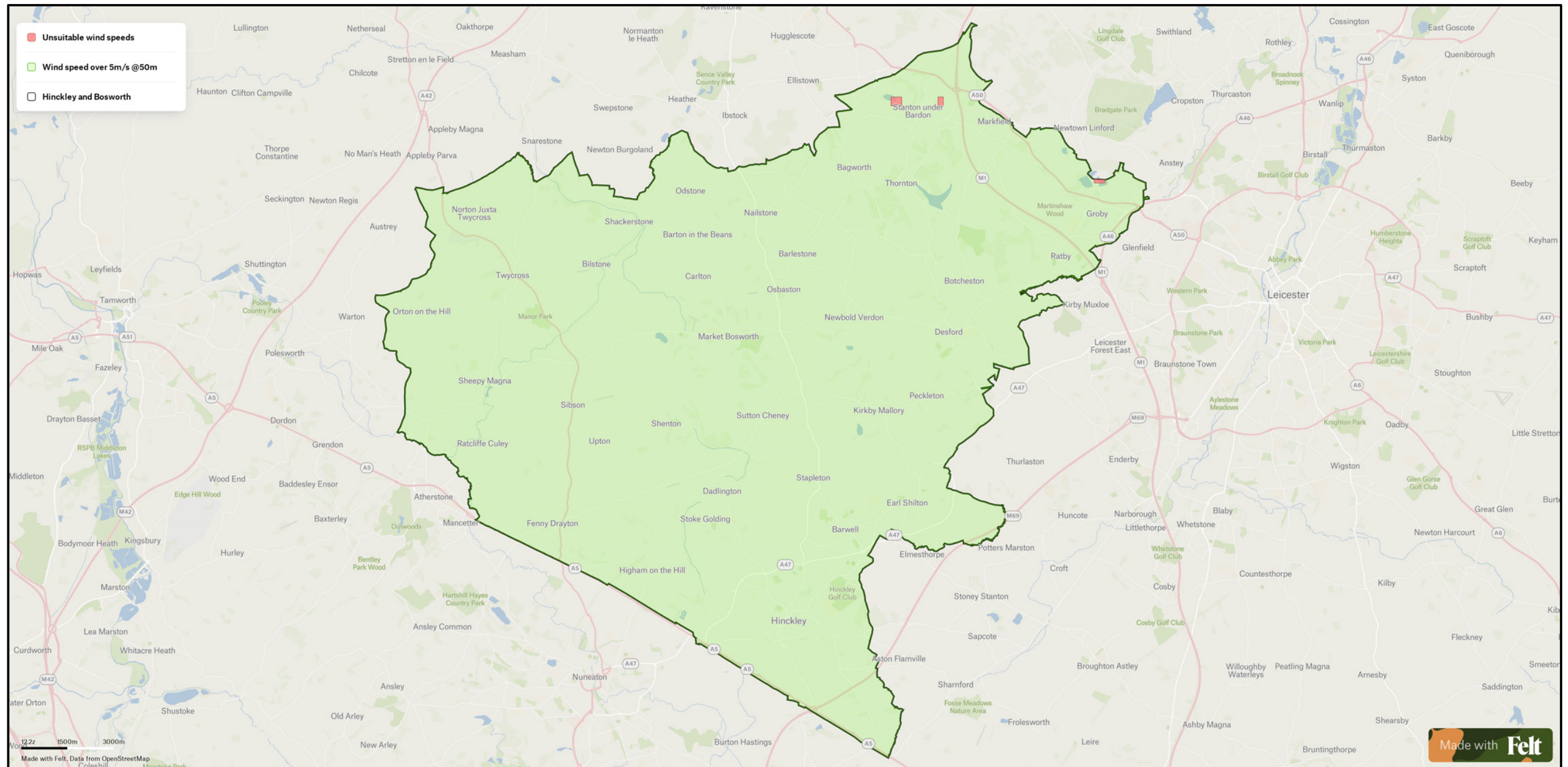


Map 18, LNRS layers in Hinckley and Bosworth



8.3.6 Wind speed

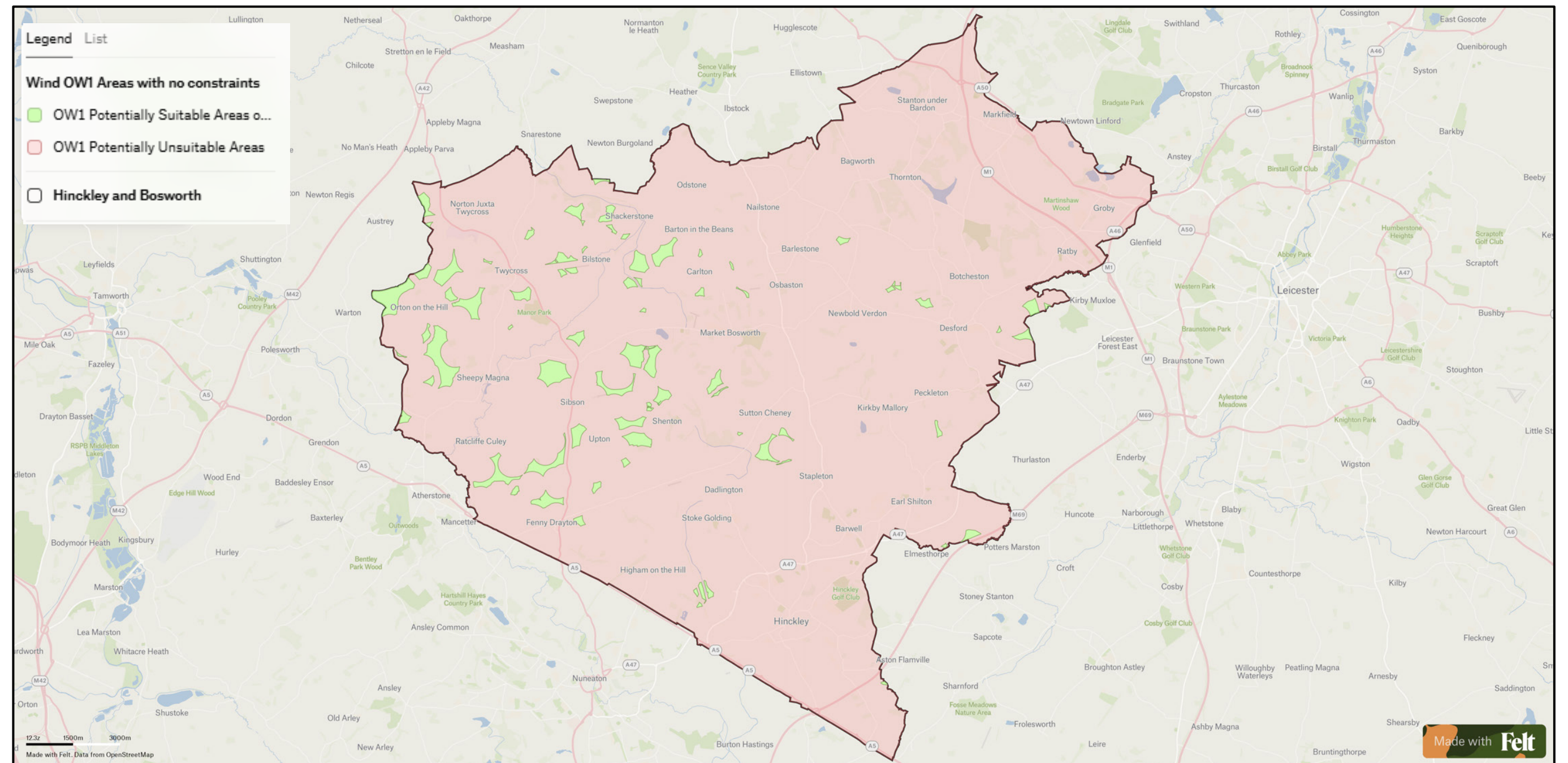
8.3.6.1 Map 20 below shows areas of suitable and unsuitable wind speeds. It is assumed that 5.0 metres/second is sufficient to determine an area as suitable for onshore wind development from a technical performance perspective. Any areas with wind speeds of less than 5.0 metres/second will be classed as unsuitable, shown as red with suitable areas shown as green. It is important to note that it is the choice and responsibility of the renewable energy development to determine whether a suitable area would enable high wind energy efficiency. However, the technical performance layer is a useful resource for both Development Management officers and developers to better understand the potential technical performance of suitable areas. As can be seen from map 20, below, the vast majority of Hinckley and Bosworth contains wind speeds of over 5 meters/second.



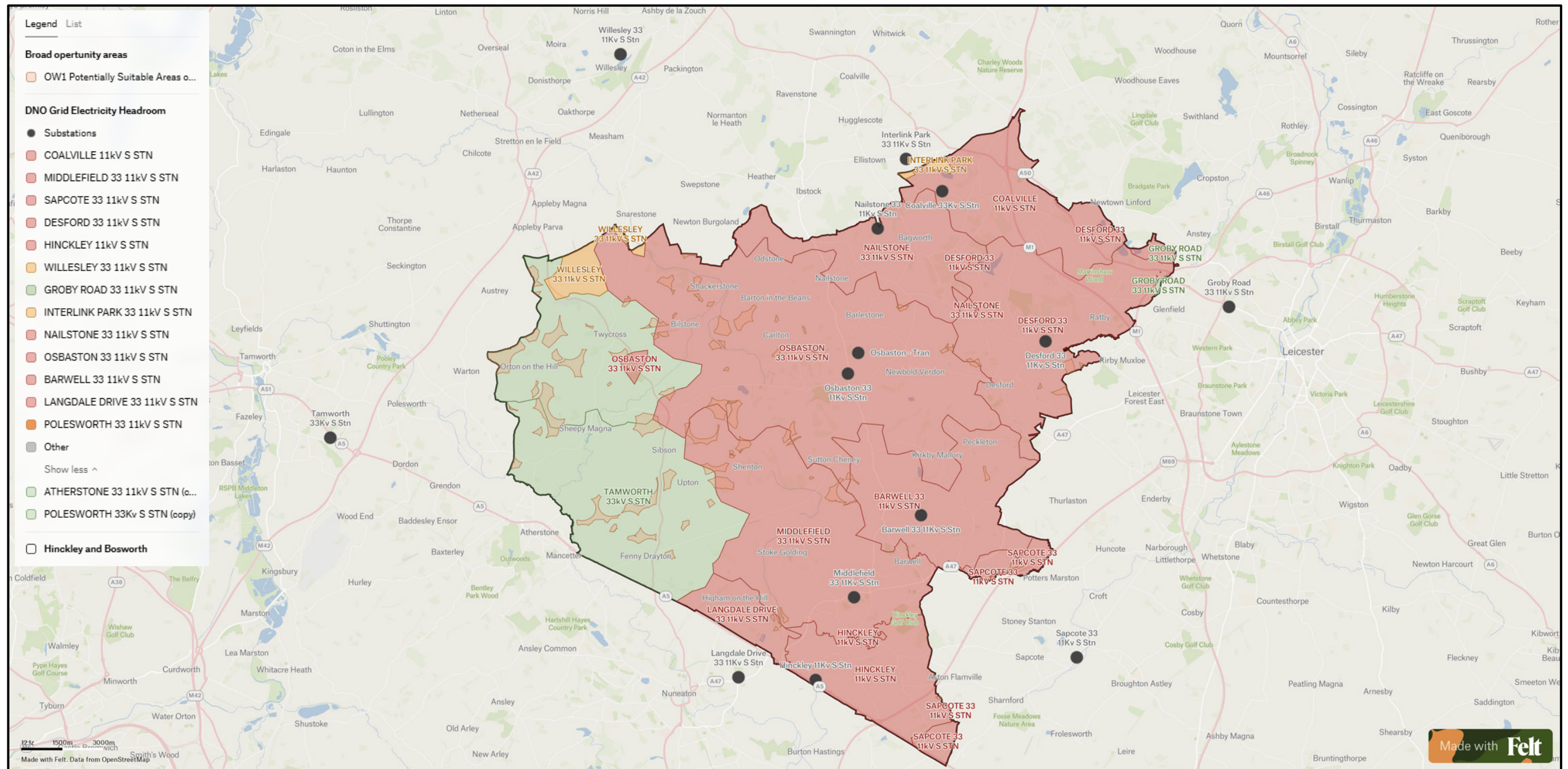
Map 20, Suitable and unsuitable wind speeds

8.3.7 All constraints

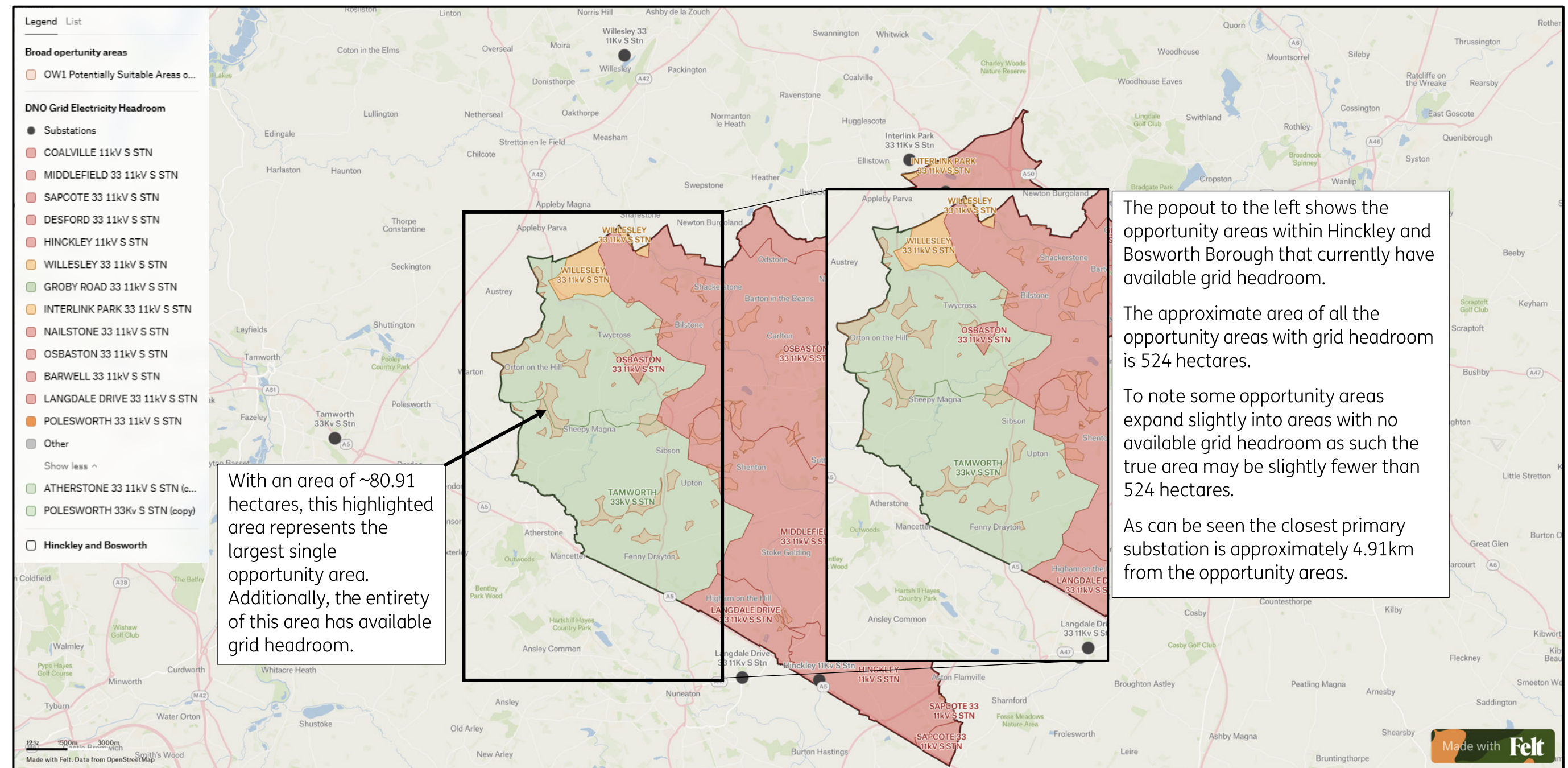
- 8.3.7.1 Map 21 below combines all OW1 suitability layers to create an overall suitability map for onshore wind turbines with a tip height of 25–100 metres. Areas shown in green indicate land with no identified constraints in accordance with the methodology set out in this report and therefore represent potential opportunity areas for onshore wind development. Parcels of land smaller than 1 hectare have been excluded from the analysis, as these were considered unlikely to be capable of accommodating a viable onshore wind development of this scale. However, determining the suitability and viability of individual sites remains the responsibility of the developer.
- 8.3.7.2 Opportunity areas have been identified by applying all mapped constraints and highlighting the remaining unconstrained land. Opportunity areas for onshore wind turbines with a tip height of 25–100 metres are shown in green on Map 21. In total, approximately 950.85 hectares of opportunity land has been identified. Compared with ground-mounted solar PV, onshore wind development is subject to additional constraints, particularly those associated with turbine topple distances and noise buffers, which reduce the extent of suitable land. The largest opportunity area covers 80.91 hectares and is located between Sheepy Magna and Orton on the Hil.
- 8.3.7.3 The application of topple distance and noise buffers means that opportunity areas are predominantly located away from more densely developed parts of the borough. Additional constraints associated with Charnwood Forest and the National Forest further reduce the extent of suitable land in the northern parts of Hinckley and Bosworth. Wind speeds do not represent a significant constraint within the borough, with only approximately 17 hectares of land recording average wind speeds below 5.0 metres per second. As a result, the majority of identified opportunity areas are concentrated in the western part of the borough.
- 8.3.7.4 Map 22 shows the identified opportunity areas overlaid with available DNO grid headroom. There is a significant overlap between opportunity areas and locations where grid headroom is currently available. Approximately 524 hectares, representing around 55% of the identified opportunity area, falls within areas with available grid capacity. The availability of grid headroom may represent a relative advantage for development in these locations. However, these areas are located approximately 6.2 km from Tamworth Primary Substation and 3.4 km from Langdale Drive Primary Substation, which may influence connection requirements and costs. Developers should engage directly with the relevant DNO to confirm available capacity and connection requirements rather than relying solely on the information presented in this report, which does not seek to provide grid connection advice.
- 8.3.7.5 The remaining opportunity areas are located in areas with more limited currently available grid headroom. However, some are situated closer to existing primary substations. For example, a 16.11 hectare opportunity area lies within 1 km of Desford Primary Substation. Several additional opportunity areas are located within 3 km of the Osbaston, Barwell, Middlefield, Nailstone and Hinckley Primary Substations. Whilst proximity to existing substations may be beneficial, connection feasibility will depend on available network capacity and site-specific circumstances. As above, developers should engage directly with the relevant DNO to confirm connection requirements and available capacity.
- 8.3.7.6 Map 23 provides annotated information for the principal opportunity areas identified through this assessment.



Map 21, Onshore wind (OW1) areas with no constraints



Map 22, Onshore wind (OW1) opportunity areas, overlaid with grid headroom.



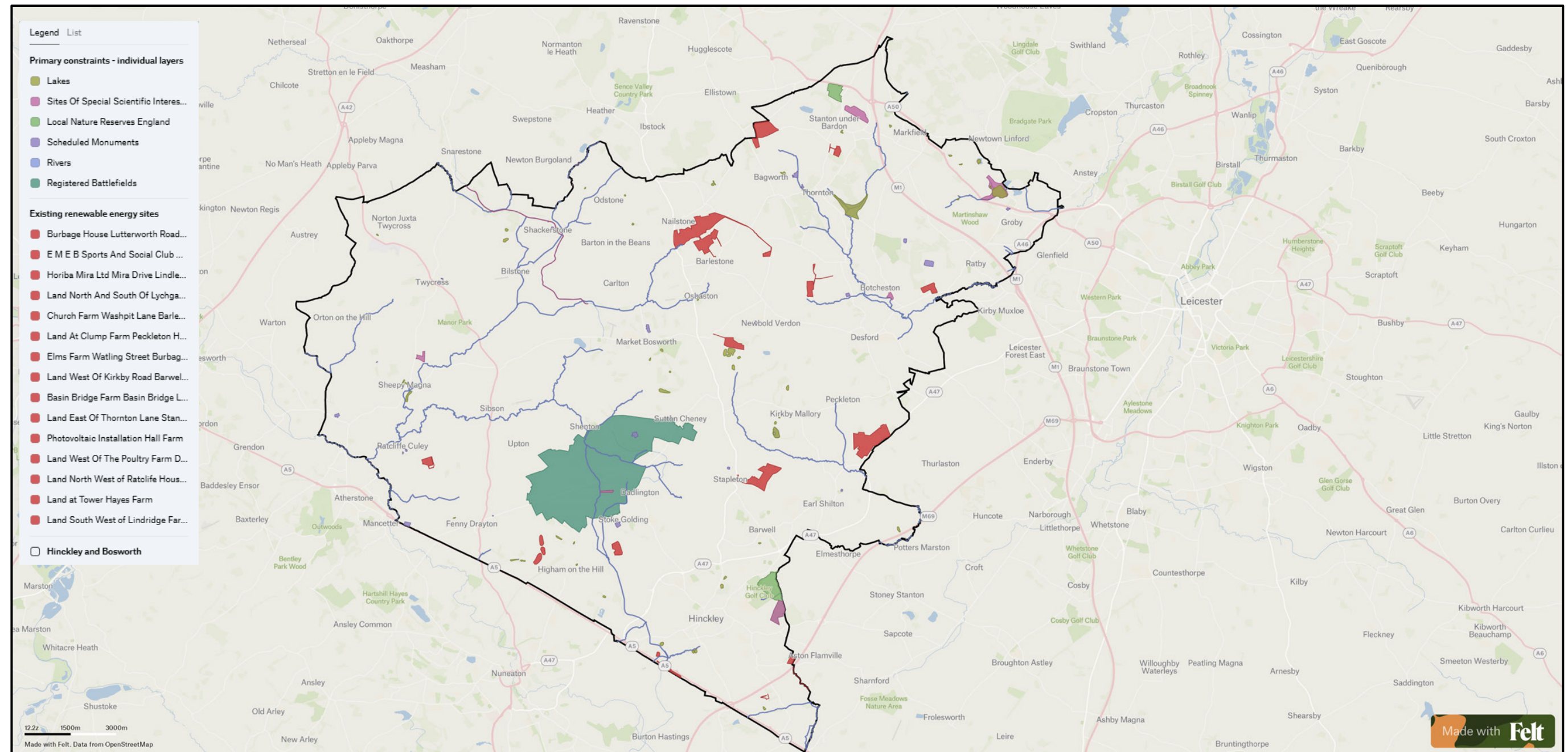
Map 23, Onshore wind (OW1) opportunity areas, overlaid with grid headroom, annotated.

8.4 OW2 Onshore wind

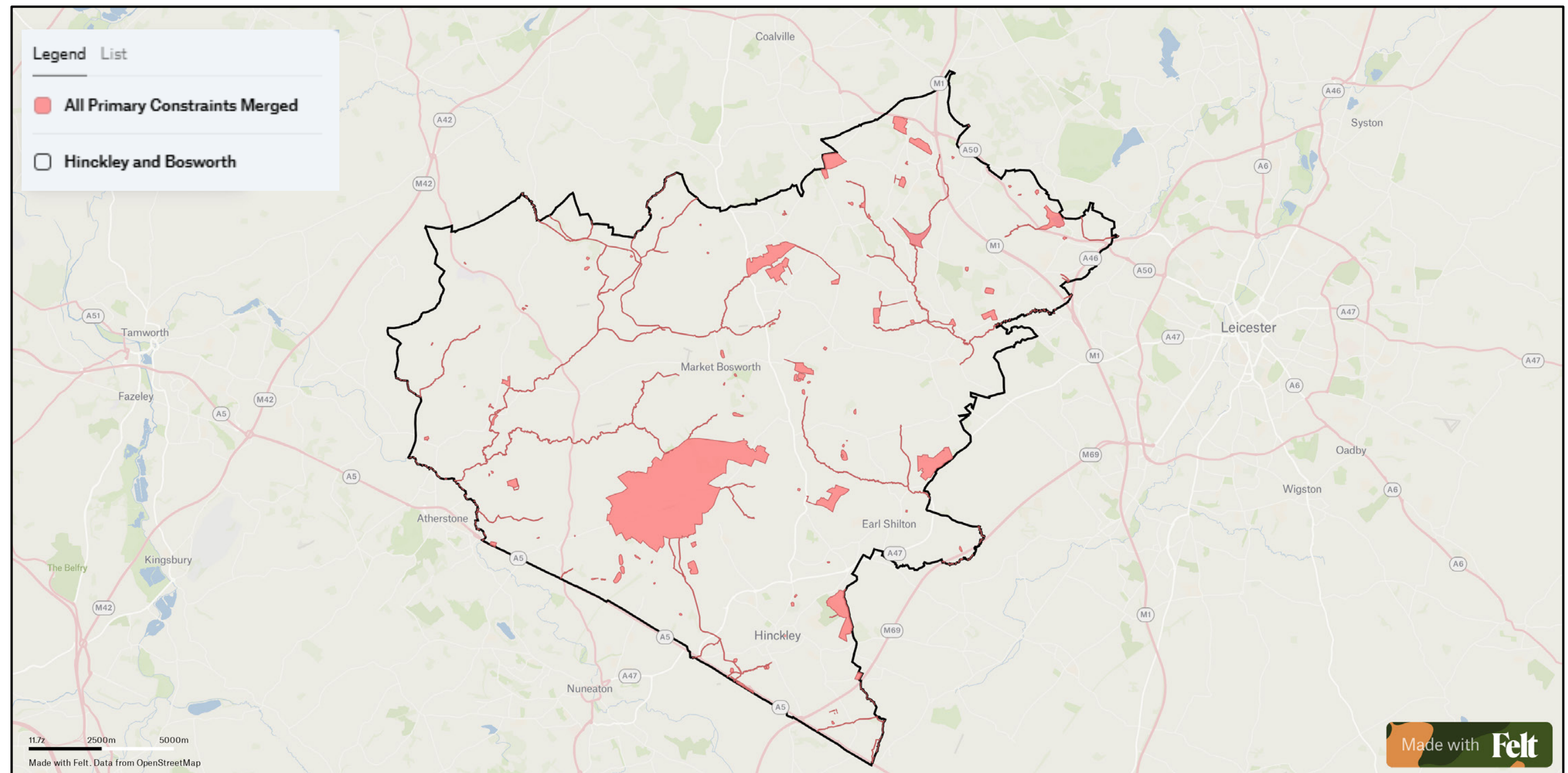
8.4.1 An assessment of the viability of onshore wind with a tip height of 100 - 150m (OW2) within Hinckley and Bosworth has been conducted in line with the methodology within section 3 of this report.

8.4.2 Primary constraints

8.4.2.1 Map 24, below, shows all the layers that form the primary constraints within Hinckley and Bosworth where onshore wind is highly unlikely to be feasible owing to national and statutory designations. Map 25 merges all the primary constraints into one layer. The legend in Map 24 identifies the colour associated with the primary constraints, the primary constraints shown below are as outlined within the methodology above. All primary constraints in map 25 are shown as red areas.



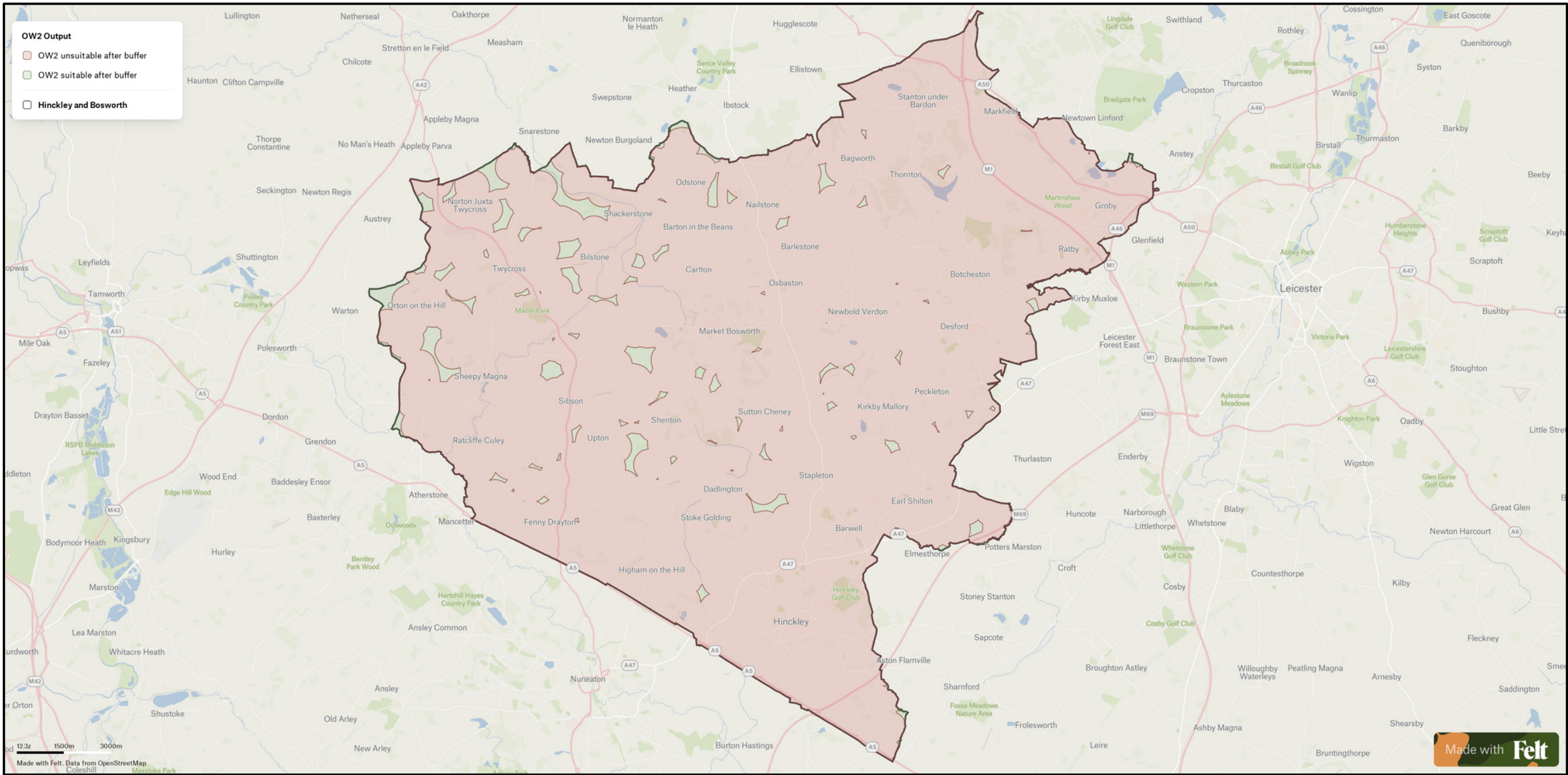
Map 24, primary constraints – Constituent elements



Map 25, primary constraints – Merged.

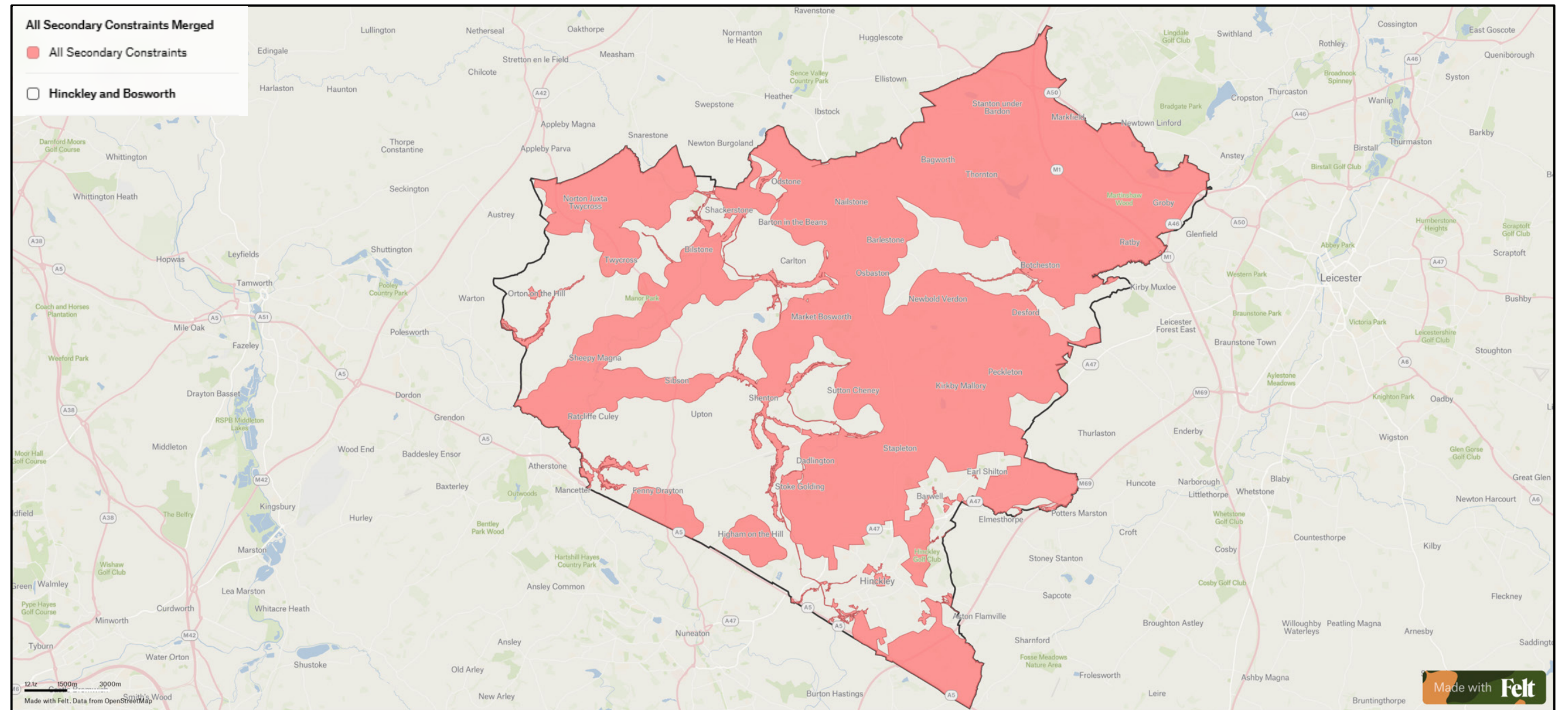
8.4.3 Buffer and exclusion zones

8.4.3.1 Map 26, below, shows the buffer and exclusions zones within Hinckley and Bosworth for wind turbines with a height of 100 - 150 meters. The buffer and exclusion zone layer intends to minimise potential impacts on residents or infrastructure by applying various buffers onto the Primary constraints layer. There are a significant number of features within the individual buffer zones layer, as such this layer has not been displayed within the report. Map 26 shows the suitable areas once all buffer zones have been applied in line with the methodology presented in section 3 of this report. Areas that are excluded at this level are shown in red with areas suitable at this level shown in green.



8.4.4.1 Map 27, below, shows all the individual layers that form the secondary constraints within Hinckley and Bosworth. Areas highlighted as secondary constraints will have an impact on planning application decision-making, but do not strictly rule out areas. Map 28 merges all the secondary constraints into one layer. The individual colours of map 27 are identified within the legend and each represent a different data layer. Map 28 shows all the different layers merged, areas excluded at this level are shown in red.

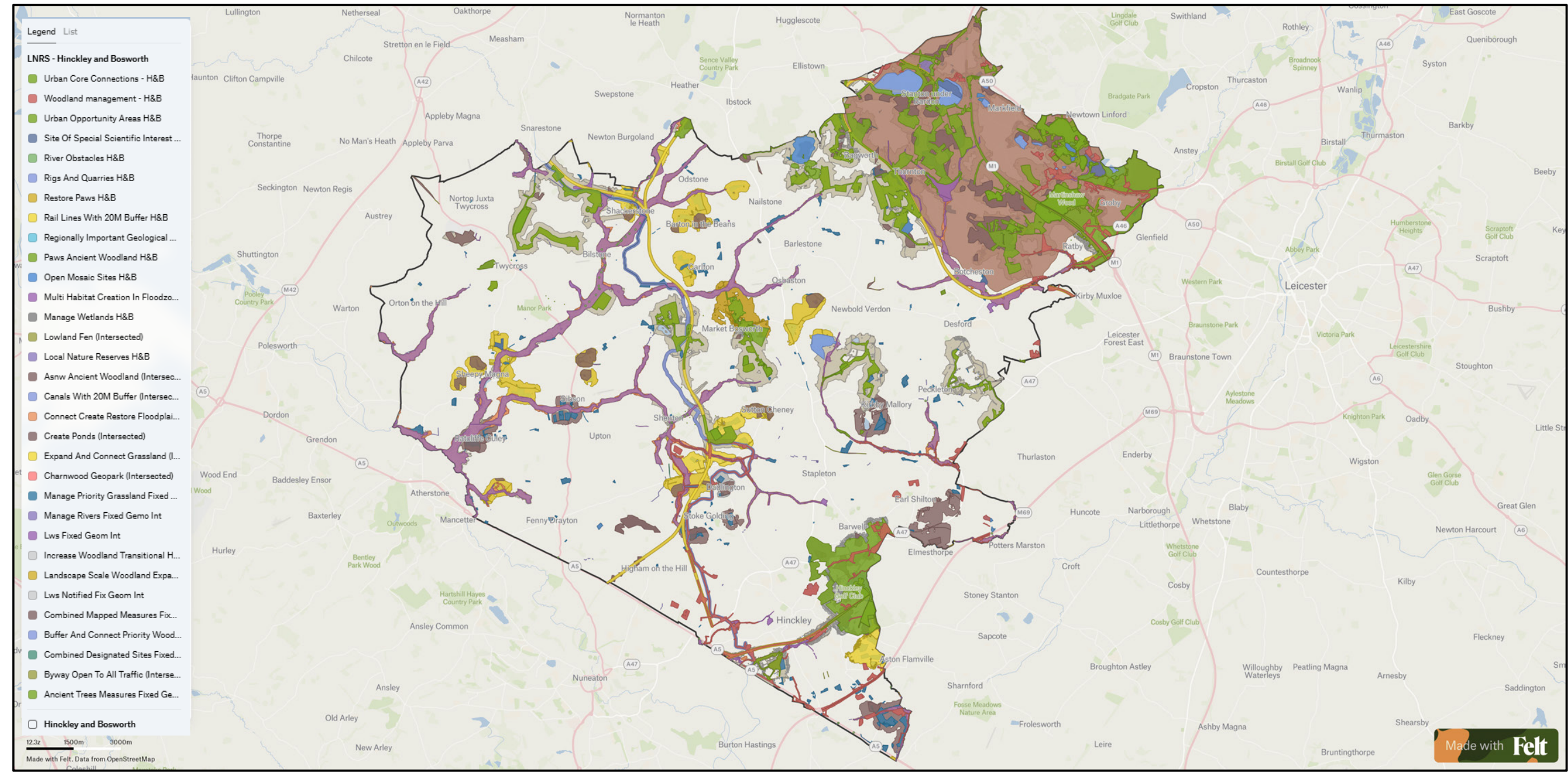




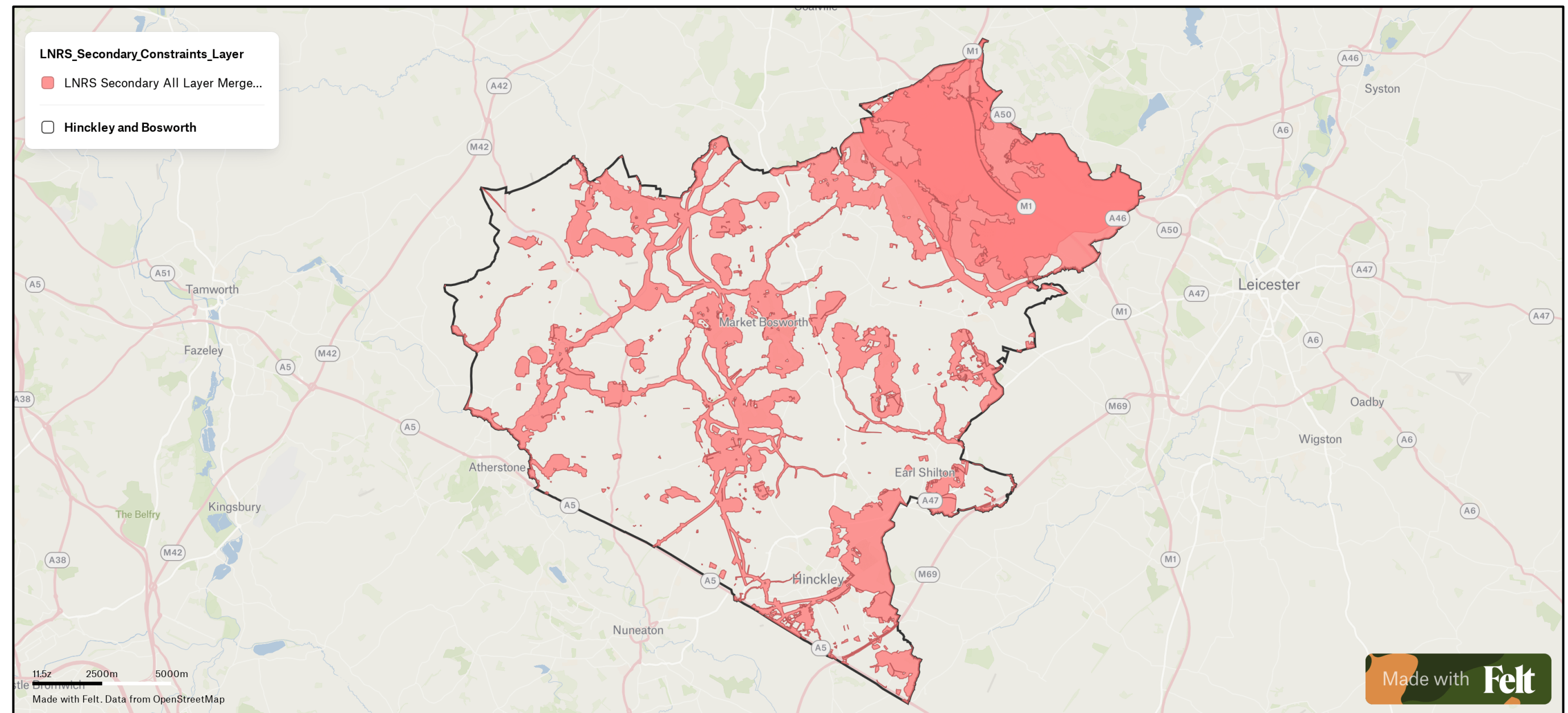
Map 28, All secondary constraints - Merged.

8.4.5 LNRS Secondary constraints

8.4.5.1 Map 29, below, shows the individual layers from the LNRS that form part of the secondary constraints within Hinckley and Bosworth. The LNRS secondary constraints layers include areas which may impact application decision-making but do not prohibit development. The legend in map 29 below identifies the colours associated with individual LNRS layers. Map 30 merges all the LNRS layers into one LNRS secondary constraints layer, shown in red.



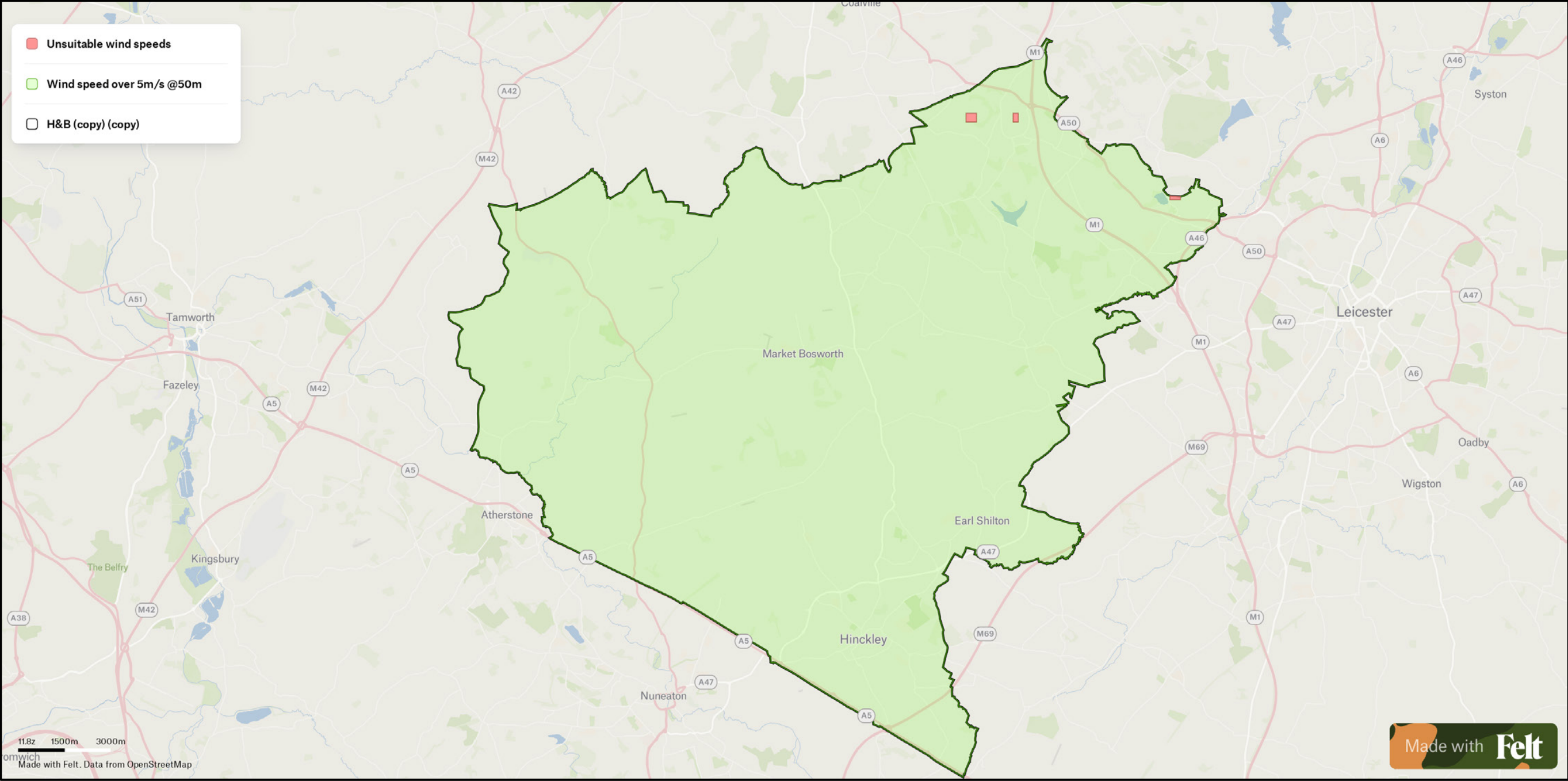
Map 29, LNRS layers in Hinckley and Bosworth



Map 30, LNRS secondary constraints – Merged.

8.4.6 Wind speed

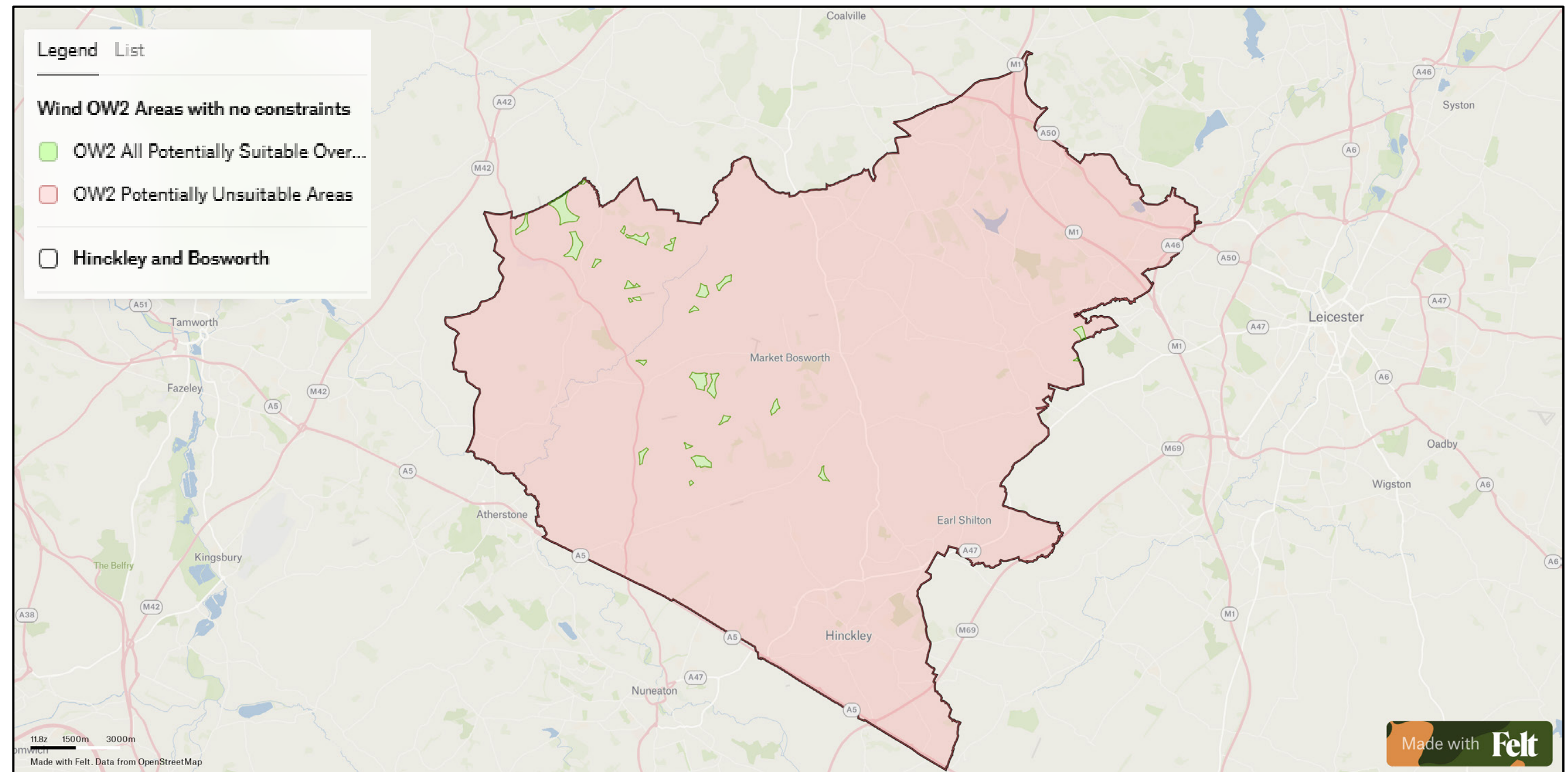
8.4.6.1 Map 31 below shows areas of suitable and unsuitable wind speeds. It is assumed that 5.0 metres/second is sufficient to determine an area as suitable for onshore wind development from a technical performance perspective. Any areas with wind speeds of less than 5.0 metres/second will be classed as unsuitable, shown in red with suitable areas shown in green. It is important to note that it is the choice and responsibility of the renewable energy development to determine whether a suitable area would enable high wind energy efficiency. However, the technical performance layer is a useful resource for both Development Management officers and developers to better understand the potential technical performance of suitable areas. As can be seen from map 31, below, the vast majority of Hinckley and Bosworth contains wind speeds of over 5 meters/second.



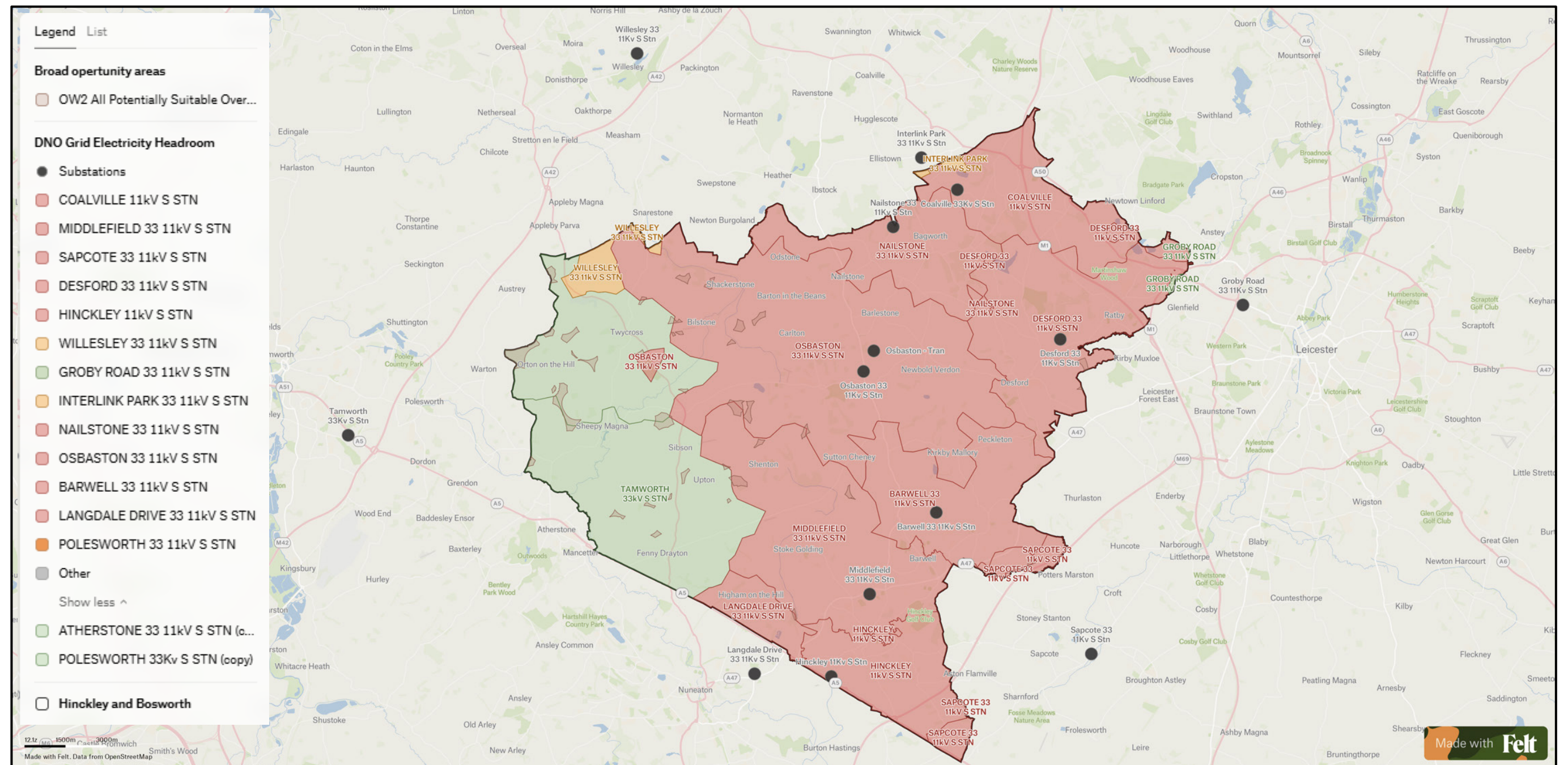
Map 31, Suitable and unsuitable wind speeds

8.4.7 All constraints

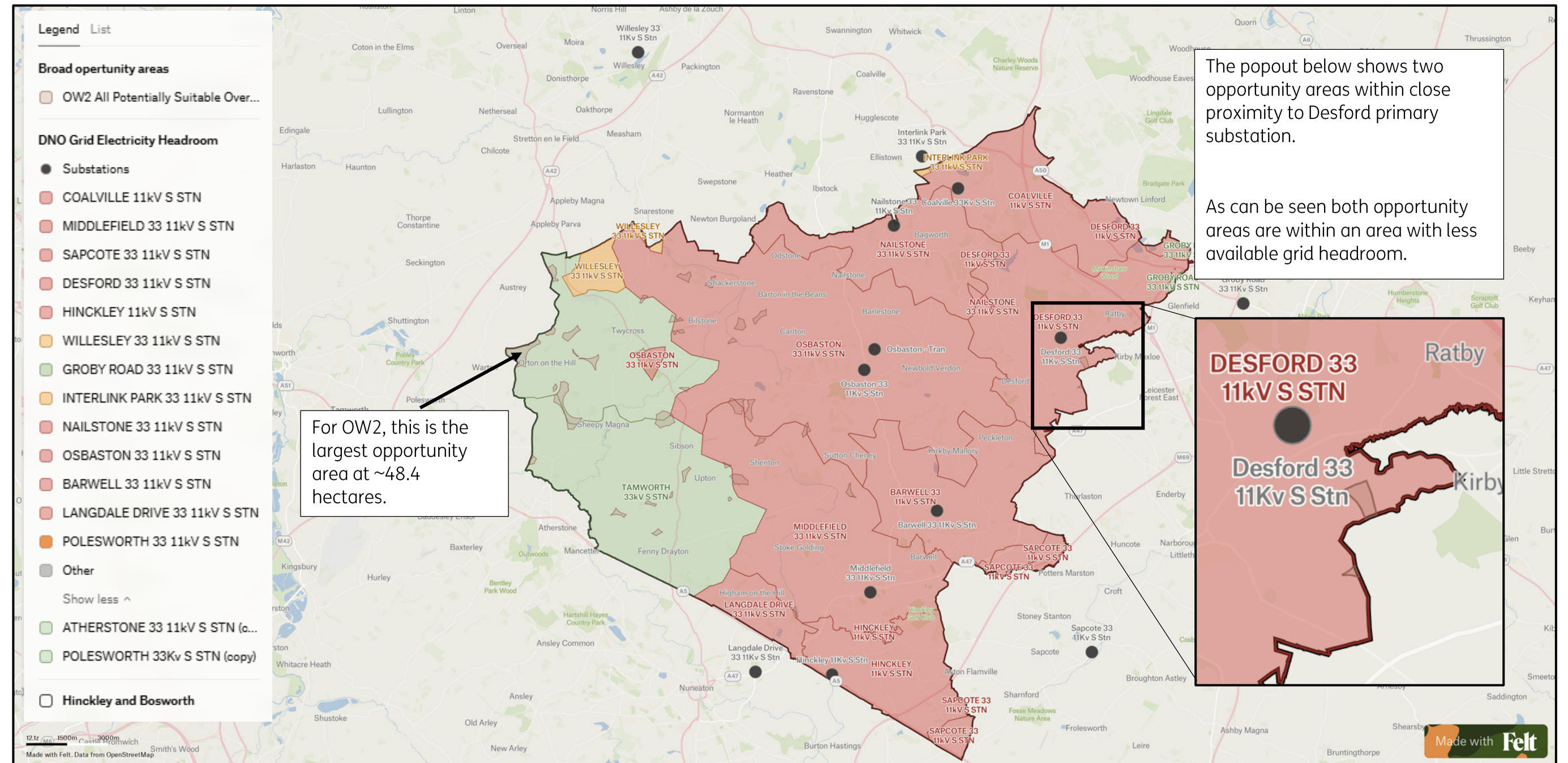
- 8.4.7.1 Map 32, below, combines all the OW2 layers, shown above, to create an overall suitability map, highlighting areas with no constraints of any kind, shown in green below, which represent the opportunity areas within Hinckley and Bosworth for onshore wind with a tip height of 100 – 150 meters. Within this map any areas of less than 1 hectare have been removed as these sites were deemed too small to support an onshore wind sites with a tip height of 100 - 150 meters. To note, it is the responsibility of the developer to determine appropriate site sizes.
- 8.4.7.2 The only changes between OW1 and OW2 are to the buffer and exclusion zones. As OW2's topple distances and buffer zones are larger a greater buffer from transport infrastructure and buildings is required. This change results in smaller opportunity areas in the same broad locations as OW1, primarily to the West of Hinckley and Bosworth Borough. For onshore wind with a tip height of 100 – 150m ~ **352 hectares of opportunity areas** were identified in the same broad areas as for OW1. ~ 62.9% less land is designated as an OW2 opportunity area as compared to OW1.
- 8.4.7.3 Map 33 shows opportunity areas for OW2 (onshore wind turbines with a tip height of 100 – 150m) overlaid with grid availability. As with OW1, the majority of opportunity areas have available grid headroom. Approximately **218 hectares**, or 62% of opportunity areas have available grid headroom. This could represent a relative advantage of these opportunity areas. Though it should be noted, the areas with currently available grid headroom are at least ~6.2km from the substation at Tamworth and ~3.4 Km from the substation at Langdale Drive which may influence connection requirements and costs. Developers should engage with the DNO to ensure there is sufficient grid headroom to facilitate the connection of a renewable energy development rather than relying solely on the headroom presented in this report which does not seek to provide advice in relation to grid connection.
- 8.4.7.4 The remaining opportunity areas are within areas with more limited available grid headroom. However some opportunity areas are closer to grid substations, for example a 8.91 hectare opportunity area is located marginally over 1 km from the Desford Primary Substation. There are several other opportunity areas within 3km of the Osbaston, Middlefield and Hinckley Primary substations Whilst proximity to existing substations may be beneficial, connection feasibility will depend on available network capacity and site-specific circumstances. As above, developers should engage directly with the relevant DNO to confirm connection requirements and available capacity.
- 8.4.7.5 Map 34 provides annotated information for the principal opportunity areas identified through this assessment. The planning policy context relating to these opportunity areas is discussed in Section 8.12.



Map 32, Onshore wind (OW2) areas with no constraints



Map 33, Onshore wind (OW2) areas with no constraints, overlaid with available grid headroom.



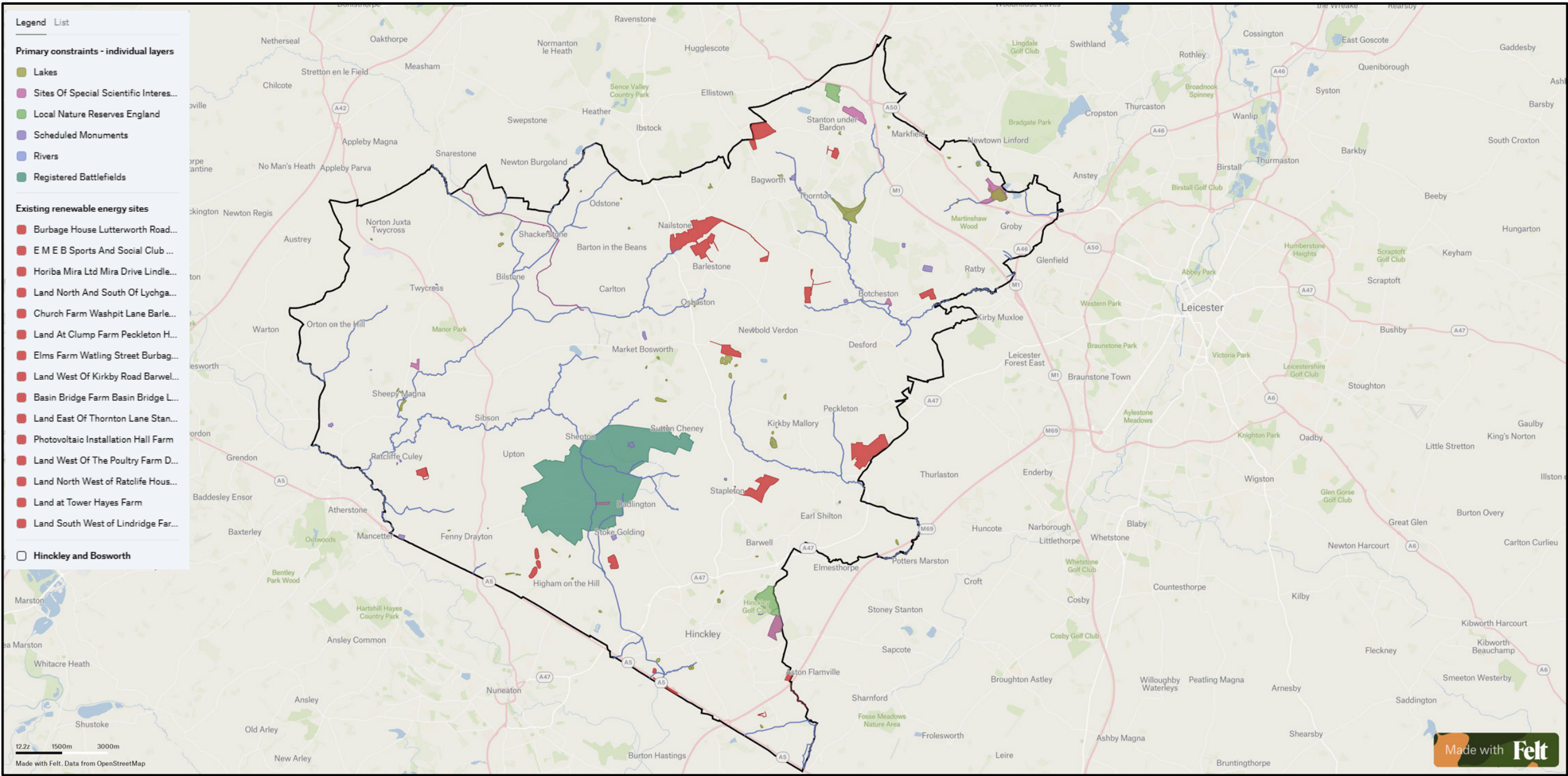
Map 34, Onshore wind (OW2) areas with no constraints, overlaid with available grid headroom.

8.5 OW3 Onshore wind

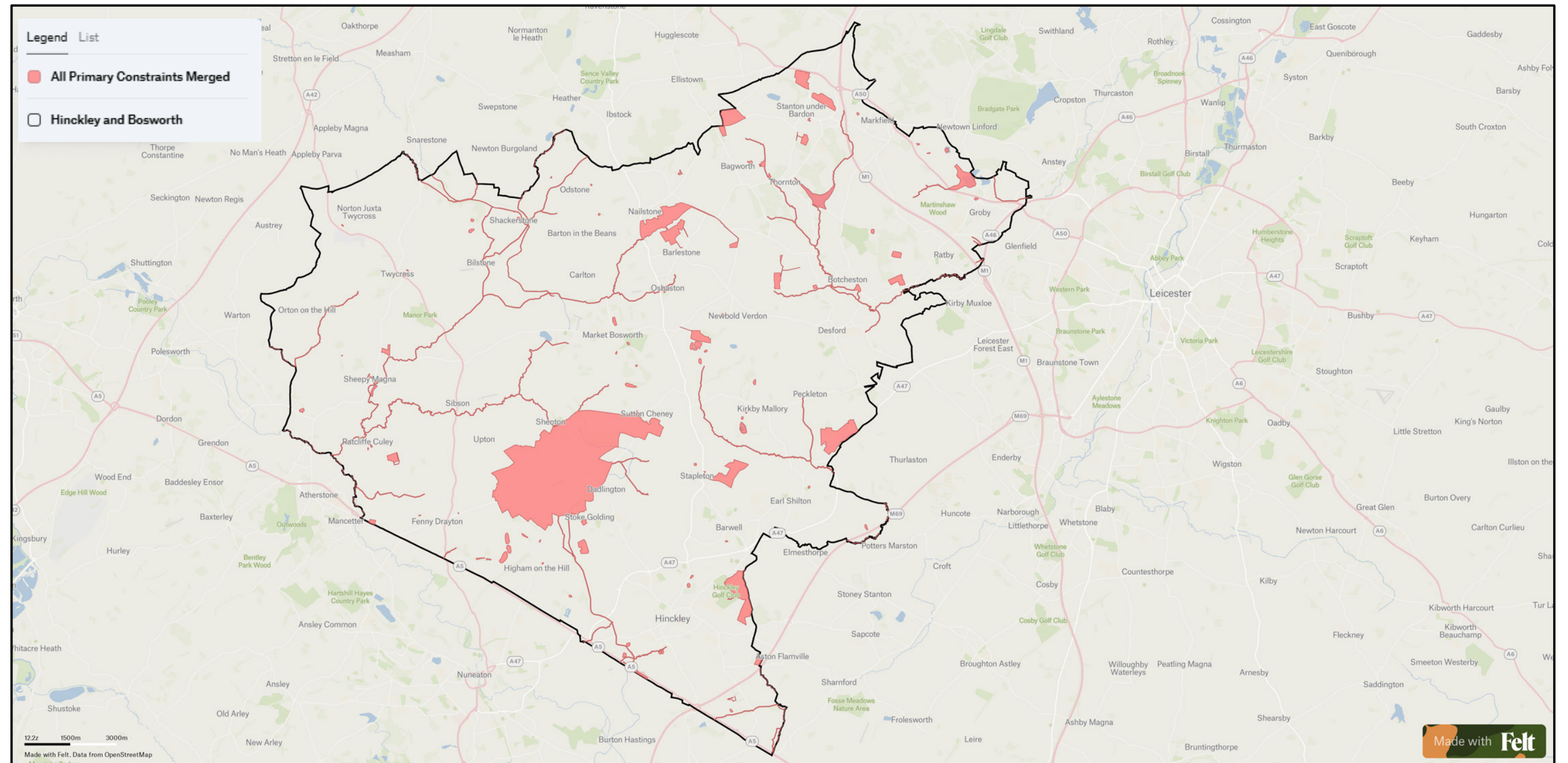
8.5.1 An assessment of the viability of onshore wind with a tip height of 150 - 220m within Hinckley and Bosworth has been conducted in line with the methodology above.

8.5.2 Primary constraints

8.5.2.1 Map 35, below, shows the individual layers that form the primary constraints within Hinckley and Bosworth where onshore wind is highly unlikely to be feasible owing to national and statutory designations. Map 36 merges all the primary constraints into one layer with the primary constraints shown in red. The legend in Map 35 identifies the colour associated with the primary constraints, the primary constraints shown below are as outlined within the methodology above.



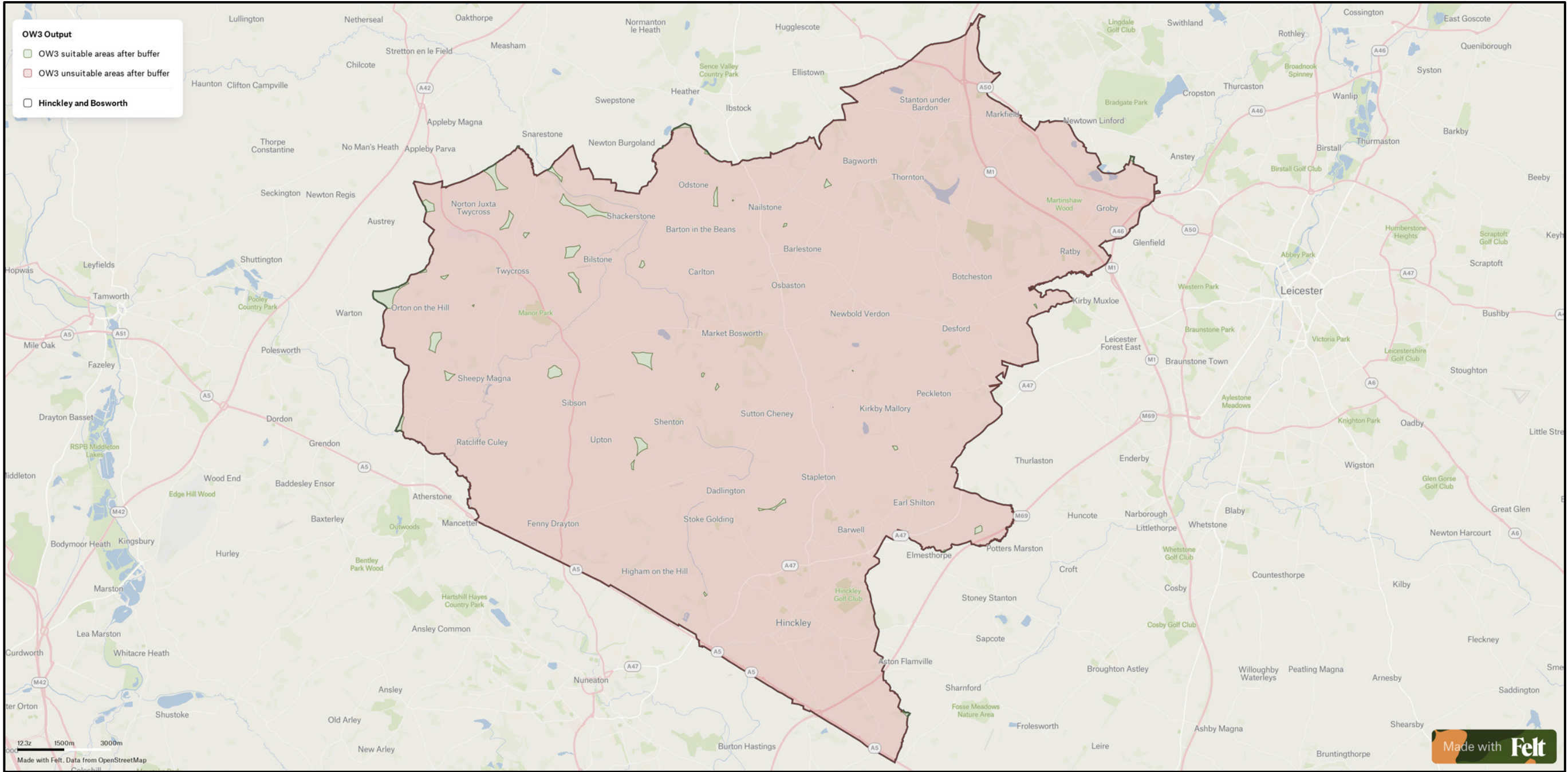
Map 35, primary constraints – Constituent elements



Map 36, primary constraints – Merged.

8.5.3 Buffer and exclusion zones

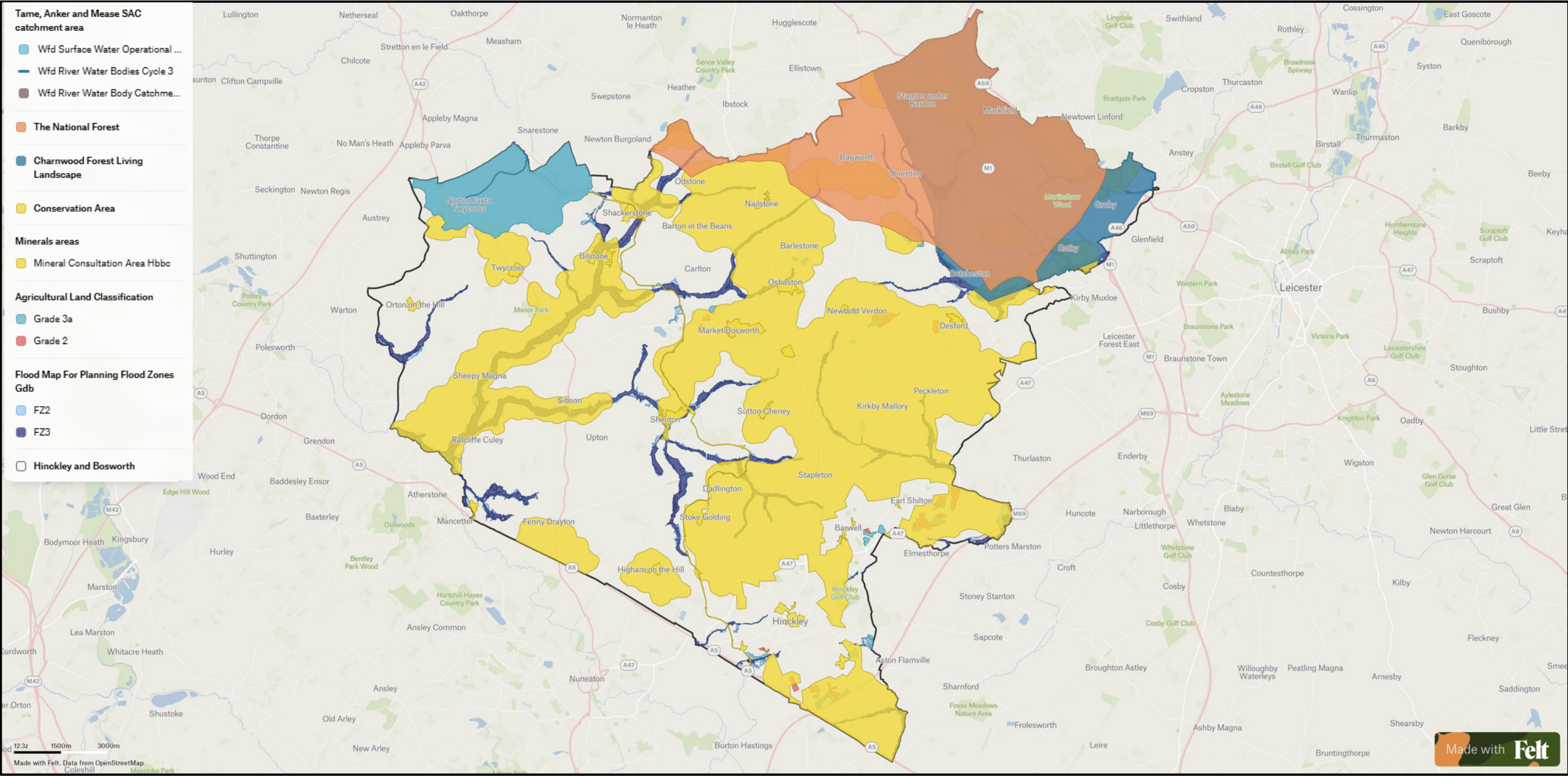
8.5.3.1 Map 37, below, shows the buffer and exclusion zones for wind turbines with a tip height of 150 – 220 meters. The buffer and exclusion zone layer intends to minimise potential impacts on residents or infrastructure by applying various buffers onto the Primary constraints layer. There are a significant number of features within the individual buffer zones layer, as such this layer has not been displayed within the report. Map 37 shows the suitable areas once all buffer zones have been applied in line with the methodology presented in section 3 of this report. Areas that are excluded at this level are shown in red with areas suitable at this level shown in green.



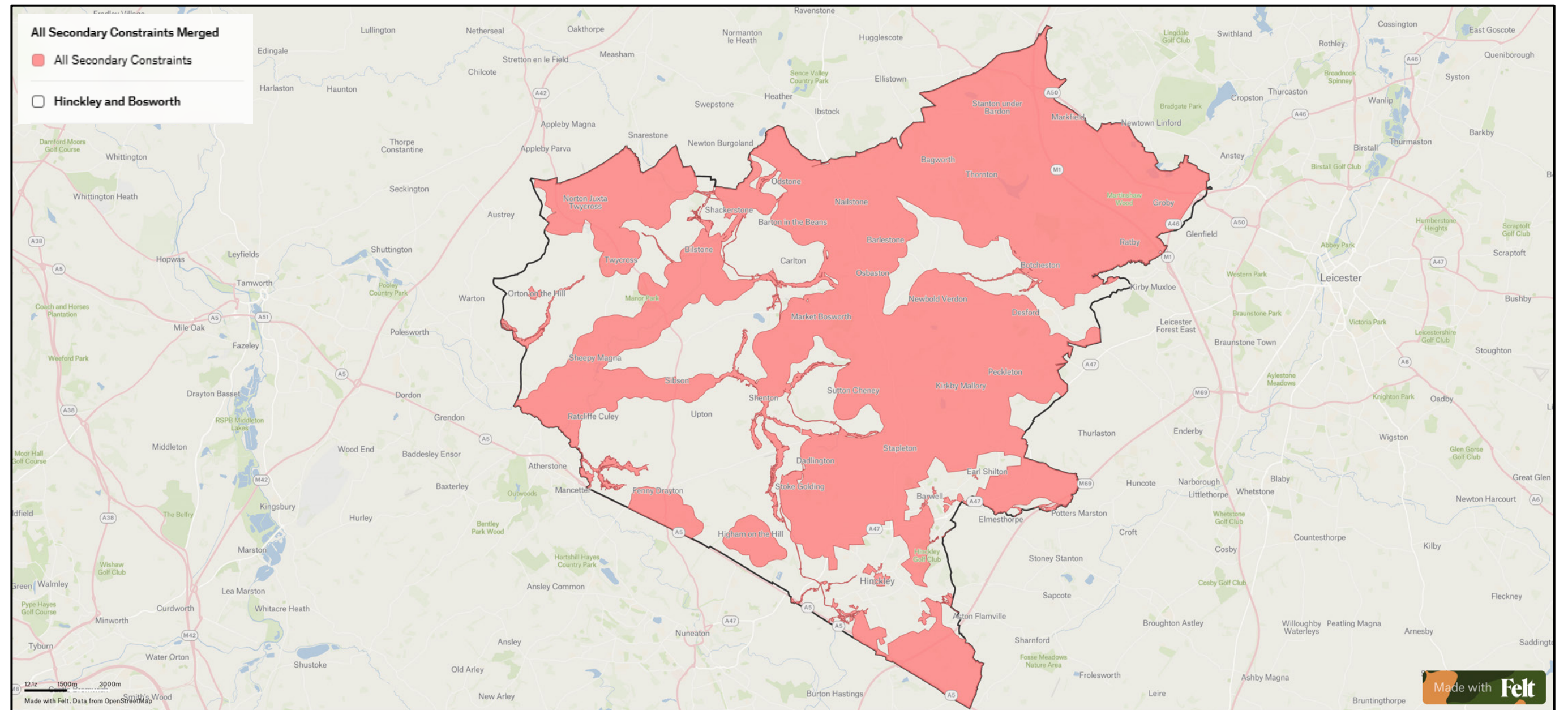
Map 37, Onshore wind (OW3) buffer and exclusion zones

8.5.4 Secondary constraints

8.5.4.1 The map 38, below, shows the individual layers that form the secondary constraints within Hinckley and Bosworth. Areas highlighted as secondary constraints will have an impact on planning application decision-making, but do not strictly rule out areas. The individual colours of map 38 are identified within the legend and each represent a different data layer. Map 39 shows all the different layers merged, areas excluded at this level are shown in red.



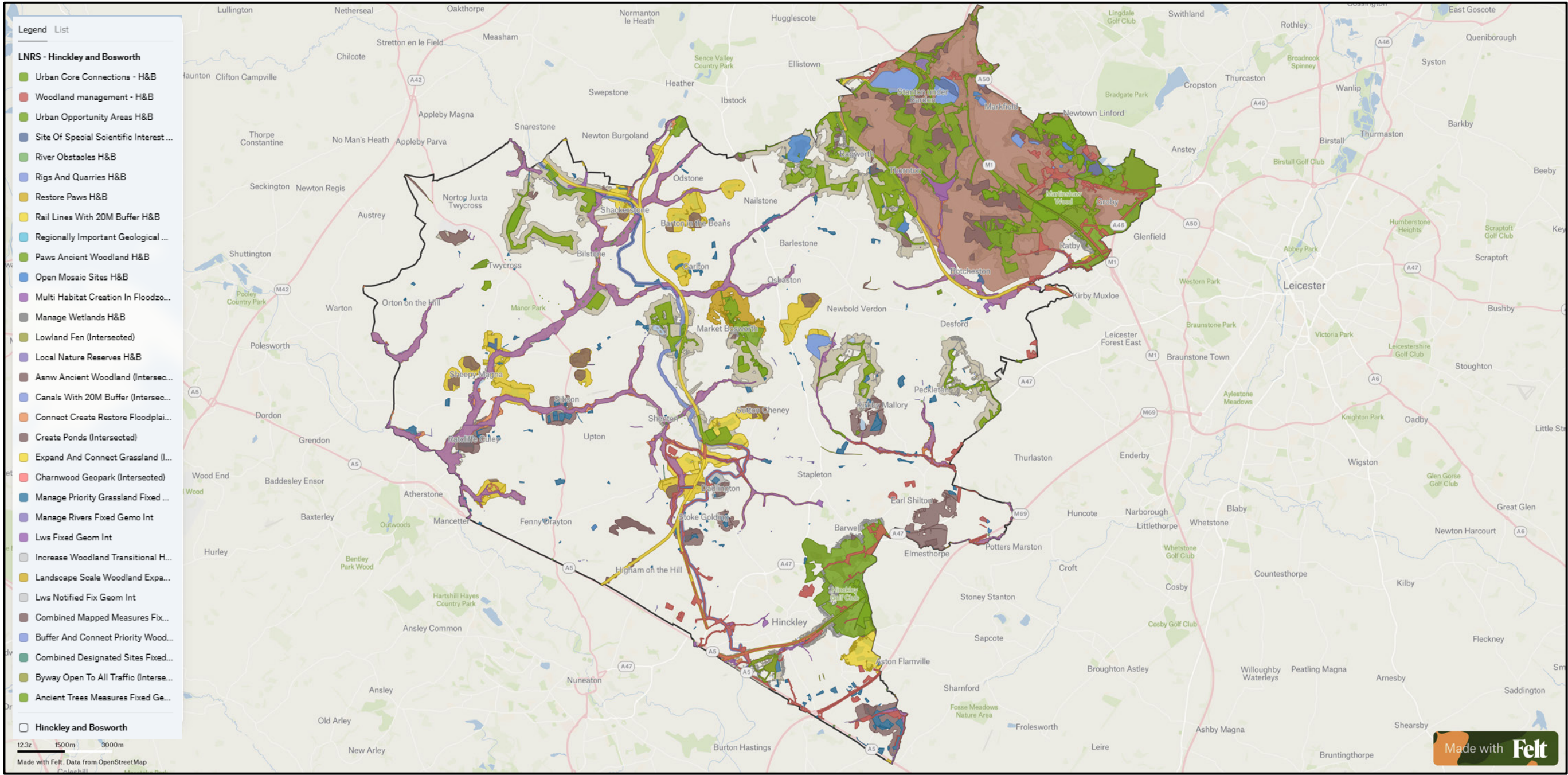
Map 38, Secondary constraints



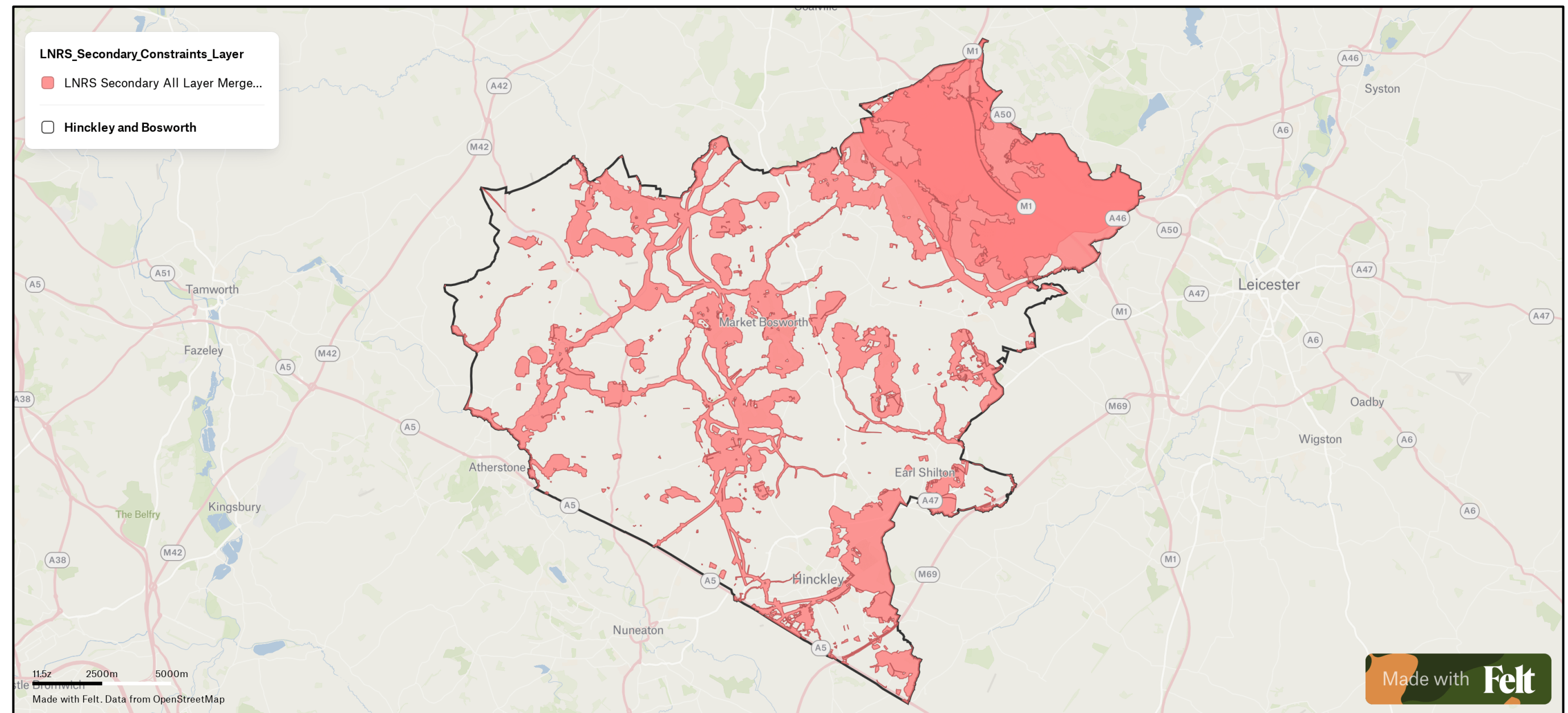
Map 39, All secondary constraints - Merged.

8.5.5 LNRS Secondary constraints

8.5.5.1 Map 40, below, shows the individual layers that form the secondary constraints within Hinckley and Bosworth. The LNRS secondary constraints layer shows areas included within the LNRS which may impact application decision-making, the legend in map 40 identifies the colours associated with individual LNRS layers. Map 41 merges all the LNRS layers into one LNRS secondary constraints layer, shown in red.



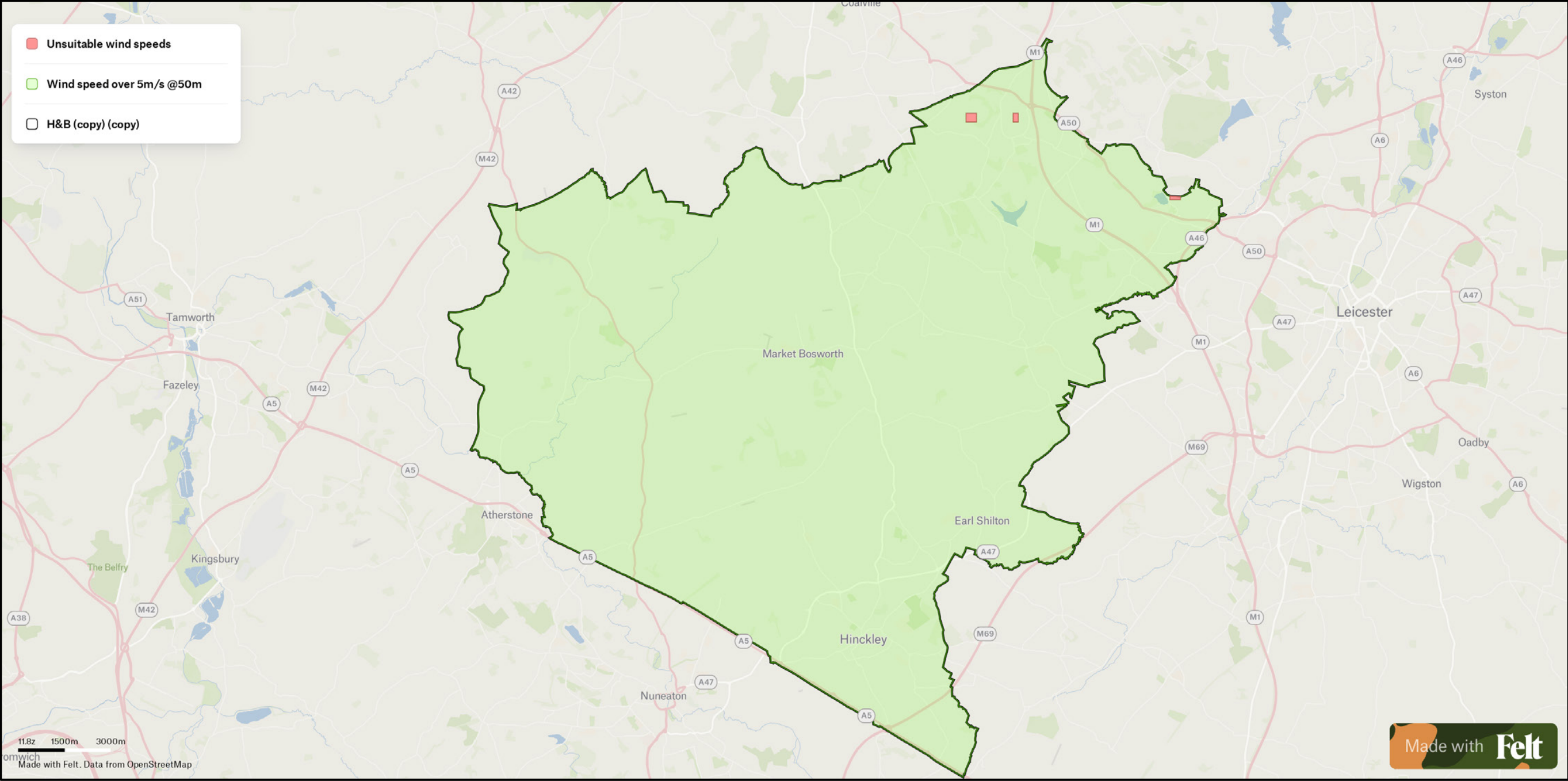
Map 40, LNRS layers in Hinckley and Bosworth



Map 41, LNRS secondary constraints – Merged.

8.5.6 Wind speed

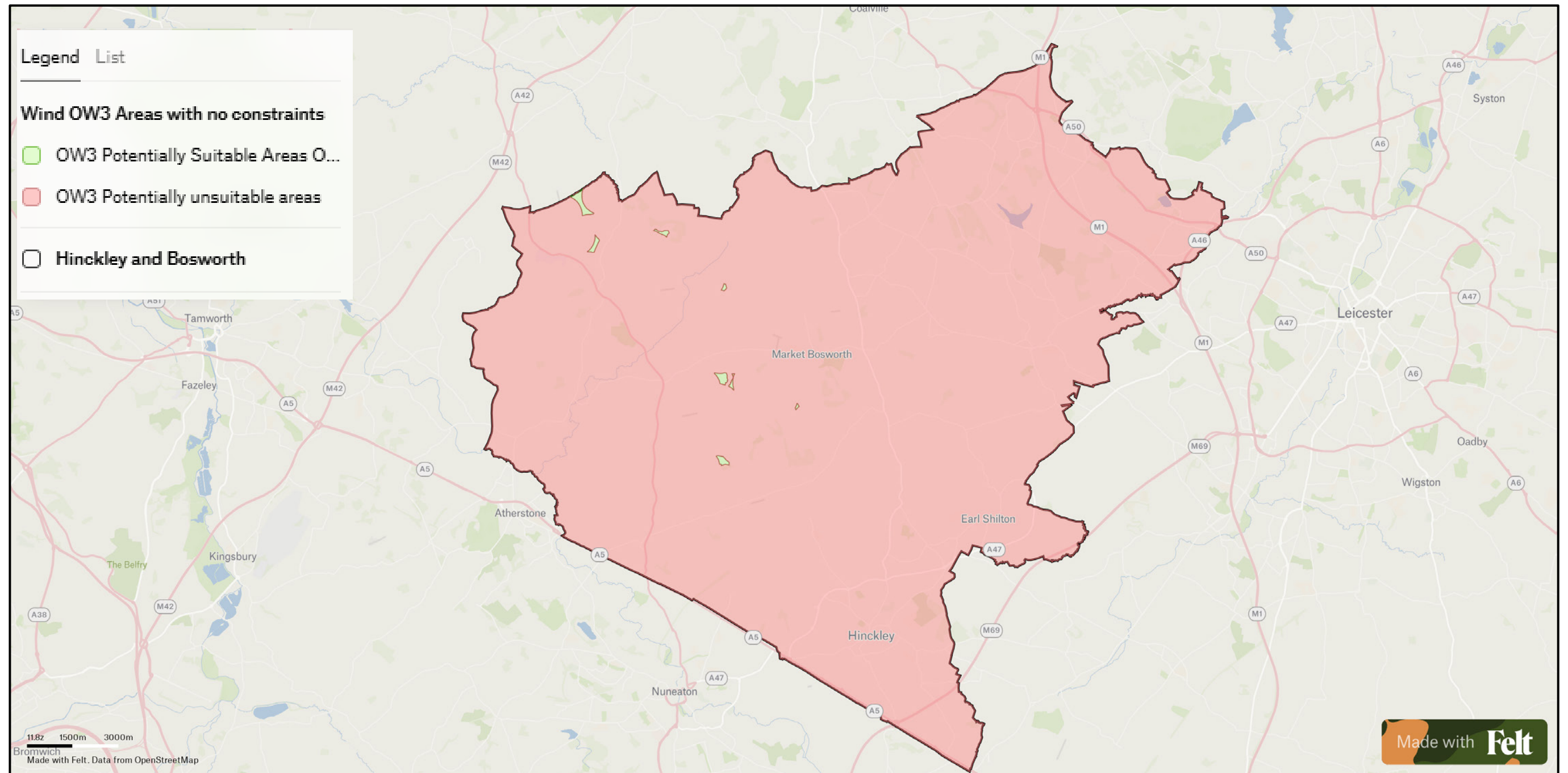
8.5.6.1 Map 42 below shows areas of suitable and unsuitable wind speeds. It is assumed that 5.0 metres/second is sufficient to determine an area as suitable for onshore wind development from a technical performance perspective. Any areas with wind speeds of less than 5.0 metres/second will be classed as unsuitable, shown in red below with suitable areas shown as green. It is important to note that it is the choice and responsibility of the renewable energy development to determine whether a suitable area would enable high wind energy efficiency. However, the technical performance layer is a useful resource for both Development Management officers and developers to better understand the potential technical performance of suitable areas. As can be seen from map 42, below, the vast majority of Hinckley and Bosworth contains wind speeds of over 5 meters/second.



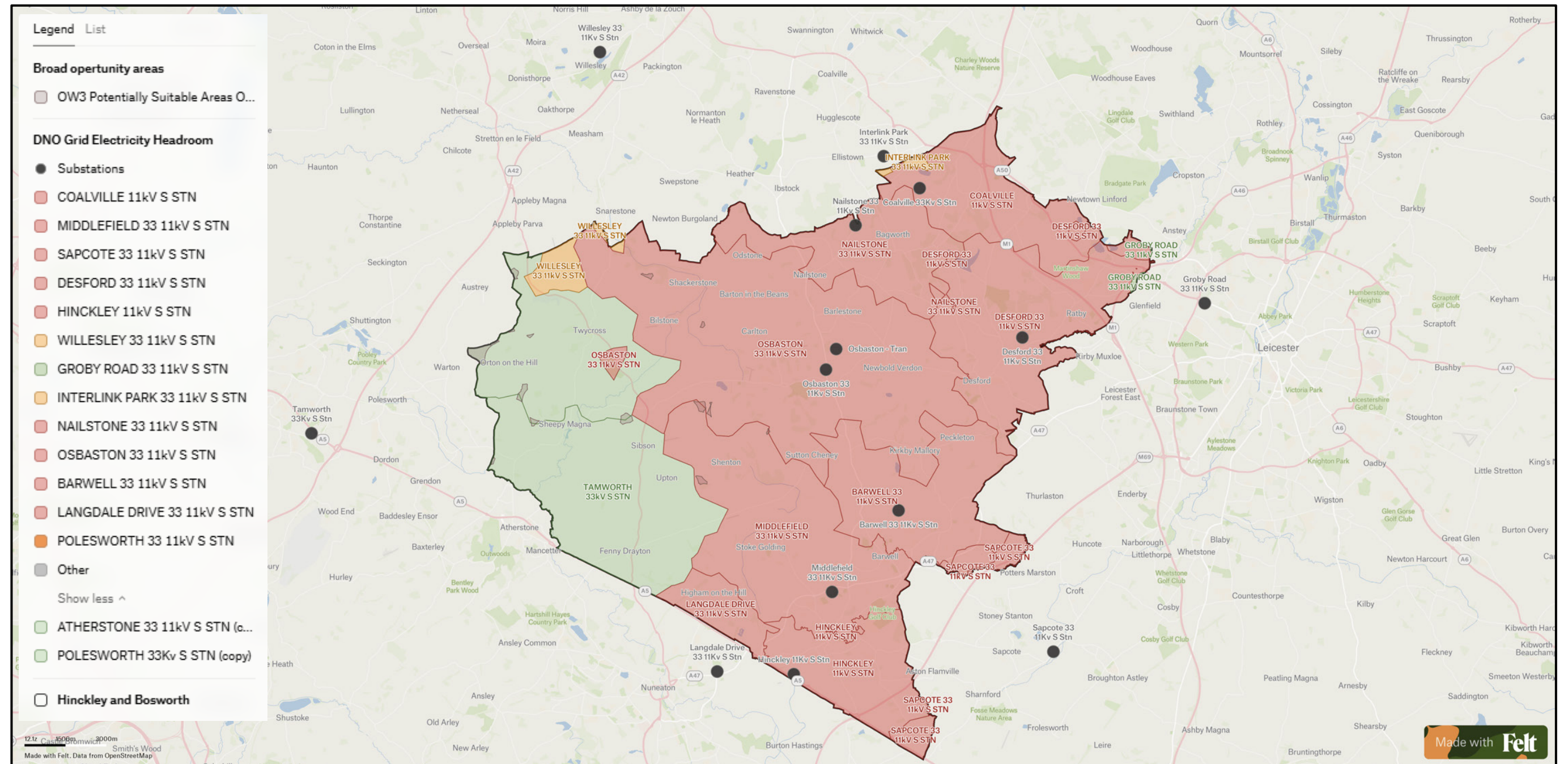
Map 42, Suitable and unsuitable wind speeds

8.5.7 All constraints

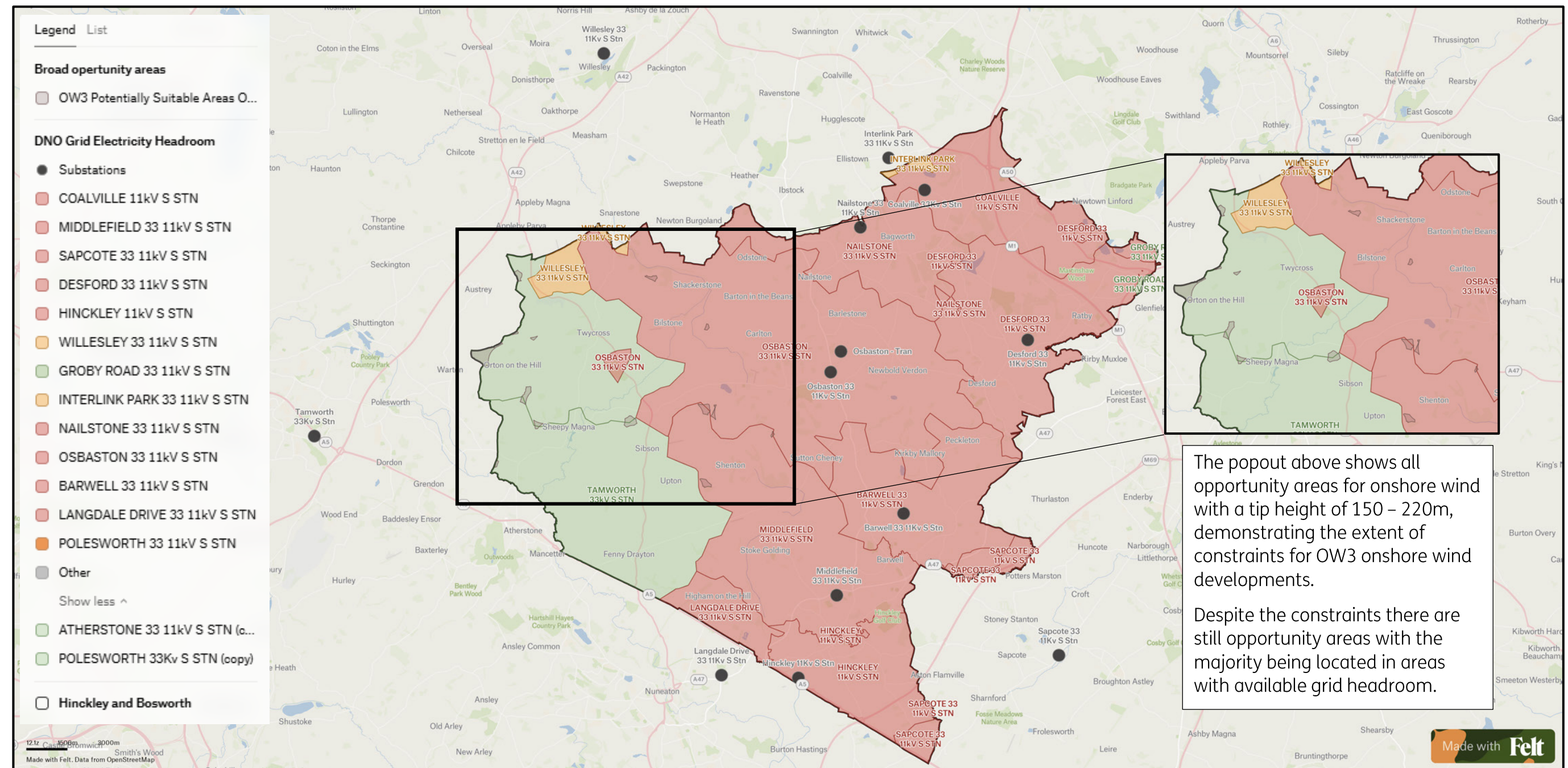
- 8.5.7.1 Map 43, below, combines all the OW3 layers shown above to create an overall suitability map, highlighting areas with no constraints of any kind, shown in green, which may represent the most suitable opportunity areas within Hinckley and Bosworth for onshore wind with a tip height of 150 – 220 meters. Within this map any areas of less than 1 hectare have been removed as these sites were deemed too small to support onshore wind sites with a tip height of 150 – 220 meters. To note, it is the responsibility of the developer to determine appropriate site sizes.
- 8.5.7.2 As a result of the increased topple height and noise restrictions compared to OW2 and OW1, onshore wind with a tip height of between 150 – 220 metres has significantly smaller opportunity areas than OW1 and OW2, clustering in the west of Hinckley and Bosworth District. In total **approximately 102 hectares** of land has been designated as an opportunity area for onshore wind with a tip height of 150 – 220 m. This represents just ~10.7% of land identified as opportunity areas for OW3 onshore wind sites.
- 8.5.7.3 Map 44 shows opportunity areas for OW3 (onshore wind turbines with a tip height of 150 – 220m) overlaid opportunity areas overlaid with available DNO grid headroom. **Approximately 73 hectares**, or 71% of opportunity areas by land area has grid headroom. The availability of grid capacity may represent a relative advantage for development in these locations. However, the areas associated with available headroom are located approximately 6.2 km from Tamworth Primary Substation and 3.4 km from Langdale Drive Primary Substation, which may influence connection requirements and costs. Developers should engage directly with the relevant DNO to confirm available network capacity and connection requirements rather than relying solely on the information presented in this report, which does not seek to provide grid connection advice
- 8.5.7.4 The remaining opportunity areas are located within areas where limited or no grid headroom is currently reported. However, several of these areas are located within closer proximity to existing network infrastructure. Including the Osbaston Primary substation ~3.18km away. Whilst proximity to existing substations may be beneficial, the feasibility of a connection will depend on available network capacity and site-specific circumstances. As above, developers should engage directly with the relevant DNO to confirm connection requirements and available capacity.
- 8.5.7.5 Map 45 provides annotated information for the principal OW3 opportunity areas identified through this assessment. The planning policy context relating to these opportunity areas is discussed in Section 8.12.



Map 43, Onshore wind (OW3) areas with no constraints



Map 44, Onshore wind (OW3) areas with no constraints, overlaid with grid headroom.



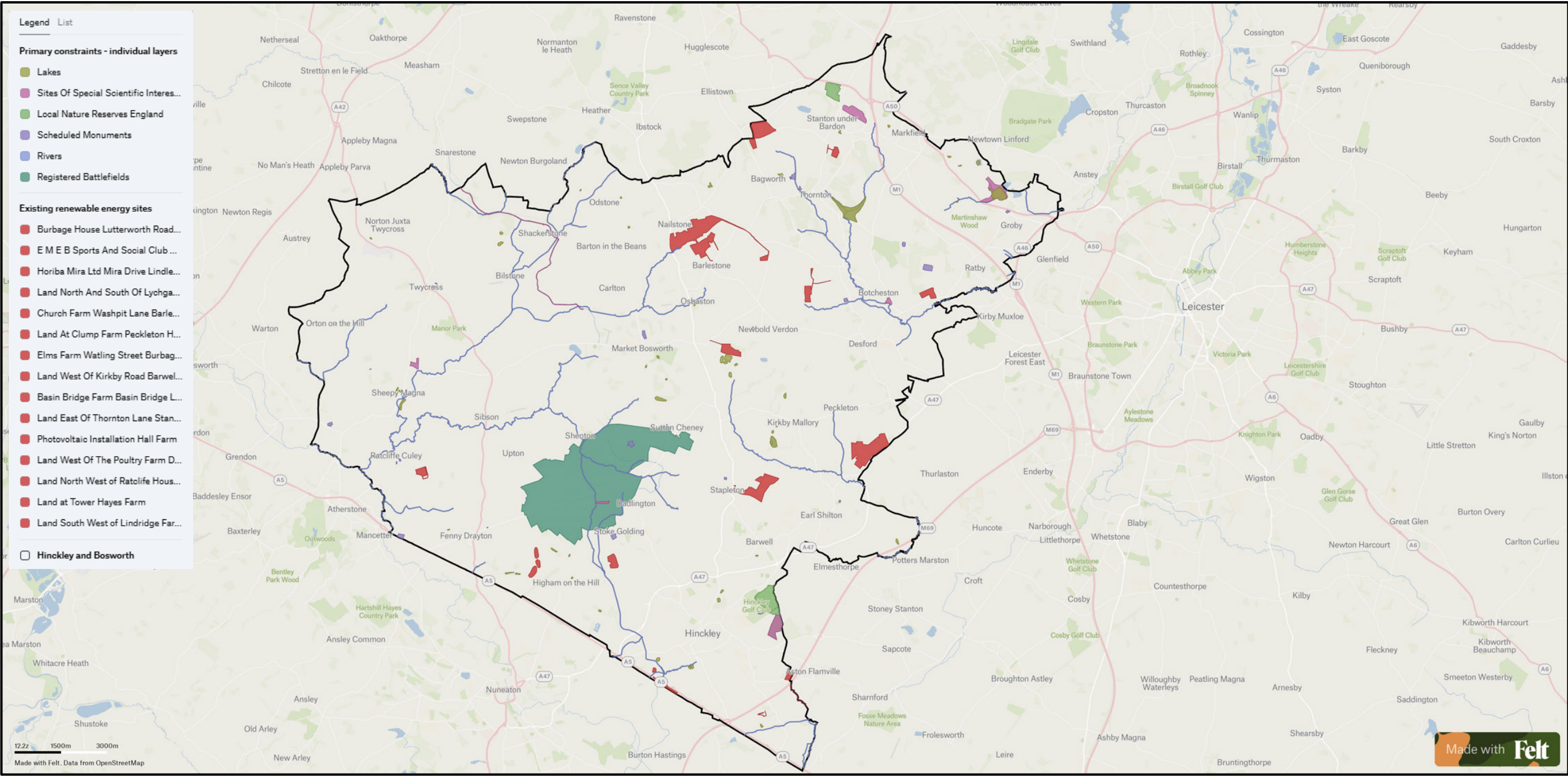
Map 45, Onshore wind (OW3) areas with no constraints, overlaid with grid headroom, annotated.

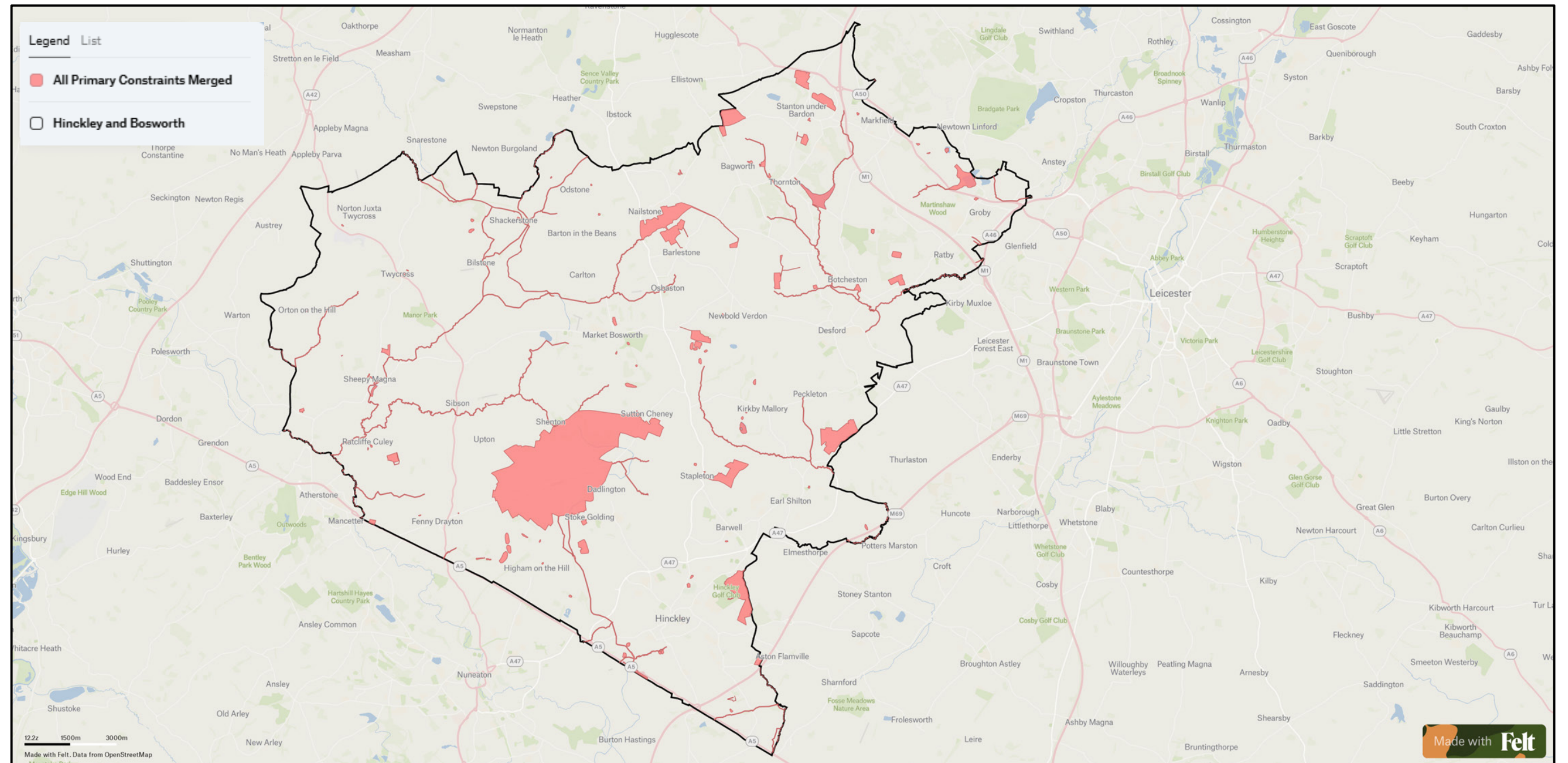
8.6 BESS

8.6.1 An assessment of the viability of BESS within Hinckley and Bosworth has been conducted in line with the methodology above.

8.6.2 Primary constraints

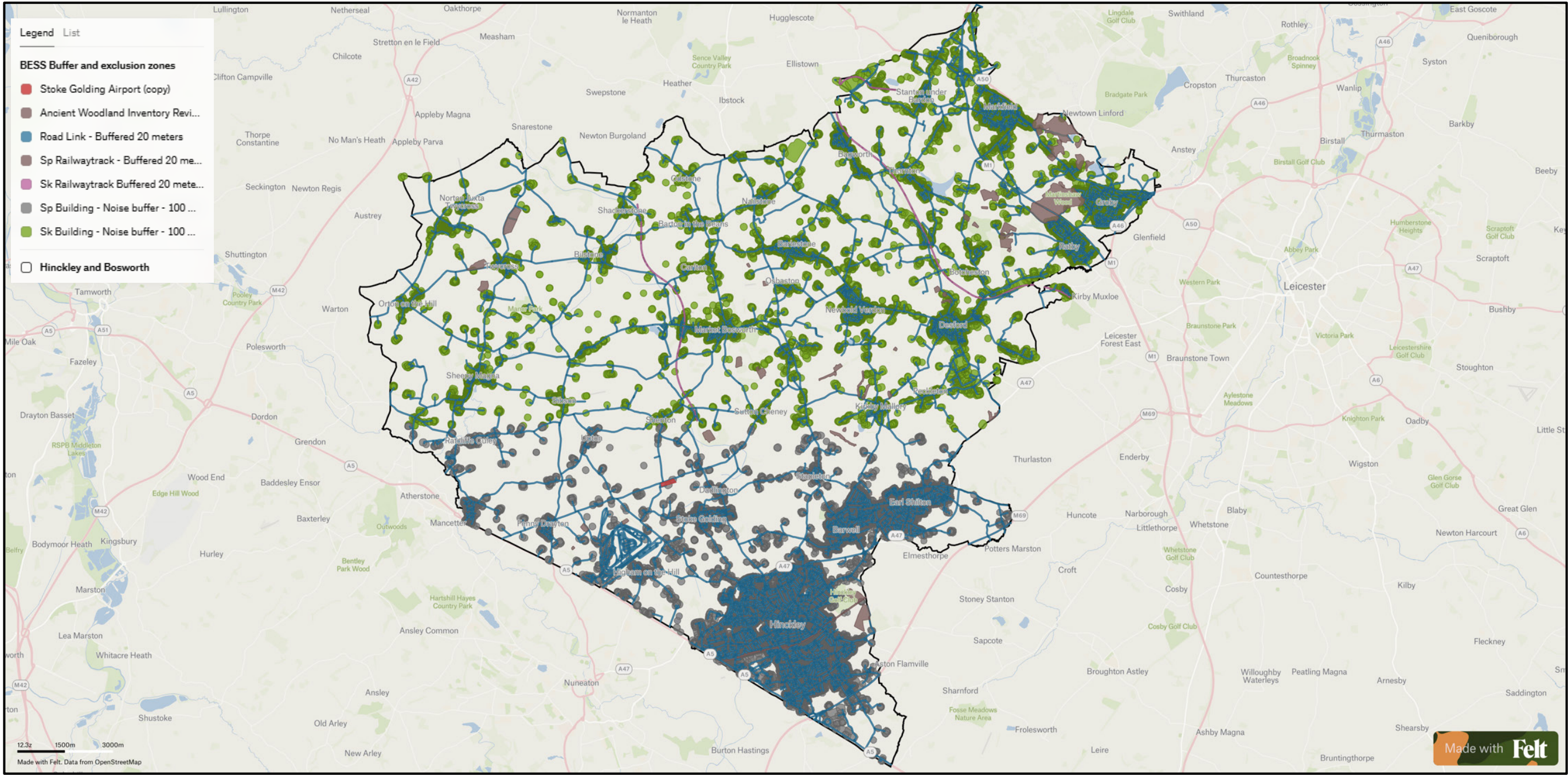
8.6.2.1 Map 46, below, shows the individual layers that form the primary constraints within Hinckley and Bosworth where BESS sites are highly unlikely to be feasible owing to national and statutory designations. The legend in Map 46 identifies the colour associated with the primary constraints, the primary constraints shown below are as outlined within the methodology above. All primary constraints merged in map 47 are shown as red areas.



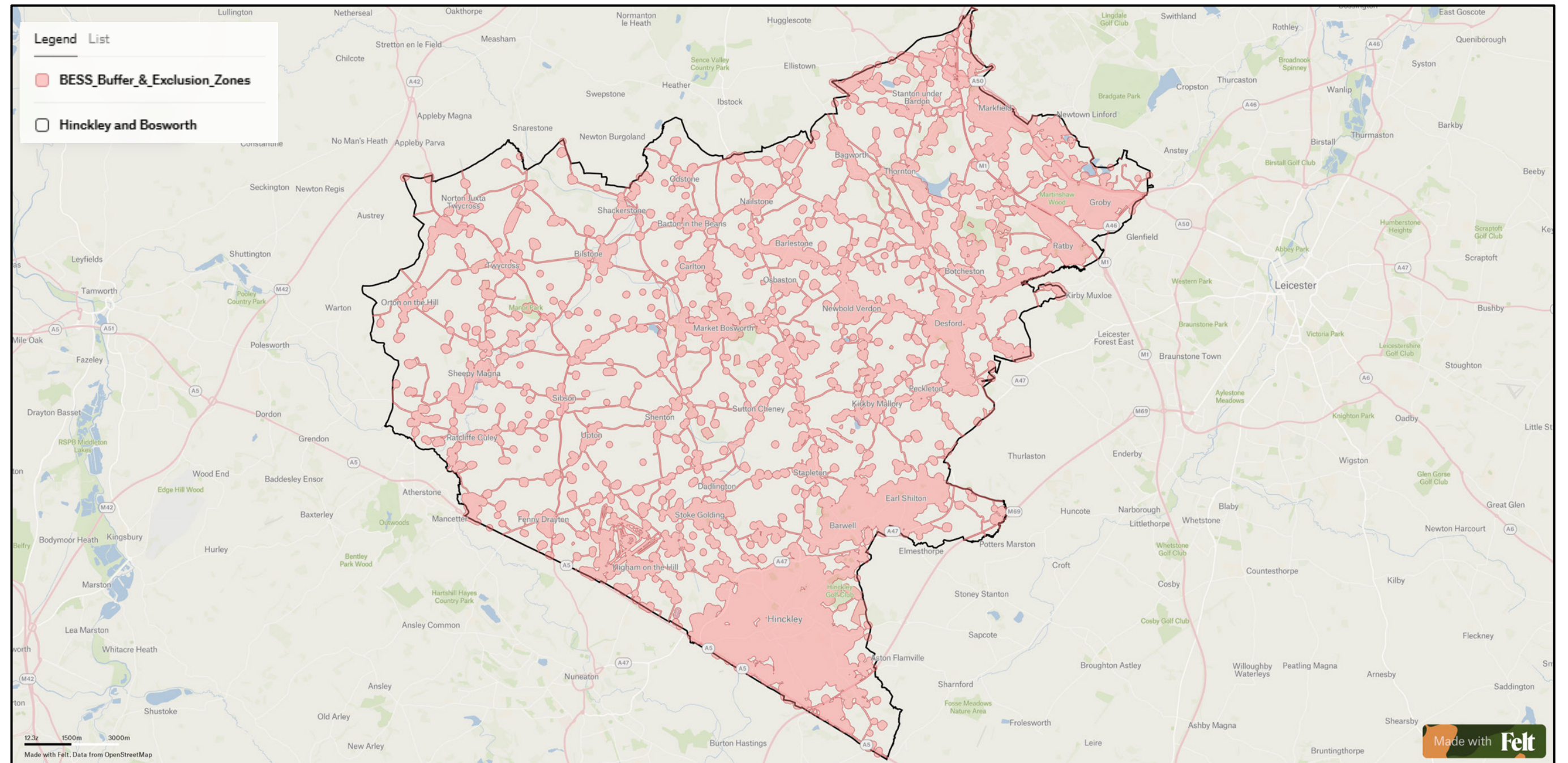


8.6.3 Buffer and exclusion zones

8.6.3.1 Map 48, below, shows the buffer and exclusion zones within Hinckley and Bosworth. The buffer and exclusion zone layer intends to minimise potential impacts on residents or infrastructure by applying various buffers onto the Primary constraints layer. The legend in map 48 identifies the individual data layers excluded at this stage and their associated colours. Map 49 merges all the buffer and exclusion zones into one layer, areas that are excluded at this level are shown in map 49 in red.



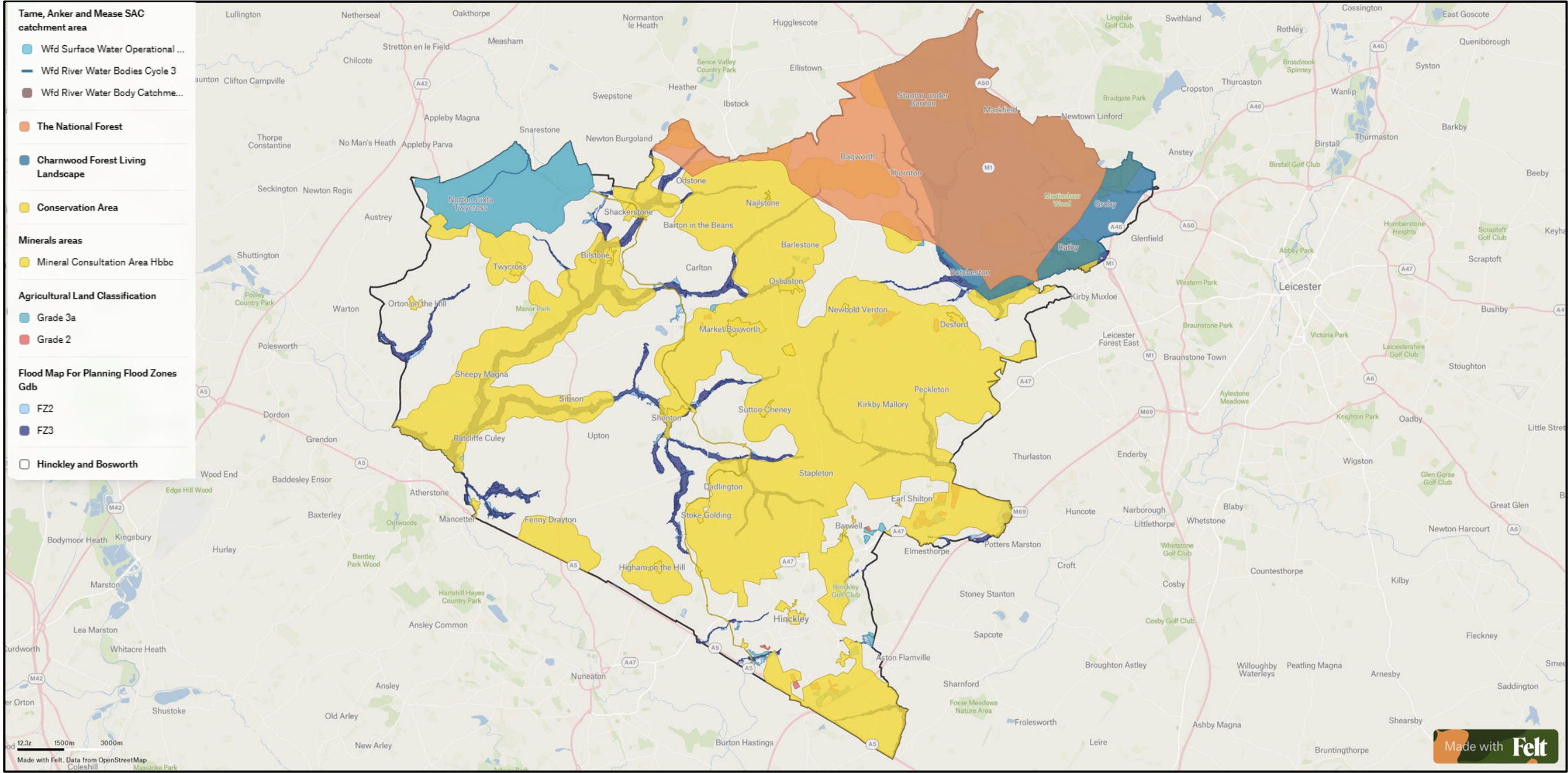
Map 48, buffer and exclusion zones – Constituent parts



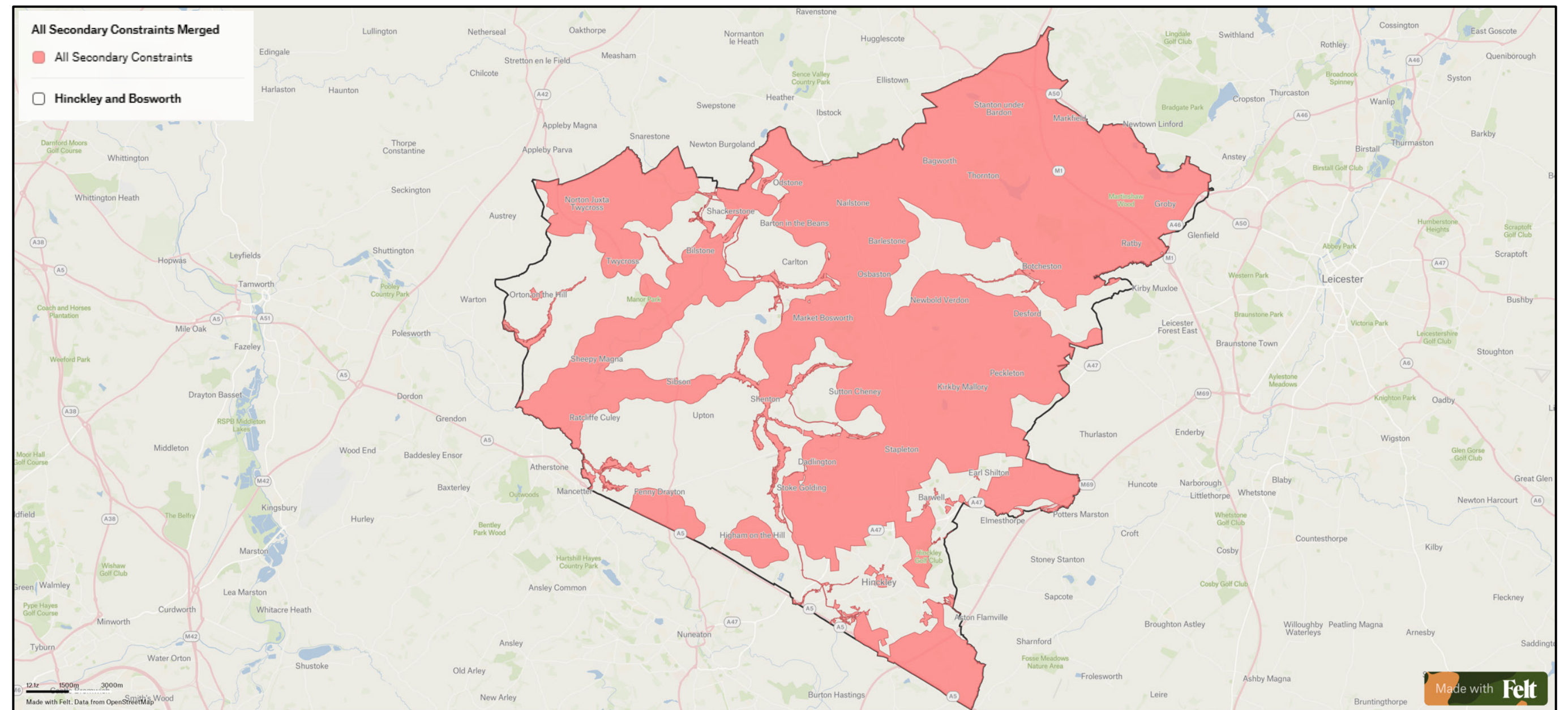
Map 49, buffer and exclusion zones – Merged.

8.6.4 Secondary constraints

8.6.4.1 Map 50, below, shows the individual layers that form the secondary constraints within Hinckley and Bosworth. Areas highlighted as secondary constraints will have an impact on planning application decision-making, but do not strictly rule out areas that have been identified by preceding layers. The individual colours of map 50 are identified within the legend and each represent a different data layer. Map 51 merges all the secondary constraints into one layer with areas excluded at this level shown in red.



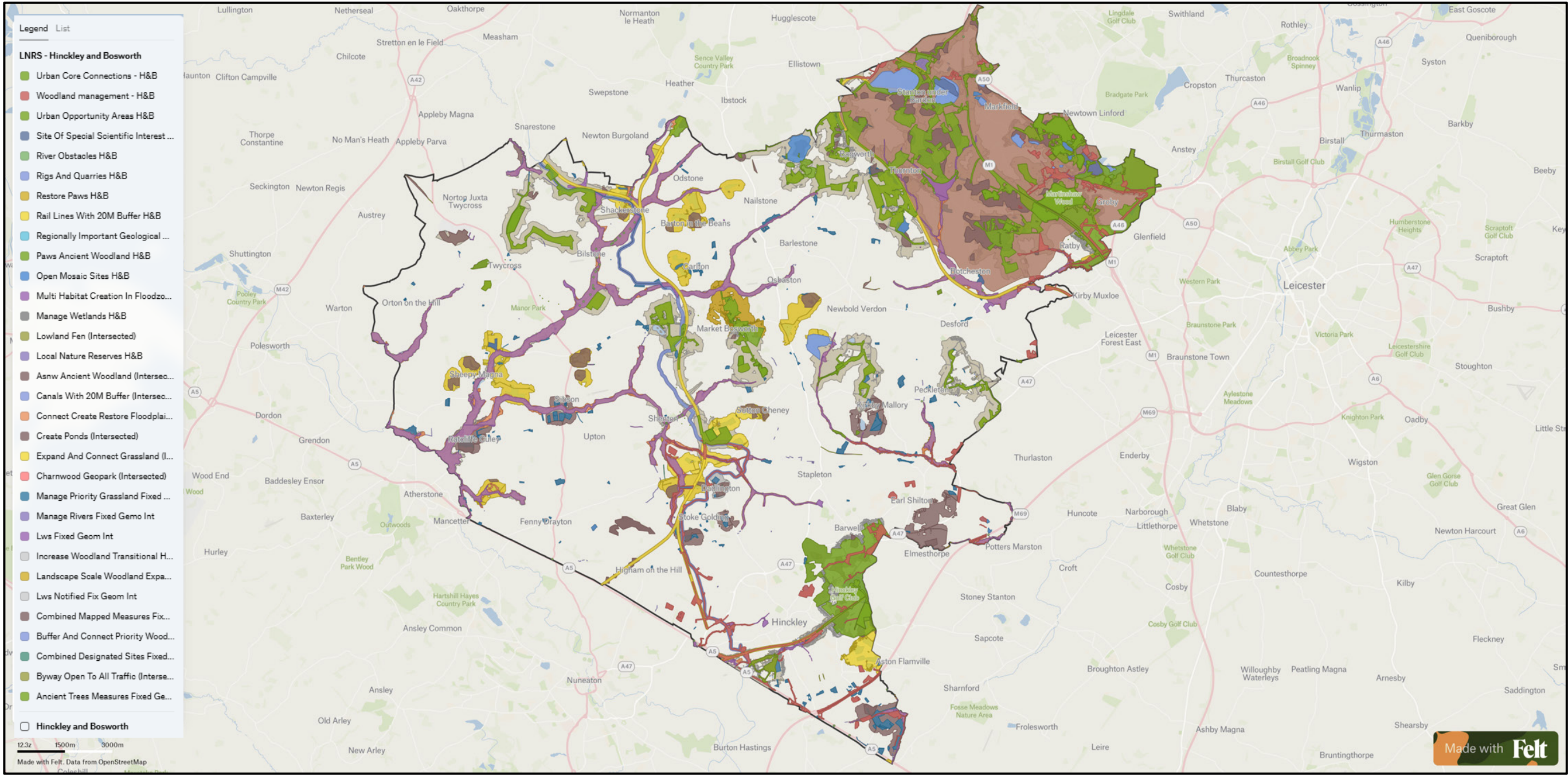
Map 50, Secondary constraints



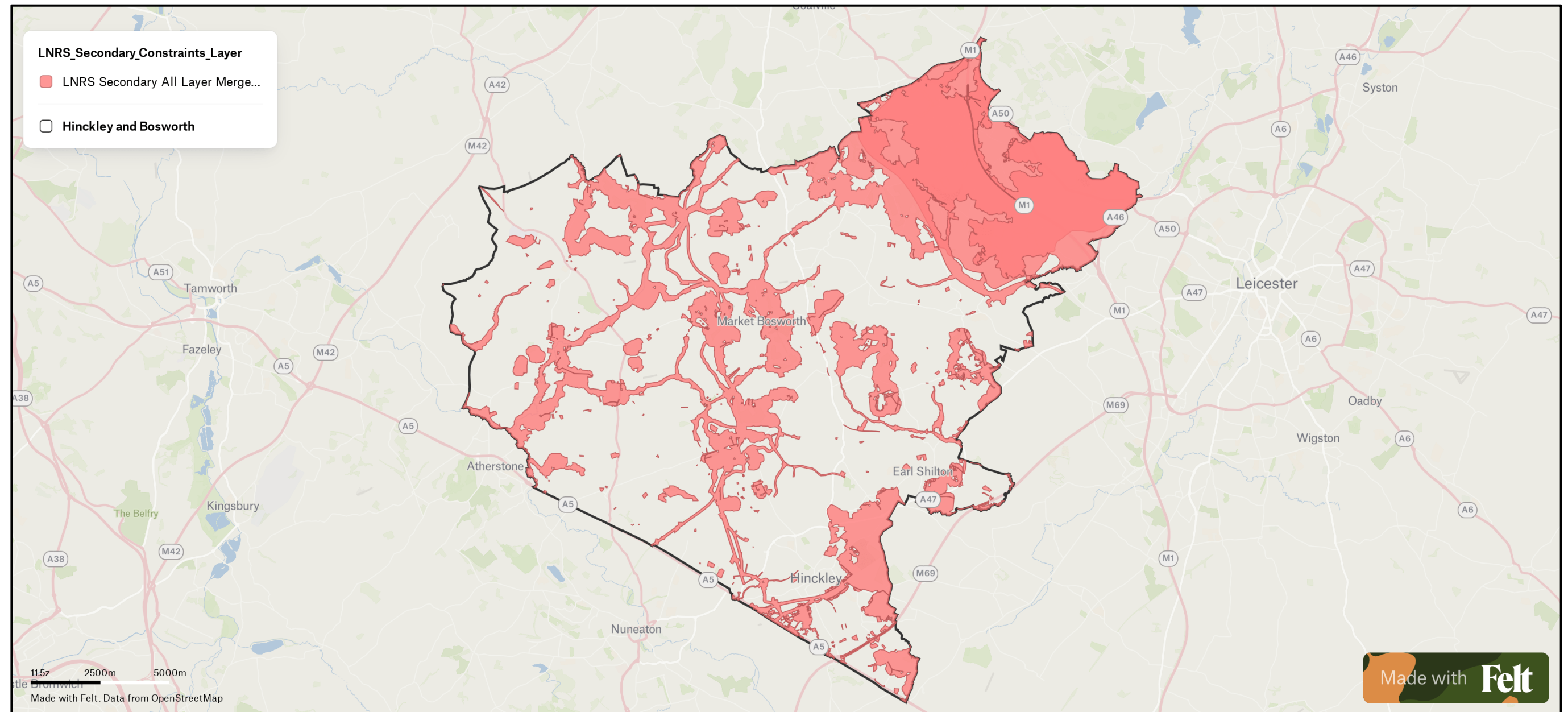
Map 51, All secondary constraints - Merged.

8.6.5 LNRS Secondary constraints

8.6.5.1 Map 52, below, shows the individual layers that form the LNRS secondary constraints within Hinckley and Bosworth. The LNRS secondary constraints layer shows areas included within the LNRS which may impact planning application decision-making. The legend in map 52 below identifies the colours associated with individual LNRS layers. Map 53 merges all the LNRS layers into one LNRS secondary constraints layer, shown in red.



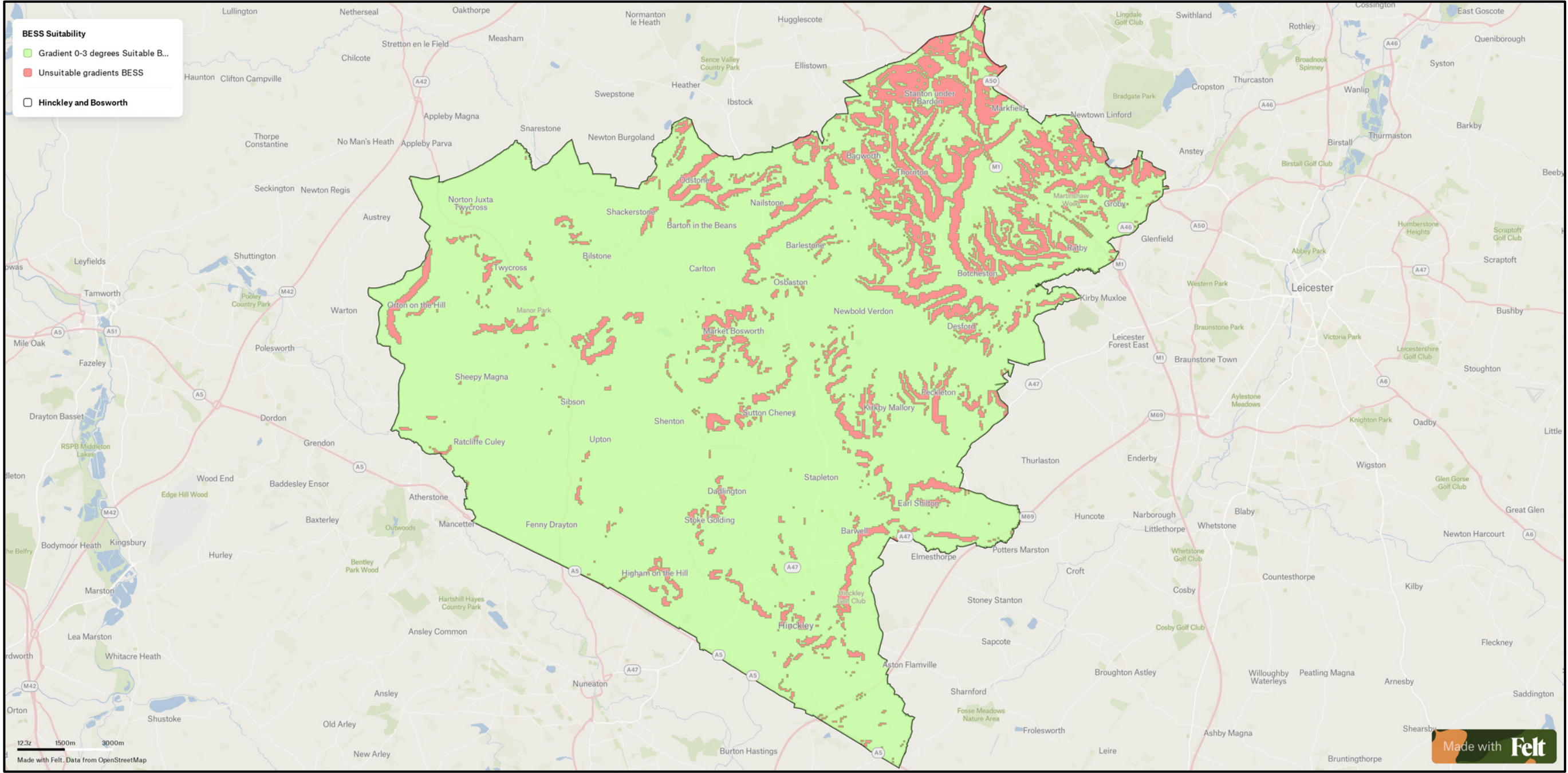
Map 52, LNRS layers in Hinckley and Bosworth



Map 53, LNRS secondary constraints – Merged.

8.6.6 Gradient

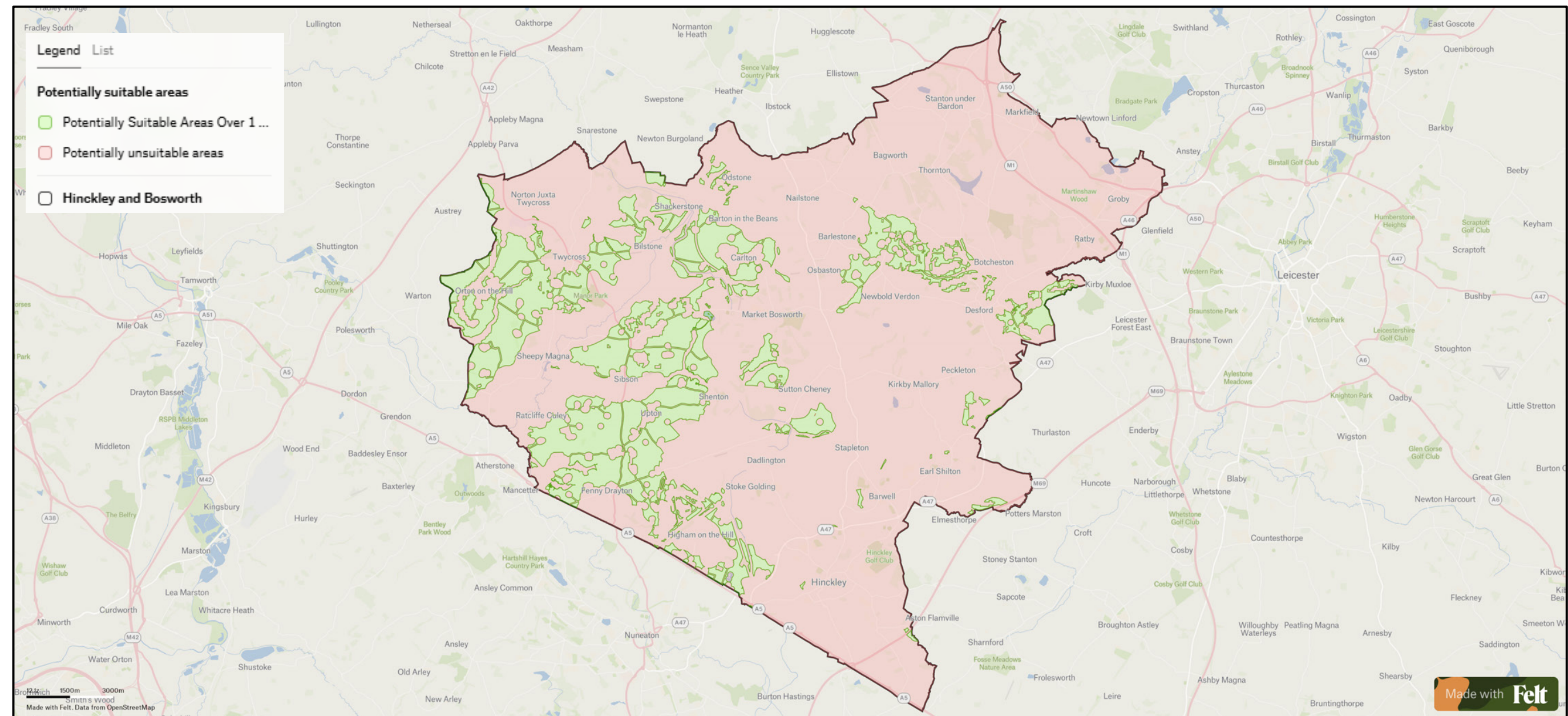
8.6.6.1 Map 54, below, shows areas of suitable and unsuitable gradients. Gradients are considered suitable if they are on a slope of 0-3°, shown in green with unsuitable gradients shown in red. It is important to note that it is the choice and responsibility of the renewable energy development to determine whether a suitable area would enable high BESS efficiency. However, the technical performance layer is a useful resource for both Development Management officers and developers to better understand the potential technical performance of suitable areas.



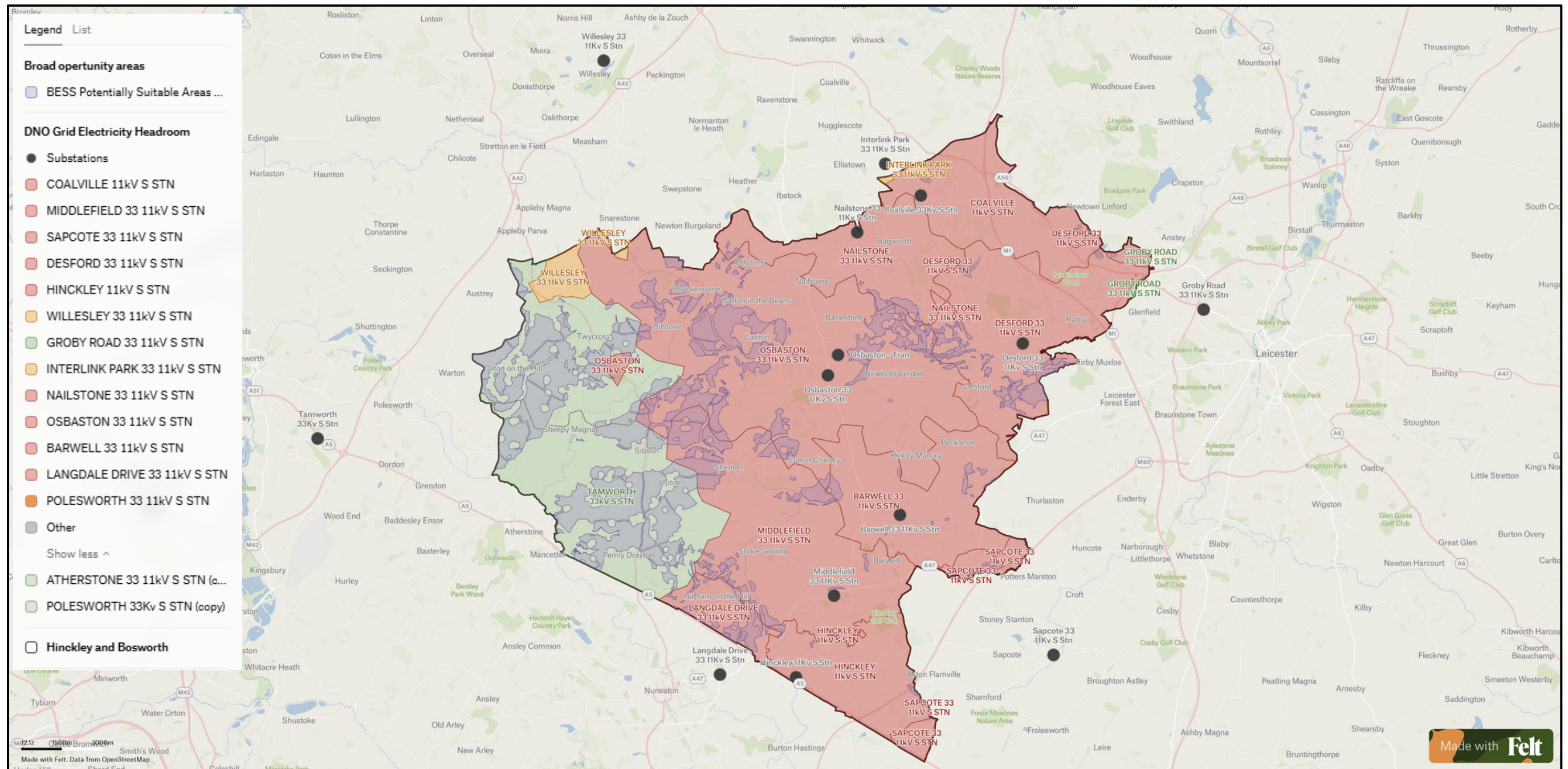
Map 54, Gradient map - BESS

8.6.7 All constraints

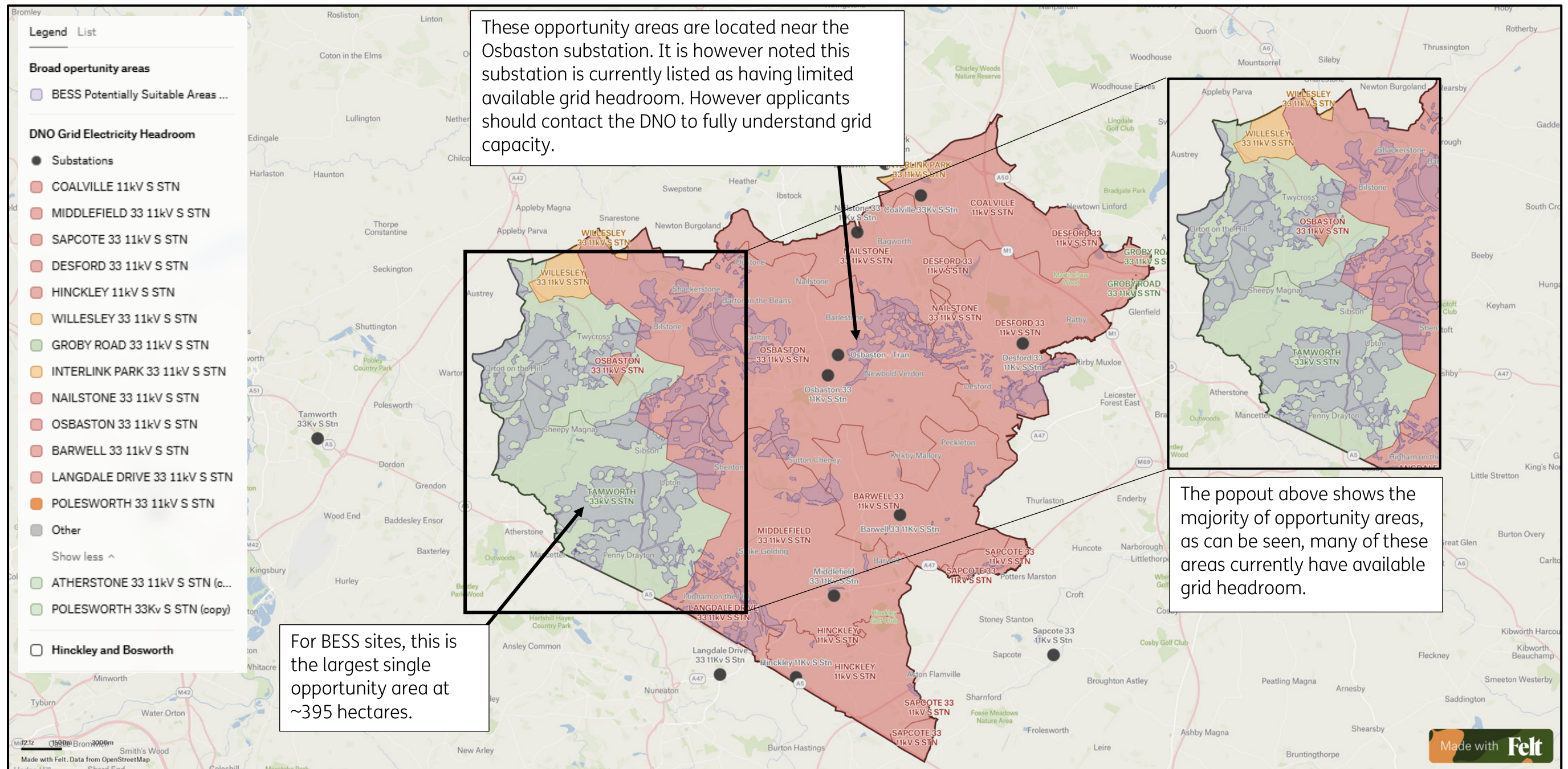
- 8.6.7.1 Map 55, below combines all BESS suitability layers to create an overall suitability map for battery energy storage systems (BESS). Areas shown in green indicate land with no identified constraints in accordance with the methodology set out in this report and therefore represent potential opportunity areas for BESS development within Hinckley and Bosworth Borough. BESS facilities can typically be accommodated on significantly smaller sites than ground-mounted solar PV or onshore wind developments. As a result, only parcels of land smaller than 1 acre have been excluded from the analysis. Determining the suitability and viability of individual sites remains the responsibility of the developer. Compared with onshore wind, a greater extent of opportunity land has been identified for BESS owing to the smaller separation distances and operational constraints associated with this technology. The identified opportunity areas are concentrated primarily within the south-west of the borough, extending northwards towards Carlton and Shackerstone.
- 8.6.7.2 In total, approximately **4,805 hectares** of land has been identified as an opportunity area for BESS development within Hinckley and Bosworth Borough.
- 8.6.7.3 Map 56 shows the identified BESS opportunity areas overlaid with available DNO grid headroom. Approximately 2,519 hectares, representing around 52% of the total opportunity area identified, falls within areas where grid headroom is currently available. The availability of grid capacity may represent a relative advantage for development in these locations. However, the areas associated with available headroom are located approximately 6.2 km from Tamworth Primary Substation and 3.4 km from Langdale Drive Primary Substation, which may influence connection requirements and costs. Developers should engage directly with the relevant DNO to confirm available network capacity and connection requirements rather than relying solely on the information presented in this report, which does not seek to provide grid connection advice.
- 8.6.7.4 The remaining opportunity areas are located within areas where limited or no grid headroom is currently reported. However, several of these areas are located within close proximity to existing network infrastructure, including opportunity areas situated within 1 km of the Barwell, Osbaston and Desford Primary Substations. Whilst proximity to existing substations may be beneficial, the feasibility of a connection will depend on available network capacity and site-specific circumstances. As above, developers should engage directly with the relevant DNO to confirm connection requirements and available capacity.
- 8.5.7.5 Map 57 provides annotated information for the principal BESS opportunity areas identified through this assessment. The planning policy context relating to these opportunity areas is discussed in Section 8.12.



Map 55, BESS areas with no constraints



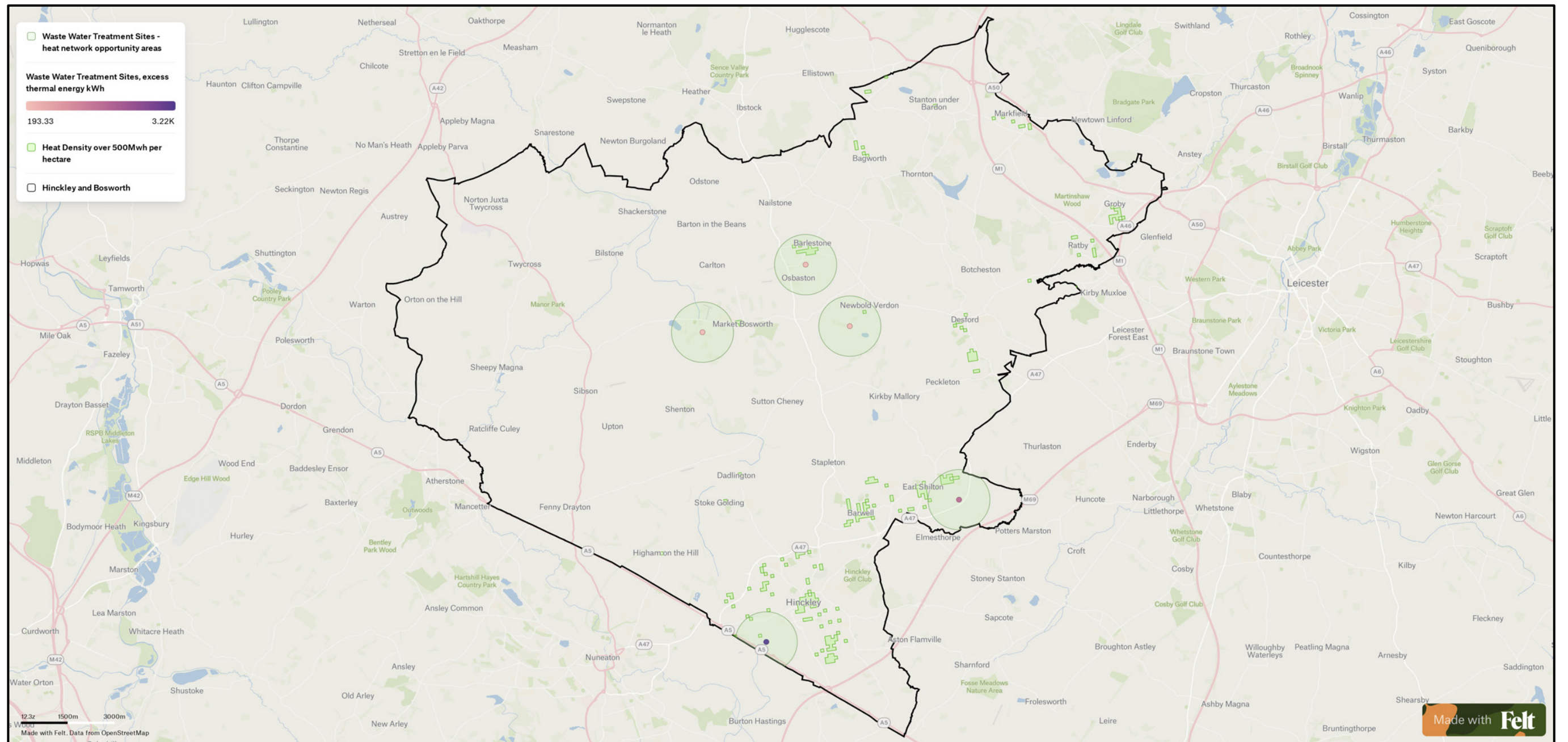
Map 56, BESS areas with no constraints, overlaid with grid headroom.



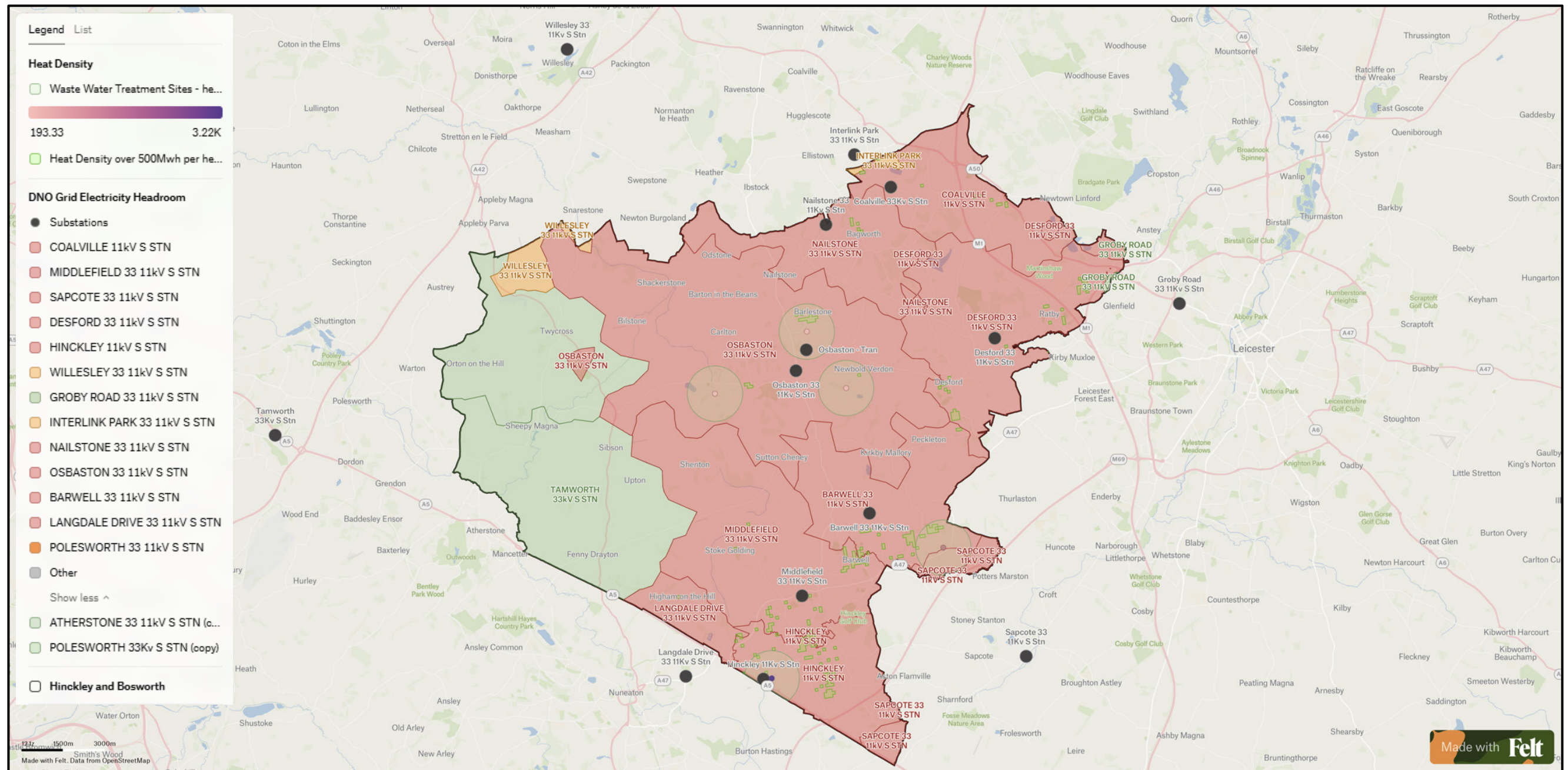
Map 57, BESS areas with no constraints, overlaid with grid headroom, annotated.

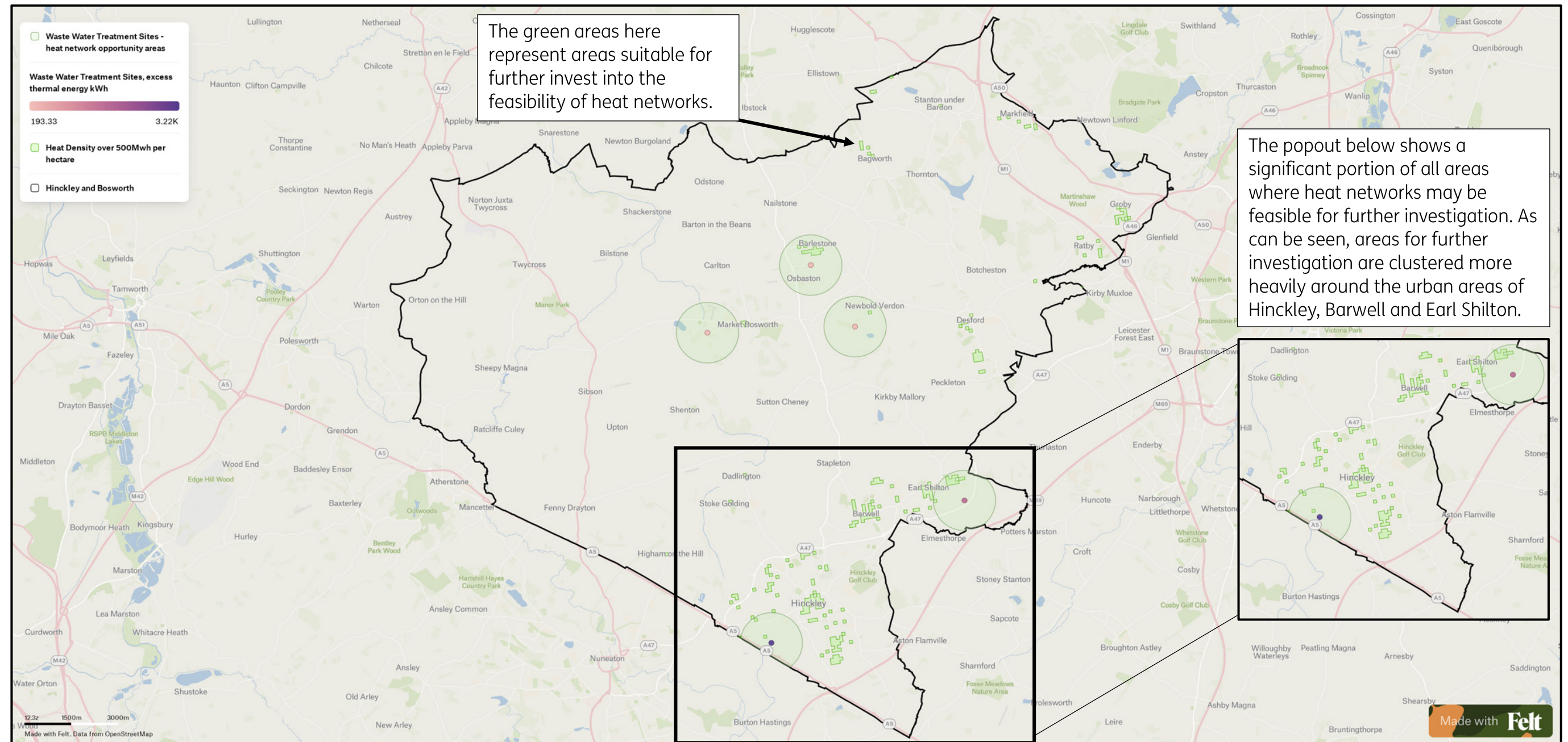
8.7 District heating

- 8.7.1 Map 58, below presents the assessment of potential district heat network opportunities within Hinckley and Bosworth Borough. Areas with an annual heat demand of 500 MWh/ha or greater have been identified as potentially suitable for further investigation into district heat network development and are shown in green. Wastewater treatment works identified within the CitiWatts database as having potential excess heat capacity are also shown, together with a 1 km buffer representing the area within which waste heat may be most feasibly utilised.
- 8.7.2 As shown on Map 58, five wastewater treatment works with potential excess heat capacity have been identified near Hinckley, Newbold Verdon, Market Bosworth, Earl Shilton and Barlestone. The 1 km buffer surrounding each site is shown as a coloured circle. Four of the identified sites are associated with at least one hectare of land recording a heat density of 500 MWh/ha or greater, indicating potential opportunities for further investigation of district heat network viability. In these locations, the wastewater treatment works could potentially act as an anchor heat source for a future network. The wastewater treatment works near Earl Shilton and Barlestone are associated with the largest concentrations of high heat demand land, each containing more than 10 hectares with a heat density exceeding 500 MWh/ha. This compares with approximately 1 hectare within the Newbold Verdon opportunity area and just over 2 hectares within the Hinckley opportunity area.
- 8.7.3 Map 59 overlays the heat density assessment with available electricity network headroom. All areas identified as having sufficient heat density to warrant further investigation into district heat networks are located within areas currently reported as having limited or no available grid headroom. However, this should not necessarily be viewed as a constraint to district heat network development. The suitability of heat networks is primarily influenced by heat demand, the availability of heat sources, network layout and project economics. Where electricity network capacity is required to support associated technologies, such as large heat pumps, site-specific connection requirements should be confirmed directly with the relevant DNO. Electricity network capacity may be a consideration for future district heat network schemes, particularly where low-carbon heat generation technologies such as large heat pumps are proposed. However, the identification of district heating opportunity areas within this study is based on heat density and the presence of potential heat sources. As such, current electricity network headroom should not be considered a primary constraint to further investigation of district heat network opportunities.
- 8.7.4 Map 60 provides annotated information for the principal district heating opportunity areas identified through this assessment. The planning policy context relating to these opportunity areas is discussed in Section 8.12.



Map 58, Heat demand in Hinckley and Bosworth





Map 60, Heat demand in Hinckley and Bosworth, annotated.

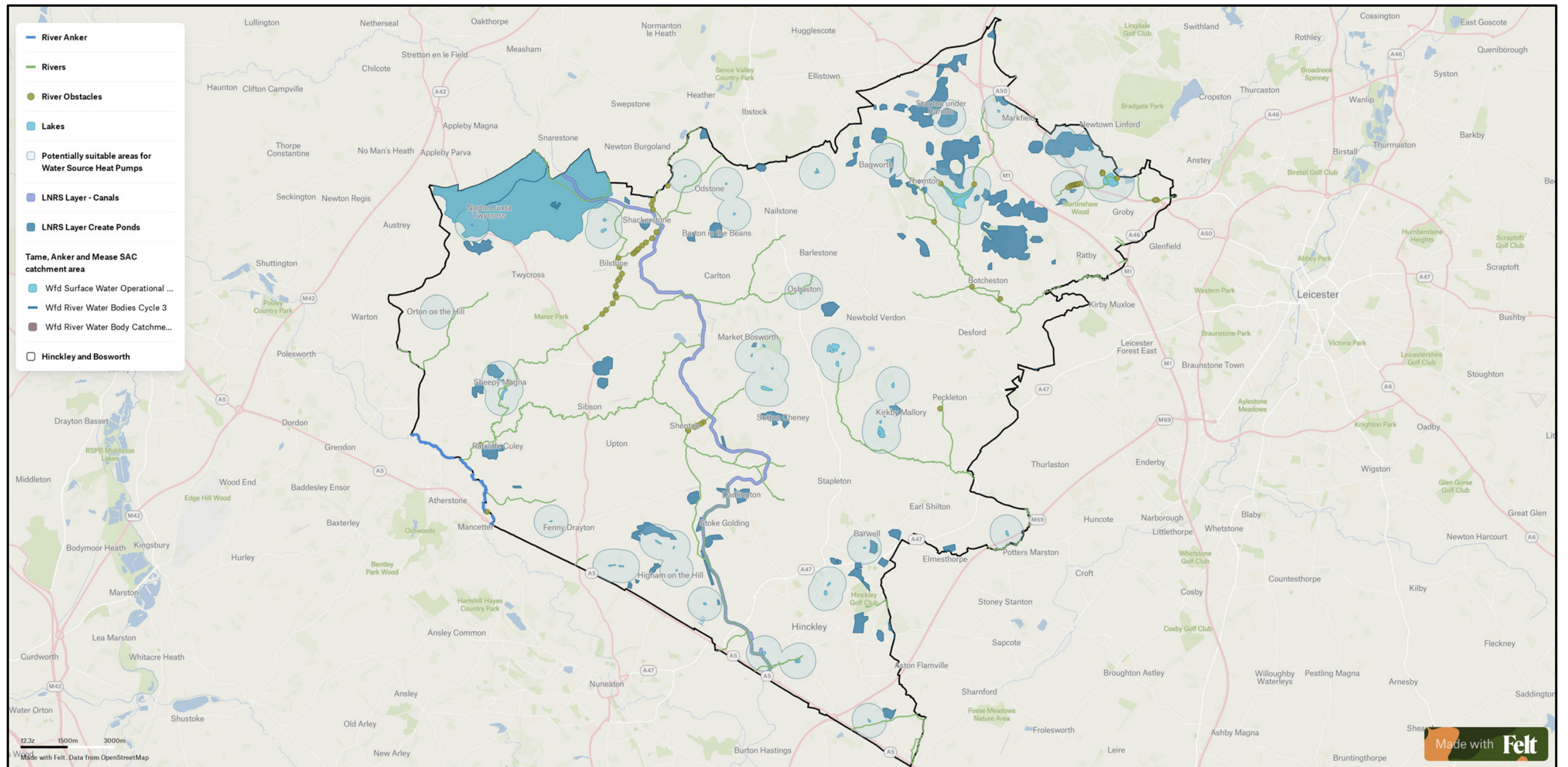
8.8 Hydropower

8.8.1 Map 61, below presents the hydropower opportunity assessment for Hinckley and Bosworth Borough. The River Anker is highlighted as river flow data is available for this watercourse. However, as discussed previously, additional rivers within the borough may warrant further investigation for hydropower generation despite flow data not being available. Consequently, all major watercourses within Hinckley and Bosworth Borough are shown on Map 61 to support the identification of potential opportunities. Existing weirs, locks and waterfalls have also been mapped, as these features may indicate locations with hydropower potential. However, further site-specific investigation would be required, as not all features will be suitable for hydropower development.

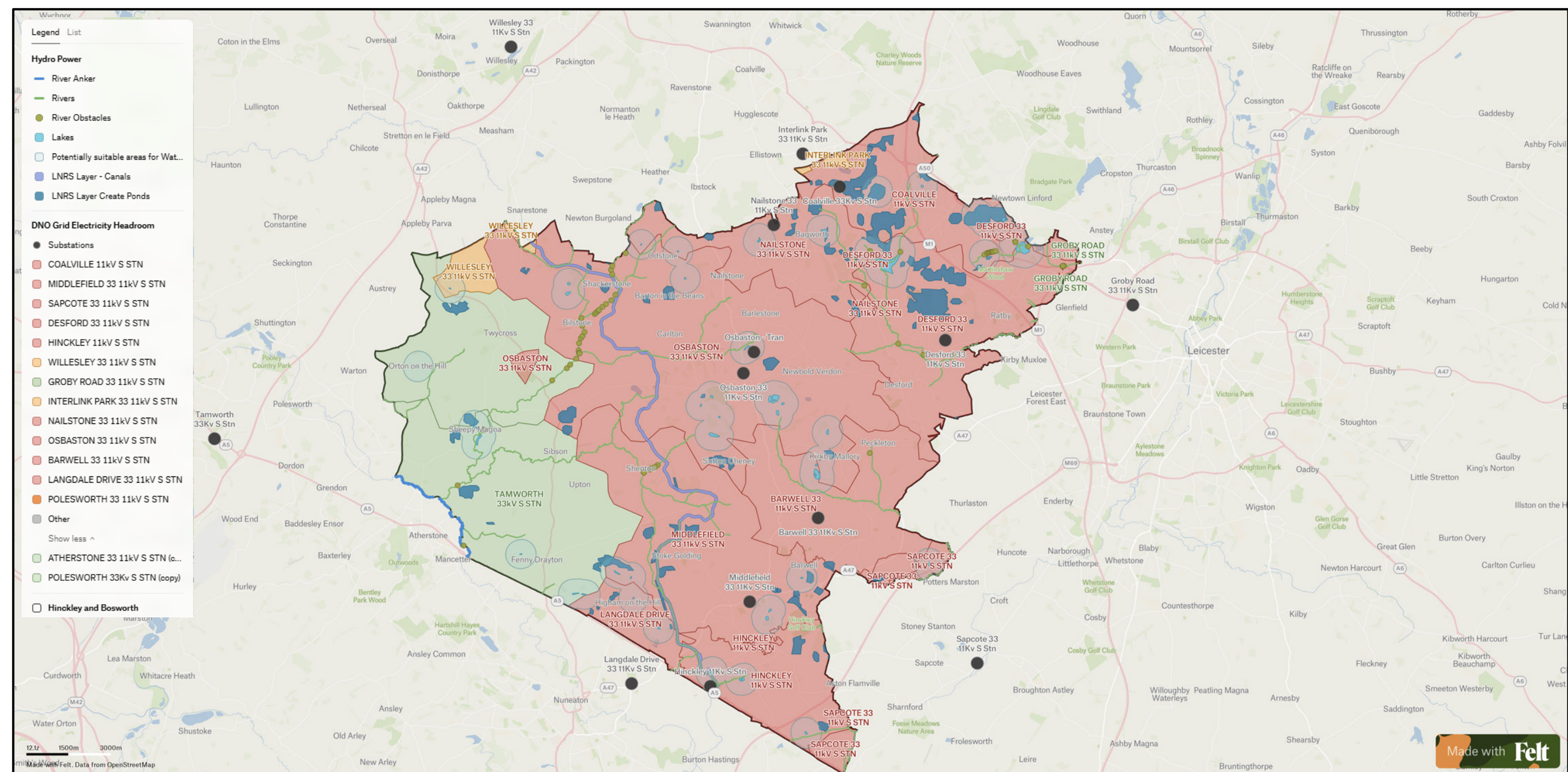
8.8.2 Potential opportunities areas for water-source heat pumps are also shown on Map 61 as blue buffers. Water-source heat pumps could provide a potential low-carbon heat source for district heat networks, subject to further technical and economic assessment. The map legend identifies all features shown in accordance with the methodology set out in Section 3 of this report.

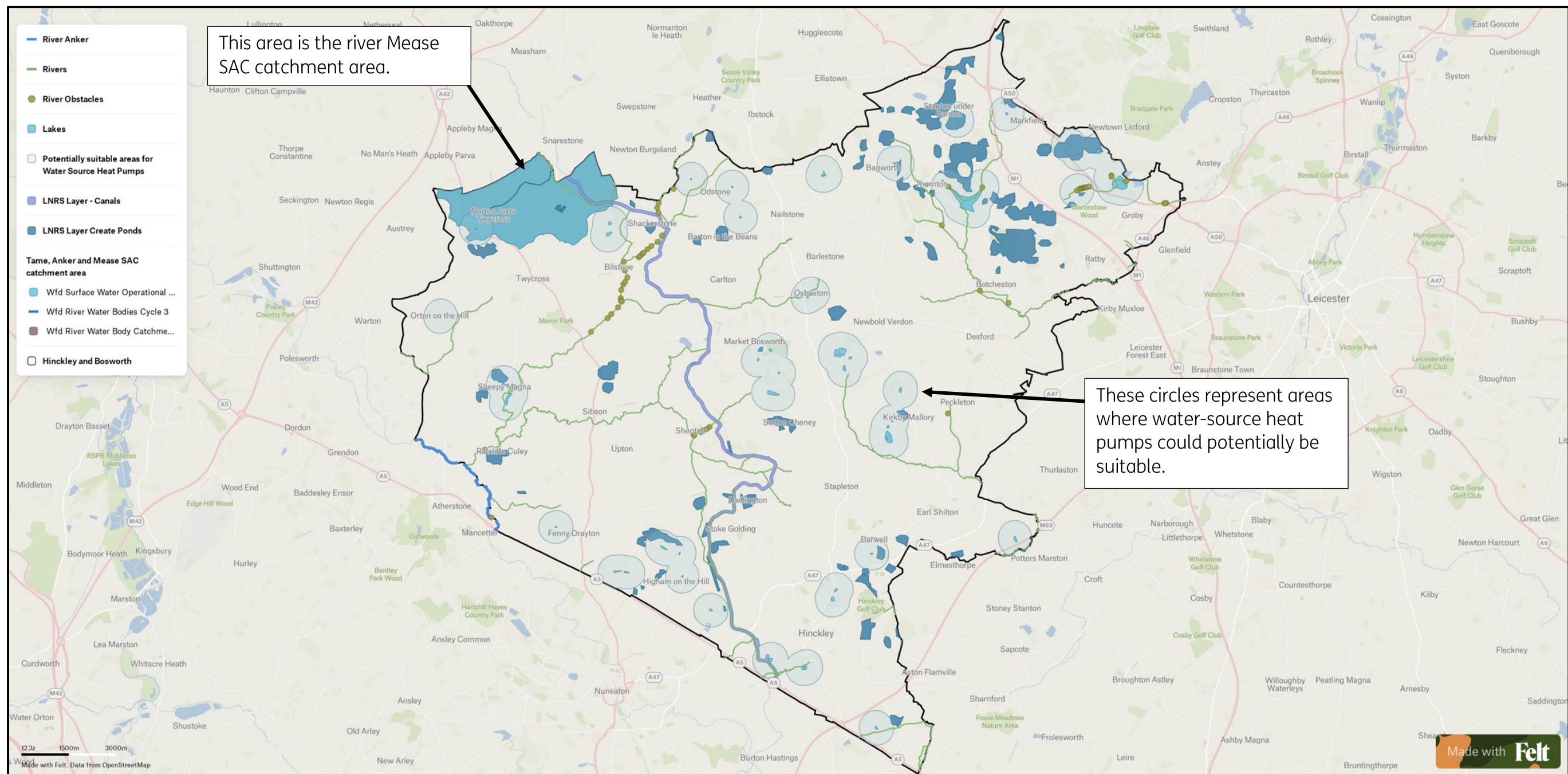
8.8.3 Map 62 overlays the identified water-source heat pump opportunity areas with available DNO grid headroom. As water-source heat pump systems require an electricity supply, the availability of grid capacity may represent an advantage for some locations. Several opportunity areas are situated within areas currently identified as having available grid headroom. However, grid capacity should not be considered in isolation when assessing the suitability of water-source heat pump schemes, and connection requirements should be confirmed directly with the relevant DNO. This report does not seek to provide grid connection advice.

8.8.4 Map 63 provides annotated information for the principal hydropower and water-source heat pump opportunity areas identified through this assessment. The planning policy context relating to these opportunity areas is discussed in Section 8.12.



Map 61, Hydropower suitability

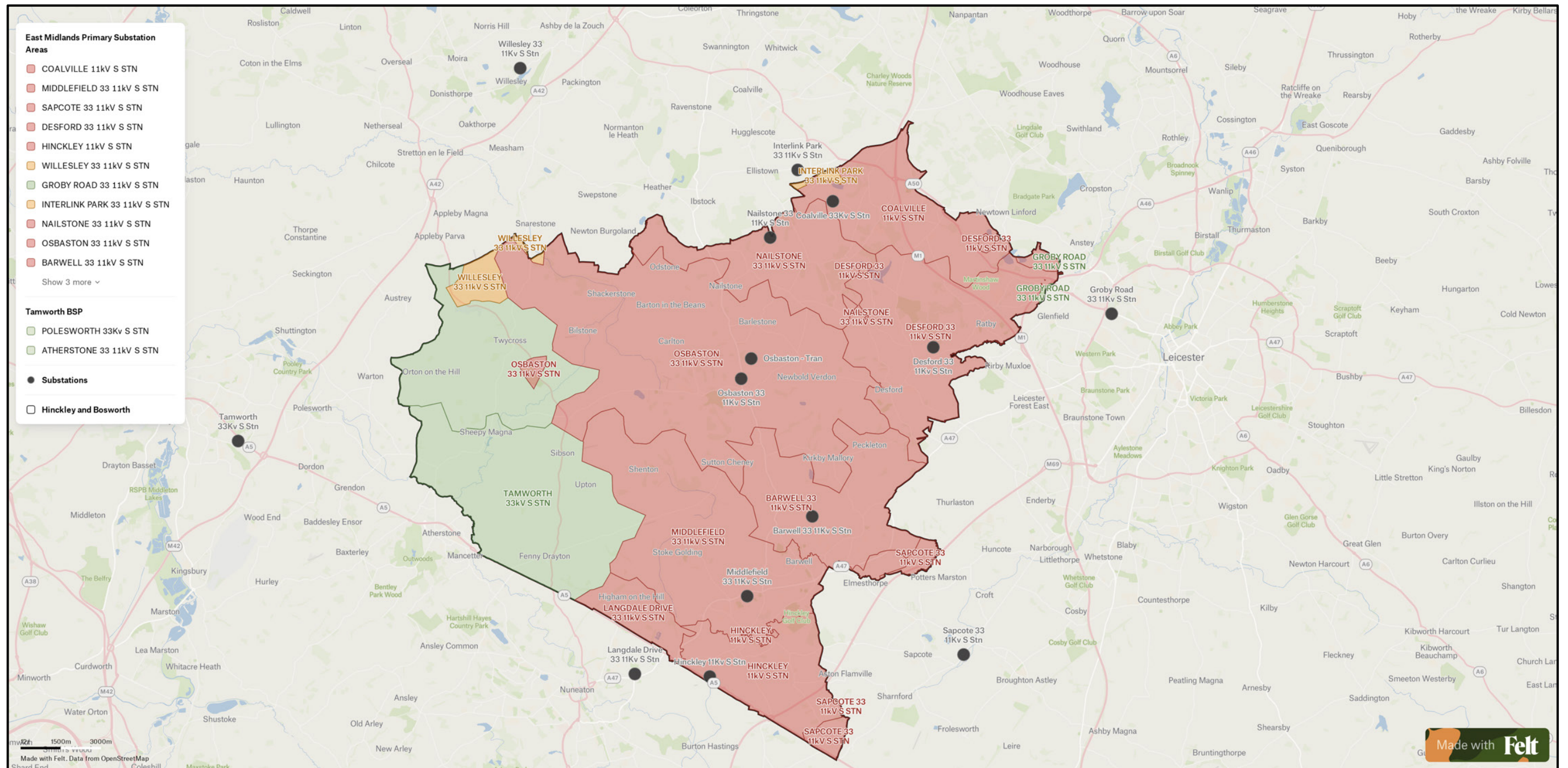




Map 63, Hydropower suitability, annotated.

8.9 Grid headroom

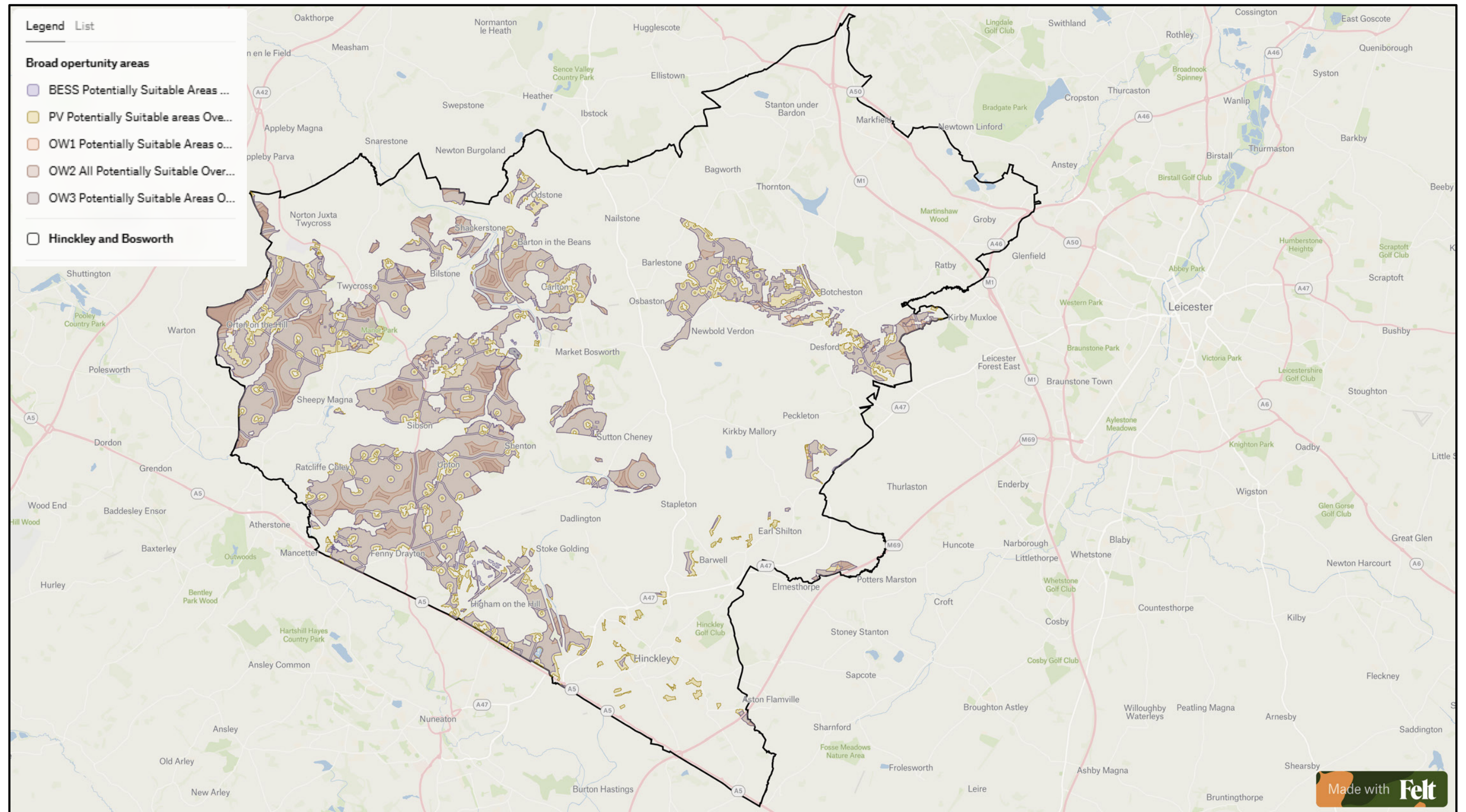
- 8.9.1 Map 64, below, shows areas within Hinckley and Bosworth Borough with available headroom [October 2025]. Areas with headroom available are shown in green on the map. The large area with available grid headroom is to the south west of Hinckley and Bosworth, these areas are serviced from the Tamworth Bulk Supply point as data was not available from the DNO at a primary substation level. The Groby road substation is also listed as having available grid headroom indicating this area can support additional renewable energy sites, however this area is covered by secondary constraints.
- 8.9.2 The Willesley and Interlink Park primary substations are listed as amber on the DNOs RAG rating indicating they have some headroom available. All other areas within Hinckley and Bosworth Borough are listed as red by the DNO, indicating these areas have limited headroom based on existing infrastructure. Demand contracted headroom has been used for this analysis, this accounts for renewable energy developments that have secured a generation contract but are not currently producing energy. Demand contracted headroom presents an accurate vision of the headroom available for new renewable energy sites.

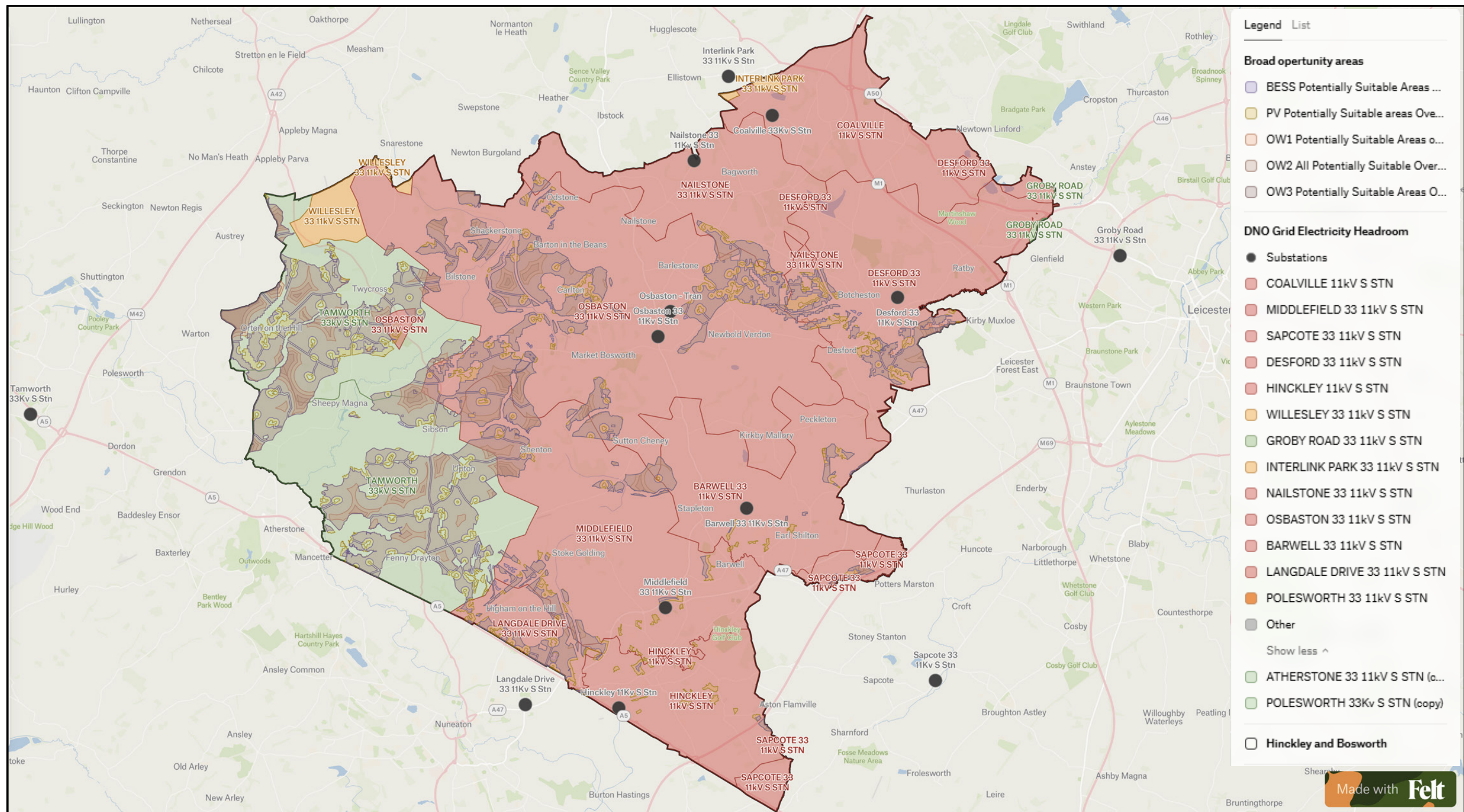


Map 64, Grid headroom

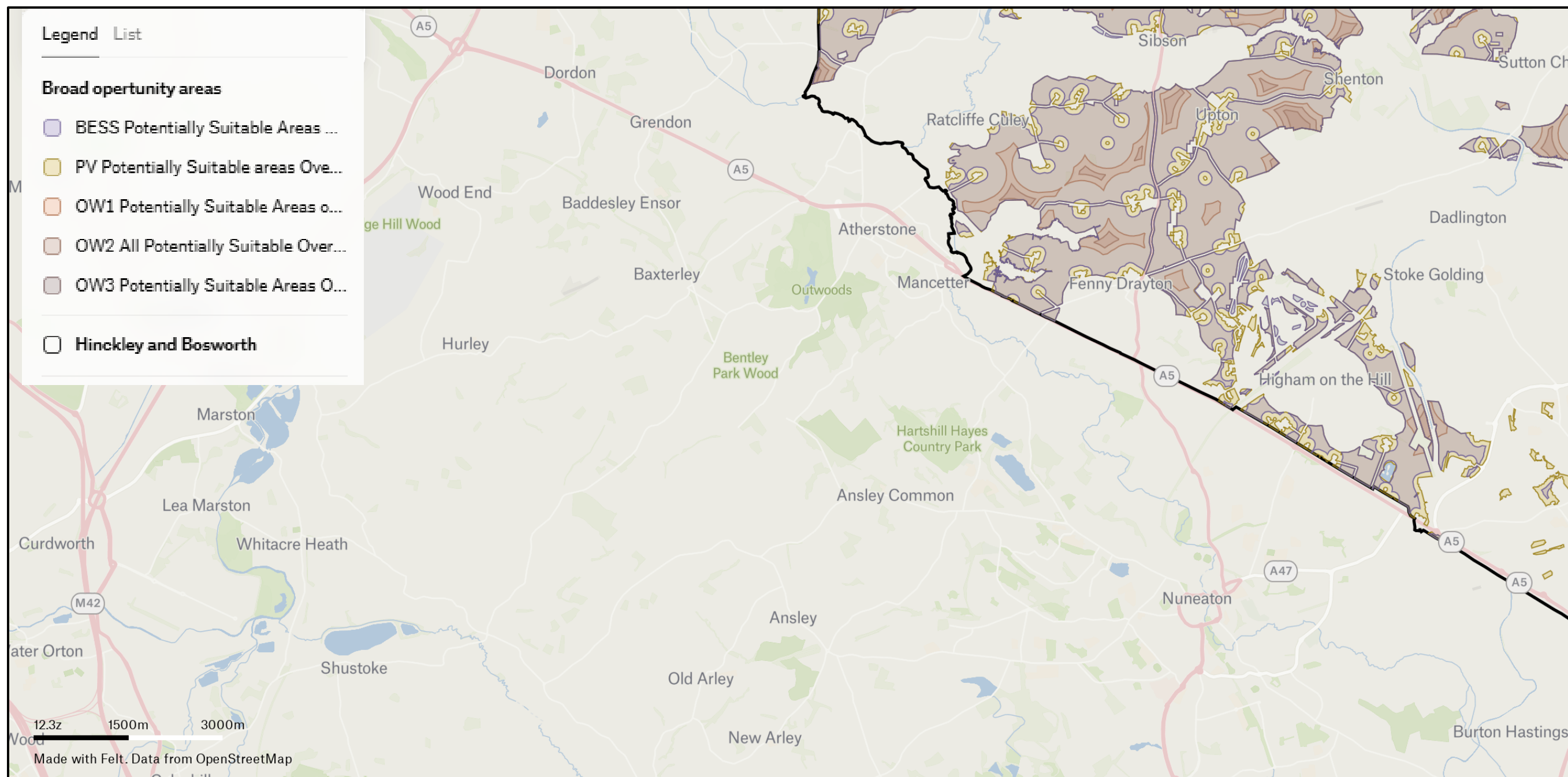
8.10 Broad opportunity areas

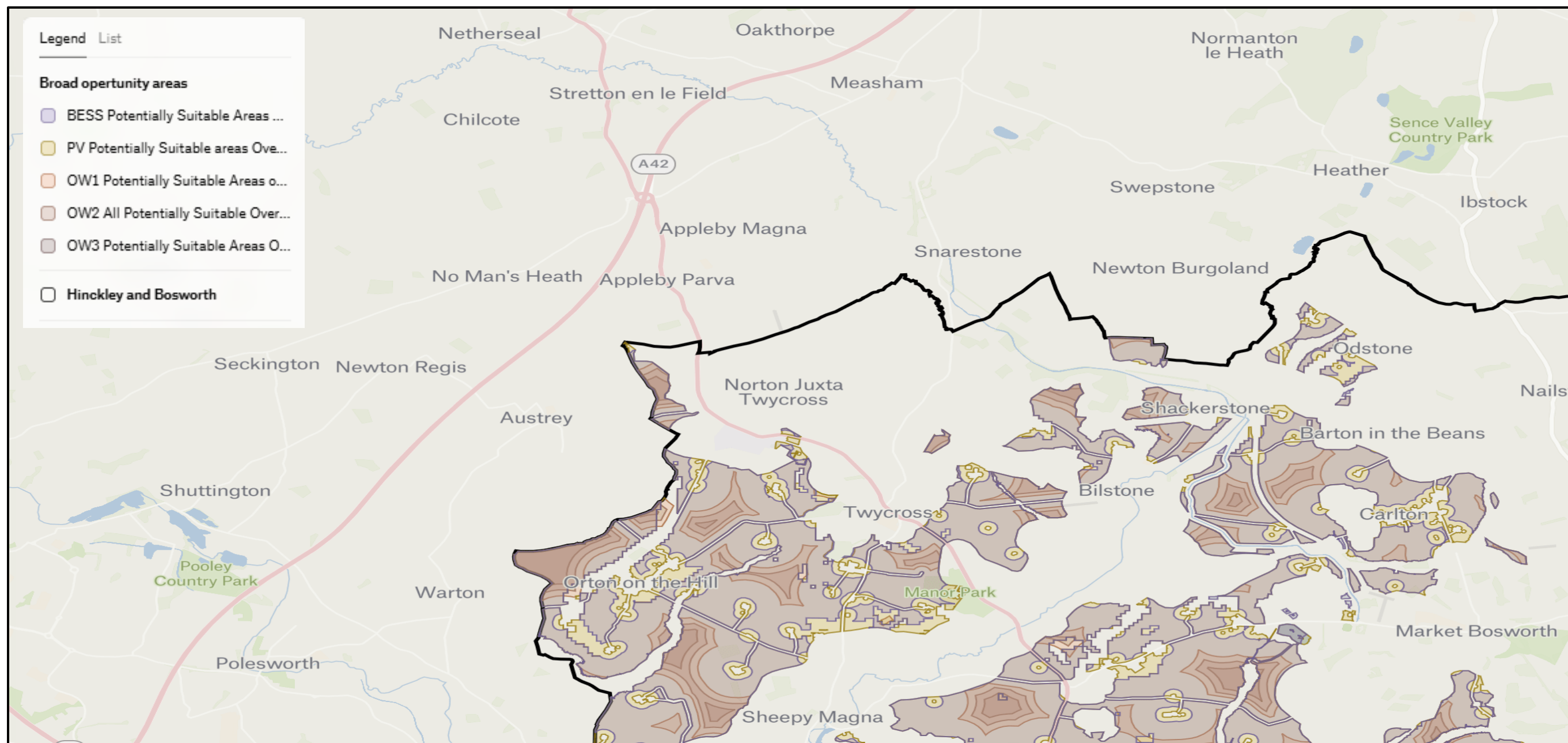
- 8.10.1 Map 65 shows the opportunity areas identified for each renewable energy technology overlaid to provide a combined view of broad renewable energy opportunities across Hinckley and Bosworth Borough. The map highlights areas identified as potentially suitable for one or more technologies following the application of the methodology set out in this report. BESS opportunity areas are shown in purple, ground-mounted solar PV opportunity areas in yellow, and onshore wind opportunity areas in orange (OW1), brown (OW2) and grey (OW3).
- 8.10.2 The combined mapping indicates three broad clusters of renewable energy opportunity areas. The first extends between Barlestone and the eastern boundary of Hinckley and Bosworth Borough. The second forms a more central cluster extending from Higham on the Hill towards Odstone. The third extends from Shackerstone towards the western boundary of the borough. These clusters largely reflect areas where key constraints, such as proximity to buildings, rivers and waterbodies, flood risk and Local Nature Recovery Strategy (LNRS) areas, are less prevalent.
- 8.10.3 Map 66 overlays the broad renewable energy opportunity areas with available DNO grid headroom. A number of opportunity areas are located within substations' service areas currently reported as having limited or no available grid headroom. This may result in additional connection requirements, network reinforcement works or increased connection costs for some developments. However, grid availability is subject to change and should be confirmed directly with the relevant DNO. This assessment does not seek to provide grid connection advice and should not be relied upon as a substitute for a formal grid connection assessment. Developers may be able to demonstrate the suitability of sites through site-specific evidence, even where an area is identified as constrained or located within a service area with limited available headroom. The DNO Grid Electricity Headroom layer identifies primary substation and bulk supply point service areas, with each area colour-coded according to the level of headroom reported by the DNO.
- 8.10.4 Maps 67 – 70 present the broad opportunity areas at a larger scale to allow for more detailed examination of the identified locations. These maps show the combined opportunity areas for BESS, ground-mounted solar PV and onshore wind (OW1, OW2 and OW3). BESS opportunity areas are shown in purple, solar PV opportunity areas in yellow, and onshore wind opportunity areas in orange (OW1), brown (OW2) and grey (OW3). Detailed maps and analysis for each technology are provided within Sections 8.2–8.8 of this report.
- 8.10.5 The broad opportunity area maps identify locations with no mapped constraints based on the methodology set out in this report. The planning policy context relating to these opportunity areas is discussed in Section 8.12.



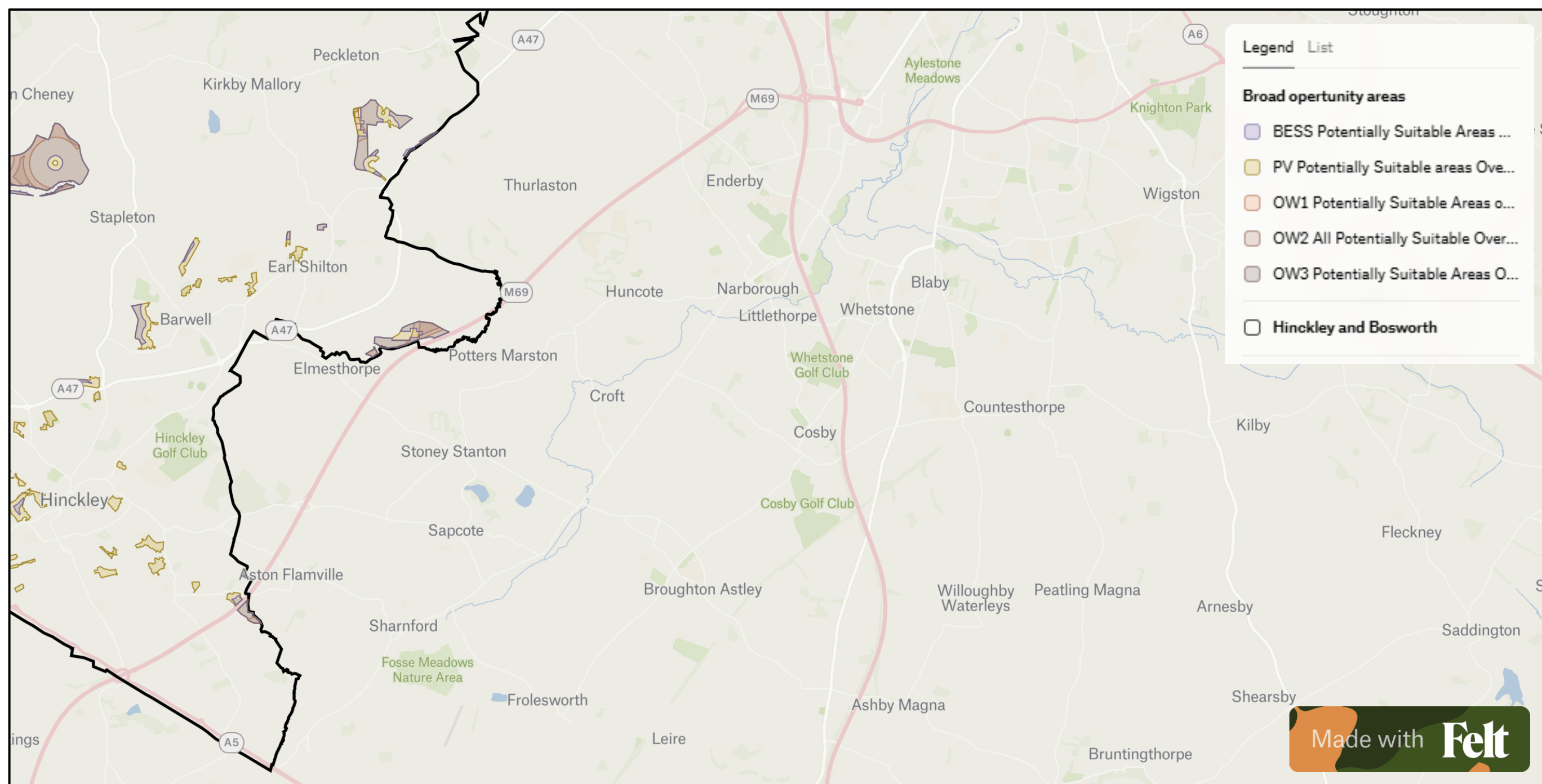


Map 66, broad opportunity areas, overlaid with current grid availability

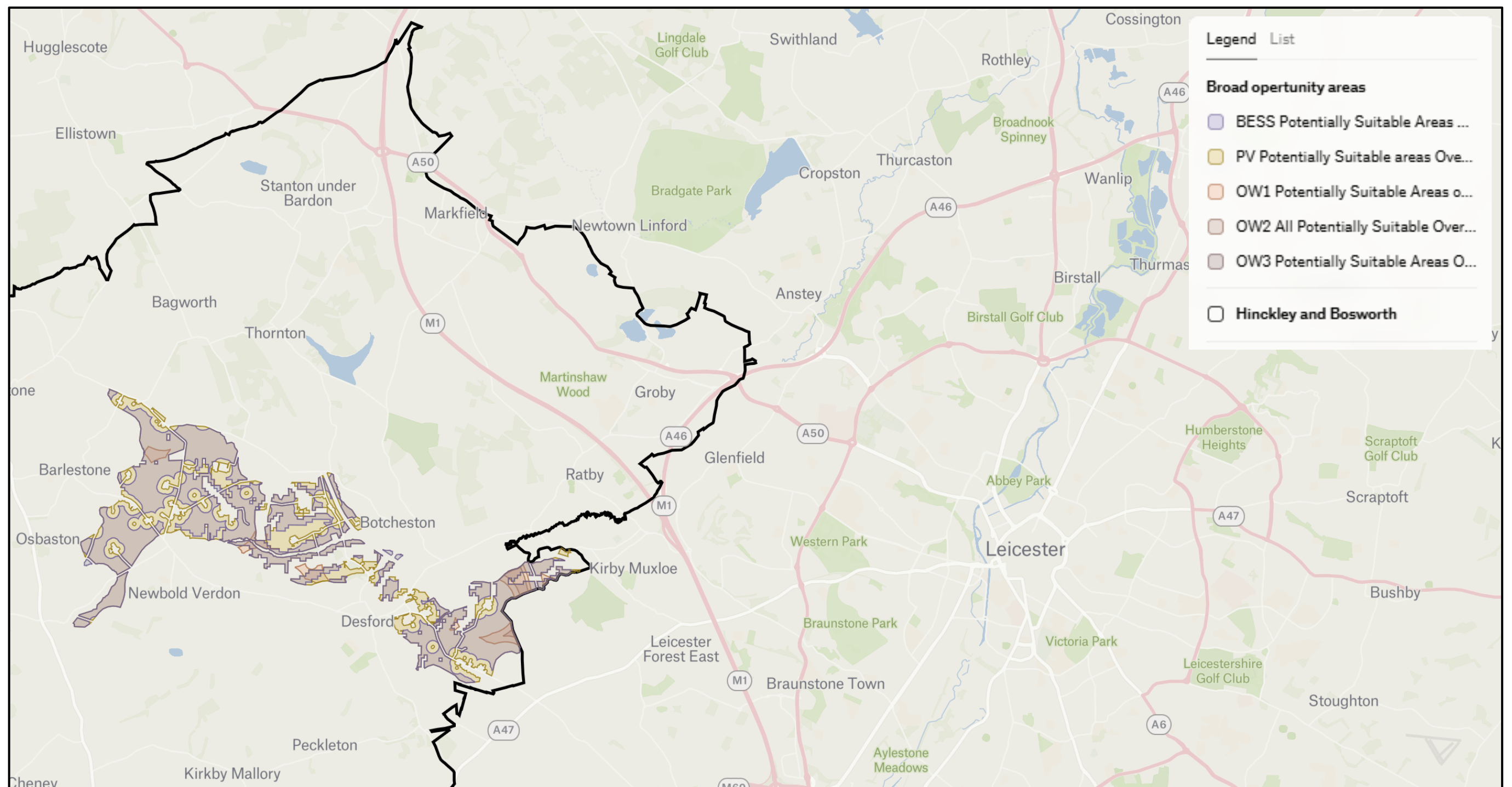




Map 68, broad opportunity areas, Northwest portion



Map 69, broad opportunity areas, Southeast portion

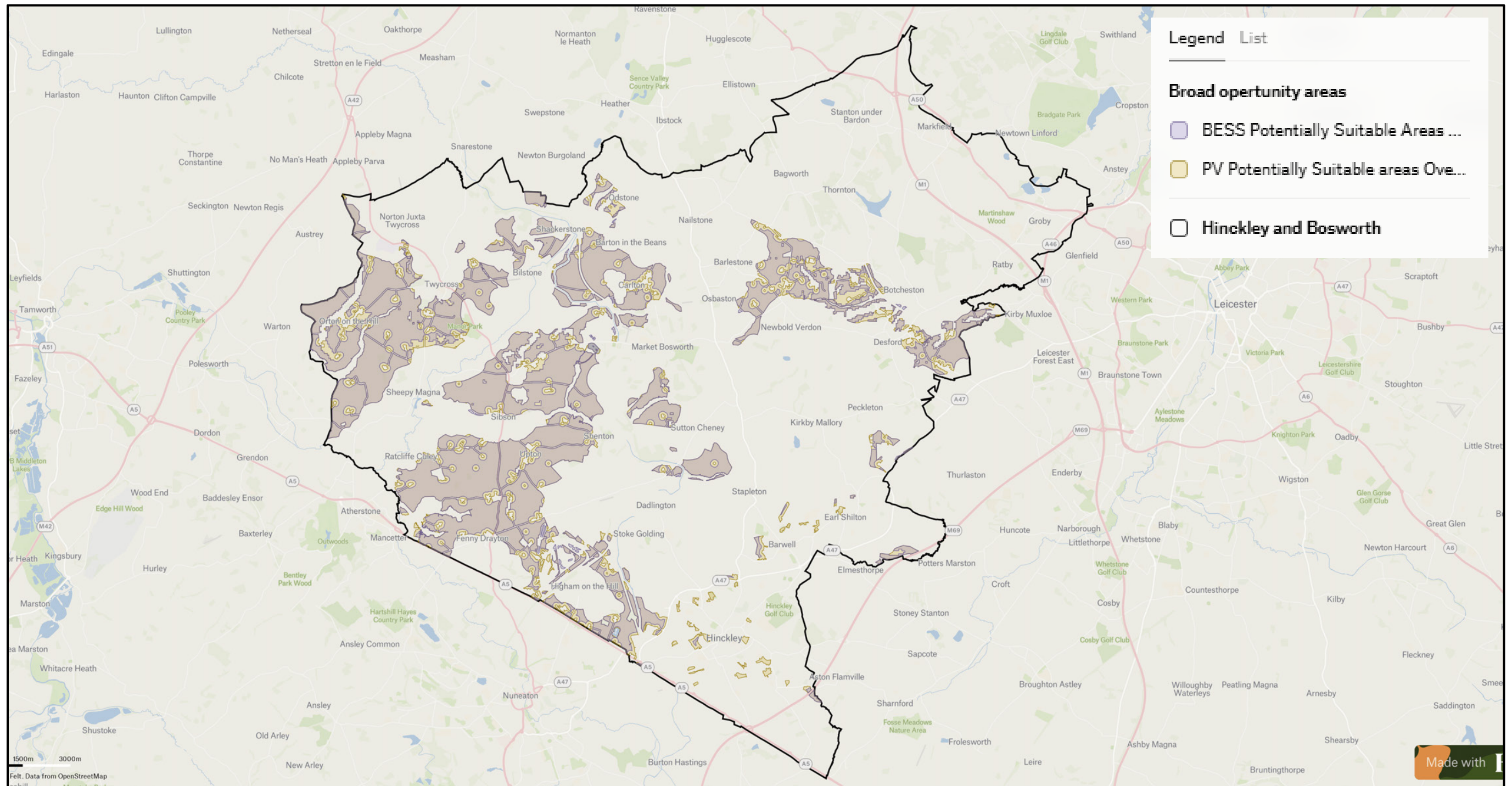


Map 70 broad opportunity areas, Northeast portion

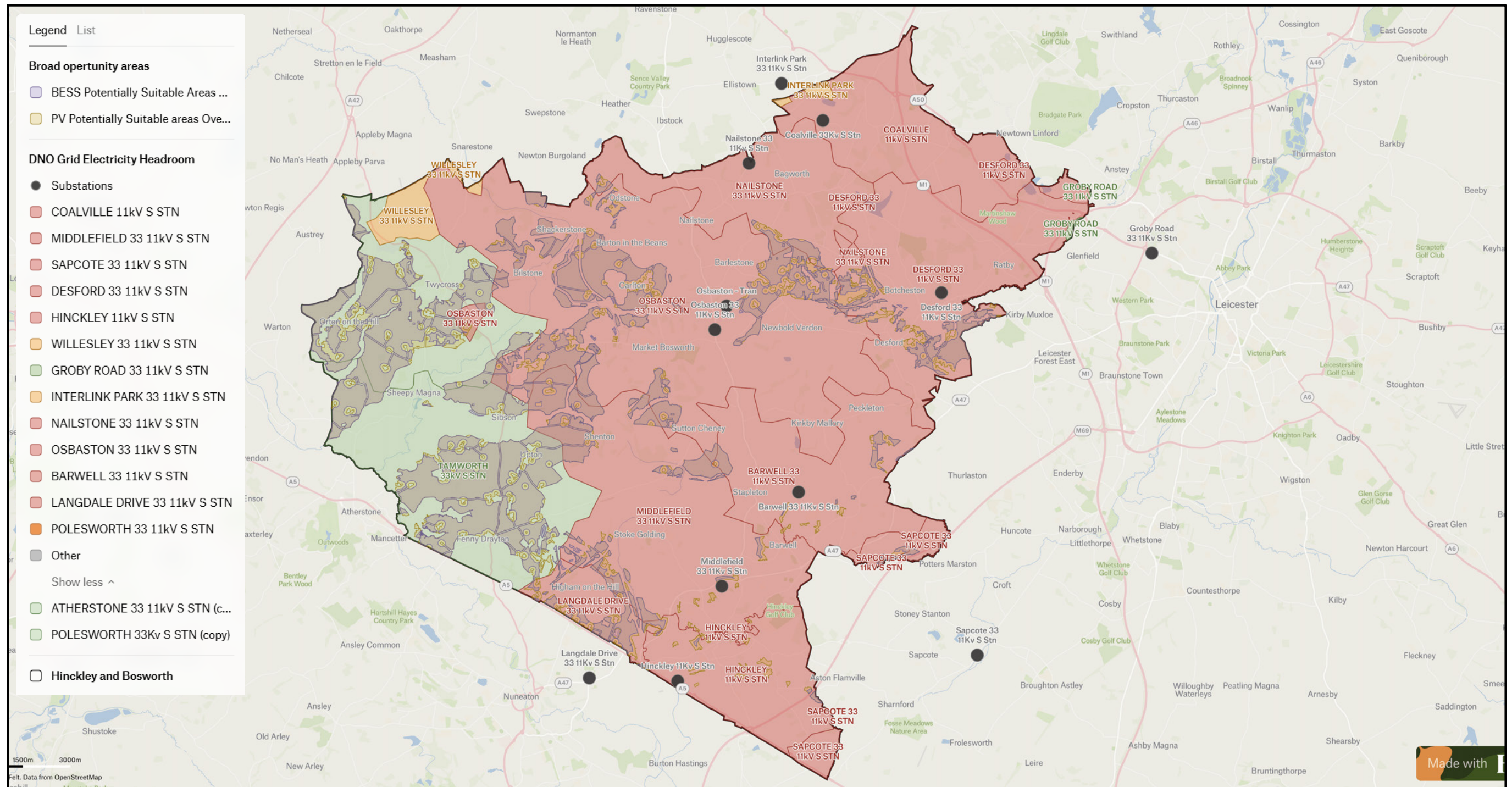
8.11 Co-location opportunities

- 8.11.1 The maps presented in Section 8.10 identify locations where opportunity areas for multiple renewable energy technologies overlap. In practice, developers may seek to co-locate battery energy storage systems (BESS) alongside ground-mounted solar PV or onshore wind developments within a single site and planning application. This section therefore examines the spatial relationship between BESS opportunity areas and those identified for ground-mounted solar PV and onshore wind technologies (OW1, OW2 and OW3) to identify potential co-location opportunities.
- 8.11.2 Map 71 overlays the opportunity areas identified for ground-mounted solar PV and BESS. The assessment indicates a substantial degree of overlap between the two technologies. Whilst some differences exist in the constraints applied to each technology, the broad similarity in siting requirements results in a large proportion of BESS opportunity areas also being suitable for ground-mounted solar PV. This suggests significant potential for the co-location of solar PV and battery storage developments.
- 8.11.3 The co-location of ground-mounted solar PV and BESS could enable electricity generated on-site to be stored and exported at times that better align with network and market conditions. Such arrangements may provide greater operational flexibility and support more efficient use of available network capacity. Map 72 overlays the identified co-location opportunity areas with available DNO grid headroom
- 8.11.4 Map 73 shows the opportunity areas for onshore wind turbines with a tip height of 25–100 metres (OW1) overlaid with the BESS opportunity areas. As identified in Section 8.3, the additional constraints associated with noise and turbine topple distances result in fewer and smaller opportunity areas for onshore wind than for BESS. Despite this, a number of overlapping opportunity areas have been identified.
- 8.11.5 The majority of OW1 and BESS co-location opportunities are located within the western part of Hinckley and Bosworth Borough. Several OW1 opportunity areas are located entirely within larger BESS opportunity areas. Of particular note, the largest OW1 opportunity area, covering approximately 80.91 hectares, is located entirely within a BESS opportunity area extending to approximately 282 hectares. This may represent a notable co-location opportunity for future development.
- 8.11.6 Map 74 overlays the OW1 and BESS co-location opportunities with available grid headroom. Several of the identified overlapping areas are located within network service areas currently reported as having available grid capacity. The co-location of onshore wind and BESS may provide operational flexibility through the storage of generated electricity and the management of export profiles, subject to site-specific design and network requirements.
- 8.11.7 Map 75 shows the opportunity areas for onshore wind turbines with a tip height of 100–150 metres (OW2) overlaid with BESS opportunity areas. As a result of the increased turbine height and associated constraints, fewer opportunity areas have been identified for OW2 compared with OW1. However, substantial overlap remains between the opportunity areas identified for these technologies.
- 8.11.8 Significant co-location opportunities are concentrated within the western part of the borough. Two of the largest OW2 opportunity areas, located between Sheepy Magna and Orton on the Hill, overlap extensively with BESS opportunity areas. Only small portions of these OW2 opportunity areas fall outside the identified BESS opportunity areas, suggesting considerable potential for co-location.
- 8.11.9 Map 76 overlays the OW2 and BESS co-location areas with available grid headroom. The largest overlapping opportunity areas are located within service areas currently reported as having available grid capacity. Additional smaller areas of overlap are also present across the western part of the borough. As with OW1, the co-location of onshore wind and battery storage may provide operational flexibility through the storage and management of electricity generated on-site.
- 8.11.10 Map 77 shows the opportunity areas for onshore wind turbines with a tip height of 150–220 metres (OW3) overlaid with BESS opportunity areas. Owing to the increased constraints associated with larger turbine sizes, fewer opportunity areas have been identified for OW3 than for either OW1 or OW2. The remaining opportunity areas are concentrated within the south-west of Hinckley and Bosworth Borough.
- 8.11.11 Despite the more restrictive siting requirements, several locations have been identified where OW3 and BESS opportunity areas overlap. The largest OW3 opportunity area, covering approximately 33.32 hectares and located north of Orton on the Hill, lies entirely within a larger BESS opportunity area. This location therefore represents one of the more significant co-location opportunities identified through this assessment.

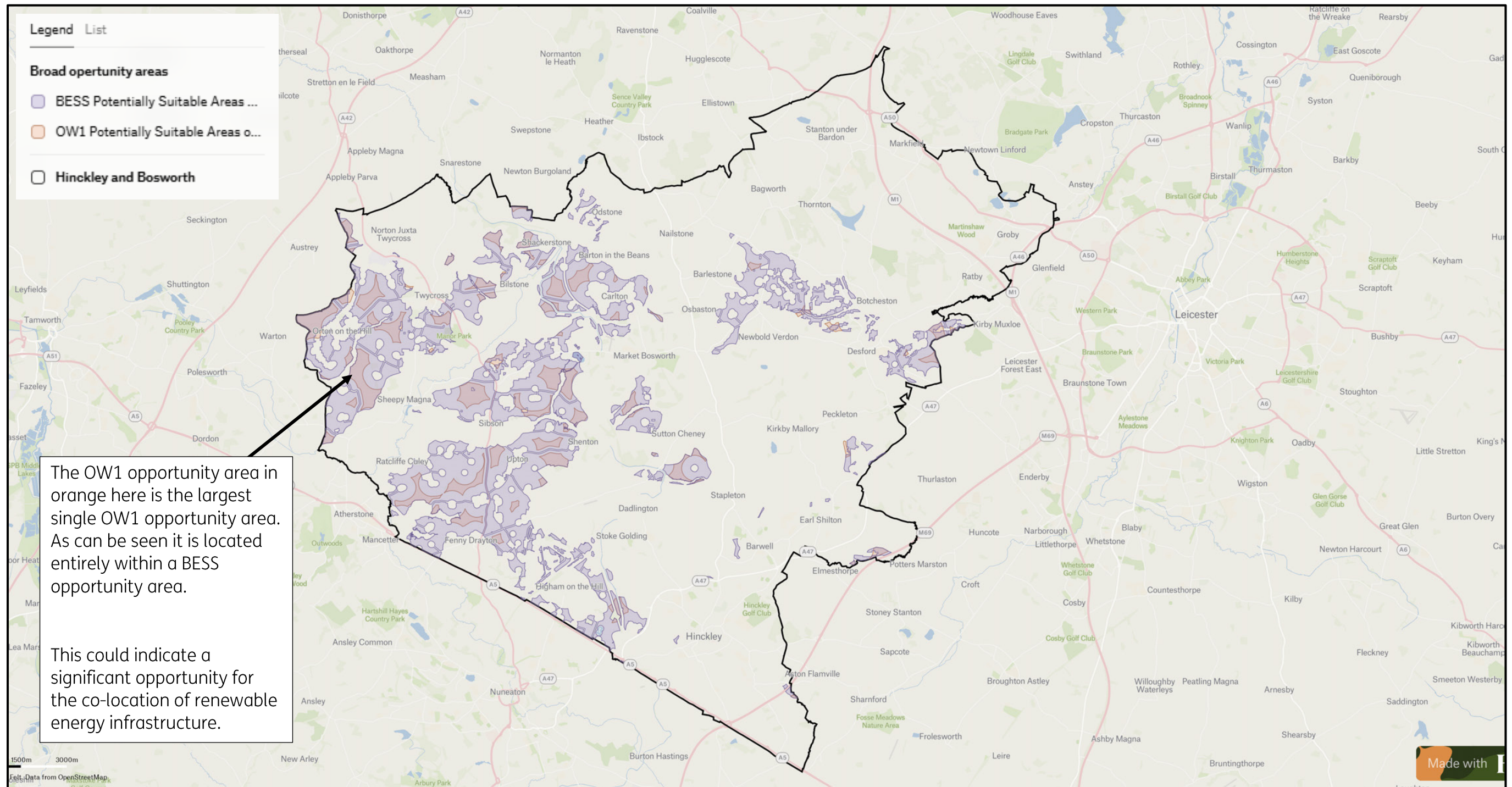
- 8.11.12 Map 78 overlays the OW3 and BESS co-location opportunities with available grid headroom. The largest overlapping opportunity area is located within a service area currently reported as having available grid capacity. This combination of overlap between technologies and current grid availability may warrant further investigation by developers. As with the other onshore wind scenarios, the co-location of BESS alongside wind generation could provide operational flexibility through the storage and management of electricity generated on-site.
- 8.11.13 The co-location opportunities identified in this section represent areas where multiple technologies are potentially capable of being accommodated based on the methodology applied within this assessment. However, the suitability and viability of any individual development proposal will depend on site-specific technical, environmental, planning, landownership and grid connection considerations that fall outside the scope of this study.



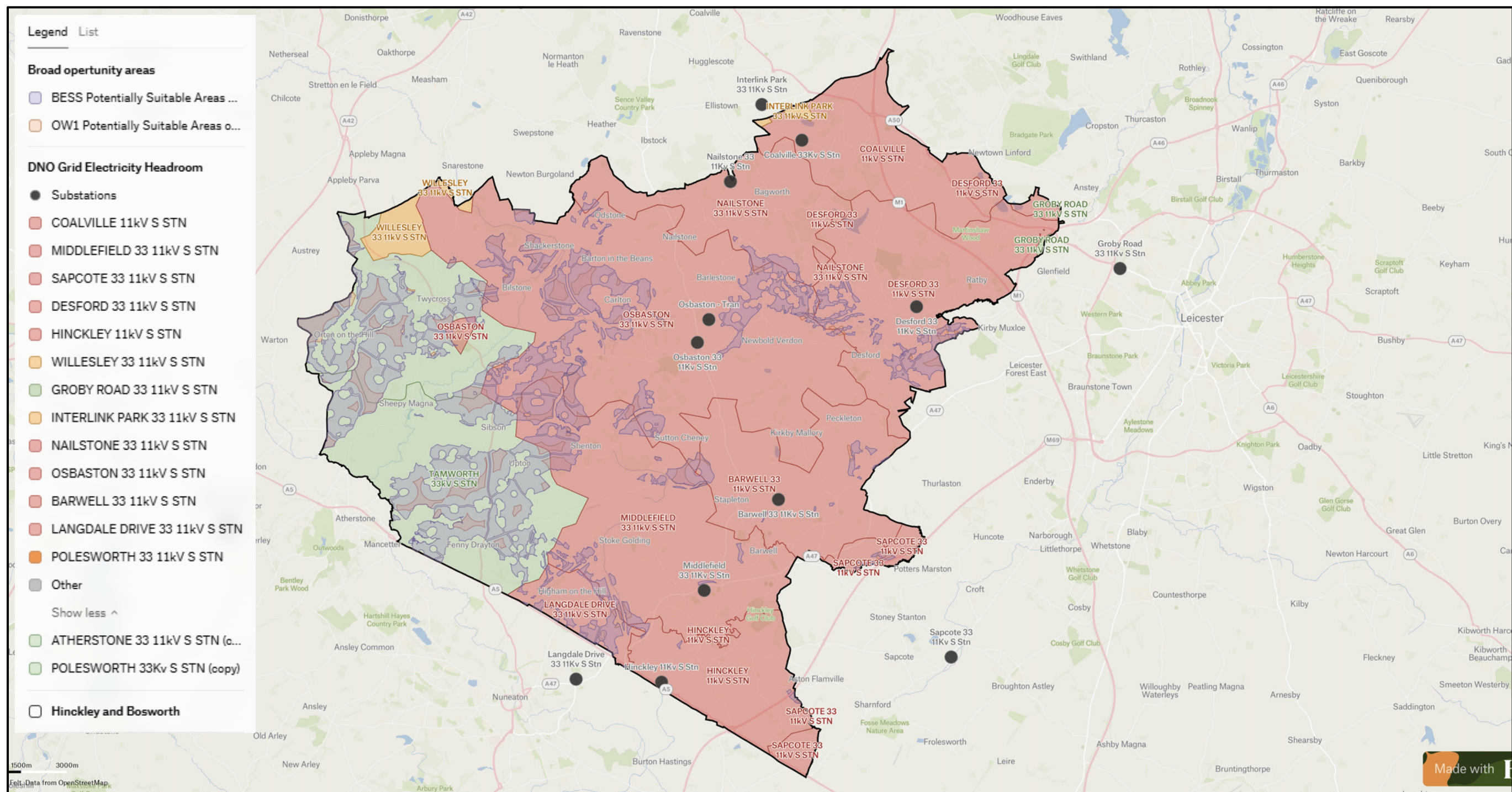
Map 71, BESS + ground-mounted solar PV co-location opportunities



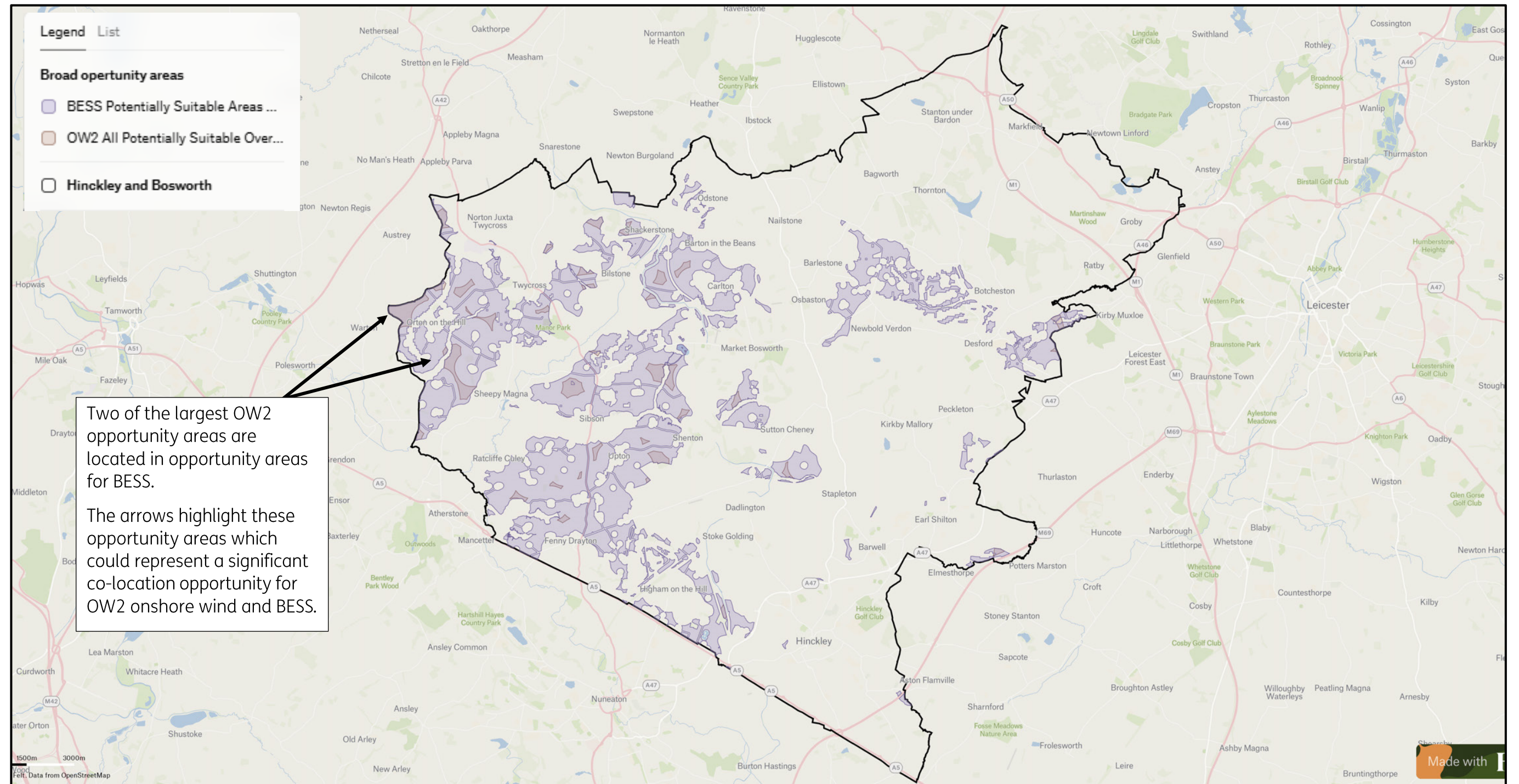
Map 72, BESS + ground-mounted solar PV co-location opportunities, overlaid with grid headroom.

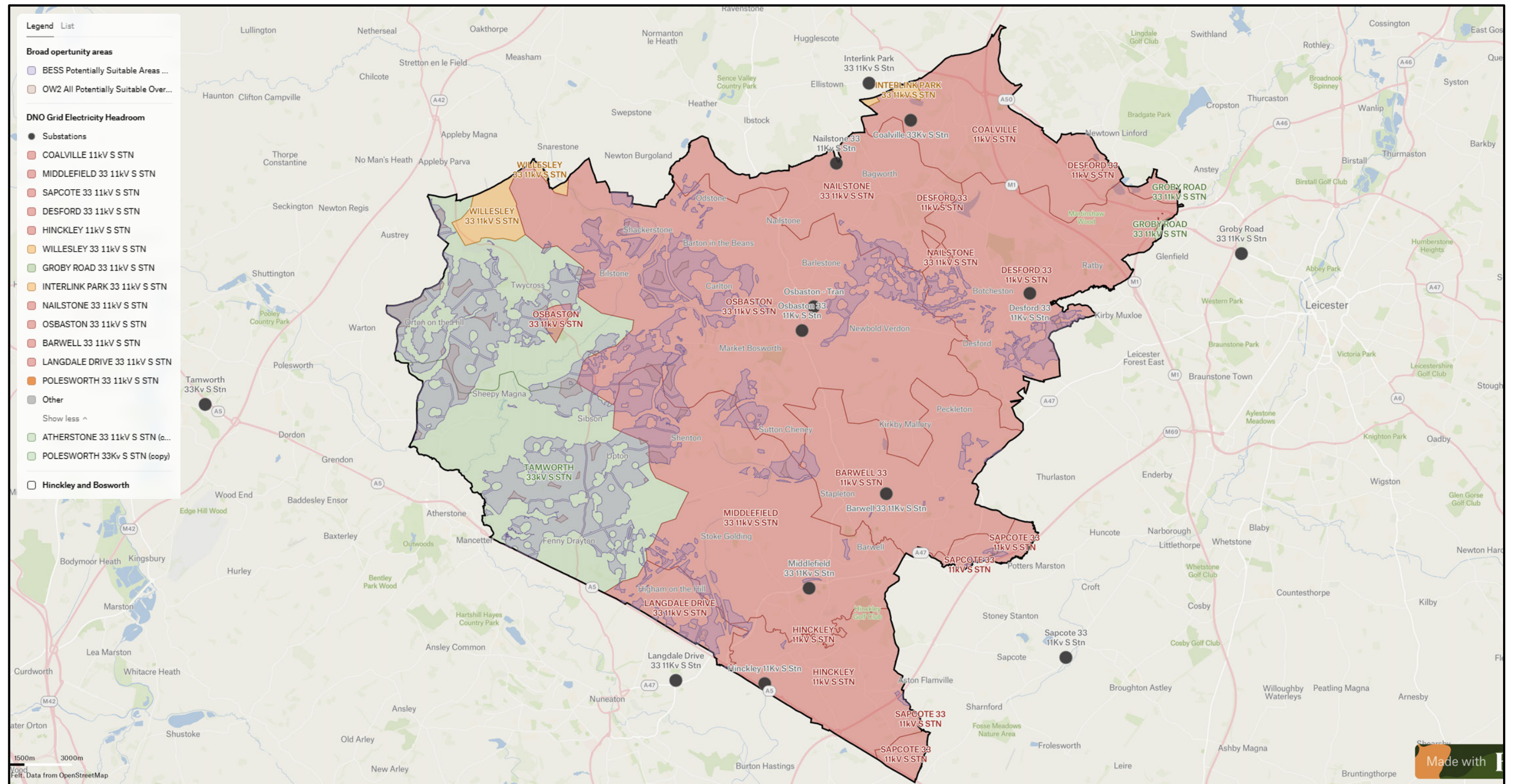


Map 73, BESS + OW1 co-location opportunities

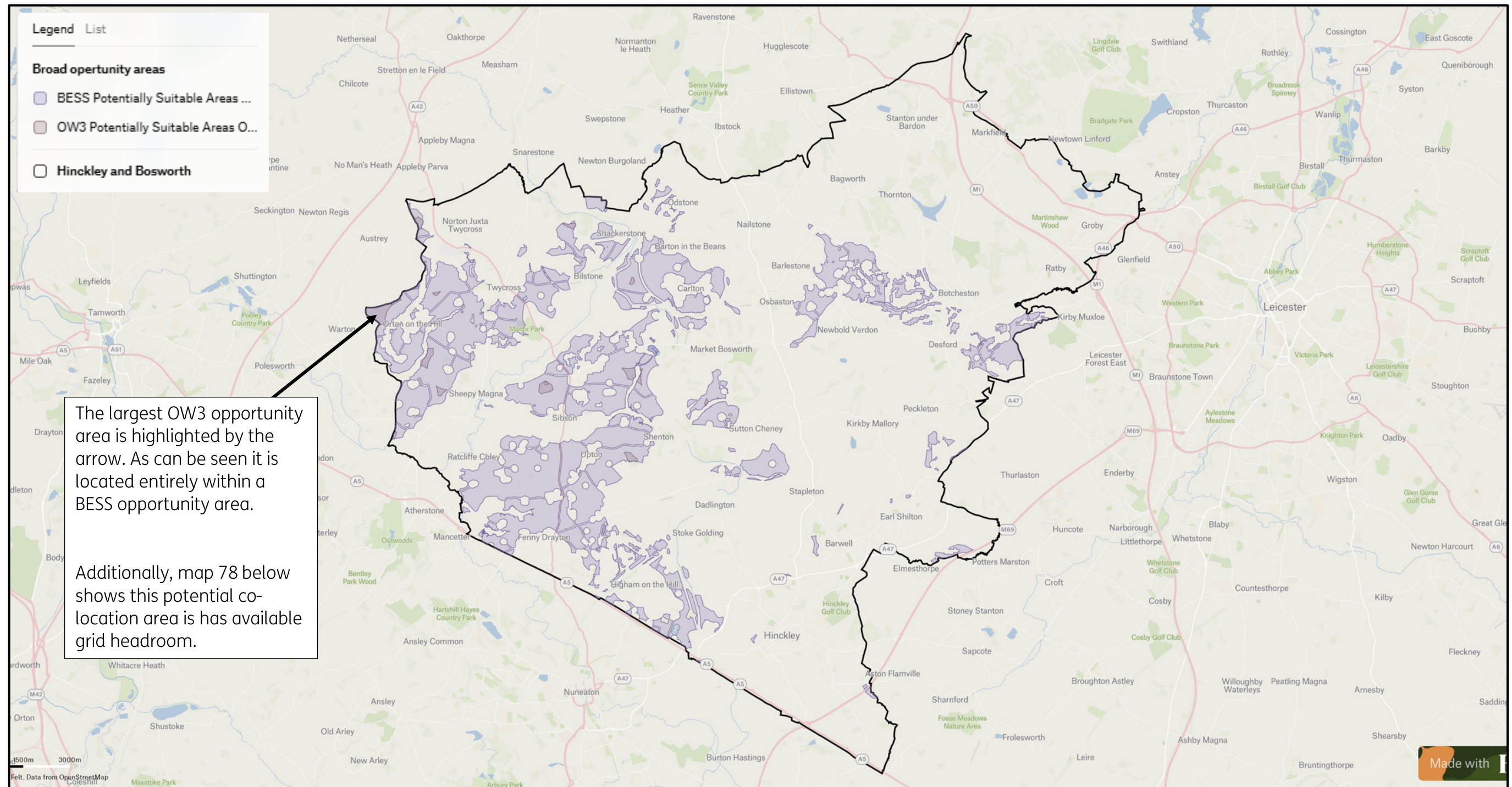


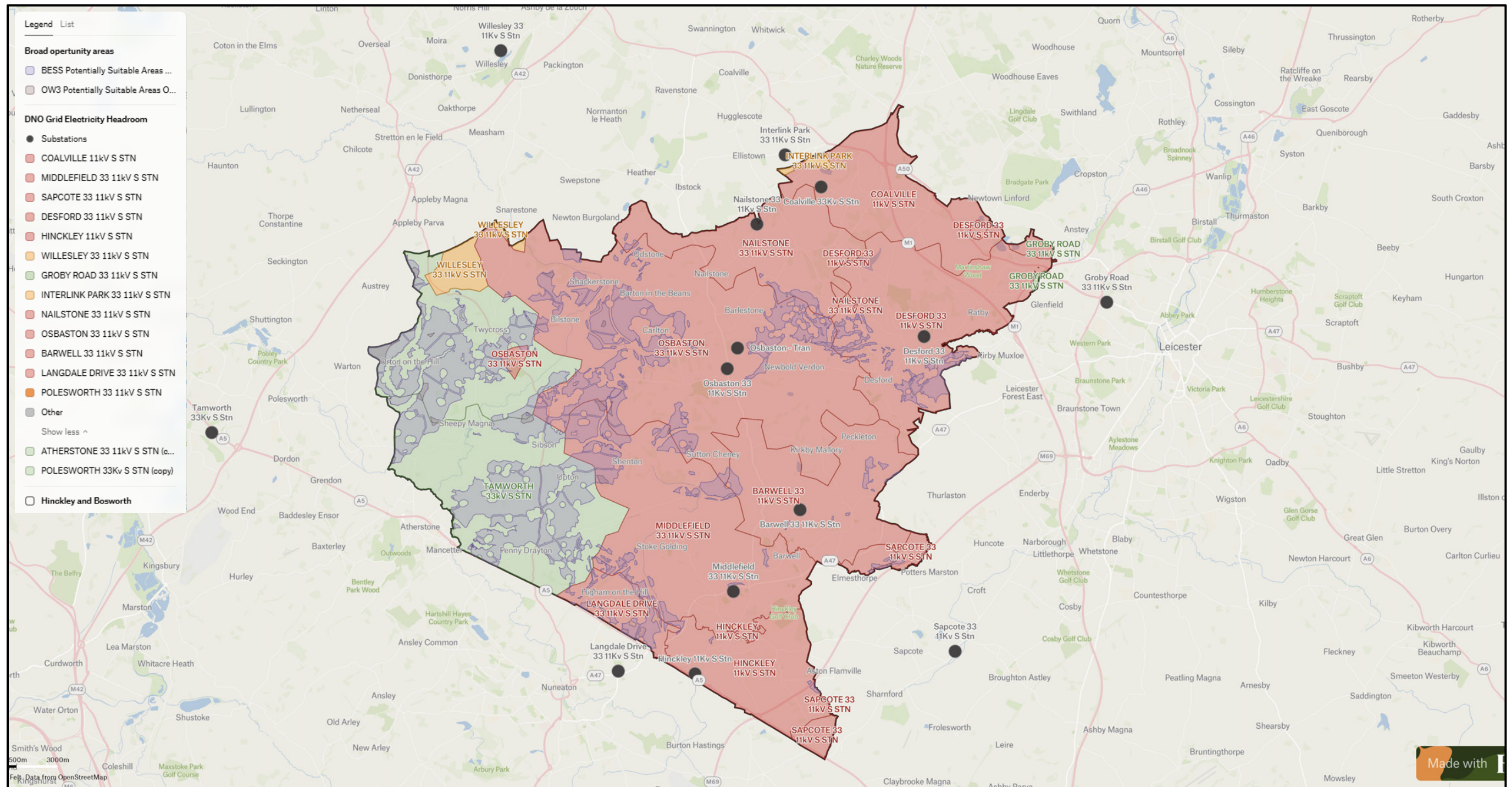
Map 74, BESS + OW1 co-location opportunities, overlaid with grid headroom.





Map 76, BESS + OW2 co-location opportunities, overlaid with grid headroom.





8.12 Policy alignment

- 8.12.1 This Renewable Energy Spatial Assessment has identified broad suitable locations, ‘opportunity areas’, for renewable energy sites based on key constraints. Opportunity areas have been identified for ground-mounted solar PV, onshore wind and BESS, with areas for further investigation identified for hydropower and district heating.
- 8.12.2 For the purpose of planning decision-making, this RESA acts as a mechanism to accord with paragraph 165(b) of the December 2024 National Planning Policy Framework (NPPF), that states local plans should “consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development”. The RESA also supports paragraph 169 of the December 2024 NPPF which states “Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas.”.
- 8.12.3 The RESA has been prepared in conjunction with the wider Hinckley and Bosworth Local Plan evidence base, including the ‘Ultra- Low Energy Evidence Base’ report. As such this document should be reviewed in the full context of the evidence base. This RESA supports section 5.4 of the ‘Ultra- Low Energy Evidence Base’ report which identifies potential renewable energy policies including:
- **Policy D1:** Proposals for large-scale renewable energy development ($\leq 100\text{MW}$) are encouraged to choose a site that is well supported by sufficient grid capacity.
 - **Policy D6:** Support will be given to innovative renewable energy generation approaches, such as ‘agrivoltaics’ – the combined use of land for solar PV generation and agriculture. Although these sites may not specifically be identified as suitable in land sensitivity assessments, they should be not refused without an appropriate individual assessment of land suitability based upon the specific innovative use of land.
 - **Policy D8:** Support will be given to proposals that demonstrate mitigation measures are implemented for:
 - a. Scale, siting and design and impacts on landscape character, visual amenity, biodiversity, flood risk, townscape, heritage, historic landscape and highway/rail safety.
 - b. Impacts on aviation and defence navigation systems/communications.
 - c. Impacts on the amenity of sensitive neighbouring uses (local residents) included issues such as noise, dust, odour, shadow flicker, air quality and traffic.
- 8.12.4 In line with national and local planning policy, applicants seeking to develop renewable energy sites within Hinckley and Bosworth Borough should review the technology-specific opportunity area maps when identifying suitable locations for renewable energy. Development proposals located within the opportunity area for their specific renewable energy technology will be welcomed. However, applicants should not wholly rely on this report when identifying suitable sites as additional site-specific information and context will be required for planning permission. Whilst opportunity areas for renewable energy technologies may be the most suitable areas within Hinckley and Bosworth, it is not possible to safeguard these specific sites for renewable energy.
- 8.12.5 It is also important to note that areas identified as potentially less suitable within this report do not specifically prohibit renewable energy development. It is the responsibility of the developer to make a case for specific locations should they sit within or outside the opportunity areas identified within this report. Specifically in line with proposed policy D6, some innovative renewable energy technologies such as ‘agrivoltaics’, the combined use of land for solar PV generation and agriculture, may be situated outside of the identified ground-mounted solar PV opportunity areas but should be not refused without an appropriate individual assessment of land suitability based upon the specific innovative use of land. Proposals to innovatively combine renewable energy generation with other land uses in this way can represent “development that makes efficient use of land” as supported by NPPF 2024 paragraph 129.
- 8.12.6 In accordance with local and national planning policies, proposals for renewable energy in the identified, technology specific, suitable opportunity area will be welcomed, subject to mitigation of any unacceptable impacts, and proposals for renewable energy outside of the identified suitable sites should demonstrate the extent to which they meet the suitability criteria used within the Renewable Energy Spatial assessment. In addition, development other than renewable energy generation within opportunity areas is encouraged to either generate or store a reasonable amount of renewable energy or justify the suitability of the location for the proposed use over renewable energy.
- 8.12.7 Please note that some renewable energy generation proposals over certain capacity thresholds (in megawatts, MW) will not be a local planning authority decision but rather a national planning decision under the NSIP regime (Nationally Strategic Infrastructure Projects) established in the Planning Act 2008 sections 14-30. Currently, this includes (among other things):
- Solar and wind power generating projects of 100MW or above (noting that the solar projects threshold was raised¹⁶ from 50MW as of 31st December 2025)
 - Other onshore power generating projects of 50MW or above, which includes energy storage that is pumped hydro storage. (It does not include battery energy storage).
- 8.12.8 National government periodically¹⁷ updates legislation to add or remove different types or sizes of project from the NSIP regime, therefore what is currently categorised as NSIP may not always be NSIP for the full duration of this local plan. Therefore in the current document we do not exclude consideration of projects over the NSIP threshold, so that this document can remain useful if such projects are eventually taken out of the NSIP regime and brought back into local planning authority decision-making.

¹⁶ <https://www.legislation.gov.uk/ukxi/2025/694/article/3/made>

¹⁷ The Planning & Infrastructure Act 2025 requires government to review National Policy Statements every five years. The review of energy NPS would consider whether NSIP remain appropriate and may trigger Government to pass secondary legislation to update those thresholds in the Planning Act.

9 Appendix 1: Justification of mapping inputs

9.1 Ground-mounted solar PV.

Layer	Input	Reason
Primary constraints	Local nature reserves	Whilst there are no National nature reserves identified in Hinckley and Bosworth, Local nature reserves were. Local nature reserves are statutory sites designation made under Section 21 of the National Parks and Access to the Countryside Act 1949. They are therefore not a suitable location for solar PV development and has subsequently been excluded.
Primary constraints	Registered battlefields	This is a designated heritage asset and therefore not a suitable location for solar PV development and has subsequently been excluded.
Primary constraints	Site of Special Scientific Interest	This is a national nature conservation designation and therefore not a suitable location for solar PV development and has subsequently been excluded.
Primary constraints	Scheduled monuments	This is a designated heritage asset and therefore not a suitable location for solar PV development and has subsequently been excluded.
Primary constraints	Operational/consented renewable energy sites	This land already contains renewable energy development and is therefore not available land for solar PV development.
Primary constraints	Bodies of water (rivers, canals, lakes and reservoirs)	Unsuitable for renewable energy development. Innovative renewable energy technologies such as floating solar PV have been developed but are typically less economical and feasible than alternative renewable energy generation methods and are therefore not considered. A 5m buffer is applied to the line data used for rivers to ensure that some extent of river width is accounted for.
Buffer and exclusion zones	Ancient woodland	These are defined in paragraph 193 of the NPPF as irreplaceable habitats and are therefore protected areas. As a result, they are not a suitable location for solar PV development and have subsequently been excluded. Government guidance ¹⁸ suggests a minimum 15m buffer from the boundary of the woodland to avoid root damage (known as the root protection area). Additional buffers may be set where appropriate for specific applications.
Buffer and exclusion zones	Residential and non-residential buildings ¹⁹	These areas are already developed and therefore would not be available for solar PV development. A 20m buffer is set as this is considered to be a reasonable distance to ensure that solar PV development is not located directly adjacent to identified buildings or land immediately surrounding them, alongside mitigating risks from effects such as glare. Additional buffers may be set for specific applications.
Buffer and exclusion zones	Major and minor transport infrastructure ²⁰	Major and minor transport infrastructure includes open roads and railway lines.

¹⁸ <https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions#:~:text=For%20ancient%20or%20veteran%20trees,15%20times%20the%20tree's%20diameter.>

¹⁹ An assumption on minimum distances from residential and non-residential buildings has been made as a guideline from Bioregional judgement and is aligned to industry standard. In practice, the required minimum distance between a solar farm and properties is site-specific and influenced by the proposed scheme.

²⁰ An assumption on minimum distances from transport infrastructure has been made as a guideline from Bioregional judgement and is aligned to industry standard. In practice, the required minimum distance between a solar farm and properties is site-specific and influenced by the proposed scheme.

Layer	Input	Reason
		A 20m buffer is set as this is considered to be a reasonable distance to avoid disruption to transport infrastructure from the development and operation of solar PV sites. Situating solar PV sites any closer to infrastructure would increase safety risk and could impact those using transport infrastructure due to glare from solar panels for example. Additional buffers may be set for specific applications.
Buffer and exclusion zones	MoD sites and safeguarded zones	This layer is not included as part of the final outputs as the data is publicly sensitive. However, it will be considered for individual applications throughout the internal decision-making process to ensure development does not fall in any designated sites or zones. The MoD sets various boundaries as exclusion zones for different types of development in proximity to MoD sites. For solar PV, additional risks posed by panels could be from glare, which may interfere with airfield operations. The MoD may be consider allowing development of renewable energy within its estate. This would however be considered on a case-by-case basis. Direct consultation with the MoD would be required to determine the potential suitability of renewable development in or near its estate.
Buffer and exclusion zones	Airports/aerodromes	This land already contains development and is therefore unsuitable for solar PV development.
Technical performance	Slope and aspect assumptions ²¹	Specific assumptions have been made to rule out areas technically not suitable for renewable energy development. The subsequent suitable areas identified are likely to be looked at by developers whilst other areas would be ruled out. The assumptions have been selected because solar PV panels are most efficient when facing south and not placed on steep slopes. Land identified as fairly flat (between 0-3°) is suitable because the PV panels can be orientated south. Steeper land (3-15°) is only identified as suitable when it faces SE-SW – i.e. PV panels orientated south on a north-facing slope would result in an inefficient solar PV development owing to shading from the slope.
Secondary constraints	Flood Zones 2 and 3	Secondary constraints are inputs are designations where development may not be suitable on but will not strictly rule out development proposed. Suitability of developments relating to these outputs will be assessed on a case-by-case basis. It is important to consider higher risk flood zones to ensure that renewable energy development in these areas can be safely developed without increasing flood risk elsewhere. Any proposed renewable energy sites in Flood Zones 2 and 3 would be subject to a flood risk assessment to justify its location within a flooding context. Although not a hard constraint, it is important that proposed renewable energy sites demonstrate that there are no safer alternative sites and that the development provides wider sustainability benefits that outweigh risks from floods. To enhance flood resilience, solar PV and on-site infrastructure could be installed on raised platforms.
Secondary constraints	River Mease SAC catchment area	A small western portion of the borough falls within the catchment of the River Mease, which is designated as both a Special Area of Conservation (SAC) and a Site of Special Scientific Interest (SSSI). The River Mease is a highly protected lowland clay river that supports nationally and internationally important species, including spined loach, bullhead, white-clawed crayfish and otter. Due to its protected status, development within the River Mease catchment is subject to strict water quality controls, particularly in relation to phosphorus levels. Development proposals must comply with the River Mease Developer Contribution Strategy and demonstrate that they will not result in adverse effects on the integrity of the SAC, with mitigation measures required to ensure nutrient neutrality where necessary.

²¹ An assumption on land incline has been made as a guideline from Bioregional judgement and is aligned to industry standard. It is the right of the developer to produce a case to justify whether a specific renewable energy site is suitable or not, under site-specific conditions at a more granular level than the RESA addresses.

Layer	Input	Reason
Secondary constraints	Conservation Areas	Resulting from the need for the UK to meet net zero and renewable energy targets, setting Conservation Areas as primary constraints, and therefore excluding renewable energy development, would be overly restrictive. National Landscapes were considered, however, data showed that none were present within Hinckley and Bosworth Borough
Secondary constraints	Best and Most Versatile agricultural land (defined as grade 1, 2 or 3a of the Agricultural Land Classification)	When considering Best and Most Versatile agricultural land, the May 2024 Written Ministerial Statement ²² sets out that due weight must be given to the proposed use of such land. Impacts to these agricultural classifications should be minimised and use of poorer quality land should be preferred. High quality land should always be considered as least appropriate. However, Best and Most Versatile agricultural land is not entirely ruled out when considering its use for solar PV development where it can be demonstrated that negative impacts are not widespread.
Secondary constraints	Mineral safeguarding areas	Mineral safeguarding areas will be considered as they are designated areas that protect known and potential mineral reserves for extraction. As such, any solar PV sites may limit mineral extraction.
Secondary constraints	National forest and Charnwood forest	Areas within the National forest and Charnwood forest will be considered as secondary constraints, a buffer 15m will be provided around these areas in line with Government Guidance ²³ on root protection.
Secondary constraints	Local Nature Recovery Strategy	A Leicestershire Local Nature Recovery strategy has been produced including a local habitat map. As Local Nature Recovery strategies are increasingly becoming central to plan making areas of local biodiversity identified by this strategy will be included as a secondary constraint to be considered but not expressly excluded. The LNRS includes the following data layers: • Woodland management • Urban Core connections • Urban opportunity areas • Rigs and quarries • Restore Paw's • Regionally Important Geological Sites (Rigs) • Open mosaic sites • Multi Habitat Creation in Floodzone 3 • Manage wetlands. • Manage priority grassland. • Manage rivers. • Local Wildlife Sites Measure (Lws) • Lowland Fen

²² <https://questions-statements.parliament.uk/written-statements/detail/2024-05-15/hcws466>

²³ <https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions#:~:text=For%20ancient%20or%20veteran%20trees,15%20times%20the%20tree's%20diameter.>

Layer	Input	Reason
		• Increase Woodland Transitional Habitats • Landscape Scale Woodland Expansion • Expand And Connect Grassland • Created ponds. • Connect Create Restore Floodplain Meadows • Combined Mapped Measures • Canals with 20m buffer • Byway Open To All Traffic • Ancient Trees Measures • Buffer And Connect Priority Woodlands • Asnw Ancient Woodland • Combined Designated Sites
Grid constraints	Primary substation supply areas	This input informs grid connection suitability of areas identified as suitable for renewable energy development. The data represents a high-level indication of suitability, which should be clarified with the Distribution Network Operator in the specific case of the proposed renewable energy site. This study considers grid connection suitability as whether there is available grid capacity for new renewable energy development to connect to. If no capacity is available, the area is not suitable for grid connection as the additional energy would overload the local grid. Suitable areas are considered to have some level of headroom for additional connection. Renewable energy development can connect to the grid through a number of methods, such as through connecting to a primary substation. Alternative options other than primary substations are possible for some schemes but using primary substation supply areas represents an accurate proxy of available grid capacity in Hinckley and Bosworth. Additionally, large scale renewable energy sites require a 33kV connection, which is the voltage primary substations operate at. Therefore, the input used for this layer ensures that a wide variety of renewable energy development size is applicable. This input is not considered to be a restriction to renewable energy development as grid capacity upgrades may occur after the publication of this study.

9.2 Onshore wind

Layer	Input	Reason
Primary constraints	Local nature reserves	Whilst there are no National nature reserves identified in Hinckley and Bosworth, Local nature reserves were. Local nature reserves are statutory sites designation made under Section 21 of the National Parks and Access to the Countryside Act 1949. They are therefore not a suitable location for onshore wind development and has subsequently been excluded.
Primary constraints	Registered battlefields	This is a designated heritage asset and therefore not a suitable location for onshore wind development and has subsequently been excluded.
Primary constraints	Site of Special Scientific Interest	This is a national nature conservation designation and therefore not a suitable location for onshore wind development and has subsequently been excluded.
Primary constraints	Scheduled monuments	This is a designated heritage asset and therefore not a suitable location for onshore wind development and has subsequently been excluded.
Primary constraints	Operational/consented renewable energy sites	This land already contains renewable energy development and is therefore not available land for onshore wind development.
Primary constraints	Bodies of water (rivers, canals, lakes and reservoirs)	Unsuitable for renewable energy development. A 5m buffer is applied to the line data used for rivers to ensure that some extent of river extent and width is accounted for.
Buffer and exclusion zones	Ancient woodland	These are defined in paragraph 193 of the NPPF as irreplaceable habitats and are therefore protected areas. As a result, they are not a suitable location for onshore wind development and have subsequently been excluded. Government guidance suggests a minimum 15m buffer from the boundary of the woodland to avoid root damage (known as the root protection area). Additional buffers may be set where appropriate for specific applications.
Buffer and exclusion zones	Residential and non-residential buildings ²⁴	These areas are already developed and therefore would not be available for onshore wind development. Noise buffers are applied based on turbine size, as larger turbines will create more noise than smaller turbines. These assumptions have been based on a judgement of typical wind turbine requirements in order to mitigate audible impacts from onshore wind turbines to building occupiers. In practice, the required minimum distance between a wind farm and residential properties is site-specific, influenced by the proposed turbine and the ambient background noise. Topple distances are also applied to ensure that building structures are not damaged in the unlikely event of a wind turbines toppling over. A 10% buffer is included on the turbine tip height for additional safety measures. Additional buffers may be set for specific applications.

²⁴ Assumptions in relation to noise buffers from buildings have been made as a guideline from Bioregional judgement and are aligned to industry standard. Noise buffers are applied based on turbine size, as larger turbines will create more noise than smaller turbines. These assumptions have been based on a judgement of typical wind turbine requirements to mitigate audible impacts from onshore wind turbines to building occupiers. In practice, the required minimum distance between a wind farm and residential and non-residential properties is site-specific, influenced by the proposed turbine and the ambient background noise.

Layer	Input	Reason
Buffer and exclusion zones	Major and minor transport infrastructure ²⁵	Major and minor transport infrastructure includes open roads and railway lines. Topple distances are also applied to ensure that transport infrastructure is not damaged in the unlikely event of a wind turbines toppling over. A 10% buffer is included on the turbine tip height for additional safety measures. No noise buffer is set as audible impact from wind turbines is not considered to be significant to the uses of transport infrastructure. Additional buffers may be set for specific applications.
Buffer and exclusion zones	MoD sites and safeguarded zones	This layer is not included as part of the final outputs as the data is publicly sensitive. However, it will be considered for individual applications throughout the internal decision-making process to ensure development does not fall in any designated sites or zones. The MoD sets various boundaries as exclusion zones for different types of development in proximity to MoD sites. For onshore wind, additional risks posed by turbines could be from radar interference, which may interfere with airfield operations. The MoD may be consider allowing development of renewable energy within its estate. This would however be considered on a case-by-case basis. Direct consultation with the MoD would be required to determine the potential suitability of renewable development in or near its estate.
Buffer and exclusion zones	Airports/aerodromes	This land already contains development and is therefore unsuitable for onshore wind development.
Technical performance	Wind speed ²⁶	Specific assumptions have been made to rule out areas technically not suitable for renewable energy development. The subsequent suitable areas identified are likely to be looked at by developers whilst other areas would be ruled out. Wind speed is the crucial factor when assessing onshore wind technical suitability. The minimum commercially viable average wind speed benchmark ranges from 5 m/s to 7 m/s at 50 meters above ground level. In practice, most developers currently focus on sites with wind speeds exceeding 6 m/s, prioritising the windiest locations. The threshold wind speed is largely influenced by electricity prices and available financial incentives. As the windiest sites are developed, progressively lower wind speeds are likely to be considered. Technically, areas with wind speeds of 5 m/s or higher at 50m above ground level are suitable for onshore wind turbines. This is the standard approach in the UK wind industry. Setting the threshold value at the lower limit of 5 m/s ensures that future opportunities assessed by this study are not unfavoured due to current efficiency conditions.
Secondary constraints	Flood Zones 2 and 3	Secondary constraints are inputs are designations where development may not be suitable on but will not strictly rule out development proposed. Suitability of developments relating to these outputs will be assessed on a case-by-case basis. It is important to consider higher risk flood zones to ensure that renewable energy development in these areas can be safely developed without increasing flood risk elsewhere. Any proposed renewable energy sites in Flood Zones 2 and 3 would be subject to a flood risk assessment to justify its location within a flooding context. Although not a hard constraint, it is important that proposed renewable energy sites demonstrate that there are no safer alternative sites and that the development provides wider sustainability benefits that outweigh risks from floods. To enhance flood resilience, onshore wind and on-site infrastructure could be installed on raised platforms.

²⁵ The distance from transport infrastructure of tip height +10% has been set as a guideline from Bioregional judgement and are aligned to industry standard.

²⁶ An assumption on suitable wind speed has been set as a guideline from Bioregional judgement and are aligned to industry standard. It is the right of the developer to produce a case to justify whether a specific renewable energy site is suitable or not, under site-specific conditions at a more granular level than the RESA addresses.

Layer	Input	Reason
Secondary constraints	River Mease SAC catchment area	A small western portion of the borough falls within the catchment of the River Mease, which is designated as both a Special Area of Conservation (SAC) and a Site of Special Scientific Interest (SSSI). The River Mease is a highly protected lowland clay river that supports nationally and internationally important species, including spined loach, bullhead, white-clawed crayfish and otter. Due to its protected status, development within the River Mease catchment is subject to strict water quality controls, particularly in relation to phosphorus levels. Development proposals must comply with the River Mease Developer Contribution Strategy and demonstrate that they will not result in adverse effects on the integrity of the SAC, with mitigation measures required to ensure nutrient neutrality where necessary.
Secondary constraints	Conservation Areas	Resulting from the need for the UK to meet net zero and renewable energy targets, setting Conservation Areas as primary constraints, and therefore excluding renewable energy development, would be overly restrictive. National Landscapes were considered, however, data showed that none were present within Hinckley and Bosworth Borough
Secondary constraints	Best and Most Versatile agricultural land (defined as grade 1, 2 or 3a of the Agricultural Land Classification)	When considering Best and Most Versatile agricultural land, the May 2024 Written Ministerial Statement ²⁷ sets out that due weight must be given to the proposed use of such land. An additional policy paper published in January 2026 ²⁸ which stated that land use should not be a predominating factor, “poorer quality land should be preferred to higher quality land avoiding the use of “Best and Most Versatile” agricultural land where possible.” Impacts to these agricultural classifications should be minimised and use of poorer quality land should be preferred. High quality land should always be considered as least appropriate. However, Best and Most Versatile agricultural land is not entirely ruled out when considering its use for onshore wind development where it can be demonstrated that negative impacts are not widespread.
Secondary constraints	Mineral safeguarding areas	Mineral safeguarding areas will be considered as they are designated areas that protect known and potential mineral reserves for extraction. As such, any onshore wind development sites may limit mineral extraction.
Secondary constraints	National forest and Charnwood forest	Areas within the National forest and Charnwood forest will be considered as secondary constraints, a buffer 15m will be provided around these areas in line with Government Guidance ²⁹ on root protection.

²⁷ <https://questions-statements.parliament.uk/written-statements/detail/2024-05-15/hcws466>

²⁸ <https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025-accessible-webpage>

²⁹ <https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions#:~:text=For%20ancient%20or%20veteran%20trees,15%20times%20the%20tree's%20diameter.>

Layer	Input	Reason
Secondary constraints	Local Nature Recovery strategy	A Leicestershire Local Nature Recovery strategy has been produced including a local habitat map. As Local Nature Recovery strategies are increasingly becoming central to plan making areas of local biodiversity identified by this strategy will be included as a secondary constraint to be considered but not expressly excluded. The LNRS includes the following data layers: • Woodland management • Urban Core connections • Urban opportunity areas • Rigs and quarries • Restore Paw's • Regionally Important Geological Sites (Rigs) • Open mosaic sites • Multi Habitat Creation in Floodzone 3 • Manage wetlands. • Manage priority grassland.

Layer	Input	Reason
Secondary constraints		• Manage rivers. • Local Wildlife Sites Measure (Lws) • Lowland Fen • Increase Woodland Transitional Habitats • Landscape Scale Woodland Expansion • Expand And Connect Grassland • Created ponds. • Connect Create Restore Floodplain Meadows • Combined Mapped Measures • Canals with 20m buffer • Byway Open To All Traffic • Ancient Trees Measures • Buffer And Connect Priority Woodlands • Asnw Ancient Woodland • Combined Designated Sites
Grid constraints	Primary substation supply areas	This input informs grid connection suitability of areas identified as suitable for renewable energy development. The data represents a high-level indication of suitability, which should be clarified with the Distribution Network Operator in the specific case of the proposed renewable energy site. This study considers grid connection suitability as whether there is available grid capacity for new renewable energy development to connect to. If no capacity is available, the area is not suitable for grid connection as the additional energy would overload the local grid. Suitable areas are considered to have some level of headroom for additional connection. Renewable energy development can connect to the grid throughout a number of methods, such as through connecting to a primary substation. Alternative options other than primary substations are possible for some schemes but using primary substation supply areas represents an accurate proxy of available grid capacity in Hinckley and Bosworth. Additionally, large scale renewable energy sites require a 33kV connection, which is the voltage primary substations operate at. Therefore, the input used for this layer ensures that a wide variety of renewable energy development size is applicable. This input is not considered to be a restriction to renewable energy development as grid capacity upgrades may occur after the publication of this study.

9.3 Battery storage

Layer	Input	Reason
Primary constraints	Local nature reserves	Whilst there are no National nature reserves identified in Hinckley and Bosworth Local nature reserves were. Local nature reserves are statutory sites designation made under Section 21 of the National Parks and Access to the Countryside Act 1949. They are therefore not a suitable location for BESS development and has subsequently been excluded.
Primary constraints	Registered battlefields	This is a designated heritage asset and therefore not a suitable location for battery storage development and has subsequently been excluded.
Primary constraints	Site of Special Scientific Interest	This is a national nature conservation designation and therefore not a suitable location for battery storage development and has subsequently been excluded.
Primary constraints	Scheduled monuments	This is a designated heritage asset and therefore not a suitable location for battery storage development and has subsequently been excluded.
Primary constraints	Operational/consented renewable energy sites	This land already contains renewable energy development and is therefore not available land for battery storage development.
Primary constraints	Bodies of water (rivers, canals, lakes and reservoirs)	Unsuitable for renewable energy development. A 5m buffer is applied to the line data used for rivers to ensure that some extent of river extent and width is accounted for.
Buffer and exclusion zones	Ancient woodland	These are defined in paragraph 193 the December 2024 NPPF as irreplaceable habitats and are therefore protected areas. As a result, they are not a suitable location for battery storage development and have subsequently been excluded. Government guidance suggests a minimum 15m buffer from the boundary of the woodland to avoid root damage (known as the root protection area). Additional buffers may be set where appropriate for specific applications.
Buffer and exclusion zones	Residential and non-residential buildings ³⁰	These areas are already developed and therefore would not be available for battery storage development. A 100m noise buffer is set as this is considered to be a reasonable distance to mitigate audible impacts to residents during the lifetime of battery storage development. Additional buffers may be set for specific applications.

³⁰ An assumption on the minimum noise distance between a BESS site and occupied buildings has been made as a guideline from Bioregional judgement and is aligned to industry standard. In practice, the required minimum distance between a BESS site and residential and non-residential properties is site-specific, influenced by the ambient background noise.

Layer	Input	Reason
Buffer and exclusion zones	Major and minor transport infrastructure ³¹	Major and minor transport infrastructure includes open roads and railway lines. A 20m buffer is set as this is considered to be a reasonable distance to avoid disruption to transport infrastructure from the development and operation of battery storage sites. Situating battery storage sites any closer to infrastructure would increase safety risk and could impact those using transport infrastructure. Additional buffers may be set for specific applications.
Buffer and exclusion zones	MoD sites and safeguarded zones	This layer is not included as part of the final outputs as the data is publicly sensitive. However, it will be considered for individual applications throughout the internal decision-making process to ensure development does not fall in any designated sites or zones. The MoD sets various boundaries as exclusion zones for different types of development in proximity to MoD sites. The MoD may be consider allowing development of renewable energy within its estate. This would however be considered on a case-by-case basis. Direct consultation with the MoD would be required to determine the potential suitability of renewable development in or near its estate.
Buffer and exclusion zones	Airports/aerodromes	This land already contains development and is therefore not suitable for battery storage development.
Slope angle suitability	Slope inclination ³²	Specific assumptions have been made to rule out areas technically not suitable for renewable energy development. The subsequent suitable areas identified are likely to be looked at by developers whilst other areas would be ruled out. Land has been deemed suitable if the slope incline is between 0-3°. The assumptions have been selected because battery storage cannot be placed on steep slopes owing to operational access and installation difficulties that would arise with building concrete bases on steep slopes.
Secondary constraints	Flood Zones 2 and 3	Secondary constraints are inputs are designations where development may not be suitable on but will not strictly rule out development proposed. Suitability of developments relating to these outputs will be assessed on a case-by-case basis. It is important to consider higher risk flood zones to ensure that renewable energy development in these areas can be safely developed without increasing flood risk elsewhere. Any proposed renewable energy sites in Flood Zones 2 and 3 would be subject to a flood risk assessment to justify its location within a flooding context. Although not a hard constraint, it is important that proposed renewable energy sites demonstrate that there are no safer alternative sites and that the development provides wider sustainability benefits that outweigh risks from floods. To enhance flood resilience, BESS and on-site infrastructure could be installed on raised platforms.

³¹ An assumptions on the minimum distance from a BESS site to transport infrastructure has been made as a guideline from Bioregional judgement and are aligned to industry standard.

³² An assumption on land incline has been made as a guideline from Bioregional judgement and is aligned to industry standard. It is the right of the developer to produce a case to justify whether a specific renewable energy site is suitable or not, under site-specific conditions at a more granular level than the RESA addresses.

Layer	Input	Reason
Secondary constraints	Conservation Areas	Resulting from the need for the UK to meet net zero and renewable energy targets, setting Conservation Areas as primary constraints, and therefore excluding renewable energy development, would be overly restrictive. National Landscapes were considered, however, data showed that none were present within Hinckley and Bosworth Borough.
Secondary constraints	Best and Most Versatile agricultural land (defined as grade 1, 2 or 3a of the Agricultural Land Classification)	When considering Best and Most Versatile agricultural land, the May 2024 Written Ministerial Statement ³³ sets out that due weight must be given to the proposed use of such land. Impacts to these agricultural classifications should be minimised and use of poorer quality land should be preferred. High quality land should always be considered as least appropriate. However, Best and Most Versatile agricultural land is not entirely ruled out when considering its use for BESS development where it can be demonstrated that negative impacts are not widespread.
Secondary constraints	River Mease SAC catchment area	A small western portion of the Borough falls within the catchment of the River Mease, which is designated as both a Special Area of Conservation (SAC) and a Site of Special Scientific Interest (SSSI). The River Mease is a highly protected lowland clay river that supports nationally and internationally important species, including spined loach, bullhead, white-clawed crayfish and otter. Due to its protected status, development within the River Mease catchment is subject to strict water quality controls, particularly in relation to phosphorus levels. Development proposals must comply with the River Mease Developer Contribution Strategy and demonstrate that they will not result in adverse effects on the integrity of the SAC, with mitigation measures required to ensure nutrient neutrality where necessary.
Secondary constraints	Mineral safeguarding areas	Mineral safeguarding areas will be considered as they are designated areas that protect known and potential mineral reserves for extraction. As such, any BESS sites may limit mineral extraction.
Secondary constraints	National forest and Charnwood forest	Areas within the National forest and Charnwood forest will be considered as secondary constraints, a buffer 15m will be provided around these areas in line with Government guidance ³⁴ on root protection.

³³ <https://questions-statements.parliament.uk/written-statements/detail/2024-05-15/hcws466>

³⁴ <https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions#:~:text=For%20ancient%20or%20veteran%20trees,15%20times%20the%20tree's%20diameter.>

Layer	Input	Reason
Secondary constraints	Local Nature Recovery strategy	A Leicestershire Local Nature Recovery strategy has been produced including a local habitat map. As Local Nature Recovery strategies are increasingly becoming central to plan making areas of local biodiversity identified by this strategy will be included as a secondary constraint to be considered but not expressly excluded. The LNRS includes the following data layers: • Woodland management • Urban Core connections • Urban opportunity areas • Rigs and quarries • Restore Paw's • Regionally Important Geological Sites (Rigs) • Open mosaic sites • Multi Habitat Creation in Floodzone 3 • Manage wetlands. • Manage priority grassland. • Manage rivers. • Local Wildlife Sites Measure (Lws) • Lowland Fen • Increase Woodland Transitional Habitats • Landscape Scale Woodland Expansion • Expand And Connect Grassland • Created ponds. • Connect Create Restore Floodplain Meadows • Combined Mapped Measures • Canals with 20m buffer • Byway Open To All Traffic • Ancient Trees Measures • Buffer And Connect Priority Woodlands • Asnw Ancient Woodland • Combined Designated Sites

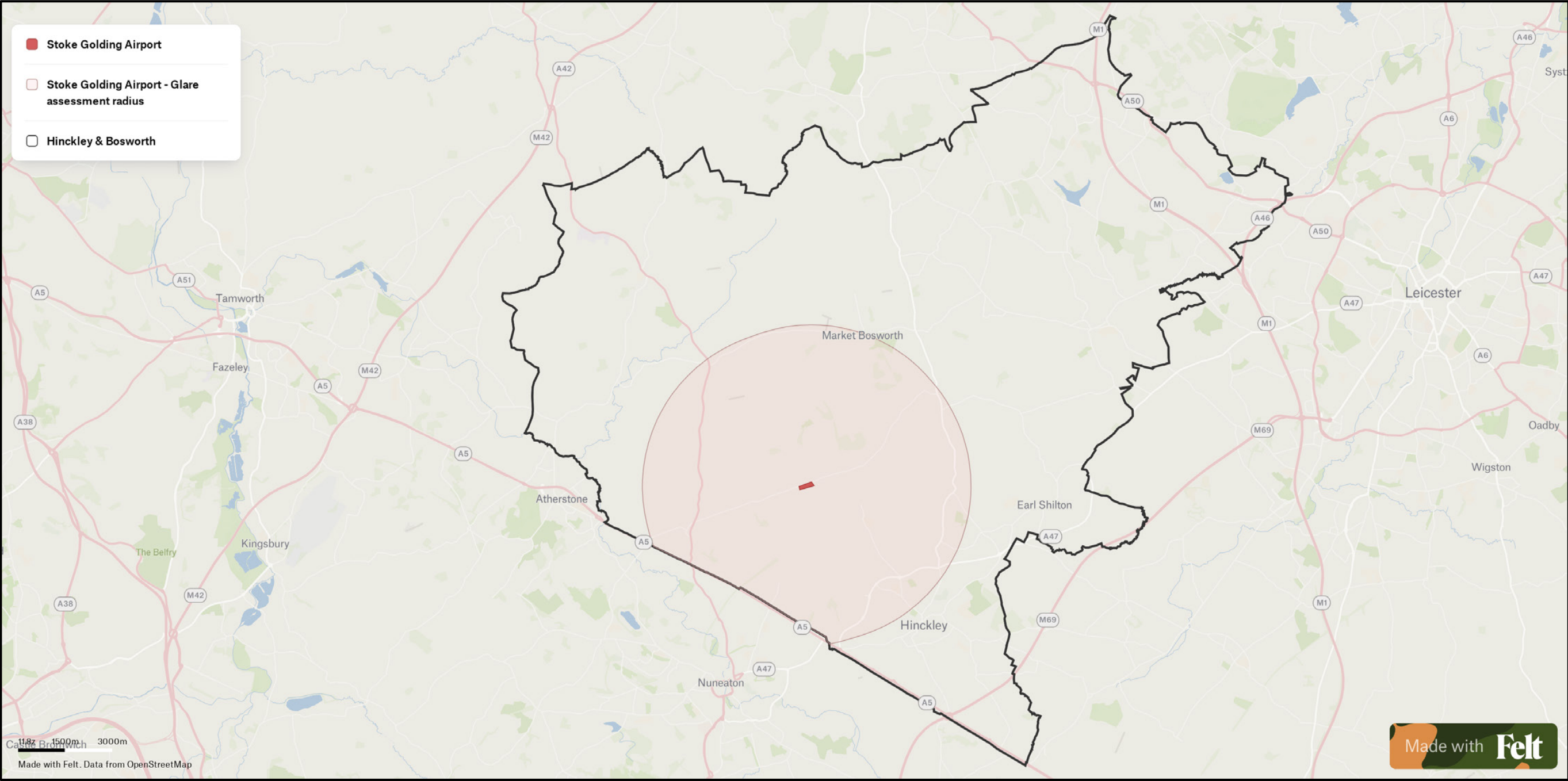
Layer	Input	Reason
Grid constraints	Primary substation supply areas	This input informs grid connection suitability of areas identified as suitable for renewable energy development. The data represents a high-level indication of suitability, which should be clarified with the Distribution Network Operator in the specific case of the proposed renewable energy site. This study considers grid connection suitability as whether there is available grid capacity for new renewable energy development to connect to. If no capacity is available, the area is not suitable for grid connection as the additional energy would overload the local grid. Suitable areas are considered to have some level of headroom for additional connection. Renewable energy development can connect to the grid throughout a number of methods, such as through connecting to a primary substation. Alternative options other than primary substations are possible for some schemes but using primary substation supply areas represents an accurate proxy of available grid capacity in Hinckley and Bosworth. Additionally, large scale renewable energy sites require a 33kV connection, which is the voltage primary substations operate at. Therefore, the input used for this layer ensures that a wide variety of renewable energy development size is applicable. This input is not considered to be a restriction to renewable energy development as grid capacity upgrades may occur after the publication of this study.

10 Appendix 2: Additional considerations

10.1 Airport considerations

Layer	Input	Reason
Airport considerations	Glare assessments	Additional requirements, including a glint and glare assessment within 5km in most instances. As such a 5km exclusion zone has been applied: https://www.caa.co.uk/media/hlsmmmoi/cast-renewable-energy-developments-solar-july-2023.pdf This map has been produced as an additional consideration layer but is not prohibitive to renewable energy development. Renewable energy developments located within the buffer area shown below may be required to produce additional information in the form of a glint and glare assessment and should therefore be reviewed as an additional consideration rather than within the primary analysis.

10.2 Airport buffer zone map



Map 79, Airport glare assessment

11 Appendix 3: Data sources and attributions

Primary constraints		
Data layer	Source	Attribution
Registered battlefields	https://opendata-historicengland.hub.arcgis.com/datasets/historicengland::national-heritage-list-for-england-nhle/explore?layer=8	© Historic England [2025] <i>and for spatial data only add</i> Contains Ordnance Survey data © Crown copyright and database right [2025].
Rivers	https://osdatahub.os.uk/data/downloads/open/OpenRivers	Ordnance Survey
Lakes	https://catalogue.ceh.ac.uk/documents/b6b92ce3-dcd7-4f0b-8e43-e937ddf1d4eb	Taylor, P.J. (2021). Spatial inventory of UK waterbodies NERC EDS Environmental Information Data Centre. https://doi.org/10.5285/b6b92ce3-dcd7-4f0b-8e43-e937ddf1d4eb Contains Ordnance Survey data © Crown copyright. © UK Centre for Ecology & Hydrology
Local Nature Reserves (England)	https://www.data.gov.uk/dataset/acdf4a9e-a115-41fb-bbe9-603c819aa7f7/local-nature-reserves-england1	Attribution statement: © Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right [2025]
Scheduled monuments	https://opendata-historicengland.hub.arcgis.com/datasets/historicengland::national-heritage-list-for-england-nhle/about?layer=6	© Historic England [2025] <i>and for spatial data only add</i> Contains Ordnance Survey

Primary constraints		
		data © Crown copyright and database right [2025].
Existing renewable energy sites	Data provided by Hinckley and Bosworth Borough Council	Data provided by Hinckley and Bosworth Borough Council
Sites of Special Scientific interest	https://www.data.gov.uk/dataset/5b632bd7-9838-4ef2-9101-ea9384421b0d/sites-of-special-scientific-interest-england3	© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right [2025]

Secondary constraints		
Data layer	Source	Attribution
Charnwood Forest Living Landscape	https://www.lrwt.org.uk/charnwood-forest-living-landscape	Leicestershire & Rutland Wildlife Trust
National forest	https://magic.defra.gov.uk/Datasets/Dataset_Download_NationalForests.htm	DEFRA, Magic Map
Agricultural Land Classification ALC Grades Post 1988 Survey	https://www.data.gov.uk/dataset/c002ceea-d650-4408-b302-939e9b88eb0b/agricultural-land-classification-alc-grades-post-1988-survey-polygons1	Attribution statement: © Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right [2025].
Flood map for planning, rivers and sea flood zones 2/3	https://environment.data.gov.uk/dataset/04532375-a198-476e-985e-0579a0a11b47	© Environment Agency copyright and/or database right 2025. All rights reserved.
Conservation areas	https://www.planning.data.gov.uk/dataset/conservation-area	© Historic England 2025. Contains Ordnance Survey data © Crown copyright and database right 2025. The Historic England GIS Data contained in this material was obtained on [date]. The most publicly available up to date Historic England GIS Data can be obtained from HistoricEngland.org.uk .

Secondary constraints		
Mineral safeguarding areas	Data provided by Hinckley and Bosworth Borough Council	Data provided by Hinckley and Bosworth Borough Council
Local Nature Recovery Strategy	Data provided by Hinckley and Bosworth Borough Council	Data provided by Hinckley and Bosworth Borough Council. Available from: https://haveyoursay.leicestershire.gov.uk/local-nature-recovery-strategy-local-habitat-map
River Mease SAC catchment areas	Data provided by Hinckley and Bosworth Borough Council	Data provided by Hinckley and Bosworth Borough Council

Buffer and exclusion zones		
Data layer	Source	Attribution
Ancient woodland	https://www.data.gov.uk/dataset/12b72196-1f20-44a9-8fe0-0e78db46a67c/ancient-woodland-revised-england-completed-counties	Attribution statement: © Natural England 2024. Contains OS data © Crown copyright and database rights 2024. OS AC0000851168. It includes Ancient Semi-Natural Woodland (ASNW), which retains a native tree and shrub cover; Plantation on Ancient Woodland Sites (PAWS), where the original tree cover has been felled and replaced by planting, often with conifers; Ancient Wood Pasture (AWPP), where the trees are managed in tandem with a long established tradition of grazing, characteristically with at least some veteran trees or shrubs or; Infilled Ancient Wood Pasture (IAWPP) which has become infilled with trees arising from planting or natural regeneration. Attribution statement: © Natural England 2023, Contains OS data © Crown copyright and database rights 2023. OS AC0000851168
Roads	https://osdatahub.os.uk/data/downloads/open/OpenRoads	Contains public sector information licensed under the Open Government Licence v3.0.

Buffer and exclusion zones		
Buildings/rail lines	https://osdatahub.os.uk/data/downloads/open/OpenMapLocal	Contains public sector information licensed under the Open Government Licence v3.0.
Airport	Identified from satellite images	Created for this analysis

Grid headroom		
Network opportunity headroom/ substation locations	https://connecteddata.nationalgrid.co.uk/dataset/network-opportunity-map-headroom	attribution statement 'Supported by NGED Open Data'
Network capacity	https://connecteddata.nationalgrid.co.uk/dataset/nged-network-capacity	attribution statement 'Supported by NGED Open Data'

Technical performance		
Data layer	Source	Attribution
Gradient	https://osdatahub.os.uk/data/downloads/open/Terrain50	Contains OS data © Crown Copyright and database rights 2025
Wind speed	https://globalwindatlas.info/en/	Neil N. Davis, Jake Badger, Andrea N. Hahmann, Brian O. Hansen, Niels G. Mortensen, Mark Kelly, Xiaoli G. Larsén, Bjarke T. Olsen, Rogier Floors, Gil Lizcano, Pau Casso, Oriol Lacave, Albert Bosch, Ides Bauwens, Oliver James Knight, Albertine Potter van Loon, Rachel Fox, Tigran Parvanyan, Søren Bo Krohn Hansen, Duncan Heathfield, Marko Onninen, Ray Drummond; <i>The Global Wind Atlas: A high-resolution dataset of climatologies and associated web-based application</i>; Bulletin of the American Meteorological Society, Volume 104: Issue 8, Pages E1507-E1525, August 2023, DOI: https://doi.org/10.1175/BAMS-D-21-0075.1 [Data] obtained from the Global Wind Atlas version 4.0, a free, web-based application

Technical performance		
		developed, owned and operated by the Technical University of Denmark (DTU). The Global Wind Atlas version 4.0 is released in partnership with the World Bank Group, utilizing data provided by Vortex, using funding provided by the Energy Sector Management Assistance Program (ESMAP). For additional information: https://globalwindatlas.info

Hydropower		
Data layer	Source	Attribution
River obstacles	https://river-obstacles-theriverstrust.hub.arcgis.com/datasets/theriverstrust::river-obstacles-3/about	The rivers trust, 2026. Updated daily, downloaded 20/01/26
Rivers	https://osdatahub.os.uk/data/downloads/open/OpenRivers	Contains Ordnance Survey data © Crown copyright
Lakes	https://catalogue.ceh.ac.uk/documents/b6b92ce3-dcd7-4f0b-8e43-e937ddf1d4eb	Taylor, P.J. (2021). Spatial inventory of UK waterbodies NERC EDS Environmental Information Data Centre. https://doi.org/10.5285/b6b92ce3-dcd7-4f0b-8e43-e937ddf1d4eb Contains Ordnance Survey data © Crown copyright © UK Centre for Ecology & Hydrology
River Mease SAC catchment areas	Data provided by Hinckley and Bosworth Borough Council	Data provided by Hinckley and Bosworth Borough Council