DESIGN AND ACCESS STATEMENT

FULL APPLICATION FOR THE CONSTRUCTION AND OPERATION OF A 48MW SOLAR FARM

COMPRISING GROUND-MOUNTED SOLAR PHOTOVOLTAIC ARRAYS TOGETHER WITH ASSOCIATED INFRASTRUCTURE AND LANDSCAPING

LAND NORTH OF ROMAN BANK AND EAST OF MIDDLE MARSH ROAD AT RED HOUSE FARM,

HOLBEACH BANK, SPALDING, PE12 8BY

GRID REFERENCE: X536995, Y328849

September 2022

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1.0 Introduction

1.1 This Design and Access Statement (DAS) has been prepared on behalf of the applicant by AAH Consultants in support of a full planning application for the development of a ground-mounted, 48MW solar farm capable of delivering enough energy to power 14,400 homes annually and associated infrastructure, at land north of Roman Bank and east of Middle Marsh Road at Red House Farm, Holbeach Bank, Holbeach, Spalding. This DAS should be read in conjunction with all of the other submission documents, including the Planning Supporting Statement.

1.2 AAH Planning Consultants are members of the Royal Town Planning Institute (RTPI) and the Institute of Environmental Management and Assessment (IEMA).

1.3 This DAS provides an overall assessment of the proposed development, the design principles for the proposed development and sets out an analysis of the relevant planning policy principles. This DAS has been produced to ensure that a high-quality development is produced that follows guidelines laid down in government design advice, and perhaps more importantly, that the development respects the local context that it will integrate with. This DAS is produced in accordance with Article 4 of Statutory Instrument 2013/1238 and National Planning Policy Guidance (NPPG) published in March 2014, which states that a DAS must:

a) explain the design principles and concepts that have been applied to the proposed development; and

b) demonstrate the steps taken to appraise the context of the proposed development and how the design of the development takes that context into account.

A development's context refers to the particular characteristics of the application site and its wider setting. These will be specific to the circumstances of an individual application, and a Design and Access Statement should be tailored accordingly. Design and Access Statements must also explain the applicant's approach to access and how relevant Local Plan policies have been taken into account. They must detail any consultation undertaken in

relation to access issues and how the outcome of this consultation has informed the proposed development. Applicants must also explain how any specific issues which might affect access to the proposed development have been addressed.

1.4 It is the purpose of this DAS to identify the parameters that have dictated the development's scale, design and location.

1.5 The site measures approximately 80 ha, and the proposal is for the development of an up to 48MW solar farm. The development of this site would be served off a single access point from Middle Marsh Lane located on the western boundary in the northern extent of the site.

2.0 Design Principles

Site and Surroundings

2.1 The application site measures approximately 80ha of greenfield land, located approximately 1.3km south and 1.6km northeast of the villages of Holbeach St Marks and Holbeach Bank, respectively; the town of Holbeach also lies approximately 2.19km south. The site is bound by Middle Marsh Road to the west, Roman Bank (road) to the south and agricultural land to the north and east, with Eastern Road located approximately 482m to the east. There are low levels of hedgerows within and surrounding the site, and the fields within the site boundary are largely demarcated by drainage ditches.



Figure 1: Aerial Image of the Site

2.2 The site and surrounding area is largely comprised of flat, arable agricultural land, though the site slopes very gently towards the east. There is a pipeline that runs east to west through the site, for which a 25m exclusion zone is required. Also, a 132kv overhead line runs north-west to south-east orientation through the site, with three pylons within the site boundary; this provides a point of connection to the grid. The surrounding area features very few hedgerows or areas of woodland. There are numerous residential properties and farmsteads along the boundaries of the site, and three residential properties located within the site: numbers 1 and 2 Bass Cottages and Red House Farm.

2.3 The site is located within Flood Zone 3, and there are numerous ditches within and around the site which are used to drain the farmland.

2.4 Whilst in the countryside, the site accommodates no national or local landscape or ecological designations. 'The Wash' Site of Special Scientific Interest (SSSI)/Special Protection Area (SPA)/RAMSAR site/Special Area of Conservation (SAC) is located approximately 4.52km north/north-west. The site is not located within a Conservation Area and contains no Listed Buildings, and the closest heritage features are two Grade II Listed buildings located approximately 878m north: 'Church of St Mark' and 'War Memorial at Holbeach St Marks'. The heritage features of the surrounding area are generally dominated by Listed Buildings, with the nearest Conservation Area being Holbeach Conservation Area which is approximately 2.6km, and the nearest Scheduled Ancient Monument is Wykeham Chapel: a moated monastic grange and retreat house which is approximately 8.9km south-west.

3.0 Planning Policy Context

3.1 Section 38(6) of the Planning and Compulsory Purchase Act 2004 requires the Local Planning Authority (LPA) to determine planning applications in accordance with the Development Plan, unless there are material considerations which 'indicate otherwise'. Section 70(2) of the Town and Country planning Act 1990 provides that in determining applications the LPA: "*shall have regard to the provisions of the Development Plan, so far as material to the application and to any other material considerations*."

3.2 The Development Plan for South Holland District Council is the South East Lincolnshire Local Plan, which was produced jointly with Boston Borough Council and Lincolnshire County Council, and was adopted on 8th March 2019.

3.3 The revised National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these are expected to be applied. National Planning Practice Guidance (PPG) adds further context to the NPPF, and the two documents should be read together. The NPPF and PPG are both material considerations in determining planning applications.

National Planning Policy Framework

3.4 The NPPF states that the purpose of the planning system is to contribute to the achievement of sustainable development. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs.

3.5 The following sections of the NPPF are considered to be particularly relevant for the residential development of this site:

- *Chapter 2: Achieving Sustainable Development*
- *Chapter 4: Decision-making*

- *Chapter 14: Meeting the Challenge of Climate Change, Flooding and Coastal Change*

3.6 With regards to renewable development, Paragraphs 152 and 158 of Section 14 of the NPPF are considered to be particularly pertinent:

"The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should support renewable and low carbon energy and associated infrastructure."

"When determining planning applications for renewable and low carbon development, local planning authorities should:

a) "Not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions; and

Approve if its impacts are (or can be made) acceptable. Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should also expect consequent applications for commercial-scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas."

Planning Practice Guidance

3.7 When examining the potential impact which a large-scale solar farm can have on a rural environment, Paragraph 13 of Planning Practice Guidance: Renewable and low carbon energy (Reference ID: 5-013-20150327) is considered to be particularly relevant:

"Where a proposal involves greenfield land, whether (i) the proposed use of any agricultural land has been shown to be necessary and poorer quality land has been used in preference to higher quality land; and (ii) the proposal allows for continued agricultural use where applicable and/or encourages biodiversity improvements around arrays.

Solar farms are normally temporary structures, and planning conditions can be used to ensure that the installations are removed when no longer in use and the land is restored to its previous use."

Local Planning Context

The Development Plan South East Lincolnshire Local plan

3.8 The South East Lincolnshire Local Plan contains the overall spatial strategy and policies for the area. With regard to the development proposal within the site in question, the following policies are considered to be the most relevant:

- Policy 2: Development Management
- Policy 3: Design of New Development
- Policy 4: Approach to Flood Risk
- Policy 5: Meeting Physical Infrastructure and Service Needs
- Policy 28: The Natural Environment
- Policy 29: The Historic Environment
- Policy 30: Pollution
- Policy 31: Climate Change and Renewable and Low Carbon Energy
- Policy 32: Community Health and Wellbeing

Adopted Policies Map

3.9 The following image is from the adopted Policies Map:

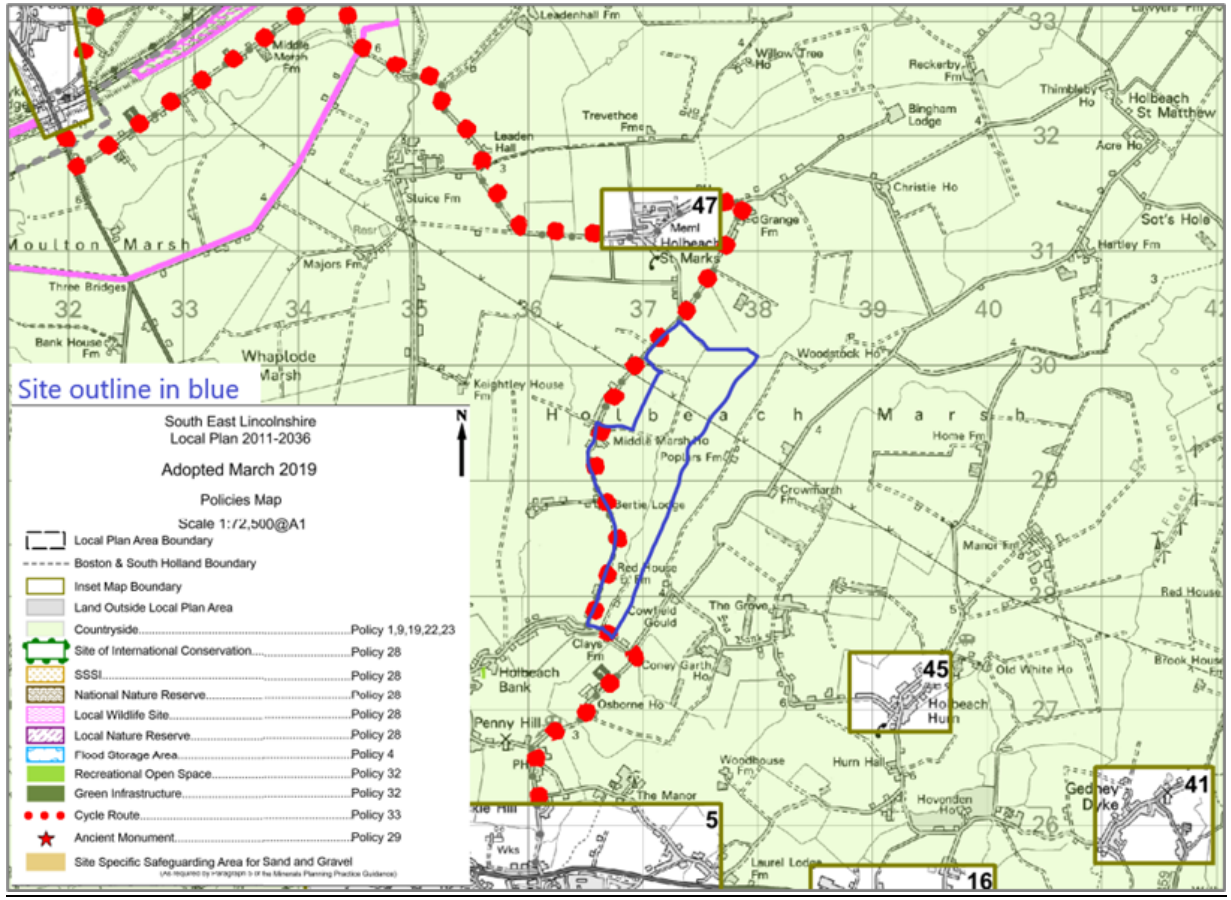


Figure 2: Adopted Policies Map

3.10 As can be seen from the map on the previous page, the site is located in the open countryside and not within any local designations. Though Middle Marsh Road, which is adjacent to the western boundary, functions as a cycle route.

4.0 Evaluation: Constraints and Opportunities

The Design Process

4.1 As previously identified, the main purpose of this DAS is to identify the design parameters and principles of the proposed development. It is therefore important to consider the constraints and opportunities, which arise from the prospective development of the site, and how the proposed development takes these into consideration.

Constraints

4.2 The evaluation of the site and its context has identified key on-site features which have informed the decision-making process and the development proposals. In summary, the site has few physical constraints, which would preclude the development of the site for a solar farm development. Those that do exert influence are as follows:

- The site's location in the countryside
- The site's location within Flood Zone 3 and ensuring there is no increase in flood risk or surface water runoff as a result of the development
- The residential properties located within or in close proximity to the site
- The relationship between the site and the nearest designated heritage assets.
- Consideration of the ecology of the site, including the impact on any boundary vegetation and trees within the site.
- Maintaining the positive features of the surrounding site and overall rural area.
- The impact upon of the scheme on the power lines and pipeline which run through the site.
- The proximity of the site to the Middle Marsh Road Cycle Path.

4.3 The constraints map below (also included within Appendix A) indicates the locations of the nearest ecological and heritage designations that have helped inform and guide the design process. The site's position within the flood zone is displayed on a separate map for greater clarity.

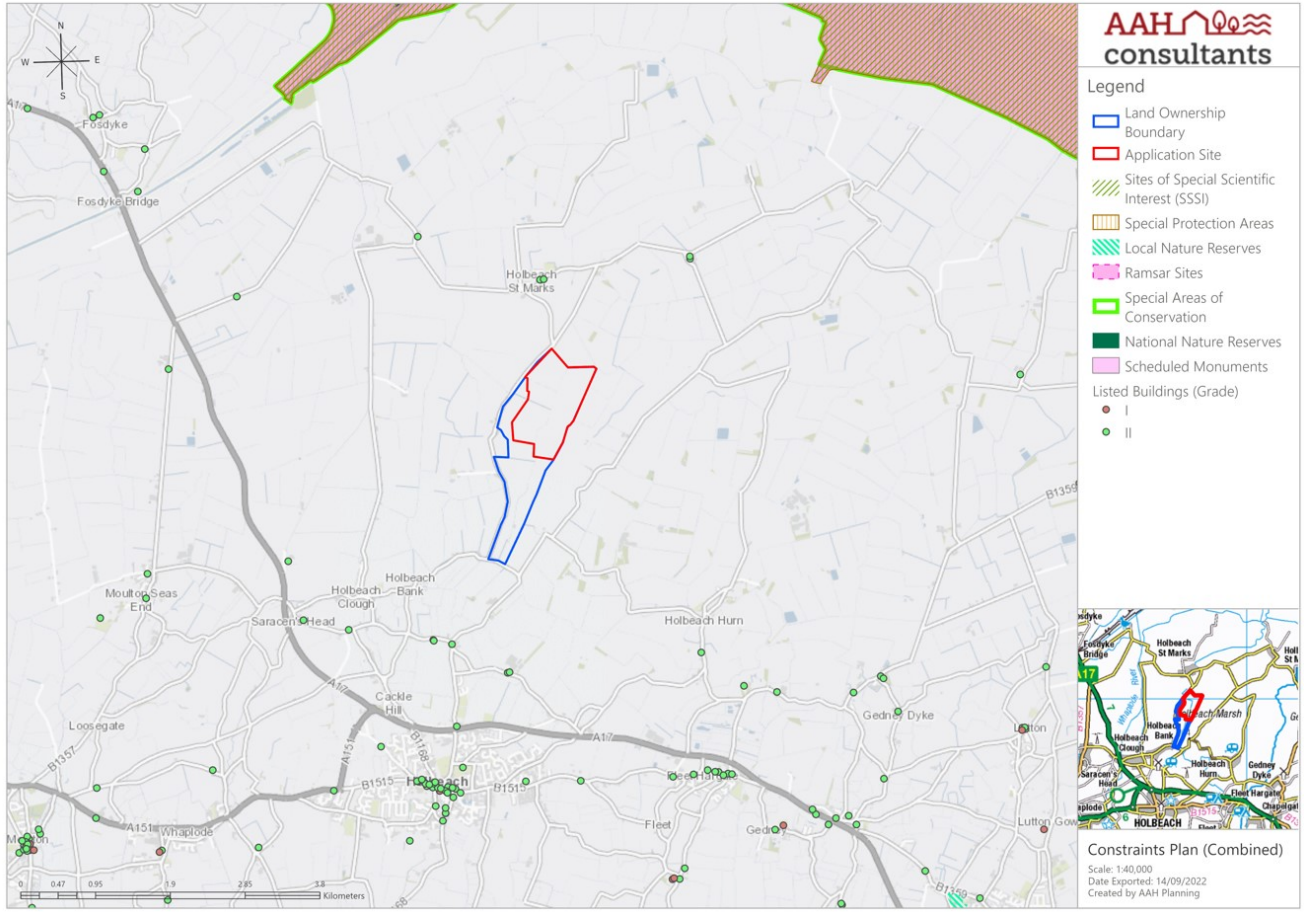


Figure 3: Heritage Constraints and Ecological Constraints

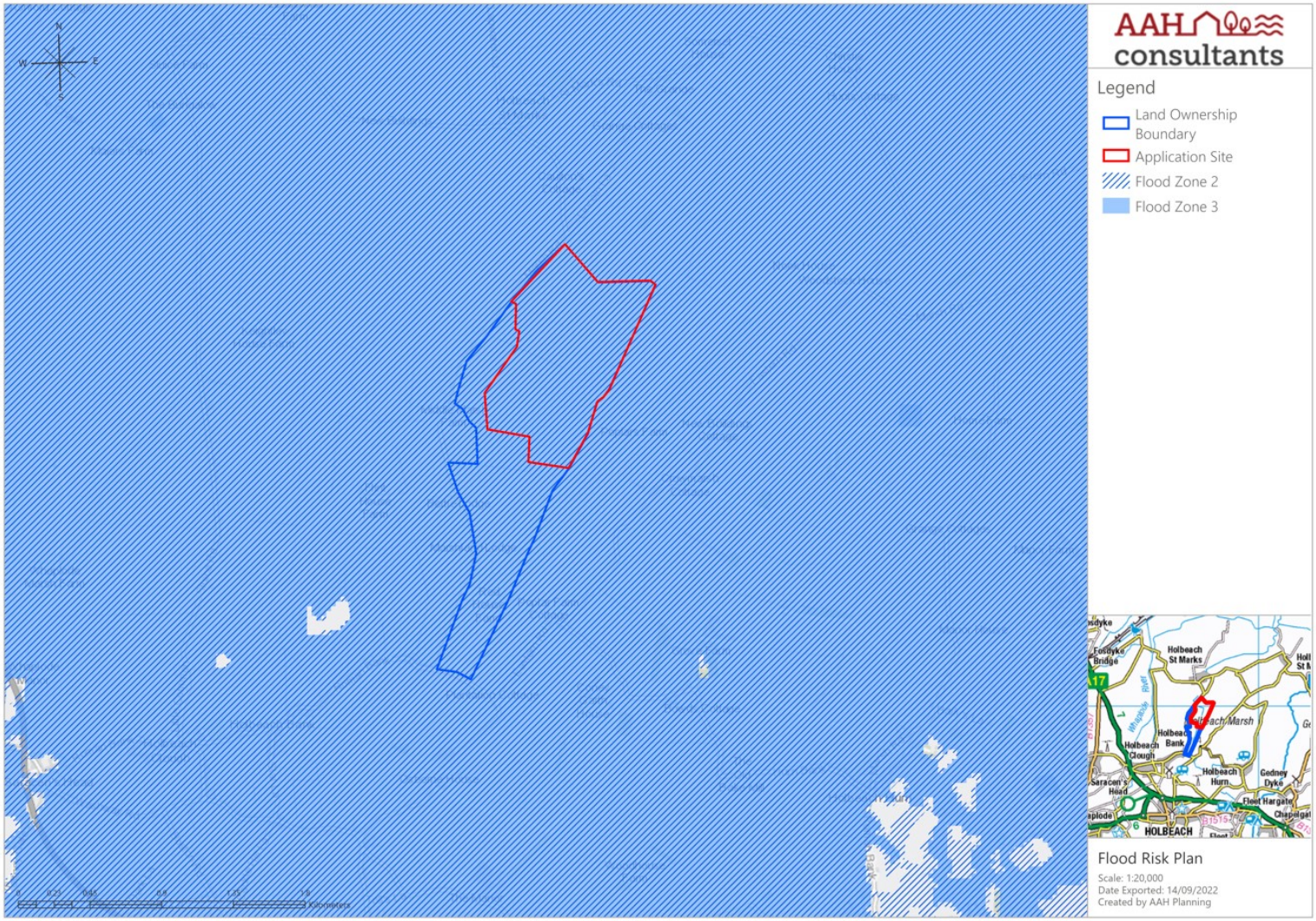


Figure 4: Flood Risk Map

Opportunities

4.4 The site provides an excellent opportunity to provide a low carbon, renewable energy development which integrates well within the wider area. The following are considered to be opportunities arising from the development of the site:

- Opportunity to create a high-quality scheme that reflects the local character whilst creating a distinctive setting that utilises and complements views.
- The inherent low-impact of solar arrays on the land, categorised as 'temporary' development, means the design can focus almost entirely on creating a cohesive, considered landscape mitigation strategy.
- Creation of new habitats, planting of native tree and hedgerow species, and creating high-quality landscape corridors alongside existing highways.
- In order to retain the open landscape character of the surrounding countryside, a generous setback should be considered to Middle Marsh Road and Roman Bank. This setback would be complemented by hedgerow planting close to the edge of the solar arrays that run closest to these routes, thus providing visual screening of the solar panels while minimising impacts on the open landscape character.
- There are no PRoWs that run through or adjacent to the site; however, the cycle route which makes up part of Middle Marsh Road runs adjacent to the western boundary. Careful treatment and effective screening of the western boundary can reduce any impact development may have on the character of this cycle route.
- The landscape features in this part of Lincolnshire are sparse, with the exception of built-up areas where trees and hedgerows, alongside buildings, provide a stronger sense of enclosure. Large individual trees, pylons and occasional farm buildings punctuate the expansive views across the flat landscape; the solar panels, by comparison, will not extend beyond 3m in height and so are easily obscured by hedgerows or small trees.

- Drainage ditches play a very important role to the agricultural land of the site and surrounding areas, acting as boundary treatments for the various fields and serving to mitigate against high levels of flooding. Retaining and enhancing these ditches would be a vital consideration throughout the design process and could also serve to further mitigate the likelihood of flooding.
- With overhead cables crossing the site, connection to the national grid will not require any significant lengths of buried or raised cables. Site structures can be positioned in areas of the site screened by additional planting, minimising the visual impact of the solar installation. These buildings are unlikely to be more than 3m in height, no taller than the panels themselves.
- Use of carefully selected materials and colours for the associated structures can contribute to the existing landscape and rural character.

Design Objectives

4.5 All tiers of planning policy stress the importance of achieving a high-quality design in new development and the contribution that this can make to the promotion of sustainable development. As set out above, the Applicant has considered the constraints and opportunities of the site and, in turn, has carried out an assessment of the site to aid the design process. The overall approach is to apply design proposals that can be sensitively assimilated into the area, taking into account adjacent land uses and developments, the nearby settlements and Listed Buildings, and 'The Wash' SSSI/SPA/RAMSAR site/SAC.

Overall Design Approach

4.6 On the above basis, the design objectives relevant to the site and which underpin the development proposals are as follows:

Character and Context

- Respond to the existing character of adjacent land uses whilst still creating a development as a viable solar farm.
- The site is located within the open countryside, so the development will need to be designed in such a way as to respect the character and function of its surroundings.
- Respect the built form of, and views from, the neighbouring villages of Holbeach St Marks and Holbeach Bank, as well as the town of Holbeach. Development around these settlements has gradually and organically grown to form the current boundaries seen today, and this development should be designed in a way that does not disrupt the defined area separating built form from the countryside.
- The enhancement of the low levels of existing woodland and hedgerows along the boundaries and in the surrounding areas, as well as the various drainage ditches which run throughout and around the site, needs to be fully considered throughout the design process.

Ease of Movement

- Careful consideration has been given to the proposed access arrangements to ensure it is of a sufficient standard to facilitate the construction and maintenance of the proposed development.
- The solar array will be designed around the cycle route and dwellings located along Middle Marsh Road with landscape buffers incorporated on the boundaries of the site with significant setbacks, reaching 200m. During construction, the cycle route will be unaffected and will remain open.

Climate Change

- To promote sustainable development whilst respecting and balancing the needs of local character and heritage.
- Ensure the proposal does not lead to an increase in flood risk elsewhere.
- To aid the decarbonisation of energy production in the UK and help the County and the country move towards Net-Zero.

4.7 Having identified the design objectives and importantly considered the constraints and opportunities of the site, plans were produced which explored the most appropriate location for the proposed development. The design proposals are outlined in the following section.

5.0 Design Proposals

5.1 The justification for these design proposals, and how they would be sympathetic to the amenity of the surrounding uses and how the design would be brought forward in a manner that would be compatible with the character of Holbeach and site surroundings, are highlighted in this section with regard to use, amount, scale, layout, landscaping, appearance and access.

Use and Amount

5.2 The proposed development is for a solar farm on a site measuring 80 hectares. Once installed and fully operational, the development will have the potential to generate 48MW of clean, renewable electricity. Electricity produced by the proposed development will be exported to the National Grid. A suitable grid connection is therefore required, and this can be achieved via the existing grid connection.

5.3 The size of the proposed development has been designed at a scale that works with the full extent of the site whilst also reflecting the identified constraints.

5.4 A full layout showing the proposed development is enclosed with the application but as well as the solar panels will also include LV associated switch / transformer stations, a deer fence, underground cabling and an access road.

5.5 Careful consideration has been given to the design of the solar farm to ensure it responds to the existing site context and has been engineered to provide a balance of functional capacity and the preservation of the environment and local amenity. At the scale proposed, the solar farm will sit comfortably within the extents of the site but at the same time retain all of the existing landscaping.

5.6 Overall, the amount of development proposed is considered to be appropriate and acceptable on this site.

Scale

5.7 The scale and massing of the proposed development responds to the following factors:

- The scale is required in order to make the scheme viable.
- The scale of the equipment is dictated by the standard technology dimensions chosen in order to make the proposal work on the site.

5.8 A full set of drawings are enclosed within the application submission, which set out the maximum height of buildings, structures and the arrays proposed to be used on site. The dimensions of the solar panels would be approximately 1.65m (length) x 1.0m (width). These panels would be installed on mounting structures, and the overall finished height of the installed panels would be a maximum of 3m. The mounting structure for the panels is a metal frame. The mounting posts will be pile-driven approximately 1.5 metres into the ground for support, dependant on ground conditions.

5.9 There would be approximately three grid inverter-transformer buildings to maximum dimensions of 8m (length) x 3.2m (width) x 3.0m (height). In addition, there would be a cabinet of approximately 3.0m x 3.0m x 2.5m for the switchgear. This would then be connected by an 11kV cable to a separate cabinet of the same dimensions. There will be no need to install any significant lengths of underground cables which lead off-site since the overhead cables running through the site provide a more efficient means of connection to the national grid.

5.10 The site will be made secure by the construction of 2-metre-high deer fencing as indicated on the site plan. This will be constructed using wooden posts and wire mesh. The fencing will feature CCTV cameras at regular intervals as a necessary security measure, which will include camera cover at the proposed access point on Middle Marsh Road. Details of this are included with the application.

5.11 Overall, it is considered that the proposed development is of an appropriate scale and will therefore be compatible with the surrounding area.

Layout

5.12 The layout has been prepared having regard to the topography of the site and the existing features whilst balancing the need to best harness the irradiation from the sun. This has been combined with adequate separation distances, particularly from the adjacent cycle path and dwellings located along Middle Marsh Road. Although spread across several fields, the proposed modules and the associated infrastructure will follow the alignment of the existing field patterns. This has meant that most of the existing features, including the various drainage ditches within and around the site, can remain in situ.

5.13 A site layout has been prepared to accompany the application, which illustrates how the proposed development will be accommodated on the site. The layout responds to the physical characteristics of the area as well as the various opportunities and constraints presented as detailed previously. The internal layout of the site and detailed design of the buildings, structures and the arrays proposed to be used on-site also accompany the application.

5.14 As illustrated in the images overleaf, the site layout would contain the key elements as follows:

- The retention of existing hedgerows, trees and ditches which run along the site boundary and demarcate the fields within the site.
- Retention of the existing planting on site and the introduction of new planting within the red line boundary, particularly along the site boundaries.
- Retention of existing open space at the southern end of the site.

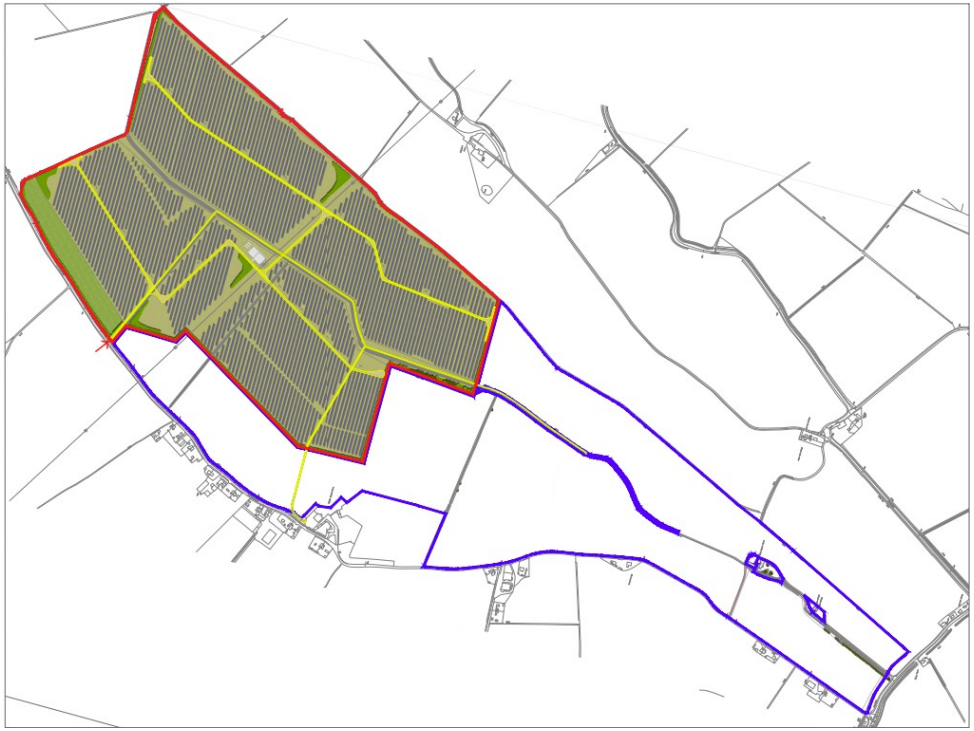




Figure 4: Proposed Site Layout and Design Rationale images (bottom) showing how installations can be hidden from view, allow grass and flowers to grow underneath, and make use of existing field boundaries.

5.15 The proposed site access point from Middle Marsh Road has been selected to ensure compliance with the relevant highway design standards and achievement of sufficient visibility splays in both directions. The proposed access designs would be in keeping with the character of its surroundings.

Landscaping

5.16 A Landscape and Visual Assessment (LVA) has been undertaken in order to determine the site's suitability for the proposed development and advise on a suitable landscape strategy in order to successfully ensure the development fits into the surrounding landscape with minimal impact.

5.17 The landscape proposals for the site have been designed to preserve and enhance the existing landscape features, to screen views of the solar arrays and to enhance the biodiversity and habitat value of the site. The proposal includes extensive planting proposals and enhancements, as shown on the layout plan. These, as well as other proposed mitigation measures, are detailed further in the LVA.

5.18 It is proposed that existing hedgerows and trees which form the boundaries to the site will be protected and reinforced with native species, though some boundaries may be left exposed to retain the existing landscape character.

Appearance

5.19 The overall appearance of the proposed development will be functional, sympathetic and in keeping with the surrounding context. The panels will be of a high standard and will be covered with non-reflective material to allow as much light as possible through to the PV cells whilst minimising glare.

5.20 Each row of panels would be mounted on a metal frame with metal supports. Between each row of panels, there would be a distance of several metres to avoid inter-panel shading whilst also providing suitable access to maintenance operatives. The panels would be tilted at typically 15 to 25 degrees and would be orientated to face south towards the sun.

Access

5.21 There are two distinct elements to the scheme which have the potential to impact upon highways safety, the construction phase and the operational phase. The number of vehicles visiting and utilising the site will occur predominantly throughout the construction phase of the development, with vehicles delivering parts and workers to install the arrays. The construction phase will last 6-9 months, and a construction management plan can be prepared to provide routing and manage the safe and considerate construction of the site. The level of traffic generated during the operational phase of the development will be minimal, limited to occasional visits for maintenance checks.

5.22 A full assessment of the existing access and likely traffic movements that will enter and egress the site is contained within the Transport Statement (TS) that accompanies the application. The TS demonstrates that the proposed access achieves the required visibility onto the highway to ensure that HGVs and other vehicles associated with the development can safely enter and exit the site.

5.23 Access to the site for construction and maintenance purposes is proposed via Middle Marsh Road located on the western boundary in the northern extent of the site.

5.24 Full details of the route to the site, site access and entrance arrangements are set out in the outline Transport Statement submitted with the planning application.

6.0 Summary

6.1 This DAS has been prepared in support of a full application for a 48MW temporary solar farm and associated infrastructure at land north of Roman Bank and east of Middle Marsh Road, Holbeach. The opportunities and constraints associated with the site are set out above, and it has been shown that these have been taken into account whilst designing the solar farm. The application is an opportunity to provide a significant amount of low carbon renewable energy in an appropriate location.

6.2 There is an urgent need to reduce carbon emissions as quickly as possible. Though South Holland District Council has not yet declared a climate emergency, the Government has set a target for the nation (and by extension, the district) to reach net-zero by 2050. The proposal will contribute to the decarbonisation of the UK energy supply, the Net Zero 2050 emissions target and other national energy and climate policies. There are clear benefits that arise from the proposal and the enhancements proposed in respect of landscape, which clearly outweigh any adverse impacts. Key benefits of the proposed development include the following:

- Once installed and fully operational, the proposal will generate 48MW of renewable energy. A solar farm is able to power over 1,500 homes annually for every 5MW installed (based on an average annual consumption of 3,300 kWh of electricity for a house), and save 2,150 tonnes of CO2 (Explainer: Solar Farms - Solar Trade Association). These figures indicate that this proposal will generate enough energy to power over 14,400 homes annually and save over 20,640 tonnes of CO2;
- The site benefits from existing landscaping which will be maintained and enhanced;
- One of the main reasons that this site has been chosen is its proximity to an existing grid connection point;
- The proposed development is temporary and can easily revert back to its current state;

- The site and surrounding area will be made safer through the construction of a deer fence to restrict unauthorised access; and
- Significant ecological improvements are proposed throughout the scheme to encourage wildlife back onto the site.
- The carbon footprint of solar, wind and nuclear power have been shown to be many times lower than coal or gas with carbon capture storage (CCS), even when accounting for emissions during manufacture, construction and fuel supply (Pehl et al. (2017), Nature Energy, doi: 10.1038/s41560-017-0032-9)

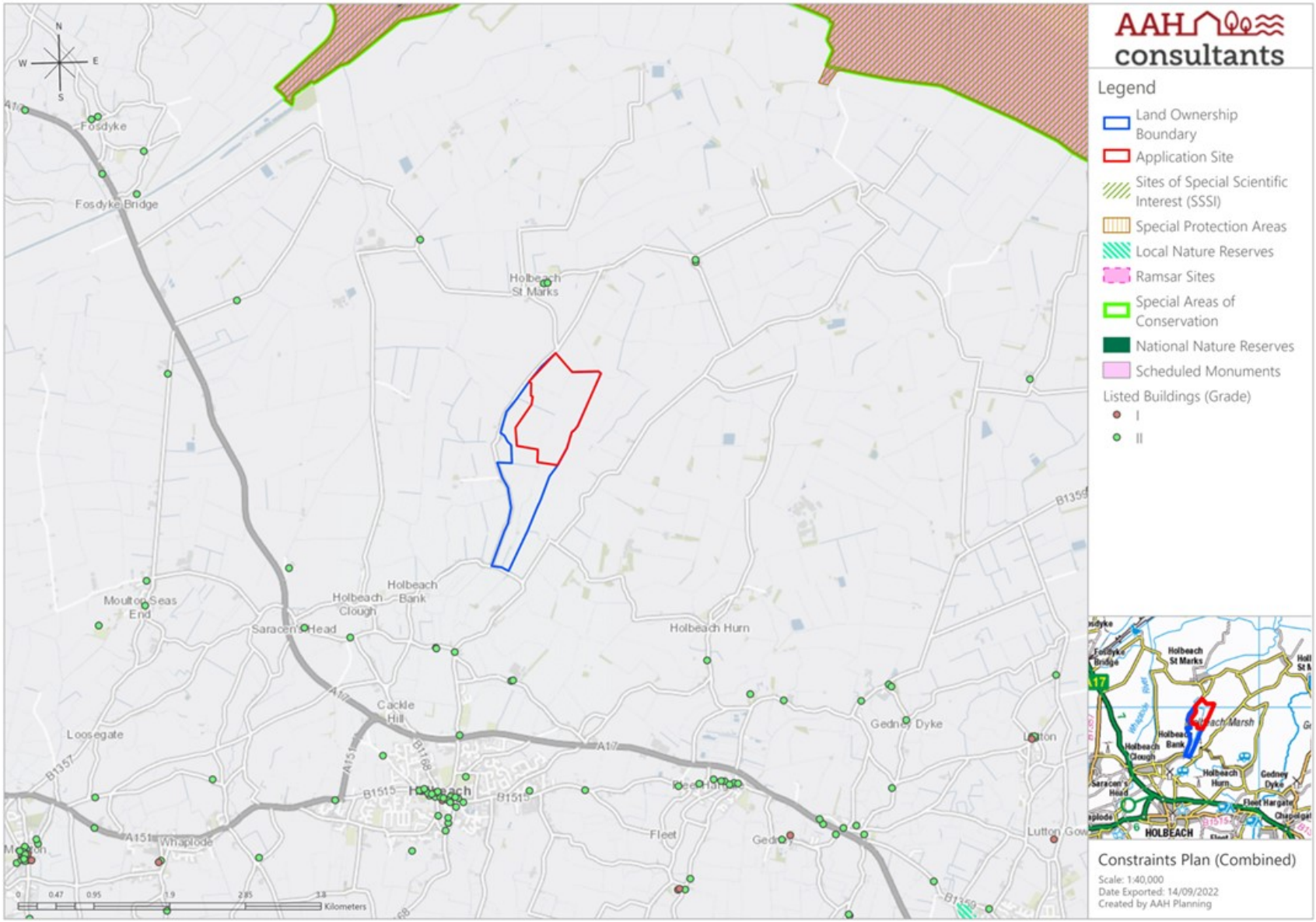
6.3 Considerable care has been taken in the design of the proposal to avoid any unacceptable environmental effects whilst ensuring that the solar farm can make a significant contribution to the national requirement for renewable energy generation. Furthermore, a number of mitigation measures are proposed, in particular, to mitigate against the impacts on the landscape. The proposed development can be sensitively accommodated in this location whilst ensuring the preservation of local amenity, ecology and the character of the wider landscape and represents a responsive design in terms of landscape features within the site. Within the context of the landscape character area in which the solar farm is proposed, the characteristics of the landscape will not be significantly affected or can be successfully mitigated. The introduction of landscape enhancements will further preserve and enhance the existing character.

6.4 The proposed development is in itself inherently sustainable as it has been designed to serve its purpose, which is to provide a significant amount of renewable electricity in a very sustainable manner. The proposed development would constitute sustainable development in a sustainable location that respects the existing character of the settlement. On balance, it can be seen that this proposal will offer a quality development that would complement and enhance the character and setting of the local area, whilst remaining compatible with the surrounding land uses.

Appendices

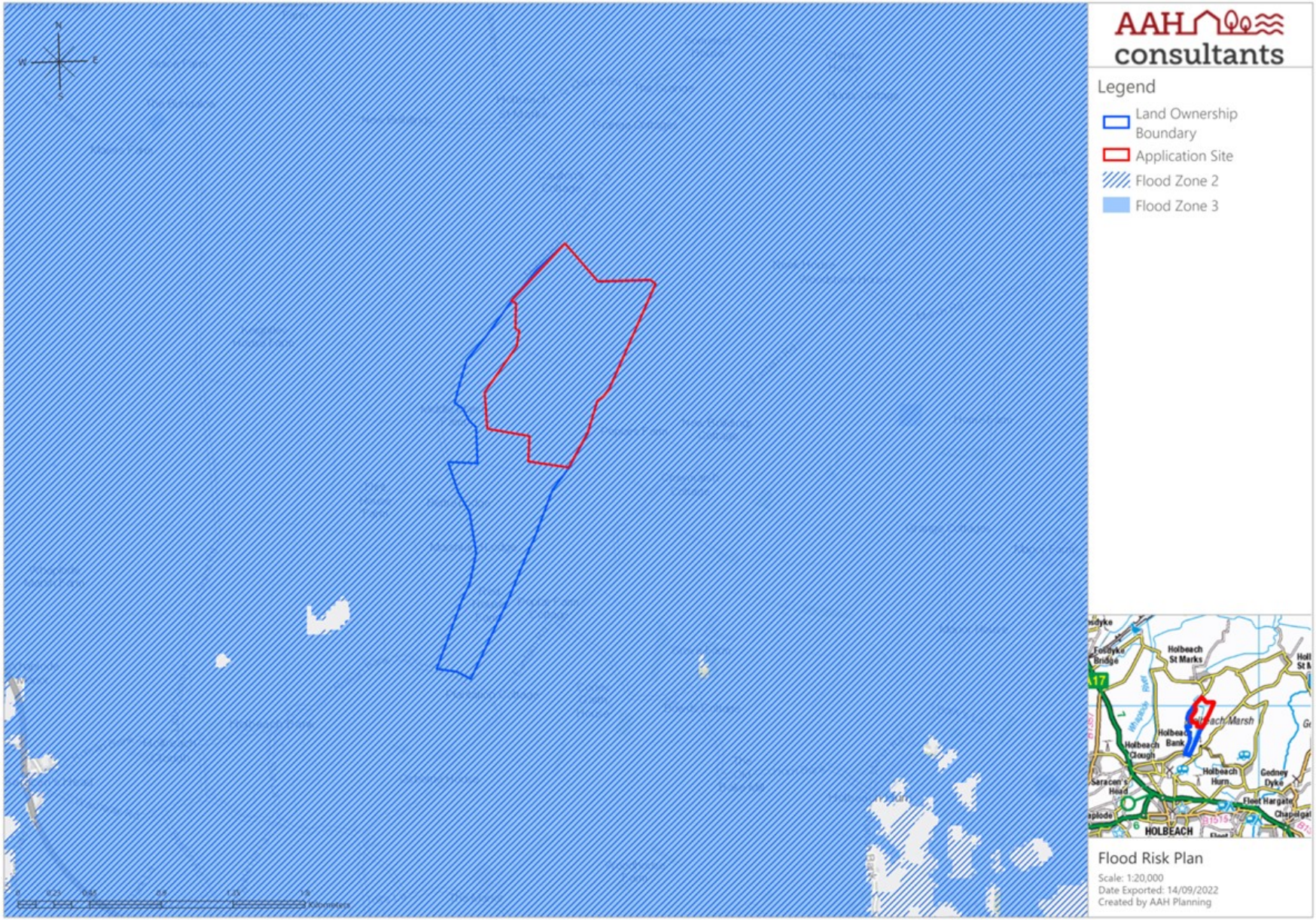
Appendix A

GIS Constraints Map


AAH consultants
Legend
Land Ownership Boundary
Application Site
Sites of Special Scientific Interest (SSSI)
Special Protection Areas
Local Nature Reserves
Ramsar Sites
Special Areas of Conservation
National Nature Reserves
Scheduled Monuments
Listed Buildings (Grade)
I
II
Fosdyke
Fosdyke Bridge
Holbeach St Marks
Holbeach Clough
Holbeach Bank
Saracen's Head
Holbeach Hurn
Cackle Hill
Loosegate
Whaplode
Fleet
Gedney Dyke
Lutton
HOLBEACH
Constraints Plan (Combined)
Scale: 1:40,000
Date Exported: 14/09/2022
Created by AAH Planning

Appendix B

GIS Flood Risk Map


AAH consultants
Legend
Land Ownership Boundary
Application Site
Flood Zone 2
Flood Zone 3
HOLBEACH
Flood Risk Plan
Scale: 1:20,000
Date Exported: 14/09/2022
Created by AAH Planning