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APPENDIX 1 CONSTRAINTS AND OPPORTUNITIES PLAN

1.0 INTRODUCTION

- 1.1 This report summarises technical assessments that have been carried out to support the initial master planning and feasibility work for strategic development of land at Becca Hall, to the east of Leeds (hereafter referred to as the 'site').
- 1.2 The site comprises approximately 300 hectares of agricultural land and woodland between Becca Hall and Potterton Hall under the control of Hallam Land Management. The site is close to the A64 / A1 (M) intersection and includes Becca Home Farm and Bimbo Farm. The land lies within the parishes of Aberford and Barwick in Elmet with Scholes. Further land is also available to support highway improvements.
- 1.3 The technical assessments cover topic areas, such as environmental factors, landscape characteristics, transport and access, and primary infrastructure, within and surrounding the site. This report analyses how these might influence the future development of the site for a new settlement. Given the scale of the site, this report does not seek to provide a comprehensive record of all technical issues, but identifies the key and significant issues arising from initial technical analysis.

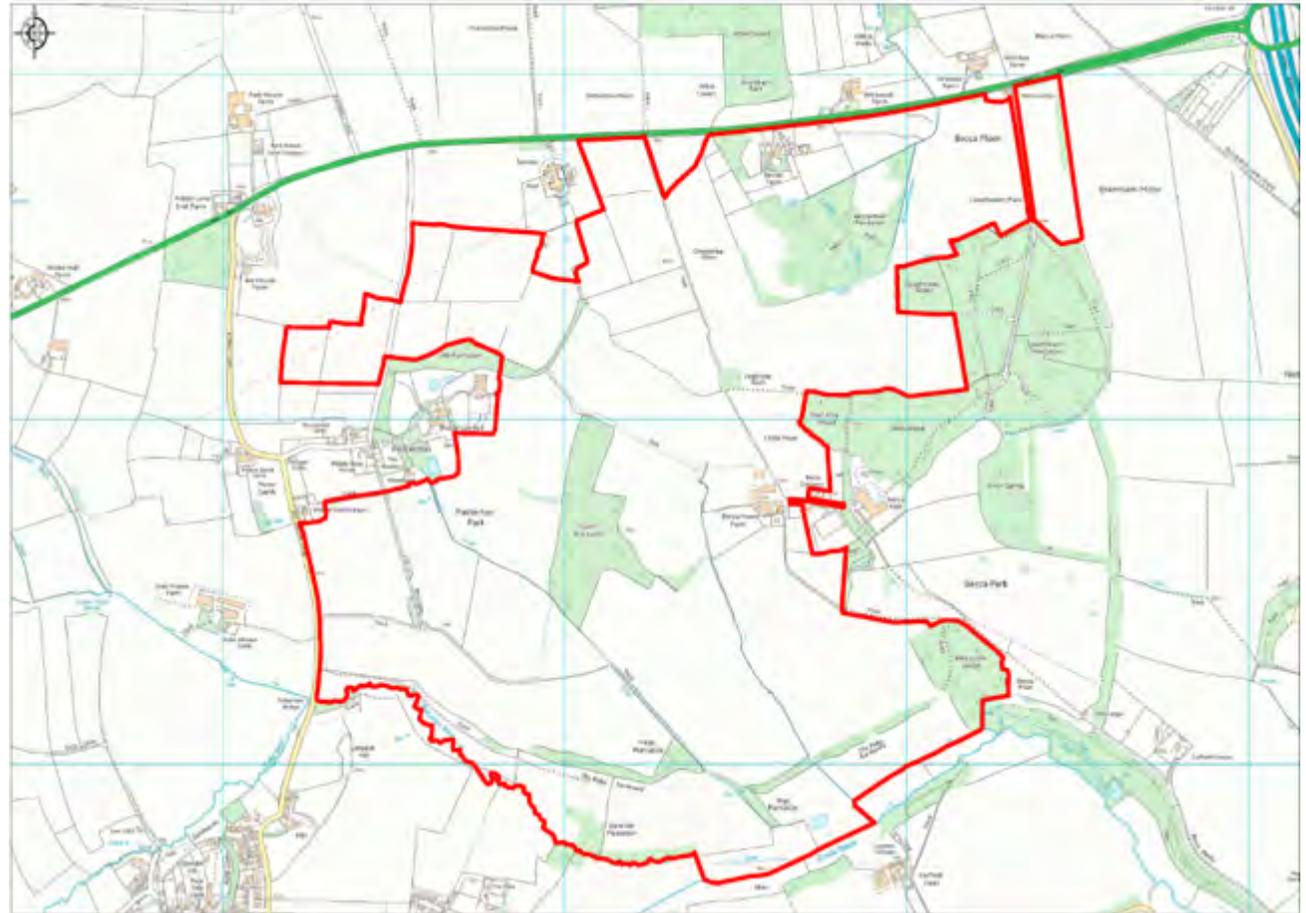


Figure 1 - Site Location and Land Control

1.4 This summary report has been prepared by David Lock Associates and is informed by the following research and ongoing technical assessments:

- Access Appraisal by Fore
- Landscape and Visual Analysis by FPCR
- Ecological Summary by FPCR
- Soil and Agricultural Quality of Land by Land Research Associates
- Foul and Surface Water Feasibility by Rodgers Leask
- Preliminary Utilities Appraisal by Rodgers Leask
- Heritage Desk-Based Assessment by Orion Heritage
- Review of Strategic Utilities by Hamer Associates.

1.5 Chapter 2 reviews environmental factors; chapter 3 considers primary infrastructure; Chapter 4 looks at transport and access; and chapter 5 sets out initial development constraints and opportunities.

1.6 This report remains in draft form, and will be updated from time to time where additional information comes forward.

2.0 ENVIRONMENTAL FACTORS

Minerals

2.1 A Minerals Safeguarding Area (Coal) covers parts of the site: close to the western boundary and south of the A64. The Natural Resources and Waste Local Plan states that the Council will seek to ensure that the mineral resources, such as coal, are protected from developments that may prejudice their future extraction. However, the presence of a mineral safeguarding area does not mean that other development within a Minerals Safeguarding Area is unacceptable. This minerals area will be further explored in future technical work.

Landscape and Visual Analysis

- 2.2 Local landscape varies across the site reflecting the local topography and is defined by landscape features such as extensive woodland blocks and belts and buildings. Within this structure, the overarching character is of large arable fields with peripheral vestiges of former formal parkland associated with country houses. Proposed development should retain existing features and provide new woodland, hedgerow and tree planting to reconnect fragmented areas. There are also opportunities to enhance former parkland areas.
- 2.3 The site lies within a Special Landscape Area designated under Unitary Development Plan Policy N37. Development will have regard to the objectives of this policy.
- 2.4 The site is generally well defined and contained within the local landscape as a result of the topography and the extensive woodland cover in and around the site. Beccamoor Plantation lies in the north of the site and Aberford Dykes provide a clear wooded boundary to the south. South Plantation lies within the site but is excluded from the present land control because there are no proposals for it to be anything other than woodland.

- 2.5 The developable parts of the site are visually separated from Aberford, with extensive areas of intervening woodland. It is also separated from Potterton by trees and woodland, with a limited relationship along the eastern edge, where a walled garden is present adjacent to a contained field within the site. In addition, the site is separated from Barwick in Elmet by intervening landform and woodland.
- 2.6 Analysis of the landscape has identified a range of measures to create a receptive environment to accommodate substantial strategic development:
- existing woodland blocks including Aberford Dykes could be incorporated into the green infrastructure to contain development;
 - at the northern boundary, there are opportunities to extend woodland planting within the vicinity of the A64 to contain the proposed development and/or retain open areas allowing a gateway presence in views from the A64;
 - opportunities for establishing parkland can be explored as well as keeping the areas immediately around heritage assets free from

built development as an appropriate setting but as public open space.

- the elevated south western corner of the site should remain free of built development to maintain separation with Barwick in Elmet.

2.7 A Strategic Green Infrastructure Concept has been derived from this analysis. The GI Concept will continue to evolve alongside development proposals.



Figure 2 Draft Green Infrastructure Concept Diagram Source: FPCR

Figure

Green Belt

2.8 The site lies within the South and West Yorkshire Green Belt. Future development of the site would necessitate a review of the Green Belt in this area. New defensible boundaries would be identified using existing roads, field boundaries and other notable features. The site is well contained by landform and woodland features, and by the A64 to the north. With Green Belt retained around the site, the surrounding landscape would continue to perform successfully against the five purposes of the Green Belt.

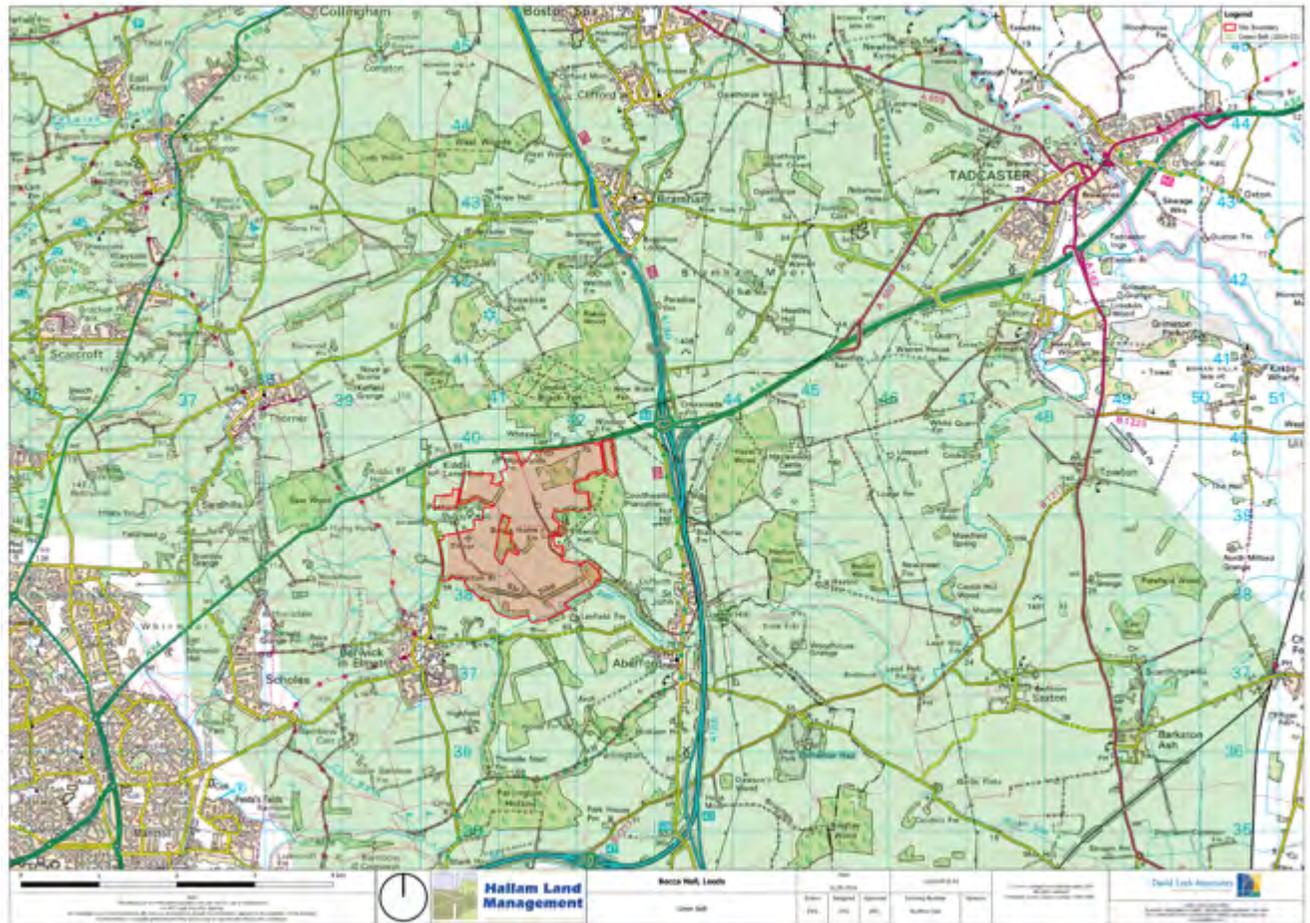


Figure 3 Green Belt Source: FPCR

Agricultural Land Quality

2.9 The site is predominantly agricultural land and woodland with associated farm buildings. The site is made up of large fields, mainly under arable cropping with some grassland used for grazing and a number of woodlands within the site boundary.

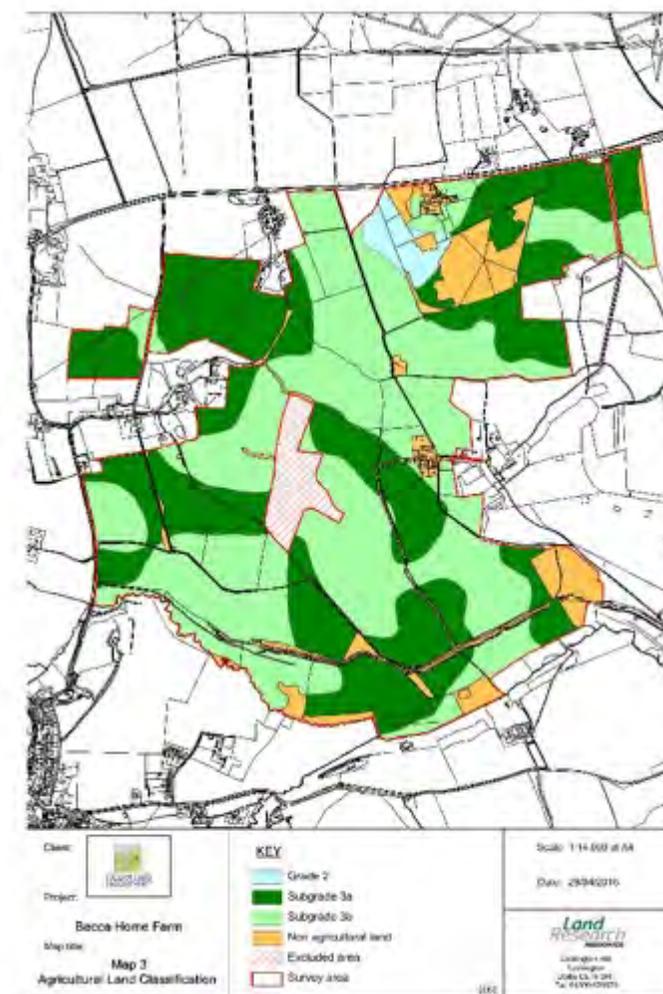
2.10 An assessment of soil and agricultural land quality by Land Research Associates found that soils across the site vary principally in depth, texture and drainage:

- deep clayey soils with impeded drainage comprise the majority of the site;
- shallow soils over limestone, primarily on upper slopes and summits;
- moderately shallow soils with a permeable clay subsoil and sandier groundwater affected soils in the north of the site.

2.11 Of the agricultural land surveyed, 40% was found to be of best and most versatile quality (2% grade 2 and 38% subgrade 3a), and 49% was of poorer agricultural quality, subgrade 3b. The remaining 11% was non-agricultural land.

2.12 All of the topsoils are suitable for reuse should the site be developed, though the higher quality sandy soils in the north may need to be stripped and stockpiled separately to the clay loams elsewhere on site. The topsoils should make a moderate to good quality resource for landscaping.

Figure 4 Agricultural Land Classification
Source: Land Research Associates



Nature Conservation

- 2.13 An initial ecological survey confirms that the vast majority of the site is of limited botanical value, owing to the predominance of large intensively managed arable fields and improved and poor semi-improved grassland. Some small areas with potentially greater interest were noted, including areas of woodland, hedgerows, semi-improved neutral and magnesium limestone grassland. More detailed surveys will be required to confirm the status of the grassland habitats.
- 2.14 The site and its surrounding area is of value to a range of fauna such as otter and water vole and further species-specific work will be undertaken through the evolution of the proposals. The retention of the majority of the habitats of conservation interest and subsequent appropriate management, in conjunction with adoption of mitigation measures during construction and the creation of new habitats, would ensure that the conservation status of the majority of the notable species present on-site is enhanced and would provide tangible benefits for a range of flora and fauna. Generous green infrastructure would ensure the protection of several Habitats of Principle Importance and would also maintain and enhance the

sites contribution to local and regional ecological networks.

Archaeology

- 2.15 A desktop archaeological assessment has established that the site has a varied potential for archaeological remains of all pre-historic and historic periods. Of particular note is the high potential for archaeological remains dating to the Roman period in the south of the site. Other than this a low potential for archaeology is identified.
- 2.16 Current evidence suggests that the archaeological potential of the site is not sufficient to constrain development. However, given the potential for buried archaeological remains to be present in certain areas of the site, it is anticipated that a programme of archaeological work will be required.

Heritage

- 2.17 There are no Registered Parks and Gardens or Historic Battlefields within or near to the site. Barwick in Elmet Conservation Area lies around 400m to the south-west of the site. The site contains two Scheduled Monuments: Aberford Dykes (to the south of the site) and Potterton Deserted Medieval Village (to the west of the site). There are also a number of the listed buildings that lie close to the site:
- Grade II* Listed Building:
West Wing, Potterton Hall
 - Grade II Listed Buildings:
South Wing and Attached East Wing, Potterton Hall;
Barn with integral Stables located c.15m north of East Wing, Potterton Hall;
Gate Piers and Quadrant Walls with Railings to Potterton Hall;
Well Head and two Troughs c. 20 m south of Pond near Potterton Hall;
Becca Hall;
Milepost on the A64.

- 2.18 Further work will be undertaken to fully mitigate any impact of development on these assets to ensure their settings are taken into account.

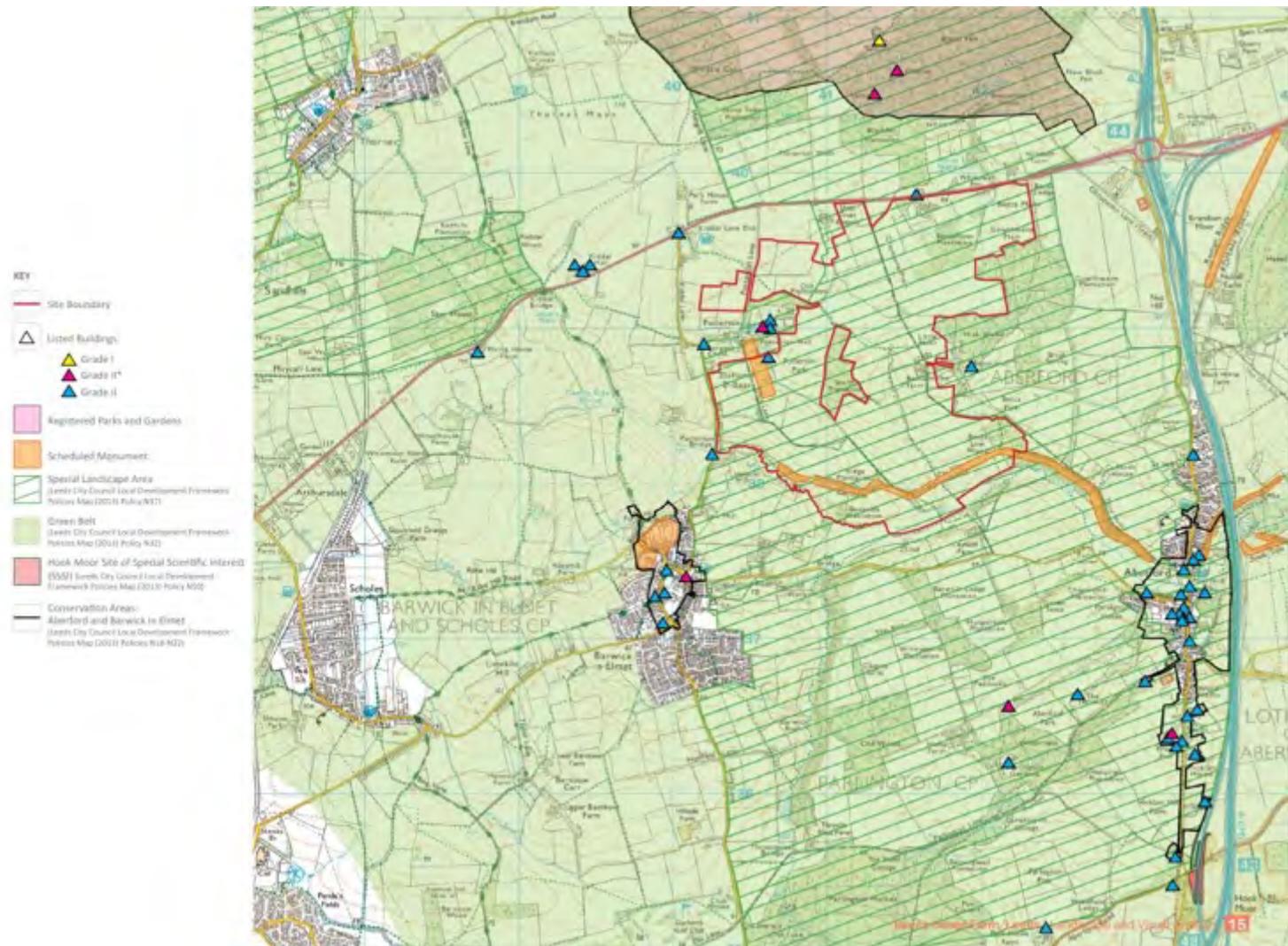
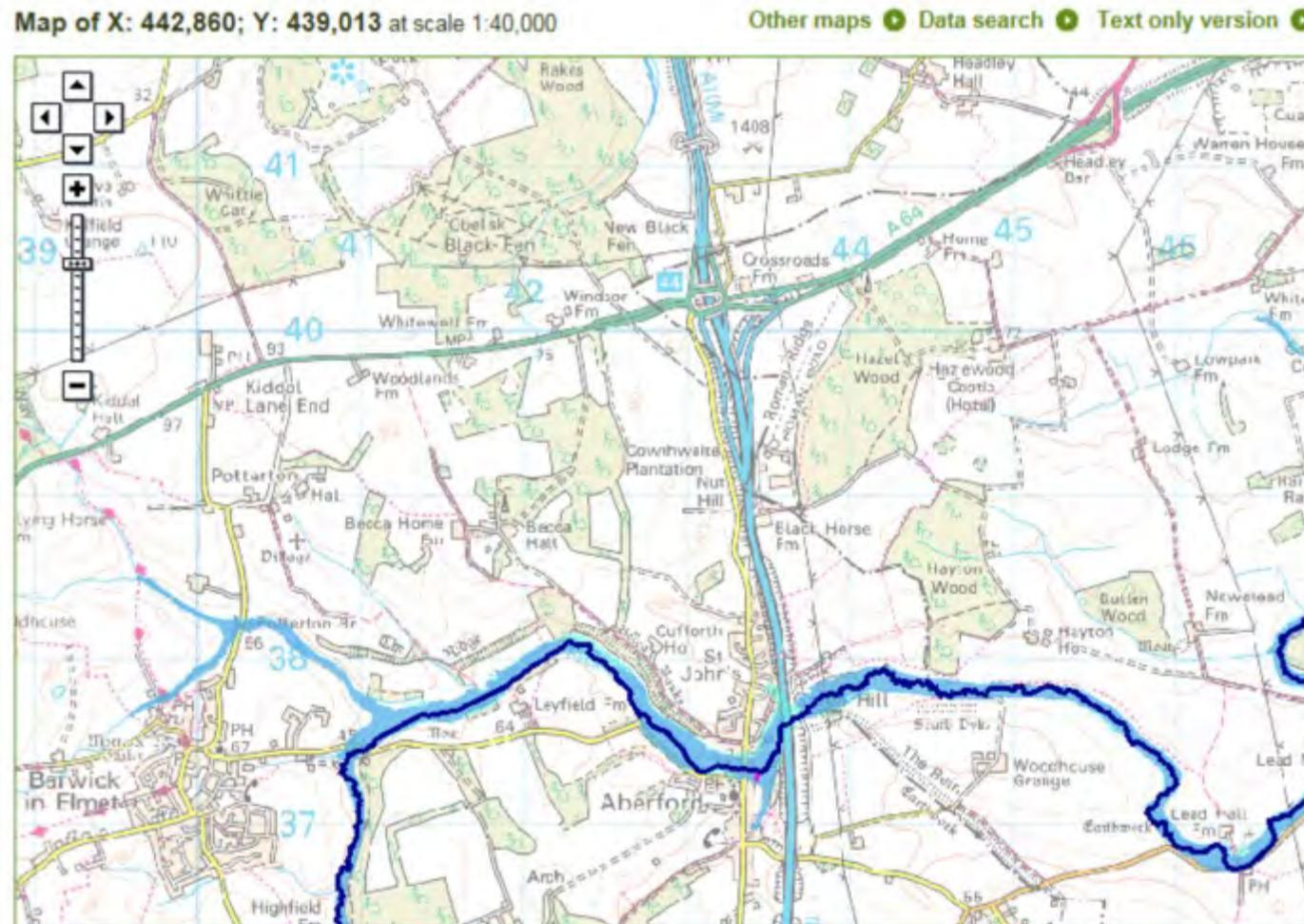


Figure 6 Landscape and Heritage Plan source FPCR

Flood Risk

- 2.19 The EA flood risk mapping data indicates the majority of the site to be in Flood Zone 1, with small sections along the southern boundary in Flood Zone 2 and Flood Zone 3. The Flood Zone 2 and 3 areas are associated with Potterton Beck and Cock Beck which run along much of the southern boundary of the site. Proposed built development will be on land in Flood Zone 1.
- 2.20 There are a few small isolated areas of surface water flood risk; these are associated with the local watercourse and ditch system within the site. As the development proposals progress, existing watercourse channels and upstream catchments will be reviewed such that sufficient stand-off is provided to the proposed built development areas.

Figure 7 Fluvial Flood Risk Source:
Environment Agency



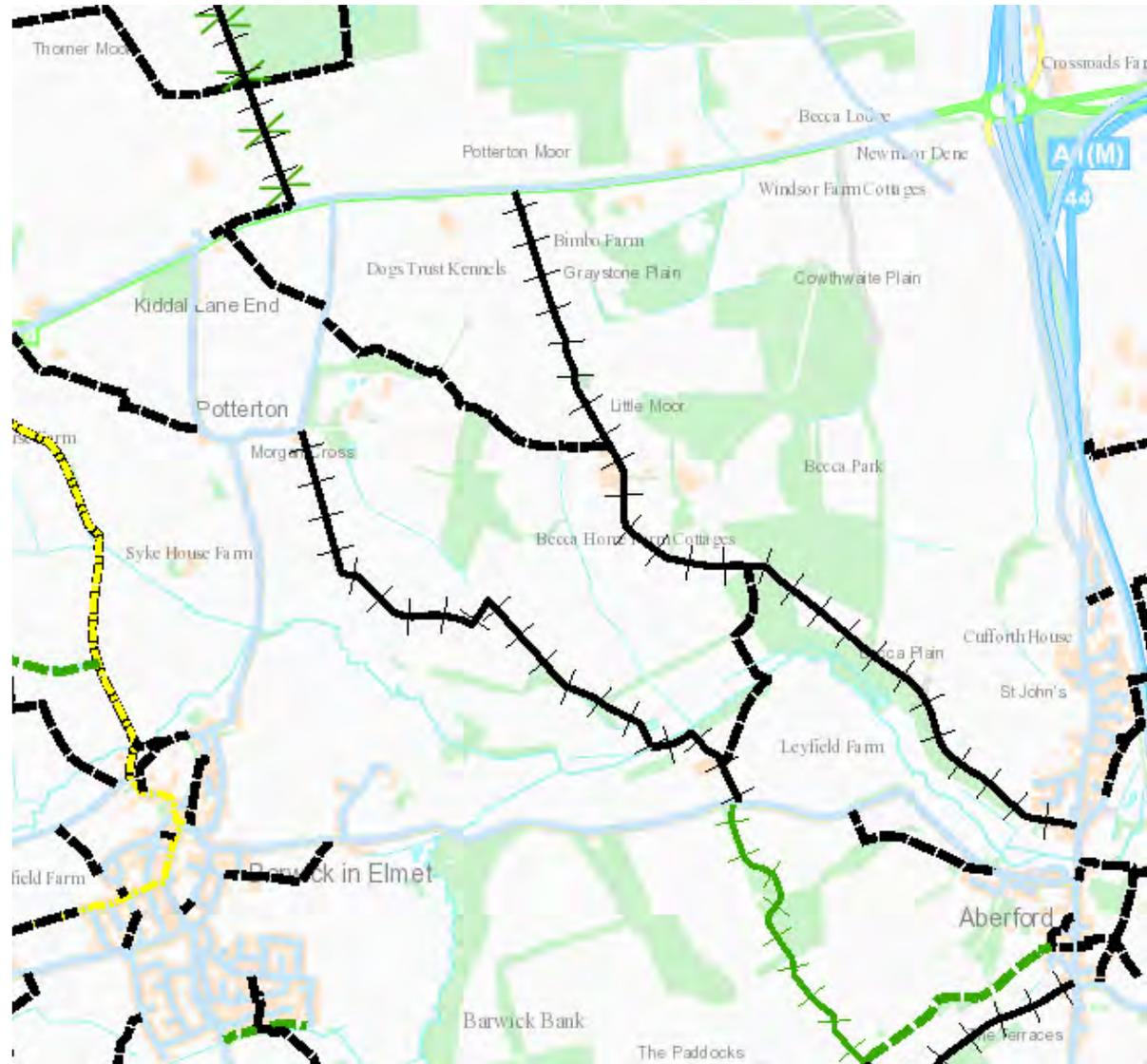
Customers in Wales - From 1 April 2013 Natural Resources Wales (NRW) has taken over the responsibilities of the Environment Agency in Wales.
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Public Rights of Way

2.21 The site contains a number of public Rights of Way, and the continuity of these Rights of Way should be part of the plans for the development of the site:

- Miry Way: Definitive Bridleway BARWICK 27 which commences at Potterton Lane close to Potterton Hall and continues south east linking into Definitive Bridleway PARLINGTON 6 south of the site.
- Definitive Bridleway ABERFORD 3 which commences at the A64 and heads south-east linking to Aberford.
- Definitive Footpath PARLINGTON 7 which links Miry Way and bridleway ABERFORD 3.
- Definitive Footpath BARWICK 29 which links north-west from Becca Home Farm towards Potterton Lane.

Figure 8 Rights of Way Source: Ordnance Survey data © Crown copyright and database right 2014 (c) Leeds City Council 2015



3.0 Primary Infrastructure Capacities

Drainage

Surface Water

- 3.1 The surface water drainage network should incorporate a combination of highway drainage, Section 104 Public Sewers (offered for adoption with Yorkshire Water) and SuDS elements such as conveyance swales, balancing ponds, filter strips, permeable paving and wetlands.
- 3.2 Prior to a more detailed surface water drainage strategy being developed for the site, it is recommended that a suite of infiltration testing is undertaken to give an indication of the likely viability of incorporating infiltration drainage within the scheme. Where infiltration is not feasible within all or part of a catchment, it is intended to discharge attenuated surface water to the watercourse which currently serves as an outfall for that catchment.

Foul Water

- 3.3 Based upon the existing topography in the area, foul flows generated at the site would need to be pumped. It is likely that an efficient solution would require more than one foul pumping station due to the size of the site. This will be confirmed as proposals develop.
- 3.4 Given the scale of the development proposals, it is considered unlikely that the local sewerage network in Barwick in Elmet or the existing Sewage Treatment Works would have capacity to receive foul flows from the completed development without significant reinforcement works although there may be scope to receive flows from initial development phases. A connection could be made directly to the Sewage Treatment Works inlet to serve the proposed development. This should avoid the need to undertake works to the existing sewerage network in Barwick in Elmet and help to minimise disruption.
- 3.5 To establish the issues that a development of this scale is likely to pose to the existing sewerage infrastructure, further enquiries will be made with Yorkshire Water.

Electricity

- 3.6 There are a number of electric cables and overhead lines crossing the site.
- 3.7 It is likely that a number of diversions and off-site reinforcement would be required to accommodate the proposed development. Further enquiries will be submitted to Northern Powergrid to determine the scope for existing apparatus to supply the proposed development.

Gas

- 3.8 A National High Pressure Main (NHP Main) passes through the north-eastern corner of the site, the only National Grid apparatus within the site. There are also two Regional High Pressure Mains that cross the site and medium and low pressure mains.
- 3.9 The NHP Main will fall under PADHI guidance (Planning Advice for Developments near Hazardous Installations) and is likely to be subject to zones which would restrict the construction activities which could take place and also the proximity of built development. Further enquiries will be made with National Grid and Northern Gas Networks to understand how diversions could take place. It is anticipated that re-routing and reinforcement of these pipes will be possible which can be delivered as part of the development proposal, will enable built development in closer proximity to retained pipes, and any abnormal costs can be accounted for in the overall site viability assessment.
- 3.10 Enquiries will be submitted to the National Grid and Northern Gas Networks to establish existing capacity and whether

off-site reinforcement are required to service the proposed development.

Telecommunications

- 3.11 There are ground and overhead plants within and close to the site as well as overhead lines and ground routes.
- 3.12 Based upon the current BT Openreach records, it is not anticipated that any diversions would be required within the site. However, diversions may be required to facilitate the construction of the highway access points to serve the site.

Water Supply

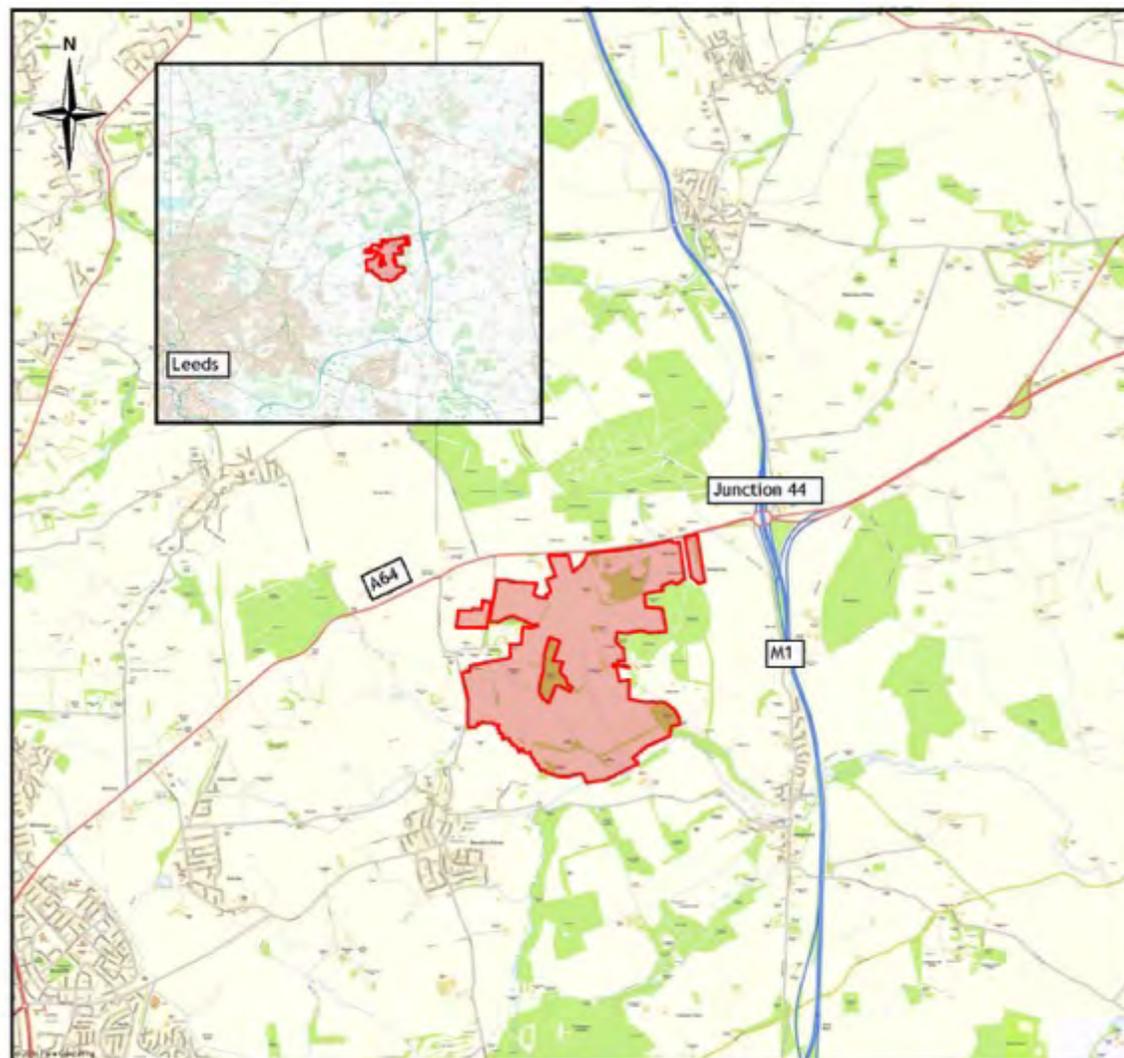
- 3.13 There is limited existing water main apparatus within the site. Main routes are along the A64, Kiddal Lane and Potterton Lane and serving the nearby village of Barwick in Elmet.
- 3.14 Outside of the site, there are supplies to the Dogs Trust Kennels and Potterton Hall to the north and west of the site respectively.
- 3.15 According to Yorkshire Water records, it is not anticipated that any water main diversions would be required within the site. Diversions may be required to facilitate the construction of the highway access points to serve the site.
- 3.16 Further enquiries will be submitted to Yorkshire Water to determine whether the existing apparatus in the area would have sufficient capacity to supply the proposed development without the need for offsite reinforcement.

4.0 Transport and Movement

Highways

- 4.1 To the east and north of the site are the A1(M) and A64 respectively. The A64 to the north of the site is a single carriageway until 600m west of Bramham Crossroads where it becomes a dual carriageway.
- 4.2 To the north east of the site is Bramham Crossroads (a grade separated interchange) where the A1(M) and A64 intersect. The interchange is a six arm roundabout, accommodating traffic between the A1(M) and A64 routes as well as to Paradise Way to the north for local access to Bramham and Main Street to the south for local access to Aberford. Free flow slip roads are provided on the south east side of the interchange, allowing movements between the A64 westbound and A1(M) southbound and A1(M) northbound and A64 eastbound to bypass the interchange.
- 4.3 Initial assessments suggest that there are no highway issues that impede strategic development of the site.

Figure 9 Highways Source: Fore



Access

- 4.4 It is proposed the main site access is a roundabout off the A64 to the west of existing access to Becca Hall. The dual carriageway section leading into the Bramham Crossroads junction should be extended by approximately 220m to this new roundabout. It is likely the roundabout will need to be approximately 50m in diameter.
- 4.5 A secondary access would be located to the east of the Dogs Trust building and Woodlands Farm.
- 4.6 This access strategy would provide straightforward access to both A64 and A1(M) in all directions and would provide a choice of route options on the strategic highway network towards Leeds, York and other destinations. Vehicular access to local settlements such as Barwick in Elmet and Aberford would be regulated to limit the traffic impacts on these existing settlements.

Public Transport

- 4.7 There are a number of existing bus services close to the site that serve a range of destinations. The Transdev's Coastliner service provides a direct and frequent connection between Leeds and York. Beyond York, these services go on to Malton, Whitby or Scarborough. There are also buses to local destinations.
- 4.8 There are several bus-based Park and Ride sites (existing and planned). For trips to York there are two sites accessible on the west side of the city: Askham Bar and Poppleton Bar; for trips to Leeds there are two potential bus-based Park and Ride sites planned for East Leeds and Grimes Dyke, Whinmoor. The East Leeds site gained planning permission in October 2014 and is likely to be open in 2016. No information is available yet regarding the Grimes Dyke site but it will provide an equivalent facility to enable trips on the A64 corridor to Leeds city centre to, in part, be made by public transport.
- 4.9 The nearest rail stations to the proposed development site are Garforth and East Garforth. Both of these are approximately 10km from the site. Other rail stations within a reasonable distance of the site include Ulleskelf (14km) and Micklefield (11km) and Church Fenton (18 km). The West Yorkshire Combined Authority has plans for a new station to the east of Micklefield known as 'East Leeds Parkway'. This would provide a strategic park and ride station for both local commuter journeys to Leeds and direct trains to regional destinations such as Manchester, York and possibly London.

- 4.10 This would provide a strategic park and ride station for both local commuter journeys to Leeds and direct trains to regional destinations such as Manchester, York and possibly London.
- 4.11 This existing public transport network can be exploited to provide good services for any new settlement on the site. For example, the Transdev Coastliner could be diverted into the site and at the north close to and parallel with the A64, and the use of the park and ride facilities could be encouraged. There is also the potential for public transport links via Potterton Lane towards Barwick in Elmet. The existing local bus service to Aberford could be extended to serve the new community providing extended local links.

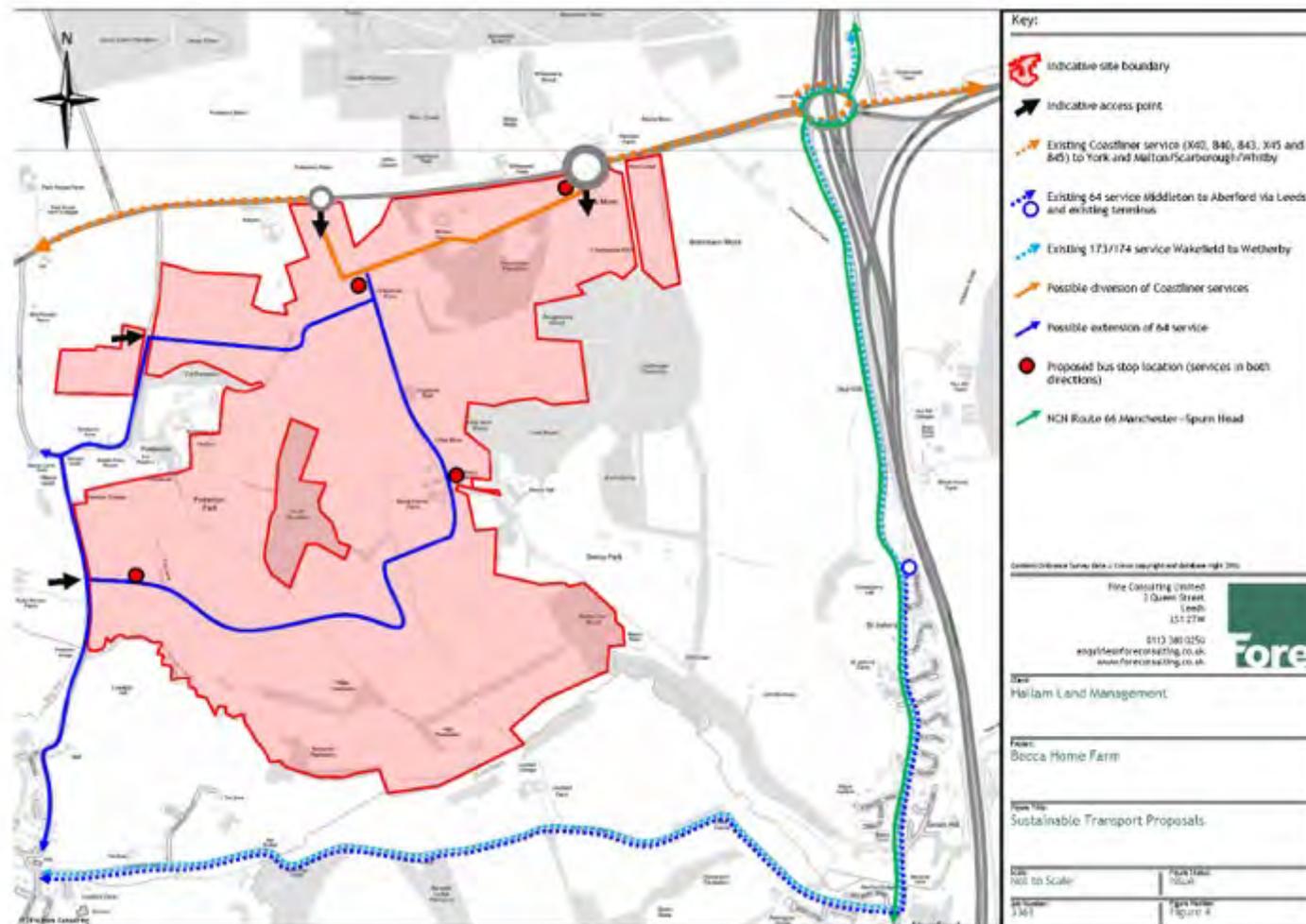


Figure 10 Sustainable Transport Proposals
Source: Fore

Pedestrian and Cycle Access

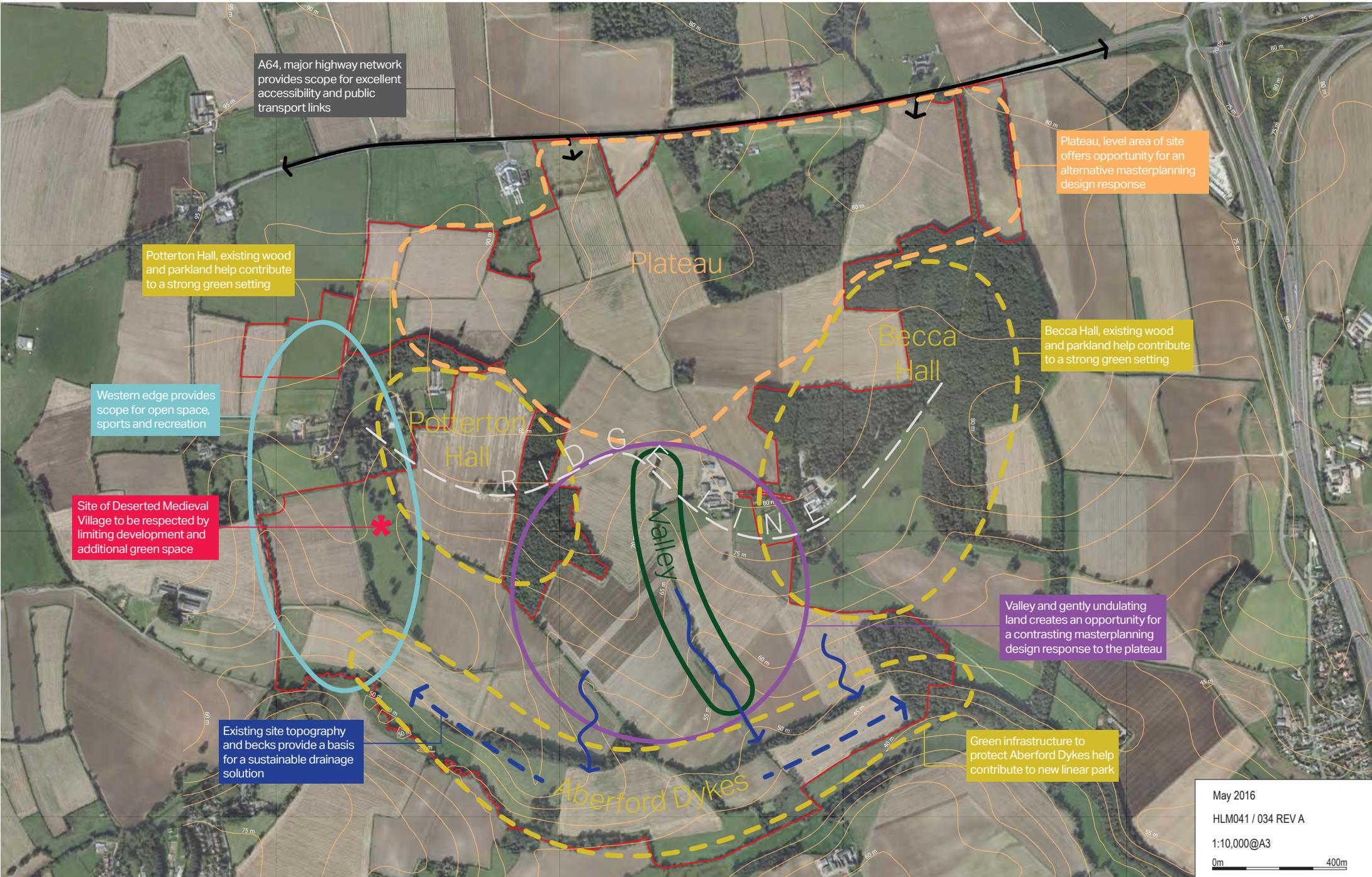
- 4.12 The National Cycle Network (NCN) Route 66 lies to the east of the site and runs adjacent to the A1. North of Bramham Crossroads this is a traffic-free route that leads north to Bramham and Wetherby. South of Bramham Crossroads the route is on road and provides access to Aberford and Garforth. To the west of the site is the West Yorkshire Cycle Route. This runs north south through Barwick in Elmet and Potterton. It provides access to Bramham to the north and NCN Route 66 to the south just north of Garforth. The site is also crossed by several Public Rights of Way (footpaths and bridle paths).
- 4.13 Dedicated pedestrian and cycle routes can be provided, offering high-quality connections to the surrounding areas. With the proposed access arrangements, good accessibility to local amenities, destinations and public transport services can be achieved from the site, thereby, encouraging local journeys to be undertaken on foot or by cycle (rather than by private car).
- 4.14 Within the site itself, a safe and attractive environment for walking and cycling can be provided, enabling future residents of the site to make journeys to locations onsite by foot or by cycle, whilst also access off-site routes and locations.

5.0 Initial Development Constraints and Opportunities

APPENDIX 1 CONSTRAINTS AND OPPORTUNITIES PLAN

- 5.1 Drawing on the above technical analysis Constraints and Opportunities Plans have been prepared to provide a framework within which various master plan options can be tested, highlighting the main issues that will need to be taken account of in the ongoing master planning activity. These are attached at Appendix 1.

CONSTRAINTS AND OPPORTUNITIES



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