



East Wisbech Broad Concept Plan

Landscape, ecology and arboricultural evidence

October 2017

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'East Wisbech will provide a new high quality urban extension with a focus on sustainable transport connectivity with the town centre and principal local education, employment and retail centres which promotes a distinctive local identity, sense of place and social cohesion for the new community (and its neighbouring ones of Walsoken and to the immediate west) and promotes health, well-being and quality of life'.

Vision for East Wisbech, Dec 2016 [extract]

1.1 Study scope

This report is one of a suite of technical studies which are being prepared to support the development of a high level masterplan (known as a Broad Concept Plan) for the East Wisbech urban extension.

It draws together baseline landscape, ecological and arboricultural evidence to inform the development of an optimal green infrastructure framework for the East Wisbech Site. Sheils Flynn is appointed to develop the landscape work and the Ecology Consultancy is appointed to lead the ecological and arboricultural surveys.

The process involved separate baseline studies for each of the disciplines leading to an analysis of opportunities and constraints which in turn informs the development of a strategic green infrastructure framework for the Site as a whole. Other key 'layers' of information are being prepared in parallel, including drainage, transport planning and economic (viability) assessments. Due to time constraints, opportunities for integrating the findings of the various assessments will be limited, but the East Wisbech Broad Concept Plan (BCP) Steering Group plans to convene a cross-disciplinary workshop to support the development of an illustrative integrated BCP in September.

The location of the Site is illustrated on Figure 1. It covers some 73 ha of farmland on the eastern fringes of Wisbech and straddles the administrative boundary between Fenland District Council (FDC) and the Borough Council of King's Lynn and West Norfolk (KLWNBC). The East Wisbech BCP Steering Group is expecting to take the final BCP to FDC and KLWNBC Planning Committees for approval in late autumn 2017.

1.2 Report structure

Following this introduction, the report is subdivided into the following sections:

Baseline surveys

- **Section 2 - landscape and visual appraisal:** baseline surveys leading to an assessment of landscape character sensitivity, visual sensitivity and landscape value, taking account of relevant environmental designations and the scope to accommodate change and/or mitigate potential impacts

- **Section 3 - ecological surveys:** a preliminary ecological appraisal of the site, incorporating a desk review, hedgerow survey, a protected species risk assessment and a field survey, which together provide an extended phase one habitat survey of the site.

- **Section 4 - arboricultural survey:** surveys of all visually dominant trees, hedgerow trees and woodland on the site, including constraints mapping.

Development principles

- **Section 5 - Green infrastructure framework** - a layered evaluation process, which incorporates the findings of all the survey and assessment work in Sections 2-4 and which builds a clear picture of opportunities and constraints for development on the East Wisbech site. The report concludes by setting out a green infrastructure framework which should underpin the development of the East Wisbech BCP.

This report sets out the full landscape and visual appraisal (Section 2) but only summarises the findings of the ecological and arboricultural surveys; the detailed reports from this component of the work are provided in separate technical reports, by the Ecology Consultancy.

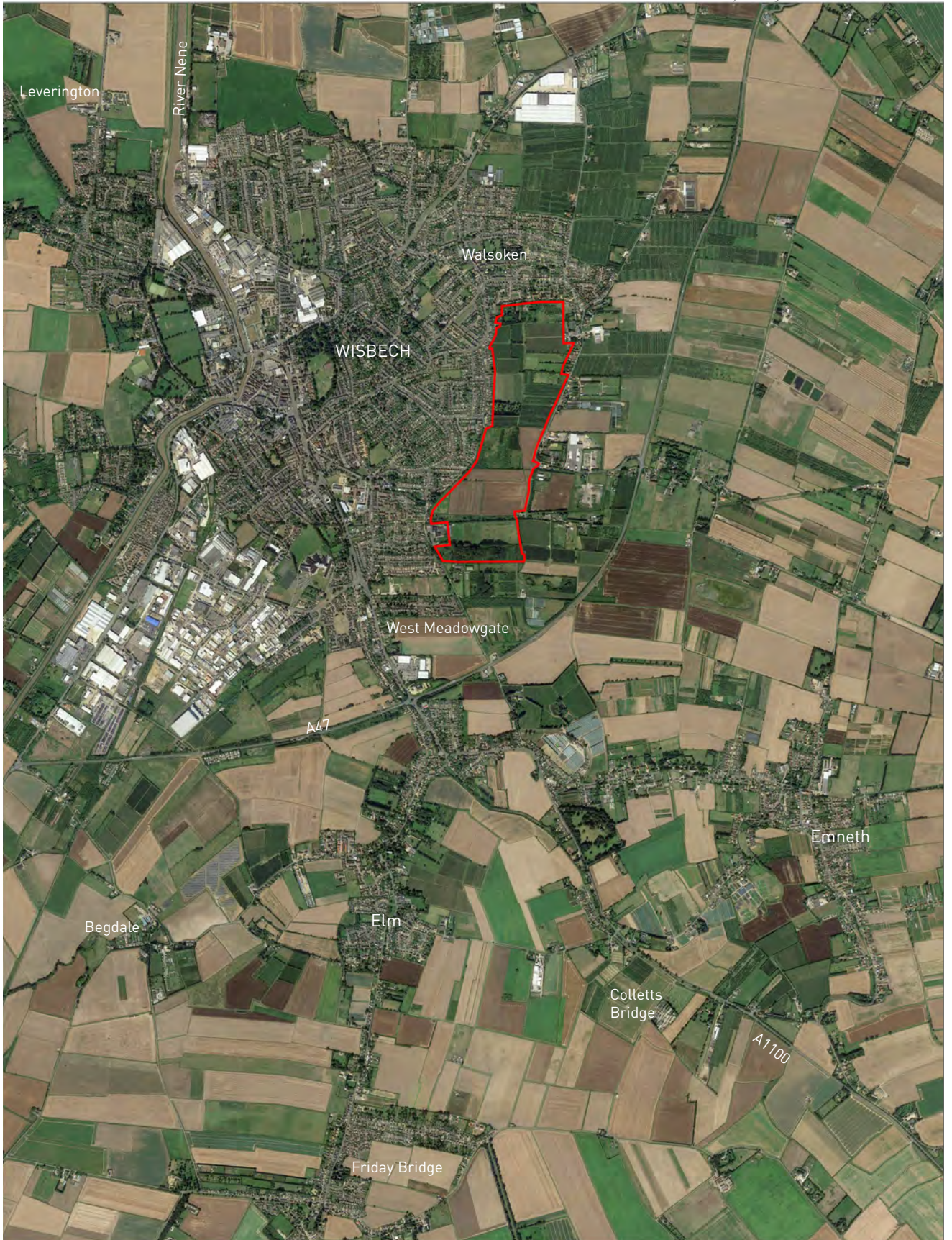


Figure 1 - Site location

2.1 Landscape context

Figure 2 shows the landscape context for the Site, which is an area of flat agricultural land on the eastern fringes of Wisbech and to the south of the neighbourhood of Walsoken. The land is currently used for a mix of arable, grazing, orchards, horticulture, informal open space and mature woodland. The majority of the woodland blocks to the north and east of Wisbech are orchards. As Figure 2 shows, there is no topographic variation across the entire Wisbech area - this is a typical flat fenland landscape.

The rural landscape immediately to the east of the Site accommodates a variety of commercial, agricultural and semi-industrial premises, including storage facilities, glasshouses and businesses with a focus on vehicle servicing and food processing. The A47 is approximately 600m to the south and east of the Site.

Figure 3 shows the environmental designations which apply in the area. The River Nene is a County Wildlife Site and there are isolated pockets of priority habitat (principally broadleaved woodland and semi-improved grassland) between the arable fields.

The cluster of listed buildings and the Wisbech Conservation Area indicate the location of Wisbech's historic town centre beside the River Nene. The historic core of the villages of Leverington (to the north west of Wisbech) and Elm (to the south) are also designated Conservation Areas. The historic village of Walsoken, to the north of the Site, has become amalgamated with Wisbech. The parish church of All Saints is a grade I listed building and the remaining base of a medieval cross in the churchyard is a scheduled monument.

2.2 Structure for the appraisal

Our approach to site specific landscape and visual appraisal draws on the methodological framework provided by Natural England's Topic Paper 6¹, which is widely used as guidance for making judgements about landscape sensitivity and capacity to accommodate development.

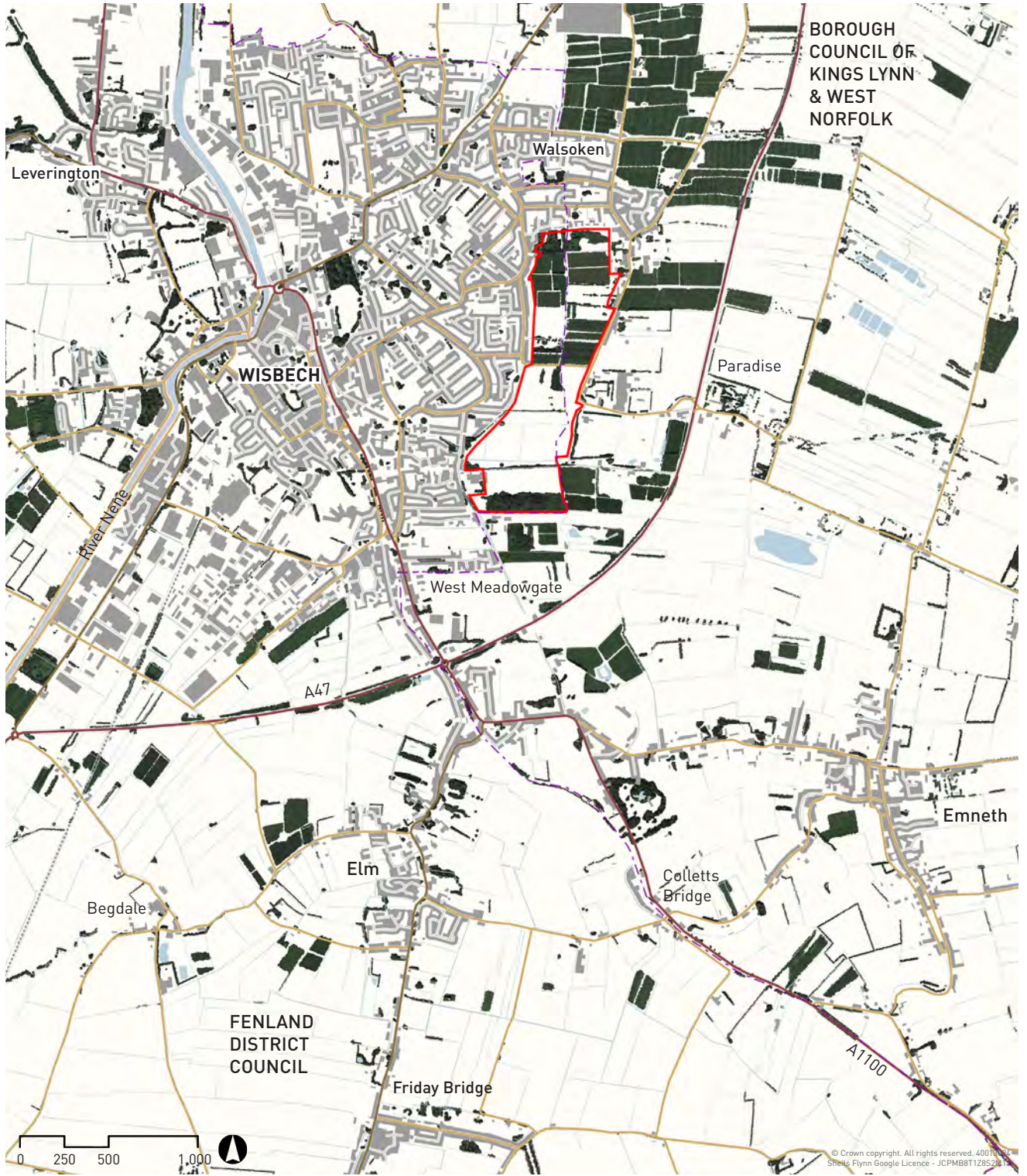
We are not seeking to make such precise judgements

for this landscape and visual appraisal, but the criteria and methods for assessing landscape sensitivity are relevant and useful in the context of a landscape and visual appraisal which is to be used as a basis for a concept masterplanning process, not least because they prompt analysis of multiple aspects of landscape and thus take account of the way it is experienced and valued. Using the components of landscape sensitivity assessment, the appraisal will consider:

- **landscape character sensitivity** - the degree to which the landscape is robust and able to accommodate change without adverse impacts on its character (based on assessment of strength of landscape character in terms of natural and cultural landscape patterns and elements, landscape quality/condition and aesthetic factors such as scale, enclosure, form, line and movement);
- **visual sensitivity** - the general visibility of the landscape and its ability to accommodate change without adverse impacts on character, the number and type of viewers and the potential scope to mitigate the visual effects of any change that might take place; and
- **landscape value** - analysis of designations and other criteria which indicate value, including responses from local consultation, scenic beauty, cultural associations, conservation interests, tranquillity.

The following sections of the report describe each of these steps in turn.

¹ Landscape Character Assessment Series: Topic Paper Six - Techniques and Criteria for Judging Capacity and Sensitivity, The Countryside Agency and Scottish Natural Heritage, 2005



- Site boundary
- - - District/county boundary
- - - - - Railway track
- A road
- B road
- Minor road
- Contour line (10m interval)
- Land 0-10m
- Water bodies
- Woodland/orchards (from Google Earth)

Figure 2 - Landscape context

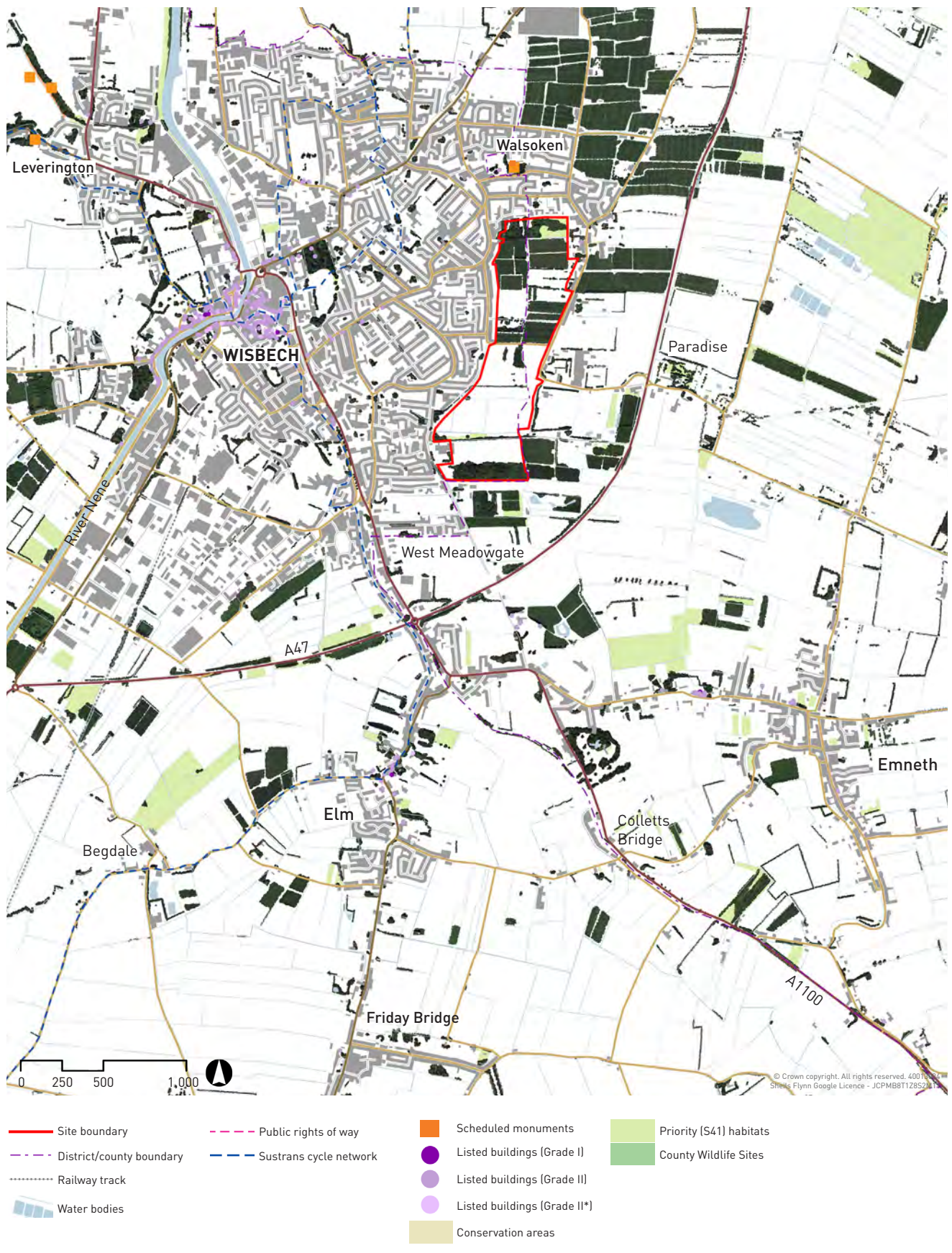


Figure 3 - Environmental designations

2.3 Landscape character sensitivity

The adopted landscape character assessments for the Wisbech area² suggest that there is relatively little variation in landscape character across the landscape which forms the hinterland to Wisbech. Cambridgeshire Landscape Guidelines classifies the whole of the Fens as 'Fenland' (Area 8) but describes the fruit-growing area around Wisbech as follows:

Here an early settlement pattern with an irregular layout of connecting roads combines with mature trees in the villages and orchards surrounded by windbreaks of poplar or hawthorn to produce a distinctive landscape.

The KLWNBC Landscape Character Assessment classifies the area to the east of Wisbech as The Fens - Settled Inland Marshes landscape character type. The description suggests that there is continuity of landscape character across the administrative (district and county) boundary. The description of the Settled Inland Marshes refers to an open landscape with panoramic views and wide horizons, but it also emphasises that the landscape pattern is typically of a smaller scale on the fringes of settlements and that it has a more enclosed character in areas where there is a mix of settlement, shelterbelts and orchards. Key characteristics that are relevant within the specific context of the Site are:

- *An intensively farmed arable landscape comprising predominantly geometric fields divided by straight drainage channels and dykes and underlain predominantly by silts. Field size is variable with small units defining settlement edges;*
- *Fruit orchards are a relatively common (yet declining) feature with rectangular plots ordered into rows. These rows often channel views and where orchards occur alongside roads, views across the landscape are more restricted. Conifer planting is also a relatively common feature.*
- *Buildings and storage associated with horticulture and food production industries, as well as power stations, pumping stations and sluices, provide visible human built elements.*
- *Well served by a network of rural roads that follow an irregular path;*



Arable field on the Site (south of Sandy Lane)



Footpath section of Stow Lane (west boundary of Site)



Houses along Stow Lane (west boundary of Site)



Commercial orchards on the north-east part of the Site

² For FDC - Cambridgeshire Landscape Guidelines, Cambridgeshire County Council, 1991; for KLWNBC - King's Lynn & West Norfolk Borough - Landscape Character Assessment, 2007, Chris Blandford Associates

- *The landscape appears well settled - with villages, town edges, large houses, individual farms and properties generally in view. Settlement is predominantly found aligning secondary roads and has a linear arrangement, with villages often merging through ribbon development.*
- *The skyline appears cluttered in places due to the varied heights, forms and textures of vertical elements, including trees, pylons and buildings;*
- *Lines of pylons are dominant features slicing diagonally across the field system. The pylons and posts carrying overhead wires are frequently in view.*

The eastern part of the Site is within the Emneth, West Walton and Walsoken landscape character area (D4 of the KLWNBC Landscape Character Assessment) where:

The patchwork of arable fields, orchards, plantation woodlands, together with a variety of vertical elements including large-scale farms, glasshouses, pylons, frequent rows of poplars and other tall vegetation, give the landscape a cluttered appearance with few points of focus. Orchards are particularly abundant directly east of Wisbech and give a sense of enclosure ...

Wisbech developed as a medieval trading port on the banks of two water courses (the Well Stream and the Wysbeck) which then drained the vast fen marshes into the Wash³. The settlement pattern dates from the 14th century, when common droveways linked villages to winter (drier/inland) and summer (wetter/tidal) pastures.

A recent study of Anglo-Saxon Fenland⁴ explains that there is convincing documentary evidence to suggest that the Anglo-Saxon Fenland was well populated; by the medieval period there was a series of strong, stable political territories ('hundreds') subdivided into smaller units ('vills'). Medieval common rights allowed defined, limited groups of people (from named vills) to exploit the natural resources within a defined part of the fen basin under 'rights of common'. Such resources might include pasture, fishing, hay, peat and sedge.

Oosthuizen's detailed analysis highlights the importance of the administrative boundary between

Norfolk and Cambridgeshire as the established political division between the Wisbech Hundred (in present-day Cambridgeshire) to the west and the Leet of Marshland, a slightly different form of administrative unit, in Norfolk to the east. The boundary followed the ancient course of the Old Well Stream, which flowed northwards from Littleport to the port of Wisbech. From Wisbech, it followed the eastern coastline of the Wash. Oosthuizen concludes *The men of Wisbech Hundred grazed their beasts in Hey Fen to the west of the Old Well Stream, and those of the letam integram [the Leet of Marshland] commoned in Marshland to the east of the river.*

The evidence points to a historic landscape pattern that is influenced by a water course that is aligned north-south within the Site (broadly along the present-day county boundary) and movement of people along droveways that are aligned east-west (see Figure 9). For instance, the territories of Walsoken and Emneth were connected with the vast marshlands of West Fen in Norfolk to the east, while those of Wisbech and Elm travelled westwards to commons in the Wisbech St Mary area.

This historic pattern is still evident today, with a slightly irregular north-south county boundary and a strong east-west pattern of fields, roads and tracks. However, the present-day landscape pattern was established in the late 19th century, when the Fen hinterland of Wisbech became an important centre for market gardening and ancillary industries. Compared to other parts of the fens, the land to the east of Wisbech has a relatively small-scale pattern of orchards and fields, subdivided by frequent drainage ditches. Railways and tramways were locally important - Walsoken had its own tramway and canal and there was a long tramway connecting Wisbech to Outwell. The byway across the southern part of the Site follows the alignment of a disused railway line which linked Wisbech with Kings Lynn.

Figure 4 highlights the key relevant characteristics of the landscape which forms the context for the Site.

The process of assessing landscape character sensitivity involves judging the degree to which local landscape character is robust and able to accommodate change without adverse effects on its character. It takes account of:

- key characteristics - combinations of elements which help give an area its distinct sense of place, including aesthetic aspects of character.

³ <http://www.british-history.ac.uk/vch/cambs/vol4/pp238-243>

⁴ Anglo-Saxon Fenland, Susan Oosthuizen, Wingather Press, 2017

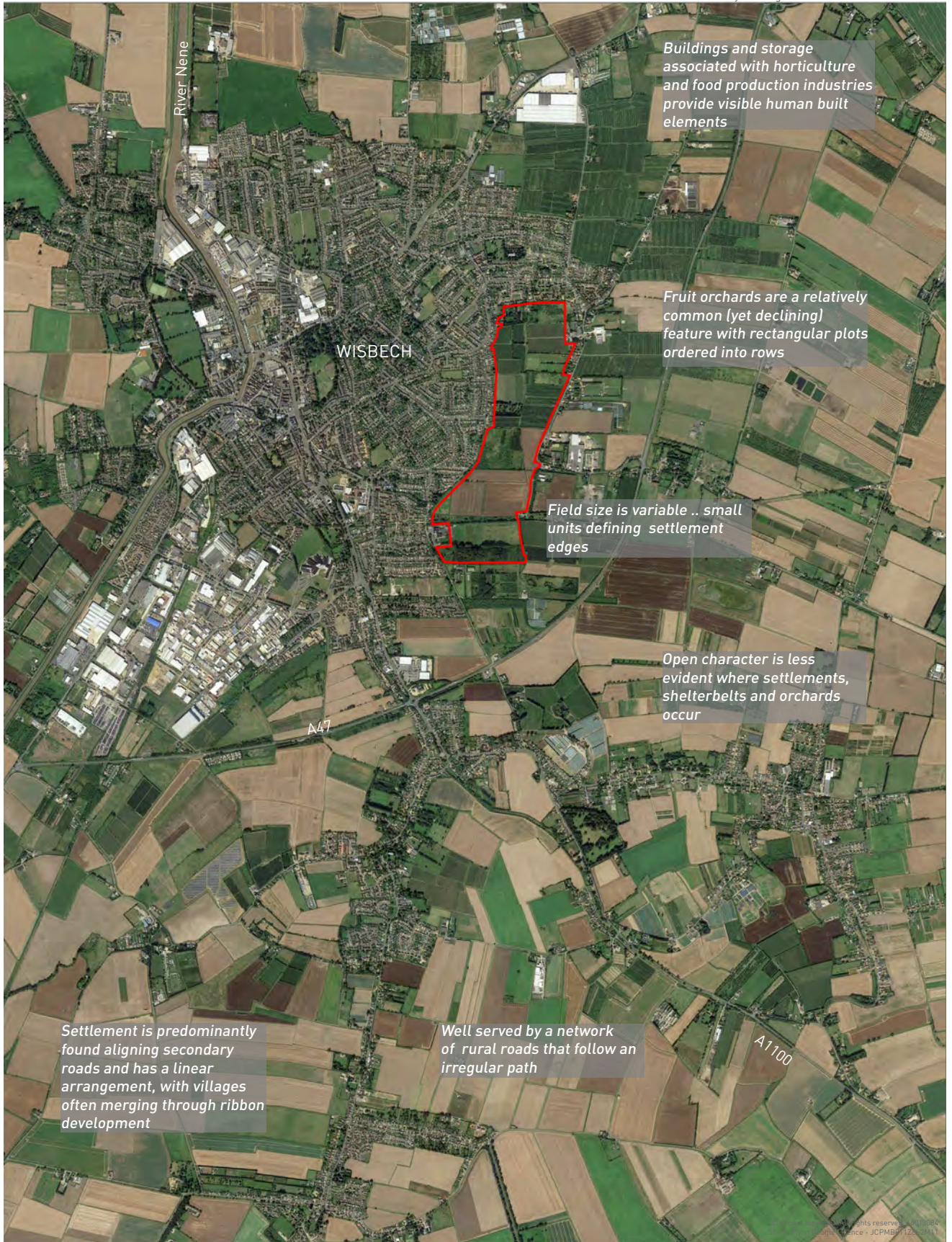


Figure 4 - Landscape character

- vulnerability to change - sensitivity of individual elements of the landscape, particularly those that are critical to distinctive landscape character
- landscape quality and condition - the physical state of the landscape and its 'intactness'. It reflects the state of repair of the individual features and elements which make up local landscape character
- contribution to landscape setting of local settlements.

Drawing on the evaluation of Inherent Landscape Sensitivities for the Settled Inland Marshes landscape type and Landscape Characteristics in the Cambridgeshire Landscape Guidelines, the landscape elements and features of the Site which define its locally distinctive landscape character and which are inherently vulnerable to the relatively large-scale of residential development planned for the East Wisbech urban extension are listed in Box 1.

It is also relevant to consider the extent to which these sensitive landscape characteristics are representative of the wider area, and whether they are of high quality or in declining condition. The KLWNBC Landscape Character Assessment concludes that the condition of the Fen - Settled Inland Marshes landscape type is declining, with the breakdown of traditional field boundaries, the decline of fruit orchards and relatively poor quality buildings. On the Site, there is ample evidence of a landscape that is in relatively poor condition - litter is widespread; trampled paths, fly tipping and fires indicate trespassing; the older orchards are completely overgrown and hedgerows are not maintained.

The landscape elements and features listed in Box 1 are all present on the Site (See Figure 5). They are the most sensitive and vulnerable of its constituent landscape components and are also important in conserving its inherent character and identity. The scale of this Site and its location on the edge of Wisbech suggests that this same set of characteristic landscape elements and features are also valuable aspects of the landscape setting for Wisbech as a whole. All of the landscape features shown on Figure 5 are important and should be retained, in full, in part or in principle in a future masterplan. However, those features that are particularly valued and which are particularly important in creating a locally distinctive sense of place are indicated with a red diagonal hatch.

BOX 1

Locally distinctive landscape elements and features which form the context to the site and are relatively sensitive to development:

- The **mixed shelterbelts**, which provide enclosure, a distinctive local skyline and backdrop to views;
- The **geometric pattern of hedgerows**, which subdivide the landscape and provide a relatively strong sense of enclosure that is valuable in the context of this busy urban fringe location;
- The regular, **inter-connected network of straight drainage ditches**, which reflects the historic pattern of drainage;
- The **concentration of fruit orchards** on the eastern fringes of Wisbech;
- Rural character, with **pockets of tranquillity**;
- **Long, straight tracks and roads**, which connect settlements and fen 'compartments' and which are a distinctive aspect of Wisbech's landscape setting.
- **Historic landscape pattern**, with slightly irregular north-south county boundary and a strong east-west pattern of fields, roads and tracks.

Figure 5 also highlights relevant aspects of the relationship between the site and existing settlements, including areas where adjacent houses have a positive frontage onto the site (or the potential for a positive frontage) and areas where the edge of the site is formed by the rear gardens of adjacent properties.

Given the concentration of sensitive and distinctive landscape features on the Site and its important contribution to the landscape setting of Wisbech, the **landscape character sensitivity of the Site is relatively high**. It will therefore be important to develop a masterplanning framework for development which is landscape-led and which conserves and enhances the landscape elements and features which are identified as being both sensitive to development and critically important to local identity. A high quality development that is structured to retain and strengthen these key aspects of landscape character

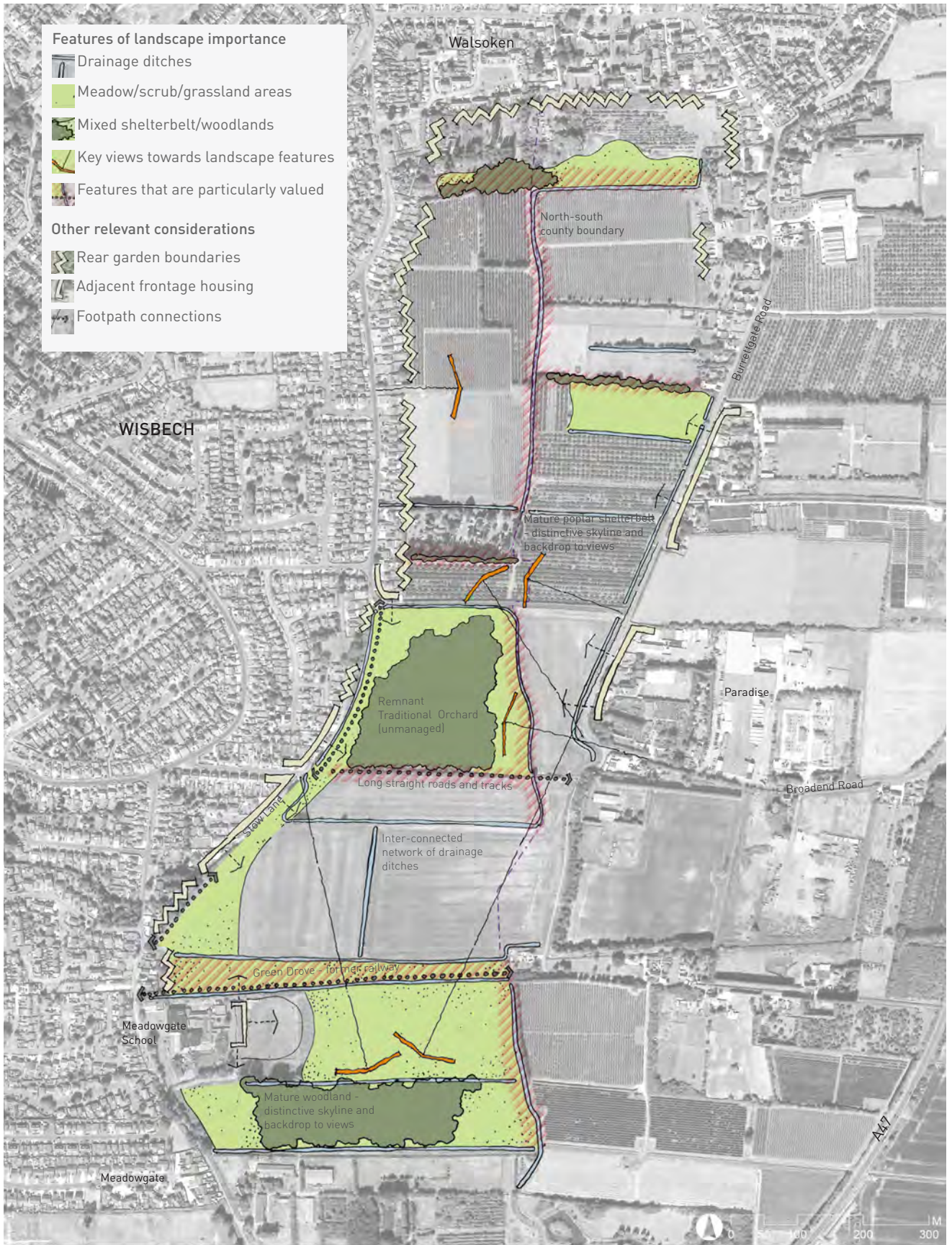


Figure 5 - Landscape analysis



Arable field, partially enclosed by mixed plantation shelterbelts - north of Hall Field Path



Hall Field Path - a straight track, aligned east-west across the Site



Grid of commercial orchards and shelterbelt off Burrettgate Road



Lane south of Broadend Road



This stand of mature poplars, north of Sandy Lane, is a distinctive skyline feature



Paddocks and houses - tranquil, rural character along Green Lane



Houses fronting Stow Lane north of Orchard Drive, with views to the overgrown orchard on the Site



Small pocket park within housing area to west of Stow Lane (with a fenced frontage to Stow Lane and the Site)



Deep reed-filled ditch aligned broadly north-south, marking the county boundary



Green Drove



Stow Gardens, East Wisbech



Open arable field south of Hall Field Path - Wisbech is completely invisible!



Entrance between the houses



Musticott Place, Walsoken



Meadow pathway leading north from Hall Field Path

Meadow and remnant, overgrown hedgerows off Burrettgate Road

will reinforce local identity and sense of place with socio-economic benefits for the developers, the new residents and the existing Wisbech community.

2.4 Visual sensitivity

Figure 6 illustrates the Zone of Theoretical Visibility (ZTV) of the Site, on the broad assumption that it would be developed to accommodate 1,450 dwellings. It also identifies a set of five representative viewpoints which can be used to describe the way views to the new development might be experienced. Only publicly accessible viewpoints are used (ie views from roads and/or public rights of way).

As Figure 6 shows, the ZTV for the Site is extremely limited. This is because the land is so flat and because views to and from the Site are generally screened by existing trees and hedgerows or existing buildings. There are only a few points at which there might be a longer view and even at these points the views are likely to be partial views of a roof-line (seen above an existing hedge) or glimpsed views through a field entrance.

The five viewpoints all provide views directly into the site as there are no public rights of way or roads at a distance from the site which afford longer views in which the Site is visible.

Figure 6 also shows (with a hatched tone) areas on the margins of the Site where it is theoretically possible that there might be occasional glimpsed views to the roof lines of 2-3 storey buildings on the Site, which could be seen above existing hedgerows, particularly during the winter months. In a couple of places these hatched tone areas extend to the A47, but it should be noted that there are no clear views to the site from the A47 and that this assessment is an extremely conservative worst case scenario.

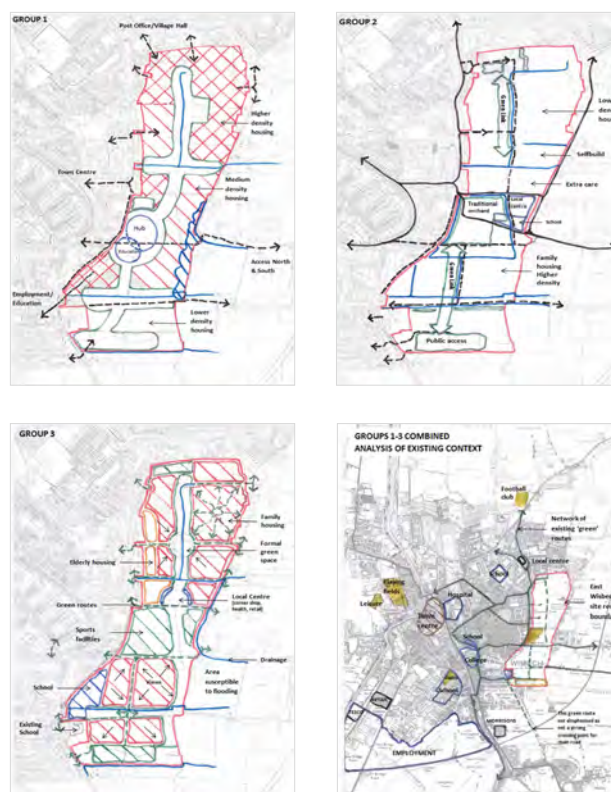
Judgements about levels of visual sensitivity take account of the extent to which the Site is visible, the relative sensitivity of the viewpoints from which it is visible and the accessibility of the views to members of the public. The potential scope to mitigate the visual effects of any change that might take place is also relevant.

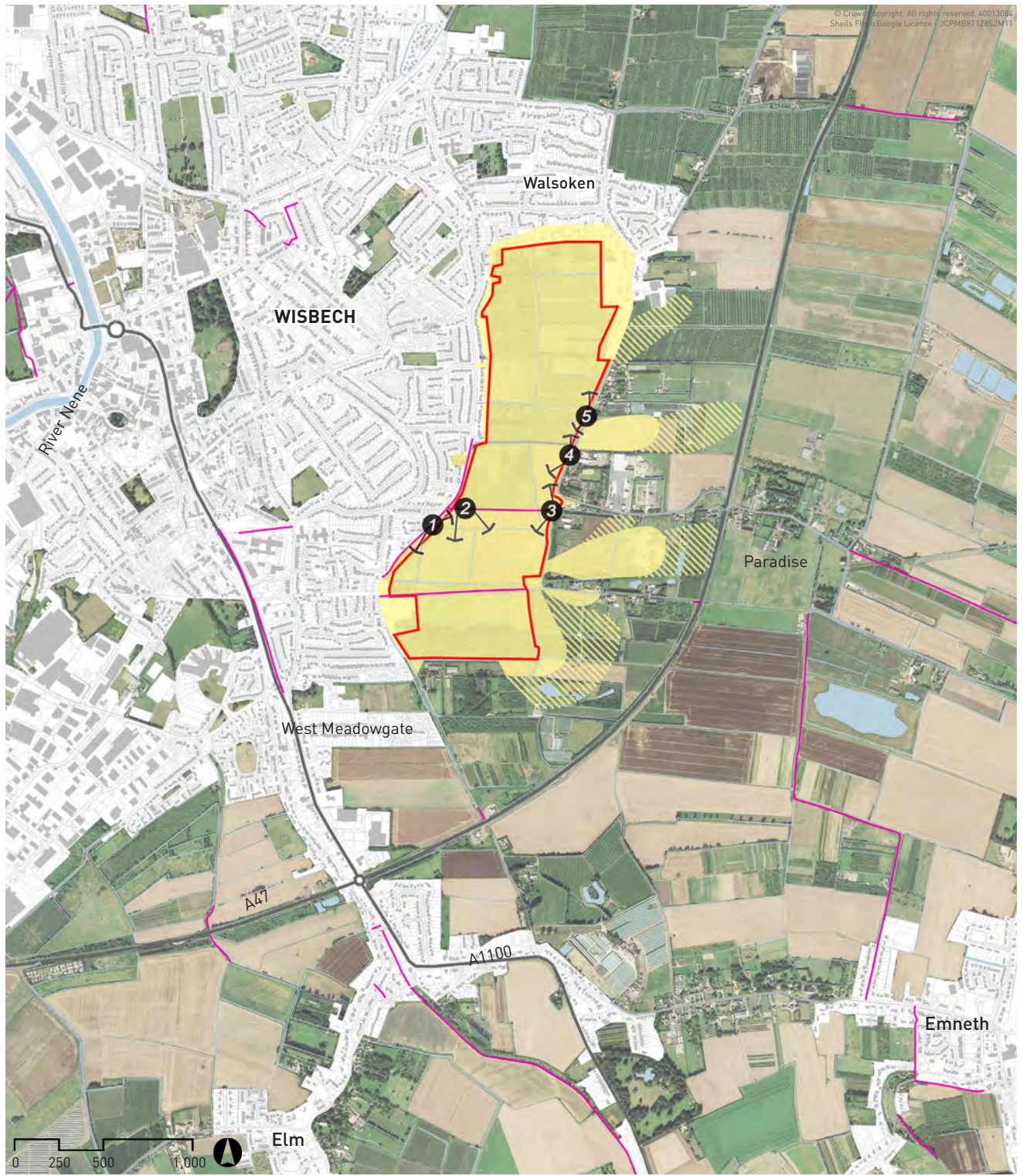
The views from each of these viewpoints are illustrated in Annex A, along with a commentary on the sensitivity of visual receptors and notes on the visual effects predicted as a result of the development. **In every case the visual sensitivity is low** because any visual effects could easily be mitigated.

2.5 Landscape value

As Figure 3 shows, there are no environmental designations on the Site. The existing public footpaths along parts of the Site boundary (Stow lane) and across the site (Green Drove and Hall Field Path) are well used, but there is also much evidence of fly-tipping, trespassing and littering so the Site has the characteristics of a rather abused urban fringe landscape which is undervalued by local communities.

A stakeholder workshop in November 2015 provided an opportunity for participants to record their views about how the site might be developed. The resulting sketch diagrams give some indication of how the three workshop groups perceived the site and are reproduced below.





- Site boundary
- - - District/county boundary
- ⋯ Railway track
- ▭ Water bodies
- - - Public rights of way
- Zone of Theoretical Visibility (ZTV)
- Possible wider Zone of Theoretical Visibility
- 1 Photo viewpoint
- ▷ Views

Figure 6 - Visual assessment

Please refer to the Preliminary Ecological Appraisal report⁵ for the detailed results of the ecological survey undertaken by The Ecology Consultancy. This report incorporates surveys of the hedgerows on the Site. The text below summarises the key findings from this report.

3.1 Desk study

Designated sites

Statutory designated nature conservation sites

The site is not subject to any statutory nature conservation designations. There are no European or national statutory sites within a 5km radius of the site.

The site though is partially located within the Impact Risk Zone (IRZ) for Nene Washes Site of Special Scientific Interest (SSSI) which is located approximately 9.5km south-west of the site at its closest point. Nene Washes SSSI is a component of Nene Washes Special Area of Conservation (SAC), Nene Washes Special Protection Area (SPA) and Nene Washes Ramsar, which are all also covered under the IRZ.

IRZs are intended as a tool for local planning authorities to identify when specific types of development may require consultation with Natural England regarding their potential impact on designated sites. Where proposals include 'planning applications outside/ extending outside existing settlements/urban areas affecting greenspace, farmland, semi natural habitats or features such as trees, hedges, streams, rural buildings/ structures' they match the type of development representing a potential risk to the SSSI/SAC/SPA and Ramsar.

Non-statutory designated nature conservation sites

The site is not subject to any non-statutory nature conservation designations. Three non-statutory sites designated as County Wildlife Sites (CWS) are present within 5km of the site, including; River Nene CWS (1.4km west), Honington House Farm CWS (4.6km north west) and Leverington Gull CWS (4.5km north west).

No direct impacts are envisaged on statutory or non-statutory designated sites due to their distance from

the proposed development site. However, given that the site partially falls within the IRZ for Nene Washes SSSI/SAC/SPA/Ramsar, consultation with Natural England is recommended to determine whether or not screening as part of a Habitats Regulations Assessment (HRA) is necessary as part of the proposals.

Habitat inventories and landscape-scale conservation initiatives

Ancient woodland

A search of the MAGIC database revealed no ancient woodlands within a 5km radius of the site.

Habitats of Principal Importance

A search of the MAGIC database revealed the presence of an area of 'Traditional Orchard' within the site close to the northern boundary, which is classified as a Habitat of Principal Importance. However, following survey, this habitat was not thought to be of sufficient quality to qualify as a Habitat of Principal Importance given that it had been recently cleared.

The MAGIC database also classified the on-site woodland close to the southern boundary as 'Lowland Mixed Deciduous Woodland', also a Habitat of Principal Importance. Another area just to the north was also classified under this habitat type, although following survey was not thought to be of sufficient quality to qualify as a Habitat of Principal Importance given that the area was considered to comprise species-rich hedgerow and scrub rather than broad-leaved woodland.

3.2 Extended Phase 1 Habitat Survey

Figure 7 summarises the results of the habitat survey. The site primarily comprised managed orchard and arable land with areas of unmanaged orchard, woodland, semi-improved, improved and amenity type grassland, scrub, horticultural planting and tall ruderal vegetation. These habitats were interspersed by a network of hedgerows and drainage ditches, as well as a number of scattered trees. There were also 15 buildings on site, the majority of which are located close to the northern boundary.

The broad-leaved woodland and majority of hedgerows were thought to qualify as Habitats of Principal Importance. The unmanaged orchards though were not considered to qualify as 'Traditional Orchards' under Habitats of Principal Importance,

⁵ Preliminary Ecological Appraisal - East Wisbech Urban Extension, The Ecology Consultancy, August 2017

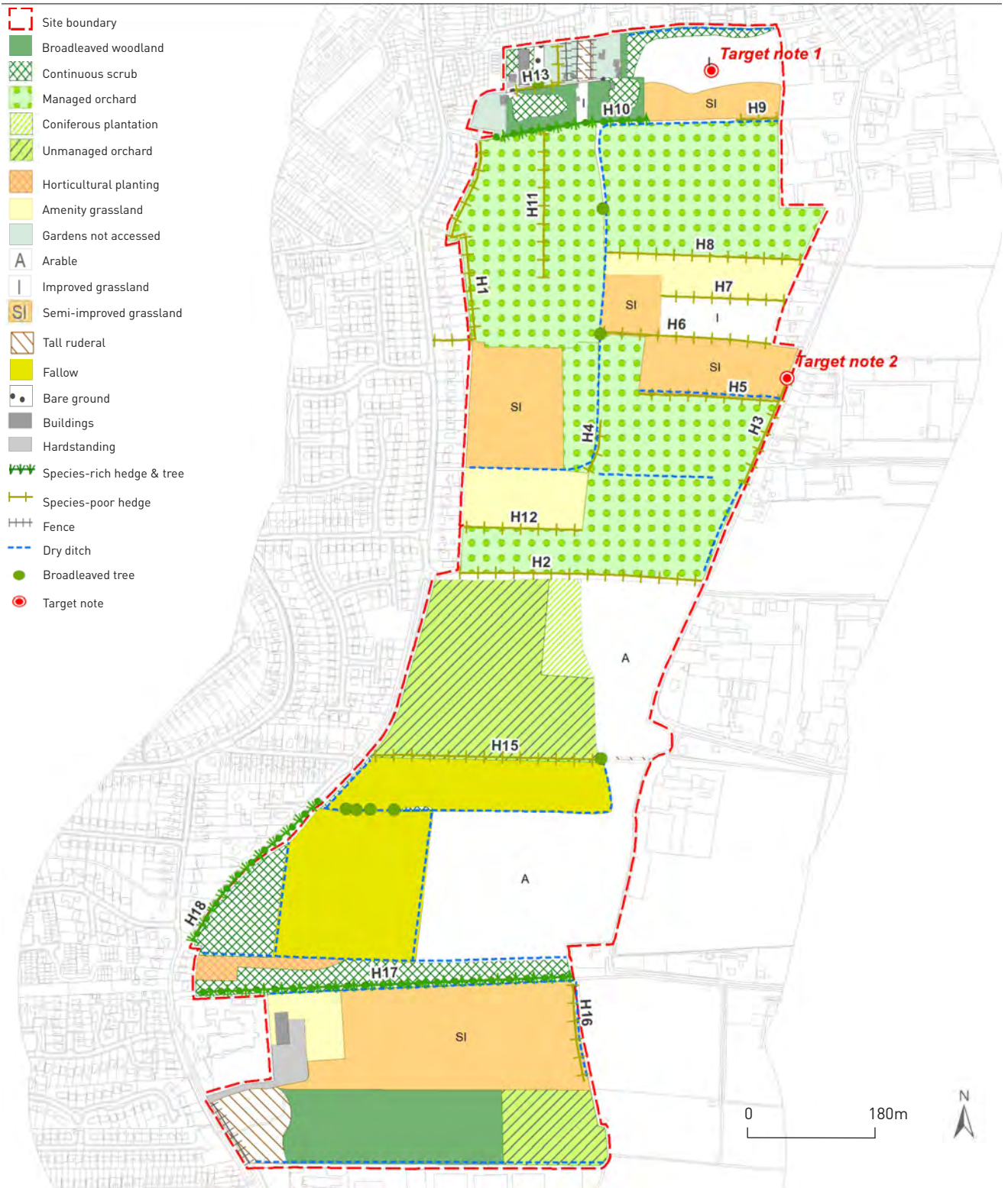


Figure 7 - Habitat survey

given that they are not currently subject to traditional low intensity management techniques, as defined by the UKBAP Priority Habitat Descriptions. However, anecdotal records suggest that the former plum orchard close to the centre of the site is the possible remnant of a Traditional Orchard, although this is not classified on MAGIC's Priority Habitat Inventory. Despite this, however, they are still considered to represent some of the higher quality habitat within the site, due to their likely value for a range of taxa, including birds and invertebrates. The managed orchards were also not considered to qualify as 'Traditional Orchards' as, in contrast, they appeared to be intensively managed for fruit production through the input of chemicals, such as pesticides, herbicides and inorganic fertilisers.

A number of habitats within the site also feature on the local Habitat Action Plan for Cambridgeshire and Peterborough. These included arable land, arable field margins, domestic gardens, drainage ditches, broad-leaved woodland and hedgerows, the latter two of which also feature on the Habitat Action Plan for Norfolk.

Located on the edge of Wisbech, bordered by established urban townscape to the north and west and arable land to the east, the habitats, although

relatively common, are likely to be of significant value to wildlife, given that similar opportunities are rare in a predominately arable and urban landscape.

The habitats also provide important ecosystem services, including flood alleviation from the network of drainage ditches, as well as a therapeutic benefit to the public that use the footpaths and semi-natural habitats, such as the broad-leaved woodland.

Habitats with most ecological interest within the site therefore should be retained as far as possible and incorporated into the site's green infrastructure framework, which should aim to enhance semi-natural habitat connectivity throughout the site and to the wider landscape. This includes the hedgerows, broad-leaved woodland, unmanaged orchards, drainage ditches, native scattered trees and semi-improved grassland.

In particular, the unmanaged orchards should be restored and managed as 'Traditional Orchards' to mitigate for the recent clearance of this Habitat of Principal Importance in the northern part of the site. Restoration of priority habitats such as this is an objective on the Fenland Local Plan.

Although arable land and domestic gardens are listed on the Habitat Action Plan for Cambridgeshire and



Hedgerow H17 (refer to Figure 7), which is the only hedgerow on the site to qualify as 'important' in the Extended Phase 1 Habitat Survey

Peterborough, these habitats are of low ecological value, being common and widespread in the local area and of value within the immediate vicinity of the site only. Therefore, no specific recommendations for retention or enhancement are considered necessary.

3.3 Hedgerow Survey

A total of 18 hedgerows were surveyed within the site. In accordance with the criteria specified in The Hedgerow Regulations 1997, one out of the 18 hedgerows classified as being 'important' considering both the Wildlife and Landscape criteria.

H17 was classified as 'important' given that it contained four woody species on average per 30m section and 2 associated features, as well as being adjacent to a byway open to all traffic.

The remaining 17 hedgerows, meanwhile, were not thought to meet the criteria needed to qualify as 'important'.

Under the Regulations, the removal of H17 will therefore require authorisation from the Local Planning Authority.

Hedgerows represent important boundary features and there should be a presumption that, where possible, all hedgerows, in particular H17, will be retained and incorporated into the site's green infrastructure framework.

3.4 Protected species assessment

Based on the results of the desk study and observations made during the survey, the habitats on site were considered suitable for a range of protected and note-worthy species, including Species of Principal Importance and both Norfolk, Cambridgeshire and Peterborough BAP species, as follows:

- bat species, such as brown long eared bat and soprano pipistrelle;
- great crested newts;
- otter;
- yellowhammer and other widespread but declining species of birds that are also species of conservation concern;
- slow worm and other widespread species of reptile;

- water voles;
- invertebrates associated with widespread habitats such as small heath butterfly and wall butterfly;
- badger;
- brown hare;
- harvest mouse; and
- hedgehog.

The majority of the habitats on the site and populations of the above species are likely to be of value within the immediate vicinity of the site only. However, further targeted surveys are required to establish whether the site supports any rare, or diverse assemblages or large populations of any noteworthy species.

Further surveys for bats, great crested newts, otter, birds, reptiles, water voles, invertebrates and badger are therefore required to establish the value of the site for these species and to enable the design of any appropriate mitigation and compensation measures.

Measures should also be taken to continue accommodating Species of Principal Importance such as brown hare, harvest mouse and hedgehog on site post-development.

A small stand of Himalayan balsam was also present within a ditch on site. Control measures will therefore be required to avoid spread of this Schedule 9 invasive species.

3.5 Summary - ecological surveys

The ecological features with particularly high retention value are considered to be the hedgerows, broad-leaved woodland and drainage ditches (see Table 1 on page 22). The hedgerows have high retention value given that they represent important green corridors and habitat for wildlife in a predominantly arable landscape. All hedgerows, with the exception of H5 and H13, which consisted predominantly of bramble and garden privet (not included in the definition of native woody species), are considered to qualify as Habitats of Principal Importance, making them a material consideration in the planning process. These hedgerows also feature on the Habitat Action Plan for both Norfolk, Cambridgeshire and Peterborough. H17 was also classified as 'Important' under The Hedgerow Regulations 1997, considering both the Wildlife and

Landscape criteria.

The areas of broad-leaved woodland are also considered to have high retention value from an ecology perspective, qualifying as a Habitat of Principal Importance and featuring on the Habitat Action Plan for both Norfolk, Cambridgeshire and Peterborough, as well as providing important ecosystem services, including therapeutic benefit to the public. Likewise, the drainage ditches also feature on the Habitat Action Plan for Cambridgeshire and Peterborough, as well as providing wetland habitat for a range of species and important ecosystem services.

Other ecological features such as the native scattered trees, unmanaged orchards and semi-improved grassland are also of value and the aim should be to retain these, wherever possible, at least in part. They are likely to provide habitat for a range of taxa including bats, birds, invertebrates, herpetofauna and terrestrial mammals and their value could be further elevated depending on the results of subsequent targeted Phase 2 surveys for specific species or species groups.

Table 1 - Habitats of high ecological importance

Feature	Retention value	Justification
Hedgerow H17	High	Classified as 'important' under The Hedgerow Regulations 1997, considering both the Wildlife and Landscape criteria. Provides an important green corridor and habitat for wildlife in a predominantly arable landscape.
All remaining hedgerows (with exception of H5 and H13)	High	Qualify as Habitats of Principal Importance, making them a material consideration in the planning process. Also feature on the Habitat Action Plan for both Norfolk, Cambridgeshire and Peterborough. Provides important green corridors and habitat for wildlife in a predominantly arable landscape.
Broad-leaved woodland	High	Qualifies as a Habitat of Principal Importance, making it a material consideration in the planning process. Also feature on the Habitat Action Plan for both Norfolk, Cambridgeshire and Peterborough. Provides habitat for a range of species, as well as important ecosystem services
Drainage ditches	High	Feature on the Habitat Action Plan for Cambridgeshire and Peterborough. Provides wetland habitat for a range of species, as well as important ecosystem services
Native scattered trees	Moderate/high	Provides habitat for a range of taxa, including invertebrates, nesting birds and roosting bats. Further survey is required to determine the value of individual trees, with trees assuming higher value where they support roosting bats.
Unmanaged orchards	Moderate	Considered to represent some of the higher quality habitat within the site, due to their likely value for a range of taxa, including birds and invertebrates.
Semi-improved grassland	Moderate	Provides habitat for a range of taxa, including invertebrates, herpetofauna and mammals.

Please refer to the Arboricultural Survey report⁶ for the detailed results of the arboricultural survey undertaken by the Ecology Consultancy. The text below summarises the key findings from this report.

4.1 Desk study

Tree constraints checks were undertaken with the Borough Council of Kings Lynn and West Norfolk, as well as Fenland District Council and it was confirmed that no surveyed trees were subject to Tree Preservation Order or Conservation Area restrictions. Figure 8 summarises the tree constraints from the arboricultural survey.

4.2 Tree survey

The survey recorded 298 individual live trees, three dead trees, 66 tree groups, ten orchard blocks and four woodland stands which could potentially be affected by future development.

These comprised: Black poplar *Populus nigra*, blue atlas cedar *Cedrus atlantica*, box elder *Acer negundo*, cherry plum *Prunus cerasifera*, common alder *Alnus glutinosa*, common ash *Fraxinus excelsior*, common blackthorn *Prunus spinosa*, common hawthorn *Crataegus monogyna*, common horse chestnut *Aesculus hippocastanum*, common lime *Tilia x europaea*, common plum *Prunus domestica*, common walnut *Juglans regia*, corkscrew willow *Salix babylonica 'Tortuosa'*, crack willow *Salix fragilis*, dawn redwood *Metasequoia glyptostroboides*, deodar cedar *Cedrus deodara*, domestic apple *Malus domestica*, douglas fir *Pseudotsuga meneziseii*, Blue gum *Eucalyptus globulus*, European beech *Fagus sylvatica*, European black pine *Pinus nigra*, European rowan *Sorbus aucuparia*, false acacia *Robinia pseudoacacia*, field maple *Acer campestre*, goat willow *Salix caprea*, hinoki cypress *Chamaecyparis obtusa*, Indian bean tree *Catalpa bignonioides*, lawsons cypress *Chamaecyparis lawsoniana*, Lombardy poplar *Populus nigra 'Italica'*, Norway maple *Acer platanoides*, Norway spruce *Picea abies*, ornamental spruce *Picea* spp, Pedunculate oak *Quercus robur*, purple leaf birch *Betula pendula 'Purpurea'*, red oak *Quercus rubra*, silver birch *Betula pendula*, sweet chestnut *Castanea sativa*, sycamore

Acer pseudoplatanus, Torbay palm *Cordaline australis*, weeping willow *Salix babylonica 'Pendula'* and wild cherry *Prunus avium*.

The physiological and structural condition of the majority of the trees, tree groups and woodland blocks surveyed was consistent with Category C status with a total of 43 groups and 187 individual trees being attributed this grade. A total of 18 groups and 98 individual trees were attributed Category B Status. While a further five groups, 13 individual trees were attributed Category A status. Only three individual trees were attributed Category U status.

Of the individual trees and tree groups surveyed, a total of 42 were classified to be at a Young life stage, 110 were classified as Semi Mature, 108 were classified as Early Mature, 99 were classified as Mature and five were classified as Over mature.

The condition and value of the trees surveyed are presented in Appendix 1 of the detailed Arboricultural Survey report undertaken by the Ecology Consultancy.

In addition to the individual trees and tree groups situated on the site, several other noteworthy arboricultural features were also identified. These included four blocks of woodland (W), ten regimented blocks of commercial orchard plantation and four areas of dense scrubland containing inaccessible scattered trees.

Of the woodland blocks surveyed, one was attributed Category A status, two were attributed Category B status and one was attributed Category C status.

A tree constraints plan is presented in Appendix 2 of the Arboricultural Survey report showing the recommended root protection areas (RPA) for all surveyed trees, and highlighting each grading category using the colour key system as described in BS 5837:2012.

The site contained a total of four areas of dense, inaccessible scrub and designated S1 to S4 as displayed in Appendix 2 (of the Arboricultural Survey report). It was noted that while these areas of scrub and contained scattered trees, they were practically inaccessible to the general public and as such, any trees contained within them were of limited visual public amenity value. As such, it has been assumed that any trees located inside these areas would be attributed Category C status.

The site also contained a total of ten blocks of commercial apple orchard ranging between 2m and 3m in height. The blocks varied in size, the largest being 3.61ha in extent and the smallest 0.31ha.

⁶ Arboricultural Survey - East Wisbech Urban Extension, the Ecology Consultancy, August 2017

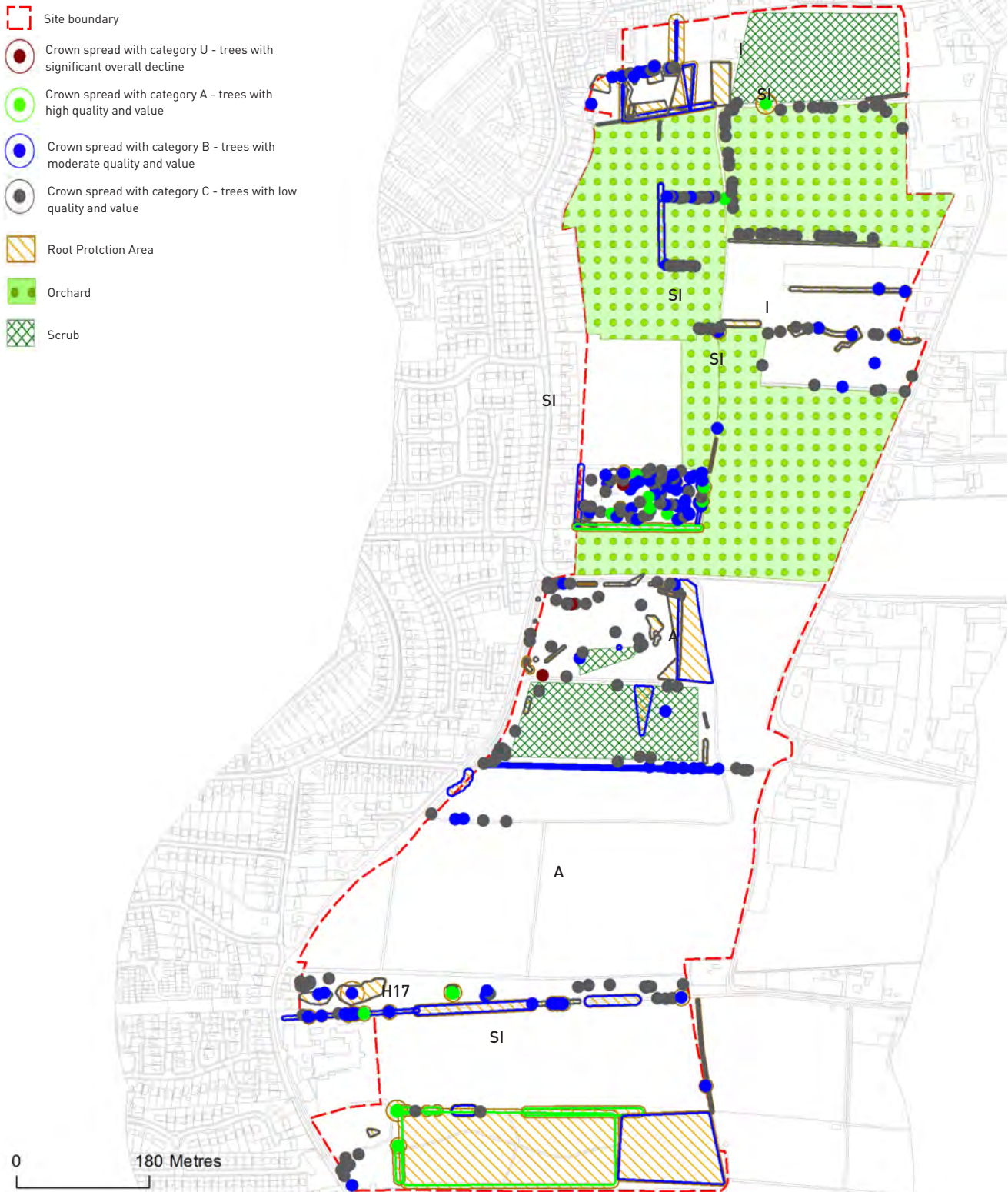


Figure 8- Tree Constraints Plan summary

4.3 Summary - arboricultural survey

A qualitative assessment of each tree was carried out according to British Standard BS 5837:2012, Trees in Relation to Design, Demolition and Construction-Recommendations, focusing on arboricultural values (categories A1, B1, C1) and landscape values (categories A2, B2, C3).

There were 298 individual live trees, three dead trees, 66 tree groups, ten orchard blocks and four woodland stands in and adjacent to the proposed development site each described in Appendix 1 of this report.

A total of 13 individuals and 5 groups were attributed Category A status, 98 individuals and 18 groups were attributed Category B status, 187 individuals and 43 groups were attributed Category C status and 3 individuals were attributed Category U status.

In addition to the individual trees and tree groups situated on the site, several other noteworthy arboricultural features were also identified. These included four blocks of woodland (W), ten regimented blocks of commercial orchard plantation (O) and four areas of dense scrub (S) and containing inaccessible scattered trees.

Of the woodland blocks surveyed, one was attributed Category A status, two were attributed Category B status and one was attributed Category C status.

A total of four areas of dense, inaccessible scrub and, designated S1 to S4 were surveyed. It was noted that while these areas contained scattered trees, they were practically inaccessible to the general public and as such, any trees contained within them were of limited visual public amenity value. as such, it has been assumed that any trees located inside these areas would be attributed Category C status.

A total of ten blocks of commercial apple orchard ranging between 2m and 3m in height were surveyed. The blocks varied in size, the largest being 3.61ha in extent and the smallest reaching 0.31ha. Due to their private commercial setting and homogenous planting, they were not considered to have significant visual amenity value.

Root protection areas were calculated in accordance with BS 5837:2012 for each of the surveyed trees, and ranged from 1.13m² to 706.86m² for T89 and T39 respectively.

As Table 2 on page 26 shows, a total of 13 individual trees and 5 groups of trees were attributed Category A status given for their high quality and value from an arboricultural and landscape perspective. Woodland block W4 was also attributed Category A status for its large size, moderate quality and good public accessibility, affording it high landscape and local visual amenity value. These trees/groups and woodland block are considered to have high retention value and should therefore be given priority consideration for retention during any future development.

A total of 98 individuals and 18 groups meanwhile were attributed Category B status given for their moderate quality and value from an arboricultural and landscape perspective. Woodland blocks W1 and W3 were also attributed Category B status for their relatively small size, moderate quality and low public accessibility. These trees/groups and woodland block are considered to have moderate retention value and should therefore also be given priority consideration for retention during any future development.

Table 2 - Trees and tree groups of high arboricultural importance

Feature	Retention value	Justification
Category A trees and groups	High	Trees with high quality and value which should be given priority consideration for retention during any future development.
Woodland block W4	High	Broad-leaved woodland block attributed Category A status which should therefore be given priority consideration for retention during any future development.
Category B trees and groups	Moderate	Trees with moderate quality and value which should be given priority consideration for retention during any future development.
Woodland block W1	Moderate	Coniferous woodland plantation block attributed Category B status which should therefore be given priority consideration for retention during any future development.
Woodland block W3	Moderate	Broad-leaved woodland block attributed Category B status which should therefore be given priority consideration for retention during any future development.

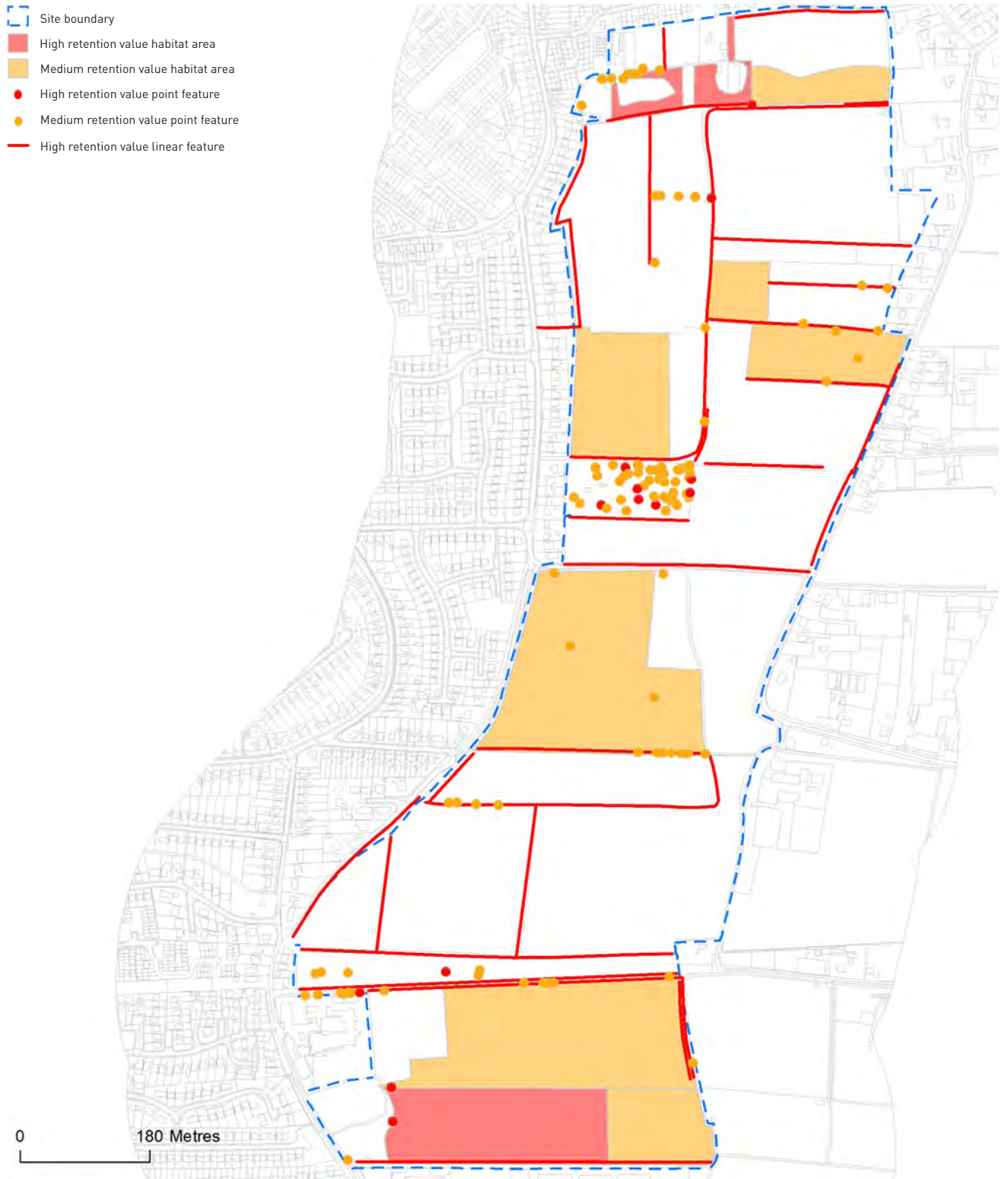


Figure 9 - Features of ecological and arboricultural importance



Shelterbelt to the north of Sandy Lane

5.1 Principles to guide GI development

This final part of the report summarises and evaluates the baseline evidence from the landscape and visual appraisal, the ecological surveys and the arboricultural surveys. Using the findings of the baseline work, it sets out a green infrastructure framework which can be used to inform the masterplan for the East Wisbech site.

It is important to recognise that this green infrastructure framework has been developed in isolation from other key masterplanning work. This is because time constraints have dictated the need to prepare baseline studies in parallel. In particular there will be a need to coordinate the findings of this report with the work undertaken by drainage engineers and transport planners at an early stage.

FDC and KLWNBC are planning to bring all the baseline evidence together to inform an integrated masterplanning process in September/October 2017.

The following sections of this report set out the green infrastructure framework based on the opportunities and constraints arising from the baseline landscape, ecological and arboricultural studies (in Section 5.2) and suggest a green infrastructure strategy to guide sustainable development on the East Wisbech site (in Section 5.3).

Stow Lane - along the western boundary of the site. Development of the East Wisbech BCP will strengthen green infrastructure connections between Wisbech and its rural hinterland



5.2 Indicative green infrastructure framework

Figures 10a and 10b show an indicative green infrastructure framework for the East Wisbech BCP site at the scale of the site (Figure 10a) and at a broader scale which shows the relationship between the site and its wider townscape and countryside setting (Figure 10b).

The indicative green infrastructure strategy incorporates and conserves the most important and valued landscape, ecological and arboricultural assets on the East Wisbech site, as shown on Figures 5 and 9). The analysis aims to turn constraints into opportunities for positive green infrastructure connections which maximise the potential benefits for recreation, nature conservation and a high quality development.

The key considerations are:

The **existing network of drainage ditches**, which (on the advice of the drainage engineers) cannot be moved and which will provide the basis for the Sustainable Drainage System (SuDS) that will be an essential prerequisite for development on this site. There is an opportunity to reinforce the distinctive historic drainage pattern by retaining the hierarchical network of ditches, with a central north-south 'blue' axis which broadly follows the alignment of the historic Old Well Stream (and the county boundary) and smaller east-west drainage ditches across the site. These drainage ditches, and the associated wetlands that could be created as part of an integrated SuDS, provide a network of valuable wetland habitats across the site.

The **existing landscape features and valuable ecological habitats, which are typically aligned east-west across the Site** in accordance with the characteristic pattern of local fields, tracks and roads. Examples are Hall Field Path, Green Drove (an attractive public footpath along an historic railway line bounded by scrub and mature trees); the block of mature broadleaved woodland on the southern boundary of the Site; the poplar shelterbelt north of Sandy Lane; and the bands of semi-improved grassland, scrub and broadleaved woodland to the north of the Site. Mature broadleaved woodland and

shelterbelts have a particularly strong presence in this flat landscape, providing a sense of enclosure, a distinctive backdrop to views and a contrast to the adjacent urban neighbourhoods. Reference to Figure 7 shows that the larger belts of scrub and woodland are also of ecological value.

The **extensive fruit orchards** on the site are intrinsically valuable as a distinctive characteristic of the fen landscapes to the east of Wisbech. While the commercial orchards have limited landscape, ecological and/or arboricultural value, the remnant historic orchards on the site are relatively valuable habitat (particularly for birds and invertebrates) and have an evocative landscape character. The remaining historic fruit trees in these unmanaged orchards have relatively low (Category C) arboricultural value but there is an opportunity to create a new community orchard as a distinctive gateway green infrastructure feature at the core of the new development.

The 'back garden edges' that occur along the site boundaries in the northern part of the site are a constraint for development, but there is an opportunity to create **positive 'edge landscape corridors'** along site boundaries where existing houses front onto the site. This opportunity occurs along parts of Burrettgate Road and Stow Lane and provides a way to 'knit' the new development into the existing townscape in an integrated way, with improved, high quality public realm which benefits new and existing neighbourhoods. The **existing green space** (a small pocket park) off Stow Lane could be integrated as part of this strategy.

There are opportunities to create **new green infrastructure connections** which link the scattered landscape features and valuable habitats to create a multifunctional green infrastructure landscape framework across the site. The blue north-south spine is a key connector, but there are opportunities for smaller scale green infrastructure links which ensure functional ecological networks and provide opportunities for recreational access and distinctive landscape settings at a local scale.

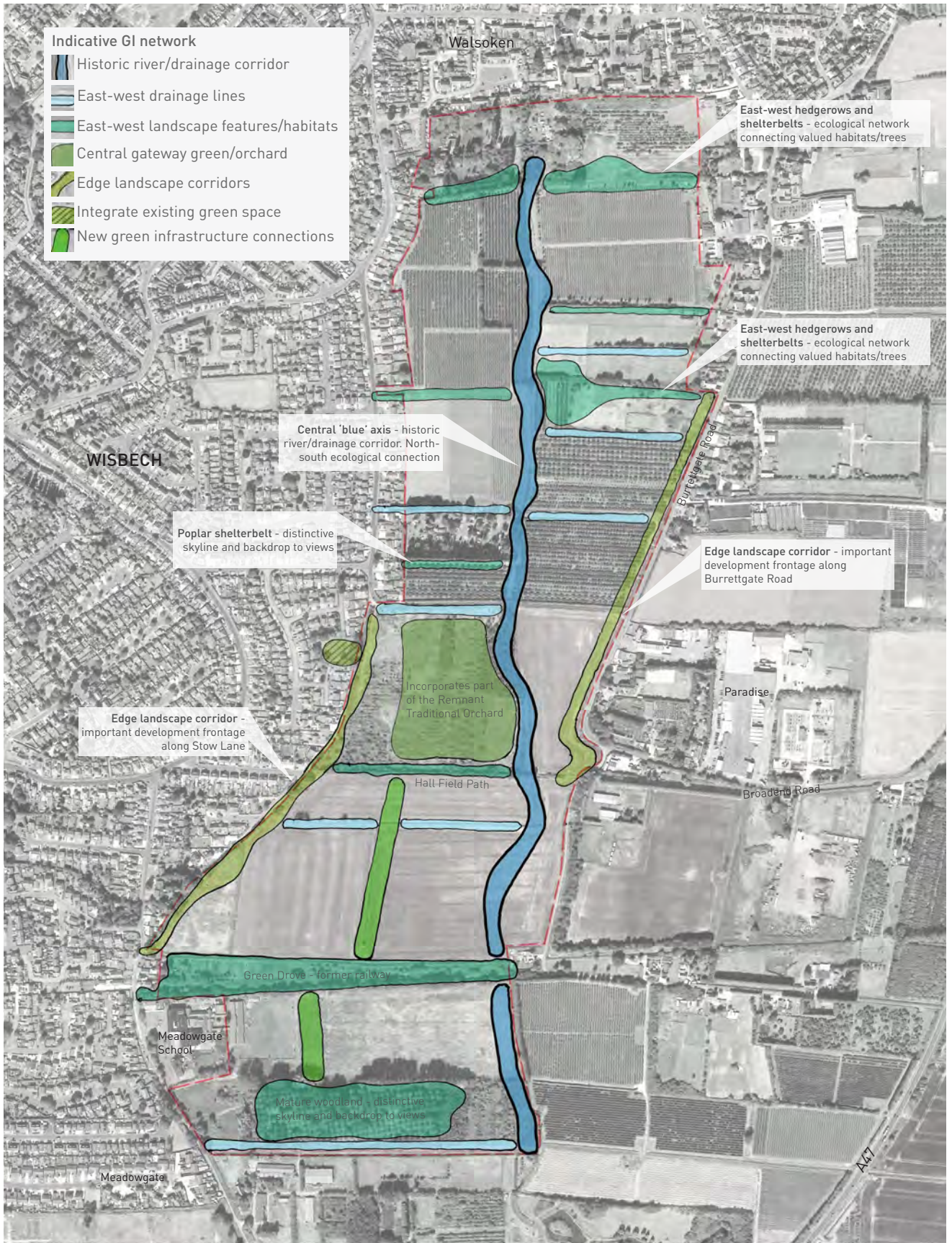


Figure 10a - Indicative green infrastructure framework (BCP site)

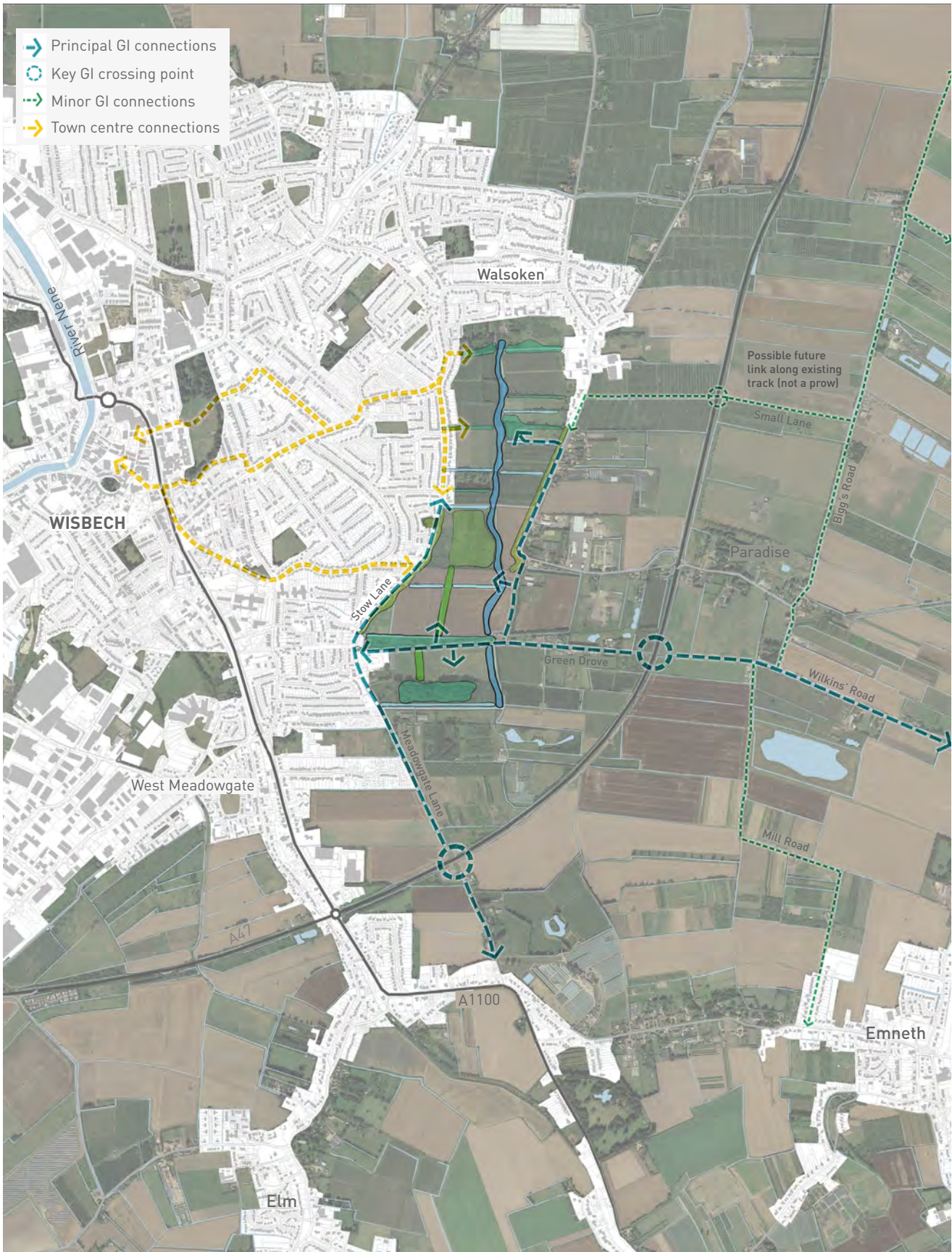


Figure 10b - Green infrastructure framework (context)

5.3 Green infrastructure strategy

The green infrastructure framework plan aims to maximise the development footprint within a multifunctional green infrastructure network. It is important to note that the open space network could be configured in a number of different ways and that the alignment/capacity of SuDS and access routes will be key influences.

Overall, the green infrastructure framework will:

- enhance biodiversity by linking, extending and creating habitats in order to enhance the value and viability of ecological networks across the site and wider area;
- provide accessible, safe greenspaces and recreational routes which enhance connections between existing and new neighbourhoods and between Wisbech and its surrounding landscape hinterland;
- manage key resources by designing greenspace areas so that they also function as SuDS areas for the new development;
- provide an attractive, distinctive landscape setting for East Wisbech which reinforces and enhances the inherent character of local landscapes in this part of the fens;
- enhance recreation & amenity, with opportunities for high quality formal and informal recreation integrated as part of the green infrastructure network;
- reduce pollution by increasing vegetation cover (which absorbs noxious gases and improves local micro-climatic conditions) and by encouraging walking and cycling to promote healthy lifestyles and reduce dependency on the car;
- encourage active communities with a strong community spirit which will advocate ongoing investment in their local landscape;
- attract economic investment by creating attractive settings and high quality, accessible green open spaces for the new development.

The hierarchy of greenspaces shown on Figure 10a is aligned to conserve areas of landscape, ecological and arboricultural value and to provide a connected green infrastructure network with multiple benefits.

The historic landscape pattern is retained but the larger greenspaces are of sufficient scale to provide a distinctive character and identity for the new development in the northern, central and southern parts of the site. The hierarchy of green spaces within the green infrastructure network is tailored to maximise its multi-functional benefits. It will be important to ensure all public open spaces have reasonable levels of natural surveillance, that there are visual connections between key sequential routes and spaces and that there are a variety of circular routes linking 'destinations' within the Site and the surrounding countryside.

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