



**Land on South
Side of Keeley
Lane, Wootton**

**Representations
in Respect of
Landscape,
Ecological and
Arboricultural
Circumstances**

Prepared by:
**The Environmental
Dimension
Partnership Ltd**

On behalf of:
**Rainier
Developments
Limited**

August 2021
Report Reference
edp5442_r007b

Contents

Section 1	Introduction and Key Conclusions	1
Section 2	Landscape and Visual Matters	5
Section 3	Ecological Matters	13
Section 4	Arboricultural Matters.....	21

Appendices

Appendix EDP 1	Schedule EDP 1 Tree Survey Key and Schedule
Appendix EDP 2	Schedule EDP 2 Tree Constraints Schedule

Plans

Plan EDP 1	Site Location and Site Boundaries (edp5442_d008b 13 August 2020 AL/WG)
Plan EDP 2	Environmental Planning Context (edp5442_d010b 13 August 2020 AL/WG)
Plan EDP 3	Phase 1 Habitat Plan (edp5442_d005b 13 August 2020 GY/WC)
Plan EDP 4	Tree Constraints Plan (edp5442_d007b 13 August 2020 GY/RC)

This version is intended for electronic viewing only

	Report Ref: edp5442_r007			
	Author	Formatted	Peer Review	Proofed by/Date
007_DRAFT	WG	ER	-	-
007a	-	-	ME	FJ 120820
007b	-	-	--	CL 250821

Section 1

Introduction and Key Conclusions

- 1.1 Rainier Developments Limited have appointed the Environmental Dimension Partnership Ltd (EDP) to undertake a series of preliminary environmental appraisals on a site known as Land on South side of Keeley Lane, Wootton. The location and boundaries of the site are illustrated on **Plan EDP 1**.
- 1.2 EDP is an independent environmental consultancy providing advice to landowner and property development clients in the public and private sectors in the fields of landscape, ecology, heritage, arboriculture and masterplanning. EDP is a Registered Practice of the Landscape Institute and a Corporate Member of IEMA. The Practice operates throughout the UK from offices in Cirencester, Cheltenham, Cardiff and Shrewsbury. Details of the Practice can be obtained at www.edp-uk.co.uk.
- 1.3 To date, the purpose of EDP's work has been to gain an early understanding of the environmental issues likely to affect the site's 'in principle' suitability for development and its potential capacity. To this end, the following specific work items have been undertaken:
- Data trawl of relevant **landscape** designations and considerations and assessment of the site's character and zone of primary visibility;
 - Data trawl of relevant local **ecological** designations and extended Phase 1 habitat assessment; and
 - Preliminary **Arboricultural** assessment including a walkover survey.
- 1.4 The site sits and sits due south of Keeley Lane. It is currently in agricultural use and comprises two fields enclosed by mature trees and hedgerows. In addition, the site is intersected by a hedgerow running north to south. The site context is illustrated below in **Image EDP 1**.



Image EDP 1: Aerial view of the site. Source: Google Map data 2021.

Key Conclusions of EDP's Assessments to Date

- 1.5 EDP has not found any 'in principle' issue which would preclude the site's allocation for built development; indeed, it is not especially constrained in environmental terms.

Landscape Matters

- 1.6 Due primarily to the enclosure created by existing landscape features within the local context and intervisibility with existing built form, the site has a reduced landscape sensitivity.
- 1.7 The site is barely perceptible from the wider setting and has well-established urbanising influences in close proximity to it, being well contained by both existing built form and mature landscape features. It is likely that the majority of landscape and visual effects resulting from proposed development within the site would be limited to receptors in close proximity to them.
- 1.8 The development of the site provides an opportunity to enhance and augment the remaining landscape features across the site and along its boundaries. Further, landscaping measures included within the promoted development would be able to provide targeted mitigation where necessary, which would also be effective at promoting biodiversity gains.

Ecological Matters

- 1.9 Based on the findings of EDP's Preliminary Ecological Appraisal, the designated sites, habitats and species potentially present within and around the site do not pose an 'in principle' constraint to development.
- 1.10 The site is relatively unconstrained ecologically, no statutory or non-statutory designated sites are considered to be at risk of any material and adverse effects as a result of the proposed development.
- 1.11 The habitats present on parcels are generally of moderate to low intrinsic ecological value, and given the small size of the site, it is considered that development of the site would have a minimal effect on local biodiversity. Some habitats considered of local level value are present but subject to appropriate masterplan design, in accordance with the design principles outlined, adverse effects upon these habitats can be readily avoided, mitigated or compensated for and no net loss to biodiversity achieved.
- 1.12 A number of detailed baseline protected species surveys will be required to accompany any planning application for the site, together with an assessment of potential effects and strategies to avoid, mitigate or compensate for such effects. However, it is considered that through the adoption of industry standard impact avoidance and mitigation measures, any adverse effects on protected species can be appropriately addressed to ensure no net loss to biodiversity, in accordance with national planning policy.

Arboricultural Matters

- 1.13 Of the items surveyed, only one has been identified as category A, of high quality and a further three items have been identified as category B, of moderate quality. Both category A and B items should be prioritised for retention due to their condition, age and retention span.
- 1.14 The footprint of the promotion's site layout should not conflict with the RPAs of any items being retained.

Overall Conclusion

- 1.15 For the above reasons, EDP's overall conclusion at this stage is that the site is eminently suited to accommodate some development to help meet the Council's housing need and is capable of being developed in accordance with relevant environmental policy at local and national levels.
- 1.16 Further detail of EDP's desk and field assessments can be found on the following pages.

This page has been left blank intentionally

Section 2

Landscape and Visual Matters

- 2.1 Following desk-based analysis of local landscape-related planning policy, designations and character, a site appraisal was undertaken, by an experienced Landscape Architect. This involved walking and driving the local area to understand the character of the site and context and to assess the likely landscape and visual effects that would arise from development of the site.

Landscape-related Designations

- 2.2 There are no national or local landscape designations located within the broad study area.
- 2.3 Landscape related designations and policy considerations within 5km of the site are shown on **Plan EDP 2**. In summary:
- National landscape designations: The site does not lie within a nationally designated landscape;
 - Local landscape designations: The site does not lie within a nationally designated landscape; and
 - Other landscape-related designations: The site does not lie within Green Belt/Strategic Wedge/Green Wedge/Important Local Gap.

Other Relevant Considerations

Public Rights of Way

- 2.4 A review of the definitive map reveals a moderate network of public rights of way within the Study Area. Footpath No. 40 runs along the eastern boundary within the site boundary aligning north to south. Footpath. No. 29 runs along the exterior of the southern boundary which links to Footpath. No. 38 which runs north to south few metres beyond the site's western boundary.
- 2.5 The John Bunyan Trail Promoted Route features within the detailed study area and comes within 480m of the western site extent. Sustrans Route 51 follows Keeley Lane along the northern boundary of the site. There is no open access land within the 2km detailed study area.

Landscape Character

EDP's Assessment

- 2.6 A field assessment was undertaken by an experienced Landscape Architect during March 2019 and May 2021 in dry clear conditions. The visit was complemented by a review of aerial photography, mapping and field assessments from publicly accessible locations (e.g. from local roads and public rights of way (PRoW)).
- 2.7 The highest point of the site is c.44m above Ordnance Datum (aOD) at the western boundary which slopes gently to the eastern boundary at c.42m aOD. In terms of hydrological features, ditches run along the north, south and western boundaries and along the central hedgerow that divides the site into two separate field parcels. Along the central ditch there is a small area of standing water although all noted ditches were dry at the time of the site visit.



Image EDP 2.1: View looking west across eastern field parcel at central hedgerow

- 2.8 The underlying vale character of the area forms an expansive, generally flat landscaping. As such, distant visibility is limited due to subtle variations in topography and by mature vegetation within the landscape, or built form forming settlements. From within the site distant views of the elevated land to the south-west can be obtained from parts of both field parcels.



Image EDP 2.2: View of mature boundary vegetation along western boundary

- 2.9 Both field parcels of the site comprise pasture. The northern boundary comprises a partially hedged fence line in the north-western corner bordering residential development along Keeley Lane. The boundary shared with Keeley Lane itself comprises an intact hedgerow which runs the length of the site shared boundary with the road, as the boundary dog legs south at the north-east end of the site, the hedgerow subsides to scattered trees and underlying fence line. The eastern boundary features a variety of vegetated features running north to south including intact hedgerows which become leggy as the boundary runs eastward toward the onsite PRow along the rear garden fences of Hollies Walk where close board fence encloses the site with the aid of scrubby and ruderal vegetation. Both south and western boundary consist of mature hedgerows with a number of mature hedgerow trees, the boundaries provide strong definition and a good sense of enclosure divorcing the site from the immediate neighbouring fields but do lack continual dense structure in places.



Image EDP 2.3: View looking north over western field parcel pastoral land

- 2.10 In summary, the main character and valuable fabric of the site is to be found along the hedgerow boundaries, which include a number of mature trees along the south and west site extents. From a sensory perspective, the site is consistent with its near, and more distant, context, being relatively unremarkable within the landscape. It does not form a prominent, or important, part of the appreciation of the wider landscape, and is perceived as open space for the purposes of agricultural and equine use with public access limited to the eastern boundary and in neighbouring proximity to existing residential properties and the urban context of Wootton.
- 2.11 In landscape terms, there is a very limited sense of association between the site and the wider setting; being divorced both physically and visually from it by mature vegetation, and the adjacent housing on the both the north-west and eastern site extent.

Published Landscape Character Assessments

- 2.12 A review of the Bedford Borough Landscape Character Assessment (BBLCA) finds that the site is located within Landscape Character Area (LCA) 5D North Marston Clay Vale. The relevant key characteristics of this LCT to the site and its nearby context include:
- Located near the elevated landscape of the Cranfield to Stagsden Clay Farmland LTC type 1a that provides a sense of containment;
 - Open character;
 - Visible pylons which cut through the landscape;

- Concentrated development on the flat areas developing urban fringe characteristics from adjacent settlements with mix of buildings ages, styles and materials; and
- Numerous PRoW providing connections to recreational routes.

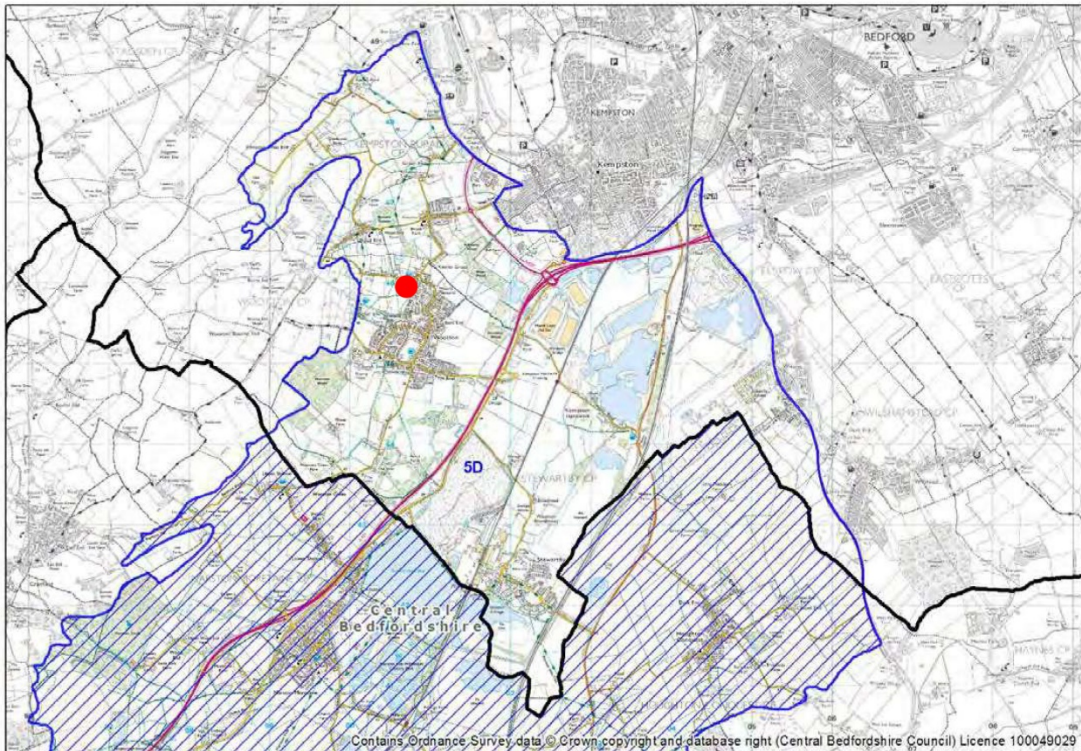


Image EDP 2.4: Site Location within Landscape Character Type (LCT) 5D North Marston Clay Vale

Landscape Sensitivity Study – Group 1 and Group 2 Villages, Bedford & Kempston Urban Edge September 2018

2.13 The Landscape Sensitivity Study is a further study commissioned by Bedford Borough Council (BBC) to form part of the evidence base for the Local Plan 2030. The study builds upon the BBLCA identifying the general relevant landscape, visual and management sensitivities within the North Marston Clay Vale:

- PRoW and green infrastructure network;
- Strong field patterns with hedgerows and hedgerow trees;
- Local containment provided by embankments and tree cover; and
- Ensuring appropriate rural interface between settlement edges and adjoining rural landscape.

2.14 The site is generally representative of the published character described in the above two studies, particularly in regard to the concentration of mixed character development along flat areas within the vale and numerous PRoW connections which are present within the

immediate context. It acknowledges the presence of manmade features that influence the area including visible pylons. Whilst the immediate field parcel to the west of the site opens up to allow some further reaching views, the sites boundary vegetation and that of neighbouring fields ensure visual containment, filtering views of the site from surrounding areas including from elevated positions such as the aforementioned Cranfield to Stagsden Clay Farmland LCT to the east.

- 2.15 Overall EDP found that the published assessment does not go to a fine enough grain to assess the influences on the character and sensitivity of the site land itself, forming a small part of, the host character area.

Visual Amenity

- 2.16 View from PRoW are limited to the few PRoW on site, adjacent the site boundary or within close proximity in the neighbouring fields with the exception of PRoW 10 to the south-west.
- 2.17 Filtered views are available from PRoW 37 and the junction at PRoW 38, 30 and 31. Where possible, views capture the top of the sites southern boundary vegetation depicting how, even in the immediate open landscape to the south of the site, the topography falls away from the southern boundary of the site which restricts views.
- 2.18 Beyond the immediate landscape, is a more elevated location along from PRoW No. 10 and the John Bunyan Promoted Route circa.950m from the site. This PRoW runs east to west rising with the topography allowing glimpsed views of the site between boundary vegetation and gated access points into agricultural fields. The view of the site is captured between foreground and background residential development and a such is seen in the context of the Wootton settlement edge.

Road Users

- 2.19 Keeley Lane aligns the site's northern boundary. From here views into the site over the mature hedgerow are prominent. Views are captured by vehicular, pedestrian and cyclists using the road (also Sustrans Route 51). The character of the road is straight running east to west, featuring agricultural field parcels bounded by mature hedgerow and the car park of The Legstraps Public House on the opposite side. On the approach to the site along Keeley Lane from both east and west, residential development lines the roadside on both sides, limiting any views other than when immediately adjacent the site.

Key Constraints and Opportunities – Masterplanning Principles

- 2.20 With the exception of a number of close proximity views, the site is considered to be relatively visually unconstrained. Proposed development should respect the surrounding built environment visual amenity and characteristics, including massing, scale and materials.

2.21 Key considerations in relation to landscape and visual terms are:

- Visual amenity of residential properties with existing views of the site, namely receptors immediately adjacent to the site boundary;
- Visual amenity of local footpaths, which are predominantly within or immediately adjacent to the site;
- Landscape character: retention and reinforcement of key landscape fabric that contributes to local landscape character; and
- Relationship of new development with the surrounding built environment characteristics, including massing, scale and materials.

Conclusions in Respect of Landscape Matters

2.22 From a landscape perspective, it is EDP's opinion that there are no 'in principle' constraints with regard to future built development of the site. Furthermore, landscaping measures included within any promoted development would be able to provide targeted mitigation where necessary, which would be effective at promoting biodiversity gains.

This page has been left blank intentionally

Section 3 Ecological Matters

Introduction and Methodology

- 3.1 This Preliminary Ecological Appraisal has been informed by a desk study undertaken, which involved collation of information from the following sources:
- Bedfordshire and Luton Biodiversity Recording and Monitoring Centre (BRMC);
 - Bedfordshire Bat Group;
 - Multi-Agency Geographic Information for the Countryside (MAGIC) website¹; and
 - National Biodiversity Network (NBN) Gateway website².
- 3.2 The desk study was undertaken during February 2019 and involved obtaining the following information:
- International statutory designations (10km radius around site);
 - National statutory designations and non-statutory local sites (2km);
 - Annex II bat species³ records (6km); and
 - All other protected/notable species records (2km).
- 3.3 These search areas are considered sufficient to cover the potential zones of influence⁴ of the proposed development in relation to designated sites, habitats and species.

Extended Phase 1 Survey

- 3.4 In order to assess the broad habitats present, and advise on any on-site constraints, an Extended Phase 1 survey was undertaken across the site by a suitably experienced ecologist on 13 February 2019.
- 3.5 An Extended Phase 1 survey adopts methodology from a standard Phase 1 Habitat survey with the addition of more detailed habitat and species mapping. This level of survey requires identification of principle habitat types and the dominant plant species present.

¹ www.magic.gov.uk

² www.data.nbn.org.uk

³ Bat species listed in Annex II of the EC Habitats Directive, namely Greater horseshoe, Lesser horseshoe, Barbastelle and Bechstein's bats

⁴ Zone of Influence - the areas and resources that may be affected by the proposed development

This level of survey does not aim to compile a complete floral and faunal inventory for the site. In addition, evidence of protected species or species of principle importance are recorded, and the site is assessed for its potential to support such species.

- 3.6 February is outside of the optimal time for Extended Phase 1 surveys, and the survey was limited by seasonal factors with plant species not being in flower at the time of survey. Plants were identified via other indicators, such as vegetative features, and the survey is still considered sufficient as it was able to broadly categorise the habitats present within the site, with no indication of complex/unique floral habitats present.

Preliminary Ecological Baseline

- 3.7 Information regarding designated sites was obtained during the ecological desk study. Statutory designations (those receiving legal protection) and non-statutory designations (those receiving planning policy protection only) are discussed in turn below.

Statutory Designations

- 3.8 Statutory designations represent the most significant ecological receptors, being of recognised importance at an international and/or national level. International designations include Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar Sites. National designations include Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs).
- 3.9 There are no international statutory designations within 10km of the site and no national statutory designations within 2km of the site.
- 3.10 The site is within the impact risk zone of two SSSIs, Marston Thrift SSSI and Hanger Wood SSSI. These risk zones are for aviation proposals and livestock or poultry units. As the nature of the proposals for the site is for residential development neither of the SSSIs would be directly affected.

Non-statutory Designations

- 3.11 Non-statutory designations are also commonly referred to in planning policies as 'local sites', although in fact these designations are typically considered to be importance at a county level. In Bedfordshire, such designations are named County Wildlife Sites (CWSs). Additional designated sites which should be considered at this level include Local Nature Reserves (LNRs) and Ancient Semi-natural Woodland (ASNW) where these are not covered by other designations.
- 3.12 No part of the site is covered by any CWSs. However, there are four such designations within the site's potential zone of influence, a summary is provided within **Table EDP 3.1**.

Table EDP 3.1: Non-statutory Designations within the Site's Potential Zone of Influence

Designation	Distance from Site	Interest Feature(s)
Wootton Wood CWS	0.75km (south-west)	The site is composed of a large expanse of ancient, semi natural broadleaved woodland and two fields of neutral grassland to the north of the site. There is a shaded pond situated within the woodland. The woodland has a dense understorey. Rides through the woodland provide a variety of ground flora associated with shaded areas.
Kempston Wood CWS	1.15km (north-west)	An unmanaged oak and ash woodland with a thick understorey consisting of hazel, maple, hawthorn and blackthorn.
Ransom's Wood CWS	1.46km (north-west)	Semi-natural broadleaved ancient woodland on a clay soil. Includes oak and ash with an understorey of hazel, maple and hawthorn.
River Great Ouse CWS	1.84km (north-east)	The river and its associated habitats have been recognised as a county wildlife site as it's a priority habitat.

Priority Habitats

- 3.13 There are no Priority Habitats⁵ within the site. There are occurrences of 'deciduous woodland' and 'traditional orchard' Priority Habitats within 1km of the site. The closest Priority Habitat is an area of 'deciduous woodland' which is located 160m north of the site.
- 3.14 Given the small scale of development proposals and spatial distance from the site, it is considered unlikely for any direct or indirect impacts to occur on these Priority Habitats. Therefore, Priority Habitats are not considered to pose a constraint to the development of the site and are therefore not discussed further within this appraisal in terms of potential effects.

Habitats

- 3.15 Information on habitats within and around the site was obtained during the desk study and the Phase 1 survey.
- 3.16 The distribution of different habitat types within and adjacent to the site is illustrated on **Plan EDP 3**. A summary, and qualitative assessment, of these habitats is provided in **Table EDP 3.2**.

⁵ In the context of this report, Priority Habitats refers to the list of habitats of principal importance for conservation in England, a list that is required to exist under Section 41 of the Natural Environment and Rural Communities Act 2006. The MAGIC website contains a rationalised suite of such habitats known as the priority habitat Inventory administered by Natural England

Table EDP 3.2: Summary of Habitats within the Site

Habitat or Feature	Distribution within Site	Intrinsic ecological Value	Potential/Confirmed Value to Protected Species				
			Spp.	Breeding	Foraging	Refuge	Dispersal
Semi-improved grassland	Covers the majority of the site.	Negligible , owing to grazing by horses producing a short sward.	Badgers		●		
Hedgerows	Hedgerows form the majority of the site boundaries and an internal hedgerow between the two fields.	Site , mostly defunct, heavily managed and species poor.	Birds	●	●	●	
			Bats		●		●
Pond	One pond is within field F1 on the boundary between the fields. A second pond is located at the north-east of field F2 .	Site , regularly dries out.	Amphibians	●	●	●	
Tall ruderal	Small extents in north of field F2 .	Negligible , owing to small size.	Negligible				
Scattered trees	A line of ash trees along the northern boundary of field F2 .	Negligible , due to small size and young age.	Birds	●	●	●	

3.17 As noted within **Table EDP 3.1**, the majority of habitats within the site are of negligible intrinsic value. However, the hedgerows and pond are considered to be of site value. Habitats within the site also require consideration in relation to their importance in maintaining populations of protected and/or notable species. This is discussed further below.

Protected and/or Notable Species

3.18 The likelihood of presence, or confirmed presence, of protected/and or notable wildlife species within the site is summarised below with reference to Desk Study records, habitat suitability and detailed surveys where relevant. Further details are made available within appendices and plans where referenced.

3.19 Where a particular species or taxonomic group have been confirmed to be present, or presence is inferred based on habitat suitability, the ecological value or significance of the population or assemblage is assessed on a geographical scale.

Birds

- 3.20 BRMC provided 1509 records of bird species relating to 82 species. Records of species that are on the red list of birds of conservation concern⁶ that were deemed pertinent to the site include; song thrush (*Turdus philomelos*), turtle dove (*Streptopelia turtur*), corn bunting (*Emberiza calandra*), grey wagtail (*Motacilla cinerea*), linnet (*Linaria cannabina*), yellow wagtail (*Motacilla flava*), marsh tit (*Poecile palustris*), mistle thrush (*Turdus viscivorus*), starling (*Sturnus vulgaris*), grey partridge (*Perdix perdix*), skylark (*Alauda arvensis*), grasshopper warbler (*Locustella naevia*), spotted flycatcher (*Muscicapa striata*), yellowhammer (*Emberiza citrinella*), fieldfare (*Turdus pilaris*) and redwing (*Turdus iliacus*).
- 3.21 Those on the amber list that are deemed pertinent to the site include; house martin (*Delichon urbicum*), kestrel (*Falco tinnunculus*) meadow pipit (*Anthus pratensis*), stock dove (*Columba oenas*), swift (*Apus apus*), willow warbler (*Phylloscopus trochilus*).
- 3.22 Bird species recorded during the Phase 1 survey of the site included; goldcrest (*Regulus regulus*), robin (*Erithacus rubecula*), blue tit (*Cyanistes caeruleus*), dunnock (*Prunella modularis*), house sparrow (*Passer domesticus*), starling, greenfinch (*Carduelis chloris*), kestrel, blackbird (*Turdus merula*), woodpigeon (*Columba palumbus*), redwing and bullfinch (*Pyrrhula pyrrhula*).
- 3.23 The hedgerows within the site are considered to provide suitable breeding opportunities for birds of a range of species. There is an abundance of similar habitat within the local vicinity. The bird population utilising the site consists of a variety of common and widespread generalist species that are typical of the local area, for this reason the bird population is considered to be of site level value.

Bats

- 3.24 Bedfordshire bat group provided 49 records for bats within 2km of the site. There were no records of any Annex II species within 6km of the site. Records related to seven species; common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus auritus*), noctule (*Nyctalus noctula*), serotine (*Eptesicus serotinus*), natterer's bat (*Myotis nattereri*) and daubenton's bat (*Myotis daubentonii*). One record originates from the north-east corner of the site for a soprano pipistrelle bat dating from 2017.
- 3.25 The hedgerows are considered to offer suitable opportunities for bat foraging and commuting within the site. It is assumed that the species within the site would be similar to that of the records supplied by Bedfordshire bat group. The bat assemblage would therefore be of local level value; however, this is subject to confirmation by subsequent bat surveys.

⁶ Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R.D., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D.A. and Gregory, R.D. (2015). *Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man*. British Birds, Vol. 108, 708-746.

Badgers

- 3.26 BRMC returned 24 records of badgers within 1km of the site. The closest record came from 460m west of the site for a badger crossing Hall End Road in 2006. The most recent records date from 2017 for locations near the A421 and Wootton Wood CWS.
- 3.27 During the extended Phase 1 survey badger activity was identified within the site. A snuffle hole was recorded on the western edge of field **F1**. Two entrances were identified along hedgerow **H4** just south of pond **P1**.
- 3.28 The grassland and hedgerows offer limited suitable opportunities for badger foraging and sett building within the site. Badgers are mobile animals that frequently establish new setts so there is the potential for new setts to be formed within the site.

Otters

- 3.29 There were nine records of otter (*Lutra lutra*) returned by BRMC. Five of the records originate from the River Great Ouse, which at its closest point is 1.9km north-east of the site. River Great Ouse is separated from the site by residential development at Kempston and the A428. Three of the records are associated with Elstow Brook which at its closest point is 1.8km south-east of the site. Elstow Brook is separated from the site by the village of Wootton and the A421.
- 3.30 There are no streams or wet ditches within the site. The closest watercourse is located 250m south of the site. It is therefore considered that otters are not likely to be using the site and so are not considered further within this report.

Other Mammals

- 3.31 BRMC returned 15 records for West European Hedgehog (*Erinaceus europaeus*). The most recent hedgehog record dated from 2014 for an adult located within Kempston 1.5km north-east of the site. The closest record comes from a residential garden 300m east of the site dating from 2006.
- 3.32 The hedgerows are considered suitable for hedgehog commuting, foraging breeding and refuge.
- 3.33 BRMC returned ten records of brown hare (*Lepus europaeus*) the closest of which was located near Kempston 850m east of the site dating from 2006. The most recent record dated from 2008.
- 3.34 The semi-improved grassland fields provide opportunities for foraging by brown hare.

Great Crested Newts

- 3.35 BRMC returned 187 records for great crested newts (*Triturus cristatus*) within 2km of the site. The closest record is from 750m south-east of the site and dates from 2006. The three most recent records date from 2018 and are located 1.3km south-east, 1.8km south and 1.7km north-west of the site.
- 3.36 Records for common frog (*Rana temporaria*), common toad (*Bufo bufo*) and smooth newt (*Lissotriton vulgaris*) were also returned by BRMC within 2km of the site.
- 3.37 Environmental DNA sampling was undertaken on ponds for which access could be achieved within 500m of the site. Environmental DNA (eDNA) is DNA that is collected from the environment in which an organism lives. In aquatic environments, animals (including amphibians) shed cellular material into the water via their saliva, urine, faeces, skin cells, etc. This DNA may persist for several weeks and can be collected through a water sample and analysed to determine if the target species of interest (great crested newt) is/has been present in the waterbody.
- 3.38 Water samples were taken by an experienced EDP ecologist with a Natural England great crested newt class survey licence, and an assistant. The survey was completed in accordance with the methodologies set out by the Freshwater Habitats Trust⁷ in May 2021.
- 3.39 Two ponds within or adjacent to the site were included in the sampling. Pond **P1** which is located in the centre of the site returned a negative result, so is not considered to be a constraint to development. Pond **P2** which is adjacent to the site returned a positive result and will need further consideration within the masterplanning of the site.

Reptiles

- 3.40 BRMC returned four records for reptiles within 2km of the site. All four records related to grass snake (*Natrix helvetica*). The closest record comes from 500m west of the site dating from 2004. Two of the records date from 2015, the closest of which is located 600m west of the site.
- 3.41 The habitats within the site are not deemed suitable for reptiles. The grassland is subject to grazing by horses and so is constantly disturbed and has a short sward. Therefore, reptiles are not considered further within this report.

⁷ Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F 2014. *Analytical and methodological development for improved surveillance of the Great Crested Newt*, Appendix 5, Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford

Summary of Key Issues Arising from Survey Findings

- 3.42 Based on the survey findings described above, the key ecological features/receptors pertinent to the development proposals are as follows:
- Local sites - four sites of county importance within 2km of the site;
 - Hedgerows;
 - Ponds - one pond located within the centre of the site and a second outside of the site to the north-east;
 - Birds - assemblage of birds is of site level value, likely to be breeding within the hedgerows of the site;
 - Bats - assumed that the hedgerows within the site are used for bat foraging and commuting;
 - Badgers - evidence of badger foraging and a disused annexe sett located within the site;
 - Great crested newts - breeding population of great crested newts present adjacent to the site and within other ponds in the local area; and
 - Hedgehogs and brown hare - both species have been recorded locally and the site supports suitable habitats for these species.
- 3.43 Overall, the Preliminary Ecological Appraisal has confirmed that the site support habitats of low intrinsic ecological value, with a typical suite of likely protected species interests (to be confirmed through further detailed survey). There are considered no 'in principle' ecological constraints to any forthcoming development.
- 3.44 The scheme has potential to be delivered in accordance with current national and local planning policy with regard to the natural environment.
- 3.45 It is therefore concluded that the site would be capable of delivering a high-quality scheme in response to local housing needs, whilst ensuring compliance with national and local planning policy relating to biodiversity, and relevant wildlife legislation, subject to appropriate masterplanning of the site.

Section 4 Arboricultural Matters

Methodology

- 4.1 The methodology adopted for this survey is based on guidelines set out in *BS 5837:2012* Trees in Relation to Design, Demolition and Construction, especially Section 4.4, 'Tree Survey'. Site trees and other significant vegetation are as noted on **Plan EDP 4: Tree Constraints Plan**. This is derived from the topographic survey data. All surveyed items are detailed in **Schedule EDP 1 (Appendix EDP 1)**. No other trees are covered by this survey.
- 4.2 All trees have been visually inspected from ground level unless otherwise stated, with no climbing or further detailed investigative tests being undertaken. The comments on their condition are based on observable factors present at the time of inspection. All measurements are metric and have been recorded in accordance with the measurement conventions set out in Section 4.4.2.6 of *BS 5837:2012*.
- 4.3 Any recommendations given regarding longer-term management are made on the basis of optimising the life expectancy of site trees, given their current situation and any effects that may result from the development proposals.
- 4.4 **Schedule EDP 1** provides information about the following factors in accordance with paragraph 4.4.2.5 of *BS 5837:2012*:
- Sequential reference number (recorded on **Appendix EDP 1**);
 - Species;
 - Height;
 - Stem diameter;
 - Branch spread;
 - Existing height above ground level;
 - Life stage;
 - Physiological condition;
 - Structural condition;
 - Preliminary management recommendations;
 - Estimated remaining contribution;

- Category grading; and
 - Tree works priority codes.
- 4.5 Due to the changing nature of trees and other site circumstances, this report and any recommendations made are limited to a 24-month period from the survey date. Any alterations to the site or the development proposals could change the current circumstances and may invalidate this report and any recommendations made.
- 4.6 Trees are dynamic structures that can never be guaranteed 100% safe; even those in good condition can suffer damage under average conditions. Regular inspections can help to identify potential problems before they become acute.
- 4.7 A lack of recommended work does not imply that a tree is safe and likewise, it should not be implied that a tree will be made safe following the completion of any recommended work.
- 4.8 The subject trees have not been tagged for identification purposes.

Aims and Objectives

- 4.9 The arboricultural tree constraints information contained within this Technical Note will feed into the masterplanning for the site and in turn, inform the Arboricultural Impact Assessment and to support the Outline Planning Application.

Overview of Tree Stock

- 4.10 The survey has identified 5 individual trees, 4 groups of trees and 9 hedgerows, totalling 18 items. Of these 18 items, 1 has been identified as category A, of high quality; 3 have been identified as category B, of moderate quality; and 10 have been identified as category C, of low quality. In addition, 4 items fall into the category U and due to their impaired condition are considered unsuitable for retention, irrespective of development.
- 4.11 All surveyed items are as noted on **Plan EDP 4** and detailed in **Schedule EDP 1 (Appendix EDP 1)**.

Statutory Protection

Tree Preservation Orders and Conservation Areas

- 4.12 Review of the Tree Preservation Order (TPO) Register and Conservation Area Maps available on BBC's website⁸ confirms that the site is not subject to any TPOs, nor does it lie within a Conservation Area.

Site Constraints

- 4.13 Any items identified as being located off-site remain outside of the direct control of the scheme, however, their above- and below-ground constraints will need to be considered during the design process.
- 4.14 Of the items surveyed, 1 has been identified as category A, of high quality and a further 10 items have been identified as category B, of moderate quality. All trees provide landscape, environmental and/or amenity value to their surroundings, but the retention and protection of both category A and B items should be prioritised due to their condition, age and retention span.
- 4.15 The required RPA for each item is as described in **Schedule EDP 2 (Appendix EDP 2)** and is depicted on **Plan EDP 4**. To ensure appropriate protection is afforded to the roots, the extent of the RPA shall be defined by means of the installation of protective barriers in accordance with the recommendations given in Section 6.2 of *BS 5837:2012*. The extent of this enclosed area, known as the Construction Exclusion Zone (CEZ), will be depicted on a Tree Protection Plan, to follow on with the Arboricultural Method Statement.

Conclusion

- 4.16 Of the items surveyed, only one has been identified as category A, of high quality and a further three items have been identified as category B, of moderate quality. Both category A and B items should be prioritised for retention due to their condition, age and retention span.
- 4.17 The footprint of the promotion's site layout should not conflict with the RPAs of any items being retained.
- 4.18 The arboricultural constraints information provided with this Technical Note will feed into an illustrative Site layout. Once a layout has been fixed, an Arboricultural Impact Assessment will be prepared to support the site's promotion.

⁸ <https://www.bedford.gov.uk/planning-and-building/historic-environment/protected-trees/>
Accessed: 19/3/2019

This page has been left blank intentionally

Appendix EDP 1 Schedule EDP 1 Tree Survey Key and Schedule

Sequential Reference Number	T - Individual specimen; G - Group, Trees that form cohesive arboricultural features either aerodynamically, visually or culturally; H - Linear group of specimens that form a hedge or boundary; and W - A larger group or area of trees that should be regarded as a single woodland unit
Species	Common English names are used wherever possible for simplicity
Height	An approximation of height (in metres) is provided for the highest point of the tree.
Stem Diameter	This is the measurement of stem diameter in millimetres taken in accordance with Annex C of BS 5837:2012.
Branch Spread	This is taken at four cardinal points, with a stated value in metres to enable an accurate representation of the crown, as shown on Plan EDP 4 .
Existing Height Above Ground Level	An approximation of height (in metres) of crown clearance above adjacent ground level.
Life Stage	There are six classes to which trees are assigned: Young; Semi Mature; Early Mature; Mature; Over Mature; and Veteran.
Physiological Condition	An indication of the tree's physiological condition is represented and classed as good, fair, poor or dead, this is informed by the following: Canopy Density: It should be taken that, unless otherwise stated with each individual entry, the canopy density of the trees is typical of the species; and Leaf Size and Colouration: It should be taken that, unless otherwise stated with each individual entry, leaf size and colouration is typical of the species.
Structural Condition	Additional notes are provided giving details of the tree's structural condition. This is informed by "the presence of any decay and physical defect ⁹ ".
Preliminary Management Recommendations	These are made on the basis of optimising the life expectancy of site trees, given their current situation and that which may result from the development proposals. The survey process pays particular attention to implications for life and/or property; defects recorded under the structural condition have the necessary mitigation measures proposed within this section of the schedule.

¹BS 5837:2012 Section 4.4.2.5

Estimated Remaining Contribution	<p>The definitions of the terms used are as follows and describe the estimated length of time (in years) over which the tree can be expected to make a safe contribution to local amenity:</p> <p>Less than 10;</p> <p>10+;</p> <p>20+; and</p> <p>40+.</p>
Category Grading	<p>Trees have been assigned 'U' or Category Grading 'A' to 'C' in accordance with the Cascade Chart given in BS 5837:2012.</p>
Tree Works Priority Codes	<p>Priority codes from 1 to 3 have been given for trees requiring work. The definition of the codes used is as follows:</p> <p>Priority 1: Work that should be undertaken urgently due to the identification of a potential hazard;</p> <p>Priority 2: Work that should be undertaken prior to any works commencing on site; and</p> <p>Priority 3: Work that should be undertaken following the completion of the development.</p>

Client: Rainier Development Ltd Site: Keeley Lane, Wootton
 Date of Survey: 12.03.19 Consultant: Rob Crussell
 Tagged: N/A Weather: Overcast and drizzly

Sequential Reference No.	Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Canopy Clearance (m)	Life Stage	Physiological Condition	Structural Condition	Comments / Notes	Recommendations	Estimated Remaining Contribution (Years)	Category Grading	Priority
				North	East	South	West									
H1	Blackthorn (Prunus spinosa); Elder (Sambucus nigra); Hawthorn (Crataegus monogyna)	2	Multi	2	2	2	2	0	Mature	Fair	Fair	Failed boundary hedge.	No work recommended	10+	C2	N/A
H2	Elder (Sambucus nigra); Hawthorn (Crataegus monogyna); Lawson Cypress (Chamaecyparis lawsoniana)	8	Multi	3	3	3	3	0	Mature	Fair	Fair	Lapsed hedgerow. Neglected and smothered in bramble. Gaps. Partially offsite.	No work recommended	<10	U	N/A
T3	Hawthorn (Crataegus monogyna)	5	410	1	2	2	2	1	Mature	Fair	Fair	Ivy on stem and vegetation growing around base. Codominant union at 1m.	No work recommended	10+	C1	N/A
G4	Poplar sp. (Populus sp.)	18	Multi	2	2	2	2	4	Mature	Fair	Fair	Offsite group - all readings estimated.	No work recommended	20+	B1,2	N/A
H5	Blackthorn (Prunus spinosa); Elder (Sambucus nigra); English Elm (Ulmus procera); Hawthorn (Crataegus monogyna)	5	Multi	3	3	3	3	0	Mature	Fair	Fair	Lapsed boundary hedgerow. Overrun with bramble.	No work recommended	10+	C2	N/A
H6	Blackthorn (Prunus spinosa); Elder (Sambucus nigra); English Elm (Ulmus procera); Hawthorn (Crataegus monogyna)	5	Multi	3	3	3	3	0	Mature	Fair	Fair	Lapsed boundary hedgerow. Overrun with bramble.	No work recommended	10+	C2	N/A
H7	Elder (Sambucus nigra); Hawthorn (Crataegus monogyna)	2	Multi	2	2	2	2	0	Mature	Fair	Fair	Failed hege.	No work recommended	10+	C2	N/A
H8	Elder (Sambucus nigra); Hawthorn (Crataegus monogyna)	2	Multi	2	2	2	2	0	Mature	Fair	Fair	Failed hege.	No work recommended	10+	C2	N/A
G9	Hawthorn (Crataegus monogyna)	6	Multi	2	2	2	2	0	Mature	Fair	Poor	Group of hawthorn growing around pond/ditch. A stem has failed on a tree to south-west of group.	No work recommended	<10	U	N/A
T10	Acer sp.	8	#700	4	4	4	4	4	Mature	Poor	Poor	Off site tree - all readings estimated. Tree has been pollarded beyond recognition. Multiple cavities throughout structure. Cavity at base appears to have been filled with cement.	No work recommended	<10	U	N/A
T11	Elder (Sambucus nigra)	6	#250	2	1	2	2	0	Mature	Fair	Poor	Self set against fence. Multiple snapped branches. Barbed wire around stem.	No work recommended	<10	U	N/A
T12	Common Ash (Fraxinus excelsior)	14	#700	7	7	7	7	4	Mature	Fair	Fair	Offsite tree - all readings estimated.	No work recommended	40+	A1	N/A
T13	Common Ash (Fraxinus excelsior)	14	#800	7	7	7	7	2	Mature	Fair	Fair	Growing on bank south of pond. Access to base restricted by vegetation. Multi-stemmed - included unions at base. Reduce by 2-3 m.	No work recommended	20+	B1	N/A
H14	Elder (Sambucus nigra); Hawthorn (Crataegus monogyna)	5	Multi	3	3	3	3	0	Mature	Fair	Fair	Neglected boundary group.	No work recommended	10+	C2	N/A
H15	Hawthorn (Crataegus monogyna)	2	Multi	1	1	1	1	0	Mature	Fair	Fair	Failed hedge.	No work recommended	10+	C2	N/A
G16	Common Ash (Fraxinus excelsior)	12	Multi	2	2	2	2	0	Early Mature	Fair	Fair	A group of ash which have self-set on boundary. A number appear to have been historically coppiced.	No work recommended	10+	C2	N/A
H17	Hawthorn (Crataegus monogyna)	2	Multi	2	2	2	2	0	Mature	Fair	Fair	Failed hedge.	No work recommended	10+	C2	N/A
G18	Common Ash (Fraxinus excelsior); English Elm (Ulmus procera)	12	Multi	2	2	2	2	0	Mature	Fair	Fair	Growing out of hedgerow - access to base restricted. Ivy on stems.	No work recommended	20+	B2	N/A

Sequential Reference Number -T - Individual specimen; G - Group, Trees that form cohesive arboricultural features either aerodynamically, visually or culturally; H - Linear group of specimens that form a hedge or boundary; W - A larger group or area of trees that should be regarded as a single woodland unit.
Species -Common English names are used wherever possible for simplicity.
Height -An approximation of height (in metres) is provided for the highest point of the tree.
Stem Diameter -This is the measurement of stem diameter in millimetres taken in accordance with Annex C of BS5837:2012. # - estimated
Branch Spread -This is taken at four cardinal points, with a stated value in metres to enable an accurate representation of the crown
First Significant Branch -Height of first significant branch and direction of growth e.g. 2.4 N, measured from adjacent ground level.
Existing Height Above Ground Level -An approximation of height (in metres) of crown clearance above adjacent ground level.
Life Stage -There are five classes to which trees are assigned: Young; Early Mature; Mature; Over Mature; Veteran.
Physiological Condition -An indication of the tree's physiological condition is represented and classed as good, fair, poor or dead, this is informed by the following: Canopy Density: It should be taken that, unless otherwise stated with each individual entry, the canopy density of the trees is typical of the species; and Leaf Size and Colouration: It should be taken that, unless otherwise stated with each individual entry, leaf size and colouration is typical of the species.

Structural Condition -Additional notes are provided giving details of the tree's structural condition. This is informed by "the presence of any decay and physical defect".
Preliminary Management Recommendations -These are made on the basis of optimising the life expectancy of site trees, given their current situation and that which may result from the development proposals. The survey process pays particular attention to implications for life and/or property; defects recorded under the structural condition have the necessary mitigation measures proposed within this section of the schedule.
Estimated Remaining Contribution -The definitions of the terms used are as follows and describe the estimated length of time (in years) over which the tree can be expected to make a safe contribution to local amenity: Less than 10; 10+; 20+; and 40+.
Category Grading -Trees have been assigned 'U' or Category Grading 'A' to 'C' in accordance with the Cascade Chart given in BS5837:2012
Tree Works Priority Codes -Priority codes from 1 to 3 have been given for trees requiring work. The definition of the codes used is as follows: Priority 1: Work that should be undertaken urgently due to the identification of a potential hazard; Priority 2: Work that should be undertaken prior to any works commencing on site; and Priority 3: Work that should be undertaken following the completion of the development.

Appendix EDP 2
Schedule EDP 2
Tree Constraints Schedule

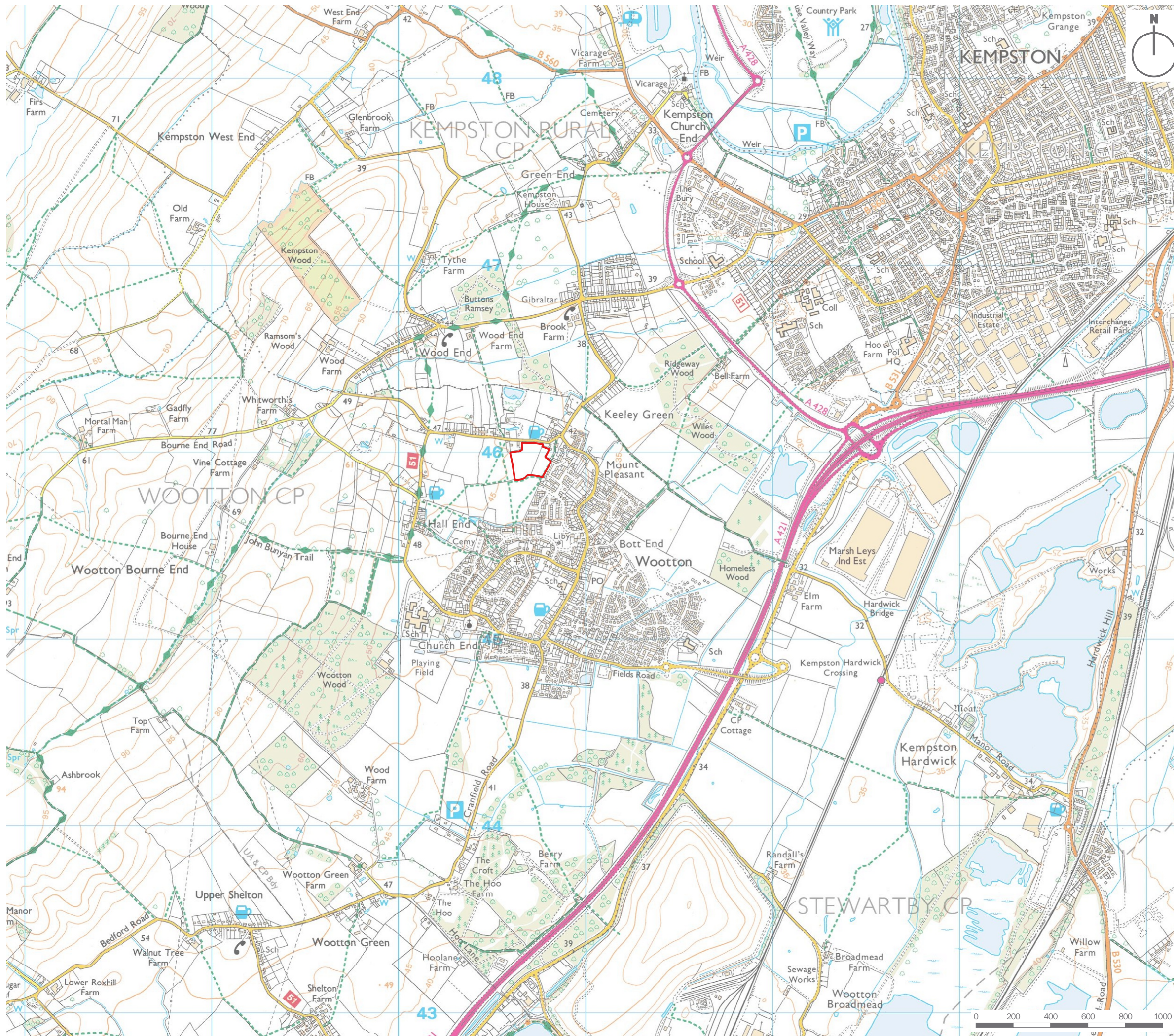
Reference No.	Cat Grading	No of stems	RPA Radius (m)	RPA Area m ²	Ultimate Height (m)	Ultimate Crown Spread (m)			
						N	E	S	W
H1	C	1	1.8	10.2	3	2	2	2	2
H2	U	1	1.8	10.2	10	4	4	4	4
T3	C	1	4.9	76.0	6	1	2	2	2
G4	B	1	7.2	162.9	23	2	2	2	2
H5	C	1	1.8	10.2	6	4	4	4	4
H6	C	1	1.8	10.2	6	4	4	4	4
H7	C	1	1.8	10.2	3	2	2	2	2
H8	C	1	1.8	10.2	3	2	2	2	2
G9	U	1	3.6	40.7	8	2	2	2	2
T10	U	1	8.4	221.7	10	5	5	5	5
T11	U	1	3.0	28.3	8	2	1	2	2
T12	A	1	8.4	221.7	18	8	8	8	8
T13	B	1	9.6	289.5	18	8	8	8	8
H14	C	1	1.8	10.2	6	4	4	4	4
H15	C	1	1.8	10.2	3	1	1	1	1
G16	C	1	3.6	40.7	15	2	2	2	2
H17	C	1	1.8	10.2	3	2	2	2	2
G18	B	1	3.6	40.7	15	2	2	2	2

This page has been left blank intentionally

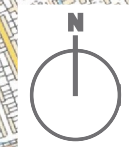
Plans

- Plan EDP 1** Site Location and Site Boundaries
(edp5442_d008b 13 August 2020 AL/WG)
- Plan EDP 2** Environmental Planning Context
(edp5442_d010b 13 August 2020 AL/WG)
- Plan EDP 3** Phase 1 Habitat Plan
(edp5442_d005b 13 August 2020 GY/WC)
- Plan EDP 4** Tree Constraints Plan
(edp5442_d007b 13 August 2020 GY/RC)

This page has been left blank intentionally



Site Boundary



client

Rainier Developments Ltd

project title

Land on South Side of Keeley Lane, Wootton

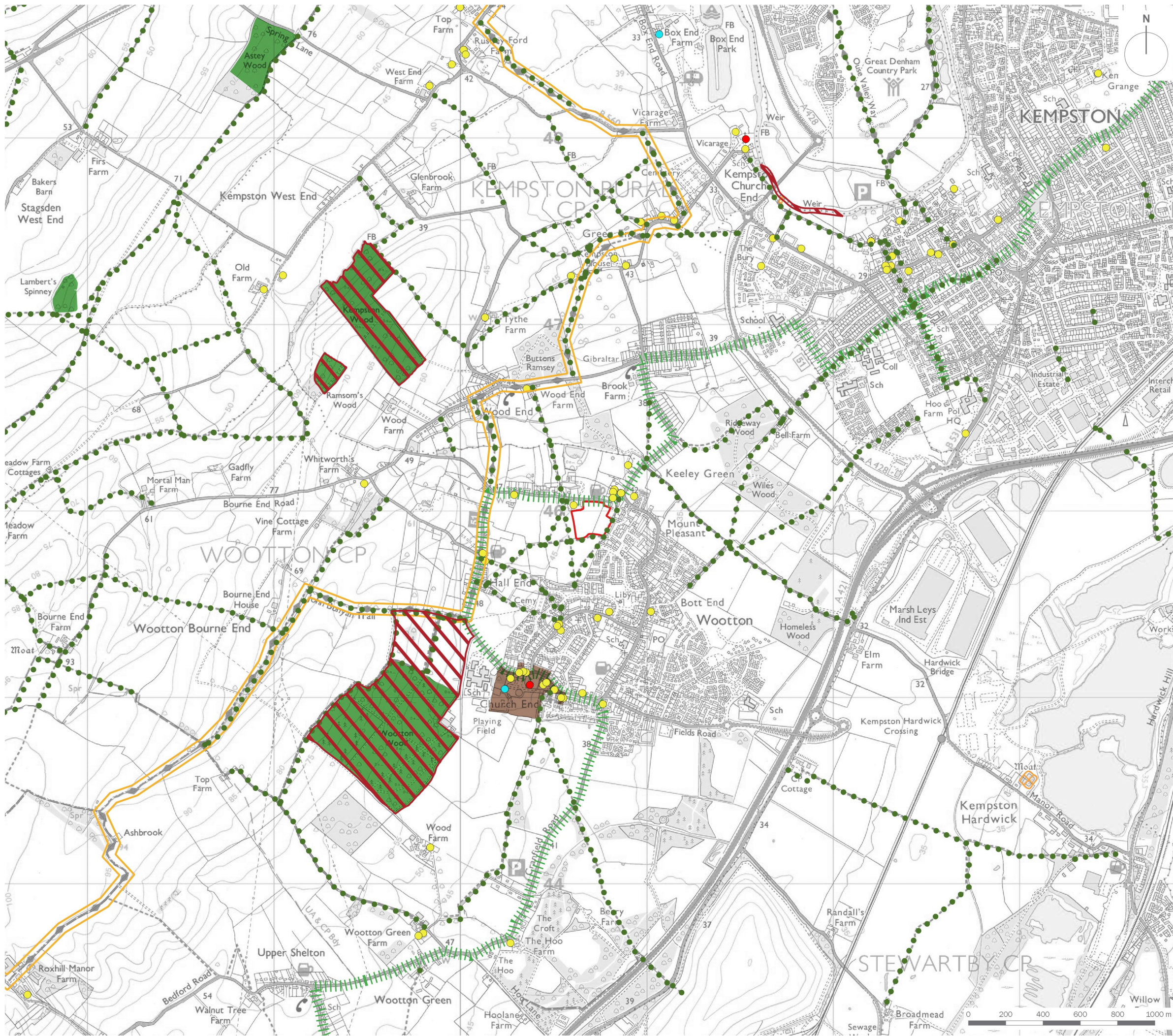
drawing title

Plan EDP 1: Site Location and Site Boundaries

date	13 AUGUST 2020	drawn by	AL
drawing number	edp5442_d008b	checked	WG
scale	1:20,000 @ A3	QA	RB



Registered office: 01285 740427 - www.edp-uk.co.uk - info@edp-uk.co.uk



- Site Boundary
- Landscape Designations**
- Ancient Woodland
- Ecology Designations**
- Non-Statutory Site
- Heritage Designations**
- Scheduled Monuments
- Conservation Area
- Grade I Listed Building
- Grade II* Listed Building
- Grade II Listed Building
- Public Rights of Way**
- National Cycle Routes (Sustrans)
- Public Rights of Way
- John Bunyan Trail (Promoted Route)

client
Rainier Developments Ltd

project title
Land on South Side of Keeley Lane, Wootton

drawing title
Plan EDP 2: Environmental Planning Context

date **13 AUGUST 2020** drawn by **AL**
drawing number **edp5442_d010b** checked **WG**
scale **1:20,000 @ A3** QA **RB**



Registered office: 01285 740427 - www.edp-uk.co.uk - info@edp-uk.co.uk



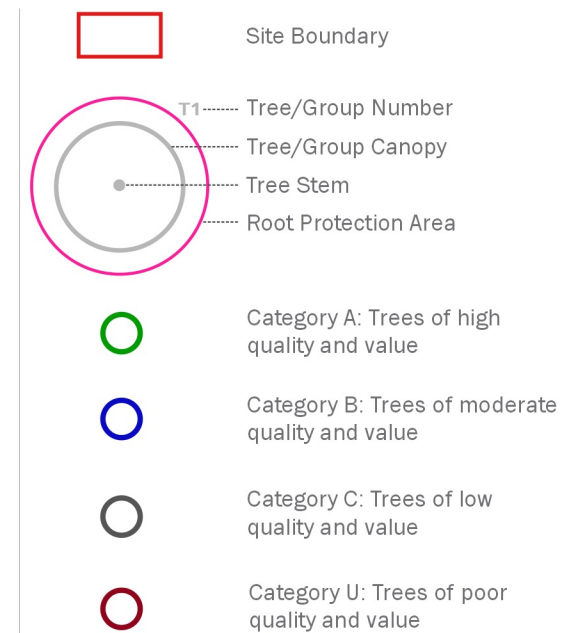
- Site boundary
- SI Poor Semi-improved Grassland
- Tall Ruderal
- Scrub and Tall Ruderal
- Standing Water
- Intact Species-poor Hedgerow
- Defunct Species-poor Hedgerow
- Wet Ditch
- Dry Ditch
- Fence
- Scattered Trees (Broad-leaved)
- x Scattered Scrub
- P2 Pond Number
- F2 Field Number

client
Rainier Developments Ltd

project title
Land on South Side of Keeley Lane, Wootton

drawing title
Plan EDP 3: Phase 1 Habitat Plan

date	13 AUGUST 2020	drawn by	GY
drawing number	edp5442_d005b	checked	WC
scale	1:1,000 @ A3	QA	RB



client

Rainier Developments Ltd

project title
Land on South Side of Keeley Lane, Wootton

drawing title
Plan EDP 4: Tree Constraints Plan

date	13 AUGUST 2020	drawn by	GY
drawing number	edp5442_d007b	checked	RC
scale	1:1,000 @ A3	QA	RB



Registered office: 01285 740427 - www.edp-uk.co.uk - info@edp-uk.co.uk



the environmental
dimension partnership

CARDIFF
02921 671900

CHELtenham
01242 903110

CIRENCESTER
01285 740427

info@edp-uk.co.uk
www.edp-uk.co.uk

The Environmental Dimension Partnership Ltd. Registered as a Limited Company in England and Wales. Company No. 09102431. Registered Office: Tithe Barn, Barnsley Park Estate, Barnsley, Cirencester, Gloucestershire GL7 5EG



**URBAN
DESIGN
GROUP** REGISTERED
PRACTICE

IEMA Transforming the world
to sustainability

**Landscape
Institute**
Registered practice