Gavray Drive, Bicester

DRAFT Ecology Mitigation and Management Strategy

Prepared by:
The Environmental Dimension Partnership Ltd

On behalf of:
L&Q Estates Ltd

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Plans

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Section 1
Introduction

1.1 This DRAFT Mitigation and Management Strategy has been prepared by the Environmental Dimension Partnership Ltd (EDP) on behalf of L&Q Estates Ltd (hereafter referred to as 'the applicant'). This DRAFT Strategy has been prepared in order to aid constructive pre-application engagement with key ecological stakeholders in relation to proposed development north of Gavray Drive, Bicester (hereafter referred to as 'the site'). The applicant is in the process of preparing a new outline planning application for a comprehensive scheme across the entire site, including residential development and associated infrastructure together with a strategy for the protection and restoration of Gavray Drive Meadows Local Wildlife Site (LWS) and the site's wider biodiversity interest.

1.2 This DRAFT Strategy is yet to be agreed with Cherwell District Council (CDC); however, it has been submitted to CDC's Ecology Officer (Dr Charlotte Watkins) for comment as part of the ongoing pre-application consultation.

1.3 The site is a long-standing development allocation close to the centre of Bicester. The land is currently allocated for development under Strategic Development: Bicester 13 (re-adopted) of the Cherwell Local Plan 2011-2031 Part 1, adopted in 2015. In recognition of the existing ecological interest at the site, in particular the partial coverage of the site by Gavray Drive Meadows LWS and its position partly within the River Ray Conservation Target Area, policy Bicester 13 includes the following 'Key site specific design and place shaping principles':

- *"Development must avoid adversely impacting on the Conservation Target Area and comply with the requirements of Policy ESD11 to secure a net biodiversity gain.*

- *Protection of the Local Wildlife Site and consideration of its relationship and interface with residential and other built development.*

- *Detailed consideration of ecological impacts, wildlife mitigation and the creation, restoration and enhancement of wildlife corridors to protect and enhance biodiversity.*

- *The preparation and implementation of an Ecological Management Plan to ensure the long-term conservation of habitats and species within the site."*

1.4 This strategy document aims to provide an overarching summary of the information that will be submitted in full in due course; either in support of the outline planning application and accompanying Environmental Impact Assessment or in fulfilment of relevant planning obligations and conditions which may be attached to an outline planning consent.

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Section 2
Site Description and Evaluation

2.1 A wide range of ecological surveys to determine the baseline conditions have been undertaken at the site since 2002, and additional information on the ecological interest at the site has been provided by a number of third parties during this same period. To ensure the new planning application and ecological assessment is supported by up-to-date information, a suite of update surveys was commenced in August 2019 and is expected to be completed in November 2020. In April 2020 the scope of the update surveys was shared with CDC's Ecology Officer, Natural England, Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust (BBOWT) and Butterfly Conservation and comments invited.

2.2 Whilst the latest update surveys are still ongoing, and a comprehensive ecological baseline report will be submitted with the planning application, the key ecological features at the site are already well understood and are summarised below.

River Ray Conservation Target Area

2.3 A large proportion of the site is situated within the River Ray Conservation Target Area (CTA). This is one of 37 CTAs in Oxfordshire and covers 1,192 ha encompassing land on the eastern edge of Bicester and Launton and to the south of Ambrosden and Blackthorn. Rather than being a single feature requiring strict protection, the CTA is a strategic area containing a concentration/network of existing features of ecological importance (including SSSIs and LWSs) but with surrounding land which can buffer and link areas thereby creating important larger and better connected landscapes.

2.4 Policy ESD 11 of the Local Plan requires development within or adjacent to a CTA to identify constraints and opportunities for biodiversity enhancement. The policy also states that development which prevents the aims of a CTA being achieved will not be permitted.

2.5 Within the site boundary there is a strong degree of overlap with Gavray Drive Meadows LWS (see below) and the CTA, however additional land is covered by the CTA which is outside of the LWS. These areas are not strictly constrained for development, however their position in the CTA presents an opportunity to protect and enhance these non-designated areas and enhance the ecological network.

Gavray Drive Meadows LWS

2.6 Gavray Drive Meadows LWS covers a large proportion of the site and additional land to the south east on the opposite side of Charbridge Lane (A4421). The LWS boundary is shown on the updated Phase 1 Habitat Plan (**Plan EDP 1**) appended to this report. LWS is a non-statutory designation, however these receive protection through national and local planning policies including Policy ESD 10 of the Local Plan and specific site allocation polices such as Bicester 13.

2.7 With reference to the LWS citation obtained from Thames Valley Environmental Records Centre (TVERC), the LWS is described as '*a mosaic of small damp fields with ponds, divided by thick hedges with old trees'* and is designated on the basis of the following:

- Section 41 (S41) Habitats of Principal Importance[1]: lowland meadows;
- S41 Species of Principal Importance: reed bunting, song thrush, bullfinch, linnet, and great crested newt;
- Nationally scarce species: *Bembidion gilvipes* a ground beetle; and
- Birds of conservation concern: red list: bullfinch, reed bunting, song thrush, yellowhammer, linnet; amber list: dunnock, willow warbler.

2.8 As described further below with respect to habitats, the continued absence of any management of the habitats within the majority of the LWS had led to significant encroachment of scrub and young trees within formerly open grassland and tall herb communities and therefore an overall decline in the ecological value of LWS. Furthermore, the only two fields under active management which are (partially) within the LWS (fields F8 and F9 on **Plan EDP 1**) are cut annually in mid-summer which is sub-optimal in terms of promoting botanical diversity. Accordingly, there is significant scope to reverse this decline through a funded management regime should the proposed development come forward.

Habitats

2.9 A summary of the current habitat baseline within the site is provided in **Appendix EDP 1**, which should be read in conjunction with **Plan EDP 1**. This information is based on detailed update botanical surveys undertaken on 29 August 2019 and 08 June 2020 (the latter primarily focussing on fields F3, F8 and F9 which had been mown just before the visit in August 2019). The extent of scrub, which continues to encroach further into the unmanaged grassland areas, has been mapped accurately using a detailed topographic survey of the site which was updated in January 2020.

2.10 The table within **Appendix EDP 1** includes standard Phase 1 and NVC habitat definitions, together with their equivalent codes within the new UK Habitat Classification System (UK Hab) which underpins the habitat classification within the latest Defra Biodiversity Metric which EDP will be using to objectively measure biodiversity loss and again. The table also includes condition assessment scores which have been made with reference to the Defra Biodiversity Metric supplementary guidance, since the restoration of habitat and improving its current condition forms a part of the strategy to achieve a net gain in biodiversity for the site.

2.11 Overall, the site continues to offer a diverse range of habitats, including: woodland, hedgerows, mature and developing scrub, wet and dry grassland, ponds and the Langford

[1] Section 41 of the *Natural Environment and Rural Communities* (NERC) *Act* 2006

Brook. However, as noted above, the habitats of greatest intrinsic ecological importance, namely the species-rich unimproved neutral grasslands, are in severe decline.

Protected and Notable Species

2.12 **Table EDP 2.1** below summarises the protected and notable species interest at the site based on previous and, where possible, updated surveys.

Table EDP 2.1: Summary of protected and notable species present

Species/Species Group	Summary of Baseline	Key Habitats
Breeding birds	Overall assemblage of District value. WCA[2] Sch 1 species breeding/possibly breeding: • Barn owl (Tyto alba) Red list species breeding/possibly breeding: • Song thrush (*Turdus philomelos*) [S41] • Starling (*Sturnus vulgaris*) [S41] • Cuckoo (*Cuculus canorus*) [S41] • House sparrow (*Passer* domesticus) Amber list species breeding/possibly breeding: • Dunnock (*Prunella modularis*) [S41] • Bullfinch (*Pyrrhula pyrrhula*) [S41] • Common whitethroat (*Sylvia communis*) • Green woodpecker (*Picus viridis*) • Willow warbler (*Phylloscopus trochilus*) • Mallard (*Anas platyrhynchos*) • Stock dove (*Columba oenas*)	Mosaic of woodland, mature trees, hedgerows, scrub, tall herb and grassland.
Wintering birds	Overall assemblage of Local value. S41 species recorded: • Reed Bunting (Emberiza schoeniclus) • Linnet (Carduelis cannabina) • Starling • Song thrush • House sparrow • Dunnock (Prunella modularis) • Bullfinch	Woodland, dense scrub, marshy grassland and arable
Bats (all EPS[3] and WCA))	Overall assemblage of Local value.	Roosting: Mature trees.

[2] Protected under the *Wildlife and Countryside Act* (WCA) 1981 (as amended)
[3] European Protected Species (EPS) protected under the *Conservation of Habitats and Species Regulations* 2010

Species/Species Group	Summary of Baseline	Key Habitats
	Species recorded foraging/commuting: • Common pipistrelle (*Pipstrellus pipistrellus*) • Soprano pipistrelle (*Pipistrellus pygmaeus*) [S41] • *Myotis* sp. • Brown long-eared (*Plecotus auritus*) [S41] • Noctule (*Nyctalus noctula*) [S41] • Leisler's bat (*Nyctalus leisleri*) • Serotine (*Eptesicus serotinus*) Several trees with roosting potential but no confirmed roosts.	Foraging: Woodland, hedgerows, scrub and grassland. Commuting: Woodland, hedgerows and dense scrub.
Other Terrestrial Mammals	Presence (nests) of harvest mouse (*Micromys minutus*) [S41] detected in several rough grass fields. Badger (*Meles meles*) not recorded during targeted surveys however presence assumed on a precautionary basis based on local records and habitat suitability. Hedgehog (*Erinaceus europaeus*) [S41] not subject to survey, but presence assumed on a precautionary basis based on local records and habitat suitability.	Woodland, hedgerows, scrub and rank grassland
Otter (*Lutra lutra*) [EPS, WCA, S41]	Evidence of foraging/commuting (spraint and paw prints) detected along stream.	Langford Brook
Water vole (*Arvicola amphibius*) [WCA, S41]	Potential presence (possible burrows and feeding signs but inconclusive) detected along stream.	Langford Brook
Amphibians (all WCA and S41)	Overall assemblage of District value. Great crested newt (*Triturus cristatus*) [EPS, S41] – medium-large metapopulation occurring across habitats within and adjacent to the site. Other species recorded: • Common toad (*Bufo bufo*) [S41] • Common frog (*Rana temporaria*) • Smooth newt (*T. vulgaris*) • Palmate newt (*T. helveticus*)	Breeding: Ponds/standing water Forage/Shelter: Woodland, hedgerows, scrub and rank grassland.
Reptiles (all WCA and S41	Overall assemblage of District value. Large population of common lizard (*Zootoca vivipara*) Small population of grass snake (*Natrix helvetica*)	Grassland, hedgerows and scrub
Invertebrates	Overall assemblage of Regional value. Findings of targeted lepidoptera surveys include the following S41 species:	Mosaic of woodland, mature trees, hedgerows,

Species/Species Group	Summary of Baseline	Key Habitats
	• Brown hairstreak (*Thecla betulae*) • Black hairstreak (*Satyrium pruni*) • White-letter hairstreak (*Satyrium w-album*) • Small heath (*Coenonympha pamphilus*) • 24 species of night-flying macro moth Findings of general invertebrate surveys include the following S41 moth species: • Forester moth (*Adscita statices*) • Mother shipton (*Callistege mi*) • Shaded broad-bar (*Scotopteryx chenopodiata*) • Blood-vein (*Timandra comae*) Findings of general invertebrate surveys include the following Nationally scarce species: • Long-winged Cone-head (*Conocephalus discolor*) • A flea beetle (*Longitarsus parvulus*) • Thistle head weevil (*Rhinocyllus conicus*) • A rove beetle (*Tachyporus formosus*) • Hawthorn jewel beetle (*Agrilus sinuatus*) • A yellow-faced bee (*Hylaeus cornutus*) • Banded tree ant (*Lasius brunneus*) • Pollen beetle (*Meligethes rotundicollis*) • Roesel's bush-cricket (*Metrioptera roeselii*) • A longhorn beetle (*Phytoecia cylindrica*) • A rove beetle (*Stenus oscillator*) • A weevil (*Thamiocolus viduatus*) • A ground beetle (*Bembidion gilvipes*) • A solitary bee (*Lasioglossum malachurum*) • A flea beetle (*Longitarsus dorsalis*) • Loosestrife flea beetle (*Lythraria salicariae*) • A picture-winged fly (*Oxyna parietina*) • A rove beetle (*Philonthus fumarius*) • A leaf beetle (*Podagrica fuscicornis*) • Black-headed cardinal beetle (*Pyrochroa coccineus*) • A rove beetle (*Sepedophilus pedicularius*) • A picture-winged fly (*Merzomyia westermanni*) • A stilt-legged fly (*Micropeza lateralis*) • A soldier fly (*Stratiomys potamida*)	mature and developing scrub, tall herb, rank and shorter grassland, marshy grassland and ponds.

2.13 Protected and notable species which have been confirmed as absent are:

- Marsh fritillary butterfly (*Euphydryas aurinia*) - recorded in 2005 but now largely accepted to have been an unsuccessful introduction attempt by a member of the public; and

- Dormouse (*Muscardinus* avellanarius) - absent to date, although survey ongoing.

Section 3
Summary of Development Proposals

3.1 The precise quantum, layout and land use class for the proposed development are still evolving in light of updated constraints information, commercial considerations and 'testing' with respect to biodiversity metrics. However, in summary, the development will likely comprise: *residential development and ancillary uses including affordable housing, public open space, localised land remodelling, compensatory flood storage and structural planting*.

3.2 The latest Opportunities Plan is provided as **Appendix EDP 2**. This will shape the final development masterplan and associated parameter plans which will accompany the outline planning application and form the basis for the Environmental Impact Assessment (EIA).

3.3 The key ecological constraints, opportunities and principles which are shaping the design are as follows:

- Application of the mitigation hierarchy in sequence - i.e. 1) avoid impacts where possible; 2) minimise impacts which cannot be avoided; 3) compensate for impacts which cannot be avoided or minimised through enhance or existing ecological features and/or creation of new ecological features.

- Gavray Drive Meadows LWS – development to be excluded from within the LWS boundary and a suitable buffer/interface between the development and the LWS to be incorporated;

- River Ray CTA – development to be excluded from within the CTA boundary enabling the retention and enhancement of habitats within the CTA but outside of the LWS, to improve the connectivity and resilience of the ecological network;

- Other important habitats – development to retain and buffer the other important habitats within the site that lie outside of the LWS wherever possible, including native species-rich hedgerows and scrub, and species-rich neutral and marshy grassland;

- Biodiversity Net Gain – development to be located on land of lowest ecological value, and quantum of habitat/biodiversity loss to development to be offset through enhancement of retained habitats (within and without the LWS) to achieve a net gain in biodiversity of 10% or more;

- Public access and open space – provide public open space and walking routes to enable outdoor recreation for health, wellbeing and an appreciation of nature, whilst protecting the most ecologically sensitive parts of the site.

3.4 Whilst specific species are not mentioned above, it is anticipated that the principles set out above will ensure the quantity, quality and diversity of habitats within the site are such that existing species populations would be maintained or enhanced.

Section 4
Avoidance and Mitigation

4.1 Measures to avoid or mitigate ecological impacts will be set out in detail in material submitted in support of the outline planning application and/or in fulfilment of relevant planning obligations and conditions attached to planning consent. A summary is provided below.

Inherent Mitigation Embedded in the Site Layout

4.2 The following design principles are embedded in the site layout:

- Retention, and buffering from development, of important habitat features and areas, including the entirety of Gavray Meadows LWS and other non-designated habitats including semi-improved neutral grassland in field F3, hedgerows, ponds and mature trees;

- Limiting public access provision within Gavray Meadows LWS to the least sensitive northern fields (F5, F6 and F10) whilst creating a circular pedestrian route linking on-site and off-site green infrastructure; and

- A wide development buffer to the west of Langford Brook, primarily due to flood plain constraints, enabling conversion of the current arable land in this area to informal open space of potentially greater ecological value.

Construction Measures

4.3 A range of measures are proposed to avoid or mitigate ecological impact during the enabling and construction phases of the development.

4.4 The following measures will be detailed in full within an Ecological Construction Method Statement (ECMS) and/or, where appropriate, within material to support Natural England Mitigation Licences in respect of certain legally protected species:

- Appointment of an Ecological Clerk of Works to oversee and supervise relevant works and brief site personnel/contactors engaged in activities which bring some risk of harming protected or notable species;

- Pre-commencement site surveys/site checks, the precise scope of which is dependent upon the age of pre-existing survey information at the point at which works are due to commence;

- Protection of retained habitats and areas through the establishment of Ecological Protection Zones (EPZs). EPZs are typically achieved through co-ordination with tree protection measures required as good arboricultural practice, including temporary protective fencing and signage;

- Initial works to create and enhance habitats for certain protected species, such as the construction of new ponds and amphibian and reptile hibernacula; and

- Sensitive timing and methods of vegetation clearance to avoid the killing or injuring, or disturbance during breeding or hibernation periods, of relevant protected or notable species.

4.5 The following measures will be detailed in full within a Construction Environmental Management Plan (CEMP):

- Restricted working hours and sensitive lighting strategy to minimise impacts on nocturnal wildlife;

- Suppression of construction noise and dust;

- Prevention of hydrological impacts on retained wetland/aquatic habitat through an appropriate surface water management strategy; and

- Adherence to pollution prevention guidelines, in particular when working in or near the Langford Brook.

Wildlife Sensitive Lighting Strategy

4.6 In order to avoid potential impacts on nocturnal wildlife through increased or inappropriate light levels within retained and new habitats, a wildlife sensitive lighting strategy will be prepared in conjunction with the detailed development layout and infrastructure design. This strategy will include the following:

- Lighting with a low UV component to reduce invertebrate attraction;

- Identification of key zones of potential sensitivity to increased light spill, in particular on the edges of the proposed development adjacent to retained habitats;

- Directional lighting/shielding of lights with accessories such as hoods, covers, louvers and shields to avoid light spill into the sensitive zones; and/or

- Use of LED lighting with red/amber wavelengths (with limited blue light content which, research shows, is effective at avoiding impacts on the ability of bats to forage) adjacent to the sensitive zones.

Section 5
Restoration and Enhancement

5.1 Measures are proposed to restore and enhance existing habitats, and to create new habitats in areas of limited existing ecological value, to achieve a net gain in biodiversity. As above, such measures will be set out in detail in material submitted in support of the outline planning application and/or in fulfilment of relevant planning obligations and conditions attached to planning consent and are summarised below.

Landscape and Ecological Management Plan

5.2 The primary means by which the restoration and enhancement of habitat within the site (including areas covered by River Ray CTA and Gavray Drive Meadows LWS) will be delivered is through the preparation, funding and implementation of a Landscape and Ecological Management Plan (LEMP).

5.3 Responsibility for implementation of the LEMP and associated monitoring and review is yet to be determined but is likely to rest with either Cherwell District Council, a Private Management Company or a third party such as Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust. Previous wildlife strategies drafted for the site following the grant of outline consent at appeal in 2005 proposed the establishment of Wildlife Management Group (WMG), to be compiled by Cherwell District Council, which would take responsibility for overseeing the management of the retained habitats, contribute to the LEMP review every 5 years and where necessary revise the LEMP.

5.4 Funding of the initial and long-term management activities would be provided by the developer through a commuted sum secured through a Section 106 (s106) legal obligation. The costs of the management proposals will be calculated prior to the submission of the planning application to inform any s106 discussions between the applicant and CDC prior to determination.

5.5 For the purposes of pre-application consultation, the following LEMP components have been developed in draft:

1. Landscape and Ecology Strategy Plan – a plan outlining the overall vision for the site;

2. Management Objectives – a set of overarching management objectives to be delivered by specific management activities/prescriptions in the long-term; and

3. Management Compartments Plan– a plan setting out spatial habitat areas with different management objectives.

5.6 The draft Landscape and Ecology Strategy Plan and Management Compartments Plan are appended to this report as **Plan EDP 2** and **Plan EDP 3** respectively. The draft Management Objectives are provided below and should be read in conjunction with these plans.

Objective 1: Manage Recreational Pressure within Gavray Drive Meadows LWS

5.7 The LWS currently suffers from a range of 'urban edge effects' such as unauthorised access for dog walking in the open fields and rough sleeping, fires and littering in secluded/wooded areas. Some of these effects would likely reduce as a result of increased natural surveillance and implementation of a regular management regime associated with the proposed development. However, it is recognised that unmanaged recreational use of the site by residents of the new housing development could lead to further deterioration in the ecological interest of the LWS.

5.8 It is proposed that this will be avoided through a combination of the following:

- Physical exclusion measures within Compartments B, D and E (the 'core' of the LWS where the botanical interest is the highest and where grazing is proposed) including maintenance of dense thorny hedges or woodland/scrub edge and stock proof fencing (with secure access gates in key locations for management access);

- A regime of regular litter picking, provision of bins for dog waste and signs promoting responsible dog ownership;

- A series of open spaces, linked by a clearly defined circular footpath route, to provide alternative recreational opportunities and alleviate potential pressure on the LWS 'core'. This includes managed access through Compartments A, F and I (within the LWS but of lower value and/or sensitivity), additional informal public open space in Compartments J, K, L and M (outside of the LWS) and other formal/amenity space and play areas within the development; and

- Provision of educational material such as signs, interpretation boards and householder information packs, for increasing public awareness and 'ownership' of the LWS and its surroundings.

Objective 2: Establish an Extensive Grazing (or similar) Regime in Compartments B, D, E, G and H to Restore, Maintain and Enhance the Grassland Interest of the Compartments

5.9 Gavray Drive Meadows LWS is designated primarily due to its grassland interest, the best surviving examples of which are located in Compartments B, D and E as shown on **Plan EDP 3**. The grassland interest is currently under threat from the lack of appropriate grassland management, which is leading to the encroachment of scrub, rank grassland

and tree colonisation. Unless appropriate management is implemented, the grassland interest of the LWS will eventually be lost.

5.10 Compartments G and H are open grasslands currently under regular management; however this entails cutting for sileage in early summer, which suppresses the botanical diversity by removing the flower heads of many wildflowers before they have set seed and preventing the recruitment of young plants and existing older plants die off.

5.11 In these compartments, where public access will be either excluded or very limited, the optimal management regime to restore and maintain the lowland meadow/species-rich neutral grassland habitat is low intensity grazing by hardy cattle or ponies. This approach will be pursued subject to an appropriate local grazier being available.

Objective 3: Establish Hay Cutting Regime in Compartments A, J and K to Restore, Maintain and Enhance the Grassland Interest of this Compartment

5.12 Compartment A is a long narrow strip of land on the northern edge of the LWS beside the railway line. The grassland interest here has suffered partly as a result of a lack of management resulting in scrub encroachment but was also damaged during railway infrastructure works (which resulted in the complete loss of the previous northerly extent of the LWS) leaving areas of disturbed/bare ground.

5.13 Owing to the location of Compartment A, and the proposals to provide a public access route through this area linking the western and eastern development areas (and where an informal trodden path/desire line already exists), it is proposed to restore the grassland through a hay cutting regime rather than grazing.

5.14 Compartment J is currently cut for sileage in early summer, which suppresses the botanical diversity as described above. This compartment will form a part of the informal public open space, albeit with access managed by provision of mown paths through the generally tall grassland. Accordingly it is proposed to restore the grassland through a hay cutting regime rather than grazing, with cutting taking place in late summer to enable more plants to successfully set seed and with the hay making process actively facilitating the spread of wildflower seed.

5.15 Compartment K will also form a part of the informal public open space. This compartment requires scrub control to restore the existing grassland interest, after which a hay cutting regime would be implemented to maintain it.

5.16 In all compartments managed by hay cutting, a margin of approximately 5m in width around the edges will be cut less frequently, i.e. on a 5-year rotation with only 20% cut in any one year, to maintain a grassland/scrub edge ecotone.

Objective 4: Selectively Remove Excessive Scrub in Compartments A, B, D and E and Maintain a Stable Distribution of this Habitat within these Compartments

5.17 Establishing a grazing and/or hay cutting regime within compartments A, B, D and E will serve to control future scrub encroachment within these species-rich grassland habitats. However, existing scrub encroachment, due to the lack of appropriate management, is currently posing a major threat to the long-term interest of the grassland habitats.

5.18 Recognising the importance of woody scrub and bramble for a wide range wildlife species present on the site, it is proposed to gradually (i.e. in increments of 5-10% every 2-3 years) reduce the average scrub cover in the interiors of the compartments to approximately 10% and to then maintain a stable distribution at this level through periodic control of new growth.

5.19 In addition to the above, new native scrub will be planted or allowed to naturally develop on the northern edge of Compartment A beside the railway security fence. This new scrub habitat, indicated approximately on **Plan EDP 3** by sub-compartments A(i) and A(ii), will create more sheltered, warm south facing scrub/grassland ecotone which will benefit a range of species and invertebrates in particular. This will also enhance the experience of the public walking through Compartment A.

Objective 5: Establish Permanent Zones of Blackthorn Scrub with a 20-year Coppice Cycle

5.20 Blackthorn scrub at a range of successional stages, from young suckering growth to tall mature stands, is required to provide breeding habitat for black and brown hairstreak butterflies of which particularly important populations are supported by the site.

5.21 Therefore, in addition to scrub patches being maintained in the species-rich grassland as described under Objective 3 above, and in addition to sensitive management of blackthorn within retained hedgerows and woodland edges as described **Objectives 9** and **10** below, dedicated zones of blackthorn will be retained as indicated approximately on **Plan EDP 3** by sub-compartments A(iii), A(iv), B(i), D(i), E(i), E(ii), G(i) and I(ii).

5.22 These zones will, collectively (in two or three groups), be subject to annual coppicing (i.e. cutting to just above ground level and allowing stumps to regenerate), with only proportion coppiced each year and each patch only coppiced every 20 years.

Objective 6: Preserve Veteran Oak Trees and Promote Establishment of New 'Parkland' Oaks within Compartment C

5.23 The line of mature and veteran oak trees on the boundary between Compartments B and D provide a valuable wildlife habitat. Being located in an area with limited or no public access, these trees will be left to naturally senesce, drop limbs etc. and be left standing as they eventually die to provide valuable deadwood habitat. However, the trees will be inspected regularly for storm damage which may identify the need for some minimal interventions to extend their life. Fencing may also be required to avoid excessive trampling

from grazing animals at the bases of these trees which could harm the roots or associated mycorrhizal fungi in the soil.

5.24 In addition to the above, a small selection of the self-sown oaks within Compartments B and D will be retained during the scrub clearance activities, and protected by fencing if necessary from the potential impact of grazing animals or deer etc., to create a new generation of future veteran 'parkland' oaks.

Objective 7: Extend Life of Mature Crack Willows along the Langford Brook

5.25 The mature crack willows beside Langford Brook provide a valuable wildlife habitat however these trees are prone to splitting apart as they mature, which could pose a risk to the public in the accessible parts of the site. The trees will be inspected regularly and, where appropriate, a traditional regime of pollarding will be implemented to promote the development of thick stemmed specimen trees with an associated variety of microhabitats.

Objective 8: Establish New Species-rich Neutral and Marshy Grassland within Compartments M and L

5.26 Compartment M is currently arable land under active cultivation, although the eastern portion beside Langford Brook was reverted to rank, species-poor grassland for a period approximately 14 years ago. The majority of this compartment is to be reverted to species-rich neutral grassland to be enjoyed by the public as part of an area of informal public open space. To maximise the ecological value of this new grassland, the current arable land will be subject to a topsoil strip or deep ploughing exercise. This process will expose less nutrient enriched subsoil to form the surface on which to introduce green hay cut from existing species-grassland within the LWS and/or a locally sourced seed mix. Thereafter, aside from more regularly mown pathways for informal public access and/or access to maintain the drainage infrastructure, the grassland would be managed through a twice-yearly hay cutting regime (in spring and early summer) to promote botanical diversity.

5.27 Compartment L is currently dense scrub, albeit overlying former species-rich neutral grassland. New species-rich neutral grassland will therefore likely be established here through clearance of existing scrub and a combination of natural regeneration from the existing seedbank supplemented by the application of green hay/locally sourced seed depending on the success of the natural regeneration.

5.28 New surface water attenuation ponds are also proposed within these compartments, which are to be designed to a depth which will provide permanent and semi-permanent open water. These will be prepared in a similar manner to species-rich neutral grassland described above, although it is anticipated that the grassland which develops in the margins and draw down zones of these attenuation ponds will be more marshy in character.

Objective 9: Restore Remnant Hedge Lines and Plant New Species-rich Native Hedgerow

5.29 The hedgerows within the site are currently unmanaged and as a result are forming the nuclei for scrub encroachment, to the detriment of any botanical species in the field layer of the hedgerows. Locally, the hedgerows have been lost as a result of the lack of appropriate management, being replaced by tree lines.

5.30 It is therefore proposed to restore remnant hedge lines that are still capable of being restored, as shown on **Plan EDP 3**, through a traditional hedge laying technique. The restoration, and long-term management, will take into account those species present within the site that use hedgerow species including nesting birds, bats and hairstreak butterflies. A staged approach will be adopted, comprising laying on a 10+ year rotation and a three to five-year rotation for trimming. In any one year no more than a tenth of the hedgerows will be laid and no more than a third will be trimmed.

5.31 Further to the above, to compensate for the loss of hedgerow/linear scrub within the development footprint, new species-rich native hedgerows will be planted in locations indicated on **Plan EDP 3**.

Objective 10: Maintain and Enhance Woodland and Mature Scrub

5.32 Existing woodland and mature scrub (compartment F) will be maintained through annual trimming of edges (no more than 20% per year) to prevent scrub encroachment into grassland and/or to maintain existing public rights of way. The health of any mature trees within or near to areas open to public access will be subject to annual inspections to ensure these do not pose a risk to health and safety.

5.33 In addition to the above, the dense scrub that has become established in compartment I will be largely retained and allowed to continue to develop into scrub-woodland. A 'ride' approximately 10m in width will be cut through this scrub-woodland to facilitate the circular walking route between compartments A and J and to enhance opportunities for a range of wildlife including invertebrates in particular. This ride will be managed to promote a grassland/scrub ecotone, with a regularly mown/surfaced central pathway, a zone either side of the pathway cut annually in late summer, and the outer edges cut on a 5-year rotation with only 20% cut in any one year.

Objective 11: Maintain and Enhance Existing Wetland and Ponds and Create New Wildlife Ponds

5.34 The existing ponds, and sedge swamp habitat in compartment A(v) will be desilted, and excessive scrub encroachment selectively removed, during the construction phase of the proposed development. In addition, five new wildlife ponds (in addition to the attenuation ponds described under Objective 8 above) will be created in compartments G, H and J, and the linear strips of wetland/marsh on the eastern edge of compartment J (formed by historic ridge and furrow) will be maintained in the long-term.

5.35 Following these initial works, the long-term management of these wetlands and ponds to maintain their ecological value is likely to be relatively light touch and involve scrub control and occasional desilting every 5-10 years.

Objective 12: Maintain and Enhance Habitat for Invertebrates

5.36 The habitat restoration and enhancement measures outlined above under **Objectives 2** to **11** above will maximise the range and diversity of micro-habitats, and the availability of foodplants and nectar sources, to benefit of the invertebrate population.

5.37 In addition to the overall provision of a species-rich habitat mosaic, **Objectives 5**, **9** and **10** above are specifically targeted at maintaining the important populations of black and brown hairstreak butterfly, which require blackthorn in different successional stages, with a large proportion of habitat left uncut in any one year, for successful breeding.

5.38 Specific measures are also proposed which are targeted at maintaining the important population of white-letter hairstreak butterfly. This species requires elm for successful breeding and is therefore susceptible to the loss of elm from Dutch elm disease, which typically infects trees/regrowth at 12 years old. The proposed measures are as follows:

- Elm trees with flowering, suckering regrowth will be Identified and retained and, if necessary, neighbouring trees pruned to reduce shading, and a proportion of these will be coppiced each year on a 10-year rotation; and

- Disease resistant elms will be planted in sunny sheltered locations (to be specified as part of the landscaping proposals) and these will not be coppiced.

5.39 Whilst the measures above single out a relatively small number of individual lepidoptera species these will benefit a range of other invertebrate species. The results of proposed post-construction monitoring work will be used to ensure that management is appropriate to the species present within the site.

Objective 13: Maintain and Enhance Habitat for Reptiles and Amphibians

5.40 The restoration and enhancement of grassland, scrub, woodland and ponds outlined above will maintain opportunities for breeding, foraging, refuge and dispersal of reptiles and amphibians within and around the site.

5.41 In addition to management of existing habitats, new wildlife ponds and hibernacula created during the construction phase (and to be included in the ECMS) will be managed thereafter to maintain their value to reptiles and amphibians

Objective 14: Maintain and Enhance Roosting, Foraging and Commuting Opportunities for Bats

5.42 The habitat objectives set out above will also be of benefit to bats in terms of retaining natural roosting habitats in mature trees, linear habitats in sheltered dark conditions to aid

navigation and foraging, and an abundance of insect prey. In addition, specific measures within the ECMS will ensure that new roosting opportunities are provided through the installation of durable bat boxes on retained mature trees in secluded locations. These boxes will need to be specifically maintained (and replaced or repaired as necessary) thereafter.

Objective 15: Maintain and Enhance Habitat for Breeding and Wintering Birds

5.43 The habitat objectives set out above will also be of benefit to birds in terms of retaining natural nesting habitats in woody habitats and rough grass in undisturbed locations, shelter during the winter, and an abundance of summer food (e.g. invertebrates, fruits and berries) and winter food (e.g. invertebrates and seeds).

5.44 Owing to the extents of natural nesting habitat to be maintained on site, it is not proposed to provide additional bird boxes in this instance, with the exception of a single barn owl box to be installed in a mature tree in compartment C.

Objective 16: Maintain and Enhance Habitat for Small Mammals

5.45 Surveys in 2020 recorded, for the first time, an otter spraint and paw prints in the culvert where Landford Brook passes beneath Gavray Drive. Possible signs of water vole were also recorded but these were not definitive and could have been created by rats or bank voles. The Langford Brook will be subject to limited interventions to enhance the habitat for otter and water vole, namely thinning of scrub/trees (e.g. crack willows as described above) to allow more light to reach the stream channel and banks, and regular removal of litter.

5.46 The habitat objectives set out in respect of the grassland, scrub, hedgerows and woodland will benefit harvest mouse, badger and hedgehog in terms of opportunities for shelter and forage.

Objective 17: Provide Clear Results of Monitoring to Inform the Management Plan Review Process

5.47 Flora and fauna at the site will be recorded prior to the commencement of the management regime in order to update the existing baseline situation as set out in the ecology ES chapter. The baseline surveys will be devised to be both robust and repeatable in order to ensure that future monitoring of the flora and fauna can produce comparable results that can be recorded and interpreted in a manner which can then be used to assess the success of the management, with action taken as appropriate.

5.48 A database of biological records will be set up with records submitted to the Thames Valley Environmental Records Centre (TVERC).

New Habitat Creation

5.49 As noted above within Objectives 8, 9 and 11, new habitats of ecological value will be created as part of the detailed soft landscaping proposals prepared at the detailed design stage of the development, including the following:

- New species-rich neutral and marshy grassland;
- New species-rich native hedgerow and tree planting; and
- New attenuation ponds and off-line wildlife ponds

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Section 6
Biodiversity Impact Assessment

6.1. A Biodiversity Metric has been used to objectively measure the net biodiversity impact of the loss of existing habitats to make way for the proposed development, creation of new habitats post-development and restoration and enhancement of retained habitats outside of the development footprint. This has been undertaken iteratively during the design process and will continue to be refined prior to the submission of the planning application to ensure that the development proposals can deliver a demonstrable net gain in biodiversity in accordance with national and local planning policy.

6.2. The Department for Environment, Food and Rural Affairs (DEFRA) Biodiversity Metric 2.0 (version date: 19/12/2019), has been used to undertake the iterative Biodiversity Impact Assessment (BIA). The results of the latest Biodiversity Metric calculations, based on the current location and quantum of development as shown on the Constraints and Opportunities Plan, are summarised **Table EDP 6.1** below.

Table EDP 6.1: Summary of latest Biodiversity Metric calculations

	Habitat Units	**Hedgerow Units**
On-site baseline	138.90	6.96
On-site post-intervention	163.23	7.80
Total net unit change	24.33	0.84
Total net % change	+17.52%	+12.12%

6.3. The summary results above indicate that the proposed development, with associated ecological mitigation and enhancement, would result in a net gain in biodiversity in excess of 10% for both 'area-based' (habitat) and 'linear' (hedgerow) features.

6.4. A full copy of the final calculations, together with notes on the key assumptions made within the Biodiversity Metric, will be submitted with the outline planning application.

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Section 7
Summary and Conclusions

7.1. This draft Mitigation and Management Strategy has been prepared to aid constructive pre-application engagement with key ecological stakeholders in relation to proposed development north of Gavray Drive, Bicester

7.2. Whilst the latest update baseline surveys are still ongoing, and a comprehensive ecological baseline report will be submitted with the planning application, the key ecological features at the site are already well understood based on historic and ongoing survey work and comprise the following:

- Local plan policy/non-statutory designations, namely River Ray Conservation Target Area and Gavray Drive Meadows Local Wildife Site;
- A diverse range of habitats, including: woodland, hedgerows, mature and developing scrub, wet and dry grassland, ponds and the Langford Brook; and
- Legally protected and/or notable (rare or declining) species, including: birds, bats, terrestrial mammals, amphibians, reptiles and invertebrates.

7.3. A new outline planning application is being prepared for a comprehensive scheme across the entire allocated site, including residential development and associated infrastructure and landscaping together with a strategy for the protection and restoration of Gavray Drive Meadows Local Wildlife Site (LWS) and the site's wider biodiversity interest.

7.4. Measures to avoid or mitigate ecological impacts, and to restore and enhance the site's ecological interest to achieve a net gain in biodiversity, will be set out in further detail in the course of the planning process. As set out in this report, the key mechanisms and vehicles through which such measures will be secured include the following:

- Inherent mitigation embedded in the site layout;
- Ecological Construction Method Statement (ECMS);
- Construction Environmental Management Plan (CEMP);
- Wildlife sensitive lighting strategy;
- Landscape and Ecological Management Plan (LEMP); and
- Detailed soft landscaping proposals.

7.5. Being a critical pillar of the overall strategy, the key principles and objectives of the LEMP are set out in some detail within this report.

7.6. Ecological stakeholders are invited to provide comments and suggestions on all of the above at the upcoming meeting/workshop. However, at this stage, it is considered that the strategy outlined in this report would enable development within this allocated site to come forward whilst safeguarding the site's ecological interest in the long-term, thereby complying with relevant legislation and planning policy.

Appendix EDP 1
Summary of Habitats

Key:

	Fully within Gavray Drive Meadows LWS
	Partially with the LWS
	Not within the LWS

Field No. (see Plan EDP 1)	Habitat Classification				Condition (ref. Defra Metric)	Botanical Survey Notes & Photos 2019/2020	Within LWS?
	JNCC Phase 1	UK Habitat Code	NVC Code (if applicable)	Defra Metric 2.0			
F1	Marsh/Marshy Grassland	g3c	N/A	Other neutral grassland	Poor	Very small parts of this otherwise scrub-dominated field retain a marshy grassland sward. These relict areas are linked by a narrow path running through the scrub which also supports some relict marshy grassland species along its edge.  F1: One of the areas of relict marshy grassland (08 June 2020)	N
F2	Marsh/Marshy Grassland	g3c7	MG9a	Other neutral grassland	Fairly poor	This field supports a considerable amount of scrub. Small pockets of relict coarse semi-improved neutral grassland / marshy grassland in mosaic with each other and the scrub were recorded in the south-eastern part of the field which was the only part where physical access was possible.	N

Field No. (see Plan EDP 1)	Habitat Classification				Condition (ref. Defra Metric)	Botanical Survey Notes & Photos 2019/2020		Within LWS?
	JNCC Phase 1	UK Habitat Code	NVC Code (if applicable)	Defra Metric 2.0				
F3	Semi-improved Neutral Grassland	g3c6	MG6b	Other neutral grassland	Moderate	This sward equates to a species-rich **MG6b** *Lolium pernne-Cynosurus* cristatus grassland *Anthoxanthum odoratum* sub-community.	 F3: The drier grassland (MG6b) (08 June 2020)	N
	Marsh/Marshy Grassland	g3c7	MG9a	Other neutral grassland	Moderate	The majority of the furrows in this field support a marshy grassland community which is suggestive of seasonal inundation. Soft rush, creeping bent, tufted hairgrass and hairy sedge are locally very common along with some greater bird's-foot trefoil and marsh thistle. Yorkshire fog, rough meadow-grass, sweet vernal-grass, and creeping buttercup are also common. This most strongly equates to the **MG9a** *Holcus lanatus-Deschampsia caespitosa* grassland *Poa trivialis* sub-community.	 F3: A typical example of a damp furrow (08 June 2020)	N

Field No. (see Plan EDP 1)	Habitat Classification				Condition (ref. Defra Metric)	Botanical Survey Notes & Photos 2019/2020		Within LWS?
	JNCC Phase 1	UK Habitat Code	NVC Code (if applicable)	Defra Metric 2.0				
	Marsh/Marshy Grassland	f2b/g3c7	M23b/MG9a	Purple moor grass and rush pastures	Moderate	This community has some affinity to the **M23b** *Juncus effusus / acutiflorus-Galium palustre* rush-pasture *Juncus effusus* sub-community which is more typical of northern and western Britain and is rarely recorded in lowland England. There is also some resemblance to the **MG9a** found in the other ditches in this field. Differentiating between MG9a and M23b can be problematic as extremes of both sub-communities can frequently resemble each other.	 F3: A typical example of a wet furrow (08 June 2020)	N
F4	Dense/continuous scrub	h3h	N/A	Mixed scrub	Poor	This field is completely covered by dense scrub including blackthorn, oak and bramble.		Y
F5	Semi-improved Neutral Grassland	u1a	N/A	Other neutral grassland	Moderate	Fields F5 and F6 were significantly impacted by earthworks and infrastructural works (undertaken c. 2018) with the northern edges being incorporated within the railway estate and considerable destruction and degradation of the remaining sward. In 2019 bare ground and ephemeral / short perennial habitat dominated and ruderal / tall herb species were common, although patches of relict grassland were present. In 2020 a notable increase in vegetative cover was apparent across the fields with marshy grassland in particular becoming conspicuous. Scattered scrub is also present.	 F5: sward re-establishing and becoming fairly species-rich (08 June 2020)	Y
F6	Semi-improved Neutral Grassland	u1a	N/A	Other neutral grassland	Moderate	See above		Y

Field No. (see Plan EDP 1)	Habitat Classification				Condition (ref. Defra Metric)	Botanical Survey Notes & Photos 2019/2020		Within LWS?
	JNCC Phase 1	UK Habitat Code	NVC Code (if applicable)	Defra Metric 2.0				
	Poor Semi-improved Grassland	u1a	N/A	Open mosaic habitats on previously developed land	Poor		 F6: Disturbed ground plant communities (29 August 2020)	
	Swamp	f2a	S7	Fens (upland and lowland)	Moderate	Along the southern edge of F6 is a large stand of lesser pond and several young plants of greater tussock; this equates to the S7 Carex acutiformis swamp although it was too small an area to be subject to NVC survey	 F6: Stand of lesser pond sedge on the southern edge (08 June 2020)	Y

Field No. (see Plan EDP 1)	Habitat Classification				Condition (ref. Defra Metric)	Botanical Survey Notes & Photos 2019/2020	Within LWS?
	JNCC Phase 1	UK Habitat Code	NVC Code (if applicable)	Defra Metric 2.0			
F7	Unimproved Neutral Grassland	g3a	MG5c	Lowland meadow	Fairly poor	Most of this field now supports dense scrub but three small relict areas of grassland remain and these are of high botanical value as they support unimproved neutral grassland habitat that demonstrates a strong acidic influence and is thus an example of the **MG5c** *Cynosurus cristatus-Centaurea nigra* grassland *Danthonia decumbens* sub-community. In 2019 rabbit grazing was intense here but in 2020 there was no evidence of rabbits and the sward was conspicuously tall; however, several small areas of species-rich sward had been burned by a rough-sleeper living in this area.  F7: Abundant rosettes of devil's-bit scabious (08 June 2020)	Y
F8	Semi-improved Neutral Grassland	g3c6	MG6b	Other neutral grassland	Fairly poor	The middlemost of the three managed hay meadows in the east of the site, with a pronounced ridge and furrow topography. This sward is an **MG6b** *Lolium perenne-Cynosurus cristatus* grassland *Anthoxanthum odoratum* sub-community but is less species-rich than that in the adjacent field F3.  F8 (08 June 2020)	Partially
	Marsh/Marshy Grassland	g3c7	MG9a	Other neutral grassland	Fairly poor	F8 experiences much less waterlogging that the neighbouring meadow F3 and there is only a very small amount of **MG9a** vegetation in the south-east of the field.	
F9	Semi-improved Neutral Grassland	g3c6	MG6b	Other neutral grassland	Fairly poor	The westernmost of the three managed hay meadows in the east of the site this is very similar to its neighbouring field F8 but has only one large patch of trailing tormentil. The main body of the field is a relatively species-poor **MG6b**.	Partially
	Marsh/Marshy Grassland	g3c8	MG10b	Other neutral grassland	Fairly poor	The small area of marshy grassland is **MG10b** *Holcus lanatus-Juncus effusus* rush-pasture *Juncus inflexus* sub-community.	
F10	Poor Semi-improved Grassland	g3c	N/A	Other neutral grassland	Poor	It appears that the sward has been re-sown with an agricultural grass mix as it is now a poor semi-improved grassland. Some non-agricultural grasses and herbs are still present and appear to have re-established from the old sward that was present here prior to the agricultural improvement works but they are weak components of an otherwise species-poor sward.	N
	Marsh/Marshy Grassland	g3c	N/A	Other neutral grassland	Poor	On the eastern edge of the field there is a small area of species-poor marshy grassland that was not subject to recent agricultural improvement.	

Field No. (see Plan EDP 1)	Habitat Classification				Condition (ref. Defra Metric)	Botanical Survey Notes & Photos 2019/2020		Within LWS?
	JNCC Phase 1	UK Habitat Code	NVC Code (if applicable)	Defra Metric 2.0				
F11	Semi-improved Neutral Grassland	g3c5/g3a5	MG1c/MG4	Lowland hay meadows	Poor	The dominant plant community here (Community 1) is the **MG1c** *Arrhenatherum elatius* grassland *Filipendula ulmaria* sub-community although there is also some affinity towards the **MG4** *Alopecurus pratensis-Sanguisorba officinalis* grassland. It is likely that the sward here represents an MG4 grassland transitioning into an MG1c through prolonged absence of management.	 F11 (29 August 2020)	Y
	Semi-improved Neutral Grassland	g3c6/g3c5	MG6b/MG1a	Other neutral grassland	Fairly poor	The smaller area of slightly finer turf in the west of the field, where most of the pepper saxifrage is recorded, most closely keys out to the **MG6b** *Lolium perenne-Cynosurus cristatus* grassland *Anthoxanthum odoratum* sub-community but with an affinity towards the **MG1a** *Arrhenatherum elatius* grassland *Festuca rubra* sub-community.		
F12	Semi-improved Neutral Grassland	g3c5	MG1c/MG1b	Other neutral grassland	Fairly poor	Abandoned meadow with an abundance of tall herbs and with a subordinate grassland component. Some parts are slightly more waterlogged than others and rushes can be relatively frequent; hairy sedge is very common throughout. Much of the field comprises species-poor swards dominated by meadow foxtail or by false oat-grass; however tall herbs are still abundant and both smaller herbs and finer grasses are very uncommon. Scrub is common around the margins and scattered scrub is abundant, in particular young specimens of English oak. In general, lacks the more notable herbs that are recorded in F11. False oat-grass is dominant and other grass species are poorly represented. Less competitive herb species are infrequent however tall herbs are common. This is an **MG1c** *Arrhenatherum elatius* grassland *Filipendula ulmaria* sub-community although it has an affinity in places towards the **MG1b** *Arrhenatherum elatius* grassland *Urtica dioica* sub-community.	 F12: Typical view of tall herb fen and relict grassland with scattered scrub (29 August 2019)	Y
	Semi-improved Neutral Grassland	g3c5	MG1c	Other neutral grassland	Moderate	Situated mainly in the western centre of the field is a sward where meadow foxtail is the most prominent grass species and false oat-grass, although present, is not overwhelming; grass species of finer swards are relatively uncommon. Herbs requiring finer swards are very uncommon and thus this sward strongly suggests a grassland that has been abandoned for many years. This approximates most closely to the **MG1c** *Arrhenatherum elatius* grassland *Filipendula ulmaria* sub-community.		

Field No. (see Plan EDP 1)	Habitat Classification				Condition (ref. Defra Metric)	Botanical Survey Notes & Photos 2019/2020		Within LWS?
	JNCC Phase 1	UK Habitat Code	NVC Code (if applicable)	Defra Metric 2.0				
	Semi-improved Neutral Grassland	g3c6	MG6b	Other neutral grassland	Fairly poor	A community which demonstrates a finer sward with conspicuously fewer coarse grasses or tall herbs than elsewhere in this field. It approximates most closely to the **MG6b** *Lolium perenne-Cynosurus cristatus* grassland *Anthoxanthum odoratum* sub-community, although both crested dog's-tail *Cynosurus cristatus* and perennial rye-grass *Lolium perenne* are scarce here. Although of a less coarse nature, herbs are scarce, although a small quantity of greater burnet is present.	 F12: Area of slightly finer sward (08 June 2020)	
F13	Arable	c1c7	N/A	Arable - cereal crops	N/A		 F13: Looking north-west from the adjacent road (29 August 2019)	N
F14	Arable	c1c7	N/A	Arable - cereal crops	N/A			
F15	Poor semi-improved grassland	g3c	N/A	Other neutral grassland	Poor	Almost entirely dense mature scrub with relict common herb and grass species of a neutral grassland sward present along the edges of a narrow footpath which cuts through the scrub.		N

Field No. (see Plan EDP 1)	Habitat Classification				Condition (ref. Defra Metric)	Botanical Survey Notes & Photos 2019/2020		Within LWS?
	JNCC Phase 1	UK Habitat Code	NVC Code (if applicable)	Defra Metric 2.0				
Various	Dense/continuous scrub	h3h	N/A	Mixed scrub	Poor	Blackthorn scrub predominantly in association with unmanaged hedgerows. Oak, bramble etc. within unmanaged fields.	 Scrub: Footpath through scrub in F15 (10 December 2019)	Partially
Various	Broadleaved Semi-natural Woodland	w1g7	N/A	Broadleaved woodland; other	Fairly poor	Ivy is fairly common in the field layer here, but other herbs and grasses were sparse with no species of any note being recorded.	 Woodland: Ride through woodland between F7 and F5 (29 August 2019)	Y

Field No. (see Plan EDP 1)	Habitat Classification				Condition (ref. Defra Metric)	Botanical Survey Notes & Photos 2019/2020		Within LWS?
	JNCC Phase 1	UK Habitat Code	NVC Code (if applicable)	Defra Metric 2.0				
Various	Standing water	r1a6	N/A	Ponds (priority habitat)	Poor	Dry during summer each year, almost subsumed entirely by scrub in many places.	 Pond: Pond in NE corner of F8 dry in summer (29 August 2019)	Partially

Appendix EDP 2
Opportunities Plan (Dwg ref 239_P02)

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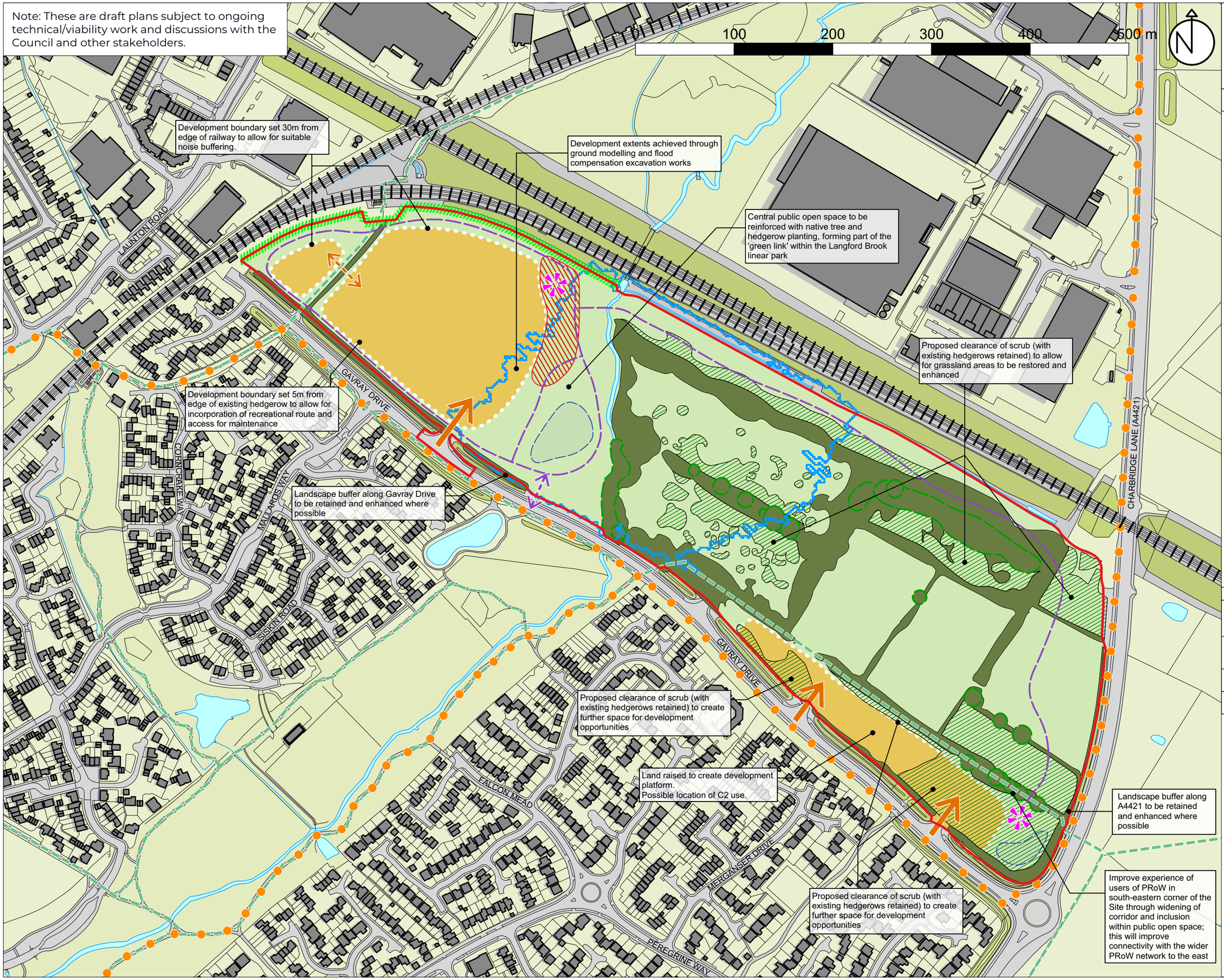
Note: These are draft plans subject to ongoing technical/viability work and discussions with the Council and other stakeholders.



Do not scale from this drawing.

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DISCUSSION

- Site boundary *(22.55ha)*
- Existing site access retained and upgraded
- Existing trees/hedgerows/scrub to be retained *(where possible)*
- Areas of existing scrub to be cleared
- TPOs
- 100yr + climate change flood extent
- Area for flood compensation excavation works
- Existing Public Rights of Way
- Cycle routes
- Railway line
- Indicative residential development area
- Indicative greenspace area (excl. Local Wildlife site but incl. area reserved for attenuation) *(6.9ha)* *(approx. 2.46ha required for 210 dwellings)*
- Area reserved for attenuation
- Proposed hedgerow/tree planting
- Proposed play areas
- Proposed recreational circulation opportunities
- Potential pedestrian/cycle connections
- Propopsed indicative vehicular access between development parcels *(breach in hedgerow required)*

Rev.	Date	Description
A	06.10.20	Updated

Land north of Gavray Drive
BICESTER

Opportunities Plan

Job ref:	Drawing number:	Revision:
239	P02	-

Scale:	Date:
1:3,500 @ A3	May 2020

edge URBAN DESIGN

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Plans

Plan EDP 1 Phase 1 Habitat Plan
(edp124_d0130b 09 October 2020 MJC/WC)

Plan EDP 2 Landscape and Ecology Strategy Plan
(edp124_d0133 09 October 2020 JTF/TW)

Plan EDP 3 Management Compartments Plan
(edp124_d0132 06 October 2020 JTF/TW)

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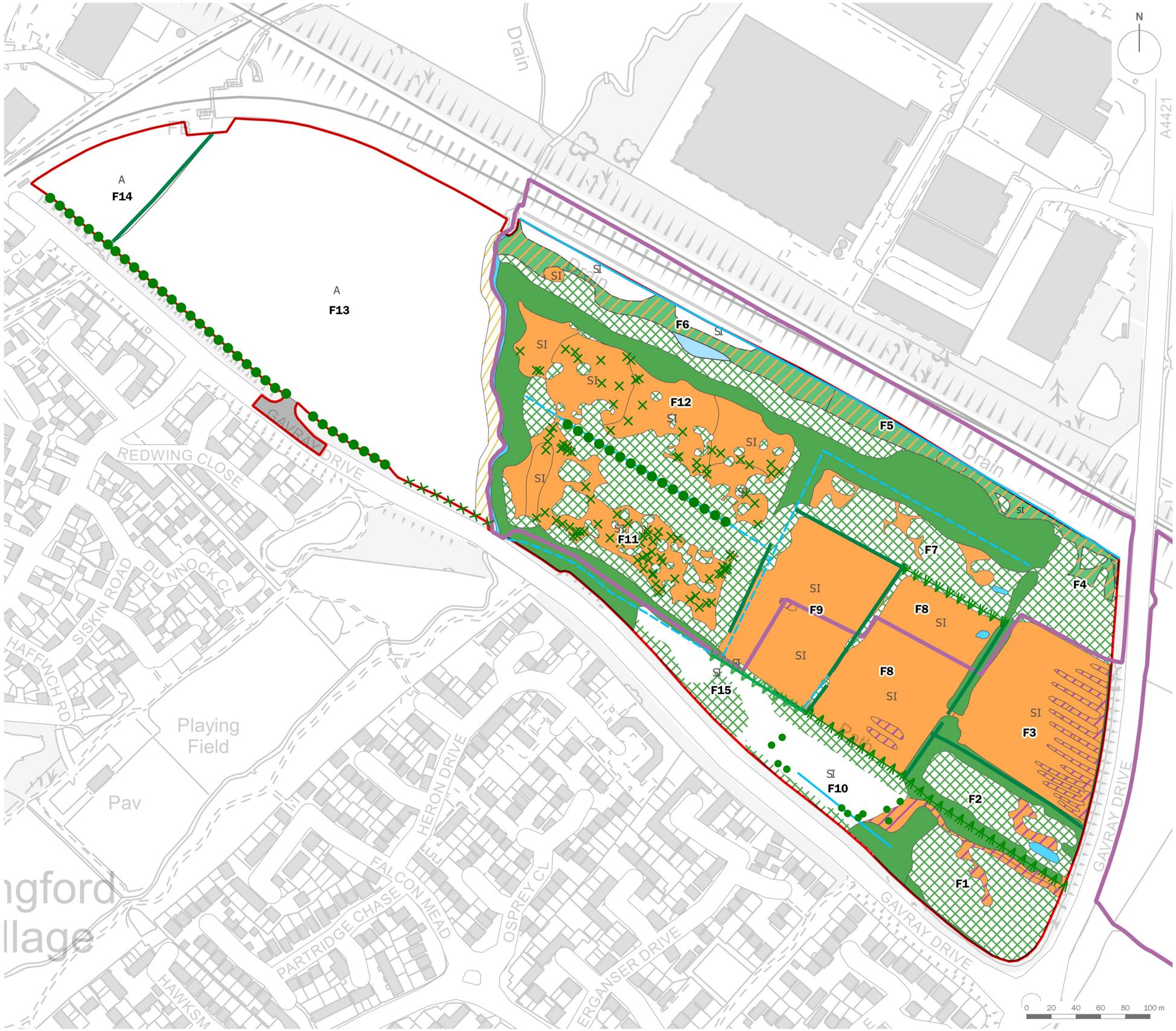

Site Boundary

Local Wildlife Site

Scattered Scrub

Scattered Trees

Intact Species-rich Hedgerow and Trees

Intact Species-rich Hedgerow

Intact Species-poor Hedgerow

Wet Ditch

Dry Ditch

Broadleaved Semi-natural Woodland

Tall Ruderal

Marsh/Marshy Grassland

Dense Continuous Scrub

SI Poor Semi-improved Grassland

SI Semi-improved Neutral Grassland

Unimproved Neutral Grassland

Mosaic of Semi-improved Grassland, Tall Herb/Tall Ruderal; Ephemeral/Short Perennial, Marshy Grassland and Scattered Scrub

Standing Water

Swamp

A Arable

Hardstanding

F15 Field ID

client

L&Q Estates Ltd

project title

Gavray Drive, Bicester

drawing title

Plan EDP 1: Phase 1 Habitat Plan

date	09 OCTOBER 2020	drawn by	MJC
drawing number	edp0124_d130b	checked	WC
scale	1:3,000 @ A3	QA	RB

the environmental dimension partnership

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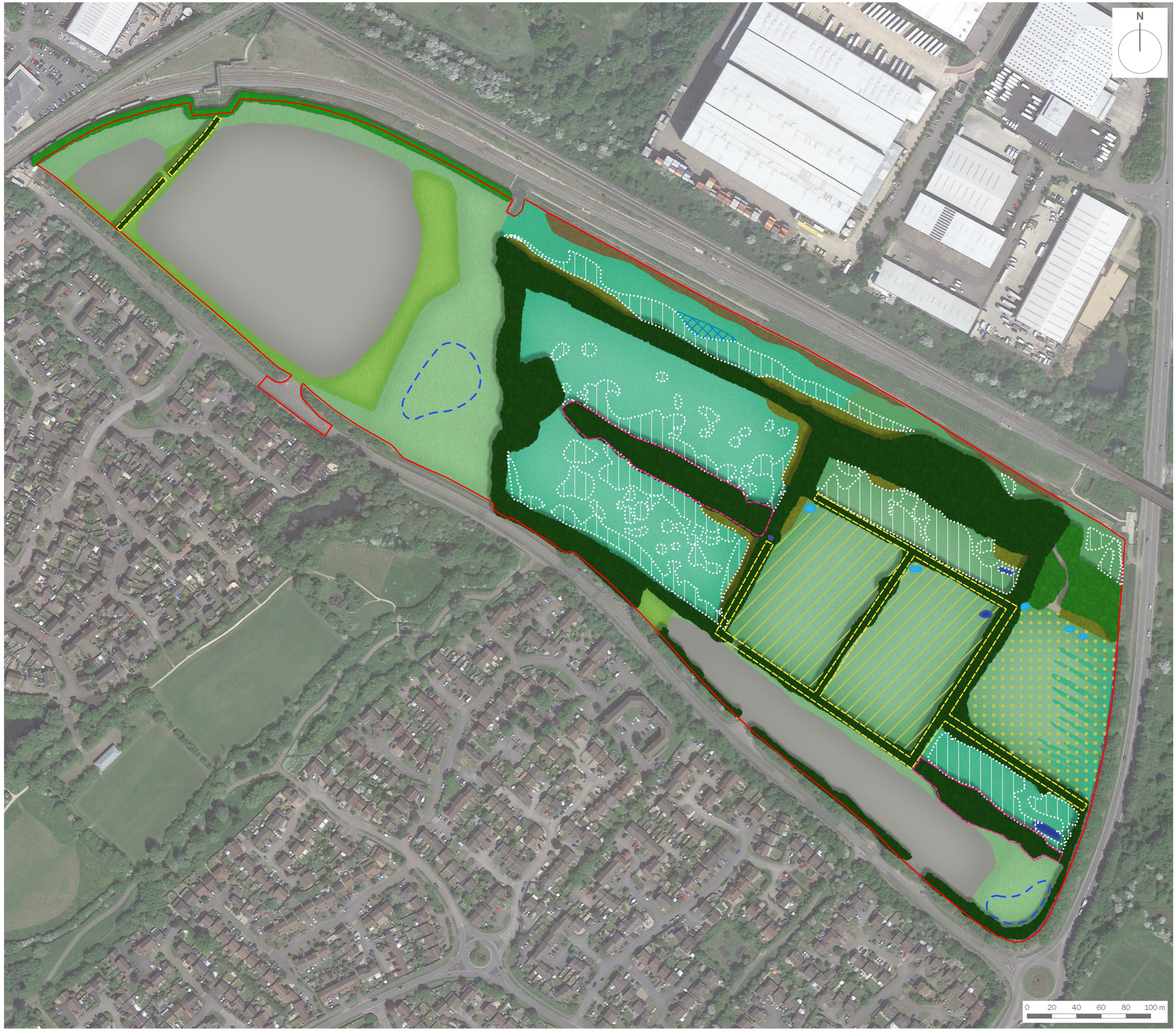

Site Boundary

Indicative Development Parcels

Existing Features

- Existing Ponds
- Existing Species-rich Wet Grassland (restored)
- Existing Species-rich Dry Grassland
- Existing Woodland/Linear Scrub
- Retained Native Scrub
- Existing Hedgerow
- Existing Tree Belt
- Existing Sedge Swamp

Proposed Features

- Proposed Woodland
- Proposed Native Scrub
- Proposed Ponds
- Proposed Species-rich Grassland including Attenuation Ponds
- Proposed Hedgerow Planting
- Proposed Amenity Grassland
- Enhanced Retained Wet and Dry Grassland Mosaic
- Enhanced Species-poor Dry Grassland
- Scrub to be Reduced as part of Grassland Restoration
- Indicative Location of Attenuation Ponds

client

L&Q Estates Ltd

project title

Gavray Drive, Bicester

drawing title

Plan EDP 2: Landscape and Ecology Strategy Plan

date	09 OCTOBER 2020	drawn by	JTF
drawing number	edp0124_d133	checked	TW
scale	1:3,000 @ A3	QA	RB

the environmental dimension partnership

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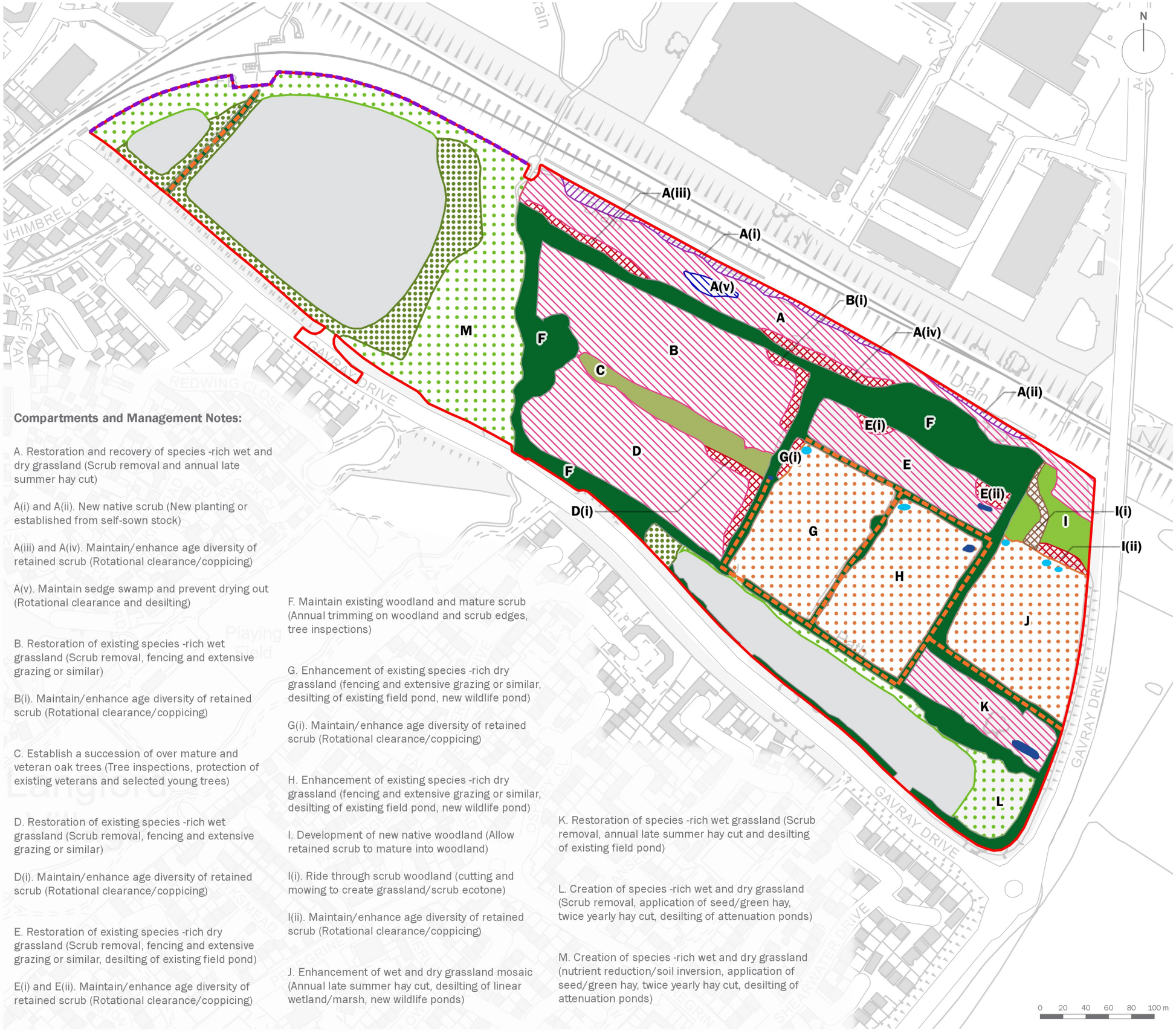

Compartments and Management Notes:

A. Restoration and recovery of species -rich wet and dry grassland (Scrub removal and annual late summer hay cut)

A(i) and A(ii). New native scrub (New planting or established from self-sown stock)

A(iii) and A(iv). Maintain/enhance age diversity of retained scrub (Rotational clearance/coppicing)

A(v). Maintain sedge swamp and prevent drying out (Rotational clearance and desilting)

B. Restoration of existing species -rich wet grassland (Scrub removal, fencing and extensive grazing or similar)

B(i). Maintain/enhance age diversity of retained scrub (Rotational clearance/coppicing)

C. Establish a succession of over mature and veteran oak trees (Tree inspections, protection of existing veterans and selected young trees)

D. Restoration of existing species -rich wet grassland (Scrub removal, fencing and extensive grazing or similar)

D(i). Maintain/enhance age diversity of retained scrub (Rotational clearance/coppicing)

E. Restoration of existing species -rich dry grassland (Scrub removal, fencing and extensive grazing or similar, desilting of existing field pond)

E(i) and E(ii). Maintain/enhance age diversity of retained scrub (Rotational clearance/coppicing)

F. Maintain existing woodland and mature scrub (Annual trimming on woodland and scrub edges, tree inspections)

G. Enhancement of existing species -rich dry grassland (fencing and extensive grazing or similar, desilting of existing field pond, new wildlife pond)

G(i). Maintain/enhance age diversity of retained scrub (Rotational clearance/coppicing)

H. Enhancement of existing species -rich dry grassland (fencing and extensive grazing or similar, desilting of existing field pond, new wildlife pond)

I. Development of new native woodland (Allow retained scrub to mature into woodland)

I(i). Ride through scrub woodland (cutting and mowing to create grassland/scrub ecotone)

I(ii). Maintain/enhance age diversity of retained scrub (Rotational clearance/coppicing)

J. Enhancement of wet and dry grassland mosaic (Annual late summer hay cut, desilting of linear wetland/marsh, new wildlife ponds)

K. Restoration of species -rich wet grassland (Scrub removal, annual late summer hay cut and desilting of existing field pond)

L. Creation of species -rich wet and dry grassland (Scrub removal, application of seed/green hay, twice yearly hay cut, desilting of attenuation ponds)

M. Creation of species -rich wet and dry grassland (nutrient reduction/soil inversion, application of seed/green hay, twice yearly hay cut, desilting of attenuation ponds)

- Site Boundary
- Indicative Development Parcels
- More Formalised GI and Amenity Grassland
- New Species-rich Grassland including attenuation ponds
- Maintain Existing Woodland and Mature Scrub
- Development of New Native Woodland
- Sucession of Veteran Oaks
- New Native Scrub
- Maintain/enhance Age Diversity of Retained Scrub
- Restoration of Hedgerows
- New Native Hedgerow
- Restoration of Existing Species-rich Grassland
- Grassland Enhancement Areas
- New Native Scrub
- Maintain Sedge Swamp and Prevent Drying Out
- Develop Ride Through New Woodland
- Existing Pond
- New Pond

client

L&Q Estates Ltd

project title

Gavray Drive, Bicester

drawing title

Plan EDP 3: Management Compartments Plan

date	**06 OCTOBER 2020**	drawn by	**JTF**
drawing number	**edp0124_d132**	checked	**TW**
scale	**Refer to scale bar @ A3**	QA	**RB**

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