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7057M: LAND AT BICESTER GATEWAY, BICESTER, OXFORDSHIRE

ECOLOGY STATEMENT PURSUANT TO CONDITIONS 10, 24 & 25

Introduction & Background

1. Ecology Solutions (Manchester) Limited were commissioned by Bloombridge LLP to consider Reserved Matters proposals for an area of land known as Phase 1B at Bicester Gateway, Bicester, Oxfordshire (the 'Development Site').

2. The Development Site forms the second phase of a wider development area in receipt of planning permission (ref: 16/02586/OUT) for the delivery of a new business park, hotel, car parking and associated infrastructure. The consented scheme forms the westernmost part of the Strategic Development site, Bicester 10 – Bicester Gateway. Ecology Solutions has been involved in the promotion of Bicester Gateway since 2014.

3. The approved scheme, which is partially built out (Phase 1A now operational), was supported by a comprehensive ecological assessment, with this detailing the ecological baseline for the site alongside a suite of appropriate mitigation and enhancement measures. These measures, alongside the delivery of a financial contribution towards local biodiversity initiatives (secured through legal agreement), were agreed as sufficient to enable a biodiversity net gain (BNG) as a result of the development of the Phase 1 site overall.

4. The Reserved Matters proposals which are the subject of this planning application relate solely to the Phase 1B Site at Bicester Gateway. For clarity, the location of the Phase 1B Site is identified on Plan ECO1.

5. Specifically, this Ecology Statement has been prepared pursuant to the discharge of the following conditions, of relevance to ecology matters at the Site:

Condition 10

The first application for approval of reserved matters relating to development on both Phase 1A or Phase 1B shall include a reptile survey relating to the whole of that phase that has been carried out by an appropriately qualified professional ecologist. The survey shall include details of any necessary protection, mitigation and management measures both during construction and once operational. Thereafter, the mitigation measures set out in the survey and approved as part of the grant of reserved matters approval shall be carried out in full prior to the first occupation of development within

that phase and the management measures adhered to at all times thereafter.

Reason - To ensure the implications for statutorily protected species have been assessed and, where necessary, suitable avoidance or mitigation measures are carried out in accordance with the requirements of Policies ESD10 and Bicester 10 of the Cherwell Local Plan 2011-2031 Part 1.

Condition 24

All applications for approval of reserved matters shall be accompanied by a statement that appraises the ecological implications of those reserved matters proposals including how they would mitigate harm to protected/priority species and contribute towards achieving an overall net gain for biodiversity as part of the overall development. Thereafter, measures set out in the statement shall be implemented in full on site in accordance with the details approved as part of the grant of reserved matters approval.

Reason - To ensure the ecological implications of the proposals are established and assessed throughout the application process in the interests of robust decision making in accordance with the requirements of Policies ESD10 and Bicester 10 of the Cherwell Local Plan 2011-2031 Part 1.

Condition 25

If development on an approved phase does not commence within three years of the date of this decision, updated surveys for all statutorily protected species assessed as part of the original planning application shall be re-undertaken prior to the commencement of the development in order to establish changes in the presence, abundance and impact on such species. The survey results, together with any necessary changes to the mitigation plan or method statement shall be submitted to and approved in writing the Local Planning Authority prior to the commencement of any development on that phase. Thereafter, the development shall be carried out in accordance with the details approved.

Reason - To ensure that the development does not cause harm to any protected species or their habitats in accordance with Policy ESD10 of the Cherwell Local Plan 2011-2031 and Government guidance contained within the National Planning Policy Framework

6. Commensurate with the requirements of Conditions 10 and 25, specific consideration is provided in respect of protected species, with justification as to the survey approaches adopted.

7. Regarding Condition 24, noting habitat mitigation (BNG) has been delivered primarily through the delivery of an off-site compensation and enhancement scheme, as now managed by the Banbury Ornithological Society (BOS), this Ecology Statement primarily serves as a 'signpost document', summarising the biodiversity strategy that has been approved for the Development Site (as part of the wider Phase 1 development) and identifying where further opportunities for betterment have been identified as part of the Phase 1B proposals.

Background and Baseline Situation

8. As set out above, Ecology Solutions initially undertook a suite of ecological surveys at the Application Site (as part of a wider land holding) in 2016 and 2017. The detailed

baseline for the site has been set out in the following documents prepared by Ecology Solutions:

- Ecological Assessment, Bicester Gateway, April 2016 (Ecology Solutions Ltd, December 2016);
- Reptile Survey Report, Bicester Gateway, September 2017 (Ecology Solutions Ltd, October 2017)
- Bat Survey Report, Bicester Gateway, April 2017 (Ecology Solutions Ltd, October 2017)

9. Ecology Solutions undertook an updated habitat walkover of the Site in October 2019 and again in April 2022 to reassess the habitats present on Site and consider any changes in the intervening period since surveys were last undertaken.

10. These surveys confirmed the habitats within the Development Site remain broadly comparable, albeit with on-going sensitive management of the Site (post-consent) ensuring grassland habitats remain short mown.

11. **Semi-improved grassland.** Semi-improved grassland remains the pre-dominant habitat present on Site. Following the grant of planning permission and agreed s106 financial contribution to achieve an ecological net gain, the grassland within the Development Site has remained under regular management in the form of spraying and cutting, retaining the sward as short and species poor.

12. At the time of survey in April 2022, the grassland appeared to be regularly managed, with a short sward (5cm), areas of bare ground, and with ruderal vegetation such as Thistles *Cirsium* and Common Nettle *Urtica dioica* locally dominant. Localised areas of longer vegetation were limited to narrow margins of the Site.

13. **Hedgerows/Treelines/Ditches.** The linear features which form the boundaries of the Application Site remain as described within the Ecological Assessment (2016).

14. **Scrub**. Some areas previously comprising dense scrub within the Application Site have since been cleared and now support bare and re-colonising ground which is of negligible ecological significance. Areas of scattered scrub previously present within the grassland field have also been cleared.

<u>Consideration of Protected Species Surveys (Conditions 10 and 25)</u>

15. The planning proposals were informed through the completion of a suite of ecological surveys, with these including:

- Bats
    - Activity transect surveys in September and October 2016 and April 2017
    - Initial roost inspections (trees) in April 2016
- Reptiles
    - Presence/absence surveys in September 2017

16. The assessment work undertaken in support of the planning consent did not identify the Site as having the potential to be of significance for any other protected or notable species/assemblages.

17. Given the broad similarity in habitats, and indeed that the quality of some of these habitats are tempered through on-going land management, it is considered that opportunities for faunal species will remain (at best) as described in previous reporting by Ecology Solutions. For clarity, this reporting identified the opportunities for faunal species were limited to:

    - Foraging and commuting habitat of low importance to common bats; and
    - Suitable nesting and foraging opportunities of low importance for birds.

18. Given its small size, its isolation as a result of the existing road network, and the limited range of habitat present (as assessed through an updated walkover survey of the Development Site in April 2022), it is not considered the Application Site is of any significant value for any other protected or notable faunal species. This view is consistent with the planning decision made in 2017.

19. **Reptiles.** Regarding surveys for reptiles, as required by Condition 10, Ecology Solutions have specifically discussed and agreed an approach with Cherwell's local ecologist.

20. A reptile habitat appraisal survey in April 2022 confirmed the Development Site to support very little suitable reptile habitat present, with this limited to incidental areas of ruderal vegetation such as Nettles at the margins of the regularly managed field.

21. Noting the very limited extent of suitable reptile habitat present, and that reptiles were not recorded in previous surveys, it was discussed and agreed in writing with Cherwell's ecologist that it would be disproportionate to undertake a full suite of update reptile surveys at the Development Site. This was on the basis there would be both a very low likelihood of presence, and moreover no potential for the Site itself to sustain a reptile population (at best offering incidental opportunities for populations potentially present in the wider area).

22. As an alternative approach, it was agreed as proportionate to assume presence of reptiles and prepare a reptile mitigation strategy that allows for sensitive habitat management/clearance during construction. A reptile mitigation strategy has been prepared and is provided at Appendix 1 of this Statement. It is considered the measures set out in this strategy would both safeguard any reptiles potentially present during construction, and moreover ensure comparable (and improved) opportunities for reptiles to utilise the Site post development.

23. **Bats.** Previous survey work and assessment concluded the Development Site offers very limited opportunities for bats, with no evidence to indicate a resource of potential significance to local populations. Only very low levels of bat activity were recorded, with these pertaining to three of the UK's commonest bat species (Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus* and Brown Long-eared bat *Plecotus auritus*). Activity was recorded exclusively along the boundary features within the Development Site, which are to be largely retained and safeguarded from development impacts.

24. Noting the very limited use of the Development Site by bats during previous survey work, that habitats within the Site remain comparable to those previously described (or indeed are of reduced value to bats as a result of regular management), and noting the Site's context within urbanised surroundings, there is nothing to indicate the Site as being of any potentially raised importance for foraging or commuting bats.

25. Reflecting this conclusion, and that boundary habitats are to be largely retained and enhanced in any event, Ecology Solutions conclude there is no merit in undertaking updated surveys for bats in support of the Reserved Matters proposals. Appropriate impact assessment and enhancement opportunities can be readily identified based on pre-existing survey findings and professional judgement.

Mitigation Strategy and Overview (Condition 24)

26. As set out in the introduction to this Statement, the Application Site sits within a larger area of land (known as Phase 1) for which an appropriate mitigation and enhancement strategy has previously been approved. The previously approved mitigation and enhancement strategy for the Site will be sufficient to ensure the Development Proposals secure overall enhancements to biodiversity.

27. The following Sections of this Statement serve to summarise the mitigation and enhancement proposals for the Development Site. It is noted the mitigation strategy for the wider Phase 1 site was approved following extensive consultation with Cherwell's ecological advisors.

Mitigation and Enhancement Measures Secured by 16/02586/OUT

28. As set out previously, a wide ranging suite of mitigation and enhancement measures were secured as part of the consented proposals for Phase 1 (which includes the Development Site). These measures are summarised below for ease of reference.

29. **Habitats.** The Ecological Assessment (2016) specified the implementation of an appropriate landscape strategy utilising species of local provenance. This to include the provision of areas of species rich grassland, SuDS, tree and shrub planting and the retention and enhancement of treeline T3. These measures would be secured through a Landscape Management Plan (LMP).

30. A detailed landscaping regime has been prepared for the Development Site and is provided at Appendix 2. The landscaping regime includes for a range of semi-natural habitats including existing and retained woody shrub, hedgerows and trees, new wildflower grassland, new native shrub planting, new native tree and hedge planting, and the provision of a range of ornamental habitats.

31. A detailed landscape management plan, identifying long-term management of these habitats has been prepared by Aspect Landscape Planners and is submitted as part of this Reserved Matters application.

32. **Financial contribution to local biodiversity initiatives (off-site).** A sum of £30,000 was previously agreed and provided by the applicant, to be directed towards an appropriate 'Biodiversity Scheme' in the local area. The Banbury Ornithological Society (BOS) was appointed to prepare this Biodiversity Scheme at a cost of £5,000. The draft Scheme was achieved in January 2020 and is understood to have since been implemented.

33. The scheme prepared by BOS is delivering ecological enhancements at Bicester Wetland Reserve. As detailed in the report prepared by BOS, the financial contribution will allow for significant ecological enhancements at the reserve, more than compensating for development impacts at the Development Site.

34. The final version of this scheme is provided at Appendix 3 of this note.

35. **Bats**. The Ecological Assessment (2016) specified the need for an appropriate lighting strategy to be secured, in addition to the provision of at least six new bat roosting features.

36. As detailed in the following Section (see *Additional Mitigation and Enhancements* below), the proposals seek to deliver a significantly increased number of new bat roosting features, ensuring a substantial enhancement for roosting bats.

37. Regarding the lighting strategy, this has been carefully considered to ensure requisite lighting levels can be achieved whilst minimising light-spill alongside boundary habitats. Specifically, the following approach to lighting design has been implemented:

    - The orientation, height and placement of individual luminaires optimised to achieve appropriate illumination of development footprint whilst minimising spill onto semi-natural habitats;
    - Inclusion of additional features to include hoods, cowls, and shields to further minimise light spill into semi-natural habitat areas.

38. The lighting strategy for the Development Site is submitted as part of this Reserved Matters application.

39. The retention of a vast majority of boundary vegetation alongside the adoption of a sensitive lighting strategy will ensure the value of the Development Site is retained for the small numbers of urban bats considered to be present in the local area. Moreover, the provision of a high number of roosting opportunities will ensure a significant net gain within the Site (where no potential roost features are currently present).

40. **Birds**. The Ecological Assessment (2016) identified that vegetation clearance should avoid the nesting bird season where possible, whilst further recommending the provision of a minimum 6 bird nesting features.

41. As detailed in the following Section (see *Additional Mitigation and Enhancements* below), the proposals seek to deliver a significantly increased number of new bird nesting features. This will allow, in particular, a range of new nesting opportunities for declining urban bird populations.

42. Regarding the timing of vegetation clearance, potentially suitable bird nesting habitat should be removed between September and February wherever possible. Should habitat clearance works be required during the period of March to August, this would be preceded by the completion of a nesting bird check undertaken by a suitably qualified ecologist. Vegetation clearance may only proceed where the overseeing ecologist confirms nesting birds to be absent.

43. The retention of the vast majority of boundary vegetation, in addition to new landscaping, including significant new tree, shrub and hedge planting will ensure continued opportunities for foraging birds during the operational phase of the development.

Additional Mitigation and Enhancement Measures to be Secured by this Reserved Matters Application

44. Ecology Solutions have been asked to consider how the Reserved Matters proposals can deliver additional ecological enhancements for the Development Site, over and above that identified within the original planning submission. The following additional measures are proposed as part of the Proposed Development.

- **Provision of minimum 25 bat roosting features**, with these to be provided on new buildings and/or installed on retained trees. These boxes are to be strategically located to avoid areas of high light spill, and situated in close proximity of semi-natural habitats

- **Provision of minimum 40 bird nesting features**, with these to be provided on new buildings/structures and/or installed on retained trees. Following previous discussions with the Cherwell Swifts Conservation Project, it is proposed for at least 20 of these features to comprise Swift boxes. Noting the colonial nature of Swifts *Apodidae*, and their preference for nesting at height, Swift bricks would be installed in clusters at a minimum height of 5m. Clusters will be orientated to be northern or eastern facing.

- **Additional financial contribution.** Bloombridge LLP are passionate about contributing towards local ecology initiatives and facilitating strategically led ecological enhancements. As such, and notwithstanding the Development Proposals have already secured ecological betterment, a further ecological contribution of £6,000 was made to ensure additional ecological enhancements as part of the revised development proposals for Phase 1B.
    - This additional contribution was sufficient to facilitate all habitat creation and management works BOS wish to undertake at Bicester Wetland Reserve, as identified in their report for Phase 1 (see Appendix 3).
    - This offer was made in good faith and sought to remove the uncertainty on the financing of the scheme proposed by BOS, mindful of the requisite commencement date of those works.

45. The above measures will secure significant additional enhancements over and above the original recommendations of the Ecological Assessment (2016), greatly increasing the number and range of nesting and roosting features available for faunal species.

46. The types of nesting/roosting features will specifically benefit species of conservation interest in the local area, not least urban birds such as Swifts and House Martins *Delichon urbicum*, and Priority Species of bat such as the Soprano Pipistrelle bat and Brown Long-eared bat, both of which were recorded in the vicinity during previous survey work.

<u>Summary and Conclusions</u>

47. Ecology Solutions (Manchester) Limited were commissioned by Bloombridge LLP to consider Reserved Matters proposals for an area of land known as Phase 1B at Bicester Gateway, Bicester, Oxfordshire (the 'Development Site'). The location of the Phase 1B site is identified on Plan ECO1.

48. The Development Site forms the second phase of a wider development area in receipt of planning permission (ref: 16/02586/OUT) for the delivery of a new business park,

hotel, car parking and associated infrastructure. The Reserved Matters proposals which are the subject of this planning application relate solely to the Phase 1B Site at Bicester Gateway.

49. Commensurate with Conditions 10 and 25, consideration has been given to pre-existing survey data such that the need for update survey work could be assessed. An updated walkover survey was undertaken in April 2022 and allowed for an appraisal of habitat suitability for reptiles and bats (amongst other faunal groups). This appraisal survey was sufficient to ascertain the Site's suitability to support protected and notable species, in turn allowing for appropriate mitigation and enhancement opportunities to be identified.

50. Commensurate with the requirements of Condition 24, this Ecology Statement, identifies the suite of mitigation and enhancement measures proposed for the Development Site, such that overall ecological enhancements can be secured in accordance with the Ecological Assessment for the wider site. Indeed, a suite of additional biodiversity measures are identified which will secure further enhancements over and above those previously proposed. This includes the provision of a high number of ecology features, specifically targeted to locally identified species of conservation significance (in liaison with local ecology groups).

51. Subject to the measures set out in this Statement, it is considered the Development Proposals will secure comparable (and indeed enhanced) biodiversity opportunities relative to those identified within the previous Ecological Assessment which supported the planning consent. These measures will in turn ensure enhanced biodiversity opportunities overall as part of the proposals. This clearly accords with local and national planning policy. Indeed, the proposals go significantly beyond what could be required by policy.

APPENDICES

APPENDIX 1

Reptile Mitigation Strategy

BLOOMBRIDGE LLP

ECOLOGYSOLUTIONS

Part of the ES Group

BICESTER GATEWAY,
BICESTER,
OXFORDSHIRE
(16/02586/OUT)

Reptile Mitigation Strategy (Pursuant to Discharge of Condition 10 of Planning Consent 16/02586/OUT)

June 2022
7057.RMS.vf

ecology solutions for planners and developers

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CONTENTS

1. INTRODUCTION

1.1. Background & Proposals

1.1.1. Ecology Solutions was commissioned by Bloombridge LLP in April 2016 to undertake updated ecological assessment work of Land at Bicester Gateway, Bicester, Oxfordshire, hereafter referred to as the 'development site', which forms the westernmost part of the Strategic Development site Bicester 10 – Bicester Gateway. This site comprises Phase 1B of the Bicester Gateway site (16/02586/OUT).

1.1.2. Habitat suitability surveys for reptiles were initially undertaken in April 2016 during the Phase 1 habitat survey of the application site, to assess the potential of habitats on site to support reptiles. Subsequently the site was subject to a suite of reptile 'presence / absence' surveys in September 2017.

1.1.3. This *Reptile Mitigation Strategy* (RMS) serves to consolidate initial assessment of the habitats within the site, in addition to the results of a suite of specific reptiles surveys undertaken at the site, summarising the results recorded and setting out appropriate and proportionate mitigation and enhancement measures to ensure that the development may proceed without any significant adverse impacts on reptiles, as required by legislation and planning policy of relevance to ecology.

1.2. Application Site Characteristics

1.2.1. The development site is located to the south of Bicester in Oxfordshire. Wendlebury Road forms the eastern boundary of the site, whilst the A41 dual carriageway lies immediately to the west. Charles Shouler Way forms the northern boundary and the land beyond to the south, east and west comprises agricultural pasture land, with a larger retail development situated to the north-east.

1.2.2. The application site comprises a semi-improved grassland field, bordered by roads and hedgerows / treelines, ditches (predominantly dry) and areas of dense scrub to the south of the site.

2. ECOLOGICAL BASELINE AND OBJECTIVES

Background and Baseline

2.1.1. An initial assessment to identify areas of suitable reptile habitat within the development site was undertaken by Ecology Solutions in 2016.

2.1.2. Habitats deemed to be suitable for reptiles were noted and these areas were subsequently subject to specific reptile surveys in September 2017

2.1.3. As detailed within the Reptile Survey Report (2017) submitted as part of the planning application, no evidence of reptiles were recorded within the development site and the species was deemed absent.

2.1.4. In order to provide an update on the habitats present within the Site, an updated walkover and reptile survey was undertaken at the Site in April 2022.

2.1.5. This confirmed the development site to support very little suitable reptile habitat present, with this limited to incidental areas of ruderal vegetation such as nettles at the margins of the regularly managed field.

2.1.6. Noting the very limited extent of suitable reptile habitat present, and that reptiles were not recorded in previous surveys, it was discussed and agreed with Cherwell's ecologist that it would be disproportionate to undertake a full suite of update reptile surveys at the development site. This was on the basis that there would be both a very low likelihood of presence, and moreover no potential for the site itself to sustain a reptile population (at best offering incidental opportunities for populations potentially present in the wider area).

2.1.7. As an alternative approach, it was agreed as proportionate to assume presence of reptiles and prepare a reptile mitigation strategy that allows for sensitive habitat management / clearance during construction.

2.1.8. A suitable reptile strategy is identified in the following sections of this document. It is considered that the measures set out in this strategy would both safeguard any reptiles potentially present during construction and moreover ensure comparable (and improved) opportunities for reptiles to utilised the site-post development.

Reptile Mitigation Strategy (Sensitive Management and Clearance)

2.1.9. Given the sub-optimal nature of the Site for reptiles at present, it is recommended, in order to ensure reptiles are not harmed throughout the construction phase, the grassland (and any incidental ruderal vegetation) is maintained in its current state through regular mowing up until relevant construction works commence on those habitats.

2.1.10. Regular (approximately twice monthly during the growing season) mowing will aim to maintain the height of the grassland at no more than 5cm. This will ensure the habitat is maintained in its current state and that no reptiles will utilise the Site, nor be in any way reliant on the habitats present. As an alternative to mowing, it would be appropriate to apply a herbicide spray to habitats which are due to be lost to development in due course.

2.1.11. Noting the current absence of any significant suitable reptile habitat, it is not considered the construction works at the Site would have the potential to give rise to adverse impacts on local reptile populations.

2.1.12. Nonetheless, noting the potential presence of reptiles in the wider area, and the potential for the suitability of habitats to change within a relatively short timeframe, consideration is given to appropriate management safeguards on a precautionary basis.

2.1.13. Should the current and prescribed management cease or be put on hold and areas of suitable reptile habitat establish (i.e. grass sward > 10cm), it will be necessary to adopt a sensitive habitat manipulation strategy prior to construction works commencing.

2.1.14. Should a sensitive habitat manipulation strategy be required, the following approach is recommended:

2.1.15. Firstly, a two-stage, stepwise cut of the grassland shall take place. The first cut will be undertaken to a height of 10cm and the second to ground level.

2.1.16. Cutting will be directional, encouraging any reptiles present to disperse away from the work area (and into suitable habitats in the wider area). This exercise will ensure no ‘islands’ of suitable habitat are created (within which reptiles may otherwise remain). Where required, arisings will be carefully removed alongside the cutting regime.

2.1.17. Habitat manipulation works will be overseen by a suitably qualified ecologist and will only commence during suitable weather conditions within the main active season for reptiles (typically mid-March to October, but weather dependent). Works should be undertaken in dry, sunny conditions with a minimum temperature of around 10°C.

2.1.18. Following the completion of this cut, habitats within the development areas (i.e. to be lost to) will be maintained as unsuitable for reptiles (i.e. through a turf strip or spray) in order to prevent any potential for recolonization during construction. Should this maintenance not be practical, herpetofauna fencing may instead be installed along the relevant boundaries of the Site in order to exclude reptiles from active construction areas until the completion of relevant works.

2.1.19. The above methodology will ensure potential adverse impacts on reptiles will be fully avoided.

2.1.20. It is not considered a translocation exercise will be required, given there will be no significant loss of suitable habitats and that the Site

is within close proximity of significant areas of suitable habitat within the wider area ensuring individuals can readily disperse.

2.1.21. As above, on the basis the habitats present within the development site are maintained as unsuitable for reptiles throughout the construction phase, it is considered reptile fencing will not be required within the Site.

2.1.22. Subject to the adoption of the above measures, it is considered reptiles will be fully safeguarded as part of the development proposals, as required by legislation and planning policy.

Consideration of Mitigation and Enhancement Opportunities

2.1.23. Whilst it is not the primary remit of this mitigation strategy to provide enhancement opportunities within the Site, a Landscape Management Plan (LMP) has been prepared and submitted in support of the Reserved Matters application.

2.1.24. The LMP identifies the new habitats proposed within the site, in addition to the management prescriptions for those habitats.

2.1.25. Of relevance to reptiles, the proposals seek to deliver small areas of wildflower meadow grassland in the south of the development site. The long-term management of this habitat (which will interface with boundary scrub and provide a degree of edge habitat) will ensure it remains appropriate for reptiles which may be present in the wider area.

2.1.26. Cutting of meadow grassland habitats will be avoided during the reptile hibernation period (typically late October – mid March). Outside of this period, the meadow grassland is expected to be cut once or twice per annum. Cutting should reduce the sward height to no less than 100mm initially in order to avoid accidental to harm to reptiles.

2.1.27. Should a lower sward height be desired, a second stage cut may be undertaken after a period to allow reptiles to disperse.

2.1.28. As an additional enhancement, it is proposed for a proportion of arisings (brash / grass) remaining from habitat management to be retained on site in the form of habitat piles. It is intended for two reptile refugia to be provided on site and replenished as required through on-going management. The locations of proposed hibernacula are detailed on the *Planting Plan Overview* submitted as part of this Reserved Matters application.

3. SUMMARY AND CONCLUSIONS

3.1. Ecology Solutions was commissioned by Bloombridge LLP in April 2022 to undertake updated ecological assessment work pursuant to the discharge of relevant ecology conditions for Phase 1B at Bicester Gateway (planning ref: 16/02586/OUT).

3.2. Previous survey work and assessment undertaken in 2016/17 found no evidence of reptiles within the development site. Moreover, an updated habitat appraisal undertaken in April 2022 confirmed the development site to support very little suitable reptile habitat present, with this limited to incidental areas of ruderal vegetation such as nettles at the margins of the regularly managed field.

3.3. Noting the very limited extent of suitable reptile habitat present, and that reptiles were not recorded in previous surveys, it was discussed and agreed with Cherwell's ecologist that it would be disproportionate to undertake a full suite of update reptile surveys at the development site.

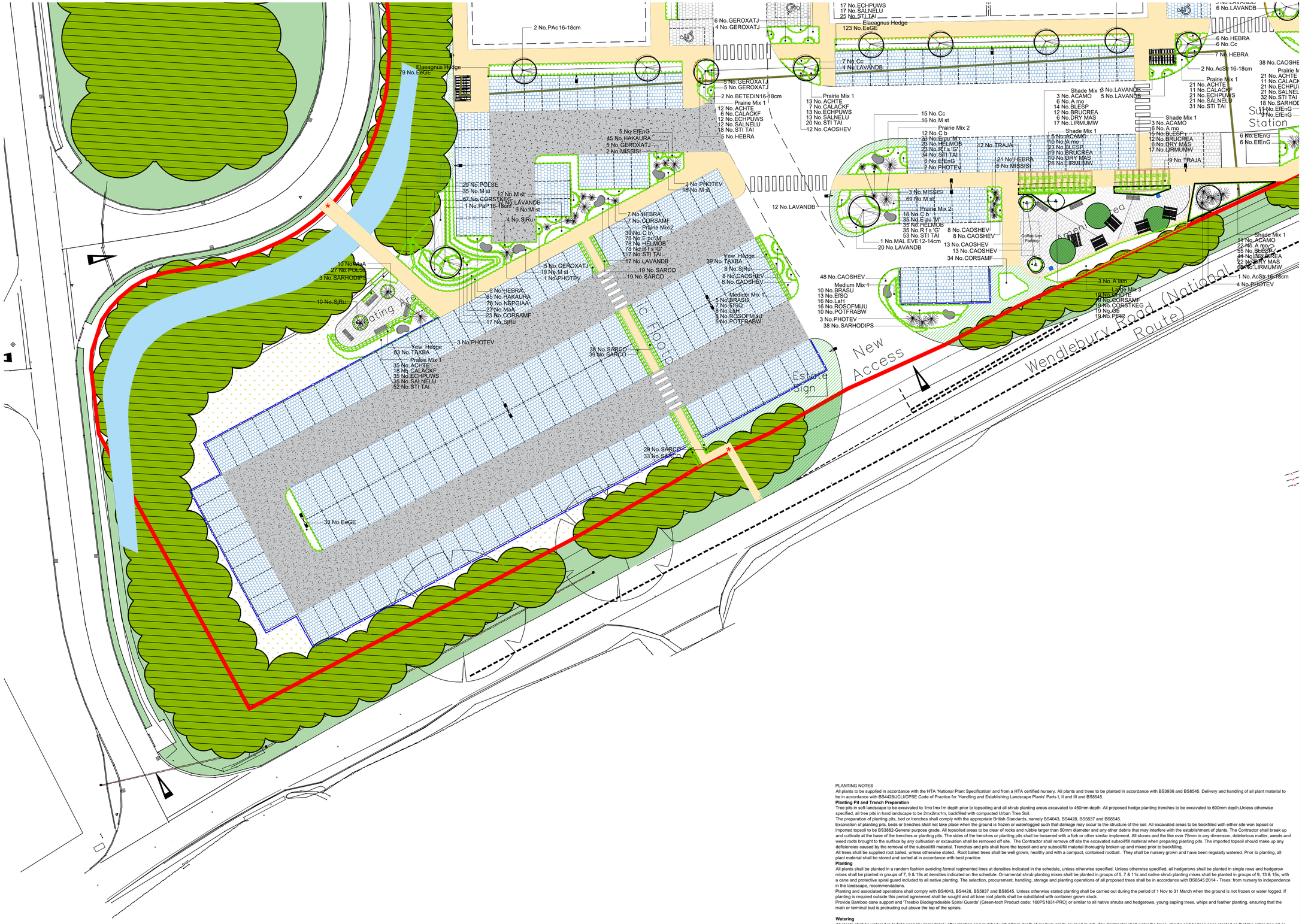
3.4. As an alternative approach, it was agreed as proportionate to assume presence of reptiles and prepare a reptile mitigation strategy that allows for sensitive habitat management / clearance during construction.

3.5. The management prescriptions detailed within this report will aim to maintain the habitats within the Site in its current form, with routine mowing of the grassland. This will ensure the Site does not develop any areas of suitability for reptiles, and that reptiles are safeguarded prior to and during construction activities at the Site. Should these management measures cease or be halted, and areas of suitability develop, suitable mitigation measures through the use of habitat manipulation are also recommended.

3.6. Subject to the management prescriptions detailed within this report, it can be assumed reptiles within the Site and wider area will be safeguarded throughout the construction of the Site.

APPENDIX 2

Detailed Planting Plans



NOTES:

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KEY:

- Site Boundary
- Existing Trees
- Existing Shrubs
- Proposed Multistem Trees
- Proposed Trees (to be positioned 2m from highway boundary and 1m from kerb edge)
- Proposed Native Hedge (Caned and Rabbit guards added with 50mm bark mulch)
- Proposed Ornamental Hedge (Initially clipped to 0.5m high and subsequently maintained at 0.6m high, offset 0.5m from back of highway boundary with a 0.5m bark mulch strip)
- Proposed Feature Shrub
- Proposed Ornamental Shrubs (50mm Bark mulch to be included around planting)
- Proposed Native Shrub Planting (50mm Bark mulch to be included around planting)
- Proposed Bulb Planting (Scattered Randomly where to be planted)
- Proposed Premium Grade Turf (150mm min gravel strip with timber edge to be installed along building edge) Rolawn Medallion Turf Rolls or Similar to plot frontages
- Proposed Amenity Grass Seed Emorsgate EL1 Flowering Lawn Mixture. Sown at 40kg/ha
- Proposed Wildflower Turf Wildflower Turf Shade Tolerant Mix
- Proposed Root Barrier (ReRoot 1000 or equivalent)
- Proposed Timber Bench
  Litchard Seat
  Supplier: Broxap
  Finish: Hardwood Slats
  Size:/ L1800mm W510mm H820mm
  Root Fixed
  Ref: BX17 4071/S
- Proposed Picnic Bench
  Litchard Picnic Unit
  Supplier: Broxap
  Finish: Hardwood slats
  Bench Size: L1800mm W435mm H450mm
  Table Size: L1800mm W800mm H700mm
  Root Fixed
  Ref: BX14 4071/P
- Okehampton Redwood Litter Bin
  Supplier: Broxap
  Size: D500mm W500mm H950mm
  Finish: Redwood Timber Slats
  Fixing: Set of 4 Shield Anchor Bolts for Installation Fixed onto Tarmac and Hoggin Surface
  Capacity: 120 Litres
  Code: BX17 4030
- Pin modular shelter
  Mild steel frame with Green Roof and LED lighting
- Existing Public Footpath Stile
- Proposed Allocated Space for Mobile Food/drink Van
- Proposed Walkway Pergola
  Supplier: Langley Design Sheldon Pergola
  Finish: Hardwood iroko slat / stainless steel frame
  Fixing: Root Fixed
  Size: H3140 X W2500 X L7540
  Ref: SPG300
- Proposed 1m High Planter
  Stratum Versatile Planter
  Supplier: Street Design
  Colour: RAL 7016 Anthracite Grey
  Finish: Aluminum Planters
  Size: H1000 x (see plan for dimensions)
- Proposed Rocks / Boulders
  Product: Recumbent Boulders
  Cornish Glacial Granite
  Size: 0.5 -1.5m wide
  Weight: 0.5MT - 0.75MT
- 0.45m High Timber Knee Rail
  Posts for diamond / knee rail fencing with birds mouth top, 100 x 100mm section, softwood planed finish. Galvanised strap to secure post to rails with 10mm nails.
  Rails 75 X 75mm nominal section. 1.8m long. (posts are set at 1.35m centres)
- Grass Mound Gradient and Height to be Constructed in Line with 1:3 planting requirements. Horizontal root barriers to be included at base for Archeological area protection.
- Archeological Area Boundary

PLANTING NOTES

All plants to be supplied in accordance with the HTA 'National Plant Specification' and from a HTA certified nursery. All plants and trees to be planted in accordance with BS3936 and BS8545. Delivery and handling of all plant material to be in accordance with BS4428/JCLI/CPSE Code of Practice for 'Handling and Establishing Landscape Plants' Parts I, II and III and BS8545.

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The preparation of planting pits, bed or trenches shall comply with the appropriate British Standards, namely BS4043, BS4428, BS5837 and BS8545.

Excavation of planting pits, beds or trenches shall not take place when the ground is frozen or waterlogged such that damage may occur to the structure of the soil. All excavated areas to be backfilled with either site won topsoil or imported topsoil to be BS3882-General purpose grade. All topsoiled areas to be clear of rocks and rubble larger than 50mm diameter and any other debris that may interfere with the establishment of plants. The Contractor shall break up and cultivate at the base of the trenches or planting pits. The sides of the trenches or planting pits shall be loosened with a fork or other similar implement. All stones and the like over 75mm in any dimension, deleterious matter, weeds and weed roots brought to the surface by any cultivation or excavation shall be removed off site. The Contractor shall remove off site the excavated subsoil/fill material when preparing planting pits. The imported topsoil should make up any deficiencies caused by the removal of the subsoil/fill material. Trenches and pits shall have the topsoil and any subsoil/fill material thoroughly broken up and mixed prior to backfilling.

All trees shall be supplied root balled, unless otherwise stated. Root balled trees shall be well grown, healthy and with a compact, contained rootball. They shall be nursery grown and have been regularly watered. Prior to planting, all plant material shall be stored and sorted at in accordance with best practice.

Planting

All plants shall be planted in a random fashion avoiding formal regimented lines at densities indicated in the schedule, unless otherwise specified. Unless otherwise specified, all hedgerows shall be planted in single rows and hedgerow mixes shall be planted in groups of 7, 9 & 13s at densities indicated on the schedule. Ornamental shrub planting mixes shall be planted in groups of 5, 7 & 11s and native shrub planting mixes shall be planted in groups of 9, 13 & 15s, with a cane and protective spiral guard included to all native planting. The selection, procurement, handling, storage and planting operations of all proposed trees shall be in accordance with BS8545:2014 - Trees: from nursery to independence in the landscape, recommendations.

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Provide Bamboo cane support and 'Treebio Biodegradeable Spiral Guards' (Green-tech Product code: 160PS1031-PRO) or similar to all native shrubs and hedgerows, young sapling trees, whips and feather planting, ensuring that the main or terminal bud is protruding out above the top of the spirals.

Watering

All plants shall be watered in to field capacity immediately after planting and mulched with 50mm depth of medium grade crushed mulch. The Contractor shall water the trees, shrubs and hedges once planted so that the entire tree pit or planted area is moistened to field capacity, i.e. "the amount of water retained by previously saturated soil once full drainage has ceased". Watering to field capacity shall continue frequently and on a regular basis as considered necessary by the landscape contractor and as necessary to ensure the successful establishment and continued thriving of all planting. Additional watering shall be undertaken during summer months and/or periods of drought. Post planting management and maintenance specifically for new tree planting shall include ongoing irrigation and formative pruning as outlined in BS8545. The period over which regular irrigation required for transplanted trees is likely to be at least two full growing seasons to ensure successful establishment. As the root system develops the frequency of irrigation can be reduced.

Staking

All trees within soft landscape areas to be double staked with cross bar and tied, using 1.5m long, 75mm diameter rounded tree stakes 75mm brace, rubber tie and spacer block. Stakes not to extend more than 650mm above ground level. All trees within hardstanding/highways visibility splays to be clear stem to 1.5m high unless otherwise specified. Trees within hardstanding / specific pits to be underground guyed unless otherwise specifed.

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Root barriers (ReRoot 1000 or equivalent) to be included adjacent to buildings and services where necessary. Landscape contractor shall check all planting operations comply with appropriate standards and that in the absence of detailed surveys, any necessary underground investigations are undertaken to ensure there are no conflicts with existing or proposed utilities, services or foundations.

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REV	DATE	NOTE	Drawn	Chk'd

aspect landscape planning

TITLE

Land at Bicester Gateway
Planting Plan 1 of 5

CLIENT

Bicester Gateway Limited

SCALE	DATE	DRAWN	CHK'D
1:250@A1	JUN 2022	JB	CW

DRAWING NUMBER	REVISION
7958.PP.1.1	

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1:250 @ A1
0m 2m 4m 10m

KEY:

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- Existing Trees
- Existing Shrubs
- Proposed Multistem Trees
- Proposed Trees (to be positioned 2m from highway boundary and 1m from kerb edge)
- Proposed Native Hedge (Caned and Rabbit guards added with 50mm bark mulch)
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  Finish: Hardwood Slats
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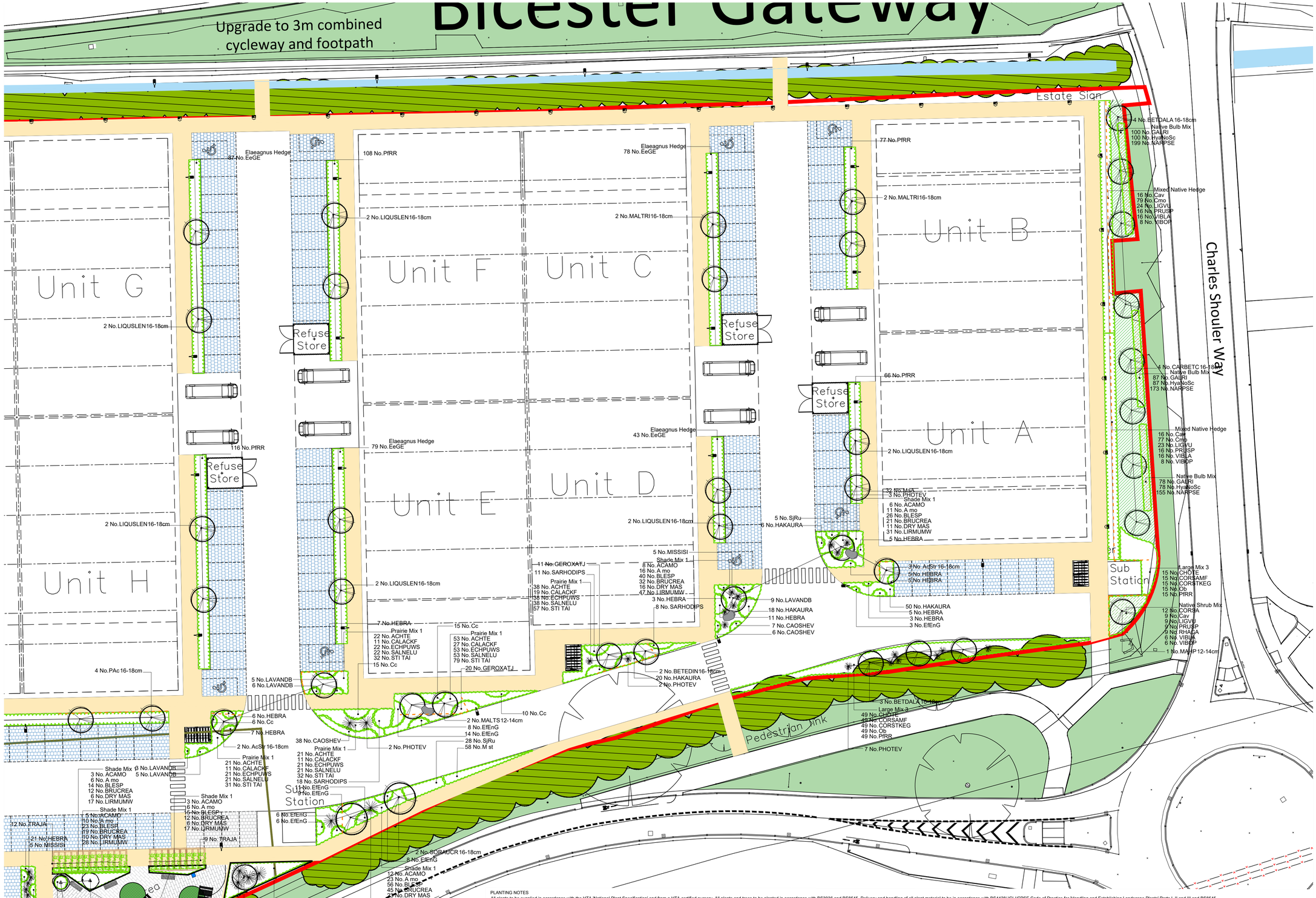
aspect landscape planning

TITLE
Land at Bicester Gateway
Planting Plan 1 of 3

CLIENT
Bicester Gateway Limited

SCALE	DATE	DRAWN	CHK'D
1:250@A1	JUN 2022	JB	CW

DRAWING NUMBER	REVISION
7958.PP.1.1	A



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aspect landscape planning

TITLE
Land at Bicester Gateway
Planting Plan 2 of 3

CLIENT
Bicester Gateway Limited

SCALE	DATE	DRAWN	CHK'D
1:250@A1	JUN 2022	JB	CW

DRAWING NUMBER 7958.PP.1.1
REVISION A

APPENDIX 3

Off Site Compensation Scheme

Report to Cherwell District Council

Biodiversity Scheme to compensate for the development of allocated land at north of Promised Land Farm, Oxford Road, Bicester.

Introduction

This report sets out a proposal for the implementation of the Biodiversity Scheme at Bicester Wetland Reserve that is designed to compensate for the likely net impact of consented development at land north of Promised Land Farm (16/02586/OUT).

The Biodiversity Scheme would be equally appropriate to compensate for alternative development proposals at the development site, subject to the biodiversity impact of that scheme being comparable to the approved development. We understand the proposed scheme should include:

- the likely net impact on biodiversity as a result of habitat loss/gain caused by development of the site
- proposals for any necessary off-site compensation of the habitat to be lost as a result of development of the site
- the identification of any receptor site(s)
- arrangements to secure the delivery of the agreed off-site mitigation/compensation measures including a timetable for their delivery
- details of any management and monitoring of any mitigation/compensation habitat for a period of 10 years from the date on which the Biodiversity Scheme is first implemented
- the calculation of and a timetable for payment of the Biodiversity Contribution.

The Council considers that due to the proximity of the site to the Bicester Wetland Reserve it is likely that the biodiversity scheme will be best focussed on this area

Background

BOS has managed the Bicester Wetland Reserve (BWR) in partnership with Thames Water for the past twenty years. During this period the reserve has been greatly enhanced as wetland habitat through the creation of a network of shallow pools and a reedbed. Most of the reserve is grazed by cattle from the adjoining Promised Land Farm, creating ideal conditions for many wildfowl and wading birds. The reserve gained local wildlife site status in 2006. The reserve is especially important for wintering wildfowl, including Teal and Shoveler and as a stop-over for migrating Green Sandpipers. Important breeding birds include Kingfisher, Water Rail, Gadwall, Tufted Duck and Cetti's Warbler.

BOS liaised closely with Bloombridge LLP of land north of Promised Land Farm pre-planning application, seeking to minimise the impact of the development on local wildlife. From our

involvement in the planning application consultation and our knowledge of the site we have a good understanding of the impact of the development on biodiversity which is principally the loss of semi-improved grassland and associated flora, including Cowslip, and the impact on woodland flora growing underneath under the hedgerows, including Dog's Mercury.

Where possible we will follow the principle of Equivalence. This is the principle that biodiversity offsets should provide habitat, functions, values and other attributes that are similar in type and proportionate to those affected by the project. These are referred to as 'in-kind' offsets where the offset is the same kind of biodiversity components in a similar ecosystem to that affected by the project. In addition, we will seek to add additional value where offsets are in a different habitat from the habitat affected, but one of a higher biodiversity value. This will give the best opportunity to deliver biodiversity net gain across the BWR site.

Ecology Solutions (the developer's ecological consultants) suggested that, under the consented scheme (16/02586/OUT), there would be a loss of 2.3 biodiversity units in Phase 1a, using the Warwickshire Biodiversity Impact Assessment Defra metrics. Phase 1b suggests an additional loss of 4.39. This gives a total loss of 6.69 biodiversity units under the consented scheme.

A revised planning application is understood to have been prepared for Phase 1B and is intended to supersede the approved scheme. This revised scheme aims to reduce the total loss of biodiversity units on-site.

In order to secure a net gain, it is clear that the Biodiversity Scheme would need to deliver a net gain at Bicester Wetland Reserve that is greater than the net loss at the development site. This report shows that the Biodiversity Scheme should deliver a gain in the region of 7 biodiversity units. This broadening of the remit of this report is proposed because it enables the mitigation scheme to be planned comprehensively and implemented in full (free of funding risks) this year, 2020.

Project Stages

We will follow guidance set out in 'Biodiversity net gain. Good practice principles for development. Part A: A practical guide. 2019. Baker, J, Hoskin, R, Butterworth, T'. In particular, with reference to Section 11 – Designing biodiversity net gain.

1. Complete a review of ecological assessments submitted as part of the planning application and the agreed ecological measures for the approved development 16/02586/OUT. Given that the development has been approved and agreement has been reached over a sum of money available for the delivery of the biodiversity scheme we do not intend to carry out extensive further work to assess the net impact but we will summarise the established ecological impact using information from the planning application.

2. Identify the full range of habitat compensation options that can be delivered at BWR. We will consult with local experts in the habitats we are planning to enhance, including the Freshwater Habitats Trust (ponds) and BBOWT (meadows). We will also consult Environment Agency, as part of the scheme will be delivered in the floodplain of the Langford Brook.

3. Assess the net gain from habitat compensation options using the Warwickshire Biodiversity Impact Assessment Calculator and then estimate the cost of each option. We will then

complete a prioritised list works that can be delivered for £30k. At this stage we will consult with the CDC Ecologist to agree the prioritised list before continuing.

4. For each item on the list of works we will create a more detailed plan, setting out the approach to be taken, any arrangements required to deliver the works and the expected result. Soil samples will be taken across the grassland to assess suitability for enhancement. We will also identify suitable donor sites for green hay or seed collection.

5. We will set out the overall arrangements required to deliver the works on site, including any consents or approvals needed and the specific procedures required by Thames Water. The latter include use of approved contractors only, to ensure compliance with TW environmental and safety standards.

6. We will set out a plan for the aftercare and ongoing annual management required to ensure the continued favourable condition of the enhanced habitats.

7. A monitoring plan for the proposed scheme will be created for the initial ten-year period to assess progress towards achieving the objectives of the Biodiversity Scheme. It is envisaged the monitoring will be carried out by BOS volunteers and BBOWT local wildlife site surveyors.

8. We provide a proposed budget for the delivery of the Biodiversity Scheme and set-out a timetable for payment of the Biodiversity Contribution that is aligned with the main works, aftercare and routine management for a ten-year period.

Stage 1 – Review of ecological assessments and agreed ecological measures for 16/02586/OUT

The developer's project ecologist (Ecology Solutions) carried out a biodiversity impact assessment of the previously consented scheme using the calculator developed by Warwickshire Coventry and Solihull. The results are summarised below:

Phase 1A	Grassland: Semi-improved neutral grassland	Woodland: Dense continuous scrub	Woodland: Scattered trees	Total
Habitat loss	**-3.76**	**-0.21**		**-3.97**
Habitat gain	**+1.27**		**+0.4**	**+1.67**
Total	**-2.49**	**-0.21**	**+0.4**	**-2.30**

Phase 1B	Grassland: Semi-improved neutral grassland	Woodland: dense continuous scrub	Woodland: scattered trees	Total
Habitat loss	**-8.76**	**-1.41**		**-10.17**
Habitat gain	**+3.73**	**+1.15**	**0.90**	**+5.78**
Total	**-5.03**	**-0.26**	**0.90**	**-4.39**

The assessment work shows that **the main loss of habitat is due to the loss of semi-improved neutral grassland, especially in Phase 1B**. On site creation of good quality semi-improved grasslands will be delivered in Phase 1A and 1B, in conjunction with swales, which will be established using a native species rich wet grassland seed mixture.

Tree planting is also a significant component of the on-site mitigation, but there will be a small overall loss of dense continuous scrub. Ash die back is also likely to be an issue.

A Habitat and Landscape Management Plan has been produced to guide the implementation and maintenance of the ecological works on Phase 1A (Bicester Gateway Hotel).

The total overall biodiversity loss in terms of biodiversity "units" for the consented scheme is 6.69. However, it is noted that the revised proposals that have been submitted for Phase 1B aim to allow for a greater quantum of habitat creation ('habitat gain') at the development site, reducing the biodiversity impact of development at the site.

The biodiversity scheme for Bicester Wetland Reserve has been designed to compensate for the consented scheme, noting that this would by default also compensate for the revised proposal which is designed to have a lower impact on biodiversity. Given a likely margin of error in calculating the net gain, the Biodiversity Scheme should aim for a net gain of at least 7.0 units to be reasonably confident of delivering adequate compensation.

In designing the Biodiversity Scheme, we agreed to follow the principle of Equivalence. This is the principle that biodiversity offsets should provide habitat, functions, values and other attributes that are similar in type and proportionate to those affected by the project. These are referred to as 'in-kind' offsets where the offset is the same kind of biodiversity components in a similar ecosystem to that affected by the project.

For this project, **the highest level of equivalence will be achieved by the establishment of high quality semi-improved neutral grasslands**, as grassland is the main habitat affected. A small amount of dense continuous scrub should also be considered.

In addition, we will seek to add value where offsets are in a different habitat from the habitat affected, but one of a higher biodiversity value. This will give the best opportunity to deliver biodiversity net gain across the BWR site.

Stage 2 – Identification of habitat compensation options that can be delivered at BWR

Prior to commencing work on the Biodiversity Scheme, BOS had identified the following ecological enhancements that could be used to deliver the required biodiversity gain:

- Botanical enhancement of grassland areas that are grazed during the summer months. These areas are currently of modest botanical interest and offer great potential for enhancement (high equivalence value).
- Digging out a number of new ponds and shallow scrapes in the grassland area.
- Enhancement of existing shallow water areas by scraping away unwanted vegetation i.e. hard rush *Juncus inflexus* that has colonised the pool edges. These areas are ideal for wintering Snipe (declining), Teal (up to 300 birds each winter) and a number of species of passage waders. This landscaping will be done in a way that allows for easier long-term maintenance by mowing, as well as grazing.
- Removal of spoil banks from around some of the pool edges to create better shallow edge conditions for feeding waders and wildfowl.

In preparing this plan we have met with ecologists representing key stakeholders (Thames Water and Environment Agency) and local ecologists/land managers with experience of relevant habitat restoration (BBOWT, RSPB, FHT). These meetings were used to share the conservation enhancement proposals already developed by BOS and potentially identify new proposals or amendments to those already identified.

Feedback from these consultees is summarised below:

Thames Water

Ian Crump, Rebecca Elliott and Henry Badman,

Very supportive of this initiative. Wish to continue partnership with BOS to achieve ecological gains at BWR. Agreeable, in principle, that material excavated to enhance the wetland could be used for landscaping and adjoining part of their site well outside the floodplain.

Environment Agency

Cat Robinson and Graham Scholey, 14 October

Supportive of our proposals. Keen to see a combination of enhanced scrapes connected to the main waterbody as well as isolated pools and ponds that are fed by rainwater/baseflows. This is because isolated pools likely to benefit from improved water quality. Discussion developed some fresh thinking on the best way the develop the pool complex, utilising a redundant ditch feature.

BBOWT

Kate Prudden and Andy Collin, 25 October

Very useful suggestions about how to best go about establishing a more floristically rich grassland, especially the importance of reducing the nutrient status of soils by cut and collect in advance of spreading green hay. Confirmed they have potential donor sites nearby they would be able to offer green hay from. Discussed potential to build monitoring of scheme into the local wildlife sites monitoring plan.

RSPB

David Wilding, 7 November

Very positive about potential of site for enhancement, especially given ready supply of water year-round. Offered advice on how to take a slightly bolder approach to water level management. As the main wetland is divided into two hydrological units, it is very feasible to allow one to dry out in the summer to then carry out more rush management, possibly including rotovating and scrape re-profiling. Also, to consider rush mowing in summer to create better conditions for Snipe. Another suggestion was to create very low-lying islands in Cattle Bridge Pool that are exposed as water levels drop in Spring. Highlighted that soil stripping would create a lot of spoil and we should plan this carefully. Recommended looking at Lidar imagery or commissioning a levelling survey to identify low-points in the grass field for pools.

Freshwater Habitats Trust

Pascale Nicolet, 13 November

Supportive of the approach being taken. Considered that the low nutrient pool being created should be suitable for Great-crested Newts. Suggested using Lidar or levelling survey to identify the low points for pond creation. Suggested taking soil auger samples and digging small trial pits or pools. Agreed that natural regeneration is the best approach for aquatic plants but suggested there may be future scope for introductions of locally scarce species (e.g. Tubular Water-dropwort) if they cannot colonise naturally. This would be investigated at a later stage once the new pools are established.

Review of feedback from stakeholders

The discussions with stakeholders and ecologists/land managers were invaluable in developing the best possible Biodiversity Scheme. No significant new suggestions were made in terms of habitat compensation options, but important issues were raised regarding how to achieve the best results. In particular, it soon became clear that due to the high nutrient status of soils (due to the spreading of treated sewage sludge on the fields in the 1990s prior to the establishment of the nature reserve), there is very little scope to enhance the botanical interest of the site without soil stripping. This was confirmed by the results of the soil analysis (see Stage 4). However, we were able to identify how we might develop a “low nutrient status” wetland at the southern end of the main improved grassland field, utilising a ditch that has been cut off from the rest of the wetland. Initial sampling of the water in this ditch indicates that it fills only with rainwater, and as such is very much lower in nitrate than either the main wetland receiving treated water, or the Langford Brook. Phosphate levels were low in all three waterbodies.

Current habitats

A Phase 1 habitat survey was conducted by Mike Pollard on 21 October, following standard JNCC methodology and habitat classification. A habitat survey had also been carried out in 2013 as part of the LWS re-assessment, following a more simplified classification system (lumping habitat categories). The findings of the two surveys are broadly similar.

Table 3: Current habitats 2019

Habitat	**Phase 1 survey code**	**Approx. area (Ha)**
Woodland - broadleaved plantation	A1.1.2	0.17
Scrub – scattered	A2.2	0.05
Improved grassland – main field	B4	2.18
Improved grassland – adjoining pools	B4	1.6
Marshy grassland	B5	0.59
Tall herb and fern – tall ruderal	C3.1	0.39
Swamp	F1	0.33
Inundation vegetation	F2.1	0.21
Eutrophic standing water	G1.1	1.56
Total		**7.08**

Habitats were mapped using the Phase One Habitat Survey Toolkit App. www.brookes.ac.uk/bms/specialist-services/ceec/phase-one-habitat-survey-toolkit. This toolkit creates a map that show habitats using standard Phase One colour shading and creates a record sheet for each polygon mapped that includes the area and further details of vegetation recorded. The App was also used to generate the map of proposed new habitat, for comparison (the background mapping is somewhat limited using this App.).

The underlying geology is the Kellaways Sand Member, a sedimentary bedrock formed approximately 164 to 166 million years ago in the Jurassic Period. Superficial deposits of Alluvium (clay, silt, sand and gravel) are recorded overlying the bedrock across the western section of the reserve, including the shallow pool complex. The grass field does not have superficial deposits. Soil survey information from British Geological Survey indicates that the soils of the grass field are slightly alkaline, with a texture of sandy loam to silty loam and medium organic matter. The soils of the western section around the pools are also recorded as slightly alkaline, with a texture of clay to sandy loam and medium organic matter.

Map 1 Current habitats

Figure 1 Typical sequence of vegetation with improved grassland and nettles (left), through Juncus inflexus dominated marshy grassland, to inundation vegetation and eutrophic open water. Swamp vegetation (Typha latifolium stands) to right of open water.

Figure 2 Cattle Bridge Pool, viewed from southern end, showing improved grassland and marshy grassland around the pool. Hide in the far-right corner overlooks the pool.

Figure 3 View looking north across main field of improved grassland with "isolated ditch" in foreground.

Figure 4 Main grass field showing temporary pool within improved grassland, following period of heavy rain.

Stage 3 - Assess the net gain from habitat compensation proposals

For each of the proposed biodiversity enhancements, a net gain calculation was made using the Warwickshire Biodiversity Impact Assessment Calculator. This spreadsheet is supplied as a supplement to this report. The results are summarised below:

Table 4 Summary of proposed net gain works

Proposed habitat work	**Current Habitat**	**Proposed Habitat**	**Area (ha)**	**Net Gain Score**
Botanical enhancement of improved grass field	Improved Grassland	Semi-improved Grassland (high quality)	0.5	5.0
Removal of banks covered with Nettle *Urtica dioica* and creation of shallow pool edges	Tall Ruderal	Marginal Inundation vegetation	0.09	1.47
Creation of new shallow open water and ponds	Improved Grassland	Standing water	0.2	2.0
		Marginal Inundation vegetation	0.05	0.82
Removal of raised Improved Grassland to create shallow pool edges	Improved Grassland	Marginal Inundation vegetation	0.05	0.82
Thickening recently planted hedge to create 3m wide linear scrub	Improved Grassland		0.06	0.39
Creating scrub in field corner	Improved Grassland		0.08	0.69
Total			**1.03**	**11.19**

To create the new habitats will require the loss of 0.94 ha of Improved Grassland and 0.09 ha of Tall Ruderal habitats, which together have a Biodiversity Value of 4.03.

Therefore, the Net Gain predicted to be achieved by this Biodiversity Scheme is 11.19 - 4.03 = 7.16

Note that the calculator only permits the creation of semi-improved grassland, with good reason as unimproved neutral grassland is close to irreplaceable. However, if the soil stripping technique is applied successfully then the outcome should be better quality in terms of grassland species diversity than would be the case in "good quality" semi-improved grassland. This approach therefore offers additional potential biodiversity value.

An initial assessment of the cost of delivering the proposed habitats indicated that this could be achieved within the budget available (£30,000). A site meeting with Charlotte Watkins confirmed that the habitat proposals developed at this stage were appropriate and a good use of the funds.

Stage 4 – Detailed plans for Biodiversity Scheme

Before detailed plans could be developed, further preliminary studies were required for soil nutrient levels and water chemistry. This information would be used to ensure that the habitat restoration techniques selected are appropriate to the site and will deliver the required outcome.

Soil Analysis

Soils samples were collected from three locations where botanical enhancement was considered desirable and potentially feasible:

1. North section of main improved grassland field
2. Southern section of main improved grassland field
3. Improved grassland around pools

For each area, 25 sub-samples were collected with a trowel from the top 7 cm of soil beneath the grass and mixed together well in a bucket to create an aggregated sample. The samples were evenly spread from across the sampling area. A 250g sample was taken from laboratory analysis. This sampling approach follows that recommended by Natural England (TIN 035). Laboratory analysis was performed by Hill Court Farm Research Limited.

Table 5: Soil Sample Analysis Results

Field Name	Lab Ref	pH	Phosphorus (P)		Potassium (K)		Magnesium (Mg)		OM
			(mg/ l)	(Index)	(mg/ l)	(Index)	(mg/ l)	(Index)	(%)
Grassland North	1911860	6.91	108	6	201	2+	173	3	9.27
Grassland South	1911861	7.25	86	5	203	2+	211	4	8.49
Poolside Grassland	1911862	7.45	200	7	409	4	231	4	11.1

The results show very high levels of phosphorus in the soils, especially around the pools. Species rich grassland is best established on soils with a P Index of 0-1. It is possible to achieve a reduction in nutrient levels through several years of hay cut and removal, but this is not realistically feasible for soils with a P Index of 5-8. This means the grassland soil has a very limited suitability for botanical enhancement.

We have subsequently learnt that sewage sludge was spread on the grass field in the 1990s, prior to the establishment of the nature reserve and that a crop was grown but not harvested in one year. This explains the high Phosphorus levels.

The only reliable way to reduce nutrients to an acceptable level is through stripping of the nutrient-rich topsoil to reveal low nutrient subsoil. This can also be achieved by soil inversion via deep ploughing, but this has the disadvantage of burying the high nutrient soils and potentially they could be released to deep rooted species or by earthworm activity. Nutrients could also leach out and enter the waterbody.

For these reasons, it is recommended that topsoil stripping is the technique used to create species rich grassland in the main improved grassland field. It is not considered worthwhile topsoil stripping of the improved grassland around the pools as the land level is already quite low and this would compromise effective grazing of the compartment. The proximity of nutrient enriched water is also a constraint as this is likely to continue influencing the chemistry of the adjoining soils.

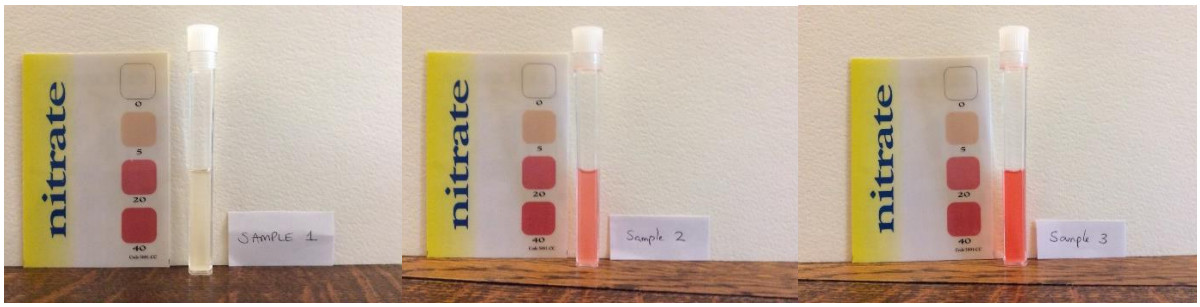
Water Quality

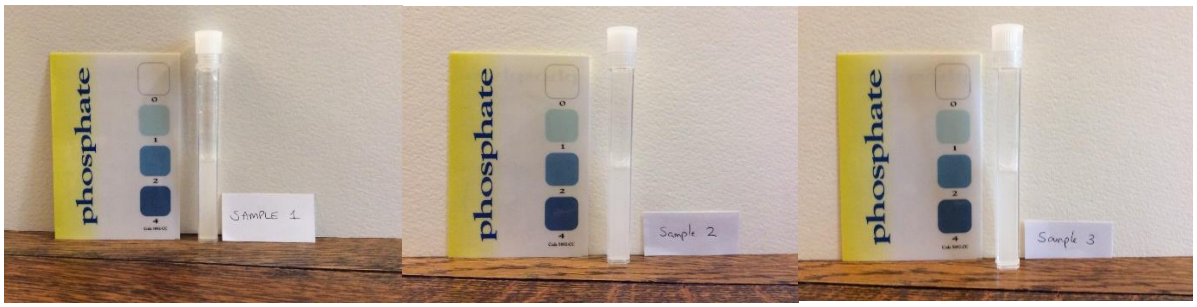
Having identified the potential to use the isolated ditch at the southern end of the improved grass field to create a pool of lower nutrient status it was important to measure water quality in the ditch to confirm that it is sufficiently isolated.

Water samples were collected from three locations:

1. The isolated ditch (adjacent to the cattle bridge)
2. The main wetland area (next to the sluice)
3. The Langford Brook (just upstream from the road crossing)

These samples were collected on 4 November 2019. Each sample was rested for phosphate and nitrate using testing kit supplied by La Motte.





The results show that the isolated ditch has very much lower nitrate levels (0-5 ppm) than either the main wetland (5-20 ppm) or the Langford Brook (20-40 ppm). This confirms the field observation that the ditch is isolated from the more nutrient rich water flowing from the treatment works and in the stream. Phosphate levels were low (<1 ppm) in all three samples.

Further sampling of water in the isolated ditch through the year is required to understand the annual fluctuation in water nutrient levels, especially at low water levels in summer. However, this result is considered sufficient evidence that it is worth pursuing the creation of a low-nutrient wetland in the lower lying parts of the improved grass field.

Habitat Creation Plans

Please also refer to Map 2 which shows the location and extent of the proposed new habitats

1. Botanical enhancement of the improved grass field

Due to the high nutrient status of the soils it is necessary to strip the enriched topsoil and remove this from the field. The remaining subsoil can then be re-seeded with a suitable flower-rich grassland mix, for example EM8 Meadow Mixture for Wetlands.

There is a good location nearby where the topsoil can be moved to, which has already received enriched soil and other materials. This is subject to agreement with Thames Water.

Topsoil stripping is an expensive operation and it is considered most worthwhile around the new pools where the topography and hydrology will create good conditions for a variety of flowers and grasses. It this works well then it would be worth considering extending this treatment more widely across the field in a future phase of work.

Timing of the topsoil strip is important and should be carried out shortly before seed is sown to avoid establishment of weeds. Seeds need both warmth and moisture to grow and may be sown at any time of year when these conditions are met. August-September and March-April usually produce the best conditions for sowing outside in most parts of the UK.

The topsoil strip will be carried out in combination with the pool creation, which needs to be done during the driest conditions which are likely in July and August. Therefore, the grassland seed mix should be sown in September or early October.

The newly established grassland will also require significant aftercare, especially in the first growing season.

The following guidance is taken from the Emorsgate website:

Mow regularly throughout the first year of establishment; this will help maintain balance between faster growing grasses and slower developing wild flowers. Quick growing meadow components will tolerate cutting and may even benefit from this 'pruning,' pushing them to develop more robust compact plants. Mowing to remove surplus top growth gives smaller slower growing plants more light and space to grow into. In the first summer meadow mixtures sown on to bare soil are frequently dominated by a flush of annual weeds which come from the soil. Regular mowing will remove annual weed competition and prevent them seeding.

Mow to a height of 40-60mm. Ideally collect and remove arisings to avoid leaving behind a damaging mulch of decomposing cut grass. If you can mow frequently enough it may be possible to disperse the cuttings without leaving a mulch. The number and timing of cuts will depend on site productivity, weather, manpower and equipment available. Mowing can start as soon as there is enough growth of either weeds or sown species to take a cut.

Yellow Rattle is an exception in meadow mixtures, being annual rather than perennial. Where yellow rattle has established well from an autumn sowing avoid further mowing from late April until mid-July to give yellow rattle a chance to flower, ripen and shed seed for the following year. Where there is an over-riding need to mow through this period, for example to control growth or weeds, replacement yellow rattle seed can be sown in the following autumn.

2. Removal of banks covered with Nettle Urtica dioica and creation of shallow pool edges

Three banks of enriched soils previously stripped from the pool edges will be removed from the wetland and moved to a location nearby on the Thames Water site. The pool edge profile will then be carefully regraded to create a very shallow profile and suitable for natural recolonization by marginal vegetation. The "draw-down" zone will create suitable feeding areas for important bird species using the site, especially Teal, Snipe and Green Sandpiper.

3. *Creation of new shallow open water and ponds*

One new pool will be created at the southern end of the improved grassland field utilising the existing isolated ditch as a starting point from which subsoil and underlying material are excavated. The depth will be no greater than the existing ditch and will gradually shallow out into the field, with a very low gradient. Existing topography will be utilised wherever possible to create a more varied pool edges with micro-habitats. The new pool will become part of the grazing unit once the species-rich grassland surrounding the pool is re-established. Spoil will be moved to an adjoining location on the Thames Water site. Natural regeneration will be used to allow the establishment of the marginal vegetation. Some fencing will be removed to enable the creation of the pool and some modifications to the rest of the existing fence will need to be made to enable grazing to recommence.

Further pools will be created where feasible in the field. These are shown indicatively on Map 2. One of these utilises the isolated ditch and the remainder utilise existing low-points in the field. It is expected that the in-field pools will be of a temporary character, filling during periods of wet weather and drying in summer.

Pond creation will follow guidance set out by Freshwater Habitats Trust. This includes:

- Create pond complexes or multiple pools rather than a single waterbody.
- Within complexes, include both permanent and seasonal ponds.
- Ponds don't need to hold water all year round: temporary ponds are important wildlife habitats.
- Make sure that almost all pond slopes are shallow, less than 1:5(12°) and preferably less than 1:20 (3°)

4. *Removal of raised Improved Grassland to create shallow pool edges*

This is similar to 2 above, and simples involves removal for a raised area of enriched soils, re-profiling of the pool edge and allowing natural regeneration of marginal vegetation.

5. *Thickening recently planted hedge to create 3m wide linear scrub*

The existing hedge alongside the path to the Cattle Bridge Pool Hide was planted a couple of years ago and has been slow to establish, partly due to the impact of grazing animals. It is now realised that there is not sufficient space in the fenced off area to establish the hedge whilst retaining the access path. The solution is to place a second fence running in parallel 3 metres out into the field and planting further hedge plants to create a much thicker hedge. This will provide valuable new scrub habitat and create an effective screen to reduce disturbance to birds using wetland areas.

New locally native hedging will be planted and protected from rabbit and deer grazing using guards.

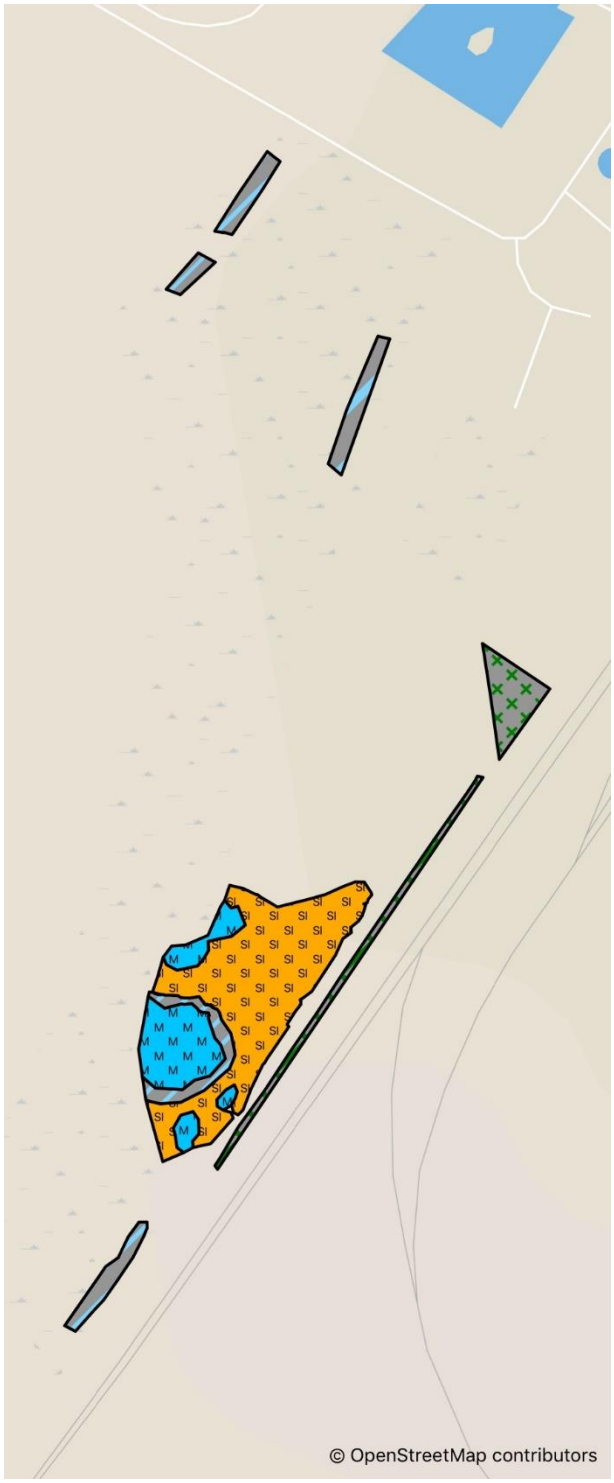
It may be possible to move the existing fence out a further 3m, but the labour cost of doing this would not offer a major saving over the new fence option.

6. *Creating scrub in field corner*

A new area of scattered scrub will be created in the north-east field corner to create suitable habitat for birds including Whitethroat and Lesser Whitethroat and more sheltered conditions for invertebrates. The scrub will also help screen the impact of the railway from the nature reserve.

A new fence will exclude cattle from this area.

Map 2 Proposed new habitats



Polygons

A2.1	Scrub - dense/ continuous
A2.2	Scrub - scattered
B2.2	Neutral grassland - semi-improved
F2.2	Marginal and inundation - inundation vegetation
G1.2	Standing water - mesotrophic

Map 3 Layout of habitat and new fence proposals

Stage 5 – Overall arrangements and consents required to deliver the Biodiversity Scheme.

Landowner consent

The site is owned by Thames Water and managed by Banbury Ornithological Society in partnership under a management licence. Thames Water consent is therefore required before the scheme is implemented. It is known that Thames Water are supportive of this proposal in principle.

Planning Permission

The creation of the new pools will require planning permission from Cherwell District Council as the excavation work required to create the new pools is classed as an engineering operation.

Environment Agency Consent

A Bespoke Permit is likely to be required for the excavation works that are undertaken for the purpose of environmental improvement.

Archaeology

There are no designated heritage sites in the project area but there is a scheduled monument immediately adjoining and it is considered likely that the area surrounding the ancient monument retains archaeological deposits related to the Roman settlement of the area as well as the prehistoric period.

Oxfordshire County Council's Planning Archaeologist has advised that a desk-based report should be carried out by a suitably qualified consultant to identify the approach needed during the soil stripping and pool excavation work.

EIA (Agriculture) Regulations

These regulations apply to uncultivated or semi-natural land over 2ha that involves:

- disrupting the soil surface by ploughing, tine harrowing or rotovating
- increasing the use of fertiliser or soil improvers including lime
- sowing seed that will increase grassland productivity
- draining land
- clearing existing vegetation or scrub equal to or above an area of 2 hectares, either physically or using herbicides
- increasing stock density that will result in improved vegetation from grazing

A screening decision is required from Natural England if the land is equal to or over the 2ha threshold or meets the criteria under the 2ha threshold.

The area proposed for soil stripping is less than 1ha, so is well below the area threshold.

The only criteria under 2 ha that may apply is if the proposal moves or redistributes 10,000 cubic metres or more earth or other material. The proposed pool creation and topsoil strip will be across an area less than 1ha and the depth of soil strip is unlikely to be to a greater depth than 20cm and certainly far less than 1m across 1ha that would be needed for the regulations to apply in this case.

For these reasons it is considered that the regulations do not apply in this case.

Contractor selection

Thames Water require that only approved contractors are appointed to work on their sites. This ensure compliance with company policies. BOS is used to working on this basis, and has employed earthmoving and fencing contractors from the approved list to work on previous projects. Accordingly, only TW approved contractors will be selected to carry out the earthmoving, fencing and grassland establishment works.

Project management

Implementation of the Biodiversity Scheme will be managed by Banbury Ornithological Society volunteers working in close collaboration with Thames Water Ecology Team. Contractor selection and on-site supervision will be carried out by Alan Peters, Site Warden, with support from Mike Pollard, Conservation Officer.

Health and Safety

As the project involves excavating and moving a significant quantity of soil it falls within the Construction Design and Management Regulations (CDM). Works are unlikely to be on the scale requiring formal notification of HSE (applies if construction work lasts longer than 30 days or involves more than 500 person days of construction). To fulfil health and safety requirements including CDM, a safety plan will need to be prepared in collaboration with Thames Water.

Underground and above ground services

There is no visible evidence of above ground or underground services at the site, but appropriate checks will need to be made before commencing work.

Stage 6 - Aftercare and ongoing annual management required to ensure the continued favourable condition of the enhanced habitats.

Aftercare and ongoing management will largely be carried out by the BOS volunteer team. It is envisaged that a special contractor will be required to mow the establishing grassland in Year 1 and potentially some of the following years, for example if weed growth remains significant.

Once the new grassland is well established, the annual grazing regime of summer and autumn grazing can be fully re-instated. It is not envisaged that the grass will continue to need cutting in the medium to long term as it will not be managed as a hay meadow.

The new pools, reprofiled pool edges and ponds will be maintained primarily by continuing the current system of low-intensity grazing during the summer and autumn months. From time to time it may be necessary to cut rush growth where this become too dominant. Where pool edge vegetation has become too thick and rush dominated it may also be worthwhile rotovating edges using a small tractor mounted rotovator. This will knock-back the vegetation and create better feeding conditions for waders and wildfowl.

The establishment of the thickened hedge and area of scattered scrub will be monitored regularly to ensure satisfactory establishment. Guards will be removed at the appropriate time once plants are well established and resistant to the effects of grazing Rabbits and Roe Deer. It is envisaged that the hedge will need occasional trimming to avoid overgrowing the path and periodic laying (roughly every 15 years). Hedge laying would be carried out over a period of two or three winters, to avoid large impact of doing it all at once.

Stage 7 - Monitoring plan

Monitoring is required to assess progress of the newly created habitats listed in Table 2 towards achieving good habitat condition.

As the reserve is designated at a local wildlife site it is proposed that a repeat habitat survey is carried out after five and ten years as part of the programme of local wildlife site monitoring. These surveys would record Phase 1 habitat extent and quality across the site and compare this with the 2019 baseline reported in Table 3 and shown on Map 1. An assessment can then be made on progress towards achieving the extent of new habitat in good condition required.

In addition, BOS volunteers will continue to monitor use of the site by birds and other wildlife and continue to provide an annual report that summarises findings.

To monitor the establishment of the species-rich grassland an annual survey of wildflowers will be carried out by a field walkover in late June or early July, prior to the commencement of grazing. This will be carried out by a BOS volunteer. The field survey should include a representative walk through the sward, making observations at a minimum of 20 stops. At each stop estimates are made within a sample 1m2 area for wildflowers and sedges (excluding white clover, creeping buttercup and injurious weeds) and the total number of species.

A species is **rare** if it occurs in one or two stops out of ten, **occasional** if it occurs in three or four stops out of ten and **frequent** species occur in five or more stops out of ten. A photographic record will be made at this time.

Natural England (TIN 110, see Table p.9) specifies fourteen wildflower indicator species that should be used to verify that the condition of semi-improved grassland has attained the quality where is can be considered a BAP Priority Habitat. At least four of the fourteen indicator species should be at least occasional in the sward. A limited number of indicator species from BAP grassland habitats may be present, and may be only rare or localised in the sward. These species can substitute for semi-improved indicator if at least occasional. It is recommended that this measure is used as the minimum quality standard for the biodiversity scheme for grassland enhancement. Note that 19 species of flower are included in the proposed Emorsgate seed mix.

Stage 8 – Budget and Timetable

Table 6 List of works and outline budget (cost figures are best estimates for guidance only)

Item	Estimated costs	High value volunteer time @£150/day	Regular volunteer time @£50/day
Preliminary			
Planning application	£2,000	£300	
Archaeology desk-based report*	(£1,800)	(£300)	
EA Permit	£170	£150	
Habitat delivery			
Old fence removal and disposal	£200		£500
Earthmoving – topsoil strip, removal of banks and creation of pool/ponds	£12,060	£1500	
Archaeology supervision estimate	£2,000		
Preparation of seedbed	£250		
Cost of seed mix	£1,500		
Sowing grassland seed mix	£250		
2 x mow grass and remove cuttings in Year 1	£500	£300	
Hedge plants and guards (225m hedge @ 6 plants/m)	£2,000		£1,150
100 shrub plants of varied sizes for scattered scrub creation plus stake and guard	£300		£300
Fencing along hedge and scrub (350m)	£4,000	£300	
Moving 2 gates	£400		
Fence improvements to facilitate creation of new pool	£500	£300	
10% Contingency for habitat delivery	£2,396		
Annual management			
Additional grass cut x2 (if required)	£400	£300	
Care of new hedge plantings and replace dead stock	£200		£300
Monitoring			
Annual grassland survey (8 @ £250)		£1000	
5 Year repeat habitat survey (2@£500)	£1000		
Total	**£30,126**	**£3,650**	**£2,250**

*this report has been commissioned from the Biodiversity Scheme report budget

Timetable

Year 1 (2020)	**Timing**
Archaeology report	Jan
Planning application and EA permit	Feb - June
Old fence removal	July
Earthmoving	August/Sept
Seeding new grass	Sept/Oct
Plant new hedge and scrub	Nov/Dec
New fence construction and gate movement	Dec
Year 2	
Complete hedge planting and fencing	Jan/Feb

Check establishment of grassland	Apr/May
Cut and collect grass x2	June – August
Light grazing in autumn if grass establishment satisfactory, if not delay to Year 3	August - October
Year 3	
Cut and collect grass x1	July – August, after survey
Carry out first year of grassland survey	Late June/early July
Grazing	August - November
Replace any dead hedge plants	Nov - Jan
Year 4	
Carry out grassland survey	Late June/early July
Grazing	August - November
Year 5	
Carry out grassland survey	Late June/early July
5 Year Habitat survey	June/July
Grazing	August - November
Year 6	
Carry out grassland survey	Late June/early July
Grazing	August - November
Year 7	
Carry out grassland survey	Late June/early July
Grazing	August - November
Year 8	
Carry out grassland survey	Late June/early July
Grazing	August - November
Year 9	
Carry out grassland survey	Late June/early July
Grazing	August - November
Year 10	
Carry out grassland survey	Late June/early July
5 Year Habitat survey	June/July
Grazing	August - November
Removal of any remaining guards and stakes around hedging	Nov - Dec

Budget, risks and timetable for payment.

Budget

The list of works above indicates that the Biodiversity Scheme can be delivered for £30,126, but will require an additional volunteer contribution from BOS of approximately £5,900. The full budget required is therefore £36,026. BOS is keen to take the scheme forward and would be willing to commit to delivering the scheme on the basis that additional funds can be sought to cover the full budget cost.

Bloombridge LLP has already set aside the £30,000 (held by L&R in the hotel budget) as part of the extant planning consent and it is understood that, should the revised planning application for Phase 1B of land north of Promised Land Farm be consented, Bloombridge LLP would be able to contribute the additional funds required, capped at £6,026, to cover the full budget cost. This is a 'without prejudice' offer and it is understood that this would be secured by way of a legal agreement (S106 or Unilateral Undertaking).

Risks

The main risk for the project delivery is associated with the potential discovery of archaeological interest in areas where topsoil stripping and pool creation are planned. There is some flexibility over the areas to be topsoil stripped but little flexibility for pool creation. Further advice and guidance on archaeology is being sought and a suitable qualified consultant is being engaged to carry out the desk-based report, which includes a preliminary site walkover. It is therefore recommended that the decision to proceed with the scheme is taken once the findings of the archaeology review are available and any implications in terms of costs or feasibility are known.

Another risk is that the amount of soil that needs to be removed has not been determined accurately so far and this could affect the cost. To do this will require the collection and laboratory testing of samples from different depths in the soil column. Soil will need to be removed to a level where remaining soil has a Phosphate index of 1 or less. The testing can be done for a modest cost and will be carried out before commencing work on the preliminary actions in Table 6.

Timetable for payment

It is suggested that the Biodiversity Contribution is paid to the Banbury Ornithological Society before the project commences and that the BOS retain the contribution as a ring-fenced sum in the Society's annual accounts, with the funds drawn down as required but mostly spent in the first two years of the Scheme to deliver the main capital works.

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