PINEHAM VILLAGE
NORTHAMPTON

LANDSCAPE AND CONSERVATION MANAGEMENT PLAN

A Report to Taylor Wimpey East Midlands

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NORTHAMPTON

LANDSCAPE AND CONSERVATION MANAGEMENT PLAN

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01 OF 02

01 TAYLOR WIMPEY EAST MIDLANDS
02 MIDDLEMARCH ENVIRONMENTAL LTD

This report was conducted and compiled by:
Joe Hamer BSc Grad CIEEM

The contents of this report are the responsibility of Middlemarch Environmental Ltd.
It should be noted, that whilst every effort is made to meet the client’s brief,
no site investigation can ensure complete assessment
or prediction of the natural environment

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1. **INTRODUCTION**

1.1 **PROJECT BACKGROUND**

In December 2013 Taylor Wimpey East Midlands commissioned Middlemarch Environmental to produce a Landscape and Conservation Management Plan (LCMP) associated with a proposed development at Pineham Village which is located on Upton Valley Way North in Northampton, Northamptonshire.

A Landscape and Conservation Management Plan was required to discharge Condition 29 stated in the outline planning permission. Condition 29 states:

*No development shall commence on site until a detailed Landscape, Conservation Management Plan (LCMP) for protected species has been submitted to and approved in writing by the Local Planning Authority. The LCMP shall include details of mitigation and a timetable for their implementation. The LCMP shall include details of the provision of wildlife ponds as identified on the submitted Ecological Impact Assessment. The LCMP shall be fully implemented in accordance with the approved details.*

Furthermore, a Bat and Bird Box Mitigation Strategy was required to discharge Condition 30 within the outline planning permission. Details of the Bat and Bird Box Mitigation Strategy can be found in Middlemarch Environmental Ltd Report RT-MME-115966-02.

This report provides a summary of the baseline ecology of the site, and provides detail about how the proposed landscaping of the site will be of benefit to biodiversity.

To date, Middlemarch Environmental has completed the following ecological studies at the site:

- Code for Sustainable Homes Ecological Assessment. Report RT-MME-113900 [May 2013];
- Extended Phase 1 Habitat Survey. Report RT-MME-114193 [May 2013];
- Badger Survey. Report RT-MME-114350-01 [August 2013];
- Barn Owl Survey. Report RT-MME-114350-02 [August 2013];
- Great Crested Newt Habitat Suitability Index Assessment. Report RT-MME-114350-03 [September 2013] and,

Reports of previous ecological studies conducted by FCPR on the survey area were also provided by the client. These included an Ecological Impact Assessment complied in 2007 and an Ecological Appraisal conducted in 2010.

These studies provide the ecological baseline data upon which this document is based.
1.2 **SITE DESCRIPTION**

The site comprised two large fields, previously utilised for crop cultivation, located to the east of Upton Valley Way North, at the southern fringe of Northampton. The site covers an area of approximately 18.7 hectares and is centred at National Grid Reference SP 714 586.

The fields were enclosed by unmanaged defunct hedgerows which contained frequent semi-mature to mature tree standards. A shallow dry ditch was located along the northern and western site boundaries. Other habitats present included two small ponds and areas of tall ruderal vegetation associated with the field margins.

Industrial units were located to the east, south and west of the site, and grazed pasture fields were located to the north. The wider landscape is dominated by mixed-use agricultural land and scattered settlements.

1.3 **SUMMARY OF PROPOSED DEVELOPMENT**

The proposed development comprises the construction of circa 550 houses with associated hard and soft landscaping. Due to the close proximity of a reservoir, which is located to the north of the site, earth works are required to create suitable flood defence and raising of ground levels prior to construction of the houses. The development footprint will predominantly be located within areas of agricultural land. As part of the proposals, the hedgerows on site are to be retained and enhanced. Small sections of hedgerow will be removed to allow access and construction of roads.

Chapter 2 provides a summary of the ecological baseline of the site.
2. **BASELINE ECOLOGY OF SITE**

2.1 **EXTENDED PHASE I HABITAT SURVEY**

Middlemarch Environmental Ltd carried out an Extended Phase I Habitat Survey of the site in April 2013, the results of which are provided in Middlemarch Environmental Ltd report RT-MME-114193. The aim of this study was to provide a record of habitats that were present on site, and to assess the potential of the site to support protected or notable species.

2.1.1 **Habitats**

The following habitat types were recorded on site during the field survey:

- Arable;
- Bare ground;
- Dry ditch;
- Hedgerows;
- Species-poor semi-improved grassland;
- Standing water; and,
- Tall ruderal vegetation.

The most ecologically valuable habitats on site are considered to be the hedgerows which contained a number of semi-mature and mature trees. Hedgerows are listed as Habitats of Principle Importance in England and are included on the Northamptonshire Biodiversity Action Plan. These habitats are likely to support a range of mammals, birds and invertebrates.

Two small ponds were present on site at the time of the survey. These ponds were devoid of aquatic vegetation and heavily shaded by adjacent trees. Therefore, it was considered that these ponds were of negligible ecological value.

2.1.2 **Protected/Notable Species**

The habitats present on site offer potential to support the following notable species/species groups:

- Amphibians
- Badgers
- Bats
- Birds

Whilst the two ponds on site were considered to be sub-optimal for amphibians, the hedgerows delineating the site provide suitable terrestrial habitat for these species.
Evidence of badger presence was identified across the site, including an active sett within a hedgerow on the northern boundary. This badger sett has been temporarily closed under a Natural England Licence (Ref: WLM/2013/2241) to allow the flood defence works and subsequent development.

No direct evidence of any bat roosts was noted within the survey area, however, a number of the semi-mature and mature trees within the hedgerows offered suitable features for roosting bats. Furthermore, the hedgerows on site provide connectivity to optimal foraging habitat within the local vicinity.

A broad range of bird species were identified using the site including species of conservation concern such as barn owl, sand martin, house martin, swallow, skylark and starling. Additionally, a range of species were identified from the desk study information received for a 1 km radius of the site including Northern lapwing, hobby and tree sparrow. It is considered that the site is likely to support a range of breeding species.

2.2 **Summary of BAP Status of Habitats**

At present, two of the habitat types present on site are considered to meet the criteria for classification as either Habitats of Principal Importance in England or Local Biodiversity Action Plan (BAP) habitats. These habitats are detailed in Table 2.1.

<table>
<thead>
<tr>
<th>Habitat Type</th>
<th>Habitat of Importance?</th>
<th>Local BAP?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hedgerows</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Open Water</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Table 5.1: Summary of Ecological Importance of Habitats on Site*

Chapters 3 and 4 provide information regarding the proposed retention, enhancement and creation of habitats to ensure that the current ecological baseline is preserved and improved by the proposed development.
3. **LANDSCAPE PROPOSALS AND HABITATS TO BE MANAGED**

3.1 **SUMMARY OF SITE LANDSCAPE PROPOSALS**

As detailed in Section 1.3, the proposed development will occupy land previously used for agriculture and, as such, is considered to be of low ecological value. The existing hedgerows on site will be retained and enhanced as part of the proposals. It is proposed that small sections of the hedgerows are removed to allow access throughout the site. However, this is not considered to cause a significant negative impact to the existing habitat.

The following habitat creation is included within the current Detailed Soft Landscape Plans (No.13-10-16) by BEA Landscape Design Ltd:

- Grassland with areas planted with a wildflower seed mix;
- Planting of wildlife friendly/ native shrubs and trees; and,
- Woodland planting.

The landscape plans are attached in Appendix 1.

Information provided by the client also indicate that the creation of a wildlife pond is included within the school site in the north eastern corner of the site. However, no landscaping details of the pond creation were available at the time of writing this report.

3.2 **ENHANCEMENT OF HEDGEROWS**

**Current Status**

The site is enclosed by unmanaged defunct hedgerows which contain a number of semi-mature and mature tree standards. An additional hedgerow intersected the western section of the site which was in poor condition with large gaps. The dominant species within the hedgerows on site were hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa*. Other species noted included elder *Sambucus nigra*, elm *Ulmus* sp., crab apple *Malus sylvestris*, laburnum *Laburnum* sp. and bramble *Rubus fruticosus* agg.. Tree species observed within the hedgerows included pedunculate oak *Quercus robur*, ash *Fraxinus excelsior* and willow *Salix* sp.

**Enhancement Methods**

Most hedgerows on site were defunct and contained large gaps, therefore native species planting will be undertaken within the gaps to enhance the hedgerows. Planting will include the following native species, which are relevant to the site:

- Hawthorn;
- Blackthorn;
English Elm *Ulmus procera*;
Field Maple *Acer campestre*;
Dog Rose *Rosa canina*; and
Crab Apple.

It is understood that two roads are to intersect the hedgerow that abuts the existing bridleway on the western section of the site. As this hedgerow is in poor condition with large gaps, no hedgerow removal anticipated. However, it is recommended that tree standards are planted at the intersections of hedgerows and roads to create undisturbed fly pathways for bats. Furthermore, creating tall stands of vegetation will encourage bats to fly across the road at a safe height.

### Biodiversity Benefits

Enhancement of the hedgerows will be beneficial to a range of fauna, most notably bats, badgers and birds, providing wildlife corridors and foraging habitat. Whilst bats are likely to utilise the current hedgerows as commuting features, further planting will provide more foraging habitat and regular management will ensure that the hedgerows will remain valuable commuting features.

The badger sett, which is situated within a hedgerow on the northern site boundary, will also benefit from enhancement. Additional around the sett planting will provide increased shelter and species such as dog rose, hawthorn and blackthorn should be concentrated in this area.

An array of bird species have been observed foraging within and commuting along the hedgerows. Hedgerow enhancement will increase their value for birds by providing more foraging and nesting habitat.

### Management Objectives

Once the hedgerow enhancement measures have been established, the hedgerows will be managed in order to meet the following objectives:

- Maintaining their biodiversity value;
- Preservation of structural diversity;
- Removal of saplings of undesirable tree species, e.g. sycamore; and,
- Cyclical programme of clearance of undesirable or non-native shrub or ground flora species.

### 3.3 Creation of Grassland

**Amenity Grassland**

It is anticipated that amenity is the primary function of most grassland areas within the development e.g. at the periphery of roads and on communal open green spaces. However, to enhance this, low growing wildflowers are to be incorporated into the grassland sward. Table 2.1 provides a mix of species suitable for sowing/planting where the turf will be cut frequently.
<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achillea millefolium</td>
<td>Yarrow</td>
<td>White</td>
</tr>
<tr>
<td>Bellis perenne</td>
<td>Daisy</td>
<td>White</td>
</tr>
<tr>
<td>Erodium cicutarium</td>
<td>Common storksbill</td>
<td>Pink</td>
</tr>
<tr>
<td>Galium verum</td>
<td>Lady’s bedstraw</td>
<td>Yellow</td>
</tr>
<tr>
<td>Leontodon autumnalis</td>
<td>Autumn hawkbit</td>
<td>Yellow</td>
</tr>
<tr>
<td>Lotus corniculatus</td>
<td>Birds foot trefoil</td>
<td>Yellow</td>
</tr>
<tr>
<td>Plantago media</td>
<td>Hoary plantain</td>
<td>White/pink</td>
</tr>
<tr>
<td>Primula veris</td>
<td>Cowslip</td>
<td>Yellow</td>
</tr>
<tr>
<td>Prunella vulgaris</td>
<td>Selfheal</td>
<td>Purple</td>
</tr>
<tr>
<td>Trifolium pratense</td>
<td>Red clover</td>
<td>Red</td>
</tr>
</tbody>
</table>

**Table 3.1: Low Growing Wildflowers Species List**

These should be introduced as seeds or plugs depending upon the conditions.

These areas could also be combined with the planting of spring bulbs such as snowdrops *Galanthus nivalis*, wild daffodils *Narcissus pseudonarcissus* and lesser celandine *Ranunculus ficaria*. Emorsgate Seeds Mixture EL1 contains slow growing grasses with a selection of wildflowers that respond well to regular short mowing.

These mixtures are to be used in areas where the grass has to be kept relatively short and will be subject to a frequent mowing regime. The aim is to provide a range of nectar bearing plants which will be able to support a variety of invertebrates, including bumble bees and butterflies. This in turn will provide suitable foraging habitat for other fauna which predate invertebrates, such as bats, badgers and birds.

**Wildflower Grassland**

The marginal grassland areas, primarily on the northern boundary, are to be sown with a Germinal Seeds (formerly British Seed Houses) mix WFG4 ‘Neutral Soils’. The species included within this seed mix can be found in Appendix 2. The positioning of wildflower grassland at the periphery of the hedgerows further enhances the structural diversity and wildlife value of the site boundaries. This habitat will provide a variety of flowering plants, increasing the botanical diversity of the site and providing suitable habitat for invertebrates. This in turn will provide suitable foraging habitat for other fauna which predate invertebrates, such as bats, badgers and birds.

Whilst this habitat should not be as intensively managed as amenity grassland areas, regular management is required to prevent scrub encroachment.
3.4 **PLANTING OF WILDLIFE FRIENDLY/NATIVE SHRUBS AND TREES**

Areas of more formal landscaping will be interspersed with wildlife friendly trees and shrubs. The creation of these tree and shrub beds will provide habitat for priority bird species such as house sparrow *Passer domesticus* and song thrush *Turdus philomelos*. The trees should be native tree species such as:

- *Prunus avium* Wild cherry
- *Sorbus aucuparia* Rowan
- *Tilia cordata* ‘Green Spire’ Lime
- *Quercus robur* Oak

The shrubs should be a mixture of species such as:

- *Dryopteris filix-mas* Male fern
- *Hebe* ‘Great Orme’ Hebe
- *Hypericum calcinum* Rose of Sharon
- *Corylus avellana* Hazel
- *Cornus sanguinea* Dogwood
- *Lingustrum vulgare* Wild privet
- *Ilex aquifolium* Holly
- *Fagus sylvatica* Beech
- *Hedera helix* Ivy
- *Viburnum opulus* Guelder rose
- *Rubus* ‘Betty Ashburner’ Betty Ashburner Bramble
- *Verbena bonariensis* Purpletop Vervain
- *Caryopteris x clandonensis* Heavenly Blue
- *Ilex* ‘J C Van Tol’ Holly

The scheme should include planting other night-scented plants, such as honeysuckle *Lonicera periclymenum* and herbs. These would help to attract moths and other flying insects to the site, and would therefore provide a food resource for bats.

The tree and shrub planting will provide nesting habitats for a range of passerine bird species, provide a nectar source for a range of insects, provide fruits for winter foraging birds and foraging and commute routes for bats.

3.5 **DECIDUOUS WOODLAND PLANTING**

Woodland planting is proposed along the southern and northern boundaries to provide screening for the new development. As shown in the landscape plans, this woodland planting comprises the planting of hornbeam, silver birch and holly with marginal scrub planting, including dogwood, hazel and privet. As this planting is situated on the northern and southern boundaries it is abutted by the existing hedgerows.
During the woodland planting, the existing hedgerows should be retained and incorporated into the woodland habitat.

The objective for the woodland planting is primarily to provide screening for the proposed residential development. However, if managed appropriately, this habitat could be of significant value for wildlife.

3.6 WILDLIFE POND CREATION

A wildlife pond will be created in the ‘School Site’ situated in the north eastern corner of the site. This feature should be designed to hold water permanently, and should be planted with a range of native aquatic species. The pond margins should be sown with a native marginal mix.

This feature will provide a potential breeding site for amphibians, such as great crested newts, provided that it holds water. The marginal planting will provide potential refuges for amphibians and also provide habitat for a range of invertebrates.

Specifications for native plants that are to be included within the pond are to be agreed with the landscape architect at a later date.
4. HABITAT MANAGEMENT PROPOSALS

4.1 INTRODUCTION

This section provides detail regarding the aims and objectives for each of the areas and habitat types outlined in Section 3, and provides management prescriptions to enable these aims and objectives to be achieved. It is anticipated that this report will be updated post-planning to allow any changes to the site layout that may arise as part of the planning process to be incorporated.

The objectives and management prescriptions detailed in this report cover a 5 year period, after which any new proposals will be developed based upon how the habitat types on site have developed and taking into account any changes in best-practice management principles. The finalised proposals will be a live document throughout the 5 year management period, and will be subject to periodic review to ensure that management prescriptions remain appropriate to achieving the aims and objectives and maximising biodiversity value. Detail regarding habitat monitoring proposals is provided in Section 5.

4.2 ENHANCEMENT OF HEDGEROWS

Aim: Maintain and enhance the biodiversity of the native hedgerows.

Objectives:
1. Encourage hedgerow management techniques at the site to support Northamptonshire BAP Hedgerow Habitat Action Plan priorities.
2. Encourage species diversity.
3. Encourage hedgerow buffer strips.
4. Reduce disturbance to nesting species from management practices.
5. To maintain connectivity between habitats.

The management of hedgerows on site will help to support the Northamptonshire Local BAP objective to maintain valuable hedgerows and protect hedgerows from damaging practises in adjacent habitats.

Table 4.1 presents management activities in order to meet the aims and objectives for the habitat. The location of the hedgerows are shown on Middlemarch Environmental Ltd Drawing No. C114070-E5.1 in Appendix 2.
<table>
<thead>
<tr>
<th>Habitat</th>
<th>Management Prescriptions</th>
<th>Purpose</th>
<th>Timing</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newly Planted Hedgerows</td>
<td>Newly planted sections of hedgerows should have half the height of the hedge removed soon after planting. Note - once hedgerow section is established, manage whole hedgerow as below.</td>
<td>Encourage bushy growth near the base, helps roots establish and reduce chances of wind damage.</td>
<td>When planted</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Water newly planted hedgerow sections during dry periods.</td>
<td>To ensure survival during establishment period.</td>
<td>Summer</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Replace any losses within newly planted areas within vegetation establishment phase (first five years after planting).</td>
<td>To ensure appropriate establishment of plants.</td>
<td>November to February</td>
<td>x x x x</td>
</tr>
<tr>
<td></td>
<td>During vegetation establishment phase (first five years after planting), adjacent grassland vegetation should be strimmed / cut back to maximise opportunities for newly planted sections to establish. After vegetation establishment phase, maintain a buffer strip of 2 m around hedgerows where grass is not cut.</td>
<td>Promote a hedgerow edge ‘ecotone’ for use by small mammals, birds and invertebrates.</td>
<td>n/a</td>
<td>x x x x</td>
</tr>
<tr>
<td>Existing Hedgerows</td>
<td>Hard pruning or coppicing of hedgerows adjacent to new planting.</td>
<td>To ensure survival of new hedgerow planting during establishment period.</td>
<td>x x x x x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hedge cutting every two to three years.</td>
<td>To preserve the structural and biological diversity.</td>
<td>November to February</td>
<td>x x x</td>
</tr>
<tr>
<td>Standard Trees within Hedgerows</td>
<td>Standing Trees - If hedgerow sections are designed to contain trees these trees should be retained and left unmanaged. Mature trees within hedgerows should only be managed for health and safety reasons.</td>
<td>Retain a diversity of age ranges within the species composition of the hedgerow.</td>
<td>n/a</td>
<td>x x</td>
</tr>
</tbody>
</table>

Table 4.1: Hedgerow Habitat Management Prescriptions
4.3 CREATION OF GRASSLAND

**Aim:** To provide amenity grassland habitats within the development and create marginal wildflower grassland habitats.

**Objectives**

1. Maintain amenity grassland habitat for its aesthetical value whilst providing supporting conservation interest.
2. Creation of wildflower grassland habitats on the site margins thus providing an ‘ecotone’ at the edge of hedgerows to benefit a range of flora and fauna.

**Management Prescriptions**

Management prescriptions for the grassland areas are detailed in Table 4.2.
<table>
<thead>
<tr>
<th>Habitat</th>
<th>Prescription</th>
<th>Purpose</th>
<th>Timing</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amenity Grassland</td>
<td>Cut on a weekly basis during summer months when growth is fastest to a height of 40 mm. Cut as and when necessary during remainder of year.</td>
<td>Maintain close packed sward.</td>
<td>n/a</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Broadleaf weeds to be spot-sprayed with appropriate selective herbicide on an annual basis as required, ensuring activity is carried out using best practice guidelines, accounting for weather conditions and proximity to pupils and members of staff and the public.</td>
<td>Maintain the grassland sward by reducing competition from vigorous species.</td>
<td>June to September</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Aeration and top-dressing if required, to be undertaken.</td>
<td>Maintain the structure and condition of the sward.</td>
<td>September to October</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Overseeding, if required, to be undertaken, preferably preceding predicted precipitation.</td>
<td>Ensure and areas of damage to the sward are repaired.</td>
<td>October</td>
<td>x</td>
</tr>
<tr>
<td>Created Wildflower Grassland</td>
<td>Scarification and the introduction of wildflower meadow seed between August to September.</td>
<td>To increase the floral biodiversity of the grassland habitat.</td>
<td>September</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Grassland to be cut once between mid August and late September to less than 50mm. Arisings to be left to allow seed to drop for a maximum of 1 week after cutting and then piled into discrete heaps or removed off site.</td>
<td>To enhance the floral biodiversity of the grassland habitat. Provides a refuge for amphibians.</td>
<td>Mid August to late September</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Use ‘spot’ treatments where necessary to control the spread of noxious weed species. Treat species with an approved translocated herbicide and apply through a weed wiper or wand.</td>
<td>Maintain the diversity of the grassland sward by reducing competition from vigorous species.</td>
<td>June to September</td>
<td>x</td>
</tr>
</tbody>
</table>

Table 4.2: Amenity Grassland Management Prescriptions
4.4 **PLANTING OF WILDLIFE FRIENDLY/NATIVE SHRUBS AND TREES**

**Aim:** Provide shrub areas for aesthetical value whilst providing supporting conservation interest.

**Objectives:**
1. Manage shrub and tree species to provide suitable bird, mammal and invertebrate habitat.

Table 4.3 presents management activities in order to meet the aims and objectives for the habitat.
<table>
<thead>
<tr>
<th>Habitat</th>
<th>Prescription</th>
<th>Purpose</th>
<th>Timing</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wildlife friendly and native shrub / scrub</td>
<td>Failed stock to be replaced on a like-for-like basis with specimens of a similar size to neighbouring plants of the same species. Plants which encroach upon paths and parking spaces are to be pruned back.</td>
<td>To ensure appropriate establishment of plants.</td>
<td>November to February</td>
<td>x x x x x</td>
</tr>
<tr>
<td></td>
<td>All shrub beds to be maintained as weed free. Any bark mulch to be topped up annually as required to maintain a depth of 75mm.</td>
<td>Maintain the plants by reducing competition from vigorous species.</td>
<td>June to September</td>
<td>x x x x x</td>
</tr>
<tr>
<td></td>
<td>Any necessary cutting of shrubs or scrub areas should be carried out over winter.</td>
<td>To prevent disturbance to nesting birds.</td>
<td>October - February</td>
<td>x x x x x</td>
</tr>
<tr>
<td>Standing Trees</td>
<td>The trees are to be planted with suitable ties / stakes and protected with tree guards/ shelters or rabbit fencing. Stakes, ties and tree guards to be checked regularly during establishment phase and loosened, tightened, or removed as necessary.</td>
<td>To ensure trees become successfully established.</td>
<td>As soon as trees are planted</td>
<td>x x x</td>
</tr>
<tr>
<td></td>
<td>Minimal intervention strategy.</td>
<td>Allow habitat to establish and provide important features for nesting birds and insects.</td>
<td>n/a</td>
<td>x x x x x</td>
</tr>
<tr>
<td></td>
<td>If any deadwood or broken limbs are identified then get a qualified arboriculturalist to carry out a tree health check.</td>
<td>Maintain tree health.</td>
<td>n/a</td>
<td>x x x x x</td>
</tr>
<tr>
<td></td>
<td>Trees to be pruned annually as required to maintain good health and growth form. Damaged and unsafe limbs to be removed as required. All work to conform to BS 3998:2010.</td>
<td>To ensure trees become successfully established.</td>
<td>December to February.</td>
<td>x x x x x</td>
</tr>
</tbody>
</table>

Table 4.3: Wildlife Friendly Shrub and Native Scrub Management Prescriptions
4.5 **DECIDUOUS WOODLAND PLANTING**

**Aim:** Creation of a plantation broadleaved woodland habitat.

**Objectives:**
1. Plant broadleaved woodland plantation at the site margins to provide screening but also create valuable habitat for a range of species.
2. Maintain the woodland type and enhance the ecological diversity.
3. Improve diversity of structure.
4. Maintain and enhance the aesthetic value of the woodland.

Table 4.4 presents management activities in order to meet the aims and objectives for the habitat.
### Table 4.4: Plantation Woodland Habitat Establishment and Management Recommendations (continues)

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Prescription</th>
<th>Purpose</th>
<th>Timing</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Woodland</td>
<td>If required, soils to be cultivated / decompacted prior to commencement of tree planting. Trees to be delivered to the site immediately prior to planting being undertaken. Trees to be protected by storage bags when delivered to the site. Trees and shrubs will be planted when soils are in a suitable condition, not waterlogged or frozen. If soils are compacted loosening will be undertaken.</td>
<td>Ensure that planted trees have the best possible chance of establishing at the site.</td>
<td>November to February</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>The trees are to be planted with suitable ties / stakes and protected with tree guards/shelters or rabbit fencing where appropriate. Tree protection should be removed in Year 5 if no longer required.</td>
<td>To ensure trees become successfully established.</td>
<td>As soon as trees are planted</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Stakes, ties and tree guards to be checked regularly during establishment phase and loosened, tightened, or replaced as necessary.</td>
<td>To ensure trees become successfully established.</td>
<td>n/a</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Replace any losses during the woodland establishment phase (Years 2-6). Remove any dead or dying trees from the woodland areas unless they are to be specifically retained as dead wood (Years 2-15).</td>
<td>Ensure a continuous area of cover.</td>
<td>December to February</td>
<td>x x</td>
</tr>
</tbody>
</table>

- **Replacement of losses**: x x x x x
- **Removal of dead / dying trees**: x x x x x
<table>
<thead>
<tr>
<th>Habitat</th>
<th>Prescription</th>
<th>Purpose</th>
<th>Timing</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Woodland</td>
<td>If for any reason large-scale losses of trees occur then an Arboricultural assessment may be required to determine reasons for failure and indentify appropriate remedial action.</td>
<td>To ensure trees become successfully established.</td>
<td>n/a</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Minimal intervention strategy.</td>
<td>Carry out weed control measures (cut back of overgrowth of weeds and grasses) during first 2 years of establishment (applies to both original and replacement planting).</td>
<td>Allow habitat to establish and provide important features for nesting birds and insects.</td>
<td>n/a</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Within areas of no public access and where dead trees are not in prominent positions, dead trees to be retained where possible. If this is not possible consider felling tree and retaining tree stump and dead wood on site.</td>
<td>Valuable habitat for invertebrates and bird species.</td>
<td>n/a</td>
<td>After 10 Years</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.4 (Cont.): Plantation Woodland Habitat Establishment and Management Recommendations
3.3 Wildlife Pond Creation

3.3.1 Aims and Objectives

Aim: To maintain species rich pond habitats suitable for use by amphibians, such as great crested newts, and other species.

Objectives: 1. Manage areas of open water at the site to support Northamptonshire BAP Pond Habitat Action Plan priorities.
2. Increase botanical diversity of open water areas.
3. Create and maintain suitable habitat for amphibians, such as great crested newt.

The development and management of this habitat will help to support the Northamptonshire Local Biodiversity Action Plan objective to create and manage standing water habitats in a manner suitable for target species such as great crested newt.

Table 3.2 presents management activities in order to meet the aims and objectives for the habitat.
### 3.3.2 Habitat Management Prescriptions

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Prescription</th>
<th>Purpose</th>
<th>Timing</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wildlife Pond</td>
<td>Creation of pond within the ‘School Site’</td>
<td>Creation of 1 pond to increase habitat provided on site.</td>
<td>Pond creation works to be completed as part of landscaping works</td>
<td>x</td>
</tr>
<tr>
<td>Wildlife Pond</td>
<td>Plant aquatic vegetation in spring or early to mid summer.</td>
<td>Plants able to establish and the pond is balanced before winter.</td>
<td>April to June</td>
<td>x</td>
</tr>
<tr>
<td>Aquatic Vegetation</td>
<td>Fence to prevent grazing if necessary.</td>
<td>Allows plants to become established without being grazed by herbivores.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Replace any plant losses during vegetation establishment phase.</td>
<td>To ensure that sufficient vegetation cover is provided within the pond.</td>
<td>June-July</td>
<td>x x x x</td>
</tr>
<tr>
<td></td>
<td>Once vegetation is established, adopt a minimal intervention strategy</td>
<td>Allows the pond and emergent vegetation to become established.</td>
<td>June</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>bar raking off duckweed and blanket weed or adding barley straw to inhibit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>any algal growth.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wildlife Pond</td>
<td>Once vegetation is established, 10 to 20% of the emergent vegetation at</td>
<td>Ensures the open water habitat and a mosaic of plant species, densities</td>
<td>September to December</td>
<td>x</td>
</tr>
<tr>
<td>Marginal and</td>
<td>the water’s edge should be removed per year in rotation depending on the</td>
<td>and ages is retained.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergent</td>
<td>rate of establishment.</td>
<td>To allow aquatic invertebrates to get back into the wildlife pond.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetation</td>
<td>Allow removed material to dry out before disposal off site.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3.2: Wildlife Pond, Associated Aquatic Vegetation (Continues)
<table>
<thead>
<tr>
<th>Habitat</th>
<th>Prescription</th>
<th>Purpose</th>
<th>Timing</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wildlife Pond</td>
<td>Checking pond condition and recommending remedial action if required such as clearance of leaf fall, de-silting and re-instatement if major damage occurs. Checking for and removal of dumped rubbish from within the pond.</td>
<td>Ensure that pond is in good condition and are not polluted as a result of rubbish dumping and maintaining clear areas for GCN displaying.</td>
<td>Condition to be checked between in April / May November to February for rubbish removal</td>
<td>x</td>
</tr>
<tr>
<td>Rubbish and Pond</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wildlife Pond</td>
<td>Fish to be removed from the pond. Fish populations within pond to be reviewed every three years.</td>
<td>Ensure maintenance of suitable breeding habitat for great crested newts.</td>
<td>November to February</td>
<td>x</td>
</tr>
<tr>
<td>Fish</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Wildlife Pond</td>
<td>Clearance of trees or scrub from the edge that may be shading the pond. Ensure that the edge has maximum of 20% shading. Trees and scrub to be cleared by hand from the edges and cut material used to create habitat piles within the ecological landscaping area.</td>
<td>To ensure that the pond is maintained as suitable GCN breeding site with minimal shading around edges.</td>
<td>To be reviewed every 3 years. Removal of trees and shrubs to be completed November to February.</td>
<td>x</td>
</tr>
<tr>
<td>Tree / Scrub</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Clearance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wildlife Pond</td>
<td>Checking of and repairing any fences associated with the pond habitat.</td>
<td>To ensure access arrangements to the pond are correctly maintained.</td>
<td>June</td>
<td>x</td>
</tr>
<tr>
<td>Fences</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>

Table 3.2 (Cont.): Wildlife Pond, Associated Aquatic Vegetation
5. MONITORING

5.1 MONITORING

An integral element of any management system and associated plans for future improvement is a system of effective monitoring. A monitoring system should be established with the aim of providing data on habitat and species change as a result of the management regime. This will serve to inform management recommendations for future years.

It is recommended that an ecological visit of the site is conducted once a year, in order to assess the development of habitat and species features at the site. It is recommended that photographs be taken from set locations during the walkovers. These will be used to create a photographic record of habitat change over a five-year monitoring period.

During the monitoring survey any changes or deterioration in habitats or species features should be recorded on scaled site maps in order that management recommendations can be made to improve the quality of these areas.

The management of the site is to be reviewed using the monitoring data to ensure the aims and objectives of the scheme are being met and that any additional operations required are incorporated.
APPENDICES

**APPENDIX 1:** BEA Landscape Design Ltd (2013)
Detailed Soft Landscape Plans (No.13-10-16)

**APPENDIX 2:** Species list for Germinal Seeds - WFG4 ‘Neutral Soils’ Seed Mix
APPENDIX 1

BEA Landscape Design Ltd drawing (2013)

APPENDIX 2

Species list for Germinal Seeds - WFG4 'Neutral Soils' Seed Mix
## Wild Flower Seed Mix – WFG4 Neutral Soils

<table>
<thead>
<tr>
<th>English Name</th>
<th>Latin Name</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slender Creeping Red Fescue</td>
<td>Festuca rubra ssp litoralis</td>
<td>25%</td>
</tr>
<tr>
<td>Crested Dogstail</td>
<td>Cynosurus cristatus</td>
<td>20%</td>
</tr>
<tr>
<td>Strong Creeping Red Fescue</td>
<td>Festuca rubra rubra</td>
<td>20%</td>
</tr>
<tr>
<td>Tall Fescue</td>
<td>Festuca arundinacea</td>
<td>10%</td>
</tr>
<tr>
<td>Sainfoin</td>
<td>Onobrychis vicifolia</td>
<td>5%</td>
</tr>
<tr>
<td>Small Leaved Timothy</td>
<td>Phleum bertolonii</td>
<td>5%</td>
</tr>
<tr>
<td>Oxeye Daisy</td>
<td>Leucanthemum vulgare</td>
<td>2%</td>
</tr>
<tr>
<td>Common Knapweed</td>
<td>Centaurea cyanus</td>
<td>1.2%</td>
</tr>
<tr>
<td>Lady's Bedstraw</td>
<td>Galium verum</td>
<td>1.2%</td>
</tr>
<tr>
<td>Flax</td>
<td>Linum usitatissimum</td>
<td>1.2%</td>
</tr>
<tr>
<td>Ribwort Plantain</td>
<td>Plantago lanceolata</td>
<td>1.2%</td>
</tr>
<tr>
<td>Meadow Buttercup</td>
<td>ranunculus acris</td>
<td>1.2%</td>
</tr>
<tr>
<td>Salad Burnet</td>
<td>Sanguisorba minor</td>
<td>1.2%</td>
</tr>
<tr>
<td>Yarrow</td>
<td>Achillea millefolium</td>
<td>1%</td>
</tr>
<tr>
<td>Black Medick</td>
<td>Medicago lupulina</td>
<td>1%</td>
</tr>
<tr>
<td>White Melliot</td>
<td>Mililotus alba</td>
<td>1%</td>
</tr>
<tr>
<td>Birdsfoot Trefoil</td>
<td>Lotus corniculatus</td>
<td>0.6%</td>
</tr>
<tr>
<td>Self Heal</td>
<td>Prunella vulgaris</td>
<td>0.6%</td>
</tr>
<tr>
<td>Yellow Rattle</td>
<td>Rhinanthus minor</td>
<td>0.6%</td>
</tr>
<tr>
<td>Ragged Robin</td>
<td>Lychnis flos-cuculi</td>
<td>0.3%</td>
</tr>
<tr>
<td>Small Scabious</td>
<td>Scabiosa columbaria</td>
<td>0.3%</td>
</tr>
<tr>
<td>Common Vetch</td>
<td>Vicia sativa</td>
<td>0.2%</td>
</tr>
<tr>
<td>Pignut</td>
<td>Conopodium majus</td>
<td>0.1%</td>
</tr>
<tr>
<td>Meadow Cranesbill</td>
<td>Geranium pratense</td>
<td>0.1%</td>
</tr>
</tbody>
</table>
MIDDLEMARCH ENVIRONMENTAL

QUALITY ASSURANCE

PINEHAM VILLAGE
NORTHAMPTON

LANDSCAPE AND CONSERVATION MANAGEMENT PLAN

A Report to Taylor Wimpey East Midlands

Contract Number: C115966
Report Number: RT-MME-115966-01 RevA
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Checked by:

Tim Hextell
Principal Technical Ecological Consultant

Approved by:

David Smith
Ecology and Landscapes Director