

**Stoneyford Local Area Plan
Flora and Fauna Survey**

Kilkenny County Council

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STONEYFORD LOCAL AREA PLAN: FLORA AND FAUNA STUDY**JUNE 2004****CONTENTS**

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1 INTRODUCTION

The current survey examines the ecological value of the study area of Stoneyford, Co. Kilkenny and assesses the likely significant impacts of implementing the proposed Local Area Plan. The assessment comprised a desk study and field survey.

The desk study comprised the following elements:

- Identification of all designated sites of nature conservation interest within the study area.
- Consultation with the Heritage Division, Dept. of Environment, Heritage and Local Government.
- Consultation with the Southern Regional Fisheries Board.
- Assessment of fisheries/aquatic value of surface water bodies.
- Review of Ordnance Survey maps and aerial photos where available.
- Review of relevant reports and literature for the areas.

The field survey comprised a habitat assessment of the study area. Habitats were mapped according to *A Guide to Habitats in Ireland* (Fossitt, 2000) and in general accordance with *Draft Habitat Survey Guidelines: a Standard Methodology for Habitat Survey and Mapping in Ireland* (Heritage Council, 2002).

Signs of vertebrate fauna were noted if found however a specific search for fauna was not made. The presence of mammals is indicated principally by their signs, such as dwellings, feeding signs or droppings - though direct observations are also occasionally made. Bird species observed during the survey were recorded. Watercourses within the vicinity of the proposed development were identified and an assessment of the fisheries potential was made.

Plant nomenclature follows Webb *et al.*, (1996) for vascular plants excluding grasses, Hubbard (1984) for grasses, Mullarney *et al.*, (1999) for birds and Hayden & Harrington (2000) for mammals. The site visit was conducted on May 4^{ed} 2005. The weather conditions were good with long periods of sunshine and no rainfall. There were no seasonal restraints with regards to the survey.

For the purpose of assessing and describing the conservation value of habitats found within the study area, habitats have been categorised into three categories;

- (i) Habitats of high conservation value are those that are designated as being of international, national or regional importance or semi-natural habitats of high biodiversity value.
- (ii) Habitats of moderate conservation value are those which are locally important in maintaining biodiversity.

- (iii) Habitats of low conservation value are those which have a limited or poor contribution to local biodiversity.

2 DESCRIPTION OF STUDY AREA

Stoneyford is situated approximately 12 km south of Kilkenny (Grid Ref S524 430) on the N10. The Kings River flows north of the study site and merges with the River Nore approximately 2km east of the study area. The surrounding land use is predominantly lowland agricultural grassland.

3 DESIGNATED AREAS OF NATURE CONSERVATION

A review of the Heritage Divisions datasets (www.heritagedata.ie) indicates that the study area includes part of the River Barrow and River Nore Special Area of Conservation (cSAC) (site code: 002162). A full copy of the site synopsis for this cSAC is contained in Appendix 1. The portion of the cSAC within the study area is presented on Figure 1.

4 CONSULTATION

The Heritage Division, Dept. of Environment Heritage and Local Government, was consulted with respect to the Local Area Plan implementation (April, 2005). Their correspondence highlighted the Kings River to the north of the site. The river and its associated habitats form part of the designated River Barrow and River Nore cSAC and any zonation should reflect this designation.

The Southern Regional Fisheries Board (SRFB) was consulted with respect to the Local Area Plan implementation (May, 2005). The SRFB state that though the Kings River is not designated as a Salmonid River, it is however important salmonid water and it feeds into the Nore which is designated Salmonid water (Environmental Officer pers. comm.). The Kings River also holds a significant crayfish population.

Copies of the written correspondence are contained in Appendix 2.

5 HABITAT ASSESSMENT

The Kings River crosses the northern section of the study area. The river, its flood plain and associated woodlands are incorporated into the River Barrow and River Nore cSAC (002162). These habitats are of **high conservation value** and are described in section 5.1.

An area of species-rich Wet grassland (GS4) is found to the southwest and an area of Dry calcareous and neutral grassland (GS1) is found to the northeast of the site. These are considered to be of local ecological significance and are of **moderate conservation value**. These habitats are described in section 5.2.

Other habitats of **low conservation value** occurring within the Stoneyford area are described in section 5.3. Figure 1 presents all the habitats found within the study area.

5.1 Habitats of high conservation value

River Barrow and River Nore cSAC (002162)

This designation covers the freshwater stretches of the Barrow/Nore River catchments as far upstream as the Slieve Bloom Mountains, and also includes the tidal elements and estuary as far downstream as Creadun Head in Waterford. Within the study area, this designated site consists largely of the freshwater habitat Lowland/Depositing Rivers (FW2). A number of other habitats occur within the designation boundary. These are wet grassland (GS4), marsh (GM1), scrub (WS1) and improved agricultural grassland (GA1). These habitats are described below.

- **Lowland/Depositing Rivers (FW2)**

The Kings River, which is a tributary of the Barrow/Nore River catchment, fringes the northern edge of the study area. On the day of the field visit, this stretch was fast-flowing and clear. It is relatively unbounded on either side. Trees such as ash (*Fraxinus excelsior*), willow (*Salix* spp.) and sycamore (*Acer pseudoplatanus*) line the waters edge towards the east of the study area and extend downstream into an area of extensive woodland. This woodland is outside the study area and was not investigated.

A small tributary of the Kings River flows northeast through the site. The tributary does not form part of the cSAC but it is sensitive as it feeds into the Kings River to the northwest of the study area, outside the study area boundary. The tributary was fast flowing, clear, 2m wide and approximately 0.5m deep at the time of visit. It was bounded by treelines, hedgerows and stone walls in places. The bankside vegetation was dominated by elder (*Sambucus nigra*), hawthorn (*Crataegus monogyna*), sycamore (*Acer pseudoplatanus*), reed canary-grass (*Phalaris arundinacea*), ramsons (*Allium ursinum*), water mint (*Mentha aquatica*),

creeping bent (*Agrostis stolonifera*), water-cress (*Nasturtium officinale*), fool's water-cress (*Apium nodiflorum*) and lesser celandine (*Ranunculus ficaria*).

▪ **Wet Grassland (GS4)**

Species-rich Wet grassland (GS4) occurs along the banks of the Kings River. This area is subject to periodic inundation and heavy waterlogging which encourages the occurrence of wet grassland species. The site appears to be grazed occasionally along the southern bank and species composition of the wet grassland is particularly rich here. The grassland gradually grades into Marsh (GM1) to the east.

The species composition of the wet grassland is dominated by grass and rush species including reed canary-grass (*Phalaris arundinacea*), cock's-foot (*Dactylis glomerata*), meadow fox-tail (*Alopecurus pratensis*), wavy hair-grass (*Deschampsia flexuosa*), scutch (*Elymus repens*), common rush (*Juncus effusus*) and *Juncus articulatus/acutifloris*. The broadleaved component of the sward is composed of meadowsweet (*Filipendula ulmaria*), greater bird's-foot trefoils (*Lotus uliginosus*), bush vetch (*Vicia sepium*), ragwort (*Senecio jacobaea*), creeping buttercup (*Ranunculus repens*), meadow buttercup (*Ranunculus acris*), lesser celandine (*Ranunculus ficaria*), germander speedwell (*Veronica chamaedrys*), cuckoo-flower (*Cardamine pratensis*), clover (*Trifolium repens*), willow-herb (*Epilobium* sp.) and nettles (*Urtica dioica*), which all occur frequently. Teasel (*Dipsacus fullonum*) was found frequently on the north bank.

▪ **Marsh (GM1)**

Marsh vegetation is dominated by yellow flag (*Iris pseudocorus*), reed canary-grass (*Phalaris arundinacea*) and meadowsweet (*Filipendula ulmaria*) which occur abundantly. Marsh bedstraw (*Galium palustre*), marsh marigold (*Caltha palustris*) and silverweed (*Potentilla anserine*) occur frequently. Some species described above under Wet grassland (GS4) were also found occasionally, especially at the boundary between these habitats.

▪ **Scrub (WS1)**

An area of dense Scrub (WS1) is located to the south west of the Wet grassland (GS4) and Marsh (GM1). This habitat expands outside the study area and covers an adjacent area of hillside. Gorse (*Ulex europaeus*) dominates this area reaching a height of approximately 3m. Other shrub species include hawthorn (*Crataegus monogyna*) and elder (*Sambucus nigra*) which occur occasionally along with saplings and standards of ash (*Fraxinus excelsior*). The ground flora comprises bracken (*Pteridium aquilinum*) and bramble (*Rubus fruticosus*), which occur frequently and nettle (*Urtica dioica*), thistle (*Cirsium* sp.), cleavers (*Galium aparine*) and cow parsley (*Anthriscus sylvestris*), which are abundant along the edges.

- **Improved Agricultural Grassland (GA1)**

This habitat occurs infrequently within the cSAC boundary at this location. The species composition is the same as the Improved agricultural grassland (GA1) found throughout the site, which is described in detail in section 5.3

5.2 Habitats of moderate conservation value

- **Wet grassland (GS4)**

An area of species-rich Wet grassland (GS4) occurs to the east of the site. The species composition is dominated by grass, rushes and sedges. Dominant species include meadow fox-tail (*Alopecurus pratensis*), wavy hair-grass (*Deschampsia flexuosa*), rushes (*Juncus effusus* and *J. articulatus/acutifloris*) and sedges (*Carex* spp). The broadleaved component of the sward is composed of meadowsweet (*Filipendula ulmaria*), march cinquefoil (*Potentilla palustris*), flag (*Iris pseudocorus*), marsh marigold (*Caltha palustris*), greater bird's foot trefoils (*Lotus uliginosus*), bush vetch (*Vicia sepium*), ragwort (*Senecio jacobaea*), creeping buttercup (*Ranunculus repens*), meadow buttercup (*Ranunculus acris*), cuckoo-flower (*Cardamine pratensis*), dandelion (*Taraxacum officinale*), willow-herb (*Epilobium* sp.), sorrel (*Rumex acetosa*) and brooklime (*Veronica beccabunga*) all occur frequently.

- **Dry Calcareous and Neutral Grassland (GS1)**

This habitat is located south of the scrub area adjacent to the main road. The sward comprises meadow foxtail (*Alopecurus pratensis*), creeping bent (*Agrostis stolonifera*), Yorkshire fog (*Holcus lanatus*) and cock's-foot (*Dactylis glomerata*) which occur abundantly and lesser plantain (*Plantago lanceolata*), lesser stitchwort (*Stellaria graminea*), sorrel (*Rumex acetosa*), mouse-ear chickweed (*Cerastium fontanum*), black knapweed (*Centaurea nigra*), dandelion (*Taraxacum* sp.), creeping buttercup (*Ranunculus repens*), and white clover (*Trifolium repens*) which occurs frequently. Cow slip (*Primula veris*) occurs frequently in this area.

The species composition of a churchyard located at the very north of the study area was identified as Dry calcareous and neutral grassland (GS1). In addition to the species listed under Amenity grassland (improved) (GA2), these areas contained a number of species more characteristic of Dry calcareous and neutral grassland (GS1) including self heal (*Prunella vulgaris*), slender speedwell (*Veronica filiformis*), bird's-foot trefoil (*Lotus corniculatus*), yarrow (*Achillea millefolium*) and ribwort plantain (*Plantago lanceolata*).

- **Hedgerows (WL1)**

Individual hedgerows were not mapped for the purposes of this study. Hedgerow habitats are widespread within the area and define the boundary of most field parcels. The dominant species are hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), and elder

(*Sambucus nigra*). Gorse (*Ulex europaeus*) occurs occasionally. Most are maintained as dense, stock-proof hedges that support semi-mature and mature tree standards of ash (*Fraxinus excelsior*) and sycamore (*Acer pseudoplatanus*) along their length and a number have drainage ditches at their base. These linear features support a high diversity of plant and animal species in the area and are of local ecological value.

5.3 Habitats of low conservation value

▪ Improved agricultural grassland (GA1)

The species composition of Improved Agricultural Grassland (GA1) is dominated by grass species including perennial ryegrass (*Lolium perenne*), Yorkshire fog (*Holcus lanatus*), cock's-foot (*Dactylis glomerata*), meadow-grasses (*Poa* spp.), Meadow fox-tail (*Alopecurus pratensis*) and timothy (*Phleum pratensis*). Sedges (*Carex* sp.) and rushes (*Juncus* sp.) occur occasionally. Broadleaved herbs include creeping buttercups (*Ranunculus repens*), ribwort plantain (*Plantago lanceolata*), cow-parsley (*Anthriscus sylvestris*), cat's ear (*Hypochoeris radicata*), daisy (*Bellis perennis*), creeping cinquefoil (*Potentilla reptans*), willow-herb (*Epilobium* sp.), cuckoo-flower (*Cardamine pratensis*), germander speedwell (*Veronica chamaedrys*), sorrel (*Rumex acetosa*) and thistles (*Cirsium* spp.).

▪ Amenity grassland (improved) (GA2)

The Amenity grasslands comprise a low diversity of grass and herbs, which are similar to the composition of Improved agricultural grassland (GA1). The dominant species are creeping bent (*Agrostis stolonifera*), perennial rye-grass (*Lolium perenne*), meadow-grasses (*Poa* spp), Yorkshire fog (*Holcus lanatus*), white clover (*Trifolium repens*), red clover (*Trifolium pratense*), creeping buttercup (*Ranunculus repens*), daisy (*Bellis perennis*), dandelion (*Taraxacum officinale*) and ribwort plantain (*Plantago lanceolata*). The sward is maintained at a low height by frequent mowing suitable for recreational and amenity purposes.

▪ Arable Crop (BC1)

A large field under cereal is found to the south west of the study area. A single-species crop dominates this area and no species of conservation value were noted within this vegetation type.

▪ Buildings and developments (BL3)

A parcel of land is classified as Buildings and artificial surfaces (BL3) where building has already been initiated on a site. Patches of spoil and bare ground (ED2), Exposed sand gravel or till (ED1) and grassland types are sometimes incorporated into these areas. However, only the dominant habitat type or land use has been mapped.

6 OTHER PROTECTED SPECIES

Freshwater invertebrates

According to the Southern Regional Fisheries Board, the Kings River holds a significant population of the White-Clawed crayfish (*Austopotamobius pallipes*). This species is listed in the EU Habitats Directive (Annex II and V) and is protected under the Irish Wildlife Act 1976 and the Wildlife (Amendment) Act, 2000. Its distribution is restricted to calcium-rich waters, primarily from chalk- and limestone-bearing substrata. They usually occur where water quality is good, and are particularly intolerant of heavy metal pollution. They are also sensitive to physical changes to their environment, such as dredging, draining and channelisation.

Mammals

A number of mammalian species, including bats, badgers and otter are protected under the Wildlife Act 1976, and the Wildlife (Amendment), 2000) and it is therefore an offence to wilfully interfere with or destroy the breeding or resting place of these species, though there are exemptions under the Wildlife Act for road and housing developments and other works. The otter is also listed under Annex II and IV of the E.U. Habitats Directive. All bat species are also protected under the E.U. Habitats Directive (Annex IV).

Bats are likely to roost and forage in the area especially at sites close to water. Favourite roosting areas include built structures such as bridges and buildings particularly those with concealed crevices and cavities. Mature trees also provide good roosting potential.

No signs of badger (*Meles meles*) were noted during the visit i.e. no setts, latrines, feeding or rooting signs were found. However, a number of mammal paths were observed and the species is likely to occur within the study area. The main areas for sett construction are patches of woodland and along hedgerows.

Ireland and it is the European stronghold for the otter. They are found along most rivers and streams and they are known to be present along the River Barrow and River Nore cSAC.

A number of other mammal species found throughout the Irish agricultural landscapes are also likely to occur within the area including house mouse (*Mus (musculus) domesticus*), brown rat (*Rattus norvegicus*), wood mouse (*Apodemus sylvaticus*), red fox (*Vulpes vulpes*), pygmy shrew (*Sorex minutus*), hedgehog (*Erinaceus europaeus*), rabbits (*Oryctolagus cuniculus*) and the Irish hare (*Lepus timidus hibernicus*).

Birds

Most bird species are protected under the Wildlife Act (1976), except those regarded as pest species, and those considered as game species (where they may be hunted under conditions). It is an offence to interfere with the breeding place of protected species, though there are exemptions for developments such as road construction and building works. For the generally common species, best practice provision is made to limit season of removal of vegetation and nesting habitat. Provisions of section 46 of the Wildlife (Amendment) Act, 2000 require that disturbance to vegetation is excluded during the period 1st March to 31st August (with exemptions as above).

Several common bird species were observed on site. These included blackbird (*Turdus merula*), robin (*Erithacus rubecula*), wagtail (*Motacilla cinerea*), magpie (*Pica pica*), rooks (*Corvus frugilegus*), jackdaw (*Corvus monedula*), starlings (*Sturnus vulgaris*), chaffinch (*Fringilla coelebs*), great tit (*Parus major*), blue tit (*Parus caeruleus*), house sparrow (*Passer domesticus*), swallow (*Hirundo rustica*), song thrush (*Turdus philomelos*) and house martin (*Delichon urbica*).

Amphibians and Reptiles

The common frog (*Rana temporaria*), the smooth newt (*Triturus vulgaris*) and the common lizard (*Lacerta vivipara*) are all protected species under the Wildlife Act (1976) and have a widespread distribution in Ireland. Pools, ponds, drainage ditches and wet grasslands provide good habitat for amphibians. The common lizard can be found in a wide range of habitat types. In general it favours open, sunny, undisturbed and well drained habitats (Irish Wildlife Trust, 2005).

7 FISHERIES AND WATER QUALITY

Data obtained from the EPA website (www.epa.ie/rivermap/data/rivmaptop.html) was examined in relation to the Kings River within the study area. The sampling point at the north of the study area was recorded as slightly polluted waters from the period 1987 to 1998.

Correspondence with the Southern Regional Fisheries Board has indicated that the Kings River is a very important salmonid water and feeds into the designated Salmonid waterbody, the River Nore downstream of the study area. Salmonids require a very high quality environment. In terms of the Local Area Plan, the three principle issues of concern are that:

- Water quality is not adversely impacted as a consequence of development,
- Development should not constitute a threat or barrier to the free movement of fish and fish life, and
- River flows and levels are maintained to ensure that all currently wetted areas remain so and that there is adequate dilution for such effluent and waste water discharges as are made.

8 OVERALL EVALUATION

The River Barrow and River Nore cSAC cover the northern portion of land within the Stoneyford study area. This site is of national and international importance and is protected by the EU Habitats Directive. In addition, a stream runs through a large portion of the study site to join the Kings River, making this stream and the land immediately adjacent of high ecological value and sensitive to any development that has the potential to impact upon it. The northern part of the study area supports a high diversity of habitats and the occurrence of fauna species in this area is also likely to be high.

Though the Kings River is not a designated salmonid river, it does contain important populations of salmonids. Furthermore, it merges with the Nore about 2km downstream of the study area which is designated for salmonids. The Kings River holds an important population of the white-clawed crayfish which is protected under the EU Habitats Directive and under the Irish Wildlife Act 1976.

Species-rich grasslands of local ecological significance occur within the area. These are the Wet grassland (GS4) located adjacent to a stream to the east of the site and the Dry calcareous and neutral grassland (GS1) located just south of the cSAC. Species diversity is moderate to high and the species composition is typical for these habitat types. However, these grasslands are small, isolated patches, which limits their ecological importance within the area. They are vulnerable to change from land improvement and drainage. Unimproved and semi-improved grasslands are increasingly uncommon within the wider Irish landscape where Improved agricultural grassland is the common grassland type. Species such as cow slip (*Primula veris*) have declined in the Irish landscape which makes this area of moderate local interest. Floral species diversity is typically higher in unimproved and semi-improved grasslands and the associated faunal diversity is also typically higher, especially for invertebrates, making them important for local biodiversity.

The extensive network of dense hedgerows is also considered to be of moderate ecological importance. Hedgerows provide habitat for a number of woodland plant species that are otherwise limited to small isolated woodland patches in the landscape. They also provide habitat and commuting routes for animal species.

9 POTENTIAL IMPACTS AND RECOMMENDATIONS

9.1 Potential Impacts

Impacts on ecology arising from the implementation of the local area plan can be broadly categorised into 3 headings:

(i) **Direct habitat loss:** the removal/destruction of habitats.

(ii) **Indirect habitat changes.** This occurs when a habitat not directly affected through development is altered as a consequence of the development through effects such as disturbance, drainage or pollution. The quality or character of a habitat may change as a result of these activities. Example of potential impacts include disturbance from road improvement may cause animals in adjacent habitats to leave. Alteration of drainage can result in significant habitat changes to adjacent wetland habitats and streams. Construction can have potentially negative impacts through the discharge of contaminated water to adjacent surface waters. This can have knock-on effects on associated flora and fauna, such as the protected white-clawed crayfish. Discharges of cement or the washings of tools and equipment can result in dramatic increases in pH of receiving waters, with lethal effects on fish and fish life.

(iii) **Habitat fragmentation.** This involves the break up of a habitat by a development, resulting in one or more smaller habitat areas. A reduction in the size of a habitat may cause a decline in species numbers where the habitat area becomes too small to support viable populations. Species with large ranges and short-lived species such as migratory insects are particularly susceptible. Species that use linear features such as hedgerows for movement are also highly susceptible to the effects of habitat fragmentation. In this respect, bat species are particularly vulnerable to removal of hedgerows and treelines.

These impacts are relevant to all habitats within the study area but should be regarded as significant for the areas of high conservation value.

9.2 Recommendations

Protected habitats

It is recommended that the potential impacts listed above are completely avoided in the area designated as part of the River Barrow and River Nore cSAC. The adjoining stream is also very sensitive as it impacts directly on this water course. Therefore any activity in the region of this watercourse will have an indirect impact on the cSAC.

The SRFB suggest that the Local Area Plan recommend that developers make contact with the Regional Fisheries Board when carrying out any works on or adjacent to rivers. Issues of particular importance are as follows:

- It is an offence to interfere with the bed, bank or soil of any river, regardless of size, during the annual close season. This is to afford protection to adult spawning fish and to the young of such fish.

- People conducting construction works adjacent to waters should be made aware of the high pH of cement. Discharges of cement or washings of tools and equipment in waters can result in the dramatic increase of the pH of the receiving waters, with lethal effects on fish and fish life.
- The Fisheries Board should be consulted where works such as the laying of pipelines across, including under the river bed level, are being carried out. Developers should be aware that no construction should be carried out which, particularly during low flow situations, might interfere with the free movement of fish and fish life.

It is favourable that wide strips (approx. 2m) of bankside vegetation (e.g. trees, tall grass and herb vegetation) are maintained in the vicinity of watercourses where possible. This will help filter run-off surface water from the surrounding land and help maintain good water quality in the watercourse. The use of herbicides should be avoided near all watercourses.

Protected species

Mature trees, especially those showing crevices and hollows, should be checked by a bat specialist immediately prior to felling and should be felled during the spring months of March, April, May or autumn months of September, October or November. Large mature trees should be felled carefully, essentially by gradually dismantling the tree. Bats should be removed by a specialist under licence form NPWS. Branches should not be immediately mulched as bats may be in torpor in the branches.

Specialised bat surveys should be carried out on buildings and structures such as bridges with high bat potential which are to be greatly altered or demolished. Surveys may also be required in area where there is likely to be tree and hedgerow removal due to development. This will establish if bats utilise the site and the areas. Seasonal constraints apply and bat surveys are best conducted from late April to late September.

If works are carried out near a badger sett, professional advice should be sought on protecting the sett. If badger setts are found during the development of an area, a suitably qualified specialist should be employed to evacuate and destroy the sett under licence form NPWS. A badger survey should be carried out where areas of hedgerow and woodland patches are to be altered. Seasonal constraints apply and badger surveys should preferably be carried out between November and March.

Works carried out along watercourses should employ a suitably qualified specialist to assess the area for the presence of otters and the potential impacts on the species through any development.

Cutting of hedgerows and site clearance should take place outside the bird-nesting period which starts on March 1st and ends 31st of August.

Where amphibians or reptiles are found on site, it is standard good practice to ensure protection of breeding sites and to make provision for maintenance of the species if possible.

General recommendations

Native trees should be used in planting schemes for new developments. Tree species planted should reflect the local native species composition.

Networks of hedgerows and treelines should be maintained and incorporated into new developments where possible. Maintaining an unbroken linear corridor is importance for animal species movement in the landscape. Hedgerows should be trimmed so that they are wider at the base and narrower at the top and established hedges should be trimmed every second or third year. The use of herbicide should be avoided within 1.5m of hedgerows.

Any development occurring in an area of species-rich grassland of moderate conservation value will result in the loss of that grassland through direct habitat loss. There is potential to re-establish some grassland surrounding the development through maintaining and reusing topsoil, which contains the seed-bank. Fertiliser and herbicide and the use of amenity grassland seed mixes should be completely avoided in these areas. If additional seed is required to improve the sward, a similar seed mixture should be used and sourced locally through local seed suppliers.

9.3 REFERENCES

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