



**TOP OFFICE EXTENSION,
PORT LYMPNE WILD ANIMAL PARK,
LYMPNE, KENT**

Preliminary Ecological Appraisal Report

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Corylus reference	20020

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SUMMARY

- A Preliminary Ecological Appraisal has been undertaken at the Top Office at Port Lympne Wild Animal Park in Lympne, Kent, in January 2020. The proposals involve the extension of the existing office building to the north, impacting a small area of bare earth.
- The Site is dominated by bare earth and scattered trees. No invasive, non-native plants or rare plants were noted.
- The Site falls within the Kent Downs Area of Outstanding Natural Beauty.
- None of the trees or the building within the Site are suitable for use by roosting bats. No further surveys for bats are required. A sensitive lighting strategy should be followed in order to minimise the indirect impacts of the development on the local bat population.
- No further surveys are recommended for any protected species.
- Recommendations have been made for the timing of the removal of any mature vegetation, if required, in relation to breeding birds. This should be undertaken outside the bird breeding season, limiting this work to between September and February (inclusive), or the vegetation should be checked for active nests by a suitably qualified ecologist before works commence.
- Recommendations for enhancing the ecological value of the proposed Site under the NPPF have been suggested. These include species-rich native planting, nectar rich landscape planting and the installation of bird boxes.

1.0 INTRODUCTION

1.1 Corylus Ecology was requested to undertake a Preliminary Ecological Appraisal (PEA) of a modern office building and surrounding area at Port Lympne Wild Animal Park in Lympne, Kent, hereinafter referred to as 'the Site'. The Site centre is located at OS grid reference TR 10300 35218. It measures approximately 0.06ha and comprises a newly constructed single storey structure, used as an office, with an area of bare earth and trees to the north and hardstanding to the east. The Site is surrounded by buildings to the south, east and west and a small road to the north. The proposals involve the extension of the office building to the north.

1.2 The PEA survey was undertaken by Corylus Ecology on 30th January 2020. The survey includes a Phase 1 Habitat Survey, which provides information relating to the habitats within the Site, and a Protected Species Assessment, which identifies potential for protected species and informs the need for further protected species surveys. The Protected Species Assessment includes a Bat Building Survey, which aims to identify any evidence of and potential for roosting bats during daylight hours.

1.3 The objectives of the survey were to:

- Classify and map the habitats within the Site according to those within the Phase 1 manual;
- Determine the potential for protected species to occur within the Site, including an assessment of the building for potential to support bats;
- Identify key ecological constraints to allow early avoidance or minimisation of ecological effects through appropriate design;
- Suggest appropriate further surveys where necessary; and
- Suggest measures to maintain and enhance biodiversity.

2.0 METHODOLOGY

2.1 Preliminary Desk Study

- 2.1.1 A preliminary search within 5km of the Site was undertaken for designated areas, priority habitats, and European Protected Species Mitigation (EPSM) licences using the MAGIC interactive mapping service (Defra, 2020).

2.2 Phase 1 Habitat Survey

- 2.2.1 The Site was subject to a Phase 1 Habitat Survey on 30th January 2020. The habitats present on the Site were mapped in accordance with the 'Handbook for Phase 1 Habitat Survey' (JNCC, 2003). Habitat areas and features of topographical and/or ecological interest were described in the form of target notes. These were later used to create botanical species lists by target note area and also to create a colour coded Phase 1 Habitat map. All nomenclature follows Stace (2019). Non-native or invasive species were also identified and mapped where appropriate.

Survey constraints

- 2.2.2 The PEA survey also includes the mapping of invasive botanical species listed under Schedule 9 of the Wildlife and Countryside Act 1981, as well as those classed as rare or declining. However, some species are seasonally constrained, and therefore may not be visible on a single Site visit. Likewise, the presence of densely vegetated areas may, in some cases, restrict access and non-native botanical species may not be recorded in these areas.

2.3 Protected Species Assessment

- 2.3.1 The Phase 1 survey was undertaken on 30th January 2020 and included an assessment of the potential for the Site to support protected species. This type of survey aims to assess the potential for protected species to occur due to the habitats present and does not include any species specific survey methods designed to demonstrate whether the Site is in fact used by such species. The exception is badgers *Meles meles* as field signs associated with this species, including latrines, holes, pushes, paths and hairs, can be searched for.

Bat Building Survey

- 2.3.2 A bat building survey was undertaken by Alexander Watkinson (licence number 2016-23339-CLS-CLS) of Corylus Ecology. The external survey of standard buildings consists of an assessment of areas for potential for bats to roost; these include timber soffits, gable ends and roof tiles. A search for evidence, such as droppings and staining immediately below potential roost areas and for droppings around the base of the building, such as on windowsills, is also undertaken.

- 2.3.3 Internally evidence of bats is searched for, including droppings, staining and bats themselves. The suitability of any voids or cavities is assessed and access points from the outside are looked for, including holes in any roof lining and gaps which were letting daylight into any voids. Structures are placed into four categories of potential according to the Bat Conservation Trust guidelines: Negligible, Low, Moderate and High as detailed in Table 1 below (Collins, 2016). The survey also included a search for evidence of breeding birds.

Bat Tree and Habitat Assessment

- 2.3.4 As part of the protected species assessment, a ground level investigation of all suitable trees to be directly or indirectly impacted by the proposals was carried out to identify bat potential. Bats may use any crack or hole (such as woodpecker holes), splits or flaking bark and ivy (JNCC, 2004). Bats will also use different roosts at different times of the year, therefore it can be difficult to confirm bat roosts in trees. Field signs include dark streaking and droppings under access points. However, even where bats are known to occur, such signs are not always evident. Trees were also noted if they supported ivy *Hedera helix*. Ivy can do one of two things; very old, dense ivy can provide cavities for bats between the thick interwoven stems and the tree trunk or it can conceal features in the tree itself.
- 2.3.5 In addition, the on-site habitats were assessed for their suitability to support foraging and commuting bats. Trees, buildings and habitats were placed into one of four categories as described below (Collins, 2016):

Table 1: Bat building, tree and habitat assessment criteria

Negligible	Habitat, building or tree with negligible features likely to be used by roosting, foraging or commuting bats.
Low	A building or tree with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space for shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitat.
Moderate	A building or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat, but which are unlikely to support a roost with high conservation status. Continuous habitat connected to the wider landscape that could be used by bats for commuting and foraging, such as lines of trees and scrub or linked back gardens.
High	A building or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis, and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. Continuous, high quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats, such as river valleys, hedgerows, lines of trees and woodland edge.

3.0 RESULTS

3.1 General Site Description

- 3.1.1 The Site is located approximately 1.7km to the west of Lympne village centre, Kent, and falls within the Kent Downs Area of Outstanding Natural Beauty (AONB). The Site is situated towards the northern edge of Port Lympne Wild Animal Park, adjacent to the B2067. To the north of the Site is the B2067 road with visitor car park beyond, and to the south, east and west are various buildings, carparks and roads. The coastline is some 4.10km south of the Site and the M20 motorway approximately 2.6km to the north.

3.2 Preliminary Desk Study

Statutory Designated Areas

- 3.2.1 There are three Sites of Special Scientific Interest (SSSI) within a 5km radius of the Site. The closest SSSI to the Site is Lympne Escarpment SSSI, a large SSSI covering 143.1ha located approximately 0.8km to the east of the Site. The geology of Lympne Escarpment SSSI is Kentish ragstone, a hard sandy limestone which results in calcareous soils. The habitats within this SSSI represent some of the best examples of calcareous habitats in Kent and comprise wet woodland and grassland. The woodland is dominated by ash *Fraxinus excelsior* and field maple *Acer campestre* with areas of locally dominant wych elm *Ulmus glabra*. The grassland is dominated by grasses including fescues *Fesuca* and tor-grass *Brachypodium pinnatum*, but there is a diverse herbaceous assemblage, with species typical of chalk grassland including cowslips *Primula veris*, carline thistle *Carlina vulgaris*, hound's-tongue *Cynoglossum officinale* and early-purple orchid *Orchis mascula*. The humid conditions of the SSSI are represented by the presence of stinking iris *Iris foetidissima* and wood sedge *Carex sylvatica* within the grassland. There is also an area of marshy grassland which supports ragged-robin *Lycnhis flos-cuculi* and water figwort *Scrophularia auriculata*. The Site falls within the Impact Risk Zone (IRZ) for this SSSI.
- 3.2.2 Otterpool Quarry SSSI is located some 1.4km to the north-east of the Site. This SSSI includes a quarry which covers 10.9ha and is significant for its Cretaceous Hythe Beds with Sandgate Beds above.
- 3.2.3 Gibbin's Brook SSSI is 3.25km to the north-east and it is predominantly a 16.6ha area of marshy grassland with alder carr. The grassland has features typically associated with bogs and herb species present include purple moor-grass *Molinia caerulea*, bog moss *Spaghnum* species, heath-spotted orchid *Dactylorhiza maculata* and bogbean *Menyanthes trifoliata*. Opposite-leaved golden saxifrage *Chrysoplenium oppositifolium* and marsh marigold *Caltha palustris* are present within the alder carr habitat. The Site is also of importance for its invertebrate assemblage. The Site falls within the IRZ for this SSSI.

- 3.2.4 Poulton Wood, a Local Nature Reserve in Aldington, is situated some 4.6km to north-west of the Site.

Non-Statutory Designated Areas

Priority Habitats

- 3.2.5 There are several habitat types within a 5km radius of the Site which are classified as a 'Habitat of Principle Importance' (HPI) under section 41 of the NERC Act. The identified Priority Habitats include lowland calcareous grassland, woodpasture and parkland, deciduous woodland and coastal vegetated shingle. There is also good quality semi-improved grassland, which is not a priority habitat but is of good conservation value. The nearest priority habitat to the Site is deciduous woodland, located 40m to the south-east. Just 0.3km to the east of the Site is a large area of lowland calcareous grassland, covering in total approximately 70ha. Immediately to the east of this are areas of good quality semi-improved grassland (c.2.8km from the Site) and coastal and floodplain grazing marsh (c.1.5km from the Site). Scattered further south are smaller areas of coastal and floodplain grazing marsh. Approximately 4.5km to the south-east of the Site is a large 18ha area of coastal vegetated shingle. Some 3.5km to the north-east is a small 0.6ha area of lowland fens. The nearest area of woodpasture and parkland is some 2.5km to the north-east.

Ancient Woodland

- 3.2.6 There are numerous blocks and fragments of ancient woodland within a 5km radius of the Site. The nearest of these is Aldergate / Hill Hurst ancient and semi-natural woodland (6ha), approximately 235m to the south-east of the Site.

European Protected Species

- 3.2.7 There are three European Protected Species Mitigation (EPSM) licences within 5km of the Site. These are located approximately 4.4km to the west of the Site: two of these relate to great crested newt *Triturus cristatus* and allowed the destruction of a resting place. These licences were active between 2011 and 2015, and 2014 and 2015. The third EPSM licence in this location allowed the destruction of a resting place for common pipistrelle *Pipistrellus pipistrellus* and was active from 2013 to 2014.

3.3 Phase I Habitat Survey

- 3.3.1 The habitats present are shown within Figure 1, with further details provided by way of Target Notes (TN). Annotated photographs are provided in Figure 2. The Site comprises a newly constructed single storey structure, used as an office, with hardstanding and a building to the south, east and west and an area of bare earth and trees to the north.

Scattered trees

- 3.3.2 The Site's northern boundary is formed by a concrete post and wire fence line with scattered trees and the B2067 beyond (TN1). The fence line is covered by dense common ivy *Hedera helix* ssp. *helix* at the base, along with cleavers *Galium aparine* and Lords-and-Ladies *Arum maculatum*. There are a number of scattered trees and shrubs along this fence line including the species elder *Sambucus nigra*, sycamore *Acer pseudoplatanus*, beech *Fagus sylvatica* and light bramble *Rubus fruticosus* sp. agg cover.
- 3.3.3 In the Site's north-east and north-west corners are clusters of scattered trees (TN2). The species here include mature scots pine *Pinus sylvestris*, sycamore and beech as well as two semi-mature purple hazel *Corylus avellana* *Pupurea* trees.

Bare earth

- 3.3.4 The majority of the Site consists of an area of compacted bare earth (TN3). This bare earth area has been covered in bark chippings and there are some plants within large pots.

Hardstanding

- 3.3.5 In the east of the Site there is a tarmac drive and parking area (TN4).

3.4 Protected Species Assessment*Bat Building Assessment*Building B1 – Office

- 3.4.1 The Site contains a single structure: a recently constructed building used as an office. The building is single storey with a pitched roof. Externally the elevations of the building have a brick base and have been covered in modern weatherboarding to the eaves: these are extremely tight fitting with no gaps or warping present. There are multiple windows on all elevations which have wooden frames and double glazing; these are in a good condition with no gaps present. The soffits at the eaves of the building are constructed from solid wood which is tight fitting with no gaps present. The roof of the building is pitched with a ridge line that runs east to west. The roof has been entirely covered in bitumen felt tiles which are bonded to one another and provide no gaps. On the northern elevation there is a small porch structure which is constructed from wooden panels and MDF boarding: this is tightly fitted with no gaps. Internally the building is used as an office. There is a false ceiling at eaves height with a void space above, however no access is possible and this void is sealed, with no possible access for bats due to the construction methods used. No evidence of bats was found, and the structure has 'Negligible' suitability for roosting bats.

Bat Tree Assessment

3.4.2 There are four large mature trees located within the Site. These have been assessed for their potential to support bats and are listed below:

- **Tree T1:** A semi-mature beech tree located on the Site's northern boundary. The tree has a single stem with some light ivy cover, but appears healthy with no obvious bat roosting features seen. This tree has 'Negligible' suitability to support roosting bats.
- **Tree T2:** A mature sycamore tree located within the Site's north-east corner. The tree has a single stem with dense ivy cover, and appears healthy with no obvious bat roosting features seen. This tree has 'Low' suitability to support roosting bats.
- **Tree T3:** A mature sycamore tree located within the Site's north-west corner. Tree has a single stem with dense ivy cover, appears healthy with no obvious bat roosting features seen. This tree has 'Low' suitability to support roosting bats.
- **Tree T4:** A mature Scots pine tree located just beyond the Site's northern boundary. Tree has a single stem with no ivy cover, and appears healthy with no obvious bat roosting features seen. This tree has 'Negligible' suitability to support roosting bats.

Bat Habitat

3.4.3 The Site measures approximately 0.06ha and supports 'Low' quality bat foraging habitat (Collins, 2016). It contains limited vegetation within the Site boundary in the form of the scattered trees on the northern boundary, however the majority of the Site consists of either building, bare earth or hardstanding. The wider landscape is dominated by the wildlife park to the south, east and west with large grazing areas, woodland, animal enclosures and paths. To the north are arable fields.

Reptiles

3.4.4 The Site does not provide suitable habitat for reptiles. It is dominated by bare earth or hardstanding and is surrounded by unsuitable habitats, with buildings and hardstanding adjacent to the Site in all directions.

Amphibians

3.4.5 There are no onsite waterbodies, and no natural waterbodies within 250m of the Site. However, there are a number of artificial waterbodies within the wider wildlife park to the south: these all appear to be artificially created, concrete lined watering holes within animal enclosures or formal water features.

3.4.6 Within a 500m radius of the Site there are additional artificial watering holes and basins within animal enclosures, as well as multiple small fast flowing streams to the south and east.

3.4.7 The Site contains no suitable terrestrial habitat for amphibians, being dominated by either bare earth, buildings or hardstanding. There is only sparse vegetation at the base of the trees on the northern boundary.

Dormice

3.4.8 The Site does not support any suitable dormouse habitat as it is dominated by bare earth, building and hardstanding. The scattered trees at the Site edges are also not suitable for use, being too fragmented and not connected to any wider suitable habitat features. The Site is surrounded by buildings and hardstanding in all directions.

Badgers

3.4.9 No signs of badger, such as setts, latrines or snuffle holes, were recorded during the survey within or adjacent to the Site.

Breeding Birds

3.4.10 The scattered trees at the Site boundaries are likely to support breeding birds during the core breeding period from March – August. The office building is not suitable for use by breeding birds due to its construction methods providing no suitable nesting locations.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 Overview

- 4.1.1 A Preliminary Ecological Appraisal has been undertaken at the Top Office at Port Lympne Wild Animal Park in Lympne, Kent, in January 2020. The proposals involve the extension of the existing office building to the north, impacting a small area of bare earth.

4.2 Desk Study

- 4.2.1 The Site is within the Kent Downs AONB and is within the Impact Risk Zones of Lympne Escarpment SSSI and Gibbin's Brook SSSI.

- 4.2.2 The standing advice for developments within Lympne Escarpment SSSI IRZ and Gibbon's Brook SSSI IRZ is for the Local Planning Authority (LPA) to seek advice from Natural England if the development falls into a specific category. This development has been taken as a rural non-residential development with infrastructure. The Local Planning Authority should consult Natural England if any development will include:

- Rural non-residential: *'large non-residential developments outside existing settlements/urban areas where footprint exceeds 1ha'.*
- Infrastructure: *'Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals.'*

- 4.2.3 The proposals for the Site do not exceed a footprint of 1ha and therefore the LPA do not need to seek advice from Natural England in relation to the rural non-residential development category. The proposals include a small extension to an existing building. In this instance it is considered unlikely that the development would impact on the integrity of Lympne Escarpment SSSI or Gibbon's Brook SSSI and the LPA do not need to seek advice from Natural England in relation to the infrastructure development category.

- 4.2.4 Consideration of the scheme's impact to the Kent Downs AONB will be needed.

4.3 Phase 1 Habitat Survey

- 4.3.1 The Site contains a limited diversity of native and non-native species as the area is dominated by either hardstanding, bare earth or buildings, with limited vegetation on the northern boundary.

- 4.3.2 No invasive, rare or nationally scarce botanical species or habitats were recorded during the survey. The PEA survey is based on a single site visit and the aim is to identify ecological constraints and

potential for species to occur within a site. It should be noted that some species are seasonally constrained and, whilst every effort is made to identify botanical species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), all plant species may not be visible during single visit PEA site assessments.

- 4.3.3 No plant species associated with the nearby Lymgne Escarpment SSSI for chalk grassland have been found within the Site, with no indication of chalk grassland habitats present within the Site.

4.4 Protected Species Assessment

Bat Building Assessment

- 4.4.1 Building B1, the office structure within the Site, has 'Negligible' suitability for roosting bats due to its modern and recent construction methods providing no access points into the building or external roosting locations. No further surveys are required.

Bat Tree and Habitat Assessment

- 4.4.2 There are several mature trees at the Site boundaries; these have been assessed for bat roosting potential and no features have been identified. The mature trees within and adjacent to the Site will all be retained as part of the proposals. No further bat emergence surveys are recommended of any trees.
- 4.4.3 The Site measures c.0.06ha and supports 'Low' quality bat foraging habitat as the majority of the Site is either hardstanding or bare earth, with some scattered trees on the northern boundary. The majority of the surrounding area is formed by low quality bat foraging habitat, with buildings and hardstanding adjacent to the Site.
- 4.4.4 It is considered that the small scale proposals will not have a significant effect on the local bat population and no bat activity surveys are recommended. However, a sensitive lighting strategy should be followed in order to minimise the indirect impacts of the proposals on foraging and commuting bats in the local area. This will include minimising light spill onto the Site's boundary features as well as recommendations for additional planting along these features to improve the bat foraging habitat. Technical specifications for a sensitive lighting strategy are provided in Appendix 1.

Reptiles

- 4.4.5 There is no potential for reptiles to be present within the Site. The habitats are unsuitable for use by reptiles, being either sparse vegetation at the base of the trees, hardstanding or bare earth. The Site is surrounded by unsuitable reptile habitat: there are hardstanding and buildings adjacent in all directions. It is therefore considered highly unlikely that a population of reptiles would be using the habitats within the Site and no further surveys are required.

Amphibians

- 4.4.6 The Site has no waterbodies within the boundaries and no natural waterbodies within 250m of the Site. The terrestrial habitat within the Site is considered unsuitable for GCN, comprising of very sparse ground flora at the base of the trees, hardstanding and bare earth which provide no opportunities for foraging, shelter and hibernation. The Site is surrounded by unsuitable amphibian habitat, with hardstanding and buildings adjacent in all directions. There are several artificial waterbodies located within 250m of the Site, but all of these are concrete lined waterholes within animal enclosures or ornamental water features. These are subject to constant disturbance, frequent level changes and hold no aquatic vegetation: they are unsuitable to support a population of GCN. The Site is considered highly unlikely to support GCN and no further surveys are required.

Dormice

- 4.4.7 The habitats within and surrounding the Site are not suitable for dormice, being dominated by hardstanding, buildings and bare earth, and there is very limited vegetation. The scattered trees are isolated from any suitable habitat for dormice. No further surveys are required.

Badger

- 4.4.8 No signs of a badger sett within or near to the Site were recorded during the survey and no further action is required.

Breeding Birds

- 4.4.9 The scattered trees at the Site boundaries are likely to support breeding birds during the main breeding period between March and August. The building is not suitable for use by breeding birds due to its construction methods and there are no access points for birds.
- 4.4.10 All wild birds, including the eggs and chicks, are protected against injury or killing and their nests are protected against damage or destruction, when in use, by the Wildlife and Countryside Act (1981). The proposals currently do not require the removal of these scattered trees, however if the removal or trimming of these trees are required, it should be undertaken outside the core bird breeding season, limiting this work to the period 1st September to 1st March. If these dates do not coincide with planned schedules then it is recommended that the vegetation is checked by a suitably experienced ecologist before works commence. If any breeding birds are noted, works in the vicinity of the nest(s) would have to cease until fledging has occurred.

4.5 National Planning Policy Framework (NPPF)

4.5.1 The National Planning Policy Framework (February 2019) sets out planning policies on the protection of biodiversity and geological conservation through the planning system. Section 15 of the National Planning Policy Framework^[1] (NPPF) states that planning policies and decisions should contribute to and enhance the natural and local environment by:

- safeguarding local wildlife-rich habitats and wider ecological networks including designated sites, wildlife corridors and stepping stones and areas identified by national and local partnership for enhancement;
- promoting the conservation, restoration and enhancement of priority habitats and ecological networks;
- promoting the protection and recovery of protected species; and
- identifying and pursuing opportunities for measurable net gains for biodiversity.

4.5.2 The Site currently has limited ecological value and the impacts of the proposals are confined to the loss of a small area of bare earth and hardstanding to the north of the existing building. The areas of higher value, such as the scattered trees, will be retained. There are opportunities to improve the biodiversity of the scheme within the wider landscape area. Regarding NPPF and the enhancement of the Site to benefit wildlife, it is recommended that the measures detailed below are included in the scheme to maintain and enhance biodiversity:

Planting

- Where possible the boundary features should be enhanced with the planting of native, species rich hedges, shrubs and trees. Any new tree, hedge and shrub planting should be from native species and locally sourced. Suitable species would include hawthorn, blackthorn, holly, rowan, wild service-tree, spindle, hazel, field maple, dog-rose, guelder rose and honeysuckle. The enhancement of these boundary features will benefit local wildlife by providing more nest building opportunities and food sources for birds, small mammals and invertebrates.
- If any additional landscape planting is proposed, it is recommended that a range of nectar-rich plants are considered. Flowering plants should be made available for as long as possible through the year by planting a combination of plants which flower during spring, summer and late summer. Species such as lavenders *Lavandula*, heathers *Calluna* sp., and honeysuckles are good nectar sources for bumblebees and other insects, and honeysuckle can also be used by birds to forage and nest in. A list of nectar rich species for bumblebees prepared by the RHS is given in Appendix 2.
- The Site is located within a landscape which supports large areas of lowland calcareous grassland and therefore, where seeding is required, a meadow mixture for chalk and limestone soils is recommended, such as the EM6 Emorsgate Seed Mix. Examples of typical species associated with lowland calcareous

grassland, and which are beneficial for pollinating insects, include oxeye daisy *Leucanthemum vulgare*, common knapweed *Centaurea nigra*, wild basil *Clinopodium vulgare*, wild marjoram *Origanum vulgare* and meadow buttercup *Ranunculus acris*.

Birds

- To enhance the Site for breeding birds, a range of bird boxes should be installed within the mature trees adjacent to the Site:
 - The 1B Schwegler Nest Box with 32mm entrance hole would attract a range of species including great tit, blue tit, coal tit, redstart, pied flycatcher, tree sparrow, house sparrow and nuthatch. Two of these boxes should be placed at a height of 1.5m or higher on the southern or eastern sides of nearby mature trees.

5.0 CONCLUSION

- 5.1 A Preliminary Ecological Appraisal has been undertaken at the Top Office at Port Lympne Wild Animal Park in Lympne, Kent, in January 2020. The proposals involve the extension of the existing office building to the north, impacting a small area of bare earth.
- 5.2 The Site supports species typical of bare earth and scattered trees. No invasive, non-native plants or rare plants were noted.
- 5.3 The Site falls within the Kent Downs Area of Outstanding Natural Beauty.
- 5.4 None of the trees or the building within the Site are suitable for use by bats. No further surveys for bats are required. A sensitive lighting strategy should be followed in order to minimise the indirect impacts of the development on the local bat population.
- 5.5 No further surveys are recommended for any protected species.
- 5.6 Recommendations have been made for the timing of the removal of any mature vegetation, if required, in relation to breeding birds. This should be undertaken outside the bird breeding season, limiting this work to between September and February (inclusive), or the vegetation should be checked for active nests by a suitably qualified ecologist before works commence.
- 5.7 Recommendations for enhancing the ecological value of the proposed Site under the NPPF have been suggested. These include species-rich native planting, nectar rich landscape planting and the installation of bird boxes.

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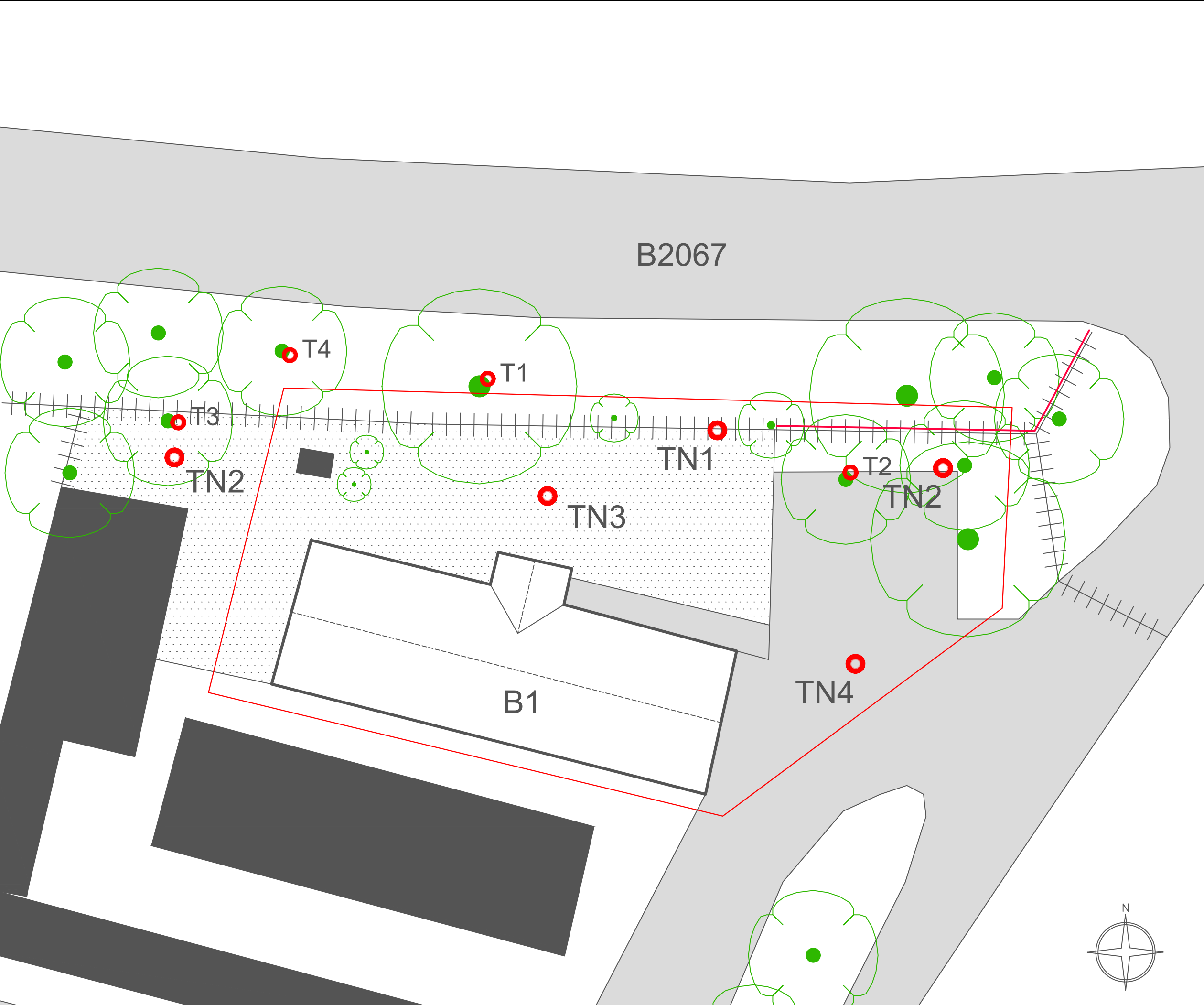
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Key

Site Survey Area

Tree

Fence

Wall

Building

Hard Standing

Bare Ground

TN1

Target Note 1

T1

Tree 1

Figure 2 - Annotated Photographs



Looking west at Site's northern boundary TN1



Looking west across the Site



Looking east across the Site



Looking west across the Site



The northern elevation of building B1



Eaves of building B1



Weatherboards of building B1



Tree cluster in north-east corner of Site



Tree cluster in north-west corner of Site

Appendix 1

Technical Guidance on Artificial Lighting and Bats

From: Institute of Lighting Professionals (ILP) and Bat Conservation Trust (BCT). 2018. *Guidance Note 8: Bats and Artificial Lighting*.

Luminaires come in a myriad of different styles, applications and specifications which a lighting professional can help to select. The following should be considered when choosing luminaires:

- All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used.
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (ideally <2700 Kelvin) should be adopted to reduce blue light component.
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).
- Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill.
- Low level or bollard lighting can often cause unacceptable glare, poor illumination efficiency, a high upward light component and poor facial recognition. Therefore the use of specialist bollard or low-level downward directional luminaires should only be considered if their use is directed by a lighting professional.
- The height of columns should be carefully considered to minimise light spill.
- Only luminaires with an upward light ratio of 0% and with good optical control should be used – See ILP Guidance for the Reduction of Obtrusive Light.
- Luminaires should always be mounted on the horizontal, i.e. no upward tilt.
- Any external security lighting should be set on motion-sensors and short (1 minute) timers.
- As a last resort to minimise, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed.



Sharing the best in Gardening



RHS PERFECT FOR POLLINATORS WILDFLOWER LIST

SHORT GRASS, UP TO 15CMS

Ajuga reptans <i>bugle</i>	H
Bellis perennis <i>daisy</i>	H
Campanula rotundifolia <i>common harebell</i>	H
Hippocrepis comosa <i>horseshoe vetch</i>	H
Lotus corniculatus <i>bird's foot trefoil</i>	H
Potentilla anserina <i>silverweed</i>	H
Potentilla erecta <i>tormentil</i>	H
Potentilla reptans <i>creeping cinquefoil</i>	H
Primula veris <i>common cowslip</i>	H
Prunella vulgaris <i>selfheal</i>	H
Ranunculus repens <i>creeping buttercup</i>	H
Sanguisorba minor <i>salad burnet</i>	H
Taraxacum officinale <i>dandelion</i>	H
Thymus polytrichus <i>wild thyme</i>	H
Thymus pulegioides <i>large thyme</i>	H
Trifolium pratense <i>red clover</i>	H
Trifolium repens <i>white clover</i>	H
Veronica chamaedrys <i>germander speedwell</i>	H

HEDGES, SHRUB BORDERS AND WOODLAND EDGE

Acer campestre <i>field maple</i>	S or T
Alliaria petiolata <i>garlic mustard</i>	Bi
Allium ursinum <i>ramsons</i>	B
Aquilegia vulgaris <i>common columbine</i>	H
Ballota nigra <i>black horehound</i>	H
Berberis vulgaris <i>barberry</i>	S
Bryonia dioica <i>white bryony</i>	H/C
Buxus sempervirens <i>common box</i>	S

HEDGES, SHRUB BORDERS AND WOODLAND EDGE (cont.)

Campanula trachelium <i>nettle-leaved bellflower</i>	H
Clematis vitalba <i>old man's beard/traveller's joy</i>	C
Clinopodium vulgare <i>wild basil</i>	H
Cornus sanguinea <i>common dogwood</i>	S
Crataegus monogyna <i>common hawthorn</i>	S or T
Cytisus scoparius <i>common broom</i>	S
Digitalis purpurea <i>common foxglove</i>	Bi
Euonymus europaeus <i>spindle</i>	S
Fragaria vesca <i>wild strawberry</i>	H
Frangula alnus <i>alder buckthorn</i>	S
Galium mollugo <i>hedge bedstraw</i>	H
Galium odoratum <i>sweet woodruff</i>	H
Galium verum <i>lady's bedstraw</i>	H
Geranium robertianum <i>herb robert</i>	A/Bi
Geum urbanum <i>wood avens</i>	H
Hedera helix <i>common ivy</i>	C
Helleborus foetidus <i>stinking hellebore</i>	H
Hyacinthoides non-scripta <i>bluebell</i>	B
Ilex aquifolium <i>common holly</i>	T
Lamium album <i>white deadnettle</i>	H
Lamium galeobdolon <i>yellow archangel</i>	H
Ligustrum vulgare <i>wild privet</i>	S
Lonicera periclymenum <i>common honeysuckle</i>	C
Malus sylvestris <i>crab apple</i>	T
Malva sylvestris <i>common mallow</i>	H
Myosotis sylvatica <i>wood forget-me-not</i>	H
Primula vulgaris <i>primrose</i>	H
Prunus avium <i>wild cherry/gean</i>	T
Prunus padus <i>bird cherry</i>	T
Prunus spinosa <i>blackthorn/sloe</i>	S

Natural England states: You can legally collect small quantities of wildflower seed for your own use, but you must get permission from the land's owner, tenant or other authority, as necessary. Although seed collecting is allowed, you should not dig up native plants – many rare species are protected by law. You can collect seed of even rare plants, but cannot sell/trade seed or progeny.

KEY

T = tree; **S** = shrub; **C** = climber; **B** = bulbs and corms; **A** = annual; **Bi** = biennial; **H** = herbaceous perennial

RHS PERFECT FOR POLLINATORS WILDFLOWER LIST

HEDGES, SHRUB BORDERS AND WOODLAND EDGE (cont.)

Ranunculus ficaria <i>lesser celandine</i>	H
Rhamnus catharticus <i>Purging buckthorn</i>	S
Rosa canina <i>Dog rose</i>	S
Rosa rubiginosa <i>sweet briar</i>	S
Rubus fruticosus <i>blackberry</i>	S
Salix atrocinerea <i>grey willow</i>	S - male forms best
Salix caprea <i>goat willow</i>	S - male forms best
Sanicula europaea <i>sanicle</i>	H
Sedum telephium <i>orpine</i>	H
Silene dioica <i>red campion</i>	H
Silene latifolia subsp. <i>alba</i> <i>white campion</i>	H
Smyrniolus olusatrum <i>alexanders</i>	Bi
Sorbus aria <i>common whitebeam</i>	T
Sorbus aucuparia <i>rowan/mountain ash</i>	T
Sorbus torminalis <i>wild service tree</i>	T
Stachys officinalis <i>betony</i>	H
Stellaria holostea <i>greater stitchwort</i>	H
Symphytum officinale <i>common comfrey</i>	H
Teucrium scorodonia <i>wood sage</i>	H
Tilia cordata <i>small-leaved lime</i>	T
Viburnum lantana <i>common wayfaring tree</i>	S
Viburnum opulus <i>guelder rose</i>	S
Vicia cracca <i>common tufted vetch</i>	H
Vicia sativa <i>common vetch</i>	H

DISTURBED GROUND

Agrostemma githago <i>corncockle</i>	A
Anchusa arvensis <i>bugloss</i>	A
Anthemis arvensis <i>corn chamomile</i>	A
Anthemis cotula <i>stinking chamomile</i>	A
Centaurea cyanus <i>cornflower</i>	A
Cichorium intybus <i>chicory</i>	H
Dipsacus fullonum <i>common teasel</i>	Bi
Echium vulgare <i>viper's bugloss</i>	Bi
Glebionis segetum <i>corn marigold</i>	A
Iberis amara <i>wild candytuft</i>	A
Lamium amplexicaule <i>Henbit deadnettle</i>	A
Matricaria recutita <i>scented mayweed</i>	A

DISTURBED GROUND (cont.)

Mentha arvensis <i>corn mint</i>	H
Myosotis arvensis <i>field forget-me-not</i>	A/H
Myosotis arvensis <i>Common forget-me-not</i>	A
Onopordum acanthium <i>cotton thistle</i>	Bi
Papaver dubium <i>long-headed poppy</i>	A
Papaver rhoeas <i>common poppy</i>	A
Sinapis arvensis <i>charlock</i>	A
Sonchus arvensis <i>perennial sowthistle</i>	H
Tussilago farfara <i>coltsfoot</i>	H
Verbascum thapsus <i>great mullein</i>	Bi

FLOWER BEDS

Calluna vulgaris <i>heather / ling</i>	S
Erica ciliaris <i>Dorset heath</i>	S
Erica cinerea <i>bell heather</i>	S
Erica tetralix <i>cross-leaved heath</i>	S

LONG GRASS, ABOVE 50CMS

Arctium minus <i>lesser burdock</i>	Bi
Carduus crispus <i>welted thistle</i>	Bi
Carduus nutans <i>musk thistle</i>	Bi
Chamaenerion angustifolium <i>rosebay willowherb</i>	H
Cirsium arvense <i>creeping thistle</i>	H
Cirsium vulgare <i>spear thistle</i>	Bi
Conopodium majus <i>pignut</i>	H
Cynoglossum officinale <i>hound's tongue</i>	H
Daucus carota <i>wild carrot</i>	Bi
Geranium pratense <i>meadow cranesbill</i>	H
Heracleum sphondylium <i>hogweed</i>	Bi
Hypericum perforatum <i>perforate St John's wort</i>	H
Knautia arvensis <i>field scabious</i>	H
Lathyrus pratensis <i>meadow vetchling</i>	H
Pastinaca sativa <i>wild parsnip</i>	Bi
Succisa pratensis <i>devil's bit scabious</i>	H
Tanacetum vulgare <i>tansy</i>	H

KEY

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RHS PERFECT FOR POLLINATORS WILDFLOWER LIST

LONG GRASS, ABOVE 50CMS (cont.)

Thalictrum flavum <i>meadow rue</i>	H
Tragopogon pratensis <i>goat's beard</i>	Bi
Verbascum nigrum <i>dark mullein</i>	Bi/H

MEDIUM HEIGHT GRASS, UP TO 50CMS

Achillea millefolium <i>common yarrow</i>	H
Achillea ptarmica <i>sneezewort</i>	H
Agrimonia eupatoria <i>agrimony</i>	H
Anthyllis vulneraria <i>kidney vetch</i>	H
Armeria maritima <i>thrift/sea pink</i>	H
Blackstonia perfoliata <i>yellowwort</i>	A
Campanula glomerata <i>clustered bellflower</i>	H
Centaurea nigra <i>common knapweed/hardheads</i>	H
Centaurea scabiosa <i>greater knapweed</i>	H
Centaurea erythraea <i>common centaury</i>	Bi
Echium vulgare <i>viper's bugloss</i>	Bi
Erigeron acris <i>blue fleabane</i>	A/H
Filipendula vulgaris <i>dropwort</i>	H
Helianthemum nummularium <i>common rockrose</i>	H
Hypochaeris radicata <i>cat's ear</i>	H
Inula conyzae <i>ploughman's spikenard</i>	H
Leontodon autumnalis <i>autumn hawkbit</i>	H
Leontodon hispidus <i>rough hawkbit</i>	H
Leucanthemum vulgare <i>ox-eye daisy</i>	H
Linaria vulgaris <i>common toadflax</i>	H
Malva moschata <i>musk mallow</i>	H
Ononis repens <i>common restharrow</i>	H
Origanum vulgare <i>wild marjoram</i>	H
Pilosella officinarum <i>mouse-ear hawkweed</i>	H
Ranunculus acris <i>meadow buttercup</i>	H
Ranunculus bulbosus <i>bulbous buttercup</i>	H
Reseda lutea <i>wild mignonette</i>	Bi/H
Rhinanthus minor <i>yellow rattle</i>	A
Scabiosa columbaria <i>small scabious</i>	H
Silene vulgaris <i>bladder campion</i>	H
Solidago virgaurea <i>goldenrod</i>	H

PONDS, POND MARGINS AND WET SOILS

Alisma plantago-aquatica <i>water plantain</i>	H
Angelica sylvestris <i>wild angelica</i>	Bi
Butomus umbellatus <i>flowering rush</i>	H
Caltha palustris <i>marsh marigold</i>	H
Cardamine pratensis <i>cuckoo flower/lady's smock</i>	H
Cirsium dissectum <i>meadow thistle</i>	H
Epilobium hirsutum <i>great willowherb</i>	H
Eupatorium cannabinum <i>hemp agrimony</i>	H
Filipendula ulmaria <i>meadowsweet</i>	H
Galium palustre <i>marsh bedstraw</i>	H
Geum rivale <i>water avens</i>	H
Hypericum tetrapterum <i>square-stalked St John's wort</i>	H
Iris pseudacorus <i>yellow iris</i>	H
Lotus pedunculatus <i>greater bird's-foot trefoil</i>	H
Lychnis flos-cuculi <i>ragged robin</i>	H
Lycopus europaeus <i>gypsywort</i>	H
Lysimachia nummularia <i>creeping Jenny</i>	H
Lysimachia vulgaris <i>yellow loosestrife</i>	H
Lythrum salicaria <i>purple loosestrife</i>	H
Mentha aquatica <i>water mint</i>	H
Menyanthes trifoliata <i>bogbean</i>	H
Myosotis scorpioides <i>water forget-me-not</i>	H
Nasturtium officinale <i>common watercress</i>	H
Nuphar lutea <i>yellow water lily</i>	H
Nymphaea alba <i>white water lily</i>	H
Oenanthe aquatica <i>fine-leaved water dropwort</i>	A/Bi
Oenanthe crocata <i>hemlock water dropwort</i>	H
Persicaria amphibia <i>amphibious bistort</i>	H
Persicaria bistorta <i>common bistort</i>	H
Polemonium caeruleum <i>Jacob's ladder</i>	H
Pulicaria dysenterica <i>common fleabane</i>	H
Ranunculus aquatilis <i>common water crowfoot</i>	A/H
Ranunculus flammula <i>lesser spearwort</i>	H
Ranunculus fluitans <i>river water crowfoot</i>	H
Ranunculus lingua <i>greater spearwort</i>	H
Ranunculus sceleratus <i>celery-leaved buttercup</i>	A
Sagittaria sagittifolia <i>arrowhead</i>	H
Sanguisorba officinalis <i>great burnet</i>	H
Scrophularia auriculata <i>water figwort</i>	H

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RHS PERFECT FOR POLLINATORS WILDFLOWER LIST

PONDS, POND MARGINS AND WET SOILS (cont.)

Scutellaria galericulata <i>common skullcap</i>	H
Stachys palustris <i>marsh woundwort</i>	H
Valeriana officinalis <i>common valerian</i>	H
Veronica beccabunga <i>brooklime</i>	H

SHINGLE/GRAVEL GARDEN

Cakile maritima <i>sea rocket</i>	A
Crambe maritima <i>sea kale</i>	H
Crithmum maritimum <i>rock samphire</i>	H
Eryngium maritimum <i>sea holly</i>	H
Glaucium flavum <i>yellow horned-poppy</i>	Bi/H
Sedum acre <i>siting stonecrop</i>	H
Sedum album <i>white stonecrop</i>	H
Silene uniflora <i>sea campion</i>	H

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