LANCASHIRE ENTERPRISE ZONE
SAMLESBURY SITE

ECOLOGICAL STATEMENT UNDER CONDITION 11 OF THE LOCAL DEVELOPMENT ORDER

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PART 1: INTRODUCTION:

1.1 PURPOSE OF THE STATEMENT:

In Autumn 2011 the Chancellor of the Exchequer granted Enterprise Zone status to Lancashire on sites at Samlesbury and Warton. A Master Plan for the Samlesbury site was approved in January 2014 and a Local Development Order in February 2014.

The Lancashire Advanced Engineering and Manufacturing Enterprise Zone (Samlesbury) Local Development Order No 2 (2014), was prepared in the strategic context provided by the Master Plan which sets out a framework to achieve the long term development objectives for the Enterprise Zone at Samlesbury.

Local Development Orders allow local planning authorities to extend permitted development rights for certain forms of development provided certain criteria and conditions are met.

The purpose of this statement is to discharge condition 11 of the LDO which states that:

'Measures to avoid, to mitigate or to compensate for any likely ecological impacts shall be submitted by the developer to the Local Planning Authority for approval.'

Details of the LDO conditions on ecology are provided in Section 1.7 of this statement*

**See 1.7 LDO Clause on Ecology and Responsibilities of the 'Developer'*

1.2 LANCASHIRE ADVANCED ENGINEERING AND MANUFACTURING ENTERPRISE ZONE MASTER PLAN SAMLESBURY SITE – TREATMENT OF ECOLOGY:

Section 8 of the Master Plan sets out the principles for an integrated approach to landscape, green belt, ecology and habitat. In terms of ecology and habitat the plan recognises the ecological interest of the site and the current approach to assessment and management of species and habitats. This approach to assessment should continue and should inform the requirement for mitigation and compensation measures including:

- Long term on and off site habitat management;
- Creating and maintaining habitats within the developed area of the Enterprise Zone where appropriate;
- Incorporating appropriate design and landscape measures within the development scheme;
- Any other proportionate and appropriate measures including appropriate off-site compensation.

1.3 HISTORY OF THE SAMLESBURY SITE:

The Samlesbury Aerodrome site was constructed in the late 1930s and has been used for the construction of military aircraft since that time. The site is composed of level and expansive open grasslands sub-divided by disused runways and taxi ways. The grasslands of the site are thought to be derived from sowing during site construction rather than the pre-existing agricultural swards, and display a largely unremarkable and variable floristic diversity.

Surveys undertaken on the site confirm inconsistent and patchy diversity, with a relatively low abundance of herbs and a high degree of uniformity characterised by the recurrence of a small number of grasses throughout the site.

Overall habitat diversity is also low due to the historical requirement to maintain safe take off and landing areas for aircraft. As a result other habitats are largely restricted to the boundaries of the site, or are at distance from the runways where two relic field ponds and a series of immature linear broad-leaved woodlands occur.

The site supports substantial numbers of ground-nesting birds including skylark and lapwing that use the extensive grasslands surrounding the runways. Common passerines nest in the adjacent woodland habitats and other birds use the site whilst on passage or for foraging.

1.4 HISTORY OF ECOLOGICAL AND HABITAT ASSESSMENT AND SURVEY, INTERVENTIONS AND LICENCING:

The first ecological study of the site was a breeding bird survey undertaken by Landmark in 2003. This study was commissioned to provide a general profile of the birds using the site and was not required in association with any planning issue.

A more rigorous series of surveys were commissioned in relation the large-scale redevelopment of the site resulting in the construction of the 608 and 609 buildings.

The surveys were undertaken by RSK Environment Limited and included a vegetation survey, a breeding bird survey and brown hare survey, a great crested newt survey and badger survey.

These developments also required the production of a method statement for great crested newt (GCN) and a development licence from the issuing authority (DEFRA).

All of the RSK studies were undertaken in 2007.

Pennine Ecological took on the role of ecological advisors in late 2007 in relation to the upgrading and diverting of existing utility infrastructure services on the site.

Further GCN surveys and licensing was required in relation to ongoing development in 2008, and included annual GCN population monitoring between 2009 and 2012. In addition Planning Conditions imposed in association with the 608/609 developments required further studies in relation to breeding birds and vegetation which were undertaken between 2008 and 2012.

A management plan to inform the maintenance of the nature conservation interest of the site was also produced in 2009 in relation to those Planning Conditions.

The Pennine Ecological reports produced between 2008 and 2014 are referenced in Section 1.6 of this report. Earlier reports are referenced in the References section only.

1.5 OVERVIEW OF THE KEY ECOLOGICAL FEATURES OF THE SITE:

The Samlesbury site has no statutory or non-statutory designations relating to ecology, however the following important ecological features are present on the site.

There is a small population of GCN located in a dedicated 'reserve' area in the south-eastern part of the site. GCN and its habitat are extensively protected under UK and European law.

The runway grasslands support breeding populations of lapwing and skylark that are considered to be of county importance. Surveys over four years have shown that the numbers of breeding pairs of these species meet the guidelines for Biological Heritage Site selection under Guidelines Av4 and Av9. The site also has local value for a range of other breeding birds including meadow pipit and reed bunting.

All birds are offered varying levels of protection under the Wildlife and Countryside Act 1981 (as amended), however none of the birds on site are protected under Schedule 1 of the act.

Several species, including skylark and lapwing are listed as Species of Principle Importance in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

Several bird species, including skylark and lapwing are listed in Birds of Conservation Concern 3.

The site has notable value for foraging bats and seven bat species out of the eight species regularly known to occur in the county have been detected during the survey. These include soprano pipistrelle, common pipistrelle, noctule, whiskered bat, brown long-eared bat, Daubenton's bat and Natterer's bat.

Three of the bat species recorded are listed in Section 41: Species of Principal Importance in England the Natural Environment and Rural Communities (NERC) Act 2006. These are soprano pipistrelle, noctule and, brown long-eared bat.

The same species are UK Biodiversity Action Plan (BAP) species and all seven species are Lancashire Biodiversity Action Plan (LBAP) species.

The EZ site is considered to be of County significance for foraging bats.

No bat roosts are present on the site.

All British bats and their roosts are afforded protection under the 1981 Wildlife & Countryside Act (as amended) and are listed in Schedule 2 of the Conservation of Habitats & Species Regulations 2010 (as amended).

Badgers are known to be present adjacent to the C.T.F area and 3B buildings in the north-eastern part of the BAE site. No evidence of badger activity has ever been noted on the runway area. Badgers are protected under Schedule 6 of the Wildlife and Countryside Act 1981, and under the Protection of Badgers Act 1992, which prohibits deliberate interference with the animal or its sett.

Badger legislation is animal welfare based and does not reflect any decline in population, in fact the species is very common, widespread and increasing in the UK.

The site supports a population of brown hare, a species listed in Section 41 of the NERC Act 2006. The species has no statutory protection other than restrictions regarding sale during certain months of the year.

The broad ecological interest of the site is shown on Map 2 in the appendix.

1.6 SITE SURVEY REPORTS 2008 - 2015:

The ecological surveys undertaken on the site since 2008 and on which this Ecological Statement is based are outlined below.

Breeding Birds:

BAE Systems Samlesbury – Breeding Bird Survey 2008. (Pennine Ecological 2008)

BAE Systems Samlesbury – Breeding Bird Survey 2010. (Pennine Ecological 2010)

BAE Systems Samlesbury – Breeding Bird Survey 2012. (Pennine Ecological 2012)

Vegetation:

BAE Systems Samlesbury – Extended Phase 1 Habitat Survey 2011 (Pennine Ecological 2011)

Great Crested Newt:

In regard to GCN, the EZ Ecological Statement is informed by all of the GCN surveys undertaken following development of the site under DEFRA licence in 2008 and the subsequent translocation of all amphibians to the 'refuge' area on the runway.

Great Crested Newt Presence & Absence Survey - BAE Systems Limited, Samlesbury Aerodrome, Blackburn, Lancashire. (Pennine Ecological 2009)

Great Crested Newt Presence & Absence Survey - BAE Systems Limited, Samlesbury Aerodrome, Blackburn, Lancashire. (Pennine Ecological 2010)

Great Crested Newt Presence & Absence Survey - BAE Systems Limited, Samlesbury Aerodrome, Blackburn, Lancashire. (Pennine Ecological 2011)

Great Crested Newt Presence & Absence Survey - BAE Systems Limited, Samlesbury Aerodrome, Blackburn, Lancashire. (Pennine Ecological 2012)

Great Crested Newt Survey 2012: Off Site Ponds - BAE Systems Limited, Samlesbury Aerodrome, Blackburn, Lancashire. (Pennine Ecological 2012)

Great Crested Newt Survey 2015 - BAE Systems Limited, Samlesbury Aerodrome, Blackburn, Lancashire. (Pennine Ecological 2015 - Survey currently ongoing)

Bats:

Lancashire Enterprise Zone - Samlesbury Site - Bat Survey 2014 (Pennine Ecological 2014)

1.7 LDO CLAUSE ON ECOLOGY AND RESPONSIBILITIES OF THE DEVELOPER:

The following paragraphs are extracts from *The Lancashire Advanced Engineering and Manufacturing Enterprise Zone (Samlesbury) Local Development Order No. 2 (2014) Statement of Reasons and Local Development Order* - Adoption Version (January 2014)

These sections of the LDO outline the responsibilities of the developer in respect of the predicted effects of the EZ on the ecological features of the site.
Section 1.5 Development within the Enterprise Zone - paragraph 1.5.3 (11) states that,

'*Measures to avoid, to mitigate or to compensate for any likely ecological impacts shall be submitted by the developer to the Local Planning Authority for approval. The Local Planning Authority shall respond within 28 days of receiving the details and if no response is received from the Local Planning Authority within this 28 day period then the assessment shall be deemed to be approved. The development shall be carried out in accordance with the approved details*.'

In addition, Section 1.7 How does the LDO relate to other planning documents? – Paragraph 1.7.8 states that

'*Avoidance of ecological impacts, measures to offset unavoidable ecological impacts, the delivery of biodiversity enhancements, the maintenance and enhancement of habitat connectivity and buffer zones around habitats of ecological importance.*'*

**Prior to adopting the Master Plan, the Local Planning Authority have had regard to the requirements of the Conservation of Habitats and Species Regulations 2010 (as amended) in respect of potential impacts on European protected species and their habitat. Any necessary supporting information (A59 Extended Phase 1 Survey, summary of ecological interest, RAMS (Great Crested Newts) will be submitted to the Local Planning Authority in line with the requirements of the Master Plan.*

PART 2 KEY ECOLOGICAL RECEPTORS & MITIGATION SOLUTIONS:

2.1 DETERMINING THE KEY ECOLOGICAL RECEPTORS:

The extensive surveys undertaken on the site since 2007 have identified several key ecological features on the site that will be potentially adversely affected by the EZ. These are known as the 'Key Ecological Receptors' and include all important habitats and species that could potentially be adversely affected by the EZ.

Once identified, it is important to determine how the effects of the development on the 'receptors' will be assessed. The methodology used is outlined in section 2.2 below.

2.2 METHODOLOGY FOR ASSESSMENT OF EFFECTS:

This assessment is based on guidance provided in the Institute of Ecology and Environmental Management's (IEEM) Guidelines for Ecological Impact Assessment, in order to provide the Planning Authority and the developer with clear and concise information about the likely significant ecological effects associated with the project.

A detailed assessment has been undertaken which attempts to collate all of the existing baseline information through field surveys that will reasonably predict the significant effects of the EZ on the Key Ecological Receptors.

Where significant adverse are predicted, then wherever possible mitigation measures are provided to reduce the effect of the development to a sustainable level.

2.2.1 Geographic Frame of Reference:

The value or potential value of an ecological receptor should be determined within a defined geographical context. The geographic frame of reference used to determine the predicted value of the ecological receptors is as follows.

International	
UK	
National	(England)
County	(Lancashire)
District	(Unitary Authority or Borough)
Local	(Parish)
Site	(Within confines of the site)

It should be noted that at the EZ the receptor values range only between 'County' and 'Site'.

The value of habitats and species has been measured against published selection criteria which for example include the following.

- Guidelines for the selection of biological SSSIs.
- Biological Heritage Sites - Guidelines for Selection.

- UK Biodiversity Action Plans and Section 41 Species and Habitats of Principle Importance in the UK. (NERC Act).

- Countryside and Rights of Way (CROW) Act 2000.

- Any relevant Red Data List/Book species and Nationally Scarce species not covered by the above, or any other lists / schedules of species rarity or importance.

The legislative requirements of key species and habitats are also considered in this assessment and include the following

- Wildlife and Countryside Act 1981 (as amended).

- Conservation of Habitats and Species Regulations 2010.

- Protection of Badgers Act 1992.

2.3 EVALUATION OF THE ECOLOGICAL RECEPTORS:

2.3.1 Habitats:

The EZ will generate the loss of approximately 28ha of grassland habitat. Surveys undertaken on site indicate that the grasslands fail to meet the appropriate guidelines for selection as a Biological Heritage Site (BHS). However the grasslands are extensive with floristic quality ranging between poor to moderately diverse.

Therefore the grasslands are considered to be of **Local-District** importance.

The woodlands on the site are small immature plantings estimated to be approximately 20 years old and are of **Site** value only.

2.3.2 Species:

Breeding Birds:

The ground-nesting bird populations on the site are one of the key ecological receptors affected by the EZ. Of primary importance are the breeding assemblages of skylark and lapwing which are of **County** importance, as surveys over four years show that the numbers of breeding pairs of these species meet the guidelines for Biological Heritage Site selection under Guidelines Av4 and Av9.

The other breeding bird species are considered to be of **Local** importance.

It should be noted that part of the key nesting area for ground-nesting birds will be retained as a reserve area, and it is expected that significant numbers of birds will continue to use this area, which might also be able to accommodate additional pairs of breeding birds but in small numbers only.

All bird species are afforded varying levels of protection under the 1981 Wildlife & Countryside Act (as amended).

Bats:

Seven bat species were recorded foraging during the survey and include soprano pipistrelle, common pipistrelle, noctule, whiskered bat, brown long-eared bat, Daubenton's bat and Natterer's bat.

The confidence rate of identification was high and include three species listed in Section 41: Species of Principal Importance in England the Natural Environment and Rural Communities (NERC) Act 2006. These are soprano pipistrelle, noctule and, brown long-eared bat.

The same species are UK Biodiversity Action Plan (BAP) species and all seven species are Lancashire Biodiversity Action Plan (LBAP) species.

There are no BHS guidelines for selection available in respect of foraging bats but it is widely recognised that the '*successful conservation of bats is dependant not only on the protection of roost sites but on the identification and protection of key foraging areas'*.*

* *Biological Heritage Sites. Guidelines for Selection.* Lancashire County Council (1998).

As there is no simple selection guideline available through the BHS process, therefore site's importance must be assessed independently using a combination of the various conservation designations afforded to bats, and comparison between the bat assemblages recorded on site and the bat species known to occur in the county.

Of the eight regular bat species that are known to be present in Lancashire, seven, to a high confidence rate of identification, have been recorded at the study site, which equates to over 90% of Lancashire's bat species.

Therefore based on the above, collectively the bat population at the site is considered to be of **County** importance.

All British bats and their roosts are afforded protection under the 1981 Wildlife & Countryside Act (as amended) and are listed in Schedule 2 of the Conservation of Habitats & Species Regulations 2010 (as amended).

The survey found no bat roosts or potential bat roosts on the site.

The area of bat foraging affected by the EZ forms a relatively small part of bat foraging available locally. Excluding the EZ area, there is approximately 17km of woodland-edge type habitat available off-site.

Approximately 6.7km of woodland edge occurs adjacent to or is physically linked to the habitats on the EZ. An additional 10.6km (approx.) occurs south of Preston New Road that are strongly linked to the habitats surrounding Samlesbury Hall by a mature broad-leaved tree canopy.

The foraging habitats on that side of the road also have a direct woodland-edge link to extensive riparian woodland-edge habitats along the River Darwen corridor.

The losses of foraging habitat on the EZ amount to approximately 950m of woodland-edge habitat.

Foraging habitats are not protected by the legislation unless the loss of such habitat would adversely affect a roost site. In this instance the losses of potential linear bat foraging habitat is approximately 6% of what is available locally and largely contiguous with the habitats on the EZ .

The linear areas of on-site foraging are contained within an area of approximately 4.98ha on the EZ site.

The loss of linear foraging areas will be compensated by the provision of new foraging areas on the site, and enhancement of the existing conditions through management.

This will include the following:

3.7ha* of new created bat foraging habitat.

2.9ha* of retained and enhanced bat foraging habitat.

*All figures are approximate only.

Therefore there are no predicted conflicts with the Regulations and a European Protected Species Licence (EPSL) in respect of bats will not be required in association with the EZ development.

Great Crested Newt:

Great Crested newt and its habitat are comprehensively protected under the 1981 Wildlife & Countryside Act (as amended) and are listed in Schedule 2 of the Conservation of Habitats & Species Regulations 2010 (as amended).

The GCN population at the site has been extensively studied through monitoring surveys, with only very low levels of GCN activity detected over a four year period i.e. a total count of 1 GCN only over 16 monitoring visits.

In addition only a single GCN was captured under two European Protected Species Licences (EPSL) during developments in 2007 and 2008. These combined projects involved the trapping of GCN over an area of approximately 60ha for 30-60 days.

The EPSLs granted for these projects was based on a maximum count of 1 GCN during survey.

The surveys and assessment indicate that a 'small' population of GCN is present on the site and is of **Local-District** value. The studies show that impacts on the GCN population present on site are avoidable and sustainable through a combination of reasonable avoidance measures (RAMs) and licensed mitigation. Map 3 in the appendix shows where works will take place only on areas of no impact or where RAMs can be effectively applied.

A RAMs methodology has been produced and measures have now been implemented by Pennine Ecological that exclude GCN from part of the site. See *Enterprise Zone at BAE Systems Samlesbury - Great Crested Newt (RAMs) Method Statement* (Pennine Ecological 2013)

In regard to areas where an EPSL is required, the GCN population occupies habitat where non-intervention management is currently applied and is approximately 5.2ha in extent. Habitats in the GCN area include coarse/marshy grassland, woodland and a pre-existing pond.

Mitigation in 2008 in the GCN area also included the creation of two new ponds, four large hibernacula and approximately 100m of native hedgerow.

The EZ (requiring EPSL) encroaches on approximately 0.48ha of the area affecting an immature woodland located approximately 160 west of the GCN pond and other new habitats.

It should be noted that this woodland pre-dates the GCN licence associated with this area and was not created to mitigate to the effects of the previous development.

Also immediately adjacent to this woodland is a coarse grassland that will also be affected. The grassland is approximately 2.2ha in extent.

It should be noted that the area of land within 250m of the GCN pond affected by the EZ is approximately 0.23ha only.

Neither the woodland nor the grassland is considered to be critical habitat in respect of the GCN population, although an EPS licence to derogate from the Regulations will be required to develop this area.

The area where EPSL is required in relation to the EZ is shown on Map 3 in the appendix.

The GCN data is currently being updated by surveys that are currently in progress. The results of the survey will inform whether a EPSL is required for GCN on the site.

Badger:

A badger population is present locally but somewhat isolated from the main body of the site in the CTF and 3B shed area to the east.

Whilst badgers are protected in the UK, the legislation is animal welfare based and does not reflect any decline in population, and the species is very common, widespread and increasing in the UK.

The badger population locally is considered to be of **Site-Local** value.

Signs of badger activity recorded on the site is limited to a single set of footprints on the edge of the Reserve area. No evidence of badger has been recorded on the EZ during the extensive site studies between 2008 and 2013 or during badger surveys associated with the Helios project.

However given that badgers are present locally and could colonise the area, precautionary checks for badger setts will be required in advance of the proposed works which will guide the level of precautions required.

It is expected that simple precautions such as the provision of earth ramps in excavations will be the most that is required unless a new sett is discovered.

Brown Hare:

A population of brown hare is present on the site. The hares are not considered to be dependent on the site and are currently able to move freely in and out of the site according to their feeding preferences/requirements.

Mitigation in respect of habitat loss is not considered to be required on site and 34-43ha of off-site habitat enhancement and long term management will be provided. This will provide for the needs of brown hare (see Part 3)

In addition the provision of 'hare-sized' runs at strategic points around any new perimeter security fencing is also required. Their purpose is to maintain free movement of the species and to prevent entrapment on the site.

Brown hare is a Section 41 Species of Principle Importance in the UK and a UK BAP Priority species. The species is considered to be of **Site-Local** value.

Brown hare is protected under the 1981 Wildlife & Countryside Act (as amended). The protection relates to restrictions on the taking/shooting and sale of brown hare.

Roe Deer:

Roe deer are not considered to be dependent on the site and freely move in and out of the site through holes in the perimeter fence.

Mitigation for loss of habitat is not considered to be required, however provisions to ensure that the deer do not become entrapped within the development must be applied.

These measures could include the provision of temporary fencing around the development, and checks by the ecologist to ensure that no deer remain in the working area.

The species is considered to be of **Site-Local** value.

Roe deer is protected under the 1981 Wildlife & Countryside Act (as amended). The protection relates to restrictions on the season and methods of taking/shooting.

2.4 SUMMARY OF ECOLOGICAL RECEPTORS & MITIGATION SOLUTIONS:

The following section discusses the value of each of the ecological receptors on the site and how the effects of the EZ can be avoided and/or mitigated.

Table 1 below summarises all ecological receptors that have been considered during this study and evaluation, and identifies those which require mitigation for legal or policy reasons and those receptors for which enhancements or precautions are proposed.

Ecological Receptor	Associated Species and Habitats	Nature Conservation Value	Potential Effects of the EZ and Mitigation Measures
Ground-nesting birds.	Large breeding skylark and lapwing populations in short runway grassland and fragmented tarmac runways.	County	High levels of impact on a receptor of county value due to loss of breeding habitat. A dedicated reserve area will be retained adjacent to the EZ but is only likely to be able to accommodate small numbers of birds displaced by the EZ. 34-43ha of off-site habitat enhancement and long term management for ground nesting birds to be provided on 2 offset sites (see Part 3). A management plan will be produced to ensure that optimum conditions for ground-nesting birds will be maintained in the Reserve area.
	Small populations of snipe, redshank, reed bunting, meadow pipit and oystercatcher. Breeding habitats include short runway grassland, small marshy area and fragmented tarmac runways.	Local	High levels of impact on a receptor of local value due to loss of breeding habitat. Level of commuted sum mitigation applied in respect of skylark and lapwing is also considered sufficient to mitigate the adverse effects on these birds as they predominantly share comparable nesting requirements. A management plan will be produced to ensure that optimum conditions for ground-nesting birds will be maintained in the Reserve area.
	Other passerine birds in immature broad-leaved woodland.	Site-Local	Medium levels of impact on a receptor of local value due to loss of breeding habitat. Mitigation in respect of foraging bats will adequately compensate for losses of nesting habitat of these birds.

Ecological Receptor	Associated Species and Habitats	Nature Conservation Value	Potential Effects of the EZ and Mitigation Measures
Bat foraging habitat.	Seven species of bat have been recorded during surveys in 2014. These include, common pipistrelle, soprano pipistrelle, noctule, Daubenton's, whiskered, Natterer's and brown long-eared bats. Key foraging areas are the woodland edge/grassland habitats in the south of the site. No bat roosts are affected by the development.	County	High levels of impact on a receptor of county value due to loss of foraging habitat. Extensive loss of woodland edge/grassland foraging areas must be compensated through the provision of new woodland edge/grassland habitats. Areas and measures for on-site retention, enhancement and creation of foraging habitat are set out in Part 4. In addition the following measures should also be implemented • the retention of some green areas • an ecologically appropriate combination of soft landscaping, trees and SUDS ponds • linkages between developments, providing wildlife corridors • screening and retention of green areas along boundaries A bat-sensitive lighting plan must also be implemented to minimise light spillage into sensitive areas. A management plan will be produced to ensure that habitats created to mitigate bats within the EZ are managed appropriately. The management plan can only be produced once the layout of the EZ and level of mitigation is determined. A European Protected Species Licence (EPSL) is **not** required in respect of bats on the site.
Grassland Habitats	Semi-improved grasslands of variable floristic quality. Small area of marshy grassland of limited floristic diversity.	Local-District	The grasslands are extensive but fail to meet any of the guidelines for selection as a Biological Heritage Site. Impacts are high resulting in the loss of approximately 28ha of grassland habitat. The direct losses of grassland habitats can only partially be mitigated through the provision of new grassland habitats. 34-43ha of offsite habitat enhancement and management is to be provided on 2 offset sites. This will include enhancement of botanical diversity (see Part 3). Grasslands created in the EZ to partially mitigate its effects must be subject to a management regime informed by a management plan. The management plan can only be produced once the layout of the EZ and extent of new grassland is defined.

Ecological Receptor	Associated Species and Habitats	Nature Conservation Value	Potential Effects of the EZ and Mitigation Measures
Great Crested Newt	Great crested newt (GCN) occupy a cluster of ponds in a dedicated GCN 'reserve' area that is largely outside of the EZ boundary. The population is small with a maximum count of 1 adult recorded during all of the surveys and pitfall trapping under EPS licence.	Local-District	Most of the EZ has no direct effect on the GCN population which can be safely managed through reasonable avoidance measures (RAMs) that are currently in place.* The RAMs prevent GCN entering the construction zone whilst maintaining high levels of suitable terrestrial habitat in immediate vicinity of the ponds. There are no barrier effects generated through RAMs in respect of interaction with any other GCN population. *See Enterprise Zone at BAE Samlesbury - Great Crested Newt (RAMs) Method Statement. (Pennine Ecological 2013) A EPSL **is** required in respect of GCN in a specific area only, where the EZ will affect a small area of land with low overall value for GCN, but where an EPS licence from Natural England will be required on account of the area being partly used to mitigate the effects of a previous development on the site.** **See Appendix 2. Surveys are currently being updated to inform the EPSL application. It should be noted that if the surveys show 'absence' of GCN, then a EPSL will not be required. Presence/absence will be confirmed by 15.05.15.
Badger	A badger population is present locally but somewhat isolated from the main body of the site in the CTF and 3B shed area to the east. No sign of badger activity has been recorded in the Phase 1 or 2 area during the many site surveys and monitoring visits since 2007.	Site-Local	No effect on badgers is predicted, however pre-development checks of the southern part of the site should be undertaken to ensure no colonisation has occurred. The level of avoidance/precautions in respect of badger is not expected to exceed simple precautions such as the provision of earth ramps in excavations. These will be determined during precautionary pre-construction checks of the site.

Ecological Receptor	Associated Species and Habitats	Nature Conservation Value	Potential Effects of the EZ and Mitigation Measures
Brown Hare	Brown hare use the grassland and woodland on the site for foraging and shelter.	Site-Local	Hares are not considered to be dependent on the site and are currently able to move freely in and out of the site according to their feeding preferences/requirements. Mitigation in respect of habitat loss is not considered to be required on site. However the provision of 'hare-sized' runs at strategic points around any new perimeter security fencing is required. Their purpose is to maintain free movement of the species and to prevent entrapment on the site. 34-43ha of offsite habitat enhancement and long term management will also be provided. This will provide for the needs of brown hare (see Part 3)
Roe deer	There is a population of roe deer on the site that use the grassland and woodland on the site for foraging and shelter.	Site-Local	Roe deer are not considered to be dependent on the site and freely move in and out of the site according to their feeding preferences and requirements through holes in the perimeter fence. Mitigation for loss of habitat is not considered to be required, however provisions to ensure that the species does not become entrapped within the development must be applied. These measures could include the provision of temporary fencing around the development, and checks by the ecologist to ensure that no deer remain in the working area.

2.5 MITIGATION SOLUTIONS:

2.5.1 Avoidance, Mitigation and Compensation Measures:

Grassland and Woodland Habitats:

Construction:

The EZ will collectively generate the loss of approximately 28ha of grassland habitat. The grasslands fail to meet the appropriate guidelines for selection as a BHS but are extensive with floristic quality ranging between poor to moderately diverse.

34-43ha of offsite habitat enhancement and management is to be provided on two offset sites. This will include enhancement of botanical diversity.

In addition to the offset, mitigation in the form of new wildflower grassland areas built into the landscaping plan for the scheme should be applied.

The EZ will also impact on small areas of immature planted woodlands of site value. Whilst in vegetative terms the woodlands have very limited interest, they are of high value to foraging bats. Therefore mitigation issues are discussed further in the bats section below.

In relation to all wildflower and woodland planting schemes, the following basic principles must be applied.

- All plant species introductions should use native seed and/or material of local provenance.
- No rare or uncommon species should be introduced.
- As much as is possible the species composition should be based on the communities described in the National Vegetation Classification (NVC)

Operation:

Any new habitats created will be managed in accordance with a site management plan. The management plan can only be produced once the layout of the EZ and extent of new grassland is defined. However the plan will be based on the principles applied in the previous plan* which proved to be successful in respect of grassland management.

*See *BAE Systems Samlesbury Site Habitat Conservation Management Plan 2009 - 2013* (Pennine Ecological 2008)

Breeding Birds:

Construction:

The ground-nesting bird populations on the site are one of the key ecological receptors affected by the EZ and the breeding assemblages of skylark and lapwing are of county importance.

The effect of the EZ on these species and other species that commonly share associated habitat will be mitigated through an offset scheme. The offset will provide 34-43ha of habitat for ground nesting birds. Details of the offset calculations and receptor sites are set out in Part 3."

However additional on-site precautions are also required during the construction phase to ensure that nesting birds are not adversely affected. The precautions are outlined below.

The removal of large areas of grassland as well as woodland habitats, has the potential to cause mortality of nesting birds during vegetation clearance if it is undertaken during the breeding bird season.

Therefore unless the absence of nesting birds is confirmed by an ecologists site inspection, the clearance of vegetation must be undertaken outside of the breeding season in September - February.

There is an added complication in respect of ground-nesting birds in that the cleared areas will provide a bare, open and to some extent cryptic habitat that is also attractive to birds such as lapwing and oystercatcher. These species are likely to attempt nesting if some form of deterrent is not provided.

Measures to be implemented include the use of wind-operated 'hawk kites' which use a bird of prey-shaped kite fixed to a long pole (approx. 10-13m). These deterrents operate in minimal wind

conditions and operate all day. Traditionally falconers are employed to provide this function on airfields etc, however the birds return once the threat has gone.

Bird scaring kites are often used in conjunction with audible scaring devices to reinforce the threat of predation.

It should be noted that if these devices are to be employed then they must be installed outside of the breeding season. Installation of these device to deter nesting birds while they are occupying a nest is likely to constitute an offence.

The proximity of the reserve area from the kite 'stations' must also be carefully considered to avoid impacting on birds nesting on the reserve.

The reserve area must also be protected from direct physical disturbance by vehicles or personnel. In addition strict lighting controls must be imposed to prevent light spillage into this area during the breeding season. Lighting controls in respect of bats are also likely to be most appropriate in regard to breeding birds. (See Bats below)

Operation:

The effects of permanent lighting of the EZ on the reserve area might potentially generate adverse impacts on ground-nesting birds during the breeding season. The lighting guidance provided for bats is considered to be most appropriate in respect of avoiding impacts on nesting birds.

A lighting plan must be produced that will show how potentially adverse impacts on nesting birds will be avoided. (See Bats below)

There are no other on-site mitigation measures required during the operational phase of the EZ.

Off-site, a site management plan is currently being formulated in respect of maintaining and enhancing the Reserve area for ground-nesting birds. The plan will be based on the principles applied in the previous plan* which proved successful in respect of the key receptor bird species.

*See *BAE Systems Samlesbury Site Habitat Conservation Management Plan 2009 - 2013* (Pennine Ecological 2008)

Bats:

Construction:

The site is notable for its seven species of foraging bats that are considered to be of county importance.

Based on its current layout the EZ will result in the loss of foraging areas which will be mitigated through the provision of new woodland edge/grassland habitats. This mitigation will take place on site to ensure the habitat continues to support the local bat population. Section 4 sets out bat mitigation areas and the measures to be undertaken.

In addition the following measures should also be considered and integrated wherever possible into the development.

- The retention of some green areas.

- An ecologically appropriate combination of soft landscaping, trees and SUDS ponds.
- Linkages between developments, providing wildlife corridors.
- Screening and retention of green areas along boundaries.

The effects of lighting on the site, if inappropriately designed/located is also likely to generate adverse impacts on bats.

'In addition to causing disturbance to bats at the roost, artificial lighting can also affect the feeding behaviour of bats. There are two aspects to this. One is the attraction that light from certain types of lamps has to a range of insects; the other is the presence of lit conditions.

*Lighting can be particularly harmful if used along river corridors, near woodland edges and near hedgerows used by bats. In mainland Europe, in areas where there are foraging or 'commuting' bats, stretches of road are left unlit or lighting is designed in such a way as to avoid isolation of bat colonies.'**

**Bats and lighting in the UK- bats and the built environment series.* Bat Conservation Trust.

Therefore a lighting plan must be produced to ensure that potential impacts generated by light spillage into bat-sensitive areas are minimised.

The following table summarises the relative impacts of light types on bats.†

High Negative Impact	• Broad spectrum lights (particularly blue-white light) with high UV. • Metal halide and mercury. • Uplights - which light above the horizontal plane, illuminating trees and foraging habitat.
Medium Negative Impact	• Broad spectrum lights with low/no UV. • White LED, high pressure sodium.
Low Negative Impact	• Narrow Spectrum Lights with no UV content. • Low pressure sodium and warm white LED.* • Directional downlights - illuminating below the horizontal plane which avoid light trespass into the environment. * low relative attractiveness for insects compared to white light and therefore minimal impact on bats insect prey (Eisenbeis 2009).

†Bats and Lighting - Overview of Current Evidence and Mitigation. E.L. Stone. Bat & Lighting Research Project - University of Bristol.

The following guidance is appropriate in respect of bats and will form the basis of the lighting plan.

Type of lamp (light source)

The impact on bats can be minimised by the use of narrow spectrum lights with no UV content including low pressure sodium lamps and warm white LED.

Luminaire and light spill accessories

Lighting should be directed to where it is needed and light spillage avoided. This can be achieved by the design of the luminaire itself and by using accessories such as hoods, cowls, louvres and shields to direct the light to the intended area only.

Planting can also be used as a barrier or man-made features that are required within the build can be positioned so as to form a barrier.

Lighting column

The height of lighting columns in general should be as short as is possible as light at a low level reduces the ecological impact. However, there are cases where a taller column will enable light to be directed downwards at a more acute angle and thereby reduce horizontal spill.

For pedestrian lighting this can take the form of low level lighting that is as directional as possible and below 3 lux at ground level. The acceptable level of lighting may vary dependent upon the surroundings and on the species of bat affected.

Predicting where the light cone and light spill will occur

There are lighting design computer programs that are widely in use which produce an image of the site in question, showing how the area will be affected by light spill when all the factors of the lighting components listed above are taken into consideration. This should be a useful tool to inform the mitigation process.

Light levels

The light should be as low as guidelines permit. If lighting is not needed, don't light.

Timing of lighting

The times during which the lighting is on should be limited to provide some dark periods. Roads or track ways in areas important for foraging bats should contain stretches left unlit to avoid isolation of bat colonies. These unlit stretches should be 10 m in length either side of commuting route.

Operation:

The bat-sensitive lighting plan must address all lighting issues in respect of the operational phase of the EZ.

Habitat Creation:

As much of the existing habitat must be retained as possible, however it acknowledged that some losses will occur. Therefore to compensate for the loss of woodland/grassland edge foraging, new dedicated bat foraging sites must be provided and must follow the principles outlined below.

- New foraging areas to be created in close a proximity to existing foraging areas as possible.
- Creation of ride areas where practicable.

- Planting to be of native broad-leaved trees.
- Areas of new planting must not be lit.
- Bat crossing-points (across service roads) between habitats must be a short as possible.

A general specification for the new planting is provided in Section 4.2.

Great Crested Newt:

Construction:

The surveys and assessment indicate that a 'small' population of GCN is present on the site and is of **Local-District** value.† The studies show that impacts on the GCN population present on site are avoidable and sustainable through a combination of reasonable avoidance measures (RAMs) and licensed mitigation. Map 2 shows that part of the works will take place only on areas of no impact or where RAMs can be effectively applied.

† Surveys are currently being updated to inform all GCN EPSL issues. It should be noted that if the surveys show 'absence' of GCN, then a EPSL will not be required. GCN status will be confirmed by 15.05.15.

A RAMs methodology has been produced and measures have now been implemented by Pennine Ecological that exclude GCN from specific areas of the site.

The GCN population occupies habitat where non-intervention management is currently applied and is approximately 5.2ha in extent. Part of the EZ encroaches on approximately 0.48ha of this area affecting an immature woodland located approximately 160m west of the GCN pond.

It should be noted that this woodland pre-dates the GCN licence associated with this area and was not created to mitigate to the effects of the previous development.

Also immediately adjacent to this woodland is a coarse grassland that will also be affected by the EZ. The grassland is approximately 2.2ha in extent.

It should be noted that the area of land within 250m of the GCN pond affected by the EZ is approximately 0.23ha only.

Neither the woodland nor the grassland is considered to be critical habitat in respect of the GCN population, although an EPS licence to derogate from the Regulations will be required to develop this area.

It should be noted that the licence can only be applied for immediately prior to the commencement of the EZ. This is to ensure that licences are only granted on developments that are going to proceed, thus avoiding unnecessary impacts on GCN though abandoned/postponed developments.

It should also be noted that reference to the guidance provided in the GCN Method Statement Template,* indicates that the ponds will have to be re-surveyed as the maximum age of survey data (number of breeding seasons) will have been exceeded by the time Phase 2 is ready to commence.

*See WML-A14-2 (Ver. April 13) Application tools (4): Survey data - what kind, how much, how old?

An outline method statement covering the area where the EPSL is required in association with the EZ is provided in Appendix 2 of this report. The method statement will apply if the ongoing survey shows GCN 'presence' only.

Operation:

There are no predicted measurable effects on the GCN population generated by the proposal. However as a general precaution for all amphibian species, it is advised that a sustainable drainage system (SUDS) is adopted that will ensure that amphibians are not adversely affected by the proposals.

Badger:

Construction:

A badger population is present locally but somewhat isolated from the main body of the site in the CTF and 3B shed area to the east and impacts are not predicted.

However given that badgers are in the area and could colonise the site, precautionary checks for badger setts will be required in advance of the proposed works which will guide the level of precautions required.

It is expected that simple precautions will not exceed the provision of earth ramps in excavations unless a new sett is discovered.

Operation:

No impacts are predicted therefore no mitigation is required.

Brown Hare:

Construction:

A population of brown hare is present locally and are currently able to move freely in and out of the site according to their feeding preferences/requirements.

Mitigation in respect of habitat loss is not considered to be required on site however the provision of 'hare-sized' runs at strategic points around any new perimeter security fencing is required. Their purpose is to maintain free movement of the species and to prevent entrapment on the site.

Off-site habitat enhancement and management will provide for the needs of brown hare. (see Part 3).

Operation:

No impacts are predicted therefore no direct mitigation is required. However within the Reserve area the requirements of brown hare will be met through specific 'hare-friendly' mowing regimes implemented by the management plan.

Roe Deer:

Construction:

Roe deer freely move in and out of the site according to their feeding preferences/requirements through holes in the perimeter fence.

Mitigation for loss of habitat is not considered to be required, however provisions to ensure that the species do not become entrapped within the development must be applied.

These measures could include the provision of temporary fencing around the development, and checks by the ecologist to ensure that no deer remain in the working area.

Operation:

No impacts are predicted therefore no mitigation is required.

PART 3 GROUND NESTING BIRDS - BIODIVERSITY OFFSETTING:

3.1 GROUND NESTING BIRDS - BIODIVERSITY OFFSETTING:

The EZ will collectively generate the loss of 28 hectares of grassland. This grassland habitat supports ground nesting bird populations as described in earlier sections. The ground nesting bird populations on the site are one of the key ecological receptors affected by the EZ.

Calculating Losses and the Required Offset:

In December 2014 Environment Bank[1] undertook a biodiversity and accounting offsetting analysis of the EZ site. This used DEFRA's biodiversity offsetting metric to consider the predicted impacts of the development. The metric enables a quantification of habitat loss in terms of area, but also takes into account the quality and value of that area in terms of distinctiveness and condition.

The metric is then further applied to estimate the size and type of scheme most appropriate to compensating for the losses. Under this methodology it was concluded that in relation to grasslands used by ground nesting birds 248.8 units of habitat would need to be replaced which equates to the replacement of 34-43ha of land.[2]

The scale of this required replacement is significant, and due to the value of the habitat and the requirements of the ground nesting bird populations it is important that the compensating habitat is not provided in a fragmentary way. The scope for onsite mitigation is therefore negligible and it is recommended that only an offsite compensation option is appropriate.

Identification of Suitable Offset Receptor Sites:

Site searches have been undertaken of available private, Non- Governmental Organisation (NGO) and public sector land. The initial searches were based on the need to meet broad ecological parameters for habitats suitable for ground nesting birds principally (Skylark and Lapwing).

Private and NGO Sites:

In February 2015 Environment Bank undertook a search for offset providers. The search for sites involved checking existing registered sites on Environment Bank's Environmental Markets Exchange, contacting local NGOs and contacting local farmers via AB Sustain.

BAE Systems also put forward areas of land for consideration.

Public Sector Sites:

Lancashire County Council (LCC) undertook a search of sites in its ownership together with known sites in the ownership of other local authorities.

[1] Environment Bank 10 December 2014 Biodiversity Accounting and Offsetting for Lancashire Enterprise Zone Samlesbury Site
[2] Environment Bank 27 February 2015 Biodiversity Offset Scheme Options for the Lancashire Enterprise Zone Development at Samlesbury.

This search yielded 20 potential sites. These sites were subject to further assessment by LCC Ecologists against the following criteria:

- More detailed habitat assessment including consideration in relation to the Farm Environment Plan (FEP) Manual Third Edition 2010.
- Potential detrimental impacts on existing habitats of ecological importance.
- Proximity to the EZ.
- Proximity to land occupied (or likely to be occupied) by existing Lapwing and Skylark populations.
- Proximity to existing or proposed structures and developments.
- Potential conflicts with existing obligations such as Higher Level Stewardship agreements and planning obligations.

Following this assessment the number of potential sites was reduced to four with one further site offering supplementary habitat enhancement adjacent to the EZ site. All four of these sites have the potential to provide ground nesting bird habitat.

Based upon the levels of certainty in relation to delivery, the following sites in Lancashire County Council's ownership have been identified as the preferred options for the required offset:

- Midgeland Farm – 26.5ha
- Mains House Farm – 17ha

These two sites will be supplemented by enhanced management of an area of land adjacent to the EZ site which is already managed for the EZ site's ground nesting bird population. This land is in the ownership of BAE and is identified for landscape, greenbelt and landscape ecological mitigation measures in the adopted Masterplan for the EZ site.

The two identified offset sites will provide 43.5 ha of appropriate habitat for enhancement and long term management.

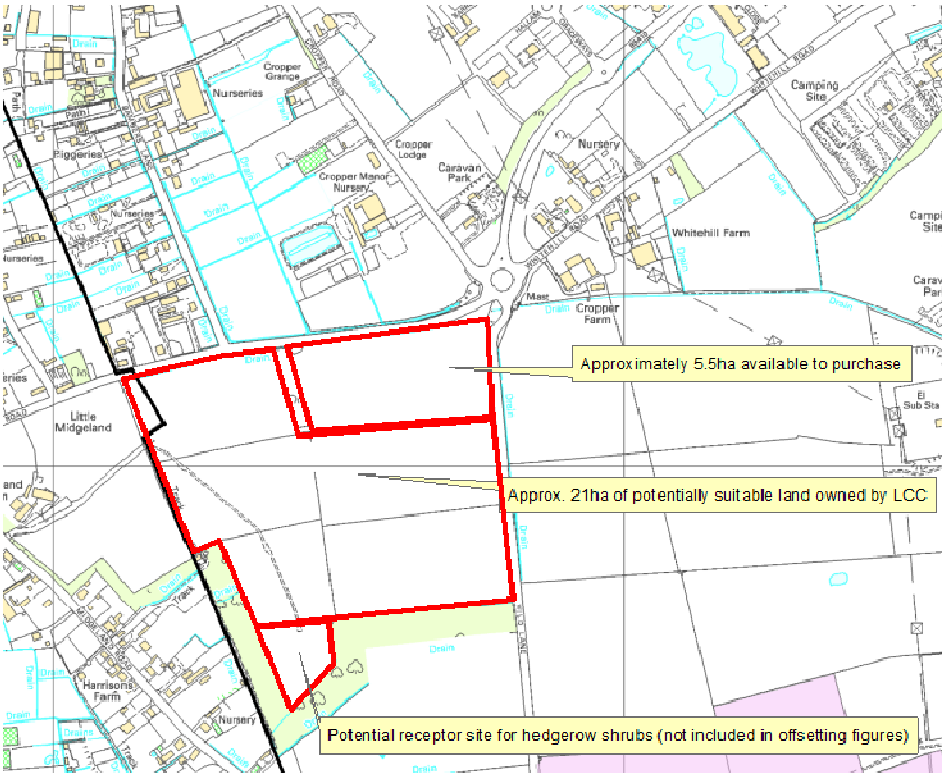
Negotiations are taking place with tenants and an appropriate agreement is expected to be reached. In the event that satisfactory arrangements cannot be put in place negotiations would be undertaken to bring forward one or both of the remaining two suitable sites. In the event that additional land is required a further search and assessment process will take place to secure this.

Habitat Enhancement and Management:

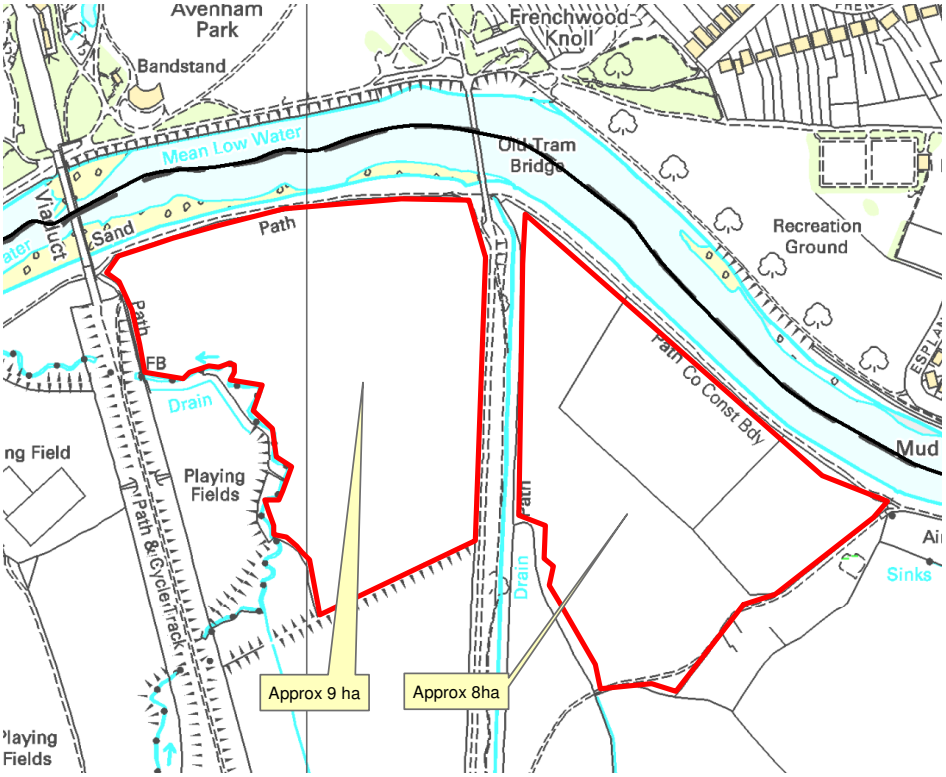
Midgeland Farm and Mains House Farm Sites:

The detailed habitat enhancement and long-term management measures for each individual site will be informed by a detailed site assessment and agreement with the tenant. These will form a full scheme of works and management plan which will be agreed for each site.

Midgeland Farm - Midgeland Road, Blackpool. (Grid Ref: SD 3421 3205)



Mains House Farm - off the Old Tram Road, Preston (Grid Ref: SD 5418 2836)



Outline Measures:

The measures are likely to include:

Initial habitat creation and enhancement measures:

- Removal of fence lines and translocation of recently planted hedgerow shrubs to maximise the openness of field units.
- Measures to reduce fertility of grasslands to maintain low swards during nesting season. In places this may require quite radical intervention such as topsoil stripping.
- Measures to increase the availability of soil invertebrates such as:
    - Re-wetting of grasslands (where site hydrology will allow) and / or
    - Ploughing where appropriate
    - Creation of scrapes
    - Enhancement of botanical diversity

Restrictions on crop regimes:

- Spring sown crops that will provide low vegetation during nesting and avoid destruction of nests during harvesting. This is likely to preclude silage production within the management agreement area.
- Maintaining winter stubble.
- Maintaining rotational and non-rotational set-aside and fallow areas.
- Restrictions on herbicide and pesticide use.
- Restrictions on operations likely to destroy nests, for example rolling operations during breeding season.

Restrictions on grassland management:

- Restricted density of grazing stock during the nesting season (March to August inclusive). For example, less than one cow per hectare. Heavy grazing from late summer onwards.
- Hay meadow management
- Restrictions on fertilizer input.

Restrictions on creation of new field boundaries:

- No new hedge or tree planting in management agreement area.

BAE Land Samlesbury:

Land known as the Reserve identified on Maps 1-3 is identified as a priority area for ecological, landscape and green belt mitigation in the adopted Masterplan for the EZ. This area is already managed for ground-nesting birds and great crested newt.

Habitat enhancement of this area for ground nesting birds will be undertaken to enable it to sustain a greater population of ground-nesting birds.

This will be undertaken as follows:

Tree removal:

The removal of a line of poorly-formed immature trees and shrubs from the core breeding area will improve nesting conditions for the target birds significantly. The main area of trees has been removed prior to the breeding season to avoid disturbance to nesting birds.

Further removal of several other small/immature trees is also prescribed and to be undertaken under the supervision of the ecologist or outside of the nesting season between August and February.

The approximate area of tree removal is 0.3ha.

Grass cutting:

The grasslands are mown on an annual basis, following traditional hay meadow management as applied through agri-environment schemes such as Higher Level Stewardship (HLS).

The management of the site in this way maintains the site in good condition for ground-nesting birds without having an adverse effect on birds during the main breeding season.

Over the last two seasons, an area of grassland has been left uncut by the contractor, which if left unmanaged will revert to a thick thatch which will limit its value to ground nesting species, in particular lapwing.

Therefore there is a proposal to re-instate mowing in this area to bring the grassland back to optimum condition for nesting birds.

The area of grassland currently in good condition is approximately 5.2ha.

The area of grassland requiring remediation is approximately 2.2ha.

Fencing:

To maintain the integrity of the site and to prevent disturbance to nesting birds, it is essential that the site is fenced to prevent unauthorised access. It is understood that part of the existing security fence adjacent to the reserve on its northern boundary will be retained. However the western boundary will have to be fenced and a gate provided for contractors vehicles.

The length of retained fence is approximately 447m.

The length of new fencing required is 370m.

Management Plan:

The site is subject to management through a formal Management Plan. The plan is currently under review pending changes to the site generated by the EZ, and will be revised in accordance with the changed layout to the site.

PART 4 ON-SITE HABITAT RETENTION, ENHANCEMENT & CREATION

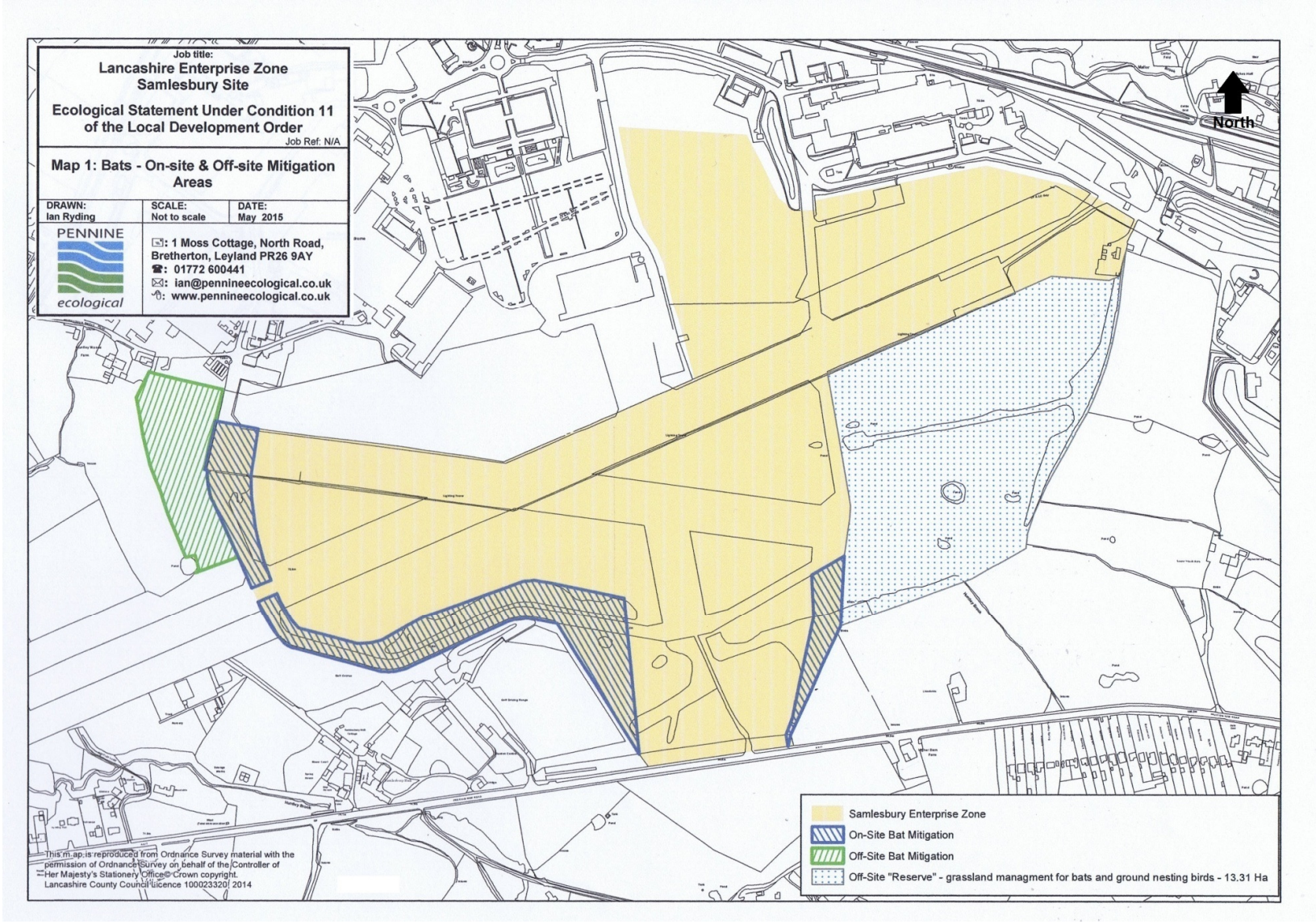
4.1 HABITAT CREATION - BATS:

As much of the existing habitat must be retained as possible, however it acknowledged that some losses will occur. Therefore to compensate for the loss of woodland/grassland edge foraging, new dedicated bat foraging sites must be provided and must follow the principles outlined below.

- New foraging areas to be created in close a proximity to existing foraging areas as possible.
- Creation of ride areas where practicable.
- Planting to be of native broad-leaved trees.
- Areas of new planting must not be lit.
- Bat crossing-points (across service roads) between habitats must be a short as possible.

A general specification for the new planting is provided in section 4.2.

The extent of on-site and off-site mitigation is shown on Map 1 on the following page.


Job title:
Lancashire Enterprise Zone
Samlesbury Site
Ecological Statement Under Condition 11 of the Local Development Order
Job Ref: N/A
Map 1: Bats - On-site & Off-site Mitigation Areas
DRAWN: Ian Ryding
SCALE: Not to scale
DATE: May 2015
PENNINE ecological
1 Moss Cottage, North Road, Bretherton, Leyland PR26 9AY
01772 600441
ian@pennineecological.co.uk
www.pennineecological.co.uk
North
Samlesbury Enterprise Zone
On-Site Bat Mitigation
Off-Site Bat Mitigation
Off-Site "Reserve" - grassland managment for bats and ground nesting birds - 13.31 Ha
This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Lancashire County Council licence 100023320 2014

4.2 GENERAL SPECIFICATION FOR TREE PLANTING FOR BATS & GREAT CRESTED NEWT:

The recommended planting mixture is broadly based on the National Vegetation Classification (NVC) community W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland.

This is the typical climax woodland community of the local soils and topography in this part of Lancashire.

Whilst the planting mix broadly follows a very basic W10 species assemblage, the mixture has been adjusted slightly to reflect locally wet ground conditions.

Major recommended canopy trees:

Pedunculate oak	*Quercus robur*
Silver birch	*Betula pendula*

Minor recommended canopy trees:

Alder	*Alnus glutinosa*
Downy birch	*Betula pubescens*

Major recommended understorey shrubs:

Hazel	*Corylus avellana*
Hawthorn	*Crataegus monogyna*

Minor recommended understorey shrubs:

Holly	*Ilex aquifloium*
Guelder rose	*Viburnum opulus*

Recommended percentage planting:

Pedunculate oak	35%
Silver birch	35%
Alder	8%
Downy birch	7%
Hawthorn	5%
Hazel	5%
Holly	3%
Guelder rose	2%

Stock selection and planting pattern:

All planted stock should be of local provenance, i.e. UK genetic stock, sourced and grown locally in south Lancashire.

Trees should be 60/80cm bare rooted stock and randomly planted at 2m centres. No single species block planting or line planting.

Protection from deer, hares and rabbits and competition with vegetation is required. Therefore staked tree shelters and mulch mats must be fitted.

Beating up:

The stands must be monitored in the first year after planting and dead plants replaced.

Thinning:

The level and frequency of thinning will be based on site monitoring. However as a general rule of thumb the first thinning will take place roughly around year 5-8 following planting to encourage the broadening spread of the crowns, and again 15 to 20 years after planting for the same result.

The thinning operations will be guided by an arboraculturist.

PART 5: ON-SITE ECOLOGICAL MANAGEMENT

5.1 PRINCIPLES OF ON-SITE ECOLOGICAL MANAGEMENT:

The Enterprise Zone will be managed following accepted principles for habitat retention, enhancement and creation as outlined in detail in Appendix 3 *Samlesbury Enterprise Site - Design Principles.*

Appropriate landscaping measures will form a key part of the mitigation and enhancements required in landscape and green belt terms. The landscape measures in relation to ecology are broadly outlined below.

The following measures should be considered and integrated as appropriate into the development:

- The retention of some green areas and existing habitats as appropriate
- Soft landscaping
- Re-established habitat such as trees, woodland, scrub species rich grassland, wetland habitat and ponds
- Sustainable drainage systems
- Inter connecting habitats/wildlife corridors throughout the site
- Screening and retention of green areas along boundaries
- A bat and nesting bird sensitive lighting plan must be implemented to minimise light spillage into sensitive areas. This should follow the principles given in the latest guidelines produced by the Bat Conservation Trust and the Institute of Lighting Engineers.
- Nesting and roosting features on buildings should be considered and installed where appropriate. This may include, for example, bat boxes, bird nesting boxes, swift bricks, green roofs etc.
- Fencing should be designed to avoid detrimental impacts on wildlife. Hare sized runs should be installed at strategic points around new perimeter security fencing relating to the EZ only.
- Landscaping schemes should include mitigation in the form of new wildflower grassland areas.

In relation to all habitat creation, including woodland, scrub, grassland, wetlands and ponds, the following basic principles must be applied:

- All plant species used should be native species appropriate for the location and suited to the conditions on site. Seed and plant material should be of native genetic origin ideally from North West England.
- No rare or uncommon species should be introduced.
- No invasive non-native species should be introduced.
- As far as possible the species composition should be based on locally appropriate communities described in the national Vegetation Classification (NVC), such as W6 and W10 woodlands or MG5, MG4 and MG8 grasslands.
- Habitat creation must not be at the expense of an existing habitat of ecological importance.

Any new habitats created will be managed in accordance with a site management plan.

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APPENDIX 1:

Map 2: The Broad Key Ecological Features of the Enterprise Zone

Map 3: Map Showing the EPSL Area in the Enterprise Zone

LEGEND:

SI	SEMI-IMPROVED GRASSLAND		GOOD GROUND-NESTING BIRD HABITAT
SI	SEMI-IMPROVED POOR GRASSLAND		POOR GROUND-NESTING BIRD HABITAT
	WOODLAND - IMMATURE		GOOD WETLAND BIRD NESTING HABITAT
	RUNWAYS/OTHER HARDSTANDING		KEY BAT FORAGING AREAS
A	AMENITY GRASSSLAND		EZ BOUNDARY
MG	MARSHY GRASSLAND		

Job title:
Lancashire Enterprise Zone
Samlesbury Site

Mitigation & Management Strategy
Job Ref: N/A

Map 2: The Broad Key Ecological Features of the Enterprise Zone

DRAWN:	SCALE:	DATE:
Ian Ryding	Not to scale	September 2014

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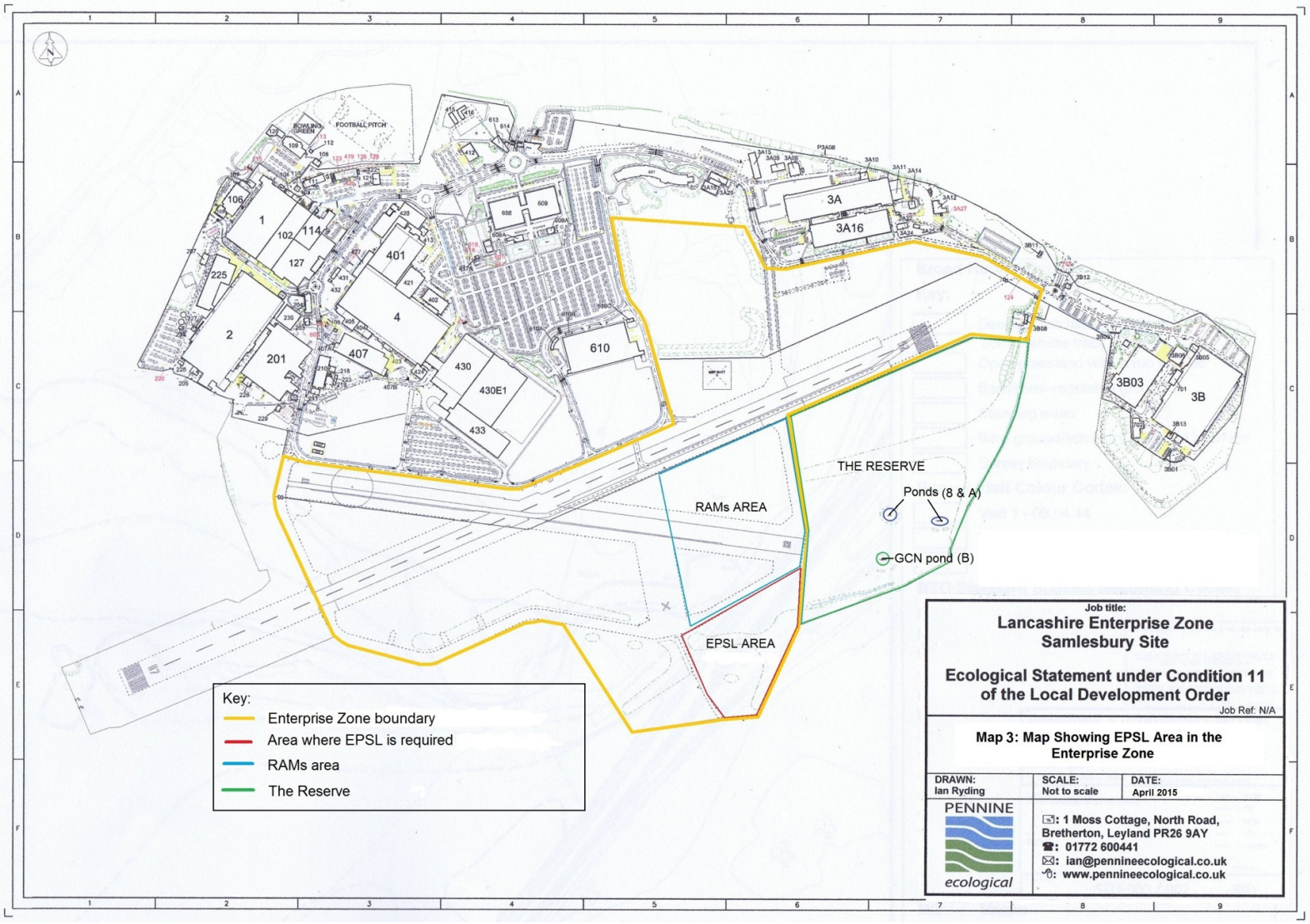

Job title:
Lancashire Enterprise Zone
Samlesbury Site

Ecological Statement under Condition 11 of the Local Development Order

Job Ref: N/A

Map 3: Map Showing EPSL Area in the Enterprise Zone

DRAWN:	SCALE:	DATE:
Ian Ryding	Not to scale	April 2015

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APPENDIX 2:

Outline Method Statement for Great Crested Newt

LANCASHIRE ENTERPRISE ZONE - SAMLESBURY SITE:

OUTLINE METHOD STATEMENT FOR AREAS REQUIRING AN EUROPEAN PROTECTED SPECIES LICENCE (EPSL):

It should be noted that a Great Crested Newt (GCN) Survey is ongoing at the site and GCN presence/absence will be confirmed by 15.05.15.

The findings of the survey will determine whether or not a EPSL is required for the EZ.

If GCN are found then a licence application will be made to Natural England and will follow the principles and methods outlined below.

If GCN are not found then a licence will not be required, therefore the prescriptions provided will not apply.

1. Description of Habitats Affected Under EPSL:

The parts of the site to be affected by the EZ where an EPS licence is considered to be required are composed immature planted woodland and areas of semi-improved poor grassland only. These habitats are described in more detail below.

Part of the EZ encroaches on this area affecting approximately 0.48ha of immature woodland located approximately 160 west of the GCN pond (Pond B).

It should be noted that this woodland pre-dates the GCN licence associated with this area and was not created to mitigate to the effects of the previous development.

Also immediately adjacent to this woodland is a coarse grassland that will also be affected by the EZ. The grassland is approximately 2.2ha in extent.

Out of the 2.68ha of woodland and grassland described above, approximately 0.23ha of land within 250m of the GCN pond is adversely affected.

The remaining 2.45ha of land extends to the current southern access road located between 370-390m west of Pond B.

Based upon the population size and the habitats distance from the breeding pond, the land within 250m is considered to have low-moderate value for GCN.

The land beyond 250m and up to the access road is considered to have low-negligible value for GCN.

Land beyond the access road is not considered further due to the remote risk of impact on GCN predicted.

The area is used by a small group (<15) roe deer which are having an adverse effect on the woodland understorey and the development of an established field layer in the woodland. Consequently refuge and foraging potential here is considered to be low due to lack of cover.

The grasslands have low-good foraging potential and there is temporary refuge potential present.

Overwintering value in both the woodland and grassland is low-negligible.

2. Great Crested Newt at the Site:

GCN were originally identified on the site during surveys in 2007* and then again by Pennine Ecological in 2008 which initiated the formation of two new ponds at the southern side of the runway, to mitigate the loss of the 'fire pond' during the development of the site.

* See *Samlesbury Aerodrome Samlesbury – Great Crested Newt Survey for BAE Systems Ltd* (CES 2007)

Following the development in 2008, the two new ponds and the remaining pond on site were subject to four years monitoring as required by the NE licence, using the standard 'Presence/Absence Survey' methodology. (See Section 1.3 below)

The 2007 survey identified a 'small' population at the site, with newts located at the fire pond, Pond 6, Pond 8 and Pond 9. The peak count during the survey was three GCN in Pond 9 which represent a 'small' GCN population (See Section 1.3 below)

- The fire pond (a redundant emergency water supply tank historically used by the fire service) was dismantled under NE licence in 2008.

- Pond 6 is still present and located in an off-site ley grassland at the far western end of the runway. The pond has a population of coarse fish.

- Pond 8 is present and located in southern area of the site with two new ponds excavated to mitigate the loss of the fire pond. Pond 8 has a large population of stunted coarse fish.

- Pond 9 is located off site in arable land approximately 330m south of Pond 8.

Whilst the peak count in 2007 was recorded as three GCN, all of the above ponds are **not** considered to form part of the same metapopulation on account of distance and general unsuitability of some of the ponds for GCN.

For instance, Pond 6 was 1km from the fire pond and 1.4km and 1.6km from Ponds 8 and 9 respectively. Therefore regular interaction of GCN between those ponds is considered to be very unlikely given the distances and small population involved. In addition, extensive areas of open habitat would have to be crossed, thus habitat connectivity is also considered to be poor.

Approximately 60ha of land have been cleared by pitfall trapping over the two EPSL schemes, with the 2008 pitfall trapping for 30 days on the main site, and 60 days around the Fire Pond. A total of one GCN was captured on the 2008 project.

A total of 120 days pitfall trapping has been applied to the site pre-development in 2007 and 2008, with only a single GCN captured throughout.

The GCN and other amphibians captured were move to the receptor ponds (Ponds A and B) south of the runway.

3. Great Crested Newt Survey & Population Data:

Ponds A and B were excavated next to Pond 8 and all were subject to monitoring surveys in 2009, 2010, 2011 and 2012.

The survey method employed was 'Presence/Absence Survey' as detailed on page 26, section 5.7.2.1 of the *Great Crested Newt Mitigation Guidelines',* English Nature (August 2001).

The survey was applied to three ponds with Pond B returning the only record of GCN, with a maximum count of 1 on the final visit during 2012.

Based on the survey the GCN population size in Pond 1 is considered to be small.

Population size class criteria are as follows:

- **'small'** for maximum counts of up to 10
- **'medium'** for maximum counts between 11 and 100
- **'large'** for maximum counts over 100.

A second cluster of ponds, including Pond 6, are located on and beyond the far western boundary of the site and were surveyed in 2012 by Pennine Ecological. The survey method employed was 'Presence/Absence Survey' which revealed an **absence of GCN** in all of the ponds surveyed. Therefore there are no known GCN issues associated with this group of ponds.

Despite the extensive surveys undertaken as described above, and considering the guidance provided by NE regarding the viable life of the survey in respect of licence application. The data is now out of date by one season, therefore the surveys need to be repeated in 2015.

The surveys have been commissioned by LCC and are due to begin in April 2015 and completed by May 2015.

Whilst new surveys are required to inform the EPSL application, the likelihood of the surveys revealing a significantly higher population than that recorded previously is considered to be poor. It should be noted that there is also a reasonable possibility that GCN won't be detected at all, in which case a EPSL will not be required.

The methods outlined below are suitable to safeguard the GCN population at the site during construction, and will ensure that the population present will be maintained at a favourable level.

If GCN are not found during the 2015 survey a licence will not be required.

4. Consideration of the Three Tests.

To inform the planning decision and to enable the granting of the EPSL, this area of development under Phase 2 will need to be considered against the Habitats Regulations tests as follows:

1. The development is required for the purpose of

    - preserving public health or public safety,
    - for other imperative reasons of over-riding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment.
    - for preventing serious damage to property.

2. There is no satisfactory alternative.

3. The proposal will not be detrimental to the maintenance of the population of the species at a favourable conservation status.

(see DEFRA Circular 01/2005).

"Test 1: The development is required for economic reasons of over-riding public interest.

In Autumn 2011 an Enterprise Zone for Lancashire based at Warton and Samlesbury was approved by Government. Enterprise Zones are at the heart of the Government's long term economic plan to support strategic economic growth.

The Lancashire EZ is focused on the advanced engineering and manufacturing sector (AEM) and is designed to exploit the critical mass of existing industrial activity at Warton and Samlesbury.

Building on the resurgence of advanced manufacturing and Government re-commitment to positioning the UK as a leading force in the global advanced engineering and manufacturing arena, the Lancashire Enterprise Zone will from a centre of excellence for high technology manufacturing and will act as a nucleus to attract organisations which are directly involved in the industry or provide support services.

The strategic significance of the EZ is pivotal to generating sustainable economic growth and benefits which can be accessed by all across Lancashire. It forms a key element within a wider package of strategic initiatives to secure the long term prosperity of current and future generations.

The role and importance of the EZ is recognised in key strategic priorities and plans for the area and in key delivery mechanisms including the Preston, South Ribble and Lancashire City Deal and the Growth Deal for Lancashire.

The Samlesbury EZ site is recognised and allocated in the Central Lancashire Core Strategy, the Ribble Valley Local Plan and the South Ribble Local Plan Site Allocations and Development Management Policies.

Test 2: There is no satisfactory alternative

The location of the Lancashire Enterprise Zone and the Samlesbury site in particular are an integral part of the business case for the EZ. Samlesbury is targeted at larger footprint advanced manufacturers requiring good access to the motorway network, a highly skilled local workforce and an existing supply chain including some businesses who would benefit from being adjacent to BAE Systems."

Test 3 The proposal will not be detrimental to the maintenance of the population of the species at a favourable conservation status.

In regard to the 'Third Test', long term records of GCN numbers at the site generated through pre and post development surveys and spring-time pitfall trapping over large areas, have consistently shown low numbers of GCN to be present at the site.

The key points regarding the GCN population at the site are outlined below.

- 2007 Population size class survey max. count 1 GCN.
- Subsequent clearance by pitfall tapping (30 days) under EPSL in 2007 found no GCN.
- 2008 Population size class survey max. count 1 GCN.
- Subsequent clearance by pitfall tapping (30-60 days) under EPSL in 2008 found 1 GCN.
- Approximately 60ha of land pitfall trapped in 2007 and 2008.
- Drawdown, netting and destructive search of a breeding pond in the factory in 2008 found no GCN.
- Four years presence/absence survey of receptor area ponds between 2009 and 2012 found 1 GCN on one visit out of 16.
- Presence/absence survey of additional western pond cluster in 2012 found no GCN.
- Presence/absence survey of additional western pond cluster in 2015 found no GCN.
- Population size class survey of receptor area ponds in 2015 to be confirmed by 15.05.15.

In relation to the potential impacts on GCN at the site, the following points are relevant.

- At its nearest point the GCN pond is approximately 160m from the EZ.
- The EZ will encroach on approximately 0.23ha of immature woodland and semi-improved poor grassland within 250m of the GCN pond.
- There is a low possibility that GCN might be present in these areas, therefore minor disturbance of GCN should be considered as a likely effect.
- There is a further 0.43ha (approx.) of immature woodland and 2.03ha of grassland (approx.) affected beyond 250m but contiguous with the areas nearer to the GCN Pond.
- Whilst the EZ also affects large areas of the rest of the site, no impacts are predicted beyond the immature woodland and grassland described above.

- There are no permanent barrier effects preventing GCN movement towards any other GCN metapopulation outside of the site.
- The loss of 0.053ha of woodland and 0.17ha of short grassland within 250m of the breeding pond, will be compensated by the provision of 0.29ha of new woodland.
- Twenty timber refuges will be constructed in the retained woodland where ground cover is currently very poor.

Using the 'rapid risk assessment tool' from the GCN Method Statement template, an offence is considered to be likely. See table extract below.

Component	**Likely effect** (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	0.1 - 0.5 ha lost or damaged	0.1
Land >250m from any breeding pond(s)	>10 ha lost or damaged	0.5
Individual great crested newts	Minor disturbance of newts	0.5
	Maximum:	0.5
Rapid risk assessment result:	**AMBER: OFFENCE LIKELY**	

Based on the above an offence is likely, however this is rather a simplistic evaluation and in reality the value of the habitats affected is not thought to be significant in terms of the GCN's ability to maintain its population at a favourable level.

Large areas of the land affected beyond 250m of the GCN pond is tarmac runway and short open grassland with low refuge potential and high predation potential.

The GCN population at the site still has approximately 4.2ha of good habitat around the breeding pond, including new/existing ponds, 4 large purpose-built hibernacula, woodland, a hedgerow and extensive un-mown tussocky grassland. In addition there is a further 8ha of semi-improved grassland and immature woodland contiguous with this area to the east.

Approximately 0.29ha of new woodland will be created to compensate for the loss of 0.22ha of land within 250m of the GCN pond. Twenty timber refuges will also be created in the retained woodland.

Taking the above into consideration, the third test '*The proposal will not be detrimental to the maintenance of the population of the species at a favourable conservation status*', can be met through site pitfall trapping, the creation of new woodland habitats, and the maintenance of the dedicated GCN area centred around the current breeding pond.

5. Methods Applied under Natural England EPS Licence:

A GCN licence to derogate from the Regulations must be obtained from Natural England before undertaking any of the operations outlined below.

Method: Destructive Search:

- To facilitate the installation of the perimeter and cross-member newt fences any obstructing debris and vegetation will have to be removed to allow fencing to take place.

- The works must be directly supervised by the acting ecologist or their agent.

- Any GCN or other amphibians found during this operation will be moved to dense cover at a designated release spot.

Method: The site will be enclosed by robust temporary amphibian fences (TAF) and pitfall traps installed.

- The TAF will be installed around the periphery of the site by an experienced/proven newt fencing contractor. The location of the TAF is shown on Map 3 in this Appendix.

- The TAF must be constructed from a robust material to prevent damage during construction. Additional protection from Hears fencing installed between the construction area and the TAF is also advised.

- The TAF will be joined to the existing TAF employed on the RAMs part of the site.

- Pitfall traps will be installed around the inside of each fenced compartments at a density of at least 80 traps per hectare.

- The traps will be checked daily for a minimum period of 30 days in suitable weather conditions between March and end of October.

- All amphibians captured will be moved to safe designated release areas in the hibernacula adjacent to Ponds A and B.

- Following the completion of the required trapping programme, with at least 5 days clear of GCN captures, the pitfall traps will be removed together with specific sections of TAF. The removal must be done under supervision of the acting ecologist or their agent to facilitate construction in areas cleared of amphibians.

- All other TAF must remain in place until all construction work that poses a significant risk to GCN has been completed.

- If robust and adequately protected TAF is installed, the TAF will be inspected by the acting ecologist or their agent on a monthly basis throughout the year. However the level of fence inspections will be reviewed during each visit by the acting ecologist, and visits on a weekly basis will be adopted if problems with the TAF occur.

- The contractor must make a weekly inspection of the fences looking for rips/tears or structural problems and report any issues back to the acting ecologist or their agent by email the same day. Photographs of each potential fault must be taken and attached to the report.

- The TAF must **not** be used to support any materials or infrastructure, wires, pipes associated with the construction site. Materials must not be stockpiled against the TAF.

- No sections of TAF must be removed without prior consultation with the acting ecologist or their agent.

- The acting ecologist or their agent must be present at the time of TAF removal unless confirmed via email by the ecologist.

Method: Habitat Creation.

Refugia:

- The trees felled in the woodland must be retained for use as refuges for GCN in the woodland retained. The woodland currently has little cover for GCN on the ground due to deer grazing/browsing.

- A minimum of twenty log-pile refuges will be constructed. The refuges will provide both shelter and improved foraging for GCN as the decaying timber will increase the invertebrate (GCN food) value of the woodland. construction of the hibernacula can only take place once the EPS licence is in place.

- The refuges will be created once the site has been pitfall trapped for GCN for the required number of days.

Method: Post Construction TAF Removal.

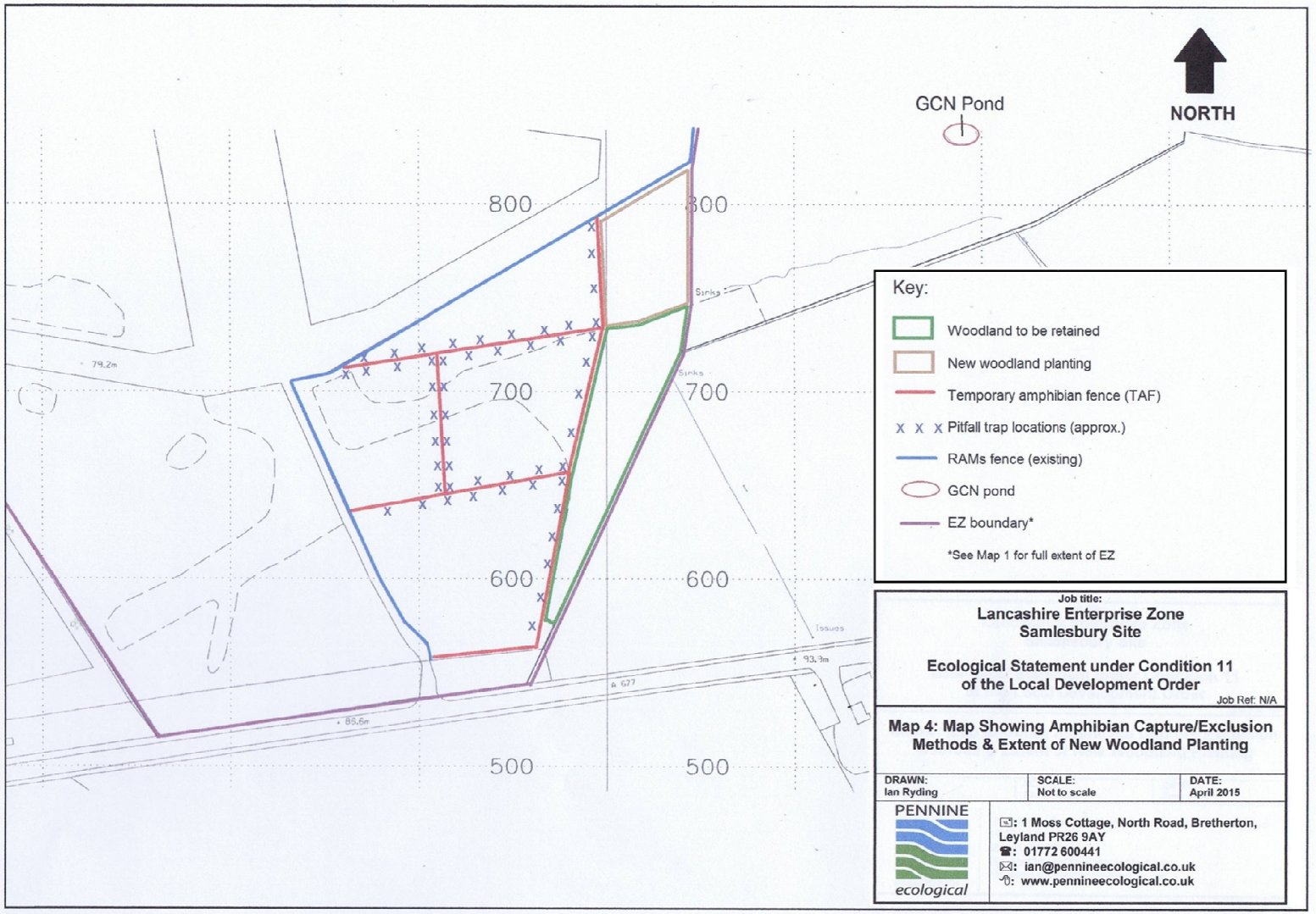
- Once construction is complete, the newt fence must be removed under the supervision of the ecologist. Any GCN or other amphibians found during this operation will be moved to the existing hibernaculum for release.

Method: Post Development Population Monitoring.

- Monitoring will be undertaken in accordance with NE guidance and will be determined by a combination of the level of impact and population size as defined by 2012 survey. **Minimum** effort will be presence/absence for 2 years.

EPSL MAPS:

Map 4: Map Showing Amphibian Capture/Exclusion Methods & Extent of New Woodland Planting


GCN Pond
NORTH
800
700
600
500
Sinks
Sinks
79.2m
93.3m
A 677
86.6m
Issues
Key:
Woodland to be retained
New woodland planting
Temporary amphibian fence (TAF)
x x x Pitfall trap locations (approx.)
RAMs fence (existing)
GCN pond
EZ boundary*
*See Map 1 for full extent of EZ
Job title:
Lancashire Enterprise Zone
Samlesbury Site
Ecological Statement under Condition 11
of the Local Development Order
Job Ref: N/A
Map 4: Map Showing Amphibian Capture/Exclusion
Methods & Extent of New Woodland Planting
DRAWN:
Ian Ryding
SCALE:
Not to scale
DATE:
April 2015
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APPENDIX 3:

Samlesbury Enterprise Zone Draft Design Principles

LANCASHIRE ENTERPRISE ZONE - SAMLESBURY SITE:

SAMLESBURY ENTERPRISE ZONE DRAFT DESIGN PRINCIPLES:

Purpose of the Document:

The Lancashire Advanced Engineering and Manufacturing Enterprise Zone Masterplan for the Samlesbury Site was adopted in February 2014, subject to further design principles being developed to guide the development of the site.

This document sets out those design principles, and is intended to be used alongside the Masterplan and Local Development Order.

The Masterplan Broad Framework for Design:

The Masterplan sets out that the "overall design rationale for the Samlesbury Enterprise Zone Site is to provide a cohesive visual appearance, balancing built form and landscape to provide a high quality attractive setting befitting a high profile centre of excellence."

The Masterplan established that this will be achieved by addressing the following key areas:

- Seeking visual integration across the site through attention to form, materials and colour.
- Class D teaching and training facilities should be designed using a greater mix of high end materials to reflect their role within a people oriented area.
- Gateway sites will be designed to emphasise and celebrate the status of the Enterprise Zone Site
- Highway form and layout will be addressed
- The site as a whole will be set within the wider landscape and green belt context. This will be carried through into the landscaping on site.
- Appropriate landscaping measures will form a key part of the mitigation and enhancements required in landscape and green belt terms
- Both soft and hard landscaping will form a key part of the design, function, appearance and feel of the site.
- Signage and branding will be sensitively applied reflecting the overall aesthetic of the site.

Key Design Principles:

<u>Buildings and Plots</u>

- Buildings and plot layouts should have a consistent approach to key design elements such as form, massing, scale and fabric and relate to their neighbours

- Buildings and plot layouts should make a positive contribution to the public realm and local landscape character

- The style of the buildings should be appropriate to their function

- Designs should respect plot boundaries, access routes and landscape character

Building Positioning, Orientation, Form and Design:

The principal elevation of the building should address the main street frontage.

Consideration should be given to providing dual orientation buildings on corner plots.

Buildings on gateway sites will be of a higher end design to emphasise and celebrate the status of the Enterprise Zone Site.

Main entrances, and particularly entrances to reception areas should be clearly expressed in the treatment of the elevation.

The overall aim is to ensure that all units, while adapting to the specific requirements of their usage and plot characteristics maintain a recognisable consistency in form, massing, roof-scape, elevation design, materials and colour throughout the Enterprise Zone site.

Where appropriate buildings should be designed having regard to natural surveillance techniques and secured by design principles

Nesting and roosting features on buildings should be considered and installed where appropriate. This may include, for example, bat boxes, bird nesting boxes, swift bricks, green roofs etc.

Materials

A cladding system of the type and colour in keeping with the local environment and current developments should be used on the majority of the wall elevations.

The choice of building materials and colours, particularly for roofs should take account of the site's visibility from surrounding areas.

A mix of materials should be used as appropriate to create interest and improve the visual appearance of buildings

Contrasting materials to those used for the main structure should be incorporated where appropriate on entrance, ground floor and office elevations.

Class D teaching and training facilities should be designed using a greater mix of high end materials to reflect their role within a people oriented area.

Building Heights and Roof Structures

In principle, where appropriate, higher/larger buildings will be located towards the middle of the site or adjacent to the existing main BAE Systems site rather than the open periphery.

It may be appropriate to locate some higher/larger buildings on the visible perimeters of the site to promote the development, however where this is the case these would need to be designed and landscaped appropriately,.

Roof form is critical to the coherence of the site. Where appropriate and practicable the visual effects of large expanses of roof should be mitigated by the use of varying materials, forms and alignment.

Buildings on gateway sites will have high quality roof designs as part of the overall building design intended to reflect the status of the Enterprise Zone site.

Where appropriate consideration should be given to enabling measures to increase sustainability such as solar panels, green roofing and grey water run-off.

Signage:

Gateway entrance features may include appropriate signage.

Other signage within the site will require consideration and approval by the EZ Governing Body. They should be integral and appropriate to the design and landscaping of the site and buildings.

Company logos and signage where appropriate should be wall mounted on the front elevation of the building and should form an integral part of the building design.

Fencing:

Specialised security fencing is to be installed to segregate the EZ site from the BAE operational site.

Any security fencing for the purposes of the EZ alone should be consistent in design, form, scale and layout to ensure that it contributes to enhancing the site's fabric and local distinctiveness.

Any security fencing for the purposes of the EZ alone should be a low visibility mesh-type fencing of an appropriate colour, with metal posts to match the proposed fencing to the plot boundaries. Consideration should be given to the need for further mitigation in the form of planting.

Fencing should be designed to avoid detrimental impacts on wildlife. Hare sized runs should be installed at strategic points around new perimeter security fencing relating to the EZ only. This would not apply to the specialised high security segregation between the EZ and BAE Systems operational site.

Additional fencing within plots should be kept to a minimum and used only to screen storage areas from the public realm or from neighbouring plots. Fencing for these purposes should be designed as an integral part of the building/plot design and materials used should be consistent with those used for the main building.
Any additional fencing internally to the plot should not be installed forward of any building line.

Lighting and Security Cameras:

Light spill should be minimised. A bat and nesting bird sensitive lighting plan must be implemented to minimise light spillage into sensitive areas. This should follow the principles given in the latest guidelines produced by the Bat Conservation Trust and the Institute of Lighting Engineers.

Where appropriate buildings should be designed having regard to natural surveillance techniques and secured by design principles

Sustainability:

As a minimum buildings should be designed to meet the BREEAM energy efficiency standard of "very good".

At the level of proposed buildings, the environmental impact of new development can be minimised by ensuring as efficient use of energy as possible.

The detailed design and layout of plots will incorporate Sustainable Drainage Systems (SuDS) where possible and appropriate. In order to prevent pollution of sensitive habitats, SuDs systems must be separate from water bodies retained or re-established specifically for wildlife benefit.

Where SuDS drainage won't work for example due to underlying clay layers the appropriate use of attenuation methods should be considered.

Where buildings will have large expanses of roof, concepts such as rainwater capture and grey water recycling, solar energy and green roofing should be considered and applied as appropriate.

Highway Layout:

Roads through and within the site and associated entrance ways will be designed in accordance with the design standards set out in:

- The Department for Transport Design Manual for Roads and Bridges
- Lancashire County Council Specification for Estate Roads

Pedestrian and cycle routes will be provided along all main highway links within the EZ as set out in the Masterplan for the site.

Car parking and parking facilities for bicycles and motorcycles will be provided in accordance with adopted Local Authority car parking standards.

Loading, Servicing and Waste Management:

Loading bays, external storage yards and waste disposal should be appropriately screened from view for site users and adjacent uses.

The layout and design of loading bays should take into account their likely impact on neighbouring plots and adjacent uses and incorporate appropriate screening measures to minimise such impacts where appropriate

Landscaping Principles:

Public Realm:

Both soft and hard landscaping will form a key part of the design, function, appearance and feel of the site. Collectively these landscape elements should contribute to create a distinctive sense of place within the context provided by the local landscape character. A consistent approach to design shall be adopted to help create a site wide coherent landscape.

Landscaped strips to plot frontages and around buildings will be planted to provide an attractive boundary between the public and private realms. Native species should be used as appropriate. Where appropriate consideration should be given to inter-connecting these features to create a landscape structure within the development.

Planting within and around car parking areas will help soften and break up large areas of hard standing and separate circulation from car parking or vehicular routes.

Paving and surfacing materials should be sympathetic with the detailing of the building façade and provide a degree of continuity with materials used in public realm. High quality natural materials should be considered where appropriate.

Where appropriate consideration should be given to using paving to differentiate areas with different functions.

Areas for public congregation and seating should be considered where appropriate and should be designed to complement and enhance buildings and landscaping.

There should be a degree of continuity to the site's street furniture and its use should be limited to avoid excessive visual clutter.

Landscape, Ecology and Green Belt Mitigation and Enhancement Areas:

The site as a whole is set within the Undulating Lowland Farmland Landscape Character Type (ref. A Landscape Strategy for Lancashire 2000, Lancashire County Council) and green belt.

Appropriate landscaping measures will form a key part of the mitigation and enhancements required in landscape and green belt terms.

The following measures should be considered and integrated as appropriate into the development:

- The retention of some green areas and existing habitats as appropriate
- Soft landscaping
- Re-established habitat such as trees, woodland, scrub species rich grassland, wetland habitat and ponds
- Sustainable drainage systems

- Inter connecting habitats/wildlife corridors throughout the site
- Screening and retention of green areas along boundaries

The retention of key existing landscape features such as trees should be considered where appropriate.

Mounding and bunding should have gentle "naturalistic" slope profiles and be no higher than 2-3 metres to blend into the surrounding rural landscape.

Landscaping in the form of mounding and tree planting will be a priority on the periphery of the site away from the existing BAE Systems operations.

Landscaping in the form of mounding and tree planting will be a priority on the sensitive boundary with Samlesbury Hall

Landscape and ecological mitigation areas are identified on diagram x (diagram to be confirmed). Mitigation measures will be implemented in these areas as identified in the approved Ecological Statement (condition 11 of the adopted LDO).

Landscaping schemes should include mitigation in the form of new wildflower grassland areas.

In relation to all habitat creation, including woodland, scrub, grassland, wetlands and ponds, the following basic principles must be applied:

- All plant species used should be native species appropriate for the location and suited to the conditions on site. Seed and plant material should be of native genetic origin ideally from North West England.
- No rare or uncommon species should be introduced.
- No invasive non-native species should be introduced.
- As far as possible the species composition should be based on locally appropriate communities described in the national Vegetation Classification (NVC), such as W6 and W10 woodlands or MG5, MG4 and MG8 grasslands.
- Habitat creation must not be at the expense of an existing habitat of ecological importance.

Any new habitats created will be managed in accordance with a site management plan.