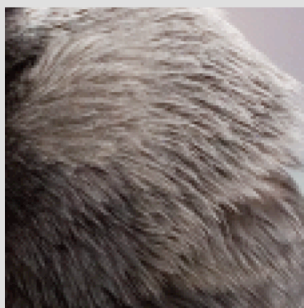
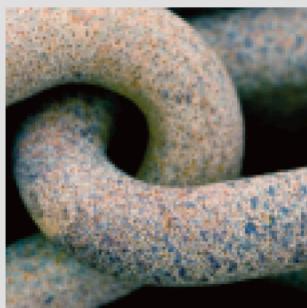


Land to the north of
Glanmyddyfi, Pentrefelin,
Carmarthenshire
Ecological Appraisal
Revised 2018



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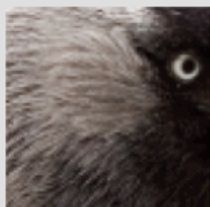
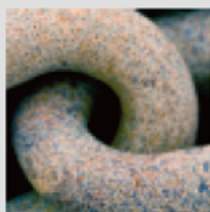
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I Summary

I.1 The Proposed Development

- 1.1.1 Terry Davies is seeking planning permission for the installation of a free range poultry unit at land to the north of Glanmyddyfi, Pentrefelin, in Carmarthenshire ('the Site').
- 1.1.2 The original plans for the scheme were for a 32,000 bird unit, but this has been revised to reduce the number of birds to 16,000.

I.2 Ecological Receptors

- 1.2.1 An Ecological Appraisal (including a desk study, Phase 1 Habitat survey and assessment of potential for protected/otherwise notable species) and badger survey have been completed across the Site. A number of habitats and some limited potential for protected species have been identified on the Site or nearby. These ecological receptors include the following:
 - 1. Three nationally designated Sites of Special Scientific Interest within 2km of the Site boundary.
 - 2. The River/Afon Myddyfi, located approximately 20m from the southern site boundary.
 - 3. Potential habitat for foraging/roosting bats, breeding/foraging birds; dormice, common amphibian species and foraging/commuting badgers.

I.3 Required Actions

- 1.3.1 The scheme design has been carefully developed in such a way that impacts on the above receptors are likely to be minimal. Indeed, the landscaping proposals (including extensive planting) are likely to provide some biodiversity gain. There will be no external lighting used within the scheme, no hedges will be removed within the red line boundary (with the exception of a short section to the south adjacent to the A40, which will be replaced) and no trees in areas close to the Site will be removed or managed as part of the scheme.
- 1.3.2 In order to further reduce potential for impacts on the above receptors, the following recommendations are given:
 - 1. No construction works will take place at night, in order to avoid impacts on foraging and commuting bats that may be light-sensitive.

2. Appropriate precautions will be taken before and during construction in relation to badgers. This includes a repeat check of the site for badgers and the provision of escape ramps in any uncovered excavations.
3. An appropriate strategy for hedgerow removal along the A40 will be developed in collaboration with the Applicant and an appropriate experienced/licensed ecologist, once planning permission has been granted and the timing of the works is known. This will ensure impacts on breeding birds and dormice are reduced as far as possible.
4. Repeat surveys may be required if development is delayed for more than two years, even if planning permission has already been granted.

1.4 Conclusions

- 1.4.1 The applicant fully understands the requirement for the above recommended actions and is committed to completing them. Appropriate planning conditions should be issued with regards to these recommendations, in order to provide further certainty that the proposals will have no detrimental effect on ecology, and that design elements which provide some biodiversity gain will be implemented.
- 1.4.2 Provided that all recommendations are carried out as presented within this report, it is concluded that this scheme is likely to provide a net gain for biodiversity, and there is no reason (with respect to ecology) why planning permission cannot be granted.

2 Introduction

2.1 The Proposed Development

- 2.1.1 Baker Consultants was commissioned by Terry Davies (“the Applicant”) to complete an Ecological Appraisal of land to the north of Glanmyddyfi, Pentrefelin, in Carmarthenshire.
- 2.1.2 The Site comprises three land parcels, the largest of which is centred on National Grid Reference SN598240. The locations of all land parcels are shown in Figure 1 below.
- 2.1.3 This report has been prepared to accompany a detailed planning application to Carmarthenshire County Council (CCC), for the installation of a free range poultry unit of 16,000 birds, together with associated new woodland planting and minor alterations to the road junction with the A40 to accommodate visual splay.

2.2 Study Aims

- 2.2.1 This report considers the potential impacts of the proposed development on ecological features identified within the Site and its immediate surroundings. The report details the methodology (Section 3) and results (Section 4) of the Ecological Appraisal, describing features of ecological value found to be present and potential impacts that may occur (Section 5). The report also outlines actions that will be undertaken by the Applicant to help minimise development impacts, and to provide some biodiversity gain (Section 6).

Figure 1. Site location.



3 Methodology

3.1 Study Scope

3.1.1 Baker Consultants was commissioned by the Applicant to complete an Ecological Appraisal of the Site, based on the Chartered Institute of Ecology and Environmental Management's (CIEEM) *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2013). This included the following:

1. **Desk-based study** including interrogation of online databases and other sources to identify nearby designated sites of nature conservation importance. Due to the size, nature and therefore likely impacts of the proposals, it was not considered necessary to obtain protected species records;
2. **Phase 1 Habitat Survey** to record the nature and extent of vegetation and habitats within and immediately adjacent to the Site; and
3. Identification of any **further requirements for species-specific surveys** for protected and/or notable flora and fauna.

3.1.2 **A survey for badgers** was also completed, in accordance with standard methods.

3.2 Surveyor Qualifications and Experience

3.2.1 Diana Clark MSc MCIEEM completed the Ecological Appraisal/badger survey of the Site and wrote this report, with subsequent revision made by Carlos Abrahams BSc PgC MSc MCIEEM. Diana has worked as a consultant ecologist since 2003 and holds two degrees in related disciplines. She is also a full member of CIEEM, and sits on the committee of CIEEM's Welsh Section. Carlos is Technical Director of Baker Consultants, and has 25 years' experience in ecology and nature conservation.

3.3 Study Limitations

3.3.1 Whilst every effort was made in the field survey to provide a comprehensive description of the Site, no investigation can ensure the complete characterisation and prediction of the natural environment. Also, natural and semi-natural habitats are subject to change, species may colonise after surveys have taken place and results included in this report may become less reliable over time.

- 3.3.2 It was possible to directly access the entire Site during the Phase 1 survey visit, and no significant constraints to the visit were noted.

3.4 Desk Study

- 3.4.1 Records of internationally and nationally designated sites within 2km of the Site were obtained via the Multi-Agency Geographic Information for the Countryside (MAGIC) website (www.magic.gov.uk) and the Natural Resources Wales (NRW) website (www.naturalresources.wales).
- 3.4.2 Carmarthenshire Local Development Plan (LDP) was checked for details of non-statutory designated sites, i.e. Sites of Importance for Nature Conservation (SINCs) within a 1km search area.
- 3.4.3 Ordnance Survey (OS) mapping at 1:25,000 scale was checked for the presence of waterbodies within 250m of the Application Boundary.

3.5 Phase I Habitat Survey

- 3.5.1 Diana Clark MSc MCIEEM conducted a Phase 1 Habitat Survey of the Site on 25th April 2016. Due to the time of year the survey was completed, it was possible to obtain an accurate overview of the habitats and plant species present on the Site.
- 3.5.2 The vegetation types and habitats present were described and mapped during a walkover of the Site, using the standard published guidelines for Phase 1 Habitat Survey (JNCC, 2010). Features of particular interest were recorded as Target Notes (TNs).
- 3.5.3 In addition, the habitats within the Site were appraised for their suitability to support protected or notable species, or assemblages that could be sensitive to the proposed development, in accordance with 'Guidelines for Baseline Ecological Assessment' (IEA, 1995).
- 3.5.4 The protected and notable habitats and species referred to above include those listed under the Wildlife and Countryside Act 1981 (as amended); The Conservation of Habitats and Species Regulations 2010; and Species and Habitats of Principal Importance in Wales, listed under the Natural Environment and Rural Communities (NERC) Act 2006.
- 3.5.5 During the survey, consideration was given to features such as potential breeding bird habitat, bat roosting locations, reptile habitat and the suitability of water features for amphibians and riparian mammals. Exotic and invasive species (e.g. Japanese knotweed *Fallopia japonica*, Himalayan balsam *Impatiens glandulifera* and giant hogweed *Heracleum mantegazzianum*) were noted by the surveyor, if present.

- 3.5.6 The survey approach taken is designed to identify broad habitat types at a site and the potential of these habitats to support notable/protected species, and to assist in providing an overview of the ecological interest at a site. It is the most widely used and professionally recognised method for initial ecological site appraisal.

3.6 Badger Survey

- 3.6.1 A full check of the Site for badgers *Meles meles* was conducted at the same time as the Phase 1 Habitat Survey, in accordance with recognised survey methods and guidance (Harris *et al.*, 1989). This involved walking across the Site, looking for signs of badgers, including their setts. Signs are characteristic and include tufts of hair caught on barbed wire fences, conspicuous badger paths, footprints, small excavated pits or latrines in which droppings are deposited, scratch marks on trees, and snuffle holes, which are small scrapes where badgers have searched for insects and plant tubers.

4 Results

4.1 Designated Sites

- 4.1.1 Three nationally designated Sites of Special Scientific interest (SSSIs) are present within the 2km search area. These are Dinefwr Estate, Birdshill Quarry and Afon Tywi (the last of which is also designated as a Special Area of Conservation). The full SSSI site citations are available at Appendix 1 of this report.
- 4.1.2 Dinefwr Estate SSSI is located 1.5km to the south and is of special interest because of its lichen and invertebrate assemblages which are principally associated with the parkland and woodland trees. The woodland and oxbows on the floodplain are also of special interest for their plant assemblages.
- 4.1.3 The Afon Tywi SSSI is an actively eroding river, meandering across a wide flood plain which is composed of alluvium, glacial sands and gravels. This has resulted in extensive shingle banks being formed. These are important for birds and invertebrates, and the river is also of special interest for its fish species and otters *Lutra lutra*. The site is also designated as a Special Area of Conservation (SAC) for its otter and fish populations.
- 4.1.4 Birdshill Quarry SSSI is designated for its geological interest.
- 4.1.5 A further SSSI, Caeau Bryn Ifor is located outside of the 2km search area, approximately 2.1 km to the north. This site is of special interest for its marshy grassland vegetation.
- 4.1.6 There are no SINCs defined within the Carmarthenshire LDP area; non-statutory designated sites are therefore not considered further here.

4.2 Habitats

- 4.2.1 The habitat types recorded during the Phase 1 Habitat Survey are described within the following paragraphs and shown in Figure 2 below. Note that due to the size and simplicity of the Site, limited standard Phase 1 Habitat survey symbols are used in order to show more clearly what habitats are present.
- 4.2.2 Scientific names are given after the first mention of a species; thereafter, common names only are used. Nomenclature follows Stace (2010) for vascular plant species. Target Notes (TNs) are given in Table 1 below.

Table 1. Target Notes.

Target Note (TN)	Description
1	Small area of woodland located immediately adjacent to the Site.
2	Entire boundary of northern land parcel (aside from existing gateways in southern corner) bordered by intact hedgerows.
3	Afon Myddyfi corridor, with associated mature/semi-mature trees & scrub.
4	Garden hedge, mainly comprising privet, on A40 Site boundary.
5	Road-side verge, adjacent to A40, backed by hedgerow.

Figure 2. Phase I Habitat Map.



- 4.2.3 The Site is located within rural Carmarthenshire, approximately 2km west of the town of Llandeilo, within the hamlet of Pentrefelin. The Site comprises three land parcels, which are described in turn below.

Northern land parcel

- 4.2.4 The northern land parcel provides the location for the main chicken unit, and forms a roughly triangular area. The western edge is bordered by a hedgerow (TN 2), with a minor road running north-south on the far side. Beyond this to the west there is a hedge/tree line, and further fields. The southern part of the western edge runs parallel to the Afon Myddyfi, on the far side of the minor road (TN 3).
- 4.2.5 Both the north and the south east edges of the site are bordered by hedgerows (TN 2), beyond which lie semi-improved grassland fields, together with a network of further hedgerows and some scattered mature trees.
- 4.2.6 The northern land parcel itself comprises an improved grassland field (Figures 3 and 4), and was last seeded around 3–4 years ago. It is understood that herbicide is applied on an annual basis, and fertiliser twice per year. A silage crop is taken once per year and the field is used for cattle/sheep grazing around this time. The grassland is managed right up to the base of the surrounding hedgerows, and is dominated by perennial rye-grass *Lolium perenne*. Other species present include common nettle *Urtica dioica*, broad-leaved dock *Rumex obtusifolius*, creeping buttercup *Ranunculus repens* and creeping thistle *Cirsium arvense*.

Figure 3. Northern land parcel looking south east.



Figure 4. Northern land parcel looking south.



- 4.2.7 All hedgerows surrounding the northern land parcel are heavily managed and cut on an annual basis (Figure 5). They are dominated by hawthorn *Crataegus monogyna*, with occasional blackthorn *Prunus spinosa* and bramble *Rubus fruticosus* agg., plus (rarely) hazel *Corylus avellana*, sycamore *Acer pseudoplatanus*

and honeysuckle *Lonicera periclymenum*. The ground flora of the hedgerows shows more diversity, particularly within the middle of the hedges and on the banks of the minor road that runs adjacent to the Site (Figure 6). Species here include cow parsley *Anthriscus sylvestris*, lords-and-ladies *Arum maculatum*, hart's-tongue *Asplenium scolopendrium*, greater stitchwort *Stellaria holostea*, wood anemone *Anemone nemorosa*, dog's-mercury *Mercurialis perennis*, bracken *Pteridium aquilinum*, hogweed *Heracleum sphondylium*, bluebell *Hyacinthoides non-scripta*, ivy *Hedera helix*, cleavers *Galium aparine*, Yorkshire-fog *Holcus lanatus*, primrose *Primula vulgaris*, ribwort plantain *Plantago lanceolata*, ground-ivy *Glechoma hederacea*, large bitter-cress *Cardamine amara* and red campion *Silene dioica*.

Figure 5. Heavily managed hedgerows.



Figure 6. Hedgerow ground flora adjacent to minor road.



- 4.2.8 A small area of woodland is located just outside of the Site boundary, adjacent to the northern-most point (TN 1). This is largely dominated by ash *Fraxinus excelsior* and oak *Quercus robur*.

Central land parcel

- 4.2.9 The central land parcel falls within, and forms part of, a species-poor semi-improved grassland field. It is surrounded by further grassland fields, a network of hedges and some scattered mature trees.

Southern land-parcel

- 4.2.10 The southern land parcel is associated with the A40 and comprises a narrow strip of roadside verge, together with a short section of the minor road linking the A40 to the northern land parcel. A small section of existing hedge enclosing a residential property, formed mainly by garden privet *Ligustrum ovalifolium*, is present immediately to the west of the minor road entrance/exit. A number of ornamental trees are located within the garden immediately north of this hedge. This is shown on Plan 9 (Landscape Mitigation) within the Landscape and

Visual Impact Assessment (LVIA) report (Mackley Davies Associates Ltd, 2016a).

4.3 Badgers

- 4.3.1 No evidence indicating the presence of a badger sett was observed during the survey, however signs indicating their presence in the area were noted. This included several badger tracks and 'push-troughs', as well as a single dung pit.

4.4 Invasive Species

- 4.4.1 No signs of invasive species were observed anywhere on the Site; this issue is therefore not addressed further here.

4.5 Potential for other Protected/Notable Species

- 4.5.1 The habitats present within the Site have the potential to provide opportunities for a number of additional protected species. These are summarised in Table 2 below, and assessed in more detail in Chapter 5 of this report.

Table 2. Summary of Potential for Protected Species on the Site.

Species/Group	Habitat potential	Note
Bats	✓	Foraging and commuting potential across the Site, with the best habitat along the western edge of the northern land parcel, associated with trees and scrub along the Afon Myddyfi.
Dormice	✓	Some potential for dormice <i>Muscardinus avellanarius</i> within the hedgerow network that forms the boundary of the northern land parcel. Very limited potential within garden hedge in the southern land parcel.
Otter	✓	Potential for otters to be using the Afon Myddyfi corridor for commuting and foraging.
Amphibians	✓	Common species such as common toad <i>Bufo bufo</i> may be present within hedgerows. Limited potential for great crested newt <i>Triturus cristatus</i> (GCN) due to the geographical location of the Site (Oldham <i>et al</i> , 2000); nearest pond marked on 1:25,000 OS map is located just over 200m away to the west.
Badger	✓	Evidence of foraging and commuting has been noted on the Site. Suitable habitat for sett building in the future is present.
Birds	✓	Opportunities for foraging and nesting birds within hedgerows present on the Site.

5 Assessment

5.1 Planning Policy Context

- 5.1.1 Planning Policy Wales ('PPW') (9th Edition, November 2016) is the national planning document setting out the devolved planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes ('TANs') and Circulars. Of particular importance is TAN 5, which provides national policy guidance in respect of nature conservation and planning.
- 5.1.2 PPW, the TANs and Circulars should all be taken into account by local planning authorities in Wales when preparing development plans and assessing planning applications. Those of most relevance are discussed further below.

Planning Policy Wales

- 5.1.3 The Welsh Government's objectives for the conservation and improvement of the natural heritage as stated within PPW (paragraph 5.1.2) include the following:
1. Promote the conservation of landscape and biodiversity, in particular the conservation of native wildlife and habitats;
 2. Ensure that action in Wales contributes to meeting international responsibilities and obligations for the natural environment;
 3. Ensure that statutorily designated sites are properly protected and managed;
 4. Safeguard protected species; and to
 5. Promote the functions and benefits of soils, and in particular their function as a carbon store.
- 5.1.4 PPW also addresses development management in relation to biodiversity within Section 5.5 and outlines requirements of local planning authorities in relation to assessing impact of any development proposals on nature conservation.

TAN5: Nature Conservation and Planning

- 5.1.5 TAN 5 Nature Conservation and Planning sets out the manner in which planning authorities should comply with their duty to "...have a regard, so far as

is consistent with the proper exercise of [their] functions, to the purpose of conserving biodiversity”, as required by the NERC Act.

5.1.6 The key principles of positive planning for nature conservation in TAN 5 are:

1. Work to achieve nature conservation objectives through a partnership between local planning authorities, Countryside Council for Wales ('CCW'), the Environment Agency ('EA') Wales (CCW and EA Wales now Natural Resources Wales ('NRW')), voluntary organisations, developers, landowners and other key stakeholders;
2. Integrate nature conservation into all planning decisions looking for development to deliver social, economic and environmental objectives together over time;
3. Ensure that the United Kingdom's ('UK') international and national obligations for site, species and habitat protection are fully met in all planning decisions;
4. Look for development to provide net benefit for biodiversity conservation with no significant loss of habitats or populations of species, locally or nationally;
5. Help to ensure that development does not damage, or restrict access to, or the study of, geological sites and features or impede the evolution of natural processes and systems especially on rivers and the coast;
6. Forge and strengthen links between the town and country planning system and biodiversity action planning particularly through policies in local development plans and the preparation of supplementary planning guidance that adds value to Local Biodiversity Action Plans ('LBAP') by highlighting the ways in which the planning system can help to deliver the objectives of LBAPs in practical ways;
7. Plan to accommodate and reduce the effects of climate change by encouraging development that will reduce damaging emissions and energy consumption and that helps habitats and species to adapt to climate change.

Local Policy Context

5.1.7 A number of local planning policies within the Carmarthenshire Local Development Plan are relevant to biodiversity and nature conservation, these include the following:

1. **Strategic Objective 4 (SO4):** To ensure that the natural, built and historic environment is safeguarded and enhanced and that habitats and species are protected.
2. **Strategic Policy 1(i) (SP1):** Protect and enhance the area's biodiversity value and where appropriate, seek to integrate nature conservation into new development.
3. **Strategic Policy 14 (SP14):** Development should reflect the need to protect, and wherever possible enhance the County's natural environment. All development proposals should be considered in accordance with national guidance/legislation and the policies and proposals of this Plan, with due consideration given to areas of nature conservation value, the countryside, landscapes and coastal areas.
4. **Environmental Qualities Policy 3 (EQ3):** Proposals for development that are likely to cause unacceptable harm to a Local Nature Reserve (LNR), or Regionally Important Geological/Geomorphological Sites (RIGS) will only be permitted where the need to safeguard the substantive nature conservation value of the site or feature is clearly outweighed by the reasons for the development or land use change. The designation of such sites will, where appropriate, be supported.
5. **Environmental Qualities Policy 4 (EQ4):** Proposals for development which have an adverse impact on priority species, habitats and features of recognised principal importance to the conservation of biodiversity and nature conservation, (namely those protected by Section 42 of the Natural Environment and Rural Communities (NERC) Act 2006 and UK and Local BAP habitats and species and other than sites and species protected under European or UK legislation) will not be permitted, except where it can be demonstrated that:
 - a) The impacts can be satisfactorily mitigated, acceptably minimised or appropriately managed to include net enhancements;
 - b) There are exceptional circumstances where the reasons for the development or land use change clearly outweighs the need to safeguard the biodiversity and nature conservation interests of the site and where alternative habitat provision can be made in order to maintain and enhance local biodiversity.
6. **Environmental Qualities Policy 5 (EQ5):** Proposals for development which would not adversely affect those features which contribute local distinctiveness/qualities of the County, and to the management and/or development of ecological networks (wildlife corridor networks), accessible green corridors and their continuity and integrity will be permitted.

Proposals which include provision for the retention and appropriate management of such features will be supported (provided they conform to the policies and proposals of this Plan).

- 5.1.8 Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 places a duty on every public authority to have regard to conserving biodiversity. Section 42 of the same Act requires that the National Assembly of Wales must publish a list of the living organisms and types of habitats that are of 'Principal Importance' for the purpose of conserving biodiversity in Wales. The Assembly must take steps, as appear reasonably practicable, to further the conservation of those living organisms and habitats in any list published under this section. The list of species and habitats of principal importance currently includes 943 species and 56 habitats.
- 5.1.9 It should be noted that the Environment Act (Wales) 2016 is now in force, and that this includes a new duty (Section 6) which supercedes the Section 42 duty of the NERC Act. Section 7 will be the list of species and habitats of importance, but until this is released, those listed under S42 of the NERC Act should still be used.

5.2 Impacts on Designated Sites

- 5.2.1 Birdshill Quarry is the closest SSSI, is located approximately 500m south east of the southern land parcel along the A40, and is designated for its geological features. Due to the type of development proposed and the distances involved, there is no significant potential for adverse impacts to arise on this site, or at the Caeau Bryn Ifor or Afon Tywi SSSIs.
- 5.2.2 For Dinefwr Estate SSSI, there is a potential risk from air quality changes at the poultry unit, which theoretically could increase nutrient enrichment of habitats downwind. This would particularly be a concern for pollution-sensitive lichen flora. Many lichen species are highly sensitive to their chemical environment, such as the rain falling on trunks and branches or gases and particulates borne in by the wind. CCW states that surveys carried out on the Dinefwr Estate indicate some adverse effects from this cause in recent years, with the more pollution tolerant species increasing to the detriment of more sensitive species (as reported in CCWs 'Your Special Site and its Future' document relating to Dinefwr Estate SSSI).
- 5.2.3 CCW/NRW publishes lists of operations that may damage the features of interest for which SSSIs are designated, and therefore require consultation with them prior to proceeding. However, these generally relate to the management of the site, or other direct actions within the site itself, rather than offsite, indirect, risks. The development proposals do not include any element of direct impacts with the SSSIs, and as a result there will be no conflict with the potentially damaging operations lists. However, the Local Planning Authority

is required, under s28 of the Wildlife & Countryside Act 1981, to consider potential impacts caused by activities outside of the SSSI, and this should be undertaken as part of the planning permission process.

- 5.2.4 The proposed poultry unit is 1.5km from Dinefwr Estate, and the prevailing wind will carry any air pollution to the northeast, while the Dinefwr Estate is to the south. As emissions from poultry units tend to occur over a relatively short distance (e.g. maximum of 100-250m) downwind of units, the distance and direction will therefore both act to limit any potential for adverse impacts on the SSSI. The recent revision of the proposed scheme, reducing its size from 32,000 to 16,000 birds, means that the potential emissions from the poultry unit will also be significantly less than in the first proposal.
- 5.2.5 To assess the impact of air pollution from the proposed scheme, AS Modelling & Data Ltd, produced a report on the dispersion and deposition of ammonia emissions in the surrounding area (dated 21 November 2017). This assessed the proposal for the new 16,000 bird chicken house, which would have all manure removed from site, against the current practice of spreading approximately 126 tonnes of poultry manure per annum on to the improved grassland at Glanmyddyfi (which would cease with the new proposal).
- 5.2.6 This air quality modelling report found that, at the Dinefwr Estate SSSI, the new chicken house would cause be a small exceedance of the Natural Resources Wales lower threshold percentage (1%) of the Critical Level of Ammonia. The 1% threshold is 0.01 $\mu\text{g-NH}_3/\text{m}^3$, and the greatest predicted process contribution to the annual mean ammonia concentration would be 0.011 $\mu\text{g-NH}_3/\text{m}^3$. The area covered by this predicted exceedance of 1% of the Critical Level would be approximately 0.6 ha of the SSSI.
- 5.2.7 However, this prediction does not take into account the planned cessation of manure spreading at the site. If the predicted contributions to annual mean ammonia concentration and the nitrogen deposition rate due to emissions of ammonia from the current manure spreading at Glanmyddyfi are subtracted from the predicted process contributions from the proposed free range egg laying chicken house and ranging area, the annual mean ammonia concentration at Dinefwr Estate SSSI would be below the Natural Resources Wales lower threshold percentage of Critical Level or Critical Load for SSSIs.
- 5.2.8 The Afon Tywi SSSI/SAC is designated for its otter and fish populations. There is no significant possibility for these to be affected by the proposed development and so an adverse impact on this designated site is not likely.
- 5.2.9 Due to the absence of any SINC, LNRs and RIGs within the locality of the Site, no impacts on these potential receptors are expected.

5.3 Impacts on Habitats

- 5.3.1 The most important habitats present on or close to the Site include all hedgerow boundaries, together with the Afon Myddyfi corridor to the west and scattered trees within the wider landscape. Both hedgerows and watercourses are considered to be Habitats of Principal Importance under the NERC Act, and are therefore of ecological value.
- 5.3.2 It should be noted that all hedgerows present on the Site (with the exception of a short section of garden hedge next to the A40 – see below) will be retained within the scheme. All construction and operation access points will use existing gateways present within the hedgerow network and no trees will be lost or managed as part of the proposed works.
- 5.3.3 A number of mitigation measures have been included within the LVIA, in order to address the visual impact of the scheme on nearby viewpoints. Such measures are shown in Plan 9 (Landscape Mitigation Plan) within the LVIA and include the following:
1. The south east hedgerow of the northern land parcel (hedge 3 within the LVIA) will be allowed to grow on to a maximum height of around 3 – 4m.
 2. Two further hedges running parallel with that mentioned above (hedges 4 and 5) will also be subject to the same treatment, together with the southern section of hedge on the western boundary (hedge 1).
 3. Hedgerow tree planting will take place within hedges 1 and 5.
 4. ‘Woodland copse planting’ will be established along the north western edge of the northern land parcel, forming a buffered edge.
 5. Additional planting is proposed within the central land parcel, to further screen the development from the south.
- 5.3.4 Taking the above all together, improvements to retained hedges in terms of biodiversity value are considered likely, both in terms of structure and diversity. The proposed hedge planting would be unlikely to be adversely affected by any changes in ammonia or nitrogen deposition or concentrations, which would tend to promote growth of shrub and tree species.
- 5.3.5 A short section of garden hedge (approximately 40m) will be removed from the southern edge of the Site, adjacent to the A40, in order to provide appropriate visual splays for the junction with the minor road leading to the north. This is shown in more detail within Appendix 3 of the Transport Statement (Acstro, 2016). Since this hedge primarily comprises garden privet, its loss is considered to be of low importance. It should also be noted that replacement hedge will be provided immediately to the north, and that native species of local provenance

will be used (see Section 6 of this report for further details). In the long term, the new hedgerow boundary will be more diverse and therefore of higher value for biodiversity.

- 5.3.6 No impacts on the Afon Myddyfi are predicted. All waste products from the unit will be removed from the Site and disposed elsewhere, as described within the Planning Statement (JCR, 2016), and no issues with regards to run-off are expected.

5.4 Impacts on Protected/Notable Species

Bats

- 5.4.1 Bats and their habitats are protected under the Wildlife and Countryside Act 1981 (as amended by the CROW Act 2000), and by the Conservation of Habitats and Species Regulations 2010. Taken together, these make it an offence to:
- a) Deliberately capture, injure or kill a bat;
 - b) Deliberately disturb any bat, in particular any disturbance which is likely to (i) impair their ability to survive, breed, reproduce or to rear or nurture their young; or in the case of hibernating or migratory species, to hibernate or migrate; or (ii) to affect significantly the local distribution or abundance of the species to which they belong.
 - c) To be in possession or control of any live or dead bat or any part of, or anything derived from a bat;
 - d) Damage or destroy a breeding site or resting place of a bat;
 - e) Intentionally or recklessly obstruct access to any place that bat uses for shelter or protection;
 - f) Intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection.
- 5.4.2 A bat roost may be any structure a bat uses for breeding, resting, shelter or protection. It is important to note that since bats tend to re-use the same roost sites, current legal opinion is that a bat roost is protected whether or not the bats are present at the time.
- 5.4.3 Seven bat species are listed in the UK Biodiversity Action Plan and are listed as Species of Principal Importance under the provisions of the NERC Act 2006.
- 5.4.4 The hedgerow network present on the Site, together with the Afon Myddyfi corridor to the west, is likely to provide habitat for foraging and commuting

bats, some of which may be sensitive to lighting. Mature and semi-mature trees nearby may also provide potential roosting habitat.

- 5.4.5 None of the hedgerows on the Site will be lost as part of the development proposals, with the exception of a 40m section along the A40 to the south, which will be replaced. Indeed, proposals set out within the LVIA report and summarised in paragraphs 5.3.3 – 5.3.5 above will result in better quality hedgerows being present, as well as additional copse planting. This will result in a higher structural diversity of the hedgerow network, thereby providing better habitat for invertebrates on which bats feed, as well as maintaining all potential bat flight lines.
- 5.4.6 No external lighting is proposed as part of the scheme and no construction works will take place at night – see Section 3 of the Planning Statement (JCR, 2016). No lighting impacts on bats are therefore predicted.
- 5.4.7 No trees will be lost or managed as part of the scheme, therefore no impacts on potential tree roosts are predicted.

Dormice

- 5.4.8 Dormice and their habitats are protected under the Wildlife and Countryside Act 1981 (as amended by the CROW Act 2000), and by the Conservation of Habitats and Species Regulations 2010. Taken together, these make it an offence to:
- a) Deliberately capture, injure or kill a dormouse;
 - b) Deliberately disturb any dormouse, in particular any disturbance which is likely to (i) impair their ability to survive, breed, reproduce or to rear or nurture their young; or in the case of hibernating or migratory species, to hibernate or migrate; or (ii) to affect significantly the local distribution or abundance of the species to which they belong.
 - c) To be in possession or control of any live or dead dormouse or any part of, or anything derived from a dormouse;
 - d) Damage or destroy a breeding site or resting place of a dormouse;
 - e) Intentionally or recklessly obstruct access to any place that a dormouse uses for shelter or protection;
 - f) Intentionally or recklessly disturb a dormouse while it is occupying a structure or place that it uses for shelter or protection.
- 5.4.9 In addition, dormice are a UK Biodiversity Action Plan species and are listed as a Species of Principal Importance under the provisions of the NERC Act 2006.

- 5.4.10 Despite being heavily managed, the hedgerow network present on the Site may provide suitable habitat for dormice, which are known to be present in Carmarthenshire.
- 5.4.11 None of the hedgerows on the Site will be lost as part of the development proposals, with the exception of a 40m section along the A40 to the south, which will be replaced. This hedgerow is currently well managed and located close to a busy main road, in close proximity to the minor road junction and a number of occupied buildings at Glan Myddyfi. As a result, it is likely to currently be subject to high levels of disturbance and is therefore of less value to dormice. Since dormice are known to exist in low densities, the chances of individuals being present within this section of hedgerow at any one time is considered to be very low. Predicted impacts on dormice as a result of loss of this section of hedgerow are therefore considered to be negligible.
- 5.4.12 However, in order to reduce this risk further, some precautions are recommended and are detailed further in Section 6 of this report. Assuming these recommendations are carried out as stated, impacts on dormice are likely to be negligible. Indeed, proposals within the LVIA to strengthen hedgerows with tree planting, provide new copse planting and reduce the amount of management required for a number of hedges, are likely to improve the hedgerow habitat for dormice.
- 5.4.13 The retained hedgerow network associated with the Site, together with hedgerows within the wider landscape are both likely to provide a more diverse and less disturbed habitat for this species, but will not be impacted by the development.

Otter

- 5.4.14 Otters and their habitats are protected under the Wildlife and Countryside Act 1981 (as amended by the CROW Act 2000) and under the Conservation of Habitats and Species Regulations 2010. In addition, great crested newt is a UK Biodiversity Action Plan species and is listed as a Species of Principal Importance under the provisions of the NERC Act 2006.
- 5.4.15 The proposed development is unlikely to have an impact on the potential for otters to use the Afon Myddyfi corridor, as this lies on the opposite side of the minor access road and will remain covered within riparian woodland habitat.

Amphibians

- 5.4.16 Great crested newts and their habitats in water and on land are protected under the Wildlife and Countryside Act 1981 (as amended by the CROW Act 2000) and under the Conservation of Habitats and Species Regulations 2010. Taken together, these make it an offence to:

- a) Deliberately capture, injure or kill a great crested newt;
- b) Deliberately disturb any great crested newt, in particular any disturbance which is likely to (i) impair their ability to survive, breed, reproduce or to rear or nurture their young; or in the case of hibernating or migratory species, to hibernate or migrate; or (ii) to affect significantly the local distribution or abundance of the species to which they belong.
- c) To be in possession or control of any live or dead great crested newt or any part of, or anything derived from a great crested newt;
- d) Damage or destroy a breeding site or resting place of a great crested newt;
- e) Intentionally or recklessly obstruct access to any place that a great crested newt uses for shelter or protection;
- f) Intentionally or recklessly disturb a great crested newt while it is occupying a structure or place that it uses for shelter or protection.

5.4.17 In addition, great crested newt is a UK Biodiversity Action Plan species and is listed as a Species of Principal Importance under the provisions of the NERC Act 2006.

5.4.18 Very limited terrestrial habitat suitable for amphibian species is present on the Site, due to the heavily managed nature of the fields and hedgerows. The potential for great crested newts is therefore considered to be unlikely. Additionally, the nearest pond noted on the 1:25,000 OS map is located approximately 200m to the west of the northern land parcel, with the Afon Myddyfi located in between. Finally, due to the geographical location of the Site, i.e. in an area of the country where great crested newts are not generally found (Oldham *et al*, 2000), the chances of this species being present is considered to be very low. Taking all this together, impacts on great crested newts as a result of the development proposals are considered to be unlikely.

5.4.19 It is possible that common species such as common toad may be found within the hedgerows. During construction works, appropriate precautionary measures will be taken in order to reduce the likelihood of harm to amphibian species such as toads; this is addressed further in Section 5 of this report.

Badger

5.4.20 Badgers are protected under the Badgers Act 1992. This makes it an offence to willfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so; or to intentionally or recklessly interfere with a sett. Sett interference includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it. Removal of significant

areas of badger foraging habitat may also contravene the Act, as it could be regarded as cruelty.

- 5.4.21 Evidence of badger activity was observed during the site visit and it is clear that the Site contains suitable habitat and is used for foraging and commuting by this species. Some loss of foraging habitat for badgers is predicted as a result of the scheme, however due to the presence of extensive alternative foraging habitat nearby, this is considered to be minimal in the context of the wider landscape. Impacts on badgers are therefore predicted to be negligible.
- 5.4.22 It is possible that badgers could create setts on the Site between the dates of this survey and the commencement of development. If a significant delay occurs, a re-check of the Site is recommended prior to the start of works; see Section 6 for more details.
- 5.4.23 Appropriate precautions should be taken during construction in relation to deep excavations. These are detailed further in Section 6.

Breeding Birds

- 5.4.24 All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. In addition to this, for some rarer species (listed on Schedule 1 of the Act), it is an offence to intentionally or recklessly disturb them while they are nest building or at or near a nest with eggs or young, or to disturb the dependent young of such a bird.
- 5.4.25 The hedgerow network across the Site is likely to provide suitable nesting and foraging habitat for a typical assemblage of farmland birds. However, since no hedgerow will be removed as a result of the scheme (except the 40m adjacent to the A40 – see below), no impacts on foraging/nesting birds are considered likely. Indeed, the planting proposals within the LVIA as already described, are likely to result in an improvement to bird habitat.
- 5.4.26 Appropriate precautions with regards to breeding birds and the removal and replacement of the section of hedge along the A40 will be taken; these are outlined further in Section 6 of this report. Assuming these are completed as stated, no impacts on breeding birds are considered to be likely.

6 Recommendations

6.1 Scheme Design

- 6.1.1 This assessment is based on the proposed works being completed as per information provided within the Landscape and Visual Impact Assessment, the Planning Statement and Transport Assessment, and therefore should be considered in accordance with those reports.
- 6.1.2 A number of additional recommendations are given in the following paragraphs, in order to further reduce risk to designated sites, dormice, amphibians, badgers, and nesting birds.

6.2 Designated Sites

- 6.2.1 The potential for air quality impacts from the poultry unit to impact designated sites is negligible (especially given the reduced scale of the revised proposal), but appropriate controls at the site will be implemented as part of site management. The existing woodland belts and hedgerows will also act to prevent drift travelling to areas outside the site.
- 6.2.2 The AS Modelling & Data air quality assessment sets out how ammonia and nitrogen emissions will remain below critical levels at Dinefwr Estate SSSI when the effects of ceasing the current manure spreading are taken into account. The air quality assessment also recommends the active restoration of the pasture at Glanmyddyfi to an unimproved state, after cessation of manure spreading. This would need to be undertaken by low-intensity grazing, with no continued fertilizer input.

6.3 Dormice and Nesting Birds

- 6.3.1 Depending on the time of year that works commence, removal of the 40m section of hedgerow adjacent to the A40 may require a two-staged approach, with the above-ground element being removed outside of the breeding bird season, and the below-ground element being removed outside of the dormouse hibernation period.
- 6.3.2 Ideally, these two elements can be completed in one go during late summer/early autumn 2018 (i.e. September – early October), however if planning/works commencement is delayed, these two elements may need to be spread out. For example, this may require above-ground cutting during the winter months (2018/19) and the root systems removed in May 2019. Alternatively, if no nesting birds were found to be present earlier in the year

(i.e. the hedge was checked by an appropriately experienced ecologist first – see below), full hedgerow removal could potentially proceed in July / August.

- 6.3.3 These recommendations represent a number of possible scenarios/solutions and would be subject to the commencement date of the proposed works, which would in turn would be subject to the date of planning consent. The Applicant will therefore consult with an appropriately experienced ecologist once these uncertainties have been resolved, and devise an appropriate strategy to avoid impacts on nesting birds and further reduce potential impacts to dormice.
- 6.3.4 It should be noted that any solution resulting in above-ground vegetation being removed during the nesting season will require an inspection by an appropriately experience ecologist, immediately prior to removal. If breeding birds are found, a buffer area would be put into place and vegetation removal would not proceed until the nest is considered to be no longer active.
- 6.3.5 Additionally, it should be noted that all hedgerow removal (both above and below ground) should be completed under the direct supervision of an appropriately experienced ecologist, who is licensed to handle dormice in the unlikely event of any individuals being found.

6.4 Amphibians

- 6.4.1 Construction works will proceed with caution, and any individual amphibians such as toads found during the works will be carefully removed by on-site staff and placed off-site in nearby suitable habitat, such as rough grassland, hedgerow, scrub or ruderal vegetation.

6.5 Badgers

- 6.5.1 If 6 months has lapsed since the badger survey was completed, it is recommended that a re-check of the Site for badger setts is completed immediately prior to construction, in order to ensure no badgers have created setts. Should any evidence of badger setts be found, an appropriate licence may be required in order to proceed with the works without causing an offence.
- 6.5.2 During construction, badger escape ramps (also beneficial to other animals such as small mammals and amphibians) should be installed into any excavations deeper than around 0.3m that remain uncovered overnight. This may take the form of a sloping plank of wood, or an earth ramp in one area of the excavation.

6.6 New Planting

- 6.6.1 All new tree planting, including that on the western edge of the northern land parcel, the area within the central land parcel, and the tree planting within hedges 1, 3 and 5, will be completed using native species of local provenance,

which are already found in the locality, in accordance with the Landscape Planting Schedule and Outline Specification (Mackley Davies, 2016b).

6.7 Repeat Surveys

- 6.7.1 If development is planned to start more than two years after the date of this survey, repeat survey work may be necessary, **even if planning permission has already been granted**. This is to ensure that no significant changes have taken place to the Site in the meantime, that impacts on protected species/habitats have remained the same, and that mitigation measures are still appropriate for the scheme. Any significant changes that may occur will be addressed appropriately if this happens.

7 References

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Harris, S, Cresswell, P & Jeffries, D. (1989) Surveying Badgers. An occasional publication of the mammal society – No 9. Mammal Society, London.

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Appendix I: SSSI citations

**CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES**

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

CARMARTHEN

BIRDSHILL QUARRY

Date of Notification: 1984

National Grid Reference: SN 601321

O.S. Maps: 1: 50,000 Sheet number: 159
1: 25,000 Sheet number: SN 62

Site Area: 0.4 ha

Description:

A richly fossiliferous section of the lower Ashgill Birdshill Limestone. This is the type locality for several species of trilobites, brachiopods and bivalves. It is unique as a conodont-bearing horizon in the Welsh lower Ashgill, for rocks of this age are poorly represented. A site with a key biostratigraphic fauna.

In layman's terms, the interest of this site may be expressed more simply, and such a statement is provided below. This should not be taken as definitive and further information as to details of the interest can be obtained from the Nature Conservancy Council.

Geologists have recognised the quarry exposures at Birdshill to be of great importance for nearly 150 years. Detailed study of the fossils collected from this locality has provided valuable information on the forms of life which existed some 425 million years ago when these limestones were deposited. During that period of geological time much of this area was covered by a shallow sea inhabited by a variety of animals such as trilobites (a group of primitive arthropods which are now extinct), brachiopods and bivalves. More recent investigations have revealed the presence of microfossils, known as conodonts, which have helped geologists to determine accurately the age of these strata and which allow the section at Birdshill to be compared with rocks of a similar age in America and Sweden.

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**CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES**

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

CARMARTHENSHIRE

DINEFWR ESTATE

<u>Date of Notification:</u>	1999
<u>National Grid Reference:</u>	SN 615224
<u>O.S. Maps:</u>	1: 50,000 Sheet number: 159 1: 10,000 Sheet number: SN 62 SW
<u>Site Area:</u>	223.7 ha

Description:

Dinefwr Estate is of special interest because of its lichen and invertebrate assemblages which are principally associated with the parkland and woodland trees. The woodland and oxbows on the floodplain are also of special interest for their plant assemblages. The Estate is located immediately west of the town of Llandeilo and adjacent to the Afon Tywi. A large part of the site is a deer park, which is one of the finest examples in Wales of a pasture woodland with large veteran trees. The site is underlain by rocks of Ordovician age of which the Llandeilo series are also of special interest. Glacial drift covers the solid geology to a variable extent with river alluvium on the Tywi floodplain.

BIOLOGY:

Lichen communities developing on the parkland and woodland trees are of considerable importance. Over 160 species have been recorded to date, many of which are indicative of woodlands which have a long history of ecological continuity. These include lichens such as *Catillaria atropurpurea*, *C. pulvereae*, *Lecanactis* spp., *Schismatomma niveum* and *Thelotrema lepadinum*.

Also present are *Lobaria pulmonaria* and *Stricta limbata*, species which are very sensitive to atmospheric pollution. Nationally scarce species such as *Gyalidiopsis muscicola*, *Phyllopsora rosei* and *Lecidea doliformis* are also present as is the Red Data Book species *Collema fragrans*. This species is usually found on the nutrient rich bark of trees such as elm but has suffered a dramatic decline in recent years due to Dutch Elm disease.

The over-mature nature of the trees together with a preponderance of standing and fallen dead wood is also ideal habitat for invertebrate species. Dinefwr Estate is of national (UK) importance for its community of saproxylic (dead wood) invertebrates, mostly beetles. These comprise specialised and fastidious invertebrates which are of extremely localised occurrence and are intimately associated with sites supporting a continuum of decaying timber. The few localities where populations of these rare or scarce species persist are generally relict patches of pasture-woodland, including ancient deer parks as at Dinefwr (the deer park was created in its present form by enclosure in 1660).

Amongst the rare species noted are *Atheta picicornis* and *Stephostethus alternans* (recorded here new to Britain), and others such as *Abraeus granulum*, *Atheta cribrata*, *Cryptophagus micaceus* and *Paraphytomyza buhri* are not recorded elsewhere in Wales. Other rarities include *Pyrrhodium sanguineum*, *Dirhagus pygmaeus* and *Athyroglossa ordinanta*.

**CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES****SITE OF SPECIAL SCIENTIFIC INTEREST CITATION****CARMARTHENSHIRE****AFON TYWI****Date of Notification:** 1998**National Grid Reference:** SN 762348 - SN 355075

O.S. Maps:

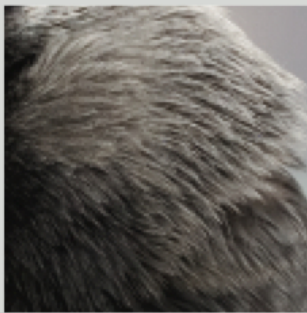
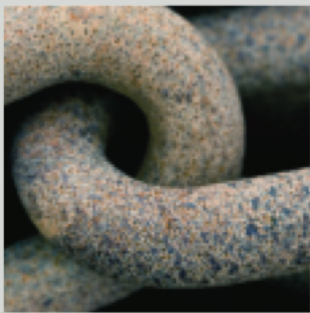
1 :50,000 Sheet number:	146, 159
1 :10,000 Sheet number:	SN73 SE, SW SN72 NW SN62 NE, SE, SW SN52 SE, SW SN51 NE, NW SN42 SE, SW SN41 NW, SW SN31 NE, SE SN30 NE, NW

Site Area: 1249.5 ha**Description:**

Afon Tywi Site of Special Scientific Interest extends downstream from Llandovery to the confluence with the Afon Taf and Pembrey Coast SSSI in Carmarthen Bay. It is an actively eroding river meandering across a wide flood plain which is composed of alluvium, glacial sands and gravels. This has resulted in extensive shingle banks being formed. These are important for birds and invertebrates, and the river is also of special interest for its fish species and otters, and in its lower reaches for its saltmarsh vegetation.

GEOLOGY

The Afon Tywi from Llandovery to Carmarthen Bay (at Llanstephan - Ferryside) displays a varied geology and geomorphology. The course of the river is characteristic of a mature river valley. Over the 74 km from Llandovery down to the sea the river falls just 65 m. There is a tidal influence from Llanstephan up-stream to Bryn Myrddin. For the greater part, the river meanders over a flat valley floor, re-working previously deposited river sediments. Though rock sections are uncommon, the orientation of the river course indicates that it is controlled by features in the underlying solid geology, such as faults or folds in the rocks of the valley floor. Generally, ashes, sandstones and limestones give rise to solid areas of river bed. The areas of shale and mustone are occupied by glacial till or river alluvium. These latter deposits are frequently exposed in small river cliffs, displaying evidence of the historical development of the river basin.



baker*consultants*