



**Land at Flemingston
St Athan
Vale of Glamorgan**
Central Grid Reference ST0115969632
**Extended Phase I Habitat Survey
Survey Report**

For Edenstone Homes

July 2016

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1 Introduction

1.1 Survey Brief

TerrAqua Ecological Services Ltd was commissioned by Edenstone Homes to undertake an Extended Phase I Habitat Survey/Preliminary Ecological Assessment of a parcel of land at Flemingston, St Athan, Vale of Glamorgan. Approximate central grid reference ST 0115969632. The survey boundary was taken as that supplied by Mr Richard Kelso acting for Edenstone Homes.

The survey was undertaken in June and July 2016

1.2 Client Details

The survey was undertaken on behalf of Edenstone Homes, Priory House, Priory Street, Usk NP115 1BJ following instructions to proceed by Mr Richard Kelso acting for Edenstone Homes.

2 Background

2.1 Rational

The survey was commissioned by the client as part of the ecological assessment of the site undertaken as one aspect of the scoping of the site with regard to its suitability for potential change in use or future development.

Part of the land included within the survey boundary is proposed to be included within the Vale of Glamorgan LDP. This area is approximately 10ha in size. In addition to the proposed development land a further 11ha was surveyed north of the proposed development site. This extra area has the potential for use as mitigation for the loss of the development land and affords the possibility of reinstating a number of critically endangered plant species that are likely to become extinct at the site in the medium term should conditions remain unaltered.

This Extended Phase I survey report will ascertain the ecological value of the site and identify any further ecological survey work required to ensure compliance with current legislation.

The report includes broad conclusions as to the potential impact on species and habitats should development occur. However proposals are at an early stage and at present no detailed site layout is available. Therefore a full assessment of the potential impacts of any development is not possible at this stage and impacts will be assessed once all species specific surveys have been completed.

2.2 Site Description

The site covers a total area of approximately 23ha and includes four large fields three of which were formerly under arable management but which are now managed as permanent improved grassland. One field located at the northern extreme is in arable production. The fields are separated by an extensive hedgerow system which are generally species rich. The hedgerows are a mix of both managed and un-managed hedges. Mature trees are present within a number of the hedges notably on the periphery of the site. A single watercourse passes through the site in a west to east direction.

The survey area includes 10ha of proposed development land, fields F1 and F2 (Appendix II Red boundary) and 13ha of potential mitigation land located north of the development area (Blue boundary).

2.3 National Designations

No part of the site is covered by a National or International designation for its conservation importance.

2.4 Local Designations

No part of the site is covered by a local designation such as a Site of Interest to Nature Conservation (SINCs). A number of SINCs are located within a 1.5km radius of the site including:

East Flemingston approximately 1km North East (D40 W1)

Land north of Llanbedderi Moor approximately 1.5km North East (D40 G5)

3 Methodologies

The survey methodologies as used to assess the site are outlined below. These are accepted by both local authority and conservation bodies as the standard ecological assessment methodologies.

The survey was undertaken within the site boundaries as supplied by Mr Richard Kelso of Edenstone Homes.

3.1 Survey Dates and Personnel

The survey was undertaken in June 2016 by Carmen Jones MSc MCIEEM Senior Ecological Consultant and Dyfrig Jones BSc Senior Ecological Consultant. Both highly experienced ecologists with extensive experience in both ecological assessment and species specific issues.

3.2 Extended Phase I Ecological Assessment

The walkover survey consists of an assessment of the habitats present and was undertaken following the methodology as set out in the Handbook for Phase I Habitat Survey and extended to cover faunal species and their habitats according to the Chartered Institute of Ecology and Environmental Management (2016) Guidelines for Ecological Impact Assessment. CIEEM. Identified habitats were mapped using MapInfo Professional Software and target notes (TN) taken where appropriate for any additional features noted. The habitats mapped and target note locations are shown in Appendix II.

In addition, as part of the extended phase I survey, a record was made of all mammals, birds, amphibian, reptile and invertebrate fauna for which a sighting or evidence of activity was observed as well as the identification of habitats present considered suitable to support both internationally and nationally protected species, or any species considered to be rare or of local significance.

3.3 Data Search

A desk top data search was undertaken for any records of species and/or habitats within the survey boundary. The data search was also extended to include a search for records within a 1.5 km radius of the survey centre of species or habitats, including protected and designated sites, which could be affected by the proposals for the site (Appendix III).

The data search included a search of records as held by the National Biodiversity Network online Gateway and a full data search undertaken by the South East Wales Biodiversity Record Centre (SEWBRc).

In addition to the general searches above a request was made to Julian Woodman BSBI County Recorder, East Glamorgan, for any information relating to two critically endangered plant species namely shepherds needle *Scandix pecten-veneris* and corn buttercup *Ranunculus arvensis* both historically recorded within the site boundary (Appendix IV).

3.4 Survey Limitations

The Phase I methodology is not intended to produce comprehensive species lists of fauna and flora and therefore the species lists should be considered representative but not totally inclusive. In particular mammal, invertebrate and bird species are likely to be under recorded during a single walkover survey.

The Phase I Habitat Survey does not set out to identify all non-native or native invasive plant species such as Japanese Knotweed. These species may be recorded during the course of the survey; however the absence of records for such species should not be taken as a statement that such species are not present within the survey area. If the presence of such species is of primary significance for any future use of the site then further detailed vegetation surveys to identify and map any such plants should be undertaken.

4 Results Extended Phase I Survey

4.1 Habitats

4.1.1 Seeded Improved Grassland

F1

Improved agricultural grassland is the dominant habitat type across the site. The site shows evidence of recent grazing by cattle and has a height of around 5cm. The sward is species poor and in the main is confined to grass species common within re-seeded agricultural pastures. Species present include Yorkshire fog (*Holcus lanatus*), common bent (*Agrostis tenuis*), perennial rye (*Lolium perenne*), Italian rye (*Lolium multiflora*) annual meadow (*Poa annua*) and cocksfoot (*Dactylis glomerata*). Other common species include ribwort plantain (*Plantago*

lanceolata), red clover (*Trifolium pratense*), white clover (*Trifolium repens*), daisy (*Bellis perennis*), and dandelion (*Taraxacum sect ruderalia*). In less grazed and dunging area species include broad leaved dock (*Rumex obtusifolius*), nettle (*Urtica dioica*), and thistle (*Cirsium sp*).



Plate 1 field F1

F2

Improved agricultural grassland is the dominant habitat type across F2. The site shows evidence of recent strip grazing by sheep. The grazed areas have a very low sward with a height of less than 2cm while un-grazed areas retain a sward height of around 6cm. The sward is species poor and in the main is confined to grass species common within re-seeded agricultural pastures and is similar to that of F1. In common with F1 this field appears to have been re-seeded in recent years. Species present include Yorkshire fog, common bent, perennial rye, Italian rye, annual meadow, timothy (*Phleum pratensis*) and cocksfoot (*Dactylis glomerata*). Other common species include ribwort plantain (*Plantago lanceolata*), red clover (*Trifolium pratense*), white clover (*Trifolium repens*), daisy (*Bellis perennis*), common sorrel (*Rumex acetosa*) and dandelion (*Taraxacum sect ruderalia*). Meadowsweet (*Filipendula ulmaria*) is also present along the northern field boundary. In less grazed and dunging area species include broad leaved dock (*Rumex obtusifolius*), nettle (*Urtica dioica*), and thistle.



Plate 2 field F2

F3

Improved agricultural grassland is the dominant habitat type across F3. The site shows evidence of recent strip grazing by sheep. The grazed areas have a very low sward with a height of less than 2cm while un-grazed areas retain a sward height of around 10cm. The sward is species poor and in the main is confined to grass species common within re-seeded agricultural pastures and is similar to that of F1 and F2. In common with F1 and F2 this field appears to have been re-seeded in recent years. Species present include Yorkshire fog, common bent, perennial rye, Italian rye, annual meadow, timothy (*Phleum pratensis*) and cocksfoot (*Dactylis glomerata*). Other common species include ribwort plantain (*Plantago lanceolata*), red clover (*Trifolium pratense*), white clover (*Trifolium repens*), daisy (*Bellis perennis*), common sorrel (*Rumex acetosa*) and dandelion (*Taraxacum sect ruderalia*). Meadowsweet (*Filipendula ulmaria*) is also present along the northern field boundary. In less grazed and dunging area species include broad leaved dock (*Rumex obtusifolius*), nettle (*Urtica dioica*), and thistle.



Plate 3 field F3

4.1.2 Arable

F4

Harvested and unplanted arable field with evidence of previous planting with root crop. Generally bare exposed earth with colonisation by ephemeral species common to disturbed land. Some evidence the site had been sprayed with broad spectrum herbicide following harvesting of the crop. Species present include shepherds purse (*Capsella bursa-pastoris*), pineapple mayweed (*Matricaria matricariodes*), common chickweed (*Stellaria media*), common mouse ear (*Cerastium fontanum*), common sorrel (*Rumex acetosa*), broad leaved dock (*Rumex obtusifolius*), creeping thistle (*Cirsium arvensis*), major plantain (*Plantago major*), dandelion (*Taraxacum sect ruderalia*), scarlet pimpernel (*Anagallis arvensis*), nettle, rapeseed (*Brassica napus*) and good king henry (*Chenopodium bonus-henricus*).



Plate 4 field F4

4.1.3 Permanent Improved Grassland

F5

Floristically poor improved grassland with short dense sward approximately 2cm in height. Evidence of previous grazing by sheep. In contrast to field 1-4 field F5 appears to comprise a permanent area of grassland with no evidence of recent re-seeding or alternative use. Species present include perennial rye, Italian rye, timothy, common bent, red fescue, Yorkshire fog, occasional crested dogs tail (*Cynasaurus cristatus*) and sweet vernal (*Anthoxanthum oderatum*). Other species recorded include creeping thistle, dandelion, meadow buttercup and nettle.



Plate 5 field F5

4.1.4 Hedgerows

Fields F1-F5 are separated by a mix of mature intact hedgerows and partially defunct hedgerows.

H1

A species rich intact hedgerow approximately 4m-5m in height. The hedgerow is currently unmanaged but does show some signs of historic management practices. The hedgerow is protected by an electric fence to help exclude stock. The dominant woody species present include blackthorn (*Prunus spinosa*), hawthorn (*Crataegus monogyna*), elder (*Sambucus nigra*), hazel (*Corylus avellana*), privet (*Ligustrum ovalifolium*), ash (*Fraxinus excelsior*) and field maple (*Acer campestre*). Other species present within the hedge include honeysuckle (*Lonicera periclymenum*), dog rose (*Rosa canina*) and clematis (*Clematis vitalba*). The ground flora is generally sparse due to the effects of grazing and reseeding. Species present include stinging nettle, greater willowherb (*Epilobium hirsutum*), rosebay willowherb (*Chamerion angustifolium*), field rose (*Rosa arvensis*), creeping thistle, meadow buttercup, bracken, ivy (*Hedera helix*), herb robert (*Geranium robertianum*) and low growing bramble (*Rubus sp*). Semi mature ash are present in some hedgerow sections as standards (TN1).



Plate 6 hedgerow H1

H2

A species rich intact hedgerow approximately 4m in height. The hedgerow is currently unmanaged but does show some signs of historic management practices. The dominant woody species present include hawthorn, field maple, blackthorn, elder, hazel and occasional non-native privet. Other species present include bindweed (*Calystegia sepium*), and clematis. Ground flora at the base of the hedge is poor due to the effects of grazing by cattle. Species present include false oat (*Arrhenatherum elatius*), low growing bramble, broad leaved dock, creeping thistle, spear thistle (*Cirsium vulgare*) yorkshire fog, herb robert, creeping buttercup (*Ranunculus repens*), common cleavers (*Galium aparine*) and meadow buttercup.



Plate 7 hedgerow H2

H3

Intact managed hedgerow some 2m in height and with stock proof netting fence. Managed by mechanical means. Dominant woody species include blackthorn and hawthorn. Other species present within the hedge include bramble, clematis and dog rose. The base of the hedge is floristically poor due to the effects of grazing and includes broad leaved dock, common sorrel, nettle, ivy, spearwort (*Ranunculus flammula*), creeping buttercup, meadow buttercup,

speedwell (*Veronica chamaedrys*), ground ivy (*Glechoma hederacea*), herb robert, common cleavers, hedge bedstraw (*Galium album*) and primrose (*Primula vulgaris*).



Plate 8 hedgerow H3

H4

Partially managed hedgerow approximately 2m in height. Species rich with stock proof netting. Dominant woody species include hawthorn, hazel, blackthorn, ash, elder, with stands of mature bramble. Ground flora very impoverished due to effects of grazing and is dominated by stands of nettle, broad leaved dock and creeping thistle.



Plate 9 hedgerow H4

H5

Un-managed hedgerow. Southern section thin and dominated by blackthorn and hawthorn with a mix of bracken and bramble. The hedgerow is protected by stock proof wire fence. The northern section is also un-managed and is species rich dominated by hawthorn, blackthorn, ash and holly. Other species include clematis, honeysuckle, dog rose and field rose. The ground flora is impoverished as a result of grazing pressure and is dominated by nettle. Other species also include common cleavers, meadow buttercup, bindweed, cocksfoot (*Dactylis glomerata*), Yorkshire fog, herb robert, ivy, and bracken.



Plate 10 hedgerow H5

H6

Tall un-managed hedgerow bordering northern side of steam corridor. Species rich dominated by hawthorn, blackthorn, elder and ash. Dog rose is also present within the hedge. The base of the hedge is floristically impoverished due to the effects of grazing and poaching by stock. Ground flora dominated by nettle.



Plate 11 hedgerow H6

H7

Species rich intact and un-managed hedgerow approximately 3m in height situated on old hedge bank. Species present include hawthorn, blackthorn, elder, ash and dog rose. Honeysuckle present as a climber within the hedgerow. The ground flora is impoverished and is dominated by nettle with large bare earth patches.



Plate 12 hedgerow H7

H8

Intact and managed hedgerow with adjacent stock proof fence. Approximately 2m in height. Species present include elder, blackthorn, hawthorn and bramble. The ground flora is poor notably on eastern side where hedgerow abuts arable field. Ground flora includes nettle, Yorkshire fog, cocksfoot, creeping thistle, hedge parsley (*Anthriscus sylvestris*) ground ivy, broad leaved dock, hawkbit, and low bramble. A Second World War pill box is located within the hedgerow.



Plate 13 hedgerow H8

H9

Roadside hedge unmanaged and species rich. Species present include hawthorn, blackthorn, hazel, elder and holly. Ground flora impoverished with nettle, cocksfoot, common cleavers and bramble dominant.



Plate 14 hedgerow H9

H10

Intact species rich hedgerow with stock proof fence. Managed by mechanical means (roadside). Species present include blackthorn, hazel, elder, ash, dog rose, honeysuckle and field maple. The ground flora is poor and dominated by nettle with common cleavers, hedge bedstraw, ground ivy, ivy, herb robert and herb bennet all present.



Plate 15 hedgerow H10

H11

Tall un-managed hedgerow with band of mature trees Species present include mature ash, blackthorn, hawthorn and elder. Dog rose, field rose and bramble also present. Ground flora is generally poor with hogweed (*Heracleum sphondylium*), meadow buttercup, primrose, bramble, nettle, cocksfoot, perennial rye, bracken, and Yorkshire fog all present.

4.1.5 **Watercourse-** Nant y Stepsau

Nant y Stepsau passes through the site in a west to north-east direction. The watercourse passes through field F2 and field F5 (TN4).

Through field F2 the watercourse is steep sided, heavily silted and slow flowing. The stream substrate at this point is a mix of silt and cobble. Bankside vegetation includes ivy, moss sp, hartstongue fern (*Asplenium scolopendrium*) and bramble. Aquatic species include water mint and water dropwort. Brown trout were recorded in the stream at this point.



Plate 16 Nant y Stepsau in F2

The nature of the stream changes as it passes through field F5. Here the watercourse becomes wider with low un-vegetated banks. The substrate here is dominated by silt with occasional cobbles. No in channel vegetation present along this stretch.

4.1.6 Buildings

Barn

A single storey barn is located close to the western boundary of F4. The building is constructed from concrete block with asbestos apex roof. Open doors and windows with unrestricted access.



Plate 17 concrete barn

Pill Box

Second World War pillbox located within hedgerow H8. Concrete construction and partially concealed beneath hedgerow vegetation. Open slits affording potential unrestricted access to bird, bats and other small mammals.



Plate 18 pill box

Table 1 showing target notes and feature descriptions as shown on map (appendix II)

Target Note	Description
TN1	Large ash trees possible potential for use by bats
TN2	Wooded copse immediately outside survey boundary dominated by ash and willow
TN3	Pill box with potential for use by roosting bats
TN4	Stream corridor –otter spraint on stone
TN5	Large ash potential for use by roosting bats

4.2 Data Search Results

4.2.1 Designated Sites

4.2.1.1 National Designations

No part of the site is covered by a National or International designation for its conservation importance.

4.2.1.2 Local Designations

No part of the site is covered by a local designation such as a Site of Interest to Nature Conservation (SINCs). No SINC lies immediately adjacent to the survey boundary. Two SINCs are located within a 1.5km radius of the site including:

East Flemingston approximately 1km North East (D40 W1)

Land north of Llanbedderi Moor approximately 1.5km North East (D40 G5)

4.2.2 Species

4.2.2.1 Flora

Following a request for information from Julian Woodman, BSBI County recorder for East Glamorgan it was established that a number of the fields located within the survey boundary have historically supported a number of species that while once common are now considered to be critically endangered. These include shepherds needle (*Scandix pecten-veneris*) and corn buttercup (*Ranunculus arvensis*). Shepherds needle and corn buttercup are both listed as priority species under the UK Biodiversity Action Plan. Shepherds needle appears within the Vale of Glamorgan Local Biodiversity Action Plan (LBAP). Records also show that round leaved fluellen (*Kickxia spuria*) has also been recorded within the site boundary.

Records from the County Recorder indicate that *Scandix pecten-veneris* and *Ranunculus arvensis* were last recorded in F1 in 2011. *Scandix pecten-veneris* was last recorded in F2 in 2012 and *Scandix pecten-veneris* was last recorded in F3 in 2010.

Records for the above species relate to fields F1, F2 and F3. No records were found relating to fields F4 and F5.

Other rare or uncommon species previously recorded within the survey area include dwarf spurge (*Euphorbia exigua*), sharp leaved fluellen (*Kickxia elatine*), and small flowered buttercup (*Ranunculus parviflorus*). All these species are plants associated with arable fields and arable field margins.

4.2.2.2 Fauna

No records were found for any location within the survey boundary.

Following a data search undertaken by the local record centre (SEWBReC) records were found for a number of species within a 1.5km radius of the site, including:

Common pipistrelle and brown long eared bats are known to roost within 700m of the survey boundary.

Noctule bats known to be present within 700m
Lesser Horseshoe bats recorded within 900m
Greater Horseshoe bat known to roost within 2.5km
Great Crested Newt recorded within 900m
Barn Owl recorded within 900m
Otter known to be present on the river Thaw within 1000m

Records were also found relating to a large number of bird species listed on Section 42.
Records were also found confirming the presence of common reptile species within a 1.5km radius of the site boundary

5 Ecological Evaluation

5.1 Habitats

For reporting purposes the ecological value of a habitat is based upon the following criteria:

- Currently supports, or has the potential to support protected, nationally or locally scarce species
- Habitat has a high intrinsic value supporting a diverse range of species
- Is a UK BAP Habitat
- Local BAP Habitats with an ecological interest or cover a significant area of the site
- Natural habitats located within built up and/or urban areas

5.1.1 Improved Grassland

Grasslands can be very diverse and as such many grassland types are listed as being a habitats of principle importance for the conservation of biodiversity in Wales (Section 42 List Natural Environment and Rural Communities Act, 2006). Grasslands that show characteristics of very intensive agricultural improvement are not generally considered to have a high conservation value.

The grasslands within fields F1, F2 and F3 have been identified as being a species poor improved grasslands that has been seeded on former arable land. The sward lacks floristic diversity and is dominated by rye grass and other favoured agricultural grasses and contains very few herbs. Of those that do survive such as dandelion, daisy and clover species these are species generally very common in managed agriculturally improved, or seeded grass. No evidence was found within any of the three fields F1-F3 that critically endangered plant species formerly recorded within these areas such as shepherds needle and corn buttercup have survived the change in agricultural use from arable to grassland. The seed of both above species have relatively short survival periods. All three fields have been reverted to grass for a period of between two and four years. It is possible that a limited number of seeds have remained viable within the soil, however current management of the fields (permanent grassland) would suggest that the species are likely to be lost from these areas should current management

continue. Based on the current floristic composition of these three fields they are considered to have a low ecological value.

Field F5 is a permanent agriculturally improved grassland with no evidence of re-seeding. The field is floristically poor and is considered to be of a low ecological value.

5.1.2 **Arable**

A single arable field is located within the site boundary. At the time of survey (June 2016) the root crop had previously been harvested. Species remaining within the arable area were those common to disturbed ground. No evidence of any rare or uncommon species were observed. There were some indications that the land had been treated with herbicide following harvesting although this was not confirmed.

Arable field margins can be ecologically valuable areas often containing plant communities that have disappeared or become increasingly rare as a result of agricultural intensification. As a result cereal field margins are a UK Biodiversity Action Plan Habitat and are recognised under Section 42 of habitats of Principle Importance for the Conservation of Biological Diversity in Wales (NERC Act 2006). Such field margins can also provide opportunities for a very wide range of invertebrate species, mammals such as brown hare and opportunities for ground nesting birds.

Within the site the field margins are generally narrow with plant communities dominated by common grass species and plants associated with disturbed ground. None of the field margins show evidence of supporting rare plant communities or individual rare or uncommon species historically present within other fields located in close proximity. In common with the main arable field some evidence suggested that the margins had previously been treated with herbicide. As a result the current field margins are considered to be of moderate to low ecological value at a local level and low to moderate at a county level.

5.1.3 **Hedgerows**

Hedgerows are recognised as being important wildlife habitats in their own right providing suitable habitats for over 47 species of conservation concern within the UK. Hedgerows are particularly recognised as being of importance to birds, butterflies, moths, bats, dormouse and both amphibian and reptile species. Hedgerows also form important wildlife corridors allowing species to disperse and move throughout the countryside to other favourable habitats.

In order to protect the hedgerow system and in acknowledgement of the importance of hedgerows to both wildlife and the general landscape the retention or removal of hedgerows is a material consideration during the planning process.

Hedgerows are classed as Priority Habitats within the UK Biodiversity Action Plan. In Wales hedgerows are listed under Section 42 as Habitats of Principal Importance for the Conservation of Biological Diversity. This places a duty on both government departments and local authorities to have regard for the conservation of hedgerow habitats. Hedgerows are also mentioned within the Vale of Glamorgan Local Biodiversity Action Plan.

A total of four eleven (11) hedgerows were recorded. These included a number of tall mature and un-managed hedges, sections of managed hedge, defunct sections and hedgerows that appeared to have been coppiced and allowed to regrow.

All of the hedgerows are dominated by native species and almost all are species rich or have sections that are species rich. All afford potential feeding opportunities for birds, invertebrates and small mammals. The hedges also provide potential nest sites for a wide range of bird species.

All hedgerows contained more than four (4) woody species. Five (5) hedgerows had more than five (5) woody species and one hedgerow contained six (6) woody species.

A large percentage of the hedgerows contain climbers including dog rose and honeysuckle often favoured by species such as dormouse.

Due to the effects of grazing and changes in management of the adjacent fields from arable to improved grass the ground flora at the base of almost all of the hedgerows is floristically impoverished and dominated species such as nettle, bracken and low bramble.

The extensive hedgerow system is considered to be one of the most ecologically valuable features within the site boundary. In common with their listing as a UK BAP habitat all of the hedgerows are considered to have a high ecological value at a site, local and county level.

5.1.4 **Mature Trees**

A number of mature trees are present within the hedgerow system and along the stream corridor. A small wooded copse is also present immediately outside the survey boundary (TN2) In common with all mature trees these specimens afford potential feeding opportunities for a diverse range of invertebrate and bird species and afford excellent potential nesting opportunities for bird. Mature trees also have the potential to be used as roosting sites for bat species. Further assessments and survey work will be required in order to ascertain the importance, if any, of the mature trees to bat species.

All mature trees have a high intrinsic ecological value and as such all mature trees are considered to be of a high ecological value at a site and local level and a moderate to high value at a county level.

5.1.5 **Watercourse-Nant y Stepsau**

All rivers and streams are UK BAP Priority habitats and a Section 42 Habitat of Principal Importance for Conservation of Biological Diversity in Wales.

All open watercourses can be considered to be of high ecological value affording habitats for a very wide range of species both terrestrial and aquatic in addition to those with both aquatic and terrestrial life stages. The Nant y Stepsau watercourse is generally shallow with a mixed substrate of cobble and silt providing a variety of aquatic habitats. Aquatic species recorded include foals watercress (*Apium nodiflorum*), yellow flag (*Iris pseudocorus*) and water mint (*Mentha aquatica*). The banks associated with some sections of the stream also provide potential resting and burrowing areas for small mammals such as water shrew (*Neomys fodiens*), although unsuitable for use by water vole (*Arvicola terrestris amphibius*), as well as nest sites for bird species including grey wagtail (*Motacilla cinerea*). The stream corridor has the potential to be used as commuting corridor for otter (*Lutra lutra*). The stream corridor also provides potential commuting routes for a wide range of species linking the site to area of countryside outside the survey boundary.

In common with almost all streams and rivers the ecological value of the watercourse is considered to be high at a site, local level and county level.

5.1.6 **Buildings**

Two structures were recorded within the site. Both are located in the northern half of the site within the area identified as a potential mitigation area. The concrete barn has been assessed as having some potential for use by roosting bats. The pill box located within hedgerow H8 has the highest potential for use by roosting bats. Further assessments and survey work will be required in order to ascertain the importance, if any, of the buildings by bats.

5.2 **Flora**

Fields F1, F2 and F3 have previously been managed as arable fields. As such the fields have historically supported plant communities common within fields regularly disturbed through ploughing and harvesting. These plant communities include those associated with arable field margins which can be very diverse and contain a number of rare and uncommon plant species. In recent years the agricultural use of these three fields has changed from arable production to grassland and associated grazing with cattle and sheep. As a result of the change in use none of the three fields currently supports the plant community formerly present. None of the endangered species such as shepherds needle and corn buttercup were recorded during the Phase I survey. Records obtained from the County Recorded suggest that these plant species while common in 2004/2005 with more than 100 shepherds needle plants recorded in field F1 and F2 and 1000+ in field F3, have declined rapidly, due to changes in agricultural

management. Neither shepherds needle or corn buttercup were recorded during a 2013 site visit by the recorder.

It is therefore assumed that without an imminent return to arable production these species are likely to be lost from fields F1, F2 and F3. Even with a return to arable production the short life of the seeds of these species may mean that these species are already permanently lost from these areas.

No rare or uncommon species were recorded within the remaining arable field F4. No records for the above species were found suggesting they have at any time in the past been present within this area.

Overall the floristic diversity of the site is low. Due to the changes from arable to grass that have occurred within fields F1, F2 and F3 these areas are now considered to be of low ecological value, unless a seed bank has survived, which may allow the recolonization of the above species should management be changed, or if such a surviving seed bank can be translocated to an alternative area under arable management.

5.3 **Fauna**

5.3.1 **Mammals**

5.3.1.1 **Badger**

The woodlands immediately adjacent to the site and the extensive hedgerow system provide potential cover for use by badger (*Meles meles*) as commuting routes and possible set locations, in addition the extensive grassland afford potential foraging areas. No obvious signs of badger activity were observed during the phase I survey however further detailed surveys would be required to identify the importance of the site, if any, to badger and to ensure that no badger setts lie immediately outside the site boundary that may be affected by any proposals for the site.

5.3.1.2 **Otter**

Otter are known to be present within 1km of the site and records for otter on both the river thaw and associated tributaries stream were found during the data search. In addition evidence of otter activity was recorded during the phase I survey notably towards the eastern side of the site. The wooded stream corridor and wooded copse provide potential feeding and lying up areas for otter. Otter are fully protected under the 1981 Wildlife and Countryside Act and European Habitats Directive and further survey work will be required along the watercourses within and immediately adjacent to the site before the importance of the site to otter can be fully ascertained.

5.3.1.3 Bats

The data search results show that bats are active within a very close proximity to the site with common pipistrelle, brown long eared, Noctule, and lesser horseshoe and greater horseshoe having been recorded within a 1.5km radius of the site. Bats can and do commute significant distances between roosts and favoured feeding areas.

A number of buildings are present within the site boundary of which have the potential to be used by roosting bats, notably the pill box with hedgerow H8. In addition a large number of mature trees are present around the site notably within the hedgerows and adjacent woodlands. These mature trees have some features with the potential for use by roosting bats although a full assessment has yet to be undertaken. The woodland edges, hedgerows and stream corridors have the potential to be used by commuting and feeding bats.

Further work is required before the importance of the site to roosting, feeding and/or commuting bats can be ascertained. A survey of all buildings undertaken to bat conservation trust (BCT) guidelines is required along with an assessment of all trees in order to ascertain the potential use being made of individual buildings and trees by bats. Activity surveys will be required designed to establish the importance if any, of the features within the site to commuting and feeding bats.

5.3.1.4 Dormouse

The bramble scrub and species rich hedgerows all afford potential habitat for feeding and nesting dormouse. These habitats have direct links to the extensive network of hedgerows reaching across the wider countryside increasing the potential for dormouse to be present within the site.

No records were found relating to the presence of dormouse within the site boundary or within 1.5km of the site. However as dormouse are secretive and difficult to spot the species is likely to be under recorded unless specific dormouse surveys are undertaken.

The dormouse is a European protected species and is afforded protection under both the Habitats Directives and the Wildlife and Countryside Act and is also a UK BAP Priority species.

No survey of the site for dormouse has yet been undertaken and therefore a survey of the site for dormouse, using a recognised methodology, is required to ensure that any proposals for the site do not have a negative impact on dormice.

5.4 Reptiles

Habitats suitable for common reptiles such as slow worm, grass snake and common lizard (*Lacerta vivipara*) are present within the site and include habitats suitable for both basking and hibernation although these are generally confined to the base of hedgerows and the stream corridor. No records relating directly to the site were found during the data search and no records were found relating to any immediate habitat, this is considered to be the result of under recording rather than the absence of reptiles within the locality. Reptiles are known to be well distributed throughout the Vale of Glamorgan and therefore the probability of reptiles being present within the habitats identified is significant. Further survey work would be required to ascertain the full use being made of the site by reptile species.

5.5 Amphibian

No ponds are present within the site boundary and therefore the site is unlikely to be of importance to any amphibian species. The slow flowing areas of the watercourse in the area around F5 may have the potential to be used as a breeding area by common frog although poaching by stock reduces the suitability of this area. The hedgerow system does have the potential to be used by common amphibian species during their terrestrial life stages as feeding and commuting routes. Great Crested Newt are known to be present within the perimeter of the St Athan base however these are confined to areas at the western end of the camp, some 900m from the survey area. The distance between known populations and the absence of any suitable breeding habitat means that it is highly unlikely that the species is present within the site boundary and no further survey work for great crested newt is considered necessary. Overall the site is considered to be of low to moderate ecological value with specific regard to amphibian species.

5.6 Birds

The unmanaged hedgerows, stream corridor and mature trees all afford excellent feeding opportunities for resident, summer migrant and winter migrant bird species. The site also offers potential nest sites for a wide range of bird species. Species such as blackbird (*Turdus merula*), great tit (*Parus major*), long tailed tit (*Aegithalos caudatus*), blue tit (*Parus caeruleus*), willow warbler (*Phylloscopus trochilus*), chaffinch (*Fringilla coelebs*), wren (*Troglodytes troglodytes*), robin (*Erithacus rubecula*), song thrush (*Turdus philomelos*), wood pigeon (*Columba palumbus*), wren (*Troglodytes troglodytes*), bullfinch (*Pyrrhula pyrrhula*), linnet (*Carduelis cannabina*), greenfinch (*Carduelis chloris*), carrion crow (*Corvus corone*), magpie (*Pica pica*), blackcap (*Sylvia atricapilla*), nuthatch (*Sitta europaea*), green woodpecker (*Picus viridis*) and buzzard (*Buteo buteo*) were all observed during the phase I survey. The open grasslands have limited value to owl species due to the close mown sward and lack of structural diversity making it generally unsuitable for small mammals. The open barn and pill box both have the potential to be used by nesting barn owl (*Tyto alba*) or other owl species. The hedgerows are also likely to be used as feeding sites for winter migrant species including

fieldfare (*Turdus pilaris*) and redwing (*Turdus iliacus*) during the winter months. Kingfisher (*Alcedo atthis*) are known to be present on the river Thaw some 500m east of the site, while the stream corridors provide potential feeding and nesting sites for species such as grey wagtail (*Motacilla cinerea*). With the exception of the stream corridor and their potential for use kingfisher and potential for the buildings to be used by barn owl none of the habitats present is likely to support a breeding population of WCA Schedule 1 bird species.

5.7 Invertebrates

The impoverished sward means that the grassland areas have limited value to species such as butterflies and nectar seeking bees. The site does have some potential value for ground burrowing bees, wasps and beetles notably along the base of the hedgerows. The hedgerows and trees are considered to be of value for a range of invertebrates affording potential feeding opportunities including those provided by fruits, flowers and decaying woody matter. The nature of the site means that it is considered unlikely that the site supports any rare or scarce species or significant numbers of more common species.

No watercourses are present within the site suitable for white clawed crayfish.

The stream provide potential habitats for aquatic invertebrates and the terrestrial life stages of species such as dragonflies and damselfly.

6 Conclusions

- No part of the site is covered by a statutory designation for its importance to nature conservation
- No part of the site is included within a local designation such as a SINC of Local Nature Reserve and no such designated land abuts the boundary of the site
- Two SINCS are located present within 1.5km radius of the site both located some 1km north east of the site
- Improved agricultural grasslands are the dominant habitat type across the main body of the site. Under their current management the grasslands are considered to be of low ecological value.
- A single arable field F4 is present within the land outside the proposed development area. This field does support arable plant communities however those present are generally confined to relatively common species typical of disturbed ground. The potential for endangered or rare communities is reduced by the apparent use of herbicide on the field following harvesting

- The endangered plant communities formerly recorded within fields F1, F2 and F3 are no longer present due to the changes in use of the fields from arable to grass. While some viable seed may remain within the soil it is inevitable due to the short life of the seed that both shepherd's needle and corn buttercup will be permanently lost from the site in the medium to long term if the current management continues. This is likely regardless of whether the site is developed or otherwise. At present there are no plans to revert the grasslands to arable while the land is still managed for agricultural use. In order to prevent the total loss of these endangered species and associated communities off site mitigation would afford an opportunity for these species to survive supported by the sensitive development of some grassland areas including field F1 and F2
- The hedgerows system is species rich, generally intact and affords potential habitats for birds, invertebrates and small mammals. The standard trees, common throughout the hedgerow system have been identified as having some potential for use by roosting bats. Further survey work is required in order to ascertain the importance of the hedgerow system bats
- The hedgerows have yet to be assessed under the Hedgerow Regulations 1997 but all hedgerows recorded a minimum of four woody species and over half of all hedgerows contain a minimum of five woody species and are therefore likely to be classes as Important Hedgerows under the 1997 regulations. The hedgerows are also likely to score well under the HEGS assessment criteria. The hedgerows are therefore considered to be an important ecological feature within the context of the site and at a local level and are considered to have an intrinsically high conservation value and should where possible be retained
- The stream corridor including the associated woodland corridor has been identified as being of high ecological value. In addition to its intrinsic value to aquatic invertebrates, including the potential to support the aquatic life stages of both dragonfly and damselfly species, and birds and its value as a landscape feature the stream corridor also has features suitable for use by badger and by otter. A number of trees large enough to have features suitable for use by roosting bats are present within this area. It is therefore concluded that further work to ascertain the use, if any, being made of the stream corridor by badger, otter and bat species is required before the full importance and ecological value of the stream can be ascertained
- A number of mature trees are present within the hedgerow system and in occur in areas immediately outside the main survey area. Casual observation of the trees during the phase I survey would indicate that some of these trees have features suitable for use by roosting bats. Records of maternity roosts for common pipistrelle bats were found relating to sites within 700m of the survey boundary. Greater and Lesser horseshoe bats have also been recorded within 2km of the site boundary. Further assessments of

individual trees will be required in order to ascertain if any of these trees are used as roosting sites by any bat species

- Two buildings are located within the boundary of the site (barn and pill box). The open barn has the potential for use as a feeding roost while the pill box has a high potential for use as a roost site by a number of bat species. Both lie outside the area proposed for development, however the close proximity to the potential development area and the excellent connectivity by hedgerow and stream corridors to the development land means that any development has the potential to impact on use being made of the structures by bats. In addition the stream corridor and extensive and often un-managed hedgerow system affords excellent potential foraging and commuting corridors for a wide range of bat species. As a result further survey work including bat activity and building surveys would be required in order to understand the full potential impact of any development on bats
- The hedgerow system has the potential to support the hazel dormouse. No records for dormouse were found during the data search although this does not exclude the possibility that dormouse may be present. A full survey of the hedgerow system will be required, using a nest tube methodology, in order to ascertain the presence or otherwise of dormouse within the hedgerow system. The dormouse is a fully protected species and should dormouse be found then Natural Resources Wales Development licence will be required and appropriate mitigation considered before any removal or partial removal of the hedgerow system can be considered
- No habitats suitable for use by breeding great crested newt were found within the survey area. Great crested newt are present within the Vale of Glamorgan and are known to be present on ponds within the western side of the St Athan Camp some 900m from the survey boundary. As no suitable breeding habitat occurs within the site and the fact that the site is separated from the St Athan camp by roads and built up areas it is unlikely that any area within the survey boundary is important habitat for great crested newt. Therefore no further survey work with regard to great crested newt is considered necessary
- Habitats suitable for reptiles are present within the site and therefore further survey work will be required before an assessment can be made as to the importance of the site to reptiles
- The loss of hedgerows, trees and other habitats will lead to the loss of feeding and nesting areas for birds. Nesting birds are protected by law. Any clearance work must be undertaken outside the bird breeding season March-July or ecological advice sought and areas to be removed checked for nesting birds by an ecologist no earlier than 48 hours before removal works commence. If nesting birds are found then works must stop

and no works on that area of hedgerow/habitat can be undertaken until all chicks have fledged and the nest abandoned.

7 Recommendations

The extended phase I survey identified a number of features and habitats present that may support both European and UK protected, rare or uncommon species or habitats and species that require consideration as part of any future planning application. In order that a full understanding of the ecological importance of the site can be fully understood further species specific survey work will be required. The results obtained from these additional surveys will highlight any ecological constraints to the future development of the site and highlight any ecological features that should be retained post development not already highlighted within the above report.

Details of required surveys and optimal survey period are given in table 2 below.

Table 2 Survey Requirements St Athan Development (potential) Site and Optimal Survey period and Constraints

Survey Required	Reason	Timing
Bats- An assessment of all standard trees should be undertaken to identify any features suitable for use by bats and identify any such trees with a high potential for use by roosting bats.	To ensure that any licences and permissions required can be obtained prior to any felling or tree works commence and all legal obligations with regard to bats are met	May-Sept Inclusive
Bats- The hedgerows and woodlands and stream corridor have the potential to be used by commuting and foraging bats. It is recommended that a bat activity survey is undertaken across the site.	This will allow for an understanding as to the importance of individual features and areas of the site with regard to bats and allow for appropriate landscaping, and lighting design to protect any important areas of bat activity.	May-Sept Inclusive
Bats- daylight assessment and a full survey of the pill box and Barn to BCT Standards	To ascertain the use being made of the buildings and inform the need for appropriate licences and Permissions to be obtained and ensure legal obligations are adhered too	May-September Inclusive
Reptiles- Habitats suitable for a number of different reptile species have been identified within the survey boundary. It is recommended that a survey of the site is undertaken using a recognised methodology in order to establish what use is being made of the site by reptile.	This will allow for an appropriate methodology to be produced where required, to ensure the protection of reptiles prior to, during and after construction.	April-October (weather dependant survey may be limited in August if temperatures are very high)
Otter- The stream corridor has been identified as providing potential feeding, commuting and lying up areas for otter. It is recommended that a survey of the watercourse is undertaken in order to ascertain the importance of these habitats to otter	To establish what use otter are making of the site and thereby ensure that no damage or disturbance occurs to otter without the appropriate licence and permissions being granted and mitigation implemented	January-December Inclusive
Badger- It is recommended that a survey of the site and any suitable area within 100m of the site boundary is undertaken to establish the use, if any, being made of the site by badger and the potential for the disturbance of any badger sets or runs immediately outside the survey boundary	Badger and badger sets are protected and can be disturbed and damaged by construction and pre construction activities. Identification of such sets and runs will that badger are protected and appropriate NRW licences obtained to allow development activities to commence	All year

<p>Dormouse-The hedgerows and scrub have been identified as being suitable for the hazel dormouse. The hazel dormouse is a fully protected species and therefore its presence or otherwise needs to be ascertained. It is recommended that a survey of the hedgerows and woodland using a nest tube methodology is undertaken to establish if dormouse are present</p>	<p>To establish if dormouse are present and thereby ensure that no damage or disturbance occurs to dormouse without the appropriate licence and permissions being granted and mitigation implemented</p>	<p>March-November (Nest tube methodology)</p>
<p>Hedgerows- It is recommended that a hedgerow survey is undertaken using the Hedgerow regulations 1997 to ascertain the importance of the hedgerow system and inform if and what permissions may be required before any hedgerow or length of hedgerow is removed.</p>	<p>To ensure compliance with planning regulations. The Phase I Survey has identified that a number of the mature hedgerows are species rich and contain features such as banks and ditches. Initial inspection of the hedgerow system would indicate that a number of the hedgerows may be considered “Important” under the 1997 Hedgerow Regulations and score highly on the HEGS scoring system making them of significant ecological value</p>	<p>All year but preferably between April and October when trees are in leaf</p>

Fields F1, F2 and F3 have historically supported plant communities containing rare and critically endangered plant species including shepherd needle and corn buttercup. These plant communities have developed as a result of the land previously being used for arable production and managed under an organic farming system.

In recent years the management of these three fields has changed from arable to grass production with grazing by sheep and cattle. These areas have also returned to regular farming methods and are no longer farmed organically.

As a result of the changes in farming practices none of the previously recorded plant communities currently survive in these fields. It is however possible that some viable seed may remain within the soil although seeds of both shepherds needle and corn buttercup area relatively short lived.

Proposals for the development of the site are confined to fields F1 and F2. The development of these fields would result in the loss of two areas previously identified as supporting both above species. As the plant communities depend on the management of the land for arable production, and that fact that no such return to arable production is proposed in the medium term, it is highly probable that without intervention they will become extinct within the two fields where they were previously present. This is likely to occur regardless of whether the land is developed or otherwise. Similarly without a return to arable production all the species will also become extinct within field F3 located north of the proposed development area.

Due to the changes in management and the probability of extinction even without development the possibility exists to develop fields F1 and F2 while compensating for their loss through the use of off-site mitigation. Such mitigation could re-establish the management and conditions required to encourage the return of these plant communities. Fields F3 and F4 both offer opportunities for such mitigation to be undertaken while allowing the development of fields F1 and F2 to proceed.

In order to allow for development to occur within Fields F1 and F2 Edenstone Homes propose a commitment to attempt to re-establish these rare plant communities on land to the North. It is therefore recommended that:

- a) All land within field F3 is returned to arable production. This should be undertaken using traditional farming methods and without the use of herbicide. The land should be ploughed in order to disturb the underlying seed bank before any crop is planted. This should be undertaken within three (3) years. If the land is not returned to arable production within this period then the field should be re-surveyed for any evidence of the presence of rare plant species. If no plants are found to have survived then the land

can then be managed according to the requirements of the agricultural unit as considered appropriate by the land manager.

- b) Using an appropriate agreement (S106) or planning condition land within field F3 should remain in arable production and be managed specifically for the retention/creation and long term survival of the corn buttercup and shepherds needle and other arable plant communities. The precise detail of the management to be implemented should be written into the S106 (or other agreement) and should include management in the long term.

The above strategy will allow for the development of the site in line with the requirement for housing within the St Athan area while also attempting to protect rare plant communities in the long term. Without intervention (regardless of whether the site is developed or otherwise) both corn buttercup and shepherds needle will become extinct within fields F1, F2 and F3. The above proposals give an opportunity for these species to be saved from local extinction.

The return of field F3 to traditional arable production will also lead to a more diverse habitat being present within the general locality. Arable fields are often favoured as places of cover by Brown Hare. A single Brown Hare was recorded immediately north of the mitigation area (blue boundary) during the Phase I Survey.

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Appendix I

Aerial View Showing Location of St Athan Survey Location



Aerial View showing location of St Athan survey area (Image Google Earth 2016)

Appendix II









Map Showing Extended Phase I Habitat Survey Results and Targeted Ecological Features

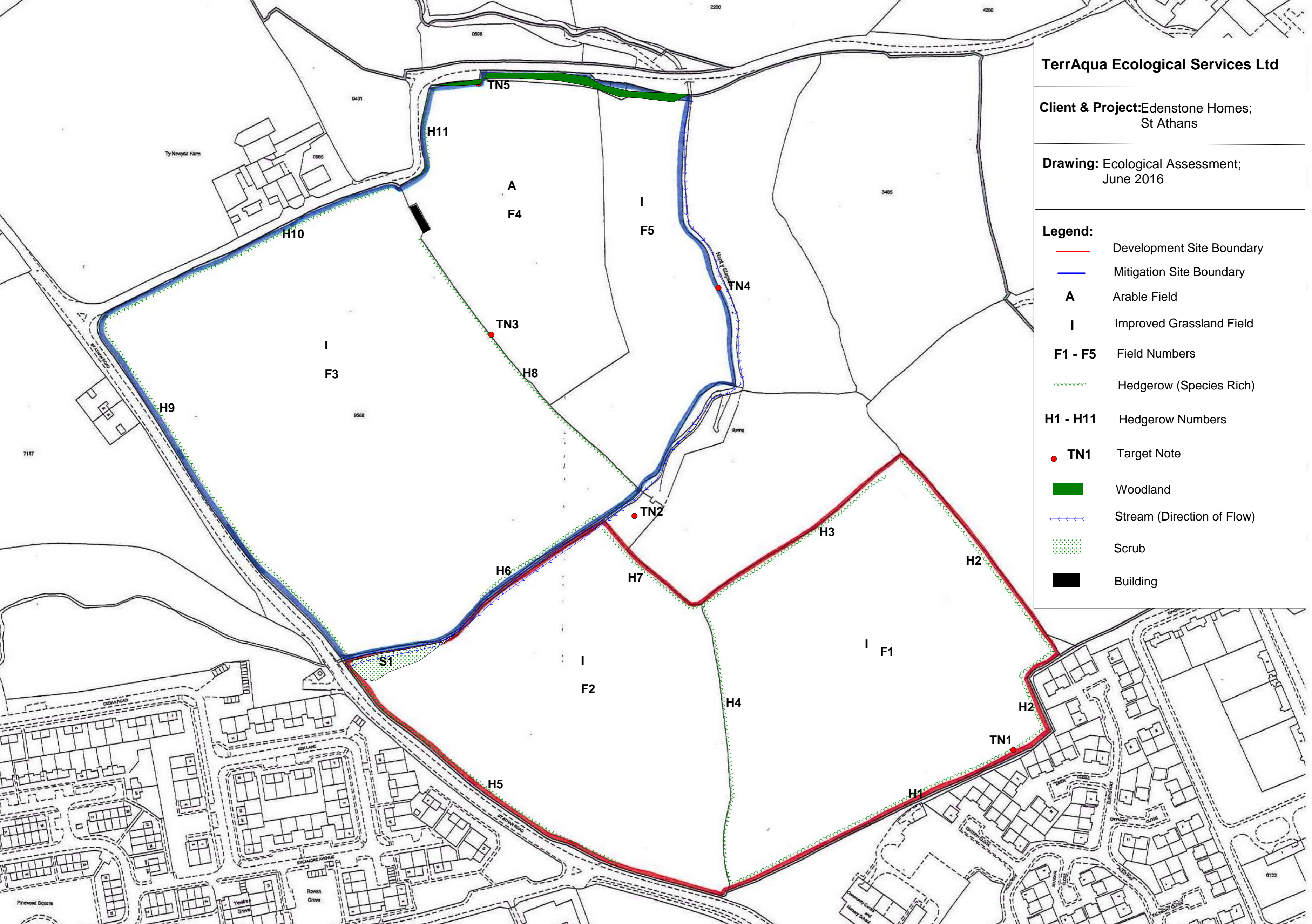
TerrAqua Ecological Services Ltd

Client & Project: Edenstone Homes;
St Athans

Drawing: Ecological Assessment;
June 2016

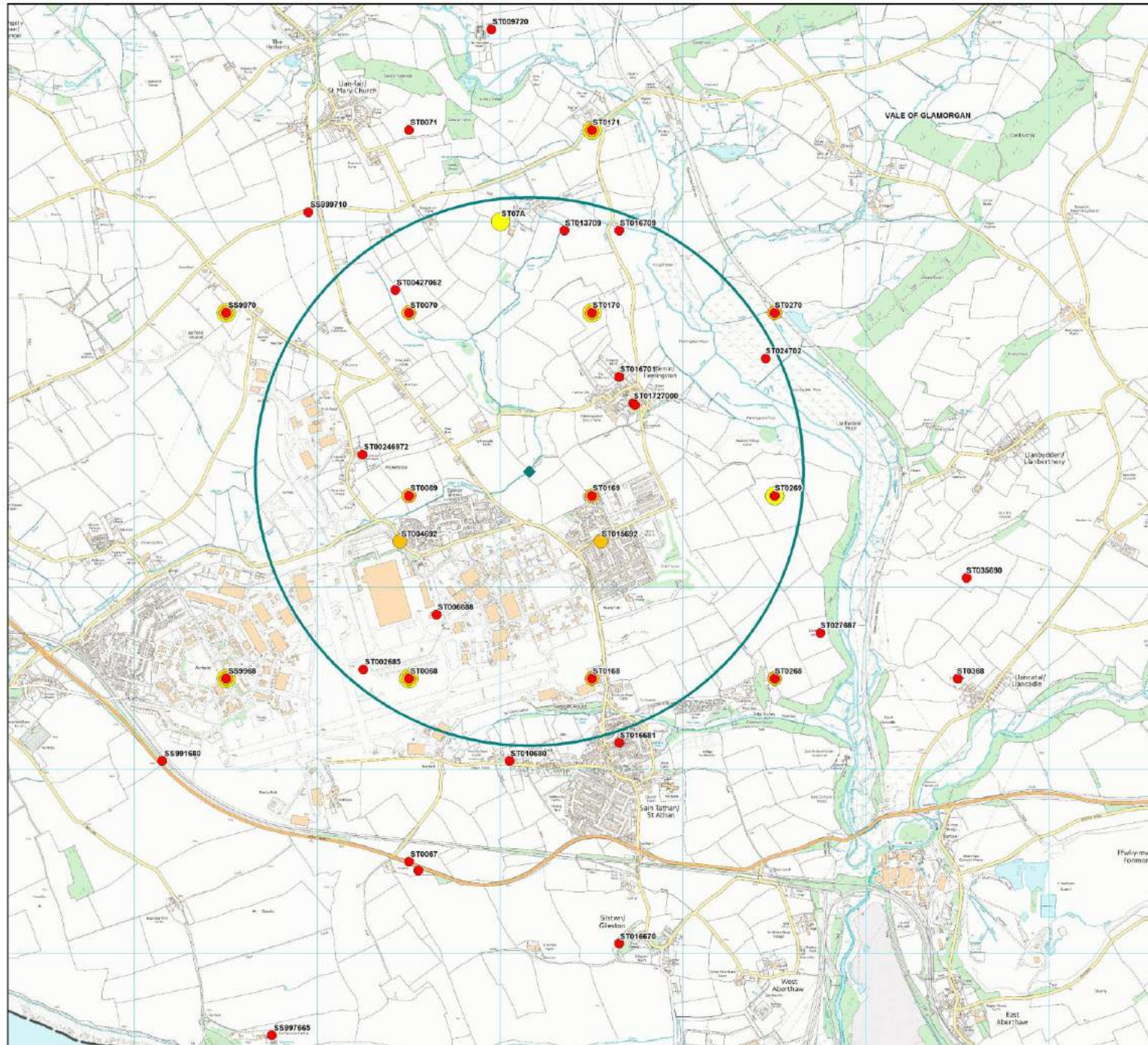
Legend:

-  Development Site Boundary
-  Mitigation Site Boundary
- A** Arable Field
- I** Improved Grassland Field
- F1 - F5** Field Numbers
-  Hedgerow (Species Rich)
- H1 - H11** Hedgerow Numbers
-  **TN1** Target Note
-  Woodland
-  Stream (Direction of Flow)
-  Scrub
-  Building



Appendix III

**Map Showing Data Search Results- Species and Protected Sites
(SEWBRc Data)**



BIODIVERSITY INFORMATION SEARCH (SPECIES):

ST ATHAN
ST0115969632

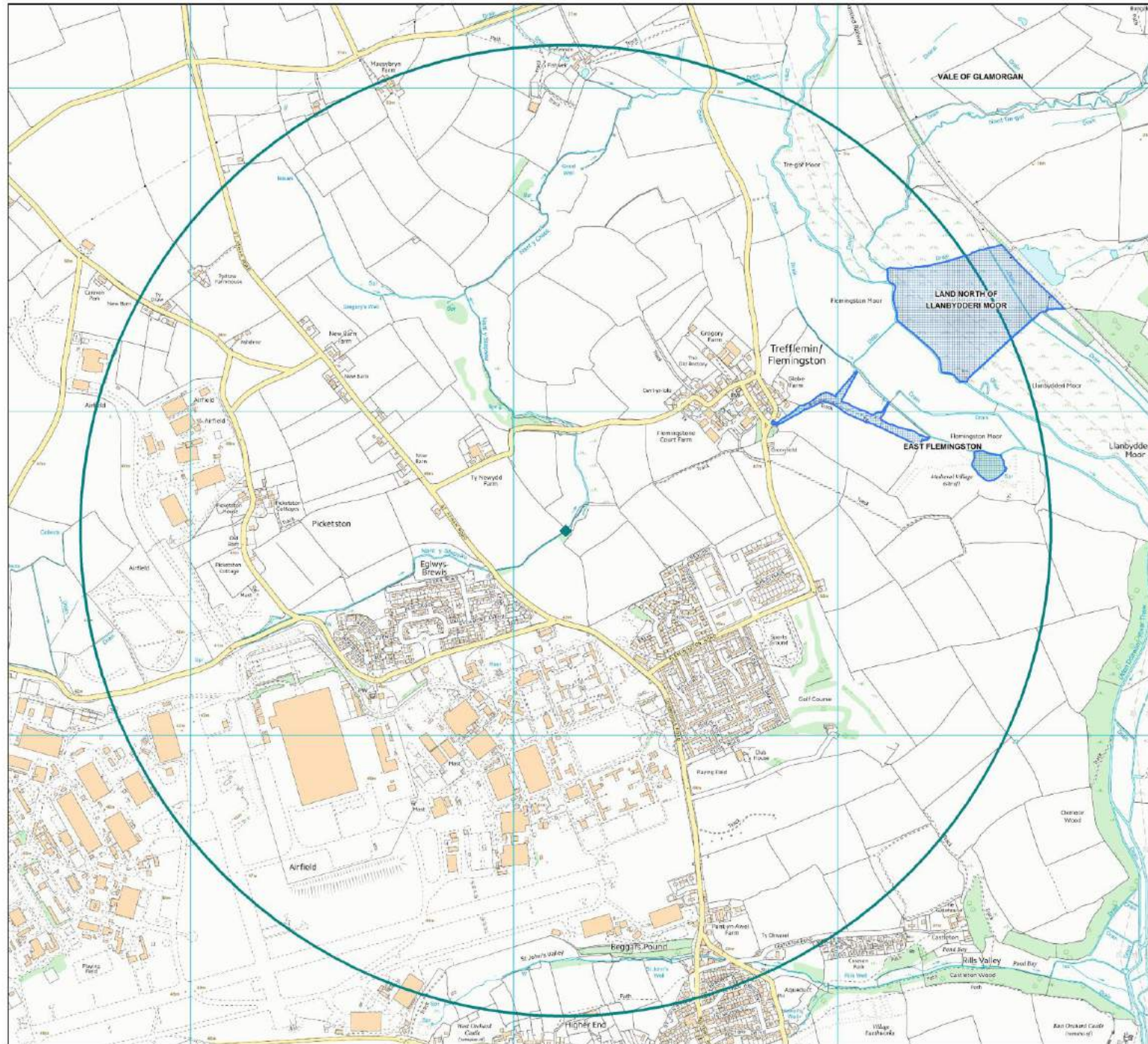
- ◆ Centre of Search Area
- 1.5km Search Buffer
- Priority and Protected Species
- Other Species of Conservation Concern
- Species of Local Conservation Concern
- Unitary Authority Boundary

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BIODIVERSITY INFORMATION SEARCH (DESIGNATED SITES):

**ST ATHAN
ST0115969632**

-  Centre of Search Area
-  1.5km Search Buffer
-  Site of Importance for Nature Conservation

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SOUTH EAST WALES BIODIVERSITY RECORDS CENTRE
CANOLFAN GOFNODION BIODDIWRYWAETH DE DEUWRAIN CYMR

Appendix IV

**Data Results- Request for Information from Julian Woodman
Plant Recorded for South East Wales**

This note should be read with the map also supplied with the individual fields identified with letters A – C.

Field A, centroid for field = ST 01331 69516. *Ranunculus arvensis* first seen 9/7/2004 when I counted around 130 plants and last seen 13/5/2011 when I counted 135 plants. *Scandix pecten-veneris* can also be seen here, first seen 5/7/2005, 1 plant and last seen 13/5/2011, 2 plants.

Field B, centroid for field = ST 01117 69479. *Scandix pecten-veneris* first seen here 5/7/2005, 120+ plants and last seen 19/7/2012, 50+ plants.

Field C, centroid for field = ST 00956 69685. *Scandix pecten-veneris*, first seen here 9/7/2004, 1000+ plants and last seen here 28/7/2010, 12 plants.

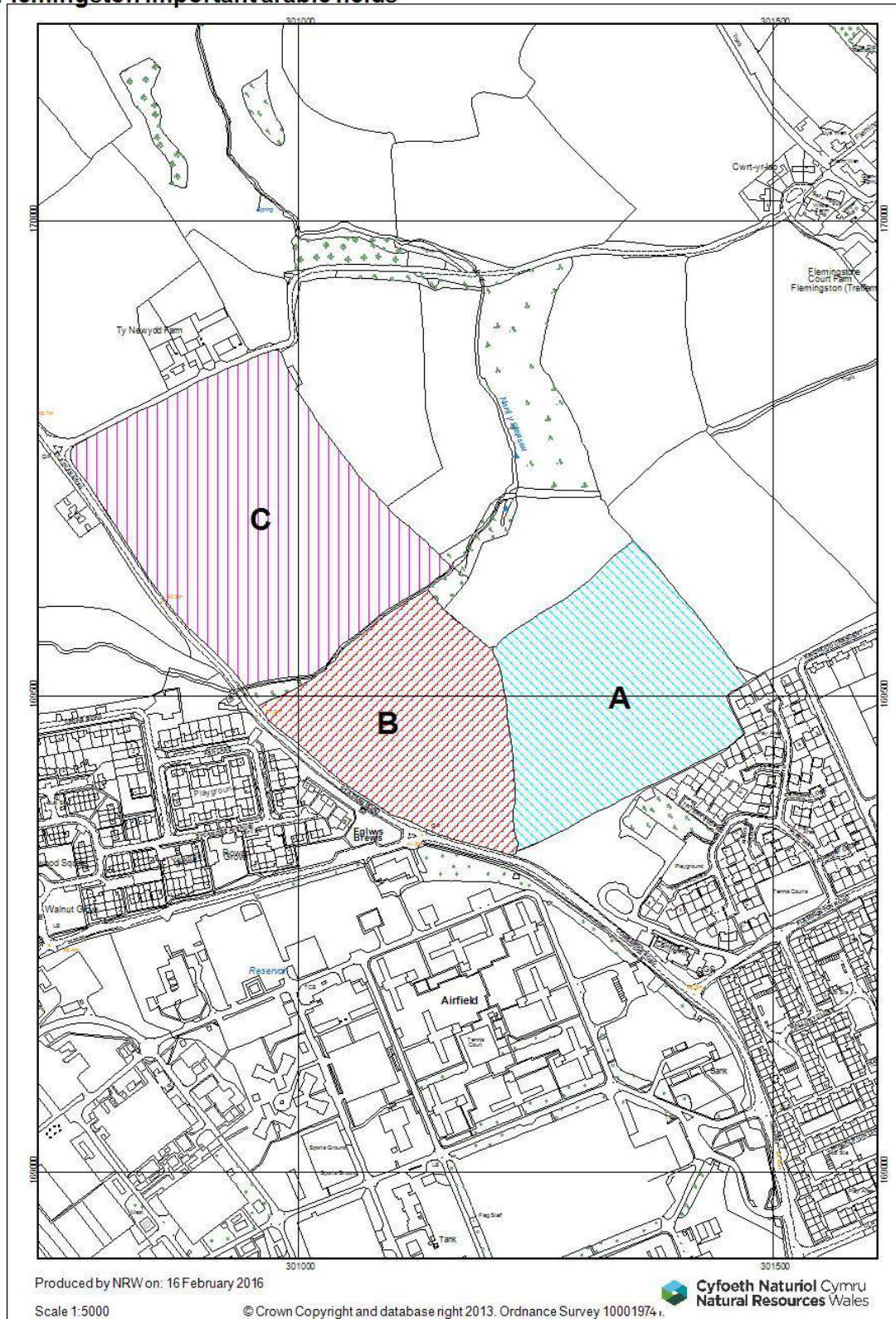
I did visit in 2013 but didn't see any of the above species *Kickxia spuria* is also a regular species in field A and was also seen here on 10/7/2013. The margin in field A & whole of B had been cultivated quite late in the year and I think this explains why no *Ranunculus arvensis* or *Scandix* was seen this year. Field C was down to grass.

Both species (*R. arvensis* & *Scandix*) have been seen in intervening years with fluctuating numbers which is normal for arable plants. Other arable plant species have been recorded in these fields but only the *Ranunculus* and *Scandix* are critically endangered.

Hope this helps with the conservation of these two critically endangered species and associated arable plants.

Julian Woodman, BSBI County recorder, East Glamorgan, VC. 41 East. 16/2/2016

Flemingston important arable fields



Produced by NRW on: 16 February 2016

Scale 1:5000

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 **Cyfoeth Naturiol Cymru**
Natural Resources Wales