

APPENDIX 8.1

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ENERGY AND CLIMATE CHANGE
ENVIRONMENT AND SUSTAINABILITY
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LAND AND PROPERTY
MINING AND MINERAL PROCESSING
MINERAL ESTATES
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WELSH GOVERNMENT

COSMESTON

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

AUGUST 2018

your earth our world



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COSMESTON

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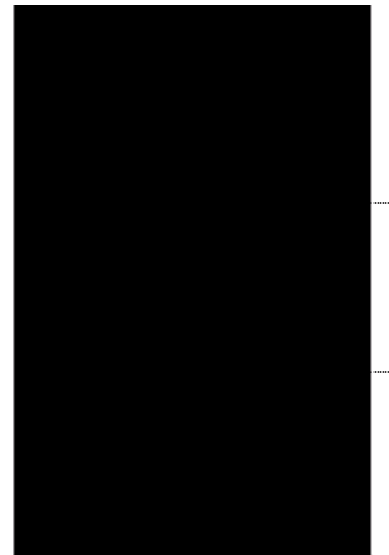
PREPARED BY:

Kirsten Harvey Ecologist

Jo Honour Associate Director
(Ecology)

APPROVED BY:

Ali Bennett Technical Director



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DRAWINGS	TITLE	SCALE
CA11040-001/RevA	Site Location Plan & Ecological Survey Area	1:25,000@A3
CA11040-002	Habitat Plan	1:2,500@A2
CA11040-003/RevA	Waterbody Location Plan	1:10,000@A3
CA11040-005	Building Inspection Survey – 2016	1:5000@A3

EXECUTIVE SUMMARY

This report provides the results of a Preliminary Ecological Appraisal (PEA) of a site at Cosmeston, Penarth, located at approximate National Grid Reference ST17964 68945.

The Severn Estuary (Wales) Ramsar, SSSI/SAC/SPA, Sully Island SSSI / SPA, Cosmeston Lakes SSSI, Penarth Coast SSSI and Cog Moors SSSI are located within 2km of the site. Apart from the Severn Estuary, for which a Habitats Regulation Screening Assessment is required, no direct impacts on these designated sites are anticipated. Whilst there is potential for recreational impacts on these sites from new residents, the preliminary appraisal suggests that any impacts will not be significant.

There is one non-statutory site of nature conservation value (Ty'r-Orsaf Site of Importance for Nature Conservation (SINC)) located within the south-western part of the site which is designated for the presence of Lowland Meadow, Lowland Calcareous Grassland and Mosaic Habitat and could potentially be adversely affected by development through direct loss of habitat or from recreational impacts. A further four SINC's and a Wildlife Trust Reserve within 2km of the site could be impacted upon by recreational activities as a result of the proposed development.

The desk study has identified a number of bat, bird, reptile, hedgehog, polecat, great crested newt, common frog and common toad records within 2km of the site. However, a strategy for the implementation of mitigation and ecological enhancements will ensure that the long-term future of these species is secured.

Receptors which the PEA has identified may be subject to adverse effects in the absence of mitigation are as follows¹:

- Statutory designations (Severn Estuary (Wales) Ramsar, SSSI/SAC/SPA);
- Non-statutory designations (Ty'r Orsaf SINC, Cog Moor SINC, Cosmeston Lake SINC, Downs Wood SINC, Lavernock Point East SINC, Lavernock Point Wildlife Trust Reserve);
- Section 7 semi-natural broadleaved woodland;
- Section 7 hedgerows;

¹ Note: The Preliminary Ecological Appraisal provides an overview of likely effects and therefore may not be sufficient to support a planning application on its own. Specialist surveys may be required to fully investigate effects and/or to support an Ecological Impact Assessment (EIA) for projects screened as requiring EIA.

Amphibians;
Bats;
Birds;
Common reptiles;
Hazel dormice; and
European hedgehogs.

Additional assessment and surveys have been recommended as necessary prior to submission of a planning application:

Habitats Regulations Assessment Screening Assessment (HRA) to assess if there is likely to be any potential effects of significance on the Severn Estuary (Wales) Ramsar, SSSI, SAC and SPA and Sully Island SPA.

Propose the following additional vegetation and protected species surveys are undertaken prior to submission of a planning application:

- National Vegetation Classification Survey on Ty'r Orsaf SINC;
- Amphibian surveys on waterbodies within 500m of the site;
- Bat foraging/commuting activity surveys;
- Bat emergence/re-entry surveys on buildings and bridges;
- Breeding bird surveys;
- Hazel dormice surveys; and
- Reptile surveys.

Mitigation², compensation³ and enhancement⁴ opportunities are discussed in the final section of the report but include the following:

² Mitigation are measures required in order to reduce the severity and magnitude of identified effects to an acceptable level.

³ Compensation is required where effects cannot be fully mitigated.

⁴ Enhancements are required in accordance with national planning policies in order to ensure no net loss of site biodiversity.

Habitat creation and enhancement proposals to ensure populations of protected and priority species for biodiversity if present on site will be required in order that the development does not cause significant adverse effects on the Favourable Conservation Status of these species;

It is recommended that the development proposals seek to retain and enhance the Ty'r Orsaf SINC, hedgerows and woodland;

The development proposals will require as a minimum a 5m buffer either side of retained hedgerows;

Use of mammal tunnels if required under roads will be needing to be sized to accommodate badgers;

A Pre-construction checks for nesting birds if works carried out during bird breeding season;

A percentage of new buildings should be fitted with nest boxes in accordance with the guidance provided in the Supplementary Planning Guidance document '*Biodiversity and Development*' April 2018;

As an enhancement bat boxes could be provided within areas of landscape planting;

Enhancements for invertebrates through use of insect hotels;

Enhancements for hedgehogs through use of hedgehog houses and access gaps as part of proposed fencing to residential properties;

If additional landscape planting is proposed, this should include native species which will also be of benefit for wildlife including invertebrates.

In conclusion, the habitats have potential to provide suitable foraging, nesting and shelter for a number of species groups including protected species, if present. With additional survey/assessment and appropriate mitigation measures (where required) the ecological receptors identified in this report would not be adversely affected by the proposed works.

A Biodiversity Management Plan detailing all proposed biodiversity enhancements will be required to be submitted with any planning application for approval by the Local Authority.

1 INTRODUCTION

1.1 Terms of Reference

1.1.1 Wardell Armstrong LLP (WA) was commissioned by Welsh Government (WG) to undertake a Preliminary Ecological Appraisal (PEA) of a site at Cosmeston, Penarth located at approximate National Grid Reference ST17964 68945.

1.1.2 This PEA report (PEAR) has been produced with reference to current guidelines for Preliminary Ecological Appraisal (Chartered Institute of Ecology and Environmental Management (CIEEM 2017)) and British Standard BS 42020:2013 (BSI 2013) which involves the evaluation of potential ecological constraints based on Extended Phase I (Joint Nature Conservation Committee (JNCC 2010)) survey data and background desk study.

1.2 Scope of Report

1.2.1 The purpose of the PEAR is to satisfy the requirements of the Planning Policy Wales (PPW), Edition 9, 2016 and identify the likely presence of ecological features within or near the site that could be subject to adverse effects arising from the proposed development of the site. The following ecological features have been considered:

- Statutory and non-statutory designated conservation areas;
- UK and local Biodiversity Action Plan (BAP) and Section 7 Priority habitats;
- Areas of Ancient Woodland;
- Legally protected species;
- UK and local BAP, and Section 7 Priority species; and
- Invasive species.

1.2.2 This report also seeks to identify any requirement for further specialist survey where the initial assessment cannot be relied upon to adequately determine presence or reliably infer absence of protected species/taxa.

1.2.3 An indicative assessment of potential adverse effects is provided, although this is not a substitute for a full Ecological Impact Assessment (CIEEM, 2016).

1.2.4 Provisional mitigation and enhancement opportunities are also discussed, where appropriate.

1.2.5 Literature references are provided in Section 6.

1.3 Site Location and Context

1.3.1 The location of the site is shown on Drawing Number CA11040-001/RevA. This drawing indicates:

The part of the site which was first subject to an Extended Phase 1 Habitat Survey in September 2016; and

The additional area of land included within the site boundary in November 2017 and was subject to an Extended Phase 1 Habitat Survey in April 2017.

1.3.2 The area of detailed ecological study referred to as the 'site' comprises a working livery yard with stable block buildings to the east of the site and semi-improved and improved grassland fields extending to north, south and west. The Ty'r Orsaf Site of Importance for Nature Conservation (SINC) is located at the south west corner of the site surrounded by broadleaved woodland. The north and eastern boundaries of the site are bordered by intact hedgerows, with broadleaved woodland dominating the western boundary and residences to the north.

1.4 Description of Development

1.4.4 The ecological studies are required to inform an outline planning application with accompanying masterplan for a residential development.

2 METHODOLOGY

2.1 Desk Study

2.1.1 The desk study was informed by review of existing available information provided by South East Wales Biodiversity Records Centre (SEWBRc) for a 2km search radius from the site boundary. The desk study data from SEWBRc was received February 2017. Ordnance Survey (OS) and satellite mapping was also used to gain contextual habitat information.

2.1.2 Specific information was sought for:

- Statutory designated sites;
- Locally designated sites;
- Ancient woodland; and
- Protected and priority BAP species.

2.1.3 The Multi Agency Geographic Information for the Countryside (MAGIC)⁵ website was utilised to gather data and the UK Biodiversity Action Plans (BAPs) were also reviewed. Also reviewed were Priority Species and Habitats in Wales listed within Section 7 of Part 1 of the Environment Act (Wales) 2016⁶.

2.1.4 Ordnance Survey (OS) and satellite mapping was also used to gain contextual habitat information and identify aquatic features within 500m of the site.

2.2 Extended Phase 1 Habitat Survey

2.2.1 An Extended Phase 1 Habitat Survey of the original site area (refer to Drawing Number CA11040-001) was undertaken by Wardell Armstrong LLP on 1st September 2016. The additional land to the east of the disused railway line was surveyed in April 2017. The Extended Phase 1 Habitat Surveys broadly followed the techniques outlined in the '*Handbook for Phase 1 Habitat Survey*' (Joint Nature Conservation Committee, 2010). and the '*Guidelines for Baseline Ecological Assessment*' (Institute of Environmental Assessment, 1995).

⁵ www.magic.gov.uk

⁶ <https://www.legislation.gov.uk/anaw/2016/3/section/7>

- 2.2.2 The purpose of this survey is to map the habitats present within the site and to assess the potential for protected species to be present. Target notes are used to describe the habitat and species composition and highlight features of ecological interest and are provided in Appendix 1. Species composition of each of the main habitats are expressed according to the DAFOR⁷ system. Specific habitat features are mapped on Drawing Number CA11049-002 (Habitat Plan) with appropriate target notes identifying waterbodies and trees of particular note. A description of the farm buildings and old railway bridges is provided in Appendix 2. Farm building and bridge structure numbers are shown on Drawing Number CA11040-005 (Building Inspection Survey-2016).
- 2.2.3 The presence of legally protected species is a material consideration for a local planning authority dealing with a planning application for any development that would be likely to result in harm to the species or its habitat (Planning Policy Wales (2016) and Technical Advice Note 5: Nature Conservation and Planning, (2009)⁸). Therefore, preliminary investigations were undertaken during the Extended Phase 1 Habitat Survey in respect of the potential presence of a legally protected species and Priority Species of biodiversity concern. An overview of species protection is provided in Appendix 3.
- 2.2.4 In addition to the mapping and description of habitats, incidental observations of protected and/or biodiversity priority species and the potential for such species to occur on site (and in the surrounding landscape where relevant) were also noted.
- 2.2.5 As part of the Extended Phase 1 Habitat Survey, hedgerows were assessed broadly following the criteria for 'important' hedgerows under the Hedgerow Regulations 1997 (wildlife and landscape). The criteria are complex and include hedgerows which have 7 woody species; hedgerows with 6 woody species plus at least 3 of the features identified in sub-paragraph 4 of the criteria (e.g. one standard tree for every 50m hedgerow length); or at least 5 woody species and at least 4 of the features specified in sub-paragraph 4. The application of the criteria to the hedgerows relates mainly to the flora species present and is not an exhaustive assessment.

⁷ D – Dominant, A – Abundant, F – Frequent, O – Occasional, R – Rare.

⁸ Technical Advice Note 5: Nature Conservation and Planning 2009. Planning Policy Wales. Welsh Assembly Government

Preliminary Roost Assessment (PRA)

- 2.2.6 In conjunction with the Phase 1 Habitat Survey an external Preliminary Roost Assessment (PRA) of the buildings and old railway bridge structures was undertaken by an experienced ecologist from Wardell Armstrong LLP. The site contains 6 buildings and 3 old railway bridge structures as shown on Drawing Number CA11040-005 (Building Inspection Survey-2016).
- 2.2.7 The PRA of the buildings was undertaken to identify potential locations suitable for roosting bats including a search for external features such as cracks, crevices and gaps that could provide access opportunities for bats. Equipment used included torch and binoculars. The internal inspection survey included a search for evidence of bat activity such as urine stains, grease stains, droppings, feeding remains and carcasses. Equipment used included torch and binoculars.
- 2.2.8 The buildings and trees on site have been categorised using the assessment criteria in Table 4.1 of the 3rd ed of the BCT Guidelines (Collins 2016)⁹.

Known or confirmed roost;

High: Structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitats;

Moderate: Structure or tree with one or more potential roost sites that could be used by numbers of bats due to their size, shelter, protection, conditions and surrounding habitats, but unlikely to support a roost of high conservation concern;

Low: Structure or tree with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation);

Negligible: Structure or tree with no potential to support bats.

⁹ Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

2.2.9 The surrounding habitat both within and adjacent to the site was also surveyed to assess its potential to be used by foraging and commuting bats. This information was combined with a review of aerial photography and OS data to provide contextual information about the local habitat and its likely use by bats.

2.3 Nomenclature

2.3.1 Vascular plant names follow '*New Flora of the British Isles*' (Stace 2010), all other flora and fauna names following the National Biodiversity Network (NBN) Gateway (NBN, 2013). The common (vernacular) and scientific name of species/taxa is provided (if available) when first mentioned in the text, with only the vernacular name referred to thereafter. A detailed species list is provided in Appendix 4.

2.4 Assessment Limitations

2.4.1 Ecological surveys are limited by factors that affect the presence of plants and animals such as time of year, weather, migration patterns and behaviour. The habitat surveys were undertaken in September and April therefore the survey data may not be representative of other times of year.

2.4.2 The absence of desk study records cannot be relied upon to reliably infer absence of a species/habitat. Often, the absence of records is a result of under-recording within the given search area.

2.4.3 Whilst no signs of badger activity were recorded during the Phase 1 Habitat Survey, there are areas of dense scrub and areas of the broad-leaved woodland on site which was impenetrable and could not be fully checked for signs of badger activity.

2.4.4 Appendix 5 provides a summary of the application of the Hedgerow Regulations 2007 criteria relating to the flora species present in the hedgerows and is not a full assessment.

2.5 Quality Assurance & Environmental Management

2.5.1 The surveys and assessments have been overseen by and the report checked and verified by a member of CIEEM and thus bound by its code of professional conduct. All surveys and assessments have been undertaken with reference to the recommendations given in British Standard BS 42020, and as stated within specialist guidance, as appropriate and referenced separately.

3 RESULTS AND EVALUATION

3.1 Statutory and Non- Statutory Designated Sites

3.1.1 The desk study results for designated sites within 2km from the site are evaluated in Table 1 below.

3.1.2 Sites which are considered potentially sensitive to the proposed works by virtue of the sensitivity of supported species or habitat assemblages, the distance/ecological connectivity to the routes and the nature of the perceived impacts are highlighted in bold text and are discussed in the final sections of the report. Designated sites are mapped on a drawing provided by SEWBRc attached as Appendix 6 – Sites Designated for Conservation Within 2km.

3.1.3 Sites for which potential adverse effects are not anticipated are excluded from further assessment.

TABLE 1: Designated Sites Evaluation			
Site Name and Status ¹⁰	Reason for Designation	Approximate Distance and Location from Site	Potential Constraint?
Severn Estuary (Wales) Ramsar, SSSI, SAC, SPA	The estuary has an extensive intertidal zone comprising sand banks, saltmarsh, intertidal mudflats, rocky platforms and shingle. The site is particularly important for birds. The invertebrate species present provide important food sources to wintering wading birds and the site also supports nationally important numbers of water birds and wintering water birds. The site also supports a number of migrating fish species. The	Adjacent to the eastern boundary of the site.	Possible – Recommend completing Habitats Regulation Screening Assessment.

¹⁰ **SPA** – Specially Protected Area, **SAC** – Special Area for Conservation, **Ramsar** – site designated under the Ramsar Convention, **SSSI** – Site of Special Scientific Interest, **SINC** – Site of Importance for Nature Conservation, **NNR** – National Nature Reserve, **LNR** – Local Nature Reserve.

	grassland zone supports the nationally rare plant <i>Lythrum hyssopifolia</i> .		
Sully Island SSSI, SPA	The site provides the main roost site for waders feeding in winter in the Taff/Ely estuary. The roost holds up to 100% of the dunlin, grey plover and ringed plover of the Taff/Ely and over 50% of the redshank and knot.	Approximately 1.8km to the south west of the site at the closest point.	Possible – there could be recreational impacts from increase in visitors.
Cosmeston Lakes SSSI	This site is designated for its two lakes that were created from flooded limestone quarries that support a range of submerged plants. One of the lakes is the only known site in Wales for the presence of starry stonewort <i>Nitellopsis obtusa</i> .	Approximately 0.1km to the east of the site at the closest point.	Possible – there could be recreational impacts from increase in visitors.
Penarth Coast SSSI	The site is principally designated for geological features. Included in the designation are species rich calcareous grassland and cliff-top scrub which support several plant species of limited occurrence and distribution in the area. The site contains Lavernock Point which is well known point for observing migratory birds.	Adjacent to the eastern boundary of the site.	Possible – there could be recreational impacts from increase in visitors (new residents) because there is a public footpath adjacent to the site.
Cog Moors SSSI	Cog moors supports an extensive area of unimproved species rich grassland. Cog moors supports two species of special interest which are the nationally scarce	Approximately 1.74km to the north west of the site at the closest point.	Recreational impacts unlikely as no public footpath through the site.

	bulbous foxtail and a large population of pepper saxifrage. The site also supports species which are uncommon in Glamorgan including the brown sedge, adder's-tongue and green-winged orchid.		
Ty'r-Orsaf SINC	The site consists of a disused railway line that supports areas of species-rich neutral and calcareous grassland. The SINC was designated for the presence of Lowland Meadows, Lowland Calcareous Grassland and Mosaic Habitats.	Located within the south west section of the site.	Possible –there could be direct loss of habitat and there could be recreational impacts from increase in visitors (new residents).
Cog Moors SINC	Series of species-rich rush pastures with neutral grassland and associated wet ditches.	Approximately 1.5km north west of the site at the closest point.	Possible as public footpath runs through the south eastern corner of the site.
Cogan Pond SINC	Large pond supporting reedbed ¹¹	Approximately 1.2km north west of the site at the closest point.	No - The proposed development is considered unlikely to have a significant impact either directly or indirectly, on the qualifying features of this designation.
Cosmeston Lakes SINC	Extensive country park supporting mosaic of habitats including species-rich calcareous and neutral grasslands, scrub, hedgerows, woodland, streams and ponds which all support a wide assemblage of species including many Section 7 Listed priority species. ¹⁰	Approximately 0.2km to the west of the site at the closest point.	Possible – there could be recreational impacts from increase in visitors.

¹¹ Descriptions taken from Vale of Glamorgan Development Plan Identification of SINC's Background Paper 2013.

Downs Wood SINC	Ancient and semi-natural woodland¹⁰	Approximately 0.5km to the north of the site at the closest point.	Possible – there could be recreational impacts from increase in visitors.
Lavernock Point East SINC	Site supports a mosaic of coastal species moderate to rich limestone grassland with scrub and is contiguous with Penarth SSSI¹⁰.	Approximately 0.5km to the south of the site at the closest point.	Possible – there could be recreational impacts from increase in visitors (new residents).
Lavernock Point Wildlife Trust Reserve	Made up of a number of habitats including limestone grassland, scrub and oak coppice woodland supporting purple hairstreak butterfly.	Approximately 0.6km to the south of the site at the closest point.	Possible – there could be recreational impacts from increase in visitors (new residents)

3.1.4 Sites which are considered potentially sensitive to the development proposals by virtue of the sensitivity of supported species or habitat assemblages, the distance/ecological connectivity to the application site and the nature of the perceived impacts are highlighted in bold text above and are discussed in detail in the final sections of the report.

3.1.5 Sites for which potential adverse effects are not anticipated are excluded from further assessment.

3.2 Habitats

3.2.1 All habitats within the survey area are described in Table 1, below, together with an indication of their BAP status, according to the definitions given in *UK BAP Priority Habitat Descriptions* (Anon 2008 updated 2010) and Section 7 Habitats of Principal Importance. The habitats have also been reviewed against the wildlife site criteria outlined in document *'Guidelines for the Selection of Wildlife Sites in South Wales'*, The South Wales Wildlife Partnership (2004). The table also provides an evaluation of their potential to constrain development, indicated with bold text.


3.2.2 Habitats for which potential adverse effects are not anticipated are excluded from further assessment.



- 3.2.3 The location and extent of habitats is shown on Drawing Number CA11040-002 (Habitat Plan).
- 3.2.4 Detailed target notes (TN) for each habitat are provided in Appendix 1 and Descriptions of the farm buildings and old railway bridges are provided in Appendix 2 and a detailed species list provided in Appendix 3.


Table 1: Habitat Description and Evaluation



Phase 1 Habitats ¹²	UK BAP	Section 7 Priority Habitat	Potential Adverse Effect?	
<p>Poor Semi-Improved Grassland (TN3 and TN14)</p> <p>The majority of the site is dominated by poor semi-improved grassland fields which are currently used for grazing horses. Two large fields to the east and west of the livery yard and farm buildings are heavily poached by horses and have been left unmanaged. The remainder of the semi-improved field are being used by grazing horses and donkeys and used for horse jumps. Species identified include Timothy (F), Yorkshire fog (F), perennial rye-grass (F), meadow grass species (R), common bent (O), sharp flowered rush (O), crested dog's tail (O), cock's foot (O), field bindweed (O), ribwort plantain (O), sorrel sp. (LF), meadow buttercup (F), broad-leaved dock (O), silverweed (LA), red clover (LF), ragwort (LF), dandelion (O), common fleabane (LF), selfheal (R) and creeping cinquefoil (O).</p>	 <p>View of poor semi-improved grassland to the north of the livery yard.</p>	x	x	<p>No. Floral species recorded are common and widespread and its loss is not considered to be significant. The species composition does not fit the SINC criteria for neutral grasslands. These grasslands do not meet grassland SINC criteria for South Wales¹³.</p>


¹³ Guidelines for the Selection of Wildlife Sites in South Wales, The South Wales Wildlife Partnership 2004.



Phase 1 Habitats ¹²		UK BAP	Section 7 Priority Habitat	Potential Adverse Effect?
<p>Semi-Improved Grassland (TN7) A narrow strip of semi-improved grassland is present in the south west of the site located within the Ty'r-Orsaf SINC. The grassland is unmanaged and overgrown and is surrounded on all sides by broadleaved woodland. Species noted include St John's wort (LF), common fleabane (LA), meadow vetchling (O), ribwort plantain (F), teasel (O), black knapweed (O), umbellifer species (O), Michaelmas daisy (R), ragwort (O), vetch species (O), eyebright (O), red clover (F), wild* carrot (O), black medic (O), rosebay willowherb (F), hemp agrimony (O), black bent (O), common bent (F), Yorkshire fog (O), crested dog's tail (O), hard rush (O), wood false-brome (O), wavy hair grass (O) and sedge species (O).</p>	 <p>Semi-improved grassland within the SINC</p>	✓	✓	<p>Yes. The proposed development has the potential to result in the damage / loss of this habitat. Recommend that it is retained as part of the development proposals and managed and enhanced to retain the priority habitats of Lowland Meadow and Lowland Calcareous Grassland on site.</p>
<p>Improved grassland (TN8) The central field in the northern part of the site comprises improved grassland surrounded on all sides by broad-leaved woodland. The field is currently split into a number of sections by electric fencing and is used by grazing horses. Species noted include perennial rye-grass (D), sorrel species (O), dandelion (O), red clover (F), white clover (O), creeping buttercup (O), thistle species (O) and dock species (O).</p>		x	x	<p>No. Floral species recorded are common and widespread and its loss is not considered to be significant.</p>



Phase 1 Habitats ¹²	UK BAP	Section 7 Priority Habitat	Potential Adverse Effect?	
				
<p>Amenity Grassland (TN1)</p> <p>A small area of amenity grassland is present on the site comprising the garden of the farmhouse. The area is mown and surrounded by fencing associated with intact hedgerows and a mature treeline. Species noted include ivy (O), broad-leaved dock (O), rosebay willowherb (LF), hogweed (O), common nettle (O), white clover (F), red clover (F), meadow grass species (O), fescue species (O), cock's foot (O), Yorkshire fog (O) and perennial rye grass (F).</p>		x	x	No. Floral species recorded are common and widespread and its loss is not considered to be significant.

Phase 1 Habitats ¹²		UK BAP	Section 7 Priority Habitat	Potential Adverse Effect?
<p>Broadleaved woodland (TN6)</p> <p>A large portion of the site is dominated and bordered by broad-leaved woodland. Broad leaved woodland surrounds the Ty'r Orsaf SINC in the south west of the site as well as extending to the north to border the improved grassland field. Species identified include dogwood (LF), crack willow (O), field maple (F), sycamore (F), oak species (O-F), ash (F), apple species (R), blackthorn (O-F), bramble (F), hawthorn (O-F), elder (O), birch species (O), herb Robert (O), common nettle (F), ivy (F), black bryony (R), hedge bindweed (A) and cleavers (O).</p>		✓	✓	<p>Yes. Broadleaved woodland is a UKBAP and Listed under Section 7 The Environment Act Wales and has the potential to supporting a diverse range of protected species. This woodland does not meet the SINC criteria for South Wales.</p>
<p>Tall ruderal vegetation and scrub (TN 4, 5, 9, 15 and 16)</p> <p>There are large patches of tall ruderal vegetation and scrub throughout the site but most commonly found around the edges of field boundaries. Species noted include bramble (D), hedge bindweed (D), sorrel species (F), hemp agrimony, rosebay willowherb (A), speedwell species (LA), common fleabane (LF), greater plantain (O), creeping thistle (O), red clover (F), broad-leaved dock (F), sorrel (O), teasel (O), ragwort (O), ribwort plantain (F), creeping buttercup (F), white clover (F), timothy (O), wavy hair-grass (F), perennial rye-grass (F) and Yorkshire fog (F).</p>		✗	✗	<p>No. Floral species recorded are common and widespread and loss of this habitat type is not considered to be significant.</p>

Phase 1 Habitats ¹²	UK BAP	Section 7 Priority Habitat	Potential Adverse Effect?	
<p>Species-Poor Hedgerows</p> <p>There are 5 intact species-poor hedgerows located within the site (H1, H2, H3, H5 & H6). There are also 9 defunct species-poor hedgerows (H7, H8, H9, H10, H11, H12, H13, H14, H15)</p> <p>There are 4 species-poor hedgerows which are considered important under the Hedgerow Regulations 1997, these are H1, H2, H10 and H15) because of associated features. The application of the Hedgerow Regulation Criteria relating to flora species present is provided in Appendix 5.</p> <p>A full description of hedgerows is provided in Appendix 1.</p>		<p>✓</p>	<p>✓</p>	<p>Yes. Hedgerows are a UKBAP and Listed as a Section 7 priority habitat.</p>
<p>Species-Rich Hedgerows</p> <p>An intact species-rich hedgerow (H4) is present along the north-western boundary of the site adjacent to Lavernock road. The hedgerow is up to 3m high and shows signs of previous management. Species noted include hawthorn (F), blackthorn (F), bramble (LA), mature ash (R), elder (O), field maple (LF), dogwood (LA), hedge bindweed (F), common nettle (O) and rosebay willowherb (O).</p> <p>A defunct species-rich hedgerow is located at H16. It is managed to a height of approximately 1-2m high and contains 5 woody species; hawthorn (F), blackthorn (O), elder (O), field maple (O) and hazel (O).</p> <p>There are two species-rich hedgerows which are considered important under the Hedgerow Regulations 1997, these are hedgerow H4 and H16 (The application of the</p>		<p>✓</p>	<p>✓</p>	<p>Yes. Hedgerows are a UKBAP habitat and listed as a Section 7 priority habitat.</p>

Phase 1 Habitats ¹²	UK BAP	Section 7 Priority Habitat	Potential Adverse Effect?	
<p>Hedgerow Regulation Criteria relating to flora species present is provided in Appendix 5).</p> <p>A full description of hedgerows is provided in Appendix 1</p>				
<p>Dry waterbodies (TN12)</p> <p>A dry ditch is located adjacent to the north western facing side of the broadleaved woodland to the south west of the site. The ditch is approximately 1m deep and 0.5m wide and associated with a remnant electrical fence. The ditch is sparsely vegetated with species identified within the semi-improved grassland (TN3).</p>		x	x	<p>No. This ditch is dry and holds no aquatic vegetation. Species recorded are common and widespread and its loss is not considered to be significant.</p>

Phase 1 Habitats ¹²	UK BAP	Section 7 Priority Habitat	Potential Adverse Effect?	
<p>Disturbed ground</p> <p>There are several small areas of disturbed ground within the site as well as a tank to the west of the car park and a horse-riding arena to the south east of the farm buildings.</p>		x	x	<p>No. The loss of this habitat is not considered to be a conservation concern.</p>
<p>Buildings</p> <p>There are 6 Buildings within the site boundary comprising the farmhouse, farm buildings and stables at the entrance to the livery yard. A full description of these buildings is provided in Appendix 2.</p>		x	x	<p>Not in terms of habitat type however structures can provide habitat for breeding birds to nest and roosting areas for bats. (refer to Table 2)</p>

Phase 1 Habitats ¹²	UK BAP	Section 7 Priority Habitat	Potential Adverse Effect?	
<p>Disused Railway Bridges</p> <p>There are 3 old railway bridges. A description of these bridges is provided in Appendix 2.</p>		x	x	<p>Not in terms of habitat type however – refer to Table 2.</p>
<p>Hardstanding</p> <p>The livery yard within the site is dominated by hardstanding.</p>		x	x	<p>No. The loss of this habitat is not considered to be a conservation concern.</p>

3.3 Species

3.3.1 Recorded protected and/or invasive species from the field survey or evidence of the presence of protected or BAP priority species are described below.

Invasive Plants

3.3.2 No invasive species were recorded during the field survey.

3.4 Ecological Evaluation

3.4.1 Protected, UKBAP and Section 7 listed Priority Species are evaluated in order to identify potential ecological constraints in Table 2 below, based on the desk study records, presence extent and viability of supporting habitat, ecological connectivity and perceived nature and extent of effects.

3.4.2 Species/taxa for which potential adverse effects are not anticipated are excluded from further assessment.

3.4.3 The site contains six buildings and three old railway bridges which were externally and internally inspected for their potential to support bat roosts in 2016/17 (refer to Drawing Number CA11040-005 (Building Inspection Survey - 2016) for location of buildings and bridge structures). Descriptions of the buildings and bridge is provided in Appendix 2.

3.4.4 Buildings B1, B4 and B6 have been classified as having 'moderate' suitability to support roosting bats and B3, B5 and B7 have been classified as 'low' suitability to support roosting bats. Railway bridges B2 (central rail bridge), B8 (rail bridge to the north east)) and B9 (rail bridge to the south west) were all classified as having 'low' suitability in accordance with current best practice guidelines (Collins, 2016).

Table 2: Protected Species Evaluation

Species/taxa	Desk Study record?	Status ¹⁴	Supporting Habitat	Potential Adverse Effect?
Bats <i>Chiroptera</i>	Records of serotine <i>Eptesicus serotinus</i> , Leislers bat <i>Nyctalus leisleri</i> , noctule <i>Nyctalus noctula</i> , common pipistrelle <i>Pipistrellus pipistrellus</i> , soprano pipistrelle <i>Pipistrellus pygmaeus</i> and lesser horseshoe <i>Rhinolophus hipposideros</i> bats.	EPS, WCA, UKBAP, Section 7 Listed species (noctule, common pipistrelle, soprano pipistrelle and lesser horseshoe bat).	Yes – The hedgerows and broad-leaved woodland could provide suitable roosting opportunities and foraging / navigating corridors for bats. The buildings / bridges have the potential to support roosting bats.	Yes – development is likely to impact upon potential roosting sites and foraging/ navigational routes.
Badger <i>Meles meles</i>	No	BA	Yes – the habitats on site have the potential to provide foraging and sett creation habitat for badgers. However, no evidence of this species was observed during the Extended Phase 1 survey	Possibly – potential foraging and habitat could be impacted by the proposed works if found to be present.

¹⁴ EPS – European Protected Species, WCA – Wildlife and Countryside Act, A1 – Annex 1 (Birds Directive), BA – Protection of Badgers Act, BAP – Biodiversity Action Plan Priority Species

Species/taxa	Desk Study record?	Status ¹⁴	Supporting Habitat	Potential Adverse Effect?
Birds	Numerous bird records within 2km including records for the following Schedule 1 bird species: <i>barn owl Tyto alba</i> , goshawk <i>Accipiter gentilis</i> , hobby <i>Falco Subbute</i> , peregrine <i>Falco peregrinus</i> , red kite <i>Milvus milvus</i> , Cetti's warbler <i>Cettia cetti</i> . Birds of Conservation Concern/Section 7 Listed Species include: corn bunting <i>Emberiza calandra</i> , cuckoo <i>Cuculus canorus</i> , grasshopper warbler <i>Locustella naevia</i> , linnet <i>Carduelis cannabina</i> , marsh tit <i>Poecile palustris</i> , willow tit <i>Poecile montanus</i> , yellow wagtail <i>Motacilla flava</i> , spotted flycatcher <i>Muscicapa striata</i> , skylark <i>Alauda arvensis</i> , reed bunting <i>Emberiza schoeniclus</i> , and pied flycatcher <i>Ficedula hypoleuca</i> .	Includes WCA1, UKBAP, Section 7 Listed species and species listed on Appendix 2 of Bern Convention	Yes – The broad-leaved woodland, mature treelines, hedgerows and scrub within and around the periphery of the site provides suitable foraging and breeding habitat for birds. The farm buildings also provide suitable nesting habitat for birds.	Yes – Potential breeding and foraging habitat may be lost/disturbed by proposed development.
Brown Hare <i>Lepus europaeus</i>	No	UKBAP, Section 7 Listed	No – The habitats within the site are not suitable for supporting brown hare.	No – The habitats on site are unlikely to support this species.
European Hedgehog <i>Erinaceus europaeus</i>	Nearest record located approximately 1.3km from the site.	UKBAP, Section 7 Listed	Yes – the habitats within the site could provide suitable foraging and nesting habitat	Possibly – potential foraging and nesting habitat may be impacted by the proposed work.

Species/taxa	Desk Study record?	Status ¹⁴	Supporting Habitat	Potential Adverse Effect?
Dormouse <i>Musccardinus avellanarius</i>	No	EPS, WCA, UKBAP, Section 7 Listed	Yes - The broadleaved woodland, mature treelines and hedgerows could provide suitable habitat for dormouse.	Yes – works have the potential to harm / disturb dormouse if sections of woodland or hedgerows are removed.
Otter <i>Lutra lutra</i>	Located approximately 516m from the site.	EPS, WCA, UKBAP, Section 7 Listed	No – There is limited suitable foraging habitat within the site.	No – The habitats on site are unlikely to support this species.
Polecat <i>Mustela putorius</i>	Located approximately 594m from the site	EPS (4&6), UKBAP, Section 7 Listed	Yes – open pasture and hedgerows.	Yes – suitable habitats could be affected by development proposals.
Water Vole <i>Arvicola amphibia</i>	No	WCA, UKBAP, Section 7 Listed	No – There is no suitable habitat for water vole within the site.	No – The habitats on site are unlikely to support this species.
Reptiles	Slow worm <i>Anguis fragilis</i> . Located approximately 974m from the site the site	WCA, UKBAP, Section 7 Listed species	Yes – The semi-improved grassland, woodland, tall ruderals and scrub habitats within the site could provide possible foraging habitat and shelter for common reptiles. The track and surrounding habitat to north west of the site is used for fly tipping	Possibly – works have the potential to harm / disturb reptiles during construction works, if present.

Species/taxa	Desk Study record?	Status ¹⁴	Supporting Habitat	Potential Adverse Effect?
			which could provide potential hibernacula for reptiles.	
Great Crested Newt <i>Triturus cristatus</i>	Three SEWBReC records approximately 1.6km to the south west from the site boundary. Council's Ecologist has informed WA that GCN are present at Cosmeston Lakes.	EPS, WCA, UKBAP, Section 7 Listed species	Yes – Wet watercourse and terrestrial habitat.	Possibly – 25 waterbodies have been identified within 500m of the site which may potentially provide suitable breeding habitat for GCN (refer to Drawing Number CA11040-003).
Other amphibians	Common toad <i>Bufo bufo</i> Common frog <i>Rana temporaria</i>	WCA5, S41, UKBAP, Section 7 Listed species	Yes – Wet watercourse and terrestrial habitat.	Possibly – 25 waterbodies have been identified within 500m of the site which may potentially provide suitable breeding habitat for amphibians (refer to Drawing Number CA11040-003).
White-clawed Crayfish <i>Austropotamobius pallipes</i>	No	EPS, WCA, UKBAP, Section 7 Listed species	No – There is no suitable habitat for white-clawed crayfish within the site.	No – The habitats on site are unlikely to support this species.

4 DISCUSSION AND RECOMMENDATIONS

4.1 Sensitive Receptors

4.1.1 The following designated sites, habitats and species (receptors) have been evaluated as being subject to potential adverse effects:

Statutory designations (The Severn Estuary (Wales) Ramsar, SSSI/SAC/SPA, Sully Island SSSI / SPA, Cosmeston Lakes SSSI, Penarth Coast SSSI and Cog Moors SSSI)

Non-statutory designations (Ty'r-Orsaf SINC, Cog Moor SINC, Cosmeston Lake SINC, Downs Wood SINC, Lavernock Point East SINC, Lavernock Point Wildlife Trust Reserve)

Section 7 semi-natural broadleaved woodland;

Section 7 hedgerows;

Badger;

Bats;

Birds;

Hazel dormice;

European Hedgehog;

Polecat;

Great Crested Newts and other amphibians; and

Common reptiles.

4.1.2 Potential effects, requirements for further survey, and mitigation are discussed below for each of the identified potential constraints.

4.2 Designated and Non-Designated Sites

The Severn Estuary (Wales) Ramsar, SSSI/SAC/SPA, Sully Island SSSI / SPA

4.2.1 As the Severn Estuary and Sully Island is covered by European designations, the Local Planning Authority is obliged to carry out a Habitats Regulations Assessment (HRA). An HRA can be broken down into four discrete stages, each of which effectively

culminates in a test. The stages are sequential, and it is only necessary to progress to the following stage if a test is failed. The stages of the test are outlined below:

Stage 1 – Likely Significant Effect Test

This is essentially a risk assessment, typically utilising existing data, records and specialist knowledge. The purpose of the test is to decide whether ‘full’ Appropriate Assessment is required. The essential question is:

“Is the project, either alone or in combination with other relevant projects and plans, likely to result in a significant [adverse] effect upon European sites?”

If it can be demonstrated that significant effects are unlikely, no further assessment is required.

Stage 2 – Appropriate Assessment

If it cannot be satisfactorily demonstrated that significant effects are unlikely, a full ‘Appropriate Assessment’ will be required. In many ways this is analogous to an Ecological Impact Assessment but is focussed entirely upon the designated interest features of the European sites in question. Bespoke survey work and original modelling and data collation are usually required. The essential question here is:

“Will the project, either alone or in combination with other relevant projects and plans, actually result in an adverse effect upon the integrity of any European sites, without mitigation?”

If it is concluded that adverse effects will occur, measures will be required to either avoid the impact in the first place, or to mitigate the ecological effect to such an extent that it is no longer significant. Note that, unlike standard Ecological Impact Assessment, compensation for adverse effects (i.e. creation of alternative habitat) is not permitted at the Appropriate Assessment stage.

Stage 3: Assessment of Alternative Solutions

The process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site.

Stage 4: Imperative Reasons of Overriding Public Interest (IROPI) Test (Assessment of compensatory measures)

If a project will have a significant adverse effect upon a European site, and this effect cannot be either avoided or mitigated, the project cannot proceed unless it passes the IROPI test. In order to pass the test, it must be objectively concluded that no

alternative solutions exist. The project must be referred to Secretary of State on the grounds that there are Imperative Reasons of Overriding Public Interest as to why the plan should nonetheless proceed.

4.2.2 At present it is considered that Stage 2 (Appropriate Assessment) will be required. This is because of the recent Court of Justice of the European Union (CJEU) (April 2018) which concluded that mitigation cannot be included in the screening assessment stage of a HRA. This effectively means that mitigation and avoidance will need to be considered up front at the design stage to demonstrate no likely significant effects on the European/international designation.

4.2.3 It is recommended that Natural Resources Wales are consulted as the design of the scheme develops.

Cosmeston Lakes SSSI, Penarth Coast SSSI and Cog Moors SSSI

4.2.4 These sites are designated for various reasons, including flora species present, calcareous grassland and cliff top habitat. Further assessment may be needed to assess any significant effect of impacts arising from the proposed development (e.g. recreational impacts).

Ty'r-Orsaf SINC

4.2.5 The Ty'r-Orsaf SINC was designated because of its lowland meadow and lowland calcareous grassland. These are listed as a priority Habitat under Section 7 of the Environment Act 2016 and therefore should be retained as part of the development proposals and maintained/enhanced if necessary.

4.2.6 A National Vegetation Classification Survey (NVC) is recommended to update the information on its species richness.

Cog Moor SINC, Cosmeston Lake SINC, Downs Wood SINC, Lavernock Point East SINC, Lavernock Point Wildlife Trust Reserve

4.2.7 These sites are designated for various reasons, including species-rich neutral and calcareous grassland, rush pastures, wet ditches/ponds, hedgerows and woodland. Further assessment may be needed to assess any significant effect of impacts arising from the proposed development (e.g. recreational impacts).

4.3 Habitats

Section 7 – semi-natural broadleaved woodland

- 4.3.1 The areas of woodland have the potential to be classified as a priority habitat under Section 7 and it is recommended that these are retained where possible. Retained trees should be protected in accordance with BS 5837:2012 Trees in Relation to Design, Demolition and Construction.

Section 7 Hedgerows

- 4.3.2 All hedgerows found on site are species rich and therefore have the potential to be classified as priority habitat under section 7 of the Environment (Wales) Act (2016). It is recommended that a detailed hedgerow survey is undertaken to assess their likely 'importance' under the Hedgerow Regulations 1997.
- 4.3.3 It is recommended that hedgerows are retained where possible within the development proposals and enhanced in terms of ecology and biodiversity. This could include the following:

Gapping up existing hedgerows with suitable local native species;

Management of the hedgerow to establish at least one hedgerow tree for every 50m of hedgerow;

Introduction of management regime to facilitate use of the hedgerows by wildlife.

- 4.3.4 Where hedgerow removal cannot be avoided, any losses should be compensated for by the provision of new hedgerow elsewhere on site of at least equivalent length. In this event, appropriate woody species of local provenance should be selected.
- 4.3.5 Retained trees should be protected in accordance with BS 5837:2012 Trees in Relation to Design, Demolition and Construction.

4.4 Species

Badger

- 4.4.1 No evidence of badger activity was observed during the surveys, although some parts of the site were inaccessible due to dense vegetation. It is recommended that a pre-

works checks is undertaken prior to works commencing on site.

Bats

- 4.4.2 There are several mature trees located along hedgerows and within the broadleaved woodland on site, which could potentially support bat roosts. Further surveys of any trees identified for removal or which may be impacted upon through the development proposals are recommended to assess their potential to support roosting bats.
- 4.4.3 Following the building inspection survey, the buildings and bridges have been categorised based on their potential to support roosting bats. Three buildings were classified as having 'Moderate' suitability for roosting bats and the three remaining buildings and three bridges as having 'Low' roosting potential in accordance with current best practice guidelines (Collins, 2016). Further emergence/re-entry surveys will be required on all these buildings and bridges following current best practice guidelines.
- 4.4.4 The hedgerows and woodland also have the potential to provide suitable foraging habitat and commuting corridors. It is recommended that bat activity surveys are undertaken to identify key foraging and commuting habitats on site.
- 4.4.5 Further surveys will be required to be undertaken based on the guidance given in Table 7.3 of the '*Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Collins, J. (ed.) 2016)'.

Birds

- 4.4.6 Vale of Glamorgan Council and Natural Resources Wales were contacted in December 2016 and have confirmed that surveys for wintering birds are not required (refer to correspondence attached as Appendix 7).
- 4.4.7 The broad-leaved woodland, mature treelines, hedgerows and scrub within and around the periphery of the site provides suitable foraging and breeding habitat for birds. As potential breeding and foraging habitat may be lost/disturbed by proposed development, it is recommended that a breeding bird survey is undertaken.
- 4.4.8 In order to avoid works affecting breeding birds, it is recommended that any vegetation clearance or building demolition works should be avoided during breeding bird season (generally March-August inclusive). However, if it is necessary for works to be carried out during this time, a qualified ecologist or ornithologist should be

present to carry out a nesting bird check within 48 hours of the works commencing. In the event that nesting birds are recorded a suitable buffer will need to be put in place and works in the vicinity avoided until the young have fledged.

Hazel dormice

4.4.9 The hedgerows and broadleaved woodland on site have the potential to support hazel dormouse, therefore, there is potential for the proposed development to cause harm and/or disturbance to individual dormice, if present.

4.4.10 It is recommended that a survey for dormouse is undertaken using nest-tubes between April and November.

European Hedgehog

4.4.11 The habitats located on the site could support hedgehog. In order to avoid works adversely affecting the local conservation status of hedgehogs, if present, it is recommended that works to hedgerows and woodland areas should avoid the hibernation period (November – March). In addition, if suitable habitat is lost, it is recommended that habitat creation measures are undertaken following the works to adhere to Section 7 objectives.

Polecat

4.4.12 Polecat records exist within 2km of the site and it is considered likely that polecats may be using the habitats in the site. It is recommended that measures to prevent harm and disturbance to polecats during site clearance and construction works are undertaken.

4.4.13 In the event that this species is present on site and is subsequently displaced, this effect is considered unlikely to result in any measurable reduction in conservation status; given the wide availability of similar habitat elsewhere on farmland in the locality. The retention of the hedgerow network, as much as is practicable, within the site would provide wildlife corridors through the development which could provide polecats with a means of crossing the site between foraging areas.

4.4.14 No surveys for this species are considered necessary.

Great Crested Newts and other Amphibians

- 4.4.15 Ordnance Survey data has identified 25 waterbodies within 500m of the site boundary (refer to Drawing Number CA11040-003 Pond Location).
- 4.4.16 The Extended Phase 1 survey identified suitable terrestrial habitat in the form of broad-leaved woodland, semi-improved grassland and hedgerows within the site that could be used as foraging, commuting and hibernation habitat for GCN.
- 4.4.17 It is recommended that further scoping surveys of the waterbodies are carried out to determine their suitability for GCN. If deemed suitable, further surveys at these ditches to determine presences / likely absence of GCN are recommended.

Reptiles

- 4.4.18 The field of good semi-improved grassland, woodland, hedgerows, tall ruderal and scrub habitats around the site could provide possible foraging habitat for common reptiles. The track and adjacent hedgerow / scrub habitat to north west of the site is used for fly tipping which could provide potential refuges / hibernacula for reptiles. We therefore recommend that further surveys are undertaken to establish the presence / absence of reptiles, assess their population size and distribution across the site.

Other Recommendations

- 4.4.19 Night time working should be avoided when possible, to minimise the disturbance to foraging badgers, bats, hedgehogs and other wildlife within the adjacent habitats.
- 4.4.20 There is a potential for harm to badgers, hedgehogs and other wildlife if they were to fall into any open excavations during the construction period. Wooden planks should be placed in any excavations which are to be left open overnight and combined with a sloping end wall so that any animal entering the excavation can escape.
- 4.4.21 It is recommended that an update walkover is undertaken if 12 months has elapsed since this report is issued to see if there have been any substantial changes to the habitats present on site.
- 4.4.22 Use of mammal tunnels if required under roads will be needing to be sized to accommodate badgers.

5 ECOLOGICAL ENHANCEMENTS

5.1 Introduction

5.1.1 In accordance with the requirements of the PPW and BSI 42020:2013 ecological enhancements should be proposed which will result in a net gain in biodiversity. The proposals for the site are currently unknown. The below measures may be able to be incorporated into the development to enhance the site for wildlife.

5.1.2 Details of all proposed biodiversity enhancements will need to be provided within a Biodiversity Management Plan for approval by the Local Authority.

5.2 Habitats

5.2.1 The development masterplan should be designed to include a diversity of habitats (mosaic of grassland, hedgerow and scrub) to support a range of wildlife.

5.2.2 It is recommended that SINC grassland, hedgerows and woodland are retained where possible within the development proposals and enhanced.

5.2.3 It is recommended that discussions are held with the Local Planning Authority (LPA) if there are proposals to develop the SINC. If the SINC is retained the LPA should be consulted on the long-term management and monitoring proposals.

5.2.4 Enhancements for retained hedgerows would include the following:

Maintain a 5m buffer each side of retained hedgerows;

Gapping up existing hedgerow with suitable local species;

Management of the hedgerow to establish at least one hedge tree for every 50m of hedgerow; and

Introduction of a management regime to facilitate use of the hedgerows by wildlife.

5.2.5 Key habitat creation and enhancements to the woodland would include the following:

Creation of a transitional woodland edge habitat where the built development abuts the existing woodland. Native shrub, scrub and tall grassland species (Emorsgate EW1 – Woodland Mixture) could be planted in this area.

Night scented flowers such as honeysuckle *Lonicera periclymerium*, jasmine *Jasminum* sp., and vervain *Verbena* sp. and night-scented stock *Matthiola* sp. could be planted in the woodland and transitional woodland edge habitat which could attract moths which in turn could attract foraging bats.

Where appropriate, woodland flora could be introduced (Emorsgate EW1F – Wild Flowers for Woodland).

5.3 Species

- 5.3.1 There are a variety of simple and cost-effective measures that could be implemented as part of the development proposals to enhance the site for a range of wildlife including bats, breeding birds, common reptiles, amphibians, hedgehogs and invertebrates including species which are UK BAP and Welsh Priority listed species.
- 5.3.2 Installation of bird nest boxes - The Vale of Glamorgan Council expect a percentage of all new units to have bird boxes as per the guidance given in the '*Biodiversity and Development*' Supplementary Planning Document (April 2018).
- 5.3.3 Habitat creation – inclusion of native species in any proposed landscape scheme for the site.
- 5.3.4 The provision of bat boxes which target local biodiversity priority species.
- 5.3.5 Sowing of areas of public open space with a diverse native wildflower seed mix would provide a foraging resource for a range of species including invertebrates and birds.
- 5.3.6 Provision of a hibernaculum for the benefit of common reptiles and amphibian.
- 5.3.7 Provision of insect hotels, wood piles / loggery would benefit of invertebrates.
- 5.3.8 Use of hedgehog houses within the scheme can provide enhancement opportunities for this species.
- 5.3.9 Other enhancement measures the Council are likely to be seeking are; a minimum 100mm gap under all fences; SUDs/new friendly drainage and use of mammal and amphibian underpasses (where appropriate).

6 REFERENCES

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APPENDICES

Appendix 1

Target Notes

Appendix 1 – Target Notes

The target notes are shown on the Habitat Plan (CA11040-002). Building reference numbers are shown on drawing number CA11040-005 (Building Inspection Survey – 2016). The abundance of species is given using the DAFOR scale outlined in the table below:

Abundance	Approximate Percentage Cover
Dominant	>50%
Abundant	30-50%
Frequent	Many individuals
Occasional	Few individuals
Rare	Isolated individuals
Local	Distinct populations

Descriptions of the farm buildings and old railway bridges are described in Appendix 2.

1. The garden surrounding the farmhouse (Building B1) is dominated by amenity grassland surrounded by chain linked fencing associated with a mature tree line to the north and east, an intact hedgerow (H5) to the north west and mature leylandii hedgerow (H6) to the west.

Species	Abundance	Species	Abundance
<i>Trees / Shrubs</i>			
Sycamore	O	Birch species	R
Elm species	O	Ash	O
Leylandii	O	Apple species	R
<i>Forbs</i>			
Ivy	O	Common nettle	O
Broad-leaved dock	O	White Clover	F
Rosebay willowherb	LF	Red Clover	F
Hogweed	O	Buttercup species	F
<i>Grasses / Sedges / Ferns / Reeds / Rushes / Horsetails</i>			
Meadow grass species	O	Yorkshire fog	O
Fescue species	O	Perennial rye-grass	F
Cock's foot	O		



Figure 1: Farmhouse (Building B1) and garden

2. A horse-riding arena is located to the south east of the main farm buildings which is surrounded by wooden fencing on a bed of sand. The arena is situated on top of an improved grassland bank raised <0.5m above the farm track. The outer fencing to the south and east of the arena is dominated by tall ruderal vegetation and scrub.

Species	Abundance	Species	Abundance
Forbs			
Ivy	F	Hedge bindweed	F-A
Dock species	F	Ragwort	O
Teasel	O	Common Nettle	A
Creeping cinquefoil	LA	Rosebay willowherb	LA
Thistle species	O	Bramble species	LA
Dandelion	O	Hawkweed	O
Grasses / Sedges / Ferns / Reeds / Rushes / Horsetails			
Yorkshire fog	F	Crested dog's-tail	O
Perennial rye-grass	O		



Figure 2: Horse riding arena to the south of farm complex

3. The majority of the fields on site are dominated by poor semi-improved grassland. The two large fields to the north east and south west of the farm buildings are heavily poached and overgrown, but did not contain livestock at the time of survey. The fields to the south, adjacent to the broad-leaved woodland are currently grazed.

Species	Abundance	Species	Abundance
Forbs			
Field bindweed	O	Red clover	LF
Ribwort plantain	O	Ragwort	LF
Sorrel species	LF	Dandelion	O
Meadow buttercup	F	Common fleabane	LF
Broad-leaved dock	O	Selfheal	R
Silverweed	LA	Creeping cinquefoil	O
Grasses / Sedges / Ferns / Reeds / Rushes / Horsetails			
Timothy	F	Yorkshire fog	F
Perennial rye-grass	F	Common bent	O
Meadow grass species	R	Sharp flowered rush	O
Crested dog's tail	O	Cock's foot	O



Figure 3: Field of poor semi-improved grassland in the centre of the site. Photo taken looking north east from the gateway by the farm buildings.

4. There are a few patches of tall ruderal vegetation within the site with species present including:

Species	Abundance	Species	Abundance
Forbs			
Hemp Agrimony	O	Broad-leaved dock	F
Willowherb species	LA	Sorrel	O
Speedwell species	LA	Teasel	O
Common fleabane	LF	Ragwort	O
Greater plantain	O	Ribwort plantain	F
Creeping thistle	O	Creeping buttercup	F
Red clover	F	White clover	F

Grasses / Sedges / Ferns / Reeds / Rushes / Horsetails			
Timothy	O	Wavy hair-grass	F
Perennial rye-grass	F	Yorkshire fog	F



Figure 4: Tall ruderal vegetation to west of farm buildings

5. Areas of scrub are present around the site with a large area dominated by bramble and bindweed located to the south west of the horse-riding arena.

Species	Abundance	Species	Abundance
Forbs			
Bramble species	D	Bindweed	D
Rosebay willowherb	A	Sorrel	F
Dock species	O		



Figure 5: Bramble scrub adjacent to farm buildings

6. Broad-leaved woodland dominates a large area of the southern part of the site and is also present separating the fields in the northern section of the site.

Species	Abundance	Species	Abundance
Trees / Shrubs			
Dogwood	LF	Apple species	R
Crack willow	O	Blackthorn	O-F
Field maple	F	Bramble species	F
Sycamore	F	Hawthorn	O-F
Oak species	O-F	Elder	O
Ash	F	Birch species	O
Holly	O		
Forbs			
Herb Robert	O	Black bryony	R
Common nettle	F	Hedge bindweed	A
Ivy	F	Cleavers	O



Figure 6: TN6

7. The southern part of the site comprises a field of good semi-improved grassland which is within the Ty'r-Orsaf SINC. The field is currently unmanaged and surrounded on both sides by broad-leaved woodland.

Species	Abundance	Species	Abundance
Forbs			
St John's Wort	LF	Ragwort	O
Common fleabane	LA	Vetch species	O
Meadow vetchling	O	Eyebright	O
Ribwort plantain	F	Red clover	F
Teasel	O	Wild carrot	O
Black knapweed	O	Black medic	O
Umbellifer species	O	Rosebay willowherb	F
Michaelmas daisy	R	Hemp Agrimony	O

Grasses / Sedges / Ferns / Reeds / Rushes / Horsetails			
Black bent	O	Wood false-brome	O
Common bent	F	Wavy hair grass	F
Crested dog's tail	O	Sedge species	O
Hard rush	O	Yorkshire Fog	O



Figure 7: Ty'r-Orsaf SINC

8. The central field in the northern part of the site comprises improved grassland. The field is currently grazed by horses and has been separated into sections with electric fencing. Broad-leaved woodland borders the field to the north, east and west.

Species	Abundance	Species	Abundance
Forbs			
Sorrel	O	Dandelion	O
Red clover	F	White clover	O
Creeping buttercup	O	Thistle species	O
Dock species	O		
Grasses / Sedges / Ferns / Reeds / Rushes / Horsetails			
Perennial rye-grass	D		



Figure 8: Improved grassland

9. A single vehicle width track is located in the centre of the site and heads from the farm buildings in a south easterly direction towards the disused railway bridge along the south-eastern boundary. The track is dominated on both sides by tall ruderal vegetation and leads to a patch of tall ruderal vegetation and bramble scrub adjacent to the railway bridge, Building 2 (B2).

Species	Abundance	Species	Abundance
Trees / Shrubs			
Rose species	O	Buddleia	LA
Forbs			
White clover	F	Red clover	F
Rosebay willowherb	LF	Hemp agrimony	O
Silverweed	O	Hogweed	O
Dock species	O	Wild carrot	O
Ragwort	O	Bindweed	LF
Bramble	F		
Grasses / Sedges / Ferns / Reeds / Rushes / Horsetails			
Perennial rye-grass	F	Cock's foot	O
Sedge species	R	Wood false brome	O
Timothy	R	Soft rush	O



Figure 9: A patch of tall ruderals adjacent to railway bridge



Figure 10: Track towards the disused railway bridge along the south-eastern boundary

10. The western part of the northern boundary of the site comprises garden fencing and ornamental planting associated with the adjacent residential properties. A small section of bramble and blackthorn scrub is present at the western end, as shown in Figure 11 below.



Figure 11: Area of scrub

11. A defunct species poor remnant hedgerow with has developed into a mature treeline associated with a chain-link fencing forms the north and eastern boundary of the farmhouse garden (see above Target Note 1).

Species	Abundance	Species	Abundance
<i>Trees / shrubs</i>			
Mature Ivy	LF	Elder	O
Elm species	O	Ash	O
Sycamore	O	Birch species	O
Leylandii	O		



Figure 12: Mature Tree Line associated with chain-link fence

12. A dry ditch approximately 1m deep and approximately 1m wide is present along the north-western edge of the broadleaved woodland in the south of the site. The ditch is sparsely vegetated with the same species identified in the poor semi improved grassland (Target Note 3).



Figure 13: Dry ditch TN12

13. A cluster of dry depressions in a field of poor semi-improved grassland.



Figure 14: Dry pond within improved field

14. A field of poor semi-improved grassland currently grazed by horses. It is bordered to the east and west by hedgerows.

Species	Abundance	Species	Abundance
Trees / Shrubs			
Bramble	O		
Forbs			
Mouse-ear species	O	Daisy	O
Dandelion	O	Red clover	O
Ribwort plantain	O	Ragwort	F
Buttercup species	O	Persian speedwell	O
Broad-leaved dock	O	Thale cress	R
Ground ivy	O	Tormentil	R
White clover	O	Spear thistle	O

Common nettle	O	Common speedwell	O
Grasses / Sedges / Ferns / Reeds / Rushes / Horsetails			
Annual meadow-grass	O	Yorkshire fog	O
Perennial rye-grass	O	Cock's foot	O



Figure 15: Poor semi-Improved grassland TN14

15. A patch of dense hawthorn and bramble scrub at junction of hedgerows. Occasional common nettle is also present. A mammal track runs through this habitat from east to west.



Figure 16: Dense scrub in corner of poor semi improved grassland field

16. Dense impenetrable scrub which is present along the field boundary. Mature trees are present along the eastern edge.

Species	Abundance	Species	Abundance
Trees / Shrubs			
Hawthorn	F	Elder	O
Forbs			
Common nettle	O	Bramble species	A
Common ivy	O		



Figure 17: Dense scrub along the northern border of the site between two arable fields

17. A waterbody which is approximately 3-4m wide which is very turbid and green in colour. No aquatic vegetation is present and the feature is adjacent to an old muck heap.



Figure 18: Waterbody to the east of the site which is turbid and has no aquatic vegetation

18. Arable fields – the three fields in the north east of the site have been recently sown with arable crop. Field margins vary from negligible (crops very close to the hedgerows) to up to 2m wide where bramble and nettle scrub has encroached into the fields.

Species	Abundance	Species	Abundance
Forbs			
Common nettle	A	Bramble	A
Common ivy	O	Broad bean	O
Cow parsley	O	Burdock	O
Cleavers	O	Oil seed rape	O
Grasses / Sedges / Ferns / Reeds / Rushes / Horsetails			
Annual meadow grass	O	Yorkshire fog	O
Perennial rye-grass	O	Cock's foot	O



Figure 19: Arable field, located in the east of the site

Hedgerow Target Notes (H)

H1. An intact species poor hedgerow is present along part of the north-western boundary of the site adjacent to the B4287 Lavernock Road. The hedgerow shows signs of previous management and is partially associated with a post and wire fence which has not been maintained. The hedgerow is approximately 3-4m tall and approximately 1.5-2m wide with no visible gaps. The ground flora at the base of the hedgerow is dominated by tall ruderal vegetation and species noted in the poor semi-improved grassland described in TN3. A mature sycamore is also present in the centre of the hedgerow. This hedgerow is important under the Hedgerow Regulations 1997 (refer to Appendix 5).

Species	Abundance	Species	Abundance
Trees / Shrubs			
Hawthorn	D	Ash	O
Sycamore	O	Elder	O
Rose species	O	Bramble	LF
Forbs			
Ragwort	A	Common nettle	LF
Hedge bindweed	A	Rosebay willowherb	O
Field bindweed	O		



Figure 20: H1 and intact species poor hedgerow

H2. Intact species poor hedgerow present along the south-western boundary of the site adjacent to Fort Road. The hedgerow varies in height along its length ranging from approximately 2-6m. The hedgerow appears to be unmanaged and is associated with two mature sycamore in the north-west corner. This hedgerow is important under the Hedgerow Regulations 1997 (refer to Appendix 5).

Species	Abundance	Species	Abundance
Trees / Shrubs			
Hawthorn	D	Blackthorn	F
Dogwood	F	Sycamore	O
Elm	O	Bramble	O



Figure 21: H2 an intact species poor hedgerow

- H3. Mature intact species poor hedgerow present along the north-eastern boundary of the field (TN3) of poor semi-improved grassland in the south-west of the site. The hedgerow is approximately 6m tall with signs of previous management and partially associated with a disused electric fence.

Species	Abundance	Species	Abundance
Trees / Shrubs			
Hawthorn	F	Blackthorn	F
Dogwood	O	Rose species	R
Bramble	O		



Figure 22: H3 an intact species poor hedgerow

- H4. Intact species rich hedgerow located adjacent to a private track and Lavernock Road along the north-western boundary of the site. The hedgerow is up to approximately 3m high with no gaps and shows signs of previous management. The ground flora is largely dominated by species identified in the semi-improved grassland (TN3) with tall ruderal vegetation dominated by rosebay willowherb dominating the north-western corner of the hedgerow. This hedgerow is important under the Hedgerow Regulations 1997 (refer to Appendix 5).

Species	Abundance	Species	Abundance
Trees / Shrubs			
Hawthorn	F	Blackthorn	F
Bramble	LA	Ash	LA
Elder	O	Field maple	LF
Dogwood	LA		
Forbs			
Hedge bindweed	F	Rosebay willowherb	LA
Common nettle	O		



Figure 23: H4 an intact species rich hedgerow

- H5. A managed intact species poor hedgerow along the north-western boundary of the farmhouse garden. The hedgerow is approximately 2m tall and associated with a chain link fence. There is a gap of <0.5m wide in the middle of the hedgerow that provides access to the house through a garden gate.

Species	Abundance	Species	Abundance
Trees / Shrubs			
Apple species	R	Ash	F
Bramble	O	Blackthorn	O
Holly	LF	Hawthorn	O
Sycamore	O		



Figure 24: H5 an intact species poor hedgerow

H6. A 5m tall intact privet hedgerow is present within the boundary of the farmhouse garden, leading from the western boundary towards the north-western corner of the house.



Figure 25: H6 an intact species poor hedgerow

H7. A species poor, defunct remnant hedgerow is present extending from the broadleaved woodland, into the semi-improved grassland in the north-western part of the site. The remnant hedgerow is associated with a number of wooden posts previously used for electric fencing.

Species	Abundance	Species	Abundance
Trees/Shrubs			
Field maple	F	Hawthorn	F
Forbs			
Common nettle	D		



Figure 26: H7 a defunct, species poor, remnant hedgerow

H8. A mature remnant hedgerow dominated by hawthorn is present in the centre of two fields of poor semi-improved grassland which are currently occupied by donkeys. The hedgerow extends from the broadleaved woodland to south. Ground flora present includes occasional common nettle and willowherb species.



Figure 27: H8 a species poor remnant hedgerow

H9. A species poor defunct unmanaged hedgerow which is approximately 3-4m high and 4m wide.

Species	Abundance	Species	Abundance
Trees / shrubs			
Hawthorn	A	Hazel	O
Elder	O	Rose species	O
Bramble	O		
Forbs			
Cleavers	O	Honeysuckle species	O

Bittersweet	O	Lords and ladies	R
Ivy	O		



Figure 28: H9 a species poor defunct unmanaged hedge

H10. A defunct and unmanaged species poor hedgerow which is approximately 3-4m high and 3m wide.

Species	Abundance	Species	Abundance
Trees / shrubs			
Hawthorn	F	Blackthorn	O
Hazel	O	Rose species	O
Bramble	F		
Forbs			
Hogweed	O	Greater stitchwort	R
Common nettle	O	Hogweed	O



Figure 29: H10 a defunct species poor hedgerow

H11. A defunct, partially managed and partially unmanaged species poor hedgerow which is approximately 3-4m high and 3m wide. There is a bank along the western side approximately 1-2m high. A post and wire fence is present along the eastern side.

Species	Abundance	Species	Abundance
Trees / shrubs			
Hazel	O	Elder	O
Hawthorn	A		
Bramble	O		
Forbs			
Ivy	O	Bittersweet	R



Figure 30: H11 a defunct species poor hedgerow

H12.A species poor defunct hedgerow managed to a height of approximately 4m and a width of approximately 2-3m. There is an old post and wire fence associated with the hedgerow.

Species	Abundance	Species	Abundance
Trees / shrubs			
Hawthorn	A	Elder	O
Bramble	O	Rose species	O
Forbs			
Bramble	O	Cow parsley	O



Figure 31: H12 a species poor defunct hedgerow

H13.A managed species poor defunct hedgerow managed to a height of approximately 4m and a width of approximately 2-3m. There is an old post and wire fence associated with this hedgerow.

Species	Abundance	Species	Abundance
Trees / shrubs			
Hawthorn	F	Hazel	O
Bramble	O		
Forbs			
Cleavers	O	Cow parsley	O
Common nettle	O		



Figure 32: H13 a species poor defunct hedgerow

H14.A species poor managed defunct hedgerow managed to a height of approximately 4m and a width of approximately 2-3m. A bank approximately 1m high is associated with the hedgerow.

Species	Abundance	Species	Abundance
Trees / shrubs			
Hawthorn	F	Blackthorn	F
Hazel	O	Rose species	O
Forbs			
Bramble	O	Cow parsley	O
Common nettle	O	Cleavers	O
Ivy	O	Garlic mustard	O
Lords and ladies	R	Groundsel	O
Willowherb species	O	Broad bean	O



Figure 33: H14 a species poor defunct hedgerow

H15.A species poor defunct managed hedgerow, approximately 4m high and 2m wide. A footpath is present to the east of the hedgerow (H15a) which is also bordered on its other side by a hedgerow. This hedgerow is important under the Hedgerow Regulations 1997 (refer to Appendix 5).

Species	Abundance	Species	Abundance
Trees / shrubs			
Hawthorn	A	Blackthorn	O
Elder	O	Rose species	R
Forbs			
Bramble	F	Ivy	O
Common nettle	O	Lords and ladies	R



Figure 34: H15 a species poor defunct hedgerow

H16.A species rich defunct hedgerow managed to approximately 1m wide and 2m high. This hedgerow is important under the Hedgerow Regulations 1997 (refer to Appendix 5).

Species	Abundance	Species	Abundance
Trees / shrubs			
Hawthorn	F	Blackthorn	O
Elder	O	Field maple	O
Hazel	O	Rose species	R
Bramble	O		
Forbs			
Cow parsley	O	Burdock	O
Common nettle	F		



Figure 35: H16 a species rich defunct hedgerow

Appendix 2

Buildings and Bridges Descriptions

Appendix 1: Building and Bridge Descriptions: Site Visit undertaken 1st September 2016 and 25th April 2017

Building Reference	Description	Photograph	Potential
1	<p>Two storey brick building with pitched slate roof tiles.</p> <p>Tiles are missing. Open void is present on the south-eastern aspect of the roof. Small gaps are also present in the fascia beneath the guttering. Very small gaps are present between the brick wall and fascia. On the north western corner the wooden board is coming away from the overhang, exposing a void.</p> <p>The southern aspect has a narrow single tiled roof porch above a doorway. Gaps beneath tiles do not appear to enter the building.</p> <p>During an update survey on 25.4.17 it was noted that remedial works had been undertaken to the roof and soffits of the building. There are no longer missing/broken roof tiles and therefore there is no access to the roof void. One of the two chimneys have also been removed and new roof tiles installed. There is however still damage to the inner corner of the north-western soffit box.</p>	 <p>02.09.16</p>  <p>25.04.17</p>	Moderate

2	<p>Bridge constructed from stone and brick. The pointing in the brickwork is generally of good standard.</p>		Low
3	<p>A large two storey stone farm building with a pitch metal roof used for storing hay. Damage to brickwork but inside is very open, draughty and exposed. There is a single storey stone pigsty with a pitch metal roof attached to the southern aspect of the main building. There are some crevices in broken stone work which may be used by a small number of roosting bats.</p>		Low
4	<p>Stable block – stone farm building with a pitched metal roof. Stable doors provide entry. Whilst gaps are present near to the roof providing entry it is very open and is therefore of poor suitability. The extension on the eastern side is brick built, single storey with a flat roof. Slightly open window with holes present in the brickwork. No access from southern end of the eastern aspect with cracks in windows. South western corner is ivy clad. Western aspect has open gaps in boarded windows and small holes in brickwork. Extensive damage to brickwork beneath metal roof creating large exposed gaps in roof space. Northern aspect has gaps between brickwork and roof space providing entry.</p>		Moderate

<p>5</p>	<p>A stone farm building with pitch metal roof.</p> <p>Large exposed gaps beneath roof on the southern aspect and on the south-eastern corner near to a security light.</p> <p>A 'half' stable door is located on the south-western aspect and 2 on the north-western aspect as well as a window. There are holes present in the pointing of the brickwork all around the outside of the building but pointing within is good with a few holes and therefore there is low/negligible potential inside.</p>		<p>Low</p>
<p>6</p>	<p>A stone farm building with pitched metal roof.</p> <p>Along the northern aspect of building near to building 1 there are gaps present in brickworks towards the roof.</p> <p>Internal inspection: Ground floor level: Several holes within brickwork which could provide entry points for bats.</p> <p>Southern, eastern and western side of building has some ivy clad areas. Externally there are small gaps in brickwork.</p> <p>Large narrow gap in south western corner of building was clad in cobwebs. Old sealed fireplace clad with cobwebs.</p>		<p>Moderate</p>

7	<p>Large triple ridged farm building. Stone building with pitched metal roof. Draughty and well lit. Metal and wooden beams support the roof. There are gaps between wall and roof providing entry points.</p>		Low
8 - North eastern bridge	<p>Principally stone bricks with small bricks in line of arch. Thick ivy cladding obscuring most of the external features. Gaps in stone bricks of the supporting arms of the bridge. Southern side is covered in ivy and unable to be viewed from close up due to fencing and unstable earth mound. Arch in main bridge is in good condition.</p>		Low

<p>9 - South western bridge</p>	<p>Principally stone bricks with small bricks in line of arch. North west facing support has many gaps in pointing. A large vertical crack up western support wall. South facing side has less cracks in the support walls but a few. Arch in main bridge is in good condition. Recently had surrounding vegetation cut down.</p>		<p>Low</p>
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Appendix 3

Summary of Species (Fauna) Protection and Legislation

Appendix 3 – Summary of Species (Fauna) Protection and Legislation

Summary of Legislation

Protection for animals included on Schedule 5 of the Wildlife and Countryside Act 1981 (As Amended)		
Section 9	Part 1	intentionally kill, injure, take a scheduled animal
	Part 2	possess or control (live or dead animal, part or derivative)
	Part 4 (a)	Intentionally or recklessly damage, destroy or obstruct access to any structure or place used by a scheduled animal for shelter or protection
	Part 4 (b)	Intentionally or recklessly disturb an animal occupying such a structure or place
	Part 5 (a)	Sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative)
	Part 5 (b)	advertise for buying or selling such things

Protection for animals included on Schedule 2 of the Habitat Regulations 2017		
A person commits an offence if he:		
Section 43	Part 1	(a) Deliberately captures, injures or kills any wild animal of a European protected species (b) Deliberately disturbs wild animals of any such species. (c) Deliberately take or destroy the eggs of such an animal (d) Damage or destroy a breeding site or resting place of such an animal
	Part 2	For the purpose of paragraph (1)(b), disturbance of animals includes in particular any disturbance which is likely a) to impair their ability i. to survive, breed or reproduce or to rear or nurture their young; or ii. in the case of animals of a hibernating or migratory species, to hibernate or migrate. b) to affect significantly the local distribution or abundance of the species to which they belong
	Part 3	It is an offence to: a) be in possession of, or to control, b) transport, c) sell or exchange, or d) to offer for sale or exchange.

Part 4	Paragraph (3) applies to: a) any live or dead animal or part of animal (i) which has been taken from the wild, and (ii) which is a species or subspecies listed in Annex IV(a) of the Habitats Directive; and b) anything derived from such an animal or any part of such an animal.
Part 5	Paragraph (1) and (3) apply regardless of the stage of the life of the animal in question.

Badgers

Badgers are afforded full protection under the Protection of Badgers Act 1992, which makes it an offence to:

- Wilfully kill, injure or take a badger;
- Possess or control any live or dead badger or any part, or anything derived from, a dead badger;
- cruelly ill-treat a badger, or attempt to do so;
- To interfere with a sett by:
 - damaging or destroying it;
 - obstructing access to, or any entrance of, a badger sett;
 - causing a dog to enter a badger sett;
 - disturbing a badger when it is occupying a sett.;
- Sell a live badger or offer one for sale.

It is also an offence to mark, attach any ring, tag or other marking device to a badger unless authorised under licence.

Bats

All UK bat species are European Protected Species and afforded full protection through inclusion of Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017.

Barbastelle, Bechstein's, noctule, common pipistrelle, soprano pipistrelle, brown long-eared, greater horseshoe and lesser horseshoe bats are included within Section 7 of The Environment (Wales) Act 2016. Species included in this list are considered by the Secretary of State to be "*of principal importance for the purpose of conserving*

biodiversity". Barbastelle, Bechstein's, noctule, soprano pipistrelle, brown long-eared, greater horseshoe and lesser horseshoe bats are listed as a priority species on the UK Biodiversity Action Plan (BAP). All bat species are included on the Vale of Glamorgan local BAP.

Birds

All wild birds, their nests and eggs are protected throughout the breeding season (1 March to 31 August) under the Wildlife and Countryside Act, 1981 (as amended), which makes it an offence intentionally (with certain limited exceptions and in the absence of a licence) to:

- Kill or injure any wild bird;
- Take, damage or destroy the nest of any wild bird whilst it is in use or being built;
- Take or destroy the egg or any wild bird.

It is also an offence to possess any live or dead wild bird or egg, or anything derived from a wild bird or egg. Restrictions on trade and advertising also apply.

Bird species listed on Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended) are afforded additional protection against intentional or reckless disturbance whilst it is nest building, or at a nest containing eggs or young or disturbance to the young of a Schedule 1 bird.

In addition to this legal protection, the leading governmental and non-governmental conservation organisations in the UK have reviewed the population status of the birds regularly found here and produced a list of birds of conservation concern¹. Of the 244 species assessed, 67 were placed on the red list of high conservation concern, 96 on the amber list of medium conservation concern and 81 on the green list of low conservation concern. Consideration is therefore given to those species listed as being of conservation concern.

Brown Hare

Brown hare are not protected by law however they are included within Section 7 of The Environmental (Wales) Act 2016. Species listed on this section are considered to be of '*principal importance for the conservation of biodiversity*' and as such are listed

¹ <https://www.bto.org/science/monitoring/psob>

as a priority species on the UK Biodiversity Action Plan (BAP) and the Vale of Glamorgan local BAP.

Dormouse

The common dormouse is a scarce species, whose distribution has declined by more than half in the past century. Dormice are afforded full protection through inclusion on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017.

Dormice are included within the Section 7 of The Environmental (Wales) Act 2016. Species listed on this section are considered to be of principal importance for the conservation of biodiversity and as such are listed as a priority species on the UK Biodiversity Action Plan (BAP) and the Vale of Glamorgan local BAP.

Great Crested Newts

Great crested newts are afforded full protection through inclusion of Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017.

This legislation covers all life stages of great crested newts. Under the Wildlife and Countryside Act 1981, other amphibians, including smooth and palmate newts and common frogs cannot be sold or be offered for sale. The habitats of these amphibians are not legally protected.

Great crested newts are included within Section 7 of The Environmental (Wales) Act 2016. Species listed on this section are considered to be of principal importance for the conservation of biodiversity and as such are listed as a priority species on the UK Biodiversity Action Plan (BAP) and the Vale of Glamorgan local BAP.

Otter

Otters are afforded full legal protection through inclusion on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017.

Otters are included within Section 7 of The Environmental (Wales) Act 2016. Species listed on this section are considered to be of principal importance for the

conservation of biodiversity and as such are listed as a priority species on the UK Biodiversity Action Plan (BAP) and the Vale of Glamorgan local BAP.

Reptiles

Six native reptiles occur in Britain: the adder (*Vipera berus*), the grass snake (*Natrix natrix*), the smooth snake (*Coronella austriaca*), the sand lizard (*Lacerta agilis*), the common lizard (*Zootoca vivipara*) and the slow worm (*Anguis fragilis*).

The smooth snake and sand lizard are afforded complete protection through inclusion on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017.

These two species are very limited in their UK distribution and are not recorded in the Vale of Glamorgan area. Other common reptiles (common lizard, grass snake, adder and slow worm) are protected against intentional killing and injuring, sale and possession.

All six-reptile species are listed as a priority species on the UK Biodiversity Action Plan.

Water Vole

The UK water vole population has undergone a dramatic decline particularly over the last two decades. A decline in numbers has been attributable to direct loss of habitat, habitat fragmentation, water pollution and through predation, in particular by mink.

Water voles are not a European protected species; however, they are now fully protected under Schedule 5 of the Wildlife and Countryside Act 1981.

Water voles are included Section 7 of The Environmental (Wales) Act 2016. Species listed on this section are considered to be of principal importance for the conservation of biodiversity and as such are listed as a priority species in the UK Biodiversity Action Plan and the Vale of Glamorgan Local BAP.

White-clawed crayfish

White-clawed crayfish are afforded partial protection through inclusion of Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) in respect of section 9 (part 1 & 5), which makes it an offence to:

- Intentionally capture (take) a white-clawed crayfish;
- sell, offer for sale, possess or transport a white-clawed crayfish (live or dead, part or derivative) for the purpose of sale or advertise for buying or selling;

This legislation covers all life stages of white-clawed crayfish.

White-clawed crayfish are included within the Section 7 of The Environmental (Wales) Act 2016. Species listed on this section are considered to be of principal importance for the conservation of biodiversity and as such are listed as a priority species on the UK Biodiversity Action Plan (BAP).

Appendix 4

Species List

Appendix 4 – Species List

Section 1: Flora

Common Name	Scientific Name
<i>Trees / Shrubs</i>	
Apple species	<i>Malus</i> sp.
Ash	<i>Fraxinus excelsior</i>
Birch species	<i>Betula</i> sp.
Blackthorn	<i>Prunus spinosa</i>
Bramble	<i>Rubus fruticosus</i> agg.
Butterfly Bush	<i>Buddleja davidii</i>
Dogwood	<i>Cornus sanguinea</i>
Elder	<i>Sambucus nigra</i>
Elm sp.	<i>Ulmus</i> sp.
Hawthorn	<i>Crataegus monogyna</i>
Holly	<i>Ilex aquifolium</i>
Leylandii	<i>Cupressocyparis leylandi</i>
Maple, field	<i>Acer campestre</i>
Oak species	<i>Quercus</i> sp.
Oak, pedunculate	<i>Quercus robur</i>
Privet species	<i>Ligustrum</i> sp.
Rose species	<i>Rosa</i> sp.
Sycamore	<i>Acer psuedoplatanus</i>
Willow, crack	<i>Salix fragilis</i>
<i>Grasses / Sedges / Ferns / Reeds / Rushes / Horsetails</i>	
Bent-grass, black	<i>Agrostis gigantea</i>
Bent-grass, common	<i>Agrostis capillaris</i>
Brome, false	<i>Brachypodium sylvaticum</i>
Cock's foot	<i>Dactylis glomerata</i>
Dog's-tail, crested	<i>Cynosurus cristatus</i>
Fescue species	<i>Festuca</i> sp.
Hair-grass, wavy	<i>Deschampsia flexuosa</i>
Meadow-grass species	<i>Poa</i> sp.
Rush, hard	<i>Juncus inflexus</i>
Rush, sharp-flowered	<i>Juncus acutiflorus</i>
Rye-grass, perennial	<i>Lolium perenne</i>
Sedge species	<i>Carex</i> sp.
Timothy	<i>Phleum pratense</i>
Yorkshire fog	<i>Holcus lanatus</i>

Forbs

Bindweed, field	<i>Convolvulus arvensis</i>
Bindweed, hedge	<i>Catystegia sepium</i>
Black bryony	<i>Tamus communis</i>
Black Medick	<i>Medicago lupulina</i>
Buttercup, creeping	<i>Ranunculus repens</i>
Buttercup, meadow	<i>Ranunculus acris</i>
Cinquefoil, creeping	<i>Potentilla reptans</i>
Cleavers	<i>Galium aparine</i>
Clover, red	<i>Trifolium pratense</i>
Clover, white	<i>Trifolium repens</i>
Dandelion	<i>Taraxacum officinale</i> agg.
Dock species	<i>Rumex</i> sp.
Dock, broad-leaved	<i>Rumex obtusifolius</i>
Eyebright	<i>Euphrasia officinalis</i>
Fleabane, common	<i>Pulicaria dysenterica</i>
Hawkweed	<i>Hieracium</i> agg.
Herb Robert	<i>Geranium robertianum</i>
Hemp-agrimony	<i>Eupatorium cannabinum</i>
Hogweed	<i>Heracleum sphondylium</i>
Ivy	<i>Hedera helix</i>
Knapweed, common	<i>Centaurea nigra</i>
Michaelmas-daisy	<i>Aster</i> spp.
Nettle, common	<i>Urtica dioica</i>
Plantain, greater	<i>Plantago major</i>
Plantain, ribwort	<i>Plantago lanceolata</i>
Ragwort, common	<i>Senecio jacobaea</i>
Selfheal	<i>Prunella vulgaris</i>
Silverweed	<i>Potentilla anserina</i>
Sorrel species	<i>Rumex</i> sp.
Speedwell species	<i>Veronica</i> sp.
St John's-wort species	<i>Hypericum</i> sp.
Teasel	<i>Dipsacus fullonum</i>
Thistle species	<i>Cirsium</i> sp.
Thistle, creeping	<i>Cirsium arvense</i>
Umbelifer	
Vetch species	<i>Vicia</i> sp.
Vetchling, meadow	<i>Lathyrus pratensis</i>
Wild carrot	<i>Daucus carota</i>
Willowherb species	<i>Epilobium</i> sp.
Willowherb, rosebay	<i>Epilobium angustifolium</i>

Appendix 5

Summary of Criteria for Important Hedgerows

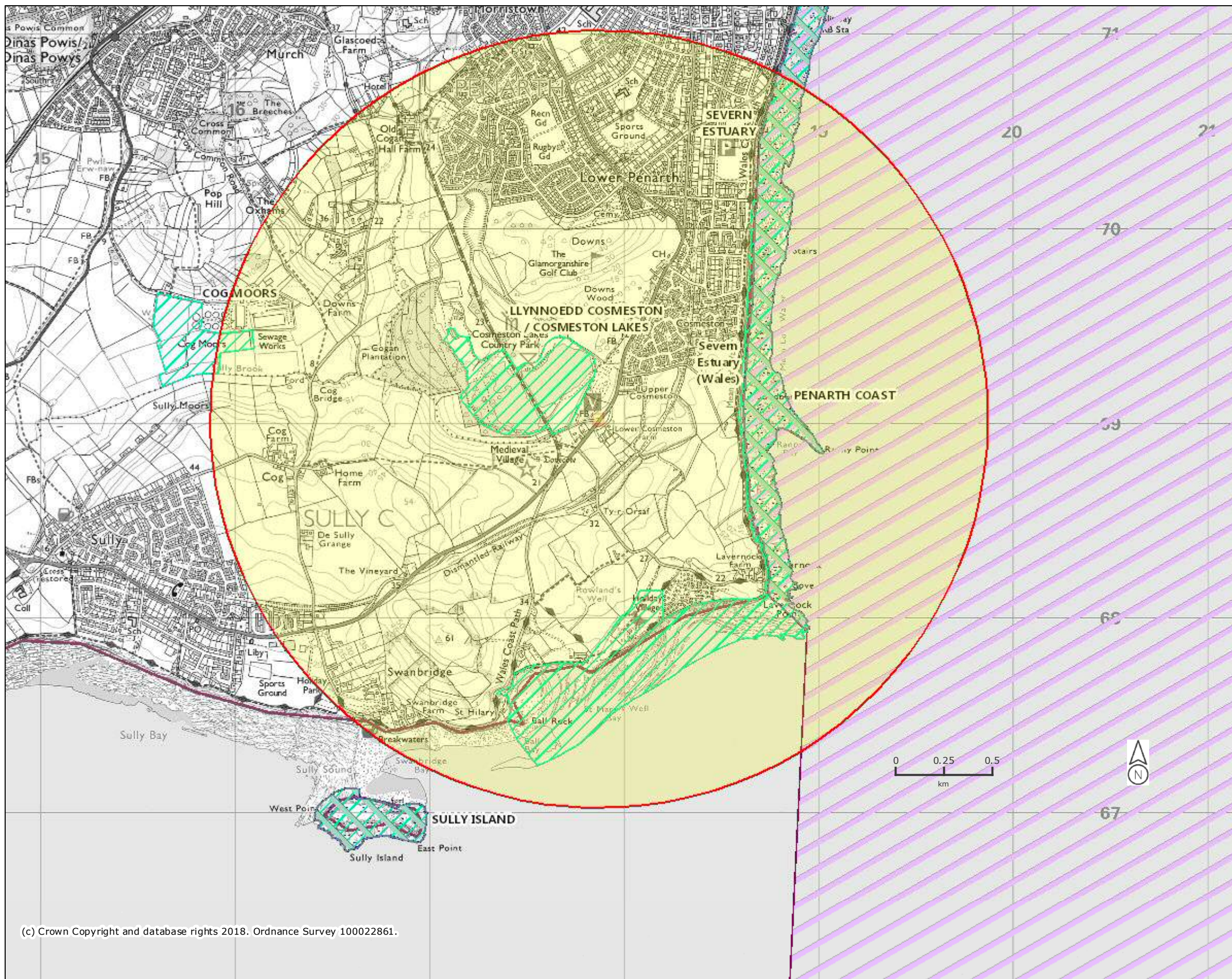
Job Number	CA11040
Client	Welsh Government
Project / Location	Cosmeston

Criteria	Hedgerow Number															
The Hedgerow is important if it is at least 30 years old and meets one of the following criteria	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
The hedgerow has existed for 30 years or more;	Y	Y	Y	Y	NA*	NA*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
At least 7 woody species; or																
At least 6 woody species and 3 associated features; or																
At least 6 woody species, including a:																
black poplar tree; or																
large-leaved lime; or																
small-leaved lime; or																
wild service tree.; or																
At least 5 woody species and at least 4 associated features; or																
Adjacent to a bridleway or footpath (check definition in Regulations) and includes at least 4 woody species and at least 2 of the associated features a - e.	Y	Y		Y											Y	
Associated Features																
(a) a bank or wall which supports the hedgerow along at least ½ of its length;											Y					Y
(b) gaps which in aggregate do not exceed 10% of the length of the hedgerow;	Y	Y								Y		Y	Y	Y	Y	Y
(c) One standard tree every 50m;	Y															
(d) At least 3 woodland plants within 1m of hedgerow;																
(e) A ditch along at least ½ of the length of hedgerow;																
(f) Connection points scoring at least 4; and										Y		Y			Y	Y
(g) Parallel hedge within 15m	Y	Y		Y					Y			Y	Y			
Connection points:																
Hedgerow (1)	1	1		1					2	2	3	2	2	2	2	2
Pond (2)																
Predominantly broadleaved woodland (2)		2	2				2	2		2		2			2	2
No. of woody species	4	4	4	6			2	1	4	4	3	3	2	4	3	6
No. of woodland plants									1							
Importance?	Y	Y	N	Y	NA*	NA*	N	N	N	N	N	N	N	N	Y	Y
Defunct							Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Intact	Y	Y	Y	Y												





NA* - curtilage to property and Hedgerow Regulations not applicable

Appendix 6

Sites Designated for Conservation within 2km



Legend

-  Ramsar Sites (Wales)
-  Sites of Special Scientific Interest (Wales)
-  Special Areas of Conservation (Wales)
-  Special Protection Areas (Wales)

Projection = OSGB36
 xmin = 314400
 ymin = 166600
 xmax = 321600
 ymax = 170700

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Appendix 7

Correspondence from Natural Resources Wales

Honour, Jo

From: South East Planning <southeastplanning@cyfoethnaturiolcymru.gov.uk>
Sent: 28 December 2016 10:22
To: Honour, Jo
Cc: Hurst, Andrew
Subject: RE: FW: FW: CA11040 - Proposed Development Site near Cosmeston NRW:02121090

Dear Jo

Many thanks for your e-mail as detailed below regarding the requirements for winter bird surveys for a proposed development site between Cosmeston Lakes and Severn Estuary.

We can confirm we agree with the view of the Local Authority's ecologist view and don't believe that wintering bird surveys will be necessary. The main roost sites for the Special Protection Area (SPA) are further east along the estuary and the shore line in question isn't as used at high tide.

Please note that the view expressed in this letter is a response to a pre application enquiry only and does not represent our final view in relation to any future planning application or legal consent made in relation to this site. We reserve the right to change our position.

Kind regards - Andrew

Andrew Hurst
Cynorthwydd Cynllunio Datblygu – Development Planning Assistant
Cyfoeth Naturiol Cymru/Natural Resources Wales
Ffôn/Tel: (03000) 653074
E-bost/E-mail
andrew.hurst@cyfoethnaturiolcymru.gov.uk andrew.hurst@naturalresourceswales.gov.uk
Gwefan/Website:
www.cyfoethnaturiolcymru.gov.uk/www.naturalresourceswales.gov.uk

----- Original Message -----

From: jhonour@wardell-armstrong.com
Received: 08/12/2016
To: South East Planning Mailbox Queue; southeastplanning@cyfoethnaturiolcymru.gov.uk
Subject: FW: FW: CA11040 - Proposed Development Site near Cosmeston NRW:02121090

Dear Andrew

Further to the correspondence below, please find attached the survey area for the proposed development site near Cosmeston.

Kind regards
Jo

Jo Honour | Associate Director
Wardell Armstrong LLP
22 Windsor Place, Cardiff, CF10 3BY
t: 029 2072 9191



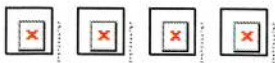
From: Honour, Jo
Sent: 08 December 2016 15:32
To: 'South East Planning' <southeastplanning@cyfoethnaturiolcymru.gov.uk>
Subject: RE: FW: CA11040 - Proposed Development Site near Cosmeston NRW:02121090

Dear Andrew

Further to the correspondence below, please find attached the survey area for the proposed development site near Cosmeston.

Kind regards
Jo

Jo Honour | Associate Director
Wardell Armstrong LLP
22 Windsor Place, Cardiff, CF10 3BY
t: 029 2072 9191



From: South East Planning [<mailto:southeastplanning@cyfoethnaturiolcymru.gov.uk>]
Sent: 08 December 2016 10:48
To: Honour, Jo <jhonour@wardell-armstrong.com>
Subject: RE: FW: CA11040 - Proposed Development Site near Cosmeston NRW:02121090

Morning Jo

I e-mailed you earlier in the week requesting a location plan related to your enquiry as submitted and detailed below. I am unable to action this enquiry until I receive this information. If you could resubmit when this information is available to the e-mail below that would be most helpful:-

southeastplanning@naturalresourceswales.gov.uk

Kind regards - Andrew

Andrew Hurst
Cynorthwydd Cynllunio Datblygu – Development Planning Assistant
Cyfoeth Naturiol Cymru/Natural Resources Wales
Ffôn/Tel: (03000) 653074
E-bost/E-mail
andrew.hurst@cyfoethnaturiolcymru.gov.uk andrew.hurst@naturalresourceswales.gov.uk
Gwefan/Website:
www.cyfoethnaturiolcymru.gov.uk/www.naturalresourceswales.gov.uk

----- Original Message -----

From: jhonour@wardell-armstrong.com
Received: 01/12/2016
To: Enquiries Queue; HZW-005344; HZW-006866
Cc: acoe@wardell-armstrong.com
Subject: CA11040 - Proposed Development Site near Cosmeston

Dear Sir/Madam

Proposed Development at Cosmeston, Penarth – Scoping requirement for Wintering Bird Surveys

Wardell Armstrong have been commissioned to provide ecological consultancy services in connection with a proposed development site which lies between Cosmeston lakes and the Severn Estuary.

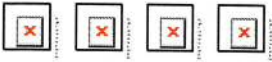
The site mainly comprises improved pasture but parts of the site are adjacent to the Severn Estuary.

We have spoken to the Vale of Glamorgan County Council's Ecologist (Erica Dixon) and agreed with that they would not request wintering birds surveys but it was recommended that Wardell Armstrong contact NRW to confirm that they would also not expect specific wintering bird survey data for the site.

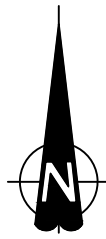
We are currently preparing a scope of surveys for next year but we wanted to ascertain whether NRW would request wintering bird surveys to support a planning application as we would need to commence these as soon as possible or can we reference existing bird survey data for the Severn Estuary? We understand that there is webcount data for 2014/2015 on the BTO website.

Kind regards

Jo Honour | Associate Director
Wardell Armstrong LLP
22 Windsor Place, Cardiff, CF10 3BY
t: 029 2072 9191



DRAWINGS



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REFERENCE

Site boundary (29.14Ha) _____

2Km Search area _____

Original site boundary EP1 Habitat Survey in September 2016 _____

Additional land included within site boundary and subject to EP1 Habitat Survey in April 2017 _____

A	Amended to show revised site boundary.	05/10/17	RJH	JLH	JLH
---	--	----------	-----	-----	-----

REVISION	DETAILS	DATE	DR'N	CHK'D	APP'D
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PROJECT
COSMESTON ECOLOGICAL SURVEY

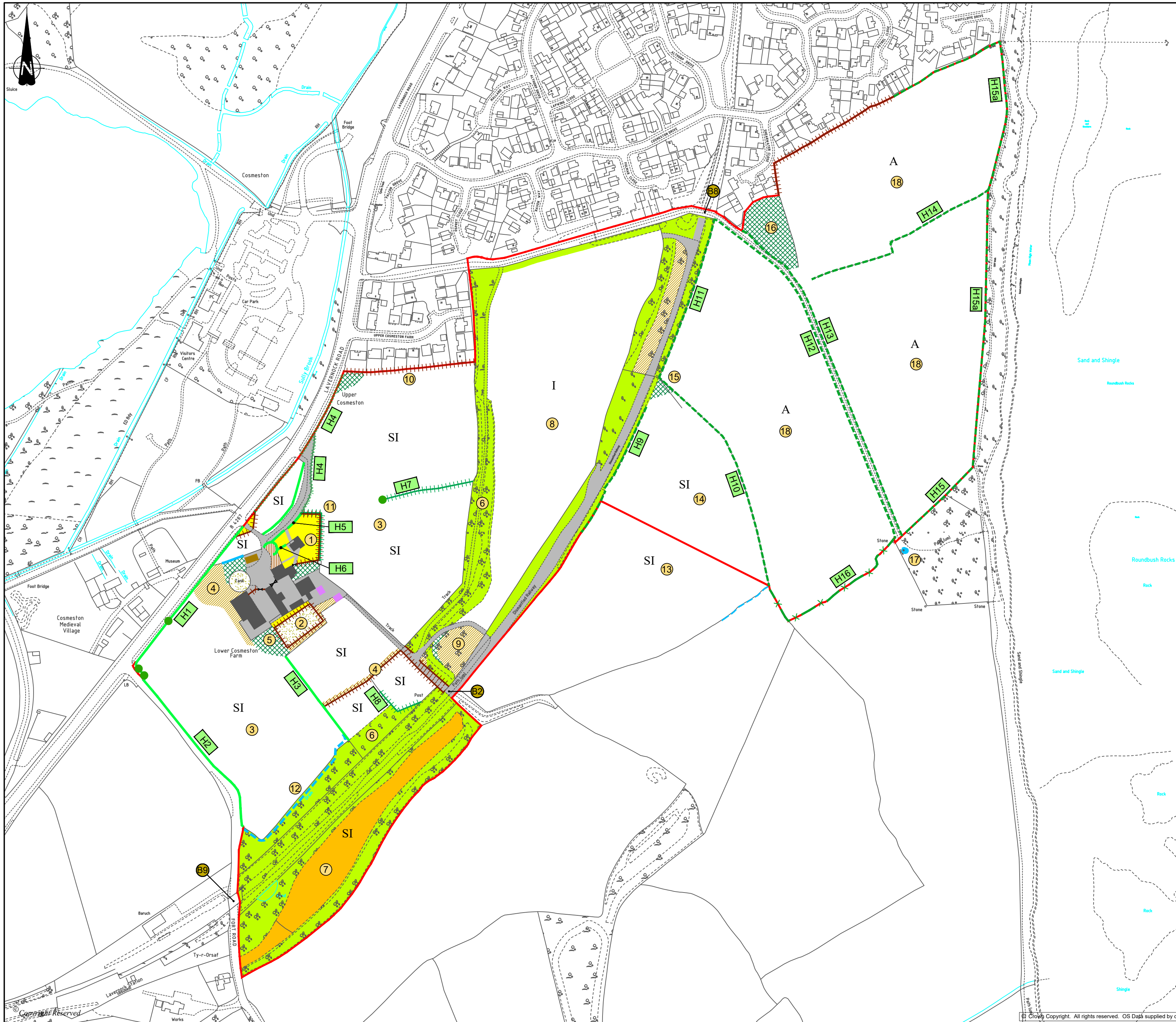
DRAWING TITLE
SITE LOCATION PLAN & ECOLOGICAL SURVEY AREA

DRG No.	CA11040-001	REV	A
DRG SIZE	A3	SCALE	1:25,000
		DATE	17/10/16
DRAWN BY	RJH	CHECKED BY	JLH
		APPROVED BY	JLH

- CARDIFF TEL 029 2072 9191 WEB: WWW.WARDELL-ARMSTRONG.COM
 BIRMINGHAM CARLISLE CROYDON EDINBURGH
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REFERENCE

Survey area	---	---
Amenity grassland	---	---
Improved grassland	---	I
Semi-improved grassland	---	SI
Poor semi-improved grassland	---	SI
Arable	---	A
Broad-leaved woodland	---	---
Sand	---	---
Tall ruderal	---	---
Pond/Standing water	---	---
Wet watercourse	---	---
Dry watercourse	---	---
Storage container	---	---
Gate	---	---
Building	---	---
Hardstanding	---	---
Disturbed ground	---	---
Scrub	---	---
Chicken coop	---	---
Fence	---	---
Hedgerow intact species poor	---	---
Hedgerow intact species rich	---	---
Hedgerow defunct species poor	---	---
Hedgerow defunct species rich	---	---
Defunct species poor remnant hedgerow	---	---
Tree	---	---
Target note	---	1
Target note hedgerow	---	H1
Bridge reference number	---	39

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D

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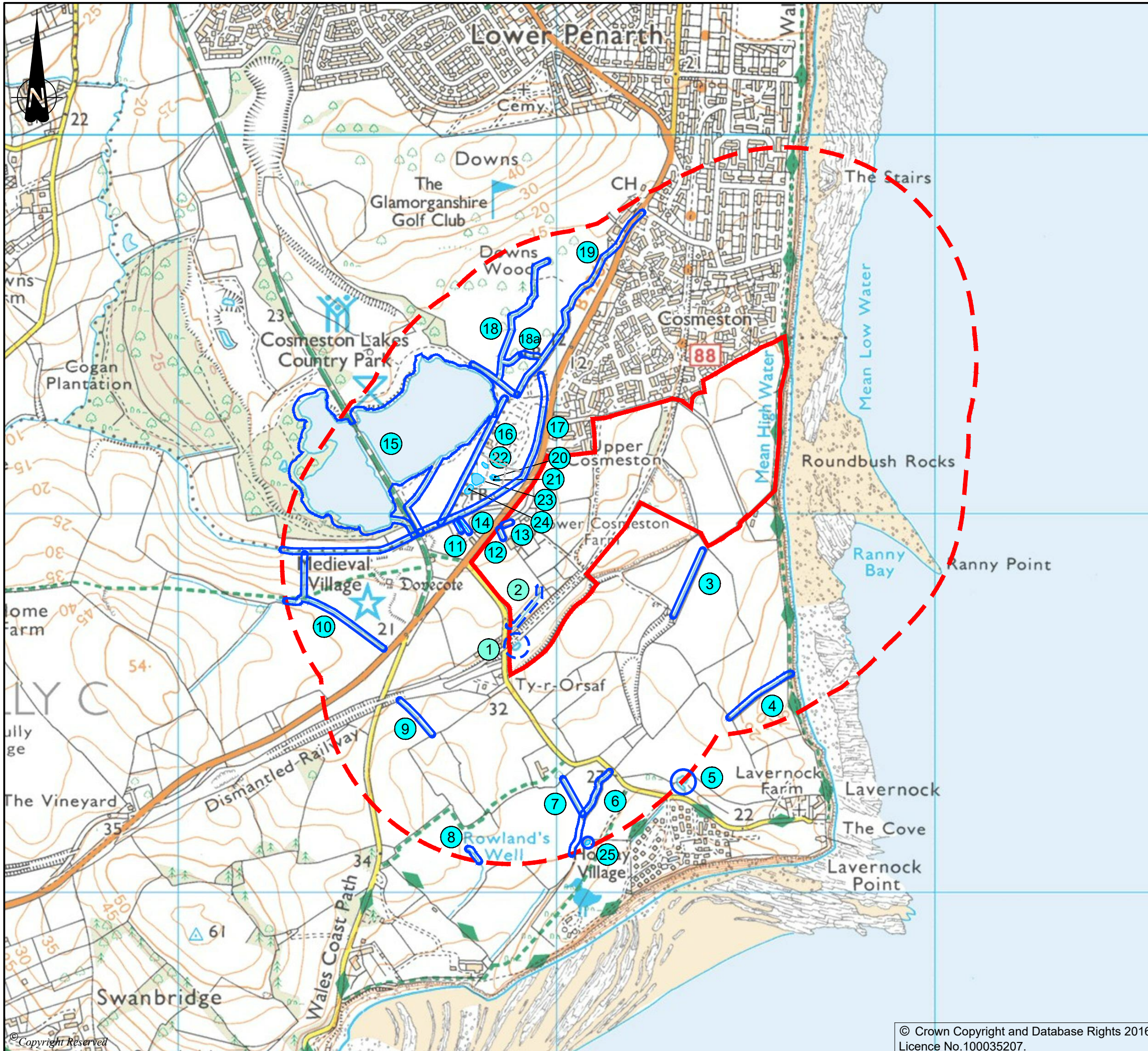
PROJECT
COSMESTON ECOLOGICAL SURVEY

DRAWING TITLE
HABITAT PLAN

DRG No.	CA11040-002	REV	
DRG SIZE	A2	SCALE	1:2500
		DATE	05/10/17
DRAWN BY	RJH	CHECKED BY	KH
		APPROVED BY	JLH

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- REFERENCE**
- Survey area _____
 - 500m Search area _____
 - Waterbody reference number _____
 - Dry waterbody reference number _____

A	Additional ponds added/re-referenced.	17/01/18	RJH	JLH	JLH
---	---------------------------------------	----------	-----	-----	-----

REVISION	DETAILS	DATE	DR'N	CHK'D	APP'D
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PROJECT
COSMESTON ECOLOGICAL SURVEY

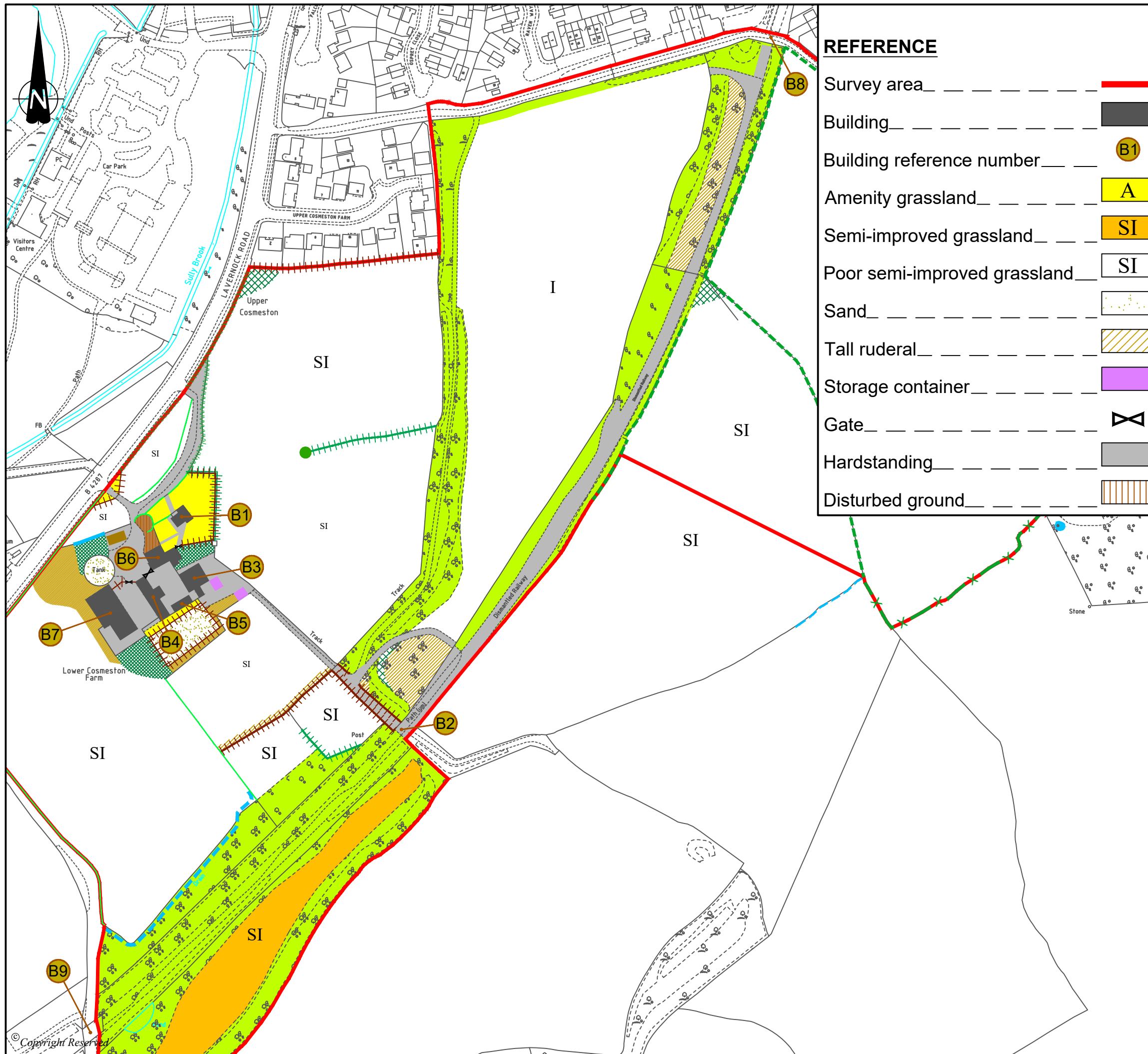
DRAWING TITLE
WATERBODY LOCATION PLAN

DRG No.	CA11040-003	REV	A
DRG SIZE	A3	SCALE	1:10,000
		DATE	04/04/17
DRAWN BY	RJH	CHECKED BY	JLH
		APPROVED BY	JLH

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 GLASGOW LEIGH LONDON MANCHESTER
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REFERENCE

Survey area	---	---	Woodland broad-leaved	---	---
Building	---	---	Scrub	---	---
Building reference number	---	B1	Chicken coop	---	---
Amenity grassland	---	A	Fence	---	---
Semi-improved grassland	---	SI	Intact species poor hedgerow	---	---
Poor semi-improved grassland	---	SI	Species poor tree-line	---	---
Sand	---	---	Hedgerow intact species rich	---	---
Tall ruderal	---	---	Hedgerow defunct species rich	---	---
Storage container	---	---	Hedgerow defunct species poor	---	---
Gate	---	---	Semi-mature tree	---	---
Hardstanding	---	---	Watercourse wet	---	---
Disturbed ground	---	---	Watercourse dry	---	---

REVISION	DETAILS	DATE	DR'N	CHK'D	APP'D
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PROJECT
COSMESTON ECOLOGICAL SURVEY

DRAWING TITLE
BUILDING INSPECTION SURVEY - 2016

DRG No.	CA11040-005	REV	
DRG SIZE	A3	SCALE	1:2500
		DATE	24/07/18
DRAWN BY	RJH	CHECKED BY	KH
		APPROVED BY	JLH

- CARDIFF TEL 029 2072 9191 WEB: WWW.WARDELL-ARMSTRONG.COM
 BIRMINGHAM CARLISLE CROYDON EDINBURGH
 GLASGOW LEIGH LONDON MANCHESTER
 NEWCASTLE UPON TYNE SHEFFIELD STOKE-ON-TRENT TAUNTON



wardell-armstrong.com

STOKE-ON-TRENT
Sir Henry Doulton House
Forge Lane
Etruria
Stoke-on-Trent
ST1 5BD
Tel: +44 (0)178 227 6700

BIRMINGHAM
Two Devon Way
Longbridge Technology Park
Longbridge
Birmingham
B31 2TS
Tel: +44 (0)121 580 0909

CARDIFF
22 Windsor Place
Cardiff
CF10 3BY
Tel: +44 (0)292 072 9191

CUMBRIA
Marconi Road
Burgh Road Industrial Estate
Carlisle
Cumbria
CA2 7NA
Tel: +44 (0)122 856 4820

EDINBURGH
Great Michael House
14 Links Place
Edinburgh
EH6 7EZ
Tel: +44 (0)131 555 3311

GLASGOW
2 West Regent Street
Glasgow
G2 1RW
Tel: +44 (0)141 433 7210

LONDON
46 Chancery Lane
London
WC2A 1JE
Tel: +44 (0)207 242 3243

MANCHESTER (City Centre)
76 King Street
Manchester
M2 4NH
Tel: +44 (0)161 817 5038

MANCHESTER (Greater)
2 The Avenue
Leigh
Greater Manchester
WN7 1ES
Tel: +44 (0)194 226 0101

NEWCASTLE UPON TYNE
City Quadrant
11 Waterloo Square
Newcastle Upon Tyne
NE1 4DP
Tel: +44 (0)191 232 0943

SHEFFIELD
Unit 5
Newton Business Centre
Newton Chambers Road
Thornccliffe Park
Chapelton
Sheffield
S35 2PH
Tel: +44 (0)114 245 6244

TRURO
Baldhu House
Wheal Jane Earth Science Park
Baldhu
Truro
TR3 6EH
Tel: +44 (0)187 256 0738

International offices:
ALMATY
29/6 Satpaev Avenue
Regency Hotel Office Tower
Almaty Kazakhstan
050040
Tel: +7(727) 334 1310

MOSCOW
21/5 Kuznetskiy Most St.
Moscow
Russia
Tel: +7(495) 626 07 67

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