



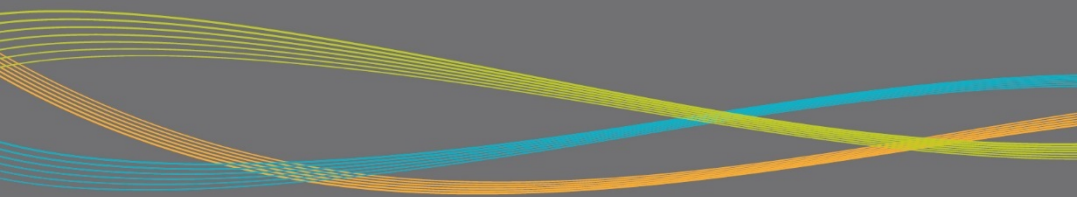
**Cosmeston
Lakes, Penarth**

**Ecological
Baseline Report**

Prepared by:
**The Environmental
Dimension
Partnership Ltd
(EDP)**

On behalf of:
**Cosmeston Lakes
Wake Park**

March 2017
Report Reference
EDP3861_01a



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Executive Summary

- S1 This Ecological Appraisal has been prepared by The Environmental Dimension Partnership (EDP) on behalf of Cosmeston Lakes Wake Park, and considers the ecological implications of proposed development at Cosmeston Lakes, Penarth.
- S2 The proposed development is for a Wakeboarding Cable Park, which will consist of 'an out and back' elevated cable system to be located along the western edge of the eastern lake. Associated facilities, to include a reception area and changing room facilities will be located within the grounds of an existing car park, whilst foot and vehicular access will utilise existing infrastructure.
- S3 To inform potential ecological constraints and opportunities for development, a Desk Study and Extended Phase I Habitat survey were undertaken on 27 January 2017. During the site visit a detailed search of the Application Site was also undertaken for evidence of badger, otter and water vole. An assessment of trees to determine their potential to support bat roosts was undertaken, in addition to an assessment of all waterbodies onsite to determine their suitability to support great crested newt was also completed during the site visit.
- S4 EDP's desk- and field-based baseline investigations confirm the inclusion of the Application Site within the boundaries of Cosmeston Lakes Site of Special Scientific Interest (SSSI), Local Nature Reserve (LNR) and Country Park, with the development proposals focusing on the eastern lake. Additionally, the Application Site supports a variety of habitats including broadleaved woodland, swamp, scrub and amenity grassland, with the potential to support protected and notable species including birds, otter, badger and common reptiles.
- S5 However, given the small scale and scope of the proposed development, those habitats and species present/potentially present within and around the Application Site are not considered to pose 'in principle' constraints to the proposals. Additionally, it is considered that whilst the Application Site is partially located within a statutorily protected site, its qualifying features could be sufficiently protected from any adverse impacts arising from the proposed development through the implementation of appropriate avoidance and mitigation measures during the construction and operational phases.
- S6 *Planning Policy Wales Technical Advice Note (TAN) 5* sets out policies specific to the protection of biodiversity and geological conservation through the planning system, requiring the conservation and enhancement of the natural environment at all levels, whilst ensuring no net loss to natural heritage. Avoidance and protection measures will therefore be key to ensure no adverse impacts upon key ecological receptors will arise during the construction and operational phases, in addition to requirements for monitoring and management over the long term so as to ensure the maintenance of favourable condition of Cosmeston Lakes SSSI.

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Section 1

Introduction, Purpose and Context

- 1.1 This Ecological Appraisal has been prepared by The Environmental Dimension Partnership (EDP) on behalf of Cosmeston Lakes Wake Park (hereafter referred to as 'the Applicant'). This Appraisal considers the ecological implications of proposed development at Cosmeston Lakes, Penarth (hereafter referred to as 'the Application Site').
- 1.2 EDP is an independent environmental planning consultancy with offices in Cirencester, Cardiff and Shrewsbury. The practice provides advice to private and public sector clients throughout the UK in the fields of landscape, ecology, archaeology, cultural heritage, arboriculture, rights of way and masterplanning. Details of the practice can be obtained at our website www.edp-uk.co.uk.

Site Context

- 1.3 The Application Site is centred approximately at Ordnance Survey Grid Reference (OSGR) ST 17590 6911 and is situated within the grounds of Cosmeston Country Park, Penarth. The Application Site also sits within Cosmeston Lakes Special Site of Scientific Interest (SSSI). Cosmeston Lakes SSSI comprises two lakes created from flooded limestone quarries. Open to the public, the lakes are surrounded by a network of public footpaths, vehicular access tracks, car parking facilities and picnic areas. The eastern lake - the proposed location for wakeboarding activities - is bordered by reedbed habitat, ponds, woodland, areas of dense scrub and amenity grassland. The western lake, in contrast, is less accessible to the public and is associated with relatively large expanses of scrub, reed-bed, woodland and historical quarry faces.
- 1.4 Parkland and woodland associated with the wider Country Park and a golf course lie immediately adjacent to the boundaries of the SSSI whilst land to the west opens onto agricultural fields, delineated by native hedgerows and through which the Sully Brook flows. The Country Park and SSSI is located on the southern boundaries of the town of Penarth and is within 800 metres of the southern Welsh coastline.

Development Proposals

- 1.5 The proposed development is described in further detail at **Section 4**. In brief, however, the proposed development is for a Wakeboarding Cable Park, a recreational facility. The facility will consist of 'an out and back' elevated cable system, to be located along the western edge of the eastern Lake. Associated facilities, to include a reception area and changing room facilities, will be located within the grounds of an existing car park, whilst foot and vehicular access will utilise existing infrastructure.

- 1.6 The proposals are to be the subject of a detailed planning application and the illustrative masterplan is provided as **Appendix EDP 1** to this report.

Scope of Appraisal

- 1.7 This Ecological Appraisal describes the current ecological interest within and around the Application Site, which has been identified through standard desk- and field-based investigations. It then considers the potential ecological impacts and opportunities for ecological enhancement based on the final masterplan in the context of relevant legislation and planning policy. Finally, this Appraisal identifies the necessary additional measures to avoid, mitigate or provide compensation for potential impacts, and the mechanisms for securing such measures.

- 1.8 The remainder of this report is structured as follows:

- **Section 2** summarises the methodology employed in determining the baseline ecological conditions within and around the Application Site (with further details provided within Appendices and on Plans where appropriate);
- **Section 3** summarises the baseline ecological conditions (with further details also provided within Appendices and on Plans where appropriate) and identifies and evaluates any pertinent ecological features/receptors;
- **Section 4** describes the development proposals, how the design has been influenced by ecological factors, EDP input to the design process and key components of inherent mitigation;
- **Section 5** considers the potential impacts of the proposal on pertinent ecological features in the context of legislative, planning policy and biodiversity action planning considerations. Recommended mitigation and enhancement measures are provided for the current and possible future planning stages; and
- **Section 6** summarises the inherent and recommended additional mitigation measures and provides the overall conclusions of the Appraisal.

Section 2

Methodology (Baseline Investigations)

2.1 This section of the Ecological Appraisal summarises the methodologies employed in determining the baseline ecological conditions within and around the Application Site. The appraisal has been undertaken by appropriately qualified ecologists using relevant best practice methodologies wherever possible. Reasons for any departure from best practice methodology are given, and normally relate to the timing of EDP's commission and/or the availability of access to parts of the site or wider study area. Full details of the techniques and process adopted are, where appropriate, provided within Appendices and on Plans to the rear of this report.

Desk Study and Consultation

2.2 The desk study is an important element of undertaking an initial ecological appraisal of a site proposed for development, enabling the initial collation and review of contextual information, such as designated sites, together with known records of protected and notable species.

2.3 The desk study involved collating biodiversity information from the following sources:

- South East Wales Biological Records Centre (SEWBRc);
- Multi-Agency Geographic Information for the Countryside (MAGIC) website¹; and
- National Biodiversity Network (NBN) Gateway website².

2.4 The desk study was undertaken during February 2017 and involved obtaining the following information:

- International statutory designations (10km radius around site);
- National statutory designations and non-statutory local sites (2km); and
- Protected/notable species records (1km).

2.5 These search areas are considered sufficient to cover the potential zones of influence³ of the proposed development in relation to designated sites, habitats and species.

¹ www.magic.gov.uk

² www.data.nbn.org.uk

³ Zone of Influence - the areas and resources that may be affected by the proposed development

- 2.6 In addition to the above, the views of the County Ecologist were sought in respect of likely ecological sensitivities pertaining to the Application Site and necessary survey scope. Copies of relevant correspondence are provided in **Appendix EDP 2**.

Extended Phase 1 Survey

- 2.7 The survey technique adopted for the initial habitat assessment was at a level intermediate between a standard Phase 1 survey technique⁴, based on habitat mapping and description, and a Phase 2 survey, based on detailed habitat and species surveys. The survey technique is commonly known as an Extended Phase 1 Survey. This level of survey does not aim to compile a complete floral and faunal inventory for the site.
- 2.8 The level of survey involves identifying and mapping the principal habitat types and identifying the dominant plant species present therein. Additionally, any actual or potential protected species or species of Principal Importance⁵ are identified and scoped.
- 2.9 The Extended Phase 1 Survey of the Application Site was undertaken by a suitably experienced surveyor on 27 January 2017 during which the weather was 5°C dry with no rain and 80% cloud cover.
- 2.10 In addition, further detailed surveys of the Application Site were undertaken with respect to badger (*Meles meles*), otter (*Lutra lutra*), water vole (*Arvicola amphibicus*), bats and great crested newt (*Cristatus triturus*), as further detailed below.

Badger

- 2.11 A detailed search of the Application Site, and particularly the location of the proposed cable system was undertaken on 27 January 2017 for signs of badger activity. The survey involved a search for badger setts, latrines, hair, footprints, foraging pits and mammal trails.

Otter & Water Vole

- 2.12 A detailed search of the Application Site for otter and water vole activity was undertaken on 27 January 2017 by a suitably qualified ecologist, trained in the identification of otter and water vole field signs.
- 2.13 The survey was conducted from the banks of the eastern lake where access was possible. Survey focused on those areas within and adjacent to the footprint of cable system. With respect to otter, the survey involved a search for feeding remains, prints, tracks, lay-ups, holts and spraints. For water vole, the survey involved a search for burrows, feeding stations, latrines and footprints.

⁴ Joint Nature Conservation Council (2004) *Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit* (reprinted with minor corrections for original Nature Conservancy Council publication).

⁵ Species of Principal Importance for the purpose of conserving biodiversity, as listed under Sections 41 (England) and 42 (Wales) of the NERC Act (2006)

Bats

Investigations of Bat Roosting – Trees

- 2.14 To determine the potential impacts of the proposed development upon bats potentially roosting within trees across the Application Site, all suitable trees were subject to a ground level visual assessment with reference to current best practice guidance⁶.
- 2.15 The tree survey involved a ground-based visual assessment of trees for the presence of, or potential to support roosting bats. The survey was undertaken during the Extended Phase I Survey on 27 January 2017 by a suitably qualified and licensed ecologist. The trees were searched as thoroughly as possible from ground level, with all elevations covered where accessibility allowed.
- 2.16 Suitable features for roosting bats sought for during the assessment included:
- Loss/peeling/fissured bark;
 - Natural holes e.g. rot holes and holes from fallen limbs;
 - Woodpecker holes;
 - Cracks/splits or hollow tree trunks/limbs; and
 - Thick-stemmed ivy.
- 2.17 Signs of roosting bats sought for included:
- Bat/s roosting *in-situ*;
 - Bat droppings within or beneath a feature;
 - Staining around or beneath a feature;
 - Oily marks (staining) around roost access points;
 - Audible squeaking from the roost;
 - Large/regularly used roosts or regularly used sites may produce an odour; and
 - Flies around the roost, attracted by the smell of guano.

⁶ Bat Conservation Trust (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition*. Bat Conservation Trust, London

2.18 Based upon the results of the visual assessment and features/evidence identified, the following ratings for trees were used during the assessment:

- **Known or confirmed roost** - European Protected Species (EPS) licence required for works to tree to be completed lawfully;
- **High potential** – Tree supports one or more features that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time;
- **Moderate potential** – Tree supports one or more features that could be used by bats, but are unlikely to support a roost type of high conservation status;
- **Low potential** – Tree supports one or more features that could be used by individual bats opportunistically, or is of sufficient size and age to contain such features; and
- **Negligible potential** – Negligible features likely to support roosting bats.

Great Crested Newt

Habitat Suitability Assessment

2.19 All water bodies identified within the Study Area were assessed using the standard Habitat Suitability Index (HSI) developed by Oldham *et al.* (2000)⁷, for their potential to support great crested newt. This is a standard assessment system that uses numerous criteria such as water quality, fish/waterfowl presence and surrounding terrestrial habitat from which a score is derived (**Appendix EDP 3**). Water bodies with higher scores are considered more likely to support great crested newt than those with low scores. HSI scores relating to the suitability of the pond assessed to support great crested newt are described within **Table EDP 2.1**.

Table EDP 2.1: HSI Scores and Inferred Pond Suitability

HSI Score	Pond Suitability to Support Great Crested Newts
<0.5	Poor suitability
0.5–0.59	Below average suitability
0.6–0.69	Average suitability
0.7–0.79	Good suitability
>0.8	Excellent suitability

2.20 The study area supports three waterbodies, including the eastern lake and two small ponds to the south within reed-bed habitat.

⁷ Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). *Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus)*. Herpetological Journal 10 (4), 143-155.

Limitations

- 2.21 January is considered suboptimal for undertaking HSI assessment due to a die-back of macrophyte floral. Given the nature and distribution of waterbodies subjected to survey, this is not considered to have affected the outcome of the assessment.
- 2.22 HSI is an unsuitable assessment tool for large lakes. A result should therefore be treated with caution. An assessment of its potential to support great crested newt has, therefore, been based on professional judgement with reference to an HSI score.

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Section 3 Results (Baseline Conditions)

3.1 This section of the Ecological Appraisal summarises the baseline ecological conditions determined through the course of desk-based and field-based investigations described in **Section 2**. In particular, this section identifies and evaluates those ecological features/receptors that lie within the Application Site's potential zone of influence and which are pertinent in the context of the proposed development. Further technical details are, where appropriate, provided within Appendices and on Plans to the rear of this report.

Designated Sites

3.2 Information regarding designated sites was obtained during the Desk Study from the MAGIC website and SEWBRc. Statutory designations (those receiving legal protection) and non-statutory designations (those receiving planning policy protection only) are discussed in turn below.

Statutory Designations

3.3 Statutory designations represent the most significant ecological receptors, being of recognised importance at an international and/or national level. International designations include Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar Sites. National designations include Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs).

3.4 The Application Site is located within Cosmeston Lakes SSSI and comprises its eastern lake. Additionally, a number of other such designations are also present within the Application Site's potential zone of influence, as illustrated within **Plan EDP 1**. Brief descriptions of these designations are summarised in **Table EDP 3.1**.

Table EDP 3.1: Statutory Designations within the Site's Potential Zone Of Influence

Designation	Distance from site	Interest Feature(s)
Cosmeston Lakes SSSI	On Site	This SSSI comprises two lakes, eastern and western, connected by a narrow channel, the former comprising the Application Site. Both lakes have been created from flooded limestone quarries and support a range of submerged plants. The western lake is of special interest as the only known site in Wales for the presence of starry stonewort (<i>Nitellopsis obtusa</i>). Reasons for its notification and sensitivities are provided further below.

Designation	Distance from site	Interest Feature(s)
Severn Estuary SAC	730m east	This SAC is designated for its assemblage of Annex I habitats including: estuaries; mudflats and sandflats not covered by seawater at low tide; and Atlantic salt meadow. Also a qualifying feature are its populations of twaite shad (<i>Allosa fallax</i>), sea lamprey (<i>Petromyzon marinus</i>) and river lamprey (<i>Lampetra fluviatilis</i>).
Severn Estuary SPA	730m east	This SPA is designated for supporting populations of European importance, overwintering Bewick's swan (<i>Cygnus columbianus bewickii</i>) and migratory curlew (<i>Numenius arquata</i>), dunlin (<i>Calidris alpina</i>), pintail (<i>Anas acuta</i>), redshank (<i>Tringa tetanus</i>) and shelduck (<i>Tadorna tadorna</i>). The site also supports a population of European importance of passage ringed plover (<i>Charadrius hiaticula</i>) and is a wetland of international importance.
Severn Estuary Ramsar Site	730m east	The Severn Estuary is designated a Ramsar Site for: its immense tidal range; presence of unusual estuarine communities, reduced diversity and high productivity; populations of migratory fish; bird assemblages of international importance; and fish species associated with the whole estuarine and river system.
Severn Estuary SSSI	730m east	The SSSI is of international importance for wintering and passage wading birds and is further recognised for its populations of migratory fish and estuarine habitats including saltmarsh and eel grass (<i>Zostera</i> spp.) beds.
Penarth Coast SSSI	730m east	The site is of interest for its mineral formations, species-rich calcareous grasslands and cliff-top scrub which supports a number of plant species of limited occurrence and distribution.
Cog Moors SSSI	1.4km north-west	Cog moors comprises a series of fields adjacent to Sully Brook and is of special interest for its large area of damp neutral semi-natural grassland. Of additional interest, Cog Moors supports populations of the nationally scarce bulbous foxtail (<i>Alopecurus bulbosus</i>) and pepper saxifrage (<i>Silaum silaus</i>).
Sully Island SSSI	2.0km south	The site is of special interest for its mineral formations and provides the main roost for waders feeding in winter in the Taff/Ely Estuary. The island supports populations of dunlin, grey plover (<i>Pluvialis squatarola</i>), ringed plover, redshank and knot (<i>Calidris canutus</i>). The Taff-Sully system is of national importance for dunlin and redshank and also constitutes part of the wider Severn Estuary internationally important sites.

3.5 Overlapping with the Application Site, Cosmeston Lakes SSSI is considered of national importance (refer to **Appendix EDP 4** for full citation). First notified in 2009, the SSSI is recognised for the presence of starry stonewort, a species which usually grows in calcareous lakes of between 1m and 6m in depth and which is known in only a few other locations in Britain, The Norfolk Broads and Gloucestershire. In addition, Cosmeston

Lakes also supports areas of grassland, ponds and swamp which together with other habitats within the wider country park, add to the interest of the SSSI.

- 3.6 Starry stonewort is regarded as a summer annual which reproduces by the release of spores into the water column from July to September under suitable light levels. The species favours deep, clear, unpolluted waterbodies relatively rich in nutrients and with high alkalinity. Though light is a trigger for its reproduction, it is able to withstand low light conditions but is less tolerant of turbulence.
- 3.7 As such, the following factors are considered likely to adversely affect the favourable status of this SSSI (refer to **Appendix 5** for full details):
- Pollution from agricultural runoff resulting in an increase in algal blooms and decrease in photosynthesis and reproduction of starry stonewort;
 - Nutrient enrichment arising from use of the lakes by excessive numbers of waterfowl; and
 - Disturbance caused by bottom feeding fish or use of boats on the ‘**western lake**’ which could damage sensitive rhizoids important for anchoring starry stonewort to the lake bed.
- 3.8 Potential impacts arising from proposed development are, therefore, assessed in terms of the particular sensitivities of these special features of the SSSI and discussed in further in **Section 5**. Indeed, existing documentation provided by Natural Resources Wales (NRW) detailing the sensitivities of this SSSI recognises a requirement to balance both the recreational and ecological interests of the SSSI. As such, there is the presumption that *“boating and other recreational use of the eastern lake will be allowed to continue under carefully controlled conditions...but boating and recreational use of the western lake should be avoided”* (refer to **Appendix 5**).
- 3.9 Following a desk study review of available information, it is however, understood that only *‘one of the lakes is of special interest’* for starry stonewort, i.e. the western lake. Also a country park, the Lakes are open to members of the public and function as an area of open green space and wildlife interest; a circular path was created around both lakes but predominantly the eastern lake, with boardwalks constructed over wetland areas. Facilities include extensive car parking, picnic areas, play areas and an information centre. A relatively large proportion of bankside habitat around the eastern lake is accessible to the public. Hence, these areas are typically trampled and banks eroded with little to no marginal vegetation visible.
- 3.10 The western lake, in contrast, has been established as a conservation area with large areas of woodland and swamp habitat fenced off from the public and which has the potential as a haven for wildlife. As such, there appears to be marked difference between the condition of the two lakes, with the western lake considered to be of greater nature conservation value when compared to the eastern lake.

Non-Statutory Designations

- 3.11 Non-statutory designations are also commonly referred to in planning policies as 'local sites', although in fact these designations are typically considered to be importance at a county level. In the Vale of Glamorgan such designations are named Sites of Interest for Nature Conservation (SINCs). Additional designated sites which should be considered at this level include Wildlife Trust Reserves (WTR) and Ancient Semi-Natural Woodland (ASNW), where these are not covered by other designations.
- 3.12 The Application Site overlaps with Cosmeston Lakes LNR and Country Park and is directly adjacent to Cosmeston Lakes SINC. There are a number of other such designations within the Application Site's potential zone of influence, as illustrated within **Plan EDP 2**. A summary is provided within **Table EDP 3.2**.

Table EDP 3.2: Non-statutory Designations within the Site's Potential Zone Of Influence

Designation	Distance from site	Interest Feature(s)
Cosmeston Lakes LNR	Overlapping	The LNR supports a range of habitats including open water, ponds, woodland, grassland and scrub.
Cosmeston Lakes Country park	Overlapping	The Country Park supports a range of habitats including open water, ponds, woodland, grassland and scrub.
Cosmeston Lakes SINC	Adjacent	A Country Park supporting a range of habitat types including species-rich calcareous and neutral grasslands, scrub, hedgerows, woodland, streams and ponds all of which support a diverse assemblage of protected and notable species.
Downs Wood SINC	240m north east	Ancient semi-natural broadleaved woodland.
Cogan Pond SINC	370m north west	A large pond supporting a reedbed.
Ty-r-Orsaf SINC	440m south east	An old railway line supporting scrub and species-rich neutral and calcareous grassland.
Lavernock Point East SINC	870m south east	Contiguous with Penarth SSSI the site supports a mosaic of coastal, species moderate/rich limestone grassland.
Lavernock Point Wildlife Trust Reserve	870 south east	A reserve of predominantly coastal limestone grassland scrub important for both bird and invertebrate assemblages.
Cog Moors SINC	1.4km north west	An area of ancient semi-natural woodland.
Pop Hill SINC	1.4km north west	Ancient semi-natural broadleaved woodland.

Habitats

- 3.13 Information on habitats within and around the Application Site was obtained during the desk study and Phase I Survey.

- 3.14 The distribution of different habitat types within and adjacent to the Application Site is illustrated on **Plan EDP 3**. In addition, detailed descriptions of these habitat types, are provided below.

Amenity Grassland

- 3.15 The northern boundary of the eastern lake is dominated by amenity grassland characterised by a very short, trampled sward with limited botanical diversity dominated by perennial rye-grass (*Lolium perenne*). Species present include dandelion (*Taxaxum officinalis*), white clover (*Trifolium repens*) and daisy (*Bellis perenne*).

Buildings and Hardstanding

- 3.16 A circular, formal public footpath follows the margins of the eastern lake, beginning and finishing within the car park adjacent to the eastern corner of the lake. Here, a number of buildings associated with the existing Cosmeston Visitor Centre and Site Office is located. In addition, an approximately 5m wide, dirt track provides vehicle access from Lavernock Road, south of the Country Park, along the western boundary of the eastern lake.

Dense Scrub

- 3.17 The north western, northern and north eastern margins of the eastern lake are characterised by scattered patches of dense scrub and trees typically comprising bramble (*Rubus fruticosus* agg.), hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*) and willow (*Salix* spp.).

Open Water

- 3.18 Proposed wakeboarding facilities will be located on the western boundary of the eastern lake which is reported to range in depth from 0.5 to 6m. The northern, eastern and southern margins are largely characterised by shallow earth banks approximately 0.5m high. Earth banks are largely bare and eroded with occasional scattered patches of scrub dominated by bramble with occasional immature alder (*Alnus glutinosa*), willow and ash (*Fraxinus excelsior*). Marginal vegetation is limited to occasional patches of hard rush (*Juncus effusus*) and greater willowherb (*Epilobium hirsutum*). Reed-beds are particularly abundant on the southern margins. The western bank, in contrast, is dominated by a steep cliff (approximately 10m high) and densely vegetated with scrub and trees. Sections of the bank, predominantly in the south east are artificial in nature or have been reinforced with stone gabion baskets. The water is relatively clear within the margins and the bottom substrate is dominated by clay and gravel with occasional cobbles. No submerged vegetation was identified in association with the visible margins of this waterbody.

Swamp

- 3.19 The proposed foot access between the lake and reception facilities will utilise existing footpaths and a boardwalk raised above and through an extensive area of reedbed

habitat located on the southern boundary of the eastern lake. Reedbed habitat here is dominated by common reed (*Phragmites australis*), with patches of bramble, immature willow frequent and bulrush (*Typha* sp.), recorded as rare.

Semi-natural Broadleaved Woodland

- 3.20 The south western corner of the eastern lake is bordered by semi-natural broadleaved woodland. Existing public footpaths cross through this area and would provide access to the southern pylon of the proposed wakeboard cable system. Woodland habitat within the footprint of the southern pylon typically comprise stands of immature and semi-mature trees, widely spaced out and characterised by blackthorn and hawthorn, together with scattered patches of bramble. The woodland floor is largely trampled within this area due to public access, including the proposed footprint area of the southern pylon. Ground flora is mostly absent and limited to only scattered patches of common ivy (*Hedera helix*).
- 3.21 The wider woodland is characterised by mature and semi-mature sycamore (*Acer pseudoplatanus*), ash, field maple (*Acer campestre*), mature alder and willow. The understorey is typically dominated by bramble, with ground flora comprising common ivy, moss and hart's tongue (*Asplenium scolopendrium*). The woodland is regularly maintained and managed by Cosmeston Lakes, with log and brash piles abundant throughout the understorey.

Standing Water

- 3.22 A small waterbody (P1) is located within reedbed habitat on the southern boundary of the eastern lake. P1 is heavily used by waterfowl and, therefore, turbid. As such no aquatic vegetation was identified, its shallow margins entirely dominated by common reed. A second pond (P2) was identified on the southernmost extent of the reedbed adjacent to an area of marshy grassland, its centre accessible via a raised boardwalk. Bankside margins are again dominated by common reed, with patches of cock's-foot (*Dactylis glomerata*), hard rush, greater willowherb and creeping buttercup (*Ranunculus repens*). A relatively diverse assemblage of submerged macrophytes is, however, associated with this waterbody and is typically dominated by waterweed (*Elodea* sp.) lily, water starwort (*Callitriche stagnalis*) and pond weed (*Potamogeton* sp.) are also present. Filamentous algae is, however, also present in abundance indicating eutrophication.
- 3.23 A summary, and qualitative assessment, of these habitats comprising the Application Site is provided in **Table EDP 3.3**.

Table EDP 3.3: Summary of habitats within the Application Site

Habitat or feature	Distribution within Application Site	Intrinsic ecological value	Potential/confirmed value to protected species				
			Spp.	Breeding	Foraging	Refuge	Dispersal
Amenity Grassland	Predominately along the northern and western boundaries of the eastern lake, used as open space by the public, with picnic areas and footpaths.	Negligible , owing to poor quality of grassland sward and limited species diversity.	Birds		●		
Buildings and Hardstanding	Infrastructure associated with the lakes and country Park including car parking facilities, footpaths, access roads and buildings.	Negligible , owing to man-made structures with no nature conservation interest.	Birds	●		●	
			Bats	●		●	
Dense Scrub	Scattered extent along margins of eastern lake.	Site , owing to limited extent but with potential to provide refuge and nesting habitat for protected species.	Birds	●	●	●	
			Amphibians	●	●	●	●
			Reptiles	●	●	●	●
Open Water	The Application Site primarily comprises the eastern lake within Cosmeston Country Park.	National , owing to its designation as a SSSI, LNR and Country Park.	Birds		●		
			Bats		●		
			Amphibians	●	●	●	●
Swamp	Reedbed habitat dominates the southern margins of the eastern lake and are also present in association with the western lake.	County , owing to its designation as a habitat of principle importance, rarity in the County, and potential to support protected species.	Birds	●	●	●	●
			Bats		●		●
			Amphibians	●	●	●	●
			Reptiles	●	●	●	●
Semi-natural Broadleaved Woodland	The south-west corner of the eastern lake is bordered by broadleaved woodland.	County , owing to its designation as a habitat of principle importance, rarity in the County, and potential to support protected species.	Birds	●	●	●	●
			Bats	●	●	●	●
			Badger	●	●	●	●
			Amphibians	●	●	●	●
			Reptiles	●	●	●	●

Habitat or feature	Distribution within Application Site	Intrinsic ecological value	Potential/confirmed value to protected species				
			Spp.	Breeding	Foraging	Refuge	Dispersal
Standing Water	Two small ponds located within reedbed habitat located along the southern boundary of the eastern lake.	Local, owing to its designation as a habitat of principle importance and potential to support protected species.	Birds		●		●
			Bats		●		●
			Amphibians	●	●	●	●

3.24 Semi-natural broadleaved woodland, reed-beds, ponds and eutrophic standing waters comprise habitats of principle importance for the conservation of biodiversity covered under Section 42 of the *Natural Environment and Communities (NERC) Act 2006*.

3.25 As noted within **Table EDP 3.3**, the Application Site, comprising the eastern lake of Cosmeston Lakes SSSI/LNR/Country Park, is considered of county to national level importance. Other habitats present onsite, including areas of broadleaved woodland and reed-bed habitat are of county value whilst ponds P1 and P2 are considered to be of local value. These habitats, together with all other habitats of negligible intrinsic value, do however, warrant further consideration with respect to their potential to support protected and/or notable species. This is discussed further below.

Protected and/or Notable species

3.26 The likelihood of presence, or confirmed presence, of protected and/or notable wildlife species within the Application Site is summarised below with reference to Desk Study records, habitat suitability and detailed surveys where relevant. Further details are made available within appendices and plans where referenced.

3.27 Where a particular species or taxonomic group has been confirmed to be present, or presence is inferred based on habitat suitability, the ecological value or significance of the population or assemblage is assessed on a geographical scale.

Birds

3.28 SEWBRc returned multiple records of birds within Cosmeston Lakes Country Park, with an assemblage typical of the diversity of habitats onsite, which include numerous waterfowl and woodland species. Of particular note, the following Schedule I species (as listed under the *Wildlife and Countryside Act 1981*, as amended) were identified: kingfisher (*Alcedo atthis*); barn owl (*Tyto albus*); fieldfare (*Turdus pilaris*), redwing (*Turdus iliacus*) and firecrest (*Regulus ignicapilla*).

- 3.29 Woodland, dense scrub and reed-beds provide suitable cover to support a diverse assemblage of breeding birds whilst bankside habitat within the wider country park may support kingfisher. The lakes and associated habitats are also recognised for their importance to a wintering bird assemblage. As such, precautionary working measures and sensitive clearance will be required during construction, as further detailed in **Section 5**.

Bats

- 3.30 SEWBRc returned no records of bats within Cosmeston Lakes Country Park. Multiple records of foraging/commuting bats were returned 1km east of the Country Park however, including records of pipistrelle bat (*Pipistrellus* sp.) and Whiskered bat (*Myotis mystacinus*). Additional records for lesser horseshoe (*Rhinolophus hipposideros*), soprano pipistrelle (*Pipistrellus pygmaeus*), common pipistrelle (*Pipistrellus pipistrellus*), noctule (*Nyctalus noctule*) and serotine (*Eptesicus serotinus*) bats were also received approximately 1km west of the Country Park.
- 3.31 No trees with potential to support roosting bats were identified within the development footprint and, in particular the proposed location of the two pylons. Trees with bat roosting potential were, however, identified within the wider country park and were typically associated with woodland habitat on the western and southern boundaries of the eastern lake.
- 3.32 With respect to commuting and foraging bats, the diverse assemblage of both terrestrial and aquatic habitats both on and adjacent to the Application Site have the potential to support a range of bat species, whilst woodland tracks and dense scrub bankside habitat provide linear features from species commuting between the Application Site and the wider landscape.
- 3.33 Overall however, given minimal construction and operational footprint, bats are considered of negligible importance within the context of the proposed construction footprint and thus not considered further within this report.

Otter and Water Vole

- 3.34 SEWBRc returned no records of otter or water vole within 1km of the Country Park.
- 3.35 A thorough search of the Application Site and immediate surrounds during the initial site visit recorded no evidence of otter or water vole field signs. Additionally, no evidence of either species was recorded within the footprint for the cable system.
- 3.36 Dense scrub habitat along the banks of the lake does, however, provide suitable cover for resting otter. As such, precautionary working measures and sensitive clearance will be required during construction onsite, as further discussed within **Section 5** of this report.
- 3.37 In contrast, bankside habitat adjacent to the proposed construction footprint is considered unsuitable for water vole, with both banks heavily eroded and subject to

trampling by the public and waterfowl. An absence of aquatic vegetation renders the bankside habitat sub-optimal for foraging, although marginal scrub vegetation does offer some cover, albeit limited, for this species. Water vole is, therefore, considered of negligible importance within the context of the proposed construction footprint, and is thus not considered further within this report.

Pole Cat

- 3.38 Records of pole cat (*Mustela putorius*), south of the western pond and within Cosmeston Lakes Country Park itself have been returned during the desk study. Woodland, dense scrub and parkland habitats present onsite are also considered to provide potential habitat for this species. As such, precautionary working measures and sensitive clearance will be required during construction, as further detailed in **Section 5**.

Badger

- 3.39 No records of badger were returned by SEWBRc during the desk study and no signs of badger were identified during the field survey. Woodland habitat onsite is also considered sub-optimal for sett building given the predominance of bare ground associated with public footpaths and recreational use.
- 3.40 Nevertheless, given the widespread and opportunistic nature of this species, combined with its mobility across the landscape, precautionary working measures will be required during construction, as further discussed within **Section 5**.

Dormouse

- 3.41 No records of dormouse (*Muscardinus avellanarius*) were returned by SEWBRc during the desk study. Woodland habitat onsite is considered sub-optimal given the absence of structural diversity within the canopy and understorey, and dominance of bare, trampled ground due to public access. However, such habitats could provide some foraging and dispersal opportunities should a local population be present within the wider landscape.
- 3.42 Nonetheless, given the absence of suitable habitats within the proposed construction and operational footprint, dormouse is considered of negligible importance within the context of the proposed construction footprint and thus not considered further within this report.

Amphibians

- 3.43 Records of great crested newt (*Triturus cristatus*) 1km west of the Country Park in 2012/2013 were returned by SEWBRc during the desk study. Only a single record of common frog (*Rana temporaria*) was returned for Cosmeston Lakes however.
- 3.44 The full results of HSI assessment is provided within **Appendix EDP 3**. In summary, however, the eastern lake is considered of poor suitability for by virtue of its size, heavy use by wildfowl and absence of suitable vegetation for breeding. Furthermore, areas of

bare ground and amenity grassland within the footprint of the two pylons provide no suitable refuges for this species. Habitats immediately adjacent, comprising broadleaved woodland and dense scrub, do, however provide suitable terrestrial habitat for this species.

- 3.45 P1 and P2 are considered of poor and moderate suitability respectively but are considered more suitable than the eastern lake given the presence of a more diverse macrophyte assemblage and availability of suitable terrestrial habitat immediately adjacent to the waterbodies.
- 3.46 Great crested newt and other amphibians are, therefore, considered of negligible importance within the context of the proposed construction footprint, and is thus not considered further within this report.

Reptiles

- 3.47 A single record of slow-worm (*Anguis anguilla*) adjacent to the western lake was returned by SEWBReC during the desk study.
- 3.48 Areas of bare ground and amenity grassland within the footprint of the two pylons is considered largely unsuitable for this species. The immediate adjacent habitats, however, are considered more optimal for this species group.

Invertebrates

- 3.49 There are two records of notable species within Cosmeston park – dingy skipper (*Erynnis tages*) and two toned reed beetle (*Donacia bicolora*). The former is typically associated with grassland habitats, with a prevalence of common bird's foot trefoil (*Lotus corniculatus*). Whilst the latter is typically associated with bur-reed (*Typha* sp.) in wetland habitats.
- 3.50 In consideration of the habitat preferences of these species, the absence of suitable habitat within the development footprint, and the small scope of proposed development, these species are considered of negligible importance and thus not considered further within this report.

Plants

- 3.51 No records of notable plant species associated with Cosmeston Country Park were returned during the desk study. The SSSI is, however, notified for its populations of starry stonewort (*Nitellopsis obtusa*). It is, however, recognised that this species is predominantly associated with the western lake. As such, only the western lake is considered of special interest for this species (refer to **Appendices EDP 3** and **EDP 4**).
- 3.52 Precautionary methods of working are, however, recommended and are detailed within **Section 5**. Furthermore, measures to ensure the protection of this species, during the operational phase of development will also require consideration in the event a limited aggregation of this species is present in the eastern lake.

Summary of Key Issues Arising from Survey Findings

3.53 Based on the survey findings described above, the key ecological features/receptors pertinent to the development proposals are as follows:

- Cosmeston Lakes SSSI/LNR/Country Park;
- Starry stonewort;
- Broadleaved woodland;
- Birds;
- Otter;
- Badger;
- Reptiles; and
- Polecat.

Section 4

Details of Proposed Development

- 4.1 Having reviewed the baseline conditions, this section of the Ecological Appraisal provides pertinent details of the proposed development, in particular those aspects which have a potential implication for the ecological features/receptors identified in **Section 3**. Where relevant, reference is made to the influence that ecological considerations have had in the scheme's design and any inherent mitigation which avoids or reduces the severity of potential ecological impacts.
- 4.2 The proposals are illustrated within the illustrative masterplan included at **Appendix EDP 1**. In brief, however, development will include the following features:
- Installation of two cable system pylons on the southern and northern banks of the eastern lake, secured in position using ground level anchor points;
 - Installation of a pontoon at the start position, secured to the bank and lake bed using wooden posts;
 - Installation of floating park features to be tethered in position with anchors lines to anchor that site on the lake floor;
 - Installation of a 6m² shipping container behind the southern pylon to house the power supply and controlling equipment for the wakeboarding cable system;
 - Siting of reception and changing areas within existing areas of hardstanding adjacent to the Cosmeston Lakes Visitor Centre;
 - Operation of the Wake Park from late March to end of October, avoiding the winter months; and
 - Operation of the Wake Park during daylight hours only.

Proposed Habitat Loss

- 4.3 Land take associated with the proposed development is limited to existing areas of hardstanding of negligible ecological value. Placement of the cable system anchor lines and power supply will account for approximately 15m² of predominately bare ground within existing woodland habitat and amenity grassland, of limited botanical diversity. The wakeboarding park will be largely confined to an approximate 0.46ha area/214m linear stretch of the eastern lake.

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Section 5

Predicted Impacts and Mitigation

- 5.1 This section of the Ecological Appraisal considers the likely impacts of the illustrative masterplan included as **Appendix EDP 1** on the existing ecological resource. Where impacts cannot be avoided by inherent mitigation alone, additional mitigation or enhancement measures are recommended which, if implemented, would as a minimum enable the proposed development to meet legislative and/or planning policy requirements.
- 5.2 In accordance with the NERC Act 2006, within Wales local planning authorities have a statutory duty to have regard to effects upon biodiversity when exercising their functions; this includes consideration of effects upon ecological features such as designated sites, protected/notable habitats and species when determining planning applications. In accordance with planning policy at all levels, local planning authorities must also consider whether or not 'significant harm' to biodiversity may occur due to effects upon such ecological features. This, and the statutory protection afforded to certain designated sites and species, is explored in further detail below.
- 5.3 EDP's overall summary and conclusions, based upon the above, are given in **Section 6**.

Designated Sites

Statutory Designations

- 5.4 Statutory designations receive legal protection under various international and national legislative instruments. This protection is also reflected in policies included within *Planning Policy Wales Technical Advice Note 5: Nature Conservation and Planning (TAN5)*, which are given material consideration during the planning application process.
- 5.5 *The Vale of Glamorgan Deposit Local Development Plan 2011-2026* was considered by Vale of Glamorgan County Council on 23 October 2013 and sets out planning policy for the county up until 2026. In accordance with Policy SP 10 (Built and Natural Environment) development proposals must "*preserve and where appropriate enhance the rich and diverse built and natural environment and heritage of the Vale of Glamorgan including..... Sites designated for their local, national and European nature conservation importance.*"
- 5.6 As described in **Section 3**, the proposed development is located partially within the boundaries of the Cosmeston Lakes SSSI, a statutory site notified for its two lakes, created from flooded limestone quarries and population of starry stonewort. It is, however, recognised that only one of the lakes (the western lake) is of special interest for the presence of starry stonewort and is considerably more sensitive given the extent and diversity of undisturbed, semi-natural habitats (refer **Appendices EDP 3** and **4**).

- 5.7 The proposed development, has, however, sought to avoid and/or minimise impacts through placement of the proposed development across the eastern lake, a waterbody of less conservation interest when compared to the western lake and which is readily accessible to the public for amenity and recreation. The proposed wakeboarding cable system will utilise a confined, linear stretch of water spanning from the southern bank of the lake to the northern bank, accounting for approximately 7% of the total surface area and requiring a land take of approximately 15m² of amenity grassland/woodland to facilitate construction of the pylons associated with the cable system.
- 5.8 Given the small scale and isolated nature of proposed development, no significant negative impacts to terrestrial habitats are predicted during the construction or operational phases. However, with respect to aquatic habitats, negative effects associated with a change in the status of the lake (e.g. increase in turbidity/changes in water quality) and physical damage/disturbance to aquatic features (e.g. from wave action and trampling of bankside habitat) may arise.
- 5.9 Specifically, impacts associated with a reduction in water quality due to surface water run-off and acute pollution incidents during the construction phase could arise and are considered significant negative, reversible, short term (4 weeks) and temporary.
- 5.10 Additionally, impacts associated with a reduction in water quality, increase in turbidity and physical damage to aquatic features during the operational phase are considered significant negative, reversible and intermittent long term (during spring/summer months when wake park is operational).
- 5.11 Avoidance, protection and mitigation measures considered are therefore necessary to ensure the maintenance of the favourable condition of this SSSI during both construction and operational phases. Such measures should be detailed within an Ecological Construction Method Statement and Management Plan for the Application Site, secured by condition, and include the following measures:
- To avoid pollution of wetland/aquatic habitats during the construction phases, works should be undertaken in accordance with *Environment Agency Pollution Prevention Guidelines PPG5 Works and maintenance near water*;
 - No spoil, materials, vehicles or chemicals should be stored within 8m of all lakeside banks;
 - Pollution prevention spill kits should be kept on site at all times during the construction phase;
 - To avoid disturbance of sensitive habitats during the operational phase, particularly those associated with the western lake, a floating bund should be installed along the boundary between the western and eastern lakes, the purpose of which will be to dissipate all turbulence/wave action created from wakeboarders utilising the lake, and thereby, protect populations of starry starwort, a species sensitive to high levels of water turbulence;

- Monitoring of the eastern lake should be undertaken in tandem with existing water quality monitoring programmes undertaken by the Country Park so as to ensure conditions remain favourable, and specifically to monitor the growth and reproduction of starry stonewort and ensure its maintenance;
- Access to the eastern lake will be via a pontoon, thereby avoiding further damage and erosion to bankside habitats;
- A litter pick and management scheme for the eastern lake is recommended to minimise impacts associated with an increase in lake users;
- Operation of the Wake Park will be from late March to the end of October to avoid impacts to wintering wildfowl; and
- Operation of the Wake Park will be restricted to daylight hours only during the operational period and thus will avoid impacts to foraging/commuting bat communities and disturbance to otter.

5.12 With respect to all other statutory sites within 2km of the Application Site, no significant adverse effects are predicted due to the small scale and nature of proposed development and their distance from the Application Site.

Non-Statutory Designations

5.13 Non-statutory designations do not receive any formal legal protection. However, they do receive planning policy protection, as reflected in TAN5.

5.14 In accordance with Policy MG19 (Sites of Importance for Nature Conservation) of the *Local Development Plan* (LDP), development which has an unacceptable impact on SINC's will not be permitted.

5.15 As described in **Section 3**, there are 3 non-statutory designations overlapping/adjacent to the Application Site potentially impacted by the proposals, including Cosmeston Lakes LNR, Country Park and SINC, for which predicted impacts and recommended mitigation measures are considered previously above in relation to Cosmeston Lakes SSSI.

5.16 With respect to all other non-statutory designations identified within 2km of the proposed development, no significant impacts are considered likely due to the small scale and nature of proposed development and distances from the Application Site.

Habitats

5.17 There are several mechanisms through which habitats receive protection outwith the statutory and non-statutory designated site frameworks. Priority habitats comprise those listed by the Welsh Government as being of Principal Importance for the purposes of conserving biological diversity, with local authorities having a duty to have regard to such

habitats under the *Natural Environment and Rural Communities (NERC) Act (2006)*. Priority Habitats receive protection as identified within policies set out in TAN5.

- 5.18 In addition, the LDP sets out additional policies including Policy MD 10 (Promoting Biodiversity) which sets out the requirement for new residential, commercial and community development to positively contribute to biodiversity interests within the Vale of Glamorgan. This is to be achieved by: maintaining and enhancing existing important biodiversity features such as woodland, trees, hedgerows, wetland, watercourses, ponds, green lanes, geological features and habitats; incorporating new biodiversity features either on or off site to enable a net gain in biodiversity interest; and demonstrating how they maintain features of importance for ecological connectivity, including wildlife corridors and 'stepping stones' that enable migration, dispersal and/or genetic exchange.
- 5.19 Habitats within the Application Site and along the site boundaries have been assessed through an Extended Phase 1 Survey. The habitats found within the construction footprint of the wakeboard cable system comprise broadleaved woodland, dense and scattered scrub and amenity grassland. Potential adverse impacts associated with direct trampling/disturbance of habitats by site operatives and vehicles during construction of the cable system are predicted. However, given the small construction footprint and limited, temporary extent of clearance, adverse impacts upon habitats are not considered significant.
- 5.20 With regards to vehicular access during the construction phase and foot access during operation and placement of changing room and office facilities, these will be confined to existing areas of hardstanding and access tracks/footpaths such that no significant negative effects on ecological important habitats are predicted.
- 5.21 Reasonable avoidance measures and best working practices to ensure the protection and maintenance of sensitive habitats during the construction phase are, however, recommended and further detailed below. Such measures should be included within an Ecological Construction Method Statement for the Application Site, secured by condition:
- Prior to selective clearance of the construction footprint (as necessary) a suitably qualified Ecological Clerk of Works (EcOW) will undertake a visual inspection/hand search for protected species immediately prior to commencement of works. This will be a search for badger setts/activity, otter holts/dens/vegetation couches, nesting birds and reptile refugia. Where signs of protected species are found, the EcOW will advise on how to proceed in accordance with wildlife legislation and best practice guidelines;
 - Removal of any above-ground woody vegetation (scrub/trees, as required) will be undertaken in a progressive manner as follows and using hand tools only: between October and February inclusive, to avoid the bird nesting season, and should be undertaken to no lower than 15cm above ground level to avoid ground disturbance and avoid animals hibernating at or below ground level at the base of the

vegetation. The remaining vegetation can then be cleared to ground level between March and September;

- Alternatively, if undertaken all in one period between March and August, then a detailed search of the vegetation for the presence of bird nests must be undertaken by the ECoW immediately prior to clearance works. If an active bird's nest is discovered at any stage, then works within 5m of the nest will cease until it has been confirmed that the nest is longer active (e.g. any chicks have fledged);
- Where clearance/coppicing of mature/semi-mature trees is required, these must first be visually assessed by the ECoW for bat roost potential prior to any tree works. The ECoW will advise if further survey or mitigation is required, when this will occur and if under licence or otherwise;
- During construction, vehicles will be confined to existing tracks wherever possible. Any disturbed/damaged habitats should be reinstated to an appropriate standard on completion of the construction phase;
- There will be no night working during the construction phase, thereby avoiding potential impacts to foraging/commuting otter and bats; and
- Clearance/coppicing of trees in accordance with Inclusion of Ecological Protection Zones (EPZs) with good arboricultural practice. For those trees within the potential zone of influence and to be retained, Ecological Protection Zones (EPZs) with an appropriate buffer will be established to avoid damage to root protection zones.

5.22 Taken together, the above recommendations should ensure that no significant detrimental impacts upon those habitats of ecological value supported by the site will arise as a result of proposed works.

Protected and/or Notable species

5.23 Certain species receive legal protection in the United Kingdom and are commonly known as 'protected species'. In reality, the level of protection for different species varies considerably, from protection solely against 'killing and injury' to full protection of the species and their places of refuge. Where pertinent, details of legal protection afforded to species/species-groups are provided below.

5.24 In addition to protected species, there are other species/species-groups that do not receive legal protection, but which are notable owing to their conservation status. Such species include those listed by the Welsh Government as being of principal importance for the purposes of conserving biological diversity. Local authorities have a duty to have regard to such species under the *Natural Environment and Rural Communities (NERC) Act (2006)*. Details of any actual or potential notable species within the site are identified below.

- 5.25 With respect to planning policy, protected and notable species are also afforded policy protection at a national level by TAN5, which requires planning authorities to ensure that such species are protected from the adverse effects of development.
- 5.26 Baseline investigations have identified protected species implications for the Application Site relating to birds, otter, badger, reptiles and polecat, a species of principal importance. which are discussed in turn below.

Birds

- 5.27 All wild birds, their nests and eggs are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended), This makes it an offence to:
- (i) Intentionally kill, injure or take any wild bird;
 - (ii) Take, damage or destroy the nest of any wild bird while it is in use or being built;
 - (iii) Take, damage or destroy the egg of any wild bird; or
 - (iv) To have in one's possession or control any wild bird (dead or alive) or egg or any part of a wild bird or egg.
- 5.28 In addition, further protection is afforded to those wild bird species listed on Schedule 1, prohibiting any intentional or reckless disturbance to these species while it is nest building, or at a nest containing eggs or young, or to recklessly disturb the dependent young of such a bird. A number of species are also included as priority species.
- 5.29 The Application Site and surrounding habitats supports a diversity of suitable foraging and breeding habitat for a variety of bird species across the site, particularly areas of scrub, woodland and wetland habitats. The eastern lake further supports an assemblage of waterfowl considered to be typical of the nature and quality of open water and parkland habitats.
- 5.30 Negative effects associated with disturbance of breeding birds and active nests during construction of the wakeboard cable system and associated clearance are considered significant, irreversible and short term. Such direct, negative effects can be avoided through the sensitive timing of vegetation removal or disturbance within the proposed construction footprint scheduled to avoid the main bird breeding season, as previously described above in relation to habitats.
- 5.31 Potential exclusion and disturbance of waterfowl utilising the lake during day lights hours are similarly anticipated during operation of the wakeboarding cable system. The area from which waterfowl will be excluded comprises approximately 0.48 hectares of open water habitats. Given the availability of additional habitats of similar or greater quality to waterfowl within the immediate area, however, effects associated with temporary and long-term exclusion are not considered significant.

Otter

- 5.32 Otter is listed as a European Protected Species (EPS) on Schedule 2 of the *Conservation Regulations* (Annex IV(a) to the Habitats Directive), affording it protection under the *Conservation of Habitats and Species Regulations 2010*.
- 5.33 Additional protection for otter is also afforded under the *Wildlife and Countryside Act 1981* (as amended), making it an offence to intentionally or recklessly disturb otter whilst they are occupying a structure or place which is used for shelter or protection, or to obstruct access to this structure or place.
- 5.34 Dense and scattered scrub within the proposed construction footprint, in addition to habitats within the wider area offer potential refuge to otter. In the unlikely event, that otter is present during proposed construction of the wakeboard cable system, potential impacts associated with clearance of holts/resting places and injury/killing of otter is considered significant negative, irreversible and permanent. Precautionary methods of working as previously detailed above in relation to habitats are, therefore, recommended to avoid negative effects associated with disturbance or harm/injury to this species.
- 5.35 Additional operational impacts associated with disturbance of commuting/foraging otter are similarly considered. Given the wakeboard cable system will only be operated during daylight hours upon completion of construction, no significant negative effects associated with harm to this species during the operation phase are predicted.

Badger

- 5.36 Badgers and their setts receive protection under the *Protection of Badgers Act 1992* which protects badgers from deliberate harm and injury. The protection afforded to badgers is primarily due to animal welfare issues and not due to concerns over their unfavourable nature conservation status. Restrictions under this act which apply to development include any killing, injuring, possession or cruel treatment to badgers, any interference to a sett through damage or destruction, any obstruction of access to any entrance of a sett, or any disturbance to a badger whilst it is occupying a sett.
- 5.37 No active badger setts were identified during Extended Phase I Habitat Survey of the Application Site, and therefore, are not considered a constraint to proposed development.
- 5.38 However, due to the mobility and widespread nature of these species, in addition to the presence of suitable habitats onsite, an inspection of the construction footprint by a suitably qualified ecologist prior to the commencement of construction or site clearance works is recommended, as previously detailed above in relation to habitats, to determine whether any new setts have been established during the interim period.

Reptiles

- 5.39 All species of common reptile (including common lizard, slow-worm, grass snake and adder) receive at least limited protection from harm under the *Wildlife and Countryside Act, 1981* (as amended), making it an offence to cause intentional killing and injuring of these species. In addition, these species are also listed as priority species.
- 5.40 Amenity grassland associated with the footprint of the northern pylon is considered of limited suitability for reptiles whilst these species are also unlikely to occur within the footprint of the proposed southern pylon due to limited extent of ground cover. In the unlikely event that common reptiles are present during the proposed construction of the wakeboard cable system however, potential impacts associated with vegetation clearance could arise. Precautionary methods of working as previously detailed above in relation to habitats are, therefore, recommended to avoid negative effects associated with disturbance or harm/injury to this species.

Summary of Predicted Impacts and Principal Mitigation Measures

- 5.41 The potential impacts on valued ecological features (accounting for inherent mitigation), and recommended additional mitigation measures in line with legislative and planning policy requirements, are summarised in **Table EDP 5.1**.

Table EDP 5.1: Summary of Ecological Impacts and Proposed Mitigation

Feature	Impacts	Inherent mitigation	Additional mitigation and/or enhancement
Waterbodies	Damage during construction; degradation post-development.	Habitat retention and buffering.	Protection during construction through Ecological Construction Method Statement (ECMS); habitat protection, monitoring and management through Ecological Management Plan (EMP).
Birds	Disturbance to active nests during construction and proposed disturbance and exclusion during operation of the wakeboard cable system. Killing/injury during the construction phase.	Habitat retention and buffering.	Protection during construction through ECMS; habitat protection, monitoring and management through EMP.
Other protected and notable species	Disturbance during construction. Killing/injury during the construction phase.	Habitat retention and buffering.	Protection during construction through ECMS; habitat protection, monitoring and management through EMP.

Section 6

Summary and Conclusions

Summary of Ecology Strategy

Inherent Mitigation Embedded in the Masterplan

- 6.1 The following design measures have been implemented into the proposals to ensure impacts upon the ecology of the Application Site are avoided and/or minimised as far as possible:
- The sensitive arrangement of the of the Wake Park away from sensitive habitats, where possible, to minimise/avoid adverse impacts. Reception and changing areas will be located within existing areas of hardstanding whilst the cable system will be constructed within habitats of limited nature conservation value;
 - Operation of the Wake Park from late March to the end of October to avoid impacts to wintering wildfowl; and
 - Operation of the Wake Park to be restricted to daylight hours only during the operational period to avoid impacts to foraging/commuting bat communities and disturbance to otter.

Construction Measures

- 6.2 Reasonable avoidance measures and best working practices to ensure the protection and maintenance of sensitive habitats during the construction phase are detailed below:
- Measures to prevent adverse changes to water quality within the eastern lake and adjacent wetland features during the construction period, with reference to the Environment Agency's Pollution Prevention Guidelines, including PPG5 'Works and maintenance in or near water.'
 - The location of any work compound(s) and storage areas, including the storage of any fuel, chemicals, plant or machinery;
 - Species-specific working methodologies to ensure the avoidance of harm to wildlife, particularly in relation to breeding birds, otter, badger, reptiles and polecat should be prepared for implementation/consideration during all pre-construction and construction phases; and
 - A timetable of all key tasks to be undertaken as part of pre-construction and construction works, taking into account all species and habitat sensitivities.

- 6.3 Such measures should be detailed within an Ecological Construction Method Statement for the Application Site, secured by condition.

Monitoring and Maintenance Measures

- 6.4 Details of the future monitoring and maintenance of the Application Site over the long-term will include the following measures:
- The inclusion and maintenance of protective barriers/bunds, to protect the adjacent western lake from wakeboard activities; and
 - The monitoring of biophysical changes to sensitive habitats, namely the eastern lake, and the management of recreational impacts including littering, erosion and damage, with identified remedial measures to address any significant issues.
- 6.5 Such measures should be detailed within an Ecological Management Plan for the Application Site, secured by condition.

Overall Conclusions

- 6.6 EDP's desk- and field-based baseline investigations confirm the inclusion of the Application Site within the boundaries of Cosmeston Lakes Site of Special Scientific Interest, Local Nature Reserve and Country Park, with the development proposals focusing on the eastern lake. Additionally, the Application Site supports a variety of habitats including broadleaved woodland, swamp, scrub and amenity grassland, with the potential to support protected and notable species including birds, otter, badger and common reptiles.
- 6.7 However, given the small scale and scope of the proposed development, those habitats and species present/potentially present within and around the Application Site are not considered to pose 'in principle' constraints to the proposals. Additionally, it is considered that whilst the Application Site is partially located within a statutorily protected site, its qualifying features could be sufficiently protected from any adverse impacts arising from the proposed development through the implementation of appropriate avoidance and mitigation measures during the construction and operational phases.
- 6.8 *Planning Policy Wales TAN5* sets out policies specific to the protection of biodiversity and geological conservation through the planning system, requiring the conservation and enhancement of the natural environment at all levels whilst ensuring no net loss to natural heritage.
- 6.9 Accordingly, specific proposals for the avoidance, mitigation and compensation of any predicted impacts are considered in this report and summarised above. These measures include: those already embedded within the illustrative masterplan; avoidance and mitigation measures which should be incorporated at the construction stage; and

management and monitoring measures to ensure that the favourable condition of the SSSI and associated habitats are maintained in the long term.

- 6.10 On this basis, EDP finds that by virtue of the relatively limited constraint posed by the site's habitats and protected species interest, coupled with the small scale and scope of the proposed mitigation measures, the scheme is capable of compliance with relevant planning policy for the conservation of the natural environment at all levels. There is therefore no reason, in ecological terms why detailed planning permission should be refused. The scheme is therefore commended to Vale of Glamorgan County Council as an ecologically sensitive response to the implementation of new recreational facilities within Cosmeston Lakes SSSI/LNR/Country Park.

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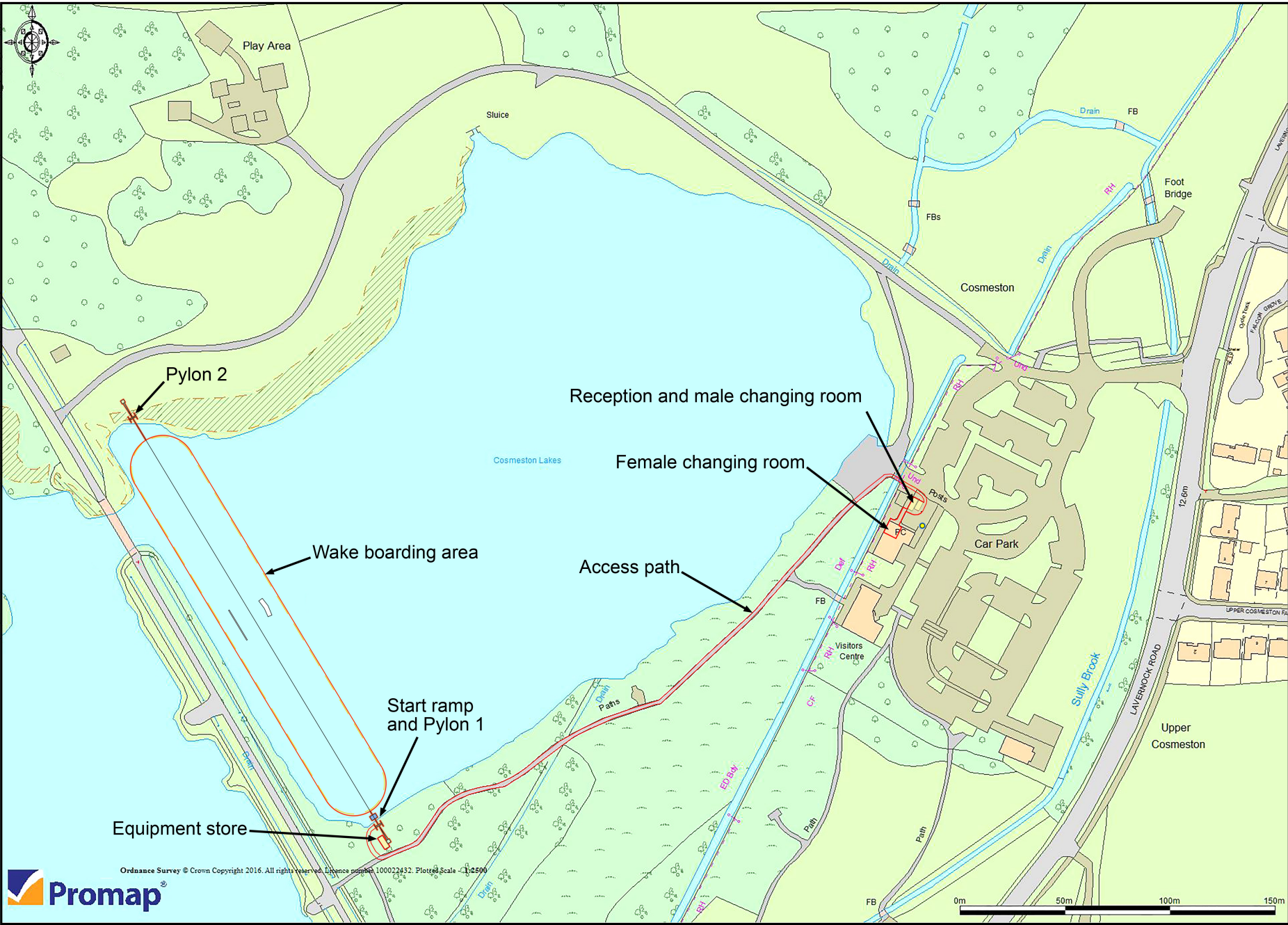
Appendix EDP 1 Illustrative Site Masterplan

Site Plan

Proposed Wake Park at Cosmeston Lakes.

Scale 1:2500 @ A4

Date: November 2016



KEY:
● Position of sewerage connection

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Appendix EDP 2 Consultation Response

CONSULTATION RESPONSE: COUNTRYSIDE AND ENVIRONMENT (ECOLOGY)

To / I:	Operational Manager Development & Building Control	From / Oddi Wrth:	Ecology, Development Services Countryside and Economic Projects.
FAO	Mrs. Y. J. Prichard		Mrs Erica Dixon
Date / Dyddiad:	13 January 2017	Tel / Ffôn:	(01446) 704855
Your Ref / Eich Cyf:	2016/01441/FUL	My Ref / Fy Cyf:	
Location	Cosmeston Lakes Cosmeston Country Park, Lavernock Road, Penarth		
Proposal	A new wakeboarding sporting facility at Cosmeston Lakes Country Park. New installation of electric cable wakeboarding system equipment and a mechanical store. New installation of male changing facilities and the wake park reception. Conversion of parks store room to house female changing area located at Cosmeston visitor centre.		

ECOLOGY RESPONSE	
<input type="checkbox"/> No comment	<input type="checkbox"/> Notes for applicant
<input type="checkbox"/> Object (holding objection)	<input checked="" type="checkbox"/> Request for further information
<input type="checkbox"/> Object and recommend refusal	<input type="checkbox"/> Recommend planning conditions

Summary

We are unable to give our opinion on this application at the current time, as there is insufficient information to allow us to assess the likely impact of the development on Cosmeston Lakes SSSI and its biodiversity.

Detailed Comments

The following comments are to assist the applicant provide the necessary information to the LPA on the currently invalid application.

As Cosmeston Lakes is a SSSI, we recommend that NRW are consulted, by the LPA for their views on the application.

We recommend that the applicant submit with the planning application a Biodiversity Strategy, demonstrating that the proposals will not have an adverse impact on any

biodiversity issues, including (but not exclusively limited to) – the features for which the SSSI was notified, breeding birds and wintering birds.

The applicant may also wish to discuss the application with NRW prior to submitting the additional information requested to get their comments / guidance.

ANNEX 1 – SUPPORTING INFORMATION (LEGISLATION, PLANNING POLICY AND CASE LAW)

CONSERVATION OF HABITATS AND SPECIES REGULATIONS 2010 (AS AMENDED):

Known as the “Habitats Regulations”, this statutory instrument transposes the Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (the Habitats Directive) into UK law. The Directive is the means by which the European Union meets its obligations under the Bern Convention. The most vulnerable and rarest of species internationally (in the European context) are afforded protection under this legislation. The species listed on Schedule 2 are termed “European Protected Species” and are afforded the highest levels of protection and command strict licensing requirements for any works which may affect them. The species include all British bats, Otter, Dormouse and Great Crested Newt. They are fully protected against disturbance, killing, injury or taking. In addition any site regarded as their “breeding site or resting place” is also protected. It is generally regarded that the site is protected whether the animals are present or not.

The Habitats Regulations clearly outline the role of Planning Authorities in the implementation of the Habitats and Birds Directives; by stating [Section 9(3)] “**A competent authority, in exercising any of their functions, must have regard to the requirements of the Habitats Directive and Birds Directive so far as they may be affected by the exercise of those functions**”

New amendments to the Conservation of Habitats and Species Regulations 2010 included a duty on LPAs to “*take such steps in the exercise of their functions as they consider appropriate to contribute to... the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the UK including by means of the upkeep, management and creation of such habitat...*” (Reg 9A(2) & (3))

Habitats Regulations Licensing

Where works will affect a EPS, then the developer must seek a derogation (licence) prior to undertaking the works. The licence can only be issue once the “3 tests” are satisfied, that is:

- Test 1 – the purposes of “preserving public health or safety, or for reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment”.
- Test 2 – there must be “no satisfactory alternative”; and
- Test 3 – the derogation is “not detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range”.

Licences are issued by Natural Resources Wales (NRW), with NRW assessing Test 3, and the LPA assessing tests 1 & 2 (where proposals are not subject to planning, then NRW alone will assess all three tests). Where Planning regulations apply, the NRW will only issue a licence after determination of the planning application. Planners failing to do so will be in breach of the Habitats Regulations (see also Case Law, Morge Case and Woolley Ruling below).

WILDLIFE AND COUNTRYSIDE ACT 1981 (AS AMENDED)

The WCA protects the UK's most vulnerable and rare species as outlined below.

Section 1 – breeding birds. The basic protection afforded to all birds is:

- Protection from killing, injury or taking of any wild bird
- Protection from taking, damaging or destroying the nest of any wild bird
- Protection from taking or destroying the egg of any wild bird

Further, some species, specifically those listed on Schedule 1 of the Act are afforded extra levels of protection to include:

- Protection from disturbance whilst it is nest building; or, is at or near a nest with eggs or young, or disturb the dependant young of such a bird.

There are exemptions from this basic protection for, for example: sale, control of pest species and sporting eg. game birds outside of the close season.

Section 9 (Schedule 5) - protected animals (other than birds) All animals listed on Schedule 5 are protected against killing, injury or taking. Any structure/place used for shelter or protection is protected against damage, destruction or obstructing access to. And it is an offence to disturb an animal whilst using such a structure / place. Some species are afforded "Part Protection" meaning that they enjoy only some of the protection outlined above – eg the animals may be protected, but not their structure used for shelter/protection (such as slow worm).

Section 13 (Schedule 8) – protected plants. Protected plants are afforded protection against: being picked, uprooted or destroyed. They are also protected against sale (or advertising for sale) – this is particularly relevant with respect to bluebells.

THE PROTECTION OF BADGERS ACT 1992

This protects badgers from killing, injury and taking; or attempting to kill, injure or take. Badger setts are also afforded protection and it is an offence to:

- Damage a badger sett or any part of it
- Destroy a badger sett
- Obstruct access to any entrance of a badger sett
- Disturb a badger when it is occupying a badger sett

Development which will destroy or disturb a badger sett (within 30m) is subject to licensing. The licensing body is NRW. However, badgers are considered a species protected under UK legislation (see PPW) and are therefore a material consideration during the planning decision.

NATURAL ENVIRONMENT AND RURAL COMMUNITIES (NERC) ACT 2006

Under the NERC Act, Local authorities have a Duty to have regard to the conservation of biodiversity in exercising their functions. The Duty affects all public authorities and aims to raise the profile and visibility of biodiversity, to clarify existing commitments with regard to biodiversity, and to make it a natural and integral part of policy and decision making. Note - Conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them.

PLANNING POLICY WALES SEPTEMBER 2009 (TECHNICAL ADVICE NOTE 5: NATURE CONSERVATION AND PLANNING)

Section 6.2.1 – the presence of a protected species is a material consideration when a local planning authority is considering a development proposal, that, if carried out, would be likely to result in disturbance or harm to the species or its habitat.

Section 6.2.2 – It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted.

Section 6.3.5 – any step in the planning or implementation of a development likely to affect a European Protected Species could be subject to a licence to permit or the survey or implement the proposal are under a duty to have regard to the requirements of the Habitats Directive in exercising their functions.

PLANNING POLICY WALES (EDITION 5, NOVEMBER 2012)

Planning Policy Wales, Section 5.5.11 states that *“The presence of a species protected under European or UK legislation is a material consideration when a local planning authority is considering a development proposal which, if carried out, would be likely to result in disturbance or harm to the species or its habitat”*.

Furthermore, Section 5.5.12 states that *“Developments are always subject to the legislation covering European Protected Species regardless of whether or not they are within a designated site. ”*And *“Local planning authorities are under a duty to have regard to the requirements of the Habitats Directive in exercising their functions. To avoid developments with planning permission subsequently not being granted derogations in relation to European protected species, planning authorities should take the above three requirements for derogation into account when considering development proposals where a European protected species is present”*.

VALE OF GLAMORGAN COUNCIL - SUPPLEMENTARY PLANNING GUIDANCE

Supplementary Planning Guidance – Biodiversity and Development

WOOLLEY RULING

This case confirmed that local planning authorities must apply the same three tests as Natural England (in Wales, CCW) when deciding whether to grant planning permission when one or more of the European protected species offences under the Habitats Regulations may be committed.

This judgment clarifies a legal duty which was already in existence although many planning authorities were not applying it correctly. His Honour Judge Waksman QC, in the High Court in June 2010, handed down this ruling in the case of R (on the application of Simon Woolley) v Cheshire East Borough Council concerning a development with a bat roost. **This judgment makes it clear that the local planning authority must apply the “3 tests” when determining a planning application.**

MORGE CASE (SUPREME COURT CASE 19 JANUARY 2011)

The case gives clarification to deliberate disturbance and to the interpretation of “damage or destruction of a breeding site or resting place”. It also gives guidance on how LPA should discharge their duties with respect to the Habitats Directive.

CORNWALL RULING

Judgement that a planning authority had acted unlawfully by granting planning permission without sufficient information on flora and fauna.

Sometimes planning authorities grant planning permission before some or all ecological surveys have been carried out, making ecological surveys a planning condition, or Section 106 Agreement, under the Town and Country Planning Act 1990.

For development that requires an Environmental Impact Assessment this practice was subject to judicial review proceedings in the High Court and it was determined that the planning authority had acted unlawfully by granting planning permission without sufficient information on flora and fauna (known as the Cornwall Ruling because the planning authority in this case was Cornwall County Council). Requiring surveys as a condition of the Section 106 Agreement was not sufficient, as this would exclude the consultation process that is required under the Town and Country Planning (EIA) Regulations (1999).

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Appendix EDP 3 HSI Survey Results

Suitability Index	Criteria	Definition	Possible Score	Eastern Lake	P1	P2
SI ₁	Geographic Location	Zone A - optimal	1	0.5	0.5	0.5
		Zone B - marginal	0.5			
		Zone C - unsuitable	0.01			
SI ₂	Pond Area	Pond surface area to the nearest 50m ²	*	0.8	0.1	0.1
SI ₃	Permanence	Never Dries	0.9	0.9	1	0.9
		Rarely dries (Dries no more than 2/10 years or in drought only)	1			
		Sometimes dries (Dries between 3/10 years to most years)	0.5			
		Dries annually	0.1			
SI ₄	Water Quality	Good (abundant & diverse invertebrate community)	1	0.67	0.67	0.67
		Moderate (moderate invertebrate community)	0.67			
		Poor (low invertebrate diversity, few submerged plants)	0.33			
		Bad (clearly polluted, pollutant tolerant invertebrates present, no submerged plants)	0.01			
SI ₅	Shade	% shade of pond perimeter to at least 1m from the shore	*	0.1	0.2	1
SI ₆	Waterfowl	Absent (no evidence of waterfowl, excluding moorhen)	1	0.01	0.67	0.67
		Minor (waterfowl present, though little impact)	0.67			
		Major (severe impact of waterfowl)	0.01			
SI ₇	Fish	Absent (no records of fish stocking and no fish seen during survey)	1	0.67	0.67	0.67
		Possible (no evidence of fish, but conditions suggest presence)	0.67			
		Minor (small numbers of crucian carp, goldfish or stickleback)	0.33			
		Major (dense populations of fish present)	0.01			
SI ₈	Pond Count	No. ponds within 1 km of survey pond not separated by major barriers and divided by 3.14	*	0.9	0.9	0.9
SI ₉	Terrestrial	Good (extensive habitat offering good opportunities for foraging and shelter surrounding pond)	1	1	1	1
		Moderate (habitat offering opportunities for foraging and shelter, but not extensive and does not completely surround pond)	0.67			
		Poor (habitat with poor structure, offering limited opportunities for foraging and shelter)	0.33			
		None (No suitable habitat around pond)	0.01			
SI ₁₀	Macrophytes	% pond surface area occupied by macrophyte cover (excluding duckweed) and submerged plants reaching the surface	*	0.3	0.3	0.35
HSI Score = (SI₁*SI₂*SI₃*SI₄*SI₅*SI₆*SI₇*SI₈*SI₉*SI₁₀)^{1/10}				0.37	0.49	0.58
Pond Suitability (<0.5 = poor; 0.5-0.59 = below average; 0.6-0.69 = average; 0.7-0.79 = good; >0.8 = excellent)						

* Score extrapolated from graphs within Oldham et al. (2000). *Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus)*. Herpetologica

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Appendix EDP 4 Cosmeston Lakes SSSI Citation

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

SITE OF SPECIAL SCIENTIFIC INTEREST: CITATION

VALE OF GLAMORGAN **LLYNNOEDD COSMESTON/COSMESTON LAKES**

Date of Notification: 4 March 2009

National Grid Reference: ST 174 691

OS Maps: 1:50,000 Sheet number: 171
1:25,000 Sheet number: 151

Site Area: 25.6 ha

Description:

Llynnoedd Cosmeston/Cosmeston Lakes is situated 2km south of Penarth. It includes two lakes, created from flooded limestone quarries, which are connected by a narrow channel. These are deep (up to 10m), eutrophic water bodies, which support a range of submerged plants.

One of the lakes is of special interest as the only known site in Wales for the presence of starry stonewort *Nitellopsis obtusa*. This species usually grows in lakes of between 1m and 6m in depth. Elsewhere in Britain it occurs in the Norfolk Broads and in Gloucestershire, where it is found in calcareous lakes near the sea. This suggests that the species prefers slightly brackish conditions. The lakes at Cosmeston Park are less than 1.5km from the Bristol Channel.

The site also includes areas of swamp, ponds and grassland that form part of the water catchment area for the lake.

Remarks:

Cosmeston Park is owned and managed by the Vale of Glamorgan Council.

*This document is **NOT** a definitive legal version and has been formatted, updated and partially edited for use on the CCW Web site. This document should not be used in any legal proceedings, public enquiry or any other hearing or appeal. If you require a full legal copy of the document please contact CCW in writing.*

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Appendix EDP 5

Cosmeston Lakes SSSI Supporting Information

**LLYNNOEDD COSMESTON/COSMESTON
LAKES
SITE OF SPECIAL SCIENTIFIC INTEREST**

YOUR SPECIAL SITE AND ITS FUTURE

‘Your Special Site and its Future’ is part of our commitment to improve the way we work with SSSI owners and occupiers. In it, we try to explain what is special about the wildlife on your site, and what care is needed to look after it into the future.

All SSSI are considered to be of national importance and we recognise the crucial role that owners and occupiers play in their management and protection. We need you to share your views and knowledge of this site with us, to help safeguard it.

We hope that you will find ‘Your Special Site and its Future’ interesting and helpful. Please contact us if there is anything about the site and its management that you would like to discuss.

What is 'special' about the wildlife at Llynnoedd Cosmeston/Cosmeston Lakes SSSI?

In the course of its history, Cosmeston Park has been an industrial site as well as a dump for rubbish from nearby Cardiff. However, sensitive management of the site as a country park has transformed it into an oasis for wildlife, and parts of the park became a Site of Special Scientific Interest in 1985. It has one special feature:

- **Starry Stonewort**

The lakes at Cosmeston are the only place in Wales where starry stonewort is found. Stoneworts are green algae, although in structure they superficially resemble vascular plants. This particular species can grow up to 60cm long, and is usually found in clear, deep lakes with calcareous (chalky) waters, growing at depths of between 1 and 6 metres. The stonewort has whorls of narrow leaf-like branches along its length, and tiny starry bulbils, clusters of starch-filled cells, along the lower parts of the stem.

It is able to withstand low light conditions, but is less tolerant of turbulence. Generally, it is regarded as a summer annual, but in mild winters it may not fully die back. Spores are rarely produced, but where it does occur, spore production probably takes place from July to September and is controlled by light levels. Spread of the species is mainly through means of small, star-shaped bulbils occurring on the lower parts of the stem. These fall off and remain viable for several years, eventually growing into new stoneworts.

In the UK, starry stonewort has its stronghold in the Norfolk Broads, where it is present on two remaining sites. There are also a few records from southern England. Since most sites are close to the sea, it is possible that starry stonewort prefers slightly brackish (salty) water.

In addition, Llynnoedd Cosmeston/Cosmeston Lakes also has areas of grassland, ponds and swamp. Together with other habitats within the country park, they add to the interest of the SSSI and make Cosmeston Lakes Country Park one of the most ecologically diverse areas for its size in this part of Wales.

What do we want Llynnoedd Cosmeston/Cosmeston Lakes to look like?

The following is a description of how we would like to see the future of Llynnoedd Cosmeston/Cosmeston Lakes:

Llynnoedd Cosmeston/Cosmeston Lakes are very unusual water bodies: deep, with a high alkalinity, yet relatively rich in nutrients. The lakes support a range of plant species that specialise in this unusual habitat, including fennel pondweed, horned pondweed and lesser pondweed.

Llynnoedd Cosmeston/Cosmeston Lakes continue to support a thriving population of starry stonewort. This may be difficult to see without specialist survey effort, because the alga grows in deep water and does not float when cut.

There are no signs of pollution in the lakes or disturbance that might uproot the stonewort. The surrounding catchment area of grasslands, streams, ponds and swamp are unpolluted, ensuring that the water quality in the lakes remains suitable for starry stonewort and other freshwater plants.

What management is needed on Llynnoedd Cosmeston/Cosmeston Lakes SSSI and why?

The importance of Cosmeston as a resource for wildlife and as a site for recreation means that the competing needs of the park's users need to be carefully balanced against the importance of maintaining the special feature of the SSSI. This site will only remain in good condition if this balance can be maintained, and it is the CCW's priority to work with you to ensure that this happens.

What does this mean in practice?

These are the factors that we think are the most important:

- Pollution

Starry stonewort requires clear, unpolluted water. The biggest threat to starry stonewort at Cosmeston is likely to be pollution from within the park or agricultural run-off. An increase in phosphates and nitrates would be damaging to the plant in two ways. Firstly, the plant requires low nutrient calcareous water and secondly, high nutrients can encourage algal blooms that can make the water more turbid, and prevent the stonewort from photosynthesizing in deep water.

- Nutrient Enrichment

There is a potential threat from nutrient enrichment arising from use of the lakes by excessive numbers of waterfowl. Nutrient levels should be monitored.

- Disturbance

The rhizoids, which are colourless, hair-like filaments that anchor the starry stonewort to its substrate, can be easily disturbed. Disturbance by the behaviour of certain species of bottom feeding fish could cause damage.

Use of boats on the western lake could cause damage to the feature. Boating and other recreational use of the eastern lake will be allowed to continue under the carefully controlled conditions currently in place, but boating or recreational use of the western lake should be avoided.

Finally

Our knowledge and understanding of wildlife is continually improving. It is possible that new issues may arise in the future, whilst other issues may disappear. This statement is written with the best information we have now, but may have to change in the future as our understanding improves. Any information you can provide on the wildlife of your site, its management and its conservation would be much appreciated.

If you would like to discuss any aspect of your SSSI, or have any concerns about your SSSI, please contact your local CCW office.

Your local office is:

Countryside Council for Wales,

Unit 7,

Castleton Court,

Fortran Road,

St Mellon's,

Cardiff,

CF3 0LT

Telephone: 029 2077 2400

Fax: 029 2077 2412

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Plans

- Plan EDP 1** International and National Designated Sites
(EDP3861/01 02 March 2017 LB/EW)
- Plan EDP 2** Local Designated Sites
(EDP3861/02 02 March 2017 LB/EW)
- Plan EDP 3** Phase I Habitat Plan
(EDP3861/03 02 March 2017 LW/EW)

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