

Uskmouth AW2

784-B070326

Preliminary Ecological Appraisal

Stroma Tidal Power Ltd.

December 2024

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EXECUTIVE SUMMARY

Contents	Summary
Site Location	The site is located at Uskmouth Power Station next to the mouth of River Usk in Nash, Newport. The site is centred at Ordinance Survey National Grid Reference ST 32722 83753.
Proposals	No development proposals are available at the time of writing.
Scope of this Survey(s)	The scope of this survey was to: • Desk study to obtain existing information on statutory and non-statutory sites of nature conservation interest and of protected / notable species. • Extended Phase 1 Habitat Survey to record habitats and evidence of protected fauna. • Evaluation of potential ecological receptors on site and any potential constraints to development with recommendations for further surveys, mitigation or enhancement (where appropriate).
Results and Evaluation	The site is within c. 0.27 km of the Severn Estuary SPA / SAC / Ramsar. As such, a report to inform Habitats Regulations Assessment (HRA) is required to establish whether the development proposals have the potential to affect the integrity of the designated site or its qualifying species. The site has the potential to support a number of protected species including bats, breeding birds, great crested newt (GCN) <i>Triturus cristatus</i> and reptiles. <i>Buddleja Buddleja davidii</i> and sea buckthorn <i>Hippophae rhamnoides</i> were recorded onsite. Stands of giant hogweed <i>Heracleum mantegazzianum</i> were recorded along the ditch in the southwest land parcel.
Recommendations	• A shadow HRA is required with regards to the Severn Estuary SPA / SAC / Ramsar; • Further surveys are required, include GCN surveys (eDNA and or traditional) and reptile surveys, , if waterbodies are to be impacted, further survey works for wintering birds will also be required; • Works undertaken during the nesting bird season (usually considered to be March to September inclusive) risks disturbing bird nests. Vegetation clearance and groundwork should be preceded by a nesting bird check; if nesting birds are found, active nests must remain undisturbed in situ; • Higher value habitats such as ponds are recommended to be retained and protected where possible (we understand the pond will be retained for future enhancements); • Site staff are to be vigilant for invasive species and report any findings immediately;

	• A sensitive lighting scheme should be developed for the site that minimises disturbance to sensitive ecological receptors (e.g. ponds, dense vegetated corridors); and • A Construction Environment Management Plan (CEMP) is recommended with the aim of minimising indirect impacts to ecologically important features. The following enhancement for site could be provided: • Bird boxes; • Hibernacula for common amphibians and reptiles; • Log piles and / or bug hotels for invertebrates; and • Removal of the non-native buddleja and sea buckthorn. Further mitigation and enhancement will be recommended based upon the findings of the phase 2 protected species surveys.
Conclusion	Provided the measures within this report for further survey and mitigation can be adopted, it is anticipated that a design could be brought forward for this site that would be compliant with current local and national biodiversity planning policy.

1.0 INTRODUCTION

1.1 BACKGROUND

Tetra Tech Limited (Tetra Tech) was commissioned by Stroma Tidal Power Ltd. on 18th November 2024 to undertake a Preliminary Ecological Appraisal (PEA) of Uskmouth AW2, hereafter referred to as “the site”.

This report has been prepared by Senior Ecologist, Becca Grainger-Wood, BSc (Hons) MSc ACIEEM and the conditions pertinent to it are in Appendix A.

1.2 SITE DESCRIPTION

The site is located at Uskmouth Power Station next to the mouth of River Usk in Nash, Newport. The site is centred at Ordinance Survey National Grid Reference ST 32722 83753 (Figure 1). It comprises a disused ash storage structure, which has begun to be colonised by vegetation. Surrounding this there is a drainage ditch, scattered scrub, colonising ground and semi-improved grassland in amongst the train tracks to the north of the storage area. There are two pond to the west of the site surrounded by scrub habitats that form a link with the Newport Wetlands NNR to the south.

1.3 DEVELOPMENT PROPOSALS

No development proposals are available at the time of writing.

1.4 PURPOSE OF REPORT

The purpose of this report is to:

- Undertake a desk study to obtain existing information on statutory and non-statutory sites of nature conservation interest and relevant records of protected / notable species within the site and its zone of influence
- Present the results of an extended Phase 1 Habitat Survey, involving a walkover of the site to record habitat types and dominant vegetation, including any invasive species, and; evidence of protected fauna or habitats capable of supporting such species.
- Evaluate potential ecological receptors on site and within the zone of influence;
- Identify any constraints to the site's development and make any recommendations for further surveys, mitigation or enhancement.

Scientific names are provided at the first mention of each species and common names (where appropriate) are then used throughout the rest of the report for ease of reading.

1.5 QUALITY

Becca Grainger-Wood has an Associate membership of the Chartered Institute of Ecology and Environmental Management (CIEEM) and holds a Field Identification Skills Certification (FISC) level 4.

Our Ecologists follow CIEEM's Code of Professional Conduct (CIEEM, Code of Professional Conduct, 2022), with all surveys completed in accordance with Tetra Tech's Biosecurity Policy (Tetra Tech, 2023).

All staff have completed Health and Safety training. Risk Assessment Method Statements have been completed and verified prior to the site visit, with Dynamic Risk Assessments completed by all site staff upon arrival at site.

1.6 VALIDITY

This report will remain valid for 18 months , until 12/05/2026, this is in accordance with (CIEEM, Advice note on the lifespan of ecological reports & surveys, 2019). After this time, it may be appropriate to consult an ecologist to confirm if an update assessment is required. The recommendations within this report should be reviewed (and reassessed if necessary) should there be any changes to the habitats present, survey area or development proposals upon which this report was based.

2.0 METHODOLOGY

2.1 HISTORIC SURVEYS

Previous reports relevant to the site have been reviewed for this report and discussed within Section 3 where relevant for the results. These reports include:

- Uskmouth Biodiversity Mitigation and Enhancement Plan (RPS, 2022a)
- Water Vole and Otter Survey Report - Uskmouth BESS (RPS, 2022b)
- Ecological Impact Assessment - Uskmouth BESS (RPS, 2022c)
- Reptile Survey Report - Uskmouth BESS (RPS, 2022d)
- Water Vole Mitigation and Enhancement Strategy Uskmouth BESS (RPS, 2022e)
- 249MW Chimney Stack BESS PEA (Tetra Tech, 2024)
- 249MW Chimney Stack BESS Reptile Report (Tetra Tech, 2024a)
- Uskmouth BESS Preliminary Ecological Appraisal (Tetra Tech, 2024b)
- 249MW Chimney Stack BESS Bat Survey Report (Tetra Tech, 2024c)

2.2 DESK STUDY

The desktop study comprised two elements:

- A data search obtained from South-East Wales Biodiversity Records Centre (SEWBrEC) on 4th April 2024 as part of the Uskmouth Chimney BESS PEA report (Tetra Tech, 2024b); and
- An online element (accessed during November 2024) including a search using : Magic, Defra's interactive, web-based database for statutory designations (<https://magic.defra.gov.uk>) and Ordnance Survey (OS) and Aerial Imagery (<https://www.bing.com/maps>).

The geographical extent of the search area was related to the significance of sites and species and potential zones of influence. For this site the following search areas were considered appropriate:

- 10 km for sites of International Importance (e.g. Special Areas of Conservation (SAC), Special Protection Area (SPA), Ramsar sites);
- 2 km for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest (SSSI), protected or otherwise notable species and non-statutory designated sites of County Importance (e.g. Local Wildlife Sites (LWS));
- 2 km for biological records; and
- 1 km for ancient woodland and mapped priority habitats.

The data search did not cover Tree Preservation Orders (TPOs); or Conservation Areas designated for their special architectural and historic interest.

Further information on relevant species / environmental legislation and planning policy can be found in Appendix B.

2.3 FIELD SURVEYS

The following methodologies have been used to identify the ecological receptors present on or near the site and which are relevant to the proposed development. Survey extended beyond the site to a distance of 50 m where accessible.

2.3.1 Habitats

An extended Phase 1 Habitat Survey was undertaken on the site on 12th November by Tetra Tech Senior Ecologist Becca Grainger-Wood BSc (Hons) MSc ACIEEM. The weather conditions were fine and dry.

The vegetation and broad habitat types within the site were recorded using the Phase 1 categories (JNCC, 2016), with the sites suitability to support notable flora assessed according to the Chartered Institute of Ecology and Environmental Management guidelines (CIEEM, 2017). Dominant plant species were recorded for each habitat present using standard nomenclature (Stace, 2019).

Dominant plant species were recorded for each habitat present using standard nomenclature (Stace, 2019).

Habitats mapped are shown in Figure 2.

2.3.2 Protected and Notable Species

The site was inspected for evidence of, and its potential to support, protected or notable species, especially those listed under the Schedule 2 of the Habitat Regulations 2017 (as amended), Schedule 5 of the Wildlife and Countryside Act (W&CA) 1981 (as amended), the Countryside Rights of Way (CROW) Act 2000, those given extra protection under the Natural Environment and Rural Communities (NERC) Act 2006, and species included in the Newport Local Biodiversity Action Plan (LBAP).

The presence of some species was determined using standard best practice guidance and are listed below.

Bats

The site was assessed for its suitability to support foraging and commuting bat species, using industry standard survey advice (Collins, 2023).

Otter

The site was assessed for its suitability to support otter *Lutra lutra* using industry standard survey advice (Chanin, 2003).

Badger

The site was surveyed for evidence of badger *Meles meles* setts or other badger activity such as paths, latrines or signs of foraging. Methodologies used and any setts recorded were classified according to published criteria (Harris, Cresswell, & Jefferies, 1989).

Birds

Bird species identified at the time of survey were noted and nesting birds recorded as seen. An assessment of habitats was undertaken to determine the likely value to breeding and foraging birds.

Great Crested Newt & Common Amphibians

The site was appraised for its suitability to support great crested newt (GCN) *Triturus cristatus* based on guidance outlined in the Herpetofauna Workers' Manual (Gent & Gibson, 2003) and the *Great Crested Newt Conservation Handbook* (Langton, Beckett, & Foster, 2001). This appraisal also considered waterbodies within 500 m of the site and their potential to be used for breeding newts. Each pond was assessed using the Habitat Suitability Index (HSI) (Oldham, Keeble, Swan, & Jeffcote, 2000) which assigns a value to the pond calculated from 10 pre-identified features. The HSI value gives a correlation of likely use by GCN and below 0.46 the waterbody is considered to have less likelihood of GCN presence however this metric is a guide and should be assessed on a site-by-site basis as waterbodies with low HSI have been known to support GCN.

Habitat suitability and evidence of other common amphibians was recorded on site where relevant.

Reptiles

The site was appraised for its suitability to support reptiles using guidance outlined in the Herpetofauna Workers' Manual (Gent & Gibson, 2003).

Invertebrates

The site's habitats were appraised for suitability to support assemblages of invertebrates and commented on in the report as appropriate.

Other Species

The site was also appraised for its suitability to support other protected or notable fauna with regard to the Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017) and BS42020:2013 Biodiversity – Code of Practice for Planning and Development (BSI, 2013). Evidence of any current or historical presence of such species was recorded.

Invasive Species

Evidence of species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), and the Invasive Alien Species (Enforcement and Permitting) Order 2019 (as amended) were recorded as seen.

Scoped Out

Hazel dormouse *Muscardinus avellanarius* and water vole *Arvicola amphibius* scoped out due to the lack of suitable habitat on site.

2.4 LIMITATIONS

The optimal period to undertake an extended Phase 1 habitat survey is April to September however, the survey was completed at the end of November 2024 i.e. outside the optimal survey window. This is not considered to be a significant limitation to the accurate assessment of the habitats present, due to the presence of previous survey data for the habitat at site.

Any absence of desk study records cannot be relied upon to infer absence of a species / habitat as the absence of records may be a result of under-recording within the given search area.

To determine presence or likely absence of protected species usually requires multiple visits at suitable times of the year. This survey focuses on assessing the potential of the site to support species of note, which are considered to be of principal importance for the conservation of biodiversity with reference to

those given protection under UK or European wildlife legislation, from only a single visit. This report cannot, therefore, be considered a comprehensive assessment of the ecological interest of the site. However, it does provide an assessment of the ecological interest present on the day the site was visited and highlights areas where further survey work may be recommended.

3.0 RESULTS & EVALUATION

3.1 PROTECTED SITES

International and National statutory designated sites identified within 10 km of the proposed development are presented in Table 1 (see Figures 3a and 3b), with the designation, qualifying features and proximity from the development site also indicated. Details of local non-statutory designated sites within 2 km and obtained from the SEWBRc are also included (see Figure 4).

Table 1. Statutory and non-Statutory Designated Sites Identified During the Desk Study

Site Name	Designation	Approximate distance and direction from Site	Reasons for designation
<i>Statutory designated sites:</i>			
Newport Wetlands	NNR	Adjacent - Southeast	The reason for the NNR designation is the bird assemblage for the following species: little egret <i>Egretta garzetta</i>, ruff <i>Philomachus pugnax</i>, whimbrel <i>Numenius phaeopus</i>, Eurasian curlew <i>N. Arquata</i>, common greenshank <i>Tringa nebularia</i>, Eurasian wigeon <i>Mareca penelope</i>, northern shoveler <i>Spatula clypeata</i>, common pochard <i>Aythya ferina</i>, water rail <i>Rallus aquaticus</i> and the spotted redshank <i>T. erythropus</i>. Additionally, certain fish species of national importance including allis shad <i>Alosa alosa</i>, twaite shad <i>A. fallax</i>, European river lamprey <i>Lampetra fluviatilis</i> and sea lamprey <i>Petromyzon marinus</i>.
River Usk	SAC	c. 0.23 km – North, South, West	Annex II species are the primary reason for the sites designation as a SAC and they include sea lamprey, brook lamprey <i>L. planeri</i>, European river lamprey, twaite shad, Atlantic salmon <i>Salmo salar</i>, bullhead <i>Cottus gobio</i> and Eurasian otter. There are water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> community and <i>Callitricho-Batrachion</i> community vegetation that present as a qualifying feature of this site.
Severn Estuary	SPA	c. 0.27 km-Southwest	Designated due to an internationally important population of wintering birds including Bewick's swam <i>Cygnus olumbianus bewickii</i>, greater white-fronted goose <i>Anser albifrons albifrons</i>, shelduck <i>Tadorna tadorna</i>, gadwall <i>Anas strepera</i>, dunlin <i>Calidris alpina</i> and redshank <i>T. tetanus</i>. Additionally, the Severn Estuary supports nationally important wintering population numbers of wigeon <i>A. penelope</i>, teal <i>A. crecca</i>, pintail <i>A. acuta</i>, pochard, tufted duck <i>Anythya fuligula</i>, ringed plover <i>Charadrius hiaticula</i>,

			grey plover <i>Pluvialis squatarola</i>, Eurasian curlew, whimbrel and spotted redshank. There is also a nationally important breeding population of lesser black-backed gulls <i>Larus fuscus</i> present.
Severn Estuary (Wales)	SAC	c. 0.27 km - Southwest	The primary reasons for the SAC designation of the Severn Estuary are because of the Annex I habitats present; estuaries, mudflats and sandflats not covered by seawater at low tide, Atlantic salt meadows with qualifying features of sea water covered sandbanks and reefs. The presence of Annex II species sea lamprey, river lamprey and twaite shad, was further evidence for the SAC designation of the Severn Estuary.
Severn Estuary	Ramsar	c. 0.31 km - South	This Ramsar site is an important site for the run of migratory fish between sea and river via estuary and is one of the most diverse river systems / estuarine within Britain, with over 110 species recorded. The lesser black-backed gull, ringed plover, Eurasian teal and Northern pintail <i>A. acuta</i> were found to be present.
<i>Non-statutory designated sites:</i>			
Newport Wetlands	SSSI	Adjacent - Southeast	This SSSI is designated for its breeding and over-wintering birds, invertebrates, and aquatic and marginal flora. Also of special interest are the ditch habitat and reedbeds. The SSSI designation has been designated in part because of the wintering species shoveler and black-tailed godwit <i>Limosa limosa</i>. Other over -wintering species that use the site include gadwall, wigeon, shelduck, dunlin, redshank, whimbrel and curlew. During the summer, the wet grasslands, saline lagoons and reedbeds on the site support an exceptional variety of breeding birds, including nationally important breeding populations of avocet <i>Recurvirostra avosetta</i>, redshank, lapwing <i>Vanellus vanellus</i>, water rail, Cetti's warbler <i>Cettia cetti</i> and bearded tit <i>Panurus biarmicus</i>. In addition, breeding populations of ringed plover and little ringed plover <i>Charadrius dubius</i>.
River Usk (Lower Usk)	SSSI	0.25 North	The Usk system, comprising the River Usk and including its upper tributaries, represents a large, linear ecosystem that acts as an important wildlife corridor, an essential migration route and key breeding area for many nationally and internationally important species. The site is of special interest for its internationally important populations of otter, Atlantic salmon, bullhead, brook lamprey and river lamprey.
Severn Estuary	SSSI	c. 0.27 km-Southwest	The intertidal zone of mudflats, sand banks, rocky platforms and saltmarsh combined with the immense

			tidal range and funnel shaped estuary makes this one of the largest and most important in Britain. Designated for supporting populations of wintering and passage wading bird species, including curlew and redshank, and most of its nationally important ringed plover and grey plover. Additionally, the presence of overwintering populations of Tundra swan, greater white-fronted goose, common shelduck and gadwall. More specifically, the site is the single most important wintering ground for dunlin in Britain. In late winter and early spring, the important shelduck and wigeon populations can be found.
Gwent Levels – Nash and Goldcliff	SSSI	c. 0.37 km - East	Gwent Levels contain a rich plant species diversity, many of which are absent from other level systems. The regular maintenance of the reens provides conditions for species such as hairlike pondweed <i>Potamogeton trichoides</i>, arrowhead <i>Sagittaria sagittifolia</i> an opportunity to flourish. These reens and hedgerows provide habitat for invertebrate assemblages of <i>Pipunculus fonscai</i>, <i>Tomosvaryella minima</i>, <i>Halipus mucronatus</i>, <i>Hydrophilus piceus</i>, <i>Physa heterostropha</i> and <i>Brachytron pratense</i>. The Nash and Goldcliff are of the Gwent Levels is of particular botanical interest as it is the only area in Wales for the rootless duckweed <i>Wolffia arrhiza</i> along with an interesting community of hornwort <i>Ceratophyllum submersum</i> and <i>C. demersum</i> that grow in the same location.
Gwent Levels – St. Brides	SSSI	c. 0.81 km - West	Gwent Levels contain a rich plant species diversity, many of which are absent from other level systems. The regular maintenance of the reens provides conditions for species such as hairlike pondweed, arrowhead an opportunity to flourish. These reens and hedgerows provide habitat for invertebrate assemblages of <i>P. fonscai</i>, <i>T. minima</i>, <i>H. mucronatus</i>, <i>Hydrophilus piceus</i>, <i>P. heterostropha</i> and <i>B. pratense</i>.
Gwent Wetland Reserve	LWS	Adjacent to the access road South	Mosaic of wet grassland reedbeds, open water, hedgerows and saline lagoon, which supports internationally important numbers of wildfowl as well as UK BAP Priority species such as water vole, great crested newt and brown hare <i>Lepus europaeus</i>.
Newport Wetlands	RSPB Reserve	0.18 km Southeast	No citation for designation.
Julian's Gout Land	LWS	0.49 km East	Maritime influenced semi-improved neutral grassland, with willow car and large populations of marsh helleborine <i>Epipactis palustris</i>, marsh orchids <i>Dactylorhiza</i> spp. and narrow leaved bird's-foot-trefoil <i>Lotus glaber</i>.

Great Traston Meadows	Wildlife Trust Reserve	1.11 km - Northeast	No citation for designation.
Solutia Site	LWS	1.47 km Northeast	A series of improved and semi-improved grasslands with traditional ditches and ponds; site supports a range of species including nesting birds such as Cetti's warbler, and invertebrates including hairy dragonfly <i>Brachyton prantense</i> .
Marshall's	LWS	1.47 km – North	Mosaic neutral grassland, post-industrial, wetland.
Alpha Steel Site	LWS	1.52 km Northeast	Area of former Levels, scrub and other habitats which support a range of species including scarce moth species, birds such as Cetti's warbler, and plants including marsh helleborine, bee orchid <i>Ophrys apifera</i> , pyramidal orchid <i>Anacamptis pyramidalis</i> , <i>Dactylorhiza</i> spp.
Afon Ebbw River	LWS	1.73 km – Northwest	Associated species include bulbous foxtail <i>Alopecurus bubous</i> near confluence with Usk, kingfisher <i>Alcedo atthis</i> , sand martin, grass snake <i>Natrix Helvetica x helvetica</i> .

Priority Habitats

Using the data received from MAGIC, no Ancient Woodland was identified on site or within 1 km of the site boundary. Standing water was identified on-site and close to the survey area, identified on Figure 5.

3.2 HABITATS

The following habitats, as outlined in Table 2, have been identified through our field assessment, a Phase 1 habitat map can be found in Figure 2, with detailed Target Notes (TN) and Photographic Plates included in Appendix C, as appropriate.

Table 2. Habitats

Habitat (UKHab Code) (TN)	Result	Importance Assessment
Ephemeral / short perennial (TN6, TN11, TN12, T19, TN21)	Ephemeral short perennial growing in between areas of scattered scrub and along the rail tracks with some rubble and mosses growing in between few grasses. This habitat is also present within the ash storage structure, with the ground becoming colonised, this area was dominated by buddleja <i>Buddleja davidii</i> .	Site – habitat is of limited importance but will be a resource for invertebrates.
Hardstanding (TN1, TN8)	Hardstanding was recorded to the south and west of the ash storage facility in the form of roads and footpaths.	Negligible - this habitat has negligible intrinsic ecological value.

Habitat (UKHab Code) (TN)	Result	Importance Assessment
Semi-improved neutral grassland (TN24, TN25)	Grasses 5-10 cm high with dominant grasses of Yorkshire fog <i>Holcus lanatus</i> , creeping bent <i>Agrostis stolonifera</i> , cock's-foot <i>Dactylis glomerata</i> and forbs and mosses in between grasses. With buddleja, bramble <i>Rubus fruticosus</i> agg. and gorse <i>Ulex europaeus</i> . Present surrounding the railway tracks to the east of the site.	Site – low intrinsic ecological value.
Tall ruderal (TN5, TN10)	An area of tall ruderal vegetation is present next to the path in the southwest land parcel.	Site - low intrinsic ecological value.
Dense scrub (TN8, TN9, TN4, TN15, TN16, TN17)	The land parcel to the south-west of the site was dominated by an impenetrable area of dense scrub dominated by bramble.	Site – common habitat in the area.
Scattered scrub (TN23)	Along the railway line to the north of the ash storage structure there is scattered scrub along the railway track, dominated by buddlejah and sea buckthorn <i>Hippophae rhamnoides</i> .	Site – dominated by non-native species, however these still provide important resources for invertebrates.
Standing water (TN7, HSI P2)	Two large ponds are present within the southwest land parcel (P1 and P2). These have emergent vegetation around the perimeters and appear to always hold water. The most southernly has a permitted discharge pipe to the wetlands to the south.	Site – water is discharge from the drains on site.
Wet ditch (TN2, TN3, TN13, TN14, TN26)	A ditch is present around the south and west of the ash storage facility. This holds water in most areas although in drier seasons is likely to be dry. In some areas this hosted vegetation including bulrush <i>Typha latifolia</i> and common reed <i>Phragmites australis</i> .	Site – does not hold water consistency and is of low intrinsic ecological value.
Fence	A railing is present around the wet ditch that runs along the southern and western boundary of the ash storage facility.	Negligible.
Wall	A wall runs around the outside of the ash storage facility.	Negligible .
Railway Track (TN20, TN22)	Disused railway line.	Negligible.

3.3 PROTECTED AND NOTABLE SPECIES

Data purchased from the SEWBRc confirmed the presence of a number of protected and notable species within 2 km of the site. Relevant data are discussed in Table 3 below.

Protected and notable species identified as a receptor for the site are detailed in Table 3. For species with legal protection arising from persecution, such as badgers, some details are purposefully omitted, but further details can be provided if requested. Further information on relevant species / environmental legislation and planning policy can be found in Appendix B.

Table 3. Species

Species	Legal Protection	Result	Importance Assessment
Badger	Protection of Badgers Act 1992; Wildlife and Countryside Act 1981 (as amended) Schedule 6.	Desk Study There were six records of badgers within 2 km of the site. A main badger sett was recorded within the site boundary (location withheld as data is classed as sensitive). The other five recordings were of deceased badgers along Nash Road with the closest being approximately 1.4 km east of the site. An Ecological Impact Assessment (EcIA) (RPS, 2022c) for the development BESS development south-east of the site concluded that no badger setts were recorded on site during surveys in 2018 and 2022. Badger setts have been recorded within the wider power station site with an extensive sett in woodland to the east of the site and a number of outlier setts elsewhere on the wider site. Field Survey No badger evidence was recorded during the site survey. Large amounts of the habitats on-site are unsuitable for badger e.g. the hardstanding and within the ash storage structure. The dense scrub within the southwestern parcel has potential to support badgers setts and foraging habitat but no signs of badger entering into this area (i.e. pathways into scrub). .	Site
Otter	Conservation of Habitats and Species Regulations 2017 (as amended) Schedule 2; Wildlife and Countryside	<u>Desk study</u> There were 15 records of Eurasian otter returned in the 2 km of the site. This included results from sightings of otter and otter spraint. Recent spraint from	Negligible

Species	Legal Protection	Result	Importance Assessment
	Act 1981 (as amended) Schedules 5 & 6; Natural Environment and Rural Communities 2006 Section 41.	2023 was identified within 10 m of the site boundary, but no records of otters were present within the site. Otter surveys carried out by RPS in 2019 (RPS, 2022e) confirmed the movement of otters along the boundary ditch and otter with young were recorded on camera traps. Camera traps set up in 2022 also recorded otter in the wider environment of the proposed development site. No signs of otter were found during otter survey in October 2023. The entirety of the boundary ditch and the restored operational ditch were considered sub-optimal habitat for otters as of October 2023 (Tetra Tech, 2024). <u>Results</u> Ponds on-site are suitable for foraging otters and scrub habitat provides opportunities for resting or breeding sites within the site.	
Bats	Conservation of Habitats and Species Regulations 2017 (as amended) Schedule 2; Wildlife and Countryside Act 1981 (as amended) Schedules 5 & 6; Natural Environment and Rural Communities 2006 Section 41.	<u>Desk study</u> The data search has returned 16 records of bats within 2 km of the Uskmouth site. Seven species of bat were identified, including common pipistrelle <i>Pipistrellus pipistrellus</i>, whiskered bat <i>Myotis mystacinus</i>, soprano pipistrelle <i>P. pygmaeus</i>, noctule <i>Nyctalus noctula</i>, Daubenton's <i>M. daubentonii</i>, Nathusius's pipistrelle <i>P. nathusii</i> and greater horseshoe bat <i>Rhinolophus ferrumequinum</i>. A single common pipistrelle was found, identified and released within a building in the power station but the closest external record of bat was 0.36 km south in the RSPB Newport Wetlands. Recent surveys undertaken within a tunnel to the east of the site and within the site boundary has been found to support a day and hibernation roost for a single lesser horseshoe bat <i>R. hipposideros</i>. Works, including enhancement of the tunnel, were undertaken in accordance with NRW licence (S094351-1). Additionally as part of surveys for the Chimney Stack a common pipistrelle day roost was identified within the Chimney stack itself and a noctule breeding roost was found in a tree during 2024 surveys (Tetra Tech, 2024c). Activity surveys undertaken of the wider site in 2024 had recordings of common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, Leisler's bat <i>N. leisleri</i>, Serotine <i>Eptesicus serotinus</i>, brown long-eared bat <i>Plecotus auritus</i> and <i>Myotis</i> sp.	

Species	Legal Protection	Result	Importance Assessment
		Roosting bats (soprano pipistrelle, common pipistrelle, brown long-eared bat <i>Plecotus auritus</i>) were recorded in the bridge, trees and bat boxes in the wider environment of the RPS site (RPS, 2022c). <u>Results</u> <i>Commuting and foraging bats</i> Bats are likely to use the site for commuting and foraging, particularly the southwest parcel of land. Due to nature of habitats recorded onsite and better habitat available for bat foraging offsite, the site is assessed as having moderate suitability for commuting and foraging bats.	
Birds	Wildlife and Countryside Act 1981 (as amended).	Desk Study The data search returned 1229 records of birds within 2 km. Of these records, 250 were WCA Schedule 1 birds, with eight recordings from within the site boundary. The majority of these however, had been recorded from the RSPB Newport Wetlands reserve. A wide range of nesting and foraging bird species were recorded within wider environment, however, the breeding bird assemblage recorded in the locality of the development was classified as low (local) value by RPS (RPS, 2022c). Field Survey The ponds to the west of the site have potential to support species of over wintering bird listed on the nearby Severn Estuary SPA, the wider site has suitability to support foraging and nesting birds in the dense scrub habitat and individual trees in the southwest land parcel. There are opportunities within the scattered scrub onsite for foraging and nesting birds.	Local
GCN and Common Amphibians	GCN: Conservation of Habitats and Species Regulations 2017 (as amended) Schedule 2; Wildlife and Countryside Act 1981 (as amended) Schedules 5; Natural Environment and Rural	Desk Study The data returned 40 records of amphibians within 2 km of the site. Records include: GCN, smooth newt <i>Lissotriton vulgaris</i>, palmate newt <i>L. helveticus</i>, common toad <i>Bufo bufo</i> and common frog <i>Rana temporaria</i>. Of the 40 records, seven were GCN, with the closest GCN record being a positive eDNA sample on five ponds approximately 1.4 km northeast of site.	Local

Species	Legal Protection	Result	Importance Assessment
	Communities 2006 Section 41. <i>Other amphibians:</i> Wildlife and Countryside Act 1981 (as amended) Schedules 5; Natural Environment and Rural Communities 2006 Section 41.	Previous GCN surveys have been carried out at the site in 2019 with no GCN recorded. An eDNA survey also undertaken in 2019 of the attenuation pond and boundary ditch. This was repeated in 2022 and all of the waterbodies came back negative for GCN (RPS, 2022c). Field Survey Five waterbodies were identified on-site pond 1 (P1) pond 2 (P2) and ditch 1 (D1), the two ponds both have inlets from on-site drainage (see Figure 5 with locations identified in Appendix D). These were all subject to a HSI assessments with P1, P2 and D1 as average. Two further water bodies were also accessed within the 500 m range P3 and P4, with P3 assessed as average and P4 assessed as poor. The terrestrial habitat is of moderate suitability to support GCN, if they were found to be in the area. The surveyed waterbodies are described along with pictures and HSI assessment in Appendix D.	
Reptiles	Wildlife and Countryside Act 1981 (as amended) Schedules 5; Natural Environment and Rural Communities 2006 Section 41. <i>Adder, grass snake, slow worm and common lizard:</i> Wildlife and Countryside Act 1981 (as amended) Schedule 5; Natural Environment and Rural Communities 2006 Section 41.	Desk Study There were 38 records of reptiles returned from the data search of two species grass snake and adder <i>Vipera berus</i>. The nearest recording was a field recording of juvenile grass snake 0.19 km south of the site boundary. Reptile surveys were conducted in May 2022. Adult and juvenile grass snakes were recorded, confirming breeding in the locality (RPS, 2022c). No reptiles were recorded during surveys within the wider site in 2023 (Tetra Tech, 2024), however there was an incidental sighting of a grass snake within the wider side during an unrelated site visit in 2024. Field Survey The site provides habitat suitable for foraging and basking, along the former railway tracks within scattered scrub areas onsite and within the land to the southwest. The wider area encompassing the Newport wetlands provides very good habitat for grass snake within the wider context of the site. Survey undertaken within the wider site in 2024 found no reptiles to be present (Tetra Tech, 2024a). These surveys included the area along the railway track in the east of the site.	Local

Species	Legal Protection	Result	Importance Assessment
Invertebrates	Some invertebrates are protected under Conservation of Habitats and Species Regulations 2017 (as amended) and Wildlife and Countryside Act 1981 (as amended). Many invertebrates are also listed as rare and most threatened species under Section 41 of the Natural Environment and Rural Communities Act (2006).	Desk Study There were 699 records of invertebrates returned in the 2 km from data search. One of the two invertebrates of concern within the Newport LBAP, the shrill carder bee <i>Bombus sylvarum</i>, accounts for 118 invertebrate records and the closest record of the shrill carder bee was found to be adjacent to the site boundary. The invertebrate orders within the data search consists of Coleoptera (34), Diptera (10), Hemiptera (2), Hymenoptera (204), Lepidoptera (266), Ordonata (157) and Orthoptera (26). The wider environment was surveyed for invertebrates in 2019. A total of 147 species were recorded, consisting of both terrestrial and aquatic species. Shrill carder bee was not recorded in the former coal stockyard in 2019 but was present in the wider power station with sightings in grassland and ephemeral habitats on the eastern perimeter of the extensive landholding. Field Survey The grassland areas are suitable for insects foraging with suitability for nest building in the bare ground area. A beehive is present within the southwest land parcel. The ponds have potential to support invertebrates found within the local NNR and SSSIs, these ponds are to be retained and enhanced. Further description and photographic plates are provided in Appendix C.	Local
Invasive species	Wildlife and Countryside Act 1981 (as amended) Schedule 9; The Invasive Alien Species (Enforcement and Permitting) Order 2019 (as amended); Environmental Protection Act 1990.	Desk study There were 54 records of invasive species returned in the 2 km from the data search. Seven of which were of black swan <i>Cygnus atratus</i> and the bar-headed goose <i>Anser indicus</i> with the closest sightings being 0.3 km west and 0.88 km south, respectively. The eastern grey squirrel <i>Sciurus carolinesis</i> was recorded 11 times with the closest recording being 0.35 km south of site. The other 36 recordings involved the vascular plants; Japanese knotweed <i>Fallopia japonica</i>, Japanese rose <i>Rosa rugosa</i>, giant hogweed <i>Heracleum mantegazzianum</i>, Himalayan balsam <i>Impatiens glandulifera</i>, water fern <i>Azolla filiculoides</i>, coppertips <i>Crocsmia</i> × <i>crocsmiiflora</i> and wall cotoneaster <i>Cotoneaster horizontalis</i>. No invasive plant species records within the site boundary.	Local

Species	Legal Protection	Result	Importance Assessment
		Results Within the land parcel in the southwest along the ditch (TN3) there were stands of giant hogweed. Non -native buddleia and sea buckthorn recorded onsite.	

4.0 RECOMMENDATIONS

4.1 MITIGATION AND FURTHER SURVEY

All of the works outlined below in Table 4 should be assumed as likely requirements for the pre-planning stage to inform a planning application, unless otherwise stated.

Where species such as bats and GCN may potentially be impacted, further surveys are likely to be required to fully inform the proposals, mitigation, and, if necessary, a European Protected Species Mitigation Licence (EPSML) to allow actions that would otherwise be illegal.

Table 4. Mitigation and Further Survey / Assessment

Ecological Receptor	Further Survey / Assessment	Mitigation Required	Opportunity for Enhancement
Designated sites	The site is within c. 0.27 km of the Severn Estuary SPA / SAC / Ramsar. As such, a report to inform Habitats Regulations Assessment (HRA) is required to establish whether the development proposals have the potential to affect the integrity of the designated site or its qualifying species. Consideration will also need to be given to the adjacent Newport Wetlands NNR, as this is hydrologically linked with the site.	Any mitigation requirement will be detailed in the Appropriate Assessment (AA) as part of a Habitats Regulations Assessment (HRA). Mitigation measures will need to be implemented to prevent an adverse effect to the integrity of the Severn Estuary SPA / SAC / Ramsar designated site. Standard measures to reduce noise, dust, etc to be included within a Construction Environmental Management Plan (CEMP) in accordance with British Standard BS42020:2013.	To be considered after HRA.

Ecological Receptor	Further Survey / Assessment	Mitigation Required	Opportunity for Enhancement
Habitats	No further surveys / assessment is required for the remaining habitats.	It is recommended that both ponds (P1 and P2) are retained with suitable buffers. The retained and adjacent habitats will need to be protected throughout the duration of the works. Best practice pollution prevention measures will be outlined within a CEMP and will include the below: • Measures to minimise dust arising, when necessary, including the use of dust control machinery and wet machinery; • Measures to prevent pollution / contamination events through surface run-off; and • Measures to minimise other pollution events such as noise, vibration and wind-blown litter.	Removal of the non-native buddleja and sea buckthorn species.
Badger	No evidence of badgers was recorded during the site visit and large areas of the site are unsuitable for badgers for sett building or foraging (hardstanding, ash pile). There are, however, records of setts from within the wider site boundary. Large areas of the southwestern land parcel are impenetrable scrub and are not able to be fully accessed.	Due to the proximity of setts within the local area, a CEMP should be produced and followed including the following: • Excavations will be covered at night or fitted with mammal ramps to ensure badgers and other mammals do not get trapped; • Any pipework with a diameter over 150 mm will be covered at the end of each workday to prevent badgers getting trapped or entering;	Planting of berry producing vegetation in any planting at site.

Ecological Receptor	Further Survey / Assessment	Mitigation Required	Opportunity for Enhancement
		- If any mammal pathways are identified will not be obstructed by fencing or parked machinery etc; and - Lighting required for the construction phase will be carefully installed under the advice of a suitably qualified ecologist to ensure there is no excess spill on potential foraging habitat for badgers. Any clearance of dense scrub habitat should be done under ECoW supervision. If any badger setts are identified works must stop immediately and a Nature Resources Wales (NRW) licence will be required.	
Otter	Currently P1 and P2 are to be retained, if this is to change an otter survey will be required to determine that this species is not utilising the pond habitat and surrounding scrub.	To be determined after further survey works, if required.	To be determined after further survey works, if required.
Bats	Bats are fully protected under the Habitats Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended). Further assessment is required to inform the proposals. Foraging And Commuting The site was assessed as offering moderate foraging suitability. Current data exists for the wider site area (Tetra Tech, 2024c). As this data is recent and recorded within the vicinity of the site, it has strong validity for the AW2	Foraging and Commuting Mitigation for foraging and commuting bats is to be recommended following results of the activity surveys but is likely to include retention of the ponds, dense scrub and trees where possible and the avoidance of lighting these features. A sensitive lighting scheme should be devised for the development, that avoids lighting sensitive receptors (mature trees and vegetated corridors). Technology such	Further enhancements will be provided following the further assessments and outlined within a bat survey report.

Ecological Receptor	Further Survey / Assessment	Mitigation Required	Opportunity for Enhancement
	site. It is unlikely that further activity surveys will derive a significant difference of species assemblage than recorded previously. Therefore, no further activity surveys are required or recommended.	as cowls and hoods that limit light spill, timers and sensors should be used to minimise disturbance where lighting cannot be avoided, this should be design in conjunction with (ILP, 2023).	
Birds	If the ponds are to be impacted then wintering bird surveys will be required to ensure that no qualifying features of the Severn Estuary SPA / SAC / Ramsar would be impacted by works.	Mitigation may include a barrier e.g. solid hoarding, installed around the ponds to ensure any birds using this area are not disturbed during works. Vegetation clearance should be undertaken outside of the nesting bird season (March – September inclusive). If clearance during this time is not possible, it is recommended that a check for nesting birds is undertaken within 48 hours prior to clearance of vegetation / buildings by a suitably qualified ecologist. If an active bird nest is found, a buffer (typically around 5 m, but more for some species) will be applied to the nest, until the young have fledged and works can continue.	Enhancements can be implemented on site by erecting bird boxes on existing trees within the site or wider site boundary.
GCN and Common Amphibians	GCN are fully protected under the Habitats Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended). Previous records have been found of this species c. 1.4 km from site. However, more recent surveys in 2019 and 2022 have found them to be likely absent from on-site water bodies. Update eDNA surveys of the on-site water bodies are recommended of P1, P2 and the newly established P4 which had an 'average' HSI score.	To be determined after the eDNA surveys.	To be determined after the eDNA surveys.

Ecological Receptor	Further Survey / Assessment	Mitigation Required	Opportunity for Enhancement
	eDNA surveys can be completed from 15th April, and results of the survey are typically available within a week of submission to the lab. If the waterbodies return a positive result for GCN eDNA, this will trigger the requirement for traditional surveys, which would be concluded in mid-June. Alternatively, traditional surveys can commence in March (where conditions are suitable), and be completed by the end of April if no GCN are found, or by end of May if GCN are found. If GCN are found at any stage, a population size class estimate survey.		
Reptiles	Due to the suitable habitat identified on-site and within the local landscape further reptile absence / presence surveys are to be undertaken on site. This will confirm the presence or likely absence of reptiles on site through seven survey visits (between April to May and September to October) using artificial refugia mats. This will need to consider areas already surveyed within the site boundary (Tetra Tech, 2024a).	Mitigation measures to be confirmed following further survey for reptiles.	Enhancement measures to be confirmed following further survey.
Invertebrates	No further surveys / assessment required.	No further mitigation required.	Placing of log piles or bug hotels.
Invasive species	An invasive species survey is recommended to map and quantify the extent of giant hogweed onsite, if this area is to be impacted by works.	A specialist contractor should implement a control / eradication plan and a no work buffer zones with fencing should be implemented in the meantime.	Eradication is considered an enhancement.

5.0 CONCLUSIONS

There is the potential for works to affect the Severn Estuary SPA / SAC / Ramsar given its proximity and hydrological links from the site. The local planning authority should be contacted as soon as possible to determine need for a HRA compliant with the Conservation of Habitats and Species Regulations 2017 (as amended) given the potential impacts.

The site has the potential to support a number of protected species including bats, badger, breeding birds, GCN and reptiles. There is also a stand of giant hogweed, an invasive plant species, that will need to be considered under a biosecurity plan before works commence.

Key recommendations of the report are:

- Further surveys are required, including GCN surveys (eDNA and or traditional) and reptile surveys;
- ECoW for clearance of dense scrub onsite as a precautionary measure for badgers and otter;
- Vegetation clearance should be undertaken outside of the nesting bird season (March – September inclusive). If this is not possible, it is recommended that a check for nesting birds is undertaken within 48 hours prior to clearance of vegetation / buildings by an suitably qualified ecologist;
- Higher value habitats such as ponds are recommended to be retained, protected and enhanced where possible should this not prove possible then winter bird surveys will be required to ascertain it's importance in terms of birds for which the SPA is designated;
- Invasive species surveys are recommended prior to development so that an adequate mitigation / management strategy can be designed;
- A sensitive lighting scheme should be developed for the site that minimises disturbance to sensitive ecological receptors (e.g. ponds, dense vegetated corridors); and
- A CEMP is recommended with the aim of minimising indirect impacts to ecologically important features.

Provided the measures within this report for further survey and mitigation can be adopted, it is anticipated that a design could be brought forward for this site that would be compliant with current local and national biodiversity planning policy.

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FIGURES

Figure 1 – Site Location Plan

Figure 2– Phase 1 Habitat Plan

Figure 3a – International Sites within 10 km

Figure 3b –National Sites within 2 km

Figure 4 – Local Sites within 2km

Figure 5 – Waterbody Location Plan



Site Location Plan

Uskmouth AW2



Stroma Tidal Power Ltd.

Legend

Survey areas

Notes:

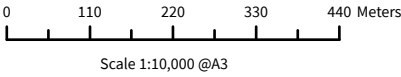
Drawn by: CHRIS.DAWE

Figure No. 1

Checked by: Becca Grainger-Wood

Revision No. A

09 December 2024



British National Grid

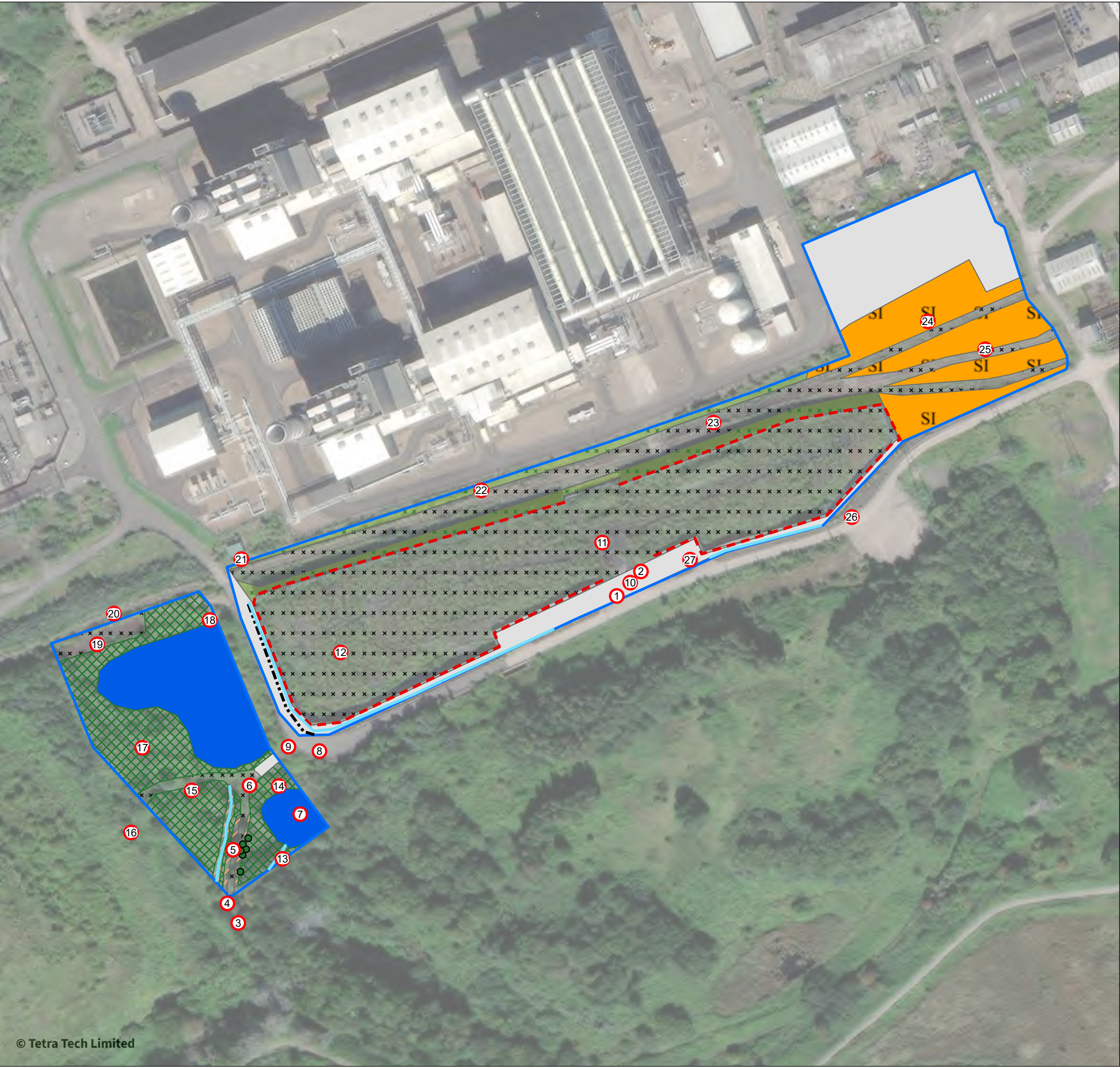
NGR: 332573E 183397N

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Phase 1 Habitat Plan

Uskmouth AW2



Stroma Tidal Power Ltd.

Legend

- Survey areas
- Cultivated/disturbed land, Ephemeral/short perennial
- Hardstanding
- Neutral grassland, Semi-improved
- Other, Tall ruderal
- Scrub, Dense/continuous
- Scrub, Scattered
- Standing Water
- Wet ditch
- Fence
- Wall
- Broadleaved individual tree
- Target notes

Notes:

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Figure No. 2

Revision No. A

09 December 2024

0 20 40 60 80 Meters

Scale 1:1,642 @A3

British National Grid

NGR: 332547E 183534N

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International within 10 km

Uskmouth AW2



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Legend

-  Survey areas
-  Survey areas buffer (10km)
-  Ramsar
-  Special Area of Conservation (SAC)
-  Special Protection Area (SPA)

Data Sources:

Ramsar
Special Areas of Conservation
Special Protection Areas

Notes:

Symbology similar to that used within the MAGIC Application

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Figure No. 2a

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Revision No. A

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0 1 2 3 4 Kilometres British National Grid

Scale 1:78,000 @A3

NGR: 332547E 183535N

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National Sites within 2 km

Uskmouth AW2



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Legend

-  Survey areas
-  Survey areas buffer (2 km)
-  National Nature Reserve
-  Sites of Special Scientific Interest (SSSI)

Data Sources:
[National Nature Reserves](#)
[Sites of Special Scientific Interest](#)

Notes:
Symbology similar to that used within the MAGIC Application

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Figure No. 2b
Revision No. A
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0 200 400 600 800 Meters
Scale 1:18,000 @A3

British National Grid
NGR: 332609E 183385N

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Local sites within 2 km

Uskmouth AW2



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Legend

-  Survey areas
-  Survey areas buffer (2 km)
-  RSPB Reserve
-  Wildlife Site / SINC (Adopted)
-  Wildlife Trust Reserve

Data Sources:
[Local Nature Reserves](#)

Notes:
Symbology similar to that used within the MAGIC Application

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Figure No. 3

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Revision No. A

09 December 2024

0 250 500 750 Meters
Scale 1:16,000 @A3

British National Grid
NGR: 332548E 183534N

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Waterbody Location Plan

Uskmouth AW2



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Legend

-  Survey areas
-  Survey areas buffer (500 m)
-  Waterbody
-  Ditches

Notes:

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Figure No. 5
Revision No. A
09 December 2024

0 50 100 150 200 Meters
Scale 1:5,000 @A3

British National Grid
NGR: 332547E 183534N

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APPENDICES

APPENDIX A: REPORT CONDITIONS

This Report has been prepared using reasonable skill and care for the sole benefit of Stroma Tidal Power Ltd. ("the Client") for the proposed uses stated in the report by Tetra Tech Limited ("Tetra Tech"). Tetra Tech exclude all liability for any other uses and to any other party. The report must not be relied on or reproduced in whole or in part by any other party without the copyright holder's permission.

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The report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections'. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times. No investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather-related conditions. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions. The "shelf life" of the Report will be determined by a number of factors including; its original purpose, the Client's instructions, passage of time, advances in technology and techniques, changes in legislation etc. and therefore may require future re-assessment.

The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

Tetra Tech reserves the right to share this Report and any related materials, surveys, drawings and/or documents at any time with the relevant Local Ecological Records Centre (LERC), any relevant statutory body or any equivalent organisation as Tetra Tech may reasonably require from time-to-time.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. Tetra Tech accept no liability for issues with performance arising from such factors.

DIX B: SITE MASTERPLAN

APPENDIX B: KEY LEGISLATION

Habitats Directive

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, or the 'Habitats Directive', is a European Union directive adopted in 1992 in response to the Bern Convention. Its aims are to protect approximately 220 habitats and 1,000 species listed in its several Annexes.

In the UK, the Habitats Directive is transposed into national law via the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales, and via the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland.

Birds Directive

The EC Directive on the Conservation of Wild Birds (79/409/EEC) or 'Birds Directive' was introduced to achieve favourable conservation status of all wild bird species across their distribution range. In this context, the most important provision is the identification and classification of Special Protection Areas (SPAs) for rare or vulnerable species listed in Annex 1 of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance.

Conservation of Habitats and Species Regulations 2017 (as amended)

Regulations place a duty on the Secretary of State to propose a list of sites which are important for either habitats or species (listed in Annexes I or II of the Habitats Directive respectively) to the European Commission. These sites, if ratified by Ministers, are then designated as Special Protection Areas (SPAs) within six years. Public bodies must also help preserve, maintain and re-establish habitats for wild birds.

The 2018 amendments mainly related to the impact of the *People Over Wind* decision and some implications arising for neighbourhood plan development and a range of other planning tools including Local Development Orders and Permission in Principle – see here for full details:

<https://www.legislation.gov.uk/uksi/2018/1307/note/made>

The 2019 amendments related to the EU exit. Most of these changes involved transferring functions from the European Commission to the appropriate authorities in England and Wales. All other processes or terms in the 2017 Regulations remain unchanged and existing guidance is still relevant. The obligations of a competent authority in the 2017 Regulations for the protection of sites or species do not change – see here for full details:

<https://www.legislation.gov.uk/ukdsi/2019/9780111176573>

The Regulations make it an offence to deliberately capture, kill, disturb or trade in the animals listed in Schedule 2, or pick, uproot, destroy, or trade in the plants listed in Schedule 5.

Wildlife & Countryside Act 1981 (as amended)

This is the principal mechanism for the legislative protection of wildlife in the UK. This legislation is the chief means by which the 'Bern Convention' and the Birds Directive are implemented in the UK. Since it was first introduced, the Act has been amended several times.

The Act makes it an offence to (with exception to species listed in Schedule 2) intentionally:

- kill, injure, or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use; or
- take or destroy an egg of any wild bird.

Or to intentionally do the following to a wild bird listed in Schedule 1:

- disturbs any wild bird while it is building a nest or is in, on or near a nest containing eggs or young; or
- disturbs dependent young of such a bird.

In addition, the Act makes it an offence (subject to exceptions) to:

- intentionally or recklessly kill, injure or take any wild animal listed on Schedule 5;
- interfere with places used for shelter or protection, or intentionally disturbing animals occupying such places; and
- The Act also prohibits certain methods of killing, injuring, or taking wild animals.

Finally, the Act also makes it an offence (subject to exceptions) to: intentionally pick, uproot or destroy any wild plant listed in Schedule 8, or any seed or spore attached to any such wild plant; unless an authorised person, intentionally uproot any wild plant not included in Schedule 8; or sell, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

Following all amendments to the Act, Schedule 5 'Animals which are Protected' contains a total of 154 species of animal, including several mammals, reptiles, amphibians, fish and invertebrates. Schedule 8 'Plants which are Protected' of the Act, contains 185 species, including higher plants, bryophytes and fungi and lichens. A comprehensive and up-to-date list of these species can be obtained from the JNCC website.

Part 14 of the Act makes unlawful to plant or otherwise cause to grow in the wild any plant which is listed in Part II of Schedule 9.

It is recommended that plant material of these species is disposed of as bio-hazardous waste, and these plants should not be used in planting schemes.

Environment Protection Act 1990

The Act imposes a classification of soil and other waste containing viable propagules of invasive non-native plant species as controlled waste. This has been applied to Japanese Knotweed *Reynoutria japonica*, with the result that waste containing this species must be disposed of in accordance with the duty of care set out in section 34 of the Act.

Protection of Badgers Act 1992

The main legislation protecting badgers in England and Wales is the Protection of Badgers Act 1992 (the 1992 Act). Under the 1992 Act it is an offence to: wilfully kill, injure, take or attempt to kill, injure or take a badger; dig for a badger; interfere with a badger sett by, damaging a sett or any part thereof, destroying a sett, obstructing access to a sett, causing a dog to enter a sett or disturbing a badger while occupying a sett. The 1992 Act defines a badger sett as: "any structure or place which displays signs indicating current use by a badger".

Natural Environment and Rural Communities Act 2006

Section 41 (S41) of this Act requires the Secretary of State to publish a list (in consultation with Natural England) of Habitats and Species which are of Principal Importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as public bodies including local and regional authorities, in implementing their duty under Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal (e.g. planning) functions. The S41 list includes 65 Habitats of Principal Importance and 1,150 Species of Principal Importance.

The Environment Act 2021

The Environment Act sets statutory targets biodiversity including a target to reverse the decline in species abundance by 2030. As well as confirming that public authorities have a duty to conserve and enhance biodiversity, and making provision for biodiversity gain to be a condition of planning permission in England.

Hedgerow Regulations 1997

The Hedgerow Regulations were made under Section 97 of the Environment Act 1995 and came into force in 1997. They introduced new arrangements for local planning authorities in England and Wales to protect important hedgerows in the countryside, by controlling their removal through a system of notification. Important hedgerows are defined by complex assessment criteria, which draw on biodiversity features, historical context and the landscape value of the hedgerow.

The Invasive Alien Species (Enforcement and Permitting) Order 2019 (as amended)

This Order is concerned with the prevention and management of the introduction and spread of invasive alien species.

Birds of Conservation Concern

This is a review of the status of all birds occurring regularly in the United Kingdom. It is regularly updated and is prepared by leading bird conservation organisations, including the British Trust for Ornithology (BTO), Joint Nature Conservation Committee (JNCC) and The Royal Society for the Protection of Birds (RSPB).

The latest report was produced in 2021 (Eaton *et al*, 2021) and identified 70 red list species, 103 amber species, and 72 green species. The criteria are complex, but generally:

Red list species are those that have shown a decline of the breeding population, non-breeding population or breeding range of more than 50% in the last 25 years.

Amber list species are those that have shown a decline of the breeding population, non-breeding population or breeding range of between 25% and 50% in the last 25 years. Species that have a UK breeding population of less than 300 or a non-breeding population of less than 900 individuals are also included, together with those whose 50% of the population is localised in 10 sites or fewer and those whose 20% of the European population is found in the UK.

Green list species are all regularly occurring species that do not qualify under any of the red or amber criteria are green listed.

Global IUCN Red List

The International Union for Conservation of Nature (IUCN) Threatened Species was devised to provide a list of those species that are most at risk of becoming extinct globally. It provides taxonomic, conservation status and distribution information about threatened taxa around the globe.

The system catalogues threatened species into groups of varying levels of threat, which are: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CE), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD), Not Evaluated (NE). Criteria for designation into each of the categories is complex, and consider several principles.

Local Biodiversity Action Plan (LBAP)

Local Biodiversity Action Plans (LBAP) identify habitat and species conservation priorities at a local level (typically at the County level), and are usually drawn up by a consortium of local Government organisations and conservation charities.

Some LBAP's may also include Habitat Action Plans (HAP) and/or Species Action Plans (SAP), which are used to guide and inform the local decision making process.

Wild Mammals (Protection) Act 1996

This Act offers protection to all wild species of mammals, irrespective of other legislation, and focussed on animal welfare, rather than conservation.

Unless covered by one of the exceptions, a person is guilty of an offence if he mutilates, kicks, beats, nails or otherwise impales, stabs, burns, stones, crushes, drowns, drags or asphyxiates any wild mammal with intent to inflict unnecessary suffering.

Its application is typically restricted to preventing deliberate harm to wildlife (in general) during construction works etc.

National Planning Policy (Wales)

The national planning policy guidance is found principally in Planning Policy Wales Edition 12 (PPW) dated February 2024 (Welsh Government, 2024). The document is supported by a series of Technical Advice Notes (TANs) with the most relevant for ecology being TAN 5: Nature Conservation and Planning (Welsh Government, 2009), which provides advice on how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. A summary of the main points relevant to the ecological assessment of the development is provided below.

Paragraph 6.4.2 states that local planning authorities, along with other public bodies, as part of the Environment (Wales) Act 2016 have a duty to take reasonable steps, consistent with the proper exercise of their functions, to further the conservation and enhancement of biodiversity and help maximise contributions to achieve well-being goals. Section 7 of the Act requires Welsh Ministers to publish and maintain lists of species and types of habitats that are regarded as of 'principal importance' for the purpose of maintaining and enhancing that biodiversity.

Paragraph 6.4.3 states that the planning system has a key role to play in helping to reverse the decline in biodiversity and increasing the resilience of ecosystems, at various scales, by ensuring appropriate mechanisms are in place to both protect against loss and to secure enhancement. Recognising that development needs to take place and some biodiversity may be impacted, the planning system should ensure that overall, there is a net benefit for biodiversity and ecosystem resilience, resulting in enhanced well-being. Addressing the consequences of climate change should be a central part of any measures to conserve biodiversity and the resilience of ecosystems. Development plan strategies, policies and development proposals must consider the need to:

- support the maintenance and enhancement of biodiversity, and the resilience of ecosystems;
- ensure action in Wales contributes to meeting international responsibilities and obligations for biodiversity and habitats, including the most recent targets set out in the 2022 UN Global Biodiversity Framework;
- ensure statutorily and non-statutorily designated sites are properly protected and managed and their role at the heart of resilient ecological networks is safeguarded;
- safeguard protected species and species of principal importance and existing biodiversity assets from direct, indirect or cumulative adverse impacts that affect their nature conservation interests and compromise the resilience of ecological networks and the components which underpin them, such as water, air and soil, including peat; and
- secure the maintenance and enhancement of ecosystem resilience and resilient ecological networks by improving diversity, extent, condition, and connectivity.

Paragraph 6.4.4 states that biodiversity and ecosystem resilience considerations should be taken into account at an early stage in both development plan preparation and when proposing or considering development proposals. All reasonable steps must be taken to maintain and enhance biodiversity and promote the resilience of ecosystems which should be balanced with the wider economic and social needs of business and local communities. Where adverse effects on biodiversity and ecosystem resilience cannot be avoided, minimised or mitigated/restored, and as a last resort compensated for, it will be necessary to refuse planning permission.

Paragraph 6.4.5 states that planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions, and that development should not cause any significant loss of habitats or populations of species (not including non-native invasive species), locally or nationally and must work alongside nature and it must provide a net benefit for biodiversity and improve, or enable the improvement, of the resilience of ecosystems. A net benefit for biodiversity is the concept that development should leave biodiversity and the resilience of ecosystems in a significantly better state than before, through securing immediate and long-term, measurable and demonstrable benefit, primarily on or immediately adjacent to the site. The step-wise approach outlined below is the means of demonstrating the steps which have been taken towards securing a net benefit for biodiversity. Planning authorities must also take account of and promote the resilience of ecosystems, in particular the following attributes, known as the DECCA Framework. The diversity between and within ecosystems; the extent or scale of ecosystems; the condition and connections between and within ecosystems and the adaptability of ecosystems must be taken into account.

Paragraph 6.4.6 states that planning authorities must also have regard to the list of habitats and species of principal importance under Section 7 of the Environment (Wales) Act 2016, the SoNaRR and Area Statement published by NRW and Section 6 of the Environment (Wales) Act).

Paragraph 6.4.8 states that a proactive and creative approach towards facilitating the delivery of biodiversity and ecosystem resilience outcomes is to be taken in accordance with Section 6 of the Environment (Wales) Act. Taking reasonable steps to maintain and enhance

biodiversity in the exercise of their function at plan level and coordinated across regions and sub-regions. The step-wise approach will help decision makers in securing net benefit in biodiversity, with the onus on developers to bring forward proposal in a way which will achieve a net benefit for biodiversity using the step wise approach.

Paragraph 6.4.9 states collaborative arrangements will be required to identify, capture and monitor net benefits for biodiversity across larger areas, making use of existing regional mechanisms or setting up new voluntary arrangements.

Paragraph 6.4.10 states that the broad framework for implementing the Section 6 Duty, securing net benefit for biodiversity and building resilience through the planning system included addressing the following attributes – Diversity, Extent, Condition, Connectivity and Adaptability to change.

Paragraph 6.4.11 states that planning authorities must follow the step-wise approach to maintain and enhance biodiversity, build resilient ecological networks and deliver net benefits for biodiversity by ensuring any adverse environmental effects are firstly avoided, then minimized, mitigated and as a last resort compensated for. Enhancement delivering a biodiversity benefit to be secured primarily on site or immediately adjacent to the site over and above that required to mitigate or compensate for any negative impact.

Paragraph 6.4.12 states that evidence must be provided in the Green Infrastructure Statement that the step-wise approach has been followed, providing a scheme of enhancements to ensure a net benefit for biodiversity.

Paragraph 6.4.13 states that development proposals must demonstrate how attributes of resilience and connectivity will be improved, as far as this is reasonably practical.

Paragraph 6.4.15 details the step-wise approach where first priority for planning authorities is to avoid damage to biodiversity. Proposals in statutory designated sites are, as a matter of principle, unacceptable and must be excluded from site searches. This principle also extends to protected species and habitats which are irreplaceable and must be safeguarded. Each stage of the step-wise approach must be accompanied by a long term management plan of agreed and appropriate avoidance, minimization, mitigation/restoration and compensation measures alongside the agreed enhancements measures.

Paragraph 6.4.16 states that pre-application surveys, research and data searches by developers will be necessary to establish the baseline state of biodiversity and ecosystem resilience on site. Potential applicants should not conduct any pre-emptive site clearance work before submitting a planning application. In such cases, habitat status will be presumed to be good in the absence of any evidence to the contrary.

Paragraph 6.4.17 where sites are already allocated in an adopted development plan it may not be possible to following the step-wise approach in a sequential way. However, when plans are to be reviewed then allocations should be considered afresh against the step-wise policy and the present biodiversity condition and role in enhancing ecosystem resilience.

Paragraph 6.4.18 – 6.4.23 states that all designated sites must be able to continue to protect the biodiversity and features for which they were designated and contribute to the resilience of ecosystems at the appropriate scale. This ability should not be compromised by inappropriate development or other activity. Statutorily designated sites must be protected from damage and deterioration, with their important features conserved and enhanced by appropriate management. The contribution of the designated site to wider resilient ecological networks should be recognised and captured as part of a strategic approach to planning policy and decision making. Planning authorities should consider opportunities to restore networks of habitats to a healthy condition identified as a result of undertaking the Green Infrastructure Assessment.

Paragraph 6.4.21 states 'Planning authorities must follow a step-wise approach to maintain and enhance biodiversity and build resilient ecological networks by ensuring that any adverse environmental effects are firstly avoided, then minimized, mitigated, and as a last resort compensated for; enhancement must be secured wherever possible'.

Paragraph 6.4.34 states that where peat is identified within proposed developments considerable weight should be given to its protection.

Paragraph 6.4.35 states that statutorily protected species protected under European or UK legislation, or under Section 7 of the Environment (Wales) Act 2016 are material considerations if a development would result in disturbance or harm to the species or its habitat, and the range and population of the species should be sustained.

Paragraphs 6.4.37 – 6.4.43 also gives emphasis to the importance of trees, hedgerows, groups of trees and areas of woodlands. Planning authorities must promote the planting of new trees, hedgerows, groups of trees and areas of woodland as part of new development. Replacement planting shall be at a ratio of at least 3 trees of a similar type and compensatory size planted for every 1 lost. Where a woodland or a shelterbelt area is lost the planting rate must be at a minimum of 1600 trees per hectare for broadleaves, and 2500 trees per hectare for conifers.

Paragraph 6.4.44 states that ancient woodland and semi-natural woodlands and individual ancient, veteran and heritage trees and ancient hedgerows are irreplaceable natural resources, and have significant landscape, biodiversity and cultural value. Such trees, woodlands and hedgerows are to be afforded protection from development which would result in their loss or deterioration unless very exceptionally there are significant and clearly defined public benefits; this protection must prevent potentially damaging operations and their unnecessary loss. In the case of a site recorded on the Ancient Woodland Inventory, authorities should consider the advice of NRW.'

Related to these Biodiversity and Ecological Network policies, Section 6.2 gives weight to the protection and enhancement of multi-functional green infrastructure, which is important for sustainable management of natural resources. Green infrastructure should be incorporated into development through appropriate site selection and use of creative design.

Circular Letter CL-05-04 reaffirmed the Welsh Government's commitment to ensuring that designated sites and species of nature conservation importance are protected from damage and deterioration, with their important features conserved by appropriate management. The letter advised that under specific circumstances a pre-commencement condition should be attached to planning consents requiring the applicant to provide the LPA with a copy of their European Protected Species (EPS) Licence (once issued by NRW). The Circular Letter was withdrawn in March 2018 in an attempt to reduce the number of pre-commencement conditions, with LPA's advised to instead use a replacement informative (to be attached to all relevant consent notices) to avoid unnecessary duplication controls of other legislation.

As part of the Welsh Government's commitment to reversing the decline in biodiversity in Wales and increasing the resilience of its ecosystems, the Environment (Wales) Act 2016 aims to build greater resilience into our ecosystems. Biodiversity and well-functioning ecosystems provide natural solutions that build resilience, which in turn help society create jobs, support livelihoods and human well-being, adapt to the adverse impacts of climate change and contribute to sustainable development.

Part 1 of the Environment Act sets out Wales's approach to planning and managing natural resources at a national and local level with a general purpose linked to statutory 'principles of sustainable management of natural resources' defined within the Act.

Section 6 under Part 1 of the Act places an enhanced duty on public authorities to 'seek to maintain and enhance biodiversity' so far as it is consistent with the proper exercise of those functions. In so doing, public authorities must also seek to 'promote the resilience of ecosystems'. This duty replaces the section 40 duty in the Natural Environment and Rural Communities Act 2006 (NERC Act 2006), in relation to Wales, and applies to those authorities that fell within the previous duty.

Section 7 replaces the duty in section 42 of the NERC Act 2006. The Welsh Ministers will publish, review and revise lists of living organisms and types of habitat in Wales, which they consider are of key significance to sustain and improve biodiversity in relation to Wales. The Welsh Ministers must also take all reasonable steps to maintain and enhance the living organisms and types of habitat included in any list published under this section, and encourage others to take such steps. Certain public authorities will also be required to consider the section 7 list, in complying with the new biodiversity duty under section 6 of the Act. The list is important in assisting public bodies to identify potential issues that they may wish to address in meeting their well-being objectives, in addition to contributing to the well-being goal 'a resilient Wales's (Goal 2). The current Section 7 lists are interim lists which are exactly the same as the previous list under Section 42 of the NERC Act, and is under review in consultation with NRW.

Part 1 of the Act, including Sections 6 and 7, came into force on 21st May 2016.

Newport Local Development Plan 2011-26 (Newport City Council, 2015)

Policy CE3: Environmental Spaces and Corridors	4.7 Environmental Spaces and corridors form a valuable part of Newport's green infrastructure provision. They provide a network of connected, accessible, multi-functional sites including parks, woodland, informal open spaces, amenity areas, footpaths and bridleways, hedgerows, commons and village greens, and nature reserves as well as linkages such as river corridors, wildlife corridors and the Monmouthshire & Brecon Canal, that can bring about multiple social, health, economic and environmental benefits to the area. The sites are multi-functional in that apart from their ecological value they can be used for various purposes, for example, leisure activities and promoting tourism with associated benefits in terms of health and the economy.
Policy CE7: Conservation Areas	4.35 Newport has a rich and unique natural environment which this Plan seeks to protect and enhance. Areas such as the Gwent Levels, have been specifically recognised by the Wales Spatial Plan. Proposed developments will be required to avoid the loss of such a finite resource. The Plan has been subject to a Sustainability Appraisal (incorporating Strategic Environmental Assessment) and Habitat Regulations Assessment both of which consider the effect that the Plan has on the environment. These assessments have been undertaken alongside the Plan's development. 4.36 The strategy of the Plan clearly promotes a brownfield preference to development. This seeks to assist in the protection of sensitive areas including those of nature conservation. It is important to recognise the nature conservation value of brownfield sites which will need to be considered as part of any proposal.
Policy SP9: Conservation of the Natural, Historic and Built Environment	2.33 Newport has a rich diversity of natural and historic sites which are recognised at the international, national and local level. Those habitats and species of nature conservation interest represent important environmental resources, and the Council has a duty under various legislation including the Natural Environment and Rural Communities Act (2006) ¹⁴ , or as amended, Conservation of Habitats and Species Regulations (2010) ¹⁵ , Countryside and Rights of Way Act (2000) ¹⁶ , or as amended, and the Town and Country Planning Act (Environmental Impact Assessment) (England and Wales) Regulations (1999) ¹⁷ , or as amended, to ensure that they are protected from inappropriate or damaging development. National guidance sets out a clear requirement for the planning system to improve as well as protect the environment. Planning Policy Wales ¹⁸ and Technical Advice Note 5: Nature Conservation and Planning (2009) ¹⁹ set out this framework identifying nature conservation as an integral part of planning for sustainable development. Local advice will be set out in the Supplementary Planning Guidance on Wildlife and Development. Available at: Strategic-Environmental-Assessment-and-Habitat-Regulations-Assessment-Screening-Report_draft-SPG (newport.gov.uk)

Supplementary Planning Guidance (SPG)

SPG (Wildlife and Development). Available at: [Wildlife and Development SPG March 2010 \(newport.gov.uk\)](#).

APPENDIX C: TARGET NOTES & SURVEY DATA

Target Note	Description	Photos
TN1	Hardstanding to the south and west of the ash storage facility. British National Grid (m): 332573E, 183507N WGS84 (Lat/Long): 51.5464°N, -2.9738°E	
TN2	Drainage ditch to the south and west of the ash storage. WGS84 (Lat/Long): 51.5465°N, -2.9736°E	

		
TN3	Ditch within the southwest land parcel. Species recorded include great willowherb <i>Epilobium hirsutum</i>, bramble, nettle <i>Urtica dioica</i>, bristly oxtongue <i>Helminthotheca echioides</i>, hemp agrimony <i>Eupatorium cannabinum</i>, buddlejah, giant hogweed, common reed and dogwood <i>Cornus sanguinea</i>. WGS84 (Lat/Long): 51.5451°N, -2.9761°E	
TN4	Dense bramble dominant scrub next to ditches. WGS84 (Lat/Long): 51.5452°N, -2.9762°E	

		
TN5	Semi-improved grassland and scattered ruderal species along the track in the southwest parcel. Species include hemp agrimony, doves foot cranesbill <i>Geranium molle</i>, American willowherb <i>E. ciliatum</i>, annual meadow-grass <i>Poa annua</i>, Yorkshire fog <i>Holcus lanatus</i>, meadow foxtail <i>Alopecurus pratensis</i>, Canadian fleabane <i>Conyza canadensis</i>, young hawthorn <i>Crataegus monogyna</i>, ribwort plantain <i>Plantago lanceolata</i>, bristly oxtongue, teasel <i>Dipsacus fullonum</i>, creeping buttercup <i>Ranunculus repens</i>, selfheal <i>Prunella vulgaris</i>, common field speedwell <i>Veronica persica</i>, scarlet pimpernel <i>Anagallis arvensis</i> and silverweed <i>Potentilla anserina</i>. WGS84 (Lat/Long): 51.5454°N, -2.9762°E	
TN6	Hardstanding and colonising ground, dominated by sphagnum with minimal forbs including welshed thistle <i>Carduus crispus</i>, scentless mayweed <i>Tripleurospermum inodorum</i>, bramble and rose <i>Rosa</i> sp. WGS84 (Lat/Long): 51.5456°N, -2.9761°E	

		
TN7	P1 with dense scrub vegetation around it – buddlejah and bramble dominant, with common reed, young willow <i>Salix</i> sp. and dogwood. WGS84 (Lat/Long): 51.5455°N, -2.9758°E	
TN8	Dense bramble scrub around P1. WGS84 (Lat/Long): 51.5458°N, -2.9756°E	

		
TN9	Dense scrub around P2. Including bramble, dogwood, and willow WGS84 (Lat/Long): 51.5458°N, -2.9758°E	
TN10	Scattered ruderals and stands of buddlejah around ash storage. WGS84 (Lat/Long): 51.5465°N, -2.9737°E	

		
TN11	Ash storage pile with dominant buddlejah and sphagnum, species also recorded include daisy <i>Bellis perennis</i>, common reed, Canadian fleabane, creeping thistle <i>Cirsium arvense</i>, scentless mayweed, Yorkshire fog, American willowherb, hemp agrimony and hedge mustard <i>Sisymbrium officinale</i>. WGS84 (Lat/Long): 51.5466°N, -2.9739°E	

		
TN12	Ash storage pile. WGS84 (Lat/Long): 51.5462°N, -2.9755°E	

		
TN13	Permitted discharge water coming from P1. WGS84 (Lat/Long): 51.5691°N, -2.9952°E	
TN14	Water going into P1 from on-site drainage. WGS84 (Lat/Long): 51.5456°N, -2.9759°E	

		
TN15	Dense bramble dominant scrub. WGS84 (Lat/Long): 51.5456°N, -2.9764°E	
TN16	Dense scrub. WGS84 (Lat/Long): 51.5455°N, -2.9768°E	

		
TN17	Dense scrub around P2, bramble dominant. WGS84 (Lat/Long): 51.5458°N, -2.9763°E	
TN18	Scrub around P2 – buddlejah, bramble, dogwood and willow sp. WGS84 (Lat/Long): 51.5464°N, -2.9761°E	

		
TN19	Colonising ground. WGS84 (Lat/Long): 51.5462°N, -2.9771°E	
TN20	Disused area of the railway line. WGS84 (Lat/Long): 51.5463°N, -2.977°E	

		
TN21	Colonising ground – sea buckthorn, buddlejah evening primrose <i>Oenothera biennis</i>, Canadian fleabane and doves foot cranesbill. WGS84 (Lat/Long): 51.5465°N, -2.9762°E	
TN22	Railway track. WGS84 (Lat/Long): 51.5468°N, -2.9746°E	

		
TN23	Scattered scrub of buddlejah and sea buckthorn. WGS84 (Lat/Long): 51.5471°N, -2.9732°E	
TN24	Semi-improved grassland throughout railway tracks. Scattered buddlejah throughout, ribwort plantain, creeping cinquefoil <i>Potentilla reptans</i>, creeping buttercup, creeping thistle, false oat grass <i>Arrhenatherum elatius</i>, bramble, doves foot cranesbill, white clover <i>Trifolium repens</i>, Yorkshire fog, annual meadow-grass, perennial ryegrass <i>Lolium perenne</i>, stork's bill <i>Erodium cicutarium</i> occasional, St John's wort sp. <i>Hypericum</i> sp., common sorrel <i>Rumex acetos</i>,	

	ragwort <i>Senecio jacobaea</i>, common mouse ear <i>Cerastium fontanum</i> and scarlet pimpernel. WGS84 (Lat/Long): 51.5475°N, -2.9718°E	
TN25	As above in TN24. WGS84 (Lat/Long): 51.5474°N, -2.9715°E	
TN26	Drainage – common reed and bulrush <i>Typha</i> sp. with buddlejah on the edge. Not flowing at the time of survey and not always wet. WGS84 (Lat/Long): 51.5467°N, -2.9723°E	

		
TN27	Piles of materials. British National Grid (m): 332605E, 183523N WGS84 (Lat/Long): 51.5466°N, -2.9733°E	

APPENDIX D: HABITAT SUITABILITY INDEX

Waterbody - P1

Survey time & date - 12 November 2024 11:22

Surveyor - Becca Grainger Wood

Waterbody Status - Present

HSI Category – Average, HSI Score - 0.69, Provisional HSI Score - 0.66

Map location	A	Fish population	Possible
Surface area shape	Irregular	Terrestrial habitat	Good
Surface area size (m ²)	691	Shade (%)	40
Desiccation rate	Rarely	Macrophyte cover (%)	20
Water quality	Poor	Pond density	9
Waterfowl	Minor	Notes	



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Waterbody - P2

Survey time & date - 12 November 2024 11:45

Surveyor - Becca Grainger Wood

Waterbody Status - Present

HSI Category – Average, HSI Score - 0.69, Provisional HSI Score - 0.66

Map location	A	Fish population	Possible
Surface area shape	Ellipse	Terrestrial habitat	Moderate
Surface area size (m ²)	2,835	Shade (%)	10
Desiccation rate	Never	Macrophyte cover (%)	10
Water quality	Poor	Pond density	9
Waterfowl	Minor	Notes	



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Waterbody - P3

Survey time & date - 12 November 2024 12:20

Surveyor - Becca Grainger Wood

Waterbody Status - Present

HSI Category – Average, HSI Score - 0.67, Provisional HSI Score - 0.64

Map location	A	Fish population	Possible
Surface area shape	Ellipse	Terrestrial habitat	Moderate
Surface area size (m ²)	278	Shade (%)	0
Desiccation rate	Rarely	Macrophyte cover (%)	0
Water quality	Poor	Pond density	3
Waterfowl	Minor	Notes	



Waterbody - P4

Survey time & date - 12 November 2024 12:24

Surveyor - Becca Grainger Wood

Waterbody Status - Present

HSI Category – Poor, HSI Score - 0.25, Provisional HSI Score - 0.22

Map location	A	Fish population	Possible
Surface area shape	Irregular	Terrestrial habitat	Moderate
Surface area size (m ²)	1	Shade (%)	0
Desiccation rate	Never	Macrophyte cover (%)	10
Water quality	Poor	Pond density	9
Waterfowl	Major	Notes	



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Waterbody - D1

Survey time & date - 12 November 2024 12:10

Surveyor - Becca Grainger Wood

Waterbody Status - Present

HSI Category – Average, HSI Score - 0.67, Provisional HSI Score - 0.64

Map location	A	Fish population	Possible
Surface area shape	Irregular	Terrestrial habitat	Poor
Surface area size (m ²)	1,555	Shade (%)	0
Desiccation rate	Sometimes	Macrophyte cover (%)	90
Water quality	Poor	Pond density	3
Waterfowl	Minor	Notes	

