South Industrial Zone

Environmental Statement

July 2020

Volume 2

Chapter D - Biodiversity and Ecology

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D1.0 Introduction

D1.1 This Chapter of the Environmental Statement ('ES') has been prepared by Arup on behalf of the applicant, South Tees Development Corporation ('STDC'). It assesses the proposed development described in Chapter B and it considers the effects of the proposed development on the ecology and biodiversity issues within and surrounding the proposed development site.

D1.2 The baseline situation is considered before the likely environmental effects of the development are identified, both during construction and operational phases of the development. Mitigation measures to reduce any negative environmental effects are identified as appropriate, before the residual environmental effects are assessed.

D1.3 This Chapter is supported by the following technical appendices:

1 Appendix D1: Legislation, Planning Policy, and Guidance;

2 Appendix D2: UK Habitat Classification Habitat Survey Map;

3 Appendix D3: Habitat Data Sources;

4 Appendix D4: Location of Designated Sites;

5 Appendix D5: Important Invertebrate Areas Map;

6 Appendix D6: Breeding Bird Survey Results Maps;

7 Appendix D7: Breeding Bird Survey Territory Map;

8 Appendix D8: Biodiversity Net Gain Assessment Methodology; and

9 Appendix D9: Biodiversity Net Gain Assessment – River Metric.

About the Author

D1.4 The author is an Ecologist at Arup, based in Newcastle upon Tyne. He has five and a half years of experience in ecological consultancy and is an Associate Member of the Chartered Institute of Ecology and Environmental Management (CIEEM). The author holds a BSc (Hons) Zoology and a MSc Ecological Consultancy, both obtained from Newcastle University.

D1.5 The author has extensive experience in ecological survey, impact assessment, and providing mitigation strategies across a range of projects, from small-scale schemes to Nationally Significant Infrastructure Projects (NSIPs). The author is native to Teesside and draws upon a wealth of local expertise of the region.

D1.6 This assessment has been reviewed by a Senior Ecologist at Arup who has ten years of experience in ecological assessment and who is a Full Member of CIEEM.

D1.7 This assessment has been approved by an Associate at Arup who has over 20 years of experience in ecological assessment, and who is a Full Member of CIEEM and a Chartered Environmentalist (CEnv).

D2.0 Policy Context

D2.1 Details on the relevance of this legislation, planning policy and guidance is given in Appendix D1.

Legislation

D2.2 Legislation relevant to this assessment comprises:

i. The Conservation of Habitats and Species Regulations 2017 [1] (hereby referred to as 'Habitats Regulations');

ii. Wildlife and Countryside Act (WCA) 1981 (as amended) [2]; and

iii. Natural Environment and Rural Communities (NERC) Act 2006 [3].

D2.3 In addition to this legislation, the Environment Bill 2019-2021 [4] is currently going through Parliament. The Bill is due to make provision about targets, plans and policies for improving the natural environment. Specifically, Section 6, Part 88, and Schedule 15 of the current draft make provision for biodiversity gain to be a condition of planning permission in England. There is likely to be a duty on developers to submit a biodiversity gain plan to a local planning authority, which should include (amongst other elements) biodiversity net gain (BNG) calculations and evidence of a 10% net gain in biodiversity. At the time of writing, Government has confirmed that there is to be a transition period set by provisions in the Environmental Bill. That period is two years from the Bill receiving Royal Assent before BNG requirements are implemented.

D2.4 BNG is not yet, therefore, mandated through adoption of the Environment Bill. It is the intention that the Environment & Biodiversity Strategy being developed by STDC to support the South Tees Area Supplementary Planning Document will align with the requirements of the Environment Bill. It is expected that the Strategy will identify habitat enhancement schemes within and beyond the STDC area that can contribute towards BNG in future and provide a means of compensating habitat loss occurring from development schemes that proceed ahead of its finalisation.

D2.5 Until the Environment Bill is enacted and reflected in national policy, full weight should be given to the policies of the Redcar and Cleveland Local Plan, 2018 [5].

Planning Policy

D2.6 Statutory and non-statutory planning policies relevant to this assessment comprise:

i. Redcar and Cleveland Borough Council (RCBC) Local Plan (statutory policy) [5];

ii. National Planning Policy Framework (NPPF) [6]; and

iii. South Tees Area Supplementary Planning Document (SPD) 2018 (non-statutory policy/ material planning consideration) [7];

Guidance

D2.7 Guidance relevant to this assessment comprises:

i. Tees Valley Local Biodiversity Species List [8], [9];

ii. Guidelines for the Selection of Local Wildlife Sites (LWS) in the Tees Valley [10];

iii. South Tees Regeneration Masterplan [11]; and

iv. Birds of Conservation Concern (BoCC) [12].

D3.0 Assessment Methodology & Significance Criteria

D3.1 This section sets out the ecological features to be considered in this assessment. It sets out the methods and resources to be used and establishes the zone of influence (ZoI) for surveys and ecological assessment.

D3.2 The following features were considered as part of the assessment:

i. Designated sites, including statutory and non-statutory sites;

ii. Legally protected species [13];

iii. Species of Principal Importance (SoPI) for conservation of biodiversity [14]; and

iv. Habitats of Principal Importance (HoPI) for conservation of biodiversity [14].

D3.3 The ZoI is the area over which ecological features may be subject to significant effects as a result of the proposed development and associated activities. The ZoI will vary for different ecological features depending on their sensitivity to an environmental change.

D3.4 For the purposes of this assessment, the ecological features considered and their respective ZoI were:

i. Internationally important designated sites such as Special Areas of Conservation (SAC) and Special Protection Areas (SPA) within 20km of the proposed development site;

ii. Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR) within 5km of the proposed development site;

iii. Local Nature Reserves (LNR) and Local Wildlife Sites (LWS) within 2km of the proposed development site; and

iv. Legally protected species, SoPI, and HoPI within the proposed development site or immediately adjacent.

Desk Study

D3.5 In May 2020, a desk study was completed. Natural England's (NE) designated sites database website [15] was consulted to identify statutory designated sites and records of legally protected or notable species within 2km of the proposed development site and details of non-statutory designated sites within 2km, were requested from the Environmental Records Information Centre North East (ERIC NE).

D3.6 The desk study included the review of historic phase 1 habitat surveys of the proposed development site which were completed in 2011 and 2019 by the Industry Nature Conservation Association (INCA).

D3.7 Wetland Bird Survey (WeBS) data [16] was obtained from the British Trust for Ornithology (BTO). WeBS data was provided for two areas of the River Tees and associated riverbanks upstream and downstream of the proposed development site. WeBS data does not cover the extent of the proposed development site. Data was obtained for the closest two WeBS sites to the proposed development site: "Tees Estuary opposite Smiths Dock and Hargreaves Quarry" (immediately south-west of proposed development site); and "Bran Sands South" (approximately 1.8km north of the proposed development site).

Field Study

Habitat Survey

D3.8 Updated habitat surveys of select areas of the proposed development site were completed on 3 June 2020 and 16 June 2020 by INCA to update historic field survey data. The primary purpose of this was to ensure any habitat data recorded during 2011 was updated to reflect the baseline conditions. Habitats were classified using the UKHab system [17], where possible, to assist in undertaking BNG calculations [18] using Defra's Biodiversity Metric 2.0 (BM2.0) [19] [20]. These surveys followed standard methods described in CIEEM Preliminary Ecological Appraisal (PEA) guidance [21] and, where required, also referred to the phase 1 habitat survey methodology [22].

D3.9 The condition and ecological connectivity of these habitats, as per the requirements for BM2.0, were also assessed.

D3.10 A UKHab colour-coded habitats map was produced to visualise baseline habitats present within the proposed development site. This map is provided in Appendix D2.

Breeding Bird Surveys

D3.11 Breeding bird surveys (BBS) of the proposed development site were completed in May and June 2020 by INCA. Three surveys were completed during this period (Table D3.1). Each survey was split across two mornings, covering different areas of the proposed development site.

Table D3.1: Summary of breeding bird surveys undertaken within the proposed development site, with weather conditions recorded during each survey. Weather conditions (temperature; cloud cover; wind) are reported as the worst conditions encountered during the survey, i.e. the lowest temperature, and greatest cloud cover and wind.

Survey No.	Date	Start Time	End Time	Sunrise	Temperature (°C)	Precipitation	Cloud Cover (Oktas)	Wind (Beaufort scale)
1	6 May 2020	07:35	10:30	05:15	8	None	0	1
	7 May 2020	07:35	09:35	05:13	9	None	0	1
2	21 May 2020	07:35	09:45	04:49	15	None	6	2
	28 May 2020	07:20	10:30	04:40	15	None	1	2
3	2 June 2020	07:30	09:30	04:35	13	None	6	1
	9 June 2020	07:25	10:20	04:30	9	None	3	2

BBS methodology was based on guidance provided within the BTO Common Bird Census methodology [23]. BBS were carried out by experienced ornithologists, capable of identifying birds both from sight and from their full repertoire of calls and songs.

D3.12 Transects of the proposed development site were walked to within 100m of all accessible areas. Each transect was walked at a slow pace, pausing at intervals to listen for bird song and calls, and to observe bird behaviour. The transect walked during each survey was randomised, by either starting at a different point and/or walking in a different direction around the proposed

development site. The length of survey time was variable due to differing levels of bird activity between surveys.

D3.13 Bird registrations were recorded on a 1:10,000 scale map using standard BTO species codes [24].

D3.14 The methodology used is based on the observation that many species are territorial during the breeding season. This is found particularly amongst passerines, where territories are often marked by conspicuous song, display, and periodic disputes with neighbouring individuals. The following signs of bird breeding activity were recorded:

i. Singing male in suitable nesting habitat;
ii. Pair in suitable nesting habitat;
iii. Courtship and display;
iv. Visiting a probable nest site;
v. Agitated behaviour;
vi. Adults building a nest;
vii. Used nest or eggshells;
viii. Recently fledged young;
ix. Adults entering or leaving an occupied nest;
x. Adults carrying faecal sac;
xi. Nest containing eggs; and
xii. Nest with young.

D3.15 Following the completion of all surveys, all data was transferred to a master map and territory analysis undertaken. When the same species was recorded in the same vicinity on two or more visits, this was taken to constitute a breeding territory. Where there was evidence of positive breeding activity (such as adults entering/leaving a nest site, adults occupying a nest, etc.) this was also recorded as a confirmed breeding territory for that species.

Assessment Methodology

D3.16 This assessment has been based on CIEEM best practice guidance for Ecological Impact Assessment (EcIA) [25].

D3.17 The impact assessment process involves:

i. Identifying and characterising impacts;
ii. Incorporating measures to avoid and mitigate (reduce) these impacts;
iii. Assessing the significance of any residual effects after mitigation;
iv. Identifying appropriate compensation measures to offset significant residual effects; and
v. Identifying opportunities for ecological enhancement.

Characterising Impacts

D3.18 Impacts are actions resulting in changes to an ecological feature. Both positive and negative impacts of the proposed development are identified within this assessment, and described with reference to their extent, magnitude, duration, timing, frequency and reversibility.

Significance of Effects

D3.19 Effects are the outcomes to an ecological feature resulting from an impact.

D3.20 The assessment will determine the significance of any potential effects on the important ecological features identified within their respective ZoIs. For the purpose of this EcIA, a significant effect is defined as '*an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general*' [25].

D3.21 Significance of effects has been determined by assessing the impacts of the proposed development on the structure and function of habitats and ecosystems, and the conservation status of habitats and species (including extent, abundance and distribution).

Geographic Terms of Reference

D3.22 Effects can be considered significant at a wide range of scales. The levels of geographical importance used in this assessment comprise:

i. International – Statutory sites designated or classified under international conventions or the Habitats Regulations, including SACs, SPAs, and Ramsar sites. This also includes candidate SACs (cSAC), proposed SPAs (pSPA), proposed Ramsar sites, or any other form of candidate/proposed internationally important sites, which are considered to hold the same value as fully adopted sites. Sites supporting a species or species' assemblage important in an international context.

ii. National – Statutory sites designated under national legislation, including SSSIs and NNRs. Sites supporting a species or species' assemblage important in a national context.

iii. Regional – Statutory designated LNRs, and non-statutory designated sites such as LWSs. Sites supporting a population of a species or species' assemblage important in a regional context.

iv. County (or other local authority-wide area) – Non-statutory designated sites given lower than county importance for nature conservation. Sites supporting a population of a species or species' assemblage important in a metropolitan, County, vice-county or other local authority-wide context.

v. Local – Sites that have no formal designation but contain species or habitats that are important to the ecological integrity of the local area.

vi. Negligible – Nugatory effect on species or habitats present are anticipated.

Consultation

D3.23 A steering group was established to discuss the wider Environment & Biodiversity Strategy for the South Tees Regeneration Masterplan. The first of these meetings was held on 12 March 2020 and was attended by representatives from STDC, Faithful and Gould (F+G), INCA, NE, RCBC, Environment Agency, Arup and Lichfields. This planning application was not discussed at the meeting, however principles of the wider strategy, which are relevant to the planning application, were discussed.

D3.24 A meeting was held between Arup, Lichfield and Natural England on 25th June 2020 to discuss the specific ecological detail of this planning application. In this meeting the high-level detail of the scope of this ecological assessment was presented, along with an overview of the surveys undertaken and the data collected to inform the baseline of the assessment. In addition, several specific areas were discussed including the likely reliance upon the South Tees Regeneration Masterplan Environment & Biodiversity Strategy to deliver the compensation required for any

significant residual effects and the precautionary approach taken to the assessment of specific ecological features such as wintering birds, invertebrates and habitats. Discussions were also had as to how any direct mitigation necessary to protect the qualifying features of the Teesmouth and Cleveland Coast SSSI, SPA, and Ramsar sites would be secured through the grant of planning permission and suitable conditions thereon.

D3.25 Consultation has been sought with RCBC however, at the time of writing, no response has been received.

Assumptions and Limitations

Ecological Surveys

D3.26 Ecological surveys that form the basis of this assessment are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. The absence of evidence of any particular species should not be taken as conclusive proof that the species is not present or that it will not be present in the future. However, professional judgement allows for the likely presence of these species to be predicted with sufficient certainty as to not significantly limit the validity of these findings.

D3.27 Some areas of the proposed development site could not be accessed during habitat surveys or BBS, due to constraints in accessing certain active industrial sections. Any such areas were observed from a distance through binoculars.

D3.28 No wintering bird surveys (WBS) of the proposed development site have been undertaken due to the timescales of the planning application submission. In lieu of WBS data, WeBS data has been acquired. However, WeBS data provided by the BTO does not provide data for within the proposed development site, and only provides data for a short overlap of the proposed development site boundary. There is therefore a lack of understanding of the wintering bird assemblage anticipated within the proposed development site. As a result, a precautionary approach has been taken to the assessment of wintering birds.

D3.29 Three BBS have been undertaken of the proposed development site, and all BBS undertaken have focussed on key areas of habitat rather than the entire proposed development site. Although best practice guidelines do not state the minimum number of BBS to be undertaken, industry standard would be a minimum of four BBS. In consideration of this limitation, territory mapping of bird species recorded during BBS has taken a precautionary approach to assume presence of breeding birds where recorded in close proximity across two BBS.

D3.30 Detailed invertebrate surveys have not been completed for the proposed development site. Potentially important areas of habitat for invertebrates discussed within this assessment are based on the suitability of habitats present for invertebrates and incidental observation of invertebrates, identified and recorded by INCA.

Habitat Mapping

D3.31 Small areas of saltmarsh, intertidal mud, and reedbed associated with open water features (watercourses and waterbodies) have not been individually mapped due to their small area sizes, and due to their presence amongst a mosaic of wetland habitats. Where these features are present in small areas, they are discussed in Section D4.0.

Assessment

D3.32 Habitat data used in this assessment is drawn from field survey data from 2011, 2019, and updated habitat surveys undertaken in June 2020. The majority of the field survey data from

2019 has been updated by INCA, although some areas which still represent 2011 data still remain. This is not considered to be a significant constraint due to the majority of the site featuring habitats of interest being surveyed in 2019 and 2020 and on the understanding that no changes to land use, vegetation clearance or development of land within the proposed development site has occurred since prior habitat survey. Areas still covered by 2011 data are mostly limited to developed land of negligible ecological value (see Appendix D3).

Biodiversity Net Gain Metric

D3.33 Assumptions on the classification of habitats within the proposed development site are discussed in Appendix D8.

D3.34 As detailed in Section D4.0, the proposed development site contains Open Mosaic Habitat (OMH), a high distinctiveness habitat, as defined by the BM2.0. As this habitat is of high distinctiveness, the connectivity tool was run to assess the connectivity of this habitat within the proposed development site. While attempting to utilise this tool, a potential bug within NE's tool was identified, as the tool would not recognise or calculate the connectivity of the OMH. It was therefore decided, that the connectivity of this habitat would be assessed using professional judgment.

Mitigation and Compensation

D3.35 It is not practically possible for direct mitigation to be identified and delivered within the proposed development site for the loss of habitat value (excluding any protected species) given the nature of the works proposed and the purpose of the application proposals. Instead, to address the significant residual adverse effects identified in this EcIA, STDC is committed to delivering compensation in due course through the South Tess Regeneration Masterplan Environment & Biodiversity Strategy. The Environment & Biodiversity Strategy will seek to identify opportunities for compensation in the STDC area and beyond, for a range of measures, as outlined in Section D6.0.

D4.0 Baseline Conditions

Existing Conditions

D4.1 The ecological baseline conditions described in this section, are those conditions existing in the absence of proposed activities.

Designated Sites

D4.2 The desk study identified eight internationally important designated sites within 20km of the proposed development site (Table D4.1). The closest of these sites is Teesmouth and Cleveland Coast SPA, which is immediately adjacent to the proposed development site. The Teesmouth and Cleveland Coast Ramsar is approximately 250m north-west of the proposed development site[26]. The Teesmouth and Cleveland Coast SPA and Ramsar sites cover an expansive area from Crimdon Dene (north of Hartlepool), to east of Redcar. A significant marine area extending away from Teesmouth, and the full course of the River Tees up to the Tees Barrage is designated under the SPA.

D4.3 Further internationally important designated sites within 20km of the proposed development site are: North York Moors SAC and SPA; Durham Coast SAC; Northumbria Coast SPA and Ramsar; Castle Eden Dene SAC.

The desk study identified one statutory designated site within 2km of the proposed development site (Table D4.1). This is the Teesmouth and Cleveland Coast SSSI, which is a nationally important designated site within the same extent as the Teesmouth and Cleveland Coast SPA.

Table D4.1: Internationally important designated sites within 20km, and statutory designated sites within 2km of the proposed development site. Specific designated features of each designated site are presented in bold.

Site Name	Designation	Approximate Distance and Direction from the Proposed Development Site	Reason for Designation
Teesmouth and Cleveland Coast	SPA	Immediately adjacent to proposed development site, along north-western boundary	The extensions to the Teesmouth and Cleveland Coast SPA were formally classified on 16 January 2020. The formal designation and boundaries of the extension have not been released but are detailed in the Consultation Report [27]. Site supports internationally important population of **breeding little tern** (*Sterna albifrons*), **common tern** (*Sterna hirundo*), and **pied avocet** (*Recurvirostra avosetta*). Site supports internationally important population of **non-breeding Sandwich tern** (*Thalasseus sandvicensis*), **ruff** (*Calidris pugnax*), **red knot** (*Calidris canutus*) and **common redshank** (*Tringa totanus*). Site supports an **internationally important seabird assemblage**, regularly used by more than 20,000 wintering waterbirds.

Site Name	Designation	Approximate Distance and Direction from the Proposed Development Site	Reason for Designation
Teesmouth and Cleveland Coast	Ramsar	250m north-west	The extensions to the Teesmouth and Cleveland Coast Ramsar were formally classified on 16 January 2020. The formal designation and boundaries of the extension have not been released but are detailed in the Consultation Report [27]. Wetland of international importance. Designated under Ramsar criterion 5 [28] for assemblages of **international important numbers of waterbirds** and Criterion 6 for regularly supporting 1% of the individuals in a population of more than one species of waterbird. The site is also designated for peak counts of **common redshank** in spring and autumn, and wintering **red knot.**
Teesmouth and Cleveland Coast	SSSI	Immediately adjacent to proposed development site, along north-western boundary	Teesmouth and Cleveland Coast SSSI was formally adopted on 18 April 2019, expanding the previous extent of the same SSSI, and absorbing seven SSSIs previously present within the region Site incorporates a mosaic of coastal and freshwater habitats, with the following designated features: **i. Jurassic geology;** **ii. Quaternary geology;** **iii. Sand dunes;** **iv. Saltmarshes;** **v. Breeding harbour seals (*Phoca vitulina*);** **vi. A diverse assemblage of breeding birds of sand dunes, saltmarsh and lowland open waters and their margins;** **vii. Non-breeding shelduck (*Tadorna tadorna*), shoveler (*Spatula clypeata*), gadwall (*Mareca strepera*), ringed plover (*Charadrius hiaticula*), red knot, ruff, sanderling (*Calidris alba*), purple sandpiper (*Calidris maritima*), common redshank, and Sandwich tern;** **viii. An assemblage of more than 20,000 waterbirds during the non-breeding season; and** ix. **A diverse assemblage of invertebrates associated with sand dunes.**
Teesmouth	NNR	2.5km north	Site is designated for its **sand dunes, marsh habitats, and intertidal sand and mudflat habitats**. The reserve is split into two main sections, namely North Gare and Seal Sands. North Gare is an area of dunes and grazing marsh,

Site Name	Designation	Approximate Distance and Direction from the Proposed Development Site	Reason for Designation
			supporting **lapwing** (*Vanellus vanellus*) and **curlew** (*Numenius arquata*). Seal Sands is one of the largest areas of intertidal mudflat along the North East England coastline.
North York Moors	SAC	9.6km south	Site supports the Annex I habitats: **Northern Atlantic wet heaths with cross-leaved heath (*Erica tetralix*); and European dry heaths**. Site supports the Annex I habitat but is not a primary reason for selection of the site: Blanket bogs.
North York Moors	SPA	9.6km south	Site supports internationally important population of **breeding merlin** (*Falco columbarius*), and **golden plover** (*Pluvialis apricaria*).
Durham Coast	SAC	12.8km east	Site supports the Annex I habitat: **Vegetated sea cliffs of the Atlantic and Baltic Coasts.**
Northumbria Coast	SPA	12.8km north-east	Site supports internationally important population of **breeding Arctic tern** (*Sterna paradisaea*) and **little tern**. Site supports internationally important population of **non-breeding purple sandpiper** and **turnstone** (*Arenaria interpres*).
Northumbria Coast	Ramsar	12.8km north-east	Site supports internationally important population of **breeding little tern.** Site supports internationally important population of **non-breeding purple sandpiper and turnstone.**
Castle Eden Dene	SAC	19.1km north-west	Site supports the Annex I habitat: **Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*).**

D4.4 The desk study did not identify any non-statutory designated sites within 2km of the proposed development site.

D4.5 Given the distance between various designated sites and the proposed development site, and the lack of any potential impact pathways between the proposed development site and these designated sites, the following designated sites are **scoped out of this assessment**:

i. Teesmouth NNR;
ii. North York Moors SAC;
iii. North York Moors SPA;
iv. Durham Coast SAC;
v. Northumbria Coast SPA;
vi. Northumbria Coast Ramsar; and

vii. Castle Eden Dene SAC.

D4.6 Therefore, the following designated sites remain **scoped into this assessment**:

i. Teesmouth and Cleveland Coast SPA;

ii. Teesmouth and Cleveland Coast Ramsar; and

iii. Teesmouth and Cleveland Coast SSSI.

D4.7 Locations of the designated sites scoped into assessment in relation to the proposed development site are shown in Appendix D4.

D4.8 Due to their designation status, Teesmouth and Cleveland Coast SPA and Ramsar sites are considered to be of **international** importance.

D4.9 NE provides guidance on SSSI Impact Risk Zones that have been developed to guide planners on whether a development has the potential to adversely impact a SSSI [29]. The proposed development site is located within the impact buffer for Teesmouth and Cleveland Coast SSSI. This assessment will therefore consider the proposed development site to be within the ZoI for the Teesmouth and Cleveland Coast SSSI. The Teesmouth and Cleveland Coast SSSI is considered to be of **national** importance.

Habitats

D4.10 Habitats within the proposed development site were mapped in accordance with UKHab guidance [17]. The UKHab habitat map is provided in Appendix D2. Each habitat recorded on the proposed development site is listed below, with the respective UKHab code [17] provided in brackets.

Open Mosaic Habitats (u1a)

D4.11 OMH throughout the proposed development site are formed from brownfield land, with a disturbed substrate and buried waste material, or 'made ground' present. Some sections of OMH are present atop disused roads, or other concrete surfaces.

D4.12 Areas of OMH are generally species-rich, with key brownfield land floral indicators present such as fairy flax (*Linum catharticum*), blue fleabane (*Erigeron acer*), perforate St John's-wort (*Hypericum perforatum*), and bird's-foot trefoil (*Lotus corniculatus*). A negligible abundance of grass or scrub is present. The presence of a mixture of substrates, numerous indicator species, and lack of invasive species means OMH within the proposed development site is considered to be of good condition.

D4.13 OMH is a HoPI [14] and considered to be a habitat of priority within the local area. It is considered that this habitat is of **county** importance due to the extent and quality of OMH present within the proposed development site.

Lowland Calcareous Grassland (g2)

D4.14 Lowland calcareous grassland is present in one area within the south of proposed development site. Of note, approximately 1,000 individual flowering spikes of northern marsh orchid (*Dactylorhiza purpurella*) are recorded within the lowland calcareous grassland.

D4.15 Lowland calcareous grassland is a HoPI [14]. It is considered that this habitat is of **county** importance.

Poor Semi-improved Grassland (g3c6)

D4.16 Poor semi-improved grassland is present along the western boundary of the proposed development site; this habitat is surrounded by artificial habitats, and features a low diversity of grass species only.

D4.17 Poor semi-improved grassland is not a HoPI [14], and within the proposed development site features a low diversity of common grass species. Poor semi-improved grassland is therefore **scoped out of this assessment**.

Neutral Grassland (g3c)

D4.18 Neutral grassland is present sporadically across the proposed development site. Neutral grassland is generally species-poor, with grass species growing with an open sward. Bird's-foot trefoil, common knapweed (*Centaurea nigra*), golden melilot (*Melilotus latissimus*), wild parsnip (*Pastinaca sativa*) and ribwort plantain (*Plantago lanceolata*) occur occasionally throughout areas of neutral grassland. Scrub is present in some areas and is dominant in central areas of neutral grassland where the now-culverted section of Holme Beck is present. Parts of neutral grassland are undergoing ecological succession into scrub habitat.

D4.19 In the eastern section of the proposed development site, neutral grassland is dominated by rank grass species. Scrub and young trees account for approximately 30% of the coverage in these areas.

D4.20 Neutral grassland is not a HoPI [14], and within the proposed development site features relatively common floral species. Neutral grassland is therefore **scoped out of this assessment**.

Modified Grassland (g4)

D4.21 Areas of modified grassland are presumed to be present where a layer of soil covers coal or other substrates. Low mounds of tipped soil are present in the north of the proposed development site, however bare ground cover is negligible outside this area. Grass is relatively rank, with some bramble (*Rubus fructicosus* agg.) present throughout the modified grassland.

D4.22 Modified grassland is species-poor, dominated by red fescue (*Festuca rubra*), and cock's-foot (*Dactylis glomerata*) across the majority of the habitat. Herb species are infrequent, and mainly represented by wild parsnip and ribwort plantain.

D4.23 Due to this habitat generally being of negligible value for floral ecological features and not itself afforded any specific status, modified grassland is **scoped out of this assessment.**

Broadleaved Woodland (w1g7)

D4.24 A stand of young broadleaved woodland is located in the north-west of the proposed development site. Woodland is almost exclusively birch species (*Betula* sp.) and anticipated to be natural regenerative woodland of no more than 10 years old. No scrub layer is present. No ground layer species are present other than remnants of typical brownfield flora in low abundance. No ancient woodland indicator species are present.

D4.25 Lowland mixed deciduous woodland (which includes broadleaved woodland present within the proposed development site) is a HoPI [14]. It is considered that this habitat is of **local** importance.

Mixed Scrub (h3h)

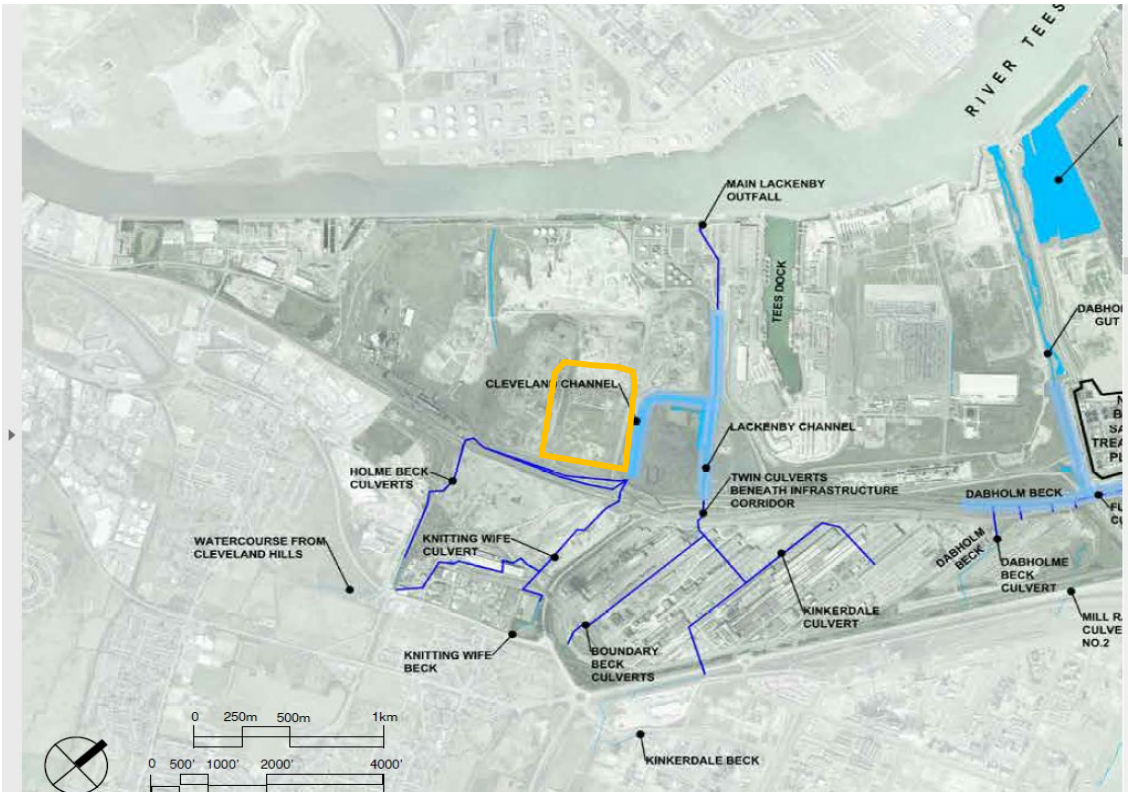
D4.26 A small area of scattered, semi-mature, mixed scrub is present within the south-east of the proposed development site. Mixed scrub is dominated by bramble, with elder (*Sambucus nigra*), hawthorn (*Crataegus monogyna*) and goat willow present occasionally.

D4.27 Lowland scrub is not a HoPI [14] and is generally of low ecological value. Mixed scrub within the proposed development site is also limited to a small area. Mixed scrub is **scoped out of this assessment.**

Open Water (r1a6)

D4.28 Open water within the proposed development site comprise two waterbodies and one oligotrophic watercourse that surrounds an area in the south-east of the proposed development site known as 'The Slems'. See Figure D4.1 for the location of The Slems, and indicative locations of named waterbodies and watercourses discussed within this section.

Figure D4.1. Location of The Slems shown within the orange line. Location of the watercourses throughout the wider STDC site, showing the location of Knitting Wife Beck flowing into Cleveland Channel, and the Lackenby Channel (provided by STDC).



D4.29 A linear waterbody known as Cleveland Channel emerges from a culvert (fed by Knitting Wife Beck to the south of the proposed development site) around the west of The Slems. This is effectively a waterbody, rather than a watercourse, due to the lack of water flow. No aquatic vegetation is present, and water quality is likely to be poor due to surface water run-off from the adjacent tip, although no algal mats are present. Water within the Cleveland Channel is shallow, likely less than 1m deep throughout, and lacks an obvious flow. There is no evidence of fish or invertebrates present within this waterbody. Low numbers of waterfowl have been documented utilising this waterbody on an incidental basis.

D4.30 The Cleveland Channel proceeds to wrap around the north of The Slems. The Cleveland Channel meets the Lackenby Channel as it wraps around the east of The Slems (Figure D4.1). The

northern end of the Lackenby Channel (outside of the proposed development site) is culverted to its outfall into the River Tees. There does not appear to be any opportunity for a reverse flow. Within the proposed development site, the Lackenby Channel is divided in two by a bund; there is presumably sub-surface connection, although this is not apparent. There is no aquatic vegetation present within the Lackenby Channel. Water quality is considered to be poor in both sections of the watercourse, due to the presence of oil residues.

D4.31 There are small pockets of saltmarsh and intertidal mud associated with the Cleveland Channel and Lackenby Channel, mostly to the north and west of The Slems. These habitats are discussed in relevant sections below, and located along watercourses shown by Target Notes TN1 and TN2 in Appendix D2.

D4.32 The second waterbody is located within the central area of The Slems (Target Note TN3 in Appendix D2). This waterbody, which is separated from the watercourses by a weir, is fed by the Cleveland Channel. The water level is shallow (approximately 30cm deep), with a bare, silty substrate. Initially, following a precautionary approach, it was considered possible that this waterbody had a tidal influence, due to the presence of saltmarsh and intertidal mud around The Slems, with some tidal exchange within the Lackenby Channel noted during the habitat survey of the proposed development site. The waterbody was found to be 'brackish' when an initial salinity probing test was conducted. For the purposes of this assessment, this brackish waterbody is treated as an open water habitat within this assessment. Further, more detailed analysis of salinity is being undertaken to confirm this conclusion (see Section D8.0).

D4.33 No aquatic vegetation other than *Enteromorpha* algae is present within the brackish waterbody in the centre of The Slems. Margins are lined with stands of common reed (*Phragmites australis*) and sea club-rush (*Bolboschoenus maritimus*), in roughly equal proportion. No fish or invertebrates have been noted within this waterbody, however waterfowl have been recorded. The waterbody is considered to be in good condition, especially relative to the open water features surrounding The Slems. Reedbed surrounding the waterbody is discussed in the appropriate section below.

D4.34 Although all open water habitat within the proposed development site is of poor condition, oligotrophic waters (which include the open water habitats present within the proposed development site) are a HoPI [14]. It is considered that this habitat is of **local** importance.

Saltmarsh (t2a)

D4.35 Small areas of saltmarsh habitat are present along the margins of the Cleveland Channel and Lackenby Channel watercourses present to the north and west of The Slems. These areas are generally less than 1m in width; watercourses in which saltmarsh are present in small areas are shown by Target Notes 1 and 2 in Appendix D2. Saltmarsh is vegetated with *Aster* species, *Atriplex* species and *Salicornia* species.

D4.36 Coastal saltmarsh is a HoPI [14] and, under Tees Valley LWS selection guidelines [10], any area of saltmarsh that is not severely degraded would be a candidate for LWS selection. It should also be noted that saltmarsh is a rare habitat that is difficulty to recreate. The small area of saltmarsh present within the proposed development site is small and of reduced quality due to impoundment of the watercourse and polluted environment. It is considered that this habitat is of **regional** importance.

Intertidal Mud (t2d)

D4.37 Some areas of bare mud, up to several metres in width in places, are present. These are likely to be intertidal mud due to tidal influence, although in very small extents. Areas of intertidal mud

are between 1 and 2m in width, present in lengths of 3 to 5m. Watercourses in which intertidal are present in small areas are shown by Target Notes 1 and 2 in Appendix D2.

D4.38 Intertidal mud is a HoPI [14], and a valuable habitat which is increasingly uncommon in modified watercourses. It is however acknowledged that due to impoundment of the watercourses and polluted environment, intertidal mud is likely of reduced quality. It is considered that intertidal mud is of **county** importance.

Reedbed (f2e)

D4.39 A small area of dry reedbed is present in the south-east of the proposed development site, to the west of the brackish waterbody in the centre of The Slems. It consists largely of common reed which is dense throughout. Scrub species are invading and grading into rank grassland in places. This area of reedbed is considered to be in poor condition due to it being dried up.

D4.40 Reedbed associated with the brackish waterbody at Target Note TN3 (Appendix D2) is considered to be in good condition.

D4.41 Reedbed is a HoPI [14]. Under Tees Valley LWS selection guidelines [10], any area of reedbed greater than 0.1ha in size would be a candidate for LWS designation. Following a precautionary approach, it is considered that this habitat is of **regional** importance due to the good condition of reedbed associated with the brackish waterbody and the potential status it could otherwise be afforded.

Aquatic Marginal Vegetation (f2d)

D4.42 Aquatic marginal vegetation is present within the south-east of the proposed development site, which effectively forms a small area of swamp. A dense area of emergent vegetation which is a mixture of stands of sea club-rush and common reed is present. No scrub is present.

D4.43 Due to this habitat generally being of negligible value for ecological features, and the small size of this habitat cover within the proposed development site, aquatic marginal vegetation is **scoped out of this assessment.**

Sparsely Vegetated Land – Ephemeral/Ruderal (s)

D4.44 Significant areas of the proposed development site feature sparsely vegetated land, with approximately 25% comprising bare ground. Significant quantities of substrate and residue associated with previous industrial activity are present in the soil substrate; refer to Chapter H (Ground Conditions and Remediation) of this ES for further details. Birds-foot trefoil, thyme-leaved sandwort (*Arenaria serpyllifolia*) and mouse-eared hawkweed (*Hieraceum pilosella*) occur frequently, with biting stonecrop (*Sedum acre*) and ragwort species (*Senecio* spp.) recorded occasionally. Grass cover is very sparse, with a low sward present. Birch and goat willow (*Salix caprea*) saplings are becoming established throughout sparsely vegetated areas at a very low density.

D4.45 Sparsely vegetation land is **scoped out of this assessment**.

Artificial, unvegetated land with unsealed surfaces (u1c)

D4.46 A spoil tip is present within the south-east of the proposed development site, with approximately 80% bare ground coverage. Very small isolated patches of rank grass and scrub are present, with red valerian (*Centranthus ruber*), and daisy family species (Compositae) recorded rarely.

D4.47 Due to this habitat generally being of negligible value for ecological features and the lack of status afforded to this habitat, artificial, unvegetated land with unsealed surfaces are **scoped out of this assessment.**

Developed land with sealed surfaces (u1b)

D4.48 Significant areas of the proposed development site feature developed land. These are formed from concreted areas. Some buildings are present, however these are limited to sealed and open-sided metal structures of negligible value for ecological features.

D4.49 Developed land with sealed surfaces are **scoped out of this assessment.**

Protected and Notable Species

D4.50 Use of the proposed development site and any nearby features of ecological interest by protected and notable species has been informed by the review of desk study information and the results of surveys of the proposed development site undertaken by INCA.

Invasive Non-native Species

D4.51 Invasive non-native species (INNS) are often associated with disturbed habitats, such as those present within the proposed development site. Despite this, the proposed development site is generally free from INNS.

D4.52 One known instance of Japanese knotweed (*Reynoutria japonica*) is present is the north-west of the proposed development site. This stand of Japanese knotweed is located at O.S. National Grid Reference: NZ 53283 22312.

D4.53 A further potential stand of Japanese knotweed is present in the south of the proposed development site, however this was not confirmed as the area in which it is located could not be accessed during habitat surveys. This stand of Japanese knotweed is located at O.S. National Grid Reference: NZ 53981 21584.

D4.54 Japanese rose (*Rosa rugosa*) has been recorded by INCA within the proposed development site during updated habitat surveys.

D4.55 INNS are considered to negatively affect the biodiversity value of the proposed development site in its baseline condition and are scoped into this assessment as holding **local** importance.

Notable Flora

D4.56 No protected or notable plant species were recorded within desk study data, or during habitat surveys of the proposed development site. Notable flora are **scoped out of this assessment.**

Invertebrates

D4.57 The desk study has shown historical records of a number of notable invertebrates within the last 10 years within 2km of the proposed development site. This includes small heath (*Coenonympha pamphilus*), dingy skipper (*Erynnis tages*) and grayling (*Hipparchia semele*) butterflies.

D4.58 During the habitat surveys, a number of incidental recordings of invertebrates were made. A significant number of dingy skipper were present within the proposed development site, with grayling also present in abundance. These species were mostly recorded within OMH across the proposed development site, or in areas of sparsely vegetated land. The abundance of bird's-foot trefoil within OMH is likely to significantly increase the likelihood of dingy skipper utilising the proposed development site for breeding, as this plant species is the food-plant for its young.

D4.59 Areas of importance for invertebrates are shown in Appendix D5, and are mostly associated with areas of OMH or sparsely vegetated land. Areas noted as of 'regional significance for dingy skipper' are areas of habitat in which an abundance of bird's-foot trefoil (and other invertebrate larval food-plants associated with OMH) and basking habitat are present. More than 20 dingy skipper have been noted in these areas during single habitat surveys of the proposed development. Areas noted as of 'local importance for dingy skipper and grayling' comprise areas of reduced quality of these notable features (larval food-plants and basking areas), however low numbers of dinky skipper and grayling have been observed within these areas[30].

D4.60 Small areas not marked as of regional or local importance are still considered to hold value for invertebrates. Individual dingy skipper and grayling have been recorded across the proposed development site, however where there is sparse vegetation, and a lack of larval food-plants, sustained populations are not likely to be viable.

D4.61 Of the invertebrate species noted on the proposed development site, and in the desk study records for the wider area, dingy skipper, grayling, and small heath are listed as SoPI [14]. Dingy skipper and grayling are also listed as priority species on the Tees Valley Biodiversity Species List [8]. Under the Tees Valley LWS selection guidelines, any area regularly supporting more than 10 dingy skipper would be a candidate for LWS selection [10].

D4.62 It is considered that the invertebrate assemblage is of **county** value.

D4.63 Due to their heightened status (as described above), dingy skipper and grayling are considered as individual features within this assessment due to any additional mitigation or compensation that may be required in relation to these species. Due to a significant population of dingy skipper present within the proposed development site, dingy skipper are of **regional** value. Due to their relatively low abundance within the proposed development site, grayling are considered to be of **local** value.

Birds

D4.64 The desk study identified records of several notable bird species within 2km of the proposed development site within the last 10 years, including several species designated under the adjacent Teesmouth and Cleveland Coast SSSI, SPA, and Ramsar sites. These include:

i. Common redshank – SSSI, SPA, and Ramsar feature;
ii. Common tern – SSSI, SPA, and Ramsar feature;
iii. Ruff – SSSI, SPA, and Ramsar feature;
iv. Gadwall – SSSI feature;
v. Ringed plover – SSSI feature;
vi. Shelduck – SSSI feature;
vii. Shoveler – SSSI feature; and
viii. Further waterbird species that contribute to the waterbird assemblages of the SSSI, SPA, and Ramsar sites.

Breeding Birds

D4.65 Results maps from BBS of the proposed development site are available in Appendix D6, with breeding bird territories mapped in Appendix D7.

D4.66 No qualifying species of the Teesmouth and Cleveland Coast SPA and Ramsar sites were recorded breeding within the proposed development site, either in desk study data or BBS undertaken within the proposed development site.

D4.67 BBS confirmed waterbird species breeding within the proposed development site that would contribute towards the Teesmouth and Cleveland Coast SSSI, SPA, and Ramsar waterbird assemblages. Such species were: mallard (*Anas platyrhynchos*); moorhen (*Gallinula chloropus*); grey heron (*Ardea cinerea*); herring gull (*Larus argentatus*); lesser black-backed gull (*Larus fuscus*). These species were mostly constrained to The Slems, in the south-east of the proposed development site. Only low numbers of breeding bird pairs were recorded for these species, that is not considered to be significant in the context of the Teesmouth and Cleveland Coast SSSI breeding waterbird assemblages.

D4.68 Of the named designated features of the Teesmouth and Cleveland Coast SSSI, shelduck have been recorded breeding within the proposed development site. This species is also an Amber listed BoCC. Up to four confirmed breeding pairs were present within the proposed development site during surveys in 2020, three of these being present within the Cleveland Channel and Lackenby Channel in the south-east of the proposed development site. It is considered likely that shelduck would consistently breed within the proposed development site due to the suitability of habitat. There are approximately 15,000 pairs of shelduck within the UK annually. No up to date information regarding the Teesmouth and Cleveland Coast SSSI could be sourced, however WeBS data showed 458 shelduck individuals were estimated to utilise the Tees Esturary in 2018/2019. It is also understood that five confirmed breeding pairs of shelduck were recorded in the Tees Valley in 2018, rearing 42 young [31]. The presence of four breeding pairs of shelduck within the proposed development site is not considered to be significant in relation to the national breeding population, but is considered to be of significance in the context of the Teesmouth and Cleveland Coast SSSI.

D4.69 Due to their heightened status (as described above), shelduck are considered as an individual feature within this assessment due to any additional mitigation or compensation that may be required in relation to this species. Shelduck are considered to be of **county** value.

D4.70 As demonstrated by the results of the BBS (Appendix D6), the proposed development site holds opportunities for breeding ground-nesting birds, including skylark (*Alauda arvensis*) and lapwing, which are both Red-listed BoCC, and opportunities for common breeding passerines. Opportunities for breeding waterbirds are present in association with open water and wetland habitats in the south-east of the proposed development site around The Slems.

D4.71 Of the species considered to be likely or confirmed breeding within the proposed development site (Appendix D7), the following species are Red-listed BoCC [12] species: grey wagtail (*Motacilla cinerea*); linnet (*Linaria cannabina*); and mistle thrush (*Turdus viscivorus*). The following species are Amber-listed BoCC [12] species: dunnock (*Prunella modularis*); mallard; meadow pipit (*Anthus pratensis*); and reed bunting (*Emberiza schoeniclus*). Various Red- and Amber-listed species are present with individual or few numbers of breeding territories recorded. Of note, grey wagtail holds one territory within the proposed development site. This species was present on four sites in the Tees Valley in 2018 [31].

D4.72 The breeding bird assemblage of the proposed development site is of **county** value.

Wintering Birds

D4.73 The wintering bird assemblage of the proposed development site can only be determined by desk study information as no WBS have been undertaken within the proposed development site.

D4.74 Desk study data, including WeBS data, was reviewed to ascertain typical wintering bird species present within the locality of the proposed development site. However, no desk study data relates specifically to the proposed development site.

D4.75 Approximately 11ha of wetland habitats are available within the proposed development site for potential use by wintering waterbird species. This is limited to The Slems, in the south-east of the proposed development site.

D4.76 Of particular note, common redshank (a feature of the Teesmouth and Cleveland Coast SSSI, SPA, and Ramsar) are reported within the River Tees and along its riverbanks both upstream and downstream of the proposed development site. Anecdotally, common redshank are reported to utilise The Slems within the proposed development site, specifically within the open water features and intertidal mud habitats. It is likely other wintering bird species that contribute towards the SPA and Ramsar wintering waterbird assemblage are present within The Slems, albeit in relatively low abundance due to the relatively small amount of suitable habitat. As common redshank are a specific feature of the Teesmouth and Cleveland Coast SPA and Ramsar, this feature is further assessed within the HRA and **scoped out of further assessment** within this report.

D4.77 Based on desk study data, a review of the extent of wetland habitats available for wintering birds, and following a precautionary approach, it is considered that the wintering bird assemblage of the proposed development site is of **county** value.

Bats

D4.78 Although no bats were identified within the desk study, common species such as common pipistrelle (*Pipistrellus pipistrellus*) are likely to be present within the proposed development site, for foraging and commuting purposes.

D4.79 Buildings and structures within the proposed development site are limited to sealed and open-sided metal structures of negligible value for roosting bats.

D4.80 No mature trees are present within the proposed development site. The young trees present are unsuitable for roosting bats, as these specimens have not yet developed cavities or features which may be used for roosting.

D4.81 The proposed development site presents low to moderate potential to support foraging and commuting. This is due to the proposed development site potentially supporting a diverse invertebrate assemblage due to the presence of OMH.

D4.82 It is considered that is the bat assemblage is of **local** value, for foraging and commuting bats, limited to common bat species.

Badger

D4.83 The desk study has shown no historical records of badger *(Meles meles*) within the proposed development site and the surrounding area. It is unlikely that the proposed development site supports badger as it is dominated by unsuitable habitats and surrounded by urban and industrial areas and main roads which would prevent badger colonising the proposed development site from elsewhere. The habitat within the proposed development site would not support sett building and would not provide a significant foraging resource for this species.

D4.84 Due to the likely absence of badger from the locality, and the low value of the proposed development for the species, badger are **scoped out of this assessment.**

Otter

D4.85 The desk study shows otter (*Lutra lutra*) to be present within the adjacent River Tees. Otter are known to be present throughout the River Tees habitat corridor, utilising terrestrial wetland areas between Teesmouth and the Tees Barrage.

D4.86 It is considered unlikely that otter would utilise the proposed development site specifically, due to the lack of suitable wetland habitat present. Although some wetland habitat is present, open water features and associated wetlands are small, isolated from the River Tees, and the water quality is poor with no fish present.

D4.87 As there is potential for otter to be present within the ZoI of the proposed development site, possible effects upon otter are considered within this assessment. It is considered that otter are of **local** value.

Amphibians

D4.88 The desk study has shown a low number of records of amphibians within 2km of the proposed development site. The closest of these records relates to common frog (*Rana temporaria*) present 1.8km south-east of the proposed development site. There are no records of great crested newt (*Triturus cristatus*) within 2km of the proposed development site.

D4.89 Small open water features within the proposed development site would be suitable for amphibian species. However, such features are isolated, and in relatively poor condition. It is considered that amphibians are absent from the proposed development site.

D4.90 Due to the likely absence of amphibian species within the proposed development site, and the lack of potential for colonisation, amphibians are **scoped out of this assessment.**

Reptiles

D4.91 One record of common lizard (*Zootoca vivipara*) is present within desk study information, located 1.6km north-west of the proposed development site; this is north of the River Tees, and hence disconnected from the proposed development site.

D4.92 Common lizard have anecdotally been recorded within the wider STDC site, however no records of reptile are present within the proposed development site. It is likely that reptile populations present within the wider STDC site are constrained to the north-eastern section in close association with Coatham Marsh. However, no detailed reptile surveys have been completed. OMH present within the proposed development site would support foraging opportunity for reptile species, with sheltering opportunities present through artificial refugia.

D4.93 Due to the likely absence of reptile species within the proposed development site, reptiles are **scoped out of this assessment.**

Marine Mammals

D4.94 The River Tees supports the foraging efforts of harbour seal and grey seal (*Halichoerus grypus*). The proposed development site itself does not contain any watercourses that would support marine mammals, and therefore does not support such species.

D4.95 As there is potential for marine mammal species to be present within the ZoI of the proposed development site, possible effects upon marine mammals are considered within this assessment. It is considered that marine mammals are of **local** value.

Migratory Fish

D4.96 The River Tees supports the migration of salmon (*Salmo salar*) and brown trout (*Salmo trutta*). The proposed development site itself does not contain any watercourses that would support migratory fish, and therefore does not support such species.

D4.97 As there is potential for migratory fish species to be present within the ZoI of the proposed development site, possible effects upon migratory fish are considered within this assessment. It is considered that migratory fish are of **local** value.

Other Mammals

D4.98 The waterbodies and watercourses present in the south-east of the proposed development site would be suitable for water vole (*Arvicola amphibius*), however these open water habitats are isolated. The west bank of the Cleveland Channel watercourse appears to be the only suitable bank for burrowing for the species, as the east bank of the Cleveland Channel features compacted material from the adjacent refuse site. During habitat surveys of the proposed development site, it was possible to have an unobstructed view of the west bank of the watercourse through binoculars, and it could be ascertained that no burrows were present. Therefore, water vole are considered to be absent within the Cleveland Channel. The Lackenby Channel watercourse does not feature any suitable burrowing habitat for water vole.

D4.99 Due to the likely absence of water vole within the proposed development site, **water vole are scoped out of this assessment.**

D4.100 Brown hare (*Lepus europaeus*) are present within the proposed development site. OMH and grassland habitats present within the proposed development site support a significant population of the species, potentially holding some of the most expansive and best quality habitat for the species within the Tees Valley region.

D4.101 Brown hare are a SoPI [14], and are also listed as a priority species on the Tees Valley Local Biodiversity Species list [8]. Brown hare are of **county** value, due to the potential size of the population present within the proposed development site.

D4.102 Hedgehog (*Erinaceus europaeus*) are likely to be present on the proposed development site, as the species is established in urban areas and the proposed development site supports habitats which this species may use for foraging and commuting.

D4.103 Hedgehog are a SoPI [14], and are also listed as a priority species on the Tees Valley Local Biodiversity Species list [8]. Therefore, hedgehog are of **local** value.

Summary of Baseline

D4.104 Table D4.2 provides a summary table listing all of the relevant features scoped into this EcIA and their geographic level of importance.

Table D4.2: Geographic levels of importance of each ecological feature scoped into this assessment

Feature	Geographic Level of Importance	Justification
Designated Sites		
Teesmouth and Cleveland Coast SPA	International	The proposed development site is adjacent to Teesmouth and Cleveland Coast SPA, which is present along the north-western boundary (River Tees).
Teesmouth and Cleveland Coast Ramsar	International	The closest unit of the Teesmouth and Cleveland Coast Ramsar to the proposed development site is located 250 north-west, on the opposite bank of the River Tees.
Teesmouth and Cleveland Coast SSSI	National	The proposed development site is adjacent to Teesmouth and Cleveland Coast SSSI, which is present along the north-western boundary (River Tees).
Habitats		
Open Mosaic Habitats	County	OMH generally support a range of invertebrates, with OMH within the proposed development site featuring a species-rich range of key brownfield indicator species. OMH is a HoPI [14].
Lowland Calcareous Grassland	County	Although lowland calcareous grassland is present within the proposed development site in small isolated areas, this habitat is a HoPI [14].
Broadleaved Woodland	Local	Although broadleaved woodland present within the proposed development site is restricted to a small area, and broadleaved woodland is limited to young specimens, this habitat is a HoPI [14].
Open Waters	Local	Although open waters within the proposed development are generally in poor condition, open waters are a HoPI [14]. The brackish waterbody in the centre of The Slems is considered to be of good condition.
Saltmarsh	Regional	Saltmarsh is a HoPI [14], and extremely difficult to recreate. Although small areas of saltmarsh are present within the proposed development site, any area of this habitat is a candidate for LWS selection under the Tees Valley LWS Selection Guidance [10].
Intertidal Mud	County	Intertidal mud is a HoPI [14], and difficult to recreate. Intertidal mud is an important habitat for invertebrates and foraging waterbirds; the habitat is also in low abundance across typical urban areas due to presence of artificial riverbanks.
Reedbed	Regional	Reedbed is present in small isolated sections around the proposed development site, except for the larger section surrounding the brackish waterbody within The Slems. Reedbeds are a HoPI [14]. An area of greater than 0.1ha of reedbed is a candidate for LWS selection under the Tees Valley LWS Selection Guidance [10].
Species		
Invasive Non-native Species	Local	Japanese rose has been reported within the proposed development site in desk study information. Japanese Knotweed has been identified within the proposed development site during habitat surveys.

Feature	Geographic Level of Importance	Justification
Invertebrates	County	Extensive areas of OMH present within the proposed development site likely support a significant population of invertebrates, including various SoPIs [14].
Dingy Skipper	Regional	Significant numbers of dingy skipper are associated with OMH within the proposed development site. Dingy skipper are a SoPI [14]. Furthermore, more than 20 individual dinky skipper have been recorded within sections of the proposed development site, which meets the criteria for LWS selection in the Tees Valley [10].
Grayling	Local	Grayling are present within the proposed development site, in low numbers. Grayling are a SoPI [14].
Breeding Birds	County	The breeding bird assemblage of the proposed development site is considered to be relatively common, however breeding opportunities are available for ground-nesting species, passerines, and waterbirds.
Shelduck	County	Shelduck are a designated feature under the adjacent Teesmouth and Cleveland Coast SSSI. Up to four breeding pairs are present within the proposed development site.
Wintering Birds	County	No WBS data is available for the proposed development site, however it is considered likely that wintering birds would utilise wetland habitats within The Slems.
Bats	Local	The proposed development site is considered to be of low to moderate suitability in supporting foraging and commuting bats.
Otter	Local	Otter are present within the River Tees, however the proposed development site would not support the species. Otter are scoped in due to potential impacts to adjacent riverine habitat as a result of the proposed development.
Marine Mammals	Local	Marine mammals, including harbour seal (a designated feature of the Teesmouth and Cleveland Coast SSSI) utilise the River Tees for foraging. The proposed development site does not support marine mammals, however potential effects as a result of the proposed development could impact upon the River Tees.
Migratory Fish	Local	Salmon and brown trout utilise the River Tees for migration. The proposed development site does not support migratory fish species, however potential effects as a result of the proposed development could impact upon the River Tees.
Brown Hare	County	Brown hare are a SoPI [14]. An abundance of brown hare are associated with expansive OMH and grassland habitats present within the proposed development site.
Hedgehog	Local	Hedgehog are a SoPI [14] and have the potential to be present on the proposed development site.

Future Baseline

D4.105 There is potential for the baseline ecological conditions to change in the period between when this assessment has been made and the commencement of site preparation works.

D4.106 If the proposed development does not commence for a significant length of time, pre-construction checks for some taxa may be required. For example, the condition of structures within, or immediately adjacent to the proposed development site may deteriorate (in structural terms) and provide greater value and more opportunities for roosting bats.

D5.0 Assessment of Effects and Mitigation

D5.1 This section of the assessment involves identifying and characterising impacts, incorporating measures to avoid and mitigate these impacts, and assessing the significance of any residual effects after mitigation.

Avoidance

D5.2 At the time of compiling this assessment, the proposed development does not include any measures to avoid potential impacts on ecological features. In order to represent the worse-case scenario currently presented by the proposed development, it is assumed that proposed development would cause complete loss of all habitats and ecological features within the red line boundary of the proposed development site.

Assessment of Effects and Mitigation

D5.3 This section identifies and describes all the potential construction and operational impacts of the proposed development on each feature from the baseline ecological conditions scoped into this EcIA (Table D5.1). It also details any mitigation to be implemented within the construction and operation of the proposed development.

D5.4 The assessment of effects represents the worse-case scenario currently presented by the proposed development, as the proposed development is currently at the outline planning application stage with no detailed design. It is assumed that proposed development would cause complete loss of all habitats and ecological features within the red line boundary of the proposed development site, with the maximum possible effect upon ecological features caused, and with no mitigation proposed.

Teesmouth and Cleveland Coast SPA and Ramsar

D5.5 The Teesmouth and Cleveland Coast SPA is adjacent to the proposed development site, with the Ramsar site located 250m north-west.

D5.6 Due to the potential for an impact to an internationally important site and its qualifying features, a Habitats Regulations Assessment (HRA) has been completed as required under Regulation 63 of the Habitats Regulations [1].

D5.7 The HRA of the proposed development site contains both Stage 1 and Stage 2 of the HRA process and, therefore, discusses appropriate mitigation measures to ensure the proposed development works would not give rise to an adverse effect on the integrity of the Teesmouth and Cleveland Coast SPA and Ramsar.

D5.8 The HRA Stage 1 assessment identified the following potential impacts to the Teesmouth and Cleveland Coast SPA and Ramsar sites:

i. During construction: the risk of disturbance and/or loss of habitats that support foraging and commuting activities, and/or roosting of the qualifying features, due to pollution from within the proposed development site;

ii. During construction: the risk of noise/visual disturbance of small numbers of qualifying species utilising the adjacent SPA/Ramsar site for foraging and commuting activities, and/or roosting; and

iii. During operation: the risk of disturbance and/or loss of habitats that support foraging and commuting activities, and/or roosting of the qualifying features, due to pollution from within the proposed development site.

D5.9 The HRA Stage 2 assessment (Appropriate Assessment) concluded that, at the current time, and in consideration of the current construction and operational components of the proposed development, it is assumed that there will be **no adverse effects** on the Teesmouth and Cleveland Coast SPA and Ramsar as a result of the proposed development. Other than mitigation measures outlined below in relation to the Teesmouth and Cleveland Coast SSSI, no other specific mitigation is required.

D5.10 The potential impact to these designated sites and their qualifying features will therefore not be further assessed in this EcIA and reference should, instead, be made to the HRA.

Teesmouth and Cleveland Coast SSSI

D5.11 The Teesmouth and Cleveland Coast SSSI is located adjacent to the proposed development site.

D5.12 There is potential for indirect damage or disturbance to this designated site, either to the habitats within the designated site or to their designated features, as a result of the proposed development.

Construction

D5.13 The following mitigation will be incorporated in order to prevent significant effects as a result of construction of the proposed development:

i. Construction works along the north-western boundary of the proposed development site within 10m or less of the River Tees are to be screened, to reduce the visual and noise impacts upon the Teesmouth and Cleveland Coast SSSI and the designated features that utilise the River Tees for foraging and commuting. Screening will involve use of opaque barriers, which would also prevent site operatives from unnecessary access to the riverbank;

ii. Construction of the proposed development will abide by a Construction Environmental Management Plan (CEMP), which will outline measures to prevent sediment, dust, surface water run-off, or any other substance relating to construction from entering the River Tees. The CEMP will be reviewed by a Suitably Qualified Ecologist (SQE);

iii. Contaminated liquids or sediments produced as a result of construction, i.e. through disturbance of known contaminated land, will be directed away from the River Tees. Measures to ensure contaminated substances do not reach the River Tees will be outlined within the CEMP; and

iv. Any lighting of the construction area is to be directed away from the River Tees or utilise directional shielding measures to prevent light-spill onto the river.

Operation

D5.14 The following mitigation will be incorporated in order to prevent any significant effects as a result of the operation of the proposed development:

i. Lighting installed will utilise directional shielding measures to prevent light-spill onto the River Tees.

Open Mosaic Habitats

D5.15 The proposed development will result in loss of all OMH within the proposed development site in order to facilitate construction. OMH is present across the proposed development site, with a variety of substrates and differing levels of bare ground and vegetative cover present across different units of OMH.

Construction

D5.16 The proposed development does not feature any mitigation to prevent significant effects as a result of construction of the proposed development, as all OMH will be lost within the proposed development site with no habitat enhancement or creation proposed. **As a result, there will be a significant adverse effect on the OMH resource at the county level.**

Operation

D5.17 As the proposed development would result in the complete loss of this habitat, the operational phase of the proposed development will not impact upon this habitat.

Lowland Calcareous Grassland

D5.18 The proposed development will result in loss of all lowland calcareous grassland within the proposed development site in order to facilitate construction. Small isolated areas of lowland calcareous grassland are present throughout the proposed development site.

Construction

D5.19 The proposed development does not feature any mitigation to prevent significant effects as a result of construction of the proposed development, as all lowland calcareous grassland will be lost within the proposed development site with no habitat enhancement or creation proposed. **As a result, there will be a significant adverse effect on the lowland calcareous grassland resource at the county level.**

Operation

D5.20 As the proposed development would result in the complete loss of this habitat, the operational phase of the proposed development will not impact upon this habitat.

Broadleaved Woodland

D5.21 The proposed development will result in the removal of all existing broadleaved woodland from the proposed development site in order to facilitate construction. Broadleaved trees within the proposed development site are not mature specimens and are present in relatively low abundance.

Construction

D5.22 The proposed development does not feature any mitigation to prevent significant effects as a result of construction of the proposed development, as all broadleaved woodland will be lost on site with no habitat enhancement or creation proposed. **As a result, there will be a significant adverse effect on the broadleaved woodland resource at the local level.**

Operation

D5.23 As the proposed development would result in the complete loss of this habitat, the operational phase of the proposed development will not impact upon this habitat.

Open Water

D5.24 The proposed development will result in the infilling or culverting of existing open water features within the proposed development site in order to facilitate construction. This includes infilling or culverting of the Cleveland Channel, Lackenby Channel, and the brackish waterbody within The Slems. These open water features are of poor quality due to contamination and

feature no aquatic vegetation. However, open water features are utilised by a range of waterbird species.

Construction

D5.25 The proposed development does not feature any mitigation to prevent significant effects as a result of construction of the proposed development, as all open water features will be lost on site with no habitat enhancement or creation proposed. **As a result, there will be a significant adverse effect on the open water resource at the local level.**

Operation

D5.26 As the proposed development would result in the complete loss of this habitat, the operational phase of the proposed development will not impact upon this habitat.

Saltmarsh

D5.27 The proposed development will result in loss of all existing saltmarsh from the proposed development site in order to facilitate construction. Saltmarsh is present in small areas associated with the Lackenby Channel to the north and east of The Slems. It is considered to be extreme difficult to recreate functional saltmarsh of similar value to naturally occurring saltmarsh habitat.

Construction

D5.28 The proposed development does not feature any mitigation to prevent significant effects as a result of construction of the proposed development, as saltmarsh will be lost within the proposed development site with no habitat enhancement or creation proposed. **As a result, there will be a significant adverse effect on the saltmarsh resource at the regional level.**

Operation

D5.29 As the proposed development will result in the complete loss of this habitat, the operational phase of the proposed development would not impact upon this habitat.

Intertidal Mud

D5.30 The proposed development will result in loss of all existing intertidal mud from the proposed development site in order to facilitate construction. Intertidal mud is present in small strips associated with the Lackenby Channel to the north and east of The Slems, where some tidal influence from the River Tees is still prevalent (albeit at a reduced rate due to impoundment of the watercourse). Intertidal mud is difficult to recreate and is in significantly short supply within heavily modified watercourses, such as the River Tees.

Construction

D5.31 The proposed development does not feature any mitigation to prevent significant effects as a result of construction of the proposed development, as intertidal mud will be lost on site with no habitat enhancement or creation proposed. **As a result, there will be a significant adverse effect on the saltmarsh resource at the regional level.**

Operation

D5.32 As the proposed development would result in the complete loss of this habitat, the operational phase of the proposed development will not impact upon this habitat.

Reedbed

D5.33 The proposed development will result in complete loss of existing reedbed from the proposed development site in order to facilitate construction. Reedbed is present in association with open water features within The Slems. Smaller areas of reedbed present within the proposed development site is in relatively poor condition, however reedbed around the central brackish waterbody within The Slems is considered to be of good condition.

Construction

D5.34 The proposed development does not feature any mitigation to prevent significant effects as a result of construction of the proposed development, as all areas of reedbed will be lost on site with no habitat enhancement or creation proposed. **As a result, there will be a significant adverse effect on the saltmarsh resource at the regional level.**

Operation

D5.35 As the proposed development would result in the complete loss of this habitat, the operational phase of the proposed development would not impact upon this habitat.

Invasive Non-Native Species

D5.36 If left unchecked, INNS have the ability to further colonise the proposed development site and neighbouring plots of land. Allowing the spread of INNS would further negatively affect the biodiversity value of the proposed development site, and constitute a legal offence under Schedule 9 of the WCA [2] if INNS spread outwith the ownership boundary of the proposed development site without taking all reasonable steps and exercising all due diligence to avoid such spread.

D5.37 Japanese knotweed is known to be present within the proposed development site at one location. Japanese rose is also reported within desk study data and confirmed by recent habitat surveys.

Construction

D5.38 The following mitigation is incorporated in order to prevent significant effects as a result of construction of the proposed development:

i. Updated, detailed INNS surveys are required to capture the most up to date extent of INNS within the proposed development site. These surveys should be completed prior to each phase of construction beginning. INNS surveys must be completed between May and August by an SQE, in order to identify the maximum extent of INNS present within the proposed development site or any work phase area. An updated INNS survey completed in August 2020 is acceptable to inform construction works initiating prior to May 2021. Should construction works begin after May 2021, the INNS survey must be conducted between May and August 2021;

ii. An INNS Management Plan will be produced prior to each phase of construction works, detailing the proposed methodology for removal and disposal of all INNS within each phase of the proposed development site. This will be produced in conjunction with a suitably qualified INNS removal specialist; and

iii. Any required measures stated within the INNS Management Plan will be incorporated into the CEMP for the construction of each phase of the proposed development.

Operation

D5.39 As INNS will be removed from the proposed development site prior to construction of each phase, it will therefore will not impact upon the proposed development at the operational stage.

Invertebrates

D5.40 As detailed invertebrate surveys have not been completed, there is potential for a number of invertebrate SoPIs [14] (beyond those identified separately below) to be present within the proposed development site.

Construction

D5.41 The proposed development does not feature any mitigation to prevent significant effects as a result of construction of the proposed development upon invertebrates. All areas of OMH, utilised by the invertebrate assemblage, will be lost.

D5.42 **As a result, there will be a significant adverse effect on the invertebrate assemblage at the county level.**

Operation

D5.43 As the proposed development would result in the loss of habitats that support this ecological feature, the operational phase of the proposed development will not impact upon this habitat.

Dingy Skipper

D5.44 A population of dingy skipper of regional importance is present within the proposed development site, mostly confined to OMH.

Construction

D5.45 The proposed development does not feature any mitigation to prevent significant effects as a result of construction of the proposed development upon dingy skipper. All areas of OMH, utilised by dingy skipper, will be lost.

D5.46 **As a result, there will be a significant adverse effect on dingy skipper at the regional level.**

Operation

D5.47 As the proposed development would result in the loss of habitats that support this ecological feature, the operational phase of the proposed development will not impact upon this habitat.

Grayling

D5.48 A population of grayling of local importance is present within the proposed development site, mostly confined to OMH.

Construction

D5.49 The proposed development does not feature any mitigation to prevent significant effects as a result of construction of the proposed development upon grayling. All areas of OMH, utilised by grayling, will be lost.

D5.50 **As a result, there will be a significant adverse effect on grayling at the local level.**

Operation

D5.51 As the proposed development would result in the loss of habitats that support this ecological feature, the operational phase of the proposed development would not impact upon this habitat.

Breeding Birds

D5.52 The breeding bird assemblage within the proposed development site features passerine species and waterbirds, within areas of suitable habitat to support these species. In addition, several breeding territories are held by Red- and Amber-listed BoCC [12] bird species.

Construction

D5.53 The proposed development does not feature any mitigation to prevent significant effects as a result of construction of the proposed development upon breeding birds. All areas of habitat utilised by breeding passerines (such as grasslands, and OMH) and waterbirds (wetland habitats) will be lost.

D5.54 The following mitigation will be incorporated in order to prevent potential a legal offence as a result of construction of the proposed development:

i. Any removal of trees, scrub, wetland habitats, or areas of grassland or OMH that may support nesting bird species has the potential to damage or destroy active nests. Where possible, vegetation should be removed outside of the nesting bird season (March to August inclusive). If vegetation removal has to be conducted within the breeding bird season (March to August, inclusive), a nesting bird check must be completed by an SQE immediately prior to vegetation works commencing. This is to be detailed within the CEMP.

D5.55 **As a result, there will be a significant adverse effect on the breeding bird assemblage at the county level.**

Operation

D5.56 As the proposed development would result in the loss of habitats that support this ecological feature, the operational phase of the proposed development would not impact upon this breeding birds. Low numbers of common urban bird species are likely to occur within the proposed development once operational, and so any future management of the proposed development should be aware of the potential presence of nesting birds and the legal protection they are afforded.

Shelduck

D5.57 Shelduck are a designated feature of the Teesmouth and Cleveland Coast SSSI. Four breeding pairs of shelduck have been recorded within the proposed development site during BBS.

Construction

D5.58 The proposed development does not feature any mitigation to prevent significant effects as a result of construction of the proposed development upon shelduck. All areas of wetland habitat, utilised by shelduck for breeding and foraging will be lost.

D5.59 Despite this localised effect upon shelduck, it is not considered that such an effect would significantly impact upon the Teesmouth and Cleveland Coast SSSI; an extensive shelduck population is understood to be present throughout the Teesmouth area and approximately 15,000 shelduck breeding pairs are recorded within the UK annually.

D5.60 The following mitigation will be incorporated in order to prevent potential a legal offence as a result of construction of the proposed development:

i. Any removal of wetland that may be utilised by breeding shelduck has the potential to damage or destroy active nests. Where possible, vegetation should be removed outside of the nesting bird season (March to August inclusive). If vegetation removal has to be conducted within the breeding bird season (March to August, inclusive), a nesting bird check must be completed by an SQE immediately prior to vegetation works commencing. This is to be detailed within the CEMP.

D5.61 **As a result, there will be a significant adverse effect on the population of shelduck of county importance.**

Operation

D5.62 As the proposed development would result in the loss of habitats that support this ecological feature, the operational phase of the proposed development would not impact upon shelduck.

Wintering Birds

D5.63 The wintering bird assemblage within the proposed development site is likely to feature passerine species and waterbirds within areas of suitable habitat to support these species.

Construction

D5.64 The proposed development does not feature any mitigation to prevent significant effects as a result of construction of the proposed development upon wintering birds. All areas of habitat utilised by wintering passerines (such as grasslands and OMH) and wintering waterbirds (wetland habitats) will be lost. **As a result, there will be a significant adverse effect on the wintering bird assemblage at the county level.**

Operation

D5.65 As the proposed development would result in the loss of habitats that support this ecological feature, the operational phase of the proposed development would not impact upon the wintering bird assemblage. Low numbers of common urban bird species are likely to occur within the operational proposed development.

D5.66 Any future management of the proposed development must be aware of the potential presence of nesting birds. Legal protection is afforded to all breeding bird species, their nests, their eggs, and their young through the WCA [2].

Bats

D5.67 Bats are likely to utilise the proposed development site for foraging and commuting, likely limited to common species. There are no roosting opportunities within the proposed development site for bats.

Construction

D5.68 No mitigation is proposed for the loss of foraging and commuting habitat utilised by the local bat population, as no habitat enhancement or creation is included within the proposed development site.

D5.69 The following mitigation is to be incorporated in order to prevent significant effects upon any population of bats present as a result of construction of the proposed development:

i. Lighting of the construction area will be reduced to as low a level as possible during night-time hours (it is assumed security lighting will be provided on site) and directed away from the River Tees or areas of potential foraging habitat within or adjacent to the construction area. This is in order to prevent any impact upon foraging and commuting bats within the locality. This will be specified in the CEMP.

D5.70 The loss of habitat which is likely to support only low numbers of foraging common bat species will not affect the integrity of the local bat population. **As a result, the proposed development will not result in a significant adverse effect on the locally important bat population.**

Operation

D5.71 It is likely that low numbers of bats would utilise the proposed development site, due to a lack of foraging and commuting habitat present within the operational proposed development site.

D5.72 The following mitigation is to be incorporated in order to prevent significant effects upon any residual population of bats as a result of operation of the proposed development:

i. Lighting columns to be installed as part of the proposed development have the potential to cause light spill into the surrounding environment and could impact upon bats foraging and commuting throughout the proposed development site and its surrounds. Where possible, lighting columns within the proposed development will only transmit light downwards on to paths and be installed with shielding that prevents back-spill of light. This will be detailed within a lighting strategy for the operation of each phase of the proposed development and should be reviewed by an SQE.

Otter

D5.73 Otter have the potential to be in close proximity to the proposed development site, as this species utilises the River Tees for foraging and commuting, however there is no suitable holting habitat within the proposed development site.

Construction

D5.74 The following mitigation will be incorporated in order to prevent significant effects as a result of construction of the proposed development:

i. Construction works along the north-western boundary of the proposed development site within 10m of less of the River Tees are to be screened, to reduce the visual and noise impacts upon otter that utilise the River Tees for foraging and commuting. Screening will involve use of opaque barriers, which would also prevent site operatives from unnecessary access to the riverbank. This will be detailed in the CEMP and reviewed by an SQE.

D5.75 **As a result, the proposed development will not result in a significant adverse effect on the locally important otter population.**

Operation

D5.76 It is not considered that the operational phase of the proposed development will impact upon otter.

Marine Mammals

D5.77 Harbour seal (a designated feature of the Teesmouth and Cleveland Coast SSSI) and grey seal have the potential to be in close proximity to the proposed development site, as these species utilise the River Tees for foraging and commuting.

Construction

D5.78 The following mitigation will be incorporated in order to prevent significant effects as a result of construction of the proposed development:

i. Construction works along the north-western boundary of the proposed development site within 10m of less of the River Tees are to be screened, to reduce the visual and noise impacts upon otter that utilise the River Tees for foraging and commuting. Screening will involve use of opaque barriers, which would also prevent site operatives from unnecessary access to the riverbank. This will be detailed in the CEMP and reviewed by an SQE.

D5.79 **As a result, the proposed development will not result in a significant adverse effect on the locally important marine mammals.**

Operation

D5.80 It is not considered that the operational phase of the proposed development will impact upon harbour seal or grey seal.

Migratory Fish

D5.81 Migratory fish have been scoped into the assessment based on potential impacts upon species present within the River Tees as a result of indirect effects from construction of the proposed development site.

Construction

D5.82 The following mitigation is incorporated in order to prevent significant effects as a result of construction of the proposed development:

i. Construction of the proposed development will abide by a CEMP, which will outline measures to prevent sediment, dust, surface water run-off, or any other substance relating to construction from entering the River Tees. This document will be reviewed by an SQE.

D5.83 **As a result, the proposed development will not result in a significant adverse effect on the locally important migratory fish.**

Operation

D5.84 It is not considered that the operational phase of the proposed development will impact upon migratory fish.

Brown Hare

D5.85 A significant brown hare population is present within the proposed development site, supported by the significant area grassland and OMH habitat which facilitate the foraging and breeding efforts of the species.

Construction

D5.86 The proposed development does not feature any mitigation to prevent significant effects as a result of construction of the proposed development upon brown hare. All areas of habitat utilised by brown hare will be lost. **As a result, the proposed development will result in a significant adverse effect on the brown hare population at the county level.**

Operation

D5.87 As the proposed development will result in the loss of habitats that support this ecological feature, the operational phase of the proposed development would not impact upon this species.

Hedgehog

D5.88 No detailed information relating to hedgehog presence within the proposed development site is available, however it is considered likely that a population of hedgerow utilise the proposed development site due to availability of supporting habitats.

Construction

D5.89 The following mitigation is incorporated in order to prevent significant effects as a result of construction of the proposed development:

i. Any hedgehog found within the works areas will be moved away to a safe and sheltered location. This process will be described in a CEMP and reviewed by an SQE. Assistance will be sought for any injured hedgehog found during the works; and

ii. As a precaution, deep trenches and excavations dug across the proposed development site will be covered overnight or be left with a plank or similar material with a slope no more than 45°, in order to allow hedgehog and small mammals to exit trenches or excavations if they fall in. This will also be detailed in the CEMP.

D5.90 **As a result, the proposed development will not result in a significant adverse effect on the hedgehog population at the local level.**

Operation

D5.91 It is not considered that the operational phase of the proposed development will impact upon hedgehog.

Summary of Impacts, Mitigation and Residual Effects

D5.92 Table D5.1 provides a summary of the impacts, any mitigation proposed within the proposed development, and the significance of any residual effects for each feature scoped into this assessment following the enactment of mitigation.

Table D5.1: Summary of impacts, mitigation proposed and significance of any residual effects.

Feature	Impact	Characterisation of Unmitigated Impact on the Feature	Effect without Mitigation	Mitigation	Significance of Residual Effects
Teesmouth and Cleveland Coast SPA and Ramsar	Pollution of riverine environment during construction	Indirect pollution as a result of sediment, dust, and other construction-related substances entering River Tees.	Major negative effect at an international level	Direction of sediments and contaminated liquids away from River Tees during construction and operation. Employment of CEMP which will describe measures to prevent sediment and dust entering the River Tees.	Negligible effect
	Increased light-spill into riverine environment during construction and operation	Illumination of River Tees by unshielded lighting, both during construction and operation.	Moderate negative effect at an international level	Directional lighting during construction and operation, with shielding measures to reduce light spill onto the River Tees.	Negligible effect
Teesmouth and Cleveland Coast SSSI	Pollution of riverine environment during construction	Indirect pollution as a result of sediment, dust, and other construction-related substances entering River Tees.	Major negative effect at a national level	Direction of sediments and contaminated liquids away from River Tees during construction and operation. Employment of CEMP which will describe measures to prevent sediment and dust entering the River Tees.	Negligible effect
	Increased light-spill into riverine environment during construction and operation	Illumination of River Tees by unshielded lighting, both during construction and operation.	Moderate negative effect at a national level	Directional lighting during construction and operation, with shielding measures to reduce light spill onto the River Tees.	Negligible effect
Open Mosaic Habitat	Loss of OMH as a result of construction	Loss of OMH across the proposed development site, in order to facilitate the proposed development. Existing OMH within the proposed development site features varying substrates, and varying levels of bare ground and vegetative cover.	Major negative effect at a county level	No mitigation proposed. No habitat enhancement or creation will occur in order to reinstate lost OMH. Floral and faunal ecological features that utilise OMH would be impacted, in addition to the habitat lost.	Major negative effect at a county level

Feature	Impact	Characterisation of Unmitigated Impact on the Feature	Effect without Mitigation	Mitigation	Significance of Residual Effects
Lowland Calcareous Grassland	Loss of all lowland calcareous grassland as a result of construction	Loss of calcareous grassland within the proposed development site. Lowland calcareous habitat is limited to moderate quality habitat, with only small areas of habitat present throughout the proposed development site, in isolated spots.	Major negative effect at a county level	No mitigation proposed. No habitat enhancement or creation will occur in order to reinstate lost lowland calcareous grassland.	Major negative effect at a county level
Broadleaved Woodland	Loss of all broadleaved trees as a result of construction	Loss of broadleaved woodland within the proposed development site. Broadleaved woodland is limited to poor quality habitat, with only small areas of young broadleaved trees present.	Major negative effect at a local level	No mitigation proposed. No habitat enhancement or creation will occur in order to reinstate lost broadleaved woodland.	Major negative effect at a local level
Open Waters	Loss of all open water features as a result of construction	Loss of the Cleveland Channel, Lackenby Channel, and the watercourse within The Slems as a result of infilling all waterbodies and watercourses within the proposed development site.	Major negative effect at a local level	No mitigation proposed. No new waterbodies, watercourses, or wetland features will be created to mitigate the loss of open water features.	Major negative effect at a local level
Saltmarsh	Loss of saltmarsh as a result of construction	Loss of open water features and wetland habitats surrounding The Slems will cause loss of all saltmarsh. Saltmarsh is present in small areas, however saltmarsh is an irreplaceable habitat.	Major negative effect at a regional level	No mitigation proposed. No mitigation for loss of saltmarsh (an irreplaceable habitat), such as compensatory intertidal mud creation or enhancement will be provided.	Major negative effect at a regional level
Intertidal Mud	Loss of intertidal mud as a result of construction	Loss of open water features and wetland habitats surrounding The Slems will cause loss of all intertidal mud. Intertidal mud is present in small areas due to tidal influence, however intertidal mud is a rare habitat in low abundance in heavily modified rivers (such as the River Tees) and their tributaries.	Major negative effect at a county level	No mitigation proposed. No habitat enhancement or creation will occur in order to reinstate intertidal mud.	Major negative effect at a county level

Feature	Impact	Characterisation of Unmitigated Impact on the Feature	Effect without Mitigation	Mitigation	Significance of Residual Effects
Reedbed	Loss of reedbeds as a result of construction	Loss of open water features and wetland habitats surrounding The Slems will cause loss of all reedbed habitat. Reedbed is present in small areas, in relatively poor condition.	Major negative effect at a regional level	No mitigation proposed. No habitat enhancement or creation will occur in order to reinstate reedbeds.	Major negative effect at a regional level
Invasive Non-native Species	Spread of INNS as a result of disturbance to species	Continued reduction of biodiversity value of proposed development site as a result of further spread of INNS. Spread of INNS on to land outwith land ownership boundary of the proposed development.	Moderate negative effect at a local level; Potential legal offence	Updated INNS survey of each phase of the proposed development site. Production of INNS Management Plan for each phase of the proposed development prior to construction.	Minor positive effect
Invertebrates	Loss of foraging and breeding resource for the invertebrate assemblage	Loss of habitat supportive of foraging and breeding invertebrates.	Moderate negative effect at a county level	No mitigation proposed. No habitat enhancement or creation will occur in order to reinstate supporting habitats.	Moderate negative effect at a county level
Dingy Skipper	Loss of foraging and breeding resource for dingy skipper	Loss of habitat supportive of foraging and breeding dingy skipper.	Major negative effect at a regional level	No mitigation proposed. No habitat enhancement or creation will occur in order to reinstate supporting habitats.	Major negative effect at a regional level
Grayling	Loss of foraging and breeding resource for grayling	Loss of habitat supportive of foraging and breeding grayling.	Major negative effect at a local level	No mitigation proposed. No habitat enhancement or creation will occur in order to reinstate supporting habitats.	Major negative effect at a local level
Breeding Birds	Loss of breeding and foraging habitats of passerine and waterbird species	Loss of woodland, scrub, grasslands, OMH, and wetland habitats resulting in the loss of mostly all passerine and waterbird species present within the proposed development site.	Moderate negative effect at a county level	No mitigation proposed. No habitat enhancement or creation will occur in order to reinstate supporting habitats. Only common urban bird species are likely to utilise the operational proposed development site.	Moderate negative effect at a county level
	Potential harm to breeding birds and/or destruction of nests	Unmitigated removal of trees, scrub, grasslands or OMH results in potential impact upon nesting birds, and/or cause damage/destruction of a nest, and/or	Moderate negative effect at a county level;	Vegetation clearance undertaken outside the breeding season (March to August inclusive). If this is not possible, a nesting	Negligible effect

Feature	Impact	Characterisation of Unmitigated Impact on the Feature	Effect without Mitigation	Mitigation	Significance of Residual Effects
		cause harm/destruction to young and/or eggs.	Potential legal offence	bird check by SQE immediately prior to vegetation removal works.	
Shelduck	Loss of breeding and foraging habitats	Loss of wetland habitats resulting in the loss of suitable breeding and foraging locations present within the proposed development site.	Moderate negative effect at a county level	No mitigation proposed. No habitat enhancement or creation will occur in order to reinstate supporting habitats. Shelduck are highly unlikely to utilise the operational proposed development site.	Moderate negative effect at a county level
	Potential harm to breeding birds and/or destruction of nests	Unmitigated removal of wetland habitat impact upon nesting shelduck, and/or cause damage/destruction of a nest, and/or cause harm/destruction to young and/or eggs.	Moderate negative effect at a county level; Potential legal offence	Vegetation clearance undertaken outside the breeding season (March to August inclusive). If this is not possible, a nesting bird check by SQE immediately prior to vegetation removal works.	Negligible effect
Wintering Birds	Loss of foraging habitats of passerine and waterbird species	Loss of woodland, scrub, grasslands, OMH, and wetland habitats resulting in the loss of mostly all passerine and waterbird species present within the proposed development site.	Moderate negative effect at a county level	No mitigation proposed. No habitat enhancement or creation will occur in order to reinstate supporting habitats. Only common urban bird species are likely to utilise the operational proposed development site.	Moderate negative effect at a county level
Bats	Loss of foraging and commuting habitats utilised by bat species	Loss of woodland, scrub, grasslands, OMH, and wetland habitats resulting in the loss of foraging and commuting habitats within the proposed development site, likely utilised by relatively low numbers of common bat species.	Negligible effect	No mitigation proposed. No habitat enhancement or creation will occur in order to reinstate supporting habitats. It is likely that a reduced population of bats would utilise the operational proposed development site.	Negligible effect
	Disturbance of species by light-spill	Lighting columns have the potential to disturb bats via light spill, and impact upon commuting and foraging ability within the proposed development site and its surrounds.	Minor negative effect at a local level	Lighting used during construction and operation will be directed away from suitable areas of foraging habitat and be shielded to prevent light-spill.	Negligible effect
Otter	Disturbance to otter utilising riverine habitat	Noise and vibration originating from the construction and operation of the proposed development indirectly impacts upon otters present in the River Tees.	Minor negative effect at a local level;	Screening of any construction works occurring within 10m of the River Tees with an opaque barrier in order to reduce visual and noise impacts upon the river.	Negligible effect

Feature	Impact	Characterisation of Unmitigated Impact on the Feature	Effect without Mitigation	Mitigation	Significance of Residual Effects
			Potential legal offence		
Marine Mammals	Disturbance to marine mammals utilising riverine habitat	Noise and vibration originating from the construction and operation of the proposed development indirectly impacts upon harbour seal and grey seal present in the River Tees.	Minor negative effect at a local level	Screening of any construction works occurring within 10m of the River Tees with an opaque barrier in order to reduce visual and noise impacts upon the river.	Negligible effect
Migratory Fish	Potential harm of species as a result of construction-related pollution events	Pollution of the River Tees as a result of construction, which has the potential to harm migratory fish commuting through the river.	Minor negative effect at a local level	Employment of CEMP during construction which will describe measures to prevent sediment and dust entering the river.	Negligible effect
Brown Hare	Loss of foraging and breeding resource for brown hare	Loss of grassland and OMH habitat supportive of foraging and breeding brown hare.	Moderate negative effect at a county level	No mitigation proposed. No habitat enhancement or creation will occur in order to reinstate supporting habitats.	Moderate negative effect at a county level
Hedgehog	Potential harm of species during construction	Uncovered dug trenches and excavations could cause hedgehog harm or death.	Minor negative effect at a local level	Cover trenches overnight or include escape measure in dug trenches and excavations.	Negligible effect

D6.0 Compensation, Enhancement and Monitoring

Compensation

D6.1 Compensation describes measures implemented to reduce any residual effects resulting in the loss of, or permanent damage to, ecological features despite mitigation. In BNG terms, compensation could be described as achieving '**No Net Loss**' in biodiversity.

D6.2 Due to the nature of the proposals and the practical constraints to providing mitigation within the proposed development, significant residual effects remain which require compensatory measures to alleviate. Offsite compensation will be necessary. The approach for this will be detailed in the forthcoming South Tees Regeneration Masterplan Environment & Biodiversity Strategy, which will coordinate the offsite compensation approach for all applicable developments in the wider STDC site.

D6.3 Compensation for any habitats that are to be lost due to the proposed development, should be undertaken with the aim to provide habitats with the same or greater ecological function and/or diversity to the habitat that is lost.

D6.4 Compensatory measures will be required in relation to the following aspects:

i. Loss of all areas of HoPI within the proposed development site. HoPI lost from the proposed development site are: OMH; lowland calcareous grassland; broadleaved woodland; open waters; saltmarsh; intertidal mud; and reedbed. Of these habitats, open water features, saltmarsh and intertidal mud habitats are likely to require bespoke like-for-like compensation due to the importance placed on these habitats;

ii. Loss of resources for protected and notable species or species assemblages within the proposed development site. Such species or species assemblages are: invertebrates; breeding birds (including shelduck); wintering birds; bats; and brown hare.

iii. To address the significant residual effects concluded in this assessment, the South Tees Regeneration Masterplan Environment & Biodiversity Strategy for the wider STDC site will identify opportunities for compensation in the STDC area and beyond for a range of measures, including:

   i Offsite habitat creation or enhancement to provide replacement areas of lost OMH, calcareous grassland, broadleaved woodland, grasslands, and reedbed habitats. Such compensatory habitat creation or enhancement may also target provision of compensatory resource for invertebrates, breeding and wintering birds, foraging and commuting bats, and brown hare; and

   ii Bespoke, like-for-like creation of wetland habitats that will be lost within the proposed development site, including the loss of open water, saltmarsh, and intertidal mud.

D6.5 Extent and location of compensatory habitat creation and enhancements must be agreed with NE and RCBC. Consultation and collaboration with NE must occur in order to inform the provision of compensatory open water, saltmarsh, and intertidal mud habitats, due to their complexity in recreation. It is anticipated that such discussions will take place as part of the wider consultation in relation to the South Tees Regeneration Masterplan Environment & Biodiversity Strategy.

Enhancement

D6.6 Enhancement is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures. Enhancement could be described as '**Biodiversity Net Gain**'.

D6.7 It is important that development is sustainable and that projects produce a net gain for biodiversity and nature conservation. National planning policy [3] requires the inclusion of measures to enhance biodiversity within development proposals.

D6.8 Offsite compensation will be necessary to achieve a BNG for this proposed development. The approach for this will be detailed in the forthcoming South Tees Regeneration Masterplan Environment & Biodiversity Strategy, which will coordinate the offsite compensation approach for all developments in the wider STDC site.

Monitoring

D6.9 A targeted, long-term ecological monitoring and maintenance plan will be produced by an SQE, in collaboration with RCBC. This plan will identify any created or enhanced habitats installed as compensation for habitat loss or as enhancement features, describe a monitoring methodology to be implemented for the duration of the plan, identify the timescales for monitoring, and describe the methods for maintenance.

D6.10 Monitoring will be undertaken by an SQE, and will include, but is not limited to, the following:

i. Monitoring of all compensatory habitat creation and enhancement provided, in order to ascertain successful establishment of compensatory habitats, and prescribe corrective actions to ensure target habitat condition; and

ii. Monitoring of all compensatory measures for protected and notable species provided. This may include species-specific surveys to ensure uptake of compensatory measures by target protected and notable species.

D6.11 The post-construction monitoring and maintenance plan should be produced prior to the commencement of construction. Once operational, a monitoring report should be produced at specified intervals and shared with the RCBC.

D7.0 Biodiversity Net Gain Assessment

D7.1 Policy N4 of the RCBC Local Plan states that “wherever possible developments should provide 'net gains' in the value of biodiversity” [5[6]]. This is also reflected within Paragraph 170(d) of national planning policy, which states that “Planning policies and decisions should contribute to and enhance the natural and local environment by… minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.” [3].

D7.2 Emerging legislation [**Error! Bookmark not defined.**], [32], and the forthcoming South T ees Regeneration Masterplan Environment & Biodiversity Strategy, state that a 10% net gain of biodiversity must be achieved.

D7.3 All semi-natural habitats have an ecological value, and collectively the total value of habitats classed in EcIA terms as ‘not important’, is important. The BNG assessment enables a valuation of all semi-natural habitats within the proposed development site.

D7.4 This provides a baseline from which the achievement of true BNG can be measured.

D7.5 The BNG baseline calculations were undertaken using the NE BM2.0 to inform approximate habitat areas required for future developments to mitigate and compensate for the loss of semi-natural habitats as a result of the proposed development, aiming to achieve a biodiversity net gain.

D7.6 To provide further clarity, further details of the BM2.0 methodology, including clarifications on habitat classifications, Tees Valley adaptations of condition criteria, the connectivity tool and the River Metric are provided in Appendix D8 and Appendix D9.

Calculation of Biodiversity Units

D7.7 Table D7.1 and Table D7.2 outline the baseline summary of the BNG assessment of the proposed development site, for habitat areas and rivers.

D7.8 The ‘Suggestion Action’ column in Table and Table refers to the required compensatory action that would be required to compensate for the loss of each respective habitat present within the proposed development site, under BM2.0 guidance [1818], [19].

Table D7.1: Total valuation of habitats – summary of Biodiversity Net Gain Assessment: **Habitats Baseline**. Note: Habitat names may different from those described in this document based on the habitat name attributed to each habitat in BM2.0. 'Ref. Code' refers to unique individual parcels of land entered into the BM2.0.

Habitat Type	Ref. Code	Area (ha)	Distinctiveness	Condition	Connectivity	Strategic Significance	Habitat Units	Suggested Action
Open water - oligotrophic	1	1.99	High	Fairly Poor	Low	Medium	19.75	Same habitat required
Grassland - Modified grassland	2	14.42	Low	Fairly Poor	Low	Low	43.26	Same distinctiveness or better habitat required
Grassland - Other neutral grassland	3	0.13	Medium	Fairly Good	Low	Low	1.29	Same broad habitat or a higher distinctiveness habitat required
Grassland - Other neutral grassland	4	10.83	Medium	Fairly Poor	Low	Low	64.97	Same broad habitat or a higher distinctiveness habitat required
Grassland - Other neutral grassland	5	0.32	Medium	Good	Low	Low	3.82	Same broad habitat or a higher distinctiveness habitat required
Grassland - Other neutral grassland	6	4.93	Medium	Poor	Low	Low	19.70	Same broad habitat or a higher distinctiveness habitat required
Heathland and shrub - Mixed scrub	7	0.69	Medium	Fairly Poor	Low	Low	4.11	Same broad habitat or a higher distinctiveness habitat required
Open water - oligotrophic	8	0.53	High	Fairly Poor	Low	Medium	5.29	Same habitat required
Open water - oligotrophic	9	0.21	High	Poor	Low	Medium	1.39	Same habitat required
Sparsely vegetated land - Ruderal/Ephemeral	10	1.95	Low	Fairly Good	Low	Medium	10.71	Same distinctiveness or better habitat required
Sparsely vegetated land - Ruderal/Ephemeral	11	0.40	Low	Fairly Poor	Low	Medium	1.33	Same distinctiveness or better habitat required
Sparsely vegetated land - Ruderal/Ephemeral	12	8.41	Low	Moderate	Low	Medium	36.99	Same distinctiveness or better habitat required
Urban - Artificial unvegetated, unsealed surface	13	20.34	Very Low	N/A - Other	N/A	Low	0.00	Compensation Not Required
Urban - Developed land; sealed surface	14	44.15	Very Low	N/A - Other	N/A	Low	0.00	Compensation Not Required
Urban - Open Mosaic Habitats on Previously Developed Land	15	1.59	High	Fairly Good	Medium	Medium	28.92	Same habitat required

Habitat Type	Ref. Code	Area (ha)	Distinctiveness	Condition	Connectivity	Strategic Significance	Habitat Units	Suggested Action
Urban - Open Mosaic Habitats on Previously Developed Land	16	1.60	High	Fairly Poor	Medium	Medium	17.40	Same habitat required
Urban - Open Mosaic Habitats on Previously Developed Land	17	0.81	High	Moderate	Medium	Medium	11.77	Same habitat required
Open water - oligotrophic	18	0.64	High	Good	Low	Medium	12.64	Same habitat required
Wetland - Reedbeds	19	0.33	High	Poor	Low	Medium	2.16	Same habitat required
Woodland and forest - Other woodland; broadleaved	20	0.90	Medium	Fairly Poor	Low	Medium	5.96	Same broad habitat or a higher distinctiveness habitat required
Grassland - Modified grassland	21	1.42	Low	Moderate	Low	Low	5.70	Same distinctiveness or better habitat required
Grassland - Lowland calcareous grassland	22	1.85	High	Moderate	Low	Low	22.25	Same habitat required
Open water - oligotrophic	23	0.31	High	Moderate	Low	Medium	4.05	Same habitat required
Woodland and forest - Other woodland; broadleaved	24	0.79	Medium	Moderate	Low	Medium	6.95	Same broad habitat or a higher distinctiveness habitat required
Grassland - Other neutral grassland	25	5.12	Medium	Moderate	Low	Low	40.99	Same broad habitat or a higher distinctiveness habitat required
Total Baseline Habitat Units:							**371.39**	

Table D7.2: Total valuation of habitats – summary of Biodiversity Net Gain Assessment: **Rivers Baseline**

River Type	Approximate Length (km)	Distinctive-ness	Condition	Strategic Significance	River Units	Suggested Action
Cleveland Channel – Class 4 – River Naturalness Assessment	1.0	Medium (4)	Moderate (3)	Low potential/ action not identified in any plan (1)	12	Avoid
Lackenby Channel – Class 4 – River Naturalness Assessment	1.0	Medium (4)	Moderate (3)	Low potential/ action not identified in any plan (1)	12	Avoid
Total Baseline River Units:					**24**	

Summary

D7.9 As the entire proposed development site will likely be lost as a result of the proposed development, it has been assumed that all habitats within the proposed development site will be removed. Therefore, without mitigation, **the proposed development is likely to result in a biodiversity loss of 371.39 biodiversity units.**

D7.10 The proposed development site has a baseline of **24 river units**. It is anticipated that **these will be lost** as a result of the proposed development.

D7.11 Offsite compensation is required to achieve a BNG. The approach for this will be detailed in the forthcoming South Tees Regeneration Masterplan Environment & Biodiversity Strategy, which will coordinate the offsite (within the Masterplan boundary, or within the wider Tees Valley) compensation approach for all developments in the wider STDC site.

D8.0 Conclusions

D8.1 This assessment has considered potential impacts upon ecological features as a result of the proposed development, including potential effects from construction and operation of the proposed development.

D8.2 **Following the implementation of the mitigation stated, significant residual effects upon ecological features are still anticipated**. Of note, effects at a regional level will occur in relation to invertebrates, and at a county level in relation to OMH, high-value wetland habitats, and brown hare.

D8.3 Residual impacts anticipated as a result of the proposed development are:

i. OMH – negative effect at a county level;
ii. Lowland Calcareous Grassland – negative effect at a county level;
iii. Broadleaved Woodland – negative effect at a local level;
iv. Open Water – negative effect at a local level;
v. Saltmarsh – negative effect at a regional level;
vi. Intertidal Mud – negative effect at a county level;
vii. Reedbed – negative effect at a regional level;
viii. Invertebrates – negative effect at a county level;
ix. Dingy Skipper - negative effect at a regional level;
x. Grayling - negative effect at a local level;
xi. Breeding Birds – negative effect at a county level;
xii. Shelduck – negative effect at a county level;
xiii. Wintering Birds – negative effect at a county level; and
xiv. Brown Hare – negative effect at a county level.

D8.4 Defra's BM2.0 was utilised to assess the anticipated loss and gain of biodiversity units associated within the proposed development. It is anticipated that significant **biodiversity net loss** will result as a result of the proposed development, largely due to the lack of any habitat being retained or enhanced.

D8.5 Significant compensatory measures will be implemented in order to mitigate the residual impacts anticipated as a result of the proposed development. Compensatory measures will require extensive offsite habitat creation and enhancement, as well as species-specific compensation for faunal ecological features impacted. This compensation will be identified within the South Tees Regeneration Masterplan Environment & Biodiversity Strategy with the extent and location of compensatory habitat creation and enhancements agreed with NE and RCBC. It is anticipated that these compensatory measures will mean the proposed development results in a biodiversity net gain.

Recommendations

D8.6 At the time of writing this assessment, WBS data of the proposed development site was not available to inform the impact assessment due to timing of the application.

D8.7 Further work is also currently on going in the form of an invertebrate survey of the intertidal mud which provide additional data inform the level offsite habitat creation and enhancement for wintering birds. In due course the offside habitat creation and enhancement measures will be informed by, where possible, WBS between November 2020 and March 2021.

D8.8 At the time of writing this assessment, one open water feature within The Slems wetland area was identified as 'brackish'. Although there is confidence in this conclusion, given the potential implications of a waterbody formed from a tidal influence, on a precautionary basis water sampling has been undertaken to confirm salinity levels. The results are due to be received in July 2020 and the laboratory report will be submitted as an addendum to the ES.

D9.0 Abbreviations & Definitions

1	BBS	Breeding Bird Survey
2	BM2.0	Defra Biodiversity Metric 2.0
3	BNG	Biodiversity Net Gain
4	BoCC	Birds of Conservation Consern
5	BTO	British Trust for Ornithology
6	cSAC	candidate Special Area of Conservation
7	CEnv	Chartered Environmentalist
8	CEMP	Construction Environmental Management Plan
9	CIEEM	Chartered Institute of Ecology and Environmental Management
10	Defra	Department for Environment, Food & Rural Affairs
11	EcIA	Ecological Impact Assessment
12	ERIC NE	Environmental Records Information Centre North East
13	ES	Environmental Statement
14	F+G	Faithful and Gould
15	ha	Hectare(s)
16	Habitats Regulations	The Conservation of Habitats and Species Regulations 2017
17	HoPI	Habitat of Principal Importance
18	HRA	Habitats Regulations Assessment
19	INCA	Industry Nature Conservation Associated
20	INNS	Invasive Non-native Species
21	JNCC	Joint Nature Conservation Committee
22	LBAP	Local Biodiversity Action Plan
23	LNR	Local Nature Reserve
24	LWS	Local Wildlife Site
25	NE	Natural England
26	NERC Act	Natural Environment and Rural Communities Act 2006
27	NNR	National Nature Reserve
28	NPPF	National Planning Policy Framework
29	NSIP	Nationally Significant Infrastructure Project
30	OMH	Open Mosaic Habitats
31	PEA	Preliminary Ecological Appraisal
32	pSPA	proposed Special Protection Area
33	RCBC	Redcar and Cleveland Borough Council
34	SAC	Special Area of Conservation
35	SoPI	Species of Principal Importance

36	STDC	South Tees Development Corporation
37	SPA	Special Protection Area
38	SPD	Supplementary Planning Document
39	SQE	Suitably Qualified Ecologist
40	SSSI	Site of Special Scientific Interest
41	WBS	Wintering Bird Survey
42	WCA	Wildlife and Countryside Act 1981 (as amended)
43	WeBS	Wetland Bird Survey
44	ZoI	Zone of Influence

D10.0 References

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[2] The National Archives: Wildlife & Countryside Act 1981 http://www.legislation.gov.uk/ukpga/1981/69 Accessed 8 June 2018.

[3] National Archives: Natural Environment and Rural Communities Act 2006. http://www.legislation.gov.uk/ukpga/2006/16/contents Accessed 8 June 2020.

[4] Environment Bill. Available: https://publications.parliament.uk/pa/bills/cbill/2019-2019/0003/cbill_2019-20200003_en_1.htm Accessed 8 June 2020.

[5] Redcar & Cleveland Borough Council [RCBC] (May 2018) Local Plan Adopted May 2018. https://www.redcar-cleveland.gov.uk/resident/planning-and-building/strategic%20planning/Documents/Local%20Plan%20Adopted%20May%202018.pdf Accessed 8 June 2020.

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[8] Tees Valley Nature Partnership (2018) Tees Valley Local Biodiversity Species. https://teesvalleynaturepartnership.org.uk/wp-content/uploads/2019/05/TV-Local-Biodiversity-species-list.pdf Accessed 8 June 2020.

[9] At the time of writing this assessment, it was understood that no valid, updated Local Biodiversity Action Plan (LBAP) covers the RCBC local authority, or the Tees Valley region. See Appendix D1 for further information.

[10] Tees Valley Nature Partnership (2010) Guidelines for the Selection of Local Wildlife Sites (LWS) in the Tees Valley. Available: https://teesvalleynaturepartnership.org.uk/wp-content/uploads/2012/11/LWS-Guidelines-V7.pdf Accessed 8 June 2020.

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[14] As listed on Schedule 41 of the Natural Environment and Rural Communities Act 2006.

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[18] Natural England (2019) The Biodiversity Metric 2.0: Auditing and accounting for biodiversity value. Calculation tool: Short guide.

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[26] Ramsar sites do not typically include watercourses or marine areas, and therefore only overlap with the terrestrial habitat designated under the corresponding SPA site.

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[30] Levels of importance were determined by professional judgment.

[31] Pers. comm. with Mike Leakey, INCA. 30 June 2020.

[32] The Environment Bill is a piece of emerging legislation which details the 'provision for biodiversity gain to be a condition of planning permission in England' within Section 88 of the Bill. The Bill is pending Royal Ascent and is therefore not yet adopted legislation at the time of issue of this report. The Bill is therefore also subject to change.