South Tees Development Corporation

Eston Road Highway Scheme

Ecological Impact Assessment and Biodiversity Net Gain Assessment

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Executive Summary

Ove Arup and Partners Ltd (Arup) have been commissioned by South Tees Development Corporation (STDC) to complete an Ecological Impact Assessment (EcIA) in connection with a planning application for the proposed development of Eston Road and associated roundabout and road links. The proposed development site is approximately 5.26ha and is situated within the wider STDC area in the land zone area referred to as Grangetown Prairie. The proposed development site consists of Eston Road, the eastern end of Middlesbrough Road East and the junction of Eston Road and the A66.

A desk study identified all internationally and nationally designated sites within 5km, non-statutory designated sites within 2km and protected and notable species within or immediately adjacent to the proposed development site.

An ecological walkover of the proposed development site was undertaken on 12 May 2020 to update and clarify the existing Preliminary Ecological Appraisal (PEA) habitat data within the proposed development site.

The proposed development site does not have any designated nature conservation sites within or immediately adjacent to the red line boundary, however, there are designated nature conservation sites within 2-5km of the proposed development site. These comprise of the Teesmouth and Cleveland Coast Special Protection Area (SPA), Ramsar site, National Nature Reserve (NNR) and Site of Special Scientific Interest (SSSI). All of these designated sites were scoped in for further assessment.

The proposed development site does not have any habitats of principle importance (HoPI) for nature conservation and therefore they were all scoped out of further assessment. The habitats within the proposed development site do provide suitable habitat for the Species of Principle Importance (SoPI) common toad (*Bufo bufo*), brown hare (*Lepus europeaus*), dingy skipper (*Erynnes tages*) and grayling butterfly (*Hipparche semele*). All of these species were scoped in for further assessment.

Although the individual habitats within the proposed development site are not assessed further within the EcIA, the collective loss of them is considered significant in terms of a Biodiversity Net Gain (BNG) assessment.

Due to the potential for an impact to an internationally important site a Habitats Regulations Assessment (HRA) has been completed. The report concluded there will be no adverse effects on the Teesmouth and Cleveland Coast SPA and Ramsar as a result of the proposed development. Other than the Construction Environmental Management Plan (CEMP), no other specific mitigation is deemed required. With the implementation of these mitigation measures to control the impact of construction related pollution on the SPA and Ramsar, these mitigation measures are considered sufficient to ensure the proposed development works do not impact the SSSI and NNR.

Due to the small area of sub-optimal grassland and scrub habitat within the proposed development site, it is considered that there will be no significant impact

to the locally important populations of common toad, brown hare, dingy skipper and grayling butterfly.

As retention and protection of any habitats within the proposed development site cannot be guaranteed, it has been assumed that all habitats within the red line boundary will be lost during the construction of the proposed development and habitat creation will be required.

In order to seek to achieve net gains for biodiversity wherever possible (in accordance with Local Plan Policy N4, the South Tees Area Supplementary Planning Document (SPD) and the National Planning Policy Framework,, and applying definitions from the UK Habitat Classification system[37], habitats have been incorporated into the indicative landscape design, where feasible. These habitats are Grassland – Other Neutral, Heathland and Scrub- Mixed and Urban-Amenity Grassland.

Further enhancements include the daylighting of the Holme Beck and creation of a moderate watercourse from the removal of the vertical stone banks, with more naturally sloped and vegetated banks.

With the creation of the habitats, a net loss of 23.86% in habitat area is expected within the proposed development site. With the enhancement of Holme Beck to moderate condition a net gain of greater than 10% in rivers is expected.

The loss in habitat area and subsequent loss in biodiversity should be considered and addressed by future developers and planning applications on the adjacent land within the Grangetown Prairie site where possible.

It is recommended that:

- The proposed development site is managed through a CEMP;
- The neutral grassland includes tussocky grass species that provide suitable breeding habitat for butterflies;
- Scrub habitat is scattered throughout the proposed development site with some larger concentrated areas which will provide suitable coverage for brown hare;
- SuDS ponds are monitored and managed to remain fit for purpose; and
- Any created or enhanced habitats installed as part of the development should be monitored post-construction to ensure continued suitability for their intended purpose.

To ensure legal compliance, the proposed development will need to ensure measures to control invasive plant species and avoid disturbing breeding birds are implemented.

1 Introduction

Ove Arup and Partners Ltd (Arup) have been commissioned by South Tees Development Corporation (STDC) to complete an Ecological Impact Assessment (EcIA) in connection with a planning application for the proposed development of Eston Road and associated roundabout and road links (hereafter referred to as the 'proposed development').

The proposed development site is approximately 5.26ha and is situated within the wider STDC area in the land zone area referred to as Grangetown Prairie[1]. The proposed development site is centred at National Grid Reference (NGR) NZ 54427 21056 and consists of Eston Road, the eastern end of Middlesbrough Road East and the junction of Eston Road and the A66.

The red line boundary for the proposed development is illustrated in Appendix A.

The road corridor of the proposed development is illustrated in Appendix B.

Ecological surveys of the proposed development site have been completed in order to inform this assessment. The surveys used to inform the overall baseline ecological conditions of the proposed development site are detailed in Section 4.4.

The aim of this document is to:

- Identify and describe all likely significant ecological effects associated with the proposed development;
- Identify the likely outcome of the development for biodiversity in line with the current Natural England Biodiversity Net Gain (BNG) metric;
- Set out the mitigation measures required to ensure compliance with nature conservation legislation and to address any likely significant ecological effects;
- Identify how mitigation measures could be secured;
- Provide an assessment of the significance of any residual effects;
- Identify appropriate enhancement measures; and
- Set out the requirements for post-construction monitoring.

[1] South Tees Development Corporation (November 2019) South Tees Regeneration Master Plan. https://www.southteesdc.com/wp-content/uploads/2020/01/South-Tees-Master-Plan-Nov-19.2.pdf Accessed 12 May 2020.

2 Proposed Development Description

2.1 Proposed Development Site Overview

The proposed development site is located within the South Tees Development Corporation Area (STDC) land zone known as Grangetown Prairie and runs adjacent to the Bolckow Industrial Estate[1]. The Grangetown Prairie site is largely vacant but has a long history of iron and steel work uses and was extensively occupied by buildings and freight rail infrastructure. Former uses included the Cleveland Iron and Steel Works, where the heavy end operations (coke ovens, iron making and steel making) were located along the western periphery of the Grangetown Prairie site, with mills dominating the central and eastern zones.

The proposed development site consists of Eston Road and the eastern end of Middlesbrough Road East. The Holme Beck is located within the proposed development site and runs along the eastern boundary of Eston Road through the proposed development site. The Holme Beck is largely culverted but where open, consists of vertical sides made of stone.

2.2 Proposed Development

The proposed development comprises an upgrade to the existing Eston Road and the Eston Road A66 junction, with the design of a roundabout and associated north/south and east/west link roads into the wider Grangetown Prairie site, that is to be developed at a later stage.

The proposed development will include a preliminary drainage design for the proposed road, which will include the ‘daylighting’ of the Holme Beck watercourse.

2.3 Construction

It is currently believed that construction will begin in 2020 and last for approximately 12 months

Relevant components of the proposed development construction include:

- Removal of existing surfacing, and the preparation of ground for the construction of the road(s);
- Removal of existing vegetation within the proposed development site;
- In-channel works to open up the culverted section of Holme Beck;
- Construction of the road and associated infrastructure;
- Provision of a grassy swale, designed to be dry for most of the year, and act as a sustainable drainage system (SuDS) where excess water during high rain events can collect and soak away; and

- Habitat creation to compensate for habitat loss and enhance the appearance of the proposed development.

These elements of construction are likely to lead to:

- Increased traffic movements to the proposed development site, however these are not anticipated to be significantly higher than those currently experienced, and traffic movements are anticipated to be during 'normal' construction hours, which will be defined within the Construction Environmental Management Plan (CEMP);
- Generation of some dust, which will be controlled by standard environmental management control methods (e.g. wheel washing and road brushing) to be defined within the CEMP;
- Generation of noise and vibration, which will be temporary and avoided or minimised through implementation of the CEMP. The CEMP would include restrictions and targets for specific work activities, including monitoring. If required, appropriate mitigation measures to deal with any noise and vibration impacts would be put in place around the proposed development site;
- Emissions from on-site plant and construction vehicles, which would have a minor adverse, temporary effect on the environment and require no mitigation other than standard best practice for construction sites; and
- A low risk of leachates or the escape of products/by-products that may constitute a contaminant in the environment, to be managed through best practice construction management techniques in line with the CEMP.

2.4 Operation

The road will operate as normal and provide ingress and egress to the Grangetown Prairie site.

Relevant components of the operation of the proposed development site include:

- Increase in road traffic, including construction vehicles once future construction on the wider Grangetown Prairie site[2] commences and future developments become operational;
- Improved public spaces and access are likely to increase the use of pathways for cycling and walking; and
- Provision of operational lighting for on-site safety and general security.

[2] This does not form part of the current planning application.

3 Legislation, Planning Policy and Guidance

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

3.1 Legislation

Legislation relevant to this assessment comprises:

- The Conservation of Habitats and Species Regulations 2017[3];
- Wildlife and Countryside Act (WCA) 1981 (as amended)[4]; and
- Natural Environment and Rural Communities (NERC) Act 2006[5].

In addition to this legislation, the Environment Bill 2019-2021 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 calculations and evidence of a 10% net gain in biodiversity.

Biodiversity net gain is not yet mandated through adoption of the Environment Bill, however, it is in line with the current aspirations of the Environment and Biodiversity Strategy being developed by STDC.

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[6].

3.2 Planning Policy

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

- Redcar and Cleveland Borough Council (RCBC) Local Plan (statutory policy)[6];
- South Tees Supplementary Planning Document (SPD), 2018 (non-statutory policy / material planning consideration); and

[3] The National Archives: The Conservation of Habitats and Species Regulations 2017. http://www.legislation.gov.uk/uksi/2017/1012/contents/made Accessed 6 May 2020.
[4] The National Archives: Wildlife and Countryside Act 1981 http://www.legislation.gov.uk/ukpga/1981/69/contents Accessed 6 May 2020.
[5] National Archives: Natural Environment and Rural Communities Act 2006. http://www.legislation.gov.uk/ukpga/2006/16/contents Accessed 6 May 2020.
[6] Redcar and 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 6 May 2020.

- National Planning Policy Framework (NPPF)[7] (non-statutory policy / material planning consideration).

3.3 Guidance

Guidance relevant to this assessment comprises:

- South Tees Regeneration Masterplan[1];
- South Tees Area Supplementary Planning Document (SPD)[8];
- Birds of Conservation Concern (BoCC)[9]; and
- Tees Valley Local Biodiversity Species List[10].

[7] Department for Communities and Local Government (2012) National Planning Policy Framework. https://www.gov.uk/government/publications/national-planning-policy-framework--2 Accessed 6 May 2020.
[8] RCBC (2018) South Tees Area SPD. https://www.redcar-cleveland.gov.uk/resident/planning-and-building/local-plan/Pages/South-Tees-Area-SPD.aspx Accessed 6 March 2020.
[9] Eaton M.A., Aebischer N.J., Brown A.F., Hearn R.D., Lock L., Musgrove A.J., Noble D.G., Stroud D.A. and Gregory R.D. (2015) Birds of Conservation Concern 4: The population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds 108, 708–746.
[10] 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 20 May 2020.

4 Methodology

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 assessments.

4.1 Scope of the Assessment

The following features were considered as part of the assessment:

- Designated sites, including statutory and non-statutory designated sites;
- Legally protected species[11];
- Habitats of principal importance (HoPI) for conservation of biodiversity[12]; and
- Species of principal importance (SoPI) for conservation biodiversity[12].

The ZoI for a project is the area over which ecological features may be subject to significant effects as a result of the proposed project and associated activities.

For the purposes of this assessment, the features considered and their ZoI were:

- Internationally important designated sites within 5km of the proposed development site[13];
- Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR) within 5km of the proposed development site;
- Non-statutory designated sites, such as Local Nature Reserves (LNR) and Local Wildlife Sites (LWS) within 2km of the proposed development site; and
- Legally protected species, HoPI and SoPI within the proposed development site or immediately adjacent.

4.2 Consultation

A steering group was established to discuss the wider Environment and Biodiversity Strategy for the STDC 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), Industry Nature Conservation Association (INCA), Natural England (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.

[11] As protected under the Conservation of Habitats and Species Regulations 2017 or the Wildlife and Countryside Act 1981 (as amended).
[12] As listed on Schedule 41 of the NERC Act 2006.
[13] European designated sites within 20km of the proposed development site are assessed within the Habitats Regulations Assessment (HRA).

4.3 Desk Study

A desktop review of the following sources of information was carried out to identify designated sites, notable habitats and protected and notable species recorded within 2-5km of the proposed development site:

- **Preliminary Ecological Appraisal (PEA): Grangetown Prairie**[14] – A PEA was conducted by INCA in May 2018 and covered the wider Grangetown Prairie site, which included the proposed development site;
- **PEA**: **Holme Beck**[15] – A PEA was conducted by INCA in February 2020 and assessed the condition of the non-culverted sections of the Holme Beck within the proposed development site;
- **Natural England Open Data**[16] – This website was consulted to identify statutory designated sites within 5km of the proposed development site such as Special Areas of Conservation (SAC) and Special Protection Areas (SPA)[17]; and
- **Environmental Records Information Centre North East (ERIC NE)** – Records were received on 11 May 2020 and included data on protected species, internationally designated sites, statutory and non-statutory designated sites within 2km of the proposed development site. Records of protected and notable species from within the last ten years were considered representative of the status of biodiversity in the local area in the baseline review.

4.4 Field Survey

4.4.1 Habitat Survey

A habitat survey was undertaken on 12 May 2020 to update and clarify the existing PEA habitat data within the proposed development site. During this survey the habitats were classified using the UK Habitat Classification system[18] where possible to assist in undertaking Biodiversity Net Gain (BNG) calculations[19] using the Biodiversity Metric 2.0 (BM2.0)[20] [21]. This survey followed standard methods described in the Chartered Institute for Ecology and

[14] INCA (May 2018) Preliminary Ecological Appraisal Grangetown Prairie. Received 22 January 2020.
[15] INCA (February 2020) Preliminary Ecological Appraisal Holme Beck. Received 5 May 2020.
[16] Natural England Open Data. https://naturalengland-defra.opendata.arcgis.com/ Accessed June 4 2019.
[17] A search of internationally designated sites within 20km of the proposed development site was undertaken to inform the HRA. This is discussed within the HRA Report.
[18] UK Habitat Classification Working Group (2018) *UK Habitat Classification User Manual* at https://ecountability.co.uk/ukhabworkinggroup-ukhab/
[19] Natural England (2019) The Biodiversity Metric 2.0: Auditing and accounting for biodiversity value. Calculation tool[19]: Short guide. Natural England
[20] Crosher I.A., Gold S.B, Heaver M.D., Heydon M.A., Moore L.D, Panks S.A, Scott S.C., Stone D.A. & White N.A. (2019) The Biodiversity Metric 2.0: Auditing and accounting for biodiversity value. User guide (Beta version, July 2019). Natural England.
[21] Baker, J. *et al* (2016) Biodiversity Net Gain: Good practice principles for development. CIRIA CIEEM & IEMA.

Environmental Management's (CIEEM) PEA (2013)[22]guidance, and where required, also referred to the Phase 1 Habitat survey methodology[23].

The condition and connectivity of these habitats, as per the BM2.0 were also assessed.

A colour coded map, including target notes was produced to further aid this. This map is provided in Appendix A.

4.4.2 Nesting Bird Check

As part of INCA's wider work within the STDC site, a nesting bird check of the Grangetown Prairie site (which includes the proposed development site) was undertaken on 4 May 2020[24].

4.5 Ecological Impact Assessment

This EcIA has been undertaken in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) best practice guidance[25].

The impact assessment process involves:

1. Identifying and characterising impacts (see 4.5.1);
2. Incorporating measures to avoid and mitigate (reduce) these impacts;
3. Assessing the significance of any residual effects after mitigation (see 4.5.2 and 4.5.3);
4. Identifying appropriate compensation measures to offset significant residual effects; and
5. Identifying opportunities for ecological enhancement.

Cumulative impacts and effects are also considered (see 4.5.4).

4.5.1 Characterising Impacts

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.

[22] Chartered Institute of Ecology and Environmental Management (CIEEM) released updated PEA guidance (2nd edition) in December 2017. The surveys undertaken on the proposed development site are considered to satisfy the requirements of the 2017 guidance.
[23] Joint Nature Conservation Committee (JNCC) (2010) *Handbook for Phase 1 Habitat Survey. A technique for environmental audit*. Revised re-print. JNCC: Peterborough.
[24] A report on the nesting bird check was not yet issued at the time of writing this EcIA. A draft map was provided to Arup that highlighted the results of this survey.
[25] Chartered Institute of Ecology and Environmental Management (CIEEM) (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.* CIEEM, Winchester.

4.5.2 Significance of Effects

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

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].

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).

4.5.3 Geographic Terms of Reference

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

- International and European – Statutory sites designated or classified under international conventions or European legislation. Sites supporting a species or species' assemblage important in an international context.
- National – Statutory sites designated under national legislation, for example SSSIs. Sites supporting a species or species' assemblage important in a national context.
- Regional – Statutory designated Local Nature Reserves (LNRs), non-statutory designated sites such as Sites of Nature Conservation Importance (SNCI). Sites supporting a population of a species or species' assemblage important in a regional context.
- Metropolitan, County, vice-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.
- Local – Sites that have no formal designation but contain species or habitats that are important to the ecological integrity of the local area.
- Negligible – No effect on species or habitats present are anticipated.

4.5.4 Cumulative Impacts and Effects

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location.

A cumulative impact assessment has been undertaken which considers whether impacts from any of the developments described in Section 6.5 will collectively result in a significant effect.

Developments included in the cumulative impact assessment comprise the following types of future development within the same ZoI:

- Proposals for which consent has been applied which are awaiting determination in any regulatory process;
- Projects which have been granted consent, but which have not yet been started or which have been started but are not yet completed (i.e. under construction);
- Proposals which have been refused permission, but which are subject to appeal and the appeal is undetermined; and
- To the extent that their details are in the public domain, proposed projects that will be implemented by a public body but for which no consent is needed from a competent authority.

4.6 Biodiversity Net Gain Assessment

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.

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

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

To provide some clarity and separation between the two assessment methodologies applied in this report, further details of the BM2.0 methodology, including clarifications on habitat classifications[26], Tees Valley adaptations of condition criteria, the connectivity tool and the river metric are provided in Appendix D.

4.7 Assumptions and Limitations

4.7.1 Habitat Survey

Ecological surveys 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. Despite this limitation, the habitat survey of the proposed development

[26] Crosher I.A., Gold S.B, Heaver M.D., Heydon M.A., Moore L.D, Panks S.A, Scott S.C., Stone D.A. & White N.A. (2019) The Biodiversity Metric 2.0: Auditing and accounting for biodiversity value. Technical supplement (Beta version, July 2019). Natural England.

site was undertaken at a time of year when the majority of key diagnostic plant species used in a habitat survey produce identifiable growth forms. As a result, the species and habitats recorded in this survey can be considered representative of the proposed development site.

The amenity grassland habitat was not fully assessed during the 2020 habitat survey. This area of habitat, only 0.05 ha is size, is very small in comparison to the wider site area. INCA, having a wider knowledge of the proposed development site, have considered this area of amenity grassland to be poor in condition. Due to the small size of the habitat and low distinctiveness of amenity grassland, not having a full species description is not considered to be a limiting factor to the overall assessment.

4.7.2 Habitat Classifications

Assumptions on the classification of habitats within the proposed development site are discussed in Appendix D.

5 Baseline Ecological Conditions

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

5.1 Consultation

The Environment and Biodiversity Steering group meeting minutes received on 7 May 2020 detailed the agreement in principle, by the steering group, to utilise a local interpretation of the BM2.0 across the entirety of the STDC area, which includes the proposed development site.

Some alternative site-specific condition criteria have been developed by INCA for Teesside, which are of relevance to the proposed development. Following agreement in principle for these local adaptations to be applied to the STDC Environment and Biodiversity Strategy, these have also been adopted for this project, to aid in what was felt is a more detailed, and locally-relevant condition assessment for certain habitats including open mosaic habitat and scrub.

5.2 Designated Sites

The proposed development site does not have any designated nature conservation sites within or immediately adjacent to the red line boundary, however, there are designated nature conservation sites within 2-5km of the proposed development site. These comprise of one Special Protection Area (SPA), one Ramsar site, one NNR and one SSSI as summarised in Table 1.

The designates sites are illustrated in Appendix E[27].

Table 1: Statutory designated sites within 5km and non-statutory designated sites within 2km of the proposed development site

Site Name	Designation	Location	Reason for Designation
Teesmouth and Cleveland Coast[28]	SPA	1.7km north west	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[30]. Designated for important populations of breeding avocet (*Recurvirostra avosetta*), common tern (*Sterna hirundo*) and little tern (*Sternula albifrons*). As well as, important populations of non-breeding sandwich tern (*Thalasseus sandvicensis*), ringed plover (*Charadrius hiaticula*), knot (*Calidris canutus*), common redshank (*Tringa totanus*

[27] The updated boundary for the Teesmouth and Cleveland Coast SPA was not available at the time of writing this report. The DEFRA Consultation Report was reviewed to understand the new extent of the SPA.
[28] DEFRA. Teesmouth and Cleveland Coast SPA, Ramsar and SSSI. https://consult.defra.gov.uk/natural-england-marine/teesmouth-and-cleveland-coast-potential-sp/ Accessed on 7 May 2020.

Site Name	Designation	Location	Reason for Designation
			tetanus) and ruff (*Calidris pugnax*). The Salthome RSPB Reserve is part of the wider Teesmouth and Cleveland Coast SPA. Also designated for an important assemblage of over-wintering wetland birds.
Teesmouth and Cleveland Coast[29]	Ramsar	1.9km 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.[30] Wetland of international importance. Designated under Ramsar criterion 5[31] for assemblages of international important numbers of waterbirds and criterion 6 for regularly supporting 1% of the individuals in a population of one species of waterbird. Also designated for peak counts of common redshank in spring and autumn and wintering red knot (*Calidris canutus islandica*).
Teesmouth and Cleveland Coast[28]	SSSI	1.7km north west	The Teesmouth and Cleveland Coast SSSI is an expansive site formally adopted on 18 April 2019, replacing seven SSSIs previously present within the region including: Cowpen Marsh SSSI; Hartlepool Submerged Forest SSSI; Redcar Rocks SSSI; Seal Sands SSSI (partially replaced, a small section of the Seal Sands SSSI distant from the proposed development site has been retained as per its existing designation); Seaton Dunes and Commons SSSI; South Gare and Coatham Sands; Tees and Hartlepool Foreshore and Wetlands SSSI. The SSSI is designated for its geology, mosaic of coastal habitats, breeding harbour seals (*Phoca vitulina*), diverse assemblage of breeding, and non-breeding birds as well as a non-breeding assemblage of more than 20,000 water birds.
Teesmouth	NNR	4.5km north	The site is designated for its sand dunes, mash, 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, supporting lapwing (*Vanellus*) and curlew (*Numenius arquata*). Seal

[29] Joint Nature Conservation Council. Teesmouth and Cleveland Coast Ramsar. https://jncc.gov.uk/jncc-assets/RIS/UK11068.pdf Accessed 7 May 2020.
[30] Natural England (March 2019) Teesmouth and Cleveland Coast potential Special Protection Area (pSPA) and proposed Ramsar Site (pRamsar): Report of Consultation by Natural England, 2019. https://consult.defra.gov.uk/natural-england-marine/teesmouth-and-cleveland-coast-potential-sp/supporting_documents/Teesmouth%20and%20Cleveland%20Coast%20Consultation%20Report%20February%202020.pdf. Accessed 12 May 2020.
[31] Ramsar Convention of Wetlands (Ramsar, Iran, 1971) The Ramsar Sites Criteria. https://www.ramsar.org/sites/default/files/documents/library/ramsarsites_criteria_eng.pdf Accessed 7 May 2020.

Site Name	Designation	Location	Reason for Designation
			Sands is one of the largest areas of intertidal mudflat on England's north-east coast[32].

Due to their respective designation status, the SPA and Ramsar designated sites listed in Table 1 are considered to be of **international** importance and the SSSI and NNR are considered to be of **national** importance.

5.2.1 Teesmouth and Cleveland Coast SPA and Ramsar

Given the proximity to the proposed development site and designation under Ramsar criterion 5[33] the Teesmouth and Cleveland Coast SPA and Ramsar have been **scoped in** for further assessment.

5.2.2 SSSIs

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[34]. 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 and therefore this site is **scoped in** for further assessment.

5.2.3 NNR

Although the Teesmouth NNR is a significant distance from the proposed development site, the proposed development site is hydrologically connected to the Teesmouth NNR through connection of Holme Becks to the River Tees, therefore this site is **scoped in** for further assessment.

5.3 Habitats

5.3.1 Important Habitats (Ecological Impact Assessment)

None of the habitats recorded within the proposed development site are a HoPI or are considered to be a habitat of priority within the local area. Holme Beck is not designated as Priority Habitat River and does not meet the qualifying criteria for priority habitat as defined by JNCC[35]. All habitats within the proposed

[32] Natural England. Corporate Report: Cleveland's National Nature Reserves. https://www.gov.uk/government/publications/clevelands-national-nature-reserves/clevelands-national-nature-reserves#teesmouth. Accessed 7 May 2020.
[33] Ramsar Convention of Wetlands (Ramsar, Iran, 1971) The Ramsar Sites Criteria. https://www.ramsar.org/sites/default/files/documents/library/ramsarsites_criteria_eng.pdf Accessed 7 May 2020
[34] Natural England SSSI Impact Risk Zones https://data.gov.uk/dataset/5ae2af0c-1363-4d40-9d1a-e5a1381449f8/sssi-impact-risk-zones Accessed 7 May 2020.
[35] JNCC (2011) UK Biodiversity Action Plan Priority Habitat Descriptions – Rivers. http://data.jncc.gov.uk/data/01d6ab5b-6805-4c4c-8d84-16bfebe95d31/UKBAP-BAPHabitats-45-Rivers-2011.pdf Accessed: 13 May 2020.

development site have therefore been **scoped out** of further assessment with regards to this EcIA.

5.3.2 Total Valuation of Habitats (BNG Assessment)

Sections 5.3.2.1 to 5.3.2.8 describe all the habitats within the proposed development site in more detail, to justify the scores provided in the BNG assessment. More details on this can be found in Appendix D.

Table 2 and Table 3 outline the baseline summary of the BNG assessment of the proposed development site, for habitats areas and rivers.

These habitats were mapped using the UK Habitat Classification system[18]. If the UK Habitat Classification definition was not appropriate, this has been discussed within the habitat description.

5.3.2.1 Modified Grassland (G4)

This area of grassland, approximately 0.98ha in size, would be best described as species poor semi-improved grassland under the Phase 1 Habitat survey descriptions[23] and is best classified under the UK Habitat Classification as Modified Grassland. The definition of modified grassland is clarified further in Appendix D1.3.1.1.

The habitat was species poor with the dominant species being red fescue (*Festuca rubra*), with occasional false oat grass (*Arrhenatherum elatius*), meadow vetchling (*Lathyrus pratense*) and creeping cinquefoil (*Potentilla reptans*).

The modified grassland has been assessed as being of fairly poor condition[26]. The coverage of herbs was no more than 10%, is still open grassland (rather than being overgrown and rank) and does not contain a high coverage of scrub or invasive species.

5.3.2.2 Other Woodland, Broadleaved (W1F7)

The woodland, approximately 0.54ha in size, is an area of one-year old regrowth from a felled, plantation woodland[36]. The principal tree species which are regenerating are alder (*Alnus glutinosa*), wild cherry (*Prunus avium*) and birch (*Betula* sp.). This area of woodland has been classified as 'other broadleaved woodland' as it originated from an area of plantation woodland used for screening purposes.

The woodland has been assessed as being of moderate condition. The woodland is dominated by native species however, there are a few non-native trees present within the canopy, consisting of Corsican pine (*Pinus nigra*) and Italian alder (*Alnus cordata*). The woodland is clearly of plantation origin and prior to felling was considered to be approximately 30-40 years of age[14]. Natural regeneration has

[36] As this woodland is of plantation origin, it is not considered to fall under the Semi-Natural Broadleaved Woodland priority habitat within the Tees Valley.

resulted in Italian alder, birch and sallow (*Salix* sp.) growing along the perimeter, diversifying the age and height of the woodland structure. The woodland contains no standing or fallen deadwood.

The definition of other broadleaved woodland and its condition assessment is clarified further in Appendix D1.3.1.2.

5.3.2.3 Sea-Buckthorn Scrub (Other) (H3C6)

The scrub, approximately 0.54ha in size, is an area of mixed scrub species, dominated by sea buckthorn (*Hippophae rhamnoides*) with areas of buddleja (*Buddliea davidii*), dog rose (*Rosa canina*) and bramble (*Rubus fructicosus* agg.). It should be noted that sea buckthorn is regarded as an invasive species in Teesside with a negative impact on biodiversity.

The scrub has been assessed as being of fairly poor condition. This is due to the lack of a well-developed herbaceous edge, however there was a good mixture of species present with a mix of ages. Sea buckthorn was the dominating feature with the non-native species buddleja also present, and sea buckthorn is considered to be an undesirable invasive species in a Teesside context.

5.3.2.4 Sparsely Vegetated Land – Ruderal/Ephemeral

Under the UK Habitats Classification Habitats Definitions[37], this habitat would be classified as "other inland rock and scree (s1d)" however, this habitat would score a high distinctiveness level and is not considered suitable for the habitat present within the proposed development site.

Within the BM2.0 there is a "Sparsely Vegetated Land- Ruderal/Ephemeral" classification which is defined in the BM2.0 Technical Supplement[26] as: "*The short lived transitory habitat of low growing early successional plants of open ground such as arable landscapes, derelict urban sites, quarries and railway ballasts. This will get replaced by more stable vegetation unless disturbance of soil continues. Reasonably variable in biodiversity value dependent on species present, do often provide important pollen and nectar sources along with open ground for insects*." This habitat description is considered to be more appropriate for the type of habitat recorded on the proposed development site.

These habitats are not considered to qualify as the HoPI type "Open Mosaic Habitats on Previously Developed Land[38]" on the basis that the substrate is very coarse, blast furnace slag, which has been compacted to varying degrees and therefore does not form a loose substrate. The definition of Open Mosaic Habitats is clarified further in Appendix D1.3.1.

[37] UK Habitat Classification Working Group (2018) UK Habitat Classification Habitat Definitions V1.0. UK Habitat Classification Working Group; Online
[38] JNCC (2011) UK Biodiversity Action Plan: Priority Habitat Descriptions – Open Mosaic Habitats on Previously Development Land. Available at http://data.jncc.gov.uk/data/2728792c-c8c6-4b8c-9ccd-a908cb0f1432/UKBAP-PriorityHabitatDescriptions-Rev-2011.pdf. Accessed 13 May 2020.

The sparsely vegetated land, an area approximately 2.01ha in size, was the primary habitat within the proposed development site. The dominant species present was red valerian (*Centranthus rubra*) with occasional hawkweed (*Hieraceum* sp.), stone crops (*Sedum* sp.) and toadflax (*Linaria vulgaris*). There were very small patches of bird's-foot trefoil (*Lotus corniculatus*), kidney vetch (*Anthyllis vulnerata*) and golden melilot (*Melilotus altissimus*).

There was a smaller area of sparsely vegetated land of approximately 0.05ha in size with a higher number of bird's-foot trefoil and kidney vetch.

The higher quality but smaller sized area containing more bird's-foot trefoil is classed as moderate condition. The larger area, taken as a whole is assessed as fairly poor on the basis that there were generally at least four indicator species and that invasive species covered less than 20% and vegetation cover was on average greater than 25%.

5.3.2.5 Urban-Amenity Grassland

Under the Phase 1 habitat survey definition, this habitat would classify as "Amenity Grassland", which directly translates to the UK Habitats Classification as "Cropland- Temporary grass and clover leys." Within the BM2.0 calculator, the habitat type present within the proposed development site sits more appropriately under the "Urban-Amenity Grassland" classification. The grassland area was not assessed in detail during the 2020 habitat survey, so a species list was not provided. This limitation is described in further detail in Section 4.7.

This area of habitat is approximately 0.07ha in size and has been given a condition assessment of poor due to it being located on the corner of Eston Road, is likely to be heavily managed and affected by road pollution and runoff.

5.3.2.6 Artificial, Unvegetated Unsealed Surface (U1C)

This area, approximately 0.67ha in size, consists of unvegetated slag and unsealed road surfaces.

A condition assessment for this habitat type is not applicable.

5.3.2.7 Developed Land, Sealed Surface (U1D)

This area, approximately 0.40ha in size, consists of tarmacked roads and a car park.

A condition assessment for this habitat type is not applicable.

5.3.2.8 Class 4 Water Course

The Holme Beck runs along the eastern edge of the Eston Road. The open section of the Beck starts a few tens of metres north of the junction of Eston Road and the A66 and continues for approximately 150m before being culverted again. The culverted section then runs approximately due north until the railway line, at

which point the culvert turns 90° east with the Beck, then discharging into open water in Cleveland Channel.

The sides of the open sections are vertical and around 1.3m in height. There was a high flow of water at the time of the survey[15], with the depth of the water being around 15-20cm. The upper parts of the embankments were colonised principally by bramble, and pendulous sedge (*Carex pendula*), with some grass in places. The first 0.5m of the embankments were unvegetated apart from some bryophytes. No aquatic vegetation was recorded within the beck.

Based upon extensive physical modification, and evidence of moderate water quality pressure associated with road run-off and surrounding industrial land use, the overall River Naturalness score for the 150m survey reach has been determined to be Class 4.

The modified nature of the beck, coupled with potential water quality pressures associated with road run-off, are expected to reduce the suitability of the reach for supporting natural ecological communities. Overall the condition of the surveyed reach of Holme Beck is considered to be ‘fairly poor’.

Appendix D provides further details on the results of this assessment.

Table 2: Total Valuation of Habitats – Summary of Biodiversity Net Gain Assessment: **Habitats Baseline**

Habitat Type (UK HAB)	**Area (ha)**	**Distinctiveness**	**Condition**	**Connectivity**	**Strategic Significance**	**Total Habitat Units**	**Suggested Action to Address Habitat Losses**
Modified grassland	0.98	Low (2)	Fairly poor (1.5)	Unconnected habitat (1)	Low strategic significance (1)	2.93	Same distinctiveness or better habitat required
Other woodland, broadleaved	0.54	Medium (4)	Moderate (2)	Unconnected habitat (1)	Low strategic significance (1)	4.29	Same broad habitat or a higher distinctiveness habitat required
Sea buckthorn scrub	0.54	Medium (4)	Fairly poor (1.5)	Unconnected habitat (1)	Low strategic significance (1)	3.56	Same broad habitat or a higher distinctiveness habitat required
Sparsely vegetated land-ruderal/ephemeral	2.01	Low (2)	Fairly poor (1.5)	Unconnected habitat (1)	Low strategic significance (1)	5.39	Same distinctiveness or better habitat required
Sparsely vegetated land-ruderal/ephemeral	0.05	Low (2)	Moderate (2)	Unconnected habitat (1)	Low strategic significance (1)	0.20	Same distinctiveness or better habitat required
Urban- Amenity Grassland	0.07	Low (2)	Poor (1)	Assessment not appropriate (1)	Low strategic significance (1)	0.17	Same distinctiveness or better habitat required
Artificial unvegetated, unsealed surface	0.67	Very low (0)	N/A	Assessment not appropriate (1)	Low strategic significance (1)	0.00	Compensation not required
Developed land, sealed surface	0.40	Very low (0)	N/A	Assessment not appropriate (1)	Low strategic significance (1)	0.00	Compensation not required
Total	**5.26**	**-**	**-**	**-**	**-**	**16.93**	**-**

Table 3: Total Valuation of Habitats – Summary of Biodiversity Net Gain Assessment: **Rivers Baseline**

River Type	Length (km)	Distinctiveness	Condition	Strategic Significance	Total Baseline River Units	Suggested Action
Class 4 - River Naturalness Assessment Non- culverted section	0.15	Medium (4)	Fairly Poor (2)	Low potential/ action not identified in any plan (1)	1.2	Avoid
Class 4 - River Naturalness Assessment Culverted section	0.5	Medium (4)	Poor (1)	Low potential/ action not identified in any plan (1)	2	Avoid
Total	**0.65**	**-**	**-**	**-**	**3.20**	**-**

5.4 Protected and Notable Species

The data search with ERIC returned no historical records of protected or notable species within the proposed development site boundary.

As detailed in the 2018 PEA, the proposed development site and wider Grangetown prairie does not support habitats suitable for otter (*Lutra lutra*), water vole (*Arvicola amphibius*), badger (*Meles meles*) or reptiles. These species are not considered further in this assessment.

5.4.1 Amphibians

The proposed development site contains no standing water, and the Holme Beck is considered to be low quality habitat for amphibians due to its steep hard sides, culverting for much of its length, poor water quality and flow rate. No amphibians have been recorded within the Holme Beck. The proposed development site provides some low quality foraging and commuting habitat for amphibians in the form of scrub and grassland.

The 2018 PEA survey[14] identified standing water within the central area of the wider Grangemouth Prairie site (approximately 200m from the boundary of the proposed development). At the time of the PEA survey, approximately eight ponds were recorded, and were primarily shallow depressions with a layer of silt on the base.

5.4.1.1 Great Crested Newt

As part of the 2018 PEA an environment DNA (eDNA) was undertaken to determine if GCN were present within the ponds. These eDNA tests came back negative and confirmed likely absence of GCN within the Grangetown Prairie site.

As no GCN were recorded within 500m of the proposed development site, GCN have been **scoped out** of further assessment.

5.4.1.2 Smooth Newt

During the 2018 PEA survey, a single smooth newt (*Lissotriton vulgaris*) was observed in the largest pond. Smooth newt is not a SoPI.

As only a single smooth newt was recorded and they are not a SoPI, smooth newt have been **scoped out** of further assessment.

5.4.1.3 Common Toad

During the 2018 PEA survey, common toad (*Bufo bufo*), was observed to be using the ponds as breeding grounds. Common toad is a SoPI and listed on the Tees Valley Local Biodiversity Species List. This population of breeding common toad is considered to be **locally important** at the South Tees level.

As a number of breeding common toad were recorded in proximity to the proposed development site and the proposed development site contains some suitable habitat for foraging and commuting of common toad, common toad have been **scoped in** for further assessment.

5.4.2 Bats

The habitats within the proposed development site and wider Grangetown Prairie site have low potential for foraging bats. No structures or trees within the proposed development site were found to have roosting potential. There are six historical records of bats within 2km of the proposed development site. The nearest record was an unconfirmed roost in 2010 over 1km south east of the proposed development site.

Bats are therefore **scoped out** of further assessment.

5.4.3 Birds

There is young plantation woodland and scattered sea buckthorn scrub within the proposed development site. The proposed development site, prior to felling, had contained broadleaved plantation woodland of approximately 30-40 years of age. Both of these habitats were considered to be of moderate quality and small in nature.

The small scale and limited structural diversity of these habitats within the proposed development site makes them unlikely to support important assemblages of breeding bird.

The nesting bird check undertaken on 4 May 2020 identified active nests of whitethroat (*Sylvia communis*), willow warbler (*Phylloscopus trochilus*) and blue tit (*Cyanistes caeruleus*) within the proposed development site. Willow warbler are amber listed BoCC.

During the 2018 PEA survey[14], lapwing (*Vanellus vanellus*), skylark (*Alauda arvensis*), herring gull (*Larus argentatus*) and moorhen (*Gallinula chlorops)*, were recorded in the wider Grangetown Prairie site, but outside the boundary of the proposed development site.

Lapwing, skylark and herring gull are red listed BoCC.

As the proposed development site does not contain standing water, is small in nature and contains a large amount of hard standing road surfaces (i.e. Eston Road), it is not considered to be part of the a core breeding habitat area for moorhen or these BoCC, nor is it considered to contain foraging or commuting habitats for these BoCC or moorhen.

Breeding birds are therefore **scoped out** of further assessment, however measures to ensure legal compliance need to be considered when working in areas where any nesting birds may be present as nesting birds are legally protected under the WCA 1981 (as amended).

5.4.4 Brown Hare (*Lepus europeaus)*

The proposed development site is relatively small in comparison to the wider Grangetown prairie site but consists of habitats suitable for supporting brown hare, although the sparse vegetation and small area within the proposed development site, means that in order to support brown hare this small patch of suitable habitat would have to be connected to a much larger area of suitable habitat in the wider area.

During the surveys conducted in 2018[14] and 2020, no brown hares were recorded within the proposed development site, and no evidence of burrowing was recorded.

Two brown hares were observed during the 2018 PEA survey[14] on the larger Grangetown Prairie site but outside the boundary of the proposed development site. While an area of this size is large enough in itself to support two hares in typical habitat, even here the sparse vegetation across much of the wider Grangetown Prairie site means that it will probably only form part of wider home ranges.

There are two historical records of brown hare within close proximity to the proposed development site, the nearest being approximately 200m west.

The proposed development site is considered to be part of a wider home range for these brown hares. Brown hare are a SoPI and listed on the Tees Valley Local Biodiversity Species List. This small population is of **local importance** and has been **scoped in** for further assessment.

5.4.5 Invertebrates

The proposed development site is considered to have limited to no suitable habitat to support notable invertebrate species. The soils within the proposed development site are compacted and are therefore unsuitable for most invertebrate species, such as solitary burrowing bees.

The proposed development site contains small areas of suitable foraging plant species such as bird's-foot trefoil for both dingy skipper (*Erynnes tages*) and grayling butterfly (*Hipparche semele*). Both invertebrate species are known to breed within grass tussocks which are limited within the proposed development site. A single dingy skipper was recorded on a small patch of bird's-foot trefoil within the proposed development site during the updated site walkover on 12 May 2020.

The wider Grangetown Prairie site contains habitats suitable to support dingy skipper and grayling butterfly, however this was largely restricted to the north western section of the Grangetown Prairie site. There were no historical records of protected or notable invertebrate species within 2km of the proposed development site, however this is considered to be due to lack of survey data rather than lack of species presence.

Dingy skipper and grayling are both SoPI and listed on the Tees Valley Local Biodiversity Species List. This small population of dingy skipper and grayling

butterfly are considered to be locally important. These species have been **scoped in** for further assessment.

5.4.6 Invasive Plant Species

A small number (<10) of cotoneaster shrubs are present across the wider Grangetown Prairie site, with a single example recorded within the proposed development site.

Species included small-leaved cotoneaster (*Cotoneaster microphylla*), which is listed on Schedule 9 of the WCA 1981 (as amended)[4]. This makes it an offence to cause the spread of this species in the wild.

The scrub within the proposed development site is dominated by sea buckthorn which is considered to be invasive within the Teesside area. Although native to Britain, and not listed on Schedule 9, it is not native locally and has caused deterioration of several valuable habitats locally as it spreads rapidly and shades out other species.

Measures to control the spread and removal of small-leaved cotoneaster need to be considered when working in areas where invasive species are present in order to remain legally compliant (see Section 8).

Control and/or removal of these species would be considered a positive.

5.5 Summary of Baseline

Table 4 provides a summary of all ecological features assessed in Section 5.2.1 to 5.4.6.

Table 4: Summary of each Ecological Feature Considered in this Assessment.

Feature	Scoped in/out & importance	Justification
Designated Sites		
Teesmouth and Cleveland Coast SPA and Ramsar	In – Internationally important	The proposed development site is considered to be hydrologically connected to the designated sites.
Teesmouth and Cleveland Coast SSSI	In – Nationally important	The proposed development site is considered to be hydrologically connected to the designated site and is within the SSSI Impact Risk Zone
Teesmouth NNR	In – Nationally important	The proposed development site is considered to be hydrologically connected to the designated site.
Habitats		
Modified Grassland	Out	This habitat is not a HoPI or a habitat of note within the local area.
Other Broadleaved Woodland	Out	This habitat is not a HoPI or a habitat of note within the local area.
Sea Buckthorn Scrub	Out	This habitat is not a HoPI or a habitat of note within the local area.

Sparsely Vegetated Land	Out	This habitat is not a HoPI or a habitat of note within the local area.
Amenity Grassland	Out	This habitat is not a HoPI or a habitat of note within the local area.
Artificial, Unvegetated Unsealed Surface	Out	This habitat is not a HoPI or a habitat of note within the local area.
Developed Land, Sealed Surface	Out	This habitat is not a HoPI or a habitat of note within the local area.
Culverted River	Out	This habitat is not a HoPI or a habitat of note within the local area.
Species		
Great crested newt	Out	No GCN have been recorded within the proposed development site or within 500m.
Smooth newt	Out	Only a single smooth newt was recorded 200m from the proposed development site and is not a SoPI.
Common toad	In- Locally important	The proposed development site contains habitat suitable for common toad which is a SoPI. The population of common toads is considered important on a local level
Bats	Out	The proposed development site has limited foraging opportunity for bats and no features with roosting potential.
Birds	Out	The proposed development site does not contain habitats suitable for supporting an important assemblage of breeding birds.
Brown hare	In – Locally important	The proposed development contains suitable habitat for brown hare, which is a SoPI.
Dingy skipper and grayling butterflies	In – Locally important	The proposed development site contains suitable habitat for dingy skipper and grayling butterfly, both of which are SoPI.
Invasive Plant Species - Cotoneaster	Out	Legally controlled invasive plant species listed on Schedule 9 of the WCA 1981 (as amended), scoped out of assessment as the control/ removal of this species would be considered a positive.
Invasive Plant Species – Sea buckthorn	Out	Not legally controlled under Schedule 9 of the WCA 1981 (as amended), but considered to be invasive within the Teesside area. Scoped out of assessment as the control/ removal of this species would be considered a positive.

5.6 Change in Baseline

As the application for this proposed development site is for outline planning, there is potential for the baseline ecological conditions to change in the period between this assessment and the commencement of works for the proposed development.

Due to the presence of habitats such as regenerating woodland and sea buckthorn scrub, if there is a significant amount of time between this assessment and the commencement of site clearance to facilitate construction, there is the potential that the habitats within the proposed development site could change. If this occurs, this EcIA will need to be revisited and reassessed.

6 Assessment of Effects and Mitigation

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.

6.1 Avoidance

Measures taken at the initial design development stages, to avoid and minimise effects on ecological features primarily involve keeping the width of the required construction corridor to a minimum.

In addition to this, a CEMP will be implemented prior to the commencement of construction, to control pollution and avoid construction impacts to legally protected species (e.g. through appropriate timing of works or use of an ecological clerk of works).

6.2 Assessment of Effects and Mitigation

This section identifies and describes all of the potential construction and operational impacts of the proposed development on each feature from the baseline ecological conditions scoped into the ecological impact assessment (Table 4). It also details any mitigation to be implemented within the construction and operation of the proposed development.

6.2.1 Teesmouth and Cleveland Coast SPA and Ramsar

The proposed development work includes the daylighting of the Holme Beck which is considered to be hydrologically connected to the River Tees. 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 Conservation of Habitats and Species Regulations 2017[39].

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.

The HRA Stage 1 assessment identified the following potential impacts to the Teesmouth and Cleveland Coast:

a) During construction, the risk of loss and/ or disturbance of habitats (within the SPA and Ramsar) that support foraging and commuting activities, and/or roosting and nesting of the qualifying features; and

b) During operation, the risk of loss and/or disturbance of habitats (within the SPA and Ramsar) that support foraging and commuting activities, and/or

[39] The National Archives. *The Conservation of Habitats and Species Regulations 2017.* Available: http://www.legislation.gov.uk/uksi/2017/1012/contents/made

roosting and nesting of the qualifying features, including the potential displacement of these features.

The report 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 the CEMP, no other specific mitigation is deemed required.

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.

6.2.2 Teesmouth and Cleveland Coast SSSI and NNR

As outlined in the HRA, the only impacts brought forward for assessment were pollution impacts from the construction and operation of the proposed development site, specifically from the hydrological connection of the Holme Beck to the Teesmouth and Cleveland Coast SPA and Ramsar. As the Teesmouth and Cleveland Coast SSSI and NNR are within the same boundaries as the SPA and Ramsar, they are also considered to be hydrologically connected to the Holme Beck and thus subject to the same potential impacts.

Therefore, the main impact that has the potential to significantly impact designating features of the Teesmouth and Cleveland Coast SSSI and NNR (Table 1) is construction and operation related pollution. The required mitigation (CEMP) put in place through the HRA process is considered to be sufficient to ensure the proposed development works do not impact the SPA and Ramsar, as well as the SSSI and NNR.

6.2.3 Common Toad

The proposed development site contains minimal, poor quality grassland and scrub habitat for commuting and foraging common toad. The proposed development is considered to be a very small part of habitat utilised by common toad, with the population concentrated in the Grangetown Prairie site where more suitable habitat exists.

It is therefore considered that the loss of this small area of sub-optimal grassland and scrub habitat **will not significantly affect the locally important population of common toad**. Reference should be made to Section 6.5 where the potential cumulative impact to this species is considered further.

6.2.4 Brown Hare

The proposed development site contains minimal, poor quality grassland and scrub habitat for foraging of brown hare. The proposed development site is considered to be a very small part of the wider territory of brown hare within the local area.

It is therefore considered that loss of this small area of sub-optimal grassland and scrub habitat **will not significantly affect the locally important population of brown hare**. Reference should be made to Section 6.5 where the potential cumulative impact to this species is considered further.

6.2.5 Dingy Skipper and Grayling

The proposed development site has minimal suitable foraging and breeding habitat for the local dingy skipper and grayling populations.

It is therefore considered that loss of this small area of suitable feeding plants in the grassland habitat will **not significantly affect the locally important populations of grayling and dingy skipper**. Reference should be made to Section 6.5 where the potential cumulative impacts to this species is considered further.

6.3 Biodiversity Net Gain Assessment

As retention and protection of any habitats during within the proposed development site cannot be guaranteed, it has been assumed that all habitats within the red line boundary will be lost during the construction of the proposed development and habitat creation will be required.

6.4 Summary of Impacts and Residual Effects

Table 5 provides a summary of the impacts and the significance of any residual effects for each feature, the mitigation measures required and the means by which mitigation measures can be secured.

6.5 Cumulative Effects

Only one development has been included in the cumulative effect's assessment is the Energy Recover Facility (ERF) within the Grangetown Prairie site. An Environment Statement (ES) was produced for this outline development proposal in December 2019[40].

The proposed ERF covers an area of approximately 10ha (NGR NZ54312145) and will be capable of processing up to 450,000 tonnes of waste per annum.

The ES identified potential impacts to common toad, brown hare and invertebrates from the construction of the proposed development, with brown hare potentially disturbed also during the operation of the development. The impact to these, and other species is mitigated through the creation of a designated biodiversity area of approximately 7ha which will be safeguarded, enhanced and managed for the lifetime of the facility. This area will provide enhanced habitats for amphibians, invertebrates and brown hare. Following the implementation of this mitigation, no significant residual impact is expected from the ERF development. An alternative

[40] JBA Consulting, Fore Consulting and Hoare Lea (19 December 2019) Energy Recovery Facility, Grangetown Prairie, Redcar – Volume 1: Environmental Assessment.

to providing the 7ha of on-site mitigation, would be for the ERF development to contribute to a scheme(s) of off-site habitat / biodiversity enhancement that is to be defined through the completion of STDC's Environment and Biodiversity Strategy.

It is therefore considered that there will be no cumulative impact from the proposed ERF development and the Eston Road proposed development site.

Table 5: Summary of Impacts 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 Holme Beck from de-culverting and construction work close to watercourse.	Dust, water or contaminated soils from construction work pollutes habitats.	Potential impact to the habitats within the Teesmouth and Cleveland Coast SPA and Ramsar that support the foraging and commuting activities, and/or roosting and nesting of the qualifying features.	CEMP	No significant residual effects.
Teesmouth and Cleveland Coast SSSI and NNR	Pollution of Holme Beck from de-culverting and construction work close to watercourse	Dust, water or contaminated soils from construction work pollutes habitats.	Potential impact to qualifying species (harbour seals) and habitats within the SSSI and NNR.	CEMP	No significant residual effects.
Common toad	Habitat loss from site clearance	Loss of small area of sub-optimal foraging and commuting habitat for locally important population of common toad.	Not significant	n/a	n/a
Brown hare	Habitat loss from site clearance	Loss of a small area of sub-optimal foraging habitat for locally important population of brown hare.	Not significant	n/a	n/a
Dingy skipper and grayling butterfly	Habitat loss from site clearance	Loss of small area of suitable habitat for locally important populations of grayling and dingy skipper	Not significant	n/a	n/a

7 Creation, Enhancement and Monitoring

This section of the assessment involves identifying appropriate compensation measures to offset the loss of the total value of habitats and identify opportunities for ecological enhancement.

Compensation describes measures taken to make up for 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.

Enhancement is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures. In BNG terms, enhancement could be described as 'Biodiversity Net Gain'.

7.1 Creation and Enhancement

As described in Section 4.6, all semi-natural habitats within the proposed development site have an ecological value and although the loss of these habitats is not considered to be significant within the EcIA, the collective loss of them is considered significant in terms of the BNG assessment, and should be compensated for to achieve 'No Net Loss' in biodiversity.

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.

All the habitats within the red line boundary are considered likely to be lost during construction of the proposed development, and the total value of these habitats needs to be compensated for.

In the effort of achieving no net loss (compensation) and minimising the reduction in habitats and biodiversity, the creation of the following types of habitats, as defined by the UK Habitat Classification system[37] have been incorporated into the indicative landscape design.

Further details on the condition and scoring of these created and enhanced habitats is provided in Appendix D3.

7.1.1 Habitat Areas

7.1.1.1 Grassland – Other Neutral Grassland

A total area of approximately 1.89ha of neutral grassland will be planted within the proposed development site. This habitat will include 'tussocky' grass species, red fescue and bird's foot trefoil, to provide suitable breeding habitat for a number of butterfly species, including dingy skipper and grayling butterfly.

This habitat will include the grassy SuDS pond within the north west corner of the proposed development site and will be the primary habitat planted on the banks of the Holme Beck.

Of this 1.89ha, 1.22ha will be in 'poor(1)' condition with the remaining 0.67ha targeted to reach 'moderate (2)' condition.

A precautionary approach has been taken, and it has been assumed that the majority of the grassland habitat may not reach a condition better than 'poor (1)'. This 'poor' condition assessment is assumed on the basis that the grassland will predominately be next to an active road corridor and pedestrian pathways. It is therefore likely that this habitat will be regularly managed through mowing and/or fertiliser treatment and may require re-sowing or weed control.

The grassland that will be planted adjacent and within the SuDS pond will be left primarily unmown and planted with the desired species mix as outlined in the UK Habitats Description of neutral grassland[18]. It is believed, that following the implementation of a management plan, this area of neutral grassland can reach a 'moderate (2)' condition.

7.1.1.2 Heathland and Scrub – Mixed Scrub

An area of approximately 0.50ha of mixed scrub will be planted within the proposed development site. This habitat will not include sea buckthorn which is considered invasive within the Teesside area. This habitat should primarily be scattered through the proposed development site with some larger concentrated areas which will provide suitable covered areas for brown hare.

In order to achieve and maintain a moderate habitat condition the following points will be adopted where appropriate:

- A diverse mix of scrub species will be planted. The following species are considered undesirable species and will not be planted: creeping thistle (*Cirsium arvense)*, common nettle (*Urtica dioica*), cherry laurel (*Prunus laurocerasus*), rhododendron (*Rhododendron ponticum*) and sea buckthorn.
- The scrub will have a mix of age ranges with a mixture of seedlings, saplings, young and mature shrubs;
- The more concentrated areas of scrub will have clearings and/or glades; and
- The scrub will have a well-developed edge with un-grazed/ unmown tall herbs.

7.1.1.3 Urban - Amenity Grassland

An area of amenity grassland currently exists within the proposed development site (Section 5.3.2.5). For aesthetic reasons, and ease of maintenance of such a tiny area, this habitat will be re-created in the same location, and will connect to the larger block of amenity grassland existing immediately adjacent to the proposed development site. Additional areas of amenity grassland will be planted along the pedestrian cycle and footpaths for a total amenity grassland area of 0.42ha.

The pressures from Eston road and pedestrian movements is likely to cause nutrient loading to these areas of amenity grassland. Furthermore, these areas are likely to be heavily managed through a mowing regime. Due to this, the amenity grassland is considered to be unsuitable for enhancement to neutral grassland and it is assumed that this habitat will not reach a condition better than 'poor (1)'.

7.1.2 River Enhancement

7.1.2.1 Class 4 Water Course

As part of the proposed development works the Holme Beck, where culverted, will be enhanced through daylighting. The whole of the Holme Beck within the proposed development site, including the currently non-culverted section will be enhanced through the removal of the vertical stone banks, with more naturally sloped and vegetated banks. This beck will meander with the channel bed varied in slope and profile, allowing for an increased variation in flow. It is considered that if these enhancements are achieved within the Holme Beck, the condition of the watercourse can be upgraded to 'moderate (3)'.

As outlined in the RCBS Local Plan[6], the reinstatement and/or repair of the landscape back to a more natural state should be targeted. The Local Plan states that the biodiversity and habitats of watercourses should be improved and enhanced, because of this, the daylighting of the Holme Beck is considered to have a high strategic significance.

7.1.3 Linear Hedge/Tree Creation

7.1.3.1 Line of Trees – Associated with Bank or Ditch

The proposed development site will be further enhanced through the creation of linear trees between the road corridor, pedestrian pathways and the Holme Beck. Native tree species will be planted. This planting is expected to be 1.6km in length.

7.1.3.2 Native Hedgerow – Associated with a Bank or Ditch

The proposed development site will be further enhanced through the creation of a native hedgerow parallel to the line of trees, the road corridor and alongside Holme Beck. Native hedge species will be planted. This planting is expected to be 1.6km in length.

7.2 Monitoring and Maintenance

Any created or enhanced habitats of medium or high distinctiveness, installed as part of the proposed development will be monitored post-construction to ensure continued suitability for their intended purpose, and that the target distinctiveness and condition of these habitats has been achieved. A post-construction monitoring and maintenance plan should be produced prior to the commencement of construction which details the features to be monitored, timescales for monitoring

(to be agreed with the Local Authority), and the methods of maintenance. Once operational, a monitoring report should be produced at specified intervals, and shared with the Local Authority.

The monitoring and maintenance plan should include, but is not limited to details such as:

- Monitoring and maintenance of scrub habitat to ensure scrub encroachment on areas of grassland and open mosaic habitat is kept to a minimum and invasive plant species such as sea buckthorn do not grow;
    - The monitoring and maintenance of scrub habitat should also ensure that this habitat type reaches and remains in 'moderate' condition as desired. If moderate condition is not achieved, remedial action should be taken.
- Monitoring and maintenance of neutral grassland habitats to ensure the areas targeted to reach 'moderate' condition are not over managed, and the mix of species remains desirable.
    - The monitoring and maintenance of this area of neutral grassland should ensure this area reaches and remains in 'moderate' condition as desired. If moderate condition is not achieved, remedial actions should be taken.
- The SuDS should be monitored to ensure they suitably retain water following heavy periods of rain. SuDS ponds should also be maintained to ensure they remain free of rubbish and remain fit for purpose, whilst providing biodiversity benefits. This may include ensuring the growth of diverse vegetation and removing large amounts of leaf litter and/or decomposed vegetation.

8 Conclusions and Recommendations

8.1 Conclusions

In EcIA terms, following the implementation of a CEMP during construction, no significant adverse residual effects are expected as a result of construction or operation the proposed development.

In BNG assessment terms, with the creation of the habitats described in Section 7.1, a biodiversity loss of 23.86% in habitat area is expected within the proposed development site. With the daylighting enhancement of Holme Beck to moderate condition, a biodiversity net gain of greater than 10% is achieved for the watercourse (see Appendix D3 for a summary of the BNG calculations).

The loss in habitat area and subsequent loss in biodiversity should be considered and addressed by future developers and planning applications on the adjacent land within the Grangetown Prairie site where possible.

Further enhancements within the proposed development site will be created through the addition of native trees and a native hedgerow planted along the Holme Beck.

8.2 Recommendations

Particular attention should be drawn to the following recommendations:

- Construction of the proposed development will be managed through a CEMP, primarily to prevent pollution of Holme Beck and therefore the River Tees, and to ensure legal compliance with respect to nesting birds and control of invasive plant species (see Section 8.2.1 and 8.2.2);
- Habitat creation post-construction will include the following features:
    - 1.8ha of neutral grassland, including tussocky grass species that provide suitable breeding habitat for a number of butterfly species, including dingy skipper and grayling butterfly (red fescue and bird's foot trefoil);
    - 0.50ha scrub habitat throughout the proposed development site, with some larger concentrated areas which will provide suitable shelter for brown hare and common toad; and
    - 0.42ha of amenity grassland;
- A post-construction monitoring and maintenance plan will be produced prior to the commencement of construction, to ensure that any created or enhanced habitats of medium or high distinctiveness, installed as part of the proposed development, will be monitored post-construction to ensure continued suitability for their intended purpose. This will include monitoring and management of the SuDS feature to ensure it remains fit for purpose.

8.2.1 Breeding Birds

All wild birds in the UK are protected under the WCA 1981 (as amended). In order to remain legally compliant, any removal of vegetation (hedgerows, scrub, grassland) in order to facilitate the construction of the proposed development should be completed outside of the breeding bird season (March to August, inclusive).

If vegetation removal must occur within this season, a nesting bird check must be completed by a Suitably Qualified Ecologist (SQE) immediately prior to vegetation clearance works. If nesting birds are identified, the SQE will set up an appropriate buffer zone and all works in this area must cease until the chicks have fledged the nest.

8.2.2 Invasive Plant Species

It is an offence under the WCA 1981 (as amended) to cause the spread of invasive plant species listed on Schedule 9, into the wild. As invasive plant species (*Cotoneaster* sp.) have been identified within the proposed development site (Section 5.4.6) control or removal of these species must be undertaken in order to remain legally compliant.

All occurrences of invasive species must be controlled on-site or removed and disposed of off-site as a controlled waste. Construction of the proposed development should be undertaken following best practice guidelines, where plant material is cleaned by using such tools as a tyre wash to ensure there is no further spread of these or other invasive species. Tool-box talks should also be given to all relevant construction staff to ensure the spread of all invasive species is controlled. Finally, when landscaping is undertaken, only native species should be planted.

Appendix A

Proposed Development Site Red Line Boundary

0 0.5 1 2 3 4 Kilometers

Legend

- Proposed Development Site Boundary
- Grangetown Prairie Area

Holme Beck Culvert

- Culverted section
- Open section (150m)

Habitats

- Amenity Grassland
- Grassland - Modified Grassland
- Woodland - Other Broadleaved Woodland
- Scrub - Other Seabuckthorn Scrub
- Urban - Artificial, unvegetated unsealed surface
- Urban - Developed land; sealed surface
- Sparsely vegetated land – Ruderal/Ephemeral
- Sparsely vegetated land – Ruderal/Ephemeral (Moderate Condition)

Map Name: Appendix A - Proposed Development Site Red Line Boundary and Associated Habitats

Map Number: -

Project Title: Eston Road Highway Scheme

Date:28/05/2020

Scale at A3: 1:3,500

Eston Road Highway Scheme

Redheugh House, Teesdale South, Thornaby Place,
Stockton on Tees, TS17 6SG
Tel +44 1642 356 590 | www.arup.com

Appendix B

Proposed Road Corridor

0 0.5 1 2 3 4 Kilometers

Legend

- Proposed Development Site Boundary
- Grangetown Prairie Site
- SuDS Basin

Holme Beck Culvert

- Culverted section
- Open section (150m)

Habitats

- Amenity Grassland
- Grassland - Modified Grassland
- Woodland - Other Broadleaved Woodland
- Scrub - Other Seabuckthorn Scrub
- Urban - Artificial, unvegetated unsealed surface
- Urban - Developed land; sealed surface
- Sparsely vegetated land – Ruderal/Ephemeral
- Sparsely vegetated land – Ruderal/Ephemeral (Moderate condition)

Map Name: Appendix B - Proposed Development Site Road Corridor

Map Number: -

Project Title: Eston Road Highway Scheme

Date:28/05/2020 Scale at A3: 1:3,500

Eston Road Highway Scheme

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Appendix C

Legislation and Planning Policy

C1 Legislation

C1.1 The Conservation of Habitats and Species Regulations 2017

The Conservation of Habitats and Species Regulations 2017[3] consolidated all the various amendments made to The Conservation of Habitats and Species Regulations 2010 and the Conservation (Natural Habitats, &c.) Regulations 1994 in respect of England and Wales. The 1994 Regulations transposed Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law.

The Regulations are the British response to the Council Directive issued by the European Community (EC) (which is now the European Union (EU)).

Regulation 63 of The Conservation of Habitats and Species Regulations 2017 (hereby referred to as the 'Habitats Regulations') requires a competent authority to make an 'appropriate assessment' of the implications of a plan or project on a European designated site in view of its conservation objectives, before deciding to undertake or give consent for a plan or project which: (a) is likely to have a significant effect on a European site (either alone or in combination with other plans or project); and, (b) is not directly connected with or necessary to the management of that site. In light of the conclusions of the assessment, the competent authority may proceed with or consent to the plan or project only after having ascertained that it would not adversely affect the integrity of the European site.

The Regulations offer protection to a number of 'European Protected Species' (EPS), listed in Schedule 2 of the Regulations. The Regulations make it an offence [amongst others] to deliberately capture, injure, kill or disturb these species, or to damage or destroy a breeding site or resting place of such an animal.

The Regulations in relation to EPS have been amended and consolidated with key changes including the removal of most of the defences from Regulation 42 and Regulation 45, including the removal of the 'incidental result of an otherwise lawful operation' defence, and the increase in the threshold for the offence of 'deliberately disturbing an EPS'.

Proposals that will affect EPS may require a licence from Natural England to allow an otherwise unlawful act. The species protection provisions of the Habitats Directive, as implemented by the Conservation of Habitats and Species Regulations 2017, contain three 'derogation tests' which must be applied by Natural England when deciding whether to grant a licence to a person carrying out an activity which would harm an EPS.

C1.2 Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017

The WCA[4] is the primary legislation covering endangered species in England and sets out the framework for the designation of Sites of Special Scientific Interest (SSSI). It confers differing levels of protection on species themselves, their habitats, or both, depending on their conservation status.

Species offered protection by the Act are listed in a series of schedules. These schedules are subject to a rolling review on a five-yearly basis. Protected species are listed under Schedule 1 (birds), Schedules 5 and 6 (animals other than birds and invertebrates) and Schedule 8 (plants).

The WCA makes it an offence (with exception to species listed in Schedule 2) to intentionally kill, injure, or take any wild bird, take, damage or destroy the nest of any wild bird while that nest is in use or being built or take or destroy an egg of any wild bird. Special penalties are available for offences related to birds listed on Schedule 1, for which there are additional offences of disturbing these birds at their nests, or their dependent young.

The WCA makes it an offence to plant or otherwise cause to grow any plant species listed on Schedule 9 of the Act. This includes the invasive non-native species Small-leaved cotoneaster.

C1.3 Natural Environment and Rural Communities (NERC) Act 2006

The NERC Act 2006[5], is designed to help achieve a rich and diverse natural environment and thriving rural communities. Under Section 40 there is a duty to conserve biodiversity; specifically, Subsection (1) states "*The public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity*."

Section 41 of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The Section 41 referenced list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act 2006.

Habitats and species of principal importance in England include the habitats and species in England that were identified as requiring action in the now succeeded UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework[41].

[41] JNCC (July 2012) UK Post-2010 Biodiversity Framework. https://jncc.gov.uk/our-work/uk-post-2010-biodiversity-framework/. Accessed 21 May 2020.

There are 50 bird species which are Species of Principal Importance (SoPI), none of these are present within the proposed development site.

C2 Planning Policy

C2.1 National Planning Policy Framework (NPPF)

The original National Planning Policy Framework (NPPF)[7] was published in March 2012, with an updated version published in February 2019. The policies in the original Framework took immediate effect, and previous planning guidance in PPGs and PPSs has been revoked and replaced by the NPPF. Therefore, the NPPF is non-statutory though is a material consideration in all planning decisions from March 2012.

The updated version of the NPPF took effect immediately for development management decisions as of February 2019. NPPF refers the responsibilities of the local authorities to conserve the natural environment with respect to the use of the 'Circular 6/2005: Biodiversity and Geological Conservation – Statutory Obligation and their Impact within the Planning System' as guidance in this process.

All public bodies including local planning authorities are required to consider habitats and species of principal importance and Priority Species / Habitats within local Biodiversity Action Plans when considering a planning application.

Paragraph 170 of the NPPF states: "*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*."

Paragraph 174 of the NNPF states: "*To protect and enhance biodiversity and geodiversity, plans should promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity*."

Developments should therefore propose net gains in biodiversity in order for planning permission to be granted under NPPF policy.

C2.2 Redcar and Cleveland Local Plan

The Local Plan[6] came into effect in May 2018 and sets out the overall development strategy and vision for the Council's area. The plan outlines how to achieve the strategy for the period up to 2032. It replaces in full the Core Strategy and Development Policies Development Plan Document (2007) and saved Local Plan policies (1999) as the statutory planning policy for the area.

The Local Plan will support, under Policy N4: "*high quality schemes that enhance nature conservation and management, preserve the character of the natural environment and maximise opportunities for biodiversity and geological conservation, particularly in or adjacent to, Biodiversity Opportunity Areas in the*

wider Tees Corridor, Teesmouth, East Cleveland and Middlesbrough Beck Valleys areas".

Policy N4 also seeks to: "*protect and preserve local, national and international priority species and habitats and promote their restoration, re-creation and recovery*".

The Local Plan recognises the need for early consideration of biodiversity in the design stage, and that: "*areas of biodiversity on brownfield land should be retained and enhanced alongside any remediation of contamination, where possible*".

As stated in the NPPF, the Local Plan also states support for net gains in the value of biodiversity through new developments. Where, as a last resort, compensation must be provided this should be local and representative to the area of loss.

The Local Plan supports: "*maximising the role of green infrastructure in mitigating and adapting to climate change, providing solutions for such issues as air quality, flood risk, coastal change and loss of habitats*."

C3 Guidance

C3.1 South Tees Regeneration Masterplan

The South Tees Development Corporation was established in 2017 and in November 2019 published its masterplan for the site. The masterplan supports the South Tees Supplementary Planning Document (SPD), which was formally adopted in 2018 following completion of statutory consultation.

The masterplan provides a framework for regenerating the area and provides a detailed overview of the existing conditions and future aspirations for the area. There are 10 core principles of the masterplan and principle 8 has particular relevance to the Environment and Biodiversity Strategy:

- Principle 8 – *deliver redevelopment in a way that reduces pollution, contributes to habitat protection and long-term sustainability, and that encourages biodiversity.*

While this principle is focused on environment and biodiversity, this strategy will be informed by all the core principles of the masterplan.

C3.2 South Tees Area Supplementary Planning Document

The purpose of the SPD is to define a spatial strategy and set of requirements for development proposes within the STDC area[8]. In doing so a clear vision has been defined to address heavy industry legacy effects on the environment, improve existing infrastructure and to drive the transformation of the area into a new industrial park.

The SPD aims to "*identify those key opportunities to protect, enhance and manage assets of ecological and heritage importance that will further enhance the South Tees Area*".

The South Tees Area will be regenerated through a single vision. This vision has been set out through ten key objectives. Objective 8 intends to "*Deliver redevelopment in a way that provides long term sustainability, reduces pollution, manages the water environment, protects the historic environment, contributes to habitat protection, safeguards biodiversity and enhances green infrastructure, open space and landscape character*".

The objectives are achieved through 'Development Principles'. Principle STDC7 focuses on the enhancement and protection of the natural environment. Therefore, all development proposals must be in accordance with the requirements of STDC7 and to respond to their environmental context specifically to protect, and where possible enhance, biodiversity and geodiversity interests.

STDC 7 outlines the need for a coordinated approach to environmental protection and enhancement, with open spaces being used as connectors rather than barriers

to development. STDC7 goes on to state: "*...Net environmental gains should be provided* ***where appropriate and viable****, in accordance with Policies N2 and N4'*

C3.3 Birds of Conservation Concern

Commonly referred to as the UK Red List for birds, this is the fourth review of the status of birds in the UK, Channel Islands and Isle of Man, and updates the last assessment in 2009. Using standardised criteria, 244 species with breeding, passage or wintering populations in the UK were assessed by experts and assigned to the Red, Amber or Green lists of conservation concern.

The assessment is based on the most up-to-date evidence available and criteria include conservation status at global and European levels and within the UK: historical decline, trends in population and range, rarity, localised distribution and international importance.

C3.4 Tees Valley Local Biodiversity Species List

Although the Tees Valley Biodiversity Action Plan (BAP) no longer exists as a plan, the Natural Assets Working Group of the Tees Valley Nature Partnership still maintains a critical element of the BAP in the form of the Tees Valley local biodiversity species list.

This includes species which may be present within the proposed development site, namely common toad, brown hare, dingy skipper and grayling butterfly.

Appendix D

Biodiversity Net Gain Methodology

D1 Biodiversity Net Gain – Habitat Areas

D1.1 Introduction

The Biodiversity Net Gain (BNG) calculations, using the Natural England Biodiversity Metric 2.0 (BM2.0), are being undertaken to inform approximate habitat areas required to mitigate and compensate for the loss of semi-natural habitats as a result of the proposed development, and enhance habitats to achieve biodiversity net gain.

BM2.0 provides developers, planners, land managers and others with a tool to help limit damage to nature in the first place and to help it thrive.

D1.2 Principles of the Biodiversity Metric

BM2.0 uses habitat features as a proxy measure for capturing the value and importance of nature. It uses a simple calculation that takes into account the importance of these features for nature: their size, ecological condition, location and proximity to nearby 'connecting' features. BM2.0 enables assessments to be made of the present and forecast future biodiversity value of a site.

The metric accounts within it for some of the risks associated whenever new habitat is created or existing habitat is enhanced, including the difficulty of creating or restoring a habitat, and the temporal risk (i.e. the time a new habitat takes to establish).

In calculation terms, the change in biodiversity units is determined by subtracting the number of pre-intervention biodiversity units (i.e. those originally existing on-site and off-site) from the number of post-intervention units (i.e. those projected to be provided).

BM2.0 includes additional supplementary modules for habitats that are not well described by their area. These are linear habitats, for which habitat length is often a more meaningful measure of their extent than area, broadly apply to hedgerows and lines of trees, and rivers and streams. These parts of the metric are calculated differently and have their own discrete biodiversity unit types. It is an important rule of the metric that the biodiversity units calculated through the core habitat area-based metric and each of the linear units are unique and cannot be summed or converted. For detailed methodology and results for the Rivers Metric, see Appendix D.

It is worth noting that BM2.0 does not include species explicitly. Instead, BM2.0 uses broad habitat categories as a proxy for the biodiversity 'value' of the species communities that make up different habitats. The metric does not change existing levels of species protection and the processes linked to protection regimes are outside the scope of the metric.

D1.3 Methodology

Available baseline information has been used to calculate the number of 'biodiversity units' generated by the habitats present within the proposed development site.

Based on the assumption that all habitats within the proposed development site could be lost to the development, calculations have been made to determine approximate habitat areas required to mitigate and compensate for the loss of semi-natural habitats, and to achieve biodiversity net gain.

D1.3.1 Habitat Classifications and Distinctiveness

D1.3.1.1 Grasslands: Modified Grassland (g4)

Rank grassland of any kind, which would fit with the category of 'B6-poor semi-improved grassland' in the Phase 1 Habitat classification, is classed as 'modified grassland (g4)' in line with the UK Habitat Classification, and receives a distinctiveness score of 'low (2)'.

D1.3.1.2 Other Broadleaved Woodland

If a woodland has been recently felled (within the last 4-5 years), the assessments needs to be based on the trees that stood on the site prior to felling. It should be recorded as the original woodland type, the age of the trees and note that it has been felled.

Only if the felling occurred a considerable time previously (4-5 years +) with no obvious replanting progressing then it may be appropriate to classify as the now prevailing habitat.

In the case of the proposed development site, there is previous ecological data available in the form of the 2018 PEA conducted by INCA of the condition, species composition and age of the woodland prior to it being felled. It is therefore required that the woodland habitat is classified as 'Other Broadleaved Woodland' and receives a distinctiveness score of 'moderate (4)'.

D1.3.1.3 Ruderal/Ephemeral (17), Artificial Unvegetated / Unsealed Surface (u1c) and Open Mosaic Habitats on Previously Developed Land (u1a)

Habitats would be classed as Open Mosaic Habitats (OMH) only where they meet **all** the descriptors set out in the definition of OMH, as stated in the BM2.0 Technical Guidance.

The two descriptors of OMH that are particularly relevant to the classification of habitats at the proposed development site are:

1. Known history of disturbance at the site or evidence that soil has been removed or severely modified by previous use(s) of the site; and

2. The site contains unvegetated, **loose** bare substrate.

While land within the proposed development site has been altered from its natural state by the addition of industrial spoil, principally in the form of blast furnace slag (but in some cases crushed building materials), this material has been added for the purpose of forming areas of flat, hardstanding as a base for industrial operations. The nature of this material, being porous, alkaline and low nutrient makes it conducive to colonisation by a diverse and slightly specialised flora, whilst retaining some bare ground, but its structure does not meet the description of OMH. In many cases this material has been in situ for decades and in places has developed a very thin layer of soil so that the surface may be loose but with certain exceptions this is **merely a dressing on top of hardstanding and is not disturbed**.

In these calculations such habitats are considered to fit with the Phase 1 Habitat classification as 'ephemeral/ short perennial', which equates to the 'ruderal/ephemeral' category of the UK Habitat Classification and receives a distinctiveness score of 'low (2).

Where an area is effectively unvegetated but is not sealed, then this is classed as 'artificial unvegetated; unsealed surface' habitat, in line with the UK Habitat Classification, which defines this category as 'land cleared for development, infrastructure, construction or other purpose, currently unvegetated, but the soil surface is not sealed with impervious materials'. **INCA have interpreted 'unvegetated to be defined as areas where the total vegetation cover including bryophytes and lichens is <10%.**

D1.3.2 Condition

The BM2.0 technical supplement defines the condition assessment criteria for each habitat type.

For certain habitat types, some alternative site-specific condition criteria have been developed by INCA for Teesside, which are of relevance to the proposed development. These should provide a more detailed, and locally relevant condition assessment for certain habitats, as outlined below.

D1.3.2.1 Ruderal/Ephemeral (17)

The BM2.0 does not provide specific guidance on condition criteria for ruderal/ephemeral habitats, although it could be assumed that the condition assessment criteria for the urban habitat type are the most relevant

Condition depends principally on the diversity and coverage of typical herb species though, like for OMH, some scattered bare ground is a positive factor.

The following factors have been used to determine the condition:

- the number of early-successional plant species that typify this habitat;
- the percentage cover of early-successional herb species;

- the mixture of bare ground. Bare ground should be scattered. Where it occurs in blocks of >10% of the area it is a negative factor. Any blocks of bare ground of 0.25ha or larger should be recorded as a separate habitat; and
- The percentage cover of non-native, invasive plant species. (*N.B. except buddleia and Red Valerian. These can total up to 10% between them with anything above that being counted in the total invasive species cover*).

Table 6 indicates the typical ranges for each condition category but as there are various permutations then some professional judgement from INCA has been required in their use, to apply a single score.

Table 6: Typical Ranges for each Condition Category for Ruderal/Ephemeral Habitat on the proposed development site (INCA)

Condition	Score	No. species	% cover	Bare ground	Invasive species
Good	3	10 or more	75-90	10-20% unevenly distributed	<5%
Fairly Good	2.5	8 or more	65-90	10-20% unevenly distributed	<5%
Moderate	2	6 or more	50-90	10-40% unevenly distributed	<10%
Fairly Poor	1.5	4 or more	40-90	40-75%	<20%
Poor	1	Less than 4	10-25%	>75%	>20%

D1.3.2.2 Sea-Buckthorn Scrub (Other) (H3C6)

Within the BM2.0, Sea-buckthorn scrub is considered a desirable habitat type and scores a distinctness score of medium (4). However, sea-buckthorn is considered to be an invasive species within the Teesside area, which is not represented in this moderate distinctiveness score.

When determining the condition score of this habitat, the dominate species were considered to be invasive species (sea-buckthorn as well as buddleia) which would classify the condition of the scrub as poor. However, the scrub habitat had a desirable structure and age range of species.

Therefore, due to the dominant species being invasive species but the scrub structure and age being desirable, the scrub habitat was given a condition of ‘fairly poor.’

D1.3.3 Connectivity

As detailed in the BM2.0 connectivity tool guidance[42], the connectivity tool should be used only to calculate ecological connectivity for habitats with a 'high' or 'very high' distinctiveness value.

For all habitats scoring 'medium' or lower, the interim guidance as described in the BM2.0 user guide should be implemented. In the user guide, it states that any habitats with a distinctiveness value of medium or lower should be afforded a connectivity score of 'low'.

In the case of this proposed development site, no habitats recorded had a distinctiveness value of 'high' or 'very high,' therefore all habitats were afforded a connectivity score of 'low (1)'.

D1.3.4 Strategic Significance

The strategic significance of the habitats within the proposed development site was assessed on the priority habitats described within the Tees Valley Nature Partnership document[10], and INCA's wider understanding of habitats that are considered to be ecologically desirable in the wider South Tees area.

As none of the habitats within the proposed development site are considered to be a HoPI or locally important in the South Tees area, they have all been given a strategic significance score of 'low (1).

Appendix D3 summarises the scores used in the BNG assessment.

[42] Natural England (2019) Biodiversity Metric 2.0 – Connectivity Tool Guidance. Natural England Joint Publication JP029.

D2 Biodiversity Net Gain – River's Metric

File Note

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cc	Nichelle Murray, Jessica Boath	File reference	6-02 Reports
Prepared by	Tom House, Simon Fleming, Matthew Sanders	Date	14 May 2020
Subject	Biodiversity Net Gain Methodology and Assessment of the On-site River Baseline		

1 Introduction

This appendix summarises the methodology and assessment used for the Rivers and Streams component of the Biodiversity Net Gain (BNG) assessment carried out for the proposed development. As it was not possible to carry out a detailed Modular River Survey (MoRPh)[1],[2] for this project, an alternative field survey approach and assessment has been used to determine the input values for River Distinctiveness and River Condition. This document includes:

- Section 2: Methodology employed to assess River Distinctiveness and Condition;
- Section 3: Survey and assessment results for Holme Beck; and
- Section 4: Summary table of scores to inform the BNG assessment.

2 Methodology

The methodology used to determine River Distinctiveness and River Condition is described below. This involved a search of available desk study information and analysis of field survey data collected in May 2020. Relevant information pertaining to the physical aquatic and riparian habitat structure and diversity, and the degree of anthropogenic alteration of Holme Beck was collected in the field. These data provide a proxy for the overall riverine ecological quality.

[1] Modular River Survey (2020) https://modularriversurvey.org/. Accessed 12/05/2020
[2] A MoRPh survey form was utilised during the survey, however the surveyor is not formally trained to undertake MoRPh surveys.

2.1 River Distinctiveness

Determination of River Distinctiveness was consistent with the approach set out in the BNG Metric 2.0 guidance[3]. The distinctiveness categories for rivers and streams are based on two classifications: Priority Habitats as defined by JNCC,[4] and 'River Naturalness'[5].

Priority Habitat includes a number of river types, namely:

- Chalk Rivers;
- Watercourses with water crowfoot assemblages (Habitats Directive Annex I habitat H3260);
- Active shingle rivers; and
- Headwater streams.

The Natural England Priority River Habitat map[6] was consulted to determine whether the watercourses on site were mapped as Priority Habitat. In addition, an assessment of whether the watercourses met the qualifying criteria for Priority Habitat as defined by JNCC was undertaken using the field survey data collected.

A 'River Naturalness Assessment' was also carried out based on field survey data. This assessment has been created by Natural England to highlight rivers and streams that should be classified as priority river habitat in response to a known lack of coverage of priority river habitat, particularly for headwater streams. The River Naturalness Assessment derives a number of class scores based on their perceived naturalness ranging from 1 (natural systems) to 5 (modified) within the following categories: physical, hydrological, water quality and biological.

2.2 River Condition

River condition was determined based on a combination of desk-study information and the results of a field survey. Relevant information pertaining to the physical aquatic and riparian habitat structure and diversity, and the degree of anthropogenic alteration were used to inform the assessment. This information provides a proxy for the overall riverine ecological quality.

The approach is qualitative in nature and carried out in cognisance of the reach scale desk-based assessment and sub-reach scale field assessment components of the River Metric Survey, aligning with this assessment method where possible. The survey was carried out by competent field ecologists with experience in assessing river and stream habitats. Surveyors employed a precautionary approach to determine the subsequent condition classification for each watercourse.

[3] Crosher, I., Gold, S., Heaver, M., Heydon, M., Moore, L., Panks, S., Scott, S., Stone, D., & White, N. (2019) The Biodiversity Metric 2.0: auditing and accounting for biodiversity value. User guide (Beta Version, July2019). Natural England.

[4] as defined under section 41 of the Natural Environmental and Rural Communities Act 2006.

[5] Natural England (2019) Guidance on river naturalness assessment, http://priorityhabitats.org/wp-content/uploads/River-naturalness-assessment-guidance-document-December-2019.pdf Accessed: 14 May 2020

[6] Natural England (2017) Priority River Habitat - Rivers (England), https://naturalengland-defra.opendata.arcgis.com/datasets/priority-river-habitat-rivers-england?geometry=-2.221%2C54.646%2C-0.914%2C54.785 Accessed: 18 May 2020

2.2.1 Part 1: Reach Scale Assessment

The river was assigned to one of 13 river types that are likely to be encountered in England. River type is informed by eight river type indicators which are combined to determine the indicative river type. Each river type indicator is then run through the River Metric information system to produce the indicative river type. In lieu of access to the River Metric information system, a best fit river type was determined following the river type decision tree included in the River Metric outline guidance document[7].

2.2.2 Part 2: Sub-reach Scale Assessment

Information pertaining to the characteristics of the bank top, bank face, channel margin and channel bed zones of the river were collected in the field. The surveyor considered key aspects of river habitat quality within each of the zones including vegetation type and structure, channel morphology and modification, and the presence of man-made structures and invasive non-native species.

2.2.3 Overall Condition

Both the reach and sub-reach scale assessment were considered when assigning the overall condition of the river for input into the Biodiversity Metric Calculator. The resulting condition category was determined by the professional judgement of an experienced surveyor.

3 Results

3.1 Distinctiveness

Holme Beck is not designated as Priority Habitat River and does not meet the qualifying criteria for priority habitat as defined by JNCC[8]. Desk-study information on river naturalness was not available, so a River Naturalness Assessment was carried out based on data collected on site to determine the distinctiveness of the waterbody. Based upon extensive physical modification, and evidence of moderate water quality pressure associated with road run-off and surrounding industrial land use, the overall River Naturalness score for the 150m survey reach has been determined to be **Class 4**.

3.2 Condition

3.2.1 Reach Scale Assessment

The surveyed reach of Holme Beck is considered to best fit the river type category of a confined straight-sinuous river with predominantly silt/clay/sand/gravel substrate (Type K).

[7] River Condition Outline (2020) Part of the Rivers and Streams Component of the Biodiversity Net Gain Metric, https://modularriversurvey.org/wp-content/uploads/RIVER-CONDITION-OUTLINE-Feb2020.pdf. Accessed 13 May 2020

[8] JNCC (2011) UK Biodiversity Action Plan Priority Habitat Descriptions – Rivers. http://data.jncc.gov.uk/data/01d6ab5b-6805-4c4c-8d84-16bfebe95d31/UKBAP-BAPHabitats-45-Rivers-2011.pdf Accessed: 13 May 2020

3.2.2 Sub-reach Scale Assessment

The surveyed section of Holme Beck is canalised and straight. It runs immediately adjacent to Eston Road and is never further than one metre from the road. The beck flows through heavily modified land use associated with roads and historic industrial use and is culverted for large sections upstream and downstream of the surveyed reach. The surrounding land is "made ground" comprising blast furnace slag which is likely to be of considerable depth. It would appear that additional drainage from the road enters the beck through a pipe.

The bank top zone of Holme Beck consisted of short grasses and herbs (extensive), tall herbs/grasses (present) and scrub/shrubs (present). Trees/saplings were also recorded (trace). The bank tops were colonised principally by bramble (*Rubus fructicosus* agg.), and pendulous sedge (*Carex pendula*). The lower 0.5m of the banks were unvegetated apart from some bryophytes. No aquatic vegetation was recorded in the beck. No invasive non-native species were recorded in or around the watercourse and no associated water related features (ponds, wetlands, side channels) were observed.

The bank face was reinforced and vertical throughout. The artificial banks comprised concrete blocks and stone. In places, the lower parts of the banks appeared to consist of earth, but it was unclear whether this was just a covering of earth on top of the stone. Natural bank, channel margin, and channel bed features were absent.

The channel bed was dominated by silt (extensive). Given that the surrounding land was "made ground" comprising blast furnace slag, likely to be of considerable depth, the silt substrate is considered unlikely to be underlain by natural riverbed material. The flow types were predominantly smooth (extensive) or rippled (present). No artificial channel bed features (weirs or bridges) were recorded with the survey reach itself, however the river is culverted immediately upstream and downstream.

In summary, the surveyed reach of Holme Beck provides low habitat quality due to the historically straightened, artificially reinforced, culverted and over-deepened channel resulting in reduced flow and habitat heterogeneity and excessive shading. The modified nature of the beck, coupled with potential water quality pressures associated with road run-off, are expected to reduce the suitability of the reach for supporting natural ecological communities. Overall the condition of the surveyed reach of Holme Beck is considered to be **'fairly poor'**.

The condition of the culverted section in considered to be 'poor'.

3.3 Strategic Significance

Holme Beck is not explicitly mentioned in any of the listed documents[9,10,11] relating to strategic significance. Furthermore, the beck does not appear within the catchment of any Water Framework Directive waterbody. Consequently, it is considered that Holme Beck has low potential and therefore no strategic significance multiplier is applicable.

4 Summary

Table 1 summarises the river scores used in the BNG assessment. Full detail of the Rivers Metric is in Appendix D3.

Table 1: Summary of River Scores used in the BNG Assessment

River Section	Holme Beck – Culverted Section	Holme Beck – Channel Section
River type	Class 4	Class 4
Length	0.5km	0.15km
Distinctiveness	Medium (4)	Medium (4)
Condition	Poor (1)	Fairy poor (2)
Strategic Significance	Low (1)	Low (1)
Total River Units	**2 units**	**1.2 units**

DOCUMENT CHECKING (not mandatory for File Note)

	Prepared by	Checked by	Approved by
Name	Tom House, Simon Fleming, Matthew Sanders	Jessica Boath	Fraser Maxwell
Signature	 Simon Fleming		

[9] Middlesbrough Local Plan (2018) Middlesbrough Council. Accessed: 18/05/20 https://www.middlesbrough.gov.uk/sites/default/files/Middlesbrough%20Publication%20Local%20Plan.pdf

[10] Northumbria River Basin District Management Plan (2015) Environment Agency. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/718333/Northumbria_RBD_Part_1_river_basin_management_plan.pdf Accessed: 18 May 20

[11] Priority Habitat Creation and Restoration (2020) Environment Agency https://data.gov.uk/dataset/e0165747-8368-4ff7-a644-df9aeb27bb0b/priority-habitat-creation-and-restoration Accessed 18 May 20

D3 Biodiversity Net Gain – Habitat Creation and Enhancement Scores

Table 7: Total Valuation of Habitats – Summary of Biodiversity Net Gain: **Site Habitat Creation**

-	Area (ha)	Distinctiveness	Condition	Ecological Connectivity	Strategic Significance	Time to Target Condition/ Years	Difficulty of Creation Category	Habitat Units Delivered
Grassland – Other Neutral	1.22	Medium (4)	Poor (1)	Low (1)	Area/ compensation not in local strategy/ no local strategy (1)	1	Low (1)	4.71
Grassland – Other Neutral	0.67	Medium (4)	Moderate (2)	Low (1)	Area/ compensation not in local strategy/ no local strategy (1)	10	Low (1)	4.71
Urban – Amenity Grassland	0.42	Low (2)	Poor (1)	Low (1)	Area/ compensation not in local strategy/ no local strategy (1)	1	Low (1)	0.80
Heathland and Scrub – Mixed Scrub	0.50	Medium (4)	Moderate (2)	Low (1)	Area/ compensation not in local strategy/ no local strategy (1)	3	Low (1)	3.61
Totals	**2.81**	-	-	-	-	-	-	**12.89**

Table 8: Total Valuation of Linear River Features – Summary of Biodiversity Net Gain: **Site River Enhancement**

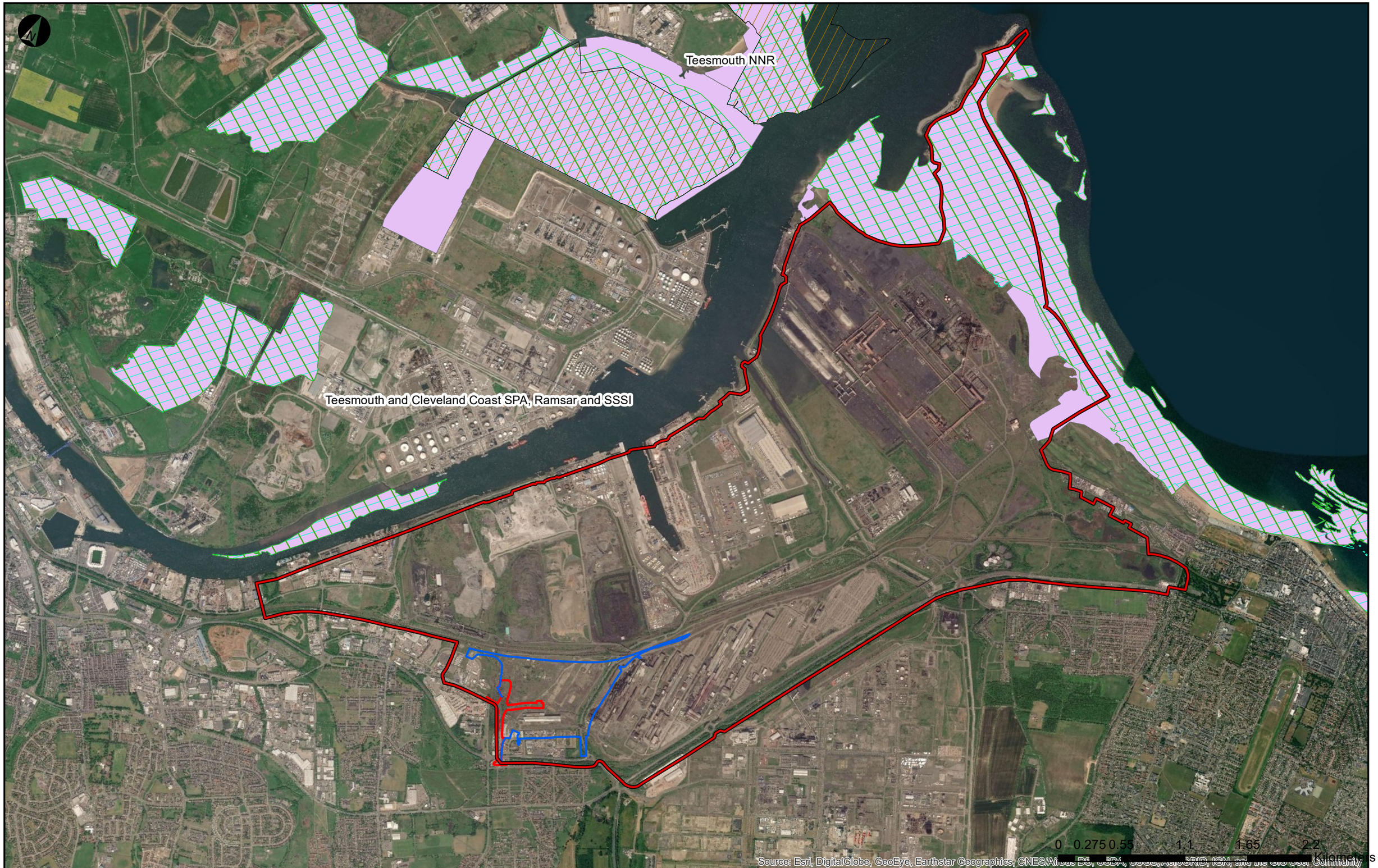
Proposed Habitat	**Length (km)**	**Distinctiveness**	**Condition**	**Strategic Significance**	**Time to Target Condition/ Years**	**Difficulty of Creation Category**	**Habitat Units Delivered**
Class 4 - River Naturalness Assessment Non- culverted section	0.15	Medium (4)	Moderate (3)	Delivery within Local Plans (1.15)	1	Medium (0.67)	1.37
Class 4 - River Naturalness Assessment Culverted section	0.5	Medium (4)	Moderate (3)	Delivery within Local Plans (1.15)	8	Medium (0.67)	3.46
Totals	-	-	-	-	-	-	**4.83**

Table 9: Total Valuation of Linear Tree and Hedge Features – Summary of Biodiversity Net Gain: **Site Hedge Creation**

Habitat Type	**Length (km)**	**Distinctiveness**	**Condition**	**Strategic Significance**	**Time to Target Condition/ Years**	**Difficulty of Creation Category**	**Habitat Units Delivered**
Line of Trees – Associated with Bank or Ditch	1.6	Low (2)	Moderate	Area/ compensation not in local strategy/ no local strategy (1)	20	1	3.14
Native Hedgerow - Associated with Bank or Ditch	1.6	Low (2)	Moderate	Area/ compensation not in local strategy/ no local strategy (1)	5	0.67	7.18
Totals	-	-	-	-	-	-	**10.32**

Appendix E

Designated Sites



Legend

- Proposed Development Site Boundary
- STDC Site Boundary
- Grangetown Prairie Area
- Ramsar Sites
- Special Protection Areas (SPA)
- National Nature Reserves (NNR)
- Sites of Special Scientific Interest SSSI

Map Name: Designated Sites within 5km of the Proposed Development Site	Eston Road Highway Scheme
Map Number: -	Project Title: Eston Road Highway Scheme
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Date:28/05/2020 Scale at A3: 1:30,000	The information shown on this map has been received from third-party sources and is given without obligation, or warranty; the accuracy thereof cannot be guaranteed. No liability of any kind whatsoever is accepted by Arup for any error or omission.