

# A63 Castle Street Improvement, Hull

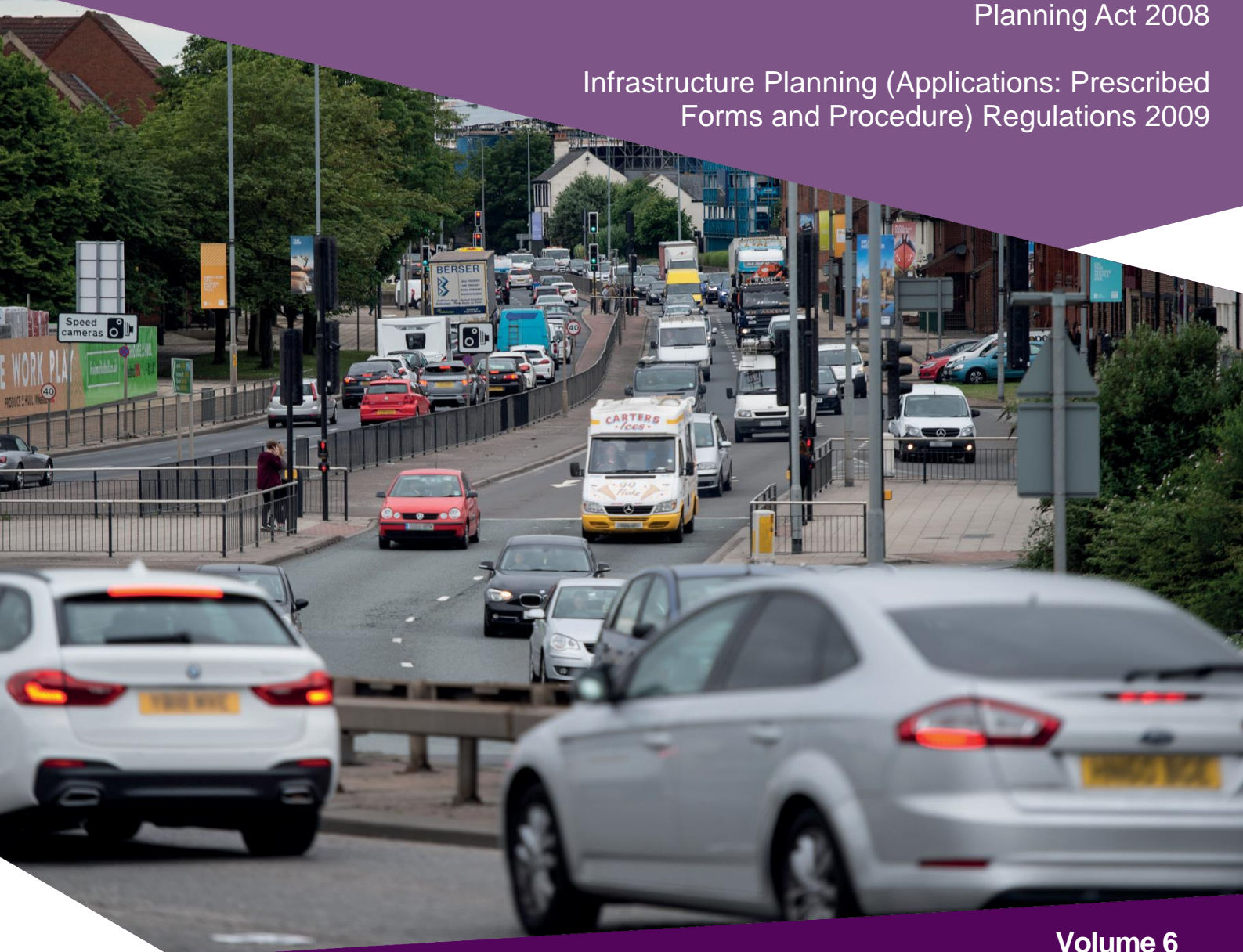
Scheme Number: TR010016

6.7 Ecology and Nature Conservation Assessment

APFP Regulation 5(2)(I)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed  
Forms and Procedure) Regulations 2009



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Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning  
(Applications: Prescribed Forms  
and Procedure) Regulations 2009**

**A63 (Castle Street Improvement, Hull)  
Development Consent Order 20[ ]**

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**ECOLOGY AND NATURE CONSERVATION ASSESSMENT**

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## **A63 Castle Street Improvements, Hull**

### **ECOLOGY AND NATURE CONSERVATION ASSESSMENT**

**TR010016/APP/6.7**  
**HE514508-MMSJV-EBD-S0-RP-LE-000001**  
**6 September 2018**

# A63 Castle Street Improvements, Hull

## Environmental Statement

### Volume 1 – Chapter 10 Ecology and nature conservation

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## 10 Ecology and nature conservation

### 10.1 Executive summary

- 10.1.1 The impact of the Scheme on ecology and nature conservation has been assessed in accordance with Highways England guidance within the Design Manual for Roads and Bridges (DMRB) (as updated by IAN 130/10<sup>1</sup>). Baseline information on ecological receptors was gathered through desk based studies, survey reports from earlier stages of Scheme development, updated field surveys in 2013, 2014, 2015, 2016, 2017 and 2018 and consultation with relevant organisations.
- 10.1.2 Ecological receptors of value relevant to the Scheme include the Humber Estuary (Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar and Site of Special Scientific Interest (SSSI) - international and national statutory designated site), Trinity Burial Ground Site of Nature Conservation Interest (Site of Nature Conservation Interest (SNCI) - local non-statutory designated site), mature amenity trees, bats and birds.
- 10.1.3 An Assessment of Implications on European Sites (AIES) is being undertaken separately as part of the application by Highways England to the Planning Inspectorate for the proposed Scheme. Noise, dust, sedimentation, contamination and vibration from piling operations, surface water run off, pollution spills and the re-siting of the Spurn Lightship during construction of the Princes Quay pedestrian, cycle and disabled user bridge have also been assessed in the AIES. The AIES for the Scheme is based on the findings of the Habitat Regulations Assessment (HRA) Screening Report for Princes Quay Bridge produced in August 2018 for Hull City Council (HCC) and the Marine Management Organisation (MMO) as the Competent Authority. This is currently undergoing consultation with the MMO and Natural England. The findings in the HRA Screening Report concluded that there would be no significant effects to the Humber Estuary designated sites, as did the subsequent AIES Screening Report for the Scheme. The document reference for the AIES is TR010016/APP/6.13).
- 10.1.4 36 mature trees are to be removed from Trinity Burial Ground SNCI to accommodate the Scheme, resulting in a significant adverse residual impact to this site during Construction and Operation Phases. A further 36 trees will be removed to facilitate the disinterment of graves. There are no opportunities to fully compensate for the reduction in area of this non-statutory designated site. At least 55 native mature and semi-mature trees would be planted as compensation and further large, semi-mature trees would be planted within the Mytongate Junction central reserve to create bat hop-overs. The understorey of the SNCI is to include

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<sup>1</sup> Design Manual for Roads and Bridges, Interim Advice Note 130/10 Ecology and Nature Conservation. Available online at: <http://www.standardsforhighways.co.uk/ha/standards/ians/pdfs/ian130.pdf>

native shrubs and plants to attract invertebrates. The significance of the effect on this receptor would be moderate adverse during both construction and operation, as the receptor is of county value and significant major adverse during construction and operation as it is UK Biodiversity Action Plan (UKBAP) and Natural Environment and Rural Communities (NERC) Act 2006 Section 41 priority habitat.

- 10.1.5 Approximately 245 amenity trees along the length of the rest of the Scheme Site would need to be removed during construction. The effect would be slight adverse, as this receptor is valued at a local level. Amenity trees would be replaced with new tree planting of a further approximately 307 trees additional to the replacement trees in Trinity Burial ground SNCI, mostly within the Scheme Site extents. The residual impact is not predicted to be significant during the Operation Phase.
- 10.1.6 No significant adverse residual impacts to bats or birds are predicted during the Construction or Operation Phases of the Scheme. Mitigation measures would include sensitive timing of habitat clearance, erection of bat and bird boxes in Trinity Burial Ground SNCI and new tree and shrub planting, including within the improved road to restore habitat connectivity across the carriageway at Mytongate Junction.

## 10.2 Introduction

- 10.2.1 This chapter presents the baseline ecological and nature conservation aspects of the Scheme Site and its environs and assesses the likely impacts of the proposed A63 Castle Street Improvements development upon them. Where required, mitigation measures are presented and discussed to reduce identified significant effects of the proposed development during construction and operation.
- 10.2.2 The key findings of up to date ecological surveys completed by Mott Macdonald Sweco JV (MMSJV) in 2013, 2014, 2015, 2016, 2017 and 2018 are detailed, as well as relevant results of previous surveys undertaken at earlier stages of the Scheme's development and the outcome of consultations, in particular with Natural England.
- 10.2.3 The assessment undertaken is in accordance with the most recently published Highways England guidance, as detailed in Section 10.5.
- 10.2.4 The Scheme Site, comprising the Scheme footprint and all temporary site compounds, is shown in Volume 2, Figure 2.3 Scheme Site. Field and desk based study areas in relation to the application site are described in Section 10.4.
- 10.2.5 Appendices to this chapter consist of:
- Appendix 10.1: Preliminary ecological appraisal
  - Appendix 10.2: Bat survey report

- Appendix 10.3: Breeding bird survey report
- Appendix 10.4: Wintering bird report

## 10.3 Legislative, regulatory and policy background

### International and European legislation

10.3.1 The following legislation has been taken into account. Further explanation of the content of the identified legislation in relation to designated sites, habitats and fauna is provided in Volume 3, Appendices 10.1, 10.2, 10.3 and 10.4. Additionally, Appendix 10.1 contains detailed information on the baseline studies and survey undertaken to inform this assessment.

#### *The Habitats Directive (Council Directive 92/43/EEC1992)*<sup>2</sup>

10.3.2 On the conservation of natural habitats and wild flora and fauna. The directive protects over 1000 animal and plant species and over 200 'habitat types' which are of European importance.

#### *The Birds Directive (Council Directive 2009/147/EC2009)*<sup>3</sup>

10.3.3 On the conservation of wild birds. The directive is a comprehensive scheme of protection for all wild bird species occurring in the European Union, many of which are migratory throughout the Member States.

### National legislation

#### *The Wildlife and Countryside Act 1981 (as amended)*<sup>4</sup>

10.3.4 The principal mechanism for the protection of wildlife in Great Britain. This legislation is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats (the 'Bern Convention') and the European Union Directives on the Conservation of Wild Birds (2009/147/EC) and Natural Habitats and Wild Fauna and Flora (92/43/EEC) are implemented in Great Britain. Part I of the Act provides for the protection of birds, other wild animals and specified plants. It also makes it an offence to plant or otherwise cause to grow non-native invasive plant species.

#### *The Countryside and Rights of Way Act 2000*<sup>5</sup>

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<sup>2</sup> The Habitats Directive (Council Directive 92/43/EEC1992). Available online at: <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31992L0043:EN:HTML>

<sup>3</sup> The Birds Directive (Council Directive 2009/147/EC2009). Available online at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32009L0147>

<sup>4</sup> Wildlife and Countryside Act. Available online at: <http://www.legislation.gov.uk/ukpga/1981/69>

<sup>5</sup> The Countryside and Rights of Way Act 2000. Available online at: <http://www.legislation.gov.uk/ukpga/2000/37/contents>  
<http://www.legislation.gov.uk/ukpga/2000/37/contents>

10.3.5 The CROW Act covers access to open country, public rights of way, the designation of Areas of Outstanding Natural Beauty (AONB) and nature conservation, by strengthening the protection given to Sites of Special Scientific Interest (SSSI) and threatened species.

*The Protection of Badgers Act 1992<sup>6</sup>*

10.3.6 Provides special measures for protection of badgers and their setts in Great Britain.

*Hedgerows Regulations 1997<sup>7</sup>*

10.3.7 Under the regulations it is against the law to remove or destroy certain hedgerows classed as ‘important hedgerows’ without permission from the local planning authority.

*The Natural Environment and Rural Communities Act 2006<sup>8</sup>*

10.3.8 Defines a list of species of flora and fauna and habitats of principal importance for the purpose of conserving biodiversity, (‘UK Biodiversity Action Plan’ (UKBAP) Habitats and Species). The act provides that any public body or statutory undertaker in England and Wales must have regard to the purpose of conservation of biological diversity in the exercise of their functions with regard to the species and habitats on this list.

*Highways England Biodiversity Action Plan 2015<sup>9</sup>*

10.3.9 The HEBAAP is Highways England’s plan to protect and increase biodiversity on the roads networks as one component part of their forthcoming Environment Strategy. Highways England “*expect management to be guided by the principles of Natural England’s The Mosaic Approach: Managing Habitats for Species.*” In addition, they “*expect efforts to target Priority habitats and species (as identified under the Natural Environment and Rural Communities Act 2006, Section 41) however it is understood that in certain environments, for example in urban areas with few protected species, other habitats and species may be more suitable.*”

## National policy

*National Planning Policy Framework 2012*

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<sup>6</sup> The Protection of Badgers Act 1992. Available online at: <http://www.legislation.gov.uk/ukpga/1992/51/contents>

<sup>7</sup> Hedgerows Regulations 1997. Available online at: <http://www.legislation.gov.uk/uksi/1997/1160/contents/made>

<sup>8</sup> The Natural Environment and Rural Communities Act 2006. Available online at: <http://www.legislation.gov.uk/ukpga/2006/16/contents>

<sup>9</sup> Highways England Biodiversity Action Plan 2015. Available online at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/441300/N150146\\_-\\_Highways\\_England\\_Biodiversity\\_Plan3lo.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/441300/N150146_-_Highways_England_Biodiversity_Plan3lo.pdf)

10.3.10 Following the publication of the National Planning Policy Framework (NPPF) in March 2012<sup>10</sup>, Planning Policy Statement 9 (PPS9): Biodiversity and Geological Conservation (2005) has been withdrawn. However, Office of the Deputy Prime Minister (ODPM) 06/2005: Biodiversity and Geological Conservation - Statutory Obligations<sup>11</sup> and their impact within the Planning System (the guidance document that accompanied PPS9) has not been withdrawn. Where more detailed guidance is required than is given within the NPPF, local planning authorities will continue to rely on ODPM 06/2005.

10.3.11 The specific policies reaffirm the contents and protection previously accorded to designated sites, species and habitats in PPS9. Additional emphasis is given to the creation of ecological networks and a net gain for biodiversity wherever possible.

10.3.12 Paragraph 117 of the NPPF states that *"To minimise impacts on biodiversity and geodiversity, planning policies should:*

- *Plan for biodiversity at a landscape-scale across local authority boundaries.*
- *Identify and map components of the local ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them and areas identified by local partnerships for habitat restoration or creation.*
- *Promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan.*
- *Aim to prevent harm to geological conservation interests.*
- *Where Nature Improvement Areas are identified in Local Plans, consider specifying the types of development that may be appropriate in these areas."*

10.3.13 Paragraph 118 of the NPPF states that *"When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:*

- *If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.*

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<sup>10</sup> National Planning Policy Framework (NPPF) in March 2012. Available online at: <http://webarchive.nationalarchives.gov.uk/20180608213715/https://www.gov.uk/guidance/national-planning-policy-framework>

<sup>11</sup> Office of the Deputy Prime Minister (ODPM) 06/2005: Biodiversity and Geological Conservation - Statutory Obligations. Available online at: <https://www.gov.uk/government/publications/biodiversity-and-geological-conservation-circular-06-2005>

- *Proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of Sites of Special Scientific Interest.*
- *Development proposals where the primary objective is to conserve or enhance biodiversity should be permitted.*
- *Opportunities to incorporate biodiversity in and around developments should be encouraged.*
- *Planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss.*
- *The following wildlife sites should be given the same protection as European sites:- potential Special Protection Areas and possible Special Areas of Conservation;- listed or proposed Ramsar sites; and - sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites".*

## Regional policy

### *East Inshore and East Offshore Marine Plans 2014<sup>12</sup>*

10.3.14 The aim of marine plans is to help ensure the sustainable development of the marine area. Marine plans will contribute to economic growth in a way that benefits society whilst respecting the needs of local communities and protecting the marine ecosystem.

## Local policy

### *Hull Local Plan 2016 to 2032<sup>13</sup>*

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<sup>12</sup> East Inshore and East Offshore Marine Plans 2014. Available online at: <https://www.gov.uk/government/publications/east-inshore-and-east-offshore-marine-plans>

<sup>13</sup> Hull Local Plan (2016 to 2032). Available online at: <http://www.hull.gov.uk/resident/planning-and-building-control/local-plan>



- 10.3.15 The new Hull Local Plan was submitted to the Planning Inspectorate in December 2016. The Planning Inspectorate responded to the plan in October 2017 with further consultation by HCC ending on 31 January 2017. The Hull Local Plan 2016-2032 was adopted on 23 November 2017 and supersedes the previous version which was adopted in 2000 and expired in 2006. The new Local Plan will guide development in the city up to 2032.
- 10.3.16 There were a number of policies from the superseded Hull Local Plan which related to SNCIs, development in relation to the Humber Estuary Sites, the protection of trees, species and green infrastructure - i.e. NE14, NE16, NE17, NE18, NE20 and NE21. These have since been replaced with new policies 43, 44 and 45 as follows:

#### Policy 43 Green Infrastructure and the Green Environment

1. *“Development that adversely affects the continuity and value of the Green Network, as designated on the Policies Map and Table 12.4, will not be permitted.*
2. *Development within or in close proximity to the Green Network should seek to protect and / or enhance the functionality and connectivity of the corridor.*
3. *Development adjacent to the River Hull should include a minimum of 8 metre space (unless otherwise agreed) to allow for:*
  - a. *a north-south pedestrian and cycle way;*
  - b. *flood defences as required to protect the city;*
  - c. *contractors to access and maintain existing and proposed flood defences; and*
  - d. *protection of wildlife corridors.*
4. *Development should incorporate and enhance existing and / or new green infrastructure features within their design, proportionate to their scale.*
5. *The Policies Map shows Green Network in the Kingswood area. The detailed allocations are made within the Kingswood Area Action Plan.”*

#### Policy 44 Biodiversity and wildlife

##### *“Policies Map*

1. *Wildlife designations within the city boundary are shown on the Policies Map. This includes the Humber Estuary International Site (Ramsar, SPA, SAC and SSSI), Local Nature Reserves (LNR), and sites likely to*

*qualify as Local Wildlife Sites (LWS). Allocations within the Kingswood area are made within the Kingswood Area Action Plan.*

#### *European sites (Ramsar, SPA, SAC)*

2. *Development that may affect an existing or proposed European or Ramsar site should demonstrate through a Habitats Regulations Assessment that any impact will be acceptable. This will need to consider the impact of the scheme both on its own and in combination with other schemes that already have planning permission. Development will not be permitted if it is likely to result in a significant adverse impact unless there is an imperative reason of over-riding public interest.*

#### *National sites (SSSI)*

3. *Natural England will be consulted on proposals for development that are likely to have an effect on a SSSI. Development that will have a negative effect will not normally be permitted, except where the benefits of development substantially outweigh both the impact on the site and any broader impacts on the wider network of National Sites. In such cases, compensation for the harm will be required.*

#### *Local sites (LNR, LWS)*

4. *Development resulting in the loss or significant harm to a Local Wildlife Site or Local Nature Reserve will only be permitted if it can be clearly demonstrated there is a strong need for the development, and that there are no other appropriate locations for the development. Where loss or harm cannot be prevented or adequately mitigated, as a last resort, appropriate compensation for the loss / harm must be agreed.*
5. *Until formally reviewed, an open space site will be afforded the same level of protection as a Local Wildlife Site if it meets the Council's LWS selection criteria.*

#### *Protected species*

6. *Development adversely affecting a species protected by legislation will not be allowed.*

#### *Promoting biodiversity improvements*

7. *Development should seek to achieve a net gain in biodiversity habitat commensurate with the scale of the development, and schemes will be supported where they:*
  - a. *Conserve, restore, enhance or re-create biodiversity interests, particularly national Priority Habitats and Species and locally*



*important habitat and species identified in the Hull Biodiversity Action Plan.*

- b. Safeguard, enhance, create and connect identified habitat networks in order to:
  - i. protect, strengthen and reduce fragmentation of habitats;*
  - ii. create a coherent ecological network that is resilient to current and future pressures;*
  - iii. conserve and increase populations of species; and*
  - iv. promote and enhance green infrastructure.”**

### Policy 45 Trees

*“Residential and commercial development and new trees*

- 1. Three new trees of native species and local provenance will be required to be planted for each new dwelling (this excludes conversions and changes of use). A presumption that the trees will be planted as part of the development rather than off-site will apply when appropriate. The planting of new trees will be encouraged in new commercial developments in appropriate places or within landscaping schemes wherever possible.*

*Tree protection and replacement*

- 2. Hull City Council will make Tree Preservation Orders when necessary, in order to protect specific trees, groups of trees, or woodlands, in the interests of amenity and biodiversity.*
- 3. The Council will not grant permission for the loss of or damage to a tree, group of trees or areas of woodland of significant amenity, biodiversity or historic value unless there is deemed to be an immediate hazard to public safety.*
- 4. Trees protected by Tree Preservation Orders should be retained whenever possible, unless:
  - a. They are dead, dying, diseased, or represent a hazard to public safety; or*
  - b. The Council's arboricultural officer deems the felling to be acceptable with regards to the Council's policy on urban forestry and tree management; or**

c. *The benefit of the proposed development outweighs the benefit of their retention.*

5. *If felling is deemed acceptable by parts (3) or (4), then the planting of two replacement trees in an appropriate location will be required.”*

*Joint Structure Plan for Kingston upon Hull and the East Riding of Yorkshire (Adopted June 2005)*<sup>14</sup>

10.3.17 The Joint Structure Plan (JSP) was adopted on 29 June 2005. The JSP set out the framework for the development and use of land up to 2016 in the combined area of Hull and the East Riding of Yorkshire. The plan includes policies on the general location of land for new homes, businesses, shops and leisure facilities. It also gives guidance on encouraging more sustainable forms of movement (for both people and goods), protecting the natural and build environment, respecting and improving the character of the area and managing the risk from flooding and coastal erosion. A number of policies within the JSP have expired. Those that remain are called 'saved' policies as below:

Policy ENV 2

- *“Sites of strategic nature conservation importance will be protected from development likely to have a significant adverse effect. The level of protection afforded to these sites and any necessary mitigation and / or compensation measures should reflect their relative international, national or local importance.”*

Policy ENV 3

- *“Development that is likely to have an adverse effect on species identified through UK Wildlife Acts, Regulations and Biodiversity Action Plans, will not be allowed unless it can be demonstrated that there is an overriding need for the development and / or appropriate mitigating compensation measures are provided. The level of protection afforded to species and any necessary mitigation / compensation measures should reflect their species and any necessary mitigation / compensation measures should reflect their relative international, national or local importance.”*

Policy ENV 4

- *“The integrity of strategic habitat corridors along the River Derwent, River Hull, Humber Estuary, the coastline and within Hull should be maintained through habitat restoration, creation, and improvement. Further fragmentation of these corridors should be avoided.”*

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<sup>14</sup> Joint Structure Plan for Kingston upon Hull and the East Riding of Yorkshire (Adopted June 2005). Available online at: [http://www.hullcc.gov.uk/pls/portal/docs/PAGE/HOME/PLANNING/PLANNING%20POLICY/STRUCTURE%20PLAN/ADOPTED\\_JSP.PDF](http://www.hullcc.gov.uk/pls/portal/docs/PAGE/HOME/PLANNING/PLANNING%20POLICY/STRUCTURE%20PLAN/ADOPTED_JSP.PDF)

### *Hull Biodiversity Action Plan<sup>15</sup>*

10.3.18 The Hull Biodiversity Action Plan (Hull BAP) includes a list of national and local priority habitats and species which are present in Hull. The Hull BAP outlines biodiversity objectives, key issues opportunities and current projects for each habitat type and species. Habitat Action Plans which have been included within the Hull BAP (HBP, 2002), and which are relevant to the study area include: Estuarine Habitats, Gardens and Allotments, Industrial Land, Parks, Golf Course and Cemeteries, The Built Environment, Trees, Scrub and Hedgerows and Grassland. Species Action Plans included within the Hull BAP and which are relevant to the study area include: Elm Trees, Pipistrelle Bats, Song Thrush and Lichens.

## **10.4 Study area**

- 10.4.1 The study area is shown in Volume 2: Figure 2.1: Site Map and Volume 3: Appendix 10.1: Figure A: Extended Phase 1 Habitat Map. The Scheme would improve a 1.5km stretch of the A63 from Ropery Street to the Market Place and Queen Street junctions. The realigned A63 and the westbound exit slip road to Commercial Road would pass through the northern part of Trinity Burial Ground SNCI, resulting in the permanent loss of one third of its footprint. 72 mature trees within the SNCI would be lost to accommodate the works and the excavation of remains. Currently, a further 245 roadside trees across the Scheme Site footprint would also need to be felled to accommodate construction works. This chapter has been assessed during the Preliminary Design Stage of the Scheme when some elements of the design are not yet finalised. The difficulties encountered during preparation are described in Chapter 5: Environmental Impact Assessment process at Section 5.8 of this ES.
- 10.4.2 Buildings to be demolished include the Myton Centre, Arco buildings and the Holiday Inn substation. The former Earl de Grey public house is to be dismantled.
- 10.4.3 New structures include a two-span precast concrete overbridge at Mytongate Junction; retaining walls for the underpass at Mytongate Junction; a pumping station to the south east of Mytongate roundabout; retaining walls at the Holiday Inn; pedestrian, cycle and disabled user bridges over the A63 at Porter Street and Princes Quay and the re-siting of Spurn Lightship.
- 10.4.4 A rising main downstream of the pumping station would transfer flow to a receiving network or watercourse. At present, it is proposed to outfall (discharge) directly to the Yorkshire Water sewer however if consent is not granted the outfall would

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<sup>15</sup> Hull Biodiversity Action Plan. Available online at:  
<http://www.hullcc.gov.uk/pls/portal/docs/PAGE/HOME/PLANNING/PLANNING%20POLICY/ENVIRONMENTAL%20PLANNING%20POLICIES/BIODIVERSITY%20ACTION%20PLAN.PDF>

discharge to the Humber Estuary through an existing sheet piled wall. The location of this is undecided.

10.4.5 Potential temporary construction site compounds and their locations are shown on drawings (Volume 2, Figure 2.12: Construction site compound locations and listed below:

1. Arco site (preferred Option A) or Staples site (alternative Option B) – bentonite compound (see Sections **Error! Reference source not found.** to REF\_Ref524185769 \r \h \\* MERGEFORMAT 10.6.22)
2. Wellington Street Island Wharf (Spencers) - main site offices
3. A63 Eastbound Recovery Base (A63 layby eastbound to the north of St Andrews Quay) - vehicle recovery
4. Livingstone Road (South Humber Properties Ltd) - materials compound
5. Land south east of Mytongate Junction - Trinity Burial Ground compound
6. Neptune Street Set Down – Princes Quay Bridge compound, vehicle recovery and traffic management
7. A63 westbound recovery base (A63 layby westbound to the west of Garrison Road roundabout) – vehicle recovery

10.4.6 The Myton Centre is proposed as replacement public open space for loss of green space incurred at Trinity Burial Ground. Prior to the landscaping of this area, the Myton Centre would be demolished and the site used for the duration of the works (5 years), as a temporary car park for contractor staff working on either the Arco or Staples sites. Parking provision would be limited to cars and small vans with disabled spaces provided. The area of the Myton Centre temporary car park is shown at Volume 2, Figure 2.12.

## 10.5 Approach and methodology

10.5.1 The assessment of impacts on ecology and nature conservation follows the most recent Highways England guidance DMRB, Volume 11, Section 3, Part 4 Ecology and Nature Conservation<sup>16</sup>) and supplementary advice (Interim Advice Note 130/10 Ecology and Nature Conservation: Criteria for Impact Assessment<sup>17</sup>). The assessment has also followed the Chartered Institute of Ecological and

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<sup>16</sup> Design Manual for Roads and Bridges, Volume 11, Section 3, Part 4 'Ecology and Nature Conservation. Available online at: <http://www.standardsforhighways.co.uk/ha/standards/dmr/vol11/section3/11s3p04.pdf>

<sup>17</sup> Design Manual for Roads and Bridges. Interim Advice Note 130/10 Ecology and Nature Conservation: Criteria for Impact Assessment. Available online at: <http://www.standardsforhighways.co.uk/ha/standards/ians/pdfs/ian130.pdf>

Environmental Management’s (CIEEM) Ecological Impact Assessment (EclA) guidance (2016<sup>18</sup>).

10.5.2 The following key stages are involved in the impact assessment:

- Description of the baseline conditions at the site with regard to ecology
- Valuation of each individual ecological receptor
- Identification and characterisation of development activities that may impact upon ecological receptors
- Identification of mitigation measures to avoid or reduce the impact, as well as compensation measures where impacts cannot be avoided
- Characterisation of predicted ecological impacts during Construction and Operation Phases, taking into account mitigation measures
- Evaluation of the significance of residual impacts

10.5.3 Ecological receptors are valued based upon their importance at a geographical scale as detailed in Table 10.1: Receptor valuations which is taken from IAN 130/10: Table 1. Receptors valued at lower than Local value were defined as having negligible value. Only ecological receptors of value (Local value or higher) were taken forward in the impact assessment process.

**Table 10.1: Receptor valuations**

Valuation	Criteria
International or European	<p>Habitats</p> <p>Natura 2000 sites including: Sites of Community Importance (SCIs); Special Protection Areas (SPAs); potential SPAs (pSPAs); Special Areas of Conservation (SACs); candidate or possible SACs (cSACs or pSACs); and Wetlands of International Importance (Ramsar sites).</p> <p>Biogenetic Reserves, World Heritage Sites and Biosphere Reserves.</p> <p>Areas which meet the published selection criteria for those sites listed above but which are not themselves designated as such.</p> <p>Species</p> <p>Resident, or regularly occurring, populations of species which may be considered at an International or European level where:</p> <ul style="list-style-type: none"> <li>• the loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale; or</li> <li>• the population forms a critical part of a wider population at this scale; or</li> <li>• the species is at a critical phase of its life cycle at this scale.</li> </ul>

<sup>18</sup> CIEEM (2016). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2<sup>nd</sup> Edition. Chartered Institute of Ecology and Environmental Management, Winchester

Valuation	Criteria
UK or National	<p>Habitats</p> <p>Designated sites including: Sites of Special Scientific Interest (SSSIs); Marine Protected Areas (MPAs) including Marine Conservation Zones (MCZs); and National Nature Reserves (NNRs).</p> <p>Areas which meet the published selection criteria eg JNCC (1998) for those sites listed above but which are not themselves designated as such.</p> <p>Areas of key / priority habitats identified in the UK Biodiversity Action Plan (BAP), including those published in accordance with Section 41 of the Natural Environment and Rural Communities Act (2006) and those considered to be of principal importance for the conservation of biodiversity.</p> <p>Areas of Ancient Woodland e.g. woodland listed within the Ancient Woodland Inventory.</p> <p>Species</p> <p>Resident, or regularly occurring, populations of species which may be considered at an International, European, UK or National level where:</p> <ul style="list-style-type: none"> <li>• the loss of these populations would adversely affect the conservation status or distribution of the species at this scale; or</li> <li>• the population forms a critical part of a wider population at this scale; or</li> <li>• the species is at a critical phase of its life cycle at this scale.</li> </ul>
Regional	<p>Habitats</p> <p>Areas of key / priority habitats identified in the Regional BAP (where available); areas of key / priority habitat identified as being of Regional value in the appropriate Natural Area Profile (or equivalent); areas that have been identified by regional plans or strategies as areas for restoration or re-creation of priority habitats (for example, South West Nature Map); and areas of key/priority habitat listed within the Highways Agency's BAP.</p> <p>Species</p> <p>Resident, or regularly occurring, populations of species which may be considered at an International, European, UK or National level and key / priority species listed within the HABAP where:</p> <ul style="list-style-type: none"> <li>• the loss of these populations would adversely affect the conservation status or distribution of the species at this scale; or</li> <li>• the population forms a critical part of a wider population; or</li> <li>• the species is at a critical phase of its life cycle.</li> </ul>
County or Unitary Authority Area	<p>Habitats</p> <p>Designated sites including: Sites of Nature Conservation Importance (SNCIs); County Wildlife Sites (CWSs); and Local Nature Reserves (LNRs) designated in the county or unitary authority area context.</p> <p>Areas which meet the published selection criteria for those sites listed above but which are not themselves designated as such.</p> <p>Areas of key / priority habitats identified in the Local BAP; and areas of habitat identified in the appropriate Natural Area Profile (or equivalent).</p> <p>Species</p> <p>Resident, or regularly occurring, populations of species which may be considered at an International, European, UK or National level where:</p> <ul style="list-style-type: none"> <li>• the loss of these populations would adversely affect the conservation status or distribution of the species across the County or Unitary Authority Area; or</li> <li>• the population forms a critical part of a wider population; or</li> <li>• the species is at a critical phase of its life cycle.</li> </ul>



Valuation	Criteria
Local	<p>Designated sites including: Local Nature Reserves (LNRs) designated in the local context.</p> <p>Trees that are protected by Tree Preservation Orders (TPOs).</p> <p>Areas of habitat; or populations / communities of species considered to appreciably enrich the habitat resource within the local context (such as veteran trees), including features of value for migration, dispersal or genetic exchange.</p>

10.5.4 The characterisation of ecological impact uses a range of factors as detailed in IAN 130/10 Table 2. Impacts are characterised at both the Construction and Operation Phases and take into account proposed mitigation measures. The factors include:

- SI (Sign) Positive (beneficial (+ve) or Negative (adverse (-ve))
- PO (Probability of Occurring): Certain, Probable, Unlikely
- CO (Complexity): Direct, Indirect, Cumulative
- EC (Extent): Area measures and percentage of total (e.g. area of habitat / territory lost)
- SZ (Size): Description of level of severity of influence (e.g. complete loss, number of animals affected)
- RE (Reversibility): Reversible or Not Reversible (can the effect be reversed, whether or not this is planned)
- DU (Duration): Permanent (P) or Temporary (T) in ecological terms. Where differing timescales are determined in relation to the life cycle of the receptor, these should be defined
- TF (Timing and Frequency): Important seasonal and / or life cycle constraints and any relationship with frequency considered

10.5.5 Measures to avoid or reduce the impact on ecological resources have been considered throughout the development of the Scheme as part of an iterative process. Mitigation measures have been developed to reduce impacts at both the Construction and Operation Phases as detailed within this ES chapter.

10.5.6 Where significant residual impacts to ecological receptors were predicted, the significance of the effect was evaluated, based on the descriptors within Table 10.2: Significance of effects (reproduced from IAN 130/10<sup>17</sup> Table 3). The significance of the effect is dependent on the level at which the resource is valued. Assignment of impacts to overall significance categories allows ecological impacts to be related to impacts in other topic areas.

**Table 10.2: Significance of effects**

Significance category	Typical descriptors of effect
Very large	An impact on one or more receptor(s) of International, European, UK or National Value. NOTE: only adverse effects are normally assigned this level of significance. They should be considered to represent key factors in the decision-making process.
Large	An impact on one or more receptor(s) of Regional Value. NOTE: these effects are considered to be very important considerations and are likely to be material in the decision-making process.
Moderate	An impact on one or more receptor(s) of County or Unitary Authority Area Value. NOTE: these effects may be important, but are not likely to be key decision-making factors.
Slight	An impact on one or more receptor(s) of Local Value. NOTE: these effects are unlikely to be critical in the decision-making process, but are important in enhancing the subsequent design of the Scheme.
Neutral	No significant impacts on key nature conservation receptors. NOTE: absence of effects, or those that are beneath levels of perception.

10.5.7 The following Scheme dates have been assumed for the purposes of the assessment:

- Construction Phase and start of works on site commences in March 2020
- Operation Phase and open to traffic (opening date) is May 2025

### Scope of assessment

10.5.7 Information on ecological receptors was gathered through both desk based studies and field surveys.

10.5.8 The desk study assessed the area within a 2km radius of the application site. The field survey study area covered the application site and any adjacent features or habitats within 30m that had potential to support protected or notable species.

10.5.9 The desk study included a search for statutory and non-statutory designated wildlife sites and historical records of protected or notable species within the study area. The information was obtained through a search of local record centre data sets (North and East Yorkshire Ecological Data Centre), as well as online sources such as the government Multi-Agency Geographic Information for the Countryside (MAGIC) website.

10.5.10 Ordnance Survey maps at a scale of 1:25,000 were also used to search for ponds within 500m of the application site to assess whether the development could potentially impact on great crested newt breeding (aquatic) or terrestrial habitat.

10.5.11 Further desk based information was derived from an appraisal of previous ecological survey reports completed at earlier stages of Scheme development, as



well as other relevant reports of ecological surveys completed in the area. These are summarised below in Table 10.3: Previous ecological reports for the Scheme, and relevant findings are discussed in Section 10.6.

**Table 10.3: Previous ecological reports for the Scheme**

Report	Date	Author	Key Evaluation Results
Environmental Survey	2003	Smeeden Foreman	Identification of principal ecological receptors.
An Environmental Building Assessment, Bat Emergence and Dawn Swarming Survey for Castle Buildings, Quay West	2005	WSP 2005	Presence of a single common pipistrelle bat roosting behind a boarded up window in the Castle Buildings.
Phase 1 Ecological Survey, A63 Castle Street, Hull, Ecological Assessment Stage 2. Report Reference 06588242.501 Rev B0	2007	Golder Associates	Presence of non-statutory site of nature conservation importance (Trinity Burial Ground SNCI).
A63 Improvements – Hull, Environmental Assessment Report (Options Identification Stage). Report Reference W11189/VAA/03	2008	Pell Frischmann	Overall limited impact for the Scheme with no significant differences in ecological impact between Scheme options.
Kingston-upon-Hull Open Space Assessment. Sites of Nature Conservation Importance (SNCI).	October 2008	Penny Anderson Associates	Audit of habitats and species within Trinity Burial Ground SNCI.
Environmental Scoping Report (Options Selection Stage) W11189/T13/01	2009	Pell Frischmann	No significant differences in ecological impact between Scheme options.
Initial Screening Report for Appropriate Assessment (options selection stage). W11189/T13/06	2010	Pell Frischmann	Initial Scheme screening of potential impacts to European protected site. Drainage design needed before final assessment can be completed.
Scheme Assessment Report (W11189/T11/05)	2010	Pell Frischmann	Overground Scheme option has less impact on wildlife and biodiversity.

10.5.12 In February, June and August 2013, Extended Phase 1 habitat surveys were undertaken by MMSJV ecologists of the Scheme Site Boundary and the potential compound sites that were available at the time. Additional compound sites were surveyed in March 2014. Since then, the Scheme Site Boundary and the potential compound sites have changed and the area within the current Scheme Site Boundary and potential compound sites was re-surveyed on 24 May and 07 September 2016. In 2017 and 2018, potential compound sites were again changed and new sites were surveyed on 14 September 2017 and 28 March 2018. These were standard preliminary ecological surveys which record the main habitat types present, including dominant plant species in accordance with the categories specified for a Phase 1 Vegetation and Habitat Survey (Joint Nature

Conservation Committee, 2010<sup>19</sup>). They also assess the potential for the presence of protected or notable species and inform the need for further surveys. Full details are provided in Volume 3, Appendix 10.1.

10.5.13 All trees within the site and nine buildings were subject to an assessment of bat roost potential and Trinity Burial Ground SNCI was assessed to be a potential foraging resource during the 2013 Extended Phase 1 habitat surveys. Detailed visual inspections of buildings and trees were undertaken to look for physical evidence of bat roosting, such as droppings. Between June and September 2013, where bat roost presence within buildings and trees could not be ruled out from visual inspections, dusk emergence and dawn re-entry surveys were completed to confirm whether any roosts were present. In addition, bat activity transects and commuting route surveys were completed and automated detectors were deployed to monitor the level and pattern of bat activity within and adjacent to the application site. Further surveys for bat roosts and bat activity surveys were undertaken in August and September 2015 and July, August and September 2016 and September 2017 (Volume 3, Appendix 10.2). All surveys conducted in 2013 and 2015 followed methodologies outlined in Bat Surveys: Good Practice Guidelines 2nd Edition (L Hundt 2012<sup>20</sup>). The surveys conducted in 2016 and 2017 followed methodologies outlined in Bat Surveys: Good Practice Guidelines 3rd Edition (J Collins 2016<sup>21</sup>) and full details are provided in Volume 3, Appendix 10.2.

10.5.14 Two temporary site compounds (Livingstone Road and Wellington Street Island Wharf) that are located adjacent to the Humber Estuary SAC, SPA, Ramsar and SSSI and contained habitats (potentially suitable to support foraging, roosting and ground-nesting waterfowl that the Humber Estuary is designated for) were subject to breeding bird surveys in May and June 2016. Wintering bird surveys have been undertaken in January and February 2017 of three potential site compounds (Livingstone Road, Wellington Street Island Wharf and Neptune Street) as the latter only became available after the breeding bird surveys were completed. These surveys were to establish the birds' presence or likely absence and use of the site compounds and the adjacent designated sites. Another site compound that has since been removed from the Scheme (Tower Street) also had both surveys. The results of these surveys have been left in the reports as birds are highly mobile and the results provide a wider picture of their movements. The surveys referred to guidelines in Bibby *et al.* (1992)<sup>22</sup>, Bibby *et al.* (2000)<sup>23</sup>, British

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<sup>19</sup> JNCC (2010) Handbook for Phase 1 Habitat Survey: A technique for environmental audit

<sup>20</sup> L Hundt (2012) Bat Surveys: Good Practice Guidelines, 2nd Edition

<sup>21</sup> J Collins (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd Edition

<sup>22</sup> C Bibby, N Burgess & D Hill (1992) Bird Census Techniques

<sup>23</sup> C Bibby, N Burgess, D Hill and S Mustoe (2000) Bird Census Techniques, 2nd Edition

Trust of Ornithology *et al* (2016)<sup>24</sup> and Gilbert *et al.* (1998)<sup>25</sup> and full details are provided in Volume 3, Appendices 10.3 and 10.4.

10.5.15 No targeted surveys for other protected species or further botanical surveys were necessary to inform the assessment of impacts on ecological receptors. Detailed botanical information from the Open Space Assessment of SNCIs was already available for the most extensive and valuable area of habitat within the application site, that is Trinity Burial Ground SNCI.

10.5.16 A separate Habitats Regulations Assessment (HRA) (termed an Assessment of Implications on European Sites (AIES) for Highways England schemes) Screening Report has also been produced to assess the potential impacts of the Scheme on the nearby European Sites. This is in accordance with the Conservation of Habitats and Species Regulations 2017. The document reference for the AIES is TR010016/APP/6.13. More details about this process can be found at Section 10.5.23.

### Assumptions and limitations

10.5.17 The optimum time of year for completing Extended Phase 1 habitat surveys is between April and September, as many plant species have a seasonal expression in spring and summer only. However, it is possible outside of this season for experienced ecologists to identify habitat types to the JNCC (2010<sup>19</sup>) descriptions, determine their biodiversity value and potential for protected species and recommend further surveys within the season if required. One of the three survey visits in 2013 was on 26 February and the 2014 visit was on 14 March outside of the optimum season, although the habitats recorded did not require further specialist plant survey. Given the surveys in 2016 and 2017 were both within the optimum survey season on 23 May 2016, 07 September 2016 and 14 September 2017, the timing of the 2013 and 2014 surveys is not considered to be a limitation to the assessment.

10.5.18 Two buildings directly adjacent to the application site with high bat roost potential (Castle Buildings and former Earl de Grey public house) were unsafe to enter and an internal inspection for evidence of roosting bats could not be completed. To account for this limitation the number of subsequent dusk emergence surveys completed at these buildings was increased above the number recommended in the best practice guidance (L Hundt 2012<sup>20</sup> superseded by J Collins<sup>21</sup> 2016).

10.5.19 Buildings to the west of the temporary site compound at Wellington Street Island Wharf have not been assessed as the buildings are not to be demolished.

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<sup>24</sup> British Trust of Ornithology, Joint Nature Conservancy Committee and the Royal Society for the Protection of Birds. (2016). Breeding Bird Survey Methodology. Available online at: <https://www.bto.org/>

<sup>25</sup> Gilbert *et. al.* (1998) Bird Monitoring Methods. RSPB

10.5.20 It has been assumed as a worst case scenario, that the Earl de Grey public house would be dismantled. For details see Chapter 8 Cultural heritage Section 8.8.

## Consultation

### *Scoping*

10.5.21 Natural England was consulted in March 2013 with regard to the scope of the Environmental Statement as detailed in the Scoping Report (A63 Castle Street Improvements, Hull Environmental Statement Scoping Report 112630/AE/01 Rev 1 March 2013). Natural England commented that they agreed with the proposed scope of the assessment. See Volume 3, Appendix 4.1 Response to the Planning Inspectorate and stakeholder Scoping Opinion comments for more details.

### *Bats*

10.5.22 The Scheme was registered with Natural England's Discretionary Advice Service (DAS) in May 2013, principally to seek advice regarding the assessment of impacts upon bats. The Regulation team advised that increased survey effort should be applied at the buildings with high bat roost potential which were unsafe to enter, as noted in Section 10.5.18 above.

### *AIES*

10.5.23 An AIES Screening Report was completed on behalf of Highways England (Highways Agency) in September 2014 for a preliminary design of the Scheme which included the construction of Princes Quay Bridge. This Screening Report underwent required consultation with Natural England over potential pollution pathways. At the time, it was concluded that there would be no significant effects as a result of the Scheme.

10.5.24 In the years between 2014 and 2017, the Scheme underwent design and environmental updates but was delayed as there were concerns over the potential disruption from construction to the UK City of Culture events which were to start in January 2017. Princes Quay Bridge is now being delivered as an early phase of the A63 Castle Street Improvements Scheme, subject to planning approval of conditions of an approved full planning consent from HCC. As the location remains within 2km of a European Site, a separate AIES is required, however for planning applications (which are not Highways England Schemes) this is known as a Habitats Regulations Assessment (HRA).

10.5.25 The HRA Screening Report for Princes Quay Bridge has therefore drawn upon the previous AIES for the full A63 Castle Street Improvements Scheme. In the years between 2014 and 2017, the Scheme underwent design and environmental updates but was delayed as there were concerns over the potential disruption from construction to the UK City of Culture events which were to start in January 2017.

10.5.26 An initial HRA Screening Report for Princes Quay Bridge was issued to Natural England for comment on 21 March 2018. This Report contained measures

proposed to mitigate impacts. A response from Natural England was received on 20 April 2018. This stated “. . . due to the location of the proposed Princes Quay Bridge and the scale of works, we agree with the conclusion that the proposal is not likely to have a significant effect on the interest features of the Humber Estuary designated site and an Appropriate Assessment is therefore not required.”

10.5.27 On the 12 April 2018, a precedent was set by a decision made by the Court of Justice of the European Union (CJEU) *People Over Wind and Sweetman v Coillte Teoranta (C-323/17)*<sup>26</sup>. The CJEU issued a judgement which ruled that Article 6(3) of the Habitats Directive must be interpreted as meaning that mitigation measures (referred to in the judgment as measures which are intended to avoid or reduce effects) should be assessed within the framework of AA. As such it is now not permissible to take account of measures intended to avoid or reduce the harmful effects of the plan or project on a European Site at the screening stage.

10.5.28 The HRA Screening Report for Princes Quay Bridge was re-written based on the revised requirements of the CJEU and issued on behalf of HCC and MMO as the Competent Authority in August 2018. The findings of the HRA Screening Report concluded that there would be no significant effects to the Humber Estuary designated sites. This report is currently undergoing consultation with the MMO and Natural England. The AIES Screening Report for the Scheme is based on the findings of the HRA Screening Report for Princes Quay Bridge and will be submitted separately as part of the DCO application (see application reference for TR010016/APP/6.13).

### SSSI

10.5.29 The SSSI designation of the Humber Estuary would normally require a separate consultation with Natural England as this is a national designation legislated by the Wildlife and Countryside Act 1981 (as amended) and not EU law. Natural England were satisfied that the Princes Quay Bridge works would not require a separate consultation regarding impacts to the Humber Estuary SSSI if the works are carried out in accordance with the planning application. If Natural England require a separate consultation for the SSSI regarding the A63 Castle Street Improvements Scheme, one will be undertaken.

### Trinity Burial Ground

10.5.30 In 2017, Hull City Council (HCC) was consulted regarding the impacts to Trinity Burial Ground SNCI. It was accepted that the 28 mature trees that are located under the road site boundary would be lost, but that further assessment of the trees to be lost to accommodate the tent screening archaeological excavation works with the burial ground from view, would need to be undertaken. Mitigation was proposed by HCC including pruning and pollarding of some trees to avoid

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<sup>26</sup> Court of Justice of the European Union (CJEU) *People Over Wind and Sweetman v Coillte Teoranta (C-323/17)*. Available online at: <http://curia.europa.eu/juris/document/document.jsf?docid=200970&doclang=EN>



fellings. A further consultation was undertaken in January 2018, in which HCC accepted that a further 12 trees would be removed to accommodate the archaeology tent and new entrance, totalling the likely loss of 40 trees. Compensation would include replanting semi mature trees on a like for like number with a possible gain in numbers close to Trinity Burial Ground as space within it is limited.

## 10.6 Existing environment

### Desk study

#### *Statutory designated sites*

- 10.6.1 The Scheme Site Boundary is located adjacent to (in parts) the Humber Estuary which is a SAC, a SPA and a Ramsar site which are all international designations. The Humber Estuary is also designated as a Site of Special Scientific Interest (SSSI) which is a national designation. All designations share the same boundary (see Volume 2, Figure 10.1 Statutory designated sites).
- 10.6.2 The Estuary contains a number of habitats listed in Annex 1 of the Habitats Directive which are the primary reason for its designation as an SAC. These include: Atlantic salt meadows, shallow submerged sandbanks, partially covered mudflats and sandbanks, glasswort beds and coastal lagoons. Extensive intertidal mudflats which are not covered at low tide are also of primary importance. Significant species include river lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus*. Other Annex 1 habitats which are present as a qualifying feature, but are not primary reasons for site selection include: Fixed dunes, dunes with sea buckthorn *Hippophae rhamnoides*, dunes with European marram grass *Ammophila arenaria* and embryonic shifting dunes. The presence of grey seals *Halichoerus grypus* is another qualifying feature. The SAC has been assessed as of very high biodiversity value at an international level.
- 10.6.3 The Humber Estuary is designated as a SPA for a range of bird species which are designated on Annex 1 of the Wild Birds Directive. The site supports very significant populations of bittern *Botaurus stellaris*, golden plover *Pluvialis apricaria*, avocet *Recurvirostra avosetta*, marsh harrier *Circus aeruginosus*, bar tailed godwit *Limosa lapponica*, ruff *Philomachus pugnax* and little tern *Sternula albifrons*, which breed and overwinter on the Estuary. Important migratory species include knot *Calidris canutus*, dunlin *Calidris alpina*, black tailed godwit *Limosa limosa*, redshank *Tringa tetanus* and shelduck *Tadorna tadorna*. The SPA has been assessed as of very high biodiversity value at an international level.
- 10.6.4 The Humber Estuary Ramsar site is designated as a representative example of a near-natural estuary with the following component habitats: dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/saline lagoons. It supports a breeding colony of grey seals and natterjack toad *Bufo calamita*. The Humber Estuary Ramsar site supports a waterfowl assemblage of international importance and twelve bird species

populations occur at international importance levels. The Humber Estuary acts as an important migration route for both river lamprey and sea lamprey between coastal waters and their spawning areas. The Ramsar site has been assessed as of very high biodiversity value at an international level.

10.6.5 The Humber Estuary is designated as a SSSI as it has a series of nationally important habitats. These are the Estuary itself (with its component habitats of intertidal mudflats and sandflats and coastal saltmarsh) and the associated saline lagoons, sand dunes and standing waters. The Estuary supports nationally important numbers of 22 species of wintering waterfowl and nine passage waders, and a nationally important assemblage of breeding birds of lowland open waters and their margins. It is also nationally important for a breeding colony of grey seals, river lamprey and sea lamprey, a vascular plant assemblage and an invertebrate assemblage. The SSSI has been assessed as of high biodiversity value at a national level.

*Non-statutory designated sites*

10.6.6 Details of 15 non-statutory sites received from North and East Yorkshire Ecological Data Centre (NEYEDC) within or partly within a 2km radius of the site are provided in Table 10.4: Non-statutory designated sites and Volume 2, Figure 10.2 Non-statutory designated sites. SNCIs are non-statutory designated wildlife sites notified by HCC for habitats and / or species of nature conservation value within the city. They receive a level of protection through local planning policies. All SNCIs have been assessed as of medium biodiversity value at county level.

**Table 10.4: Non-statutory designated sites**

Designation	Name and site code	Description	Nearest distance to Scheme
SNCI	Trinity Burial Ground (369)	An old cemetery comprising an area of urban parkland with many mature trees, shrubs and scrub in the understorey and amenity grassland.	Within Scheme Site footprint
SNCI	River Hull (including banks; 168)	Fresh water tributary to the Humber Estuary. The vegetation present along the river is highly representative of the changes between freshwater, brackish and estuarine environments. Supports a wide range of flora and fauna along its entire length, including protected and / or UKBAP species.	150m east of main site
SNCI	Mudflats to south of Sammy's Point (255)	No information provided	250m south of main site
SNCI	Land to the East of Cricket Ground (86)	No information provided	1.1km northwest
SNCI	Land to the east of Hymers College grounds (373)	No information provided	1.2km northwest

Designation	Name and site code	Description	Nearest distance to Scheme
SNCI	Land to the west of Northumberland Avenue almshouses (364)	No information provided	1.25km north
SNCI	Foredyke Stream cycle track - south of Chapman Street (167)	No information provided	1.35km northeast
SNCI	West Park (84)	No information provided	1.4km northwest
SNCI	Strip of land north of Circle cricket ground (87)	No information provided	1.4km northwest
SNCI	Hymers College grounds (88)	No information provided	1.5km northwest
SNCI	Land to rear of Hymas Avenue (89)	No information provided	1.5km northwest
SNCI	Dismantled low level railway line (111)	No information provided	1.6km north
SNCI	Foredyke stream cycle track - south of Chamberlain Road (177)	No information provided	1.6km northeast
SNCI	General Cemetery, Spring Bank West (100)	No information provided	1.65km northwest
Yorkshire Wildlife Trust Reserve and SNCI	Pearson Park Wildlife Garden (108)	Though small in size this reserve contains a wide variety of habitats including ponds, hedgerows, woodland and a meadow, as well as a horticultural display and agricultural sections. The reserve is of importance due to its urban surroundings and supports a wide variety of birds, invertebrates and amphibians.	1.9km north

10.6.7 Trinity Burial Ground SNCI, lies partly within the application site. Located directly to the east of Mytongate Junction, it comprises a small area of urban parkland with mature broad-leaved trees and amenity grassland, covering an area of 8052m<sup>2</sup> (0.8ha). Species include ash *Fraxinus excelsior*, hybrid poplar *Populus* spp, lime *Tilia europaea*, pedunculate oak *Quercus robur*, wych elm *Ulmus glabra* and sycamore *Acer pseudoplatanus*.

10.6.8 The River Hull SNCI lies approximately 150m east of the site.

*UKBAP (NERC Act 2006 Section 41) Priority habitats*



10.6.9 The MAGIC website revealed that within a 2km radius of the site there were the following UKBAP Priority habitats which have been assessed as of high biodiversity value in the national area:

- Two parcels of 'Wood-pasture and Parkland', the closest being approximately 1.97km to the north west.
- 31 areas of 'Mudflats' habitat with the closest being adjacent to the Scheme Site Boundary (within site compounds at Wellington Street Island Wharf and Livingstone Road and in Humber Dock basin adjacent to Humber Dock Marina).
- Four areas of Broad habitats 'Intertidal substrate foreshore - mud' habitat with the closest being in the Humber Estuary (within site compounds Wellington Street Island Wharf and Livingstone Road and in Humber Dock basin).
- Four areas of Broad habitats 'Intertidal substrate foreshore – man-made ground' habitat with the closest being within the Scheme Site Boundary in Humber Dock Marina and Princes Dock. (This habitat has been assessed separately in Section 10.6.17 Standing Water)
- One area of Broad habitats 'Intertidal substrate foreshore - sand and gravel' habitat with the closest being approximately 656m to the east at Victoria Dock.
- 31 areas of 'Deciduous woodland' habitat with the closest being within the Scheme Site Boundary at Trinity Burial Ground.
- Eight areas of 'Broad-leaved woodland' habitat with the closest being within the Scheme Site Boundary at Trinity Burial Ground.
- One area of 'No main habitat but additional habitat exists - saltmarsh' approximately 60m to the south of A63 eastbound recovery base.

10.6.10 In terms of species, the MAGIC search revealed:

- There were two granted European Protected Species (EPS) licence applications within the search area. Both applications allowed for damage to and destruction of resting places used by common pipistrelle bat *Pipistrellus pipistrellus*.

#### *Protected species*

10.6.11 The records received from NEYEDC within 2km of the site were checked against the species included in the UKBAP and Hull Local Biodiversity Action Plans (LBAP). Records before the year 2000 were excluded.

- Flora – Two records of LBAP bee orchid *Ophrys apifera* 89m west of site; one record of UKBAP cornflower *Centaurea cyanus* 1.1km north of site and one record of UKBAP garden asparagus *Asparagus officinalis* 1.1km north of site.
- Invertebrates – One record of UKBAP August thorn moth *Ennomos quercinaria* 1.9km north west of site; four records of UKBAP cinnabar moth *Tyria jacobaea* 1km north west of site.
- Amphibians - No records of great crested newt *Triturus cristatus*. One record of UKBAP and LBAP common toad *Bufo bufo* was returned 1.9km to the north west.
- Fish – No records returned
- Reptiles – One record of Wildlife and Countryside Act 1981 (as amended) (WCA), UKBAP and LBAP common lizard *Zootoca vivipara* 1.2km to north west.
- Birds - There were records returned of nine protected / notable bird species in the search. This data comprised:

**Table 10.5: Bird records received from NEYEDC**

Scientific name	Common name	Designation	Date recorded	Number of records	Direction and distance from site (m)
<i>Carduelis cannabina</i>	Common linnet	UKBAP LBAP	2008	1	1.5 km SE
<i>Larus argentatus</i>	Herring gull	UKBAP	2008	1	1.9 km NW
<i>Passer domesticus</i>	House sparrow	UKBAP LBAP	2008	8	1 km NW
<i>Passer montanus</i>	Tree sparrow	UKBAP LBAP	2009	Not supplied	Not supplied
<i>Perdix perdix</i>	Grey partridge	UKBAP	2011	Not supplied	Not supplied
<i>Prunella modularis</i>	Hedge accentor	UKBAP	2008	4	On site
<i>Sturnus vulgaris</i>	Common starling	UKBAP	2014	12	929 m NE
<i>Turdus philomelos</i>	Song Thrush	UKBAP LBAP	2008	4	948 m NE
<i>Turdus pilaris</i>	Fieldfare	WCA Sch 1 UKBAP	2010	Not supplied	Not supplied

- NEYEDC also returned dated records for Eurasian sparrow hawk *Accipiter nisus*, common sandpiper *Actitis hypoleucos*, northern pintail *Anas acuta*,

northern shoveler *Anas clypeata*, Eurasian teal *Anas crecca*, Eurasian wigeon *Anas Penelope*, mallard *Anas platyrhyncho*, gadwall *Anas strepera*, greater white-fronted goose *Anser albifrons subsp. Albifrons*, greylag goose *Anser anser*, greater scaup *Aythya fuligula*, bohemian waxwing *Bombycilla garrulus*, brent goose *Branta bernicla subsp. Bernicla*, common goldeneye *Bucephala clangula*, purple sandpiper *Calidris maritima*, black-headed gull *Chroicocephalus ridibundus*, long-tailed duck *Clangula hyemalis*, tundra swan *Cygnus columbianus*, whooper swan *Cygnus cygnus*, peregrine falcon *Falco peregrinus*, black-tailed godwit, common scoter *Melanitta nigra*, grey wagtail *Motacilla cinerea*, Eurasian curlew *Numenius arquata*, bearded tit *Panurus biarmicus*, ruff *Philomachus pugnax*, avocet *Recurvirostra avosetta*, woodcock *Scolopax rusticola*, little tern *Sternula albifrons*, mistle thrush *Turdus viscivorus* and northern lapwing *Vanellus vanellus*.

- Bats – There were eight records returned of bats *Chiroptera* (order) as below.

**Table 10.6: Bat records received from NEYEDC**

Scientific name	Common name	Designation	Number of records	Latest date recorded	Direction and distance from site (m)
<i>Pipistrellus sp.</i>	Pipistrelle bat	EPS UKBAP LBAP WCA Sch 5	8	1994	775m N

Key:

EPS: European Protected Species: Species listed under the Conservation of Habitats and Species Regulations 2010 as amended.

WCA: Wildlife and Countryside Act 1981 (as amended)

UKBAP: UK Biodiversity Action Plan

LBAP: Hull Biodiversity Action Plan

- Badger - No records returned of badger *Meles meles*
- Otter - No records returned of otter *Lutra lutra*
- Water vole - No records of water voles *Arvicola amphibius*
- Other notable species - Two records returned of West European hedgehog *Erinaceus europaeus*, 1km to the north east of the site.
- Invasive species - One record of Budgerigar *Melopsittacus undulates* 300m north. Eighteen records of Japanese knotweed *Fallopia japonica* 300m north. Seven records of giant hogweed *Heracleum mantegazzianum* 979m north west. Six records of eastern grey squirrel *Sciurus carolinensis* 1073m north west.

10.6.12 A previous survey of buildings conducted in 2005 in the area revealed a common pipistrelle bat roost within the Castle Buildings, which is located directly adjacent to

the Scheme Site Boundary (WSP, 2005). A single bat was found during a daytime survey roosting behind a boarded up window in this derelict building.

10.6.13 No ponds or other suitable watercourses for great crested newts were identified on OS maps or aerial imagery within 500m of the Scheme footprint.

### Field survey

10.6.14 This section provides a description of the habitats within the Scheme Site Boundary (excluding the designated sites described above), as well as an assessment of their value. The information is based upon the results of the extended Phase 1 habitat surveys undertaken by MMGJV in 2013 and 2014 and MMSJV in 2016, 2017 and 2018. Phase 1 habitat maps showing the locations of the habitats present are shown in Volume 3, Appendix 10.1 Preliminary ecological appraisal, Figure 10.1A sheets 1 to 9.

10.6.15 The Scheme Site Boundary has been assessed first and the potential compound sites, recovery options, potential accommodation works site and potential car parking have each been assessed separately.

### Scheme Site description

10.6.16 The survey area is centred on a 1.5km section of the A63 Castle Street dual carriageway extending from Ropery Street in the west to the Market Place and Queen Street junction in the east. A large traffic island known as Mytongate Junction is located near the centre of the survey area. The survey area also extends southwards from this junction along Commercial Road, terminating adjacent to Wellington Street West on the northern bank of the Humber Estuary.

10.6.17 Residential and commercial properties are located on all sides of the survey area, with frequent amenity planting and areas of hard standing. Trinity Burial Ground SNCI, an area of urban parkland, is located at the centre of the Scheme Site Boundary and has been assessed separately – see Section 10.6.20.

### Scheme Site habitats

- Scattered scrub - A small amount of scattered scrub was present adjacent to Waverley Street and around the substation in the Holiday Inn car park. The species it contained were bramble *Rubus fruticosus* agg. and ivy *Hedera helix*. Although scrub habitat is included in Hull BAP 'Trees, scrub and hedgerow' plan, the scattered scrub on site is not diverse and occurs in small, isolated pockets. It is not considered a good example of scrub and as such this habitat has been assessed as of negligible biodiversity value within the survey area only.
- Scattered trees - Occur frequently within the Scheme Site Boundary in association with amenity planted areas and include sycamore *Acer pseudoplatanus*, hybrid poplar *Populus* spp. and silver birch *Betula pendula* with occasional specimens of Norway maple *Acer platanoides*, snake-bark

maple *Acer rufinerve*, false acacia *Robinia pseudoacacia* and lime *Tilia x europaea*. Several semi mature or mature specimens of cherry *Prunus* spp. and sycamore are located in the west and centre of the survey area respectively. These trees stand between 5m and 8m in height and are in good condition. Trees are a Hull LBAP habitat and this habitat has been assessed as of medium biodiversity value within the county area.

- Standing water - Humber Dock Marina contains standing water habitat. The marina is connected to the Humber Estuary SAC, SPA, Ramsar and SSSI by two sets of gates (lock) crossing Wellington Street. Railway Dock is connected to Humber Dock Marina by a lock on the eastern side of Railway Dock. As both of these docks are man-made they do not contain habitats (sandbanks, mudflats, dunes) that the Humber Estuary is designated for. They may support some species that are designated, in particular grey seals, birds and sea and river lamprey. These two docks, because of their likely importance to these species and connectivity to the Humber Estuary have been assessed as of high / medium biodiversity value within the regional area as areas of standing water habitat (IAN 130/10: Table 1. Resource valuation states “regularly occurring populations of species which may be considered at an International, European, UK or National level”). In addition, they may support common fish and aquatic invertebrate species. Humber Dock Marina and Princes Dock are also UKBAP (NERC Act 2006 S41) Broad habitat ‘Intertidal substrate foreshore - man made’ habitats.
- Standing water – Princes Dock, to the north of the A63 is man-made, with no visible vegetation and contains fountains that re-circulate the water. It has a hydraulic connection to Humber Dock Marina, but the condition is unknown. It is believed to be a closed connection because of the difference in water colour to Humber Dock Marina. Princes Dock is considered unlikely to support species that are designated as part of the Humber Estuary. Princes Dock has been assessed as of negligible biodiversity value within the survey area only as standing water. (Humber Dock Marina and Princes Dock have been valued at national level as a UKBAP (NERC Act 2006 S41) Broad habitat, Section 10.6.9).
- Amenity grassland - This habitat occurs adjacent to the road verges and consists of regularly mown grass species including perennial ryegrass *Lolium perenne* and few common herbs dandelion *Taraxacum* spp and white clover *Trifolium repens*. Although this habitat is listed in the Hull BAP, the amenity grassland on site is of low biodiversity and is a poor, intensively managed example of the habitat. It has been assessed as of negligible biodiversity value within the survey area only.
- Introduced shrub - Areas of introduced shrub contain horticultural varieties including rose *Rosa* spp., cotoneaster *Cotoneaster* sp., Oregon grape *Mahonia aquifolium*, garden privet *Ligustrum ovalifolium*, burberry *Berberis* spp., lavender *Lavandula angustifolia*, dogwood *Cornus sanguinea*, cherry

laurel *Prunus laurocerasus*, dwarf reed *Phragmites* spp. and tufted grass *Deschampsia* spp. It has been assessed as of negligible biodiversity value within the survey area only.

### *Buildings*

10.6.18 Nine buildings were assessed within the Scheme survey area and additional potential compound sites during surveys in 2013. They comprised the Earl de Grey public house, the Castle Buildings, the Myton Centre, the Arco Ltd Garage, the Holiday Inn, the ARC Building and three electric / gas substations. The ARC Building had been demolished by the time the update survey was undertaken in 2016. The buildings being considered have been assessed for bat roost potential in accordance with J Collins 2016<sup>20</sup>. The results of which are provided in the MMSJV bat report (Volume 3, Appendix 10.2 Bat survey report). Buildings to the west of the site compound at Wellington Street Island Wharf have not been assessed as they are not to be demolished.

10.6.19 All buildings have been assessed as of negligible biodiversity value within the survey area only although they can have potential to support wall ferns, lichens, invertebrates, nesting birds and bats.

- The Earl de Grey public house is located near the centre of the survey area. The building is unoccupied and will be dismantled as part of the Scheme. This building contains numerous features that offer potential refuge for wildlife (particularly bats).
- The Castle Buildings are unoccupied and derelict and located approximately 25m to the west of the Earl de Grey public house. Scaffolding is present on all sides of the building, which also contain a corrugated roof above. At the time of the assessment, the building contained a wide variety of features that could have been used by local wildlife (particularly bats).
- The Myton Centre is located in the west of the survey area and is to be demolished to make way for a temporary car park for construction staff. This building is in reasonably good condition, but has gaps under the roof felt that could potentially be used by bats.
- The Arco Ltd garage consists of a small single-storey building located in the west of the survey area. This building was in good condition at the time of the survey and had negligible bat roost potential. Two smaller buildings were surveyed with an endoscope in 2018 and also had negligible bat roost potential.
- The Trinity Burial Ground site compound is located to the land south east of Mytongate Junction adjacent to the westbound carriageway. The Holiday Inn building was in good condition at the time of the survey and had negligible bat roost potential.



- A number of power substations are located within the Scheme Site Boundary. These are small brick / concrete structures, some with flat roofs. One of these - the Holiday Inn substation – is still relevant to the Scheme and will be demolished. It was in good condition and had negligible bat roost potential.

#### Trinity Burial Ground SNCI

10.6.20 Trinity Burial Ground SNCI is located near the centre of the survey area. This local wildlife site comprises short, well maintained amenity grassland with noted emerging spring bulbs snowdrop *Galanthus* spp. and daffodil *Narcissus* spp. Frequent stands of wild privet *Ligustrum vulgare*, cherry laurel and bramble occur across the park which contains many headstones and burial tombs. Numerous semi mature and mature broadleaved trees occur in the burial ground including poplar, ash *Fraxinus excelsior*, weeping ash *Fraxinus excelsior subsp. pendula*, oak *Quercus robur*, sycamore, London plane *Platanus x hispanica*, wych elm *Ulmus glabra* and lime. These trees range between approximately 8m and 20m in height and vary in condition with woodpecker holes, peeling bark, scars and natural cavities frequently recorded. Dense ivy growth was recorded on the trunks and major limbs of several individual trees. A brick wall, approximately 2m in height, is located on the northern, eastern and western boundaries of the burial ground. A large crack and several holes were recorded in this wall which has also been colonised by dense ivy. As an SNCI this site has been assessed as of medium biodiversity value at county level.

#### *Construction site compounds*

#### Arco - preferred Option A

10.6.21 The site is located adjacent to the south of the A63 and the majority of the site is currently used as industrial buildings and car parking. Amenity trees and grassland occur along the A63 verge and a small area to the east of the site. The buildings are assessed as not having bat roost potential. The site has been assessed as of negligible biodiversity value within the survey area only.

#### Staples – alternative Option B

10.6.22 The site is located adjacent to the Mytongate Junction on the northern aspect bounded by and accessed off Myton Street to the east. The site is used as a retail park for Maplins, American Golf and Monster and is the former site of Staples. The site consists of a retail park containing three buildings in the north and west and a car park in the south. Scattered trees are present along the southern and eastern boundary of the car park including beech, sycamore and rowan. Areas of introduced shrub are present in the south west of the site, adjacent to the Maplins building, and in areas in the car park consisting of the non-native invasive cotoneaster sp., dog-rose *Rosa canina*, senecio, *Mahonia* sp. and ornamental cultivar species. A species-poor hedgerow and trees comprising introduced cultivars with planted beech and sycamore is present along the southern boundary

adjacent to the A63. The scattered trees and hedgerow on site have the potential to support breeding birds and provide foraging habitat for bats, but the urban location, lack of connectivity and non-native species composition of the hedgerow indicates a low value for biodiversity. The trees and buildings are assessed as not having bat roost potential. This site has been assessed as of negligible biodiversity value within the survey area only.

#### Wellington Street Island Wharf

10.6.23 Wellington Street Island Wharf is located adjacent to the Humber Estuary SAC, SPA, Ramsar and SSSI site. The habitats adjacent to the site include intertidal mud and sand (UKBAP Priority habitat ‘intertidal mudflats’ and Hull BAP ‘Estuary’) and intertidal boulders and rocks associated with the rock armour of the sea defences. This site is a disused, unmanaged area that was previously industrial developed dockland and has a Hull LBAP habitat plan. The site is largely ephemeral / short perennial habitat over gravel containing red fescue *Festuca rubra*, ribwort plantain *Plantago lanceolata*, white clover *Trifolium repens*, scarlet pimpernel *Anagallis arvensis*, evening primrose *Oenothera biennis*, perforate St. John's wort *Hypericum perforatum*, curled dock *Rumex crispus*, black medick *Medicago lupulina* and smooth hawk's-beard *Crepis capillaris*. This habitat is succeeding to tall ruderal species common nettle *Urtica dioica*, broad-leaved willowherb *Epilobium montanum*, hairy willowherb *Epilobium hirsutum*, rosebay willowherb *Chamerion angustifolium* and mugwort *Artemisia vulgaris*. Around the perimeters of the site, the vegetation has succeeded into scrub which consisted of buddleia *Buddleja davidii*, bramble and field bindweed *Convolvulus arvensis*. Immature scattered broad-leaved silver birch *Betula pendula* trees are present on the north and east boundaries. The site could potentially support invertebrates, breeding birds and small mammals. The ephemeral / short perennial habitat on the site has been assessed as being of low value for biodiversity at a local level.

#### A63 eastbound recovery base (A63 layby eastbound to the north of St Andrew's Quay)

10.6.24 The Eastbound recovery options is located adjacent to the existing layby in the eastbound carriageway of the A63 approximately 3.7km west of Mytongate roundabout. To the north of the hardstanding of the layby is an unmanaged hedgerow of blackthorn *Prunus spinosa* and hawthorn *Crataegus monogyna*. Behind this, the habitat is dense scrub as far as the rail line and contains dogwood, hazel *Corylus avellana*, occasional field maple *Acer campestre* and hawthorn. The dry ditch was also covered in these species and appeared permanently dry. A thin strip of tall ruderal species was present between the hardstanding and the hedgerow that had false oat-grass, rosebay willowherb, mugwort, scentless mayweed *Tripleurospermum inodorum*, broad-leaved dock *Rumex obtusifolius* and common toadflax *Linaria vulgaris*. The site has potential for breeding birds, reptiles, small mammals, foraging bats and invertebrates. The hedgerow on site has been assessed as of low biodiversity value in the local area.

#### Livingstone Road



10.6.25 This is located approximately 5.6km to the west of the Scheme Site Boundary, adjacent to Livingstone Road which is adjacent to the westbound carriageway of the A63. To the west of the site is the outfall of Fleet Drain which is also part of the Humber Estuary SAC, SPA, Ramsar and SSSI site which is also adjacent to the southern boundary of the Livingstone Road Site. Adjacent to the west and south of the site are also UKBAP Priority habitats 'intertidal substrate foreshore – mud' and 'mudflats', Hull BAP 'Estuary' and intertidal boulders and rocks associated with the rock armour of the sea defences. The section of the site to the west and north is hardstanding and currently in use as a car and lorry park and for container storage. A thin strip of amenity grassland is located on the northern boundary and is frequently mown. The section of the site to the south and east has a raised area of bare ground and gravel of which the bank sides of the raised area are vegetated. The vegetated habitat present on the banks is ephemeral / short perennial which is scattered on the bare ground on top of the raised area and on intertidal boulders and rocks on the southern boundary. Species present were groundsel *Senecio vulgaris*, red valerian *Centranthus ruber*, common ragwort, hawkweed *Hieracium* spp. oxford ragwort *Senecio squalidus* and poppy *Papaver* spp. Tall ruderal species teasel *Dipsacus fullonum* and scattered scrub species bramble, gorse *Ulex europaeus* and buddleia are also present on the banks of the raised area. A species-poor hedgerow consisting of mainly buddleia and elder *Sambucus nigra* is located on the eastern boundary of the site but it has a lack of connectivity to other hedgerows. The site has potential to support invertebrates, breeding birds and small mammals. The section of the site to the north and west has been assessed as of negligible biodiversity value in the survey area only and the section containing ephemeral / short perennial and hedgerow habitats to the south and east of the site is of low value for biodiversity in the local area.

#### Land south east of Mytongate Junction (Holiday Inn)

10.6.26 The compound is located on the approach to the Holiday Inn, south east of Mytongate Junction. The habitats in the grounds of the hotel were mainly the hardstanding of the car parking facilities. Around the main hotel building and separating car park spaces were areas of intensely managed amenity grassland and introduced shrub planting. The shrubs included cultivars of box *Buxus* spp., cherry laurel, senecio *Brachyglottis greyi*, weigela *Weigela* spp., rose *Rosa* spp. and *Cotoneaster* spp. (Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)). To the west of the site, the introduced shrubs had been planted to form hedgerows and were spaced with semi mature broad-leaved trees sycamore, rowan *Sorbus aucuparia*, hornbeam *Carpinus betulus*, silver birch and willow *Salix* spp.. Behind the substation, were a mature ivy-covered lime and a wild cherry *Prunus avium* tree that bordered the SNCI. The trees and introduced shrub on site have potential to support breeding birds and small mammals and the two mature trees have low bat roost potential. The site has been assessed as of negligible biodiversity value in the survey area only, with the scattered trees assessed as of low value in the local area.

#### Neptune Street

10.6.27 The Neptune Street compound site is located between Albert Dock and the A63. Approximately 18 months ago the site was bare ground but has now been colonised by vegetation. Semi-improved neutral grassland covered most of the site at the time of the survey. Species present were false oat-grass *Arrhenatherum elatius*, cocksfoot *Dactylis glomerata*, crested dog's-tail *Cynocurus cristatus*, red clover *Trifolium pratense* and melilot *Melilotus* spp. The northern and south eastern perimeters of the site contained tall ruderal species and a strip of scrub habitat. Species present were bramble, hedge bindweed *Calystegia sepium*, mugwort, buddleia, rosebay willowherb and field rose *Rosa arvensis*. There were scattered immature silver birch trees within the scrub habitat. An area of ephemeral / short perennial habitat occurred on and around a track to the east of the site with coltsfoot *Tussilago farfara*, scentless mayweed, teasel and black knapweed *Centaurea nigra*. These habitats can support invertebrates, birds, small mammals and provide forage for bats and is listed on the UKBAP (NERC Act 2006 S41) Priority Habitat descriptions as 'Open Mosaic habitats on Previously Developed Land' and on the Hull LBAP as industrial land. As such, the ephemeral / short perennial habitat in Neptune Street is assessed as being of low value for biodiversity in the local area.

A63 westbound recovery base (A63 bus layby westbound, west of Garrison Road roundabout)

10.6.28 This site consists of a hard standing layby and footpath and a strip of amenity grassland. The site has been assessed as of negligible biodiversity value within the survey area only.

*Myton Centre temporary car park*

10.6.29 The site is located to the north west of Mytongate roundabout. The habitats around the Myton Centre buildings are regularly mown amenity grassland containing daisy *Bellis perennis*, greater plantain *Plantago major* and white clover with scattered semi mature trees of hornbeam *Carpinus betulus* and sycamore. Bare ground under the trees is being succeeded by occasional ruderal species common nettle, creeping thistle *Cirsium arvense* and rosebay willowherb. To the west of the Myton Centre buildings is an area that is currently used as public open space and contains an arboretum of scattered mixed trees that are non-native. A species-poor intact hedgerow containing mainly elder is present adjacent to the A63 footpath. To the east of the Myton Centre buildings is a children's play area and public seating area. This contains amenity grassland, scattered Lombardy poplar *Populus nigra* 'italica' and sycamore trees and introduced shrubs. A managed cherry laurel (non-native) hedgerow is present adjacent to William Street. The hedgerows within the compound site are isolated and do not provide a habitat connectivity function within the local landscape. They do not meet the criteria to be classed as important under the Hedgerow Regulations 1997. They have little wildlife value, other than providing some potential bird nesting habitat, although all hedgerows over 20m long consisting of at least 80% cover of one native woody species are UKBAP (NERC Act 2006 S41) Priority Habitats. The compound site

has potential for breeding birds, foraging bats, small mammals and invertebrates. The site has been assessed as of negligible biodiversity value in the survey area only, with the scattered trees and elder hedgerow assessed as of low value in the local area.

### Protected and notable species

- 10.6.30 Although many species are afforded protection under the Wildlife and Countryside Act 1981 (as amended) and / or the Conservation of Habitats and Species Regulations 2017, only those considered relevant to the habitats identified within the field surveys are assessed below.
- 10.6.31 There is no suitable habitat within the survey area or temporary site compounds for water vole or white-clawed crayfish. In addition, no potential great crested newt breeding ponds or other suitable water bodies were identified within 500m of the Scheme Site Boundary and no suitable habitat was found during the field surveys. Therefore, there is a negligible risk of impacting on these species and they are not considered further in the assessment.

### Terrestrial invertebrates

- 10.6.32 The habitats within the Scheme Site Boundary were all common nationally with the exception of Trinity Burial Ground SNCI. They are likely to support common or widespread species of terrestrial invertebrates. Similarly, the majority of the temporary site compounds are likely to support common or widespread terrestrial invertebrates with the exception of Wellington Street Island Wharf site compound, Neptune Street site compound and south east of Livingstone Road site compound. These areas were all assessed as being LBAP 'Industrial Land' habitat and contained diverse ephemeral / short perennial habitats that are suitable to support less common species of invertebrates. The southern part of the Livingstone Road site compound also contains black medick which is a larval food plant of the LBAP invertebrate species common blue *Polyommatus icarus*. Invertebrate species assemblages on the main site and temporary site compounds north west of Livingstone Road, land south east of Mytongate Junction, A63 westbound recovery base, Arco site and Staples site have been assessed as of negligible biodiversity value in the survey area only. Potential site compounds at Wellington Street Island Wharf, land south east of Mytongate Junction, Livingstone Road, A63 eastbound recovery base along with Trinity Burial Ground SNCI and the temporary car park site at Myton Centre have the potential to support LBAP invertebrate species and have been assessed as of low value for biodiversity in the local area.

### Aquatic invertebrates

- 10.6.33 The mudflats and water of the Humber Estuary which are adjacent to site compounds at Wellington Street Island Wharf, Livingstone Road and Neptune Street, although lacking in vegetation at these points, have potential to support fully aquatic invertebrate assemblages as notified in the Humber Estuary SSSI citation which include water beetles *Agabus conspersus* and *Helophorus*

*fulgidicollis*. These have been assessed as of high value for biodiversity at the national level. Humber Dock Marina, Railway Dock and Princes Dock are unlikely to have important aquatic invertebrate assemblages present due to the man-made structure of the docks and regular disturbance from boat traffic. These have been assessed as of negligible biodiversity value in the survey area only. The River Hull SNCI is likely to have UKBAP aquatic invertebrates present which would be assessed as of low value for biodiversity in the local area as the SNCI site is not designated for aquatic invertebrate species.

### Fish

10.6.34 Common fish species known to be present in the lower River Hull are bream *Abramis brama*, pike *Esox lucius*, roach *Rutilus rutilus*, dace *Leuciscus leuciscus*, chub *Squalius cephalus* (East Yorkshire Rivers Trust, 2017)<sup>27</sup>. Common fish species present in the Humber Estuary are flounder *Paralichthys dentatus*, cod *Gadus morhua*, whiting *Merlangius merlangus* and mullet *Mugilidae* spp. (British Sea Fishing<sup>28</sup>. UKBAP (NERC Act 2006 S41) species European eel *Anguilla Anguilla*, salmon *Salmo salar*, sea trout *Salmo trutta* and river lamprey *Lampetra fluviatilis* are also known to be present in both the Humber Estuary and the River Hull and river lamprey are a species that the Humber Estuary SAC / Ramsar and SSSI is designated for. In addition, the Humber Estuary is designated for sea lamprey *Petromyzon marinus*. Lamprey populations in the River Hull and the Humber Estuary (adjacent to Humber Dock Marina and the connecting Railway Dock) have been assessed as of very high value for biodiversity at an international level. European eel, salmon and sea trout populations in the River Hull and the Humber Estuary (adjacent to Humber Dock Marina and the connecting Railway Dock) have been assessed as of low biodiversity value at a local level.

### Reptiles

10.6.35 One record of common lizard was received from NEYEDC, but it is considered unlikely that any reptile species would be present within the Scheme Site Boundary, site compounds at land south east of Mytongate Junction, A63 westbound recovery base, Arco site, Staples site and the temporary car park site at Myton Centre due to the unsuitable habitats present within them and their highly urban locations. Some of the site compounds, i.e. Wellington Street Island Wharf, Neptune Street and Livingstone Road provide some potentially suitable grassland basking habitats. These areas were recently developed and due to their urban location, there are no connecting semi-natural habitats from which reptiles could have re-populated the sites. Reptiles are not considered a constraint in these sites and they are not mentioned further in this report. The A63 eastbound recovery base site compound has suitable habitats for reptiles and connectivity to the wider

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<sup>27</sup> East Yorkshire Rivers Trust (2017). River Hull. Available online at: <http://www.eastyorkshireriverstrust.org.uk/derwent-catchment-partnership.html>

<sup>28</sup> British Sea Fishing. Yorkshire and Humberside. Available online at: <http://britishseafishing.co.uk/yorkshire-and-humberside/>

countryside via the rail line that is adjacent to the site. However, it is small and therefore is not considered to be enough habitat to sustain a significant population of reptiles. Should reptiles be found present in the A63 eastbound recovery base they would be assessed as of low biodiversity value at a local level.

### *Birds*

- 10.6.36 Buildings, scattered broad-leaved trees, areas of introduced shrub, scrub and hedgerows located within the Scheme Site and site compounds / temporary car park – land south east of Mytongate Junction, Myton Centre, A63 eastbound recovery base, Arco site and Staples site - offer a variety of nesting opportunities and foraging habitat for common, UKBAP and LBAP birds. During the field surveys several old bird nests were identified within the canopies of broad-leaved trees. Of these sites, Trinity Burial Ground SNCI at the centre of the Scheme area offers the highest potential for use by nesting and foraging birds and song thrush (a species of Principal Importance under Section 41 of the NERC Act 2006 is recorded as breeding there). Breeding birds in these sites have been assessed as of low biodiversity value in the local area.
- 10.6.37 Site compounds at Wellington Street Island Wharf and Livingstone Road are adjacent to the Humber Estuary SAC / SPA / Ramsar and SSSI and have suitable habitats for bird species that the Humber Estuary has been designated for to breed, roost or forage in. A suite of four breeding bird surveys was undertaken by MMSJV between May and June 2016 at sites which included Wellington Street Island Wharf and Livingstone Road. This was to identify existing breeding bird territories at or near the compounds and in the adjacent designated sites. Each survey comprised a late afternoon visit followed by a morning visit with two surveys at high tide and two at low tide for each site. As all sites are coastal and close to estuarine habitat, high tide surveys were carried out to see if birds also used the sites for roosting or foraging. Low tide surveys were undertaken and focused on bird foraging potential on exposed mud, sand or shingle habitat that was adjacent to each site when the tide was out. All sites were walked along a pre-determined transect route at a steady pace and all birds seen or heard were recorded. The surveyor stopped at various vantage points along transects to observe potential breeding behaviour.
- 10.6.38 The site compound at Wellington Street Island Wharf had 12 species in total with two species probably breeding one of which was UKBAP dunnock, with a further species possibly breeding. The site compound at Livingstone Road had 15 species recorded with two species confirmed breeding one of which was the UKBAP and Hull BAP species linnets. One of the species recorded in the mudflats adjacent to the site compound at Livingstone Road was mallard. This is a species that the Humber Estuary SPA is designated for, although it was not breeding within the site compounds. Curlew, a SPA and SSSI designated species and UKBAP was recorded on mudflats adjacent to Livingstone Road site compound, again not breeding within the site compounds. Table 10.7 below provides a summary of the results each bird species recorded at each site during all four



surveys. ✓\*\*\* indicates confirmed breeding, ✓\*\* probably breeding, ✓\* possibly breeding, ✓ in flight or on ground (not breeding). Full results are provided in Volume 3, Appendix 10.1.

**Table 10.7: Summary of birds and breeding status recorded at site compounds at Wellington Street Island Wharf and Livingstone Road**

Scientific name	Common name	Designation	Wellington Street	Livingstone Road
<i>Anas platyrhynchos</i>	Mallard	SPA		✓
<i>Ardea cinerea</i>	Grey heron			✓
<i>Arenaria interpres</i>	Turnstone			✓
<i>Carduelis cannabina</i>	Linnet	UKBAP Hull BAP	✓	✓***
<i>Carduelis carduelis</i>	Goldfinch		✓	✓
<i>Carduelis chloris</i>	Greenfinch			
<i>Columba livia</i>	Feral pigeon			
<i>Columba palumbus</i>	Wood pigeon		✓	✓
<i>Corvus corone</i>	Carrion crow		✓	
<i>Erithacus rubecula</i>	Robin		✓*	
<i>Falco tinnunculus</i>	Kestrel			✓
<i>Larus argentatus</i>	Herring gull	UKBAP	✓	✓
<i>Larus fuscus</i>	Lesser black backed gull			✓
<i>Larus marinus</i>	Great black backed gull		✓	
<i>Larus ridibundus</i>	Black headed gull		✓	✓
<i>Numenius arquata</i>	Curlew	SPA SSSI UKBAP		✓
<i>Passer domesticus</i>	House sparrow	UKBAP	✓	✓
<i>Prunella modularis</i>	Dunnock	UKBAP	✓**	✓
<i>Sturnus vulgaris</i>	Starling	UKBAP	✓	✓
<i>Sylvia communis</i>	Whitethroat			✓***
<i>Turdus merula</i>	Blackbird		✓**	
<i>Turdus philomelos</i>	Song thrush	UKBAP Hull BAP		

10.6.39 Four wintering bird surveys were undertaken on the same site compounds in January and February 2017 and also at Neptune Street site compound which had been added to the Scheme to establish birds' presence / likely absence and use of the site compounds and the adjacent designated sites. The survey results also



informed the AIES process. Pre-determined transect routes were walked so birds could be located, identified and recorded using standard British Trust for Ornithology (BTO) notation. One vantage point was located and a period of time was spent recording bird activity in the viewable areas of site compounds at Neptune Street and Wellington Street Island Wharf, with two hours spent at Livingstone Road site compound.

- 10.6.40 The site compound at Wellington Street Island Wharf had 24 species recorded, with one species, mallard a qualifying species for the SPA. It was observed flying over and around the site. Four other UKBAP species were observed herring gull, dunnock, starling and house sparrow. The birds were all observed flying over and around the site.
- 10.6.41 The site compound at Neptune Street had 23 species recorded, with one species, mallard a qualifying species for the SPA. A pair was observed flying over and around the site. A peregrine (Schedule 1 of the Wildlife and Countryside Act (WCA) 1981 (as amended)) was recorded flying over the site and redwing (Schedule 1 (WCA) 1981 (as amended)) was recorded foraging within the site. Four other UKBAP species were observed herring gull flying over and around the site, dunnock within the site, linnets flying over the site (Hull BAP) and song thrush singing within the site (Hull BAP).
- 10.6.42 The site compound at Livingstone Road had 24 species recorded, with six of those being qualifying species for the SPA which were mallard, redshank, grey plover, curlew (UKBAP), knot and oystercatcher. All these species except the mallard are also qualifying species for the Ramsar and SSSI and were observed feeding on the mudflats of Fleet drain and the Humber Estuary. Mallard sightings were of them flying over the site. Six other UKBAP species were recorded; linnets flying over the site (Hull BAP), song thrush perched singing within the site (Hull BAP), herring gull flying over and around the site, dunnock, bullfinch flying over the site and starling flying over the site. Full details are provided in Volume 3, Appendix 10.4.
- 10.6.43 Species found within / adjacent to these three site compounds within the Scheme that the Humber Estuary is designated for are assessed as of very high biodiversity value within the international / national level. All other bird species have been assessed as of low biodiversity value in the local area.

#### *Aquatic marine mammals*

- 10.6.44 The Humber Estuary SAC / Ramsar and SSSI adjacent to Humber Dock Marina and site compounds Wellington Street Island Wharf and Livingstone Road is designated for grey seals. This species is a land-breeding, marine mammal. The nearest breeding colony of this species is at Donna Nook in Lincolnshire approximately 40km south of the Scheme Site. Grey seals do spend time between foraging at sea lying on rocks or sandy beaches. It is considered unlikely that they would be present within any site compounds, but potentially they may be present adjacent to them and in the Humber Dock Marina and connected Railway Dock.

This species has been assessed as of very high value for biodiversity at an international level.

### *Bats*

- 10.6.45 Nine buildings and all of the trees within or directly adjacent to the Scheme Site Boundary were assessed for their potential to support roosting bats in 2013. The Castle Buildings is where a single common pipistrelle bat was found roosting in a previous survey by WSP in 2005. Two buildings (Earl de Grey public house and Castle Buildings) and trees in Trinity Burial Ground SNCI were found to contain high bat roost potential. The site was assessed again in 2016 for bat roost potential and also included the application boundary changes and new compound sites. These buildings and trees were assessed as having high bat roost potential. The Myton Centre building proposed in the location of the temporary car park for the construction works was found to have low bat roost potential. In April 2018, the Arco site and Staples site buildings were assessed for bat roost potential but none was found.
- 10.6.46 The remainder of the buildings and trees outside of Trinity Burial Ground SNCI were assessed as having negligible bat roost potential and no further surveys of these receptors were undertaken.
- 10.6.47 The Earl de Grey public house, Castle Buildings and trees in Trinity Burial Ground were subject to dusk emergence and dawn re-entry bat surveys in 2013, 2015 and 2016, 2017. The Myton Centre was surveyed in 2016 to detect bat roost presence or likely / absence. Automated static bat detectors were left to record in the Castle Buildings in 2013 and in Trinity Burial Ground SNCI in 2013 and 2015. The surveys revealed no evidence of bat roosting activity within any of the buildings or Trinity Burial Ground SNCI.
- 10.6.48 Full results are provided in Volume 3, Appendix 10.2. In the unlikely event that a roosting bat is found during the works, the site would be of low biodiversity value for bats within the local area.
- 10.6.49 Two bat activity walked transect surveys, one to the west and one to the east of the Scheme Site were undertaken twice in 2013 and 2016. Commuting route surveys were undertaken at Mytongate Junction in 2013 and 2016.
- 10.6.50 Bat activity within the survey boundary was dominated by a single species; common pipistrelle. Of the other three species recorded, noctules and Nathusius' pipistrelle are known to be migratory. The data suggest that these species were recorded passing through the site and are not normally resident in, or dependent upon, habitat features within the site. The single *Myotis* sp. pass recorded suggests that this species is also not normally resident.
- 10.6.51 The majority of the Scheme Site and the potential compound sites have been assessed as of low value to foraging and commuting bats due to the lack of semi-natural habitats and lack of habitat connectivity. Trinity Burial Ground SNCI

contains mature trees and has been assessed as of moderate value for bat activity.

- 10.6.52 Bat activity surveys found most foraging activity to be concentrated at Trinity Burial Ground SNCI, which is an important foraging habitat for the local common pipistrelle bat population. The park to the north west of Mytongate Junction is also frequently used by foraging bats. Two commuting routes were identified at Mytongate Junction, both of which connect Trinity Burial Ground SNCI with habitats to the north, reinforcing its importance as a feeding resource.
- 10.6.53 Full results are provided in Volume 3, Appendix 10.2. Bats within the application site are considered to be of low biodiversity value within the local area under the resource valuation criteria in IAN 130/10 Table 1. The bat population recorded at the site is not considered to meet the criteria for valuation at county level, despite bats being protected by national and European legislation. This is because it is unlikely that the bat population present forms a critical part of a wider population within the county, as it comprises a small number of a common species within an urban setting (IAN 130/10: Table 1 resource valuation criteria).

#### *Badgers*

- 10.6.54 The survey area is largely unsuitable for badgers due to the highly urbanised location, level of human disturbance, lack of connectivity and lack of adequate foraging resources. As such they are considered to be likely absent. In the unlikely event that badgers move into the A63 eastbound recovery base compound site via the rail line and are found present, they would be assessed as of negligible biodiversity value in the survey area only.

#### *Otters*

- 10.6.55 The habitat in the River Hull is canalised with a steep vertical wooden retaining bank wall. The mudflats in the river are suitable to provide resting places for otters and this species use the River Hull as part of their home range for foraging. The Humber Estuary adjacent to Humber Dock Marina and the connecting Railway Dock and site compounds at Wellington Street Island Wharf and Neptune Street has man-made defences in the form of rock armour or vertical wooden bank walls. Adjacent to the site compound at Livingstone Road, the defences are more natural intertidal rocks and boulders, with some vertical wooden retaining defence on the bank of Fleet Drain. Mudflats are present at low tide outside of the defences. Otters are likely to use the Humber as a foraging resource, with the mudflats and natural rocks and boulders at Livingstone Road site compound being more suitable for use as a resting place. Otter presence in any of the sites would be assessed as of low biodiversity value within the local area.

#### *Other notable species*

- 10.6.56 Trinity Burial Ground SNCI and other public park areas within the main site; site compounds at Wellington Street Island Wharf, Livingstone Road, land south east

of Mytongate Junction, Neptune Street and the A63 eastbound recovery base and the temporary car park location at the Myton Centre all contain habitat cover that is suitable to support UKBAP and LBAP species European hedgehog. If present on site, this species is assessed as being of low biodiversity value within the local area.

### *Invasive species*

10.6.57 The invasive shrub cotoneaster was identified during the field survey within areas of introduced shrub to the east of the Scheme Site at the A63 and Market Place junction and A63 and Queen Street junction and in the site compounds at land south east of Mytongate Junction and Staples. Three scattered false acacia trees were identified within the main site on the verge outside of Trinity Burial Ground SNCI.

### **Valuation of ecological receptors**

10.6.58 A summary of the valuation of ecological receptors relevant to the Scheme is provided in Table 10.8: Summary of valuation of ecological receptors.

**Table 10.8: Summary of valuation of ecological receptors**

<b>Ecological receptor</b>	<b>Valuation</b>
Humber Estuary SAC / SPA / Ramsar	International
Humber Estuary SSSI	National
Trinity Burial Ground SNCI, River Hull SNCI	County/Unitary Authority Area
UKBAP (NERC Act 2006 S41) Priority habitats - Princes Dock; Humber Dock Marina; Trinity Burial Ground; Adjacent to site compounds at Wellington Street Island Wharf, Livingstone Road and Neptune Street	National
Scrub Main site; site compounds at Wellington Street Island Wharf, Livingstone Road, A63 eastbound recovery base, land south east of Mytongate Junction, Neptune Street and Staples site	Negligible
LBAP Scattered amenity trees Main site; site compounds at land south east of Mytongate Junction, Staples site, Arco site; temporary car park at the Myton Centre	County
Grasslands (semi-improved and poor semi-improved) Main site; site compound at Neptune Street	Negligible
Tall ruderal Site compounds at Wellington Street Island Wharf, Livingstone Road, A63 eastbound recovery base and Neptune Street	Negligible
Standing water Main site; Humber Dock Marina; Railway Dock	Regional
Amenity grassland	Negligible

Ecological receptor	Valuation
Main site; site compounds at Livingstone Road, land south east of Mytongate Junction, Neptune Street, Arco site; temporary car park at the Myton Centre	
Ephemeral / short perennial Site compounds at Wellington Street Island Wharf, Livingstone Road and Neptune Street	County
Introduced shrub Main site; site compounds at land south east of Mytongate Junction, Staples site and Arco site; temporary car park at the Myton Centre	Negligible
Hedgerows – (Poor quality) Site compounds at Livingstone Road, A63 eastbound recovery base and Staples site; temporary car park at the Myton Centre	Local
All Buildings	Negligible
Terrestrial Invertebrates Trinity Burial Ground SNCI; site compounds at Wellington Street Island Wharf; Livingstone Road, A63 eastbound recovery base and Neptune Street; temporary car park at the Myton Centre	Local
Aquatic Invertebrates Humber Estuary SSSI	National
Aquatic Invertebrates River Hull SNCI	Local
Aquatic Invertebrates Humber Dock Marina; Railway Dock; Princes Dock	Negligible
Fish (Sea and river lamprey) Humber Dock Marina; Railway Dock;	International
Fish (European eel, salmon, sea trout) Humber Dock Marina; Railway Dock;	Local
Reptiles Site compound at A63 eastbound recovery base	Local
Birds Main site; Trinity Burial Ground SNCI; site compounds at land south east of Mytongate Junction, A63 eastbound recovery base, Staples site, Arco site; temporary car park at the Myton Centre	Local
Birds Site compounds at Neptune Street, Wellington Street Island Wharf and Livingstone Road	International
Aquatic marine mammals Humber Dock Marina; Railway Dock; site compounds at Wellington Street Island Wharf, Livingstone Road and Neptune Street	International
Bats All areas	Local
Badgers All areas	Negligible

Ecological receptor	Valuation
Otters Humber Dock Marina; Railway Dock; site compounds at Neptune Street, Wellington Street Island Wharf and Livingstone Road	Local
Notable species (hedgehogs) Main site; Trinity Burial Ground SNCI; site compounds at Wellington Street Island Wharf, Livingstone Road, land south east of Mytongate Junction, A63 eastbound recovery base and Neptune Street; temporary car park at the Myton Centre	Local
Invasive Species – cotoneaster Main site at the A63 and Market Place junction and A63 and Queen Street junction; site compounds at Staples site, land south east of Mytongate Junction Invasive Species - False acacia Main site	Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)

10.6.59 Ecological receptors assessed as having negligible value are scrub, semi-improved grasslands, tall ruderal, Princes Dock, amenity grassland, introduced shrub, buildings, aquatic invertebrates (in Humber Dock Marina, Railway Dock and Princes Dock), reptiles and badgers are not considered further in this chapter, as the effects of impacts on these habitats would be insignificant and a Detailed Assessment is not necessary (IAN 130/10).

10.6.60 Mitigation measures and predicted environmental effects are considered for the remaining ecological receptors that are of local value or higher or are subject to some form of legal protection.

## 10.7 Mitigation

10.7.1 Mitigation measures employed to reduce the impact of the Scheme on ecological receptors can be categorised as follows:

- Impact avoidance: measures taken during the Detailed Design process and Operation Phases of the Scheme to avoid impacts to identified ecological receptors.
- Impact mitigation: measures employed to reduce or minimise the scale of impact on identified ecological receptors.
- Compensation: where residual impacts are unavoidable, measures to compensate for the effects of development, such as replacement of habitat lost.

### Mitigation of Construction Phase impacts

10.7.2 The following measures would be employed to mitigate potential impacts of Construction Phase operations on ecological receptors. Mitigation measures are detailed for each receptor separately. The potential impacts on the Humber



Estuary are fully assessed within a separate Assessment of Implications on European Sites (AIES) Screening Report, document reference TR010016/APP/6.13.

*Humber Estuary SAC / SPA / Ramsar / SSSI Sites*

- 10.7.3 Impacts to the Humber Estuary are likely to arise from contaminants entering the Estuary via ground water or surface water sources, or through dewatering operations (Chapter 11, Road drainage and the water environment).
- 10.7.4 Standard pollution prevention measures would be used in site compounds and working areas to mitigate pollution incidents before contaminants could reach the Estuary. Pollution prevention measures would be specified within the CEMP. An outline Environmental Management Plan (OEMP) is provided at document reference TR010016/APP/7.3.
- 10.7.5 It is understood that Yorkshire Water will grant consent to discharge to the existing highway drainage connections. However, should the consent not be granted, the surface water drainage from the underpass at Mytongate Junction would be pumped to a new dock wall outfall at the Humber Quays development, near the location of other existing outfalls. The final location of which is yet to be decided. The surface water would discharge onto existing rock armour in the Estuary (see Chapter 11, Road drainage and the water environment). This would mitigate by reduction, the risk of adverse impacts to estuarine habitats during construction of the outfall and remove the possibility of discharges scouring the river bed and causing silt plumes that could be detrimental to estuarine wildlife.
- 10.7.6 The re-suspension of sediments has the potential to release nutrients into the water column. High nutrient levels and lower light penetration can lead to algal blooms and a drop in levels of dissolved oxygen. The rapid dispersal of nutrients combined with dilation from tidal action would minimise the likelihood of algal blooms. Any potential impact would be short-lived and an ecological balance would quickly return.
- 10.7.7 The Scheme would retain the existing highway gullies. In addition, new water collection features would be introduced to collect surface water run-off from impermeable areas as attenuation for the additional flow rates. This would restrict surface water flows to the existing flow rates to the public sewer network, Princes Dock and the Humber Dock.
- 10.7.8 Concrete mixing and washing areas would be located more than 10m from waterbodies. Wash water would not be discharged to the water environment and would be disposed of appropriately.
- 10.7.9 Disposal of excavated material and trimmed excess pile and wall material would be described, documented and disposed of in accordance with relevant statutory instrument and guidance with chemical analysis being undertaken where appropriate.

10.7.10 Construction of the Scheme would not increase air emissions significantly. For more details see Chapter 6 Air quality.

10.7.11 Impacts from piling into Humber Dock Marina during construction of Princes Quay Bridge and the re-location of Spurn Lightship could include noise, vibration, dust, groundwater contamination and silting / sedimentation. The potential impacts on the Humber Estuary European Sites is fully assessed within the AIES, see document reference TR010016/APP/6.13.

10.7.12 To summarise, to mitigate impacts to fauna in the Estuary prior to piling commencing, the following recommendations should be followed:

- The piling work is programmed to be undertaken outside of the Humber lamprey migratory seasons at a time when fewest lamprey numbers will be present in the Humber Estuary.
- A trained marine fauna ecologist and ornithologist would act as observers to check that the dock area and up to 500m beyond the dock gates is clear of marine mammals, fish and birds.
- The dock gates would be closed during piling to control and contain silt and sediment and absorb noise and vibration from entering the Humber Estuary.
- A soft start-up of machinery to disperse any potential fish, birds or mammals present in the dock.

#### *Non-statutory designated sites*

##### Trinity Burial Ground SNCI

10.7.13 Currently, 72 trees are to be removed from Trinity Burial Ground SNCI. Of these, 36 would be permanently lost as part of the Scheme and a further 36 trees lost to accommodate the tent for the archaeological works and the new entrance.

10.7.14 Retained trees near to construction areas would be protected from construction related damage to canopy and root systems by establishing root protection areas in accordance with BS5837:2012 Trees in relation to design, demolition and construction – Recommendations. Standard pollution control measures would be employed to mitigate pollution incidents, such as fuel spillages, within or adjacent to the burial ground.

10.7.15 Compensation includes replanting 55 larger native semi mature trees (>30cm diameter) close to Trinity Burial Ground as there would be little space within it. The understorey in the remaining area of Trinity Burial Ground is to include some native shrubs and plants.

10.7.16 Within the retained area of the SNCI, 24 hour temporary lighting during works would be installed, but would be directed away from the remaining trees in order to reduce disturbance to wildlife that use the site such as bats and birds.

### River Hull SNCI

10.7.17 Direct impacts to the River Hull SNCI are unlikely. Indirect impacts from pollution would be mitigated by standard pollution prevention measures in site compounds and working areas on pollution incidents before contaminants could reach the river. Pollution prevention measures would be specified within the CEMP. An OEMP is provided at document reference TR010016/APP/7.3.

### *UKBAP (NERC Act 2006 Section 41) Priority habitats*

10.7.18 UKBAP Priority habitats ‘mudflats’, ‘saltmarsh’ ‘deciduous woodland’, broad-leaved woodland’ and Broad habitat ‘intertidal substrate foreshore – mud and made ground’, are located either within or adjacent to the Scheme Site.

10.7.19 The woodland UKBAP Priority habitats are located in Trinity Burial Ground and mitigation and compensation are covered in Sections 10.7.13, 10.7.14 and 10.7.15.

10.7.20 The mudflats, saltmarsh and intertidal substrate foreshore - mud habitats are located adjacent to Humber Dock Marina and connecting Railway Dock, and site compounds at Wellington Street Island Wharf and Livingstone Road. Mitigation for pollution incidents on these habitats would be as in Section 10.7.4.

10.7.21 Intertidal substrate foreshore – man made habitat is located within Humber Dock Marina and Princes Dock. The former would be directly impacted by piling to create supports for the deck that would carry the proposed new Princes Quay Bridge and there would be a small loss of habitat beneath the pile footprints. No mitigation for habitats within Humber Dock Marina and Railway Dock is proposed. The dock gates would be closed during piling to control and contain silt and sediment and absorb noise and vibration from entering the Humber Estuary. The movement of the Spurn Lightship would additionally disturb sediments. The impacts of this are discussed further in the AIES at document reference TR010016/APP/6.13.

10.7.22 A Marine Mammal Mitigation Plan based upon the protocol in JNCC (2010) would be included in the contractor’s CEMP and implemented as part of the works. See the OEMP at document reference TR010016/APP/7.3.

### *Scattered amenity trees*

10.7.23 Outside of Trinity Burial Ground, approximately 245 amenity trees are to be removed to accommodate the Scheme. Compensation would include the planting of 307 native trees across the Scheme Site. Potential site compound areas are to be reinstated as they were only required for the construction period. The Myton Centre which is to be used as a temporary car park will be landscaped as an area of replacement public open space at the end of the Construction Phase. Tree replacement is shown at Volume 2, Figure 9.9 Trees removed. Root protection

areas would be established to protect retained trees near construction areas in accordance with BS5837:2012.

#### *Standing water*

10.7.24 Impacts from pollution incidents to standing water habitats at Humber Dock Marina, Railway Dock and Princes Dock would be mitigated by applying standard pollution prevention measures to pollution incidents before contaminants could reach the dock areas. Pollution prevention measures would be specified within the CEMP.

10.7.25 Impacts from piling for Princes Quay Bridge have been outlined in Section 10.7.11 and further evaluation of noise and vibration levels and sediment release is within the AIES. Humber Dock Marina would be impacted during piling.

#### *Ephemeral / short perennial*

10.7.26 This habitat is present in site compounds at Wellington Street Island Wharf, Neptune Street and Livingstone Road. Vegetation removal in these compounds would impact this UKBAP (NERC Act 2006 S41) and Hull BAP habitat. Mitigation should be to reduce the amount of this habitat lost by retaining an area in a corner of each site throughout the works and compensation should leave the site to revegetate naturally upon completion.

#### *Hedgerows*

10.7.27 A species-poor elder hedgerow is present in the area of the Myton Centre which is to be used as a temporary car park. It is approximately 45m in length and is to be compensated with 104m of hedgerow (to be confirmed) containing species of native hedgerow woody plants within the Myton Centre. The hedgerows within the site compounds at Livingstone Road and A63 eastbound recovery base would be reinstated only.

#### *Terrestrial invertebrates*

10.7.28 To compensate for the loss of habitat that supported invertebrates in Trinity Burial Ground SNCI, the planting described in Section 10.7.15 of this chapter would be implemented. The loss of ephemeral / short perennial habitat and tall ruderal and semi-improved grasslands in site compounds at Wellington Street Island Wharf, Neptune Street and Livingstone Road would be mitigated by reducing the amount of ephemeral / short perennial habitat lost by retaining an area in a corner of each site throughout the works and compensated by leaving the site to revegetate naturally upon completion.

#### *Aquatic invertebrates*

10.7.29 To prevent impacts from disturbance from the piling to install Princes Quay Bridge including noise, vibration and disturbance of sediments would involve the dock gates being closed during piling to control and contain silt and sediment and

absorb noise and vibration from entering the Humber Estuary and a soft start-up of machinery to disperse any potential animals present in the dock. Mitigation for pollution impacts would be standard pollution prevention measures on pollution incidents before contaminants could reach the River Hull or Humber Estuary. Pollution prevention measures would be specified within the CEMP.

### *Fish*

10.7.30 Direct impacts to fish are likely during the piling works to construct Princes Quay Bridge. Mitigation proposals for indirect impacts from noise, vibration and sediment disturbance are provided in Sections 10.7.3 to 10.7.11. Mitigation for pollution events to fish in the Humber Estuary and River Hull is described in Section 10.7.4. A soft start-up of machinery would disperse fish away from the piling area to the lock gates where they would not be indirectly impacted. This would be contained within the Marine Mammal Mitigation Plan based upon the protocol in JNCC (2010) included in the contractor's CEMP. See the OEMP at document reference TR010016/APP/7.3.

### *Reptiles*

10.7.31 Reptile habitat is present in the A63 eastbound recovery base site compound and small numbers of reptiles may be present. Avoidance of death or injury to a reptile involves precautionary measures, with an ECoW being present prior to vegetation clearance to search the area where vegetation is to be removed first. Site clearance should be outside of the hibernation season (April-October). The ECoW would give a tool box talk to onsite contractors in order to relate applicable legislation, what signs to look for, and what to do should reptiles be encountered on site. If a reptile is found during site clearance, the ecologist would move it to a place of safety. The site compounds are to be re-instated after works cease which would compensate for potential habitat loss.

### *Birds*

10.7.32 The main site and all potential compound sites with the exception of A63 westbound recovery base have some vegetation that could be used by common, UKBAP and LBAP breeding bird species. It is recommended that vegetation clearance is carried out outside the main breeding season (typically March to August inclusive). If this is not possible, it should be undertaken under the supervision of an ECoW who should check vegetation for active nests prior to clearance works commencing and identify any areas that should be avoided. Any active nests found must remain in situ, with a buffer of undisturbed vegetation, until all the young have fledged. Lighting of Trinity Burial Ground SNCI during construction at night has the potential to disturb birds, but this would be directed away from the remaining trees.

10.7.33 The breeding and wintering bird surveys undertaken at site compounds at Neptune Street, Wellington Street Island Wharf and Livingstone Road found that there were no bird species breeding within these compounds that the Humber

Estuary SAC / SPA / Ramsar / SSSI Sites were designated for. During the winter January / February surveys, bird species that the Humber Estuary was designated for were observed either adjacent to the site compounds in the mudflats or flying over the site compounds. Impacts to these bird species are likely to be from pollution or noise, vibration and sight disturbance.

- 10.7.34 Indirect impacts from pollution would be mitigated by applying standard pollution prevention measures in site compounds to pollution incidents before contaminants could reach the mudflats. Pollution prevention measures would be specified within the CEMP.
- 10.7.35 Mitigation measures to reduce disturbance to the birds feeding on the mudflats of the Humber Estuary, River Hull and Fleet Drain would include the erection of hoardings to block the works in the site compounds from view and reduce noise emissions. Monitoring bird surveys are to be carried out at the site compounds during construction in order to record the species of birds present and the effects of any noise or sight pollution upon them. If it is found that the noise and sight levels are impacting the wading bird population, then changes can be put into place to make these levels acceptable. Mitigation measures specified in Section 10.7.11 would reduce impacts from piling in Humber Dock Marina on any birds at Wellington Street Island Wharf site compound

#### *Aquatic mammals*

- 10.7.36 Grey seals may be present in the Humber Estuary, River Hull and Fleet Drain which are located adjacent to Humber Dock Marina, Railway Dock and site compounds at Neptune Street, Wellington Street Island Wharf and Livingstone Road. Direct impacts are considered unlikely, but in the event that a grey seal ventures onto the site, mitigation should include that trenches should be covered at night to prevent grey seal from falling in, or trenches should include an earth ramp to allow them to climb out. At night lighting should be directed away from the water in the three site compounds. Mitigation for this species from the construction of the Princes Quay Bridge is in Section 10.7.11 and they have been further assessed in AIES. A Marine Mammal Mitigation Plan based upon the protocol in JNCC (2010) would be included in the contractor's CEMP and implemented as part of the works. See the OEMP at document reference TR010016/APP/7.3.

#### *Bats*

- 10.7.37 No roosting bats were recorded during any of the surveys undertaken between 2013 and 2016. Demolition of buildings would not require ECoW supervision.
- 10.7.38 Updated bat surveys would be completed prior to the felling of trees with potential roosting features in Trinity Burial Ground SNCI, to confirm continued absence of roosts. Felling of trees with potential bat roost features in Trinity Burial Ground SNCI would be supervised by a bat licensed ECoW as a precautionary avoidance measure to account for the small possibility of unidentified roost presence. Cavities and other suitable roosting features would be inspected immediately prior



to felling for signs of roosting bats. The trees would be felled sectionally in such a way that potential roost features are left intact. The felled tree sections would then be inspected on the ground and if they contain features that cannot be fully inspected, they would be left for 24 hours before removal. This allows time for any potential hidden bats to exit the tree sections overnight. Felling would be undertaken outside of sensitive roosting periods (not during maternity, May to August or during hibernation periods, November to March). Compensation would involve bat boxes, such as Schwegler 1FD and 1FF, to be placed in suitable mature trees within the remaining area of Trinity Burial Ground SNCI under the direction of a bat licensed ecologist. This would compensate for the loss of some of the potential roosting features within the mature trees that are to be removed.

10.7.39 Trinity Burial Ground SNCI is an important foraging habitat for the local common pipistrelle bat population. The park to the north west of Mytongate Junction is also frequently used by foraging bats. Two commuting routes were identified at Mytongate Junction, both of which connect Trinity Burial Ground SNCI with habitats to the north. Impacts to bats from the loss of the majority of trees in the burial ground would be compensated by replanting larger semi mature native trees (>30cm diameter) close to Trinity Burial Ground. The understorey in the remaining area of Trinity Burial Ground is to include some native shrubs and plants. Severance of the commuting route between Trinity Burial Ground SNCI and habitats to the north of the A63 by removal of the trees within Mytongate Junction and the northern section of Trinity Burial Ground SNCI, would impact bats by increasing the distance they have to fly over open areas to move between foraging resources. Compensation requires that the larger native trees are to be replanted on the verges at either side of the A63 in a line extending from Trinity Burial Ground to the Myton Centre. The large height of the trees would provide habitat 'hop-overs' for bats and reduce collisions with traffic. The larger trees would also be planted in the soft estate in the new Mytongate Junction. This should recreate the linear bat navigation route to Trinity Burial Ground that has been surveyed.

10.7.40 The A63 is currently lit at night and would be during construction. Trinity Burial Ground SNCI is not lit internally currently, but would be during construction after all the trees have been removed. The areas identified as site compounds are currently all lit at night, but the site compound at Wellington Street Island Wharf is only lit on the eastern and northern boundaries. The construction lighting scheme has not been designed as yet but all the compound sites would have 24 hour lighting. Recommended mitigation would be to use covers to direct lighting where it is needed at the ground and not directly light up linear features.

#### *Otters*

10.7.41 Otters are likely to use the Humber Estuary, River Hull and Fleet Drain which are located adjacent to Humber Dock Marina, Railway Dock and site compounds at Neptune Street, Wellington Street Island Wharf and Livingstone Road as part of their home range. Direct impacts are considered unlikely, but in the event that an otter ventures onto the site, mitigation would include that trenches are to be

covered at night to prevent otter from falling in, or trenches are to include an earth ramp to allow otter to climb out. Lighting in site compounds at Neptune Street, Wellington Street Island Wharf and Livingstone Road should be directed away from the water. Mitigation for this species from the construction of the Princes Quay Bridge is in Section 10.7.11. A Marine Mammal Mitigation Plan based upon the protocol in JNCC (2010) would be included in the contractor's CEMP and implemented as part of the works. See the OEMP at document reference TR010016/APP/7.3.

#### *Notable species (hedgehogs)*

10.7.42 Trinity Burial Ground SNCI and other vegetated areas within the main site; site compounds at Wellington Street Island Wharf, Livingstone Road (south part), land south east of Mytongate Junction, Neptune Street and A63 eastbound recovery base; and the temporary car park at Myton Centre have the potential to support UKBAP (NERC Act 2006 S41) and LBAP species European hedgehog. Mitigation includes that site clearance workers should be made aware of the risk of finding hedgehogs during site clearance, and if any are found they should be placed in an area of safety, away from the works area.

#### *Invasive species (Schedule 9 of the Wildlife and Countryside Act 1981 (as amended))*

- 10.7.43 The invasive shrub cotoneaster was identified during the field survey at the A63 / Market Place junction and A63 / Queen Street junction within areas of introduced shrub and amenity planting surrounded by hard standing. It was also noted in site compounds at land south east of Mytongate Junction and Staples site. These plants are to be removed and the arisings and topsoil in these areas should be treated as controlled waste. They must be disposed of at a suitably licensed or permitted disposal facility. The waste site operator must be informed that there is living cotoneaster in the material to be disposed of. The skip or wagon to be used for disposal would need lining and covering with membrane and cleaning again after the material has been disposed. Biosecurity method statements would be included in the CEMP.
- 10.7.44 Three false acacia trees were identified in the main site on the verge outside of Trinity Burial Ground SNCI. The trees are to be removed and treated as controlled waste as in Section 10.7.43.

### **Mitigation of Operation Phase impacts**

#### *Humber Estuary SAC / SPA / Ramsar / SSSI Sites*

10.7.45 The increase in drainage area due to the proposed underpass would result in higher discharges to the Humber Estuary during the Operation Phase than the existing situation. All surface water from the underpass would pass through a pollution control device and a storage tank before reaching the Estuary. The additional pollutant load from the proposed discharge to the Humber would be

monitored and controlled and not result in a deterioration of the existing Water Framework Directive water quality status and would not prevent the Humber from achieving the WFD objective of good ecological potential by 2027 (see Chapter 11, Road drainage and the water environment).

- 10.7.46 Discharge of surface water from the underpass at Mytongate Junction onto existing rock armour would prevent the discharge from scouring the river bed and creating silt plumes that could be detrimental to estuarine habitats and species. It is not yet determined if the outfall is required and the locations of the outfalls have yet to be decided (Section 10.4.4).
- 10.7.47 Mitigation to control the risk of pollution to the water environment and flooding during operation of the Scheme has been incorporated into the design of the underpass drainage system. This is described in Chapter 2, The Scheme.
- 10.7.48 The underpass drainage system would incorporate a shut-off valve and below-ground attenuation units to allow isolation and containment of contaminants lost to the drainage system in the event of a major incident. This would prevent accidental spillages reaching the Humber Estuary, protecting the water quality of the receiving water body. The underpass drainage system design would also incorporate an oil interceptor.
- 10.7.49 Air emissions from the operation of the Scheme would not increase significantly. For details see Chapter 6 Air quality.
- 10.7.50 Noise levels would have no major or moderate adverse impacts during operation and some beneficial effects of lower noise levels to the south of Mytongate Junction where the proposed road dips down may benefit fauna in the designated sites (see Chapter 7 Noise and vibration).

#### *Non-statutory designated sites*

##### Trinity Burial Ground SNCI

- 10.7.51 A replacement public open space is to be provided at the Myton Centre to compensate for the loss of part of Trinity Burial Ground SNCI (see Chapter 2 The Scheme). The primary function of this new site would be for public amenity and whilst some trees and shrubs would be planted, it would not replace the mature woodland habitat lost within the SNCI in the long term. There is no land available adjacent to the application site that is suitable for replacing the habitat lost within the SNCI with new tree planting, due to the urban location of the Scheme.
- 10.7.52 Some shrubs and native planting to benefit wildlife in the remaining area of the SNCI is to be undertaken, but the area is to be used to improve the amenity of the site for the public which would entail making the site more open to discourage anti-social behaviour.

10.7.53 Existing lighting columns would be retained around the retained area of the SNCI after the completion of works and light pollution from the new junction which would be located closer to the SNCI would increase.

#### River Hull SNCI

10.7.54 Road drainage would not discharge to the River Hull during the Operation Phase and there would therefore be no risks to water quality within the river.

#### *UKBAP (NERC Act 2006 Section 41) Priority habitats*

10.7.55 The woodland UKBAP Priority habitats are located in Trinity Burial Ground. Operational mitigation is covered in Sections 10.7.52; 10.7.53 and 10.7.54.

10.7.56 The mudflats, saltmarsh and intertidal substrate foreshore – operational impacts to mud habitats located adjacent to Humber Dock Marina and connecting Railway Dock and site compounds at Wellington Street Island Wharf and Livingstone Road would be mitigated as described in Sections 10.7.45 – 10.7.50.

10.7.57 Intertidal substrate foreshore – man made habitat is located within Humber Dock Marina and Princes Dock and no operational impacts on this habitat are likely although there would be a small loss of habitat beneath the pile footprints.

#### *Scattered amenity trees*

10.7.58 Outside of Trinity Burial Ground, currently, the 245 trees to be removed are being replaced with 307 trees.

10.7.59 New tree planting would be maintained for five years during the Operation Phase to ensure establishment and growth to maturity in the long term (see Chapter 9, Landscape). No operational impacts from air quality are expected on the replacement trees.

#### *Standing water*

10.7.60 Impacts from road drainage pollution incidents to standing water habitats at Humber Dock Marina, Railway Dock and Princes Dock are unlikely as the road drainage would not discharge to the Humber and Railway Docks during the Operation Phase. If consent is not granted by Yorkshire Water, the proposed outfall discharge point to the Humber would be located in an area of existing outfalls outside of the docks. This is covered in Section 10.7.47.

#### *Ephemeral / short perennial*

10.7.61 This habitat is present in site compounds at Wellington Street Island Wharf, Neptune Street and Livingstone Road. These compounds would be reinstated after construction and would not be managed as a part of the Scheme. Ephemeral / short perennial habitat that was present is likely to recover its existing state in a short time.

### *Hedgerows*

10.7.62 The replacement hedgerows at the temporary car park site at the Myton Centre and A63 eastbound recovery base site compound would be maintained during the Operation Phase to ensure establishment and growth to maturity in the long term.

### *Terrestrial invertebrates*

10.7.63 The amount of lost habitat that supported invertebrates in Trinity Burial Ground SNCI would not be fully replaced, so there would continue to be less habitat for terrestrial invertebrates during the Operation Phase. The loss of ephemeral / short perennial habitat; tall ruderal and semi-improved grasslands in site compounds at Wellington Street Island Wharf, Neptune Street and Livingstone Road would be reinstated after construction and would not be managed as a part of the Scheme. These habitats that were present are likely to recover their existing state in a short time.

### *Aquatic invertebrates*

10.7.64 Operation Phase impacts to the Humber Estuary and River Hull (Sections 10.7.45 to 10.7.50 and 10.7.54) are considered unlikely and so it is assumed that impacts to aquatic invertebrates supported by these rivers would also be unlikely.

### *Fish*

10.7.65 Operation Phase impacts to the Humber Estuary and River Hull (Sections 10.7.45 to 10.7.50 and 10.7.54) and the standing water of the docks (Section 10.7.60) are considered unlikely and so it is assumed that impacts to fish in these rivers and docks would also be unlikely.

### *Reptiles*

10.7.66 After the habitats in the site compound at A63 eastbound recovery base have been reinstated, no impacts to reptiles are considered likely during the Operation Phase.

### *Birds*

10.7.67 The new tree and shrub planting across the Scheme Site would provide some replacement nesting and foraging habitat for common, UKBAP and LBAP species of birds. However, the amount of lost habitat that supported birds in Trinity Burial Ground SNCI would not be fully replaced, so there would continue to be less habitat for birds during the Operation Phase. Increased light pollution would remain during the Operation Phase at Trinity Burial Ground SNCI.

10.7.68 The site compounds at Wellington Street Island Wharf, Neptune Street and Livingstone Road are to be reinstated after construction and should regain their existing habitats in a short time. The adjacent mudflats of the Humber Estuary, River Hull and Fleet Drain would be mitigated as described in Sections 10.7.45 to

10.7.50. No Operation Phase impacts to wading birds and waterfowl that the Humber Estuary is designated for are considered likely.

#### *Aquatic mammals*

10.7.69 Grey seals are unlikely to be impacted during the Operation Phase as water and drainage mitigation described in Sections 10.7.43 to 10.7.48 and the standing water of the docks (10.7.57) would prevent impacts to this species. There is to be no additional lighting of the Humber Estuary or River Hull during the Operation Phase.

#### *Bats*

10.7.70 Trees would be planted within landscaped areas between the main carriageway and slip roads, which would help to facilitate the continued movement of bats between habitats on either side of the road (see Chapter 9 Landscape). The trees would act as hop-over points, reducing the amount of open space that bats have to fly across, maintaining habitat connectivity and guiding bats over the road at height to reduce the risk of collisions with vehicles. The efficacy of the trees would improve over time as they grow and mature. New tree and shrub planting across the Scheme Site would provide some replacement bat foraging and commuting habitat in the area, but the amount of lost habitat that supported bats in Trinity Burial Ground SNCI would not be fully replaced, so there would continue to be less habitat for bats during the Operation Phase.

10.7.71 New permanent lighting would not be installed within the retained area of the SNCI after the completion of works, but light pollution from the new junction which would be located closer to the SNCI would increase which may deter bats from roosting in the bat boxes that are to be erected on the remaining trees.

10.7.72 New lighting within the Scheme is to comprise white LED lights which are more directional and produce lower spill than the existing lights which should produce a benefit to the species of bats found using the Scheme Site.

#### *Otters*

10.7.73 Otters are unlikely to be impacted during the Operation Phase as water and air pollution and drainage mitigation described in Sections 10.7.45 to 10.7.50 and the standing water of the docks (Section 10.7.60) would prevent impacts to this species. There is to be no additional lighting of the Humber Estuary or River Hull during the Operation Phase.

#### *Notable species (hedgehogs)*

10.7.74 The Operation Phase of the Scheme is likely to impact upon hedgehogs. The permanent loss of part of Trinity Burial Ground SNCI that potentially supported hedgehogs would not be fully replaced, so there would continue to be less habitat for this species during the Operation Phase.



*Invasive species (Schedule 9 of the Wildlife and Countryside Act 1981 (as amended))*

10.7.75 The site is to be maintained during the Operation Phase and it is unlikely that the cotoneaster or false acacia trees would return after removal in the Construction Phase. In the event that this happens, this would be removed during the maintenance period.

**Characterisation of ecological impacts**

10.7.76 A summary of the impacts to each receptor described above is provided in Table 10.9: Characterisation process of ecological impacts taken from IAN 130/10 which is supplement to DMRB Volume 11, Section 3 Part 4 'Ecology and Nature Conservation'. This takes into account the findings from the AIES Screening Report which is based on the

**Table 10.9: Characterisation process of ecological impacts**

Resource	Proposed activity, biophysical change, related to receptor structure and function	Characterisation of impact	Mitigation proposals	Summary of characterisation
Humber Estuary Value: International  Conservation of Habitats and Species Regulations 2017	Potential discharge of pollution from A63 to enter the Estuary through drainage system. Unknown impact on tidal mud and shales.  Potential impacts from piling into Humber Dock Marina during construction of Princes Quay footbridge would include noise, vibration, dust, sedimentation, groundwater contamination and silting.  Potential air quality impact small % of NOx increase on existing amounts.  Potential death, injury or disturbance to marine fauna during construction of Princes Quay footbridge.  Potential pollution impacts during operation.	SI: -ve	Drainage design would ensure that adequate surface water interceptors are incorporated. Surface water would discharge onto existing rock armour in the Estuary.  Trained marine fauna ecologists would act as observers to check that the dock area and up to 500m beyond the dock gates is clear of marine animals.  The dock gates would be closed during piling to control and contain silt and sediment and absorb noise and vibration from entering the Humber Estuary.  A soft start-up of machinery to disperse any potential fish, birds or mammals present in the dock.  Impacts from piling fully assessed in AIES.  Temporary protection during construction detailed in CEMP.  Current amounts of NOx already exceed environmental standards. Very small negligible increase.  Water quality would not be impacted by operational discharges and spillages as underpass drainage	Risk of accidental indirect impact.  Small and unlikely to be Significant (Design must ensure no residual impact)  Scheme certain to be insignificant in terms of air quality  Noise levels in parts of the site during operation would reduce.  Water quality would not be significantly impacted during operation.  Probable.  Impacts to the Humber Estuary designated sites has been concluded as not significant in the HRA Screening Report for Princes Quay currently undergoing consultation.
		PO: unlikely		
		CO: indirect		
		EC: small		
		SZ: not assessed		
		RE: not assessed		
		DU: Permanent		
TF: N/A				

Resource	Proposed activity, biophysical change, related to receptor structure and function	Characterisation of impact	Mitigation proposals	Summary of characterisation
			system would incorporate a shut-off valve and below-ground attenuation units to allow isolation and containment of contaminants.	
Trinity Burial Ground SNCI Value: County / Unitary Authority Area  Hull City Council designation	Permanent loss of 36 veteran mature trees (additional 36 to facilitate disinterment) and woodland understorey.  Lighting of SNCI during construction at night and light pollution from new junction during operation.	SI: -ve PO: certain CO: direct EC: large 0.7ha SZ: complete loss RE: not reversible DU: permanent TF: avoid breeding bird season	Root protection zones on remaining trees.  Compensation includes replanting 55 larger native trees (>30cm diameter) close to Trinity Burial Ground. The understorey in the remaining area of Trinity Burial Ground is to include some native shrubs and plants.  Lighting during construction to directed away from remaining trees.	Certain permanent loss of large area of habitat and mature trees. Significant.  Certain significant permanent extra light pollution during operation.
River Hull SNCI Value: County / Unitary Authority Area  Hull City Council designation	Indirect impacts from pollution during construction.	SI: -ve PO: unlikely CO: indirect EC: v small SZ: not assessed RE: not assessed DU: Permanent TF: N/A	Mitigation by standard pollution prevention measures.	Unlikely, very small indirect pollution incident during construction. Not significant.  No impacts expected during operation.
UKBAP (NERC Act 2006 S41) Priority Habitats – Value: National  'deciduous woodland' and broad-leaved woodland' – Trinity Burial Ground SNCI.	Trinity Burial Ground as in SNCI above.	Based on highest impacts which are to woodland habitats SI: -ve  PO: certain	'deciduous woodland' and broad-leaved woodland' – mitigation and compensation as in Trinity Burial Ground SNCI above.	Certain, permanent loss of large area of habitat and mature trees. Significant. Operational impacts from lighting pollution.

Resource	Proposed activity, biophysical change, related to receptor structure and function	Characterisation of impact	Mitigation proposals	Summary of characterisation
<p>'mudflats', 'saltmarsh', 'intertidal substrate foreshore – mud' Princes Dock; Humber Dock basin; Adjacent to site compounds at Neptune Street, Wellington Street Island Wharf and Livingstone Road.</p> <p>'Intertidal substrate foreshore – man made – Humber Dock Marina; Princes Dock.</p> <p>Section 41 of the NERC Act 2006</p>	<p>Mitigation by standard pollution prevention measures.</p> <p>Humber Dock Marina would be directly impacted by piling to create supports for the deck that would carry the proposed Princes Quay footbridge (noise, vibrations, and disturbance of sediments).</p> <p>Impacts from the moving of Spurn Lightship could include additional disturbance of sediments.</p>	CO: direct	<p>'mudflats', 'saltmarsh', 'intertidal substrate foreshore – mud – Mitigation by standard pollution prevention measures.</p> <p>No mitigation for habitats within Humber Dock Marina.</p> <p>The dock gates would be closed during piling to control and contain silt and sediment and absorb noise and vibration from entering the Humber Estuary.</p>	<p>Unlikely, very small indirect pollution incident in Construction Phase only. Not significant.</p> <p>Certain, direct, temporary, large, reversible impacts of noise, vibration and sediment disturbance. Significant.</p> <p>No adverse impacts during operation expected and no residual impacts</p> <p>Impacts to the Humber Estuary designated sites has been concluded as not significant in the HRA Screening Report for Princes Quay currently undergoing consultation.</p>
		EC: large 0.7ha		
		SZ: complete loss		
		RE: not reversible		
		DU: permanent		
TF: avoid breeding bird season				
<p>Scattered Amenity Trees</p> <p>Value: Local – main site</p>	<p>245 amenity trees (outside of Trinity Burial Ground) are to be removed to accommodate the Scheme.</p>	<p>Sl: -ve</p> <p>PO: certain</p> <p>CO: direct</p>	<p>Compensation by 307 x native tree planting incorporated into landscape plan. Trees to be managed.</p>	<p>Certain, direct loss of the majority of trees within the Scheme Site. Would</p>

Resource	Proposed activity, biophysical change, related to receptor structure and function	Characterisation of impact	Mitigation proposals	Summary of characterisation
Hull City Council Local Biodiversity Action Plan		EC: not assessed		take time for compensation to replace maturity of trees lost. Significant. No significant operational impacts. Residual impacts – no loss of trees overall, slight gain.
		SZ: loss		
		RE: reversible		
		DU: temporary		
		TF: avoid breeding bird season		
Standing Water  Value: Regional – Humber Dock Marina; Railway Dock 'regularly occurring populations of species which may be considered at an International level' (IAN 130/10)	Humber Dock Marina would be directly impacted by piling to create supports for the deck that would carry the proposed new Princes Quay Bridge (noise, vibrations, and disturbance of sediments). Impacts from moving of Spurn Lightship could include additional disturbance of sediments.  Impacts from indirect pollution during construction.	SI: -ve	No mitigation for habitats within Humber Dock Marina or Railway Dock during piling.  The dock gates would be closed during piling to control and contain silt and sediment and absorb noise and vibration from entering the Humber Estuary.  All docks - Mitigation by standard pollution prevention measures.	Certain, direct, temporary disturbance to standing water habitat of Humber Dock Marina. Significant.  Both docks - Unlikely, very small indirect pollution incident. No impacts during operation. No residual impacts. Impacts to the Humber Estuary designated sites has been concluded as not significant in the HRA Screening Report for Princes Quay currently undergoing consultation.
		PO: certain		
		CO: direct		
		EC: not assessed		
		SZ: disturbance		
		RE: reversible		
		DU: temporary		
		TF: N/A		
Ephemeral / short Perennial	Impacts from loss of vegetation.	SI: -ve		

Resource	Proposed activity, biophysical change, related to receptor structure and function	Characterisation of impact	Mitigation proposals	Summary of characterisation
Value: Local - site compounds at Wellington Street Island Wharf, Livingstone Road and Neptune Street  Section 41 of the NERC Act 2006 Hull City Council Local Biodiversity Action Plan		PO: certain	Small area of habitat to be left in each site compound. Compounds to be left to regenerate after use.	Certain, direct, temporary loss of habitat which would regenerate quickly. No impacts during operation or residual impacts. Not significant.
		CO: direct		
		EC: 100%		
		SZ: complete loss		
		RE: reversible		
		DU: temporary		
		TF: avoid breeding bird season		
Hedgerows  Value: Local - site compounds at Livingstone Road, A63 eastbound recovery base and Staples site; car park site at the Myton Centre.  Section 41 of the NERC Act 2006	Loss of 5 x species-poor intact hedgerows, four of which are not connected to the wider surrounds or act as a green corridor. One is (A63 eastbound recovery base) connected to the wider area as it runs alongside the verge of the A63.	SI: -ve	The species-poor hedgerows present in site compound – Myton Centre is approximately 45m in length and is to be compensated with 104m length of hedgerow containing species of native hedgerow woody plants . This would be managed during operation.  The hedgerow in site compound – Livingstone Road, the one in Staples site and the one in site compound – A63 eastbound recovery base are to be re-instated only.	Temporary, certain loss of habitats that would benefit over time in Operation Phase from compensatory measures and management. Not significant.
		PO: certain		
		CO: direct		
		EC: 100%		
		SZ: loss		
		RE: reversible		
		DU: temporary		
TF: avoid breeding bird season				
Terrestrial Invertebrates  Value: Local - Trinity Burial Ground SNCI; site compounds at Wellington Street Island	Woodland in Trinity Burial Ground has potential to support UKBAP and Hull BAP species. Habitat to be lost.	SI: -ve	Woodland in Trinity Burial Ground – mitigation and compensation as in Trinity Burial Ground SNCI above.	Certain, permanent loss of large area of habitat and mature trees. Significant. Less habitat during operation.
		PO: certain		
		CO: direct		
		EC: 0.7ha of woodland; 100% of		



Resource	Proposed activity, biophysical change, related to receptor structure and function	Characterisation of impact	Mitigation proposals	Summary of characterisation
Wharf, Livingstone Road and Neptune Street  Section 41 of the NERC Act 2006  Hull City Council Local Biodiversity Action Plan	Ephemeral / short perennial habitat in other two compounds has potential to support UKBAP and Hull BAP species. Habitat to be lost.	ephemeral / short perennial	Small area of ephemeral/short perennial habitat to be left in each site compound. Compounds to be left to regenerate after use.	Certain, direct, temporary loss of habitat which would regenerate quickly. No impacts during operation. Not significant.
		SZ: All animals in these areas		
		RE: Not reversible (woodland) reversible (ephemeral / short perennial)		
		DU: Temporary		
		TF: N/A		
Aquatic Invertebrates Value: National – Humber Estuary SSSI The Wildlife and Countryside Act 1981 as amended (primarily by the Countryside and Rights of Way Act 2000)  Value: Local – River Hull SNCI Section 41 of the NERC Act 2006	Potential impacts from pollution events during construction, disturbance from piling to install Princes Quay Bridge including noise, vibration, disturbance of sediments.	SI: -ve	The dock gates would be closed during piling to control and contain silt and sediment and absorb noise and vibration from entering the Humber Estuary.  A soft start-up of machinery to disperse any potential animals present in the dock.	Unlikely, indirect, temporary impacts from piling and pollution events.
		PO: Unlikely		
		CO: indirect		
		EC: not assessed		
	Potential impacts from pollution events during construction.	SZ: not assessed	Full assessment of impacts is to be undertaken in the AIES.  Mitigation by standard pollution prevention measures.	No impacts during operation. Not significant.
		RE: reversible		
		DU: temporary		
		TF: N/A		
Fish (Sea and river lamprey)		SI: -ve	Trained marine fauna ecologists would act as observers to check that	Probable direct and indirect impacts during

Resource	Proposed activity, biophysical change, related to receptor structure and function	Characterisation of impact	Mitigation proposals	Summary of characterisation
<p>Value: International - Humber Dock Marina; Railway Dock; site compounds at Neptune Street, Wellington Street Island Wharf and Livingstone Road; Conservation of Habitats and Species Regulations 2017</p> <p>Fish (European eel, salmon, sea trout)</p> <p>Value: Local - Humber Dock Marina; Railway Dock; site compounds at Neptune Street, Wellington Street Island Wharf and Livingstone Road</p> <p>Section 41 of the NERC Act 2006</p> <p>Eels (England and Wales) Regulations 2009</p>	<p>Direct impacts to fish are likely during the piling works to construct Princes Quay Bridge.</p> <p>Indirect impacts from noise, vibration and sediment disturbance.</p> <p>Impacts from indirect pollution during construction.</p>	PO: probable	<p>the dock area and up to 500m beyond the dock gates is clear of marine animals.</p> <p>The dock gates would be closed during piling to control and contain silt and sediment and absorb noise and vibration from entering the Humber Estuary.</p> <p>A soft start-up of machinery to disperse any potential fish, birds or mammals present in the dock.</p> <p>Full assessment of impacts undertaken in the AIES.</p> <p>Mitigation by standard pollution prevention measures.</p>	<p>piling. Temporary and reversible.</p> <p>No impacts during operation. Not significant.</p> <p>Impacts to the Humber Estuary designated sites has been concluded as not significant in the HRA Screening Report for Princes Quay currently undergoing consultation.</p>
		CO: direct		
		EC: not assessed		
		SZ: disturbance		
		RE: reversible		
		DU: temporary		
TF: N/A				
<p>Reptiles</p> <p>Value: Local - site compound at the A63 eastbound recovery base</p> <p>The Wildlife and Countryside Act 1981 as amended</p>	<p>Impacts from loss and severance of habitats. Potential killing or injury during site clearance.</p>	SI: -ve	<p>Ecological Clerk of Works (ECoW) being present prior to vegetation clearance to search the area where vegetation is to be removed first.</p> <p>Habitats to be reinstated.</p>	<p>Certain temporary loss of habitat that would be reinstated with no operational or residual impacts. Not significant.</p>
		PO: probable		
		CO: direct		
		EC: 0.3ha in A63 Eastbound layby		
		SZ: loss of habitat		
RE: reversible				

Resource	Proposed activity, biophysical change, related to receptor structure and function	Characterisation of impact	Mitigation proposals	Summary of characterisation
		DU: temporary TF: avoid site clearance in hibernation season		
<p>Birds</p> <p>Value: International - site compounds at Neptune Street, Wellington Street Island Wharf and Livingstone Road</p> <p>Conservation of Habitats and Species Regulations 2017</p> <p>Wildlife and Countryside Act 1981 (as amended)</p> <p>Value: Local - Main site; Trinity Burial Ground SNCI; site compounds at land south east of Mytongate Junction, A63 eastbound recovery base, Arco site and Staples site; car park site at the Myton Centre</p> <p>Section 41 of the NERC Act 2006</p> <p>Hull City Council Local Biodiversity Action Plan</p>	<p>International - In all three site compounds, bird species the Humber Estuary was designated for were observed either adjacent to the site compounds in the mudflats or flying over the site compounds. Impacts to these bird species are likely to be from pollution or noise, vibration and sight disturbance during construction.</p> <p>Local – loss of breeding habitat. Lighting of Trinity Burial Ground SNCI during construction at night and light pollution from new junction during operation due to lack of trees.</p>	SI: -ve PO: probable CO: indirect EC: not assessed SZ: disturbance, loss of habitat	<p>The erection of hoardings to block the works in the site compounds from view and reduce noise emissions.</p> <p>Monitoring bird surveys are to be carried out at the site compounds during construction in order to record the species of birds present and the effects of any noise or sight pollution upon them. If it is found that the noise and sight levels are impacting the wading bird population, then changes can be put into place to make these levels acceptable.</p> <p>At site compound – Wellington Street Island Wharf, trained marine fauna ecologists would act as observers to check that the dock area and up to 500m beyond the dock gates is clear of marine birds.</p> <p>The dock gates would be closed during piling to control and contain</p>	<p>International – probable, temporary indirect impacts during construction with no impacts during operation or residual impacts expected. Not significant.</p> <p>Local – Certain permanent loss of habitat in Trinity Burial Ground. Impacts from light pollution during operation. Significant.</p> <p>Temporary, certain loss of habitat in other site compounds that would be re-instated with no operational impacts. No impacts from light pollution during operation or residual impacts. Not significant.</p>

Resource	Proposed activity, biophysical change, related to receptor structure and function	Characterisation of impact	Mitigation proposals	Summary of characterisation
		RE: Not reversible (Trinity Burial Ground) reversible (all other sites)	silt and sediment and absorb noise and vibration from entering the Humber Estuary. A soft start-up of machinery to disperse any potential birds present in the dock.	Impacts to the Humber Estuary designated sites has been concluded as not significant in the HRA Screening Report for Princes Quay currently undergoing consultation.
	DU: permanent (Trinity Burial Ground) temporary (all other sites)	Full assessment of impacts is to be undertaken in the AIES.		
	TF: avoid site clearance in breeding season	Mitigation by standard pollution prevention measures to remove habitat outside of breeding season. Habitats to be re-instated with the exception of Trinity Burial Ground. Lighting to be directed away from remaining trees during construction.  Mitigation planting would replace some lost habitat. Habitat enhancement would improve bird nesting and feeding opportunities.		
Aquatic mammals Value: International - Humber Dock Marina; Railway Dock; site compounds at Neptune Street, Wellington Street Island Wharf and Livingstone Road	Grey seals may venture onto the site and fall in trenches and be disturbed by the lighting during construction.  Disturbance during construction of Princes Quay Bridge from noise, vibration and sediment disturbance.	SI: -ve	Mitigation should include that trenches should be covered at night to prevent grey seal from falling in, or trenches should include an earth ramp to allow them to climb out. At night in the three site compounds, lighting should be directed away from the water. Mitigation for the	Unlikely, indirect impacts during piling and construction works. Temporary and reversible.  No impacts during operation or residual impacts. Not significant
		PO: unlikely		
		CO: indirect		

Resource	Proposed activity, biophysical change, related to receptor structure and function	Characterisation of impact	Mitigation proposals	Summary of characterisation
<p>Conservation of Habitats and Species Regulations 2017.  Wildlife and Countryside Act 1981 (as amended)</p>	<p>Impacts from indirect pollution and lighting during construction.</p>	<p>EC: not assessed</p> <p>SZ: disturbance</p> <p>RE: reversible</p> <p>DU: temporary</p> <p>TF: N/A</p>	<p>construction of the Princes Quay footbridge includes:</p> <p>Trained marine fauna ecologists would act as observers to check that the dock area and up to 500m beyond the dock gates is clear of marine animals.</p> <p>The dock gates would be closed during piling to control and contain silt and sediment and absorb noise and vibration from entering the Humber Estuary.</p> <p>A soft start-up of machinery to disperse any potential animals present in the dock.</p> <p>Full assessment of impacts is to be undertaken in the AIES.</p> <p>Mitigation by standard pollution prevention measures.</p> <p>Lighting not directed on water during operation.</p>	<p>Impacts to the Humber Estuary designated sites has been concluded as not significant in the HRA Screening Report for Princes Quay currently undergoing consultation.</p>
<p>Bats  Pipistrelle bats</p> <p>Value: Local – All areas</p>	<p>Loss of potential roosts within trees and old wall in Trinity Burial Ground.</p>	<p>SI: -ve</p> <p>PO: certain</p>	<p>Precautionary avoidance measures are to include that demolition of trees in Trinity Burial Ground SNCI would be overseen by a bat licensed ECoW. Trees would be felled sectionally and sections searched by</p>	<p>Certain, direct, permanent loss of historic roost, potential tree roosts to be compensated for.</p>

Resource	Proposed activity, biophysical change, related to receptor structure and function	Characterisation of impact	Mitigation proposals	Summary of characterisation
<p>Conservation of Habitats and Species Regulations 2017.  Wildlife and Countryside Act 1981 (as amended)</p>	<p>Small possibility of unidentified roost presence in trees in Trinity Burial Ground SNCI when felling.</p>	<p>CO: direct</p>	<p>ECoW or left overnight for bats to exit before removal from site. Compensation includes the erection of bat boxes on the remaining trees in Trinity Burial Ground SNCI.</p>	<p>Certain, direct, permanent loss of foraging and commuting habitat would be partially replaced over time as it matures.</p>
	<p>Loss of foraging area for a small number of pipistrelle bats in Trinity Burial Ground and severance of commuting route to it across Mytongate Junction.</p>	<p>EC: 1 disused roost, 0.7ha foraging habitat lost for small number of bats</p>	<p>Compensation includes that the larger native trees are to be replanted on the verges at either side of the A63 in a line extending from Trinity Burial Ground to the Myton Centre. The large height of the trees would provide habitat 'hop-overs' for bats and reduce collisions with traffic. The larger trees would also be planted in the soft estate in the new Mytongate Junction. This should recreate the linear commuting route to Trinity Burial Ground.</p>	<p>Certain, permanent extra light pollution during operation. Significant.</p>
	<p>Lighting of Trinity Burial Ground SNCI during construction at night and light pollution from new junction during operation due to lack of trees.</p>	<p>SZ: disturbance</p>	<p>Lighting to be directed away from remaining trees during construction.</p>	<p>During operation, mitigation would be to use covers to direct lighting where it is needed at the ground and not directly light up linear features.</p>
		<p>RE: not reversible</p>	<p>Lighting to be directed away from remaining trees during construction.</p>	<p>During operation, mitigation would be to use covers to direct lighting where it is needed at the ground and not directly light up linear features.</p>
		<p>DU: permanent</p>	<p>Lighting to be directed away from remaining trees during construction.</p>	<p>During operation, mitigation would be to use covers to direct lighting where it is needed at the ground and not directly light up linear features.</p>
		<p>TF: outside of sensitive periods for bats</p>	<p>Lighting to be directed away from remaining trees during construction.</p>	<p>During operation, mitigation would be to use covers to direct lighting where it is needed at the ground and not directly light up linear features.</p>
<p>Otters  Value – Local - Humber Dock Marina; Railway Dock; site compounds at Neptune Street,</p>	<p>Otters may venture onto the site and fall in trenches.</p>	<p>SI: -ve</p>	<p>Mitigation would include that trenches are to be covered at night to prevent otter from falling in, or trenches are to include an earth ramp to allow otter to climb out.</p>	<p>Unlikely, direct and indirect impacts during piling and construction works. Temporary and reversible.</p>
		<p>PO: unlikely</p>	<p>Mitigation would include that trenches are to be covered at night to prevent otter from falling in, or trenches are to include an earth ramp to allow otter to climb out.</p>	<p>Unlikely, direct and indirect impacts during piling and construction works. Temporary and reversible.</p>



Resource	Proposed activity, biophysical change, related to receptor structure and function	Characterisation of impact	Mitigation proposals	Summary of characterisation
Wellington Street Island Wharf and Livingstone Road  Conservation of Habitats and Species Regulations 2017. Wildlife and Countryside Act 1981 (as amended)	Disturbance during construction of Princes Quay Bridge from noise, vibration and sediment disturbance.  Impacts from indirect pollution and lighting during construction.	CO: indirect	At night in the three site compounds, lighting should be directed away from the water. Mitigation for the construction of the Princes Quay Bridge includes:  Trained marine fauna ecologists would act as observers to check that the dock area and up to 500m beyond the dock gates is clear of marine animals.  The dock gates would be closed during piling to control and contain silt and sediment and absorb noise and vibration from entering the Humber Estuary.  A soft start-up of machinery to disperse any potential animals present in the dock.  Full assessment of impacts is to be undertaken in the AIES.  Mitigation by standard pollution prevention measures.  Lighting not directed on water during operation.	No impacts during operation or residual impacts. Not significant.
		EC: not assessed		
		SZ: disturbance		
		RE: reversible		
		DU: temporary		
		TF: N/A		
Hedgehogs Value: Local – Terrestrial areas	Woodland to be permanently lost in Trinity Burial Ground SNCI has potential to support hedgehogs.	SI: -ve	Ecological Clerk of Works (ECoW) being present prior to vegetation clearance to search the area where vegetation is to be removed first.	Certain, temporary loss of habitat that would be re-instated with no operational or residual impacts with the
		PO: probable		
		CO: direct		

Resource	Proposed activity, biophysical change, related to receptor structure and function	Characterisation of impact	Mitigation proposals	Summary of characterisation
Section 41 of the NERC Act 2006	Habitats elsewhere to be temporarily lost. Impacts to individuals during vegetation clearance.	EC: 0.7ha of Trinity Burial Ground, not assessed rest of site	Habitats to be re-instated with the exception of Trinity Burial Ground SNCI.	exception of permanent loss of part of Trinity Burial Ground. Potentially significant.
		SZ: disturbance, loss of habitat		
		RE: not reversible		
		DU: permanent		
		TF: N/A		
Invasive species Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) cotoneaster (main site – A63 and Market Place junction and A63 and Queen Street junction); land south east of Mytongate Junction	Legal impact of allowing these species to spread.	SI: N/A	Cotoneaster plants are to be removed and the arisings and topsoil in these areas to be treated as controlled waste. To be disposed of at a suitably licensed or permitted disposal facility. Biosecurity method statements for both species. The site is to be maintained during the Operation Phase and it is unlikely that the cotoneaster or false acacia would return after removal in the Construction Phase. Should this happen, it would be removed during maintenance.	Probable, direct legal impact of spreading these species to be mitigated fully and no spread is predicted. Not significant.
		PO: probable		
		CO: direct		
		EC: not assessed		
		SZ: not assessed		
		RE: reversible		
		DU: temporary		
		TF: legal constraint		
Key SI (Sign): Positive (beneficial (+ve)) or Negative (adverse (-ve)) PO (Probability of Occurring): Certain, Probable, Unlikely CO (Complexity): Direct, Indirect, Cumulative				

Resource	Proposed activity, biophysical change, related to receptor structure and function	Characterisation of impact	Mitigation proposals	Summary of characterisation
<p>EC (Extent): Area measures and percentage of total (e.g. area of habitat / territory lost)  SZ (Size): Description of level of severity of influence (e.g. complete loss, number of animals affected)  RE (Reversibility): Reversible or Not Reversible (can the effect be reversed, whether or not this is planned)  DU (Duration): Permanent (P) or Temporary (T) in ecological terms. Where differing timescales are determined in relation to the life cycle of the receptor, these should be defined.  TF (Timing and frequency): Important seasonal and / or life cycle constraints and any relationship with frequency considered.</p>				

## 10.8 Predicted environmental effects

- 10.8.1 The predicted effects of the Scheme on ecological receptors during both the Construction Phase and Operation Phase have been assessed, taking into account mitigation proposals, in accordance with IAN 130/10 table 2.
- 10.8.2 Residual impacts are those that are predicted to remain after the successful implementation of mitigation measures. Residual impacts have been assessed as significant or not significant based on a range of factors.
- 10.8.3 Where significant residual impacts to ecological receptors have been identified, the significance of the effect has been evaluated, based on the value of the receptor, in accordance with IAN 130/10 table 3. This assigns ecological impacts to overall significance categories used in other topic areas.
- 10.8.4 There would be no significant effects if preferred Option A main compound at Arco is chosen or the alternative site compound at Staples is selected. Both site compounds were assessed at negligible biodiversity value.
- 10.8.5 The impact assessment is outlined below and a summary is provided in Table 10.10: Summary of ecological receptors.

### Construction effects

#### *Humber Estuary SAC / SPA / Ramsar / SSSI Sites*

- 10.8.6 Neutral residual impacts are predicted to the Humber Estuary during the Construction Phase, following the implementation of mitigation measures.
- 10.8.7 With the use of pollution control measures during de-watering and general site operations, as specified in the CEMP, the risk of harmful levels of contaminants from construction works reaching the Humber Estuary would not be significant. Any requirement to construct the surface water outfall at the location of an existing dock wall would avoid direct impacts to estuarine habitats.
- 10.8.8 Pollution of the Humber Estuary via groundwater contaminant mobilisation during construction has been assessed as unlikely. There is limited hydraulic connectivity between the proposed underpass and the Humber Estuary and the zone of influence of de-watering is relatively small (see Chapter 11 Road drainage and the water environment).
- 10.8.9 Pollution of the Estuary during the construction of Princes Quay Bridge has been assessed as unlikely and insignificant as demonstrated in the AIES Screening Report, document reference TR010016/APP/6.13.

#### *Trinity Burial Ground SNCI*

10.8.10 There would be a significant adverse residual impact on Trinity Burial Ground SNCI during the Construction Phase. The Scheme would require the removal of approximately 0.7ha of the total area (0.8ha) of the SNCI, including the felling of 72 mature trees and understorey, which would constitute a significant adverse impact to the site. In addition, the remaining piece of the SNCI would be lit during construction. The significance of the effect on Trinity Burial Ground SNCI during construction would be moderate adverse, as the receptor is of county value.

#### *River Hull SNCI*

10.8.11 Neutral residual impacts are predicted to the River Hull during the Construction Phase, following the implementation of pollution protection mitigation measures.

#### *UKBAP (NERC Act 2006 Section 41) Priority Habitats*

10.8.12 Trinity Burial Ground SNCI contains UKBAP Priority habitats 'deciduous woodland' and 'broad-leaved woodland'. The Construction Phase requires approximately 0.7ha of these habitats to be removed which would constitute a major adverse significant impact.

10.8.13 'Mudflats', 'saltmarsh' and 'intertidal substrate foreshore - mud' would have neutral significant residual impacts during the Construction Phase, following the implementation of pollution protection mitigation measures. There would be no significant adverse effect arising from air emissions.

10.8.14 'Intertidal substrate foreshore – man made' Broad habitat is located within Humber Dock Marina and Princes Dock. Humber Dock Marina would have major adverse significant impacts during construction from the loss of the small amount of habitat under the piling footprint and disturbance of sediments, noise and vibration from construction traffic and the relocation of Spurn Lightship. Princes Dock would have neutral insignificant adverse impacts following the implementation of pollution protection mitigation measures.

#### *Scattered amenity trees*

10.8.15 A significant residual impact would result from the loss of mature amenity trees across the Scheme during the Construction Phase. The loss of amenity trees to facilitate construction of the Scheme cannot be avoided and the loss of trees would be significant within the Scheme Site. The significance of the effect on mature amenity trees would be moderate adverse, as this receptor is of county value.

#### *Standing water*

10.8.16 Humber Dock Marina and the connected Railway Dock could potentially contain unknown populations of species that the Humber Estuary is designated for. The impacts from piling and disturbance during construction would have a large adverse significant impact on the habitat as it is of regional value. Impacts from

indirect pollution events during construction on these docks and Princes Dock would not be significant following the implementation of pollution protection mitigation measures.

#### *Ephemeral / short perennial*

10.8.17 This UKBAP Priority habitat occurs in three of the site compounds (Livingstone Road, Wellington Street Island Wharf and Neptune Street) and these sites would have a slight adverse but insignificant impact from vegetation removal during construction.

#### *Hedgerows*

10.8.18 During construction, the loss of five species-poor intact hedgerows (Myton Centre, A63 Eastbound recovery site, Staples Site and Livingstone Road) would be a slight adverse but insignificant impact.

#### *Terrestrial invertebrates*

10.8.19 Most of the woodland habitat in Trinity Burial Ground SNCI and ephemeral / short perennial habitat in three site compounds (Section 10.8.17) would be removed to facilitate construction and would in turn this would remove habitats that are likely to support UKBAP and Hull BAP terrestrial invertebrates. This would be a slight adverse and insignificant impact.

#### *Aquatic invertebrates*

10.8.20 The nationally important assemblage of invertebrates in the Humber Estuary SSSI is unlikely to be impacted by construction works following mitigation measures. Indirect pollution events to this invertebrate assemblage and the locally important assemblage in the River Hull are also unlikely to be impacted by the construction works following mitigation measures. Neutral impacts are considered likely.

#### *Fish*

10.8.21 Direct and indirect impacts to internationally important sea and river lamprey and UKBAP salmon, sea trout and European eels are unlikely following mitigation measures described for the Humber Estuary designated sites during construction.

#### *Reptiles*

10.8.22 The temporary loss of habitat and mitigation to move reptiles out of harm by an ECoW would leave no residual adverse impacts and is not significant.

#### *Birds*

10.8.23 Residual impacts upon priority or qualifying species of birds of the Humber Estuary after mitigation is unlikely and insignificant. The permanent loss of habitat in Trinity Burial Ground SNCI and the amenity trees across the site cannot be replaced and



would leave a slight adverse impact upon UKBAP and LBAP bird species which would not be significant.

#### *Aquatic mammals*

10.8.24 With mitigation as described for the Humber Estuary (see Sections 10.8.6 to 10.8.9), the residual impacts upon grey seals and other aquatic mammals would be neutral and insignificant.

#### *Bats*

10.8.25 Residual adverse impacts would occur from the removal of bat foraging and commuting habitat in Trinity Burial Ground and the removal of amenity trees around the site which cannot be adequately mitigated or compensated for. Taking this into account with increased lighting during construction, there would be a slight adverse insignificant impact upon bats.

#### *Otters*

10.8.26 With mitigation, there would be neutral residual impacts upon this species from construction.

#### *Other species*

10.8.27 The loss of habitat in Trinity Burial Ground and site compounds to support hedgehogs would result in a slight adverse and insignificant residual impact.

#### *Invasive species (Schedule 9 of the Wildlife and Countryside Act 1981 (as amended))*

10.8.28 Mitigation to remove Schedule 9 species from site prior to construction to prevent their spread would have neutral and insignificant impacts.

### **Operation**

#### *Humber Estuary SAC / SPA / Ramsar / SSSI Sites*

10.8.29 New water collection features would be introduced to collect surface water run-off from impermeable areas as attenuation for the additional flow rates. This would restrict surface water flows to the existing flow rates to the public sewer network, Princes Dock and the Humber Dock and subsequently the Humber Estuary. The location of the surface water drainage outfall through dock wall onto existing rock armour would prevent the discharge from scouring the river bed and creating silt plumes. There would be no operational impacts from noise or vibration as Princes Quay Bridge would have no vehicular traffic and the noise levels are to reduce overall along the Scheme. Pollution prevention mitigation undertaken during construction would prevent long-term effects. There would be no significant adverse increase to air emissions during operation. Overall, there would be neutral operational residual and insignificant impacts.

### *Trinity Burial Ground SNCI*

10.8.30 Operational residual impacts would be moderate adverse and significant for the following reasons:

- The permanent loss of a third of the SNCIs footprint.
- The compensatory tree planting would take many years to achieve the maturity and ecological value of the trees that are to be removed.
- The SNCI would have additional illumination from the permanent lighting installed within the retained area of the SNCI after the completion of works and light pollution from the new junction which would be located closer to the SNCI would increase.

### *River Hull SNCI*

10.8.31 With no increase in noise or air pollution and no water discharges into this river, there is predicted to be neutral residual impacts to the SNCI during operation.

### *UKBAP (NERC Act 2006 Section 41) Priority Habitats*

10.8.32 Trinity Burial Ground SNCI contains UKBAP Priority habitats 'deciduous woodland' and 'broad-leaved woodland'. The Operation Phase would constitute a major adverse significant impact on the nationally valued habitats due to the same reasons given in Section 10.8.30.

10.8.33 'Mudflats', 'saltmarsh' and 'intertidal substrate foreshore - mud' would have neutral significant residual impacts during the Operation Phase, following the implementation of pollution protection mitigation measures. There would be no significant adverse increase to air emissions during operation. Overall, there would be neutral operational residual and insignificant impacts.

10.8.34 'Intertidal substrate foreshore - man made' Broad habitat is located within Humber Dock Marina and Princes Dock. Humber Dock Marina would have major adverse significant impacts during operation from the loss of the small amount of habitat beneath the piling footprint. Princes Dock would have neutral adverse impacts during operation.

### *Scattered amenity trees*

10.8.35 The compensatory scattered amenity tree planting of 307 trees is an increase on the numbers of trees removed (245), but would take many years to achieve the maturity and ecological value of the trees that are to be removed and would have a moderate adverse residual significant impact.

### *Standing water*

10.8.36 The standing water in Humber Dock Marina would have large adverse and significant residual impacts during operation from the loss of the small amount of habitat beneath the piling footprint. Princes Dock and Railway Dock are predicted to have neutral residual impacts.

*Ephemeral / short perennial*

10.8.37 The time taken for this habitat to reinstate itself once construction has ended and the Operation Phase has commenced is very short, as this habitat is early successional and could re-grow within one season. A small portion of each of the three site compounds (Livingstone Road, Wellington Street Island Wharf and Neptune Street) would have been left intact during construction and would provide a seed source. It is considered that there would be neutral significant impacts.

*Hedgerows*

10.8.38 The 45m of hedgerows removed from Myton Centre during construction would be replaced with 104m of hedgerows which are species-rich compared to the ones lost. These would during operation provide a slight beneficial but insignificant residual impact.

*Terrestrial invertebrates*

10.8.39 The permanent loss of the majority of Trinity Burial Ground and the time delay in replanting achieving the same maturity and ecological value would leave a slight adverse and insignificant residual impact upon terrestrial invertebrates. The loss of ephemeral / short perennial habitat in three compounds would be replaced in short succession and is considered to have neutral residual impacts.

*Aquatic invertebrates*

10.8.40 The nationally important assemblage of invertebrates in the Humber Estuary SSSI is unlikely to be impacted during operation due to the neutral impacts of air emissions, water discharge flow and noise. Indirect pollution events to this invertebrate assemblage and the potentially locally important assemblage in the River Hull are also unlikely to be impacted during operation following mitigation measures. Neutral impacts are considered likely.

*Fish*

10.8.41 Direct and indirect impacts to internationally important sea and river lamprey and UKBAP salmon, sea trout and European eels are unlikely following mitigation measures described for the Humber Estuary designated sites during operation and the neutral impacts of air emissions and noise. Neutral impacts are considered likely.

*Reptiles*

10.8.42 Reptile habitat in the site compounds would reinstate rapidly and there would be neutral residual impacts upon reptiles during operation.

*Birds*

10.8.43 Residual impacts upon priority or qualifying species of birds of the Humber Estuary after mitigation is unlikely and insignificant. The permanent loss of habitat in Trinity Burial Ground SNCI and the amenity trees across the site cannot be replaced and would leave a slight adverse but insignificant impact upon UKBAP and LBAP bird species.

*Aquatic mammals*

10.8.44 The mitigation for the Humber Estuary in Section 10.8.29 would also provide mitigation for grey seals and other aquatic mammals. There is predicted to be neutral impacts during operation.

*Bats*

10.8.45 Residual impacts would occur from the permanent removal of bat foraging and commuting habitat in Trinity Burial Ground and the removal of amenity trees around the site which cannot be adequately mitigated or compensated for. This together with increased lighting during operation would have a slight adverse but insignificant residual impact upon bats.

*Otters*

10.8.46 With mitigation, there would be neutral residual impacts upon this species during operation.

*Other species*

10.8.47 The permanent loss of habitat in Trinity Burial Ground to support hedgehogs would result in a slight adverse and insignificant residual impact.

*Invasive species (Schedule 9 Wildlife and Countryside Act 1981 (as amended))*

10.8.48 Removal of Schedule 9 species from site prior to construction to prevent their spread would have neutral impacts during operation.

**Table 10.10: Summary of ecological receptors**

Ecological receptor	Valuation	Mitigation during construction	Residual impacts (Construction)	Significance of effect (Construction)	Mitigation during operation	Residual impacts (Operation)	Significance of effect (Operation)
Humber Estuary SAC / SPA / Ramsar Sites	International	<p>Drainage design would ensure that adequate surface water interceptors are incorporated. Surface water would discharge onto existing rock armour in the Estuary.</p> <p>Trained marine fauna ecologists would act as observers to check that the dock area and up to 500m beyond the dock gates is clear of marine animals.</p> <p>The dock gates would be closed during piling to control and contain silt and sediment and absorb noise and vibration from entering the Humber Estuary.</p> <p>A soft start-up of machinery to disperse any potential fish, birds or mammals present in the dock.</p> <p>Impacts from piling to be fully assessed in AIES.</p> <p>Temporary pollution control protection</p>	<p>No significant impacts</p> <p>Probable</p>	<p>No significant impacts</p> <p>Probable</p>	<p>Location of surface water drainage outfall through dock wall onto existing rock armour.</p> <p>Pollution control measures within drainage design.</p> <p>Water quality would not be impacted by operational discharges and spillages as underpass drainage system would incorporate a shut-off valve and below-ground attenuation units to allow isolation and containment of contaminants.</p> <p>Parts of site would have reduced noise levels.</p>	<p>No significant impacts</p> <p>Probable</p>	<p>No significant impacts</p> <p>Probable</p>

Ecological receptor	Valuation	Mitigation during construction	Residual impacts (Construction)	Significance of effect (Construction)	Mitigation during operation	Residual impacts (Operation)	Significance of effect (Operation)
		during construction detailed in CEMP.					
Humber Estuary SSSI	National	<p>Drainage design would ensure that adequate surface water interceptors are incorporated. Surface water would discharge onto existing rock armour in the Estuary.</p> <p>Trained marine fauna ecologists would act as observers to check that the dock area and up to 500m beyond the dock gates is clear of marine animals.</p> <p>The dock gates would be closed during piling to control and contain silt and sediment and absorb noise and vibration from entering the Humber Estuary.</p> <p>A soft start-up of machinery to disperse any potential fish, birds or mammals present in the dock.</p> <p>Impacts from piling to be fully assessed in AIES.</p> <p>Temporary pollution control protection</p>	No significant impacts Probable	No significant impacts Probable	<p>Location of surface water drainage outfall through dock wall onto existing rock armour.</p> <p>Pollution control measures within drainage design.</p> <p>Water quality would not be impacted by operational discharges and spillages as underpass drainage system would incorporate a shut-off valve and below-ground attenuation units to allow isolation and containment of contaminants.</p> <p>Parts of site would have reduced noise levels.</p>	No significant impacts Probable	No significant impacts Probable



Ecological receptor	Valuation	Mitigation during construction	Residual impacts (Construction)	Significance of effect (Construction)	Mitigation during operation	Residual impacts (Operation)	Significance of effect (Operation)
		during construction detailed in CEMP.					
Trinity Burial Ground SNCI	County / Unitary Authority Area	Minimise number of trees removed. Protection of retained trees with root protection areas. Compensation includes replanting 55 larger native trees (>30cm diameter) close to Trinity Burial Ground. The understorey in the remaining area of Trinity Burial Ground is to include some native shrubs and plants. Lighting during construction to directed away from remaining trees.	Significant impact Certain permanent loss of one third of total area and temporary loss up to 7/8 of site including 72 mature trees.	Moderate adverse Certain	No opportunities exist to totally mitigate reduction in area of site by replacement tree planting or enhancement of remaining area. Light pollution from new junction during operation cannot be mitigated.	Significant – permanent loss of one third of total area.	Moderate adverse Certain
River Hull SNCI	County / Unitary Authority Area	Mitigation by standard pollution prevention measures.	No significant impacts Probable	No significant impacts Probable	With no increase in noise or air pollution and no water discharges into this river.	No significant impacts Probable	No significant impacts Probable
UKBAP (NERC Act 2006 S41) Priority Habitats Princes Dock; Humber Dock Marina	National	Mitigation by standard pollution prevention measures. No mitigation for habitats within Humber Dock Marina, the dock	Significant impacts (Humber Dock Marina) Certain	Major adverse significant impacts Certain	Small amount of land lost beneath piling footprint, cannot be replaced.	Significant impacts (Humber Dock Marina) Certain	Major adverse significant impacts Certain

Ecological receptor	Valuation	Mitigation during construction	Residual impacts (Construction)	Significance of effect (Construction)	Mitigation during operation	Residual impacts (Operation)	Significance of effect (Operation)
UKBAP Priority Habitat (NERC Act 2006 S41) Trinity Burial Ground	National	gates would be closed during piling and would control and contain silt and sediment and absorb noise and vibration from entering the Humber Estuary.  Trinity Burial Ground – Minimise number of trees removed. Protection of retained trees with root protection areas. Lighting during construction at night directed away from remaining trees.	No significant impacts (Princes dock) Probable  Significant impact Certain permanent loss of one third of total area and temporary loss up to 7/8 of site including 55 mature trees.	No significant impacts (Princes dock) Probable  Major adverse Certain	No opportunities exist to totally mitigate reduction in area of site by replacement tree planting or enhancement of remaining area. Time lag for trees to reach the same maturity as ones lost. Light pollution from new junction during operation cannot be mitigated.	No impacts in Princes Dock  Significant impact Certain	No impacts in Princes Dock  Major adverse Certain
LBAP Mature scattered amenity trees	County	Minimise number of trees removed (245). Protection of retained trees with root protection areas.	Significant - loss of many mature amenity trees across Scheme Site footprint.	Moderate adverse Certain	New amenity tree planting of 307 trees to replace and increase the number of trees felled during construction.	Significant impacts Certain – new tree planting would be well established but unlikely to reach maturity in time	Moderate adverse Certain

Ecological receptor	Valuation	Mitigation during construction	Residual impacts (Construction)	Significance of effect (Construction)	Mitigation during operation	Residual impacts (Operation)	Significance of effect (Operation)
<p>Standing Water – Humber Dock Marina; Railway Dock</p> <p>‘regularly occurring populations of species which may be considered at an International level’ (IAN 130/10)</p> <p>(Humber Dock Marina has been assessed as national in UKBAP Priority habitats above)</p>	Regional	<p>No mitigation for habitats within Humber Dock Marina or railway Dock during piling,</p> <p>The dock gates would be closed during piling to control and contain silt and sediment and absorb noise and vibration from entering the Humber Estuary.</p> <p>All docks - Mitigation by standard pollution prevention measures.</p>	<p>Significant impacts (Humber Dock Marina)</p> <p>Certain</p> <p>No impacts in Railway Dock</p>	<p>Large adverse significant impacts</p> <p>Certain</p> <p>No impacts in Railway Dock</p>	<p>Small amount of land lost beneath piling footprint, cannot be replaced.</p>	<p>Significant impacts (Humber Dock Marina)</p> <p>Certain</p> <p>No impacts in Railway Dock</p>	<p>Large adverse significant impacts</p> <p>Certain</p> <p>No impacts in Railway Dock</p>
<p>LBAP Ephemeral / short perennial site compounds at Wellington Street Island Wharf, Livingstone Road and Neptune Street</p>	Moderate	<p>Small amount of habitat to be retained in corner of each compound</p>	<p>Significant impact</p> <p>Certain</p>	<p>Moderate adverse</p> <p>Certain</p>	<p>Habitat would regrow quickly.</p>	<p>No significant impacts</p> <p>Probable</p>	<p>No significant impacts</p> <p>Probable</p>
<p>UKBAP Hedgerows site compounds at Livingstone Road, A63 eastbound recovery base and Staples site; temporary car park at the Myton Centre</p>	Local (these hedgerows are considered to have little value for wildlife)	<p>Hedgerows to be removed during construction</p>	<p>No significant impact</p> <p>Certain</p>	<p>Slight adverse</p> <p>Certain</p>	<p>The species-poor hedgerows present in the area of the temporary car park at Myton Centre is approximately 45m in length and is to be compensated with 104m length of hedgerow containing species of native hedgerow woody</p>	<p>No significant impacts</p> <p>Certain</p>	<p>Slight beneficial</p> <p>Probable</p>

Ecological receptor	Valuation	Mitigation during construction	Residual impacts (Construction)	Significance of effect (Construction)	Mitigation during operation	Residual impacts (Operation)	Significance of effect (Operation)
					plants. This would be managed during operation. The hedgerow in site compounds at Livingstone Road, Staples site and A63 eastbound recovery base are to be re-instated only. Habitats would benefit over time in Operation Phase from compensatory measures and management.		
LBAP Terrestrial Invertebrates Trinity Burial Ground SNCI; site compounds at Wellington Street Island Wharf, Livingstone Road and Neptune Street	Local	Small area of Trinity Burial Ground to be left.  Small area of ephemeral / short perennial habitat to be left in each site compound.	No significant impact Certain, permanent loss of large area of habitat and mature trees.  No significant impact Certain direct, temporary loss of habitat.	Slight adverse Certain  Slight adverse Certain	Woodland in Trinity Burial Ground – mitigation and compensation as in Trinity Burial Ground SNCI above.  Ephemeral/short perennial to be left to regenerate after use.	Less habitat during operation. Insignificant Certain  Habitat would regenerate quickly. No impacts during operation. No significant impacts Probable	Slight adverse Certain  No significant impacts Probable

Ecological receptor	Valuation	Mitigation during construction	Residual impacts (Construction)	Significance of effect (Construction)	Mitigation during operation	Residual impacts (Operation)	Significance of effect (Operation)
Aquatic Invertebrates Humber Estuary SSSI	National	The dock gates would be closed during piling and would control and contain silt and sediment and absorb noise and vibration from entering the Humber Estuary. A soft start-up of machinery to disperse any potential animals present in the dock. Full assessment of impacts is to be undertaken in the AIES. Mitigation by standard pollution prevention measures.	No significant impacts Probable	No significant impacts Probable	Unlikely to be impacted during operation due to the neutral impacts of air emissions, water discharge and noise.	No significant impacts Probable	No significant impacts Probable
River Hull SNCI	Local		No significant impacts Probable	No significant impacts Probable		No significant impacts Probable	No significant impacts Probable
Fish Humber Estuary SAC / SPA / Ramsar / SSSI Sites	International (sea and river lamprey)	Mitigation measures described for the Humber Estuary designated sites during construction	No significant impacts Probable	No significant impacts Probable	Mitigation measures described for the Humber Estuary designated sites during operation and neutral impacts of air emissions and noise.	No significant impacts Probable	No significant impacts Probable
River Hull SNCI	Local (European eel, salmon and sea trout)		No significant impacts Probable	No significant impacts Probable		No significant impacts Probable	No significant impacts Probable

Ecological receptor	Valuation	Mitigation during construction	Residual impacts (Construction)	Significance of effect (Construction)	Mitigation during operation	Residual impacts (Operation)	Significance of effect (Operation)
Reptiles A63 eastbound recovery base	Local	Ecological Clerk of Works (ECoW) being present prior to vegetation clearance to search the area where vegetation is to be removed first. Very small amount of habitat loss.	No significant impacts Probable	No significant impacts Probable	Habitats to be reinstated or left to regenerate.	No significant impacts Probable	No significant impacts Probable
Birds Site compounds at Neptune Street, Wellington Street Island Wharf and Livingstone Road  Main site; Trinity Burial Ground SSSI; site compounds at land south east of Mytongate Junction and A63 eastbound recovery base; temporary car park site at the Myton Centre	International   Local	Mitigation measures described for the Humber Estuary designated sites during construction  Clearance of potential nesting habitat outside breeding season. Destruction of nests would be avoided by sensitive timing of works. Sensitive lighting design. Loss of habitat in Trinity Burial Ground.	No significant impacts Probable  No significant impact Certain	No significant impacts Probable  Slight adverse impact Certain	Mitigation measures described for the Humber Estuary designated sites during operation  Mitigation during operation as in Trinity Burial Ground SSSI above	No significant impacts Probable  No significant impact Certain	No significant impacts Probable  Slight adverse Certain
Aquatic mammals Humber Dock Marina; Railway Dock; site compounds at Neptune	International	Mitigation in the docks as for Humber Estuary SAC / SPA / Ramsar Sites.	No significant impacts Probable	No significant impacts Probable	Mitigation measures described for the Humber Estuary	No significant impacts Probable	No significant impacts Probable



Ecological receptor	Valuation	Mitigation during construction	Residual impacts (Construction)	Significance of effect (Construction)	Mitigation during operation	Residual impacts (Operation)	Significance of effect (Operation)
Street, Wellington Street Island Wharf and Livingstone Road		Mitigation should include that trenches should be covered at night to prevent grey seal from falling in, or trenches should include an earth ramp to allow them to climb out. At night lighting should be directed away from the water.			designated sites during operation		
Bats All areas	Local	Precautionary avoidance measures are to include that demolition of the Castle Buildings and trees in Trinity Burial Ground SNCI would be overseen by a bat licensed ECoW. Trees would be felled sectionally and sections searched by ECoW or left overnight for bats to exit before removal from site. Increased lighting during construction and loss of foraging habitat	No significant impact Certain	Slight adverse Certain	Compensation includes the erection of bat boxes on the remaining trees in Trinity Burial Ground SNCI. Compensation includes that the larger native trees are to be replanted on the verges at either side of the A63 in a line extending from Trinity Burial Ground to the Myton Centre. The large height of the trees would provide habitat 'hop-overs' for bats and reduce collisions with traffic.	No significant impact Certain Time lag for trees to reach the same maturity as ones lost. Mytongate Junction would have increased lighting	Slight adverse Certain
Otters Humber Dock Marina; Railway Dock; site compounds at Neptune	Local	Mitigation would include that trenches are to be covered at night to prevent otter	No significant impacts Probable	No significant impacts Probable	Mitigation in the docks as for the Humber Estuary SAC / SPA / Ramsar Sites	No significant impacts Probable	No significant impacts Probable

Ecological receptor	Valuation	Mitigation during construction	Residual impacts (Construction)	Significance of effect (Construction)	Mitigation during operation	Residual impacts (Operation)	Significance of effect (Operation)
Street, Wellington Street Island Wharf and Livingstone Road		from falling in, or trenches are to include an earth ramp to allow otter to climb out. At night in the three site compounds, lighting should be directed away from the water. Mitigation in the docks as for the Humber Estuary SAC / SPA / Ramsar Sites					
Other Species - Hedgehog All terrestrial areas	Local	Ecological Clerk of Works (ECoW) being present prior to vegetation clearance to search the area where vegetation is to be removed first. Loss of habitat during construction	No significant impact Probable	Slight adverse Probable	Habitats to be re-instated with the exception of Trinity Burial Ground SNCI which is a permanent loss.	No significant impact Probable	Slight adverse Probable
Invasive Species Cotoneaster (main site – A63 and Market Place junction and A63 and Queen Street junction); land south east of Mytongate Junction	Legal requirement	Cotoneaster plants are to be removed and the arisings and topsoil in these areas to be treated as controlled waste. To be disposed of at a suitably licensed or permitted disposal facility.	No significant impacts Probable	No significant impacts Probable	The site is to be maintained during the Operation Phase and it is unlikely that the cotoneaster or false acacia would return after removal in the Construction Phase. Should this happen, it would be removed during maintenance.	No significant impacts Probable	No significant impacts Probable

Ecological receptor	Valuation	Mitigation during construction	Residual impacts (Construction)	Significance of effect (Construction)	Mitigation during operation	Residual impacts (Operation)	Significance of effect (Operation)
		Biosecurity method statements for both species.					

## 10.9 Conclusions

10.9.1 During the Construction and Operation Phases of the Scheme, significant residual impacts are predicted on the following ecological receptors:

- Trinity Burial Ground (UKBAP Priority habitat (NERC Act 2006 S41) - major adverse from construction and operation; SNCI – moderate adverse from construction and operation) – permanent removal of one third of its total area and removal of 7/8 of the mature trees and vegetation with no opportunity to compensate thoroughly.
- Humber Dock Marina (UKBAP Broad Priority habitat – major adverse from construction and operation) (Standing water – large adverse from construction and operation). Permanent loss of habitat beneath pile footprint; impacts from piling.
- Mature amenity trees across the Scheme Site (LBAP – Moderate adverse from construction and operation) – although the number replanted is to increase on the number felled, the felling of trees to facilitate construction would be unlikely to reach maturity quickly.
- Ephemeral / short perennial in site compounds at Wellington Street Island Wharf, Neptune Street and Livingstone Road (LBAP – Moderate adverse from construction) – removal of habitat during construction would quickly regenerate.

10.9.2 As a consequence of the loss of these habitats, the following fauna would be impacted insignificantly:

- Terrestrial invertebrates in Trinity Burial Ground (UKBAP / LBAP – Slight adverse from construction and operation), Wellington Street Island Wharf, Neptune Street and Livingstone Road (LBAP – Slight adverse from construction only).
- Birds in Trinity Burial Ground, site compounds/temporary car park at land south east of Mytongate Junction, Myton Centre, A63 eastbound recovery base (UKBAP / LBAP – Slight adverse from construction and operation) as permanent loss of habitat in Trinity Burial Ground and in other sites compensatory planting would be unlikely to reach pre-construction maturity quickly.
- Bats in all areas of the site (European Protected Species – Slight adverse from construction and operation) due to the permanent loss of foraging habitat in Trinity Burial Ground and trees removed across the site.

- Hedgehogs in all terrestrial areas of the site (UKBAP – Slight adverse from construction and operation) with permanent habitat loss from Trinity Burial Ground.
- 10.9.3 Hedgerows in site compounds / temporary car park area at Livingstone Road, Myton Centre, A63 eastbound recovery base and Staples site (UKBAP, poor quality) – would have insignificant impacts as slight adverse from construction and slight beneficial in operation) as they would be reinstated with species-rich hedgerows and an increase in length.
- 10.9.4 With the successful implementation of mitigation measures, the Scheme is not predicted to have any significant adverse or beneficial residual impacts to other ecological receptors of value during the Construction Phase, including the Humber Estuary statutory designated site and its associated fauna.
- 10.9.5 No significant adverse or beneficial residual impacts are predicted to any of the other ecological receptors of value during the Operation Phase, including the Humber Estuary statutory designated site following the successful implementation of mitigation measures.