



# Pearmtree Hill Solar Farm

## Environmental Statement

### Volume 4

### Appendix 7.8: Aquatic Walkover Report

### Revision 3

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# 1.0 INTRODUCTION

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## 1.1 Purpose of this report

- 1.1.1 This report presents the results of an aquatic habitat walkover survey undertaken in relation to the proposed Peartree Hill Solar Farm (the 'Proposed Development') on land east of Beverley in East Riding of Yorkshire, during the week commencing 19 August 2024.
- 1.1.2 Assessment of the aquatic habitat was required to provide the baseline value of the watercourses within the Order Limits (the full extent of the maximum area of the Proposed Development), with additional data searches undertaken for existing records from the surrounding local area. The assessment has been targeted to potential watercourse crossing points and horizontal directional drilling (HDD) locations to identify and evaluate habitats present to inform the **Environmental Statement (ES) Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]** for the Proposed Development.
- 1.1.3 The following terminology is used throughout this report:
  - Order Limits – The full extent of the maximum area of the Proposed Development (the 'Order Limits') including all infrastructure, access routes and cable routes.

## 1.2 Development proposals

- 1.2.1 The Proposed Development comprises the construction, operation (including maintenance) and decommissioning of a solar photovoltaic (PV) electricity generating and storage facility with an export capacity of up to 320 megawatts (MW) and associated infrastructure, as described within **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]** and Schedule 1 of the **Draft DCO [EN010157/APP/3.1]**.
- 1.2.2 The Proposed Development will connect to the National Grid Creyke Beck Substation via underground cables. Interconnecting cable routes between Land Areas B to F are shown in **Figure 1**. The maximum working width for cable installation is 30m for the grid connection cable route and 10m for the interconnections.
- 1.2.3 Existing areas of woodland within the Order Limits are to be retained, and some areas within the Order Limits will be used for ecological mitigation/enhancement.
- 1.2.4 While it is anticipated that the majority of existing field boundary habitats will be retained post-development, sections of hedgerow, field margins and trees will be affected during construction, particularly for facilitating access and cable routes. However, where possible, methods to reduce impact to

boundary habitats, such as horizontal directional drilling (HDD), will be employed.

- 1.2.5 Extensive areas of the Site are due to be managed for biodiversity to mitigate the loss of ground-nesting and wintering-bird habitat, as well as to ensure the Proposed Development achieves its Biodiversity Net Gain target as explained within **ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4]**. Ecological mitigation areas, existing habitats will be enhanced through measures outlined within the **Outline Landscape and Ecological Management Plan (Outline LEMP) [EN010157/APP/7.5]**.
- 1.2.6 An extensive watercourse network is present on Site and, at the time of undertaking the survey, the need to undertake culvert installation / replacement or HDD was identified at c. 56 locations. These locations of the HDD and ditch crossing points were selected to undertake surveys, which provided a sample of the aquatic habitats across the Site. The design of the scheme has progressed since the surveys were undertaken, and the location of proposed ditch crossing points and HDD locations have changed. The survey locations, and current proposed HDD and ditch crossing point locations are shown on **Figure 1**.
- 1.2.7 The ditches and watercourses will only be impacted when a ditch is crossed by a cable or access track. This is anticipated to involve trenching to install a buried cable (as a worst-case assumption; alternative, less impacting methods may be used where appropriate), or culverting the ditch to act as a bridge to create an access track. Preliminary designs indicate c. 38 of these crossing points will be required, however further detailed design will be required to fully determine the requirement for cables and access tracks.

### 1.3 Site context

- 1.3.1 The Site encompasses an area of approximately 893 hectares (ha) and is located to the east of the town of Beverley, close to the hamlet of Meaux and villages of Routh and Long Riston.
- 1.3.2 The Order Limits comprise several Land Areas (labelled B to F) and sections of cable route, identified as follows and shown on **ES Volume 3, Figure 1.2: Land Areas and Cable Routes Plan with Field Numbering System [EN010157/APP/6.3]**:
  - Land Area B: Land north-west of Long Riston;
  - Land Area C: Land west of Arnold;
  - Land Area D: Land south of the A1035;
  - Land Area E: Land east of Weel;
  - Land Area F: Land north of Wawne;
  - Interconnecting cable routes: Cable B-B, Cable C-D, Cable E-E and Cable E-F;
  - Grid connection cable route.

- 1.3.3 Each Land Area is made up of number-referenced fields (e.g. B1). Most of these are arable fields. However, there are also some fields of grazed grassland, and relatively small areas of neutral grassland, broadleaved woodland and scrub in some of the Land Areas. The fields are divided by hedgerows, farm access tracks, ditches and watercourses, and there are also some small woodland blocks.
- 1.3.4 The surrounding land is largely agricultural land, farmsteads and minor settlements with a complex network of watercourses and ditches. Land Areas B to F have few roads other than Meaux Lane, which cuts through the centre of Land Areas D and F. The easternmost Fields B5 and B6 are separated from the rest of the Land Areas by the A165 road. The River Hull flows close to the western edges of Land Area E and intersects the proposed grid connection cable route. The town of Beverley lies c.1.3km west of the Land Areas at the nearest point. The North Sea and the Humber Estuary each lie c.10 km to the east and south respectively.
- 1.3.5 The interconnecting cable routes are located between the Land Areas and comprise mostly arable fields bordered by hedgerows and wet drains/ditches.
- 1.3.6 The grid connection cable route links the Land Areas to National Grid Creyke Beck Substation, located close to Cottingham. The habitat within the cable route is mostly arable fields, however there are sections of modified grassland and notable habitats within Figham Pastures Local Wildlife Site.
- 1.3.7 Most of drainage network within the Order Limits sits within the Holderness Drain catchment. The Holderness Drain is a main watercourse which is fed by a 238km<sup>2</sup> drainage network encompassing a number of larger, named drains and a larger number of smaller unnamed drains throughout the Order Limits (Bates & Camp, 2024). The catchment extends as far north as North Frodingham and discharges to the Humber Estuary via a tidal sluice in east Hull. Water levels within the catchment are controlled by a number of pumping stations.
- 1.3.8 The proposed cable route encompasses sections of other main rivers, the River Hull and the Beverley & Barmston Drain. The River Hull is a tidal, navigable river and is the largest watercourse within the Order Limits. The River Hull is largely disconnected from the surrounding drainage networks by the Holderness Drain to the east and the Beverley and Barmston Drain to the west, both designed to alleviate flooding by diverting water away from the River Hull.
- 1.3.9 The North Sea and the Humber Estuary lie c.10 kilometres (km) to the east and south respectively. The Humber Estuary is designated as a Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar and Site of Special Scientific Interest (SSSI). The Humber Estuary SAC lists river lamprey (*Lampetra fluviatilis*) and sea lamprey (*Petromyzon marinus*) as qualifying species.

## 2.0 METHODS

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### 2.1 Background data search

- 2.1.1 A search was made in July 2023 (and updated in 2024 to account for a change to the Order Limits) for reference materials from local data centres, Natural England (NE) and Joint Nature Conservation Committee (JNCC) and other government websites. Data sources are discussed in detail in the **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal Report [EN010157/APP/6.4]**.
- 2.1.2 In addition, freely available Environment Agency (EA) fisheries data (EA, 2024) was assessed for the Lower Hull and Upper Hull operational catchments.

### 2.2 Aquatic habitat walkover

- 2.2.1 Sites were assessed using a bespoke habitat survey method based upon Hendry & Cragg-Hine (1997). The method incorporates habitat types for all species of fish (including salmonids, coarse fish, European eel [*Anguilla anguilla*], lamprey, and small species such as bullhead [*Cottus gobio*] and minnow [*Phoxinus phoxinus*]) and provides a concise overview of the aquatic habitats present.
- 2.2.2 At each survey location, 300 metres (m) of watercourse was assessed (150m either side of the proposed crossing or HDD point). Due to the homogenous nature of the drainage network, mapping was not undertaken, with surveyors instead recording detailed notes on the habitat characteristics.
- 2.2.3 Habitat features recorded during the walkover survey included:
- flow type (e.g. glide, run, riffle, cascade, pool and rapid);
  - substrate type (e.g. boulder, cobble, pebble, gravel, sand, silt as defined using the Wentworth scale);
  - macrophyte presence / type (e.g. emergent linear, emergent broad-leaved, submerged linear, submerged broad-leaved, floating linear, floating broad-leaved);
  - other key features (e.g. side bar, mid-stream bar, man-made dams, weirs, large woody debris, coarse woody debris, spawning area, fry / juvenile fish refuge area); and,
  - evidence of riparian mammals (i.e. otter spraint and water vole burrows / latrines).
- 2.2.4 Digital photographs of important habitat features and general Site characteristics were obtained during surveys.
- 2.2.5 Survey locations are shown on **Figure 1**.

## 2.3 Habitat suitability

2.3.1 Habitat suitability has been assessed based upon recorded habitat characteristics, background data and perceived connectivity to the wider drainage network. Note that connectivity has been estimated using the surveyors best professional judgement, based upon Site observations, mapping and aerial imagery of the drain network. A detailed connectivity assessment was not undertaken, being beyond the scope of this report. Suitability has been assessed using the following criteria:

- Unsuitable – Dry.
- Poor – Disconnected or ponded, generally wetted or damp but may be dry in places. Likely only suitable as foraging / commuting pathway for European eel.
- Limited – Wetted but shallow and homogenous with poor connectivity. Likely suitable for stickleback species and European eel.
- Coarse – Deeper water, macrophyte present, usually a larger drain or a drain with direct connectivity to a larger drain. Potential habitat for a range of lentic (stillwater) coarse fish species and European eel.
- Lamprey – Silt substrate with connectivity to spawning habitat. Potential suitable lamprey ammocoete habitat.
- Migratory – Direct, unobstructed connectivity to the estuary allowing passage of migratory species such as river and sea lamprey and European eel.

## 2.4 Constraints and limitations

2.4.1 Surveys were undertaken in late summer (20 – 22 August 2024), when water levels were low and in-channel macrophyte growth high. As a result, these surveys are not necessarily indicative of habitat suitability during winter or periods of high water levels.

2.4.2 Many of the surveyed locations were characterised by trapezoidal channels with steep banks which precluded safe access to the water's edge. Dense riparian vegetation was also present at many sites further reducing visibility. To counter this lack of safe access, flow types were assessed where visible within each 300m survey reach and water depth and sediment composition determined using a 5m extendable measuring staff from the bank top.

2.4.3 Since surveys have been completed, the proposed crossing point and HDD locations have changed, however the baseline characterisation of the Site, based on the survey locations undertaken, is still valid. Any new crossing points not yet assessed will be subject to pre-construction surveys.

## 3.0 RESULTS

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### 3.1 Background data search

- 3.1.1 The background data search (BDS) undertaken in 2024 returned limited records of aquatic species. Records of European eel and several coarse fish species were historic (2012 for eel and 2000 for the coarse fish records) and outside of the Order Limits and the wider ditch network.
- 3.1.2 In the previous ten years, no EA Lower Hull catchment fisheries sites were located within the Order Limits. Relevant results from the Ecology & Fish Data explorer are presented in **Appendix B**, with summaries of relevant sites / records presented below.
- 3.1.3 Fisheries data from Holderness Drain in 2016 (Great Culvert, NFPD Site ID:7550) returned records of coarse fish species – pike (*Esox Lucius*), roach (*Rutilus rutilus*), gudgeon (*Gobio gobio*), three-spined stickleback (*Gasterosteus aculeatus*) and nine-spined stickleback (*Pungitius pungitius*). This site is located c. 3.1km downstream (south) of the closest survey point (S55).
- 3.1.4 Fisheries data from the Beverley and Barmston Drain (Clough Road, NFPD Site ID: 37666 & 37706) collected between 2015 and 2023 returned records of roach, perch (*Perca fluviatilis*), pike and European eel. This site is located c. 8.1km downstream (south) of the closest survey point (S49).
- 3.1.5 Fisheries data from Monk Dike (A1035, NFPD Site ID: 38270) collected in 2015 and 2017 returned records of three-spined stickleback, nine-spined stickleback and stone loach (*Barbatula barbatula*). This site is located within the Holderness Drain catchment, c. 800m north of S39/ WCHR 02 and hydrologically connected to several other crossing / HDD points on this eastern side of the Order Limits via the drainage network.
- 3.1.6 Several more records of European eel were returned in the Arram, Scarborough and Watton Beck's, tributaries of the River Hull north of Beverley (and north of the Order Limits).
- 3.1.7 Lamprey records were confined to these same tributaries of the River Hull with small numbers of *Lampetra* sp. ammocoetes recorded between 2016 and 2023. In addition, 'lamprey sp.' ammocoetes were recorded in larger numbers in Watton Beck (n=22, NFPD Site ID:38266, 2015) and Arram Beck (n=39, NFPD Site ID:40267, 2017).

### 3.2 Aquatic habitat walkover

- 3.2.1 This section outlines the results of the aquatic walkover surveys at each of the survey locations, as displayed in **Figure.1**. Key photographs are provided in **Appendix A**.



3.2.2 As a result of changes during the iterative design process, the following survey locations now fall outside of the Order Limits and have therefore been removed from this report: S15, S35, S42, S47 and S56. The remaining survey locations have not been renumbered. A number of indicative culvert crossing points/indicative HDD crossing points have also been removed from the Proposed Development (the corresponding survey points have therefore been greyed out in **Table 1**), as well as a number of additional proposed culvert/HDD crossing points being introduced, which had not been included in the surveys but are identified in **Table 1**. Survey locations S50 to S54 have been removed from this report as there are no watercourses in those locations.

### **S01**

3.2.3 The S01 crossing point is located at the eastern extent of a drainage ditch close to the confluence, via a culvert, with a larger, unnamed ditch. The culvert was above the water level of the larger ditch at the time of surveying and as such connectivity (i.e. from rainfall or runoff) would be one-way from the S01 ditch into the unnamed ditch under surveyed water levels.

3.2.4 The S01 ditch was heavily overgrown and dry at the time of surveying. The larger unnamed ditch was wetted at the time of surveying with no perceptible flow. The water surface had c. 90% duckweed (*Lemna* sp.) coverage, with c. 10% emergent macrophyte coverage over a silt substrate.

### **S02**

3.2.5 S02 is located on an unnamed ditch, which was dry and heavily vegetated at the time of survey.

### **S03 / S46**

3.2.6 S03 is located at the eastern extent of a small drainage ditch close to the confluence, via an existing culvert, with a larger, unnamed ditch. S46 is located c.10m west of S03. The ditch was wetted with a water depth of < 0.1m, no perceptible flow and was heavily choked with vegetation. The banks had been strimmed recently and vegetation trimmings were present throughout the channel.

3.2.7 The larger connected ditch was wetted at the time of survey with no perceptible flow, with c.0.4m water depth, c. 40% duckweed coverage, c.40% emergent macrophyte coverage over a silt substrate. This culvert was above the water level of the larger ditch at the time of survey and as such connectivity (i.e. from rainfall or runoff) would be one-way from the S03 ditch into the unnamed ditch under surveyed water levels.

### **S04**

3.2.8 S04 is located at the eastern extent of the Arnold and Riston Drain close to the Arnold West Carr Drain. The drain was wetted with a silt substrate, no

perceptible flow and was covered by duckweed (c. 50% cover) and emergent macrophyte (c. 50% cover).

3.2.9 An existing culvert structure is located at the crossing location, connectivity here could not be confirmed but it does not appear as though the two drains are hydrologically connected, the culvert potentially passing beneath the Arnold West Carr Drain and connecting to the Drewery's Sock Dike to the east.

3.2.10 The Arnold and Riston Drain appears to have open connectivity to the Holderness Drain, one of the larger drains which feeds into the Humber directly.

#### **S05**

3.2.11 S05 is located on a small ditch which connects to the Routh & Meaux drain c. 200m to the north. The ditch was largely dry, but damp in places with dense terrestrial vegetation growth present and a silt substrate.

#### **S06**

3.2.12 S06 is located on a north-south oriented arm of the Routh & Meaux drain. The drain was wetted with shallow water (< 0.05m), no perceptible flow and dense emergent macrophyte coverage (c.80%). The banks had been recently trimmed with trimmings present throughout the channel.

#### **S07**

3.2.13 S07 is located on an east-west oriented arm of the Routh & Meaux Drain. Emergent macrophyte lined the channel (c. 70% cover) which was wetted with no perceptible flow, c. 0.2m deep with a silt substrate. The banks had been recently trimmed with trimmings present throughout the channel.

#### **S08**

3.2.14 S08 is located on an unnamed ditch which joins the Routh & Meaux Drain approximately 240 m to the south. The ditch was wetted with shallow water (< 0.3m depth), no perceptible flow, c.15 % emergent macrophyte coverage and a silt substrate.

#### **S09**

3.2.15 S09 is located on the same unnamed ditch as S08, which is approximately 380m southwest. The ditch was wetted with c.0.3 m deep water, no perceptible flow, dense duckweed (c. 40%) and emergent macrophyte (c.60%) cover and a silt / clay substrate.

#### **S10**

3.2.16 S10 is located on a short, unnamed ditch oriented east-west between the Meaux and Routh East Drain and Monk Dike. The ditch was wetted with no perceptible flow, c.0.2m deep water, c.40% duckweed, c.20% emergent

macrophyte coverage and a silt substrate. The channel and banks were densely overgrown with terrestrial vegetation.

### **S11**

3.2.17 S11 is located on a shallow depression within a hedgerow and not a typical drainage ditch. The area was dry with no evidence of it being frequently wetted or ephemeral.

### **S12**

3.2.18 S12 is located at / close to an existing culvert on the Meaux West drain. To the east of the existing culvert the channel and banks were heavily overgrown with the channel choked with emergent macrophyte. The water depth was c.0.3m with no perceptible flow. To the west of the culvert, the channel had a water depth of c0.3m and no perceptible flow. The channel and banks had been trimmed and the ditch was characterised by emergent macrophyte (c.60% cover).

### **S13**

3.2.19 S13 is a small, overgrown ditch between arable field which was dry at the time of surveying.

### **S14**

3.2.20 S14 is located on Well Stone Carr Drain. The drain was c.0.2m deep with no perceptible flow, had a silt substrate and was choked with emergent macrophyte at the time of survey.

### **S16**

3.2.21 S16 is located on a small, unnamed ditch which was dry at the time of the survey.

### **S17**

3.2.22 S17 is located on a small, unnamed ditch between arable fields. The ditch was damp at the time of survey with very shallow water present (< 0.05m depth) and filamentous algae.

### **S18**

3.2.23 S18 is located on the same ditch as S03, which is approximately 185m to the east. Habitat within the ditch mirrors that at S03 (see above) with shallow water, no perceptible flow and with large quantities of vegetation and trimmings present in the channel.

### **S19**

3.2.24 S19 is located on the same dry, heavily overgrown ditch as S01 (see above), which is approximately 225m to the East.

### **S20**

3.2.25 S20 is located on a shallow depression within a hedgerow and not a typical drainage ditch. The area was dry with no evidence of it being frequently wetted or ephemeral.

### **S21**

3.2.26 S21 is located on an unnamed ditch close to a confluence with the Routh and Meaux Road Drain. The ditch was largely dry with some areas of shallow (< 0.1m depth) ponded water. The channel was lined with terrestrial grasses and trimmings from recent bank strimming.

### **S22**

3.2.27 S22 is located on the same unnamed ditch as S08, which is located approximately 100m to the south. The ditch was wetted with shallow water (< 0.3m depth) and no perceptible flow, with dense emergent macrophyte coverage (c.80%) and a silt substrate.

### **S23**

3.2.28 S23 is located on an unnamed drain which connects the Meaux West Drain and Holderness Drain. The drain was wetted with no perceptible flow and a water depth of c.0.2m. Dense vegetation and trimmings from recent bank strimming were present in the channel.

### **S24**

3.2.29 S24 is located on the same unnamed ditch as S09, which is located approximately 220m to the southwest. The ditch was wetted with c.0.3 m deep water, no perceptible flow, dense duckweed (c.40 %) and emergent macrophyte (c.40%) cover and a silt substrate.

### **S39**

3.2.30 S39 is located on Stonleygoat Dike with S39 located c.10m to the south. The channel was characterised by shallow water (< 0.1m depth), no perceptible flow, c.60% emergent macrophyte coverage and a silt substrate.

### **S25**

3.2.31 S25 is located on the Routh and Meaux Road Drain close to the confluence with the Meaux and Routh East Drain. The drain was wetted and was observed to be flowing east into the larger Meaux and Routh East Drain, although connectivity between the drains appeared to be poor. The flow type

was shallow glide with a water depth of c.0.3m and a silt substrate. The channel was blocked in places by dense trimmings from recent strimming works.

### **S26 / S41**

- 3.2.32 S26 is located on the Meaux and Routh East Drain c.75m north of the confluence with the Routh and Meaux Road drain at S25. S41 is located c.15m to north of S26. The drain was wetted with no perceptible flow, a water depth of c.0.5m and dense duckweed (c.50%) and emergent macrophyte (c.50%) coverage. Stickleback were observed within the drain, the fish were not captured to be identified as either three-spined or nine-spined.

### **S27**

- 3.2.33 S27 is located on the Routh & Meaux Drain close to the confluence of the east-west and north-south arms of the drain. The drain was wetted with no perceptible flow, a water depth of <0.1m, c.60% emergent macrophyte coverage and a silt substrate. The banks had been recently strimmed with trimmings present throughout the channel.

### **S28**

- 3.2.34 S28 is located on Holderness Drain. The drain was wetted with no perceptible flow, with a water depth of c.0.4m and dense emergent macrophyte coverage choking the channel (c.90% coverage).

### **S29**

- 3.2.35 S29 is located on a shallow depression within a hedgerow and not on a typical drainage ditch. The area was dry with no evidence of it being frequently wetted or ephemeral.

### **S30**

- 3.2.36 S30 is located on a short section of drainage ditch close to Meaux Lane. The ditch was wetted with shallow water (< 0.1m depth), 90% duckweed coverage and a silt substrate. Connectivity appeared to be poor with a small pipe culvert leading from the ditch at the south-eastern extent.

### **S31**

- 3.2.37 S31 is located on the same unnamed ditch as S17, which is located approximately 250m to the west. The ditch was wetted with no perceptible flow, a water depth of c. 0.2m over a silt substrate and c.50% submerged macrophyte and c.10% emergent macrophyte coverage. Although hydrologically connected to the Holderness Drain connectivity for fish appears to be poor, as the connection is via a long underground culvert / pipe.

### **S32**

3.2.38 S32 is located on a small, unnamed drainage ditch which was dry at the time of survey.

### **S33**

3.2.39 S33 is located approximately 150m south of S16 on a small, unnamed ditch which was dry at the time of survey.

### **S34**

3.2.40 S34 is located on a north-south oriented arm of the Routh & Meaux Drain approximately 125m south of S06. Emergent macrophytes lined the channel (c 60% cover) which was wetted with no perceptible flow, c.0.2m deep with a silt substrate. Sparse areas of duckweed were present in areas of open water.

### **S36**

3.2.41 S36 is located on Drewery's Sock Dike close to the Arnold and West Carr Drain, connectivity between the two could not be determined. The drain was wetted with no perceptible flow, a water depth of c.0.1m and dense emergent macrophyte growth in-channel (c.80% cover).

### **S37**

3.2.42 S37 is located on an unnamed ditch which was wetted at the time of survey with an area beneath the existing culvert drying out. South of the existing culvert no perceptible flow was observed, water depths were c.0.3m with c.45% emergent macrophyte coverage and a sparse covering of duckweed (c.5% coverage) recorded. To the north of the culvert water depths were shallow (c.0.1m) and dense stands of emergent macrophyte were recorded with an overall coverage of c.40%.

### **S38**

3.2.43 S38 is located at an existing pipe culvert on an east-west oriented, small, unnamed ditch close to the confluence with a larger ditch, oriented north-south and passing beneath Carr Lane. The smaller ditch was dry at the time of survey.

3.2.44 The larger ditch was wetted no perceptible flow, a water depth of c.0.4m, a silt substrate and was choked with emergent macrophyte and filamentous algae.

### **S40**

3.2.45 S40 is located on the Arnold West Carr Drain / Monk Dike in close proximity to the adjacent Meaux and Routh East Drain. It is assumed that the HDD will pass beneath both watercourses and as such both were assessed.

3.2.46 The Arnold West Carr Drain / Monk Dike was c.0.5m deep, with no perceptible flow and was choked with emergent macrophyte.

3.2.47 Habitat in the Meaux and Routh East Drain was similar to that at S26 / S41 which is located approximately 250m to the north being comprised of no perceptible flow, a water depth of c.0.5m and dense duckweed (c.50%) and emergent macrophyte (c.50%) coverage.

#### **S43**

3.2.48 S43 is located on Holderness Drain. The drain was wetted with no perceptible flow, a water depth of c.0.4m and dense emergent macrophyte coverage choking the channel (c.90% coverage).

#### **S44**

3.2.49 S44 is located on Drewery's Sock Dike, a larger drain which was wetted and choked with emergent vegetation at the time of survey.

#### **S45**

3.2.50 S45 is located on a small, unnamed ditch which was dry at the time of survey.

#### **S48**

3.2.51 S48 is located within a tidal section of the River Hull, the largest watercourse within the Order Limits. The river is deep (>1m) and wide at the HDD location with a substrate comprised largely of silt and areas of submerged macrophyte present.

#### **S49**

3.2.52 S49 is located on the Beverley and Barmston Drain, a large drain which was wetted with no perceptible flow, c.1m water depth and c.50% emergent macrophyte cover.

#### **S55**

3.2.53 S55 is located on Holderness Drain. Access and visibility were poor with steep, densely vegetated banks. The drain was wetted with no perceptible flow, dense duckweed (c.90%) and emergent macrophyte (c.10%) coverage. Depth was not assessed due to lack of access down the steep, tall banks.

### **3.3 Habitat suitability**

3.3.1 The suitability of the habitat for fish at each crossing / HDD location is summarised in **Table.1** below. The third column in **Table 1** identifies how the fish habitat suitability survey locations correspond with the indicative HDD crossing points (which are coded depending on the type of crossing, as shown in **ES Volume 3, Figure 3.3: Indicative HDD Crossing Points [EN010157/APP/6.3]**) or indicative culvert crossing points (which are simply numbered, as shown in **ES Volume 3, Figure 3.6: Indicative Culvert Crossing Points [EN010157/APP/6.3]**).

**Table 1 - Fish habitat suitability at the location of crossing / HDD references**

Survey location reference for this report	Suitability for fish	Indicative culvert crossing point reference (ES Volume 3, Figure 3.6) / HDD crossing point reference (from ES Figure 3.3)
S01	Unsuitable	2
S02	Unsuitable	13
S03	Limited potential	15
S04	Coarse potential	17
S05	Poor	No crossing or HDD
S06	Limited potential	12 and WC05
S07	Limited potential	No crossing or HDD
S08	Limited potential	9
S09	Limited potential	8
S10	Limited potential	3 and WC 01
S11	Unsuitable	No crossing or HDD
S12	Limited potential	18 and WC 06
S13	Unsuitable	No crossing or HDD
S14	Limited potential	WC 03
S16	Unsuitable	No crossing or HDD
S17	Poor	No crossing or HDD
S18	Limited potential	No crossing or HDD
S19	Unsuitable	No crossing or HDD
S20	Unsuitable	No crossing or HDD
S21	Poor	7
S22	Limited potential	No crossing or HDD
S23	Limited potential	No crossing or HDD
S24	Limited potential	No crossing or HDD
S25	Limited potential	5
S26	Coarse potential	4
S27	Limited potential	No crossing or HDD
S28	Coarse potential	19 and WCHR 01
S29	Unsuitable	10
S30	Poor	6
S31	Poor	No crossing or HDD
S32	Unsuitable	No crossing or HDD
S33	Unsuitable	20
S34	Limited potential	12 and WC05
S36	Limited potential	No crossing or HDD
S37	Poor	14
S38	Unsuitable	1
S39	Limited potential	WCHR 02
S40	Coarse potential	WC 04
S41	Coarse potential	WC 02
S43	Coarse potential	WCHR 03



Survey location reference for this report	Suitability for fish	Indicative culvert crossing point reference (ES Volume 3, Figure 3.6) / HDD crossing point reference (from ES Figure 3.3)
S44	Coarse potential	WCHRPR 03
S45	Unsuitable	16 and WCHRPR 02
S46	Limited potential	No crossing or HDD
S48	Migratory/Lamprey	WCPR 02
S49	Coarse potential	WCPRUT 01
S55	Coarse potential	No crossing or HDD
S56	Not surveyed	11
S57	Not surveyed	21
S58	Not surveyed	22
S59	Not surveyed	WCPR 01
S60	Not surveyed	WCHRPR 01
S61	Not surveyed	23

## 4.0 DISCUSSION

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### 4.1 Holderness Drain catchment

- 4.1.1 Most of the potential crossing and HDD points are located on small, homogenous, heavily managed drainage ditches within the Holderness Drain catchment. Across many of the drains there was very little variety in habitat, little or no flow, often dense macrophyte coverage and a ubiquitous silt substrate. The surveys were undertaken following a period of relatively dry weather in late summer and as such water levels and habitat availability at the time of survey may not necessarily be indicative of that present year-round. After prolonged heavy rainfall for example, water levels may be higher, potentially opening up habitat in some drains to a wider range of species. Conversely, after prolonged dry spells, some of the ditches that were wetted at the time of survey may dry out completely.
- 4.1.2 Connectivity / passability for fish between many of the smaller dry / very shallow drains to the larger, deeper / permanently wetted drains is likely to be limited in many cases by differences in bed / head height and connection type. Types of connection varied between direct connection via open culvert to small diameter pipes, often feeding into the larger drains from above the water via overland flow down the bank.
- 4.1.3 EA fisheries data for the catchment has records of European eel, roach, gudgeon, three-spined stickleback, nine-spined stickleback and stone loach in the Holderness Drain and Monk Dike and it is considered likely that this species assemblage (and perhaps other species such as perch) could be present within any of the larger, deeper drains within the catchment such as the Arnold and Riston Drain and Drewery's Sock Dike.
- 4.1.4 The smaller / shallower wetted drains are not considered likely to be capable of supporting a diverse fish population with species likely restricted to those more tolerant of environmental stressors, such as three or nine-spined stickleback and potentially European eel.
- 4.1.5 European eel are present within the catchment with the most suitable habitat likely within the larger drains. However, the use of the smaller drains as temporary refuge, foraging habitat or to commute between watercourses cannot be entirely discounted.
- 4.1.6 There were no records of lamprey within the Holderness Drain catchment. Given that the catchment is comprised almost entirely of drainage ditches this is not entirely unexpected. There is likely to be a lack of suitable spawning habitat (shallow gravels / pebbles in flowing water) throughout the catchment and no direct connectivity (by design) to the River Hull and any spawning habitats present within its tributaries.

## 4.2 River Hull

- 4.2.1 A single proposed HDD (S48/ WCPR 02) is located on / beneath the River Hull. The river is tidal and deep at this location making it likely suitable for a range of coarse fish species and estuarine / marine species (e.g. flounder *Platichthys flesus* or common goby *Pomatoschistus microps*). The river is also likely to be used by European eel and river lamprey for passage into freshwater habitats.
- 4.2.2 No recent (< 10 years old) EA fisheries data was available for the River Hull, however a single record of river lamprey was present from a 2007 survey at Weel Bridge, approximately 2.1km upstream (Site ID: 29892, Survey ID:108661). A single record of a river lamprey ammocoete was also recorded further upstream at Hull Bridge in 2005 (Site ID: 4225, Survey ID: 87798), however given the complexities of differentiating between *Lampetra* ammocoetes in the field and the lack of additional data this record may not be entirely reliable.
- 4.2.3 EA data has records of *Lampetra* ammocoetes further upstream in the Hull catchment within the smaller becks and tributaries. These have not been identified to species however it is considered likely, given the location that at least some of these would be river lamprey.
- 4.2.4 No records of sea lamprey were found within the River Hull catchment and EA records of 'lamprey sp.' ammocoetes recorded in Watton Beck and Arram Beck are considered likely to refer to *Lampetra* (brook or river) ammocoetes rather than *Petromyzon* (sea lamprey) ammocoetes. Sea lamprey within the Humber are thought to be restricted solely to the Ouse catchment<sup>1</sup>.

## 4.3 Beverley and Barmston Drain

- 4.3.1 A single proposed HDD location is located on / beneath the Beverley and Barmston Drain (S49/WCPRUT 01). Habitat at the HDD location was likely suitable for a range of coarse fish species and European eel. This is corroborated by EA fisheries data records of pike, perch, roach and European eel c. 8.1km downstream of the proposed HDD location.
- 4.3.2 There are no records of lamprey within the drain, their absence likely attributable to the same factors present within the Holderness Drain catchment, namely a lack of suitable spawning habitat and a lack of connectivity to the River Hull and its potential spawning habitat.

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<sup>1</sup> Lamprey in the Humber, Dr Anita Franco, University of Hull, Humber Nature Forum Meeting 02.12.2015.  
<https://www.humburnature.co.uk/admin/resources/2015ohumber-nature-forum-mtglamprey-in-the-humber.pdf>

## 5.0 SUMMARY OF RESULTS

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- 5.1.1 Most of the potential culvert crossing locations are located upon drains which have been classed as of poor or limited habitat suitability for fish and many appear to be at the location of pre-existing culverts.
- 5.1.2 European eel may be present throughout the drainage network, however they are likely to be more prevalent within the larger drains with better quality habitat. It is considered unlikely that eel will be present in significant numbers within the poor or limited quality habitat.
- 5.1.3 S04, S26 and S28 were identified as having potential for other fish species (coarse fish).
- 5.1.4 Within the Holderness Drain catchment several HDD points pass beneath watercourses classed as being suitable for a range of coarse fish species. Habitat was homogenous at all of these locations with no sensitive habitats recorded.
- 5.1.5 HDD ref. WCPRUT 01 at survey location S49 passes beneath the Beverley and Barmston Drain, which as with the HDD points on the Holderness Drain, is suitable for coarse fish species.
- 5.1.6 HDD ref. WCPR 02 at survey location S48 passes beneath the River Hull, the only survey location deemed to have lamprey potential.
- 5.1.7 Lamprey ammocoetes are present in the upper reaches and tributaries of the River Hull and are likely widely distributed downstream and so may be present within the sediment at the HDD location. Given the homogeneity of the habitat and the likely abundance of suitable habitat both up and downstream it is considered unlikely that large numbers will be present at the specific HDD location. Furthermore, any individuals that were to be disturbed as a result of the HDD works are likely to be able to migrate to ample suitable habitat.
- 5.1.8 Any new crossing points not yet assessed will be subject to preconstruction surveys.

## REFERENCES

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Bates J. & Camp, D. (2024)., *Holderness Flood Alleviation Scheme (2024)*. Water Projects Online Available at: <https://waterprojectsonline.com/case-studies/holderness-fas-2024/> [accessed September 2024].

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Franco, A (2015). *Lamprey in the Humber*. University of Hull, Humber Nature Forum Meeting 02.12.2015. Available at: <https://www.humburnature.co.uk/admin/resources/2015ohumber-nature-forum-mtqlamprey-in-the-humber.pdf> [Accessed September 2024]

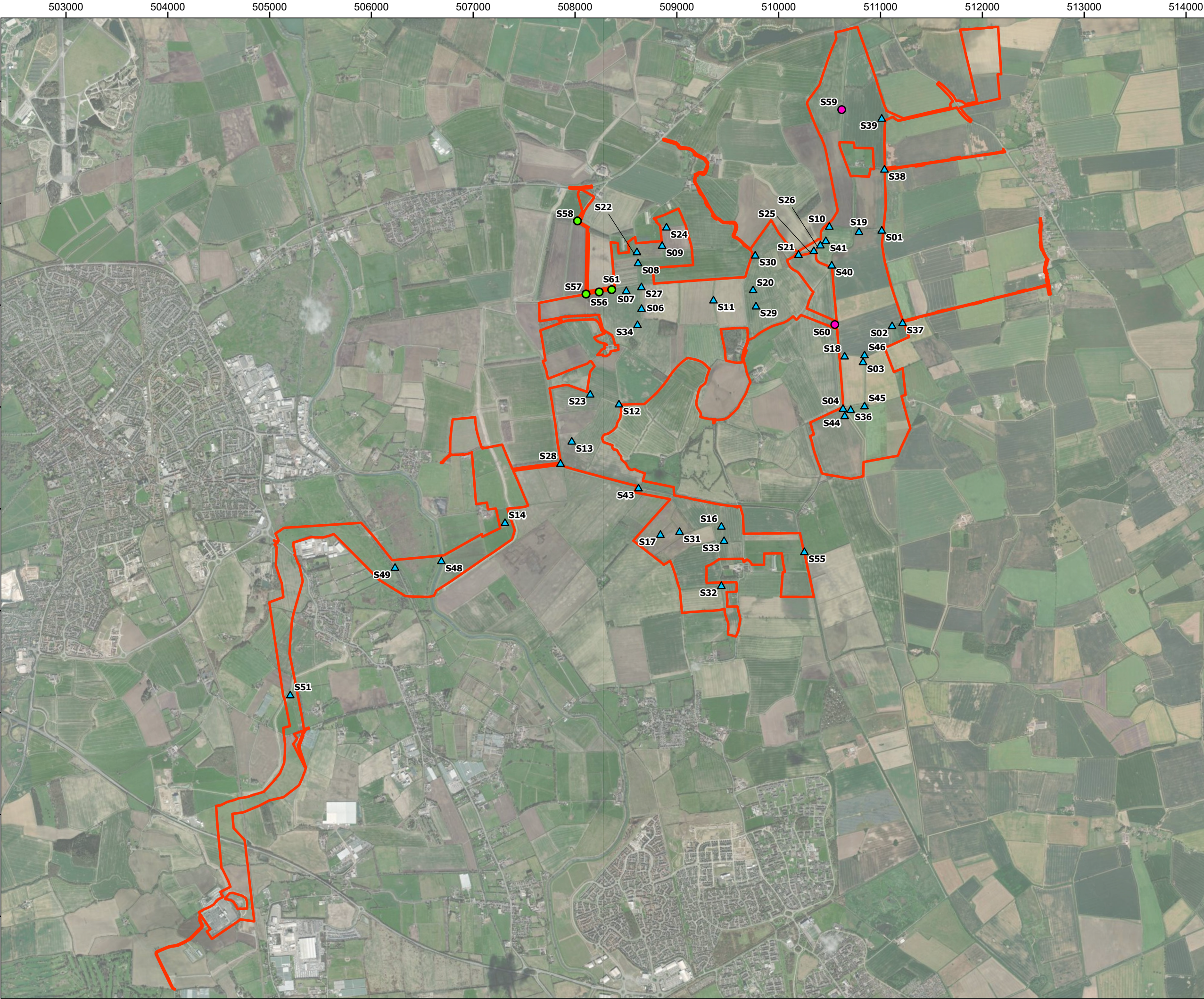
Hendry K & Cragg-Hine D (1997). *Restoration of riverine salmon habitats*. Fisheries Technical Manual 4 Environment Agency, Bristol.

## FIGURES

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**Figure 1** – Aquatic Habitat Assessment: Survey Locations





- Legend:
- Order Limits
  - Survey Location
  - Not surveyed: crossing point
  - Not surveyed: HDD

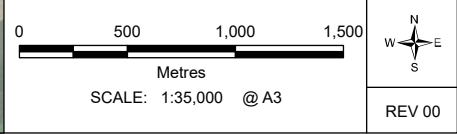


02	04/12/2025	2485116	RTJ	HD	LW
Rev	Date	Description	Drm	Chk	App

Peartree Hill Solar Farm



TITLE: Figure 1:  
  
Aquatic Habitat Assessment:  
Survey Locations





## APPENDIX A – SITE PHOTOGRAPHS

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This appendix contains a selection of images showing the general channel characteristics at each of the survey locations in addition to photographs of any other notable observations where applicable.





**Plate 1 – S01**



**Plate 2 – S02**



**Plate 3 – S03**



**Plate 4 – S04**





**Plate 5 – S05**



**Plate 6 – S06**



**Plate 7 – S07**



**Plate 8 – S08**





**Plate 9 – S09**



**Plate 10 – S10**



**Plate 11 – S11**



**Plate 12 – S12**



**Plate 13 – S13**



**Plate 14 – S14**



**Plate 15 – S15. Location no longer within the Order Limits.**



**Plate 16 – S16**





**Plate 17 – S17**



**Plate 18 – S18**



**Plate 19 – S20**



**Plate 20 – S21**



**Plate 21 – S22**



**Plate 22 – S23**



**Plate 23 – S24**



**Plate 24 – S25**





**Plate 25 – S28**



**Plate 26 – S26**



**Plate 27 – S27**



**Plate 28 – S56**



**Plate 29 – S29**



**Plate 30 – S30**



**Plate 31 – S31**



**Plate 32 – S32**





**Plate 33 – S33**



**Plate 34 – S34**



**Plate 35 – S35. Location no longer within the Order Limits.**



**Plate 36 – S36**





**Plate 37 – S37**



**Plate 38 – S38**



**Plate 39 – S39**



**Plate 40 – S40 – Arnold & West  
Carr Drain**





**Plate 41 – S40 Meaux & Routh East Drain**



**Plate 42 – S41**



**Plate 43 – S42. Location no longer within the Order Limits.**



**Plate 44 – S43**





**Plate 45 – S44**



**Plate 46 – S45**



**Plate 47 – S46**



**Plate 48 – S47. Location no longer within the Order Limits.**



**Plate 49 – S48**



**Plate 50 – S49**



**Plate 51 – S55**



## APPENDIX B – EA FISHERIES DATA

Table 2 - EA fisheries data Lower Hull catchment (2014-)

Site ID	Site Name	Survey ID	Survey Date	Survey NGR	Species - common name	Scientific name	Total caught
4226	Beverley and Barmston Drain at Top hill Low	149527	28/09/2016	TA0682248092	Orfe / Ide	<i>Leuciscus idus</i>	4
4226	Beverley and Barmston Drain at Top hill Low	149527	28/09/2016	TA0682248092	Chub	<i>Leuciscus cephalus</i>	8
4226	Beverley and Barmston Drain at Top hill Low	149527	28/09/2016	TA0682248092	Pike	<i>Esox lucius</i>	6
4226	Beverley and Barmston Drain at Top hill Low	149527	28/09/2016	TA0682248092	Roach	<i>Rutilus rutilus</i>	23
4226	Beverley and Barmston Drain at Top hill Low	149527	28/09/2016	TA0682248092	Gudgeon	<i>Gobio gobio</i>	3
4226	Beverley and Barmston Drain at Top hill Low	149527	28/09/2016	TA0682248092	Silver bream	<i>Abramis bjoerkna</i>	1
4226	Beverley and Barmston Drain at Top hill Low	149527	28/09/2016	TA0682248092	3-spined stickleback	<i>Gasterosteus aculeatus</i>	3
7549	White House Fm, Arram Beck.HULLCRS/(LOWER)4	149416	26/09/2016	TA0441344101	Flounder	<i>Platichthys flesus</i>	8
7549	White House Fm, Arram Beck.HULLCRS/(LOWER)4	149416	26/09/2016	TA0441344101	Brown / sea trout	<i>Salmo trutta</i>	1
7549	White House Fm, Arram Beck.HULLCRS/(LOWER)4	149416	26/09/2016	TA0441344101	Bullhead	<i>Cottus gobio</i>	20
7549	White House Fm, Arram Beck.HULLCRS/(LOWER)4	149416	26/09/2016	TA0441344101	Gudgeon	<i>Gobio gobio</i>	1
7549	White House Fm, Arram Beck.HULLCRS/(LOWER)4	149416	26/09/2016	TA0441344101	Pike	<i>Esox lucius</i>	4
7549	White House Fm, Arram Beck.HULLCRS/(LOWER)4	149416	26/09/2016	TA0441344101	Roach	<i>Rutilus rutilus</i>	16
7549	White House Fm, Arram Beck.HULLCRS/(LOWER)4	149416	26/09/2016	TA0441344101	Perch	<i>Perca fluviatilis</i>	32
7549	White House Fm, Arram Beck.HULLCRS/(LOWER)4	149416	26/09/2016	TA0441344101	3-spined stickleback	<i>Gasterosteus aculeatus</i>	4
7549	White House Fm, Arram Beck.HULLCRS/(LOWER)4	149416	26/09/2016	TA0441344101	10-spined stickleback	<i>Pungitius pungitius</i>	11
7549	White House Fm, Arram Beck.HULLCRS/(LOWER)4	149416	26/09/2016	TA0441344101	Stone loach	<i>Barbatula barbatula</i>	13
7549	White House Fm, Arram Beck.HULLCRS/(LOWER)4	149416	26/09/2016	TA0441344101	Dace	<i>Leuciscus leuciscus</i>	1
7549	White House Fm, Arram Beck.HULLCRS/(LOWER)4	149416	26/09/2016	TA0441344101	European eels > elvers	<i>Anguilla anguilla</i>	6
7549	White House Fm, Arram Beck.HULLCRS/(LOWER)4	149416	26/09/2016	TA0441344101	Lampetra sp. > ammocoete	<i>Lampetra</i>	7
7550	Gt Culvert, Holderness Drain HULLCRS/(LOWER)6	149415	22/09/2016	TA1146235587	Pike	<i>Esox lucius</i>	14
7550	Gt Culvert, Holderness Drain HULLCRS/(LOWER)6	149415	22/09/2016	TA1146235587	Roach	<i>Rutilus rutilus</i>	35
7550	Gt Culvert, Holderness Drain HULLCRS/(LOWER)6	149415	22/09/2016	TA1146235587	Gudgeon	<i>Gobio gobio</i>	10
7550	Gt Culvert, Holderness Drain HULLCRS/(LOWER)6	149415	22/09/2016	TA1146235587	3-spined stickleback	<i>Gasterosteus aculeatus</i>	2
7550	Gt Culvert, Holderness Drain HULLCRS/(LOWER)6	149415	22/09/2016	TA1146235587	10-spined stickleback	<i>Pungitius pungitius</i>	1
13910	Driffield Road Layby	149782	12/10/2016	TA0184949746	Brown / sea trout	<i>Salmo trutta</i>	6
13910	Driffield Road Layby	149782	12/10/2016	TA0184949746	European eels > elvers	<i>Anguilla anguilla</i>	2
13910	Driffield Road Layby	149782	12/10/2016	TA0184949746	Lampetra sp. ammocoetes	<i>Lampetra</i>	1
13910	Driffield Road Layby	149782	12/10/2016	TA0184949746	3-spined stickleback	<i>Gasterosteus aculeatus</i>	10
13910	Driffield Road Layby	149782	12/10/2016	TA0184949746	Bullhead	<i>Cottus gobio</i>	4
13912	Bridge House Farm	149768	12/10/2016	TA0375349058	Brown / sea trout	<i>Salmo trutta</i>	4
13912	Bridge House Farm	149768	12/10/2016	TA0375349058	Bullhead	<i>Cottus gobio</i>	3
13912	Bridge House Farm	149768	12/10/2016	TA0375349058	3-spined stickleback	<i>Gasterosteus aculeatus</i>	2
13912	Bridge House Farm	161625	13/10/2022	TA0377849048	Brown / sea trout	<i>Salmo trutta</i>	8
13912	Bridge House Farm	161625	13/10/2022	TA0377849048	Chub	<i>Leuciscus cephalus</i>	3
13912	Bridge House Farm	161625	13/10/2022	TA0377849048	Dace	<i>Leuciscus leuciscus</i>	2
13912	Bridge House Farm	161625	13/10/2022	TA0377849048	Gudgeon	<i>Gobio gobio</i>	1
13912	Bridge House Farm	161625	13/10/2022	TA0377849048	Perch	<i>Perca fluviatilis</i>	7
13912	Bridge House Farm	161625	13/10/2022	TA0377849048	Roach	<i>Rutilus rutilus</i>	18
13912	Bridge House Farm	161625	13/10/2022	TA0377849048	Stone loach	<i>Barbatula barbatula</i>	
13924	Confluence of Scarborough and Bryan Mills Becks	149402	25/09/2016	TA0274946660	Brown / sea trout	<i>Salmo trutta</i>	4
13924	Confluence of Scarborough and Bryan Mills Becks	149402	25/09/2016	TA0274946660	European eels > elvers	<i>Anguilla anguilla</i>	2
13924	Confluence of Scarborough and Bryan Mills Becks	149402	25/09/2016	TA0274946660	Bullhead	<i>Cottus gobio</i>	11
13924	Confluence of Scarborough and Bryan Mills Becks	149402	25/09/2016	TA0274946660	Lampetra sp. > ammocoete	<i>Lampetra</i>	2
13924	Confluence of Scarborough and Bryan Mills Becks	149402	25/09/2016	TA0274946660	3-spined stickleback	<i>Gasterosteus aculeatus</i>	22
13924	Confluence of Scarborough and Bryan Mills Becks	149402	25/09/2016	TA0274946660	Stone loach	<i>Barbatula barbatula</i>	2
17390	Confluence with the River Hull	161624	13/10/2022	TA0608647382	Brown / sea trout	<i>Salmo trutta</i>	2
17390	Confluence with the River Hull	161624	13/10/2022	TA0608647382	Grayling	<i>Thymallus thymallus</i>	2
17390	Confluence with the River Hull	161624	13/10/2022	TA0608647382	Perch	<i>Perca fluviatilis</i>	7
17390	Confluence with the River Hull	161624	13/10/2022	TA0608647382	Dace	<i>Leuciscus leuciscus</i>	1

Site ID	Site Name	Survey ID	Survey Date	Survey NGR	Species - common name	Scientific name	Total caught
17390	Confluence with the River Hull	161624	13/10/2022	TA0608647382	Roach	<i>Rutilus rutilus</i>	1
17390	Confluence with the River Hull	161624	13/10/2022	TA0608647382	European eels > elvers	<i>Anguilla anguilla</i>	3
17390	Confluence with the River Hull	161624	13/10/2022	TA0608647382	3-spined stickleback	<i>Gasterosteus aculeatus</i>	
37666	Beverley and Barmston Drain at Clough Road Hull	144850	01/06/2015	TA0913331280	Roach	<i>Rutilus rutilus</i>	163
37666	Beverley and Barmston Drain at Clough Road Hull	144850	01/06/2015	TA0913331280	Perch	<i>Perca fluviatilis</i>	8
37666	Beverley and Barmston Drain at Clough Road Hull	144850	01/06/2015	TA0913331280	Pike	<i>Esox lucius</i>	3
37666	Beverley and Barmston Drain at Clough Road Hull	144850	01/06/2015	TA0913331280	European eels > elvers	<i>Anguilla anguilla</i>	2
37666	Beverley and Barmston Drain at Clough Road Hull	150483	05/06/2017	TA0913331280	Perch	<i>Perca fluviatilis</i>	5
37666	Beverley and Barmston Drain at Clough Road Hull	150483	05/06/2017	TA0913331280	Pike	<i>Esox lucius</i>	12
37666	Beverley and Barmston Drain at Clough Road Hull	150483	05/06/2017	TA0913331280	Roach	<i>Rutilus rutilus</i>	7
37666	Beverley and Barmston Drain at Clough Road Hull	150483	05/06/2017	TA0913331280	European eels > elvers	<i>Anguilla anguilla</i>	4
37666	Beverley and Barmston Drain at Clough Road Hull	154584	04/06/2019	TA0913331280	Perch	<i>Perca fluviatilis</i>	2
37666	Beverley and Barmston Drain at Clough Road Hull	154584	04/06/2019	TA0913331280	Pike	<i>Esox lucius</i>	1
37666	Beverley and Barmston Drain at Clough Road Hull	154584	04/06/2019	TA0913331280	Roach	<i>Rutilus rutilus</i>	24
37666	Beverley and Barmston Drain at Clough Road Hull	154584	04/06/2019	TA0913331280	European eels > elvers	<i>Anguilla anguilla</i>	1
37666	Beverley and Barmston Drain at Clough Road Hull	162403	08/06/2023	TA0914931236	Roach	<i>Rutilus rutilus</i>	3
37666	Beverley and Barmston Drain at Clough Road Hull	162403	08/06/2023	TA0914931236	European eel	<i>Anguilla anguilla</i>	1
37706	Beverley and Barmston Drain at Clough Road	149526	28/09/2016	TA0913331282	Roach	<i>Rutilus rutilus</i>	1
37706	Beverley and Barmston Drain at Clough Road	149526	28/09/2016	TA0913331282	Pike	<i>Esox lucius</i>	1
37706	Beverley and Barmston Drain at Clough Road	149526	28/09/2016	TA0913331282	European eels > elvers	<i>Anguilla anguilla</i>	4
37706	Beverley and Barmston Drain at Clough Road	150484	05/06/2017	TA0913331282	Roach	<i>Rutilus rutilus</i>	7
37706	Beverley and Barmston Drain at Clough Road	150484	05/06/2017	TA0913331282	Pike	<i>Esox lucius</i>	12
37706	Beverley and Barmston Drain at Clough Road	150484	05/06/2017	TA0913331282	Perch	<i>Perca fluviatilis</i>	6
37706	Beverley and Barmston Drain at Clough Road	150484	05/06/2017	TA0913331282	European eels > elvers	<i>Anguilla anguilla</i>	4
38266	Watton beck at Bridge House Farm	144857	05/06/2015	TA0375349058	Brown / sea trout	<i>Salmo trutta</i>	9
38266	Watton beck at Bridge House Farm	144857	05/06/2015	TA0375349058	Flounder	<i>Platichthys flesus</i>	2
38266	Watton beck at Bridge House Farm	144857	05/06/2015	TA0375349058	European eels > elvers	<i>Anguilla anguilla</i>	6
38266	Watton beck at Bridge House Farm	144857	05/06/2015	TA0375349058	Minnow	<i>Phoxinus phoxinus</i>	12
38266	Watton beck at Bridge House Farm	144857	05/06/2015	TA0375349058	Grayling	<i>Thymallus thymallus</i>	1
38266	Watton beck at Bridge House Farm	144857	05/06/2015	TA0375349058	Bullhead	<i>Cottus gobio</i>	14
38266	Watton beck at Bridge House Farm	144857	05/06/2015	TA0375349058	Stone loach	<i>Barbatula barbatula</i>	18
38266	Watton beck at Bridge House Farm	144857	05/06/2015	TA0375349058	3-spined stickleback	<i>Gasterosteus aculeatus</i>	8
38266	Watton beck at Bridge House Farm	144857	05/06/2015	TA0375349058	10-spined stickleback	<i>Pungitius pungitius</i>	1
38266	Watton beck at Bridge House Farm	144857	05/06/2015	TA0375349058	Lamprey sp.	<i>Petromyzontidae</i>	22
38266	Watton beck at Bridge House Farm	150549	12/06/2017	TA0374349063	Brown / sea trout	<i>Salmo trutta</i>	34
38266	Watton beck at Bridge House Farm	150549	12/06/2017	TA0374349063	Perch	<i>Perca fluviatilis</i>	1
38266	Watton beck at Bridge House Farm	150549	12/06/2017	TA0374349063	European eels > elvers	<i>Anguilla anguilla</i>	12
38266	Watton beck at Bridge House Farm	150549	12/06/2017	TA0374349063	Lampetra sp.	<i>Lampetra</i>	9
38266	Watton beck at Bridge House Farm	150549	12/06/2017	TA0374349063	Stone loach	<i>Barbatula barbatula</i>	9
38266	Watton beck at Bridge House Farm	150549	12/06/2017	TA0374349063	Bullhead	<i>Cottus gobio</i>	5
38266	Watton beck at Bridge House Farm	150549	12/06/2017	TA0374349063	3-spined stickleback	<i>Gasterosteus aculeatus</i>	8
38266	Watton beck at Bridge House Farm	150549	12/06/2017	TA0374349063	Grayling	<i>Thymallus thymallus</i>	1
38266	Watton beck at Bridge House Farm	154586	05/06/2019	TA0374349063	Brown / sea trout	<i>Salmo trutta</i>	18
38266	Watton beck at Bridge House Farm	154586	05/06/2019	TA0374349063	Perch	<i>Perca fluviatilis</i>	2
38266	Watton beck at Bridge House Farm	154586	05/06/2019	TA0374349063	Bullhead	<i>Cottus gobio</i>	2
38266	Watton beck at Bridge House Farm	154586	05/06/2019	TA0374349063	Stone loach	<i>Barbatula barbatula</i>	1
38266	Watton beck at Bridge House Farm	154586	05/06/2019	TA0374349063	3-spined stickleback	<i>Gasterosteus aculeatus</i>	1
38266	Watton beck at Bridge House Farm	154586	05/06/2019	TA0374349063	European eels > elvers	<i>Anguilla anguilla</i>	1
38266	Watton beck at Bridge House Farm	154586	05/06/2019	TA0374349063	Pike	<i>Esox lucius</i>	1
38266	Watton beck at Bridge House Farm	159947	12/07/2021	TA0374349063	European eels > elvers	<i>Anguilla anguilla</i>	1
38266	Watton beck at Bridge House Farm	159947	12/07/2021	TA0374349063	Stone loach	<i>Barbatula barbatula</i>	1
38266	Watton beck at Bridge House Farm	159947	12/07/2021	TA0374349063	3-spined stickleback	<i>Gasterosteus aculeatus</i>	2
38266	Watton beck at Bridge House Farm	159947	12/07/2021	TA0374349063	Brown / sea trout	<i>Salmo trutta</i>	12
38266	Watton beck at Bridge House Farm	162398	05/06/2023	TA0378449044	Perch	<i>Perca fluviatilis</i>	2
38266	Watton beck at Bridge House Farm	162398	05/06/2023	TA0378449044	Pike	<i>Esox lucius</i>	1
38266	Watton beck at Bridge House Farm	162398	05/06/2023	TA0378449044	European eels > elvers	<i>Anguilla anguilla</i>	1
38266	Watton beck at Bridge House Farm	162398	05/06/2023	TA0378449044	Brown / sea trout	<i>Salmo trutta</i>	4

Site ID	Site Name	Survey ID	Survey Date	Survey NGR	Species - common name	Scientific name	Total caught
38266	Watton beck at Bridge House Farm	162398	05/06/2023	TA0378449044	Bullhead	<i>Cottus gobio</i>	
38270	Monk Dike at A1035	144855	02/06/2015	TA1069243705	10-spined stickleback	<i>Pungitius pungitius</i>	2
38270	Monk Dike at A1035	144855	02/06/2015	TA1069243705	3-spined stickleback	<i>Gasterosteus aculeatus</i>	29
38270	Monk Dike at A1035	144855	02/06/2015	TA1069243705	Stone loach	<i>Barbatula barbatula</i>	6
38270	Monk Dike at A1035	150554	14/06/2017	TA1068043787	3-spined stickleback	<i>Gasterosteus aculeatus</i>	8
38270	Monk Dike at A1035	150554	14/06/2017	TA1068043787	Stone loach	<i>Barbatula barbatula</i>	1
40267	Arram beck	150546	12/06/2017	TA0274946660	European eels > elvers	<i>Anguilla anguilla</i>	7
40267	Arram beck	150546	12/06/2017	TA0274946660	Brown / sea trout	<i>Salmo trutta</i>	14
40267	Arram beck	150546	12/06/2017	TA0274946660	Perch	<i>Perca fluviatilis</i>	3
40267	Arram beck	150546	12/06/2017	TA0274946660	Lamprey sp. ammocoetes	<i>Petromyzontidae</i>	39
40267	Arram beck	150546	12/06/2017	TA0274946660	Grayling	<i>Thymallus thymallus</i>	1
40267	Arram beck	150546	12/06/2017	TA0274946660	3-spined stickleback	<i>Gasterosteus aculeatus</i>	4
40267	Arram beck	150546	12/06/2017	TA0274946660	Bullhead	<i>Cottus gobio</i>	18
40267	Arram beck	150546	12/06/2017	TA0274946660	Flounder	<i>Platichthys flesus</i>	2
40267	Arram beck	154588	05/06/2019	TA0274946660	3-spined stickleback	<i>Gasterosteus aculeatus</i>	9
40267	Arram beck	154588	05/06/2019	TA0274946660	Bullhead	<i>Cottus gobio</i>	12
40267	Arram beck	154588	05/06/2019	TA0274946660	European eels > elvers	<i>Anguilla anguilla</i>	4
40267	Arram beck	154588	05/06/2019	TA0274946660	Brown / sea trout	<i>Salmo trutta</i>	10
40267	Arram beck	154588	05/06/2019	TA0274946660	Perch	<i>Perca fluviatilis</i>	3
40267	Arram beck	154588	05/06/2019	TA0274946660	Lampetra sp. ammocoetes	<i>Lampetra</i>	2
40267	Arram beck	154588	05/06/2019	TA0274946660	Stone loach	<i>Barbatula barbatula</i>	1
40267	Arram beck	159944	13/07/2021	TA0274946660	Brown / sea trout	<i>Salmo trutta</i>	10
40267	Arram beck	159944	13/07/2021	TA0274946660	Grayling	<i>Thymallus thymallus</i>	4
40267	Arram beck	159944	13/07/2021	TA0274946660	European eels > elvers	<i>Anguilla anguilla</i>	6
40267	Arram beck	159944	13/07/2021	TA0274946660	10-spined stickleback	<i>Pungitius pungitius</i>	1
40267	Arram beck	159944	13/07/2021	TA0274946660	Bullhead	<i>Cottus gobio</i>	6
40267	Arram beck	159944	13/07/2021	TA0274946660	Roach	<i>Rutilus rutilus</i>	2
40267	Arram beck	159944	13/07/2021	TA0274946660	Flounder	<i>Platichthys flesus</i>	2
40267	Arram beck	162397	05/06/2023	TA0275446660	Roach	<i>Rutilus rutilus</i>	73
40267	Arram beck	162397	05/06/2023	TA0275446660	Perch	<i>Perca fluviatilis</i>	1
40267	Arram beck	162397	05/06/2023	TA0275446660	Pike	<i>Esox lucius</i>	2
40267	Arram beck	162397	05/06/2023	TA0275446660	3-spined stickleback	<i>Gasterosteus aculeatus</i>	
40267	Arram beck	162397	05/06/2023	TA0275446660	Brown / sea trout	<i>Salmo trutta</i>	1
40267	Arram beck	162397	05/06/2023	TA0275446660	Lampetra sp. > ammocoete	<i>Lampetra</i>	2
62823	Wilfholme Pumps - Fry Survey	146332	21/08/2015	TA0680747592	3-spined stickleback	<i>Gasterosteus aculeatus</i>	267
62823	Wilfholme Pumps - Fry Survey	146332	21/08/2015	TA0680747592	Roach	<i>Rutilus rutilus</i>	13
62823	Wilfholme Pumps - Fry Survey	146332	21/08/2015	TA0680747592	Bullhead	<i>Cottus gobio</i>	1
62823	Wilfholme Pumps - Fry Survey	146332	21/08/2015	TA0680747592	10-spined stickleback	<i>Pungitius pungitius</i>	2
62823	Wilfholme Pumps - Fry Survey	146332	21/08/2015	TA0680747592	Perch	<i>Perca fluviatilis</i>	2
62823	Wilfholme Pumps - Fry Survey	146332	21/08/2015	TA0680747592	Stone loach	<i>Barbatula barbatula</i>	2
66512	Scorborough Beck at Scarborough	149401	25/09/2016	TA0136345397	Pike	<i>Esox lucius</i>	3
66512	Scorborough Beck at Scarborough	149401	25/09/2016	TA0136345397	Perch	<i>Perca fluviatilis</i>	1
66512	Scorborough Beck at Scarborough	149401	25/09/2016	TA0136345397	Brown / sea trout	<i>Salmo trutta</i>	5
66512	Scorborough Beck at Scarborough	149401	25/09/2016	TA0136345397	3-spined stickleback	<i>Gasterosteus aculeatus</i>	1
66512	Scorborough Beck at Scarborough	149401	25/09/2016	TA0136345397	Bullhead	<i>Cottus gobio</i>	6
66512	Scorborough Beck at Scarborough	149401	25/09/2016	TA0136345397	Lampetra sp. > ammocoete	<i>Lampetra</i>	1
66513	Bryan Mills Beck at Farm Bridge	149404	25/09/2016	TA0154346333	3-spined stickleback	<i>Gasterosteus aculeatus</i>	5
66513	Bryan Mills Beck at Farm Bridge	149404	25/09/2016	TA0154346333	Perch	<i>Perca fluviatilis</i>	1
66513	Bryan Mills Beck at Farm Bridge	149404	25/09/2016	TA0154346333	Bullhead	<i>Cottus gobio</i>	8
66513	Bryan Mills Beck at Farm Bridge	149404	25/09/2016	TA0154346333	Brown / sea trout	<i>Salmo trutta</i>	7



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