

Report No. B4027D/COPE/APPENDIXA3  
~~April 2009~~ November 2011

## **MERSEY GATEWAY PROJECT**

### **UPPER MERSEY ESTUARINE ECOLOGY MONITORING PLAN**

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## 1. INTRODUCTION

### 1.1 General

- 1.1.1 As part of the proposals to construct a second road crossing of the River Mersey between Widnes and Runcorn – the Mersey Gateway Project (the “Project”), a series of applications have been made for orders authorising works within the River Mersey and upon land adjacent to the River. ~~These applications have been accompanied by an Environmental Statement (ES).~~
- 1.1.2 A **Construction and Operation code of Practice for Environmental management (COPE)** has been developed for the Project to define the measures required to mitigate and monitor the construction and operation of the Project **including the proposals contained in the Further Applications (hereafter referred to as the “Project including the Proposals”)** to protect the environment. The COPE covers specific regulatory, legislative and best practice requirements. It also provides for measures set out in the ~~Project’s~~ **Further Applications ES**. **The COPE sits within the framework of the Project Environmental Management Plan (EMP).**
- 1.1.3 **The Project including the Proposals and their potential impacts on ecology have been considered in the Terrestrial and Avian, and Aquatic Ecology chapters of the Further Applications ES.**
- 1.1.4 In considering the applications and the **Further Applications ES**, Natural England (NE) and the Environment Agency (EA) have commented on the proposals for ecological monitoring in the Upper Mersey Estuary Local Wildlife Site (LWS). This has resulted in the agreement to secure the ecological monitoring of this environment.
- 1.1.5 Appendix A of the COPE comprises a series of monitoring plans for the Project **including the Proposals**, of which this document is one, which have been developed as a result of consultation on application **and consideration of the Further Applications ES** as described above.
- 1.1.6 The Upper Mersey Estuarine Ecology Monitoring Plan is expected to be delivered by the ~~Concessionaire~~ **Project Company**, who will construct the Project **including the Proposals**, on behalf of Halton Borough Council (~~HBC~~ **“the Council”**). This document comprises a draft proposal for the monitoring of the ecology of the Upper Mersey Estuary both during construction and for an appropriate period following completion of the construction. Its content will be the subject of agreements between ~~HBC~~ **the Council**, NE and the EA.
- 1.1.7 The details set out within these monitoring plans will be secured through relevant planning conditions and/or the implementation of the **Construction Environment Management Plan (CEMP)** and the **Biodiversity Management Plan (BDMP)** for the Project **including the Proposals**.

## 1.2 Proposed Approach

- 1.2.1 This estuarine ecology monitoring plan, drawn up by Gifford, ERAP and HBC the Council, comprises a Monitoring Report (this document), a Monitoring Framework (Appendix A) and an Exceptions Plan (Appendix B).
- 1.2.2 The Monitoring Framework (Appendix A) has been sub-divided into monitoring required before, during and after construction. Ecological monitoring within the estuary focuses on two key ecological features including; birds and saltmarsh habitats.
- 1.2.3 The aim of the framework is as follows:
- Establish current ecological baseline building upon the results of the Further Applications ES;
  - Ensure birds and saltmarsh habitats within the Upper Mersey Estuary are protected as far as possible during construction and that all works are undertaken in a sensitive manner;
  - Prevent knock-on effects to downstream designated sites and species which depend on these habitats;
  - Monitor the success of the mitigation measures adopted; and
  - Inform long term management plans to conserve the estuarine habitats.

## 2. PROPOSED UPPER MERSEY ESTUARINE ECOLOGY MONITORING

### 2.1 Framework and Stakeholder Involvement

- 2.1.1 It is proposed that ecological monitoring be undertaken prior to, during and after construction of the Project. It is estimated that construction works within the River Mersey itself will commence in ~~2012~~ 2013 (construction start date) and be ongoing for 3 years. It is estimated that the ecological mitigation package to be provided within the Upper Mersey Estuary (as set out in the COPE and BDMP) will take up to 6 years to develop and establish and to begin to deliver the forecast ecological benefits following completion of construction. The total timeframe of the estuarine ecology monitoring plan will therefore be 6 years following completion of construction, giving a total survey period of 13 years (i.e. from 2009 onwards). Upper Mersey Estuarine surveys have begun in 2009 and are listed in Table 1.

**Table 1 – Upper Mersey Estuarine surveys carried out between 2009 and 2011**

Date	Title
2009 -2011	Breeding Bird Surveys
2009 - 2011	Low Water Counts
2010	Invertebrate saltmarsh survey on Widnes Warth
2011	NVC Survey

- 2.1.2 This document is part of the monitoring plan requirements to which HBC the Council, NE and the EA are party. Information produced as part of the monitoring agreement will be supplied to all parties to the Agreement. The information may be supplied on behalf of HBC the Council by the Concessionaire appointed to build and operate the Project.

### 2.2 Draft Upper Mersey Estuarine Ecology Monitoring Plan

- 2.2.1 This monitoring plan covers a period of 13 years, including both the pre construction surveys (estimated ~~at 4~~ at 5 years), in-river construction works (estimated at 3 year) and post-construction phases (up to 6 years).
- 2.2.2 The Monitoring Framework (Appendix A) covers a series of ecological features, monitoring requirements, timescales and frequencies. It comprises a framework of monitoring techniques to be undertaken over the specified monitoring periods. The Monitoring Framework also includes details of the trigger levels that shall be used to initiate the Exceptions Plan (Appendix B).
- 2.2.3 The Exceptions Plan shall consist of a procedure, trigger levels and mitigation measures to mitigate effects and to reflect the requirements of the Monitoring Framework. Exceedence of the triggers identified would result in the initiation of an Exceptions Plan. An outline Exceptions Plan is included at Appendix B of this document, the details of this plan shall be informed by the Monitoring Framework and worked up by the Concessionaire. The exceedance of these triggers would be identified using the results of survey undertaken pre, during and after construction.

## 2.3 Components of the Monitoring Plan

- 2.3.1 The two key ecological receptors (or components) within the Upper Mersey estuarine environment that will be monitored are:
- Birds; and
  - Saltmarsh Habitat (including intertidal zones).

### Location

- 2.3.2 To provide data for the two components to be assessed, a series of monitoring techniques will be used at locations within the mitigation boundary (i.e. 200 metres from the line of the new bridge forming part of the Project). The exact monitoring locations will be proposed in consultation with NE and the ~~HBC~~ **Council** Conservation Office following appointment of the ~~Concessionaire~~ **Project Company** and prior to submission of this plan for approval by ~~HBC~~ **Council**.

### Survey Information

#### *Pre Construction Monitoring*

- 2.3.3 Prior to construction bird and habitat surveys shall be undertaken within the Upper Mersey Estuary to ensure a current baseline is established against which the effects of the Project **including the Proposals** and the success of the estuarine mitigation package can be measured. **Monitoring of the** ~~The~~ baseline ecological features of the estuarine environment **began in 2009 and will continue until the start of the construction period** ~~are proposed to be monitored between 2009 and 2012.~~
- 2.3.4 Pre construction baseline monitoring surveys shall comprise the following surveys:
- Bird Surveys:** Monthly bird breeding, wintering and resident bird surveys undertaken in line with the Common Bird Census (CBC) methodologies. This shall involve monthly walked transects **including** along the line of the new bridge corridor recording bird presence and bird activity on the saltmarshes and within the intertidal zones;
  - Saltmarsh Habitat:** One pre-construction National Vegetation Classification (NVC) survey shall be undertaken within the limits of land to be acquired or used during flowering season (mid to late summer). This will enable all NVC communities to be identified both in the field and by analysis of the recorded DAFOR<sup>1</sup> and percentage cover observations for each species. Other important NVC community identification factors, in addition to species composition, shall also be monitored. These include factors such as drainage, habitat conditions, soil type, management techniques and geographical information. **An NVC survey was carried out in July 2011.**
- 2.3.5 In addition, should vegetation in the construction corridor need to be removed within the bird breeding season<sup>2</sup> it shall be checked for evidence of breeding birds. This shall ensure compliance with Part 1 of the Wildlife and Countryside Act (1981) which makes it an offence to intentionally kill, injure or take any species of wild bird, and to take, damage or destroy their nests or eggs. Should breeding birds be identified vegetation clearance will need to be stopped until any nestlings have left the nest. This survey shall be undertaken in advance of clearance on a "site by site" basis by a suitably qualified ornithologist.

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<sup>1</sup> Dominant, Abundant, Frequent, Occasional or Rare

<sup>2</sup> The bird breeding season runs from March to September inclusive.

- 2.3.6 Prior to adoption of the estuarine ecological mitigation package and implementation of any grazing regime the suitability of saltmarsh habitat for use for grazing stock shall be verified. This shall be undertaken through a grass and forage survey which shall be designed to ensure that the habitat is suitable for the proposed grazing stock. The output of this survey shall inform the grazing specification implemented as part of the Upper Mersey Estuary mitigation package.

#### *Monitoring During Construction*

- 2.3.7 Currently, it is estimated that the in-river works shall take 3 years to complete. During this period, ecological surveillance (completed by an ecological walkover) shall be undertaken on a weekly basis as part of the **CEMP** review procedure. This shall involve a visual inspection of all habitats within the construction corridor to ensure that the works are being undertaken in a sensitive manner and that the saltmarsh habitat is not adversely affected. Visual inspections shall identify evidence of physical changes such as compaction, rutting and depressions. A method statement will be agreed with the **HBC Council** Conservation Office prior to construction detailing sensitive methods of working and implemented through the **CEMP**.

#### *Post Construction Monitoring*

- 2.3.8 To monitor the success of ecological mitigation and to inform the long term management of the Upper Mersey Estuary environment a 6 year post construction monitoring regime shall be adopted focusing on the two key estuarine ecological receptors; birds and saltmarsh habitat.
- 2.3.9 Monthly bird surveys shall be undertaken in line with the CBC methods (described at Section 2.3.4 (a)) for three years following completion of construction within the Estuary. These surveys ~~will~~ shall be undertaken in tandem with annual Wetland Bird Surveys (WeBS) and high tides to ensure accurate and comparable survey results. This survey data shall be collected ~~within the limits of land to be acquired or used.~~ from Widnes Warth and Astmoor saltmarshes, Astmoor lagoon, Wigg Island and the Intertidal areas.
- 2.3.10 To monitor the success of ecological mitigation implemented in the Upper Mersey Estuary that annual NVC surveys shall be undertaken over a 6 year period following construction of the new bridge. These shall be undertaken in line with the methods described at Section 2.3.4 (b) and within the limits of land to be acquired or used. To compliment the results of the annual NVC surveys pool, creek and scrape systems shall be identified within this study area and cross sections produced to demonstrate the continued development of scrapes in line with specifications set out in the **BDMP**.
- 2.3.11 In line with the Aquatic Ecology Monitoring Plan (B4027D/COPE/APPENDIXB4) annual invertebrate sampling shall be undertaken in the water features within the limits of land to be acquired or used. As part of the Hydrodynamic Monitoring Plan (B4027D/COPE/APPENDIXB1) geomorphological processes within the estuary shall also be monitored. Monitoring information obtained on aquatic and morphology changes within the estuary shall be considered upon review of the ecological monitoring results.

## **2.4 Exceptions Plan**

- 2.4.1 At this stage, the Exceptions Plan comprises a flow chart showing the procedures to be implemented should the trigger levels listed in this report are exceeded. This is shown in Appendix B. The details of this plan are to be developed by the Concessionaire in line with the requirements of the Monitoring Framework.

2.4.2 The Exceptions Plan shall consist of a series of steps to facilitate remediation should any triggers discussed in the Monitoring Framework be exceeded within the Upper Mersey Estuary during either the construction or post-construction phase.

2.4.3 The Exceptions Plan shall consist of three potential actions:

Level	Action Type
1	Continuous review and monitoring of change
2	Change and/or increase to the frequency of monitoring
3	Intervention

2.4.4 The last category, intervention, could comprise a number of actions as set out in the Monitoring Framework (contained at Appendix A). The exact nature of the intervention (s) shall depend on the exact nature of the effect monitored, but shall aim to minimise adverse effects on ecological components and promote the success of mitigation implemented.

2.4.5 The proposal for a charitable trust to deliver the wider ecological strategy for the Upper Mersey Estuary now has the approval of the Mersey Gateway Executive Board. [The Trust was incorporated in September 2010, and is registered with Companies House and the Charity Commission. It has been specifically created by Halton Borough Council to assist the Project Company to manage its long term environmental planning commitments and its ecological assets, including all the hectares of saltmarsh to be managed for nature conservation purposes on both sides of the estuary.](#) ~~The detailed working of the Trust shall then be set up, and it is envisaged that the monitoring plan for the Project shall be part of this wider delivery mechanism.~~

## 2.5 Reporting

### Pre-Construction Reporting

2.5.1 Baseline ecological data collated in the period leading up to the construction of the Project shall be collated with existing baseline information in a pre-construction ecology survey report. This information shall then inform the proposed mitigation and provide a baseline against which the effects of construction and success of the mitigation implemented can be measured.

### Construction Period Reporting

2.5.2 Routinely, the results of the ecological surveillance shall be reported to the parties to the monitoring agreement. Factual reports shall be prepared on a weekly basis during construction in line with the CEMP requirements.

### Post Construction Reporting

2.5.3 For six years following construction an annual estuarine ecology monitoring report shall be prepared throughout the monitoring period. It is proposed that a stakeholder meeting to receive the monitoring report and discuss the results shall be held annually, [and to be organised by the Mersey Gateway Environmental Trust,](#)

### Exceptions Reporting

2.5.4 Where any exception occurs, this shall be reported as soon as reasonably practicable. At this point, the actions proposed shall also be notified to parties affected.

APPENDIX A: MONITORING FRAMEWORK

Discipline / Phase	Ecological Receptor	How?	Where? Location	When? Frequency	Why?	Type	Intervention level/trigger and linkages	Action (Processes)	Reporting										
Pre Construction	<p><b>1. Birds:</b> Breeding Bird</p> <p><b>2. Saltmarsh Habitat &amp; Intertidal Zones:</b> Vegetation</p> <p><b>2. Saltmarsh Habitat &amp; Intertidal Zones:</b> Grazing Suitability</p> <p><b>2. Saltmarsh Habitat &amp; Intertidal Zones:</b> Grazing Suitability</p>	<p>Breeding, wintering and resident bird surveys. In line with CBC methods. Specific birds to be surveyed include: shelduck, teal, golden plover, lapwing, curlew, dunlin, redshank, skylark and meadow pipit.</p> <p>NVC surveys to be undertaken during appropriate season (mid to late summer).</p> <p>Grass and forage survey</p> <p>Sampling of vegetation and subsequent analysis by appropriate UCAS lab.</p>	<p>Widnes Warth and Astmoor saltmarshes, Astmoor lagoon, Wigg Island. All areas within the limits of land to be acquired or used</p> <p>All areas subject to grazing / management as part of the mitigation strategy and within the limits of land to be acquired or used</p> <p>Upper Mersey Estuary mitigation area proposed for grazing</p> <p>Upper Mersey Estuary mitigation area proposed for grazing</p>	<p>Monthly between March 2009 and start of construction (2008 to 2012)</p> <p>One survey prior to start of construction</p> <p>Single survey prior to implementation of grazing regime</p> <p>Single survey prior to implementation of grazing regime</p>	<p>Update existing baseline information to inform mitigation design and provide monitoring baseline.</p> <p>Ensure botanical database is up to date and to inform ecological management components of Upper Mersey Estuary mitigation strategy and provide monitoring baseline</p> <p>Prior to the introduction of the cattle grazing project to ensure the habitat is suitable for specified stock.</p> <p>To establish whether plant uptake of potentially hazardous materials may have an effect on grazing stock and its end use</p>	<p>Ornithological Surveys</p> <p>NVC Survey</p> <p>Grass and forage survey</p> <p>Chemical analysis</p>	<p>n/a</p> <p>n/a</p> <p>n/a</p> <p>n/a</p>	<p>n/a</p> <p>n/a</p> <p>n/a</p> <p>Regime and cattle type will be modified depending on outcome of analysis</p>	<p>Pre-construction ecology survey report in line with <b>CEMP</b> requirements.</p> <p>Pre-construction ecology survey report and to inform the mitigation elements of the <b>BDMP</b>.</p> <p>Inform the mitigation elements of the <b>BDMP</b>.</p> <p>Inform graziers and inform the mitigation elements of the <b>BDMP</b>.</p>										
										<b>Ecology: Upper Mersey Estuarine Environment</b>									

Discipline / Phase	Ecological Receptor	How?	Where? Location	When? Frequency	Why?	Type	Intervention level/trigger and linkages	Action (Processes)	Reporting
During Construction	<p><b>1. Birds:</b> Breeding / Nesting Birds (only where vegetation is to be removed inside the bird breeding season i.e. March to September inclusive)</p>	Visual inspections by competent ornithologist of all suitable bird breeding habitat to be removed	All areas within the limits of land to be acquired or used	1 week prior to removal of vegetation. To be undertaken in stages in line with construction programme	Ensure compliance with Wildlife and Countryside Act (1981)	Ornithological Survey	Presence of nesting birds within vegetation for removal	Works not permitted in areas where nesting birds are identified as being present. Works delayed until birds have fledged their nest.	Breeding bird survey report to be completed as part of the pre-construction enabling works process implemented under <b>CEMP</b> requirements
	<p><b>1. Birds:</b> Breeding Bird</p>	Breeding, wintering and resident bird surveys. In line with CBC methods. Specific birds to be surveyed include: shelduck, teal, golden plover, lapwing, curlew, dunlin, redshank, skylark and meadow pipit.	Widnes Warth and Astmoor saltmarshes, Astmoor lagoon, and Wigg Island. <del>All areas within the limits of land to be acquired or used</del>	Monthly during construction period	Maintain baseline information to inform mitigation design and provide monitoring baseline.	Ornithological Surveys	n/a	n/a	Reporting on a weekly basis in line with <b>CEMP</b> inspection requirements
Ecology: Upper Mersey Estuarine Environment	<p><b>2. Saltmarsh Habitat</b></p>	Ecological Surveillance. Weekly visual inspections required within works areas in line with CEMP requirements	All areas within the limits of land to be acquired or used	Weekly in line with CEMP reporting requirements	To ensure saltmarsh habitat is not adversely effected by works. Identify adverse effects e.g. evidence of physical changes	Ecological Surveillance	Evidence of physical changes to saltmarsh habitat e.g. rutting, depressions, compaction	In line with methods set out within the method statement to be agreed with <b>HBC Council</b> Conservation Officer and implemented under the <b>CEMP</b> . Sensitive timing of the works, avoidance of sensitive areas (through the use of fencing), implementation of machinery / personnel restrictions.	Reporting on a weekly basis in line with <b>CEMP</b> inspection requirements

Discipline / Phase	Ecological Receptor	How?	Where? Location	When? Frequency	Why?	Type	Intervention level/trigger and linkages	Action (Processes)	Reporting
Post Construction	<p><b>1. Birds:</b> Wading and Wildfowl Birds</p>	<p>Bird surveys in line with WeBS and CBC survey techniques. Specific birds to be surveyed include: shelduck, teal, golden plover, lapwing, curlew, dunlin, redshank, skylark and meadow pipit.</p>	<p>Widnes Warth and Astmoor saltmarshes, Astmoor Island and the Intertidal areas. <del>All areas within the limits of land to be acquired or used</del></p>	<p>Monthly (timings to coincide with high tides and national WeBS survey dates). Monthly surveys ongoing for 3 year after bridge completion.</p>	<p>To monitor the efficacy of the <b>BDMP</b> and Upper Mersey Estuary essential mitigation package. To inform the 20 year management plan process.</p>	<p>Bird surveys</p>	<p>Bird numbers using the area of saltmarsh within the management area are at similar levels to those using the saltmarsh areas as established during the preparation of the ES and the baseline surveys</p>	<p>Use of artificial measures to enhance saltmarsh habitats (water features and vegetation communities). Such measures may include altering cattle grazing regimes and reviewing pool, creek and scrape locations / cross sections.</p>	<p>Post construction monitoring reporting as part of the ongoing <b>BDMP</b> requirements.</p>

Ecology: Upper Mersey Estuarine Environment

Discipline / Phase	Ecological Receptor	How?	Where? Location	When? Frequency	Why?	Type	Intervention level/trigger and linkages	Action (Processes)	Reporting
	<b>2. Saltmarsh Habitat &amp; Intertidal Zones:</b> Water Features	Pool, creek and scrape system cross sections to be prepared as part of NVC surveys	All areas within the limits of land to be acquired or used	One within 12 months of bridge completion. Ongoing surveys at 1 survey every 2 years for 6 years. Review of survey requirements at the 6 year mark.	To monitor the efficacy of the <b>BDMP</b> and Upper Mersey Estuary essential mitigation package. To inform the 20 year management plan process.	Water feature survey	Pools/scrapes and creeks specified as part of the Upper Mersey Estuary mitigation package not formed. Or infilled as a result of tidal processes.	Minor mechanical operations	Post construction monitoring reporting as part of the ongoing <b>BDMP</b> requirements.
	<b>2. Saltmarsh Habitat &amp; Intertidal Zones:</b> Aquatic Invertebrates	Pool, creek and scrape systems to be surveyed for aquatic invertebrate diversity and abundance. Use of netting and scrape techniques. Refer to Aquatic Ecology Monitoring Plan.	All areas within the limits of land to be acquired or used	In line with Aquatic Ecology Monitoring Plan (B4027D/COPE/APPENDIXB4)	To monitor the efficacy of the <b>BDMP</b> and Upper Mersey Estuary essential mitigation package. To inform the 20 year management plan process.	Aquatic invertebrate surveys	Aquatic invertebrate diversity and abundance below levels identified pre construction (baseline surveys).	Minor mechanical operations to improve water feature habitats.	Post construction monitoring reporting as part of the ongoing <b>BDMP</b> requirements.

**APPENDIX B: EXCEPTIONS PLAN**

