LANCASHIRE COUNTY COUNCIL
HODDER WATER MAIN DIVERSION
ECOLOGICAL ASSESSMENT
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This project has been undertaken in accordance with PAA policies and procedures on quality assurance.

Signed:___________________________
CONTENTS

1. INTRODUCTION .................................................................................. 1
2. METHODOLOGY ................................................................................... 2
3. BASELINE DESCRIPTION .................................................................... 3
Habitats ...................................................................................................... 3
Species ........................................................................................................ 4
4. POTENTIAL EFFECTS ........................................................................ 5
5. MITIGATION AND COMPENSATION .................................................. 7
6. CONCLUSIONS .................................................................................... 9
7. REFERENCE .......................................................................................... 10
8. ABBREVIATIONS .................................................................................. 10

TABLES

1   Summary Description of Hedgerows along Route of Proposed Hodder Water Main
    Diversion (described from West to East).................................................. 3

2   Summary of Potential Effects of Proposed Hodder Diversion and Evaluation of
    Features Affected .................................................................................. 6

3   Summary of Residual Effects with Mitigation and Compensation in Place .......... 8

APPENDICES

1   Location and Extent of Proposed Diversion

2   Ecological Constraints

3   Extended Phase 1 Habitat Survey
1. INTRODUCTION

1.1 Penny Anderson Associates (PAA) was commissioned by Costain Limited, on behalf of Lancashire County Council (LCC), to undertake a desk based assessment of the potential ecological effects of the proposed Hodder Water Main Diversion.

1.2 This report presents a summary of baseline conditions derived from a desk based review of existing ecological data, a description of the likely ecological effects of the proposed diversion and recommendations for mitigation and habitat re-instatement.

1.3 The location and extent of the proposed diversion is illustrated in Appendix 1. Running from west to east, the diversion will be in open cut to the point where it turns and bypasses to the south of Bartle Wetlands Biological Heritage Site (BHS) where it will be directionally drilled to the point where it turns again to pass beneath the M55 motorway.

1.4 Open pits will be required at each end of the directional drill section to allow access for drilling.
2. METHODOLOGY

2.1 The desk based review comprised a review of the ecological baseline data presented in the Environmental Statement for the Preston Western Distributor Road (PWDR) scheme (April 2017) and in particular the Ecological Constraints drawing attached at Appendix 2.

2.2 In addition, the Extended Phase 1 Habitat Survey drawing (attached at Appendix 3) was also used to inform the assessment as this contains additional information on hedgerows which is not shown on the Ecological Constraints drawing.

2.3 In addition, a review of aerial photograph was carried out to verify the location and extent of hedgerows and trees which are shown in the Ecological Constraints drawing and Extended Phase 1 Habitat Survey drawing.

2.4 The assessment methodology follows that set out in the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment (2016).
3. BASELINE DESCRIPTION

Habitats

3.1 The route of the proposed water main diversion, described from west to east, passes through arable fields bounded by hedgerows. It then passes through the southern part of Bartle Wetlands BHS, which comprises unmanaged grassland, through several further fields of pasture, also bounded by hedgerows, and ultimately beneath the M55 motorway.

3.2 With the exception of the part of the route that passes through Bartle Wetlands BHS, the arable and pasture fields themselves support no habitat features of particular ecological note. The key habitat features (outside of Bartle Wetlands BHS) that would be affected by the diversion are, therefore, the hedgerows and associated trees which form the field boundaries.

3.3 Running from west to east, the hedgerows are summarised briefly in Table 1 below (data is based on the descriptions in the Environment Statement, Chapter 6 Ecology (April 2017)).

Table 1 Summary Description of Hedgerows along Route of Proposed Hodder Water Main Diversion (described from West to East)

<table>
<thead>
<tr>
<th>Hedgerow Number (if applicable)</th>
<th>Brief Description</th>
<th>Approximate Length Affected</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>H14a</td>
<td>Species-rich hedgerow, containing Tree T21 (Low Potential to support roosting bats)</td>
<td>c.40m</td>
<td>This section falls within the permanent land take for the PWDR. Tree T21 (Low Potential to support roosting bats) is located immediately to the north of the proposed open cut section. Works may fall within Root Protection Zone of this tree.</td>
</tr>
<tr>
<td>Un-numbered hedge</td>
<td>Species-rich hedgerow</td>
<td>c.85m</td>
<td>This section falls within the permanent land take for the PWDR. The section of hedgerow affected is also a Key Bat Severance Route.</td>
</tr>
<tr>
<td>Junction of 2no. un-numbered hedgerows</td>
<td>Species-poor hedgerows</td>
<td>n/a</td>
<td>The diversion would be directionally drilled at this point. No impact on hedgerows.</td>
</tr>
<tr>
<td>Un-numbered hedgerow</td>
<td>Species-rich hedgerow containing Tree TR (Low Potential to support roosting bats)</td>
<td>n/a</td>
<td>From aerial mapping this appears to comprise a double line of hedgerow. The diversion would be directionally drilled at this point. No impact on hedgerow.</td>
</tr>
<tr>
<td>Un-numbered hedgerow</td>
<td>Species-poor hedgerow</td>
<td>n/a</td>
<td>The diversion would be directionally drilled at this point. No impact on hedgerow.</td>
</tr>
</tbody>
</table>
Species

3.4 There are a number of habitat features along the proposed diversion route which may be used by protected or notable species are as follows:

- Bats - there are two trees with Low bat roost potential located in hedgerows close to the proposed route. These are Tree T21 immediately to the north of the diversion, at the western end of the scheme and Tree TR located approximately 35m north of the diversion in a double hedgerow towards the eastern end of the scheme;

- Bat foraging corridor - a section of hedgerow at the western end of the diversion is noted as a Key Bat Severance Location (this section of hedgerow falls within the permanent landtake for the PWDR);

- Great crested newt (*Triturus cristatus*) - the eastern section of the diversion falls within 250m of Pond 20 which is known to support a small population of great crested newts; and,

- Common toad (*Bufo bufo*) - the unmanaged grassland habitat associated with Bartle Wetlands BHS is likely to provide terrestrial habitat for common toad. The highest concentration of toads anywhere on the PWDR scheme was recorded here during surveys in 2015.
4. POTENTIAL EFFECTS

4.1 As described in the Introduction section, much of the proposed diversion would be directionally drilled. This includes the entire section which runs south of the Bartle Wetland BHS, thereby avoiding any impact on the BHS itself and several sections of hedgerow as well as common toad which are likely to utilise terrestrial habitats within the BHS.

4.2 There are no habitat features of note located at the eastern end of the route where it passes beneath the M55 motorway and, in any case, this would also be directionally drilled.

4.3 The key potential effects, therefore, occur at the western end of the diversion and comprise:

- loss of two sections of species rich hedge (c.40m and c.85m)
- loss of a Key Bat Severance Location;
- loss of potential bird nesting and foraging resource associated with the above hedgerows;

4.4 All of the above features fall within the permanent landtake for the PWDR.

4.5 In addition, there would be a minor disturbance to an area of pasture at the eastern end of the scheme to create an access pit to the directional drilled sections, which falls within 250m of Pond 20, containing a small population of great crested newts. This area of work is outside of the permanent landtake for the PWDR.

4.6 The pasture is likely to provide sub-optimal habitat for great crested newt due to a lack of suitable features to provide areas of shelter, although great crested newts may disperse across areas of grassland when moving to and from ponds for breeding in spring and to move into terrestrial and hibernation sites in late summer/autumn.

4.7 A summary of the potential effects of the scheme, an evaluation of the features affected and an overall assessment of the likely significance of the effect is presented in Table 2.
Table 2 Summary of Potential Effects of Proposed Hodder Diversion and Evaluation of Features Affected

<table>
<thead>
<tr>
<th>Habitat/Species</th>
<th>Brief Description</th>
<th>Summary of Effects</th>
<th>Evaluation <em>(based on Environmental Statement Chapter 6, April 2017)</em></th>
<th>Assessment of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>H14a</td>
<td>Species-rich hedgerow and Tree T21</td>
<td>c.40m of hedgerow lost. Works also likely to fall within Root Protection Zone of Tree T21</td>
<td>Species-rich hedgerows are Habitats of Principal Importance (NERC Act 2006). Considered to be of value at a District level.</td>
<td>Significant at a District level</td>
</tr>
<tr>
<td>Un-numbered hedge</td>
<td>Species-rich hedgerow</td>
<td>c.85m of hedgerow lost</td>
<td>Species-rich hedgerows are Habitats of Principal Importance (NERC Act 2006). Considered to be of value at a District level.</td>
<td>Significant at a District level</td>
</tr>
<tr>
<td>Foraging bats</td>
<td>Key Bat Severance Route</td>
<td>c.85m of hedgerow lost (same section as described above)</td>
<td>Foraging bat assemblage considered to be of value at the Local to District level</td>
<td>Significant at a Local to District level</td>
</tr>
<tr>
<td>Nesting birds</td>
<td>Species-rich hedgerows likely to provide a foraging and nesting resource for farmland bird species</td>
<td>c.125m of hedgerow lost (same hedgerows as above)</td>
<td>Nesting bird assemblage considered to be of value at the Local level</td>
<td>Significant at a Local level</td>
</tr>
<tr>
<td>Great crested newt</td>
<td>Sub-optimal terrestrial habitat within 250m of a small population of great crested newts associated with Pond 20 comprising managed pasture</td>
<td>c.40m x 40m disturbance to create access pit to allow access for directional drilling</td>
<td>Great crested newt population considered to be of value at the District level.</td>
<td>Significant at a District level</td>
</tr>
</tbody>
</table>
5. MITIGATION AND COMPENSATION

5.1 The following recommendations are made to avoid or minimise the potential effects on ecology and, where effects cannot be avoided, to provide compensatory habitat re-instatement:

- Working corridor width to be kept to the absolute minimum necessary;

- Sections of hedgerow and trees which will be retained adjacent to the working corridor to be clearly demarcated and safeguarded with appropriate tree protection measures. This applies particularly to Tree T21 located immediately adjacent to the north of the open cut section at the western end of the diversion. If necessary, consideration should be given to use of hand tools only where the open cut is within the Root Protection Zone of Tree T21.

- Removal of sections of hedgerow to be undertaken outside of nesting bird season (March to September inclusive). If this cannot be avoided then a check for nesting birds must be carried out by an ecologist and a suitable stand-off zone retained around any active nests until the young have fledged;

- Hedgerows to be re-instated upon completion of works using suitable native hedgerow species;

- Area of access pit at eastern end of scheme, which is located within 250m of Pond 20 containing a small population of great crested newts, to be subject to precautionary methods of working. Working area to be re-instated to pasture on completion.

5.2 It should be noted that the sections of hedgerow to be lost would ultimately be lost due to the proposed PWDR scheme. However, the above mitigation and compensation measures are proposed in order to ensure that the hedgerows are fully re-instated to their current condition, should the PWDR not proceed.

5.3 A summary of the likely significance of residual effects with the recommended mitigation in place is presented in Table 3.
### Table 3  Summary of Residual Effects with Mitigation and Compensation in Place

<table>
<thead>
<tr>
<th>Habitat/Species</th>
<th>Summary of Effects</th>
<th>Assessment of Significance (without Mitigation)</th>
<th>Proposed Mitigation and Compensation</th>
<th>Residual Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>H14a</td>
<td>c.40m of hedgerow lost. Works also likely to fall within Root Protection Zone of Tree T21</td>
<td>Significant at a District level</td>
<td>Working corridor to be kept to minimum necessary Tree protection measures to be applied to retained section of hedgerow, in particular to T21. Use of hand tools only within Root Protection Zone of Tree T21 if necessary. Hedgerow to be re-instated on completion of work with suitable native species.</td>
<td>Not significant</td>
</tr>
<tr>
<td>Un-numbered hedge</td>
<td>c.85m of hedgerow lost</td>
<td>Significant at a District level</td>
<td>Working corridor to be kept to minimum necessary Tree protection measures to be applied to retained section of hedgerow, in particular to T21 Hedgerow to be re-instated on completion of work with suitable native species.</td>
<td>Not significant</td>
</tr>
<tr>
<td>Foraging bats</td>
<td>c.85m of Key Bat Severance Location lost (same section of hedgerow as described above)</td>
<td>Significant at a Local to District level</td>
<td>Working corridor to be kept to minimum necessary Hedgerow to be re-instated on completion</td>
<td>Not significant</td>
</tr>
<tr>
<td>Nesting birds</td>
<td>c.125m of hedgerow lost (same hedgerows as above)</td>
<td>Significant at a Local level</td>
<td>Working corridor to be kept to minimum necessary Avoid hedgerow between March to September inclusive. If this cannot be avoided then a check for nesting birds must be carried out. Hedgerows to be re-instated upon completion of works.</td>
<td>Not significant</td>
</tr>
<tr>
<td>Great crested newt</td>
<td>c.40m x 40m disturbance to create access pit to allow access for directional drilling</td>
<td>Significant at a District level</td>
<td>Precautionary method of working to be adopted Field to be re-instated on completion.</td>
<td>Not significant</td>
</tr>
</tbody>
</table>
6. CONCLUSIONS

6.1 The proposed diversion is likely to affect a small number of ecological features, particularly at the western end of the proposed route where it will be in open cut. These comprise two sections of species-rich hedgerow and associated foraging bats and nesting birds. The route will be directionally drilled through the Bartle Wetland BHS, with no impact on this habitat or common toad which are likely to be associated with habitats within the BHS. At the eastern end of the route, a small area of pasture which is sub-optimal habitat for a small population of great crested newt would be disturbed to allow for creation of an access pit for directional drilling.

6.2 The overall significance of effects without mitigation or compensation in place is deemed to be significant at the Local to District level.

6.3 Mitigation and compensation measures are proposed to avoid or minimise effects on ecology comprising sensitive timing and methods of working and re-instatement of working areas upon completion.

6.4 With the recommended mitigation and compensation measures in place, the residual effects of the proposed diversion on ecology are considered to be not significant.
7. REFERENCE

CIEEM, 2016. Guidelines for Ecological Impact Assessment in the UK. CIEEM

8. ABBREVIATIONS

BHS Biological Heritage Sites
CIEEM Chartered Institute of Ecology and Environmental Management
LCC Lancashire County Council
NERC Natural Environment and Rural Communities
PAA Penny Anderson Associates Ltd
PWDR Preston Western Distributor Road
APPENDIX 1

Location and Extent of Proposed Diversion
APPENDIX 2

Ecological Constraints
APPENDIX 3

Extended Phase 1 Habitat Survey