

# HEMPYARD BRIDGE, IXWORTH (219)

## Biodiversity Method Statement



January 2024

**Notice**

This document was produced by Milestone Infrastructure for the Hempyard Bridge Project. It will be used to ensure appropriate control measures are implemented throughout the construction phase of this project. This report may not be used by anyone else other than Milestone Infrastructure or Suffolk County Council (SCC) without express permission. In any event, Milestone Infrastructure accepts no liability for any costs or losses arising as a result of the use of or reliance upon the contents of this report.

**Document Control**

Project Name	Hempyard Bridge		
Document Reference	5101354-MIL-SBR-ZZ-RP-LE-7002_S2_P01	Biodiversity	Method Statement
Contract No.	Suffolk Highways		
Project Address	Hempyard Bridge, Ixworth		
Project Start Date	TBC		
Project Duration	TBC		
Prepared By	Richard Hardeman	Sign: [Redacted]	Date: 25/01/2024
Reviewed By	Ann Sherwood	Sign: [Redacted]	Date: 25/01/2024
Approved By	Neil Carter	Sign: [Redacted]	Date: 01/02/2024

**Document History**

Revision	Summary of changes made	Revision by	Revision date
P01	N/A - First Issue	N/A	

# Contents

1. Introduction .....	4
2. Location .....	5
3. Scope of Works.....	5
4. Ecological Constraints.....	9
5. Biodiversity Method Statement.....	14

## 1. Introduction

The existing Hempyard Bridge (SCC bridge code 219) carries a Public Right of Way (Bridleway) over the Black Bourne River located just to the west of the village of Ixworth in Suffolk. This river is classified as 'Main River' by the Environment Agency.

Hempyard Bridge is a three-span masonry arch structure. The central span is 4m, with 1.4m side spans. The bridge has a clear width between parapets of 4.2m at the middle of the bridge and increases towards the bank due to the plan splay of the bridge.

The bridge is Grade I Listed by virtue of being within the curtilage of the nearby Grade I Listed Ixworth Abbey.

The bridge remains open (subject to regular structural inspections) but is in in very poor condition, with severe cracking, spalling and mortar loss evident throughout the structure. The primary cause for concern is the condition of the southwest wingwall where a significant rupture/crack extends through the arch barrel, spandrel wall and parapet. In June 2016 a temporary timber walkway was installed over the bridge as an interim measure to relieve loading effects on the structure, and to enable the bridge to remain open for pedestrians and equestrians.

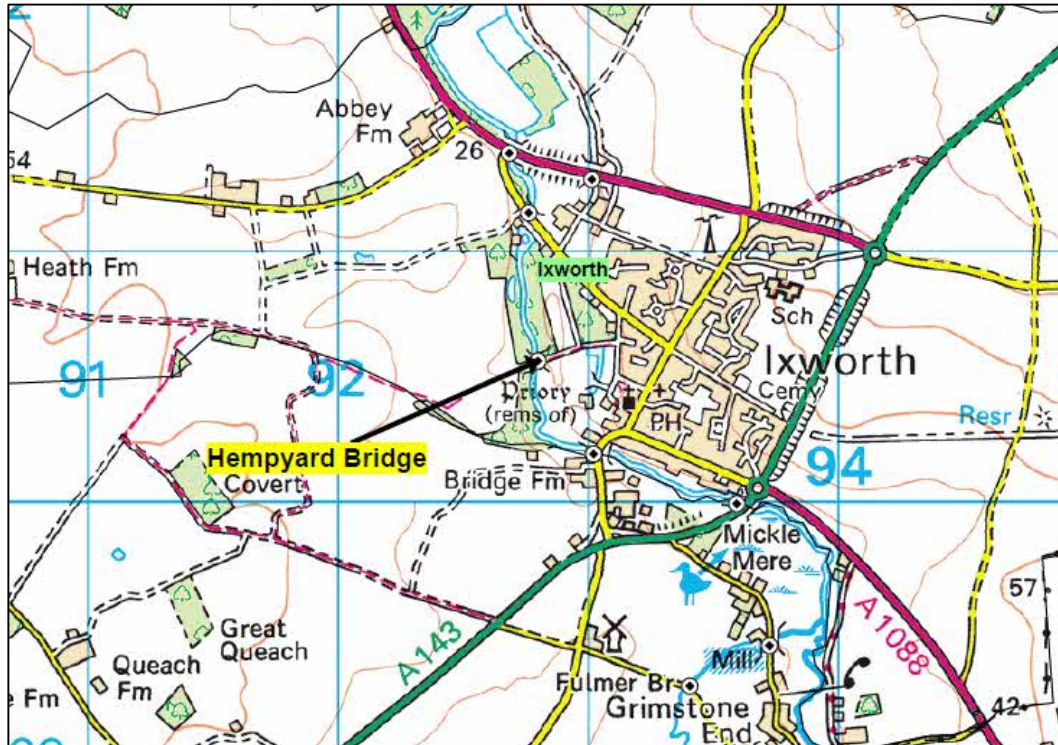
A detailed special inspection was undertaken in October 2017 to determine the extent of the defects. A scheme of repair works has been prepared to rectify the structural defects and improve the condition of the bridge, which will enable the temporary timber walkway to be removed.

Listed Building Consent was issued for the works in May 2022 (Application No: DC/21/2043/LB). Condition 5 of this consent requires a Biodiversity Method Statement for protected and Priority species (bats, otters, nesting birds and water voles). This Biodiversity Method Statement has been drafted to fulfil this planning condition. All works on site will be undertaken in accordance with this Biodiversity Method Statement.

A separate condition of the listed building consent, condition 6, requires a biodiversity enhancement plan. Document 5101354-MIL-SBR-ZZ-RP-LE-7003\_S2\_P01 Biodiversity Enhancement Plan has also been submitted to the local authority.

## 2. Location

Hempyard Bridge is situated to the west of Ixworth within the County of Suffolk. The bridge is located at Grid Ref. TL 92800 70562 and carries a public bridleway over the Black Bourne River from Ixworth to Great Livermere. The bridge is accessed along the bridleway from Commister Lane in Ixworth (nearest postcode to the bridge is IP31 2HF). The location is shown in Figure 1:



**Figure 1: Location Plan of Structure**

Not to Scale

© Crown Copyright. All rights reserved. Suffolk County Council Licence No. 100023395 2018

Access to the site will be from both a farm track that leads to a bridleway off Heath Road, and from the east off Commister Lane. A compound is planned to be located in an agricultural field east of the bridge within the existing cultivated area to avoid the field margins and root protection areas of trees bounding the field. The topsoil will be stripped and stored. The compound will then be constructed using geotextile and 300mm depth of recycled capping material. Temporary trackway is proposed to protect root protection areas. The site location, access routes and compound locations are given within drawing 5101354-MIL-SBR-ZZ-DR-CB-7004 (Appendix A).

### 3. Scope of Works

The works to Hempyard Bridge will include:

- Reconstruction of Southwest wingwall (including excavation of fill material),
- Tying together the wingwalls,
- Repairs to scoured foundations including installation of rip rap protection,
- Replacement of the first ring of bricks under the centre arch,
- Local replacement of missing and damaged/spalled brickwork,
- Brickwork joint raking out and repointing,
- Rebuilding the north end of the East pier,
- Stitching elevation cracks,
- Stitching arch ring cracks,
- Local replacement of individual spalled bricks,
- Patch repairs to render missing from the outside face of the parapets,
- Reconstruction of the retrofitted wingwall buttresses using approved masonry units,
- Removal of existing red brick repairs and reinstatement with approved masonry units,
- Installation of temporary works to support the bridge arches and walls as necessary to enable the works,
- Installation of temporary cofferdam/dewatering works under the bridge to create dry working areas to enable construction of the works in two phases (see Drg. 60-20008-DR-0014 in Appendix B), and
- Removal of the temporary timber walkway from the top of the bridge.

The repair works will be sequenced as follows:

1. Tree and vegetation clearance works around the bridge are to be undertaken in advance of the main construction works to comply with bird nesting season requirements. Tree canopies to be trimmed along bridleway to enable construction access. All tree works are subject to landowner permission (negotiations underway) and the granting of planning permission for tree works in a conservation area (application already submitted). The extent of the vegetation clearance is given

within drawing 5101354-MIL-SBR-ZZ-DR-CB-7008 Site Clearance Advance Works in Appendix A.

2. Site establishment including site compound, access, works extent and bridleway Public Right of Way closure signage (see Drg. 5101354-MIL-SBR-ZZ-DR-CB-7004 in Appendix B).
3. Removal of temporary timber walkway from top of existing bridge.
4. Phase 1 (West) temporary cofferdam installation and western area will be drained to provide a dry working area (see Drg No. 60-20008-DR-0014).
5. Riverbed/arch invert will be cleared of debris and fallen masonry. This will also be undertaken to the river width outside of the temporary works to improve the flow characteristics for the remaining channels.
6. Working platforms will be installed within cofferdam where required for access.
7. Temporary support works will be installed in the western arch (see Drg No. 60-20008-DR-0013).
8. Careful excavation of fill material from the area behind the Southwest wingwall/abutment will be undertaken.
9. Southwest wingwall will be carefully taken down one course at a time. Bricks to be cleaned and stacked safely for re-use.
10. Following inspection of the existing foundations, construct new wingwall foundations and underpinning to abutment as necessary.
11. Remove existing western red brick buttress from the north elevation and reinstate with approved masonry units.
12. Rebuild Southwest wingwall ensuring adequate jointing with the arch ring.
13. Place and compact fill material behind Southwest wingwall/abutment up to existing levels. **NOTE:** Compaction of initial fill above arch to be undertaken by non-mechanical methods.
14. After the Southwest wingwall is repaired and the propping removed, the following repair items can be carried out simultaneously to the western half of the bridge. Some activities will have their own restrictions such as extent of work or a hit and miss basis which will need to be followed:
  - 14.1 Missing and damaged brickwork to the south and north faces of the West pier will be repaired.
  - 14.2 Replacement of accessible spalled areas of brickwork to be undertaken in the central arch.
  - 14.3 Spot replacement of spalled bricks.
  - 14.4 The intrados, abutment wall and West pier brick joints will be raked out back to good mortar and repointed.
15. Once the above repairs are complete, stitching of the longitudinal cracking can be undertaken to the arch intrados, abutments, West pier and arch faces.

16. Install tie bars and pattress plates.
17. Install scour protection measures.
18. The temporary works cofferdam will then be moved and installed for the Phase 2 (East) works. The above repair sequence (for relevant items) will be repeated for the eastern half of the bridge.



## 4. Ecological Constraints

### 4.1. Previous Reports and Site Visits

As part of the planning application, Suffolk County Council Natural Environment Ecology Team produced and submitted a Precautionary Method Statement for Ixworth – Hempyard Bridge – Repairs. This document is produced in Appendix B.

Subsequently, 2 bat survey visits have been undertaken:

Nocturnal Bat Surveys and Endoscope Assessment of Hempyard Bridge, Ixworth to Comply with Wildlife Legislation. Survey Dates 9th, 22nd and 24th September 2020 by Adonis Ecology (Appendix B); and

Suffolk Highways, Hempyard Bridge, Ixworth Bat Survey Report, October 2023, by Wardell Armstrong (Appendix B).

A further site visit was undertaken by the Milestone Principal Ecologist and Suffolk Arboricultural Officer on Friday 12<sup>th</sup> January 2024. The aim of this site visit was to reevaluate the constraints identified by Suffolk County Council in 2020, to determine the vegetation clearance required in collaboration with the arboricultural officer, and to determine if any further surveys were required or any other ecological constraints were to be mitigated.

### 4.2. Ecological Constraints

The previous reports and site visits identified a number of constraints for protected species that need to be considered as part of this Biodiversity Method Statement.

#### Bats

This bridge presents itself as having high suitability for bat activity all year round. In 2020, all features suitable for roosting bats were thoroughly searched with an endoscope and no bats were found. The majority of the smaller features were heavily cobwebbed, and no signs or evidence of roosting bats, including bat droppings, were found in or associated with any of the potential roosting features.

In 2023 it was considered that the repair works could pose a very low risk of harm/impact to bats/transient bat roosts, in the unlikely event the bridge is used on an occasional basis by roosting bats. With the impact avoidance measures described in this report completed, it was considered the proposed repairs could proceed with minimal risk of impact to bats, bat roosts or local bat conservation.

A further walkover undertaken in January 2024 assessed the trees that were identified as needing to be removed to protect the integrity of the bridge and accommodate the works. The trees were assessed for roosting bats based on the Bat Conservation Trusts Guidelines 2016. This determined trees that require removal have negligible potential to support roosting bats being young specimens with no obvious cracks, splits or holes.

#### Nesting Birds

The trees to be removed should be undertaken as soon as possible and ideally before the main bird nesting season which is usually considered to be March to September inclusive, therefore before the end of February. Should this not be possible, then nesting bird checks are required within 24hrs of the tree felling. Almost all the trees to be felled have low potential for nesting birds given their age and size but any with ivy covering should be checked.

### **Otter *Lutra lutra***

In 2020 the site was scoped for Otter activity, and this concluded that minor work by or within the watercourse during normal working hours should not result in disturbance of Otters.

As the design has progressed it has been determined that a coffer dam will be used to allow access for the works. This will be used to dewater half of the watercourse by over-pumping. Drawing 60-20008-DR-0014 shows the temporary works set up. During the January 2024 site visit it was determined that an updated Otter survey should be undertaken due to these temporary works and that it has been several years since the last surveys were done.

### **Water Voles *Arvicola amphibius***

In 2020 the site was scoped for water vole activity, and it was concluded that minor work by or within the watercourse during normal working hours should not result in disturbance of water voles.

As the design has progressed it has been determined that a coffer dam, that will be used to allow access for the works. This will be used to dewater half of the watercourse by over-pumping. Drawing 60-20008-DR-0014 shows the temporary works set up. During the January 2024 site visit it was determined that an updated water vole survey should be undertaken due to these temporary works and that it has been several years since the last surveys were done.

### **Invasive Species**

Signal crayfish *Pacifastacus leniusculus* are present at this site within the watercourse. This non-native species is listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). It carries crayfish plague that can be spread to other watercourses where the native white clawed crayfish *Austropotamobius pallipes* may be present if machinery, equipment and footwear are not cleaned thoroughly and proper biosecurity measures are not followed.

### **Great Crested Newts**

There hasn't previously been any assessment for the possible presence of great crested newt *Triturus cristatus* and there are water bodies in close proximity to the access track and works in addition to the river that present potential breeding habitat for this species (if present). The works also lie within the amber risk zone for great crested newts suggesting that there is a risk of encountering newts within the works footprint.

The adjacent habitat (woodland, grassland (except the mown amenity grassland at Beechborough) is ideal for this species. While the works are highly localised around the bridge, access to the bridge may require track matting to be laid to protect tree roots along the PROW for plant to access the bridge. This is still subject to discussion, given that the PROW is a hard surface and only mini diggers/dumpers are likely to be required. Bricks will likely be taken on and off-site using wheelbarrows.

Great crested newts leave ponds from June onwards and forage/shelter in surrounding terrestrial habitats but could easily seek shelter under track matting where gaps allow access. These could be killed with vehicles tracking over the mats (depending on the type of tracking used).

Ideally, if possible, track matting should not be used, otherwise surveys may be required to test the watercourse adjacent to the PROW off Commister Lane. If evidence of great crested newts is found to be present, additional surveys may be required.

### 4.3. Further Surveys

#### Water vole / otter

A re-survey has been recommended and will be undertaken to check the status of the watercourse for these species given that a coffer dam and over-pumping is proposed.

#### Great Crested Newts

There are water bodies in addition to the river that present potential breeding habitat for great crested newts. Great crested newts leave ponds from June onwards and forage/shelter in surrounding terrestrial habitats but could easily seek shelter under track matting where gaps allow access. These could be killed with vehicles tracking over the mats (depending on the type of tracking used). Therefore, it is proposed to sample the water in adjacent watercourses along the PROW from 15th April to test for environmental DNA to determine if newts are present. If this confirms that there are great crested newts present, then if the use of track matting cannot be avoided then the works may be licensable and further surveys will be undertaken.

### 4.4. Relevant Legislation

#### Nesting birds

Nesting birds are protected under the Wildlife & Countryside Act 1981 (as amended). This applies to all wild birds where it is an offence:

- to kill, injure or take any wild bird (subject to certain exceptions).

- to take, damage or destroy a nest whilst it is in use or being built.

- to take or destroy the egg of any wild bird.

NB. Some species are afforded additional protection under this Act where it is also an offence to disturb any wild bird listed on Schedule 1. However, it is highly unlikely that the habitats surrounding the bridges will support any species listed under Schedule 1.

#### Bats

All species of bat are protected under Schedule 2 of The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

It is an offence to:

- Intentionally or deliberately capture, injure or kill bats,

- Intentionally or recklessly disturb a bat while it's in a structure or place of shelter or protection,

- Damage or destroy a breeding or resting place,

- Intentionally or recklessly damage, destroy or obstruct access to a place used for shelter, resting or protection,

Possess, sell, control or transport live or dead bats, or parts of them, unless acquired lawfully.

### **Water voles**

Water voles are protected under the Wildlife & Countryside Act 1981 (as amended) and are afforded full protection under Section 9 of the Act.:

It is an offence to:

Intentionally kill, injure or take (capture) a water vole (Section 9 (1)).

Possess or control a live, or dead water vole, or any part or derivative of a water vole (Section 9 (2)).

Intentionally or recklessly damage or destroy a water vole's place of shelter or protection (Section 9 (4)(a)).

Intentionally or recklessly disturb water voles whilst it is occupying a structure or place which it uses for shelter or protection (Section 9 (4)(b)).

Intentionally or recklessly obstruct access to a water vole's place of shelter or protection (Section 9 (4)(c)), or

Sell, offer for sale, or possessing or transporting for the purpose of sale, any live or dead water vole, or any derivative, or advertising and of these for buying or selling (Section 9 (5))

### **Otters**

Otters are fully protected nationally by the Wildlife and Countryside Act 1981 (as amended) and internationally by the Conservation of Habitats and Species Regulations 2017 (as amended) and (EU Exit) Regulations 2019. It is an offence to.

deliberately kill, injure, disturb, or capture them

damage or destroy their breeding sites and resting places - even if otters are not present

possess, control, or transport them (alive or dead)

It is also an offence under the Wildlife and Countryside Act 1981 to intentionally or recklessly:

disturb otters while they occupy a structure or place used for shelter or protection

obstruct access to a place of shelter or protection

Otters are also listed as rare and most threatened species under Section 41 of the Natural Environment and Rural Communities Act (2006). Local authorities have a duty of care to ensure that species listed under Section 41 are not impacted by proposed works/development.

### **Great Crested Newts**

Great crested newts are protected under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 and (EU Exit) amendments 2020 and under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

It is an offence to:

Intentionally or deliberately capture or kill, or intentionally injure great crested newts.

Deliberately disturb great crested newts or intentionally or recklessly disturb them in a place used for shelter or protection,

Damage or destroy a breeding site or resting place,

Intentionally or recklessly damage, destroy or obstruct access to a place used for shelter or protection,

Possess a great crested newt, or any part of it, unless acquired lawfully,

Sell, barter, exchange or transport or offer for sale great crested newts or parts of them.

## 5. Biodiversity Method Statement

The Milestone Project Ecologist and the on-site Project Manager / Supervisor will ensure that this method statement is implemented on site.

### Bats

To reduce any residual risk of impact to bats and/or bat roosts to negligible, the bridge should be checked again by endoscope immediately prior to works beginning, to ensure no individual bats are present and at risk of harm at the time of the works.

In the unlikely event a bat is found during the pre-works check or during the works, works should be postponed/cease immediately, and the ecologist would advise on how to proceed. This may include a requirement for further nocturnal surveys and/or the need to obtain a Natural England European Protected Species Licence (EPSL) to allow the works to proceed lawfully.

It is considered unlikely that the tree removal works will cause significant disturbance given the very short duration of the tree works, should a roosting/hibernating bat be present. To reduce noise from chainsaws etc. battery-operated equipment should be used or the smaller trees should be cut by hand. It is recommended that all arisings are removed well away from the bridge and the mature poplar tree should these need to be chipped (as chippers are inherently noisy). Alternatively, any arisings could be stacked neatly in the adjacent woodland (subject to landowner approval) to provide additional wildlife habitat or taken off site without being chipped. The short duration of these works is unlikely to disturb roosting bats even if present.

Works to repair the bridge include re-pointing, replacement of red engineering bricks with suitable bricks with some re-building of the wing walls etc. Localised excavations using a small excavator around one of the wing walls of the bridge, are generally considered unlikely to cause significant noise or vibration that would affect roosting bats if present. Provided that bats are confirmed as absent after the recommended endoscope survey, it is unlikely that works of this nature will disturb roosting bats if present elsewhere in the bridge structure where repairs are not required.

### Nesting Birds

The trees to be removed should be undertaken ideally before the main bird nesting season which is usually considered to be March to September inclusive, therefore before the end of February. Should this not be possible, then nesting bird checks are required within 24hrs of the tree felling.

Should, at any time, distressed, agitated or mobbing activity by any bird species be encountered when working upon delivery of this project, the event must be reported to the Ecologists immediately.

### Otter

The outcome of the further ecological surveys for otters and water voles will determine the mitigation requirements for otter including obtaining any relevant licences and consents.

### Water Voles

The outcome of the further ecological surveys for water voles and otters will determine the mitigation requirements for water voles including obtaining any relevant licenses and consents.

### **Great Crested Newts**

If track matting is to be avoided for access to the site, then no further mitigation is required. If track matting is required, then the outcome of the further ecological surveys will determine the mitigation requirements for great crested newts including obtaining any relevant licenses and consents.

### **Invasive Species**

Signal crayfish are known to be present in the river and therefore a Biosecurity Plan has been recommended. This plan is to stop the spread of the lethal crayfish plague to other watercourses. All equipment will be cleaned and washed using Virkon or similar, and a boot wash will be set up on site, as far as practicable.

Any signal crayfish caught in the coffer dam area must be dispatched, signal crayfish are an invasive species and listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

### **Tree Protection**

Trees and shrubs can suffer fatal damage through compaction by vehicles and materials and by excavation work. When establishing site compounds, considering areas for the storage of materials and parking vehicles and plant and in planning routes for any trenches or holes, BS5837:2012 "Trees in Relation to Design, Demolition and Construction. Recommendations" and NJUG Guidelines "Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees" will be followed. Storage will be avoided in root protection areas.

Vehicles or materials will not be stored under the canopy of any tree which is due to remain on site nor on the grass alongside the proposed works.

All materials, plant and equipment should be stored on within the works compound or on existing hard standing and the bridleway. If that is not possible, tarpaulins or sheets will be used to prevent potential pollution risks and, in addition, use pallets or similar, to lift the materials from the ground to prevent their use by mammals or reptiles.

When depositing or moving any materials, a visual check will be made underneath to ensure that small mammals, reptiles, or amphibians are not present and will not be harmed by the operation.

### **Fish**

The watercourse is designated as Salmonid by the EA and no works are planned to be undertaken within the watercourse between 1<sup>st</sup> October and 15<sup>th</sup> June.

Any fish caught in the coffer dam will be removed prior to, or during the draining down of the waterbody to prevent any unnecessary damage to, or loss of fish. They will be relocated immediately downstream of the works.

## Appendix A

### Drawings

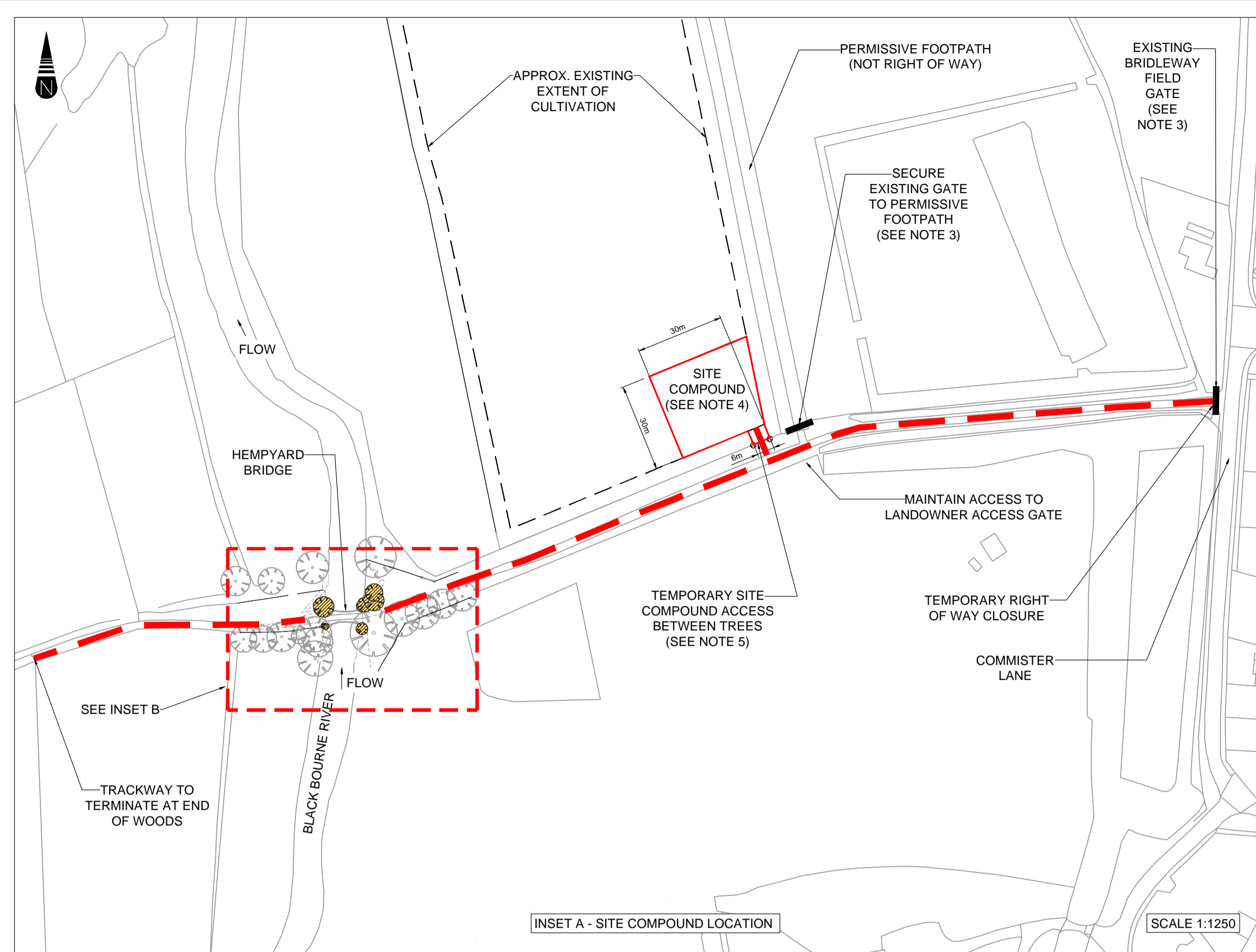
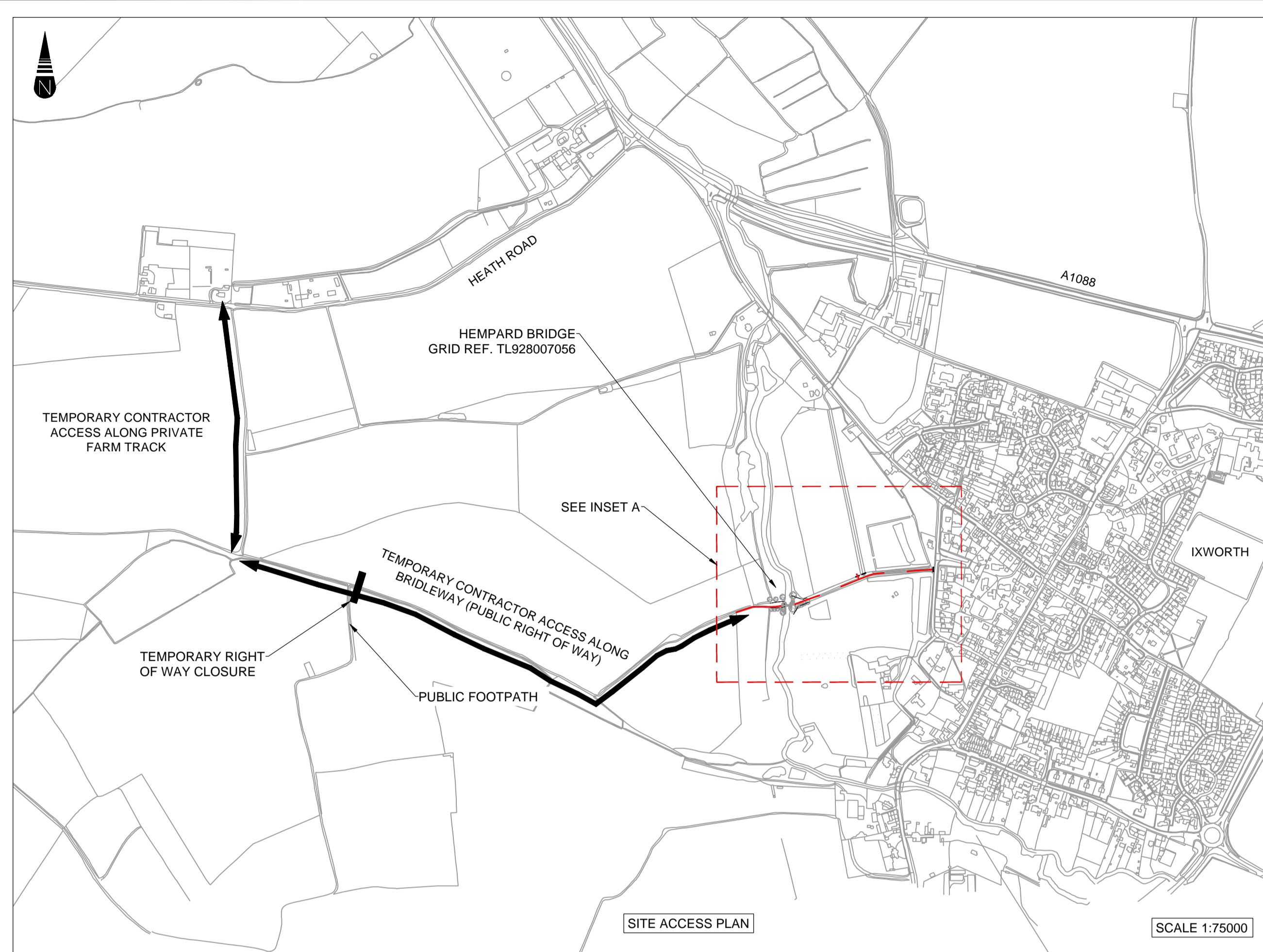
5101354-MIL-SBR-ZZ-DR-CB-7004 Site Access, Compound Location & Site Extents

60-20008-DR-0013-C01 Temporary Works Arrangements

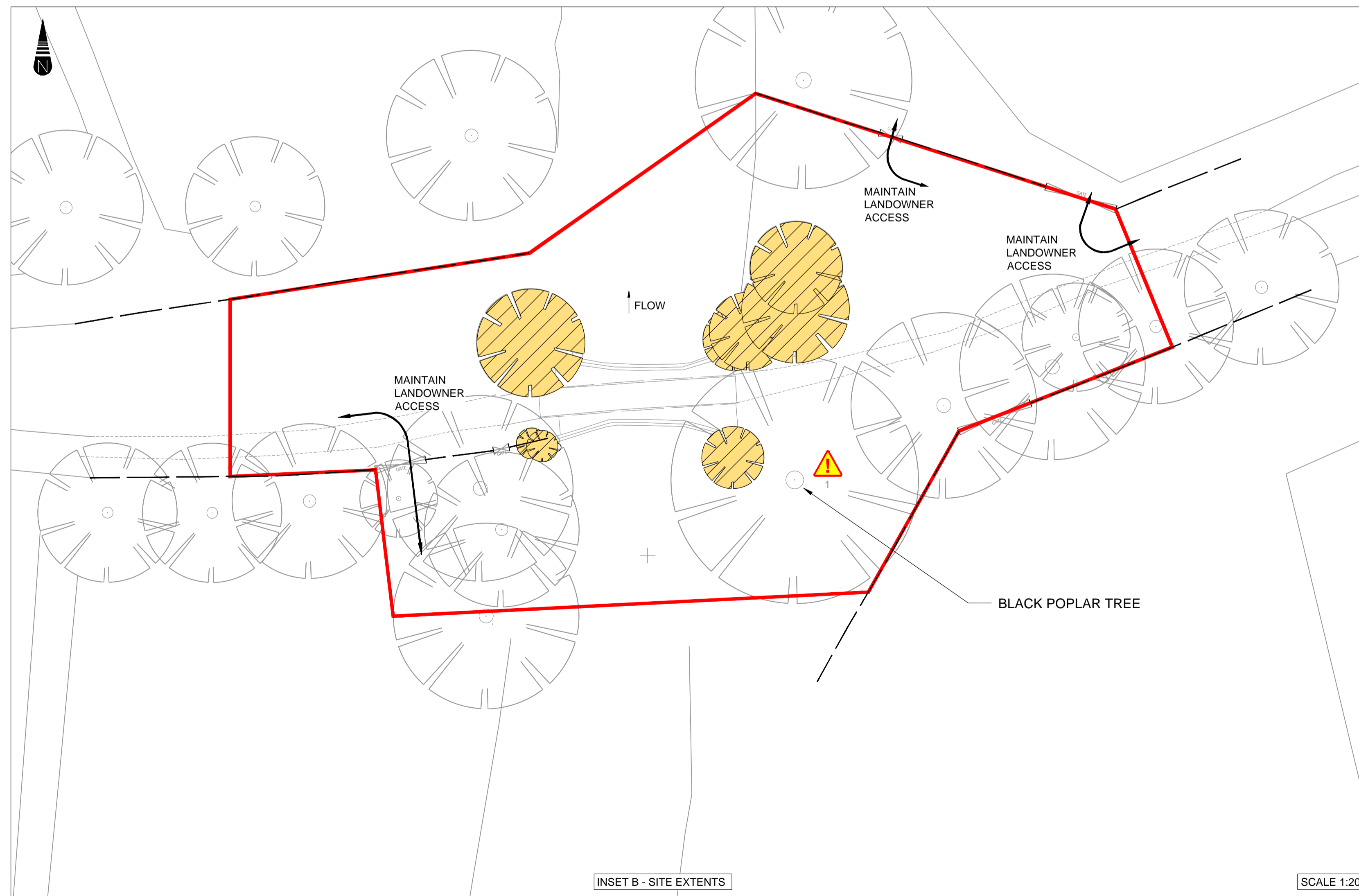
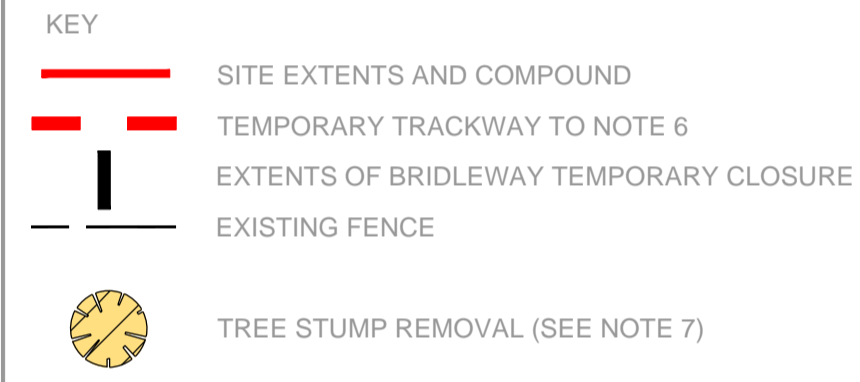
60-20008-DR-0014-C01 Temporary Works

5101354-MIL-SBR-ZZ-DR-CB-7008 Site Clearance Advance Works





- NOTES:**
- DO NOT SCALE FROM THIS DRAWING.
  - ALL DIMENSIONS IN MILLIMETRES UNLESS STATED OTHERWISE.
  - CONTRACTOR TO SECURE INDICATED EXISTING GATES TO BRIDLEWAY FOR DURATION OF THE WORKS.
  - SITE COMPOUND TO BE LOCATED WITHIN EXTENT OF EXISTING CULTIVATION TO AVOID FIELD MARGINS/TREE ROOT PROTECTION AREAS. CONTRACTOR TO STRIP TOPSOIL AND PLACE IN BUND (LESS THAN 2m HIGH) WITHIN COMPOUND EXTENTS. COMPOUND CONSTRUCTION TO COMPRISE WOVEN GEOTEXTILE MEMBRANE TOPPED WITH 300mm DEPTH OF RECYCLED CAPPING MATERIAL.
  - SITE COMPOUND ENTRANCE SITED TO UTILISE EXISTING INFORMAL FIELD ACCESS BETWEEN TREES.
  - TEMPORARY TRACKWAY (400m APPROX. TOTAL LENGTH) TO BE INSTALLED TO PROTECT TREE ROOT PROTECTION AREAS.
  - STUMPS OF TREES CUT DOWN AS PART OF THE ADVANCE WORKS ARE TO BE PHYSICALLY REMOVED BY THE CONTRACTOR AS PART OF THE MAIN CONSTRUCTION WORKS.



- ENVIRONMENTAL RISKS**
- PROTECT BLACK POPLAR TREE

Rev	Date	Description	Drn	Chkd	App
P02	25/01/24	TEMPORARY RIGHT OF WAY CLOSURE CLARIFIED	JCR	NJC	CAS
P01	22/01/24	FIRST ISSUE	BH	NJC	CAS

Revisions

Client



Drawing Status  
**PRELIMINARY**

Project Name  
HEMPYARD BRIDGE NO. 219, IXWORTH

Title

**SITE ACCESS, COMPOUND LOCATION & SITE EXTENTS**

Sheet Size	Scale	Drawn by	Checked by	Approved by
A1	AS SHOWN	BH	NJC	CAS
		Drawn Date	Checked Date	Approved Date
		22/01/24	22/01/24	22/01/24

Drawing Number	Status	Rev
5101354-MIL-SBR-ZZ-DR-CB-7004	S2	P02

© Crown copyright and database rights 2024 Ordnance Survey 100023343. You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-licence, distribute or sell any of this data to third parties in any form.

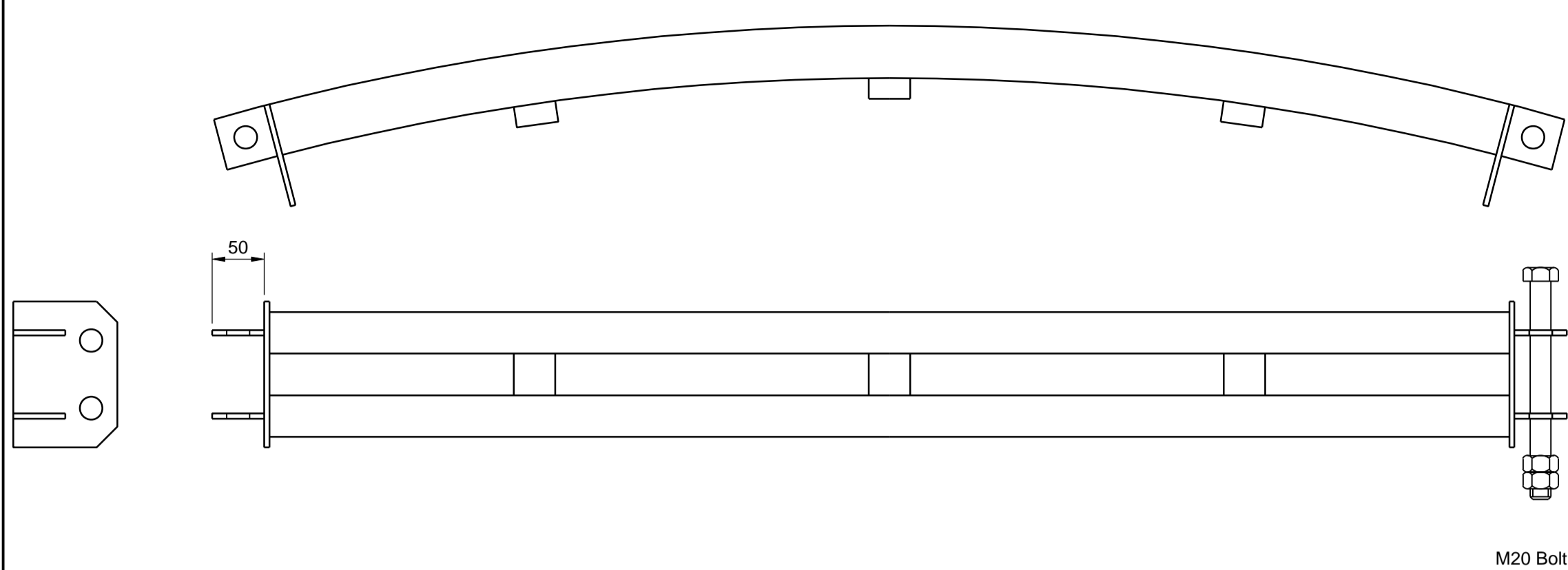
**Installation guidance**

- a. Typical formwork comprises flat bar steel rib centre matching the profile of the arch secured by anchors set into the second or third ring depending on the number of rings to be re-cased.
- b. The integrity of the brickwork surrounding the repair area is maintained using "retention laggings" supported with folding wedges on the centring ribs. This defines the spacing for the "construction laggings". Laggings are placed parallel to the brick course and secured in place with timber packing and folding wedges.
- c. This form of centring is only suitable for recasing repair area in the lower haunches and crown of minimal area and within which the exerted forces are considered negligible by the Employers Representative see drawing 60-20008-DR-0012
- d. Preformed and jointed steel ribs shall be used in the upper haunches and crown.
- e. Centring is not required in vertical walls.
- f. Ribs to be removed upon completion of repairs.

**Notes:**

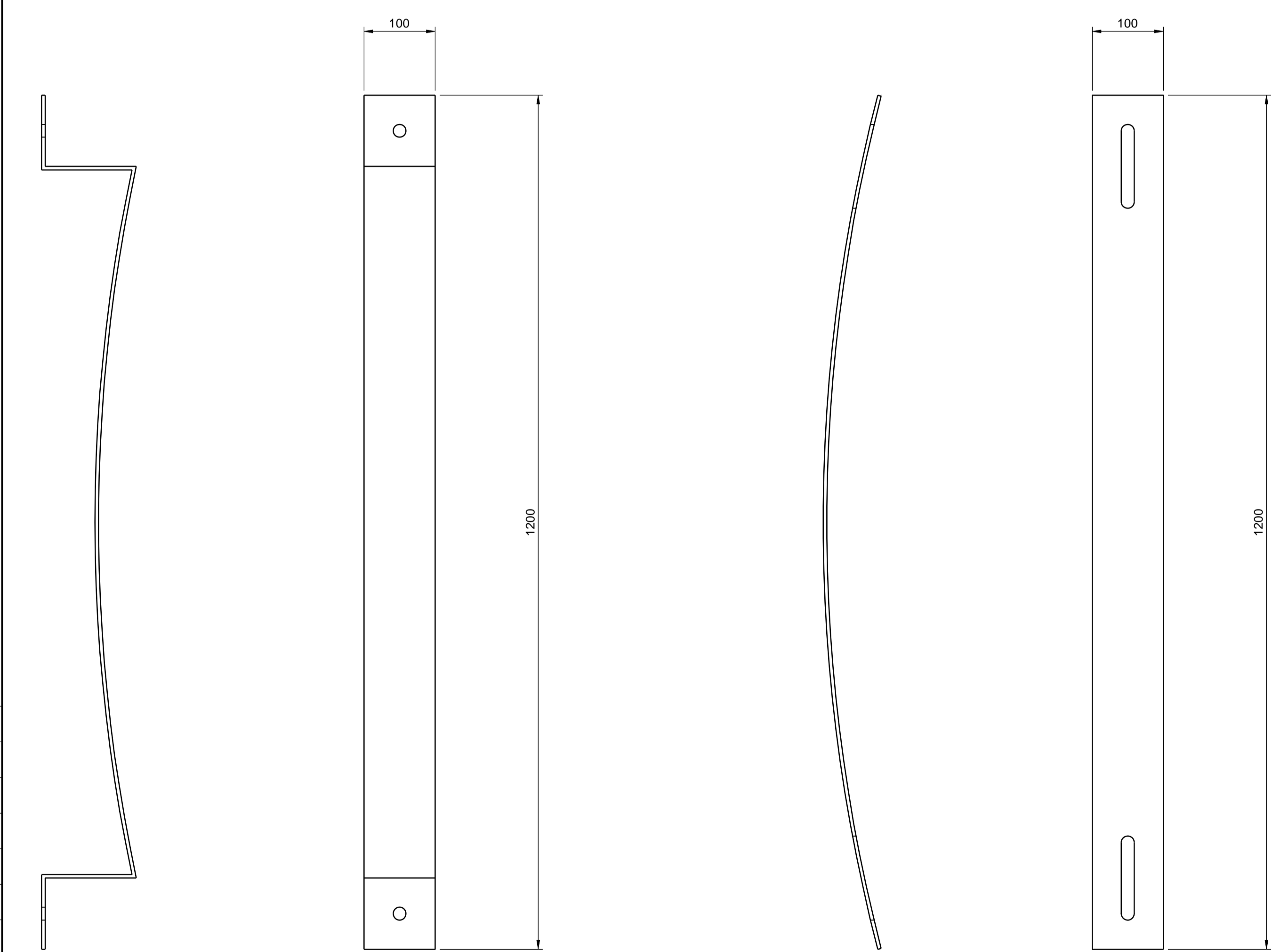
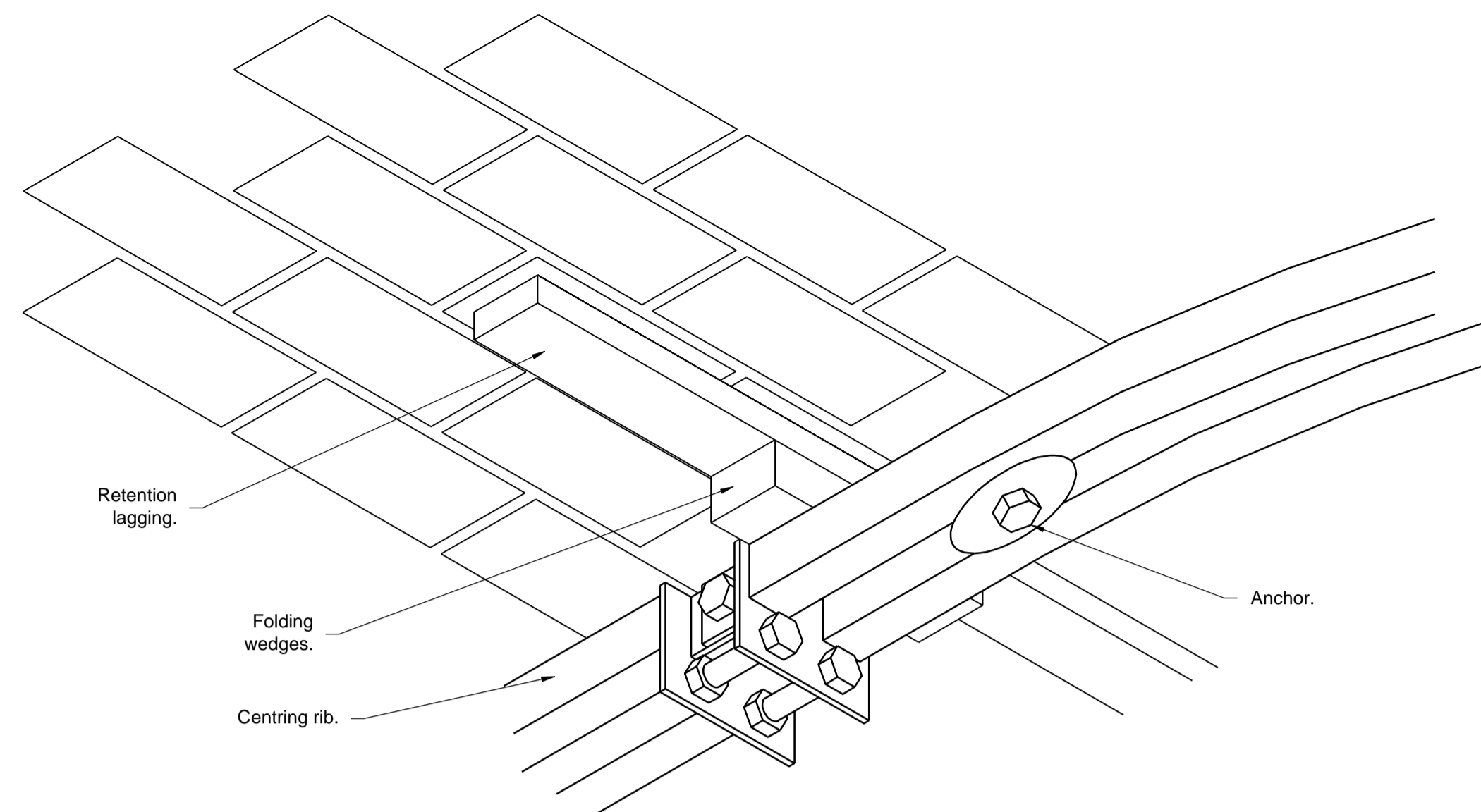
- 1. Unless shown otherwise or indicated in the Specification, whichever is the more onerous, dimensional tolerance is to be in accordance with Tables 1 and 2 of BS 5606.
- 2. All dimensions are in millimetres (mm) unless noted otherwise. **DO NOT SCALE FROM THIS DRAWING, USE FIGURED DIMENSIONS ONLY.**
- 3. This drawing is to be read in conjunction with the Specification and any Specialist drawings.
- 4. **UNLESS THE REVISION OF THIS DRAWING IS DENOTED BY THE PREFIX C THEN THIS DRAWING IS NOT FOR CONSTRUCTION.**

IF IN DOUBT ASK



**Typical centring rib for upper haunch and crown replacement**

Scale 1:5



**Typical centring for lower haunch areas less than 1m<sup>2</sup>**

Scale 1:5

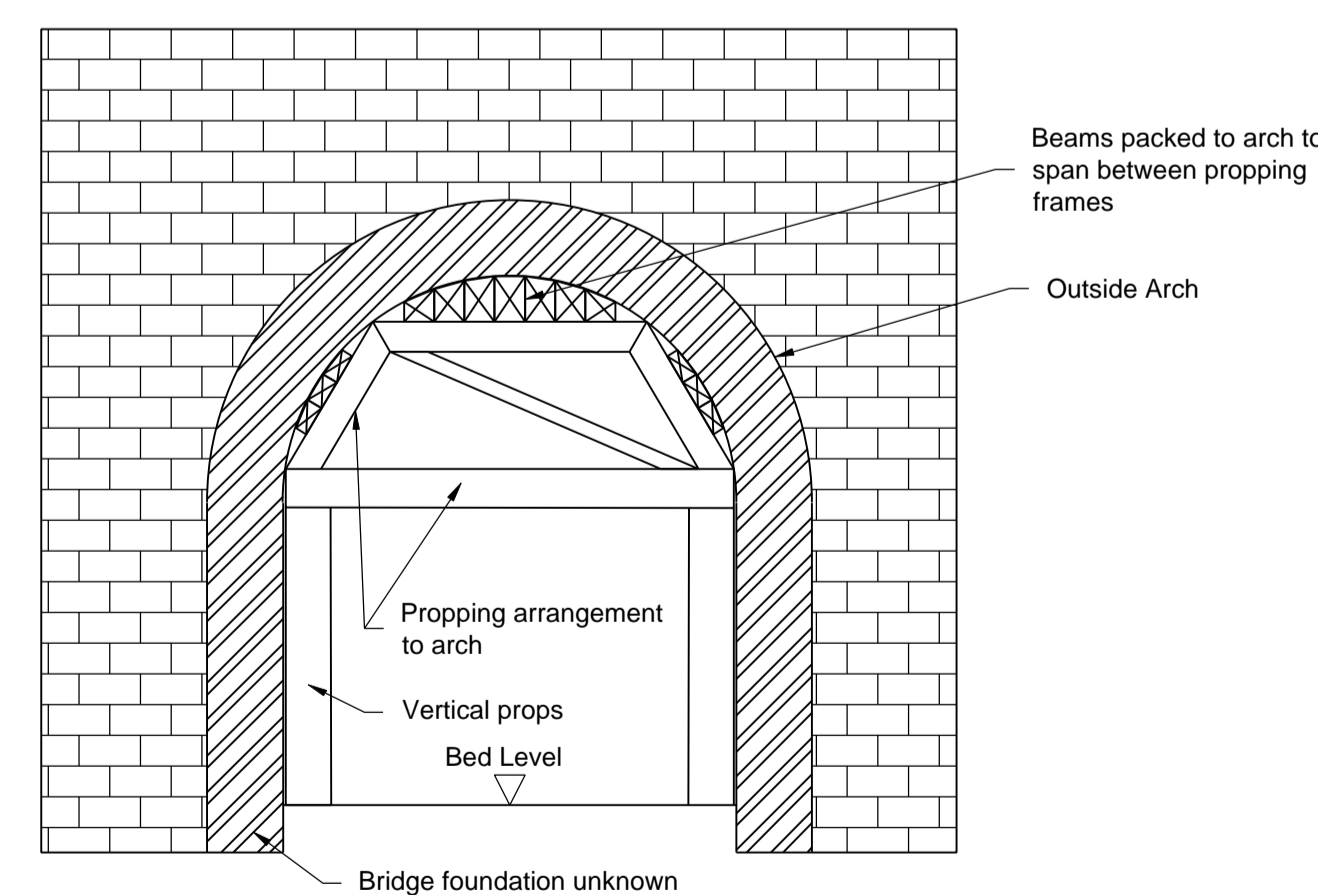
**Typical centring for lower haunch and single ring replacement (and long longitudinal areas)**

Scale 1:5

**Ribs and lagging arrangement connecting detail**

Not to scale

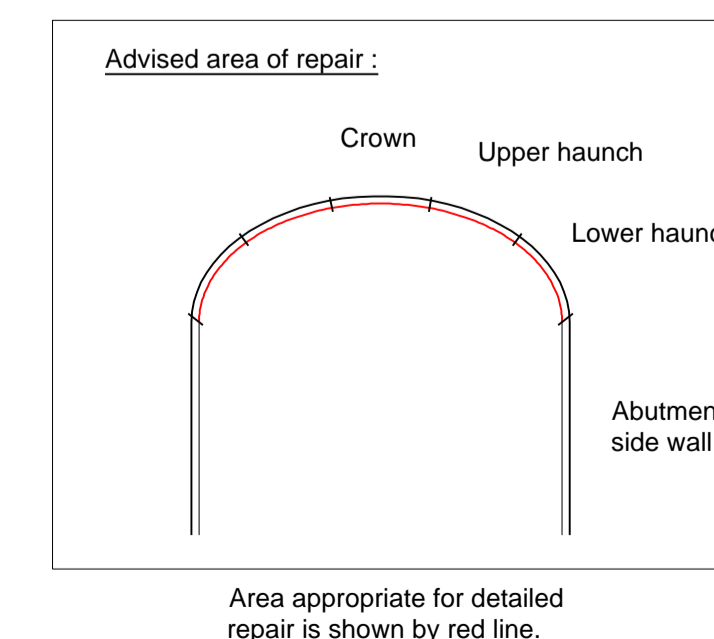
Drawing No	Title
60-20008-DR-0001	Plan
60-20008-DR-0002	Existing North Elevation Defects
60-20008-DR-0003	Existing South Elevation Defects
60-20008-DR-0004	Existing Pier Elevations Defects
60-20008-DR-0005	Existing Arch Plans and Elevations Defects
60-20008-DR-0006	Repair Detail - Spot replacement of bricks
60-20008-DR-0007	Repair Detail - Stitching of longitudinal cracks in brickwork
60-20008-DR-0008	Repair Detail - Stitching of longitudinal cracks in arches & tunnel lining
60-20008-DR-0009	Repair Detail - Brick arch rings pattress plate details
60-20008-DR-0010	Repair Detail - Specification for the works
60-20008-DR-0011	Repair Detail - Standard brickwork bonds
60-20008-DR-0012	Repair Detail - Single ring re-casing
60-20008-DR-0013	Repair Detail - Temporary Propping
60-20008-DR-0014	Temporary Dams
60-20008-DR-0015	Wingwall Repair Details
60-20008-DR-0017	Scour Protection Details
60-20008-SH-0001	Repair Schedule



**Indicative Temporary Arch Support Proposal**

NTS

- Arch support required where abutments are being reconstructed to ensure stability in the temporary condition.
- Contact points with the arch intrados are to be packed with timber.
- Arch support frames to be installed at approx 1.0m centers.



Issue	Date	Description	Drawn	Des.	Chkd.
C01	04/09/23	Issue for construction	EC	SS	SS
P03	10/03/22	Barriers removed from application following consultation with Planning Authority	RJ	SS	SS
P02	07/07/21	Minor updates	IM	SS	SS
P01	03/02/21	First issue.	IM	RB	SS

Issue codes:- F : Feasibility | T : Tender | P: Preliminary | C : Construction | AB : As built

Drawing status **FOR CONSTRUCTION**

**KIER**  
 Kier Professional Services Limited  
 Kier Duplex, Ayton Road, Wymondham, Norfolk, NR18 0QH  
 Tel : 01953 609 899  
 www.kier.co.uk professional.services@kier.co.uk

Client **Kier Services Highways**

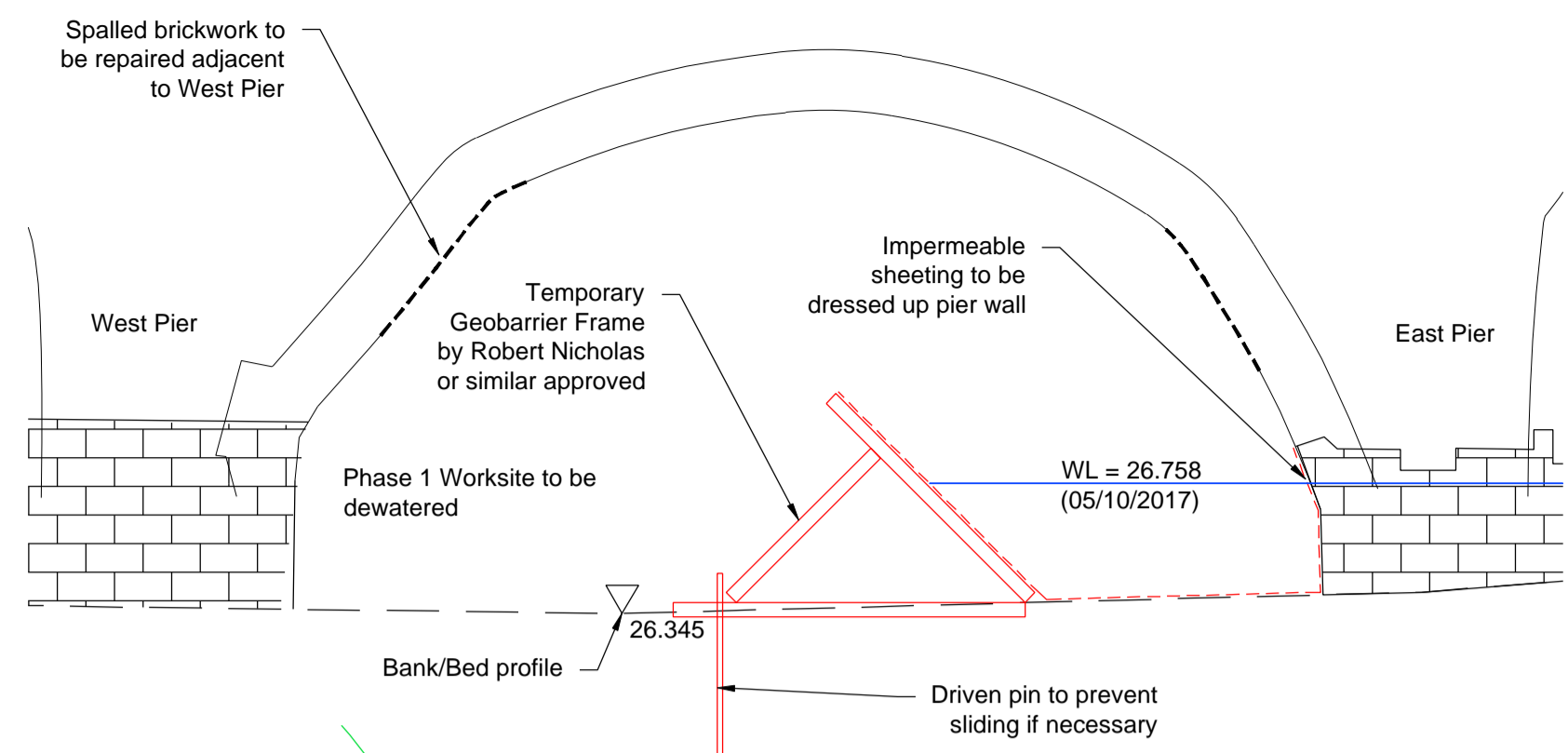
Contract **Hempyard Bridge , Ixworth Bridge No 3A/18F (219)**

Title **Temporary works arrangements**

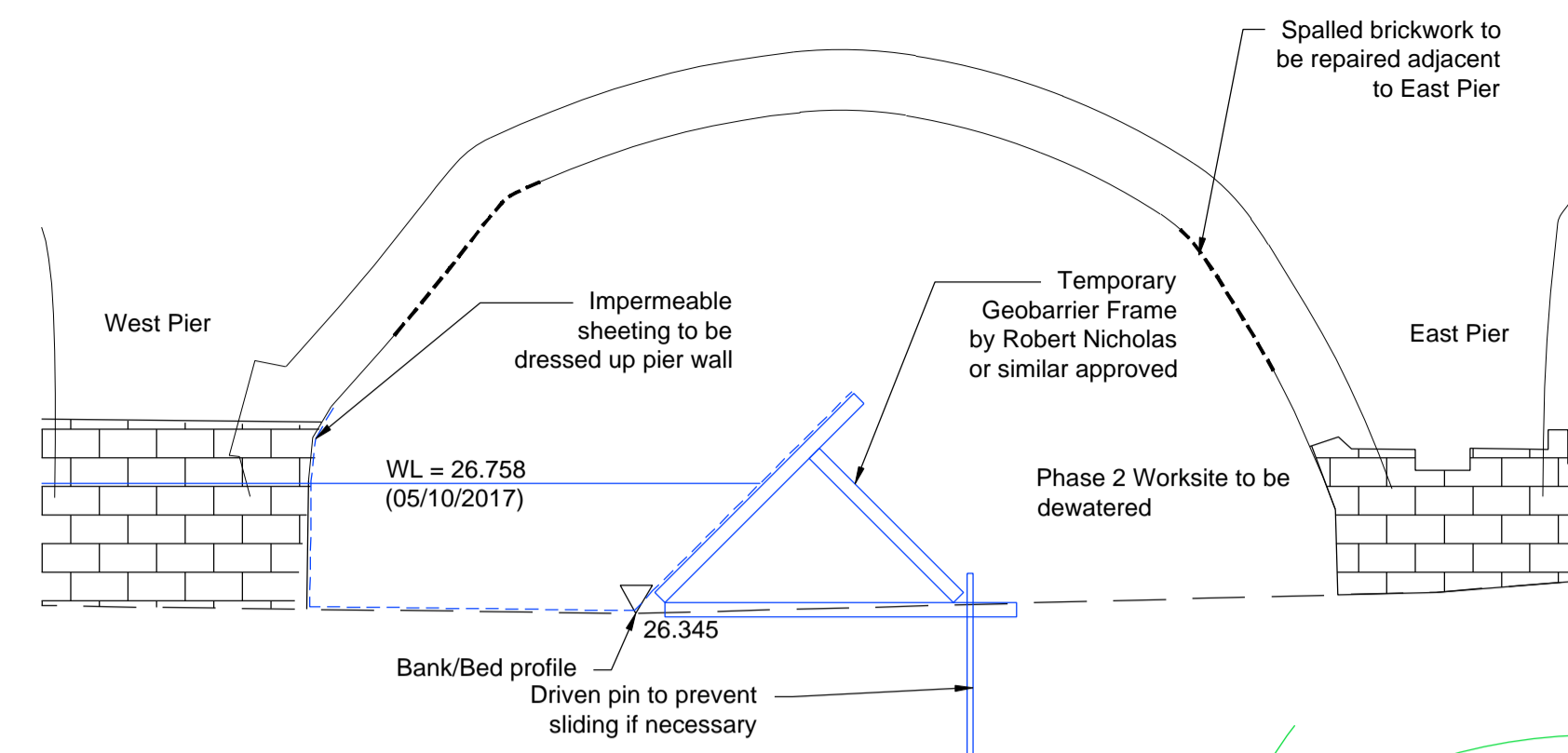
Scale (A1) **As Shown**

Drawing No. **60-20008-DR-0013** Issue **C 01**

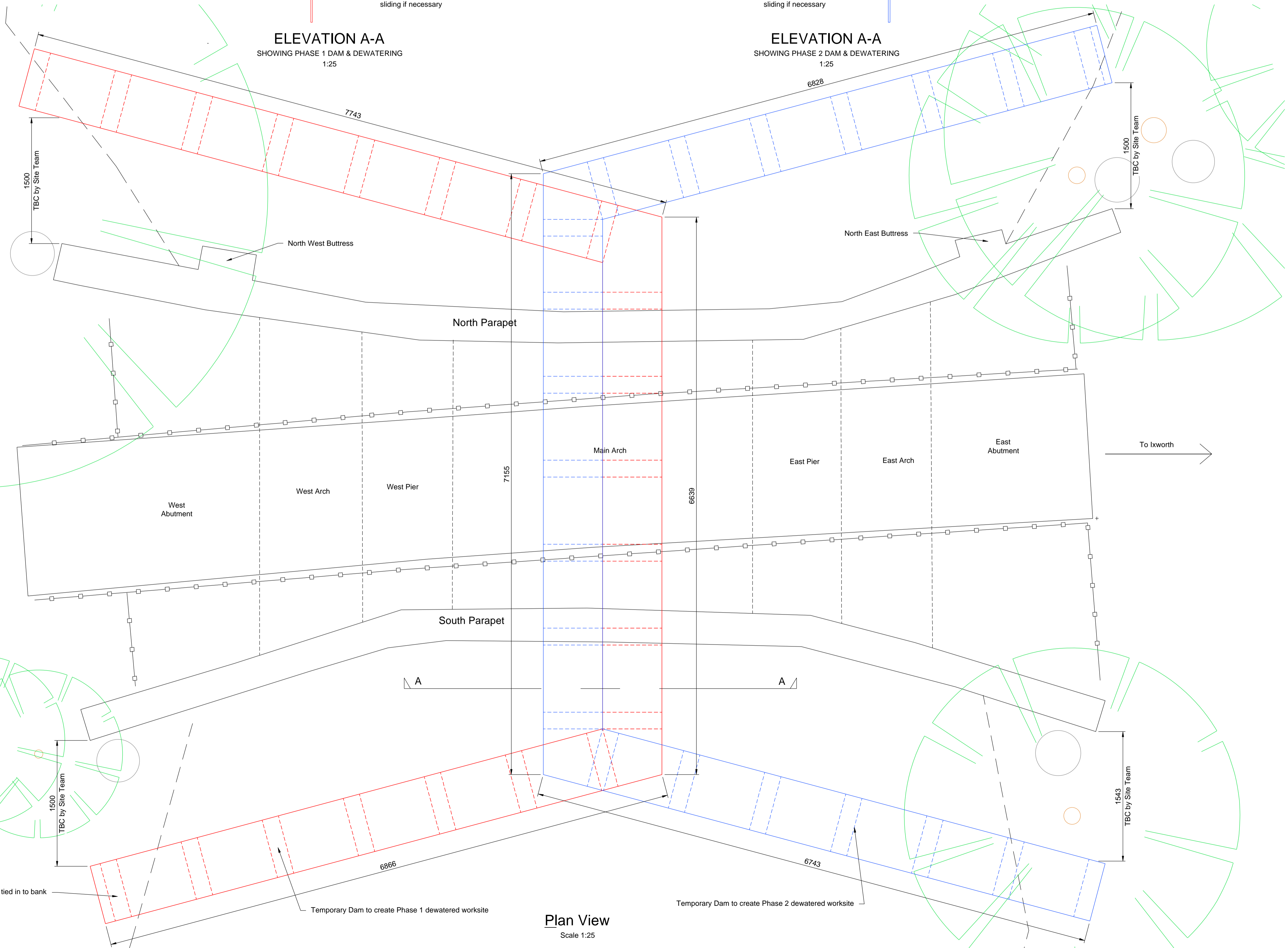
NOTE: Final specification for barrier subject to site visit and detailed design by supplier. Position of barrier to be agreed by Site Team.



**ELEVATION A-A**  
SHOWING PHASE 1 DAM & DEWATERING  
1:25



**ELEVATION A-A**  
SHOWING PHASE 2 DAM & DEWATERING  
1:25



**Plan View**  
Scale 1:25

**Notes:**

1. Unless shown otherwise or indicated in the Specification, whichever is the more onerous, dimensional tolerance is to be in accordance with Tables 1 and 2 of BS 5606.
2. All dimensions are in millimetres (mm) unless noted otherwise. **DO NOT SCALE FROM THIS DRAWING, USE FIGURED DIMENSIONS ONLY.**
3. This drawing is to be read in conjunction with the Specification and any Specialist drawings.
4. Refer also to:  
Drawing number: 60-20008-DR-0001
5. **UNLESS THE REVISION OF THIS DRAWING IS DENOTED BY THE PREFIX C THEN THIS DRAWING IS NOT FOR CONSTRUCTION.**
6. Overall height of fabric dam to suit anticipated flood level at time of construction. Pumps for dewatering to be specified by Construction Team, located in suitable position with appropriate measures in case if fuel spills.

IF IN DOUBT ASK

**Safety, Health and Environment Information.**

- Notes below are additional to hazard/risks normally associated with this type of work:
- Construction**
- Ci. Working over water
  - Cii. Working at height
  - Ciii. Disturbance to river bed during installation of temporary dam to be minimised.
  - Civ. Appropriate measures for temporary flooding of worksite to be in place if required.
  - Cv. Suitable security fencing to be provided around works to prevent unauthorised access.

These notes are based on the use of experienced and competent contractors carrying out the work using an approved safe method of working. The Temporary Works Coordinator (or other suitably competent person) is responsible for the implementation of these works on site and notifying the designer of any changes.

C01	04/09/23	Issue for construction	EC	SS	SS
P01	07/07/21	First issue.	IM	RB	SS
Issue	Date	Description	Drawn	Des.	Chkd.

Issue codes:- F - Feasibility | T - Tender | P - Preliminary | C - Construction | AB - As built

Drawing status **FOR CONSTRUCTION**

**Kier Professional Services Limited**  
Kier Duplex, Ayton Rd, Wymondham, Norfolk NR18 0QH  
Tel : 01953 609 899  
www.kier.co.uk professional.services@kier.co.uk

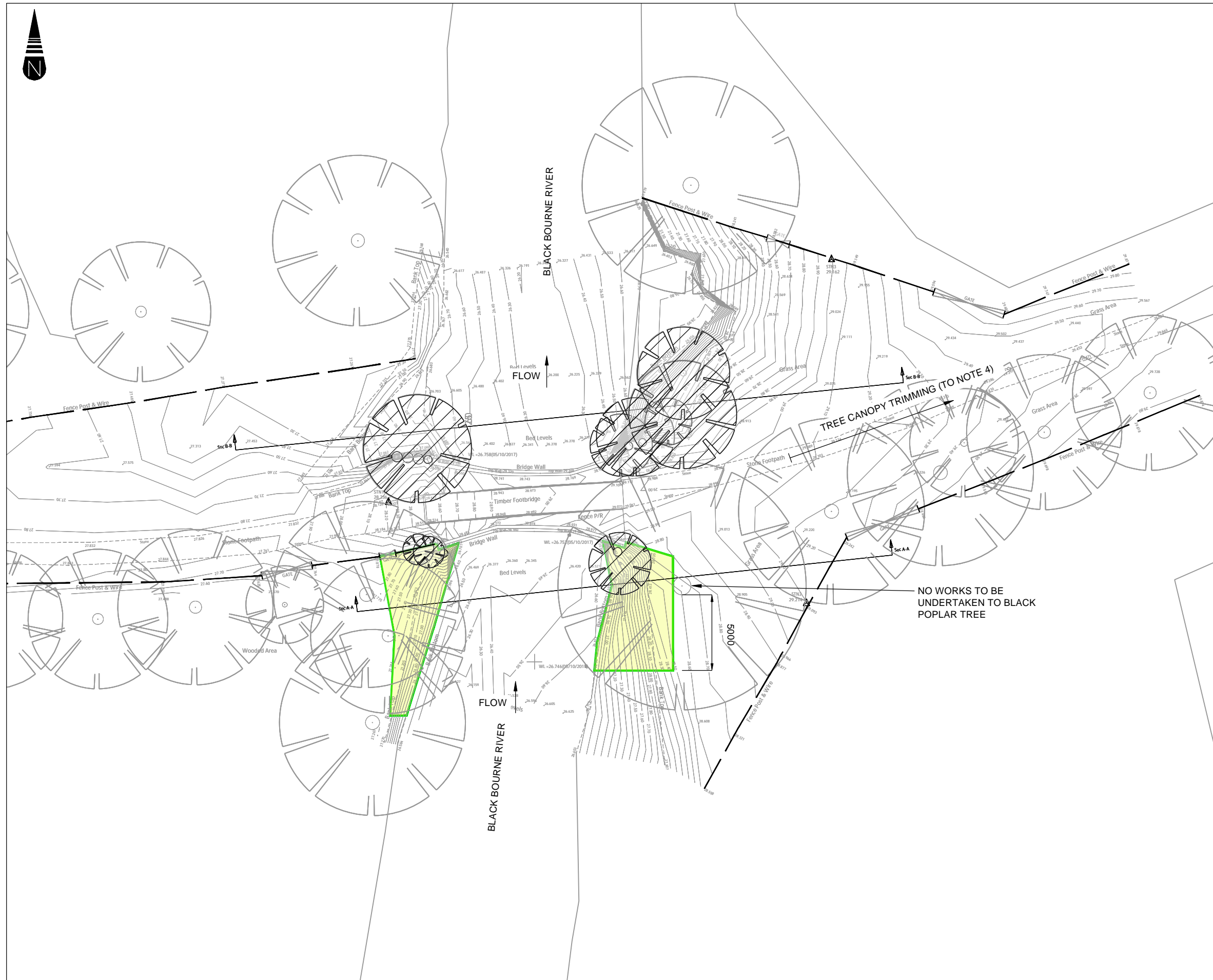
Client **Kier Services Highways**

Contract **Hempyard Bridge Ixworth  
Bridge No 3A/18F (219)**

Title **Temporary Works**

Scale (A1) **As shown**

Drawing No.	Issue
<b>60-20008-DR-0014</b>	<b>C 01</b>



- NOTES:
- DO NOT SCALE FROM THIS DRAWING.
  - ALL DIMENSIONS IN MILLIMETRES UNLESS STATED OTHERWISE.
  - TREES TO BE CUT DOWN NEAR TO GROUND LEVEL AND REMOVED AS PART OF THESE ADVANCE WORKS. TREE STUMPS TO BE PHYSICALLY REMOVED BY THE CONTRACTOR AS PART OF THE MAIN CONSTRUCTION WORKS.
  - CANOPIES OF TREES ALONG BRIDLEWAY FROM COMMISTER LANE TO BE TRIMMED TO PROVIDE 4.5m HEIGHT CLEARANCE ABOVE GROUND LEVEL FOR CONSTRUCTION PLANT.

KEY

- VEGETATION CLEARANCE TO GROUND LEVEL
- TREES TO BE REMOVED (SEE NOTE 3)
- EXISTING FENCE

Rev	Date	Description	Drn	Chk'd	App
P01	22/01/24	FIRST ISSUE	BH	NJC	CAS
Revisions					



Drawing Originator

**MILESTONE**  
INFRASTRUCTURE

A part of **MGroup** Services

Woodlands Court, Burnham Road, Beaconsfield, Buckinghamshire, HP9 2SF. This drawing is copyright of Milestone Infrastructure and shall not be reproduced without prior written permission.

Drawing Status  
**PRELIMINARY**

Project Name  
HEMPYARD BRIDGE NO. 219, IXWORTH

Title  
**SITE CLEARANCE ADVANCE WORKS**

Sheet Size <b>A3</b>	Scale 1:250	Drawn by BH	Checked by NJC	Approved by CAS
		Drawn Date 22/01/24	Checked Date 22/01/24	Approved Date 22/01/24

Drawing Number	Status	Rev
5101354-MIL-SBR-ZZ-DR-CB-7008	S2	P01

© Crown copyright and database rights 2024 Ordnance Survey 100023343. You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-licence, distribute or sell any of this data to third parties in any form.

## Appendix B

### Ecological Reports

Precautionary Method Statement for Ixworth – Hempyard Bridge – Repairs.

Nocturnal Bat Surveys and Endoscope Assessment of Hempyard Bridge, Ixworth to Comply with Wildlife Legislation.

Suffolk Highways, Hempyard Bridge, Ixworth Bat Survey Report, October 2023, by Wardell Armstrong



# **Precautionary Method Statement**

**for**

# **Ixworth – Hempyard Bridge – Repairs**

**Prepared by Natural Environment Ecology Team,  
Suffolk County Council**

**For: SCC Structures Team**

**Suffolk County Council  
Endeavour House, 8 Russell Road, Ipswich, Suffolk IP1 2BX  
01473 264783**

[www.suffolk.gov.uk/suffolksnaturalenvironment](http://www.suffolk.gov.uk/suffolksnaturalenvironment)

Author	Seph Pochin, Ecologist
Approval	A.C. Murray-Wood MCIEEM, Senior Ecologist
Report (PMS) Status	Final - Issue
Date of Issue	November 2020

**This report was prepared by the Suffolk County Council (SCC) Natural Environment Ecology Team solely for the use of SCC, SCC Structures Team and their contractors. It is not addressed to and may not be relied upon by any person or entity other than SCC, SCC Structures Team and their contractors for any purpose without the prior written permission of SCC and SCC Structures Team. The SCC Natural Environment Ecology Team accept no responsibility or liability for reliance upon or use of this report (whether or not permitted) other than by SCC, SCC Structures Team and their contractors for the purposes for which it was originally commissioned and prepared.**

**Important Note:**

**This Precautionary Method Statement has been prepared to serve the dual functions of assisting in the conservation of biodiversity and ensuring that those instructing the Ecology Team do not fall foul of the complex legal framework that protects our wildlife and habitats.**

**It is your responsibility to read and understand all of the important points in this Precautionary Method Statement and, in any case of doubt or difficulty, to contact the Ecologists for any further advice or explanation required.**

**Natural Environment Ecology Team**

**Suffolk County Council**

## **PRECAUTIONARY METHOD STATEMENT FOR: IXWORTH – HEMPYARD BRIDGE - REPAIRS**

**TO AVOID A POTENTIAL WILDLIFE CRIME AND/OR AN EMS INCIDENT, THIS STATEMENT IS AIMED AT WORKS COMMENCING IN SPRING 2021.**

**LIAISON WITH THE ECOLOGISTS AND MONITORING TEMPERATURES AND OTHER CLIMATIC CONDITIONS IS ESSENTIAL TO DELIVERY OF THIS PROJECT.**

**SHOULD THIS WORK TAKE PLACE AT ANY OTHER TIME OF THE YEAR, YOU MUST REVERT TO THE ECOLOGISTS FOR FURTHER ADVICE.**

This Precautionary Method Statement deals with biodiversity issues and relevant ecological constraints and should be followed by all staff and contractors working on the proposal to carry out essential repair works to Hempyard Bridge at Ixworth.

It is recommended that this document forms part of the job's briefing notes and the Site or Project Manager signs and returns a copy of this Precautionary Method Statement to the Ecologists to confirm that they have read and understood the important points contained within.

### **General Notes:**

- This site was surveyed on August 18<sup>th</sup>, 2020, by Seph Pochin (SCC Ecologist)
- **A bat roost assessment was carried out on the bridge by a licenced bat ecologist in September 2020 and no bats were found to be roosting in the bridge.**
- **In this matter, a pre-works check of the bridge using an endoscope should be carried out by a Suitably Qualified Ecologist. Should any bats be discovered, no works can commence and the advice of a bat licenced ecologist must be sought before works are allowed to proceed. Please contact the Ecology Team to arrange this inspection.**
- If any contractor or member of staff is concerned about any potential impacts of their work upon wildlife or habitats not dealt with below or anything of ecological concern arises during the operation, they must call the Ecologists to discuss the matter further.



**All Contractors are required to inform Suffolk County Council and the Ecology Team ([ecology@suffolk.gov.uk](mailto:ecology@suffolk.gov.uk)) of any ecological or environmental incident or “near-miss” as soon as it is practical to do so.**

**The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003:**

- **Strict pollution controls (in particular, ensuring that no dust plumes caused by drilling, cutting or similar operations or permitting any other potentially polluting materials to enter the watercourse) and adherence to this Precautionary Method Statement should ensure that this project is compliant with the Aims of the Water Environment Regulations (WFD). Please note these proposed works are not approved until the completed Part A: Preliminary Assessment of the SCC Water Environment Regulations (WFD) Compliance Assessment Form has been signed by SCC WER Panel and approved by SCC, Environment Agency, or Internal Drainage Board. For further details, contact [floods@suffolk.gov.uk](mailto:floods@suffolk.gov.uk).**
- **Please consult and abide by pollution controls and advice set out in the SCC Pollution Control Guidance Note available on the Environmental Management page (Advice Notes, Forms & Guidance) of mySCC.**
- **Please consult and abide by advice set out in the Guidance for Pollution Prevention 5 – Works and Maintenance in or near Water – Section 5: Bridge Maintenance and Structures over Water.**

**Bats:**

- **This bridge presents itself as having high suitability for bat activity all year round.**
- **The bridge was surveyed in September 2020 by a licenced bat ecologist and no bats were present in the bridge. Any guidance and advice contained within the survey report (Adonis Ecology, Sept 2020) should be strictly adhered to.**
- **Before any works are undertaken, the bridge will need to be inspected using an endoscope by a Suitably Qualified Ecologist. Should any bats be discovered, no works can commence and the advice of a bat licenced ecologist must be sought before any works can proceed, to avoid the risk of committing a wildlife crime. Please contact the Ecology Team to arrange this inspection.**
- **Thereafter, should any Bats be encountered either within the area or flying in the vicinity of the works *during daylight hours*, the Ecologists must be contacted as a matter of urgency for further advice.**
- **The following box must be completed and signed by a Suitably Qualified Ecologist prior to work commencing:**

### BAT SCOPING CERTIFICATION

I can confirm that I am a Suitably Qualified Ecologist and have carried out a scoping survey for Bat presence and activity at this site and that there is no evidence of Bats using this part of the site, the works may take place without causing harm or disturbance to Bats and that the work may take place without the necessity of applying to Natural England for a Licence.

Name:.....

Signed:.....

Date:.....

#### Breeding Birds:

- Should any Birds be encountered within the structure or vegetation associated with it during the delivery of this work, the Ecologists must be contacted as a matter of urgency for further advice.
- Should, at any time, distressed, agitated or mobbing activity by any bird species be encountered when working upon delivery of this project, the event must be reported to the Ecologists immediately (contact details below) and further advice obtained.

#### Otter:

- The site has been scoped for Otter activity and minor work by or within the watercourse during normal working hours should not result in disturbance of Otters.
- If signs such as Otter slides, spraints, footprints and so on appear in the area of the proposed works *after* commencement of the operation you must contact the Ecologists for further advice. *See over for extra information.*

#### Water Vole:

- The site has been scoped for Water Vole activity and minor work by or within the watercourse during normal working hours should not result in disturbance of Water Voles.
- If signs such as droppings, grazing signs, footprints and so on appear in the area of the proposed works *after* commencement of the operation you must contact the Ecologists for further advice. *See over for extra information.*

#### Invasive Species

- **Signal Crayfish are present at this site within the watercourse. Please adhere to any guidance and advice contained within the information accompanying this document.**
- Please adhere to the Check, Clean, Dry guidance at the end of this document.

- **Please contact the Ecology Team if you require any further advice on this species.**

**Generally:**

- **Trees and shrubs can suffer fatal damage through compaction by vehicles and materials and by excavation work. When establishing site compounds, considering areas for the storage of materials and parking vehicles and plant and in planning routes for any trenches or holes, please ensure that all contractors are aware of and abide by BS5837:2012 “Trees in Relation to Design, Demolition and Construction. Recommendations” and NJUG Guidelines “Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees”.**
- **Do not park vehicles or place materials under the canopy of any tree which is due to remain on site.**
- **Do not park vehicles or place materials on the grass alongside the proposed excavation.**
- **All materials, plant and equipment should be stored on hard standings. If that is not possible, use tarpaulins or sheets to prevent potential pollution risks and, in addition, use pallets or similar to lift the materials from the ground to prevent their use by mammals or reptiles.**
- **When depositing or moving any materials, a visual check must be made underneath to ensure that small mammals, reptiles or amphibians are not present and will not be harmed by the operation.**
- **Any holes or trenches that must be left open overnight (avoid leaving open holes over weekends, if at all possible) must be visually checked for any mammals or other small animals and a means of escape (such as a plank) must be provided.**

**Enhancements:**

- **It is recommended that bat bricks are installed within the bridge structure and bat boxes installed on nearby trees to provide roosting habitat for bats**

**Please call Suffolk County Council Ecologist, Seph Pochin, on mobile phone 07860 823962 or desk phone 01473 265076 if you have any problems or queries regarding any wildlife issue at this site.**

**Agreed and Signed by the Site or Project Manager:**

**Name (Print):** .....

**Company:** .....

**Contact Telephone Number:**.....

**Contact E-Mail:**.....

**Signed:**.....

**Date:**.....

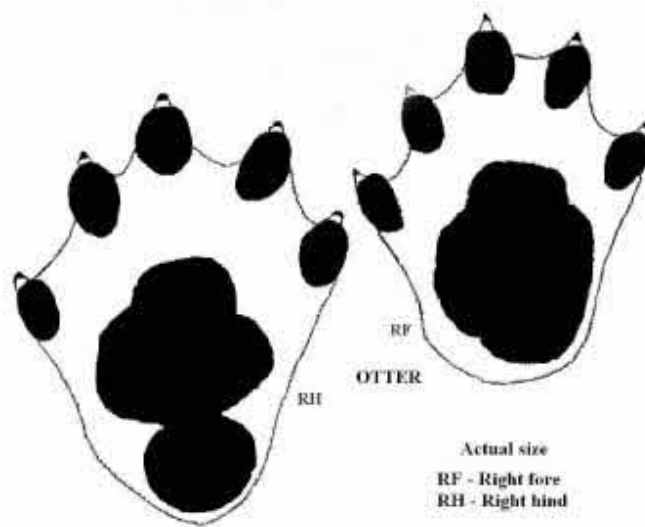
Please return to: [ecology@suffolk.gov.uk](mailto:ecology@suffolk.gov.uk)

**Seph Pochin  
Ecologist  
Natural Environment Team  
Growth, Highways & Infrastructure Directorate  
Suffolk County Council  
Endeavour House,  
8, Russell Road,  
Ipswich,  
Suffolk  
IP1 2BX**

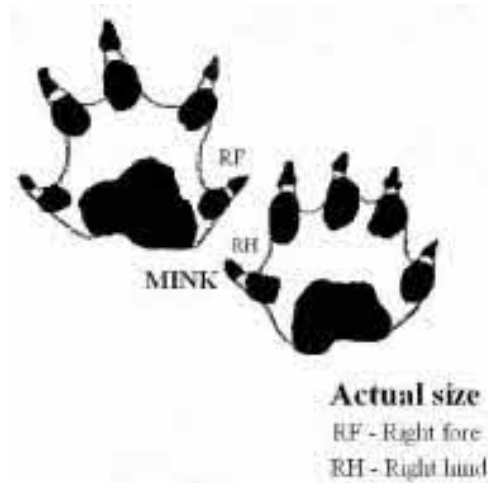
**Tel: 01473 265076  
Mobile: 07860 823962  
E-Mail: [seph.pochin@suffolk.gov.uk](mailto:seph.pochin@suffolk.gov.uk)**

**Tracks and Signs:**

**Drawings below are NOT to scale:** Otter prints are about 75mm or 3” across, Mink prints are about 40mm or 1½” across, Water Vole prints are about 15mm or just over ½”



across.



Otter:



Spraint:

Mink scat:



Otter



**Size:** Up to 1.2 metres (4 feet)  
**Weight:** Up to 10kg (25lbs)  
**Tail:** Long, tapering, sleek and muscly  
**Face:** Broad muzzle  
**Footprint Size:** 75mm (3 inches) across  
**Droppings:** Musty, fishy smell, contain fish bones/scales

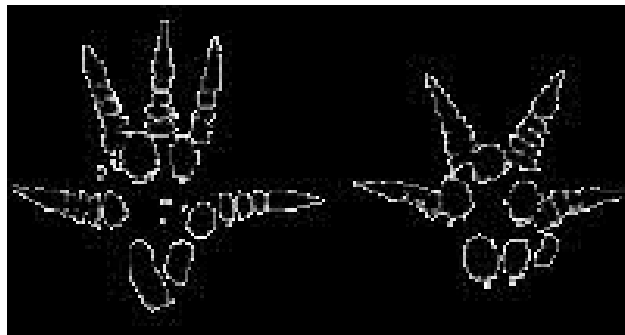
Mink



**Size:** Up to 0.5 metre (2 feet)  
**Weight:** Up to 1 kg (2.5lbs)  
**Tail:** Round and furry  
**Face:** Pointed muzzle (cat like)  
**Footprint Size:** 25mm (1 inch) across  
**Droppings:** Pungent, rancid, contain mammal hair

**Water Vole (Not to scale):**

Footprints:



Droppings:



# STOP THE SPREAD



Are you unknowingly spreading invasive species on your water sports equipment and clothing?

Invasive species can affect fish and other wildlife, restrict navigation, clog up propellers and be costly to manage. You can help protect the water sports you love by following three simple steps when you leave the water.

**CHECK**

**Check your equipment and clothing for live organisms - particular in areas that are damp or hard to inspect.**

**CLEAN**

**Clean and wash all equipment, footwear and clothes thoroughly.**

**If you do come across any organisms, leave them at the water body where you found them.**

**DRY**

**Dry all equipment and clothing - some species can live for many days in moist conditions.**

**Make sure you don't transfer water elsewhere.**

For more information go to [www.nonnativespecies.org/checkcleandry](http://www.nonnativespecies.org/checkcleandry)





# Adonis Ecology

## Nocturnal Bat Surveys and Endoscope Assessment of Hempyard Bridge, Ixworth to Comply with Wildlife Legislation

Project Ref: 1372

Prepared on behalf of:

### **Suffolk Highways**

Phoenix House  
Goddard Road  
Ipswich  
Suffolk  
IP1 5NP

By:



### **Adonis Ecology Ltd.**

Unit 11 Lavenham Studios  
Brent Eleigh Road  
Lavenham, Sudbury  
Suffolk, CO10 9PE  
Tel: 01787 249 160


E-mail: [askus@adonisecology.co.uk](mailto:askus@adonisecology.co.uk)  
[www.adonisecology.co.uk](http://www.adonisecology.co.uk)

## Quality Assurance

Copyright © Adonis Ecology Ltd.

The findings outlined within this report and the data we have provided are to our knowledge true, and express our bona fide professional opinions. This report has been prepared and provided in accordance with the Chartered Institute for Ecology and Environmental Management (CIEEM) Code of Professional Conduct and the British Standard BS 42020:2013 which provides a code of practice for biodiversity in planning and development (BSI, 2013).

No method of assessment can completely remove the possibility of obtaining partially imprecise or incomplete information. Therefore, we cannot guarantee that this assessment completely defines the degree or extent of the occurrence of various species or habitats on the site, or the effectiveness of recommended actions as described in the report. In addition, as the ecological situation of a site is dynamic, this assessment pertains only to the conditions noted during the site visit(s). Therefore, to achieve the objectives of assessment as stated in this report, the conclusions are based on the information that was available during the time of the assessment and within the limits prescribed by our client in the agreement.

	<b>Name</b>	<b>Signature</b>
<b>Report prepared by:</b>	Katrina Wells BSc (Hons) MSc GradCIEEM	
<b>Report checked by:</b>	Stewart Wesley BSc (Hons) MCIEEM	
<b>Surveys conducted by:</b>	Katrina Wells BSc (Hons) MSc GradCIEEM, Richard Sands and Terry Stopher. Details of relevant training and experience available on request.	
<b>Dates of surveys:</b>	9 <sup>th</sup> , 22 <sup>nd</sup> and 24 <sup>th</sup> September 2020	

## Contents

<b>0</b>	<b>SUMMARY</b> .....	<b>3</b>
<b>1</b>	<b>INTRODUCTION</b> .....	<b>4</b>
1.1	Background .....	4
1.2	Legislation .....	4
<b>2</b>	<b>METHODOLOGY</b> .....	<b>5</b>
2.1	Bat Emergence Surveys .....	5
2.2	Endoscope Assessment .....	6
<b>3</b>	<b>RESULTS</b> .....	<b>6</b>
3.1	Nocturnal Surveys.....	6
3.2	Endoscope assessment.....	7
<b>4</b>	<b>DISCUSSION</b> .....	<b>7</b>
4.1	Summary of Relevant Legislation .....	7
4.2	Risk to Roosting Bats .....	8
<b>5</b>	<b>RECOMMENDATIONS</b> .....	<b>8</b>
5.1	Further Surveys.....	8
5.2	Impact Avoidance Measures .....	9
<b>6</b>	<b>CONCLUSION</b> .....	<b>9</b>
<b>7</b>	<b>REFERENCES</b> .....	<b>9</b>
<b>8</b>	<b>APPENDIX</b> .....	<b>10</b>
8.1	Appendix 1: Results Tables.....	10

## Tables

Table 1: Summary of Nocturnal Survey Results for All Surveyors of Hempyard Bridge, Ixworth...	7
Table 2: Dusk Emergence Survey Results for Hempyard Bridge, Ixworth. 9 <sup>th</sup> September 2020....	10
Table 3: Dawn Re-entry Survey Results for Southern Surveyor at Hempyard Bridge, Ixworth. 24 <sup>th</sup> September 2020.....	11

## **0 SUMMARY**

- 0.1 Adonis Ecology Ltd. was commissioned by Suffolk Highways to undertake two nocturnal bat surveys and an endoscope assessment of Hempyard Bridge, The Paddock, Ixworth, Suffolk, IP31 2HG, grid reference TL 9279 7056. It was understood that it is proposed to undertake repair works to the bridge, and that Suffolk County Council's ecologist has recommended two nocturnal bat surveys and an endoscope examination of the cracks in the brickwork to check for roosting bats.
- 0.2 In line with Bat Conservation Trust (BCT) guidelines (Collins, 2016), two surveys (one dusk emergence and one dawn re-entry) were undertaken on the 9<sup>th</sup> and 14<sup>th</sup> of September 2020, which each followed Natural England (2004) and Bat Conservation Trust (BCT) survey guidelines with regard to timings, duration and weather conditions (Collins, 2016). A thorough endoscope assessment was also undertaken on the 22<sup>nd</sup> of September 2020.
- 0.3 No bats were seen to enter or exit any roost site within the bridge during the nocturnal surveys and no bats, or signs or evidence of bats, were found during the endoscope assessment. In line with the guidelines, it was therefore considered that the risk of any regular roost occurring in the bridge was negligible. However, significant levels of bat activity were recorded during the dusk survey, and it was therefore considered that there was a very low residual risk of the bridge being used on occasion by roosting bats.
- 0.4 It was considered that a pre-commencement check of the bridge with an endoscope, as described in this report, would be sufficient to further reduce any risk of impact to bats and/or bat roosts to negligible.
- 0.5 With the impact avoidance measures described in this report completed, it was considered the proposed development could proceed with negligible risk of impact to bats, bat roosts or any local bat populations.

## **1 INTRODUCTION**

### **1.1 Background**

1.1.1 Adonis Ecology Ltd. was commissioned by Suffolk Highways to undertake two nocturnal bat surveys and an endoscope assessment of Hempyard Bridge, The Paddock, Ixworth, Suffolk, IP31 2HG, grid reference TL 9279 7056.

1.1.2 It was understood that it is proposed to undertake repair works to the bridge, and that Suffolk County Council's ecologist has recommended two nocturnal bat surveys and an endoscope examination of the cracks in the brickwork to check for roosting bats.

1.1.3 It was further understood that an endoscope survey was previously undertaken in 2017 and no bats were found (pers. comm., Seph Pochin, Suffolk County Council Ecologist).

#### *Aim and Objectives*

1.1.4 The aim of this report is to determine the likely impact of the proposed repair works on bats potentially roosting within the bridge, taking into account the species, numbers and status of roosts present (if a roost is confirmed), and how the bats are using the bridge, as well as how they will be impacted by the works on site, and the subsequent need and potential for impact avoidance, mitigation and enhancement as appropriate.

1.1.5 To achieve this aim, the report has the following objectives:

- to identify and describe potentially significant impact risks to bats relevant to legislation that is associated with the proposed works;
- to identify ways in which any significant risk of deleterious impacts could be avoided, wherever reasonably possible;
- for any significant impact risks to bats that could not reasonably be avoided, to describe the severity of impact, and outline likely mitigation/compensation options.

### **1.2 Legislation**

1.2.1 Legislation considered for this report included:

- Wildlife and Countryside Act 1981, as amended;
- Countryside and Rights of Way Act 2000;
- Natural Environment and Rural Communities (NERC) Act 2006;
- Conservation of Habitat and Species Regulations 2017 (as amended).

## 2 METHODOLOGY

### 2.1 Bat Emergence Surveys

2.1.1 Two surveyors were used during each of the survey occasions, the surveyors were as follows:

- Katrina Wells (covering the southern aspect of the bridge on both survey occasions), an ecologist employed by Adonis Ecology Ltd. who holds a Natural England Level 1 Class Licence for bats (2019-39619-CLS-CLS);
- Richard Sands (covering the northern aspect of the bridge on the 9<sup>th</sup> of September), Managing Director at Adonis Ecology Ltd. who hold a Natural England Level 2 Class Licence for bats (2015-11578- CLS-CLS)
- Terry Stopher (covering the northern aspect of the bridge on the 24<sup>th</sup> of September), a freelance ecological surveyor.

2.1.2 Both surveys were conducted in line with Natural England (English Nature, 2004) and Bat Conservation Trust (BCT) guidelines (Collins, 2016). In line with these guidelines, the dusk survey began 15 minutes before sunset (sunset being at 19:24 on the 9<sup>th</sup> of September) and finished 90 minutes after sunset. The dawn survey began at least 90 minutes before sunrise (sunrise being at 06:47 on the 24<sup>th</sup> of September) and continued until 15 minutes after sunrise.

#### *Weather*

2.1.3 The temperature during the survey on the 9<sup>th</sup> of September was 19°C. There was no cloud cover and little wind (1-2 on the Beaufort scale).

2.1.4 The temperature during the survey on the 24<sup>th</sup> of September was 8°C throughout the survey. There was no cloud cover and little wind (1-2 on the Beaufort scale).

#### *Detectors and Analysis*

2.1.5 Surveyors used Batbox Duet bat detectors connected to Roland R05 recording devices and/or Echometer Touch bat detectors connected to iPads or an Anabat Scout. The detectors were used where possible to record the number and likely species of bats emerging from or entering into the buildings being surveyed, as well as to record bat activity around the trees.

2.1.6 During the surveys, bat species, numbers and activities were all noted by the surveyors, and the audio from the bat detectors was recorded. Calls from the EchoMeter Touch and Anabat Scout were analysed using either the echometer touch software or Analoop. Calls recorded using the Batbox Duet detectors were checked using either BatScan Version 9 or BatSound software to help confirm species identification and numbers where possible.

### *Limitations*

- 2.1.7 The dates of the nocturnal surveys were slightly outside the BCT guidelines for buildings with moderate bat potential. These guidelines state that two surveys should be undertaken between May and September, with no more than one survey in September. Given that the first survey was undertaken just over a week into September, and the weather conditions were all within the guidelines and suitable for bats to be active, it was considered that this slight deviation from the guidelines would have a negligible effect on the reliability of the surveys. This was further supported by the lack of roosting bats on previous surveys and significant bat activity levels in the dusk survey.
- 2.1.8 It is generally accepted that bats may have several roosts in an area which they use, depending upon weather conditions, time of year etc., and so may be found roosting in a structure one night, and then not found there again for some time. Thus, detecting a transient or occasionally used bat roost can be difficult. However, the survey was considered sufficient to be reasonably confident in identifying any regularly used summer roosts.

## **2.2 Endoscope Assessment**

- 2.2.1 The endoscope assessment was undertaken in daylight on the 22<sup>nd</sup> of September 2020. The assessment consisted of a thorough inspection of the bridge from the banks and from a boat to identify all cracks, crevices and other features suitable for roosting bats, and a close investigation of all such features to search for bats themselves, as well as signs or evidence of bats such as bat droppings.

## **3 RESULTS**

### **3.1 Nocturnal Surveys**

#### *Nocturnal Surveys of Bridge*

- 3.1.1 A summary of the survey results can be seen in Table 1 below. Full survey results can be found in Tables 2 and 3 in Appendix 1.
- 3.1.2 No bats were seen to emerge from or enter into any roost site in the bridge during either of the two surveys.
- 3.1.3 During the dusk survey, high activity levels from low numbers of soprano pipistrelles *Pipistrellus pygmaeus*, likely Daubenton's bats *Myotis daubentonii* and common pipistrelles *Pipistrellus pipistrellus* were observed, with very occasional serotine *Eptesicus serotinus* passes also detected during the dusk survey. A single pass each of a Nathusius' pipistrelle *Pipistrellus nathusii* and a barbastelle *Barbastella barbastellus* were also recorded during the dusk survey. Most of the activity was of foraging bats along the river and adjacent trees. A maximum of three bats were seen or detected at any one time during the survey.

3.1.4 During the dawn survey, activity levels were very low and consisted predominantly of common pipistrelles with occasional soprano pipistrelles. No bats were detected or seen by the surveyor on the northern side of the bridge with all activity focussed on the southern side.

**Table 1: Summary of Nocturnal Survey Results for All Surveyors of Hempyard Bridge, Ixworth.**

Survey Date	Species Observed	Scientific Name	No. Roosts	Location of Roosts	Overall level of Activity On Site	Max No. Seen or Heard at One Time
09/09/20	Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	0	N/A	Moderate by low numbers	1
	Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	0	N/A	High by low numbers	2
	Daubenton's	<i>Myotis daubentonii</i>	0	N/A	Moderate by low numbers	1
	Serotine	<i>Eptesicus serotinus</i>	0	N/A	Very low by very low numbers	1
	Barbastelle	<i>Barbastella barbastellus</i>	0	N/A	Single pass	1
	Nathusius' pipistrelle	<i>Pipistrellus nathusii</i>	0	N/A	Single pass	1
24/09/20	Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	0	N/A	Low by low numbers	1
	Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	0	N/A	Very low by low numbers	1

## 3.2 Endoscope assessment

3.2.1 There were two significant features considered to be suitable for roosting bats, one on the northern aspect of the bridge and one on the south-west corner, as well as a number of smaller, more superficial features with lower suitability for roosting bats. Both of the significant features had multiple cracks fairly deep into the bridge structure which were considered to provide well sheltered roosting opportunities for crevice-dwelling bats.

3.2.2 All features suitable for roosting bats were thoroughly searched with an endoscope and no bats were found. The majority of the smaller features were heavily cobwebbed, and no signs or evidence of roosting bats, including bat droppings, were found in or associated with any of the potential roosting features.

## 4 DISCUSSION

### 4.1 Summary of Relevant Legislation

4.1.1 Bats are protected under the Conservation of Habitats and Species Regulations 2017 (as amended), as well as the Wildlife and Countryside Act 1981 as amended by the Countryside Rights of Way Act 2000. Offences likely to be relevant to repair works are to:



- deliberately capture, injure or kill a bat;
- deliberately disturb a bat in a way that would affect its ability to survive, breed, rear young, hibernate or migrate or significantly affect the local distribution or abundance of the species;
- damage or destroy a roost;
- intentionally or recklessly disturb a bat at a roost;
- intentionally or recklessly obstruct access to a roost.

4.1.2 Some bat species are also NERC Act 2006 Section 41 species.

## **4.2 Risk to Roosting Bats**

### *Risk to Roosting Bats in the Bridge*

4.2.1 No bats were found to be roosting in the bridge, and no signs of bats, such as bat droppings, were found during the endoscope survey. Although the first bat survey was slightly later than guidelines recommend, it was considered likely that a significant or regular roost earlier in the year, or during the hibernation period, would have resulted in droppings or other signs of bats being found during the endoscope assessment. It was therefore considered that there was a negligible likelihood of any regular roost occurring in the bridge.

4.2.2 However, given that a significant amount of bat activity was observed on the site, and as the bridge retains potential for bats to roost, there was considered to be a very low risk of bats roosting on an occasional basis in the bridge, and therefore the repair works would pose a very low risk of impact to bats and/or bat roosts.

4.2.3 The impact avoidance measures described in Section 5 below should be undertaken to reduce any risk of impact to bats and/or bat roosts to negligible.

## **5 RECOMMENDATIONS**

### **5.1 Further Surveys**

5.1.1 No further surveys for bats were considered necessary as it was considered that the surveys completed to date were sufficient to determine the likely status of bat roosts on site and to design appropriate impact avoidance and mitigation measures to reduce any risk of impact to bats and/or roosting bats to negligible.

### *Validity of Surveys*

- 5.1.2 It should be noted that nocturnal bat surveys are usually considered out of date after 18 months and if works have not been undertaken by this time, the nocturnal surveys would likely need to be repeated.

## **5.2 Impact Avoidance Measures**

- 5.2.1 To reduce any residual risk of impact to bats and/or bat roosts to negligible, the bridge should be checked again by endoscope immediately prior to works beginning, to ensure no bats are present and at risk of harm at the time of the works.
- 5.2.2 In the unlikely event a bat is found during the pre-works check or during the works, works should be postponed/cease immediately, and the ecologist would advise on how to proceed. This may include a requirement for further nocturnal surveys and/or the need to obtain a Natural England European Protected Species Licence (EPSL) to allow the works to proceed lawfully.

## **6 CONCLUSION**

- 6.1 *The surveys revealed no regular bat roosts in the bridge, but it was considered that the repair works could pose a very low risk of harm/impact to bats/transient bat roosts, in the unlikely event the bridge is used on an occasional basis by roosting bats. With the impact avoidance measures described in this report completed, it was considered the proposed repairs could proceed with minimal risk of impact to bats, bat roosts or local bat conservation.*

## **7 REFERENCES**

- BSI (2013). *BS 42020:2013 Biodiversity – Code of Practice for Planning and Development*. British Standards Institute, London.
- Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition)*. The Bat Conservation Trust, London.
- Natural England (2004). *Bat Mitigation Guidelines Version 2004*. English Nature, Peterborough.

## 8 APPENDIX

### 8.1 Appendix 1: Results Tables

Table 2: Dusk Emergence Survey Results for Hempyard Bridge, Ixworth. 9<sup>th</sup> September 2020.

Time	Surveyor	Bat Species and Number	Location and Activity	Observed	Detected
19:35	South + North	1 soprano pipistrelle	Single quiet pass	⊖	P
19:37	South	1 soprano pipistrelle	Multiple quiet passes	⊖	P
19:38	North	1 soprano pipistrelle	Single quiet pass	⊖	P
19:39	South	1 soprano pipistrelle	Single quiet pass	⊖	P
19:40	South	1 soprano pipistrelle	Multiple quiet passes	⊖	P
19:40	South + North	1 common pipistrelle	Single pass	⊖	P
19:41 – 19:46	South	1 soprano pipistrelle	Regular foraging along river and over bridge	P	P
19:41	North	1 soprano pipistrelle	Single quiet pass	⊖	P
19:43 – 20:11	North	1 soprano pipistrelle	Regular foraging	P	P
19:44 – 19:45	South	2 soprano pipistrelles	Foraging	⊖	P
19:45	North	1 common pipistrelle	Single quiet pass	⊖	P
19:46 – 20:54	South	1 common pipistrelle	Occasional – regular foraging	⊖	P
19:46 – 19:58	North	2 soprano pipistrelles	Regular foraging	⊖	P
19:51 – 19:52	North	1 common pipistrelle	Multiple passes	⊖	P
19:57	North	1 serotine	Single quiet pass	⊖	P
19:58 – 20:54	South	1 soprano pipistrelle	Regular – continuous foraging	⊖	P
19:58 – 20:54	North	1 common pipistrelle	Regular foraging	⊖	P
20:01	South	1 Nathusius' pipistrelle	Single, brief pass	⊖	P
20:09 – 20:54	North	1 Daubenton's	Continuous foraging over water	P	P
20:12 – 20:53	South	1 Daubenton's	Regular foraging	⊖	P
20:13	North	1 soprano pipistrelle	Foraging	⊖	P

20:16 – 20:54	North	1 soprano pipistrelle	Regular – continuous foraging	⊖	P
20:23	South	1 barbastelle	Single pass	⊖	P
20:25	South	2 common pipistrelles	Foraging	⊖	P
20:27	South	2 common pipistrelles	Foraging	⊖	P
20:35	North	2 soprano pipistrelles	Foraging	⊖	P
20:38	South	2 common pipistrelles	Foraging	⊖	P
20:45	South + North	1 serotine	Foraging	⊖	P

**Table 3: Dawn Re-entry Survey Results for Southern Surveyor at Hempyard Bridge, Ixworth. 24<sup>th</sup> September 2020.**

Time	Bat Species and Number	Location and Activity	Observed	Detected
05:19	Unidentified bat	Very quiet foraging	P	P
05:48 – 05:59	1 soprano pipistrelle	Foraging	⊖	P
06:02	1 common pipistrelle + 1 soprano pipistrelle	Foraging	⊖	P
06:12 – 06:14	1 common pipistrelle	Quiet foraging	⊖	P
05:53	1 common pipistrelle	Single pass	⊖	P
05:54 – 05:55	1 common pipistrelle	Foraging	⊖	P
05:59 – 06:01	1 common pipistrelle	Foraging	⊖	P
06:18	1 common pipistrelle then 1 soprano pipistrelle	Single pass each	⊖	P
06:22	1 common pipistrelle	Foraging	⊖	P
06:25	1 common pipistrelle	Single brief pass	⊖	P



SUFFOLK HIGHWAYS

HEMPYARD BRIDGE, IXWORTH

BAT SURVEY REPORT

OCTOBER 2023

**DATE ISSUED:** 18 OCTOBER 2023  
**JOB NUMBER:** BE10843  
**REPORT NUMBER:** 001

**SUFFOLK HIGHWAYS**

**HEMPYARD BRIDGE**

**BAT SURVEY REPORT**

**PREPARED BY:**

Lorraine Jenkins Ecologist



**REVIEWED AND  
APPROVED BY:**



*This report has been prepared by Wardell Armstrong LLP with all reasonable skill, care and diligence, within the terms of the Contract with the Client. The report is confidential to the Client and Wardell Armstrong LLP accepts no responsibility of whatever nature to third parties to whom this report may be made known.*

*No part of this document may be reproduced without the prior written approval of Wardell Armstrong LLP.*



## CONTENTS

0	SUMMARY.....	4
1	INTRODUCTION .....	5
1.1	Terms of Reference .....	5
1.2	Site Context .....	5
1.3	Survey Objectives.....	5
1.4	Legislative Framework .....	6
1.5	Caveats and Limitations .....	6
1.6	Quality Assurance & Environmental Management .....	6
2	METHODOLOGY.....	7
2.1	Emergence Surveys .....	7
2.2	Endoscope Inspection .....	7
2.3	Bat Emergence Survey Data Analysis.....	8
3	RESULTS AND EVALUATION.....	9
3.1	Endoscope Inspection .....	9
3.2	Emergence Surveys .....	9
4	DISCUSSION .....	10
4.1	Evaluation.....	10
4.1	Impact Risk to Roosting Bats.....	10
5	RECOMMENDATIONS .....	10
5.1	Further Surveys .....	10
5.2	Impact Avoidance Measures.....	10
6	CONCLUSION .....	11
7	REFERENCES.....	11

## APPENDICES

Appendix 1	Legislation and Policy Summary
Appendix 2	Dusk Emergence Results 22 August 2023
Appendix 3	Dusk Emergence Results 25 September 2023

## 0 SUMMARY

- 0.1.1 Wardell Armstrong LLP (WA) was commissioned by Suffolk Highways to undertake an update two nocturnal bat surveys and an endoscope assessment at Hempyard Bridge, The Paddock, Ixworth, Suffolk, IP31 2HG, grid reference TL 9279 7056.
- 0.1.1 Two bat emergence surveys were undertaken, on the 22<sup>nd</sup> August and 25<sup>th</sup> September 2023. An endoscope survey of all crevices that a bat could likely fit into was undertaken by a licensed bat surveyor on the 17<sup>th</sup> October 2023.
- 0.1.3 No bats were recorded emerging from the bridge, and no bats or bat signs were found during the endoscope survey.
- 0.1.1 The risk of impact to bats was considered to be very low at most, to low numbers of bats.
- 0.1.3 To reduce any residual risk of impact to bats and/or bat roosts to negligible, the bridge should be checked again by endoscope immediately prior to works beginning, to ensure no individual bats are present and at risk of harm at the time of the works.
- 0.1.1 In the highly unlikely event a bat is found during the pre-works check or during the works, works should be postponed/cease immediately, and the ecologist would advise on how to proceed.
- 0.1.1 With the impact avoidance measures described in this report completed, it was considered the proposed repairs could proceed with minimal risk of impact to bats, bat roosts or local bat conservation.
- 0.1.1 If the proposed repairs have not been undertaken within 18 months of the surveys described in this report, the surveys should be repeated prior to works.



## 1 INTRODUCTION

### 1.1 Terms of Reference

1.1.1 Wardell Armstrong LLP (WA) was commissioned by Suffolk Highways to undertake an update two nocturnal bat surveys and an endoscope assessment at Hempyard Bridge, The Paddock, Ixworth, Suffolk, IP31 2HG, grid reference TL 9279 7056.

1.1.2 It was understood that it is proposed to undertake repair works to the bridge, and that Suffolk County Council's ecologist had previously recommended two nocturnal bat surveys and an endoscope examination of the cracks in the brickwork to check for roosting bats (Adonis Ecology, 2020). These surveys were undertaken by Adonis Ecology in September 2020. As these surveys were considered to be out of date after 18 months and bridge repair works had yet to be undertaken, the surveys needed to be updated.

1.1.2 This report has been produced with reference to the current guidelines for bat surveys (Collins, 2023).

### 1.2 Site Context

1.1.2 The area of detailed ecological study referred to as 'the Site' comprises Hempyard Bridge. The Site is situated in Ixworth and is surrounded by riparian and woodland habitats.

### 1.3 Survey Objectives

1.1.2 The objectives of the bat surveys were to:

identify and describe potentially significant impact risks to bats relevant to legislation that is associated with the proposed works;

identify ways in which any significant risk of deleterious impacts could be avoided, wherever reasonably possible;

for any significant impact risks to bats that could not reasonably be avoided, to describe the severity of impact, and outline likely mitigation/compensation options.

## 1.4 Legislative Framework

- 1.1.1 In Great Britain all bat species and their roosts are fully protected under the Wildlife and Countryside Act 1981 (as amended) and also included as European Protected Species in the Conservation of Habitats and Species (Amendment) Regulations 2012 (which implements the EC Habitats and Species Directive).
- 1.1.2 The legislation makes it illegal to damage, obstruct or destroy bat roosts or disturb bats whilst occupying their roost. A roost is protected whether or not bats are present. A licence is required from Natural England to disturb or close a roost site.
- 1.1.2 A summary of legislation and policy surrounding bats is provided in Appendix 1.

## 1.5 Caveats and Limitations

- 1.1.1 Ecological surveys are limited by factors that affect species presence such as time of year, weather, migration patterns and behaviour. The surveys were undertaken in the 'optimal' survey period for bat activity and consequently there were no seasonal constraints to the survey.
- 1.1.2 Echolocation calls of the brown long-eared bats *Plecotus auritus* are significantly quieter than many other bat species within this country, therefore this species can be difficult to record and may at times go unrecorded.
- 1.1.2 Individual species from the genera *Myotis* and *Nyctalus* are difficult to distinguish from sonogram calls alone. *Pipistrellus* spp. social calls when emitted independently of echolocation calls can sometimes be difficult to distinguish between species. Where an individual species cannot be determined a genus is recorded.

## 1.6 Quality Assurance & Environmental Management

- 1.1.2 The surveys and assessments have been overseen by and the report checked and verified by a full member of CIEEM, who is bound by its code of professional conduct.
- 1.1.2 All surveys and assessments have been undertaken with reference to the recommendations given in British Standard BS 42020, and as stated within specialist guidance, as appropriate, and are referenced separately.
- 1.1.2 Surveys were undertaken by suitably qualified and experienced ecologists.

## 2 METHODOLOGY

### 2.1 Emergence Surveys

0.1.3 All dusk survey methodologies followed guidance within the Bat Workers' Manual (Joint Nature Conservation Committee, 2004) and Bat Surveys for Professional Ecologists - Good Practice Guidelines 3<sup>rd</sup> Edition (Collins, 2016).

0.1.3 The surveyors on the 22<sup>nd</sup> August 2023 were as follows:

Mary Haines (covering the southern aspect of the bridge on the 22<sup>nd</sup> of August), an ecologist employed by WA.

Keira Coventry (covering the northern aspect of the bridge on the 22<sup>nd</sup> of August), an ecologist employed by WA.

0.1.3 The surveyors on the 25<sup>th</sup> September 2023 were as follows:

James Whiffen-Brown (covering the northern aspect of the bridge on the 25<sup>th</sup> of September), an ecologist employed by WA.

Lorraine Jenkins (covering the southern aspect of the bridge on 25<sup>th</sup> of September), an ecologist employed by WA.

0.1.1 The dusk emergence surveys commenced in the evening approximately 15 minutes before sunset and finished 1.5 hours after sunset.

0.1.3 Dusk emergence surveys were undertaken within the immediate vicinity of the bridge. Each surveyor was located in a position that provided full coverage of the features considered suitable for supporting bats.

0.1.3 All bat activity was recorded using a Samsung tablet with Wildlife Acoustics Echometer software and a Wildlife Acoustics' EchoMeter Touch 2 Pro Ultrasonic Module. Species identification was made based on the characteristics of the call including peak frequency, minimum and maximum frequency, call duration and inter-pulse intervals. Where possible, flight characteristics of individual bats were also used to aid in species identification.

### 2.2 Endoscope Inspection

0.1.3 All inspections/hibernation checks of the bridge were undertaken by Richard Sands, who hold a Natural England Level 2 Class Licence for bats (2015-11578- CLS-CLS) on 17<sup>th</sup> October 2023. The endoscope inspections were undertaken in line with current

bat survey guidelines (Collins, 2023). An examination of the bridge was undertaken using an endoscope to check for evidence of bat activity such as staining, droppings, feeding remains, live and dead bats, as well as potential roost entry points.

## 2.3 Bat Emergence Survey Data Analysis

0.1.3 Data recorded using the iPad Wildlife Acoustics' EchoMeter and EchoMeter Touch 2 Pro Ultrasonic Modules were analysed on-site using the on-screen spectrogram and ID program, and then manually analysed using Wildlife Acoustics' Kaleidoscope (Version: 5.0, 2018) and Analook W analysis software (Version: 4.2n, 2017) to confirm identification of bat species recorded in the field.

### 3 RESULTS AND EVALUATION

#### 3.1 Endoscope Inspection

0.1.3 There were two significant features considered to be suitable for roosting bats, one on the northern aspect of the bridge and one on the south-west corner, as well as a number of smaller, more superficial features with lower suitability for roosting bats. Both of the significant features had multiple cracks fairly deep into the bridge structure which were considered to provide well sheltered roosting opportunities for crevice-dwelling bats.

0.1.3 The endoscope inspection of the bridge found no bats or signs of bats roosting in the bridge at the time of inspection. Many of the crevices were cobwebby. A number of clusters of drone flies *Eristalis* sp. were observed in some of the crevices.

#### 3.2 Emergence Surveys

0.1.3 The weather conditions recorded during the surveys are shown in Table 1.

Table 1: Dusk Emergence Weather Conditions				
Date	22 August 2023		25 September 2023	
Sunset	20:09		18:52	
	Start	End	Start	End
Time	19:37	21:37	18:34	20:19
Temperature	21 degrees C	17 degrees C	19 degrees C	16 degrees C
Cloud Cover	40%	40%	60%	35%
Wind	13 km/h	8 km/h	11 km/h	5 km/h
Precipitation	Dry	Dry	Dry	Dry

0.1.3 No bats were recorded emerging from or entering the bridge during the surveys.

0.1.3 Although no bats were seen emerging from the bridge during the emergence surveys, a number of bats were recorded commuting under the bridge and around the river. Soprano pipistrelle *Pipistrellus pygmaeus* bat activity was high with a maximum of two recorded at any one time. Common pipistrelle *Pipistrellus pipistrellus* activity was also frequent, with up to two recorded at any one time. Single *Myotis* sp. was recorded frequently over the survey visits, with occasional *Noctule Nyctalus noctula* on the September survey visit. Survey results are detailed in Appendix 2 and 3.

## 4 DISCUSSION

### 4.1 Evaluation

4.1.1 No bats were found to be roosting in the bridge and no signs of bats, such as bat droppings, were found during the endoscope survey. Although the endoscope survey was slightly later than guidelines recommend, given the lack of any signs and lack of evidence of any bat roosts in the bridge in previous years, it was considered there was a negligible likelihood of any regular bat roost occurring in the bridge.

0.1.1 However, given that a significant amount of bat activity was observed on the site, and as the bridge retains potential for bats to roost, there was considered to be a very low risk of very low numbers of bats roosting on an occasional basis in the bridge

### 4.1 Impact Risk to Roosting Bats

4.1.1 Given the negligible likelihood of a regular bat roost and the very low risk of encountering very low numbers of bats, the repair works were considered to pose a very low risk of impact to low numbers of bats.

0.1.1 The impact avoidance measures described in Section 5 below should be undertaken to reduce the risk of impact to bats and/or bat roosts to negligible. The loss of very transient bat roosts at most, if present, was not considered to be significant.

## 5 RECOMMENDATIONS

### 5.1 Further Surveys

5.1.1 No further emergence surveys for bats were considered necessary as it was considered that the surveys completed to date were sufficient to determine the likely status of bat roosts on site and to design appropriate impact avoidance and mitigation measures to reduce any risk of impact to bats and/or roosting bats to negligible.

0.1.3 It should be noted that nocturnal bat surveys are usually considered out of date after 18 months and if works have not been undertaken by this time, the nocturnal surveys would likely need to be repeated.

### 5.2 Impact Avoidance Measures

0.1.3 To reduce any residual risk of impact to bats and/or bat roosts to negligible, the bridge should be checked again by endoscope immediately prior to works beginning, to ensure no individual bats are present and at risk of harm at the time of the works.

- 0.1.3 In the unlikely event a bat is found during the pre-works check or during the works, works should be postponed/cease immediately, and the ecologist would advise on how to proceed. This may include a requirement for further nocturnal surveys and/or the need to obtain a Natural England European Protected Species Licence (EPSL) to allow the works to proceed lawfully.

## 6 CONCLUSION

- 0.1.3 It was considered that the repair works could pose a very low risk of harm/impact to bats/transient bat roosts, in the unlikely event the bridge is used on an occasional basis by roosting bats. With the impact avoidance measures described in this report completed, it was considered the proposed repairs could proceed with minimal risk of impact to bats, bat roosts or local bat conservation.

## 7 REFERENCES

Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3<sup>rd</sup> edn). The Bat Conservation Trust, London.

Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn). The Bat Conservation Trust, London.

Chartered Institute of Ecological and Environmental Management. (2012). Guidelines for Preliminary Ecological Appraisal.

Joint Nature Conservation Committee, Handbook for Phase 1 habitat survey: A technique for environmental audit (2007), English Field Unit, Nature Conservancy Council.

Mitchell-Jones, A.J, & McLeish, A.P. Ed., (2004), 3rd Edition Bat Workers' Manual, JNCC.

National Biodiversity Network (2013) NBN Gateway <http://data.nbn.org.uk/>

Appendix 1  
Legislation and Policy Summary



## Appendix 1: Legislation and Policy Summary

All bat species are listed within Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and receive protection under section 9 of this act. They are also protected under section 39 of the Conservation (Natural Habitats, &c.) Regulations 1997 (and amendments) (known as the Habitats Regulations). Taken together the following offences apply under the combined acts:

Regulation 41 of the Habitats Regulations 2012, states that a person commits an offence if they:

- Deliberately or intentionally capture, injure or kill a bat;
- Intentionally or recklessly damage, destroy or obstruct access to; any structure or place used for shelter or protection by a bat;
- deliberately, intentionally or recklessly disturb a bat;
- damage or destroy a breeding site or resting place of a bat; or
- keep, transport, sell, exchange or offer for sale any bat(s) or anything derived from this species.

Disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or in the case of animals of a hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong.

The Natural Environment and Rural Communities (NERC) Act 2006 places a duty on public bodies to have regard for the conservation of biodiversity and maintains lists of species and habitats which are of principal importance for the purposes of conserving biodiversity in England and Wales. These lists supersede Section 74 of the CRow Act 2000.

The United Kingdom Biodiversity Action Plan (UK BAP) first published in 1994 and updated in 2007, is a Government initiative designed to implement the requirements of the Convention of Biological Diversity to conserve and enhance species and habitats. The UK BAP contains a list of priority habitats and species of conservation concern in the UK, and outlines biodiversity initiatives designed to enhance their conservation status. The priority habitats and species in England accord with those listed on Section 41 of the NERC Act.

The NPPF underpins the Government's planning policies for England and how these are to be applied. The central theme of the NPPF is a presumption in favour of sustainable development. This presumption does not apply where development requiring Appropriate

Assessment under the Birds or Habitats Directives is being considered, planned or determined.

The NPPF states:

‘When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:

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

proposed development on land within or outside a Site of Special Scientific Interest (SSSI) likely to have an adverse effect on a SSSI (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site’s notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs;

development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;

opportunities to incorporate biodiversity in and around developments should be encouraged;

planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss; and

the following wildlife sites should be given the same protection as European sites:

potential Special Protection Areas (SPA) and possible Special Areas of Conservation (SAC);

listed or proposed Ramsar sites; and

sites identified, or required, as compensatory measures for adverse effects on European sites, potential SPAs, possible SACs, and listed or proposed Ramsar sites.’

The NPPF requires the Planning Authority to have a responsibility to promote the preservation, restoration and re-creation of priority habitats, ecological networks and the

protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan. In addition, the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government’s commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

Appendix 2  
Dusk Emergence Results 22 August 2023

Time	Surveyor	Bat species and number	Location and activity	Observed	Detected
20:05	Kiera Coventry	1 x Soprano Pipistrelle	Heard not seen	No	Yes
20:13	Mary Haine	2 x Soprano Pipistrelle	Seen flying over bridge	Yes	Yes
20:13-20:14	Kiera Coventry	1 x Soprano Pipistrelle	Heard not seen	No	Yes
20:15-20:20	Kiera Coventry & Mary Haine	Multiple Soprano Pipistrelle	Heard not seen	No	Yes
20:20	Kiera Coventry & Mary Haine	1 x Soprano Pipistrelle	Seen flying south-north over bridge	Yes	Yes
20:21-20:33	Kiera Coventry & Mary Haine	Multiple Soprano Pipistrelle	Heard not seen	No	Yes
20:22	Kiera Coventry	1 x Soprano Pipistrelle	Seen flying southeast to northwest over bridge	Yes	Yes
20:23	Kiera Coventry & Mary Haine	1 x Soprano Pipistrelle	Seen flying southeast to northeast over bridge	Yes	Yes
20:24	Kiera Coventry & Mary Haine	1 x Soprano Pipistrelle	Seen flying south-north over bridge	Yes	Yes
20:26-20:27	Kiera Coventry & Mary Haine	1 x Common Pipistrelle	Heard not seen	No	Yes
20:27	Mary Haine	1 x Pipistrelle sp.	Seen flying over river	Yes	Yes
20:29	Mary Haine	1 x Soprano Pipistrelle	Seen flying from arch on right side of bridge	Yes	Yes
20:30-20:34	Kiera Coventry & Mary Haine	1 x Common Pipistrelle	Heard not seen	No	Yes
20:32	Kiera Coventry	Multiple Pipistrelle sp.	Seen flying north-south over bridge	Yes	Yes
20:34-20:43	Mary Haine	1 x Myotis sp.	Seen flying under and around bridge	Yes	Yes
20:36-20:39	Mary Haine	1 x Soprano Pipistrelle	Heard not seen	No	Yes
20:34-21:22	Kiera Coventry	1 x Myotis sp.	Heard not seen	No	Yes
20:41	Mary Haine	1 x Common Pipistrelle	Heard not seen	No	Yes
20:45-20:49	Mary Haine	1 x Myotis sp.	Seen flying over river & under bridge	Yes	Yes
20:48	Kiera Coventry	1 x Myotis sp.	Seen flying north-south under bridge	Yes	Yes
21:00	Mary Haine	1 x Common Pipistrelle	Heard not seen	No	Yes
21:02	Mary Haine	1 x Myotis sp.	Seen flying under bridge	Yes	Yes
21:03-21:05	Mary Haine	1 x Common Pipistrelle	Heard not seen	No	Yes
21:06	Mary Haine	1 x Common Pipistrelle	Seen flying under bridge	Yes	Yes
21:09	Kiera Coventry	1 x Myotis sp.	Seen flying south-north over bridge	Yes	Yes
21:09	Mary Haine	2 x Common Pipistrelle	Seen flying under bridge	Yes	Yes

Time	Surveyor	Bat species and number	Location and activity	Observed	Detected
21:12-21:16	Mary Haine	1 x Myotis sp.	Heard not seen	No	Yes
21:13	Kiera Coventry	1 x Myotis sp.	Seen flying over river	Yes	Yes
21:18	Mary Haine	1 x Common Pipistrelle	Seen flying under bridge	Yes	Yes
21:21	Mary Haine	1 x Myotis sp.	Seen flying under bridge	Yes	Yes
21:21-21:30	Mary Haine	1 x Common Pipistrelle	Heard not seen	No	Yes
21:22	Kiera Coventry	1 x Common Pipistrelle	Seen flying north-south over bridge	Yes	Yes
21:30	Kiera Coventry	1 x Myotis sp.	Commuting north-south	Yes	Yes
21:32	Mary Haine	1 x Soprano Pipistrelle	Heard not seen	No	Yes
21:33-21:39	Mary Haine	1 x Common Pipistrelle	Heard not seen	No	Yes

Appendix 3  
Dusk Emergence Results 25 September 2023

Time	Surveyor	Bat species and number	Location and activity	Observed	Detected
18:55	Lorraine Jenkins & James Whiffen-Brown	1 x Noctule	Heard not seen	No	Yes
19:00	James Whiffen-Brown	1 x Soprano Pipistrelle	Heard not seen	No	Yes
19:03	Lorraine Jenkins	1 x Soprano Pipistrelle	Heard not seen	No	Yes
19:04	Lorraine Jenkins & James Whiffen-Brown	1 x Noctule	Hearn not seen	No	Yes
19:05	James Whiffen-Brown	3 x Soprano Pipistrelle	Seen flying over bridge	Yes	Yes
19:06	Lorraine Jenkins	1 x Common Pipistrelle	Heard not seen	No	Yes
19:09-19:13	Lorraine Jenkins	2 x Soprano Pipistrelle	Seen flying over surveyor	Yes	Yes
19:14-20:14	Lorraine Jenkins	3 x Soprano Pipistrelle	Seen flying over and behind surveyor	Yes	Yes
19:24	James Whiffen-Brown	2 x Soprano Pipistrelle	Seen flying over bridge	Yes	Yes
19:27	Lorraine Jenkins	1 x Common Pipistrelle	Heard not seen	No	Yes
19:31-19:42	James Whiffen-Brown	1 x Myotis sp.	Heard not seen	No	Yes
20:14-20:20	Lorraine Jenkins & James Whiffen-Brown	At least 1 Soprano Pipistrelle	Heard not seen	No	Yes



**STOKE-ON-TRENT**

Sir Henry Doulton House  
Forge Lane  
Etruria  
Stoke-on-Trent  
ST1 5BD  
Tel: +44 (0)1782 276 700

**BIRMINGHAM**

Two Devon Way  
Longbridge Technology Park  
Longbridge  
Birmingham  
B31 2TS  
Tel: +44 (0)121 580 0909

**BOLTON**

41-50 Futura Park  
Aspinall Way  
Middlebrook  
Bolton  
BL6 6SU  
Tel: +44 (0)1204 227 227

**CARDIFF**

Tudor House  
16 Cathedral Road  
Cardiff  
CF11 9LJ  
Tel: +44 (0)292 072 9191

**CARLISLE**

Marconi Road  
Burgh Road Industrial Estate  
Carlisle  
Cumbria  
CA2 7NA  
Tel: +44 (0)1228 550 575

**EDINBURGH**

Great Michael House  
14 Links Place  
Edinburgh  
EH6 7EZ  
Tel: +44 (0)131 555 3311

**GLASGOW**

2 West Regent Street  
Glasgow  
G2 1RW  
Tel: +44 (0)141 433 7210

**LEEDS**

36 Park Row  
Leeds  
LS1 5JL  
Tel: +44 (0)113 831 5533

**LONDON**

Third Floor  
46 Chancery Lane  
London  
WC2A 1JE  
Tel: +44 (0)207 242 3243

**NEWCASTLE UPON TYNE**

City Quadrant  
11 Waterloo Square  
Newcastle upon Tyne  
NE1 4DP  
Tel: +44 (0)191 232 0943

**TRURO**

Baldhu House  
Wheal Jane Earth Science Park  
Baldhu  
Truro  
TR3 6EH  
Tel: +44 (0)187 256 0738

**International offices:**

**ALMATY**

29/6 Satpaev Avenue  
Regency Hotel  
Office Tower  
Almaty  
Kazakhstan  
050040  
Tel: +7(727) 334 1310

**MOSCOW**

21/5 Kuznetskiy Most St.  
Moscow  
Russia  
Tel: +7(495) 626 07 67