

Natural Resources Wales

**Stephenson Street Flood Defence  
Scheme**

**Preliminary Ecological Appraisal  
Addendum - Railway Wall Access  
Route**

274580-ARP-XX-RW-RP-EN-0002

Issue 2 | 10 December 2020

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 274580-00

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**ARUP**

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# 1 Introduction

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## 1.1 Background

Natural Resources Wales (NRW) commissioned Ove Arup and Partners Ltd (Arup) to complete the detailed design of their preferred option at Stephenson Street. The project will manage flood risk to the residents, businesses and infrastructure of Spytty from the Stephenson Street Embankment in accordance with the Severn Estuary Strategy (i.e. hold the line with a standard of protection of 1:200 year tidal event with allowance for 50 years sea level rise). The preferred option comprises construction of 1.7km new defences (bund, sheet pile wall and reinforced concrete wall) and 450m new highway, with potential to incorporate further landscape enhancements.

A Preliminary Ecological Appraisal (PEA)<sup>1</sup> has already been completed for the main part of the scheme and there have been a number of addendums as the scheme design has been developed.

This PEA addendum has been prepared for the construction access route required to reach the Railway Flood Wall site. A PEA addendum has already been prepared for the Railway Flood Wall site itself in September 2019<sup>2</sup> which should be read in conjunction with the main PEA for the scheme<sup>3</sup>.

The Nash Flood Wall construction access route will run along an existing hard standing track and into broadleaved woodland and scrub as shown in Figure 1.

See sections 1.2, 1.3, 1.4 and 1.5 of the 2019 PEA Report for Proposed Works, Study Area, Objectives and Legislative Context.

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<sup>1</sup> Chartered Institute of Ecology and Environmental Management (CIEEM) (2018). Guidelines for Preliminary Ecological Appraisal. Second Edition.

<sup>3</sup> Arup (2018). Ecological appraisal report: Stephenson Street.

## 2 Methods

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See Section 2 of the 2019 PEA report<sup>2</sup> for the methodology used for Extended Phase 1 Habitat Survey and great crested newt (*Triturus cristatus*) Habitat Suitability Index (HSI) assessment.

The Extended Phase 1 Habitat Survey and HSI was undertaken on 17<sup>th</sup> September 2020, by Arup ecologists Kathryn Jones (ACIEEM) and Alexandra Kinsey.

### 2.1 Limitations

During the Extended Phase 1 Habitat Survey, some areas of dense scrub were not accessible for survey. It is therefore not possible to rule out the presence of protected species in this area.

It should be stressed that the findings presented in this study represent those at the time of survey and reporting, and data collected from available sources. Ecological surveys are limited by factors which affect the presence of species, such as temporal weather conditions, migration patterns and behaviour.

The weather is not considered to be a limitation, as all surveys were undertaken during optimal weather conditions. Every effort has been made to ensure that the findings of the study present as accurate an interpretation as possible of the species and habitats within the study area.

## 3 Results

### 3.1 Desk Study

#### 3.1.1 Statutory Designated Sites

The search using MAGIC highlighted four European sites and three national statutory designated sites within 5 km and 2 km of the Site boundary respectively. All statutory designated Sites and their proximity to the Site are listed in Table 1 below. See Appendix B of the 2020 PEA report<sup>Error! Bookmark not defined.</sup> for full citations.

**Table 1:** Statutory designated Sites within 5 km and 2 km of the Site boundary, for international and national Sites, respectively

Site Name	Approximate Distance from the Site
<b>Internationally Designated Sites</b>	
River Usk Special Area of Conservation (SAC)	420m west
Severn Estuary Ramsar Site	1.8km south west (hydrologically connected via the River Usk)
Severn Estuary SAC	1.8km south west (hydrologically connected via the River Usk)
Severn Estuary Special Protection Area (SPA)	1.6km south west (hydrologically connected via the River Usk)
<b>Nationally Designated Sites</b>	
River Usk Site of Special Scientific Interest (SSSI)	420m west
Gwent Levels – Nash and Goldcliff SSSI	1km east
Newport Wetlands (National Nature Reserve NNR))	1.7km south (hydrologically connected via the River Usk)

#### 3.1.2 Non-Statutory Designated Sites

There are six non-statutory designated sites within 2 km of the Site, all of which are Sites of Importance for Nature Conservation (SINCs). All non-statutory

designated sites and their proximity to the Site are listed in Table 2 below. See Appendix B of the 2020 PEA report<sup>Error! Bookmark not defined.</sup> for full citations.

**Table 2:** Non-Statutory Designated Sites within 2 km of the Site boundary

Site Name	Approximate Distance from the Site
Solutia SINC	Immediately north of the Site
Alpha Steel SINC	Immediately south of the Site
Marshall's SINC	350 m west
Julian's Gout Land SINC	1.2 km south east of the Site
Gwent Wetland Reserve SINC	1.7 km south of the Site

Solutia SINC supports a series of improved and semi-improved grasslands with traditional ditches and ponds, supporting a range of species including nesting birds such as Cetti's warbler (*Cettia cetti*) and invertebrates including hairy dragonfly (*Brachyton prantense*).

Alpha Steel is an Area of former levels, scrub, and other habitat such as support a range of species including scarce moth species, birds such as Cetti's warbler, plants including orchids: marsh helleborine (*Epipactis palustris*), bee orchid (*Ophrys apifera*), pyramidal orchid (*Anacamptis pyramidalis*), and spotted orchid sp. (*Dactylorhiza* spp).

Marshall's SINC is notified for its mosaic of habitats including scrub and tall ruderal, post-industrial land, neutral grassland and wetland along the banks of the Usk.

Julian's Gout Land SINC is an area of maritime influenced semi-improved neutral grassland, with willow carr and large populations of marsh helleborine, marsh orchids and narrow-leaved bird's-foot-trefoil (*Lotus glaber*).

Gwent Wetland Reserve SINC is a mosaic of wet grassland, reedbeds, open water, hedgerows and saline lagoon, which supports internationally important numbers of wildfowl as well as Priority species such as water vole, great crested newt and brown hare (*Lepus europaeus*).

### 3.1.3 Protected and Notable Species

SEWBRc provided data on protected and notable species within 2km of the Site boundary. Reptiles, amphibians and mammal records are detailed in Table 3 below.

**Table 3:** Summary of protected reptile, amphibian, mammal records within 2km of the Site boundary from the last ten years. Distances are approximate

Species / Group	Status <sup>4</sup>	Summary of Records	Year of nearest record <sup>5</sup>
<b>Amphibians and Reptiles</b>			
Great crested newt ( <i>Triturus cristatus</i> )	EPS, WCA, Section 7	Thirteen records with the closest 463m east in the Solutia site, Newport Docks.	Most recent record in 2015.
Common frog ( <i>Rana temporaria</i> )	WCA, Section 7	site, Newport Docks. Most recent record in 2015. Common frog ( <i>Rana temporaria</i> ) WCA, Section 7 One record at 843m east in the Solutia site	2017
Common toad ( <i>Bufo bufo</i> )	WCA, Section 7	Two records. The closest at 843m east in the Solutia site	Most recent in 2017.
Slow worm ( <i>Anguis fragilis</i> )	WCA, Section 7	One record 1.8km north west in Maes Glas Landfill Site.	2015
Common lizard ( <i>Zootoca vivipara</i> )	WCA, Section 7	Two records with the closest 1.1km west in Newport Docks.	Most recent record 2011.
Grass snake ( <i>Natrix helvetica</i> )	WCA, Section 7	Three records with the closest at 1.1km east at Pye Corner	Most recent record in 2017.
<b>Bats</b>			
Noctule bat ( <i>Nyctalus noctula</i> )	EPS, WCA, Section 7	One record 1.1km north west in Newport Docks.	2012
Brown long-eared bat ( <i>Plecotus auritus</i> )	EPS, WCA, Section 7	One record of a roost 1.9km south west in Hains Court	2011
Common pipistrelle ( <i>Pipistrellus pipistrellus</i> )	EPS, WCA, Section 7	Four records with the closest 1.2km west in Newport Docks.	Most recent in 2017

<sup>4</sup> EPS = European Protected Species as listed under Schedule 2 of the Conservation of Habitats and Species Regulations (2010)

WCA = Species protected under Schedule 5 (animals) or Schedule 8 (plants) of the Wildlife and Countryside Act (1981) as amended

Section 7 = Species listed in Section 7 of the Environment (Wales) Act 2016

<sup>5</sup> Only records from the last ten years are used.

Species / Group	Status <sup>4</sup>	Summary of Records	Year of nearest record <sup>5</sup>
Whiskered bat ( <i>Myotis mystacinus</i> )	EPS, WCA, Section 7	Closest record is 1.2km north of the Site.	2017
Natterer's bat ( <i>Myotis nattereri</i> )	EPS, WCA, Section 7	One record 1.4 km north east	2011
<b>Mammals</b>			
Grey Seal ( <i>Halichoerus grypus</i> )	EPA, WCA, Section 7	One record 1.4 km north west of the Site.	2018
Otter ( <i>Lutra lutra</i> )	EPS, WCA, Section 7	The record is at 1.4 km north west of the Site.	2008
Water vole ( <i>Arvicola amphibius</i> )	WCA, Section 7	No records were provided by SEWBRc for recent water vole but information supplied by Welsh Government indicates that water vole are present 1 km to the east of the Site.	2018
Badger ( <i>Meles meles</i> )	BA	One record with the closest 1.3 km east in Nash Road. Records supplied by the Welsh Government from surveys associated with the new proposed M4 corridor suggest there are badger setts along the railway line, and 200 m to the east of the Site	2016
Hedgehog ( <i>Erinaceus europaeus</i> )	WCA, Section 7	SEWBRc returned five records with the closest 1013 m north east on Nash Road.	2017

### 3.1.3.1 Birds

SEWBRc provided records of ten birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 within the 2 km search area from the last 10 years. Of these



(listed in Appendix B in full), two are considered to have the potential to breed locally, Cetti's warbler and little ringed plover (*Charadrius dubius*).

SEWBReC also provided numerous records of Section 7 birds. These are listed in full in Appendix B in the 2020 PEA report<sup>Error! Bookmark not defined.</sup>.

### 3.1.3.2 Section 7 Species

SEWBReC returned data on Section 7 species within the 2 km search area. These included flowering plants: Deptford pink (*Dianthus armeria*), divided sedge (*Carex divisa*), yellow bird's-nest (*Monotropa hypopitys* subsp. *hypophegea*), and cornflower (*Centaurea cyanus*).

Fish species included: European eel (*Anguilla anguilla*), whiting (*Merlangius merlangus*) and smelt (*Osmerus eperlanus*).

There are numerous Section 7 moth and butterfly species records, including small square spot (*Diarsia rubi*), shaded broad bar (*Scotopteryx chenopodiata*), rosy rustic (*Hydraecia micacea*), grayling (*Hipparchia semele*), ghost moth (*Hepialus humuli*), august thorn (*Ennomos quercinaria*), large wainscot (*Rhizedra lutosa*), centre barred sallow (*Atethmia centrigo*), sallow (*Cirrhia icteritia*), small heath (*Coenonympha pamphilus*), grizzled skipper (*Pyrgus malvae*), latticed heath (*Chiasmia clathrata*), mottled rustic (*Caradrina morpheus*), rustic (*Hoplodrina blanda*), garden tiger (*Arctia caja*), ear moth (*Amphipoea oculea*), dot moth (*Melanchra persicariae*) and cinnabar moth (*Tyria jacobaeae*).

Other insects include shrill carder bee (*Bombus sylvarum*) and brown-banded carder bee (*Bombus humilis*).

## 3.2 Field Survey

### 3.2.1 Habitats – Extended Phase 1 Survey

A total of nine habitat types were identified on Site. They are shown on Figure 1 and summarised below. All Target Notes (TN) recorded during the survey are also shown on Figure 1.

Much of the Site comprised dense or scattered scrub, consisting of bramble (*Rubus fruticosus* agg.), buddleia (*Buddleja davidii*), hawthorn (*Crataegus monogyna*) and rose (*Rosa* sp.). Towards the north of the Site, scrub lies either side of a hard-standing track. There was also a treeline of mature silver birch (*Betula pendula*) parallel to the path.

Towards the south of the Site there were areas of semi-natural broadleaved woodland, with species including silver birch, English oak (*Quercus robur*), blackthorn (*Prunus spinosa*), hawthorn, willow (*Salix* spp.) with ivy (*Hedera helix*) understory in many places.

There was broad-leaved woodland plantation towards the south with fences running from north west to south east. Species in this area included mature willow, oak and hawthorn.

One watercourse was present on Site, a small culvert (TN6) that runs through dense scrub. The water was still with duckweeds (*Lemnoideae* spp.) present on the surface and the banks were made of brick. The culvert was shaded by trees and there was a dry ditch which ran through a disused camp (TN3). This was vegetated with bramble and is likely to be dry throughout the year. Photographs of the habitats are given in Appendix A.

No invasive plants were identified during the Extended Phase 1 Habitat survey.

A separate report detailing an Extended Phase 1 Habitat of the Railway Wall site, details habitats present within the southern part of the Site **Error! Bookmark not defined.**

### 3.2.2 Target Notes

Descriptions of the Target Notes identified on Site are detailed in Table 4 below.

**Table 4: Target Notes**

Target Note Number	Target Note Description
TN1	Disused badger sett. Four entrances all blocked with debris. No other signs of badger.
TN2	Oak tree with low bat roost suitability - dense ivy. Two large nests/dreys at the top
TN3	Disused camp / shelter (from human activity).
TN4	Crack willow with low bat roost suitability - lifted bark on west branch at 8m high.
TN5	Rabbit holes.
TN6	Culvert. Standing water.
TN7	Brash piles under overhead power lines.
TN8	Crack willow with moderate bat roost suitability. Hazard beam and tear out.
TN9	Oak with low bat roost suitability. Some splits which would only be suitable for single bats
TN10	Willow tree with moderate bat roost suitability next to culvert. Woodpecker hole and cavity approximately 3m high, facing south west.

## 3.3 Species

### 3.3.1 Badger

One disused badger sett was identified during the Extended Phase 1 Habitat survey, (TN1). This had four entrances, which were all blocked with debris and indicating that these were not active at the time of the survey. Badgers are known to be present within the Nash Wastewater Treatment Works and Uskmouth power station (approximately 1.45 km south of the Site). It was not possible to inspect all areas of dense areas of scrub within the Site, and therefore the presence of further badger setts within these areas cannot be ruled out.

### 3.3.2 Bats

There were five trees with potential roost features identified on Site. Two had moderate suitability: TN8 and TN10; and three had low suitability: TN2, TN4 and TN9. Given that these are away from the proposed access route, shown in Figure 1, it is not anticipated these trees will be directly impacted by the proposed Works.

The Site has the potential to support foraging and commuting bats that may be roosting in the surrounding area due to the presence of dense scrub, a waterbody and linear features.

### 3.3.3 Dormice

The brambles and scrub on Site provide suitable foraging and nesting habitats for dormice. However, fragmentation from other potential dormouse habitat including those with dormouse records within the wider area due to barriers such as roads, rivers and rail means dormouse are unlikely to occur within the Site. Furthermore, M4 surveys undertaken in the area of the Site did not find any evidence of this species being present.

### 3.3.4 Otter and Water Vole

No signs of otter or water vole were observed during the Extended Phase 1 Habitat Survey. No suitable habitat was identified on Site for water vole as the culvert had brick walls, unsuitable for burrows, and there was no vegetation close to the banks which would provide a food source for this species. Water vole are therefore not considered further in this assessment.

Otter are a qualifying feature of the nearby River Usk SAC. Otter may use the River Usk and adjacent lagoons for commuting and foraging and previous surveys have found evidence of otters towards the north of the Site<sup>Error! Bookmark not defined.</sup>. No otter lay-ups were recorded during the survey. None of the areas within the Site were assessed as being suitable for breeding, or places of permanent rest.

### 3.3.5 Other Mammals

There were two structures identified in a mature oak tree which may have been grey squirrel (*Sciurus carolinensis*) dreys (TN2). There were also rabbit (*Oryctolagus cuniculus*) holes (TN5) in the scrub area.

It is likely that these mammals such as the aforementioned would occur within the Site in wooded / scrub habitats, and potentially more notable species such as the West European hedgehog (*Erinaceus europaeus*), a Section 7 species. Significant populations of these species are unlikely to occur within the Site.

### 3.3.6 Birds

The scrub and woodland on Site may support nesting birds. Robin (*Erithacus rubecula*), wren (*Troglodytes* Sp.), jay (*Garrulus glandarius*) buzzard (*Buteo buteo*) long-tailed tit (*Aegithalos caudatus*) and chiffchaff (*Phylloscopus collybita*) were all recorded in adjacent habitats during the Extended Phase 1 habitat survey.

### 3.3.7 Reptiles

The mosaic of habitats, including scrub and brash piles (TN7), provide suitable habitat for reptiles including common lizard, slow worm and grass snake.

### 3.3.8 Amphibians – Great Crested Newts

The HSI score of the culvert in TN6 was 0.49. This score is considered as having poor suitability supporting great crested newts<sup>6</sup>. Since the culvert has slow running water it is considered unsuitable for supporting great crested newts; the lack of positive records from previous surveys<sup>Error! Bookmark not defined.</sup> further supports this. Photographs of the waterbody are given in Appendix A. Great crested newts are therefore not considered further in this assessment.

It is likely that the waterbodies may support common amphibians such as common frog and smooth newt, which may also use adjacent terrestrial habitat for foraging.

### 3.3.9 Invertebrates

Areas of woodland / scrub within the Site are likely to support at least a moderate range of invertebrate species, potentially including Section 7 species. However, significant populations of any of these species are considered unlikely to occur within the Site.

### 3.3.10 Fish

The waterbodies on site consist of ditches and sludge lagoons that periodically dry out. No fish species are considered likely to use the waterbodies.

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<sup>6</sup> Odiham et al (2000) in ARG UK Advice Note 5: Great crested newt Habitat Suitability Index

## 4 Recommendations

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Recommendations for further consultation, further species surveys or general best practice mitigation to minimise impacts of the Proposed Works on habitat and species are stated below, in line with PEA guidance<sup>7</sup>. Measures to enhance biodiversity are also recommended in this section.

### 4.1 Pre-Construction & Vegetation Clearance

#### 4.1.1 Designated Sites

A Habitat Regulation Assessment (HRA) has been produced for this scheme to date<sup>8</sup> and should be updated to assess the effect of potential access proposals on internationally designated sites within 10km of the Site. As a result of new case law as ruled by the European Court of Justice (ECJ, 2018)<sup>9</sup>, mitigation measures relating to qualifying features of the protected sites cannot be included within the Screening Stage of HRA, and therefore any potential pathways for effect will need to be evaluated within an Appropriate Assessment. The HRA report will require consultation and agreement with Conservation Staff in NRW.

For any planning applications, the Local Planning Authority (LPA) will be provided with a copy of the HRA report as they would become the 'competent authority'.

Consultation should be undertaken with relevant teams within NRW regarding impacts on the River Usk SSSI habitats and species.

#### 4.1.2 Species

##### 4.1.2.1 Badger and Otter

Given the mobile nature of these species and dense scrub present, ecological supervision is recommended for any vegetation clearance ahead of construction to ensure no badger setts, or otter lay ups are present.

If any badger setts and or otter lay ups are found and could be damaged by the works, a licence will be required from NRW (for otter) and or the Welsh Government (for badger).

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<sup>7</sup> Chartered Institute of Ecology and Environmental Management (CIEEM) (2017). Guidelines for Preliminary Ecological Appraisal. Second Edition. Available online at: <https://cieem.net/resource/guidance-on-preliminary-ecological-appraisal-gpea/> (accessed 16/07/19).

<sup>8</sup> Arup (2015). Preliminary Habitats Regulations Assessment. Stephenson Street Embankment Flood Risk Management Project.

<sup>9</sup> ECJ (2018). People over Wind, Case C323/17 European Court of Justice, 12th April 2018.

### 4.1.2.2 Bats

The Site provides potential roosting habitat in five trees, TN8, TN10 (moderate suitability) and TN2, TN4 and TN9 (low suitability). If any of these trees are to be removed or if there is potential for significant sources of noise and vibration that could disturb roosts (if present) within these trees, further surveys should be undertaken to confirm presence or likely absence of bats. In line with good practice guidelines<sup>10</sup>, a dusk emergence survey and a dawn re-entry survey should be undertaken on trees with moderate suitability (TN8 and TN10).

### 4.1.2.3 Breeding Birds

All vegetation clearance of suitable bird nesting habitat should be undertaken outside of the core bird nesting season (the bird nesting period is 1 March to 31 August, subject to regional and seasonal variations) to avoid damage or destruction of occupied nests or harm to breeding birds. If this cannot be achieved, works within the core bird nesting season will require an inspection of vegetation to be cleared for breeding birds and their occupied nests by a suitably qualified ecologist no more than 24 hours prior to any works commencing. If any nesting birds are identified during the survey they should be left in situ for their entire nesting period and alternative approaches to the work proposed. This may include leaving an exclusion zone around the nests to avoid disturbance, especially should Schedule 1 species (which are legally protected from disturbance) such as Cetti's warbler be present.

### 4.1.2.4 Reptiles

Clearance of vegetation should be undertaken in a sensitive manner: two-staged directional strimming towards retained habitat and will be avoided or kept to a minimum during the hibernation season (November to February). If required during this time, clearance will be subject to a Toolbox Talk and Precautionary Methods of Working written and overseen by a suitably experienced ecologist.

## 4.2 During Construction

### 4.2.1 General

A toolbox talk should be given to all contractors on Site by a suitably qualified ecologist prior to works, detailing the potential for protected species on Site, the working methods to be employed and the procedure to follow should any species be identified. A record of attendance should be kept on Site, which contractors should sign to indicate they have understood the toolbox talk.

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<sup>10</sup> Collins, J. (2016). *Bat Surveys: Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn.). The Bat Conservation Trust, London.

## 4.2.2 Habitats

Best practice guidelines should be implemented for all works in proximity to a watercourse:

- An Environmental Action Plan will be produced and should be maintained by the contractor during the construction phase. This will include site-specific methods to ensure that all Site activities, especially those in proximity to watercourses and waterbodies are controlled and are in accordance with relevant legislation and undertaken in compliance with the relevant Guidance for Pollution Prevention (GPPs) and industry best practice (GPP5<sup>11</sup>, CIRIA<sup>12</sup>).
- Where possible any disturbed habitats should be re-instated post construction, and re-seeded / planted with an appropriate seed / plant mix or left to revegetate naturally, as approved by NRW.

## 4.2.3 Species

### 4.2.3.1 Bats

Due to suitable foraging and commuting habitat present on Site, the following should be implemented:

- All works should be carried out during daylight hours (typically up to 30 mins before sunset and 30 minutes after sunrise) within the main active period (April to October) where possible, to avoid disturbance to commuting or foraging bats.
- Any task lighting required for health and safety or security reasons should be directional lighting (towards the ground) to avoid light spill onto habitats immediately within or adjacent to the Site.
- Should subsequent emergence / inspection surveys of the moderate bat roost potential trees (TN8 and TN10) identify the presence of a roost, a European Protected Species licence will be applied for prior to the undertaking of any clearance works. All conditions of the licence will be adhered to and integrated into the project Environmental Action Plan (EAP).

### 4.2.3.2 Otter

The following mitigation should be implemented to minimise impacts on commuting / foraging otter:

- Good practice working methods should be adhered to which to prevent any adverse impact to otter; i.e. materials should not be left overnight in an area accessible to these species and excavations should not be left uncovered

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<sup>11</sup> Natural Resources Wales (NRW), the Northern Ireland Environment Agency (NIEA), Scottish Environment Protection Agency (SEPA) (2018). Guidance for Pollution Prevention – Works or maintenance in or near water: GPP5 v1.2 Feb 2018. <http://www.netregs.org.uk/media/1418/gpp-5-works-and-maintenance-in-or-near-water.pdf> (accessed 15.02.19)

<sup>12</sup> CIRIA (2018) CIRIA <http://www.ciria.org> (accessed 15.02.19)

overnight. If any excavations are required to be left open overnight, a ramp should be created to allow any animals to escape, including other mammals at the Site.

- Access for otter along all waterbodies should be maintained during construction and operation, thus ensuring that movement of otter is not impeded during operation of the Proposed Works.
- All works should be carried out during daylight hours (up to 30 minutes after sunrise and 30 minutes before sunset) where possible, to avoid disturbance to commuting or foraging otters. Any use of task lighting should be directional to avoid illumination of the river corridor at night.
- If any otter resting places are found during pre-construction checks, additional mitigation measures may also be required to reduce disturbance, which may be included in an EPS licence.

## 4.3 Post-Construction

### 4.3.1 Habitat Reinstatement

All habitats that require removal to facilitate the works must be reinstated on at least a like-for-like basis. This will likely be a requirement of the planning permission and HRA.

### 4.3.2 Enhancement Measures

The following measures are recommended to enhance the biodiversity within the Site and surrounding area, in line with national and local planning policy<sup>13 14</sup>:

- The planting of native fruiting species to provide a food source for invertebrates and mammals; and
- The inclusion of logs / brash piles to encourage invertebrates and also act as a refuge for reptiles, amphibians and small mammals.

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<sup>13</sup> Welsh Government (2018). Planning Policy Wales. Edition 10. Available online at: <https://beta.gov.wales/sites/default/files/publications/2018-12/planning-policy-wales-edition-10.pdf> (accessed 15/02/19).

<sup>14</sup> Newport City Council (2015). Newport Local Development Plan 2016-2015. Available online at: <http://www.newport.gov.uk/documents/Planning-Documents/LDP-2011-2026/LDP-Adopted-Plan-January-2015.pdf> (accessed 15/02/19).



## 5 Summary and Conclusions

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General mitigation is recommended during construction to protect existing habitat and species such as badger, bats, otter, reptiles, birds, fish and other mammals.

Measures are suggested to enhance the value of the Site for biodiversity, in line with planning policy and the Environment (Wales) Act 2016.

Once the design of the Proposed Works has been finalised, an Ecological Appraisal should be undertaken, detailing results and recommendations from any further ecological surveys.

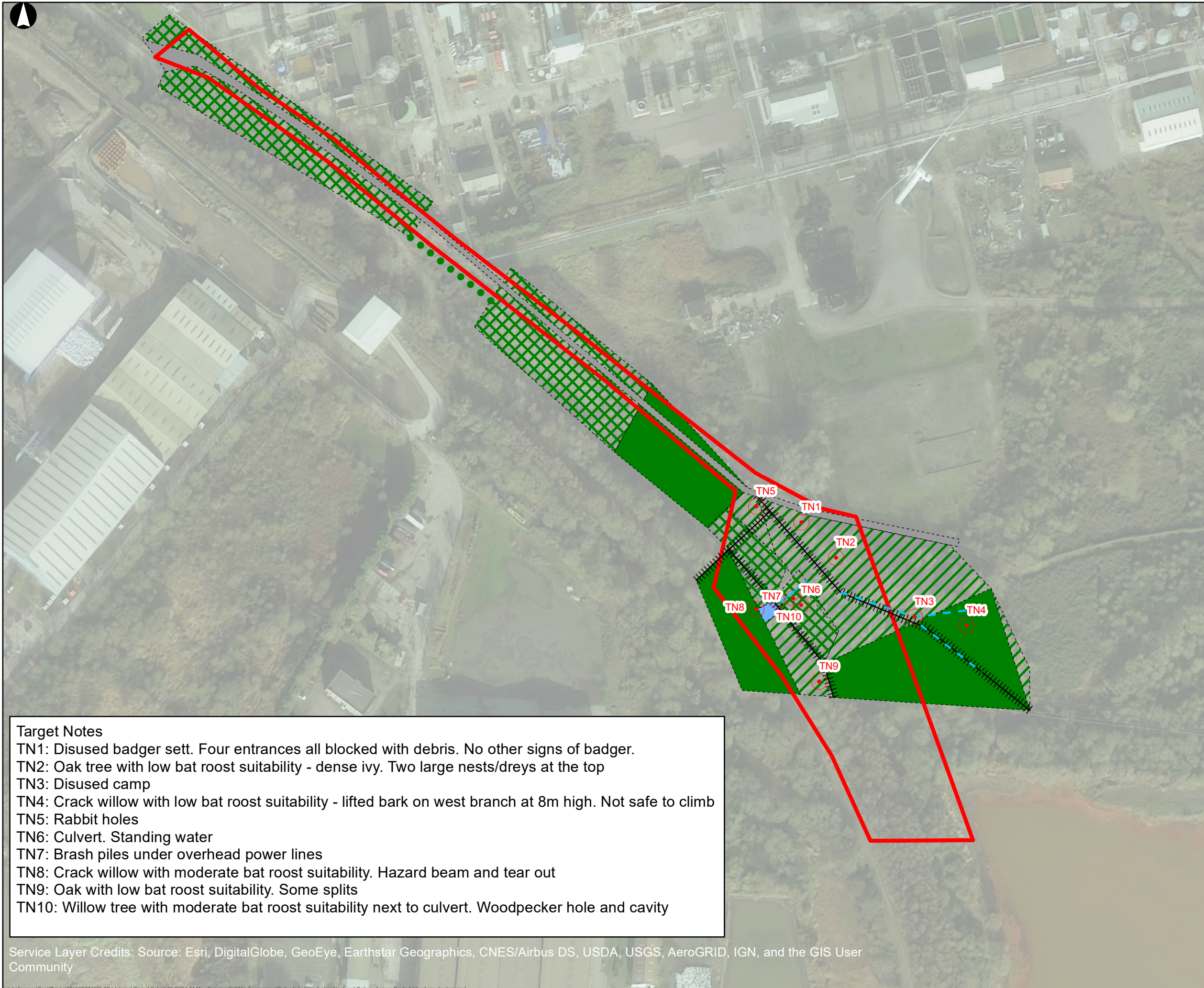
This report is the result of survey work undertaken in September 2020. This report refers, within the limitations stated, to the condition or Proposed Works at the Site at the time of the inspections. Changes in legislation, guidance, best practice, etc. may necessitate a re-assessment / survey. It is also advised that if there is a delay of over a year in undertaking the works, an updated walkover survey is recommended to ensure the baseline conditions have not changed. No warranty is given as to the possibility of future changes in the condition of the Site.

This report is produced solely for the benefit of NRW and no liability is accepted for any reliance placed on it by any other party. This report is prepared for the proposed uses stated in the report and should not be used in a different context.

## Figures

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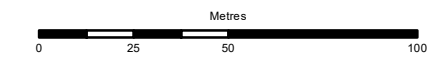
## Figure 1 Extended Phase 1 Habitat Survey



- Legend**
- Proposed Access Route
  - A3.1 - Broadleaved parkland/scattered trees
  - - - - J2.6 - Dry ditch
  - J2.4 - Fence
  - G1 - Standing water
  - A1.1.1 - Broadleaved woodland - semi-natural
  - A1.1.2 - Broadleaved woodland - plantation
  - A2.1 - Scrub - dense/continuous
  - G1 - Standing water
  - J5 - Gravel/hard standing
  - TN - Target note

F1	2020-09-24	AK	CP	PC
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Issue	Date	By	Chkd	Appd
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Client  
**Natural Resources Wales**

Job Title  
**Stephenson Street Embankment  
 Railway Wall Access Route**

**Extended Phase 1 Habitat Survey**

Scale at A3  
**1:2,000**

Job No. Drawing Status  
**For Issue**

Drawing No. Issue  
**001 F1**

**Target Notes**  
 TN1: Disused badger sett. Four entrances all blocked with debris. No other signs of badger.  
 TN2: Oak tree with low bat roost suitability - dense ivy. Two large nests/dreys at the top  
 TN3: Disused camp  
 TN4: Crack willow with low bat roost suitability - lifted bark on west branch at 8m high. Not safe to climb  
 TN5: Rabbit holes  
 TN6: Culvert. Standing water  
 TN7: Brash piles under overhead power lines  
 TN8: Crack willow with moderate bat roost suitability. Hazard beam and tear out  
 TN9: Oak with low bat roost suitability. Some splits  
 TN10: Willow tree with moderate bat roost suitability next to culvert. Woodpecker hole and cavity

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

## Appendix A

### Photographs

## A1 Photographs of the Site



**Photograph 1** showing location of scrub and treeline either side of path.



**Photograph 2** showing disused badger sett with four blocked entrances (TN4).



**Photograph 3** showing disused camp (TN3).



**Photograph 4** showing culvert (TN6).



**Photograph 5** showing old dormouse nest tube.



**Photograph 6** showing Crack willow with moderate bat roost suitability (TN8).



**Photograph 7** showing brush piles underneath overhead power lines (TN7).



**Photograph 8** showing willow tree with moderate bat roost suitability next to culvert (TN10).



**Photograph 9** showing woodpecker hole and cavity (TN10).



**Photograph 10** showing scrub and woodland habitat.