York's Bridge

Ecological Impact Assessment

Walsall Council

November 2018

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Document history

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Client signoff

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Non-technical Summary

Application Site Details	Name: York's Bridge Location: Pelsall, Walsall Size: Approximately 3.4 ha.
Scheme Details	The proposed works will involve the re-alignment of the B4154 road leading up to a new bridge that will be constructed alongside the current bridge.
Desk Studies and Field Surveys	A desk study data search was requested from EcoRecord Biological Record Centre on the 13th June 2018. Phase 1 habitat survey walkover survey was conducted of the Application Site on the 15th August 2018. This survey identified the presence of a habitat mosaic, support suitable conditions, for badgers, bats, reptiles and amphibian species. The desk study and walkover survey identified 23 waterbodies within 500 m of the Application Site boundary. Those (where land access was possible) water bodies were surveyed for great crested newts. Of the seven ponds surveyed, four were found to support breeding great crested newt populations.
Relevant Ecological Features	- Pelsall North Common Local Nature Reserve (LNR) and Site of Importance for Nature Conservation (SINC) is partially within and adjacent to the Application Site. - High Bridge Potential Site of Importance (PSI) is within the Application Site, whilst and Pelsall Nest Common PSI is only partially within the Application Site boundary. - Great crested newts present within 250 m of the Application Site. - Suitable basking and foraging habitat for common species of reptile present within and adjacent to the Application Site. - Foraging and commuting habitat present for bat species present adjacent to the Application Site. - No sign/indication of badgers present within and adjacent (>250 m) to the Application Site.
Potential Impacts and Effects	Very minor localised habitat loss will occur within the Pelsall North Common LNR / SINC. Additionally, minor habitat modification will be undertaken within the High Bridge Potential Site of Interest and there will be loss of a very small area of grassland within the Pelsall Nest Common Potential Site of Interest. The proposed works have the potential to cause minor impact upon bats, great crested newts and reptiles. However, through the use of suitable mitigation as detailed within this report, this impact can by reduced to disturbance only.
Avoidance, Mitigation and Compensation Measures	Habitat will be replanted within Pelsall North Common LNR / SINC and enhanced within High Bridge PSI as part of the proposed Scheme works. To reduce the potential for impact upon bats (foraging and commuting) lighting design and mitigation has been detailed, to utilised directional and cowled light only to prevent light spillage upon adjacent vegetation to reduce the construction impact upon foraging and commuting bats. The proposed attenuation pond and reed bed will compensate for the loss of reptile and amphibian habitat.
Significance of Residual Effects	No significant residual effects are expected in respect to the proposed works, subject to the use of the recommended mitigation measures.

1. Introduction

1.1. Terms of Reference

Atkins Limited (Atkins) was commissioned by Walsall Council to undertake an Ecological Impact Assessment (EcIA) in connection with a detailed planning application for the construction of a new road bridge and the realignment of an existing road (hereafter referred to as the Scheme). The Scheme is near to the north of the village of Pelsall in Walsall, as identified by the planning red line boundary, which displays the two Areas of works (Area A and B) on Drawing No. DRG No MP/YB/00-09/A and DRG No MP/YB/00-01 in **Appendix A** (hereafter Area A and B will be referred jointly to as the Application Site).

This EcIA has been undertaken with reference to current good practice[1] and forms part of the technical information lodged with the planning application submission.

1.2. The Application Site

The Application Site is split into two areas these are:

Area A

- Area A is located along the northern border of the village of Pelsall, Walsall at Ordnance Survey national grid reference SK 0224 0461 and is bounded by a large area of arable farmland to the north and east of the Scheme, heathland and woodland to the west of the Scheme, and the village of Pelsall, primarily urban with amenity grassland and waterbodies to the South. Intermixed with these primarily habitat types include woodland, ponds, two canals and road verge habitat.
- Area A is approximately 15,000 m^2 or 1.5ha in size and currently comprises of hardstanding (road/bridge) and road verge habitat mixed with heathland vegetation.
- Part of Area A lies within the Pelsall Common land, which is a large area of heathland, woodland, grassland and marsh that it publicly accessible and managed by the council – See Drawing DRG No MP/YB/00-09/A and DRG No MP/YB/00-01 in **Appendix A** which defines its boundary with the Scheme.

Area B

- Area B is located along the northern border of the village of Pelsall, Walsall at Ordnance Survey national grid reference SK 0284 0461 and is bounded to the south by a canal, and the village of Pelsall, primarily urban with amenity grassland and waterbodies. To the north, east and west bounded by roads, arable farmland and waterbodies.
- Area B is approximately 8,600 m^2 or 0.86ha in size and currently comprises immature and mature trees, scrub and ruderal vegetation.

1.3. The Scheme

The proposed works will involve the re-alignment of the B4154 road leading up to a new bridge that will be constructed alongside the current bridge. Due to the loss of an area of common land and the associated habitats a new area of common land will be created with appropriate replacement habitats in Area B of the Application Site, see **Appendix A**.

The Scheme is shown on the Indicative Masterplan (Drawing Ref: DRG No MP/YB/00-09/A and DRG No MP/YB/00-01) provided with the planning application submission.

1.4. Scope of Assessment

This report presents ecological information obtained during the following:

- A desk-study undertaken on 13th June 2018;
- A walkover survey undertaken on 15th August 2018; and,

[1] CIEEM (September, 2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.

- Surveys for notable species, namely bats, great crested newts, floating water plantain, otters and water vole. Surveys were originally undertaken in the summer of 2013 and were updated this year with the inclusion of Area B, between April 2018 and September 2018.

This EcIA describes the ecological baseline and evaluates the nature conservation value of ecological features present with the Ecological Zone of Influence (EZoI) for the Scheme (see Section 2.3 for further details), characterises the impacts and the effects (both positive and negative) of the Scheme on important ecological features[2], sets out agreed avoidance, mitigation, compensation and enhancement measures, and assesses the significance of the residual effects (both positive and negative) of the Scheme on the important ecological features.

[2] See **Appendix B** for more information on important ecology features.

2. Methodology

2.1. Ecological Zone of Influence

The EZoI is an area defined by the assessment in which there may be ecological features subject to impacts and subsequent effects ((both positive and negative) as a result of the Scheme. The EZoI is determined through an assessment of many interacting factors (see Appendix B for more details).

The EZoI of the Scheme during both construction and operation has been determined at two stages of the assessment. The first stage (initial EZoI) is to determine the geographical area for obtaining ecological data through desk and field-based studies based on the potential impacts and effects of the Scheme on ecological features. The second stage (final EZoI) is to determine the geographical area for assessing the impacts and subsequent effects (both positive and negative) of the Scheme on important ecological features based on all the available information.

Initial ecology surveys were undertaken of Area A in 2013, which was reported in the 2013 Atkins Report[3]. That report summarises the 2013 results and aided the determination of the 2018 survey extent and EZoI. This EcIA is based upon the most recent updated survey information gathered in 2018.

The initial EZoI is detailed in **Appendix B**. The final EZoI is detailed in Section 4.1.

2.2. Desk Study

A desk study was undertaken on 13th June 2018 to obtain ecological data relevant to the Scheme and the EcIA, including records of statutory and non-statutory designated sites and protected and notable species within the initial EZoI of the Scheme.

Due to the survey area falling within the boundaries of two counties – Staffordshire and West Midlands, the biological records centres for each county was contacted for their desks study records.

Full details of the desk study methodology are provided in **Appendix B**. A summary of relevant planning policy is provided in Appendix C.

2.3. Ecological Surveys

2.3.1. Extended Phase 1 Habitat Survey

An ecological walkover survey of areas within and adjacent to the Application Site, including land up to 250 m from the Application Site boundary where access was allowed (the Survey Area), was undertaken on 15th August 2018 broadly following the Phase 1 habitat survey methodology[4]. The walkover survey records information on the habitats within the Survey Area and was extended to include a search for evidence of the presence of, and an assessment of the potential of each habitat to support, notable and protected species as recommended by CIEEM[5].

Full details of the extended Phase 1 habitat survey methodology are provided in **Appendix B**. The results of the extended Phase 1 habitat survey are provided in **Appendix D**.

2.3.2. Phase 2 Surveys

Based on the results of the desk study and extended Phase 1 habitat survey, the following Phase 2 ecological surveys were undertaken to support this EcIA:

- **Otter and Water voles**: presence / likely absence surveys of the canals located within 500 m of the Application Site were undertaken on the 1st June 2018 and 29th September 2018;
- **Floating Water Plantain**: presence / likely absence surveys of the canals located within a minimum of 50 m of the Application Site were undertaken on the 29th September 2018 under a Natural England licence.

[3] Atkins Report (August 2013) Yorks Bridge, Pelsall – Ecological Impact Assessment, Atkins ltd.

[4] Joint Nature Conservation Committee (2010). *Handbook for Phase 1 habitat survey - a technique for environmental audit.*

[5] Chartered Institute of Ecology and Environmental Management (2012). *Guidelines for Preliminary Ecological Assessment.*

- **Great crested newts**: presence / likely absence surveys of suitable ponds within 500 m of the Application Site were undertaken originally in 2011, updated in 2013 and updated again in 2018 - between 3 May 2018 and 5 June 2018; and,

- **Bats**: roost, static and transect surveys within the Application Site were originally undertaken in 2011 and 2012 and have been updated in 2018 – between April and September 2018.

Further details of these 2018 surveys are provided in **Appendix E**.

2.3.3. Survey Limitations

The extended Phase 1 habitat survey was undertaken in August in a particularly hot summer when some plant species are not readily identifiable. The timing of the survey is not considered to be significant limitation to this EcIA as the broad habitat types could be identified by the species identified present at the time of the survey.

The Floating water plantain survey was undertaken at the end of September due to a delay in the issuing of the Natural England licence. Although late in the optimal survey period (late June and mid-September[6]) season, it is not considered to be significant limitation to this EcIA as they were the main aquatic plant present. In addition, due to health and safety concerns on wading within the Wyrley and Essington Canal, therefore the floating water plantain and otter and water vole surveys could only be conducted from the southern bank along the tow path.

During the April session of static bat detector surveys, upon collection of the two static detectors set out, one was not found and had apparently been stolen. The impact of this is that 50% of the data for April is missing. This is not considered to be a significant limitation upon the data gathering as it was early in the season, prior to the peak activity and is also considered unlikely to be a significant limitation upon the identification of species presence as the other detector collected recordings from the same period and other recordings from the same location were available for the remainder of the survey season.

The Phase 1 habitat survey and water bodies surveys have been restricted to the land owned by the Council as land access was not possible in the remainder of the survey area. This limitation allowed for the survey of up to 250 m from the Application Site boundary within the Common land located to the west and south of the Application Site. The remaining area located to the north and east could not be fully surveyed.

The list of invasive plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) is extensive and these plants are found in a range of different habitats, including aquatic habitats. The extended Phase 1 habitat survey checked for the presence of Japanese knotweed, giant knotweed, hybrid knotweed, giant hogweed, Himalayan balsam, rhododendron and cotoneaster species, and the Floating Water Plantain survey would have identified any invasive species within the canals surveyed.

Due to land access constraints, 16 waterbodies could not be subject to Habitat Suitability Assessment or surveyed for great crested newts. This is not considered to be a major constraint to this EcIA as a precautionary approach has been undertaken within the Impact and Mitigation Section of this assessment.

Pond three, dried up near the end of the great crested newt survey period. This has meant that a final 6th survey, required to aid in the determination of the population size class of the water body) could not be undertaken within the optimal survey period. This is not considered to be a constraint, as this water body was located 500 m from the Scheme boundary. Additionally, with the previous survey results of the waterbodies and knowledge of the presence of great crested newts in the neighbouring ponds closer to the Application Site allows for a sufficient assessment to be undertaken for this EcIA.

The pre-dawn re-entry survey undertaken on York's Bridge on the 31st July 2018, finished 15 minutes early due to the onset of continuous rain. This is not considered to be a limitation to the survey effort or result, as bats would have returned to roost prior to the rain becoming heavier.

Due to the dense vegetation present within Area B of the Application Site, Surveyors could not fully survey the site to produce a complete botanical species list or confirm the presence/absence of badger setts and other species.

Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. The ecological surveys undertaken to support this EcIA have not therefore produced a complete list of plants and animals and the absence of evidence of any species should not be taken as conclusive proof that the species is not present or that it will not be present in the future.

[6] Survey period as detailed within Willby N, Eaton J & Clarke S (2003). *Monitoring the Floating Water-plantain*. Conserving Natura 2000 Rivers Monitoring Series No. 11, English Nature, Peterborough.

However, the results of these surveys have been reviewed and are considered to be sufficient to undertake this EcIA.

2.4. Temporal Scope

Potential impacts on ecological features have been assessed in the context of how the predicted baseline conditions within the EZoI might change between the surveys and the start of construction.
It is not known when construction will begin at the Application Site. However, based on discussions with the Client, the assessment has assumed that the development will be undertaken within two years from the date of the planning submission. Once construction is complete, based on the proposed development works, the assessment has assumed that the operational phase of the development will last for the foreseeable future.

2.5. Nature Conservation Evaluation and Impact Assessment

The methodology for assessing the nature conservation value of an ecological feature, and the assessment of impacts and effects (including both positive and negative effects and cumulative impacts and effects) of the Scheme are provided in **Appendix B.**

2.6. Mitigation Hierarchy

The principles of the mitigation hierarchy[7/8] have been adopted and used when considering impacts and subsequent effects on ecological receptors within the EZoI.

The principles of the mitigation hierarchy are that in order of preference impacts on biodiversity should be subject to:

1. Avoidance;
2. Mitigation; and
3. Compensation.

[7] Department for Communities and Local Development (2012). National Planning Policy Framework, para 118. https://www.gov.uk/government/publications/national-planning-policy-framework--2
[8] CIEEM (September, 2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine, Paragraph 1.19. Chartered Institute of Ecology and Environmental Management, Winchester.

3. Existing Baseline Conditions

Sections 3.2 to 3.5 below summarise the ecological baseline relevant to the Scheme recorded during the desk and field-based studies undertaken in 2018 to inform this EcIA. The 2011 and 2013 surveys are summarised below within Table 1.

Table 1 - 2011 & 2013 Species Survey Results Summary

Species	Survey Summary	Result
Great crested newts	Of the 13 waterbodies identified and surveyed, only two were found to support great crested newts. One pond is located within the heathland to the west of the Application Site. The second pond was located to the north of the Application Site (Area A) within land that could not be accessed to resurvey in 2018.	Two small ponds were found in 2013 to support a Small Population of great crested newts within 250 m of the Application Site (Area A).
Bats	York's Bridge was surveyed in 2011 and 2013 to ascertain the presence / likely absence of roosting bats. Although they detected the presence of common pipistrelle and Daubenton's bats in the wider area no bats were found to emerge/re-enter the structure.	No bat roosts found present in 2011 and 2013 within the Application Site (Area A).
Otters	No evidence of otter was found along the Wyrley and Essington Canal, Cannock Extension Canal or connecting drain during the surveys undertaken in May 2011, or the updated survey on the 28th August 2013.	No evidence of otters presents in 2013 within proximity of the Application Site (Area A).
Water Voles	The 2011 survey identified potential feeding stations within a nearby drainage ditch but could not determine if they were from water voles. The 2013 update survey found no evidence of water vole presence within 200 of the Application Site (Area A).	No evidence of water voles was identified within 200 m in 2013 of the Application Site (Area A).
White Clawed Crayfish	No direct evidence of presence was identified within the Application Site (Area A), and it was determined that the conditions of the canal was not suitable to support the species. However, the species was recorded in the desk study search as being present 4 km from the Application Site (Area A).	Although the habitat wasn't suitable, and no direct evidence found, due to the recorded presence 4 km from the Application Site (Area A) a precautionary approach was undertaken as part of the 2013 EcIA assessment.
Badgers	No evidence of badgers was found present within 50 m of the Application Site (Area A) during the 2011 and 2013 surveys.	No evidence of badger presence in 2011 and 2013, identified within 50 m of the Application Site.
Reptiles	Surveys identified the presence of common species of reptiles within the suitable habitat along the canal verge, road verge and the Common land located to the west of the Application Site (Area A).	Small population of reptiles found present in 2011 and 2013, within suitable habitat within and adjacent to the Application Site (Area A).
Floating water plantain	No floating water plantain was identified within the Wyrley and Essington Canal, but was identified within the Cannock Extension Canal to the west of the Application Site (Area A).	No evidence of Floating water plantain identified in 2013 within or adjacent to the Application Site (Area A).

Atkins (2013) York's Bridge Ecological Impact Assessment Report. Atkins Ltd.

3.1. Designated Sites, Priority Habitats and Ancient Woodland

Table 2 and Table 3 - Ancient Woodland within 2 km of the Application Site summarise the designated sites, priority habitats[9] and ancient woodlands situated within 2 km of the Application Site. These are provided in **Appendix F**.

Table 2 - Designated Sites within 2 km of the Application Site

Designated Site	Location of Designated Site[10]	Features of Interest (including qualifying features of internationally designated sites[11])[12]
Pelsall North Common (LNR (statutory) and SINC (Non-statutory))	Partially within the Application Site (Area A).	Comprised of areas of lowland heath and base-rich furnace slag in the centre of the site with areas of lowland heathland, acid grassland, swamp, marsh and open water.
Cannock Extension Canal (SAC, SSSI (statutory) and SLINC SINC (Non-statutory))	300 m west of the Application Site (Area A).	34 aquatic plant species recorded, making it the most botanically diverse canal in Staffordshire and the West Midlands
Clayhanger (SSSI)	80 m west of the Application Site (Area B).	Containing a mosaic of wetland habitats with stands of emergent vegetation species.
Non-Statutory Designated Sites within 2 km of the Application Site.		
High Bridge (PSI)	Completely within the Application Site (Area B) boundary.	Designated for its support of scattered scrub and grassland forming part of the canal corridor
Pelsall Nest Common (PSI)	Partially within the Application Site (Area A) boundary.	Designated for its historic status as a Common and its composition of open grassland and woodland blocks.
Wyrley and Essington Canal SLINC	Partially within the Application Site (Area A) boundary.	Designated for its good quality water conditions supporting a diverse aquatic flora with a range of habitats associated with the corridor.
In addition to the above designated sites, there are an additional 5 Sites of Importance for Nature Conservation (SINC), 13 Sites of Local Importance for Nature Conservation (SLINC) and 29 Potential Sites of Importance (PSIs) located within 2 km of the Application Site boundary (none are located within or within 50 m to the Application Site boundary).		

[9] Priority habitats are taken as principal habitats for the conservation of biodiversity listed under Section 41 of the Natural Environment and Rural Communities Act 2006.
[10] Where designated sites are situated outside of the Application Site boundary, the distance and direction is given at the closest point of the designated site from the Application Site
[11] Internationally designated sites include the following: Special Protection Areas (SPA), Special Areas of Conservation (SAC), Ramsar wetlands of international importance, potential SPA and candidate SAC sites.
[12] EcoRecord Biological Record Centre desk study search request (2018)

Table 3 - Ancient Woodland within 2 km of the Application Site

Ancient Woodland Name	Location of Ancient Woodland[13]	Features of Interest[14]
Brownhills Ancient Woodland	1.4 km north east of the Application Site	The Ancient Woodland is located within the Brown hills SINC and therefore within and surrounded by areas of lowland heathland and acidic grassland as well as some important wetland communities.

3.2. Main Habitats

Table 4 details the main habitats situated within the Application Site. Table 5 details the main habitats situated outside of the Application Site but within the Survey Area.

All of the main habitats are indicated on the extended Phase 1 habitat survey plan in **Appendix D.1**) with specific features highlighted by target notes (TN) on the drawing. TN descriptions and photographs are provided in **Appendix D.2**.

Table 4 - Main Habitats within Application Site

Habitat Type	Summary Description of Habitat	Approximate area of Habitat/Distance of Linear Feature	
		Hectares (ha)/Metres (m)	% of Application Site
Hard Standing	There is a large area of hard standing present within the Application Site, this is predominantly the existing road, bridge and access roads leading out of the Application Site boundary.	Approx. 0.48 ha	11 %
Running Water	The Wyrley and Essington Canal passes in an east to west orientation through the Site. It comprises an approximate 10 m wide channel narrowing to approximately 6 m as it passes immediately beneath York's Bridge. The canal's northern bank is well vegetated, predominantly comprising marginal bulrush with occasional reed sweet grass and branched bur-reed. The canal southern bank is brick edged with no marginal vegetative cover. The canal is of an unknown depth and no definitive water flow direction.	Approx. 0.02 ha	5 %
Dense Scrub	The eastern verge of the road in Area A, contains an area of dense scrub. This area contains immature sycamore, field maple, hawthorn, blackthorn, silver birch, oak and rowan. Area B contains a large area of dense scrub, predominantly with bramble, hawthorn, blackthorn.	Approx. 1.70 ha	40 %

[13] Where ancient woodlands are situated outside of the Application Site boundary, the distance and direction is given at the closest point of the ancient woodland from the Application Site
[14] EcoRecord Biological Record Centre desk study search request (2018)

Marshy Grassland	There is a small strip of marshy grassland with a scattering of heather present within the Area A of the Application Site.	Approx. 0.01 ha	2 %
Scattered Scrub	Both Area A and B, support blocks of scattered scrub. These are comprised of various species of plant, which includes willow herb spp. and bramble.	Approx. 1.66 ha	39 %
Unimproved Neutral Grassland	This is a strip of grassland (Area A) located on the opposite side of the pavement from the existing road, which is part of the public open area and the Pelsall North Common.	Approx. 0.1 ha	2 %

Table 5 - Main Habitats outside of the Application Site but within the Survey Area

Habitat Type	Summary Description of Habitat	Location of Habitat[15]
Running Water	The Wyrley and Essington Canal extends east to west, beyond the Application Site boundary. To the west of the Application Site, the canal connects to the Cannock Extension Canal (SAC and SSSI). This is a linear water course with (in vicinity to the Application Site) a brick/stone-built bank on either side. The banks contain a gravel/hardstanding path on one side and usually grassland/shrub and ruderal vegetation on the opposite side.	Adjacent and in the wider environment
Arable Cultivated/Disturbed Land[16]	Several fields of arable farmland/cultivated ground are located to the north and east of the Application Site.	Adjacent and in the wider environment.
Dense and Scattered Scrub	Various areas of the wider environment support either dense or scattered scrub habitat, containing various species, especially bramble, willow herb and ruderal vegetation.	Adjacent and in the wider environment.
Marshy Grassland	This is a wet grassland area, supporting areas of heather, gorse, scattered trees, semi-improved grassland and woodland thickets.	Adjacent and in the wider environment.
Eutrophic Standing Water[16]	There are 16 Eutrophic Standing Water bodies within the survey area. These are in various states, some are abundant in marginal and bankside vegetation, while others are bare banked or supporting little or no marginal vegetation.	Adjacent and in the wider environment.

[15] The distance and direction is given at the closest point of the main habitat from the Application Site

[16] This feature is listed as a Local BAP species or habitat as per: the Black Country Local Biodiversity Action Plans. Accessed October 2018, http://adlib.everysite.co.uk/adlib/defra/content.aspx?id=000IL3890W.16NTBWV72I0V4

3.3. Protected and Notable Species

The results of the desk study and field surveys (including the extended Phase 1 habitat survey) undertaken for protected and notable[17] species are detailed below in Table 6 and provided in **Appendix E**.

A more detailed summary of the Phase 2 species survey results is provided in **Appendix E**. A summary of the extended Phase 1 habitat survey and Phase 2 species survey methodologies is provided in **Appendix B**.

Table 7 - Protected and Notable Species within Application Site and/or Initial EZoI

Species or Species Group	Desk Study Records[18]	Field Survey Results[19]
Foraging and Commuting Bats[20]	A small number of common pipistrelle and soprano pipistrelle bat records are present within 2 km (the closest being 400 m) of the Application Site Record Centre data was interrogated for bat roost locations. None at the time of writing this report were identified within the Application Site or within the Bat Survey area.	Activity surveys for bats were undertaken monthly. These surveys identified a small number of bats utilising the survey area as a foraging and commuting area. A small number were recorded utilising the habitat within the Application Site, but the majority were located within the Pelsall North Common LNR (beyond the Application Site boundary). The species identified are predominantly common pipistrelles, with the presence of noctules, myotis species, pipistrelle spp., Nyctalus spp. and soprano pipistrelles. Four trees (TN1, 2, 3 and 4) were identified during the Phase 1 survey that potentially support bat roosting potential. These trees are outside of the Application Site boundary. **No roosts have been identified within the Application Site.**
Great crested newts[20]	Great crested newts are recorded within the Survey Area of the Application Site.	There are approximately 23 waterbodies within 500 m of the Application Site boundary. Of these 23, only eight are within 250 m of the Application Site (Area A) boundary. Four are confirmed through field surveys to support medium populations of great crested newts and the remaining four, due to land access restrictions, are assumed to support great crested newts. Due to the habitat within the Application Site being predominantly comprised of hardstanding, semi-improved grassland, and dense scrub habitat, the availability of suitable foraging and hibernation habitat is limited.
Reptiles[20]	Common species of reptile (grass snakes, common lizards and slow worms are present within the 2 km search area. However, 2013 survey results identified a small	The habitats present within the Application Site boundary is separated by the existing road but includes suitable foraging and basking habitat such as semi-improved grassland and dense scrub. Due to the known presence of reptiles from the 2013 surveys, they are considered present but in small numbers.

[17] Notable species are taken as principal species for the conservation of biodiversity listed under Section 41 of the Natural Environment and Rural Communities Act 2006; any species listed in an IUCN Red Data Book; and any other species listed under Black Country Local Biodiversity Action Plans.
[18] Only recent records of species are provided here, where recent is taken to be in the last 10 years
[19] Further details are provided in **Appendix E**
[20] Further details are provided in **6.C.3**

	population of common reptiles within and adjacent to the Application Site (Area A).	
Badger	No records	**No evidence of badger was recorded within the Survey Area.**
Otter and Water vole	No records	No evidence of otters and water voles has been identified within the Application Site boundary. However, in-between Area A and Area B, an otter spraint (dropping) and a separate potential resting site was identified in two locations of the bank of the canal between Area A and B – See Appendix G. The canals were found to have limited habitat suitability for water voles due to the presence of steep brick-built canal sides, steep banks and limited emergent vegetation to support this species in the immediate area of the Application Site. **No evidence of water voles was identified within the survey area.**
White clawed crayfish[21]	No records	Due to the unsuitability of the water courses, brick embankments and heavily silted. For the 2013 assessment a White clawed crayfish survey was not undertaken as it was considered appropriate to assume possible presence within the assessment. However, during the 29th September 2018 otter and water vole survey found a dead white clawed crayfish on the bank of the canal (see Appendix G for its location), this sighting was found with several live American signal crayfish present within the canal.
Hazel dormice	No records	No suitable habitat to support hazel dormice was identified within the Application Site and Survey area. Additionally, no records of hazel dormice were identified during the desk study area, leading to the conclusion that an impact upon this species is not considered to occur.
Barn owls[21]	No records	The habitat present along the Application Site is sub-optimal for barn owls, with optimal habitat present in the wider environment.

3.4. Non-native Invasive Plant Species

The extended Phase 1 habitat survey checked for the presence of Japanese knotweed, giant knotweed, hybrid knotweed, giant hogweed, Himalayan balsam, rhododendron, cotoneaster species and aquatic invasive species.

Additionally, invasive aquatic species were checked for during the Floating water plantain survey of the canals. No evidence of these species was recorded within the Survey Area.

[21] This feature is listed as a Local BAP species or habitat as per: the Black Country Local Biodiversity Action Plans. Accessed October 2018, http://adlib.everysite.co.uk/adlib/defra/content.aspx?id=000IL3890W.16NTBWV72I0V4

4. Evaluation of Ecological Features

4.1. Final Ecological Zone of Influence

Once the data gathering exercises from both the desk study and field surveys were completed and all Scheme details were available, the initial EZoI was finalised for both the construction and operational phases of the Scheme, as detailed below.

4.1.1. Designated Sites

Owing to the linear nature of the Scheme and the generally localised nature and level of impact of the construction and operational works, it was considered appropriate to assess impacts only on those designated sites which are present within/or the Application Site crossing or within the requirements of a Habitat Regulation Screening Assessment. In setting the EZoI for designated sites, a review was undertaken of the nearby sites, and type and level of works proposed, primarily for Area A of the Scheme. It was therefore considered that due to the small scale nature of the works and the nearby proximity of the Cannock Extension Canal SAC located 300 m west and the hydrological connection between the Application Site and the SAC through the Wyrley and Essington Canal, a Habitat Regulation Screening Assessment would be undertaken to identify and determine the potential impacts and mitigation requirements in regards to the SAC and the proposed Scheme works.

In regard to other designated sites within or adjacent to the Application Site, the Pelsall North Common LNR / SINC and Pelsall Nest Common PSI are located within and adjacent to Area A of the Application Site. Wyrley and Essington Canal SLINC is partially within Area A and adjacent to Area B.

The High Bridge PSI is entirely located within Area B.

In regard to other designed sites and sites in proximity to Area A or B, due to the small-scale nature of the works in a localised area, with limited to no access to the canal, no other designated sites are considered to be at any potential risk of negative impacts, including the Clayhanger SSSI (located approx. 80 m east of Area B of the Application Site) and they will not be considered further in this assessment.

4.1.2. Main Habitats

Owing to the scale and nature of the Scheme proposals and the predicted level of the impact of the construction and operational works, it was considered appropriate to assess impacts only on those main habitats which are present within or directly adjacent to the Application Site.

Following discussion with the Applicant, it has been assumed that the Environment Agency pollution prevention guidelines[22] will be implemented to prevent any impacts on water courses or notable aquatic habitats. With suitable pollution measures in place, direct impacts will only result where any in-channel works are required.

4.1.3. Protected and Notable Species

The final EZoI for protected and notable species either recorded within, or considered likely to be present within, the Application Site has been defined on a species-specific basis based on the likely effects of the Scheme as detailed in Table 8 below (distances are taken from the Application Site boundary).

[22]Pollution prevention guidelines (PPGs) Pollution Prevention Guidelines (PPGs) with particular reference to PPG1 (general guide to the prevention of water pollution), PPG3 (use and design of oil separators in surface water drainage systems), PPG5 (works near or liable to affect watercourses) and PPG6 (working at construction and demolition sites). Pollution Prevention Guidelines (PPGs) are a series of documents developed by the Environment Agency for England and Wales, the Northern Ireland Environment Agency (NIEA) for Northern Ireland and the Scottish Environment Protection Agency (SEPA) for Scotland. Each PPG is targeted at a particular type of business or activity and covers environmental good practice to minimise pollution. The PPGs also make reference to environmental legal obligations, but that information is currently out of date and requires updating. The PPGs are available from http://webarchive.nationalarchives.gov.uk/20140328084622/http://www.environment-agency.gov.uk/business/topics/pollution/39083.aspx.

Table 8 - Ecological Zone of Influence for Impact Assessment on Protected and Notable Species

Species	Distance from the Application Site boundary		Justification
	Construction	Operation	
Otter	50 m	Application Site boundary	Although otters have a large home range[23]. impacts are unlikely at any greater distance as the works will not be entering the water courses within or adjacent to the Application Site.
Great crested newt	250 m	Application Site boundary	Although great crested newts can use suitable terrestrial habitat within 500 m of a breeding pond, there is usually a decrease in newt abundance beyond the first 250 m from a breeding pond[24]. In addition to this, the habitat in proximity to the waterbodies and those beyond 250 m (especially those that are located on the opposite side of the Cannock Extension Canal (located 300 m west of the Application Site boundary) is of optimal suitability and condition, whereas the habitat suitability within the Application Site boundary is sub-optimal. It is therefore considered that the Scheme has the potential to impact on individuals that may come in proximity to the Scheme works during construction works within the Application Site only.
Reptiles	Application Site boundary	Application Site boundary	Impacts on reptiles would only have potential to occur through habitat loss during the Construction period. It is therefore considered that the Scheme has the potential to impact on individuals that may come in proximity to the Scheme works during construction works within the Application Site only. It is not anticipated that reptiles will be affected during the operational phase of the works.
Bats	100 m	Application Site boundary	Although bats are known to commute large distances between roosts and foraging habitat, direct construction impacts are only likely to occur on commuting, foraging and roosting habitat within and the vegetative corridors located adjacent to the Application Site boundary.
Badgers	30 m	Application Site boundary	Badgers sett tunnels typically extend up to 20 m from the sett entrance[25]. Vibrations from heavy machinery and excavation of soils within 30 m of a sett entrance may cause the collapse of tunnels. Significant impacts from the proposed works on a sett beyond 30 m from the Application Site are not anticipated.
Water voles	Application Site boundary	Application Site boundary	The habitat present along the Canal within the survey area, was found to offer limited suitability for water voles. This was principally due to the lack of suitable burrowing habitat in the banks of the canal (as they are

[23] Natural England (2014). Standing Advice (Otters) https://www.gov.uk/otters-protection-surveys-and-licences

[24] English Nature (2004). *An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt* (ENRR576) http://publications.naturalengland.org.uk/publication/134002

[25] English Nature (2002). *Badgers and development*. http://www.badgerland.co.uk/help/en_badgers_development.pdf

			brick/stone banked). Additionally, the proposed Scheme works will not involve entering the water course during the construction works and pollution prevention measures will be in place, so impacts on watercourses beyond the Application Site itself would not be expected so the EZoI is limited to the site itself.
White-clawed crayfish	Application Site boundary	Application Site boundary	A dead white clayed crayfish was identified during the otter and water vole survey of the Scheme. The presence of sub-optimal habitat (limited bank habitat for burrowing activity due to brick and stone bank construction). Additionally, the proposed Scheme works will not involve entering the water course during the construction works and pollution prevention measures will be in place, so impacts on watercourses beyond the Application Site itself would not be expected so the EZoI is limited to the site itself.
Other Amphibians[26]	Application Site boundary	Application Site boundary	Any impacts would be due to habitat loss within the Application Site itself.
Notable bird species[27]	Application Site boundary	Application Site boundary	Any impacts would be due to habitat loss within the Application Site itself.
Notable invertebrate species[28]	Application Site boundary	Application Site boundary	Any impacts would be due to habitat loss within the Application Site itself.
Notable plant species (floating water plantain).	Application Site boundary	Application Site boundary	Any impacts would be due to habitat loss within the Application Site itself. Additionally, the proposed Scheme works will not involve entering the water course during the construction works and pollution prevention measures will be in place, so impacts on watercourses beyond the Application Site itself would not be expected so the EZoI is limited to the site itself.

4.2. Evaluation of Ecological Features

All of the ecological features present or considered likely to be present within the final EZoI of the Scheme have been valued in Table 9 according to the criteria outlined in **Appendix B**.

Features outside the final EZoI will not be affected by any activities or processes involved in the Scheme and are therefore not considered further in this EcIA.

Table 9 - Evaluation of Ecological Features within the Final EZoI

Ecological Feature(s)	Nature Conservation Value	Rational for Valuation
Running Water Wyrley and Essington Canal	Regional	The Wyrley and Essington Canal is of Regional value for Nature Conservation due to the vegetative composition and its use as a foraging and commuting route/habitat for riparian species such as bats, birds, otters and white clawed crayfish.

[26] Notable amphibians include: common frog, common toad and smooth newts.
[27] Notable bird species include: Black redstart, Grey partridge, Kestrel, Little ringed plover, Skylark, Snipe, Song thrush, Tree sparrow
[28] Dingy skipper, Green hairstreak, Vaccinium species, Wall brown

Pelsall North Common LNR and SINC	County	Existing designation
High Bridge PSI	Local	Scrub habitats are common and widespread, although the area in Area B does form part of a designated site.
Pelsall Nest Common PSI	Local	Area of Common containing open grassland with blocks of woodland.
Dense and Scattered Scrub	Application Site	Common and widespread habitat
Marshy Grassland	County	Inclusion in designated site
Floating water plantain	County	This is a notable and uncommon species
Great crested newts Identified to support a medium population within three nearby eutrophic standing waterbodies (TN 10, TN 2 and TN 8[29]) and presence of suitable terrestrial habitat (marshy grassland, dense and scattered scrub).	Local	Great crested newts are patchily distributed in the county of Staffordshire and the Black Country and the population trend is declining. The populations present in the ponds although medium in size, do not represent a significant population in the context of Staffordshire and the West Midlands. They have therefore been valued for their Nature Conservation as Local.
Bats Foraging and commuting habitat within and adjacent to the Application Site.	Local	The species encountered and recorded are considered relatively common for Staffordshire that covers the Application Site. The species identified were only found in small numbers throughout the survey period (April to September).
Reptiles Foraging, basking and refugia located within and adjacent to the Application Site.	Application Site	These areas present within the Application Site (areas of grassland, health land and road verge habitat) are likely to support the presence of common species of reptiles (common lizard, slow worms and grass snakes).
White clawed crayfish	County	This species has declined substantially in the UK.
Otters	County	While otters have increased in numbers and distribution they are still a relatively uncommon species.
Water voles	Negligible	This species has not been identified as being present within the Canal. Therefore, its Nature Conservation Value in regard to this Scheme is Negligible.
Badgers	Negligible.	No badger setts, or evidence of badgers, have been identified within proximity to the Scheme. Therefore, its Nature Conservation Value in regard to this Scheme is Negligible.

[29] Of the waterbodies plan within **6.Appendix G**

4.3. Determination of Important Ecological Features

Habitats, species and species groups that are considered to have a nature conservation value in the context of the Application Site and its immediate environs are not considered important ecological features[30] in the context of this EcIA. Any impact on such a feature as a result of the Scheme is considered unlikely to have a significant effect on the conservation status of such habitats or species on a local, regional, national or international scale.

Therefore, features of nature conservation value in the context of the Application Site, or those considered to have negligible nature conservation value, have been scoped out of the ecological impact assessment in Section 5. These features are as follows:

- Otters; no otter holts or evidence of presence has been identified within the Application Site boundary;
- Water voles; no water voles or evidence of presence has been identified within the Application Site boundary;
- White clawed crayfish; although one was identified close to the Application Site, the habitat within the Application boundary does not support suitable habitat conditions for the species;
- Other species; the habitat present within the Application Site does not support suitable conditions or evidence to support species such as barn owls, hedgehogs and Schedule 1 bird species;
- Badgers; no badger setts, or evidence of badger presence was identified during the surveys. As such, it is not considered likely that they will be a constraint on the Scheme.

[30] See **Appendix B** for more information on important ecology features.

5. Impact Assessment, Agreed Mitigation Measures and Significance of Residual Effects

This Section characterises the impacts and the subsequent effects (both positive and negative) of the Scheme on the important ecological features within the final EZoI, sets out agreed avoidance, mitigation, compensation and enhancement measures, and assesses the significance of the residual effects (both positive and negative) of the Scheme on these features.

The Applicant has agreed that the general mitigation measures identified in Section 5.1 onwards will be incorporated into the detailed design proposals for the Scheme and implemented as part of the overall development of the Application Site.

5.1. General Mitigation Measures

5.1.1. Design Mitigation Measures

Design mitigation measures relate to receptors including designated sites, so they are described below in relation to the relevant receptors.

5.1.2. Construction and Operation Mitigation Measures

The following avoidance, mitigation and/ or compensation measures will be implemented during the construction phase of the Scheme to comply with national and local planning policy, current legislation and good practice:

- General measures to avoid or alleviate negative impacts upon ecological receptors including following the pollution prevention guidelines[31];
- Measures to protect trees and other retained habitat within and immediately adjacent to the Application Site boundary[32];
- Where possible, tree felling and vegetation clearance will be minimised and undertaken outside the core bird nesting season (1st March and 31st August, though it should be noted that variation in dates is possible, for example from geographical variations in climate, or due to a particularly mild winter) to avoid damage or destruction of occupied nests or harm to breeding birds (see **Appendix C**). 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 being undertaken. If any nesting birds are identified during the survey they will 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.

[31]Pollution prevention guidelines (PPGs) with particular reference to PPG1 (general guide to the prevention of water pollution), PPG3 (use and design of oil separators in surface water drainage systems), PPG5 (works near or liable to affect watercourses) and PPG6 (working at construction and demolition sites). Pollution Prevention Guidelines (PPGs) are a series of documents developed by the Environment Agency for England and Wales, the Northern Ireland Environment Agency (NIEA) for Northern Ireland and the Scottish Environment Protection Agency (SEPA) for Scotland. Each PPG is targeted at a particular type of business or activity and covers environmental good practice to minimise pollution. The PPGs also make reference to environmental legal obligations, but that information is currently out of date and requires updating. All of the PPGs are available from http://webarchive.nationalarchives.gov.uk/20140328084622/http://www.environment-agency.gov.uk/business/topics/pollution/39083.aspx

[32] British Standards Institution (2012). *Guide for Trees in relation to design, demolition and construction: recommendations.* BS 5837:2012.

5.2. Designated Sites

5.2.1. Construction Impacts, Mitigation and Residual Effects

Cannock Extension Canal SAC

Following the impact assessment and consultation on the Scheme works in regards to the Cannock Extension Canal SAC, a Habitats Regulations Assessment (HRA)[33] has been undertaken upon writing this report. The HRA appropriate assessment outcome has determined that there will be no detrimental impact upon the SAC through the proposed works. The risk is also reduced through the use of the proposed drainage system and reed bed during the construction and operation period of the works. This mitigation removes any risk of impact that the Scheme will cause upon the SAC.

Pelsall North Common LNR / SINC

One statutory designated site lies within and adjacent to Area A of the Application Site; this is the Pelsall North Common LNR, which is also Pelsall North Common SINC. The Scheme works within Area A will involve the loss of a small area of habitat present within the LNR / SINC. This is approximately 0.21 ha, which approximately constitutes 0.5% of the total habitat present within designated site.

Due to the loss of habitat belonging to the Pelsall North Common LNR and SINC, constituting 0.5% of the total designated area, and this will be replaced through the creation of new habitat (in the new road verge, embankment and reedbed). The overall habitat area in Pelsall North Common LNR and SINC will decline slightly, but the diversity will increase.

The works will result in the permanent loss of broadleaved woodland and scattered and dense scrub habitat, semi-improved grassland road and field edge, and a small area of heathland habitat, all falling within the boundary of the Pelsall North Common LNR and SINC. The integrity of this LNR and SINC will not be significantly affected as only a small strip, approximately 0.5% of the 45.5 ha designated site (which is primarily the existing road verge and embankment) of the LNR/SINC will be lost.

To compensate for the permanent loss of these habitats, the scheme design will incorporate the following features:

- The planting of suitable native of local provenance species of plant, shrub and tree within the embankments and road verge of the proposed new road and the provision of log piles and suitable foraging and refuge habitat for invertebrates, amphibians, reptiles and small mammals;
- Monitoring and management of the above habitats would be undertaken for a period of 5 years.

In addition, during site clearance and construction, measures such as high visibility fencing will be in place to protect retained areas of the LNR / SINC from accidental incursion.

Overall, taking mitigation and compensation into account no significant negative impact on the LNR / SINC is predicted.

Wyrley and Essington Canal SLINC

Wyrley and Essington Canal SLINC lies partially within the Application Site boundary. However, the Scheme works will not involve entering the water course or change the walls of the water course. It is therefore considered that this SLINC will not be affected directly, and pollution prevention measures will avoid indirect impacts.

The works would not result in any direct disturbance to the channel of the Wyrley and Essington Canal SLINC as the abutments on either side of the span will be set back approximately 1.5 m from the edge of the canal and construction of the bridge foundations will not require any in channel works. The canal channel will not be altered. The existing walls of the canal channel will be retained at the bridge location and will be repaired as necessary.

Excavations for the bridge foundations adjacent to the Wyrley and Essington Canal could cause silt run off into the canal and may increase sediment loading within the Wyrley and Essington Canal. This could also cause a change in water quality leading to eutrophication or toxic contamination.

[33] York's Bridge HRA (2018) Atkins Ltd.

The mitigation to reduce the risks outlined above will include:

- Detailed design will minimise the amount of reprofiling necessary to reduce the volume of silt which may be disturbed. The reed bed that is being created, will join the Wyrley and Essington Canal should help to trap and attenuate any silt run off during the construction and operational period.
- A semi-porous geo-textile membrane will be temporarily installed alongside a new drainage system, that will be developed prior to construction of the bridge in order to capture and treat any additional run off during the works. Monitoring of the water quality within the canal will also be undertaken on a weekly basis throughout the construction period.
- Construction effects will also be minimised by following construction best practice and Environment Agency Pollution Prevention Guidelines, Works and maintenance in or near water: PPG5 and Working at Construction or Demolition sites PPG6.

By following these mitigation measures no impact on the Wyrley and Essington Canal SLINC is predicted.

High Bridge PSI

To replace the lost habitat and loss of the area of Common, Area B will be made available as a compensation site. This area is already open to the public but it is currently inaccessible due to the density of vegetation and fencing. However, with suitable annual vegetation management and additional planting (where necessary), it will enable for the continued growth of the vegetation present, improving its diversity and making it more openly accessible for the public to utilise as an open green space. Although Area B lies within the High Bridge PSI, the proposed works will not detrimentally reduce or remove any of the habitat currently present, but plans to undertake suitable habitat management to maintain, enhance and make it more open for public use as a local green space.

The High Bridge PSI lies within the Application Site boundary, it was designated for its support of scattered scrub and grassland forming part of the canal corridor. Although works are proposed in this region, it would only be to either improve or complement the existing habitat presence and management.

Overall, the impact on the PSI is predicted to be positive, but not significant.

Pelsall Nest Common PSI

The Pelsall Nest Common PSI includes land within the Application Site boundary; it was designated for its open grassland and woodland blocks. Although works are proposed in this site, they would only involve the removal of a very small area of grassland adjacent to the existing road.

Although, it would be a very localised negative impact due to the loss of a small area of locally designated common land, as the vegetation to be lost is 0.06 ha in size, which is 0.4% of the total 17 ha designated site. It is therefore predicted to be a negative but not significant impact upon the conservation objectives of the designated site.

To compensate for the lost habitat and loss of the area of Common within the Pelsall Nest Common PSI, Area B (as detailed above within High Bridge PSI) will be subject to ecological enhancement as described above.

Other designated sites

All other designated sites (both statutory and non-statutory) are beyond 60 m of the Application Site boundary and are not considered to be at risk of being impacted by the Scheme works due to the distance, lack of connectivity and the small scale and targeted works being proposed.

Due to the distance between the proposed Scheme works and the remaining designated sites, (that lie beyond 60 m of the Application Site boundary, this includes designated sites such as the Clayhanger SSSI, located 80 m from Area B. The proposed Scheme works is not expected to have a significant negative effect on the conservation objectives of these designated sites due to the distance, lack of connectivity and the small scale and targeted nature of works being proposed.

5.2.2. Operational Impacts, Mitigation and Residual Effects

The increased volume of road drainage from the B4154 to the north of York's Bridge discharging into the Wyrley and Essington Canal forms a potential pollution pathway to the Cannock Extension Canal SAC.

Road drainage from the B4154 on the north side of the Wyrley and Essington Canal currently flows into two drainage ditches on either side of the road. The drain to the east of the road flows directly towards the Wyrley and Essington Canal and the drain to the west discharges towards the Pelsall North Common LNR and SINC and from there towards the Wyrley and Essington Canal. As such the Wyrley and Essington canal, and therefore the connecting Cannock Extension Canal SAC, currently receives untreated road run-off.

The new road alignment will increase the area of impermeable ground by approximately 750 m^2 which will increase the volume of road run-off. The provision of a reed bed settlement pond to the east of the B4154 will attenuate and treat the entire road run-off from the north side of York's Bridge. With the provision of the existing and new proposed drainage system, no negative impact is predicted, upon the local designated sites (LNR, SINC and SAC).

As the operational area of the Scheme is not directly connected and adjacent to the remaining designated sites (SSSIs, SINCs, PSIs etc) they are not expected to be affected by the operational period of the Scheme.

5.3. Main Habitats

5.3.1. Construction Impacts, Mitigation and Residual Effects

The proposed works will result in the permanent loss of habitat from within the Site comprising an area of self-seeded scattered trees, scattered scrub and marshy grassland habitat. Of the total habitat present (within and adjacent to the Application Site) the loss is comprised of a total of 0.9% of the designated areas. Although this is a direct negative impact, the creation of new aquatic and reedbed habitat and creation and planting of new road verge and embankment habitat will increase and improve the habitat diversity and biodiversity which will reduce the overall impact to negligible upon completion of the Scheme.

To further offset the lost habitat, the area of self-seeded broad-leaved woodland located to the east of the B4154, which will be removed during the construction phase will be reinstated to a mosaic of grassland and scrub for the benefit of reptiles, in particular, common lizard and grass snake, and terrestrial invertebrates. To aid establishment, a native grassland seed mix, such as one recreating MG5 grassland (traditional hay meadow) will be sewn in this area and within Area B of the Application Site.

Planting of new native tree species of local provenance along the re-profiled road verge embankment along the eastern edge of the Site to the south of the bridge will also take place. This negative impact is not considered significant in the context of impacting upon the conservation status of the habitats within the Pelsall North Common LNR and SINC and Pelsall Nest Common PSI in the long term.

Other habitats that will be removed (i.e. arable field edge, amenity grassland and landscaped areas and tarmac hard standing associated with the road approach) are of negligible nature conservation value and their loss will have no significant effect in terms of the conservation status of these habitats in the local area.

5.3.2. Operational Impacts, Mitigation and Residual Effects

There are no anticipated operational impacts on main habitats within and adjacent to the Site.

5.4. Notable Species

5.4.1. Construction Impacts, Mitigation and Residual Effects

Bats

Bat species have been identified utilising the habitats present within the Application Site. The loss of the connective corridor on either side of the existing road will cause a minor disturbance impact as suitable habitat is present outside of the Application Site boundary. Additionally, four trees have been identified within the Survey Area of the Scheme, that have the potential to support roosting bat species, however, due to the limited level of disturbing works in this area of the Scheme, it is not considered that these trees will be impacted by the proposed construction works. To further reduce the impact upon local foraging and commuting bats, night time working during the construction phase will be avoided where possible and any lighting (to undertake works at night, for security requirements etc.) will be directional and have cowling to prevent any light spillage onto nearby/adjacent trees, hedgerows and habitat corridors (including the Wyrley and Essington Canal). Taking these measures into account, the construction impact will cause a minor short-term negative effect on the local population.

In conclusion, there will be no significant negative impacts from the proposed scheme on the conservation status of the bat populations in the local area.

Great crested newts

Several waterbodies within 250m of the Application Site were found to support medium great crested newt populations.

The Scheme will not directly or indirectly affect ponds that support great crested newts or other ponds. However, the Scheme will result in the loss of terrestrial habitat in the form of grassland, woodland and scrub, located within and adjacent to the existing road verge which could provide great crested newts with foraging and refuge opportunities.

The reinstatement of scrub and grassland habitats will provide great crested newts with suitable terrestrial habitat in the long-term. The creation of 172 m² of open water habitat in the form of 132m² of reed bed and one mitigation pond (40 m²) will provide great crested newts with long-term suitable aquatic habitat.

Due to the small scale of habitat to be lost within the Site and the extensive good quality habitats located to the west of the Site (heath and scrub), and the fact that terrestrial and aquatic habitats will be created, it is considered that there would be no negative impacts on the conservation status of the populations of great crested newts within the Site and in local area.

Utilising and inputting into the Natural England's great crested newt rapid risk assessment template[34], the habitat loss in proximity to the confirmed and assumed great crested newt waterbodies, has resulted in a 'Amber Offence Likely' rating. However, with the provision of suitability avoidance methodology in the form of a Precautionary Method of Working (PMW) document, which will detail the manner and method of undertaking the vegetation clearance works within the Application Site, it will reduce the risk of causing harm to individual great crested newts to a negligible risk.

Taking mitigation into account, there will be no negative impacts on the conservation status of great crested newts.

Reptiles

The Scheme will result in the loss of terrestrial habitat in the form of grassland, woodland and scrub, located within and adjacent to the existing road verge which may be used by reptiles.

The reinstatement of scrub and grassland habitats will provide reptiles with suitable habitat in the long-term.

Due to the small scale of habitat to be lost within the Site and the extensive good quality habitats located to the west of the Site (heath and scrub), and the fact that suitable habitats will be created, it is considered that there would be no negative impacts on the conservation status of reptiles if present within the Site and in local area.

A precautionary method of working (PMW) document will be created to detail the manner and method of undertaking the vegetation clearance works within the Application Site to further reduce the risk of causing harm to individual reptiles.

Taking mitigation into account, there will be no negative impacts on the conservation status of common reptiles.

5.4.2. Operational Impacts, Mitigation and Residual Effects

There are no anticipated operational impacts on these species within and adjacent to the Site due to the fact that the Scheme is not increasing the carrying capacity or increasing the speed limit of the road but re-aligning it to make it safer and smoother to drive. Although in certain areas, the length of road will be broader than it is currently, it is not considered at this time that this will cause an impact upon these species during the operational phase of the Scheme.

The road is unlit, and it is understood that it will not be lit as a result of these works.

[34] Natural England - Method statement template for great crested newt mitigation licence (accessed November 2018) https://www.gov.uk/government/publications/great-crested-newts-apply-for-a-mitigation-licence

6. Conclusion

This EcIA is based on a desk study and ecological surveys undertaken between April and September 2018. The scope of the surveys included an extended Phase 1 habitat survey, otter and water vole surveys, great crested newt surveys and bat transect, emergence and static surveys. The ecological features present within the Survey Area are shown in **Appendix D** and **Appendix E**. Once all relevant available information was obtained, the final ecological zone of influence of the Scheme was determined and the significance of impacts and subsequent effects (both positive and negative) on important ecological features was assessed.

The Applicant has agreed that the avoidance, mitigation and/or compensation measures identified in Section 5.1 above will be incorporated into the detailed design proposals for the Scheme and implemented as part of the overall development of the Application Site. The Scheme has maximised opportunities to incorporate and enhance biodiversity within the proposals wherever possible.

Within Area A, there will be localised habitat loss (0.21 ha) within Pelsall North Common LNR / SINC, along the existing road verge. After development the area of habitat will be slightly smaller but the diversity of habitats will increase.

Within Area A, there will also be localised habitat loss (0.06 ha) within Pelsall Nest Common PSI, along the existing road verge.

Works in Area A will not involve any habitat loss within Wyrley and Essington Canal SLINC, and pollution prevention measures will protect the canal from indirect harm.

Within Area B, enhancement measures will increase the diversity of habitat within High Bridge PSI.

Measures will also be in place to minimise risks of harm to individuals of protected species, such as great crested newts and reptiles and nesting birds.

Taking avoidance, mitigation and/or compensation measures into account, the Scheme conforms in respect of biodiversity to the National Planning Policy Framework (NPPF)[35] Chapter 15 (Conserving and enhancing the natural environment).

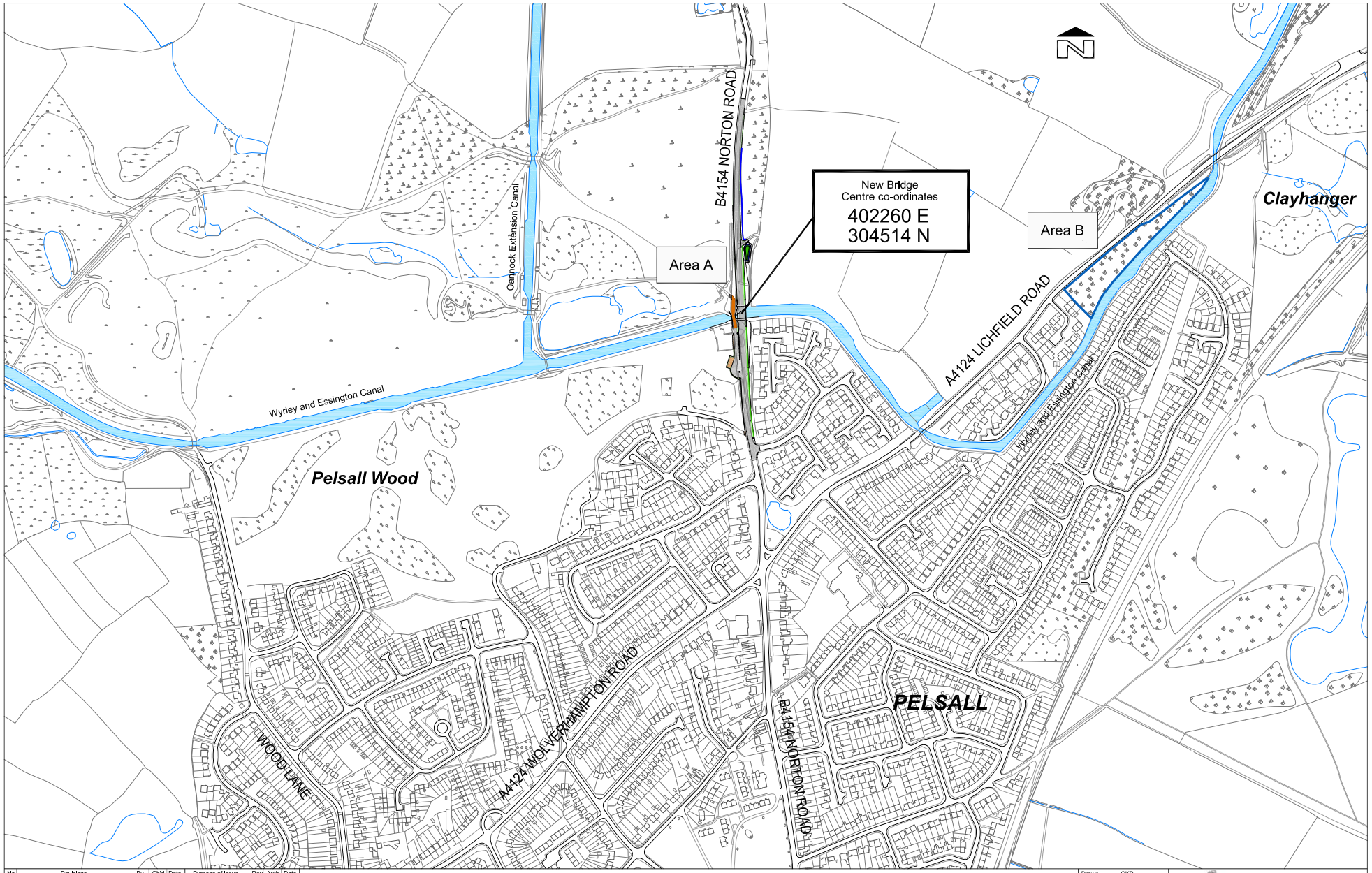
Taking these measures into account, the construction and operational phases of the Scheme are not predicted to result in any significant negative residual effects on designated sites, undesignated habitats or protected and notable species.

[35] Ministry of Housing, Communities and Local Government (2018). National Planning Policy Framework, July 2018.

Appendices

Appendix A. Site Location Plan and Scheme Drawing

A.1. Drawing DRG MP/YB/00-09/A and DRG MP/YB/00-01



No	Revisions	By	Ch'd	Date
A	Area B added to plan	GP	DS	11/18

Purpose of Issue	Rev	Auth	Date

YORK'S BRIDGE, NORTON ROAD, PELSALL

GENERAL LOCATION PLAN

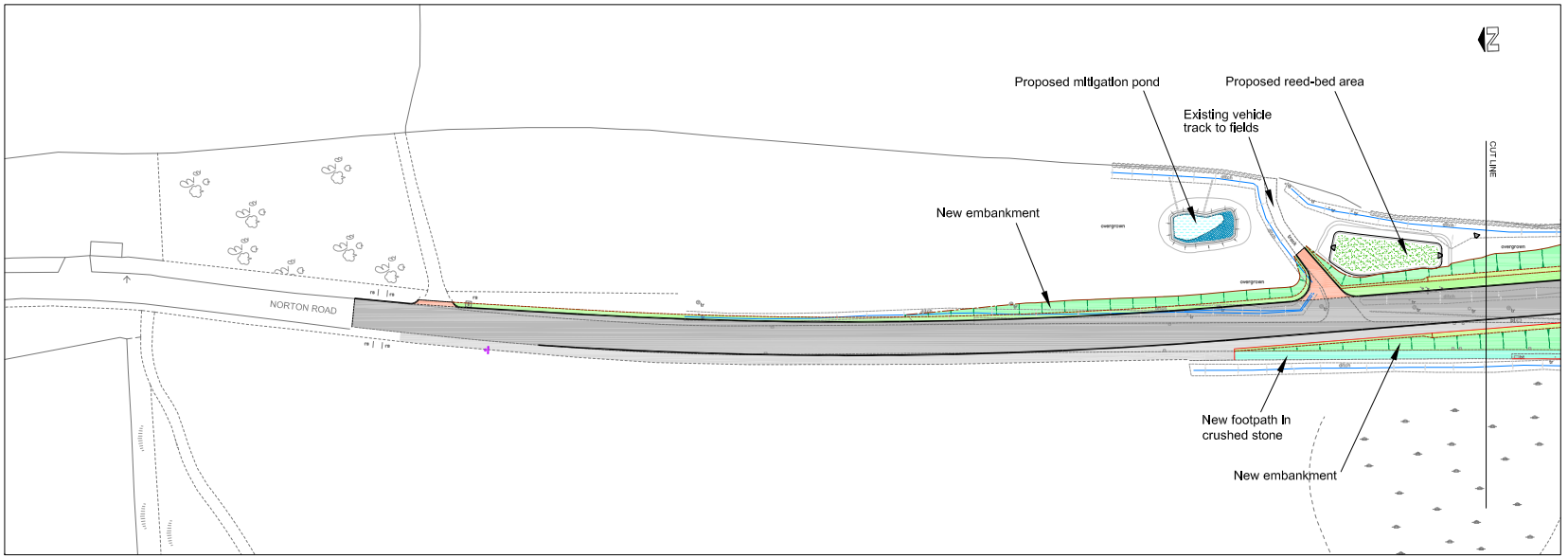
Drawn:	GKP
Checked:	PS
Date:	OCT 2013
Scale:	1 : 5000

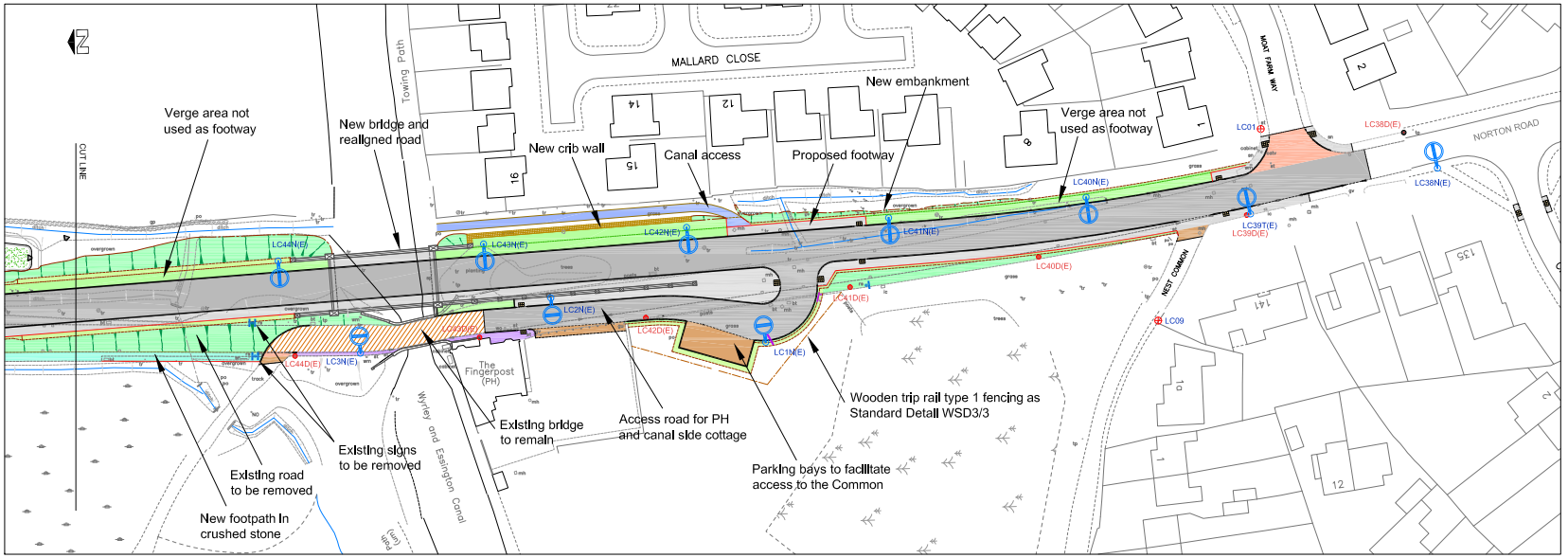
Original drawing size A3
If this drawing is at any other size, then scale shown does not apply.

Walsall Council

ENGINEERING DESIGN & CONSTRUCTION SERVICES
MAJOR PROJECTS & MINOR IMPROVEMENTS

Drawing No. MP/YB/00-09 Rev A





NOTES

1. THE CONTRACTOR IS TO DETERMINE THE LOCATION AND STATUS OF ANY STATUTORY UTILITY APPARATUS PRIOR TO THE COMMENCEMENT OF ANY WORKS.
2. ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE CONTRACT SPECIFICATION AND THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS INCLUDING REVISIONS / AMENDMENTS AND ANY CLIENT SPECIFIC ADDITIONAL OR SUBSTITUTE CLAUSES.
3. ALL SETTING OUT SHALL BE AGREED ON SITE WITH WALSALL MBC ENGINEER PRIOR TO COMMENCEMENT OF THE WORKS.
4. THIS DRAWING TO BE READ IN CONJUNCTION WITH OTHER DRAWINGS IN THE MP/YB/ SERIES.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
6. ALL CO-ORDINATES AND LEVELS SHOWN ARE BASED ON A LOCAL GRID.

KEY

- Proposed Carriageway Construction
- Proposed Footway Construction
- Proposed Parking bay Construction
- Proposed Embankment Construction
- Proposed Verge
- Proposed Tactile Paving
- Proposed Canal Access footpath
- Proposed crushed stone footpath
- Existing Carriageway to be resurfaced
- Existing Carriageway to remain
- Existing Footway to remain
- Proposed kerb type HB2
- Proposed kerb type BN3
- Proposed kerb type DL1 / DR1
- Proposed PC edging
- Proposed 6 m Steel column
- Proposed 10 m Steel column
- Existing 6 m Steel column
- Existing 10 m Steel column
- Existing double lit sign to be relocated
- Existing lit sign and post to be removed
- Proposed new sign and post

No	Revisions	By	Ch'd	Date
0	Issued for tender	GKP	JR	12/16

Purpose of Issue	Rev	Auth	Date

YORK'S BRIDGE, NORTON ROAD, PELSALL
GENERAL ARRANGEMENT

Drawn	GKP
Checked:	PS
Date	NOV 2012
Scale:	1 : 500
Original drawing size A1	
If this drawing is at any other size, then scale shown does not apply.	

Walsall Council

ENGINEERING & TRANSPORTATION SERVICES
MAJOR PROJECTS & MINOR IMPROVEMENTS

Drawing No. MP/YB/00-01 Rev 0

A1

Appendix B. Methodology of Assessment

B.1. Ecological Zone of Influence

B.1.1. Data Gathering (initial EZoI)

The first stage (initial EZoI) is to determine the geographical area for obtaining ecological data through desk and field based studies based on the potential impacts and effects of the Scheme on ecological features. The initial EZoI was based on the Scheme design, construction and operation information available at the time and an initial review of the Application Site conditions and the surrounding landscape using publicly accessible aerial imagery.

The constituent distances that inform the initial EZoI are detailed below in Sections B.2 (desk study), B.3 (extended Phase 1 habitat survey) and B.4 (Phase 2 surveys).

B.1.2. Impact Assessment (final EZoI)

The EZoI was reviewed and amended once all field surveys were completed, records were received from the desk study.

The final EZoI determines the geographical area for assessing the impacts and subsequent effects (both positive and negative) of the Scheme on important ecological features based on all the available information.

B.2. Desk Study

In 18th June 2018 the EcoRecord was contacted to obtain the following ecological data:

- Records of designated sites (Special Areas of Conservation (SAC), Special Sites of Scientific Interest (SSSIs) Local Nature Reserves (LNRs), SINCs (Special site of Interest for Nature Conservation) within 2 km of the Application Site boundary;

Records of legally protected and notable species (fauna and flora) within 2 km of the Application Site boundary, including *Species of Principal Importance for the Conservation of Biodiversity* listed under Section 41 of the Natural Environment & Rural Communities Act 2006 in the *England Biodiversity List*[36].

The Multi-Agency Geographic Information for the Countryside (MAGIC) website (www.magic.gov.uk) was reviewed for information on designated sites of nature conservation importance (statutory sites only) within 2 km of the Application Site. This was retained to 2 km for internationally designated sites; these being Special Protection Areas (SPAs), Wetlands of International Importance (Ramsar sites) and Special Areas of Conservation (SACs).

Ordnance Survey maps and the *Where's the Path* website (http://wtp2.appspot.com/wheresthepath.htm) were used to initially identify the presence of water bodies within 500 m of the Application Site boundary, in order to establish if the land within and immediately surrounding the Application Site could be used as terrestrial habitat for great crested newts. This species typically uses suitable terrestrial habitat up to 500 m from a breeding pond. However, there is a notable decrease in great crested newt abundance beyond a distance of 250 m from a breeding pond[37].

A review of local planning policy relevant to the Scheme was also undertaken as part of the desk study.

[36] Section 40 of the Natural Environment & Rural Communities Act 2006 requires that every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity. The Secretary of State, has drawn up, in accordance with Section 41 of the Act and in consultation with Natural England, a list of habitats and species of principal importance for the purpose of conserving biodiversity in England that is known as the *England Biodiversity List*

[37] Natural England (2004). *An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt (ENRR576)*. http://publications.naturalengland.org.uk/publication/134002.

B.3. Extended Phase 1 Habitat Survey

The extended Phase 1 habitat survey was undertaken by Pamela Wakefield – Senior Ecologist and Emily Major – Assistant Ecologist on 15th August broadly following the Phase 1 habitat survey methodology as set out in Joint Nature Conservation Committee guidance (JNCC, 2010)[4]. All land within and adjacent to the Application Site including land up to 250 m from the Application Site boundary (the Survey Area) was surveyed according to CIEEM guidance[5]. Plant names recorded in this survey follow Stace (2010)[38].

This survey method records in particular:

- Potential roosting sites for bats within trees and structures (identification of suitable cracks and crevices) - survey undertaken from ground only. The assessment of potential value of the trees and structures for roosting sites for bats were categorised based on good practice guidance as detailed in **Appendix 0.1.1**;
- Assessing the potential of terrestrial and aquatic habitats to support great crested newts. Aquatic habitat was assessed for its suitability to support great crested newts using the Habitat Suitability Index assessment as detailed in **Appendix B.4.2.1**;
- Searching for signs of badger activity including setts, tracks, snuffle holes and latrines;
- Assessing the suitability of habitats for nesting birds (including any old nests);
- Assessing the suitability of habitats for common species of reptile (adder, grass snake, slow worm and common lizard);
- Assessing the suitability of watercourses for water vole and otter;
- Assessing the suitability of habitats for hazel dormouse;
- Evidence of the presence of certain invasive plants listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) and subject to strict legal control (Japanese knotweed, giant knotweed, hybrid knotweed, giant hogweed, Himalayan balsam, rhododendron and cotoneaster species, Canadian pond-weed, parrots feather etc.).

B.4. Phase 2 Surveys

B.4.1. Bats

All bat surveys detailed below have been undertaken in accordance with good practice guidance[39] and CIEEM competencies for undertaking bat surveys[40].

B.4.1.1. Roost Potential Assessment

A bat roost potential assessment of trees and structures was undertaken by Pamela Wakefield – Senior Ecologist and Emily Major – Assistant Ecologist on 15th August 2018.

The extent of the assessment was based on the predicted EZoI for this species group and included all trees and structures within the Application Site and a 50 m buffer extending out in all directions from the Application Site boundary where access allowed (the Bats Survey Area).

Visual examinations of trees and structures were undertaken from the ground, during daylight hours and were aided with the use of binoculars and a bright torch. For trees, the searches looked for features such as woodpecker holes and rot holes, cracked limbs, dense ivy and flaking bark. For structures, the inspections involved looking for potential entry / exit points for bats or other potential roost locations (e.g. holes in brickwork, cracks and gaps in masonry etc.).

[38] Stace, C. E. (2010). *New Flora of the British Isles, 3rd edition*. Cambridge University Press.
[39] Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). The Bat Conservation Trust, London.
[40] CIEEM (April, 2013) *Competencies for Species Survey: Bats.*

The assignment of bat roost potential was carried out according to good practice guidance[41], which assigns each feature either Negligible, Low, Moderate or High suitability for roosting bats.

The assignment of bat roost potential was carried out according to good practice guidance[42], which assigns each feature either Negligible, Low, Moderate or High suitability for roosting bats.

B.4.1.2. Roost Surveys

York's Bridge within the Bats Survey Area was identified as having potential to support roosting bats was subject to dusk emergence and/or dawn re-entry surveys. The dusk emergence surveys were undertaken in the evening approximately 15 minutes before sunset and for a further 1.5 hours after. The dawn re-entry surveys were undertaken approximately 1.5 hours before and 15 minutes after sunrise.

The details of the roost surveys are summarised in Table 10 below.

Table 10 - Bat Roost Surveys Summary

Date	Building Ref	Sunset/ Sunrise	Start/ End Time	Start/End Temp	Start/ End Wind	Start/End Precipitation	Start/End Cloud Cover	Surveyors
22/06/18	York's Bridge	21:36	21:20 - 23:06	20 °C – 18 °C	2	None	100%	Joe Pedder and Dave Gash
31/07/18	York's Bridge	05:25	03:55 - 05:25	15 °C – 18 °C	1-0	None	100%	Jon Goodrick and Adele Harrison
15/08/18	York's Bridge	05:47	04:17 - 06:02	16 °C – 17 °C	3	None	100%	Jon Goodrick and Adele Harrison

B.4.1.3. Activity Surveys

Bat activity transect surveys were carried out across the Bats Survey Area to identify levels of activity, key foraging and commuting areas and species present.

The transect route(s) are shown on in **Appendix G**. Due to the extent of the Application Site, the area was divided into two transect routes – A and B. Due to the scale and the quality of the habitat present within and adjacent to the Application Site, A single transect of Transect A and Transect B was undertaken once a month for six months (April to September 2018). These surveys commenced at sunset, with each transect taking up to two hours to complete.

The weather conditions during each survey period are summarised in Table 11 below.

Table 11 - Bat Activity Surveys Summary

Date	Transect	Sunset/Sunrise	Start/End Time	Start/End Temperature	Start/End Wind	Start/End Precipitation	Start/End Cloud Cover	Surveyors
30/04/2018	A	20:32	20:32-22:30	9 °C – 8 °C	1	None	0-10%	Dave Gash
30/04/2018	B	20:32	20:32-22:30	9 °C – 8 °C	1	None	0-10%	Poul Korndal

[41] Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). The Bat Conservation Trust, London.
[42] Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). The Bat Conservation Trust, London.

30/05/2018	A	21:20	21:23-23:16	16 °C – 14 °C	1-2	None	100%	Jo pedder
30/05/2018	B	21:20	21:23-23:16	16 °C – 14 °C	1-2	None	100%	Richard Jennings
28/06/2018	A	04:48	02:48-04:48	13 °C-14 °C	1-2	None	0-100%	Jo Pedder
28/06/2018	B	04:48	02:48-04:48	13 °C-14 °C	1-2	None	0-100%	Dave Gash
30/07/2018	A	21:04	21:04-23:04	20 °C-18 °C	2	Light rain 22:49-22:58	100%	Adele Harrison
30/07/2018	B	21:04	21:04-23:04	20 °C-18 °C	2	Light rain 22:49-22:58	100%	Jon Goodrick
14/08/2018	A	20:38	20:37-22:38	20 °C-17 °C	2-3	None	20%	Adele Harrison
14/08/2018	B	20:38	20:37-22:38	20 °C-17 °C	2-3	None	20%	Jon Goodrick
19/09/2018	A	19:19	19:19-21:19	17 °C	2	None	20%	Adele Harrison
19/09/2018	B	19:19	19:19-21:19	17 °C	2	None	20%	Jon Goodrick

To support the activity transects, automated detectors were deployed for a period of five consecutive nights in one location per transect per survey.

B.4.2. Great Crested Newt

All great crested newt surveys detailed below have been undertaken in accordance with good practice guidance[43] and CIEEM competencies for undertaking great crested newt surveys[44].

B.4.2.1. Habitat Suitability Index Assessment

The extent of the HSI assessment was based on the predicted EZoI for this species and included all water bodies within the Application Site and a 500 m buffer extending out in all directions from the Application Site boundary where access allowed (the Great Crested Newt Survey Area).

The survey was undertaken by Huw Morgan (survey licence number: 2015-10183-CLS-CLS) and Emily Major.

The HSI is quantitative measure of habitat quality for great crested newts. The HSI is a numerical index between 0 and 1, derived from an assessment of ten habitat variables known to influence the presence of newts such as geographic location, water body size and permanence, the presence of predatory fish and wildfowl, availability of suitable terrestrial habitat and proximity to other water bodies, and scores each factor based on its level of suitability. An HSI of 1 is optimal habitat (high probability of occurrence), while an HSI of 0 is very poor habitat (minimal probability of occurrence). The HSI is calculated on a single water body basis, but takes into account surrounding terrestrial habitat and local water body density. If a water body has a very low HSI score (<0.5) then there would typically be a minimal chance of great crested newt presence.

[43] Great Crested Newt Mitigation Guidelines (English Nature, 2001)
[44] CIEEM (April, 2013) *Competencies for Species Survey: Great Crested Newt.*

B.4.2.2. Environmental DNA (eDNA)

The eDNA survey involved the collection of water samples from suitable water bodies within the Great Crested Newt Survey Area to be tested for the presence of great crested newt DNA, which would indicate the species is present in a particular water body.

eDNA water sampling was undertaken on a single visit to all suitable water bodies on 19/04/2018 by suitably trained and experienced great crested newt surveyors from Atkins.

The sampling methodology followed an approved methodology[45], recognised by Natural England that minimises cross contamination. Field sampling equipment was supplied as sterile kits by the laboratory that was to carry out the DNA analysis (ADAS). In total, 20 water samples were collected from each water body sampled. Areas that may be used by great crested newts for displaying or egg-laying were selected for sampling and the sampling was carried out in daylight hours, and in dry weather. The surveyors held great crested newt survey licences from Natural England. Following completion of the sampling the collected water samples were stored under suitable conditions before being sent to the laboratory for testing.

B.4.2.3. Presence / likely absence surveys

Presence / likely absence surveys for great crested newts were carried out between 09/05/2018 and 11/06/2018.

All surveys were led by: Anna Simpson (survey licence number: 2016-26341-CLS-CLS), Huw Morgan (survey licence number: 2015-10183-CLS-CLS) , Martin Green (survey licence number: 2015-17062-CLS-CLS) and assisted by Emily Major, Kirsty Elliott and Joseph Stevens.

Four presence / likely absence surveys were carried out on each suitable water body[46] within the Great Crested Newt Survey Area utilising the following standard survey techniques:

- Torching: this involved two ecologists walking the circumference of the each water body shining a high powered torch (one million candlepower) into the water to record the number of great crested newts (and other amphibian species) present;
- Bottle trapping: this survey technique involved placing specifically made bottle traps around the margins of each water body. The traps were set quite late in the evening and then retrieved early the following morning and any trapped great crested newts (and other amphibian species) were counted and sexed;
- Egg searching: this survey technique involved searching the live and dead submerged vegetation present within each waterbody for great crested newt eggs (and other amphibian species);
- Netting: using a sturdy dip-net with a 2-4mm mesh the surveyors worked around the perimeter of the water body along 2m lengths of shoreline agitating the net through aquatic vegetation; and,
- Refuge searching: terrestrial searches around the waterbody under suitable refuge materials such as rocks, logs, moss and discarded debris.

B.4.2.4. Population Size Class Assessment

All surveys were led by: Anna Simpson (survey licence number: 2016-26341-CLS-CLS), Huw Morgan (survey licence number: 2015-10183-CLS-CLS), Martin Green (survey licence number: 2015-17062-CLS-CLS) and assisted by Emily Major, Kirsty Elliott and Joseph Stevens.

Water bodies P10, P3, P8 and EP2 were found to support great crested newts during the presence / likely absence surveys; therefore these water bodies were surveyed a further two times between 09/05/2018 and 11/06/2018 to support a population size class assessment to be undertaken.

The standard methodology[47] gives an indication of whether a population is small, medium or large in terms of the number of adult newts present in the breeding water body.

The maximum adult count per water body (obtained from presence / likely absence surveys using torching/bottle trapping) is used to indicate population size as follows:

[45] Biggs, et al (2014) Technical Advice Note for Field and Laboratory Sampling of Great Crested Newt eDNA in Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067. Appendix 5. Freshwater Habitats Trust, Oxford

[46] Water bodies are considered suitable where either the HSI score and other supporting evidence such as historical records of great crested newt presence indicates that great crested newt presence is likely, or where great crested newt presence has been confirmed through the use of eDNA surveys.

[47] Great Crested Newt Mitigation Guidelines (English Nature, 2001)

- Small for maximum counts up to 10;
- Medium for maximum counts between 11 and 100; and,
- Large for maximum counts over 100.

B.4.3. Badger

A badger survey was carried out on Pamela Wakefield – Senior Ecologist and Emily Major – Assistant Ecologist on 15th September 2018 in accordance with good practice guidance[48] and CIEEM competencies for undertaking badger surveys[49] .

The extent of the badger survey was based on the predicted EZoI for this species and included all land within the Application Site and a 50 m buffer extending out in all directions from the Application Site boundary where access allowed (the Badger Survey Area).

The Badger Survey Area was inspected for evidence of badger activity including setts, latrines, paw prints, snuffle holes (created when foraging), track-ways, hairs (caught on fencing) and scratching posts.

Where setts were located, they were classified following the criteria[50] given in Table 12 below. The assessment of the likely status of the badger sett(s) was made based on the available evidence and the surveyor's experience.

Table 12 - Conventions Used in Classifying Badger Setts

Likely Status	Typical Features
Main	Several holes with large spoil heaps and obvious paths emanating from and between sett entrances.
Annex	Normally less than 150 m from main sett, comprising several holes. May not be in use all the time, even if the main sett is very active.
Subsidiary	Usually at least 50 m from main sett with no obvious paths connecting to other setts. May only be used intermittently.
Outlier	Little spoil outside holes. No obvious paths connecting to other setts and only used sporadically. May be used by foxes and rabbits.

The sett activity level was determined using the following criteria:

- Active setts – the sett shows obvious signs of current use[51] such as fresh spoil, footprints, bedding and hairs. No obstructions in entrance; and,
- Disused setts (not active) – entrances may have fallen leaves, cobwebs or may even be blocked with sticks, stones or earth. Vegetation, including mosses may be growing in the entrance or on old spoil just outside. No signs of current use by badgers.

B.4.4. Otter

Otter presence/ likely absence surveys were carried out between 01/06/2018 and 27/09/2018 by Luke Taylor and Joseph Stevens.

The extent of the survey was based on the predicted EZoI for this species and included suitable water courses and water bodies within the Application Site and 50 m up and down the canal connect/located adjacent to the Application Site (the Otter Survey Area), this was devised to ensure a sufficient coverage to identify the presence of otter holts in the immediate vicinity to the Scheme.

The surveys were undertaken following Atkins developed methodologies based on guidance set out in the Design Manual for Roads and Bridges (DMRB)[52], and CIEEM competencies for undertaking otter surveys[53].

[48] Harris, C., et al (1989) Surveying Badgers, Mammal Society.
[49] CIEEM (April, 2013) Competencies for Species Survey: Badger.
[50] Harris, C., et al (1989) Surveying Badgers, Mammal Society.
[51] Natural England (June, 2009) Protection of Badgers Act 1992 (as amended) Guidance on 'Current Use' in the definition of a Badger Sett.
[52] The Design Manual for Roads and Bridges DMRB Volume 10, Section 1 Part 9 HA 81/99 Chapter 7, Grogan
[53] CIEEM (April, 2013) Competencies for Species Survey: Eurasian Otter.

The following evidence of otter activity was looked for during these surveys:

- Holts: a cavity or hole in a river bank, in the ground, under tree roots, within rocks or caves where the back cannot be readily seen. If active this will usually contain field evidence such as spraints;
- Hovers: a bolt hole or ledge that will afford an otter temporary cover or a place to feed on captured prey. The back of the hover can usually be seen. If active there may be footprints, feeding evidence or spraints);
- Couches: above ground where an otter can lie up or groom; these may take the form of a simple swirl or depression in tall grasses where the otter has laid, or may be covered in a vegetated grass or reed 'roof');
- Spraints (droppings);
- Feeding remains;
- Paths and slides (defined otter paths on watercourse banks and mud slides evident of where the animal regularly enters the watercourse);
- Footprints; and,
- Grooming hollows.

B.4.5. Water Vole

Water vole presence / likely absence surveys were carried out between 01/06/2018 and 27/09/2018 by Joe Stevens and Luke Taylor.

The extent of the survey was based on the predicted EZoI for this species and included suitable water courses and water bodies within the Application Site and 50 m up and down the canal connect/located adjacent to the Application Site (the Water Vole Survey Area).

The surveys were undertaken following Atkins developed methodologies based on guidance set out in the Design Manual for Roads and Bridges (DMRB)[54], and CIEEM competencies for undertaking Eurasian otter surveys[55].

The surveys were undertaken according to good practice guidance[56] and CIEEM competencies for undertaking water vole surveys[57].

The following evidence of water vole activity was looked for during these surveys:

- Burrows;
- Faeces;
- Latrines;
- Feeding stations and 'lawns' (area around burrow entrances where there is grazed vegetation, surrounded by taller vegetation);
- Runways and Footprints;
- Nests;
- Sightings; and,
- Sounds (characteristic 'plop' sound when water voles enter the water to warn other water voles in the area of possible danger).

B.4.6. Floating Water Plantain

Floating Water Plantain presence / likely absence surveys were carried out on 27/09/2018 by Veronica Barrand and James Hicks.

The extent of the survey was based on the predicted EZoI for this species and included suitable water courses within the Application Site and 50 m up and down the canal connect/located adjacent to the Application Site (the Floating Water Plantain Survey Area).

[54] The Design Manual for Roads and Bridges DMRB Volume 10, Section 1 Part 9 HA 81/99 Chapter 7, Grogan
[55] CIEEM (April, 2013) Competencies for Species Survey: Eurasian Otter.
[56] Strachan, R. and Moorhouse, T. (2011). Water Vole Conservation Handbook (3rd edition). Wildlife Conservation Research Unit, University of Oxford.
[57] CIEEM (April, 2013) Competencies for Species Survey: Water Vole.

The surveys were undertaken following on guidance set out in the Monitoring the Monitoring the Floating Water-plantain[58]. The survey will involve utilising the towpath of the canal, to walk the Survey Area and map and survey by eye and with the use of a grapnel the presence and abundance of floating water plantain within the canal.

B.5. Nature Conservation Evaluation

A number of criteria have become accepted as a means of assessing the nature conservation value of a defined area of land which are set out in A Nature Conservation Review (Ratcliffe, 1977) and include diversity, rarity and naturalness.

The nature conservation value or potential value of an ecological feature is determined within the following geographic context:

- International (such as Special Areas of Conservation, Special Protection Areas, Ramsar sites);
- National (such as Sites of Special Scientific Interest);
- Regional for example, Environment Agency regional biodiversity indicators, important features in Natural England Natural Areas;
- Metropolitan, County, Vice-County or Other Local Authority-wide Area (such as Local Nature Reserves, Sites of Importance for Nature Conservation, ancient woodlands);
- Local (parish) (undesignated ecological features such as old hedges, woodlands, ponds);
- The Application Site and its immediate environs e.g. marshy grassland, immature and mature trees, dense and scattered scrub, semi-improved grassland, neutral grassland; and,
- Negligible e.g. areas of hardstanding and amenity grassland.

B.6. Impact Assessment

The assessment of the potential effects of the Scheme takes into account both on-site effects and those that may occur to adjacent and more distant ecological features. Impacts can be permanent or temporary and can include:

- Direct loss of wildlife habitats;
- Fragmentation and isolation of habitats;
- Disturbance to species from noise, light or other visual stimuli;
- Changes to key habitat features; and,
- Changes to the local hydrology, water quality and/or air quality.

Effects are unlikely to be significant where features of low value or sensitivity are subject to small or short-term impacts. However, where there are a number of small scale effects that are not significant alone, the assessor may determine that, cumulatively, these may result in an overall significant effect. Significant effects have been determined as being either negative or positive.

For designated sites, effects are considered significant when a project and associated activities is likely to either undermine or support the conservation objectives or condition of the site(s) and its features of interest.

For ecosystems, effects are considered significant when a project and associated activities is likely to result in a change in ecosystem structure and function.

Consideration is given to whether:

- Any processes or key characteristics will be removed or changed;
- There will be an effect on the nature, extent, structure and function of component habitats; and,
- There is an effect on the average population size and viability of component species.

Functions and processes acting outside the formal boundary of a designated site has also been considered, particularly where a site falls within a wider ecosystem e.g. wetland sites.

Some ecosystems can tolerate a degree of minor changes, such as localised or temporary disturbance or changes in physical conditions, without such changes harming their function or value.

[58] *Monitoring the Floating Water-plantain Luronium natans, () Conserving Natura 2000 Rivers, Monitoring Series No. 9*

For this EcIA, ecological effects have been considered in the light of any information available about the capacity of ecosystems to accommodate change.

The conservation status of undesignated habitats and species within a defined geographical area has been used in this assessment to determine whether the effects of the proposals are likely to be significant:

- For habitats, conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area; and,
- For species, conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

When assessing potential effects on conservation status, the known or likely background trends and variations in status have been taken into account. The level of ecological resilience or likely level of ecological conditions, that would allow the population of a species or area of habitat to continue to exist at a given level, or continue to increase along an existing trend or reduce a decreasing trend, has been estimated where appropriate to do so.

The avoidance, mitigation and/or compensation measures described within the EcIA have been incorporated into the design and operational phasing programme and taken into account in the assessment of the significance of effects. These mitigation measures include those required to achieve the minimum standard of established good practice together with additional measures to further reduce any negative impacts of the Scheme. The mitigation measures include those required to reduce or avoid the risk of committing legal offences.

Appendix C. Planning Policy and Legislation

C.1. National Planning Policy Framework, 2018

The National Planning Policy Framework (NPPF) sets out the Governments planning policies for England and how these are expected to be applied by Local Authorities within their Local Development Frameworks (LDF). The revised National Planning Policy Framework was published on 24 July 2018.

Chapter 15 of the NPPF '*Conserving and enhancing the natural environment*' sets out the requirements to consider biodiversity in planning decisions.

The paragraphs within Chapter 15 relevant to the Scheme are summarised below:

170 *Planning policies and decisions should contribute to and enhance the natural and local environment by:*

- protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland; and
- minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

171 *Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework[59]; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.*

172 *Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and the Broads[60]. The scale and extent of development within these designated areas should be limited. Planning permission should be refused for major development[61] other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of:*

- The need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;
- The cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and
- Any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.

173 *Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 172), planning policies and decisions should be consistent with the special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate, unless it is compatible with its special character.*

174 *To protect and enhance biodiversity and geodiversity, plans should:*

[59] Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.
[60] English National Parks and the Broads: UK Government Vision and Circular 2010 provides further guidance and information about their statutory purposes, management and other matters.
[61] For the purposes of paragraphs 172 and 173, whether a proposal is 'major development' is a matter for the decision maker, taking into account its nature, scale and setting, and whether it could have a significant adverse impact on the purposes for which the area has been designated or defined.

- Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity[62]; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation[63]; and
- Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

175 *When determining planning applications, local planning authorities should apply the following principles:*

- a) if significant harm to biodiversity 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;
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons[64] and a suitable compensation strategy exists; and
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

176 *The following should be given the same protection as habitats sites:*

- Potential Special Protection Areas and possible Special Areas of Conservation;
- Listed or proposed Ramsar sites[65]; and
- Sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

177 *The presumption in favour of sustainable development does not apply where development requiring appropriate assessment because of its potential impact on a habitats site is being planned or determined.*

C.2. Local Planning Policy

The Nature Conservation Policies detailed within the Black Country Core Strategy 2011 (BCCS)[66] this strategy outlines the following targets, these are:
All development within the Black Country is to safeguard nature conservation ensuring that:

- Development is not permitted where it would harm internationally (Special Areas of Conservation (SAC)), nationally (Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR)) or regionally (Local Nature Reserve (LNR) and Sites of Importance for Nature Conservation (SINC)) designated nature conservation sites;

[62]Circular 06/2005 provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system.
[63]Where areas that are part of the Nature Recovery Network are identified in plans, it may be appropriate to specify the types of development that may be suitable within them.
[64] For example, infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat.
[65] Potential Special Protection Areas, possible Special Areas of Conservation and proposed Ramsar sites are sites on which Government has initiated public consultation on the scientific case for designation as a Special Protection Area, candidate Special Area of Conservation or Ramsar site.
[66] BCCS report (2011) *Accessed: October 2018*
http://blackcountrycorestrategy.dudley.gov.uk/t4/p2/?assetdet13950554=198681

- Locally designated nature conservation sites (Sites of Local Importance for Nature Conservation SLINC)), important habitats (LBAPS etc) and geological features are protected from development proposals which could negatively impact upon these designations;
- Allow developments to cause fragmentation / prevent the movement of wildlife within the Black Country and its adjoining counties, through removal/loss of both linear habitats (e.g. wildlife corridors) and the wider urban matrix is not impeded by development;
- Species which are legally protected, in decline, or rare within the Black Country or are protected by national, regional or local Biodiversity Action Plans will not be harmed by any development.
- That adequate information is submitted with planning applications for proposals which may affect any designated site or any important habitat, species or geological feature to ensure that the likely impacts of the proposal can be fully assessed.

Where, exceptionally, the benefits of a development outweigh the importance of a local nature conservation site, species or habitat / geological feature, the damage must be minimised through appropriate measures. Any impacts, including any reduction in area, must be fully mitigated as compensation will only be accepted in exceptional circumstances.

A mitigation strategy must accompany relevant planning applications. Current designated nature conservation sites including Local Nature Reserves will be carried forward from existing Proposals Maps, subject to additions and changes arising from further studies. Local Authorities will look to designate additional nature conservation sites as necessary in conjunction with the Local Sites Partnership and consequently sites may receive new, or increased, protection over the Plan period. All appropriate development should positively contribute to the natural environment of the Black Country by:

- Extending nature conservation sites;
- Improving wildlife movement; and/or
- Restoring or creating habitats / geological features which actively contribute to the implementation of Biodiversity Action Plans (BAPs) and/or Geodiversity Action Plans (GAPs) at a national, regional or local level.

C.3. Local Biodiversity Action Plans

The Black Country Local Biodiversity Action Plans[67] are broken into two categories, Habitat and Species, a list is provided below.

Habitat/Land Use Action Plans

- Arable fields
- Arable field margins and beetle banks
- Buildings and the built environment
- Canals
- Deadwood
- Eutrophic urban pools
- Gardens, allotments, parks and open space
- Garden ponds
- Hedgerows
- Lowland dry acid grassland
- Lowland neutral and base-rich grassland
- Lowland wet grassland
- Lowland heathland
- Rivers and streams
- Urban 'wasteland'
- Woodland

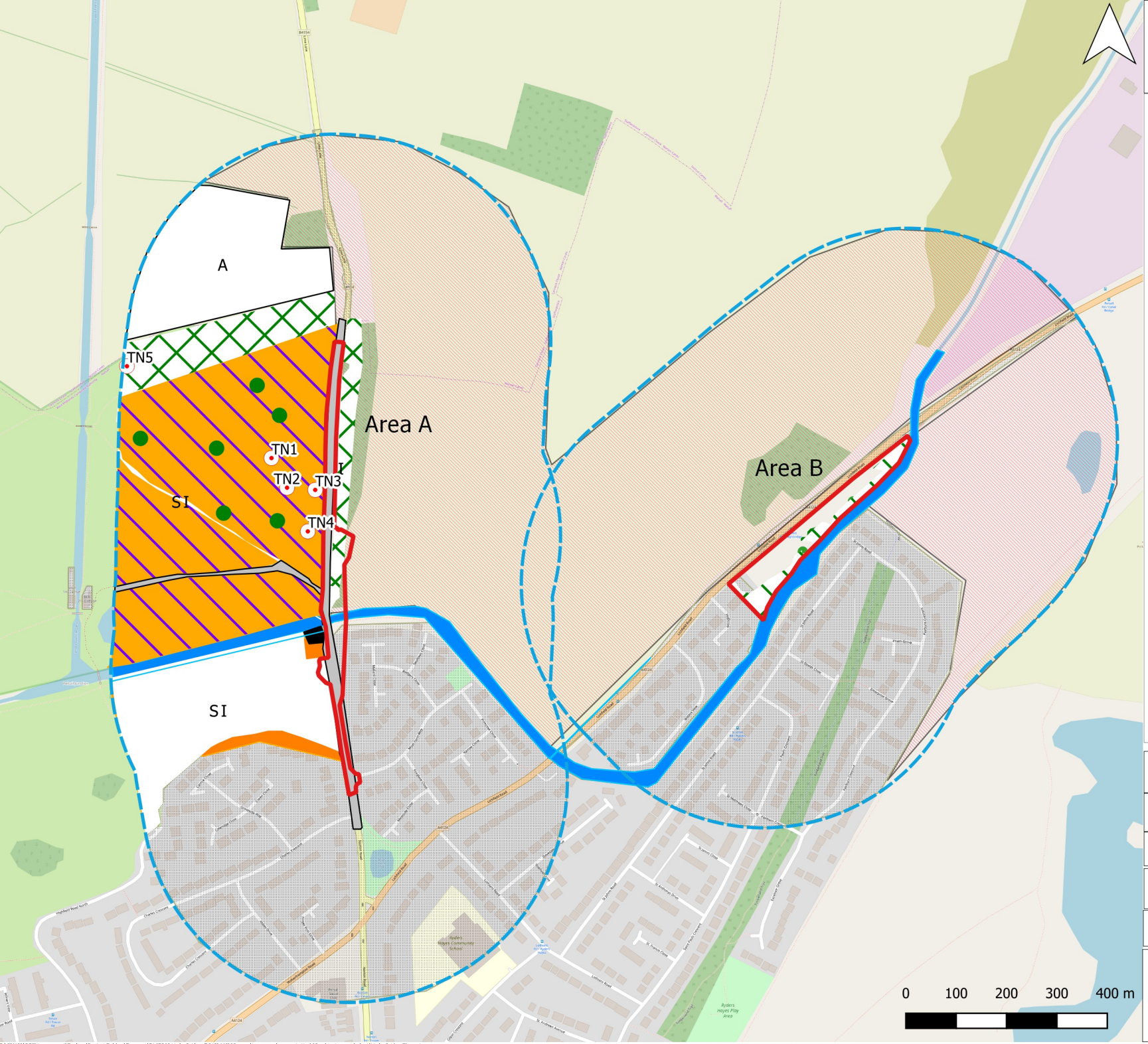
Species Action Plans

[67] Black Country Local Biodiversity Action Plans. *Accessed October 2018,* http://adlib.everysite.co.uk/adlib/defra/content.aspx?id=000IL3890W.16NTBWV72I0V4

- Amphibians (frog, toad and smooth newt)
- Badgers
- Bats
- Black redstart
- Bluebell
- Brown hare
- Dingy skipper
- Floating water plantain
- Great crested newt
- Green hairstreak
- Grey partridge
- Kestrel
- Little ringed plover
- Orchids
- Skylark
- Snipe
- Song thrush
- Tree sparrow
- Vaccinium species
- Wall brown
- Water vole
- White clawed crayfish.

Appendix D. Extended Phase 1 Habitat Survey Plan and Target Notes

D.1. Drawing 5165963_YorksBridge_Phase1



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- 250m redline buffer
- Redline boundary
- Tree
- Target notes
- Running water
- Hardstanding
- A — J1.1 - Cultivated/distrubed land - arable
- Buildings
- B2.2 - Neutral grassland - semi-improved
- B5 - Marsh/marshy grassland
- SI — B6 - Poor semi-improved grassland
- Broadleaved woodland
- Broadleaved plantation
- Dense scrub
- A2.2 - Scrub - scattered
- A3.1 - Broadleaved woodland - scattered trees
- Standing water
- Buildings
- No Access Available

Client: Walsall Council

Project: Yorks Bridge

Title: Phase 1 Habitat Survey Plan

Drawing number: 5165963_PH1_01

Original scale	1:10000

Drawn	Checked	Authorised
SS	MCG	CW
5/11/18	5/11/18	15/11/18

P:\GBNGB\DE2\Assessment\Ecology\Project Folders\5xxxxxx\5165963 Yorks Bridge (2018) MG\60 - work process documentation\63 - drawings and plans\Yorks Bridge Phase 1.qgs

D.2. Target Notes and Photographs

Target Note	Description	Photograph
TN1	Mature silver birch, with bat potential.	No photograph available
TN2	Mature silver birch, with bat potential.	No photograph available
TN3	Semi-mature sycamore with bat potential.	No photograph available
TN4	Semi-mature sessile oak, bat potential.	No photograph available
TN5	Fire damaged heathland/marshy grassland area.	

Appendix E. Phase 2 Survey Results

E.1. Bats

E.1.1.1. Roost Surveys

No bats were observed emerging from York's bridge. During dusk and dawn surveys Common Pipistrelle were the most common species to pass the site with some activity from Noctule, *Myotis* and unidentified *Nyctalus/Eptesicus* species.

Table 13 - Bat Roost Survey Results for York's Bridge

Survey Type	Survey Date	Start – Finish Time (sunrise/sunset)	Survey Results
Dusk	22/06/2018	21:20-23:06 (21:36)	No bats emerged from bridge
Dawn	31/07/2018	03:55-05:25 (05:25)	No bats emerged from bridge
Dawn	15/08/2018	04:17-06:02 (05:47)	No bats emerged from bridge

E.1.1.2. Activity Surveys

Common pipistrelle activity was recorded throughout the Area A (York's Bridge) and Area B (High Bridge). Low to moderate numbers (<30) of bats were recorded during the activity surveys.

The majority of the foraging bats entered the Application Site from the north east and the south. The first foraging bats were recorded approximately 15 minutes after sunset, which indicates that they are roosting in relatively close proximity to the Application Site as in this short time period they will not have travelled far from their roosting sites following emergence. The most likely roosting sites are Homers Wood, immediately to the south of the Application Site, and Cooks Wood and the residential properties to the north east of the Application Site.

No other species of bats were recorded during the activity surveys.

Table 14 - Bat Activity Results

Transect	Date	Start – Finish Time (sunset/sunrise)	Survey Results
A	30/04/2018	20:32-22:30 (20:32)	7 common pipistrelle recordings.
B	30/04/2018	20:32-22:30 (20:32)	Noctule were the most common species recorded (3). Common pipistrelle (1) and *Myotis* sp (1) were heard but not recorded.
A	30/05/2018	21:23-23:16 (21:20)	10 recordings, mostly common pipistrelle (5) with some Nathusius' pipistrelle (3) and noctule (2).
B	30/05/2018	21:23 -23:19 (21:20)	21 recordings with the majority being

			common pipistrelle (14), and some noctule (3) and Nathusius pipistrelle (4).
A	28/06/2018	02:48-04:48 (04:48)	17 recordings with the majority being common pipistrelle (14), with some Nathisius' pipistrelle (2) and noctule (1).
B	28/06/2018	02:48-04:48 (04:48)	15 recordings mostly common pipistrelle (14) with one noctule.
A	30/07/2018	21:04-23:04 (21:04)	19 recordings with the majority being common pipistrelle (17), with some noctule (1) and unknown Nyctalus (1).
B	30/07/2018	21:04-23:04 (21:04)	5 recordings mostly common pipistrelle (4) with 1 noctule pass.
A	14/08/2018	20:37-22:38 (20:38)	24 recordings all of which were common pipistrelle.
B	14/08/2018	20:37-22:38 (20:38)	8 recordings all of which were common pipistrelle.
A	19/09/2018	19:19 -21:19 (19:19)	15 recordings most of which were common pipistrelle (14) and one noctule.
B	19/09/2018	19:19-21:19 (19:19)	1 noctule recording and 1 myotis heard but not recorded.

E.2. Great Crested Newt

The great crested newt survey results are summarised in Table 15 below.

Table 15 – Presence / Likely Absence Survey Results in Ponds P1, P3, P4, P8, P10, EP1 and EP2

Waterbody Reference	HSI Survey Date	HSI Score	Survey Dates[68]	Survey Methodology[69/70]	Survey Results[69/71/72]	Other Amphibian Species Recorded	Great Crested Newt Peak Count	Population Size Class Assessment
P10	19/04/2018	0.78	16/05/2018	T/BT/ES/eDNA	**T**: 1 (f) GCN, 1 (m) GCN **BT**: No GCN **ES:** No GCN	Common frog Smooth Newt Common Toad	2	Small
			22/05/2018	T/BT/ES/eDNA	**T**: No GCN **BT**: No GCN **ES:** No GCN	N/A	N/A	
			30/05/2018	T/BT/ES/eDNA	T: 1 (m) GCN, 1 (f) GCN BT: 1 (m) GCN ES: No GCN	N/A	2	
			11/06/2018	T/BT/ES/eDNA	**T:** No GCN **BT:** No GCN **ES:** No GCN	N/A	N/A	
P1	19/04/2018	0.84	N/A	eDNA	No GCN	N/A	N/A	N/A
P3	19/04/2018	0.84	09/05/2018	T/BT/ES/eDNA	**T**: No GCN **BT**: 2 (m) GCN	Smooth newt Common frog	3	Small

[68] Dates include population assessment surveys undertaken on waterbodies found to support great crested newts
[69] T = torching; BT = bottle trapping; ES = egg search; RS = refuge search; N = netting
[70] Methodology applies to population assessment surveys undertaken on waterbodies found to support great crested newts
[71] GCN = great crested newt; (m) – male great crested newt; (f) = female great crested newt; (j) = juvenile great crested newt
[72] The peak count from the surveys is provided for each method used

					ES: No GCN	Common toad		
			16/05/2018	T/BT/ES/eDNA	**T**: No GCN **BT**: 2 (m) GCN **ES:** No GCN	N/A	2	
			22/05/2018	T/BT/ES/eDNA	**T**: No GCN **BT**: No GCN **ES:** No GCN	N/A	N/A	
			30/05/2018	T/BT/ES/eDNA	**T**: No GCN **BT**: 1 (m) GCN, 2 (f) GCN **ES:** No GCN	N/A	3	
			11/06/2018	T/BT/ES/eDNA	**T**: No GCN **BT**: 1 (m) GCN, 1 (f) GCN **ES:** No GCN	N/A	2	
P4	19/04/2018	0.64	N/A	eDNA	No GCN	N/A	N/A	N/A
P8	19/04/2018	0.77	9/05/2018	T/BT/ES/eDNA	**T:** No GCN **BT:** 13 (m) GCN, 7 (f) GCN **ES:** No GCN	Smooth newt Common frog	20	Medium
			16/05/2018		**T:** 1 (m) GCN **BT:** 2 (m) GCN 3 (f) GCN **ES:** No GCN	N/A	6	
			22/05/2018		**T:** No GCN **BT:** No GCN **ES:** No GCN	N/A	N/A	
			30/05/2018		**T:** 1 (m) GCN, 2 (f) GCN	N/A	28	

					BT: 9 (m) GCN, 19 (f) GCN **ES:** No GCN			
			11/06/2018		**T:** No GCN **BT:** 3 (m) GCN, 4 (f) GCN, 12 GCN larvae **ES:** No GCN	N/A	12	
EP1	19/04/2018	0.78	N/A	eDNA	No GCN	N/A	N/A	N/A
EP2	19/04/2018	0.76	9/5/2018	T/BT/ES/eDNA	**T**: No GCN **BT**: No GCN **ES:** No GCN	Common frog	2	Small
			16/05/2018		**T**: No GCN **BT**: 1 (m) GCN **ES:** No GCN	N/A	1	
			30/05/2018		**T**: No GCN **BT**: No GCN **ES:** No GCN	N/A	N/A	
			11/06/2018		**T**: 1 (f) GCN **BT**: 2 (f) GCN **ES:** No GCN	N/A	3	

E.3. Eurasian Otter

The Eurasian otter survey results are summarised in Table 16 and Drawing 5165963_Otter&WaterVoleSiteRoute below.

Table 16 - Eurasian Otter Survey Results

Watercourse or Waterbody Reference		Evidence of Eurasian Otter Activity
Wyrley and Essington Canal	TN6	Potential resting site under overhanging bank with exposed tree roosts
Wyrley and Essington Canal	TN7	Fresh spraint
Wyrley and Essington Canal	TN8	Potential area of terrestrial habitat with areas of dense bramble and some trees
Wyrley and Essington Canal	TN9	Potential area of terrestrial habitat with areas of dense bramble and some trees
Cannock Extension Canal	N/A	Habitat suitable for commuting/foraging otter but no suitable resting sites and no evidence

E.4. Water Vole

The water vole survey results are summarised in Table 17 below.

Table 17 - Water Vole Survey Results

Watercourse or Waterbody Reference	Evidence of Water Vole Activity
Wyrley and Essington Canal West of foundry bridge	No field signs or potential burrows noted. Limited suitability present due to high stone/brick-built banks, preventing creation of burrowing habitat for water voles. Limited presence of emergence vegetation in immediate area of the Application Site.
Wyrley and Essington Canal East of foundry bridge	No field signs or potential burrows noted. Limited suitability present due to high stone/brick-built banks, preventing creation of burrowing habitat for water voles. Limited presence of emergence vegetation in immediate area of the Application Site.
Cannock Extension Canal west of site	No field signs or potential burrows noted, however the habitat present provides suitable conditions (bankside for burrowing, emergent and aquatic vegetation for foraging) to support water voles.

E.5. Floating Water Plantain

A survey for floating water plantain l was completed on by Veronica Barrand and James Hicks on 27/09/2018 along the Wyrley and Essington Canal. Visual inspections were the primary survey technique but at a couple of locations a grapnel was used to retrieve the plant and confirm its identification under a licence granted by Natural England (licence no: 2018-36029-SCI-SCI). The plants were returned to the water undamaged in the place they were retrieved. It was not possible to survey the northern bank of the canal as access was limited to the southern bank.
Submerged floating water plantain plants as well as plants that had some floating leaves were found to occur frequently in the Wyrley and Essington Canal in clusters of 10's and 100's of plants as well

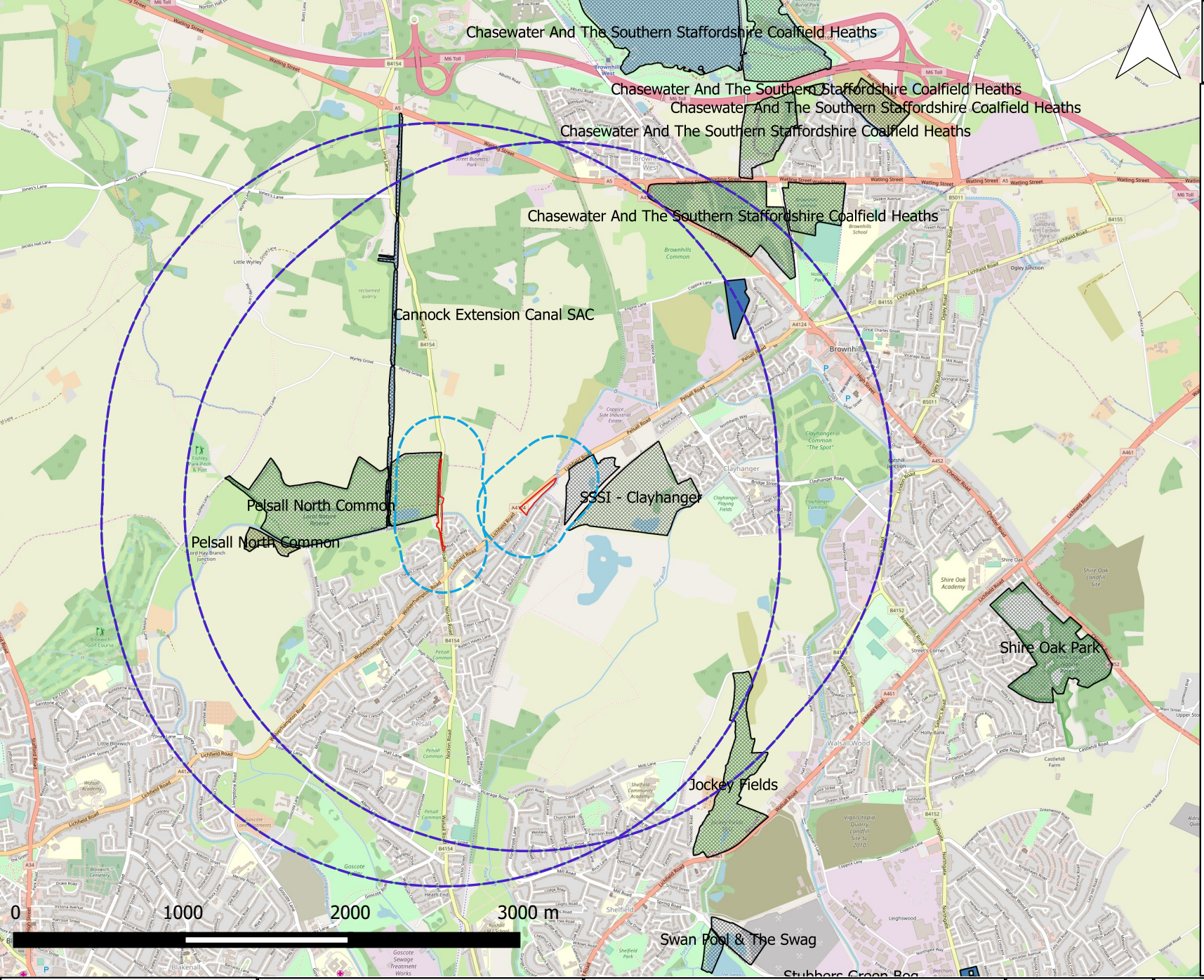
as extensive lawns (as shown in Figure E5). No flowering plants were recorded during the survey as it was completed after flowering had finished earlier in the summer. The distribution of floating water plantain in the canal was extensive, but notably it was present in the canal 15m to the east of York's Bridge and in the canal south of and adjacent to the construction compound. Figure: 5165963_YorksBridge_FWP (see Appendix G.2) shows where areas of floating water plantain were recorded along the canal.

Figure E5 Lawn of Floating Water Plantain

Appendix F. Statutory and Non-Statutory Designated Sites Location Maps

F.1. Drawing 5165963_01

F.2. Drawing 5165963_02



ATKINS™

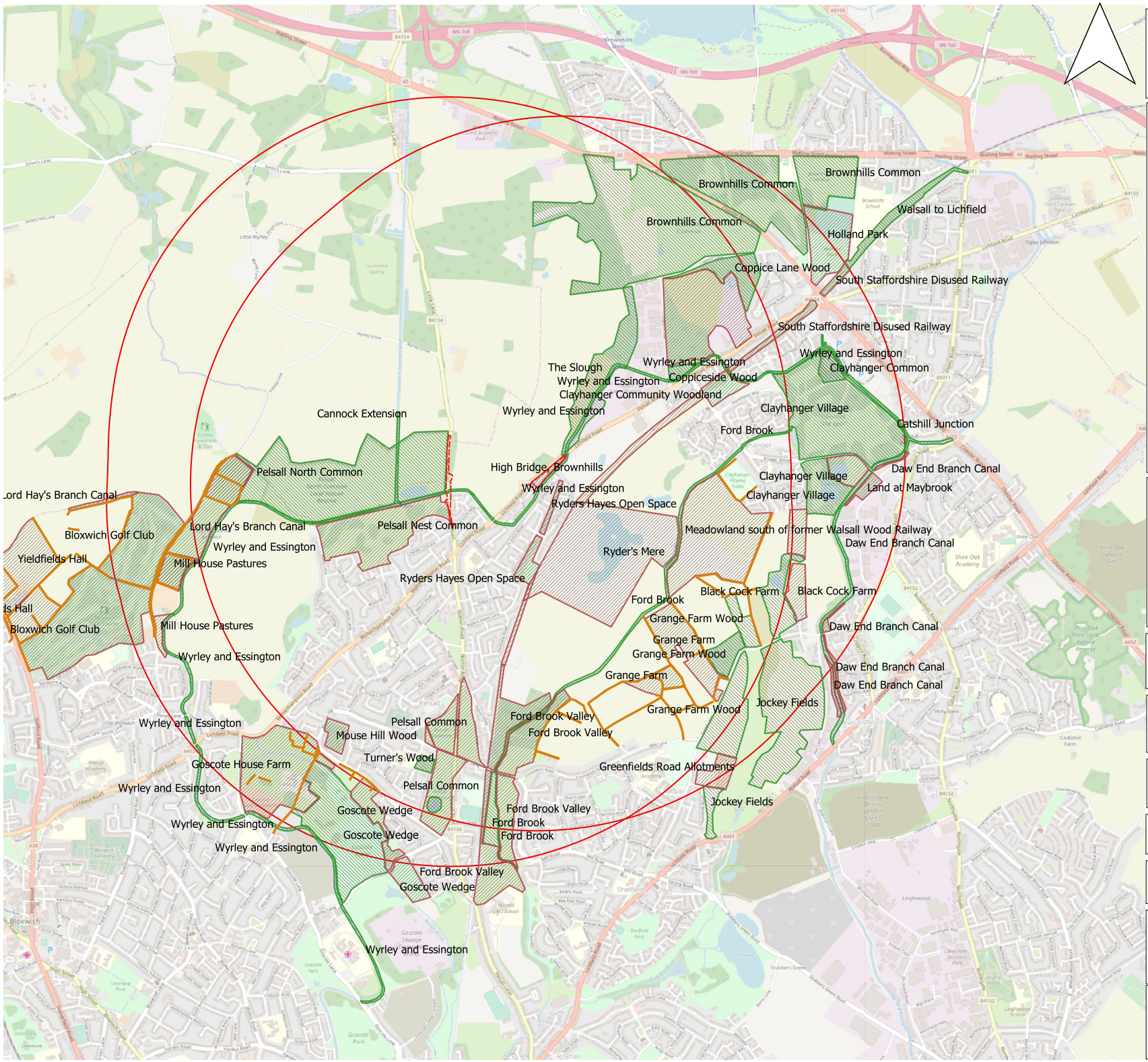
Legend

- Scheme boundary
- 250 m buffer
- 2 km Search Area

Designated Sites:

- Special Area of Conservation
- Sites of Special Scientific Interest
- Local Nature Reserves
- Ancient Woodland

Atkins Limited © Derwent House, RTC Business Park, London Road, Derby, DE24 8UP	Project: Yorks Bridge EcIA	Title: DRAFT - Designated Site Location Plan	Original scale	Drawn by: MCG	Checked by: SC	Authorised by: CW
	Client: Walsall Council	Drawing number: 5165963_01	1:52,114	Date: 30/09/18	Date: 05/11/18	Date: 05/11/18



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Legend

- Application Site Boundary
- Potential Sites of Interest
- Potential Sites of Interest Linear Features
- Sites of Interest for Nature Conservation and Sites of Local Interest for Nature Conservation
- 2 km buffer zone

0.32 0 0.32 0.64 0.96 1.28 km

Atkins Limited ©
Derwent House,
RTC Business Park,
London Road,
Derby,
DE24 8UP

Client: Walsall Council

Project: Yorks Bridge

Title: Non-Designated Site location Plan

Drawing number: 5165963_NSDS_02

Original scale	1:30110

Drawn by:	Checked by:	Authorised by:
MCG	SS	AW
Date: 12/11/18	Date: 13/11/18	Date: 15/11/18

Appendix G. Species Survey Plans

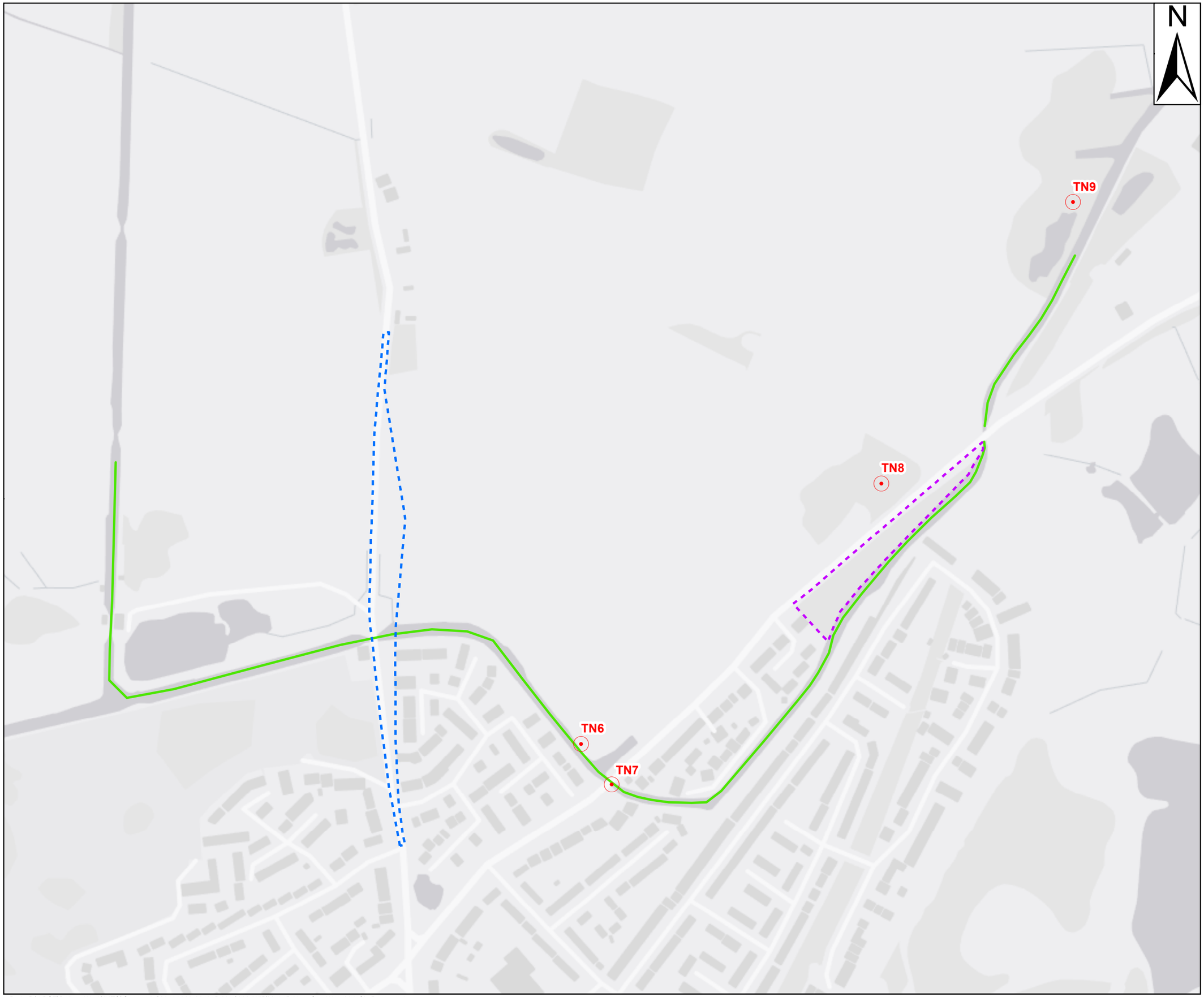
G.1. Drawing 5165963_Otter&WaterVoleSiteRoute

G.2. Drawing 5165963_YorksBridge_FWP

G.3. Drawing 5165963_YorksBridge_Bats

G.4. Drawing 5165963_YorksBridge_GCN

G.5. Drawing 5165963_YorksBridge_Waterbodies



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- Target Note
- Otter & Water Vole Survey Site Route
- Area A
- Area B

Metres

0 50 100 150 200

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Consulting Engineers
The Hub,
500 Park Avenue,
Aztec West,
Almondsbury,
Bristol
BS32 4RZ
Tel: +44(0)1454 66 2413
www.atkinsglobal.com

Client: Walsall Council

Project: Yorks Bridge

Title: Otter & Water Vole Survey Site Route

Sheet Size	Original Scale	Designed / Drawn	Checked	Authorised
A3	1:4,000	RB Date 30/10/18	KS Date 30/10/18	DD Date 30/10/18

Drawing Number: 5165963_Otter&WaterVoleSiteRoute

Rev: 00

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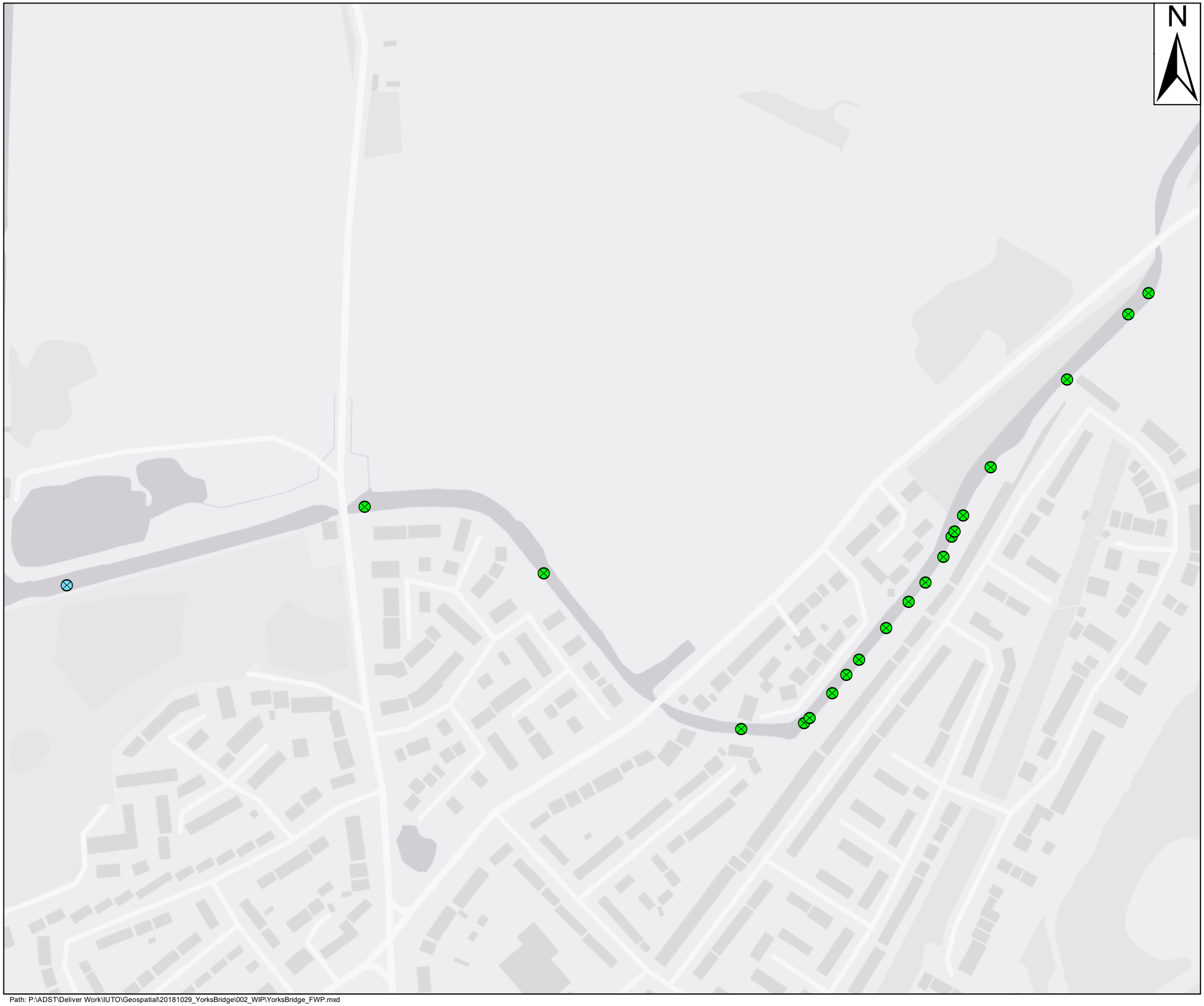

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Floating Water Plantain (FWP)

White-Clawed Crayfish (WCC)

Metres

0 25 50 75 100 125 150

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Client

Walsall Council

Project

Yorks Bridge

Title

Floating Water Plantain Surveys

Sheet Size	Original Scale	Designed / Drawn	Checked	Authorised
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Rev: 00

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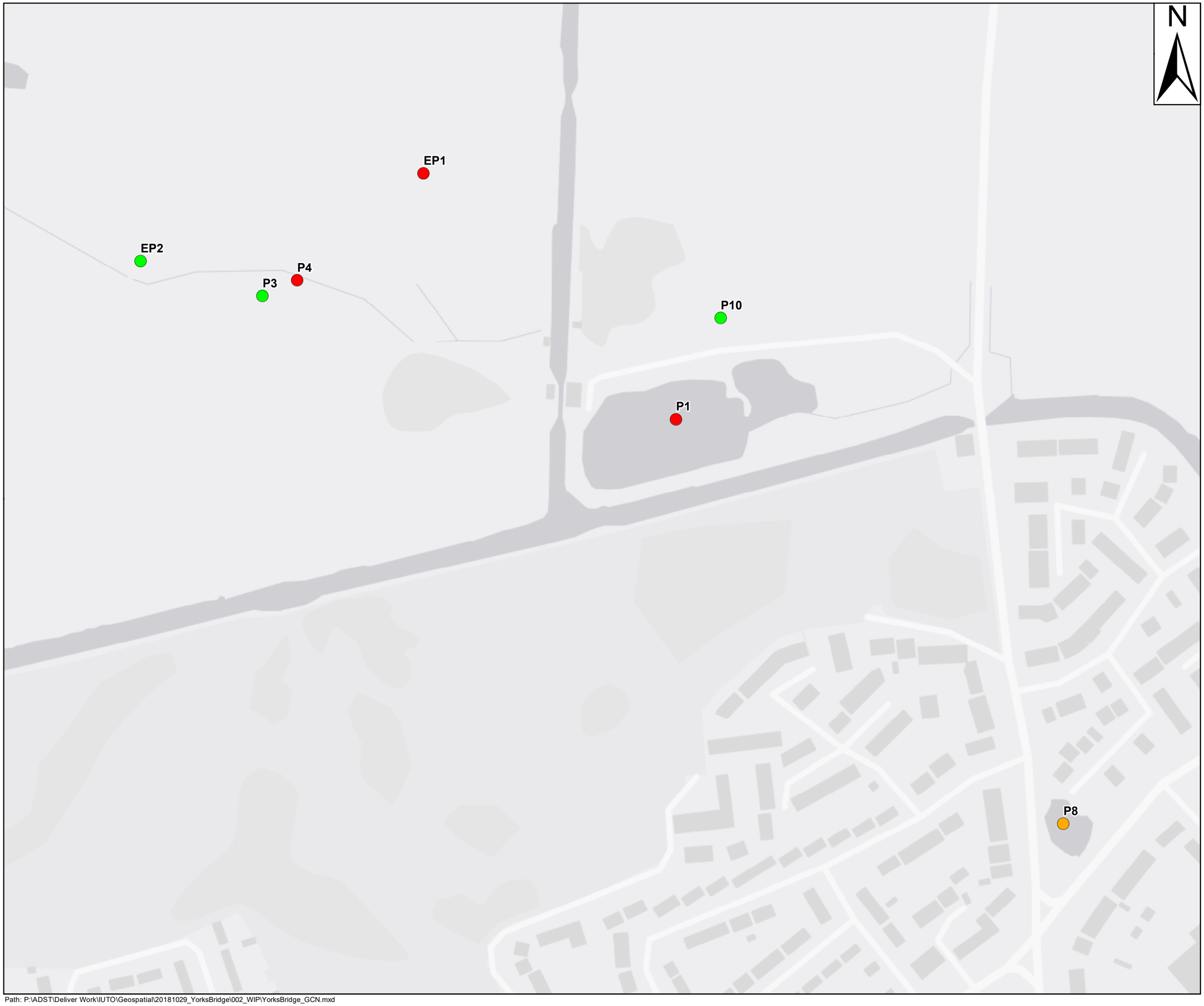

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Indicative Pond Sites

- GCN Present - Small Population
- GCN Present - Medium Population
- No GCN Present

Metres

0 20 40 60 80 100

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Project: Yorks Bridge

Title: Indicative Pond Sites

Sheet Size	Original Scale	Designed / Drawn	Checked	Authorised
A3	1:2,500	RB Date 30/10/18	KS Date 30/10/18	DD Date 30/10/18

Drawing Number: 5165963_YorksBridge_GCN

Rev: 00

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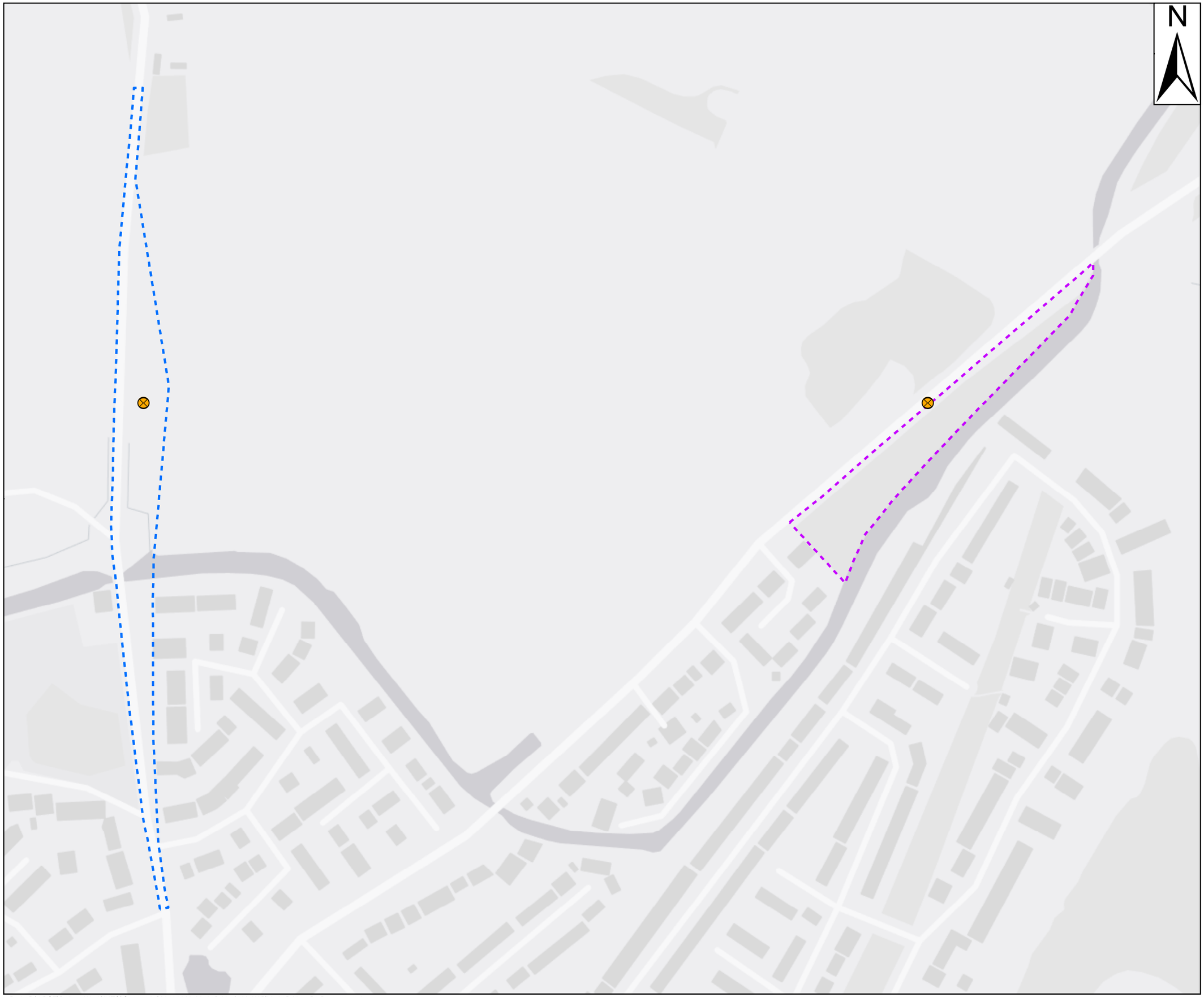

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- Static Bat Detectors
- Area A
- Area B

Metres

0 20 40 60 80 100

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Client

Walsall Council

Project

Yorks Bridge

Title

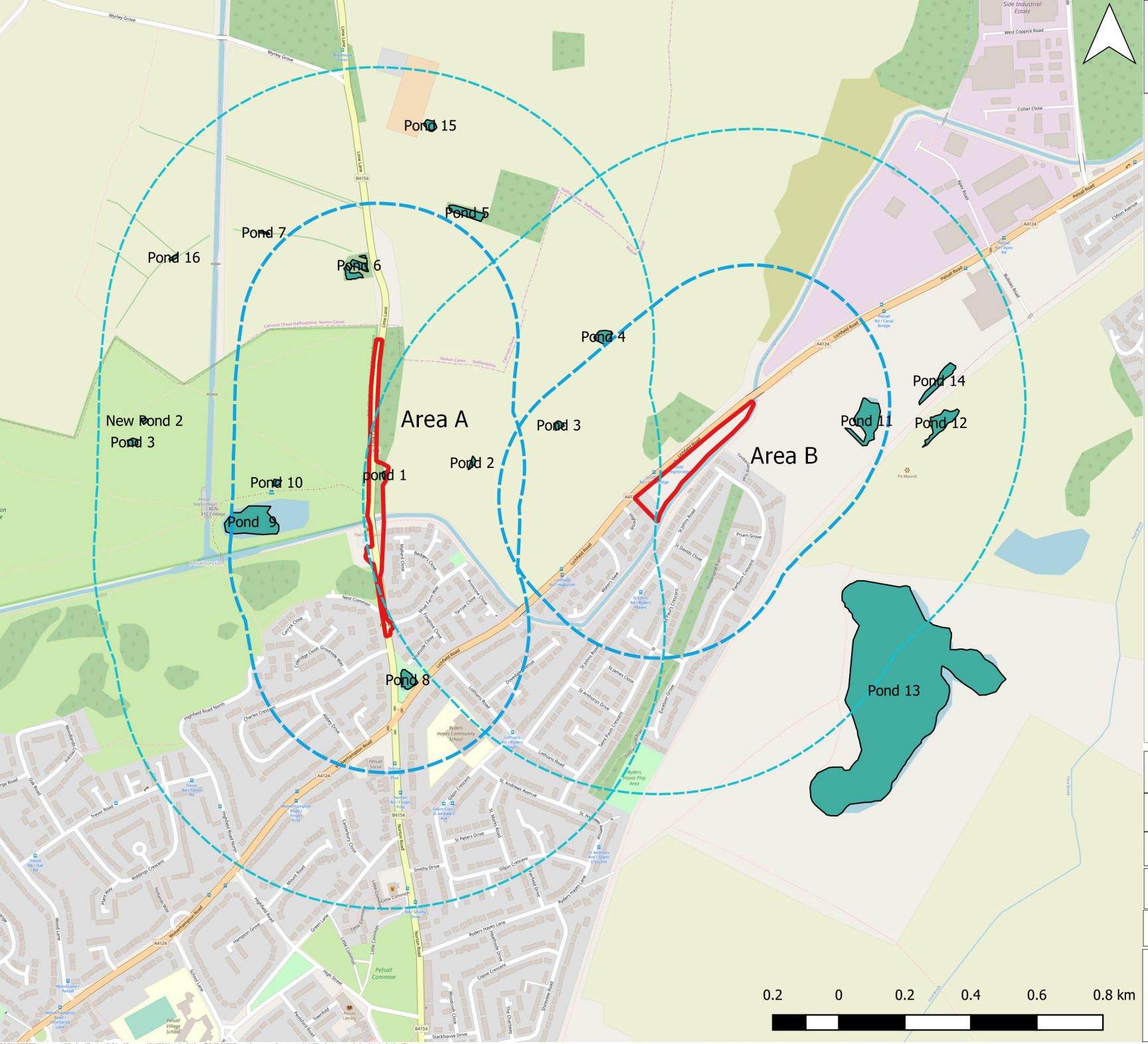
Static Bat Detector Locations and Transect Routes

Sheet Size	Original Scale	Designed / Drawn	Checked	Authorised
A3	1:2,500	RB Date 30/10/18	KS Date 30/10/18	DD Date 30/10/18

Drawing Number: 5165963_YorksBridge_Bats

Rev: 00

Path: P:\ADST\Deliver Work\IUTO\Geospatial\20181029_YorksBridge\002_WIP\YorksBridge_BatDetector.mxd



SNC·LAVALIN

ATKINS
Member of the SNC-Lavalin Group

- 250m redline buffer
- 500m redline buffer
- Application Site Boundary
- Waterbodies

Client: Walsall Council	
Project: Yorks Bridge	
Title: Waterbody Plan	
Drawing number: 5165963_WB1_01	
Original scale	1:15252

Drawn	Checked	Authorised
SS	MCG	CW
5/11/18	5/11/18	15/11/18

P:\GBNGB\DE2\Assessment\Ecology\Project Folders\5xxxxxx\5165963 Yorks Bridge (2018) MG\60 - work process documentation\63 - drawings and plans\Yorks Bridge Phase 1.qgs

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