

A47 Blofield to North Burlingham Dualling

Scheme Number: TR010040

Volume 6

6.2 Environmental Statement Appendices **Appendix 8.12 – Breeding Bird and Barn Owl** **Survey Report**

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009

December 2020

Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning
(Applications: Prescribed Forms and
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A47 Blofield to North Burlingham
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ENVIRONMENTAL STATEMENT APPENDICES
Appendix 8.12 Breeding Bird and Barn Owl Survey Report

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Sweco

A47 Blofield to North Burlingham

Breeding Bird and Barn Owl Survey Report



MLM.

Group

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Drawings

Highways England Scheme Overview Sheet 1 (HE551490-GTY-EGN-000-DR-GI-30001)
Highways England Scheme Overview Sheet 2 (HE551490-GTY-EGN-000-DR-GI-30002)
Highways England Scheme Overview Sheet 3 (HE551490-GTY-EGN-000-DR-GI-30003)
778576-MLM-ZZ-XX-DR-J-0001 - Walking Route
778576-MLM-ZZ-XX-DR-J-0002 - BBS (LEFT)
778576-MLM-ZZ-XX-DR-J-0003 - BBS (RIGHT)
778576-MLM-ZZ-XX-DR-J-0004 - Barn owl

1 Non-technical Summary

This breeding bird survey report has been prepared by MLM for Sweco and relates to proposed dualling of the A47 from Blofield to North Burlingham.

The proposals are understood to involve converting the existing single carriageway road between Blofield and North Burlingham to dual carriageway, altering some of the junctions onto the dual carriageway from the existing country road network and adding additional ancillary roads and infrastructure to accommodate the proposed dualling.

Surveys undertaken by Sweco 2018 identified the site as important for a number of breeding bird species. The purpose of this report is to present the findings of breeding bird and barn owl surveys undertaken by MLM in 2020 to update these findings and identify any mitigation or enhancements appropriate.

A total of 61 species were recorded on site during the breeding bird surveys, of which twenty-seven species of importance were identified. The following mitigation is required to offset the impacts;

- Compensatory rough grassland should be created alongside the motorway;
- Ten skylark plots should be created in the surrounding fields to the west of the proposed carriageway;
- Woodland on site should be replaced on a like for like basis alongside the carriageway;
- Hedgerow should be replaced on a like for like basis either through new planting or enhancement of existing hedgerow;
- Wild bird seed mix crop strips should be sown alongside the planted or improved hedgerows to for a period of 6 years;
- All species used for planting should be locally sourced and native and include some fruit or berry producing species;
- Three mallard nesting tubes should be sited in the balancing pond to the west of the site;
- Vegetation clearance should take place outside the breeding bird period (March to September inclusive) or a suitably trained ecologist should supervise the clearance;
- Five Barn owl nest boxes should be sited in areas of created rough grassland or within receptive local farms;
- Post development monitoring of the barn owl numbers should be done in years 1, 3 and 5.

The following enhancements have been recommended to provide nesting or foraging habitat for species which whilst are unlikely to be impacted by the development, have populations in decline which could benefit from the following measures;

- The planting of turtle dove seed mixes on the stretches of carriageway near Home Farm;
- The modification of proposed drainage or soakaways to create a wader scrap in the area to the west of the works area;
- Nesting boxes for raptors and owls should be erected along the A47.

2 Limitations and Exceptions

This report and its findings should be considered in relation to the terms and conditions proposed and scope of works agreed between MLM and the client.

Interpretations and recommendations contained in the report represent our professional opinions, which were arrived at in accordance with currently accepted industry practices at the time of reporting and based on current legislation in force at that time.

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This report is prepared and written in the context of the proposals stated in the introduction to this report and should not be used in a differing context. Furthermore, alterations to the initial proposals or changes in conditions on site over time may necessitate an alteration to the report in whole or in part after its submission. Therefore, in the event of any change in proposals or lapse of one year or more from the date of the report, the content of the report should not be relied upon unless referred to MLM for validation and, if necessary, re-appraisal.

Scientific survey data will be shared with local biological records centre in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) professional code of conduct.

This report was prepared only for our client and is not intended to be relied on by any other party. Third parties should not rely on the facts, matters or opinions set out in this report without the express written permission of MLM.

Please note that MLM does not purport to provide specialist legal advice.

Unless stated specifically, drawings and plans are indicative only. As such, the position of features marked on the plans or drawings should not be taken as 100% accurate.

2.1 Site-specific Limitations

All surveys were undertaken in good conditions and everywhere along the proposed survey route, (drawing 778576-MLM-ZZ-XX-DR-J-0001) was accessible for the breeding bird surveys. There were no limitations to these surveys.

Surveyors were unable to access Jarys Farm for a thorough inspections for barn owls as the landowner did not respond to multiple contact attempts. This is minor limitation as the original breeding bird survey transect passed the barn multiple times during the surveys which allowed for external inspection. The findings of which suggest that whilst the barn could support roosting owls on some of the cross beams, its design and structure is not conducive for breeding, as it offers no large suitable ledge features upon which barn owls could nest.

3 Introduction

3.1 Purpose

This bird and barn owl survey report has been prepared by MLM for Sweco and relates to proposed dualling of the A47 from Blofield to North Burlingham.

The proposals are understood to involve converting the existing single carriageway road between Blofield and North Burlingham to dual carriageway, altering some of the junctions onto the dual carriageway from the existing country road network and adding additional ancillary roads and infrastructure to accommodate the proposed dualling.

Surveys undertaken by Sweco 2018 (ref. 1) identified the site as being of local importance, finding a total of 73 species on site of which 22 were confirmed breeding, 20 were considered probable breeders, 12 were considered possible breeders and 19 were considered non breeders.

3.2 Site Description

The site is located along the A47 in Blofield, Norfolk and is located between Ordnance Survey National Grid Reference TG336101 to the west and TG385101 to the east, a distance of approximately 5.5km.

The bird survey area comprised a 500m buffer either side of the main carriageway within a mixture of agricultural land, woodland, associated hedgerows and trees, farm buildings and residential properties.

4 Bird Legislation

The main pieces of legislation relating to breeding birds within England and Wales is the:

- **The Conservation of Habitat and Species Regulations 2017** transposes European Union Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law. They also transpose elements of the EU Wild Birds Directive in England and Wales. These regulations provide for the designation and protection of 'European Sites', the protection of 'European Protected Species' and the adaptation of planning controls for the protection of such sites and species. Under the regulations, public bodies have a duty in exercising their functions to have regard to the EC Habitats Directive and Wild Birds Directive
- **The Wildlife and Countryside Act 1981** (as amended) provides detail on a range of protection and offences relating to wild birds, other animals, and plants. The level of protection depends on which Schedule of the Act the species is listed on. Licences are available for specific purposes to permit actions that would otherwise constitute an offence in relation to species.
- **The Natural Environment and Rural Communities (NERC) Act 2006** imposes an obligation on all public bodies, including local authorities, to consider whether their activities can contribute to the protection of wildlife. The duty is created by section 40(1) of the Act, which states 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."

4.1 Planning Policy

The recommendations of this report are in line with the key principles of the National Planning Policy Framework (ref. 2) and Government Circular 06/05 (Ref. 3).

4.2 Local Planning Policy

The Broadlands local plan was adopted in January 2014 and is the current active local planning policy for the Blofield area. The following local policies are considered relevant to the site.

Policy 1: Addressing climate change and protecting environmental assets

Development and investment will seek to expand and link valuable open space and areas of biodiversity importance to create green networks. Where there is no conflict with biodiversity objectives, the quiet enjoyment and use of the natural environment will be encouraged and all proposals should seek to increase public access to the countryside.

All new developments will ensure that there will be no adverse impacts on European and Ramsar designated sites and no adverse impacts on European protected species in the area and beyond including by storm water runoff, water abstraction, or sewage discharge. They will provide for sufficient and appropriate local green infrastructure to minimise visitor pressures. Development likely to have any adverse effect on nationally designated sites and species will be assessed in accordance with national policy and legislation.

In areas not protected through international or national designations, development will:

- *Minimise fragmentation of habitats and seek to conserve and enhance existing environmental assets of acknowledged regional or local importance. Where harm is unavoidable, it will provide for appropriate mitigation or replacement with the objective of achieving a long-term maintenance or enhancement of the local biodiversity baseline*

- *Contribute to providing a multifunctional green infrastructure network, including provision of areas of open space, wildlife resources and links between them, both off site and as an integral part of the development*
- *Help to make provision for the long-term maintenance of the green infrastructure network*
- *Protect mineral and other natural resources identified through the Norfolk Minerals and Waste Development Framework*

The built environment, heritage assets, and the wider historic environment will be conserved and enhanced through the protection of buildings and structures which contribute to their surroundings, the protection of their settings, the encouragement of high-quality maintenance and repair and the enhancement of public spaces.

4.3 Birds of Conservation Concern

In addition to legal protection some bird species are classified according to their conservation status. The conservation status of all regularly occurring British birds has been analysed in co-operation with the leading governmental and non-governmental conservation organisations, including: the Royal Society for the Protection of Birds (RSPB), the British Trust for Ornithology (BTO) and Bird Life International. This has resulted in the continuing production of the Birds of Conservation Concern (BoCC) publication which is revised every few years, currently version 4 (ref. 4).

The basis of the publication is that a species' ongoing population trend is assigned to one of three lists of Conservation Concern: UK Red, Amber and Green. Although the lists confer no legal status in themselves, they are used by both councils and government to inform legislation, policy and local biodiversity action plans and therefore most bird species identified at risk will usually be covered under legislation above. In addition to this, in line with CIEEM guidance on assessing ecological impacts (ref. 5) the statuses also assist with the identification of local, county and regional importance, providing a value for the nature conservation of a species against a geographical frame of reference.

Red list birds are those which have experienced a severe decline of more than 50% of the population and/or range over the last 25 years, as measured by the number of 10 km squares occupied by breeding birds of the species concerned. Species listed as globally threatened by Birdlife International, and those with a historical decline in the UK between 1800 and 1995 (without evidence of recovery) are also included.

Birds of Conservation Concern Amber list criteria for breeding birds are those which have experienced a moderate decline of between 25% and 49% of population and/or range over the last 25 years. Species of European conservation concern and those with a historical decline but which are currently recovering are also included.

Birds of Conservation Concern Green list encompasses species that are either increasing or whose numbers are constant.

5 Methodology

5.1 Breeding Bird Surveys

5.1.1 Personnel

All surveys were carried out by experienced MLM ornithologist, Joshua Stafford BSc (Hons) Grad CIEEM, who has over eight years' ornithological experience and Sophie Barrell MEd (Hons) Grad CIEEM who has over seven years' ornithological experience. This report has further been reviewed by Sophie Barrell (Hons) and by Alanna Cooper BSc (Hons) CEnv CSci C.WEM MCIEEM MCIWEM who has over 14 years' experience in ecological consultancy and production of ecological impact assessments.

5.1.2 Survey Method

The survey methodology involved standard territory (registration) mapping techniques as detailed in Bibby *et al.* (ref. 6). This method is based on the observation that many species during the breeding season are territorial. This is found particularly amongst passerines (song birds), where territories are often marked by conspicuous song, display, and periodic disputes with neighbouring individuals. Registrations of birds, using standard British Trust for Ornithology two letter species codes and activity codes (ref. 7) were placed onto an appropriate field map. The survey area included the whole of the area within the proposed development footprint, as well as any field boundaries or likely nesting areas within 500m of the main carriageway. All field boundaries were walked slowly and birds were identified by both sight and sound, with records of their behaviour taken and recorded onto plans. The walked route is shown on drawing 778282-MLM-ZZ-XX-DR-J-0001.

For recording passerines, specific symbols were used for singing, calling, and movements of the same bird between different areas, flying, carrying food, nest building, aggressive encounters and other notable behaviour. The expected outcome of this technique is that mapped registrations fall into clusters, approximately coinciding with territories. Where a species has closely packed territories (eg reed warbler *Acrocephalus scirpaceus*), the mapping of simultaneously singing birds becomes essential. Territory boundaries are taken to be between such birds.

5.1.3 Weather Conditions

All of the surveys took place during suitable weather conditions of no rain or strong winds. Detailed weather conditions for those surveys are presented in table 5.1 below.

Table 5.1 Weather Conditions When Roosts Were Identified

Survey visit	Date (2020)	Start Time	Sunrise	Temp. (°C)	Cloud (oktas)	Wind (Beaufort)	Rain	Visibility
BBS 1	23/03	05:45	05:54	2	0	0	NA	Good
BBS 1	24/03	05:45	05:52	2	1	1W	NA	Good
BBS 1	25/03	05:45	05:50	1	1	2-3W	NA	Good
BBS 2	21/04	05:20	05:37	7	0	2-3NW	Na	Good
BBS 2	22/04	05:20	05:35	7	0	2-3NW	Na	Good
BBS 2	23/04	05:20	05:33	6	0	1W	Na	Good
BBS 3	12/05	04:45	05:04	12	4	1N	Na	Good
BBS 3	13/05	04:45	05:03	11	3	1N	Na	Good
BBS 3	14/05	04:45	05:02	12	6	1N	Na	Good
BBS 4	23/06	04:15	04:31	11	4	1S	Na	Good

Survey visit	Date (2020)	Start Time	Sunrise	Temp. (°C)	Cloud (oktas)	Wind (Beaufort)	Rain	Visibility
BBS 4	25/06	04:15	04:31	13	7	1-2S	Na	Good
BBS 4	26/06	04:15	04:32	13	7	1-2SS	Na	Good

5.2 Ban Owl Surveys

5.2.1 Personnel

The site survey was undertaken by two surveyors on 3rd and 6th of August 2020. The survey was led by Joshua Stafford (Natural England Barn Owl Survey Class Licence Registration No CL29/00321). The survey assistant was Beck Harrington-Harding (Natural England Barn Owl Survey Class Licence Registration No CL29/00494). Both are licenced barn owl surveyors and have experience of surveying for Barn owls in a range of buildings, supporting structures and trees.

5.2.2 Survey Method

The barn owl survey method followed recommendations by Shawyer 2011 and the Barn Owl Trust 2010 (ref. 8 and ref. 9). This comprised a visual inspection of the buildings, nest boxes and sites identified in the SWECO 2018 (ref. 1) barn owl survey as having potential to support roosting or nesting barn owls, it also included additional sites that had been identified during the breeding bird surveys. The building inspections included all internal and external surfaces and features, such as wall tops and cavities where barn owls could potentially roost, as well as roof timbers, floors or stored materials for field signs such as pellets, feathers or whitewash.

Initially an external inspection was undertaken around each building by both surveyors, after which the assistant surveyor stayed outside in a strategic position to watch for any owls exiting the building whilst the lead surveyor entered the building to make an initial search for owls. After the initial inspection both surveyors entered each building to conduct a thorough search. An assessment was made of barn owl habitat surrounding the site.

Where possible the surveyors made efforts to speak with the building owners to ascertain if they had seen barn owls on site and if so how long they had been present and the times they most frequently saw them.

Survey equipment employed comprised ladders, binoculars, torches and an inspection camera to check into cavities which were awkward to access.

5.2.3 Weather Conditions

The weather conditions on both days of survey was clear skies, sunny and warm with temperatures of around 25c.

6 Survey Findings

6.1 Breeding birds results

A total of 61 species were recorded on site during the breeding bird surveys, of which twenty-seven species of importance were identified. These consisted five Wildlife and Countryside Act schedule 1 species of eleven BoCC red listed species and eleven BoCC amber species. The remaining species were all BoCC green listed consisting of common species, mainly associated with woodland, hedgerows and gardens that can be found along the A47.

The results of the breeding bird surveys are shown on drawing 778282-MLM-ZZ-XX-DR-J-0002 and 778282-MLM-ZZ-XX-DR-J-0003. The impact area from the proposed expansion has been mapped to show initial loss alongside retained areas. Note that only species identified as being of ecological importance have been mapped. The results of surveys are included in table 6.1 below.

Table 6.1 Results of the Breeding Bird Surveys

Common name & (BTO Code)	Scientific name	Status	Indicative number of territories identified	Number of indicative Territories within the Impact area.	Status in the Norfolk Bird Report
Barn Owl (BO)	<i>Tyto alba</i>	Sch 1	2	0	Resident
Hobby (HY)	<i>Falco subbuteo</i>	Sch 1	Recorded only once during the May surveys, flushed from kill on the ground, the bird was likely passing though as it was not recorded again.		Scarce but increasing migratory breeder
Greylag Goose (GJ)	<i>Anser anser</i>	Sch 1, BoCC Amber	Birds were recorded on one occasion during the March and one occasions during the April surveys in a pairs taking off from fields and flying over the site.		Nominate form, a common naturalised resident
Fieldfare (FF)	<i>Turdus pilaris</i>	Sch 1, BoCC Red	Recorded exclusively during the March surveys, with a peak count of 8 birds, overwintering, not recorded breeding.		Passage migrant, winter visitor
Redwing (RE)	<i>Turdus iliacus</i>	Sch 1, BoCC Red	Recorded exclusively during the March surveys, with a peak count of 61 birds, overwintering, not recorded breeding.		Passage migrant and winter visitor
Lapwing (L.)	<i>Vanellus vanellus</i>	NERC S41, BoCC Red	A small flock of lapwing were observed in march, peak count of 8 birds, with a smaller flock recorded in April peak count of 5 birds, no territorial behaviour was observed and the birds were not recorded in future months, as such they are not considered to be breeding.		Declining breeder

Common name & (BTO Code)	Scientific name	Status	Indicative number of territories identified	Number of indicative Territories within the Impact area.	Status in the Norfolk Bird Report
Herring Gull (HG)	<i>Larus argentatus</i>	NERC S41, BoCC Red	Birds were recorded loafing in fields across the site, peak count was 20 in March 2020, birds are not considered to be breeding on site.		A fairly common breeder, passage migrant and overwintering species
Turtle Dove (TD)	<i>Streptopelia turtur</i>	NERC S41, BoCC Red	1	0	Scarce and declining breeder, and passage migrant.
Skylark (S.)	<i>Alauda arvensis</i>	NERC S41, BoCC Red	13	2	Resident
Song Thrush (ST)	<i>Turdus philomelos</i>	NERC S41, BoCC Red	11	1	Common resident, recently decreasing
Spotted Flycatcher (SF)	<i>Muscicapa striata</i>	NERC S41, BoCC Red	1	0	Scarce and declining summer visitor
House Sparrow (HS)	<i>Passer domesticus</i>	NERC S41, BoCC Red	35	0	Common but declining resident
Linnet (LI)	<i>Linaria cannabina</i>	NERC S41, BoCC Red	8	2	Common resident
Yellowhammer (Y.)	<i>Emberiza citrinella</i>	NERC S41, BoCC Red	10	5	Once common resident, currently in decline
Starling (SG)	<i>Sturnus vulgaris</i>	NERC S41, BoCC Red	7	0	Common resident
Mistle Thrush (M.)	<i>Turdus viscivorus</i>	BoCC Red	2	0	Common resident
Mallard (MA)	<i>Anas platyrhynchos</i>	BoCC Amber	4	1	Widespread resident

Common name & (BTO Code)	Scientific name	Status	Indicative number of territories identified	Number of indicative Territories within the Impact area.	Status in the Norfolk Bird Report
Black-headed Gull (BH)	<i>Chroicocephalus ridibundus</i>	BoCC Amber	Birds were frequently recorded foraging and loafing in fields across the impact area and within the surrounding land, peak count was 130 birds outside the impact zone in June 2020, following the ploughing of stubble. They are not considered to be breeding on site.		A very common resident
Lesser Black-backed Gull (LB)	<i>Larus fuscus</i>	BoCC Amber	Birds were recorded loafing within the impact areas on a single occasion in April, they were more frequently recorded flying over the site. They are not considered to be breeding on site.		A common summer visitor and breeder.
Stock Dove (SD)	<i>Columba oenas</i>	BoCC Amber	2	0	Resident
Swift (SI)	<i>Apus apus</i>	BoCC Amber	7	0	Common migratory breeder
Kestrel (K.)	<i>Falco tinnunculus</i>	BoCC Amber	2	0	Resident breeder
House Martin (HM)	<i>Delichon urbicum</i>	BoCC Amber	7	0	Common migratory breeder
Willow Warbler (WW)	<i>Phylloscopus trochilus</i>	BoCC Amber	2	0	A common summer visitor.
Dunnock (D.)	<i>Prunella modularis</i>	NERC S41, BoCC Amber	5	0	Common resident
Meadow Pipit (MP)	<i>Anthus pratensis</i>	BoCC Amber	1	1	Common resident
Bullfinch (BF)	<i>Pyrrhula pyrrhula</i>	NERC S41, BoCC Amber	1	0	Resident

Sch 1 -Wildlife and Countryside Act Schedule 1 species; **NERC S41** - Natural Environment Research Council section 41 species; **BoCC Red** - Birds of Conservation Concern Red list; **BoCC Amber** - Birds of Conservation concern Amber list

7 Assessment and Mitigation

7.1 Breeding Birds

7.1.1 International Important Assemblages

The Broadland SPA and Ramsar lies around 1.7km to the east of the site and is designated for a mix of wintering and breeding assemblages. None of the breeding assemblages of either the SPA or Ramsar were recorded during the surveys as such direct impacts to breeding assemblages are considered unlikely.

7.1.2 Ground nesting birds (Skylark & Meadow Pipit)

Whilst the proposed development will only impact two indicative skylark territories, there were at least five indicative skylark territories in close proximity to the works area that will likely be affected by loss of supporting habitat. Skylark use of these areas changed as time progressed with breeding occurring in early on in the existing arable land, aggressive territorial behaviour was often recorded in the western fields as multiple territories were in close proximity. However as arable crop cover thickens, skylarks are forced to move from the denser winter wheat fields to the less dense barley and grassland areas to continue nesting.

The indicative meadow pipit territory was located in the rough grassland patch behind the white house, where an area of around 0.4ha of grassland had been left to grow rough by the farmer, which provided ideal nesting conditions for the birds. The proposed road scheme works will result in the loss of this grassland area.

Both Skylarks and meadow pipits require open farmland habitats with short, sparse vegetation, with a preference for grassland, but will use field margins and arable crops, until they get to dense to breed within. The proposed development will result in the loss of a large number of arable fields, and some patches of grassland and field margins. It is therefore recommended that to offset this loss a suitable area of compensatory rough grassland around should be provided on site alongside the proposed motorway via the creation of field margins adjacent to the motorway or within landscaped areas in areas sealed off by the new layout. This combined with the implementation of 10 Skylark Plots in fields alongside the new roadway should create additional nesting capacity as well as the important foraging habitat to offset and the loss of habitat caused by the proposed development.

7.1.3 Woodland birds (Song thrush)

The proposed development will result in the loss of around 1.7ha of established woodland within which is a single indicative song thrush territory. To offset the loss of woodland it is recommend that planting occur on a like for like basis along the roadside with a line of trees or a tall hedgerow with standards. Assuming the strip of planting is 2m in width and runs along both the north and south sides of the 5km of motorway, the proposed development could create around 2ha of woodland which once established would provide a suitable habitat for song thrush and deliver an enhancement. Effort should be made to join up existing block of woodland to each other which will speed up colonisation and utilisation. To improve biodiversity and speed up the establishment process it is recommended that locally sourced native saplings are used for the planting and should incorporate a mixture of fruit and berry producing species which will provide autumn and winter foraging to all thrushes.

7.1.4 Farmland birds (Linnet & Yellowhammer)

A total of two indicative linnet territories and five indicative yellowhammer territories will be negatively impacted by the development through the loss of hedgerows. Both linnets and yellowhammers are reliant on hedgerows adjacent to field margins and arable land to nest within. Being primarily seed eaters they then forage within the adjacent field margin, grassland or arable field, however during the breeding season, the birds will also feed invertebrates to their young to help their development. The proposed development will result in the loss of around 3.5km of hedgerows, and adjacent field margins, verge and arable land for foraging and feeding.

It is therefore recommended that the proposed development replaces hedgerow on a like for like basis, either through the creation of hedgerow on site or the improvement of the hedgerow within surrounding areas. During the breeding bird survey, it was clear there were a number of species poor defunct hedgerows, that could be significantly improved through infilling the gaps and increasing the diversity of species.

In order to mitigate for the loss of foraging habitat it is also recommended that a wild bird seed mix crop is sown alongside the planted or improved hedgerows on site to provide important foraging supply within the wintering and breeding seasons. This will compensate for the loss of the developed field margins, grassland and road verge. As the mixes are usually sown in and left in place for a two year period, reseeding themselves, it is considered likely that a period of around 6 years will be required, the with the planting taking place at the start of the works to offset the initial loss of foraging and continuing post development until the proposed mitigation has established.

7.1.5 Ducks (Mallard)

A pair of mallards were recorded regularly using the small waterbody by Poplar farm in March and April. The birds were not recorded in May but the June surveys recorded the female and three ducklings on the concrete pad adjacent to the pond, confirming a successful breeding attempt. The proposed development will result in the loss of this pond, however a large balancing pond to the west of the scheme and a number of ditches will be created within which mallards could nest. It is therefore recommended that three mallard nest tubes are installed in the balancing pond to provide safe and secure nesting sites for mallards and other ducks to use.

7.1.6 Common Assemblage

The site supports a wide range of common hedgerow, garden, woodland and urban species which will all be affected by the loss of these habitats. The proposed mitigation for the above species will offset the impacts to these species through the like for like replacement of hedgerow and woodland lost.

In order to avoid impacting nesting birds during the works, phases of all vegetation should be removed outside the breeding bird season (March-August Inclusive). If this is not possible, a nesting bird check and supervision should be undertaken by a suitably qualified ecologist prior to any vegetation removal. If an active nest is found then works must cease in this area and a buffer of at least 5m must be maintained around the nest until the chicks have fledged.

7.2 Barn Owls

The site was divided up into eight locations, six of which were originally surveyed in 2018 by SWECCO (ref. 1). The location of these sites are illustrated in drawing 778576-MLM-ZZ-XX-DR-J-0004.

7.2.1 Site 1 Jarys Farm

A thorough search of Jarys farm was not possible as access could not be granted to the barn buildings. However the breeding bird surveys passed nearby the buildings which appeared to consist of a large steel framed cart lodge with corrugated cement sheeting roof, with a number of large machine pieces underneath. The general makeup of the building looked like it could support roosting however would be unlikely to support ledges large enough for nesting. The proposed barns will be unaffected by the road development.

7.2.2 Site 2 Home Farm

Upon arrival we met with the local landowner, a keen photographer who has been monitoring his barn owl boxes on site in conjunction with a local BTO ringing group. The site has two barn owl boxes present, one located in a large oak tree at the site entrance and one located inside one of the barns. The landowner further confirmed the presence of another nesting site in a large mature oak tree north east of the barns.

The internal barn owl box showed little use, however the external box had three chick present inside which were ringed by the BTO the previous week. The land owner also confirmed a tree roost located in a large mature oak tree to the north east of the site, where a further three chicks were found, which had also been ringed by the BTO the previous week. **The proposed road works will not directly affect this site. However expansion of the road is likely to result in increased collision risk for the two pairs using the site therefore resulting in a negative impact**



Photo 1. Open barn with straw bales and empty internal barn owl box.



Photo 2. Tree with brood of barn owls inside, the large crack opens up to a chamber.

7.2.3 Site 3 Poplar Farm

All the buildings at poplar farm were assessed for their potential to support barn owls, the modern prefabricated interlocking metal storage barns were ruled out due to the fact they offered no access inside and were sealed tight. The historic barns were thoroughly searched as they both appeared to be ideal nesting sites. No evidence of barn owls could be found during the detailed inspection, and the land owner further confirmed that in his 60 years of running the farm he has never recorded barn owls using the buildings. Evidence was present of multiple swallows nesting within both buildings and the presence of brown long-eared bat (*Plecotus auratus*) feeding roosts in both buildings. **The proposed road works will not directly affect this site.**



Photo 3. The thatch barn



Photo 4. The former cattle shed.

7.2.4 Site 4 St Peters Church Ruins

A thorough inspection of St Peters church was undertaken as best as possible. As due to the dilapidated condition of the building, access inside the vestry was not possible due to collapsed roof and the unstable ground conditions within the nave made checking ledges in this area impossible as the ladder could not be safely used. Three historic barn owls nest sites were identified. Within the rear entrance, on the ledge on the eastern side, signs of historic usage by barn owls were identified; pellet decay suggested it was last used at least three years ago and behind one of the cross beams barn owl chick feathers were found, confirming historic breeding within this part of the building. Upon entering the nave, we were unable to use the ladders to reach the side ledges, given the floor had been significantly damaged by vandals and was unstable. The ledges within the chancel could be inspected, with the north side showing multiple fresh pellets with the ledge leading to a cavity into the wall which could not be inspected, however the down feathers from chicks were present here in much large numbers suggesting a more recent breeding attempt. On the southern side, two old barn owl eggs were identified with pellets, alongside a five old pigeon/dove eggs, due to the slightly higher floor the cavity leading behind the wall here could be inspected, with a woodpigeon confirmed nesting here.

Speaking with the landowner, he confirmed that a pair were present up till the beginning of this year, after which one bird was found injured at the side of the road in April, whilst a local wildlife centre was contacted they were unable to save the bird this likely resulted in the loss of this years breeding attempt. **The proposed road works will not directly affect this site. However expansion of the road is likely to result in increased collision risk for the any pair using the church resulting in a negative impact.**



Photo 5. The front of St Peters Church



Photo 6. Ledge we were unable to access

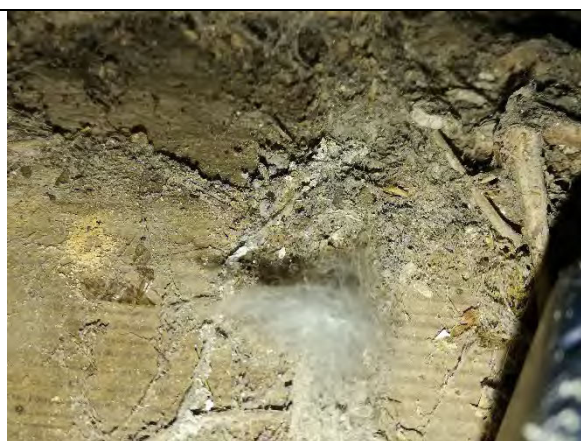


Photo 7. Old down feather from Barn owl chick located in an older nest located on the ledge in the rear entrance.



Photo 8. Fresh pellets located along the northern ledge in the chancel. A cavity behind the wall lies above the flint stone at the top of the photo.



Photo 9. Two old barn owl eggs, located on the southern ledge in the chancel.



Photo 10. Located in the south eastern corner of the chancel was a gap behind the main wall, here a wood pigeon is nesting.

7.2.5 Site 5 British Wild Flower Plants Garden Centre

The British Wildflower Plants Garden Centre, had a number of outbuildings, disused buildings, sheds, lean-tos and owl boxes to check. A thorough inspection of all of them found no evidence of barn owl using the site. The landowner confirmed that they have historically had owls on site but were unsure of which species, however upon discussing these were concluded to be Tawny owls (*Strix aluco*) and further confirmed by the historic pellets located in one of the tawny owl boxes on site. **The proposed road works will not directly affect this site.**

7.2.6 Site 6 Nelsons Place

Nelsons place consists on two large metal barns, a cattle sheds and stable blocks all mostly disused. The main metal barn was missing a panel in the front which allowed swallows to enter and exit the building when it was shut and would provide easy entry exit for barn owls. A detailed inspection of this building found no evidence of any barn owl usage, despite its suitability, with multiple ledge areas created by disused machinery. Inspections of the remaining barn had roosting potential but no evidence was found. With the cattle shed and stable block also having some potential but no evidence of use by barn owls.

The landowner confirmed that he had never had barn owls in his buildings for the 23 years he had lived there. **The proposed road works will not directly affect this site.**



Photo 11. Front of the main barn, with missing panel piece net to the light.

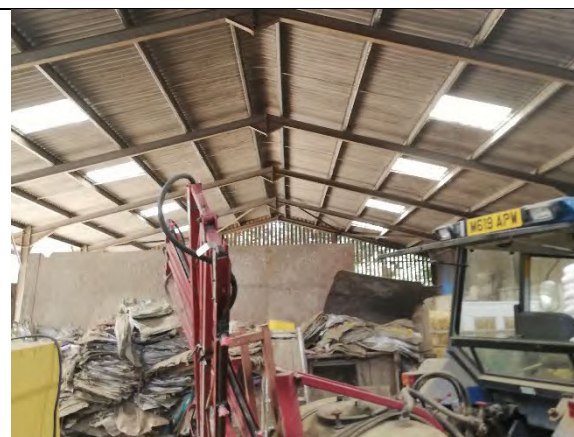


Photo 12. The second barn, with possible roosting sites on beams.

7.2.7 Site 7 Burlingham Lodge Barns

The 2018 SWECO report recorded the presence of a barn owl box at Burlingham lodge barns, upon arrival we found that the box had fallen down a few months ago, the landowner had just been cleaned it out and was in the process of reattaching it to the tree. An inspection of the box, shows a stain line along the back of the wood suggesting a historic pellet level confirming historic use by barn owls. After discussing with the landowner we were shown a second box that had been put up earlier this year (2020), upon inspection we flushed a stock dove, which had been incubating two eggs, there were no signs of barn owl within the box, however evidence of roosting within the nearby wood store was visible with dropping covering logs. **The proposed road works will not directly affect this site.**



Photo 13. The box has just been mounted on the tree.



Photo 14. Inside of the box showing the stain line at the back which marks the depth of the historical pellets.



Photo 13. A stock dove nest in the second box



Photo 14. Evidence of roosting above the logs in the log shelter.

7.2.8 Site 8 Coxhill Farm

Coxhill farm looks like an ideal barn owl nesting site, A historic cattle shed consisting of a mixture of large wooden beams and brick walls. The roof was a mixture of tiles and corrugated metal sheeting that had multiple entry and exit points, and large internal ledges on the underside.

The inspections found no evidence of barn owls both within the old barns and within the newer sheet metal barns that were also inspected. There were however multiple house sparrow nests and swallow nests located in the main old barn. **The proposed road works will not directly affect this site.**



Photo 15. The main prefabricated corrugated metal barn on site.



Photo 14. The historic cattle shed with original brick walls and wooden beams.

7.2.9 Mitigation

None of the nesting sites identified by the survey will be lost by the proposed road development, however barn owls will likely be impacted by the increased risk of collision caused by a widening of the lane and a further increase in traffic. Studies by the barn owl trust found that 90% of all barn owl mortalities are from major roads such as dual carriageways (ref. 8).

In addition to the collision risk, barn owls currently hunt along the verges and in the field margins of the land surrounding the current A47, as shown by the numerous sightings during the bat along the whole A47. The proposed development will result in a loss of around 2.89ha of grassland either through the loss of field margins, existing verges, or set aside grassland areas. To mitigate for loss of habitat, it is recommended that suitable compensatory rough grassland should be provided off site alongside the proposed motorway or in adjacent land. Where the rough grassland has been created away from the motorway nest boxes should be provided to offer additional nesting capacity, alternatively the land owners at Sites 2, 4, 6, 7 and 8 all expressed an interest at putting boxes in their existing barns which might provide a more permanent solution, given internal boxes have a longer life than external.

To avoid encouraging barn owls to hunt alongside the new dual A47 the planting of high hedge or lines of closely-spaced trees should take place next to the road on both sides, when combined with the acoustic earth banks, This will force the owls to fly higher and over the road at a safe height. In addition to this it is recommended that the verges are well maintained, frequent cutting to prevent the build up of rough grassland and a dense thatch that provide suitable habitat for voles and mice that barn owls predate, the verges are maintained unsuitable for foraging, barn owls are less likely to try and use them.

In addition to the above mitigation it is recommended that post development monitoring of the site should be undertaken to establish whether the new road is increasing barn owl casualties, this could be done in conjunction with Project Splatter, a scheme that maps animal strikes on road stretches to identify any specific area that may be a hotspot for barn owls. Alongside further barn owl surveys in years 1, 3 and 5, post development to establish whether there has been a reduction in current population size from the works. If a reduction is observed, further mitigation may be required depending on if the road is responsible.

7.3 Enhancements

The breeding bird surveys identified a number of at risk species that are unlikely to be impacted by the proposed development but could benefit from enhancements.

7.3.1 Turtle dove

The proposed development will not be impacting the turtle dove nesting areas, however enhancements for the species could be delivered through the plantation of a turtledove seed mix. Turtle dove feed on smaller seeds than that which is usually planted in wild bird seed mix, preferring things like vetch (*Vicia sativa*), black medick (*Medicago lupulina*), birdsfoot trefoil (*Lotus corniculatus*) and fumitory (*Fumaria sp.*). As recommended by the RSPB (Ref. 10) the seed mix should be planted near nesting habitat and a water source. Given a pair have been recorded at home farm continuously for the past 3 years, the seed mix would most likely be used if sited nearby this area.

7.3.2 Lapwing

Whilst lapwing were recorded to the west of the site in two small groups early on during the march visit, the birds were never recorded again on the site and at the time displayed no discernible breeding behaviour. Given it was March it is considered likely the birds were still together in an overwintering flock. The 2018 SWECO breeding bird survey concluded that the birds probably bred on site that year, however birds were only recorded during the March and April visits. Given the birds have likely bred on site in the past, enhancements to the west of the site where the birds have historical been recorded would likely be used for future breeding attempts. The proposed balancing pond lies to the west of the site around which there are a number of drainage soakaways and drain; combining these with a wader scrape will create an ideal habitat for lapwing to breed and forage within as the scrapes can be manipulated to hold water from March through to the end of June to provide feeding areas for waders and their chicks and equipping them with a small sluice will allow for control of water levels.

7.3.3 Raptors and Owls

To further enhance nesting habitat for kestrel, sparrowhawk, tawny owl and little owl, it is recommended that a number of boxes are put up alongside the A47. These will provide long term nesting sites for the species, further involvement of the local ringing group who already monitor some boxes within the local area, and would provide a long term monitoring process on box uptake.

8 Conclusion

A total of 61 species were recorded on site during the breeding bird surveys, of which twenty-seven species of importance were identified consisting of five Wildlife and Countryside Act Sch 1 species of eleven BoCC red listed species and eleven BoCC amber species. The remaining species were all BoCC green listed and consisted of common species. The proposed development is considered likely to negatively impact breeding skylark, meadow pipit, song thrush, linnets, yellowhammers, mallard and barn owls. As such the following mitigation is required to offset the impacts;

- Compensatory rough grassland should be created alongside the motorway through the implementation of field margins along its whole length. Further, in areas where the carriageway isolates or cuts off land parcels, rough grassland should be encouraged to provide additional ground nesting areas for skylark and meadow pipit and foraging capacity for linnets, yellowhammers, barn owls and other raptors.
- Ten skylark plots should be created in the surrounding fields to the west of the proposed carriageway, which will create additional nesting and foraging capacity to support skylark near to where one of the territories will be lost.
- Woodland on site should be replaced on a like for like basis alongside the carriageway which will provide additional nesting and foraging habitat for song thrush, whilst also fulfilling the requirement of screening the proposed roadway and forcing barn owls up and over the carriageway and reducing the chances of collision.
- Hedgerow should be replaced on a like for like basis either through new planting or enhancement of the species poor defunct hedgerows that are present within the local area. This will provide mitigation for the loss of nesting habitat for linnet and yellowhammer.
- In order to mitigate for the loss of foraging habitat for farmland birds, a wild bird seed mix crop strips should be sown alongside the planted or improved hedgerows to provide a foraging supply for the wintering and breeding seasons. The two year self-seeding mix should be used for a period of 6 years to cover the proposed works period and the approximate length for the compensatory rough grassland measures to develop.
- All species used for planting should be locally sourced and native and include some fruit or berry producing species which will provide a food source for birds in the autumn and winter months.
- Three mallard nesting tubes should be sited in the balancing pond to the west of the site, to provide safe secure breeding sites.
- Vegetation clearance should take place outside the breeding bird period (March to September inclusive) and where this is not possible, an inspection by a suitably trained ecologist should take place, with works halted within the area if an active nest is found.
- Five barn owl nest boxes should be sited in areas of created rough grassland, providing it does not encourage birds to use the roadside verge, or within receptive local farms, to improve the total population within the area.
- Post development monitoring of the barn owl numbers is recommended to determine if the new road is causing an increase in fatality's to barn owls. This could be done in conjunction with Project Splatter with further barn owl surveys in years 1, 3 and 5 to determine if there has been a reduction in population.

The following enhancements have been recommended to provide nesting or foraging habitat for species which whilst are unlikely to be impacted by the development, have populations in decline which could benefit from the following measures:

- The planting of turtle dove seed mixes on the stretches of carriageway near Home Farm where they have been consistently recorded will provide additional foraging potential for the species.
- The modification of proposed drainage or soakaways to create a wader scrap in the area to the west of the site will provide additional nesting and foraging capacity for lapwing.
- Nesting boxes for raptors and owls should be erected along the A47, with local ringing groups contacted to potentially take over monitoring of the boxes.

9 References

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- 8 Shawyer, C. R. (2011). *Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment: Developing Best Practice in Survey and Reporting*. IEEM, Winchester
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- 10 RSPB (2011). *Land Management for Wildlife, Turtle Dove*. Available at <https://www.rspb.org.uk/globalassets/downloads/documents/conservation--sustainability/land-management-for-wildlife/land-management-for-wildlife---turtle-dove.pdf> [accessed on 15/09/2020]

Drawings

Highways England Scheme Overview Sheet 1 (HE551490-GTY-EGN-000-DR-GI-30001)

Highways England Scheme Overview Sheet 2 (HE551490-GTY-EGN-000-DR-GI-30002)

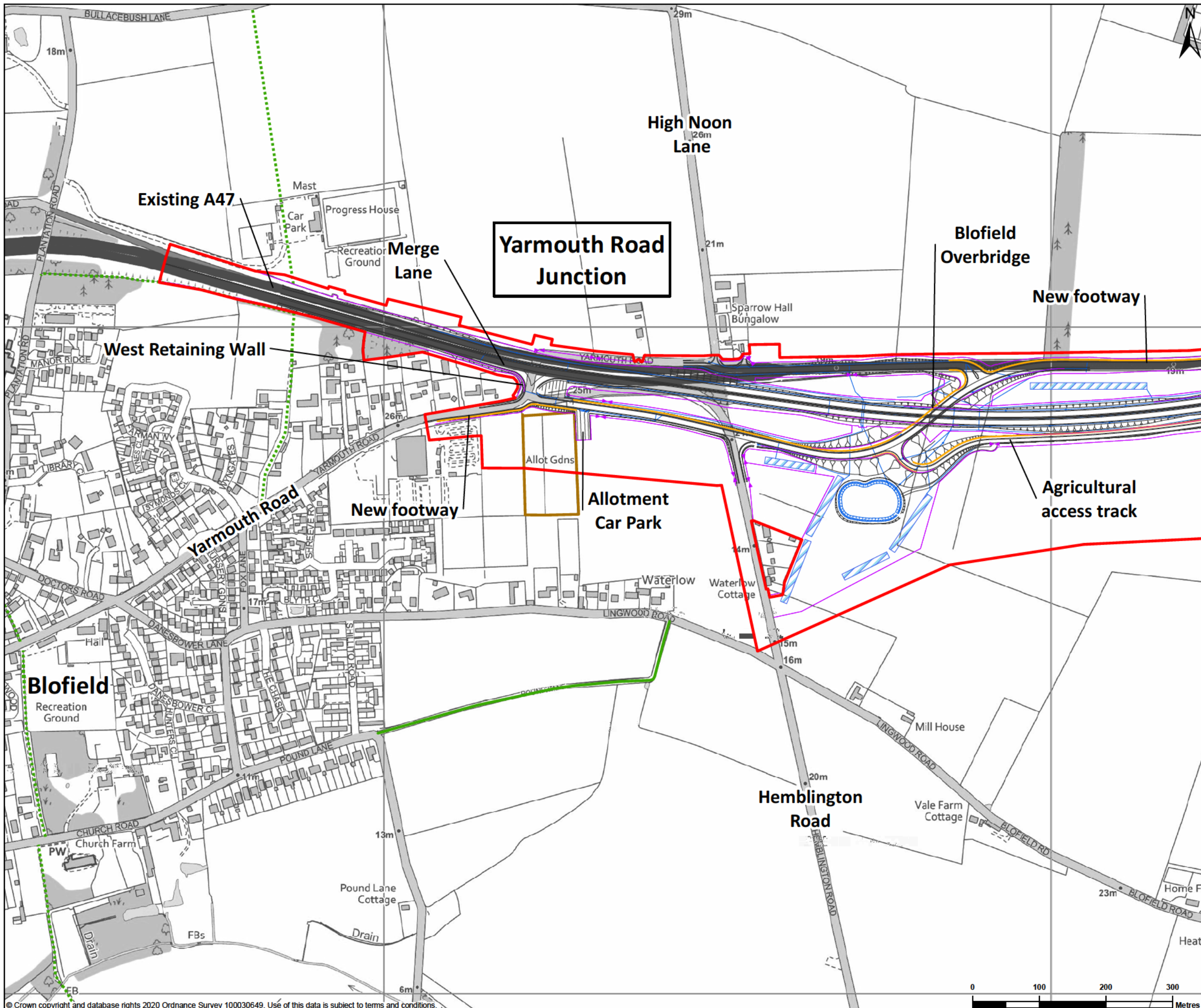
Highways England Scheme Overview Sheet 3 (HE551490-GTY-EGN-000-DR-GI-30003)

778576-MLM-ZZ-XX-DR-J-0001 - Walking Route

778576-MLM-ZZ-XX-DR-J-0002 - BBS (LEFT)

778576-MLM-ZZ-XX-DR-J-0003 - BBS (RIGHT)

778576-MLM-ZZ-XX-DR-J-0004 - Barn owl



Red line boundary

Proposed Scheme design

Proposed Footway

Proposed Drainage design

Proposed Drainage soakaway

Proposed Fencing

Proposed Fence gate

Byway open to all traffic (PRoW)

Footpath (PRoW)

Bridleway

Allotment boundary

REFERENCE MAP

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P02	23/07/2020	AMENDMENTS TO SCHEME DESIGN AND BOUNDARY	PC	MM	MM
REV	DATE	REVISION NOTE	ORG	CHKD	APPD

DESIGNER

CONTRACTOR

CLIENT

PROJECT TITLE

A7 BLOFIELD TO NORTH BURLINGHAM

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

FIGURE 1.1.1 - SCHEME OVERVIEW
SHEET 1 OF 3

SUITABILITY

FOR INFORMATION

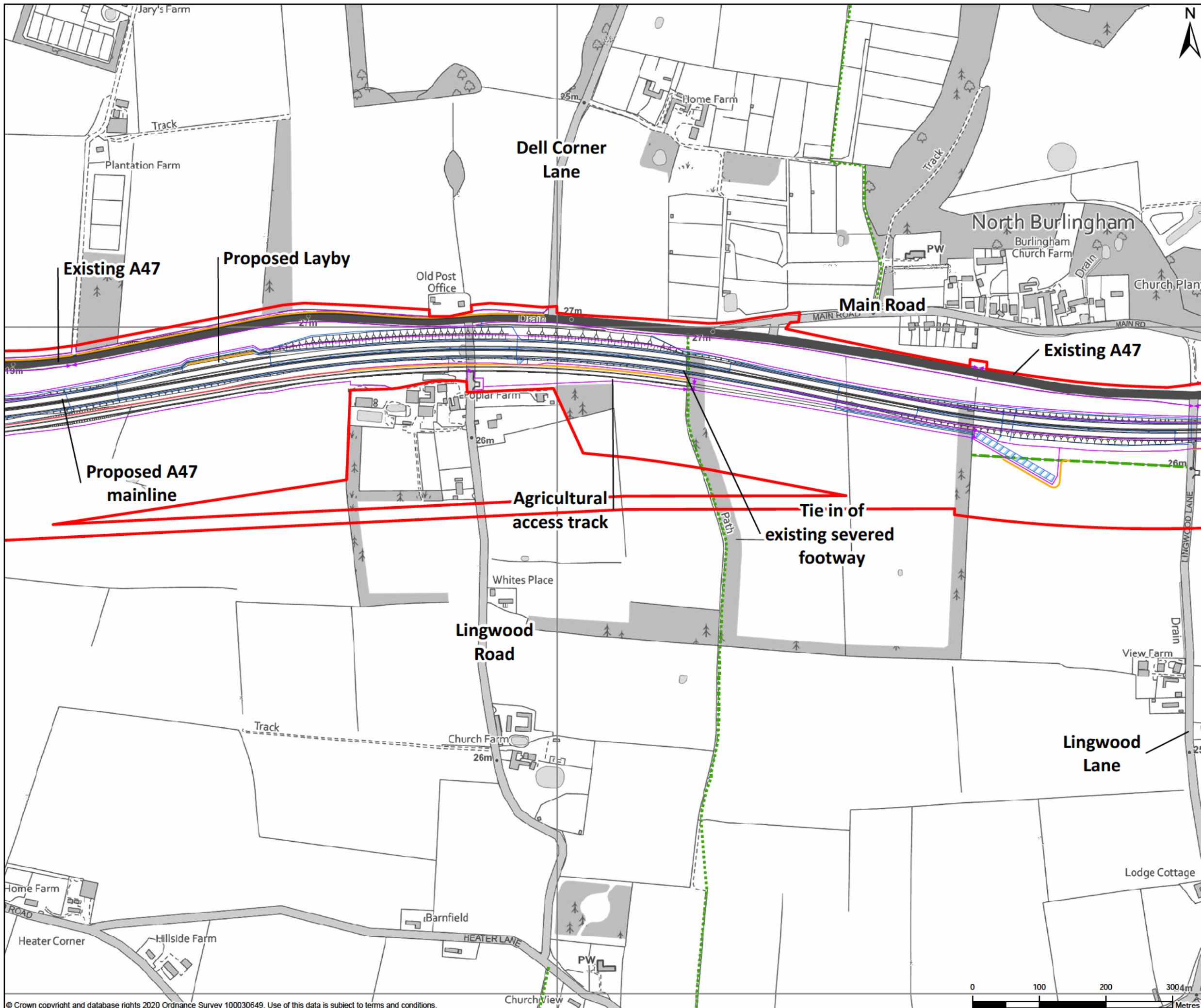
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Red line boundary

Proposed Scheme design

Proposed Footway

Proposed Drainage design

Proposed Drainage soakaway

Proposed Fencing

Proposed Fence gate

Byway open to all traffic (PRoW)

Footpath (PRoW)

Bridleway

Allotment boundary

REFERENCE MAP

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PROJECT STAGE					
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SUITABILITY					
FOR INFORMATION					
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SWECO

GallifordTry

highways
england

A47 BLOFIELD TO NORTH BURLINGHAM

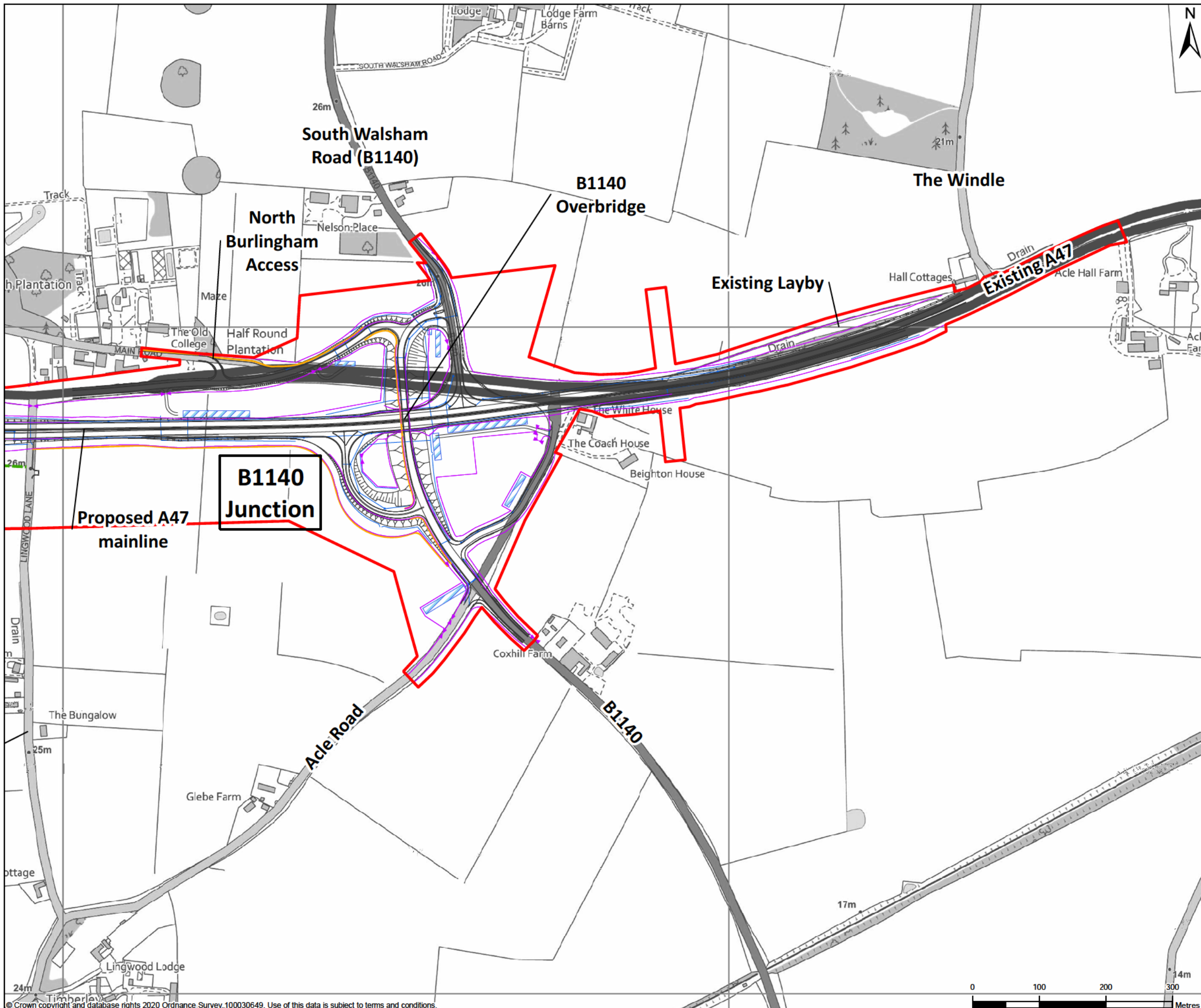
PCF STAGE 3

FIGURE 1.1.2 - SCHEME OVERVIEW
SHEET 2 OF 3

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Red line boundary

Proposed Scheme design

Proposed Footway

Proposed Drainage design

Proposed Drainage soakaway

Proposed Fencing

Proposed Fence gate

Byway open to all traffic (PRoW)

Footpath (PRoW)

Bridleway

Allotment boundary

REFERENCE MAP

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PROJECT TITLE

A47 BLOFIELD TO NORTH BURLINGHAM

PROJECT STAGE

PCF STAGE 3

DRAWING TITLE

FIGURE 1.1.3 - SCHEME OVERVIEW
SHEET 3 OF 3

SUITABILITY

FOR INFORMATION

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LEGEND

Survey route

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DRAWING STATUS:

FINAL

CLIENT:

SWECO

PROJECT:

A47 BLOFIELD TO NORTH BURLINGHAM

DRAWING TITLE:

BREEDING BIRD SURVEY ROUTE

DRAWN/DESIGN:

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DATE:

17/09/2020

STATUS:

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SB

APPROVED:

MB

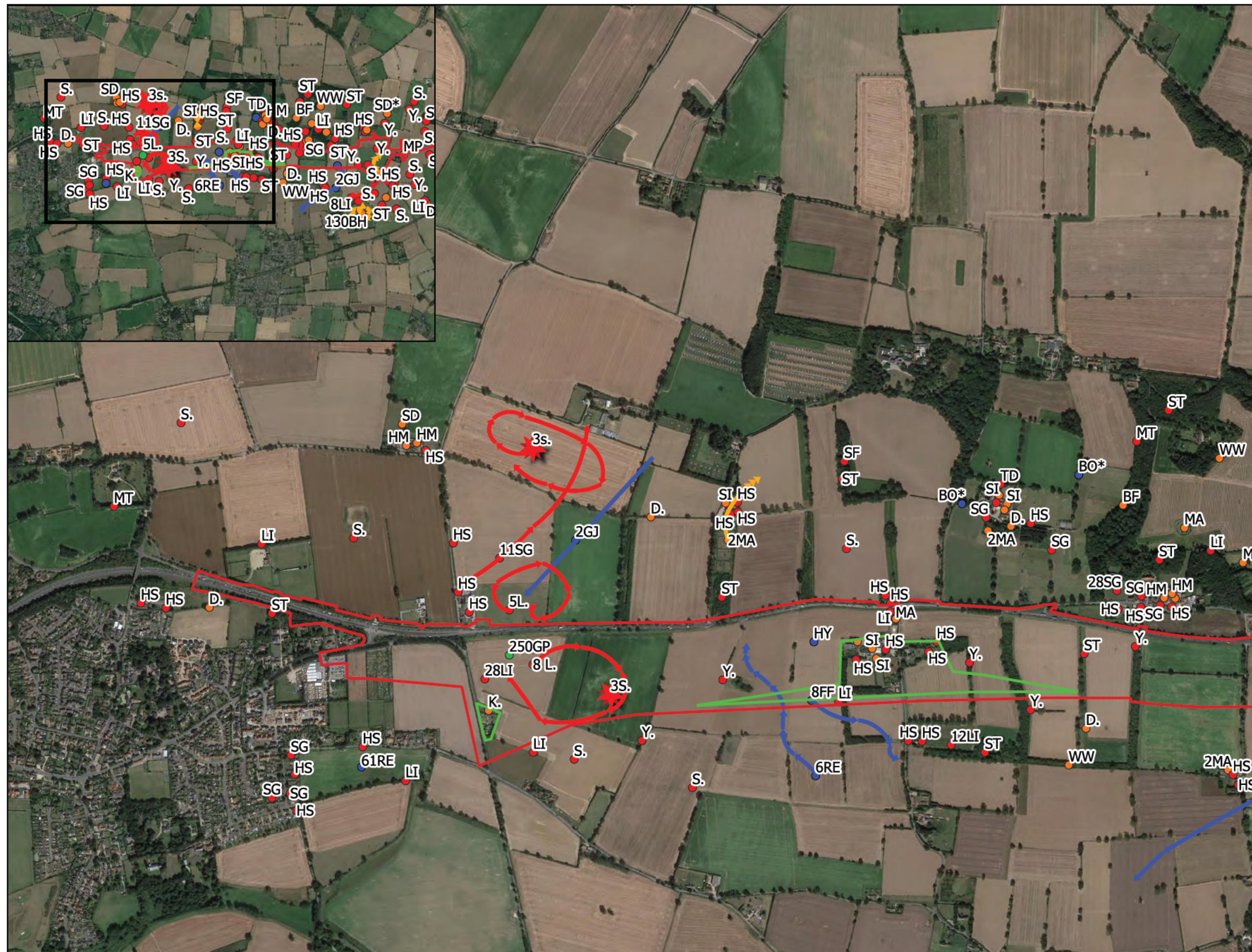
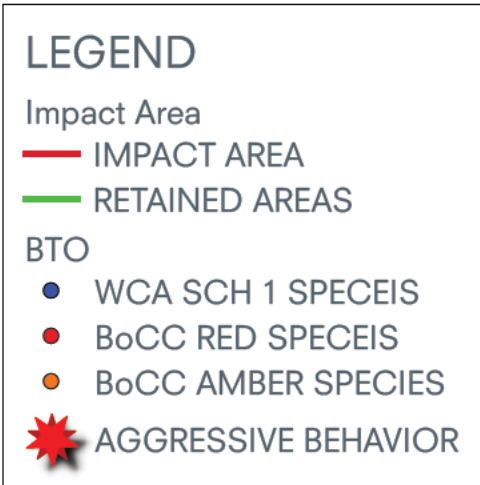
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	CHECKED: SB	APPROVED: MB	REVISION: C01
PROJECT: A47 BLOFIELD TO NORTH BURLINGHAM	DRAWING NO: 778576-MLM-ZZ-XX-DR-J-0002		



LEGEND

Impact Area

— IMPACT AREA

— RETAINED AREAS

BTO

● WCA SCH 1 SPECEIS

● BoCC RED SPECEIS

● BoCC AMBER SPECIES

★ AGGRESSIVE BEHAVIOR

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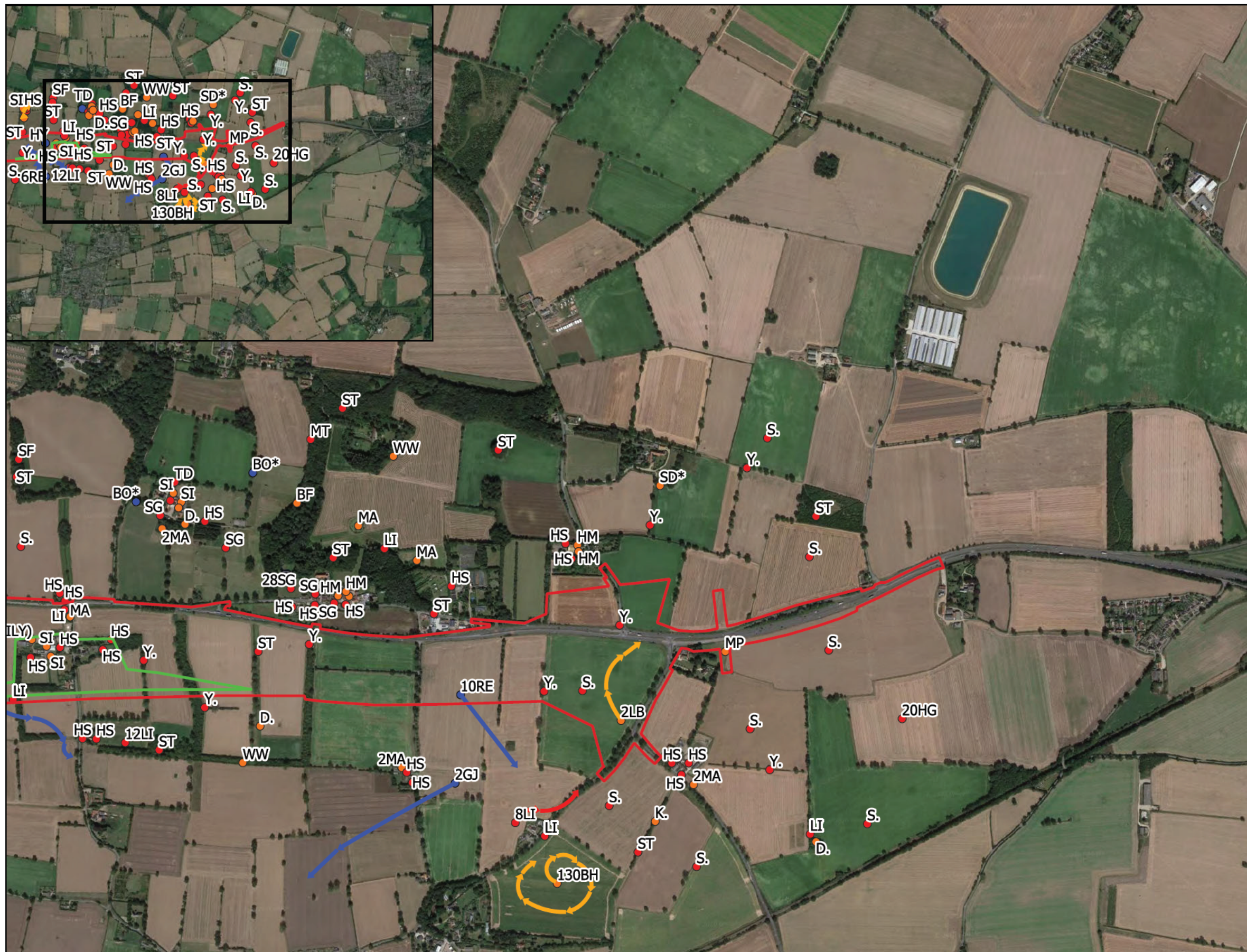
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A47 BLOFIELD TO NORTH BURLINGHAM

DRAWING TITLE:

BREEDING BIRD INDICATIVE TERRITORIES (WEST)

DRAWN/DESIGN:

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DATE:

15/09/2020

STATUS:

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CHECKED:

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APPROVED:

MB

REVISION:

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DRAWING NO:

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