M5 Junction 10 Improvements Scheme

Environmental Statement
Appendix 7.9 Winter Bird surveys
TR010063 – APP 6.15

Regulation 5 (2) (a)

Planning Act 2008

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



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Infrastructure Planning Planning Act 2008

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

M5 Junction 10 Improvements Scheme

Development Consent Order 202[x]

6.15 Environmental Statement:

Appendix 7.9 Winter Bird surveys

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1. Introduction

1.1. Terms of Reference

- 1.1.1. Atkins, a member of the SNC Lavalin Group was commissioned by Gloucestershire County Council (GCC) to undertake wintering and passage bird surveys to inform the Environmental Statement (ES) for the M5 Junction 10 Improvements Scheme (hereafter referred to as 'the Scheme').
- 1.1.2. The purpose of the wintering and passage bird surveys was to determine the species and numbers of wintering and passage birds present within the Scheme; provide recommendations to enable compliance with legislation and policy; and, if necessary, identify the need for avoidance, mitigation, compensation, or enhancement measures.
- 1.1.3. This Technical Appendix summarises the results of the wintering and passage bird surveys undertaken, including the methods used, results of the field surveys, and provides an evaluation of the nature conservation value of wintering and passage birds within the survey area.
- 1.1.4. This report provides factual information to support the ES, which will accompany the planning application for the Scheme.

1.2. Legislative and Conservation Concern Status

Legislation

1.2.1. Relevant legislation in relation to breeding birds is provided in Table 1-1 below.

Table 1-1 - Summary of Relevant Legislation

Legislation	Offences	Licensing Procedures and Guidance
Wildlife and Countryside Act 1981 (as amended)	Intentionally kill, injure, or take any wild bird.	General licences are available in respect of 'pest species' but only for certain very specific purposes e.g. public health, public safety, air safety.
		Guidance documents: NE & DEFRA Standing Advice for protected species 2022.
The Birds Directive 79/409/EEC Annex 1	N/A	Bird species listed under Annex 1 of the Birds Directive 79/409/EEC are considered endangered or important migratory species in Europe. These species have been protected by the establishment of a coherent network of Special Protection Areas (SPAs).
Conservation of Habitats and Species Regulations 2017 (as amended)	N/A	Regulation 8 of the Conservation of Habitats and Species Regulations 2017 (as amended) defines SPAs as European Sites. SPAs are designated based on populations of Annex 1 species that they support, and thus comprise the most suitable habitats to ensure the survival and/or reproduction of these species in their area of distribution. Regulation 9 places a duty on public authorities to have regard to the requirements of the Birds
		Directive in the exercise of their functions.
		Regulation 10 places a duty on public authorities to take steps in the exercise of their functions to contribute to the achievement of the preservation, maintenance and re-establishment of a sufficient



Legislation	Offences	Licensing Procedures and Guidance
		diversity and area of habitat for wild birds in the United Kingdom.
Ramsar	N/A	Ramsar sites are wetlands of international importance designated under the Ramsar Convention. The majority of UKs sites are established for internationally important populations of non-breeding waterfowl though some sites have no qualifying ornithological interest.

Conservation Concern Status

- 1.2.2. The UK's leading bird conservation organisations have worked together on the latest review of the status of the birds that occur regularly in the UK (Stanbury et al., 20211). Bird species have been assessed against a set of objective criteria to place each on one of three lists - green, amber, and red - indicating an increasing level of conservation concern. The criteria used in assessments are intended to ensure that Birds of Conservation Concern (BoCC5) listings reflect each species' global and European status as well as that within the UK, and additionally measure the importance of the UK population in international terms.
- 1.2.3. Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England; this is known as England Biodiversity List².
- 1.2.4. The UK Biodiversity Action Plan (UK BAP), as updated by the UK Biodiversity Partnership in 2007, was used to draw up the England Biodiversity List. The UK BAP has been succeeded by the UK Post-2010 Biodiversity Framework in 2012, due to a change in government strategy by all UK countries, focusing on managing the environment as a whole rather than dealing with different aspects of biodiversity and environment separately3. However, the UK BAP list of priority habitats and species continue to be regarded as conservation priorities in the UK Post-2010 Biodiversity Framework.
- 1.2.5. Forty-nine bird Species of Principal Importance (SPI) are included on the England Biodiversity List. These include 48 of the 53 bird species listed for England in the UK BAP4, with the addition of hen harrier whose population in England is at very low levels and is unlikely to increase without continued conservation action. The England Biodiversity List is used as a guide for decision makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act 2006 to have regard to the conservation of biodiversity in England when carrying out their normal functions.

¹ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747. Available at

https://www.gov.uk/government/publications/habitats-and-species-of-principal-importance-in-england

³ JNCC and Defra (on behalf of the Four Countries' Biodiversity Group), 2012. UK Post-2010 Biodiversity Framework. (http://jncc.defra.gov.uk/pdf/UK Post2010 Bio-Fwork.pdf: accessed 13 November 2013).

⁴ Arctic skua, black-throated diver, red-backed shrike, red-necked phalarope, and wryneck are listed for England in the UK BAP but are not included in the England biodiversity list



Methodology

2.1. Introduction

- 2.1.1. Unless otherwise stated, the term 'Scheme Boundary' refers to the Order limits, excluding areas of the Order limits that extend approximately 2 km north and 2 km south of the Scheme alignment, along the M5. In these locations, the Scheme Boundary is the Scheme alignment. The Order limits and the Scheme alignment are shown on Figures 7-9A 7-9G
- 2.1.2. Within the areas of the Order limits that extend north and south of the Scheme alignment, the only works proposed are the installation of signs in discrete locations, which will require vegetation clearance of up to approximately 20 m² plus some minor trimming back of vegetation up to a distance of 180 m in front of the sign to ensure visibility. These signage locations can be micro sited to avoid/minimise ecological impacts. These small-scale works are consistent with routine highway maintenance works. The results of desk study and field surveys here would not have any bearing on the impact assessment for the Scheme, and these areas have been excluded from assessments to inform the ES. Pre-construction surveys of the discrete signage locations and working with the contractor to micro site locations where appropriate to avoid or minimise ecological impacts will be untaken, and is considered to be proportionate.

2.2. Desk Study

- 2.2.1. The geographical area for obtaining ecological data through desk studies has been determined using professional judgement. Baseline data has been gathered from a range of sources through data requests and using online resources as outlined below. This includes data gathering in relation to statutory and non-statutory designated sites and protected and priority species.
- 2.2.2. The MAGIC website⁵ was reviewed to identify relevant statutory designated nature conservation sites (i.e. where birds are the reason or part of the reason for designation) within 2 km of the Scheme or with a direct hydrological connection.
- 2.2.3. Species of principal importance for the conservation of biodiversity listed in accordance with Section 41 of the Natural Environment & Rural Communities Act (NERC) 2006⁶, the Red and Amber lists of BoCC5⁷ and the Gloucestershire Local Biodiversity Action Plan⁸ were reviewed as part of the data gathering exercise to identify relevant bird species considered to be important forbiodiversity at the site. The Gloucestershire Bird Report⁹ and Gloucestershire Breeding Bird Atlas¹⁰ were reviewed to ascertain the population status of certainspecies within the county.
- 2.2.4. Gloucestershire Centre for Environmental Records (GCER) was contacted in September 2019 and again in April 2021 and July 2022 to obtain recent records¹¹ of:

Available from:

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⁵ https://magic.defra.gov.uk/

⁶ Section 40 of the NERC Act 2006 sets out the duty for public authorities to conserve biodiversity in England. Habitats and species of principal importance for the conservation of biodiversity as identified by the Secretary of State for England, in consultation with Natural England, are referred to in Section 41 of the NERC Act 2006 for England. The list of habitats and species was updated in 2008 and is known as the England Biodiversity List.

⁷ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747. Available at

⁹ Goodhall, R., Kirk, G. and Petrek, S. (2020) Gloucestershire Bird Report 2014-16. Gloucestershire Ornithological Coordinating Committee

¹⁰ Kirk, G. and Phillips, J. (2013) The Birds of Gloucestershire. Liverpool University Press

¹¹ Records of observations within the last 10 years



- Non-statutory designated nature conservation sites within 1 km of the Scheme Boundary (where birds are the reason or part of the reason for designation); and
- Priority¹² bird species within 1 km of the Scheme Boundary.

2.3. Field Survey

- 2.3.1. Surveys were led by suitably experienced ecologists (considered competent to undertake wintering and passage bird surveys in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) competencies¹³), who are members of CIEEM. The lead surveyor is an experienced ornithologist with over 15 years of professional bird survey and assessment experience.
- 2.3.2. The method employed for wintering bird surveys broadly conformed to that used for the Common Bird Census (CBC) survey, devised and run between 1962 and 2000 by the British Trust for Ornithology (BTO) as detailed in in Gilbert et al. (1998)¹⁴ and Bibby et al. (2000)¹⁵. CBC uses a mapping method in which a series of visits are made to a site during the wintering season, and observations of birds, by sight or sound, are recorded on a map during a walked transect.
- 2.3.3. The Survey Area comprised all areas within the Scheme Boundary and accessible land within 250 m of the Scheme. The Survey Area was designed to ensure that the assessment considered all potential impacts on all species present in the area within which an impact may occur (i.e. the Ecological Zone of Influence (EZoI)), as well as those impacts which could occur within the footprint of the Scheme. This included species which may be sensitive to disturbance over large distances during the wintering season, such as certain raptor species. The extent of the Survey Area also allowed for some degree of design changes to the Scheme to be accommodated.
- 2.3.4. Seven survey visits were carried out in total, with one survey undertaken each month from September 2019 to March 2021. This was considered proportionate for a relatively localised road improvement Scheme, allowing sufficient observations of birds to produce clusters of registrations and minimising the risk of overlooking scarce and/or priority species. Eight representative transects of varying lengths were surveyed, which gave suitable coverage of the Survey Area. Six of these transects are within the Survey Area of the current Scheme (following refinement of the Scheme design). The direction in which the transects were walked was varied between visits to optimise detection and minimise recording bias. Transects are shown on Figures 7-9A to 7-9G in Appendix A.
- 2.3.5. Surveys were not carried out in heavy rain, poor visibility or strong wind as birds are underrecorded in such conditions. Dates of survey visits are shown in Appendix B along with weather conditions on each visit.
- 2.3.6. The surveyor, with the aid of binoculars, recorded all observations of birds by either sight or sound by walking through the Survey Area at a slow and steady pace. The positions of the recorded birds were plotted as accurately as possible on a suitably scaled base map, (i.e. a 'visit map'). Standard BTO codes and symbols¹⁶ were used for mapping species (including sex and age, e.g. juvenile, immature or adult) and bird activity where relevant (including foraging, loafing and in flight).

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¹² In this context, priority birds include those listed as species of principal importance for the conservation of biodiversity in England, those identified as Red or Amber on BoCC5, Annex I listed species on Directive 2009/147/EC (the Birds Directive), those listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), species listed on the Gloucestershire Biodiversity Action Plan, qualifying features of the Severn Estuary SPA and/or features of interests of the Severn Estuary Ramsar site, qualifying features of Walmore Common SPA.

¹⁴ Gilbert, G., Gibbon, D.W. and Evans J. (1998). Bird Monitoring Methods: A Manual of Techniques for Key UK Species. Royal Society for the Protection of Birds, The Lodge, Sandy, Bedfordshire

¹⁵ Bibby C.J. Burgess, N.D. Hill D.A. Mustoe S. and Lambton S. (2000). Bird Census Techniques. Academic Press London ¹⁶ BTO (2009) BTO Species Codes. BTO, Thetford



2.4. Assessment

Defining Important Bird Species

2.4.1. For the purpose of this assessment, priority bird species are defined as those which are listed as species of principal importance for the conservation of biodiversity in England, those identified as Red or Amber on the BoCC5¹⁷, Annex I listed species on Directive 2009/147/EC (the Birds Directive), species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), species listed on the Gloucestershire Local Biodiversity Action Plan, qualifying features of the Severn Estuary SPA and/or features of interests of the Severn Estuary Ramsar site and qualifying features of Walmore Common SPA/Ramsar site.

Determination of Bird Community Importance

2.4.2. The priority populations of wintering and passage birds have been valued in a geographical context following the framework provided in LA 108¹⁸. The evaluation is based on the information gathered from the desk study and field surveys, using a combination of professional judgement and accepted criteria¹⁹ (e.g. diversity, rarity and naturalness).

2.5. Limitations

- 2.5.1. Ornithological surveys are affected by a variety of factors which affect the presence of birds such as season, weather, climate, migration patterns, food availability, species behaviour and the presence of predators. Therefore, bird surveys for this Scheme may not have produced a complete bird list and the absence of evidence of any particular species within the Survey Area (or a part of the Survey Area), should not be taken as conclusive proof that the species is not present or that it will not be present in the future.
- 2.5.2. The M5 and A4019 was subject to a high volume of traffic towards the end of each survey visit due to increases in commuter traffic volume, which resulted in significant noise pollution surrounding the road network. Birds are generally sensitive to noise pollution; therefore, it is not considered that any significant assemblages of priority species would be present in the areas of vegetation immediately surrounding the road network that were subject to the highest levels of noise pollution during the surveys.
- 2.5.3. Approximately half of the Survey Area was not visited during March 2020 due to the Coronavirus pandemic. However, due to the survey coverage and the number of repeated visits, it is considered that any wintering species regularly present within the EZoI would have been recorded, and that the survey results comprise an accurate account of the wintering species assemblage within the EZoI.
- 2.5.4. Access to all land parcels within 250 m of the Scheme Boundary was not granted by the time the surveys were undertaken. As such, surveys of certain areas, particularly at the north east extent of the Scheme, could only be undertaken from Public Rights of Way (PRoWs), which were up to 250 m from the Scheme in places.
- 2.5.5. Nevertheless, it is considered that the results of these bird surveys and the subsequent assessment provide an indication of the use of the EZoI by wintering bird species during the survey period.

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¹⁷ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747. Available at

¹⁸ Highways England. March 2020. LA 108 Biodiversity [Online]. [Accessed October 2020]. Available from:

¹⁹ Set out in Ratcliffe, D.A (1977). A Nature Conservation Review. Cambridge University Press.



3. Results

3.1. Desk Study

Designated Sites

- 3.1.1. There is one statutory designated site with birds as a feature of interest within 2 km of the Scheme. This is Coombe Hill Canal SSSI, located approximately 1.9 km north west, designated partly for its diverse breeding bird assemblage.
- 3.1.2. The closest statutory designated sites that have been specifically designated with respect to their ornithological importance are Walmore Common SPA and Ramsar site, and Severn Estuary SPA and Ramsar sit, located approximately 17.5 km and 22.7 km to the south west of the Site respectively.
- 3.1.3. Walmore Common SPA is designated under Articles 4.1 of the EC Directive 79/409/EEC for regularly supporting populations of European importance of Bewick's swan (*Cygnus columbianus*) over winter.
- 3.1.4. The Severn Estuary SPA is designated under Article 4.1 of the EC Directive 79/409/EEC for supporting populations of European importance of wintering wildfowl and waders and under Article 4.2 for regularly supporting at least 20,000 waterfowl over winter.
- 3.1.5. There are no non-statutory designated sites within 2 km of the Scheme.

Biological Records

- 3.1.6. The Gloucestershire Local BAP includes action plans for 13 bird species in total, namely bittern (*Botaurus stellaris*), nightjar (*Caprimulgus europaeus*), woodlark (*Lullula arborea*), spotted flycatcher (*Muscicapa striata*) and 'farmland birds' (skylark (*Alauda arvensis*), linnet (*Linaria cannabina*), reed bunting (*Emberiza schoeniclus*), corn bunting (*Emberiza calandra*), tree sparrow (*Passer montanus*), grey partridge (*Perdix perdix*), bullfinch (*Pyrrhula pyrrhula*), turtle dove (*Streptopelia turtur*) and song thrush (*Turdus philomelos*)).
- 3.1.1. The desk study identified recent records (i.e. since 2012) of 40 priority bird species within 1 km of the Scheme, of which 32 species were recorded within the wintering and passage season (i.e. September to March inclusive). This includes:
 - Five species on Schedule 1 of the Wildlife and Countryside Act 1981 (fieldfare (*Turdus pilaris*), merlin (*Falco columbarius*), peregrine (*Falco peregrinus*), red kite (*Milvus milvus*) and redwing (*Turdus iliacus*));
 - Twelve species on the Red List of BoCC5 (fieldfare, greenfinch (*Chloris chloris*), herring gull (*Larus argentatus*), house martin (*Delichon urbicum*), house sparrow (*Passer domesticus*), lapwing (*Vanellus vanellus*), linnet, merlin, mistle thrush (*Turdus viscivorus*), skylark, starling (*Sturnus vulgaris*) and yellowhammer (*Emberiza citrinella*));
 - Seventeen species on the Amber List of BoCC5 (black-headed gull (Chroicocephalus ridibundus), bullfinch, common gull (Larus canus), dunnock (Prunella modularis), grey wagtail (Motacilla cinerea), kestrel (Falco tinnunculus), lesser black-backed gull (Larus fuscus), meadow pipit (Anthus pratensis), moorhen (Gallinula chloropus), redwing, rook (Corvus frugilegus), snipe (Gallinago gallinago), song thrush, sparrowhawk (Accipiter nisus), stock dove (Columba oenas) and tawny owl (Strix aluco), wren (Troglodytes troglodytes) and woodpigeon (Columba palumbus));
 - Ten species listed as species of principal importance for the conservation of biodiversity in England (bullfinch, dunnock, herring gull, house sparrow, lapwing, linnet, skylark, song thrush, starling and yellowhammer);



- Three species listed on Annex 1 of the Birds Directive (merlin, peregrine and red kite);
- Four species listed on the Gloucestershire Local BAP (bullfinch, linnet, skylark and song thrush);
- Two qualifying species of the Severn Estuary SPA (lapwing and mallard (Anas platyrhynchos)); and
- One species identified on the Severn Estuary Ramsar Information Sheet (herring gull), identified as noteworthy fauna.

3.2. Field Survey

- 3.2.1. A total of 64 species were recorded within the Survey Area, of which 34 are priority species. The full survey species list, peak counts and conservation status can be seen in Appendix C and the results are shown on Figures 7-9A to 7-9G in Appendix A. This includes:
 - Five species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) (barn owl (*Tyto alba*), fieldfare, kingfisher (*Alcedo atthis*), red kite and redwing);
 - Twelve species on the Red List of BoCC5 (fieldfare, greenfinch, herring gull, house martin, house sparrow, lapwing, linnet, mistle thrush, skylark, spotted flycatcher, starling and yellowhammer);
 - Nineteen species on the Amber List of BoCC5 (black-headed gull, dunnock, grey wagtail, kestrel, lesser black-backed gull, mallard, moorhen, meadow pipit, redstart (*Phoenicurus phoenicurus*), redwing, reed bunting, rook, song thrush, sparrowhawk, stock dove, wheatear (*Oenanthe oenanthe*), willow warbler (*Phylloscopus trochilus*) woodpigeon and wren).
 - Eleven species listed as species of principal importance for the conservation of biodiversity in England (dunnock, herring gull, house sparrow, lapwing, linnet, reed bunting, skylark, song thrush, spotted flycatcher, starling, and yellowhammer);
 - Two species listed on Annex 1 of the Birds Directive (kingfisher and red kite);
 - Five species listed on the Gloucestershire Local BAP (linnet, reed bunting, skylark, song thrush and spotted flycatcher);
 - Two qualifying species of the Severn Estuary SPA (lapwing and mallard); and
 - Two species identified on the Severn Estuary Ramsar Information Sheet (herring gull, identified as noteworthy fauna and lesser-black backed gull, identified as a species subsequent to designation for possible future consideration under criterion 6).

3.3. Incidental Records

3.3.1. Three additional species were recorded during other ecology surveys undertaken during the winter and passage period (September to March inclusive) that were not observed during the wintering and passage bird surveys: little owl (*Athene noctua*), snipe and tawny owl.

3.4. Description of Bird Assemblages

- 3.4.1. The assemblage of wintering and passage birds is considered to be largely typical of agricultural areas, woodland and scrub and built-up areas within Gloucestershire.
- 3.4.2. The presence of agricultural habitats such as arable fields, hedgerows and improved grassland within the Survey Area has resulted in the recording of associated priority species including grey wagtail, kestrel, lapwing, linnet, meadow pipit, skylark, starling,



stock dove, yellowhammer, wintering thrushes (fieldfare and redwing) and gulls (blackheaded gull, herring gull and lesser-black backed gull).

3.4.3. Notable species associated with semi-natural broadleaved woodland include mistle thrush and song thrush; and those associated with built-up areas include house martin, house sparrow, swallow (*Hirundo rustica*) and starling.



4. Evaluation

- 4.1.1. Sixty of the 67 species recorded during the wintering and passage bird survey or as an incidental observation have a Gloucestershire resident, wintering or passage population status that is abundant, common or fairly common²⁰.
- 4.1.2. Five of these species are identified in a county or equivalent authority area plan or strategy (i.e. within the Gloucestershire Local BAP). This comprises three species listed under 'farmland birds': linnet (peak count of 34), reed bunting (peak count of 1), skylark (peak count of 37) and song thrush (peak count of 6); and spotted flycatcher (peak count of 1).
- 4.1.3. Seven species recorded during the wintering and passage bird survey or as an incidental observation have a Gloucestershire resident, wintering or passage population status that is uncommon or scarce²¹:
 - Barn owl (uncommon or scarce resident). Individual birds were observed in October 2019 and September 2020, and a dead bird was recorded in September 2019;
 - Chiffchaff (*Phylloscopus collybita*) (scarce but increasing winter visitor). A peak count of 17 was recorded during September 2019, with four individuals recorded in October 2019 and five in March 2020 which are considered likely to be on passage. One individual was recorded in November 2019 which was possibly over-wintering in the Survey Area;
 - Kingfisher (uncommon). A peak count of two individuals was recorded in September 2019 (incidental records approximately 2.5 km apart, so as a precaution assumed to be different individuals). Individual birds were also recorded during the survey in October 2019, January 2020 and February 2020;
 - Lesser whitethroat (*Curruca curruca*) (uncommon). One individual was recorded during September 2019, probably a passage bird;
 - Raven (Corvus corax) (uncommon). A peak count of five was recorded during February 2020;
 - Red kite (uncommon). One individual was recorded during February 2020; and
 - Stonechat (Saxicola rubicola) (uncommon). A peak count of one recorded during October and November 2019 and January 2020.
- 4.1.4. Two qualifying species of the Severn Estuary SPA have been recorded (i.e. lapwing (two individuals) and mallard (peak count of nine individuals)). Given the low numbers recorded, they are unlikely to be a significant component of the SPA populations. Furthermore, at this distance from the SPA (located over 20 km south west of the Scheme at the nearest point), it is considered highly unlikely that the individuals recorded within the study area are part of the SPA qualifying feature populations.
- 4.1.5. This is supported by a recent study²² which identifies functionally linked land associated with the Severn Estuary SPA. The maps which accompany this study do not identify that these species regularly move between the SPA and the Survey Area.
- 4.1.6. However, the study also indicates that lapwing have been recorded within the Survey Area (in the vicinity of Boddington Manor Farm, at the west of the Scheme) in numbers which reached or exceeded the equivalent of the 1% SPA population criterion for importance on at least one occasion. No lapwing were recorded at this location during the wintering and passage bird surveys, and as the study indicates that there are no regular

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²⁰ Goodhall, R., Kirk, G. and Petrek, S. (2020) Gloucestershire Bird Report 2014-16. Gloucestershire Ornithological Coordinating Committee

²¹ Goodhall, R., Kirk, G. and Petrek, S. (2020) Gloucestershire Bird Report 2014-16. Gloucestershire Ornithological Coordinating Committee

²² Link Ecology Ltd (September 2020) Identification of land with proven or possible functional linkages with the Severn Estuary SSSI/SPA Phase 5 (Gloucestershire and Worcestershire) A report to Natural England.



movements between the SPA and this location, it is therefore considered that this area is not regularly used by or of significant importance for lapwing.

- Two species identified on the Severn Estuary Ramsar Information Sheet have been 4.1.7. recorded. Herring gull (identified as noteworthy fauna occurring at levels of national importance during the breeding season) was recorded in reasonably high numbers on two occasions (September and December 2019, with a peak count of 306). Lesser blackbacked gull (identified as a species subsequent to designation for possible future consideration under criterion 6) was recorded in reasonably high numbers on one occasion (a peak count of 148 in September 2019). It is considered that these individuals are likely to be from breeding populations within urban areas such as Cheltenham and/or Gloucester, which are closer to the Scheme than the Ramsar site breeding colonies at Steep Holm and Flat Holm²³ (approximately 90 km south west). Cheltenham Borough Council states that "Herring Gulls and Lesser Black-Backed Gulls nest in the residential areas of Cheltenham and on industrial units in the Kingsditch area"24. The JNCC Seabird Monitoring Programme online database states that the Gloucestershire Urban Gulls Cheltenham site (85627) supported 46 herring gull apparently occupied territories and 273 lesser black-backed gull apparently occupied territories in 2011 (year of last count) and the Gloucester City: Gloucester site (86737) supported 657 herring gull apparently occupied nests and 2230 lesser black-backed gull apparently occupied nests in 2009 (year of last count)25.
- The habitats within the Survey Area are not considered to provide a role in maintaining 4.1.8. the SPA or Ramsar populations or to be functionally linked to any SPAs or Ramsar sites.
- 4.1.9. Although five species are listed on the Gloucestershire Local BAP, these species are currently listed as either common, formerly common or fairly common within Gloucestershire. The peak counts for these species (see Appendix C) within the Survey Area are not considered to be of county importance in relation to Gloucestershire populations.
- 4.1.10. Therefore, taken as a whole, the wintering and passage bird assemblage is considered to appreciably enrich the habitat resource within the local context, which includes features of importance for migration. The assemblage of these wintering and passage birds is therefore considered to be of Local importance for biodiversity.

²⁵ https://app.bto.org/seabirds/public/index.jsp

²³ Burton, N.H.K., Musgrove, A.J., Rehfisch, M.M., and Clark N.A. (2010) Birds of the Severn Estuary and Bristol Channel: Their current status and key environmental issues. Marine Pollution Bulletin 61 (2010) 115-123

²⁴ Cheltenham Borough Council (2018) Urban Gulls Scrutiny Task Group Report. Available at

https://democracy.cheltenham.gov.uk/documents/s27390/2018 12 04 CAB Urban Gulls scrutiny report.pdf

Appendices



Appendix A. Schedule of figures included in this application document

Figure reference	Document title	Sheet	Document number	Revision
7-9A	Wintering bird survey results September 2019	1 of 13	GCCM5J10-ATK-EBD- ZZ-GS-GI-000022	0
7-9A	Wintering bird survey results September 2019	2 of 13	GCCM5J10-ATK-EBD- ZZ-GS-GI-000022	0
7-9A	Wintering bird survey results September 2019	3 of 13	GCCM5J10-ATK-EBD- ZZ-GS-GI-000022	0
7-9A	Wintering bird survey results September 2019	4 of 13	GCCM5J10-ATK-EBD- ZZ-GS-GI-000022	0
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7-9A	Wintering bird survey results September 2019	6 of 13	GCCM5J10-ATK-EBD- ZZ-GS-GI-000022	0
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7-9A	Wintering bird survey results September 2019	8 of 13	GCCM5J10-ATK-EBD- ZZ-GS-GI-000022	0
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7-9A	Wintering bird survey results September 2019	12 of 13	GCCM5J10-ATK-EBD- ZZ-GS-GI-000022	0
7-9A	Wintering bird survey results September 2019	13 of 13	GCCM5J10-ATK-EBD- ZZ-GS-GI-000022	0
7-9B	Wintering bird survey results October 2019	1 of 13	GCCM5J10-ATK-EBD- ZZ-GS-GI-000023	0
7-9B	Wintering bird survey results October 2019	2 of 13	GCCM5J10-ATK-EBD- ZZ-GS-GI-000023	0
7-9B	Wintering bird survey results October 2019	3 of 13	GCCM5J10-ATK-EBD- ZZ-GS-GI-000023	0
7-9B	Wintering bird survey results October 2019	4 of 13	GCCM5J10-ATK-EBD- ZZ-GS-GI-000023	0
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7-9B	Wintering bird survey results October 2019	6 of 13	GCCM5J10-ATK-EBD- ZZ-GS-GI-000023	0
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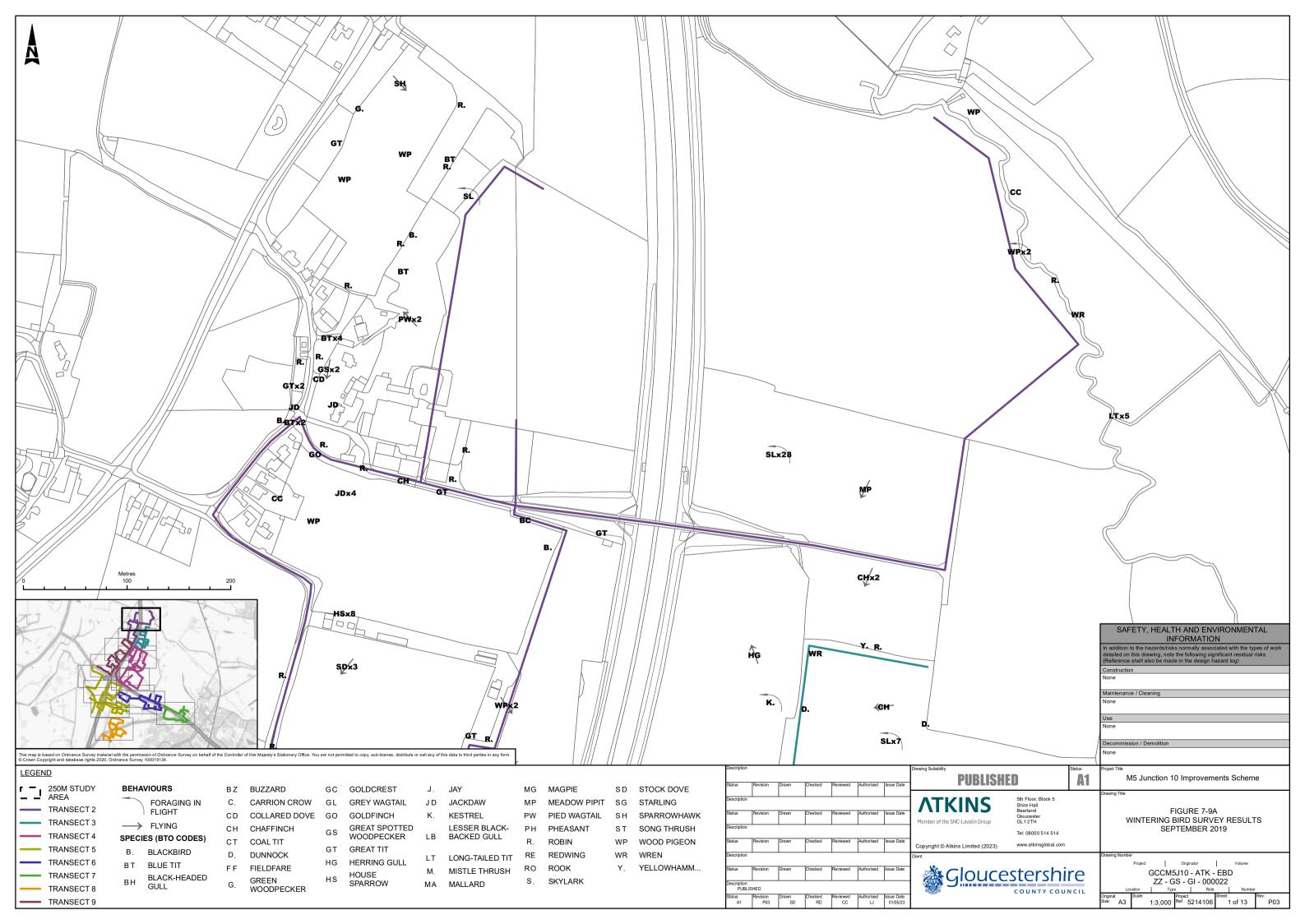
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7-9C	Wintering bird survey results November 2019	1 of 13	GCCM5J10-ATK-EBD- ZZ-GS-GI-000024	0
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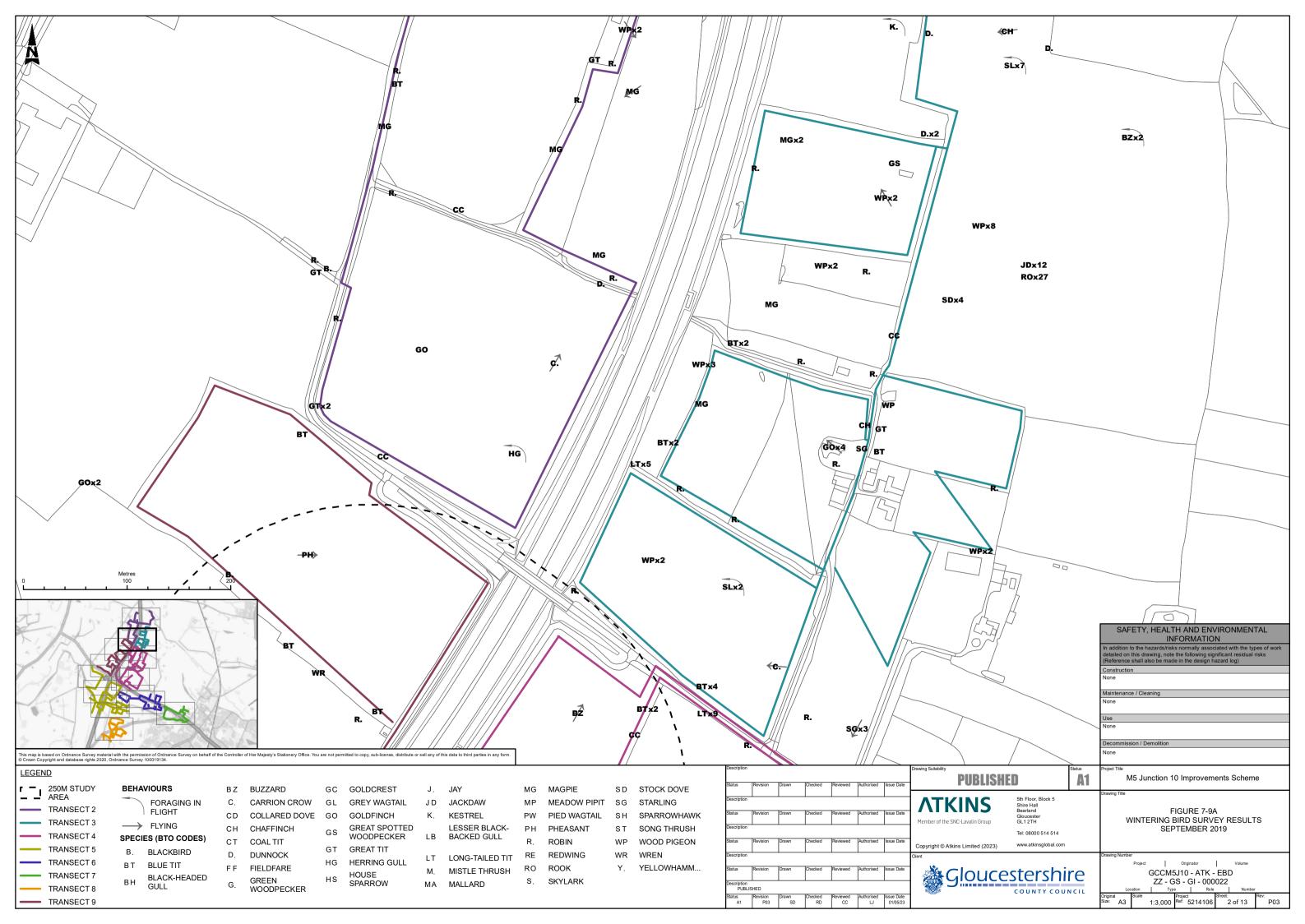


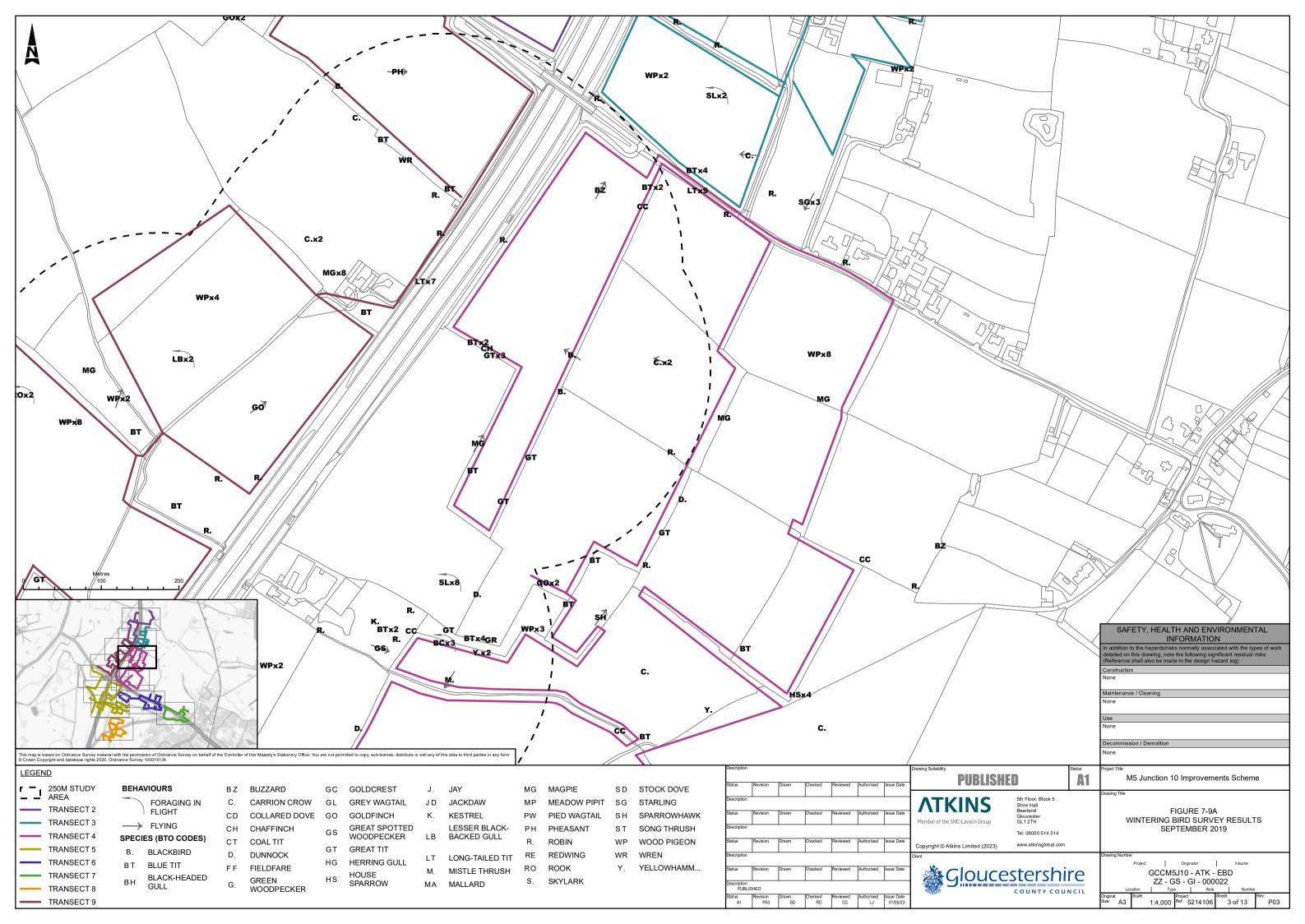
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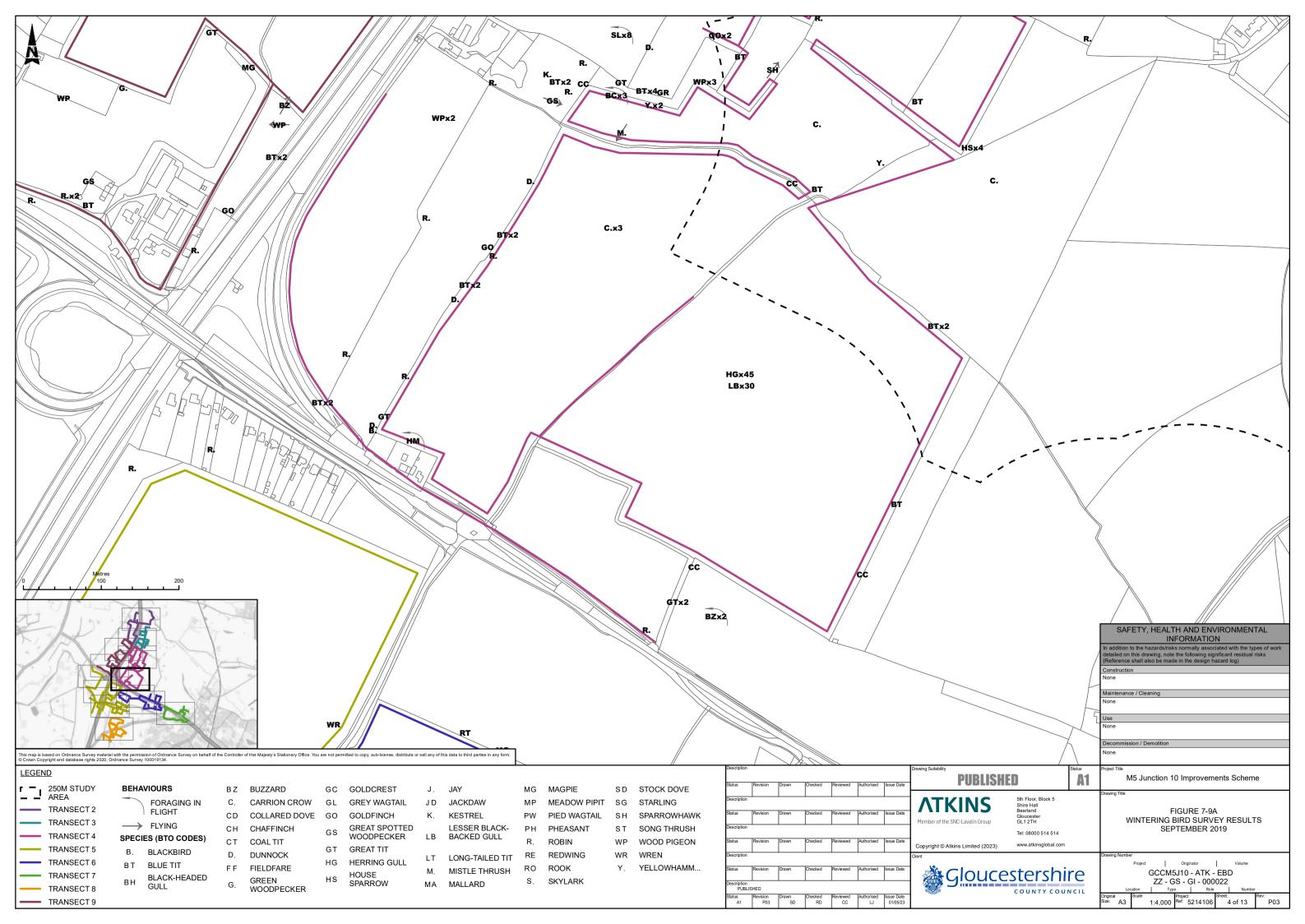


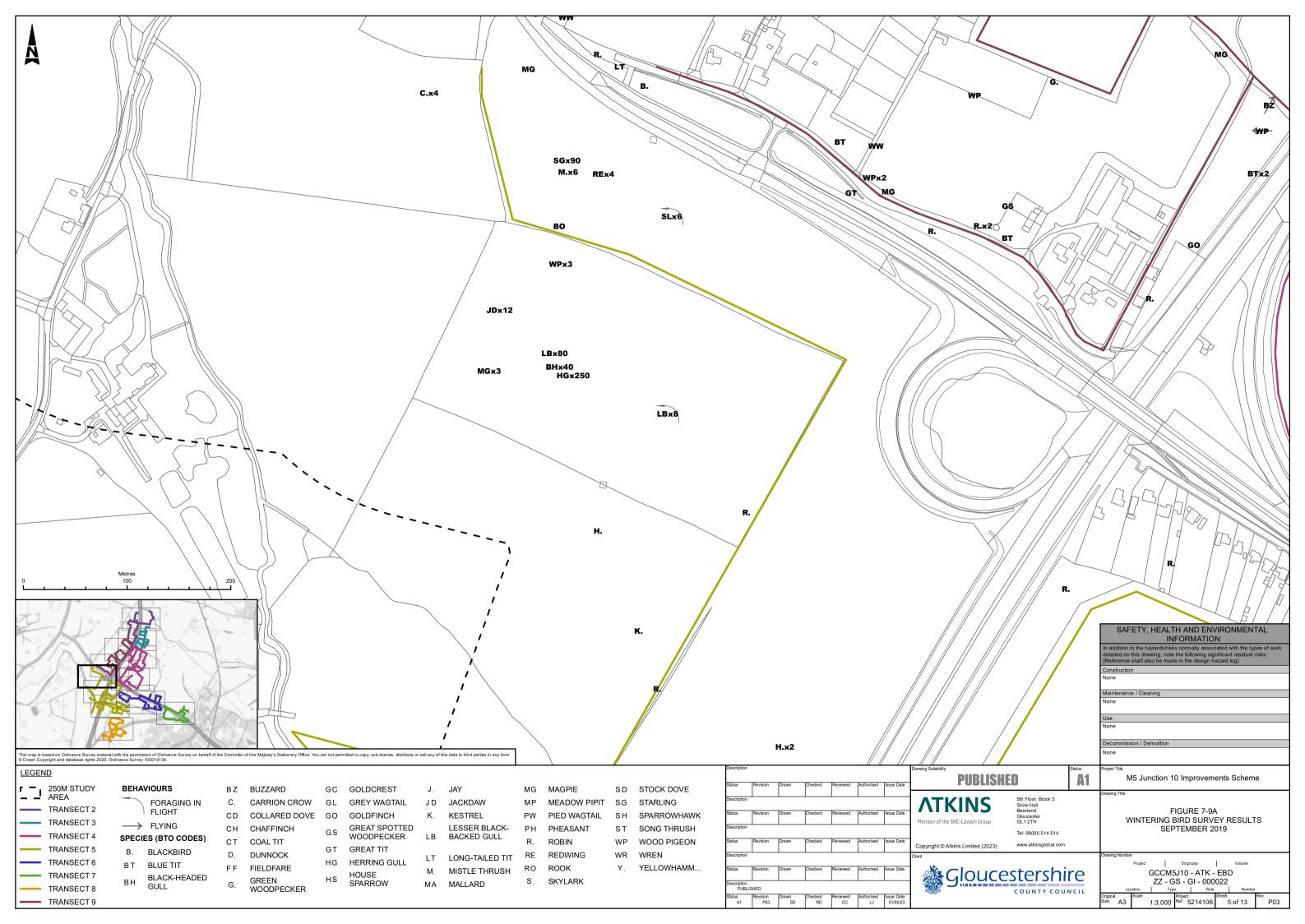
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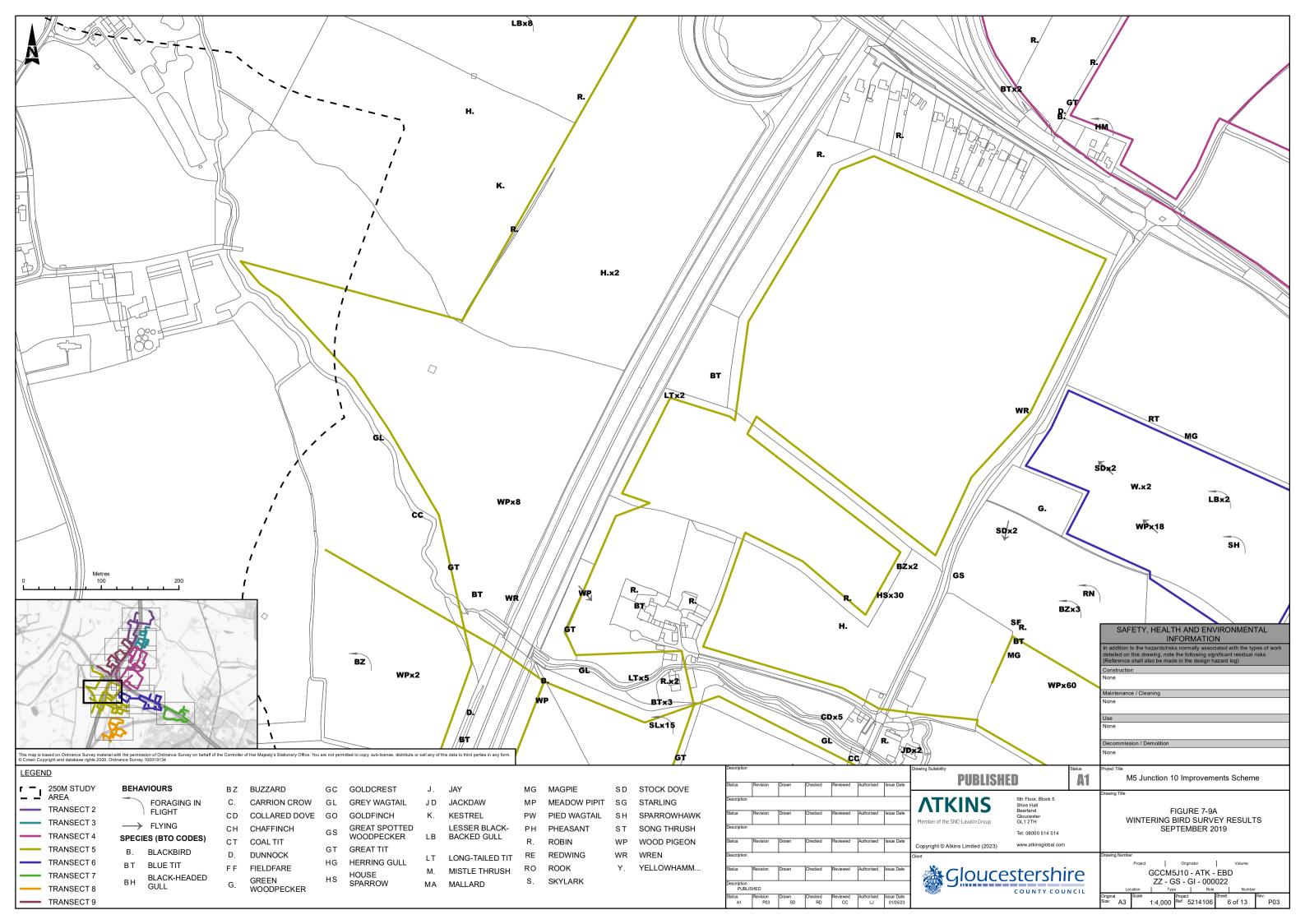


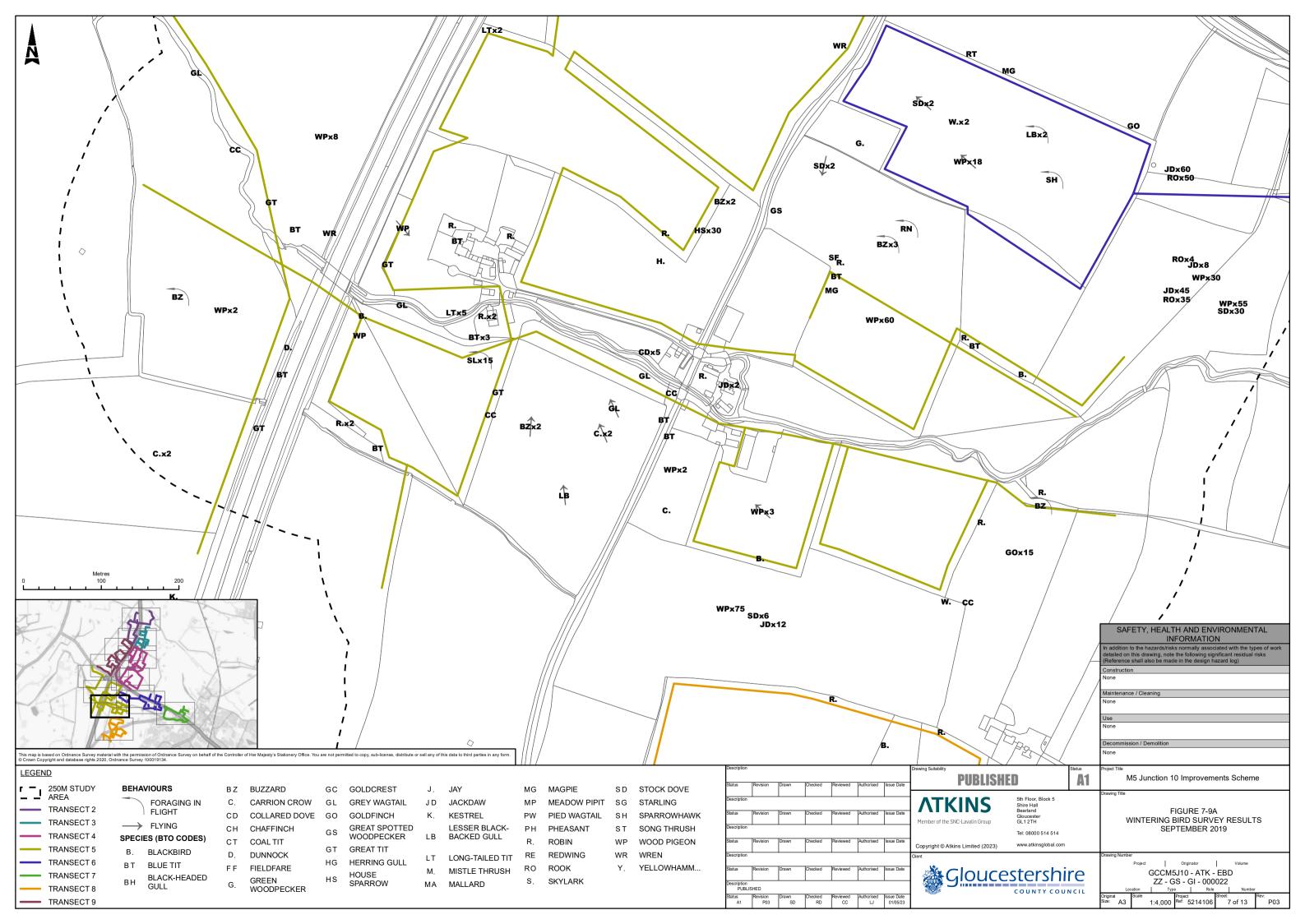


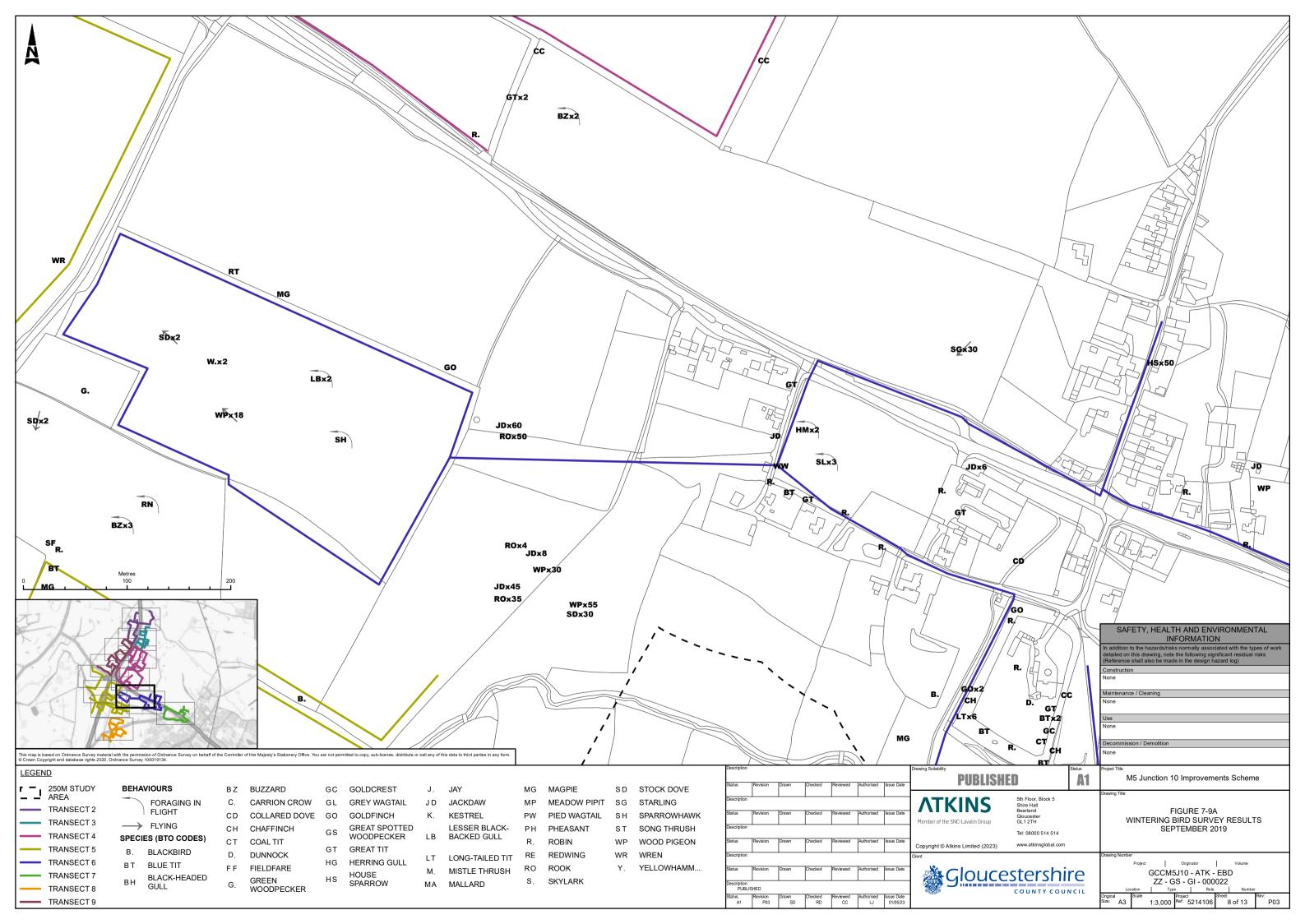


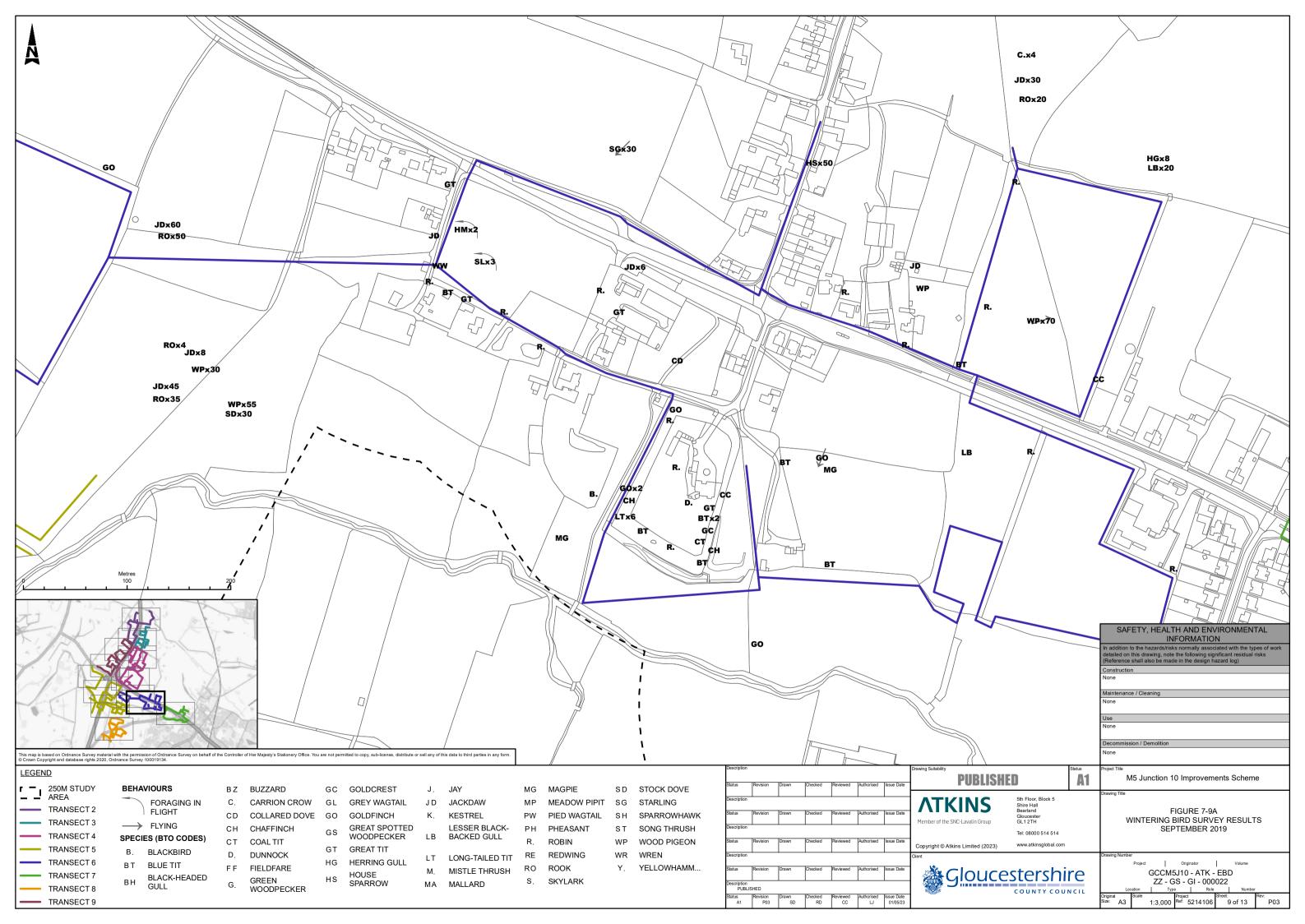


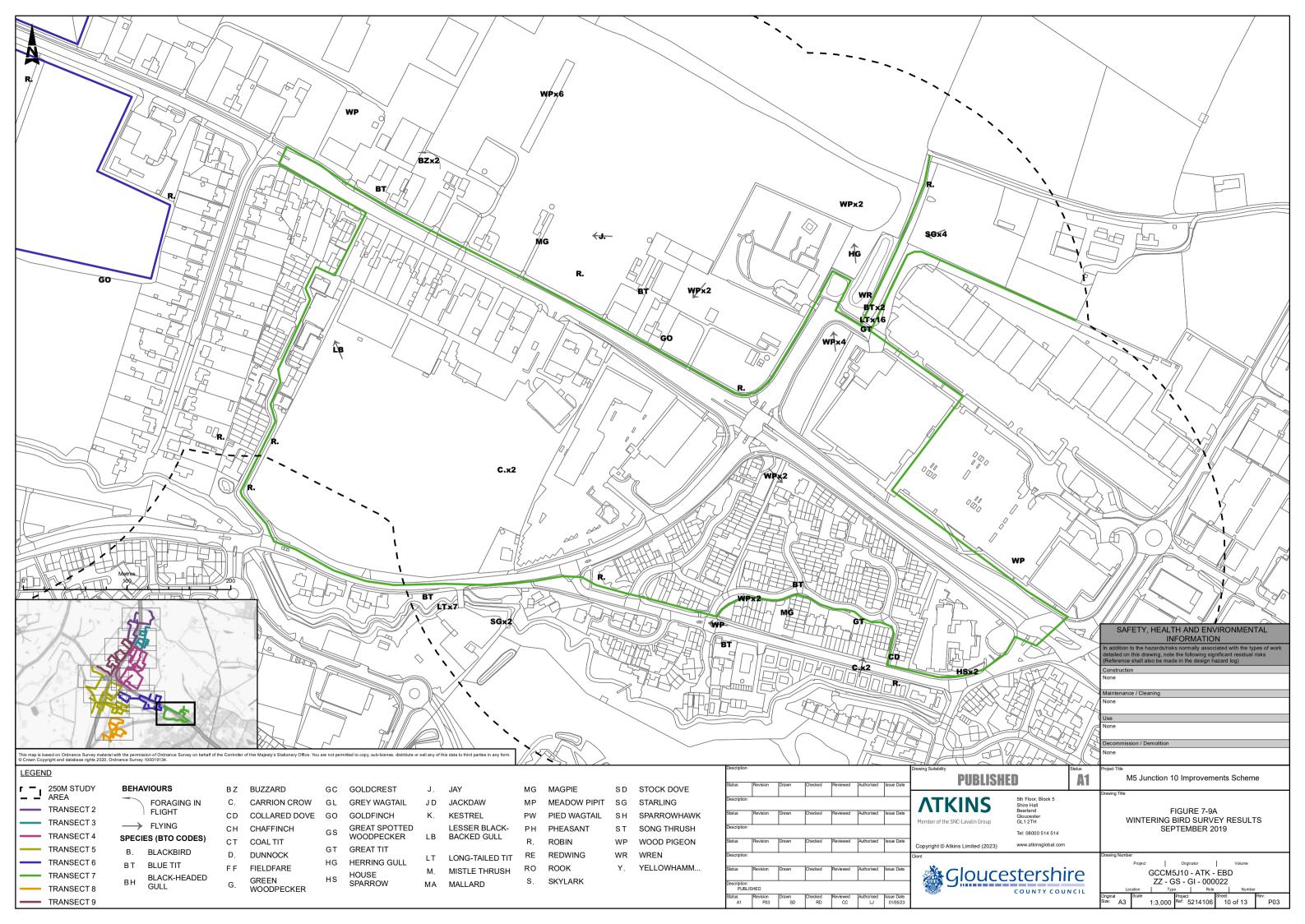


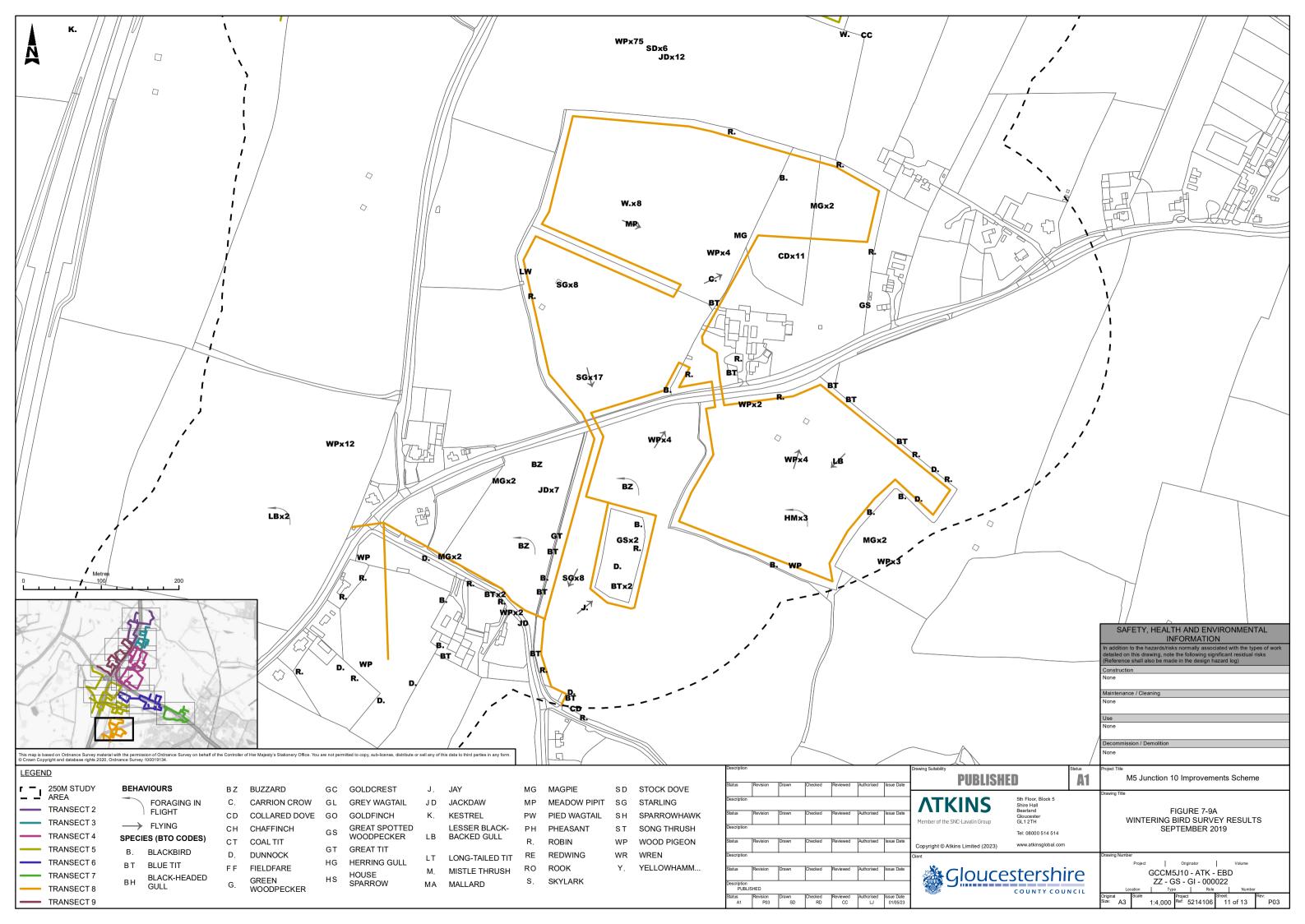


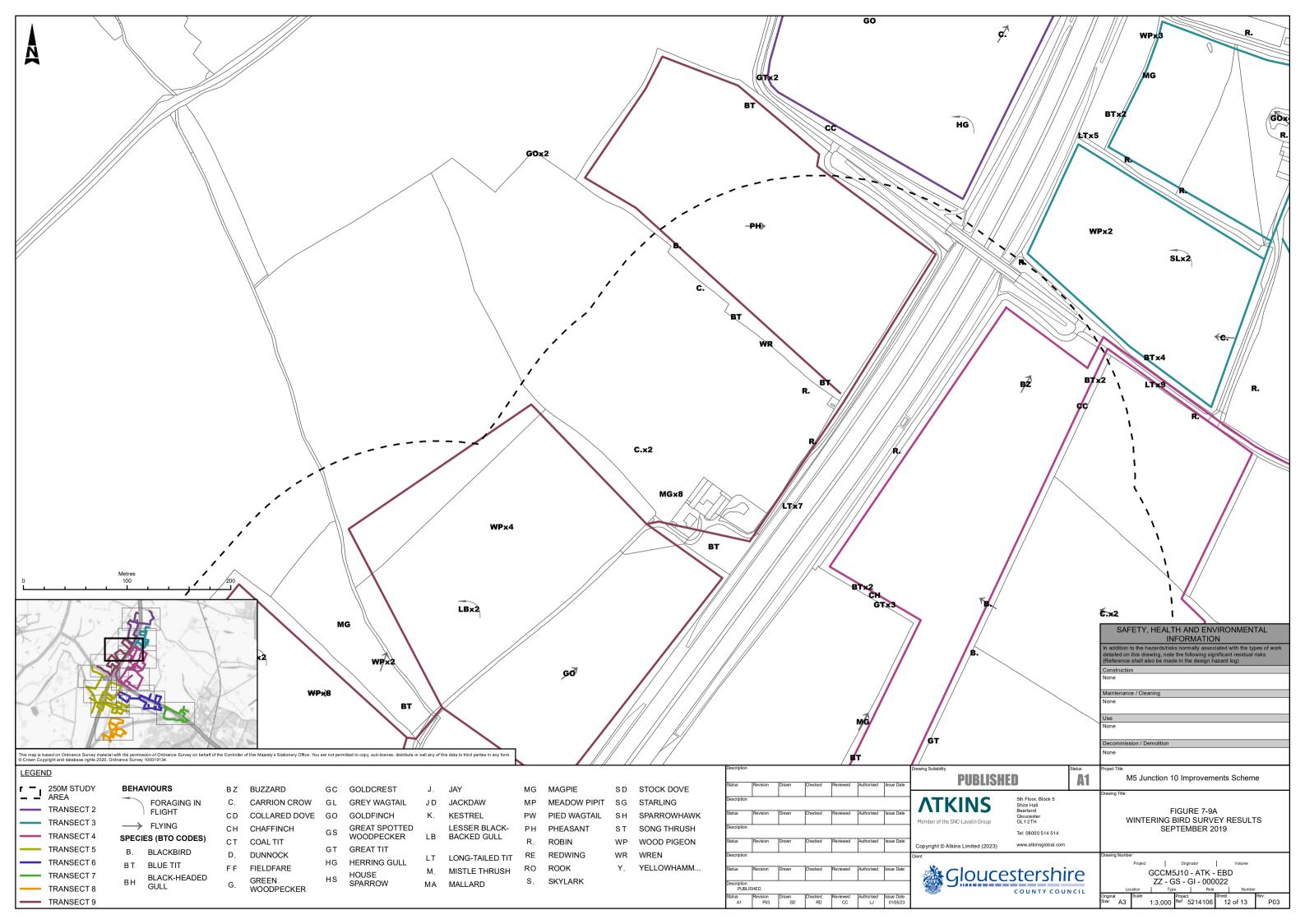


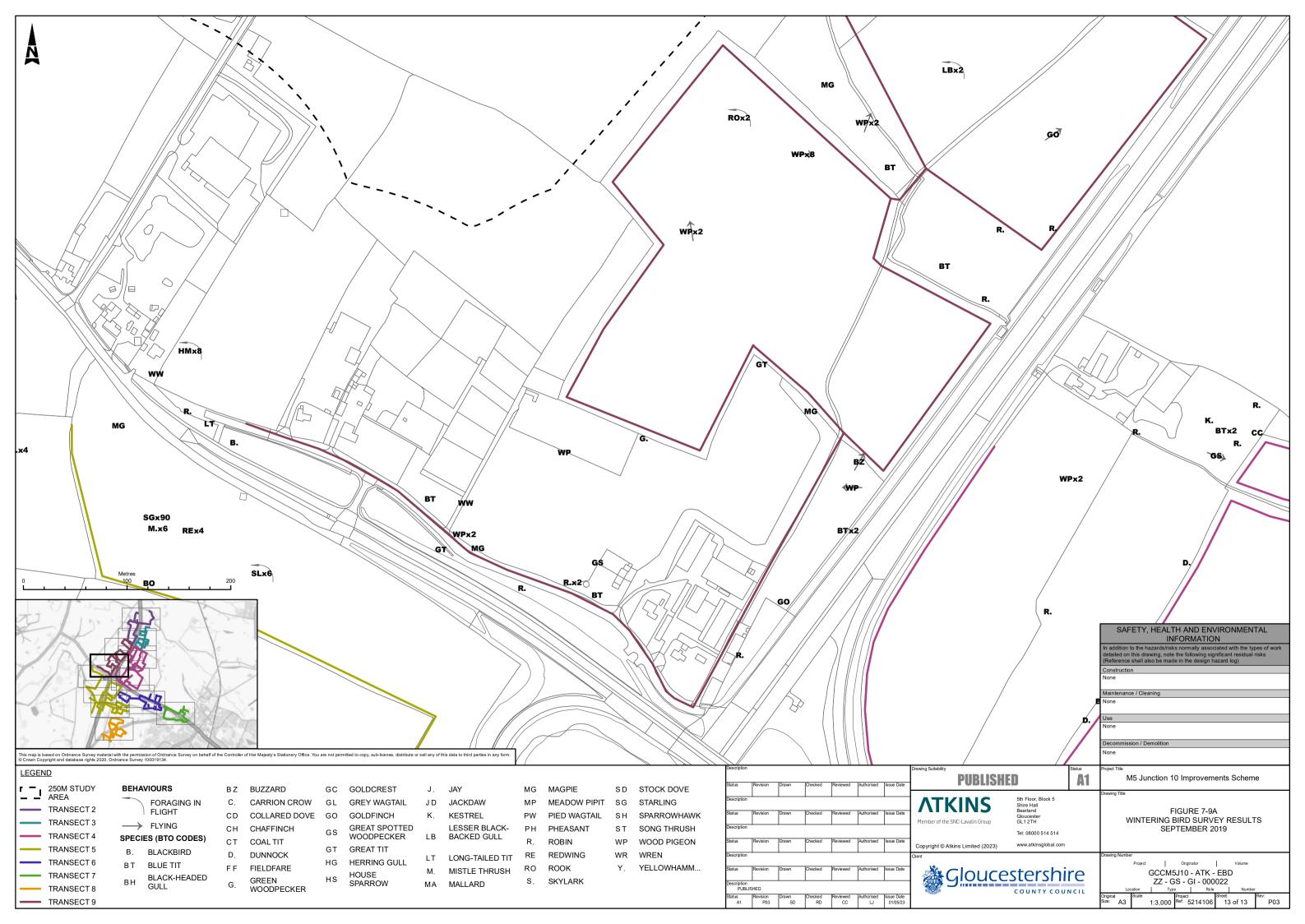


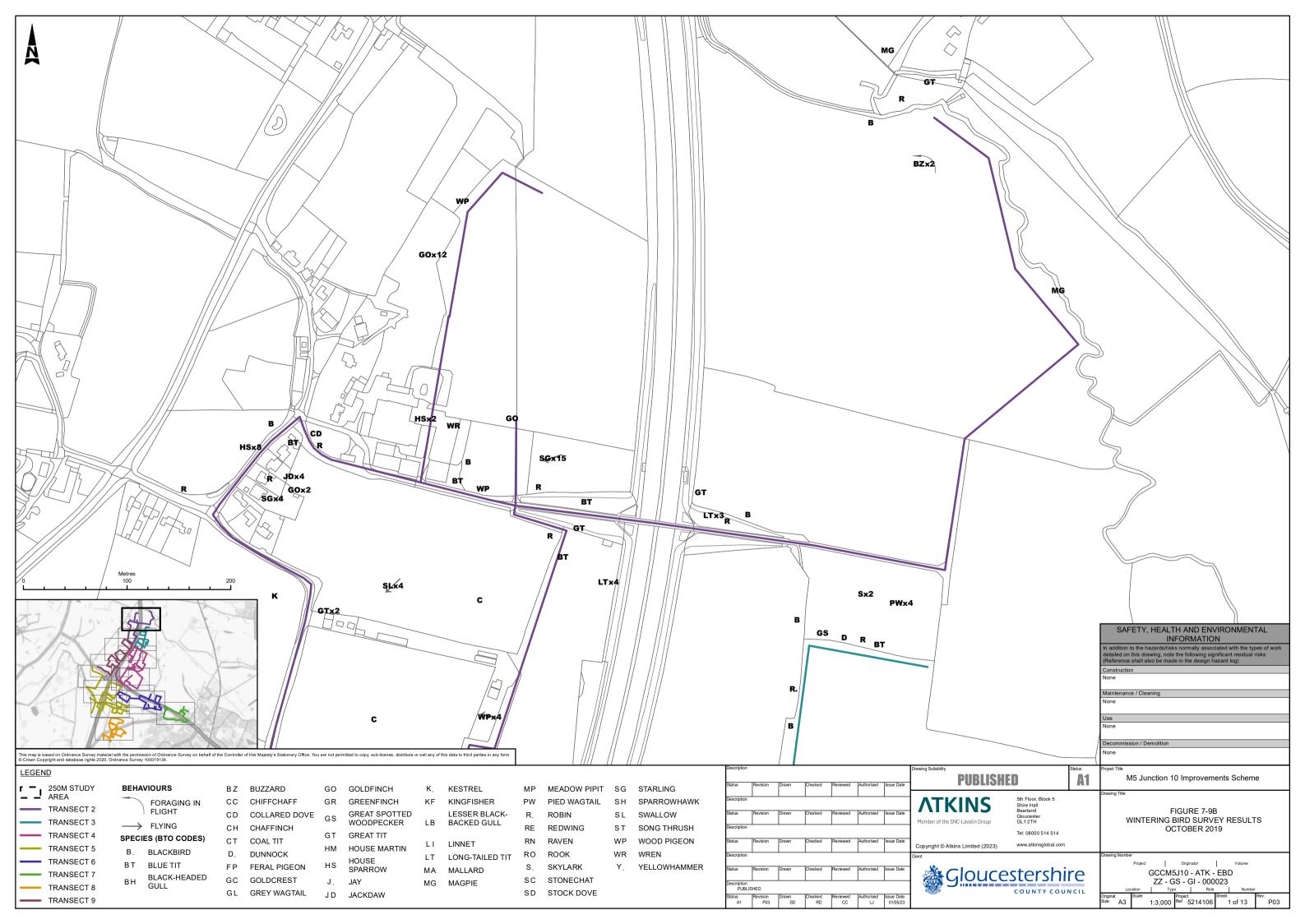


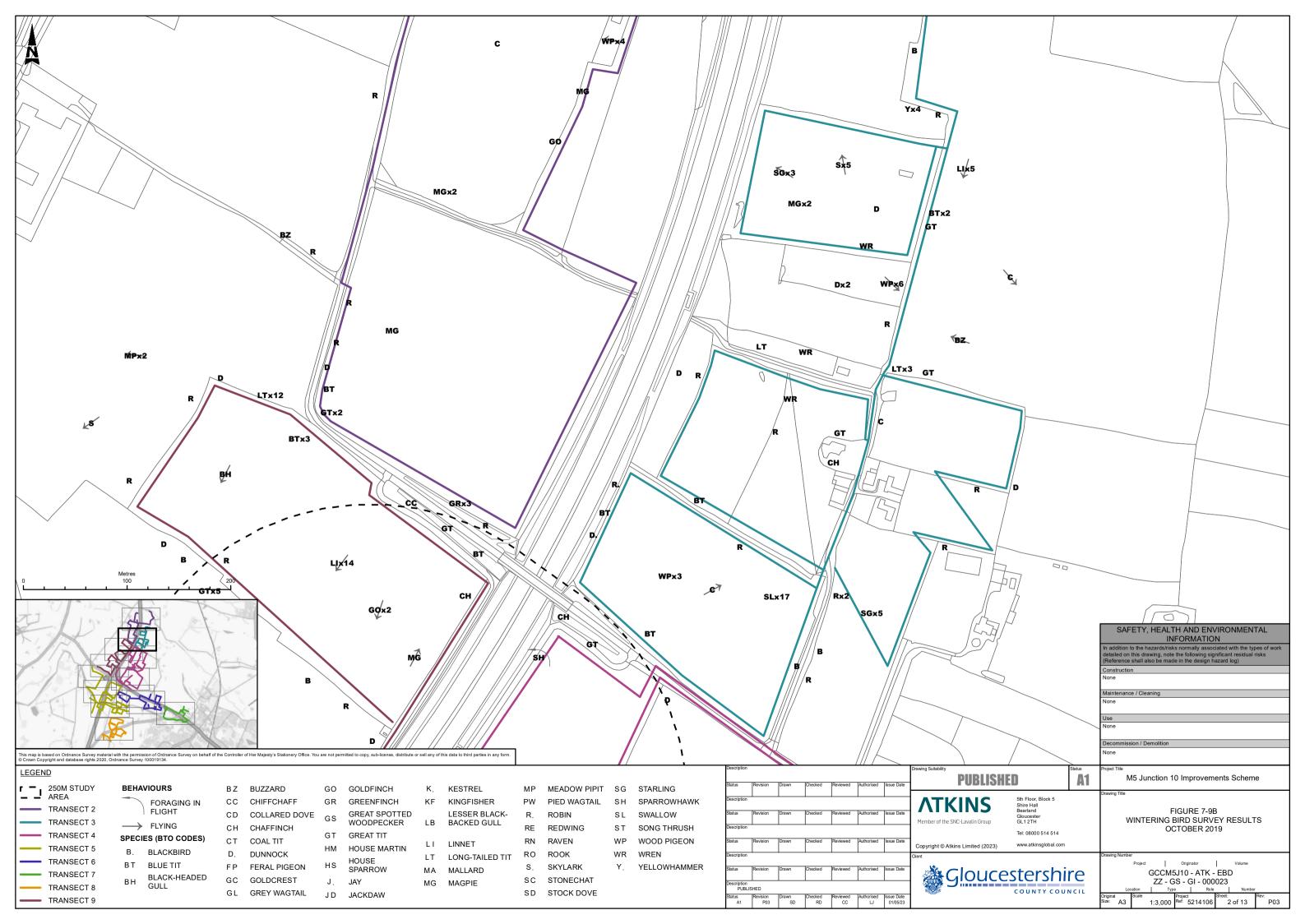


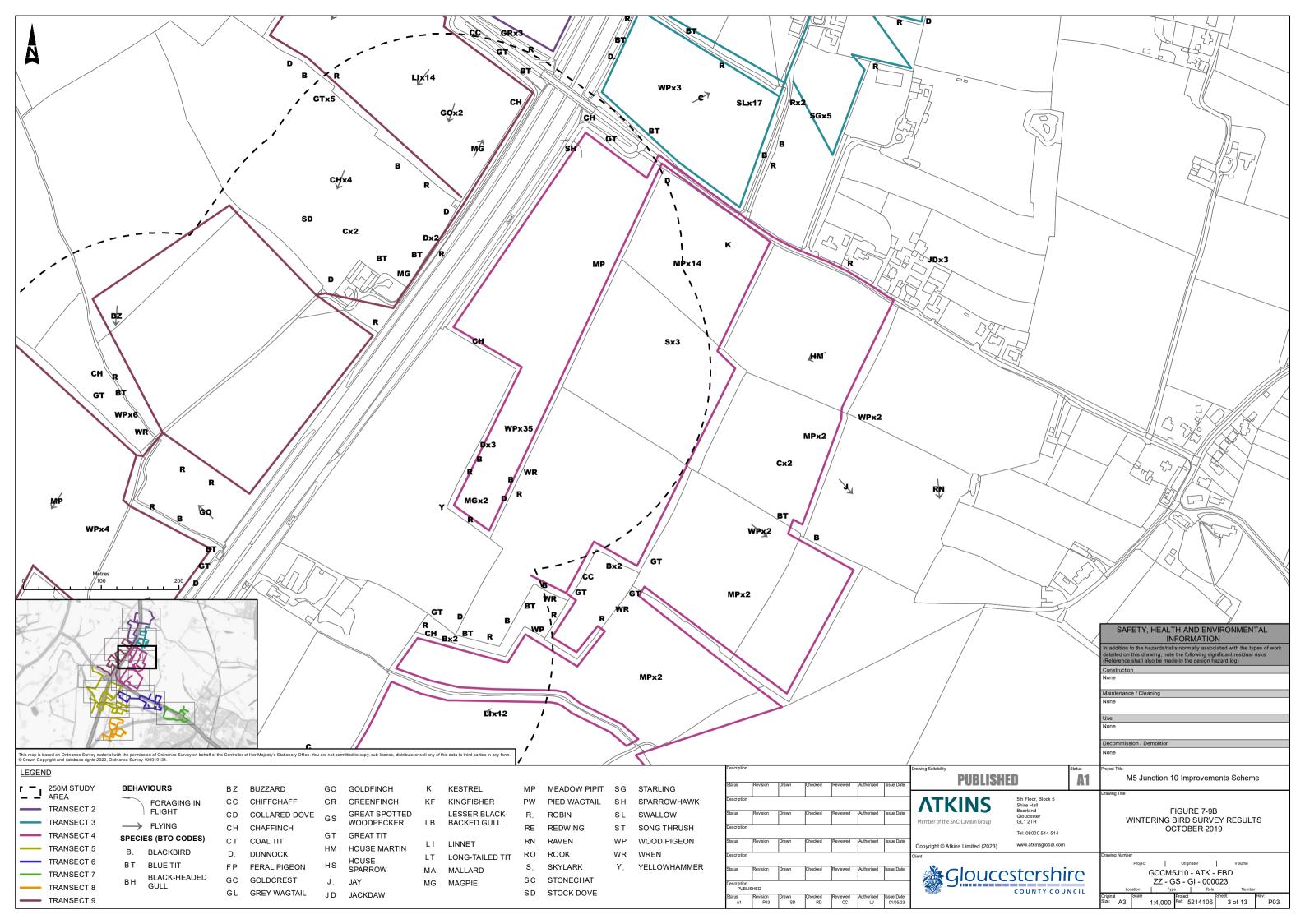


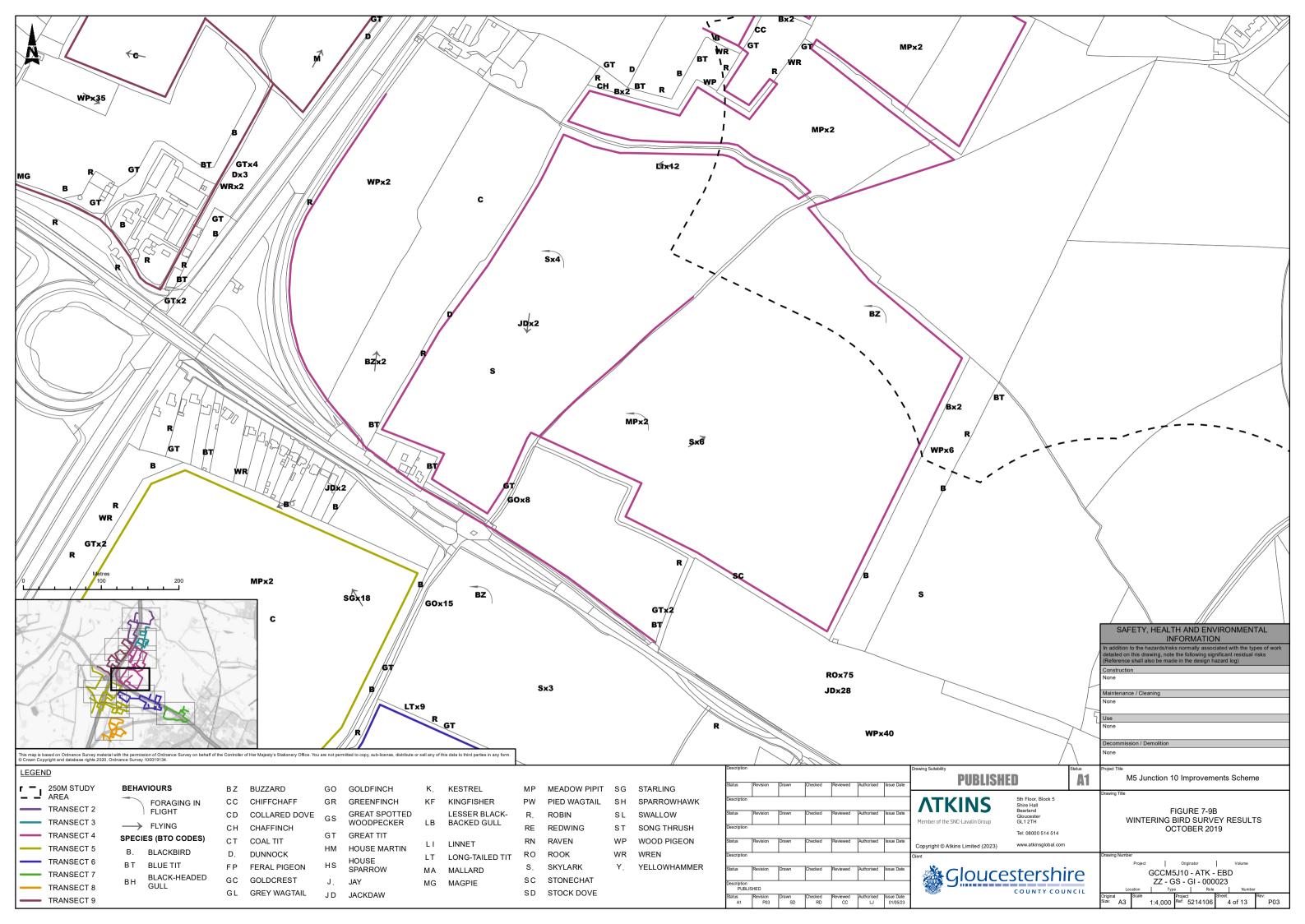


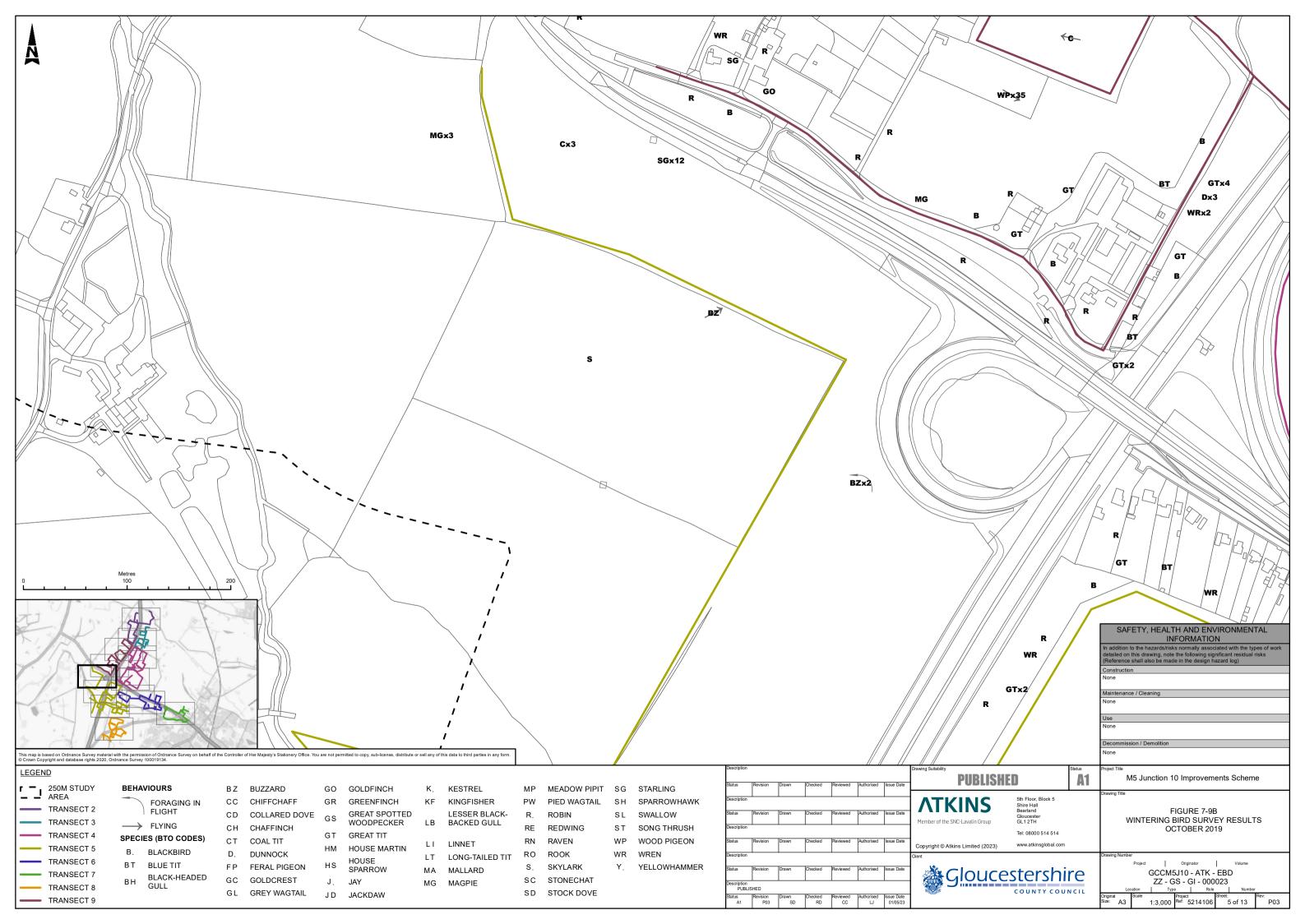


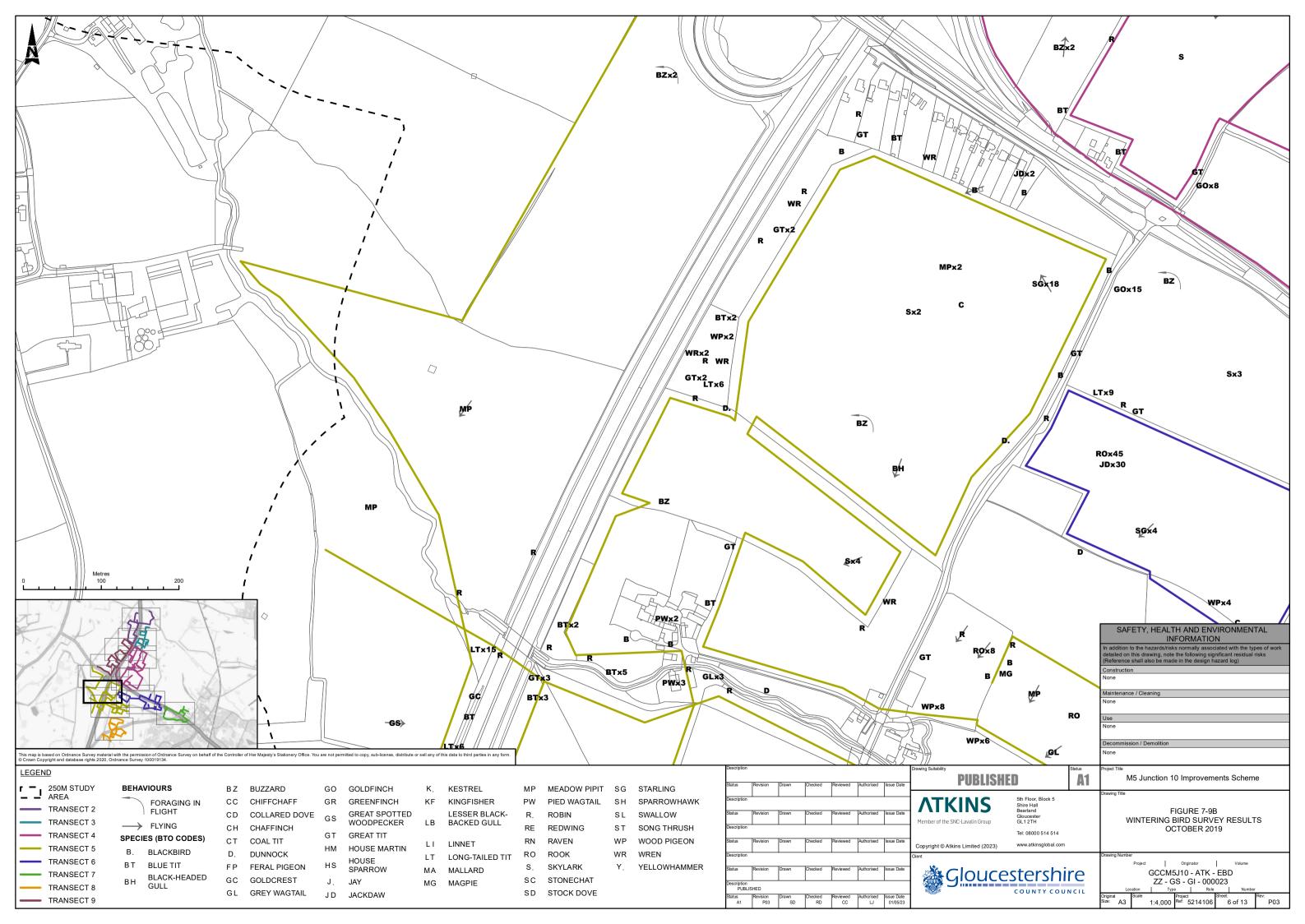


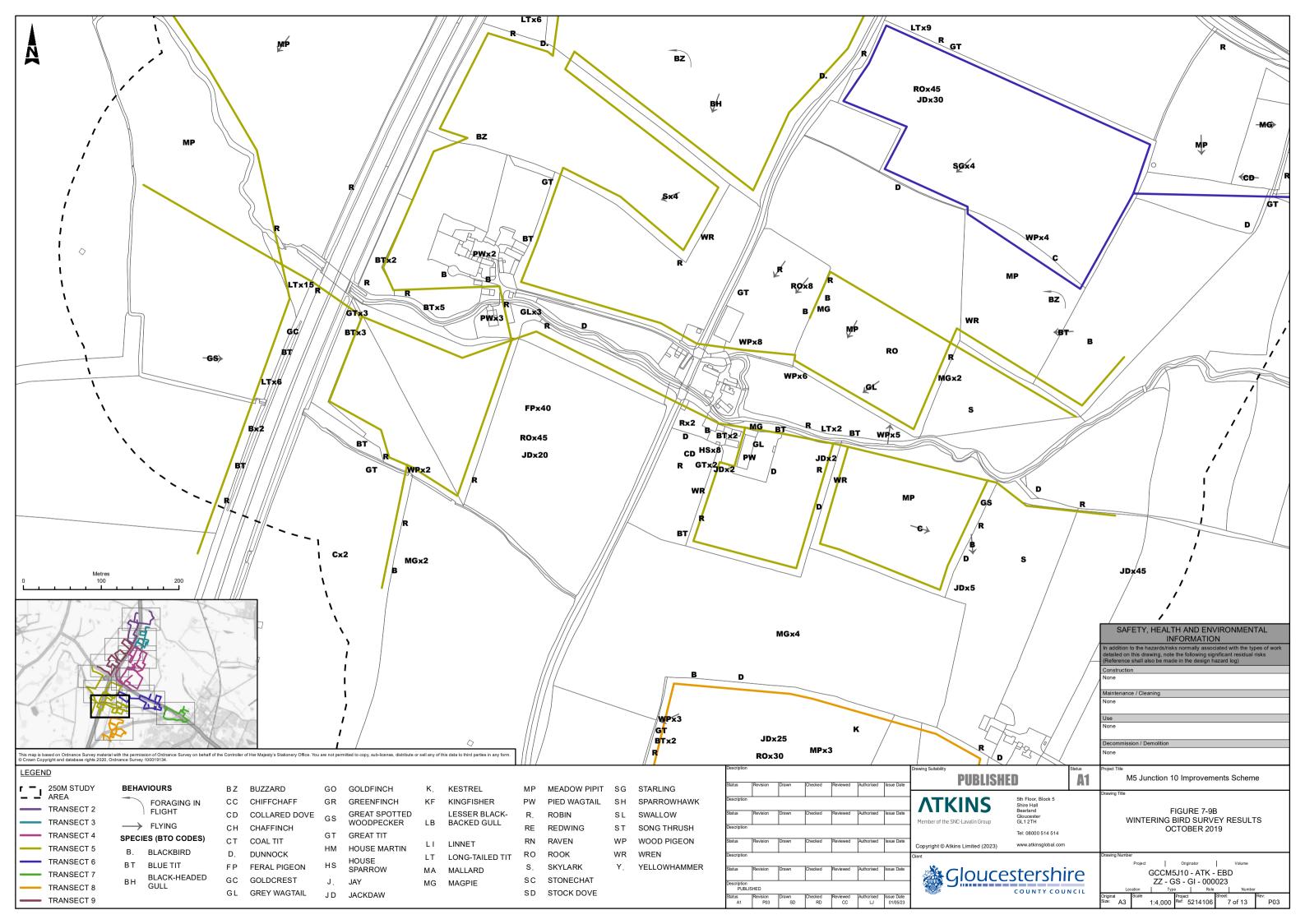


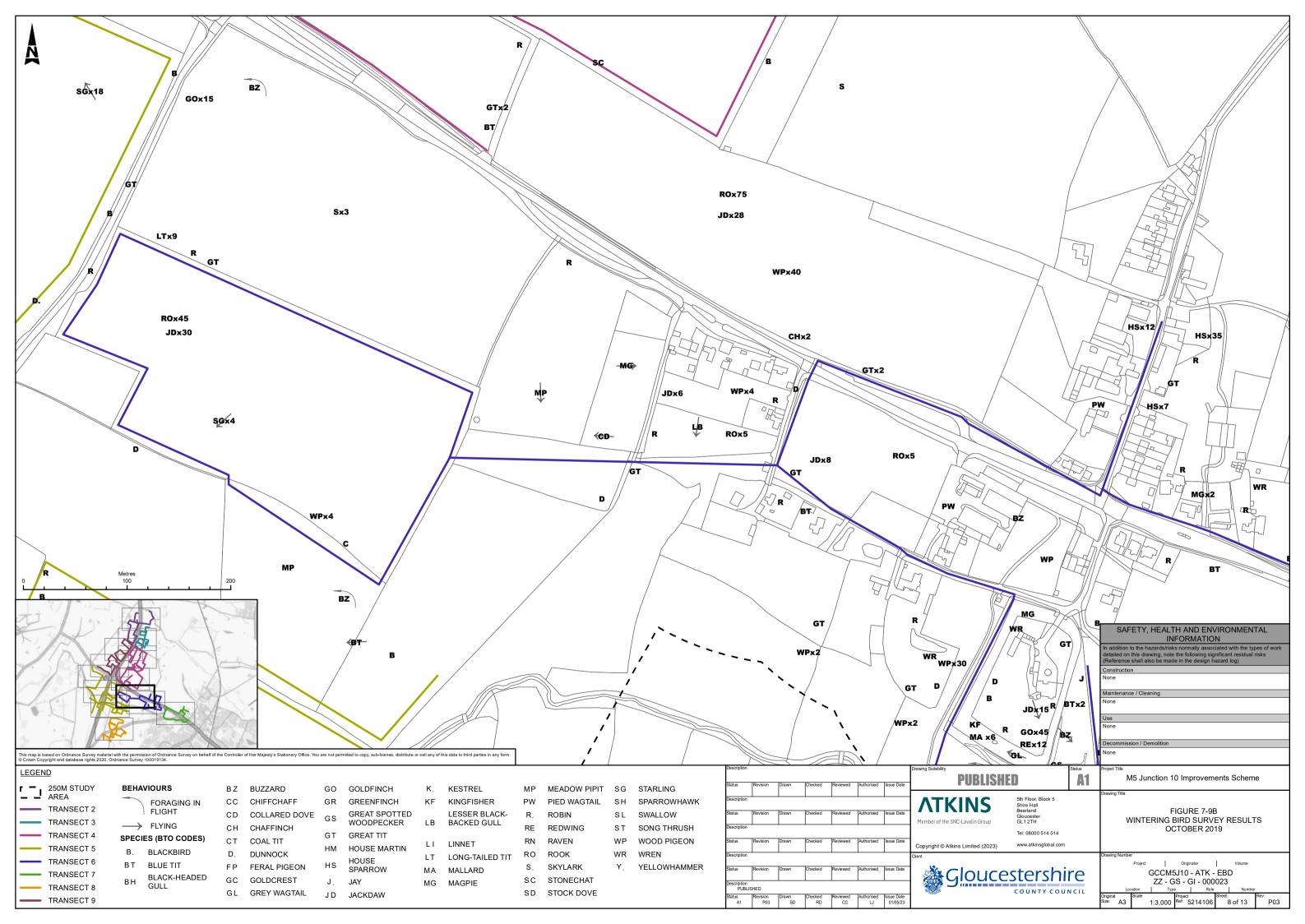


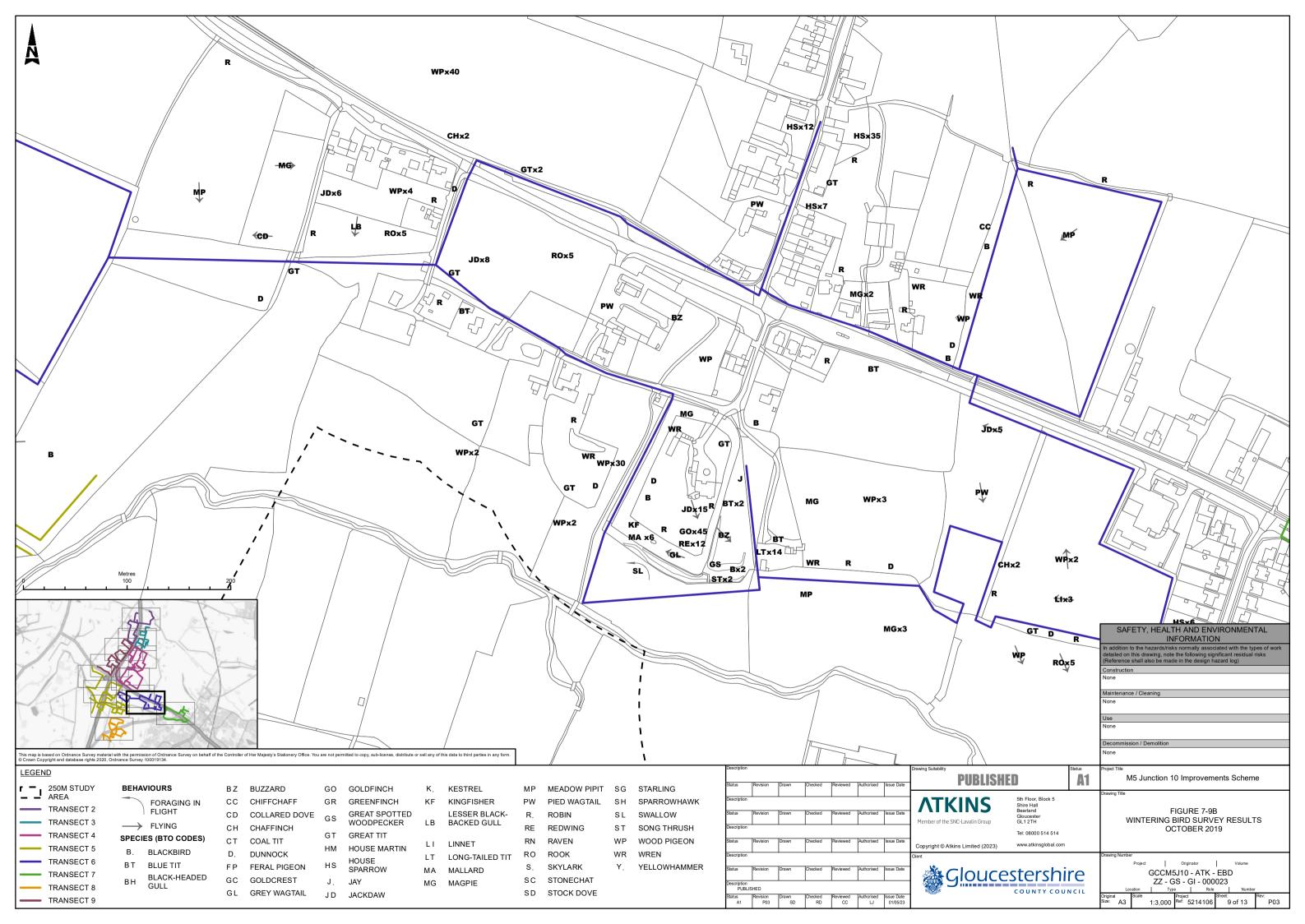


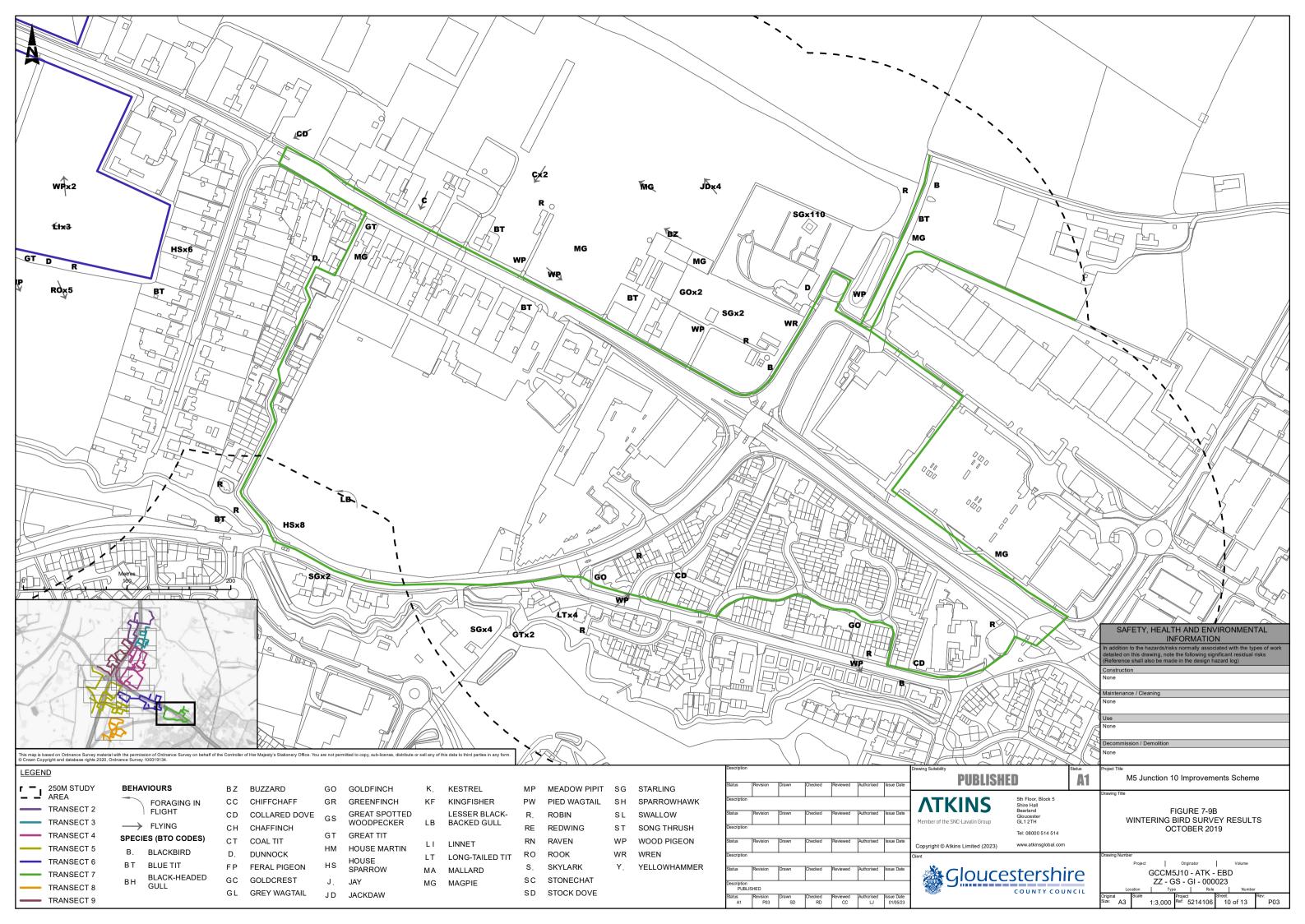


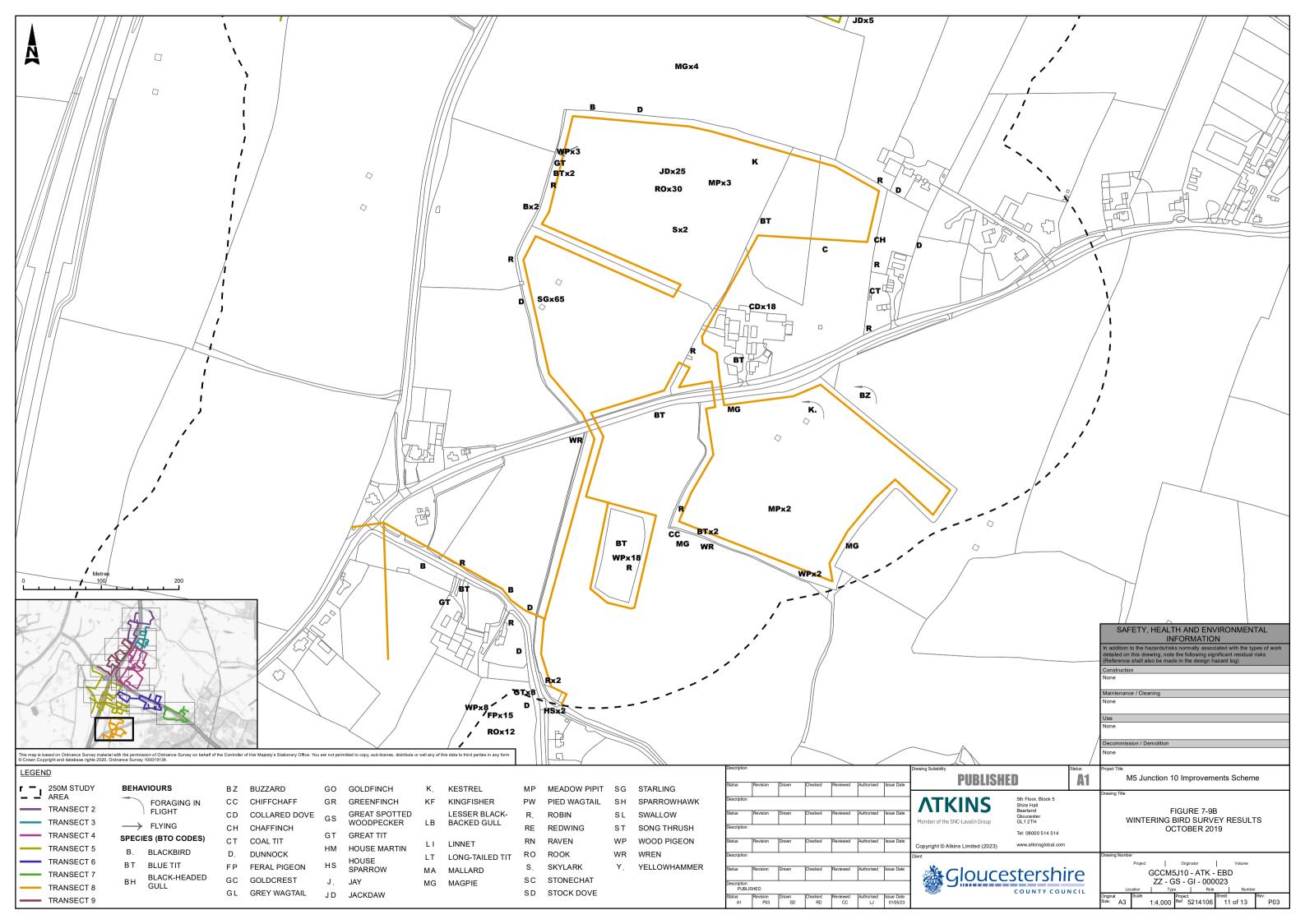


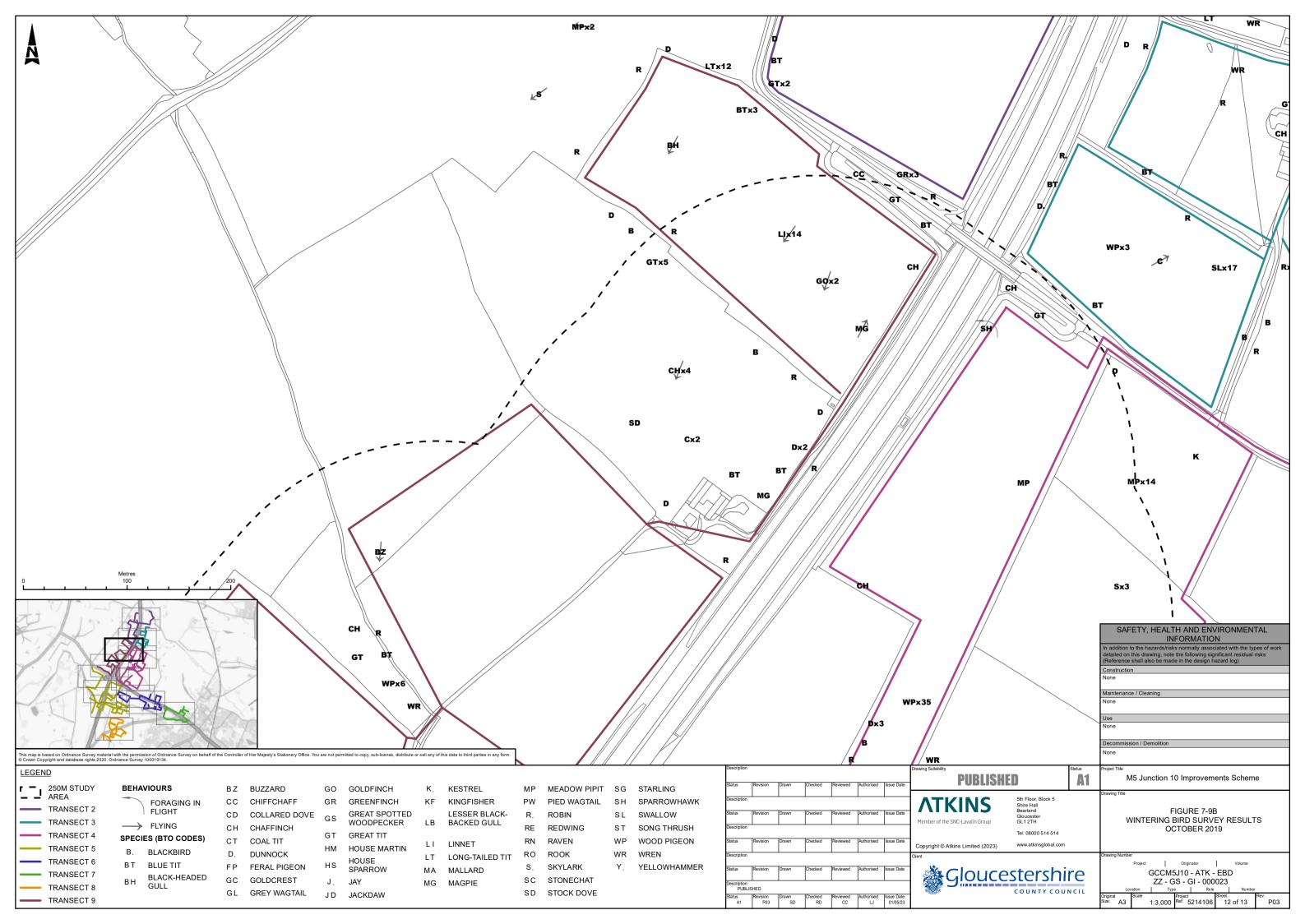


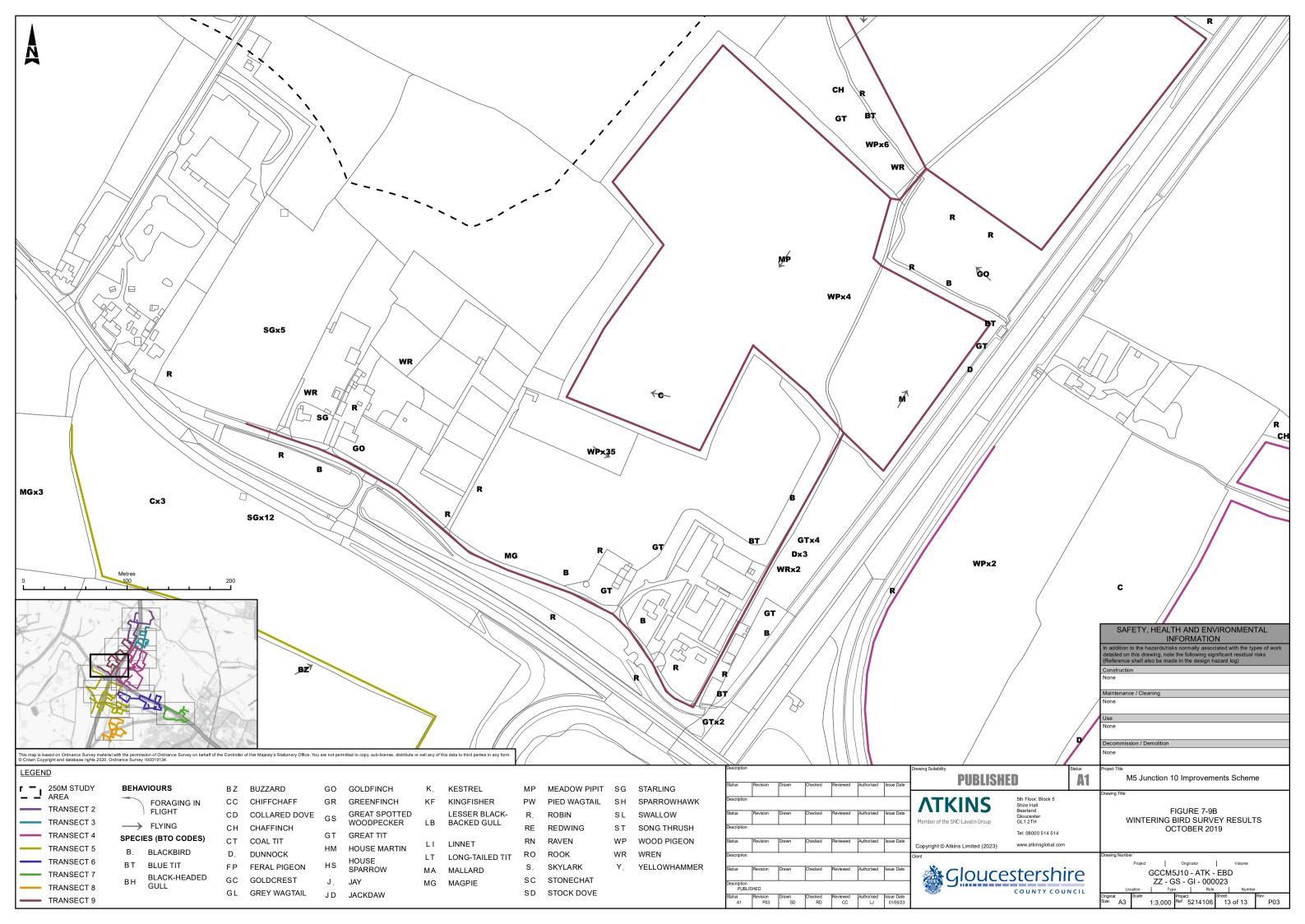


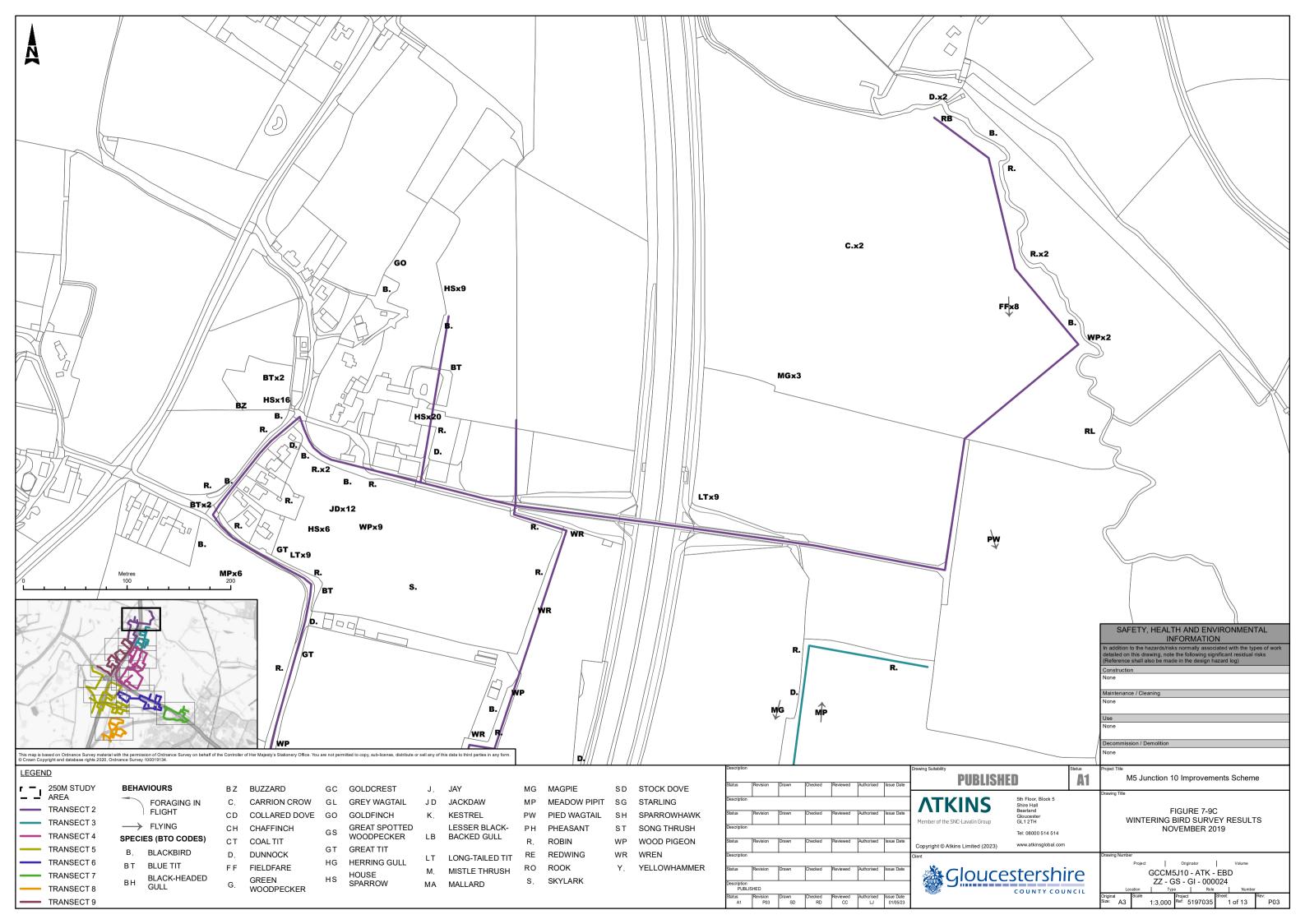


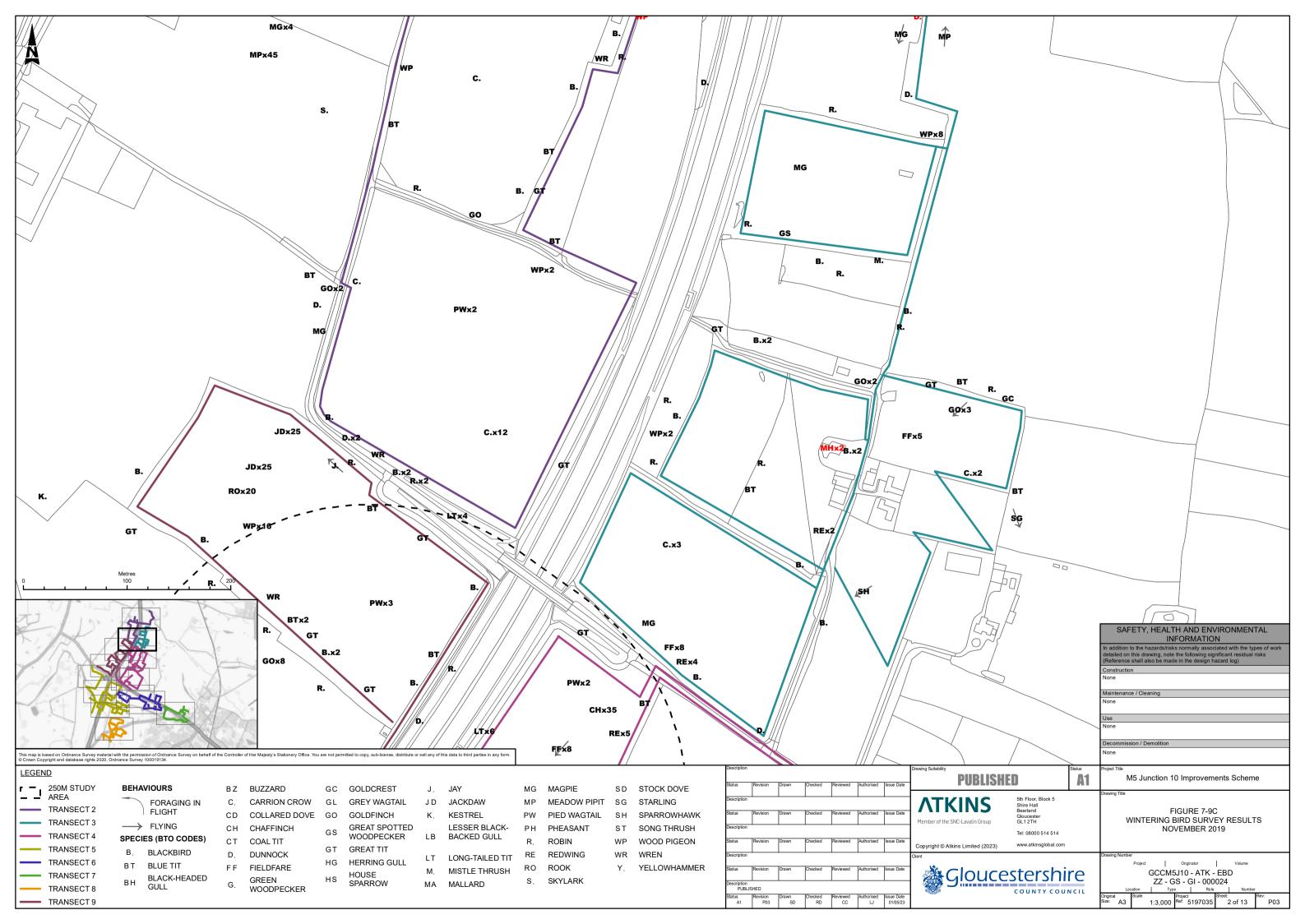


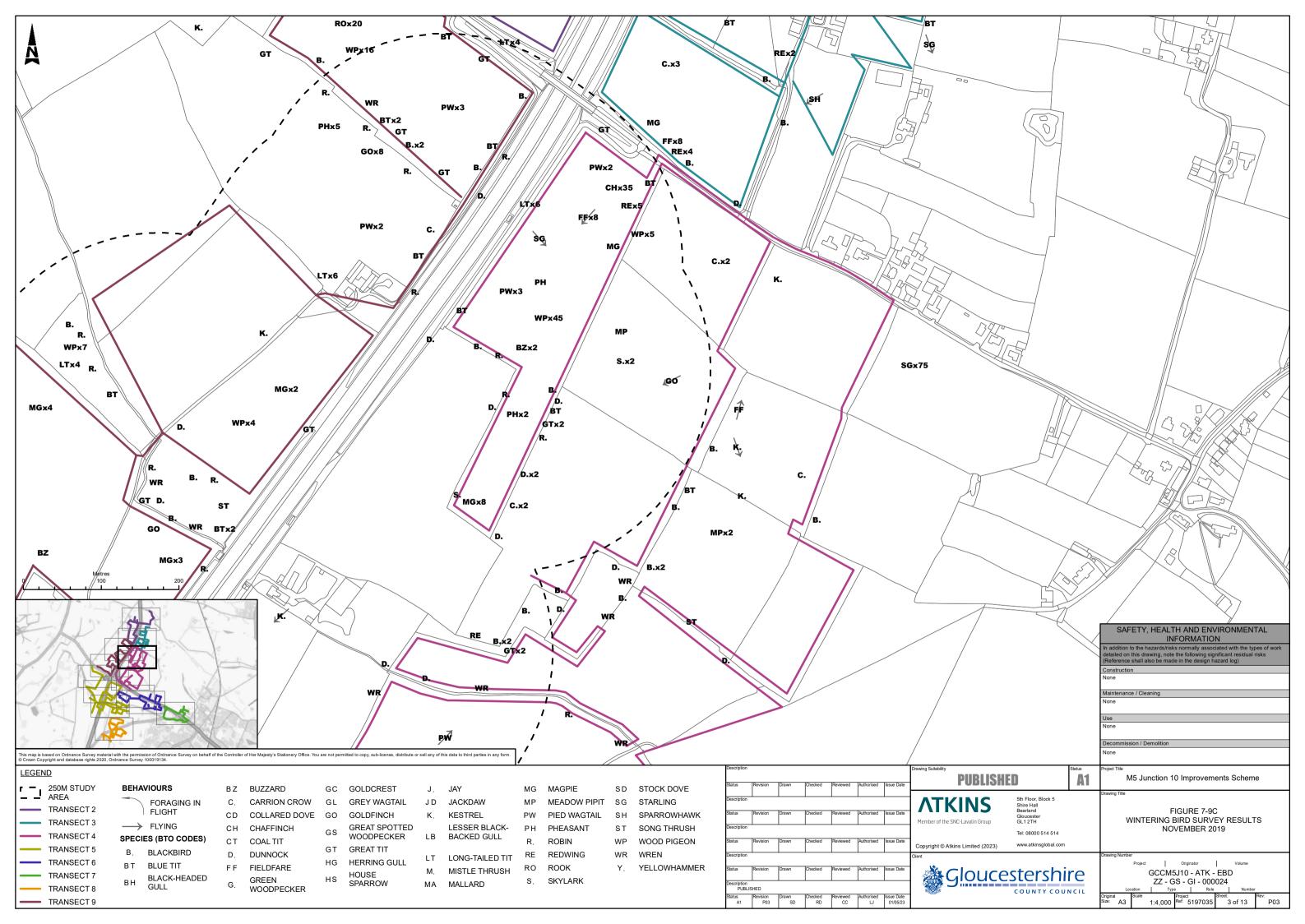


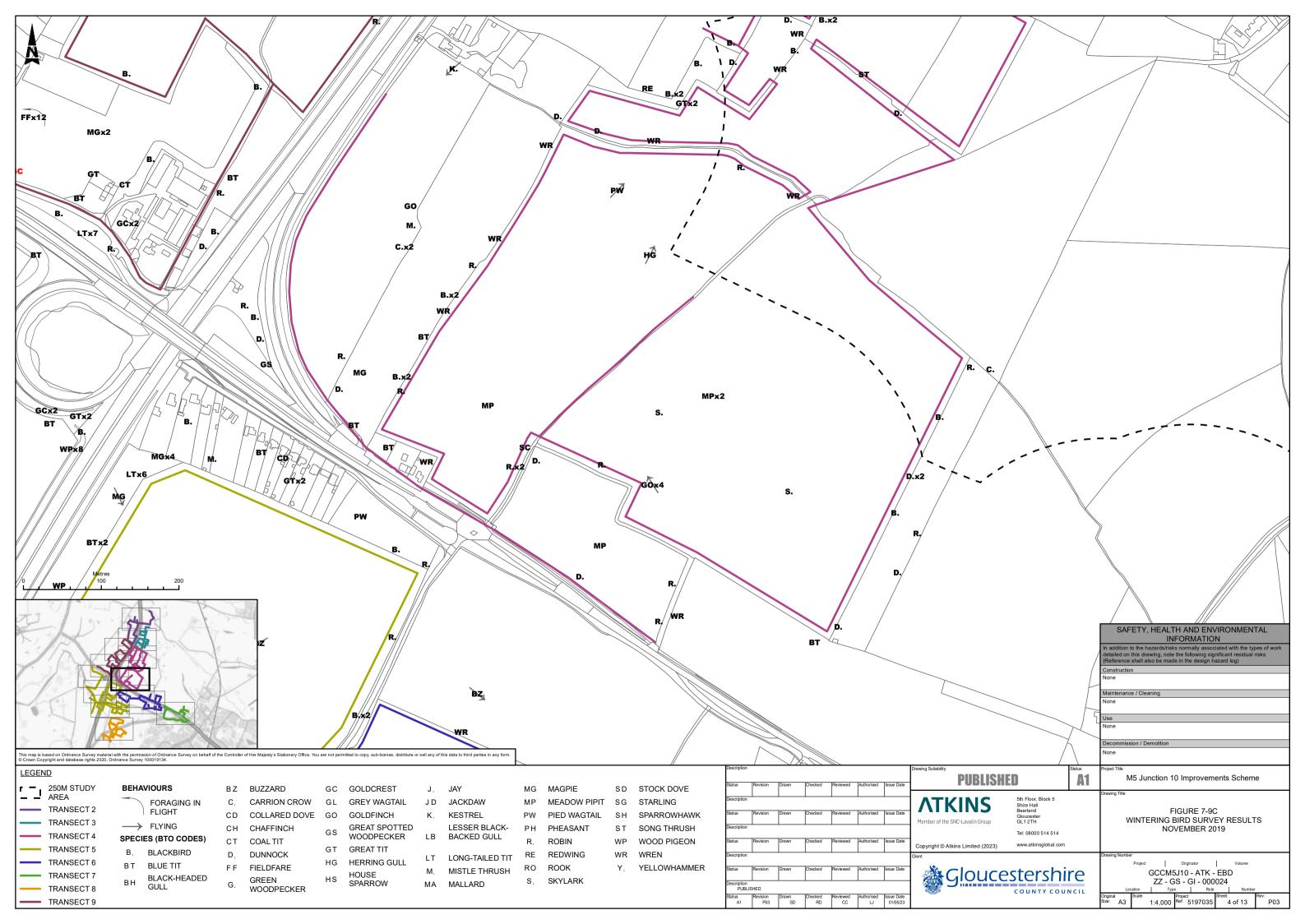


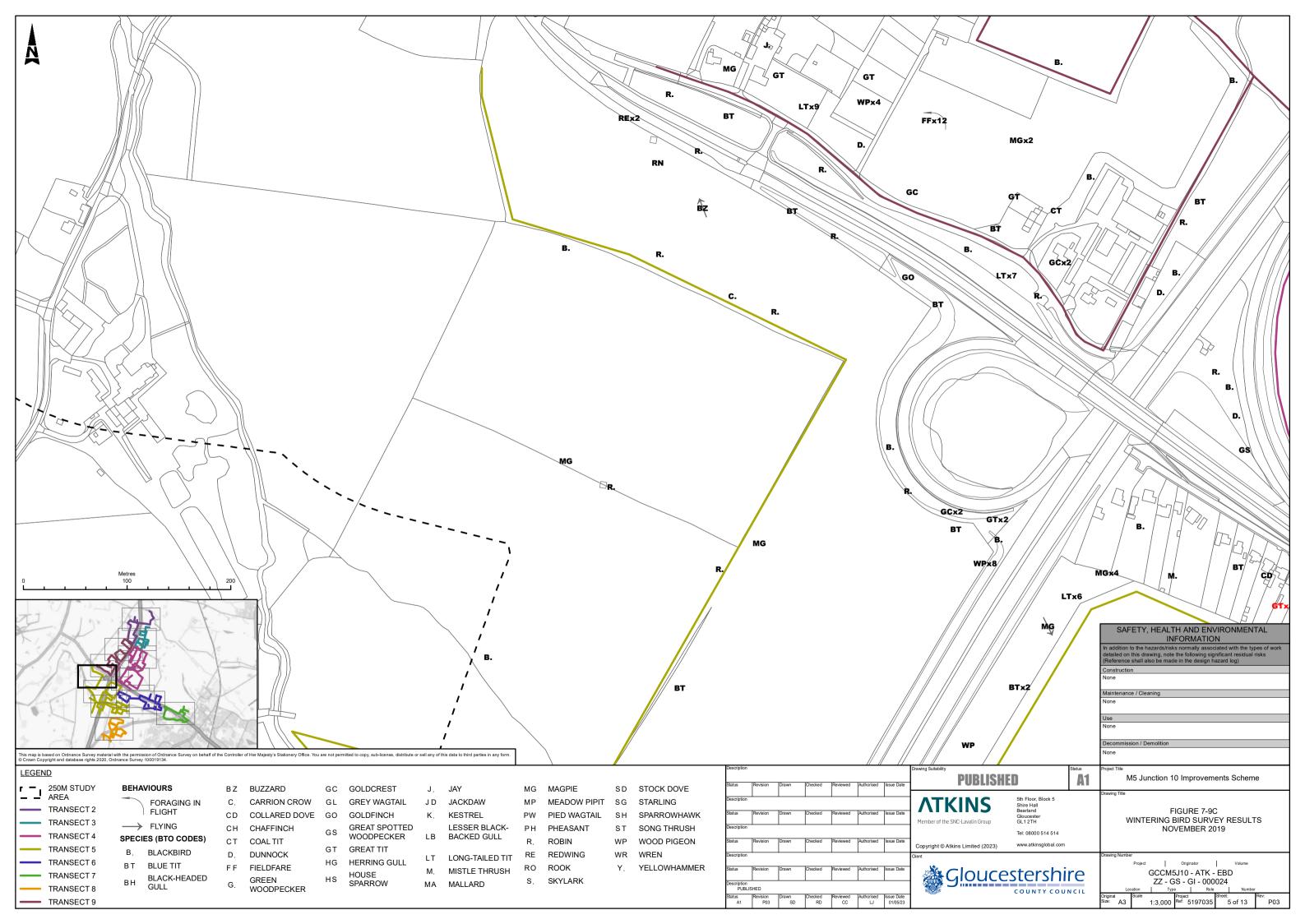


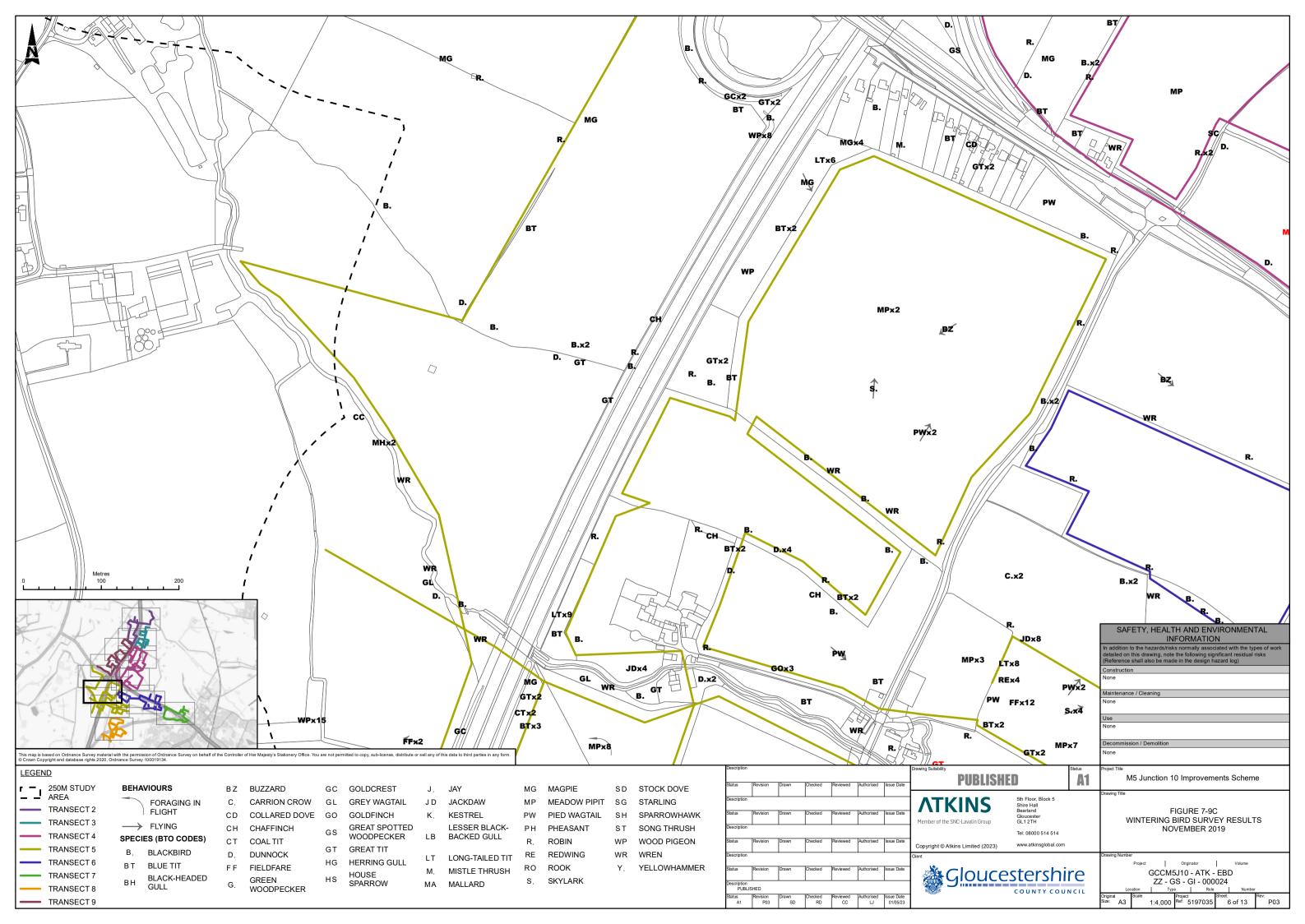


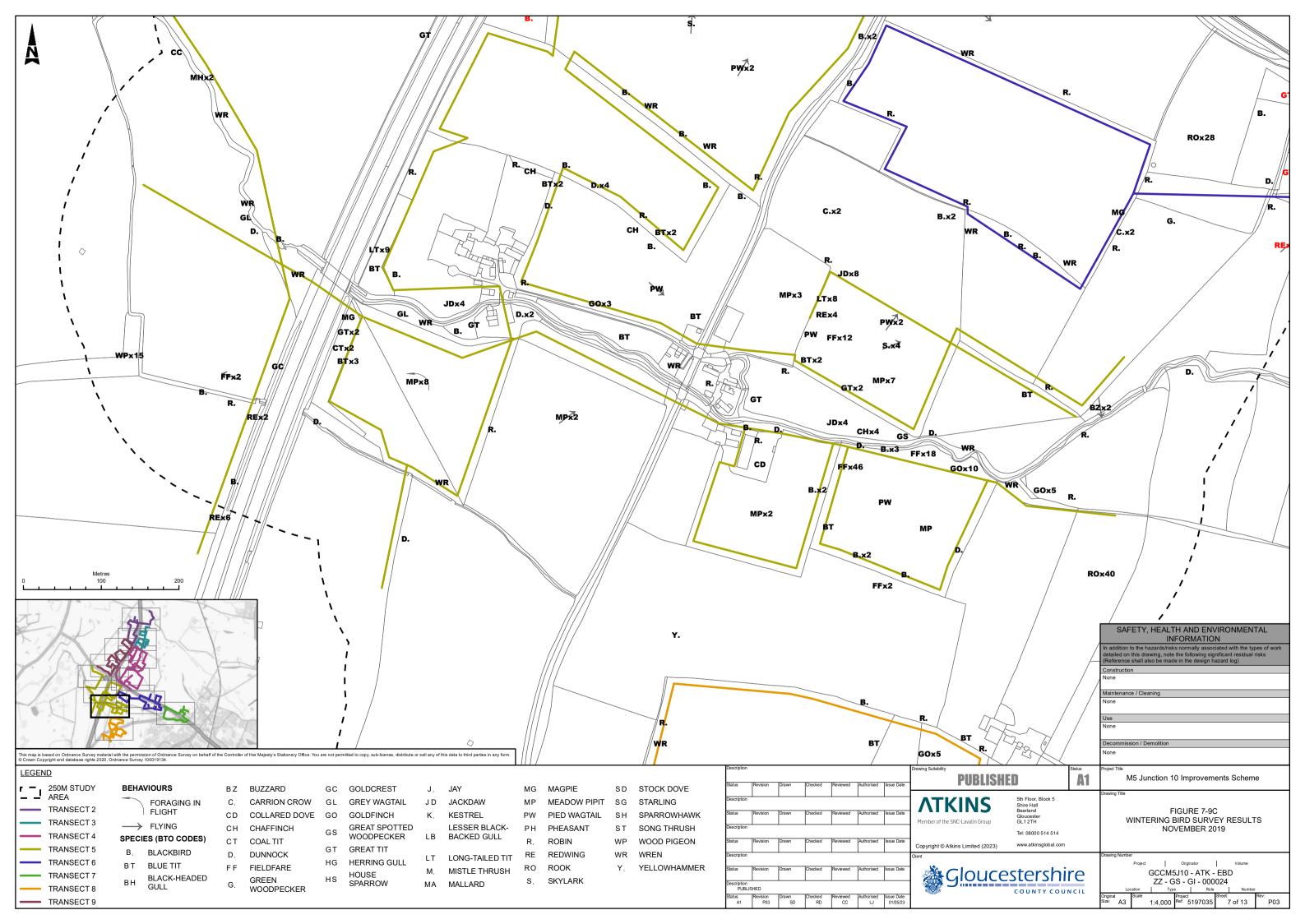


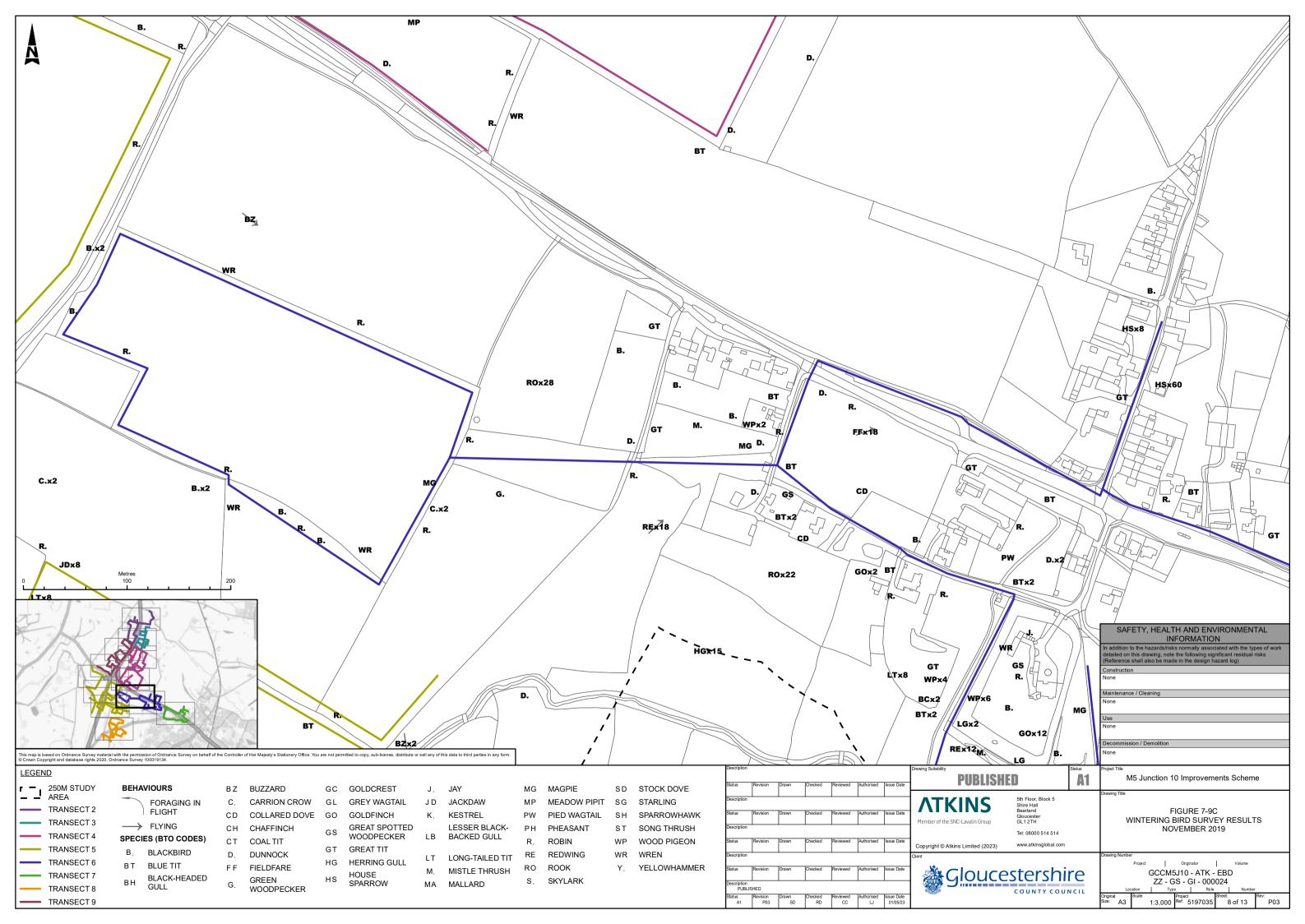


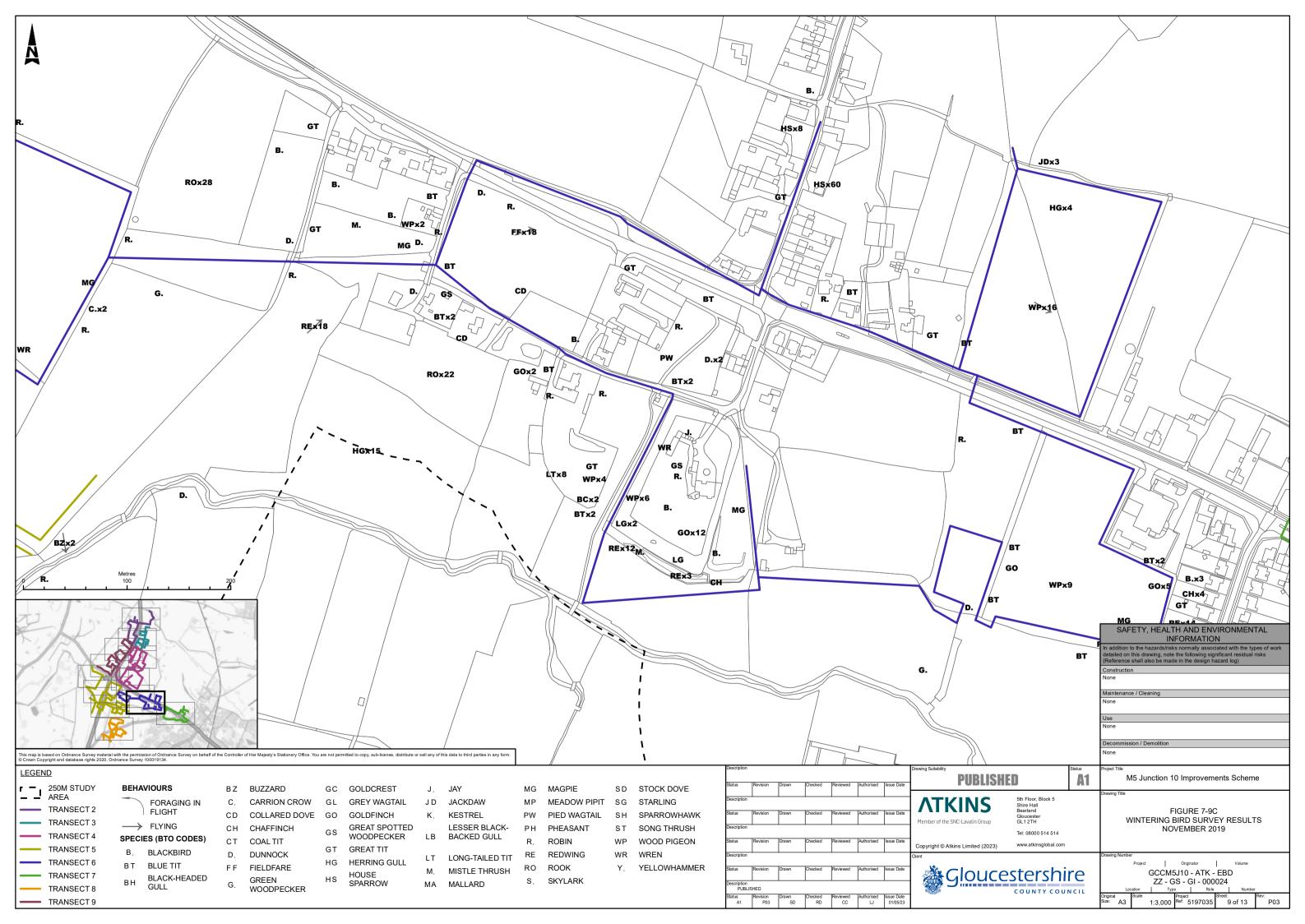


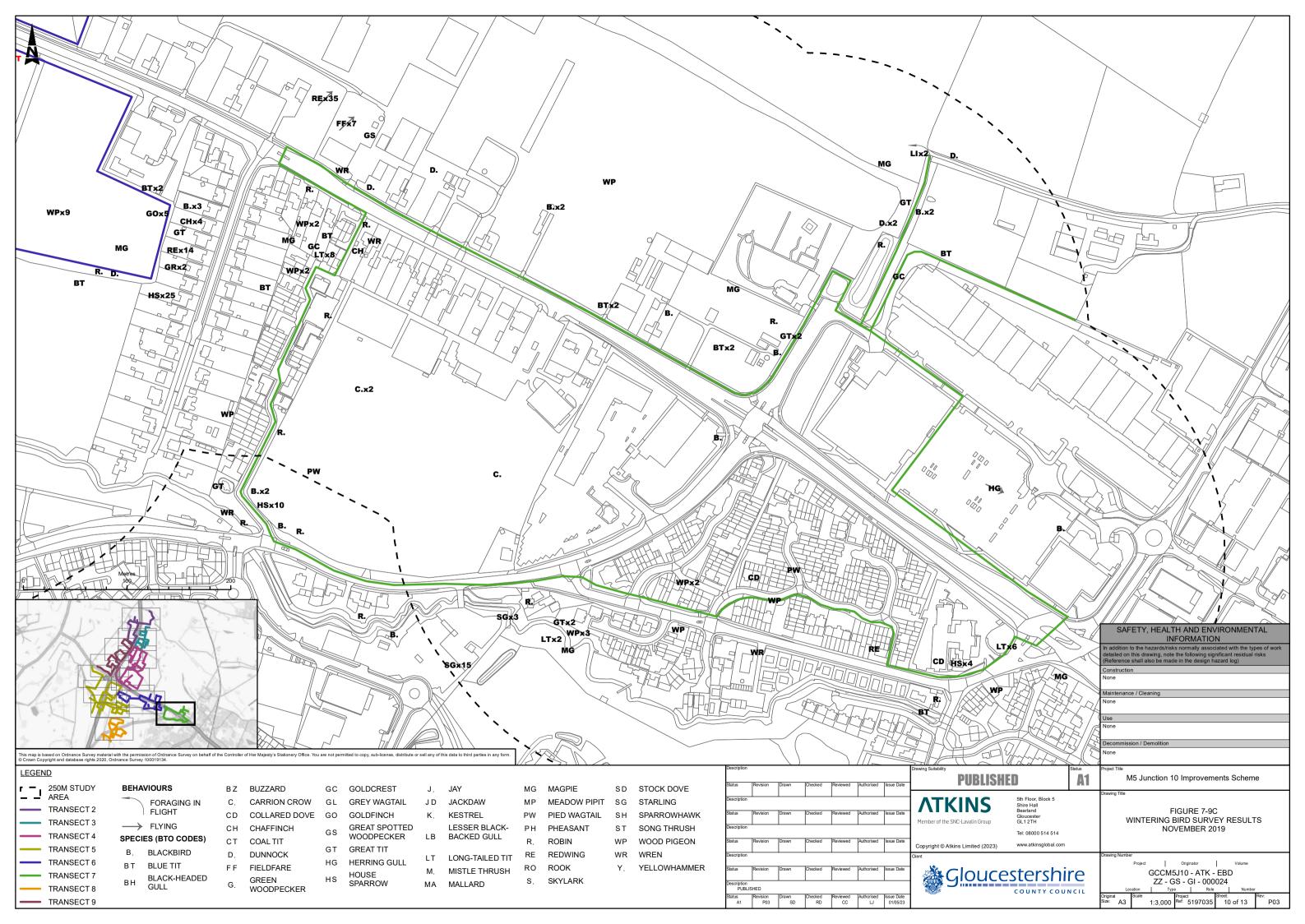


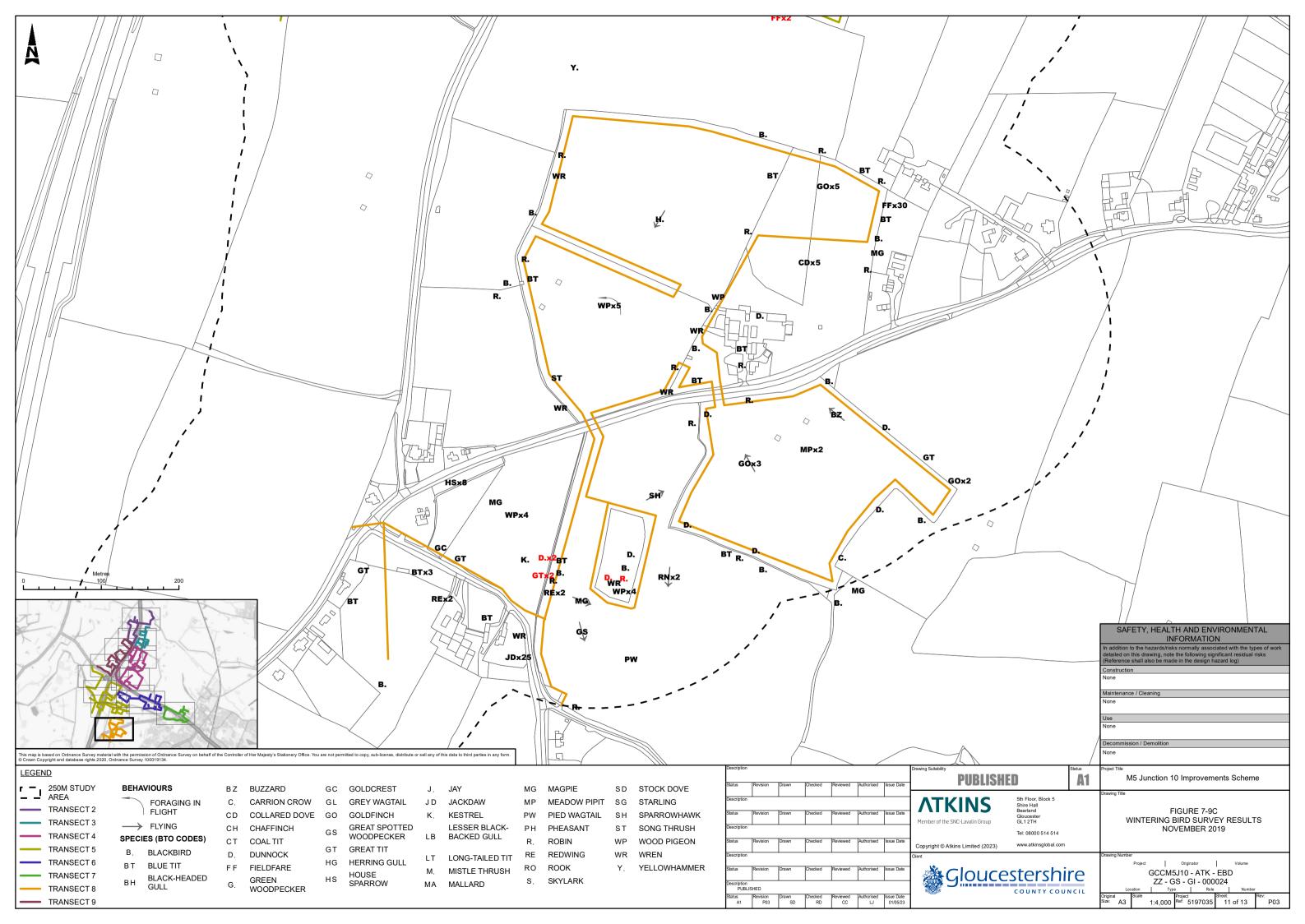


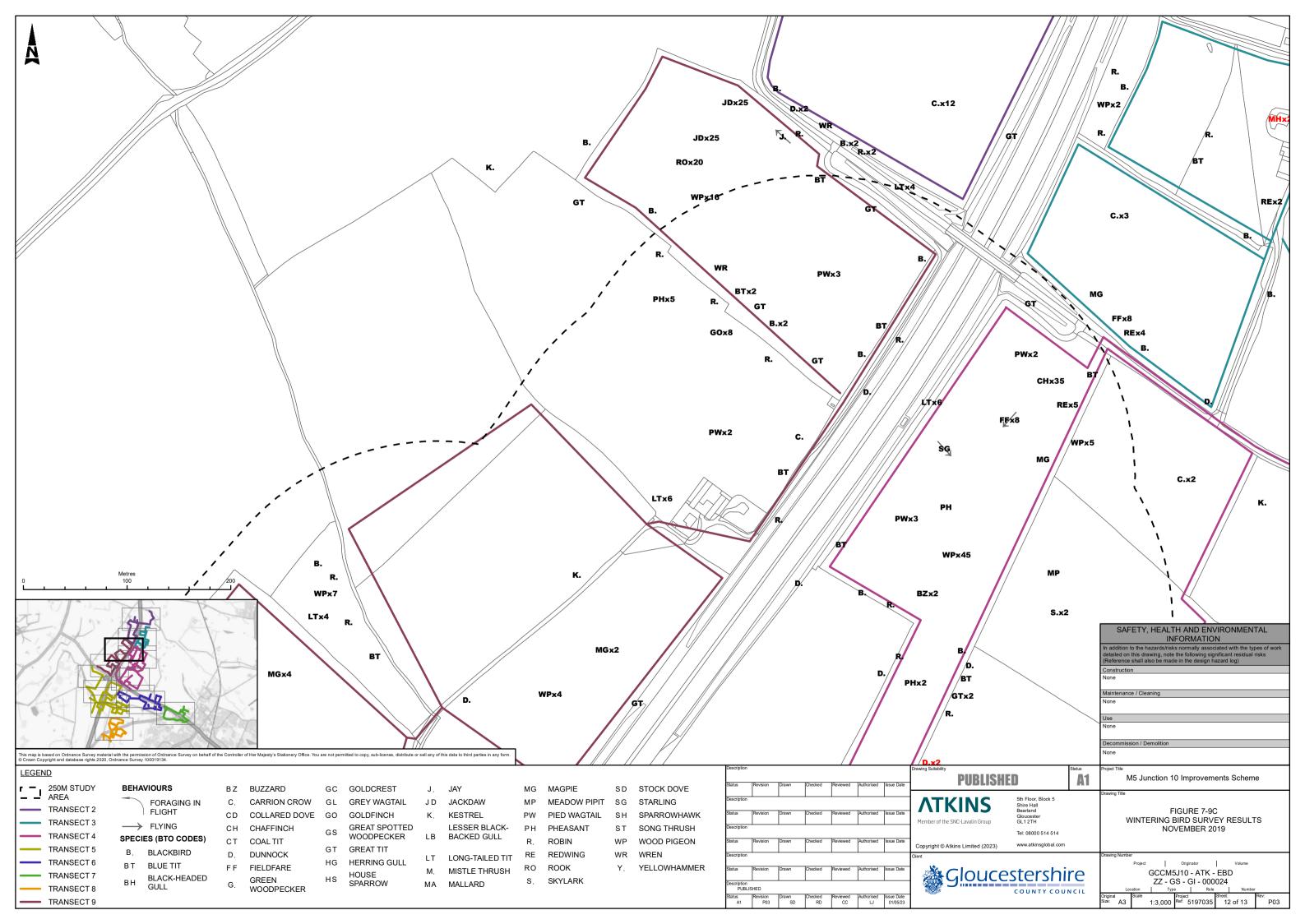


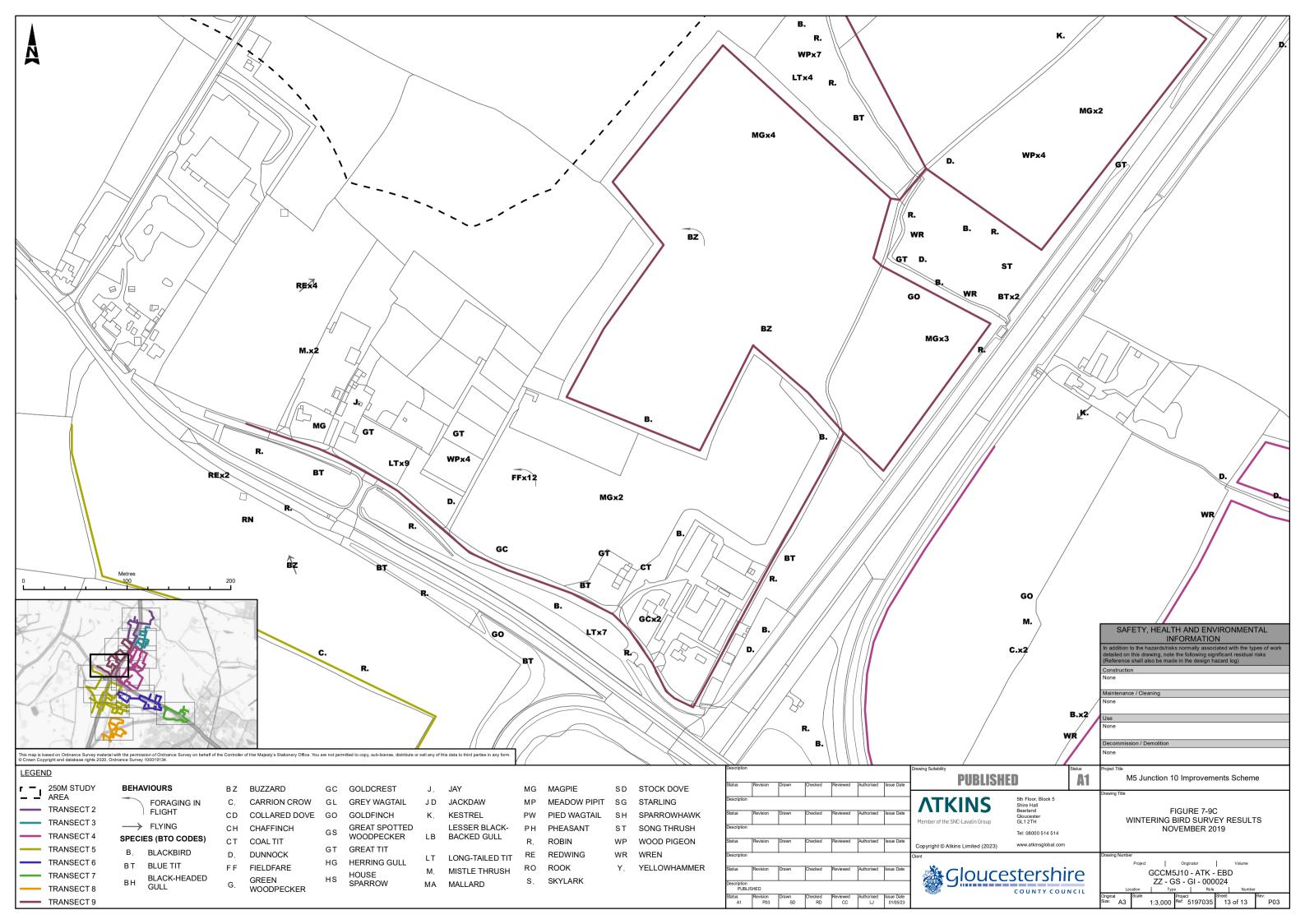


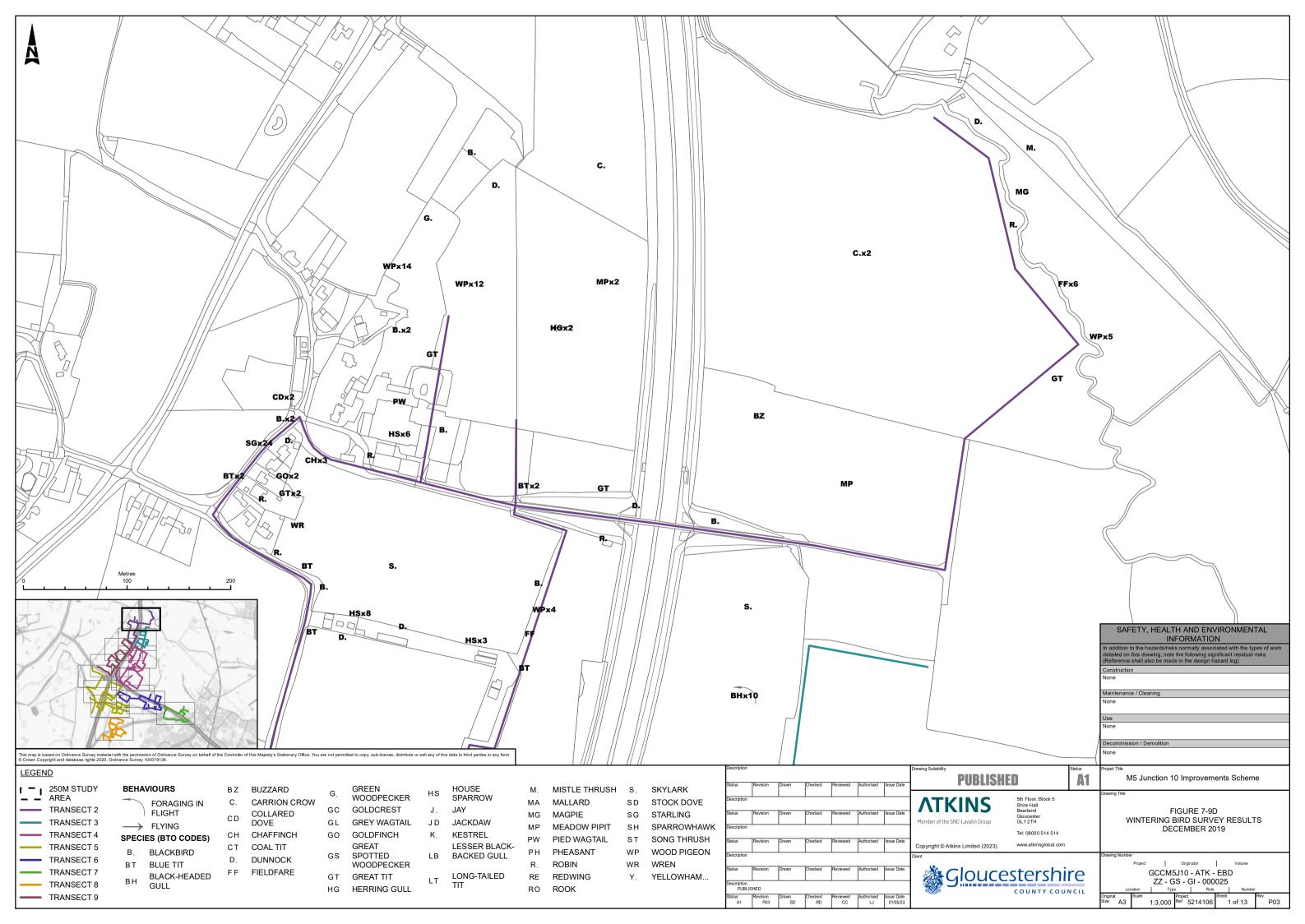


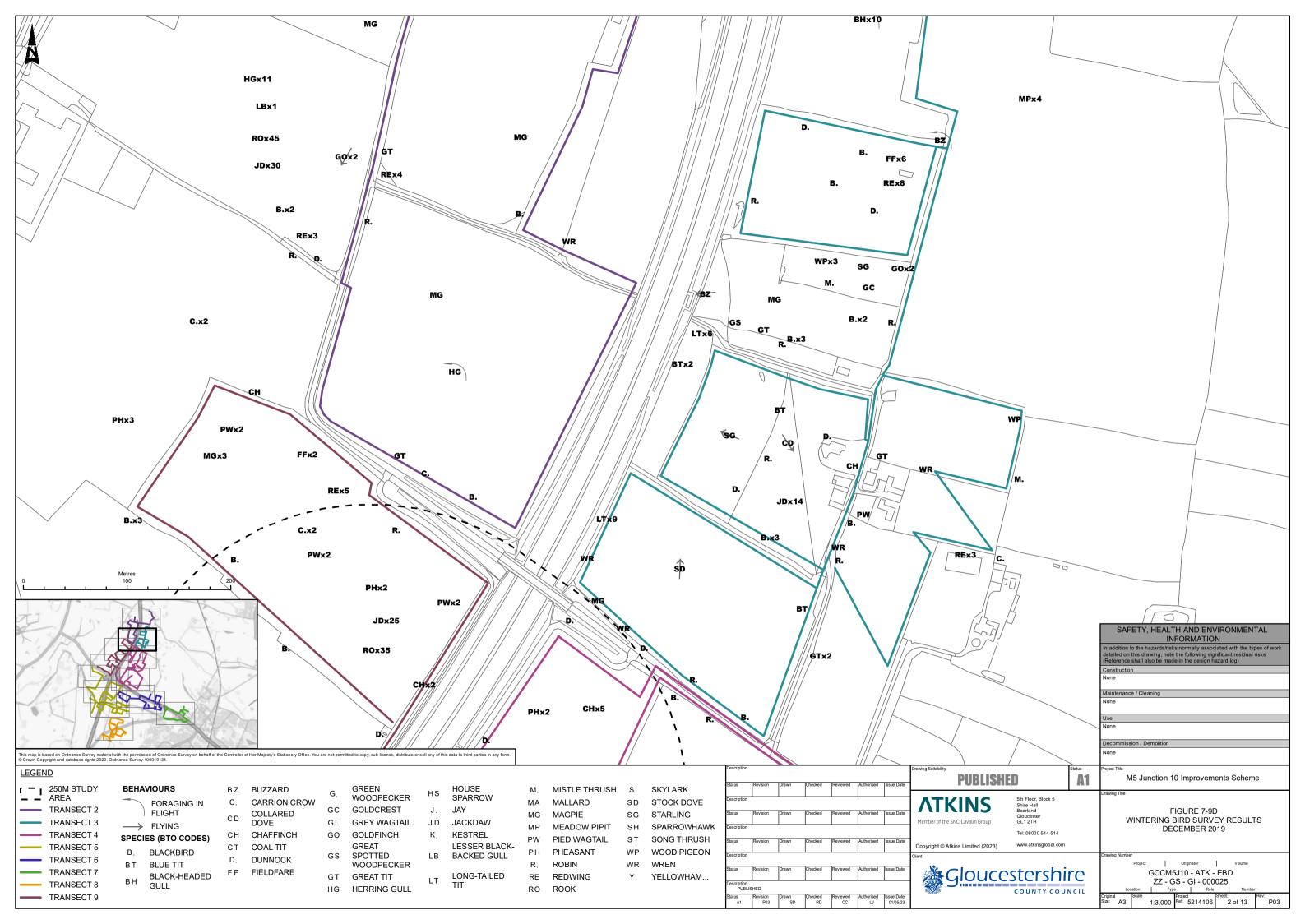


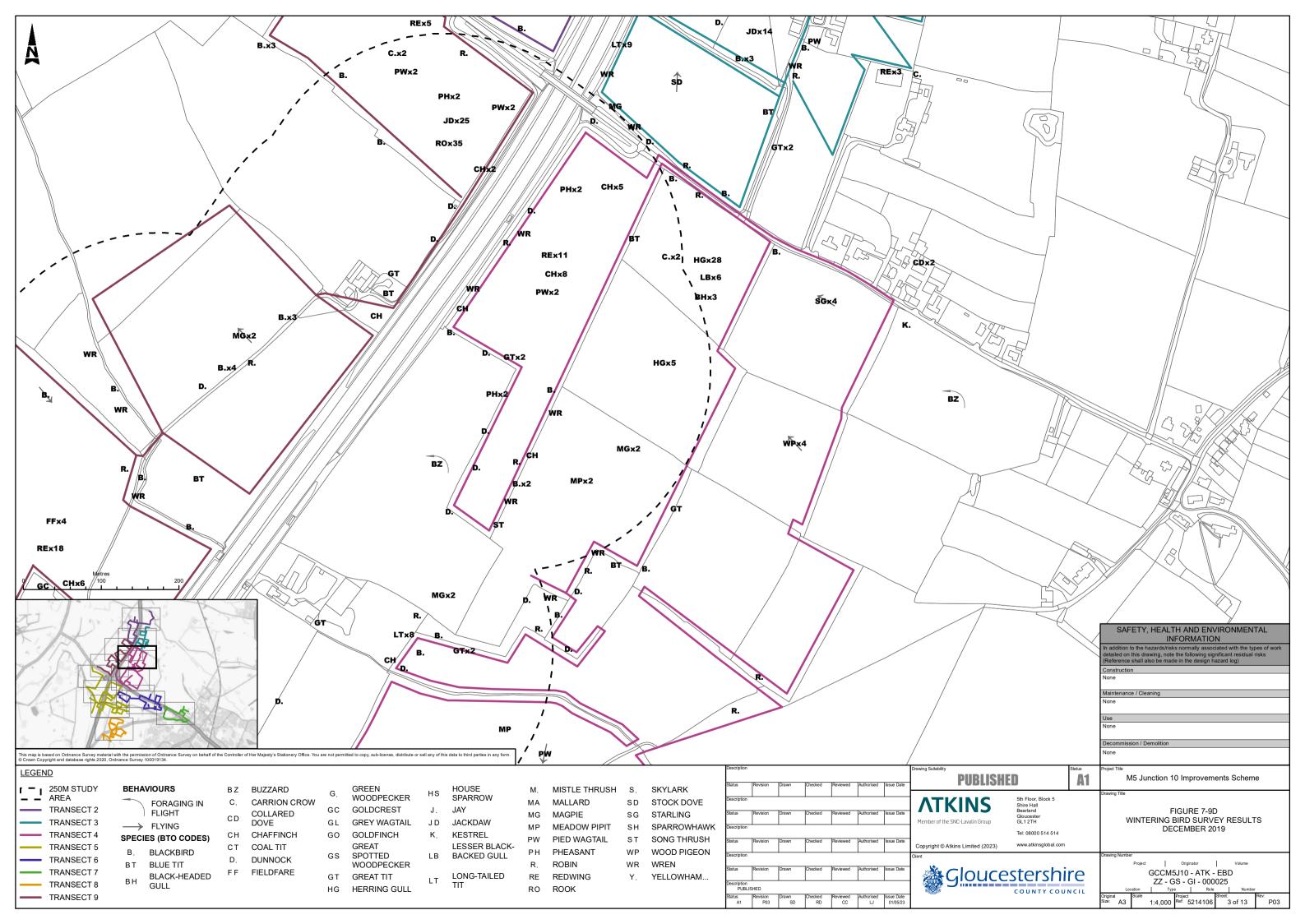


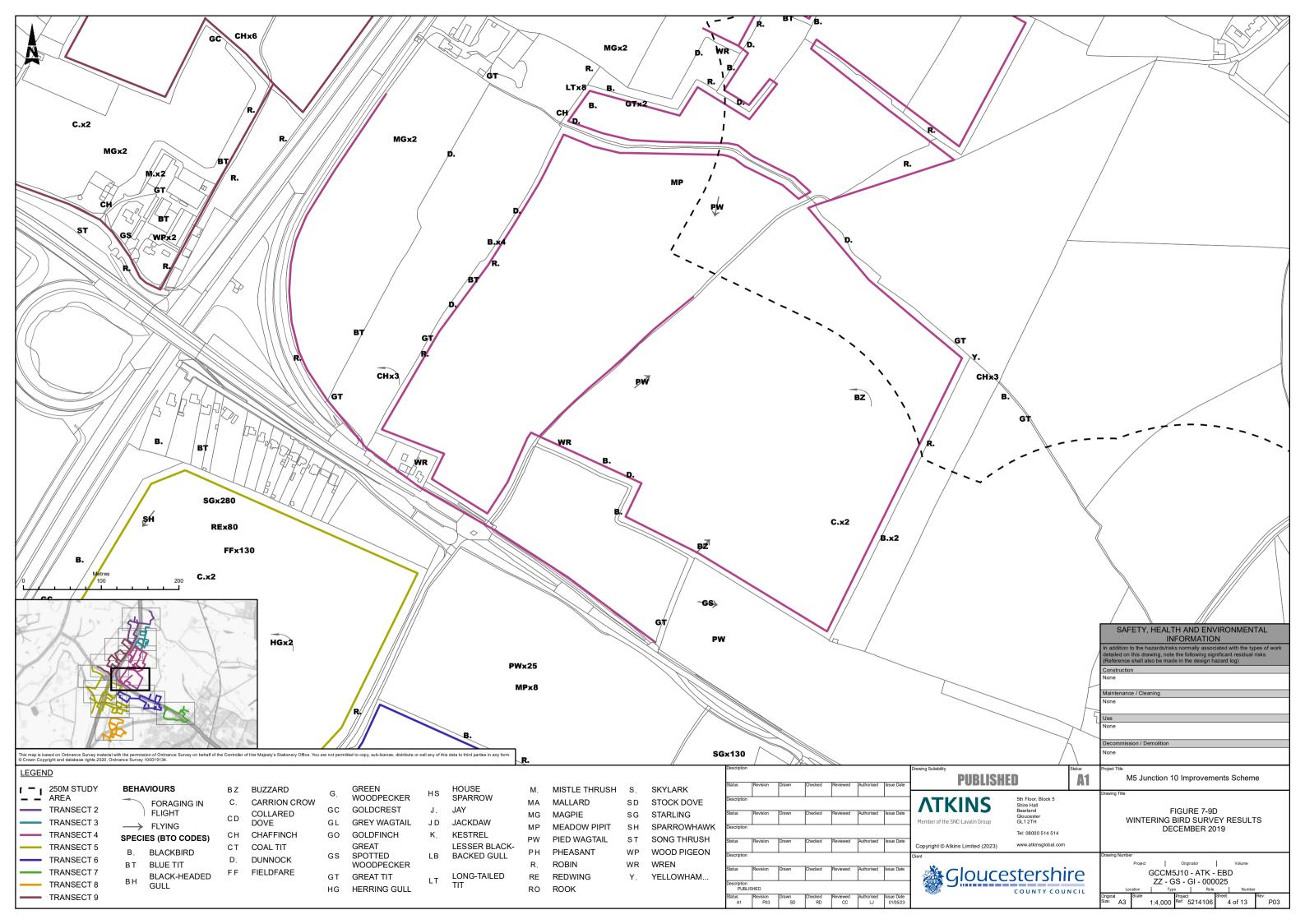


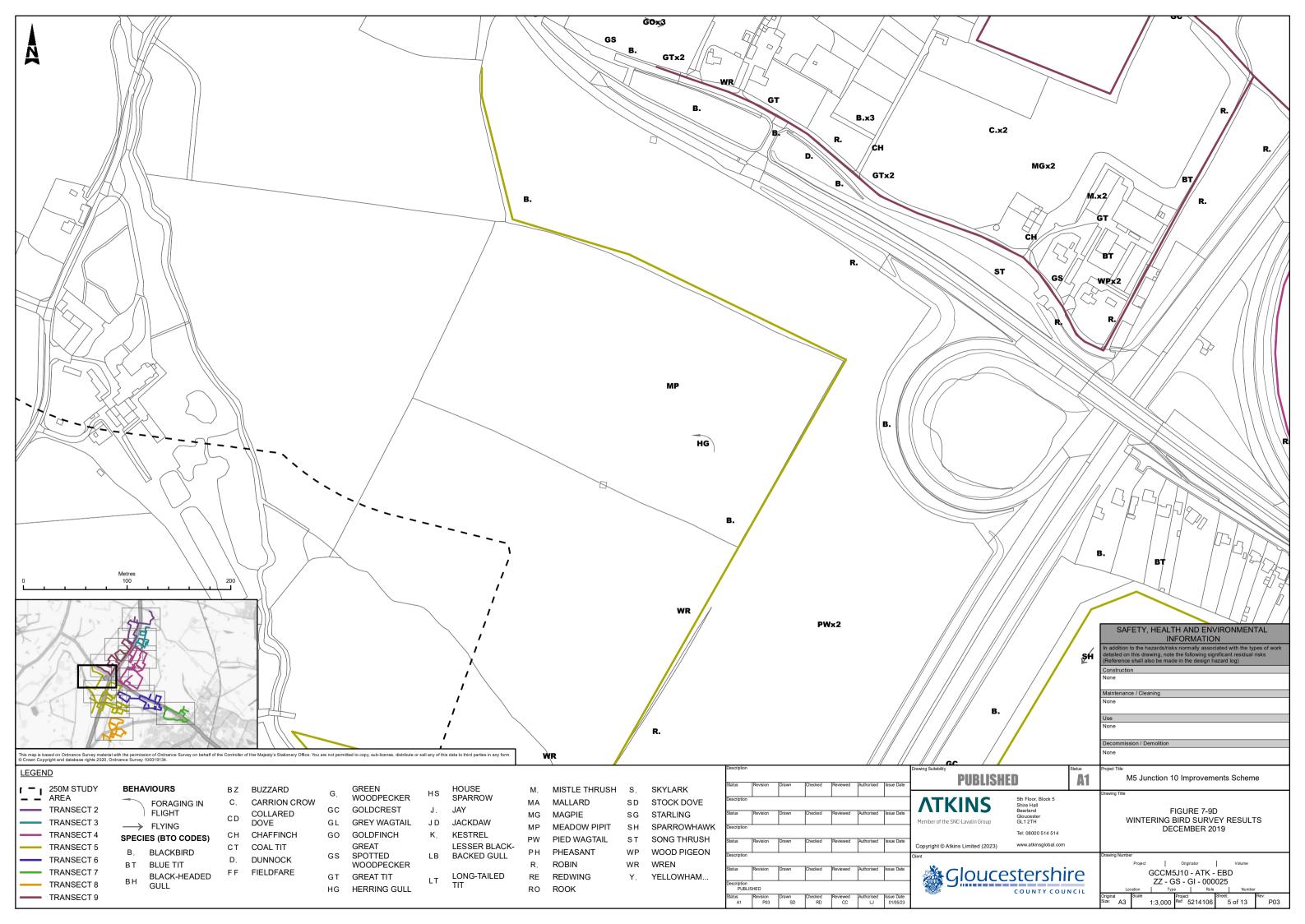


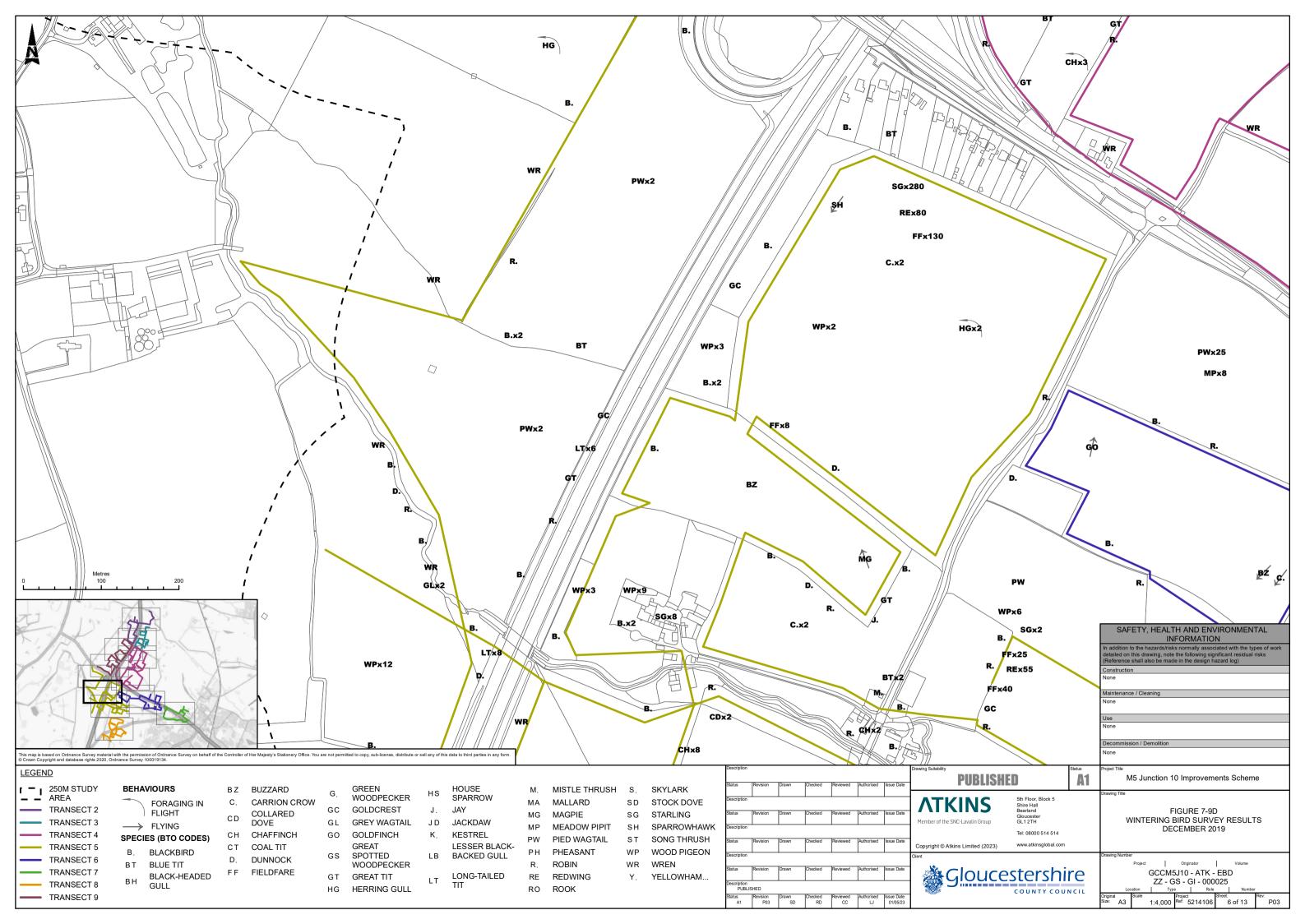


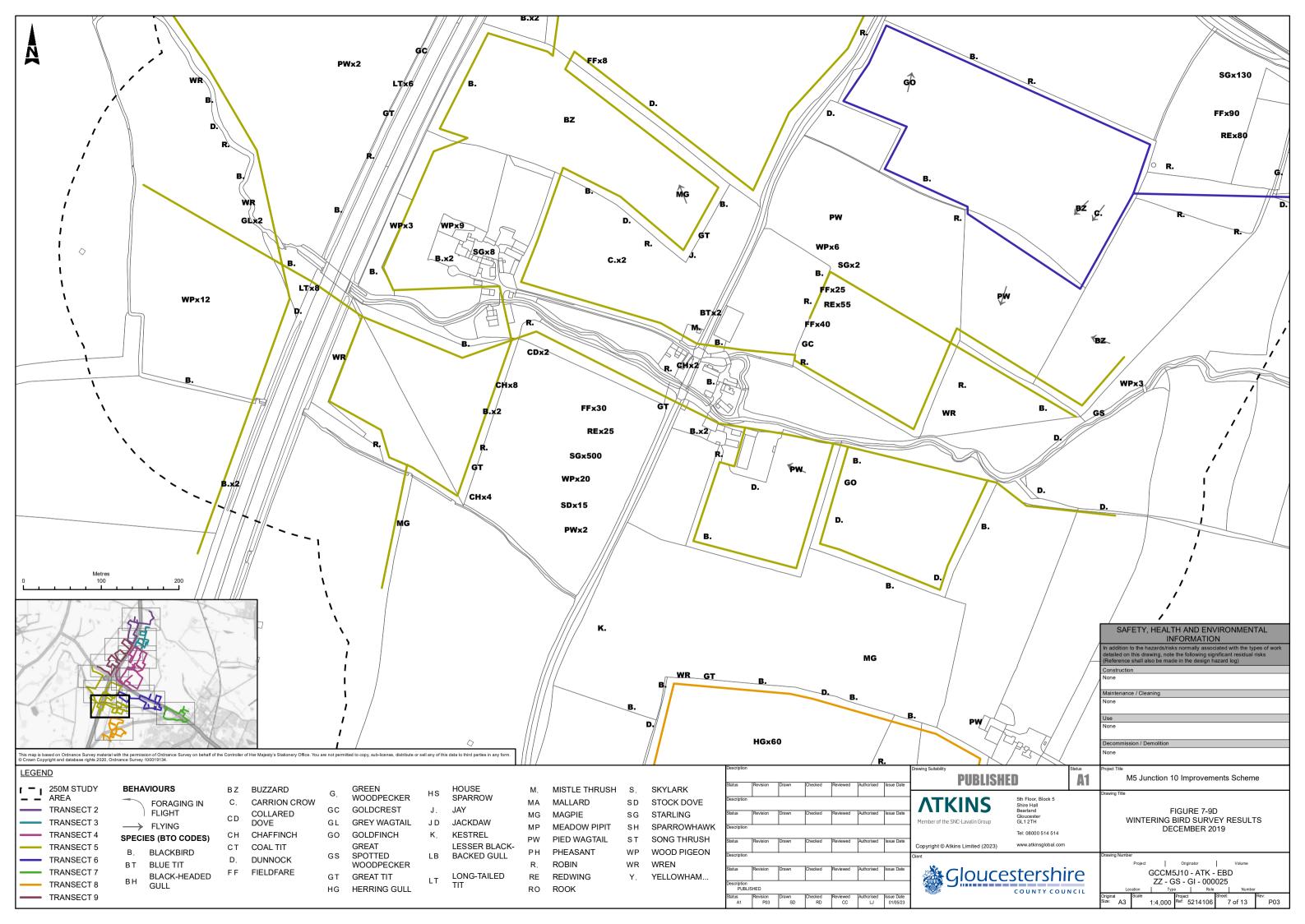


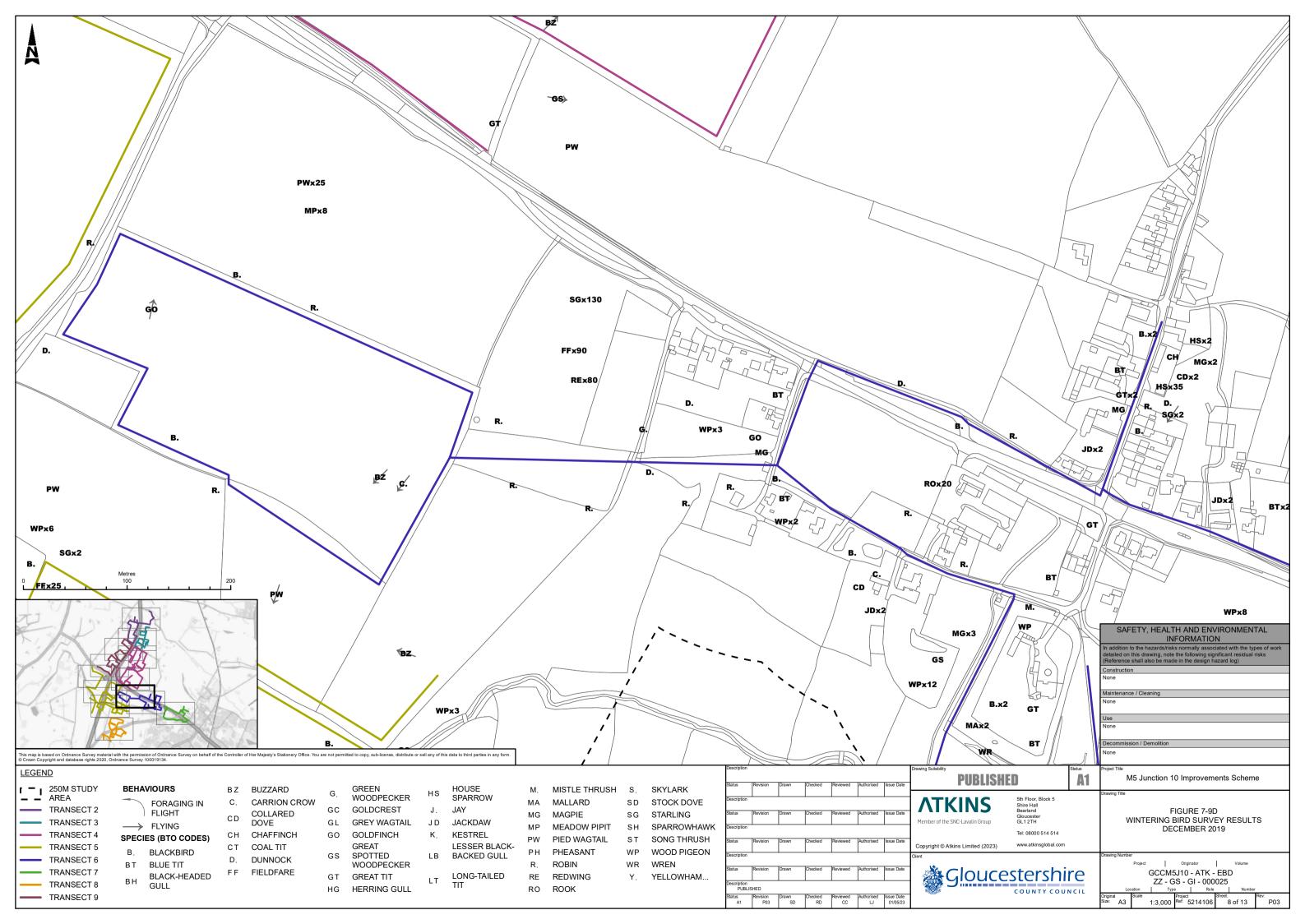


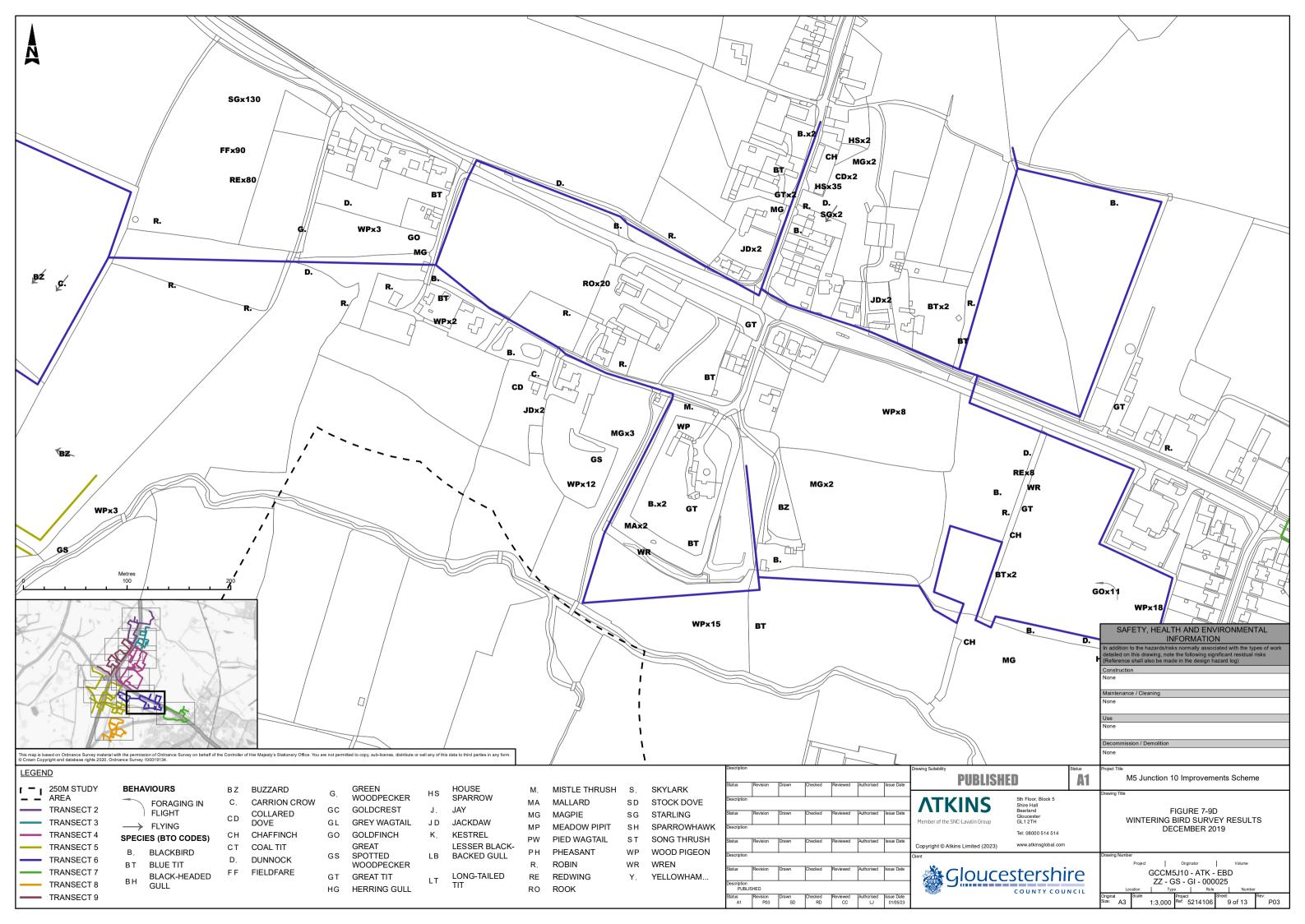


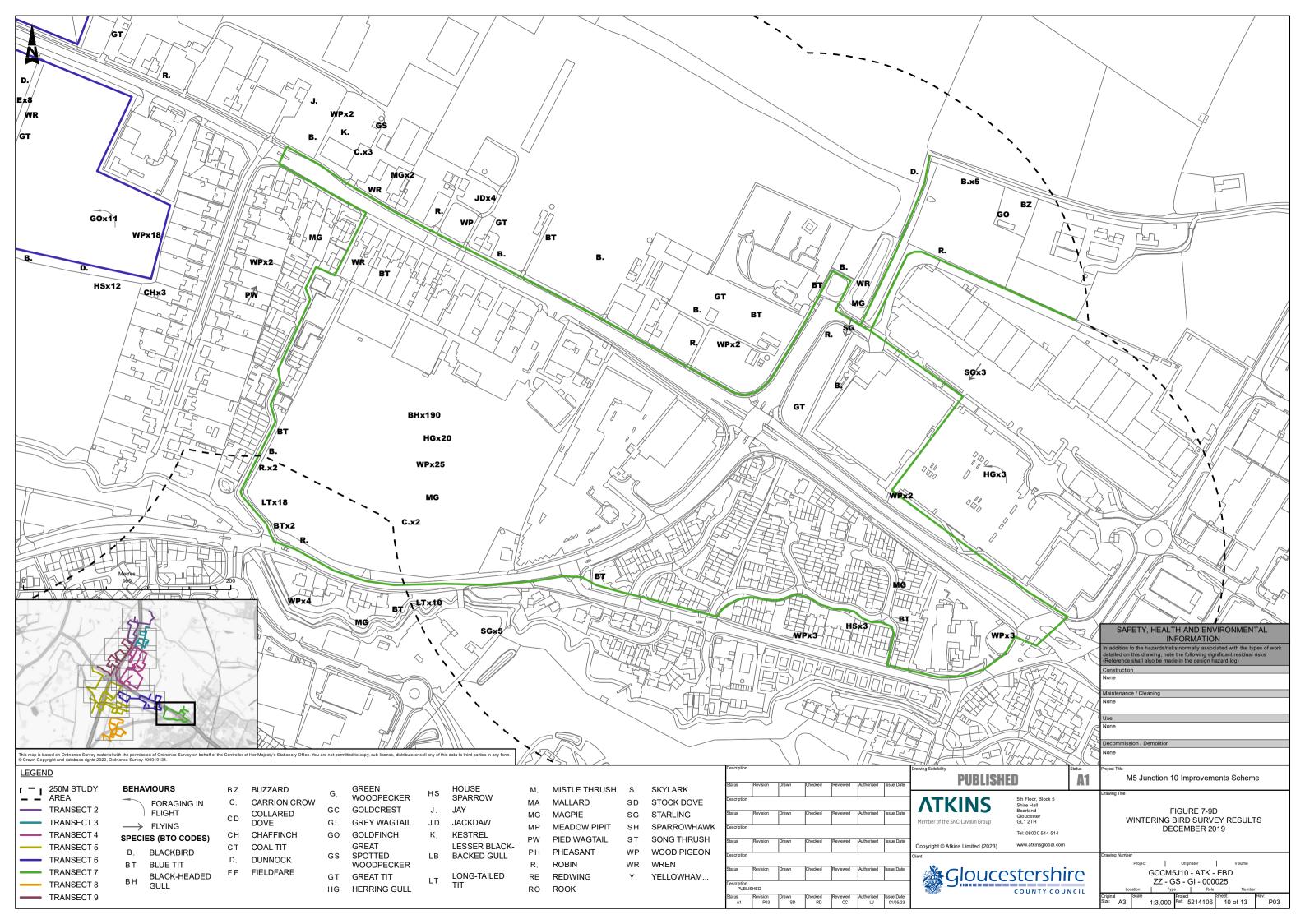


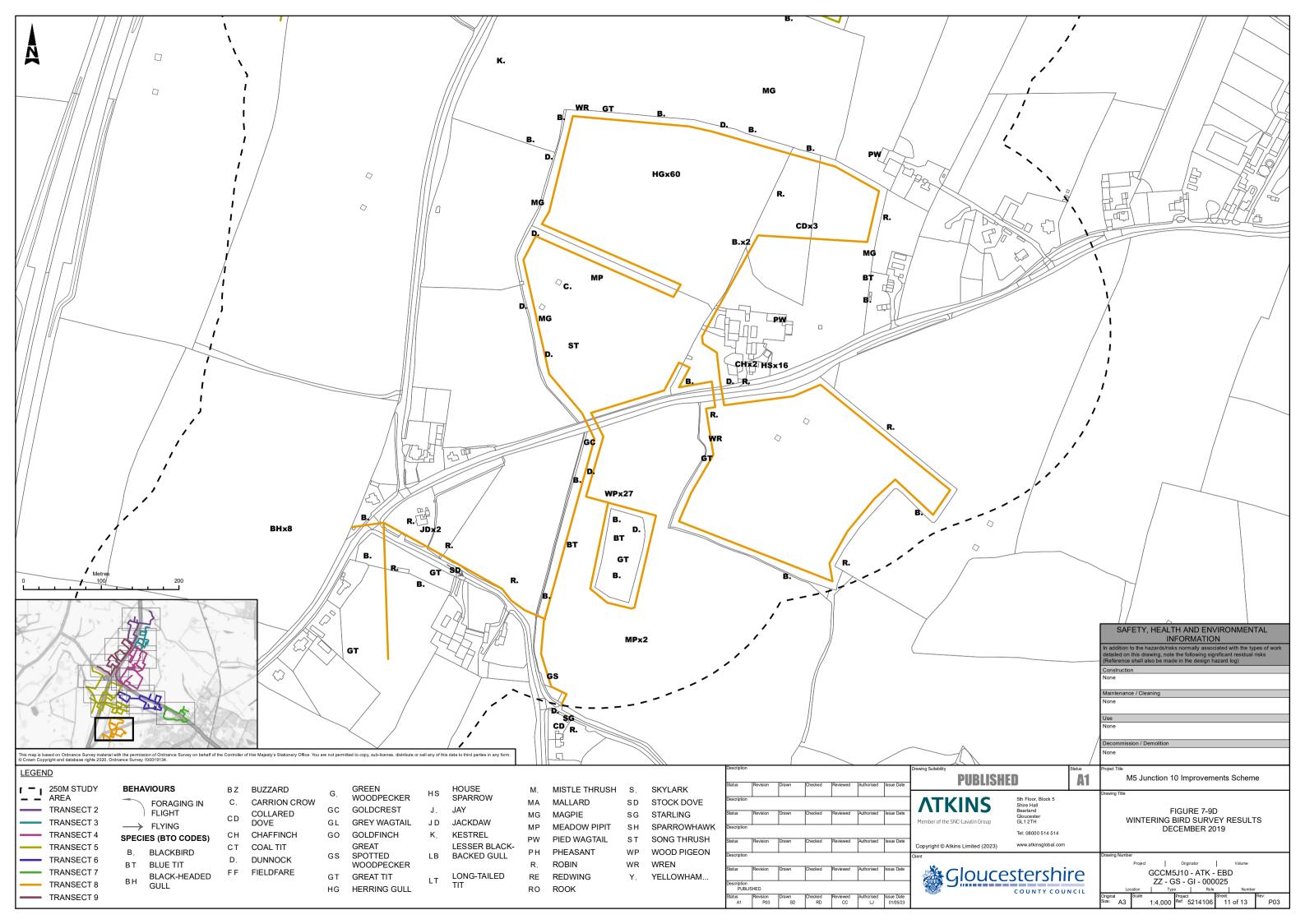


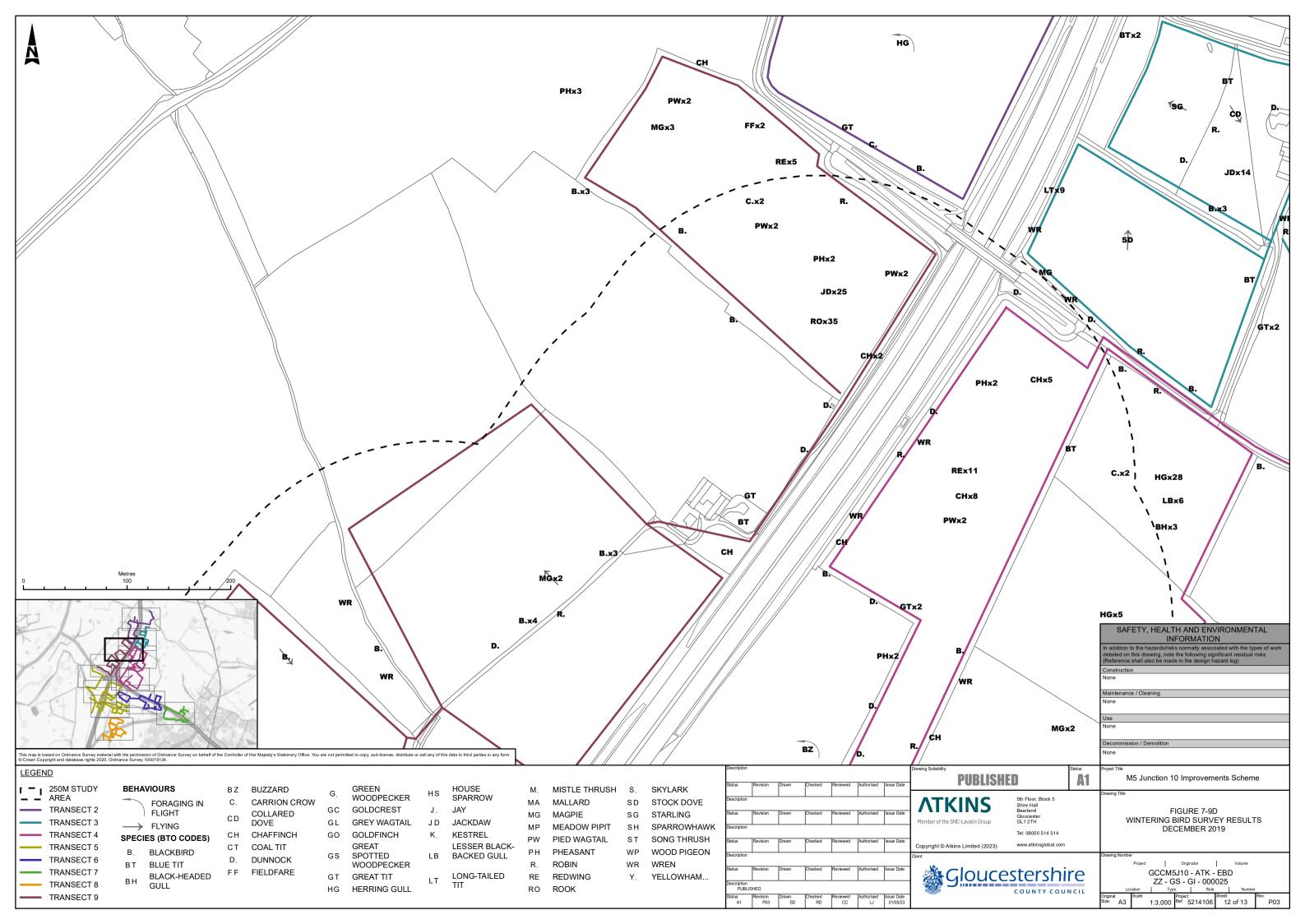


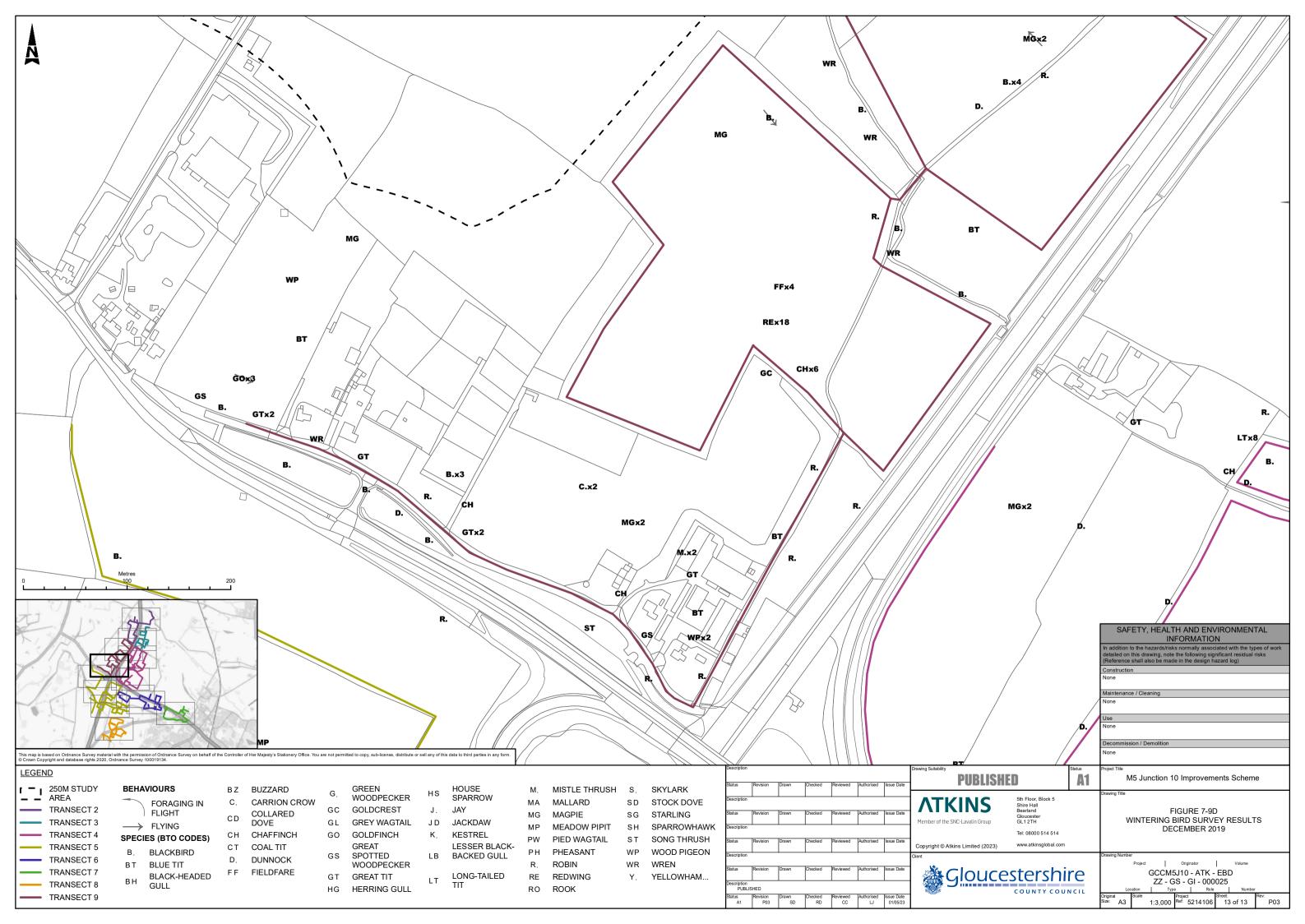


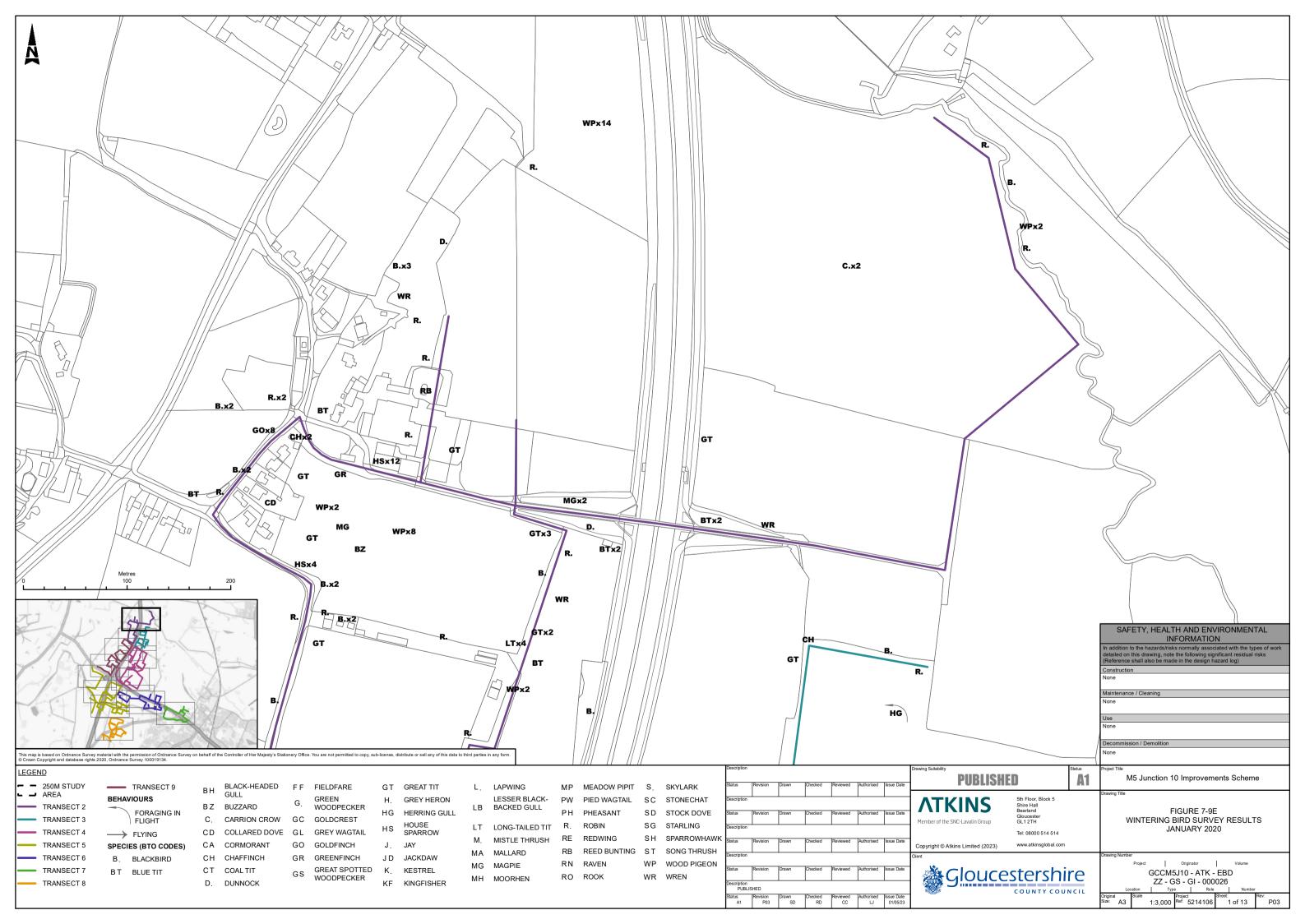


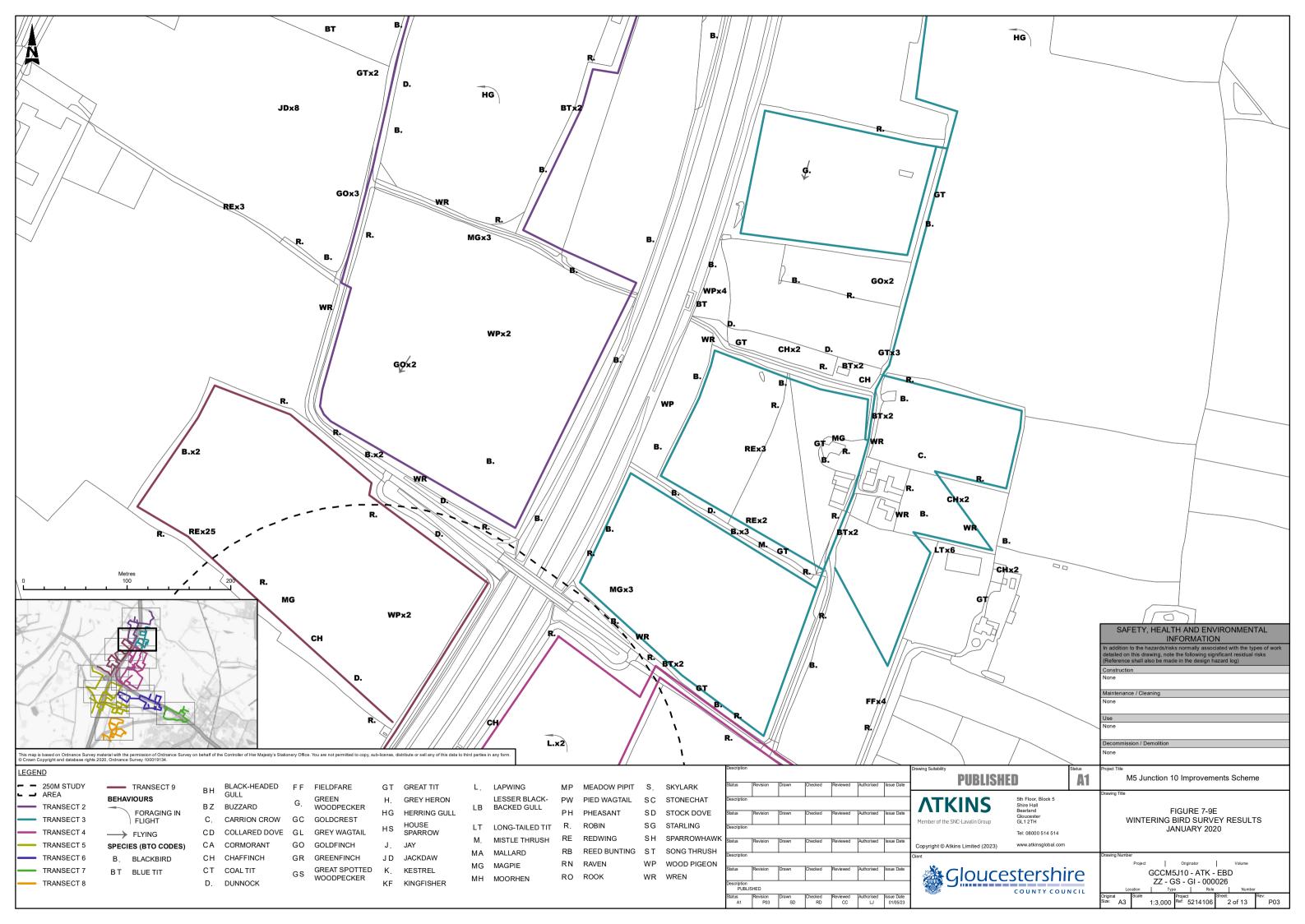


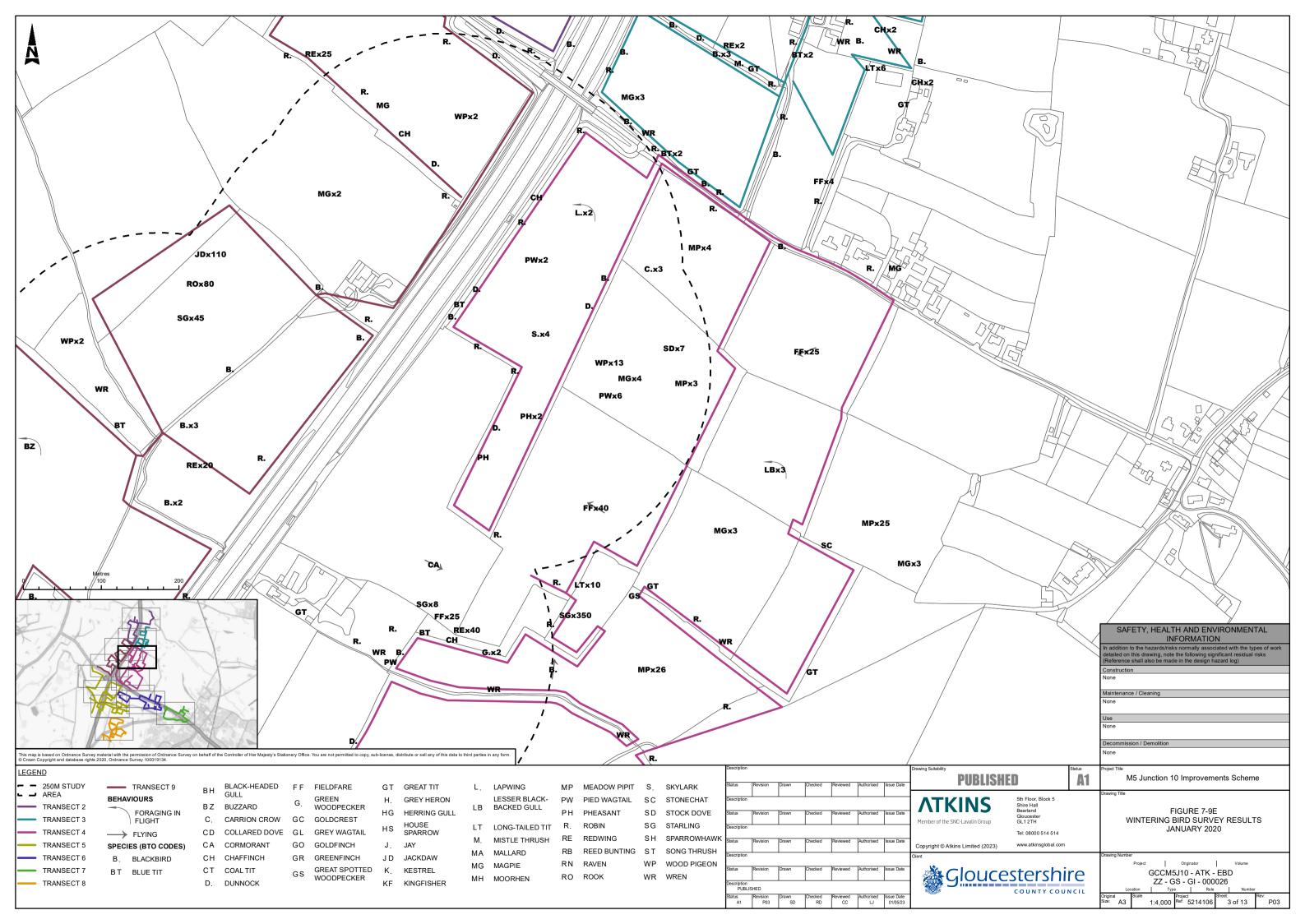


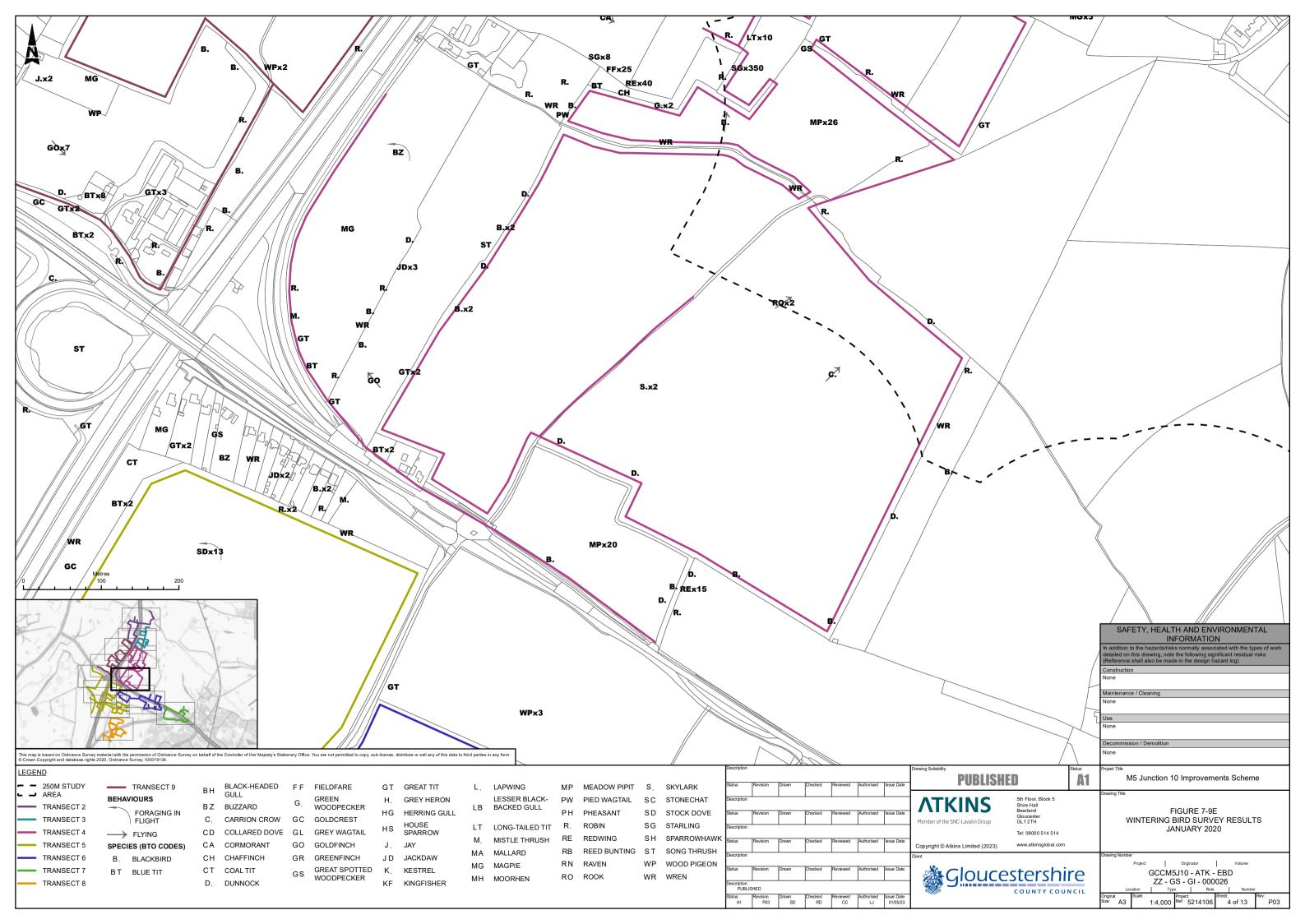


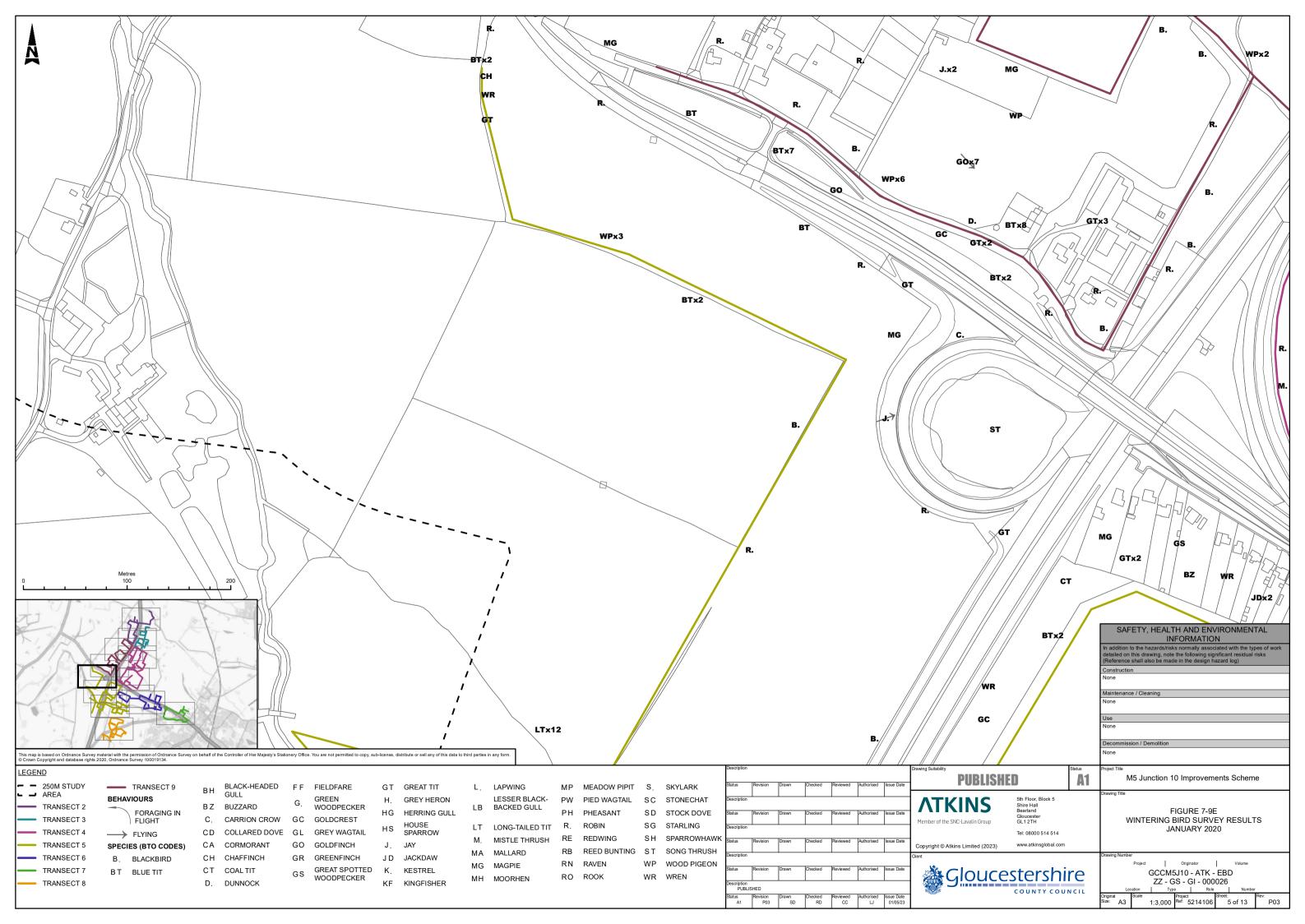


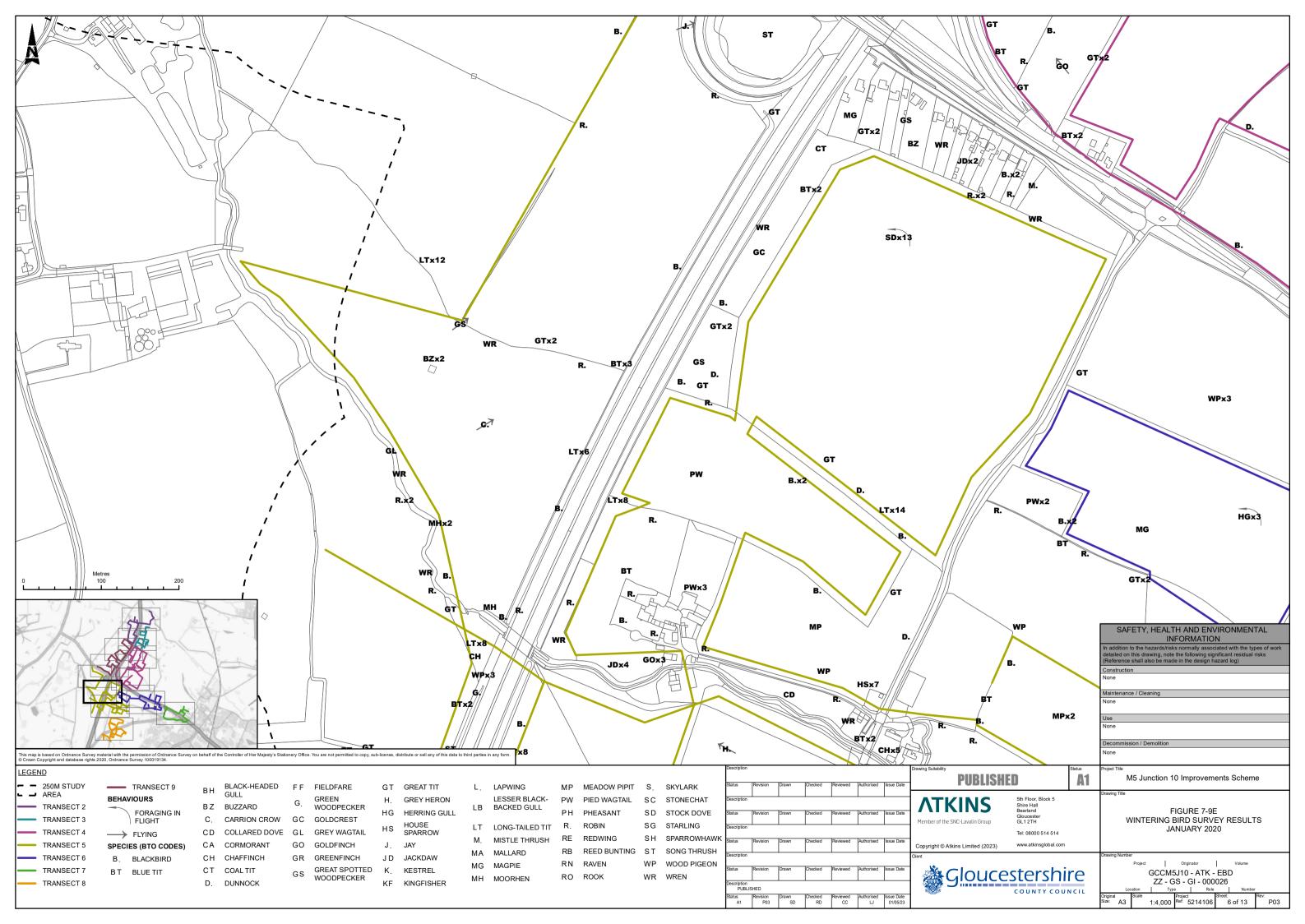


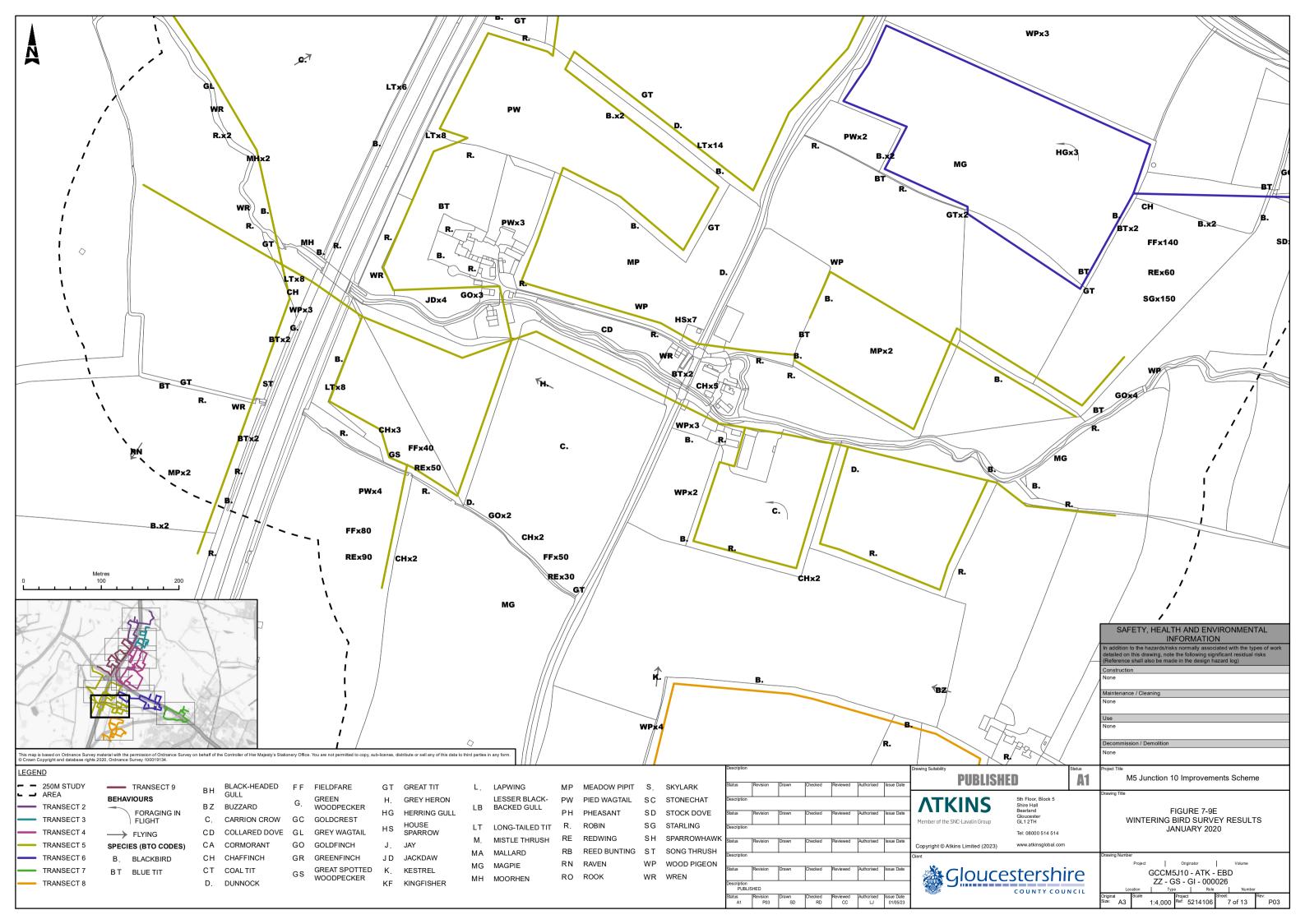


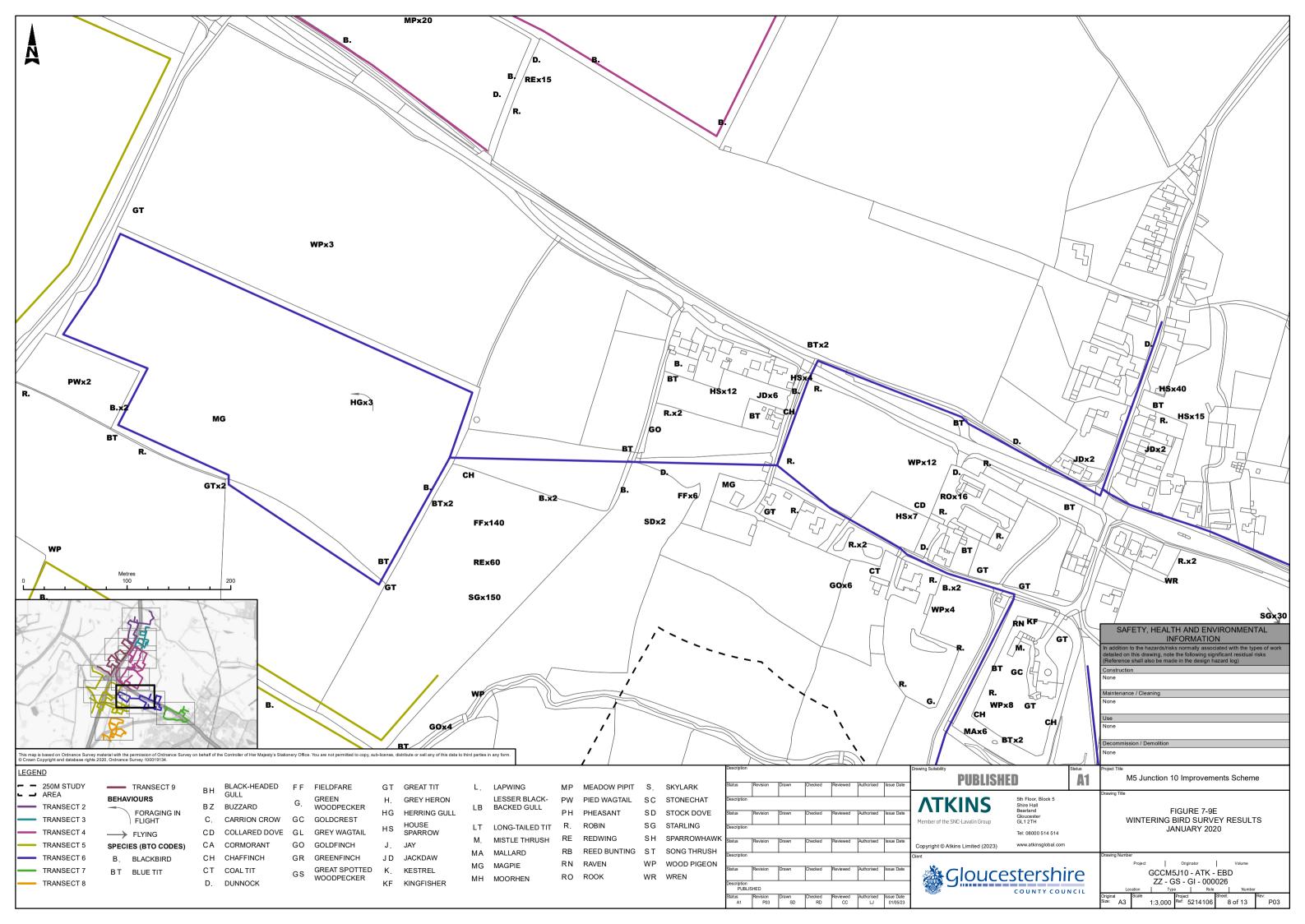


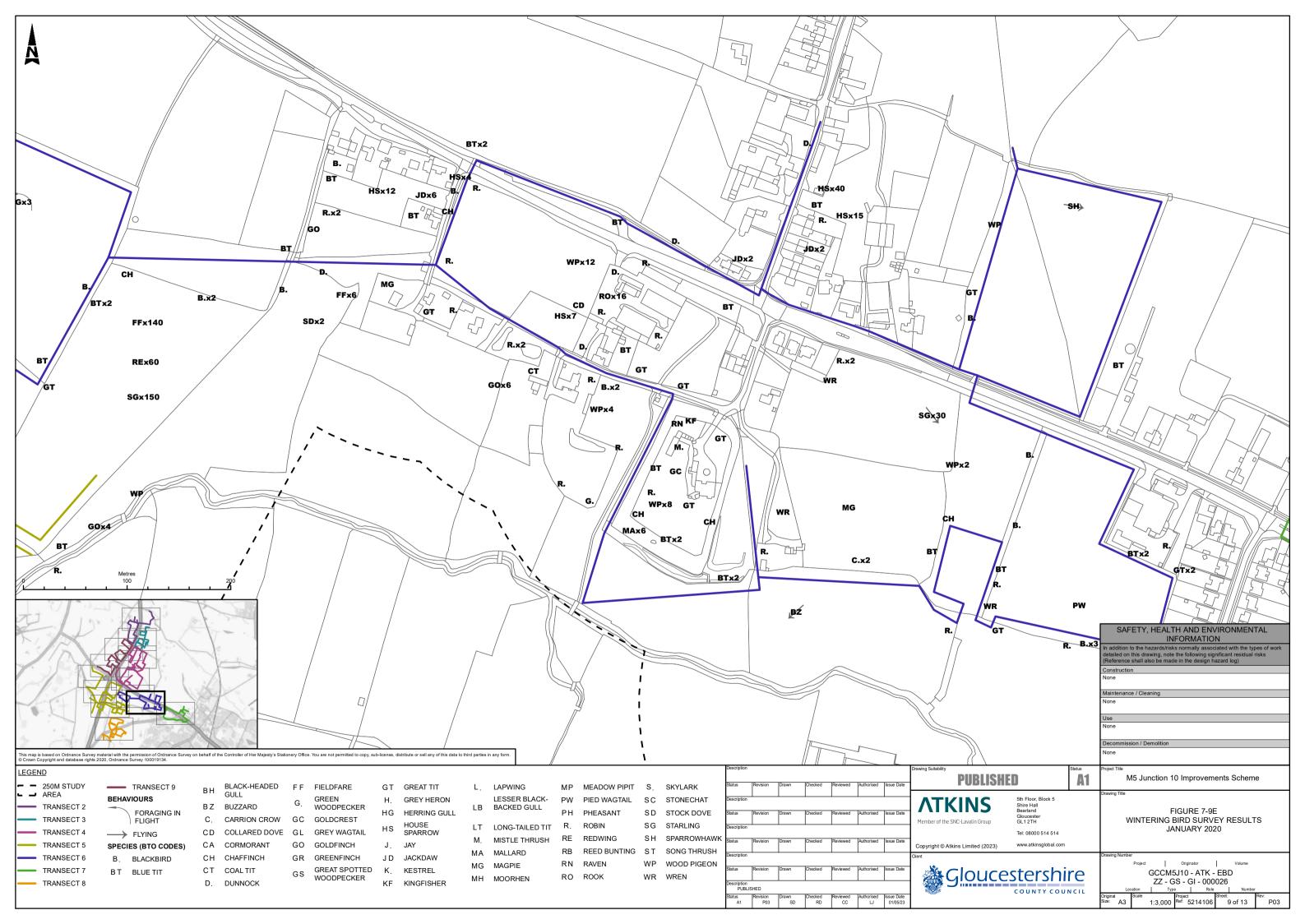


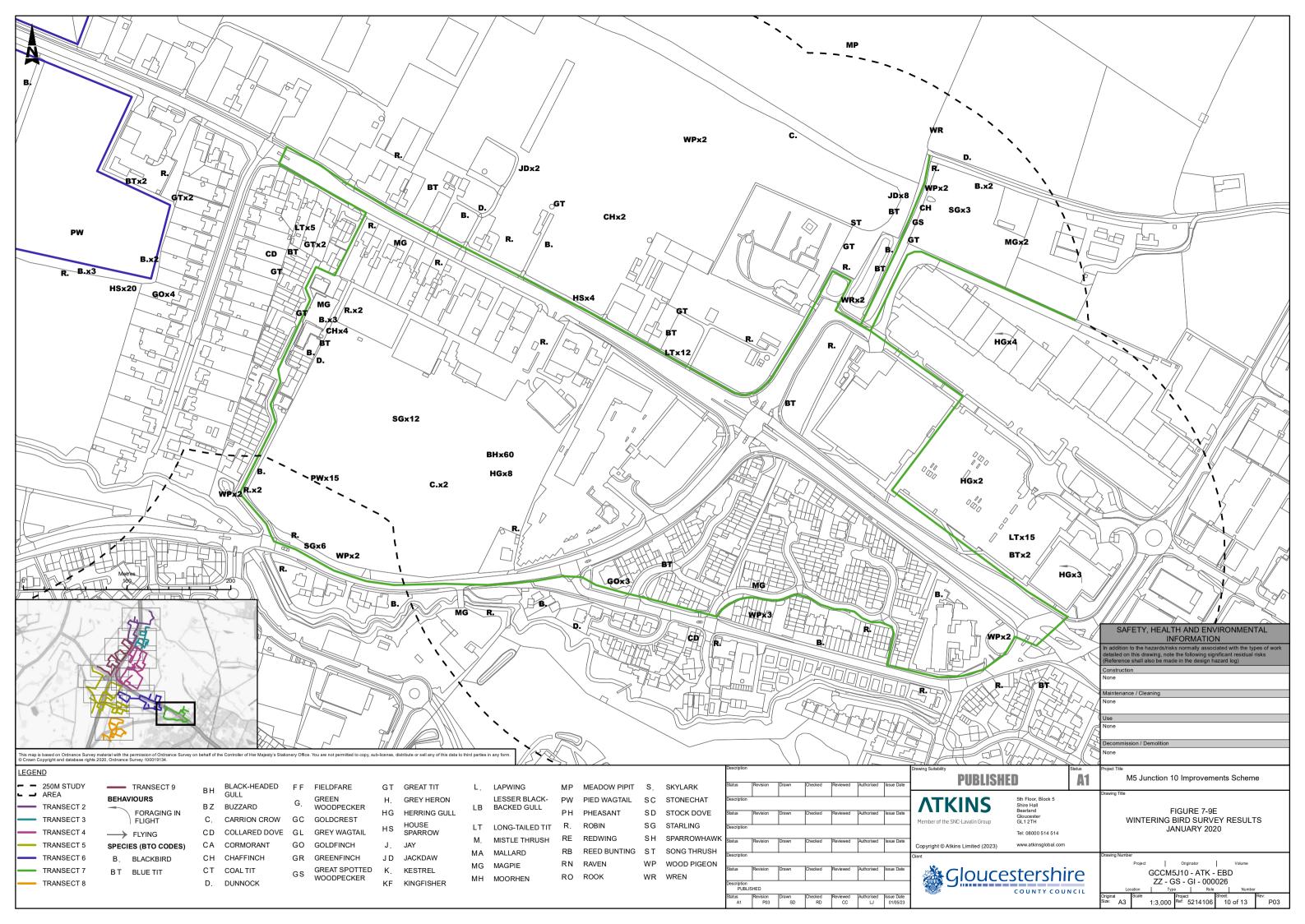


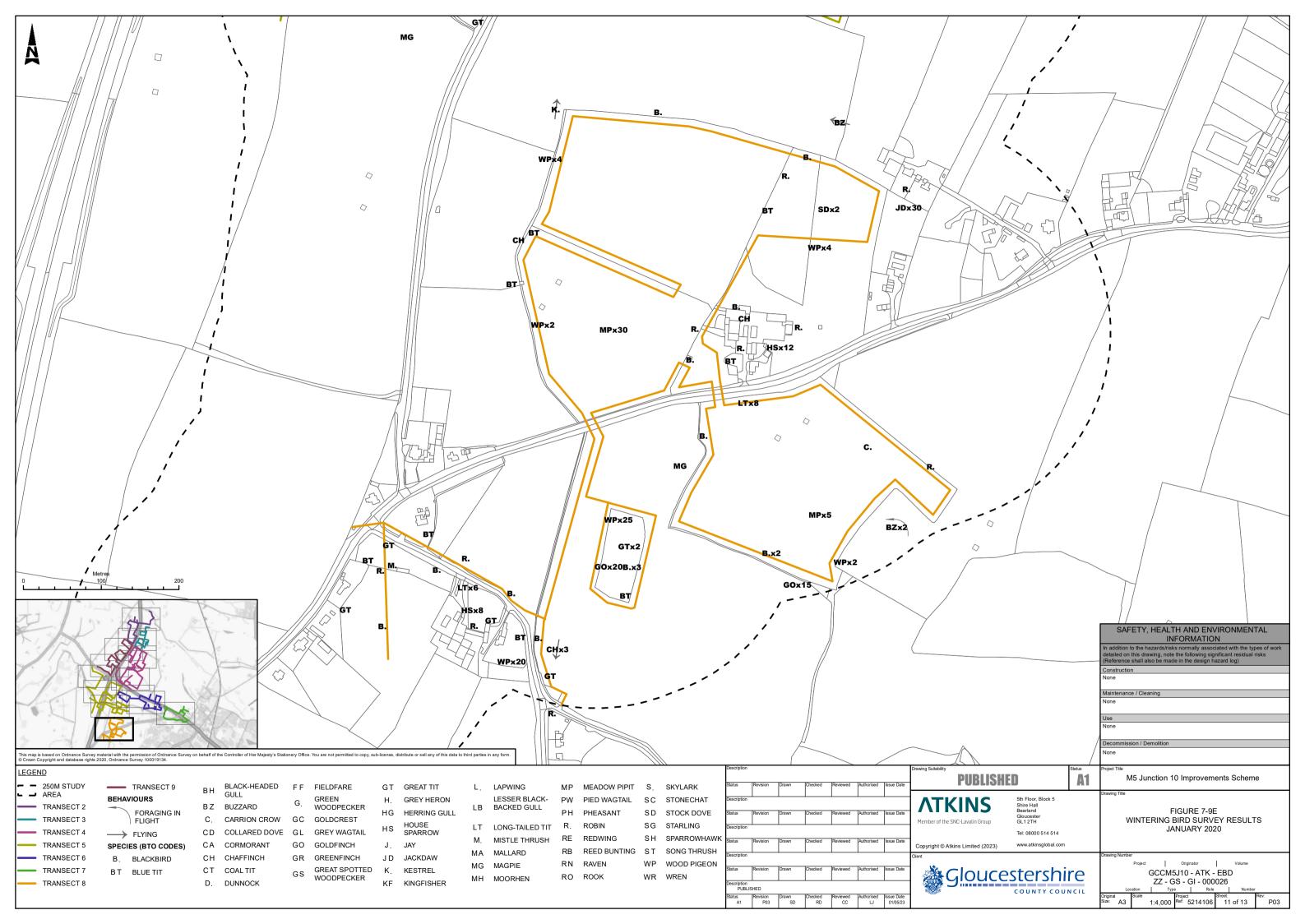


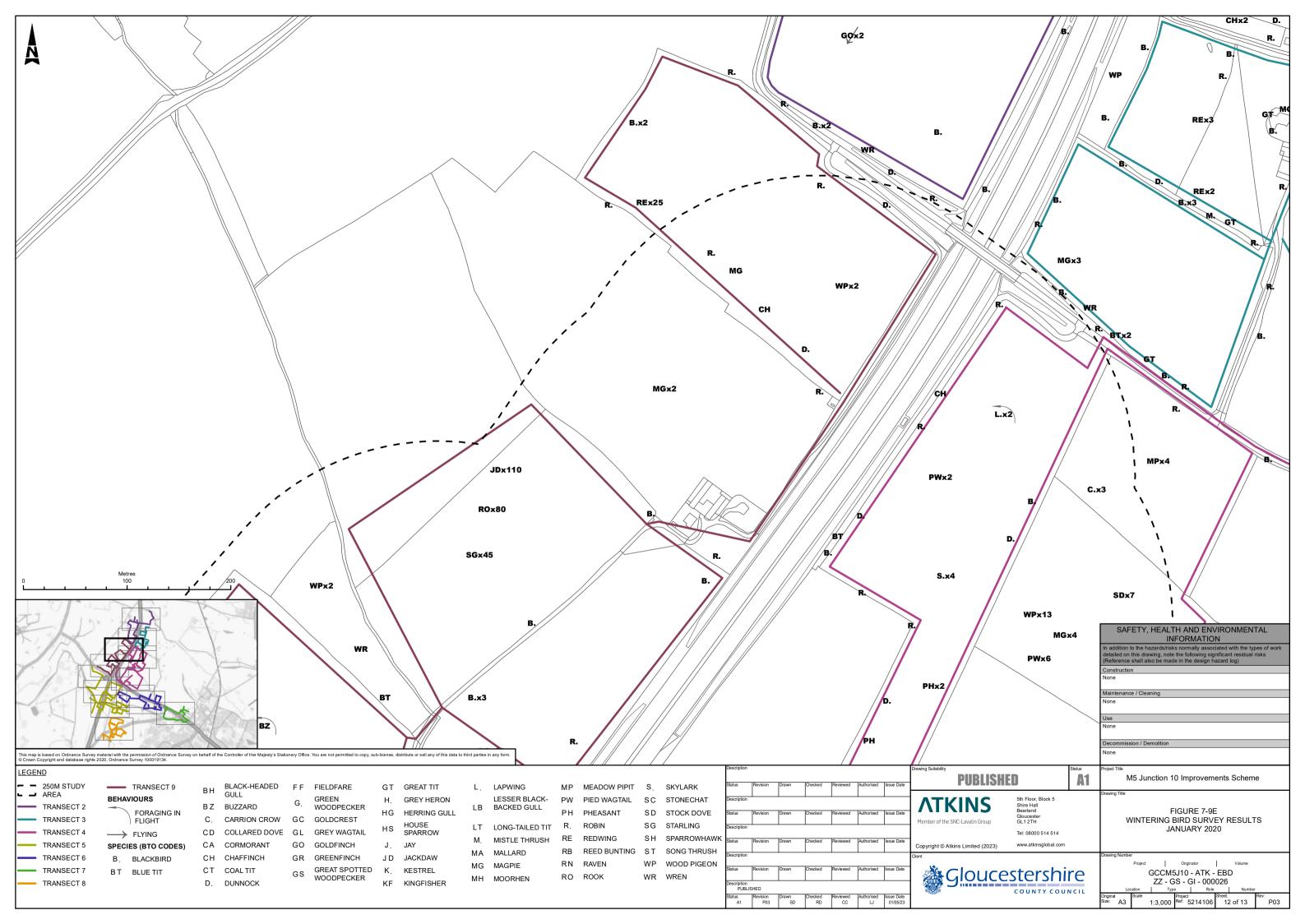


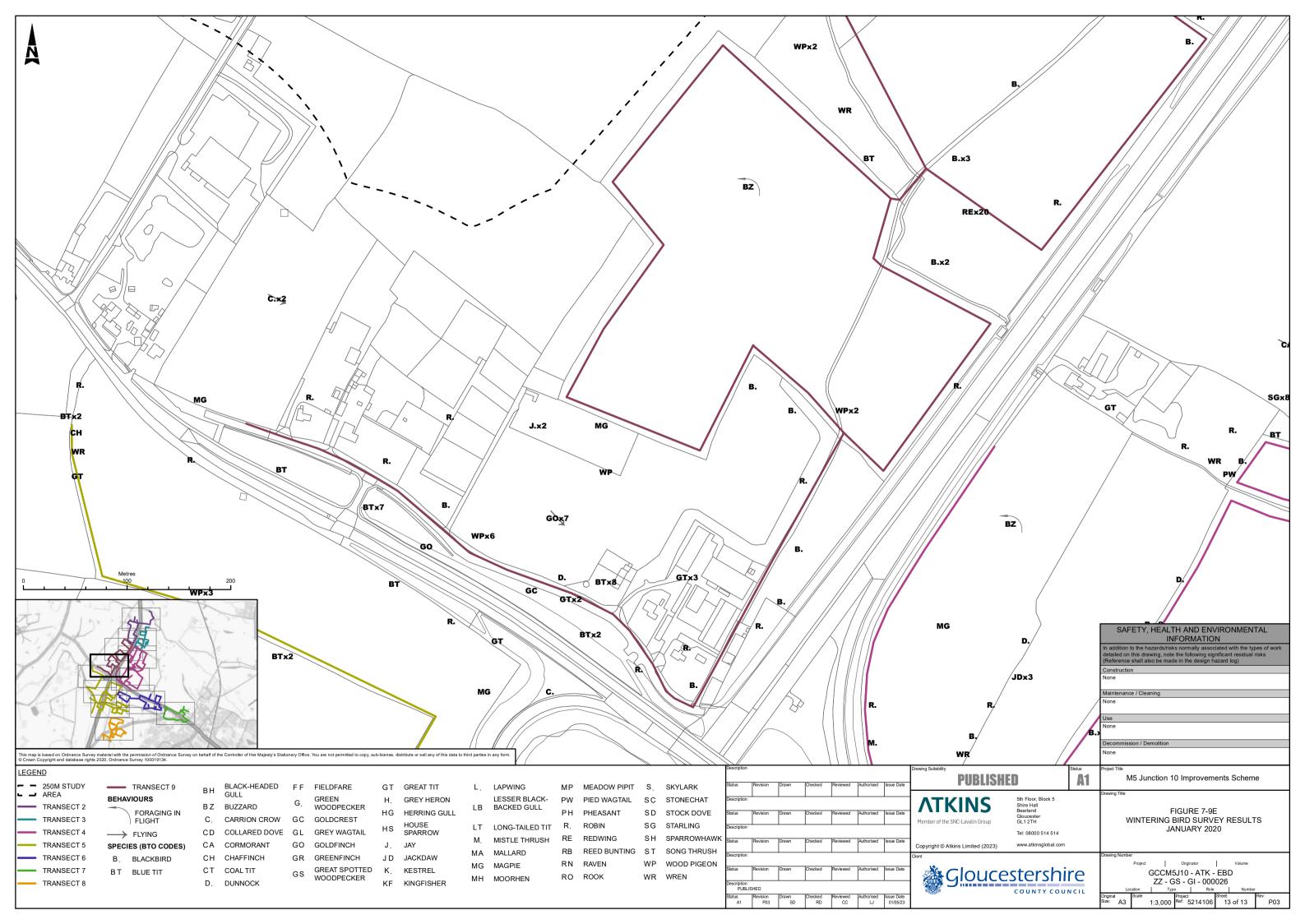


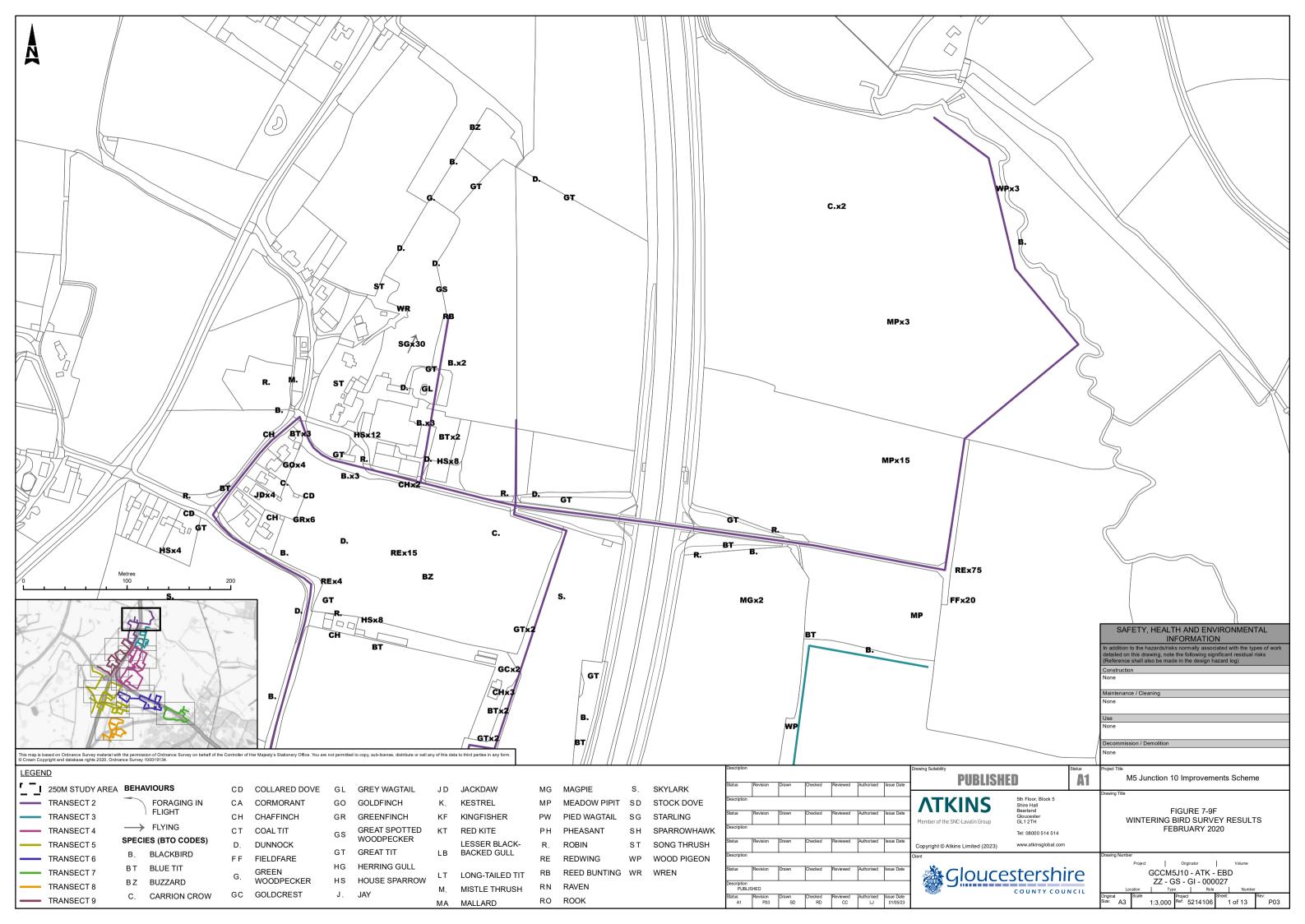


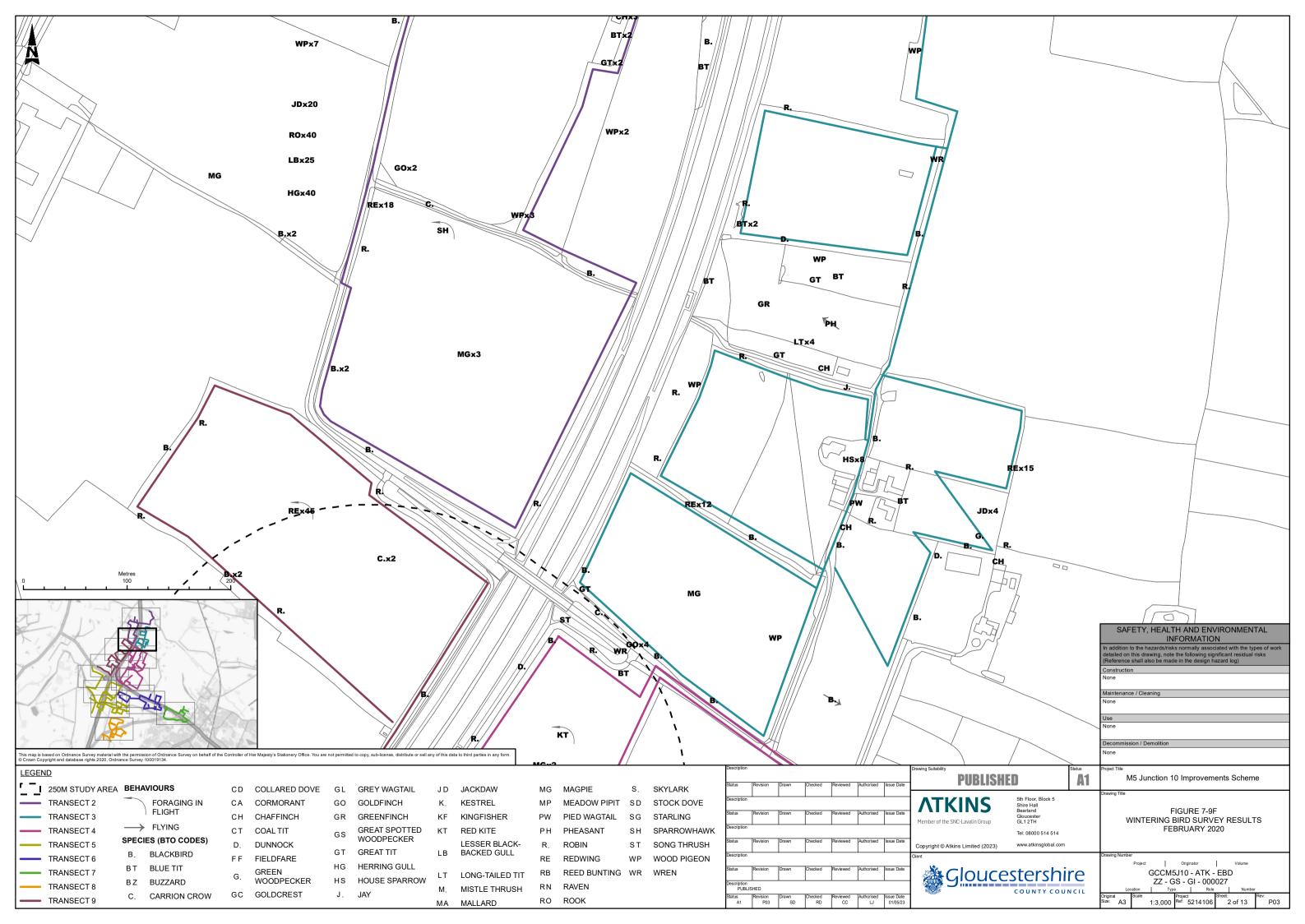


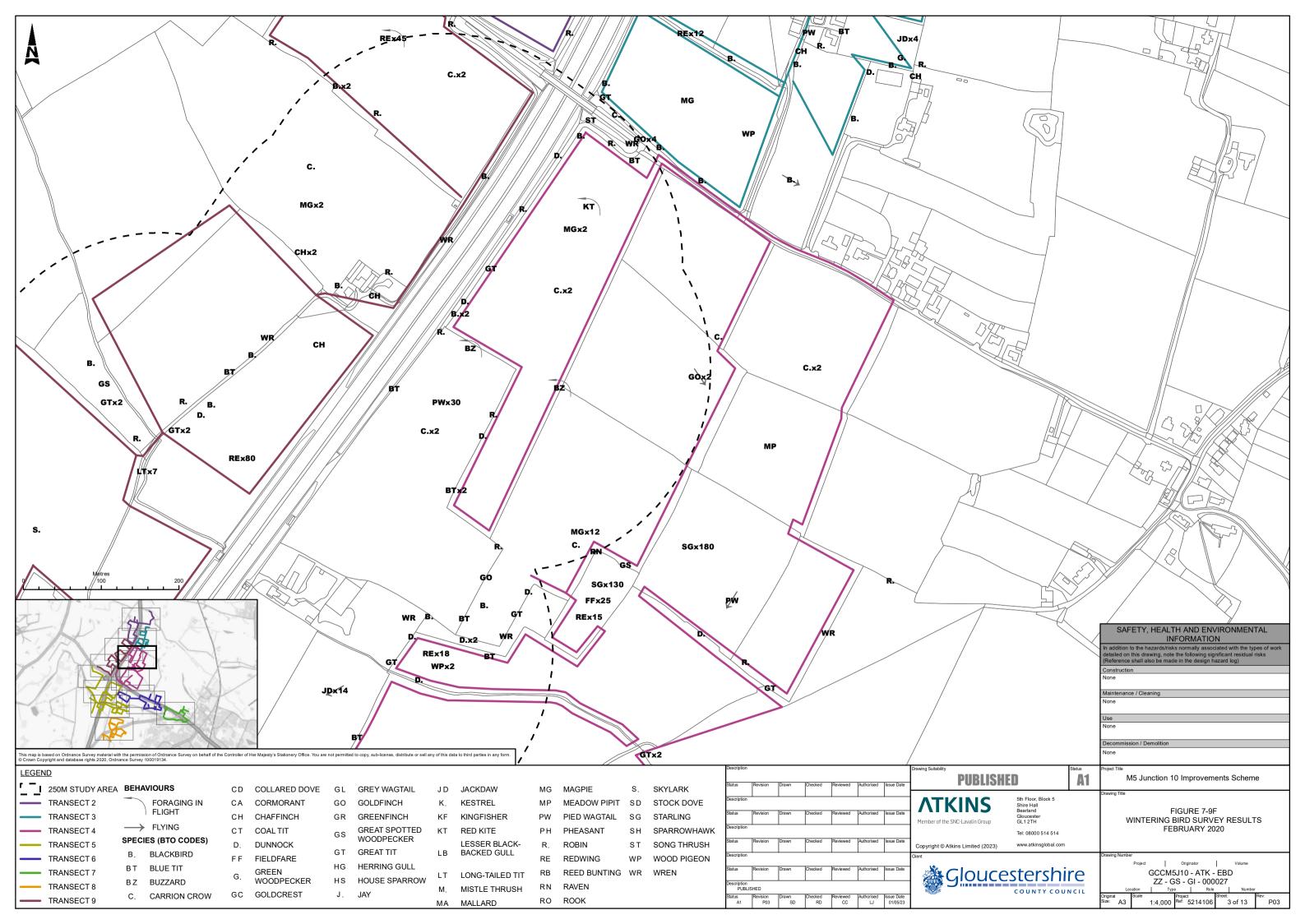


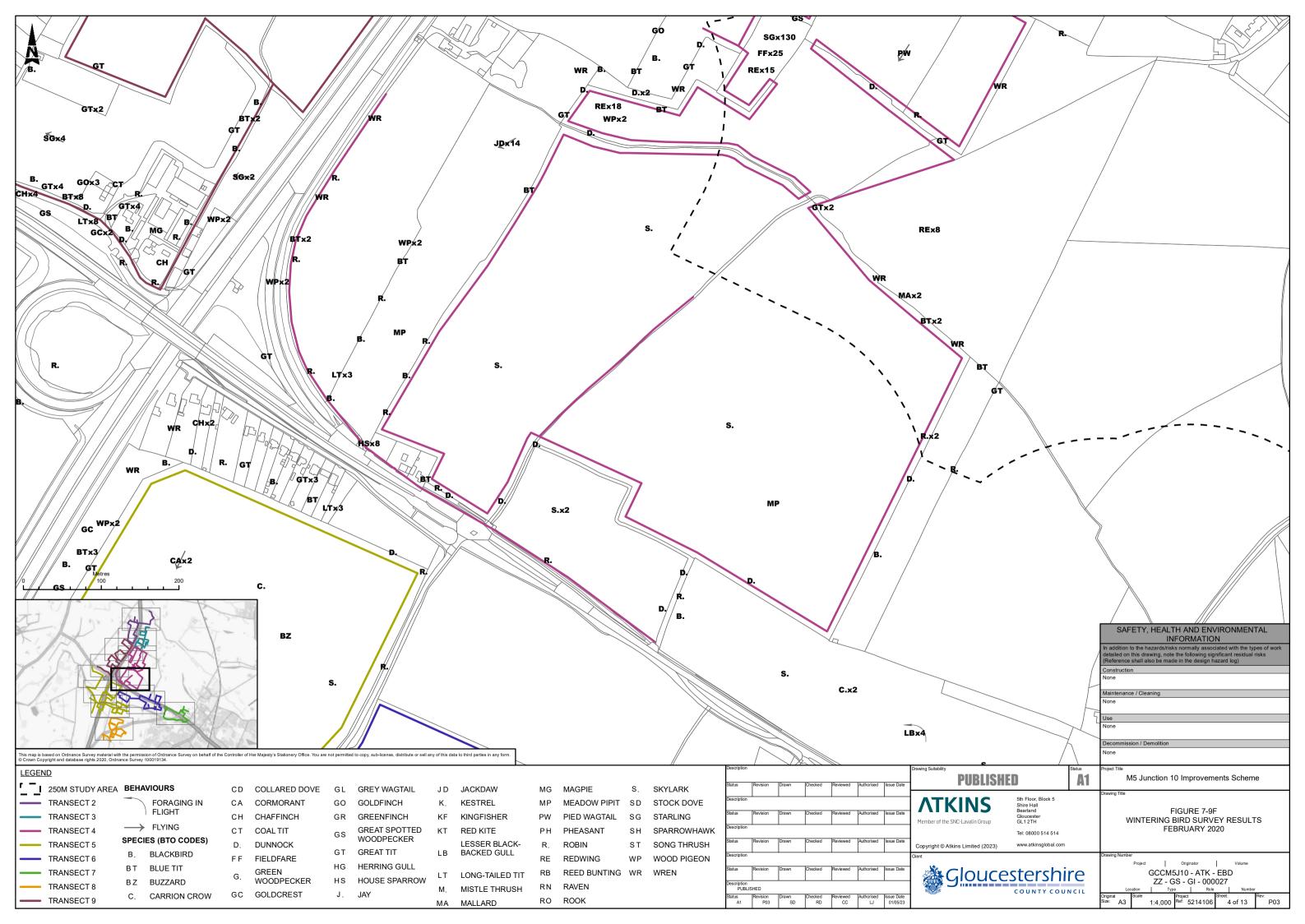


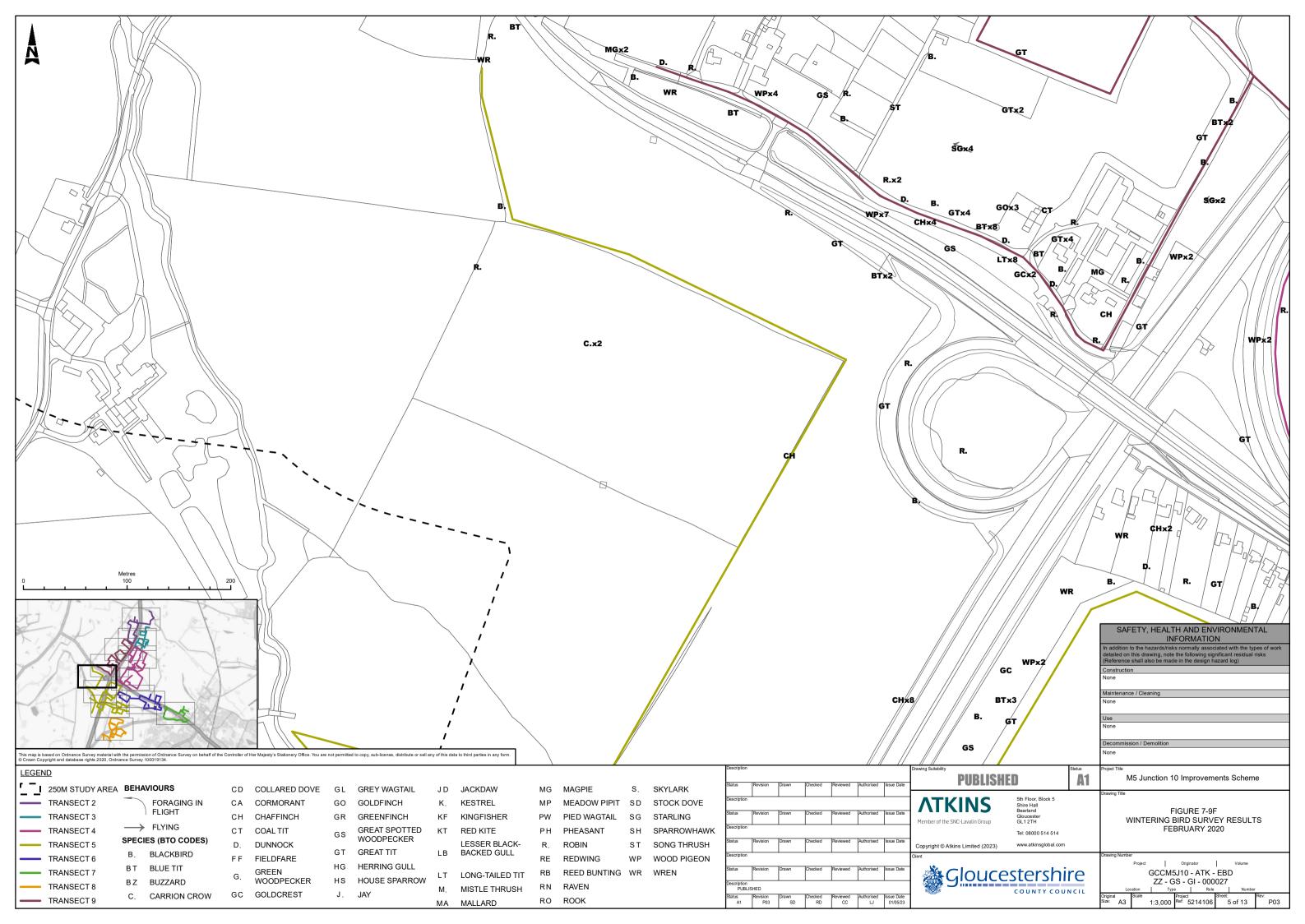


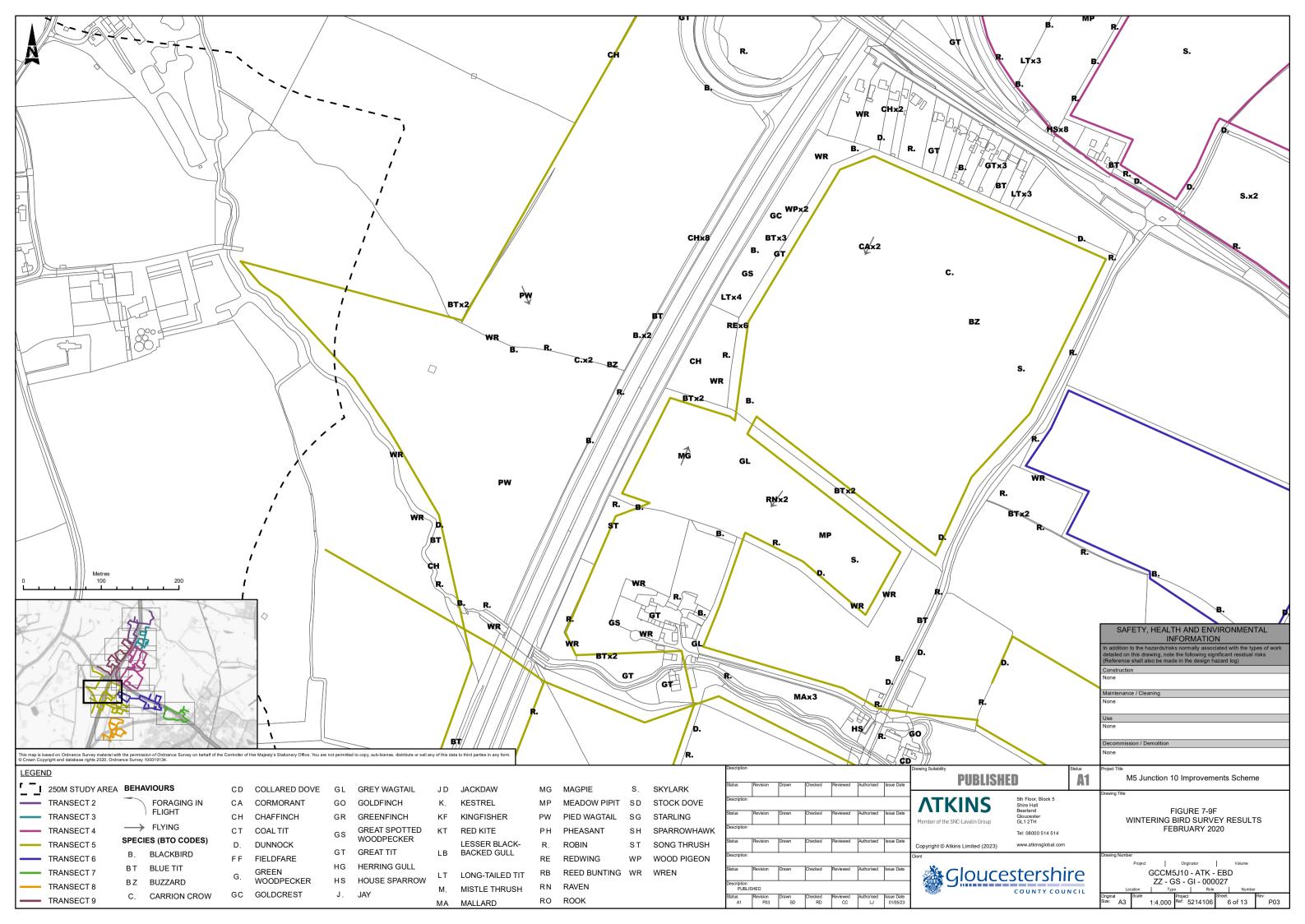


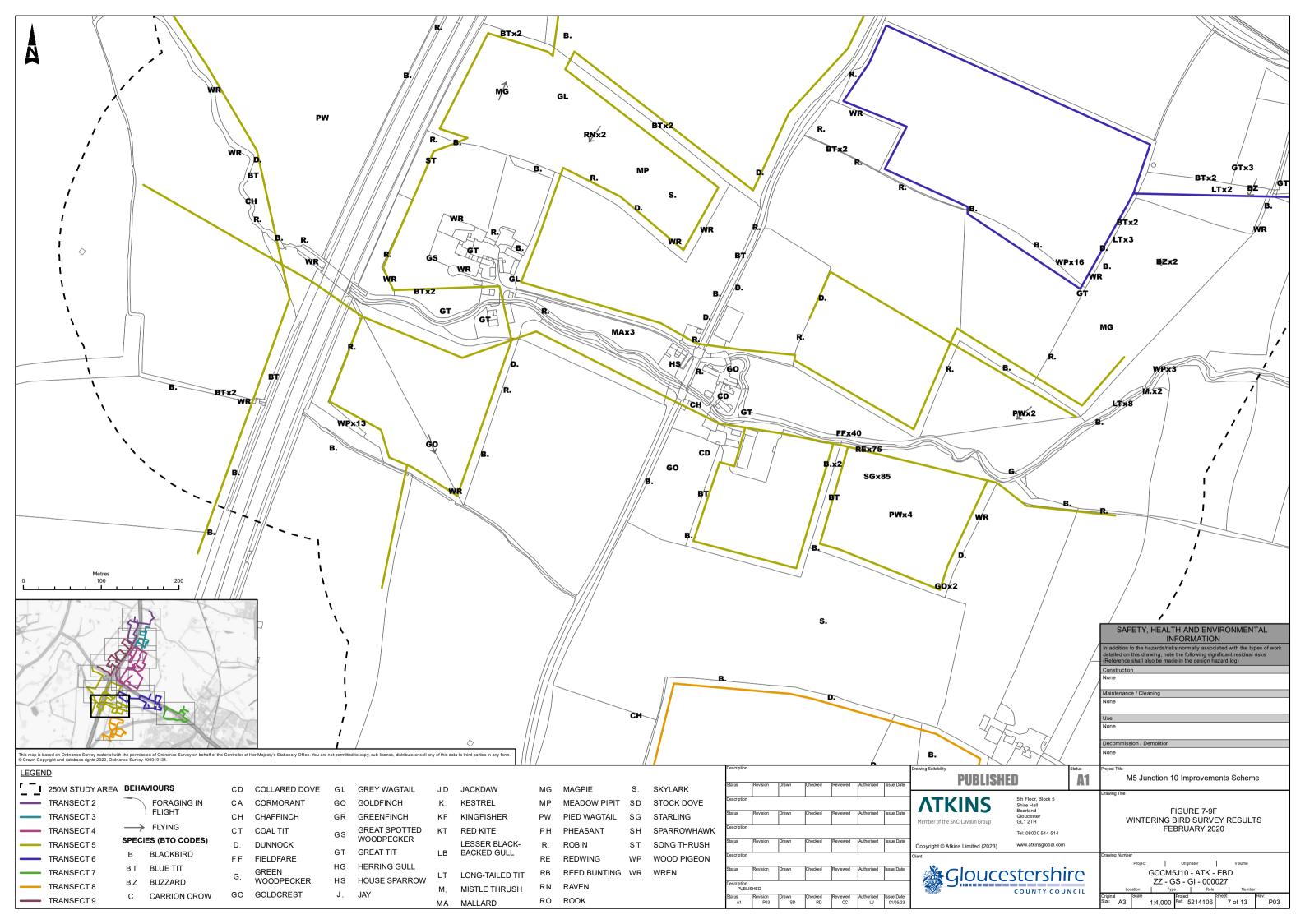


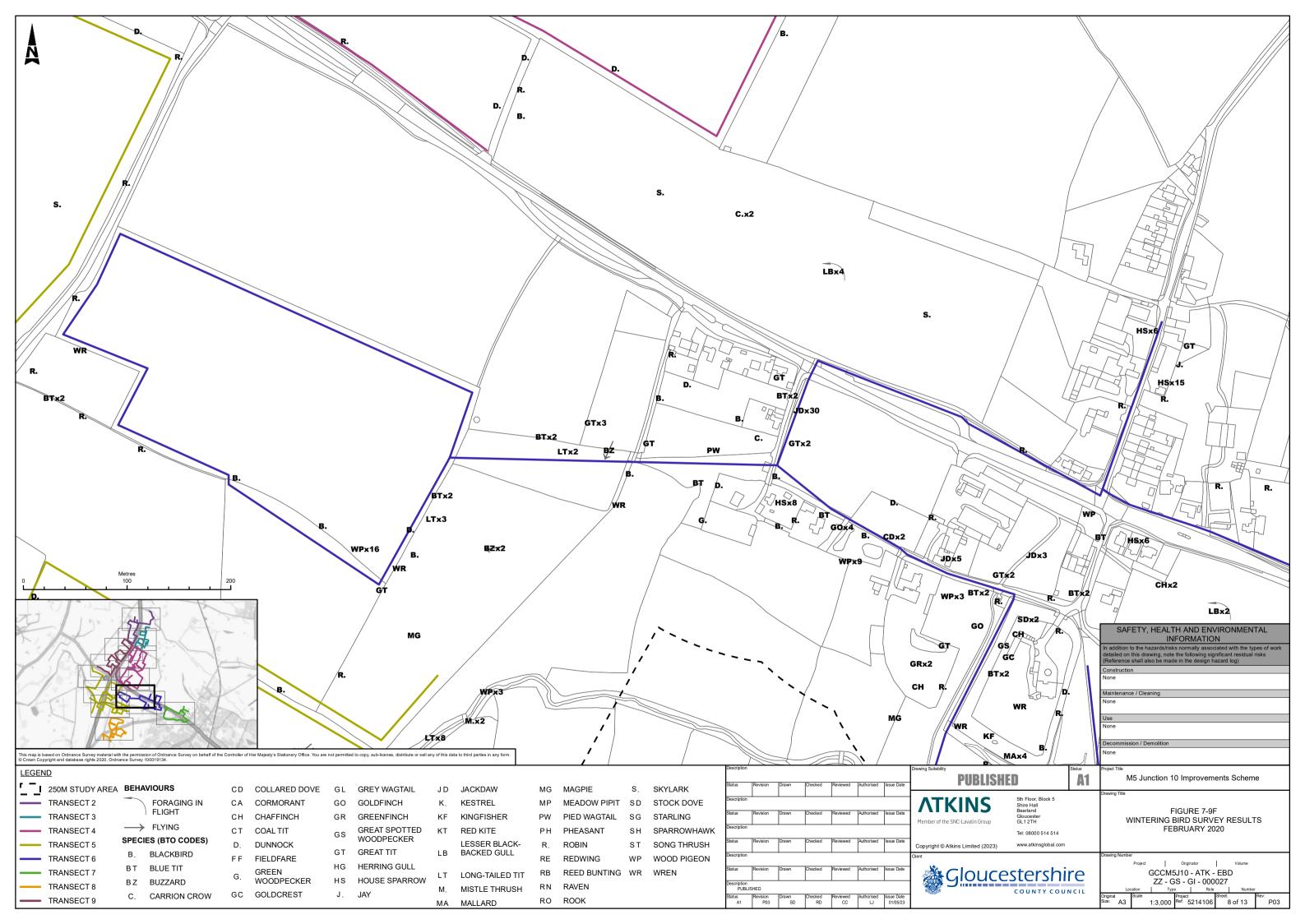


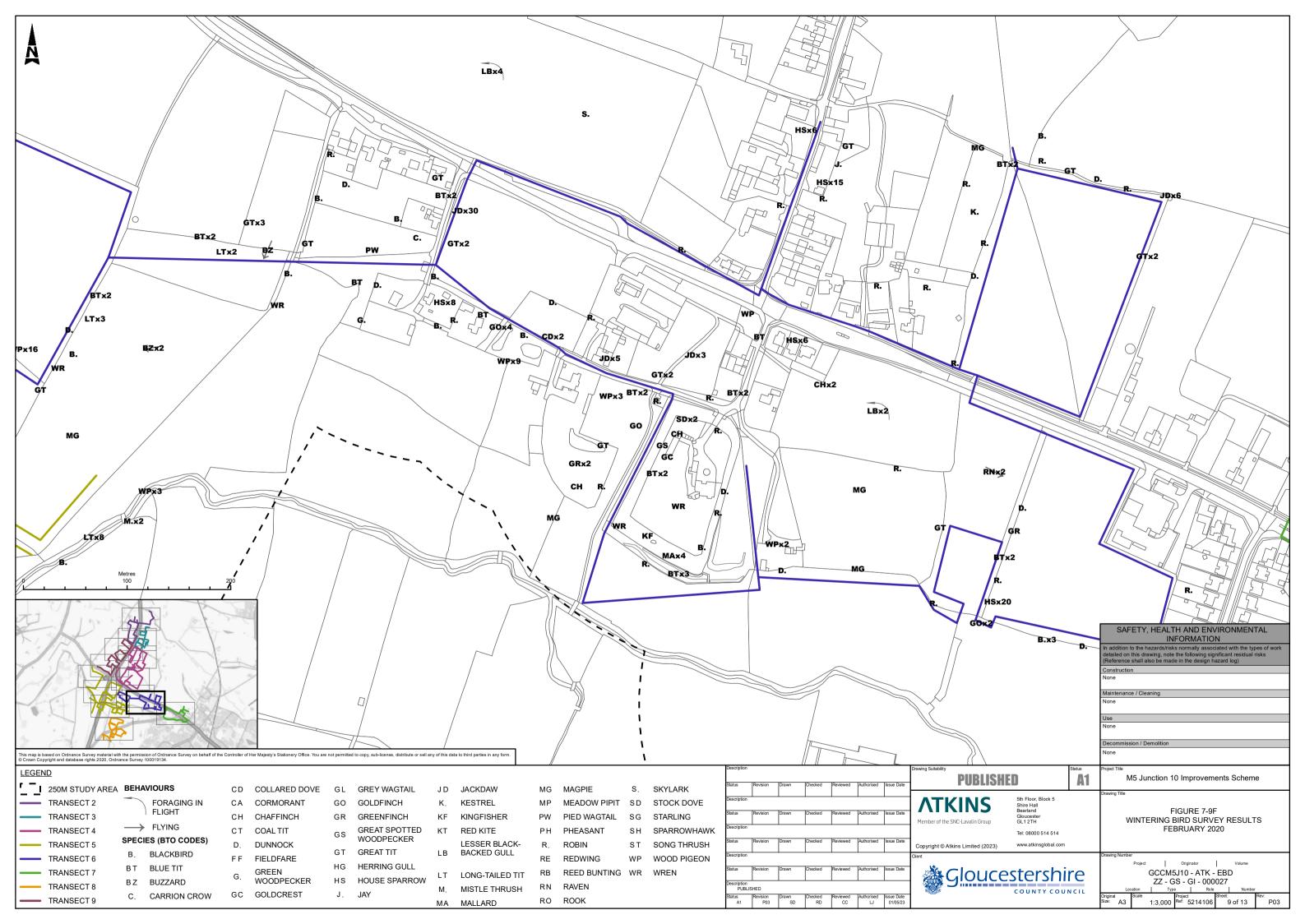


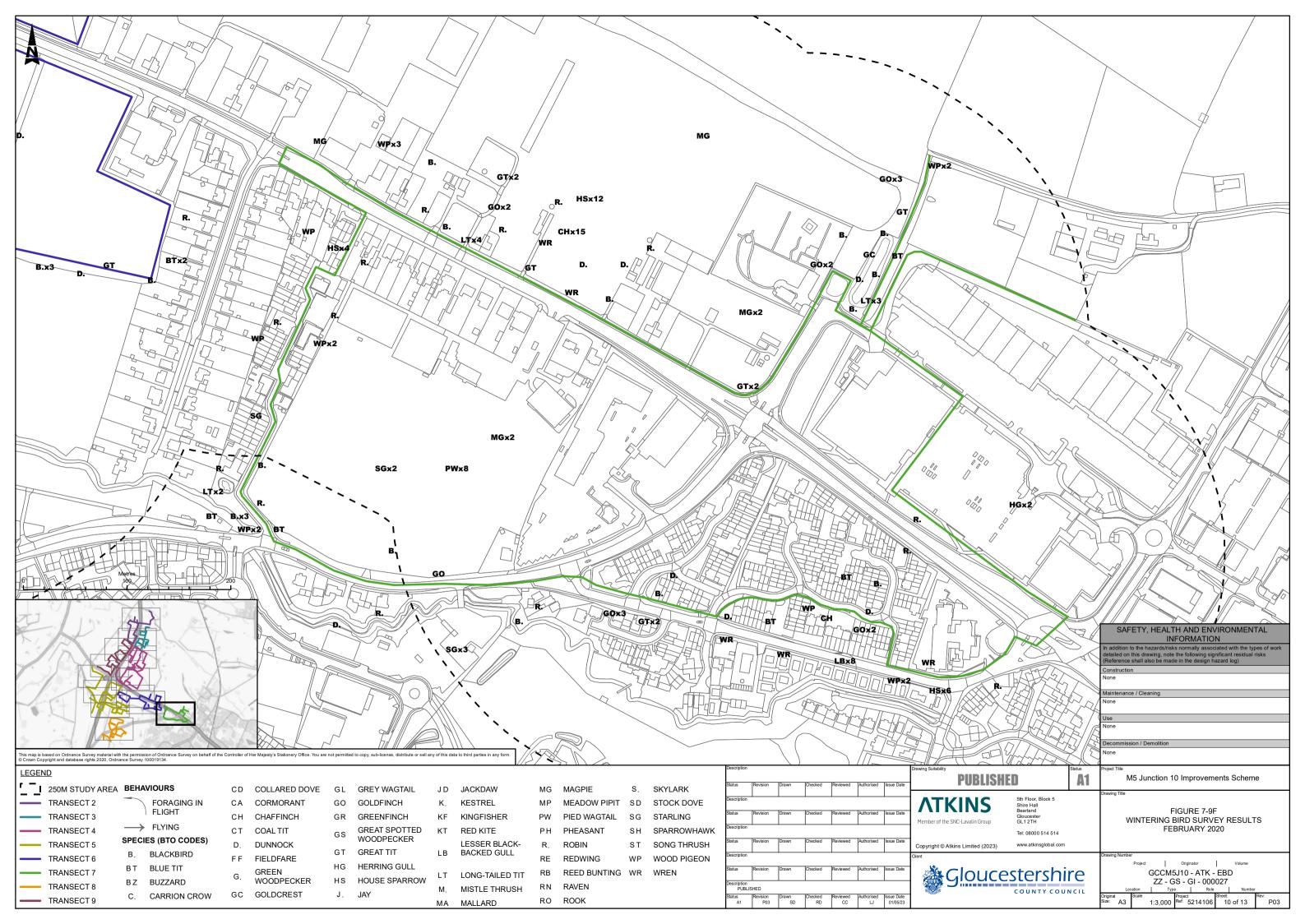


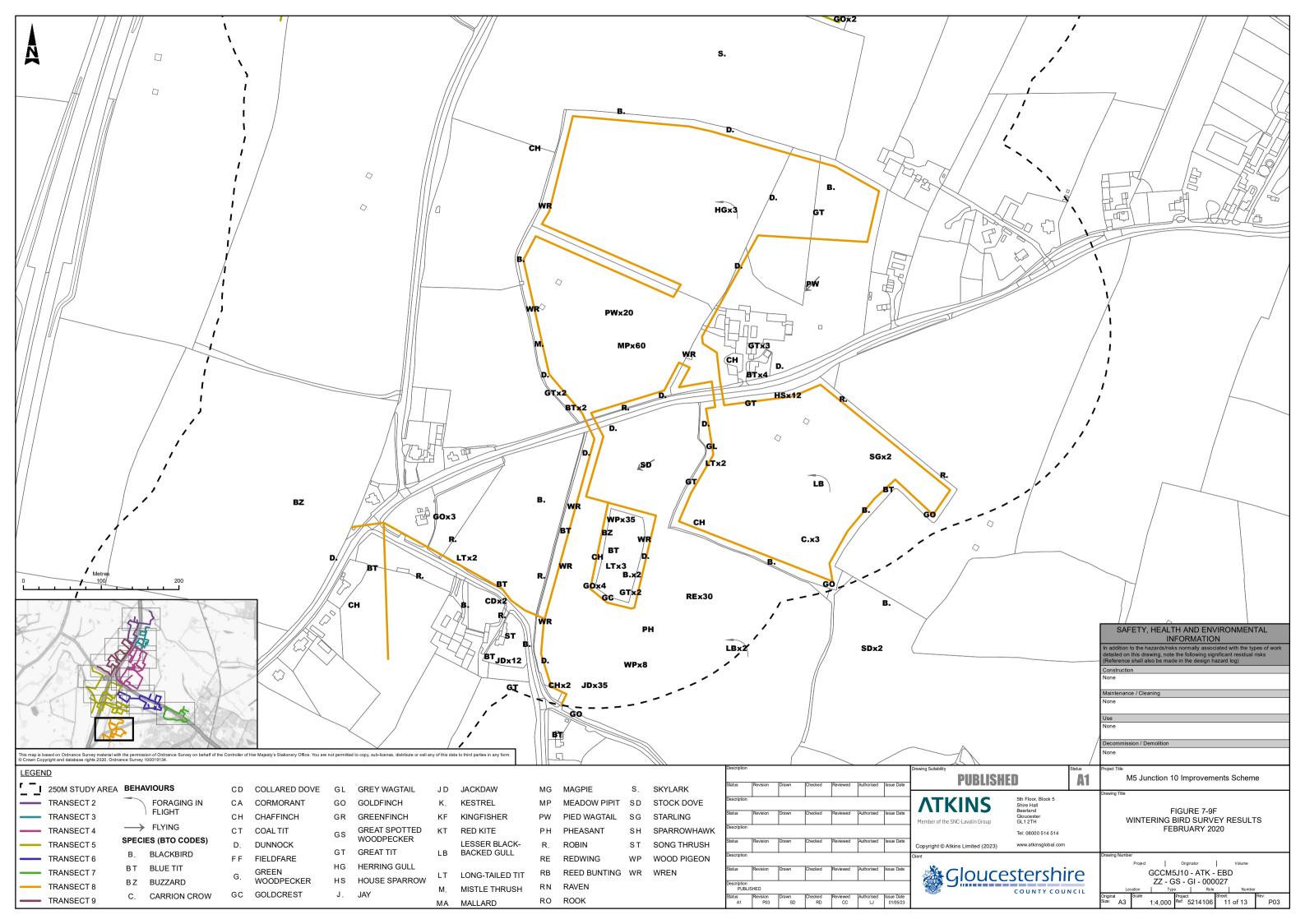


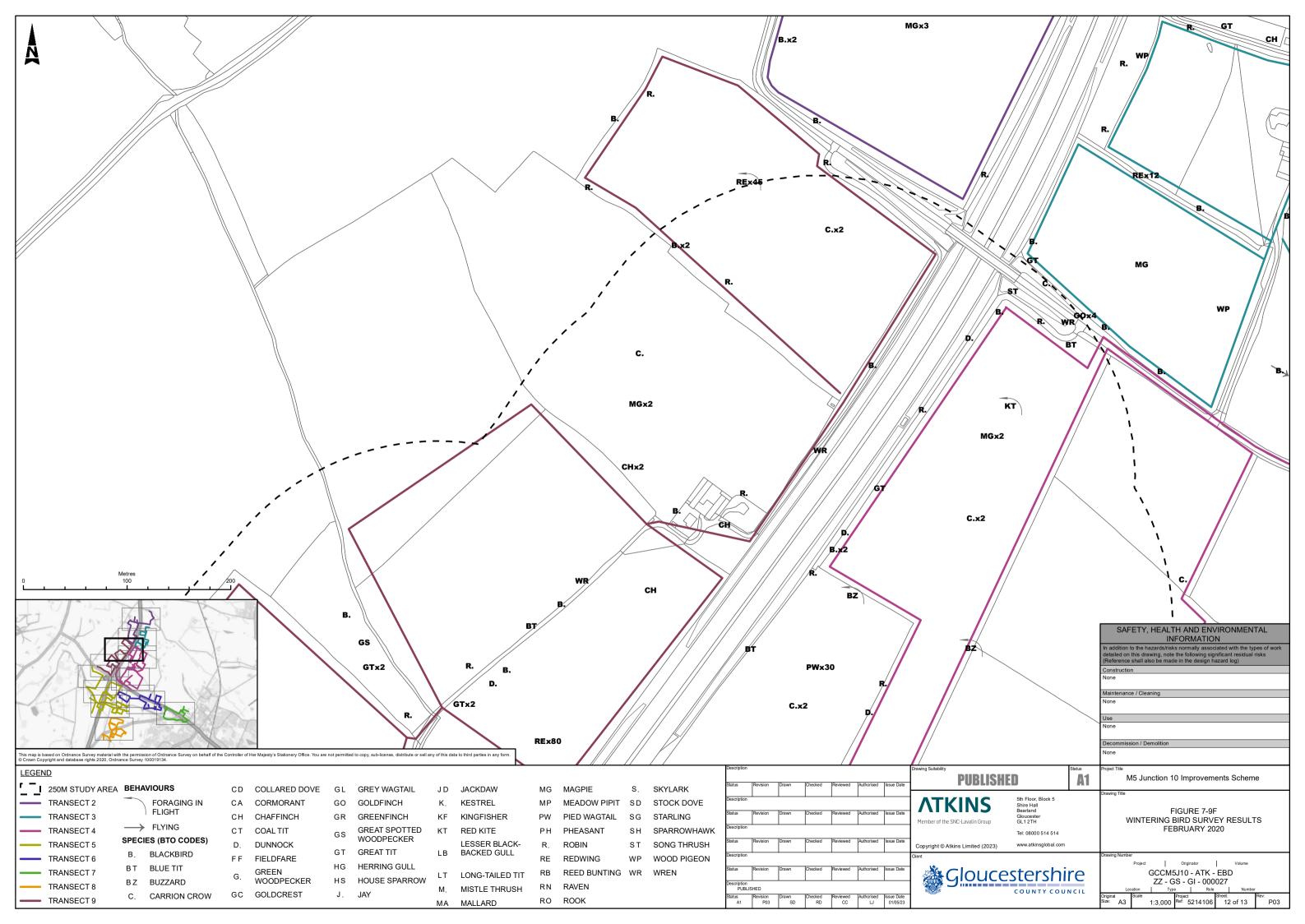


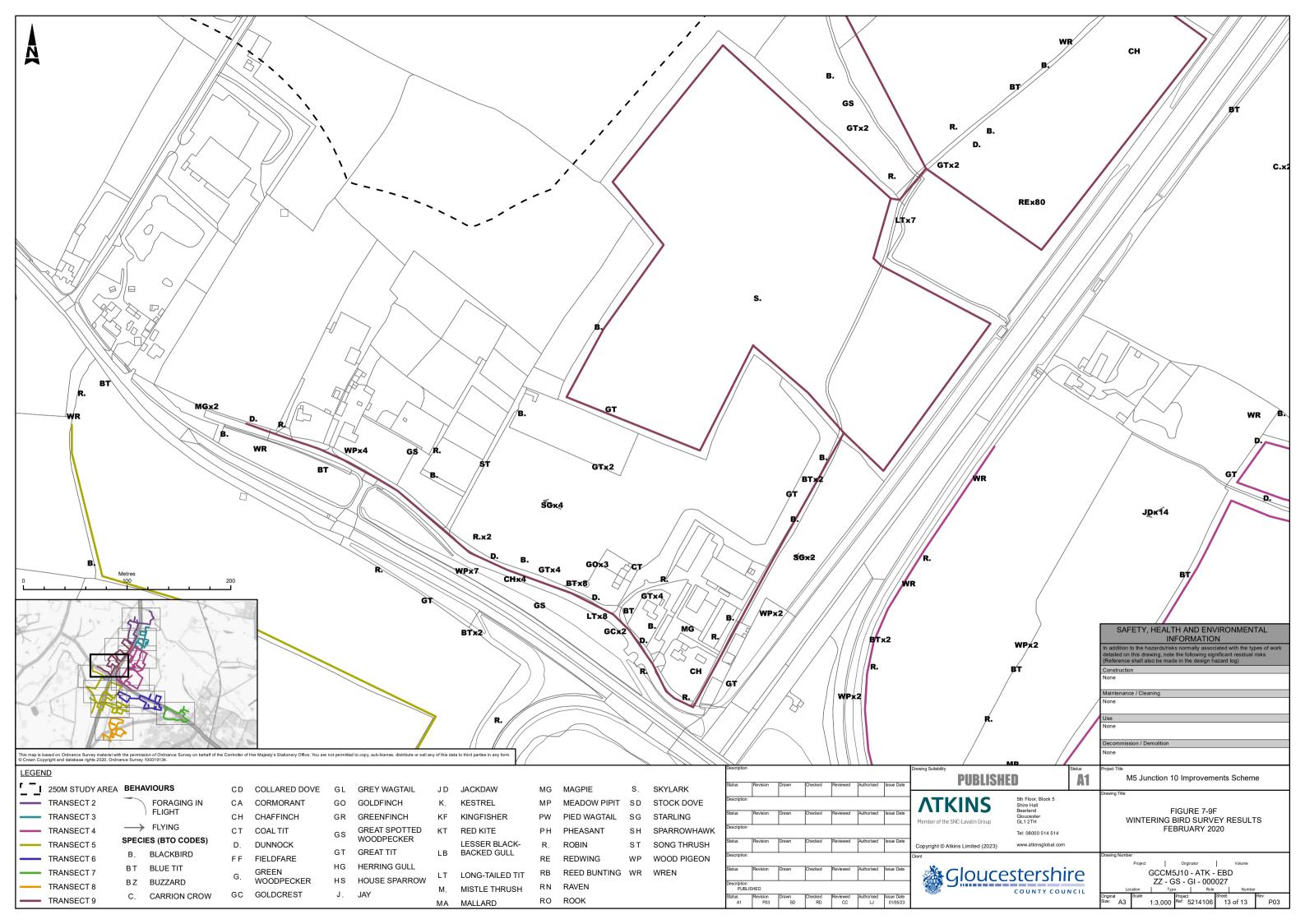


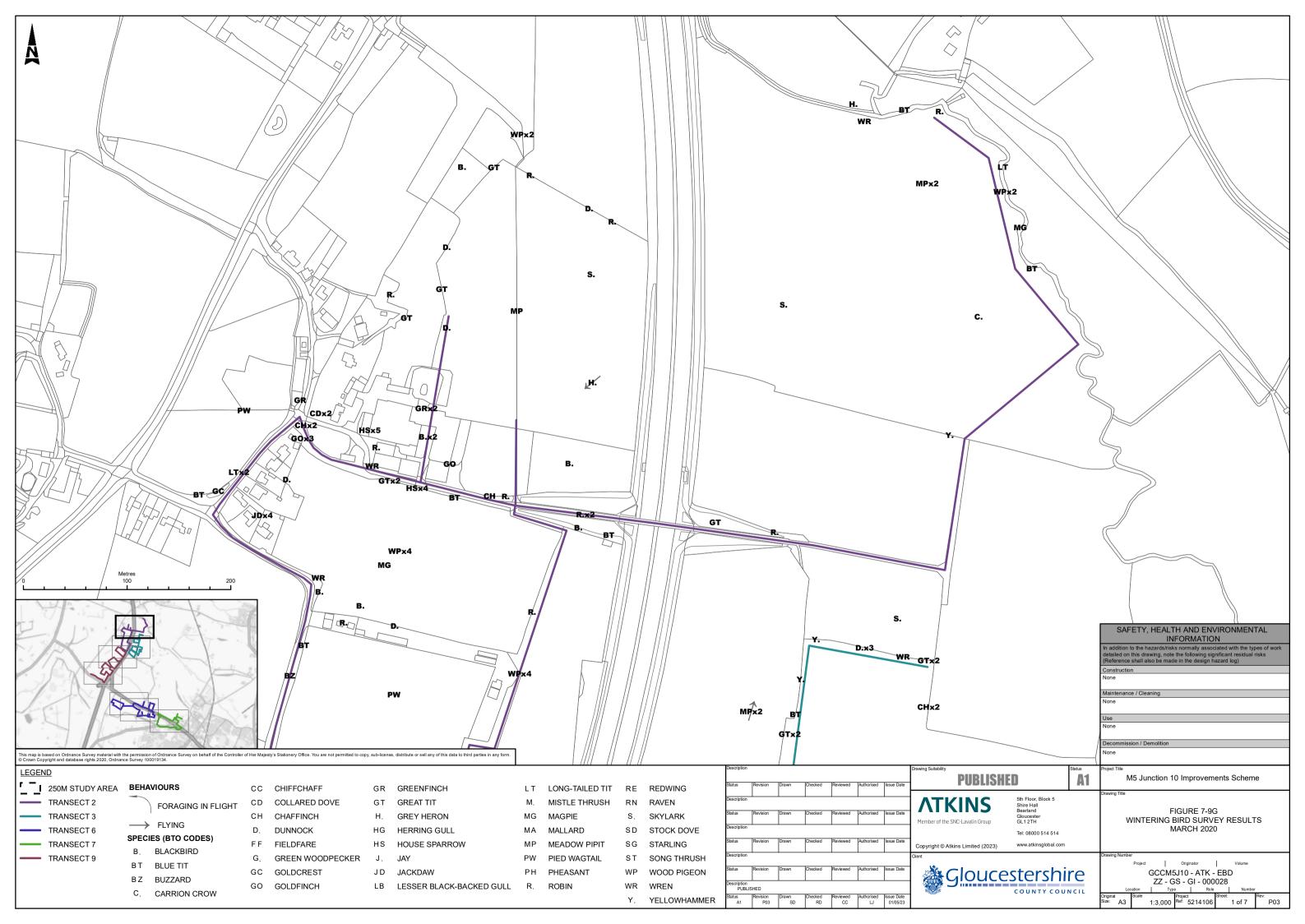


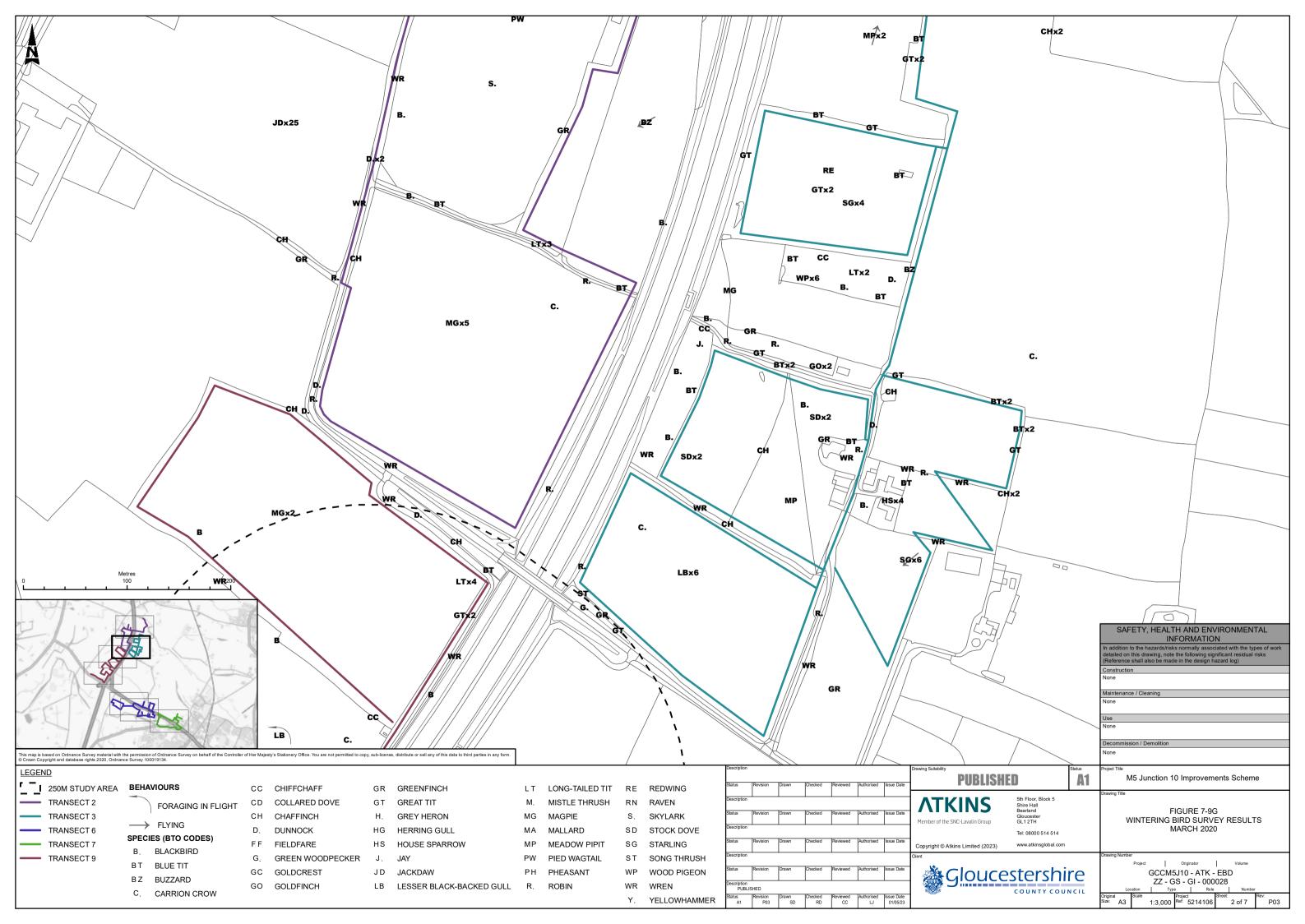


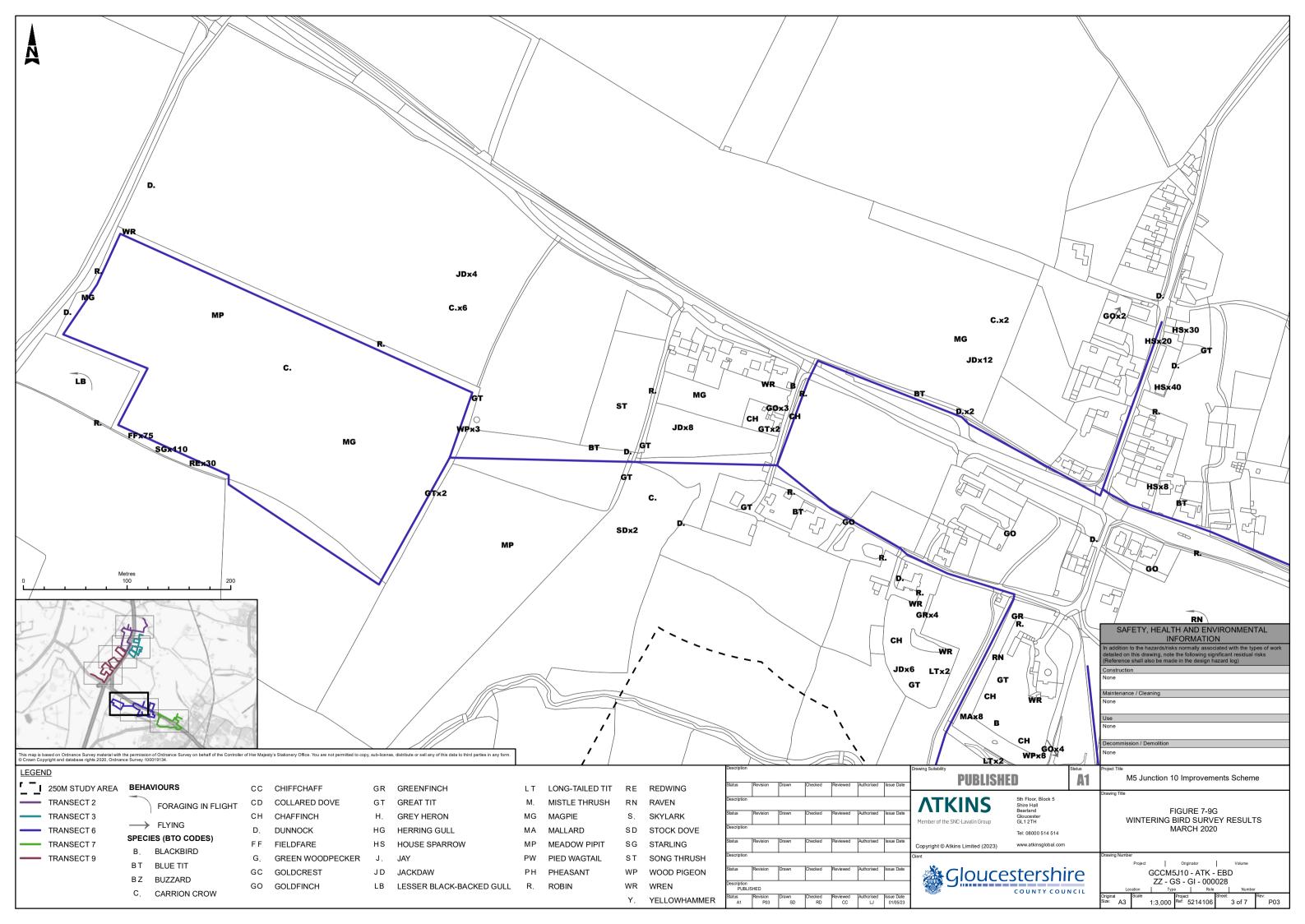


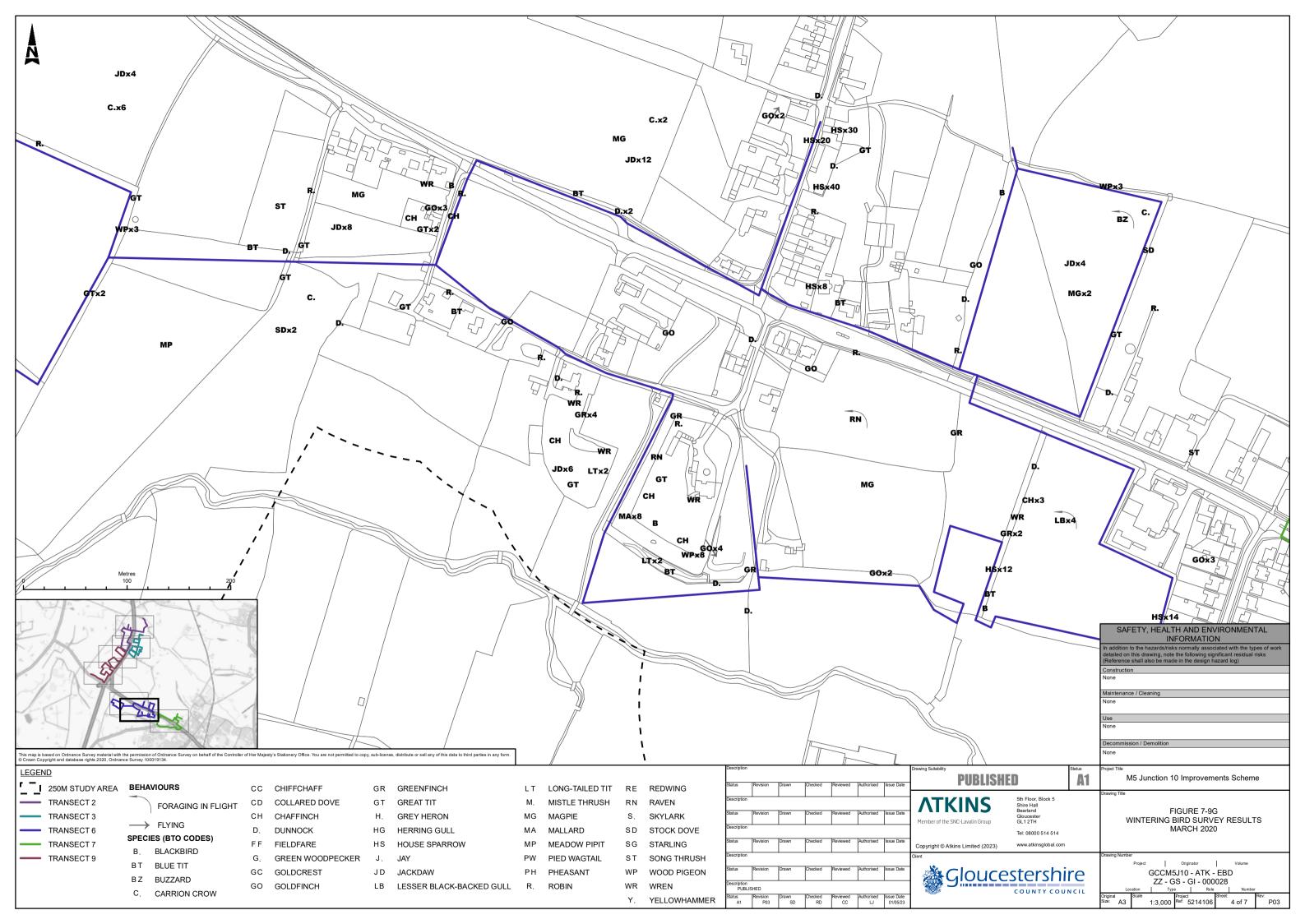


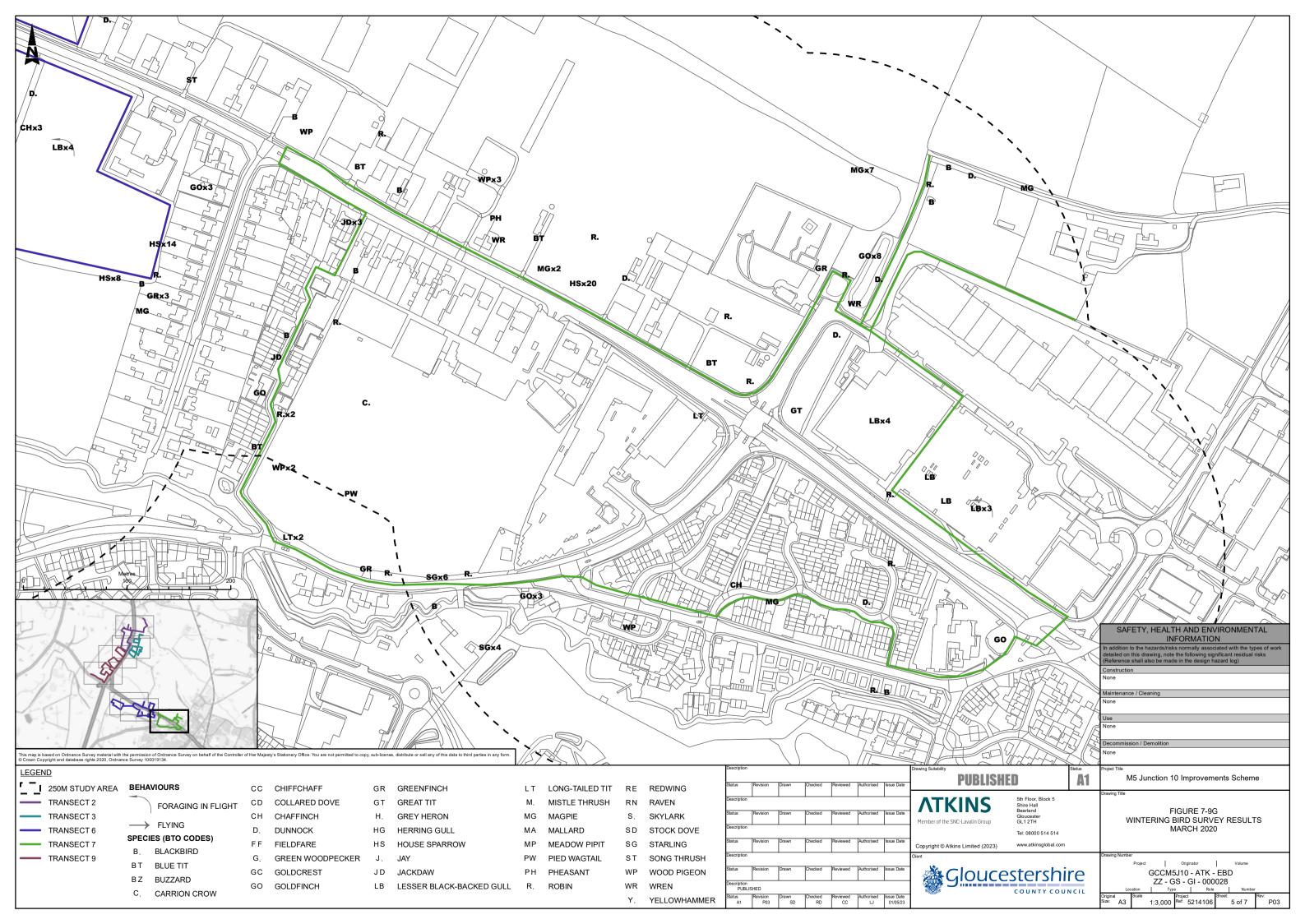


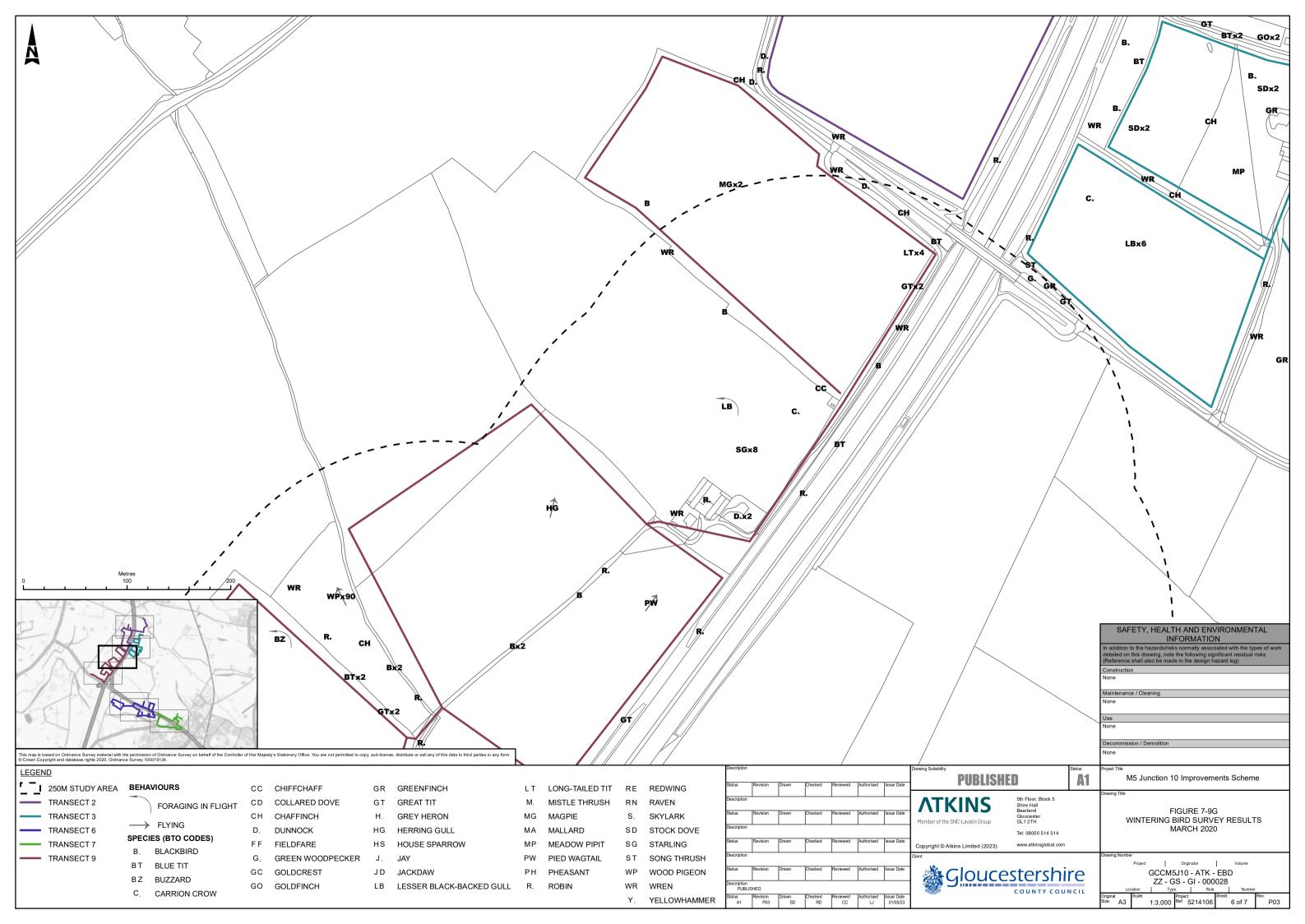


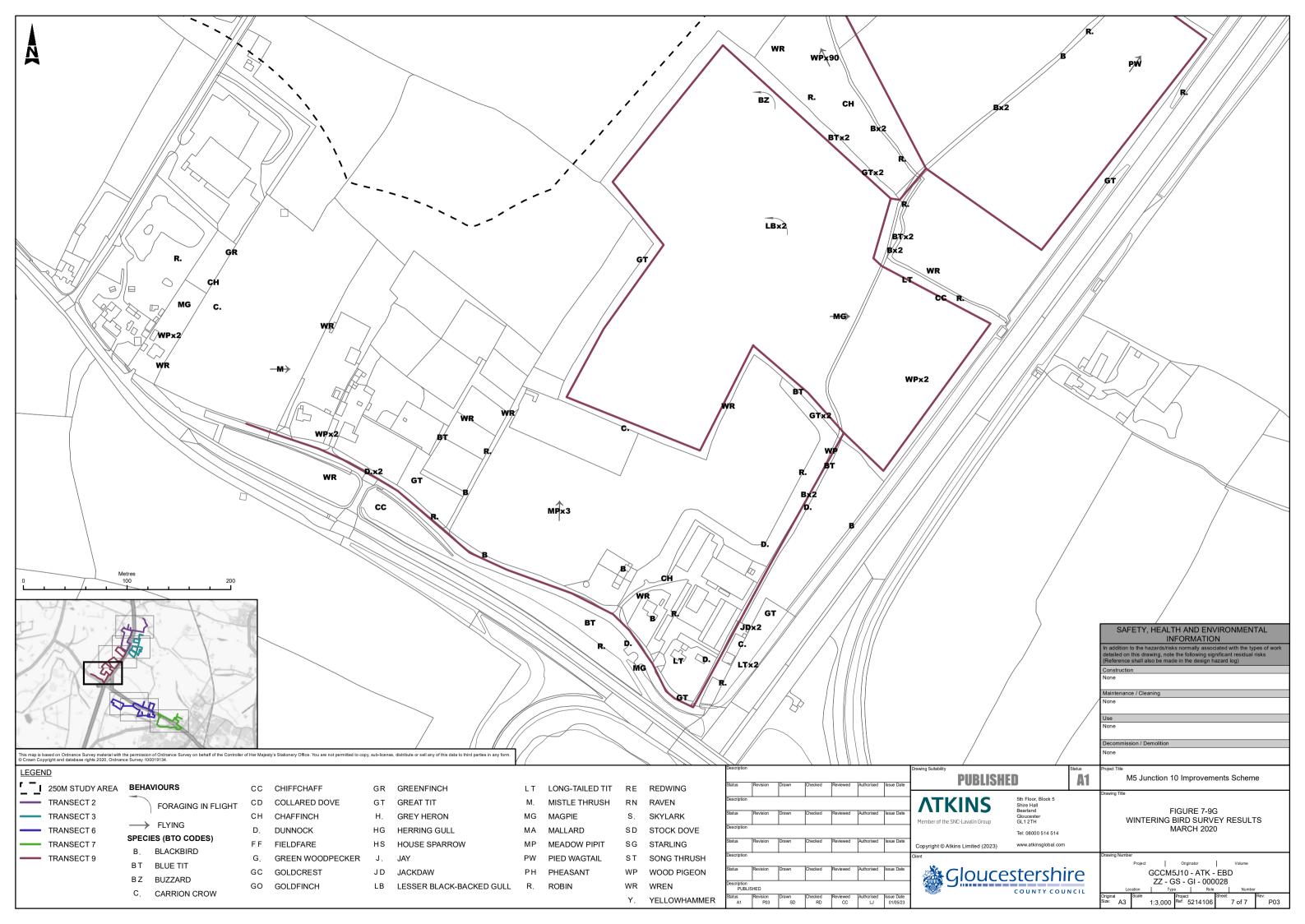














Appendix B. Dates, times, and weather conditions of each survey

Date	Start/end time	Temperature (°C)	Wind (Beaufort) ²⁶	Rain ²⁷	Cloud (Octas) ²⁸
September 2019					
04/09/2019	09:45/13:45	15-17	2-4	0	1-3
05/09/2019	09:30/16:30	15-16	3	0	6-8
06/09/2019	09:50/14:45	15	2	0	8
12/09/2019	09:40/14:30	16	2	0	8
13/09/2019	09:45/13:30	14	2	0	1
October 2019					
08/10/2019	09:10/15:00	13	2-3	0	1-3
09/10/2019	08:55/15:15	10-14	2	0	3-6
10/10/2019	09:00/14:00	14-15	2-4	0-1	8
16/10/2019	09:00/15:45	12-15	2-3	0	3-7
November 2019					
19/11/2019	09:30/15:10	4-5	2	0	5-8
20/11/2019	08:30/13:45	8	3	0	6
21/11/2019	08:30/13:00	5-6	3	0	8
27/11/2019	08:30/13:00	9	2	0	2
December 2019					
11/12/2019	08:45-14:45	5-6	2	0-1	3

²⁶ Wind speed score of 0-12 against Beaufort scale: 0 = calm, 2 = light breeze, 4 = Moderate breeze, 6 = strong breeze, 7 = High wind, 9 = Strong gale, 12 = Hurricane

Planning Inspectorate Scheme Reference: TR010063 Application Document Reference: TR010063/APP/6.15|

²⁷ Precipitation inte0nsity on scale of 0-5: 0 = Dry, 1 = Light drizzle, 2 = Light rain, 3 = Moderate rain, 4 = Heavy rain, 5 = Torrential rain.

²⁸ Cloud cover on a scale of 0-8: 0 = Sky completely clear, 4 = Sky half cloudy, 8 = Sky completely cloudy



Date	Start/end time	Temperature (°C)	Wind (Beaufort) ²⁶	Rain ²⁷	Cloud (Octas) ²⁸
12/12/2019	08:30-11:45	7	3	0-2	8
13/12/2019	08:45-14:45	6	2-4	0	4-7
19/12/2019	10:45-13:30	11	4	0-2	4-8
January 2020					
14/01/2020	08:40-13:30	7	2-3	0-1	6-7
15/01/2020	08:45-13:15	7	2	0	8
16/01/2020	08:10-13:30	7-9	2-4	2	1-8
24/01/2020	08:05-11:00	6	0-1	0	8
February 2020					
11/02/2020	08:00-12:30	4-6	4	0-1	2
14/02/2020	08:15-13:00	3-6	2	0	3
17/02/2020	08:00-13:15	4-5	4	0-1	5-6
21/02/20	07:50-10:15	6	3		8
March 2020					
13/03/2020	08:00-11:00	7-8	2	0	3-8
20/03/2020	07:50-12:45	6-8	2-3	0	6



Appendix C. Survey Results

Species	Priority Species (Conservation/legal status)	Number per visit							Peak Count
		September	October	November	December	January	February	March	
Barn owl (<i>Tyto alba</i>)	Schedule 1	1							1
Blackbird (Turdus merula)		22	58	131	146	147	128	46	147
Blackcap (Sylvia atricapilla)		4		2					4
Black-headed gull (Chroicocephalus ridibundus)	Amber List BoCC5	40	2		211	60			211
Blue tit (Cyanistes caeruleus)		93	71	93	48	105	111	42	111
Buzzard (<i>Buteo buteo</i>)		21	20	11	12	10	11	5	21
Carrion crow (Corvus corone)		30	37	132	75	124	139	62	139
Chaffinch (Fringilla coelebs)		8	15	136	108	151	172	68	172
Chiffchaff (Phylloscopus collybita)		17	4	1				5	17
Coal tit (Periparus ater)		1	1	3		2	1		3
Collared dove (Streptopelia decaocto)		20	24	11	14	5	8	2	24
Cormorant (Phalacrocorax carbo)						1	2		2



Species	Priority Species (Conservation/legal status)	rvation/legal								
		September	October	November	December	January	February	March		
Dunnock (Prunella modularis)	Amber List BoCC5, SPI	20	50	76	58	36	70	43	76	
Feral pigeon (<i>Columba</i> <i>livia</i>)		55							55	
Fieldfare (Turdus pilaris)	Schedule 1, Red List BoCC5			177	342	410	45	115	410	
Goldcrest (Regulus regulus)		1	1	10	6	3	8	1	10	
Goldfinch (Carduelis carduelis)		36	92	73	24	82	51	37	92	
Great spotted woodpecker (Dendrocopos major)		9	4	7	8	6	8		9	
Great tit (Parus major)		33	72	52	47	76	88	42	88	
Green woodpecker (<i>Picus viridis</i>)		3		2	2	5	4	1	5	
Greenfinch (Chloris chloris)	Red List BoCC5	1	3	2		1	10	24	24	
Grey heron (Ardea cinerea)		4		1		1		2	4	
Grey wagtail (Motacilla cinerea)	Amber List BoCC5	4	6	2	2	1	4		6	
Herring gull (Larus argentatus)	Red List BoCC5, SPI, Ram nf	306		21	133	22	45	1	306	
House martin (Delichon urbicum)	Red List BoCC5	14	1						14	



Species	Priority Species (Conservation/legal status)	Number per visit al							
		September	October	November	December	January	February	March	
House sparrow (Passer domesticus)	Red List BoCC5, SPI	94	88	166	85	145	138	165	166
Jackdaw (<u>Coloeus</u> monedula)		203	206	106	81	177	133	69	206
Jay (Garrulus glandarius)		2	2	3	2	3	2	1	3
Kestrel (Falco tinnunculus)	Amber List BoCC5	4	4	7	3	1	1		7
Kingfisher (Alcedo atthis)	Schedule 1, Annex 1		1			1	1		1
Lapwing (Vanellus vanellus)	Red List BoCC5, SPI, SPA					2			2
Lesser black-backed gull (Larus fuscus)	Amber List BoCC5, Ram fc	148	2		7	3	42	23	148
Lesser whitethroat (Curruca curruca)		1							1
Linnet (Linaria cannabina)	Red List BoCC5, SPI, GBAP		34	2					34
Little grebe (Tachybaptus ruficollis)				3					3
Long-tailed tit (Aegithalos caudatus)		63	79	101	65	122	58	23	122
Magpie (<i>Pica pica</i>)		41	43	54	44	42	38	32	54
Mallard (Anas platyrhynchos)	Amber List BoCC5, SPA		6		2	6	9	8	9
Meadow pipit (Anthus pratensis)	Amber List BoCC5	2	41	86	22	119	83	12	119



Species	Priority Species (Conservation/legal status)	(Conservation/legal								
		September	October	November	December	January	February	March		
Mistle thrush (Turdus viscivorus)	Red List BoCC5	7	1	7	7	5	4	1	7	
Moorhen (Gallinula chloropus)	Amber List BoCC5			4		3			4	
Pheasant (Phasianus colchicus)		1		8	9	3	2	1	9	
Pied wagtail (<i>Motacilla</i> <i>alba</i>)		2	13	26	50	35	70	4	70	
Raven (Corvus corax)		1	1	3		2	5	2	5	
Red kite (Milvus milvus)	Schedule 1, Annex 1						1		1	
Red-legged partridge (<i>Alectoris rufa</i>)				1					1	
Redstart (Phoenicurus phoenicurus)	Amber List BoCC5	1							1	
Redwing (Turdus iliacus)	Schedule 1, Amber List BoCC5	4	12	117	300	340	416	31	416	
Reed bunting (Emberiza schoeniclus)	Amber List BoCC5, SPI, GBAP			1		1	1		1	
Robin (Erithacus rubecula)		109	124	126	80	157	127	64	157	
Rook (Corvus frugilegus)	Amber List BoCC5	138	231	110	100	98	40		231	
Skylark (Alauda arvensis)	Red List BoCC5, SPI, GBAP		37	12	2	6	13	5	37	
Song thrush (Turdus philomelos)	Amber List BoCC5, SPI, GBAP		2	3	3	4	6	3	6	



Species	Priority Species (Conservation/legal status)	Number per visit							
		September	October	November	December	January	February	March	
Sparrowhawk (Accipiter nisus)	Amber List BoCC5	3	1	2	1	1	1		3
Spotted flycatcher (<i>Muscicapa striata</i>)	Red List BoCC5, SPI, GBAP	1							1
Starling (Sturnus vulgaris)	Red List BoCC5, SPI	163	250	95	962	604	439	138	962
Stock dove (<i>Columba</i> oenas)	Amber List BoCC5	47	1		17	24	5	7	47
Stonechat (Saxicola rubicola)			1	1		1			1
Swallow (Hirundo rustica)		70	22						70
Wheatear (Oenanthe oenanthe)	Amber List BoCC	11							11
Willow warbler (Phylloscopus trochilus)	Amber List BoCC	3							3
Wood pigeon (Columba palumbus)	Amber List BoCC	445	259	195	234	175	144	136	445
Wren (Troglodytes troglodytes)	Amber List BoCC	6	29	40	31	34	46	35	46
Yellowhammer (Emberiza citrinella)	Red List BoCC, SPI	4	5	1	1			3	5

Key:

Annex I: species listed on Annex I of the Directive 2009/147/EC (the Birds Directive) Red List BoCC: species on the Red List of Birds of Conservation Concern 5 Amber List BoCC: species on the Amber List of Birds of Conservation Concern 5 SPI: species of principal importance for the conservation of biodiversity in England

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GBAP: Species listed on the Gloucestershire Biodiversity Action Plan

SPA: Severn Estuary SPA qualifying feature (wintering assemblage species)

Ram: Severn Estuary Ramsar site feature of interest

- fc: species/populations identified subsequent to designation for possible future consideration under criterion 6
- nf: noteworthy fauna



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