

Appendix 6.3

XL Route

Ecological

Walkover



ECU – LWUP XL Route Refurbishment

Ecological Walkover

DRAFT REPORT

Date: September 2024

Document:	BOWS23.097 ECU – LWUP XL Route Ecological Walkover Report			
Version	Date	Prepared by	Technical Reviewer	Approved by
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1. Introduction

- 1.1 Bowland Ecology Ltd. was commissioned by Scottish Power Energy Networks (SPEN) to undertake an ecological walkover of the XL overhead line (OHL) running between the former Kincardine Power Station (NS923885) and the transmission license boundary at Blairingone (NS981966). This pertains to scheduled reconductoring works along the route, including the replacement of existing conductors between XL001A to XL006, the replacement of existing conductors between XL007 to XL031 (excluding XL006 to XL007), the replacement of existing downloads and associated fittings at Kincardine substation and the replacement and/or upgrade of damaged / corroded tower steelwork where required between XL001A-XL006 and XL007-XL031. The commencement of works is scheduled for Autumn 2024.
- 1.2 The landscape surrounding the existing XL OHL route comprises enclosed arable fields, improved and semi-improved neutral grassland, and a large working quarry with scattered areas of semi-natural and plantation woodland, scrub, and marshy grassland. Field boundaries include narrow grassland strips, hedgerows, and small watercourses/drainage ditches.
- 1.3 The assessment follows the Guidelines for Preliminary Ecological Appraisal and the Guidelines for Ecological Report Writing (CIEEM 2017a; 2017b) and is in line with the British Standard BS42020:2013 'Biodiversity – Code of practice for planning and development'. It is based on information from a desk study, and an Extended Phase 1 Habitat Survey.
- 1.4 The aim of the assessment is to:
 - 1) identify designated sites and important habitats occurring within the area;
 - 2) identify the presence of or potential for notable species, including legally protected species and invasive species; and
 - 3) assess likely impacts and recommend suitable mitigation measures pertaining to the proposed works.
- 1.5 The report includes a description of the methods used, desk study of the route including species records, an ecological assessment of the survey area (including a 50m buffer for each tower and 10m buffer for all access routes), and recommendations to protect and enhance biodiversity and address legal requirements.

2. Methodology

Desk Study

- 2.1 The aim of the desk study was to identify the presence of statutory and non-statutory designated wildlife sites and legally protected species within 1km of the site boundary.
- 2.2 The NatureScot SiteLink (sitelink.nature.scot/map), Scotland's Environment (map.environment.gov.scot), and Renfrewshire Council (renfrewshire.gov.uk) websites were reviewed for information on statutory and non-statutory wildlife sites within 1km of the site boundary.
- 2.3 Information on woodlands listed on the Ancient Woodland Inventory (AWI) within a 50m buffer zone of the OHL were sought from Scotland's Environment website.
- 2.4 Information on Tree Preservation Orders (TPOs) within a 50m buffer zone were sought from Scotland's Environment website and Renfrewshire Council.
- 2.5 A search of the National Biodiversity Network Atlas (NBN; scotland.nbnatlas.org) website was carried out to identify any commercially available records of protected and/or notable species within 1km of the site boundary. The most notable records are presented in the report in the relevant species sections below, and in Appendix A.
- 2.6 Ordnance Survey (OS) maps and aerial photographs were reviewed to help identify the presence of water bodies and notable habitats, such as hedgerows and woodlands up to 200m from 50m tower buffers and access tracks which may provide aquatic or terrestrial habitat for a great crested newt (*Triturus cristatus*, GCN).

Extended Phase 1 Habitat Survey

- 2.7 The walkover survey broadly followed the Phase 1 Habitat survey methodology (JNCC, 2010; CIEEM 2017b). Within a 50m buffer around each tower and a 10m buffer along proposed access routes, all habitats were mapped (based on the Phase 1 habitat types) and all features of ecological significance were described in Target Notes.
- 2.8 In addition, evidence of and potential for legally protected and notable species was noted, in particular:
 - potential roosting sites for bats within trees (identification of suitable cracks and crevices – survey undertaken externally and from ground level only); an assessment of the suitability of bat roosting, foraging and commuting habitat was undertaken based on Collins (2023);
 - habitats utilised by other notable and protected species, including amphibians (particularly great crested newt), badger (*Meles meles*), nesting birds (including any active or disused bird nests), otter (*Lutra lutra*), reptiles (e.g. common lizard, *Zootoca vivipara*), and water vole (*Arvicola amphibius*); ponds within 200m of 50m tower buffers and access tracks (access permitting) were subject to a great crested newt Habitat Suitability Index (HSI) assessment (see Oldham *et al.* 2000)¹; and

¹ A HSI is a numerical index, between 0 and 1. Values close to 0 indicate unsuitable habitat, 1 represents optimal habitat. The HSI for the great crested newt incorporates ten suitability indices, all of which are factors known to affect this species. The HSI for great crested newt is a measure of habitat suitability - it is not a substitute for newt surveys.

- the presence of the most common invasive plant species subject to strict legal control including: Japanese knotweed (*Fallopia japonica*), giant knotweed (*F. sachalinensis*), hybrid knotweed (*F. x bohemica*), giant hogweed (*Heracleum mantegazzianum*), rhododendron (*Rhododendron ponticum*, *R. ponticum* x *R. maximum* and *R. luteum*), and Himalayan balsam (*Impatiens glandulifera*).

- 2.9 The survey was carried out by Harriet Megson MRes BA, Hayley Care BSc. ACIEEM, and Rebecca Mills, BSc. On the 8th and 9th July 2024. The weather conditions are provided in Table 1 in below.

Table 1: Survey dates and weather conditions

Date	Weather
08/07/2024	Warm and sunny, with 40% cloud cover, Beaufort scale 2 winds, and a temperature of 17°C
09/07/2024	Mild and drizzly, with 90% cloud cover, Beaufort scale 4 winds, and a temperature of 14°C.

Limitations

- 2.10 Five towers (XL001, 003, 004, 005, 006A) were not surveyed due to access issues. Instead, these towers have been assessed for potential ecological constraints based on available desk-based data.
- 2.11 Desk study data should not be treated as a comprehensive list of species present within a search area. Many species are under-recorded and low numbers of records can indicate a lack of survey effort in some areas, rather than confirm the absence of a species.
- 2.12 The habitat survey focused on the most prominent and important species within the time available, rather than aiming to identify all species that might present within site. Ecological surveys are also limited by factors that affect the presence of plants and animals, such as the time of year, migration patterns and behaviour. Therefore, the survey of the study area has not produced a complete list of plants and animals.
- 2.13 The list of invasive plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) is extensive and these plants are found in a range of different habitats, including aquatic habitats. The Extended Phase 1 Habitat Survey checked, in particular, for the presence of Japanese knotweed, giant knotweed, hybrid knotweed, giant hogweed, rhododendron and Himalayan balsam. There may be other invasive plant species present on the site which were not recorded, but it is considered that the survey was sufficient to identify any significant constraints posed by invasive plants.

3. Results, Assessment of Constraints and Recommendations

- 3.1 This section sets out the information gathered from the desk study and field survey, together with an assessment of potential impacts, ecological constraints, and recommendations for mitigation.
- 3.2 Commercially available desk study records are provided in Appendix A, an ecological constraints table in Appendix B and an ecological constraints plan in Appendix C. The ecological constraints table provides an overview of habitats and key interest features for wildlife, with associated constraints and recommendations for the duration of the proposed works. Information sheets for contractors are provided in Appendix D.
- 3.3 An assessment of potential impacts on (constraints) designated sites, habitats, and species is presented below. This is based on the information available on the proposed works and the professional judgement of the ecologists that prepared this report. It considers legal requirements (see Appendix E) and relevant national and local planning policies. If the proposals are changed significantly, the assessment will need to be reviewed.

Designated Sites

- 3.4 Within 1 km of the towers along the OHL and their associated access routes, there is one statutory designated Site of Special Scientific Interest (SSSI) and one Special Protection Area (SPA).
- **Firth of Forth, biological SSSI and SPA** (6317.93ha) with mixed geography located 0.3km southeast of the site boundary. This site is noted for its importance as feeding grounds for wintering and migratory birds including waders and wildfowl.
- 3.5 The desk study also identified one non-statutory designated site within 1km of the site boundary.
- **The Brucefield Estate Local Nature Conservation Site** is located 0.15km southeast of Tower XL015. The site comprises a mosaic of habitats including semi-ancient woodlands of Scot's pine (*Pinus sylvestris*), birch (*Betula spp.*), and oak (*Quercus spp.*) as well as heath, wet meadows, and fields. There are 418 vascular plants, and 151 bryophytes recorded on the site, in addition to pine marten (*Martes martes*), red squirrels (*Sciurus vulgaris*), reptiles, bats, and bird species including barn owl (*Tyto alba*), green woodpecker (*Picus viridis*), lapwing (*Vanellus vanellus*), and tree sparrow (*Passer montanus*).
- 3.6 These designated sites are areas recognised for their high biodiversity value within the local context, however, they are not considered to be at risk from the proposed works due to the footprint and distance of the works from the site. Therefore, they are not considered further in this report.

Habitats

- 3.7 The towers and access routes are located within or in close proximity to the following Phase 1 habitat types: arable crops, disturbed ground - ephemeral/short perennial, other tall herb and fern – ruderal, improved grassland, poor semi-improved grassland, semi-improved neutral grassland, continuous bracken, broadleaved woodland – plantation, broadleaved woodland – semi-natural, coniferous woodland – plantation, mixed woodland – plantation, marshy

grassland, dense/continuous scrub, amenity grassland, buildings, built-up areas, bare ground, hedgerows, individual trees, lines of trees, watercourses, ponds, drystone walls and fences.

Priority Habitats

3.8 Priority habitats on the Scottish Biodiversity List (SBL) are considered to hold Principal Importance for biodiversity conservation in Scotland. Priority habitats listed on the SBL found within the survey area include:

- Hedgerows;
- Some types of marshy grassland (GWDTE);
- Lowland mixed deciduous woodland;
- Ponds; and
- Watercourses.

3.9 Habitat loss may occur as a result of the proposed works (such as through removal of areas of grassland to gain access to tower bases/clearance of hedgerow or trees/scrub habitat to access towers). Impacts to priority habitats should be avoided where possible and if not possible, minimised, especially with respect to excavations and stone track construction. Impacted habitats should be reinstated to their preconstruction condition following completion of works.

Hedgerows and Woodlands

3.10 The desk study did not identify any TPO's or TPO areas within 50m of the OHL. However, four areas of ancient (of semi-natural origin) and long-established (of plantation origin) woodlands listed on the AWI were identified within 50m of tower locations and within 10m of access tracks. These areas are listed below:

- Tulliallan Castle Woods, long-established (of plantation origin) woodland 9.22ha located adjacent to the access track for XL001 and XL002.
- Dicksons/Peathill wood, long-established (of plantation origin) woodland 8.44ha surrounds both XL009 and XL010.
- The Forrest, long established (of plantation origin) woodland 232ha surrounds both XL018 and XL019 and is also located 10m south of XL020 and 20m north of the access track for XL013-016.
- Blashie wood, long established (of plantation origin) woodland 6.07ha located 30m north of XL032.

3.11 Towers XL006, XL019, XL020, XL022, XL025A have semi-natural broadleaved or mixed woodland surrounding them or their access tracks which could potentially be at risk from the works. In addition, Towers XL002, XL011, XL011A, and XL031 have hedgerows surrounding them or their access tracks which could also potentially be at risk from the works. Woodland and hedgerows have high conservation value and are an important resource that should be protected and enhanced; habitat loss should be kept to a minimum. It is unknown if any tree felling is anticipated, however the removal/pruning of any overhanging branches could result in disturbance to the woodland. Additionally, plant/vehicle movement within and/or adjacent to woodlands or hedgerows could result in damage/disturbance to the integrity of soil and associated biodiversity. In addition, there is also a risk of potential contamination (oils, fuels) of the woodland understorey or hedgerow. The mitigation measures, as described in paragraph 3.14 should be strictly adhered to minimise and mitigate potential impacts.

Groundwater Dependant Terrestrial Ecosystems, Watercourses and Wetlands

- 3.12 Marshy grassland is likely to support potential Ground Water Dependant Terrestrial Ecosystems (GWDTE), which are a category of wetland where vegetation is critically dependent on groundwater. GWDTEs are protected under the Water Framework Directive (WFD). Although no excavations are anticipated to be situated in these potential GWDTEs, there is a risk of pollution of groundwater from leaks or spills from vehicles or equipment. Potential GWDTE habitat is located within the 50m tower buffer and 10m access track buffer for XL018, XL019, XL023, XL024, XL025, and XL031.
- 3.13 There are several small watercourses and drainage ditches throughout the survey area. Several ponds are also present, adjacent to, or within the vicinity of access tracks and towers. While the proposed works do not include direct impacts to the watercourses and/or ponds it could result in pollution of these habitats and the wider aquatic environment.
- 3.14 To avoid potential impacts resulting from pollution of the GWDTE, watercourses, ponds and other sensitive habitats; pollution prevention measures set out in SEPA guidance will be adhered to throughout the duration of the works. Recommended measures include, but may not be limited to:
- Micro-siting of the access routes will be employed, where possible, to avoid areas identified as sensitive habitats.
 - Works within sensitive areas should not take place during periods of prolonged drought or heavy rain.
 - Low ground pressure vehicles and bog mats will be used when it is necessary to track through sensitive habitats and the number of trips will be minimised.
 - No watercourse is to be tracked through using site vehicles as this could potentially cause silty water and damage the watercourse banks and / or bed. Existing crossing points, where present, or lightweight steel tracks or similar will be used where necessary to cross watercourses.
 - Any chemicals, fuels or synthetic substances will be stored and safely used in designated compounds/areas at least 10m from areas of marshy grassland or watercourses.
 - Vehicle refuelling in designated compounds/areas at least 10 m from areas of marshy grassland or watercourses (especially rivers) and fuel stored in double bunded containers at least 10 m from areas of marshy grassland or watercourses.
 - Drip trays or plant nappies to be used when refuelling and left under stationary machinery. Oil spill kits to be kept on site and within all machines.
- 3.15 If any excavations or stone track construction occur in areas of potential GWDTE, further hydrological assessment may be required in advance of works. This includes XL018, XL024, and XL025, as these towers are located within areas of marshy grassland.
- Upon completion of works all materials, debris, tools, plant and equipment will be removed and the work areas will be thoroughly checked for spillages or potential pollution sources.

Species

Bats

- 3.16 An online search on the NBN Atlas returned records for three bat species. Common pipistrelle (*Pipistrellus pipistrellus*) and Soprano pipistrelle (*Pipistrellus pygmaeus*) bats were recorded 1.25km west of the OHL in 2014, and Brown long-eared (*Plecotus auratus*) bats were recorded 1km north of the OHL in 2020.
- 3.17 There are several trees and woodland parcels within the survey area that are considered to offer potential bat roosting habitat. Collins (2023) guidance was followed to categorise the trees for the purpose of this report. Within the survey area, two trees were identified as having features suitable for individual roosting bats (PRF-I; T1, T3), and 17 trees were identified as having features suitable for multiple roosting bats (PRF-M; T2, T4 – T14). Additionally, several trees within the hedgerow along the access track to XL002 had PRF-M. Some areas of woodland/trees were inaccessible or had poor visibility during the survey; however, it was considered that they had potential for bat roosting features (XL008, 9, 10, 17, 29, 32). All trees and woodland areas offering bat roosting habitat are marked on the ecological constraints plan (Appendix C) and described in Appendix B.
- 3.18 It is unknown if any tree felling or pruning is anticipated during the works. Particular care must be taken when using access tracks lined with trees/areas of woodland with BRP outlined above and detailed in Appendix B, to ensure that tall vehicles and machinery do not cause any breakages to branches or damage to the tree. If branches or trees need to be removed, these must be assessed by a suitably qualified ecologist prior to removal and further bat surveys (e.g. aerial tree assessment, emergence surveys) may be required.
- 3.19 If bats are found or suspected, as a legal requirement, works in that area should cease immediately until further advice has been sought from NatureScot or the scheme ecologist. Before any work commences, all contractors should be made aware of the possible presence of bats and the signs to look for (Appendix D).
- 3.20 If additional lighting is required during works, light spillage onto surrounding habitats will be avoided to not impact on roosting, foraging and commuting bats. Any lighting on site will be designed in accordance with the appropriate guidance to minimise light spillage (BCT & ILE 2018).

Badgers

- 3.21 No record of badgers was returned from the desk study. Evidence of badger was only recorded near XL010 and comprised a disused entrance hole at the base of a Scot's pine tree and a faint mammal path leading to/from the hole (see Appendix B for further details and C for location).
- 3.22 All tower buffers surveyed comprise grassland, woodland or scrub habitat which provide potentially suitable commuting/foraging/sett building habitat. Badger sett holes may be excavated at any time. Given the mobile nature of badgers and the suitable habitat available across the OHL, it is likely that badgers move through the area and further setts may be present or may become present between the issuing of this report and the commencement of works. As such, the works carry a low risk of short-term disturbance to badgers through increased noise and presence of people or machinery.
- 3.23 Given the current low potential risk of impacts to badger, the following precautionary method statement should be implemented:
- All operatives on site will be given a 'toolbox' talk with regard to potential badger setts and legal requirements prior to commencement of works (Appendix E);

- A further check of the disused entrance hole within close proximity to XL010 in addition to the areas of suitable sett-building habitat near XL006, 8, 9, 11, 12, 13, 20, 22, 23, 33 is advised prior to the start of works;
- Any chemicals and fuels should be removed from site overnight or locked in a badger proof container;
- Works should be carried out during daylight hours, and any pits or excavation should be covered to prevent animals falling in and becoming trapped or have an escape ramp installed. No floodlighting is to be used outside daylight hours;
- Badger/mammal trails must be kept open and unobstructed at all times, especially gaps in fences;
- Should contractors observe a hole within 30m of working areas or access routes, further advice should be sought from the Ecological Clerk of Works (ECoW); and
- If any badgers are discovered during the works, works should cease immediately, and the project ecologist informed. Badgers should be allowed to leave the area naturally.

Birds

- 3.24 An online search on the NBN Atlas identified twelve bird species with red conservation status, 27 species with amber conservation status, and four Schedule 1 bird species, including black-tailed godwit (*Limosa limosa*), goldeneye (*Bucephala clangula*) and yellowhammer (*Emberiza citrinella*). Further information on these records is provided in Appendix A.
- 3.25 Suitable bird nesting habitat is present within all 50m tower buffers and access routes. Woodlands, scattered trees, hedgerows, dry stone walls and scrub provide nesting habitat for passerine bird species, and bracken, marshy grassland, and less intensively managed grassland (such as poor/semi-improved grassland) provide habitat for ground-nesting species. The towers themselves also provide nesting bird habitat, especially for raptors. Some raptors are classed as Schedule 1 species which gives them additional protection (see Appendix E). The presence of three birds' nests was confirmed within the buffer for XL030 (TN15).
- 3.26 If the works will commence during the breeding bird season which is generally considered between March to September (inclusive), there is potential for nests to be disturbed or destroyed, and individual birds killed or injured during any vegetation removal or vehicle tracking.
- 3.27 Given the potential risk of impacts to nesting birds, the following measures should be implemented if works are carried out within the breeding bird season:
- Prior to vegetation clearance and vehicular tracking through suitable bird nesting habitat, a check will be carried out (within 72 hours), where an ECoW will walk the working areas and access routes plus a buffer of 10 m to identify behaviour to suggest nesting as well as identifying specific nesting sites;
 - Contractors should check towers for nests prior to work. If a nest is identified, a nesting bird check will be required;
 - If/where active nests are identified a suitable buffer around the nest will be enforced and the nest left until the young have fledged. Exclusion zones will be defined by the ECoW on the ground depending on the work activities, species and (as appropriate) in line with relevant guidance including (but not limited to) the following text: Gilbert et al (1998); Ruddock and Whitfield (2007); and SNH (2014). Works will only be undertaken once the ECoW has declared the nest to be no longer in use; and

- If Schedule 1 bird species are encountered, works will not proceed until consultation with NatureScot has been completed and an approach agreed.

Otter and Water Vole

- 3.28 No record of otter or water vole was returned during the desk study and no evidence was found of either species during the surveys. There are several small watercourses and drainage ditches throughout the survey area, however, most of these are unsuitable for water vole due to the lack of water and/or high levels of shading from overhanging vegetation. Two drainage ditches that cross the access track for XL029 offer suitable but poor habitat for water vole. All these small watercourses and ditches may also be used by commuting otter, especially where they connect to larger watercourses or ponds.
- 3.29 The risk of impact to otter and water vole is considered to be low, however, the precautionary methods described below are considered appropriate to minimise any potential disturbance.
- All operatives will undergo a toolbox talk with regard to water vole burrows, potential otter holts and rest up sites, and legal requirements prior to commencement of works (Appendix E).
 - Use existing tracks and watercourse/ditch crossings wherever possible. When necessary, floating access tracks/bog mats and low ground pressure vehicles should be used to cross small watercourses and wet ground to avoid damaging bank integrity.
 - Works should be carried out during daylight hours, and any pits or excavation should be covered to prevent animals falling in and becoming trapped, or an escape ramp should be provided. No floodlighting to be used outside daylight hours.
 - Any chemicals and fuels should be removed from site overnight or locked in a secure container.
 - Otter/mammal trails must be kept open and unobstructed at all times, especially around watercourses.
 - Contractors should be made aware of the risk of encountering otters on site during the hours of dusk and dawn.
 - If a potential water vole burrow is identified within 10m of working areas, all works should cease immediately and the scheme ecologist contacted.

Red Squirrels and Pine Marten

- 3.30 The woodlands along the OHL primarily consist of conifer and mixed plantations (XL008, 9, 10, 11A, 18, 19, 20, 27, 29, 31, 32 and along access track for XL022), with some patches of semi-natural deciduous woodland (XL006, along access track for XL001/2/25A), all of which are suitable habitats for red squirrels and pine marten. However, several of these woodlands are young or semi-mature, reducing their overall suitability.
- 3.31 A red squirrel was observed in the more mature area of mixed plantation adjacent to XL010. No dreys were observed during the survey, however, some may have gone unnoticed, particularly in more densely planted areas. Considering the confirmed presence of red squirrels and the potential presence of their dreys, there is a risk of disturbing individuals while occupying a drey, particularly where works occur within 50m of dreys during the breeding season (February to September inclusive). If the works are limited to the non-breeding season, the likelihood of disturbing red squirrels is significantly reduced and is only expected in cases where the works are within 5m of a potential drey. While it is unknown if any tree felling or

pruning is anticipated, there is a risk of damage or destruction of a drey during tree felling/pruning activities.

3.32 The precautionary methods described below are considered appropriate to minimise risks to red squirrels that are likely in the area.

- All operatives will undergo a toolbox talk covering red squirrel ecology, suitable habitat, relevant legislation, and the procedures to follow if encountering red squirrels or their dreys.
- If tree felling or pruning is required, a pre-works check should be conducted in suitable woodland areas, including a 50m buffer. Given that new dreys can be constructed within a few days, pre-works checks, especially during the breeding season (February to September inclusive), should be conducted within a maximum of three weeks before the start of tree felling, or pruning works. Any potential dreys found will be subject to further surveys/monitoring to determine their usage by red squirrels.
- Scheduling of works should occur between October and January, where possible, to ensure activities fall outside the breeding season and prevent disturbance to breeding dreys.
- If squirrel dreys are encountered, all work within 50m will cease, a protection zone installed, and the scheme ecologist will inspect the area and determine suitable mitigation and requirements for licensing through consultation with NatureScot as necessary. Works will not proceed until an agreement method of works has been devised.

3.33 The desk study also returned one record of pine marten, 0.40km south of the OHL in 2014. No signs of pine marten or any potential den sites were identified during the survey, however, considering their local presence, their large home range size, and the potential availability of den sites in farm building roof-voids and in more mature woodland areas (including root cavities and root plates of wind-blown trees), the potential for undetected dens or the establishment of new dens in the future cannot be dismissed.

3.34 Considering the possibility of undetected or newly established pine marten dens, there is also a risk of damage, destruction or obstruction of a pine marten den, as well as the potential killing, injury and/or disturbance to pine marten if present in a den during the works, especially if conducted during the breeding season (March to June inclusive) when breeding females are confined to natal den sites.

3.35 Given the current low potential risk of impacts to pine marten, the precautionary methods below should be implemented:

- All operatives will undergo a toolbox talk covering pine marten ecology, suitable habitat, relevant legislation, and the procedures to follow if encountering pine martens or any potential den sites.
- Any pits or voids that will be left overnight where individuals could become trapped should be covered or a suitable mammal ramp installed so that individuals can climb out.
- Micro-site access tracks and/or working areas away from mammal paths. Ensure felled trees, cleared vegetation or other materials are not blocking potential paths.
- All waste control areas (particularly skips) should be secured to stop access by pine martens.

- Minimise the felling of trees within working areas to ensure maximum vegetation cover is retained for commuting and foraging.
- Clearing large piles of brash/logs, wind-blown debris, or clear-fell debris will be avoided where possible as these may offer potential suitable den sites. If clearance is required, the scheme ecologist should supervise works and inspect the area for signs of pine marten. If any potential den sites or other signs of occupation are identified, then these should undergo monitoring to determine their usage.
- If a suspected pine marten den is encountered, all work within 30m (non-breeding season) or 100m (breeding season) will cease, a protection zone installed, and the scheme ecologist will inspect the area and determine suitable mitigation and requirements for licensing through consultation with NatureScot as necessary. Works will not proceed until an agreement method of works has been devised.

Other Mammals

- 3.36 Multiple habitat piles were noted throughout the route. These have potential to be used for shelter by small mammals including hedgehog (*Erinaceus europaeus*). The descriptions and locations of these piles are shown in Appendix B and C. Two brown hares (*Lepus europaeus*) were also observed in the grassland adjacent to XL012. Many of the access tracks and towers are located within arable land or along field margins, which are considered optimal foraging habitat for brown hare, a species of principal importance (SPI). Therefore, there is potential for brown hares to be present within most of the 50m tower buffers and along access tracks.
- 3.37 The risk of impact to other mammals is low, however, the precautionary methods described below are considered appropriate to minimise risks to brown hares and other mammals that are likely in the area.
- Any pits or voids that will be left overnight where animals could become trapped should be covered or a suitable mammal ramp installed so that mammals can climb out.
 - If any habitat piles will be cleared these should be checked by hand for small mammals.
 - If grassland areas are to be cleared during February to September a pre-works check of the area should be carried out for hares and their young.
 - Contractors should also be made aware of the risk of collision with deer on site during the hours of dusk and dawn.
 - Any small mammals found within the working areas or access tracks during construction or vehicle movement should be carefully relocated off-site to a sheltered and undisturbed location with plenty of vegetation cover. Do not cover or disturb entrances to rabbit warrens if encountered.

Great Crested Newt (GCN) and other Amphibians

- 3.38 No record of GCN or other amphibians was returned by the desk study. However, nine ponds within 250m of towers and access tracks (AT) were subject to HSI assessment for their suitability to support breeding GCN (see table below). Of these nine ponds, four are located within the 10m access track buffer for tower XL022 (Ponds 4,5,6 and 7). In addition to these nine ponds, five other ponds are located within 250m of the XL022 access track, however, these were inaccessible and not subject to HSI assessment.

Habitat Suitability Index scores for the ponds.

Pond number	Pond 1	Pond 2	Pond 3	Pond 4	Pond 5	Pond 6	Pond 7	Pond 8	Pond 9
Distance from nearest tower	150m from XL015	125m from XL015	70m from XL025	<10m from XL022 AT	<10m from XL022 AT	<10m from XL022 AT	<10m from XL022 AT	110m from XL016	100m from XL025A
SI1 - Location	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SI2 - Pond area	1	0.97	1	1	0.94	1	1	0.8	0.8
SI3 - Pond drying	0.5	0.5	1	0.5	0.09	1	1	0.09	0.09
SI4 - Water quality	0.33	0.33	0.67	0.33	0.67	0.67	0.67	0.67	0.33
SI5 - Shade	1	1	1	0.9	1	1	1	1	1
SI6 - Fowl	0.67	0.67	0.67	1	0.67	0.67	0.67	0.67	0.67
SI7 - Fish	0.67	0.67	0.67	1	0.67	0.67	0.67	0.67	0.67
SI8 - Ponds	0.85	0.85	0.95	0.89	0.89	0.89	0.89	0.85	0.95
SI9 - Terrestrial habitat	0.67	0.67	0.67	0.67	0.67	0.67	0.67	1	0.67
SI10 - Macrophytes	0.45	0.45	0.75	0.95	0.35	0.35	0.85	0.7	0.35
HSI score	0.63	0.63	0.77	0.73	0.55	0.70	0.77	0.60	0.51
Pond suitability: <0.5 'poor', 0.5 – 0.59 'below average', 0.6 – 0.69 'average', 0.7 – 0.79 'good', >0.8 'excellent'									

3.39 The nine ponds assessed for HSI are of **below average** (Ponds 5, 9), **average** (Ponds 1, 2, 8) and **good** (Ponds 3, 4, 6, 7) suitability for breeding GCN, and the works are situated within vegetation which provides suitable terrestrial habitat for GCN, together with habitat corridors linking to standing water. In the absence of a survey at the appropriate time of year (mid- April – June) the presence of GCN cannot be ruled out. However, considering the works are small-scale and temporary, if precautionary measures are followed, impacts to great crested newt, i.e., harm or mortality, will be minimised to negligible.

3.40 The following measures must be implemented when there is a potential risk of impacts to GCN during works:

- Prior to any activities on site, all contractors will have read and understood the Amphibian Information Sheet in Appendix D;
- Existing tracks and access points into fields will be used for access with vehicle tracking kept to a minimum as much as possible;
- A hand search for GCN will be required prior to any vegetation removal including woodland, hedgerow and scrub if necessary and prior to tracking of vehicles through unmanaged grassland;
- If amphibians including GCN are encountered, works will cease to allow individuals to naturally disperse away from works; they should not be handled. If support is needed, the ECoW will be called for advice; and
- The pollution prevention measures, as described in paragraph 3.14 should be strictly adhered during the works.

Reptiles

3.41 No records of reptiles were returned by the desk study. However, several habitats within the 50m tower buffers and 10m access tracks, including woodland edges, scrub, bracken, and less intensively managed grasslands, offer suitable foraging habitat for reptiles. Suitable features

for hibernacula and refuge also exist within cavities of stone walls and under piles of rocks/logs/deadwood. These features are found within the buffers of XL008, 13, 18, 27, and 30, 31 and are described in Appendix B and mapped in Appendix C. Track/road verges and areas of hardstanding, gravel, or sparsely vegetated ground offer potentially suitable basking opportunities for reptiles during the spring and summer season. These features are found within the buffers for XL002 and XL023.

3.42 Works may take place during the reptile active season which runs from March to September inclusive. However, depending on the weather during the works, reptiles may be lethargic or becoming active. If active, they are likely to be deterred by the arrival of contractors; however, in cold weather they are likely to be lethargic so cannot sense disturbance and move away from danger. When there is a potential risk of impacts to reptiles during works, the following measures must be implemented:

- Prior to any activities on site, all contractors will have read and understood the Reptile Information Sheet in Appendix D;
- If reptiles are encountered, works will cease to allow individuals to naturally disperse away from works; they should not be handled. If support is needed, the ECoW will be called for advice; and
- Any potential reptile refuge/hibernation sites, including stone walls and piles of rocks or brash, will be avoided. If this is not possible, they will be removed by hand under supervision of the ECoW.

Invasive Species

3.43 An online search on the NBN Atlas returned 97 records for Eastern grey squirrel (*Sciurus carolinensis*), the most recent being in 2020 and 0.3km northwest of the OHL. No records for invasive plant species were returned during the desk study.

3.44 During the survey multiple stands of Japanese knotweed were identified along the access track for XL001/XL002 (TN2/3) and along the access track for XL025/XL025A (TN7). Further information and locations are provided in Appendix B and C.

3.45 The aforementioned species are invasive, non-natives listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and as such it is an offence to cause any of these species to grow or spread in the wild. Care will be taken when working in proximity of the plants and disturbance will be avoided where possible (a demarcated 7m buffer should be created where possible). Where species will be disturbed, all cut vegetation must be disposed of appropriately. Strict bio-security measures will be in place throughout works within affected areas (such as cleaning equipment before and after use). Refer to Government guidance for further information.

Re-survey of the Site

3.46 If no further works are undertaken on site within 18 months of this survey or if any changes to the proposals are made, a further ecological survey may be necessary (because of the mobility of animals and the potential for colonisation of the site).

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Appendix A – Commercially Available Desk Study Records

Table 1: Commercially available bird records from the NBN Atlas between 2000 and 2023 as listed on the Birds of Conservation Status 5 and Schedule 1 of the Wildlife and Countryside Act 1981 (As amended in Scotland).

Species	Status	Number of records	Year of most recent record	Citation Number
Arctic tern (<i>Sterna paradisaea</i>)	Amber	9	2006	1
Barn owl (<i>Tyto alba</i>)	WCA, Schedule 1 Part I	13	2015	1, 2, 3, 4, 5
Barnacle goose (<i>Branta leucopsis</i>)	Amber	1	2005	6
Bar-tailed godwit (<i>Limosa lapponica</i>)	Amber	1	2006	1
Black-headed gull (<i>Chroicocephalus ridibundus</i>)	Amber	99	2019	1, 3, 6, 7
Black-tailed godwit (<i>Limosa limosa</i>)	Red and WCA Schedule 1 Part I	50	2019	1, 3, 8
Bullfinch (<i>Pyrrhula pyrrhula</i>)	Amber	77	2019	1, 3, 6, 8
Common Gull (<i>Larus canus</i>)	Amber	31	2021	1, 3, 6, 8
Common Sandpiper (<i>Actitis hypoleucos</i>)	Amber	2	2011	1, 3
Common Tern (<i>Sterna hirundo</i>)	Amber	4	2014	1, 3
Cuckoo (<i>Cuculus canorus</i>)	Red	1	2006	1
Curlew (<i>Numenius Arquata</i>)	Red	75	2019	1, 3, 4, 5, 6, 8
Dipper (<i>Cinclus cinclus</i>)	Amber	13	2016	1, 3, 8
Dunlin (<i>Calidris alpina</i>)	Red	8	2008	1, 6
Dunnock (<i>Prunella modularis</i>)	Amber	675	2021	1, 3, 6, 7, 8
Eider (<i>Somateria mollissima</i>)	Amber	4	2019	1, 8
Fieldfare (<i>Turdus pilaris</i>)	Red	155	2019	1, 3, 7, 8
Gannet (<i>Morus bassanus</i>)	Amber	1	2006	1
Goldeneye (<i>Bucephala clangula</i>)	Red and WCA Schedule 1, Part I	372	2020	1, 3, 6, 7, 8
Grasshopper Warbler (<i>Locustella naevia</i>)	Red	7	2008	1, 4, 5
Great black-backed gull (<i>Larus marinus</i>)	Amber	17	2021	1, 3, 6, 8

Great white egret (<i>Ardea alba</i>)	Amber	1	2019	8
Greenfinch (<i>Chloris chloris</i>)	Red	865	2021	1, 3, 6, 7, 8
Greenshank (<i>Tringa nebularia</i>)	Amber	1	2018	8
Grey Partridge (<i>Perdix perdix</i>)	Red	14	2021	1, 5, 6
Greylag Goose (<i>Anser anser</i>)	Amber and Schedule 1 Part II	13	2014	1, 3, 6, 8
Lesser black-backed gull (<i>Larus fuscus</i>)	Amber	79	2022	1, 3, 6, 8
Mallard (<i>Anas platyrhynchos</i>)	Amber	114	2021	1, 3, 6, 8
Moorhen (<i>Gallinula chloropus</i>)	Amber	37	2021	1, 3, 6, 8
Oystercatcher (<i>Haematopus ostralegus</i>)	Amber	96	2023	1, 6, 8
Redshank (<i>Tringa tetanus</i>)	Amber	40	2023	1, 4, 8
Redwing (<i>Turdus iliacus</i>)	Amber	160	2008	1, 3, 6, 8
Reed bunting (<i>Bucephala clangula</i>)	Amber	30	2011	1, 3, 4, 5, 6
Snipe (<i>Gallinago gallinago</i>)	Amber	5	2021	1, 4, 6
Spotted flycatcher (<i>Muscicapa striata</i>)	Red	3	2011	5, 6
Teal (<i>Anas crecca</i>)	Amber	38	2021	1, 3, 6, 8
Tree Sparrow (<i>Passer montanus</i>)	Red	177	2011	1, 3, 4, 5, 6, 7, 8
Wigeon (<i>Mareca Penelope</i>)	Amber	5	2023	1, 3, 6, 8
Wren (<i>Troglodytes troglodytes</i>)	Amber	258	2002	1, 3, 6, 7, 8
Yellowhammer (<i>Emberiza 16riangulat</i>)	Red	213	2011	1, 3, 4, 5, 6, 7, 8

Table 2: Commercially available mammal records from the NBN Atlas between 2000 and 2023 as listed on the NatureScot Protected Species List, including those protected under the Protection of Badgers Act 1992 (As amended in Scotland), those listed on Schedule 2 of Habitats Regulations 1994 (As amended in Scotland).

Species	Status	Number of records	Year of most recent record	Closest record to site boundary	Citation Number
Bat	HR 1994, Schedule 2	3	2020	1km north	4, 5

Brown long-eared bat (<i>Plecotus auratus</i>)	HR 1994, Schedule 2	1	2014	1.26km west	6
Common Pipistrelle (<i>Pipistrellus pipistrellus</i>)	HR 1994, Schedule 2	2	2014	1.26km west	7
Soprano Pipistrelle (<i>Pipistrellus pipistrellus</i>)	HR 1994, Schedule 2	3	2014	1.26km west	4, 8
Pine Marten (<i>Martes martes</i>)	WCA 1981, Schedule 5	1	2013	0.41km south	13

Table 3: Commercially available invasive non-native species records from the NBN Atlas between 2000 and 2023 as listed on Schedule 9 of the Wildlife and Countryside Act 1981 (As amended in Scotland).

Species	Status	Number of records	Year of most recent record	Closest record to site boundary	Citation Number
Eastern grey squirrel (<i>Sciurus carolinensis</i>)	WCA 1981, Schedule 9 Part I	97	2019	0.3km northwest	9
Japanese Knotweed (<i>Fallopia japonica</i>)	WCA 1981, Schedule 9 Part I	2	2013	1.11km west	11
New Zealand Flatworm (<i>Arthurdendyus triangulatus</i>)	WCA 1981, Schedule 9 Part I	3	2014	0.5km northwest	12

Table 4: Citations for desk study records obtained through the NBN Atlas website.

Citation Number	Dataset Name	Citation
1	Birds (BTO+partners) 2006 - 2010	Records provided by BTO, accessed through NBN Atlas website.
2	Fife Nature Records Centre combined dataset	Fife Nature Records Centre (2024). Fife Nature Records Centre combined dataset. Occurrence dataset on the NBN Atlas
3	Birds (BTO+partners) 2011 - 2015	Records provided by BTO, accessed through NBN Atlas website
4	Bird Conservation Targeting Project (BCTP) in the UK, 2006-2011	Reproduced by permission of the Bird Conservation Targeting Project. © Bird Conservation Targeting Project, 2010 (a partnership between the British Trust for Ornithology (BTO), the Centre for Environmental Data and Recording (CEDaR), the Countryside Council for Wales (CCW), the Department of Agriculture and Rural Development (DARD), Forestry Commission England (FCE), Forestry Commission Wales (FCW), Forest Service (FS), Natural England (NE), Northern Ireland Environment Agency, the RSPB and Scottish Natural Heritage (SNH). The Bird Conservation Targeting Project partners are grateful to the contributions of the data providers listed at www.rspb.org.uk/targeting , and to the many volunteers who collected these data.

5	Bird Conservation Targeting Project (BCTP) in the UK, archived data (2001-2010)	Reproduced by permission of the Bird Conservation Targeting Project. Â© Bird Conservation Targeting Project, 2010 (a partnership between the British Trust for Ornithology (BTO), the Centre for Environmental Data and Recording (CEDaR), the Countryside Council for Wales (CCW), the Department of Agriculture and Rural Development (DARD), Forestry Commission England (FCE), Forestry Commission Wales (FCW), Forest Service (FS), Natural England (NE), Northern Ireland Environment Agency, the RSPB and Scottish Natural Heritage (SNH). The Bird Conservation Targeting Project partners are grateful to the contributions of the data provide"" listed at www.rspb.org.uk/targeting "" and to the many volunteers who collected these data.
6	Birds (BTO/JNCC/RSPB partnership)	Records provided by BTO, accessed through NBN Atlas website.
7	Birds (BTO+partners) to 2005	Records provided by BTO, accessed through NBN Atlas website
8	Birds (BTO+partners) 2006 - 2019	Records provided by BTO, accessed through NBN Atlas website
9	Birda – Global Observation Dataset (UK records)	White J, White N, Barker D, Evans D, Steer T, David M, Benevente S, Cunningham S, Smith E, Fonseca F, Betteridge E (2023). Birda – Global Observation Dataset. Version 1.14. Birda. Occurrence dataset https://doi.org/10.15468/6kud7x
10	The BCT/MTUK Bats & Roadside Mammals Survey	Bat Conservation Trust (2023) National Bat Monitoring Programme. The BCT/MTUK Bats & Roadside Mammals Survey. Occurrence dataset on the NBN Atlas
11	Mammal Mapper App Sighting Records	Mammal Society [2023] Mammal Mapper App Sighting Records
12	WILD Surveys Brown Long Eared Records	Wild Surveys (2023). Wild Surveys Brown Long Eared Records. Occurrence dataset on the NBN Atlas
13	Wild Surveys Common Pip Records	Records provided by Wild Surveys Common Pip Records, accessed through NBN Atlas website.
14	Wild Surveys Soprano Pip Records	Records provided by Wild Surveys, accessed through NBN Atlas website.
15	The Scottish Squirrel Database	Scottish Wildlife Trust (2023). The Scottish Squirrel Database. Occurrence dataset accessed through the NBNAtlas.
16	Vascular plant records verified via iRecord	Botanical Society of Britain and Ireland. [2023] Vascular plant records verified via iRecord.
17	New Zealand Flatworm (Arthurdendyus triangulatus) records for Scotland 2008-2014	NatureScot (2023). New Zealand Flatworm (Arthurdendyus triangulatus) records for Scotland 2008-2014. Occurrence dataset on the NBN Atlas
18	Expansion zone survey of pine marten (Martes martes) distribution in Scotland, 2012-2013	NatureScot (2023). Expansion zone survey of pine marten (Martes martes) distribution in Scotland, 2012-2013. Occurrence dataset on the NBN Atlas.

Appendix B – Ecological Constraints Table

Details of recommendations and actions required are shown in Section 3 in the accompanying report. Please note: These tables only refer to the most notable constraints within the vicinity of each working area and access track, other recommendations in the above sections (e.g. pollution prevention measures and methods to reduce risk of mammal entrapment) must be considered for the duration of the works within every working area and access track. The potential impacts for each constraint may change depending on the nature of the works at each tower. All mitigations/recommendations have been highlighted based on actions required; **green** where there are **no constraints**; **orange** where **impacts should be reduced** (i.e. where priority habitat is present), **further work may be required subject to detailed design** (i.e. tree felling/pruning), or **precautionary walkovers are advised for currently low-risk issues** (i.e. badger setts in suitable areas previously without evidence), and; **red** where constraints are confirmed with required actions (i.e. biosecurity measures for invasive species present, nesting birds checks for confirmed nests).

Priority habitats on the Scottish Biodiversity List (SBL) include hedgerows, some types of marshy grassland, wet heath, modified bog, woodland, ponds, and watercourses.

GWDTE stands for Ground Water Dependant Terrestrial Ecosystems; BRP stands for Bat Roost Potential; AWI stands for Ancient Woodland Inventory.

Towers and associated access tracks	Photos	Habitat description (Access Track with 10m buffer and tower with 50m buffer)	Ecological constraints and potential impacts	Mitigation/ recommendations
XL001	No photos.	Inside substation – no access during survey. Desk Study Assessment <u>Access Track</u> The access track to the tower starts out the same as XL002, on a paved B-road with semi-improved neutral grassland verges and scattered immature willow trees. At the junction of the A977, there is a parcel of mixed broadleaf plantation woodland which is listed on the AWI as long-established and includes oak, willow, birch, and beech. No features suitable for roosting bats was observed. Two stands of Japanese knotweed are present along the road-side verge. Inside the substation grounds, the route follows a gravel/paved track around the substation towards the tower. Either side of the track appears to be grassland and a small patch of deciduous woodland (bat roost potential unknown). <u>Tower</u> The area surrounding the tower comprises the substation, gravel/paved roads and a potential mosaic of scattered trees, scrub, and grassland. The grassland, scrub, and trees provide habitat for nesting birds, foraging and commuting bats, and foraging and commuting badger. The trees may also have features suitable for roosting bats. The areas of gravel/hardstanding may provide suitable basking habitat for reptiles.	Long-Established Plantation: potential loss or damage of woodland habitat along access track. While it is unknown if tree felling or pruning is anticipated, impacts to trees can also include physical damage to root systems during the works.	Woodland retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above.
			Roosting Bats: it is unknown whether tree felling or pruning is anticipated; however, if required, the removal or pruning of a tree may result in the disturbance, killing and injury of bats.	Avoid felling/pruning of tree/branches. If not possible, then further bat surveys (e.g., aerial tree assessment, emergence surveys) should be undertaken.
			Nesting Birds: any potential vegetation clearance (trees, ruderals, scrub, and grassland), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u>	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September).
			Commuting/Foraging Bats: any potential removal of trees or scrub may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats.	Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute.
			Invasive Species: works have the potential to cause the spread of invasive species within the local area.	Implementation of appropriate biosecurity measures as detailed in this report.
			Reptiles: vegetation clearance and vehicle tracking risk causing harm or mortality to reptiles which may be present within the scrub or hardstanding.	Implementation of precautionary measures with respect to amphibians/ reptiles detailed in the report above.
			Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland and trees. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.

XL002	  	Access Track The access track to the tower is a paved B-road, lined with neutral grasses and ruderals on the west verge and a species-poor intact hedgerow with mature trees on the east verge. Tree species include oak, sycamore, and ash. Several trees have features including knot holes, lifted bark and cavities offering bat roost potential for multiple bats (PRF-M; TN1). At the junction of the A977, there is a parcel of mixed broadleaf plantation woodland. The plantation is listed on the AWI as long-established and includes oak, willow, birch and beech. No features suitable for roosting bats was observed. The hedgerow and trees also provide habitat for nesting birds, foraging and commuting bats, and foraging and commuting badger. Two stands of Japanese knotweed are present on the verge of the B-road (TN2/3). XL002 <u>Access was not possible within the substation compound.</u> The area surrounding the tower comprises an arable field, a species-poor intact hedgerow with mature trees, and a paved road to the north, and an area of previously disturbed ground covered in scrub and ruderal species to the south within the substation grounds. The scrub includes birch, ash, and rose sp. The scrub provides habitat for nesting birds. There are still some areas of hardstanding, hardcore and boulders which provide suitable basking habitat for reptiles.	Priority Habitat Loss: potential loss or damage of hedgerow around base of tower and along access track may result in the fragmentation of habitats in the area. Impacts to retained hedgerows may include physical damage to root systems during the works.	Hedgerow retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above.
			Long-Established Plantation: potential loss or damage of woodland habitat along access track. While it is unknown if tree felling or pruning is anticipated, impacts to trees can also include physical damage to root systems during the works.	Woodland retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above.
			Roosting Bats: it is unknown whether tree felling or pruning is anticipated; however, if required, the removal or pruning of a tree may result in the disturbance, killing and injury of bats.	Avoid felling/pruning of tree/branches. If not possible, then further bat surveys (e.g., aerial tree assessment, emergence surveys) should be undertaken.
			Nesting Birds: any potential vegetation clearance (trees, ruderals, hedgerow, scrub, and grassland), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u>	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September).
			Commuting/Foraging Bats: any potential removal of trees or hedgerow may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats.	Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute.
			Invasive Species: works have the potential to cause the spread of invasive species within the local area.	Implementation of appropriate biosecurity measures as detailed in this report.
			Reptiles: vegetation clearance and vehicle tracking risk causing harm or mortality to reptiles which may be present within the scrub or hardstanding.	Implementation of precautionary measures with respect to amphibians/ reptiles detailed in the report above.
XL003	No photos.	No permission to access land. Desk Study Assessment Access Track The access track to the tower starts out the same as for XL002, and then continues for a further 200m along the paved B-road, with grassland/ruderals, trees (unknown bat roost	Long-Established Plantation: potential loss or damage of woodland habitat along access track. While it is unknown if tree felling or pruning is anticipated, impacts to trees can also include physical damage to root systems during the works.	Woodland retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above.
			Priority Habitat Loss: potential loss or damage of hedgerow along access track may result in the fragmentation of habitats in the area. Impacts to retained	Hedgerow retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above.

		potential), and a potential continuation of the hawthorn hedgerow. <u>XL003</u> The area surrounding the tower comprises predominantly arable crops (unknown type) or improved grassland leys. A few scattered trees are located just beyond the 50m buffer, and a small watercourse (likely drainage channel) runs along the southern edge of the buffer. This channel may be suitable for water vole and/or commuting otter. The grassland, trees, and potential hedgerow provide habitat for nesting birds, foraging and commuting bats, and foraging and commuting badger. The trees beyond the access track for XL002 may have features suitable for roosting bats.	hedgerows may include physical damage to root systems during the works.	
			Roosting Bats: it is unknown whether tree felling or pruning is anticipated; however, if required, the removal or pruning of a tree may result in the disturbance, killing and injury of bats.	Avoid felling/pruning of tree/branches. If not possible, then further bat surveys (e.g., aerial tree assessment, emergence surveys) should be undertaken.
			Nesting Birds: any potential vegetation clearance (trees, ruderals, hedgerow, scrub, and grassland), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u>	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September).
			Commuting/Foraging Bats: any potential removal of trees or hedgerow may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats.	Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute.
			Invasive Species: works have the potential to cause the spread of invasive species within the local area.	Implementation of appropriate biosecurity measures as detailed in this report.
			Commuting/Foraging Badger: commuting/foraging badger may be present along the hedgerow and line of trees. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.
			Otters: activities associated with the works carry a risk of short-term disturbance to otter through increased noise, lighting, and human presence.	Follow the precautionary measures with respect to otter as detailed in this report.
XL004	No photos.	No permission to access land. Desk Study Assessment <u>Access Track</u> From XL003, the access track to Tower XL004 crosses two arable crops (unknown type) or improved grassland leys. <u>XL004</u> The area surrounding the tower comprises entirely an arable crop (potential hay fields) or improved grassland ley. The grassland provide habitat for nesting birds and foraging and commuting badger.	Water vole: the habitat quality of the ditch for water vole is unknown, however, if suitable, disturbance to water vole and/or their burrows could occur when passing close to the ditch.	Follow the precautionary measures with respect to water vole as detailed in the report above.
			Nesting Birds: any potential vegetation clearance (grassland), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u> Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland/crop. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September). Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.

XL005	No photos.	No permission to access land. Desk Study Assessment <u>Access Track</u> From XL004, the access track to Tower XL005 crosses an arable crop (potential hay field) or improved grassland ley. <u>XL005</u> The area surrounding the tower comprises entirely an arable crop (potential hay field) or improved grassland ley. The grassland provide habitat for nesting birds and foraging and commuting badger.	Nesting Birds: any potential vegetation clearance (grassland), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u> Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland/crop. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September). Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.
XL006	 	<u>Access Track</u> The access track to the tower is located within a SPEN CDM compound, and passes through an area of gravel, and previously disturbed ground with short grass and ruderal species pushing through. <u>XL006</u> The area surrounding the tower comprises predominantly gravel surface and disturbed ground with short grass and ruderal species pushing through. A metal fence surrounds the CDM area. To the south, there is an arable field (wheat), to the north there is an enclosed sealing end platform, and to the west there is a strip of semi-improved grassland, scrub and semi-natural deciduous woodland running alongside the banks of the railway line. No bat roost potential was found within these trees. The scrub/woodland provides habitat for nesting birds, foraging/commuting bats, and foraging/commuting badgers. The steep banks also offer suitable habitat for badger sett construction; however, a dedicated search of this area was not undertaken due to access issues.	Priority Habitat Loss: potential loss or damage of woodland habitat around base of tower and along access track. While it is unknown if tree felling or pruning is anticipated, impacts to trees can also include physical damage to root systems during the works. Nesting Birds: any potential vegetation clearance (trees, scrub, and grassland), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u> Commuting/Foraging Badger: commuting/foraging badger may be present along the woodland strip and grassland. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers. Commuting/Foraging Bats: any potential removal of trees may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats. Sett-Building Badger: there is potential for holes to be excavated by badgers, especially along the steep wooded bank.	Woodland retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above. Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September). Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above. Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute. Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for badger signs, including any sett entrances, is advised. This should be undertaken by a qualified ecologist.
XL006A	No photos.	No permission to access land. Desk Study Assessment <u>Access Track</u>	Priority Habitat Loss: loss or damage of potential hedgerow east and west of the tower may result in the fragmentation of habitats in the area. Impacts to retained hedgerows may include physical damage to root systems during the works.	Hedgerow retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above.

		No access track is provided as the main paved road is found within the 50m tower buffer. <u>XL006A</u> The area surrounding the tower comprises a paved road and two improved or semi-improved grassland fields. The verges alongside the road potentially contain a line of scrub or hedgerow. A SPEN representative noted that brown hares are frequently observed in these fields. The grassland and potential scrub or hedgerow provide habitat for nesting birds, foraging and commuting badger, and foraging and commuting bats.	Nesting Birds: any potential vegetation clearance (hedgerow, scrub, and grassland), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u> Small Mammals: vegetation clearance and vehicle tracking risk causing harm or mortality to brown hares. Commuting/Foraging Badger: commuting/foraging badger may be present along the hedgerow and line of trees. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September). Implementation of precautionary measures with respect to small mammals detailed in the report above. Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.
XL006B		<u>Access Track</u> The access track to the tower is located within a SPEN CDM compound, and passes through an area of gravel, and previously disturbed ground (large spoil heaps) with short grass and ruderal species pushing through. <u>XL006B</u> The area surrounding the tower comprises predominantly semi-improved neutral grassland, with some bare ground, gravel, and an enclosed platform surrounded by a metal palisade fence. A representative from SPEN noted that brown hares are frequently observed in the grassland.	Nesting Birds: any potential vegetation clearance (grassland), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u> Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers. Small Mammals: vegetation clearance and vehicle tracking risk causing harm or mortality to brown hares.	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September). Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above. Implementation of precautionary measures with respect to small mammals detailed in the report above.
XL007		<u>Access Track</u> The access track to the tower is the same as described under XL006B. <u>XL007</u> The tower is adjacent to XL006B and is surrounded by the same habitats including semi-improved neutral grassland, bare ground, gravel, and enclosed electrical platforms surrounded by metal palisade fences.	Nesting Birds: any potential vegetation clearance (grassland), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u>	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September).

	 XL Route XL006b and 007 % 08835, 3 / 1807 XL Route XL007 % 08923, 3 / 18		Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers. Small Mammals: vegetation clearance and vehicle tracking risk causing harm or mortality to brown hares.	Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above. Implementation of precautionary measures with respect to small mammals detailed in the report above.
XL008		Access Track The access track follows a paved road to Tulafale Farm, bordered by a drystone wall and mixed plantation woodland to the north, and a line of mature trees including oak, horse chestnut, sycamore, and lime to the south. Due to their age, several of these trees likely have features offering bat roost potential, however, a thorough ground search was not possible due to leaf coverage (TN10). The drystone wall offers suitable refugia habitat for small mammals, amphibians and reptiles. <u>XL008</u> The area surrounding the tower comprises predominantly poor semi-improved grassland grazed by cattle, with an enclosed parcel of Douglas fir plantation to the southeast. Grassland, trees and plantation woodland provide habitat for nesting birds, foraging/commuting bats, and foraging/commuting/sett-constructing badgers. The plantation may also offer suitable habitat for red squirrels as an individual was observed nearby at XL010.	Roosting Bats: It is unknown if any tree felling or pruning is anticipated; however, if required, the removal or pruning of a tree may result in the disturbance, killing and injury of bats. Drystone Wall: any removal of the wall, if required, has the potential to damage and destroy nests and kill/injure nesting birds, small mammals, amphibians, and reptiles. Nesting Birds: any potential vegetation clearance (trees, woodland, grassland), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u> Commuting/Foraging Badger: commuting/foraging badger may be present within the plantation and grassland. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers. Sett-Building Badger: there is potential for holes to be excavated by badgers, especially within the plantation woodland.	Avoid felling/pruning of tree/branches. If not possible, then further bat surveys (e.g., aerial tree assessment, emergence surveys) should be undertaken. Retain wall where possible. If required, removal and deconstruction of the wall should be undertaken by hand with an ECoW present as there is a risk of individuals present at any time during the year. Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September). Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above. Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for badger signs, including any sett entrances, is advised. This should be undertaken by a qualified ecologist.

				Red Squirrel: activities associated with the works carry a risk of short-term disturbance to red squirrel through increased noise, lighting and human presence. Any tree felling/pruning, if required, has the potential to damage or destroy a drey, or disturb/injure/kill a red squirrel.	Implementation of precautionary measures with respect to red squirrel as detailed in the report above. Prior to any tree felling/pruning, a pre-works check for squirrel signs, including dreys, is advised. This should be undertaken by a qualified ecologist.
XL009		<u>Access Track</u> The access track is the same as XL008. From the paved road, the track turns north and crosses a poor semi-improved grassland field grazed by sheep.	Roosting Bats: It is unknown if any tree felling or pruning is anticipated along the access track; however, if required, the removal or pruning of a tree may result in the disturbance, killing and injury of bats.	Avoid felling/pruning of tree/branches. If not possible, then further bat surveys (e.g., aerial tree assessment, emergence surveys) should be undertaken.	
		<u>XL009</u> The area surrounding the tower comprises predominantly poor semi-improved grassland, in addition to an arable crop (oat) to the north and a parcel of mixed plantation woodland to the east. The plantation is listed on the AWI as long-established and includes Scot's pine, fir, sycamore, and willow. Due to their age, several broadleaf trees in this woodland likely have features offering bat roost potential, however, a thorough ground-assessment was not possible due to leaf coverage. A mammal push through is located under the fence into the plantation (TN8).	Long-Established Plantation: potential loss or damage of woodland habitat around base of tower. While it is unknown if tree felling or pruning is anticipated, impacts to trees can also include physical damage to root systems during the works.	Woodland retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above.	
			Commuting/Foraging Bats: any potential removal of trees may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats.	Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute.	
		The grassland and plantation provide habitat for nesting birds, foraging/commuting bats, and foraging/commuting/sett-constructing	Nesting Birds: any potential vegetation clearance (plantation and grassland), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u>	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September).	

		badgers. The plantation also offers suitable habitat for red squirrels as an individual was observed nearby at XL010.	Commuting/Foraging Badger: commuting/foraging badger may be present within the plantation and grassland. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.
			Sett-Building Badger: there is potential for holes to be excavated by badgers, especially within the plantation woodland.	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for badger signs, including any sett entrances, is advised. This should be undertaken by a qualified ecologist.
			Red Squirrel: activities associated with the works carry a risk of short-term disturbance to red squirrel through increased noise, lighting and human presence. Any tree felling/pruning, if required, has the potential to damage or destroy a drey, or disturb/injure/kill a red squirrel.	Implementation of precautionary measures with respect to red squirrel as detailed in the report above. Prior to any tree felling/pruning, a pre-works check for squirrel signs, including dreys, is advised. This should be undertaken by a qualified ecologist.
XL010		<u>Access Track</u> The access track starts the same as XL009, and then passes through an arable field (oat) and into an area of dense/tall bracken. <u>XL010</u> The area surrounding the tower comprises dense bracken and mixed plantation woodland. The plantation is listed on the AWI as long-established and includes Scot's pine, larch, birch, rowan, and elder. Several trees in this woodland likely have features offering bat roost potential, however, a thorough ground assessment was not possible due to leaf/canopy coverage (TN12). The bracken and plantation provide habitat for small mammals, reptiles, nesting birds, foraging/commuting bats, and foraging/commuting/sett-building badgers. A single disused entrance hole was found in the base of a Scot's pine tree (TN9). A faint path stretched from the hole towards the bracken patch beneath the tower, however, it was full of leaf litter and had no signs of active or recent use. A red squirrel was observed within the plantation block, which offers suitable foraging and drey-building habitat (TN11).	Small Mammals: vegetation clearance and vehicle tracking risk causing harm or mortality to small mammals such as hedgehogs.	Implementation of precautionary measures with respect to small mammals detailed in the report above.
			Roosting Bats: It is unknown if any tree felling or pruning is anticipated close to the tower; however, if required, the removal or pruning of a tree may result in the disturbance, killing and injury of bats.	Avoid felling/pruning of tree/branches. If not possible, then further bat surveys (e.g., aerial tree assessment, emergence surveys) should be undertaken.
			Long-Established Plantation: potential loss or damage of woodland habitat around base of tower. While it is unknown if tree felling or pruning is anticipated, impacts to trees can also include physical damage to root systems during the works.	Woodland retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above.
			Nesting Birds: any potential vegetation clearance (bracken, grassland), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u>	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September).
			Commuting/Foraging Badger: commuting/foraging badger may be present within the bracken and plantation. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.
			Commuting/Foraging Bats: any potential removal of trees may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats.	Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute.
			Reptiles: vegetation clearance and vehicle tracking risk causing harm or mortality to reptiles which may be present within the bracken.	Implementation of precautionary measures with respect to amphibians/ reptiles detailed in the report above.

	  		Sett-Building Badger: there is potential for holes to be excavated by badgers, especially within the dense bracken and plantation where a potential badger hole was identified.	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for badger signs, including any sett entrances, is advised. This should be undertaken by a qualified ecologist.
			Red Squirrel: activities associated with the works carry a risk of short-term disturbance to red squirrel through increased noise, lighting and human presence. Any tree felling/pruning, if required, has the potential to damage or destroy a drey, or disturb/injure/kill a red squirrel.	Implementation of precautionary measures with respect to red squirrel as detailed in the report above. Prior to any tree felling/ pruning, a pre-works check for squirrel signs, including dreys, is advised. This should be undertaken by a qualified ecologist.
XL011		<u>Access Track</u> The access track to the tower passes through an existing gap in an intact hedgerow and follows an overgrown track bordered by semi-improved neutral grassland, a line of young lime trees (no bat roost potential), and a mixed beech, hawthorn, and blackthorn hedgerow. The track passes residential houses and gardens to the	Priority Habitat Loss: potential loss or damage of hedgerow along access track may result in the fragmentation of habitats in the area. Impacts to retained hedgerows may include physical damage to root systems during the works. Reptiles: vegetation clearance and vehicle tracking risk causing harm or mortality to reptiles which may be present within the hedgerow, bracken and scrub.	Hedgerow retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above. Implementation of precautionary measures with respect to amphibians/ reptiles detailed in the report above.

	 XL Route XL011 56.09822 -3.708	west and then crosses another gap in the hedgerow before entering an arable field (barley) towards the tower. <u>XL011</u> The area surrounding the tower comprises an arable field to the north, and continuous bracken, scattered hawthorn and elder scrub, semi-improved neutral grassland and tall ruderals to the south. Immediately southeast of the 50m buffer, there is a long-established plantation listed on the AWI. The grassland, hedgerow, bracken, and scrub provide habitat for nesting birds, reptiles, commuting/foraging bats, and commuting/foraging/sett-building badger.	Nesting Birds: any potential vegetation clearance (grassland, hedgerow, bracken, scrub), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u> Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland, bracken, and scrub. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers. Commuting/Foraging Bats: any potential removal of trees may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats. Sett-Building Badger: there is potential for holes to be excavated by badgers, especially within the patches of dense bracken and scrub.	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September). Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above. Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute. Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for badger signs, including any sett entrances, is advised. This should be undertaken by a qualified ecologist.
XL011A	 XL Route AT XL011A 56.09919 -3.70914	<u>Access Track</u> The first part of the access track is the same as XL011, before heading east through an intact hawthorn and blackthorn hedgerow and along the edge of an arable field (barely) and semi-improved neutral grassland field margin. <u>XL011A</u> The area surrounding the tower comprises an arable field to the south and north, a small patch of Scot's pine plantation to the east, and semi-improved neutral grassland with scattered hawthorn scrub around the base of the tower. No bat roost potential was found within the plantation. The hedgerow, plantation, scrub, and tall grassland provide habitat for nesting birds, reptiles, foraging/commuting bats, and foraging/commuting badgers.	Priority Habitat Loss: potential loss or damage of hedgerow along access track may result in the fragmentation of habitats in the area. Impacts to retained hedgerows may include physical damage to root systems during the works. Reptiles: vegetation clearance and vehicle tracking risk causing harm or mortality to reptiles which may be present within the hedgerow, bracken, and scrub. Nesting Birds: any potential vegetation clearance (grassland, hedgerow, plantation, scrub), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u> Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland, hedgerow, plantation and scrub. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Hedgerow retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above. Implementation of precautionary measures with respect to amphibians/ reptiles detailed in the report above. Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September). Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.

				Commuting/Foraging Bats: any potential removal of trees may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats.	Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute.
XL012		<u>Access Track</u> The access track to the tower passes along the edge of an arable field (barley) with a semi-improved neutral grassland field margin. <u>XL012</u> The area surrounding the tower comprises predominantly an arable field, with a small patch of continuous bracken and scattered hawthorn scrub to the north. The bracken, scrub, and grassland provide habitat for nesting birds, reptiles, and commuting/foraging/ sett-building badger.		Reptiles: vegetation clearance and vehicle tracking risk causing harm or mortality to reptiles which may be present within the bracken and scrub.	Implementation of precautionary measures with respect to amphibians/ reptiles detailed in the report above.
				Nesting Birds: any potential vegetation clearance (grassland, scrub, bracken), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u>	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September).
				Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland, scrub or bracken. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.
				Sett-Building Badger: there is potential for holes to be excavated by badgers, especially within the patches of dense bracken and scrub.	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for badger signs, including any sett entrances, is advised. This should be undertaken by a qualified ecologist.
XL013		<u>Access Track</u> The access track to the tower starts from the Clackmannan (cycle) Way and follows a farm track south through three improved grassland fields. There is a culvert and dry drainage ditch under the track, however, this is unsuitable for water vole due to the lack of water and minimal banking for burrowing. Otters may commute within the ditch to/from the two nearby permanent ponds (Pond 1/2).		Otters: Activities associated with the works carry a risk of short-term disturbance to otter through increased noise, lighting and human presence.	No floodlighting and/or night work. Follow the precautionary measures with respect to otter as detailed in this report.
				Ditch: Considering the proximity of the ditch to the access route, pollution/sediment run-off may impact this feature.	Works must follow pollution prevention measures detailed in this report.
				Habitat Pile: any removal of the pile has the potential to kill/injure small mammals, amphibians and/or reptiles.	Retain pile where possible. If required, removal of the pile should be undertaken by hand with an ECoW present as there is a risk of individuals present at any time during the year.

		Between two fields, there is a large pile of stones (habitat pile; TN4) with potential for small mammals, amphibians and reptiles. Adjacent to this pile, there is a mature oak tree (T1) with a potential feature (small cavity) suitable for an individual bat (PRF-I). Adjacent to the access track (just outside of the buffer), there is a line of deciduous trees and scrub with a depression separating two fields, providing habitat for nesting birds, foraging/commuting bats, and foraging/commuting badgers. The depression may also offer suitable habitat for badger sett construction; however, a dedicated search of this area was not conducted due to livestock presence. <u>XL013</u> The area surrounding the tower is entirely improved grassland comprised of perennial rye grass and white clover. Two brown hares were spotted within the field (TN5).	Roosting Bats: It is not known whether any tree felling is anticipated; however, if required, the removal or pruning of a tree may result in the disturbance, killing and injury of bats. Commuting/Foraging Bats: any potential removal of trees may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats. Nesting Birds: any potential vegetation clearance (grassland, trees, scrub), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. Birds may also nest within the tower at any time. Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland, trees and scrub. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers. Sett-Building Badger: there is potential for holes to be excavated by badgers, especially along the tree-lined depression. Small mammals: vegetation clearance and vehicle tracking risk causing harm or mortality to brown hares.	Avoid felling/pruning of tree/branches. If not possible, then further bat surveys (e.g., aerial tree assessment, emergence surveys) should be undertaken. Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute. Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September). Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above. Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for badger signs, including any sett entrances, is advised. This should be undertaken by a qualified ecologist. Implementation of precautionary measures with respect to small mammals as detailed in the report above.
XL014		<u>Access Track</u> The access track to the tower is the same as described in XL013. <u>XL014</u> The area surrounding the tower is an improved grassland field with livestock grazing.	Please refer to the constraints listed under XL013	Please refer to mitigation measures listed under XL013
XL015		<u>Access Track</u> The access track starts on a paved road to Gartinnan farm and is bordered by improved grassland fields grazed by cows to the north and a line of semi-mature broadleaf trees with scattered scrub to the south. These trees have no bat roost potential. The track crosses a culvert (TN3), a farmyard, and two improved grassland fields grazed by sheep.	Commuting/Foraging Bats: any potential removal of trees may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats. Nesting Birds: any potential vegetation clearance (grassland, scrub, trees), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. Birds may also nest within the tower at any time.	Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute. Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an

	   XL Route HM POND 1 56.10841, -3.70023	<u>XL015</u> The area surrounding the tower comprises improved grassland grazed by sheep. Two manmade agricultural ponds (Pond 1 & 2) are located approx. 125m southwest of the tower. Both ponds have an HSI score of 0.63, indicating average potential for great crested newt. Other species including amphibians and otters could also be using these ponds. The scrub/trees and grassland provide habitat for nesting birds, foraging/commuting bats, and foraging/commuting badgers. The enclosed farm buildings also offer suitable habitat for nesting birds including barn owl.		ecologist, if the works will occur within nesting bird season (March to September).
			Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland, scrub and trees. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.
			Permanent Ponds (Priority Habitat) & potential Great Crested Newt: considering the distance of the two ponds to the working area and access routes, disturbance/impacts are considered low. However, pollution/sediment run-off may still degrade the aquatic habitat. Any vegetation clearance and vehicle movements have the potential to kill and injure individual newts, if present.	Works must follow the pollution prevention measures and precautionary measures with respect to great crested newt as detailed in the report above.
			Otters: activities associated with the works carry a risk of short-term disturbance to otter through increased noise, lighting and human presence.	Follow the precautionary measures with respect to otter as detailed in this report.
XL016		<u>Access Track</u> The access track passes through species poor semi-improved grassland and a grazed field with a muck heap. A drystone wall with scattered hawthorn and elder present offers suitable refugia for small mammals, amphibians and reptiles. The grassland offers suitable habitat for commuting/foraging badger and nesting birds.	Drystone Wall: any removal of the wall, if required, has the potential to damage and destroy nests and kill/injure nesting birds, small mammals, amphibians and reptiles.	Retain wall where possible. If required, removal and deconstruction of the wall must be undertaken by hand with an ECoW present as there is the risk for individuals to be present at any time during the year.

		XL016 The area surrounding the tower comprises an arable field (barley). A large permanent pond (Pond 8) is located approx. 110m north of the tower and has a HSI score of 0.60 indicating average potential for great crested newt. Other species including amphibians and otters could also be using this pond.	Nesting Birds: any potential vegetation clearance (grassland), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u> Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers. Permanent Ponds (Priority Habitat) & potential Great Crested Newt: considering the distance of the pond to the working area and access routes, disturbance/impacts are considered low. However, pollution/sediment run-of could degrade the aquatic habitat. Any vegetation clearance and vehicle movements have the potential to kill and injure individual newts, if present. Otters: activities associated with the works carry a risk of short-term disturbance to otter through increased noise, lighting and human presence.	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September). Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above. Works must follow the pollution prevention measures and precautionary measures with respect to great crested newt as detailed in the report above. Follow the precautionary measures with respect to otter as detailed in this report.
XL017		Access Track The access track for XL017 – 019 follows a gravel road to Hazleyshaw Farm, with semi-improved grassland on the verges and improved fields on both sides. The south side is lined with immature oak, rowan, prunus sp., hawthorn and ash trees. The access track to the tower is adjacent to a hawthorn hedgerow with scattered trees including immature birch and two mature deciduous trees. The mature trees may have bat roosting potential; however, they were not inspected due to livestock obstructing access (TN13). The hedgerow and trees provide habitat for nesting birds, foraging and commuting bats, and foraging and commuting badger. XL017 The area surrounding the tower is an improved grassland field with cows grazing and an arable crop and farm building to the south.	Commuting/Foraging Bats: any potential removal of trees may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats. Priority Habitat Loss: potential loss or damage of hedgerow around base of tower and along access track may result in the fragmentation of habitats in the area. Impacts to retained hedgerows may include physical damage to root systems during the works. Nesting Birds: any potential vegetation clearance (grassland, trees, hedgerow), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u> Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland, trees and hedgerow. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute. Hedgerow retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above. Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September). Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.

			Roosting Bats: It is unknown whether tree felling or pruning is anticipated; however, if required, the removal or pruning of a tree may result in the disturbance, killing and injury of bats.	Avoid felling/pruning of tree/branches. If not possible, then further bat surveys (e.g., aerial tree assessment, emergence surveys) should be undertaken.
XL018		<u>Access Track</u> The start of the access track is the same as in XL017 and then passes through an improved grassland field grazed by cattle. It then crosses a dry drainage ditch and into an area of young plantation with dominant Sitka spruce and birch regeneration. The ditch is unsuitable for water vole due to the lack of water and shading from scrub. <u>XL018</u> The area surrounding the tower comprises an improved grassland field, strip of birch scrub and dry ditch to the south, and young Sitka spruce plantation with birch regeneration to the north. The plantation is listed on the AWI as long-established. No features suitable for roosting bats was observed. There are several scattered brash piles with high potential for small mammals, amphibians and reptiles. The ground flora comprises dominant common heather, and frequent soft rush and Molinia, indicating that the original habitat before planting may have been degraded bog or wet dwarf shrub heath (priority habitats). Several drainage channels are present, infilled almost entirely with Sphagnum spp. Directly underneath the tower, there is a patch of marshy grassland (potential GWDTE). These habitats provide habitat for nesting birds, foraging/commuting bats, foraging/commuting badgers, and reptiles/amphibians. A stand of rhododendron is present in the plantation (TN6).	Reptiles/Amphibians: vegetation clearance and vehicle tracking risk causing harm or mortality to reptiles/amphibians which may be present within the scrub and young plantation.	Implementation of precautionary measures with respect to amphibians/ reptiles detailed in the report above.
			Priority Habitat Loss: potential loss or further damage to marshy grassland, modified bog or wet heath habitats. Considering the nature of the works, pollution and physical damage may impact these habitats.	Works must follow the pollution prevention measures detailed in this report.
			Long-Established Plantation: potential loss or damage of woodland habitat around base of tower. While it is unknown if tree felling or pruning is anticipated, impacts to trees can also include physical damage to root systems during the works.	Woodland retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above.
			Potential GWDTEs: there is a risk of pollution of groundwater from leaks or spills from vehicles or equipment. Any vehicle/plant movement could damage vegetation within the working areas and along vehicular tracks.	Works must follow pollution prevention and other precautionary measures with respect to GWDTE areas detailed in the report above.
			Ditch: considering the proximity of the ditch to the access route, pollution/sediment run-off may impact this feature.	Works must follow pollution prevention measures detailed in this report.
			Nesting Birds: any potential vegetation clearance (grassland, scrub, plantation), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. Birds may also nest within the tower at any time.	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September).
			Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland, scrub and plantation. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.
			Habitat Pile: any removal of the pile has the potential to kill/injure small mammals, amphibians and/or reptiles.	Retain pile where possible. If required, removal of the pile should be undertaken by hand with an ECoW present as there is a risk of individuals present at any time during the year.
			Invasive species: works have the potential to cause the spread of invasive species within the local area.	Implementation of appropriate biosecurity measures as detailed in this report.
			Commuting/Foraging Bats: any potential removal of trees may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats.	Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute.

XL019	 	<u>Access Track</u> The access track passes through an improved grassland field grazed by cows. On the west side there is a dried, overgrown drainage ditch and a line of semi-mature birch trees (no bat roost potential observed), providing habitat for nesting birds, commuting/foraging bats and commuting/foraging badger. The ditch is unsuitable for water vole due to the lack of water and shading from scrub. <u>XL019</u> The habitats surrounding the tower are the same as XL018, in addition to a patch of dense bracken and semi-natural mixed woodland. Between the young plantation stands, there is a ride of marshy grassland covered in Sitka spruce, larch, lodgepole pine, birch and willow regeneration. Like XL018, the plantation is listed on the AWI as long-established, and the ground flora may have originally been degraded bog or wet dwarf shrub heath (priority habitats). These areas provide habitat for nesting birds, foraging/commuting bats, foraging/commuting badgers, and reptiles/amphibians.	Please refer to the constraints listed under XL018	Please refer to mitigation measures listed under XL018
XL020	<u>Access Track</u> The short access track passes through an improved grassland field from the main paved road. <u>XL020</u> The area surrounding the tower comprises an improved grassland field to the north, a paved road and a parcel of semi-natural young willow, birch, and occasional Sitka spruce woodland to the south. This young woodland is part of a wider plantation area listed on the AWI as long-established (the same as XL018/19). Adjacent to	Commuting/Foraging Bats: any potential removal of trees may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats.		
		Priority Habitat Loss: potential loss or damage of woodland habitat along access track. While it is unknown if tree felling or pruning is anticipated, impacts to trees can also include physical damage to root systems during the works.	Woodland retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above.	

		the road, there is a strip of unimproved neutral grassland and ruderals. The scrub/trees and grassland provide habitat for nesting birds, foraging/commuting bats, and foraging/commuting/sett-building badgers.	Long-Established Plantation: potential loss or damage of woodland habitat south of tower. While it is unknown if tree felling or pruning is anticipated, impacts to trees can also include physical damage to root systems during the works.	Woodland retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above.
			Nesting Birds: any potential vegetation clearance (grassland, scrub, trees), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u>	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September).
			Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland, scrub, and trees. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.
			Sett-Building Badger: there is potential for holes to be excavated by badgers, especially within the birch/willow scrub.	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for badger signs, including any sett entrances, is advised. This should be undertaken by a qualified ecologist.
XL021		<u>Access Track</u> The access track passes through an improved grassland field. <u>XL021</u> The area surrounding the tower comprises entirely an improved grassland field. The short grassland provides habitat for foraging/commuting badgers and nesting birds.	Nesting Birds: any potential vegetation clearance (grassland), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u>	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September).
			Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.
XL022		<u>Access Track</u> Towers XL022-25A are found within a live quarry site. From the main paved road, the access track follows an overgrown gravel track between several artificial ponds. Five ponds (likely manmade) are found within the access buffer, four of which were accessible (Pond 4/5/6/7) and had HSI scores between 0.55 and 0.73 (one average, three good). Within the 250m buffer, there are five further ponds, however, these were not assessed for HSI due to thick	Permanent Ponds (Priority Habitat) & potential Great Crested Newt: considering the proximity of the ponds to the access track, pollution/sediment run-off may impact this feature and degrade the aquatic habitat. Any vegetation clearance and vehicle movements have the potential to kill and injure individual newts, if present.	Works must follow the pollution prevention measures and precautionary measures with respect to great crested newt as detailed in the report above.
			Amphibians: vegetation clearance and vehicle tracking risk causing harm or mortality to amphibians which may be present within the ponds or crossing the access track between ponds.	Implementation of precautionary measures with respect to amphibians/ reptiles detailed in the report above.

	 XL Route Tower 22 56.12564, -3.66778  XL Route HM pond 5 56.12559, -3.67221  XL Route HM pond 6 56.12582, -3.67219	vegetation restricting access (TN14). Other species including amphibians and otters may also be using the ponds. Either side of the track, there are patches of semi-improved neutral grassland and semi-mature, semi-natural mixed broadleaved woodland including willow, birch, and alder trees (no bat roost potential observed). <u>XL022</u> The area surrounding the tower comprises predominantly an arable field (bare soil), with small patches of semi-improved neutral grassland and scattered willow scrub to the south. The woodland and scrub provide habitat for nesting birds, foraging/commuting bats, and foraging/commuting badgers. Part of the woodland strip is on a slope which may also offer suitable habitat for badger sett construction (TN16).	Otters: activities associated with the works carry a risk of short-term disturbance to otter through increased noise, lighting and human presence. Commuting/Foraging Bats: any potential removal of trees or hedgerow may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats. Priority Habitat Loss: potential loss or damage of woodland habitat along access track. While it is unknown if tree felling or pruning is anticipated, impacts to trees can also include physical damage to root systems during the works. Nesting Birds: any potential vegetation clearance (grassland, woodland, scrub), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u> Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland, woodland and scrub. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers. Sett-Building Badger: there is potential for holes to be excavated by badgers, especially along the sloped wooded bank.	Follow the precautionary measures with respect to otter as detailed in this report. Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute. Woodland retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above. Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September). Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above. Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for badger signs, including any sett entrances, is advised. This should be undertaken by a qualified ecologist.
XL023		<u>Access Track</u> Part of the same quarry complex as XL022-25A. The route starts out the same as for XL024. Then it turns south onto a disused quarry track that is sparsely vegetated with neutral grasses, ruderals, willow scrub, and a stand of bulrush. <u>XL023</u> The area surrounding the tower comprises semi-improved neutral grassland, marshy grassland,	Priority Habitat Loss: potential loss or damage to marshy grassland, habitat. Considering the nature of the works, pollution and physical damage may impact this habitat. Potential GWDTEs: there is a risk of pollution of groundwater from leaks or spills from vehicles or equipment. Any vehicle/plant movement could damage vegetation within the working areas and along vehicular tracks.	Works must follow the pollution prevention measures detailed in this report. Works must follow pollution prevention and other precautionary measures with respect to GWDTE areas detailed in the report above.

	 XL Route Tower 23 56.12671, -3.66515 XL Route AT XL023 56.12806, -3.66268	scattered willow scrub and steep sparsely vegetated ground/soil from quarry excavations. The steep slope is south facing which provide suitable basking habitat for reptiles (TN17). The grassland and scrub mosaic provide habitat for nesting birds, foraging/commuting bats, foraging/commuting badgers, and reptiles/amphibians. A steep bank to the south of the buffer also offers suitable habitat for badger sett construction.	Reptiles and Amphibians: vegetation clearance and vehicle tracking risk causing harm or mortality to reptiles and amphibians which may be present within the scrub, grassland, or sparsely vegetated ground.	Implementation of precautionary measures with respect to amphibians/ reptiles detailed in the report above.
			Nesting Birds: any potential vegetation clearance (grassland, scrub), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. Birds may also nest within the tower at any time.	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September).
			Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland and scrub. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.
			Sett-Building Badger: there is potential for holes to be excavated by badgers, especially along the steep wooded bank.	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for badger signs, including any sett entrances, is advised. This should be undertaken by a qualified ecologist.
			Commuting/Foraging Bats: any potential removal of trees or hedgerow may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats.	Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute.
XL024	 XL Route Tower 24 56.12843, -3.66279	<u>Access Track</u> Part of the same quarry complex as XL022-25A. From the paved road, the route follows a wide gravel road used by quarry vehicles. Mixed scrub including gorse, broom, birch and willow line both sides of this road. <u>XL024</u> The area surrounding the tower comprises predominantly marshy grassland (potential priority habitat and GWDTE) with small parcels of scattered birch and willow scrub. The scrub and marshy grassland provide habitat for nesting birds, foraging/commuting badgers, and amphibians.	Priority Habitat Loss: potential loss or damage to marshy grassland, habitat. Considering the nature of the works, pollution and physical damage may impact this habitat.	Works must follow the pollution prevention measures detailed in this report.
			Potential GWDTEs: there is a risk of pollution of groundwater from leaks or spills from vehicles or equipment. Any vehicle/plant movement could damage vegetation within the working areas and along vehicular tracks.	Works must follow pollution prevention and other precautionary measures with respect to GWDTE areas detailed in the report above.
			Nesting Birds: any potential vegetation clearance (grassland, scrub), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. Birds may also nest within the tower at any time.	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September).
			Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland and scrub. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.
			Amphibians: vegetation clearance and vehicle tracking risk causing harm or mortality to amphibians which may be present within the marshy grassland.	Implementation of precautionary measures with respect to amphibians/ reptiles detailed in the report above.

XL025		<u>Access Track</u> Part of the same quarry complex as XL022-25A. The access route starts out the same as XL025A. It then passes around the edge of an arable crop (bare ground) with a strip of semi-improved neutral grassland and some patches of marshy grassland along the fence line to the east. <u>XL025</u> The area surrounding the tower comprises predominantly marshy grassland (potential priority habitat and GWDTE) with an arable field (bare ground) to the northeast and scattered willow scrub to the east. A permanent pond (Pond 3) is found 70m west of the tower. This pond has an HSI score of 0.76, indicating good potential for great crested newt. Other species including amphibians and otters could be using this pond and the surrounding marshy grassland.	Please refer to the constraints listed under XL025A.	Please refer to mitigation measures listed under XL025A
			Priority Habitat Loss: potential loss or damage to marshy grassland, habitat. Considering the nature of the works, pollution and physical damage may impact this habitat.	Works must follow the pollution prevention measures detailed in this report.
			Potential GWDTEs: there is a risk of pollution of groundwater from leaks or spills from vehicles or equipment. Any vehicle/plant movement could damage vegetation within the working areas and along vehicular tracks.	Works must follow pollution prevention and other precautionary measures with respect to GWDTE areas detailed in the report above.
			Amphibians: vegetation clearance and vehicle tracking risk causing harm or mortality to amphibians which may be present within the marshy grassland.	Implementation of precautionary measures with respect to amphibians/ reptiles detailed in the report above.
			Permanent Ponds (Priority Habitat) & potential Great Crested Newt: considering the proximity of the pond to the working area, pollution/sediment run-off may impact this feature and degrade the aquatic habitat. Any vegetation clearance and vehicle movements have the potential to kill and injure individual newts, if present.	Works must follow the pollution prevention measures and precautionary measures with respect to great crested newt as detailed in the report above.

XL025A	 XL Route Tower 25A 56.13303, 3.02819	 XL Route 1st Tree 56.13303, 3.02819	<u>Access Track</u> Part of the same quarry complex as XL022-25. From the paved road, the route follows an overgrown gravel track around the edge of an arable crop (bare soil). Adjacent to the road, there is a strip of semi-natural broadleaved woodland with oak, ash, and birch trees (potential priority habitat but no bat roost potential observed). A wet ditch and thick gorse scrub line the track to the north, and semi-improved grassland lines the south. The ditch was inaccessible due to the scrub; however, it is likely unsuitable for water vole due to high levels of shading. Otters may commute within the ditch to/from the nearby quarry reservoirs. Close to the tower buffer, one mature oak tree has a cracked limb and torn branch offering bat roost suitability for multiple bats (BRP-M); T2, and a second mature oak tree has a torn branch offering bat roost suitability for individual bats (BRP-I; T3).	Priority Habitat Loss: potential loss or damage of woodland habitat near start of access track. While it is unknown if tree felling or pruning is anticipated, impacts to trees can also include physical damage to root systems during the works.	Woodland retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above.
	 XL Route AT XL025A 56.13381, 3.06171	<u>XL025A</u> The area surrounding the tower comprises an arable crop (bare ground), semi-improved neutral grassland, a strip of willow scrub lining another wet ditch, and two mature oak trees (T2/T3). Two stands of Japanese knotweed are present to the southeast of the tower (TN7). A large reservoir (Pond 9) is located 100m southeast of the tower. This reservoir has a HSI score of 0.51, indicating below average potential for great crested newt.	Roosting Bats: It is unknown if any tree felling or pruning is anticipated; however, if required, the removal or pruning of a tree may result in the disturbance, killing and injury of bats.	Avoid felling/pruning of tree/branches. If not possible, then further bat surveys (e.g., aerial tree assessment, emergence surveys) should be undertaken.	
	 XL Route 1st Tree 56.13265, 3.06577	The woodland, grassland, scrub, and trees provide habitat for nesting birds, foraging/commuting bats, and foraging/commuting badgers.	Ditch: considering the proximity of the ditch to the access route, pollution/sediment run-off may impact this feature. Otters: activities associated with the works carry a risk of short-term disturbance to otter through increased noise, lighting and human presence.	Works must follow pollution prevention measures detailed in this report. No floodlighting and/or night work. Follow the precautionary measures with respect to otter as detailed in this report.	
			Nesting Birds: any potential vegetation clearance (grassland, woodland, scrub, trees), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u>	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September).	
			Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland, woodland, scrub, and trees. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.	

			Commuting/Foraging Bats: any potential removal of trees may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats.	Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute.
			Invasive Species: works have the potential to cause the spread of invasive species within the local area.	Implementation of appropriate biosecurity measures as detailed in this report.
XL026	 	<u>Access Track</u> The access track crosses two semi-improved grassland fields, one grazed by sheep. <u>XL026</u> The area around the tower comprises predominantly semi-improved neutral grassland, with a paved road lined with tall ruderals, bramble/hawthorn scrub and scattered oak saplings. South of the paved road, there is a line of semi-mature aspen and young oak trees (no bat roost potential). The grassland, scrub and trees provide habitat for nesting birds, foraging/commuting bats, and foraging/commuting badgers.	Commuting/Foraging Bats: any potential removal of scrub/trees may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats.	Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute.
			Nesting Birds: any potential vegetation clearance (grassland, scrub, trees), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u>	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September).
			Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland, scrub and trees. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.
XL027		<u>Access Track</u> The access track passes through a semi-improved neutral grassland field grazed by sheep. The track runs adjacent to a fenced-off broadleaved plantation of young alder trees. Three mature oak trees with features including split limbs and crevasses between limbs offer bat	Roosting Bats: It is unknown if any tree felling or pruning is anticipated; however, if required, the removal or pruning of a tree may result in the disturbance, killing and injury of bats.	Avoid felling/pruning of tree/branches. If not possible, then further bat surveys (e.g., aerial tree assessment, emergence surveys) should be undertaken.

	  	roost potential for multiple bats (BRP-M) and are found adjacent to the track (T4/5/6). <u>XL027</u> The area surrounding the tower comprises semi-improved neutral grassland and two fenced-off areas of young broadleaved plantation. To the southeast, the plantation is alder and to the northwest the plantation is beech and birch. These areas provide habitat for nesting birds, commuting/foraging bats, and foraging/commuting badgers. Along the fence line, three mature oak trees with features including split limbs and lifted bark, offer bat roost potential for multiple bats (BRP-M) (T7/8/9). Underneath the tower, there are some rocky boulders offering refugia for small mammals, amphibians, and reptiles (TN18).	Habitat Pile: any removal of the boulders has the potential to kill/injure small mammals, amphibians and/or reptiles.	Retain boulders where possible. If required, removal of the boulders should be undertaken by hand with an ECoW present as there is a risk of individuals present at any time during the year.
			Nesting Birds: any potential vegetation clearance (grassland, plantation), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u>	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September).
			Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland, and plantation. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.
			Commuting/Foraging Bats: any potential removal of trees may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats.	Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute.
XL028		<u>Access Track</u> The access track starts the same as XL027 and then passes through a semi-improved neutral grassland field grazed by sheep. Four mature oaks trees are adjacent to the access track near the gateway. All four trees have features including split limbs and lifted bark, offering bat roost potential for multiple bats (T10/11/12/13). The track also passes between two fenced off areas of young broadleaf plantation. A dry, vegetated drainage ditch runs north; however, this is	Roosting Bats: It is unknown whether tree felling or pruning is anticipated; however, if required, the removal or pruning of a tree may result in the disturbance, killing and injury of bats.	Avoid felling/pruning of tree/branches. If not possible, then further bat surveys (e.g., aerial tree assessment, emergence surveys) should be undertaken.
			Nesting Birds: any potential vegetation clearance (grassland, plantation), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u>	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September).

		unsuitable for water vole due to the lack of water. <u>XL028</u> The area surrounding the tower comprises predominantly semi-improved neutral grassland. A young broadleaved plantation including beech and birch trees are located at the southern edge of the buffer. A dry, vegetated drainage ditch runs along the edge of the plantation; however, this is unsuitable for water vole due to the lack of water. These habitats provide habitat for nesting birds, and foraging/commuting badgers. One mature oak tree is located on the edge of the buffer and has split limbs and lifted bark offering bat roost potential for multiple bats (T14).	Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland and plantation. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.
			Ditch: considering the proximity of the ditch to the access route, pollution/sediment run-off may impact this feature	Works must follow pollution prevention measures detailed in this report.
XL029		<u>Access Track</u> The access track passes through semi-improved neutral grassland and runs alongside a young willow, birch, and gorse plantation/scrub mosaic. It then passes over a wet ditch with running water and small fish present in deeper pools. A second narrow drainage ditch is also present which is damp and full of soft rush and grasses. These ditches both offer suitable but poor habitat for water vole (TN19). Other	Ditch: considering the ditches cross the access route, pollution/sediment run-off may impact this feature.	Works must follow pollution prevention measures detailed in this report.
			Otters: activities associated with the works carry a risk of short-term disturbance to otter through increased noise, lighting and human presence.	No floodlighting and/or night work. Follow the precautionary measures with respect to otter as detailed in this report.
			Water vole: disturbance to water vole and/or their burrows could occur when passing close to the ditches.	Follow the precautionary measures with respect to water vole as detailed in the report above.

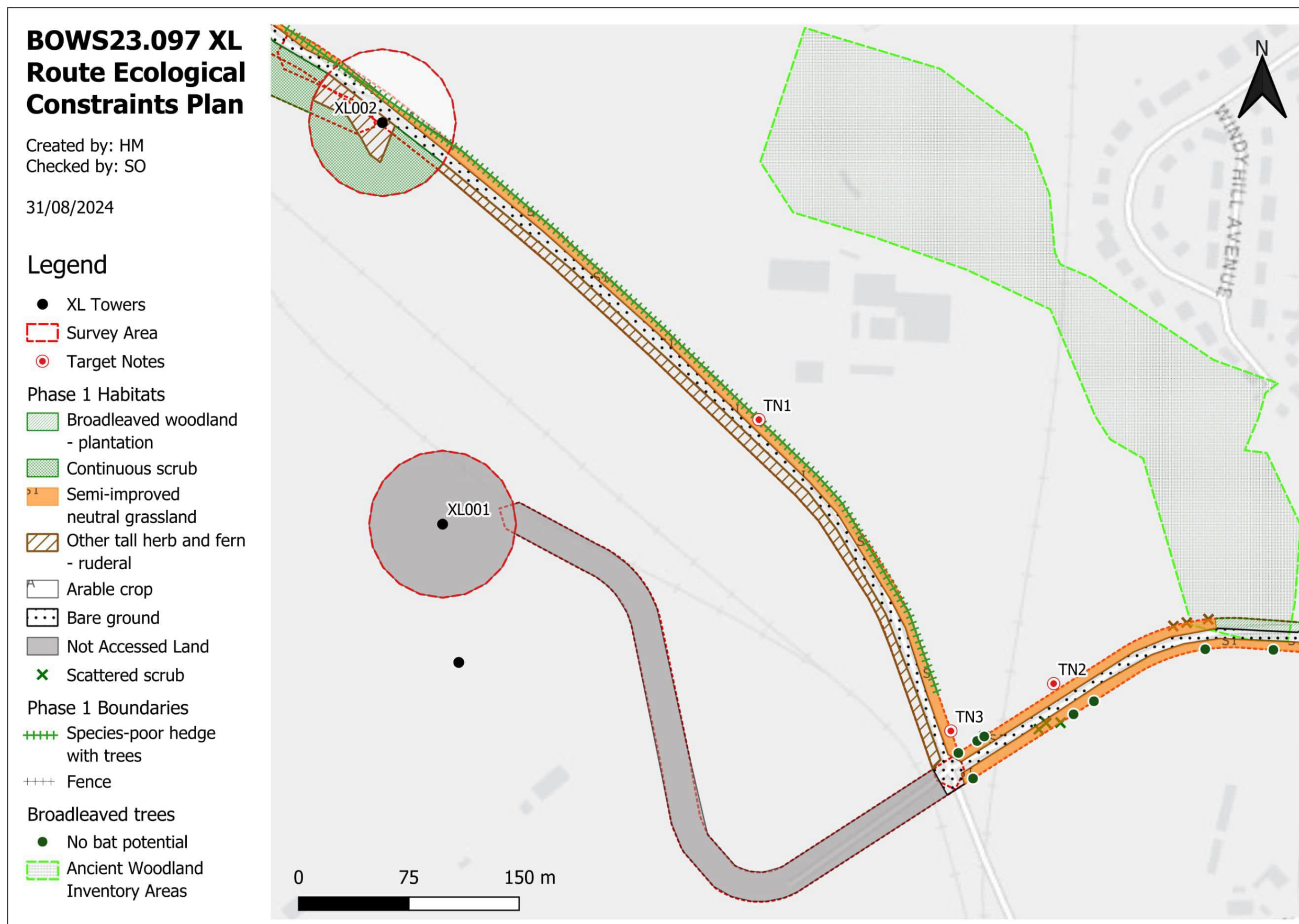
	  	species including amphibians and otter may also be using the ditches. <u>XL029</u> The area surrounding the tower comprises semi-improved neutral grassland to the north and a strip of semi-improved neutral grassland and mixed broadleaf plantation to the south. The plantation to the southeast comprises birch and oak saplings, while to plantation to the west comprises silver birch (approx. 2m tall) with scattered mature oak and occasional Scot's pine. The plantations were not accessible due to deer fencing; however, they provide habitat for nesting birds, foraging/commuting bats, and foraging/commuting badgers. The mature trees may have features suitable for roosting bats.	Commuting/Foraging Bats: any potential removal of trees may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats. Nesting Birds: any potential vegetation clearance (grassland, plantation), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u> Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland and plantation. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers. Roosting Bats: It is not known whether any tree felling is anticipated; however, if required, the removal or pruning of a tree may result in the disturbance, killing and injury of bats.	Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute. Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September). Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above. Avoid felling/pruning of tree/branches. If not possible, then further bat surveys (e.g., aerial tree assessment, emergence surveys) should be undertaken.
XL030		<u>Access Track</u> From the paved road, the access track to the tower is lined by tall ruderals. It follows an existing hardcore/stone track within semi-improved neutral grassland, with fenced goat willow and birch and scattered mature oak (no bat roost potential observed). <u>XL030</u> The area around the tower comprises entirely semi-improved neutral grassland. Dead tree stumps placed under tower could provide refugia	Commuting/Foraging Bats: any potential removal of trees may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats. Nesting Birds: any potential vegetation clearance (trees, ruderals, hedgerow, scrub, and grassland), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u>	Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute. Prior to any tree vegetation clearance (i.e. tree removal) or works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September).

	 	for small mammals, reptiles or amphibians. On the edge of the 50m buffer, there are three Scot's pine trees with bird's nest present (TN15). The woods, scrub, and ruderals provide habitat for nesting birds, foraging/commuting bats, and foraging/commuting badgers.	Nesting Birds: any potential vegetation clearance (grassland, woodland, scrub), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u> Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland, woodland, scrub. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers. Habitat Pile: any removal of the tree stumps has the potential to kill/injure small mammals, amphibians and/or reptiles.	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September). Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above. Retain stumps where possible. If required, the removal of the pile should be undertaken by hand and supervised by an ECoW as there is a risk of individuals present at any time during the year.
XL031		Access Track The access track follows a paved B-road with tall ruderals and willow scrub verges. Towards the bend, the ground drops to a large area of marshy grassland (potential priority habitat and GWDTE). The road crosses over a bridge with a wet ditch beneath. A tall intact hawthorn hedgerow is present to the east of the road. The track turns down residential/equestrian property drive with poor semi-improved neutral grassland paddocks on both sides. XL031 The area surrounding the tower comprises poor semi-improved grassland fields grazed by horses to the east and west of the tower, in addition to tall, semi-improved neutral grassland with areas of tall ruderal and a localised nutrient rich area where garden waste is being dumped around the base of the tower (TN19). This piled heap offers suitable refugia habitat for small mammals, reptiles and amphibians. Two dry ditches run within the buffer; however, they are both unsuitable for water vole due to the lack of water. To the southeast and north of the tower, there is a willow and birch plantation. The plantation and grassland offer suitable habitat for nesting birds, foraging/commuting bats, and foraging/commuting badgers.	Priority Habitat Loss: potential loss or damage to marshy grassland. Considering the nature of the works, pollution and physical damage may impact these habitats. Potential loss or damage of hedgerow along access track may result in the fragmentation of habitats in the area. Impacts to retained hedgerows may include physical damage to root systems during the works. Potential GWDTEs: there is a risk of pollution of groundwater from leaks or spills from vehicles or equipment. Any vehicle/plant movement could damage vegetation within the working areas and along vehicular tracks. Nesting Birds: any potential vegetation clearance (grassland, plantation), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u> Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland and plantation. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers. Habitat pile: any removal of the pile has the potential to kill/injure small mammals, amphibians and/or reptiles.	Works must follow the pollution prevention measures detailed in this report. Hedgerow retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above Works must follow pollution prevention and other precautionary measures with respect to GWDTE areas detailed in the report above. Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September). Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above. Retain pile where possible. If required, removal of the pile should be undertaken by hand with an ECoW present as there is a risk of individuals present at any time during the year.

			Ditch: considering the proximity of the ditch to the access route, pollution/sediment run-off may impact this feature. Commuting/Foraging Bats: any potential removal of trees may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats.	Works must follow pollution prevention measures detailed in this report. Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute.
XL032		<u>Access Track</u> No access route marked on plans. <u>XL032</u> The area surrounding the tower comprises predominantly semi-improved neutral grassland, managed as a hay field. Northwest of the tower, there is a residential garden that comprises ornamental leylandii hedges and mature sycamore, oak and birch trees. Considering their age, some of these trees likely have features offering bat roost potential, however, a thorough ground search was not conducted as access to this area was not possible (TN20). These trees are part of a larger plantation that is listed on the AWI as long-established. The hedgerows and trees also provide habitat for nesting birds, foraging and commuting bats, and foraging and commuting badger.	Roosting Bats: It is unknown whether tree felling or pruning is anticipated; however, if required, the removal or pruning of a tree may result in the disturbance, killing and injury of bats. Long-Established Plantation: potential loss or damage of woodland habitat north of tower. While it is unknown if tree felling or pruning is anticipated, impacts to trees can also include physical damage to root systems during the works. Nesting Birds: any potential vegetation clearance (grassland, hedgerow, trees), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u> Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland, hedgerow, and trees. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers. Commuting/Foraging Bats: any potential removal of trees or hedgerow may result in a reduction in the availability of bat foraging and commuting habitat within the site and in the immediate vicinity. Any lighting associated with works has the potential to deter bats from using foraging and commuting habitats.	Avoid felling/pruning of tree/branches. If not possible, then further bat surveys (e.g., aerial tree assessment, emergence surveys) should be undertaken. Woodland retention where possible. If not possible, replace the lost habitat. Implement best practice measures detailed in the report above. Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September). Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above. Avoid/minimise any loss or fragmentation of foraging and commuting habitat. Where this is not possible replace the lost habitat. Trees should remain dark to allow bats to commute.
XL033		<u>Access Track</u> No access route marked on plans. <u>XL033</u> The area surrounding the tower comprises semi-improved neutral grassland. The tower sits on a slope between two fields with a recently deposited muckheap nearby (TN21). The grassland provides habitat for nesting birds and foraging/commuting badgers. The slope also offers suitable habitat for badger sett construction.	Nesting Birds: any potential vegetation clearance (grassland), and vehicle tracking have the potential to damage/destroy nests and kill/injure nesting birds. <u>Birds may also nest within the tower at any time.</u> Commuting/Foraging Badger: commuting/foraging badger may be present within the grassland. Activities associated with the works carry a risk of short-term disturbance to badger through increased noise, vibrations, and human presence. There is potential for holes to be excavated by badgers.	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for nesting birds will be required by an ecologist, if the works will occur within nesting bird season (March to September). Implementation of precautionary measures with respect to commuting/ foraging badger detailed in the report above.

				Sett-Building Badger: there is potential for holes to be excavated by badgers, especially along the vegetated slope close to the tower.	Prior to any vegetation clearance/works to the tower and vehicular tracking, a pre-works check for badger signs, including any sett entrances, is advised. This should be undertaken by a qualified ecologist.
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Appendix C – Ecological Constraints Plan



BOWS23.097 XL Route Ecological Constraints Plan

Created by: HM
Checked by: SO

31/08/2024

Legend

- XL Towers
- ▭ Survey Area
- Target Notes
- Phase 1 Habitats
- Not Accessed Land
- Watercourse/ Drainage Ditches



BOWS23.097 XL Route Ecological Constraints Plan

Created by: HM
Checked by: SO

31/08/2024

Legend

- XL Towers
- ▭ Survey Area
- ⊙ Target Notes
- Watercourse/ Drainage
Ditches

Polygons

- Broadleaved woodland
- semi-natural
- Semi-improved neutral
grassland
- Poor semi-improved
grassland
- ▭ Arable Crop
- ▭ Disturbed land -
ephemeral/short
perennial
- Built-up areas
- ▭ Bare ground
- Not Accessed Land
- ▭ Acient Woodland
Inventory Areas



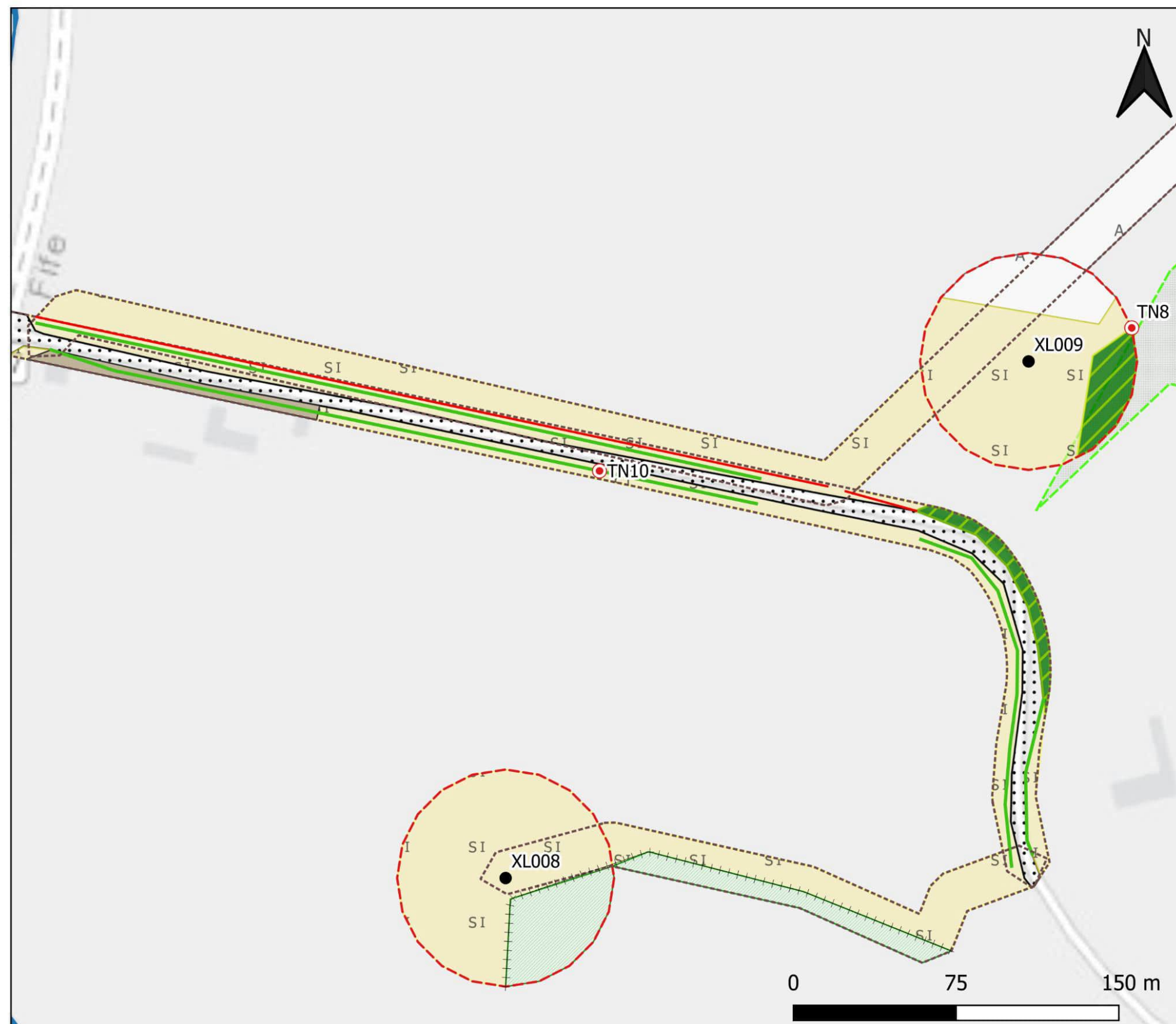
BOWS23.097 XL Route Ecological Constraints Plan

Created by: HM
Checked by: SO

31/08/2024

Legend

- XL Towers
- ▭ Survey Area
- ⊙ Target Notes
- Watercourse/ Drainage
Ditches
- ▨ Aciest Woodland
Inventory Areas
- Polygons**
- ▨ Coniferous woodland
- plantation
- ▨ Mixed woodland
- plantation
- ▨ Poor semi-improved
grassland
- ▨ Arable crop
- ▨ Buildings
- ▨ Bare ground
- Boundaries**
- ++++ Fence
- Drystone Wall
- Line of Trees



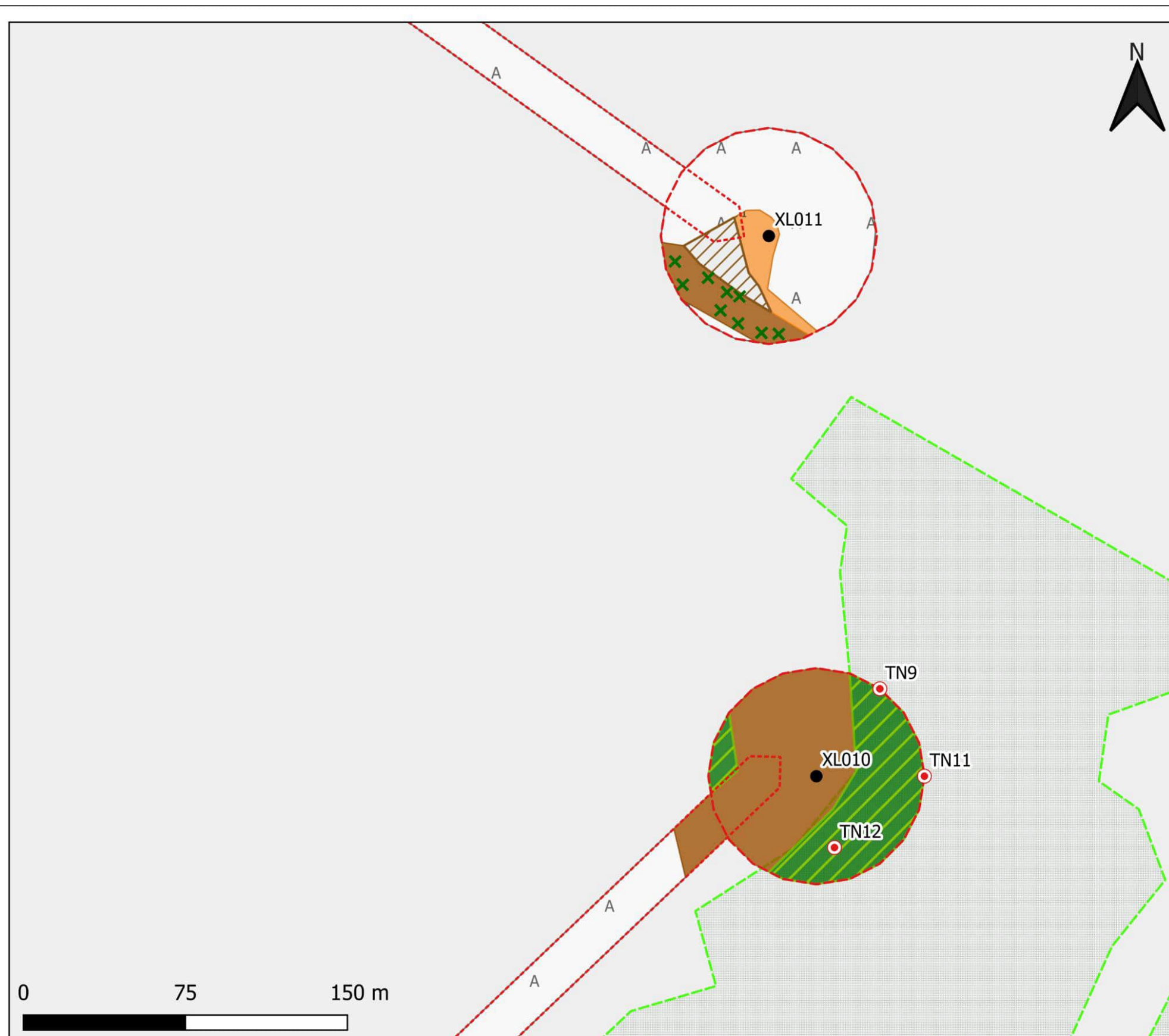
BOWS23.097 XL Route Ecological Constraints Plan

Created by: HM
Checked by: SO

31/08/2024

Legend

- XL Towers
- ▭ Survey Area
- ⊙ Target Notes
- Watercourse/ Drainage
Ditches
- ▭ Ancient Woodland
Inventory Areas
- Phase 1 Habitats**
- ▨ Mixed woodland
- plantation
- Neutral grassland
- semi-improved
- Continuous bracken
- ▨ Other tall herb and fern
- ruderal
- ▭ Arable crop
- ✕ Scattered scrub



BOWS23.097 XL Route Ecological Constraints Plan

Created by: HM
Checked by: SO

31/08/2024

Legend

- XL Towers
- ▭ Survey Area
- ⊙ Target Notes
- Watercourse/ Drainage
Ditches
- ✕ Scattered scrub

Phase 1 Habitats

- ▨ Coniferous woodland
- plantation
- ▨ Neutral grassland
- semi-improved
- ▨ Poor semi-improved
grassland
- ▨ Arable crop
- ▨ Amenity grassland
- ▨ Buildings
- ▨ Bare ground

Phase 1 Boundaries

- Intact hedge
- species-poor
- Line of Trees



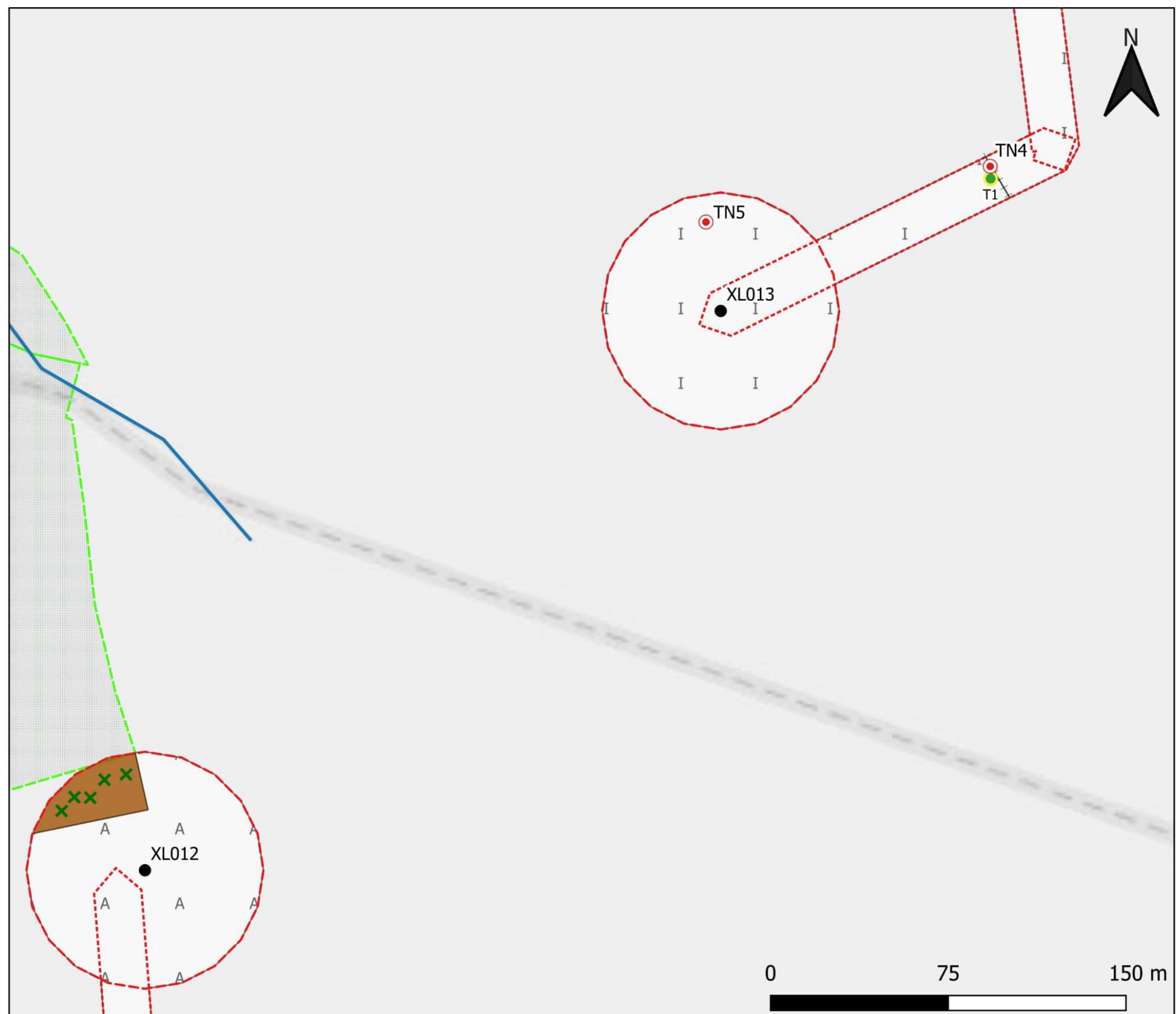
BOWS23.097 XL Route Ecological Constraints Plan

Created by: HM
Checked by: SO

31/08/2024

Legend

- XL Towers
- ▭ Survey Area
- ⊙ Target Notes
- Watercourse/ Drainage
Ditches
- ✕ Scattered scrub
- ▭ Ancient Woodland
Inventory Areas
- Phase 1 Habitats**
- ▭ Improved grassland
- ▭ Continuous bracken
- ▭ Arable crop
- Phase 1 Boundaries**
- ++++ Fence
- Broadleaved trees**
- Potential Roosting
Feature - Individual
(PRF-I)



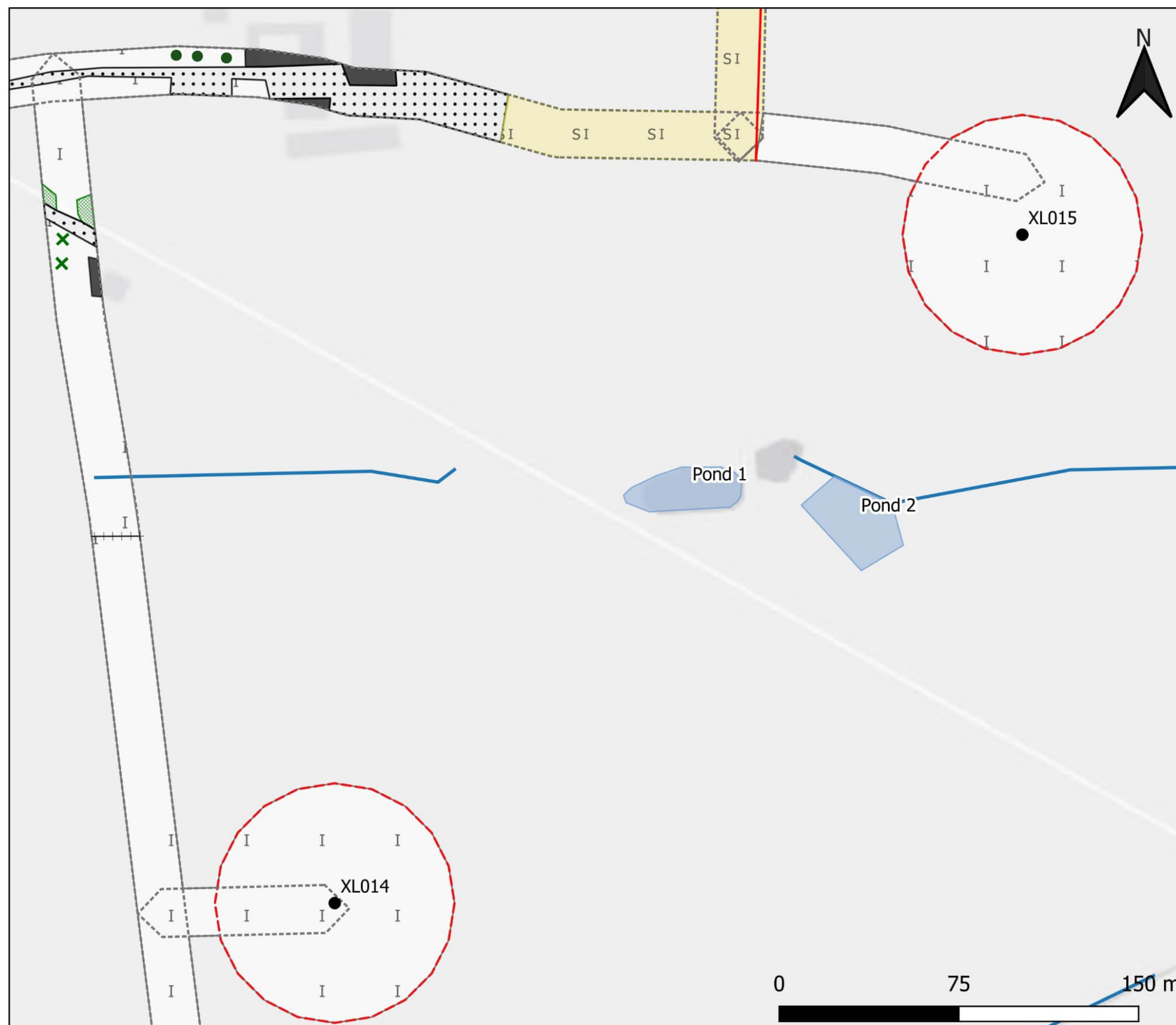
BOWS23.097 XL Route Ecological Constraints Plan

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31/08/2024

Legend

- XL Towers
- ▭ Survey Area
- ⊙ Target Notes
- Watercourse/ Drainage
Ditches
- ✕ Scattered scrub
- Ponds (assessed for
HSI)
- Phase 1 Habitat**
- Dense scrub
- Improved grassland
- Poor semi-improved
grassland
- Buildings
- Bare ground
- Phase 1 Boundaries**
- ++++ Fence
- Drystone wall
- Broadleaved trees**
- No bat roost potential



BOWS23.097 XL Route Ecological Constraints Plan

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31/08/2024

Legend

- XL Towers
- ▭ Survey Area
- ⊙ Target Notes
- Watercourse/ Drainage
Ditches
- ▭ Ancient Woodland
Inventory Areas
- ✕ Scattered scrub
- ▭ Ponds (assessed for
HSI)

Phase 1 Habitats

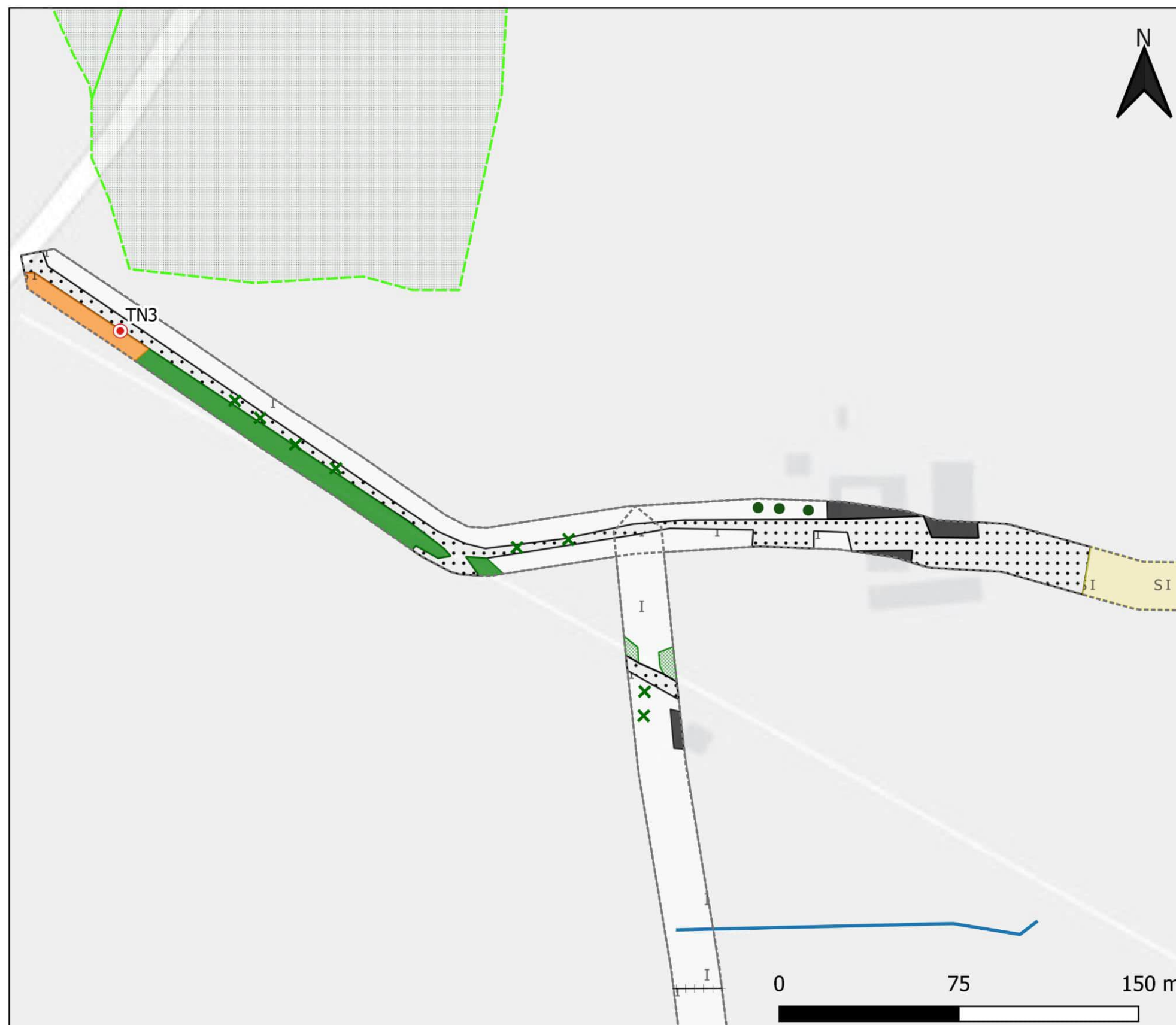
- ▭ Broadleaved woodland
- semi-natural
- ▭ Dense scrub
- ▭ Improved grassland
- ▭ Poor semi-improved
grassland
- ▭ Buildings
- ▭ Bare ground

Phase 1 Boundaries

- ++++ Fence

Broadleaved trees

- No bat roost potential



BOWS23.097 XL Route Ecological Constraints Plan

Created by: HM
Checked by: SO

31/08/2024

Legend

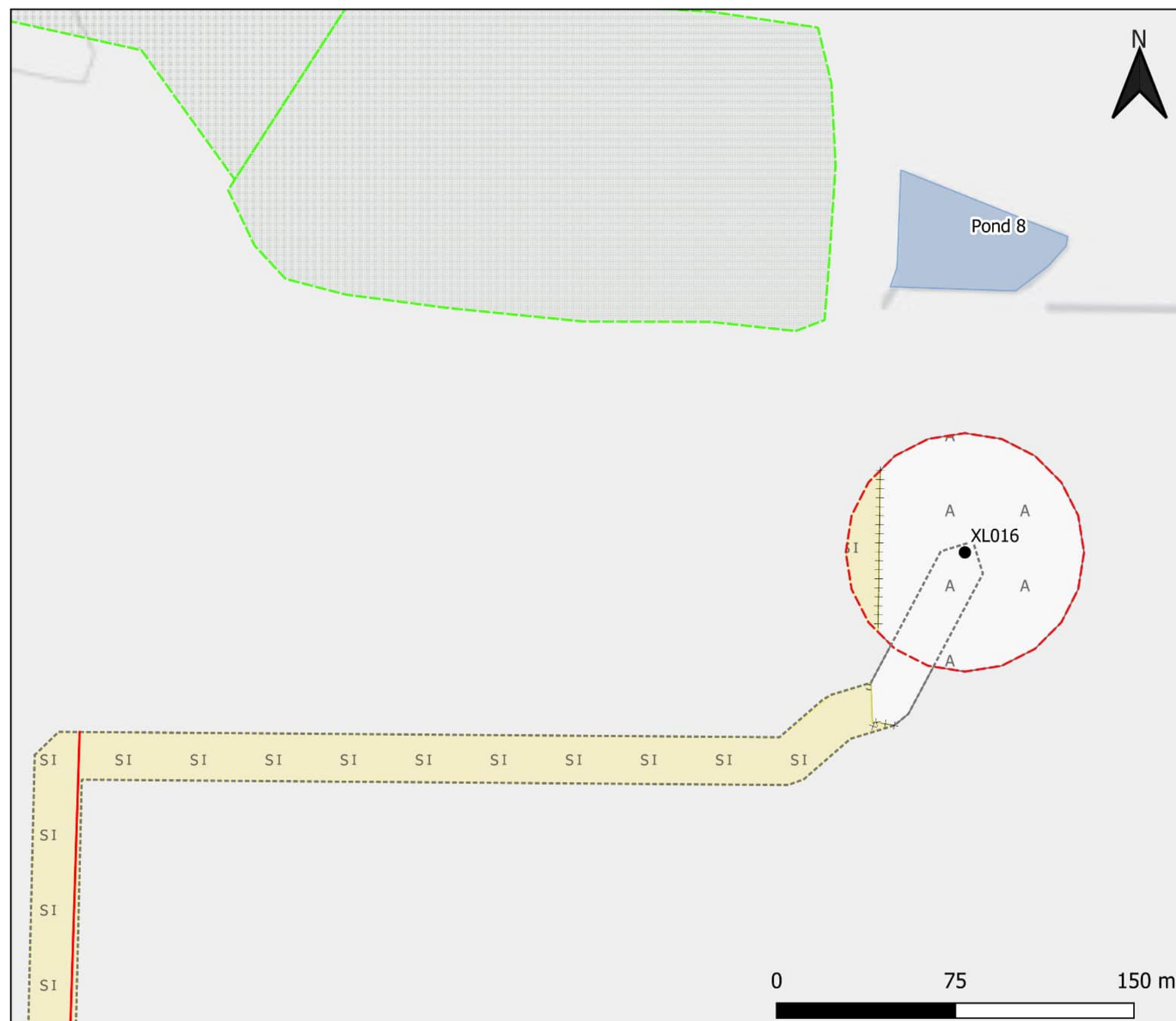
- XL Towers
- ▭ Survey Area
- ⊙ Target Notes
- Watercourse/ Drainage
Ditches
- ▨ Ancient Woodland
Inventory Areas
- ✕ Scattered scrub
- ▭ Ponds (assessed for
HSI)

Phase 1 Habitats

- ▭ Arable crop
- ▨ Poor semi-improved
grassland

Boundaries

- ++++ Fence
- Drystone wall



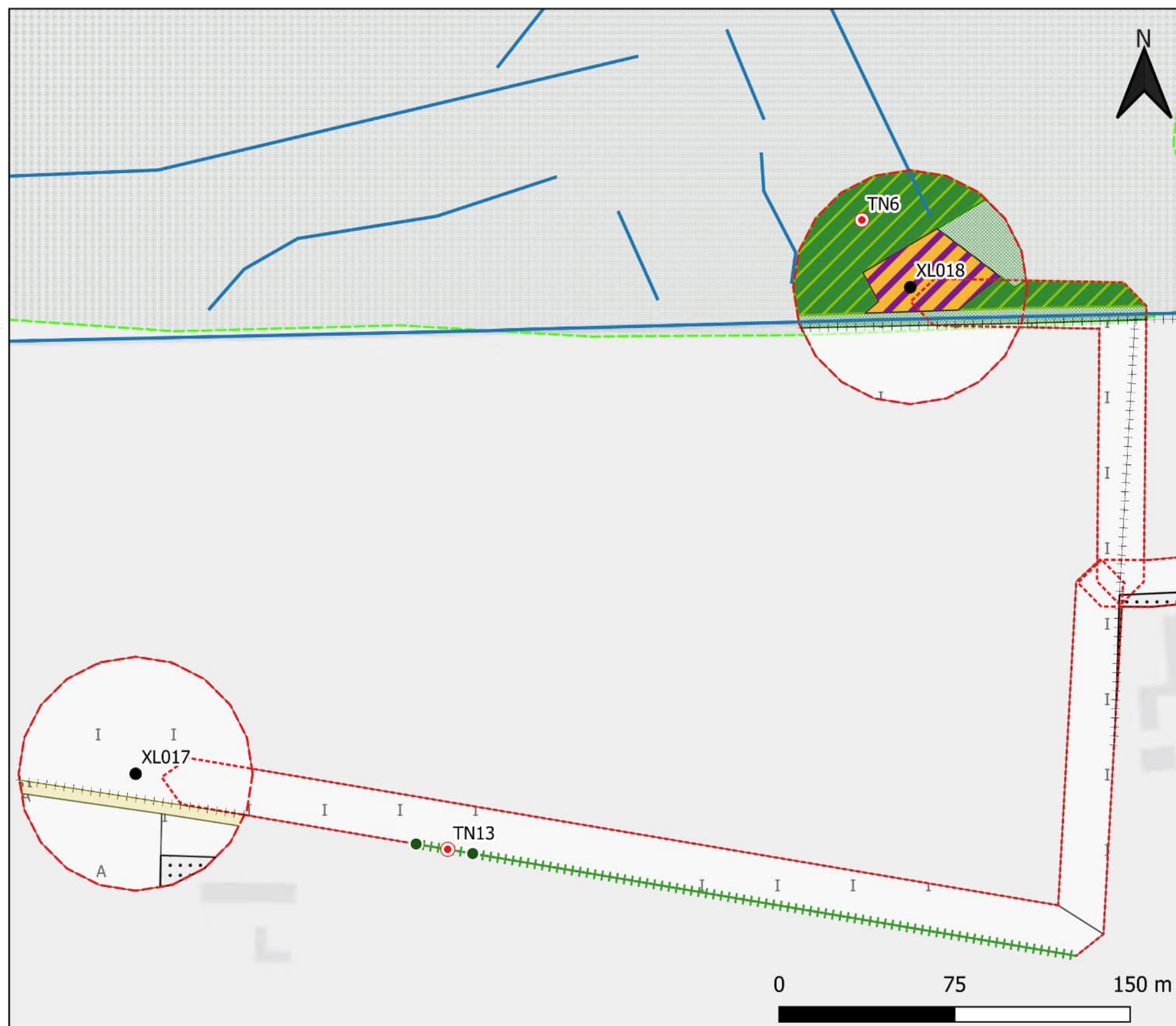
BOWS23.097 XL Route Ecological Constraints Plan

Created by: HM
Checked by: SO

31/08/2024

Legend

- XL Towers
- ▭ Survey Area
- ⊙ Target Notes
- Watercourse/ Drainage
Ditches
- ▨ Ancient Woodland
Inventory Areas
- Phase 1 Habitat**
 - ▨ Mixed woodland
- plantation
 - ▨ Dense scrub
 - ▨ Improved grassland
 - ▨ Marsh/marshy
grassland
 - ▨ Poor semi-improved
grassland
 - ▨ Arable crop
 - ▨ Bare ground
- Boundaries**
 - ++++ Fence
- Broadleaved trees**
 - Unknown bat potential
(not surveyed)



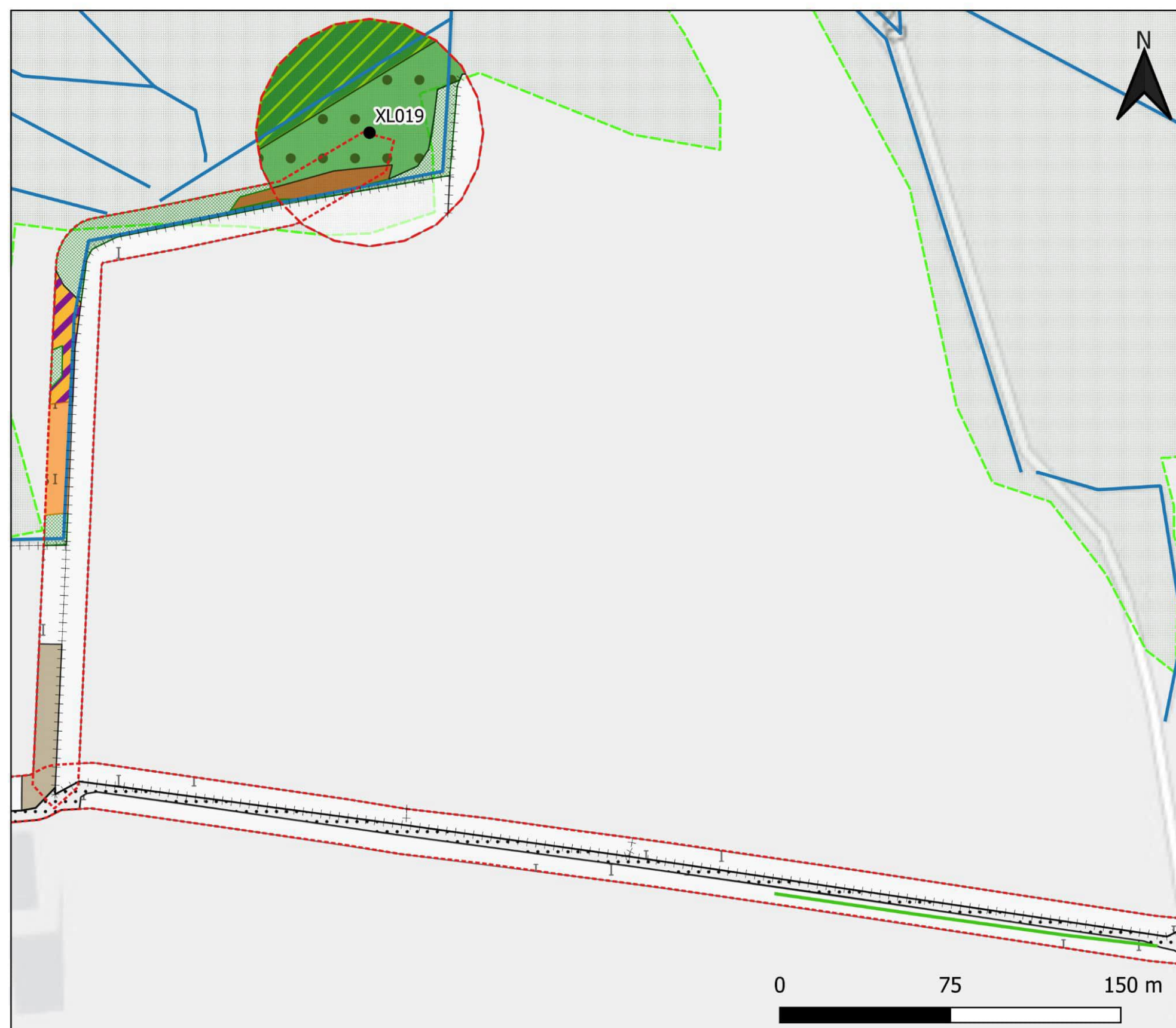
BOWS23.097 XL Route Ecological Constraints Plan

Created by: HM
Checked by: SO

31/08/2024

Legend

- XL Towers
- ▭ Survey Area
- ⊙ Target Notes
- Watercourse/ Drainage
Ditches
- - - Ancient Woodland
Inventory Areas
- Boundaries**
- ++++ Fence
- Line of Trees
- Phase 1 Habitat**
- Mixed woodland -
semi-natural
- Mixed woodland
- plantation
- Dense scrub
- Improved grassland
- Marsh/marshy
grassland
- Neutral grassland
- semi-improved
- Continuous bracken
- Bare ground
- Built-up areas



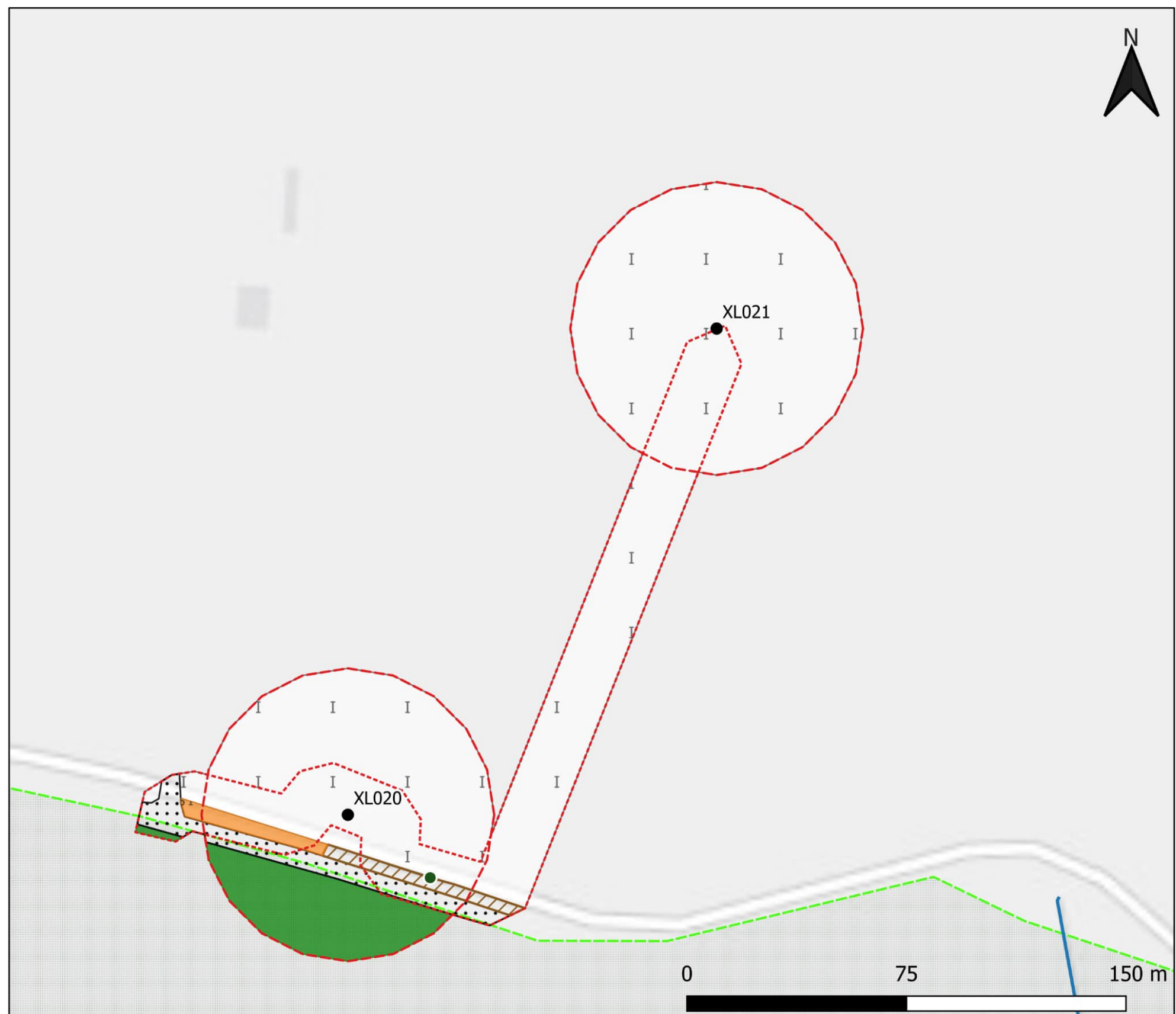
BOWS23.097 XL Route Ecological Constraints Plan

Created by: HM
Checked by: SO

31/08/2024

Legend

- XL Towers
- ▭ Survey Area
- ⊙ Target Notes
- Watercourse/ Drainage
Ditches
- ▭ Ancient Woodland
Inventory Areas
- Polygons**
- Broadleaved woodland
- semi-natural
- Neutral grassland
- semi-improved
- Improved grassland
- ▨ Other tall herb and fern
- ruderal
- ⋯ Bare ground



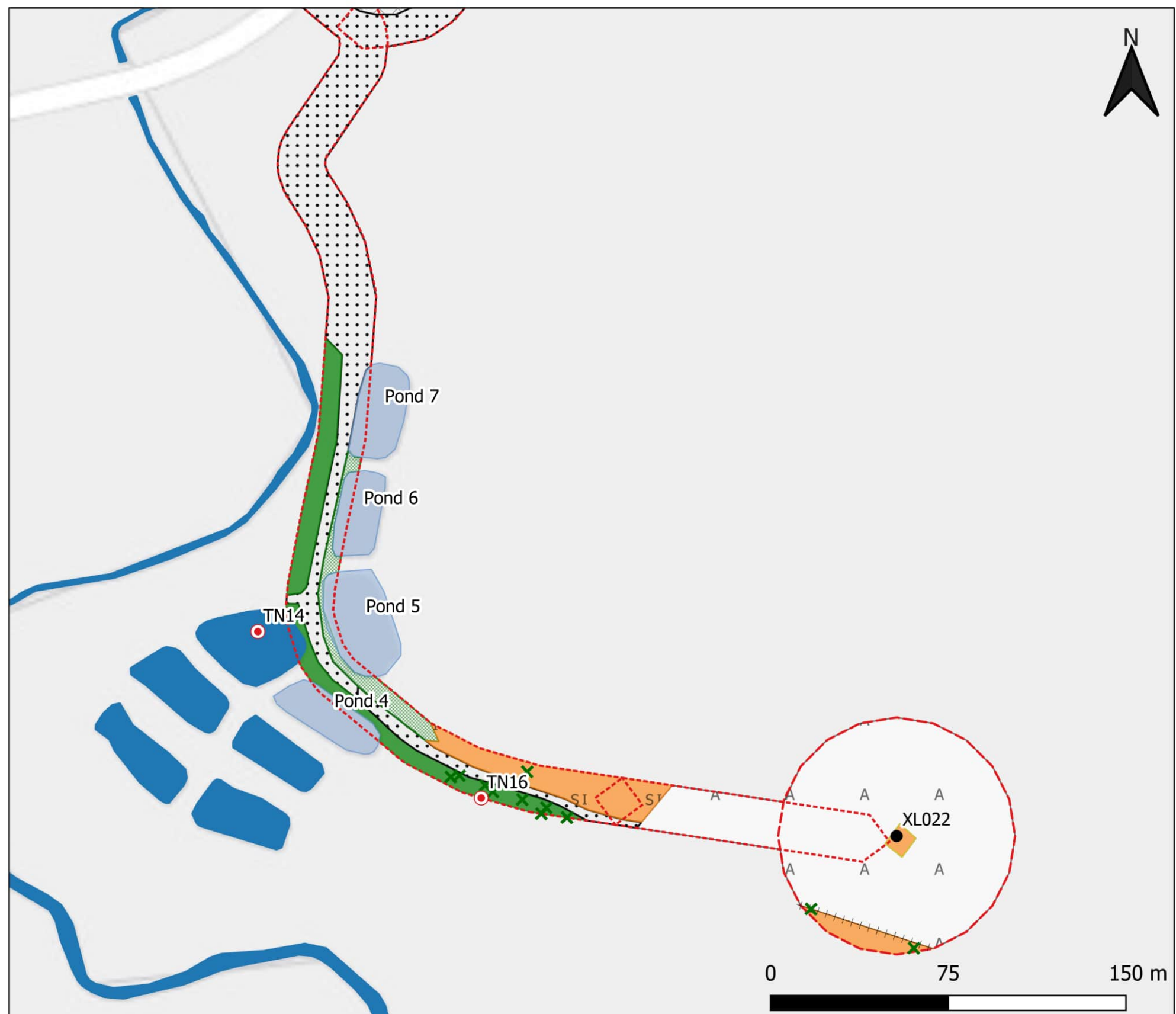
BOWS23.097 XL Route Ecological Constraints Plan

Created by: HM
Checked by: SO

31/08/2024

Legend

- XL Towers
- ▭ Survey Area
- ⊙ Target Notes
- Watercourse/ Drainage
Ditches
- ✕ Scattered scrub
- ▭ Ponds
(assessed for HSI)
- ▭ Extra Ponds
(not accessed)
- Phase 1 Habitats**
- ▭ Broadleaved woodland
- semi-natural
- ▭ Dense scrub
- ▭ Neutral grassland
- semi-improved
- ▭ Arable crop
- ▭ Bare ground
- Phase 1 Boundaries**
- ++++ Fence



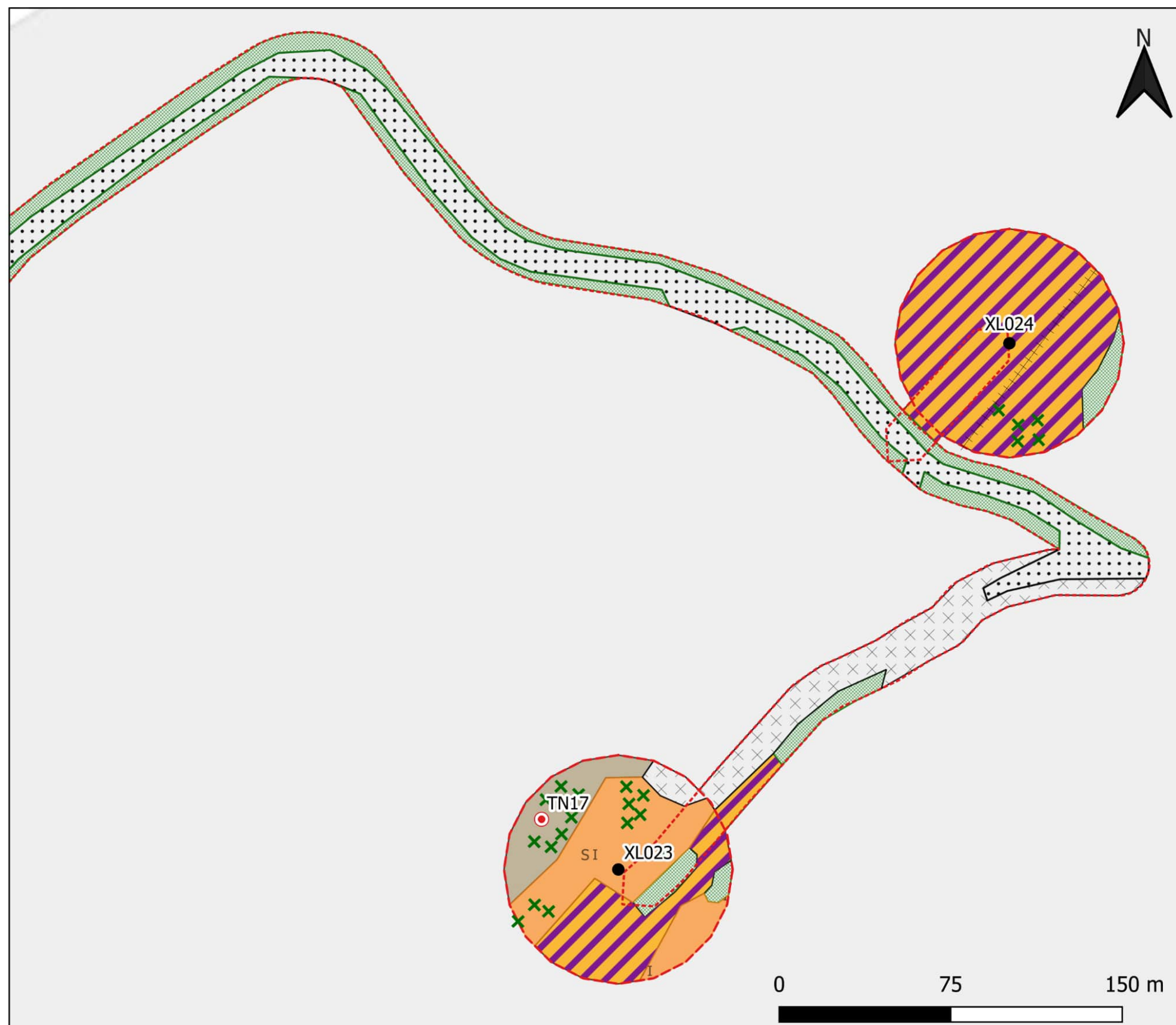
BOWS23.097 XL Route Ecological Constraints Plan

Created by: HM
Checked by: SO

31/08/2024

Legend

- XL Towers
- ▭ Survey Area
- ⊙ Target Notes
- Watercourse/ Drainage
Ditches
- ✕ Scattered scrub
- Phase 1 Boundaries**
- ++++ Fence
- Phase 1 Habitats**
- Dense scrub
- Neutral grassland
- semi-improved
- Marsh/marshy
grassland
- Cultivated/disturbed
land - ephemeral/short
perennial
- Bare ground
- Artificial rock exposure
and waste



BOWS23.097 XL Route Ecological Constraints Plan

Created by: HM
Checked by: SO

31/08/2024

Legend

- XL Towers
- ▭ Survey Area
- ⊙ Target Notes
- Watercourse/ Drainage
Ditches
- ✕ Scattered scrub
- ▭ Ponds (assessed for HSI)

Phase 1 Habitats

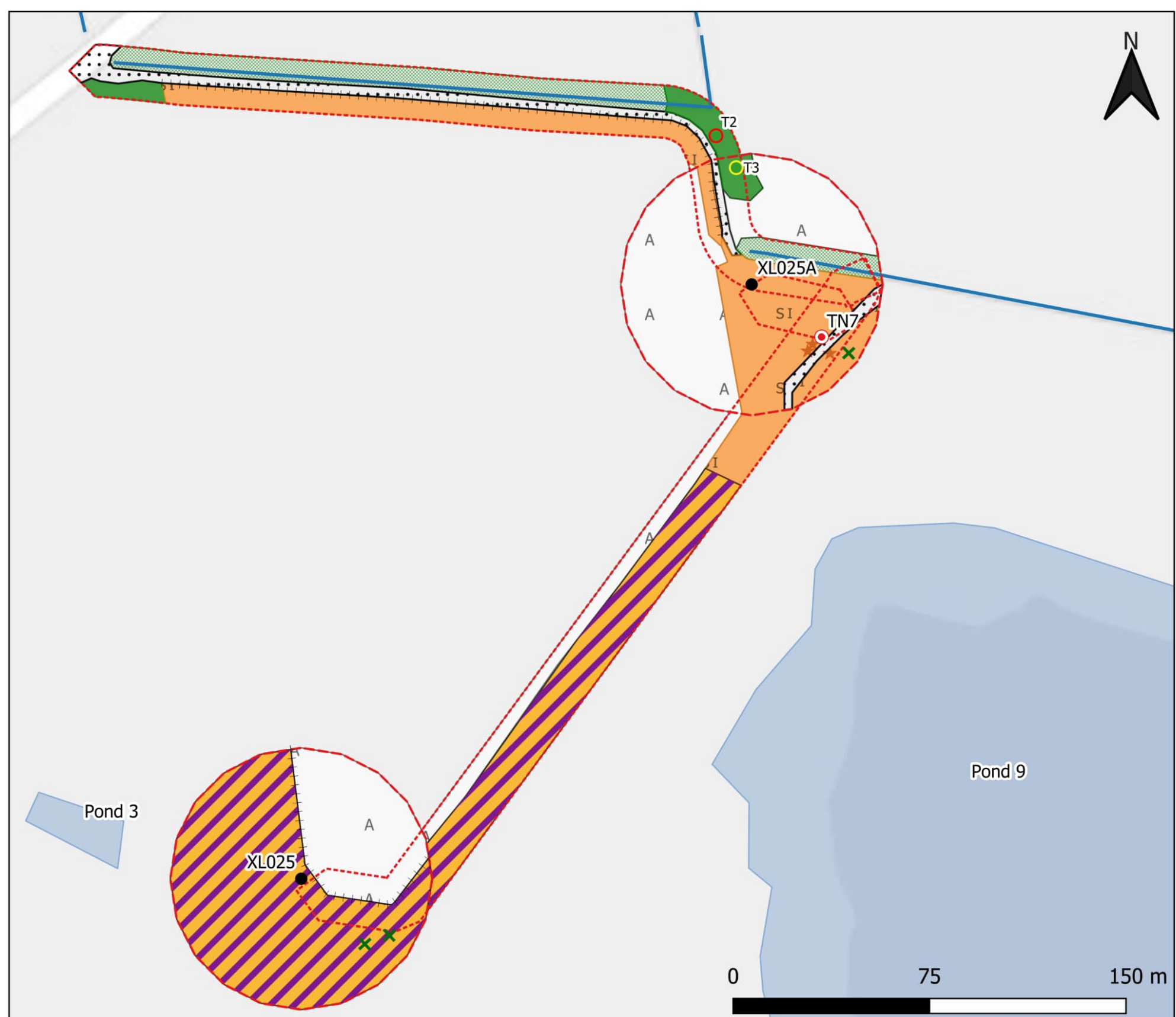
- ▭ Broadleaved woodland
- semi-natural
- ▭ Dense scrub
- ▭ Neutral grassland
- semi-improved
- ▭ Marsh/marshy
grassland
- ▭ Arable crop
- ▭ Bare ground

Phase 1 Boundaries

- ++++ Fence

Broadleaved trees

- Potential Roost Feature
- Individual (PRF-I)
- Potential Roost Feature
- Multiple (PRF-M)



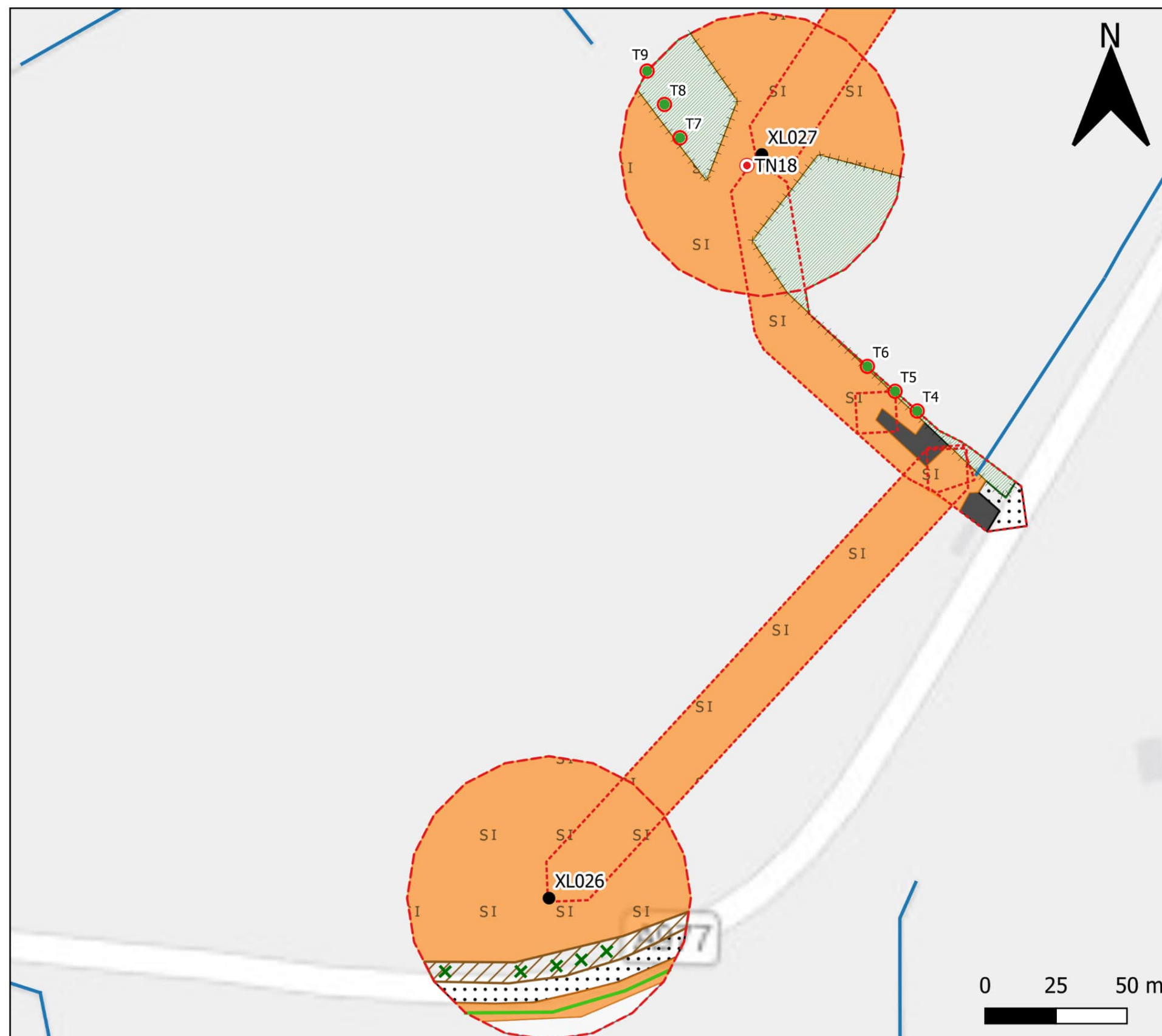
BOWS23.097 XL Route Ecological Constraints Plan

Created by: HM
Checked by: SO

Date: 31/08/2024

Legend

- XL Towers
- Survey Area
- ⊙ Target notes
- Watercourse/ Drainage
Ditches
- ✕ Scattered scrub
- Phase 1 Habitats
 - Broadleaved woodland
- plantation
 - Neutral grassland
- semi-improved
 - Other tall herb and fern
- ruderal
 - Arable crop
 - Built-up areas
 - Bare ground
- Phase 1 Boundaries
 - ++++ Fence
 - Line of Trees
- Broadleaved trees
 - ⊙ Potential Roost Feature
- Multiple (PRF-M)



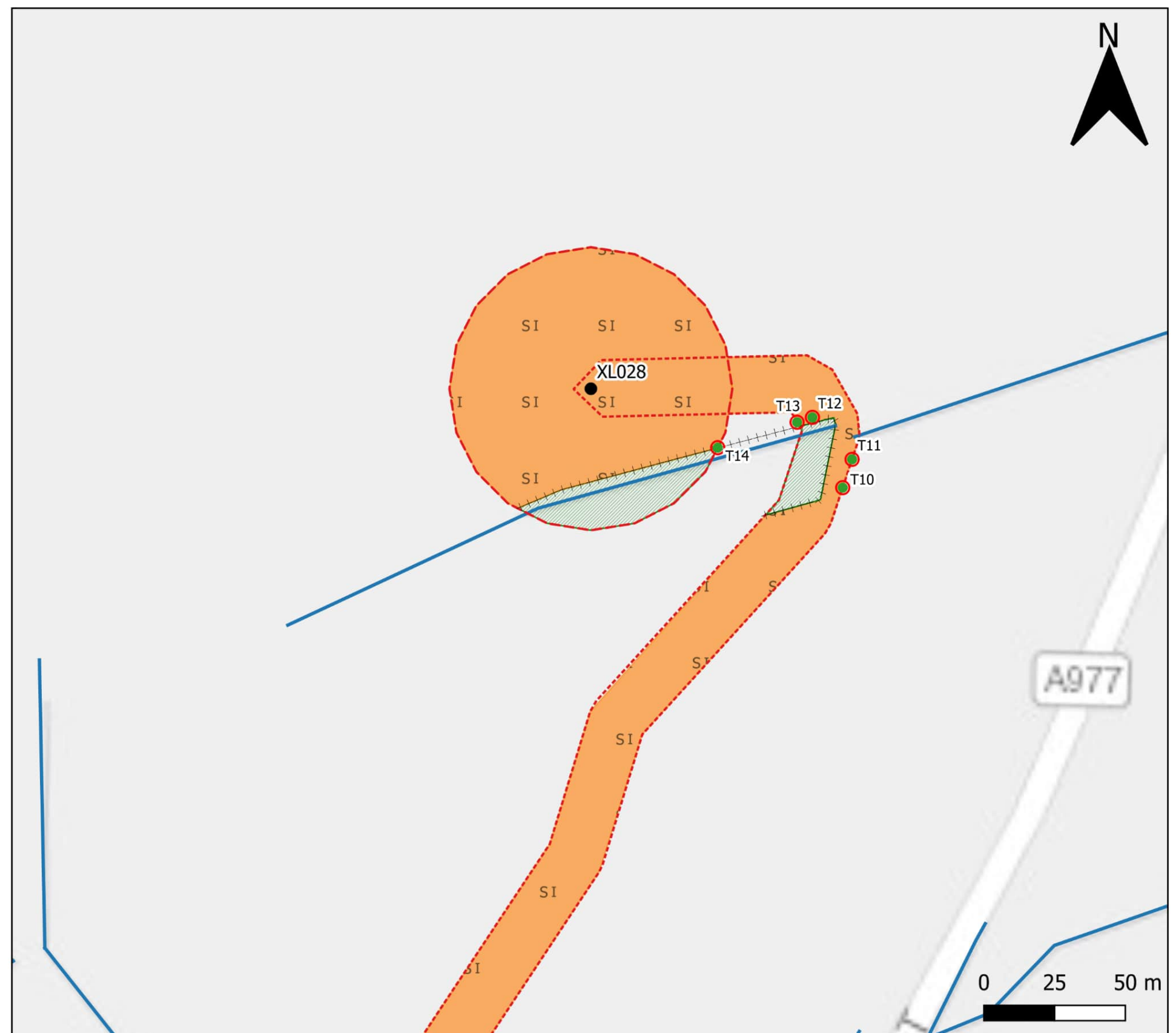
BOWS23.097 XL Route Ecological Constraints Plan

Created by: HM
Checked by: SO

Date: 31/08/2024

Legend

- XL Towers
- ▭ Survey Area
- ⊙ Target notes
- Watercourse/ Drainage
Ditches
- ✕ Scattered scrub
- Phase 1 Habitats
 - ▭ Broadleaved woodland
- plantation
 - ▭ Neutral grassland
- semi-improved
- Phase 1 Boundaries
 - ++++ Fence
- Broadleaved trees
 - ⊙ Potential Roost Feature
- Multiple (PRF-M)



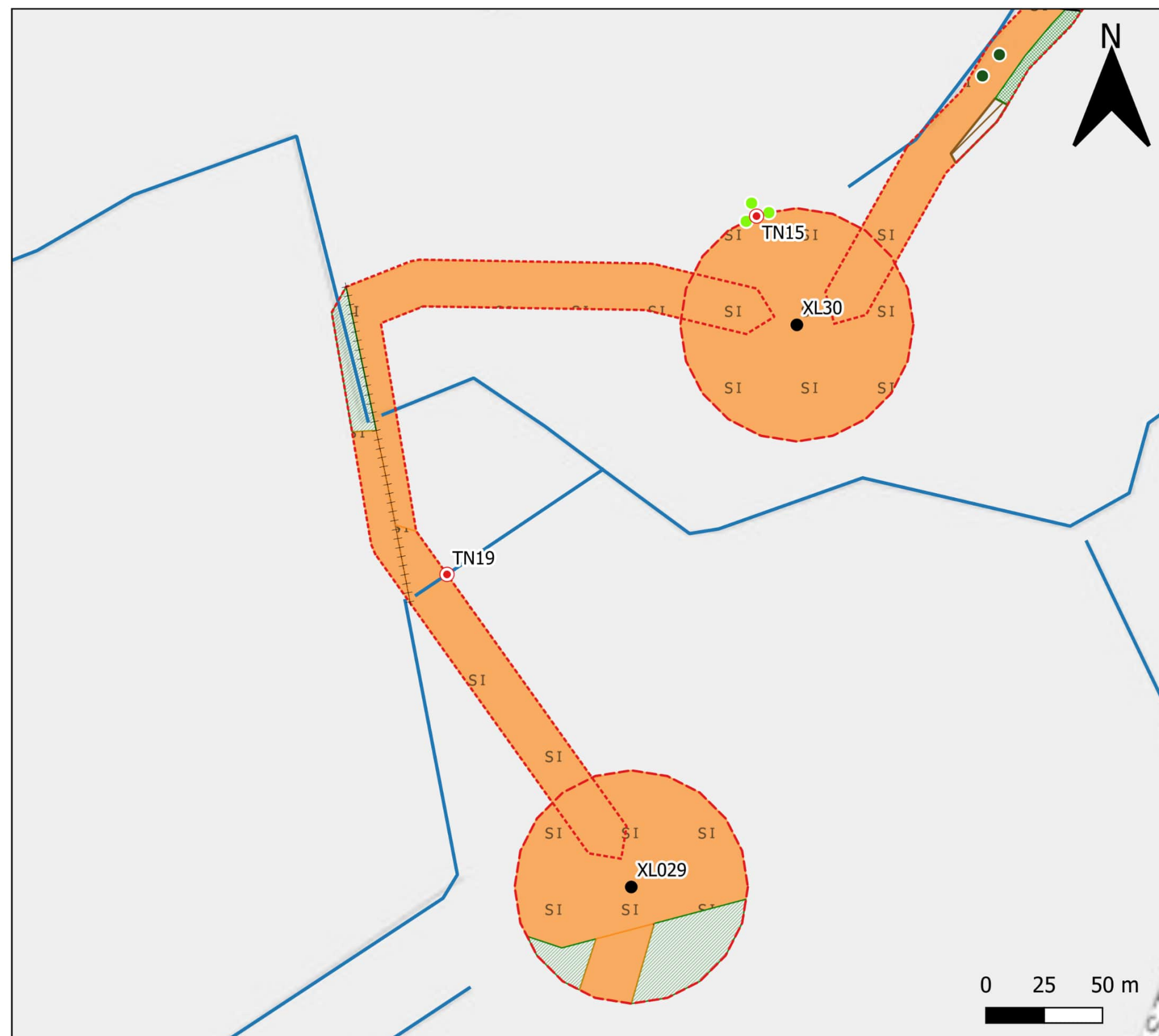
BOWS23.097 XL Route Ecological Constraints Plan

Created by: HM
Checked by: SO

Date: 31/08/2024

Legend

- XL Towers
- ▭ Survey Area
- Target notes
- Watercourse/ Drainage
Ditches
- ✕ Scattered scrub
- Phase 1 Habitats
 - ▨ Broadleaved woodland
- plantation
 - ▨ Dense scrub
 - ▨ Neutral grassland
- semi-improved
 - ▨ Other tall herb and fern
- ruderal
- Phase 1 Boundaries
 - ++++ Fence
- Conifer trees
 - No bat roost potential
observed
- Broadleaved trees
 - No bat roost potential
observed



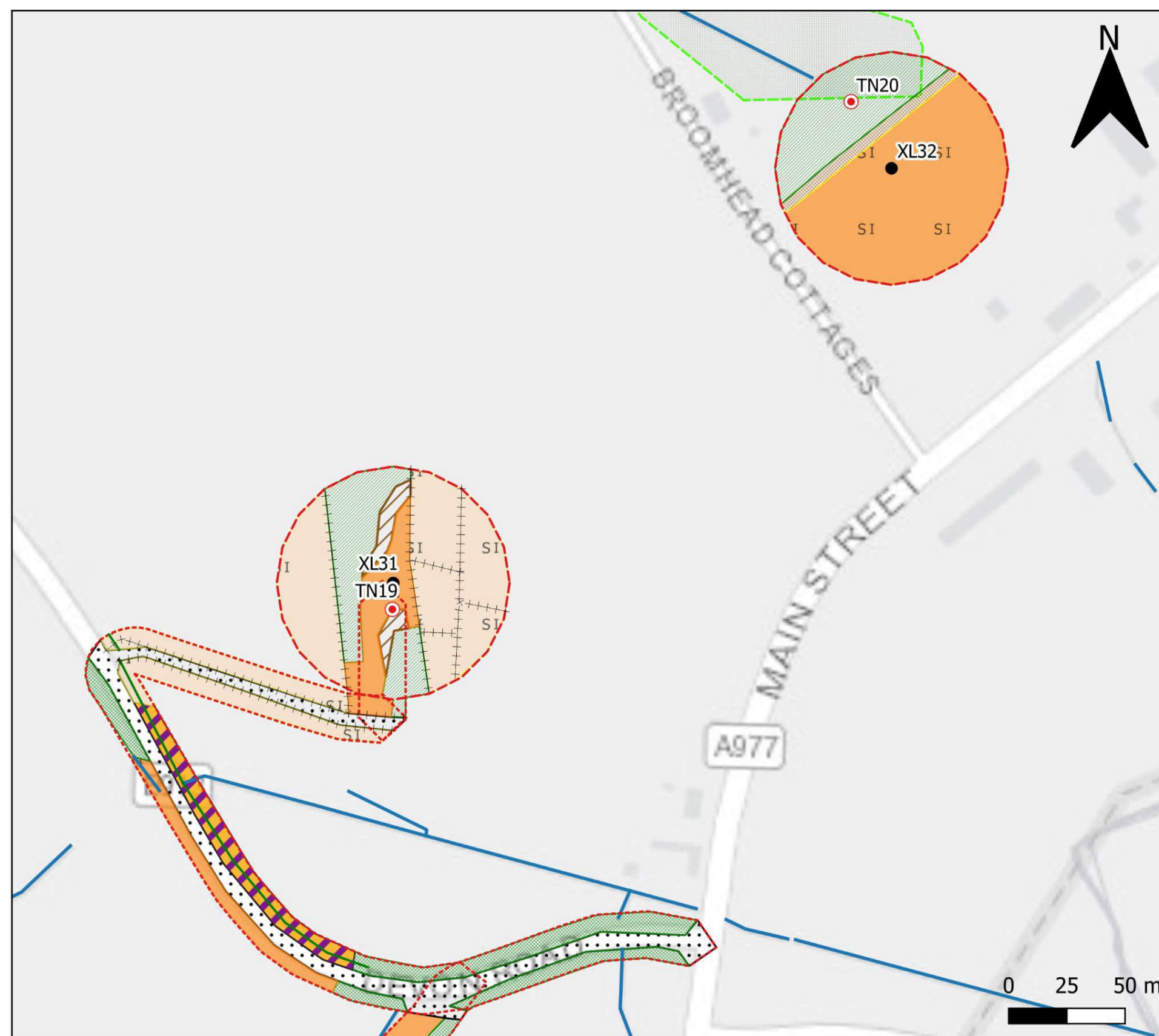
BOWS23.097 XL Route Ecological Constraints Plan

Created by: HM
Checked by: SO

Date: 31/08/2024

Legend

- XL Towers
- ▭ Survey Area
- ⊙ Target notes
- Watercourse/ Drainage
Ditches
- ▭ Ancient Woodland
Inventory Areas
- Phase 1 Habitats
- ▭ Broadleaved woodland
- plantation
- ▭ Dense scrub
- ▭ Neutral grassland
- semi-improved
- ▭ Marsh/marshy
grassland
- ▭ Poor semi-improved
grassland
- ▭ Other tall herb and fern
- ruderal
- ▭ Introduced shrub
- ▭ Bare ground
- Phase 1 Boundaries
- Species-poor hedge
- ++++ Fence



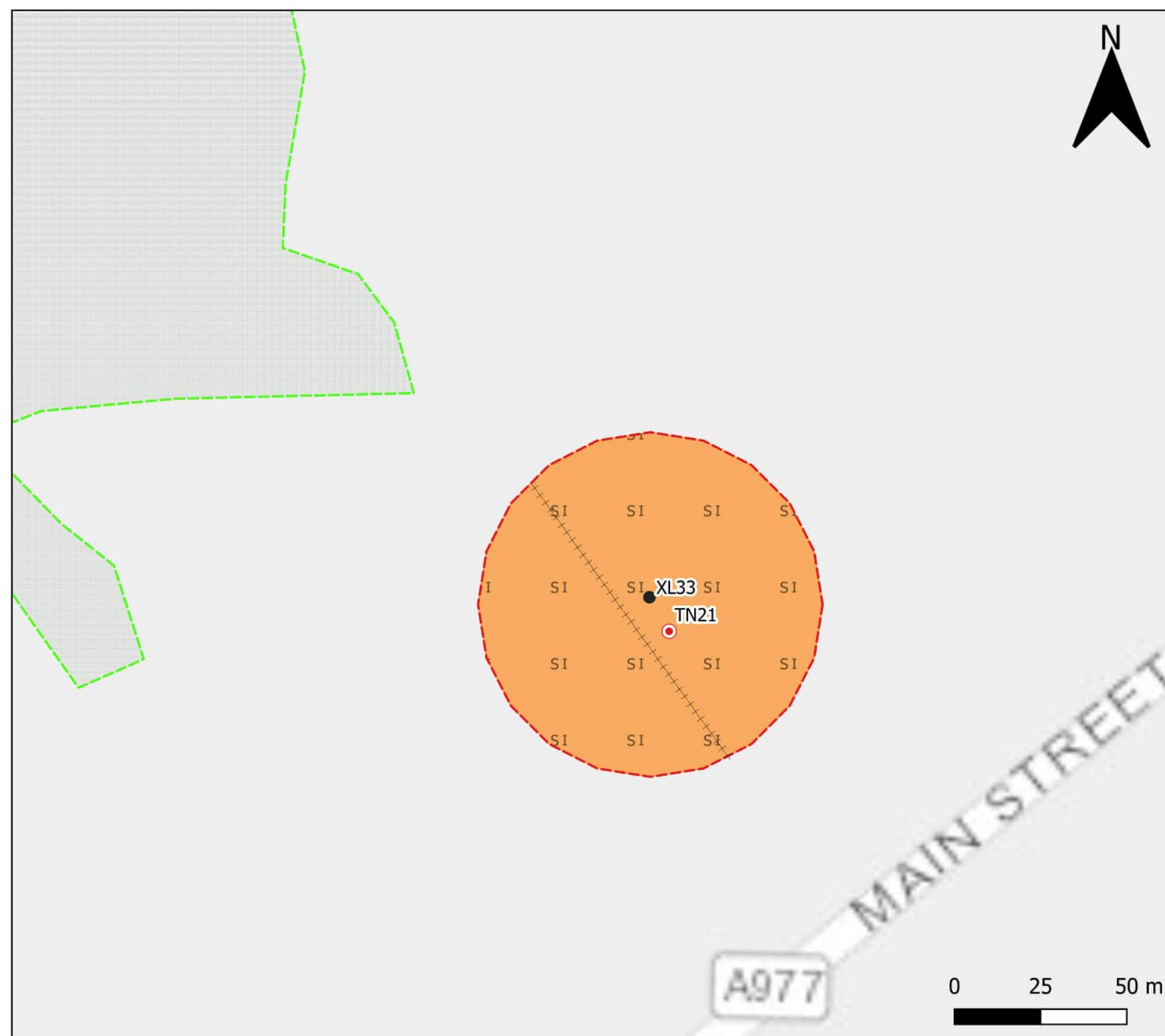
BOWS23.097 XL Route Ecological Constraints Plan

Created by: HM
Checked by: SO

Date: 31/08/2024

Legend

- XL Towers
- ▭ Survey Area
- ⊙ Target notes
- Watercourse/ Drainage
Ditches
- ▭ Ancient Woodland
Inventory Areas
- Phase 1 Habitats
- Neutral grassland
- semi-improved
- Phase 1 Boundaries
- ++++ Fence



Appendix D – Information Sheets for Contractors

218 Wallace Street, Glasgow, G5 8AE Phone: 01200446777 email: info@bowlandecology.co.uk



Badgers

Information, legal responsibilities and best practices

Legal Information

In Scotland, badgers are given specific additional protection under the **Protection of Badgers Act 1992**. Offences include:

- wilfully injuring or killing a badger;
- disturbing a badger while it is in a sett;
- intentionally or recklessly damaging or destroying any part of a badger sett, or obstructing access to a sett

The Protection of Badgers Act defines a badger sett as 'any structure or place which displays signs indicating current use by a badger'.

Penalties on conviction: The maximum penalties for killing, injuring or taking a badger on summary conviction are a fine of £10,000 and/or imprisonment of up to 12 months and there is the possibility of conviction on indictment with provision for a potentially unlimited fine and/or up to 3 years imprisonment for the principal offences under the Act.

Further information can be found at NatureScot.

Species information

Badgers (*Meles meles*) are found across the British Isles, they have distinctive black and white facial stripes (1), are social mammals and live in clans ranging from 4-9 individuals on average. Badgers are nocturnal and the clan will live in a number of setts. These can be in **rural or urban areas** and in almost all habitat types, the main criteria being suitable foraging habitat and soil that is soft and dry enough that setts can be made in it. Setts are often made up of a number of entrance holes leading into a subterranean tunnel and chamber system. **Cubs are born underground in early spring (February-March)** and start being seen above ground in late spring and early summer. Badgers are omnivorous foragers and their diet mainly consists of berries, nuts, grubs, beetles and worms.

Field signs

Badger setts can be found in almost any habitat types and sett entrances can be distinguished from other mammal holes by the D-shape of the entrance, which is wider than tall (approx. 300mm by 200mm). A spoil heap is often present and may have grass/bracken/moss bedding, hair or badger prints in the ground outside (2). Most often there will also be a worn path leading from the hole entrance.



Something else that may be found around the hole/sett entrances or along badger trails are latrines. Latrines are shallow scrapings in the ground that badgers use to mark with scat (3).

Badger prints are distinctive due to the 'kidney bean' shape of the pads and the long claws (4).

Activities that can affect badgers include:

- Noise, additional lighting, vibration
- Pile driving, quarry blasting and excavation
- Lighting fires and using chemicals
- Ploughing and harvesting, tree felling and timber extraction
- Construction repair of flood defences or waterbodies
- Blocking access to setts/foraging areas

Best practice on site include:

- Have a scheme ecologist on-call.
- Ensuring all pits are covered at night, or have a mammal ramp to allow animals to exit and avoid entrapment.
- Store all chemicals in a badger proof container.
- Have any additional lighting facing away from potential foraging habitat.
- No dogs to be allowed on site.

Found a badger or potential badger sett/hole during unsupervised works?

Stop works immediately and call the scheme ecologist.

Badger hole/sett

Badger

Create a 30m buffer and do not allow heavy machinery or personnel within this buffer. If the badger hole is damaged, do not cause further damage or collapse the hole. Do not attempt to repair or block any holes.

If the badger is at risk of immediate injury or death inform the scheme ecologist of the details. Do not attempt to help the badger.

If the badger is not at risk allow it to pass without disturbance or blocking its path.

References:

Scottish Badgers: <https://www.scottishbadgers.org.uk/information-hub/badger-ecology/> Nature Scot: www.nature.scot/plants-animals-and-fungi/mammals/land-mammals/badger Scottish Government: www.gov.scot/publications/wildlife-crime-penalties-consultation

Reptiles

Information, legal responsibilities, and best practice for the construction industry



Legal Information

There are three terrestrial species of reptile commonly found in Scotland: adder (*Vipera berus*), slow worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*). All are protected by the Wildlife and Countryside Act 1981 (as amended) and by the Nature Conservation Act 2004. Offences relevant to development works include to intentionally or recklessly kill or injure an adder, slow worm or common lizard.

There are no licensing provisions to allow the killing or injuring of reptiles and so measures must be put in place to minimise the risk of this happening and avoid an offence being committed.

Life cycle

April/May- reptiles emerge from hibernation, shortly after which males compete for mating.

June/July- Female grass snakes lay/ give birth (however smooth snakes tend not to give birth every year).

July/August- Lizards give birth to live young.

September- smooth snakes give birth to live young.

August-October- reptiles prepare for winter by feeding (lizards eat invertebrates and snakes).

Other reptiles



Sand Lizard (*Lacerta agilis*) - a colony of sand lizards was introduced to the Isle of Coll some time ago. This species isn't found naturally in Scotland so doesn't have European protected species status here.

But since the sand lizard is listed on Annex IVa of the Habitats Directive, it is illegal to possess, control, transport, sell or offer for sale or exchange wild specimens.

Slow worm- *Anguis fragilis*



Identifiable features

- Up to 50cm long
- Leg-less lizard (not a worm or a snake!)
- Shiny
- Golden brown

Conservation status and other information

Protected in the UK under the Wildlife and Countryside Act 1981. Also a priority species under the UK Post-2010 biodiversity framework.

The slow worm is distinguishable from snakes due to its ability to blink with its eyes. They can be found on habitats such as heathland, woodland edges and tussocky grassland. Snakes are much larger than slow worms, and females of the latter can sport a dark stripe down their backs whilst being larger than their male counterparts. Slow worms can live up to 20 years in the wild.



Common Lizard- *Zootoca vivipara*



Identifiable features

- Up to 15 cm long
- Variable in colour but usually brownish-grey with rows of darker spots and stripes
- Scaly skin

Conservation status and other information

Protected in the UK under the Wildlife and Countryside Act 1981.

Common lizards like to bask in open spaces and can often be heard scurrying into the undergrowth when disturbed. When trapped or afraid, the common lizard is able to shed part of its tail, leaving it wiggling in the path of a predator while the animal makes its escape. The animal can regrow the tail and perform the same display again if needed.

Adder- *Vipera berus*



Identifiable features

- **Venomous species**
- Dark zig-zag pattern down back
- Length- 60-80cm
- Grey to brown in colour but males tend to be more silvery-grey

Conservation status and other information

Protected in the UK under the Wildlife and Countryside Act 1981. Also a priority species under the UK Post-2010 biodiversity framework. Adders are a relatively small species of snake, and prefer to nest in heathland, moorland and woodland habitats. Females give birth to up to 20 live young. The first warm days of March is the most likely time adders can be found in the warm cover underneath rocks and logs. Adder bites are rare and are usually only dangerous towards the young or elderly. However they can be very painful and **medical attention should be sought immediately**.



References:
Acknowledgements:

Version 1 December 2018

Amphibians

Information, legal responsibilities and best practice for the construction industry



Legal Information

In Scotland it is **illegal** to deliberately capture, injure or kill a GCN, deliberately disturb a GCN, deliberately take or destroy GCN eggs, damage or destroy a breeding site or resting place used by a GCN. Penalties on conviction: the maximum fine is unlimited with up to six months in prison, per offence and forfeiture of items used to commit the offence, e.g. vehicles, plant, machinery. The following points are defences:

- ✓ Tending/caring for a GCN solely for the purpose of restoring it to health and subsequent release.
- ✓ Mercy killing where there is no reasonable hope of recovery (provided that person did not cause the injury in the first place – in which case the illegal act has already taken place).

Good to know-

- Newts are also carriers of the waterborne fungi- chytrid fungus. This fungus can be spread between water bodies and can cause the disease chytridiomycosis. If any work is being carried out around standing water then disinfection of footwear and equipment is important to prevent the spread of the disease.
- If a great crested newt is found before or after work (for example, pond management work) is commenced, then **work should be immediately postponed** and then started another time or with different methodology. If the newts cannot avoid being harmed then a license must be applied for.

Life cycle and seasonal appearances

April-May= This is when newts undertake courtship displays and mate with females. Certain amphibians can start this process as early as February.

June-August= Larval growth and development of newly hatched juveniles. This event can occur anytime between March and October (depending on pond conditions and other factors such as climatic conditions).

August-October= Metamorphosis and juvenile emigration to terrestrial environments occurs at this stage.

November-February= Hibernation on land.

February-May= Emergence of adult form newts and dispersal to ponds.

Other protected amphibians

The other two species of newts (smooth and palmate) are protected under Section 9 (5) of the Wildlife & Countryside Act 1981, which prohibits the 'sale, barter, exchange, transporting for sale and advertising to sell or to buy. Common toads and common frogs are also protected under this legislation. The natterjack toad (which are smaller than common toads at 6-7cm) is a **European protected species** and is also fully protected under Schedule 5 of the Wildlife and Countryside Act 1981. They are a threatened and rare species in the UK, being confined to only a couple coastal territories. It is an offence to 'intentionally kill, injure or take (capture, etc); possession; intentional disturbance whilst occupying a 'place used for shelter or protection' and destruction of these places; sale, barter, exchange, transporting for sale or advertising to sell or buy'.



Common frog (top), common toad (middle), natterjack toad (bottom)

Key ID Features

Smooth Newt (*Lissotriton vulgaris*)

Egg stage- Smooth eggs are indistinguishable against palmate newt eggs, are rounded (not oval) and a grey/brown colour when freshly laid.

Larvae stage- Larvae are up to 3-4cm long (shorter than GCN), and have less obvious speckling and smaller gills.

Adult stage- Adult smooths measure up to 10cm, have a paler body than GCN with an orange belly stripe. Smooths lack some features of palmate newts (notably pink chin, and a cream spot). There is a slight silver/ orange strip along the base of the tail. The crest is wavy along whole back and tail, unlike palmates where it is more of a ridge shape.



(Young smooth)

Species protected by UK and European law Great Crested Newt (GCN)- *Triturus cristatus*



GCN eggs are oval shaped with a pale yellow to white colour, these are usually found singly wrapped in folded leaves. Smooth and Palmate eggs are grey/ brown when freshly laid.

Adults are black, and are also covered in bright yellow spots on the underside and irregular blotches.



Larvae (Efts) are up to 5-9cm long and have distinguishable black speckling on the tail and body.

Adults also have a jagged crested tail with a recognisable stripe. Both males and females also have white speckling on the sides.



Palmate Newt (*Lissotriton helveticus*)

Egg stage- Palmate eggs are indistinguishable against smooth newt eggs, are rounded (not oval) and a grey/brown colour when freshly laid.

Larvae stage- Larvae are up to 3-4cm long (shorter than GCN), and have less obvious speckling and smaller gills.

Adult stage- Adult palmates measure up to 10cm, have a paler body than GCN with an orange belly stripe. They also have a pink chin with no spots/ speckles and a cream spot on both hind feet.



References:

Acknowledgements:

Version 10 December 2018

Birds

Information, legal responsibilities and best practices

Legal Information

Across the UK **all** wild birds are protected by Wildlife and Countryside Act 1981 (as amended). Some specific species receive additional protection. **Offences for all birds include to intentionally or recklessly:**

- injure, kill or take a bird;
- take, damage, destroy or interfere with a nest of any bird while it is in use or being built;
- obstruct or prevent any bird from using its nest;
- take or destroy an egg of any bird.

For schedule 1 species it is also an offence to disturb:

- any bird while it is building a nest;
- any bird while is in, on, or near a nest containing eggs or young;
- any bird while lekking;
- the dependent young of any bird;

For any Schedule 1A species, it is an offence to intentionally or recklessly harass any bird and for Schedule A1 species, it's an offence to intentionally or recklessly take, damage, destroy or interfere at any time with a nest habitually used by any bird.

Penalties on conviction: Maximum penalties of £5,000 on summary conviction and/or imprisonment of up to 6 months for un-licensed killing.

Further information on species protection status can be found at NatureScot/Scottish Government websites.



Ringed plover nest approx. 15x15 cm



House marten nest



Meadow pipit nest



Wren nest



Great tit and nest entrance with food



Red grouse chick



Jay nest



Swan on nest

Breeding Season

The majority of birds in Scotland breed **between early February to late August**, however different species have different nesting seasons which need to be considered. It should be noted that some birds including feral/domestic pigeons and crossbills have the potential to **breed all year round**.

Habitat

Birds can be found in almost all habitat types, rural or urban with different types of birds having different preferences. This means that almost all areas have potential for breeding birds including:

- open bare ground (i.e. ringed plover),
- moorland and grassland including farm fields (i.e. skylark and lapwing),
- scrub, hedgerows and trees,
- Watercourse banks,
- Inhabited and uninhabited buildings
- Marsh and wetlands

Field signs

Nests for different bird species can vary in size, shape and materials used and can be difficult to spot. The main consideration is that **nests can be at any height, including ground level**. During the breeding season **indicators of nearby breeding birds/nests include:**

- Birds carrying food/nesting material
- Calling loudly and making obvious displays over a certain area as a distraction

Be aware that ground nesting bird chicks may be present in nests but will also move through the area.

Found a bird or potential nest during unsupervised works?

nest



If the works are within the breeding bird season and may damage or destroy nests, eggs or breeding birds works should be stopped and the scheme ecologist consulted.

If the works are outside the breeding season and the nest is unoccupied, then it is safe to proceed. If in doubt, stop works and call the scheme ecologist.

bird



If the bird is injured or is at risk of immediate injury or death inform the scheme ecologist of the details.

If the bird is not at risk allow it to leave without disturbance.

Best practice on site

- Have a scheme ecologist on-call.
- Have a pre-works site check done by the scheme ecologist.
- Consider having any works that require clearing of potential breeding bird habitat done before the breeding bird season.
- If works are to happen during the breeding bird season, have the scheme ecologist check the area before the clearance works.
- Do not carry out any works within 5m of a breeding bird/nest.

BATS AND ARBORICULTURAL WORKS



Information, legal responsibilities and best practice

Legal Protection

All UK Bat species are protected by European and UK law, in practical terms this means it is an offence to:

- Deliberately capture, injure or kill a bat;
- Deliberately disturb bats;
- Damage or destroy a breeding site or resting place (even if bats are not occupying the roost at the time);
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb a bat in such a place;
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat.

Penalties on conviction: the maximum fine is £5,000 per incident or per bat (some roosts contain several hundred bats), up to six months in prison, and forfeiture of items used to commit the offence, e.g. vehicles, plant, machinery.

Defences include:

1. Tending/caring for a bat solely for the purpose of restoring it to health and subsequent release.
2. Mercy killing where there is no reasonable hope of recovery (provided that person did not cause the injury in the first place – in which case the illegal act has already taken place).

Found a bat during unsupervised works?

Is the bat in immediate danger of injury?

YES

Using gloves or other protection place bat carefully in a lidded ventilated box with a piece of clean cloth and a small shallow container of water.

Call scheme ecologist
Bowland Ecology: 01200 446 777.
Keep box in a safe, quiet location until scheme ecologist arrives.

The scheme ecologist will assess the situation and advise what needs to happen next. Works may need to stop until a licence has been obtained.

A written record should be kept and made available to Natural England or any police officer on request.

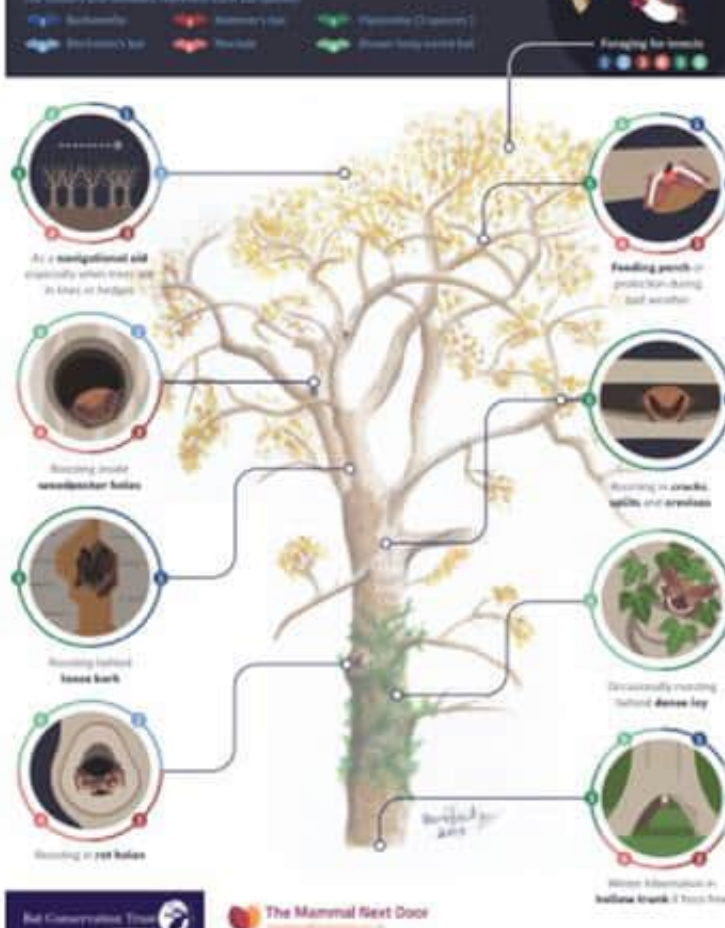
NO

Stop work immediately and inform Site Manager.

Contact scheme ecologist -
Bowland Ecology: 01200 446 777.
Do not expose bat or cause it to fly away.

How are trees important to bats?

Trees and woodland are important to all 18 UK bat species. Many of our bats also make use of the natural features in trees for roosting, although this can vary by species and at different times of year. The following are common roosting sites for UK bat species.



Bats can roost in the following places:

- Woodpecker holes, rot holes, hazard beams,
- Vertical or horizontal cracks and splits in stems or branches,
- Partially detached platey bark, gaps between overlapping stems, double leaders forming compression forks
- Knot holes arising from naturally shed branches, or branches previously pruned back to the branch collar,
- Man-made holes, cankers caused by localised bark death,
- Cavities created by branches tearing out from parent stems,
- Other hollows and cavities, including butt-rot
- Partially detached ivy with stem diameters over 50mm.

Field signs of bat presence:

- Live or dead bats: the smallest UK bat species, the pipistrelle is only 3.5-4.5cm long.
- Droppings: bat droppings look like mouse droppings but will crumble between your fingers (they are dry and made entirely of insects).
- Feeding remains: piles of butterfly/moth wings are often left below bat feeding perches.



Why wear gloves?

There is a small risk that some bats carry a rabies virus – European Bat Lyssavirus. The purpose of wearing gloves is to reduce the chance of being bitten, as the virus is transmitted via bat saliva. Thick leather gloves are appropriate for removing a bat from imminent danger but these should be clean.

In the event that you are bitten, wash the wound, gently but thoroughly, with soap and water. Speak to a health professional immediately, advising them that you have been bitten by a bat.



References:

Bat Conservation Trust. August 2016. Why wear gloves when handling bats?
BCT Bat Surveys for Professional Ecologists, Good Practice Guidelines, 3rd Edition, 2016

version 1 November 2017

Japanese knotweed



Information, legal responsibilities and best practice for the construction industry

Legal Information

In England it is illegal to plant or cause the spread of Japanese knotweed in the wild. If Japanese knotweed is taken away from the site of origin, the plant and its associated materials, e.g. soil, become classed as controlled waste and must be disposed of at an authorised landfill site. Furthermore, powers are given to environmental authorities to enter into control agreements and orders with landowners, in order to ensure action is taken to control the plant on their land.

Legislation governing the movement and spread of Japanese knotweed in England includes the following;

- Wildlife and Countryside Act 1981 (as amended) Section 14;
- Environmental Protection Act 1990 S33 & 44; and
- Infrastructure Act 2015 Sections 23 to 25.

Impacts

Japanese knotweed is a non-native species that when established forms dense stands, commonly found in riparian habitats. However, the plant can establish in other habitats where the ground has become disturbed. The dense, monoculture stands reduce biodiversity and dominate the landscape, outcompeting native species. The plant can also grow through tarmac and concrete causing damage to buildings and roads.

Management of Japanese knotweed

- Prior to commencement of any works on site all staff on site should be made aware of the presence and location of Japanese knotweed and all stands of the plant, including a 7 m buffer zone should be marked out with hi-visibility fencing;
- The use of mechanical plant over infected areas should be kept to a minimum, and biosecurity measures should be implemented whilst on site to prevent cross contamination. This includes the cleaning of footwear and machinery, prior to, and on completion of each working window to ensure that the plant is not taken off or spread around the site;
- Japanese knotweed is classed as controlled waste. Therefore, all arisings and potentially contaminated soil from the plant must be disposed of in an appropriate manner to ensure that the waste does not cause pollution of the environment;
- The plant can be managed several ways;
 - Spraying with approved herbicides, over a three year period to ensure rhizomes become dormant;
 - Burying, further guidance should be sought beforehand from the EA; and
 - Burning, guidance should be sought beforehand from the EA and LPA.

Distribution & spread

Japanese knotweed is widely distributed across most of lowland England and Wales and many parts of Scotland and Ireland. All Japanese knotweed plants in the UK are clones, as such, their seeds are sterile. The plant contains rhizomes (underground root system) which enables the effective spread of the plant. Soil can be contaminated up to 3 m deep and within a 7 m radius of the parent plant.



Useful references & guides:

GB non-native species secretariat
<http://www.nonnativespecies.org/home/index.cfm>
 Preventing Japanese knotweed from spreading
<https://www.gov.uk/guidance/prevent-japanese-knotweed-from-spreading>

Key ID Features



Young shoots (approx. 2 cm)



Arrow shaped leaves



Young stem



Flowers



Dead, hollow stems



Stand in winter



Branches in winter



Dense stand along watercourse



Rhizomes

Identifying Japanese knotweed

There are three species of Japanese knotweed in England; Japanese knotweed (*Fallopia japonica*) the most widespread species; giant knotweed (*Fallopia sachalinensis*); and a hybrid Knotweed (*Fallopia x bohemica*).

Japanese knotweed is a herbaceous perennial that produces green/reddish shoots in early spring. The plant can reach to heights of 3 m before dying back in autumn. The stem, is green with red and/or purple specks and forms dense cane-like clumps. The plant's shoots and leaves, which can be up to 120 mm long, densely cover the ground and are arrow shaped.

The plant spreads underground by means of rhizomes which can extend 7 metres outwards and reach up to 2 metres deep. Rhizome fragments as small as 10 mm can produce new plants, seeds produced by the plant are sterile. The outer surface of the rhizome is dark brown, when broken the inside is orange. When the rhizomes become older they become woody with a hollow centre.

Appendix E – Legal Information

This report provides guidance of potential offences as part of the impact assessment. This report does not provide detailed legal advice and for full details of potential offences against protected species the relevant acts should be consulted in their original forms i.e. The Wildlife and Countryside Act, 1981, as amended, Conservation (Natural Habitats &c.) Regulations 1994 (as amended), Protection of Badgers Act 1992 (as amended), Nature Conservation (Scotland) Act 2004, as amended, and the Wild Mammals (Protection) Act 1996.

Species	Legislation	Offences	Notes on licensing procedures and further advice
Species that are protected by European and national legislation			
Badger	Protection of Badgers Act 1992 (as amended)	Wilfully kill, injure or take a badger; Cruelty to a badger; Intentional or reckless interference with a badger sett. Interfering with a badger sett includes damaging or destroying a sett or any part of it; obstructing access to a sett; disturbing a badger while it is in a sett; or causing or allowing a dog to enter a badger sett. The Protection of Badgers Act defines a badger sett as 'any structure or place which displays signs indicating current use by a badger'. It is not illegal to carry out disturbance activities in the vicinity of setts that are not occupied.	A licence must be obtained from NatureScot for any work that may cause disturbance to a badger or involves the damage or destruction of a sett. What constitutes disturbance depends on the nature of the activity proposed: as a rule a licence is normally required for any works within 30 metres of a badger sett, but this distance may increase for more disruptive activities such as blasting or pile-driving. Licences are not granted from December to June inclusive because cubs may be present within setts. Further information can be found at: https://www.nature.scot/doc/standing-advice-planning-consultations-badgers
Bats <i>European protected species</i>	Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland)	Deliberately or recklessly¹ kill, injure, capture or harass a bat; Deliberately or recklessly disturb² a bat whilst it is using any structure or place for shelter or protection (roost sites); Deliberately or recklessly obstruct access to a roost site, or otherwise deny its use by bats. And whether or not deliberate or reckless: to damage or destroy a bat roost, irrespective of whether bats are present.	Licences can be granted by NatureScot for planned development works that might affect bats or their roosts, for tree works where a bat roost is present. These licences can only be granted for specific purposes and subject to strict tests being met. Further information can be found at: https://www.nature.scot/doc/standing-advice-planning-consultations-bats <i>Bat Mitigation Guidelines</i> (English Nature 2004) <i>Bat Workers Manual</i> (JNCC 2004) <i>BS8596:2015 Surveying for bats in trees and woodland</i> (BSI 2015)

Species	Legislation	Offences	Notes on licensing procedures and further advice
Birds	Wildlife and Countryside Act 1981 (as amended in Scotland) ³	Intentionally or recklessly: kill, injure or take a bird, take, damage, destroy or interfere with a nest of any bird while it is in use or being built; obstruct or prevent any bird from using its nest; take or destroy an egg of any bird. For any wild bird species listed on Schedule 1 (e.g. most birds of prey, kingfisher, barn owl, black redstart, little ringed plover), it's an offence to disturb: any bird while it is building a nest; any bird while is in, on, or near a nest containing eggs or young any bird while lekking the dependent young of any bird. For any wild bird species listed on Schedule 1A (e.g. white-tailed eagle, golden eagle, red kite and hen harrier), it's an offence to intentionally or recklessly harass any bird. For any wild bird species listed on Schedule A1 (e.g. white-tailed eagle and golden eagle), it's an offence to intentionally or recklessly take, damage, destroy or interfere at any time with a nest habitually used by any bird.	Authorities are required to take steps to ensure the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat. This includes activities in relation to town and country planning functions. No licences are available to disturb any birds in regard to development. Licences are available in certain circumstances to damage or destroy nests, but these only apply to the list of licensable activities in the Act and do not cover development. General licences are available in respect of 'pest species' but only for certain very specific purposes e.g. public health, public safety, air safety. Further information can be found at: https://www.nature.scot/professional-advice/protected-areas-and-species/protected-species/protected-species-z-guide/protected-species-birds
Great crested newt <i>European protected species</i>	Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland)	Deliberately or recklessly¹ kill, injure, capture or harass a great crested newt; Deliberately or recklessly disturb² a great crested newt while using any structure or place it uses for shelter or protection – e.g. breeding pond, hibernation site; Deliberately or recklessly obstruct access to a breeding site or resting place of a great crested newt, or otherwise, deny the great crested newt use of that site. And whether or not deliberate or reckless: to damage or destroy a great crested newt breeding site or resting place.	NatureScot can issue licences to permit development works, land management or research activities (i.e. handling, surveying) that could result in an offence to great crested newts. These licences can only be granted for specific purposes and subject to strict tests being met. Further information can be found at: https://www.nature.scot/doc/standing-advice-planning-consultations-great-crested-newts#:~:text=Great%20crested%20newts%20are%20often,of%20a%20possible%20breeding%20pond <i>Great Crested Newt Mitigation Guidelines</i> (English Nature 2001)

Species	Legislation	Offences	Notes on licensing procedures and further advice
Otter <i>European protected species</i>	Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland)	Deliberately or recklessly ² kill, injure, capture or harass an otter; Deliberately or recklessly disturb ² an otter whilst it is occupying a holt (underground den) or other place it uses for shelter or protection; Deliberately or recklessly obstruct access to an otter breeding site or resting place, or otherwise prevent their use. And whether or not deliberate or reckless: to damage or destroy an otter breeding site or resting place. Otter shelters are legally protected whether or not an otter is present.	NatureScot can issue a licence to allow development works that might affect otters to proceed legally. These licences can only be granted for specific purposes and subject to strict tests being met. There is, however, a presumption against licensing disturbance to breeding otters and damage or destruction of an otter holt while being used for breeding. Licensed activity in this situation would have to wait until the otters had finished breeding and cubs are fully mobile. Further information can be found at: https://www.nature.scot/doc/standing-advice-planning-consultations-otters
Red Squirrel	Wildlife and Countryside Act 1981 (as amended) Schedules 5 S.9 and 6.	It is an offence to intentionally or recklessly: kill, injure or take a red squirrel, damage, destroy or obstruct access to a drey or any other structure or place which a red squirrel uses for shelter or protection, disturb a red squirrel when it is occupying a structure or place for shelter or protection. This protection does not apply to areas where red squirrels only feed. It is also an offence to possess or control, sell or offer for sale, or possess or transport for the purpose of sale any living or dead red squirrel or any derivative of such an animal. Knowingly causing or permitting any of the above acts to be carried out is also an offence.	NatureScot. can license activities for social, economic or environmental reasons (including development) that might affect red squirrels, as long as: the licensed activity will contribute to significant social, economic or environmental benefit, there is no satisfactory alternative, and there is no significant negative impact on the conservation status of the species. https://www.nature.scot/professional-advice/protected-areas-and-species/licensing/species-licensing-z-guide/red-squirrels-and-licensing
Reptiles: Adder Common lizard Slow worm	Wildlife and Countryside Act 1981 (as amended in Scotland) ³	Intentionally or recklessly kill or injure any common reptile species.	There are no licensing provisions to allow the killing or injuring of reptiles and so measures must be put in place to minimise the risk of this happening and avoid an offence being committed. An assessment for the potential of a site to support reptiles should be undertaken prior to any development works which have potential to affect these animals. Further information can be found at: https://www.nature.scot/doc/protected-species-advice-planners-reptiles-adders-slow-worm-and-common-lizard
Water vole	Wildlife and Countryside Act 1981 (as amended in Scotland) ³	Intentionally or recklessly damage, destroy or obstruct access to any structure or place used by water voles for shelter or protection; and disturb a water vole while it is using any such place of shelter or protection.	NatureScot can license activities for social, economic or environmental reasons (including development) that might affect water voles, as long as: the licensed activity will contribute to significant social, economic or environmental benefit; there is no satisfactory alternative; and there is no significant negative impact on the conservation status of the species.

Species	Legislation	Offences	Notes on licensing procedures and further advice
			There is a presumption against licensing disturbance or damage/destruction of burrows while they contain dependent young. Any licensed activity in these circumstances would have to wait until the water voles had finished breeding. Further information can be found at: https://www.nature.scot/doc/standing-advice-planning-consultations-water-voles <i>The Water Vole Conservation Handbook</i> (R. Strachan, T. Moorhouse & M. Gelling, Wildlife Conservation Research Unit (WildCRU), 3rd Edition 2011) <i>Interim guidelines for the conservation management of urban grassland water voles</i> (R. A. Stewart, C. M. Scott, and S. Macmillan, 2020)
Other species			
Amphibians (not European protected) Common toad Common frog Smooth newt Palmate newt	Wildlife and Countryside Act 1981 (as amended) S.9(5)	Protected against barter, sale, trade or exchange.	No licence is required in Scotland. However, an assessment for the potential of a site to support amphibians should be undertaken prior to any development works which have potential to affect these animals.
Rabbits, foxes and other wild mammals For species listed on SBL, see below	Wild Mammals (Protection) Act 1996	Intentionally inflict unnecessary suffering to any wild mammal.	Natural England provides guidance in relation to rabbits (Technical Information note TIN003, Rabbits- management options for preventing damage, July 2007) and foxes (see Species Information notes SIN003 (2011), <i>Urban foxes</i> and SIN004 (2011) <i>The red fox in rural areas</i> as well as other wild mammals. Lawful and humane pest control of these species is permitted.
	Wild Mammals (Protection) Act 1996	Deliberately hunts a wild mammal with a dog.	
	Wildlife and Natural Environment (Scotland) Act 2011	Intentionally or recklessly kills, injures or takes any rabbit, mountain hare or brown hare.	

¹ Deliberate capture or killing is taken to include “accepting the possibility” of such capture or killing ² Deliberate disturbance of animals includes in particular any disturbance which is likely a) to impair their ability (i) to survive, to breed or reproduce, or to rear or nurture their young, or (ii) in the case of animals of hibernating or migratory species, to hibernate or migrate; or b) to affect significantly the local distribution or abundance of the species to which they belong. Lower levels of disturbance not covered by the Conservation of Habitats and Species Regulations 2017 remain an offence under the Wildlife and Countryside Act 1981 although a defence is available where such actions are the incidental result of a lawful activity that could not reasonably be avoided. Thus deliberate disturbance that does not result in either (a) or (b) above would be classed as a lower level of disturbance. ³ The term ‘reckless’ is defined by the case of Regina versus Caldwell 1982. The prosecution has to show that a person deliberately took an unacceptable risk, or failed to notice or consider an obvious risk. ⁴ The Wildlife and Countryside Act (1981) has been updated by various amendments, including the Countryside and Rights of Way Act 2000 and the Natural Environment and Rural Communities Act 2006. A full list of amendments can be found at <https://jncc.gov.uk/our-work/wildlife-countryside-act/>

Site Designation	Legislation	Protection	Guidance
Site of Special Scientific Interest (SSSI)	Wildlife and Countryside Act 1981 (as amended) Nature Conservation (Scotland) Act 2004	It is an offence for anyone to intentionally or recklessly damage the protected natural features of an SSSI. SSSIs are given protection through the Nature Conservation (Scotland) Act 2004 and NatureScot.	Any private owner or occupier of a SSSI wishing to carry out an activity listed as an 'Operations Requiring Consent' (ORC list found on SiteLink) must seek permission from NatureScot and a consent then issued. For third parties to carry out an operation requiring consent on a SSSI they need to contact the relevant owner or occupier of the land to arrange for an application for consent be submitted. For public bodies all activities on the land or connected to it being considered. Depending on the situation they may need to apply for consent or just consult with NatureScot. Their legal requirements are found under the Nature conservation (Scotland) Act 2004. Further advice can be found on NatureScot.
Local Sites	There is no statutory designation for Local Sites	Local Sites are given protection through policies in the Local Development Plan.	Development proposals that would potentially affect a Local Site would need to provide a detailed justification for the work, an assessment of likely impacts, together with proposals for mitigation and restoration of habitats lost or damaged. Further guidance can be found on local authority websites, NatureScot and the Scottish Planning Policy.

Habitats & Species	Legislation	Guidance
Scottish Biodiversity List	Nature Conservation (Scotland) Act 2004 Wildlife and Natural Environment (Scotland) Act 2011	Under the Nature Conservation (Scotland) Act 2004 public bodies have a duty to further conservation in Scotland. The Wildlife and Natural Environment (Scotland) Act 2011 also requires all public bodies to make a publicly available report on their compliance with biodiversity duty every 3 years. Habitats and species of principal importance for the conservation of biodiversity in Scotland (identified by the Scottish Ministers) are found as part of the Scottish Biodiversity List https://www.nature.scot/doc/scottish-biodiversity-list The list of habitats and species was updated in 2020 to ensure that it remained focussed on the correct priorities. The list includes categories of actions to be taken as well as information on the selection criteria and the categories the species and habitats fall under. Ecological impact assessments should include an assessment of the likely impacts to these habitats and species.

Japanese knotweed, hybrid knotweed, giant knotweed Giant hogweed Rhododendron Himalayan balsam Cotoneaster/snowberry	Wildlife and Countryside Act 1981 (as amended) S.14	It is illegal to plant these species or otherwise cause them to grow or spread in the wild. Any contaminated soil or plant material containing Japanese knotweed or giant hogweed is classified as controlled waste and should be disposed of in a suitably licensed landfill site, accompanied by appropriate Waste Transfer documentation held by an authorised person. Further information can be found on the SEPA Technical guidance Note: https://www.sepa.org.uk/media/154142/onsite_mangaement_of_-japanese_knotweed_associated_soils.pdf <i>Handling and working with invasive plants (NetRegs)</i> https://www.netregs.org.uk/environmental-topics/land/japanese-knotweed-giant-hogweed-and-other-invasive-weeds/handling-and-working-with-invasive-plants/ <i>The Knotweed Code of Practice (Environment Agency, 2013)</i> https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/536762/LIT_2695.pdf <i>Managing and controlling invasive rhododendron (Forestry Commission, 2006)</i> https://www.forestresearch.gov.uk/documents/2557/fcpg017.pdf https://www.gov.uk/guidance/prevent-the-spread-of-harmful-invasive-and-non-native-plants https://www.gov.uk/guidance/prevent-japanese-knotweed-from-spreading
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