1. INTRODUCTION

1.1 Background and Scope

URS Infrastructure & Environment UK Ltd (URS) was commissioned by S & R Consulting to undertake an ecological appraisal of a parcel of land near Waterswallows Road in Derbyshire. The purpose of the appraisal was to ascertain ecological constraints to the proposed redevelopment of this post-industrial site. It is our understanding the development will comprise the construction of eight diesel generators, which will require the removal of a section of an existing earth embankment, the removal of debris and the levelling of an area of hardstanding.

In response to an earlier planning application, Derbyshire Wildlife Trust (DWT), High Peak Borough Council and Natural England confirmed the need to undertake an ecological preliminary appraisal ahead of determination. Specifically, DWT stated the need for badger (*Meles meles*) and great crested newt (*Triturus cristatus*; GCN) surveys.

1.2 Study Site

The site is located adjacent to Waterswallows Road, in Buxton, Derbyshire (OS Grid Reference SK080749). The proposed development, measuring approximately 0.3ha in size, is dominated by bare, disturbed ground (> 90%; refer to Plates 1-6 in Appendix B). The eastern boundary in formed by an earth embankment that borders a footpath, beyond which lies the flooded Waterswallows Quarry. The embankment supports scattered scrub, sparse stands of grass and semi-mature birch. The western boundary is formed from a mixture of mature, semi-mature and sapling trees along with a number of Leyland cypress and scrub. Approximately five mature trees are located to the south of the site whilst the north is used as an overspill car park by the distribution centre.

Building rubble and garden waste have been dumped throughout the site.

1.3 Relevant Legislation

Details of the relevant legislation are provided in Appendix A.

2. METHODS

2.1 Desk-based Study

Online repositories of biological data were scrutinised for historical records of statutory protected and/or notable sites within 1km. DWT provided historical records of GCN from within 1km of the proposed development.

2.2 Field Study

A site walkover was conducted on 12th December 2013 by an experienced and competent ecologist. Although outside of the recommended period for undertaking Phase 1 Habitat surveys, it was clear that the site is highly disturbed, largely devoid of vegetation and unlikely to support protected or notable habitat types (refer to Plates 1 – 6 located in Appendix B). It was possible to assess the likelihood of protected species occurring within or adjacent to the proposed development site, in line with published guidance (Institute of Environmental Assessment, 1995). Based on the habitat types recorded, the main taxa of concern were badgers, bats (specifically tree roosts) and GCN. In addition, a search for invasive plant species was undertaken.

Badgers

A search of the site and a 30m buffer was carried out for signs of badger activity, in accordance with published guidance (Harris, Cresswell & Jefferies, 1989). Signs typically include setts, latrines, footprints, hairs and feed remains.

Bats

No suitable buildings or structures (i.e. bridges) were located within or immediately adjacent to the site. Mature trees were inspected from ground level using binoculars and a high-powered torch by a Natural England licensed bat ecologist. Of particular interest were features that could support roosting bats such as cracks and crevices, splits, flaking bark or woodpecker holes. Trees were assessed against the Bat Conservation Trust (BCT) guidelines (BCT, 2012) and assigned a category corresponding to the likelihood that bats could be present. The categories of Bat Roost Potential (BRP) are as follows:

- **Negligible BRP** - No features that could be used by bats (for roosting, foraging or commuting);
- **Low BRP** - Small number of potential roosting features, isolated habitat that could be used by foraging bats, isolated site not connected by prominent linear features (but if suitable foraging habitat is adjacent it may be valuable if it is all that is available);
- **Moderate BRP** - Several potential roosting features in the trees, habitat could be used by foraging bats, site is connected with the wider landscape by linear features that could be used by commuting bats (e.g. lines of trees and scrub or linked back gardens);
- **High BRP** - Trees with features of particular significance for roosting bats, habitat of high quality for foraging bats (e.g. broadleaved woodland, tree-lined watercourses and grazed parkland), site is connected with the wider landscape by strong linear features that would be used by commuting bats (e.g. river/stream valleys or hedgerows, site is close to known roosts); or
- **Confirmed BRP** - Evidence indicates a tree is used by bats (e.g. bats seen roosting or observed flying from a roost or freely in the habitat; droppings, carcasses, feeding remains, etc.); and/or bats heard 'chattering' inside on a warm day or at dusk, bats recorded/observed using an area for foraging or commuting.

GCN

No aquatic GCN surveys were undertaken due to seasonal constraints; however, an assessment of the terrestrial habitat located on and around the proposed development was conducted. The assessment included recording the presence and abundance of foraging habitat and sheltering opportunities (including hibernation). Consideration was also taken for the surrounding and how GCN could be using it to access the site.

2.3 Limitations

The handheld GPS device was limited to 4m accuracy; however, given the distance between features of interest this is unlikely to result in any significant error.

It is important to understand the limitations of the GCN assessment; whilst it is designed to provide an indication of presence / absence, it cannot categorically confirm the current status of the species.

3. RESULTS

3.1 Desk-based Study

One statutory designated site was identified within 2km. Waterswallows Quarry Site of Special Scientific Interest (SSSI) is located immediately to the east of the site. The SSSI is designated solely for geological reasons and is not considered further in this report.

No historical records of bat roosts were located within 100m of the site.

Table 1 presents records of GCN supplied by DWT.

Table 1: GCN Records Supplied by DWT

Record ID	OS Grid Reference	Location	Year
1*	SK 087 746	Green Lane, Buxton	1976
2	SK 083 750	Concrete tank within Waterswallows Quarry	2011
3	SK 084 749	Small lagoon within Waterswallows Quarry	2011

* Due to the age of this record, it is considered to be unreliable

3.2 Field Study

Badgers

No signs of badger were recorded during the survey.

Bats

Three mature trees, considered to be of sufficient age and size to support bats, were recorded at the site boundary. Results of the ground level inspection of presented below.

Table 2: BRP Survey Results

Tree ID	Species	OS Grid Reference	Feature(s)	BRP Value
1	*Acer pseudoplatanus*	SK 08057, 74979	No suitable features identified	Negligible
2	*Acer pseudoplatanus*	SK 08085, 74909	No suitable features identified	Negligible
3	*Acer pseudoplatanus*	SK 08059, 75049	Some deadwood present but no roosting locations recorded	Negligible

Additional mature trees were located further to the south of (2), which exhibited Low to Moderate BRP. However, these trees were located approximately 35m from the proposed development and no adverse effects are anticipated. A residential property is being constructed immediately to the north of the site and adjacent to Tree 3. Although the house is not at present suitable for supporting bats, it could represent roosting habitat in the future. As the site was dominated by bare, disturbed ground, it was assessed as poor habitat quality for foraging bats.

GCN

No permanent waterbodies were identified within the proposed development. Temporary pools of standing water were present throughout the site; all were less than 5cm deep, lacked aquatic vegetation and are likely to have dried completely by early spring (see Plate 6). In contrast to the lack of breeding habitat, the site was strewn with building rubble and garden waste, which was

assessed as suitable for supporting hibernating and/or sheltering GCN. The site was, however, assessed as poor GCN foraging habitat given the dominance of bare ground.

Three waterbodies were identified within 500m of the proposed development. The flooded Waterswallows Quarry to the east comprised a very large area of open and deep water. The disused quarry is situated 50m below the site and is separately by a vertical cliff face. Two recently constructed storage lagoons (< within five years) were located to the north, beyond Waterswallows Road. Both lagoons were constructed from stone and held water at the time of survey. The westernmost lagoon was devoid of vegetation; in contrast, the eastern lagoon, situated within the Lomas Distribution Centre, contained a small reed bed.

The site and the surrounding habitat are considered to be largely unsuitable for reptiles and no records were received during the desk-based study.

No Schedule 9 (Wildlife and Countryside Act 1981) plant species recorded.

4. DISCUSSION

4.1 Conclusions

No signs of badger activity were recorded during the survey and badgers are not assessed to represent a constraint to the proposed development.

No historical records of bat roosts were situated within 100m and no suitable bat roosting or foraging habitat was recorded within or adjacent to the site. The highly disturbed and partially enclosed site is unlikely to form an important flight line. By comparison, more suitable habitat was recorded outside of the development i.e. pasture to the west, a large open waterbody (Waterswallows Quarry) to the east and small wooded area to the south. As none of these areas are likely to be affected by the development, no adverse impacts on bats are anticipated.

Three historical records of GCN were received from DWT, one of which (#1) has been excluded due to its age (>10 years). Record #2 originated from a concrete lagoon located approximately 400m to the east, beyond the flooded Waterswallows Quarry void. The location of the record is separated from the site by the sheer cliff face and the southern Lomas distribution yard. Record #3, originates from a small lagoon located approximately 300m to the east of the proposed development. Although the record is centred in a storage yard, suitable terrestrial foraging habitat is located to the west and north. GCN rarely migrate beyond 250m, which would be both energetically costly and result in a higher risk of predation. When GCN do migrate greater than 250m, they typically do so as a result of elevated intraspecific competition (i.e. larger populations disperse further to reduce competition for resources). Although found in upland habitat, GCN typical occur at low densities (Natural England, 2007; English Nature, 2001) and therefore are unlikely to migrate over large distances. Given the availability of suitable habitat within and adjacent to Waterswallows Quarry, it is unlikely that GCN would migrate (through the Lomas southernmost distribution yard) to the proposed development site.

The site is assessed as ‘poor foraging habitat’ for GCN, with suitable habitat restricted to the peripheries. However, the presence of discarded building materials and garden waste has created opportunities for shelter and hibernation. Although located within 300m of a historical GCN record, the intermediate habitat is both disturbed and unsuitable and is likely to buffer the movement of the species. As such, the risk of encountering GCN within the proposed development is assessed as low.

4.2 Recommendations

To mitigate the low risk of GCN occurring within the proposed development site, a Method Statement (MS) approach is recommended. A MS is a very prescriptive document which would guide the site works in a sensitive manner to minimise the likelihood of an offence being

committed. An Ecological Clerk of Works would be present during the initial preparation of the site. The ecologist would undertake a hand search of all suitable resting places before their removal from the site. In the event that a GCN is recorded, all work would stop and Natural England would be consulted. All cleared waste would be placed in skips and removed from site to dissuade GCN from migrating to the site in the future.

The site clearance operation would not begin until GCN have emerged from hibernation.

5. REFERENCES

Bat Conservation Trust (2012) *Bat Surveys: Good Practice Guidance* (2nd Ed.). BCT, London

English Nature (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough

Harris, S.; Cresswell, P. & Jefferies, D. (1989) *Surveying Badgers*. Mammal Society, London

Natural England (2007) *Advice for land managers: European protected species: What you need to know about great crested newts.* Natural England, Peterborough

APPENDIX A: LEGISLATION

Badgers

Badgers are listed under the Protection of Badgers Act 1992. The Act makes ill-treatment of a badger and/or interference with an active sett an offence.

Bats

All British bats are listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended) and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). When taken together it is an offence to:

- Kill, injure, take or disturb a bat;
- Destroy, damage or otherwise access to any place used by a bat or bats for shelter; and
- Sell or offer for sale a bat or any part thereof.

Seven species of bat are included on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 as Species of Principal Importance for Conservation in England. These include:

- Barbastelle (*Barbastella barbastellus*);
- Bechstein's bat (*Myotis bechsteinii*);
- Noctule (*Nyctalus noctula*);
- Soprano pipistrelle (*Pipistrellus pygmaeus*);
- Brown long-eared (*Plecotus auritus*);
- Greater horseshoe bat (*Rhinolophus ferrumequinum*); and
- Lesser horseshoe bat (*Rhinolohpus hipposideros*).

Section 40 of the NERC Act 2006 places a duty of care on competent authorities to consider biodiversity as a material consideration when discharging their normal functions.

Great Crested Newts

Great crested newts (GCN) are listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended) and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). When taken together it is an offence to:

- Kill, injure, take or disturb a GCN;
- Destroy, damage or otherwise access to any place used by GCN for shelter (aquatic and terrestrial); and
- Sell or offer for sale a GCN or any part thereof.

GCN are listed as a Species of Principal Importance for Conservation in England under Section 41 of the NERC Act 2006.

APPENDIX B: PHOTOGRAPHS

Plate 1: The central section from the south



Plate 2: *Leylandi* tree boundary on the west



Plate 3: Central section looking south



Plate 4: Waterswallows Quarry located to the east



Plate 5: Tree line on the western boundary



Plate 6: Standing puddles of water

