



Newlands Developments

Land West of Sheffield Road, Hoyland

GREAT CRESTED NEWT & REPTILE REPORT

June 2020

FPCR Environment and Design Ltd

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Rev	Issue Status	Prepared / Date	Reviewed	Approved/Date
-	Draft 1	MAF/HJF/01.06.2020	AWB / 05.06.20	PH / 05.06.20
Rev A	Final	AWB / 14.06.20		

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1.0 INTRODUCTION

- 1.1 This report has been written by FPCR Environment and Design Ltd on behalf of Newlands Developments and provides details of both the great crested newt *Triturus cristatus* (GCN) and reptile surveys undertaken during 2020 in respect of Land West of Sheffield Road, Hoyland (central grid ref. SK 3545 9976) herein referred to as the 'Site'.

Site Context

- 1.2 The Site lies to the west of the town of Hoyland on farmland between the town and the M1 motorway. Tankersley Lane bisects the northern extent of the Site and Sheffield Road lies to the east. Farmland to the south and south east is dominated by arable fields with large woodland present here including at the southern Site boundary.
- 1.3 The Blackburn Valley railway line is present south of the Site and to the west beyond the M1 corridor is further farmland, woodland and a golf course. Existing residential development of Hoyland lies largely to the east and outlying housing flanking Tankersley Lane abuts a small section of the north eastern boundary just as Junction 36 of the M1 and associated commercial development abuts the north western boundary.
- 1.4 The Site itself is dominated by arable farmland and smaller grassland fields bounded by hedgerows and stone walls as well as Bell Ground wood adjacent the Site boundary. A sports ground and depot units lie within the north of the Site.

Development Proposals

- 1.5 Proposed development is for employment uses (B1, B2 and B8), new link road and associated works including provision of internal access roads, landscaping and drainage.

2.0 LEGISLATION

Great Crested Newt Legislation

- 2.1 Before any development proposals take place, measures must be taken to ensure that the legislation concerning GCNs is not breached as a result of works. GCN are afforded full protection under the Wildlife & Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017.
- 2.2 Under Regulation 43 of the Conservation of Habitats and Species Regulations 2017 it is illegal to:
- Deliberately capture, injure, or kill any wild animal of a European Protected Species (EPS),
 - Deliberately disturb wild animals of an EPS (affecting ability to survive, breed or rear young) – disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young,
 - Deliberately disturb wild animals of an EPS (impairing ability to migrate or hibernate) – disturbance of animals includes in particular any disturbance which is likely to impair their ability in the case of hibernating or migratory species to hibernate or migrate,

- Deliberately disturb wild animals of an EPS (affecting local distribution and abundance) – disturbance of animals includes in particular any disturbance which is likely to affect significantly the local distribution or abundance of the species to which they belong.
- Before any development proposals take place, measures must be taken to ensure that the legislation concerning GCNs is not breached as a result of works. GCN are afforded full protection under the Wildlife & Countryside Act 1981 (as amended)¹ and the Conservation of Habitats and Species Regulations 2017.

2.3 Under the Wildlife and Countryside Act 1981 (*as amended*) it is illegal to:

- Recklessly or intentionally kill, injures or take any wild animals included in Schedule 5.
- Recklessly or intentionally damage or destroy, or obstruct access to any structure or place which any wild animal included in Schedule 5 uses for shelter or protection,
- Recklessly or intentionally disturb any such animal while it is occupying a structure or place which it uses for shelter or protection.

Reptile Legislation

2.1 All common reptile species, including slow-worm *Anguis fragilis*, common lizard *Zootoca vivipara* and grass snake *Natrix helvetica*, are partially protected under Sections 9(1) and 9(5) of Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This legislation protects these animals from:

- Intentional killing and injury
- Selling, offering for sale, possessing or transporting for the purpose of sale or publishing advertisements to buy or sell a protected species.

2.2 This partial protection does not directly protect the habitat of these reptile species. Where these animals are present on land that is to be affected by development, the implications of legislation are that providing that killing can reasonably be avoided then an operation is legal. Guidance provided by *Natural England (English Nature 2004)* and *the Amphibian and Reptile Groups of the UK (Herpetofaunal Groups of Britain and Ireland 1999)*³ recommends that this should be achieved by ensuring that:

- The animals are protected from injury or killing;
- Mitigation is provided to maintain the conservation status of the species;
- Population monitoring is carried out subsequent to operations.

2.3 All reptile species and great crested newts are Species of Principal Importance under Section 41 of the NERC Act (2006)⁴.

¹ The Wildlife and Countryside Act 1981 (as amended). [Online]. London:HMSO Available at <http://www.legislation.gov.uk/ukpga/1981/69> [Accessed 05/11/2019]

³ Natural England (English Nature 2004) and the Amphibian and Reptile Groups of the UK (Herpetofaunal Groups of Britain and Ireland 1999)

⁴The Natural Environment and Rural Communities Act 2006. [Online]. London: HMSO Available at: <http://www.legislation.gov.uk/ukpga/2006/16/contents> [Accessed 05/11/2019]

3.0 METHODOLOGY

Desktop Study

- 3.1 In order to compile existing baseline information, relevant ecological data was requested from both statutory and non-statutory nature conservation organisations for the purposes of this Ecological Appraisal, including:
- Multi Agency Government Information Centre (MAGIC),
 - Barnsley Biological Records Centre (BBRC)
- 3.2 Further inspection, using colour 1:25,000 OS base maps (www.ordnancesurvey.co.uk) and aerial photographs from Google Earth (www.maps.google.co.uk), was also undertaken in order to provide additional context and identify

Field Survey

Great Crested Newts

- 3.3 Any waterbodies found within the site were noted and described and their suitability to support an amphibian population, including GCNs was assessed using the Habitat Suitability Index (HSI). Where access was granted, and where suitable connectivity was considered to be present, ponds within a 500m radius of the site were also surveyed and assessed as above.

Habitat Suitability Index

- 3.4 The Habitat Suitability Index provides a measure of the likely suitability that a waterbody has for supporting great crested newts (Oldham *et al* 2002)⁵. In general, ponds with a higher score are more likely to support GCNs than those with a lower score, and there is a positive correlation between HSI scores and ponds with newts recorded. Ten separate attributes are assessed for each pond:
- | | |
|-----------------------|------------------------|
| • Geographic location | Pond area |
| • Pond drying | Water quality |
| • Shade | Presence of water-fowl |
| • Presence of fish | Number of linked ponds |
| • Terrestrial habitat | Macrophytic coverage |
- 3.5 A score is assigned according to the most appropriate criteria level set within each attribute and a total score calculated of between 0 and 1. Pond suitability is then determined according to the scale shown in Table 1.

⁵ Oldham, R.S., Keeble, J., Swan, M.J.S. and Jeffcote, M. (2000) Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). Herpetological Journal 10(4), 143-155pp

Table 1: HSI Scores as a Measure of Pond Suitability

HSI score	Pond Suitability
<0.5	Poor
0.5 - 0.59	Below Average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

Aquatic Surveys (Figure 1)

- 3.6 To determine the presence / absence of GCNs in the surveyed waterbodies an initial four surveys were performed using three of the below four survey methodologies where possible (upon confirmation of the presence of GCN only two methods (ideally bottle trapping and torching) are subsequently undertaken). A completion of the two additional surveys on waterbodies (if the presence of GCNs was confirmed or records of GCN existed) allows a population size-class assessment to be undertaken as per Natural England guidance, as detailed in the *GCN Mitigation Guidelines* (English Nature, 2001) (GCNMG)⁶.
- 3.7 A total of ten ponds (P1-P10) were surveyed, one of which was within the proposed development area and nine were within 250m of the proposed development area.
- 3.8 All surveys were conducted by appropriately licensed ecologists and were completed during suitable conditions i.e. when the ambient air temperature exceeded 5°C, with little/no wind rain. (Table 2.)

Table 2: Survey Dates and Survey Conditions

Survey Occasion	Ponds Surveyed	Survey Date	Air Temp (approx. °C)	Water Temp (approx. °C)	Rain	Wind
1	P1-P10	07.04.2020	17	14	None	0
2	P1, P6	20.04.2020	10	12	None	3
3	P1	28.04.2020	8	7	Drizzle	1
4	P1	05.05.2020	10	9	None	1

- 3.9 The following provides details of the survey methodologies undertaken.

Bottle Trapping

- 3.10 Bottle traps were set within the waterbody in the evening at densities of one trap per two metres of shoreline (where feasible) and left overnight for inspection in the morning. Traps were partially submerged in the water leaving an air bubble in the bottle and secured by a cane marked with a high visibility tape to ensure relocation the following day. Care was taken to ensure that trapping did not occur during excessively warm weather, when the temperature inside the trap could rise considerably, reducing oxygen levels and potentially suffocating the newts.

⁶ English Nature (2001) Great Crested Newt Mitigation Guidelines, English Nature, Peterborough.

Torching

- 3.11 Torching involved searching the waterbody after dusk using high-powered torches to scan the margins and potential display areas for newts. The perimeter of the pond was walked slowly recording any newts observed. Torch surveys are unsuitable within heavily vegetated and/or turbid ponds or after periods of heavy rain as visibility is diminished.

Egg Searching

- 3.12 Newts lay single eggs on leaves of aquatic plants or other suitable pliable material, after which the material is folded over the egg to protect it. GCN eggs can be distinguished from those of the other newts by their size, shape and colour. Submerged vegetation was examined for newt eggs and folded leaves gently opened to check for eggs. Once a GCN egg is identified, no further leaves need to be examined to minimise any further potential disturbance.

Population Size-Class Assessment

- 3.11 Where a population of GCNs was confirmed, a population size-class assessment was completed in accordance with Natural England's standard guidance within the *Great-crested Newt Mitigation Guidelines*. This assessment is based on the highest maximum count of GCNs across connected ponds observed on a single survey occasion (Table 3).

Table 3: Determining Population Size-Class

Population size-class	Highest number of observations for one night
Low	0-10 animals
Medium	11-100 animals
Large	>101 animals

Survey Limitations

- 3.13 P5 (in a residential garden) approximately 230m from proposed development and separated by cultivated arable could not be fully surveyed due to health and safety concerns relating to Covid-19.

Reptiles

- 3.14 A strategic reptile presence/absence survey was undertaken at specific locations considered to offer potential habitat for reptiles within the survey area. The survey was based on methodology detailed in the *Herpetofauna Workers Manual*⁷ and the *Froglife Advice Sheet 10 - Reptile Survey*⁸. Methods involved a search for basking reptiles on/under naturally occurring and strategically positioned artificial refugia. The artificial refugia used were 0.5m² sections of roofing felt with a black upper side. These were placed in locations that were considered to offer the most suitable habitat for common reptiles i.e. on the grassland margins supporting a varied sward height. A total of 50 artificial refugia were placed on the site and were allowed to bed-in for a two-week period

⁷ Herpetofauna Workers Manual, Gent and Gibson (1999). JNCC

⁸ Froglife Advice Sheet 10: An introduction to planning, conducting and interpreting surveys for snake and lizard conservation
<http://www.froglife.org/documents/FroglifeAdviceSheet10.pdf>

prior to the commencement of the surveys. The approximate location of the reptile refugia is shown in Figure 2.

- 3.15 Artificial refugia were placed in areas of the site that were considered to have suitable potential for reptiles and in areas that were less likely to be damaged by agricultural practices. This included placing them along hedgerows and field margins, in sections of scrubby and tussock grassland and along sections of wet ditch, all of which were considered to offer suitable habitats and opportunities for reptiles.
- 3.16 All reptile surveys were undertaken between April and May, 2020 by a suitably experienced FPCR ecologist. The surveys were carried out in appropriate weather conditions i.e. air temperature between 9°C and 20°C with no strong wind or heavy rain.
- 3.17 In addition, the surveys also followed the guidelines recommendations by:
- Approaching refugia from downwind and avoiding casting a shadow and with care so as to not disturb basking animals when checking;
 - Lifting and replacing tins, to check for the presence of reptiles underneath in hot weather is undertaken with care, to avoid potential harm to any animals underneath.
- 3.18 Full details of survey conditions can be found below in Table 4.

Table 4: Reptile Survey Conditions

Survey Occasion	Date	Time	Weather
1	8.04.20	AM	Cloud % 20-30, Beaufort- 1/2, clear, bright, 11°
2	15.04.20	PM	Cloud % 0-10, Beaufort- 1/2, clear, bright, sunny, 16°
3	21.04.20	AM	Cloud % 10-20, Beaufort- 2/3, clear, bright, 12°
4	06.05.20	AM	Cloud % 0-10, Beaufort- 1/2, clear, bright, sunny, 12°
5	14.05.20	PM	Cloud % 30-40, Beaufort- 1/2, clear, bright, 14°
6	20.05.20	AM	Cloud % 0-10, Beaufort- 1/2, clear, bright, sunny, 14°
7	29.05.20	AM	Cloud % 0-10, Beaufort- 1/2, clear, bright, 16°

Assessment

- 3.19 Reptile populations were assessed in accordance with population level criteria as stated in the Key Reptile Site Register (HGBI, 1998⁹). This system classifies populations of individual reptile species into three population categories assessing the importance of the population (Table 5). These categories are based on the total number of animals observed during individual survey occasions.

Table 5: Key Reptile Site Survey Assessment Categories (HGBI 1998)

Species	Low Population (No. of individuals)	Good Population (No. of individuals)	Exceptional Population (No. of individuals)
Adder	<5	5 – 10	>10

⁹ HGBI (1998) Evaluating local mitigation / translocation programmes: Maintaining Best Practices and lawful standards. HGBI advisory notes for Amphibian and Reptile Groups (ARGs). Herpetofauna Groups of Britain and Ireland, c/o Froglife, Halesworth.

Common lizard	<5	5 – 20	>20
Grass snake	<5	5 – 10	>10
Slow worm	<5	5 – 20	>20

4.0 RESULTS & ASSESSMENT

- 4.1 Complete habitat descriptions are provided in the separate Ecological Appraisal (FPCR, 2020). In brief, the site is dominated by arable fields with some modified grasslands and extensive semi-natural woodland adjacent the southern site boundaries. Scrub and hedgerows were also present.

Desktop Study

- 4.2 Consultation with Barnsley Biological Records Centre identified no statutory or non-statutory sites of nature conservation interest within 2km of the site that had been specifically designated for the population(s) of GCN or reptiles that they support.
- 4.3 A great crested newt (GCN) '*nymph*' was recorded in the north of the site with the location as Tankersley Common in 2013. Breeding GCN have been recorded in the vicinity to the north and west of the site and separated by the A6195 trunk road and M1 Motorway corridor respectively.
- 4.4 Within the past 20 years only one record of grass snake *Natrix natrix* has been recorded within 1km of the site boundary, the species was found approximately 950m north of the site at Plotter Holes Plantation, which is separated from the Site by the M1.

Field Survey

Great Crested Newts

- 4.5 Seven waterbodies (P1-P4 and P8-P10) were identified within the site boundary which could provide potential breeding habitat for GCN. A further three ponds (P5-P7) were located within 250m of the site and could also provide some suitable habitat.

Pond Descriptions

- 4.6 Descriptions of the ponds surveyed are provided in Table 6.

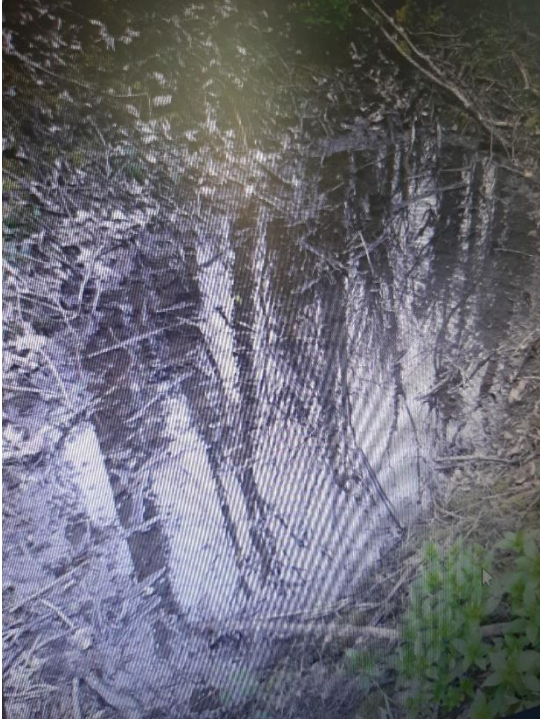
Table 6: Pond Descriptions

Pond Ref.	Description	Photograph
Within the Site		
P10	Wet ditch (D1) bordering grazed pasture. Banks and channel supported short grass tussock. No water present on first survey visit).	
Within 250m of the Site		

Pond Ref.	Description	Photograph
P1	Located south east of the Site in grazed pasture adjacent to Sheffield Road. Dimensions 5m x 3m in size, devoid of aquatic and marginal vegetation except shirt grasses.	
P2	Recorded within grassland fields associated with Bell Ground. Supported limited small areas of open standing water. Much of the feature supported large rushes and bulrush colonising damp mud. Dimensions 20m x 10m. This pond dried out shortly after the first survey occasion.	

Pond Ref.	Description	Photograph
P3	In woodland edge (Bell Ground wood) close to the south western Site boundary. Dimensions 5m x 3m with no marginal or aquatic vegetation. Recorded dry on the second visit. This pond dried out shortly after the first survey occasion	
P4	Scrape in Bell Ground wood supporting damp mud and no vegetation. Dry on initial inspection.	

Pond Ref.	Description	Photograph
P5	Large located in the garden of a residential property. Dimensions 70m x 30m with marginal zone supporting bulrush, and iris. Presence of wildfowl and fish were considered to have an impact on amphibian suitability. Although this pond was surveyed on the first survey occasion, subsequent adherence to Covid-19 health and safety guidance prevented access to this property.	
P6	Recorded in Bell Ground wood. Dimensions 15m x 10m supporting no aquatic or marginal vegetation. The water level in the pond reduced dramatically over the course of the survey period.	

Pond Ref.	Description	Photograph
P7	A small scrape within Bell ground wood. Dimensions 3m x 5m. No marginal or aquatic vegetation was present and basin supported soft mud (dried out by second survey visit).	
P8	Wet ditch (D4) bordering grassland of F11. Banks supported bramble, ruderal herbs and grasses and the channel supported damp mud (no water on first survey visit).	

Pond Ref.	Description	Photograph
P9	Within unmanaged grassland (F11) in the north of Site. Comprised a shallow basin compacted rubble colonised by short grasses and was dry on first survey visit.	

Habitat Suitability Index (HSI)

- 4.7 Full HSI scores are provided in Appendix A, with Table 7 summarising the results of the assessment of all ponds surveyed within 500m of the site boundary. Ponds P4 and P5 achieved an 'Average' pond suitability for GCN whilst pond P1 achieved a 'Below Average' suitability for GCN.

Table 7: HSI summary

Pond Ref.	HSI score	Pond suitability	Predicted presence
P1	0.62	Average	55%
P2	0.62	Average	55%
P3	0.56	Below Average	20%
P4	Dry		
P5	0.72	Good	79%
P6	0.52	Below Average	20%
P7	0.55	Below Average	20%
P8	Dry		
P9	Dry		
P10	Dry		

Aquatic Survey

- 4.8 Only P1 remained wet for the duration of the survey period. P2 and P3 dried out after the first survey visit, while P6 dried out after the third survey visit.
- 4.9 No GCN were recorded in any of the ponds surveyed. On the first survey visit, six toads were recorded in P2 but no other amphibians were recorded.

Terrestrial Habitat

- 4.10 The application site was composed of arable land, semi-improved grassland and small parcels of plantation and semi-natural woodland (more extensive areas present off-site) with associated hedgerows, waterbodies and ditches. A small amount of hardstanding was present.
- 4.11 The grazed semi-improved grassland and arable was considered to offer limited value to GCN providing sub-optimal commuting and foraging habitat only whilst the dense scrub and hedgerows and woodland were considered to offer commuting, foraging, refuge and hibernation habitat. These habitats, particularly the hedgerows, provided connectivity with other areas of suitable habitat outside the application site boundary.

Reptiles

Habitat Assessment

- 4.12 The Site is predominately made up of cultivated agricultural fields supporting some limited scrub and hedgerow boundaries. A small parcel of mature hawthorn *Crataegus monogyna* scrub and associated poached pony pasture was also recorded. Within the site boundaries and adjoining the site compartments of semi-natural and plantation broadleaved woodland with associated scrub and ephemeral ponds were also present. Ephemeral ponds and a small number of wet ditches were recorded in association with pasture and hedgerows.
- 4.13 The open field compartments were considered to offer little value to reptiles as a result of them being heavily managed, meaning the sward length is often short and homogenous, providing little cover. The more established woodland, hedgerow and scrub habitats, particularly where associated with standing water were noted as providing suitable opportunities for reptiles.

Field Survey Results

- 4.14 During the presence/absence surveys a single juvenile grass snake was recorded on the 5th survey visit. The individual was found using one of the artificial refugia associated with boundary scrub on the edge of the site that runs from Bell Ground Wood (BW1) towards Sheffield Road (see Figure 2).
- 4.15 Based on the single record it is considered that the site is being used by a 'low number' of grass snakes.
- 4.16 No other reptiles or amphibians were recorded during the surveys.

5.0 DISCUSSION AND RECOMMENDATIONS

- 5.1 No records of GCN were returned on-site or within 1km of the site boundary. During the surveys no GCN were recorded in any ponds surveyed. As most ponds dried out after the first week of survey, these features are considered unsuitable for breeding GCN.
- 5.2 Six common toad were recorded on the first survey occasion in P2, however, this dried out shortly after this indicating that it is not a permanent breeding habitat for toads or other amphibians.
- 5.1 Pond P5 did not receive full survey effort due to its location within a private property and access restrictions due to Covid-19. Nevertheless, it lies well over 200m from the site and dispersal into the site is considered highly unlikely due to convoluted nature of potentially suitable dispersal habitat and the heavily cultivated nature of arable field in the intervening distance.
- 5.2 Furthermore, research suggests that the maximum routine migratory range for GCN is approximately 250m ((Franklin, 1993¹⁰; Oldham and Nicholson, 1986¹¹; Jehle, 2000¹²), Jehle

¹⁰ Franklin, P.S., 1993. The migratory ecology and terrestrial habitat preferences of the great crested newt (*Triturus cristatus*) at Little Wittenham Nature Reserve. De Montford University unpublished thesis

¹¹ Oldham, R.S. and Nicholson, M., 1986. Status and ecology of the warty newt *Triturus cristatus*. Report to the Nature Conservancy Council (Contract HF 3/05/123), Peterborough

¹² Jehle, R. 2000. The terrestrial summer habitat of radio-tracked great crested newts (*Triturus cristatus*) and marbled newts (*T. marmoratus*). *Herpetological Journal* 10:137-142

(2000)¹³ and this research further suggests a more limited terrestrial zone during the summer and after the breeding season of between 20 and 60 or so metres from ponds. Since proposed development within around 480m of P5 will be restricted to heavily cultivated arable (considered particularly unsuitable for sheltering newts) and large areas of woodland (considered of far greater value for GCN) with good connectivity are present closer to P5 the likelihood of newts being present where works are proposed, (if present in P5) is considered very low.

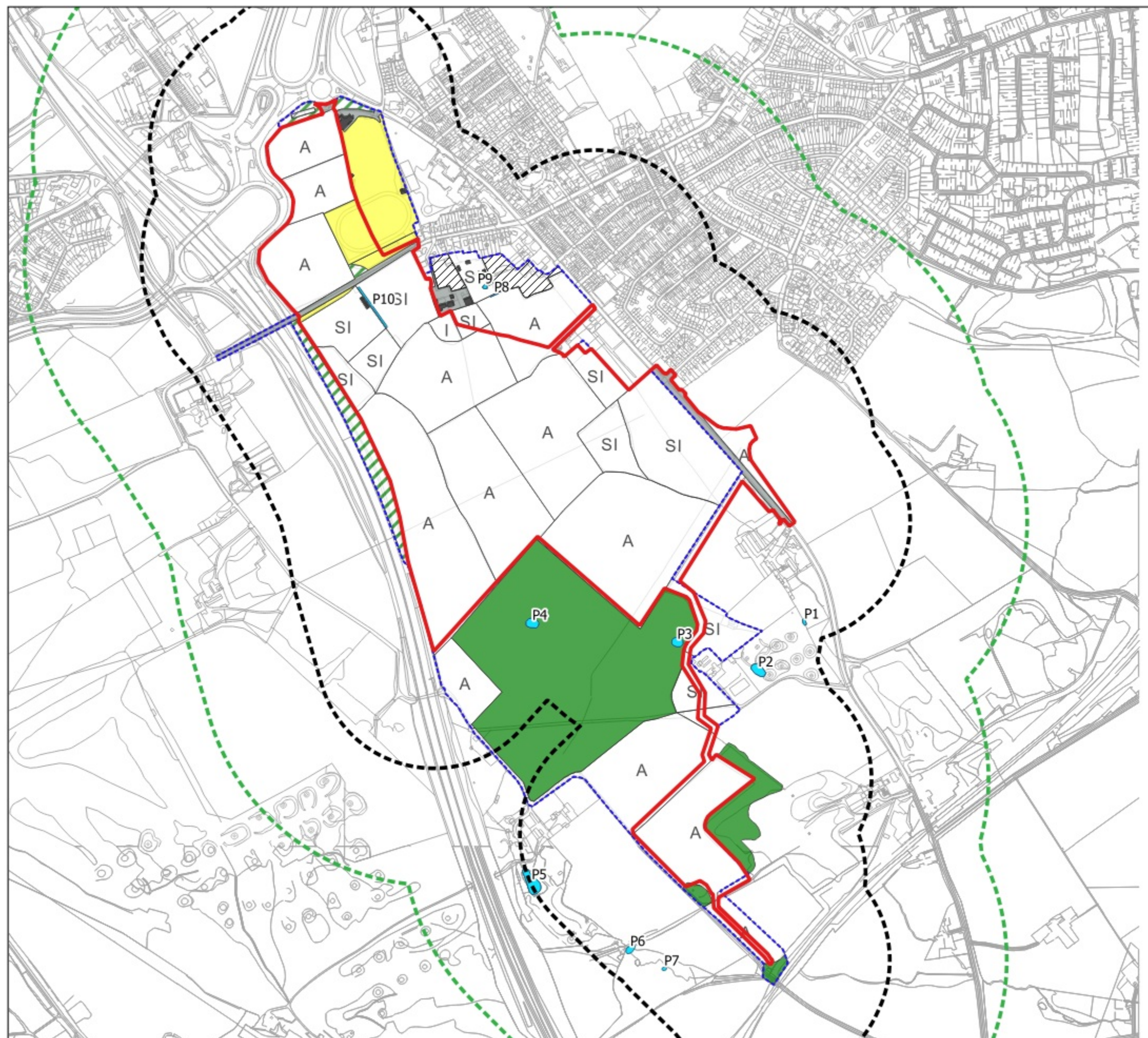
- 5.3 It should also be noted that no GCN were observed sheltering beneath reptile refugia along the hedgerow bordering the site closest to P5 further suggesting that GCN are either unlikely to be present or, where present, are unlikely to disperse into or as far as the site boundary.
- 5.4 Consequently, it is considered that GCN are likely to be absent from the site and do not therefore pose a constraint to the proposals.
- 5.5 The presence of a single grass snake indicates there is a low population of this species using suitable habitats such as boundary hedgerows (and associated ditches) and scrub within the application site. Proposed development will require the removal of scrub and hedgerow with connectivity to suitable off-site habitat.
- 5.6 In the absence of mitigation there is potential for an adverse impact on a 'Low Population' of grass snake resulting from:
 - Potential risk of killing/injury during works;
 - Loss of habitat through vegetation clearance.
- 5.7 Grass snake are highly mobile species and where suitable habitats are to be lost removal should be done under a suitable best practice method statement to avoid killing or injury including:
 - Vegetation removal done under the supervision of an experienced ecologist;
 - During the active reptile season and during suitable weather conditions (March to mid-October when daytime temperatures are consistently above 10°C with little rain);
 - Two stage directional strim toward suitable off-site habitat, first to 200mm then, following a pause of 1-2 hours, removal to 100mm;
 - Removal of all arisings;
 - Fingertip search of any suitable hibernation features such as rubble piles by an ecologist.

Biodiversity Enhancement for Reptiles

- 5.8 An extensive network of green infrastructure will be provided including a corridor of native structural planting through the length of the site providing connectivity to extensive existing semi-natural woodland south of the site. Native species-rich grasslands will be incorporated within this network including in association with the woodland edge of Bell Ground. Proposed earth bunds associated with this woodland boundary, particularly where east facing, are recommended for enhancement with reptile hibernacula and log piles on sunny aspects.
- 5.9 Where balancing features are proposed they could be enhanced to provide permanent standing water of value to breeding amphibians and foraging grass snake.

¹³ Jehle. R. & Arntzen. J.W. (2000). Post-breeding migrations of newts with contrasting ecological requirements. J. Zool., Lond., 251:297-306

- 5.10 The proposed development will provide significant enhancement for both amphibians and reptiles and provided best practice advice is followed neither reptiles nor GCN are considered to represent a constraint to development.



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Key

- ▬ Site Boundary
- - - Survey Extent
- - - 250m buffer
- - - 500m buffer
- Ponds (with ref)



client
Newlands Developments
project
Land West of Sheffield Road,
Hoyland
POND LOCATION PLAN

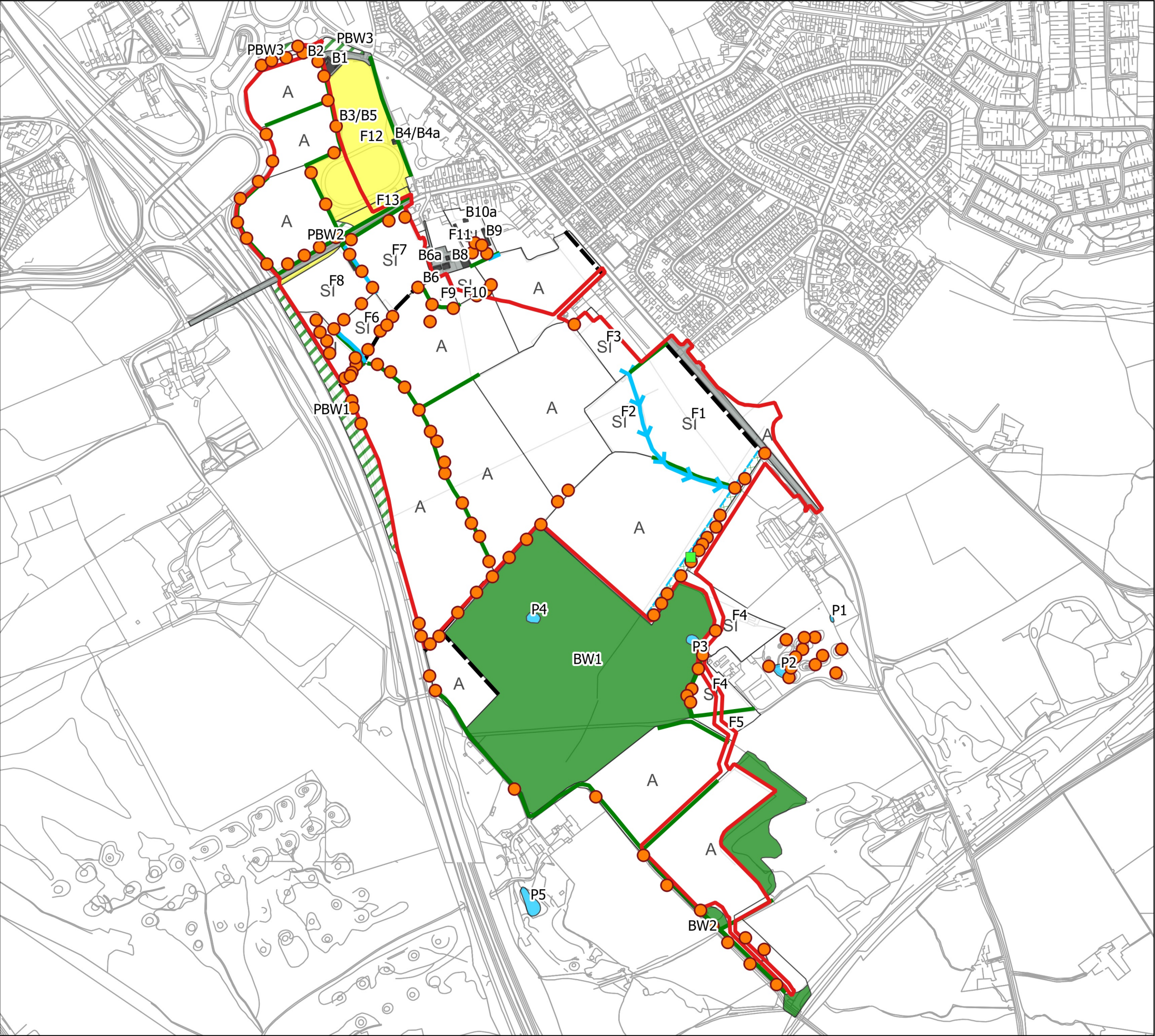
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date
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Figure 1

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Key

- Site Boundary
- Tin Location
- Grass Snake