



ARBOR VITAE

ECOLOGY • FORESTRY • LAND USE



PRELIMINARY ECOLOGICAL APPRAISAL

DARLAND CROFT

Project name: Darland Croft, Rossett, Wrexham, LL12 0BB

Grid Reference: SJ37925801

Date: 30/07/2021

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1 INTRODUCTION

1.1 BACKGROUND TO DEVELOPMENT

Planning permission will be sought for construction of three residential dwellings on a plot of land known as Darland Croft in Rossett, Wrexham.

Arbor Vitae were commissioned by Roger Parry and Partners to undertake a Preliminary Ecological Appraisal in order to assess the impact of the development on habitats and protected species.

1.2 SCOPE OF SURVEY

The survey is primarily designed to:

- Identify and record habitats and important ecological features on site;
- Evaluate the potential of the proposed development site to provide opportunities for protected species;
- Determine any likely impact which the development and landscape proposals may have on these.
- Identify opportunities for the enhancement of habitats and biodiversity features on site.

1.3 KEY PRINCIPLES

All ecological surveys conducted by Arbor Vitae Environment Ltd are underpinned by the following key principles, as outlined by CIEEM (2018):

Avoidance - Seek options that avoid harm to ecological features (for example, by locating on an alternative site).

Mitigation - Adverse effects should be avoided or minimized through mitigation measures, either through the design of the project or subsequent measures that can be guaranteed – for example, through a condition or planning obligation.

Compensation - Where there are significant residual adverse ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures.

Enhancements - Seek to provide net benefits for biodiversity over and above requirements for avoidance, mitigation or compensation.

2 SITE DESCRIPTION

2.1 LOCATION, LANDSCAPE, AND BACKGROUND

The site is currently occupied by an agricultural structure, located at the end of an existing driveway just off Darland Lane, Rossett (Figure 1). The site is bounded by residential holdings at the west and south with arable land and agricultural grassland to the north (Figure 2). The wider landscape is a mixture of arable and agricultural grassland with Rossett and Lavister settlements nearby.

The proposals will utilise the existing access track which will require some improvement. There is a public footpath which runs along the track and around the south east boundary of the site.

3 SURVEY METHODOLOGY

3.1 DESK STUDY

An initial desk study was composed to gain background information regarding any protected species or designations within the area. The main sources of information were Cofnod, MagicMap, Lle geoportal and NBN Atlas.

3.2 SITE SURVEY

A site visit was made on 29/04/2021. The survey was carried out in accordance with CIEEM (2017) best practice guidelines. The objective of the survey was to find and record any signs of use by protected species and to note the habitat features present.

An assessment of the available habitats both on and adjacent to the site led to consideration of the potential of the site for the following protected species:

- Badgers
- Bats
- Breeding birds
- Great Crested Newts

The survey methodology was tailored to evaluate the area for these species in the following ways:

Badger

An area within 50 metres of the site was closely searched for the following signs of badger activity:

- Setts,
- Tracks and footprints,
- Latrines,
- Snuffle holes.

Bats

The site was assessed in terms of its suitability to support bat species. Hedgerow habitat and nearby potential habitat were assessed and recorded and potential impacts from the proposals considered.

Breeding birds

The site was assessed in terms of its suitability to support breeding bird populations. Hedgerow habitat and nearby potential habitat were assessed and recorded.

Great crested newts

A desk study and a ground search were conducted to search for any areas of open water within 250 metres. Waterbodies were then assessed based on the Habitat Suitability Index for great crested newts (Oldham et al., 2000 and ARG UK, 2010).

eDNA analysis of Pond 1 & 4 was commissioned. Pond 2 & 3 were not accessible for eDNA analysis.

3.3 PERSONNEL

The survey was carried out by Phillipa Stirling MSc ACIEEM: Ecologist. NRW GCN licence number: S089109-1 and bat licence number: S089403-1.

3.4 CONSTRAINTS

Pond 3 could not be surveyed during the site visit due to it being on private land.

4 SURVEY RESULTS

4.1 DESK STUDY

The desk study revealed that there is one designated site within 1km of the site: Darland Wood (Local Wildlife Site) 147m away. The search included Ramsar, SSSI, SAC, SPA, LNR, NNR and Ancient Woodland.

Results from the desk study revealed that within a 1km radius of the proposed development site the following protected species have been recorded:

Species	Distance	Protection
Otter	0.7km	European Protected Species, Wildlife and Countryside Act 1981.
Common pipistrelle Brown long-eared Noctule	0.6km	European Protected Species, Wildlife and Countryside Act 1981.
Badger	0.6km	Wildlife and Countryside Act 1981, Protection of Badgers Act 1992.
West European hedgehog	0.4km	S41 NERC
Great crested newt	0.6km	European Protected Species, Wildlife and Countryside Act 1981.
Grass snake	0.2km	Wildlife and Countryside Act 1981.
The European hedgehog is a Species of Principal Importance under section 41 of the Natural Environment and Rural Communities Act 2006. Hedgehog are a priority species in the UK due to a decline in the amount of suitable habitat available to them through the development of land.		

4.2 HABITATS ON SITE

All habitats are classified using JNCC's Phase 1 Habitat Survey Handbook (JNCC, 2010).

Improved grassland

The grassland habitats on site are agriculturally improved and species recorded include: Yorkshire fog, common bent, dandelion, broad leaved dock, red dead nettle, cow parsley, garlic mustard, white clover and ground ivy.

Hardstanding

There is an existing concrete pad on site which supports the steel framed structure.

Buildings

A steel framed and clad agricultural building currently occupies the south east portion of the site. The structure is modern and well-sealed with box profile cladding to the roof and elevations.

Hedgerow

There is a hawthorn hedge at the west boundary of the site which separates the land from the neighbouring property.

Shrubs

There is a single small fruit tree present on site at the south west boundary.

4.3 ADJACENT HABITATS

Arable

The field to the north is part of an arable rotation currently sown as grass ley.

Hedgerow

There is an overgrown hedge at the south east boundary of the site which consists of a mixture of native species of varying height and condition. Species include: ash, oak, hawthorn and elder with nettle, dandelion, curled dock and cow parsley dominating the ground flora beneath.

Mature trees and hedgerow border the existing access track on either side, belonging to neighbouring properties with their root systems and trunks concealed by close board fencing. Species include beech, silver birch, hawthorn, elder and *Prunus sp.*

Amenity grassland

The land to the west and south east of the site is dominated by amenity grassland associated with residential properties.

4.4 PROTECTED SPECIES

Badgers

There are no historic records of badger at the site and the nearest area of woodland lies 175m to the west. There is a single mammal trail passing through the site in a diagonal

direction from north-west to south-east which could be in use by badgers but here is no evidence of badger activity on site and the trail is not a regularly used major route.

Bats

The steel framed agricultural building on site does not provide any suitable roosting features for bat species and is very well-sealed. The building has 'negligible' potential as a bat roost and no further survey work is required.

The adjacent hedgerows and mature trees provide some suitable foraging and commuting opportunities for bat species within the landscape.

Breeding birds

There was no evidence of breeding birds on site during the survey. The steel framed building and grassland provide very limited opportunities for nesting.

The hawthorn hedgerow at the west boundary provides some suitable opportunities for nesting.

Great Crested Newt

Pond 1, 2 and 4 all scored 'below average' in terms of their suitability to provide breeding sites to GCN.

Pond 1 and 4 had limited areas of open water and were very shallow, representing more of a marshy habitat. Pond 4 holds stagnant water with evident eutrophication. Pond 2 had bare banks in places and no emergent vegetation.

GCN HSI Calculator				
	Pond Name	Pond 1	Pond 2	Pond 4
	Position	SJ38015814	SJ37875790	SJ37685795
SI No	SI Description			
1	Geographic location	1	1	1
2	Pond area	0.85	1	0.9
3	Pond permanence	0.5	0.9	0.33
4	Water quality	0.33	0.33	0.2
5	Shade	0.2	0.2	0.33
6	Water fowl effect	0.67	0.67	0.67
7	Fish presence	0.67	0.33	0.7
8	Pond Density	0.7	0.7	1
9	Terrestrial habitat	0.67	0.33	0.3
10	Macrophyte cover	0.8	0.3	
HSI Score		0.59	0.50	0.55
Pond suitability (see below)		<i>Below average</i>	<i>Below average</i>	<i>Below average</i>

Upon visiting Pond 1 to collect water samples for eDNA analysis it became clear that GCN eggs were present within the vegetation, confirming that the pond is in use as a breeding site. eDNA analysis of Pond 4 provided a negative result and the unsuitable, anaerobic conditions would suggest it is reasonable to assume their absence from this waterbody.

A total of 15 individual GCN have been recorded approximately 642m south of the site. The most recent records are from 2019. Other records from 747m away and 665m away are for single individual records.

5 POTENTIAL ECOLOGICAL IMPACT

5.1 HABITAT ASSESSMENT

The proposed development will result in the loss of 0.08ha of improved grassland and 0.04ha of concrete including the steel framed buildings footprint. The habitats to be lost are of little ecological significance and the overall impact of the development will be low.

5.2 PROTECTED SPECIES ASSESSMENT

Badger

There is no evidence to suggest that badgers use the site on a regular basis. It is likely that the trail running through site is used occasionally by individual animals. The proposed development is unlikely to have any impact upon this species but precautionary measures will be implemented on site during the construction phase of the project to ensure any disruption arising from the development is minimised.

The proposed native hedgerow planting in section 6.3 will also provide a vegetated corridor which badgers can use to navigate around the proposed development if they are travelling across the land.

Bats

The site itself does not provide any potential roosting opportunities and the development will have no impact upon bat species. A Wildlife Sensitive Lighting Plan will be adopted on site to ensure that post-development impacts are reduced.

Breeding birds

The proposed development is unlikely to have any impact upon breeding birds as the site itself does not provide suitable nesting opportunities.

Adjacent hedgerow and trees could provide nesting sites. Pre-commencement inspection of vegetation and precautionary measures must be adopted on site during construction.

Great crested newt

Pond 1 is a confirmed breeding site for GCN and sits 100m away to the north east, intersected by the aforementioned arable land. Pond 4 provided a negative eDNA result and is highly unlikely to support GCN given the very poor water quality, densely shaded margins and limited emergent vegetation.

It was not possible to carry out eDNA analysis of Pond 2 which sits 100m south west of the site nor Pond 3 sitting at 200m to the south east. There are no records of GCN for either pond and their connectivity to Pond 1, the known breeding site, is limited with no clear linear dispersal routes identified.

The site provides a small area of terrestrial foraging opportunity for this species but does not provide suitable hibernation or breeding habitat. The arable land to the north limits the migratory potential of the adjacent landscape.

The existing access track will be utilised and improved using crushed and compacted stone in order to avoid the need for excavation of the track. The existing access track and concrete hardstanding do not provide any suitable terrestrial opportunities for GCN given that they do not offer foraging, resting or hibernating habitat.

The proposed development will result in the loss of 0.04ha of concrete hardstanding and 0.08ha of improved grassland at a distance of 100m from the nearest known breeding pond. Studies have demonstrated that 95% of all GCN summer refuges fall within 63m of the breeding pond (Jehle, 2000). Given that Pond 1 is surrounded by rough grassland, scrub and woodland it is reasonable to suggest that the majority of GCN breeding in Pond 1 would be found in these high quality terrestrial areas as opposed to the sub-optimal improved grassland and poor concrete habitats on the proposed development site.

The proposals will not result in the removal of any high value habitat features and will ultimately result in the creation of 100m of native species hedgerow at the north boundary of the site which would provide hibernation and dispersal opportunities for GCN within the landscape.

In summary, the risk of the development breaching species legislation is considered to be low (unmitigated) given:

- The distance of the breeding pond from the site,
- The level of high quality terrestrial habitat surrounding Pond 1 and therefore low likelihood of GCN travelling to sub-optimal and poor quality habitats,

- The arable land between Pond 1 and the site does not provide robust dispersal routes,
- The proposal will impact a relatively small area of land which provides poor and sub-optimal terrestrial opportunities for GCN.

In order to further reduce any residual risk to GCN a Reasonable Avoidance Measures Method Statement will be adopted on site during construction. This will include:

- further reduction in the quality of terrestrial habitats on site to discourage any opportunistic individuals from entering the site,
- installation of one-way fencing as an avoidance measure,
- Sensitive working methods and induction of all site personnel.

Appendix 2 provides full details of RAMMS to be adopted.

Hedgehog

Hedgehogs have been recorded within 1km of the site could be using the site as the habitats available present suitable opportunities for this species. Mitigation to ensure that proposals have no impact upon this priority species will be needed.

6 AVOIDANCE, MITIGATION AND ENHANCEMENT

6.1 HABITAT MITIGATION

The loss of a small amount improved grassland will be of little ecological consequence. In order to ensure that there is no loss of biodiversity at the site, a native species planting scheme will be adopted within public spaces. At least three small groups of trees will be incorporated into the scheme and will include: rowan, silver birch and wild cherry.

6.2 PROTECTED SPECIES MITIGATION

Badger

- Any excavations/ditches will be either; covered completely at night time, or an access ramp should be left within each separate excavation/ditch to allow badgers or other to escape should they fall in.
- Any chemicals or harmful substances will be kept within a locked container, off the ground and ideally within a structure on site.

Bats

All on-site lighting will be designed with nocturnal wildlife in mind. The following measures will be incorporated into lighting plans for the site:

- Hedgerows and key habitat features including mature trees on the site will not be illuminated in order to retain dark movement corridors for nocturnal wildlife. Illuminance along these features should be below 0.2 lux on the horizontal plane, and 0.4 lux on the vertical plane.
- Security lighting will be set on motion sensors with short timers (<1 minute) and should be LED lighting.
- External lights will be hooded and directed toward the ground to reduce upward light spill.
- A warm white spectrum will be adopted throughout the scheme to reduce blue light component (<2700Kelvin).
- Internal luminaires will be recessed where installed in proximity to windows to reduce glare and light spill. LED luminaires should be used internally where possible due to their sharp cut-off, lower intensity, and dimming capability.
- Luminaires will always be mounted horizontally with an upward light ratio of 0%.

Breeding birds

A thorough ground inspection will be completed prior to works commencing on site if works start between 1st March and 31st August (inclusive) in any given year. If breeding birds are found, an exclusion zone of 5 metres should be implemented and maintained until breeding is complete and the fledglings have left the nest.

The hedgerow at the west boundary of the site will be temporarily fenced during construction to ensure no incidental disturbance or damage to this feature. Barrier fencing and steel fence pins will be installed at 1m from the spread of the hedge before works on site commence.

Great crested newt

RAMMS will be adopted on site as per Appendix 2 in order to remove any residual risk of the development breaching protected species legislation.

In order to mitigate the loss of 0.08ha of improved grassland, the following high quality habitat features will be created specifically for GCN but will also benefit a range of wildlife:

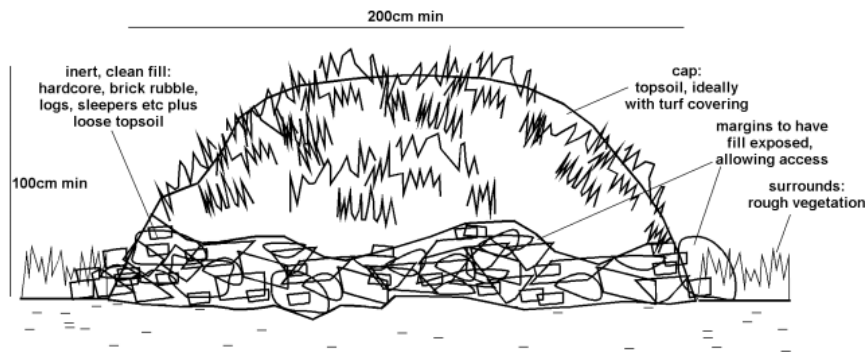
- An amphibian hibernacula will be created to the north of Pond 1 on an area of land which is not part of the surrounding arable rotation and within the ponds curtilage. The hibernacula will be designed to Figure 3 of the great crested newt

mitigation guidelines (see below) and will measure 2m length x 1m width x 1m height.

- Native species scrub planting will occur around the new hibernacula using a mixture of: dog rose, hazel, hawthorn and bramble. Natural scrub regeneration will also be encouraged in this area with a total of 200m² to be managed as a 'scrub mosaic' for GCN.

Figure 3: Suggested hibernaculum design

This design mimics artificial and natural conditions in which great crested newts have frequently been found overwintering. Dimensions should not be below 2m length x 1m width x 1m height. The illustrated design would be suitable for locating on an impermeable substrate. On free-draining substrates, the design is largely similar but the bulk of the fill is sited in an excavated depression in the ground. Hibernacula should ideally be positioned across a site, both close to and distant from breeding ponds, always in suitable terrestrial habitat and above the flood-line.



Hedgehog

The precautionary measures stated for badger, breeding birds and great crested newt will ensure that hedgehogs are also protected during development.

6.3 ECOLOGICAL ENHANCEMENT

The new north boundary of the site will be planted with a hedgerow to promote connectivity with the neighbouring land. Species will be native to the UK and the area, to include: hawthorn, hazel, holly, guelder rose, wild privet, dog rose and elder. Approximately 100m of new hedgerow will be planted.

In order to provide opportunities for wildlife, the following measures will be adopted:

- Each property will incorporate at least one roosting feature suitable for bat species. Built-in bat roosts can be included within the final external elevation of a property. These features will be built into the north facing elevation with access to the open field behind.
- Two hedgehog domes will be installed into the base of the hedgerows at the periphery of the site with their entrances facing into the centre of the hedge.

7 SUMMARY

Planning permission will be sought for construction of three residential dwellings on a plot of land known as Darland Croft in Rossett, Wrexham. Arbor Vitae were commissioned by Roger Parry and Partners to undertake a Preliminary Ecological Appraisal in order to assess the impact of the development on habitats and protected species.

The proposed development will result in the loss of 0.08ha of improved grassland and 0.04ha of concrete including the steel framed buildings footprint. The habitats to be lost are of little ecological significance and the overall impact of the development will be low.

In order to ensure that there is no loss of biodiversity at the site, a native species planting scheme will be adopted within public spaces. At least three small groups of trees will be incorporated into the scheme and will include: rowan, silver birch and wild cherry.

Precautionary measures will be implemented on site during the construction phase of the project to ensure any disruption to badgers arising from the development is minimised.

A Wildlife Sensitive Lighting Plan will be adopted on site to ensure that post-development impacts upon bat species and other nocturnal animals are reduced.

The site provides a small area of terrestrial foraging opportunity for this species but does not provide suitable hibernation or breeding habitat. The risk of the development breaching species legislation is considered to be low but in order to further reduce any residual risk to GCN a Reasonable Avoidance Measures Method Statement will be adopted on site during construction. Mitigation for the loss of improved grassland will be through the provision of high quality terrestrial habitat features including: an amphibian hibernacula and scrub mosaic.

A thorough ground inspection will be completed prior to works commencing on site if works start between 1st March and 31st August (inclusive) in any given year. If breeding birds are found, an exclusion zone of 5 metres should be implemented and maintained until breeding is complete and the fledglings have left the nest.

In order to provide opportunities for wildlife, the following measures will be adopted:

- Each property will incorporate at least one roosting feature suitable for bat species. Built-in bat roosts can be included within the final external elevation of a property. These features should be built into the north facing elevation with access to the open field behind.
- Two hedgehog domes will be installed into the base of the hedgerows at the periphery of the site with their entrances facing into the centre of the hedge.

- The new north boundary of the site will be planted with a native species hedgerow to promote connectivity with the neighbouring land.

8 REFERENCES

ARG UK (2010). ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. Amphibian and Reptile Groups of the United Kingdom

Bat Conservation Trust (2018) Bats and artificial lighting in the UK. *Bats and the Built Environment series*, Guidance Note 08/18. Institution of Lighting Professionals.

CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.

Collins, J. (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

Hundt L (2012) Bat Surveys: Good Practice Guidelines, 2nd edition, Bat Conservation Trust.

Jehle, R. 2000. The terrestrial summer habitat of radiotracked Great Crested Newts (*Triturus cristatus*) and Marbled Newts (*T. marmoratus*). *Herpetological Journal* 10:137-142.

JNCC (2010) Handbook for Phase 1 habitat survey - a technique for environmental audit, ISBN 0 86139 636 7.

Mitchell-Jones, T. (2004) Bat mitigation guidelines. External Relations Team, English Nature.

Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10(4), 143-155.

FIGURE 1 LOCATION. 1:50,000

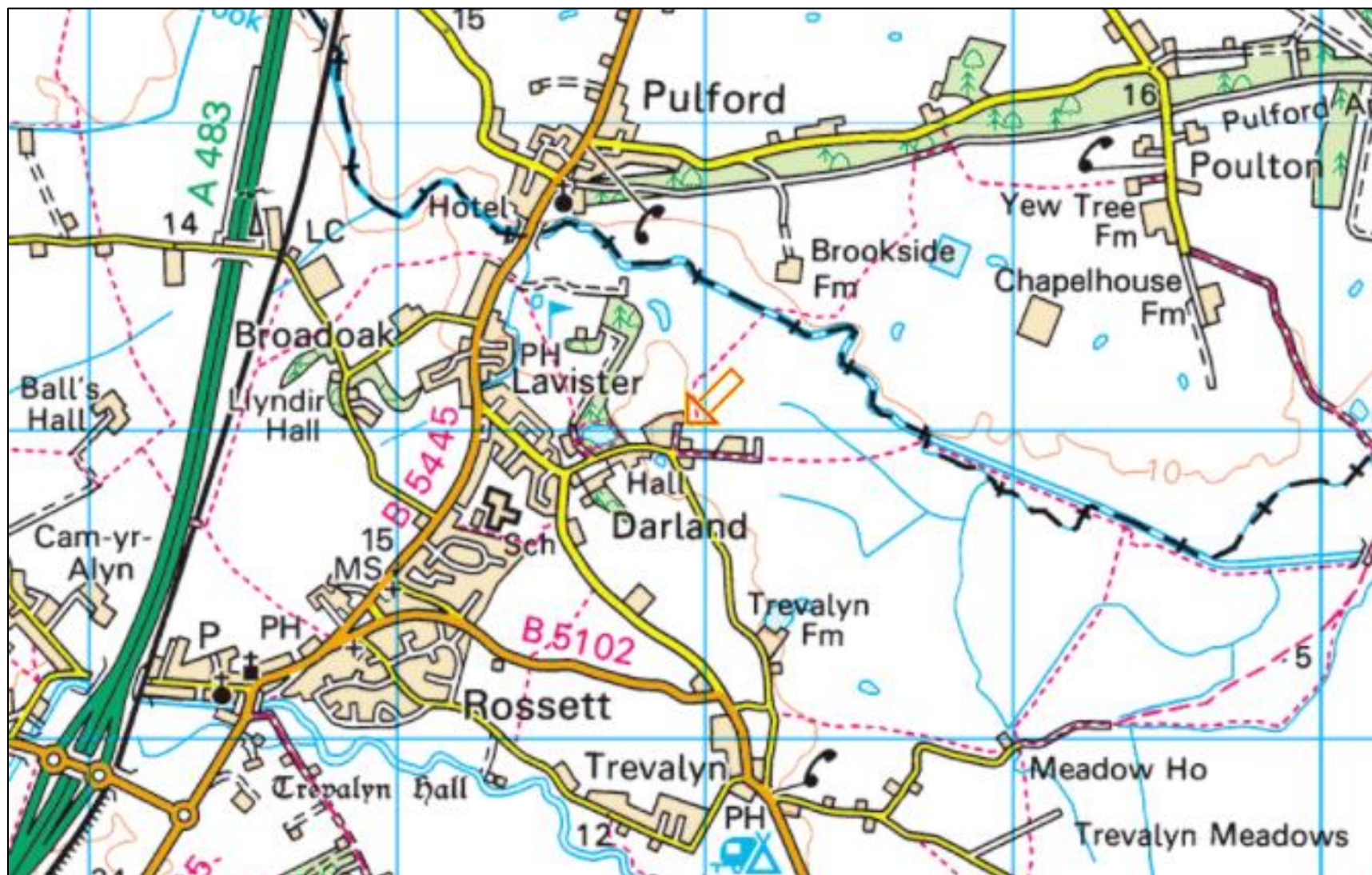


FIGURE 2 AERIAL PHOTOGRAPH



FIGURE 3 PONDS WITHIN 250M

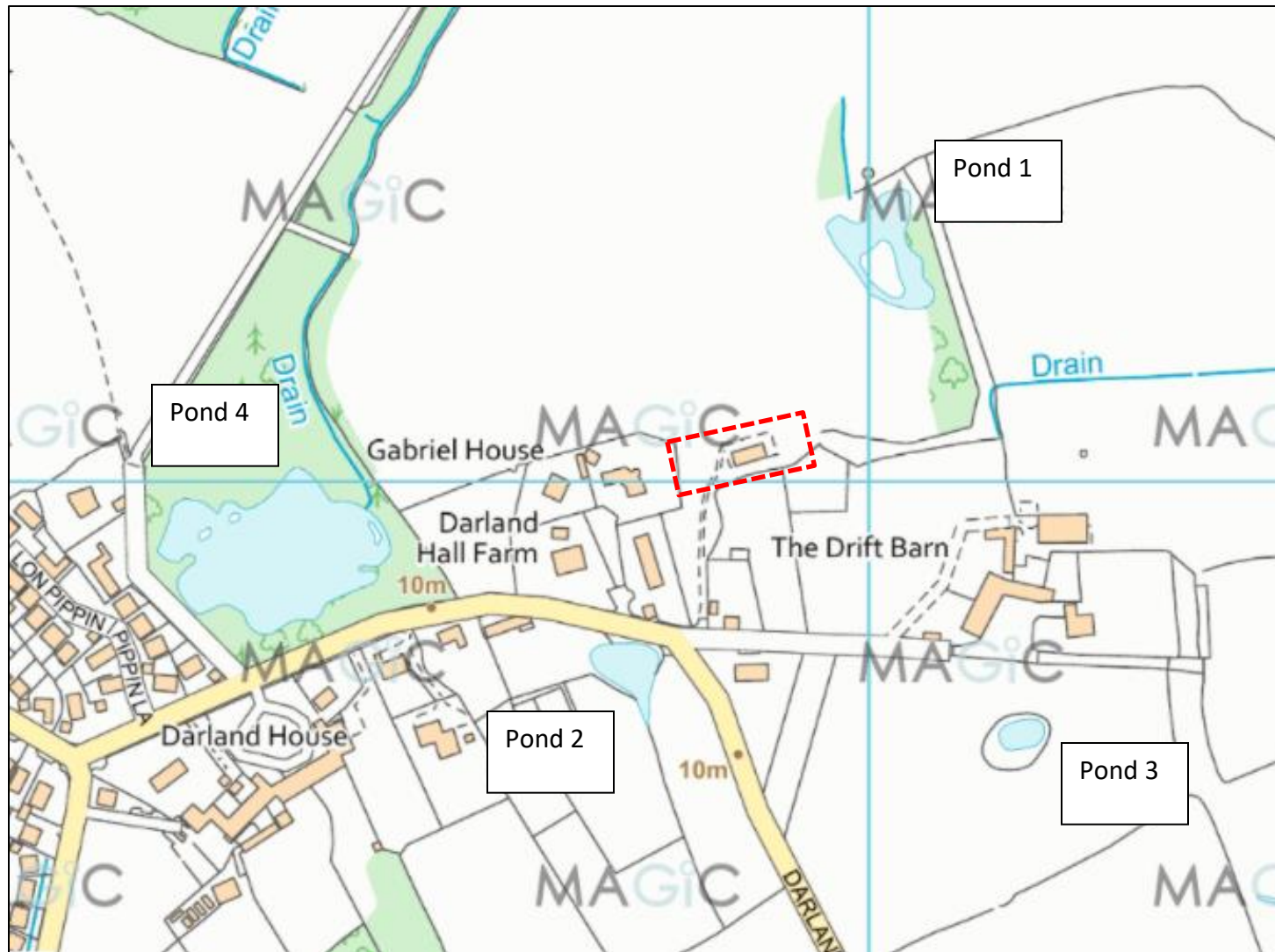


FIGURE 4 COFNOD DATA SEARCH MAP

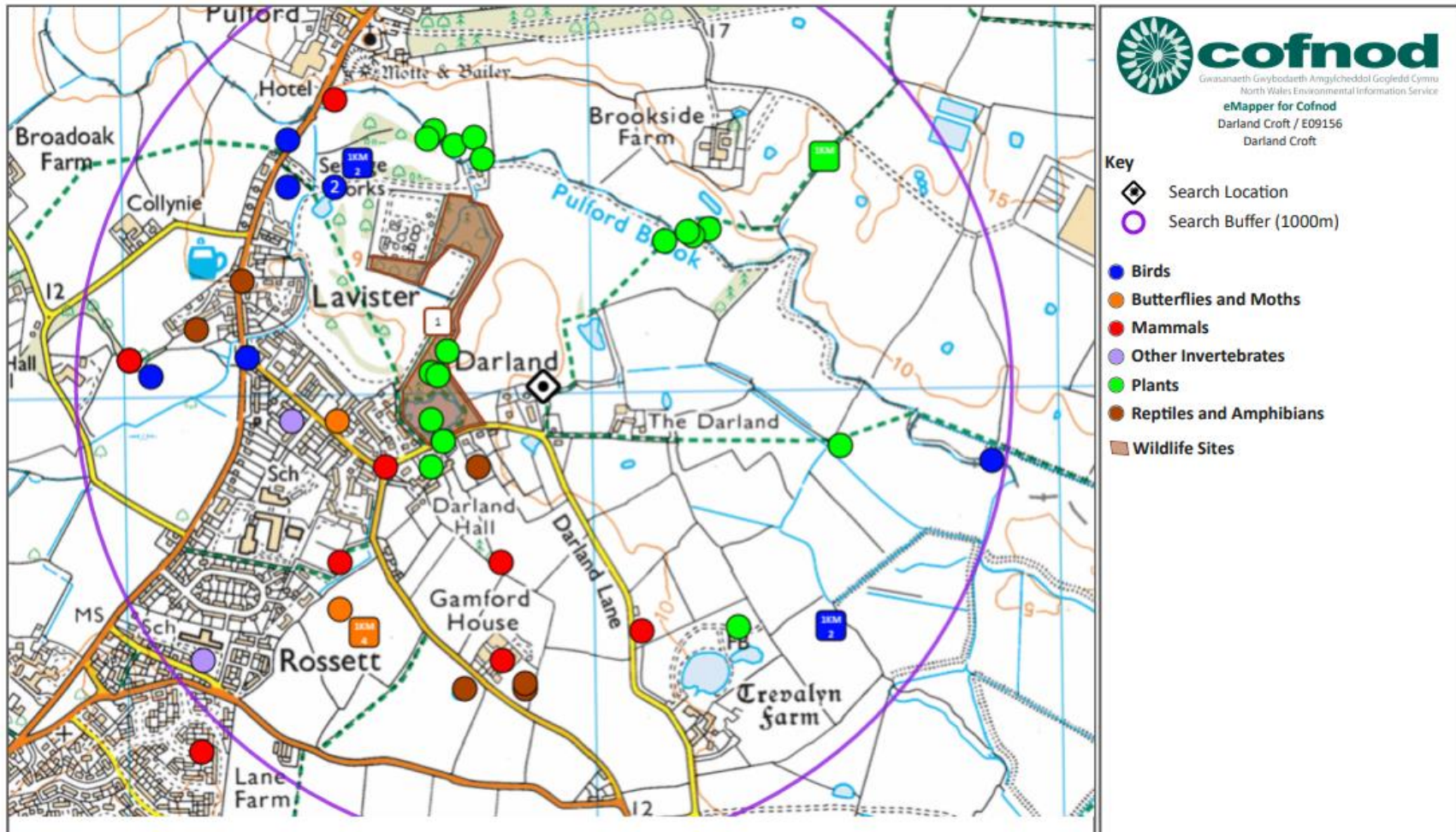
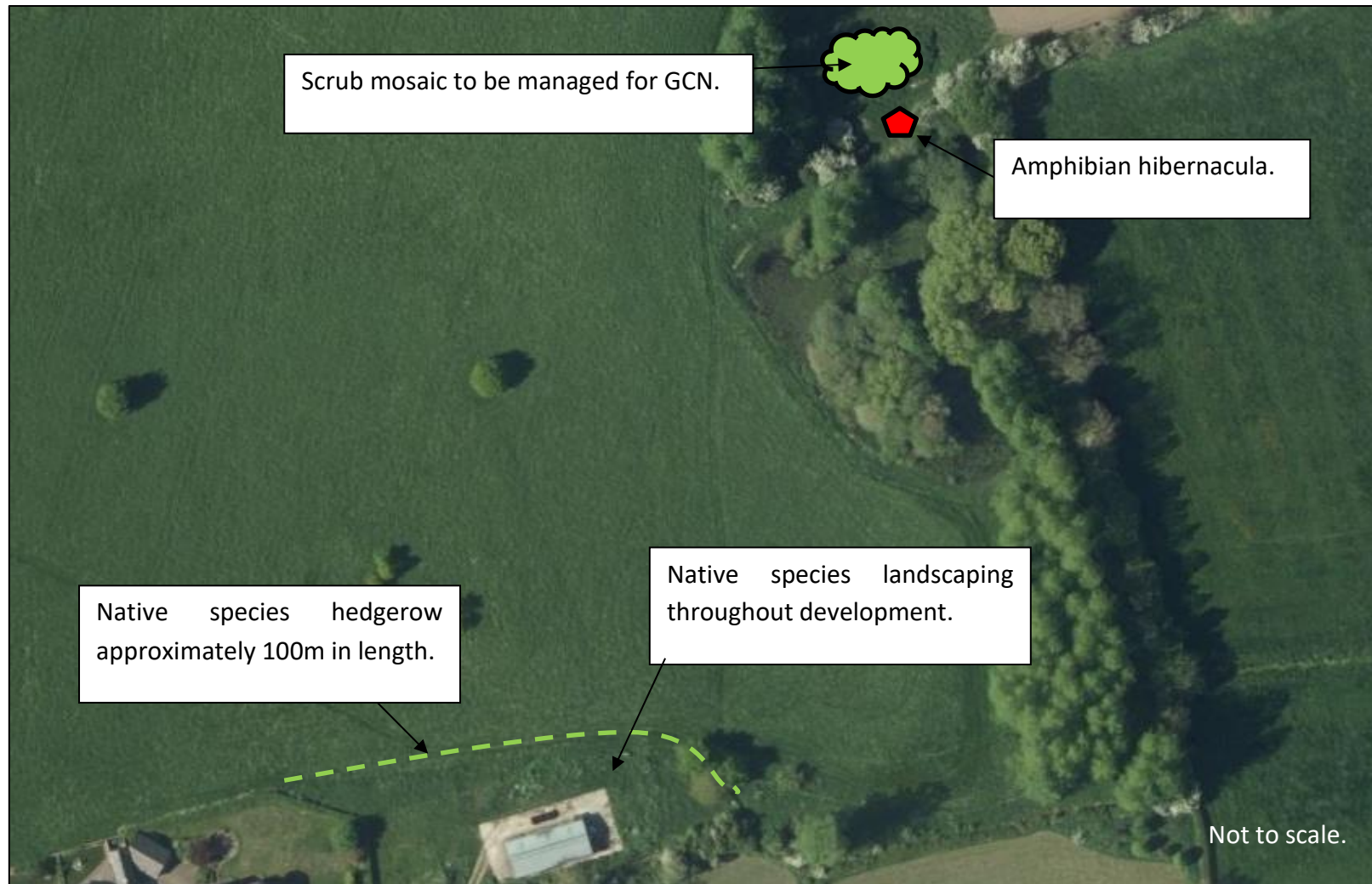


FIGURE 5 PROPOSED SITE PLAN



FIGURE 6 MITIGATION AND ENHANCEMENT



APPENDIX 1 PHOTOGRAPHS

	Existing access track.
	West hedgerow to be retained.
	Grassland and steel framed and clad agricultural building on site.

	Hedge and tree line opposite the south east boundary.
	Pond 1.
	Pond 2.



Pond 4.

APPENDIX 2 REASONABLE AVOIDANCE MEASURES METHOD STATEMENT

Induction of contractors

- A toolbox talk will be given to all site personnel in order to make them aware of the possible presence of GCN, how to identify this species and the avoidance measures to be used on site.
- A paper copy of the avoidance measures will be retained on site together with the contact details of the GCN licensed ecologist.

One-way fencing

- One-way fencing will be installed around the proposed development site boundary at least 30 days before works begin on site. The fencing will be installed as an avoidance measure. This will not include the existing access track as this area does not provide any suitable terrestrial habitat which may be in use by GCN.
- One-way fencing will be installed at a 45° angle to the ground, the fence making contact with the ground on the development side.
- A bespoke newt gate will be installed within the fence line to allow machinery to access the site whilst preventing GCN from gaining access to the site. The gate will consist of a heavy plastic flap secured to the base of a timber structure. The plastic flap will sit flush with the concrete ground and will be weighed down with sandbags overnight. The gate will be closed every evening after works have finished.
- The fence line will be marked on the ground using spray paint and all vegetation will be maintained at 10cm height or less in the lead-up to fencing.
- A licenced ecologist will carry out a finger-tip search of the fence line on the day it is installed to ensure that there are no GCN present on site.
- If GCN are found at any point during the search, works will not continue until a European Protected Species Mitigation Licence is obtained from NRW.

Timing & duration

- Works on site can begin once a period of 30 days has passed after one-way amphibian fencing has been installed.
- All works will take place during daylight hours when GCN are unlikely to be moving around the area.

Site clearance

- All improved grassland to be disturbed on site will be cut to, and maintained at, a height of 10cm in order to reduce the number of potential resting/feeding opportunities on site. This will be carried out at least 45 days before one-way fencing is installed.
- Any stored materials will be removed from site during the GCN active season between March and October or when night time temperatures are 5°C or above. This will aim to remove any materials which could act as a refuge for GCN.

Site compound

- The site compound will be situated on an area of existing hard-standing to avoid creating GCN resting places beneath stored materials etc.
- All site materials will be stored on pallets or other raised objects to avoid creating resting places/refuges for GCN.
- Any toxic or poisonous materials will be safely stored within a locked container.

Construction methods and special precautions

- All excavations on site will be covered at night or ramps will be provided to allow amphibians to exit excavations. All excavations will be checked for amphibians each morning prior to the re-commencement of works.
- All exposed new pipework and drains will be capped at night so as to avoid trapping amphibians.
- All excavated materials/waste will be stored in skips or similar and not on the ground where it could be used as a refuge/resting area by amphibians. Alternatively, all waste will be removed from site daily.
- All stored building materials that might be used as temporary resting places by amphibians will be stored off the ground on pallets or similar.

If GCN are found at any point during the development or activities outlined above, works must stop and an appropriately qualified ecologist should be contacted for advice, as well as Natural Resources Wales.

Contractors are prohibited from handling GCN.