

# COG MOORS WWTW – PROPOSED ADVANCED ANAEROBIC DIGESTION (AAD) PLANT

## Reptile Survey Report

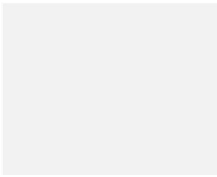
NOVEMBER 2017

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# COG MOORS WWTW – PROPOSED ADVANCED ANAEROBIC DIGESTION (AAD) PLANT

## Reptile Survey Report

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Report No 4798-S-202-HYD-XX-XX-RP-NX-10168

Date NOVEMBER 2017

## VERSION CONTROL

Version	Date	Author	Changes
1	August 2017	Porscha Thompson	Issue of interim survey report for pre-application
2	November 2017	Lucy Fay	Issue of final report to accompany planning application

This report dated 01 November 2017 has been prepared for Dwr Cymru Welsh Water (the “Client”) in accordance with the terms and conditions of appointment dated 01 July 2014 (the “Appointment”) between the Client and **Arcadis Consulting (UK) Limited** (“Arcadis”) for the purposes specified in the Appointment. For avoidance of doubt, no other person(s) may use or rely upon this report or its contents, and Arcadis accepts no responsibility for any such use or reliance thereon by any other third party.

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## **Non-technical Summary**

Surveys were undertaken to determine the presence/likely absence of reptiles within the footprint of the proposed Development at Cog Moors Wastewater Treatment Works.

The surveys found no reptiles, only common toad and common frog.

No specific mitigation for reptiles is required; however, vegetation clearance will be carried out in phases and under ecologist supervision as a precautionary approach to avoid harm/injury to reptiles and amphibians.

## Executive Summary

This report presents the results of reptile surveys associated with the proposed Advanced Anaerobic Digestion (AAD) plant at Cog Moors Wastewater Treatment Works (WwTW) undertaken by Arcadis Consulting (UK) Ltd on behalf of Dŵr Cymru Welsh Water.

The proposed AAD plant comprises a number of new processes, storage tanks and buildings, together with the demolition of and modifications to some existing items of plant, equipment and infrastructure.

Surveys undertaken in 2006 and 2007 by Cresswell Associates at the existing Cog Moors WwTW identified several areas within the site that were suitable to support reptiles including grassland and scrub in the centre of the WwTW site and also a soil mound within the proposed working area.

Preliminary Ecological Appraisals were previously undertaken by Mott MacDonald Bentley in October 2016 and Arcadis Consulting (UK) in November 2016. No records of reptiles were identified within 2 km of the proposed Development as part of the desk study. However, the field surveys identified suitable habitat within the site to support reptiles throughout the year. A reptile survey was therefore undertaken to determine if reptiles are present within the site boundary.

The aims of the current study were to establish the presence/likely absence of reptiles and, where present, estimate population size within the working area in order to identify potential constraints to the proposed works and provide recommendations for appropriate mitigation.

Reptile surveys of the proposed working area comprising checks of artificial refugia were undertaken following best practice guidelines (The Herpetofauna Workers Manual). Surveys were undertaken on seven occasions between April 2017 and August 2017 by experienced ecologists.

No reptiles were recorded within the site, although the site was found to support common toad (*Bufo bufo*) and common frog (*Rana temporaria*).

No specific mitigation for reptiles is required, although staged and supervised vegetation clearance (recommended as a precautionary approach due to potential for amphibians to be present) will also serve to mitigate against harm/injury to reptiles if discovered unexpectedly. In addition, all contractors would receive a toolbox talk prior to commencing the proposed works in case of reptiles being unexpectedly discovered.

Survey findings and mitigation for amphibians are documented within the Cog Moors WwTW – Proposed Advanced Anaerobic Digestion (AAD) Plant - Great Crested Newt Survey Report 4798-S-202-HYD-XX-XX-RP-NX-10169.

# 1 Introduction and aims

This report presents the results of reptile surveys associated with the proposed Advanced Anaerobic Digestion (AAD) plant at Cog Moors Wastewater Treatment Works (WwTW), undertaken by Arcadis Consulting (UK) Ltd on behalf of Dŵr Cymru Welsh Water.

The aim of the survey was to establish the presence/likely absence of reptiles and, where present, estimate population size within the site boundary in order to identify any potential constraints to the proposed Development and provide recommendations for appropriate mitigation measures.

## 2 Background information and proposed development

### 2.1 Site Location

The site is located in the Vale of Glamorgan south of Dinas Powys at grid reference ST 16327 69571 (see Drawing 4798-S-202-HYD-XX-XX-DR-NX-08017 for the location and survey boundary).

Cog Moors WwTW is situated to the east of the A4055 Cardiff Road, approximately 2km east of Barry and 1km south of Dinas Powys.

The site contains both concrete and steel process tanks, together with a series of process and control buildings and associated items of plant and equipment.

Vehicular and pedestrian access to the site is gained via a private road (Green Lane), which runs in a south easterly direction from its junction with the A4055.

The WwTW site is located within a low lying landscape, characterised by flat fields separated by ditches. The land rises steeply to the north of the WwTW site (Pop Hill) and is intermittently wooded.

The nearest residential properties to the WwTW site are located at Downs Farm and Brook Cottage, approximately 230m and 290m to the east, respectively. Other residential properties are located, at distances of more than 0.5km, on Ashby Road to the south, along Cross Common Road to the north east and along Sully Road and Cog Road to the east and south, respectively.

The WwTW is well screened in the surrounding landscape, and from most of the surrounding roads and properties, by the localised topography and by existing hedgerows and trees. The only significant views of the WwTW are from nearby public footpaths.

The land use within the immediate surrounding area is predominately agricultural with a residential/industrial estate to the north-east.

### 2.2 Proposed Development

The proposed AAD plant comprises a number of new process and storage tanks and buildings, together with the demolition of and modifications to some existing items of plant and equipment.

The proposed Development is shown on Drawing 4798-S-202-HYD-XX-XX-DR-XX-06120.

The proposed Development would provide for:

- Additional digestion capacity;
- Conditioning of the sludge generated on the site (dewatering and removal of contaminating rags and plastic);
- Reception facilities for sludge imported to the site from satellite WwTWs;
- Blending of the indigenous sludge and imported sludge;
- A thermal hydrolysis plant (THP), which uses steam to increase the temperature and pressure in a reaction vessel to pre-treat the sludge;
- Boilers to generate the steam for thermal hydrolysis;
- A siloxane plant to remove contaminants from the biogas generated;

- A combined heat and power (CHP) plant to generate useable heat and electricity, which can be used on site, exported to the grid, or both;
- A UV plant to treat some of the final effluent water from the WwTW, to provide better quality process water, for the sludge downstream of thermal hydrolysis;
- Tanks to hold sludge and liquor, resulting from the thickening and dewatering processes;
- A cake storage silo;
- Odour control equipment;
- New internal site access roads and drainage;
- Site clearance and earthworks and new fencing;
- New MCC equipment and control kiosks; and
- Appropriate mitigation planting and ecological mitigation measures.

The proposed Development will not involve the use of any hazardous substances in notifiable quantities.

The proposed AAD plant will operate in conjunction with the existing sewage sludge treatment facilities and is located, therefore, on the eastern side of the existing Cog Moors WwTW, adjacent to the existing sewage sludge treatment infrastructure.

Part of the proposed AAD plant would be located within the existing operational area of the WwTW. The balance of the proposed Development would be sited immediately to the east of the existing operational area, on an area of woodland, scrub and ruderal vegetation. This area immediately adjacent to the existing WwTW (Cog Moors Site of Importance for Nature Conservation (SINC)) is designated for its series of species-rich rush pastures.

Temporary construction compounds would be sited on an area of mown grassland, immediately adjacent to the existing final settlement tanks, and on an area of grassland within Cog Moors SINC to the east of the proposed AAD plant.

Vehicular access to the proposed Development would continue to be gained from the A4055 via Green Lane.

In addition, an upgrade to the electricity connection will be required.

## 2.3 Review of Existing Information

Surveys undertaken in 2006 and 2007 by Cresswell Associates at the existing Cog Moors WwTW (Ref 1 and Ref 2) identified several areas within the site that were suitable to support reptiles including grassland and scrub within the centre of the WwTW site and also a soil mound within the proposed working area.

A Preliminary Ecological Appraisal of the existing WwTW was undertaken in October 2016 by Mott McDonald Bentley (Ref 3) including a desk study which was undertaken in order to identify any existing ecological information relating to the proposed Development site and its surroundings. The South East Wales Biological Recording Centre (SEWBRc) were consulted to obtain any records of protected species or species of conservation concern within 2 km of the proposed Development site. Their desk study found no records of reptiles within 2 km of the site.

A Preliminary Ecological Appraisal (dated November 2017) was produced by Arcadis Consulting (UK) Ltd (Ref 4), focusing on the proposed working area.

No evidence of reptiles was recorded on site during either of the Preliminary Ecological Appraisals; however, the site was found to contain suitable habitat to support reptile species including four hibernacula of which three are located within the proposed works area in woodland and scrub.

## 3 Legislation

All native common reptile species (slow worm (*Anguis fragilis*), common lizard (*Zootoca vivipara*), grass snake (*Natrix natrix*) and adder (*Vipera berus*)) are partially protected under Section 9 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to intentionally kill or injure any of the above species and to



sell, buy, or advertise any live or dead reptile, any part thereof, or anything derived from these animals (Ref 5).

Section 7 of the Environment (Wales) Act 2016 lists the living organisms of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales and includes all four reptile species listed above. Section 6 of the Environment (Wales) Act 2016 places a duty on all public authorities (including statutory undertakers) to “seek to maintain and enhance biodiversity” and to “promote the resilience of ecosystems” (Ref 6).

Policy MG21 of the Local Development Plan (Ref 7) states that:

“Development proposals likely to have an adverse impact on Priority species will only be permitted where it can be demonstrated that:

1. The need for the development clearly outweighs the nature conservation value of the site;
2. Adverse impacts on nature conservation and geological features can be avoided;
3. Appropriate and proportionate mitigation and compensation measures can be provided; and
4. The development conserves and where possible enhances biodiversity interests.”

## 4 Methodology

In accordance with the guidance outlined in the Herpetofauna Workers Manual (Ref 8), surveys were undertaken to establish the presence or likely absence of reptile species within the construction footprint.

Fifty five artificial refugia (squares of roofing felt measuring at least 50 x 50 cm) were laid on 8<sup>th</sup> March 2017 in areas of suitable habitat identified during the Preliminary Ecological Appraisals (i.e. ruderal vegetation and grassland/woodland margins) that were deemed least likely to be tampered or interfered with and left to “bed-in” for several weeks, giving time for the vegetation to grow around them and for them to be discovered by reptiles.

The reptile refugia were checked on seven occasions, between April 2017 and August 2017 (see full survey details in Appendix A). The surveys were undertaken when the air temperature was between 9°C and 17°C. Surveys did not take place during heavy rain or during periods with high wind.

During the surveys, each refugia was first checked for basking individuals from a distance before being slowly approached and searched for sheltering reptiles beneath. The proposed methodology included the recording of the species, numbers, sex, age class and location of reptiles if found.

## 5 Survey Constraints

Only 31 of the reptile refugia were found during the fourth survey and 35 refugia were found on the fifth survey, due to surrounding vegetation (predominantly tall ruderal) having grown tall and dense. These areas are generally less suitable for reptiles as there are fewer places to bask. There remains a reasonable number of refugia in each survey area to ensure reliable survey results.

Only 19 of the reptile refugia were found during the sixth survey, due to surrounding vegetation (predominantly tall ruderal) having grown further. There remained a reasonable number of refugia in Areas 2 and 4 (see Drawing 4798-S-202-HYD-XX-XX-DR-NX-08017) to ensure reliable survey results. Only 1 refugia was found in Area 5 and no refugia were found in Area 3; however, this is not considered a constraint to the survey as these areas are generally less suitable for reptiles as there are fewer places to bask.

Ground Investigation (GI) works were underway within Area 1 (see Drawing 4798-S-202-HYD-XX-XX-DR-NX-08017) during the sixth survey. Area 1 had been largely cleared of vegetation w/c 31<sup>st</sup> July 2017 (under ecological method statement and supervision) to reduce the risk of any harm/injury to reptiles during the GI works. 20 refugia were removed from north of Area 1 during the vegetation clearance and this area was not subject to further survey. The five remaining refugia in the south of Area 1 remained in-situ and were checked during surveys six and seven.

Of the 35 original reptile refugia remaining after GI works, only 18 were found during the final survey, due to surrounding vegetation (predominantly tall ruderal) having grown further. There remained a reasonable

number of refugia in Areas 2 and 4 (see Drawing 4798-S-202-HYD-XX-XX-DR-NX-08017) to ensure reliable survey results. As with the sixth survey, Areas 3 and 5 contained very few/no refugia although these areas are generally considered less suitable for reptiles.

## 6 Results

No reptiles were found during the surveys.

Area 2 (mound covered with tall ruderal) and Area 3 (broadleaved plantation woodland) in the south of the existing WTW (and within the construction footprint) (see Drawing 4798-S-202-HYD-XX-XX-DR-NX-08017) were found to support common toad (*Bufo bufo*) (listed under Section 7 of the Environment (Wales) Act 2016 (Ref 6)).

Area 2 was also found to support common frog (*Rana temporaria*).

The full survey results can be found in Appendix A.

## 7 Conclusions

No reptiles were recorded within the site although the site was found to support common toad and common frog.

## 8 Mitigation

No specific mitigation for reptiles is required, although a staged approach to vegetation clearance will be carried out due to potential for amphibians (notably great crested newt (*Triturus cristatus*)) to be present. This will mitigate against harm/injury to reptiles should they be present in very low numbers not detectable during surveys. The clearance methodology is documented in the Great Crested Newt Report (Ref 9).

Should reptiles be found during vegetation clearance works the following process will be followed:

- Works will be temporarily halted;
- The reptile will be allowed to move out of the area on its own accord;
- If the reptile does not move on its own accord, it can be carefully moved by hand by the ecologist, taking care to avoid any injury, and placed in suitable cover (e.g. grass tussock / beneath scrub) within the immediate surroundings but where the reptile will not be harmed by the works or susceptible to predation.

### 8.1 Toolbox Talk

All contractors would be provided with a toolbox talk prior to construction works commencing on the site. The toolbox talk would cover the action to be taken in the event of discovering reptiles unexpectedly.

## 9 References

Ref 1: Cresswell Associates (2006). Proposed Extension of Cog Moors WwTW, Vale of Glamorgan: Supplementary Report to the Ecological Impact Assessment.

Ref 2: Cresswell Associates (2007). Cog Moors WwTW: SSSI Grassland Translocation - Ecological Site Supervision.

Ref 3: Mott MacDonald Bentley (2016). Cog Moors WwTW South Sludge Strategy - Preliminary Ecological Appraisal (P02).

Ref 4: Arcadis Consulting (UK) Ltd (2017). Cog Moors WwTW - Proposed Advanced Anaerobic Digestion (AAD) Plant. Addendum Preliminary Ecological Appraisal (Rev 4) (Report number 4798-S-202-HYD-XX-XX-RP-NX-10406).

Ref 5: Wildlife and Countryside Act 1981 (as amended). HMSO.

Ref 6: Environment (Wales) Act 2016. HMSO.

Ref 7: Vale of Glamorgan Council (2017). Vale of Glamorgan Local Development Plan 2011-2026. Written Statement.

Ref 8: Gent, T., and Gibson, S. (2003). Herpetofauna Workers Manual. Published by the Joint Nature Conservation Committee (JNCC).

Ref 9: Arcadis Consulting (UK) Ltd (2017). Cog Moors WwTW - Proposed Advanced Anaerobic Digestion (AAD) Plant. Great Crested Newt Survey Report (version 3) (Report number 4798-S-202-HYD-XX-XX-RP-NX-10169).

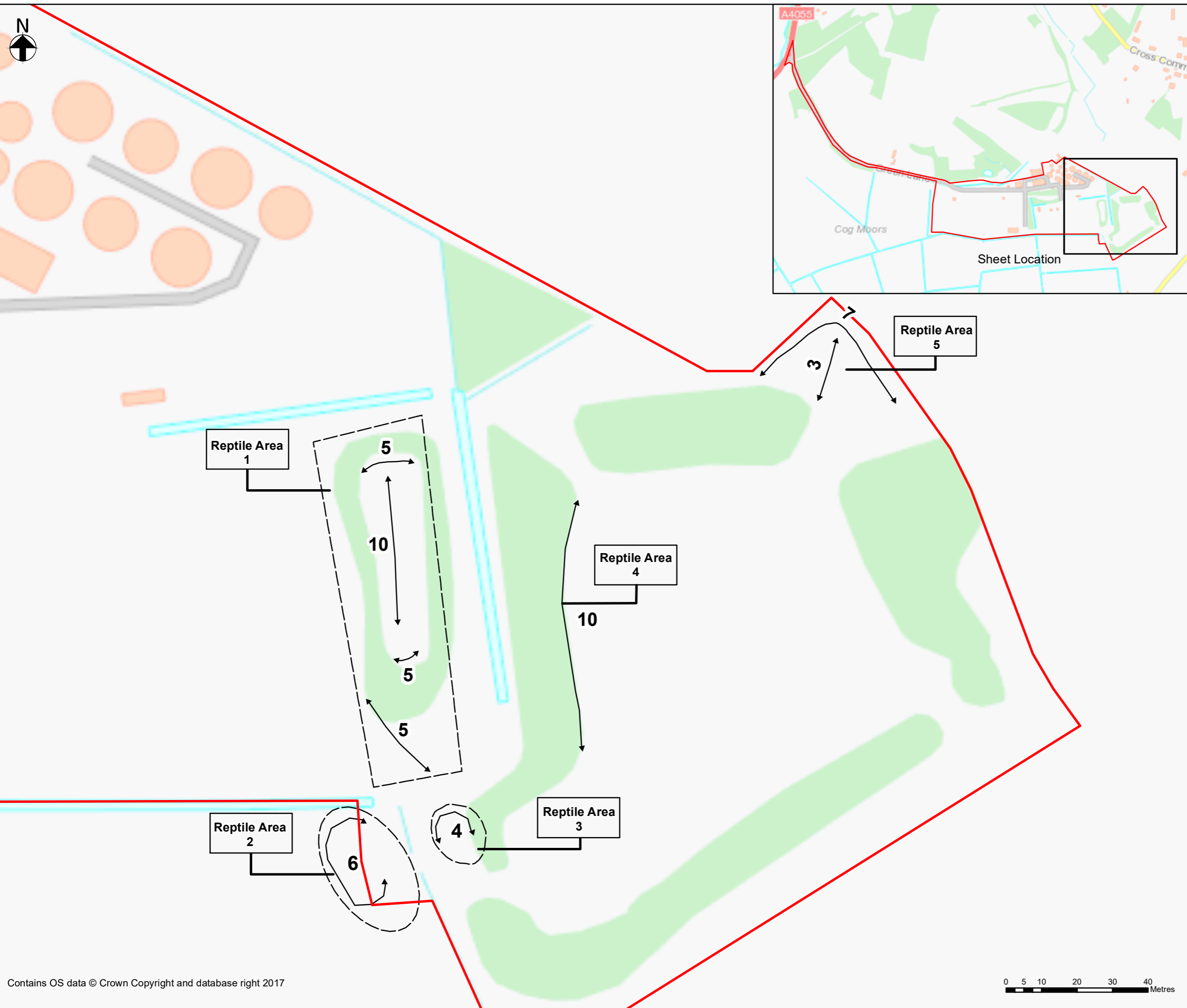
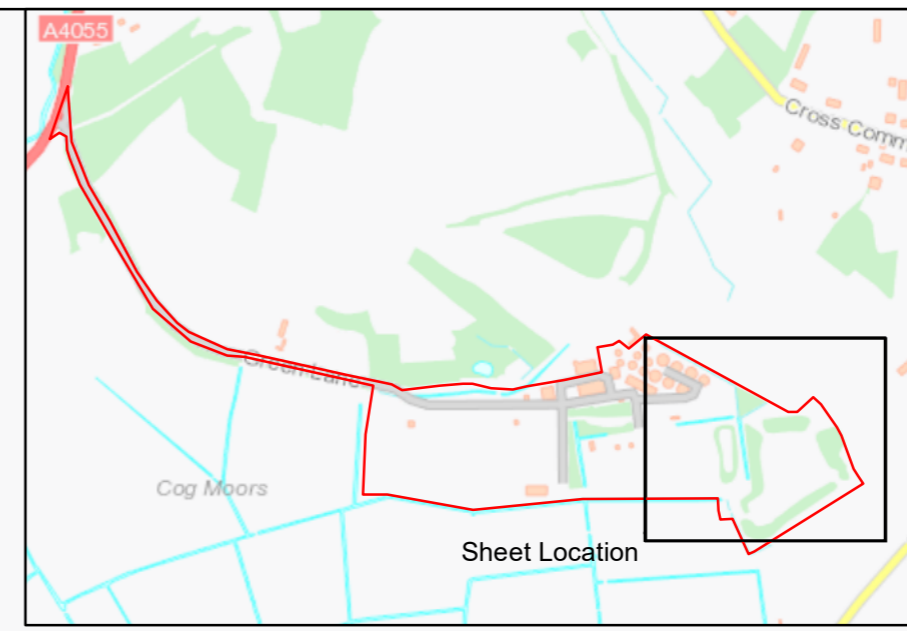
## **DRAWINGS**

**Drawing 4798-S-202-HYD-XX-XX-DR-NX-08017 - Reptile Refugia Locations**



**LEGEND**

- Planning Application Boundary
- Reptile Refugia Location
- Reptile Refugia Area



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Rev.	Date.	Drawn	Description.	Chkd.	Appd.	Date.
01	14JUN17	AH	Reptile Refugia Locations	PT		14JUN17



Ty Awon, Spooner Close, Coed Kernew, Newport, NP108FZ

Project Name: Cog Moors WwTW

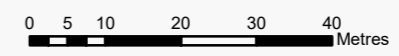
Drawing Title: Reptile Refugia Locations

Suitability: For Information      Suitability Code: S2

Originator: A.Hankinson      Designer: P.Thompson      Date: 14JUN17

Internal Project Number: UA007902      Scale: 1:1,000      Rev: 01

Drawing Number: 4798-S-202-HYD-XX-XX-DR-NX-08017



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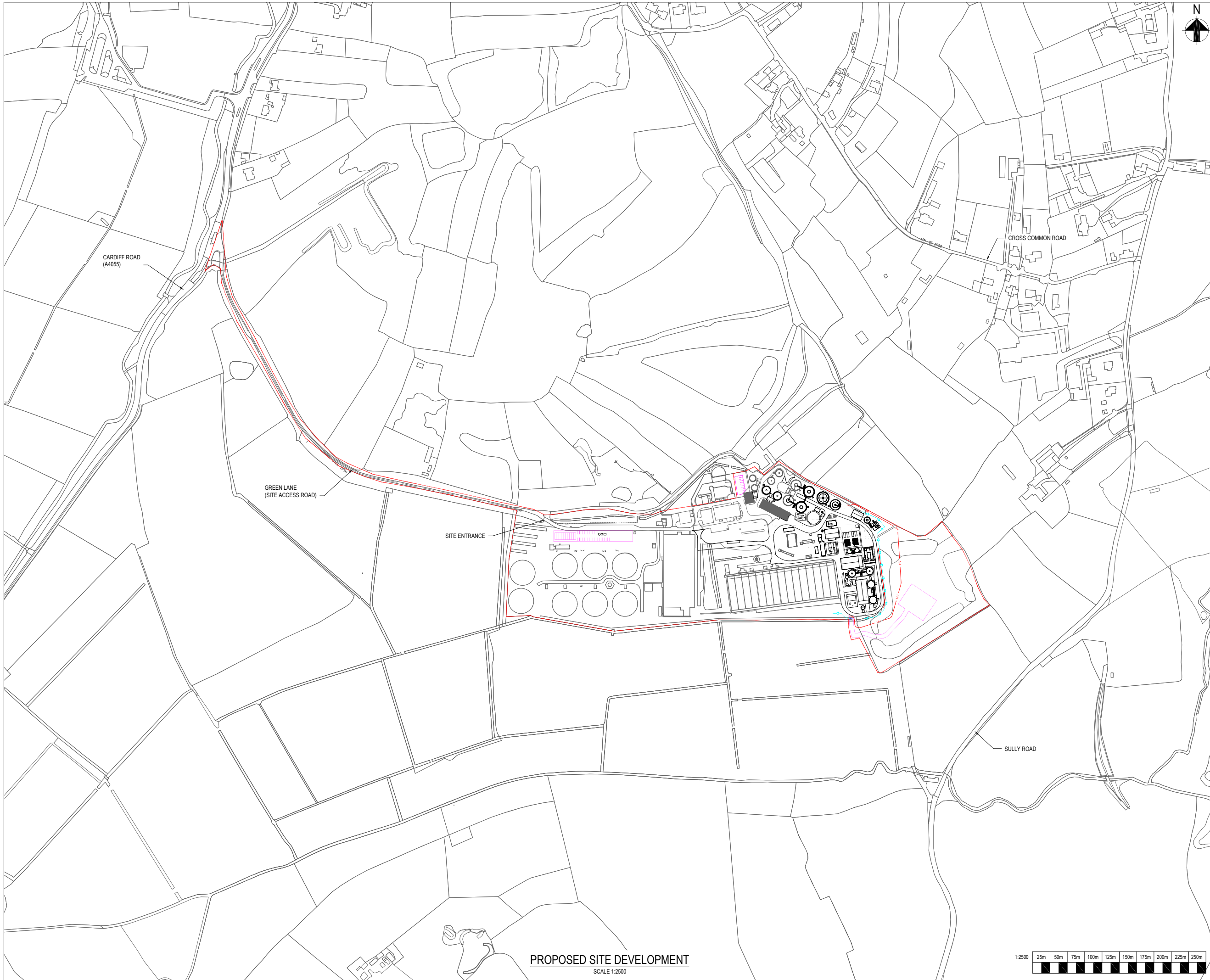
THIS MAP IS BASED UPON THE ORDNANCE SURVEY MATERIAL WITH THE PERMISSION OF THE CONTROLLER OF HER MAJESTY'S STATIONARY OFFICE. © CROWN COPYRIGHT 2010. LICENCE NUMBER

**Drawing 4798-S-202-HYD-XX-XX-DR-XX-06120 – Proposed Site  
Development**

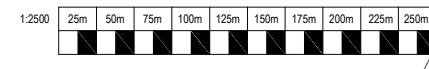


- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
  2. ALL LEVELS ARE IN METERS ABOVE GROUND LEVEL.
  3. DO NOT SCALE FROM THIS DRAWING.

- LEGEND:**
- PLANNING APPLICATION BOUNDARY
  - EXISTING
  - PROPOSED
  - TEMPORARY CONTRACTORS COMPOUND
  - PROPOSED SECURITY FENCE TO TIE INTO EXISTING FENCE LINE



**PROPOSED SITE DEVELOPMENT**  
SCALE 1:2500



P02	17/10/17	DP	FOR INFORMATION	YF	MN	17/10/17
P01	21/08/17	DP	FOR INFORMATION	YF	MN	21/08/17
Rev.	Date.	Drawn	Description	Chkd	Appd.	Date.



Ty Awen, Spooner Close, Coad Kernew, Newport, NP108FZ

Project Name: **COG MOORS WwTW AAD**

Drawing Title: **PROPOSED SITE DEVELOPMENT**

Suitability: **ISSUED FOR INFORMATION** Suitability Code: **S2**

Originator: <b>DP</b>	Designer: <b>RN</b>	Date: <b>17/10/17</b>
Internal Project Number: <b>UA007902</b>	Scale: <b>1:2500</b>	Rev: <b>P02</b>

Drawing Number: **4798-S-202-HYD-XX-XX-DR-XX-06120**

## APPENDICES

### Appendix A - Reptile Survey Results

Visit	1	2	3	4	5	6	7
Date	04/04/2017	27/04/2017	03/05/2017	15/06/2017	26/06/2017	11/08/2017	30/08/2017
Start time	10:00	12:00	10:00	8.30	10:00	10:30	09:30
End Time	11:00	14:00	10:45	9.30	11:00	11:15	10:30
Temperature and weather conditions	12°C Dry, sunny at the start then became overcast throughout the day	14°C Cloudy, dry, slight breeze	14°C Dry, partially cloudy, breezy	16°C Overcast and breezy, clearing to patchy cloud and sunny spells	17°C Partially cloudy	16°C Overcast, occasional breeze	12°C Overcast, dry
Reptiles found	0	0	0	0	0	0	0
Other species recorded	Common toad	Common toad	0	Common toad Field/wood mouse	0	Common frog	0



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