



Dŵr Cymru
Welsh Water

Cwmwernderi Valves and Pipework

Bat Report

January 2022

MMB

B14504-123532-12-XX-RP-NB-
EI0046

Prepared by MMB on behalf of
Welsh Water

MMB

MOTT MACDONALD
BENTLEY

Document control

Cwmwernderi Reservoir - PEA				
MMB				
Version	Purpose	Author	Approved By	Date
1	To support licence application (S089310-1)	Elliott Hughes	Richard Crompton	February 2021
2	To support planning response	Elliott Hughes	Rhodri Jones	January 2022

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1. Background

Mott MacDonald Bentley Limited (MMB) has been commissioned by Dŵr Cymru Welsh Water Limited (DCWW) to provide advice on essential improvement works at Cwmwernderi Reservoir. As part of the design process for this scheme MMB have undertaken an Ecological Constraints Survey of the site and its immediate surroundings in order to understand any ecological constraints that may be placed upon any proposed construction activity. The ecological constraints survey indicated that the reservoir scour tunnel had high potential for roosting bats, including hibernation potential.

The following surveys and actions have been undertaken as the scheme has progressed:

- A structural survey of the scour tunnel in 2015 indicated that the tunnel was in a poor condition and required further structural and geological surveys.
- Bat surveys were undertaken in 2018 and 2019 to inform a bat licence which would allow further assessment of the scour tunnel to take place.
- As a result of the findings of the 2019 structural survey which was undertaken under licence (S086363/1), work was required on the pipework inside the scour tunnel.
- Further bat surveys were commissioned in 2020 to support a second licence application (S089310-1), tunnel visits were undertaken in 2021 as part of this licence.

There is a requirement to replace the pipework and seal the entrance to the scour tunnel for safety reasons. Further surveys and an EPS licence will be required for this work.

2. Methodology

Static Anabat Express bat detectors were installed at the entrance to the scour tunnel (Lat 51.5989, Long - 3.71234) between December 2018 and February 2019 and then again in November 2020 to check for hibernating bats, see Table 1 below for dates.

Table 1: Static Bat Detector Survey Dates

Survey Number	Dates Recording
1	18 th – 27 th December 2018
2	15 th – 28 th January 2019
3	8 th – 19 th February 2019
4	10 th – 18 th November 2020

Source: Mott MacDonald Bentley

In addition, a camera trap was installed for the duration of the third survey.

The scour tunnel was surveyed on the following dates during supervision works under licences S086363/1 and S089310-1. The entire scour tunnel was walked each morning by the Ecologist to check the numbers of bats present.

Table 2: Tunnel Supervision Survey Dates

Survey Number	Dates Tunnel Surveyed
1	22/05/2019
2	23/05/2019
3	30/05/2019
4	31/05/2019
5	29/06/2021
6	30/06/2021
7	01/07/2021
8	02/07/2021

Source: Mott MacDonald Bentley

Internal surveys are scheduled for January and February 2022 to determine the roost size during the hibernation period.

2.1 Limitations

It is difficult to confidently relate calls registered to numbers of bats present, even if more than one bat pass is detected simultaneously. The number of bat passes does not therefore provide any indication of bat abundance; it is intended to only indicate the level of activity at a particular point.

There were no limitations or constraints to the internal surveys, other than that internal hibernation surveys have not yet been carried out due to restrictions regarding safe access and Covid-19. Hibernation surveys are scheduled for January and February 2022 and will inform the licence application and mitigation proposals for future work.

3. Results

3.1 Static survey results

A peak count of 47 lesser horseshoe (*Rhinolophus hipposideros*) calls were recorded by the static detector in one night on the 27th of December 2018, see Table 3 below.

Table 3: Static Results by Night (dates where nothing was recorded have been excluded)

Date	Species	Count
19/12/2018	LHS	21
20/12/2018	LHS	3
21/12/2018	LHS	6
22/12/2018	LHS	9
23/12/2018	LHS	5
24/12/2018	LHS	6
25/12/2018	LHS	8
26/12/2018	LHS	5
27/12/2018	LHS	47
19/01/2019	LHS	4
20/01/2019	LHS	4
23/01/2019	LHS	4
24/01/2019	LHS	2
25/01/2019	LHS	2
28/01/2019	LHS	5
12/02/2019	LHS	13
13/02/2019	LHS	21
14/02/2019	LHS	3
15/02/2019	LHS	3
16/02/2019	LHS	3
17/02/2019	LHS	19
18/02/2019	LHS	3
19/02/2019	LHS	9
12/11/2020	LHS	2
13/11/2020	LHS	14
14/11/2020	LHS	7
15/11/2020	LHS	6
16/11/2020	LHS	10
17/11/2020	LHS	7
18/11/2020	LHS	4

Source: Mott MacDonald Bentley

The camera trap recorded what appeared to be one bat flying past the camera on four occasions. Based on the camera trap footage, it is considered likely that the calls recorded by the statics originated from a small number of lesser horseshoe bats.

3.2 Internal survey results

The eight scour tunnel entry visits recorded a peak count of one lesser horseshoe bat.

Table 4: Internal supervision surveys

Date	Species	Count
22/05/2019	LHS	1
23/05/2019	LHS	1
30/05/2019	LHS	1
31/05/2019	LHS	1
29/06/2021	LHS	0
30/06/2021	LHS	0
01/07/2021	LHS	0
02/07/2021	LHS	0

Source: Mott MacDonald Bentley

4. Recommendations

Mitigation will be required to undertake the proposed dam safety works. The scheduled hibernation surveys combined with the existing spring/summer survey information will determine the mitigation required.

A bat house based on a design used in the Forest of Dean¹ paired with an internal ‘cool tower’ has been proposed. The roost has been designed based on the existing survey information and proposals (see Appendix A). Detailed design will be undertaken during the licence application process.

Post-development monitoring of the bat house will be required as part of the licence.

5. References

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

¹ [Lesser Horseshoe Bat Night Roosts - Forest of Dean - Bat Conservation Trust \(bats.org.uk\)](https://bats.org.uk/forest-of-dean-bat-night-roosts/)

A. Photographs of the roost

Photograph 1: Scour tunnel portal and roost entrance



Photograph 2: Scour tunnel and pipe – a single bat has been recorded hanging from the ceiling of the tunnel



B. Proposed bat house design

NOTES:

1. NO DIMENSIONS ARE TO BE SCALED FROM THIS DRAWING.
2. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS STATED OTHERWISE.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS AND SPECIFICATIONS.
4. ANY SOFT SPOTS SHALL BE EXCAVATED AND REPLACED WITH WELL COMPACTED GRANULAR MATERIAL.

KEY:

 AREA WITHIN DCWW BOUNDARY

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS / RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING:

CONSTRUCTION - GENERAL

CONSTRUCTION - RESERVOIR SPECIFIC:

CONSTRUCTION - ENVIRONMENTAL

MAINTENANCE / CLEANING / OPERATION:

DECOMMISSIONING / DEMOLITION:

REFER TO THE DHEMR & IMS SUMMARY FOR FURTHER DETAILS. IT IS ASSUMED THAT ALL THE WORKS ON THIS DRAWING WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WHO HAS CARRIED OUT A COMPREHENSIVE RISK ASSESSMENT.

P03	11.01.22	DR	FOR INFORMATION	PRC	MJM	13.01.22
P02	15.10.21	DR	FOR INFORMATION	PRC	MJM	15.10.21
Rev.	Date.	BIM.	Description.	Chk.	App.	Iss Date



Project Name.	CWMWERNDERI TOWER, PIPEWORK AND VALVES
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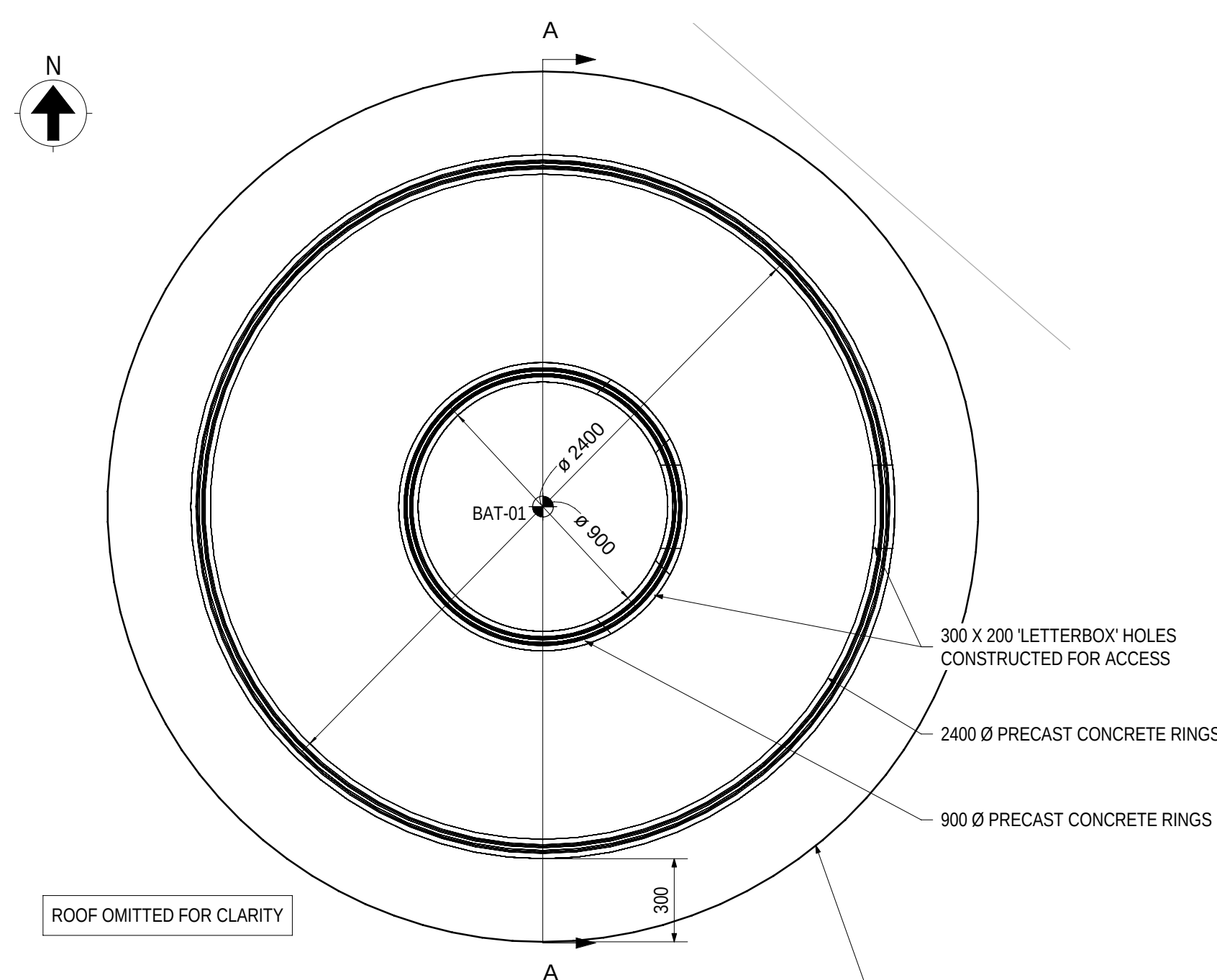
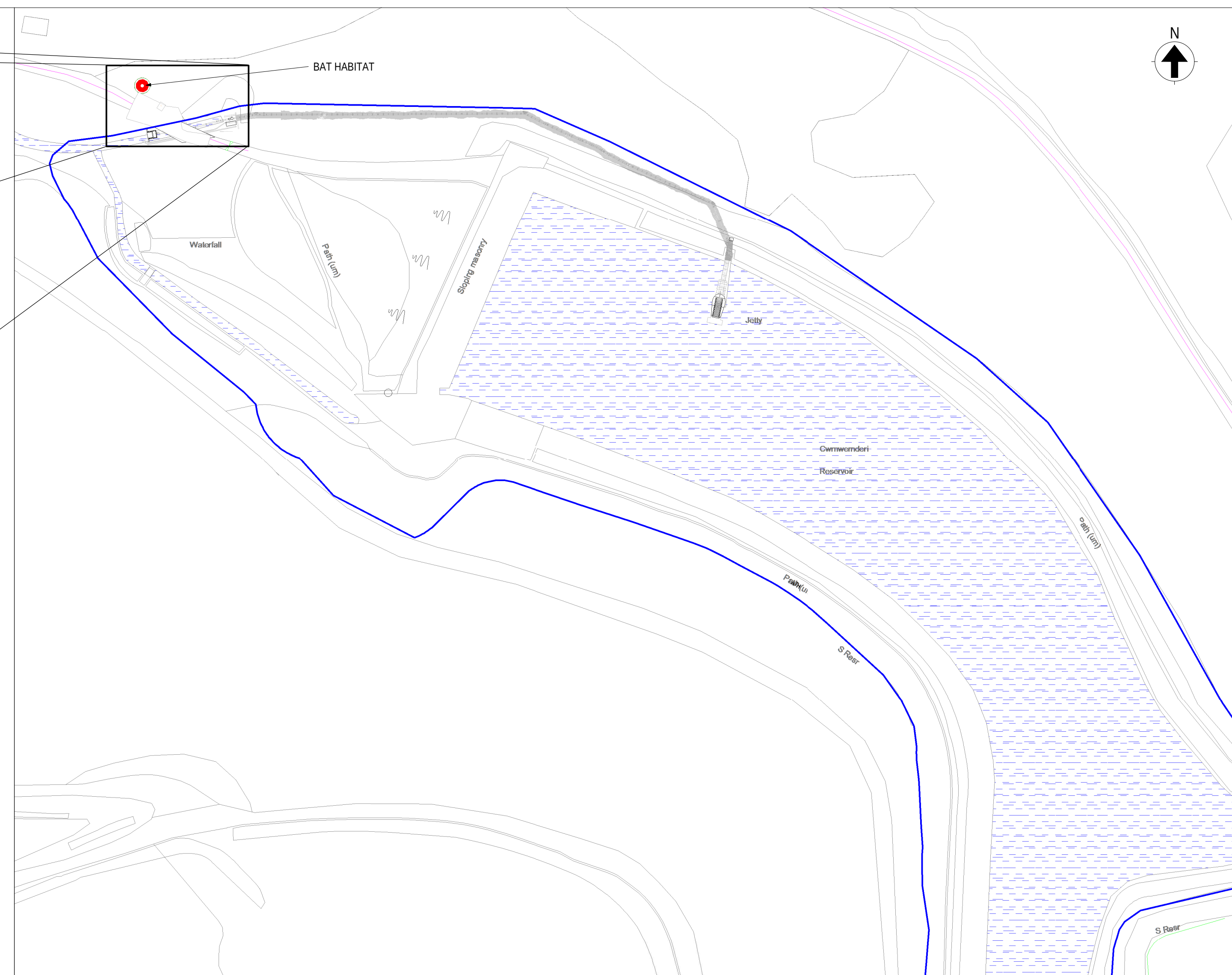
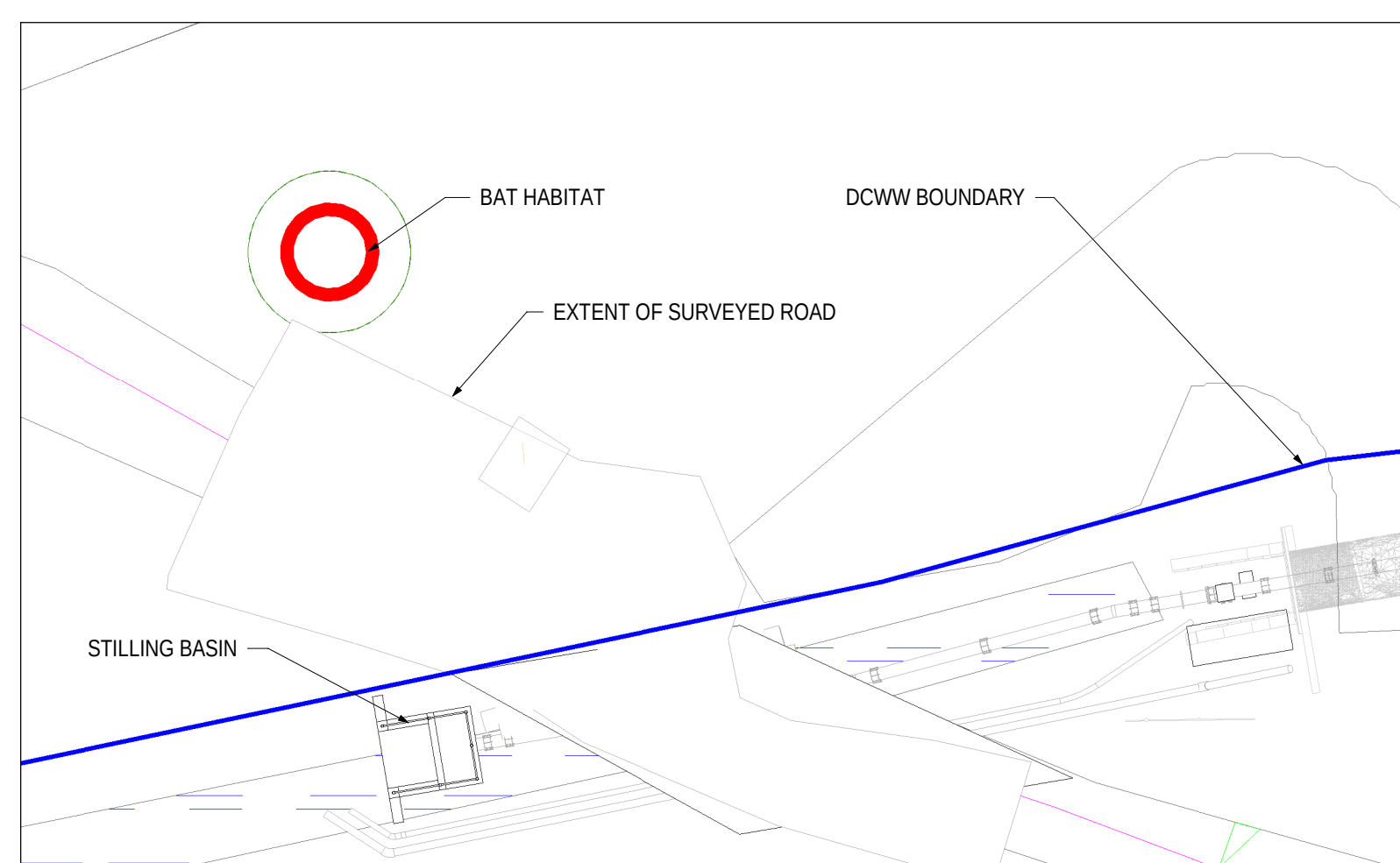
Drawing Title	BAT HABITAT GENERAL ARRANGEMENT
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Suitability.	Suitability Code
FOR INFORMATION	S2

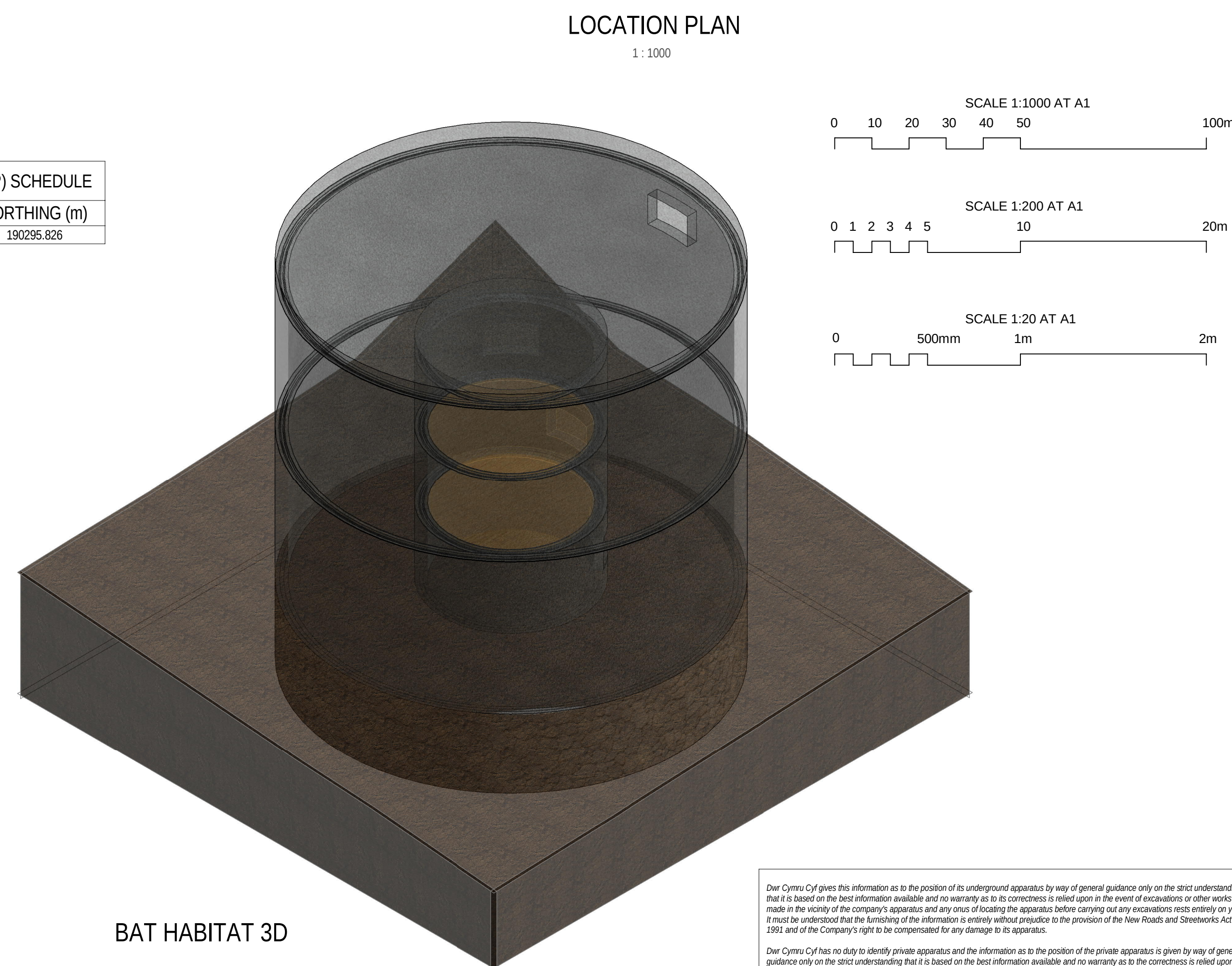
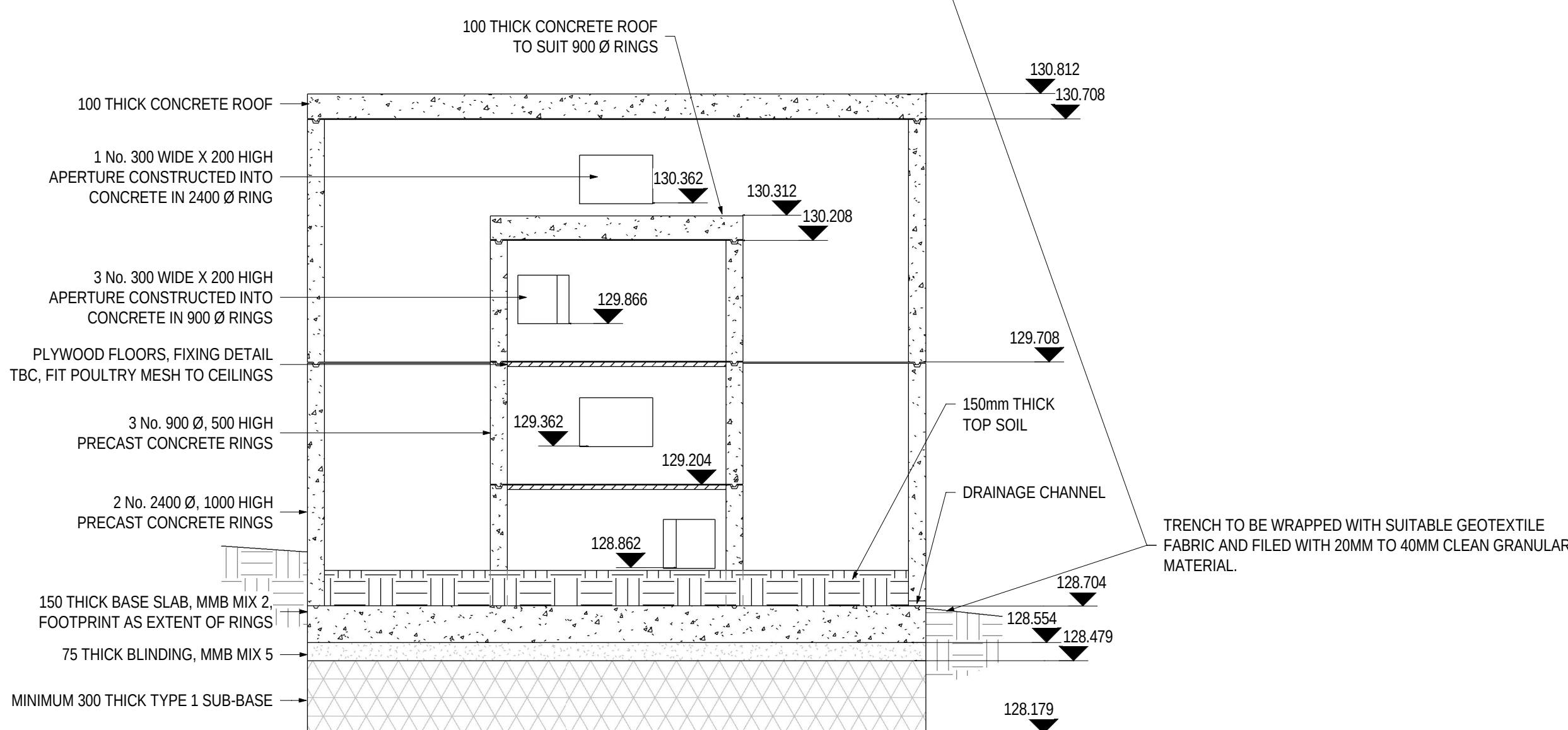
Originator.	Designer.	Date.
DR	EH	02.08.2017

Internal Project Number. ST34	Scale. As indicated @ A1	Rev. P03
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Drawing Number.
B14504-123532-XX-XX-DR-ZA-PN9012



BAT HABITAT SETTING OUT POINT (SOP) SCHEDULE		
SOP No.	EASTING (m)	NORTHING (m)
BAT-01	281466.310	190295.826



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