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Cumbria Metallurgical Coal Project

Updated Reptile Translocation and Habitat Creation Method Statement (Main Mine Site)

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Client	West Cumbria Mining
Project	Cumbria Metallurgical Coal Project
Version	FINAL
Project number	[P23-711] Updated Reptile Method Statement Main Mine Site

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Originated	Harry Glass	Ecologist	22 May 2024
Reviewed	Jim Gillespie	Director	07 June 2024
Approved for issue to client as a draft work in progress for discussion	Jim Gillespie	Director	07 June 2024
Issued to client	Harry Glass	Ecologist	07 June 2024
Issued to client following initial consultation with council ecologist	Harry Glass	Ecologist	14 June 2024
Issued to client as finalised document	Harry Glass	Ecologist	19 June 2024

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Contents

1 Summary

1.1 This document has been produced by BSG Ecology on behalf of West Cumbria Mining (WCM). It has been prepared to support WCM's development of a new underground metallurgical coal mine and associated development (Cumbria County Council (CCC) planning reference 4/17/9007), which has now been granted planning permission subject to conditions. The relevant planning authority is now Cumberland Council (CC).

1.2 The proposed development is located to the south of the town of Whitehaven, in west Cumbria. The development is divided into several key areas, including the Main Mine Site (MMS), totalling approximately 22.9 hectares (ha) at a central Ordnance Survey Grid Reference of NX 96653 15708. The MMS boundary is displayed in Figure 1.

1.3 Translocation Site 1 (TS1) is an area immediately west of the MMS (outside of the planning boundary) totalling approximately 3.9 ha at central Ordnance Survey Grid Reference of NX 96427 15560. The boundary of Translocation Site 1 is displayed in Figure 1.

1.4 This document has been prepared specifically to address the elements of Secretary of State Condition 8 that relate to reptiles and TS1:

> *No development shall take place until details of a scheme for habitat creation, maintenance, monitoring and management (HCMMM) has been submitted to and approved in writing by the Mineral Planning Authority. The HCMMM scheme shall include details of:*
>
> *a) Reptile Survey and Mitigation Plan prior to commencement of any remediation, site investigation, site clearance or Construction Works. Such Plan shall include details of the proposed translocation of reptile species to "Translocation Site 1" to the immediate west of the Main Mine Site … as identified in the report by BSG Ecology entitled "Reptile Translocation and habitat Creation Method Statement" dated 17 August 2021.*
>
> *…No development shall occur until those aspects of the HCMMM relating to the Reptile Survey and Mitigation Plan have been carried out and duly completed at the identified translocation sites. In all other respects, the approved HCMMM scheme shall be implemented and the development shall be carried out in accordance with the approved details.*

1.5 The overall development is to be carried out in several stages in several locations over its lifespan, the first of which is confined to the MMS. This document relates to reptile translocation and habitat creation around the MMS and TS1 only. Works in the other stages of the development are not considered in this reptile method statement. These works will require their own method statement to address Condition 8 requirements.

1.6 BSG Ecology has previously undertaken ecological survey and reporting work in support of the planning application for the development. This includes phase 2 survey for reptiles over the period 2016 to 2021 and the preparation of a Reptile Translocation and Habitat Creation Method Statement (BSG Ecology, 2021).

MMS habitat descriptions and survey context

1.7 The MMS is an area of formerly developed land, which now supports a range of semi-improved and unimproved neutral grasslands, scrub, ephemeral / short perennial vegetation and tall ruderal habitats. Extensive areas of hard standing, roads and the foundations associated with the MMS' former use are also present.

1.8 Several of the habitats were considered suitable for reptiles and the MMS was surveyed for reptiles in the spring and summers of 2016, 2017 and 2019. The reptile surveys identified a small population of common reptiles on the MMS, comprising low numbers of common lizard *Zootoca viviparia* and slow worm *Anguis fragilis* (BSG Ecology, 2021).

1.9 An update of the reptile survey at the MMS is planned for 2024 to update the previous survey work and determine the likely population size class of reptiles at the MMS. This will take place before

implementation of any reptile translocation and allow, if necessary, for adjustment of the density of habitat creation and the likely trapping period accordingly.

Translocation Site 1 (off-site) context

1.10 TS1 is a steeply sloping grassland bank associated with Hutbank landfill, which was created by infilling the former Hutbank Quarry. It was clay capped in 2000; the cap sits at an approximate depth of 400 mm (URS Infrastructure & Environment UK Ltd, 2012).

1.11 TS1 currently comprises unmanaged tussocky grassland which is locally wet on the flatter areas at the top of the bank. TS1 was previously identified as an area suitable for improvement as a receptor site, for habitat enhancement and reptile translocation during the planning application (BSG Ecology, 2021). The use of TS1 as a receptor site is, at the time of writing, subject to agreement with the Environment Agency (EA).

1.12 TS1 will not otherwise be affected by the proposals for the MMS.

On-site translocation area

1.13 An additional area suitable for improvement as a receptor site for reptile translocation has been identified in the north-west corner of the MMS, within the planning boundary. This area, marked as area OS-A on Figure 2, abuts TS1 on its northern boundary. The on-site area covers approximately 2.94 ha of the MMS area and is made up of a mosaic of bare concrete pads, concrete roadways, scrub and tussocky grassland and low-growing damp mossy carpets on some of the concrete areas.

1.14 Due to the additional approval processes potentially associated with starting habitat improvement works on Hutbank landfill (TS1), it is intended that the on-site translocation area will be prepared as a receptor site first to provide an early receptor site option. It is considered that, once completed, habitat creation on OS-A will provide sufficient capacity for translocated reptiles to allow the first stage of construction on the MMS to begin. TS1 will be prepared for use as a receptor site subsequently, and this will be able to receive reptiles trapped during further stages of construction, as required, thereby fulfilling the requirements of Condition 8.

Document purpose

1.15 The purpose of this document is to:

a. Provide details of habitat creation, maintenance, monitoring and management for the reptile receptor site(s).

b. Set out how reptiles will be protected from harm during site investigation, site clearance and thereafter, and provided with suitable alternative habitat.

1.16 This will prevent, reduce and offset significant adverse effects on reptiles, taking into account up to date survey data. This document also considers monitoring and management of the translocation sites throughout the construction and operation phases of the development.

1.17 It is considered that implementation of the measures set out in this document will mean that no significant adverse effect on individual reptiles or on the local population of reptiles is likely to arise.

2 Methods (pre-planning permission)

2.1 The following section summarises the methods employed during reptile surveys on the MMS to date.

2.2 The MMS was surveyed for reptiles in the spring and summer of 2016, 2017 and 2019 through placement of artificial reptile refugia across the MMS, the purpose of which is to provide attractive basking and sheltering opportunities to reptiles that may be in the area so that they may be identified and counted easily.

2.3 The surveys were undertaken with reference to Froglife Advice Sheet 10 (Froglife, 1999) to:

- Schedule surveys during appropriate weather conditions, time of day, and time of year.
- Locate artificial refugia in appropriate areas within the MMS.
- Set a sufficient number of refugia to ensure survey results are reliable.

2.4 Refugia were checked on seven occasions when daytime temperatures were at or below 18˚C, and during days when some cloud cover was present. Checks comprised a visual check of the refugia surface for basking reptiles, before lifting the refugia and checking beneath for sheltering reptiles. The refugia was then replaced in the same location. The number and species of any amphibians or reptiles found were recorded with reference to which refugia it was found at.

Presence / likely absence survey 2016

2.5 Reptile presence/absence survey involved the placement of 60 artificial refugia comprising 50 x 50 cm squares of bitumastic roofing felt, which were placed within suitable habitats across the MMS. Areas of habitat within the MMS considered to be most suitable for reptiles were targeted with a higher density of refugia. These were largely concentrated in the central areas of the MMS and comprised:

- Piles of existing rubble well connected to areas of grass and scrub;
- Areas of damp vegetation with good cover.

2.6 Table 1 below shows the dates and weather conditions experienced during each survey visit.

2.7 An additional visual and hand search was also made of all habitats within the Main Mine Site likely to support reptiles, and this was completed on the 19 April 2016.

Table 1 – Dates and weather conditions during reptile survey visits 2016.

Date	Survey start time	Temp (°C)	Wind (Beaufort)	Rain	Cloud (%)
19.04.16	07:30	6	1	None	0%
28.04.16	18:30	9	4	None	100%
12.05.16	07:45	12.5	2	None	65%
16.05.16	18:45	13	0	None	65%
31.05.16	19:50	16	2	None	50%
14.06.16	18:55	18	0	None	25%
24.06.16	19:00	17	2	None	100%
06.07.16	10:00	16	2	None	50%

Reptile survey 2017

2.8 Following the results of the 2016 presence / absence survey, the scope of the reptile surveys on the MMS was widened to survey the entire MMS rather than target suitable reptile habitat specifically, and increase the density of refugia across the site. A further 100 artificial refugia comprising 50 cm x 50 cm squares of bitumastic roofing felt were deployed across the MMS, bringing the total number of refugia deployments to 160.

2.9 Table 2 below shows the dates and weather conditions experienced during each survey visit.

Table 2 – Dates and weather conditions during reptile survey visits 2017.

Date	Survey start time	Temp (°C)	Wind (Beaufort)	Rain	Cloud (%)
18.09.17	08:15	11.5	1	None	40%
22.09.17	08:40	12.5	3	None	40%
26.09.17	08:20	15	1	None	40%
28.09.17	08:30	13	1	None	40%
04.10.17	10:30	13	3	None	100%
12.10.17	08:30	12	3	None	0%
16.10.17	08:05	14	1	Light intermittent	100%

Reptile survey 2019

2.10 Following the initial grant of planning permission by Cumbria County Council, survey was completed of the MMS during July and August 2019. A total of 120 artificial refugia, comprising 50 x 50 cm squares of bitumastic roofing felt were installed and checked on a total of seven occasions when weather conditions were favourable for survey.

2.11 Table 3 below shows the dates and weather conditions experienced during each survey visit.

Table 3 – Dates and weather conditions during reptile survey visits 2019.

Date	Survey start time	Temp (°C)	Wind (Beaufort)	Rain	Cloud (%)
12.07.19	11:00	16	1	None	30%
17.07.19	09:00	16	1	None	100%
01.08.19	09:30	16	2	None	40%
08.08.19	10:30	17	2	None	30%
15.08.19	12:00	17	4	None	50%
21.08.19	12:00	16	4	None	90%
29.08.19	11:00	16	4	None	60%

3 Results of surveys (pre-planning permission)

3.1 The following section summarises the results of the reptile survey effort on the MMS to date.

Presence / likely absence survey 2016

3.2 No reptiles were recorded during the 2016 surveys.

Reptile surveys 2017

3.3 No reptiles were recorded during the 2017 surveys.

Reptile surveys 2019

3.4 Low numbers of common lizard and slow worm were recorded during the 2019 surveys. These were predominantly recorded around the areas of vegetated hardstanding and unmanaged grassland to the north and northwest of the MMS.

3.5 Table 4 below provides a summary of the species recorded during each survey visit. Peak counts of 6 common lizard and 2 slow worm were recorded. The populations of both species were confined mostly to the unmanaged grassland areas of vegetation between hardstanding in the north and north east areas of the MMS.

Table 4 – Summary of 2019 reptile survey results.

	Date of visit																																									
	12.07.19						17.07.19						01.08.19						08.08.19						15.08.19						21.08.19						29.08.19					
Tile No.	Cm Liz (Ml)	Cm Liz (fm)	Cm Liz (Jue)	Sl Wm (Ml)	Sl Wm (fm)	Sl Wm (Jue)	Cm Liz (Ml)	Cm Liz (fm)	Cm Liz (Jue)	Sl Wm (Ml)	Sl Wm (fm)	Sl Wm (Jue)	Cm Liz (Ml)	Cm Liz (fm)	Cm Liz (Jue)	Sl Wm (Ml)	Sl Wm (fm)	Sl Wm (Jue)	Cm Liz (Ml)	Cm Liz (fm)	Cm Liz (Jue)	Sl Wm (Ml)	Sl Wm (fm)	Sl Wm (Jue)	Cm Liz (Ml)	Cm Liz (fm)	Cm Liz (Jue)	Sl Wm (Ml)	Sl Wm (fm)	Sl Wm (Jue)	Cm Liz (Ml)	Cm Liz (fm)	Cm Liz (Jue)	Sl Wm (Ml)	Sl Wm (fm)	Sl Wm (Jue)	Cm Liz (Ml)	Cm Liz (fm)	Cm Liz (Jue)	Sl Wm (Ml)	Sl Wm (fm)	Sl Wm (Jue)
3																												1														1
25																																1										
26																																1										
50																																1										
62				1																																	1					
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80																														1					1							
86																											1															
87																										1																
92																										2																
95																										1																
Total	0	0	0	1	2	0	1	1	0	0	0	0	0	0	0	1	2	0	0	0	0	0	1	2	4	5	2	1	2	1	1	6	0	0	2	0	1	0	0	0	0	1

n.b. – Cm liz – Common Lizard, Sl Wrm – Slow worm, Fm – Female, Ml – Male, Jue – Juvenile.

3.6 Based on the guide population class assessments set out in Froglife (1999), the MMS supported a low population of both common lizard and slow worm during the 2019 surveys.

4 Updated method statement: reptile surveys 2024 (planned)

Coverage of the method statement

4.1 This method statement applies to the MMS (including OS-A) and TS1 shown in Figure 1 and Figure 2. The MMS was confirmed in the 2019 surveys to support both common lizard and slow worm in low numbers.

Structure of ecology team

4.2 The team working on this project is made up of a suitably experienced and competent ecologist, as per the standing guidance from CIEEM (2014), to design the survey effort on the MMS. This person will be supported by other suitably trained ecologists who will help deploy and collect the artificial refugia, undertake the survey visits, and document and report the survey results.

Materials for reptile survey

4.3 A total of 300 artificial reptile refuges were deployed on 29th May 2024 around the MMS including OS-A, as well as TS1. Refugia placement has targeted suitable reptile habitat. Per advice in Sewell *et al* (2013), a mix of refugia materials has been used with minimum dimensions of 50 cm x 50 cm:

- 200 x Bitumen roofing felt tiles (100 cm x 50 cm)
- 100 x Corrugated sheet metal tiles (50 cm x 50 cm)

Timing and location

4.4 Following a period of bedding-in of the artificial refugia of two to three weeks (see below) the survey will be carried out over seven visits during the active season for reptiles (mid-March – mid-October as a guide, depending on prevailing weather conditions) in suitable weather conditions and times of day per the guidance in Gent and Gibson (2003). Survey visits will be spaced at least 2 days apart.

4.5 At the time of writing, surveys are anticipated to commence in spring/summer 2024.

Method: refugia deployment

4.6 The exact location of each refugia was determined on the day by an ecologist with experience in setting out and conducting reptile surveys, targeting habitat suitable for reptiles, taking account of local habitat characteristics, vegetation structures, topography, aspect and shading. Refugia were numbered and placed in suitable locations across the MMS, avoiding deployments in unsuitable habitat such as the agricultural land, tracks and hardstanding around the MMS. Each refugia has been georeferenced using a high-accuracy GPS for accurate reporting and navigation / re-location during subsequent surveys.

4.7 Refugia are spaced at least 5 m apart ensuring a mix of materials is deployed in any one area of the site.

4.8 Refugia have been placed at least two to three weeks in advance of the first survey visit occurring to allow reptiles in the area to find and begin habitually using the refugia (known as the ‘bedding in’ period).

4.9 A minimum density of 10 refugia per hectare of habitat that is suitable for reptiles will be achieved on average across the MMS (including OS-A). Using 260 artificial refugia over the whole 22.9 hectares of the MMS results in an average density of approximately 11 refugia per hectare. A desk study, followed by a ground truthing walkover in May 2024, confirmed that approximately 40% of the MMS is made up of intensive agricultural land, concrete slabs or paved tracks that are unsuitable for reptiles (See Photograph 1 in Appendix 3). These areas will not be targeted during reptile mat deployment and survey. Deployments will instead target the tussocky grassland and scrub areas between the hardstanding (Photograph 2) which offers better quality shelter, foraging and basking habitat for reptiles. The true density of the refugia in respect of habitat suitable for reptiles will

therefore be higher than 11 per hectare and may be as high as 19 refugia per hectare of suitable habitat.

4.10 40 refugia will also be deployed in suitable reptile habitat on TS1, which is approximately 3.8 hectares large and at the time of the May 2024 walkover comprises unmanaged tussocky grassland (Photograph 3). A minimum of 40 deployments results in a minimum density of 10 refugia per hectare.

Method: reptile survey

4.11 Suitably experienced ecologists will attend the site in at appropriate times and in appropriate conditions (Gent and Gibson, 2003). They will undertake a walked transect that captures both the artificial refugia and any existing suitable reptile basking locations on the MMS (including OS-A) and TS1.

4.12 Surveyors will slowly walk the transect, visually searching for basking reptiles on top of each of the artificial and other refugia, before carefully lifting the refugia by hand to inspect underneath for sheltering reptiles. The refuge will be carefully replaced in its original location once inspection is complete and the surveyor continues the transect to the next refuge until all refugia have been inspected.

4.13 Observations of reptiles, reptile field signs (such as sloughed skins) or other notable species (such as amphibians and small mammals) are to be recorded on a survey sheet or digital tablet, with reference to grid reference location or the artificial refuge number.

4.14 Refugia that are damaged are to be replaced, and refugia that show signs of outside interference (such as from the public) are to be replaced and possibly relocated.

4.15 Once seven visits are complete, refugia are to be removed from the site. Results will be tabulated and peak counts taken of each reptile species recorded during the survey. These counts are then used to determine the likely population size class per guidance in Froglife (1999).

4.16 A short report will be produced detailing the outcome of the surveys, and made available to CC.

5 Mitigation measures: Preparation of receptor sites and exclusion fencing.

Coverage of method statement

5.1 At the time of writing, a number of areas have been identified that may be utilised fully or in part as receptor sites for translocated reptiles. The indicative locations of these areas are displayed in Figure 2. These are:

- TS1-A, located at the foot of the eastern slope of TS1 (0.35 ha).
- TS1-B, located on a gently sloping south facing aspect of TS1 (0.81 ha) (Photograph 4).
- TS1-C, located on the remainder of TS1 (2.67 ha) (Photograph 3).
- OS-A. This forms the north-west corner of the MMS and it is continuous with TS1 (2.94 ha) (Photograph 5). It will be unaffected by the mine development apart from a narrow corridor to install a pipeline to an outfall to the north of the MMS. It will also be unaffected by the landscaping of the MMS.

5.2 The steeper east-facing slopes at the northern end of TS1 are considered to be less suitable for hibernacula creation due to the steep topography which would make construction potentially hazardous, and the potential for slippage (given that no-dig hibernacula are likely to be necessary on the surface of the capped landfill). This area has instead been identified for habitat enhancement through diversification of the grassland structure and management to encourage variation between tussocky cover, lower grassland cover, and very short / bare areas, as well as other surface treatments.

5.3 The total area available for creation of receptor habitat, with the potential for a high density of high-quality habitat features for reptiles, allows for the possibility that reptile numbers on the MMS have increased since the previous surveys. Habitat enhancement in these areas will serve to build the capacity of the area to sustain a greater number of individuals. These areas are to be prepared as far in advance as possible prior to translocation to increase their potential to support reptiles by providing a range of habitats suitable for reptile basking, shelter, commuting, feeding and hibernation. Exclusion fencing will also be put in place to prevent the movement of reptiles from the receptor sites back on to the MMS. Indicative fencing routes are presented in Figure 2. These areas are under the direct control of WCM.

5.4 The results of the planned 2024 reptile survey will indicate the size class of the population to be relocated from the MMS development footprint, the likely trapping effort required to clear the MMS of reptiles, and the baseline population of reptiles present on TS1. The density of habitat creation works on the receptor areas is based on an assumption of a medium population to be translocated from the MMS development footprint, meaning that the population size is assumed to have increased but not drastically so, since the 2019 survey was undertaken This assumption is based on the small and localised size of the 2019 population, the high level of dog walking and general disturbance at the site, and the passage of only a few years of time. A 2021 reptile survey by ERAP (ERAP, 2022) on behalf of Persimmon Homes on land immediately north of the MMS recorded common lizard and slow worm. In both cases the population size class assessment was low. Records of both species were found along the north west boundary of the MMS.

5.5 It is recognised that the results of population size class assessment surveys indicate a likely population size class (low, medium or high) of reptiles. This in turn provides guidance on likely trapping effort. However, the true number of reptiles on a site can be higher than the size class assessment sometimes suggests. This can lead to a requirement for increased trapping intensity / duration over initial estimates. If the population is found to have grown significantly, the general methods and approach to the preparation of receptor sites will remain the same, even if the trapping effort needs to be increased (i.e., carried out over a longer period or more intensively). The extent of enhanced habitat for reptiles can also be increased using additional space on OS-A and TS1 if considered necessary following the 2024 survey or during trapping of the MMS (See Section 6).

5.6 The overall aim is to prepare and manage the receptor sites in such a way that most if not all of the of the receptor sites provide optimal conditions for reptiles. This includes the created features such as hibernacula, brash piles, flat slabs, and gravel paths; and it also includes the habitat between the features which provide an essential movement, foraging, sheltering and basking resource. This latter will be addressed in how the intervening marginal / linking (ecotone) habitat between features is managed in the long term.

5.7 It is currently unclear whether OS-A can be fully fenced off from the public, to reduce or eliminate disturbance from people and dog walkers. The final design of the MMS features landscaping elements including a public footpath that runs through OS-A. Hibernacula construction would be sited away from the public footpath and behind the other landscaping features (such as trees and earth banks) to minimise disturbance from the public.

5.8 Public access on to TS1 currently occurs from a public footpath to the immediate west of the TS1 boundary via a broken fence, and from the MMS itself via its south eastern boundary. It is currently anticipated that the broken fence will be repaired. In the interim, it is expected that the levels of public disturbance on TS1 would diminish once the development begins and through access to and from the MMS is cut off.

Structure of the ecology team

5.9 The team working on preparing the receptor sites will comprise a suitably experienced lead ecologist who will act as Ecological Clerk of Works (ECoW) in respect of habitat creation and installation of exclusion fencing. The EcoW will co-ordinate the preparation works and advise the selected specialist contractor on location and density of habitat creation. The EcoW will be named and their contact details will be supplied as necessary to other personnel involved. The EcoW is responsible for implementation of this method statement.

5.10 Other suitably trained ecologists will provide support as required, including fencing inspection and basic maintenance, and liaison with contractors and landowners.

Guidance on machinery, equipment and materials

5.11 The following is for guidance. Precise choice of materials is subject to availability and choice of plant and equipment will be made by the specialist contractor. There are currently no restrictions on the type, volume and tonnage of materials that can be brought on to Site for habitat creation, though materials from on Site will be sourced wherever safe and practicable to do so (Photograph 6).

- Permanent / semi-permanent self-supporting exclusion fencing using weather- and tear-resistant materials (such as ACO Mobile Fence) will be used; or else standard reptile exclusion fencing (flexible polythene or rigid polypropylene fencing, such as Caudon semi-permanent newt fencing) with wooden stakes for support (including fittings (nails / screws and washers)) will be used, although the latter will require more inspection and maintenance over longer periods of time.
- Hardstanding crossings may require a freestanding solution that can be easily repositioned or temporarily opened if the need arises (such as ACO Mobile Fence). Fencing should be backfilled where necessary to ensure a seal at ground level.
- Mini-digger (for use on the MMS only to avoid the potential risk of interference with Hutbank landfill) and mobile trenching unit for fence installation if required. Plant specification is for guidance only – contractor to decide in discussion with ecologist. Checks for services and other hazards should be carried out in advance of breaking ground.
- 10 – 14 tonne excavator for hibernaculum creation. Plant specification is for guidance only – contractor to decide in discussion with ecologist. Checks for services and other hazards should be carried out in advance of breaking ground.
- Turf, topsoil, brash, stone and rubble used in hibernacula creation are to be brought on to Site externally, and / or sourced from areas of the MMS wherever possible.

Timing and location

5.12 Habitat creation can be undertaken at any time of year but it is anticipated to begin as soon as it is possible to gain appropriate access, and allow sufficient time for hibernacula to establish before translocation takes place. Input from the ECoW may be necessary to ensure no harm is done to reptiles and other protected species such as nesting birds if excavation or vegetation clearance is necessary to complete the works.

5.13 Permanent / semi-permanent reptile exclusion fencing or traditional polythene / rigid polypropylene fencing will be installed along the indicative alignment presented in Figure 2. The exact alignment will be determined by the fencing contractor and the ECoW during installation, dependent on local conditions. The fencing will remain in place for the duration of construction works on site.

5.14 It is proposed to start habitat creation as soon as possible once appropriate access and other permissions are granted such that trapping effort can begin in the southern part of the MMS (see Figure 3 and Section 6, below). It is therefore likely that habitat creation would first begin on OS-A, being an unused area of the MMS (see Appendix 1) and not subject to the additional approval processes potentially associated with starting works on Hutbank landfill (TS1-A – C). TS1-A – C will then be utilised alongside OS-A during later development phases (once approval is given and the sites are adequately prepared) to receive reptiles from the remaining trapping compartments.

Method: Reptile exclusion fencing installation

5.15 Fencing will be installed by a suitably experienced wildlife fencing contractor.

5.16 The ECoW will deliver a 'Toolbox Talk' to the appointed fencing contractor before works commence, informing them of the presence of reptiles in the area, how reptiles are protected, and what to do if one is discovered during works.

5.17 The ECoW will liaise with the contractor on the micro-siting of the fence line to minimise unnecessary destruction of existing habitat suitable for reptiles, and maintain the receptor site's suitability for reptile translocation. The ECoW will check along the fence route for potential reptile refuges, and, where absolutely necessary, undertake destructive searches of those refuges, translocating any reptiles found away from the works area.

5.18 Prior to fence installation, woody vegetation (scrub and small trees) will be removed from a 3 m wide easement along the route of the fencing following a check by the ECoW for nesting birds[1]. This is to ensure that no nesting birds are affected and that an offence under Section 1 of the Wildlife and Countryside Act 1981 does not occur. If any vegetation cannot be removed because of bird nesting activity, the fencing will be routed around the vegetation.

5.19 Fence installation will not occur outside the active reptile season (mid-March – mid-October) to minimise the disturbance of reptiles in hibernacula that may be present along the fence route.

5.20 The ECoW will then sign off the fence line location and oversee its installation.

5.21 The fence will be installed to approximately 0.7 m above ground level with a return on the upper outside edge that faces away from the main development site. It will be either self-supporting or supported by wooden stakes. The fence will be buried to a depth of approximately 100 mm into the ground and backfilled tightly.

Method: maintenance and retention of reptile-proof fencing (permanent and temporary)

5.22 All reptile fencing should be inspected regularly by the ecology team during trapping visits and either patched as necessary in the case of minor wear and tear; or else reported to the client for immediate attention in the case of more extensive temporary damage.

[1] Such checks will only be necessary if works occur during the active bird nesting season, typically recognized as March – August inclusive.

5.23 Once the site has been destructively searched the fencing will remain in place until completion of construction.

Method: Habitat creation on OS-A

5.24 The following will be created in the receptor areas prior to development taking place. The density of habitat creation effort will assume a medium population of reptiles is present on the MMS.

5.25 Habitat creation efforts will target the large areas of hardstanding and flat concrete slabs present on OS-A (Photograph 4) to create 20 reptile stone and rubble hibernacula (guide dimensions of approximately 5m long, 2m wide and 1m tall) [(2)] using non-contaminated material from the MMS or externally sourced material. This approach will retain the vegetated cover / foraging areas. Typical stone and rubble hibernacula creation methods generally involve some level of soil stripping and excavation, but as the majority of hibernacula are to be built on sealed surfaces, exact construction methods will be adapted to local conditions on the day. Where possible and subject to consideration of potential contamination issues, concrete or paving below the hibernacula will be fractured to allow drainage of the newly created features. Where this is not possible, hibernacula will be created with a free-draining base that can drain away onto the surrounding land.

- Fracture underlying concrete slab to allow adequate drainage of the completed feature, where appropriate.
- Strip 50 - 100 cm grassy turves from non-contaminated areas and retain, or source turves externally.
- Construct a mound from piled-up rocks, rubble, logs or dead wood following the guidance on dimensions above. Topsoil, sourced from the MMS or externally, is to be loosely filled between layers during construction to minimise internal slippage of the rubble and brash infill. The mound should be topped with a geotextile membrane to prevent soil and vegetation collapsing into the voids below.
- The turves should then be replaced over the geotextile membrane, leaving a gap between the capped material and the ground to allow reptiles access into the rubble mound and cavities.
- Space should be left between hibernacula to allow for other habitat improvements.
- As it may be necessary to make use of the structures as receptors for reptiles soon after their construction, the hibernacula should be constructed in a way that avoids slumping and subsidence, to avoid harm to reptiles that may be present within. For this reason, larger slabby stones should be used to support the base of the structure, and coarse rubble preferentially used over logs and brash for the internal mound's composition.

5.26 Sketches and photographic examples of indicative hibernacula design are presented in Appendix 4 (English Nature, 2001 & Froglife, 2001), though final designs are to be agreed with the contractor on the day, in consultation with the ecologist with respect to local conditions.

5.27 The hibernacula will be created across the sealed surfaces (presently unsuitable reptile habitat), favouring the edges where the sealed surfaces interface with habitat that is potentially of higher value for reptiles. In this way, connectivity between hibernacula and other reptile habitat will be naturally provided.

5.28 The areas between hibernacula should enhanced through creation of reptile foraging, basking and shelter habitat:

- 50% of the remaining grassland area will be left unmanaged for the benefit of slow worm, allowing a layer of thatch to form and provide favourable slow worm sheltering habitat.
- The other 50% of grassland area will be maintained short through rotational cutting down to between 0 and 30 cm to diversify the vegetation structure for the benefit of common lizard. Vegetation cuts will be undertaken outside of the active season for reptiles (mid-March to mid-October as a guide) when reptiles are more likely to be hibernating.

[2] OS-A features extensive hardstanding area and has headroom for additional hibernacula if necessary.

- 1m wide gravel tracks to be installed linking the hibernacula areas to other habitat creation areas, providing commuting feeding and basking opportunity for reptiles.
- Where hibernacula are created away from the sealed surface edges, soils will be introduced as needed to cover the sealed surfaces to a shallow depth and where possible the sealed surfaces will be lightly broken to facilitate drainage. The soils will be overseeded with an appropriate rough grassland mix to create further cover and foraging for reptiles between the hibernacula.

5.29 Existing areas of suitable reptile habitat will be retained to preserve any existing reptile capacity on OS-A.

5.30 A temporary excavation to lay a pipeline between a manhole at the far north of OS-A and temporary settlement lagoons is planned for construction during Phase 1 of construction (Appendix 1). A 10m standoff should be allowed between the footprint of the temporary excavation and any hibernacula or other habitat improvement work, to minimise potential disturbance and risk to reptiles. Additional hibernacula and other features can then be installed once works are completed and the excavation is covered, if necessary. The exclusion fencing will need to be opened and replaced in this area to allow the pipe to be installed, following ECoW sign off. Prior to excavating the trench for the pipeline the working strip of land will be cleared of vegetation progressively and searched for reptiles, which will be relocated to an appropriate location elsewhere within OS-A.

5.31 The ECoW will sign off on the successful completion of habitat creation and fencing installation.

Method: Habitat creation on TS1-A and TS1-B

5.32 The following will be created in the receptor areas prior to development taking place. The density of habitat creation effort will assume a medium population of reptiles is present on the MMS.

5.33 Habitat creation will be sited to ensure that highest-value existing reptile cover, basking, feeding and hibernation resource is not negatively impacted. Habitat creation will also be sited to allow a reasonable standoff from monitoring boreholes in Hutbank Landfill, with reference to the Borehole Location Plan in URS Infrastructure & Environment UK Ltd (2012) (Drawing ref: PH/LDS/SQ/MCH).

5.34 During the May 2024 walkover, it was noted that some areas of TS1-B were locally wet. Each hibernaculum or other feature will therefore be microsited in conversation with the ECoW and specialist contractor. Final design of each hibernaculum will be agreed with the contractor on site, dependent on local conditions such as slope, aspect, drainage and available materials.

5.35 10 Large (at least 1m x 1m) flat stones to be installed facing east and south-east to provide additional basking resource. In OS-A, these should be lightly dug into the ground where practicable to prevent slippage. In areas TS1-A and TS1-B, excavation is to be avoided. Stones should instead be placed on gently sloping or flat areas to avoid the stones slipping or subsiding down the face of the slope.

5.36 10 large log-pile (guide dimensions of approximately 1m high, 2m wide and 3m long, subject to local topography) hibernacula to be created and secured.

5.37 1m wide gravel tracks to be installed linking the four habitat creation areas providing commuting, feeding and basking opportunity for reptiles. Narrower tracks will be created between clusters of hibernacula.

5.38 A total of 20 stone and rubble hibernacula to be created using non-contaminated material present in the MMS. Due to the slope angle and locally damp conditions, construction methods and hibernacula dimensions will need to be flexible to local conditions on the day (guide dimensions of approximately 5m long, 2m wide and 1m tall). Typical stone and rubble hibernacula creation methods involve some level of local soil stripping and excavation, but the construction methods on TS1-A and TS1-B will also be adapted to avoid interference with the landfill cell and clay cap present beneath TS1:

- Strip 50 - 100 cm grassy turves from TS1 and retain, or source turves externally if required.
- Construct a mound from piled-up rocks, rubble, logs or dead wood per the dimensions above, on top of existing turf on TS1. Soil can be loosely filled between layers during construction. The

mound should be topped with a geotextile membrane to prevent soil and vegetation collapsing into the voids below.

- The hibernacula should be sited on a gentle slope to prevent flooding.
- The turves should then be replaced over the geotextile membrane, leaving a gap between the capped material and the ground to allow reptiles access into the rubble mound and cavities.

5.39 As it may be necessary to make use of the structures as receptors for reptiles soon after their construction, the hibernacula should be constructed in a way that avoids slumping and subsidence in the short term, to avoid harm to reptiles that may be present within. For this reason, larger slabby stones should be used to support the base of the structure, and coarse rubble preferentially used over logs and brash for the internal mound's composition.

5.40 The ECoW will sign off the reptile exclusion fencing and habitat creation quality.

Method: Habitat creation on TS1-C

5.41 Creation of above-ground stone and rubble hibernacula on TS1-C is not considered suitable due to the steep topography of the area. TS1-C will instead be managed to improve its structural variation and provide translocated reptiles with increased opportunity to shelter, forage and bask.

5.42 10 brash piles will be created on gentler sloping areas using vegetation from the MMS where available, or sourced externally. The brash should be aligned parallel to the slope angle to minimise the risk of slippage and secured using anchoring pegs to a depth agreed with the Environment Agency, where appropriate.

5.43 50% of the remaining grassland area will be left unmanaged for the benefit of slow worm, allowing a layer of thatch to form and provide favourable slow worm sheltering habitat.

5.44 The other 50% of grassland area will be maintained short through rotational cutting in late autumn and early spring down to between 0 and 30 cm to diversify the vegetation structure for the benefit of common lizard. Vegetation cuts will be undertaken outside of the reptile active season (mid-March to mid-October as a guide) when reptiles are more likely to be hibernating. Cut grass will be removed and piled into a heap or heaps on TS1, to provide additional habitat for reptiles.

5.45 Grassland variation will be maintained in a mosaic where possible to improve structural diversity of TS1-C.

5.46 1m wide gravel tracks to be installed to provide connectivity between hibernacula and reptile sheltering and foraging habitat. The ECoW will sign off the successful installation reptile exclusion fencing and habitat creation quality.

5.47 Both the MMS and TS1 are currently heavily used by the public for recreation including dog walking. Whilst OS-A will be secured from public disturbance during construction and operation through secure temporary fencing, TS1-A – C are likely to continue to be used by the public, albeit at a reduced level once through access from the MMS is denied.

5.48 In order to help mitigate disturbance from public activity, an information board should be created at the western entrance to TS1 near the public footpath, to inform the public of reptile mitigation efforts on TS1 and politely request that dogs are walked elsewhere, or else kept on leads. An example location is shown in Figure 2.

6 Mitigation measures: reptile trapping, site clearance, translocation and monitoring

Coverage of method statement

6.1 This method statement applies to the MMS and TS1, shown in Figure 1.

Structure of ecology team

6.2 The team working on this project will be made up of a lead ecologist who will act as Ecological Clerk of Works (ECoW) in respect of the translocation of reptiles. This person will be named and their contact details will be supplied as necessary to other personnel involved. The ECoW will be responsible for implementation of this Method Statement.

6.3 Other suitably trained ecologists will provide support to the ECoW as required and their work on the site will include fencing inspection and basic maintenance, liaison with contractors, placement of reptile refugia, translocation of reptiles and related tasks.

Guidance on machinery, equipment and materials

6.4 The following is for guidance. Precise choice of materials is subject to availability and choice of plant and equipment will be made by the specialist contractor.

- Temporary reptile exclusion fencing (flexible polythene or rigid polypropylene fencing or a product such as ACO Mobile Fence). Wooden stakes for support. Fittings (nails / screws and washers).
- Mini-digger and mobile trenching unit for fence installation. Plant specification is for guidance only – contractor to decide in discussion with ecologist. Checks for services and other hazards should be carried out in advance of breaking ground.
- 10 - 14 tonne excavator with toothed digging bucket for destructive searches. Plant specification is for guidance only – contractor to decide in discussion with ecologist. Checks for services and other hazards should be carried out in advance of breaking ground.

6.5 Reptile mats will be used for trapping. Trap densities will be informed by the results of the 2024 reptile surveys but will be at a higher rate than the density employed during the 2024 population surveys. Refugia will be deployed around the MMS[3] in suitable reptile habitat. As per advice in Sewell *et al* (2013), a mix of refugia materials should be used with minimum dimensions of 50 cm x 50 cm:

- Bitumen roofing felt tiles (100 cm x 50 cm)
- Bitumen roofing felt tiles (50 cm x 50 cm)
- Corrugated sheet metal tiles (50 cm x 50 cm)

6.6 Trapping densities will be responsive to the needs / progress of the project (see below) and the early results of the trapping surveys. Refugia will be monitored on a depletion curve to allow deployments in areas displaying low reptile activity to be re-allocated to areas displaying high reptile activity, thereby speeding the clearance of any one particular trapping compartment.

Timing and location

6.7 The reptile trapping and translocation should be carried out during the active season for reptiles (mid-March to mid-October) in suitable weather conditions and times of day per the guidance in Gent and Gibson (2003). Extension of the trapping period into late October and early November may be possible dependent on weather conditions.

[3] Excluding OS-A, which will be used as a receptor site and therefore not require trapping.

6.8 Reptiles translocated from the MMS will be released into and around the hibernaculum created in the receptor sites (Figure 2).

6.9 The construction works scheduled to take place on the MMS is itself divided into three phases (See Appendix 1). The MMS will be divided using reptile exclusion fencing to focus trapping effort on the Phase 1 footprint of works along the southern edge of the MMS to prioritise the provision of access to the mine portals and the main site entrance. Once the Phase 1 area has been cleared of reptiles, work can commence whilst trapping of other areas of the MMS is still underway (if necessary). Indicative compartmentation of the MMS is displayed in Figure 3. Exact locations of trapping compartments will be finalised by the contractor and the ECoW before fencing is installed, with reference to on-site conditions, following the results of the 2024 survey, and in response to the needs of the development phasing.

Method: internal reptile fencing

6.10 Fencing is to be installed by a suitably experienced wildlife fencing contractor.

6.11 ECoW to deliver a 'Toolbox Talk' to the appointed fencing contractor before works commence, informing them of the presence of reptiles in the area, how reptiles are protected, and what to do if one is discovered during works.

6.12 Temporary fencing is to be installed in the indicative locations as shown on Figure 3. The final location of the fencing will be agreed in consultation with the ECoW who will oversee its installation and sign off once installed successfully.

6.13 Fencing around the eastern boundary of the MMS is considered unnecessary. The MMS is bound to the east by High Road, a single carriageway, and habitat beyond comprises housing estates and development sites. It is therefore considered unlikely reptiles will recolonise the MMS from the east.

6.14 Prior to fence installation, woody vegetation (scrub and small trees) will be removed from a 3 m wide easement along the route of the fencing following a check by the ECoW for nesting birds. This is to ensure that no nesting birds are affected and that an offence under Section 1 of the Wildlife and Countryside Act 1981 does not occur. If any vegetation cannot be removed because of bird nesting activity, the fencing will be routed around the vegetation.

6.15 The fence will be installed to approximately 0.7 m above ground level with a return on the upper outside edge that faces away from the MMS. It will be either self-supporting or supported by wooden stakes. The fence will be buried at least 100 mm into the ground and backfilled tightly.

6.16 The fencing is intended to speed the trapping process by sub-dividing the MMS into individual compartments that can be trapped and cleared independently of one another.

Method: reptile refugia placement

6.17 Refugia placement is to take place two to three weeks prior to any trapping to ensure an adequate bedding in period. Refugia deployments will be concentrated on suitable reptile habitat in each compartment as determined by the ECoW.

6.18 Refugia will be numbered to allow analysis of trapping results.

Method: reptile trapping

6.19 Following the fence installation, vegetation removal, and three week bedding-in period of refugia, reptile trapping can begin in each compartment.

6.20 The minimum duration of trapping on the MMS will be informed by the results of the updated reptile surveys, though the trapping methods will remain the same. Trapping visits will be undertaken during the active season for reptiles (mid-March – mid-October (or later if weather permits)) in suitable weather conditions and times of day per the guidance in Gent and Gibson (2003), with a possible

two visits per day to take advantage of particularly suitable weather conditions. Trapping in each compartment will continue until the numbers of reptiles being captured have been depleted to a negligible level (this will be demonstrated by a low steady level on a depletion curve to be produced and analysed by the ecology team on an on-going basis).

6.21 Refugia will be checked using the methodology outlined in Paragraph 4.12 above. Any reptiles discovered should be captured by gloved hand by a suitably trained ecologist.

6.22 Following approximately twenty days of trapping in suitable weather conditions, a band of vegetation will be strimmed down the centre of each of the vegetated areas (in all compartments) to a height of 10-15 cm. The refugia from that strip will be moved into the surrounding vegetation. The strimming will be supervised by the ECoW and will follow a check of the potential refugia affected (if any) and a hand search of the vegetation to capture and remove reptiles in the affected area. This intermediate removal of vegetation cover will encourage the reptiles to use the artificial refugia and ensure successful and rapid translocation reptiles.

6.23 If the trapping results from a particular group of refugia clearly indicate that further trapping is unlikely to be beneficial in the area covered by that group of refugia, the refugia in question will be relocated to another area with higher levels of activity. This will increase the density of trapping in areas with higher numbers of reptiles. It will also permit the area with low trapping levels to be destructively searched before being stripped of vegetation (see below).

6.24 Any reptiles captured will be carefully transferred to a suitable lidded container or cloth bag and transported to a receptor site, where the animal(s) will be carefully released amongst dense vegetation and brash close to the hibernaculum, as guided by the ECoW.

Method: destructive search for reptiles

6.25 Once trapping results suggest that there are a negligible number of reptiles remaining on a particular compartment, a destructive search of the relevant trapped-out areas can begin. Under strict supervision of the ECoW team, woody vegetation (stumps, roots, etc.) and areas of grassland to be removed will be systematically stripped using an excavator with a toothed digging bucket, leaving bare soil. This will also include any remaining rubble or larger concrete slabs. Any remaining reptiles disturbed during this process will be carefully captured and transported to a receptor site in cloth bags or lidded plastic buckets.

6.26 Once a compartment has been destructively searched and vegetation cleared (thereby making the area hostile to reptile re-colonisation), the reptile fencing defining the trapped out area may be removed following ECoW sign-off. The perimeter fencing surrounding the MMS will remain in place until completion of construction phase. This step is required to safeguard against reptile re-colonisation from the wider area (including the receptor sites).

Method: maintenance and retention of reptile-proof fencing (permanent and temporary)

6.27 All reptile fencing should be inspected regularly by the ecology team during trapping visits and either patched as necessary in the case of minor wear and tear; or else reported to the client for immediate attention in the case of more extensive temporary damage.

6.28 Once the site has been destructively searched the southern, eastern and northern boundary fencing will remain in place until completion of construction.

Method: monitoring of reptiles at receptor sites

6.29 The receptor sites will be monitored for reptiles by a suitably experienced ecologist in years one, three and five post-translocation. This will involve placement of artificial refugia after translocation and the checking of these for reptiles seven times a year at suitable times of the year (April to September) when temperatures are suitable. This will help determine whether the populations are stable or fluctuating.

6.30 In the unlikely event that populations appear to show a decreasing trend, further hibernaculum and / or additional habitat manipulation within the receptor sites may be required.

6.31 In addition to reptile monitoring, ecologists will also assess the created habitat, checking that access and egress points to hibernacula are unobstructed and hibernacula are free from waterlogging. Ecologists will also assess the general condition of the grassland to ensure it is being managed to improve its structural diversity.

6.32 Long-term habitat management of the receptor sites will be dealt with in associated documentation.

6.33 An annual report will be produced showing the outcomes of the reptile monitoring. This will be made available to WCM and CC.

7 Mitigation measures: Site Investigation works

Coverage of method statement

7.1 This method statement applies to the MMS shown in Figure 1.

Structure of ecology team

7.2 The ecology team will be led by a suitably experienced lead ecologist who will act as Ecological Clerk of Works (ECoW) and work alongside the Site Investigation (SI) team, supervising vegetation clearance and the micro-siting of SI boreholes to avoid harm to reptiles that may be present. The ECoW will be named and their contact details will be supplied as necessary to other personnel involved. The ECoW is responsible for implementation of this method statement.

7.3 Other suitably trained ecologists will provide support as required, including liaison with the SI team and landowners.

Timing and location

7.4 It is anticipated that SI works on the MMS are to be undertaken prior to reptile trapping and translocation. SI works comprise the drilling of several boreholes around the MMS that are to be excavated to top of bedrock. An indicative plan for the SI works is presented in Appendix 2.

7.5 As the exact timing of the SI works has not been confirmed, this method statement presents options for the SI works to be undertaken throughout the year, to allow flexibility with project timescales.

Method: Site Investigation works

7.6 The ECoW will deliver a 'Toolbox Talk' to the SI team before works commence, informing them of the presence of reptiles in the area, how reptiles are protected, and what to do if one is discovered during works.

7.7 The ECoW will liaise with the SI team to be present during the SI works. Prior to any vegetation clearance or excavation, the ECoW will undertake a visual inspection of the location and footprint of works and advise on the 'micro-siting' of SI boreholes to direct the footprint of works away from suitable reptile shelter or hibernation habitat to avoid harming reptiles that may be present.

SI work outside the active season for reptiles

7.8 If works are to be undertaken outside the reptile active season (November – February), there is a risk that reptiles will be hibernating on the MMS site in suitable locations, such as dense vegetation overlying loose rubble. Boreholes should therefore be sited to allow a reasonable standoff from any potential hibernacula identified by the ECoW, to minimise disturbance of reptiles that may be hibernating within. The precise distance will be judged on the day by the ECoW in discussion with the SI team, and will depend on the type of machinery to be used at each location and the amount of disturbance of the ground / vibration generation that it gives rise to. The aim is to ensure that reptile hibernacula are not damaged, impacted or otherwise destroyed during the winter to avoid harming reptiles that may be present within.

7.9 Winter vegetation clearance can be undertaken where necessary and as agreed with the ECoW, where it is clear that the vegetation is not likely to be used by hibernating reptiles.

SI work in the active season for reptiles

7.10 If works are to be undertaken during the reptile active season (March – October), reptiles will have vacated hibernacula and will be active and dispersed across the site, and may be using areas of longer vegetation to shelter. The ECoW should therefore identify suitable reptile sheltering habitat and site boreholes away from these areas where possible.

7.11 Where summer vegetation clearance is necessary, this should be a two stage process, with the ECoW's supervision. An initial cut to take dense and woody vegetation down to height of 30 cm, and the removal of arisings, will encourage any reptiles present to move away from the shelter and increase the visibility of any reptiles using the vegetation. This should be followed by a visual and fingertip search of the remaining vegetation by the ECoW the following day, who will then sign off on the second cut to fully remove the vegetation.

7.12 If any reptiles are discovered during the destructive searches, these should be carefully captured and transported away from the footprint of works in cloth bags or lidded plastic buckets, and released in suitable reptile sheltering habitat in the MMS.

8 Likely significant effects on reptiles

8.1 The mitigation measures described above include receptor site habitat creation, translocation of individual animals and population monitoring. Through the implementation of these measures, no significant adverse effect on individual reptiles or on the local population of reptiles is considered likely.

8.2 Once construction of the MMS and the associated landscaping is completed, there remains potential for further reptile features to be built into the landscaping features on site, such as on the south facing slopes of the bunds overlooking the operational area, to further increase the potential holding capacity of the area for reptiles.

9 References

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10 Figures

Legend

- Translocation Site 1 boundary
- Main Mine Site boundary

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PROJECT TITLE

WHITEHAVEN CONDITION DISCHARGE 2023/24

DRAWING TITLE

Figure 1: Main Mine Site and Translocation Site 1 Boundary

DATE: 17/06/2024 CHECKED: HG SCALE: 1:3,000

DRAWN: SP APPROVED: JG VERSION:1.0

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Legend

- Translocation Site 1 boundary
- Main Mine Site boundary
- Indicative permanent exclusion fencing
- Information board location

Potential receptor and enhancement sites

- Grassland enhancement area
- Hibernacula creation area

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PROJECT TITLE

WHITEHAVEN CONDITION DISCHARGE 2023/24

DRAWING TITLE

Figure 2: Potential reptile translocation receptor sites and indicative exclusion fencing

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Legend

- Perimeter exclusion
- Indicative trapping compartments
- Main Mine Site boundary

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PROJECT TITLE

WHITEHAVEN CONDITION DISCHARGE 2023/24

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Figure 3: Indicative reptile trapping compartments

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Appendix 1 – Main Mine Site Construction Phases 1 – 3

516000

Manhole
MH10

Main Mine Site

Temporary storage and settlement lagoons until main operational tank is completed

Outlet from temporary settlement lagoons to Manhole MH10

515500

Existing site office & security check–in.

20m x 20m area for Concrete Batching Plant.

Existing site entrance.

15m x 10m concrete bunded area for Diesel Generators & Storage tank.

20ft Shipping Container for Storage

Accomodation Block

Phase 1 Construction includes:
• Secure Site • Site Investigation • Drift Re–Entry

296500

297000

NOTES

1.

SCALE

0 m — 100 m — 200 m

NORTH

KEY

Construction Phase 1

Site Boundary Fence

REFERENCE DRAWINGS

869/AM/001 – Main Mine Site Existing Plan
869/AM/004 – Main Mine Site Construction Phase 2
869/AM/005 – Main Mine Site Construction Phase 3

B – Red line boundary to North and South of main site revised

C– Temporary Water Storage and Settlement Lagoons added

WEST CUMBRIA MINING

Cumbrian Metallurgical Coal Project

869/AM/003
Main Mine Site
Construction Phase 1

Date	By	Paper	Scale	QA	Rev
APRIL 2018	AC	A1	1:1250	LV	C

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A1

516000

Manhole MH10

Earth bund to be partially constructed during earthworks and completed in Main Mine site construction phase 3, when Conveyor phase 2 laydown are no longer required.

Temporary storage and settlement lagoons for surface water treatment until main operational tank is completed

New pipework to connect surface water tank to Manhole MH10

Phase 2 laydown area.

Underground conveyor within site boundary to be constructed as part of site works, up to the extent of site boundary.

Surface water storage tank to be used for settlement and attenuation when construction is complete.

Conveyor Phase 2 laydown area for Culvert sections & Conveyor.

Conveyor Phase 2 soil stockpile

515500

Existing site office to be Demolished.

45m x 35m area for Concrete Batching Plant.

Temporary site access route.

Temporary site access office.

Construction site offices & change facilities.

Earth bund to be partially constructed during earthworks and completed in Main Mine site construction phase 3.

296500

297000

Phase 2 Construction includes:

- Underground Conveyor construction
- Installation of Services
- Site Earthworks
- Site Roadworks
- Foundations

NOTES

1. During phase 2 construction of the offsite underground conveyor route (refer to drawing 869/AC/003) excavated soil is required to be stored on the Main Mine site temporarily until it can be disposed offsite. If required, this soil can be used in the construction of the Main Mine site earth bunds.
2. During phase 2 construction of the offsite underground conveyor route (refer to 869/AC/003) a temporary laydown area for of box culvert and conveyor sections has been designated along the eastern boundary of the Main Mine site.
3. Earth bunds to be partially constructed during phase B earthworks using excavated material from the Main Mine site. Bunds to be completed in phase C construction to align with programmed construction of phase 2 conveyor completion, when conveyor laydown area no longer required.

SCALE

0 m — 100 m — 200 m

N NORTH

KEY

- Main Mine site Construction Phase 2
- Conveyor Construction Phase 2
- Site Boundary Fence
- Construction Access
- Laydown Area
- Underground Conveyor Structures

REFERENCE DRAWINGS

869/AM/001 – Main Mine Site Existing Plan
869/AM/003 – Main Mine Site Construction Phase 1
869/AM/005 – Main Mine Site Construction Phase 3

C – Water Storage tank and Settlement Lagoons added
D – Underground conveyor routes between stores buildings removed.
E – Underground conveyor to Methane Management & Reject Store Building reinstated.

WEST CUMBRIA MINING

Cumbrian Metallurgical Coal Project

869/AM/004
Main Mine Site
Construction Phase 2

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A1

516000

All surface water directed to operational phase storage tank. Tank to be de-sludged prior to operational phase.

Temporary storage and settlement lagoons de-sludged and removed prior to completion of earth bund

Temporary Laydown area during building construction.

Earth bund construction to be completed once Conveyor Phase 2 laydown area is no longer required.

Construction site offices & change facilities. Moved prior to car park construction.

515500

296500

297000

Phase 3 Construction includes:
• Building Construction
• Building Cladding
• Mechanical system installation
• Electrical system installation
• Planting & Landscaping
• Final site clean-up
• Fencing

NOTES

1. Concrete building foundations to be used for construction laydown prior to building erection.
2. Construction site offices and contractor parking to be relocated during final stages of construction.
3. Construction security cabin to be removed and site entrance reinstated during final stages of construction.

SCALE

0 m 100 m 200 m

NORTH

KEY

- Main Mine site Construction Phase 3
- Site Boundary
- Construction Access
- Laydown Area

REFERENCE DRAWINGS

869/AM/001 – Main Mine Site Existing Plan
869/AM/003 – Main Mine Site Construction Phase 1
869/AM/004 – Main Mine Site Construction Phase 2

B – Red line boundary to North and South of main site revised

C – Water Storage tank and Settlement Lagoons added

WEST CUMBRIA MINING

Cumbrian Metallurgical Coal Project

869/AM/005
Main Mine Site
Construction Phase 3

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APRIL 2018	AC	A1	1:1250	LV	C

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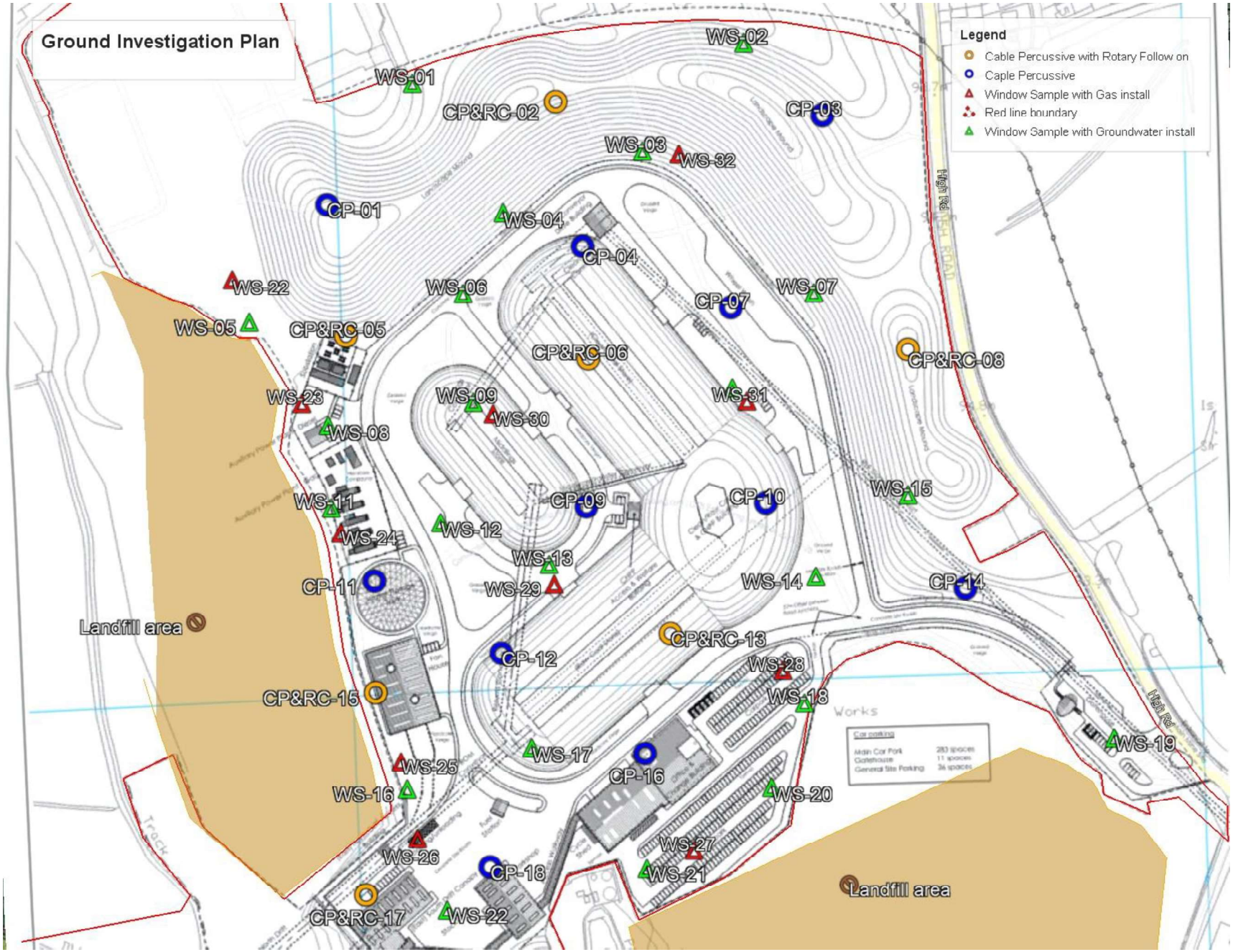
A1

Appendix 2 – Site Investigation Plan


Ground Investigation Plan
Legend
Cable Percussive with Rotary Follow on
Caple Percussive
Window Sample with Gas install
Red line boundary
Window Sample with Groundwater install
WS-01
WS-02
CP&RC-02
CP-03
WS-03
WS-32
CP-01
WS-04
CP-04
WS-22
WS-06
WS-07
CP-07
WS-05
CP&RC-05
CP&RC-06
CP&RC-08
WS-23
WS-09
WS-30
WS-31
WS-08
WS-11
CP-09
CP-10
WS-15
WS-24
WS-12
WS-13
CP-11
WS-29
WS-14
CP-14
Landfill area
CP&RC-13
CP-12
WS-28
CP&RC-15
WS-18
WS-19
WS-17
WS-25
CP-16
WS-16
WS-20
WS-26
WS-27
CP-18
WS-21
CP&RC-17
WS-22
Landfill area
High Rd
Works
Track

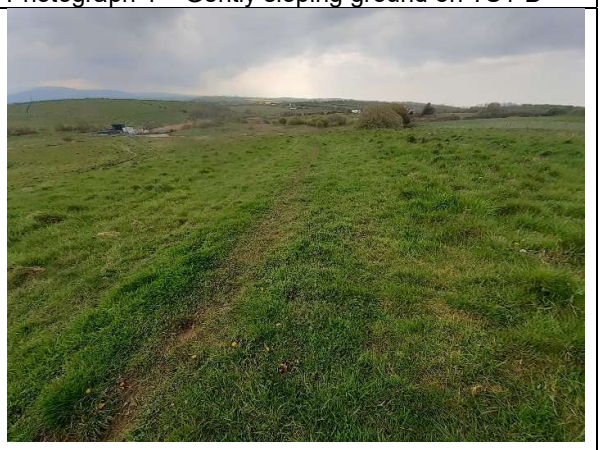
Appendix 3 – Site photographs

Photograph 1 – Large concrete slabs on MMS

Photograph 2 – Suitable reptile habitat between slabs

Photograph 3 – Tussocky grassland on TS1-C

Photograph 4 – Gently sloping ground on TS1-B

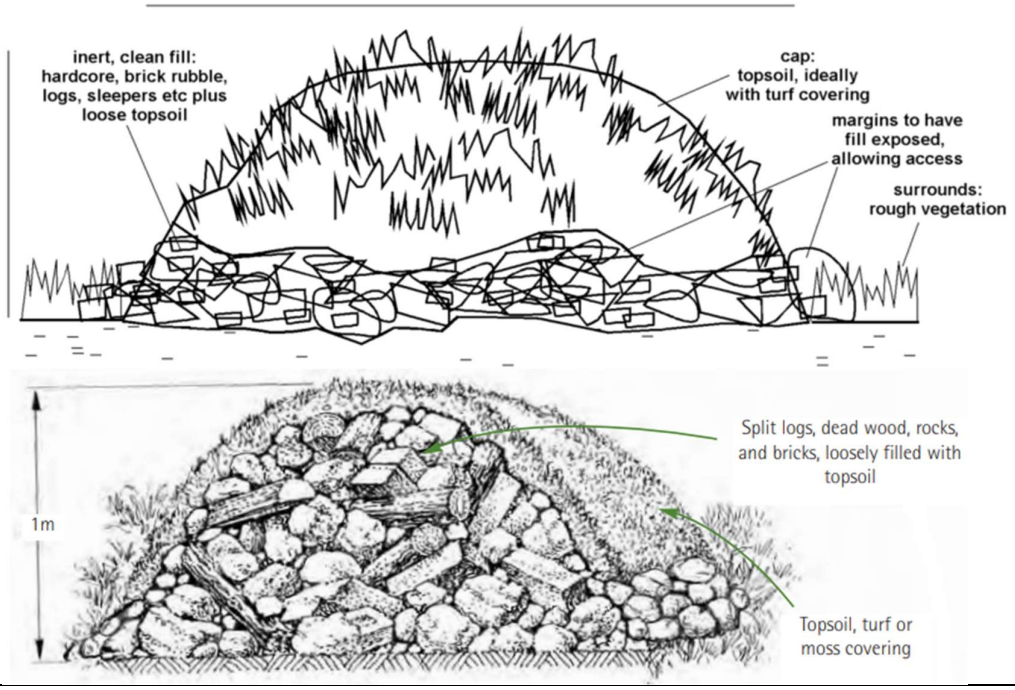


Photograph 5 - Slab present on OS-A

Photograph 6 – Rubble from previous land use

Appendix 4 – Indicative hibernacula design

Indicative hibernacula design cross-section, built on hardstanding (English Nature, 2001 & Froglife, 2001).



Example completed above ground hibernacula.