

ECOLOGICAL MANAGEMENT PLAN
ORIGINAL 15th August 2015

PERMISSION E/3008/14/CM

DIMMOCKS COTE QUARRY EXTENSION

CONSOLIDATION AND UPDATE OF OUTLINE
MANAGEMENT PLAN AND THE ECOLOGICAL DESIGN
STRATEGY

LKAB MINERALS LTD

2020

Ward Associates
48 Great Lane
Reach
Cambridge CB5 0JF
01638-744210

CONTENTS

1.	INTRODUCTION.....	4
2.	BACKGROUND ECOLOGICAL DATA AND ASSESSMENT.....	6
2.1	General.....	6
2.2	Designated sites.....	6
2.3	Habitats	7
2.4	Species	8
3.	MANAGEMENT OBJECTIVES	9
4.	Great crested newts	10
4.1	Purpose and conservation objectives for the proposed works.....	10
4.2	Review of site potential and constraints including an update of the survey and monitoring work.....	10
4.3	Updated detailed design(s) and/or working method(s) to achieve stated objectives.....	11
4.4	Final details of ecological features including cross-sections of proposed Great Crested Newt translocation ponds and the depths and grading of water bodies to be formed (including cross sections) and levels.	12
4.5	Timetable for implementation of all measures, demonstrating that works are aligned with the proposed phasing of development	14
4.6	Persons responsible for implementing the works	14
4.7	Details for monitoring and remedial measures.	15
5.	Water vole.....	15
5.1	Purpose and conservation objectives for the proposed works.....	15
5.2	Review of site potential and constraints including an update of the survey and monitoring work.....	16
5.3	Updated detailed design(s) and/or working method(s) to achieve stated objectives.....	16
5.4	Final details of ecological features.....	16
5.5	Timetable for implementation of all measures, demonstrating that works are aligned with the proposed phasing of development	16
5.6	Persons responsible for implementing the works	16
5.7	Details for monitoring and remedial measures.	17
6.	Breeding birds.....	17
6.1	Purpose and conservation objectives for the proposed works.....	17
6.2	Review of site potential and constraints including an update of the survey and monitoring work.....	17
6.3	Updated detailed design(s) and/or working method(s) to achieve stated objectives.....	17
6.4	Final details of ecological features.....	18
6.5	Timetable for implementation of all measures, demonstrating that works are aligned with the proposed phasing of development	18
6.6	Persons responsible for implementing the works	18
6.7	Details for monitoring and remedial measures.	18
7.	Reptiles	18
7.1	Purpose and conservation objectives for the proposed works.....	18

7.2	Review of site potential and constraints including an update of the survey and monitoring work.....	18
7.3	Updated detailed design(s) and/or working method(s) to achieve stated objectives.....	19
7.4	Final details of ecological features.....	19
7.5	Timetable for implementation of all measures, demonstrating that works are aligned with the proposed phasing of development	19
7.6	Persons responsible for implementing the works	19
7.7	Details for monitoring and remedial measures	19
8.	Badgers	20
8.1	Purpose and conservation objectives for the proposed works.....	20
8.2	Review of site potential and constraints including an update of the survey and monitoring work.....	20
8.3	Updated detailed design(s) and/or working method(s) to achieve stated objectives.....	20
8.4	Final details of ecological features.....	20
8.5	Timetable for implementation of all measures, demonstrating that works are aligned with the proposed phasing of development	20
8.6	Persons responsible for implementing the works	21
8.7	Details for monitoring and remedial measures.	21
9.	HABITAT MANAGEMENT PLAN	21
9.1	Background	21
9.2	Habitats	21
	APPENDICES AND FIGURES.....	26

ECOLOGICAL MANAGEMENT PLAN INCORPORATING THE ECOLOGICAL DESIGN STRATEGY

1. INTRODUCTION

1.1.1 Planning permission at Dimmocks Cote Quarry for an extension to quarry for extraction of limestone, provision of new storage building, importation of inert fill, ancillary recycling of inert material and revised restoration LPA REF: E/3008/14/CM was approved with conditions in 2016 following the submission of a management plan revised 13th August 2015.

1.1.2 Following this, and with due reference to the management plan, an ecological design strategy was prepared as part of Condition 26. Included in this ecological design strategy were a number of actions which were dated. This was approved 11th April 2019.

1.1.3 As a result of the delays to the determination and implementation of the planning permission, in part as a result of legal action and the time to issues an Environmental Permit, the implementation timetable has not been possible. In seeking to review the progression of the strategy, it became apparent that the management plan, which was intertwined with the strategy, was five years old and needed reconsideration.

1.1.4 This document therefore forms a composite strategy and updated management plan, based on the latest information available, and on the up to date surveys undertaken by drone on 9th October 2020 and fulfils the terms of Conditions 26 and 42.

1.1.5 Condition 26 reads as follows:

26. Ecological Design Strategy (EDS)

No development shall commence until an ecological design strategy (EDS) addressing mitigation, compensation, enhancements and restoration for protected species, and habitats of ecological value, including but not limited to measures to take account of and protect:-

- Great crested newts (to include a protection and translocation scheme);
- Water vole (to include a protection and translocation scheme as required);
- Breeding birds (to include compensatory measures and provision for removal of habitat that could support breeding birds outside of the nesting season);
- Reptiles (to include a translocation scheme and enhancement of habitat);
- Badgers (to include consideration)

has been submitted to and approved in writing by the Mineral and Waste Planning

Authority. The EDS shall include, but not be limited to, the following:-

- a) Purpose and conservation objectives for the proposed works;
- b) Review of site potential and constraints including an update of the survey and monitoring work;
- c) Updated detailed design(s) and/or working method(s) to achieve stated objectives;
- d) Final details of ecological features including cross-sections of proposed Great Crested Newt translocation ponds and the depths and grading of water bodies to be formed (including cross sections) and levels;
- e) Timetable for implementation of all measures, demonstrating that works are aligned with the proposed phasing of development;
- f) Persons responsible for implementing the works; and
- g) Details for monitoring and remedial measures.

The EDS shall be implemented entirely in accordance with the approved details and timetable and all features shall be retained in their entirety.

Reason: To protect species and habitat within the application site (including protected species) and to enhance biodiversity and the natural environment in accordance with policies CS25 & CS35 of the Cambridgeshire and Peterborough Minerals and Waste Core Strategy (2011) and policy ENV7 of the East Cambridgeshire Local Plan (2015).

1.1.6 Condition 42, amended by NMA ref E/3008/14/CM/N1 approved 11 April 2019 reads:

Within three months of the implementation of the planning permission hereby granted, in relation to the area identified as Area A, and coloured red on Plan CCC5 Existing Wetland Habitat Area to be Protected attached to the decision notice dated 20 June 2016, details of the start date for the implementation of the programme within the Management Plan revised 13 August 2015 for the first 5 year period and the date by which the annual reports shall be provided, which shall include any necessary proposed mitigation measures shall be submitted to and approved in writing by the Mineral and Waste Planning Authority. Within three months of the expiry of the end of year 5 of the implementation of the approved Management Plan in relation to Area A, a review report and proposals for the further management of Area A (for the period until the aftercare scheme for phase 13 as shown of the phasing drawing CP/FF/DCN/04m Rev c is completed) shall be submitted to and approved in writing by the Mineral and Waste Planning Authority. Area A as shown on Plan CCC5 Existing Wetland Habitat Area to be Protected attached to the decision notice dated 20 June 2016, shall be managed in accordance with the revised approved details until the aftercare scheme for Phase 13 is implemented

1.1.6 Prior to submitting the ecological design strategy, in view of other requirements for consideration of great crested newts and other protected species, a Discretionary Advice Service meeting was held with Cressida Day from Natural England to discuss options for management in the light of the new policies instigated by Natural England.

1.1.7 The submitted strategy took into account the agreed outcome of that meeting. In particular this concluded that there was no need for the

fencing of the current Area A (see plan CCC5; appended as Figure 1) holding great crested newts or for the fencing around the extension area. No translocation under the original methodologies of the Great Crested Newt Mitigation Guidelines is required and no search for great crested newts is required ahead of Phase 5. The same was considered to be true for all other protected species. No further survey was required for mitigation purposes prior to applying for an EPS licence after Phase 5.

- 1.1.8 Mitigation and enhancement works would however take place earlier and this is included below.
- 1.1.9 For the purposes of clarity the core area referred to in the original application is that within the formerly proposed area for great crested newt fencing, shown on drawing number CP/FF/DCN/11 also referred to as Area A on plan CCC5 (appended as Figure 1).
- 1.1.10 No modification has been made to the approved agricultural aftercare scheme and this is reproduced in its entirety as Appendix 2.

2. BACKGROUND ECOLOGICAL DATA AND ASSESSMENT

2.1 General

- 2.1.1 This section reports the surveys undertaken during the preparation of the planning application and updated assessments including results of badger survey and the drone surveys undertaken to monitor habitat on 9th October 2020.
- 2.1.2 The assessment of the importance of individual features is made using the criteria provided in Appendix 1.

2.2 Designated sites

- 2.2.1 The following designated sites are within 3 km of the site.

International sites

Fenland Special Area of Conservation (SAC) comprising wetland habitats of Chippenham Fen, Wicken Fen and Woodwalton Fen SSSI.

Wicken Fen Ramsar site

National Sites

Wicken Fen SSSI, Wicken Fen National Nature Reserve, Cam Washes SSSI, Upware Bridge Pit North geological SSSI, Upware North Pit SSSI, Upware South Pit geological SSSI.

County Wildlife Sites

Kingfisher's Bridge Wetland, River Cam, River Great Ouse.

2.3 Habitats

2.3.1 The ecological surveys undertaken in 2014 identified that the site contained a mosaic of habitats, particularly in Area A (Figure 3).

2.3.2 Comparison of drone survey in 2020 against Google Earth photographs in 2012, 2015 and 2018 allowed identification of the following changes to the habitats recorded in 2014. Photographs in Appendix 4 show the changes.

Table 1: Descriptions of Habitats present on site

Habitat	Description	Value in 2014	Change since 2014 survey identifying those requiring management in the Wetland Habitat area*
<i>Existing Quarry</i>			
Trees and scrub.	Tree planting principally around the boundary to the site and scrub in the drier and wetter areas on the base	Site	Increased density of scrub in TS5* and G2 to the north-east of OW7*
Rank grassland	Drier areas on the north western part of the quarry (forming a mosaic with the ruderal areas and scrub), damper areas towards the eastern end of the site	Site	Increased grassland on previously bare ground east of OW7, increasing bramble component in G1*
Fen and carr	Extensive areas of swamp in low lying areas east of OW2, fulfilling criteria for County Wildlife Site	County	Remains, slight increase in tree/scrub cover
Tall herb/ruderals	Abundant on screening bunds and around the pond areas	Site	

Habitat	Description	Value in 2014	Change since 2014 survey identifying those requiring management in the Wetland Habitat area*
Swamp	Extensive areas of reed swamp, mainly associated with W1 and W2. Habitat of Principal Importance	District	Increased scrub/ trees to south of OW5*
Open water ponds	Several ponds located on the base of the quarry OW1 to OW7 fulfill criteria for County Wildlife Site due to their botanical interest	County	
Seasonal ditches	Scattered throughout the lower parts of the site supporting a characteristic suite of wetland plants	Local	
Bare ground	Associated with the current and recently worked quarry area;	Site	
Ephemeral/short perennial	Extensive areas at the eastern end of the site	Site	
<i>Extension Area</i>			
Trees	A row of non-native trees along the eastern boundary	Site	
Arable	Majority of area	Site	
Rank neutral grassland	Strips to the south and west of the arable field	Site	
Scrub/hedgerow	Around the edge of the arable field	Site	

2.4 Species

2.4.1 No protected plant species was recorded. Two species are considered rare:

- Cat mint *Nepeta cataria*. A single plant in the western boundary of the existing quarry. Listed as Vulnerable in Great Britain.
- Saw sedge *Cladium mariscus*. Locally frequent on the lower central part of the site in the wetland areas. Although uncommon, it is widespread in East Anglia and nearby Wicken Fen is a stronghold for this species.

2.4.2 Table 2 provides a summary of the status of the fauna. All species and populations of species, including those with statutory protection are evaluated on the same basis, thus for example a small population of a scarce or protected species in an area where the species is widespread will not rank highly. The converse is true. No changes were considered likely to have occurred following the 2020 aerial assessment.

Table 2: Summary of Status of Fauna

Species	Location	Importance
Invertebrates	Not surveyed. Interest concentrated in wetland area	Possible County
Amphibians	Medium population of great crested newts in exiting ponds on quarry floor	Local
Reptiles	Small population – two individuals.	Site
Breeding Birds	Notable variety due presence of wetland habitats	Local
Water vole	OW1, possibly OW2	Local
Badger	Not recorded on site	N/A

3. MANAGEMENT OBJECTIVES

3.1.1 These are as follows:

- To manage existing vegetation and habitats, including on the periphery of the site outside of the development areas: to maintain visual screening of the site during extraction; to conserve and enhance the character of the existing landscape;
- To protect and enhance existing habitats, particularly the wetland habitats;
- To protect and enhance protected species and Species of Principal Importance during extraction, landfilling and restoration operations as approved under the planning consent;
- To restore habitats, as approved under the planning consent, to reach nature conservation importance so as to provide a 'stepping stone' between Wicken Fen NNR and Kingfisher Bridge CWS and to provide an opportunity for sustainable long-term biodiversity gain within the site and the local area.

3.1.2 The approved restoration plan (CP/FF/DCN05 Rev e) is given as Figure 4.

- 3.1.3 The implementation of these objectives with regard to species is identified in the following Sections 4-8 as detailed in the approved Condition 26, the Ecological Design Strategy. Minor modification has been made to these, particularly with regard to dates so as to align with the actual start date for the quarry.
- 3.1.4 Management prescriptions for the other habitats to be managed during the working period and following restoration are given in Section 9.
- 3.1.5 Table 4 provides an indicative summary of the timescale of each phase and major actions that will take place and Table 5 the activities that management actions over the first five years.

4. GREAT CRESTED NEWTS

4.1 Purpose and conservation objectives for the proposed works

- 4.1.1 There is currently known to be a medium population of great crested newts on the site. The conservation objective is to maintain and enhance the habitats on the site such as the population will remain secure.

4.2 Review of site potential and constraints including an update of the survey and monitoring work

- 4.2.1 Dimmocks Cote has held a population of great crested newts for at least 20 years, throughout the working of the quarry.
- 4.2.2 No additional survey work is required until an EPS licence is sought for works which will take place immediately to the north of the current population in Phase 6 as shown in Figure 5.
- 4.2.3 The site has good potential to maintain the population of great crested newts given that Area A is being retained and enhanced and that the restoration provides for additional ponds suitable for breeding great crested newts. A management plan will be put in place to ensure this as a result of the licence application.
- 4.2.4 Great crested newts and their habitats are fully protected under the Wildlife and Countryside Act 1981 and the Conservation of Habitats and Species Regulations 2010.

4.3 Updated detailed design(s) and/or working method(s) to achieve stated objectives

- 4.3.1 Discussions with Natural England following a site visit by Cressida Day on 14 November 2016 under the Discretionary Advice Service have identified the working practices to be followed during the working of the quarry.
- 4.3.2 It was concluded that it is not reasonably likely that great crested newts will be affected during the workings of Phases 1-6. Nevertheless, a toolbox talk will be given to all operators on the site to ensure that they are fully aware of the implications of the presence of great crested newts and the course of action to be taken should one be found.
- 4.3.3 Irrespective, it was concluded that no fencing is required on the site, either around the existing great crested newt area or around the arable land forming the extension area. It was considered that the latter was unnecessary and that the former was likely to damage a significant area of habitat. Further, fencing great crested newts away from what was considered unsuitable habitat was unnecessary.
- 4.3.5 Compensation ponds to the south will be created not later than summer 2030 so as to ensure that there is a 3-year period to allow the ponds to mature prior to the loss of OW6, projected in 2033. Details of design are given in section 2.4. No EPS licence is required for their construction due to the nature of the ground. The outline specification is given in paragraphs 4.4.2 -4.4.4.
- 4.3.6 Management will take place on an annual basis according to a management plan to be agreed with Natural England as part of a licence application for the loss of OW6 and the working of Phase 6. This will include the planting and management of suitable aquatic plants and surrounding vegetation and the provision and maintenance of hibernacula.
- 4.3.7 Great crested newt survey will be undertaken during Phase 5 prior to works taking place in Phase 6 to inform the EPS licence application to work the slope behind OW6. The methodology for the licence was discussed with Natural England. OW6 will be drained under licence in winter 2033 before the works taking place in the new Phase 12 and will be maintained dry from thenceforth.

-
- 4.3.8 The licence will then cover the remainder of the site and will follow the new principles being trialled by Natural England during the DAS consultations and now adopted. In summary this will seek to maintain and enhance the Area A for great crested newts, including scrub management, management off common reed so as to open up waterbodies, the planting of suitable egg laying plants, provision of hibernacula and potentially to be determined, fish removal.
- 4.3.8 It was concluded during the discussions that no specific measures are required in Phases 1, 2, 3, 4, 5, 7, 9 and 11 . Prior to Phases 6, 8, 10, 12 and 13, the vegetation on the face will be cut back to facilitate access and the placing of terrestrial refugia, night searching and hand searching will allow any terrestrial newts present in the limited areas to be caught ahead of preliminary earth works. This has been included in licences in the past. Any great crested newts caught will be placed in the Area A.
- 4.3.9 Following restoration in September 2037 additional enhanced habitats, consisting of four further additional ponds (making a total of 7), unimproved neutral grassland and fen with scrub will provide significant additional habitat, to increase the carrying capacity of the site for great crested newts.
- 4.4 Final details of ecological features including cross-sections of proposed Great Crested Newt translocation ponds and the depths and grading of water bodies to be formed (including cross sections) and levels.**

New features

- 4.4.1 There will be the creation of seven water bodies as identified on Figure 4 (CP/FF/DCN/05 Rev e). Final drawings are not provided because they will be constructed so as to fit into the landscape during landforming to ensure that finished water levels are appropriate and therefore the shape may change. These will however all be based on Figure 5 which has been previously approved by Natural England and follows the Great Crested Newt Mitigation guidelines.
- 4.4.2 Each new pond will have a minimum surface area of 200 sq metres These will be created with a maximum depth of 1.0 metres where they are smaller than 250 sq m metres and 1.5 metres deep where they are greater than this area. This is to ensure that the sides have a suitable gradient and

that aquatic vegetation including common reed cannot cover the entire pond surface.

- 4.4.3 Each pond will be planted at a ratio of 3 plants/sq. metre above for a metre above and below the summer water line every 10 metres, with species taken from the following:

Alisma plantago aquatica, Apium nodiflorum, Mentha aquatica, Myosotis scorpioides, Rorippa nasturtium aquatica, Sagittaria sagittaria, Veronica beccabunga

Aquatic plants will be taken from the following species:

Myriophyllum spicatum, Persicaria amphibia, Potamogeton natans, Potamogeton crispus

- 4.4.4 There will be the creation of 0.4 ha of unimproved rough neutral grassland surrounding the first three ponds to be created and a further 3.2 ha unimproved rough neutral grassland around two further ponds. Seeding of British Seed Houses Mix A Reclamation Country Parks Seed Mix or other similar and suitable mix will be undertaken to create the rough tussocky grassland. Of this, some 0.5 ha is expected to be seasonally damp. The grassland is optimal habitat for great crested newts.
- 4.4.5 Hedgelines were planted in 2017 to the west and east of the Application site as described under Condition 28.
- 4.4.6 Refugia will be created at a ratio of 1 per existing and new pond, with a further one adjacent to the long water body totalling 16. These will be to the specification in the Great Crested Newt Mitigation Guidelines. Three will be created adjacent to OW1, OW2 and OW7 in Year 4 of the 5-year management plan.

Existing features

4.4.7 Management of the existing features in the Area A will take place according to the management plan (formerly as detailed in Condition 42 but now updated within this document in Section 9). This provides for the management of existing scrub to be removed during the winter, so as to create a mosaic of grassland and woody vegetation, spraying of ruderal vegetation on the bunds, prevention of the encroachment of scrub into the grassland areas, maintaining wetland habitat mosaic and maintenance of the area of common reed around waterbodies to no more than 50% in total of the water surface.

4.5 **Timetable for implementation of all measures, demonstrating that works are aligned with the proposed phasing of development**

4.5.1 The following timetable identifies the creation of all features and the management of existing ones.

Table 3: Timetable for creation and management of great crested newt features .

Feature	Allied to Phase	Management / creation	Date
Management of 'Area A'	Current	Scrub clearance, vegetation management, creation of refugia	Autumn/ winter 2020/21 - 2025
Survey	5	-	Spring 2028
Ponds 1-3, refugia	7	Creation	2030
Grassland around ponds 1-3	7	Seeding	2030
Pond OW6	12	Drawdown and loss	Autumn 2033
Terrestrial search on face between phase and Area A	6, 8, 10, 12 and 13		During previous phase
Restoration	On- going		

4.6 **Persons responsible for implementing the works**

4.6.1 LKAB will be responsible for all works.

4.7 Details for monitoring and remedial measures.

4.7.1 Annual inspection of all ponds and adjacent habitat will take place regarding the following matters:

- Aquatic vegetation coverage to ensure that egg laying plants are present leading to management if required. It is expected that planted aquatic vegetation should have increased to 50% after 3 years. If this has not occurred, then additional planting should be undertaken.
- Marginal vegetation and shading leading to management if required.
- Rubbish leading to removal.
- Woodland and scrub condition leading to management if required.
- Levels of silt/ leaf fall leading to removal if required.
- Grassland status leading to modification of cutting/ grazing as required.

4.7.2 From the above, HSI scores will be calculated bi-annually to monitor suitability of habitat.

4.7.3 Population estimate surveys will be undertaken in 2028 to inform the great crested newt licence as agreed with Natural England. They will then be undertaken in 2033 (three years after the creation of the first new ponds to ascertain use) and in 2037 and 2041

5. WATER VOLE

(to include a protection and translocation scheme as required);

5.1 Purpose and conservation objectives for the proposed works

5.1.2 The conservation objective is to maintain and enhance the habitats on the site such as the population will remain secure.

5.1.2 Water voles and their places of shelter are fully protected under the Wildlife and Countryside Act 1981.

5.2 Review of site potential and constraints including an update of the survey and monitoring work

5.2.1 The Ecological assessment reported that 'droppings and feeding stations were recorded in 2 locations on OW1. It is possible that they also occurred on OW2 but searching for evidence was difficult. The habitat within OW1, OW4/5 and OW7 was not generally considered suitable for water vole given the lack of aquatic vegetation and the ditch off OW7 varied greatly in water level'.

5.2.2 Recent assessment of habitat suitability identified that OW6 was also unlikely to hold water vole due to lack of aquatic vegetation and ephemeral nature.

5.3 Updated detailed design(s) and/or working method(s) to achieve stated objectives

5.3.1 No further updated design is appropriate. Management will be undertaken so as to maintain the limited suitability of the existing waterbodies as under the submitted management plan.

5.3.2 In the summer prior to the draining down of the waterbody OW6 in 2033, a survey shall be undertaken to ensure that water voles are not present. If present they will be displaced under Natural England licence prior to the draining down. No translocation will be required.

5.4 Final details of ecological features

5.4.1 Not appropriate for this species.

5.5 Timetable for implementation of all measures, demonstrating that works are aligned with the proposed phasing of development

5.5.1 Survey will be undertaken in summer 2031.

5.6 Persons responsible for implementing the works

5.6.1 LKAB will be responsible for all works.

5.7 Details for monitoring and remedial measures.

5.7.1 None required.

6. BREEDING BIRDS

(to include compensatory measures and provision for removal of habitat that could support breeding birds outside of the nesting season);

6.1 Purpose and conservation objectives for the proposed works

6.1.1 The conservation objective is to maintain and enhance the habitats on the site such as the population of breeding birds will remain secure.

6.2 Review of site potential and constraints including an update of the survey and monitoring work

6.2.1 Forty five species were recorded of which eighteen species were recorded in pairs and were likely to have bred. All were within the existing quarry, predominantly in Area A, with the exception of linnet which were recorded in the northern boundary scrub and sand martin in 2010 which were in an active face. No Schedule 1 species were recorded.

6.2.2 All breeding birds, their young, eggs and their nests are full protected under S1 of the Wildlife and Countryside Act 1981.

6.3 Updated detailed design(s) and/or working method(s) to achieve stated objectives

6.3.1 Vegetation clearance will be undertaken outside the breeding season (mid March - end July) unless the area has first been inspected by a competent ecologist to ascertain that no nests are present. Should any be present then a 5 metre standoff shall be left until all young have flown. This is particularly applicable to the dense bramble on the northern face of the existing quarry

6.3.2 Conservation management within Area A shall ensure that habitat, particularly marginal tall aquatic vegetation and scrub, remains so as to provide a satisfactory resource for breeding birds.

6.4 Final details of ecological features

6.4.1 This is as shown on the restoration drawing.

6.5 Timetable for implementation of all measures, demonstrating that works are aligned with the proposed phasing of development

6.5.1 Vegetation clearance shall be undertaken in the winter prior to entry into each new phase.

6.6 Persons responsible for implementing the works

6.6.1 LKAB will undertake the works.

6.7 Details for monitoring and remedial measures.

6.7.1 Regular monitoring of mineral faces will be undertaken so as to ensure that no sand martins are present prior to proceeding with extraction.

6.7.2 Given that Area A is being retained, no monitoring of bird populations is required. Assessment for the purposes of determining the need for remedial management will be undertaken by assessment of habitat suitability.

7. REPTILES

(to include a translocation scheme and enhancement of habitat);

7.1 Purpose and conservation objectives for the proposed works

7.1.1 The conservation objective is to maintain and enhance the habitats on the site such as the population of reptiles will remain secure.

7.1.2 Grass snakes are protected against intentional killing, injuring and taking under the Wildlife and Countryside Act 1981.

7.2 Review of site potential and constraints including an update of the survey and monitoring work

7.2.1 Survey in 2014 identified the presence of two separate grass snakes suggesting a low population. These were within the Area A which will be subject to enhancement.

7.2.2 No other land within the quarry or the extension area is considered suitable to hold a reptile population.

7.3 Updated detailed design(s) and/or working method(s) to achieve stated objectives

7.3.1 The habitats within the Area A, supplemented by the restoration as the quarry proceeds will maintain the population.

7.3.2 Discussions with Natural England have confirmed that no translocation is necessary given the poor quality of any habitat within the extension area.

7.4 Final details of ecological features

7.4.1 The objective of management within the Area A is to maintain a mosaic habitat. Small areas of bare ground will be created and scrub retained so as to provide a mosaic habitat. Shrub heights will be arranged to form a gradient from tall woody species to rough grassland at the edges with scalloped edges to create sheltered and warm conditions along south-facing boundaries.

7.4.2 Specific habitat features to assist reptiles to bask, forage, shelter and hibernate will be provided in the Area A. These habitat features will include hibernacula (as for great crested newts), log piles, brash piles and decomposed natural material (for egg-laying).

7.5 Timetable for implementation of all measures, demonstrating that works are aligned with the proposed phasing of development

7.5.1 These works will be undertaken as part of the habitat management plan (Tables 4 and 5).

7.6 Persons responsible for implementing the works

7.6.1 LKAB will undertake the works.

7.7 Details for monitoring and remedial measures

7.7.1 Given the wide-ranging habits of grass snake, regular species monitoring is not appropriate.

7.7.2 Assessment of habitat conditions will be undertaken annually, as for great crested newts, and this will be used to determine whether remedial actions needs to be undertaken.

8. BADGERS

(to include consideration);

8.1 Purpose and conservation objectives for the proposed works

8.1.1 To ensure compliance with the Protection of Badgers Act 1992 which provides full protection for badgers and their setts.

8.2 Review of site potential and constraints including an update of the survey and monitoring work

8.2.1 There is the potential for setts to develop in the peripheries of the site and in the northern and western faces.

8.3 Updated detailed design(s) and/or working method(s) to achieve stated objectives

8.3.1 No design modifications required.

8.3.2 Prior to entry into any Phase, an assessment of the site shall be undertaken so as to determine the presence of otherwise of badgers. This timing should be such that a licence for the closure of any sett that has developed can be gained. Appendix 3 provides the assessment undertaken before entry into Phase 1.

8.4 Final details of ecological features

8.4.1 Not applicable.

8.5 Timetable for implementation of all measures, demonstrating that works are aligned with the proposed phasing of development

8.5.1 As under paragraph 8.3.2.

8.6 Persons responsible for implementing the works

8.6.1 LKAB is responsible for the work.

8.7 Details for monitoring and remedial measures.

8.7.1 As paragraph 8.3.2.

9. HABITAT MANAGEMENT PLAN

9.1 Background

9.1.1 This section considers the management of the habitats within the quarry, both those currently present and following restoration. Additional detail is provided where these are to be created or managed within the first 5-year period of the management plan. It incorporates the requirements of species as described in the preceding sections 4 -8.

9.1.2 The proposed management will support the objectives as given in paragraph 3.1.1.

9.2 Habitats

9.2.1 The following table identifies each habitat, its status on the site, the management required, the species that it supports and the desirable condition. It summarizes and updates the outline prescriptions within the approved Management Plan revised 13th August 2015 as referred to in Condition 14.

Table4: Outline Prescriptions

Habitat	Status	Location	Desired condition	Management	Frequency	Dates
<i>Existing habitats</i>						
Trees	Site	Boundary	Retained to keep screening	Retain trees, replant if failed*	As necessary	On-going
Scrub		Boundary and wetter parts of site in Area A.	Present but not encroaching into important wetland habitats	Cutting and stump treatment during winter to retain mosaic. Waste used to provide log piles.	As necessary	On-going
Hedgerows	Site	Boundary	Retain and improved structure	Alternate cut each side *	Biannually	On-going
Bare ground	Site	Working areas and areas that are self-regenerating.	Present	None required during working on quarry	N/A	N/A
		Part of fen mosaic desired <5%		Retention if required	As required	On-going
Rank grassland	Site	Part of fen carr mosaic.	Retained but not allowed to develop woody encroachment	Cutting in late autumn/ winter - waste used to create habitat piles Monitor situation and cut if required	As necessary	On-going
Ephemeral / short perennial	Site	Primarily east end of site	Present	None required, currently managed by rabbit grazing	As necessary	On-going
Tall herbs/ Ruderal	Site	Bunds, wetlands	Limited blocks - ensure that it does not become dominant	Cut late summer / autumn or spray during periods of growth	As required	On-going
Fen / carr	District	Base of existing quarry	Mosaic of open water, reed, sedge, wet woodland. No dominant habitat type	Cutting, lowering ground level, water level management. Usually winter except around OW1 and OW2 due to presence of water voles	As required	On-going
Ponds - existing	County	OW 1-7	Open water present and	OW6 is operational	As required	Autumn / winter

Habitat	Status	Location	Desired condition	Management	Frequency	Dates
			depth retained in OW 1-5, OW7 Reed does not encroach more than 50% of water surface and <60% margins	pond - no management to be drained 2033 Reed control by cutting - fringe to be left		
Ditches	Local	Base of quarry	Open water visible where permanent, not choked with emergent vegetation where ephemeral. To allow diversity of aquatic vegetation.	Cutting, lowering ground level, water level management. Usually winter except around OW1 and OW2 due to presence of water voles	As required	On-going
<i>Following restoration</i>						
Hedges	-	Boundary hedge planting	Specification in Condition 28	Maintain and replant if required as in Condition 29 *	Planting undertaken	Management 2017 - 2022
Ponds - to be created	-	Three compensation newt ponds in quarry base with surrounding grassland and refugia	To attached specification (Figure 5).	Creation, planting and aftercare	As required by licence	Creation 2030
		Four waterbodies in restoration area	Specification to be submitted under Condition 43		One off action of restoration	Creation 2034 onwards
Calcareous grassland	-	Restoration around margins of site and west of agricultural grassland	Specification to be submitted under Condition 43	Established with proprietary seed mix after preparation of suitable seed bed. After initial regular cutting, annual cutting in mid-summer	Progressive restoration	Commence 2032
Neutral grassland	-		Specification to be submitted under Condition 43	Established with proprietary seed mix after preparation of suitable seed bed. After initial regular	Progressive restoration	Commence 2024

Habitat	Status	Location	Desired condition	Management	Frequency	Dates
				cutting, annual cutting in mid- summer		
Agricultural land	-	North and east of restored site	Productive land as best and most versatile quality	Approved after care scheme (revision 13 th August 2015) attached as Appendix 2	Progressive restoration	Commence 2024

9.2.2 The above table provides the formal notification of removal without replanting in the cases of those actions marked in the cases marked * as required by the Condition 30.

9.2.3 Table 5 provides an updated summary of all actions proposed for the site within the period 2021 to 2026 as identified within the Sections 4-8 and prescriptions for Area A as required under Condition 42. This will start on 1st January 2021. Notification of this date provides the compliance with Condition 42 as amended by NMA E/3008/14/CM/N1

Table 5: Actions to be undertaken in Years 1-5 (2021-2025)

Target	Method	Year 1	Year 2	Year 3	Year 4	Year 5
<i>Management</i>						
Trees and scrub	Inspect and identify scrub to be removed so as to maintain mosaic. Particular attention to area south of OW5 and north east of OW7, TS5.	*				
	Remove scrub		*		*	
Ponds	Inspect to ensure open water present, rubbish not present, appropriate levels of shading, reed cover and silt	*	*	*	*	*
	Assess reed dominance and remove if necessary. Aim <60%		*		*	
Mosaic grasslands/ short ephemeral/ ruderal	Assess to ascertain need to cut / spray and for presence of appropriate levels of bare ground with a gradient of vegetation height.	*	*	*	*	*
	Cutting / spraying if required. Particular attention to bramble Area G1	*		*		*
Ditches	Ensure free of blockages and assess reed / emergent	*	*	*	*	*

Target	Method	Year 1	Year 2	Year 3	Year 4	Year 5
	dominance and presence of open water					
Habitat features	Create 6 features - log piles/ brash piles/ grass piles. To include 3 refugia by OW1, OW2 and OW7 in Year 4.		*		*	
Hedgerows	Cut where feasible (given proximity of void)	*		*		*
<i>Monitoring</i>						
HSI assessment		*		*		*
Mineral faces	Assess for sand martin use	*	*	*	*	*
<i>Quarry progression (as required)</i>						
Badgers	Survey prior to entry into new phase	*	*	*	*	*
Breeding birds	Survey prior to entry into new phase as required	*	*	*	*	*
	Winter scrub clearance prior to entry into new phase as required	*	*	*	*	*

9.2.3 Reporting to the MPA will be undertaken by 31st March annually commencing on 31st March 2022.

APPENDICES AND FIGURES

APPENDIX 1: CRITERIA FOR ASSESSMENT OF ECOLOGICAL INTEREST

Scale	Species	Habitat
International:	A regularly occurring population of an internationally important species, which is threatened or rare in the UK, where the population is a critical part of a wider population or where a species is at a critical phase in its life cycle at this scale.	An internationally designated site ie SAC, SPA, Ramsar, or one proposed for designation. Sites supporting areas of priority habitats which are scarce at an international level or where it is needed to maintain the viability of a larger area at that level.
National	A regularly occurring population/number of a nationally important species which is threatened or rare, where the population is a critical part of a wider population or where a species is at a critical phase in its life cycle at this scale. A regularly occurring population of a nationally important species on the edge of its natural range. A species assemblage of national significance.	A nationally designated site ie SSSI or one that meets the published criteria. Sites supporting areas of priority habitats which are scarce at a national level or where it is needed to maintain the viability of a larger area at that level.
Regional	A regularly occurring, locally significant population of a species listed as being nationally scarce. A regularly occurring, locally significant number of a regionally important species or where the population is a critical part of a wider population or where a species is at a critical phase in its life cycle at this scale. A species assemblage of regional significance.	Sites supporting a viable area of a priority habitat which is scarce at a regional level or where it is needed to maintain the viability of a larger area at that level.
County	Any regularly occurring, locally significant population of a species which is listed in a county Red Data Book or BAP on account of its rarity. A regularly occurring, locally significant number of a county important species or where the population is a critical part of a wider population or where a species is at a critical phase in its life cycle at this scale. A species assemblage of county significance.	A County designated site or one that meets published criteria. Sites supporting a viable area of a priority habitat which is scarce at a county level or where it is needed to maintain the viability of a larger area.
District	A population of a species that is listed in a district BAP because of its rarity in the locality. A species assemblage of district significance. A regularly occurring,	Sites/features that are scarce within the district. Areas of Semi Natural Ancient Woodland.

Scale	Species	Habitat
	locally significant number of district importance or where the population is a critical part of a wider population or where a species is at a critical phase in its life cycle at this scale.	
Local	Populations or species assemblages considered to enhance the local ecological resource, e.g. a breeding bird assemblage	Local Nature Reserves. Areas of habitat considered to enrich appreciably the habitat resource within the context of the locality or which buffer those of a more important nature.
Site	Populations or species assemblages insufficient to be considered in the wider context.	Habitats or areas of habitat insufficient to be considered in the wider context.

APPENDIX 2: APPROVED AGRICULTURAL AFTER CARE SCHEME

APPENDIX 2: APPROVED AGRICULTURAL AFTER CARE SCHEME

Agricultural Aftercare scheme

1.0 Introduction

- 1.1 The objective of this aftercare scheme is to ensure that after initial restoration of the site to the approved contours and gradients the agricultural land identified on drawing number CP/FF/DCN/05 is suitably managed for a period of 5 years to ensure that the land is capable of maintaining an agricultural afteruse and the quality of the soil resource is protected.
- 1.2 Good aftercare is in the long term interests of the land and this should ensure that the farming practises of the landowner are sympathetic to the special needs of restored land.
- 1.3 This aftercare scheme only addresses the infilled part of the site which is being restored to condition which is capable of supporting an agricultural afteruse (see drawing number CP/FF/DCN/05). A scheme for the ecological management of the remainder of the site including existing habitats has been developed by Phillip Parker Associates.
- 1.4 The site comprises part of an existing quarry and part of an extension to that quarry. The quarry void shall be partly infilled using imported inert fill and restored using soil currently in store and soils to be stripped and placed from the extension area. None of the site has been restored; it is proposed that the site should enter aftercare on a phased basis as final soil placement takes place.

2.0 Outline Strategy

- 2.1 The outline strategy for the aftercare of the site describes the programme of steps that will be carried out during the aftercare period and which are devised to bring the restored site back to a condition capable of supporting a beneficial agricultural afteruse.

3.0 The objectives

- 3.1 The method of soil placement practised in the restoration should result in an adequately fissured restored soils profile. The principle objectives of the aftercare scheme are:
 - To encourage stabilisation of these primary fissures
 - To encourage the development of smaller stable structural units, especially in the upper rooting zone of the soils profile.
 - To ensure that the land drains to a standard that would allow the establishment of permanent pasture.
- 3.2 These objectives will be achieved by the stimulation of biological activity encouraged by appropriate cropping, good management, the implementation of a progressive soil loosening programme and the maintenance of an appropriate drainage scheme.

4.0 Cropping Pattern

- 4.1 It is anticipated that the land will eventually put down to permanent low input pasture however because of the likely timing of soil replacement and the potential need to carry out remedial works, the first crops may well be either cereals or a short-term grass ley.

- 4.2 Future cropping variations such as arable crops or possibly longer term grass leys will be discussed and agreed at annual review meetings, subject to both general soils conditions and drainage requirements.

5.0 Cultivation Practices

- 5.1 It is recognised that initially the structure of the soils on restored land can be fragile and unstable and therefore access to restored land for machinery (and for livestock) will be carefully controlled to avoid damaging soils structure.
- 5.2 All land work will be carried out when the ground is in a suitably dry condition. No access will be permitted in wet seasons and livestock will be removed during heavy or prolonged periods of rain at all other times of the year. Should machinery access be required to the land before the ground has sufficiently dried out and stabilised, low ground pressure machines will be used to avoid excessive damage to the soil structure.
- 5.3 Except where deep loosening of the soil profile is necessary, standard agricultural machinery will be used for all normal cultivations including manureing, sowing, weed and pest control and for harvesting and mowing.

6.0 Remedial measures

- 6.1 Provision will be made for soil loosening with a winged subsoiler to rectify any significant permeability problems arising from initial soil placement. This will be assessed immediately initial soil placement has been completed. In the following years the need for further soil loosening will be assessed at the annual aftercare meeting held to review the condition of the restored land.
- 6.2 Provision will be made for reprofiling to address any areas of uneven ground caused by differential settlement.
- 6.3 During cultivation any stone or debris lying on the surface and which are larger than 100 mm in any dimension will be picked off and removed from the site.

7.0 Fertiliser and weed control

- 7.1 Analysis of topsoil samples will be undertaken immediately following soil replacement. The results of this analysis will be used to determine the fertiliser requirements for the first crop. Subsequently the application of fertilisers and/or manureing will be carried out to the normal agricultural practices of the farm and the intended use of the crop.
- 7.2 Weed control will be undertaken as necessary, either by mowing or grazing of the grass or by the application of the appropriate herbicides. If arable crops are grown pests will be controlled by the application of appropriate pesticides.

8.0 Drainage

- 8.1 Given the standard of restoration that can reasonably be expected to be achieved the restored site profile should itself provide adequate drainage, such that the provision of underdrainage should not be necessary to provide satisfactory control of soil wetness. However if this does not prove to be sufficient consideration will be given to the design and installation of artificial drainage. The need for underdrainage will be discussed with the Mineral Planning Authority during the aftercare period.

9.0 Annual Review

- 9.1 There will be an annual review meeting between representatives of the Mineral Planning Authority and their advisors and the landowner and his advisors. Normally these meetings will be held on site to provide the opportunity for a full inspection of the land.
- 9.2 An annual aftercare report will be submitted beforehand as a basis for on-site discussion. This report will provide a record of the cultivations and treatments carried out on the land in the previous 12 month, together with cropping results/yields and any other works undertaken. The type of information to be included in the aftercare report is set out on the attached sheet.

10.0 First year Programme

- 10.1 At completion of soiling, the reinstatement of the land will be assessed to determine the most appropriate initial aftercare crop; either a grass ley or possibly a winter cereal.
- 10.2 The surface of the land will be cultivated as appropriate for the condition of the soils, weather conditions and the choice of first crop.
- 10.3 Soil pH and nutrient analysis will be undertaken on bulk topsoils samples to determine lime and fertiliser requirements for the intended crop.
- 10.4 Fertiliser and lime will be applied at rates determined by the soil analysis. Pre-emergent weed control will also be applied if appropriate. If the initial crop is grass the land will be drilled with a proprietary grass mix at suitable seeding rates. Details of the mixture and seed rate, dependant upon the intended use of the crop will be forwarded to the Mineral Planning Authority.
- 10.5 Ground and crop conditions will be monitored during the growing season and especially during wet weather.
- 10.6 Normal fertiliser applications and any necessary pest and weed control measures will be carried out during the growing season according to the utilisation of the crop.
- 10.7 If put down to grass, the sward will be cut twice a year for hay or silage and in the late summer may also be lightly grazed with sheep stocked at a low density. Alternatively the sward would be grazed by sheep from spring the density of grazing being determined by the need to ensure a good sward is maintained to improve soil structure but having regard to the conservation interests of the surrounding land. During extended periods of wet weather all stock would be removed.
- 10.8 Prior to the site being grazed an appropriate stock proof fence will be erected around the perimeter of the site.
- 10.9 Following the annual review meeting and dependant upon subsequent farming policy (including the conservation objectives for the rest of the quarry site) either a ley based cropping would continue or the land would be prepared for a winter (barley) crop to be sown in early autumn.
- 10.10 Any remedial loosening or reprofiling agreed to be necessary to improve soil physical conditions in the short term will be implemented before cultivation for the next crop, or at an agreed stage in the existing crop.

Aftercare Programme Annual Reporting

Site
Dimmocks Cote Quarry,
Wicken

Year of aftercare

Farmed by

Area in aftercare

Soil:

Soil analysis:

Date Taken:

No of Samples:

Crop:

Cultivations:

Fertiliser Application:

Lime application:

Weed and pest control:

Management:

Work carried out in the
previous 12 months

Mowing:

dates:

Number/weight of bales:

Grazing:

dates:

stocking density:

Harvest:

dates:

Yield:

Fencing drainage
maintenance etc

Remedial works undertaken

Management: Work proposed
in next 12 months

Notes/comments

APPENDIX 3: BADGER SURVEY 2019

**APPENDIX 4: DRONE PHOTOGRAPHS OF AREAS TO BE SUBJECT TO
MANAGEMENT YEARS 1-5**

APPENDIX 4: Drone Photographs



Grassland G1 suffering increasing bramble encroachment



Area TS5 showing increased density and extent of tree/ scrub encroachment



Area G2 showing increased tree/ scrub cover north-east of OW7 and south of OW5.

FIGURE 1: CCC5

FIGURE 1: EXISTING WETLAND AREA TO BE PROTECTED

NB Within the permission this is referenced as CCC5 but the figure is labelled CCC4.

CCC4 Existing Wetland Habitat Area to be Protected

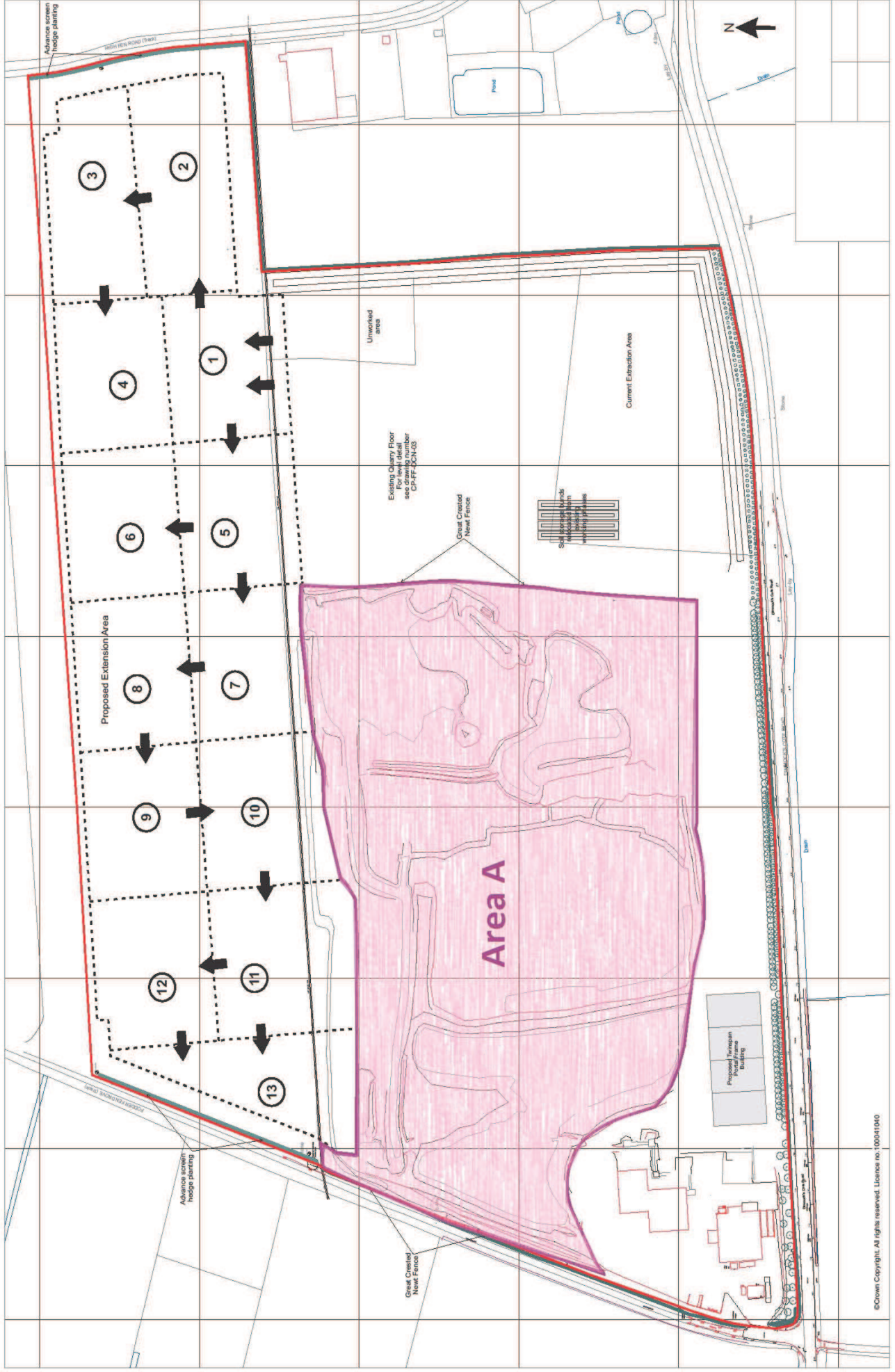


FIGURE 2: PHASING PLAN

FIGURE 3: ECOLOGICAL FEATURES/ PHASE 1

FIGURE 4: RESTORATION PLAN

FIGURE 5: INDICATIVE POND PROFILE

FIGURE 5: INDICATIVE POND DESIGN

Width 11 m
Length 16m

