



## Schematic Restoration Scheme

Horn Crag Quarry

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Minerals  
Waste  
Environment

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## 1.0 Introduction

- 1.1 This document describes the features included in the proposed restoration scheme for Horn Crag Quarry ('The Site') and forms part of a planning application for the extraction of dimension stone from a former hard rock quarry. The restoration scheme has been designed in conjunction with advice and recommendations from a suitably qualified ecologist (*Brooks Ecological Ltd.*).
- 1.2 The restoration scheme supporting the planning application is different to the Detailed Restoration Scheme that would be required by condition should Planning Permission be granted. The Detailed Restoration Scheme would include additional information, with particular regard given to planting and seeding species mixes, final landform and any construction methods, for example, of the artificial badger sett. The detailed restoration scheme would be accompanied by an aftercare scheme.
- 1.3 Nevertheless, details of the restoration features and habitat creation is included in this restoration scheme, with a proposed landform and general species recommendations. The details included in this restoration scheme are considered proportionate and suitable for the determination of the planning application.
- 1.4 This document should be read in conjunction with plans referenced *232/5 - 9, 232/5 - 10, E454-004* and *E454-005*.

## 2.0 Site Description

- 2.1 The Site currently consists of a former quarry, areas of self-seeded trees / scrub, acid grassland (used for agriculture), heathland areas and gorse scrub. It is surrounded in all directions by agricultural grassland.
- 2.2 The total site area is approximately 5.9ha, though only 3.92ha would be worked for minerals.

2.3 Due to its history of mineral extraction, The Site also currently includes quarry faces and areas of (now vegetated) mineral waste.

### 3.0 Restoration Scheme Aims

3.1 The restoration scheme has three primary aims:

- To generate a long-term net gain in biodiversity
- To create a mosaic of habitats appropriate to The Site's location
- To enable the site's assimilation into the surrounding landscape

### 4.0 Restoration Scheme Features

#### 4.1 Retained Quarry Faces

4.1.1 Once extraction and restoration has been completed, elements of the quarry faces would be retained. Due to the nature of the extraction methods, the faces would have a natural cliff appearance, with irregularities due to structures in the rock itself, such as bedding planes and natural joints. It is proposed that, at their highest points, the retained faces would be approximately 5m in height.

4.1.2 The eastern face would have an area of scree or coarse-grained material (see below) along its length to 'break up' the otherwise potentially linear landscape feature.

4.1.3 It is anticipated that the retained faces would create further habitat for a variety of species, including Peregrine Falcons who nest on cliff faces / tops, as well as plant species, mosses and lichens that thrive on such features<sup>1</sup>.

#### 4.2 Upland Acid Grassland

4.2.1 Existing acid grassland on-site would be replaced with an area of acid

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<sup>1</sup> Through natural regeneration

grassland in the northwest of The Site. The species seeded in this area would be based on the identified grass species present currently.

4.2.2 The acid grassland would be seeded directly onto retained soils after they have been re-spread over the mineral waste. This method would provide appropriate nutrient and acidity levels for the proposed species.

4.2.3 All seeding would take place at the earliest possible opportunity.

#### 4.3 Heathland

4.3.1 A large area of The Site would be restored to upland heath. This is considered a high value habitat to be re-created. The mineral waste and re-spread soils would be landscaped in a 'random' hummocky nature, providing differences in aspect, gradient and moisture that would allow a mosaic of heathland species to establish.

4.3.2 The predominant species for the heathland area would be heather and (to a smaller extent) bilberry. Where possible, heather brushings would be used from a nearby source to ensure locally appropriate varieties of heathland species colonise The Site. Where this is not possible or needs to be supplemented with seed mixes, the species mix would be based on the current species found on-site.

4.3.3 All seeding would take place at the earliest possible opportunity.

#### 4.4 Water Bodies and Scrapes

4.4.1 To further add to the habitat mosaic, water bodies are proposed on-site in three forms:

- A pond with shallow gradient sides
- An ephemeral shallows area connected to the pond
- Two ephemeral 'scrapes' (shallow elongated depressions lined with low permeability materials to seasonally hold water)

- 4.4.2 All three water body areas would be lined with low permeability materials, precluding immediate drainage by percolation. The pond would have shallow gradients on its edges to promote marginal aquatic plant and animal species. On the margins, appropriate aquatic / semi-aquatic species would be planted. The pond should be engineered to be 1 – 1.5m deep at its deepest point.
- 4.4.3 The shallows area would be engineered to be shallower than the adjacent pond (likely <50cm at its deepest point), with very shallow gradient edges. Marginal planting would also take place around the shallows area, and is expected to seasonally colonise areas when water levels drop.
- 4.4.4 The scrapes would be created by excavating a shallow profile trench, with very gentle sloping edges and irregular profiles both of the margins and the basal surface. The deepest points of each scrape would be approximately 50cm beneath the surround land. The scrapes would be lined with low permeability materials.
- 4.4.5 The scrapes and shallows area would be able to seasonally hold water, providing nesting and feeding areas for wading birds, and a variety of aquatic species. The very shallow slopes provide areas that would become muddy margins during wetter periods, providing further niche habitats.
- 4.5 Scree / Coarse Grained Materials
- 4.5.1 Coarse grained mineral waste<sup>2</sup> would be retained to create artificial scree areas. These would simply be tipped onto the mineral waste surface providing a random assemblage of blocky materials, providing habitat for a variety of vertebrates and invertebrates.
- 4.5.2 No seeding (or planting) would take place on the scree areas, which would be allowed to naturally re-vegetate.

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<sup>2</sup> Blocky and larger gravel size materials that are not appropriate for higher-grade dimension stone (saleable) products.

#### 4.6 Gorse Scrub and Mixed Scrub

4.6.1 Areas of both gorse scrub and mixed scrub would be seeded, providing similar habitat to that found on the western side of The Site (mixed scrub) and on the southern and western elements of The Site currently (gorse scrub).

#### 4.7 Retained Biodiversity Features

4.7.1 On the western element of The Site there is currently mixed scrub and gorse scrub, with areas of trees. The majority of this habitat would be retained throughout the lifetime of The Site, as it is outside of the proposed extraction area.

#### 4.8 Other Features

4.8.1 In addition to the above described features, to promote further biodiversity, it is proposed to create an artificial badger sett, and a sand martin nesting area.

4.8.2 The artificial badger sett would be created in the northwest of The Site. However, a survey would be carried out prior to its construction to see if badgers are already present at The Site. If they are found to be already using The Site, the artificial badger sett would not be required.

4.8.3 The sand martin nesting area would be created adjacent to / above the water bodies to provide suitable feeding habitat for sand martins. The nesting area would be created using fine grained mineral waste retained at The Site.

4.8.4 The detailed design and construction methodology for the creation of the badger sett and sand martin nesting areas would be included in the detailed restoration scheme.

### 5.0 **Final Landform**

5.1 A final proposed landform is included in this application (ref: *E454-005*). This



plan does not show the water features or scree areas and intends to show the general landform when mineral waste (and soils) has been re-spread across The Site. Plan ref: 232/5 – 7 shows these schematically. It is acknowledged that the final location and final topographic profile may change slightly in order to accommodate the water features. Nevertheless, the pond and shallows area would be positioned at the proposed lowest point of the restored site (save for retained biodiversity areas on the west of The Site).

5.3 Full details of the final landform, incorporating the pond and shallows area would be included in the detailed restoration scheme. Nevertheless, the final landform would include the retained faces, with a maximum height of 5m, and the base of The Site would be re-profiled with mineral waste. The proposed landform aims to be an appropriate landscape feature, befitting of the name Horn Crag, and suitably contiguous with the wider landscape.

## 6.0 Summary

6.1 The proposed schematic restoration scheme includes a number of features to promote a mosaic of habitats, including retained faces, acid grassland, heathland, mixed and gorse scrub, wetland areas / ponds and the retention of existing biodiversity features.

6.2 The restoration design would generate long-term, meaningful, biodiversity net gains and create an appropriate landscape feature.

6.3 The schematic restoration scheme here provides the basis for a detailed restoration scheme (and aftercare scheme) which should be required by condition if the mineral planning authority resolve to grant planning permission. The detailed restoration scheme would include final topography and species / seed mixes.