Preliminary Ecological Appraisal for a proposed development on land adjoining Penparc Sand Quarry, Penparc, Ceredigion

Client: Cardigan Sand and Gravel Company Ltd

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1. Introduction

Wyndrush Wild was contracted to carry out a preliminary ecological appraisal in support of an application to Ceredigion County Council for an extension to an existing sand and gravel quarry.

The proposed development is on a small field adjoining the boundary of the Penparc Quarry, the Oernant extension area. The grid reference is SN203484 (see figure 1 below).

The aim of the survey is to provide baseline data on habitat and species, both on and adjacent to the site, and to investigate potential impacts that may occur during construction and post-construction stages. An assessment is made of any potential impact on protected species or sites in the area.

Approximate boundaries of application area (red) and surveyed site (green)

Site Description

The proposed site comprises a small sandy field to the east of the working quarry. It was grazed only by rabbits at the time of survey, and has a thick fringe of bracken.

Proposed Development Site

2. Methodology

2.1 Desk Exercise

A desk exercise was carried out. Part of Banc-y-Warren SSSI, notified for its geological interest, immediately adjoins the south-eastern corner of the application area. The small, disused quarry in the field here is of importance for the study of fluvio-glacial landforms in the area and NRW require this to be kept open and accessible for study. They note that creation of new exposures through quarrying may be of value in the area. Banc-y-Mwldan SSSI lies approximately 400m away to the north-west. This is of importance for its lime-rich flushes and seepages, which support rare plants and insects.

Common lizards, grass snakes and slow worms are recorded from the general area; the author has noted populations in several sites around Cardigan and St Dogmaels. Adders are recorded from the nearby coast at Gwbert.

The Ceredigion Rare Plant register holds records from the surrounds of the existing quarry: little mouse-ear (*Cerastium semidecandrum*), small cudweed (*Filago minima*) and small-flowered catchfly (*Silene gallica*). These species of sandy habitats are recorded from the northern edge, but the former two are likely to occur more widely within the quarry boundary.

The British Bryological Society Database has records of one Nationally Scarce moss – tall aloe-moss (*Aloina ambigua*) from the northern edge, and one locally-uncommon species – yellow feather-moss (*Homalothecium lutescens*) from beside the eastern footpath.

The Ceredigion Lichen recorder (Chambers, pers. comm.) regards the site as of high importance for lichens growing on base-rich soil, with many of the species present only growing elsewhere in the county on the Ynyslas Dunes NNR. On sandy grassland around the quarry periphery, these include rare species such as *Enchylium bachmanianum* in addition to locally uncommon species such as *Blennothallia crispa, Enchylium tenax v*ar.*ceranoides, Lathagrium auriforme, Scytinium gelatinosum, S.pulvinatum, S.schraderi*, *S.lichenoides and Thelidium minutulum.*

2.2 Extended Phase I Survey

A thorough site inspection was made on 8th August 2023. The survey followed the methodology set out by the Handbook for Phase 1 Habitat Survey (JNCC, 1993) and then subsequently by the Institute of Environmental Assessment (1995). The methods provide quick and accurate classification of habitats.

In addition, the survey looked for field signs of protected species and assessed the habitat for their potential presence. Measures taken included:-

- A search for signs of badgers on the site.
- Consideration of the potential impact of the development on reptiles, bats and other protected species.
- Recording birds and identifying the suitability of the habitat for nesting birds especially those listed as species of conservation concern.
- Recording a list of plants found on the site, shown in Appendix 1.

2.3 Constraints

There were no constraints to the survey.

3. Results

3.1 Vegetation and habitat survey

The habitats at the site location were recorded in detail. The application area comprises poor semi-improved grassland (B6), dense bracken (C1.1) and a small area of scattered scrub (A2.2) and scattered bracken (C1.2). The active quarry lies to the north and west, and arable / set-aside to the east.

Phase I habitat map

TN1: Japanese knotweed

TN2: Anglesey horsetail *Equisetum x robertsii* in sparsely-vegetated vegetation on slope

TN3: Tall Aloe-moss in sparsely-vegetated vegetation on quarry slope

TN4: Banc-y-Warren SSSI

Poor Semi-Improved Grassland B6

(top) Coarse grassland in the southern part of the application area; (bottom-left) rabbit activity creates open sandy areas and (bottom-right) short-grazed turf with bird's-foot trefoil

The southern end of the field comprises coarse grassland dominated by false oat-grass and cock's-foot. Accompanying species include spear thistle, ragwort, germander speedwell and curled dock. In the National Vegetation Classification, this corresponds to a species-poor form of *Arrhenatherum elatius* grassland (MG1). The larger area of grassland in the upper part of the field is mostly short-grazed by rabbits and is slightly more diverse as a result. Red fescue, Yorkshire fog and field woodrush are prominent, and there are a few scattered plants of common bird's-foot trefoil and common centaury. Thyme-leaved sandwort was noted by one

rabbit burrow. Ragwort, docks and thistles are again in evidence. The rather species-poor grassland here is of only minor ecological interest.

Bracken and Scrub

There is a wide fringe of dense bracken around the field. The western boundary has scattered hawthorn, and an area on a bank where gorse and patches of rabbit-disturbed sandy grassland are mixed with scattered bracken patches. The habitats are of low ecological interest.

Quarry

(top) Quarry slope adjoining application area, with species such as (bottom-left) blue fleabane and (bottom-right) yellow feather-moss

Although outside of the application area, the adjoining quarry slopes would be excavated to link the new quarry to the existing one. They also serve to highlight the potential interest of the worked-out quarry extension, to inform decisions on remediation.

The vegetation here is sparse on the lower slopes and more established higher up. There is a fringe of bracken, gorse, broom and rough grassland immediately below the top of the slope, but below this, a range of lichens, mosses and dune grassland plants tend to dominate. These include common storksbill, blue fleabane, thyme-leaved sandwort, restharrow, hop trefoil and

early hair-grass. Spring-flowering annual plants are likely to be frequent, but could not be recorded at this time of year. Notable species include small cudweed, which is locally-frequent here, and a rarely recorded hybrid, Anglesey Horsetail (*Equisetum* x *robertsii*). The mosses include dune species such as *Brachythecium albicans*, *Homalothecium lutescens* and *Syntrichia ruralis* ssp. *ruraliformis*, and the Nationally Scarce *Aloina ambigua* was found amongst patches of the commoner *Aloina aloides*. Large patches of the dog-lichen *Peltigera rufescens* are prominent in addition to a range of smaller, more subtle species.

This habitat, although of anthropogenic origin, is of local or regional ecological significance. As well as supporting uncommon plants and lichens and a family party of feeding choughs, it is likely to be of interest for its invertebrates.

3.2 Protected Species

No bat survey was carried out. There are no buildings within the site, and no mature trees. The field in its current state is unlikely to provide significant foraging opportunities. No further survey is required.

No badger setts or field signs of badgers were present, and none are likely to be hidden within the dense bracken. All holes noted were rabbit burrows. The proposal is unlikely to affect badgers.

The site is unsuitable for amphibian species, having no standing water features. The site is of moderate suitability for reptiles, with the potential for small numbers of common lizards and slow worms to be associated with the coarse grassland and south-west facing slope.

No Birds of Conservation Concern were seen or heard on the application area, and none are likely to nest here. However, a family party of choughs (under the Environment Wales (2016) Act, a Section 7 species of ‘Principal Importance for the Conservation of Biodiversity in Wales) was using the adjoining quarry slopes for foraging. A pair had also been seen here earlier in the summer.

3.3 Invasive Species

Japanese knotweed is present around the southern boundary of the field, just outside of the application area. A single clump of montbretia is present next to the footpath to the west of the application area.

(left) Japanese knotweed behind bracken on southern boundary; (right) montbretia

4. Discussion

4.1 Scheme Details

The site (incorporating the existing operations) would be worked for sand / aggregate at a maximum rate of 150,000 tonnes per annum (in line with the existing planning permissions), over a period of 2.5 to 3 years.

The mineral would be extracted by excavators and loading shovels before being hauled to the adjacent quarry site via an internal haul road for processing. The mineral would then be exported from the site for sale.

The soil from the proposed extension area would be stripped in advance of mineral extraction and stored as a peripheral bund for use in the future restoration of the site. The proposed soil bund would be located between the extraction area and the footpaths CE/78/2/11 and CE/78/3.

4.2 Recommendations

Reptiles

Potential impacts on reptiles cannot be discounted without further survey and are perhaps best considered through a Reasonable Avoidance Measures scheme. This should encourage dispersal of any reptiles present into adjoining suitable habitat which exists to the north and east; sequential clearance of vegetation prior to commencement of extraction should provide a suitable basis for such a scheme.

Locally-rare Plants and Lichens

Populations of Tall Aloe-moss, Yellow Feather-moss and Small Cudweed would be impacted by extraction to create the extension through from the existing quarry. Uncommon lichens could also be affected. However, these species are abundant on the northern side of the quarry, and are likely to be widespread around other parts of the periphery. They could be expected to quickly recolonise worked-out areas.

Post-extraction Remediation

Open sandy ground with slopes of varying gradients and aspects will colonise naturally with lichens, mosses, fungi and wildflowers adapted to sandy, infertile conditions. Many of these are now rare in the wider agricultural landscape, and the Penparc sand quarry represents a valuable oasis for such less-competitive species. A wide range of insects including uncommon species would also benefit, as would birds including chough. Retention of exposures for geological study would also be of benefit. Generic remediation involving topsoil, amenity grassland, commercial wildflower mixtures or tree planting should be avoided.

4.3 Promotion of Biodiversity at the Site

Ceredigion County Council requires that biodiversity enhancements are included in all developments to meet the Authority's Duty of Care under Section 6 of the Environment Act 2016. Planning Policy Wales (PPW) 10 sets out that "*planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. This means that development should not cause any significant loss of habitats or populations of species, locally or nationally and must provide a net benefit for biodiversity*".

If post-extraction remediation follows a natural regeneration pathway as outlined above, significant biodiversity gain would be expected.

5. Summary and Conclusions

The proposed development does not present a significant risk to habitats in the area. Potential impacts on reptiles will require consideration through a Reasonable Avoidance Measures scheme. Populations of locally-rare plants and lichens on adjoining quarry slopes may be temporarily impacted but these are likely to be widely distributed across unaffected areas. They would be expected to expand under a post-extraction restoration scenario which favoured maintenance of sparsely vegetated sandy areas and natural regeneration.

6. References

Chater, A. O. (2001). Ceredigion Rare Plant Register. Privately published.

Handbook for Phase I habitat survey Nature Conservancy Council 1990

Appendix 1 Plant species recorded at the site during the walkover visit 6/8/2023

Yarrow	*Achillea millefolium*
Early Hair-grass	*Aira praecox*
Thyme-leaved Sandwort	*Arenaria serpyllifolia*
False Oat-grass	*Arrhenatherum elatius*
Soft Brome	*Bromus hordeaceus*
Hedge Bindweed	*Calystegia sylvatica*
Common Centaury	*Centaurium erythraea*
Common Mouse-ear	*Cerastium fontanum*
Creeping Thistle	*Cirsium arvense*
Montbretia	*Crocosmia x crocosmiiflora*
Cock's-foot	*Dactylis glomerata*
Wild Carrot	*Daucus carota*
New Zealand Willowherb	*Epilobium brunnescens*
a hybrid Horsetail	*Equisetum x robertsii*
Blue Fleabane	*Erigeron acer*
Common Storksbill	*Erodium cicutarium*
Red Fescue	*Festuca rubra*
Small Cudweed	*Filago minima*
Dove's-foot Cranesbill	*Geranium molle*
Yorkshire Fog	*Holcus lanatus*
Common Ragwort	*Jacobaea vulgaris*
Compact Rush	*Juncus conglomeratus*
Soft Rush	*Juncus effusus*
Hard Rush	*Juncus inflexus*
Field Scabious	*Knautia arvensis*
Autumn Hawkbit	*Leontodon autumnalis*
Common Bird's-foot Trefoil	*Lotus corniculatus*
Field Woodrush	*Luzula campestris*
Changing Forget-me-not	*Myosotis ramosissima*
Red Bartsia	*Odontites verna*
Common Restharrow	*Ononis repens*
Opium Poppy	*Papaver somniferum*
Mouse-ear Hawkweed	*Pilosella officinalis*
Ribwort Plantain	*Plantago lanceolata*
Bracken	*Pteridium aquilinum*
Japanese Knotweed	*Reynoutria japonica*
Curled Dock	*Rumex crispus*
Broad-leaved Dock	*Rumex obtusifolius*
Red Campion	*Silene dioica*
White Campion	*Silene latifolia ssp. alba*
Hop Trefoil	*Trifolium campestre*
Nettle	*Urtica dioica*
Germander Speedwell	*Veronica chamaedrys*