

Ballswood Quarry: Area A & B

Information to Satisfy Condition 31 & 32 of Planning Permission Ref: P/2022/0448

Restoration

Condition 31. Within six months of the date of this decision notice, a scheme of restoration for the site shall be submitted to the Mineral Planning Authority for written approval. The approved restoration scheme shall provide for the following matters:-

- a) The restoration of the development including treatment, spreading of overburden and soils, fertilisation of the soils, seeding, planting and drainage, location of fences and field boundaries, access tracks and field water supply systems.
- b) The planting of trees, hedgerows and shrubs, to include the following;
 - i. the location, species, numbers and timing of the planting of trees, hedgerows and shrubs within the site;
 - ii. the methods of planting, protection, maintenance and replacement of trees, hedgerows, and shrubs within the site.
- c) The location of existing, retained vegetation and woodland areas within the site, including their protection, management and enhancement.
- d) The final treatment of the quarry floor and haul roads, the removal of buildings, plant, hardstandings and reinstatement of the access onto the highway.

Aftercare

Condition 32. Within twelve months of the date of this permission, a detailed 5 year aftercare scheme for the management and maintenance of the restored site shall be submitted to the Mineral Planning Authority for written approval. The approved aftercare shall:

- a) detail the steps that are necessary to bring the land to the required standard for agricultural use;
- b) provide a strategy for the five year aftercare period which shall specify the steps to be taken and the period in which they are to be take;
- c) Include the provision of a field drainage system; d) Provide for an annual meeting between the operator of the site and the mineral planning authority;
- e) Provide for a detailed annual reporting programme which shall evaluate the aftercare works carried out in the previous year, and provide details of the aftercare works to be carried out in the forthcoming year shall be submitted no later than one month prior to the annual aftercare meeting

The approved scheme shall be implemented in full in accordance with the details and timescales set out in the approved scheme.

INTRODUCTION

This document is a Detailed Restoration and Aftercare Scheme, prepared by Kedd Limited, in respect of the permitted Area A mineral extraction scheme at Ballswood Quarry, permitted under Planning Permission ref. P/2022/0448. The document has been prepared in order to satisfy the requirements of Condition 31 and 32. As no working is to take place within Area B, and in accordance with the Permitted Restoration Scheme, it is to remain as existing (i.e. existing vegetation & bare ground).

Restoration within Area A, in accordance with the Permitted Concept Restoration Scheme, will comprise the following land uses and features.

- **Reinstated Agricultural Land**
- **Species Rich Grassland**
- **Native Woodland (Tree & Shrub Planting)**
- **Native Hedgerow Planting**
- **Hardstanding**

All restoration and aftercare works will be carried out in accordance with the specifications and prescriptions set out within this Detailed Restoration and Aftercare Scheme.

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Ballswood Quarry: Area A & B

**Information to Satisfy Condition 31 & 32 of
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The inset plan opposite is the Permitted Concept Restoration Scheme for Area A and B, set within the wider operational quarry. As highlighted, no working is to take place within Area B and subsequently no additional restoration works are to be carried out - the existing Area B being a combination of woodland and bare ground.



Ballswood Quarry: Area A & B

Reinstated Agricultural Land (Area A Only)

Agricultural Land is the principle restoration land use within Area A. 3.53 Ha of land will be restored to Agriculture, with a full soil profile consisting of 350mm topsoil, 150mm upper subsoil and 700mm lower subsoil. This 1.2m soil profile is designed to ensure the agricultural land is restored to its former quality and grading. An agricultural grass ley mix will then be established to stabilise the new soil profile and allow mowing or grazing by young stock in the first few years before conversion to arable production - if desired by the landowner.

The restored agricultural land/landform will be monitored in respect of surface water movement, ground compaction and standing water. If required land drains will be installed and connected to the existing irrigation/land drainage system which will be retained in-situ around the undisturbed periphery of the undisturbed site.

Initial Agricultural Seeding

After placement of the topsoil to restore land to an agricultural afteruse, the surface will be cultivated to produce a fine, firm seedbed and sown with a medium-term grass ley (species as below or similar). The land will be then established and managed in accordance with the following Aftercare Strategy and Detailed Annual Management programme.

Proposed Initial Agricultural Seed Mix

75%	Ryegrass
20%	Red Clover
5%	White Clover

Establishment/General Notes:

- A short term agricultural ley will be created in the first two years after restoration and thereafter the land will either be used as pasture or arable land depending on the landowner/ manager's requirements.
- Land is to be cultivated using discs, power harrow and rolls to create a fine, firm seedbed, it will then be seeded and rolled.
- Any stones lying on the surface, which would not pass through a 100mm wire screen mesh, together with other objects likely to obstruct future cultivation, will be removed from the site.
- Given the permeability of the gravelly soil profile and in-situ material it is not considered that underdrainage installation will be required. After restoration and monitoring of ground conditions for at least two years as well as consultation with the landowner / manager, if it is considered that underdrainage is required, a commitment in principle is given to undertake appropriate land drainage.
- If required, drainage will be installed via a conventional trenchless drainage machine placing a perforated corrugated plastic drain pipe at 20m spacing, with a placement depth of at least 80cm.
- Following the laying of drains (if required), subsoiling at a shallow depth (~ 35cm) would be carried out to ensure a good connection between the bulk of the upper subsoil and the drains.
- Soil sampling and crop monitoring is to take place to ensure soil fertility is satisfactory to achieve and maintain the long term site restoration after uses. As a result of this, appropriate applications of fertiliser and/or weed control treatment will be implemented, if necessary.
- If necessary fertiliser and lime shall be applied to the restored land at a rate calculated to achieve the nutrient levels to successfully establish a short-term grass ley or cereal crop.
- Initial grass seeding work will take place between April and May or late August to mid September dependent upon the date when restored land becomes available.
- If a cereal crop is selected it will be drilled in either spring or autumn and the type will depend upon the landowners / managers cropping requirements / rotation.
- Occasional periodic dressings with farmyard manure and lime, where determined beneficial, will be completed during the aftercare period.
- Conservation headlands will be ploughed and sown at the same time as the main field with a conservation field margin seed mix (Wynnstay Field Margin Grass Seed Mix or similar).
- Field margins to agricultural land will be lightly grazed or cut once every 3 years (outside the bird nesting season) and kept free of pesticides and fertiliser.

Aftercare:

Year 1 (short-term grass ley)

- The sward is to be allowed to establish.
- Soil samples are to be taken and analysed in March.
- Fertiliser/lime (based on soil sample results) - to be applied in April.
- If required, re-seeding works are to take place in April.
- Monitoring of soil drainage will be reported at the first year aftercare meeting.
- All restored land to be treated with an approved chemical herbicide to prevent weed establishment.
- One cut of hay or silage will be taken in early June and a second cut will be taken in July/August if there is sufficient growth.
- In the first year, the aftermath will be topped to 100mm before entering the winter period and any arisings which would smother the grass will be collected and carted off site.

Ballswood Quarry: Area A & B

Reinstated Agricultural Land (Area A Only) - continued...

Year 2 (*grassland*)

- A grass crop for silage/hay if there is sufficient growth.
- Nitrogen fertiliser will be applied for a second grass cut.
- Soil samples are to be taken and analysed in March and based on the results, fertiliser/lime to be applied in April.
- Monitoring of soil drainage will continue.
- All restored land is to be treated with an approved chemical herbicide to prevent weed establishment, if necessary.
- Should it be required, an under drainage scheme will be designed and submitted to the MPA for approval.

Year 3 (*grassland option*)

- A grass crop for silage/hay is to be taken if there is sufficient growth.
- Soil samples are to be taken and analysed in March and based on the results, fertiliser/lime is to be applied in April, if necessary.
- Cultivation of topsoil will take place comprising discing and chain harrowing as required. Also upon completion of each stage of the cultivation process, stones that will not pass through a 100mm square wire mesh screen are to be removed.
- Given appropriate ground and nutrient conditions, re-seeding works may take the place of a more permanent grass ley.
- Monitoring of soil drainage and remedial works are to take place if required.
- All restored land is to be treated with an approved chemical herbicide to prevent weed establishment, if necessary.

OR:

Year 3 (*cereal option*)

- Undertake soil analysis for P, K, Mg and pH to assess lime and fertiliser requirements for the chosen winter cereal crop.
- After seedbed preparation, drill cereal, e.g. Winter Barley, at approximately 175kg/ha and roll to get good seed-soil contact.
- Apply seedbed fertiliser and insecticides and herbicides, as required, in a tank mix to minimise the number of passes.
- In the spring apply nitrogen top dressing and herbicides and fungicides as required. v. July/August harvest.
- Glyphosate for stubble hygiene. vii. Cereal variety to be agreed at the aftercare meeting.

Year 4 (*grassland option*)

- A hay/silage crop is to be taken in autumn.
- Soil analysis to take place in March followed by the implementation of fertiliser application and liming in April - dependent upon hay/grazing use.
- All restored land to be treated with an approved chemical herbicide to prevent weed establishment, if necessary.
- Monitoring of soil drainage and remedial works are to take place if required.

OR:

Year 4 (*cereal option*)

As Year 3. Cereal variety to be agreed at the aftercare meeting.

Year 5 (*grassland option*)

As Year 4.

OR:

Year 5 (*cereal option*)

As Year 3 & 4. Cereal variety to be agreed at the aftercare meeting.

Ballswood Quarry: Area A & B

Species Rich Grassland (Area A Only)

0.16 Ha of Species Rich Grassland is to be established and managed to the southern restoration slope of Area A.

Land will be sown with a grass mix, incorporating wild flower species suitable for a long- term management regime that may include both grazing and cutting. Species including yarrow, knapweed, meadow buttercup, sorrel and lady’s bedstraw are to be included.

Species	Common Name	%
Wildflowers		20
Achillea millefolium	Yarrow	0.5
Centaurea nigra	Common Knapweed	3
Daucus carota	Wild Carrot	1.5
Echium vulgare	Viper’s Bugloss	2
Galium verum	Lady’s Bedstraw	2.5
Leucanthemum vulgare	Oxeye Daisy	0.5
Linaria vulgaris	Common Toadflax	0.2
Lotus corniculatus	Birdsfoot Trefoil	0.5
Malva moschata	Musk Mallow	1
Plantago media	Hoary Plantain	0.5
Primula veris	Cowslip	1
Prunella vulgaris	Selfheal	1.5
Ranunculus acris	Meadow Buttercup	1
Ranunculus bulbosus	Bulbous Buttercup	2
Rumex acetosa	Common Sorrel	1.5
Rumex acetosella	Sheep’s Sorrel	0.5
Scorzonerioides autumnalis	Autumn Hawkbit	0.2
Trifolium pratense	Wild Red Clover	0.1
Grasses		80
Agrostis capillaris	Browntop Bent	10
Agrostis vinealis	Brown Bent (w)	4
Anthoxanthym odoratum	Sweet Vernal grass	4
Cynosurus cristatus	Crested Dogstail	16
Deschampsia flexuosa	Wavy Hair-grass	2
Festuca ovina	Sheep’s Fescue	20
Festuca rubra	Slender creeping Red fescue	16
Koeleria macrantha	Crested Hair-grass	3
Phleum bertolonii	Smaller Cat’s tail	5
Total	Sowing Rate: 4g/m2	100

The sowing rate will be 40kg/Ha, therefore requiring 6.5kg of seed mix.

Preparation / Sowing:

Good preparation is essential to success, aiming to control weeds and produce a good quality seed bed before sowing. Sandy soils are usually infertile, well drained and easy to work. To prepare a seed bed, first weeds are to be removed using repeated cultivation and /or a herbicide. Then ploughing or digging to bury the surface vegetation, followed by harrowing to produce a medium tilth, and roll, or tread, to produce a firm surface.

Seed is to be sown in the autumn or spring but can be sown at other times of the year if there is sufficient warmth and moisture. The seed must be surface sown and can be applied by machine or broadcast by hand. The seed should not be incorporated or covered, but firmed in with a roll, or by treading, to give good soil/seed contact.

- Spray profile 3 weeks after soil replacement to ensure killing off of any latent weeds within the upper soil profile. Remove any weeds using repeated cultivation.
- Prior to seeding, the soil layer is to be disced and power harrowed to a depth of 200mm to create a homogeneous well-broken, non-compacted tilth of 50mm.
- Stones and deleterious material exceeding 100mm in diameter to be removed before cultivation.
- Seeds to be sown according to manufacturers instructions at a rate of ~4g/m².
- Seeds to be British and preferably of local provenance.
- All cultivations will only be undertaken during dry ground and weather conditions.

Management:

- A grassland cutting regime based on a cut to 50-75mm height following seed head production - sseasonal grazing to be considered.
- Heathland areas to be left uncut within the first year and spot treated to remove invasive weeds to promote species establishment.
- Re-seeding of failed areas where necessary.
- One visit per annum until final restoration of the quarry has been completed, when the 5 year aftercare scheme will commence.
- Visits to include encouraging the development of the scrapes / marginal areas.
- Removal of noxious weeds may also be necessary.
- An option for selective seasonal grazing (post year 1) to be considered to encourage the development of poached micro-habitat within areas of damp ground that would lead to the development of tussocky grassland
- Clearance works to maintain 15% of the habitat as bare ground throughout the management period - via cutting.

5 Year Aftercare:

Management Activity	Y1	Y2	Y3	Y4	Y5
Spot treatment control of noxious weeds with broadleaved herbicide (Mid Summer)					
Mowing with cuttings left in-situ (July)					
Selective mowing (Late Summer)					
Mowing of ‘rides’ to establish contrasting heights of herbage (Late Summer)					
Selective grazing (Summer)					
Possible reseeding of failed areas					

Action Within this Period

No Action Required

Ballswood Quarry: Area A & B

Native Woodland - Tree & Shrub Planting (Area A Only)

0.3 Ha of Native Woodland is to be established and managed to the northern boundary of Area A

Planting Specification					Area A
Species	Common Name	% Mix	Height (cm)	Bareroot (BR)	N° of Plants
Trees					
Carpinus betulus	Hornbeam	10	20-30	BR	75
Fagus sylvatica	Beech	10	45-60	BR	75
Acer campestre	Field Maple	5	20-30	BR	38
Shrubs					
Corylus avellana	Hazel	15	45-60	BR	112
Crateagus monogyna	Hawthorn	15	20-30	BR	112
Viburnum opulus	Guelder Rose	10	45-60	BR	75
Malus sylvestris	Crab Apple	10	45-60	BR	75
Cornus sanguinea	Dog Wood	5	45-60	BR	38
Nurse Species					
Betula pendula	Birch	10	30-45	BR	75
Sorbus aucuparia	Mountain Ash Rowan	10	45-60	BR	75
		100			750

Preparation / Establishment:

- Planting will be directly into the restored and cultivated soil profile.
- All trees & shrubs to be of local provenance.
- All trees and shrubs to be planted at 2m centres in 300x300x300mm pits backfilled with original ground material and/or notch planted.
- Stock to be planted in species pure groups of 3, 5 and 9 plants.
- Stock to be protected by 1 No 75cm Tubex tree guard (or equivalent) secured and supported by a 900x32x32mm treated softwood stake or 900mm canes.
- All tree / shrub planting blocks are to be protected by stock proof fencing where required due to adjacent land management (see Figure 2 for specification).
- 1 No individual stile is to be fixed within the fencing to allow access for ongoing management and maintenance.
- Planting to be undertaken between November and March.
- Trees should be watered during any dry spells in the first growing season.

Management:

- During years 1 to 3, three maintenance visits will be made per annum (March, May and September).
- During years 4 and 5, two maintenance visits will be made per annum (May and September).
- Weeding in 1m diameter around the bases of the trees will be required to help combat competing vegetation with Years 1 to 5.
- Following the 1st growing season, each winter a failed 'beating up' inspection will take place to ensure an 85% overall stocking density by years 3 and 5. This will include the replacement of dead/diseased or dying plant stock (within the following planting season), replacement/straightening of tree guards and stakes, and removal of herbaceous vegetation from tree guards as necessary to ensure successful establishment.
- The tree guards and canes should be inspected within Years 1 to 5 to ensure their integrity. Once the trees have matured the tree guards must be removed (by Year 5)
- Formative pruning should take place throughout the 5 years to counter poor structure and development. This should take place in years 3 and 5.
- Tree thinning (25%) should also be undertaken where necessary. It is anticipated that this will be required in Year 5, however growth should be monitored throughout the aftercare period.

5 Year Aftercare:

Management Activity	Y1	Y2	Y3	Y4	Y5
Pruning to counter poor structure and development (where necessary)					
Maintenance of tree / shrub guards					
Clearance of herbaceous material from tree guards					
Failed plant 'Beat Up' to 85% stocking to next season					
Tree guards removed (if established)					
Thinning by 25% if required					



Action Within this Period



No Action Required

Ballswood Quarry: Area A & B

Native Hedgerow (Area A Only)

297 linear metres of Native Hedgerow is to be established to the western boundary of Area A.

Planting Specification					
Species	Common Name	% Mix	Height (cm)	Bareroot (BR)	N° of Plants
Trees					
Crateagus monogyna	Hawthorn	30	35-40	BR	535
Corylus avellana	Hazel	30	35-40	BR	535
Acer campestre	Field Maple	15	35-40	BR	267
Sambucus nigra	Elder	15	35-40	BR	267
Prunus spinosa	Blackthorn	5	35-40	BR	89
Rosa canina	Dog Rose	5	35-40	BR	89
		100			1,782

Preparation / Establishment:

- Generally, all planting will be undertaken in a double-staggered row (set 0.5m apart) with plants distributed 300mm apart along each row (6 plants per linear metre)
- Stock of 30-45cm 1+1 transplants will be used.
- Planting will take place between the end of November and the end of March
- All plants will be protected from stock and rabbit grazing, either by Green-tech biodegradable 600mm high tree stocks / tubes fixed to 900mm cane. All plants will be planted using notch-planting techniques.

Management:

- Following the 1st growing season, each winter, a failed 'beating up' inspection will take place to ensure an 85% overall stocking density by years 3, and 5;
- This will include the replacement of dead / diseased or dying plant stock (in the next appropriate planting season), the replacement / straightening of tree guards and stakes, removal of herbaceous vegetation from tree guard as necessary to ensure successful establishment;
- To control weeds and allow proper growth and prevent unwanted succession by invasive species, each spring, one application of an approved glyphosate will be applied to margins and / or additional spot spraying of any unwanted vegetation. If necessary and depending on the severity or amount of vegetation, encroaching vegetation will be trimmed or hand weeded (March, May and September);
- During years 1 to 3, three maintenance visits will be made per annum (March, May and September);
- During years 4 to 5, two maintenance visits will be made per annum (May and September);
- During years 5 to 10, one maintenance visit will be made per annum (May);
- During May and September visits, any dead, dying or diseased species are to be taken out and removed off site and replaced during the following planting season (December to April) to ensure an 85% overall stock density by years 5 and 10;
- In years 5, 7 and 10 (if plants have grown to a suitable level) then the hedgerow will be laid to encourage longevity and maintain density;
- All protective tree / shrub guards to be removed during the winter of year 5 unless agreed otherwise;
- Existing hedgerows and new hedges are to be cut yearly, establish bulk and shape between beginning September and end February, but preferably in winter after most of the potential berries have gone.

5 Year Aftercare:

Management Activity	Y1	Y2	Y3	Y4	Y5
Light Pruning					
Maintenance of tree / shrub guards					
Clearance of herbaceous material from tree guards					
Failed plant 'Beat Up' to 85% stocking rate					
Encroaching vegetation trimmed / re-moved (July)					
Tree guards removed (if established)					
Hedge laying if there is sufficient growth					

 Action Within this Period

 No Action Required