

**PETER BENNIE LTD**

**ALKERTON QUARRY  
RESTORATION, SOIL PLACEMENT AND  
AFTERCARE SCHEME**

**REVISED MARCH 2018  
(R2 Jan 2019)**



## CONTENTS

1	<b>INTRODUCTION</b>	3
	<b>The Site</b>	
2	<b>PLANNING CONDITIONS AND HISTORY</b>	4
3	<b>COMPLETED RESTORATION</b>	8
4	<b>ALKERTON QUARRY PROPOSED RESTORATION</b>	8
	4.1 Site Contours	
	4.2 Soil Placement	
	4.3 Scrub planting Specification	
	4.4 Hedge Planting Specification	
	4.5 Maintenance	
	4.6 Natural Regeneration of Slopes	
	4.7 Enhancement of Biodiversity	
5	<b>ALKERTON QUARRY AFTERCARE</b>	13
	5.1 Annual Outline Aftercare Strategy	
	5.2 Detailed Aftercare Programme for 2018-20	
	Agricultural Area	
	Scrub and Hedge Planting Areas	
6	<b>FUTURE AFTERCARE REPORTING AND ANNUAL VISITS</b>	16
7	<b>APPENDICES</b>	16

# 1 INTRODUCTION

## The Site

This is a former ironstone quarry, now exhausted, managed by Peter Bennie Ltd. It is situated near Alkerton in Oxfordshire. The quarry is surrounded by arable land, with established mature hedge with hedgerow trees to the east and south. All the adjacent land has been restored after quarry workings, mostly to low level agricultural restoration with the exception of the adjacent landfill to the west.

Google Aerial View of Alkerton Quarry 2018 imagery



Locally the soils are light, stony, well draining and shallow over porous ironstone base rock.

The restoration of the site back to agriculture will be to low level using materials already existing on site. This restoration scheme will not require the import of any restoration soils.

# 2 PLANNING CONDITIONS AND HISTORY

Following a Review of Old Mineral Permissions (ROMP) Alkerton Quarry was subject to new planning conditions as set out in "Notice of Determination of New Conditions Affecting a Mineral Site" dated 28<sup>th</sup> January 1999 application no. 97/00430/CM.

106 conditions were detailed within the document. 27 of these conditions relate directly to Restoration and Aftercare of the site. The main conditions pertaining to restoration and aftercare are set out below:

Condition 24 stated that,

*“The development shall cease not later than 31<sup>st</sup> December 2042 and all the land worked shall be restored in accordance with the conditions of this permission...”*

Condition 25 stated that,

*“In the event of cessation of winning and working of materials... prior to the end date... a revised scheme of aftercare and restoration shall be submitted... Any scheme that is approved shall be implemented within 1 year of that scheme’s written approval unless otherwise agreed...”*

Condition 26 stated that,

*“All fixed plant and machinery shall be removed... and that phase restored ... within one year of working ceasing in that phase....”*

Condition 28 stated that,

*“No topsoil, subsoil or overburden shall be exported from the site.”*

Condition 29 stated that,

*“Topsoil, subsoil and overburden shall be separately stripped... and separately re-spread.”*

Condition 30 stated that,

*“No soil shall be stripped, handled or replaced except when the soil is in a dry and friable condition...”*

Condition 35 stated that,

*“No restoration of the boundaries of the site shall take place that has slopes steeper than 1metre vertical to 8 metres horizontal unless otherwise agreed....”*

Condition 40 stated that,

*“Restoration shall include removal of all haul roads, foundations, hard standings, buildings, plant, structures and fences...unless otherwise agreed...”*

Condition 41 stated that,

*“Finished levels following restoration shall be no other than as shown on approved plans unless otherwise agreed....”*

Condition 42 stated that,

*“Where soils are stripped or re-spread using tractor and box scraper the soil shall be ripped following re-spread.”*

Condition 43 stated that,

*“When soil is re-spread it shall not be in layers thicker than 250mm. Each re-spread layer shall be ripped to a depth of 150mm and shall be stone picked.”*

Condition 44 stated that,

*“The overburden shall be ripped prior to soil placement and any objects over 200mm in any dimension shall be removed....”*

Condition 45 stated that,

*“Stones and other objects greater than 150mm in any dimension shall be removed from subsoil following re-spreading.”*

Condition 46 stated that,

*“No restored land shall have slopes shallower than 1 vertical to 100 horizontal.”*

Condition 47 stated that,

*“Land shall not be restored to levels below surrounding land levels such that surface and subsurface drainage is impeded and no drainage outfall is available.”*

Condition 48 stated that,

*“The depth of re-spread soil on land to be restored shall not be less than 1.2 metres.”*

Condition 49 stated that,

*“Stones and other objects greater than 100mm in any dimension shall be removed from topsoil following re-spreading.”*

Conditions 68, 69, 70, 71 and 72 pertaining to restoration and aftercare, which do not strictly apply to Alkerton Quarry will be followed in the interests of good restoration and aftercare of the site.

The content of Conditions 68-72 is repeated in less detail in Conditions 77, 78, 79, and 100.

Application no. 12/00056/CM to vary Conditions 35, 40, 41, 98 and 99 of Planning Permission 12/01365CM was approved on 20<sup>th</sup> May 2012.

Condition 99 of this document stated that,

*“Mineral waste arising... shall be levelled and graded in accordance with the restoration contours shown on approved plan Alkerton Quarry Revised Restoration Plan-May 2012.”*

This report has been prepared by Katie Burfitt on behalf of Peter Bennie Ltd to revise the Restoration Plan, and the Restoration and Aftercare Scheme submitted as part of application no. 12/00056/CM which was approved by Oxfordshire County Council 20<sup>th</sup> May 2012. This follows the extraction of approximately 10,000 tonnes of material from the site since May 2012, which has created a requirement to change the restoration contours.

An application to vary a number of the restoration conditions is being submitted to the County Council and this report includes the information to support the application. It sets out a Revised Restoration, Soil Placement and Aftercare Scheme for the site, which is in general accordance with the original ROMP conditions. The reasons for seeking changes to a number of the conditions are set out in the Planning Statement that accompanies the application.

The photographs below show the condition of the site in March 2018. There is not usually standing water on the quarry floor. The pictures were taken soon after a very heavy rainfall event.



Alkerton Quarry March 2018 photograph taken looking east



Alkerton Quarry March 2018 photograph taken looking south



Alkerton Quarry March 2018 photograph taken looking south with the site entrance to the right-hand side



Alkerton Quarry March 2018 photograph taken looking north with the site entrance behind

### **3 COMPLETED RESTORATION**

The northern section of Alkerton quarry, an area of 0.85 ha was restored 12 years ago. It is evident there are low lying areas where water has settled on the surface, causing compaction of restoration soils. The site soils are generally light, freely draining and stony.

The site won soils used for this restoration were stored in topsoil bunds for several years and the quality of these soils is likely to have deteriorated over time. It is therefore proposed to re-work the northern part of the site to improve the quality of the restoration and drainage. It will be re-restored in the same manner as the new agricultural area detailed below but using the lower quality soils.



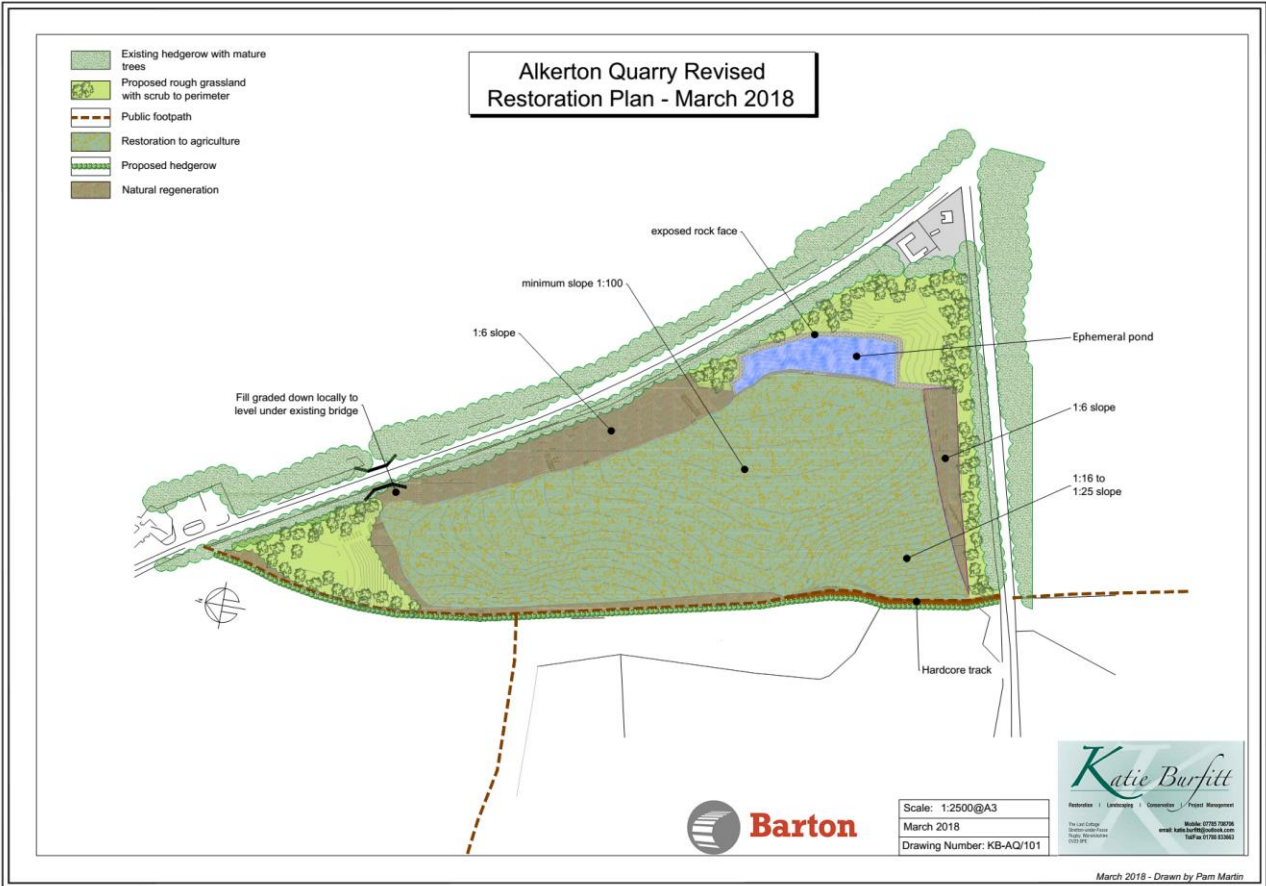
Restored Area at Alkerton Quarry March 2018 photograph taken looking north. This is now rough grassland with gorse developing in pockets to the perimeter of the site indicating a slightly lower acidic pH to the soil.

### **4 ALKERTON QUARRY PROPOSED RESTORATION**

Approved planning stipulates the site will be restored to agriculture use. With this in mind the proposed revised restoration plan aims to maximize the productive agricultural area as well as providing ecological enhancement to the site in line with current national and local biodiversity plans. Only existing soils will be used for the restoration of the site. No restoration soils will be imported.



An area of 1.8 ha of rough grassland with perimeter scrub, 654m of new native hedgerow and 6.1 ha of agricultural land will be created.



Alkerton Quarry Revised Restoration Plan March 2018  
(See Appendix 1 for larger scale plan)

Following approval, it is anticipated that final site restoration will be completed by the end of 2019/20 planting season. This will be dependent upon weather conditions and availability of suitable machinery to complete the ground works. Planting will be undertaken in the first available planting season following completion of soil placement.

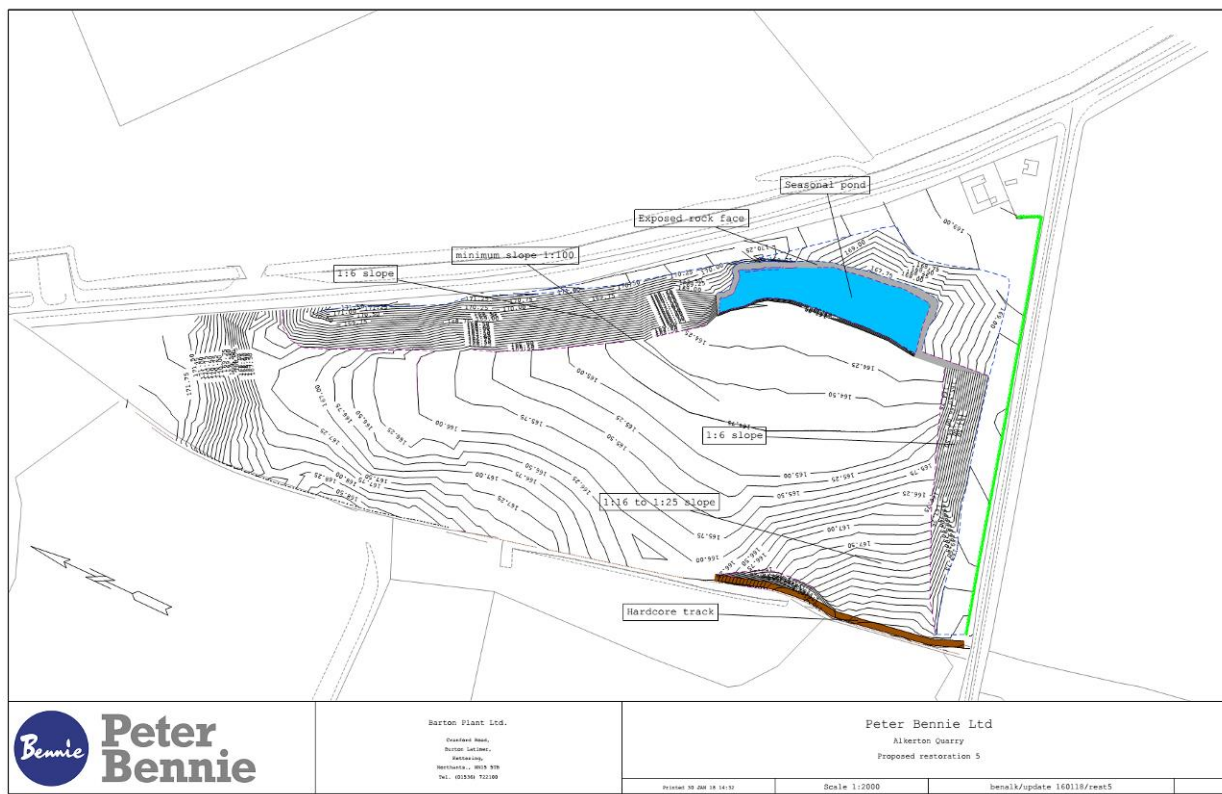
**4.1 Site Contours**

Planning Conditions 28, 29, 30, 35, and 41-49 detail the placement of soil and the soil contours for the site.

6.1 ha of the site will be restored to agriculture, with perimeter scrub planting and rough grassland, totalling 1.8 ha to the southern perimeter and northern end of the site. To maximize the area for agriculture the side slopes will be formed at a gradient of 1:6 and these will initially be left to colonize by natural regeneration. These will be formed using the poorer, less fertile soils within the site. The best in-situ soils will be used on the agricultural restoration.

The surface water drainage of the site has been reassessed. The bottom of the quarry floor naturally falls towards the south of the site. The gradient of the agricultural restoration area will be 1:100, fully complying with Condition 46, which states no restored land shall have slopes shallower than 1:100. This will be achieved by redistribution of existing quarry materials.

Part of the existing exposed rock face to the south-east of the site will be left for geological interest. All these features are shown on the following Proposed Restoration Contours Plan.



Alkerton Quarry Proposed Restoration Contours Plan (See Appendix 2 for larger scale plan)

## 4.2 Soil Placement

Soil placement at Alkerton Quarry will aim to replicate as closely as possible the natural soil profile. This is made up of approximately 250mm of stony topsoil, 1000mm of subsoil, and a layer of over burden with porous ironstone bedrock beneath. The better quality topsoils will be used on the agricultural restoration, with the poorer quality to the slopes and rough grassland/scrub areas.

Soil handling will be undertaken following Defra Construction Code of Practice for the Sustainable Use of Soils, Soil Placement, with the intention of preserving soil structure wherever possible. Soil will not be handled during weather conditions which are too wet or too cold.

The intention will be to form a low-level drainage blanket made up of the poor quality overburden, with 1000mm of subsoil and 250mm of topsoil above. This should be in accordance with Condition 48, requiring a depth of not less than 1.2m of re-spread soil. Exact depths will be dependent upon materials present on site. This will be placed by tractor and box and then deep ripped using a tracked excavator fitted with a probe, ripping

to a depth of 1.5 meters. Sub-soiling, ploughing, stone-picking, power harrowing and drilling will follow.

The soils currently on site have been stored in soil bunds for many years and the quality is likely to be poor. To improve the fertility and structure of the in-situ soils organic fertilizer/soil ameliorants may be imported as required to give the best possible restoration soils for the agricultural area.

Following sub-soiling, in accordance with Condition 49, stones and other objects greater than 100mm in any dimension will be removed from the topsoil.

### 4.3 Scrub Planting Specification

Scrub will be planted to the perimeter of the site and a hedge along the western boundary as per the Alkerton Quarry Revised Restoration Plan. Rough grassland will be established between the pockets of random scrub. Natural regeneration will be accepted into these areas.

Scrub Planting Specification for Alkerton Quarry

Alkerton Quarry Proposed Scrub Mix			
Species	Common Name	Size cm	% Mix
Prunus spinosa	Blackthorn	45-60	10
Crataegus monogyna	Hawthorn	45-60	20
Corylus avellana	Hazel	45-60	60
Euonymus europea	Spindle	45-60	5
Cornus sanguinea	Dog Wood	45-60	5

This will create new areas for ecological enhancement in the form of conservation grassland and scrub. Scrub is of ecological importance. It is identified as the transitional shrubby/open mosaic between woodlands and fields or can develop alongside hedgerows. It is particularly important for birds and butterflies for both habitat and food sources.

#### **Rough Grassland:**

Any areas of established grassland will be retained. Any establishing weeds will be sprayed with herbicide. The surface will be stone-picked and cultivated to break up any compaction and provide a shallow seed bed of approximately 50mm depth. The areas will be broadcast sown with Germinal Seeds Low Maintenance Seed Mix A4 (or similar) for poorer soil at a rate of 35g/m<sup>2</sup> and rolled to provide good contact with the soil.

**Scrub Planting:** Weeds and competing vegetation will be spot sprayed with herbicide at the plant stations. Any established grass will be retained. Compacted soil will be broken up and lightly cultivated. On good ground notch planting will be undertaken where-ever

possible. On poorer ground plants will be pit planted with soil conditioner where necessary. No tree planting will be undertaken within 3m of existing infrastructure, ditch lines, fences etc. No planting will be undertaken within 4m of the overhead cable.

Shrubs to be planted at an average of 2m X 2m random spacing to create a natural looking mosaic in groups of 7 plants. Spaces between the groups of planting will form part of the mosaic of habitats. Natural regeneration will be accepted. Plants will be guarded with 750mm shrub shelters or spiral guards as appropriate.

#### 4.4 Hedge Planting Specification

Hedge to be planted as a double staggered row with 5 plants per metre. All hedge plants in spiral guards with hedgerow trees in 1.2 m tree shelters. Hedgerow plants in same species groups of 7-9 plants. Hedgerow trees at a minimum of 8m spacing. Hedge to be planted in a prepared trench with soil conditioner as required.

Alkerton Quarry Proposed Hedge Mix			
Species	Common Name	Size cm	% Mix
<i>Crataegus monogyna</i>	Hawthorn	45-60	70
<i>Prunus spinosa</i>	Blackthorn	45-60	10
<i>Corylus avellana</i>	Hazel	45-60	10
<i>Cornus sanguinea</i>	Dogwood	45-60	5
<i>Viburnum opulus</i>	Guelder Rose	45-60	5
<i>Acer campestre</i>	Field Maple	45-60	5 no
<i>Quercus robur</i>	English Oak	45-60	3 no

#### 4.5 Maintenance

The planting will be maintained for a 5 year period or until established. All existing trees and shrubs will be retained. Weed growth around individual plants will be controlled by herbicide, 2 applications per annum. All failures will be replaced in the following planting season to ensure 100% stocking rate. Vegetation between the trees and alongside the hedgerow will be cut annually or as required.

#### 4.6 Natural Regeneration of Slopes

The slopes to the east and south of the quarry area will be formed from the lower quality soils and will be less fertile than the agricultural area, which will be enhanced with organic fertilizer. The soil slopes will be left to colonise naturally with native plants. Invading noxious weeds will be maintained by selective herbicide application. Colonization with natural scrub, if occurring, will be accepted as an important bird and butterfly habitat identified within the National Biodiversity Action Plan.

## **4.7 Enhancement of Biodiversity**

The proposed restoration of Alkerton Quarry will provide new areas of rough grassland, scrub, hedgerow and natural regeneration. These are all priority habitats within the national or local biodiversity action plans. Rough grassland (potentially acid grassland depending upon soils) is of particular importance locally. It is identified within the Cherwell Biodiversity Action Plan as a local priority.

## **5 ALKERTON QUARRY AFTERCARE**

The aftercare details for Alkerton Quarry have been set out below following DEFRA Minerals Planning Guidance 7: Reclamation of Minerals Workings 29<sup>th</sup> November 1996. A general Annual Outline Aftercare Strategy is outlined first, followed by a Detailed Aftercare Programme for 2018-20.

### **5.1 Annual Outline Aftercare Strategy**

Once the area has been restored it will enter a five year aftercare phase, during which it will be maintained annually.

- **Compaction:** Any areas of compacted soil will be relieved by deep agricultural cultivation. Tractor pulled winged tines close set at no more than 750mm distance apart working to a minimum depth of 200mm will be employed. To prevent compaction and rutting of soil, no access to the land will be allowed during wet periods. An assessment as to the condition of the soil will be made before agricultural machines access the site.
- **Following soil placement,** an annual agricultural crop will be established following good agricultural practices. Soil analysis will be undertaken and fertilizer applied as appropriate.
- **Noxious weed control:** Across the majority of the site, along the headlands, slopes, access track and between the trees noxious weeds will be controlled by cutting or selective herbicide.
- **Stone picking:** This will be carried out annually as and when required on newly cultivated areas, where stones may come to the surface after soils have been placed. Stones greater than 150mm in any dimension will be removed from the area.
- **Drainage:** The site is positioned on a north-south incline and will be restored with soil containing a good quantity of stones which should give adequate drainage. As such it is not envisaged that drainage will be required and has not been included within the aftercare scheme at this point in time.
- **Topping up of any depressed areas:** Having depressions and wet areas within the restored areas of site prohibits or delays agricultural aftercare. An annual assessment will be made of the site surface to determine if there are any areas of settlement. Should this occur Peter Bennie Ltd will inform the Minerals Planning Authority of the requirement to import material. This will be included within the Detailed Annual Aftercare Programme.

- Scrub and hedge planting: Completion of the planting on site will take place during the first available planting season following final soil placement. Specifications for planting are included above within the Restoration details. Following planting individual plants will be maintained weed free by herbicide application. Generally by 2 applications per annum or as required. Replacement planting will take place from November to February during the dormant season. The planting areas will be beaten up to 100 % stocking rate until establishment. Vegetation directly adjacent will be strimmed annually to control any weed encroachment as necessary.

#### Alkerton Quarry Annual Maintenance Schedule

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Scrub and hedge planting: Herbicide application and repositioning of guards												
1 <sup>st</sup> Visit												
2 <sup>nd</sup> Visit												
Soil sampling as required												
One visit as required												
Site entrance, scrub and hedge planting areas: Grass cutting												
2 Cuts or as required												
Fencing maintenance-												
As required throughout year												
Stone picking												
As required												
Replacement planting												
Dormant season												
Agricultural Cropping Regime												
As per agricultural requirements												
Perimeter Hedge Cutting												
Cut roadside hedge alternate years												

The table above gives a schedule of the annual maintenance of the tree and hedge planting, any grassland and newly established areas.

## 5.2 Detailed Aftercare Programme for 2018-20

During 2018-19 the site will be restored and completion of the planting will be carried out winter 2019/20. Annual maintenance will continue according to the table set out below.

### Alkerton Quarry General Annual Maintenance

Item	Description	Qty per annum
<b>Whole site</b>	<b>Noxious weed control</b>	
	Apply selective herbicide across all site to control noxious weeds April/May, July/August	2
<b>Provisional item</b>	Apply selective herbicide across all site to control noxious weeds 3rd visit Sept	1
<b>Whole site</b>	<b>Grass cut</b>	
<b>provisional item</b>	Cut whole site late July to encourage grass and control weeds. Leave bramble for winter cover.	1
<b>Roadside</b>	<b>Hedgerow trimming</b>	
	Cut back overhanging branches and hedge from A422 and minor road along south of site during Nov-Feb (alternate years)	1
<b>Spinney opposite and site entrance</b>	<b>Remove rubbish</b>	
	Litter pick and dispose of rubbish	1

### Agricultural Area

During 2018-19 the following will be carried out:

- Placement of soil as detailed in restoration specification
- Deep ripping of newly placed soil
- Deep cultivation using tractor mounted sprung winged tines.
- Stone-picking to remove any over sized material returning to the surface.
- Surface cultivation to produce a rootable planting medium of 150mm depth.
- Soil analysis to determine fertilizer requirements to improve the structure and fertility of the in-situ soil as required.

- Establishment of annual arable crop following good farming practice. (Details of crop rotation are still to be determined).

### **Scrub and Hedge Planting Areas**

During winter 2019-20 the planting of the hedgerow along the western boundary and the areas of scrub along the eastern and southern boundary and northern corner will be completed following the details of Alkerton Quarry restoration proposals. This will include 654m of hedgerow and 1.8 ha of rough grassland with scrub to the perimeter. All planting will be protected from browsing by individual tree guards.

During 2020 the following maintenance will take place:

- March/April 1<sup>st</sup> herbicide application to control competing weeds.
- June/July 2<sup>nd</sup> herbicide application.
- August strimming/grass cutting of vegetation between plants or along- side hedgerow.
- Repositioning of guards and hand weeding of tubes as required.
- Replacement planting to 100% stocking rates during 2020-21 planting season.

## **6 FUTURE AFTERCARE REPORTING AND ANNUAL VISITS**

An Annual Aftercare report will be submitted detailing restoration and aftercare operations which have taken place, and those which are scheduled up to 12 months ahead. This will be in accordance with the requirements of Condition 71 of the ROMP.

The report will include an assessment of the restored areas, highlighting any areas which need re-profiling and the estimated quantities of restoration material required. This is to be submitted prior to the annual site visit. The timing of this visit would be late summer/early autumn after most of the annual works have taken place in accordance with Condition 72. Attendees should include Peter Bennie Ltd, the Minerals Planning Authority, the land owner/contractor and other consultees as appropriate.

## **7 APPENDICES**

### **Appendix 1**

#### **Alkerton Quarry Revised Restoration Plan March 2018**







### **Appendix 2**

#### **Alkerton Quarry Proposed Restoration Contours Plan 160118 Restoration 5 30<sup>th</sup> January 2018**



Appendix 1: Alkerton Quarry Revised Restoration Plan March 2018

# Alkerton Quarry Revised Restoration Plan - March 2018

-  Existing hedgerow with mature trees
-  Proposed rough grassland with scrub to perimeter
-  Public footpath
-  Restoration to agriculture
-  Proposed hedgerow
-  Natural regeneration



Scale: 1:2500@A3
March 2018
Drawing Number: KB-AQ/101

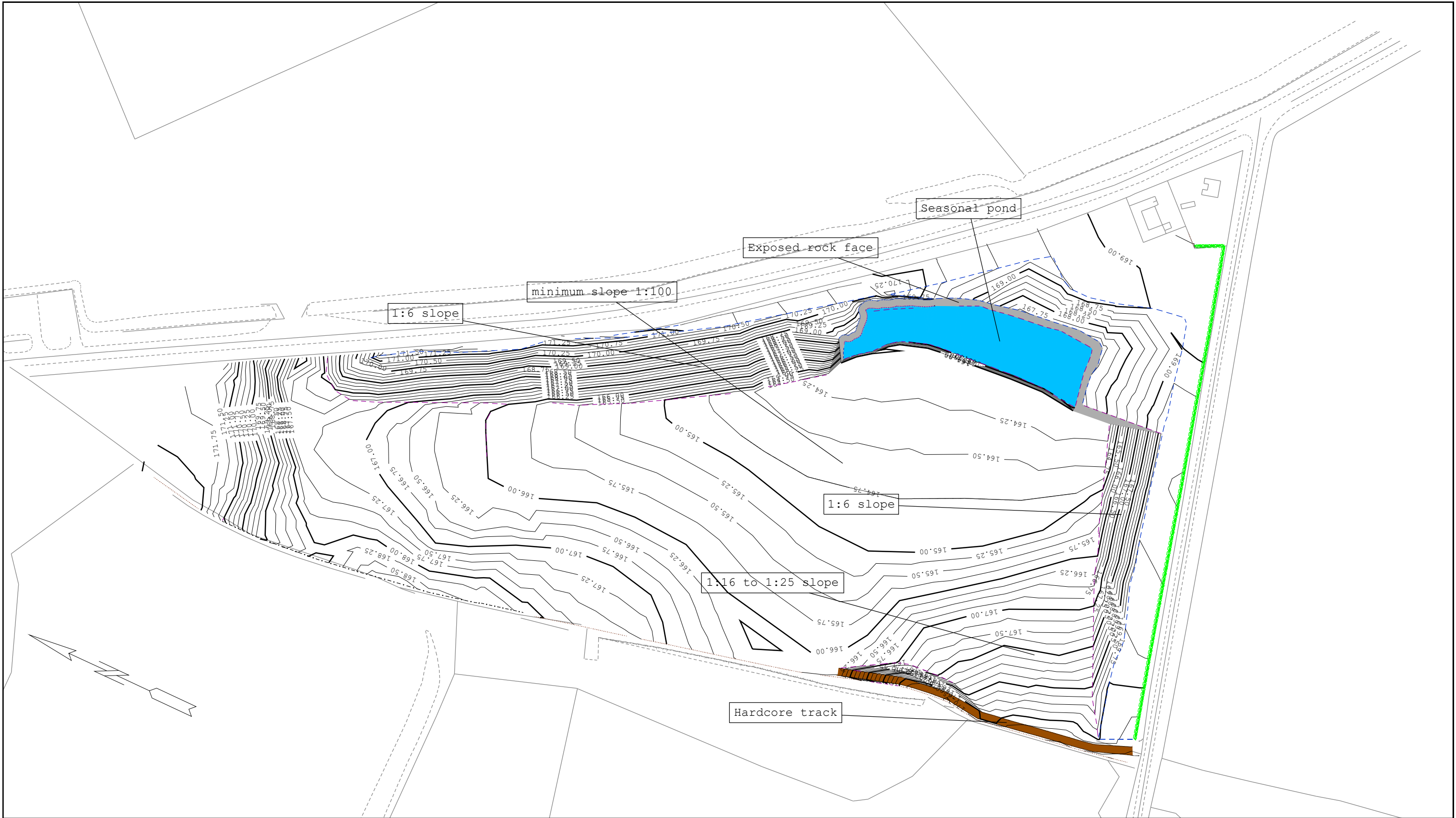
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Appendix 2: Alkerton Quarry Proposed Restoration Contours Plan 160118 Restoration 5  
30th January 2018



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Peter Bennie Ltd  
 Alkerton Quarry  
 Proposed restoration 5

Printed 30 JAN 18 14:32

Scale 1:2000

benalk/update 160118/rest5