FELSTONE
CONSULTING
CHARTERED LANDSCAPE ARCHITECTS

PROPOSED MINERAL EXTRACTION AT MANSOM PLANTATION - RESTORATION CONCEPT

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DRAWINGS

1 INTRODUCTION AND BACKGROUND

1.1 Introduction

1.1.1 Felstone Consulting Limited has been instructed by Breedon to prepare an initial restoration concept for their proposed mineral extraction at Mansom Plantation, Stratton Strawless, Norfolk.

1.1.2 This work is being carried out in advance of a planning application and environmental impact assessment (EIA) and forms part of the operator's input into the Norfolk Minerals and Waste Local Plan Review process.

1.1.3 The working scheme is to be developed by Breedon, but with specialist input and advice on landscape and visual impact assessment (LVIA) and quarry restoration design, alongside other technical topics.

1.1.4 This initial restoration concept has been prepared by Chartered Landscape Architects at Felstone Consulting Limited and includes desk-based research and landscape appraisal of this type of restoration at this location (with an emphasis on opportunities for biodiversity enhancement), with 3d modelling and CAD drafting.

1.2 Planning Background

1.2.1 Mansom Plantation is an area of mature mixed species conifer. The central area has been cleared in accordance with an existing management plan. Mature commercial conifer crop will require further felling to facilitate quarrying. Conifers will be retained within the buffer zone/screen. Further thinning on a seven year cycle will allow natural light onto the forest floor and promote the growth of existing native and non-native natural regeneration. An uneven aged structure will screen the site from adjacent properties.

1.2.2 Stratford Properties have considerable experience of heathland restoration. Houghen Plantation, Felthorpe, is a restored heathland, fen, woodland area of approximately 120 acres. This site was recently acquired by Broadland District Council.

1.2.3 There is an extant planning permission in place for lodge development within the centre of the site, with a restaurant, shop, tennis courts and associated access from Short-Thorn Road to the south (refer to Drawing 12535/P3c). The central areas would be managed as heathland restoration, set amongst a perimeter woodland framework.

2 RESTORATION CONCEPT PLAN

2.1 Overall Concept

2.1.1 The proposed restoration concept, as shown on Drawing MP-1, is for the creation of a new 'valley fen' with heath and mire habitats set amongst a framework of mixed native woodland.

2.1.2 The 36.6 ha restored site would aim to expand the habitats designated by the 616 ha Norfolk Valley Fens Special Area of Conservation (SAC) which covers several sites of similar size and character, distributed across the county. The nearest site is the 67 ha Buxton Heaths Site of Special Scientific Interest (SSSI), which is located approximately 2.5 km to the north-west and includes heath with fen and valley mire. This approach to the restoration of the site would make a positive contribution to biodiversity.

2.1.3 Parts of the existing woodland around the perimeters would be retained or replanted to provide screening benefits and limit the visibility of the proposals.

2.1.4 The proposed restored landscape elements and features would be in keeping with the published key characteristics locally and ensure assimilation with the Horford Woodland Heath Mosaic landscape character area B1 (Broadland District Council's Landscape Character Assessment Supplementary Planning Document (SPD), September 2013).

2.2 Restoration Scheme - Parameters and Considerations

2.2.1 The site is gently sloping inwards from 24.2m AOD at the south-western corner, 21m on the north-western boundary and 20m along the eastern boundary, to a low point of 17. 4m AOD along the northern boundary. The OS maps indicate a network of drains along the northern site boundary.

2.2.2 The proposed mineral extraction design covers 31.2 ha with basal levels sloping from west to east, between 17m AOD and 12m AOD. This would result in a quarry void of typically 5-7m deep.

2.2.3 Access ramps would be formed around the perimeter, with all other cut slopes being 1:2. The extraction area would standoff from the site boundaries between 10m to the north, east and south, increasing to 40m to the west.

2.2.4 The mineral extraction operations would necessitate the stripping of approximately 135,000m3 soils / overburden and 70,000m3 silty subsoil, prior to accessing the sand and gravel deposit. The mineral deposit is underlain by clay and chalk.

2.2.5 The geological investigations indicate approximately 227,300m3 of silt to be generated over the life of the quarry, based on extraction and processing of 1,643 million m3 of mineral and an average silt content of just under 14%.

2.2.6 At this stage, the restoration water level is assumed to be 17m AOD, which is just below the 17.4m AOD low spot in the north of the site, although detailed hydrological assessment was not available at the time of preparing this report.

2.2.7 The 'valley fen' restoration concept utilises the available site-derived materials (topsoils, subsoils, overburden and silt) to re-shape and soften the quarry void, to create shallows, margins and shelves around the predicted water level to support target reedswamp and mire habitats, with heathland and grassland mosaic on the higher, drier slopes above the assumed water level. Areas of bare ground, sand cliffs, banks and mounds could also be incorporated into the restoration landforming.

2.2.8 A 3D computer model has been used in the preparation of the restoration concept shown on Drawing MP-1, to ensure a materials balance with the available quantities of soil, overburden and silt (as described above), without the need to import materials. These volumes would be reviewed as the site progresses to take account of conditions and materials encountered.

2.2.9 A phased scheme of working and restoration would be prepared to limit the area disturbed at any point in time and requirements for temporary stockpiles, and wherever possible allow direct placement into areas of fully worked out void.

2.2.10 The species composition of the wetland, heathland and grassland habitats would depend on a more detailed assessment of conditions. Where practical, any existing areas of heathland vegetation would be stripped and respread over restoration areas. Heather brashings can also be harvested from areas of mature heathland (either on or offsite) which can then be spread across restoration surface.

2.2.11 Native trees and shrubs, such as Oak, Silver Birch, Gorse and Alder would also be used to strengthen the existing perimeter woodland framework, with the aim of establishing a range of age classes and native tree and shrub species being present, to form a diverse

edge. Any non-native invasive plant species would be removed, as appropriate. Additional fencing may also be installed within certain areas to control browsing and allow regeneration of ground flora and saplings.

2.2.12 A maintenance access track would also be included around the perimeter of the site.

2.2.13 More precise details for the restoration of the site would be refined as part of operational and technical input to the scheme, including hydrological and ecological studies.

3 INITIAL LANDSCAPE APPRAISAL

3.1 Introduction

3.1.1 This section of the report considers the proposed nature conservation afteruse and 'valley fen' restoration concept at this location.

3.1.2 This includes an initial desk-based review of Natural England's MAGIC – Multi-Agency Geographic Information website, Google Earth and OS Explorer Maps, as well as other online resources as referenced below.

3.2 Landscape-related Designations

3.2.1 There are no national landscape designations within the site or immediately surrounding area.

3.2.2 The Lodge to Stratton Strawless Hall, Grade II Listed Building is located by the side of Cromer Road (A410), opposite to the eastern corner of the site at c80m away. Stratton Strawless Hall is set c350m further back.

3.2.3 Park Farmhouse and Park Farmhouse Barn Grade II Listed Building is 200m to the north of the site.

3.2.4 Part of the Hevingham Park land adjacent to the north of the site is designated as Ancient Replanted Woodland and is Open Access Land (CROW).

3.3 Existing Landscape Elements and Features

3.3.1 The site currently comprises of mainly coniferous forestry plantation, with some mixed woodland towards the edges and an area which has been recently felled in the centre. There is a pumping station and substation on the southern edge of the site, accessed from the Short-Thorn Road which extends along the southern boundary. There are a few residential properties along the Short-Thorn Road, including Heath Farm, Mansom Lodge, Whitecroft, Wood Lodge and Laundry Cottage.

3.3.2 The eastern boundary follows Cromer Road, where there are several properties to the north-east, such as Carpenters Cottage and The Laurels, as well as a Timber Yard. A public right of way starts at Cromer Road and extends in a south-eastern direction to Parish Road.

3.3.3 The northern boundary includes a drain and a forest track associated with the edge of Hevingham Park, Forestry Commission managed land, with recreational access.

3.3.4 Brackenwood Farm is located on the western boundary, with woodland blocks and scrub.

3.3.5 As noted in the section above, the site is gently sloping inwards towards the northern boundary. The surrounding topography is also sloping north and eastwards to the River Bure, at 3km away.

3.4 Landscape Character

3.4.1 The Site is located within Landscape Character Area B1 Horford Woodland Heath Mosaic in Broadland District Council's Landscape Character Assessment Supplementary Planning Document (SPD), September 2013. The boundary with Landscape Character Area E2 Marshal and Hainford Wooded Estatelands partly follows Cromer Road to the east.

3.4.2 The following published Key Characteristics are typical of the Woodland Heath Mosaic Landscape Character Type:

- *Generally flat, plateau landscape, covered with a pattern of large-scale woodland and plantations;*
- *Mixture of old deciduous woodland and more recent coniferous plantations, interspersed with small areas of remnant heathland contained within the woodland;*
- *Woodland is interspersed with relatively large arable fields;*
- *Presence of boundary oaks within hedgerows;*
- *Underlying geology of sands and gravels, overlain by infertile sandy soils;*
- *General absence of settlements, other than sporadic 20th century settlements that line straight roads, which cut across the landscape;*
- *Views are generally strongly contained by dense blocks of woodland;*
- *Woodland provides a strong sense of enclosure.*

- *Small pockets of Acid grassland (National Vegetation Classification category U4) within heathland mosaic.*

3.4.3 The publication also confirms that the ecological character of the Woodland Heath Mosaic Landscape Character Type is dominated by the following habitats:

- *Dry acidic heathland*
- *Wet heathland with acidic flushes – several are characterised by the (highly unusual) presence of alkaline flushes or fens (e.g. Buxton Heath) and hence are referred to as 'valley fens' (and which are recognised in the European designation of the Valley Fens (SAC). Because they have a European designation, it could be argued that the alkaline flushes should be considered the most significant sites.*
- *Fen*
- *Birch and alder woodland (including ancient woodland habitat)*
- *Scrub*
- *Bracken*
- *Rough grassland*
- *Ponds*

3.4.4 The published Management Strategies and Objectives for the Woodland Heath Mosaic Landscape Character Type include "*The overall strategy for the Woodland Heath Mosaic should be to conserve and enhance the mature blocks of woodland and patches of remnant heathland, which have strong biodiversity value and are recognisable landscape features*."

3.5 Ecological Context

3.5.1 As noted in the section above, Buxton Heaths SSSI is 2.5km to the north-west of the site and forms part of the Norfolk Valley Fens SAC.

3.5.2 Buxton Heath SSSI is described on Natural England's website as 67 ha and comprising

of "Fen, Marsh and Swamp – Lowland"[1]. The Buxton Heath SSSI website[2] refers to how "*The valley mire found at its heart earns Buxton Heath its Site of Special Scientific Interest (SSSI) designation supporting a wide range of wetland plants, including several species of orchid. The mire is fed by a spring which comes to the surface at the western end of the site carrying somewhat chalky waters and is surrounded by a mosaic of wet heathland, dry acidic heathland, and birch/oak woodland".*

3.5.3 The JNCC website[3] describes the Norfolk Valley Fens SAC as covering 616ha, with general site character as follows:

- *Inland water bodies (Standing water, Running water) (5%)*
- *Bogs, Marshes, Water fringed vegetation, Fens (25%)*
- *Heath, Scrub, Maquis and Garrigue, Phygrana (30%)*
- *Dry grassland, Steppes (5%)*
- *Humid grassland, Mesophile grassland (5%)*
- *Broad-leaved deciduous woodland (30%)*

3.5.4 The designated sites include 14 individual SSSIs distributed quite widely across the county, including Booton Common SSSI at 10km to the west of the site Potter & Scarning Fens, East Dereham SSSI at 23km to the south-west. Refer to Figure 1 below for a screen shot from MAGIC which shows several of the Norfolk Valley Fens SAC sites, distributed either side of the River Wensum SAC.

3.5.5 The Site Improvement Plan for the Norfolk Valley Fens (Natural England, 2014) described how inter *alia*, inappropriate water levels, scrub control, hydrological changes and water pollution are affecting the condition of the existing designated sites.

[1] https://designatedsites.naturalengland.org.uk/UnitDetail.aspx?UnitId=1004360
[2] http://buxtonheath.weebly.com/about-english.html
[3] https://sac.jncc.gov.uk/site/UK0012892

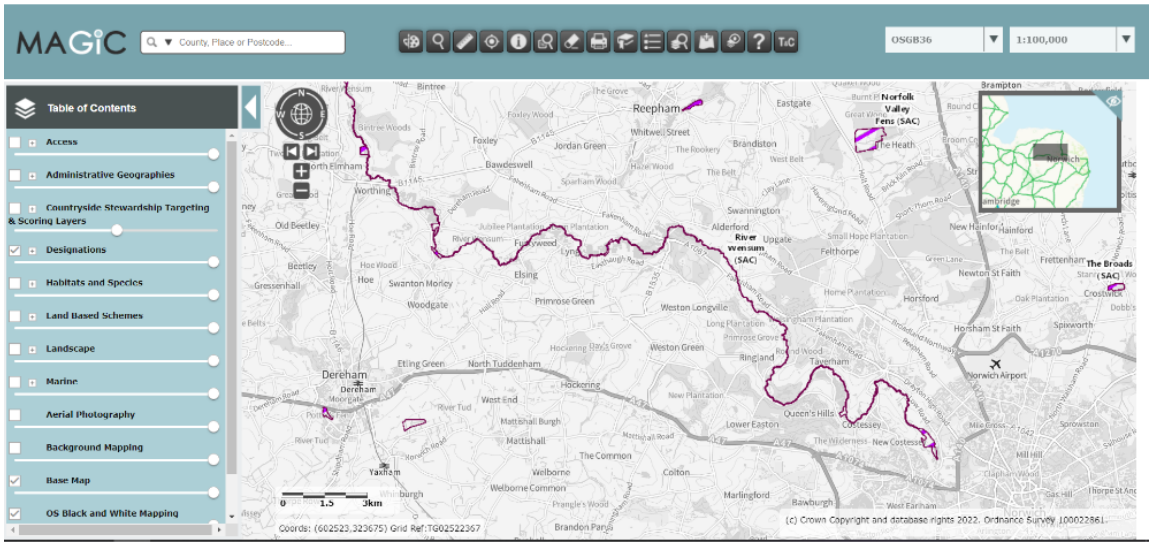

Figure 1: Screen shot from MAGIC (Oct 2022)

3.6 Views and Visual Amenity

3.6.1 The site appears to be mainly mature woodland from the Cromer Road to the east and Short-Thorn Road to the south, although the progressive forestry clearance work would alter this to varying degrees.

3.6.2 The site is relatively remote, albeit with a few isolated residential properties to the west, south and north-east and there are recreational visitors to Hevingham Park immediately to the north. There is also a footpath alongside Cromer Road.

3.6.3 Travellers along the adjacent road corridors would be travelling at relatively high speed and typically focused on their journeys, where views would be incidental. Recreational visitors to Hevingham Park however are more likely to appreciate views of the surroundings as an important part of their experience (and that may include the site, to varying degrees). The rural views may also contribute to the landscape setting enjoyed by residents in the area.

3.7 Appraisal of Potential Landscape and Visual Effects

3.7.1 In landscape terms, the progressive clearance of the existing forestry plantation is already changing the elements and features within the site, creating open areas of bare ground and shorter vegetation. This also includes changes to aesthetic and perceptual aspects, such as complexity and variety of line, form and colour.

3.7.2 The landscape effect of the undertaking mineral extraction in the context of this

process of change (timber harvesting) would therefore be lower than an alternative 'greenfield' site which has a more established natural or cultural interest, strong landscape structure or distinctiveness. At this stage there are no obvious physical attributes, rare or unusual landscape elements or features that would elevate its landscape value.

3.7.3 The temporary introduction of earthworks, heaps and voids, ramps and vehicle movements would introduce localised disturbance and perceptual changes (scenic and tranquillity) to the site. However, these changes would be limited to the site and it's immediate setting due to a combination of tree cover, flat to gently undulating topography and limited height of the proposed elements. The quarry void itself would be set down.

3.7.4 The permanent lowering of land levels following mineral extraction is anticipated to be below the water table and is therefore likely to result in the creation of a new wetland feature. The use of well-established quarry restoration techniques would ensure the successful delivery of a beneficial nature conservation afteruse,. For example, through the careful use of soils and overburden, reinstating shoreline slopes and margins to create a valley basin, and managing natural regeneration, with seeding and planting to develop a heath and grassland mosaic.

3.7.5 The management issues of inappropriate water levels, scrub control, hydrological changes and water pollution as identified for the Site Improvement Plan for the Norfolk Valley Fens would also need to be considered during the restoration of the site. Nevertheless, in principle the restoration of a remote 'valley fen' site would fit into the wider character of other similar sites that are distributed across the county

3.7.6 In visual terms, whilst the proposed mineral extraction development has the potential to affect views and visual amenity, its visibility is restricted by mature trees and shrubs around the site boundaries and wider setting. Although the site is bordered by roads on two sides, the site is relatively remote (albeit with a few isolated residential properties and recreational visitors to Hevingham Park). Also, once the soils have been removed the main workings would be set down and concealed from views. Temporary soil storage bunds could be strategically placed to provide further screening during operational phases. A scheme of landscaping to the perimeter tree belts (including some retention and replanting) would enable mitigation of potential visual impacts.

3.7.7 It is not anticipated that the proposed development would give rise to any unacceptable or significant adverse effects on the landscape character of the locality or on the visual amenity of nearby receptors. The proposed restoration concept for the creation of a new 'valley fen' with heath and mire habitats set amongst a framework of mixed native woodland is likely to result in long-term beneficial effects.

The proposed restoration concept is for the creation of a new 'valley fen' with heath and mire habitats set amongst a framework of mixed native woodland.

The 36.6ha restored site would aim to expand the habitats designated by the 616ha Norfolk Valley Fens SAC which covers several sites of similar size and character distributed across the county. The nearest site being the 67ha Buxton Heaths SSSI, which is located approximately 2.5km to the north-west and includes heath with fen and valley mire habitats.

This approach to the restoration of the proposed mineral extraction development would ensure a positive contribution to biodiversity and assimilation with the Horford Woodland Heath Mosaic landscape character area B1.

Hevingham Park - Ancient Replanted Woodland, County Wildlife Site and Forestry Commission land with recreational access (Access Land - CROW)

Dry heathland-grassland mosaic on higher slopes, to include bare ground, sand cliffs, mounds and banks

Water level shown as 17m AOD, based on existing low point within the site (to be confirmed)

Maintenance access track incorporated into perimeter of restored land.

Mixed native tree and shrub planting to include gorse, oak and birch on drier slopes and alder on lower-lying wetter margins

Perimeter Woodland / Tree cover, to incorporate retained trees and areas of replanting around site boundary. To be carried out as part of landscaping scheme at outset of development

Zone of wet heathland-grassland mosaic on lower slopes to enclose the fen and mire habitats

Fen and Mire habitat areas, to include reedbed, pools and shallows

Cromer Road

320500N

320000N

620000E

620500E

0 50 100 150 200m 300 400 500

Metres 1:5000

LEGEND

- Site Boundary
- Maintenance Access Track
- Perimeter Woodland / Tree Cover
- Mixed Native Tree and Shrub Planting
- Heathland-species-rich Grassland Mosaic
- Valley Fen and Mire Habitats (with reed bed, shallows and pools)
- Shallow Water (<2m deep)
- Deep Water (>2m deep)
- Ancient Replanted Woodland

FELSTONE CONSULTING

BREEDON

SITE
Mansom Plantation

PROJECT
Proposed Mineral Extraction

DRAWING TITLE
'Valley Fen' Restoration Concept Plan

DATE
Nov 2022

REFERENCE
BRE016-001

SCALE
1:5,000 @ A3

STATUS
FINAL

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