

A14 Cambridge to Huntingdon improvement scheme

Environmental Statement

Appendices

Appendix 3.3: Borrow pits restoration proposals

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1 Introduction

- 1.1.1 It is proposed to create six borrow pits in order to provide sand, gravel and clay as primary construction materials for the scheme.
- 1.1.2 The restoration designs for the borrow pits have been developed broadly according to two main objectives:
- restoration to agriculture where possible; or
 - provision of quiet informal recreation such as walking and fishing and also for biodiversity with the balance determined by local factors.
- 1.1.3 The location of the borrow pits and the proposals for their restoration are presented on *Figure 3.2*.
- 1.1.4 Borrow pit 5 would be restored largely to agricultural use. Borrow pit 6 would be partly restored to agricultural use. The remaining four (borrow pits 1, 2, 3 and 7) are expected to be flooded by ground water to form lakes with peripheral areas restored for informal recreation or habitat creation. There is no borrow pit 4.
- 1.1.5 The final shape and profile of the restored excavations would be refined during the detailed design process. The detailed restoration designs at each location would be largely influenced by physical factors such as the final volumes of material extracted, the volume of materials available for restoration (e.g. subsoil and topsoil) and the levels of groundwater. The detailed arrangement for grading and planting would be defined at the detailed design stage. The assessment of significant effects reported in the *Environmental Statement (ES)* has assessed a likely worst case scenario for shape and profile of excavations as set out in the draft DCO, works plans and engineering sections and drawings, and assumed that planting would be achieved according to the scheme restoration design drawings.
- 1.1.6 The level of water in the excavated borrow pits would vary locally depending on natural groundwater levels and the hydraulic conductivity of the local geology. Based on the groundwater assessment findings described in *Chapter 17 of the ES*, it is expected that final water levels would be between 1 and 3 metres from the existing ground surface. The *ES* assumes, as a likely worst case, that there would be ingress of water into the excavations to approximately 1 metre of the existing ground level. Groundwater levels and geological information will be verified by findings from ground investigations conducted during the autumn of 2014. This information will have a bearing on what is possible in terms of creation of lakes and ponds and the design of shoreline gradients.
- 1.1.7 The side slopes of the 'as-dug' pits would generally be re-graded to gentler slopes to make them suitable for restoration as wetland habitats and safe for future public access where this is practicable.

- 1.1.8 This document notes some future opportunities for the borrow pits, to be considered further at detailed design stage. Discussions to finalise the details of future restoration of the borrow pits will continue with interested parties following submission of the application for a Development Consent Order (DCO) in order to reach an agreed position as soon as possible and at the latest by the close of the examination of the application. Any agreed refinements would be taken into account and reflected as part of the detailed design stage of the scheme, within the physical constraints applicable to individual sites, and where they do not materially change the environmental effects of the scheme as reported in the environmental statement
- 1.1.9 Peripheral areas not affected by excavations and not suitable for restoration to farmland would potentially be available for quiet informal recreation (where public access exists or is agreed) and for enhancement as natural habitats to encourage and support wildlife. These areas would be planted with a mixture of grasslands, shrubs, trees and small-scale woodland planting all using locally occurring indigenous species, to achieve integration of the restored areas with the surrounding landscape, provide suitable wildlife habitats and safe access routes for potential future public access. Some small-scale features such as ponds and banks may be included to diversify the range of habitats.

2 Restoration design of individual borrow pits

Borrow pit 1

- 2.1.1 The restoration proposals for borrow pit 1 are shown on *Figure 3.2*. Restoration of this large site would include four water bodies with a variety of new wetland habitats interlinked by grassland. Blocks of woodland and hedgerow planting would create connections between existing woods and hedges and provide an attractive landscape setting for the lakes.
- 2.1.2 Woodland along lake margins would provide habitat features for birds and bats, and the planting could provide corridors for future expansion eastwards from Brampton Wood of the nationally rare dormouse (*Muscardinus avellanarius*).
- 2.1.3 An area of reduced ground level in the north of the site restored to grassland and bounded with hedges would also function as flood plain compensation and would provide additional small-scale habitat features such as ponds and banks.

Future opportunities

- 2.1.4 Public access from Brampton via the bridleway connects across the site to Brampton Wood and north-south along the eastern edge of the borrow pit to Grafham Road, providing a circular route. Subject to agreement, the site would have good potential for quiet recreation with the possibility of creating an extensive network of informal paths around the lakes. Further opportunities for public access from Grafham Road could be explored, making this a potentially valuable countryside recreation resource.

Borrow pit 2

- 2.1.5 The restoration proposals for borrow pit 2 are shown on *Figure 3.2*. This site would comprise one large and one small lake, with extensive grassland and scattered tree planting situated between the proposed lakes and the existing housing at RAF Brampton aimed at providing an attractive open space. Where possible, and subject to the availability of excess materials taken from elsewhere on the scheme route for restoration, the sides of the borrow pit would be re-graded to create gentle slopes providing varied habitats and safer shorelines in anticipation of future public access.
- 2.1.6 Small blocks of woodland along the southern site boundary together with planting on the new road embankment would provide visual screening, while new hedgerow planting would reinforce existing hedges and provide further enclosure and habitat corridors.

Future opportunities

- 2.1.7 Within the extensive area of grassland there is scope to create small-scale features such as ponds and banks with native shrub planting for greater diversity of wildlife habitats, general interest and as an educational resource.
- 2.1.8 The margin of land around the western side of the main lake provides the opportunity for a circulatory route and general access via informal paths.

- 2.1.9 Potentially this scheme could provide a ‘pocket park’ for the local area as there is already a public footpath along the edge abutting the housing area. This would be subject to separate proposals being approved outside of the DCO process.

Borrow pit 3

- 2.1.10 The restoration proposals for borrow pit 3 are shown on *Figure 3.2*. Due to its location adjacent to Fenstanton Pits County Wildlife Site and the re-aligned West Brook, this borrow pit is well suited to restoration for wildlife habitats. The two large lakes would be surrounded by grassland, small woodland blocks and scattered tree planting. Subject to the quantity of material available for restoration, this would be used to re-profile pit edges where possible to create shallower gradients than those shown on *Figure 3.2* for establishment of willow and alder woodland with reed bed. The scattered tree planting is designed to provide links between existing hedgerows and new features as well as a setting for the West Brook.

- 2.1.11 Within the grassland areas smaller ponds would be created.

Future opportunities

- 2.1.12 Subject to access requirements to maintain ditches, further tree planting may be possible along the southern edge of the site to screen the A14.

Borrow pit 5

- 2.1.13 The restoration proposals for borrow pit 5 are shown on *Figure 3.2*. Situated on slightly elevated arable farmland at Boxworth, this site would be restored to agriculture across the greater part. Consideration has been given to minimising visual effects on the ridgeline and the land form would be restored to flowing contours to blend with existing levels along the western, northern and eastern edges.

- 2.1.14 The existing bridleway along the south-western edge occupies a strip of fine grassland. Due to the local geology, the pit would have an asymmetric profile, resulting in a steeper bank parallel to the south-western side. It is proposed to retain this bank as a landscape feature to be restored as native grassland. This would increase the overall width of the grassland corridor along the bridleway, reinforcing the local landscape character and providing biodiversity benefits through creation of further neutral grassland habitat.

- 2.1.15 A section of new hedgerow with intermittent trees would define the north side of the bridleway on the westernmost stretch, complementing the existing scattered trees on the opposite side and providing shelter and enhanced habitats.

Borrow pit 6

- 2.1.16 The restoration proposals for borrow pit 6 are shown on *Figure 3.2*. This borrow pit would comprise three separate excavations due to constraints imposed by overhead power lines and a buried pipeline.

- 2.1.17 The dense clay here is expected to allow only a very slow rate of ground water ingress, so the restoration design has assumed a relatively low level of water within the excavations. The high side slopes relative to the surrounding ground levels would make the site unsuitable for general public access. Restoration to agricultural use is proposed for the larger part of the northern excavation cell with a mixture of grassland on slopes and less accessible areas, and arable use where flatter gradients and better access permits. The remaining areas of excavation are expected to feature shallow water bodies which would vary in depth according to the prevailing groundwater levels and the rate of infiltration.
- 2.1.18 Woodland planting and hedgerows along the southern boundary would provide screening from the A14 corridor.
- 2.1.19 This borrow pit is located within the 13km airport safeguarding area for bird strikes defined by the Civil Aviation Authority for Cambridge Airport. As a consequence of this, the potential risk of increased bird strikes as a result of the restoration proposals for the borrow pit has been considered. Detailed planting and landscaping arrangements would aim to limit the attractiveness of the site with respect to birds that might potentially cause a hazard to aircraft whilst maintaining the value of the site from a nature conservation perspective as far as possible. The bird hazard assessment is presented in Appendix 16.1.
- 2.1.20 The bird hazard assessment recommends that, at the detailed design stage, any residual risk of increased bird strikes would be assessed and managed through the preparation and implementation of an appropriate bird control management plan, if following further assessment this is deemed appropriate.

Borrow pit 7

- 2.1.21 The restoration proposals for borrow pit 7 are shown on *Figure 3.2*. Due to restrictions imposed by overhead power lines, the excavations at this borrow pit would result in two water bodies with rectilinear outlines divided by rough grass.
- 2.1.22 It is proposed to soften side slopes where possible by backfilling with material to create suitable shallow areas for growth of reeds and other marginal plants. This re-grading work and the planting of native trees and shrubs would be focussed principally along the southern edge parallel with Ellington Brook and western edge adjacent to the existing restored pits, where diversification of habitats would be most beneficial.
- 2.1.23 Planting within the grassland adjacent to Ellington Brook would improve the visual character and nature conservation value of the stream corridor and planting around the northern edge of the smaller lake would help to integrate the restored borrow pit with the existing trees and hedgerows.

Future opportunities

- 2.1.24 It may be possible to create a low gravel-covered island and irregular peninsula to provide more varied habitats, subject to sufficient material being available.