

UK Coal Surface Mines Limited

Great Oak - Surface Mining Proposal

Landscape and Visual Impact Assessment

ESP Ltd

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1.0 Report Author

This report has been prepared by Keith Hampshire, BA Dip.LA CMLI. Keith has gained extensive experience in various aspects of landscape planning and environmental assessment in the minerals development and waste management sectors over the past 25 years. He is a Director of ESP Ltd, an independent, multi-disciplinary consultancy undertaking Landscape Planning and Design, Estate Management, Environmental Impact Assessment and Environmental Management for the public and private sectors.

2.0 Scope of report

2.1 Heaton Planning Limited issued a request for an Environmental Impact Assessment Scoping Opinion on behalf of UK Coal Surface Mining Limited to Staffordshire County Council (SCC) on 14 December 2012 regarding Great Oak surface coal mining and restoration scheme proposals. Under the section on landscape and visual effects, it is explained that the working and restoration scheme design and impact assessments are parallel, complementary and iterative processes. Therefore the Landscape and Visual Impacts Assessment process will be split into four chronological stages:

- 1 - inception and baseline assessment;
- 2 - initial impact assessment and potential mitigation, followed by feedback into the working and restoration schemes;
- 3 - final impact assessment and proposed mitigation;
- 4 - summary and conclusions.

2.2 There are no statutory criteria or standards laid down for the assessment of landscape and visual impacts. However, this report has been undertaken in general conformity with the 'Guidelines for Landscape and Visual Impact Assessment' 2nd Edition, published by the Institute of Environmental Management and Assessment and the Landscape Institute in 2002 (LI, 2002). This document defines and differentiates landscape and visual effects as follows:

'Landscape and visual assessments are separate, although linked procedures ... The assessment of the potential effect on the landscape is carried out as an effect on an environmental resource, i.e. the landscape. Visual effects are assessed as one of the interrelated effects on population.'

Landscape effects derive from changes in the physical landscape, which may give rise to changes in its character and how this is experienced. This may in turn affect the perceived value ascribed to the landscape ...

...Visual effects relate to the changes that arise in the composition of available views as a result of changes to the landscape, to people's responses to the changes, and to the overall effects with respect to visual amenity.'

The 3rd Edition of the Guidelines was published on 17th April 2013. In accordance with emailed guidance issued by the Landscape Institute on 19th April the assessment has been completed using the 2nd edition, as it was started under this edition. However, in order to comply with the spirit of the up to date guidelines, the following changes have been made. The effects of the development have been assessed on a series of key landscape receptors, in addition to the character of the overall setting. Also, the criteria used for rating sensitivity of receptors and magnitude of effects are retained, but the tabular ratings used to ascribe significance will be substantiated by descriptive analyses. The methodology for assessing landscape and visual impact significance (generated from the 2nd Edition Guidelines) employed in this report is detailed in Appendix 7.1 below.

2.3 The scoping opinion dated 8th February 2013 received from SCC includes the following advice regarding landscape and visual amenity:

The Scoping Report refers to appropriate guidance to the process of assessment, namely Guidelines on Landscape and Visual Assessment 2nd Edition, 2002. However the Landscape Character Assessment; Guidance for England and Scotland (The Countryside Agency and SNH, 2002) would also be a useful reference.

The Scoping Report sets out further detail of the proposed approach, which is appropriate. It may also have been helpful to define the proposed extent of the study area, but the desk based analysis to establish a zone of visual influence, which should extend to at least 2.5km from the Site, will help inform the extent of the study area required.

The correct reference landscape character assessments at National and local levels are referenced as background documents. It should be noted that the Staffordshire County Council's Landscape Character Assessment describes the Site as falling on the boundary between two character types and an extract

from the Landscape Character Assessment to show the Bignall End Landscape Character Types. The north western part of the Site falls within an area where the character conforms to Ancient Clay Farmlands landscape Character type (LCT) in Staffordshire Plain and for which the Policy Objective in the Structure Plan saved policy NC2 is Landscape Enhancement. To the south east the Site lies within Ancient Slope and Valley farmland in Potteries and Churnet Valley, for which the policy objective is Landscape Restoration.

Potentially sensitive receptors should be identified through desk-based analysis and then 'proofed' through field survey. This may reveal potential receptors on the southern fringe of Alsager and viewpoints on rights of way at some distance to the Site.

The iterative process described in the Scoping Report, including consideration of alternative methodologies, phasing, timing, and restoration options is welcomed. It is assumed therefore that the Scoping Site Plan is indicative only and subject to the results of the landscape and visual impact assessments. It appears that much of the soil storage indicated on the Site perimeter would serve as screen bunds, but the height particularly of topsoil bunds will need to be tailored to ensure protection of soil quality.

The Scoping Restoration Plan illustrates a concept on which to base discussion that is sympathetic to local landscape character and would make some contributions to the landscape policy objectives that apply. It is not essential to reinstate the historic field pattern in order to contribute to landscape restoration; this policy objective is more about recreating character through provision of new features that draw inspiration from features lost, but are not necessarily a slavish copy, therefore there would be potential to create a more open habitat in part of the Site that would be appropriate, for example, for ground nesting birds. Further discussion on the restoration proposals would be welcomed.

A local resident has commented on the potential impact of floodlighting which could have a significant visual impact in the surrounding area. (SCC, 2013)

3.0 Baseline studies

3.1 Description of the Site and setting

(The Landscape Character plan (drawing number G6_LAN_001, located in Appendix 7.2 below) identifies the Planning Application Area)

3.1.1 The 80 hectare Site is located on the northwest fringes of the County of Staffordshire, on high ground overlooking the Cheshire and Staffordshire plains. The Site is located within the two-tiered administrative area of Staffordshire County Council, and Newcastle Under-Lyme Borough Council. The Staffordshire village of Bignall End borders the Site's southern extents and the village of Audley lies approximately 2 kilometres to the southwest on the B5500. The settlement of Talke is located approximately 1 kilometre to the northeast and the urban fringe of Newcastle- under-Lyme at Red Street lies beyond the southeast edge of the Site. The A500 dual carriageway runs east-west, parallel to the Site's northern boundary. The M6 Motorway runs north-south, approximately 3.5 kilometres to the west of the Site.

3.1.2 The land form around the Site varies, ranging in elevation from approximately 134 metres aod in the west corner of the Site, to the trigonometry point near Wedgwood's Monument in the east, at 236 metres aod. The highest elevation within the Site is around 200 metres aod, on the eastern fringes. The general land form on the Site rises broadly from west to east, before falling away sharply in its eastern most extents. Surface gradients increase in steepness towards the north-south spur that is occupied by the Monument and a water reservoir, located on the east side of the proposed extraction area. There are several small watercourses, drains and sinks within the Site, along with many small pools and ponds. Most of the Site is presently improved grassland in agricultural use.

3.1.3 The Site contains several historical features, the most remarkable of which is the Wedgwood's Monument, a memorial obelisk erected in 1845, but extensively damaged in 1976. The monument remains Grade II listed (ID No: 273279) (English Heritage, Not Dated).

3.1.4 A disused railway runs through the centre of the Site from (north/south), and is believed to have been a mineral railway, servicing several former deep mines located within and around the Site. It is mostly

wooded and the woods fan out in area at either ends of the Site. It is designated as a Site of Biological Interest at County level.

3.1.5 Several disused coal mining shafts are located in the southern central section of the Site, including the remains of Diglake Colliery, the Site of a mine flooding disaster in 1895. In general, the Site's landscape reflects its industrial past, with disjointed and irregular field patterns, probably disturbed by extensive coal mining during the 18th and 19th Centuries. Areas within and around the Site which have been disturbed through mining and minerals workings between 1880 and 1980 are shown on the landscape character plan (drawing number G6_LAN_001 in Appendix 7.2 below). These workings have clearly had a very significant influence on the landscape character of the setting, through changes to landform, settlement and field patterns (Old Maps and Landmark Information Group – Not Dated).

3.1.6 The Site's northern boundary runs mostly parallel to the A500 highway. The A500 is a large, dual carriageway arterial road that runs east-west, linking Stoke-on-Trent with the M6 Motorway, Nantwich and Crewe. The carriageway sits atop an embankment, above the fields to the north of the Site, however the road is at a lower level than a majority of the Site. Woodland plantations have been established along the embankment slopes. The highway follows the line of the old Jamage Branch line, a minerals railway which serviced the Jamage and Rookery collieries in the later part of the 19th and early 20th centuries.

3.1.7 The Site borders a stretch of Bignall End Road. This is a minor road linking the settlements of Bignall End (south of the Site) to the hamlet of Dunkirk and town of Talke further north. The road is bordered by mature hedges along most of its route, and passes beneath the A500 at the Site's northern extents.

3.1.8 Audley Road (B5500) runs east-west to the south of the Site. It is bordered by residential and commercial properties through the settlements of Bignall End, Butters Green and Audley. Audley Road links the village of Audley to the west, with Red Street/Chesterton in the east. The road, although only a single carriageway, has a reasonable width and is embanked in some sections along its sections in proximity to the Site. It is bordered by hedgerows along much of its length when in rural settings, and by dwellings in urban areas.

3.1.9 Beyond the Site's immediate setting, the land to the north and west is predominantly agricultural, again with a mix of pasture and small enclosed arable fields. To the northeast, light industry, commercial warehousing and a substantial retail park are separated from the A500 by belts of woodland, including Parrot's Drumble, an ancient semi-natural woodland nature reserve. Beyond the Site's southern boundary, housing is the predominant land use, occasionally interspersed with very small enclosed agricultural fields and further thin strips of woodland.

3.1.10 Disused mine shafts and relict coal workings, are evidenced across much of the Site. According to mapping information, three shafts lie to the east of the dismantled colliery railway. The area around Jamage Farm (northeast of Site) shows many depressions and issues, consistent with the disturbance caused by the former colliery located beneath the A500 towards the far northeast of the Site. Two further disused shafts exist near to the Site, one to the southeast, directly south of the reservoir, the other to the west, approximately 150m west of Great Oak Farmhouse.

3.1.11 A large number of private dwellings are situated in residential areas to the south and west of the Site at Bignall End, Butters Green, Boon Hill, Rye Hills, Woodland/Megacre, and Audley. Further residential areas are located to the northeast at Talke and Talke Pits. These are predominantly small detached and semi-detached two storey properties. The only premises directly bordering the Site are those of Woodlands Farm and Hall, Northwoods, and Diglake Farm.

3.1.12 The Site is accessed by 5 public Rights of Way (RoW), within or bordering the Site. These are numbers 77, 80, 92, 113 (Audley) and 1 (Kidsgrove). Many more footpaths interlink and connect with these paths, running in a generally north-south orientation (SCC, Not Dated).

3.2 Landscape designations

3.2.1 There are no nationally protected landscapes within the broad setting of the Site, such as National Parks, Areas of Outstanding Natural Beauty, Sites of Special Scientific Interest, Special Areas of Conservation, Special Protection Areas or National Nature Reserves. However the Scheduled Monument of Castle Hill Motte (SM No. 21538) lies approximately 2 kilometres to the southwest of the Site in the village of Audley. The Motte is located within Audley Conservation Area. There is also a Conservation Area at the

heart of Talke (refer to the Landscape Character Plan, drawing number G6_LAN_001 in Appendix 7.2 below). Bignall End Coal Yard Site of Biological Importance (SBI) (located partly within the Site) and Parrot's Drumble nature reserve are designated mostly for their biodiversity value. Although the SBI forms a considerable feature in the landscape, the effects on biodiversity are reported in the ecological assessment rather than this report.

3.3 Landscape Character

Introduction

3.3.1 The baseline landscape section of this report addresses two aspects: a classification of the landscape including descriptions of its characteristic features; and an evaluation of the resource including an assessment of values ascribed to the setting, its capacity to sustain impacts and sensitivity to change.

Classification

(Refer to the Landscape Character plan, drawing number G6_LAN_001 in Appendix 7.2)

3.3.2 The Site is located mostly within Natural England's National Character Area (NCA) 64 entitled "Potteries and Churnet Valley" (Natural England, 2012). This is a large regional landscape character area that covers a variety of distinct landscape types. The Site also occupies the boundary with NCA 61 entitled "Shropshire and Staffordshire Plain". Two more detailed assessments are more relevant to the landscape of this setting. The first by Staffordshire County Council entitled "Planning for Landscape Change" and the second by East Cheshire Council whose authority boundary is located within 2 kilometres, north of Site.

3.3.3 The Staffordshire and Stoke on Trent Structure Plan – "Planning for Landscape Change" Supplementary Planning Guidance (SPG) locates the majority of Site within the "Potteries and Churnet Valley" regional character area (RCA) in line with the NCA. The section between the former mineral railway and Bignall End Road is located within the "Staffordshire Plain" RCA (SCC, 2001). At a more local level, the landscape character types (LCT) within the "Potteries and Churnet Valley" RCA is entitled "Ancient Slope and Valley Farmland". The LCT within the "Staffordshire Plain" RCA is entitled "Ancient Clay Farmland, *subtype* Farmland". This is consistent with Staffordshire Historic Landscape Character (HLC) Assessment which determines the HLC type for the Site as being predominantly "Fieldsapes" with small pockets of woodland around the perimeter of the Site (SCC, 2001).

3.3.4 The typical landscape features of the “Potteries and Churnet Valley” RCA, “Ancient Slope and Valley Farmland” LCT are:

“Strong ridge and valley landform, small dissected stream valleys, small sunken lanes, low intensity pasture farming, intact hedgerow pattern, dry-stone walls and stone buildings to upland areas, hedgerow trees, broadleaved valley woodlands, conifer plantations, many isolated properties “

The critical threats to this landscape’s character and quality are described as:

“The decline in condition of aforementioned landscape features, an increase in incongruous features including mining activities, loss of characteristic semi-natural vegetation including ancient woodland, hedgerows, semi-natural grasslands and wet heath land” (SCC, 2001).

3.3.5 The typical landscape features of the “Staffordshire Plain”, “Ancient Clay Farmland subtype Farmland” LCT are as follows:

“Mature hedgerow oaks and strong hedgerow patterns, narrow winding lanes, often sunken, small broadleaved and conifer woodlands, well treed stream and canal corridors, hedgerow damsons, occasional native black poplars, numerous farmsteads, cottages, villages and hamlets of traditional red brick, gently rolling landform with stronger slopes in places, dispersed settlement pattern, halls and manors, marl pits and field ponds, as well as meres and mosses”

The critical threats to this landscape’s character and quality can be described as:

“The loss of landscape features especially hedgerows and hedgerow trees, the poor condition of those features that remain and the limited survival of characteristic semi-natural vegetation” (SCC, 2001).

3.3.6 Staffordshire County Council’s “Planning for Landscape Change” SPG document draws a link between the habitat features in these two areas and the Staffordshire Biodiversity Action Plan (SBAP). The Site is within the “Urban” target area for the SBAP, which lists the following as “Priority Habitats” for the area:

- Lowland Meadow
- Native Woodland
- Open mosaic habitats on previously developed land

The SBAP also lists the following types of habitat as being present within this SBAP area;

- Hedgerows,
- Lowland dry acid grassland,
- Lowland heath land,
- Wood-pasture and parkland,
- Coastal and floodplain grazing marsh,
- Eutrophic standing water,
- Ponds,
- Purple moor grass and rushy pasture,
- Reedbeds,

The document proposes that wherever possible, the extents of these priority habitats should be increased, or at the very least maintained, in order to reach the targets set out in the SBAP for the period up until 2026 (SBAP, Not Dated).

3.3.7 The guidelines for restoration and planting in the SPG for the “Potteries and Churnet Valley” RCA, “Ancient Slope and Valley Farmland” LCT are:

- *To restore land cover structure following the decline of ancient field patterns, reduce habitat (woodland) fragmentation.*
- *Provide new woodlands around industrial and residential developments.*
- *Plantations of new woodlands should be sympathetic with the landform, and be best used to screen industrial developments (SCC, 2001).*

3.3.8 The guidelines for restoration and planting in the SPG for the “Staffordshire Plain” RCA, “Ancient Clay Farmland” LCT are:

- *Maintain the structure of the landscape, offsetting the decline in ancient hedgerow patterns.*
- *Increased planting of hedgerow trees and field corners to rebuild the landscape structure where decline is occurring.*

- *Large scale planting can be considered in open areas where appropriate and views have been considered.*
- *Link ancient woodlands to prevent further fragmentation & decline.*
- *Reflect hedgerow character (damsons) in woodland edges.*
- *Retain visual interest in landscape features from highways through avoiding excessive planting on verges” (SCC, 2001).*

3.3.9 The landscape policy objective from the SPG for the “Ancient Slope and Valley Farmland” LCT is listed as “landscape restoration”. Whereas the “Ancient Clay Farmland” LCT policy objective is “landscape enhancement” (SCC, 2001). The Staffordshire SPG describes the “landscape enhancement” policy objective as:

“Areas of somewhat lower landscape quality have as their objective landscape enhancement. These areas have suffered some erosion of strength of character and loss of condition of landscape elements. There is a particular need to encourage relatively small-scale landscape conservation schemes such as hedgerow maintenance, habitat creation and tree and woodland planting, to stem the decline in landscape quality that will otherwise become more evident” (SCC, 2001).

The Staffordshire SPG describes the landscape restoration policy objective as:

“Where landscape restoration has been identified as the appropriate objective many of the features previously characteristic of the landscape type will have been lost. The emphasis is therefore on the re-creation of character through the provision of new features that are not necessarily a slavish copy of those that have been lost, but which draw inspiration from them. As an example, many of the areas falling within this category are within the former coalfields, which had a characteristic pattern of small fields. That pattern is now almost completely lost in many places and it would not be practicable to try to recreate it, for economic reasons. However, the planting of small woodlands through e.g. the Forest of Mercia project will help to re-create the sense of enclosure and the reduction in scale of the landscape previously provided by the field pattern” (SCC, 2001).

3.3.10 The Great Oak Site influences to a lesser degree the landscape setting of the southern edges of Cheshire around the town of Alsager, 3 kilometres to the northwest. Therefore it is necessary to consider

the landscape character of Cheshire East. The Cheshire Landscape Character Assessment - November 2008, details the landscape character types of the county of Cheshire. The document identifies the land to the north of the Site, and to the south of the town of Alsager, as being mostly of the Lower Farms and Woodland landscape character types (LFW 7) (CCC, 2008).

3.3.11 Key characteristics of the Lower Farms and Woodlands LCT are:

- Low lying gently rolling topography
- Hedgerow boundaries and standard trees in a mix of medieval and post-medieval reorganised fields (irregular, semi-regular and regular up to 8ha) but with a loss of boundaries leading to formation of large fields and a large proportion of fences adding to this impression.
- Horsiculture – fenced horse paddocks.
- High density of woodland – blocks, coverts and riparian,
- Medium settlement density - mix of dispersed farms and, nucleated hamlets/ villages,
- Mosses and some meres resulting from glacial deposits.
- Landscape views interrupted by lines of communications and transportation, such as the M6 and A500 (CCC, 2008).

3.3.12 “The Cheshire Historic Landscape Characterisation” is also pertinent to East Cheshire and the landscape character surrounding the Site. This document was produced by the now replaced Cheshire County Council, in conjunction with English Heritage. It identifies the land around the Site as being “Area J”, which has for the most part, late post medieval agricultural improvement type field patterns, interspersed with areas of ancient and semi-natural woodland (2007).

Landscape sensitivity

3.3.13 “Planning for Landscape Change” SPG describes mining as a threat to this landscape setting; but mining has been a major influence on its current landform and land cover. The former coal workings in the centre of the Site, around Diglake Farm and at Jamage, have disrupted the surrounding field patterns, hedgerows and woodland strips. In addition it is apparent that the area west of Wedgwood’s Monument

has been altered several times in the past century, removing natural features (such as Oldhill Wood) and historic field patterns. Furthermore, the former mineral railway and the A500 dual carriageway create dominant and uncharacteristic linear features across the setting. Therefore it could be said that the Site is largely incongruous with the character of the surrounding landscape, particularly with the Staffordshire and Cheshire Plains LCT. The Site does share some elements that are in keeping with the “Potteries and Churnet Valley Ancient Slope and Valley Farmland” LCT, in that pasture is the dominant land use and a strong ridge and valley landform is apparent around Wedgwood’s Monument. However, intact field patterns and larger woodland belts ascribed to this LCT are no longer dominant.

3.3.14 The majority of the Site (east of the disused minerals railway) shows little distinctive character. This is due to the fragmentation of the landscape caused by mineral workings over the past century or more and the construction of the A500. The result is a landscape which can be described at best as ‘open countryside’, but that lacks the distinctive features which create strength of character. The lack of pattern in the landscape is perhaps also in part due the lack of proper agricultural management and post-minerals restoration, which is evident through the disrupted field boundaries, gapped hedgerows, neglected woodland and remnant landforms of former minerals workings.

3.3.15 There are individual landscape receptors that have a degree of sensitivity, both within the Site and without. Those within the Site that may be directly affected by the development include:

- Mature hedgerows, semi-natural woodland, stream courses and ponds;
- A discernible field pattern within the Ancient Clay Farmland LCT and surrounding land to the west, although these are abruptly halted by the line of the former minerals railway which dissects the Site.

Those without the Site that may be indirectly affected include:

- Wedgwood’s Monument and its supporting hillside spur that form a notable and characteristic landmark;
- Audley Conservation Area containing Castle Motte Scheduled Monument;
- Talke Conservation Area.

Although both Conservation Areas are in elevated in position and therefore inter-visible with the Site, they are not adjacent to it and there is intervening development in the form of Freeport Outlet Shopping Centre (Talke) and Bignall End (Audley).

3.3.16. In summary; there is a combination of features worthy of conservation and some detracting elements. Little or no landscape pattern is evident and a lack of management has resulted in a degraded appearance. However, some parts of the setting are sensitive to change. Therefore, the overall sensitivity of the landscape is rated as '**medium to low**'.

3.4 Visual appraisal

(Refer to the Zone of Theoretical Visibility plan, drawing number G6_LAN_002 in Appendix 7.3 and the Visual Appraisal plan, drawing number G6_LAN_003 in Appendix 7.4)

3.4.1 The Site is located on the rising slopes of an undulating ridge of high ground on the northern edge of the Potteries, facing mostly west and northwest across the Staffordshire and Cheshire Plains. Therefore, parts of the Site have a wide ranging zone of visual influence. After a desktop analysis of the surrounding ridgelines to gauge broad extents of potential visual influence, a digital terrain model (dtm) was constructed covering a rectangular area up to 5 kilometres to the north, 5 kilometres to the east, 4 kilometres to the south and 6 kilometres to the west of the centre of the Site. This included a merged dtm of the working scheme when temporary storage mounds would be at their largest. A zone of theoretical visibility (ZTV) plan was then created by analysis of the dtm. The full process is described in section 4 of the methodology in Appendix 7.1 below.

3.4.2 The landscape advice from the Scoping Opinion (SCC, 2013) recommended that the interrogation of the zone of visual influence should extend to at least 2.5 kilometres from the Site. However, the ZTV plan indicates potential shallow angled views from at least 6 kilometres distance to the northwest of the Site, located to the west of the M6 Motorway, west of Alsager. Indeed, Mow Cop (330m aod) is visible from Wedgwood's Monument 7 kilometres to the northeast; the ridgeline of Biddulph Moor (280m aod) is also visible over 11.5 kilometres to the east-northeast, and the satellite dish at Jodrell Bank is visible on a clear day from the same location, some 20 kilometres to the north.

3.4.3 It is difficult to objectively determine zones of visual influence for different Sites and developments without referring to professional judgement. The view from Mow Cop Castle (330m aod) was assessed (refer to Viewpoint 19, drawing number G6_LAN_030 in Appendix 7.5) in order to gauge a reasonable radius for a zone of visual influence for this Site. Although this viewpoint is 7 kilometres away, it is located at an elevation considerably above that of the Site. Analysis of this view indicates that the Site is not visually prominent over this distance. This is also true of long distance views from lower elevations such as those on the Cheshire Plain to the west of the M6 Motorway, where intervening vegetation and structures often obscure everything except for upper areas around Wedgwood's Monument. Therefore, whilst it is accepted that very long distance views are obtainable, the Site's primary zone of visual influence is within a 4 kilometre radius.

3.4.4 The ZTV plan identified the potential visual hotspots, reinforced by further desktop analysis using Google Earth Street View. This set the parameters for a walking survey to record key viewpoints, undertaken in cloudy, but clear weather during February 2013. As it was impractical to identify all potential viewpoints of the proposed scheme, representative panoramic photographs were taken from 27 locations within the zone identified as containing potential views at vertical angles of 0.6° or greater. There is no technical reason for choosing this degree of vertical angle, but it happens to coincide effectively with the maximum area within which substantial parts of the development may be visible, rather than just the upper reaches of the overburden mound.

3.4.5 8 key viewpoints were chosen from the 27 locations, based on a selection of views from around the compass at representative locations within the zone of views at vertical angles of 1.2° or greater. At this stage, Staffordshire County Council's Principal Landscape Officer was given a guided tour of the setting to introduce her to the proposals and to agree, in principle that the 8 key viewpoints were broadly representative of the main visual receptors. The key viewpoints are used to demonstrate the potential views of the working scheme at key stages of the development by reference to screen captures of dtms (refer to Appendix 7.5 below).

3.4.6 According to criteria detailed in the assessment methodology (Appendix 7.1) below, the following groups of viewpoints were rated 'high' or 'medium' in terms of sensitivity to visual disturbance:

Sensitivity	Location	Viewpoint
High	Footpaths Nos 92 (Audley) and 10 and 23 (Kingsgrove) approaching Wedgwood's Monument from Dean's Lane, Red Street	A, 1 and 2
	Jamage Farm and Jamage Road, including Talke Road south of A500 near proposed Site entrance	3
	Jamage Road north of A500 and southeast edge of Talke Pits around Freeport Outlet	5
	Upper parts of Talke, including the Conservation Area, and area either side of Audley Road between Talke and Dunkirk including terraced houses (1-39)	B, 6 and 7
	Woodlands Farm, Northwoods and Footpath No 77 (Audley)	C
	Great Oak Farm, Footpath No 26 (Audley), Oakdene, dwellings at Brierly Brook and Great Oak Road	D, 10 and 11
	Various dwellings on the outer and upper areas of Bignall End, including Park Farm	E and 12
	Eastern edges of Audley, including Castle Motte Scheduled Monument and Millenium Green	F and 17
	Dwellings on the outer areas of the estate between Wood Lane and Boon Hill	G
	Audley Road at its junction with Megacre	H
Parts of A500 adjacent to the Site	-	
Bignall End Road adjacent to the Site	-	
Medium	Talke Pits and Talke Road to south	4
	Dunkirk and neighbouring farmsteads, Eardleyend Road up to Mosshouse	8
	Rye Hills and linking footpaths to the north	15
	Dwellings at Megacre and the outer parts of Wood Lane	14 and 15

3.5 Planning policy and the landscape

3.5.1 A full audit of Planning Policy is appended to the Environmental Statement. The policies listed below are only those which are directly associated with potential changes to visual amenity and the fabric and character of the landscape resulting from the proposed development.

3.5.2 The National Planning Policy Framework (NPPF) refers to the landscape on a handful of occasions:

“Our historic environment – buildings, landscapes, towns and villages – can better be cherished if their spirit of place thrives, rather than withers”.

It goes on to state that the planning system should...

“...contribute to and enhance the natural and local environment by... protecting and enhancing valued landscapes...”

(DCLG, 2012a)

3.5.3 The NPPF Technical Guidance document specifies that a Site specific landscape strategy must be developed when planning for mineral extraction. This will identify key constraints and opportunities, as well as mitigation requirements and preferred options for after-use (DCLG, 2012b).

3.5.4 The West Midlands Regional Spatial Strategy (WMRSS) (2008) and the Staffordshire and Stoke-on-Trent Structure Plan 1996 – 2011 provided a string of policies which consider landscape matters, but these were revoked in May 2013.

3.5.5 The Staffordshire Minerals and Waste Local Plan 1994-2006 (saved policies) Policy 9 states:

“Planning applications should incorporate provision for Site restoration and aftercare in accordance with the following principles:

- 1. The phased extraction and restoration of mineral operations, wherever practicable, in order to ensure that the period over which the land is in use for mineral development before being restored is minimised;*
- 2. Take account of the pre-working character of the Site, its surroundings, the landscape setting and, where possible, provide for enhancement of the general quality of the landscape and local environment;*
- 3. Make provision for nature conservation, forestry, recreation or amenity after uses where this is appropriate, and compatible with the Development Plan. Such proposals should include provision for aftercare of the land for a period of up to five years following completion of*

restoration or any extended time period agreed between the applicant and/or owner and the Mineral Planning Authority;

4. *Where the development lies in areas identified for forestry expansion in the Staffordshire Indicative Forestry Strategy, including those in the National Forest, the Forest of Mercia, and Newcastle Community Woodland Zones, the desirability of establishing significant areas of woodland, while avoiding conflicts with other conservation objectives.” SCC, 1999*

3.5.6 Policy 10 requires developers to be responsible for wider environmental issues associated with a development:

“Where necessary the Mineral Planning Authorities will seek, by appropriate legal agreements, to control other matters relevant to the development which cannot be covered by planning conditions, including highway requirements, off-Site environmental improvements or nature conservation works, management arrangements (over and above statutory aftercare requirements), relinquishment or modification of planning permissions, afteruse, and the provision of long term environmental monitoring and control systems.”

3.5.7 Policy 19 considers applications close to landscapes of special interest in the county:

In considering planning applications for mineral development the effects on the special interest of the following areas will be taken into account:

1. *Country parks or other areas set aside for public recreation*
2. *Existing or proposed Local nature reserves*
3. *Grade 1 Sites of Biological Importance and Natural Heritage Sites*
4. *Regionally Important Geological and Geomorphologic Sites (RIGS)*
5. *Ancient woodlands, heath lands, peat lands, unimproved grasslands and other prime semi-natural habitats*
6. *Conservation Areas or their settings*
7. *Sites of significant archaeological interest or their settings, areas of historic or archaeological value, historic battlefields, and historic parks and gardens other than those which are registered.*

Planning applications for mineral development which would cause any direct or indirect adverse impacts on the essential value of the above areas should demonstrate that mitigation measures and/or any material planning benefits arising from the proposal outweigh the material planning objections. If the measures and benefits do not outweigh the objections then planning permission will only be granted if the need for the mineral outweighs the material planning objections. In assessing the impacts a lesser degree of weight will be accorded than would be the case with nationally important Sites the subject of MLP Policies 15 and 16.”

3.5.8 The “*Environmentally Important Areas*” listed in appendix 1 of the plan which are within or nearby the Site, listed as being within the ‘Potteries Coalfield’, are as follows;

Ancient Woodland;

- A15 Parrots Drumble (0.3km from boundary)

Grade 1 Listed County Sites of Biological Importance (Non-Statutory)

- E 13 Parrots Drumble (0.3km from boundary)
- E 15 Bignall End Coal Yard (within SITE)

(SCC, 1999)

3.5.9 Policy 21 repeats the landscape and visual criteria against which mineral development will be assessed listed in the now revoked Structure Plan Policies NC1 and NC2.

“Minerals development should be informed by and be sympathetic to landscape character and quality. Proposals with landscape and visual implications will be assessed having regard to the extent to which they would:

- *cause unacceptable visual harm;*
- *introduce (or conversely remove) incongruous landscape elements*
- *cause the disturbance or loss of (or conversely help to maintain*
 - landscape elements that contribute to local distinctiveness*
 - Historic elements which contribute significantly to Landscape character and quality, such as field, settlement or road patterns*

- iii. *semi-natural vegetation which is characteristic of that landscape type*
- iv. *the visual condition of landscape elements*
- v. *tranquillity*

Planning applications for mineral development which would cause any unacceptable direct or indirect adverse impacts should demonstrate that any material planning benefits arising from the proposal outweigh the material planning objections. If the benefits would not outweigh the objections then planning permission will only be granted if the need for the mineral outweighs the material planning objections.”

(SCC, 1999)

3.5.10 This policy emphasises the need for applications to consider, in detail, the effects a development is likely to have on the surrounding landscape character of the Site, in context with the wider economic, social and other environmental matters. The Supplementary Planning Guidance ‘Planning for Landscape Change’ (SCC, 2001) provides the context and detailed guidance to enable compliance with this policy.

3.5.10 Policy 22 of the plan states:

“The Mineral Planning Authorities will encourage agreed vegetation establishment, including the planting of trees, woodlands and /or hedgerows, in advance of, and in the early stages of mineral development, and within and around Sites allocated in the MLP to provide screening and to enable the early establishment of landscaping. The use of locally native trees and shrubs will be encouraged. Within the National Forest, Forest of Mercia, and Newcastle Community Woodland zone, such early tree planting and landscaping should be on an appropriate scale and should contribute significantly to the final after use of the Site.”

3.5.11 The Newcastle under Lyme and Stoke on Trent Core Spatial Strategy 2006 – 2026 (Adopted October 2009) contains several policies pertinent to landscape matters. Policy CSP4 concerns the area’s ‘Natural Assets’:

“The quality and quantity of the plan area’s natural assets will be protected, maintained and enhanced through the following measures:

1. *Working with relevant partners to enhance the plan area's natural habitats and biodiversity to achieve the outcomes and targets set out UK Biodiversity Action Plan, the Staffordshire Biodiversity Action Plan and the Staffordshire Geodiversity Action Plan;*
2. *Working with relevant partners to achieve significant improvements to the condition of the plan area's internationally designated Ramsar Sites, nationally designated Sites of Special Scientific Interest (SSSI), locally designated Sites of Biological Importance (SBI) and Local Wildlife Sites, Regionally Important Geological/Geomorphological Sites (RIGS) and Local Nature Reserves;*
3. *Ensuring that the location, scale and nature of all development planned and delivered through this Core Spatial Strategy avoids and mitigates adverse impacts, and wherever possible enhances, the plan area's distinctive natural assets, landscape character, waterways, network of urban green corridors and priority species and habitats identified in the UK Biodiversity Action Plan and the Staffordshire Biodiversity Action Plan;*
4. *Ensuring that the value of previously developed land as a source of biodiversity is recognised and appropriate measures are taken to reduce the negative impact of development upon this resource and wherever possible to achieve an enhancement.*
5. *Development that is likely to contribute additional nutrients to Black Firs and Cranberry Bog will not be permitted."*

Whilst the Site does contain one SBI, Bignall End Coal Yard (E15) and the potential impact on biodiversity of the proposed development is assessed in a separate report; the wooded nature of the SBI contributes to the landscape character of the setting. Point 3 is perhaps the most relevant, as it states the important link between a development and its effects on landscape character. (NBC, 2009)

3.5.12 Policy CSP10 - Planning Obligations:

"Developers are expected to have regard to the consequences that may arise from development. Development proposals should, therefore, include provision for necessary on Site and off Site infrastructure, community facilities and/or mitigation measures where this is necessary to ensure comprehensive planning and to avoid placing an additional burden on the existing community and area.

These may include: ...

6. *Environmental improvements and/or mitigation measures...*

This policy makes it a requirement of all developments with an impact upon the environment must consider effective mitigation measures to offset the impact of the development. (NBC, 2009)

3.5.13 The Newcastle-under-Lyme Local Plan 2011 (adopted in 2003 – saved policies 2007) contains several more policies which relate to the proposals on landscape terms. Policy S3 entitled “Development in the Green Belt”. This relates primarily to permanent built development, urban encroachment and coalescence, not a temporary mineral development. Policies N10, N12, N13 and N14 address new woodland considerations, the protection of trees on development Sites, the felling and pruning of trees and the protection of landscape scale features of importance to flora and fauna. Policy N17 repeats Policy NC2 of the Structure Plan. Policies N20 and N21 effectively require the landscape policy objectives of the County’s “Planning for Landscape Change” SPG to be adhered to.

4.0 Development proposals

(Refer to the planning application Site, phasing and restoration proposals plans)

Surface coal mining is temporary development, with progressive backfilling and restoration operations to restore the land to beneficial permanent or long term after uses. Set out below is an outline of the main aspects of these temporary mining and restoration operations that could create significant landscape and visual effects.

4.1 Programme, Working operations, Offices and Plant

4.1.1 The Site access, facilities and water treatment lagoons will be constructed within 3 months. Topsoil and subsoil excavation and placement within grassed perimeter mounds will be completed within 6 months. Overburden excavation from the first coal winning area and storage will commence in month 5. The excavation of coal, haulage to the yard and exportation by road lorry will commence in month 6 and continue up to month 20. Overburden will be backfilled progressively where possible and the remaining placed in the storage mound, which will regularly change configuration. The overburden mound will be dismantled between months 19 and 26. The subsoil and topsoil mounds will be dismantled and replaced in the restoration landform between months 26 and 29. The land cover restoration works will be completed over the autumn of the third year.

4.1.2 Initial Site preparations will include secure fencing and the installation of temporary alternative alignments for the public footpaths that cross the Site. The temporary routes provided will be safe, convenient and easy to follow.

4.1.3 All soil resources overlying the proposed mineral extraction areas will be progressively stripped and stored according to soil type and textures. Soils will be stripped, stored and reinstated in accordance with best practice and a soil handling and management strategy. Topsoils and subsoils will be stored separately around the periphery of the Site. Areas designated for internal haul roads, lagoons, access road, plant yard, office and car park areas will also be stripped of topsoil and subsoil. Areas designated for subsoil storage will be stripped of topsoil only, and wherever possible the soil mounds will be located upon similar soil types. Where it proves necessary to store less favourable lower subsoil materials above the better quality upper subsoils, the latter material will be stripped. All soil mounds will be seeded to grass at the earliest opportunity and maintained in a tidy and weed free condition.

4.1.4 Having stripped and stored all soil resources overlying the proposed mineral extraction areas, overburden will be excavated to expose the coal seams. Approximately 4.7 million cubic meters of overburden will be excavated progressively during the course of the mining operation. The overburden will be stored in one overburden mound, the maximum height of which will be approximately 26 metres above existing ground level. Coal will be transported from the working face to the coal processing area, where it would be processed and then loaded onto sheeted road going lorries.

4.1.5 The Site will operate a water management system. Surface run-off within the Site will be collected and then settled in a series of settlement ponds, prior to the discharge of clean water at consented discharge locations.

4.1.6 For the duration of Site operations, the Site offices, car park, amenity accommodation, plant bay for the repair of Site plant and machinery, together with fuel and water facilities will be located in the eastern end of the Site. The proposed extraction of coal at the Great Oak Site is likely to involve the use of the following plant: hydraulic face shovels and excavators, rigid and articulated bodied dump trucks, graders, bulldozers and water bowsers.

4.2 Restoration proposals

4.2.1 Final restoration of the Site would recreate landform and pastoral land use similar to those existing, with additional landscape benefits, nature conservation benefits and enhanced public access. The existing Site is a relatively open landscape as many of the historic field boundaries have been lost as a result of historic mining activities and agricultural intensification. The historic field pattern in the western sector will be reinstated along with the former mineral railway cutting. The more disturbed and open area in the eastern sector will be restored to locally characteristic medium-sized fields bound by locally native hedgerows with hedgerow trees.

4.2.2 The retained sections of the Bignall End Coal Yards Site of Biological Importance (SBI - along the disused railway line) would be managed to improve its ecological value. The existing angling pond would be recreated with improved access for angling and shallows to the southern side to provide a habitat for wading birds. A meandering, hedge-lined stream would be created from the pond area running in a westerly direction towards the Bignall End Road Biodiversity Alert Site (BAS).

4.2.3 Drier south or south-west facing unimproved neutral grassland and scrub is proposed in the southern sector, linking the existing semi-improved acid grasslands to the east with the southern end of the Bignall End Coal Yards SBI. To the east, the retained sections of the mixed plantation woodland would be supplemented by locally native oak woodland to extend Old Hill Wood northwards along the ridge spur. Some native tree and shrub planting will be undertaken on the western side of this plantation to create a more bio-diverse, scalloped edge during the first year of operations. Woodland and hedgerow planting on the higher ground around the Monument and to the east would be limited to replacement or link woodland habitats. This will maintain open grassland, to encourage current use by ground nesting birds. The stream corridor to the east of Old Hill Wood will be planted with wet woodland in continuity with the upper section of the stream immediately to the south.

4.2.4 The existing public footpath network will be reinstated and improved through the provision of additional links to form circular routes for the local community, possibly upgrading some footpaths to bridleway status if there is a local demand. Stiles, signs, path surfaces and drainage will be improved generally across the Site to a level appropriate to open countryside.

5.0 Assessment of effects and mitigation

5.1 Landscape effects

5.1.1 Landscape impacts are assessed in relation to the effects of change caused by the proposed development on the fabric and character of the landscape. The existing character of the areas influenced by the development Site and its setting has been described above and its sensitivity to change and enhancement potential identified. Sensitivity to change relates to strength of character, or local distinctiveness, and condition of the fabric of the landscape. The proposed changes to the landscape are described, mitigation measures identified and the residual long term landscape impact assessed below.

Existing landscape condition

5.1.2 Despite individual receptors both within and without the Site having some degree of sensitivity to change, paragraph 3.3.16 above identifies the overall sensitivity for the landscape setting as ‘**medium-low**’. There is a combination of features worthy of conservation and some detracting elements. Little or no landscape pattern is evident and a lack of management has resulted in a degraded appearance. However, some parts of the setting are sensitive to change.

Predicted significance of landscape effects

5.1.3 The fabric of the landscape within the existing Site comprises approximately:

- 3.7 hectares of broadleaf woodland, including woodland edge and scrub;
- 4.8 hectares of semi- improved grassland (including 0.7 hectares outside of the Site to be used for advance woodland planting);
- 58 hectares of improved pasture;
- 2 field ponds;
- 1 large angling pool;
- 2400 linear metres of hedgerows;
- 15 mature hedgerow and other isolated trees;
- 3,017 linear metres of public footpaths (some of which is outside of the Site).

5.1.4 During the operational period, most of the landscape features listed above will be lost. However, several perimeter landscape features will be retained, including several clusters of hedgerow trees within the western section of the Site. Woodland and scrub areas to the south of the Site will be unaffected by the development, as these form an important visual screen between the Site and dwellings in Bignall End.

5.1.5 After 30 months, most of the original landform will be recreated. The basic land cover structure will be restored over the following 6 months, including:

- 5.0 hectares of broadleaved woodland, inc. woodland edge and scrub (0.7ha planted during the first year of operations outside of the Site area) - [1.3 hectare/35% gain]
- 0.5 hectares of wet woodland – [0.5 hectare/100% gain]
- 6.3 hectares of unimproved neutral grassland – [6.3 hectares/100% gain]
- 53 hectares of improved pasture – [5.0 hectares/9% loss]
- 1 angling pool (with shallows) – [replacing existing]
- 9 field ponds – [7 no./350% gain]
- 5,700 linear metres of hedgerows - [3,300 linear metres/138% gain]
- 280 hedgerow trees – [compensating for the loss of 15 mature hedgerow trees]
- 5,229 linear metres of public footpaths or bridleway (including reinstated, diverted and upgraded to multi-user status) – [2,212 linear metres/73% gain].

5.1.6 These statistics demonstrate considerable increases in: new broadleaf and wet woodland, unimproved neutral grassland, field ponds, hedgerows, new hedgerow trees and public rights of way. There will be substantial permanent losses of semi-improved grassland and some mature broadleaf woodland and a small number of mature hedgerow trees. Newly planted woodland and hedgerow trees will compensate for the loss of mature trees, but only after a long time.

5.1.7 In the short term, for the entire 30 months operational period and the following 6 months allowed for land cover restoration, the magnitude of disturbance to the landscape is rated as '**large**'. Therefore, even with an overall landscape sensitivity rating of '**medium to low**', the short term landscape impact

significance rating is **'moderately to severely adverse'**. This rating also applies to individual landscape receptors located both within and without the Site. The adverse significance resulting from total removal of the landscape within the Site is self explanatory. The visual prominence of the Site to the settings of the Conservation Areas and Scheduled Monument means that the magnitude of effect would generate a rating of **'moderately adverse'** in the short term.

5.1.8 The restoration to a predominantly agricultural use in the short to medium term will result in a landscape which is broadly similar in character to that which existed prior to development (*refer to the Restoration Scheme drawing number 36/D03*). The "strong ridge and valley landform, small dissected stream valleys" and "low intensity pasture farming, intact hedgerow pattern" of the Ancient Slope and Valley Farmland LCT can be recreated in the eastern sector of the Site. Also, the "gently rolling landform and stronger slopes in places", "hedgerow oaks and strong landform pattern", "sunken lanes" and "field ponds" of the Ancient Clay Farmland *subtype* Farmland LCT can be recreated in the western sector of the Site. The immaturity of the restored landscape and particularly the loss of mature hedgerow and woodland trees will create the greatest adverse effects in the medium to long term. The magnitude of landscape change in relation to the loss of mature woodland and hedgerow trees is rated as **'small'**, giving an overall medium to long term impact significance rating of **'negligible to slightly adverse'**. This rating is also appropriate to the indirect effects on the Conservation Areas and Scheduled Monument located without the Site. In terms of the individual landscape receptors located within the Site, the effects are time related on a sliding scale reducing adversity from the completion of restoration operations at approximately 36 months to when the landscape has achieved a degree of maturity after approximately 20 years.

Possible landscape mitigation

5.1.9 A significant element of impact mitigation is the design iteration process, in which many potential adverse effects can be avoided. In this case, the early proposals occupied a substantially larger extraction area, including the triangle of land bordered by Bignall End Road to the southeast, Great Oak Road to the southwest and the A500 to the north. The Ancient Clay Farmland *subtype* Farmland LCT is much less disturbed by former mineral workings than then land to the east of the mineral railway. It also contains considerable lengths of structurally important hedgerow, including significant numbers of very old, if not veteran oak trees. It was decided at this stage that the potential adverse landscape and biodiversity effects

of removing these trees and disturbing the settled landscape could not be adequately mitigated or compensated for by restoration proposals in the long term.

5.1.10 Other avoidance measures include:

- Retention of as much of the Bignall End Coal Yard SBI woodland and the heathy scrub as possible on the southwest edge of the Site
- Implementation of strict measures to respect the root protection zones of hedgerows and woodland to be retained
- Increasing the standoff to Woodland Farm in the northern corner of the Site, enabling the retention of a further long section of mature hedgerow and several mature trees
- Maintaining public pedestrian access to the countryside by installing temporary public footpath diversions during the short life of the operational period
- Careful woodland planting to avoid obscuring views across the Site and the Plains to the north below.

5.1.11 The main mitigation measures, as opposed to avoidance or compensation, are the proposed improvements to the structure, habitat provision and countryside access that are entirely in keeping with the character of the setting. These comprise considerable increases in: new broadleaf and wet woodland, unimproved neutral grassland, field ponds, hedgerows, new hedgerow trees and public rights of way access features. Of particular benefit to the recognised LCTs and the SBAP objectives are the restored field pattern and stronger habitat linkage enabled by the hedgerows, woodland, woodland edge, stream courses and low fertility grassland borders. No progressive restoration is proposed, but because the operational period is so short, this does not diminish the effectiveness of the proposed mitigation measures.

Predicted residual landscape effects

5.1.12 While mitigation measures will have limited effect on the potential landscape impact significance in the short term during the working and restoration operations, the restoration scheme will significantly diminish the adverse effects in the medium term to long term, tempered only by an immaturity in the tree and shrub growth. However, the significance rating can be elevated to **'slightly beneficial'** in the long term,

and possibly '**moderately beneficial**' in the very long term, subject to careful management of the restored landscape. The comprehensive nature of mitigation offered by the restoration design and aftercare programme means that the beneficial long term landscape effects are applicable to both the individual receptors as well as the overall setting.

5.2 Visual effects

(Refer to Appendices 7.3, 7.4 and 7.5 below)

Introduction

5.2.1 Visual impacts are assessed in relation to groups of viewpoint identified in the table of viewpoints in paragraph 3.4.6 above and tables of predicted effects on key viewpoints in Appendix 7.5 below. The current standard of visual amenity is described; the changes to views resulting from the proposed development are assessed; proposed mitigation measures are described and finally the resulting potential visual impact is determined, including an assessment of how this may change in the short, medium and long terms. These assessments are reinforced by visualisations and photomontages from the 8 key viewpoints at 3 development stages (refer to Appendix 7.5).

Existing visual environment

5.2.2 The visual envelope of the existing Site, as demonstrated in part by the ZTV plan on Appendix 7.3, is far ranging due to its location on the edge of a ridge overlooking the Staffordshire and Cheshire Plains. However, the zone of visual influence is effectively restricted to a 4 kilometre radius from the Site and views are restricted to the upper slopes on the east side of the Site from much of this zone.

5.2.3 12 groups of existing viewpoints are rated as 'high' in sensitivity, all within an approximate 1.5 kilometre radius of the Site. A further 5 groups of viewpoints are rated as 'medium' in sensitivity, also within the 1.5 kilometre radius. These relate primarily to views from dwellings and public footpaths.

Predicted significance of visual effects

5.2.4 A summary of the 8 tables of predicted unmitigated visual effects is as follows:

- The magnitude of effect on most views is rated as **'large'** at all stages during the operational period. Visual intrusion is mainly generated by the perimeter grassed soil mounds and the varying configurations of the overburden mound, which it is impractical to seed down to grass. The **'large'** magnitude combined with **'high'** and **'medium'** sensitivity will generate an unmitigated impact significance rated as **'substantially adverse'** throughout the short term operational period. The sheer scale and form of visual intrusion created by these earthworks justify this rating.
- Upon completion of restoration operations, the magnitude of effect will reduce to **'small'** to **'negligible'** until the landscape matures, generating an unmitigated significance rating of **'negligible'** to **'moderately adverse'** in the medium term, becoming **'negligible'** in the long term. Once restoration operations have been completed, the only source of visual intrusion will be the immaturity of the land cover in the early years.

Possible visual mitigation measures

5.2.5 Mitigation measures include:

- Grassed perimeter soil storage mounds will be constructed from the outset of the development that will obscure most views of coal extraction operations, except from elevated viewpoints such as those from Great Oak Farm or from the eastern margins of Audley. These 5 and 8 metre high grassed mounds will be most effective behind large hedgerows and woodland, such as those on the northern margins of Bignall End, where they will be less visually intrusive in their own right.
- Retention of the Bignall End Coal Yard SBI woodland and heathy scrub around the southern Site margins, and as much visually significant vegetation as possible around the entire Site perimeter will minimise visual intrusion, especially during the summer months.
- The most visually intrusive element, the overburden storage mound will be modelled to reduce intrusion where possible. It will be located to the west of the large spur that protrudes northwards from the ridge of higher ground, obscuring it from most views to the east. Wedgwood's Monument sits on a hillock above the spur at an elevation of 236m aod. The rounded top of the spur reaches on average 228m aod, but the top of the overburden mound will reach only 202m aod in elevation. The ridge spur will form a backdrop to the mound from many viewpoints located to the west. Although the mound will protrude above the horizon from some viewpoints to the west and southwest, the landform will reflect the shape of the existing horizon as far as possible.

- Following the public information exhibitions in February 2013, the standoff to Woodlands Farm and Northwoods was increased. This has placed topsoil mound T2 behind a substantial hedge with trees, making the mound less visually intrusive. Further iterations later in 2013 moved subsoil mound S1 south behind the same hedge and away from these dwellings.
- Although not strictly a mitigation measure, it is important to consider the short timescale of the development. The entire Site will be completely restored within 3 years. The working and earthworks period is not due to last longer than 30 months, within which the coaling period is only 15 months.
- The proposed restoration scheme will restore the visual appearance of the existing Site in the long term, increasing the extent of hedgerow and appearance of wooded enclosure from some viewpoints.

Predicted residual visual effects

5.2.6 The mitigation measures listed above will reduce the overall level of visual intrusion, but not sufficient to change the significance of visual impact ratings from '**substantially adverse**' during the operational period of the development. However, the comprehensive restoration scheme and long term habitat management plan will enhance the overall visual impact significance rating to '**slightly beneficial**' in the long term. This judgement is justified by the substantial gains in broadleaf woodland and hedge planting that will increase the level of enclosure and richness to frequent views across the escarpment in the long term.

5.3 Effects in relation to Planning policy

5.3.1 The proposals include a detailed landscape strategy in compliance with the NPPF Technical Guidance in relation to mineral planning.

5.3.2 Whilst national and regional planning policy give broad direction to how the landscape should be treated, the saved Minerals Local Plan Policy 21 gives specific guidance for the working and restoration of mineral extraction Sites. In this respect, the development would:

- Replace and enhance landscape elements that contribute to local distinctiveness;

- Respect historic field patterns that contribute significantly to landscape character;
- Recreate semi-natural vegetation that is characteristic of local landscape types;
- Enhances the visual condition of landscape elements in the long term;
- Maintains the current level of tranquillity.

5.3.3 The landscape policy objective of 'landscape restoration' for the "Ancient Slope and Valley Farmland" LCT encourages development proposals to:

- *.... restore land cover structure following the decline of ancient field patterns, reduce habitat (woodland) fragmentation.*

The landscape policy objective of 'landscape enhancement' for the "Ancient Clay Farmland subtype Farmland" LCT encourages development proposals to:

- *Maintain the structure of the landscape, offsetting the decline in ancient hedgerow patterns*
- *Increased planting of hedgerow trees and field corners to rebuild the landscape structure where decline is occurring*
- *Reflect hedgerow character (damsons) in woodland edges.*

5.3.4 The restoration proposals take into account the principles of Policy 9 of the Staffordshire Minerals and Waste Plan. The restoration is based on the existing and historic structure, use and landscape character within and surrounding the Site, whilst providing increased amounts of priority habitat areas and public access amenities.

5.3.5 Policy 10 requires the authority and developers to enter legally binding agreements to secure the long term rehabilitation and monitoring of a Site once it has ceased to be used for mineral extraction. The development of the Site will be subject to a 5 year statutory aftercare programme.

5.3.6 The development will feature some advanced planting to the woodland edge of Oldhill Wood in respect of Policy 22 of the Minerals and Waste Local Plan. However the additional hectare of new woodland and wet woodland to be created post- restoration is more significant in relation to this policy.

5.3.7 With respect to Newcastle-under-Lyme Local Plan Policies N10 to N14, the proposals, taken as a whole, deliver a temporary loss of existing woodland, hedgerows, ponds and grassland habitats, followed by a permanent net gain in most habitat types post-restoration. The notable exceptions are a loss of 20 mature trees and 6.3ha loss of semi improved or improved grassland. The loss of mature trees can be seen as contrary to policies N12 and N13. However the significant gains in woodland coverage and the expansion of existing woodland cover can be seen as contributing positively to the principles of policy N10. The temporary loss of hedgerows, ponds and railway cutting type habitats could be viewed as contravening policy N14, however it should be noted that the restoration proposals will fully restore or increase the total coverage of each of these habitat types, linking them with areas of new and existing woodland.

6.0 Summary and conclusions

6.1 Effects on the fabric of the landscape

6.1.1 Very few features of the existing landscape will remain undisturbed within the Site, with the exception of the northern section of the Bignall End Coal Yard SBI woodland and all the perimeter hedgerows. However, the restoration scheme, which will be implemented within 3 years of commencing operations, will create increased amounts of locally distinctive features including: new broadleaf woodland, unimproved neutral grassland, field ponds, hedgerows, new hedgerow trees and public rights of way. There will be substantial permanent losses of semi-improved grassland and long term losses of mature broadleaf woodland and a small number of mature hedgerow trees. Newly planted woodland and hedgerow trees will compensate for the loss of mature trees, but only after a long time.

6.2 Effects on the character of the landscape and on designated landscapes

6.2.1 There is a combination of features worthy of conservation and some detracting elements within the two distinct landscape character types found on the Site. Little or no landscape pattern is evident resulting from disturbance by mineral excavation over the previous century and a lack of management. However, some landscape receptors within the Site and some designated landscape without are sensitive to change. The overall sensitivity of the landscape is rated as '**medium to low**'.

6.2.2 In the short term, the magnitude of disturbance to the landscape is rated as '**large**' for the entire 30 months operational period and for the following 6 months when the land cover is restored. Therefore, even

with a landscape sensitivity rating of **'medium to low'**, the short term landscape impact significance rating is **'moderately to severely adverse'**.

6.2.3 The restoration to a predominantly agricultural use in the short to medium term will result in a landscape which is broadly similar in character to that which existed prior to development. Only the mature woodland and hedgerow trees will be lost in the medium to long term. The magnitude of landscape change in relation to the loss of mature woodland and hedgerow trees is rated as **'small'**, giving a medium to long term impact significance rating of **'negligible to slightly adverse'**.

6.2.4 The main mitigation measures, as opposed to avoidance or compensation, are the proposed improvements to the structure, habitat provision and countryside access that are entirely in keeping with the character of the setting. Of particular benefit to the recognised LCTs and the SBAP objectives are the restored field pattern and stronger habitat linkage enabled by the hedgerows, woodland, woodland edge, stream courses and low fertility grassland borders.

6.2.5 Whilst mitigation measures will have limited effect on the potential landscape impact significance in the short term, the restoration scheme will significantly diminish the adverse effects, tempered only by immaturity of vegetation in the medium term. However, the significance rating can be elevated to **'slightly beneficial'** in the long term, and possibly **'moderately beneficial'** in the very long term, subject to careful management of the restored landscape.

6.2.6 The only designated landscapes located within the setting of the Site are:

- the Scheduled Monument of Castle Hill Motte (SM No. 21538) in the village of Audley;
- Audley Conservation Area;
- Talke Conservation Area;
- Bignall End Coal Yard Site of Biological Importance (SBI); and
- Parrot's Drumble nature reserve.

Subject to no indirect physical effects (hydrology, pollution etc) being created by the surface mining within the Site, there is no evidence that the proposals will adversely affect the settings of these designated landscapes in the medium to long term.

6.3 Potential cumulative landscape impacts

Combined landscape effects of concurrent development (not necessarily visible together)

6.3.1 The landscape setting of this development is not subject to landscape impacts of other development of this nature and scale at this time.

Successive landscape effects of similar developments over a period of time

6.3.2 The Site and setting has been significantly affected by a series of mining and quarrying operations between approximately 1880 and 1980. This has left a legacy of a fragmented historic pattern of hedgerows and woodland and a generally degraded landscape character. This proposal represents an opportunity to restore the landscape back to a locally distinctive character in keeping with the history of the wider setting. It represents a beneficial cumulative effect in the medium to long term.

Combined environmental effects of the same development

6.3.3 The main landscape and visual and effects of this development could constitute an adverse combined effect if both were approaching a threshold of 'objectionability'. Whilst, the significance rating of both effects will potentially be '**substantially adverse**' in the short term, working mitigation measures and restoration proposals will potentially change ratings to at least '**slightly beneficial**' in the medium to long term. Therefore, whatever combined 'objectionability' may be created, it will be short lived and adequately compensated for in the longer term.

6.4 Effects on local access to the countryside

6.4.1 Three main footpath routes will be temporarily diverted during the operational period of the development. However, no through routes beyond the Site boundaries will be blocked. The restoration scheme proposes to create an additional 2,212 linear metres of footpaths, representing a 73% gain including upgrading some routes to multi-user status. It is also proposed to improve, drainage, stiles and

surfacing where appropriate and some routes may be upgraded to bridleways, if required. Overall the short term disturbance to public enjoyment of footpaths will be more than compensated for by an improved and extended network in the medium term, with no loss of the long distance views across the Staffordshire and Cheshire Plains.

6.5 Effects on the visual amenity of local residents and visitors to the setting

6.5.1 The Site is located on the rising slopes of an undulating ridge of high ground on the northern edge of the Potteries, facing mostly west and northwest across the Staffordshire and Cheshire Plains. Therefore, parts of the Site have a wide ranging zone of visual influence. However, whilst it is accepted that very long distance views are obtainable, the Site's primary zone of visual influence is within a 4 kilometre radius. 12 groups of existing viewpoints are rated as 'high' in sensitivity, all within an approximate 1.5 kilometre radius of the Site. A further 5 groups of viewpoints are rated as 'medium' in sensitivity, also within the 1.5 kilometre radius. These relate primarily to views from dwellings and public footpaths. 8 key viewpoints were chosen from the 27 locations, based on a selection of views from around the compass at representative locations. The key viewpoints are used to demonstrate the potential views of the working scheme at key stages of the development from the 8 key viewpoints by reference to screen captures of dtms.

6.5.2 The magnitude of effect on most views is rated as '**large**' at all stages during the operational period. Visual intrusion is generated by the perimeter grassed soil mounds and the varying configurations of the overburden mound, which it is impractical to seed down to grass. The '**large**' magnitude combined with '**high**' and '**medium**' sensitivity will generate an unmitigated impact significance rated as '**substantially adverse**' throughout the short term operational period. Upon completion of restoration operations, the magnitude of effect will reduce to '**small to negligible**' until the landscape matures, generating an unmitigated significance rating of '**negligible to moderately adverse**' in the medium term, becoming '**negligible**' in the long term.

6.5.3 Mitigation measures will not reduce the significance of visual impact ratings from '**substantially adverse**' during the operational period of the development. However, they will reduce the overall level of visual impact in the short term. Most importantly, over a maximum period of 36 months, the adverse visual impact is very short in comparison to most mineral developments. The comprehensive restoration scheme and long term habitat management plan will enhance the overall visual impact significance rating to

'slightly beneficial' in the long term by reason of an increase in the level of enclosure and richness of visual amenity resulting from substantial gains in woodland and hedges with hedgerow trees.

6.6 Potential cumulative visual impacts

Combined visual effects from inter-visibility with other development

6.6.1 The Great Oak Site is visually prominent, but largely discreet from any other mineral or similar developments. Freeport Talke Retail Park is visible in the foreground from some viewpoints, as are elements of the A500, electricity pylons and the outskirts of Red Street and Bignall End. However, the development Site is largely open countryside at present and will be restored to such in the short to medium term after surface mining operations.

Sequential visual effects of similar development along a route

6.6.1 In walking the footpaths and travelling the country lanes around the setting, there are no similar developments that could create sequential adverse visual effects with the short term impacts of this development.

6.7 Compliance with planning policy

6.7.1 A full audit of Planning Policy is appended to the Environmental Statement. The policies examined in this report are only those directly associated with potential changes to visual amenity and the fabric and character of the landscape.

6.7.2 Whilst national and regional planning policy give broad direction to how the landscape should be treated, the Minerals Local Plan saved Policy 21 gives specific guidance for the working and restoration of mineral extraction Sites, as recommended by the County Council's scoping opinion above. In this respect, the development would:

- Replace and enhance landscape elements that contribute to local distinctiveness;
- Respect historic field patterns that contribute significantly to landscape character;
- Recreate semi-natural vegetation that is characteristic of local landscape types;

- Enhances the visual condition of landscape elements in the long term;
- Maintains the current level of tranquillity.

6.7.3 The landscape policy objective of 'landscape restoration' for the "Ancient Slope and Valley Farmland" LCT encourages development proposals to:

- *restore land cover structure following the decline of ancient field patterns, reduce habitat (woodland) fragmentation.*

The landscape policy objective of 'landscape enhancement' for the "Ancient Clay Farmland subtype Farmland" LCT encourages development proposals to:

- *Maintain the structure of the landscape, offsetting the decline in ancient hedgerow patterns*
- *Increased planting of hedgerow trees and field corners to rebuild the landscape structure where decline is occurring*
- *Reflect hedgerow character (damsons) in woodland edges.*

The long term effects of the restoration proposals, comply strongly with the landscape policy objectives of the Structure Plan.

7.0 Appendices

7.1 Methodology for assessing impact significance

Introduction

Guidance for the undertaking of this Landscape and Visual Impact Assessment has been sourced from:

- The Guidelines for Landscape and Visual Impact Assessment (second edition), published April 2002 by the Landscape Institute and Institute of Environmental Management and Assessment; and
- Landscape Character Assessment, Guidance for England and Scotland, published April 2002 by the Countryside Agency and Scottish Natural Heritage.

The general text below describes the background behind the process, whereas the numbered paragraphs describe the sequence of processes.

Baseline assessment

The baseline study is a process of research, observational recording, classification and analysis of the existing landscape and visual resources. It is undertaken to determine the context against which the new development is to be compared and to establish the importance of the constituent parts of the landscape and factors affecting the visibility of the proposed development. This provides information against which the magnitude, sensitivity and thus the significance of a predicted landscape or visual impact can be reviewed in the assessment stage of the process.

The study of the baseline conditions includes a review of available document sources, map data, plans, aerial photographs and the undertaking of a field survey with photographic records.

Landscape Character

1. The National Character Area of the setting, as identified by Natural England, and the Landscape Character Type, as identified in the County or District Landscape Character Assessment, are described along with:

- Characteristic features present
- Incongruous features present

- Other designations and features that influence landscape character

2. A landscape sensitivity rating is ascribed for each Landscape Character Type within the setting. The Character is evaluated in terms of the strength and condition of features worthy of conserving, sense of place and sensitivity to change. Ratings for landscape sensitivity are allocated according to the following parameters.

‘High’:

- Where there is a strong landscape structure and characteristic patterns of landform and land cover. Where there are features in good condition that are worthy of conservation and a strong sense of place.
- Where the landscape is often sensitive to change.

‘Medium’:

- Where there is a recognisable landscape structure and characteristic patterns of landform and land cover. Some may be masked by developed land cover.
- Where there is a combination of features worthy of conservation and some detracting features.
- Where the landscape may be sensitive to change.

‘Low’:

- Where little or no landscape pattern is evident. Where the landform and land cover are masked by land use.
- Where a lack of management has resulted in a degraded appearance or where there are frequent detracting features.

Visual appraisal

3. In order to assess the degree of visual impact a development may generate, it is first necessary to identify the visual sensitivity of the Site. Visual sensitivity is determined by cross referencing visual significance of the development Site with the type of the receptors and their visual environment. An

assessment of visual significance requires the consideration of the following factors: the type of potential visual intrusion, the extent of views of the Site, the scale of the Site relative to the field of view, the openness of the setting, orientation of views relative to the movement of the sun and prevailing climatic conditions.

4. The first stage is normally to identify the Zone of Theoretical Visibility (ZTV) of the development Site. However, as this is a proposed surface mine including large soils and overburden storage mounds, it was considered appropriate to identify the ZTV of the most potentially visually intrusive stage of the development, because the ZTV for the Site only is likely to be considerably smaller and possibly misleading. The full ZTV of the proposed development is illustrated on drawing number G6_LAN_001 in Appendix 7.3 below.

The coloured areas on the ZTV plan represent bands of increasing vertical angles of visibility derived from a digital terrain model (dtm) of the development Site and its setting. The dtm is constructed by Land Survey Systems (LSS) software supplied by McCarthy Taylor Systems Ltd. First, a dtm of the broad setting of the Site is constructed from OS Landform Profile data tiles. A dtm of the most potentially visually intrusive stage of the development is then inserted into the setting model.

A ZTV scan is then created by measuring, from a grid of points across the dtm at 25 metres centres, the vertical angle of visibility of 50 target points located on the main overburden and soil mounds. The output is interpolated into a contour plan of angles at 0.15° intervals. The contour plan is then split into bands of angles colour coded from light green (least angle) to dark red (greatest angle). The band values in this instance are: 0 to 0.3°, less than 0.6°, less than 1.2°, less than 2.4°, less than 4.8°, less than 9.6°, and greater than 9.6°. An image of the coloured bands is overlaid on the OS Explorer map at 1:15,000 scale by locating the bottom left and top right points of the model on the grids of the OS map.

The resulting plan does not indicate the true extents of the visual envelope of the development, because the model it is derived from comprises the landform surface only. It does not include the structures, buildings, trees, woodland or hedges found on the Site or the surrounding landscape. It does, however, help identify the visibility hotspots and potential areas of search in which to locate key viewpoints on the

ground. Following the desk top study of the ZTV, a field survey is undertaken to record views, visual receptors and key viewpoints from where visualisation should be constructed. Ratings for potential visual sensitivity are allocated according to the following matrix of parameters:

SENSITIVITY	Visual significance			
Visual receptor types/ Visual environment	Where current open views are obtained of a major part of the Site; or where close, partially obscured views of the Site dominate the location	Where current views of the Site are partially obscured by intervening landform, structures or vegetation	Where current views of the Site are largely obscured by intervening landform, structures or vegetation; or where the angle or field of view is particularly narrow	Where views of the Site are distant, incidental or barely distinguishable from its surroundings to the naked eye
Where the view forms a strong component of the activity, such as those from daytime residential rooms or private gardens, public rights of way, de facto footpaths and access land, particularly designated recreational paths and National Trails. Includes views from Public houses, restaurants, parks etc. with outward views towards the development. Areas well-known for high visual amenity. Open areas of recognised public access where primary enjoyment is obtained from views of the landscape. Areas with high expectations of visual amenity. May affect a high number of receptors.	High	High	Medium	Low
Where views are noticeable, but not integral to the main activities; such as at sporting or active recreational facilities where amenity is gained from the landscape setting but is not essential to the activity. Includes views from residential rooms used primarily during night hours and from remote country lanes. Moderate expectations of visual amenity. Moderate numbers of people may be affected.	High	Medium	Low	Low
Where views are incidental to other activities, such as those from work where visual amenity is currently lacking or when travelling past the Site by rail or road. Low expectations of visual amenity. Numbers of people affected may be low.	Medium	Low	Low	Low

Impact assessment

The assessment of landscape and visual effects is based on information concerning the attributes of the receiving environment and the location, scale and nature of the proposed development, as identified in the baseline studies. The assessment of effects aims to:

- Identify systematically the likely effects of the development;
- Indicate measures of mitigation;
- Estimate the magnitude of effects; and
- Provide an assessment of the nature and significance of these effects.

The landscape and visual impact assessment includes descriptions of the residual effects of the proposed development after mitigation measures have been taken into account. The assessment is part of an iterative process of survey, design, assessment and feedback.

Landscape effects

Landscape effects derive from changes in the physical landscape (landscape elements), which may give rise to how this is experienced (together with landscape elements termed landscape characteristics). This may in turn affect the perceived value or quality ascribed to the landscape.

The description and analysis of effects on the landscape relies on the adoption of certain basic principles about the positive or negative effects of change in the landscape. Due to the dynamic nature of the landscape, it can be accepted that change arising from a development may not necessarily be significant. The landscape impact assessment describes the likely nature and scale of changes to individual landscape elements and characteristics and the consequential effect on the landscape character in relation to the development Site itself and on the wider landscape.

Part of this assessment takes account of existing trends that can be of both human and natural origin. The determination of the sensitivity of the landscape resource is based upon an evaluation of each key element or characteristic of the landscape likely to be affected. The evaluation reflects such factors as its quality, value, contribution to the wider landscape character, and the degree to which the particular element can be replaced. Change can vary between small and large scale, or be so small that there is, in effect, no

change. The effects of change may be negative or positive and may exist for short (temporary) or long (permanent) periods. More weight is placed on larger scale and permanent changes.

Visual effects

The assessment of visual effects describes:

- The changes in character of the available views resulting from the proposed development; and
- The changes in the visual amenity of the visual receptors.

The magnitude or scale of visual change is assessed with reference to elements such as:

- The extent/proportion of change within the view;
- The degree of contrast;
- The duration of the effect;
- The nature of the effect;
- The angle of view;
- The distance of receptor (viewpoint) from the development; and
- The area where changes will be visible.

The assessment of visual amenity is subjective. To avoid reliance on this subjective matter, visual amenity (condition of existing view) is described only without a value attributed to this.

Cumulative effects

This assessment considers the cumulative effects of the development proposal, which can result from:

- Combined landscape effects of concurrent development (not necessarily visible together);
- Successive landscape effects of similar developments over a period of time
- Combined visual effects from inter-visibility with other development;
- Sequential visual effects of similar development along a route;
- Combined environmental effects of the same development.

- The cumulative effects of other third party proposals (not yet realised) have not been assessed in this report.

Assessment process

5. The significance of landscape and visual impacts is determined by combining ratings for the sensitivity of the receptor with the potential magnitude of the effect. The magnitude of the effect, either adverse or beneficial is classified as follows for landscape criteria:

- ‘Negligible’ – Where the proposals would change a very small number of landscape characteristics on a very small scale.
- ‘Small’ – Where the proposals would change a small number of landscape characteristics on a small scale.
- ‘Medium’ – Where the proposals would change a small number of landscape characteristics, but on a large scale
- ‘Large’ – Where the proposals would change several key landscape characteristics on a large scale.

Where variations between relevant criteria, duration etc. occur, reasoned professional judgement is applied and described in the assessment to determine the magnitude of effect. In general, the duration weighting applied to magnitude is as follows:

- Very long term effect: 20 years or more
- Long term effect: 10 to 20 years
- Medium term effect: 4 to 10 years
- Short term effects: 1 to 3 years
- Temporary effect: Less than 12 months

6. The magnitude of the effect, either adverse or beneficial is classified as follows for visual criteria:

- ‘Negligible’ – Where the proposals are just visible within a wide field of view. They would not be capable of conveying a moderate impact, even when modified by highly sensitive receptors.
- ‘Small’ – Where proposals would constitute only a minor component of the wider view and do not affect the overall composition of the scene. They would not be capable of conveying a substantial impact, even when modified by highly sensitive receptors.
- ‘Medium’ – Where proposals would form a visible and recognisable new element within a wide field of view, but would not be dominant within the overall view. They are assessed as minor with little impact, but capable of being modified by highly sensitive receptors.
- ‘Large’ – Where the proposals would form significant or dominant feature in a specific vista that would affect the overall impression of the place. They are assessed as having a significant impact even when modified by receptors of low sensitivity.

7. The significance of each potential impact is graded according to the table below.

Impact Significance		Magnitude of effect (adverse or beneficial)			
		NEGLIGIBLE	SMALL	MEDIUM	LARGE
Sensitivity of receptor	LOW	Negligible	Negligible	Slight	Moderate
	MEDIUM	Negligible	Slight	Moderate	Substantial
	HIGH	Slight	Moderate	Substantial	Substantial

8. The implications of the effects on the character or condition of the landscape and for the visual amenity resulting from the proposed development are described below. Adverse effects can be reduced or moderated by effective mitigation measures.

‘Substantially adverse/beneficial’ – Permanent or long term change to key elements such that the local or wider landscape character/condition or sensitive visual receptors are substantially affected in an adverse or beneficial way. Potential mitigation measures would be ineffective to prevent adverse effects, but very effective in promoting beneficial effects.

‘Moderately adverse/beneficial’ – Permanent or temporary detrimental or beneficial change to key elements, or permanent change to less important elements such that the landscape character/condition or any visual receptors are moderately affected in an adverse or beneficial way. Potential mitigation measures would moderate effects to a minor degree.

‘Slightly adverse/beneficial’ – Permanent or temporary detrimental or beneficial change to minor elements such that the landscape character/condition or any visual receptors are slightly affected in an adverse or beneficial way. Potential mitigation measures would moderate effects to a major degree.

‘Negligible’ – Minor change to minor elements such that the landscape character/condition or any visual receptors are negligibly affected in either an adverse or beneficial way.

Photographs

Recent guidance from The Landscape Institute (2011) requires that the size of photographs, when seen at a ‘normal’ distance, match the size of the actual view. To define the size for a set viewing distance the focal length of the lens used and the size of the camera sensor must be known. The required viewing distance is divided by the focal length to give a multiplication factor. Thus a 300mm standard viewing distance divided by a 35mm digital focal length = 8.5714 multiplication factor. The size of the camera sensor (Canon 400D – 14.8mm x 22.2mm) is then multiplied by this factor, giving a landscape orientation image size of 190.3mm wide x 126.9mm tall.

The panoramic images used in Appendix 7.2 below were created by taking a series of overlapping photographs with a 35mm digital focal length (56mm optical equivalent), an aperture value of f5.6 on manual focus. The photographs were taken in portrait format and 'stitched' together using Microsoft Image CompoSite Editor software to form a single panoramic image with a field and depth of view similar to that seen by the human eye. Each image was then resized so that the individual photograph frames are 190mm high on an A3 paper sheet. A 'Powerclip' box was applied over the image in CorelDRAW Photopaint to ensure that the overall image was not resized in cropping it to a rectangular shape.

Photomontages

In order to gauge the specific levels of visual intrusion, computer generated visualisations were generated from key viewpoints identified in the visual appraisal process located in various directions around the Site. Panoramic photographs were taken on a clear day to the specification described above. Digital terrain models of the working and restoration schemes were constructed using LSS software and coloured approximately to match the proposed land cover. The working scheme was illustrated at 3 stages by screen captures of the raw models. The screen captures at the 18 month stage, when the overburden mound is at its largest configuration, were used as frames for photomontages showing the model views within the context of the landscape setting.

The raw model was viewed from the same key viewpoints, matching the photographs in terms of: eastings, northings and elevations of the viewpoint location; the centreline angle of view; the distance, horizontal field and vertical field of view. Each proposed view was captured and exported in a format suitable for inserting within the photographs of the existing views.

Photographs and photomontages assist in assessing the potential visual effects of the proposed development over a period of time. They are not virtual reality images and are subject to minor distortions and inaccuracies. A photograph or photomontage can only be a two dimensional representation and therefore can never provide the exact visual experience that a human observer would receive in the field.

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