

Executive Summary

“The landscape is a key element of individual and social well-being and that its protection, management and planning entail rights and responsibilities for everyone” (European Landscape Convention, 2000)

Landscape Character Assessment (LCA) provides a basis for assessing the particular features and elements within landscapes which makes one landscape type and area different from another. This LCA considers the characteristics of Trent Vale, one of the most dynamic and complex environments within in East Midlands. The LCA considers the human and natural activities that have worked together to produce a landscape that provides a fascinating insight into the development of the region.

The Trent Vale Landscape is one of the most dynamic and complex environments within the East Midlands, where both human and natural activities have interacted not just to create successions of landscapes, but to change the actual form of the land. Its landscape and features provide a fascinating story of development, which is often now overlooked. The Trent Vale is formed from the broad valley of the River Trent, starting from a point close by Newark where the floodplain first broadens, continuing up to the wide shallow floodplain beyond Gainsborough.

Trent Vale offers a mix of landscapes:

- large urban areas
- scattered un-developed rural settlements perched on the edge of the floodplain
- arable fields and river meadows
- the broad expanse of the River Trent
- extensive gravel pits
- a skyline dominated by the cooling towers of power stations

With a rich and diverse heritage:

- one of the most extensive network of crop marks in the region
- a pattern of Roman settlements
- civil war sites
- an association with the Pilgrim Fathers
- pairings of villages on either side of the river Trent once connected by a string of ferries
- a range of priority habitats and a network of SSSI's and SINCs
- countryside and villages which retain the traditional and rural character that has been lost in so much of the region

It is all of these factors that combine to make up the "feel or character" of the Trent Vale landscape and highlights the essence of Trent Vale and what makes it an area of distinctive historical, natural and industrial character.

Research has shown that in a national context Trent Vale is often described as a single character type, however this is misleading and it is clear that Trent Vale offers four distinct character types:

Type One - Vale Market Towns

Historic market towns which have been focal points for the vale for centuries and continue to expand as residential and service centres. They are largely urban areas whose presence has significantly altered the river corridor locally and influenced the

development of the surrounding landscape.

Type Two - Vale Meadowlands

A flat, low lying riparian landscape characterised by a pattern of small and medium sized alluvial meadows, grazing animals and remnant wetland vegetation. The areas tend to be narrow and flanking the meandering river.

Type Three - Industrial/Restored Vale

A diverse range of highly modified landscapes created by mineral extraction and power production.

Type Four - Vale Farmlands

A flat low-lying agricultural landscape characterised by a traditional pattern of hedged fields and nucleated village settlements.

This LCA provides an assessment of these landscape types, people's perceptions and the potential for the future of Trent Vale. The conclusion is that Trent Vale is a distinctive landscape, rich in natural, built and cultural heritage and has a great potential, but it is an area where the local people feel a disconnection from their landscape and where the true identity of Trent Vale faces the risk of being lost.

The production of this Landscape Character Assessment has funded through a Project Planning Grant from The Heritage Lottery Fund and the Trent Vale Landscape Partnership.

The Trent Vale Landscape Partnership (TVLP) is a group of public and voluntary sector organisations whose aim is to develop a long-term strategy for the development of Trent Vale. The Partnership includes Nottinghamshire County Council, Lincolnshire County Council, West Lindsey District Council, Newark & Sherwood District Council, Bassetlaw District Council, Nottinghamshire Wildlife Trust, Lincolnshire Wildlife Trust, Natural England, The Environment Agency, British Waterways, English Heritage and the OnTrent Initiative.

*Its
landscape
and features
provide a
fascinating
story of
development*

1. Introduction

This study is designed to form the foundation of the development strategy for the Trent Vale Landscape Partnership and it is anticipated that it will be referred to by all those who are responsible for, or interested in, the development of Trent Vale. This document was produced by the members of the Trent Vale Management Group, with input and direction from various individuals and organisations that live and operate within the area, as such it is hoped that it provides an accessible and accurate representation of the Trent Vale landscape character.

Landscape Character Assessment (LCA) provides a basis for assessing the particular features and elements within landscapes which makes one landscape type and area different from another. Within this document TVLP consider various factors to help us explore the development and impact of Trent Vale, including:



- Topography - influenced by the underlying geology, climate and soil type, and in Trent Vale by human activity e.g. managing the river by deepening and building flood banks to contain the course of the river and the practice of warping (process of deliberately flooding land in order to deposit layers of 'warp').
- Land cover - types of agriculture, woodland, waterways, wetlands and urban cover
- Land use - settlements (farms, villages and towns), industry, transportation routes and leisure
- Attitudes and perceptions - people's feelings and opinions on the natural and built features of the landscape in which they live and work

It is all of these factors that combine to make up the "feel or character" of the Trent Vale landscape. In undertaking this piece of work TVLP aims to highlight the essence of Trent Vale and what makes it an area of distinctive historical, natural and industrial character.

"Landscape means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors. The landscape is a key element of individual and social well-being and that its protection, management and planning entail rights and responsibilities for everyone"

(European Landscape Convention, 2000)

"The Trent Vale is an example of a distinctive landscape whose character has been, and continues to be, shaped by both natural and human factors"

*Ruth Needham,
OnTrent Initiative
Project Manager*

2. Methodology

Desk based study was conducted utilising available datasets to map different elements of, and influences on, the landscape. In addition, all current and recent landscape studies, assessments and guidance for the region were reviewed. Following an interrogation and understanding of this desk-based research, field study and consultation was carried out to augment and test the data.

A key aspect of this LCA is an assessment of the views and attitudes of the people who live and work within the landscape and various methods were utilised to ensure that this input was obtained and appropriately influenced the LCA and the classification and description of character types and areas.

The landscape is a key element of individual and social well-being



3. Defining the Trent Vale Landscape Area

The Trent Vale Area

A vale is defined as a wide river valley and can often be used to describe a valley with a particularly wide flood plain or flat valley bottom. The "Trent Vale" covers an area of the Trent Valley from Newark to just north of Gainsborough. This is an area where the valley broadens and the slopes rising from its edge decrease in height and steepness to become almost indiscernible from the adjacent lowland areas, at the northern most point of Trent Vale the valley opens into a broad plain which stretches northwards to the Humber estuary.

The Trent Vale Landscape Partnership area (see Appendix 1) was developed using various relief mapping techniques and through consultations which established views on the characteristics of Trent Vale. The boundary was based on a 20m contour line; this provides an area which contains the current and ancient settlements which follow the course of the river, together with the areas that would have constituted the old floodplain of the river. This area also contains the key features which people associate with the Trent Vale region. The total area is 296 sqkm.

The area includes two major historic settlements, Newark to the South and Gainsborough to the North, with a number of other settlements ranging from small hamlets to larger commuter villages. The population within the area is approximately 68,000 (see Appendix 2 Population Density by Parish).

Trent Vale area includes land within the boundaries of:

- Nottinghamshire and Lincolnshire County Councils
- West Lindsey, Bassetlaw and Newark and Sherwood District Councils
- 55 Parish Councils



A Landscape Defined by Human Influence

Trent Vale is an area which has had significant impact from a combination of agriculture, mineral extraction, industrial growth and decline, power production and flood management. Within the Countryside Agency's "Character Area 48 - Trent and Belvoir Vales", Trent Vale is described as:

"The open, undeveloped and rural character is strongly influenced by power stations, pylons and sand and gravel extraction on the Trent floodplain. The pattern of enclosure of the fields, bounded almost invariably with hawthorn hedging, plays an important part in creating the character of the Vale. Arable crops predominate and hedges, which are often gappy, are generally kept tightly or excessively trimmed. There are few hedgerow trees.

The Trent passes through attractive stretches of permanent pasture and flood meadow but, in its lower reaches and in particular downstream of Cromwell, where it becomes tidal, it is confined by flood banks and thus rarely seen. There are two major settlements, Newark to the South and Gainsborough to the North, in between settlements are scattered, compact villages linked by a network of small, quiet country lanes.

The landscapes are dominated by views of the massive cooling towers of power stations and associated networks of pylons. Also glimpses of the processing plants, hoppers and conveyor belts of the extensive areas of sand and gravel extraction introduce further industrial elements to the Trent Vale".

It is this combination of natural, industrial and historic value which gives the Trent Vale its uniqueness and provides, within a relatively small area, a diversity of habitats and distinctive landscape features.



4. The Historic Trent Vale

The Forming of Trent Vale

It has been the twin processes of erosion and deposition operating over millions of years that have evolved a unique topographic form which has, in turn, influenced the pattern and distribution of soils, land cover and human activity, which has provided the "modern" characteristics that are today associated with Trent Vale.

Soil and Geology

The underlying bedrock of the Trent Vale is primarily Mercian mudstone. In the floodplain the mudstone is overlain by mixed glacial and river deposits. On the floodplain terraces these deposits tend to be sands and gravels, overlain by deep permeable sandy sub soils. The soils that have developed on the terraces tend to be free draining sandy loams. Elsewhere there are deposits of silty-clayey alluvium over which clay loam soils have developed. Peat deposits, some extensive, are known throughout the Trent Vale

The edges of the Vale are defined by the rising slopes of Mercian mudstone, over which soils tend to be heavy. Hillwash deposits from the mudstones have accumulated in places along the edge of the floodplain, providing heavier and generally water retentive clayey soils.

Landscape History

The Trent Vale boasts a rich and complex history from mans early influence on the landscape, through Roman occupation and settlement by the Anglo-Saxons to the industrialisation of the Vale. In order to provide a detailed understanding and assessment of the history of Trent Vale the following information is included within the appendices:

- Appendix 3 - "A river runs through it" - a brief description of the Trent Vale landscape following the river from Newark to West Stockwith

- Appendix 4 - A detailed description of the history of development of the Trent Vale. From the early influence of man, through Roman and Anglo-Saxon settlement to the early industrial Trent Vale and early management of the River Trent

- Appendix 5 - A brief History of the Trent Vale market towns of Newark and Gainsborough

Scheduled Monuments and Important Heritage Assets

The complexity of the history of development of Trent Vale can be illustrated through the exceptional richness and diversity of historic features and sites. There are currently 47 sites designated as Scheduled Ancient Monuments (Appendix 5 - Map of Scheduled Ancient Monuments), whilst most of these represent buried remains there are several structures still visible. There is also a valuable built heritage throughout the Vale including sites such as Gainsborough Medieval Hall, Torksey Castle and Newark Castle, together with many historic churches and chapels, farm and village buildings and numerous industrial and commercial buildings within the market towns.

During the consultation conducted for the production of this LCA many people stated that the undeveloped nature of a number of the villages represents a key heritage asset of the Vale, enabling people to enter into a "forgotten time".

*A
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When considering the heritage value of an area the "sense of place" that particular sites can provide are equally as valuable as individual buildings.

5. The Natural Vale

River Trent

The River Trent's source is in the Staffordshire Moorlands and as it travels its 275 kilometre course to its end at the Humber Estuary this becomes one of the countries most important rivers, and one of a few that flows south to north. The tidal stretch of the Trent continues upstream through Trent Vale as far as Cromwell weir and lock.

The name "Trent" has a number of possible suggested origins, one is that it comes from a Celtic word possibly meaning "strongly flooding", more specifically, the name may be a contraction of two Celtic words, tros ("over") and hynt ("way"). Richard Stone in his book *The River Trent* suggests that river was known to the Romans as Trisantonā - translated as trespasser which is a reference to its frequent flooding. It also possible that it derives from the Anglo-British the-re-hemm-heth or "the river bend landing place"

Like many major rivers, the Trent has provided a number of functions - administrative boundary, trade route, defensive barrier, provider of resources and a natural corridor. One aspect that can often be overlooked is that the

The River Trent is now a highly productive river

Trent is now a highly productive river with thousands of fishermen regularly making good catches. A range of over 30 different species of fish can be found within the river.

Taming the Trent

The historical need for flood protection from agriculture, transportation, power production, mineral extraction and local villages has resulted in very little of the Trent Vale flooding in recent memory, mainly due to the presence of long lengths of earth flood embankment.

The current layout of the channels and defences of the Trent through the Trent Vale has its origins in changes introduced in the 1600s. A series of engineering works over the following centuries has created the flood defence and land drainage system of flood banks, flood walls, pumping stations and flood storage areas that exists today. The last extensive works were during the 1960s and 1970s. In the twentieth century, the most significant floods are those of 1932, 1947, 1954, 1977 and 2000. In 1932 and 1947, there were breaches of flood banks at Cottam and Morton. The 1947 Morton Breach allowed flood water to reach the outskirts of Scunthorpe. No significant failures of flood banks occurred during the floods of 1954, 1977 and 2000. However, significant disruption was caused by flooding of properties, roads and land not protected by flood banks.

Following the 1947 and 1954 floods, the Trent River Board (which now forms part of the Environment Agency) carried out a major study into the flood defences on the tidal reach of the River Trent. This was published in 1960 and after this, construction was carried out over the next twenty years to improve the defences.

The flood embankments dominate the landscape along the river for its entire length through the Trent Vale. The flood banks are constructed out of earth and covered in grass. On the tidal reach of the River Trent they have been constructed to two different standards. These are:

- major banks - these prevent flooding from floods similar to those in 1947 or 1954 and to those with about a 1% (1 in 100) chance of happening each year;
- minor banks - these are expected to be overtopped by floodwater about once in every three years. For example, at Beckingham Marshes the minor banks are expected to be overtopped every five years.

The importance of the 'minor banks' is that these create the flood storage areas. These areas store water in times of flood and reduce the peak flood level, major flood storage areas are at Beckingham and Lea Marshes. Where properties are located adjacent to the river and space is limited the flood defences are formed by flood walls. These are typically constructed out of concrete and steel sheet piles. There are also pumping stations and outfalls. These allow water to flow by gravity or be pumped into the River Trent without allowing water to flow from the River Trent the other way when river levels rise.



There are a small number of properties which are not currently protected by the defences. These are all south of Gainsborough. The defended floodplain is generally agricultural land, and small villages. Gainsborough is the largest urban area within the floodplain.

There is a general perception in the UK that the severity and frequency of flooding is increasing. This is difficult to determine objectively with relatively short periods of hydrometric records; it is difficult to determine whether such changes are due to a natural meteorological cycle or for other reasons. Various theories, including changes in land use, have nevertheless been advanced to support this perception. The intensification of agricultural land use during the twentieth century has resulted in larger fields, more efficient drainage systems, increased stock density and larger and heavier machinery causing deeper compaction of soils.

These factors, along with changes in cropping practice and crop rotation, are thought to have resulted in water being moved through agricultural land faster and the rate of run-off being higher. This, combined with loss of woodlands and rough vegetation (which theoretically absorb and retain water) to farmland or urban development, may mean that volumes of water in rivers are higher and water levels rise faster. These changes are only significant to the fluvial (non-tidal) component of flooding as they have no effect on the tidal component.

Historically this change from traditional flood plain meadows to the use of flood plain land for agriculture all year round, led to both the attempts to lower water tables at all times of the year and prevent the natural flood plain from flooding by construction of flood defences.

In 2005 the Environment Agency issued a Tidal Trent Flood Risk Management Strategy, which describes a range of options for long term use and management of the flood embankments along the Trent. It is likely that at some point in the future, as the current embankments degrade, changes will need to take place in how the risk of flooding is managed. This presents opportunities for landscape change within Trent Vale in the long term, which could be combined with changes in agricultural land use to provide areas of traditional flood plain meadows. A number of potential sites have already been identified as offering "ineffective flood storage" and that "have no significant effect on flood risk".

Wildlife Habitats

Currently within Trent Vale the areas with significant regional and national wildlife value are dispersed across the region on fragments of land that survived the wide scale rush for agricultural improvement. Currently (utilising data provided by NGBRC and Lincolnshire County Council) there are 1,534 hectares of SSSI and SINCs in Trent Vale - Appendix 6 provides details of their location. The majority of these sites are small and separated from one another with the exception of some of the meadows within the Holmes complex and several former mineral sites. The smaller nature conservation sites are generally pockets of woodland (very rare within Trent Vale), land inside river meanders, corners of marginal farmland or along linear features such as boundaries, railway lines or the river.



The River and Wetlands

The river itself has been hugely modified over the centuries for flood management and navigational purposes. The vast majority of the natural floodplain is now separated from the river by the large flood embankments along its length and in most areas the river forms a deep wide channel with little in-stream habitat. The bank side of the Trent is where the best habitats can be found, often containing a range of marginal and tall herb communities.



Old oxbows still exist at Spalford, Fledborough and Bole Ings and these offer good habitat sites.

The arm of the Trent flowing to the west of Newark through Averham and Kelham is an exception to this. Not being used as a navigation it contains several shallower areas that have been allowed to develop more naturally, providing important habitat for fish.

Former mineral sites that have not been backfilled provide the most important wetland sites within the vale. The main ones we see today are at Mons Pool, Besthorpe, Winthorpe and Girton. All of these have a range of wetland and marginal habitats with a variety of plant and animal interest.

The potential for these sites can be seen by what has been achieved by Nottinghamshire Wildlife Trust at Besthorpe Nature Reserve, which lies in the Trent floodplain to the north of Collingham on the east bank of the river at a former Lafarge extraction site. The site comprises two areas with a total area of around 68 hectares (which should increase by about 100 acres over the next 20 years). The section of the reserve to the south comprises an area of old gravel workings and two SSSI wildflower meadows. The meadows have been designated SSSI since May 1988. They consist of 9.23 hectares of unimproved

The most important wetland sites within the vale

alluvial grassland with a distinctive plant community which is now nationally rare. Species within the meadows include Yorkshire fog, great burnet, Lady's bedstraw, common knapweed, meadow vetchling and pepper saxifrage. An old borrow pit fringed by willows contains an interesting aquatic flora including spiked water milfoil and common water crowfoot.

To the South of the meadows lies Mons Pool, which contains a colony of nesting cormorants and a heronry of county importance. Two hides are available for watching the birds which frequent the pool and apart from the herons and cormorants these include many species of wildfowl including a wide variety of ducks in winter including tufted duck, pochard and goosander. The river provides a habitat which itself is developing, with currently over 30 species of fish in the river.

The improvements in water quality have given significant improvements but with the physical nature of the river modified through the construction of weirs, embankments and dredging, additional solutions are required.

These habitats would have once been widespread throughout the area



This includes the creation of fish refuges which have special entry channels built under the banks of the river and when it is in flood the fish stocks, including that year's fry, can shelter in the still waters. Fishery projects have recently been completed by the Environment Agency at Winthorpe Lake, and farmland at Sutton on Trent, just north of Newark.

Small water courses particular the Fleet, plus drainage dykes and ditches and numerous small ponds dotted throughout the Vale also provide valuable habitats for priority species.



Grasslands

These areas of lowland wet grassland, species rich grassland and lowland heath are inhabited by, amongst other species, redshank, curlew, lapwing, nationally declining water voles, otters and a variety of dragonflies and damselflies. These areas also contain extensive and diverse archaeological resources. With suitable man and habitat management scarce bittin, bearded tit and marsh harrier.

Lea Marsh on the eastern bank south of Gainsborough, another area with a SSSI designation within Trent Vale, it is of national importance. Lea Marsh, located adjacent to the river south of Gainsborough, is an unusually large area (27 hectares) of unimproved floodplain meadow and wet

pasture with two nationally scarce wetland plant species. Snipe, curlew and water vole have been recorded on the site. Lea Marsh is surrounded by farmland.

The traditionally managed area of grazed pasture supports a floodplain meadow community which has been greatly reduced in extent across much of England. At Lea Marsh this plant community is characterised by an impressive abundance of herbs including great burnet, autumn hawkbit, common sorrel, ragged robin, great willowherb, bird's-foot trefoil, meadow buttercup, lesser stichwort, ribwort plantain, meadowsweet, common knapweed, meadow vetchling, yellow rattle, pepper saxifrage and common meadow-rue. Of particular note is the presence of a large population of narrow-leaved water-dropwort, a nationally scarce plant of very restricted distribution in the East Midlands, and the nationally scarce mousetail. Lea Marsh is the only known locality for both these plants in Lincolnshire.

There are several hay meadows in the Holmes area between Sutton on Trent and High Marnham retaining areas of species rich grassland. These 'common' fields have been grazed using traditional methods and provide an extremely valuable habitat in the Vale and demonstrate this rare grazing system. These habitats would have once been widespread throughout the area. The picture shows an area at Sutton on Trent locally known as "Little Trent" which is considered by the locals to be the old route of the Trent, and provides an image of what traditionally a large part of the Vale would have looked like.

There are Nature Reserves, owned by Notts Wildlife Trust, at Spalford Warren, North Muskham and Brierley's Meadow Girton Meadows and by the RSPB at Langford Lowfields. There are also important sites at Cottam and West Burton power stations, both offering a diverse range of habitats and provide opportunities for visits by groups to explore the wildlife effectively "preserved" by the presence of the power stations. The RSPB is also currently in the early stages of creating its Beckingham Marshes reserve. Beckingham Marshes lies along the west

bank of the River Trent at Gainsborough and covers 488 hectares. The area was originally rich wet grassland, which was drained in the 1960's and since then has been mainly arable. This changed the appearance of the area and characteristic wetland species such as wading birds and wetland plants were lost.

The area is owned by the Environment Agency, is now used for flood storage and is let by the Agency to five tenant farmers, as well as three hectares to an oil and gas company, which pumps a number of wells on the site. The RSPB with other partners and supporters is transforming the area into a nationally important wildlife area that can be enjoyed by all. Through the use of water control structures, ditch widening and reprofiling, sluices and pumps, water will be moved around the site and levels managed. The outcome will be a low landscape, high water levels and grazed grassland all combining to produce the conditions that would once have been traditional on Beckingham Marshes and providing a rare habitat for breeding wading birds.

Within the Trent Valley & Rises Natural Area report the main issues identified for grasslands within the Trent Vale area are:

- Existing sites are small, fragmented and isolated
- Agricultural improvements leading to loss of wildlife



- Change from hay to silage management leads to loss of ground nesting birds, especially early nesting waders and wildflowers
- Flood barriers constructed between main channel and flood meadows
- Increased drainage has led to loss of wet/dry grassland mosaic.
- Management of water levels to maintain wet grassland often conflicts with other land uses
- Long-term sustainability issues for grasslands
- Proximity of features to urban fringe and associated problems



Trent Aegir

The Trent Aegir is a naturally occurring tidal wave (or bore); a phenomenon that occurs in the lower reaches of a select number of rivers throughout the world with large tidal ranges. It is caused by a particular combination of tides and its funnel-shaped estuary.

The Trent Aegir is named after the god of the seashore or ocean in Norse mythology - and like the Scandinavian sailors in the myths, river people would fear the coming of the Aegir as it is very unpredictable and would sometimes surface to destroy ships. An alternative suggestion for the name Aegir is that it comes from the French Eau Guerre - Water War, from the way the tidal wave travels up

the river. It usually appears during high spring tides, but its size can be affected by winter floods and the resulting rise in water level. The size of a bore or Aegir can also be affected by opposing winds or by high freshwater levels which reduce its height and delay its time of arrival, whereas a following wind can increase its height and advance the time it arrives. Whilst the Aegir is not as well known as the Severn Bore it is still a visually impressive natural phenomenon and crowds come to see the highest waves.

The Aegir is also associated with a famous legend, Lincolnshire County Council provides visitors with details of "Canute and the Tides":

"One of England's best known legends is associated with Gainsborough. Sitting beside the River Trent, famous for its 6ft wall of water accompanying the spring tides, King Canute ordered the tide not to wet him. The river of course did not heed his words. A sodden Canute yelled "Let all the world know that the power of Monarchs is in vain, no one deserves the name of King but He whose Will the Heavens, Earth and Sea do obey".

Climate Change

Predictions for changes in climate over the next 50 years are still being reviewed and revised by climatologists and meteorologists. At present it is expected that extreme weather events (i.e.

The Trent Aegir is a naturally occurring tidal wave

heavy downpours, increasing temperatures, strong winds) will be more frequent, and that winters will become wetter. Current estimates are that winter days with rainfall of around 25mm will become 4-5 times more likely by 2050 . Recently, Nottinghamshire's Agenda 21 Forum (a partnership of voluntary, private and public sector organisations) considered the local impacts of climate change. Their findings included the likelihood of seeing significant changes to the environment, property and the economy, mainly from increased temperatures, lower summer rainfall and increased winter rainfall and related effects .

This will affect farming, forestry and gardens as much as the natural wildlife. There were also conclusions that there will be variable health impacts, disruption to transport and business by the increased frequency of extreme heat or floods and that in response to this people's lifestyle patterns will change.

The East Midlands Regional Assembly, in its "Actions 4 Environment" report states:

The climate of the region changed during the 20th century. Evidence has been presented that the climate in the East Midlands rose by 0.5C. This change will continue in the 21st century, due at least in part, from the greenhouse gas emissions from human activities.

Predictions show that there is the possibility of a further increase in the region's temperature of up to 3C by the end of the century and further

changes in rainfall patterns. Sea level rise could be in the range 22-83cm on the East Coast by the middle of the century.

This could have some important impacts such as reduced water resources, possible problems with water quality due to declining summer flows, increased risk of flooding both from sea level rise and heavier storm rainfall and changes in biodiversity as there will be general migration northwards of species.

Agricultural practices will be affected as summer droughts and soil moisture deficits could lead to increased demand for irrigation. Increased soil erosion and the appearance of new pests are other potential problems. There will be opportunities to introduce new crops, including those for energy production.

Increased erosion from high sea levels and storms will cause damage to property and agricultural land with loss of some habitats for wildlife. Whilst it is difficult to make any specific predictions there is becoming a consensus that we are experiencing and there will continue to be climatic change and that the number of "extreme events" is likely to increase.

People, agriculture and industry will respond to these changes and it is the impact of these responses on the natural, built and cultural heritage of the Trent Vale that will have to be calculated, together with what risks and/or opportunities this might present.

Trent Vale's history already demonstrates how the responses to changing conditions can impact on the natural and built landscape, and provides an opportunity to learn so that plans for the conservation and enhancement of the heritage of the region can be sustainable in the future.

6. Living and Working in Trent Vale

Settlements in Trent Vale

There are two major urban areas, Newark town to the south and Gainsborough town to the north, and 48 other settlements of various sizes from small hamlets to large commuter villages.

Newark is an attractive riverside market town which has a wealth of history, interesting buildings and museums. There is a bustling cobbled market square and an attractive riverside walk which takes many of the great features of the town including the 12th century castle. Gainsborough is Britains most inland port which flourished in the middle ages and in the civil war as a frontier town and prospered as an industrial town. Today this red brick market town has retained some of its 18th century buildings but its key feature is Gainsborough Medieval Hall, situated near the town centre, which was originally built in the 15th century (Appendix 5 gives a brief overview of the development of these two towns).

Following the decline of both towns industrial sectors, their role has developed as commuter towns to the major nearby cities of Nottingham and Lincoln (Newark also attracts commuters to London due to its location on a mainline).



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Crossing the Trent

The major crossing points of the Trent are at:

- Newark - there are now a number of foot, road and rail crossings within Newark, including the Fiddlers Elbow Bridge which was constructed in 1915 as a bridge for barge horses to cross, and is one of the earliest reinforced concrete structures of its type in the country.
- Dunham - in 1830 local farmers constructed a bridge to improve links between Lincolnshire and the manufacturing areas of Nottinghamshire avoiding a round trip through Gainsborough. The toll bridge continues to operate today.
- Gainsborough - the stone bridge with three arches was built in 1791, its low clearance height meant that ships coming upstream would stop at Gainsborough to unload their cargo.



Up until the middle 20th century small ferries operated across the Trent at many locations between Newark and West Stockwith - linking small settlements on either side of the river. Historical crossing points (ferries, bridges and fording points) are documented as being at Farndon, Newark. North Muskham, Sutton on Trent. Cromwell, Marnham, Laneham, Dunham, Torksey, Littleborough, Gainsborough and West Stockwith.

These crossings were vital to maintaining and supporting the character of the Trent Vale, they not only provided a link for local trade but also aided the

social development of the villages and helped define the area as Trent Vale. Rather than in current times where the river is seen as a physical and administrative barrier which divides the region, for many communities it was the key feature which connected the region. Children would use the ferries to travel to school, people to travel to work and buy goods from other villages.

The river helped to connect a community and give an identity for the people living in the Trent Vale. However, the steady decline of the river as a transportation route, changes in where and how people worked and development of alternative transport solutions, resulted in the slow return to the river as a barrier. With industry in Newark and Gainsborough also declining a whole regional community that was once focussed and connected with the river lost this relationship and the common bond (not only industry and jobs disappeared but also the traditional festivals and fairs that also linked communities), and as a result the regional identity faded. The communities became the margins of Nottinghamshire or Lincolnshire, rather than the heart of Trent Vale.

An Industrial Vale

Trent Vale's long and complex industrial heritage continues to shape the landscape today.

Today's Trent Vale continues to be formed through its role, which it has had for many generations, as a provider to the Midlands and beyond. Whether as a transportation route, or the production of food, gravel, power and oil, Trent Vale has constantly developed to facilitate this function. Industrial development has had one of the most visual impacts on the landscape. In almost every modern reference to the area, and any discussion with a local or visitor, there will be mention of farmland, meadows and unspoilt villages interspersed with comments of cooling towers, pylons, gravel pits and lakes. The industrial development within both Newark and Gainsborough is explored in Appendix 4.

Whilst the development of both these towns as industrial centres had a major impact on the development of the Trent Vale area and certainly helped shape the modern landscape that is seen today, now industry in these towns has considerably less influence on the landscape.

The majority of major industries have been in decline since the 1970's with very little left within the towns. However, Trent Vale as a major provider continues through its oil, power, minerals and food production which are explored below.

Mineral Extraction

The production of aggregate minerals, which include sand and gravel, is now the largest extractive industry in Great Britain with over 200 million tonnes being extracted every year.



Trent Vale's long and complex industrial heritage continues to shape the landscape today



If properly planned, future restoration with a high proportion of wetland can have a positive impact

deposits a premium above those found elsewhere which may contain gravels made up of weaker sandstone pebbles.

The richest and most extensive deposits occur in the Trent Valley, where yields can exceed 100,000 tonnes per hectare, although 60-80,000 tonnes is more typical. The ratio of sand to gravel also varies, from near equal proportions in Trent Vale upstream of Girton to a third gravel or less elsewhere. In general high gravel yields are normally more economically attractive, thus Trent Vale sites are valuable.

The impact on the Landscape

After stripping soils and overburden, the exposed mineral can easily be excavated by dragline or hydraulic excavators, which either load direct onto dumptrucks or feed conveyors for transporting the raw mineral to the processing plant. At the plant a series of screening and washing operations grade and sort the mineral into the required sizes of sand and gravel. Waste 'fines' (i.e. fine sand, silt, clay) which on average make up between 5-10% of the deposit are pumped into silt ponds. Silt ponds are normally allowed to dry out to permit reclamation, although once full they can be re-excavated to provide extra capacity.

The high water table level at most sand and gravel quarries means that active workings have to be pumped, to enable dry extraction. Wet extraction is possible, but is less efficient, can increase pollution risk and rarely practised. Once pumping ceases following extraction, the void soon floods to form a lagoon. Whilst most sand and gravel is transported by road, Trent Vale quarries can barge large quantities of mineral to receiving wharves in Yorkshire and Humberside. In terms of land take, sand and gravel extraction is voracious and is the largest surface mineral working in the County. The gives concerns over visual impact, noise and traffic plus the river valley is also very rich in archaeological remain.

In Nottinghamshire about 50 hectares a year are worked for sand and gravel, a significant proportion of which is restored to wetland. The high water table

level and lack of suitable fill means that for most sand and gravel workings a water after-use is the only feasible option. Perpetual pumping may be technically possible, but to date has rarely proved viable. Well designed water areas can be very beneficial by creating valuable new habitats that can promote biodiversity. Sports and other amenity facilities can also be developed.

Historically, many sand and gravel quarries were restored back to original level by infilling with PFA. However, the availability of PFA has decreased dramatically in recent years and therefore restoration to water is often the only available option. Tighter pollution controls means that other materials, such as commercial, domestic and industrial waste, cannot be used for infilling sand and gravel quarries. Inert waste is suitable, but targets to re-use or recycle construction wastes to provide secondary aggregate also means that less of this waste is available.



If properly planned, future restoration with a high proportion of wetland can have a positive impact. Today careful consideration is given to ensure that future restoration provides an improved landscape for wildlife and people. This has not always been the case and some areas have already seen substantial changes with villages being encircled by water to varying degrees. In these areas cumulative impact is becoming a major issue and further development is unlikely to be acceptable.

Through close working between companies, local communities and organisations like the Wildlife Trusts and RSPB, restoration plans are developed which provide a positive mix of agricultural land, wetland areas and lakes.

Oil Production

The East Midlands oil province comprises about 65% of the UK's onshore oil production, due to a series of major Carboniferous (term for producing or containing carbon or coal) rift basins, within which sequences containing important source and reservoir rocks were deposited during Namurian and Westphalian (late Carboniferous) times (circa 300 million years ago). Due to being subjected to only minor faulting in later times, the hydrocarbon accumulations have not been greatly disturbed. Early exploration led to the oil discovery at Kelham in the 1920s, after which exploration continued into the 1930s as the need to ensure oil supplies during the Second World War grew. In June 1939 BP discovered the Eakring oilfield, confirming the East Midlands as a major oil province.

StarEnergy's Gainsborough / Beekingham oil field in the East Midlands has been producing since 1959. There are some 29 producing wells. The landscape impact is less visible with oil production as the wells are often well hidden amongst trees and pipelines are laid underground.

Power Production

There are three power station sites within Trent Vale:

- West Burton Power Station - West Burton is a 2,000MW coal-fired power station that was commissioned in 1967. It stands on a 410 acre site which includes the West Burton Discovery Centre, operated by Groundwork Trust. The Centre enables groups to explore some of the wide variety of historical, natural, environmental and geographical features on the site including the remains of an Anglo Saxon village, the crash site of a Stirling Bomber and

the 'Cheese House', once home to a one armed reed cutter (one of the largest reed beds in the region still exists).

- Cottam Cottam is a 2,000 MW coal-fired power station. Within the 620 acre site EDF Energy, in partnership with the Nottinghamshire Wildlife Trust, has developed the former ash lagoons into a Nature Reserve. These are now a haven for over 180 bird species and other wildlife, so that Cottam is now the 5th most important wildfowl site in Nottinghamshire
- High Marnham - opened in 1959 as a 1,000 MW coal-fired power station. It closed in 2003. The future of the site is still unclear but there is the possibility that a new power station will be developed on the site. There is a fourth site on the southern edge of the Trent Vale boundary at Staythorpe. This site has been disused for a number of years but there are potential plans to build a new power station on the site. If this site and High Marnham are redeveloped as new power stations this will have the potential for Trent Vale to provide in excess of 10% of the UK's total power capacity.

These sites were originally chosen because of their proximity to the major coalfields of Nottinghamshire, Derbyshire and Yorkshire and availability of a plentiful supply of water from the river.

The impact that the power stations, and associated transmission lines, have on the landscape is inescapable. The dichotomy of Trent Vale is demonstrated once again by the presence of the power stations; it is rare within Trent Vale for there to be a view which doesn't contain a cooling tower or pylon which impacts on its "tranquillity value", according to the Campaign for the Protection of Rural England (see www.cpre.org.uk), and the historic and on-going impact on the local and global scales of emissions and pollutants have been well documented. Whilst at the same time these sites have provided opportunities to preserve some key heritage features, continue to provide investment

for conservation, learning and employment and create protected natural habitats.



Trent Vale's position as a powerhouse of the UK is set for several decades, and with the exploration for sustainable energy sources continuing it may have a future long beyond this. As discussed previously willow is being grown and utilised within the region for production of domestic heat but also for power production, there is also consideration being given to the potential for wind and water power (from the tidal Trent) in the future. In 2001, Nottinghamshire's Agenda 21 Forum stated that "Those technologies likely to be highlighted include the solar, waste and water resources which are most prevalent in the county, together with the potential for energy crops in appropriate areas". All of these sustainable energy sources would have significant impacts on the landscape of Trent Vale.

Trent Vale's position as a powerhouse of the UK is set for several decades

Willow Growing and Manufacture

".... The valley of the Trent and its tributaries is the most important district in England for both osier growing and basket making, not only for quality of output, but also quality of rods." Agricultural Research Institute, 1926

Today there is little remaining of this industry that once employed thousands and covered more than a thousand acres (1880's), even by the mid 1940's the decline can be seen with records showing a little over 150 acres in Nottinghamshire.

In 1891 there were 820 basket makers registered in Nottinghamshire and Lincolnshire ("A Basketful" Rodney Cousins 2007), in addition to this will be the farm workers and seasonal labourers needed to grow and harvest the willow. By 1964 the last basket making factories in the region had closed and there were only a handful of individuals continuing to utilise their traditional skills.

Newark and Nottingham were central in the manufacturing of willow making a vast variety of baskets, chairs, prams and Marshall's of Sutton on Trent were pioneers in a process called "buffing". Buffed willow is now what the majority of willow products are made of.

The process keeps the willows 'live' by keeping them regularly watered and the stored willows produce a golden brown rod when stripped.

Initially it was thought that the colouration was due to the "natural" way in which the workers at Marshall's kept the willow watered. As demand accelerated additional supplies of the natural additive were required and local households got involved in a lucrative trade. However, it was later discovered that the colouration is provided by a natural dye in the willow skin which enabled wider adoption of the process.



Willow is starting to have renaissance in the 21st century. It is being grown within Trent Vale once again in significant amounts as a biomass resource. The trend for the use of willow in the garden and for people to live in a more sustainable way is leading to viable business options once again in the growing and manufacture of willow.

Agriculture

The historical land use and settlement in this area has been strongly influenced by the river Trent and this pattern is still evident today. Farming plays an irreplaceable role with farmsteads usually located on higher ground, often in association with villages. Around these settlements, small fields and orchards were the norm, but further away larger fields were present in an attractive mosaic of grassland and arable.

In recent years this pattern has changed with increasing arable land at the expense of grasslands, biodiversity and historical features. Similarly pressure around villages has reduced the number of traditional orchards, with those that remain at risk of abandonment.

Pockets of important grassland still survive, for example on the Holmes (commons) but, by-and-large, farms are dominated by autumn sown winter wheat and a break crop - normally oilseed rape. This uniformity of cropping has all but eliminated the breeding lapwing and other once-common species. Intensive arable production has also encouraged a reduction in water table levels, leading to further biological loss, and damage to irreplaceable underground archaeological remains.

The Trent valley has always been used quite densely by ancient cultures and a wealth of settlement patterns and remains lie close to the soil surface, surviving most intactly in grassland. The landscape corridor is also adversely affected by large scale drainage as the character is lost and riparian habitats become scarce, further impacting on biodiversity and culture.

"The biggest risk to the landscape character and remaining areas of high environmental and historical value is changes taking place in agriculture, especially the demise of traditional mixed farming and pastoral systems. Grassland no longer provides sufficient return when compared to arable production, and this will continue to cause further losses of historical and environmental features. To a degree this can be addressed by various methods of incentive available to farmers but unfortunately the complexities of the present Higher Level Scheme, misconceptions, or uninformed views mean that the easier options of simplification and arable production are commonly embraced to the detriment of the area's character and environment."

Lincolnshire Farming and Wildlife Advisory Group

The historic land use and settlement in this area has been strongly influenced by the river

There are other pressures on the environment from development and uninformed new residents; who frequently have little or no knowledge of the historical and cultural value of the area. This often leads to environmental damage through no reason other than lack of appropriate knowledge. Examples include ploughing of ancient or species rich grassland; bark-stripping of parkland, orchard and hedgerow trees by horses; and replacement of enclosure hedgerows with exotic species.

Further negative impacts include inappropriate excavations of ponds on archaeological sites, unsightly mounding of spoil from this work and damage or loss of biodiversity by introducing invasive aquatic plants that spread and replace native vegetation. This leads to decline and often local extinction of species like the protected great crested newt that cannot tolerate a radically modified environment, not only of the pond but changes to associated features such as grassland and scrub where it spends much of the year.



Major changes to agricultural support in the last decade or two have combined with ever diminishing returns to significantly alter the face of farming and the financial viability of many traditional holdings. This economic pressure has driven farmers to change how they operate, many choosing to simplify their enterprises. This leads to reduced biodiversity and risk to, or loss of, historical remains, especially

where cultivation is introduced on former grassland. In recognizing this, the government, through agri-environment schemes such as the Higher Level Scheme (HLS), has provided incentives to landowners to maintain and protect the landscape.

However, both the HLS and other influences have limitations or other restricting factors in general, and Trent Vale in particular:

- Lack of confidence - consultation has shown that farming has lost confidence in DEFRA due to the ongoing problems with the Single Farm Payment and lack of funds available for Agri-environment Schemes. They are especially worried about committing land to environmental management where the site may become subject to restricted practices but in the future have its support retracted or abated
- Decline in Livestock systems - livestock enterprises associated with traditional pastoral systems such as grazing and hay meadows are no longer economic and neither is small scale dairy production. This brings with it an ever-increasing risk of grassland loss; in turn this impacts on the environment as a whole. Poor returns have also reduced reinvestment in farm infrastructure that supports livestock - resulting in poor or broken fencing, handling systems, livestock housing and machinery. This is made worse by planning opportunities to convert traditional cowsheds and barns around the home yard
- Biomass production - the recent growth of energy crops is an important diversification but its potential impact on the landscape and biodiversity has yet to be evaluated. There is a risk that valuable sites, such as grassland, could be lost
- Land tenure - many farmers are tenants who also need the support of their landowner to enter into agri-environment schemes. There is a need to engage landowners as well as the working tenant to maximise scheme uptake.

- Fragmentation - as grasslands become isolated their economic viability becomes even more fragile due to the needs to tend stock at a distance. Abandonment and conversion is the common solution but with advice and other assistance such as the use of local volunteers from the community, it is often possible to continue with the traditional form of management with great benefits to the environment.
- Funding - a restriction to HLS uptake is its current inability to fund those infrastructure improvements that make stock management and handling in the modern day achievable. Examples include old traditional yards where sensitive changes need to be made to meet health and safety or stock welfare requirements, or improvements to hedges/fencing/gates to prevent cattle straying onto busy roads or into villages where open gardens are the norm. Other examples important to the character and history of the area are traditional buildings and other structures which fall out of the reach of HLS. This is because they are frequently on farms not able to enter HLS or are part of a site no longer a working farm but nevertheless an intrinsic element of the landscape.

*Important
to the
character
and
history
of the
area*

Communications and Transport in the 21st Century

Waterways Network

With Trent Vale the River Trent provides the major waterway, with links to the Fossdyke Canal at Torksey and to the Chesterfield Canal at West Stockwith.

Whilst the majority of the waterways network within the region is used for leisure craft, the Trent still has operating freight companies. These are primarily involved in the removal of gravel from the region. The river freight will continue for the foreseeable future as it is a requirement of the operating licences from the mineral companies that a percentage of material is moved via the river.

The waterways network offers a substantial heritage asset for the country



The waterways network offers a substantial heritage asset for the country. Nationally rivers and canals attract millions of visitors, spending over £1.5 billion annually, these days more people use the waterways than ever before, including walkers, naturalists, anglers, cyclists, joggers and pub-goers using the towpaths, watching the boats or just enjoying the waterside environment. The figures collected for footfall traffic and numbers of boats through the locks within the region are shown in the table below, and illustrate the popularity of the river and riverside.

	<i>Boat Numbers (2005)</i>	<i>Footfall (2005)</i>
Newark Town Lock	4,843	307,877
Cromwell Lock	3,575	n/a
Torksey Lock	2,946	60,112
West Stockwith Lock	1,241	22,005

The figure for boat numbers reduce from Newark as the river is tidal from Cromwell and presents some challenges to the leisure boater and thus reduce the popularity of this stretch of the river. However, with pressures increasing elsewhere on the network the opportunities for the river and Chesterfield Canal, which can only be accessed via the Trent at West Stockwith, are increasing.

In 2000, DEFRA stated that "The Government wants to promote the inland waterways, encouraging a modern, integrated and sustainable approach to their use. We want to protect and conserve an important part of our national heritage. At the same time, we want to maximise the opportunities the waterways offer for leisure and recreation; as a catalyst for urban and rural regeneration; for education; and for freight transport. We want to encourage innovative uses such as water transfer and telecommunications."

Road Links

The Trent Vale region represents a major east-west link - connecting Lincolnshire with the North of England. The Dunham on Trent toll bridge has almost 3 million crossings per year, which when added with the flow that crosses at Newark and Gainsborough it is apparent that many millions pass through the region each year. There are also important North-South connections via the A1.

Within the region itself driving north to south on the East side is relatively straightforward as the A156/A1133 runs fairly true to the river from Newark to Gainsborough, and is a major landscape feature. Most of the more recently developed settlements are located on or near to this road, bypassing many original village centres which tend to be located closer to the river. Narrow country lanes often link the older parts of the villages to the riverside, particularly where there are historic ferry sites. However, on the West side travel is slightly more challenging, moving in a more random pattern between the villages, following minor roads and, to gain access to the smaller villages, narrow country lanes with hedgerows on both sides.

Rail, Bus and Cycle Routes

Newark has two railway stations - Newark Castle which offers connections to nearby Lincoln and Nottingham, plus Newark Northgate which offers fast connections south to London and north to Hull, Leeds and York. There is no direct link between Newark and Gainsborough, travellers need to journey via Lincoln.

Gainsborough also has two railway stations - Gainsborough Central and Gainsborough Lea Road. In the Office of Railway Regulation report 2004/05 it stated that only 21 fare paying people boarded trains at Gainsborough Central making it the least busy station in the UK, although this might have something to do with the fact that it only opens on Saturdays.

There are parts of Newark and Gainsborough which are on national cycle routes but there is no designated connection between the two towns. Locally there are a number of advertised "rural rides" routes which offer cyclist some interesting circular routes. Appendix 7 illustrates some of the maps that are produced by the local authorities.

Travelling locally by bus in Trent Vale is typical of many rural areas; a limited number of services per day from local villages to the local town and, with the exception of town routes, there are little services which operate on a Sunday. Travelling between Newark and Gainsborough on the east side of the river requires travelling via Lincoln and on the west side via Retford.

There is little connectivity between public transportation services in the Trent Vale area and no information which provides information about rights of way, cycle paths, public transport and local amenities.



7. Modern Perceptions of Trent Vale

The majority of previous work conducted within the region has had little focus on gathering the views of the people who live and work within the Trent Vale landscape.

When undertaking the consultation on the development of the Landscape Partnership Scheme and the production of the LCA it soon became apparent that the region suffers from dual personality.

Trent Vale Dichotomy

The result of the work undertaken during the consultation stage (see Appendix 8) demonstrates that whether discussing the river, the wider landscape or heritage features, opposing views are always presented

The river is considered by some as:

"A powerful natural resource"
"A natural corridor"

By others as:

"Dangerous, muddy and boring"
"Impossible to find - you can't see it because of the flood banks"

The landscape as:

"A peaceful place, where there are still many places that have not changed for generations"
"A place decimated by industry, you can't turn without seeing a cooling tower or pylon, or falling over a gravel pit". Even when discussing what people consider to be the heritage value of Trent Vale there is a clear division of views, albeit based on where people live, with those from Newark and surrounding areas listing heritage in terms of specific buildings and places, whilst those from Gainsborough tend to

focus on more the sense of community, the people and the landscape

Within the smaller settlements, the responses are a combination of the above with a clear focus on heritage being what the local community hold as memories, as well as specific buildings and features with the villages, farms and landscapes.

The response to surveys carried out by TVLP demonstrated a very positive recognition of the importance of the natural vale and the countryside:

- 73% rated walking within Trent Vale as of very high/high importance to them and 88% rated countryside/village lanes and tracks as an important landscape feature
- 90% of people stated that the River Trent is an important landscape feature and 88% that riverside access is important
- 93% rated the wildlife of Trent Vale as a key landscape feature

Disconnection with the Landscape

Although the results above demonstrated that people generally rate the river as the key feature of the landscape, with riverside and country walks of high priority for leisure activities. Although, as one child who lives in Gainsborough was heard to

People generally rate the river as the key feature of the landscape

comment that they didn't realise there was a river in Gainsborough, the connection with the river is not consistent or even strong across the whole community.



Within certain sections of the community the disconnection from the river mirrors a wider disconnection with the landscape.

Both Gainsborough and Newark were built on industry and trade, the reasons for the settlements developing where they have are due to the landscape and the river which supported the industries of the towns. For recent generations as the industries have declined and changed, the sense of place within the landscape has also declined.

The disconnection from the river mirrors a wider disconnection with the landscape

Whilst Newark has gone a long way to re-identify itself and recreate its position within a local and regional context, Gainsborough is still trying to achieve this. Although the recent regeneration projects and the major initiative "Gainsborough Regained" are making significant progress.

The poor economic and social conditions in some areas have contributed to this disconnection, with some of the symptoms seen through comments made during consultation work, with antisocial behaviour, graffiti, petty vandalism and littering high on the lists of what people dislike about where they live. In addition, comments like "lack of respect" are consistently made. These issues and this disconnection with the landscape doesn't just lie within the urban communities, there are similar problems within the rural villages within Trent Vale.

Although some of the villages are relatively affluent, this can mask the general feeling of isolation and loss of identity. Increasingly there are fewer people living in the villages who earn their living from the local landscape, there are far fewer local shops and the lack of local community facilities, together with the influence of the major cities of Lincoln and Nottingham mean that increasingly people travel away from their local environment for their leisure activities, even getting in cars and driving 20 miles to access a country park because of a lack of awareness of what is available locally. These issues have also contributed to the loss of activities that would normally bring communities together - fairs, fetes and carnivals, community theatre, local markets etc.

Whilst none of these issues are unique to Trent Vale the loss of identity and place within a regional context and lack of awareness of the heritage value within the local population all contribute to what is becoming a significant problem for the area.

8. Trent Vale Landscape Character Areas

In a broad landscape assessment, the Trent Vale is usually considered to be one landscape character area, and this is reflected in:

- the regional LCA's conducted by West Lindsey District Council and Nottinghamshire County Council
- Countryside Agency's "Joint Character Area 48"
- English Nature's "Natural Area 33"
- Environment Agency's "River Trent Landscape Assessment"

These broad landscape assessments reflect the principal contrasts in scale, geology, relief, land cover and settlement over a large area, but represent an oversimplified view of Trent Vale. This landscape assessment provides a more detailed view which considers the land use, key visual characteristics (diversity and form of patterns of fields and settlements), the balance of the different landscape elements within each area and the attitudes and perceptions of the people who live, work and visit the area. One of the datasets that demonstrates that there are differences in land type and character in Trent Vale is Natural England's Landscape Typology, the map in appendix 8 illustrates the different character areas.

Following a detailed review of the available data and published reports, and detailed consultation with the public and many organisations active within the Trent Vale, the Partnership has identified four landscape character types:

Type One - Vale Market Towns

- Historic market towns which have been focal points for the vale for centuries and continue to expand as residential and service centres. They are largely urban areas whose presence has

significantly altered the river corridor locally and influenced the development of the surrounding landscape.

Type Two - Vale Meadowlands

- A flat, low lying riparian landscape characterised by a pattern of small and medium sized alluvial meadows, grazing animals and remnant wetland vegetation. The areas tend to be narrow and flanking the meandering river.

Type Three - Industrial/Restored Vale

- A diverse range of highly modified landscapes created by mineral extraction and power production.

Type Four - Vale Farmlands

- A flat low-lying agricultural landscape characterised by a traditional pattern of hedged fields and nucleated village settlements.

Not all of these landscape types represent one discreet area of the Trent Vale region, some are dispersed. The map in Appendix 9 shows the dispersion of the Character Areas throughout the Trent Vale region.

Type One - Vale Market Towns

Historic market towns that have been focal points for the vale for centuries and continue to expand as residential and service centres. They are largely urban areas whose presence has significantly altered the river corridor locally and influenced the development of the surrounding landscape.

The map shows the main concentrations of Historic Market Towns landscape areas are centered on Newark and Gainsborough. There are some key heritage features that are highly visible, such as Newark Castle and Gainsborough Hall, and therefore provide a focus for heritage related activities. Both towns offer an attractive mix of architecture centered on squares where traditional markets are

still held. Newark still retains a large weekly livestock market which attracts farmers from throughout Lincolnshire and Nottinghamshire. There are also some key historical periods which provide a basis for local identity and tourism related projects, for example the Civil War for Newark and Pilgrim Fathers for Gainsborough.



Within both areas the key developments in recent years have focussed on the regeneration of the post-industrial landscape for leisure and retail uses, and both towns have benefited from heavy investment in the riverside areas. Newark and Gainsborough are earmarked for significant increases in population over the next few years as their good communications links and proximity to Lincoln and Nottingham provides opportunities for more affordable accommodation for commuters from these cities and beyond.



This definition covers the "urban" areas of Trent Vale and as such combines the traditional concept of a built-up area, with the functional area and population density approaches.

This effectively means an area which is built-up with a service core with a sufficient number and variety of shops and services, including a market, to make it recognisably urban in character.

It has administrative, commercial, educational, entertainment and other social and civic functions and evidence of being historically well established. A local network of roads and other means of transport are focused on the area, and it draws people for services and employment from surrounding areas.

Within Trent Vale the Historic Market Town definition of an urban area also embraces nearby free-standing settlements outside the urban area, together with tracts of surrounding countryside, where the population in these surrounding areas depends on the urban centre for services and employment.

Around Newark, villages such as Farndon and Winthorpe are developing as suburbs of the main town. The characteristics of their development and population are more in-keeping with the town with which they are associated.

Around Gainsborough the landscape area also encompasses the villages of Marton and Lea. Nearby Beckingham village, although separated from

Historic market towns that have been the focal points for the Vale for centuries

Gainsborough by the river and Beckingham marshes, exhibits all the key characteristics for it to be included within the Historic Market Towns landscape area.

People's Perceptions

These areas have suffered since the 1970's due to the general decline in industry. The local population's have become disconnected from the surrounding landscape and thus place a lower value on its heritage assets. Issues of anti-social behaviour, lack of facilities for all age groups and lack of green spaces tend to feature most in negative responses from local people.

The loss of industrial identity and the growth of the towns in response to external influences provide real concern amongst the population that the individual characteristics of the towns could be lost, resulting in them merely acting as satellites of their larger neighbours. However, this is also balanced by the view that increasing development will lead to the provision of new facilities.

Newark has maintained its position as an attractive market town, although there are still areas of high deprivation amongst the suburban landscape. Gainsborough has felt the impact of the industrial decline more than Newark and its loss of identity is highlighted in the vision of the "Gainsborough Regained" Masterplan for Gainsborough which is currently being prepared "In the last century Gainsborough lost its way,

but with the help of the community the Masterplan will restore its lost character, reclaim its identity, and repair the heart of the town" (more detailed analysis of people's perceptions is in Appendix 7).

Type Two - Vale Meadowlands

A flat, low lying riparian landscape characterised by a pattern of small and medium sized alluvial meadows, grazing animals and remnant wetland vegetation. The areas tend to be narrow and flanking the meandering river.



The character and unity of the river corridor, which would once have been in the main part Vale Meadowlands, has broken down in recent decades, largely as a result of flood protection and drainage works promoting the arable conversion of large areas of alluvial meadowland. However areas of intact meadowland have survived, they possess a peaceful,

undisturbed pastoral character with the meandering river channel (albeit primarily hidden behind flood embankment), permanent pastures, flood meadows, willow holts and grazing animals.

This gives the landscape a strong sense of place and a feeling of naturalness. Remnant patches of marginal wetland vegetation fringe the river channels in some areas, enhancing the riparian character of the vale. Historic willow holts are located at a number of points along the river; these increase diversity in the landscape and add to the strong sense of place.

The meadowlands are often defined by long hedges which now mark the boundary with the arable landscapes. Much of the area runs in a strip parallel to the river protected by floodbanks; this is particularly so downstream from Cromwell where the river becomes tidal. The raised floodbanks confine views to the river channel and exclude the surrounding landscape and disrupt visual continuity. The pasture itself is featureless except for patches of fringing riparian scrub. A typical area of intact river meadowland can be found near Sutton on Trent. These "Holme" grasslands are located on both sides of the river and have a spacious, open and treeless character.

The impact on these areas from the conversion to intensive arable of the Vale Farmlands and loss of tranquillity through the neighbouring Rural Industrial landscapes increases a sense of disunity within the landscape.

Most of the settlements are found on the outlying areas of these landscapes because of the historic risk of flooding, and they remain largely undeveloped. There are also a number of small campsites which provide facilities for anglers and visitors to these areas.

People's Perceptions

These are considered to be the "hard to find" areas of Trent Vale.

- People consider them to have high heritage value

The character and unity of the river corridor

- Accessibility is an issue - they tend to be off the main access routes to the river and hidden from view by the flood embankments and surrounding developments. When people are presented with images of the Vale Meadowlands landscape and the Vale Farmlands the majority of people consider the Meadowlands to be the traditional habitat but associate more of Trent Vale with the Farmlands.
- For those interested in nature and wildlife they provide the true traditional Trent Vale habitats. Because the areas are small and dispersed it is difficult for people to appreciate them fully, the restoration of large scale areas like the Beckingham Marshes project being developed by the RSPB, or linking together existing sites like the Langford and Besthorpe reserves, together with improvements in access and information, will provide the opportunity for more people to access, understand and appreciate this landscape (more detailed analysis of people's perceptions is in Appendix 7)

Type Three - Industrial/Restored Vale

A diverse range of highly modified landscapes created by minerals extraction and power production.

These are areas which have been, or are planned to be, fundamentally affected through the process of sand and gravel extraction or the location of power stations. No common landscape structure or sense of harmony can be distinguished within these disturbed and often degraded landscapes.

Landscape Impact

The impact of these areas ripples outwards from the actual sites through the domination of the views and the physical infrastructure and support required by the industries, fundamentality affecting the "tranquillity" of the countryside. The power station facilities and their infrastructure demonstrate their impact for many miles. However, the degree to which mineral extraction affects the quality of the landscape varies from area to area with location, visibility of plant and

equipment and screening moderating their impact.

Mineral extraction fundamentally changes the nature of the landscape in which it operates, whereas power production, with the exception of the footprint of the buildings and cooling towers, is "overlaid" on the landscape. There are two key industrial areas within Trent Vale:

- north of Newark around Collingham, Besthorpe and Girton and High Marnham
- south west of Gainsborough around West Burton, Sturton and Cottam

Restoration of these Industrialised landscapes has been to a range of different after-uses including areas of open water, mature wetland habitats, formalised recreation and agriculture. From the 1940s onwards there has been a continuous process of extraction and restoration within the area and this will continue for at least the next 20+ years. This process has resulted in the development of a wide range of landscapes, at different stages of maturity, with the changing policies and priorities for restoration over the years contributing to the number and variety of landscapes found. The restored landscape within the Industrialised Vale includes:

- Flooded workings that are unrestored, partially restored or newly restored
- Mature and semi-mature wetland areas around old flooded workings. Vegetation has often regenerated naturally. A range of habitats has developed including damp woodland and trees, scrub, reedbeds, marshland and other grassland communities. The result has been a softening and "naturalisation" of the formerly artificial appearance.
- Areas that have been restored to recreational uses including lakes for sailing, rowing and angling
- Areas restored to managed nature reserves providing a range of high priority habitats

- Areas restored to agriculture - primarily in the past as part of pulverised fuel ash filling schemes. Some restored areas have been poorly integrated with surrounding landscapes, with little attempt at natural habitat or hedgerow restoration and tree planting.

From the 1940's there has been a continuous process of extraction and restoration



People's Perceptions

Power Stations are obviously criticised for the impact they have on the landscape, during the consultation on this document a surprisingly high percentage of people placed a positive heritage value on them. They are a symbol of the Trent's previous power and place within the heart of the country. There is recognition that their impact on the "attractiveness" of the countryside of Trent Vale to visitors is significant. Although equally that they add a different dimension to what otherwise is, on a large scale, considered by some people as a "featureless" landscape.

With regard to the mineral extraction sites, these areas divide opinions, whilst some value them for their creation of new land areas; others consider that they provide a "false" landscape. The restored sites are some of the most popular areas for people to visit, although this may be due to their accessibility when compared to other areas. Whatever the opinion the consensus is that they will provide the region with, over the next 20 years, a large area of wetland habitats with regional and national importance (more detailed analysis of people's perceptions is in Appendix 7).

A symbol of the Trent's previous power and a place within the heart of the country

Type Four - Vale Farmlands

A flat low-lying agricultural landscape characterised by a traditional pattern of hedged fields and nucleated village settlements.

Large areas of the former River Meadowlands have now been converted to arable land. This encroaches to the river channel edges in some areas disrupting the unity of the river corridor. Away from the river the landscape is defined by medium to large scale regular and semi-irregular field patterns. Field rationalisation has led to the loss of hedgerows in many areas, producing more open landscapes with a very weak riparian character. The main area of Vale Farmlands is on the western side of the river where the river terrace extends for a longer distance.

There are some very small areas of deciduous woodland and willow holts remaining but ash, oak and willow hedgerow trees are the most important components of the overall tree cover. These enhance the sense of enclosure and allow some filtered views.

There has been a strong tradition of cropping on the high quality terrace soils. This tradition has continued, with the terraces now dominated by intensive arable production, typically within a regular pattern of medium to large fields. This pattern is now highly variable due to field rationalisation. Where hedgerows are intact and well managed, summer views are rarely of any distance, the level landform and hedgerows helping to restrict longer distance views.



More open views across the landscape are experienced in many areas, due to a break down in the field pattern, with field edges defined by ditches and roads, and remnant hedgerows often dominated by growing crops.

Where the field pattern is still well defined the occurrence of hedgerow trees enhances the enclosed nature of the landscape and gives structure and form. Willow pollards are a special feature found within increasingly few parts of the area, mature horse chestnut trees are found in many parts of the landscape, especially in roadside hedges close to settlements. Hedgerows are mainly strong, trimmed, and hawthorn, becoming low and gappy on the margins of the more degraded areas. Although hedgerows are dominated by hawthorn, mixed species hedges are found locally throughout.

Settlements are mainly nucleated villages and farmsteads located on the dry sites just above the level of the flood plain, with traditional red brick and pantile roofed buildings. However, modern housing styles have introduced a suburban character to certain of the larger villages. Like other areas of Trent Vale there are a number of small campsites providing for visitors to the area. Following the change in agricultural practices the conversion of old farm buildings to residential dwellings or small commercial developments is now widespread. This brings a new dimension to the economic and social structure of the countryside.

Narrow hedged lanes link many of the settlements. These run across the terraces to the river in a number of places, often to historic crossing places. The river itself is typically not a dominant feature with the floodbanks and hedgerows shielding it from view.

People's Perceptions

This area represents what the majority of people consider to be the traditional countryside of Trent Vale - the country lanes, small villages and arable fields. For those who visit the rural areas of Trent Vale it is the enjoyment of the sense of an undeveloped landscape that offers real value. Away from main roads the peacefulness of the landscape filters through and people comment how quickly they adjust to the

presence of the cooling towers of the power stations (or cloud making machines as described by local children). They, for the most part, have a silent dominance.

The Vale Farmlands is the rural landscape of Trent Vale that most people interact with and whilst not offering the variety of habitats and wildlife that the meadowlands provide, it still presents opportunities for people to connect with an "older age". Village walks and wandering along riverside paths, negotiating clapper gates and resting at riverside pubs is one of the most popular pastimes for people of Trent Vale (more detailed analysis of people's perceptions is in Appendix 6).

9. Trent Vale - The Potential

Within the European Landscape Convention it states that the concern for sustainable development makes landscape an essential consideration in striking a balance between preserving the natural and cultural heritage as a reflection of identity and diversity, and using it as an economic resource capable of generating employment in the context of the boom in sustainable tourism. The preamble to the convention mentions the desire of Council of Europe member states to "achieve sustainable development based on a balanced and harmonious relationship between social needs, economic activity and the environment".

What Trent Vale presents is the potential to develop over the next 20 years a sustainable landscape which offers significant regional and national wildlife value and helps provide a community with an identity and sense of place, locally developed leisure opportunities, protected and promoted heritage assets and increased economic activity.

Landscape change can be achieved through a variety of ways, those already taking place in Trent Vale include:

- The continuation of restoration of mineral extraction sites will significantly increase (by several hundred hectares) the wetland areas

- In a major joint programme of work, the RSPB and the Environment Agency have teamed up to create a huge area of wet grassland - potentially up to 450 hectares - at Beckingham Marshes. This low landscape with high water levels and grazed grasslands will produce the condition that would once have been traditional on Beckingham Marshes. This will become one of the RSPB's largest reserves
- An increased focus and investment in conservation and habitat creation to provide links between existing sites, particularly through working with the Wildlife Trusts and local farmers to increase the area of traditional grazing land, and with the Environment Agency exploring the potential to create new wet grassland areas.
- Continued work on improving the variety of habitats within the river and the fish passes at weirs, to help increase spawning and provide the juvenile fish with a better chance of survival.

When considered together these developments provide Trent Vale with the opportunity to become a major "natural corridor" within the midlands. This natural corridor, together with the variety of built and cultural heritage of the region, and the probable significant increase in size of the two major settlements, provides the potential package for development of local, regional and national tourism. Within the East Midlands Green Infrastructure Scoping Study 2005 it states that Greenspace that is likely to be reasonably attractive should provide all or some of the following: unspoilt countryside, interesting towns and villages, wildlife and natural habitats, archaeological heritage sites and outdoor recreation opportunities. Trent Vale has the potential to provide all of the above and has the potential to deliver it with a sustainable approach.

Barriers

There are numerous barriers to realising this potential, including:

- The need for agencies to work together particularly across administrative barriers



*Trent Vale
presents the
power to
develop*

- Persuading farmers of the opportunities that improved environmental stewardship can offer
- Developing new approaches to flood management strategies

However, key is that the public should be encouraged to take an active part in landscape management and planning, to enable it to feel it has responsibility for what happens to the landscape. If this barrier can not be overcome, and the people become reconnected with Trent Vale once again, sustainable development of the area will be impossible.

There are also some very basic barriers as identified by responses to the TVLP survey:

- 75% stated that better public transport would improve access, 43% suggested improved signs and 68% better information
- 74% asked for more parking places, 75% suggested more mooring opportunities would improve access and 48% stated that cycling routes were important in improving access

The opportunities and potential barriers facing Trent Vale are discussed in detail in the Trent Vale Landscape Strategy and the Audience Development and Access Plan produced by the Trent Vale Landscape Partnership.

Trent Vale continues to be a powerhouse for the country



10. Summary

Within Trent Vale the combination of the natural, historical and industrial characteristics provide a unique heritage area. It is an area which clearly shows, through centuries of evidence, how the fortunes of the landscape and the people who live and work upon it are intrinsically linked. However, it also demonstrates how fine the balance is within this relationship and the fact that a region can lose its identity and how communities can become disconnected from the landscape and their heritage.

Trent Vale continues to be a powerhouse for the country and it is the juxtaposition of the industrial and natural within the landscape that provides people with divided opinions on the landscape value of the area. However, it is exactly this combination of natural and industrial roles that has provided the landscape with its heritage.

It is already known that Trent Vale is an area where there will be significant areas of landscape change over the next 20 years, due to:

- continued restoration of mineral extraction sites
- growth and development of the market towns
- Beckingham marshes development by RSPB
- changing climate and how agriculture, industry and people respond
- changes in response to the review of flood risk management

These developments will present Trent Vale with considerable challenges but also many opportunities. Trent Vale still retains within its landscape and people the key features that gave it its character, although some of the aspects that once linked the communities have disappeared. The key challenge is to find ways to conserve and enhance those features which remain and utilise these to engage the local communities and to shape the landscape character and identity of Trent Vale for the future.

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