

GRANTHAM CAPACITY AND LIMITS TO GROWTH STUDY

**SOUTH KESTEVEN DISTRICT
COUNCIL**

JULY 2015

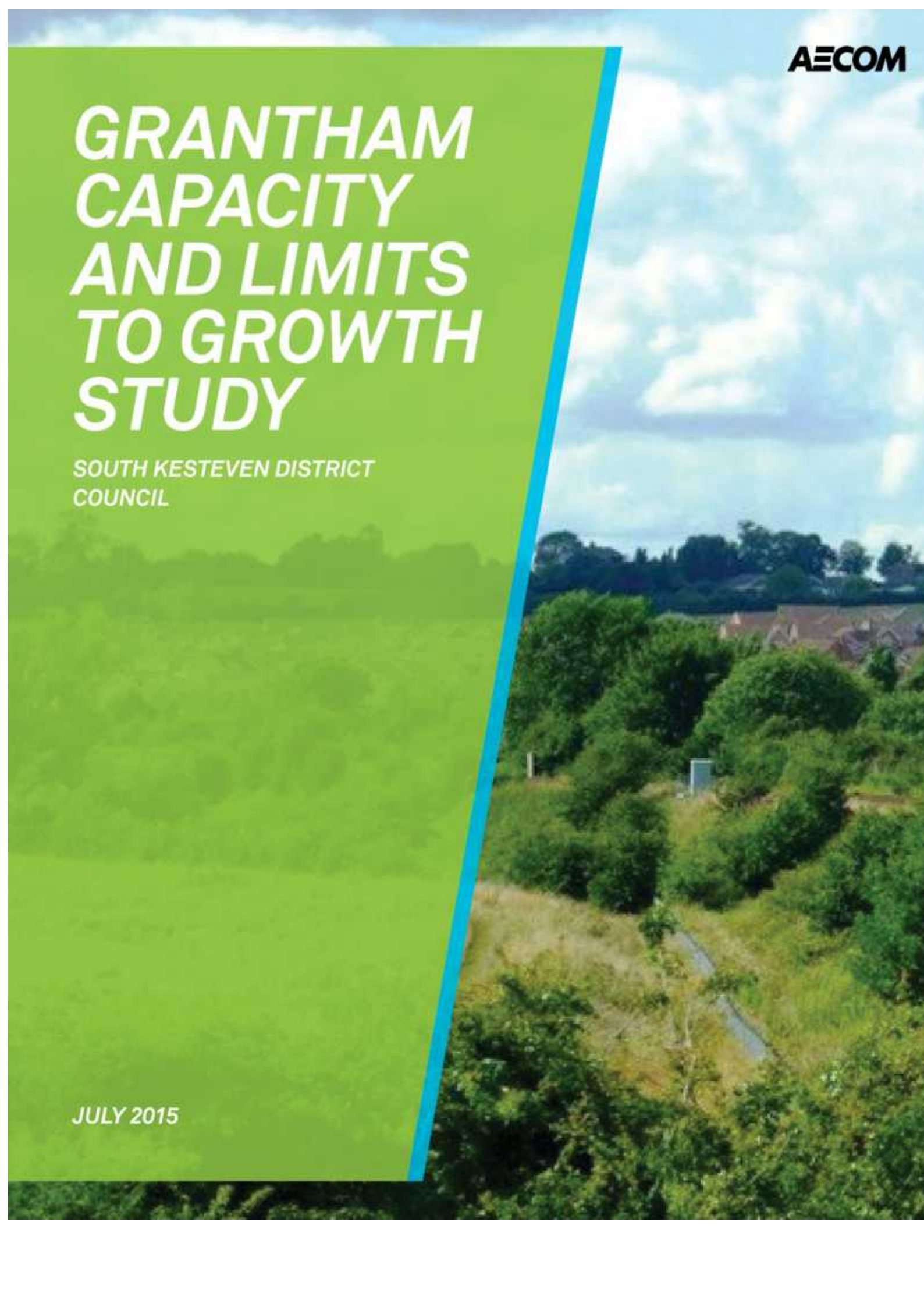


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1 Introduction

1.1 Study context

In February 2015, South Kesteven District Council (henceforth SKDC) commissioned AECOM to prepare a Capacity and Limits to Growth Study for Grantham. This is the final report of that study.

The project was commissioned in parallel with an Employment Land Review and a Retail Needs Study. The conclusions of all three studies will form part of the evidence base underpinning the emerging South Kesteven Local Plan.

All three reports use and build on the existing and extensive South Kesteven evidence base, including the draft Grantham Area Action Plan, which was progressed but not adopted. Where evidence gaps are found to exist, the existing evidence base has been supplemented with other relevant data as appropriate. Likewise, in cases where we consider the evidence base to require clarification or is considered inaccurate in any way, we have stated this and provided our reasons.

The aim of the capacity study is to determine at both a strategic and a local level the capacity for housing and employment growth at Grantham over the Local Plan period. In so doing, the study will identify and consider limits and/or constraints to that growth, as well as the potential for these constraints to be mitigated and opportunities for growth maximised.

The brief also includes a requirement to consider the viability of proposals for redevelopment of a small number of key Grantham Town Centre sites. This part of the study, produced by Savills, has been provided as a separate report: Grantham Town Centre Redevelopment Sites, Market Research and Viability Appraisals. A further viability report which considers the potential for, and viability of redevelopment of one of the employment areas, Alma Park, has been appended to the South Kesteven Employment Land Study.

This study aims to be a technical, impartial and objective exercise. In determining the suitability or otherwise of land for development, the assessment has been based on the physical characteristics of the land and on relevant local and national planning policy considerations. This is a strategic study which assesses large scale sites. Land deemed by this study not suitable for development on a large scale may have the potential to remain suitable for smaller scale development.

The project has brought together a number of specialist consultants within AECOM, including experts in town planning, heritage, the geo-environment, landscape, transport, economics and infrastructure planning. It should be noted that while the study considers a number of locations for housing and employment growth it does not necessarily follow or imply that development of some or all of these sites will take place or that development at these locations is supported by the local planning authority. Rather, this assessment provides the local planning authority with a technical evidence base to consider future options for site allocations, and to inform the development management process and subsequent decisions.

It should also be noted that the cumulative area of land considered for development in this report is likely to exceed the total required; however, all locations have been reviewed to enable SKDC to consider the most accessible and sustainable locations for growth. It was also made clear to AECOM at the start of the project that there is insufficient capacity for growth within the existing urban area, meaning the scope of the project involves the consideration of sustainable urban extensions (SUEs) on what is currently greenfield land.

The report considers transport data from a range of relevant sources but detailed transport modelling of its conclusions has not been carried out. As such, modelling the transport impacts of

developing some or all of the land recommended as suitable for development by this report is a necessary next step to help inform the Council's Site Allocations process.

Although the focus of this report is therefore on land at Grantham's periphery and beyond the urban edge, the urban sites nevertheless have a very important role to play, and in the interests of a sustainable 'brownfield first' approach, should be progressed ahead of, or in parallel with greenfield urban extensions, to deliver growth and regeneration in the town

1.2 Approach

The process by which the capacity for and limits to growth has been determined can be divided into two main phases. The first phase is a high-level assessment of 'directions for growth' around the existing urban edge, with a focus on strategic issues cutting across the boundaries of any smaller individual sites, and with assessment criteria each given a red-amber-green rating. This first phase relied mainly on a desk-based assessment.

The second phase then narrows the focus by concentrating on site-specific issues within those broad directions for growth remaining after the first phase of assessment, again applying a 'red-amber-green' rating to each criterion. The second phase was also informed by a comprehensive site visit to all locations identified.

The two Technical Appendices summarise the key national and local planning policies, as well as the local evidence base documents, both of which helped to inform the directions for growth and site-specific assessments.

Following the assessment of the suitability of key locations for growth, an assessment of capacity for development was carried out, in terms of numbers of dwellings and/or hectares of land for employment or other uses.

1.3 Consultation

This study benefited from consultation with two sets of key stakeholders. Firstly, as part of the Directions for Growth assessment, a number of national and regional stakeholders were contacted (listed in the Consultation section of Chapter 2 below) for their views on the principle of strategic growth in each of the key directions. Additionally, Historic England and AECOM both attended an Urban Panel event in Grantham during report preparation, and the conclusions of this event have informed the report.

At the same time, our site-specific work was informed by engagement with the key landowners in and around Grantham, which helped us determine the key characteristic of land availability necessary for an assessment of capacity and limits to growth to be made. All landowners and national stakeholders were engaged with on an equal basis, and the interests of any single landowner or stakeholder were not prioritised over any other.

1.4 Report structure

The subsequent chapters of this report can be summarised as follows:

- Chapter 2: Assessment of Strategic Locations sets out the Directions for Growth exercise and its results;

- Chapter 3: Assessment of Specific Locations sets out the site-specific analysis building on the results of the Chapter 3 assessment, as well as including a development viability appraisal of existing town centre and employment sites; and
- Chapter 4: Conclusions sets out the overall results of our study, including full assessment of Grantham's capacity and limits to growth following capacity testing of the all locations recommended as developable and deliverable.
- Finally, we have set out our review of the policy context and existing evidence base in two Technical Appendices.

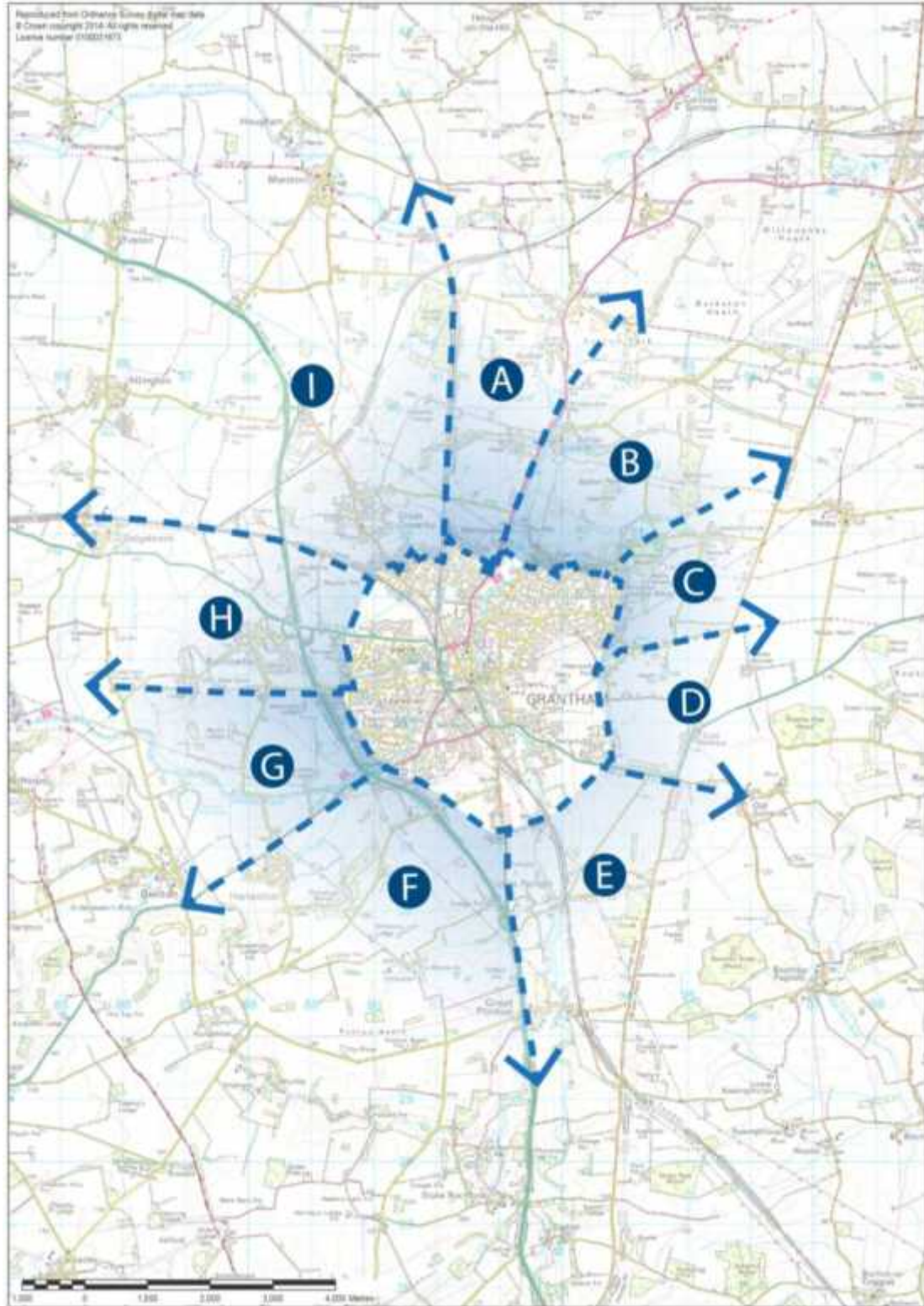
2 Assessment of strategic locations

2.1 Directions for Growth

The first task in the assessment of strategic locations was to divide the area around Grantham's urban edge into a number of directions for growth. Where appropriate, existing features on the ground, such as roads and railway lines, have been used, to form logical boundaries between each direction. An outer boundary to each direction for growth has not been defined to avoid limiting the scope of the analysis. The directions for growth areas are illustrated in **Figure 1** overleaf and they were named as follows:

- Direction A: North of Manthorpe/towards Syston;
- Direction B: Belton Park/towards Belton;
- Direction C: East of Alma Park/towards Londonthorpe;
- Direction D: East of Harrowby/towards Cold Harbour;
- Direction E: Southeast of Spittlegate/towards Little Ponton;
- Direction F: South of Spittlegate/towards Harlaxton;
- Direction G: West of Earlesfield/towards Denton;
- Direction H: West of Barrowby/towards Sedgebrook; and
- Direction I: Northwest of Great Gonerby/towards Allington.

Figure 1: Spatial Framework for Assessing Directions for Growth around Grantham



For each of the nine Directions for Growth illustrated in **Figure 1** ten criteria were selected, in consultation with SKDC, against which each Direction could be assessed for its strategic suitability for growth. The criteria are considered equal in terms of importance and are as follows:

- Environmental constraints;
- Transport and accessibility;
- Geo-environmental considerations;
- Infrastructure capacity and potential;
- Landscape and topography;
- Heritage considerations;
- Housing need;
- Regeneration potential;
- Economic development ; and
- Spatial constraints and opportunities.

Each of these criteria is discussed in more detail below.

2.2 Environmental constraints

The environmental constraints criterion covers immovable physical features and protective designations. This first criterion relies principally on GIS mapping and has the effect of 'sieving' out those areas where development would be less desirable in relative terms. The results of the environmental constraints exercise are illustrated in the map after each direction for growth summary table.

Paragraph 113 of the National Planning Policy Framework (NPPF) is relevant here. It states that *'Local planning authorities should set criteria based policies against which proposals for any development on or affecting protected wildlife or geodiversity sites or landscape areas will be judged. Distinctions should be made between the hierarchy of international, national and locally designated sites, so that protection is commensurate with their status and gives appropriate weight to their importance and the contribution that they make to wider ecological networks.'*

Based on this advice, protective environmental designations have been split into two layers 'statutory' (shown on the mapping as dark green) and 'non-statutory' (shown as light green).

The approach has been to seek to identify areas free from environmental constraints and protective designations to the greatest extent possible.

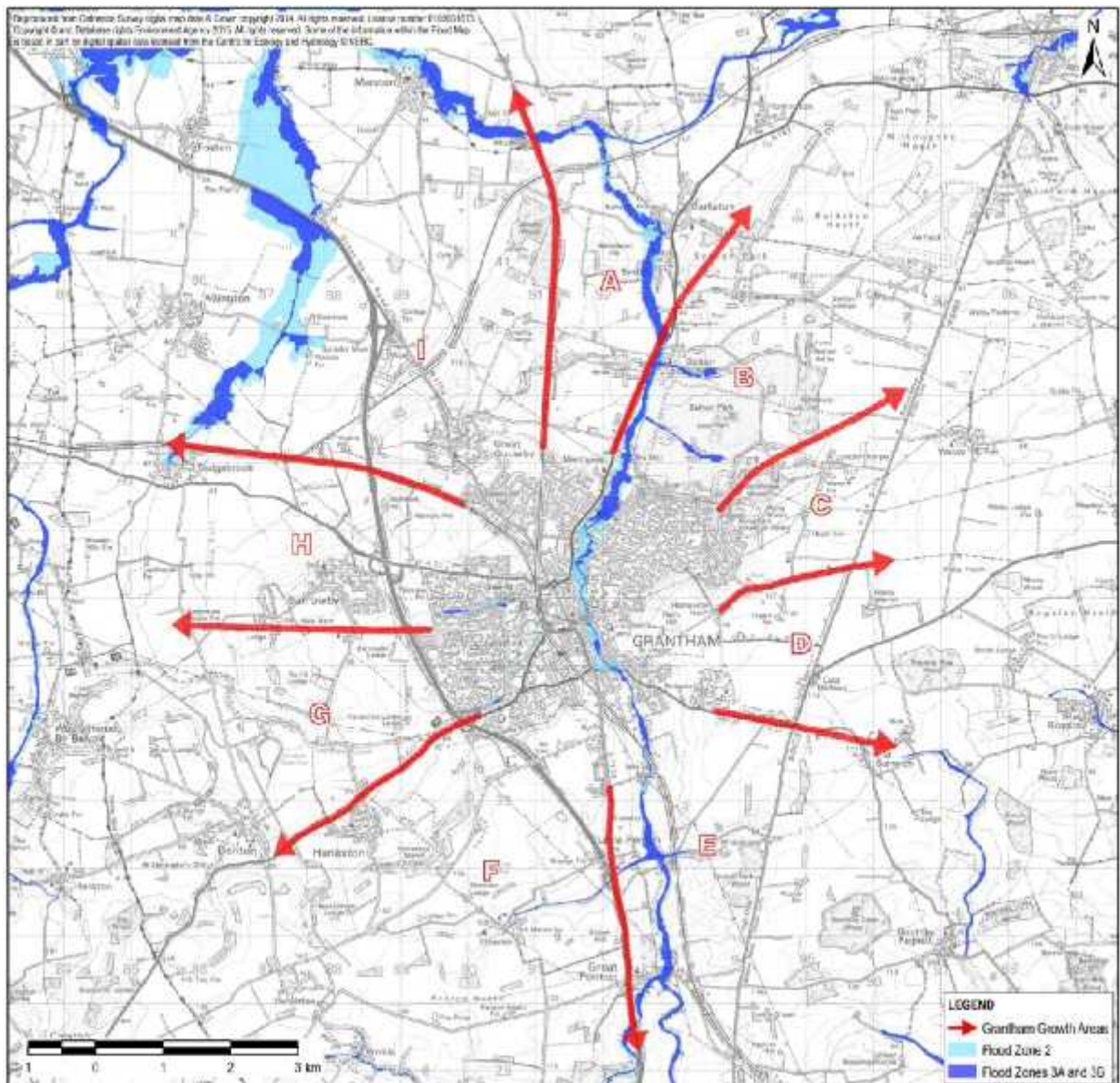
Flood risk

Paragraph 100 of the NPPF states that 'inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere.'

Figure 2 shows the extent of the flood risk areas in the study area. Zones 2 and 3 flood risk land is shown in light and dark blue respectively. Zone 1 land, in white, is designated by the Environment

Agency as having a low probability of flooding, Zone 2 a medium probability, or between 1 in 100 and 1 in 1000 year annual risk of fluvial flooding, Zone 3a has a high probability of fluvial flooding and Zone 3b is designated as functional floodplain. In line with the NPPF approach, land falling within flood zone 3 was considered as unsuitable for development and land falling within flood zone 2 was considered as suitable only where mitigation was considered a realistic option and/or development could not feasibly be redirected to land in Flood Zone 1.

Figure 2: Flood risk across the study area

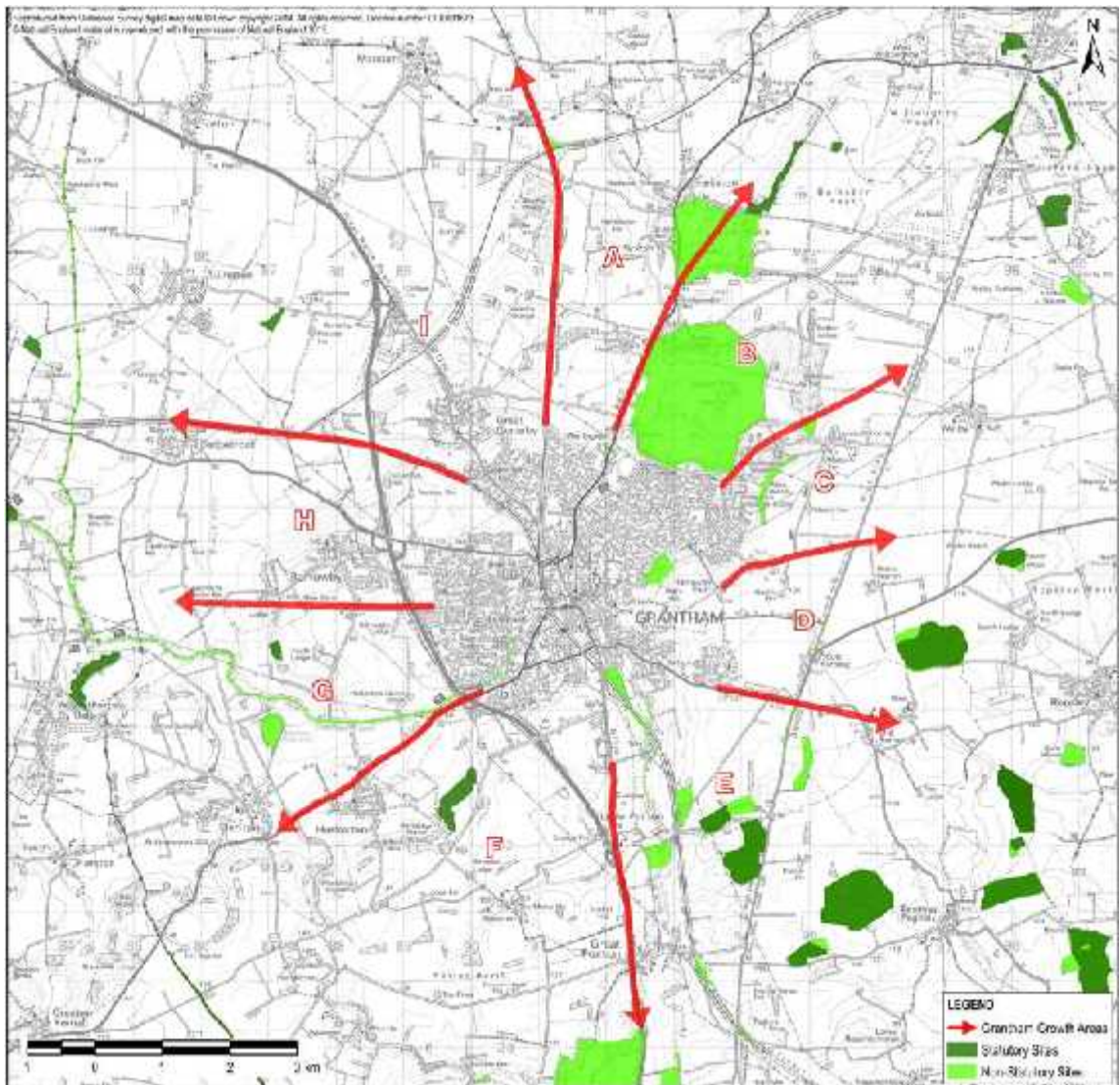


Environmental designations

Environmental designations may be divided into statutory and non-statutory designations, both shown on **Figure 3**, with the statutory designations in dark green and the non-statutory in light green. Statutory designations include Sites of Special Scientific Interest (SSSIs), National and Local Nature Reserves (NNRs and LNRs), Special Areas of Conservation (SACs), Special Protection Areas (SPAs), National Parks and Areas of Outstanding Natural Beauty (AONBs).

Non-statutory designations include national designations (for example, Ancient Woodland) and local designations (in the case of Grantham, Sites of Wildlife Interest).

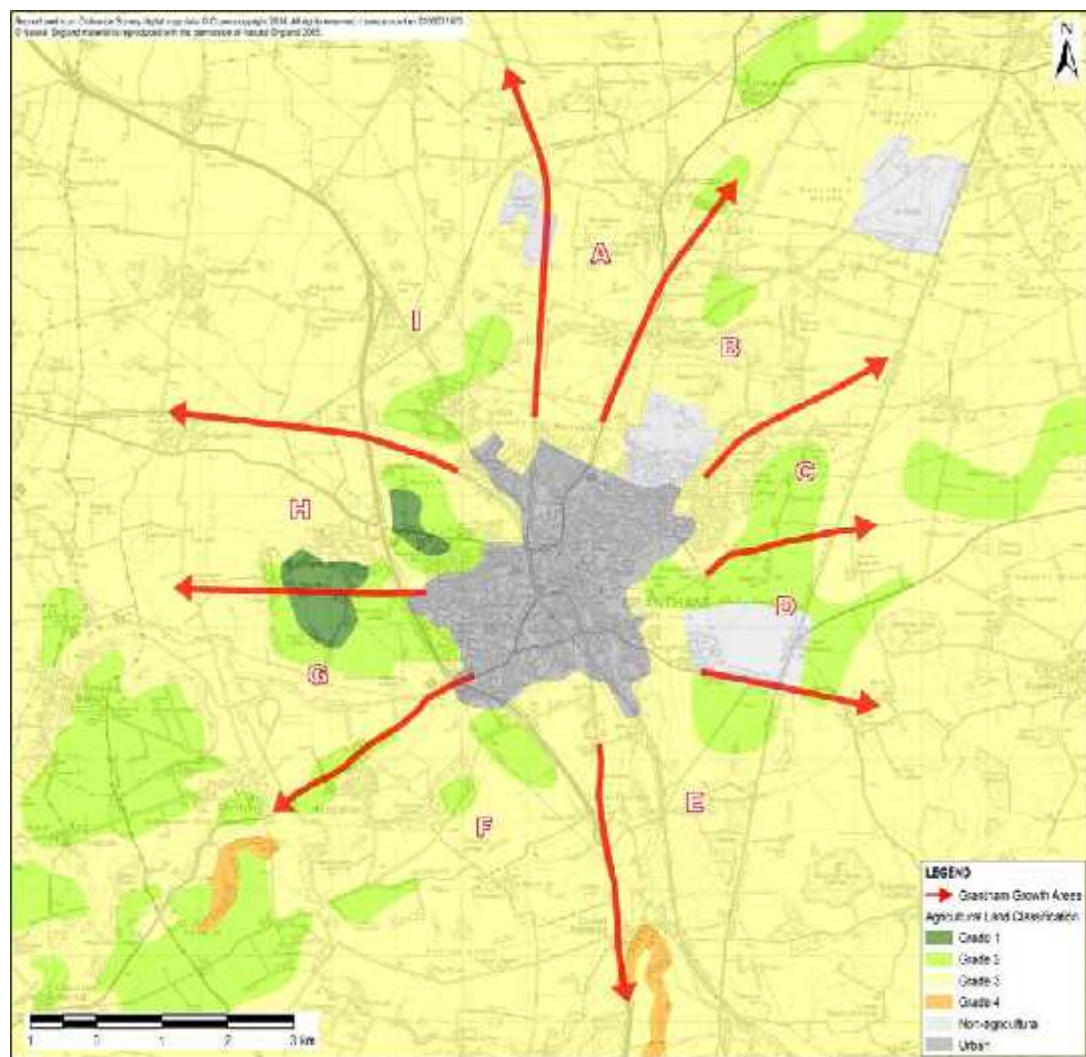
Figure 3: Environmental designations across the study area



Agricultural land

The study area includes three grades of agricultural land, namely Grade 1 (Excellent), Grade 2 (Very Good) and Grade 3 (Good to Moderate). NPPF paragraph 112 states that ‘local planning authorities should take into account the economic and other benefits of the best and most versatile¹ agricultural land. Where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land in preference to that of a higher quality.’ This would indicate that development sites should aim to use Grade 3 rather than Grades 1 and 2 to the extent this is consistent with the achievement of sustainable development on other relevant criteria. Agricultural land classification in the study area is illustrated in **Figure 4** below.

Figure 4: Agricultural land classification across the study area



¹ Best and most Versatile (BMV) agricultural land means Grades 1, 2 and 3A. At any level other than the site-specific, whether Grade 3 land is 3A (and therefore BMV) or 3B (and therefore not BMV) is not clear. In the case of the Grantham study area, as only Grades 1, 2 and 3 are present, the approach has been, in line with the NPPF, to consider Grade 3 land as more suitable for non-agricultural uses than Grades 1 and 2 land.

2.3 Transport and accessibility

The transport and accessibility criterion aims to identify the configuration, capacity and quality of existing transport networks and facilities. It also identifies corridors and nodes presenting opportunities for extension or enhancement based on assumed travel patterns associated with the planned growth.

The criterion covers accessibility (including on foot and by cycle), public transport routes and their potential capacity and constraints, and the location of potential growth sites in terms of their ability to be served by all modes of travel, but with an emphasis on minimising travel by car.

Recognising that Grantham functions as a service centre for a wider hinterland, the quality of routes linking each Direction for Growth to the town centre has been assessed, as well as to adjacent communities offering services and facilities, as connectivity is a key requirement for sustainable urban extensions.

Such connectivity works both ways- ensuring that new development can enhance the quality of life of residents in existing areas, for example by enabling better access to schools and leisure facilities.

2.4 Geo-environmental considerations

This criterion covers a range of geological and environmental constraints to new development. In most cases, however, geo-environmental constraints are not absolute, and regulatory systems are in place to cover those that emerge. For example, Building Regulations incorporate radon protection measures for new development. However, these constraints have the potential to increase development costs and lead time.

For each Direction for Growth, potential constraints were mapped, including:

Made Ground

Made ground is defined as ground formed by filling in natural or artificial pits, found in many areas where development has occurred historically. A preliminary appraisal of potential areas of heavily made ground has been made with reference to the British Geological Survey map. Where made ground is identified, risk is assigned respectively. Where no made ground is identified, the risk is assessed as zero.

Radon

Radon is a naturally occurring radioactive gas which originates from minute amounts of uranium that occur naturally in rocks and soils. It is almost always possible to mitigate the impacts of radon at the levels found in England through protective measures such as appropriate ventilation or installation of an active radon sump, and reference has been made to the guidance 'Radon - Guidance on protective measures for new buildings' to ascertain the likely requirement for radon protection measures to be installed on new buildings. Reference has also been made to the England and Wales radon maps available online at <http://www.ukradon.org/information/ukmaps/englandwales>.

Potential Sources of Contamination

Where significant potentially contaminating processes and industry have been identified on-site, a higher risk of contamination has been assigned.

Landfilling Records

Historical landfill GIS data is available on the Environment Agency website and was assessed accordingly. Where historical landfilling is noted to have been present locally, risk has been assigned respectively.

Hydrogeological Sensitivity

Groundwater is contained within underground strata (aquifers) of various types across the country. Groundwater provides a proportion of the base flow for many rivers and watercourses and in England and Wales it constitutes approximately 35% of the water used for public supply. It is usually of high quality and often requires little treatment prior to use.

However, it is vulnerable to contamination from pollutants, both from direct discharges into groundwater and indirect discharges into and onto land. Aquifer protection classifications are defined as follows:

- **Principal Aquifers**
These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.
- **Secondary Aquifers**
These include a wide range of rock layers or drift deposits with an equally wide range of water permeability and storage. Secondary aquifers are subdivided into two types:
 - **Secondary A** - permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers;
 - **Secondary B** - predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.
 - **Secondary Undifferentiated** - has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

Soil leaching classification data is based on soil physical and chemical properties which affect the downward passage of water and contaminants. This classification is not applied to soils above non-aquifers. Soils are divided into three types:

- **H: High leaching potential** - soils with little ability to dilute pollutants.
- **I: Intermediate Leaching Potential** - soils with a moderate ability to dilute pollutants.

- L: Low Leaching Potential - soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to dilute pollutants.

Groundwater Source Protection Zones

The Environment Agency have defined Source Protection Zones (SPZs) for 2000 groundwater sources such as wells, boreholes and springs used for public drinking water supply. These zones show the risk of contamination from any activities that might cause pollution in the area. The closer the activity, the greater the risk. The maps show three main zones (inner, outer and total catchment) and a fourth zone of special interest, which we occasionally apply, to a groundwater source.

The shape and size of a zone depends on the condition of the ground, how the groundwater is removed, and other environmental factors. Groundwater source catchments are divided into three zones as follows:

- Inner zone (Zone 1) - Defined as the 50 day travel time from any point below the water table to the source. This zone has a minimum radius of 50 metres;
- Outer zone (Zone 2) - Defined by a 400 day travel time from a point below the water table. This zone has a minimum radius of 250 or 500 metres around the source, depending on the size of the abstraction;
- Total catchment (Zone 3) - Defined as the area around a source within which all groundwater recharge is presumed to be discharged at the source.

The underlying hydrogeological sensitivity of the Directions for Growth was reviewed using the Environment Agency website.

2.5 Infrastructure capacity and potential

Infrastructure covers a range of services and facilities provided by public and private bodies. In this report, we have included under the heading of infrastructure the following types of infrastructure:

- Social and community infrastructure: health and education
- Utilities infrastructure: power generation and supply, water and sewerage
- Green infrastructure: green spaces and landscape corridors

Transport capacity and infrastructure is covered under a separate heading.

In the case of utilities infrastructure the capacity of the existing infrastructure has been taken into account, and whether infrastructure would be a constraint to development. For social, community and green infrastructure, it has been assumed that large scale development would necessitate new infrastructure such as schools, health services and open space. Information on existing health infrastructure, comprising the locations of GP and dentist surgeries, was sourced using the NHS Choices website.²

² <http://www.nhs.uk/Service-Search/GP/LocationSearch/4> for GPs and <http://www.nhs.uk/Service-Search/Dentists/LocationSearch/3> for dentists.

To ensure developments are sustainable, they need to be located to maximise use of existing infrastructure capacity where possible and to be of a critical mass to sustain the provision of new infrastructure where it is not already available.

The infrastructure capacity and potential considered as part of this assessment are based on the existing SKDC planning evidence base and through consultation with infrastructure providers. We aim to understand the extent to which development in each of the Directions for Growth could be met by existing capacity and/or existing committed investment.

For each Direction for Growth, the infrastructure analysis has helped to identify any key areas of concern that will require mitigation, the potential capacity of existing infrastructure to absorb new development, the extent to which new infrastructure would be required, and if so, what type.

2.6 Landscape and topography

For each Direction for Growth, the sensitivity of the local landscape to employment and residential development was assessed with reference to the South Kesteven Landscape Character Assessment January 2007.

The later Landscape Sensitivity and Capacity Studies (2011 and 2013) were also reviewed to provide an additional level of detail on the sensitivity of specific areas and their capacity to accommodate employment and/or residential development.

As part of the Core Strategy a number of 'saved' policies have been superseded including

- EN5 – Prevention of Coalescence
- EN6 – Open Areas Important to the Character and Setting of Built-Up Areas
- EN7 – Historic Parks and Gardens

These have been replaced by Core Strategy Policy EN1: Protection and Enhancement of the Character of the District, and the sensitivity of each Direction for Growth has been assessed in light of the new policy.

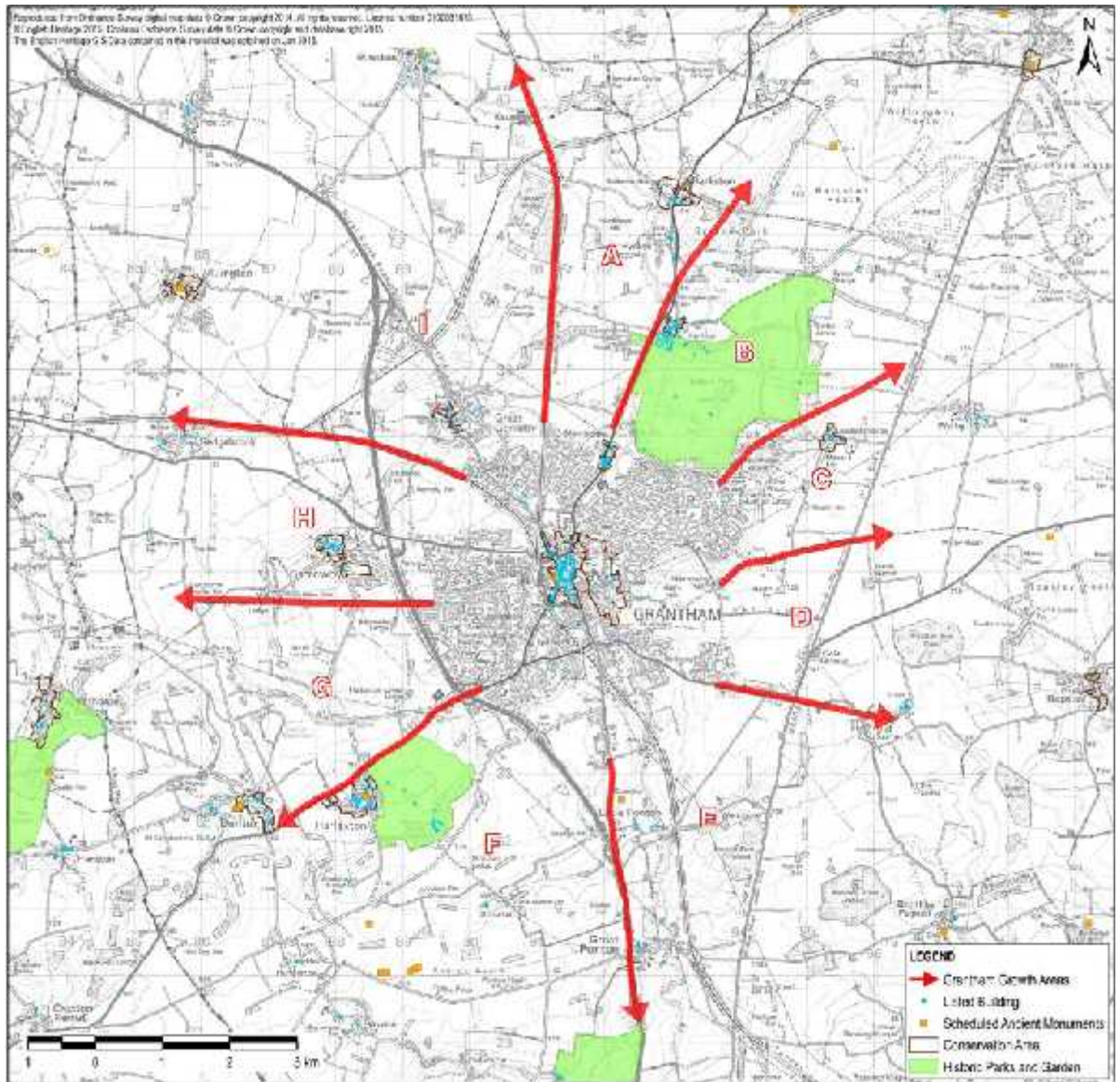
Topography is a key landscape characteristic across the whole study area. Built development in Grantham is generally on the lower lying land, in valleys. Steep scarp slopes are located adjacent to the urban edge to the south and east, and there is a further scarp to the north-west of Great Gonerby. Our approach in terms of topography at a strategic level is that development should seek to avoid steep slopes which would result in its visual prominence within views from and to Grantham.

2.7 Heritage considerations

In a similar way to the approach for environmental designations, and in line with paragraph 126 of the NPPF, we would seek to avoid development in areas where it would adversely impact on a designated heritage asset. Designated heritage assets are defined by the NPPF as including scheduled monuments, listed buildings, registered parks and gardens, registered battlefields and conservation areas.

Heritage assets across the study area are illustrated in **Figure 5** below.

Figure 5: Heritage assets across the study area



2.8 Housing need

Each Direction for Growth was assessed against the conclusions of the Strategic Housing Market Assessment. Directions for growth where need for housing is highest (as determined through data on affordability) were interpreted as being more suitable for housing development on this criterion, on the grounds that an increased supply of housing in the area would help correct existing mismatches between supply and demand.

In the same way, those Directions for Growth where affordability pressures are less severe were considered less suitable for housing development on this criterion, as demand for housing is lower in these locations.

2.9 Regeneration potential

The Indices of Multiple Deprivation 2010 show how Lower Super Output Areas (LSOAs- a statistical division with a mean population of 1,500 people) perform against various indices of deprivation, namely:

- Income deprivation;
- Employment deprivation;
- Health deprivation and disability;
- Education, skills and training deprivation;
- Barriers to housing and services;
- Living environment deprivation; and
- Crime.

The scores against each individual index of deprivation are merged to produce an LSOA score on an index of multiple deprivation. The scores are then ranked, with the most deprived LSOA in England ranked 1st and the lowest ranked 32,482nd.

The ranking of each LSOA in the study area was scored from 1 to 10 according to the decile of English multiple deprivation within which it fell. For example, if a particular LSOA was ranked in the top ten percent most deprived in England, it was given a score of 1, whereas if it fell into the 10-20% least deprived, it got a score of 9.

The scores were then mapped, providing an at-a-glance indication of deprivation in and adjacent to each Direction for Growth. If the Direction for Growth showed high levels of deprivation, the adjacency argument (whereby new development, if designed and implemented in a sustainable and careful way, can have beneficial effects on existing development) would indicate that new development has the potential to lift the area and generate positive effects in terms of employment, health, education and other indicators of well-being.

By contrast, where there are lower levels of deprivation, it is likely that new development would be unlikely to have a significant effect on local deprivation rankings.

2.10 Economic development

This criterion relates to the location of employment and is based on the principle that homes should be built close to places of work in order to reduce commuting distances and thus reduce the need to travel. Each direction for growth was assessed on its existing attractiveness to employers, using workplace data on employment from Census 2011, as well as existing major employment locations and the current Council evidence base on economic development, including future employment projections and future employment sites.

It was assumed that the potential for economic development was higher in Directions for Growth with a track record of being attractive locations to major employers.

This criterion also takes into account existing and planned transport infrastructure in each Direction for Growth and therefore crosscuts with the transport criterion to some extent. Employers tend to demand good access to road, rail and air transport. It may be, therefore, that some DFGs with low levels of existing economic activity may be 'unlocked' for economic development if new transport infrastructure is delivered.

2.11 Spatial opportunities and constraints

This final criterion covers any other factors considered important in terms of the spatial extent and boundaries of new development, particularly those articulated by the draft Grantham Area Action Plan and the National Planning Policy Framework (in particular, paragraphs 17 and 109)

These have been interpreted to mean that new development should seek to avoid coalescence between Grantham and nearby existing free-standing settlements. Likewise, where defensible boundaries to development exist, this can be regarded as a spatial opportunity for protecting valued landscapes.

2.12 Traffic light assessment of criteria

Against each criterion, the most important and relevant considerations are provided as bullet points in the left-hand column of a table for each direction for growth. The right-hand column consists of the traffic-light assessment referenced above, which provides an 'at a glance' balanced assessment of the potential for residential and/or employment growth in this direction based on the bullet points.

In broad terms, the traffic light assessment process was carried out as follows:

- A **red** rating was given if it was considered that, on that specific criterion, constraints applied that were significant enough to preclude development entirely (sometimes also referred to as 'show-stoppers');
- An **amber** rating was given if it was considered that, on that specific criterion, constraints applied but that there was some potential for them to be mitigated and/or that opportunities and constraints were broadly in balance; and
- A **green** rating was given if it was considered that, on that specific criterion, opportunities clearly outweighed constraints and/or that the constraints identified were minimal or easily mitigated.

Table 1 provides more detail on the specific factors that guided each criterion's traffic light score, followed by a detailed description of each criterion before they are applied to each of the directions for growth.

Table 1: Specific factors guiding the traffic light score for each criterion

Criterion	Traffic light score	Factors taken into account
Environmental constraints	R	Flood zone 3 at edge of existing settlement; and/or Statutory designations including SSSIs, NNRs, LNRs, SACs, SPAs, National Parks and AONBs that are significant in extent; and/or Non-statutory designations including Ancient Woodland and/or Sites of Wildlife interest that are significant in extent
	A	Agricultural Land Grade 1 and 2 and/or Flood zone 2, statutory designations, and/or non-statutory designations
	G	No insurmountable constraints found
Transport and accessibility	R	Low levels of current or planned accessibility by public transport and other means and/or significant congestion concerns
	A	Medium levels of current or planned accessibility by public transport and other means and/or some congestion concerns
	G	High levels of current or planned accessibility by public transport and other means and/or few congestion concerns
Geo-environmental considerations	R	Significant constraints such as made ground, radon, contamination, landfill, hydrogeological sensitivity, groundwater sensitivity
	A	Presence of some or all of above constraints but with some potential to be resolved / mitigated
	G	No significant geo-environmental constraints found
Infrastructure capacity and potential	R	Infrastructure needs arising from development could not be met by existing capacity or through new investment
	A	Infrastructure needs arising from development would require additional infrastructure investment
	G	Infrastructure needs arising from development could be met by existing capacity and/or existing committed investment
Landscape and topography	R	Significant and insurmountable landscape constraints
	A	Some landscape constraints but these could be mitigated through location, design and/or layout of new development
	G	No significant landscape constraints identified

Criterion	Traffic light score	Factors taken into account
Heritage considerations	R	Development would adversely impact on a designated heritage asset (schedule monuments, listed buildings, registered parks and gardens, registered battlefields and conservation areas).
	A	Designated heritage assets present but impact has potential to be mitigated through location, design and/or layout of new development
	G	No significant impact on designated heritage assets
Housing need	R	Fewer barriers in accessing housing and services according to the Indices of Multiple Deprivation
	A	Moderate barriers in accessing housing and services according to the Indices of Multiple Deprivation
	G	Significant barriers to accessing housing and services according to the Indices of Multiple Deprivation
Regeneration potential	R	Area has little or no potential for regeneration according to the Indices of Multiple Deprivation
	A	Area has some potential for regeneration according to the Indices of Multiple Deprivation
	G	Area has significant potential for regeneration according to Indices of Multiple Deprivation
Economic development	R	Location is less suitable in terms of accessibility for existing and / or future employment opportunities
	A	Location is suitable to some extent in terms of accessibility for existing and / or future employment opportunities.
	G	Location is more suitable in terms of accessibility for existing and /or future employment opportunities
Spatial opportunities and constraints	R	High risk of impact on settlement character and valued landscapes (i.e. significant coalescence risks and/or lack of defensible boundaries)
	A	Some risk of impact on settlement character and valued landscapes (i.e. some coalescence risks and/or some defensible boundaries)
	G	Low risk of impact on settlement character and valued landscapes (i.e. minimal coalescence risks and/or a greater number of defensible boundaries)

2.13 Consultation

The strategic assessment of growth was informed by a number of technical specialists. As well as AECOM specialists in transport, geo-environment, infrastructure, heritage, housing need and

economic development, we contacted a number of sub-regional and national organisations to get their views on strategic constraints to and opportunities for growth.

A letter, questionnaire and map was sent to the following organisations asking them for their views on each direction for growth from their technical perspective:

- Anglian Water;
- English Heritage (now Historic England)³
- Environment Agency
- Highways Agency
- Homes and Communities Agency
- Lincolnshire County Council (covering infrastructure, education, highways, minerals and waste and flood risk);
- Lincolnshire Local Economic Partnership
- Natural England; and
- Western Power Distribution.

Each organisation was asked to comment on strategic constraints and opportunities within each direction for growth, and their views and conclusions are reflected alongside those of AECOM's technical specialists and town planners in the tables below. Where any conclusions or advice conflicted, a professional judgement was made based on the most up-to-date information available to ensure the tables are as accurate as possible.

³ English Heritage split into two organisations and its planning policy unit was renamed Historic England on 1st April 2015

2.14 Direction A (North of Manthorpe/towards Syston)

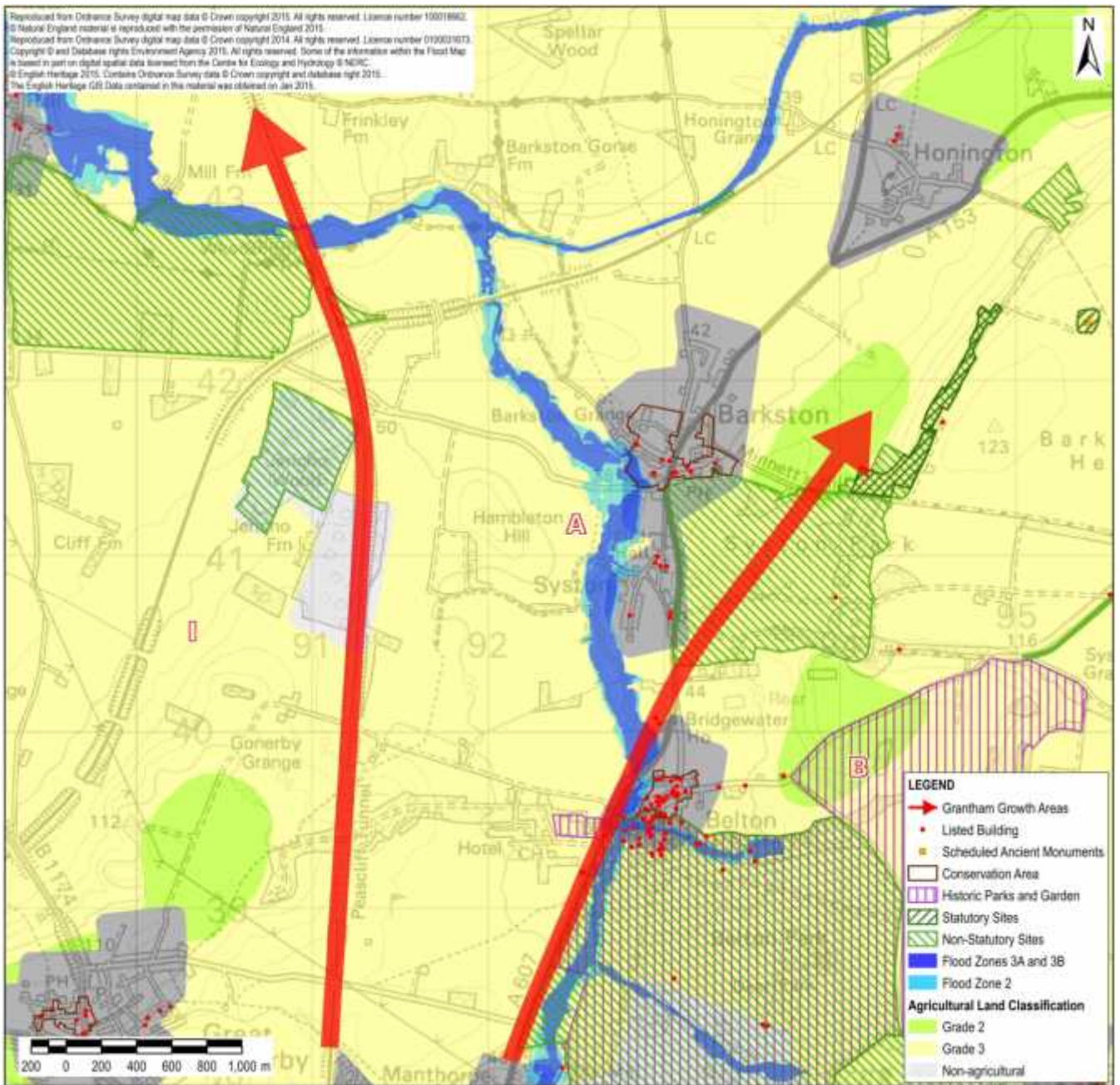
Criterion	Considerations	Overall Assessment
Environmental constraints	<ul style="list-style-type: none"> • Undeveloped land adjacent to urban fringe free from significant environmental constraints, with minor exception of Manthorpe Churchyard which is a Site of Wildlife interest • Limited constraints further from urban edge, including: • Syston Park and Lake (Site of Importance for Nature Conservation) • River Witham flood zone south of Barkston • No significant issues in terms of agricultural land across entire area 	
Transport and accessibility	<ul style="list-style-type: none"> • Bus services to Barkston along A607, including the number 1 bus service offering good connection to / from Grantham • Acceptable growth direction for Highways Agency • Minimal impact on the Strategic Road Network • Cycling limited to highway apart from some routes around existing housing estates and traffic-free cycleways adjacent to the A607 • Accident clusters on A607 • Proposals should consider the impact on town centre junctions 	
Geo-environmental considerations	<ul style="list-style-type: none"> • Secondary A Aquifer (high groundwater vulnerability) associated with alluvium along the River Witham. • Bedrock generally unproductive stratum (non aquifer) • Area not within an SPZ • No current or former landfills present • Less than one home in a hundred to one in three homes likely to have a high level of radon. Full or basic protection measures required for new housing • Limited made ground anticipated due to lack of development within the area. 	

Criterion	Considerations	Overall Assessment
Infrastructure capacity and potential	<ul style="list-style-type: none"> • GP and dentist services provision likely required • Existing educational provision in Grantham and Barkston • Green infrastructure corridor along River Witham • Peascliff Plantation green infrastructure corridor is constraint to development north from urban edge • Open space and green infrastructure at Belton Woods Golf Course- constraint to development north from urban edge • Smaller parcels of open space elsewhere in this corridor including at Barkston • Grid transformer capacity available at present. • Railway line difficult/expensive to cross with cables. South of Belton Lane would be preferred as the further north from Manthorpe/Belton, capacity reduces and costs increase • Preferred growth direction for Western Power Distribution • Marston Treatment Works is located within area I close to the boundary with area A. There is planned investment to serve the housing growth identified up to 2031. Any development within 400m of this site would have to ensure that it does not prejudice the operation of this site consistent with Anglian Water’s Asset Encroachment Policy. 	
Landscape and topography	<ul style="list-style-type: none"> • Located within the Grantham Scarps and Valleys LCA • Identified as a medium sensitivity landscape to employment and residential development within the South Kesteven Landscape Character Assessment • Potential for land immediately north of urban edge to be developed as identified within the Landscape Sensitivity and Capacity Study • Lies adjacent to the Registered Park and Garden of Belton Park with key views from the A607 that provide an appreciation of the park • Belton Woods and Golf Course continues the parkland character into this area • Area previously designated as an Area of Great Landscape Value • Area assists with the separation of development at Manthorpe and Great Gonerby • Gradually sloping to the south towards existing residential development 	

Criterion	Considerations	Overall Assessment
Heritage considerations	<ul style="list-style-type: none"> • Setting of numerous designated heritage assets at Belton, Manthorpe and Great Gonerby, including Belton House • The historic settlement of Manthorpe is a significant heritage asset within the context of its rural hinterland and the heritage assets of Belton House and Belton Park to the west. Attractive listed buildings provide a heritage gateway to the town of Grantham • There is some archaeological significance here • 27 designated assets in the village of Manthorpe • An area of Belton GI Registered Park and Garden at Belton Woods Hotel and Country Club • 10 designated assets in the village of Barkston including the GI listed Church of St. Nicholas • 7 designated assets in the village of Syston including the GII* listed Church of St. Mary. • The Grantham Townscape Assessment states that there is very limited opportunity for growth within the Manthorpe character area other than the possible subdivision of plots which contain modern post-war houses which presently are considered as negative elements in the townscape and the conservation area • Area generally significant in terms of views from Belton Park 	
Housing need	<ul style="list-style-type: none"> • IMD 2010 mapping shows this to be an area with significant barriers to housing and services, so there is potential for this to be addressed through growth 	
Regeneration potential	<ul style="list-style-type: none"> • Otherwise, low levels of multiple deprivation in this direction for growth. 	
Economic development	<ul style="list-style-type: none"> • Relatively well-located for strategic A1 corridor, but lorries would need to pass through village of Great Gonerby and no significant existing employment areas in close proximity • Each medium to large-scale urban extension of Grantham could provide 2,000-3,000 sq m gross of Class A1 to A5 uses in order to meet local needs according to the South Kesteven Retail Needs and Town Centre Study 	
Spatial opportunities and constraints	<ul style="list-style-type: none"> • Belton Lane strong defensible boundary to growth north of Grantham • Few defensible boundaries north of Belton Lane • Significant risk of coalescence with Manthorpe • Further afield, less severe coalescence risks for Syston and Barkston 	

Criterion	Considerations	Overall Assessment
<p>Conclusion- Key Strategic Constraints identified for Direction A</p> <p>Direction for Growth A's key strategic, spatial constraints are considered to be the River Witham flood zone and the potential for development to impact on Syston and Belton in terms of both coalescence and heritage assets. Syston Park SNCI should also be avoided.</p> <p>The resulting land considered suitable in terms of strategic constraints is shown in Figure 15. Note that the absence of strategic constraints does not necessarily indicate that the land is free from specific constraints at a local level, which will be assessed in the second part of this report.</p>		

Figure 6: Results of environmental constraints mapping for Direction A



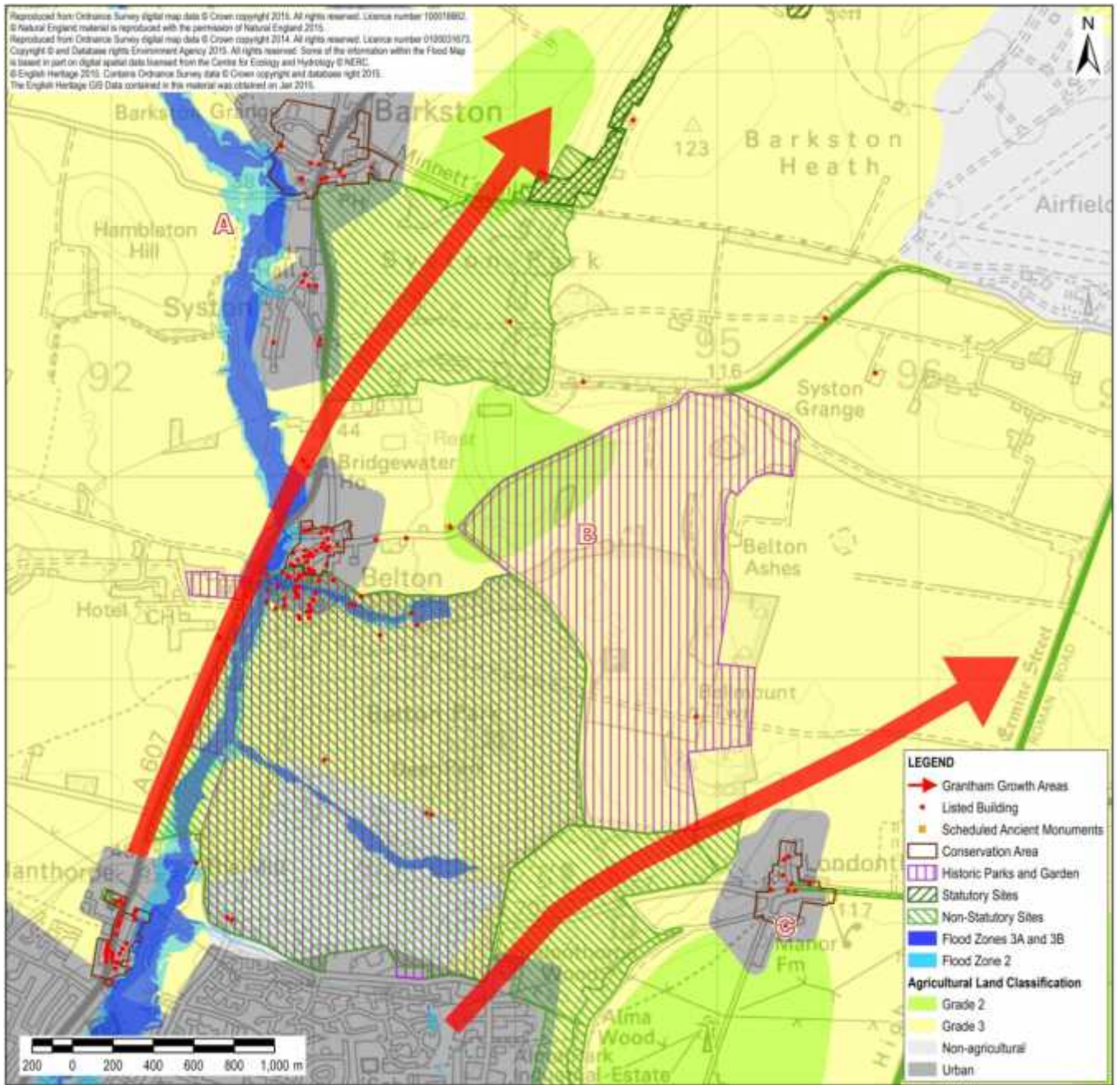
2.15 Direction B (Belton Park/towards Belton)

Criterion	Considerations	Overall Assessment
Environmental constraints	<ul style="list-style-type: none"> • Belton Park and Golf Course (Local Wildlife Site) very significant limiting factor across entire width of area • Potential impact on Londonthorpe Wood (SNCI) and High Dike (LWS) • River Witham Local Wildlife Site (Manthorpe-Belton); river stated to have high biodiversity value and the water course provides important habitat for crayfish • Deer park is a key natural habitat requiring preservation • Limited floodplain associated with River Witham and minor watercourses • Mainly Grade 3 agricultural land, with non- agricultural designations immediately adjoining Grantham’s current urban edge 	
Transport and accessibility	<ul style="list-style-type: none"> • The A607 offers bus services include the number 1 bus service which offers good connections to Grantham • Acceptable growth direction for the Highways Agency • Minimal impact on the Strategic Road Network • National Byway offers alternative route for cyclists (on road) • Accident clusters on Londonthorpe Lane, Alma Park Road, Ermine Street/High Dyke • All proposals should consider the impact on town centre junctions • According to the Employment Land Capacity Study, congestion is a significant issue for sites on the eastern side of Grantham, which limits employment sites coming forward in the short to medium term 	

Criterion	Considerations	Overall Assessment
Geo-environmental considerations	<ul style="list-style-type: none"> • Secondary A Aquifer with high, intermediate and low groundwater vulnerability (associated with alluvium) along the River Witham and other minor surface water courses and other superficial deposits. • The Grantham Water Cycle Strategy did not highlight a concern in the water quality of the River Witham but a more detailed study highlighted high levels of phosphorus due to historic farming practices within the catchment • Bedrock generally unproductive stratum (non-aquifer). However, section of Secondary A associated with the Marlstone Rock Formation (sandstones and ironstone) • No current or former landfills present • One home in a hundred to one in three homes likely to have a high level of radon. Full or basic protection measures required for new housing • Limited made ground anticipated due to lack of development within the area • Includes areas designated as groundwater SPZ3. 	
Infrastructure capacity and potential	<ul style="list-style-type: none"> • Schools close to urban edge of Grantham • Limited GP services and need for more dentists • Large areas of publicly accessible open space at Belton Park • Green corridor south of Syston Park (The Belt) • Green infrastructure corridor proposed along River Witham • Grid transformer capacity available at present but infrastructure not readily available. • Would require cable laying under River Witham which is expensive 	
Landscape and topography	<ul style="list-style-type: none"> • Located within the Grantham Scarps and Valleys LCA • Identified as a high sensitivity landscape to employment and residential development within the South Kesteven Landscape Character Assessment • Area previously designated as Area of Great Landscape Value • The valley of the River Witham is located in the west of this area 	

Criterion	Considerations	Overall Assessment
Heritage considerations	<ul style="list-style-type: none"> • Direct impact upon setting of numerous designated heritage assets at Belton, Manthorpe and Great Gonerby • Belton House and Belton park significant heritage assets in their own right and within the context of the wider rural landscape • Most of area taken up by Belton Hall Listed Building Grade 1, protected Registered Historic Park and Garden • Belton Village – almost the entire village consists of Listed Buildings. • Large area within views from Belton Park 	
Housing need	<ul style="list-style-type: none"> • Generally an area of average to constrained access to housing. More constrained further from urban edge 	
Regeneration potential	<ul style="list-style-type: none"> • Extremely low to low levels of deprivation within this direction for growth. 	
Economic development	<ul style="list-style-type: none"> • Close to existing Alma Park industrial estate • However, remote from A1 corridor and lorries would need to cross entire urban area to access new employment sites here • Each medium to large-scale urban extension of Grantham could provide 2,000-3,000 sq m gross of Class A1 to A5 uses in order to meet local needs according to the South Kesteven Retail Needs and Town Centre Study 	
Spatial opportunities and constraints	<ul style="list-style-type: none"> • Risk of coalescence with Belton Village • Few defensible boundaries north of existing urban edge and across entire area 	
<p>Conclusion- Key Strategic Constraints identified for Direction B</p> <p>The key strategic, spatial constraints are considered to be Belton House and Park (on the heritage and environmental constraints criteria), potential for coalescence and heritage impacts on Belton Village, the River Witham flood zone and, further afield, Syston Park SNCI.</p> <p>As a result of these constraints, Direction B is considered to have no further potential for analysis, and as illustrated in Figure 15, contains no land at or well-connected to the urban edge that is considered appropriate for further analysis.</p>		

Figure 7: Results of environmental constraints mapping for Direction B



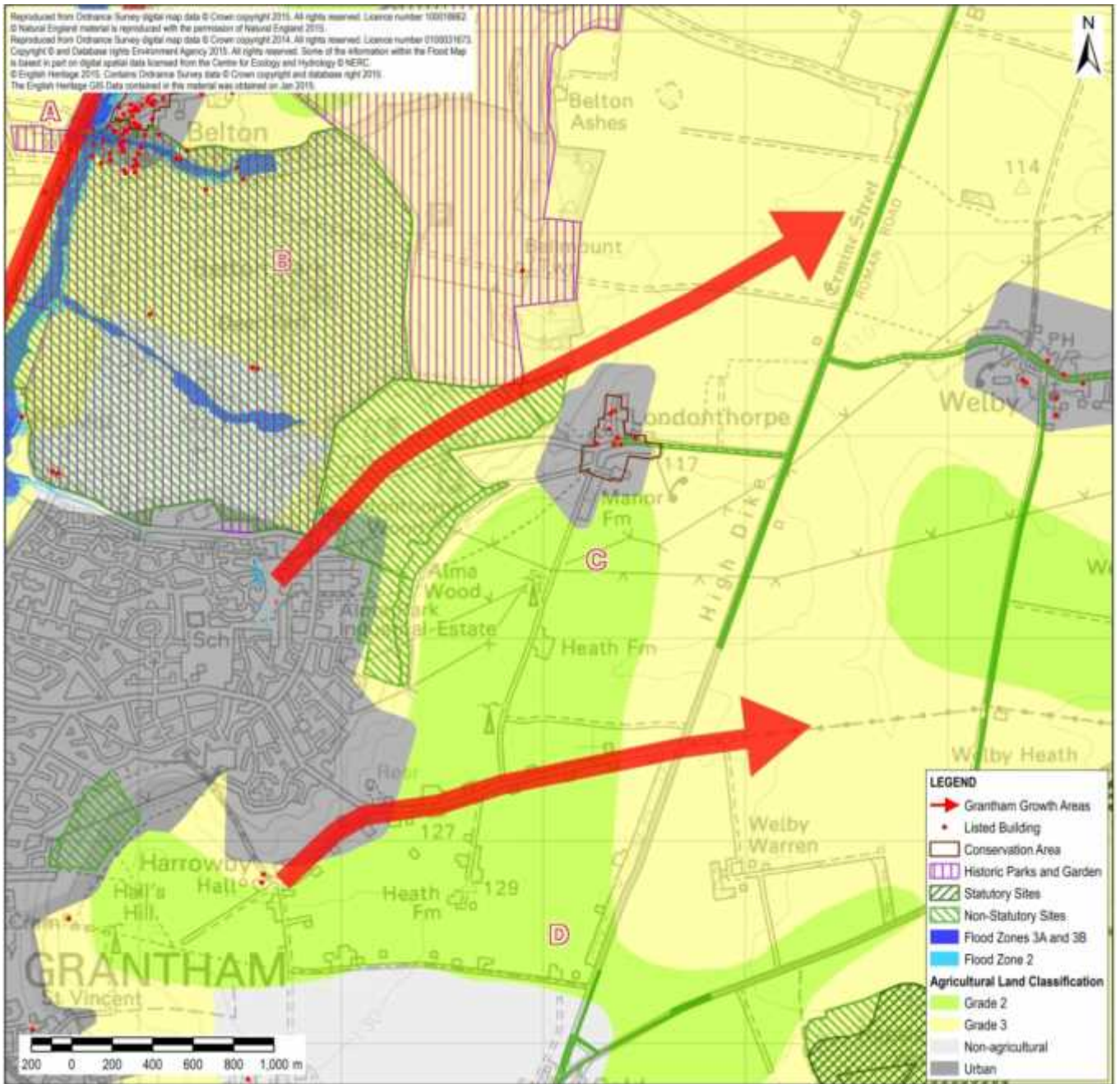
2.16 Direction C (East of Alma Park/towards Loundonhorpe)

Criterion	Considerations	Overall Assessment
Environmental constraints	<ul style="list-style-type: none"> • Potential impact on Loundonhorpe Wood (SNCI), High Dike (LWS), Alma Park (SNCI) and Welby Church Lane Verges (LWS) • No identifiable flood risk zones within direction for growth • Large extent of Grade 2 agricultural land • Alma Wood Non Statutory designation (Site of Wildlife Interest) • Some limited land free from designations adjacent to urban fringe. 	
Transport and accessibility	<ul style="list-style-type: none"> • Bus services offered in the area, including routes to Loundonhorpe and Welby, but these are quite limited • Acceptable direction for growth for the Highways Agency • Minimal impact on the Strategic Road Network • National Byway offers alternative route for cyclists (on road) • Accident clusters on Harrowby Lane, Ermine Street/High Dyke • For highway capacity, consider junctions with Ermine Street/High Dyke • All proposals should consider the impact on town centre junctions. • According to the Employment Land Capacity Study, congestion is a significant issue for sites on the eastern side of Grantham, which limits sites coming forward in the short to medium term 	
Geo-environmental considerations	<ul style="list-style-type: none"> • Principal Aquifer of high groundwater vulnerability associated with the bed rock dominates • Area mainly within an SPZ3 (total catchment) • Small landfill. Former quarry (Newgate Lane (1984 to 1989) inert waste) • One home in 20 to one in 10 homes likely to have a high level of radon. Full or basic protection measures required for new housing • Limited made ground anticipated due to lack of development within the area. 	

Criterion	Considerations	Overall Assessment
Infrastructure capacity and potential	<ul style="list-style-type: none"> • Limited school provision, some provision on the edge of Grantham • Limited GP services offered and need for expansion of dentistry services • Londonthorpe Wood green infrastructure • Alma Park Access Land has been identified as a Green Infrastructure Site in the South Kesteven Green Infrastructure Strategy • Very little publicly accessible open space • No grid transformer capacity. This area would require upgrading the 33/11kv Primary Transformers and significant new infrastructure installation • Londonthorpe Treatment Works is located within area C (close to the boundary with area B). Any development within 400m of this site would have to ensure that it does not prejudice the operation of this site consistent with Anglian Water’s Asset Encroachment Policy. 	
Landscape and topography	<ul style="list-style-type: none"> • Located in the Grantham Scarps and Valleys LCA and the Southern Lincolnshire Edge LCA • Identified as a high sensitivity landscape to employment and residential development, within the South Kesteven Landscape Character Assessment, adjacent to existing residential development reducing to medium-high • Area previously designated as Area of Great Landscape Value • Strip of land adjacent to the built up area previously designated as Prominent Area for Special Protection • Area of steeply sloping land recognised as a ‘green rim’ providing an important landscape setting to Grantham 	
Heritage considerations	<ul style="list-style-type: none"> • Potential impacts on setting of and views from Belton Park and on numerous heritage assets at Londonthorpe and Welby • Potential impacts upon highly graded assets in Grantham due to topography- the ‘green rim’ which provides a setting to Grade 1 listed St Wulfram’s Church, among other assets • 8 designated assets in the village of Londonthorpe including the GII* Church of St. John and GII* Hall Farm House • 7 designated assets in the village of Welby including the GI Church of St. Bartholomew. 	
Housing need	<ul style="list-style-type: none"> • Generally an area of average to high barriers of access to housing and services. Land furthest from urban edge most constrained 	

Criterion	Considerations	Overall Assessment
Regeneration potential	<ul style="list-style-type: none"> Extremely low to low levels of multiple deprivation within direction for growth. 	
Economic development	<ul style="list-style-type: none"> Alma Park industrial estate at urban edge However, topography not suitable for employment development adjoining existing industrial estate or rest of town edge Entire direction for growth relates poorly to strategic A1 economic corridor Each medium to large-scale urban extension of Grantham could provide 2,000-3,000 sq m gross of Class A1 to A5 uses in order to meet local needs according to the South Kesteven Retail Needs and Town Centre Study 	
Spatial opportunities and constraints	<ul style="list-style-type: none"> Risk of coalescence with Londonthorpe Londonthorpe Lane, Newgate Lane and High Dike all offer potential as defensible boundaries. 	
<p>Conclusion- Key Strategic Constraints identified for Direction C</p> <p>The key strategic, spatial constraints are considered to be the Londonthorpe Wood/Alma Wood environmental designations and the potential for development to impact on Londonthorpe and Welby in terms of both coalescence and heritage assets. The 'green rim', with its heritage and landscape constraints, should also be avoided.</p> <p>The resulting land considered suitable in terms of strategic constraints is shown in Figure 15. Note that the absence of strategic constraints does not necessarily indicate that the land is free from specific constraints at a local level, which will be assessed in the second part of this report.</p>		

Figure 8: Results of environmental constraints mapping for Direction C



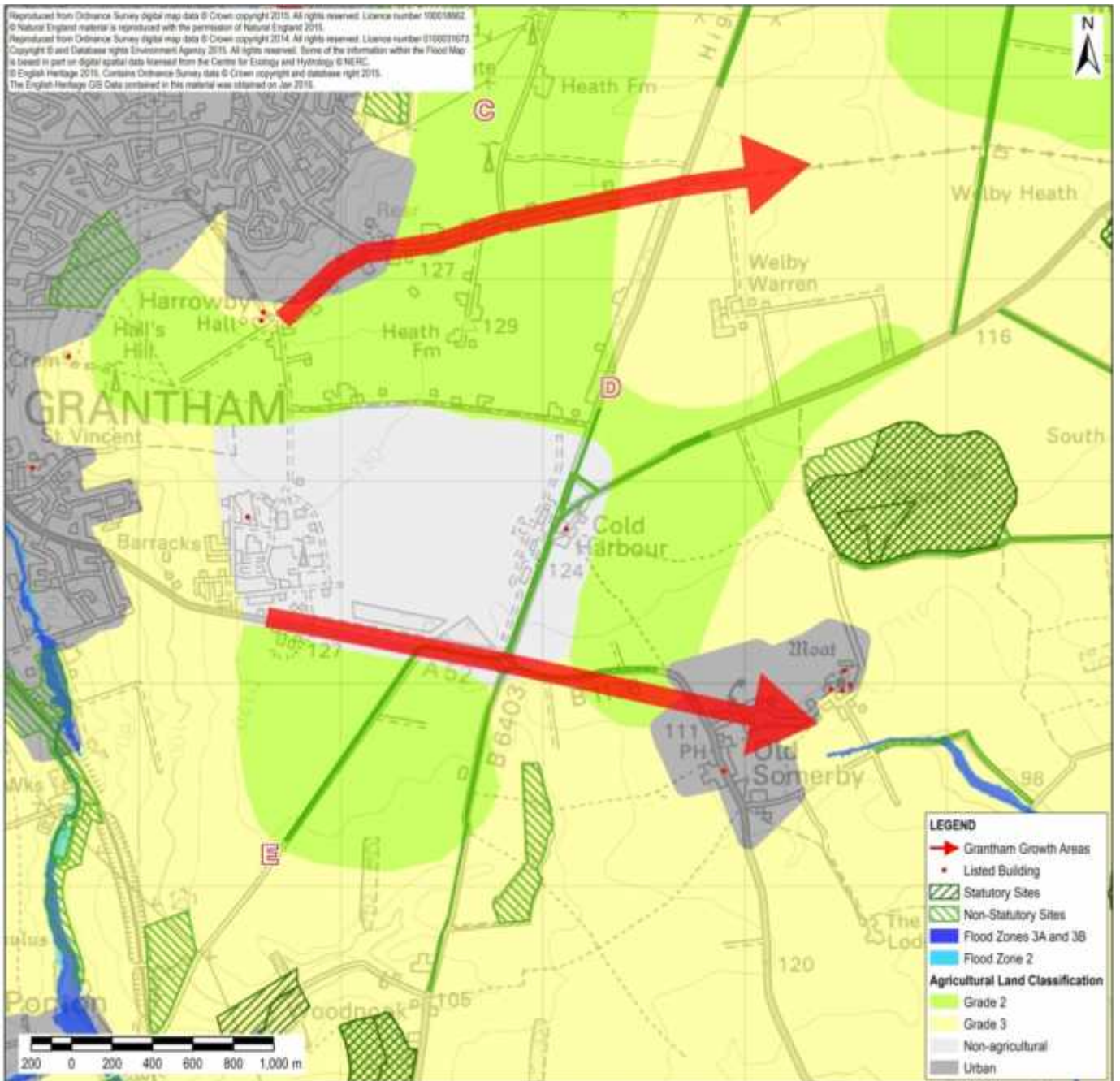
2.17 Direction D (East of Harrowby/towards Cold Harbour)

Criterion	Considerations	Overall Assessment
Environmental constraints	<ul style="list-style-type: none"> • Cold Harbour Road Verges (LWS) and, further afield, Ropsley Rise Wood (SNCI) • No identified flood risk zones within this direction for growth • Largely Grade 2 agricultural land with significant area of non-agricultural land designated west of Cold Harbour • Some land adjacent to urban fringe free from designations. 	
Transport and accessibility	<ul style="list-style-type: none"> • Good bus services offered, especially along Somerby Hill • Acceptable direction for growth for the Highways Agency • Minimal impact on the Strategic Road Network • Cycling limited to highway • Accident clusters on A52, Ermine Street/High Dyke • For highway capacity, consider junctions with Ermine Street/High Dyke • All proposals should consider the impact on town centre junctions. • According to the Employment Land Capacity Study, congestion is a significant issue for sites on the eastern side of Grantham, which limits sites coming forward in the short to medium term • The Grantham AAP Transport Delivery Plan states that by the A52 Bridge End Road, significant development is to an extent dependent on the delivery of the Southern Quadrant Link Road 	
Geo-environmental considerations	<ul style="list-style-type: none"> • Principal Aquifer of high groundwater vulnerability associated with the bed rock dominates • Area mainly within an SPZ3 (total catchment) • No current or former landfills present • One home in every 100 homes to one home in three likely to have a high level of radon. Full or basic protection measures required for new housing • Limited made ground anticipated due to lack of development within the area. 	

Criterion	Considerations	Overall Assessment
Infrastructure capacity and potential	<ul style="list-style-type: none"> • No schools close to direction for growth • Limited GP and dentist services • Ropsley Rise Wood as green infrastructure but otherwise limited • No grid transformer capacity. This area would require upgrading the 33/11kv primary transformers and significant infrastructure installation • Old Somerby water treatment works is located to the east of the village. There would need to be a clear economic case to justify significant investments at this site by Anglian Water. 	
Landscape and topography	<ul style="list-style-type: none"> • Located in the Grantham Scarps and Valleys LCA and the Southern Lincolnshire Edge LCA • Identified as a medium-high sensitivity landscape to employment and residential development, within the South Kesteven Landscape Character Assessment • Landscape Sensitivity and Capacity Study identifies potential for development to the barracks site and 2013 landscape study identifies potential on land to the west of the barracks • Area previously designated as Area of Great Landscape Value • Strip of land adjacent to the built up area previously designated as Prominent Areas for Special Protection • Area of steeply sloping land to the east with high land located around Cold Harbour and Heath Farm 	
Heritage considerations	<ul style="list-style-type: none"> • Potential impacts upon highly graded assets in Grantham due to topography • Some prehistoric remains in this area • Site of former RAF Spitalgate and surrounding land (now barracks) may have historic landscape significance (non-designated asset) • 2 designated assets at Harrowby Hall, both GII* listed buildings • Large area within views from Belton Park 	
Housing need	<ul style="list-style-type: none"> • Generally an area of average to high barriers of access to housing and services. More constrained the further out within the direction of growth. 	
Regeneration potential	<ul style="list-style-type: none"> • Extremely low to low levels of deprivation within this direction for growth. • If barracks/MOD land change from current use, brownfield regeneration potential 	

Criterion	Considerations	Overall Assessment
Economic development	<ul style="list-style-type: none"> • Very limited in terms of existing commercial and industrial land uses • Far from A1 strategic corridor, and lorries/employment traffic would have to cross entire Grantham urban area to access strategic road network • Each medium to large-scale urban extension of Grantham could provide 2,000-3,000 sq m gross of Class A1 to A5 uses in order to meet local needs according to the South Kesteven Retail Needs and Town Centre Study 	
Spatial opportunities and constraints	<ul style="list-style-type: none"> • Turnor Road and High Dike both offer opportunities for defensible boundaries • Little risk of coalescence with existing settlements (Cold Harbour possible exception, but small cluster of properties rather than free-standing village). 	
<p>Conclusion- Key Strategic Constraints identified for Direction D</p> <p>The key strategic, spatial constraints are considered to be the Londonthorpe Wood SNCI and the potential for development to impact on Londonthorpe and Welby in terms of both coalescence and heritage assets. The 'green rim', with its heritage and landscape constraints, should also be avoided.</p> <p>The resulting land considered suitable in terms of strategic constraints is shown in Figure 15. Note that the absence of strategic constraints does not necessarily indicate that the land is free from specific constraints at a local level, which will be assessed in the second part of this report.</p>		

Figure 9: Results of environmental constraints mapping for Direction D



2.18 Direction E (Southeast of Spittlegate/towards Little Ponton)

Criterion	Considerations	Overall Assessment
Environmental constraints	<ul style="list-style-type: none"> • Numerous SNCIs: Aveling Barford Industrial Site, The Clay Bank, Griff’s Plantation, Ponton Park Wood, Little Ponton Quarry • Saltersford Valley and Whalebone Lane Verges Local Wildlife Sites • Great Ponton Local Geological Site • Woodhook Valley SSSI • Minor flood risk from the River Witham and tributaries • Largely Grade 3 agricultural land, with smaller area of Grade 2 to east • Non-statutory designations along railway line • Ponton Park Wood is Ancient Woodland • Some land free from designations adjacent to urban fringe. 	
Transport and accessibility	<ul style="list-style-type: none"> • Some bus connections offered • Serviced by two A roads, A52 being part of SRN • Planning approval for the Southern relief road (subject to pending appeal) and construction has commenced on road infrastructure to open up the KING31 and Spitalgate Heath commercial and housing growth SUE. • LCC would prefer this direction on the transport criterion due to planned Southern Relief Road, which according to the Grantham Movement Strategy could accommodate 1,000 vehicles per hour. • Cycling mainly limited to highway • Accident clusters on Great North Road, A52, Ermine Street/High Dyke, A1 • All proposals should consider the impact on town centre junctions • River Witham corridor identified through GAAP as walking and cycling link between town centre and Southern Quadrant. • According to the Employment Land Capacity Study, congestion is a significant issue for sites on the eastern side of Grantham, which limits sites coming forward in the short to medium term • The Grantham AAP Transport Delivery Plan states that by the A52 Bridge End Road, significant development is to an extent dependent on the delivery of the Southern Quadrant Link Road 	

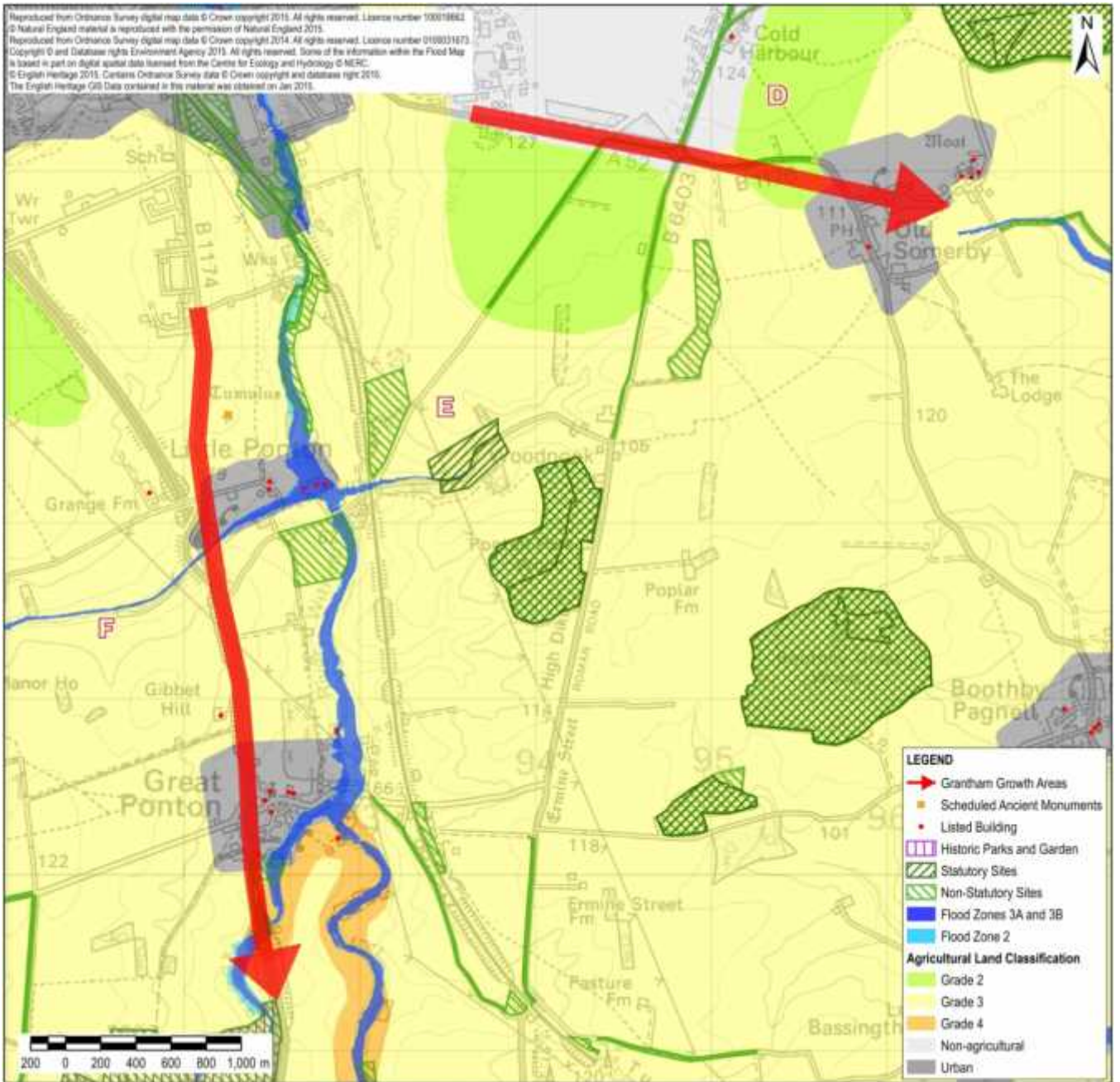
Criterion	Considerations	Overall Assessment
Geo-environmental considerations	<ul style="list-style-type: none"> • Superficial deposits are a Secondary A Aquifer (minor groundwater vulnerability). • Bedrock is a Principal Aquifer of high groundwater vulnerability • SPZ1 (Zone 1) and SPZ3 (total catchment) • Small landfills. Whalebone Lane Quarry (1988 to 1993) Inert/industrial/household and special waste), Old Quarry (1986 to 1988) inert • Less than one home in every 100 to one home in three likely to have a high level of radon. Full or basic protection measures required for new housing • Limited made ground anticipated due to lack of development within the area • Mineral Consultation Area east of Little Ponton • The Grantham Water Cycle Strategy did not highlight a concern in the water quality of the River Witham but a more detailed study highlighted high levels of phosphorus due to historic farming practices within the catchment • Little Ponton quarry (to the east of the village) now has consent and is going to be worked to provide limestone for the Southern Relief Road and the Southern Quadrant development 	

Criterion	Considerations	Overall Assessment
Infrastructure capacity and potential	<ul style="list-style-type: none"> • Large Sites Infrastructure Programme funding secured to help South Kesteven fast track the planning application for the Spitalgate Heath residential development • Schools on edge of Grantham and in Great Ponton • Expansion of GP and dentist services required • Ponton Park Wood most significant green infrastructure • Limited publicly accessible open space • Green infrastructure corridor along the River Witham, linking Belton Park to Southern Quadrant growth area. It has the potential to provide a walking and cycling link according to the Grantham Movement Strategy (2010). The Grantham Green Infrastructure Study has proposed it as a Green Link. • The countryside between Grantham town centre and the village of Old Somerby is also identified as a Green Link • Little Ponton and Great Ponton water treatment works are located within area E. There would need to be a clear economic case to justify significant investments at these Anglian Water sites. Any development within 400m of this site would have to ensure that it does not prejudice the operation of this site consistent with Anglian Water’s Asset Encroachment Policy • The Grantham Water Cycle Strategy recommends that planning applications for development within the Southern Quadrant are made in tandem with a planning application for an additional Sewage Treatment Works, which is likely to take between 6 to 10 years • Electricity potential: East of railway – long distance from grid transformers. May have to cross railway line with cable or bring 33kv cable from Londonthorpe with new primary significant load (crossing railway expensive and high risk i.e. £1 million and risk of damaging track and subsequent train delays). West of railway – still need to cross railway with cable but potential crossing at underpass near Aldi 	
Landscape and topography	<ul style="list-style-type: none"> • Located in the Grantham Scarps and Valleys LCA and the Kesteven Uplands LCA • Identified as a medium sensitivity landscape to employment and residential development adjacent to existing residential development, within the South Kesteven Landscape Character Assessment, increasing to medium-high sensitivity further south • Area previously designated as Area of Great Landscape Value • Area contains distinctive ridgeline and east/ west slope 	

Criterion	Considerations	Overall Assessment
Heritage considerations	<ul style="list-style-type: none"> • Historic England previously supported the direction of growth in this location (as part of Core Strategy allocation and further input into planning applications) • Some potential for further smaller scale growth here may be possible; however, impacts upon assets at Little Ponton and Great Ponton should be assessed • Some archaeological significance along River Witham, including a Scheduled Monument • 7 designated assets at Little Ponton including a Scheduled Monument, the GI Church of St. Guthlac and GII* Pigeoncote at Little Ponton Hall • 9 designated assets at Great Ponton including the GI Church of the Holy Cross, GII* Barn at Church Farm and GII* Old Rectory walls and gate piers • 5 designated assets in the village of Old Somerby including GII* listed Church of St. Mary Magdalene. 	
Housing need	<ul style="list-style-type: none"> • Generally an area of average to low access to housing and services. More constrained the further out within direction of growth • The AMR (2014) predicts that between the Southern (located in this direction) and Northern SUE sites, 450 houses will be delivered annually after 2021 	
Regeneration potential	<ul style="list-style-type: none"> • Homes and Communities Agency preferred direction of growth • Medium score in terms of indices of multiple deprivation 	
Economic development	<ul style="list-style-type: none"> • Each medium to large-scale urban extension of Grantham could provide 2,000-3,000 sq m gross of Class A1 to A5 uses in order to meet local needs according to the South Kesteven Retail Needs and Town Centre Study 	
Spatial opportunities and constraints	<ul style="list-style-type: none"> • Whalebone Lane and High Dike both offer potential as defensible boundaries • Need to avoid coalescence with Little Ponton, suggesting growth in a south-easterly direction more suitable than growth in southerly direction • Grantham Southern Relief road offers future potential as defensible boundary 	

Criterion	Considerations	Overall Assessment
<p>Conclusion- Key Strategic Constraints identified for Direction E</p> <p>Direction for Growth E’s key strategic, spatial constraints are considered to be the SNCIs in the valley of the River Witham, the potential for development to impact on Little Ponton in terms of both coalescence and heritage assets. Woodhook Valley SSSI and Ponton Park Wood SNCI should also be avoided.</p> <p>The resulting land considered suitable in terms of strategic constraints is shown in Figure 15. Note that the absence of strategic constraints does not necessarily indicate that the land is free from specific constraints at a local level, which will be assessed in the second part of this report.</p>		

Figure 10: Results of environmental constraints mapping for Direction E



2.19 Direction F (South of Spittlegate/towards Harlaxton)

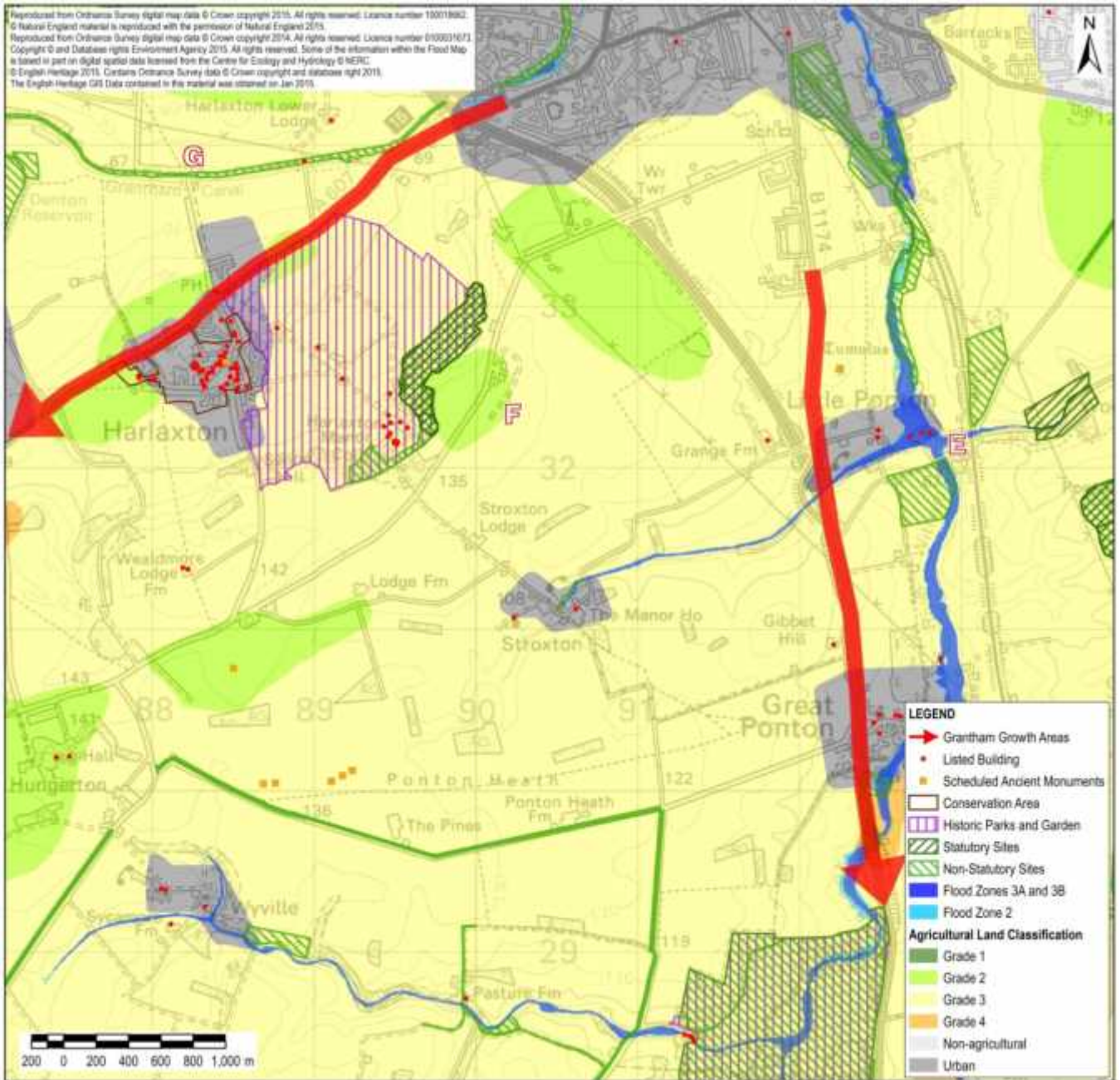
Criterion	Considerations	Overall Assessment
Environmental constraints	<ul style="list-style-type: none"> • Harlaxton Wood (SNCI) • Harlaxton No 4 (Hungerton) Quarry (Regionally important Geological site) • Limited floodplain associated with minor watercourses • Largely Grade 3 agricultural land, but patches of Grade 2 land • Large amount of land free from designations adjacent to the urban fringe. 	
Transport and accessibility	<ul style="list-style-type: none"> • Some bus services offered • Highways Agency note development in this location could have a negative significant cumulative impact on the A1 if progressed alongside Southern Quadrant SUE in neighbouring direction for growth E • LCC preferred direction in transport terms due to planned Southern Relief Road, which according to the Grantham Movement Strategy, could accommodate 1,000 vehicles per hour. • National Byway offers dedicated route for cyclists along A607 between Grantham and Harlaxton • Accident clusters on A1, A607 • For highway capacity, consider junctions with A607 • All proposals should consider the impact on town centre junctions. • The Grantham AAP Transport Delivery Plan states that by the B1174 South Parade corridor, significant development is to an extent dependent on the delivery of the Southern Quadrant Link Road • The bridges on the A607 Harlaxton Road and A52 Springfield Road have some of the highest levels of bus strikes in the country 	

Criterion	Considerations	Overall Assessment
Geo-environmental considerations	<ul style="list-style-type: none"> • Bedrock is mainly Principal Aquifer of high/intermediate groundwater vulnerability. • Towards A607 there is also an area of unproductive stratum, Secondary A and Secondary undifferentiated aquifer units • SPZ1 (Zone 1) and SPZ3 (total catchment) • Medium and large groundwater abstractions for potable water supply (adjacent to A1 south) • Contains historic landfill sites including a small landfill- Swine Hill Quarry (1979 to 1980) industrial/commercial/household. • Generally one in 10 to greater than one in three homes likely to have a high level of radon. Full or basic protection measures required for new housing • Limited made ground anticipated due to lack of development within the area • Mineral Consultation Area west of Little Ponton 	
Infrastructure capacity and potential	<ul style="list-style-type: none"> • Well served by schools at Grantham, Great Ponton and Harlaxton • Existing GP service but need for dental services • Limited amount of publicly accessible open space • Harlaxton Manor and adjacent grounds as green infrastructure • Electricity potential: North of A1 – still need to cross railway with cable but potential crossing at underpass near Aldi. South of A1 – expensive to lay cable under A1 • Harlaxton water treatment works- there would need to be clear economic case to justify significant investments at this Anglian Water site. Any development within 400m of this site would have to ensure that it does not prejudice the operation of this site consistent with Anglian Water’s Asset Management Policy. 	

Criterion	Considerations	Overall Assessment
Landscape and topography	<ul style="list-style-type: none"> • Located in the Grantham Scarps and Valleys LCA, the Southern Lincolnshire Edge and the Denton Harlaxton Bowl LCA • Identified as ranging from medium to high sensitivity landscape to employment and residential development within the South Kesteven Landscape Character Assessment. • Potential for development immediately north and west of King 31 site and to the south of Junction 15 as identified within Landscape Sensitivity and Capacity Study • Area previously designated as Area of Great Landscape Value • Strip of land adjacent to the built up area previously designated as Prominent Areas for Special Protection • North facing slope key from views within Grantham • Upland plateau further south which is representative of the Southern Lincolnshire Edge • A1 corridor mainly in cutting to the west 	
Heritage considerations	<ul style="list-style-type: none"> • Direct impacts and impacts upon setting of numerous designated heritage assets at Harlaxton Hall Grade I listed building and its associated registered historic park and garden, and Great and Little Ponton. • Some archaeological significance in the area • 77 designated assets in and around Harlaxton including one Scheduled Monument, 3 GI listed buildings, 1 GI Registered Park and Garden and 7 GII* listed buildings. Village largely within a Conservation Area • 6 Scheduled Monuments on Ponton Heath suggesting its archaeological potential • 2 designated assets at Stroxtun including the GII* Church of All Saints 	
Housing need	<ul style="list-style-type: none"> • Area of constrained housing affordability (high housing need). 	
Regeneration potential	<ul style="list-style-type: none"> • Proximity to the A1 may offer opportunities for growth in addition to the Southern and North West Quadrants if in the medium term demand over and above 2 proposed SUEs is evidenced • Mixed performance on multiple deprivation with more deprivation in the outer edge of the area compared with the urban edge 	

Criterion	Considerations	Overall Assessment
Economic development	<ul style="list-style-type: none"> • Good potential for sustainable mixed used development for housing and commercial, with industrial and distribution located close to the A1. This would also be supported by the proposed southern bypass • The Core Strategy promotes new high quality business parks which meet the needs of storage and distribution (B8) industries with excellent access to the A1, which this direction offers. • Employment Land Capacity Study suggests that there is continued demand for small-medium sized warehousing units along the A1 corridor • Each medium to large-scale urban extension of Grantham could provide 2,000-3,000 sq m gross of Class A1 to A5 uses in order to meet local needs according to the South Kesteven Retail Needs and Town Centre Study 	
Spatial opportunities and constraints	<ul style="list-style-type: none"> • Few logical defensible boundaries other than A1 • Risk of new development coalescing with Stroxton and Harlaxton. 	
<p>Conclusion- Key Strategic Constraints identified for Direction F</p> <p>The key strategic, spatial constraints are considered to be the potential for development to impact on Harlaxton and Stroxton in terms of both coalescence and heritage assets, and on Harlaxton Manor and Grounds in terms of heritage. Harlaxton Wood SNCI should also be avoided.</p> <p>The resulting land considered suitable in terms of strategic constraints is shown in Figure 15. Note that the absence of strategic constraints does not necessarily indicate that the land is free from specific constraints at a local level, which will be assessed in the second part of this report.</p>		

Figure 11: Results of environmental constraints mapping for Direction F



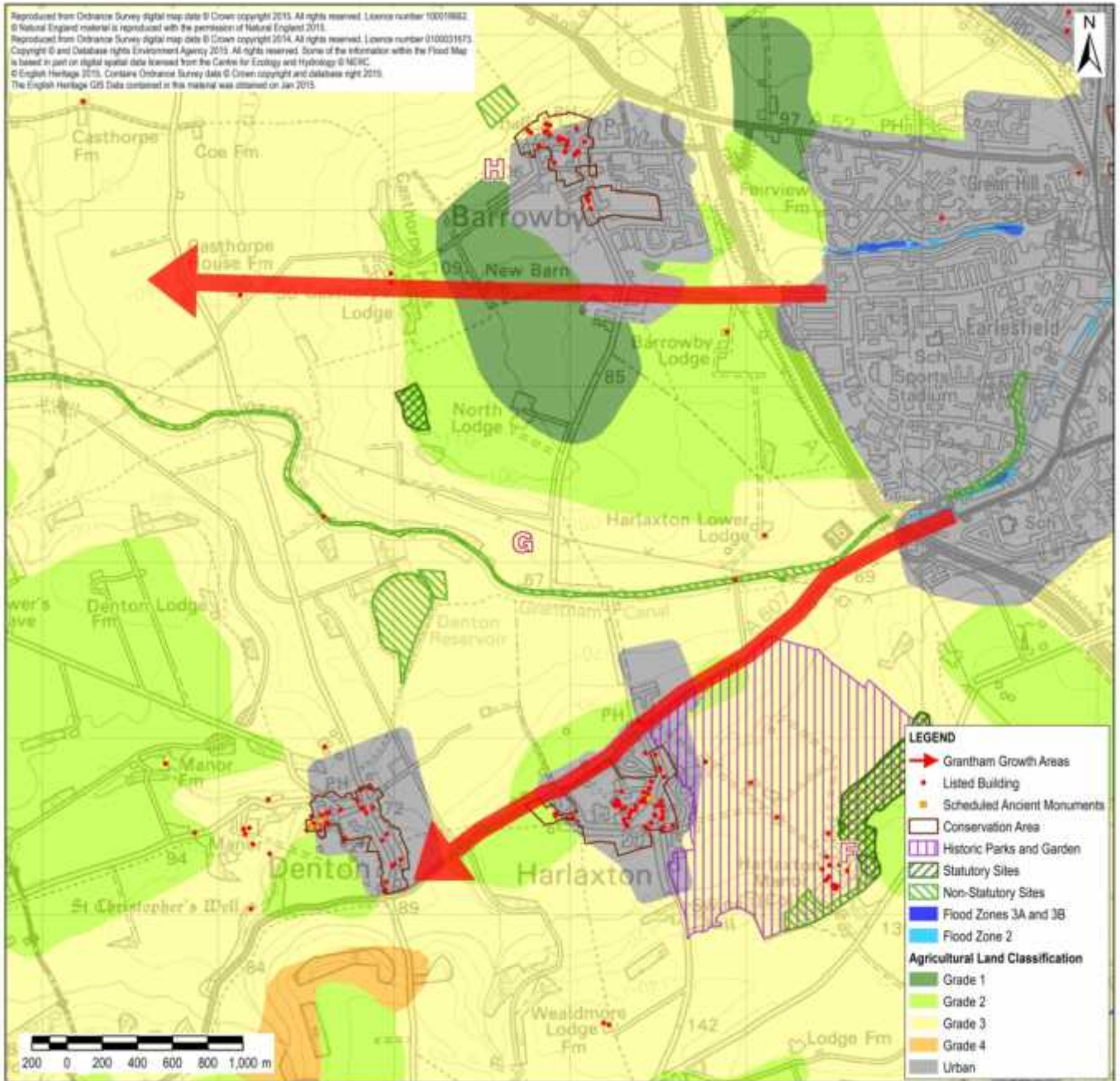
2.20 Direction G (West of Earlesfield/towards Denton)

Criterion	Considerations	Overall Assessment
Environmental constraints	<ul style="list-style-type: none"> • Denton Reservoir (SNCI), Grantham Canal & Canal Bank (SNCI) and Harlaxton Clays Wood (SNCI) • No identifiable flood risk zones within this direction for growth • Harlaxton Clays Wood Ancient Woodland • Large extent of Grade 1 and Grade 2 agricultural land in north and centre of this area • Some land free from designations adjacent to the existing urban fringe/A1 	
Transport and accessibility	<ul style="list-style-type: none"> • Good bus routes between Grantham and Harlaxton, Denton and Barrowby • Further development in this location could have a negative significant cumulative impact on the A1 if Southern Quadrant SUE dwellings are delivered • Grantham canal offers good off-road connection (national cycle route) • Some accident clusters around Denton, A1 • Highway capacity limited due to smaller roads • All proposals should consider the impact on town centre junctions. • The bridges on the A607 Harlaxton Road have some of the highest rate of bus strikes in the country 	
Geo-environmental considerations	<ul style="list-style-type: none"> • Secondary A Aquifer associated with the superficial deposits along the Old Beck/canal • Bedrock is unproductive stratum south of the Grantham Canal. Includes Secondary A and Secondary undifferentiated aquifers to the north (with low to intermediate groundwater vulnerability) • Not within an SPZ • Risk of flooding from Denton Reservoir • No historic or current landfills • One in 30 to greater than one in three homes likely to have a high level of radon. Full or basic protection measures required for new housing • Limited made ground anticipated due to lack of development within the area. 	

Criterion	Considerations	Overall Assessment
Infrastructure capacity and potential	<ul style="list-style-type: none"> • Limited education provision at the edge of Grantham and in Denton • Existing GP service but current low provision of dental services • Limited publicly-accessible open space • Green infrastructure corridor potential along Grantham Canal to Denton Reservoir, as highlighted in the GAAP. The Grantham Canal links the town centre to the countryside to the west. The Grantham Green Infrastructure Study has proposed it as a Green Link. • Grid capacity but would need to lay cable under A1 which is expensive and long way from grid transformer. • The Meres Leisure Centre offers a major facility for outdoor sports space of at least regional standard 	
Landscape and topography	<ul style="list-style-type: none"> • Located in the Denton Harlaxton Bowl LCA • Identified as high sensitivity landscape to employment and residential development within the South Kesteven Landscape Character Assessment. • Potential for development to land immediately to the west of the A1 as identified within the Landscape Sensitivity and Capacity Study • Areas further west of the A1 seen as important to the setting of views from high ground within Harlaxton Manor • Area contains a broad scarp of high land 	
Heritage considerations	<ul style="list-style-type: none"> • Numerous designated heritage assets and their settings at Harlaxton. Impacts upon Harlaxton Lower Lodge and Barrowby Lodge • Lots of prehistoric remains from Mesolithic, Neolithic, Bronze Age and Iron Age. Would be expensive to develop from an archaeological point of view • 39 designated assets in Denton including 2 Scheduled Monuments, 2 GI listed buildings and 3 GII* listed buildings. Village largely within a Conservation Area. Land surrounding Denton Manor of non-designated historic landscape value • Potential impact on long views from GI Belvoir Castle and GII Belvoir Castle Registered Park and Garden. • Grantham Canal likely to be a non-designated heritage asset (there are 2 GII listed bridges in this area). • Large area within the views from Belton Park 	
Housing need	<ul style="list-style-type: none"> • Town edge demonstrates significant barriers in access to housing and services within this direction for growth 	

Criterion	Considerations	Overall Assessment
Regeneration potential	<ul style="list-style-type: none"> Proximity to the A1 may offer opportunities for growth in addition to the Southern and North West Quadrants if in the medium term demand over and above the 2 existing SUEs is evidenced Average performance in terms of multiple deprivation. 	
Economic development	<ul style="list-style-type: none"> The Core Strategy promotes new high quality business parks which meet the needs of storage and distribution (B8) industries with excellent access to the A1, which this direction offers. Employment Land Capacity Study suggests that there is continued demand for small-medium sized warehousing units along the A1 corridor Canal Basin development area is possible location for a new large food store according to the South Kesteven Retail Needs and Town Centre Study. This would serve development in this direction of growth. Each medium to large-scale urban extension of Grantham could provide 2,000-3,000 sq m gross of Class A1 to A5 uses in order to meet local needs according to the South Kesteven Retail Needs and Town Centre Study 	
Spatial opportunities and constraints	<ul style="list-style-type: none"> Both The Drift and Casthorpe Road strong, defensible boundaries to development Need to avoid coalescence with Denton, so westward growth more suitable than south-westward growth. 	
<p>Conclusion- Key Strategic Constraints identified for Direction G</p> <p>The key strategic, spatial constraints are considered to be the potential for development to impact on Harlaxton and Stroxton in terms of both coalescence and heritage assets, and on Harlaxton Manor and Grounds in terms of heritage. Harlaxton Wood SNCI should also be avoided.</p> <p>The resulting land considered suitable in terms of strategic constraints is shown in Figure 15. Note that the absence of strategic constraints does not necessarily indicate that the land is free from specific constraints at a local level, which will be assessed in the second part of this report.</p>		

Figure 12: Results of environmental constraints mapping for Direction G



2.21 Direction H (West of Barrowby/towards Sedgebrook)

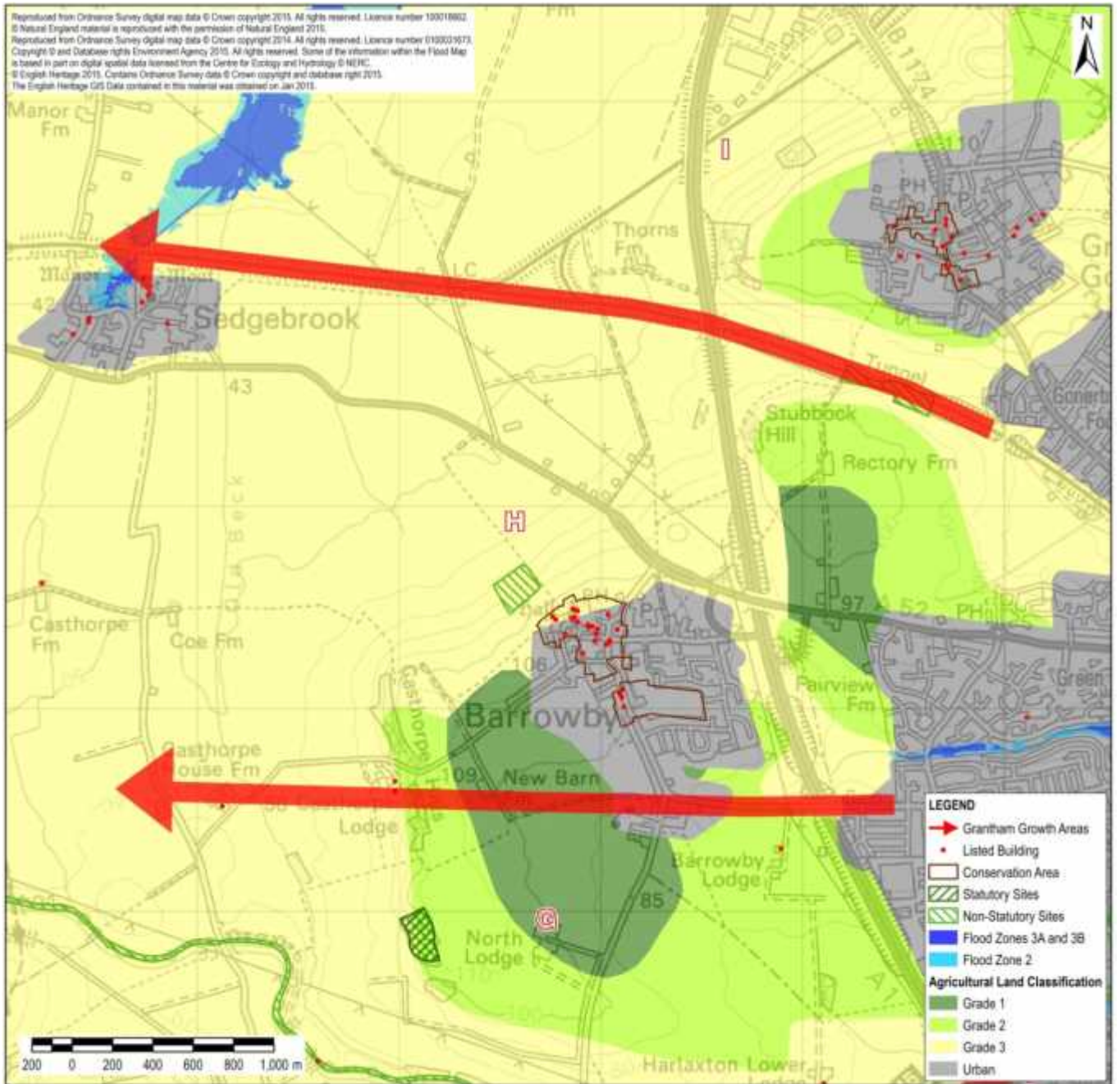
Criterion	Considerations	Overall Assessment
Environmental constraints	<ul style="list-style-type: none"> • Gonerby Tunnel (SNCI) and Barrowby Grassland (SNCI) • No identifiable flood risk zones within direction for growth • Grade 1 and Grade 2 agricultural land in the south and centre of the direction for growth, including close to urban fringe 	
Transport and accessibility	<ul style="list-style-type: none"> • Good bus services available to Sedgebrook and in Barrowby area and further opportunities to provide improved bus services from North West Quadrant proposed SUE in this area • Development in this area has the potential to have a significant impact upon both the operation of the A52 and the A1 as parts of the Strategic Road Network. • This stretch of the A52 is ranked in the highest category for noise pollution (DEFRA). An increase in vehicle trips along this stretch has the potential to exacerbate this issue • Direct access to A1 and A52 provides good access to Grantham Town Centre • Cycling limited to highway in the main though some cycle path available on A52 from town centre over the A1 • Proposed Pennine Way link road will increase connectivity, and according to the Grantham Movement Strategy, it is forecast to carry about 1500 vehicles during each peak time • Accident clusters on A1 and A52 • For highway capacity, consider junctions with A52 • All proposals should consider the impact on town centre junctions • The bridges on the A52 Barrowby Road have some of the highest bus strike rates in the country 	
Geo-environmental considerations	<ul style="list-style-type: none"> • Bedrock is unproductive stratum, Secondary A and Secondary undifferentiated aquifers (with intermediate to high groundwater vulnerability) • Not within an SPZ • Risk of flooding from Denton Reservoir • No historic or current landfills • One in 30 to one in three homes likely to have a high level of radon. Full or basic protection measures required for new housing • Limited made ground anticipated due to lack of development within the area. 	

Criterion	Considerations	Overall Assessment
Infrastructure capacity and potential	<ul style="list-style-type: none"> • Only one existing school in this direction for growth • No GP services and limited dentistry services available in this direction • Some publicly accessible open space around Barrowby and Sedgebrook. The Grantham Green Infrastructure Study has proposed it as a Green Link. • Land east of A1 – midpoint between grid transformers so lots of cable laying to site. Would also need bridge building across railway at Pennine Way to bring cable across. • Land west of A1 – same issues as east side plus would need to cross A1 which has steep embankments. 	
Landscape and topography	<ul style="list-style-type: none"> • Located in the Grantham Scarps and Valleys LCA, Denton Harlaxton Bowl LCA and the Trent and Belvoir Vale LCA • Identified as low to high sensitivity landscape to employment and residential development within the South Kesteven Landscape Character Assessment. Area of low sensitivity to the north of the A52 and south of the A52, immediately east of the A1. Area of high sensitivity is west of A1. • Potential for development immediately to the west of the A1 as identified within the Landscape Sensitivity and Capacity Study • Part of area previously designated as Area of Great Landscape Value • Land to the north west of Barrowby previously designated as Prominent Area for Special Protection • Land between Grantham and Barrowby previously designated as an area for the Prevention of Coalescence • Area contains a broad scarp of high land 	

Criterion	Considerations	Overall Assessment
Heritage considerations	<ul style="list-style-type: none"> • EH previously supported the direction of growth in this location (as part of Core Strategy allocation and further input into planning applications). Cumulative impacts would need to be assessed as further development in this location may impact upon long views from Belton. • Potential for archaeological impact on the deserted medieval village of West Casthorpe • Potential impact on long views from GI Belvoir Castle and GII Belvoir Castle Registered Park and Garden. • Areas further west of the A1 seen as important to the setting of views from high ground within Harlaxton Manor • 28 designated assets within the village of Barrowby including the GI Church of All Saints and Barrowby Old Hall The settlement contains 2 Conservation Areas and there are additional areas of TPO to the east at Boundary Farm • The Grantham Townscape Assessment concluded that there is very limited scope for significant growth within the Barrowby character area • 7 designated assets within the village of Sedgebrook including the GI Church of St. Lawrence and GII* manor house. • Large area within the views from Belton Park 	
Housing need	<ul style="list-style-type: none"> • Significant barriers in accessing housing and services at town edge in this direction for growth 	
Regeneration potential	<ul style="list-style-type: none"> • Proximity to A1 may offer opportunities for growth in addition to the Southern and North West Quadrants if in the medium term demand over and above that which is planned for 2 existing SUEs is evidenced • Low levels of multiple deprivation • Each medium to large-scale urban extension of Grantham could provide 2,000-3,000 sq m gross of Class A1 to A5 uses in order to meet local needs according to the South Kesteven Retail Needs and Town Centre Study 	
Economic development	<ul style="list-style-type: none"> • The Core Strategy promotes new high quality business parks which meet the needs of storage and distribution (B8) industries with excellent access to the A1 and A52, which this direction offers. • Employment Land Capacity Study suggests that there is continued demand for small-medium sized warehousing units along the A1 corridor 	

Criterion	Considerations	Overall Assessment
Spatial opportunities and constraints	<ul style="list-style-type: none"> • A1 highly suitable, defensible boundary to growth • West of A1, significant risk of coalescence with Barrowby • Lower risk of coalescence with Sedgebrook due to distance from urban edge • Allington Lane defensible boundary west of the A1, but does not extend across entire Direction for Growth. 	
<p>Conclusion- Key Strategic Constraints identified for Direction H</p> <p>The key strategic, spatial constraints are considered to be the potential for impact on Barrowby and Sedgebrook in terms of both coalescence and heritage assets, and on Harlaxton Manor and Grounds in terms of heritage. Barrowby Grassland SNCI should also be avoided.</p> <p>The resulting land considered suitable in terms of strategic constraints is shown in Figure 15. Note that the absence of strategic constraints does not necessarily indicate that the land is free from specific constraints at a local level, which will be assessed in the second part of this report.</p>		

Figure 13: Results of environmental constraints mapping for Direction H



2.22 Direction I (Northwest of Great Gonerby/towards Allington)

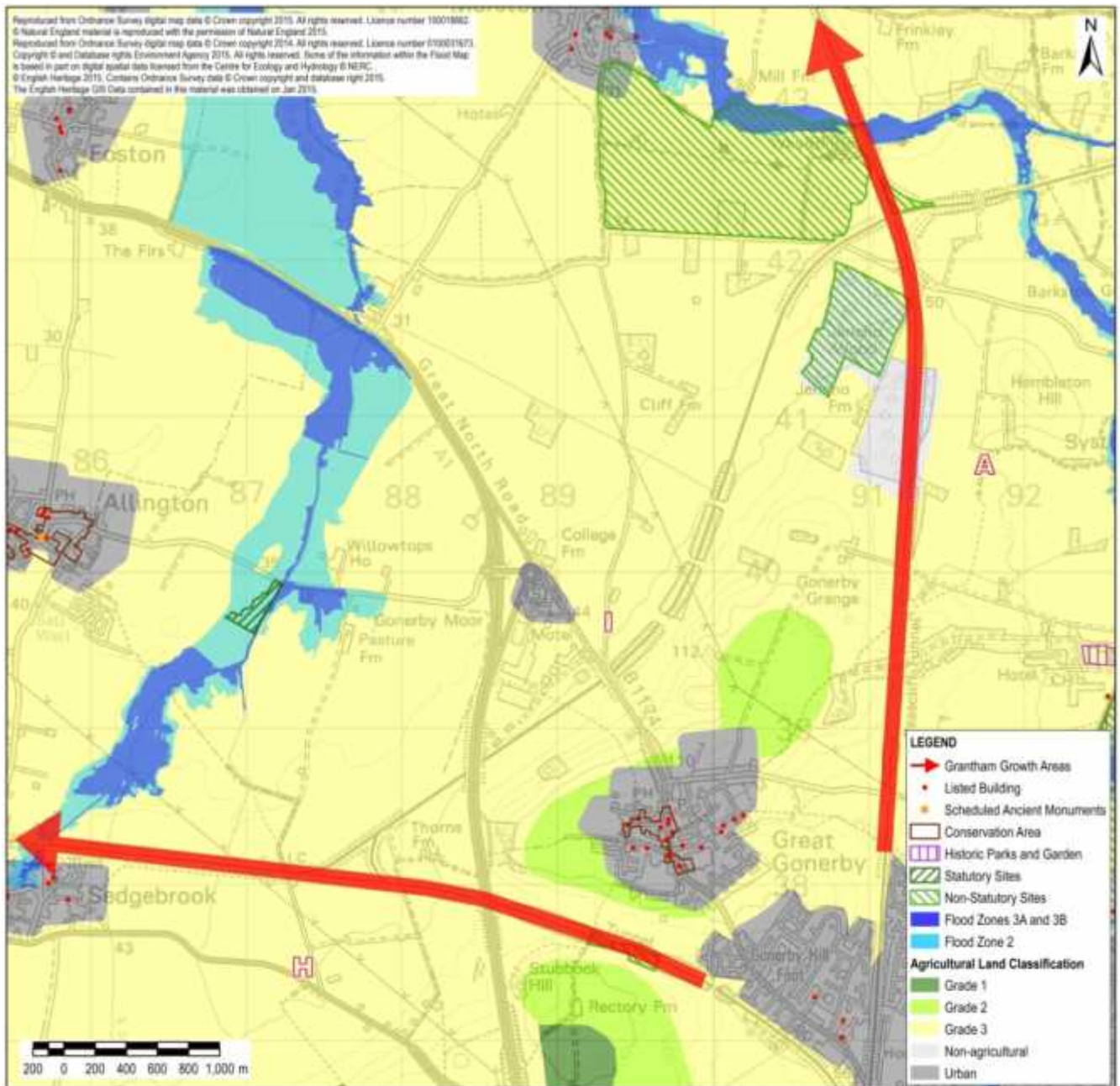
Criterion	Considerations	Overall Assessment
Environmental constraints	<ul style="list-style-type: none"> • Gonerby Tunnel, Marston Sewage Works and Hurn Wood (SNCl)s) • Allington Meadows SSSI • Area of floodplain east of Allington at the furthest edge of the direction for growth • Large extent of Grade 2 Agricultural Land • Limited number of designations adjacent to the urban fringe. 	
Transport and accessibility	<ul style="list-style-type: none"> • Good bus services available to Great Gonerby and Allington • Further development in this location could have a negative significant cumulative impact on the A1 and the A52 due to the North West Quadrant SUE dwellings planned in Direction H • Good off road cycle path available between Downtown development and Grantham • Accident clusters on A1, Belton Lane, Great North Road/Grantham road (B1174) • Junction of Belton Lane/B1174 likely to be a capacity constraint • All proposals should consider the impact on town centre junctions. 	
Geo-environmental considerations	<ul style="list-style-type: none"> • Unproductive stratum, Secondary A and Secondary undifferentiated aquifers (with intermediate to high groundwater vulnerability) • Not within an SPZ • Risk of flooding from Denton Reservoir. • One in 30 to one in three homes likely to have a high level of radon. Full or basic protection measures required for new housing • Limited made ground anticipated due to lack of development within the area • Contains historic landfill sites. 	

Criterion	Considerations	Overall Assessment
Infrastructure capacity and potential	<ul style="list-style-type: none"> • Education provision in Great Gonerby, Allington and Marston • Limited GP provision at Allington, and no dentistry provision • East of A1/railway – grid capacity and infrastructure available. This part of this direction would be of preference to Western Power Distribution • West of A1/railway Line – crossing railway/A1 would be prohibitively expensive • Marston water treatment works is located within this area (close to the boundary with area A). An upgrade to this site is included in Anglian Water’s Asset Management Plan (2015-2020). Any development within 400m of this site would have to ensure that it does not prejudice the operation of this site consistent with Anglian Water’s Asset Management Policy. • Green Link identified in the Grantham Green Infrastructure Study, to link the town centre via the North West Quadrant growth area to Great Gonerby. 	
Landscape and topography	<ul style="list-style-type: none"> • Located in the Grantham Scarps and the Trent and Belvoir Vale LCA • Identified as high to low-medium sensitivity landscape for employment and residential development within the South Kesteven Landscape Character Assessment. • Potential for development between the young belt of planting and existing housing at Gonerby Hill Foot as identified within the Landscape Sensitivity and Capacity Study • Area previously designated as Area of Great Landscape Value • Area around Great Gonerby previously designated as Prominent Area for Special Protection • Land between Grantham and Great Gonerby previously designated as an area for the Prevention of Coalescence • Undulating rising ground 	

Criterion	Considerations	Overall Assessment
Heritage considerations	<ul style="list-style-type: none"> • Setting of numerous designated heritage assets at Belton, Manthorpe and Great Gonerby • Great Gonerby is a historic village with 17 GII and 1 GI listed buildings. The centre of the village is covered by a Conservation Area • The topography surrounding the village suggests that limited development at the north-western boundary of Grantham will not be visible in Great Gonerby and so may not impact the setting of the Conservation Area • 9 designated assets in Allington including 1 Scheduled Monument, GII* Church of the Holy Trinity and GII* Manor House. Village is also covered by Conservation Area • 12 designated assets in Marston including 1 Scheduled Monument, 1 GII Registered Park and Garden, GI Church of St. Mary and GII* Marston Hall • Great Gonerby is the only developed ridge line around the town. The gap to Gonerby Hill is very important to this character area and the historic village of Great Gonerby • Large area within views from Belton Park • Potential impact on long views from GI Belvoir Castle and GII Belvoir Castle Registered Park and Garden. 	
Housing need	<ul style="list-style-type: none"> • Area of relatively low housing need based on access to housing and services score in indices of multiple deprivation • The AMR (2014) predicts that between the Southern and Northern (located in this direction) SUE sites, 450 houses will be delivered annually after 2021 	
Regeneration potential	<ul style="list-style-type: none"> • Low levels of deprivation according to Indices of Multiple Deprivation 	

Criterion	Considerations	Overall Assessment
Economic development	<ul style="list-style-type: none"> • The Core Strategy promotes new high quality business parks which meet the needs of storage and distribution (B8) industries with excellent access to the A1, which this direction offers • Gonerby Moor is located in this direction, where it is a popular location for employment uses and as such plays a crucial role in the economy of Grantham. There may be scope for additional land here to come forward for employment development during the plan period. Town centre uses are not considered appropriate but it may be a suitable location for “land-hungry” developments with low staff levels • Employment Land Capacity Study suggests that there is continued demand for small-medium sized warehousing units along the A1 corridor • Each medium to large-scale urban extension of Grantham could provide 2,000-3,000 sq m gross of Class A1 to A5 uses in order to meet local needs according to the South Kesteven Retail Needs and Town Centre Study 	
Spatial opportunities and constraints	<ul style="list-style-type: none"> • The AAP states that Great Gonerby needs to maintain its identity as a community and the growth from Grantham town should have minimal impact on it • Some potential to use Belton Lane as a defensible boundary. 	
<p>Conclusion- Key Strategic Constraints identified for Direction I</p> <p>The key strategic, spatial constraints are considered to be the potential for development to impact on Great Gonerby, Allington and Marston in terms of both coalescence and heritage assets. Other key constraints to be avoided are the extensive flood zone on Gonerby Moor, Allington Meadows SSSI and Marston Sewage Works and Hurn Wood SNCIs. An opportunity for a limit to development is provided by the Nottingham-Sleaford railway line.</p> <p>The resulting land considered suitable in terms of strategic constraints is shown in Figure 15. Note that the absence of strategic constraints does not necessarily indicate that the land is free from specific constraints at a local level, which will be assessed in the second part of this report.</p>		

Figure 14: Results of environmental constraints mapping for Direction I



2.23 Defining the next level of assessment

The constraints and opportunities identified in the tables above indicate that of the nine directions for growth, eight contain some land at or well-connected to the urban edge with potential for more detailed investigation.

The only direction for growth that we consider to have no further potential, either at a strategic or a more local level, is Direction B, where the location and scale of Belton Park acts to constrain wholly any further growth of Grantham in this direction.

This conclusion is illustrated by **Figure 15** below, which shows the spatial location of selected key constraints identified through the analysis above.

The spatial location of these key constraints enables six main areas relatively free from strategic constraints to be identified, which are marked in grey on **Figure 15**, and form the emerging basis for our Stage 2 analysis.

3 Assessment of specific locations

3.1 Approach

As illustrated in **Figure 15** above, detailed assessment of the constraints and opportunities identified in the tables above enables us to identify land within and cutting across Directions A and C-I that offers the potential for further investigation in terms of suitability for development.

We have identified this land by avoiding absolute, immovable constraints (also known as 'showstoppers') identified above such as floodplain, natural designations, heritage designations and the risk of coalescence. We have also taken into account the results of our geo-environmental assessment and the assessment of housing need.

However, the boundaries of the land for further investigation do not take into account a number of factors which will require re-investigation and definition at a more local level, and which will have the effect of significantly reducing the size of the land deemed suitable for development. These factors are not strategic-level 'showstoppers', but still have the potential to render land unsuitable for development when assessed at a local level. These include:

- Agricultural land quality (with a preference for locations that avoid the development of Grades 1 and 2 land);
- Transport and accessibility (with a preference for locations that can connect well to and are accessible from the town centre, by public transport and other means);
- Landscape (with visually prominent locations avoided and locations with the potential for landscape mitigation preferred);
- Infrastructure (with land able to be serviced by existing and new infrastructure preferred);
- Heritage (seeking to avoid impacts on the settings of any designated heritage assets, taking into account local landscapes and views);
- Regeneration potential (aiming to maximise regeneration opportunities);
- Economic development (aiming to maximise opportunities for economic development); and
- Spatial opportunities and constraints (seeking to maximise use of defensible boundaries and other obvious spatial opportunities)

Information provided by landowners across the study area has been taken into account, to inform our technical assessment of the suitability of land.

As with the assessment of strategic locations, we have taken into account a wide range of evidence when carrying out our assessment of specific locations. This includes local policy evidence base, landowner information, site visits, planning history (for example, appeal decisions) and the technical expertise of AECOM's in-house specialists.

The directions for growth which have been assessed as having development potential have been taken forward for detailed investigation. This land has been divided into five large-scale areas,

numbered from one to five. These are illustrated in **Figure 15**, and appear again in **Figure 16** below. In turn, these have been named:

- Area 1: North of Manthorpe and Gonerby Hill Foot;
- Area 2: East of Grantham;
- Area 3: South of Spittalgate;
- Area 4: West of Earlesfield;
- Area 5: Northwest of Grantham; and
- Area 6: Gonerby Moor

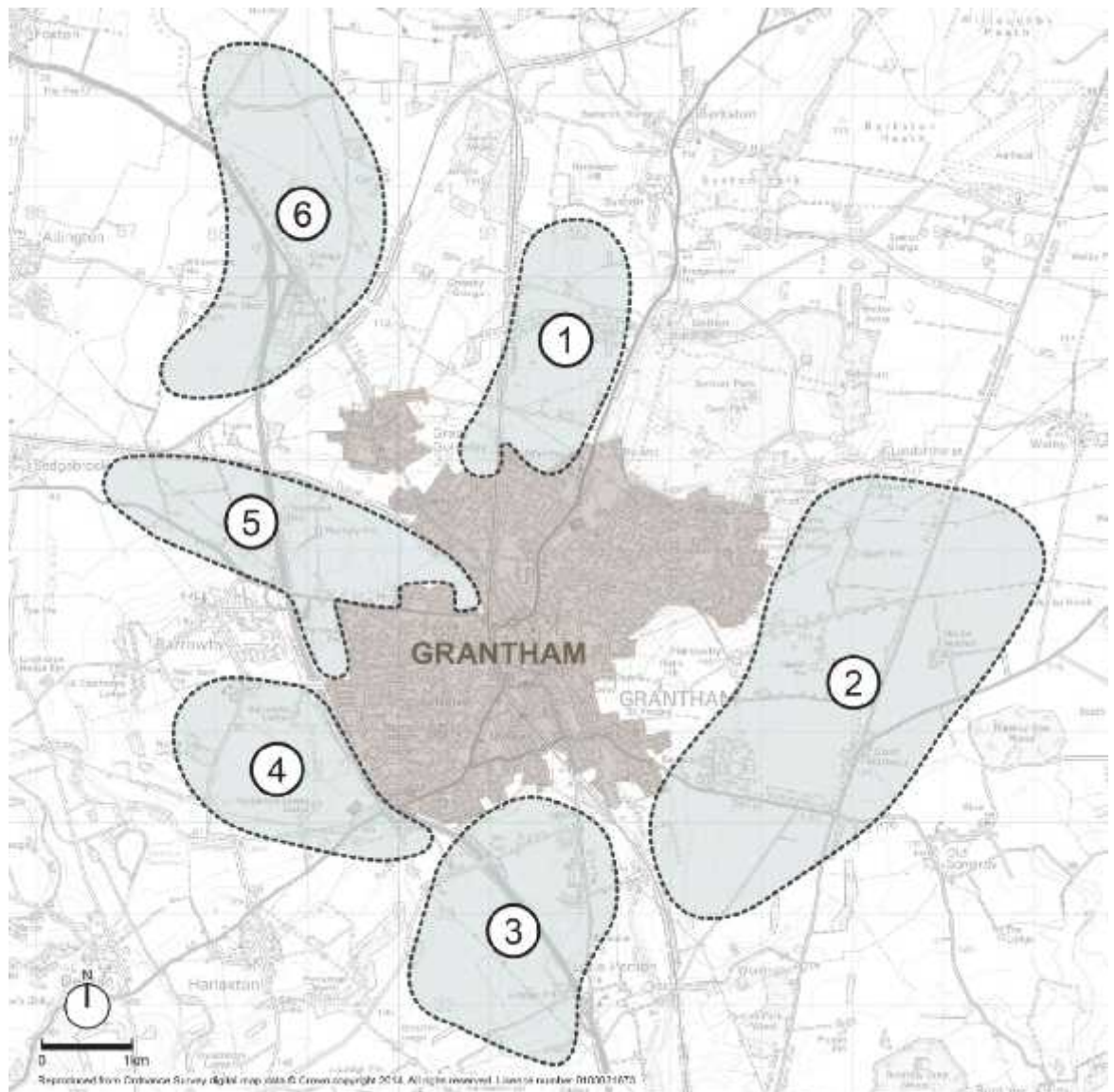


Figure 16: Numbered land areas with potential for further investigation of suitability

The remainder of this chapter examines each of these six areas in turn, recognising that much of the land within each area is likely to be unsuitable at a site-specific scale. Nevertheless, it is important that investigation of options at each location is thorough and exhaustive, as there is no ceiling on the extent of land we were commissioned to assess for development potential.

We have considered that land needs to be well-connected to the existing town of Grantham but this need not necessarily mean directly adjacent to the urban edge. This means we have the scope to assess free-standing development as long as it has the potential to be functionally linked to Grantham and ensures that the study area is not drawn too tightly around the existing settlement.

This approach ensures that we have gone beyond the boundaries of the Grantham AAP to ensure a fully inclusive approach, and helping ensure that development potential across the wider study

area is captured in its entirety. It also reflects the fact that in many locations, topography and landscape tend to combine to limit capacity directly adjacent to the urban edge.

To help ensure consistency, each area was assessed using the same methodology, on the same criteria and with criteria applied in the same order. The results of our assessment are detailed below.

3.2 Area 1: North of Manthorpe and Gonerby Hill Foot

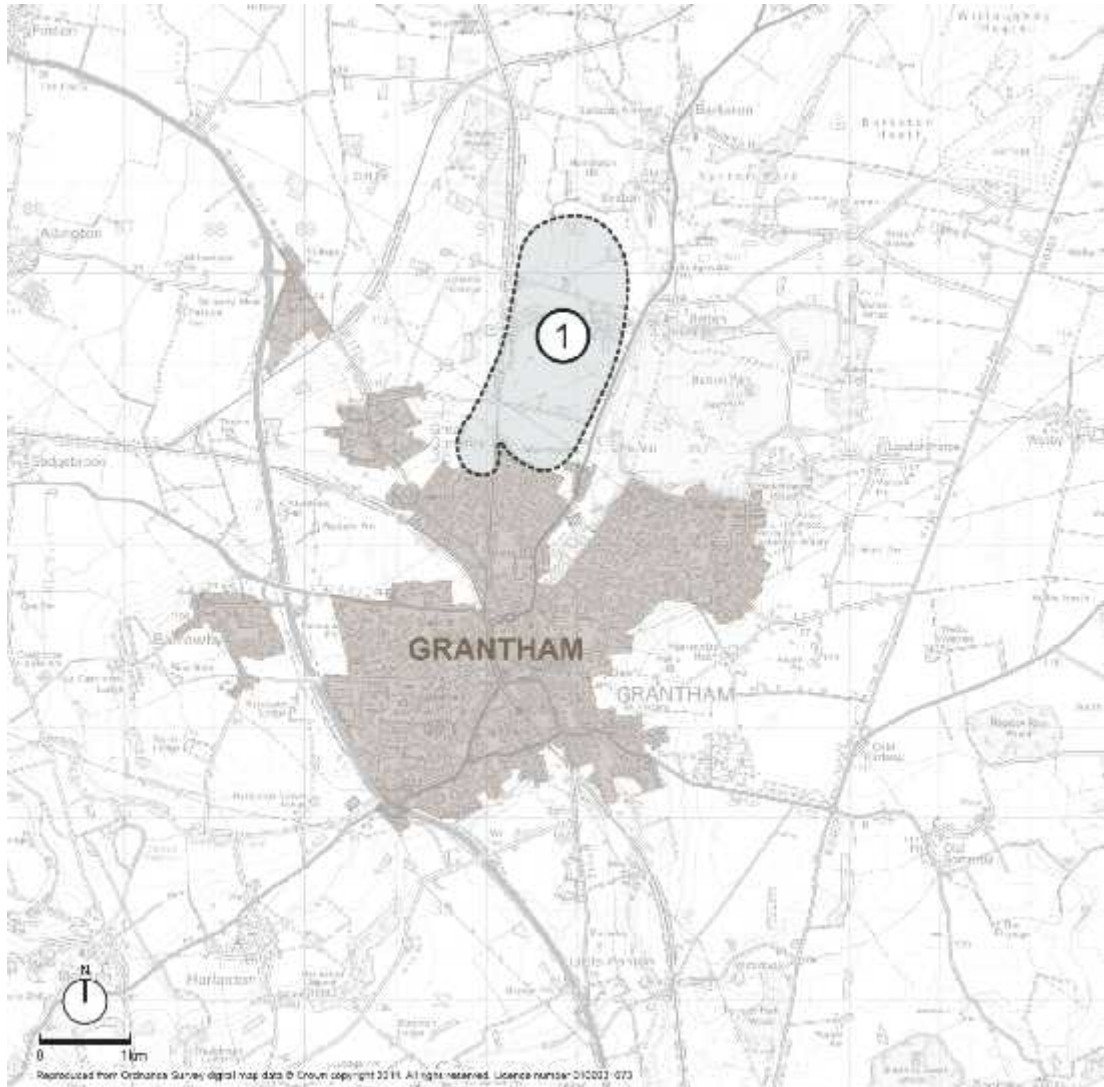


Figure 17: Area 1 before Stage 2 assessment

Agricultural land quality

The whole of the land within Area 1 is Grade 3 agricultural land. In line with our approach to agricultural land quality as set out previously, it is considered that all parts of Area 1 are equally suitable for development against this criterion.

Transport and accessibility

Alongside the relevant conclusions at a strategic level, the key site-specific considerations in terms of transport and accessibility for Area 1 are considered to be:

- The impermeability of the East Coast Main Line

- The transport conclusions and implications of the decision notice dismissing the appeal to develop land to the north of Grantham⁴
- The feasibility of connecting new development to the existing urban edge

These issues will be considered in turn.

East Coast Main Line

The expense and operational impact of constructing a new road or pedestrian crossing over the East Coast Main line is considered prohibitive here and elsewhere in the study area (in this location, the line is in a slight cutting, so a bridge rather than a tunnel would be necessary). For this reason, Area 1 can be considered to divide into two smaller areas- one to the west of the railway line and north of Gonerby Hill Foot and one east of the railway line and to the west of Manthorpe.

Land North of Grantham appeal decision

The 2012 appeal decision on the land north of Grantham being promoted for housing development made extensive reference to transport considerations in this location. As with many residential developments, local residents and politicians were concerned about the development's traffic impact, while the developers argued that the impacts were manageable.

In his conclusions, which were subsequently upheld by the Secretary of State, the Inspector considered that one of the main considerations with relevance to the proposed development of 1,000 houses was its impact on the highways network.

The scheme, which proposed to develop land north of the existing urban edge and as far north as Belton Lane, included provision for a new roundabout access at the junction of Belton Lane with the A607 and signalisation of the junctions of Longcliffe Road and Sandcliffe Road.

A planning obligation provided scope for improvements at the Belton Lane/Newark Hill junction as a reserve position but in the event, the appeal was dismissed and the decision upheld by the Secretary of State, so the obligation was irrelevant.

The Inspector rejected the appellant's suggestion that traffic light cycle times in the town centre could be increased. However, he concluded that although there would be inevitable traffic impacts as a result of the proposal, 'the changes in absolute terms are relatively small, with the delays restricted to limited links. With the development in place, the modelling indicates that the Manthorpe/Belton Lane approach would continue to perform significantly better than other town centre approaches, even without increasing light cycle times'.

Equally, in response to concerns about the use of Belton Lane, the Inspector stated that 'while an increase in use of the road for 'rat running' is suggested, with the benefit of the new roundabout it is likely that there would be an overall improvement in safety'.

The Inspector concluded his traffic comments by stating that 'in summary, the proposal would give rise to additional traffic which would have a negative impact on the operation of the highways network. Based on reasonable assumptions, it is likely that the magnitude of this would amount to a moderate adverse effect, with no significant increased risks to safety. However, there has been no assessment based on worst case assumptions regarding other future development and new infrastructure'.

⁴ Appeal number APP/E2530/A/11/2150609: Report to the Secretary of State by Terry G Phillimore dated 12 January 2012.

The development, had it been allowed, would have had access to the A607 bus corridor to the town centre. Additionally, as we saw previously, the Highways Agency are generally in favour of growth in this location as it has a minimal impact on the strategic road network. Although the proposed development was rejected for reasons other than transport impacts, it remains the case that any revised proposals for development in this location should seek to maximise use of public transport and cycling by ensuring strong links to the A607, subject to minimising other impacts on Manthorpe in terms of heritage and coalescence.

Ensuring that any new development in this location east of the East Coast Main Line links effectively to the A607 is all the more important given the distance to other main routes and the town centre. Along the southern edge of Area 1, there are a number of roads that are currently cul-de-sacs that have the potential to be extended into new development to the north⁵, but many of these, particularly to the west of the railway line, are some distance from the nearest main route into town in this location (the B1174 Grantham Road).

Connection to the A607 would also help significantly in mitigating the traffic impacts on these residential areas that would result if new development in this location were merely a northward extension of the existing cul-de-sacs, although any connection would need to carefully consider traffic and visual impacts on Manthorpe.

Landscape

The Landscape Character Assessment identifies the majority of Area 1 as having medium sensitivity to development with an area of medium-high sensitivity to the west of the railway line and high sensitivity to the north of Belton Woods Hotel. Within the Landscape Sensitivity and Capacity Study, areas G1A (west of the East Coast Main Line), G2A (east of the railway line) and G2B (west of Manthorpe) are located within Area 1. The Study states that area G1A and G2B have a low capacity for residential and commercial development and that G2A has a low to medium capacity.

For G1A, it states that development on the steep slopes (of Gonerby Hill) would be contrary to the general form and pattern of settlement, visual amenity would be significantly affected and could not be successfully mitigated. The study suggests that there is the potential for development between the young belt of planting and existing housing at Gonerby Hill Foot where it would have some association with the town and reduced visual intrusion into the countryside due to the existing planting.

For G2A, the Landscape Sensitivity and Capacity Study concludes that the landscape has a high sensitivity to development due to the impact on the setting of the town and the rural character of the site. This is especially the case with any development to the north of the area, as it would be isolated from the town and would detract from important aspects of settlement form and pattern. However, some development could be accommodated at the southern boundary of below the 65 m AOD contour.

By contrast, G2B close to Manthorpe has a slightly lower capacity than site G2A, reflecting its more intimate, mature character and presence of locally important features and parkland setting.

The topography within Area 1 steadily rises to the south west from the valley surrounding the River Witham towards Great Gonerby. Land at Gonerby Hill Foot rises steadily towards Great Gonerby to the west. The existing residential development at Gonerby Hill Foot is visible from views from the

⁵ From west to east, roads with potential for northward extension include Lynden Avenue, Vivian Close, Vernon Avenue, Beaumont Drive, Applewood Drive, Longcliffe Road, Wensleydale Close, Borrowdale Way and Rosedale Drive.

north, although the existing tree planting located to the east helps to soften the visual impact of the development.

The existing Belton Golf Course is generally screened by high roadside hedges and mature hedgerow trees along Belton Lane and the A607. The golf course provides a strong parkland character appropriate for the setting of Belton House and Park, which lies to the east of the A607.



Figure 18: Area 1 land west of railway line, showing Gonerby Hill. Houses in Gonerby Hill Foot are visible on horizon but note visual separation from all heritage assets in Great Gonerby itself (beyond ridgeline)

Infrastructure

We noted in our assessment of strategic locations that this is the preferred location for growth for Western Power Distribution and that there is grid capacity available at present, with some electricity infrastructure crossing the area (GRA29, Appendix C). Equally, there is planned investment to serve housing growth in terms of water and sewerage services. GP and dentist services could be needed, but it would be relatively straightforward to deliver these as part of the new development, and indeed primary healthcare was one of the less contentious features of the development proposals.

Heritage

Heritage was a central issue on the development proposal, and as such the appeal decision referenced it extensively. The issue centred on the visual impacts of development south of (but up to) Belton Lane on the setting of the Grade I listed Belton House and its surrounding park (which is

itself a Registered Park and which contains additional designated heritage assets). Both the National Trust, as the owner of Belton Park, and Historic England were opposed to the development for this reason. Equally, the Core Strategy references the need for nearby development to 'help maintain the significance of its heritage assets'.

The impact on the setting of heritage assets was one of the main considerations in the Inspector's conclusions. He stated that 'there is no dispute that the site is within the setting of the park. The proposal would have no direct effect on the fabric of the house, but the Park and House together provide an ensemble of assets which are closely related.'

The Inspector continued: 'The westward view from Bellmount Tower, agreed to be important, is towards the House, and the site is visible in that panorama. On this basis at least, the site is within the settings of the Park, the House and the Tower by virtue of being part of the surroundings in which the assets are experienced (which is the definition of setting given in PPS5)⁶'. The main parties make frequent reference to the singular Belton 'heritage asset', but this comprises individual designated assets which share elements of setting.

The Inspector went on to conclude that the notion of borrowed landscape (i.e. landscape beyond the park boundary itself used as a setting for the house and park by its designers) is a reasonable one in the case of Belton Park, and that this notion is most obvious with the western view from Bellmount Tower, 'in which a vista of extensive areas outside the Park appears to have been deliberately provided'.

The Inspector also concluded that similar considerations applied in respect of views to the west from the Park's south avenue and from the surrounding countryside towards the Park and the Tower and that these aspects of the setting 'contribute positively in historic and aesthetic terms to the significance of the assets'.

The Inspector disagreed with criticisms of the proposed mitigation planting, stating that blocks of trees are not out of keeping with the existing landscape. Notwithstanding this planting, however, 'the dominance of the [heritage] assets over the countryside in historic and aesthetic terms would be materially reduced, and that there is no dispute that harm would arise from the proposal.

However, the Inspector disagreed with Historic England and the National Trust in judging that the degree of harm would be less than substantial. Where the identified harm is less than substantial, the requirement under PPS5 was to demonstrate that the harm is necessary in order to deliver substantial benefits that outweigh the harm. The Inspector's conclusions were that such benefits did not outweigh the harm and therefore dismissed the appeal.

Figure 11 of the Belton House and Park Setting Study (2010) shows that almost all of Area 1 is within the area visible outside of the park from Bellmount Tower, and Figure 10 shows that part of the centre of Area 1 is also visible from the roof of Belton House.

Figure 16 of the same study shows that Area 1, including the area closest to the existing urban edge, comprises Elements 1 and 3 of the setting of Belton House. The study states that Element 1 land is sensitive to small-scale development above two storeys, development in groups, development using highly visible materials and development adjacent to detracting elements⁷. For medium-sized development, Element 1 is 'exceptionally sensitive' on raised ground and flat ground within 2km of the park. For major development, Element 1 is exceptionally sensitive except on flat ground 2-5km from the park, where it would have to be two storeys or less.

⁶ Since the appeal decision, this definition has been carried forward from PPS5 into the National Planning Policy Framework, which, although it supersedes PPS5, means this point is still relevant for the current planning context

⁷ For the purposes of Area 1, this means the holiday chalets at the north-west corner of the Belton Woods Hotel and Golf Club.

For Element 3 land, the foreground is sensitive to small-scale development that obstructs views into the park. For medium-sized development, the foreground rises to 'very sensitive' and other aspects are sensitive. For major development, the foreground remains very sensitive and the views over the park are more sensitive than the parts of views to the sides of the park.

For the land to the west of the railway line, there is complete visual separation from the hilltop heritage assets at Great Gonerby, which lie over the ridgeline as viewed from the Belton Lane railway bridge, a viewpoint with a good view across the whole site. This would be in line with the Grantham AAP and Grantham Townscape Assessment objectives to ensure growth from Grantham has minimal impact on Great Gonerby.

More important would be the land's visibility from Belton House and grounds, as Gonerby Hill rises steeply on the western part of the site. This land was assessed as Element 1 in the Belton House Setting Study, but much of it is just beyond the 2km mark from the centre of the park. Therefore, the assessment of the Setting Study for development on flat land in this location would be 'not sensitive'.

However, the land up the hill would be more sensitive, although it is more than 2km from the park, meaning it would be rated 'sensitive' to development rather than 'exceptionally sensitive'. Additionally, like the rest of Gonerby Hill Foot, development up the slope here would have the potential to impact on the perception of Grantham as being surrounded by a 'green bowl' of hills, particularly on views into the town from the east and south. In this regard it could therefore affect the setting of St Wulfram's Church spire, which is a Grade 1 listed heritage asset.

The planning application was considered by the Inspector and the Secretary of State to preserve the character of the Manthorpe Conservation Area. It is important that any future development also minimises impact on the setting of and views into and out of the village conservation area, as well as the setting of listed buildings.

Regeneration potential

Based on the scores and rankings of Lower Super Output Areas (LSOAs) within Area 1, development in the northern part of the area would be more beneficial on this criterion than development to the south, although no part of Area 1 is significantly deprived, meaning little weight need be attached to this criterion.

Economic development

Further to our conclusions in the assessment of strategic locations, it is considered that the area has little potential for employment development, based on its existing residential and rural land uses and its location relative to the strategic road network and the likely impact on traffic through the town. On this basis we consider that Area 1 would be more suitable for residential and supporting uses than it would for commercial or industrial development. However, as was pointed out by the Inspector in his appeal decision on the development proposal, 'no development specifically for employment use is included within the proposal, but some employment would be provided by the non-housing uses including retail, health and education'.

Spatial opportunities and constraints

We noted previously that for development adjacent to the urban edge, Belton Lane formed a logical defensible boundary, with few other such boundaries to its north. However, given the conclusions of the appeal decision on the planning application to develop up to Belton Lane, where development was rejected on other criteria, it would seem prudent for a more southerly defensible

boundary to be defined, with the logical line being the electricity pylons running NW-SE across the land.

The approach to using pylons as a defensible boundary to development is supported by relevant National Grid guidance⁸, which states that:

'Due to environmental, technical and cost reasons, National Grid prefers to retain its lines in situ, and encourages developers to plan and lay out their development taking the presence of the overhead line into account.'

'National Grid recognises that there may be exceptional circumstances where development is of national or regional significance that may justify the moving or undergrounding of an existing overhead line, but it is likely that, for most development, the line will remain in situ.'

The guidance does not set or suggest any specific distance as a buffer between pylons and development, but points out that design opportunity and freedom diminishes closer to the transmission route, suggesting that soft landscaped boundaries are more appropriate than built development along a site edge defined by a transmission line.

If the pylons are accepted as the northernmost defensible boundary on the east side of the railway line, it remains important to avoid coalescence with and/or impacting on the distinct character of Manthorpe Although as noted previously the earlier planning application was considered by the Inspector and the Secretary of State to preserve the character of the Manthorpe Conservation Area, there was no specific reference to the risk of coalescence in the appeal decision or Secretary of State's letter. This would indicate that any boundary of potentially developable land should be located no further east than the boundary of the previous planning application..

Belton Lane is also the logical northern defensible boundary on the west side of the railway line. However, there is a lack of defensible boundaries on the western side of the land free from other constraints at this location, other than the requirement for any development here to maintain the existing distance between the edge of Grantham and the edge of Great Gonerby so that the risk of coalescence is avoided.

3.3 Area 1 Conclusions

Land with constraints to development

One of the key factors in determining the suitability or otherwise of Area 1 land is the impact of development on the setting of Belton House and Park.

The assessment of Area 1 has taken into account the recent appeal decision and Inspector's report (Reference APP/E2530/A/11/2150609). The Inspector concluded that for development of land south of Belton Lane, it was beyond doubt that development would cause harm to the setting of Belton House and Grounds, although he considered the harm less than substantial.

Based on this judgement, we consider that any development north of Belton Lane, which would be closer to and hence more visible from a number of viewpoints in Belton Park, would also cause harm to its setting. We consider that any land whose development would cause harm to the setting of a heritage asset, even where that harm has the potential to be judged less than substantial, should for the purposes of this strategic study be considered unsuitable for development. Furthermore this land is classified as highly sensitive in the Landscape Sensitivity and Capacity Study.

⁸ Available at <http://www2.nationalgrid.com/UK/Services/Land-and-Development/A-sense-of-place/>

This means that all of Area 1 to the north of Belton Lane should be judged **not suitable** for large scale growth.

To the west of the railway line, the raised land, as noted above, could be considered 'sensitive' from the perspective of the Belton House Setting Study. However, as Element 1 land, it performs no worse than the land south of the pylons to the east of the railway line in this regard.

More importantly, development here would have the potential to further disrupt the perception of Grantham as set in a 'green bowl' of hills (already negatively impacted by Gonerby Hill Foot), and may have an impact on the setting of St Wulfram's church spire (which is a Grade I listed building) as viewed from the east, southeast and south. This area is classified as medium-high sensitivity in the Landscape Sensitivity and Capacity Study. As such, we judge that the land west of the railway line that is higher on the slopes of Gonerby Hill is **not suitable** for development.

Land with potential for mitigation

For land in the south of Area 1, it has been established that development as far north as Belton Lane would cause harm to the setting of Belton House. There may however be potential for some development south of Belton Lane.

The most logical defensible boundary south of Belton Lane is the row of pylons. Land between the pylons and the urban edge forms a low hill and is not considered especially visually prominent, as well as being further from Belton House. However, here, the importance of avoiding coalescence with Manthorpe remains an important consideration, and as such there should be a clear space between the east of the developable site and the western edge of Manthorpe, with appropriate planning to reduce visual impact and ensure that harm is not caused to the setting of Manthorpe's numerous heritage assets. Given that it was established at a planning appeal that the eastern boundary of the appeal site is considered to perform satisfactorily in this regard, this boundary can be retained to denote the limit of the land considered suitable.

An additional benefit of limiting development to south of the line of pylons would be to avoid the land north of Manthorpe (and presumably, north of the pylons) that was assessed as not suitable in transport terms by the Grantham AAP Transport Delivery Plan⁹

The conclusions of the Landscape Capacity Assessment would suggest that land more suitable for development south of the pylons lies below the 65m contour, which reduces the developable area only slightly. This area would potentially be suitable for use as open space as part of new residential development..



Figure 19: Area 1 land east of railway line, showing pylon line forming northern boundary of potentially suitable land. Note also relative flatness of landscape

Taking into account the previous appeal decision, development on this scale is likely to have transport impacts that can be mitigated. There is potential to connect well to the existing urban edge and into the town centre along the A607 Manthorpe Road. The land performs well on criteria including agricultural land quality, infrastructure and spatial opportunities/constraints. However, some of the land south of the pylons (albeit a flat part) falls within both Element 1 and Element 3 for the purposes of the Belton House Setting Study, meaning development here has the potential to be considered 'exceptionally sensitive' depending on its scale.

Subject to appropriate mitigation as set out above, we judge that the part of Area 1 adjoining the existing urban area, south of the line of pylons and below the 65 metre contour is **suitable** for residential development.

West of the railway line, the land on the valley floor is far enough from Belton House to perform well on the Belton House Setting Study criteria, and, like the land south of the pylons on the other side of the railway line, has the potential to connect to the town centre via Applewood Drive and the B1174, as well as having the potential to create a new connection onto Belton Lane to the north. This location was also assessed as suitable in transport terms in the Grantham AAP Transport Delivery Plan, and as previously noted, it is entirely separated visually from heritage assets in Great Gonerby. It also performs well on the criteria of agricultural land quality and infrastructure. This location was considered to have medium to high sensitivity in the 2007 Landscape Character Assessment, but it is concluded that, given the scale of land covered by this rating, and most of which is hillside, the higher sensitivity rating applies to the hillside and the medium to the less visible valley floor.

To preserve the setting of Great Gonerby as a hilltop settlement, and the ‘green bowl’ around Grantham, development should not extend higher than the 70 metres AOD contour. This would be in line with the Grantham Townscape Assessment aim of avoiding built development encroaching on the higher scarp slopes, a distinctive feature of Grantham also noted in the South Kesteven Landscape Character Assessment. Development here could also benefit from additional screen planting to soften the development edge.

Subject to these mitigation measures, this land is considered **suitable** for development.

Figure 20: Selected key spatial constraints informing Stage 2 assessment of Area 1

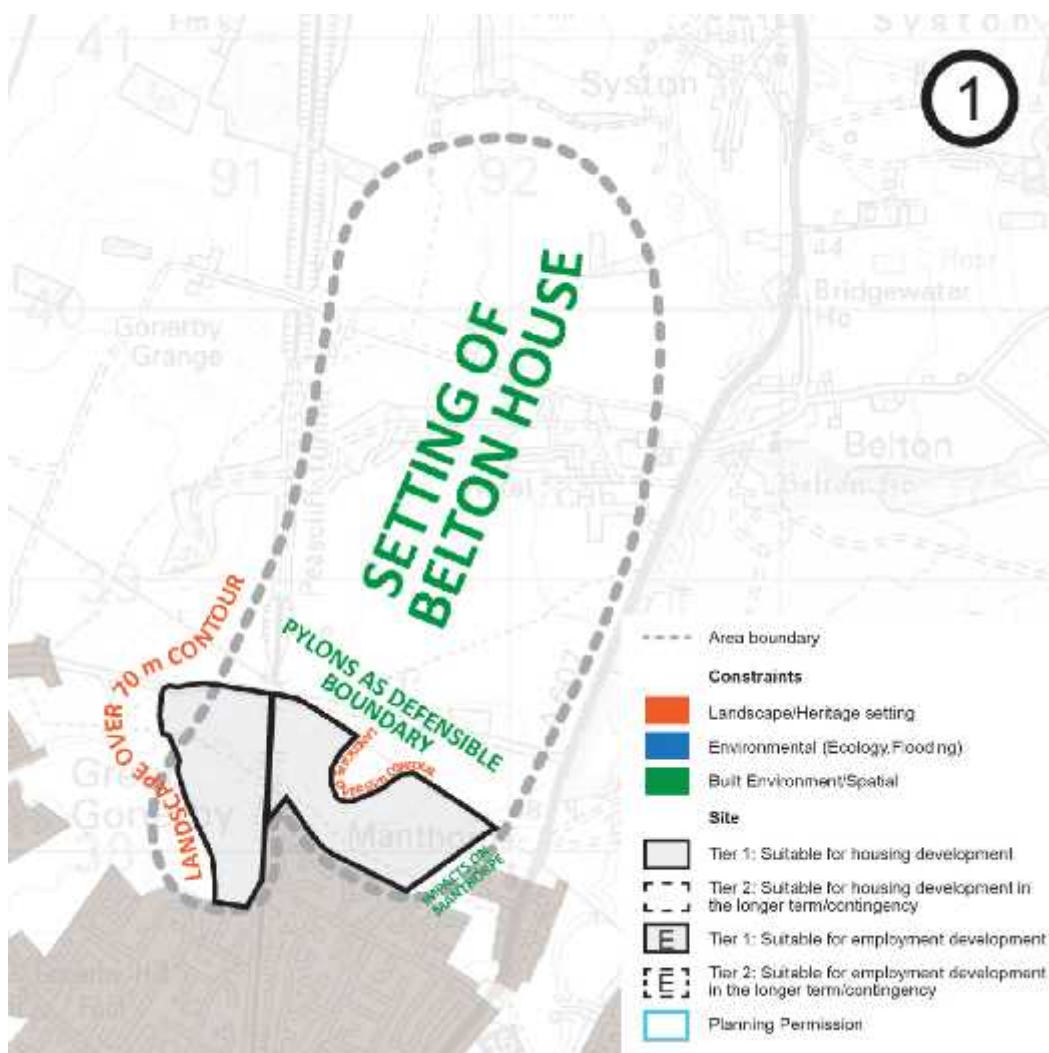
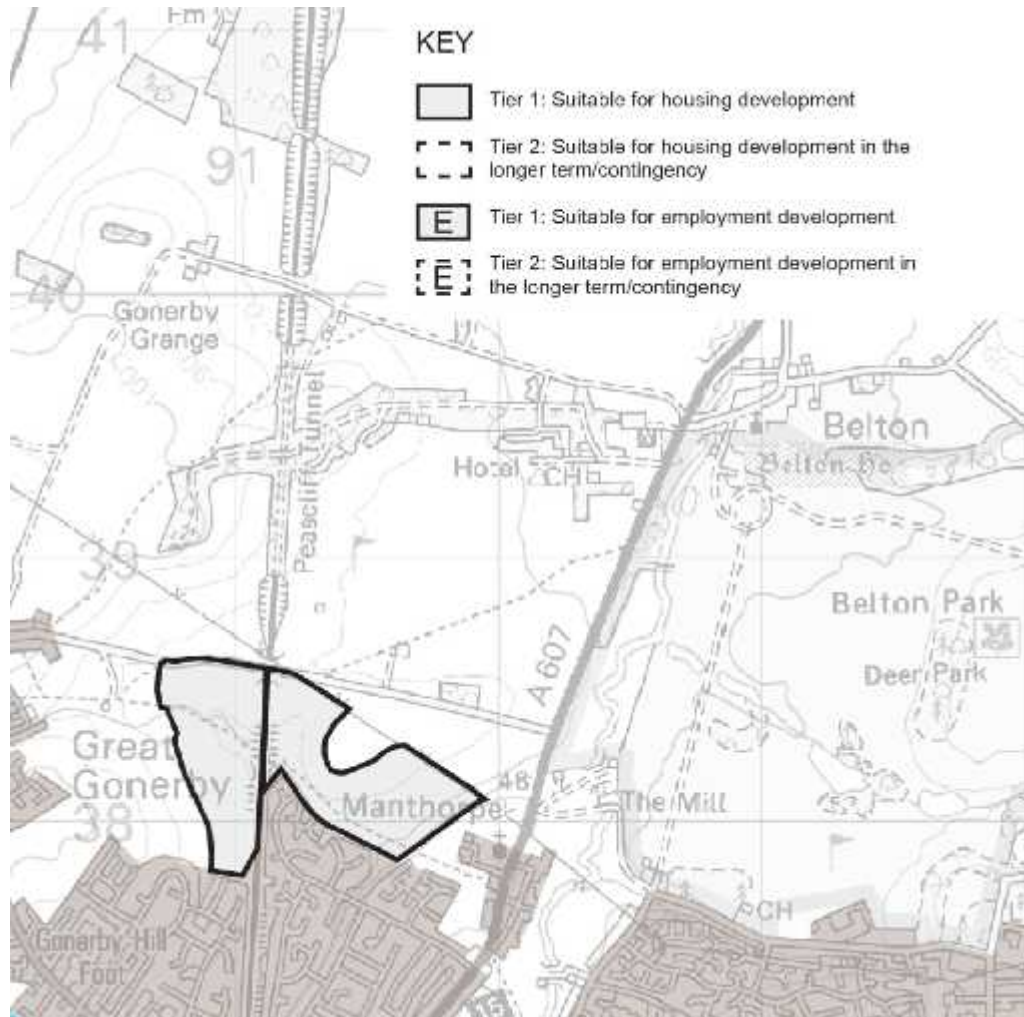


Figure 21: Area 1 after Stage 2 assessment



3.4 Area 2: East of Grantham

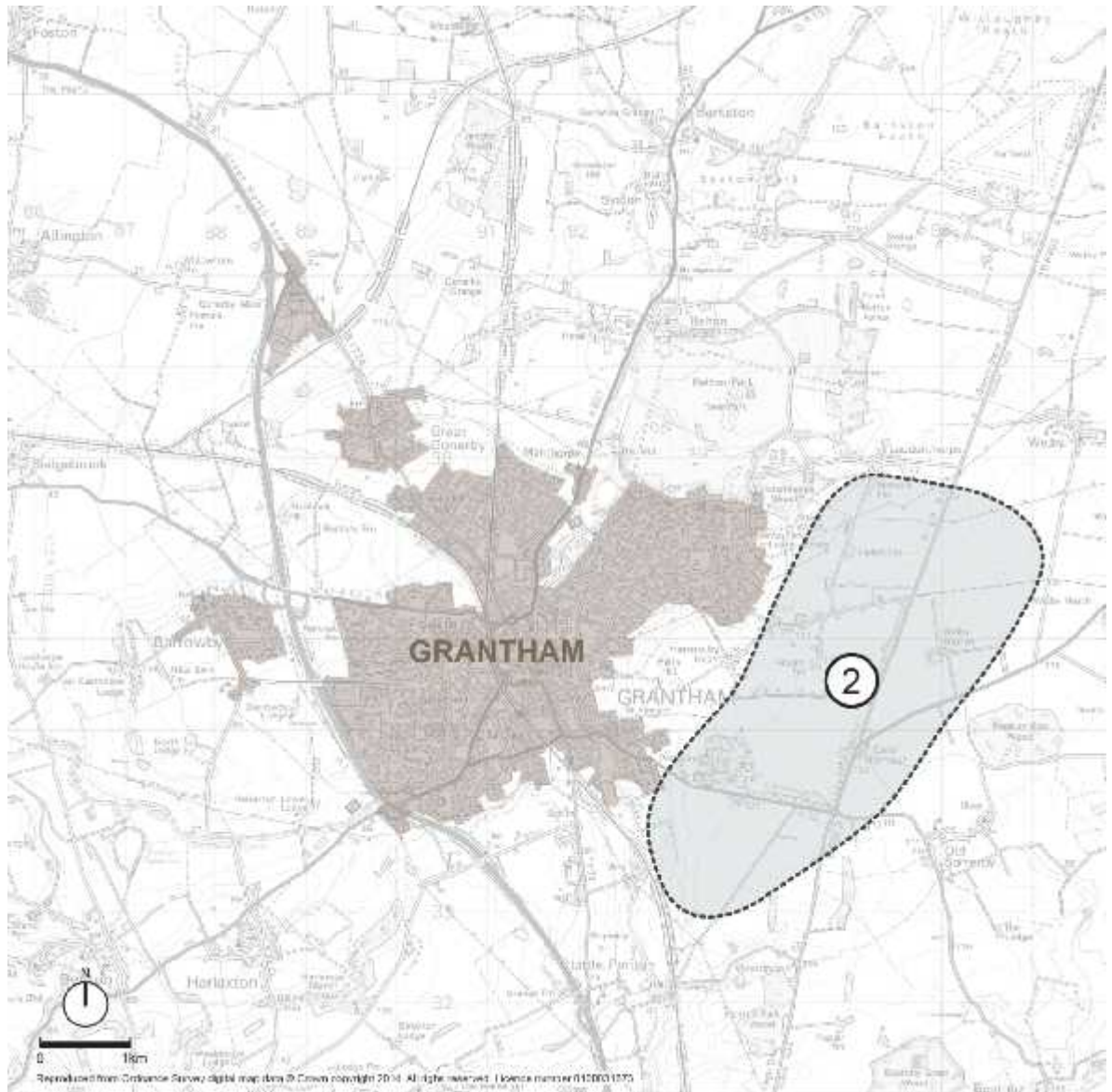


Figure 22: Area 2 before Stage 2 assessment

Agricultural land quality

Almost all of Area 2 is Grade 2 agricultural land. The exceptions are a small part of its north-eastern area, which is Grade 3 land, and the land covered by the Prince William of Gloucester Barracks and the roughly rectangular land to its east and west of Ermine Street/High Dyke, which is classified as non-agricultural as it was the former location of RAF Spitalgate.

The extent of Grade 2 agricultural land, and the fact that the lower quality Grade 3 land is small in extent and further from the urban edge, means that Area 2 is relatively less suitable on this criterion than the other Areas assessed in this chapter. However, unlike Areas 4 and 5 it contains no Grade 1 agricultural land, and the relatively large extent of land classified as non-agricultural towards the southern end of Area 2 may nevertheless offer some potential in terms of suitability for development.

Transport and accessibility

On this criterion, the most suitable parts of the otherwise largely undeveloped Area 2 would be the A52 Somerby Hill corridor, and to a lesser extent Harrowby Lane. The A52 corridor was also assessed as suitable for development in the Grantham AAP Transport Delivery Plan. Although Ermine Street/High Dyke also forms a north-south transport corridor on the edge of Area 2, it is not a radial link to Grantham town centre and bypasses Grantham entirely, so for the purposes of this study its potential has been excluded.

However, the proposed Grantham Southern Relief Road, whose route extends across the southern part of Area 2 to the south of the A52, would greatly increase the connectivity of this area to the A1 while reducing traffic impacts through the town itself, to the extent that the Lincolnshire Local Transport Plan considers that a town-wide HGV ban could be implemented after it opens.

We consider the A52 Somerby Hill to have potential due to its existing good bus services and relatively direct path to Grantham town centre. Note also that this area was considered an acceptable direction for growth by the Highways Agency due to its relatively limited impact on the Strategic Road Network.

On the assumption that radial links connecting to the town centre may be suitable as development spines, Harrowby Lane, which is also a bus corridor between Grantham and Welby, may also offer some potential. However, the road is narrower than Somerby Hill (6 metres versus 8 metres) and the route to the town centre is less direct.

The Southern Relief Road will create a new corridor offering development potential and form a key component of the transport infrastructure investment needed for employment land noted by the Employment Land Capacity Study. As it will link directly to the A1, it would increase the attractiveness of the area to employers, with the added advantage of reducing lorry and van movements through the town itself. However, its potential as a public transport corridor is perhaps more limited due to its orbital rather than radial nature. Additionally, the Southern Quadrant Masterplan SPD highlights new cycle and pedestrian connections both within the site and via the River Witham corridor to the town centre.

New development at both Somerby Hill and Harrowby Lane would be close enough to the town centre for cycle links, but the significantly heavier traffic on Somerby Hill is likely to make Harrowby Lane the more attractive option in terms of cycling. However, were the barracks site to become available, there is significant potential to develop a dedicated cycle corridor along the north side of the A52, which would carry additional safety benefits. Likewise, a cycle corridor could be developed alongside the proposed Southern Relief Road.

With the exception of these road corridors, the rest of Area 2, in particular the land east of Ermine Street/High Dyke, is relatively remote from Grantham and as a result is considered significantly less suitable on this criterion in terms of transport and accessibility.

Infrastructure

As in many locations, it is anticipated that new residential development in Area 2 would require new primary healthcare facilities to be provided. In addition, with very little publicly accessible open space, open space could be a suitable feature of new development in this location.

Anglian Water did not offer any specific view on water or sewerage capacity in this location, but the Grantham Water Cycle Study identified that a new sewage treatment works would be required to serve proposed development at the Southern Quadrant.

Western Power Networks stated that there is no grid transformer capacity in the north of Area 2 and as such primary transformers would require upgrading, and significant new infrastructure would need to be installed. In the south, new infrastructure provision would also be expensive.

However, as noted in our assessment of strategic locations, Large Sites Infrastructure Programme funding has been secured by South Kesteven to help deliver the South-Eastern Quadrant growth proposed in the south of Area 2, and it is assumed that this will assist in the delivery of grid capacity for the area south of the A52.

Infrastructure currently proposed at the Southern Quadrant includes a new local centre, new primary and secondary schools, new sports facilities, new allotments and the creation of a Green Infrastructure corridor along the River Witham.

Landscape

Area 2 comprises an area of generally level ground to the east of Grantham. The site lies to the east of the scarp slope, which is the defining characteristic of the eastern edge of Grantham and forms a distinctive feature. The scarp slope is visible within many views from Grantham itself.

The 2011 Landscape Character Assessment identifies the majority of Area 2 as having medium-high sensitivity to development with an area of high sensitivity to Harrowby Lane and medium sensitivity to the south of Grantham, without the addition of the Southern Quadrant development. Areas G3A, G3B, G3C and G6 within the Landscape Sensitivity and Capacity Study 2011 and area A within the 2013 update of the study are located within Area 2, with area G3A comprising the scarp on the eastern edge of town, G3B covering Hall's Hill and G3C covering the Prince William of Gloucester barracks. Area G6 covers the land north of the A52 between the urban edge and the barracks, and is redesignated as area A in the 2013 update.

Area G3A is considered to offer low capacity and area G3B is considered to have low to medium capacity, because development in these locations would be prominent and conspicuous and is unlikely to be viable in the case of G3A due to the steep slope. In addition, development here could affect important public amenity value by way of views and biodiversity interest.

The Barracks and disused Spitalgate Airfield sites are generally well screened due to dense plantations and roadside vegetation along the A52 and Ermine Street/High Dyke. This is area G3C and is considered to have medium to high capacity for residential and commercial development as it is concluded to offer little importance to the setting of Grantham. The land to the west of the barracks, i.e area G6, is considered to have low to medium capacity within the 2011 Study but a medium landscape capacity within the October 2013 Study, albeit that the 2013 Study recognises the importance of this land in the setting of the town.

APPENDIX 3: OVERALL LANDSCAPE CAPACITY OF SITES G1-G8 IN THE 2011 DTA STUDY

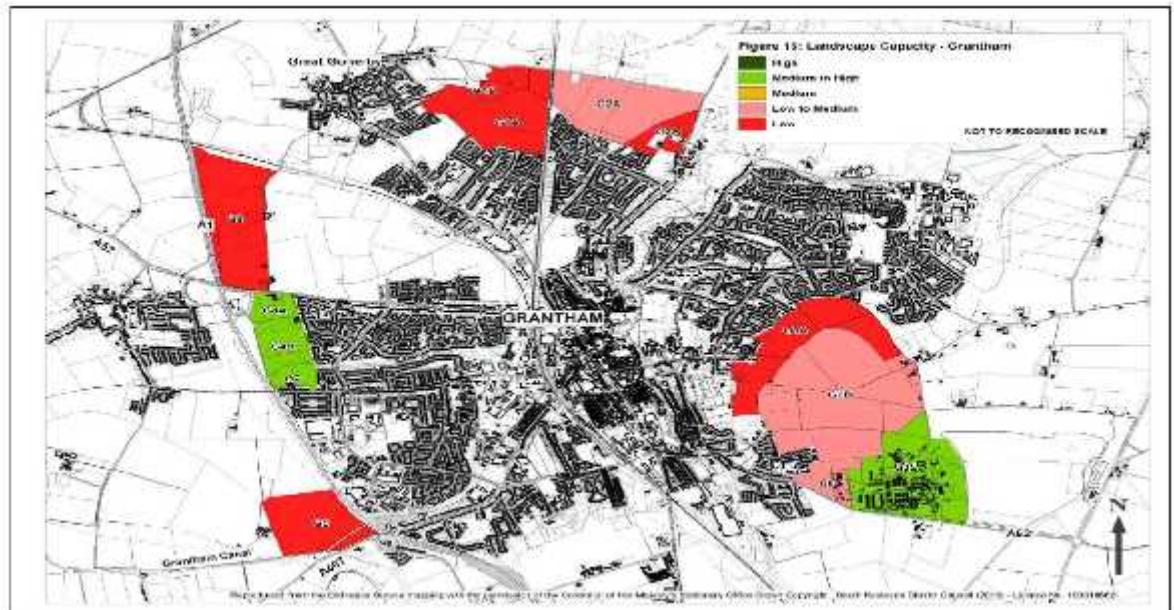


Figure 23: Conclusions of 2011 Landscape Sensitivity and Capacity Study

The land to the east and north is generally a large-scale, remote, open, flat arable landscape divided by low hedgerows. A number of electricity pylons and lines are located amongst the fields to the south of Londonthorpe, where a electricity substation is located. A transmission station is also located off Newgate Lane.

The Landscape Sensitivity and Capacity Study describes part of the area as having an indistinct character and commonplace landscape elements that could be easily replaced. However, the report acknowledges that the function of the western edge of Area 2 is important in the setting of the town.



Figure 24: The flat, relatively featureless plateau in the northern half of Area 2 means land here performs poorly on the landscape criterion, but equally the location of development is sensitive to long-distance views



Figure 25: View of former RAF Spitalgate site from Turnor Road to north



Figure 26: Land west of barracks and north of A52 with Grantham on horizon, showing potential visibility of development in this location



Figure 27: View from Area 3 back towards Area 2 across the Witham valley. Note strong landscaping of barracks (on left side of horizon) and high visibility of land (green fields in centre) currently proposed as residential element of Southern Quadrant

Heritage

The Belton House and Park Setting Study (2010) notes (Figure 10) that part of the northwest edge of Area 2 is visible from the roof of Belton House and from Assessed View M. Additionally the northern tip of the area overlaps very slightly with land visible from Assessed View L (the Assessed Views are viewpoints outside the park that, although not designed views, nevertheless have acquired some significance in terms of the park's wider setting).

As with Area 1, the north-west portion of Area 2 comprises in the Belton House and Park Setting study Element 1 and Element 3 land (see Area 1 for a detailed description of the elements). However, the land in Area 2 is flatter.

The Belton House and Park Setting Study designates the remaining majority (i.e the east, centre and south) of Area 2 as Element 5 land. Element 5 is defined as not sensitive unless development rises above the ridge or tree lines, in which case it would be defined as exceptionally sensitive.

The other heritage considerations include the setting of the listed buildings and conservation area at Londonthorpe, the setting of the designated Grade II* assets at Harrowby Hall, and the setting of listed buildings at the Prince William of Gloucester Barracks and at Cold Harbour.

Heritage assets at Londonthorpe

Due to the fact that the northern part of Area 2 is on a relatively flat plateau, the heritage assets at Londonthorpe to its north are visible for quite some distance to the south, particularly west of Newgate Lane, meaning that the land west of Newgate Lane and north of Harrowby Lane performs poorly on this criterion.

However, land east of Newgate Lane becomes more suitable on this criterion south of Heath Farm¹⁰ as it is beyond a ridgeline separating it from Londonthorpe, and south of Harrowby Lane is considered distant enough from Londonthorpe's heritage settings not to cause harm.

Harrowby Hall

Harrowby Hall is a Grade II* listed building. Although it is concealed in a small dip at the edge of the wider plateau, and hence is not visible from a great distance, development on the rising land to its south would have the potential to cause harm to its setting.



Figure 28 View from rising land to south towards Grade II* listed Harrowby Hall and surrounding buildings

Other listed buildings

There is a listed building within the Prince William of Gloucester barracks, which was inaccessible on our site visit. However, it is expected that it could be retained in any redevelopment of the barracks and its setting significantly improved from the existing situation.

¹⁰ Confusingly, there are two Heath Farms on the plateau east of Grantham only one kilometre apart. The reference here is to the Heath Farm on the east side of Newgate Lane.

The listed stable block at Cold Harbour is well-set back from Ermine Street/High Dyke and is screened from it visually by other buildings; there is also extensive tree planting obscuring views to the west from Cold Harbour. Its setting is therefore considered unlikely to be impacted by any new development west of Ermine Street/High Dyke.

St Vincent's House is a Grade II listed building on the urban edge of Grantham that is visible from the south-west corner of the barracks on the A52, and as such the undeveloped land between the barracks and the urban edge contributes to its setting.

Southern Quadrant Masterplan

As currently proposed, the residential development ascending the slope on the east bank of the River Witham could impact on the setting of St Wulfram's church spire as viewed from the north and west, including the view from Gonerby Hill considered important in the Townscape Assessment. This consideration would also apply to any development on the same slope north of the A52 between the barracks and the urban edge of Grantham.

However, we note that Historic England (at the time, English Heritage) supported the allocation of land forming the Southern Quadrant through the Core Strategy process, and that this support from a statutory advisor on the historic environment carries significant weight. Furthermore, Historic England's comments on the Southern Quadrant Masterplan SPD do not mention any impact on the setting of St Wulfram's church.

Regeneration potential

On this criterion, the parts of Area 2 that are most suitable for development would be those closest to the urban edge. In particular, Cherry Orchard and Alma Park suffer from a relatively high level of deprivation. However, with the boundary of Area 2 not directly adjacent to the urban edge, the potential for there to be positive impacts from development along Harrowby Lane is probably limited.

The south-eastern suburbs of Grantham along Somerby Hill also exhibit a moderate level of deprivation, albeit less so than Cherry Orchard and Alma Park. However, with a far more direct corridor between these suburbs and any potential development further east along the A52, there could be some regeneration benefits here. Additionally, the proposed Southern Relief Road is likely to increase the attractiveness of this part of Grantham to employers.

Economic development

As noted in our assessment of strategic locations, and notwithstanding the Alma Park Industrial Estate, much of the north of Area 2 is not well located in terms of employment potential. However, the proposed Southern Relief Road will significantly increase connectivity to the Strategic Road Network and as such there may be some potential for economic development to the south of Area 2.

However, as per the Southern Quadrant Masterplan SPD a more appropriate location for large-scale employment development would probably be closer to the A1 corridor (i.e. south of Grantham and southwest of Area 2), which would keep employment-related traffic further away from existing and proposed residential areas to the east and south-east of the town.

Spatial opportunities and constraints

The most obvious defensible boundary to the outward growth of Grantham in Area 2 is Ermine Street/High Dyke. This is supported by the rural, undeveloped character of the countryside to its east.

To the west of Ermine Street/High Dyke, the southernmost line of the numerous electricity pylons running east from Alma Park offers potential as a northern defensive boundary (taking into account the previously quoted National Grid design guidelines) if development occurs along the Harrowby Lane corridor.

In the centre of Area 2, Turnor Road could be used as an effective defensible boundary either as a southern boundary to development along Harrowby Lane or as a northern boundary to development along the A52 Somerby Hill. In the latter case, it would have historical justification, as it was also the northern boundary of RAF Spitalgate.

At the southern end of Area 2, which currently lacks defensible boundaries, the proposed Southern Relief Road would provide an obvious and strong limit to development to the south, and indeed is employed as such in the current proposals for the Southern Quadrant.

As an area with a relatively sparse population, coalescence with existing settlements is not considered a significant risk in Area 2. Cold Harbour is a small collection of houses rather than a free-standing village, and is in any case largely screened from land to its west by tall trees and hedges.

3.5 Area 2 Conclusions

Land with constraints to development

Broadly, the best-performing part of Area 2 on most criteria is the land on the plateau at the centre of the area, but kept west of the defensible boundary of Ermine Street/High Dyke to avoid impacting the more rural, remote character of the open countryside to its east (which is considered **not suitable** for development).

Heritage and landscape are among the most important factors in considering suitable land here. The high visibility of heritage assets at Londonthorpe across much of the north of the plateau, and to a lesser extent views from Belton House and Harrowby Hall, mean that the only potentially suitable land in the Harrowby Lane transport corridor is to the east of Newgate Lane. Development should extend no further north than the Heath Farm on Newgate Lane.

To the west, avoiding landscape and heritage impacts on the green slope enclosing the eastern edge of Grantham entails avoiding development around Hall's Hill and the land due west of the barracks (i.e. the land south of Cold Harbour Lane, north of Somerby Hill and east of the urban edge). These areas are considered unsuitable in landscape terms as development in these locations would be prominent and conspicuous and constrained by the steep slope. The various South Kesteven landscape assessments are inconsistent on the land due west of the barracks, with the 2011 study concluding it had a medium to low capacity for development but the 2013 study assessing it as having a medium capacity.

On the basis of the evidence reviewed in this exercise, it is considered that the 2011 study conclusion is more accurate, particularly as even within the 2013 study, this land's contribution to the setting of the town is (correctly) mentioned as important. The land consists of sloping land visible at a distance, and as such forms the southern end of the 'green rim' encircling the town to the east. As such, the conclusion of the land having anything other than a low capacity for development is questionable.

Furthermore, development due west of the barracks would have the potential to impact on the setting of the nearby Grade II listed St Vincent's House at the urban edge. The Green Rim, which is considered to extend into Area 2 at Hall's Hill and the land due west of the barracks, is therefore considered **not suitable** for development. This conclusion is supported by the Grantham

Townscape Assessment and (to an extent) the Landscape Sensitivity and Capacity Studies, which state the need to avoid development on higher parts of the scarp, ridgelines and maintaining the open and green character of Hall's Hill.

The land south of the proposed Southern Relief Road is rural in character and would benefit from the relief road being used as a defensible boundary, It is therefore considered **not suitable** for development.

Land with potential for mitigation

Similar considerations could apply to the slope rising up the east bank of the River Witham south of the A52 currently proposed as part of the Southern Quadrant. However, in this case, Historic England supported development here when it was allocated through the Core Strategy and also did not raise this issue in its response to the Southern Quadrant SPD. It thus has the backing of the Government's statutory heritage advisor, who would have carefully considered the site's suitability in heritage terms, as well as forming part of a site allocated through the Core Strategy. These mitigating factors mean this part of the Southern Quadrant is considered **suitable** for development. Supporting this conclusion is the land's strong performance on other criteria such as transport and accessibility, spatial opportunities/constraints and economic development.

There may be potential for a new settlement linked to the town centre along Harrowby Lane, although this is subject to mitigation through transport provision, specifically a new, high-quality bus link to the town centre. The Harrowby Lane area is considered to have an undistinguished, commonplace landscape character, thus increasing its suitability for development.

Appropriate masterplanning would be required in this location, including a detailed landscape and planting strategy, to help soften the urban edge, thus avoiding the perception of an unbroken, stark line of development extending along the west side of Ermine Street/High Dyke.

Development along both Harrowby Lane and Somerby Hill would also have the potential to support a new bus loop on the eastern side of Grantham with buses running clockwise from the town centre along Harrowby Lane, south along High Dike and then back to the town centre along A52 Somerby Hill (or anticlockwise along the same route).

Subject to the transport and landscape mitigation outlined above, the land along Harrowby Lane east of Newgate Lane is considered potentially suitable for residential development only if and when land to the south (MOD owned land) comes forward for development and is built out. It is therefore considered to be **suitable for development in the longer term**.

Land with opportunities for development

In the southern half of Area 2, we consider that the land to the north and east of the barracks would be at least as suitable for development as the area currently proposed for the Southern Quadrant. This would not affect the route or delivery of the Southern Relief Road, which would continue to connect the Southern Quadrant in this location to the A1, as well as forming a defensible boundary to the south.

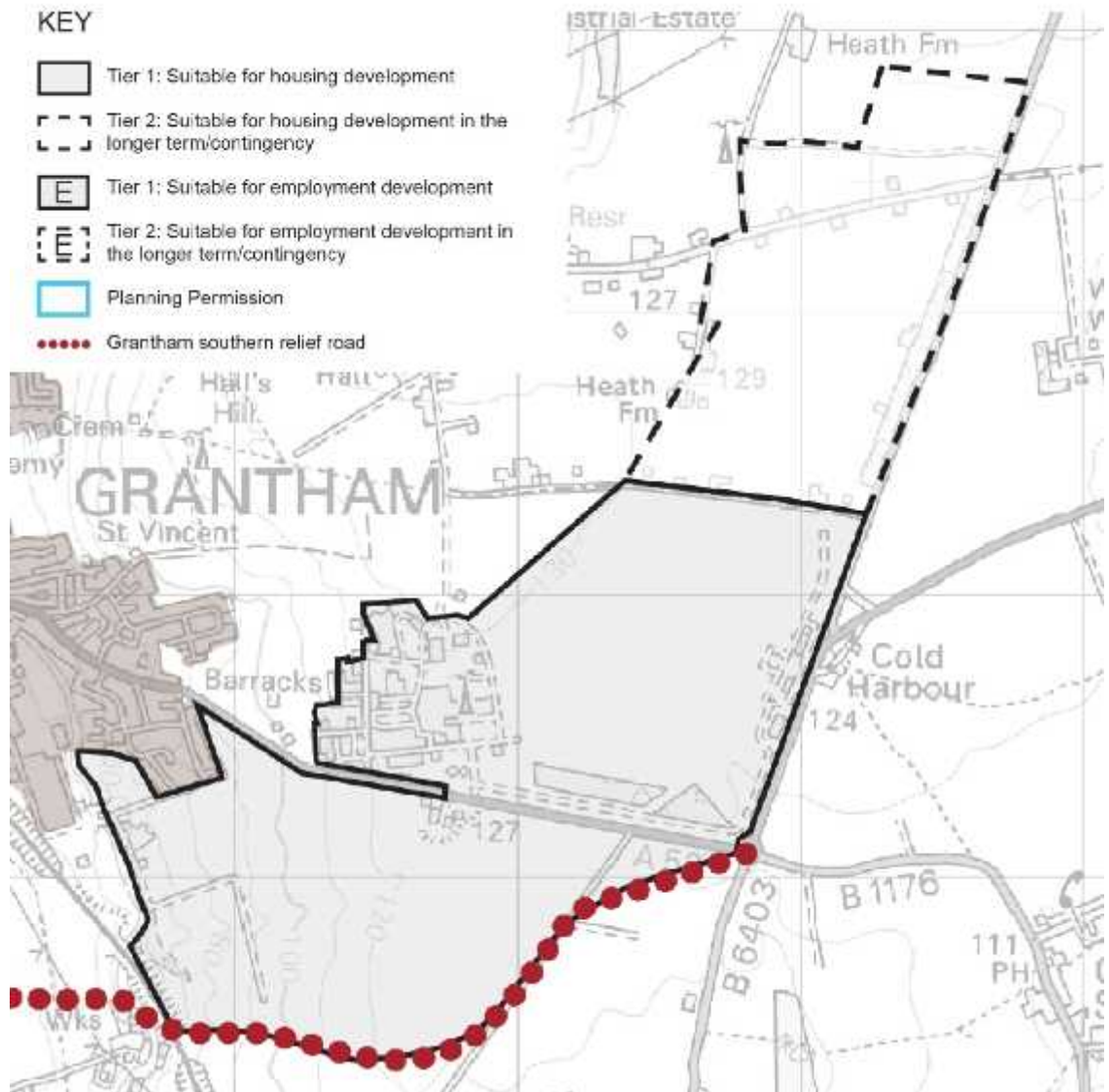
The former RAF Spitalgate site is flat, of low landscape character and is surrounded by defensible boundaries on all four sides. This area is considered to have little importance to the setting of Grantham. Thanks to the visual screening of Cold Harbour, development here would perform well on the heritage criterion as well as on the transport, infrastructure, and regeneration criteria. This site and the barracks are also considered as land not in agricultural use for the purposes of the Agricultural Land Classification and therefore perform better on this criterion than the Harrowby Lane site or land south of the A52, both comprising Grade 2 agricultural land. For these reasons the former RAF Spitalgate site is considered **suitable** for residential development.

The barracks comprises existing development on the slope enclosing the eastern side of Grantham but has an effective tree planting strategy that significantly reduces its visual impact. Both the barracks and former RAF Spitalgate sites are generally well screened from nearby roads and views from the south and north. If it were to become available for redevelopment, it is recommended that the existing planting is retained to the greatest extent possible, as well as the existing listed building on site. The Grantham Townscape Assessment also supported growth here, stating that 'should the [barracks] come up for disposal, there is considerable scope for growth both within and to the periphery of the site'. However, 'any proposals for expansion or growth...should carefully consider the existing established structure of buildings and open spaces, particularly with regard to the open sides of the [site] to the north and north east'.

Subject to these considerations and to its availability for redevelopment, we consider the barracks site as **suitable** for residential development.

To the south of the A52, we consider the land east of the ridgeline (effectively, east of Spittlegate Heath Farm) and north of the Southern Relief Road as **suitable** for residential development, subject to effective landscaping of its western edge to ensure a softer edge to avoid visual impacts on the ridgeline.

Figure 29: Area 2 after Stage 2 assessment



3.6 Area 3: South of Spittalgate

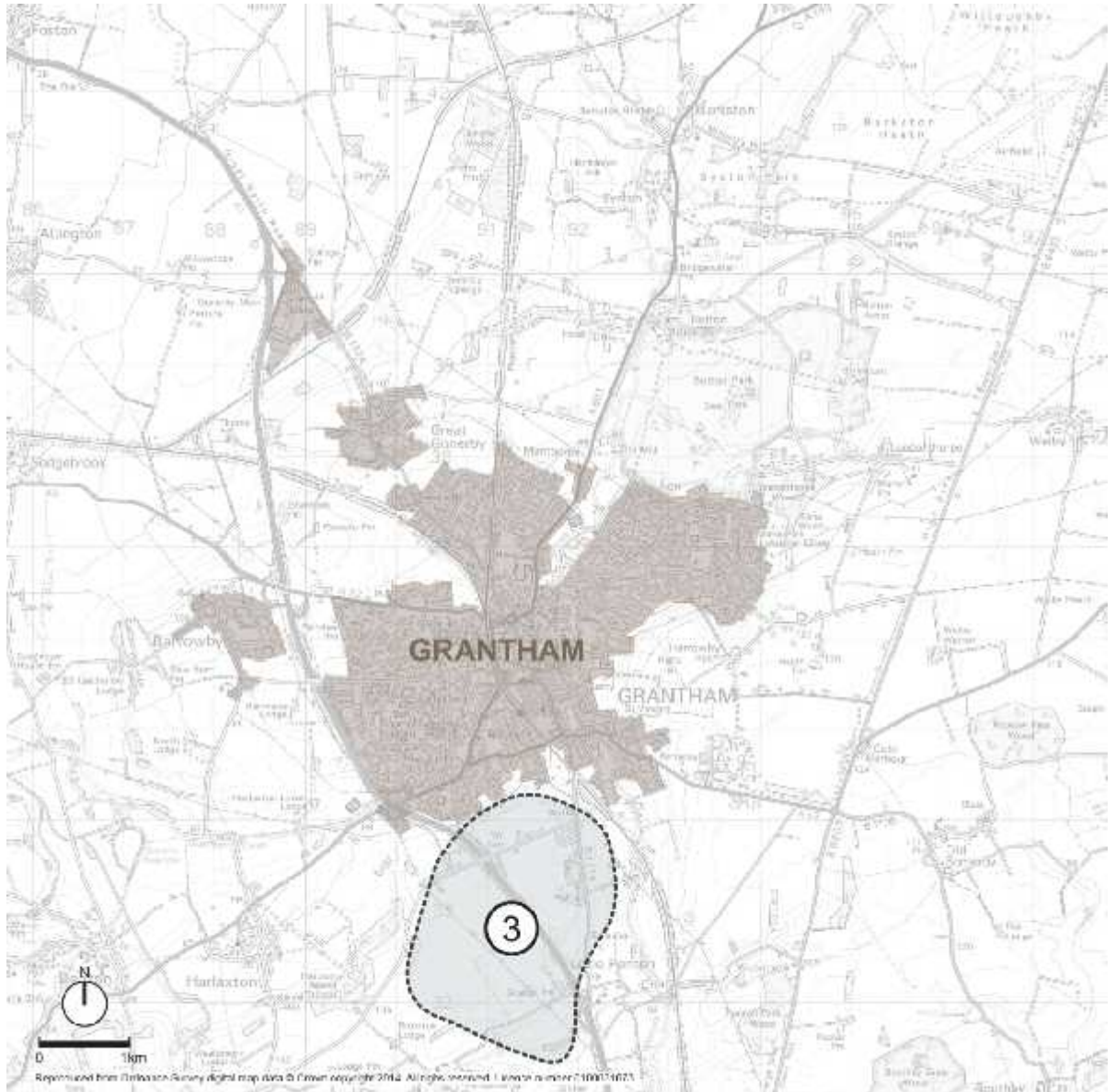


Figure 30: Area 3 before Stage 2 assessment

Agricultural land quality

The majority of Area 3 is Grade 3 agricultural land, but there is a swathe of Grade 2 land extending south from the urban edge of Grantham along the western side of and parallel to the A1, as well as a smaller extent around Warren Farm just northeast of Harlaxton Manor. There is no Grade 1 land in this location.

Transport and accessibility

The key roads in this location are the B1174 running north-south, the A1 Grantham bypass to its west and Gorse Lane, running east-west over the A1 in the northern part of Area 3. Additionally, it is proposed that the Southern Relief Road will connect to the A1 via a new junction south of Gorse Lane and intersect with the B1174 via a new roundabout, then bridging the River Witham and crossing into Area 2 to the east.

Additionally, the Lincolnshire Local Transport Plan and the Southern Quadrant Masterplan SPD both indicate that the new Southern Relief Road/A1 junction will be all-movement, thus potentially opening up land to the west of the A1 in this location for employment development.

The southern half of Area 3 is more remote from the road network, although an unclassified rural lane connects Little Ponton to Stroxton over the A1. The southern half of the area therefore is considered far less suitable on this criterion than the northern half.

The northern half of Area 3 benefits from a strong and direct radial connection to the town centre, including a bus service along the B1174, and the proposed southern relief road which will connect it to the A1. It is therefore considered highly suitable for new development on the criterion of transport and accessibility, and was identified as such by Lincolnshire County Council in our assessment of strategic locations.

The Southern Quadrant Masterplan SPD also proposes the creation of new footways and cycleways connecting the proposed residential development east of the River Witham with proposed employment development to its west, including a dedicated cycle and footbridge north of the Southern Relief Road bridge.

Although the Masterplan SPD identifies the River Witham as a green infrastructure corridor, it does not specifically propose a new footpath or cycleway along its length. If this could be delivered, it would significantly improve cycle and pedestrian links between Area 3 and the town centre along a route free of road vehicles.

Area 3 is also the area closest to Grantham railway station, which is only 1.2 kilometres from the urban edge in this location and therefore offers potential for a new cycling route to be created between the proposed new employment development and the station. However, this is not mentioned in the Masterplan SPD.

Landscape

The Landscape Character Assessment states that the northern part of Area 3 has medium sensitivity for employment and residential development with the remainder of the area having medium-high sensitivity.

The area is not completely flat, which does not prevent development but does make it slightly more expensive to develop (GRA04 and GRA26, Appendix C).

Areas B (north of Gorse Lane and east of the A1), D (south of Gorse Lane and east of the A1), H5 (west of the A1 and north of Gorse Lane) and H6 (west of the A1, south of Gorse Lane) within the Landscape Sensitivity and Capacity Studies are contained within Area 3 (see **Figure 23** for extract from Landscape Study). The northern section of Area 3 (i.e. area B) contains a steep slope which rises from the southern edge of Grantham before the land plateaus north of Gorse Lane and then falls away to the south (area D). Area B within the Capacity Study is identified as having a low capacity for commercial and residential development with the northern edge being of great importance to the green landscape fringe. Area D is identified as having a medium capacity as long as adverse visual impact in sensitive views from the town to the upland plateau is avoided.

The western side of Area 3 (landscape area H6) is influenced by the existing industrial estate, creating an urban edge character here. This area has been given a slightly lower sensitivity in the Landscape Sensitivity and Capacity Studies to reflect the generally unremarkable landscape character. The west and south of Area 3 is influenced by a relatively unified, simple, large scale agricultural landscape. This part of Area 3 is influenced by the A1 corridor and the large woodland block at Warren Plantation. The King 31 development and southern link road will add a further urbanising influence here. Partially as a result of the King 31 consent, this area is considered to have a low-medium capacity to development within the 2013 update to the landscape study, although the ridgeline along Gorse Lane remains sensitive to the impact of development on long-range views from the countryside to the north.

The far south of Area 3 rises steeply to the west and starts to take on a parkland character around Little Ponton.

Staying west of the A1, area H5 within the Sensitivity and Capacity Study considers land north of Gorse Lane to have a low capacity for development.



Figure 31: Attractive parkland character of land just north of Little Ponton

Infrastructure

As noted in our assessment of strategic locations, Large Sites Infrastructure Programme funding has been secured to help South Kesteven deliver the proposed growth at the Southern Quadrant. Most of the new infrastructure is proposed to be located in Area 2 and is therefore described in more detail above.

However, the additional sewage treatment works required as part of the new development would also serve the employment land proposed at the eastern edge of Area 3.

As previously stated, the Masterplan SPD proposes the creation of a new Green Infrastructure corridor along the River Witham south of Grantham.

The part of Area 3 west of the A1 is less well-served by existing or proposed infrastructure. Western Power Networks have stated that it would be possible (though expensive) to lay a cable under the A1 to connect any development here to the grid. Water/sewerage provision in this location would likely require upgrade of treatment works at either Harlaxton or Little Ponton.

Heritage

Broadly, Area 3 performs well on this criterion. The land east of the A1 has no listed buildings or conservation areas at all and, south of the ridgeline on the southern edge of Grantham, is not visible from Belton House to the north. West of the A1, Grange Farm at Little Ponton is listed, as are two buildings at Stroxton.

The western and southern parts of Area 3 are close to (though not immediately visible from) the Registered Park and Garden of Harlaxton Manor. Development in this location would have to be set back from the ridgeline northeast of the Manor to avoid impacting on its setting. In the same way, development north of Gorse Lane and east of the A1 would need to respect its prominent location above the ridgeline providing a setting to a number of heritage assets in Grantham itself, most notably St Wulfram's Church.

Likewise, Stroxton to the south is located in a valley, which provides the setting for the listed church and Stroxton Manor. Again, development would need to avoid impacts on the ridgeline north of the village.

Taking all these factors into consideration, it is the centre of Area 3 that performs best on this criterion. This comprises land east of the A1 and south of Gorse Lane (which already has planning permission for the King 31 development) and the land on the plateau immediately west of the A1 and south of Gorse Lane, far enough from Little Ponton not to impact the setting of the listed building at Grange Farm and avoiding impacts on the Gorse Lane ridgeline northeast of Harlaxton Manor.

Regeneration potential

Spittlegate and nearby parts of the southern suburbs of Grantham exhibit a degree of deprivation, which the proposed employment development in the northern part of Area 3 has some potential to address due to its proximity to the deprived areas.

The remainder of Area 3 further from the urban edge is not particularly deprived and therefore it is the northern half of the area (i.e. east of the A1) where development has the greatest potential to bring regeneration benefits.

Part of the area is affected by the A1 noise, as a result soundproofing measures would need to be in place before any regeneration is possible (GRA28, Appendix C).

Economic development

Having regard to the Southern Quadrant Masterplan SPD and the King 31 consent, Area 3 has a high degree of potential for economic development and could help to address the under-supply of readily available allocated sites attractive to the commercial market in the A1 corridor that was noted in the Employment Land Capacity Study. The Masterplan SPD proposes a business park of

mainly B1 uses in the east of Area 3 on either side of the proposed Southern Relief Road, with good access to the town centre via a roundabout interchange with the B1174.

The Relief Road will then connect to the A1 via a new roundabout west of the King 31 distribution park (B8 uses). The design of the new roundabout means there is potential for development to extend west of the A1 here, and it is likely that there would be demand from B8 and B1 uses for further sites like this with good connections to the A1 and the town centre, which would reflect the Core Strategy aspiration for B8 development linked to the A1. The most suitable land on this criterion is likely to be the land bounded by Gorse Lane to the north, electricity pylons to the west and the A1 to the east.

Further south, the area is significantly more rural and less accessible, limiting demand and suitability for large-scale employment development.

Spatial opportunities and constraints

The Southern Quadrant Masterplan SPD sets out development east of the B1147 separated from the River Witham by a new green infrastructure corridor. This appears a reasonable spatial approach as it provides a functional and legible division between the business park on the west bank of the Witham with the proposed residential development on the east bank.

The Masterplan SPD uses the Daily Mail Farm track as its southern defensible boundary, while the King 31 development does not extend any further south than the existing industrial estate west of the B1174 in this location. Any development south of King 31 would have to defend against the risk of coalescence with Little Ponton.

West of the A1, there are fewer defensible boundaries, although the electricity pylons running parallel to the road would be suitable as such. Beyond the pylons, it is difficult to see any logical boundaries before Stroxtun. To the north, Wyville Road and Gorse Lane would be logical boundaries west of the A1, but Gorse Lane need not necessarily perform this function east of the A1, as in fact development north of Gorse Lane in this location would have the potential better to connect the Southern Quadrant and King 31 to the town centre and the rest of Grantham.

3.7 Area 3 Conclusions

Land with constraints to development

North of Gorse Lane, both to the east and west of the A1, the land comprises the upper slope and ridgeline of the scarp south of Grantham. This scarp not only defines the setting of the town but also, to the west of the A1, forms the setting for the Grade 1 listed Harlaxton Manor in views of the Manor from the north, for example along The Drift south of Barrowby. It is also of great importance to the green landscape fringe of Grantham.

Additionally, the Grantham AAP Transport Delivery Plan concluded that land north of Gorse Lane is not suitable for development on the transport criterion.

As such, development in this location would be prominent and visible across a wide area, with significant landscape and heritage impacts. It would conflict with the aim of the Grantham Townscape Assessment to avoid built development encroaching along ridgelines, as well as being potentially unsuitable in transport terms. Therefore land north of Gorse Lane in Area 3 is considered **not suitable** for development. This conclusion is supported by the conclusions of the landscape studies on areas H5 and B in the same locations.

On the heritage criterion, the land to the south of Warren Plantation (i.e. closer to Grange Farm) is considered **not suitable** for development as it is likely to impact on the setting of a listed building, being prominent on the slope to the north of the building.

Land with potential for mitigation

Having examined land adjacent to the existing King 31 consent, we consider that employment development on the field to its south could also be **suitable in the longer term or as a contingency site** for employment use to meet any potential future need for expansion, subject to appropriate mitigation: specifically, retaining the attractive row of mature trees along the southern hedgerow and softening the southern edge of development with appropriate planting so as not to impact on the attractive parkland character of the landscape further south on the approach to Little Ponton, and respecting the site's location as the southern gateway to Grantham. We note also in the King 31 site plan that the proposed road separating Unit 1 from Unit 2 could be extended to access this land.

To the south of Gorse Lane, the land close to the new A1 junction with the Southern Relief Road is considered **suitable in the longer term or as a contingency site** for small-scale employment development, and this conclusion is supported in the assessment for site H6 in the 2013 Landscape Capacity Study addendum. As long as the northern edge of this site does not extend all the way to Gorse Lane itself, it is far enough south of the Gorse Lane ridgeline not to impact on views from the north as long as it does not comprise tall buildings (e.g. B8 distribution sheds), and existing hedgerows, pylons and Warren Plantation form defensible boundaries. Although there is a row of houses and a caravan park north of Gorse Lane in this location, it is considered that existing harm caused to views from the countryside to the north towards this highly visible ridgeline (which also comprises an element of the setting of Harlaxton Manor) does not justify further harm. This takes into account that the highest point of the ridgeline in this location (122 metres AOD) is on Gorse Lane itself, compared with east of the A1, where the highest point (121 metres AOD) is north of Gorse Lane, thus mitigating visually the impact of development on the south side of the lane on views from the north. Subject to not comprising tall buildings, the site performs well in terms of heritage, transport, economic development, landscape and spatial opportunities/constraints, although it does comprise Grade 2 agricultural land.

This site is also screened from views to the listed Grange Farm by Warren Plantation, although as noted by the Landscape Sensitivity and Capacity Study Addendum Report, there is the potential for further landscape mitigation (e.g. planting).



Figure 32: Area 3 land west of A1 with Warren Plantation on horizon. As can be seen, the site does not score highly in landscape terms and is therefore potentially suitable for employment development linked to the Southern Relief Road (location of its planned junction with A1 is on left-hand horizon)

Land with opportunities for development

The northern half of Area 3 has significant potential for employment-related residential development, linked to the A1, B1174 and Southern Relief Road and therefore performing well on the transport criterion. Taking into account the existing character of the area and the King 31 and Relief Road consents, we consider that all of the current indicative Southern Quadrant Masterplan proposals on the west bank of the River Witham comprise **suitable** employment development, and would count towards the Core Strategy ambition of 'a high quality business park with good access to the strategic highway network'. This would also appear in line with the South Kesteven Landscape Character Assessment comments on this location, which noted that existing employment land along the B1174 here 'fitted with the larger-scale flatter landscape'. The currently undeveloped triangle north of Daily Mail Farm, east of the B1174 and west of the East Coast Main Line is less steep than the east bank of the river, is already enclosed by development on most sides and the Southern Relief Road will increase this effect.

Additionally, we consider that land south of Gorse Lane but north of the King 31 consent is **suitable** for either residential or employment development as long as building heights are minimised and a suitable softer edge is provided along the Gorse Lane frontage. Both of these mitigation measures will ensure that any potential visual impact on the ridgeline north of Gorse Lane is minimised, and would recognise the fact that this land was assessed as 'medium capacity' in the October 2013 landscape sensitivity and capacity study.



Figure 33: View from Area 2 to Area 3 on the west bank of the River Witham beyond, with land suitable for employment development in field below existing employment/retail area on horizon

Figure 34: Selected key spatial constraints informing Stage 2 assessment of Area 3

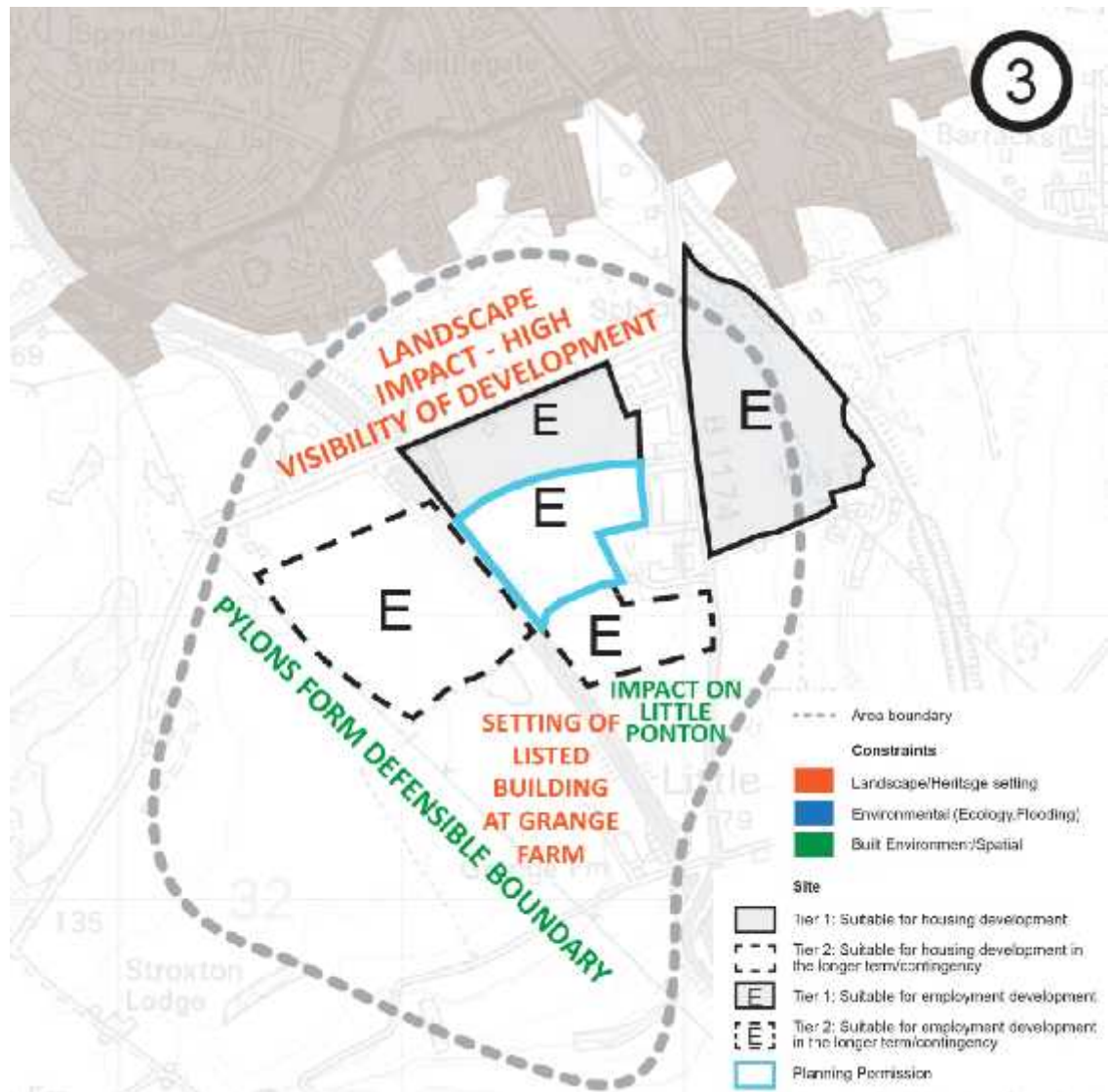
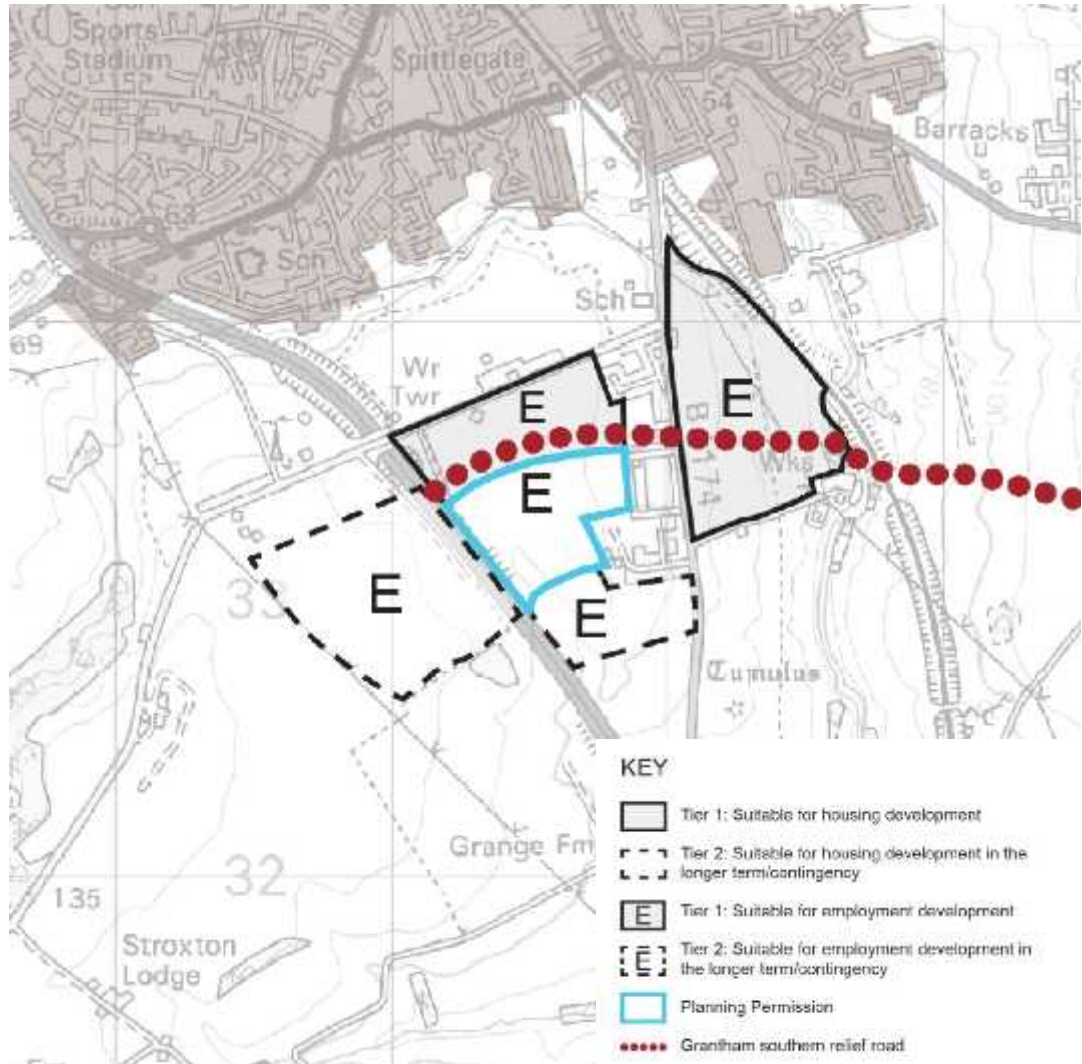


Figure 35: Area 3 after Stage 2 assessment



3.8 Area 4: West of Earlesfield

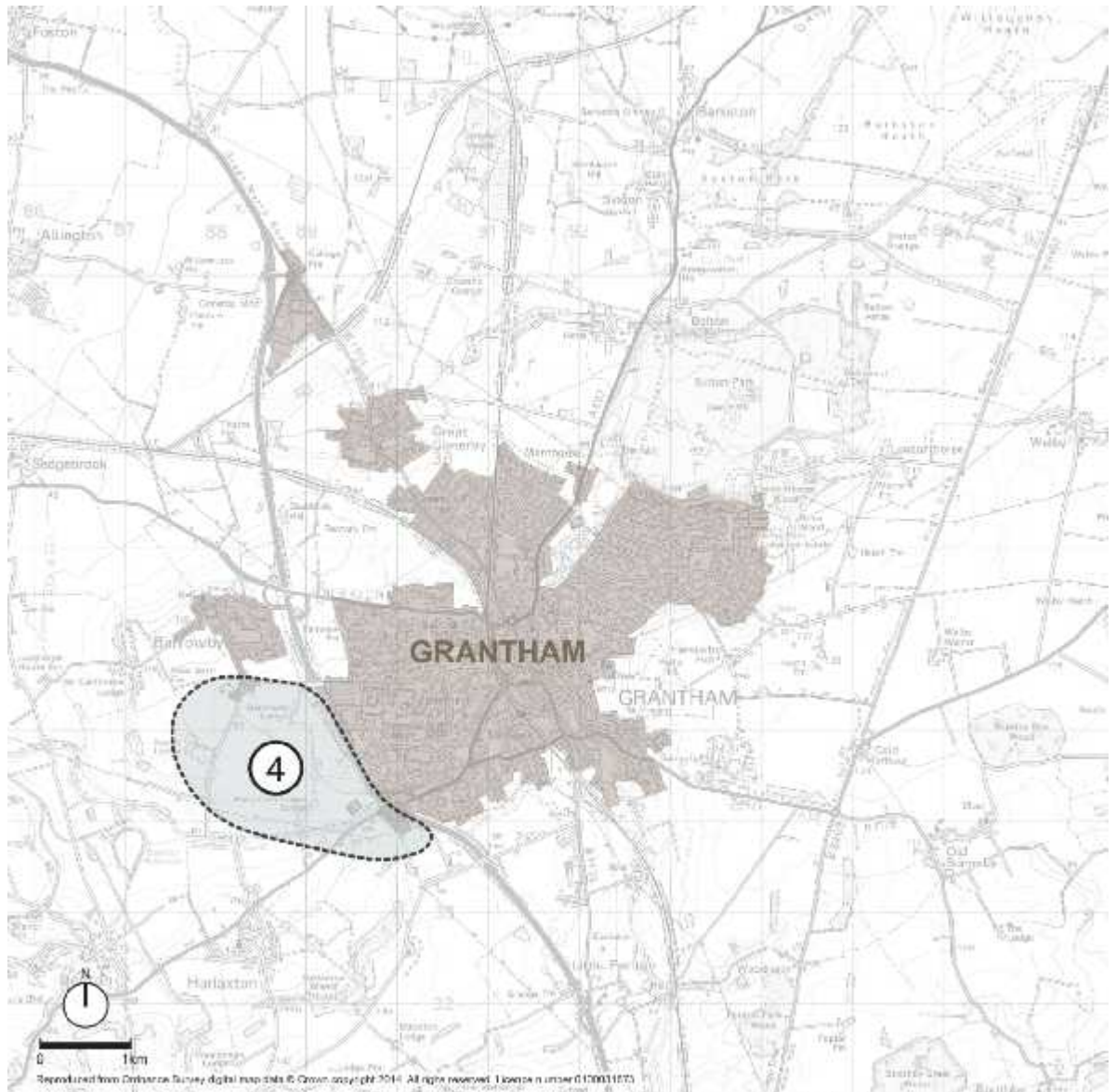


Figure 36: Area 4 before Stage 2 assessment

Agricultural land quality

Agricultural land quality is a significant constraint in Area 4. Much of the land directly across the A1 from the urban edge of Earlesfield is Grade 2, extending as far west as Harlaxton Clays Wood. The north-western part of Area 4 also covers half of the largest extent of Grade 1 land in the study area, located south-west of Barrowby.

Transport and accessibility

The southern part of Area 4 is traversed by the A607 linking Grantham to Harlaxton, which offers some radial bus services in and out of the town centre, as well as having a dedicated pavement for use by pedestrians and cyclists. The A607 also has a junction with the A1, and thus strong links to the Strategic Road Network. Additionally, the Grantham Canal towpath is a national cycle route.

However, the Highways Agency has expressed reservations about the impact of new development in this location on the A1 if it were to be progressed additional to development east of the A1 linked to the Southern Relief Road.

In the northern part of Area 4 Low Road is a bus corridor between Barrowby and Grantham and allows for access to the town centre via a bridge over the A1 bypass. The Drift is a north-south country lane connecting Harlaxton to the south with Barrowby to the north. However, both of these roads are rural lanes that are narrower than the A607 Harlaxton Road to the south.

Landscape

The whole of Area 4 is considered to have high sensitivity as identified with the Landscape Character Assessment. It lies within the Harlaxton-Denton Bowl LCA, a generally low-lying, sensitive landscape with a characteristic patchwork of varied landscape features.

In the previous landscape studies, Areas H2 (south of Low Road), H3 (due west of Earlesfield across the A1) and H4 (west of A1 and north of A607 Harlaxton Road, and which overlaps with area G5 within the 2011 Landscape Sensitivity and Capacity Report) are located here. Area 4 is characterised by a simple but attractive agricultural landscape containing few detractors and providing the setting to a number of heritage assets. The area, although bordered by the A1, is a tranquil landscape that slopes steadily down to the picturesque Grantham Canal, but does have a more urban-edge character due to surrounding land uses. The A1 provides an important boundary feature defining the western extent of the town.

The southern section of Area 4 is more heavily influenced by roads and built development around the A1, although these are screened by dense mature vegetation. Areas H2 and H4 are considered by the 2013 addendum to the Landscape Sensitivity and Capacity Report to have low capacity for commercial and residential development. Area H3, to the centre of Area 4, is considered to have low-medium capacity to development in the 2013 addendum to the Sensitivity and Capacity Report. However, the study states that, for H3, 'it is considered that the capacity assessment is skewed slightly higher than it probably should be because of its location neither within nor adjacent to a previously designated landscape, which reduces its landscape value....Consequently landscape value is judged to be Moderate when a more appropriate value is Moderate to High, the same as the value attributed to Study Areas H2 and H4 which also lie outwith the previously designated Area of Great Landscape Value¹¹.

The 2013 addendum's conclusion of low capacity for Area H4 echoes the findings of the 2011 landscape study for the same site (but previously designated as G5), which found the site to have low capacity due to its 'overall high landscape, scenic and public amenity value'.

However, despite the 2013 addendum's overall negative rating to area H4, it does state that development at its southern end, north of the A607 but south of Grantham Canal, could be suitable in landscape terms.

¹¹ This was a designation used in the South Kesteven Local Plan before it was superseded by the Core Strategy.

Infrastructure

A high pressure gas main runs through the area (GRA20, Appendix C). As with other areas west of Grantham, electricity connection for development in Area 4 would require cable to be laid under the A1, which is possible but expensive. Development would likely require upgrade of Harlaxton water treatment works.

However, development here would be well-located for the Meres leisure centre and could help deliver the proposed green infrastructure corridor along the Grantham Canal linking the town centre to countryside to the east.

Heritage

There are a significant number of heritage constraints in Area 4, mainly associated with the setting and significance of Harlaxton Manor and its Park. As at Belton, the park contains a number of heritage assets alongside the manor itself, and the orientation of the park and manor on an escarpment gives it extensive views to the north, north-west and north-east, which covers almost all of Area 4 except for the area to the east in the canal valley close to the A1. Note that this consideration applies equally for views from the roof of the Manor and for views from numerous viewpoints within the Manor grounds. Likewise, in the same way as at Belton, there are numerous and extensive views of the manor from the north, and these views include as an important element of its setting the north-facing scarp on which it is situated, meaning development on the scarp to the east or west of the manor and its grounds would have the potential to cause harm to their setting.



Figure 37: View from Harlaxton Manor roof along carriage drive, showing extensive 'borrowed landscape' into the Vale of Belvoir to the north (the western edge of Grantham is beyond the right-hand edge of the picture)



Figure 38: View north-east from Harlaxton Manor Roof showing Barrowby and Grantham on horizon (to the left and right respectively). This photograph shows almost all of Area 4, which thus forms an important element of the landscape setting for Harlaxton Manor. The listed Harlaxton Lower Lodge is the small white building in the middle distance

In the eastern half of Area 4, development would need to avoid impacting on the setting of Barrowby Lodge and Harlaxton Lower Lodge, which are both listed, as are two bridges across the Grantham Canal.

In addition, almost the whole of Area 4 is Element 1 land for the purposes of the Belton House and Park setting study. However, given it is over 5 kilometres from the park, the only constraint in this respect is that tall buildings would need to be avoided.

Furthermore, Historic England has advised that there is potential for a site of archaeological significance associated with the location of a Romano-British farmstead east of Harlaxton Lower Lodge, on land to the north of the A607 and west of the A1.

In combination, the setting and significance of Harlaxton Manor and Park, the location of the Romano-British farmstead, and the listed Lodges mean that this area performs poorly on this criterion.

Regeneration potential

The Earlesfield area of Grantham is the most deprived part of the entire study area. However, any new development in Area 4 would be on the other side of the A1, so strong new links would need to be created outwards from Earlesfield in order for it to benefit from development in this location.

By contrast, development in the more rural western half of Area 4 is likely to have little impact on the area's deprivation score, which is in any case significantly less deprived.

Therefore, the east of Area 4 is most suitable for development on this criterion, but only subject to any new development linking effectively to Earlesfield across the A1, either via Low Road, Harlaxton Road, or a new bridge between the two.

Economic development

In a similar way to Area 3, the A1 corridor in this location offers significant potential for economic development. The specific part of the area likely to be most in demand for B1 and B8 uses (as highlighted by the Employment Land Capacity Study) is the land north and south of the A607 junction with the A1, which would give easy access both to the Strategic Road Network and the town centre without the need for major new transport infrastructure to be developed. Given the existing uses west of the A1 in this location, there may also be potential for leisure or other employment uses benefiting from access to the strategic road network, such as hotels or conference centres.

The more rural, less accessible land to the west and north of the study area would be less suitable for major employment development and therefore performs less well on this criterion.

Spatial opportunities and constraints

The A1 is a strong, significant and defensible boundary to the western edge of Grantham. As such, development in this location is likely to be separated from the town by the dual carriageway in the same way as Barrowby.

However, if it is accepted that the need for development at Grantham entails breaking the A1 as a boundary to the western containment of the town, then Area 4 performs well on this criterion, with The Drift, Low Road, the A1 and A607 forming four logical boundaries to development.

However, development in this area could use the Grantham Canal as a southern boundary to avoid the risk of coalescence with Harlaxton.

West of The Drift there are few defensible boundaries to development, and any development in the north of the area would need to guard against the perception or reality of coalescence with Barrowby. However there is some capacity for limited expansion of Barrowby southwards, but maintaining a gap to Low Road, would be in keeping with settlement form and the pattern of previous residential development on the edge of Barrowby (GRA50, Appendix C).

3.9 Area 4 Conclusions

Land with constraints to development

Area 4 performs poorly on the heritage criterion, due to how extensively it features in the view from Harlaxton Manor and its grounds. To an even greater extent than at Belton House, Harlaxton Manor has been deliberately sited high on the Vale of Belvoir escarpment to provide extensive views across the countryside to the north, north-west and north-east. From the roof and main entrance of the manor, it is clear that the manor's long, straight carriage drive is aligned with Bottesford church spire in the distance, with the entire view to the church spire framed by the symmetrical bowl of the Vale of Belvoir escarpment on both the west and east sides. The setting of

the manor, like at Belton but probably to an even greater extent, relies heavily on 'borrowed landscape'¹².

Also visible from the manor and making a less significant, though still important, contribution to its setting, is the land to the east featuring Harlaxton Lower Lodge and the western edge of Grantham, and defined by Barrowby and its church spire to the north. Almost all of the land west of the A1 and east of The Drift is visible from the manor, meaning that development here would have potential to cause harm to its setting, albeit with that potential reducing with proximity to the A1. The visibility of traffic on the A1 and the height of the Grantham Book Services warehouse on Trent Road are both factors that currently detract from the manor's setting.

In the same way, development in parts of Area 4 could impact on views of the manor, its grounds and their setting from the north, such as for example from The Drift south of Barrowby. This would be the case for development in many places north of the canal as well as up the steep scarp south of the A607 Harlaxton Road that forms an essential part of the setting of the Manor and its grounds. It is considered that this would be the case for any further urban development west of the line of pylons parallel to Wyville Road.



Figure 39: Land in foreground is Area 4 south of A607 and immediately west of Wyville Road; considered not suitable for further development as it is highly visible in landscape terms and could impact on the wider setting of Harlaxton Manor to its west in views from the north

¹² In heritage and conservation, the concept of 'borrowed landscape' means landscape beyond the immediate boundaries of a heritage asset that has been employed in the design of the asset to enhance its setting. In the case of Harlaxton, the extensive and symmetrical views of the Vale of Belvoir escarpment to the north have been 'borrowed' to enhance the wider setting of the manor.

The potential to harm the setting of the Grade 1 listed Harlaxton Manor therefore makes much of the Area 4 land north of Grantham Canal, as well as the land south of the A607, **not suitable** for development, based on the heritage criterion.

In addition, the majority of the land further east in Area 4 (along the A1 and north of Grantham Canal) was considered to have high sensitivity to and low capacity for new development in two separate landscape studies. The findings of this study support these assessments. Although it is true that site H3 due west of Earlesfield was assessed as having some potential in landscape terms by the 2013 addendum, it is effectively isolated by the less suitable sites H2 and H4 to its north and south, as well as by the strong barrier of the A1 to its east. In summary, therefore, this land is also considered **not suitable** for development, mainly on the landscape criterion. However, it also performs poorly on the transport and access criterion due to being severed from Grantham by the A1, the heritage criterion, for forming an element of the setting of Harlaxton Manor and potentially impacting on the setting of Barrowby Lodge, and on the spatial opportunities/constraints criterion for lacking a defensible western boundary.

This leaves the land south of the canal and north of the A607. However, the western triangle of this land slopes downwards towards and is highly visible from the Grade II listed Harlaxton Lower Lodge, which looks directly south. It would therefore cause harm to its setting as a building experienced within open countryside. This land is therefore considered **not suitable** for development, based on the heritage criterion.



Figure 40: Area 4 land south of listed Harlaxton Lower Lodge (pictured), forming part of its setting and visible from it, therefore not suitable for development. However, note extensive planting to east of lodge screening its views of Grantham and the A1

Land with opportunities for development

The same is not true of the much smaller triangle of land immediately west of the A1, north of the A607 Harlaxton Road and south of the canal. This is not visible from Harlaxton Lower Lodge due to the Lodge's extensive tree planting that screens it from the A1 to the east. Equally, the land is low-lying enough to not be visible from Harlaxton Manor, and its low-lying character means it performs well on the landscape criterion as well as the heritage criterion, and this was noted in the 2013 landscape study addendum. It also performs well on the criteria of transport and economic development (proximity to the A1/A607 junction), regeneration (close to deprived communities in Earlesfield), agricultural land (Grade 3) and spatial opportunities/constraints (strong defensible boundaries on all sides, and having the effect of 'rounding off' the limited development west of the A1 here).

As such, this land is considered **suitable** for either employment development or, based on existing uses in this location, leisure or tourism development such as a hotel or a conference venue. Note that Western Power Networks have stated that it would be possible (but expensive) to lay a cable under the A1 to connect any development here to the grid.

Figure 41: Selected key spatial constraints informing Stage 2 assessment of Area 4

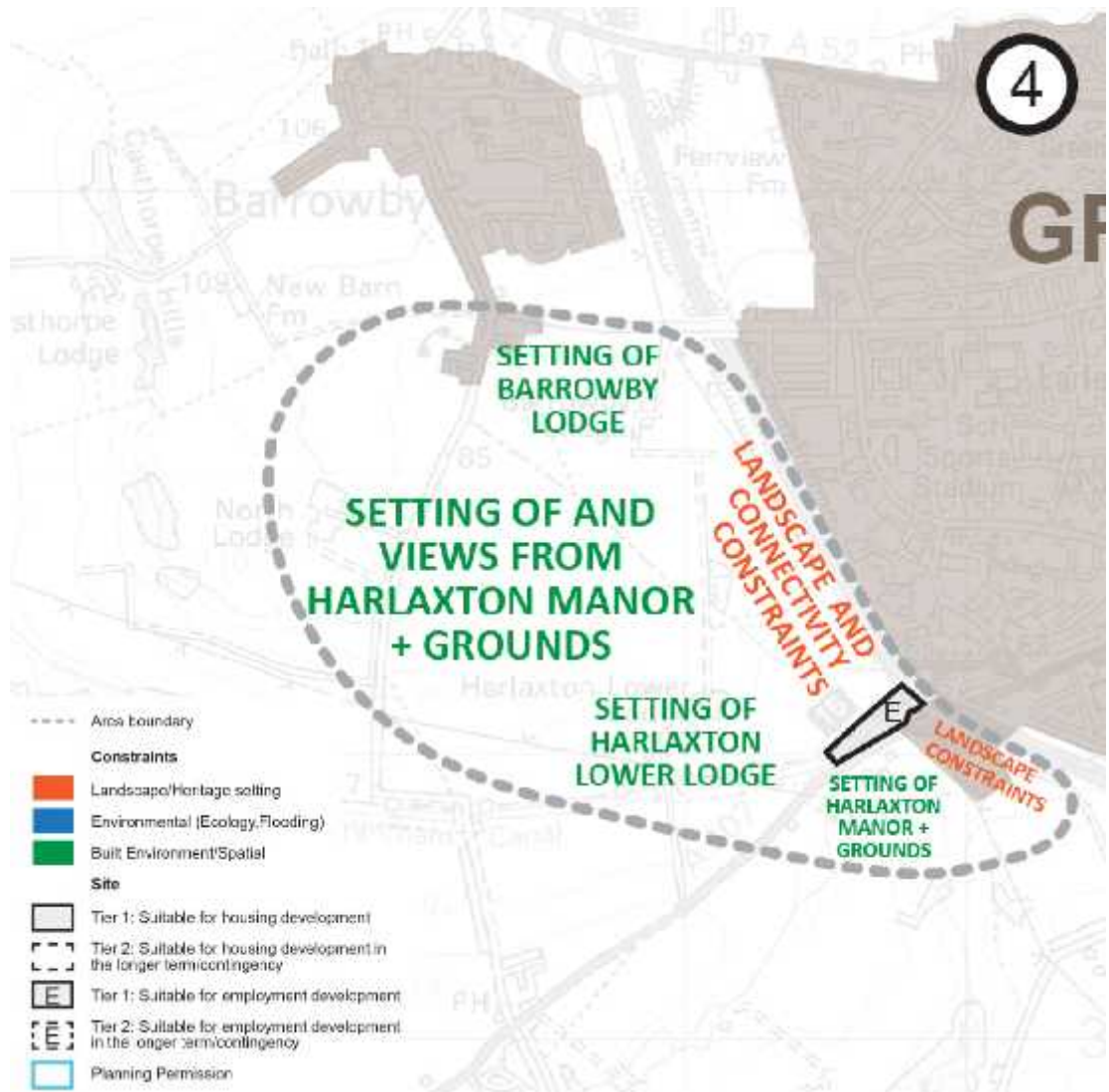


Figure 42: Area 4 after Stage 2 assessment



3.10 Area 5: Northwest of Grantham

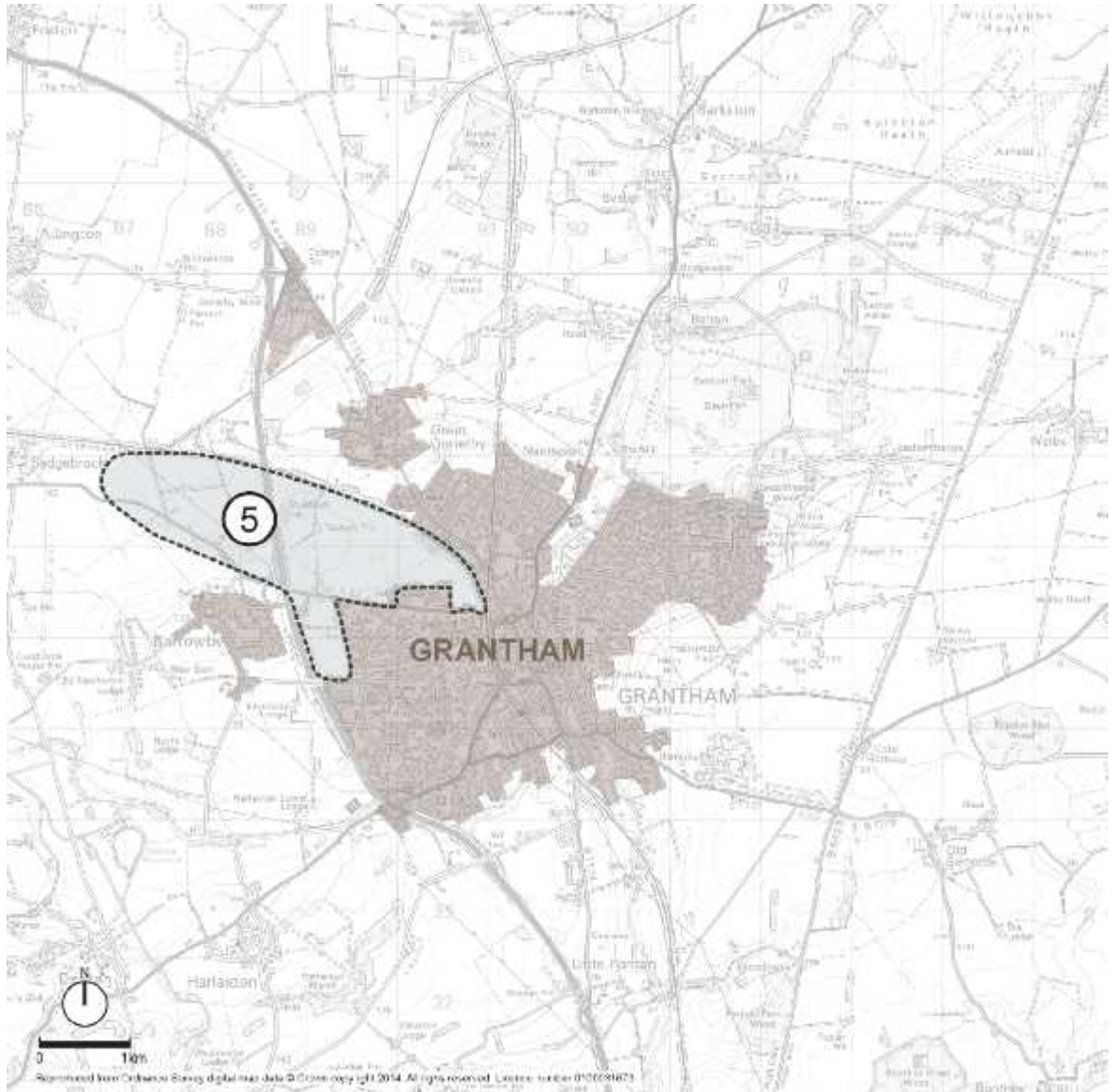


Figure 43: Area 5 before Stage 2 assessment

Agricultural land quality

Although Area 5 contains some Grade 2 and Grade 1 agricultural land, it is located mainly within the part of Area 5 that already has planning permission as the North West Quadrant residential area. However, some of the Grade 2 and Grade 1 land extends west onto land without permission east of the A1.

The western half of Area 5 (i.e. all land west of the A1) is entirely Grade 3 agricultural land.

Transport and accessibility

The A52 corridor between Grantham and Sedgebrook forms an existing bus corridor, and there is a cycle path along it linking the A1 bridge to the town centre. It is part of the Strategic Road Network and also benefits from a junction with the A1 here. In the part of Area 5 that already benefits from planning permission, the Pennine Way link road will increase connectivity further and relieve pressure on traffic in the town centre. Additionally, the land east of the A1 and north of A52 was assessed as a suitable location for development in the Grantham AAP Transport Delivery Plan, as was the site east of the A1 and south of the A52.

The north-south A1 effectively bisects Area 5. To its west, road connections are limited to Allington Lane and Thorns Lane, which are both farm tracks leading north off the A52. As such, any new development in Area 5 west of the A1 would have to access Grantham via the already busy A52, unless a new bridge could be constructed over the A1 to the north of the A52 bridge. One landowner, GRA05 (Appendix C), says a new road bridge would be needed before reaching 700 new dwellings in the area.

Landscape

Area 5 is considered to have high to low sensitivity to commercial and residential development as identified within the Landscape Character Assessment. Area 5 contains areas G4A, G4B, G7 (south of the A52 Barrowby Road and east of the A1) and G8 (north of the A52 Barrowby Road and east of the A1) within the Landscape Sensitivity and Capacity Study. Areas G4A, G4B and G7 are considered to have medium to high capacity for commercial and residential development. This is based on the fact that the area is surrounded by urban influences including the A1 and residential development. In addition, as the area is considered to contain commonplace elements and features, it has generally an unremarkable character which is not significant topographically or visually.

Important landscape characteristics within Area 5 include the wide, open landscape west of the A1, which is highly visible from Barrowby, and the southern edge of Great Gonerby. The area, despite containing the A1 and A52, has retained its rural character to some extent. The A1 and open land would mean further development would not lead to the coalescence of Grantham with Barrowby.

Area G8 is considered to have low capacity for development due to the ridgeline running around Stubbock Hill and the steep north and west facing scarp slopes. The area provides a distinctive break between town and countryside. Furthermore, any development would be isolated from the town and as a result would detract from important aspects of settlement form and pattern. However, the Study considers that the southern section of G8 is slightly less sensitive where development north and east of the A1/ A52 junction would exert a more urban-edge character to the area.



Figure 44: Land south of A52 and east of A1. Houses on western edge of Grantham visible on horizon.



Figure 45: Stubbock Hill (on left side of picture) with Vale of Belvoir beyond as viewed from southern edge of Great Gonerby, showing largely rural character of land east of A1 in this location

Infrastructure

As much of the eastern half of Area 5 already benefits from planning permission, which included a full assessment of supporting infrastructure required, consideration of supporting infrastructure is required only for the remainder of the area.

It appears likely that were the western half of the area to be developed, a new school and medical centre would be required. Additionally, like for other areas west of Grantham a cable would need to cross the A1, which, though possible, is expensive.

Heritage

There are no listed buildings or conservation areas anywhere within Area 5, either east or west of the A1. However, development to the west of the A1 could have the potential to impact on the setting of Barrowby conservation area and its associated cluster of listed buildings, as they are on a hilltop overlooking the site from the south. The high quality of views north from Barrowby, including the contribution this makes to the setting of the village, were noted in the Grantham townscape assessment.

The part of Area 5 west of the A1, as well as a part of the land immediately east of the A1, is classed as Element 5 in the Belton House and Park Setting Study. As it comprises flat land 5km or more from the park, this is not considered a significant constraint. Although the majority of Area 5

east of the A1 comprises Element 1 land in the setting study, planning permission has already been granted.

The need to avoid impacts on the setting of heritage assets in Barrowby therefore suggests that the northern part of the land west of the A1 would be more suitable on this criterion than the southern part.

The Grantham Townscape Assessment states that there are important views from the A52 towards Great Gonerby, but following a site visit, we note that much of the open land east of the A1 offering views between the A52 and Great Gonerby church already has planning permission for new development in any case, meaning the future significance of this view will be limited.

Belvoir Castle, though more distant (6.3 kilometres from the westernmost tip of Area 5, the closest point of the Area to the castle) commands wide-ranging views across the Vale of Belvoir because it is located high (135 metres above Ordnance Datum) on a prominent scarp overlooking the valley.

There could therefore be potential for development west of the A1 in Area 5 to impact on long views from the Castle and its grounds.

A recent appeal that was allowed (with the Inspector's view later confirmed by the Secretary of State) for a 74-metre tall wind turbine off Green Lane near Marston¹³ has relevance here, and suggests that certain types of development in the eastern part of the Vale of Belvoir, if far enough from the Castle, would have limited or no impact (depending on development height) on the Castle's setting or views from it.

In his decision to allow the appeal, the Inspector agreed with the Council's Conservation officer that the turbine would be visible from Belvoir Castle but '*not.....to the extent that its significance would be compromised*'. The Inspector saw the character of the intervening countryside (he notes the road side services, large retail outlets, lines of pylons, other turbines and a telecommunications mast) '*cannot really be described as rural*'.

Regeneration potential

Deprivation scores across Area 5 are low, both west and east of the A1. This means that development in this location would score poorly on this criterion.

However, the land east of the A1 that already has planning permission as the North West Quadrant could have some positive impacts on the higher levels of deprivation in the Town Centre and the southern part of Gonerby Hill Foot, particularly given the proposed railway bridge on Pennine Way which would create a new connection to these more deprived parts of Grantham.

Economic development

The Employment Land Review highlighted a significant degree of potential for employment development on the land immediately east of the A1 that is not part of the North West Quadrant. Again, the presence of a major road interchange, in this case the A52 and A1, is likely to drive demand for B8 and B1 employment development here in the terms noted by the Employment Land Capacity Study.

There is also a degree of potential immediately west of the A1, although the sloping land north of the A52 in this location may limit its capacity for larger footprint employment uses such as distribution sheds. There could also be some demand for employment development along the A52

¹³ Appeal ref: APP/E2530/A/13/2200452, available online at <http://www.southkesteven.gov.uk/index.aspx?articleid=1640>

corridor in the west of Area 5, although demand is likely to be more limited here due to its increased distance from services and businesses in Grantham town centre and elsewhere.

Spatial opportunities and constraints

In the eastern half of Area 5, the A1 is a clear, logical western boundary to development. If the principle of extension beyond the A1 is accepted, the A52 would be a logical southern boundary and would help mitigate the risk of coalescence with Barrowby. To the north, the railway line is useful as a boundary and to the west Allington Lane is a strong defensible boundary in an otherwise relatively featureless landscape that would also protect against the risk of coalescence with Sedgebrook.

In summary, the eastern half of Area 5 performs well on this criterion, and if it is accepted that the need for developable land justifies breaking the A1 barrier, there is also more limited potential on this criterion in the western half.

3.11 Area 5 Conclusions

Land with constraints to development

Stubbock Hill, which forms the north-western part of the Area 5 land east of the A1, is considered **not suitable** for development, and the 2011 landscape assessment supports this conclusion. The north slope of the hill is a steep part of the escarpment into the Vale of Belvoir. Development here would therefore be visually prominent and have the potential to impact upon the wider setting of the Grade 1 listed All Saints Church in Barrowby to its west in views of the escarpment ridgeline from the A1 and Gonerby Moor to the north. Additionally, Stubbock Hill is an attractive landscape feature framing the Vale of Belvoir in views from the southern edge of Great Gonerby. Avoiding development here would also be in line with the Grantham Townscape Assessment's advice to avoid built development encroaching on the higher scarp slopes or along ridgelines.

For Area 5 west of the A1, the issue of visual prominence and the setting of the Grade 1 listed Barrowby church is considered to apply to land above the 65 metre contour on the slopes of Barrowby Hill (i.e. north of the village), meaning this land is considered **not suitable** for development.

Land with potential for mitigation

West of the A1, it is considered there is some potential for development on the flatter, lower valley floor north of the A52, which performs well on the transport and spatial opportunities/constraints criteria and, if medium in scale or smaller, is considered likely not to harm the setting of Barrowby Church on the ridgeline to the north. If developed, its relative distance from Grantham town centre would have the potential to be offset by a new bus link.

As previously noted, mitigating factors include the potential for Allington Lane to be used as a defensible boundary to prevent the perception of coalescence with Sedgebrook to the west. To the east, Thorns Lane is considered a more suitable defensible boundary than the A1 to reduce the scale and hence the visual dominance of any development in this location in the open views into the Vale of Belvoir from the footpath down the escarpment from Barrowby. To the south, the A52 would be the boundary and to the north the railway line.

The location is considered potentially suitable in landscape terms as the significance of the views into the Vale of Belvoir depend to a great extent on the open vista to Newark on the far horizon, and indeed the term used for the view here by the Grantham Townscape Assessment is 'open countryside'. Although development here would have some impact on short-range views, the valley

floor in this location already has a relatively developed character as a result of the combined impact of the A52, the A1, electricity pylons, Sedgebrook and the railway lines.



Figure 46: View looking north into Vale of Belvoir from northern edge of Barrowby, with potentially suitable land for development on valley floor in centre of picture. Note relatively developed foreground, including A52, electricity pylons, Allington to left and Gonerby Moor employment buildings to right

In heritage terms, there are two considerations- potential impact on views from All Saints church in Barrowby, and potential impact on views from Belvoir Castle.

From Barrowby church, the land is not visible from ground level within the churchyard, where a number of trees effectively screen out views to the north, and is only visible once on the public footpath extending north-west away from the churchyard. (see **Figures 46** and **47**).



Figure 47: View towards potentially developable land from churchyard of All Saint’s Church, Barrowby; numerous churchyard trees screen views of the land, thus significantly reducing its impact on the setting of this Grade 1 listed asset

For Belvoir Castle, an approach consistent with the Belton House and Park Setting Study can be considered relevant, as both assets are Grade 1 listed.

Using this approach is facilitated by the fact that the land is covered by the Belton House and Park Setting Study itself. It is located closer to Belton than to Belvoir (5.8 km from Belton) and it comprises Element 5 land for the purpose of the Setting Study. Element 5 land is considered not sensitive provided that development rises no higher than the ridge or the tree line.

Given this conclusion, and given that it is even further from the heritage assets concerned, it may be reasonable to consider a similar provision would apply to development visible from Belvoir, although note also that Belvoir’s significance depends to a far greater extent on its dominance of the surrounding landscape than does Belton’s.

In terms of the implications of the Inspector’s decision to allow the development of the wind turbine near Marston, it is acknowledged that the development of a wind turbine is very different in impact from a lower-lying (but more extensive) residential development, and the turbine site is further north. However, the Inspector’s comments, particularly in terms of the surrounding countryside character, would nevertheless tend to support the fact that this land has the potential to be developed for a low-rise new residential settlement without a significant impact on views from Belvoir Castle and potentially not harming the setting of its heritage assets.

It is true that countryside quality generally increases with proximity to Belvoir Castle, and thus the closer development to the castle, the greater its potential for impact. However, as previously noted

in assessing the view from Barrowby Hill, the valley floor in this location does already have a relatively developed character, and given the previously noted distance to Belvoir and the land's performance in any assessment based on the principles of the Belton House and Park setting study (as well as its performance in the study itself) it is considered to be suitable for development on the heritage criterion subject to development not rising above the tree-line.

Although this land, with good access to the A52 and A1, performs well on the economic development criterion, residential development, which tends to comprise lower building heights, is more likely to be suitable than employment development given the potential sensitivity of the site in heritage terms. As such, we consider this part of the valley floor north of the A52 to be **suitable as a contingency site** for residential development subject to the mitigating factors mentioned above. Due to its scale and location, it could be planned as a new garden village on a similar scale to nearby Sedgebrook and Barrowby. Note also that Western Power Networks have stated that it would be expensive (but possible) to lay a cable under the A1 to connect any development here to the grid.

Land with opportunities for development

The easternmost part of Area 5 (also known as Poplar Farm) already has permission for residential development as part of the North West Quadrant.

Some of the land west of the Poplar Farm boundary, east of the A1 and south of Stubbock Hill already has permission for C2A secure residential institution use. There is further potential for development here and to the south and east of Rectory Farm as the A1 is a strong defensible boundary to the west and the land also performs well on the transport criterion thanks to its proximity to the A52/A1 junction. The conclusions of the landscape study are therefore supported in this regard; it states that the southern part of its area G8 had some potential in landscape terms. Additionally, development of this land could benefit from the infrastructure already being provided as part of the Poplar Farm permission, such as Pennine Way.

It is also considered that there would be limited heritage impacts here, because although the western slope of the site is partially visible from Rectory Lane as it leaves Barrowby (and its heritage assets), the view is well-screened by trees on either side of the road and the site is likely only to be visually significant from viewpoints outside rather than within the village, thus having no visual impact on the setting of Barrowby's heritage assets.

However, to avoid impacts on Stubbock Hill, the north-west corner of the Rectory Farm site should use appropriate landscaping and/or open space to protect the escarpment and ridgeline in the vicinity of the western entrance to Gonerby railway tunnel. Additionally, all land east of the A1 considered suitable for development should stay below the 110 metre contour on the south side of Stubbock Hill, to avoid impacting on its ridgeline.

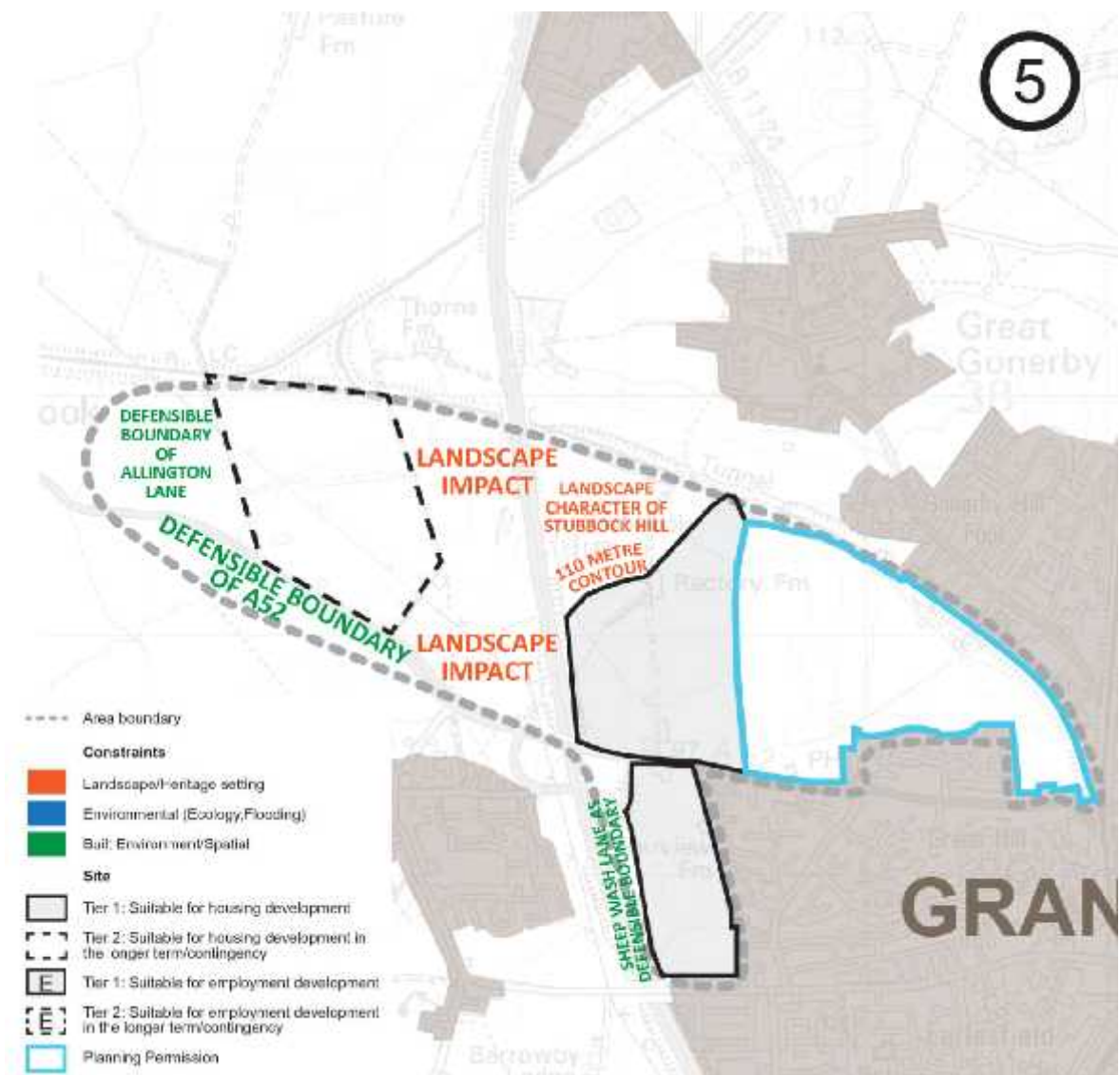
Subject to these considerations, this land is considered **suitable** for development.

The land south of the A52 and east of the A1 is considered **suitable** for either employment or residential development, reflecting the conclusions of the 2011 landscape assessment. Employment development here would reflect the Core Strategy aspiration for B8 development with good access to the A52, and the Employment Land Capacity Study 2010 also recommended B1a and B8 allocation here. However, in both cases, development would benefit from visual buffering along the A1, in part to reduce any perception of encroachment of the Grantham urban edge towards Barrowby, although we consider that the A1 does offer a strong defensible boundary to Grantham in this regard. For employment development, with its typically higher buildings, buffering would need to be more substantial, such as, for example, a raised, landscaped embankment west of Sheep Wash Lane. The Grantham Townscape assessment highlights the importance of a view

of St Wulfram’s spire from the southern edge of Barrowby, but we consider that development in this location would be low-lying enough not to impact on this view.

For residential development, a raised embankment is less likely to be necessary; for example, the land west of Sheep Wash Lane could be planted or provided as open space. Any employment development here would also have to carefully consider amenity impacts on the neighbouring Green Hill residential area to the east.

Figure 48: Selected key spatial constraints informing Stage 2 assessment of Area 5



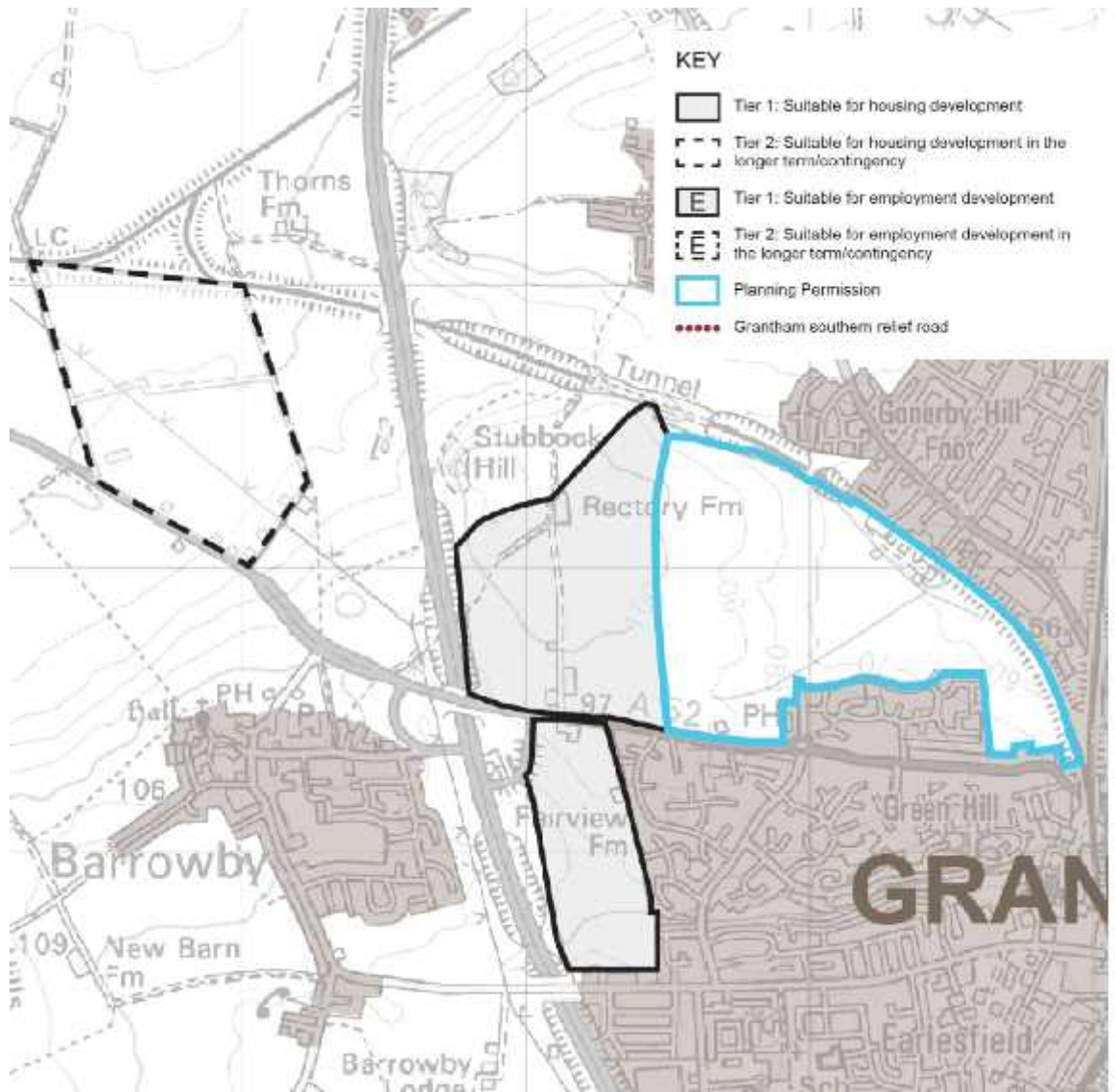


Figure 49: Area 5 after Stage 2 assessment

3.12 Area 6: Gonerby Moor

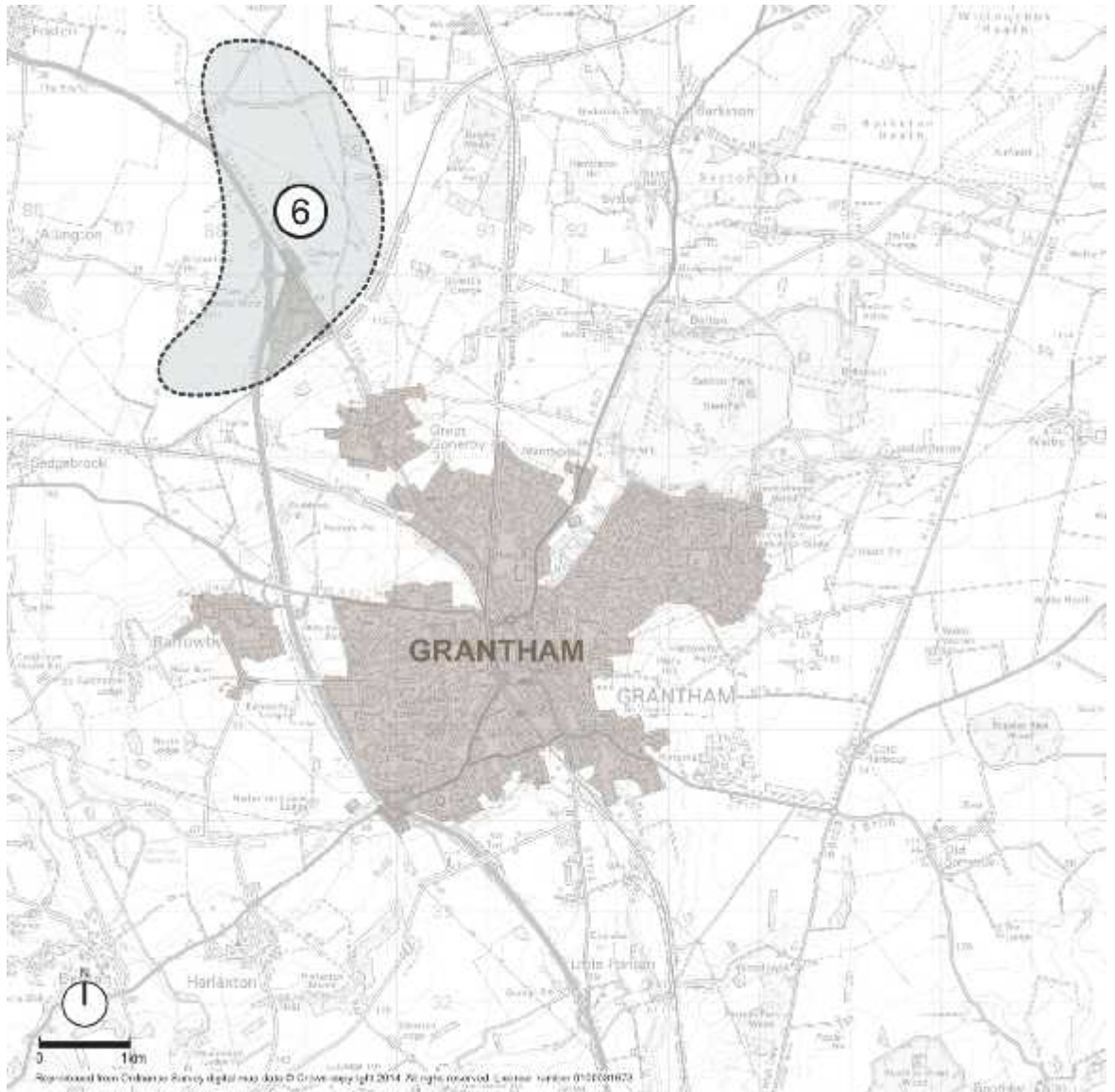


Figure 50: Area 6 before Stage 2 assessment

Agricultural land quality

All of Area 6 consists of Grade 3 agricultural land, making all parts of the area equally suitable for development on this criterion.

Transport and accessibility

Area 6 is bisected by the A1 running north-south, which links here via a major junction at the Downtown development to the B1174 (which is a bus route) via Great Gonerby into Grantham town

centre. The same junction also links Allington to Grantham via Gonerby Lane, which is another bus corridor.

The north of the area is relatively less accessible, with few roads except for Tollbar Road linking the A1 to Marston and Green Lane running east towards Barkston. However, Tollbar Road is a bus corridor.

There is a cycle route on the pavement along the A1174 between Downtown and Grantham. The combination of bus routes, cycle paths and roads mean that the southern half of the area is considered highly suitable on this criterion, but the northern half less suitable.

Landscape

Area 6 is a generally open and low lying agricultural landscape. The A1 corridor has limited influence on wider views. To the south, Gonerby Hill entirely blocks views into and out of the site from either Grantham or Great Gonerby, although as noted in our Area 5 comments, the land is visible from Barrowby Hill, but in the middle distance rather than the foreground.

The majority of Area 6 is considered to have a medium sensitivity to employment and residential development within the Landscape Character Assessment. The area to the south east of the A1 services is considered to have low to medium sensitivity.

The area east of the B1174 lies in close proximity to an existing commercial unit generally enclosed by substantial field boundaries and tree planting. The area west of the A1/ B1174 junction is in part influenced by the A1 and existing farm structures.



Figure 51: Land west of A1 at Gonerby Moor, with storage sheds at Willowtops House on western horizon

Infrastructure

Infrastructure requirements here would differ depending on whether development is residential or commercial in character. If residential development were proposed, it is likely to need a new primary care centre.

Given the previously-noted difficulties of crossing the A1 with new electricity cable, it would appear that on this criterion, the land east of the A1 is more suitable than the west, particularly as the existing Downtown development is already linked to the grid.

Additionally, an upgrade to Marston water treatment works is already proposed for 2015-2020, meaning that Area 6 broadly scores well on this criterion. In general terms, the closer new development can be to Downtown and the more it can be kept east of the A1 (in the vicinity of College Farm), the more suitable it is likely to be.

Heritage

As with Area 5, the main heritage consideration is the potential for new development to affect the setting of heritage assets in a hilltop village to the south of the area, in this case Great Gonerby.

However, unlike at Barrowby, the heritage assets at Great Gonerby are set back from the ridgeline to the north of the village, meaning that it is less likely that development in the Gonerby Moor area would have an impact on their setting

However, any development west of the A1 would have to consider its potential impact on the conservation area and cluster of listed buildings at Allington, though given that the village is almost two miles west of the A1, such impact is likely to be limited unless the development is relatively tall.

Likewise, any development in the far north of the area would need to consider its impact on the listed buildings at Marston, which lies half a mile to the north.

Belvoir Castle, though more distant (7.3 kilometres from the southernmost tip of Area 6, the closest point of the Area to the castle) commands wide-ranging views across the Vale of Belvoir because it is located high (135 metres above Ordnance Datum) on a prominent scarp overlooking the valley.

There could therefore be potential for development west of the A1 in Area 6 to impact on long views from the Castle and its grounds, although due to the distance between the castle and this land, any impact is likely to be very limited.

The appeal allowed for the 74-metre tall wind turbine off Green Lane near Marston cited in the Area 5 text has relevance here, and supports the case that development at Gonerby Moor would have limited or no impact (depending on development height) on the Castle's setting or long views from it.

In summary, Area 6 performs relatively well in terms of heritage, with the land east of the A1 likely to perform best on this criterion.

Regeneration potential

No part of Area 6 itself has high levels of deprivation, but development of new employment premises in this location has the potential to reduce deprivation in more central parts of Grantham (including parts of Gonerby Hill Foot) that are easily accessible from Area 6 along the B1174. To this extent, the area has some degree of regeneration potential.

Economic development

Area 6 is already an employment-focussed location rather than a residential area, and there is significant potential to build on this existing strength. The Employment Land Capacity Study stated that Gonerby Moor scored well as a location for new employment development.

The relatively remote, exposed location would also suggest that Area 6 is more suitable for employment rather than residential development.

As with other locations in the A1 corridor, the centre of Area 6, focussed on the B1174/A1 junction, would be in demand for B8 and to a much lesser extent B1 uses (which may benefit from being located closer to existing services and facilities). Locating new B8 uses here would be advantageous, as they tend to result in a significant number of heavy goods vehicle movements, and this area is the most remote from Grantham town centre and other residential areas.

As the roundabout here connects the A1 to roads running both east and west, there is likely to be demand for large-footprint employment uses on both the western and eastern sides of the A1.

The remainder of Area 6, to the north, is considered more rural in character and is less accessible to the A1, and hence is considered less suitable on the criterion of economic development.

Spatial opportunities and constraints

As its name suggests, Gonerby Moor is open and benefits from few defensible boundaries. The most logical spatial pattern of development here to avoid the perception of urban sprawl would therefore be to stay close to the existing roads and the Downtown development, ensuring new development is linear and parallel to either the B1174 or the A1, thus reducing its spatial impact and appearing a logical extension of Downtown.

In the absence of roads or other features to use as defensible boundaries, field boundaries can be used instead. For example, the long, linear hedgerows east of Willowtops House could form the western boundary of a development site adjacent to the A1 on a similar scale to the existing Downtown development.

Likewise, with landowner consent, the land east of the B1174, in the vicinity of College Farm and/or Mickling Farm could be suitable locations for new development.

3.13 Area 6 Conclusions

Land with constraints to development

The 2015 Employment Land Review indicates there is demand for employment space within Grantham and as such there is potential for employment development at Gonerby Moor. However, any proposals for residential development (i.e. using the existing Downtown as a new town centre) would be too remote from Grantham and other settlements, would result in too high of a proportion of car-based travel. Additionally, the open, flat landscape of Gonerby Moor benefits from few defensible boundaries, making larger-scale development here more problematic in terms of the spatial opportunities/constraints and the landscape criteria.

Finally, residential development in this location would not accord well with the Core Strategy, which states that town centre uses 'are not considered appropriate in this area, but it may be a suitable location for 'land-hungry' development with low staff levels'. Our study findings support this conclusion.

Notwithstanding these constraints, there is some potential for employment development in Area 6 as long as it relates well to and stays close to the A1/B1174 junction. The open character of Gonerby Moor west and north of the A1 makes this land generally less suitable than land to the east in terms of landscape impact and spatial opportunities/constraints.

For these reasons, all of Area 6 outside a 1km radius from the B1174 bridge over the A1 is considered **not suitable** for development. This assessment also covers land within the 1km radius but south of Gonerby Lane due to a lack of defensible boundaries and potential impact on views to the ridgeline to the south from Gonerby Lane itself.

Land with potential for mitigation

For land within the 1km radius from the A1 junction and west of the A1, there is some potential for using the long, straight hedgerows east of Willowtrees House as a defensible boundary for development along the A1 and north of Gonerby Lane in this location. Subject to mitigation including an appropriate landscaping strategy and buildings not exceeding the height of the existing buildings at Downtown, this land is **suitable as a contingency site** for employment development. Note that Western Power Networks have stated that it would be expensive (but possible) to lay a cable under the A1 to connect any development here to the grid.

In terms of potential impact on Belvoir Castle, an approach consistent with the Belton House and Park Setting Study may be used, as both assets are Grade 1 listed.

Using this approach is facilitated by the fact that the land west of the A1 that would be most readily visible from the Castle if developed is covered by the Belton House and Park Setting Study itself. It is located closer to Belton than to Belvoir (5.4 km from Belton and 9km from Belvoir) and it comprises Element 5 land for the purpose of the Setting Study. Element 5 land is considered not sensitive provided that development rises no higher than the ridge or the tree line.

Given this conclusion, and given that it is even further from the heritage assets concerned, it may be reasonable to consider a similar provision would apply to development visible from Belvoir, although note also that Belvoir's significance depends to a far greater extent on its dominance of the surrounding landscape than does Belton's.

In his decision to allow the development of the wind turbine near Marston, the Inspector's comments in terms of the developed nature of the surrounding countryside, were referring specifically to Gonerby Moor and would tend to support the case that development on the Moor would have limited impact on long views from Belvoir and is unlikely to be close enough to harm the setting of its heritage assets.

Based on the land's performance in any assessment based on the principles of the Belton House and Park setting study (as well as its performance in the study itself) it is considered to be suitable for development on the heritage criterion subject to height restriction. The existing retail units at Downtown, though large, are in fact relatively low-lying and it would be appropriate to mitigate the heritage impact of any development on land west of the A1 at Gonerby Moor by limiting it to the height of existing lower-lying units east of the A1¹⁴.

Land with opportunities for development

For land east of the A1, it is considered there is potential along the B1174 east of College Farm (which comprises storage sheds and employment space), as well as the existing undeveloped land

¹⁴ The unit housing DLS Plastics is an example of an existing building east of the A1 considered to be of an appropriate height on the heritage criterion.

within the A1/B1174 junction itself, which benefits from some paved accesses already in place connecting the land to the strategic road network.

However, development east of the B1174 should be kept to the flat land below the 50 metre contour to avoid impacting on long-range views of the escarpment and ridgeline of Newark Hill/Gonerby Hill.

As such, the drive to Mickling Farm would be an appropriate defensible boundary in this location, and a network of small, rectangular fields (which is absent to the west of the A1) offers the potential for hedgerows as a northern boundary.

Based on these boundaries, the land at this location performs well on the criteria of transport, economic development, spatial opportunities/constraints, and landscape and is therefore considered **suitable** for employment development, particularly B8 uses. This is in line with the Employment Land Capacity Study, which also recommended this land as suitable for a range of employment uses.

Figure 52: Selected key spatial constraints informing Stage 2 assessment of Area 6

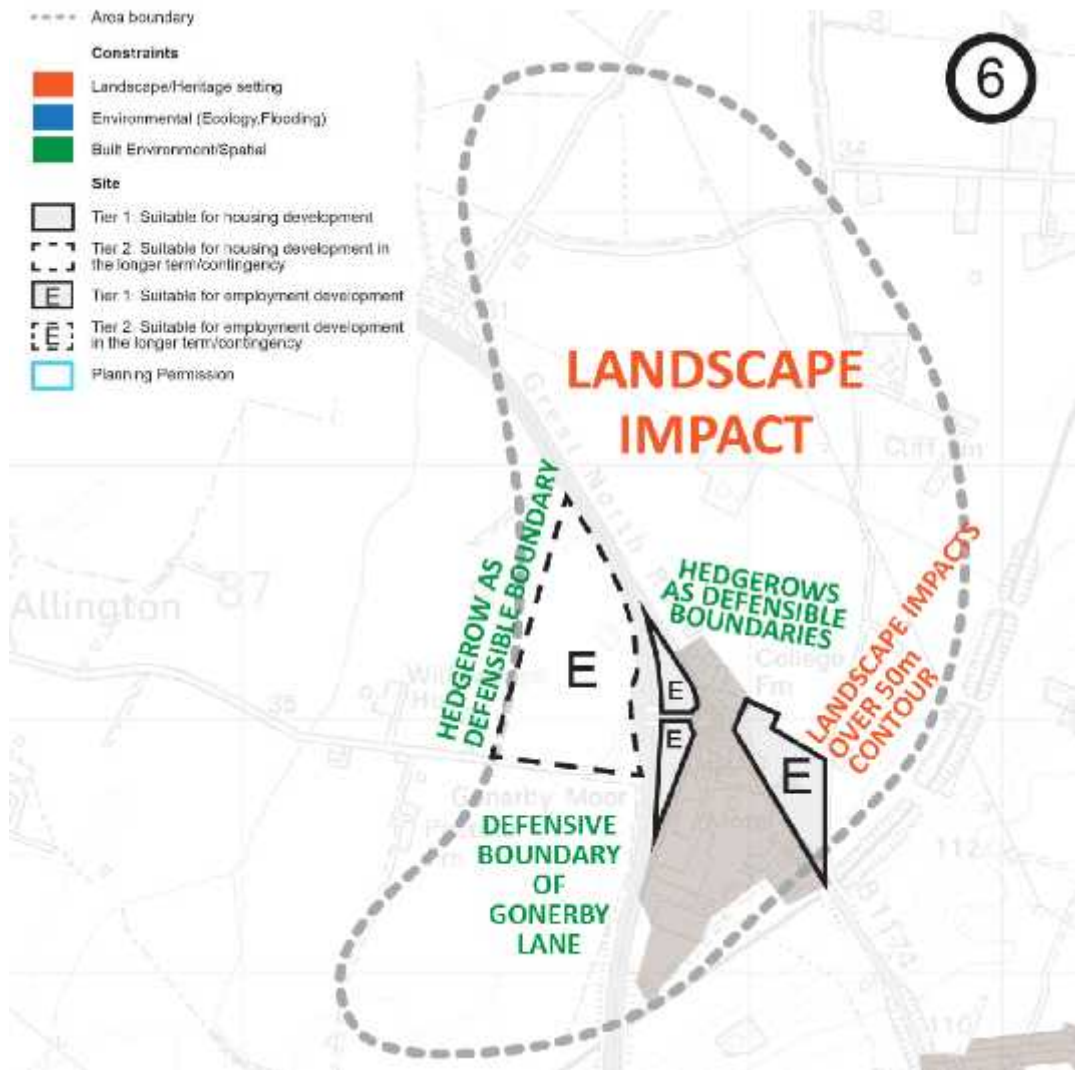
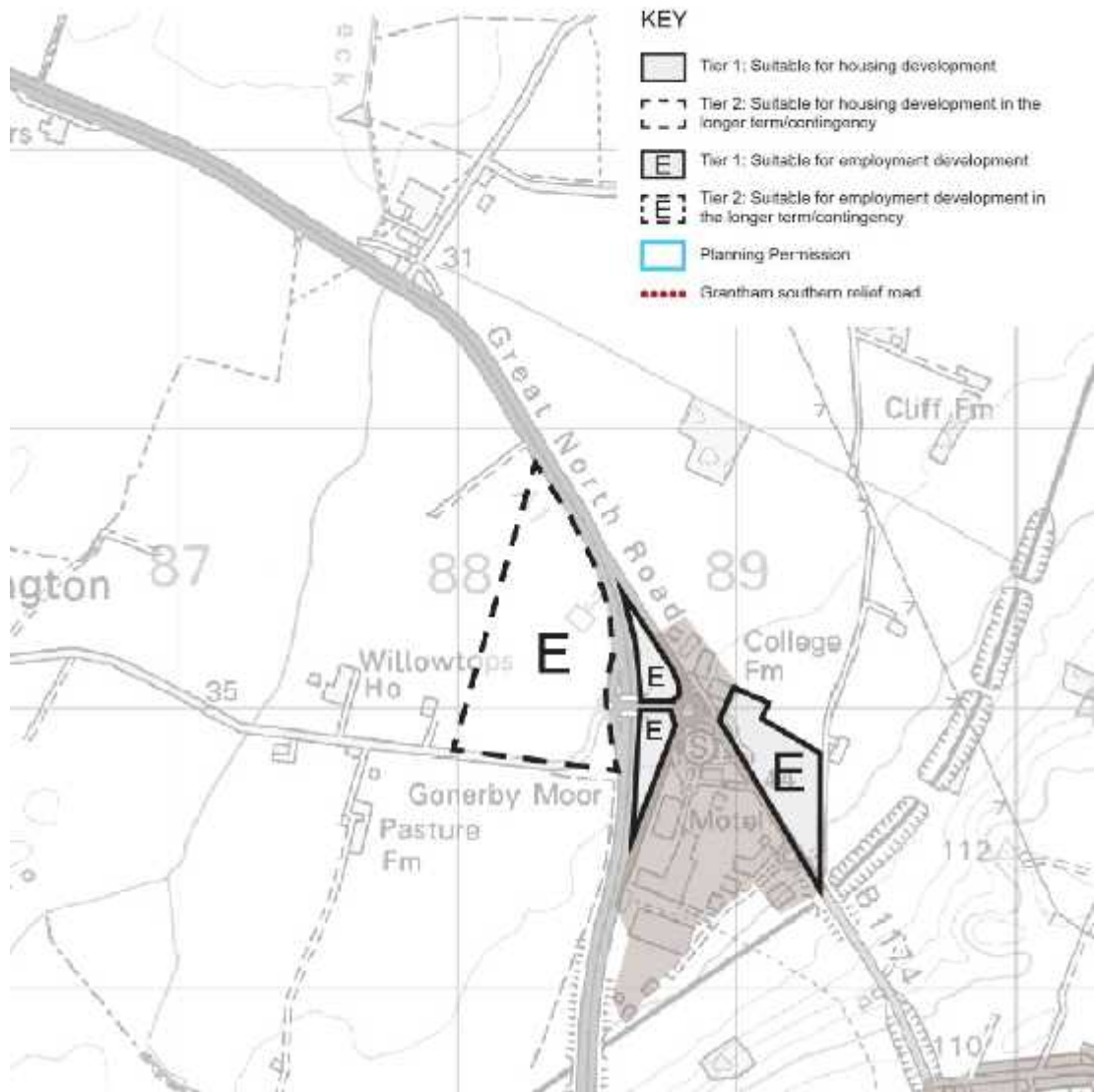


Figure 53: Area 6 after Stage 2 assessment



4 Conclusions

4.1 Recommended locations for growth

Figure 54 below sets out all sites and broad locations considered suitable and potentially suitable for medium to large-scale development.

The sites are shown as either Tier 1 or Tier 2. Tier 1 refers to sites that are considered to be either entirely free from constraints or constraints have been identified which can be mitigated. These sites are therefore considered to be suitable for development. Tier 2 sites are those which are less suitable, and should be considered either as longer term sites, or contingency sites if other more suitable sites do not come forward.

Where sites are considered to be more suitable for employment use, due to location (surrounding land uses and access to the strategic road network) these are marked with an E.

The report identifies that, in addition to sites with planning permission, there are 530 hectares of land suitable for growth, of which we suggest 59 hectares is suitable for employment development.

Beyond this, the report identifies 204 hectares of land as being potentially suitable for development, of which 92 hectares would be best for employment use.

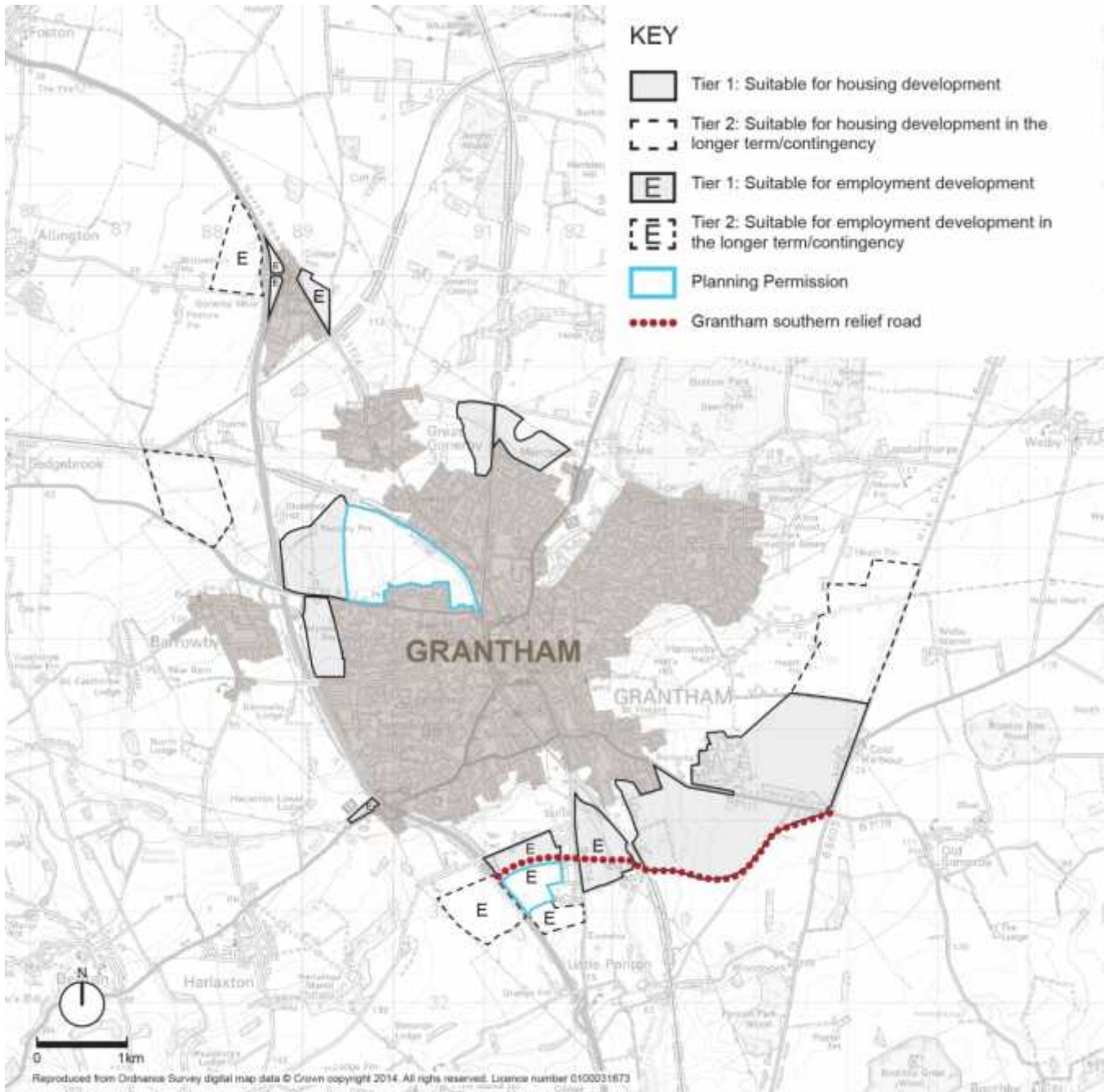
As shown by **Figure 54**, capacity is more limited west of Grantham for a number of reasons, including the setting of Harlaxton Manor, limited landscape capacity and the strength and relative impermeability of the A1 as a barrier.

By contrast, the plateau east of Grantham appears to offer a greater amount of suitable land, including but not limited to the proposed Southern Quadrant development. However, as noted in our Area 2 conclusions, the potential impact of parts of the Southern Quadrant masterplan on the setting of St Wulfram's church in important views from Gonerby Hill as it enters Grantham needs to be carefully considered.

In many locations around the edge of Grantham, particularly to the east and south, capacity is limited by the 'green rim', an attractive, visually prominent escarpment important in landscape and heritage terms. It is partly for this reason that much of the potentially suitable land uncovered by this study is physically separated from the urban edge, although in locations carefully selected for connectivity and accessibility to the town centre.

There is a significant existing precedent for this pattern of development in a comparable location close to Grantham. At Lincoln, the northward extension of the same 'green rim' as at Grantham (i.e. the eastern bank of the River Witham valley) has likewise prevented extension of the urban area to the east. As at Grantham, a plateau beyond the rim forms the setting for a number of new and expanded villages that are functionally linked to Lincoln itself in terms of employment and city centre services, despite themselves also offering a range of secondary services and facilities. These settlements include, for example, Bracebridge Heath, Washingborough and Branston. Another similarity to Grantham is that growth in these separated settlements has the advantage of minimising landscape and heritage impact on the historic assets of Lincoln itself.

Figure 54: Recommended locations for growth



4.2 Total capacity

The total capacity of all sites considered suitable and suitable after mitigation can now be calculated based on:

- A suitable residential density figure for medium-to-large scale sustainable residential development; and
- The proportion of land considered suitable for employment development versus the proportion considered suitable for residential development.

In total, there are 433 hectares of land suitable for residential development and 181 hectares of land potentially suitable for residential development.

We have calculated that the most appropriate indicative density assumption to apply to new residential neighbourhoods is 25 dwellings per hectare. This figure takes account of space needed for uses supporting residential use, including streets, open space, schools, local shopping centres, community facilities and so on. Appendix E sets out in more detail our research that supports this indicative density figure we have used.

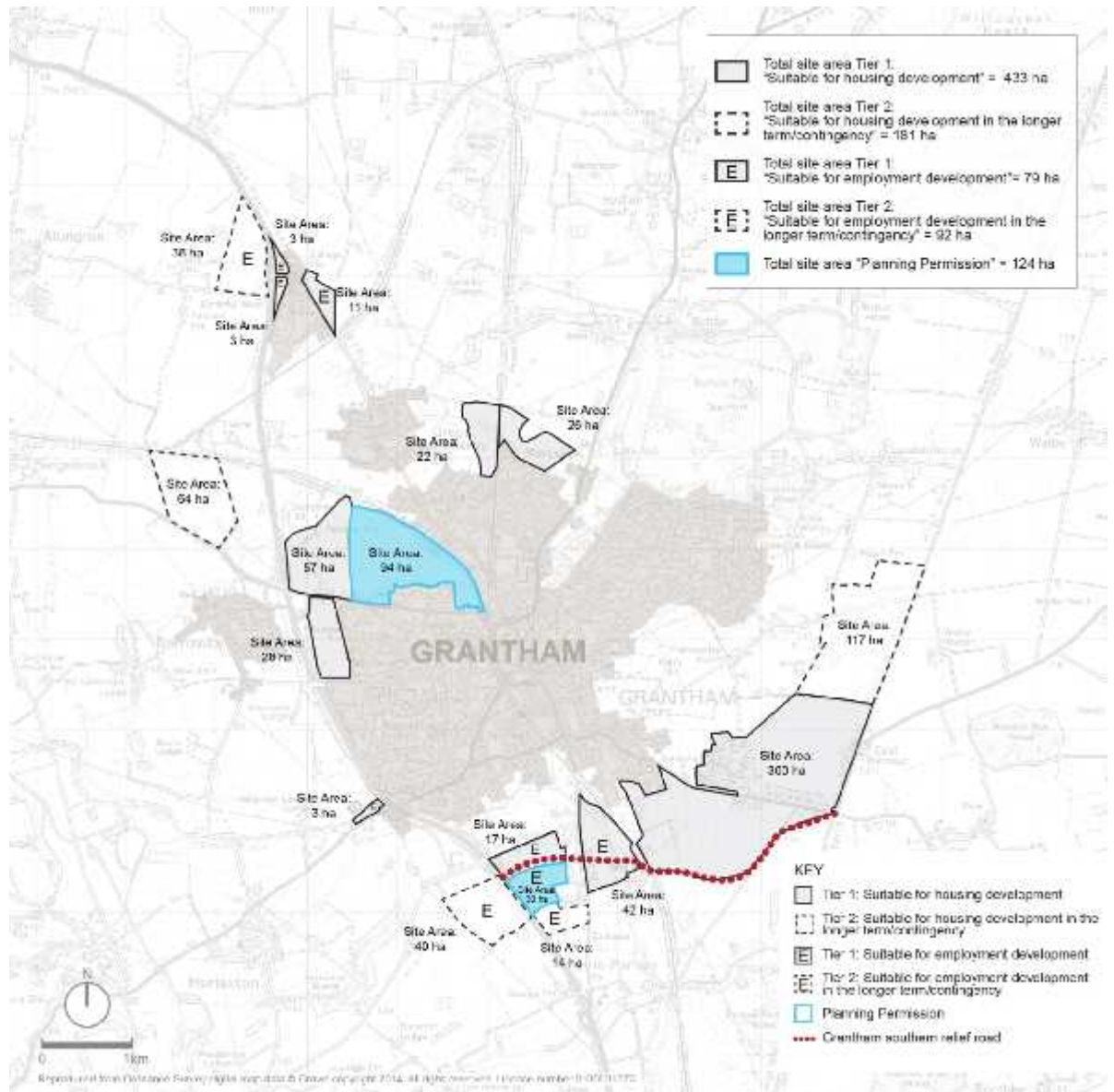
Based on this calculation, this study has found capacity for 10,825 dwellings on sites considered suitable and a further 4,525 dwellings on sites considered potentially suitable, giving a total potential capacity of 15,350 dwellings.

Capacity for new employment development is normally measured in hectares. This study has found 79 hectares on sites considered suitable for new employment development and 92 hectares on sites potentially suitable for new employment development. This gives a total potential capacity of 171 hectares of new employment. These findings are summarised in **Table 2** and illustrated in **Figure 55**, both below.

Table 2: Total potential capacity for residential and employment development based on analysis within this report

Site Type	Residential (hectares)	Residential (dwellings)	Employment (hectares)
Suitable sites	433	10,825	79
Suitable in the longer term / contingency sites	181	4,525	92
Total	614	15,350	171

Figure 55: Total area of all sites identified through study (hectares)



4.3 Next steps

This study has assessed the suitability of land for development from a technical perspective, using a range of criteria commonly applied in the town planning process. Additionally, it was carried out without any upper limit to growth or capacity in mind, meaning that it may have identified a surplus of land required for residential or employment development in the immediate future.

In order for the study conclusions to inform forward planning in South Kesteven, they need to be taken into account alongside a range of other information, including:

- the conclusions of needs studies, including the Strategic Housing Market Assessment and Employment Land Review
- the opinions of local stakeholders, including elected Members, landowners and local residents
- any other relevant considerations outside the scope of this technical study

This study sets out where Grantham *could* grow, not necessarily where it *should* grow; it is an evidence base to inform policy making. Answering the detailed questions of implementation raised by this study is for the next stages of the plan-making process. Nevertheless, it is now possible to signpost some of the main decisions and priorities for investment that will need to be tackled, including:

- the desirability of growth in locations that are not contiguous with the existing urban edge – these would be new villages, in the manner of Barrowby or Great Gonerby, rather than urban extensions;
- the potential benefits of ‘clustering’ development- in many (although not all) cases, a site will become more suitable if there is a critical mass or cluster to support the range of infrastructure required to ensure sustainability. For instance, usually one thousand dwellings may be required to support a primary school, and almost five thousand are generally required to support a secondary school;
- balancing new housing with new jobs - the integration of sustainable economic growth will be critical to the successful delivery of the overall housing supply;
- close co-ordination with infrastructure providers to ensure that sufficient funding is in place and that new development benefits from clear, coordinated phasing. Each service provider will in turn be preparing their own capital investment proposals for the next five years or so, and these must be properly informed by the wider development aspirations for the study area.

The aim of this report is to ensure the technical evidence base underpinning these kinds of decision is as robust as possible. The report has demonstrated the existence of land in a range of locations suitable or potentially suitable for new residential or employment development. Assessment of this land against a wide range of criteria should help ensure that the growth anticipated for Grantham minimises potentially harmful environmental impacts while maximizing economic and social benefits.

Technical Appendices

Appendix A: Review of national and local planning policy

Introduction

This appendix reviews relevant provisions of the national and local policy documents forming the context for planning in South Kesteven. Where information was common to more than one document, the source used and listed below comprised either:

- The most up-to-date assessment;
- Adopted policy text; or
- Both of the above.

Housing

National policy

National Planning Policy Framework (NPPF)

The NPPF was adopted in March 2012. The document states that at its heart is a presumption in favour of sustainable development, which should be seen as 'a golden thread running through both plan making and decision-taking'.

Specific points of relevance include the following paragraphs:

Paragraph 17: Allocations of land for development should:

- Prefer land of lesser environmental value, where consistent with other policies;
- Encourage the effective use of land by reusing land that has been previously developed (brownfield land), provided that it is not of high environmental value; and
- Actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable.

Paragraph 37: Planning policies should aim for a balance of land uses within their area so that people can be encouraged to minimise journey lengths for employment, shopping, leisure, education and other activities.

Paragraph 38: For larger scale residential developments in particular, planning policies should promote a mix of uses in order to provide opportunities to undertake day-to-day activities including work on site. Where practical, particularly within large-scale developments, key facilities such as primary schools and local shops should be located within walking distance of most properties.

Paragraph 50: To deliver a wide choice of high quality homes, widen opportunities for home ownership and create sustainable, inclusive and mixed communities, local planning authorities

should plan for a mix of housing based on current and future demographic trends, market trends and the needs of different groups in the community.

Local policy

Core Strategy 2010

The key local policy document relating to South Kesteven District Council is the adopted Core Strategy, which identifies, through Policy H1: Residential Development, a requirement for up to 6,992 homes at Grantham.

Other policies with direct relevance for residential development in Grantham include:

Policy SP3 Sustainable Integrated Transport: New development is promoted in locations which are particularly accessible by public transport, cycling and walking.

Policy H1 Residential Development: The Council will promote mixed and balanced housing communities..... as a result of Grantham's designation as a New Growth Point, at least 50% of the District housing total has been allocated in the town in order to address growth aspirations.

Policy H3 Affordable Housing: South Kesteven is required to supply 4,760 new affordable homes between 2006 and 2026.

Policy H4 Gypsies and Travellers: 11 permanent Gypsy and Traveller permanent pitches has been identified to be needed up to the period of 2017.

Site Allocations and Policies DPD (2014)

Policy SAP H1 Other Housing Development: Proposals for housing development within and on the edge of Grantham will be considered in accordance with policies of the Core Strategy and GAAP. Other than those sites which are allocated, new greenfield sites on the edges of the towns and villages will not be considered acceptable for housing development.

Planning permission will only be granted for small infill (sites of 10 or fewer houses) and redevelopment sites provided that the development:

- i. Can be satisfactorily accommodated by:
 - The existing local highway network;
 - The waste water treatment and sewerage network and;
 - The local education and health provision.
- ii. Will not have a detrimental impact upon the quality of life of adjacent residents and properties.
- iii. Will not compromise the nature and character of the settlement.
- iv. Is in accordance with the criteria of Policies EN1, EN2, and EN4 of the Core Strategy.

Policy SAP2 Rural Exception Affordable Housing: Within the Towns and LSCs affordable housing will be required as part of the development of allocated sites and as a planning gain on other windfall sites which are of five or more dwellings. In accordance with Policy H3 of the Core Strategy it is expected that up to 35% of a site's overall capacity will be for affordable housing.

Grantham AAP: Preferred Approach Development Plan Document 2011(not adopted- as such, although the policies quoted carry no weight, it is nevertheless important to build on the AAP's conclusions as appropriate)

Page 3: Great Gonerby needs to maintain its identity as a community and the growth from Grantham town should have minimal impact on it.

Policy MOV1: Pursue more compact forms of development to support more viable public transport.

Page 33: Four key regeneration sites have been identified, Station Approach, Wharf Place, Greyfriars and The Canal Basin.

Policy CB1: New homes in the Canal Basin should deliver a mix of type, size and housing tenure, including affordable housing.

Policy HS1: 5,590 new homes needed to be provided through the GAAP, up to the plan period of 2026.

Grantham Southern Quadrant Masterplan SPD (2013)

The Southern Quadrant Sustainable Urban Extension (SUE) to the south of the town is the largest development site identified in the Core Strategy.

Greyfriars SPD

Greyfriars is another site allocated and extends to approximately 3.2ha. It is located to the west of Grantham Town Centre.

SPD: Wharf Place (2012)

Wharf Place is a further site allocated and is approximately 2.53ha. It is located on the southern edge of Grantham town centre.

Employment

National policy

NPPF

Paragraph 21:

- Plan positively for the location, promotion and expansion of clusters or networks of knowledge driven, creative or high technology industries; and
- Facilitate flexible working practices such as the integration of residential and commercial uses within the same unit.

Local policy

Core Strategy 2010

Policy E1 Employment Development:

- There is a need for Grantham to increase its supply of attractive modern office and business premises; in particular, the need for a high quality business park with good access to the strategic highway network.

- Additional greenfield land on the edge of the town will need to be identified to meet the space needs of a full range of employment generating uses.
- Approximately 90 hectares of land is needed in Grantham to include high quality business park with good access to the strategic highway network, sites which meet the needs of storage and distribution (B8) industries with excellent access to the A1 and A52, sites for quality modern office, commercial and leisure development within the town centre, and a broad and flexible portfolio of sites across the town to accommodate office, commercial and manufacturing opportunities.

Site Allocations and Policies DPD

Policy SAP5 Locally Important Existing Employment Sites:

- Non employment generating proposals within these areas will only be considered acceptable if it is clearly demonstrated that the alternative use will not have an adverse effect on the primary employment use(s) of the area, will not reduce the overall supply and quality of employment land and premises within the area, will deliver economic regeneration benefits to the site and/or area, and will resolve existing conflicts between land uses.

Policy SAP 6 Employment Development at Gonerby Moor:

- Gonerby Moor is located to the north west of Grantham. It is a popular location for employment uses and as such, Gonerby Moor plays a crucial role in the economy of Grantham.
- It does not contribute to the employment land allocations included within the GAAP. Whilst the existing employment area at Gonerby Moor is identified within Policy SAP5 as a locally important employment area there may be scope for additional land at Gonerby Moor to come forward for employment development during the plan period.
- The Employment Land Capacity Study, prepared for the Council, identified land to the east of the Old Great North Road as also being suitable for a range of employment uses, and recognised that its location, immediately adjacent to the strategic road network with the potential to access a rail link, would make it attractive to the market.
- Any future development at Gonerby Moor should complement existing and proposed employment provision in Grantham, by addressing specific locational requirements of employment uses which cannot be met by land or premises in Grantham.
- Town centre uses are not considered appropriate in this area, although it may be a suitable location for "land-hungry" developments with low staff levels.

Grantham AAP: Preferred Approach Development Plan Document 2011 (unadopted)

Policy SA1: Station Approach regeneration could offer office and employment floor space, new homes, a high quality public realm and enhanced connectivity between the Railway Station, Wharf Place and the town centre.

Policy EM2: 90 hectares of new employment land is provided through site allocations for offices, storage and distribution centre, industry and manufacturing uses.

Transport

National policy

NPPF

Paragraph 30: In preparing Local Plans, local planning authorities should support a pattern of development which, where reasonable to do so, facilitates the use of sustainable modes of transport.

Paragraph 35: Plans should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people. Therefore, developments should be located and designed where practical to:

- Accommodate the efficient delivery of goods and supplies;
- Give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;
- Create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones; and
- Incorporate facilities for charging plug-in and other ultra-low emission vehicles.

Local policy

Core Strategy 2010

Policy SP3 Sustainable Integrated Transport:

- It is important that new development is located where a range of transport modes can access it.
- Locations which offer alternatives to the use of the private car should be encouraged.
- The delivery of traffic relief, especially for heavy goods vehicles in Grantham is a priority.
- The Grantham East-West relief road linking the A1 and A52 is critical to reducing the amount of through traffic (especially heavy lorries) and resultant congestion in the town centre, enabling the traffic management measures to support modal shift identified in the Grantham Transport Strategy to be implemented.
- The Pennine Way Link between the A52 and the B1174 will reduce traffic congestion in the town centre.

Grantham AAP: Preferred Approach Development Plan Document 2011 (unadopted)

Policy MOV1 Movement and Accessibility: The River Witham corridor could provide an excellent walking and cycling link between the town centre and the Southern Quadrant. Avoid cul-de-sac layouts as they work against making public transport, walking and cycling attractive as modes of choice.

Policy SA1: The Station Approach regeneration should be a distinctive arrival point to Grantham and the promotion of Station Road as a pedestrian and bus priority route.

Community Infrastructure

Local policy

Core Strategy 2010

Policy H2 Urban Extension Sites (Grantham): Development of the H2A North West Quadrant site would need to include a range of community facilities including a primary school, medical centre, local shops, formal and informal recreational space, as well as strong road links into the town centre.

Heritage

National policy

NPPF

Paragraph 59: Planning policies and decisions should aim to ensure that developments respond to local character and history, and reflect the identity of local surroundings and materials, while not preventing or discouraging appropriate innovation.

Paragraph 132: Substantial harm to or loss of a grade II listed building, park or garden should be exceptional. Substantial harm to or loss of designated heritage assets of the highest significant, notably scheduled monuments, protected wreck sites, battlefields, grade I and II listed buildings, grade I and II registered parks and gardens, and World Heritage Sites, should be wholly exceptional.

Paragraph 137: Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites and within the setting of heritage assets to enhance or better reveal their significance.

Local policy

Site Allocations and Policies DPD

Policy SAP11 Protecting and Enhancing the Setting of Belton House and Park: The Grade I listed Belton House and its Grade I registered historic park and garden are heritage assets of international importance, located in close proximity to the northern edge of the existing built-up area of Grantham. Development nearby needs to help maintain the significance of its heritage assets.

Grantham Southern Quadrant Masterplan SPD (2013)

Pg14: The views are considered to be of very high importance in terms of the town's heritage assets and the wider context of the town, especially in terms of the setting of Belton Park.

Landscape and agricultural land

National policy

NPPF

Paragraph 109: The planning system should contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes, geological conservation interests and soils;

Paragraph 112: Where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land in preference to that of a higher quality.

Local policy

Core Strategy 2010

Policy SP1 Spatial Strategy: New development proposals shall be considered on appropriate sustainable and deliverable brownfield sites and appropriate greenfield sites (including urban extensions), sufficient to ensure the achievement of growth targets.

Policy EN1 Protection and Enhancement of the Character of the District: New development should meet the requirements in South Kesteven's Landscape Character Areas. Grantham is within the Grantham Scarps and Valleys Landscape Character Area.

Ecology

National policy

NPPF

Paragraph 110: Plans should allocate land with the least environmental or amenity value, where consistent with other policies in this Framework.

Paragraph 117: To minimise impacts on biodiversity and geodiversity, planning policies should:

- plan for biodiversity at a landscape-scale across local authority boundaries;
- identify and map components of the local ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them and areas identified by local partnerships for habitat restoration or creation;
- promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan;
- aim to prevent harm to geological conservation interests; and
- where Nature Improvement Areas are identified in Local Plans, consider specifying the type of development that may be appropriate in these Areas.

Local policy

Core Strategy 2010

Policy H2 Urban Extension Sites (Grantham): Part of the H2B Southern Quadrant urban extension site has been identified as a site of nature conservation importance (SNC1) and should be protected.

SPD: Grantham Southern Quadrant Masterplan (2013)

Page 25: Ecology considerations of new development include the conservation and enhancement of the character and ecological value of the River Witham valley floor, the creation of a buffer for

the woodland copse at the centre of the site and reinforce the majority of the existing trees and hedgerows.

Green Infrastructure

National policy

NPPF

Paragraph 74: Existing open space, sports and recreational building and land, including playing fields, should not be built on subject to specific exceptions.

Local policy

Grantham AAP: Preferred Approach Development Plan Document 2011 (unadopted)

Policy MOV1: Integrate the River Witham and other green features/corridors into new development to act as high quality walking, cycling and recreational corridors.

Policy GI1: In Grantham, priority will be given to investment in locations with identified needs and opportunities for green infrastructure provision, including regeneration sites within the town centres, the Sustainable Urban Extensions and for key green corridors and links, such as the River Witham and Grantham Canal.

Flood Risk

Local policy

Core Strategy 2010

Policy EN2 Reducing the Risk of Flooding: Inappropriate development in fluvial floodplain areas should be avoided. Development is not permitted in areas identified in the South Kesteven Strategic Flood Risk Assessment (SFRA) as at risk of flooding from any source. If there is no reasonable available site in Flood Zone 1 then the flood vulnerability of the development can be taken into account in locating it within Flood Zone 2 and then Flood Zone 3.

Policy H2 Urban Extension Sites (Grantham): The land adjacent to the River Witham in the H2B Southern Quadrant site has been identified as being at a high risk of flooding and should remain undeveloped.

Retail

National policy

NPPF

Paragraph 23: Planning policies should define a network and hierarchy of centres that is resilient to anticipated future economic changes.

Paragraph 24: When considering edge of centre and out of centre proposals, preference should be given to accessible sites that are well connected to the town centres.

Local policy

Core Strategy 2010

Policy E2 Retail Development: Retail and other town centre uses should be located either within defined town centres or in adjacent planned extensions.

Grantham AAP: Preferred Approach Development Plan Document 2011 (unadopted)

Policy RT1: Additional retail floorspace for comparison goods and more limited capacity for convenience goods are needed. Elmer Street South has been identified as a potential area to accommodate additional retail capacity in the long term.

Policy TOC1: Preferred approach is to concentrate new retail opportunities within the Primary Shopping Frontage, while the Secondary Shopping Frontage will support independent and convenience retailers and non-retail uses such as offices, restaurants and cafes.

Appendix B: Review of local planning evidence base documents

Introduction

This appendix reviews relevant provisions of the local planning evidence base documents forming the context for planning in and around Grantham. It is presented by topic in the same order as the policy review at Appendix A. Within each topic, documents are presented in chronological order by year, with the most recently produced documents first.

Housing

Strategic Housing Market Assessment [SHMA] (2014)

The Sub-regional Housing Market Assessment (SHMA) will inform the South Kesteven dwelling target in the emerging Local Plan. The SHMA covers South Kesteven in its context as part of the Peterborough housing market.

The SHMA states that the southern half of South Kesteven, including Grantham, has strong links with Rutland and Peterborough in terms of migration and commuting patterns.

South Kesteven's tenure split is broadly in line with the sub-regional average but has more detached houses and fewer terraces and flats than the East Midlands average. Its most popular house size is 3-bed, at 45%, and it has an unusually low proportion of 1-bd properties, at 5%.

The local authority has a higher proportion of properties in Council Tax Band D and above than the East Midlands average. Its proportion of vacant and second homes is average. In the period 1992 and 2012, its population grew by 1% per year, an average growth rate for the sub-region, but above the Lincolnshire average.

Relative to other SHMA authorities, South Kesteven has more people in their 40s and 50s. More people are qualified to Level 4 than the East Midlands average, as well as above average employment in managerial and professional, associate professional and skilled trades. It also has an above average employment rate of 76.5%, and a below average unemployment rate. Earnings are 6.6% above the East Midlands average.

However, analysis shows a level of commuting out of the authority for those in higher skilled and higher paid roles, in particular to Peterborough, the destination of 39% of those leaving the District for work. Notably, also, the South Kesteven jobs density is below average. Future employment growth projected to 2031 is in line with the national average at 15%. By contrast, Peterborough is forecast to grow at a faster rate.

The jobs sectors projected to grow fastest in South Kesteven are extraction and mining and public services. At the SHMA Stakeholder workshop, the main risk to South Kesteven's delivery of employment development was identified as bringing forward new employment land provision.

South Kesteven's house prices grew by 199% 1998-2007, but this was below the sub-regional average, and median house price actually declined over the same period. The District has an affordability ratio of about 7.5, which is average for the sub-region. Household overcrowding is at low levels, but the rate of under-occupation is the second highest in the sub-region after Rutland. South Kesteven was the only authority in the sub-region that delivered 100% of its housing target 2006-2012.

In terms of migration projections, in-migration to South Kesteven is projected to increase in the long term. The SHMA calculates that the District's annual housing need into the future is within the range of 615-706 dwellings.

The percentage of households unable to afford market housing in South Kesteven is 33.1%, which is lower than the sub-regional average, and a low rate (1.9%) of households are in unsuitable housing. The current (backlog) housing need in South Kesteven is 547 units, the second-highest in the sub-region, and annual affordable housing need is 300 units. The majority of affordable need (45%) is for 2-bedroom units. By contrast, 46% of the market housing needed is 3-bedroom units. It is recommended that 45-50% of market housing therefore be 3-bed and 40-45% of affordable housing be 2-bed units.

The SHMA notes that in terms of housing for older people, in South Kesteven there have been a number of recent schemes where bungalows have been provided as part of development schemes, including units adapted to meet specific needs identified locally. There is predicted to be an over 200% rise in the population with dementia and mobility problems in the District between 2011 and 2036, translating into a need for 1,799 housing units for older people.

The SHMA summarises population and employment projections by noting that South Kesteven's population is projected to grow by 0.9% per year but employment by only 0.7% per year. It concludes by estimating the District's housing need as between 660-710 homes per annum. It notes that the higher end of this range would support stronger affordable housing delivery and could support stronger growth in labour supply if this is considered necessary.

Strategic Housing Land Availability Assessment [SHLAA] (2014)

The Strategic Housing Land Availability Assessment (SHLAA) is a technical document comprising a list of sites that might have some potential for housing development at some stage in the future. The SHLAA forms part of the evidence base to support the delivery of land for housing in the District over the period 2014-2036.

The 2014 SHLAA contains the following information:

- a list of all sites or broad locations that have been considered, cross-referenced to their locations on maps, indicating which sites have been excluded due to national policies, designations and other suitability criteria;
- an assessment of each site or broad location, in terms of its suitability for development, availability and achievability to determine whether a site is realistically expected to be developed and when;
- the potential type and quantity of development that could be delivered on each site/broad location, including a reasonable estimate of build-out rates, setting out how any barriers to delivery could be overcome and when;
- an indicative trajectory of anticipated development; and
- a summary for the whole of the District indicating the total numbers of dwellings considered to be deliverable and developable in 5-year periods.

The sites included in the SHLAA comprise:

- old Local Plan allocations in Grantham (which have not been superseded by the SAP DPD) which have not been implemented (for housing, employment or other uses);
- sites submitted through "Calls for Sites" as part of the preparation of the SHLAA;

- sites of 10 or more dwellings where planning permission has recently lapsed, or where a planning application has been withdrawn or refused (including those sites dismissed on appeal);
- vacant and surplus public sector land;
- sites with extant planning permission (outline and full) for housing, including sites where the Council has resolved to grant permission subject to signing a S106 Agreement; and
- locations identified in the Core Strategy, and, sites allocated in the Site Allocation and Policies Plan (SAP DPD).

The assessment of suitability is based upon the following criteria:

- the development plan: national and local planning policies set out in NPPF and adopted and emerging Local Plan documents;
- protection of international and national biodiversity designations (SAC, SPA, RIGS, SSSI);
- protection of national heritage assets (such as historic parks and gardens, or sites which include Scheduled Monuments and listed buildings);
- presence and extent of Flood Zones;
- appropriateness and likely market attractiveness for the type of development proposed;
- environmental/amenity impacts experienced by would-be occupiers, existing residents and neighbouring areas.
- proximity of the site to the towns and Local Service Centres
- scale of site in relation to the existing settlement and its development needs,

As a result of the assessment of suitability, sites which do not meet the following criteria have been assessed as unsuitable for development:

- sites which are contrary to national and local adopted planning policies;
- sites which are not within or on the immediate edge of an identified settlement; and
- sites which are of an inappropriate scale to the existing settlement.

The SHLAA conclusions for Grantham is that the settlement has a total potential capacity of 8,527, split into 1,846 dwellings to be completed 2014-2019, 2,667 dwellings 2019-2024, 1,425 dwellings 2024-2029 and 2,589 beyond 2029.

The SHLAA also makes a windfall allowance of a further 417 homes.

Finally, the SHLAA states that its trajectory shows that the adopted Core Strategy housing requirement for the period to 2026 can be delivered by the number of houses considered deliverable on the sites assessed in this SHLAA. Beyond 2026 it is expected that additional housing sites will need to be identified – this may require a re-assessment of the assumptions and site assessments and a review of local policies.

Annual Monitoring Report (2014)

The Annual Monitoring Report notes that across South Kesteven:

- 541 dwellings were built during the year, below the annualised housing requirement set out in the Core Strategy
- 91 affordable dwellings were delivered during the year, representing 38% of the number of affordable dwellings required annually to meet the affordable housing target in the Core Strategy
- 59% of all new dwellings were on previously developed land
- 67% of housing developments were built at densities of more than 30 dwellings per hectare
- No planning applications were granted contrary to the advice of the Environment Agency

Although business development data was not available for 2013-4, in 2011-2 7014 square metres of net additional employment floorspace was developed and in 2012-3 6,053 square metres. Additionally, 78 hectares is currently allocated for employment use, but 0.56 hectares was lost to other uses in 2011-2 and 0.36 hectares in 2012-3.

Table 9 (Housing Delivery) breaks down the South Kesteven trajectory geographically. It states that of the total annual housing target, around 100-170 will be delivered in Grantham and up to 450 annually after 2021 on Grantham SUE sites (before 2021, it will ramp up from a low of 68 in 2014/5).

Indicator H2 shows the contribution of Grantham to the South Kesteven total for each year from 2004/5 to 2013/4. Over this period, Grantham has accommodated an average of 213 new units per year, rising to a maximum of 375 per year in 2006-7.

In 2011-2, 117 affordable units were developed, in 2012-3 56 units and in 2013-4 91 units.

Indicator H5 monitors the density of new development. In recent years, most new development has been in the range 30-50 dwellings per hectare, but there has been a trend recently for developments of more than 50 dwellings per hectare, with the proportion of such developments reaching 31% in 2013-4.

Indicator H6 shows that in recent years the majority of new developments have been 3-bedroom properties, with a very low number of 1 bedroom completions.

Employment

Employment Land Review (2013)

The 2013 ELR, which is currently being updated, had three stated key aims:

- To assess the type, location and quality of existing employment land and premises in Grantham and whether it meets/will continue to meet the employment needs of the town during the plan period to 2026.
- To assess whether existing employment areas should be the subject of restrictions aimed at preventing (re)development for other non employment generating uses, and if so explain why.
- To identify and evidence the links between Grantham and the Gonerby Moor industrial area, and the contribution Gonerby Moor makes to Grantham's economy and job market.

Twenty-six sites were assessed, of which twelve were recommended for retention in their entirety as employment land and four were considered either not available or not suitable for alternative use. The ten sites considered suitable for redevelopment to an alternative use (residential unless stated otherwise) are:

- Vacu-Lug site, Gonerby Hill Foot (4.75 hectares)
- Factory south of Dysart Road (0.67 hectares)
- Factory at north end of Trent Road: (2.07 hectares)
- Part of Springfield Park industrial estate (proportion of 12.45 hectares unknown)
- Southern portion of Land North of Earlesfield Lane (proportion of 11.48 hectares unknown)
- London Road Industrial Estate and Spring Gardens (3.08 hectares)
- Former School, Station Road (0.37 hectares)
- Aveling Barford Site (15.34 hectares, but not necessarily for employment or residential)
- Belton Lane Industrial Estate (2.21 hectares)
- Old Hampson's Hire Site, Harlaxton Road (0.81 hectares, for commercial or retail)

Employment Land Capacity Study (2010)

The aims of the study are:

- To provide a clear understanding of the local economy and contextualise South Kesteven's place within the region;
- To consider potential changes in employment sectors;
- Formulate a variety of scenarios to consider the impacts of these sectoral changes upon the need for employment land;
- To consider the implications of local market conditions on the deliverability of employment development within the plan period;
- To address the role of existing employment land and premises within the local economy now and over the plan period; and
- To consider how existing employment provision may (or may not) continue to meet employment needs over the plan period to 2026.

The study states that the economic strengths of the District, which influences its ability to support new employment space in future, include its good transport accessibility; the attractive market towns and rural areas providing quality of life advantages; a workforce with high level job skills; an established manufacturing base; and its relatively strong entrepreneurial culture.

It notes that weaknesses and potential threats include how heritage considerations potentially limit supply of employment sites; low representation and modest growth in office-based sectors; recruitment difficulties in some sectors due to the small labour force; poorer performance on inward investment; low wages and high levels of localised congestion in market towns.

The overwhelming majority of South Kesteven's employment space is industrial, comprising both factories and warehousing space. Commercial office premises account for a very low proportion of floorspace.

A number of sectors have moderate or moderate-high levels of growth potential in the district. In broad terms, local competitive advantages lies in the area's strength in manufacturing, and emerging opportunities in business services and distribution, capitalising upon the quality of life and locational benefits.

The majority of office demand in South Kesteven is from small, indigenous companies seeking premises of less than 10,000 sqft. At present, areas such as Stamford cannot compete with the availability of sites provided by Peterborough, and larger requirements gravitate southwards. Whilst the District should maintain a secondary office role, it retains a cost-effective labour force, attractive rural setting and excellent communications.

There is continued demand for small-medium sized warehousing units along the A1 corridor, with scope to attract further development if accessible sites are made available in the vicinity of Grantham.

Demand for larger units is likely to be accommodated by the considerable supply in Peterborough and East Northamptonshire for the foreseeable future. Agents confirmed that there remains a strong demand for new smaller industrial premises, particularly in Stamford and the Deepings, although much of the stock in Grantham and Bourne is older and less attractive to new occupiers.

The key issues raised by agents concern the need for providing flexibility in the future portfolio of sites, in terms of tenure, size and location, with an emphasis on quality. Agents and developers stressed the need for transport infrastructure investment to release key employment sites in Stamford and Grantham.

The Employment Land Capacity Study forecasts that between 99 and 195 hectares (gross) of new employment land may be considered appropriate across South Kesteven, with transport infrastructure investment making the higher end of the range more likely. Within this range, the conclusion for Grantham is that there is currently 53ha of employment land available, in an area of generally strong demand, with identified shortfall of around 20ha of B1a/B8. It is possible that this need could even increase should the Southern Relief Road proceed and free up a number of sites to the south and east of the town.

The study also notes that 'in general, there is an under-supply of readily available allocated sites in parts of the district that are most attractive to the commercial market, i.e. in close proximity to the A1 in Grantham. Congestion is a significant issue for sites on the eastern side of Grantham, and without substantial traffic relief solutions, it is difficult to see how a number of the sites could come forward in the short to medium term. The better scoring sites are generally located in the vicinity of Grantham and Gonerby Moor.

The shift away from manufacturing and towards distribution is anticipated to continue, whilst the representation of financial and business services is also expected to grow in response to an improved provision of office floorspace.

A new portfolio of site allocations is proposed for the District to address the shortfall identified above, with a 20ha site for B1a and B8 recommended for allocation in Grantham to the east of the A1 and south of Barrowby Road.

Renewal and intensification on older sites should be encouraged to ensure that they contribute positively to meeting some of South Kesteven employment land requirements, particularly given the challenges facing the identification of new allocations, but taking account of the particular

constraints that apply on individual sites. Where mixed-use development or potential release of an employment site to other uses is contemplated, this should have regard to the availability of alternative sites to accommodate firm relocation.

Transport

Grantham AAP Transport Delivery Plan (2014)

The Grantham AAP Transport Delivery Plan's aim was to identify sites in Grantham for future residential development based on the transport impact of a number of options.

The study comprised two sections- in the first section, a number of potential sites were identified and their impact on the highway network assessed in terms of key approach routes to the town centre.

The most promising sites emerging from the first section were then tested using the Grantham SATURN model in Stage 2 to assess their combined impact, and the scope for mitigation of their impact.

The report concludes that all sites taken forward as Stage 2 have the potential to be developed, subject to appropriate mitigation measures, including highways works and contributions towards sustainable transport initiatives. However, in the A52 Bridge End Road and B1174 South Parade corridor, significant development is to an extent dependent on the delivery of the Southern Quadrant Link Road (SQLR).

The sites the Transport Delivery Plan assesses as suitable for development are as follows:

- Site 1C (land east of Prince William Barracks and north of A52- western package)
- Site 1D (land east of Prince William Barracks and north of A52- central package)
- Site 1E (land east of Prince William Barracks and north of A52- eastern package)
- Site 1F (Spitalgate Farm- south of A52 opposite Prince William Barracks)
- Site 2A (Grantham Church High School site)
- Site 3A (land south of Grantham Road between Great Gonerby and Grantham urban edge)
- Site 3C (land north of Gonerby Hill Foot)
- Site 4A (North of Barrowby Road, east of A1)
- Site 5A (Harlaxton Close, south of A607 Harlaxton Road)
- Site 6A (Warehouses on Trent Road south of Dysart Road)
- Site 6B (North of Dysart Road and east of A1)

The study concluded that sites 1G (north of Gorse Lane at South Parade end), 2B (land north of Manthorpe) and 3B (land east of Arnold Avenue, Gonerby Hill Foot) are not suitable for development in transport terms.

It states that developers of all sites be required to provide contributions towards pedestrian and cycle facilities both within their sites and to tie in with existing and planned provision. In addition, it is considered that developers should contribute towards improved bus services and facilities.

4th Lincolnshire Local Transport Plan (2013)

The Lincolnshire LTP4 is a statutory plan that covers the 10 year period 2013/14 to 2022/23. It builds on the strategies and policies in the first 3 LTPs and operates at the County level. The plan sets out a number of objectives and contains an accompanying Implementation Plan with key projects to help achieve those objectives.

The Local Transport Plan has the following Objectives:

- to assist the sustainable economic growth of Lincolnshire, and the wider region, through improvements to the transport network.
- to improve access to employment and key services by widening travel choices, especially for those without access to a car.
- to make travel for all modes safer and, in particular, reduce the number and severity of road casualties.
- to maintain the transport system to standards which allow safe and efficient movement of people and goods.
- to protect and enhance the built and natural environment of the county by reducing the adverse impacts of traffic, including HGVs.
- to improve the quality of public spaces for residents, workers and visitors by creating a safe, attractive and accessible environment.
- to improve the quality of life and health of residents and visitors by encouraging active travel and tackling air quality and noise problems.
- to minimise carbon emissions from transport across the county.

Lincolnshire has no motorways and just 66km of dual carriageway (A1 and A46). The most populous areas in the county are at Lincoln, Boston and Grantham. Buses into market towns and surrounding rural area have improved in recent years, but bus services remain limited in evenings and weekends.

Nine of the 22 largest towns in Lincolnshire have a rail station. Grantham is well-served by the East Coast Main Line but is the only town in the county along that route, linking Lincolnshire to (amongst other places) London, York, Newcastle and Edinburgh.

Cycling routes have been expanded across the county, particularly at the larger urban areas. The 2010 school census suggested that 27,266 car journeys are made to school in Lincolnshire every day, and 3,652 of these car trips are made from with 0.6kms of the school – a 7 minute walk.

There are currently four Air Quality Management Areas in Grantham, designated for high concentrations of Nitrogen Dioxide. These are at Brook Street/Manthorpe Road and Wharf Road in the centre of Grantham, plus also along the A1 adjacent to Welwyn Court and Rosemary Crescent to the south west of the town and Meres Road to the west. The most recent air quality monitoring as outlined in the 2012 Updating Screening and Assessment Report suggests that there are also other areas in the town where the thresholds are being breached. Emissions from road transport in

Lincolnshire (29%) are higher than the UK average (26%) which suggests unsustainable travel patterns and room for improvement.

Grantham was given Growth Point status in 2007 and the population of the town is therefore planned to increase by 50% from 2007 to 2026. One of the Growth Point initiatives is to regenerate the area adjacent to the railway station.. The project also includes improvements to be made to pedestrian access to the station and better integration between bus and rail services.

There are a high number of bridge strikes in the town. The bridges on the A52 Barrowby Road, A607 Harlaxton Road and A52 Springfield Road (all carrying the East Coast Main Line) suffer some of the highest number of bridge strikes in the country. All of the bridge signing has been improved and Network Rail have carried out work to make the bridges more conspicuous. It is intended to implement an area-wide HGV ban once an East-West relief road is in place.

The Grantham East-West Relief Road will be to the south of the town. Planning approval has been given for a major distribution complex adjacent to the A1 south of Gorse Lane and this requires the applicant to construct the first phase of the relief road from the A1 to the B1174 including a new all movement junction on the A1. The land to the east of the B1174 has been included in the adopted Core Strategy as a location for a future sustainable urban extension.

One of the schemes identified as a priority in the Grantham Transport Strategy was the construction of a link from the A52 west of the town to the B1174 at Great Gonerby (Pennine Way Link). This requires a crossing of the Grantham to Nottingham railway. This scheme will need to be funded through a S106 agreement associated with a major housing development. A S106 agreement has been completed and this will ensure the bridge is completed once 750 houses have been built.

The next iteration of the LTP proposes to carry out a review of the Grantham Transport Strategy (2007) which will look at the baseline data and assumptions to check if they are still relevant and robust. The Grantham Growth and Capacity Study should therefore incorporate any emerging evidence and findings identified through this LTP/Grantham Transport Strategy update process.

The Transport Strategy for Grantham (2007)

The 2007 Transport Strategy for Grantham aims to provide a framework for the better management of movements into and through Grantham; address existing and future levels of congestion and its environmental impact; and support the sustainable economic growth of the town and its surrounding area. The Strategy was envisaged to be directly implemented through the emerging Local Plan and Local Transport Plan.

The Strategy identifies several problem 'themes' through policy review and stakeholder engagement. These were: safety issues, inadequate parking, insufficient public transport services, a poor public transport interchange, low bridges affecting movement (particularly for HGVs), connectivity within Grantham and the demand for movement.

Potential options to solve these problems were identified and tested against predicted trends in traffic growth in order to gauge their effectiveness and value for money. The options were consulted on and the preferred approach became the Transport Strategy.

The Transport Strategy identifies the following goals:

- Reduced private vehicle levels on streets in the town centre area.
- Safer environment with increased pedestrian space and facilities.

- Improved management of on and off-street parking.
- Sufficient parking provided to aid the economic success of the town centre.
- Improved reliability of bus services.
- Improved levels of bus services accessible to all users.
- Improved connectivity between bus and rail.
- Improved waiting environment for public transport users at key locations.
- Clear and attractive links between public transport services and the town centre.
- Reduced number and severity of bridge hits.
- Maximised efficiency of key junctions.
- Increased level of walking and cycling trips throughout the town.
- Reduced proportion of car trips to all new developments.
- Economic growth achieved alongside an increased in sustainable travel.
- Improved air quality within the Air Quality Management Area.

Identified short-term improvements included:

- Improvements to town bus services.
- Review and improve all signing.
- Review and improve walking and cycling routes
- Implement town centre traffic management schemes.
- Review bridge protection systems.

Longer term goals include the provision of new roads and development opportunities.

Two new roads were identified, the East-West Relief Road to the south of Grantham linking the A1 and A52; and the Pennine Way Link to the north west of Grantham to connect Barrowby Road with Gonerby Road (to be built as part of the Poplar Farm development). This would help to reduce HGV traffic in Grantham and reduce congestion at the Premier Court gyratory respectively.

Development opportunities at a number of sites including Castlegate, Greyfriars, Greenwoods Row, Wharf Place, Station Point, Market Place, Westgate and High Street (and urban extensions identified subsequently) provide redevelopment opportunities and funding sources for identified projects such as a new bus station and interchange and improved accessibility to the rail station.

The Strategy seeks to encourage bus operators to serve the rail station and supports improvements to the Nottingham-Grantham-Skegness 'Poacher Line'.

Grantham Movement Strategy (2010)

The Grantham Movement Strategy builds on the Grantham Transport Strategy (2007) and focuses on the specific design interventions required to meet, influence or manage the additional movement demands to be generated by the planned growth of the town. The Movement Strategy considers area specific improvements for the north and south of Grantham and the town centre; and also considers multi-modal improvements necessary to resolve key movement issues and support development.

An evidence base review highlights the following problems:

- Historically the suburban growth of Grantham has developed often with cul-de sac layouts which do not lend themselves to public transport, walking or cycling.
- North-south transport has been improved with the A1 trunk diversion diverting through traffic (built in 1962); but east-west transport still runs through the town on the A52. Eastbound HGVs using the A1 pass through Grantham in accessing distribution centres and rural areas to the east. East Coast Main Line is constructed on a low Victorian embankment with insufficient clearance under bridge arches for HGVs.
- Grantham experiences significant congestion over the course of the day, particularly on the town centre traffic collar at the convergence of radial roads at Wharf Road, Sankt Augustin Way, Barrowby Road and Broad Street. Severance in the town centre is created by the town centre 'traffic collar'.
- Parking is a key issue with parking largely saturated during the week and at weekends. Additional growth is likely to exacerbate this unless non-car modes of transport are improved.
- Despite investment in recent years, buses still struggle to meet timetables due to town centre congestion, which affects their ability to capture market share. Furthermore the existing bus station is an eyesore. New growth and development across the town can – if designed correctly – provide the catchment, connections and funding necessary to deliver a step change in the service offered by the local and inter-urban bus network. Improving quality will be critical in encouraging people to use bus services.
- Approximately 30% of Grantham residents travel less than two kilometres to work, yet cycling only accounts for 5% of all journeys to work. Cycling infrastructure is generally high quality along radial routes but orbital routes have lesser connectivity. The River Witham corridor could provide a walking and cycling link through the town. Traffic is a deterrent to walking in Grantham that worsens nearer the town centre. There is significant potential for cycling and walking to play a greater role in trip-making.
- There is currently a poor relationship between land-use and transport in the town with low densities that result in increased distances to travel. This needs to be addressed to reduce congestion, increase accessibility and encourage uptake of walking, cycling and public transport.
- Residential densities are generally around 30 dwellings per hectare with areas of Victorian railway housing reaching between 50 and 70 dwellings per hectare adjacent to the town centre. Employment is concentrated on the town centre with three employment areas outside of the town to the northeast, southwest and in the Canal Basin area. These are largely 'big box' retailing, light industry, warehousing and distribution.

The town-wide Movement Strategy aims to:

- Deliver an appropriate mix of uses within developments to maximise peoples' propensity to walk and cycle when accessing local goods and services.
- Pursue more compact forms of development (with densities ranging from 35 - 60 dwelling units per hectare gross) to support more viable public transport.
- Place local centres on strategic movement corridors to provide high levels of access by all modes and to enable retail premises to capture pass-by trade.
- Integrate the River Witham and other green features/corridors into new development where possible, to act as high quality walking, cycling and recreational corridors, as well as to deliver upon other environmental imperatives.
- Ensure that the street network is designed to hardwire in public transport services on appropriately located and designed spine streets with highly legible and walkable bus hubs located in town centres and other areas of activity, such as schools or community facilities.
- Provide a connected network of streets that disperse movement loads and promote walking and cycling.
- Invest in junction improvements for all modes of transport to enable growth to occur, at the same time as resolving local movement and place related issues.
- Reduce the severance effect of the town centre collar for slow modes of walking and cycling in balance with the need to retain its critical traffic function.

Two key road projects are identified:

- The proposed East-West Relief Road (to the south) will not only reduce through traffic into the town, but also provide access to and open up the Southern Quadrant Sustainable urban extension. The construction of the relief road is estimated to start in 2014 and take around two years.
- The Pennine Way link between the A52 and B1174 is to be delivered by the eastern-most part of the Northeast Quadrant's (Poplar Farm) development. This will help relieve traffic from the town centre and requires the construction of a rail bridge.

Future modelling shows that in 2026 (as a result of the Core Strategy) and proposed urban extensions, traffic levels are set to rise further in the town centre, particularly London Road and St Augustin Way with traffic increasing to over 2,000 vehicles on London Road.

Traffic levels are predicted to remain more or less constant on St Peters Hill.

The proposed Pennine Way is forecast to carry about 1500 vehicles during each peak, some of which will be diverted from other routes but mostly associated with the North Quadrant urban extension.

The proposed Southern Relief Road is forecast to carry in the order of 1000 vehicles per hour, about half of which would be redirected trips currently using existing streets and about half associated with the urban extensions.

Community Infrastructure

Open Space, Sport and Recreation in South Kesteven (2009)

The Open Space Study provides the evidence base for the provision or improvement of open space, sports and recreation facilities in South Kesteven.

The study provides “guidance on the ways in which open space in Grantham in particular should be planned and provided to best meet the needs of a town that has achieved Growth Point status.” The most noticeable deficiencies are access to natural green space (especially in the urban areas); access to proper parks within urban areas); and access to good quality children and young people’s provision.

Standards are set for the quantity and accessibility of open space, built facilities and informal/natural greenspace. New development should accord to these standards and help to address areas of deficiency.

A standard of 2 ha open space per 1000 people is proposed, both as a basis for a contribution from new housing, but also as a minimum target for provision across the District. A distance of 480 metres (straightline), or just under 10 minutes walking time is proposed as the qualitative component of the standard.

In areas where it may be impossible or inappropriate to provide additional natural greenspace consistent with the standard, other approaches should be pursued which could include (for example):

- Changing the management of marginal space on playing fields and parks to enhance biodiversity.
- Encouraging living green roofs as part of new development/ redevelopment.
- Encouraging the creation of mixed species hedgerows.
- Additional use of long grass management regimes.
- Improvements to watercourses and water bodies.
- Innovative use of new drainage schemes / Sustainable Drainage Systems (SuDS).
- Use of native trees and plants in landscaping new developments.

The standard for Outdoor Sports Space is 1ha per 1000 people within 480m.

The standard for ‘Other open space’ (i.e. equipped play, multi-functional parks and allotments/community gardens) is 0.8ha per 1000 persons. This includes 0.2ha of allotment space – of which Grantham is deficient.

Quantity and accessibility standards are also presented for sports halls, swimming pools, synthetic turf pitches and small community halls.

For ‘Informal and Natural Greenspace’:

- Grantham has a higher quantity of provision than the rural area and is higher than the proposed standard.

- The gap between 'quality' of sites and their 'potential to improve' was the largest of any category; highlighting room for improvement – particularly for natural greenspace. Tree cover could be improved on informal open space sites.
- There is a good distribution of informal open space but not natural greenspace. Opportunities should be taken to make informal open spaces and parks more 'natural'.

For 'Outdoor Sports Space':

- Quantity does not meet the recommended minimum standard of provision in Grantham; although the Meres Leisure Centre in Grantham is a major facility of at least regional standard.
- The quality of facilities is generally quite good (but variable).
- Outdoor sports space opportunities are well distributed across the town, although there are some parts where immediate access by foot is not easy (for example, the Green Hill area and parts of Greyfriars on the edge of town). In such areas, opportunities might be explored for providing informal sports opportunities (such as Mixed-Use Games Areas) on existing informal spaces, or parks. For more organised sport, the most obvious solution would be to explore further opportunities for dual use provision at local schools.

For 'Children and Young People's Equipped Play Space':

- Quantity of provision is less than the proposed standard, so significant improvements are needed across the town and from new development to address this deficiency.
- There is a generally good quality of provision within Grantham itself for pre-teens which is well maintained.

For 'Allotments':

- Allotment provision is higher than the proposed standard in Grantham.
- Quality is generally well-maintained but perimeter fencing is of variable quality in urban areas.

For 'Parks and Recreation Grounds':

- The level of parks and gardens provision is lower in Grantham urban area than the suggested target. Within the Grantham urban area, the relative provision of multifunctional parks and recreation grounds is very low compared with the District as a whole.
- Within Grantham urban area, those parks, gardens and recreation grounds that do exist tend to be well maintained and have a good specification of equipment

In terms of accessibility, existing children's and young people's space is well distributed, but there are still large parts of the town not within easy reach of such opportunities, including Green Hill, parts of Greyfriars, St. Wulfam and Belmont (the latter particularly for pre-teen provision). The same areas as well as Earlesfield lack easy access to existing allotment space; and, only St. Wulfam can be excluded from the same list when considering parts of the urban area not within easy reach of a park or recreation ground.

In terms of informal and natural greenspace the overall level of provision across the settlements (both principal and villages) is less than the suggested minimum standard. Generally, such space

tends to be quite well maintained, but is largely unimaginative in the way that it has been designed and laid out. There are few spaces within Grantham that can be considered to be 'natural' in character. The consultation suggests that local people appreciate this type of space and would like to see better opportunities to enjoy them.

In terms of outdoor sports space, overall, provision does not meet the recommended minimum standard of provision for dedicated community sports space. However, land within education sites or in parks and recreation grounds also makes a substantial contribution to meeting local needs within the District. In terms of playing pitch space the quality of playing surfaces is variable. For ancillary facilities such as changing rooms and pavilions the pattern is generally the same- better quality provision on limited access sites; and, non-existent or variable quality provision on public sites. In Grantham outdoor sports space opportunities are well distributed across the town, although there are some parts where immediate access by foot is not easy. In such areas, opportunities might be explored for providing informal sports opportunities (such as MUGAs) on existing informal spaces, or parks. For more organised sport, the most obvious solution would be to explore further opportunities for dual use provision at local schools.

The level of provision for equipped open space is below the minimum recommended standard as a whole. However, more important considerations in respect of play are likely to be the quality of such provision and its accessibility. Throughout the District the existing provision is orientated largely to the pre-teen age group.

Within the Grantham urban area, the relative provision of multifunctional parks and recreation grounds is low compared with the District as a whole. In Grantham those parks, gardens and recreation grounds that do exist tend to be well maintained and have a good specification of equipment. There are large parts of Grantham that do not have easy access by foot to a proper park. In other settlements recreation grounds can sometimes be remote from residential areas. It may be impractical to relocate such facilities, but improving access through providing safe footways should be a priority in encouraging pedestrian access.

Heritage

Grantham Townscape Assessment (2010)

Within the framework of existing policy in relation to the adopted Core Strategy for South Kesteven District Council, the Grantham Townscape Assessment seeks to provide detailed analysis of the character of the town and provide guidance on potential development and possible enhancements within the town.

The Assessment divides the study area, which includes Barrowby, Great Gonerby and Manthorpe as well as Grantham and the proposed North-West and South-East development quadrants, into seventeen Character Areas. Sixteen of these are primarily urban and the seventeenth covers open countryside around the edges of the town.

Five themes emerged from the project and they form the underlying vision for the town's future direction, namely:

- To create a local distinctiveness and sense of place
- To maximise economic and social benefits for local people
- Create a safe, distinctive, green and pedestrian friendly environment
- Develop and integrate town centre attractions and the retail offer

- Provide an accessible town centre to accommodate a large number of different and diverse users

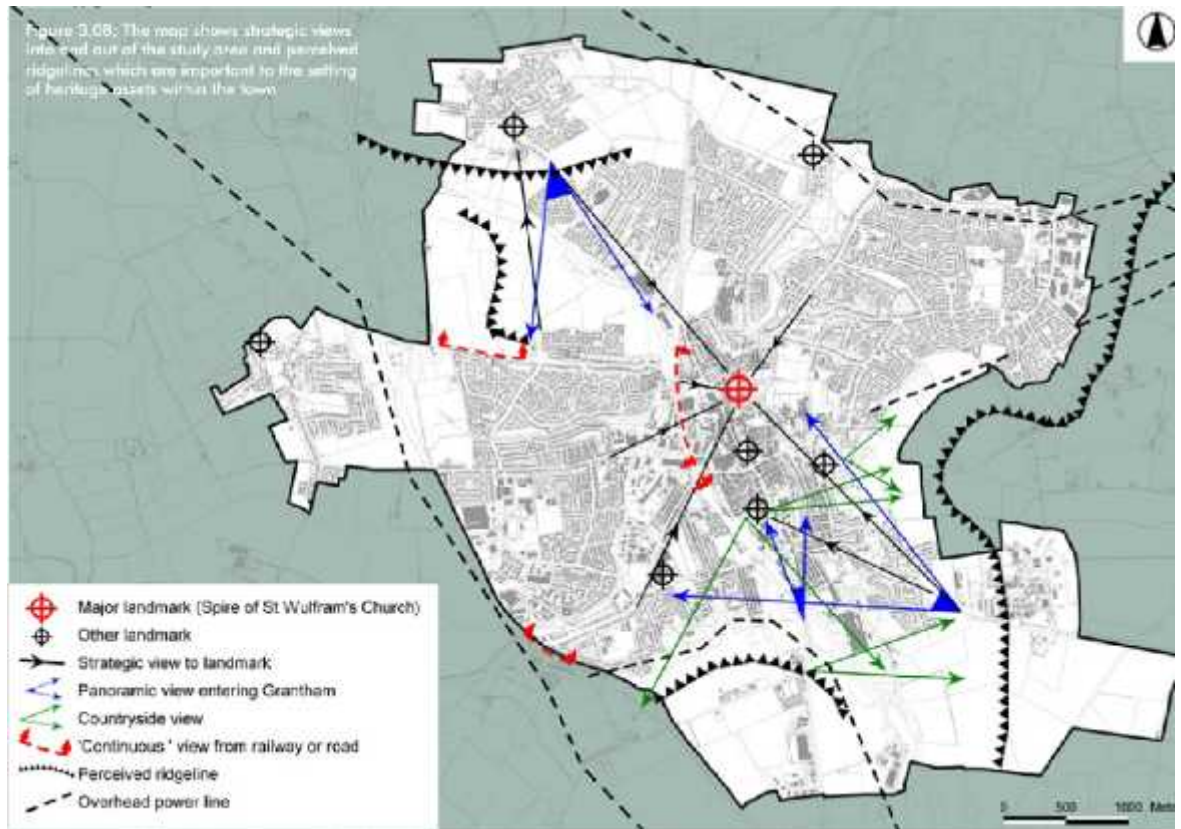
A number of urban design issues have been identified within the town. They are summarized as follows:

- Poor arrival points and gateways
- Coarse grain of recent development (within the last 10 years)
- Poor connectivity between key locations
- Poor frontages and lack of enclosure
- Over dominance of traffic
- Lack of good quality public realm

For the purposes of the directions for growth assessment, the following character areas are considered most relevant:

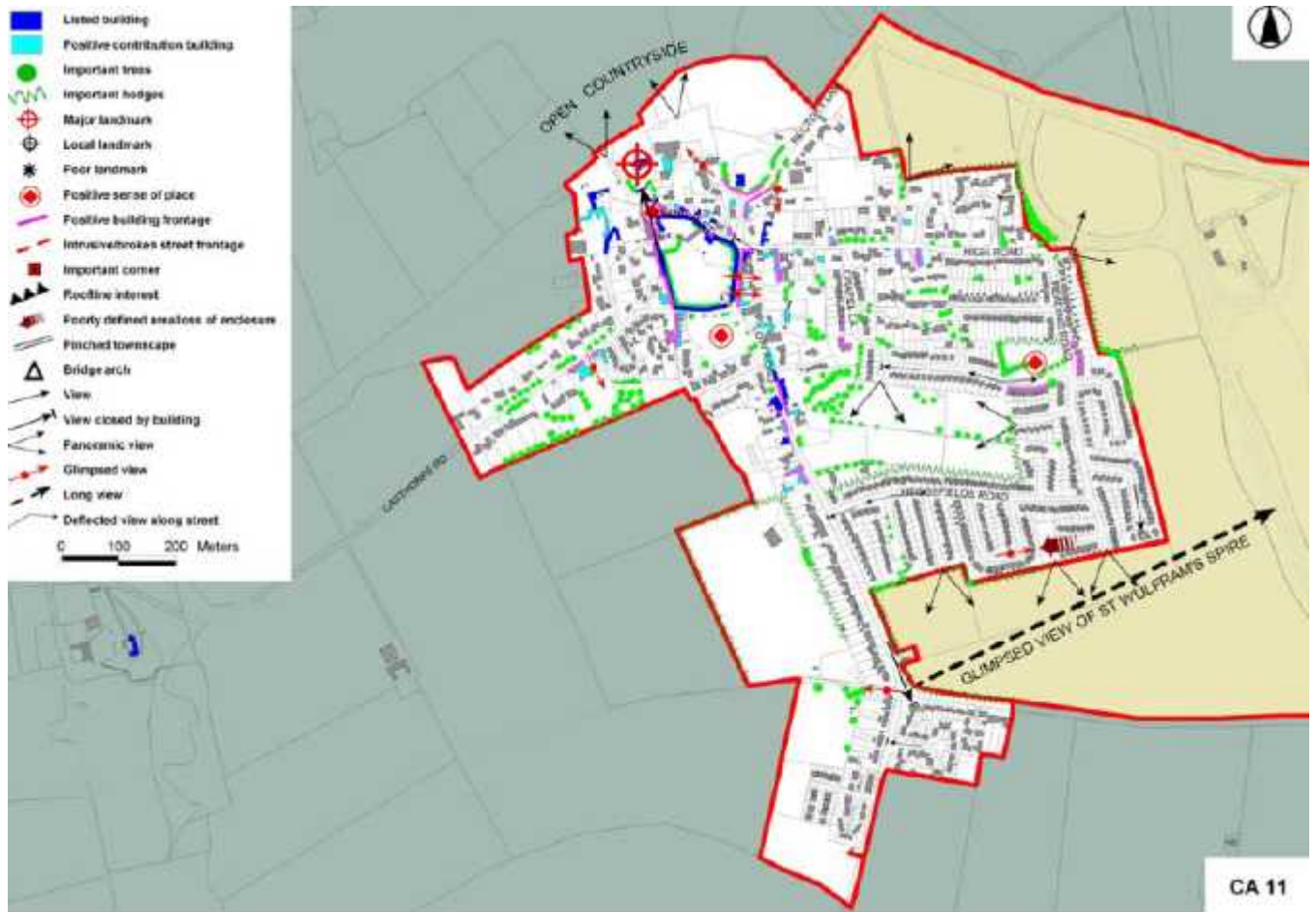
- 11 (Barrowby village and environs)
- 12 (Great Gonerby village and environments)
- 13 (Manthorpe Estate Village)
- 14 (Military barracks)
- 17 (open space at settlement edge)

Figure 3.08 (reproduced below) is important in terms of the strategic views into and out of the study area.



In its conclusions, the Townscape Strategy notes in particular the potential for regeneration of the canal basin site and the potential for re-use of the former maltings.

It also notes that the village surrounding Grantham are highly sensitive in heritage terms, stating that only very limited intervention will be possible without destroying the special character and appearance of parts of the Barrowby (CA11), Great Gonerby (CA12) and Manthorpe (CA13) character areas. Great care must be taken to ensure the protection of views to and from nationally significant heritage assets such as the church of St Sebastian, an important landmark and defining feature of Great Gonerby in its surrounding landscape setting. This is also the case for the church of St John the Evangelist in Manthorpe which is seen from surrounding open fields and lanes on approaching the village.

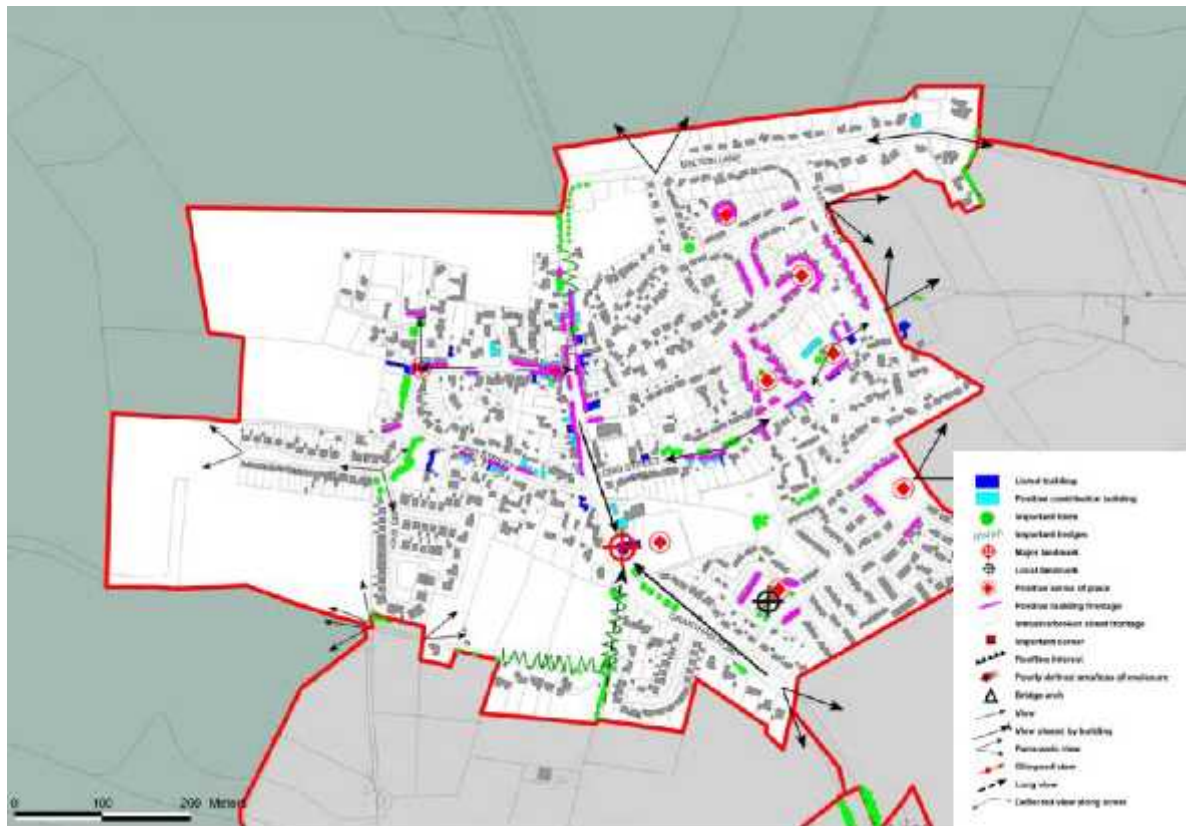


Townscape Character map for Area 11 (Barrowby)



Figure 8.1 I.071: Panoramic views north and west from Barrowby across the Vale of Belvoir

The Townscape Assessment concludes that there is very limited scope for significant growth within the Barrowby character area which wouldn't compromise much of the positive qualities identified within the study.

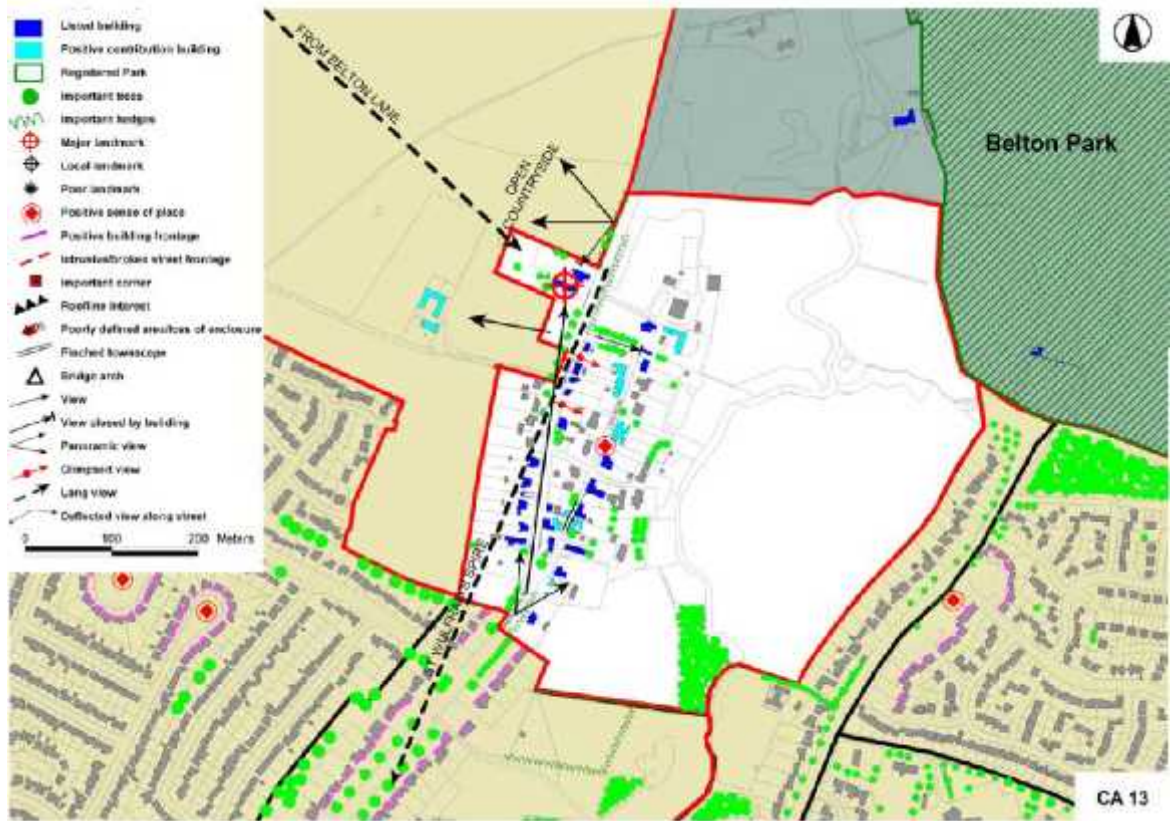


Townscape Character map for Area 12 (Great Gonerby)

The Townscape assessment states that Great Gonerby sits on the one of the ridges which circles Grantham and marks the extent of the very large bowl within which Grantham sits. Great Gonerby is unusual (as with the exception of Barrowby, which is, to a degree separated from the town physically by the A1) it is presently the only developed ridge line around the town.

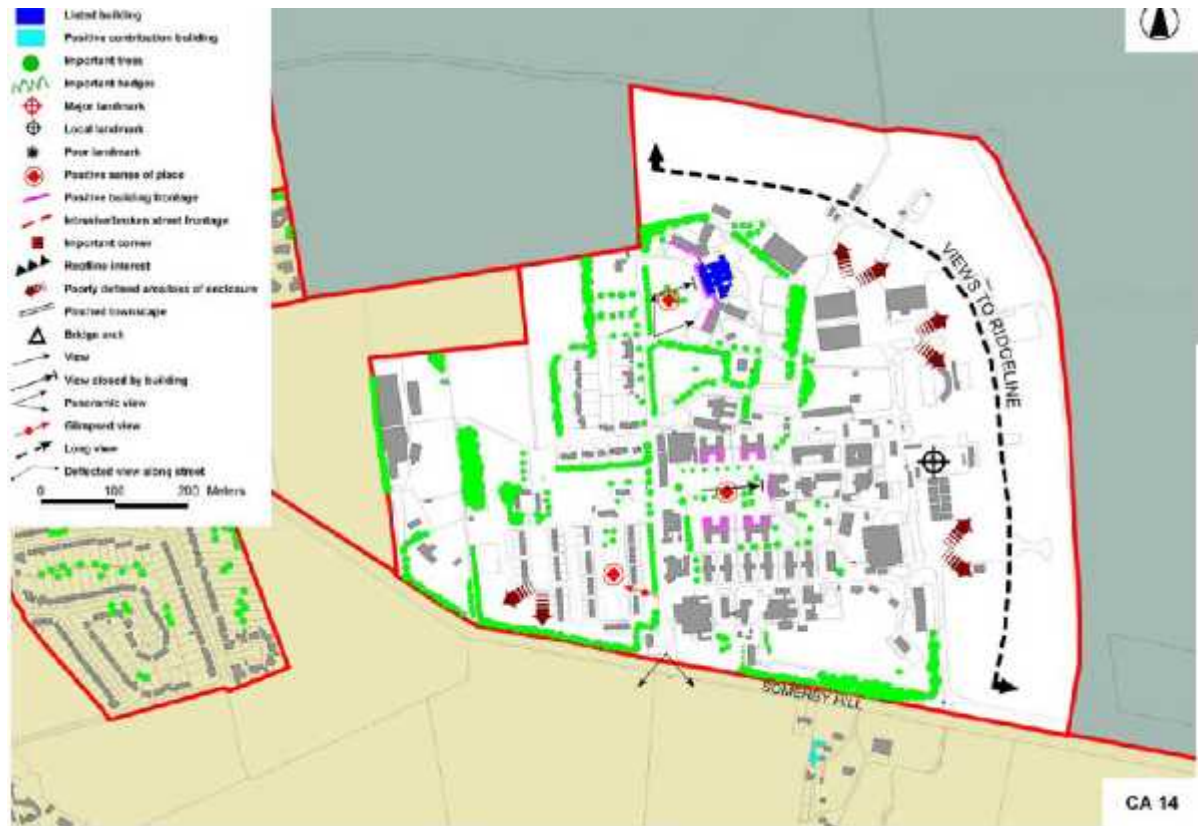
Its location is clearly demarked in extended views by the spire of St Sebastian which is seen especially in views from the south across the open landscape edge of town, character area CA17b. Presently views also perceive the gap which remains between the village and town. This gap to Gonerby Hill is very important to this character area and the historic village of Great Gonerby (particularly the setting of a Grade I listed building and a designated conservation area) in terms of retaining both its physical and intellectual identity.

Growth to the village should be very careful not to compete with the significant landmark of the spire of the church of St Sebastian or encroach on the slopes of the ridge which presently contain and define the hilltop settlement. This is especially important to Gonerby Hill.



Townscape Character map for Area 13 (Manthorpe)

The assessment states that there is very limited opportunity for growth within the Manthorpe character area other than the possible subdivision of plots which contain modern post-war houses which presently are considered as negative elements in the townscape and the conservation area.



- Townscape Character Map for Area 14 (Prince William of Gloucester Barracks)

The study states that presently this site is under the ownership of the Ministry of Defence and there are no plans for expansion or disposal of the site. Should the site come up for disposal, there is considerable scope for growth both within and to the periphery of the site. However, part of the quality of the present character area is its relatively low density and high degree of open greenspace and survival of mature tree belts and groups both within and to the edge of the area.

Any proposals for expansion or growth (either within its present capacity as a military base or as a future site for development) should carefully consider the existing established structure of buildings and open spaces, particularly with regard to the open sides of the character area to the north and north-east.

The townscape assessment concludes with coverage of Area 17- the open space around Grantham’s urban edge, sub-divided as follows:

- CA17a: Area to the west of Manthorpe and south of Belton Lane
- CA17b: Northwest Quadrant (Poplar Farm, Boundary Farm and Rectory Farm)
- CA17c: Land east of Barrowby (including the A1 transport corridor)
- CA17d: Land to the north and south of Gorse Lane
- CA17e: Southern Quadrant (Land to the east of B1174 and south of Somerby Hill)

- CA17f: Hall's Hill, Harrowby

The general design principles for this area considered relevant for this study are listed as follows:

- Protect and enhance woodlands, field boundaries, hedgerow trees and where found watercourses.
- Soften harsh urban edges with new broad leaved woodland planting or use new development, and associated structural landscape, to soften existing harsh urban edges
- Avoid built development encroaching on the higher scarp slopes, or along a ridgeline
- Maintain a varied urban edge with fringes of the landscape setting extending into proposed developments
- Consider opportunities for enhanced access to the countryside around the edge of town
- Protect gaps between Grantham and adjacent villages (particularly Great Gonerby)
- Reinforce key views to the town's heritage assets; this is particularly important for views north from the A52 towards Great Gonerby (CA17b)
- Retain the open setting of Manthorpe and St John's church (CA17a)
- Maintain the open and green character of Hall's Hill (CA17f)
- Given the topography and prominence of proposed urban extensions, houses or flat blocks should not exceed three storeys, for most of the character area's allocated sites two storey will be sufficient and should not be exceeded.

Finally, the townscape assessment sets out what it considers the limits to growth around the edge of Grantham. It states that of key importance is the preservation of the green rim which encircles the town and provides it with a sense of containment.

The ridgeline is of great importance to the town and provides the wider setting for significant heritage assets within the town centre. Most notably that of the spires of St Wulfram's church and the cemetery chapels to Harrowby Road and to a lesser extent the tower of St John's church, Station Road.

Each of these is seen in the context of extended views across the town which include and rely upon a green backdrop of generally rolling hills with tree and hedge-lined boundaries but occasionally, in terms of views looking east, abrupt changes in level forming a steeper green backdrop of woods and fields.

The spire of the Grade I listed church of St Sebastian set within the hilltop settlement of Great Gonerby is of equal importance to that of St Wulfram's and views to the spire from the A52 and views which also set the village apart from the edges of the town are of vital importance to the identity of both settlements. These view corridors which pick up on the spaces which define these areas should be very carefully considered in any future plans for development within this character area.

Much of the infrastructure associated with present transport corridors (the A1 and the mainline railway) and proposed transport works (the proposed relief road to the south-east of the town, through the Southern Quadrant and the linking to the Pennine Way at the Northwest Quadrant) is going to entail considerable structural changes to the landscape and will by their nature and scale

restrict the effective use of land for housing and community uses within close proximity of these structures.

Grantham has managed to maintain an important wider landscape setting and a key part of its character is the scale of development which rarely comes above two storey except to the centre of the town where it is three storey in particular areas but is still dominated by the spire of the church of St Wulfram's.

The fact that the development is largely confined to the valley floor and is rarely seen to the slopes of the surrounding hills has maintained this perception of a very contained area of development. Encroachment onto steep hillsides is out of character for Grantham and will require a very carefully considered philosophy for how to deal with level changes within buildings, spaces and to road layout and design.

Belton House and Park Setting Study (2010)

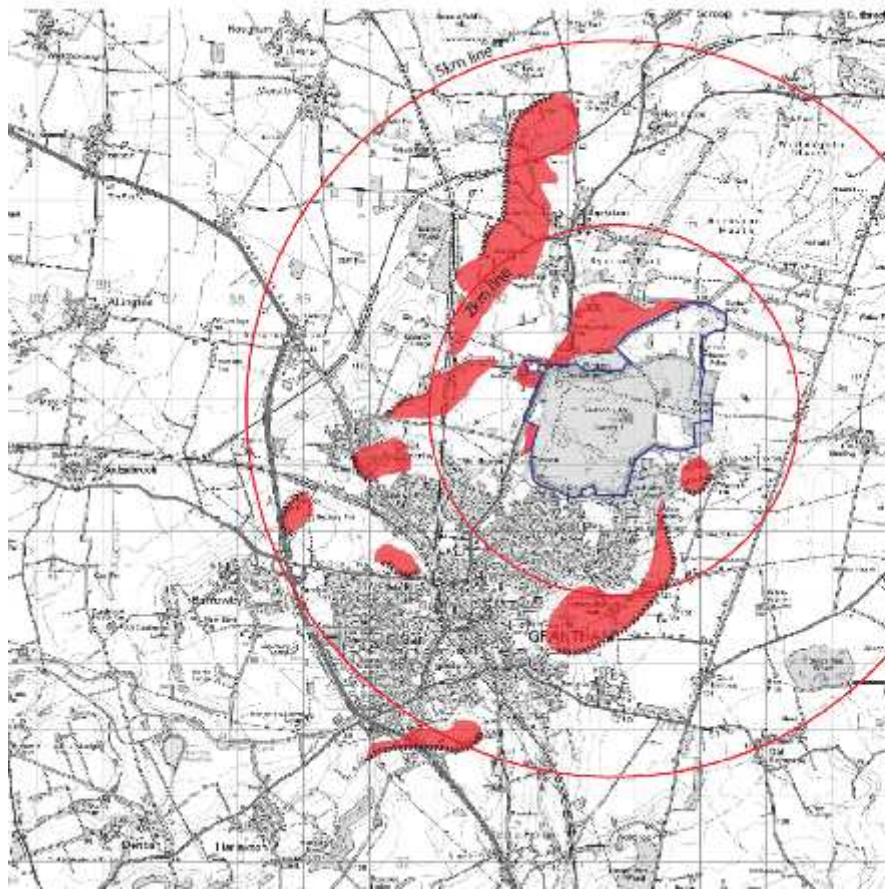
For the purposes of an assessment of growth at Grantham, the most relevant chapter of this study is Chapter 3- The Sensitivity of the Setting To Change.

For the purposes of the assessment of sensitivity to development, the various aspects of setting (Key views and relationships) are grouped into the following elements:

- Element 1: Ground visible from Belton House Roof, Bellmount Tower and points D, H, and L;
- Element 2: Urban development visible from Belton House Roof, Bellmount Tower and points D, H, and L;
- Element 3: Areas visible from the key approach points I J K and M and routes (1-9);
- Element 4: Areas where the ground is not visible between the park boundary and the containing ridgelines and tree screens that prevent far reaching views; and
- Element 5: Areas beyond the ridge lines and tree screens that contain the significant views.

Figure 9 (Assessed Views) shows historically designed views from the park and indicates that the key views that would be impacted by development in Direction A are those west from the roof of Belton House, west from the carriageway east of the house and west from Bellmount Tower (Assessed Views A, D and E respectively).

Figure 10 (Area visible outside of park from roof of Belton House) shows that land in a number of Directions for Growth is visible from the roof of Belton House. It is reasonable to conclude that the closer any development were located to Belton Park, the more significant would be the impact on its setting. Note that some of the land visible from the roof of the house lies within the proposed North West Growth Quadrant.



Project:
Bolton House Setting Study

Client:
National Trust and South
Kesteven District Council

Title:
Figure 10 Area within outside of park
from foot of Bolton House

- Key:**
- Area within outside of park from foot of Bolton House
 - Containing Edge Lines
 - English Heritage Historic Park and Garden Boundary
 - 5km and 10km buffers from Bolton Park

Figure 11 below shows the area visible outside of the park from Bellmount Tower

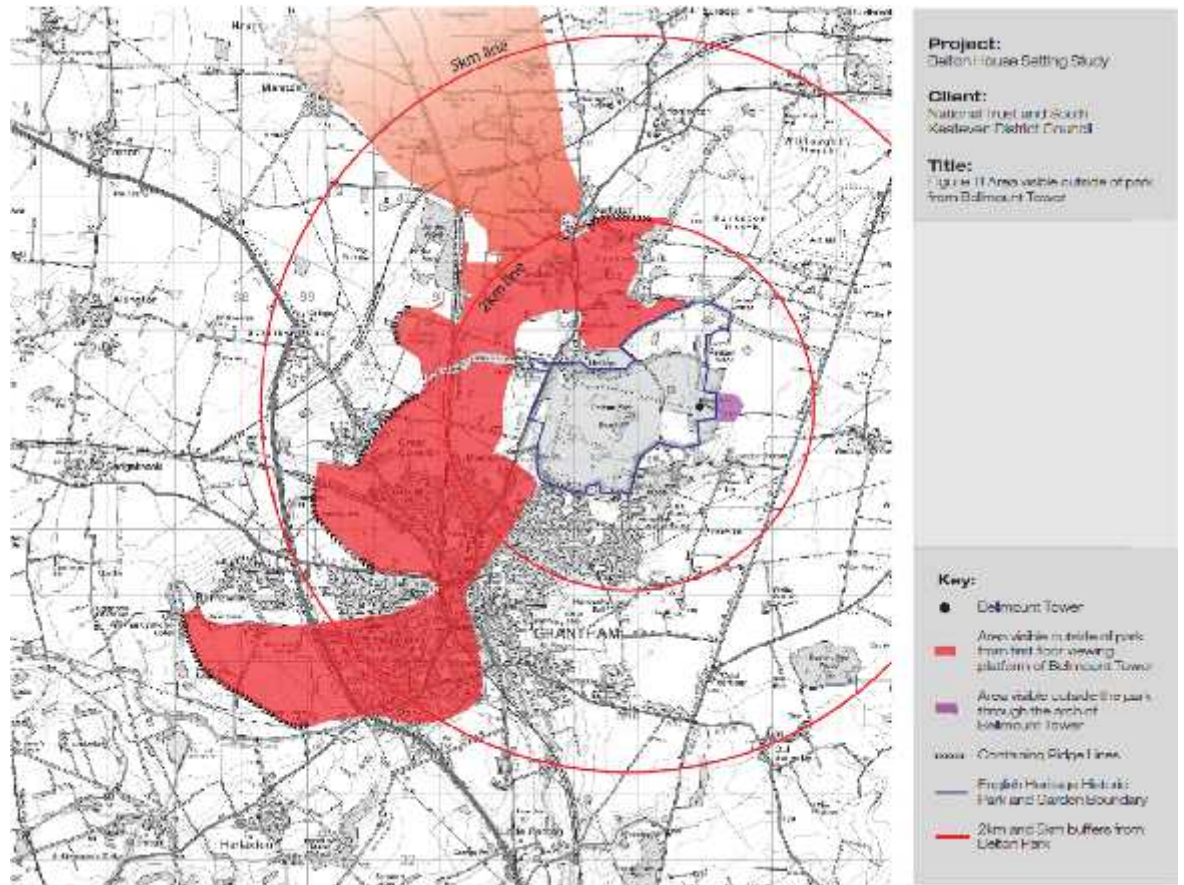


Figure 12 shows the areas outside the park visible from assessed views D, L and H.

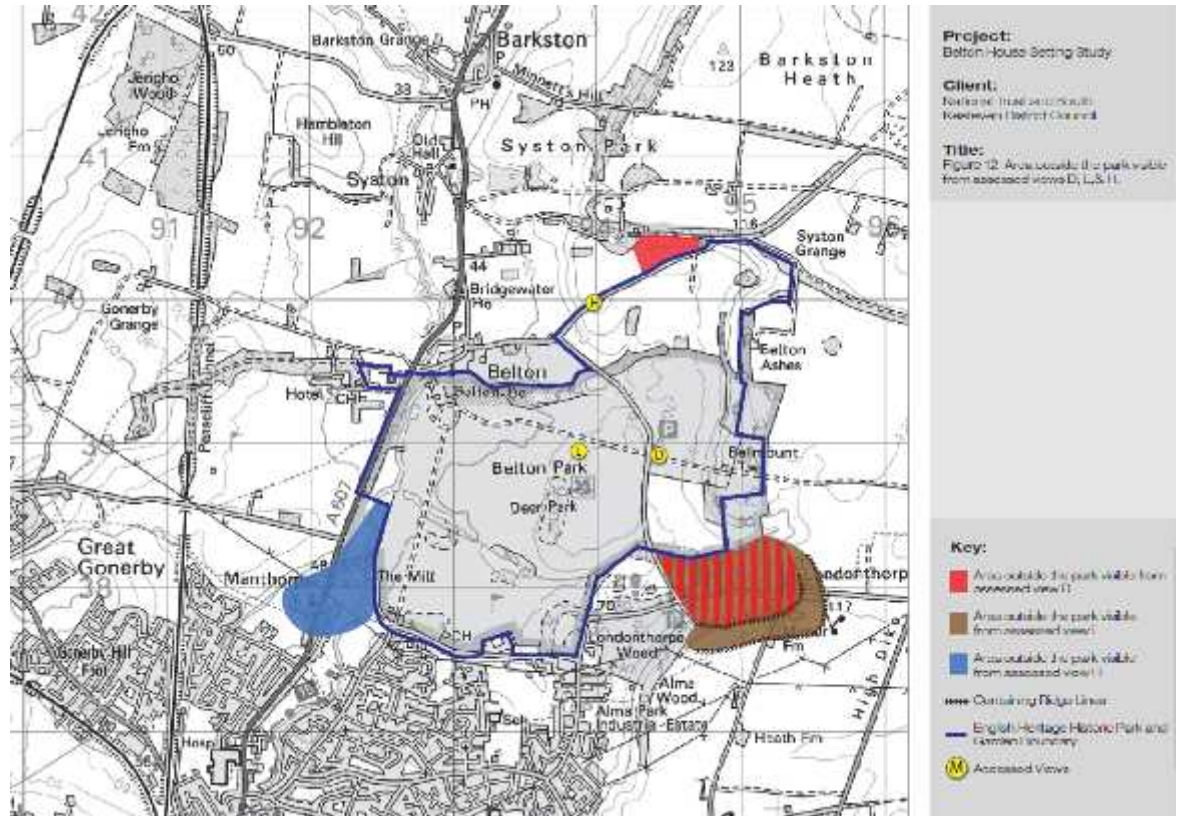


Figure 13 shows the land visible outside the park from I, J , K and M and from approach routes 1-9.

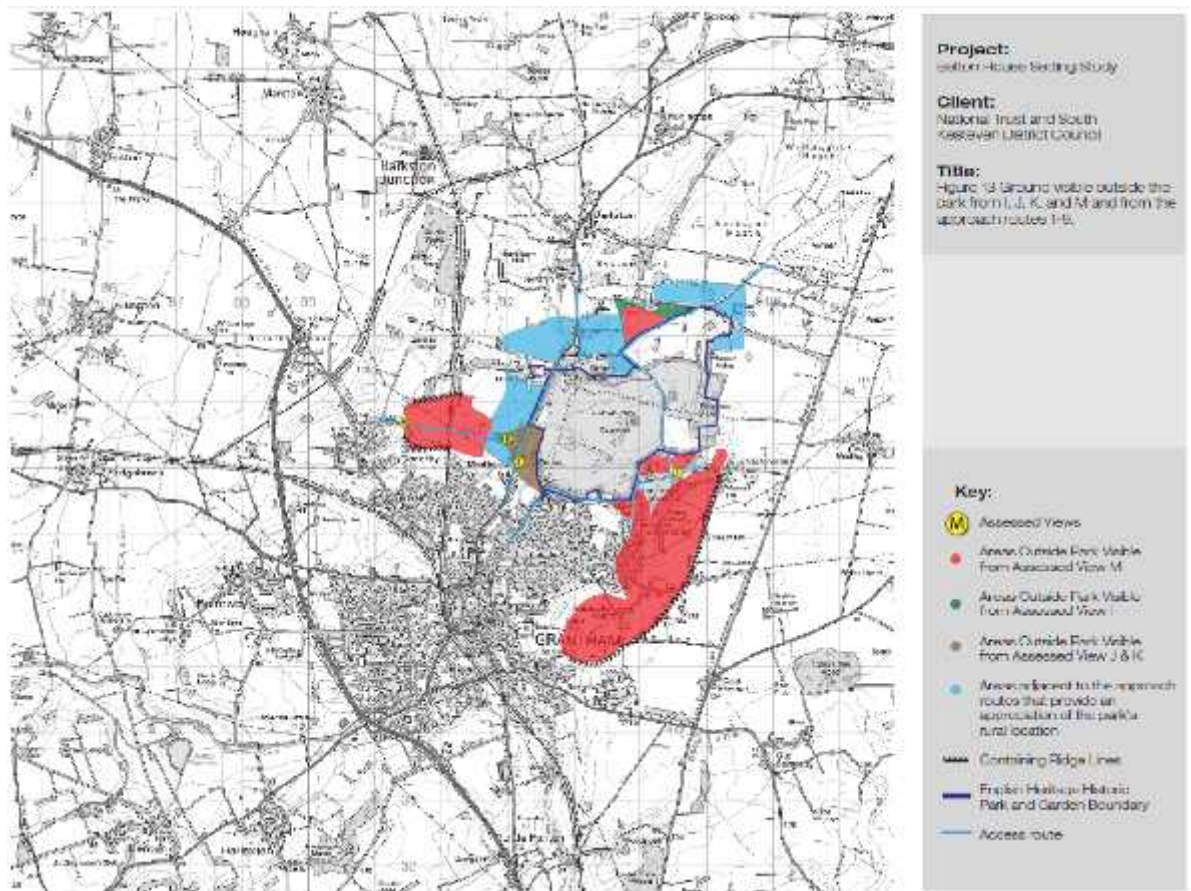
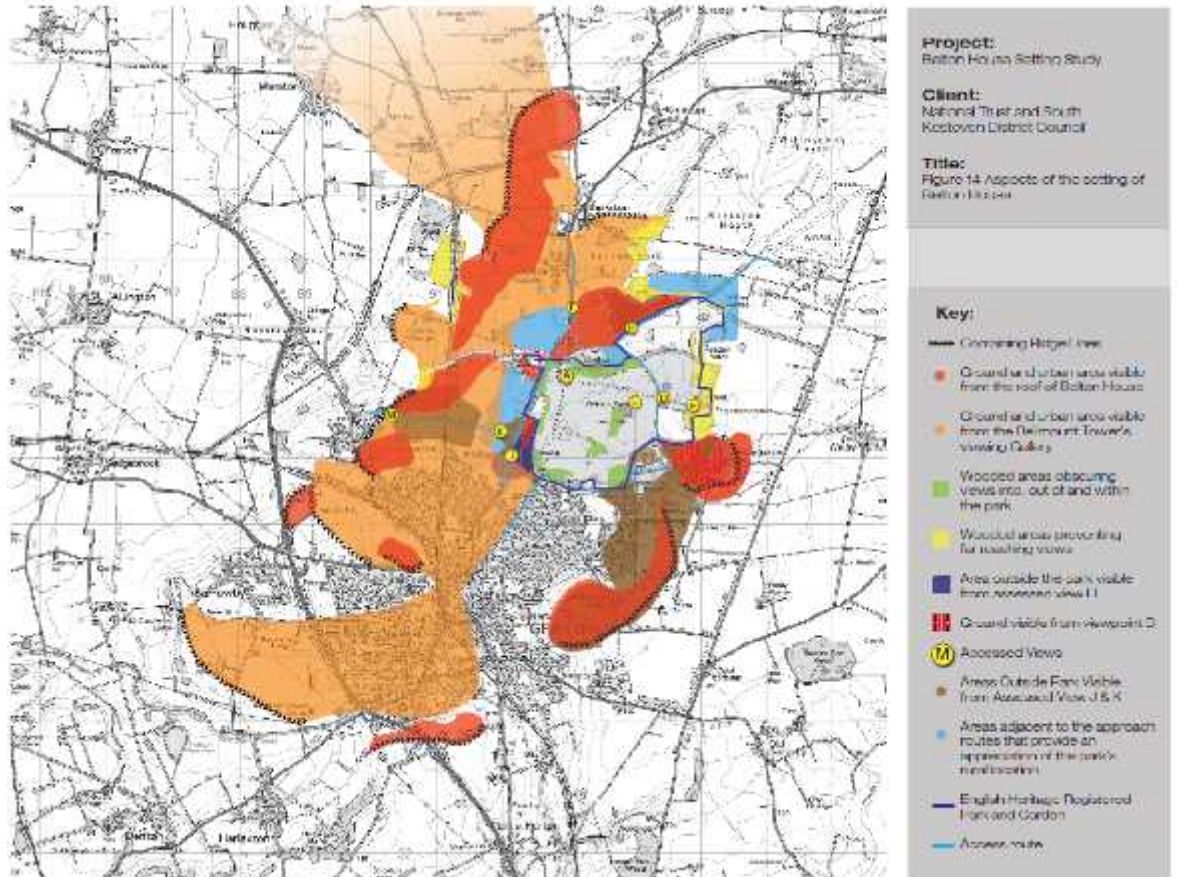
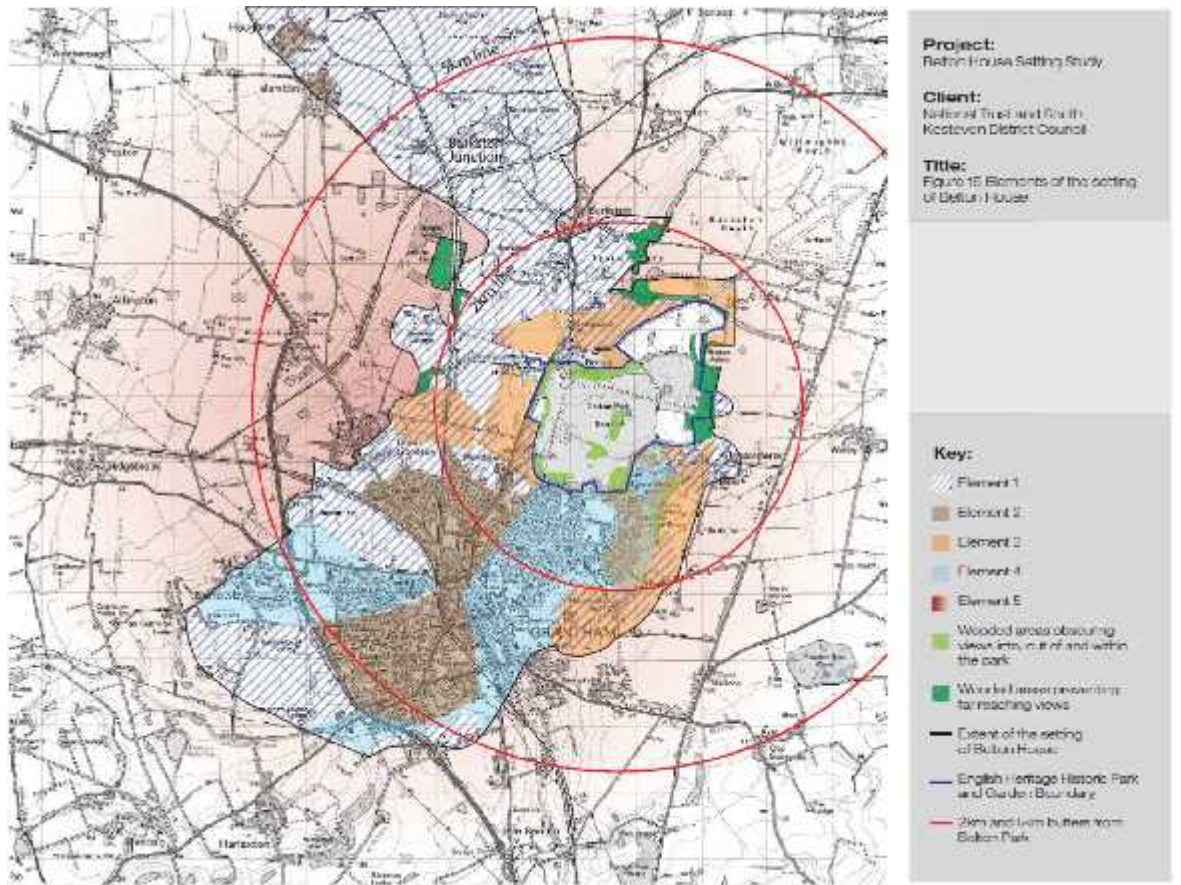


Figure 14 is called Aspects of the Setting of Belton House, and Figure 15 (below it) is called Elements of the Setting of Belton House.





The sensitivity of the various Elements is described as follows:

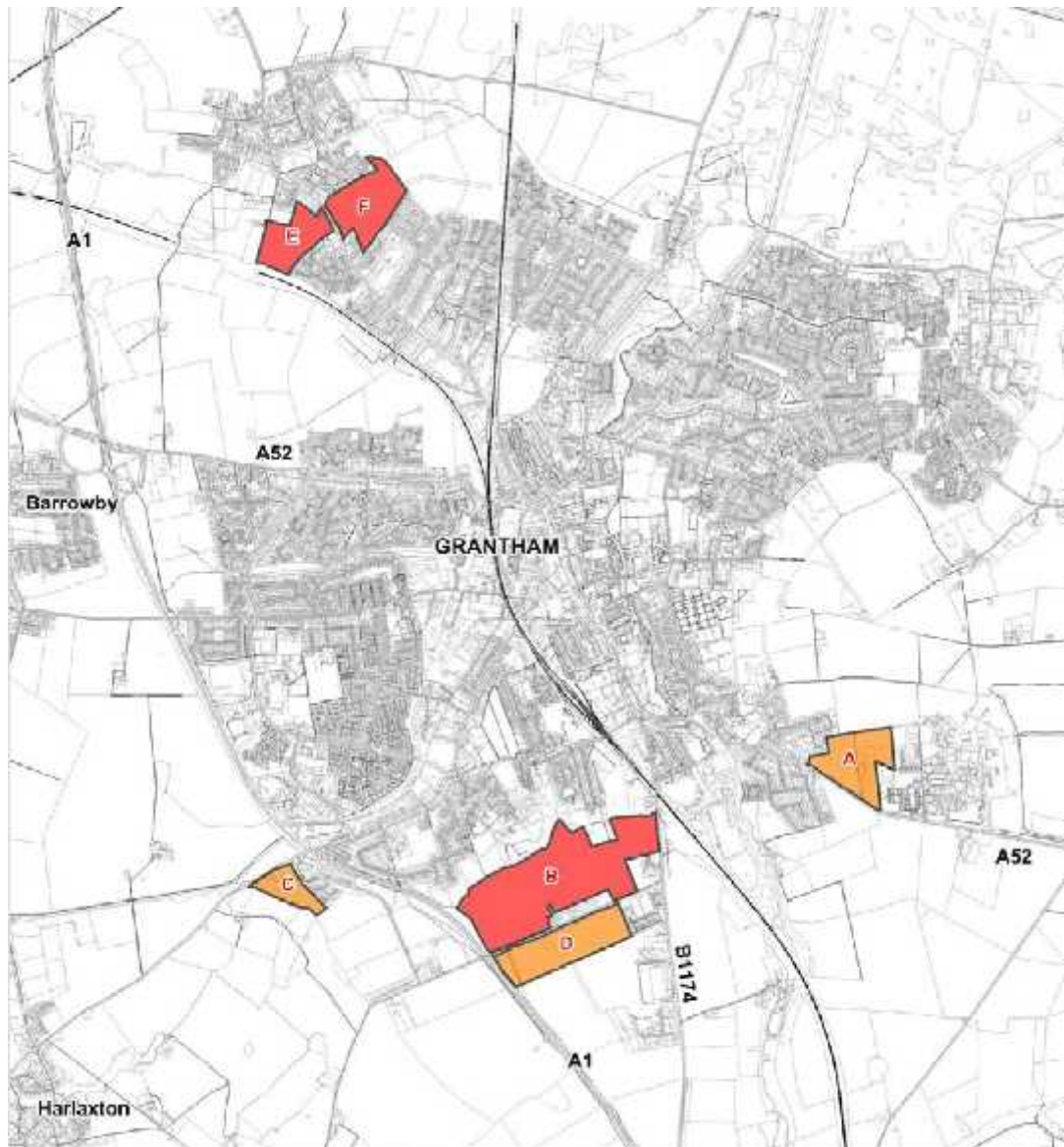
Element of setting	Small-Scale Development	Medium Sized Development	Major Development	Tall Structures
Element 1: Ground visible from Belton House Roof, Bellmount Tower and points D, H, and L	<p>Sensitive</p> <p>Sensitive to development:</p> <ul style="list-style-type: none"> • adjacent to detracting elements • in groups • over 2 storeys • with highly visible materials <p>Not sensitive in flat ground over 2km from park.</p>	<p>Exceptionally sensitive</p> <p>Raised ground and flat ground within 2km of park is sensitive</p> <p>Flat areas beyond 2-5km from the site are sensitive to bulky, wide or high development</p>	<p>Exceptionally sensitive</p> <p>Unlikely to be suited for this form of development, except on flat ground 2-5km from the park, where it would have to be 2 storeys or less and in excess of 5km where development should not be tall.</p>	<p>Exceptionally sensitive</p> <p>Beyond 5km from the park sensitivity depends on location, bulk and design</p>
Element 2: Urban development visible from Belton House Roof, Bellmount Tower and points D, H, and L	<p>Not sensitive</p>	<p>Not sensitive</p> <p>Unless extends visually beyond urban boundary</p>	<p>Not sensitive</p> <p>Unless extends visually beyond urban boundary</p>	<p>Sensitive</p> <p>Sensitive to tall buildings that appear in views beyond urban boundary or too close to Manthorpe Church</p>

Element of setting	Small-Scale Development	Medium Sized Development	Major Development	Tall Structures
Element 3: Areas visible from the key approach points I J K and M and routes (1-9)	<p>Sensitive</p> <p>Foreground sensitive to elements that obstruct views into park</p>	<p>Sensitive</p> <p>Foreground is very sensitive to elements that obstruct views into park, other aspects are Sensitive</p>	<p>Very Sensitive</p> <p>Foreground is very sensitive. Views over park are more sensitive that the parts of views to the sides of the park</p>	<p>Very Sensitive</p> <p>Unacceptable in foreground and background, but may be acceptable away from and to sides of park in views</p>
Element 4: Areas where the ground is not visible between the park boundary and the containing ridgelines and tree screens that prevent far reaching views	<p>Sensitive</p> <p>Especially the tree screens themselves, which are very sensitive. These areas are sensitive to development that is visible above the tree screens and ridges that conceal the ground from view. These areas may also be sensitive as elements of the approach routes</p>	<p>Sensitive</p> <p>Especially the tree screens themselves, which are very sensitive. These areas are sensitive to development that is visible above the tree screens and ridges that conceal the ground from view. These areas may also be sensitive as elements of the approach routes</p>	<p>Sensitive</p> <p>Especially the tree screens themselves, which are very sensitive. These areas are sensitive to development that is visible above the tree screens and ridges that conceal the ground from view. These areas may also be sensitive as elements of the approach routes</p>	<p>Exceptionally sensitive</p>
Element 5: Areas beyond the ridge lines and tree screens that contain the significant views	<p>Not sensitive</p> <p>Except to development that rises above ridge or tree line</p>	<p>Not sensitive</p> <p>Except to development that rises above ridge or tree line</p>	<p>Not sensitive</p> <p>Except to development that rises above ridge or tree line</p>	<p>Exceptionally sensitive</p> <p>Where development rises over ridge line or ridge top tree line</p>

Landscape

Final Draft Report Landscape Sensitivity and Capacity Study (2013)

This report updated the 2011 report (which is itself reviewed below) with the addition of 5 further sites and a review of conclusions on site G6 as a result of the King 31 and Southern Quadrant proposals. The sites are illustrated below:



The report concluded that three of the sites, including site G6, had a moderate overall sensitivity with a medium overall landscape capacity to accommodate development.

Table 12 of the report ranks the priority of Study Areas A –F:

Priority	Area No.	Overall Sensitivity	Landscape	Overall Capacity	Landscape
1	D	Moderate		Medium	
2	C	Moderate		Medium	
3	A	Moderate		Medium	
Low - 4	B	High		Low	
Low - 5	F	High		Low	
Low - 6	E	High		Low	

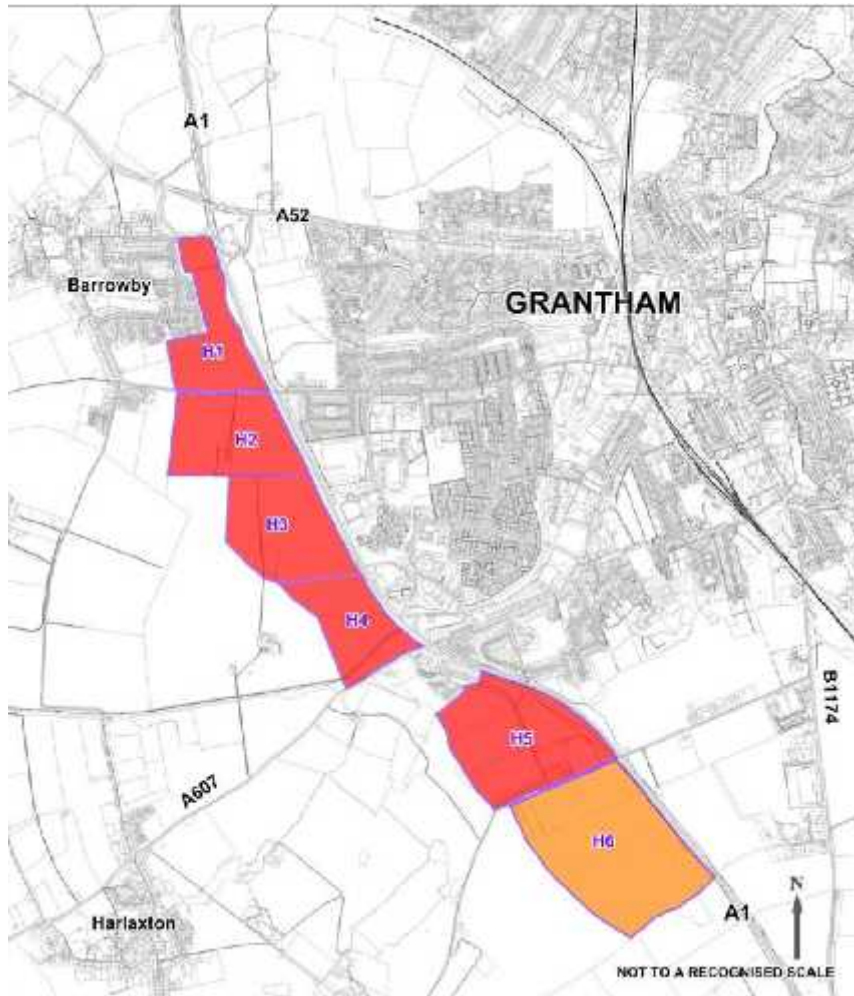
Study area A is considered to have high sensitivity to development without the addition of the Southern Quadrant development. As a direct result of the urbanisation of the land adjacent to Area A, from the Southern Quadrant, the sensitivity reduces to moderate.

Study area C is considered to have a medium capacity to low level development within the grounds of Harlaxton Close, mitigated by substantial planting to integrate the site into the surrounding landscape.

The sensitivity and capacity of Area D is directly impacted as a result of the King 31 development. Without this development the site would have a higher sensitivity and lower capacity to accommodate development.

Final Draft Addendum Report Landscape Sensitivity and Capacity Study (2013)

This document looks at six areas of land to the west of Grantham and follows the same methodology as the previous studies., the 6 sites are illustrated below:



The report concluded that two sites had low to medium capacity to accommodate development as set out in the table below:

Priority	Area No.	Overall Landscape Sensitivity	Overall Landscape Capacity
Low - 1=	H6	Moderate	Low to Medium
Low - 1=	H1	High	Low
Low - 1=	H4	High	Low
Low - 2=	H2	High	Low
Low - 2=	H3	High	Low to medium
Low - 3	H5	High	Low

The study suggests that Area H1 could accommodate development to the south of Barrowby, although there is a requirement to maintain a gap between development and Low Road and soften the settlement edge with landscape planting. Capacity is restricted to the rest of the area and its

need to prevent coalescence increases as a result of the potential development of areas G4A, G4B and G7.

Areas H2 and H3 are seen as important to the setting of views from high ground within Harlaxton Manor. They are also considered to be isolated from the western edge of Grantham to the east of the A1 corridor. The low to medium capacity of Area H3 is as a direct result of this piece of land not being within a previously designated landscape.

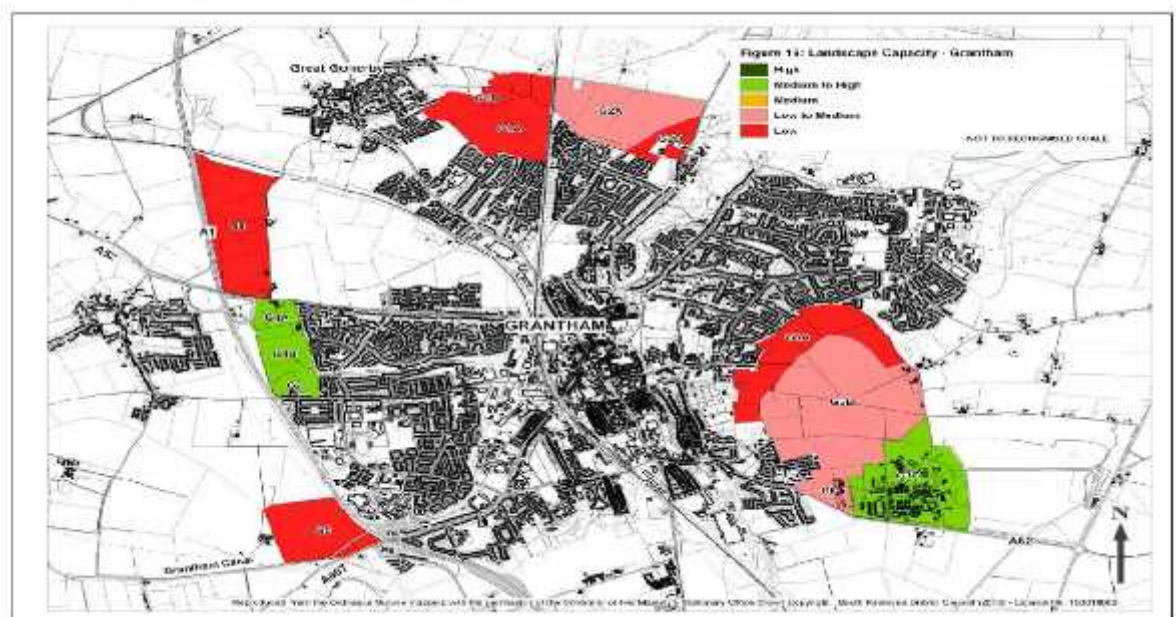
The study suggests that a small amount of development along the corridor within the southern area of Area H4 could be accommodated.

Area H6 has been given a slightly lower sensitivity to reflect the generally unremarkable landscape character, limited views of the Study Area from the town and the potential for mitigation to reduce visual impact of new employment development. The proximity of the King 31 site to this area also has an influence on its ability to accommodate development.

Landscape Sensitivity and Capacity Study of Specified Areas in Grantham (2011)

The study looked at eight separate areas around Grantham and their sensitivity and capacity to accommodate residential and employment uses within the District. The sites are illustrated below:

APPENDIX 3: OVERALL LANDSCAPE CAPACITY OF SITES G1-G8 IN THE 2011 DTA STUDY



Site G1 (G1A and G1B): overall high landscape sensitivity and high landscape value lead to an overall assessment of low capacity. Development on the steep slopes would be contrary to the general form and pattern of settlement, visual amenity would be significantly affected and could not be successfully mitigated.

The study suggests that there is the potential for development between the young belt of planting and existing housing at Gonerby Hill Foot where it would have some association with the town and reduced visual intrusion into the countryside due to the existing planting.

Site G2A: overall high landscape sensitivity and moderate to high landscape value lead to an

overall assessment of low to medium capacity.

The study suggests that development could be accommodated at the southern boundary of G2A below the 65 m AOD.

Site G2B: overall high landscape sensitivity and high landscape value provide an overall assessment of low. The slightly lower capacity than site G2A reflects its more intimate, mature character and presence of locally important features and parkland setting.

Site G3A: overall high landscape sensitivity and high landscape value provide an overall assessment of low capacity for site G3A to accommodate development.

Site G3B: overall high landscape sensitivity and moderate to high landscape value provide an overall assessment of low to medium capacity for site G3A to accommodate development.

Site G3C: overall moderate landscape sensitivity and low to moderate landscape value provide an overall assessment of medium to high capacity for Site G3C to accommodate development,

Site G3C is a large site isolated from the town, where mixed use development comprising residential, employment and other uses could be appropriate if the decision was taken to create an area with its own separate identity. This would need to be the subject of detailed impact assessment and design proposals.

Site G4A and Site G4B: overall moderate landscape sensitivity and low to moderate landscape value provide an overall assessment of medium to high capacity for site G4A and site G4B to accommodate development.

Modern housing is considered the most appropriate type of development within Site G4A and Site G4B, which would be in keeping with existing housing to the east. Conventional larger scale buildings associated with employment uses or similar, but not tall structures may also be appropriate where there would be some association with the A1, subject to detailed assessment and design.

Mitigation here should provide a soft planted varied settlement edge as recommended in the SKLCA. There should be an appropriate buffer between employment development and housing.

Site G5: Overall High Landscape Sensitivity and Moderate to High Landscape Value provide an overall assessment of Low Capacity for Site G5 to accommodate development.

Site G6: overall high landscape sensitivity and moderate landscape value provide an overall assessment of low to medium capacity for site G6 to accommodate development.

Site G7: Overall Moderate Landscape Sensitivity and Low to Moderate Landscape Value provide an overall assessment of Medium to High Capacity for Site G7 to accommodate development.

Modern housing is considered the most appropriate type of development within Site G4A and Site G4B, which would be in keeping with existing housing to the east. Conventional employment use or similar may be appropriate on Site G4A or Site G4B, which are closer to the A1 / A52 junction, but the scale of Site G7 is unlikely to make this an appropriate alternative form of development within this site.

Site G8: Overall High Landscape Sensitivity and High Landscape Value provide an overall assessment of Low Capacity for Site G8 to accommodate development.

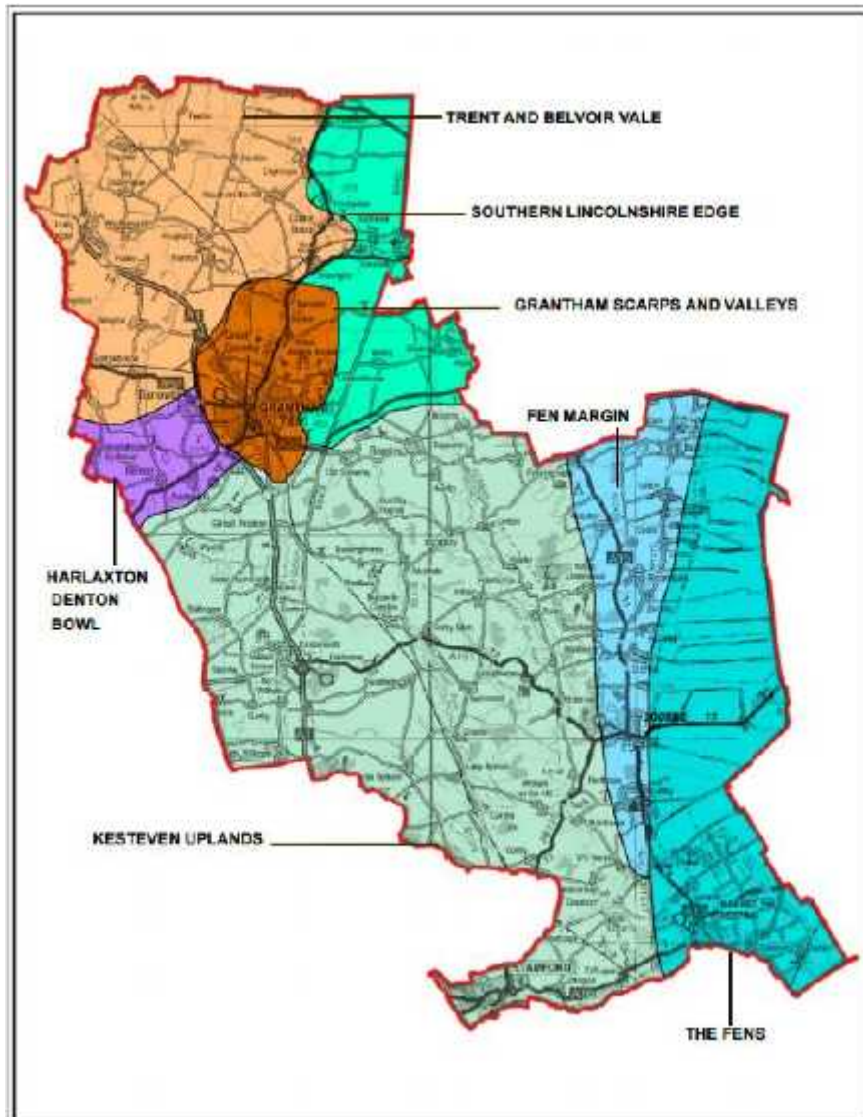
South Kesteven Landscape Character Assessment (LCA) (2007)

The South Kesteven LCA covers 3 different Natural England National Character Areas (NCAs):

- Trent and Belvoir Vale (NCA 48)
- Southern Lincolnshire Edge (NCA 47)
- Kesteven Uplands (NCA 75)

The area has then been broken down further into 7 District Character Areas. Five of these (as illustrated in Figure 13 of the report, reproduced below) are within the scope of this study:

- Grantham Scarps and Valleys
- Trent and Belvoir Vales
- Southern Lincolnshire Edge
- Harlaxton Denton Bowl
- Kesteven Uplands



Topography plays an important role in determining landscape character across South Kesteven. The central part of the District is characterised by higher land, typically between 100m and 140m above ordnance datum(AOD). This area corresponds with the Natural England 'Kesteven Uplands' and 'Southern Lincolnshire Edge' character areas. This upland area is dissected by three valleys which generally run in a north/south direction. The valley of the River Witham extends to the north through Grantham.

The rivers are often bounded by hedgerows and trees, and it is sometimes difficult to discern them from other field boundaries.

Kesteven Uplands Key Characteristics

- A relatively unified, simple, medium-scale agricultural landscape, with a high proportion of historic woodland.

- Undulating landform based around the valleys of the Rivers Witham and East and West Glen and the Welland to the south.
- Picturesque villages built of local limestone, with Collyweston slate roofs to the south, and pantiles to the north.
- High concentration of houses and parks, with areas of farmland under estate management.
- A dispersed, nucleated settlement pattern, mostly following the river valleys.
- Enclosed mostly by hedgerows, with hedgerow trees.
- Modern human influences include airfields and the A1 Great North Road.

The character of the Kesteven Uplands merges gently to the north with the Lincolnshire Edge, and with the more complex landscape around Grantham and Harlaxton.

The settlement edges are typically varied, often with lower density development. Some properties are set within large gardens, which allow trees to develop providing a softer edge and transition to the often wooded landscape.

More modern development exists around the edge of the town, including residential and employment development. The settlement edges are varied, some providing a soft planted edge, and other areas that are more stark and regular. Any new development on the edge of town should present a varied settlement edge including landscape treatment. Views towards the town centre and the church towers and spires should be protected. The landscape of the Kesteven Uplands is medium in scale with a strong landscape pattern of woodland and hedgerows. It contains areas of sensitive landscape including the historic parks and areas around the edge of the often picturesque villages. Away from the main transport corridors it is a relatively tranquil landscape.

Landscape sensitivity to new employment or residential proposals is likely to be medium to high because of the high proportion of valuable landscape elements and relatively undisturbed character. The strong landscape pattern including many woodlands could, however, in places be beneficial in assimilating new development.

A number of key landscape management objectives include:

- Protect and improve field boundary condition.
- Protect existing hedgerow trees.
- Plant new hedgerow trees.
- Maintain important grassland areas.
- Protect important and distinctive woodland cover.
- Protect historic parkland.
- Protect field trees, particularly in parkland and in large arable fields.
- Use of limestone for new construction in the villages and countryside.
- Use of new planting to minimise the visual impact of major roads and industrial buildings.

- Maintain open areas that extend into the towns and villages.

Trent and Belvoir Vales Key Characteristics

- A relatively simple, medium to large-scale, open arable or mixed farming landscape:
- Flat or very gently undulating topography
- Simple regular fields enclosed by hawthorn hedges.
- Relatively few hedgerow trees and virtually no woodland.
- Small villages typically located on slightly rising land.
- Church towers and spires visible across the landscape.
- Buildings styles vary, but a high proportion of brick with dark red pantiles.

Settlement comprises a network of small clustered villages dispersed through the area. The landscape is medium to large in scale, with relatively simple regular fields, frequently enclosed by hawthorn hedgerows. The villages with their church towers and spires are noticeable in the views across the landscape and provide character.

The landscape of the Trent and Belvoir Vale is medium to large in scale, with a simple and sometimes weak landscape pattern. There are few woodlands, which ensures open views are possible.

Landscape sensitivity to new employment and residential proposals is likely to be medium. Whilst the landscape itself contains relatively few sensitive features, there is little structure to help assimilate new development. Woodlands and trees in the landscape are typically associated with the settlement, so new development assimilated within existing settlement edges, could be mitigated by appropriate landscape proposals in keeping with the established character.

A number of key landscape management objectives include:

- Maintain and improve field boundary condition.
- Protect any woodland cover.
- Maintain existing hedgerow trees and plant new hedgerow trees.
- Maintain views to elevated villages and churches.

Southern Lincolnshire Edge Key Characteristics

- Large-scale open arable landscape.
- Dominant western scarp slope known as the 'Cliff'.
- Large rectilinear fields with some fragmented hedgerows and shelterbelts.

The limestone spine forms a distinctive western scarp slope known as the 'Cliff'. Between Leadenham and Grantham the scarp comprises a two tier arrangement with the upper limestone scarp and lower ironstone scarp.

Villages are mainly located along the west of the Edge. Larger garden plots contain mature gardens which softens the boundaries between the villages and surrounding open arable land. Any further built development in the villages should respect and reinforce this character. Landscape sensitivity to residential proposals is likely to be medium to high. Whilst the landscape itself contains relatively few sensitive features, the removal and rural character suggests that large scale new development would be inappropriate.

A number of key landscape management objectives include:

- Retain and enhance traditional field boundaries including hedgerows and limestone walls.
- Protect and enhance shelterbelts and woodland.
- Protect historic parks.
- Maintain traditional village forms.
- Use of limestone for new construction in the villages or countryside.

Harlaxton Denton Bowl Key Characteristics

- Varied topography, hills, slopes and valleys.
- Small to medium-scale landscape.
- Patchwork of land use including woodlands, arable and pasture land.

Topography is quite varied with a broad scarp of high land (between 120 and 140 m AOD) extends east/west, which descends to a valley or bowl of lower ground (between 60 and 80 m AOD). The nucleated settlement pattern is generally nestled within the valley.

Landscape character arises from the physical characteristics including small scale variations in topography combined with the varied landcover and distinctive villages. Overall it is a landscape of high scenic value. Villages have a varied settlement edge. Any further development should provide a more varied settlement edge and softer transition with planting.

The landscape is small to medium scale with some important elements including Harlaxton Park, tree avenues and woodlands. It is a landscape of high scenic value with important views to Belvoir Castle. Landscape sensitivity to residential proposals is likely to be high. The eastern edge of the character area adjacent to Grantham and the A1 may provide some opportunities if new planting was used to soften the existing urban edge.

A number of key landscape management objectives include:

- Maintain the variety of land uses, with mixed farmland, woodland and parkland.
- Protect and enhance the woodlands.
- Maintain expansive views from the rising land.

Grantham Scarps and Valleys Key Characteristics

- Built development in Grantham is generally on the lower lying land in the valleys.

- Steep scarp slopes to the east and south, with woodland or pasture cover.
- Generally medium-scale arable fields, with relatively few hedgerow trees to the west and north.
- Small-scale hedged pasture fields with hedgerow trees to the east and south.
- Attractive parkland with attractive woodland and parkland trees at Belton.
- Small villages, separated from Grantham town by narrow areas of open countryside.

The landscape and the town combine to influence the character of the wider landscape. Physically the character area is influenced by the surrounding areas. Topography is one of the most important physical influences on the character area. There is a parkland character to the north due to Belton House and Park.

Built development on rising ground is generally avoided which gives the town an enclosed character. Recent higher density development, such as at Gonerby Hill Foot, provides a stark edge to the town and the housing contrasts with the countryside beyond. In general, keeping the development to the lower slopes has maintained a rural feel to the higher land and contained the urban influence on the wider landscape. Gonerby and Grantham currently maintain separate characters.

To the west of the town much of the A1 is in a cutting and enclosed by mature highway planting.

An area of employment land, including car showrooms, is established on the higher ground south of Grantham along the B1174. The large-scale buildings in this location fit with the larger-scale flatter landscape. Whilst the buildings are visible, the relatively flat landform restricts visibility to the front buildings.

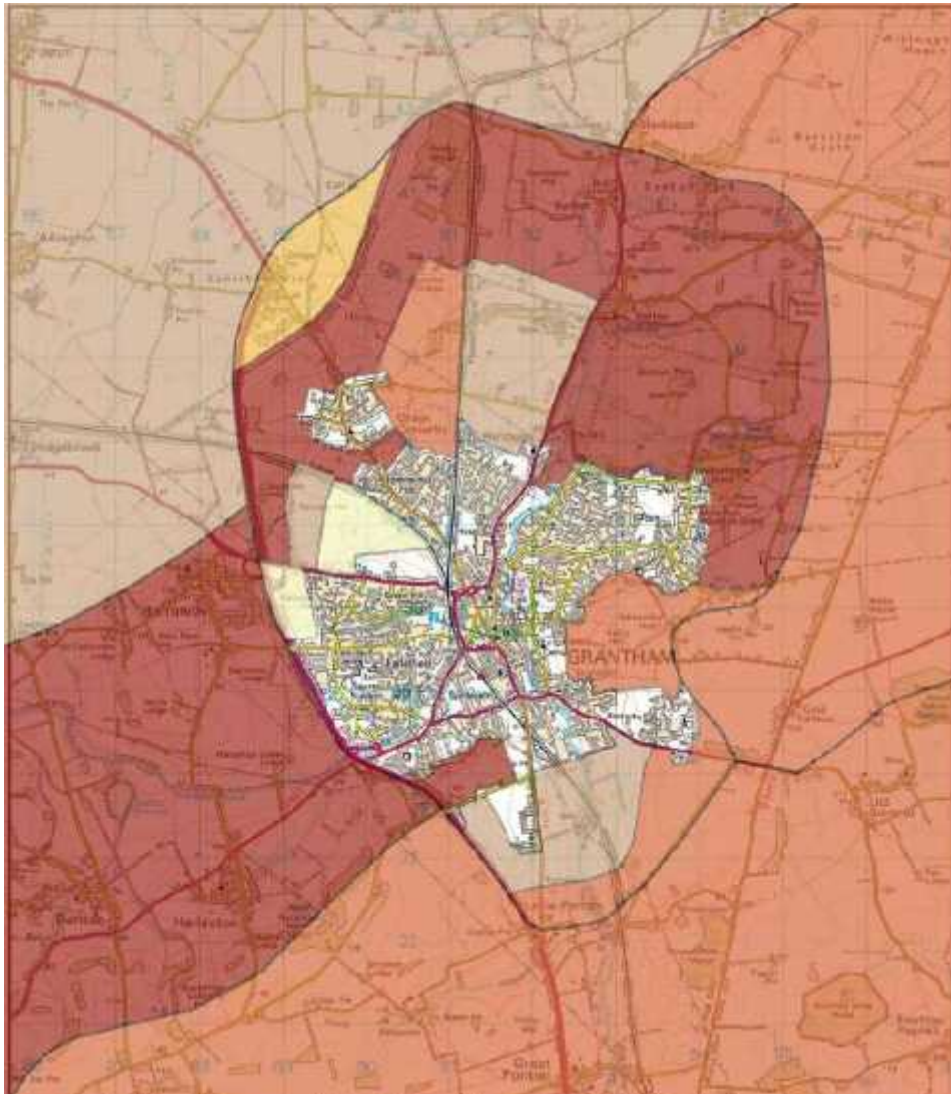
There are some areas closer to the edge of town, containing little of intrinsic landscape interest, that would offer scope for development. New development and associated landscape planting could soften some of the existing hard urban edges to the town. Landscape sensitivity to residential proposals is likely to be low to high.

A number of key landscape management objectives include:

Soften harsh urban edges by new woodland planting.

- Avoid built development encroaching on the higher scarp slopes, or 'skylining'.
- Use new development, and associated structural landscape, to soften existing harsh urban edges.
- Maintain a varied urban edge with fringes of countryside extending into the town.
- Protect gaps between Grantham and adjacent villages.
- Where existing development occurs on higher ground such as at Gonerby Hill Foot, consider tree planting proposals to soften the roofscapes on the skyline.

Figure 17 of the report, reproduced below, shows landscape sensitivity for employment and residential development around Grantham.



Ecology

Lincolnshire Biodiversity Action Plan 2011-2020 (3rd edition) (2011)

The Lincolnshire BAP raises awareness of biodiversity issues by focusing on species and habitats with local relevance. The BAP is a mechanism to enable national targets to be delivered at a local level. The BAP identifies local priorities for biodiversity conservation, and works to deliver agreed actions and targets for priority habitats and species and locally important wildlife and sites. The BAP contains 6 Habitat Actions Plans and 1 Species Action Plan in Lincolnshire for priority habitats and species.

Due to the fertility of its soils Lincolnshire is a principally agricultural county, dominated by intensive arable cultivation in large fields, frequently without connecting hedgerows. The historic loss of biodiversity in Lincolnshire has been more significant than in much of the UK.

Defra's 2009 June Survey estimated that 81% of the county is farmed, and that 71% of the county is ploughed annually (arable, horticulture and temporary grassland) – compared to 39% for England. Consequently availability of semi-natural habitat within the county is below the national average, and there is a need for better delivery for biodiversity and habitat connectivity within the farmed environment – particularly boundary/linear habitats (usually hedges and ditches) which surround most farming systems.

Development should contribute towards “Life on the Verge initiative” which identifies roadside verges currently supporting BAP priority grassland, and verges where it is most likely that restoration of stretches of continuous habitat would be successful. Information is informing management and restoration work. The initiative was extended to the Wolds following success in the Southern Lincolnshire Edge and Kesteven Uplands.

Development at Grantham should also contribute towards the Witham Valley Country Park initiative which aims to create a connected network of managed outdoor space from the centre of Lincoln into the surrounding countryside. Sand and gravel working south of the city provide opportunities for creating BAP habitat, and development can contribute to re-establishment of effective green infrastructure and flood risk management. The Grantham Canal provides habitat for a rich variety of aquatic flora and should be supported.

Green Infrastructure

Grantham Green Infrastructure Strategy (2011)

The Grantham Green Infrastructure Strategy states that Grantham's green infrastructure network comprises both green spaces within urban areas, such as Wyndham Park, and larger spaces in the countryside around the town, such as Belton Park. It also includes green corridors, such as the River Witham and the Grantham Canal that are significant assets within the town's green infrastructure network.

The aim of the Strategy is to provide a strategic framework and vision for the planning, implementation and management of a multi-functional green infrastructure network of green spaces and links, connecting the town and the surrounding countryside. It also seeks to provide an up-to-date evidence base of the range of existing environmental and cultural assets in the plan area, and identify opportunities for addressing deficiencies in green spaces and links.

The Strategy uses the concept of an Urban Green Grid, encompassing the established built environment, a Green Grid for the North West Quadrant growth area and a Green Grid for the Southern Quadrant growth area.

The key components of the Green Grid are three proposed Green Corridors and seven proposed Green Links. The three Green Corridors are:

- River Witham, linking Belton Park to Southern Quadrant growth area;
- Grantham Canal, linking the town centre to countryside to the west; and
- Grantham Green Loop- interlinked and multi-functional green spaces in the countryside surrounding the town.

The seven proposed Green Links are:

- River Witham (North), linking the town centre to Belton Park;

- Londonthorpe, linking the town centre via the river to Londonthorpe and Londonthorpe Wood
- East Grantham, linking the town centre to the countryside to the east and the village of Old Somerby
- River Witham (South), linking the town centre to the Southern Quadrant growth area and the village of Little Ponton
- Grantham Canal, linking the town centre to Harlaxton, Denton and Woolsthorpe;
- Barrowby, linking the town centre via the North West Quadrant growth area to Barrowby, Sedgebrook and Allington; and
- Great Gonerby, linking the town centre via the North West Quadrant growth area to Great Gonerby.

South Kesteven Green Infrastructure Strategy (2009)

The South Kesteven Green Infrastructure Strategy (2009) provides a district-wide framework for assessing the contribution made by accessible greenspace to the overall network of green infrastructure and develops principles for developing & managing green infrastructure assets. It also provides a framework for a future more detailed study which will identify green infrastructure in the Grantham area, where major growth is planned.

The Strategy maps the Green Infrastructure network in the District and its accessibility. Grantham has the following Green Infrastructure Sites:

- Local Wildlife Sites and Sites of Nature Conservation Importance to the north east of Grantham at Belton House and Park; and south west at Harlaxton Manor respectively.
- Local Public Open Spaces throughout Grantham;
- Accessible Woodlands to the north and north east.
- Alma Park 'Access Land' to the east.

Analysis mapping shows that the River Witham has exceptionally high biodiversity value and the water course provides important habitat for crayfish.

There is an opportunity for strategic habitat creation for limestone grassland surrounding Grantham in all directions (bar north west).

GI Map 17 shows identified opportunities to 'plug' existing Accessible Greenspace deficiencies – most notably in central Grantham (Greyfriars) and north of Grantham (north of Belton Lane).

There are currently no promoted cycle or footpath links from Grantham to the north west towards Great Gonerby. This should be addressed by development proposals.

Gaps – no maps of deficiency, just maps of availability. Consider that a new GI study should be undertaken (likely to be provided in 2011 GI study and 2009 Open Space Study)

Flood Risk

South Kesteven Water Cycle Studies (Jan 2011 and Nov 2011)

Due to growth status awarded to Grantham, the town was excluded from this district water cycle study as a Grantham specific study had been undertaken in 2010.

Strategic Flood Risk Assessment (2009)

The SFRA states that a majority of future development is not likely to be within fluvial flood risk areas and those which are partially within Flood Zones 2 or 3, the sequential test approach should be able to steer the majority of development into Flood Zone 1.

A number of historic problem areas with surface water management have been highlighted in Grantham. The study recommends that all new developments should aim to reduce runoff to Greenfield rates and details of the disposal of surface water should be included with all planning applications.

Strategic Flood Risk Assessment (2011)

The level 2 SFRA builds upon the flood risks identified in the 2009 study and includes high level risk assessments for various areas of the district, including Grantham. The SFRA sets out the requirements for undertaking site specific flood risk assessments within Grantham and should be utilised during the production of these documents.

The study outlines the recommended requirements for site specific Flood Risk Assessments within Grantham. The SFRA recommends that in line with PPS25 (now, the NPPF) all sites greater than 1 hectare in size should undergo a site specific FRA and further recommends that any sites greater than 0.25 hectares should include a drainage assessment.

Grantham Water Cycle Outline Strategy (2008)

The study summarises the water infrastructure, resources, quality and risk of flooding within Grantham and the affect future development could have on each of them. The study recommends that further work is undertaken on the close to capacity sewer system and treatment works. The water quality of the River Witham has not been highlighted as a concern and the report suggests that water resources are not a problem within the catchment.

The main concern regarding future development within Grantham would be the additional strain on the sewer network and the increased risk of flooding. The study highlights that Grantham is at risk of flooding and that proposed development will need to be designed in a 'sympathetic manner' to take this into account. It recommends that detailed hydraulic river modelling is carried out to understand the flow characteristics and the impact proposed development would have on the receiving watercourses.

Grantham Water Cycle Detailed Study (2009)

The study further discussed the need for improvements to the sewer system and the sewage treatment works within Grantham, the report states that the 'study has reaffirmed that the potential block to growth in the southern area of Grantham is relate to lack of capacity in the sewerage system and sewage treatment facilities'.

The report states that the flooding issues within the catchment have been highlighted but should not inhibit growth if properly managed.

Grantham Water Cycle Detailed Study (2010)

The study reaffirms that water resources and supply are not considered to be a constraint on growth and suggests that the majority of developments will not be at risk of flooding but sustainable designs is recommended to ensure that other areas are not compromised.

As detailed in the outline and Stage 2a studies, the main constraint on development within Grantham is the lack of capacity within the sewerage network and particularly within the combined system during storm conditions. The study concludes that the most sustainable option is to provide an additional sewage treatment facility to the south of Grantham to cater for the proposed future development.

At the time of the study Anglian Water were in the process of updating their hydraulic model of the sewer system to further understand the capacity within the network. It is mentioned that a Stage 2c report will be produced for the water cycle study to incorporate these findings and their implications for future development.

High concentration levels of phosphorus in the River Witham is seen as the main constraint to water quality within the catchment. This is believed to be due to historic farming practices within the catchment.

It is recommended that planning applications for development within the Southern Quadrant are made in tandem with a planning application for an additional Sewage Treatment Works to provide evidence that close consultation has been carried out.

Section 4.4 of the document comprises a developer checklist, although the checklist refers to PPS25 which has since been replaced by the NPPF and its Planning Practice Guidance, the main points highlighted within the checklist have not been removed from planning guidance and should be considered by developers within Grantham.

The study states that in some locations (not detailed, consultation with Anglian Water would be required), local water main reinforcements will be required for some development and the cost of this will be borne by the developer.

It is concluded that the planning and construction of a new STW within the Southern Quadrant is likely to take between 6 and 10 years, proposed development should liaise closely with Anglian Water to ensure that development can proceed to an agreed timetable.

Retail

South Kesteven Retail Needs and Town Centre Study (2010)

The Retail Needs and Town Centre Study was commissioned to identify future retail need and capacity across the district; taking into account growth and redevelopment opportunities and market trends. The key objectives of the study were to:

- assess the future need and capacity for retail, leisure and other town centre uses, distributed by town centre for the period up to 2026;
- assess existing supply and demand for retail, leisure and other main town centres uses and the role played by each of the centres;
- assess future demand and the potential future role and capacity within existing centres;

- review the existing hierarchy and identify any deficiencies in the existing network including, where appropriate, the scope for extending the primary shopping area and/or town centre;
- assess the role, vitality and viability of the designated centres; identification of the centres where development will be focused, as well as the need for any new centres of local importance, and strategies for developing and strengthening those centres; and
- identify sites for accommodating future development and opportunities for growth of existing centres.

Grantham Town Centre is the largest shopping centre in the District and has the most extensive range and choice of shops and services, when compared with the other town centres. It has a reasonable number of national multiples, with most types of goods categories represented. Grantham has four large food stores within and surrounding the town centre suitable for basket and top-up shopping. The overall vacancy levels are similar to the national average. The quality of shopping environment is generally satisfactory, however the High Street and shopping centres would benefit from modernisation.

Grantham was predicted to require 23,000 sq m (gross) floorspace of A1 to A5 uses to 2021 which could be met in part by reoccupying vacant floorspace. The remainder of the projection was recommended to be met in the short term at the following town centre sites:

- Isaac Newton Centre Car Park
- Bus Station
- Post Office sorting office
- Car Park and Community Centre
- Greyfriars
- Station Approach
- Car Park, Watergate.

Two further longer-term sites were identified at the Rear of Isaac Newton Centre and Elmer Street South.

The Study stated that the town centre should be the first choice for retail growth; however the proposed urban extensions will require the provision of new neighbourhood centres to serve day-to-day shopping needs. Each medium to large-scale urban extension of Grantham (of 3,500 and 4,000 dwellings) could provide between 2,000 and 3,000 sq m gross of Class A1 to A5 uses in order to meet local needs, comprising a convenience store (not more than 1,000 sq m net) and unit shops for other shops and services.

In Grantham there may be scope for an additional large food store by 2016, i.e. of at least 1,500 sq m net convenience sales, or a number of smaller stores. The town centre is well served with large food stores (Morrisons and nearby Asda and Sainsbury stores). New food store development could be located where it will best serve new residential areas. The options for a new food store could be the Canal Basin which could serve the north-west and west of Grantham development area or the development of a food store as part of a neighbourhood centre in either of the two urban expansion areas. Alternatively two smaller convenience stores (less than 1,000 sq m net) could be provided in new neighbourhood centres within the two urban expansion areas.

The study states that the long term forecasts up to 2021 and 2026 may be more susceptible to change, due to unforeseen circumstances; and that the implications of major retail development within and surrounding the District should also be monitored and the effects proposals may have on the demand for additional development in South Kesteven District should be considered carefully.

The limitations of this study are that it pre-dates the NPPF and extended Permitted Development Rights; and needs to be updated in light of the role of online retail and the impact of competitors in neighbouring authorities. The Study recommends that “this retail/leisure capacity study should be updated in 4-5 years’ time [i.e. 2014-2015] and the floorspace projections rolled forward”.

Appendix C: Information submitted by landowners

The following table lists the landowner and SHLAA sites that were submitted for consideration of the Grantham study.

Table 3: Sites submitted by landowners for consideration

AECOM Reference	Source (Landowner or Agent)	Site Address	Site Within Numbered Area?
GRA01	Landowner/ Buckminster Trusts	Land at Somerby Hill (adj No 52) Grantham	2
GRA02	Landowner/ Buckminster Trusts	Land at Southern end of Houghton Road Grantham	No
GRA03	Landowner/ Buckminster Trusts	Land to the north of Springfield Road, Grantham	No
GRA04	Landowner/ Buckminster Trusts	North of Gorse Land and West of B1174 Grantham	3
GRA05	Landowner/ Buckminster Trusts	Poplar Farm Grantham (SK/GRA/02)	5
GRA06	Landowner/ Buckminster Trusts	Southern Quadrant Grantham	2
GRA07	Landowner/Gladman Developments Ltd	Land south of Barrowby Road, Grantham	No
GRA08	Landowner/Godfrey-Payton	SK/GRA/09	1
GRA09	Landowner/Godfrey-Payton	SK/GRA/10	1
GRA10	Landowner/ Grantham Estates	London Road Industrial estate and Springfield Road	No
GRA11	Landowner/ Grantham Estates	Westgate/ Greyfriars	No
GRA12	Landowner/ Grantham Estates	Harlaxton Road/ Trent Road	No
GRA13	Landowner/ Grantham Estates	Springfield Road	No
GRA14	Landowner/ Grantham Estates	Caunt Road/ Springfield Road	No
GRA15	Landowner/GVA	North West Quadrant SUE/ Rectory Farm	5
GRA16	Landowner/ Mike Sibthorp	Land at Somberby Hill, Grantham	2

AECOM Reference	Source (Landowner or Agent)	Site Address	Site Within Numbered Area?
GRA17	SHLAA	Land to the north of Gonerby Lane, Allington (ALL14-146)	No
GRA18	SHLAA	The Granary Hough Road Barkston Grantham Lincs NG32 2NS (BKN14-1)	No
GRA19	SHLAA	12 West Street, Barkston (BKN14-128)	No
GRA20	SHLAA	land south of Low Road, Barrowby (BAR14-79)	4
GRA21	SHLAA	land north of Low Road, Barrowby (BAR14-80)	No
GRA22	SHLAA	south of Reedings Road, Barrowby (BAR14-95)	No
GRA23	SHLAA	Henry Bell Dysart Road Grantham Lincolnshire NG31 7DB (GRA14-3)	No
GRA24	SHLAA	The Old Blessed Hugh Moore School, Grantham, Lincolnshire NG31 9UB (GRA14-6)	No
GRA25	SHLAA	Shaw Road West, Earlsfield, Grantham, Lincolnshire NG31 7XN (GRA14-7)	No
GRA26	SHLAA	Walton Gardens (rear of), Grantham, Lincolnshire. NG31 7BH (GRA14-8)	3
GRA27	SHLAA	[Area 1] land south of Gorse Lane, Grantham (GRA14-25)	3
GRA28	SHLAA	[Area 3] south of Gorse Lane, Grantham (GRA14-26)	3
GRA29	SHLAA	land north of Peachwood Close, Grantham (GRA14-27)	1
GRA30	SHLAA	south of former Barfords factory, Grantham (GRA14-31)	2
GRA31	SHLAA	The Haverlands, Gonerby Hill Foot, Grantham (GRA14-44)	No
GRA32	SHLAA	Harrowby Road Allotments, Grantham (GRA14-47)	No

AECOM Reference	Source (Landowner or Agent)	Site Address	Site Within Numbered Area?
GRA33	SHLAA	land at Somerby Hill, Grantham (GRA14-48)	2
GRA34	SHLAA	Pt OS 0006 Great Gonerby, Grantham (GTG14-76)	No
GRA35	SHLAA	land at A52 Somerby Hill, Grantham (GRA14-120)	2
GRA36	SHLAA	land north of Dysart Road, Grantham (GRA14-149)	No
GRA37	SHLAA	land north of Longcliffe Road and Ryedake Close, Manthorpe, Grantham (GRA14-150)	1
GRA38	SHLAA	land at Gonerby Hill Foot, Maltings Lane, Grantham (GRA14-201)	5
GRA39	SHLAA	land south of Houghton Road (GRA14-218)	No
GRA40	SHLAA	land east of Eastthorpe Road, Great Gonerby (GTG14-28)	No
GRA41	SHLAA	OS 8937 & OS 8668 south of Grantham Road, Great Gonerby (GTG14-75)	No
GRA42	SHLAA	land off Church Lane, Great Gonerby (GTG14-124)	No
GRA43	SHLAA	Church Lane, Great Gonerby (GTG14-125)	No
GRA44	SHLAA	land south of Belvoir Gardens, Great Gonerby (GTG14-161)	No
GRA45	SHLAA	land north of Belton Lane, Great Gonerby (GTG14-162)	No
GRA46	SHLAA	land at The Drift, Harlaxton (HAR14-138)	No
GRA47	SHLAA	land west of Swine Hill, Harlaxton	No
GRA48	Potential Sites for Consideration	West of new A1 Junction south Gorse Lane	3

AECOM Reference	Source (Landowner or Agent)	Site Address	Site Within Numbered Area?
GRA49	Potential Sites for Consideration	Harlaxton Road (west of A1)	4
GRA50	Potential Sites for Consideration	Between Barrowby Road and A1	4

The list below groups relevant landowner and SHLAA information by numbered study area for each site that falls within a numbered area.

Area 1

Agricultural Land Quality

Some of the area is within Agriculture Grade 3 (GRA29 and GRA37).

Landscape

The future development of some sites were identified many years ago, and as a mitigation measure a wide shelter belt/landscape screen belt had been established along the northern and north western boundaries of the land such that the development would be screened from views from the north (GRA08).

Part of the area has a slight slope (GRA29 and GRA37).

Infrastructure

Electricity infrastructure crosses the area (GRA29).

Heritage

Within the setting of Belton House and Park and Gardens (GRA29 and GRA37).

Area 2

Agricultural Land Quality

Some of the area is within Agriculture Grade 3 (GRA33 and GRA35).

Transport and Accessibility

The A52 at parts in this area goes up to 50mph (GRA16). Grantham train and bus stations are within walking distance of the area (GRA16). None of the local bus services in this area operate on a frequent basis (GRA16).

Access may be restricted until Relief Road is in place (GRA35).

Landscape

The area is not completely flat; this does not prevent development but does make it slightly more expensive (GRA01, GRA33 and GRA35).

Infrastructure

The area is serviced by a number of utilities including mains water supply, mains sewerage, electricity supply, gas supply and a public highway (GRA01).

The current road infrastructure is not capable of handling an increase in traffic (GRA33).

Area 3***Agricultural Land Quality***

Agricultural Grade 3 (GRA04 and GRA27) and Agricultural Grade 2 (GRA28).

Transport and Accessibility

A new junction on the A1 as part of the 'King 31' employment development is planned, which will reduce sensitivity of building within this area (GRA48).

Landscape

The area is not completely flat; this does not prevent development but does make it slightly more expensive (GRA04 and GRA26).

Part of the area lies on higher ground, visible from parts of the surrounding area, but by limiting development at the eastern end by the B1174, any issues should be mitigated (GRA04).

Infrastructure

The area is serviced by a number of utilities including mains water supply, mains sewerage, electricity supply and a public highway (GRA04).

Regeneration Potential

Part of the site is affected by the A1 noise, as a result soundproofing measures would need to be in place because any regeneration is possible (GRA28).

Spatial Opportunities and Constraints

Currently not on the immediate edge of a settlement (GRA28).

Area 4***Agricultural Land Quality***

Part of area to the west of Barrowby is within Agricultural Grade 1 (GRA20).

Landscape

Part of the site has levelled topography (GRA20).

Lies within the Harlaxton-Denton Bowl LCA, a generally low-lying sensitive landscape with a characteristic patchwork of varied landscape features (GRA49 and GRA50).

The southern end of site GRA49 by the canal and A1/A607 junction is low lying and has a more urban-edge character due to surrounding land uses, where limited development around the canal corridor would be appropriate but should be prevented from encroaching northwards into open countryside.

The area was previously designated as an AGLV (local designation) under the Local Plan and protected as part of the important open gap between Grantham and Barrowby (GRA50).

Infrastructure

High Pressure Gas main runs through the site (GRA20).

Heritage

Area is important to the setting of Harlaxton Manor and parkland (GRA49 and GRA50).

Regeneration Potential

There is some capacity for limited expansion of Barrowby southwards, but maintaining a gap to Low Road, would be in keeping with settlement form and the pattern of previous residential development on the edge of Barrowby (GRA50).

Spatial Opportunities and Constraints

The A1 provides an important boundary feature defining the western extent of the town (GRA49 and GRA50).

Area 5***Agricultural Land Quality***

Part of the area is within Agriculture Grade 3.

Infrastructure

The area is serviced by a number of utilities including mains water supply, mains sewerage, electricity supply, gas supply and a public highway (GRA05). A road bridge is needed in the area before 700 dwellings (GRA05).

Appendix D: Letter and pro-forma sent to national stakeholders

20th February 2015

Dear Sir/Madam,

SOUTH KESTEVEN LOCAL PLAN – Grantham Capacity study and growth assessment

AECOM and Savills have been commissioned by South Kesteven District Council to undertake a capacity study and growth assessment for Grantham. The context for this study is an 'Objectively Assessed Housing Need' figure for South Kesteven of around 685 new homes per year between 2011 and 2036 (SKDC Strategic Housing Market Assessment, 2014). (This figure does not represent the level of housing that will be set in the Local Plan, it is simply an estimate of housing need).

The study's objective is to establish the potential capacity and limits to housing and employment growth in and around Grantham, including, where relevant, suitable mitigation measures. Based on the evidence gathered, including from this consultation exercise, the study will recommend which areas and/or directions for growth would be most suitable and deliverable. This will form part of the evidence base for future Local Plan documents and may be used to inform the Council's response to planning applications.

An important element of the study is to engage with sub-regional, regional and national stakeholders to test their views on the relative merits of the nine strategic directions for growth extending outwards from the urban edge (please see map attached). This requires us to understand the constraints and opportunities which each location presents.

We are therefore seeking your professional views on the nine indicative / potential directions for growth (please see form attached) and asking for any specific technical information that you or your organisation may have and that we might find useful. In particular we would like to know about constraints, opportunities and requirements relevant to the potential growth areas. Please add as much text as you consider necessary in the last two columns and on additional pages.

We would very much appreciate a response as soon as possible, but by 2nd March (i.e. in two weeks' time) at the latest. With this in mind, responses by email would be preferred.

If you require any further information please do not hesitate to contact me. In the meantime, thank you again in advance for your assistance with this important study.

Yours sincerely,



Jesse Honey
Assistant Project Manager
AECOM

Potential direction for growth	Broad geographical area	Please indicate the suitability of housing /employment growth in this location relative to other directions. Please give a score of 1, 2 or 3, where 1 = favourable, 2 = neutral and 3 = unfavourable	Reason(s) for judgement	Any other relevant information you have on this direction or any particular opportunities or constraints relevant to this direction
A	North of Manthorpe/towards Syston			
B	Belton Park/towards Belton			
C	East of Alma Park/towards Londonthorpe			
D	East of Harrowby/towards Cold Harbour			
E	Southeast of Spittlegate/towards Little Ponton			

Potential direction for growth	Broad geographical area	Please indicate the suitability of housing /employment growth in this location relative to other directions. Please give a score of 1, 2 or 3, where 1 = favourable, 2 = neutral and 3 = unfavourable	Reason(s) for judgement	Any other relevant information you have on this direction or any particular opportunities or constraints relevant to this direction
F	South of Spittlegate/towards Harlaxton			
G	West of Earlesfield/towards Denton			
H	West of Barrowby/towards Sedgebrook			
I	Northwest of Great Gonerby/towards Allington			

Appendix E: Calculating residential density at a neighbourhood scale

AECOM has carried out research over a number of years into residential densities at a number of spatial scales. In order to explain the approach taken to density in this report, some context is required.

The thirty dwellings per hectare often used as a default density in town planning studies was originally formulated (within the now-rescinded PPG3) based on a policy context of recycling relatively small parcels of urban brownfield land. As originally defined in Annex C of PPG3 the 30 dwellings per hectare measurement covered 'net' densities, in other words:

- access roads within the site;
- private garden space;
- car parking areas;
- incidental open space and landscaping; and
- children's play areas where these are to be provided.

They did not include land for other uses that can be provided alongside housing to ensure that development offers a sustainable mix of uses, including:

- Rail, tram, guided bus or other public transport infrastructure
- Community facilities (hospitals, schools, community centres)
- Local shopping precincts
- Major open space such as parks and nature reserves
- Major roads
- Other non-domestic buildings (places of worship, leisure facilities and so on)

This study seeks to identify the larger-scale, often greenfield sites that can help to deliver the new housing needed in Grantham into the future. If these larger sites are to be built as genuinely sustainable neighbourhoods, they will need to include some or all of the uses in the second set of bullet points above.

At the scale of an entire town or city in England, land for enough other uses is required for densities to drop well below the 30-dwelling per hectare mark, even in smaller towns. Here are some examples from previous AECOM research:

:

- Buxton, Derbyshire: Town density: 19.16 dph
- Chichester, Sussex. Town density: 13.08 dph
- Witney, Oxfordshire: Town density: 15.74 dph
- Grantham, Lincolnshire: Town density 19.23 dph
- Kendal, Cumbria: Town density: 15.74 dph
- Stratford-upon-Avon, Warwickshire: Town density: 15.19 dph

The average density for a medium-sized, free-standing town in England therefore, seems to be in the range 10-20 dph. This density reflects the numerous non-residential uses required for the town to function as a service centre.

Densities are slightly higher when suburban areas only are assessed- it is the non-residential town centre uses that reduce the densities in the examples above. A fully sustainable residential neighbourhood, including employment land, health and education facilities, retail areas, open space and public transport infrastructure is likely to offer a density of between 20-30 dwellings per hectare, and this is indeed backed up by AECOM's past

research into sustainable suburban locations across England. Our research indicates that the average density of suburban Middle Super Output Areas (MSOAs) in England is in the range of **25** dwellings per hectare, and this has been used as an indicative density figure for new residential neighbourhoods in this report.

However, only at a later stage will site-specific densities be able to be applied, based on detailed contextual analysis for each site. There are many factors affecting the densities of new urban areas, and several of these will be too locally-specific (e.g. subtle changes in height of land across the site, the proposed location of local facilities within the red line and so on) for a strategic study like this report to cover in detail.

Nevertheless, the indicative density that has been applied should form a firm, evidence-based starting point for the eventual development of sustainable suburban extensions that use land sustainably and efficiently, offer a wide range of local services and can support public transport while also reducing the need to travel.

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