Nathaniel Lichfield & Partners
Planning. Design. Economics.

Great Hammerton

Technical Appendix

Representation to Draft Harrogate Local Plan

CEG

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Nathaniel Lichfield & Partners
The St Nicholas Building
St Nicholas Street
Newcastle upon Tyne NE1 1RF

nlpplanning.com

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Registered Office:
14 Regent's Wharf
All Saints Street
London N1 9RL

Contents

1.0 Introduction

1.1 This Report has been prepared on behalf of Commercial Estates Group in relation to the Harrogate Council Draft Plan 'New Settlement Option 2' (Policy GH11) (Hammerton), hereafter referred to as 'Great Hammerton'.

1.2 A number of technical assessments of the Great Hammerton site have been undertaken, which consider access and movement, landscape, flood risk, drainage and utilities, ecology, heritage and ground conditions. These assessments have been prepared by a project team comprising Nathaniel Lichfield & Partners (NLP), Broadway Malyan, Bryan G Hall, Weetwoods, Baker Consultants and Sirius.

1.3 This Report summarises the findings of these technical assessments.

Site and Surroundings

1.4 Great Hammerton comprises 174 hectares of largely flat arable fields between Green Hammerton and Kirk Hammerton. A horticultural nursery is situated to the west of the site, which straddles the railway line. At the centre of the site, but outside of the site's boundaries, are a string of houses and two care homes that stretch south of the A59.

1.5 The land is typically low-lying to the east as well as to the north of the A59. Towards the centre of the site, it begins to undulate and a short escarpment makes up the western edge of the site where the nursery is situated. The field patterns dissect the site into various parcels. These are outlined by distinctive hedgerows.

1.6 The site is clearly defined by the railway line to the south, Station Road to the west, and the periphery of Kirk Hammerton to the east. Along the northern edge, a variety of features make up the boundary including: the A59, the settlement edge of Green Hammerton, field boundaries. Two stations – Cattal and Kirk Hammerton define the furthest extent along the southern boundary. Parker Lane dissects the site from north to south, being the main connecting route from Green Hammerton to Kirk Hammerton, via a level crossing. Level crossings are also present at Cattal Station and Hammerton Station. Station Road, to the east of the site, links Cattal to the south with Whixley in the north.

1.7 In particular the Great Hammerton site lies within the A59/A1 strategic transport corridor, which is well served by public transport and the local and strategic road network.

1.8 The railway line that runs along the southern boundary of the site and the stations at Hammerton and Cattal, provide excellent access to direct train services to York, Knaresborough, Harrogate and Leeds and all stations in between. The site is also well located in relation to the recently constructed Park and Ride site at Poppleton Bar, York.

1.9 Great Hammerton is located within the county of North Yorkshire, in the district of Harrogate. It sits close to the border between Harrogate district and the City of York.

1.10 Great Hammerton will form an extension to Green Hammerton. This is a large linear settlement located to the north of the site and links to the town of Boroughbridge, to the north, by the B6265. Green Hammerton is identified in the draft Local Plan as a Primary Service Village and has a range of existing services including Green Hammerton CofE Primary School, Springbank Doctor's Surgery, a Village Shop which houses a Post Office and a Community Hall. It also benefits from a number of bus services.

Proposed Allocation

1.11 The Council identify that Great Hammerton (Option 2: Site ref. GH11) could deliver 2,774 dwellings, alongside community uses and local employment opportunities.

1.12 A Vision Statement has been prepared on behalf of CEG. This Statement brings together the opportunities and constraints identified from the technical assessments and includes a draft Masterplan which shows one way in which the site could come forward for development. This Masterplan clearly shows that the site can deliver the 2,774 dwellings as required by the Draft Local Plan, alongside community and local employment opportunities, including two primary schools and at least one local centre.

Structure

1.13 The remainder of this document covers the following technical chapters:

- Access and Movement;
- Landscape;
- Flood Risk, Drainage and Utilities;
- Ecology;
- Heritage; and
- Ground Conditions.

1.14 Each chapter is structured as follows:

- Introduction;
- Methodology;
- Baseline Conditions;
- Constraints, Opportunities and Proposed Mitigation; and
- Next Steps.

2.0 Access and Movement

Introduction

2.1 This chapter has been prepared by Bryan G Hall Consultants Ltd.

Methodology

2.2 In preparing this chapter Bryan G Hall has:

- Undertaken site visits during the morning and evening peak periods to assess traffic conditions on the A59 corridor and on the Strategic Road Network (SRN) at Junction 47 (J47) of the A1(M);
- Reviewed existing public transport access to the Great Hammerton site including train times from Hammerton and Cattal stations as well as existing bus service provision;
- Considered a preliminary design for the phased re-alignment of the A59 corridor away from Green Hammerton along with the potential for other significant junction improvements to provide improved access to the A59 for residents and reduce the severance currently resulting from the existing alignment of the road; and
- Reviewed the significant planned infrastructure works to improve capacity of the SRN at J47 A1(M).

Baseline Conditions

Highway Conditions

2.3 The section of the A59 most relevant to the site is the stretch between the A1237 York Outer Ring Road at Poppleton and the junction with the A1(M) at J 47. Nearly all of this stretch of the road is a single carriageway two way road and is subject to the national speed limit for single carriageway roads of 60 mph (although there are relatively short stretches subject to lower speeds limits adjacent to York and where the road passes adjacent to the nearby settlement of Kirk Hammerton).

2.4 The road carries fairly significant traffic volumes. Recent development related studies associated with proposed housing developments in Green Hammerton suggest that the road carries in the order of up to 1,750 vehicles, two way flow, in the morning and evening peak hours. Although these link flows are sufficiently less than the link capacity to allow a good level of service to be maintained, it is clear from on-site observations in and around Green Hammerton that during the peak periods the local access junctions do not provide sufficient capacity for local traffic to access the mainline, including traffic using the B6265 from Boroughbridge which is currently served via a ghost island right turn lane ‘t’ junction. In addition historically the crossroads

junction to the west of Green Hammerton, known locally as Whixley crossroads, has suffered from a poor road safety record.

2.5 The on site observations also revealed existing peak hour capacity issues at the A1(M) J47 which experiences peak hour queues and delays, with occasional standing traffic on the northbound off slip from the A1(M) sometimes extending onto the A1(M) mainline.

2.6 A review of the 2011 Census Data reveals that currently for the wider area in and around Green Hammerton the predominant journey to work trip is made by car with 88% of journeys by car as either a driver or passenger, 2.5% by train; 2% by bike, 1.2% by bus and 4.7% on foot. In terms of direction of these journeys, the current distribution for journey to work traffic, sees around 17.9% travel on the A59 (east) towards York, whilst 9.0% travels on the A59 (west)- before heading north on A1(M), 25.7% travels on the A59 (west) towards Harrogate, with around 28% travelling on the A59 (West) then South on the A1(M) towards Leeds and Wetherby.

Rail Accessibility

2.7 The closest railway stations to the Great Hammerton site are Hammerton and Cattal stations, located to the immediate south-east and in the south-west corner of the site respectively. Both of these railway stations are on the York to Leeds (via Harrogate) line, and provide 1 service an hour in each direction with an additional service in the morning and evening peak hours.

2.8 The current masterplan for the site includes for new pedestrian/ cycleways to be provided directly to the stations and improved parking facilities.

Bus Accessibility

2.9 There are existing bus stops located on Boroughbridge Road / York Road at 3 separate locations through the settlement of Green Hammerton. The Boroughbridge Road / York Road link forms a route through the village, meeting the B6265 to the north-west and the A59 to the south-east.

2.10 The bus stops through the village are served by service No's 3, 22 and 23. Service No. 3 runs only on a Tuesday and has an outgoing service to Minskip departing from Green Hammerton at 9:51am, with a return service departing from Minskip at 11:37am. Service No's. 22 and 23 run on Mondays to Saturdays with a typical 2 hour frequency with additional services in the morning and evening peak hours. The service provides a link from York to Harrogate and serves a number of villages and towns along its route. A summary of these services is shown below in Table 1.

Table 1 Summary of Existing Bus Services

Route Number	Operator	Route Description	Frequency		
			Monday - Saturday	Evening	Sunday

3	Atkinsons	Hunsingore – Cattal – Wilstrop – Kirk Hammerton – Green Hammerton – Whixley – Great Ouseburn – Boroughbridge - Minskip	1 return service on Tuesday AM only		
22/23	Little Explorers	York – Kirk Hammerton – Green Hammerton – Great Ouseburn – Boroughbridge – Ripon – Burton Leonard – Scotton – Knaresborough – Harrogate	2 hours	-	-

2.11 Clearly Great Hammerton would benefit from some enhancements to existing scheduled bus services. In addition there is scope to introduce extended services from Harrogate to the site, for example, potentially through extension of the existing TransDev 1A service which currently runs between Harrogate Knaresborough and Boroughbridge (serving Goldsborough and Flaxby) as an hourly service, and which could be further enhanced to provide a service to Great Hammerton.

Constraints, Opportunities and Proposed Mitigation

Existing Facilities within Green Hammerton

2.12 In the early stages of development the proposals at Great Hammerton will benefit from the existing facilities within Green Hammerton which include Green Hammerton CofE Primary School, Springbank Doctors Surgery, a Village Shop which houses a Post Office, a Community Hall as well as the existing bus and rail services. Clearly over time these facilities will need to be enhanced, but it does mean that even in the very early years of development residents at the site will have the opportunity to use the local facilities to minimise the need to travel, and instil a more sustainable approach to travel behaviour. Furthermore, the existing facilities will benefit from increased trade.

2.13 In order to improve accessibility in this rural area, the Great Hammerton development would bring with it the potential to implement more pedestrian and cycling routes like the Hammerton Greenway cycle track which will form a safe cycle route linking Green Hammerton and Thorpe Underwood, running for a mile from Water Slack Lane to Moss Hill Lane.

Travel Planning

2.14 The site at Great Hammerton will be supported by an exemplar Travel Plan to make the most of the opportunity presented by the York to Harrogate Railway

and the stations at Hammerton and Cattal, as well as the opportunities to instil a sustainable approach to transport, right from the outset given the existing residential facilities that already exist within the village of Green Hammerton. In addition to the formation of car clubs and the provision of electric vehicle charging points in all dwellings and in the station car parks, residents will be entitled to 'taster tickets' for bus and rail public transport to allow them to utilise the train and bus services that serve the site and enable them to go about their daily commute in a sustainable manner.

Rail Access

2.15 The Great Hammerton site is located within close proximity to both Hammerton and Cattal stations. The current draft masterplan includes new pedestrian/cycleways to be provided directly to the stations from the site. In addition improved parking facilities at both stations would encourage the use of the stations as park and ride facilities from the wider area to York, Knaresborough, Harrogate and Leeds. The proposed footpaths and cycleways to the stations will encourage new and existing residents to utilise the train and could increase the current percentage of existing residents traveling to work via train.

2.16 The Great Hammerton development provides the potential for improved passenger and waiting facilities at Hammerton and Cattal Stations as well as the opportunity to provide enhanced vehicular access and improved parking. Clearly the development of the site will result in increased patronage on the train services which in itself will provide additional revenue and the opportunity for improvements to customer services to sit alongside the planned improvements to frequency of service, rolling stock, double tracking of the existing line on the single tracked sections to the east of Knaresborough and ultimately electrification.

2.17 In the longer term there may be the potential to create a single new station located midway between Hammerton and Cattal which would be able to provide state of the art passenger facilities as well as improved access for park and ride and kiss and ride facilities on the York to Harrogate line.

2.18 The North Yorkshire County Council Local Transport Plan 2016 -2046 (LTP 4) sets out proposals for a transformational change to the York to Harrogate line delivering improved journey times, increased train frequency, modern high quality rolling stock and improved customer service, leading ultimately, it is envisaged, to electrification. It is envisaged that double tracking of the single tracked sections to the east of Knaresborough will be taking place over the next 10 years, and will provide Harrogate with a better link to the wider rail network and future HS2 Hub Stations.

Bus Access

2.19 Bus service 1A operated by Harrogate Connect provides a service between Harrogate and Boroughbridge, traveling via Knaresborough, Flaxby, Staveley

and Minskip. There is a service every 60 mins on Mondays to Saturdays, with no service on Sundays.

2.20 It is considered that there is scope for this service to serve Great Hammerton, either as an extension of the existing service or through the introduction of a new bus service and route. If a new route was introduced, it could be a variant of the existing service which diverts from Flaxby and travels east along the A59 towards Green Hammerton. The service could then travel northwards along the B6265 to Boroughbridge, via Little Ouseburn and Great Ouseburn, maintaining the end destination of the original service.

2.21 In addition there is scope for enhancing the existing scheduled services which serve Green Hammerton in particular service No's. 22 and 23 which currently run on Mondays to Saturdays with a typical 2 hour frequency and provide a link from York to Harrogate.

Highway Impact

2.22 In the immediate vicinity of Green Hammerton it is proposed to undertake phased diversion of the A59 to allow the development at Great Hammerton to integrate with Green Hammerton and ensure that residents are not segregated from the facilities in the existing village by the A59, with a grade separated pedestrian and cycle route provided from Great Hammerton to the existing stations at Hammerton and Cattal.

2.23 High standard roundabout junctions would be provided at either end of the A59 around the settlement to improve access to the A59 corridor for the existing settlement as well as for traffic on the B6265 to and from Boroughbridge. Land will be reserved to allow the Hammerton by-pass to be dualled, future proofing it against continued background traffic growth. In addition further junction improvement, possibly in the form of a further roundabout, will be implemented at Whixley Crossroads thereby dealing with a historic road safety problem at this existing priority crossroads junction. Indeed a number of junction improvements could be funded or contributed to by the Great Hammerton scheme in order to mitigate the impact of development related traffic, most notably at:

- Whixley crossroads, potential for a roundabout to resolve existing road safety issues;
- A59/A168 potential for traffic signals to resolve existing road safety issue;
- A1(M) jct 47 full signalisation of J47, consideration of additional improvements to deal with the traffic towards Leeds on the A1(M) and Harrogate;
- A59/A658 roundabout junction improvements at Knaresborough; and
- A59 Junction with A1237 in York, although this junction was the subject of recent significant improvement scheme as part of Poppleton Bar Park and Ride site.

Highways Impact A1(M) Junction 47

2.24 In December 2016 Highways England, North Yorkshire County Council and Harrogate Borough Council released a joint statement to inform and advise developers and other interested parties on matters relating to Junction 47 of the A1(M). Clearly this is a key junction in both Harrogate District and North Yorkshire, particularly in relation to delivering the emerging Harrogate District Local Plan (HDLP) and long term opportunities for future housing and employment growth, and further statements are expected to be issued as work progresses.

2.25 A1(M) J47 is a four-arm grade separated roundabout which connects the SRN (A1(M)) with the Local Highway Network (LHN) (A59). As identified earlier, the junction already exhibits peak hour queues and delays, with standing traffic sometimes extending onto the A1(M) mainline.

2.26 All three parties have confirmed in the statement that they are committed to achieving outcomes that:

- deliver improvements in the short-term to address current capacity and safety concerns;
- provide sufficient capacity on the SRN and LHN to accommodate traffic growth associated with the emerging HDLP;
- ensure that short or medium term highway schemes do not prejudice long terms aspirations;
- help deliver appropriate development of strategic value, subject to funding and deliverability of the necessary and appropriate improvements to J47. These solutions should not compromise the delivery of the Local Plan and long term improvement aspirations;
- minimise the number of sets of works to J47 and the surrounding network; and
- are delivered in partnership with owners and developers of sites surrounding J47.

2.27 Local Growth Funding of £2.1m was awarded to the York, North Yorkshire and East Riding LEP to contribute towards a North Yorkshire County Council led project to implement a junction improvement at J47 during 2017/18. The scheme includes:

- Traffic signals on all approaches to J47;
- Widening on all approaches in order to accommodate left turn flares on both diverge slips, and to increase the length of both right turn flares on the A59 approaches; and
- Three lane circulatory carriageway at both the north-east and south-west corners of the junction, in order to reduce conflict between exiting and queuing vehicles. Widening is needed to accommodate the introduction of a third lane.

2.28 To supplement the work to J47 NYCC is proposing to fund nearby complementary works:

- The introduction of linked traffic signals on the A59 at the junction with the A168 Link Road including islands which are proposed to house the required signal infrastructure.

2.29 The Junction 47 Partnership study will identify how much capacity will be provided by the LEP scheme, when further improvements are likely to be required and will identify interim and final solutions for junction improvements to accommodate likely future traffic levels and appropriate growth.

2.30 The outcomes of the study will be published alongside the publication draft Local Plan from July 2017.

2.31 In addition NYCC has commissioned its partner consultant Mouchel to identify high-level upgrading options for J47 to provide capacity post 2035. Whilst no view on the likely outcome of this work has yet been formed, this work will feed into the J47 Partnership Study to ensure that highway schemes and development in the short and medium term does not prejudice longer terms improvements.

Next Steps

2.32 Assuming that Great Hammerton is allocated, it will necessary to prepare the following documents:

- **Transport Assessment Scoping Study:** prior to commencing work on a Transport Assessment assessing the impact of the Great Hammerton scheme, a Scoping Study will be submitted to North Yorkshire County Council. The scoping study will identify the issues the Transport Assessment will address, the methodologies to be adopted, additional supporting data required, and the limits of the assessment area. The TA will specifically address the following issues:
  - Reducing the need to travel, especially by car;
  - Sustainable accessibility, promoting accessibility to and from the site by all modes;
  - Dealing with residual vehicular trips from the proposed development; and
  - Mitigation measures which promote innovative and sustainable transport solutions.
- Travel Plan: This will be prepared to:
  - support increased choice of travel modes;
  - promote and achieve access by sustainable modes;
  - respond to the growing concern about the environment, congestion, pollution and poverty of access; and
  - promote a partnership between the authority and the developer in creating and shaping a sense of place.

Summary

2.33 The development of Great Hammerton presents the opportunity to deliver, in transport terms, a sustainable community right from the outset given the proximity to readily available public transport services to the major local centres of employment, as well as access to existing facilities, which already exist within the village of Green Hammerton.

2.34 With the proposed mitigation in place, the traffic generated by the development will not have any adverse significant impacts on the local or strategic road network and indeed will have a number of positive impacts.

2.35 The development has the potential to remove the severance that is currently caused to the settlement of Green Hammerton by the staged relocation of the A59 corridor and to improve access to the A59 for the existing and adjacent settlements through the introduction of high standard roundabout junctions at either side of the settlement as well as making a significant contribution to road safety through junction improvements at locations such as Whixley Crossroads.

2.36 Finally, the development can make a significant contribution to planned infrastructure improvements such as at the A1(M) J47 as well as to improvements to the A59 corridor to accommodate future anticipated traffic growth.

3.0 Landscape

Introduction

3.1 Broadway Malyan has undertaken a landscape appraisal of the Great Hammerton site to record and assess existing landscape features within the site and to note any other key features beyond the site boundary which could influence the form of development at the site.

Methodology

3.2 In preparing this appraisal a number of studies were undertaken including a site visit together with a photographic site study. Further desk top studies were undertaken with reference to National and Regional Landscape Character Assessments, Local Landscape Character Assessments (Reference Areas 95,96 and 97), Magic Map and the Harrogate Local Plan.

3.3 The purpose of the landscape appraisal was to record existing landscape features such as trees, hedgerows, water bodies, field patterns and types, all of which form significant elements of the existing Green Infrastructure Framework. Key views were also considered.

Baseline Conditions

3.4 The development site is located in a rural pastoral area characterised by small surrounding villages with scattered farmsteads and sparse woodland and tree cover.

3.5 The Great Hammerton site is largely characterised by arable fields and grass paddocks, defined by a variety of hedgerows and fence boundaries. There are a few scattered farmsteads located within the boundary and the villages of Green Hammerton and Kirk Hammerton lie to the north and south of the site respectively.

3.6 The topography falls away in the eastern half of the site, which gives the site a wide open character with long distant views across large open arable fields to the low horizon beyond.

3.7 The western half of the site has a less open character due to the topography with the land rising towards the north-west. Here the horizon line is much closer and is occasionally punctuated with small blocks of woodland copse and patches of individual hedgerow trees. Smaller broken hedgerows are located along field boundaries across the site.

3.8 There are a number of maintained mature hedgerows located along Gilsthwaite Lane, the A59 road side edges and around local farmsteads. Mature native and non-native specimen trees are also present across the site, although mostly located around farmsteads and other residential buildings.

3.9 Johnson's, a large commercial plant nursery, occupies the south west corner of the site and is characterised by large conifer hedges, greenhouses and storage sheds. The nursery sits on a low south-facing hillside where the land gently rises northwards and plateaus beyond the higher ridge. Kirkham Beck and its associated wetland corridor is located in the far south-west corner of the site, bounded by pastoral fields on both sides.

3.10 A large overgrown water body is located in the southern field to the east of Johnson's Lane.

3.11 Some key views were recorded, mostly from within the eastern half of the site. There is a local view of St John the Baptist Church, a Grade I listed building located in the village of Kirk Hammerton to the south of the site beyond the railway line. The view is glimpsed through some large mature off-site trees located beyond the site boundary. Another longer distance view is that of York Minster which is located approximately 15km east of the site.

Constraints and Opportunities

3.1 Although there are TPO trees and PROW designations located in the wider setting, beyond the Great Hammerton site boundaries, there are no landscape designations or policies which apply directly to the site.

3.2 Mature field boundary hedgerows, blocks of woodland and hedgerow trees, a water body, Kirkham Brook wetland corridor and the railway embankment, all provide key landscape features which form part of the existing Green Infrastructure and should be retained and enhanced where possible.

3.3 There is an opportunity to enhance the current condition of water courses and water bodies within the site in order to create wildlife rich habitats which will increase ecological value. These features can also be used as amenity assets to enhance recreational and educational value.

3.4 Views of St John the Baptist Church will be encouraged. Development will also be sensitive of views from the Church and the village towards the site.

3.5 The view of York Minster, although an iconic and historic building, is far in the distance and difficult to define, even from higher ground. Good visibility is very much dependent on weather conditions. However, it should be considered as a potential key long distance feature which could form part of an attractive setting.

3.6 Views of Green Hammerton village, which lies beyond the A59 to the north, are limited due to the dense structure planting along the A59 road corridor. There are however, glimpsed views of Green Hammerton including parts of the Conservation Area which can be seen from within the site and should be considered as part of the wider attractive setting.

Mitigation

3.7 There is considerable scope to enhance and extend the current Green Infrastructure within the development boundary to reinforce a green framework for a landscape led development. This can be achieved as follows:

- A comprehensive footpath / cycleway network linking green open spaces, parklands and play areas, should be woven into the fabric of the development with strong external connections linking to the wider infrastructure beyond the development boundary;
- Existing woodland copses can be extended to soften the woodland edges and integrate into the landscape setting;
- Existing hedgerows should be in-filled and reinforced with new native species to form stronger green boundaries and create wildlife corridors;
- New structural planting and hedgerow planting should be implemented to provide further green boundaries to development edges particularly where screening and softening of views is required from neighbouring roads and villages;
- Substantial green verges and off-set areas should be considered to soften visual and physical impact where existing residential areas or farmsteads occur;
- Open space grassed areas can provide opportunities for increased bio-diversity by using a variety of location appropriate grass mixes such as species rich grass, hedgerow edge species, flowering lawn and wildflower meadows;
- Seasonal bulbs and ornamental planting can be incorporated into Public Open Spaces to further attract bees and other pollinating insects as well as providing seasonal and visual amenity interest;
- Use of native trees and shrubs together with a wider variety of ornamental tree and shrub species will help to reduce mono-culture and other landscape detractors such as the existing conifer hedges at the plant nursery. Wider varieties of species can reduce the risk of tree disease spreading as well as increasing bio-diversity generally across the site;
- Kirkham Beck is proposed in a generous green wetland corridor with suitable riparian wetland flora planted to provide appropriate habitat and food sources for local wildlife.

3.8 All these elements provide key landscape features which help to define character and provide a robust and sustainable Green Infrastructure network.

Next Steps

3.9 The mitigation measures identified above will be further developed into a Green Infrastructure Framework, which highlights typologies which will inform a Site Wide Planting Strategy and the next iteration of the Masterplan.

3.10 Should the site be allocated a more detailed Landscape and Visual Impact Assessment will be prepared to accompany any future planning applications.

Summary

3.11 The Great Hammerton site currently has no national or local landscape designations attributed to it which would suggest the landscape is currently of low landscape value. Human influence and commercial expansion is evident particularly from Johnson Plant nursery.

3.12 Tree and woodland is sparse although characteristic of the wider rural and agricultural setting. However, large evergreen screen planting associated with the plant nursery is detrimental to the natural environment and offers little in terms of wildlife and amenity value.

There are therefore very few landscape constraints across the site. Views should be considered from both within the site looking outwards and from the neighbouring roads and villages where the visual impact of development will be most prevalent.

3.13 A landscape led development on this site should be considered as an opportunity to improve the current ecological and landscape amenity value in this area where large fields of singular crop production is more common place and of low ecological value due to the mono-culture of crop production.

3.14 Mature trees, specimen trees, mature hedgerows and hedgerow trees, field patterns, woodland blocks and water bodies should be retained, protected and enhanced where possible, as these elements provide instant structure within the landscape and help to evoke a sense of place which will inform the character of any future development in this area.

4.0 Flood Risk, Drainage and Utilities

Introduction

4.1 This chapter has been prepared by Weetwood Services Ltd (Weetwood), and assesses flood risk, surface water drainage and the provision of utilities at the Great Hammerton site.

Methodology

4.2 In preparing this chapter Weetwood has undertaken the following studies, as outlined below:

1 **Initial Appraisal of Flood Risk**: this assessment considered the risk of all sources of flooding at the site, including fluvial, surface water, groundwater and artificial sources;

2 **Preliminary Surface Water Drainage Strategy**: this reviewed the potential options for disposal of surface water as well as proposed discharge rates and potential attenuation storage locations, based on an assessment of ground levels. The strategy focuses on disposing of water in accordance with the principles outlined within the NPPF Planning Practice Guidance and adopted and emerging local policy, including saved Core Strategy Policy EQ1 and Harrogate District Draft Local Plan 2016 Policies CC1: Flood Risk and Sustainable Drainage, and CC2: Rivers..

3 **Preliminary Utilities Survey**: this included liaising with the relevant utility providers in order to ascertain the location and nature of the utility assets within/adjacent to the site. High level advice from the utility providers in respect to capacity and preferred points of connection was also obtained.

Baseline Conditions

Topography

4.3 According to LiDAR data, ground levels at the site are in the region of c. 20 metres to 50 metres Above Ordnance Datum (m AOD). Ground levels north of the A59 fall northwards, and ground levels south of the A59 fall east and west from the ridge located in the western half of the site.

Ground conditions

4.4 British Geological Survey (BGS) borehole records indicate that ground conditions at the site include Vale of York superficial deposits (glacial sand and gravels / sandy till) to depths of approximately 5m, with localised alluvial and peat deposits within the westernmost site area (associated with Kirk

Hammerton Beck). Alluvial deposits are also recorded to be locally present within the east of the site. Superficial drift deposits are locally absent.

Waterbodies in Vicinity of the Site

4.5 There are a number of surface water receptors within the vicinity of the site. Kirk Hammerton Beck flows in a south-easterly direction in the western part of the site. This is culverted beneath the railway bounding the southern of the edge of the site. The River Nidd flows in a north-easterly direction approximately 675 m east of the site. Kirk Hammerton Beck ultimately discharges into the River Nidd approximately 900 m south of the site. There is also an unnamed watercourse located adjacent to the northern boundary of the site.

4.6 The River Nidd is classified as a ‘main river’ and Kirk Hammerton Beck and the Unnamed Watercourse are both classified as an ‘ordinary watercourse’.

Flood Risk

4.7 According to the ‘EA Flood Map for Planning (Rivers and Sea)’ the site is located outside the 1 in 1,000 annual probability flood outline (e.g. Flood Zone 1, with the lowest risk of flooding).

4.8 The EA has advised that no modelled data is available for Kirk Hammerton Beck. It is therefore assumed that the flood outlines shown on the EA Flood Map are based on a national generalised modelling approach. Based on the LiDAR data and findings from a site visit, the road adjacent to Kirk Hammerton Beck (Gilsthwaite Road) is raised above the watercourse. It may therefore be expected for the flood risk posed by this watercourse to be relatively confined.

4.9 The site is not considered to be at risk of flooding from reservoirs, canals or other artificial sources. The majority of the site is considered to be at low risk of flooding from groundwater sources, with moderate to significant susceptibility in the eastern portion of the site.

4.10 The majority of the site is considered to be at very low risk of flooding from surface water. There are several isolated areas of medium to high risk in the east of the site.

Surface Water Drainage

4.11 There are several potential receptors for surface water drainage. Based on a desktop review, ground conditions are likely to be suitable for infiltration. This would therefore be the preferred option for disposal of surface water.

4.12 If infiltration is ultimately deemed to be infeasible, there are several watercourses that could potentially act as receptors for surface water.

Utilities

4.13 Northern Gas Networks has no gas mains within close vicinity of the site. The two closest feeds are at Flaxby Covert (440251, 457201), approximately 5 miles away from the site, and Upper Poppleton (455435, 453871), approximately 7 miles away from the site.

4.14 There are some existing Northern Powergrid electricity cables within the vicinity of the site, including a number of 11 kv lines crossing the site.

4.15 Yorkshire Water has some water and wastewater infrastructure within and adjacent to the site. BT Openreach and Virgin Media also have assets within vicinity of the site, including ducts within the A59.

4.16 In order to supply the site with electricity and gas, reinforcement of the existing networks will be required. Reinforcement will also be needed for the water and wastewater networks; the existing systems have been designed to cater for the existing settlements of Kirk and Green Hammerton, which do not currently have an onerous demand for services, so reinforcement would be expected.

Constraints and Opportunities Identified

Flood risk

4.17 Based on existing information, the site is considered to be at low risk of flooding from fluvial sources. The flood risk posed by Kirk Hammerton Beck will need to be fully quantified through detailed hydraulic modelling, including culvert blockage scenarios. The proposals will be designed appropriately in order to take account of this.

4.18 Appropriate easements will also need to be provided for Kirk Hammerton Beck. An 8 m easement would need to provided from the top of bank level.

4.19 There is a potential risk of surface water and ground water flooding in the eastern part of the site. Appropriate measures will be implemented to ensure that this risk is mitigated.

Surface Water Drainage

4.20 Given the scale of the proposals managing surface water in order to ensure that there are no increases in surface water flood risk off-site will be important. The proposals will offer the opportunity to adopt a sustainable approach to surface water management. The strategy will include Sustainable Drainage Systems (SuDS), and will offer a sustainable approach to management of both water quantity and water quality. The masterplan will need to provide adequate space for above ground attenuation features, and associated easements/maintenance strips.

Utilities

4.21 Given the scale of the proposals, and the lack of significant infrastructure within the vicinity of the site, the primary challenge facing the site is providing gas and electricity connections. Whilst both Northern Gas Networks and Northern Powergrid have advised that connecting to the gas/electric network will be costly, it is anticipated that providing a connection will be feasible.

4.22 With regard to potable water and wastewater whilst there is an existing network in vicinity of the site, capacity is an issue. However, reinforcement works would allow the site to be served by potable water and sewerage connections.

4.23 The lack of existing infrastructure also offers an opportunity for sustainable energy production to be incorporated as part of the proposals. This would reduce reliance on conventional energy sources and would reduce the carbon footprint of the development.

4.24 The options for renewable/alternative energies include connection to the Allerton Waste Recovery Plant. This plant is located approximately 5.5 km to the North West of the Great Hammerton Scheme. The plant, which will be operational in 2018, will take all the “black bag” waste from North Yorkshire and York, and will either recycle or ultimately convert the waste to energy. The plant will export 24 MW of electricity, the electricity will be partly generated by steam turbines, which means 100MW of heat energy is available in the form of hot water.

4.25 The hot water (between 130-100C) would be transported to Great Hammerton via insulated pipes, where it would link into a district heating system, via a local energy centre. The district heating network would then provide heat and hot water to homes using heat exchangers. It may be possible to extend this network into adjacent villages. It is anticipated that the cost of this energy would be below that of more conventional sources, and would be classified as low carbon as it is generated from the recycling of waste. In addition this arrangement would benefit the County Council, by providing additional revenue and increasing the efficiency of the Allerton plant.

4.26 In addition to this, water re-use and anaerobic digestion could be investigated as innovative ways of providing a sustainable approach to energy production and consumption at the site. Furthermore, Great Hammerton would also look to generate at least 50% of it electricity demand by using Photovoltaic panels supported by battery storage. It is likely that this zero carbon energy would be supplied to all houses, schools and businesses within the settlement at a significant discount to electricity coming from the national grid.

4.27 It should be noted that delivery of the reinforcement works and inclusion of alternative energies will also benefit the wider existing community, through improving services and adopting a sustainable approach to energy production.

4.28 The existing assets crossing the site will either need to be diverted, or undeveloped easements will need to be provided for the assets retained within the site.

Proposed Mitigation

4.29 From a flood risk perspective, it is envisaged that only minor mitigation measures will be required. This will likely consist of raising floor levels in accordance with the Building Regulation requirements, and providing an appropriate easement for Kirk Hammerton Beck (8 m from the top bank). This would be confirmed by the detailed hydraulic modelling study.

4.30 With regard to surface water drainage, a surface water drainage strategy will need to be developed in accordance with the principles outlined within the NPPF. This will need to be designed to cater for the 1 in 100 annual probability rainfall event with an allowance for climate change (20%/40%), and will need to ensure that existing discharge rates are not increased. Due regard will need to be given to local policy to ensure that the principles of the surface water drainage strategy comply with the requirements of the Lead Local Flood Authority (LLFA) and the IDB (as appropriate). Given the scale of the site, there will be no issues in terms of allowing sufficient land take for the necessary SuDS.

4.31 From a utilities perspective, the mitigation measures will consist of a combination of reinforcing/improving the local gas and electricity networks, as well as incorporating alternative sources of energy production within the proposals. Whilst there are costs involved, none of the costings to date suggest that they would impact on overall scheme viability. The new infrastructure will bring significant benefits to the existing community.

Next Steps

4.32 The initial work undertaken to date confirms that from a flood risk, drainage and utilities perspective there are **no significant issues** that would restrict development on the site or would render the proposed allocation unviable.

4.33 The next steps will include the following:

1 Preparation of a more detailed surface water drainage strategy to support any outline/ detailed planning applications, once the proposed layout has been refined further. This will need to be supported by detailed ground investigations, infiltration tests and topographic survey information. Consultation with the LLFA, Internal Drainage Board (IDB) and the EA will be needed to agree potential points of discharge and associated rates if infiltration is deemed infeasible;

2 Preparation of a full Flood Risk Assessment, including development of a detailed hydraulic model for Kirk Hammerton Beck; and

3 Further discussions with the utility providers, with reference to the latest masterplan. Options for renewable energy production (including EfW) will also be looked at in more detail.

Summary

4.34 Based on work undertaken to date, the site is considered to be at low risk of flooding from all sources, and there are a number of potential receptors for surface water disposal. Given the size of the site, there is ample space for the inclusion of SuDS principles, which will allow water quantity and quality to replicate existing conditions.

4.35 With regard to utilities, reinforcement works would allow connections to the gas and electricity networks; it is acknowledged that this would be costly. However, this could be pursued in tandem with the inclusion of sustainable energy sources as part of the proposals and as such it is envisaged that the development of the site is viable. The new infrastructure will bring significant benefits to the existing community

5.0 Ecology

Introduction

5.1 This chapter has been prepared by Baker Consultants Ltd.

Methodology

5.2 Baker Consultants has undertaken the following assessments in relation to the site:

- Desk-based study including written consultation with consultees and interrogation of online databases to identify statutory and non-statutory designated sites of nature conservation importance and records of protected and/or notable species;
- Phase 1 Habitat Survey to record the nature and extent of vegetation and habitats within and adjacent to the site; and
- Appraisals for protected and or notable flora and fauna.

5.3 This report summarises the results of the above assessments, describes features of ecological value found to be present and makes recommendations for further targeted surveys likely to be required should the development move forward to the planning application stage.

Baseline Conditions

Designated Sites

5.4 The desk study provided information on the designated sites listed below in Table 5.1. There are no designated sites within the Great Hammerton site boundary.

Table 5.1. Designated Sites within 2km search

Name	Status	Location/distance from the site
Auber Ings	SSSI	SE 453538 (2km)
Sky Dyke Willows	Local Wildlife Site	SE 429553 (1.8km)
Tockwith Ings	Local Wildlife Site	SE 467546 (1.2km)

Habitats

5.5 The habitat types recorded on site during the Phase 1 Habitat Survey are described in turn below.

Arable

5.6 The site as a whole consists of large areas of arable land supporting crops or rye-grass leys. However, there are neutral grass margins along some of the field boundaries which may support a number of grass/forbs.

Grassland

5.7 Large areas of improved pasture are also present within the fields, particularly to the west of Parker Lane and to the north of the A59. The grassland is currently grazed by sheep and horses.

Arable margins

5.8 The site occasionally supports linear strips of grassland that would be classed as arable margins. This includes the section of 'Bernard Lane' to the north of the southern parcel, the block of neutral and marshy grassland in North Field to the south-east, the grassland to the east of the site and the margins around High Pricka Field to the north of the A59.

Boundaries

5.9 Hedgerows are a common feature across the whole site bounding the arable fields, pasture fields and gardens. Some of them are species-rich. The hedges vary in condition with some defunct whilst others are well managed and continuous.

Woodland and Scrub

5.10 There are small areas of plantation deciduous and mixed woodland copses within the site boundary. There is also linear mixed woodland that is present along the A59. Woodland situated internally within the site (largely) support canopy, understory and occasionally shrub layers, providing valuable habitat to a wide range of species. Common occurring woodland species include pedunculate oak *Quercus robur*, ash *Fraxinus excelsior* and sycamore *Acer pseudoplatanus*.

5.11 There are occasional scattered mature trees in hedgerows particularly to the west of Parker Lane. Scrub habitat is also present in places close to the A59 or along the railway embankment.

Tall ruderal and herbaceous vegetation

5.12 Tall ruderal vegetation is scattered across the site, particularly along the railway, hedgerow bottoms and woodland boundaries. Species consist of thistles, docks, umbellifers and willowherbs.

Species

5.13 Species Records from the desk study are summarised below, together with field survey data.

Badgers

5.14 The North and East Yorkshire Ecological Data Centre returned four records of badgers dated between 2014 and 2002 for within the 2km search area. The most recent of these was recorded in Kirk Hammerton. No records were returned for within the site.

5.15 There were field signs found during the survey that could indicate that badgers use the site for foraging, particularly along hedgerows. A potential badger sett was located to the north of A59 and a further mammal hole (fox or badger) was found to the east of Kirk Hammerton Lane.

Bats

5.16 The North and East Yorkshire Ecological Data Centre returned 13 records of bats dated between 2014 and 2015, for at least five different species of bat for within the 2km search area. No records were returned for within the site.

5.17 The site offers a moderate habitat value for commuting and foraging bats. It is considered possible that there will be bat roosts present within the mature trees and buildings within the site and that they would use the high number of hedgerows on site for foraging and commuting.

Otter

5.18 The North and East Yorkshire Ecological Data Centre returned 37 records of otter dated between 1991 and 2008. The closest record returned came from the River Nidd south of Kirk Hammerton approximately 1km from the site. Kirk Hammerton Beck may be used as a commuting route for otters as it is connected to the river.

Water Vole

5.19 The North and East Yorkshire Ecological Records Centre returned 14 records of water vole dated between 1989 and 2003. The closest record was from the River Nidd approximately 1km south of the site. Kirk Hammerton Beck may be used as a commuting route for otters as it is connected to the river.

Amphibians

5.20 The North and East Yorkshire Ecological Data Centre returned seven records of great crested newt dated between 1984 and 2004. These records were all returned from Whixley Hospital, approximately 0.3km west of the site (SE44566).

5.21 An adult common toad was noted within a small pocket of woodland in the north-east of the site. Other areas of the site surveyed contained scattered ephemeral waterbodies. These waterbodies were found to be dry during the Phase 1 Habitat Survey. Maps indicate further waterbodies exist in areas on site (within the nursery).

Reptiles

5.22 There are no records for reptile species within the area.

5.23 The site provides opportunities for reptile species such as grass snake and slow worm. Areas close to the commercial plant nursery, as well as dung heaps, field margins and railway margins, offer suitable foraging and basking opportunities.

Birds

5.24 The North and East Yorkshire Ecological Data Centre returned 8 records of notable bird species dated between 2011 and 2004. These records included one record of skylark (2004) which is listed as Red on the birds of conservation concern (BoCC) list. Five other records were for Amber BoCC species.

5.25 The site provides a range of opportunities for breeding birds. These include farmland birds, raptors, and ground nesting birds.

5.26 Birds observed during the Phase 1 survey included:

- carrion crow;
- buzzard;
- yellowhammer;
- woodpigeon;
- wren;
- blackbird;
- red kite;
- song thrus;
- goldfinch;
- robin;
- dunnock;
- kestrel;
- lapwing;
- greenfinch;
- blue tit;
- great tit;
- long-tailed tit;
- lesser black-backed gull;
- herring gull;
- black-headed gull;
- sparrowhawk;
- swallow;

- linnet;
- house sparrow; and
- tree sparrow.

Invertebrates

5.27 Grassland areas are considered likely to provide habitat for a wide invertebrate assemblage. During the survey butterflies, such as large white *Pieris brassicae* and painted lady *Vanessa cardui* were seen, along with day flying moths. Dragonfly and bee species were also observed.

Plants

5.28 The grassland habitats are unlikely to offer any rarities for the area.

Invasive Species

5.29 The railway line, to the immediate south of the Site boundary has the potential for invasive species to be present, such as Japanese Knotweed, but no stands were observed during the survey.

Constraints and Opportunities Identified

5.30 The habitats on site have the potential to support protected species such as farmland bird assemblages, bats, amphibians, badgers and other mammals, and invertebrates. The proposed development would result in a loss of open countryside and would be replaced by a built-up environment. This will result in the loss of the current field pattern. However, the improved pasture and arable farmland is intensively managed and is considered to be of relatively low ecological value, therefore, there is scope for the scheme to retain existing features on the site, and linking them to newly created habitats.

5.31 Overall, it is considered that the proposed development will be able to mitigate for, and enhance biodiversity. The scheme will allow for any protected species present to be mitigated for appropriately so that populations remain at a favourable conservation status. This will be achieved through the careful design concept of the proposals by retaining and creating new features which will be managed for wildlife gains. This includes aquatic and wetland habitats such as swales, and ponds; green open space; and well-designed green infrastructure.

5.32 Habitats within the land parcels to the north and south will be connected and no longer fragmented by the A59. These features will be connected through the site and out to the surrounding habitats and landscape through hedgerow retention, new habitat creation, planting and grasslands. Together with urban areas to include features such as species specific boxes, and a garden resource, these measures will ensure net gains in biodiversity and opportunities that are currently absent.

Proposed Mitigation

5.33 Mitigation will be put forward as part of the scheme. This will largely be incorporated into the design and layout of the scheme. Newly created habitats will be managed effectively for wildlife, and will contribute to Local Biodiversity Action Plans. The site will include species specific mitigation and management measures, particularly for protected species.

5.34 Generally, the site biodiversity objectives will include the following:

- Retention of habitats of nature conservation value wherever possible;
- Enhancement of existing poor quality habitat to improve their value;
- Creation of new habitats within the development;
- Conservation of protected and notable species; and
- Implementation of a biodiversity management and monitoring plan.

Next Steps

5.35 The assessments undertaken have provided a baseline of ecological information to describe the main characteristics of the proposed development site. To fully assess the potential ecological impacts of the proposed development, further survey is recommended for the following habitats and species:

- Bats
- Water voles/otters
- Amphibians/ great crested newts
- Reptiles
- Breeding birds
- Winter birds
- Badgers

5.36 These surveys will provide more detailed information and allow mitigation measures to be finalised. However, it is not envisaged that the surveys will reveal any significant issues that would restrict development of the Great Hammerton site.

Summary

5.37 An extended Phase 1 Ecological Survey of the site has been completed and the area has been found to be of low conservation value. There are pockets of habitat which may support some interest, such as hedgerows, arable margins, ephemeral ponds, scrub and tall herbaceous vegetation, but these are limited in area considering the size of the site. Given the current low ecological value of the site there is the potential for the development to secure net gains for biodiversity.

5.38 Further surveys have been recommended to confirm the findings of the Phase 1 Survey. If protected species are found, then it is expected that any impacts can be fully mitigated.

5.39 The framework masterplan prepared to date includes design features such as substantial Sustainable Urban Drainage, linear woodland plantation along the railway, landscaping on the northern boundary of the site, together with pocket parks and planting, all connected throughout the site. New grassland and aquatic habitats will be managed for wildlife as well as the built up urban areas to include features such as species specific nest boxes and a garden resource that will go towards achieving biodiversity enhancement and retaining habitats of nature conservation value.

6.0 Heritage

Introduction

6.1 This chapter has been prepared by Northern Archaeological Associates Ltd.

Methodology

6.2 This Chapter provides a summary of a desk-based assessment report prepared by NAA (NAA16/156), which has reviewed North Yorkshire Historic Environment Record (NYHER) data, published data and information, grey-literature and online sources. A site visit has also been undertaken.

6.3 The aims of the desk-based assessment were to:

- produce a baseline description of known relevant archaeological assets within and surrounding the site for a defined radius of 1km distance;
- assess the potential for previously unrecorded archaeological assets to be located within or adjacent to the site boundary;
- identify those heritage assets within or adjacent to the proposed development whose significance could be impacted upon by the proposed development;
- assess the potential impact of the proposed development on the significance of the affected assets; and
- identify any heritage assets that would constitute a significant constraint to the proposed works.

Baseline Conditions

6.4 There are no World Heritage Sites, Scheduled Monuments, Registered Battlefields or Historic Parks and Gardens within 1km of the Site. The closest scheduled monument is Cattal Bridge, 1.9km to the south.

6.5 One listed building, a Grade II listed milepost on the A59, lies adjacent to the western site boundary, while a second listed building and a Grade II signal box at Kirk Hammerton Station lies adjacent to the south-eastern site boundary. Providence House, also Grade II Listed, is c. 100m to the north-west of the site boundary. The Green Hammerton Conservation Area is located c. 100m to the east and north of the site boundary and Kirk Hammerton Conservation Area is located 250m south of the site boundary. Both contain a small number of listed buildings (seven and four respectively). The Church of St John the Baptist in Kirk Hammerton is listed Grade I and the other are Grade II. Whixley and Cattal Conservation Areas lie some 860m to the north-west and 1.5km to the south-west respectively.

6.6 There are no undesignated heritage assets located within the site boundary. A review of the historic mapping and LiDAR data has not indicated any previously unrecorded archaeological or heritage features within the site boundary. The historic field boundaries within the site appear to have been a later 19th and 20th century construct, with the railway line and the A59 road both shaping the fields and field boundaries surrounding them.

6.7 Two Roman Roads bound the site, with Dere Street (the road from York to Aldborough) passing to the north-east of the site and Rudgate bounding the western edge of the site. The two Roman Roads converge to the north-east of Whixley. Within the wider area, a roadside settlement has been discovered at the point where the Dere Street crosses the River Nidd c. 820m to the east of the proposed site. Two further archaeological sites of possible Romano-British date have recently been identified during investigations ahead of housing developments, at Bernard Green and Green Hill, both on the fringes of Green Hammerton.

Constraints and Opportunities Identified

6.8 The assessment has established that whilst there are no known archaeological sites located within the area of the proposed site, it is considered possible that some archaeological remains of Iron Age and Roman/Romano-British date may exist within the area. However, significant remains are likely to have been focussed around the road side settlement close to the crossing of the River Nidd and the junction of Dere Street and Rudgate. The area within the proposed site is likely to have been within the agricultural hinterland. Consequently, it is anticipated that any impact would affect only archaeological assets of low importance.

6.9 The proposed development will sit between the Green Hammerton and Kirk Hammerton Conservation Areas but will incorporate a substantial separation between each.

6.10 Green Hammerton Conservation Area is centred along the Village Green on the northern edge of the village. Key views are predominantly within the village, although the appraisal highlights there are significant views of the ‘open’ countryside from The Green to the west, connecting the village with its surrounding arable landscape towards the proposed site. However, there are intervening fields, hedgerows and the B6265 road between this viewpoint and the proposed site. Whilst development will potentially impact on character, some key views and the wider setting of the Conservation Area, sympathetic and sensitive design will reduce any impact to less than substantial harm.

6.11 Kirk Hammerton Conservation Area lies to the south of the proposed area, with the railway and fields separating the two. The Conservation Area is centred on the Anglo-Saxon church and Kirk Hammerton Hall, which are important visual landmarks within the village. The key attributes of the Conservation Area are the layout of the village, Kirk Hammerton Beck which runs through the village and the main road running through the village. Key views are largely within the

village, with one from Parkers Lane looking out to the northwest over the area of the proposed development. This view is hindered by the railway line which bisects the fields here, which offers some degree of physical separation. Again, it is considered that sympathetic and sensitive design will reduce any impact to less than substantial.

6.12 The assessment has identified a key view described within the York Central Conservation Area Appraisal, that of a long distance view from the A59 on Coney Garth Hill towards the centre of York. The topography of the area means that there is little to interrupt this view although local flora requires some management. The development of this area allows the opportunity to retain this long distance view.

6.13 The setting of both the Grade II listed milepost at the western edge of the site and Providence House are likely to be affected due to the proximity of the development area to these designated sites. However, the realignment of the A59 may actually bring about a beneficial impact, moving the busy road away from these listed structures, reducing the noise and pollution, thus offsetting the potential alterations to the surrounding landscape. Overall it is considered that the development would result in less than substantial harm.

6.14 There is no anticipated impact on views to or from Marston Moor, the nearest Registered Battlefield, which, at 2.5km distance, is sufficiently removed to be unaffected.

6.15 No substantial impact is anticipated on Whixley or Cattal Conservation Areas. Appropriate design and planting should further reduce or remove any harm to the setting of these assets.

Proposed Mitigation

6.16 The development of the proposed site would incorporate measures to protect and complement the setting of the Conservation Areas and key views. The design of the new settlement will reflect the character and attributes of Green and Kirk Hammerton, with materials and design layout being based on the Conservation Area Appraisals. The degree of separation would be strengthened by planting and buffers increasing the degree of separation. This is an appropriate level of mitigation by design.

6.17 The impact of the proposed development on the Green Hammerton and Kirk Hammerton Conservation Areas would be managed through the master planning process, in consultation with the Harrogate Conservation Officer. This would ensure that the new development makes a positive contribution to the local character and distinctiveness of the surrounding villages, drawing on identified opportunities to enhance the historic environment and bring wider social and economic benefits. High quality design and layout along with use of local materials is intended to offset any effects on setting, with planting and green spaces between the existing and proposed settlements to ensure any harm is less than substantial.

6.18 The potential relocation of the A59 road would allow the retention of the key long distance view towards York city centre and views of the Anglo-Saxon tower of Kirk Hammerton church. This will also reduce the noise pollution affecting Green Hammerton as described within the Conservation Area Appraisal. This would maintain the view, with designs allowing openings in planting to preserve the viewpoint.

6.19 Any proposed development of the area would see comprehensive archaeological investigations to establish the extent of the assets within the site, which would feed into the design layout of the development and further understanding of the landscape and its history.

Next Steps

6.20 The next step will be to undertake a geophysical survey of the area, which would provide a better understanding of the presence of archaeological features, allowing the North Yorkshire Planning Archaeologist to determine what level of archaeological mitigation is required and for the design team to incorporate any archaeologically significant findings into the design scheme, thus in effect preserving them.

Summary

6.21 The desk-based assessment has determined that there are no designated or undesignated assets within the site boundary. A number of undesignated assets are recorded within the vicinity including two Roman Roads and a Roman roadside settlement. The proposed development lies close to both the Green Hammerton and Kirk Hammerton Conservation Areas, but in each instance there is a substantial buffer area in between.

6.22 It is considered that any potential impacts on the setting of the adjacent Conservation Areas can be mitigated through design and use of local materials, reducing any impact to less than substantial harm. Potential impacts on potential below ground archaeology can be mitigated through design and a programme of appropriate archaeological recording.

6.23 The proposed realignment of the A59 will bring improvements to the setting of the Grade II listed milepost and Providence House and a reduction in the noise pollution from the road on Green Hammerton Conservation Area.

7.0 Ground Conditions

Introduction

7.1 This chapter has been prepared by Sirius Geotechnical & Environmental Ltd (Sirius).

Methodology

7.2 A Geoenvironmental Desk Top Study Report (Ref. C7147) analysing the Great Hammerton site, was completed in November 2016. The Geoenvironmental Report was compiled following a review of information provided by the Landmark Information Group, the British Geological Survey (BGS), the Local Authority, and online information available from the Environment Agency (EA) and Coal Authority. A site walkover survey was completed as part of the desk top study.

7.3 **Baseline Conditions**

7.4 The site covers an area of approximately 174 hectares and comprises predominately arable agricultural land (with associated hedgerows and mature trees), with several farm houses / residential properties, and a large horticultural nursery located within the west / southwest (named as Johnsons of Whixley). A small historic landfill is located in the central part of the site, partly in the location of a former sand pit. The landfill was in operation between 1989 and 1990, for the reported disposal of excavation wastes associated with the construction of the A59.

7.5 The central area of the site lies at approximately 50m AOD, sloping down gently to approximately 30m AOD in the north, south and west, and 20m AOD in the east. Kirk Hammerton Beck crosses the southwestern corner of the site, in an approximate northwest-southeast orientation, flowing to the east.

7.6 Historically the site has generally remained in use as agricultural land from the earliest available Ordnance Survey map examined. An ‘old pit’ was shown on plans dating from 1852 within the central northern site area, later known to have been used for localised sand extraction. A ‘sand hole’ is evident on historical plans dating from 1893 within the north of the site (later noted as a ‘sandstone quarry’ on the BGS plan for the site). Development of the existing nursery within the west of the site began in the early 1900’s, which has since been expanded and developed to the present day nursery.

7.7 Current and historical site land use has been, in the main, of low contamination potential. Exceptions to this, which are limited in extent, are the aforementioned historic landfill, and other potential point sources of contamination, including fuel storage/use in Johnsons Nursery, backfilled ponds/pits and a works in the south east.

7.8 Ground conditions are anticipated to comprise localised made ground associated with former infilled ponds / pits, the historic landfill, the horticultural nursery and A59 highway construction. Shallow natural soils are anticipated to comprise Vale of York superficial deposits (glacial sand and gravels / sandy till) to depths of approximately 5m, with localised alluvial and peat deposits within the westernmost site area (associated with Kirk Hammerton Beck). Alluvial deposits are also recorded to be locally present within the east of the site. Superficial drift deposits are locally absent. Superficial deposits (where present) directly overlay Sherwood Sandstone, proven to a depth of approximately 50m.

7.9 The site lies partly within a draft Category B Surface Minerals Safeguarding Area.

Constraints and Opportunities Identified

7.10 Ground conditions are not expected to cause significant constraints to the proposed development.

7.11 Contaminant linkages are possible to a variety of receptors, although risk is limited to areas of backfilled pits, the historic landfill, and processes associated with the existing nursery. Much of the site may be regarded as 'greenfield' with likely negligible contamination impact.

7.12 A potential risk from hazardous gas sources exists, associated with areas of possible deep made ground, and marsh gases associated with localised alluvial soils and peat. However, according to the BRE, radon protective measures are not required for the site. Mitigation measures, set out below, will address this risk adequately.

7.13 Deep fill/poorly consolidated soils and/or contamination, may locally have an impact on development.

7.14 The site lies partly within a draft Category B Minerals Safeguarding Area. This does not preclude development, but will require additional investigations ahead of development commencing.

Proposed Mitigation

7.15 At this stage it is considered likely that spread foundations (strip / trench fill) may be possible across the majority of the site, taken into natural soils of adequate bearing capacity, protected / deepened where affected by trees.

7.16 Development of the localised areas of deep fill/potential poorly consolidated soils and/or contamination, should be readily achievable through alternative foundation solutions (ie piles, vibro columns), and standard engineering practices to address any contamination, such as gas protection measures in buildings and clean capping to garden/landscaped areas.

Next Steps

7.17 The Geoenvironmental Report demonstrates that there are no significant ground conditions or contamination risk, which would preclude development in any part of the site. Further geoenvironmental investigations are therefore not required until the detailed design stage of development. At that stage a ground investigation will need to be undertaken. This will include trial pitting and window sampling / cable percussive drilling to establish ground conditions, allow installation of gas/groundwater monitoring wells and to enable soil and groundwater samples to be collected for both geotechnical and chemical analysis.

7.18 In-situ infiltration tests should be completed to derive infiltration rates, in order to aid drainage design.

7.19 A site specific mineral assessment will be undertaken (requiring specific targeted ground investigation) at the appropriate time in order to assess the potential for mineral extraction and to demonstrate that any minerals at the site have insufficient economic value and therefore do not represent an exploitable resource.

7.20 A pre-demolition asbestos survey should be undertaken prior to any demolition works.

7.21 **Summary**

7.22 Ground conditions are not expected to cause any significant constraints to the proposed low rise development at the site. Where localised areas of contamination/poorly consolidated soils are found (e.g. the historic landfill) standard construction practices (e.g. deep foundations, capping to gardens/landscaped areas, and passive gas protection) are anticipated to be adequate to address soil conditions.

7.23 To assist with design of a development scheme, a ground investigation will need to be undertaken.

8.0 Summary and Conclusions

8.1 This Report has been prepared on behalf of Commercial Estates Group in relation to the Harrogate Council Draft Local Plan 'New Settlement Option 2' (Site Ref GH11) (Hammerton).

8.2 A number of technical assessments of the Great Hammerton site have been undertaken, which consider access and movement, landscape, flood risk, drainage and utilities, ecology, heritage and ground conditions. This Report has summarised the findings of these technical assessments.

8.3 The technical assessments identify limited constraints to development and where appropriate and necessary mitigation to overcome these constraints. None of the constraints identified will restrict development or make it unviable.

8.4 Opportunities have also been identified through the technical assessments. Such opportunities include:

- Improving road safety on the local highways network;
- Improving accessibility to the existing train stations from Green Hammerton;
- Enhancing the existing train stations with the potential to provide park and ride facilities and one combined station in the future;
- Potential to realign the A59 to avoid severance between the new settlement and Green Hammerton;
- Potential to bring in new infrastructure, including gas/electricity, renewable energy to the benefit of new and existing residents;
- Ecological betterment through the creation of new habitats; and
- Reduction in noise and air pollution to the benefit of the Green Hammerton Conservation Area.