
**Representations to the South Kesteven Local Plan
Review (Draft Plan – Additional Sites Regulation 18)
Consultation**

Land to the North of Belton Lane, Great Gonerby

On behalf of Strata

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1. Introduction

- 1.1. Between February and April 2024, South Kesteven District Council (“SKDC”) sought views on a Regulation 18 - Local Plan Review Consultation (“2024 Draft Plan”). The draft Local Plan included a vision and objectives, new spatial strategy, site allocations, and development management policies.
- 1.2. Consultation on this Regulation 18 – Proposed Housing and Mixed-Use Site document is now taking place between June and August 2025 and represents a more focused consultation, published specifically to seek comments on the following matters
 - New proposed housing trajectory targets.
 - Sustainability Appraisal addendum.
 - Updated Gypsy and Traveller requirements.
 - Removal of certain allocations.
 - Additional proposed allocations.
 - Amendments to site capacities.
- 1.3. The reasoning behind Regulation 18 – Proposed Housing and Mixed-Use Site document is that in December 2024, the government published a revised National Planning Policy Framework (“NPPF”), introducing changes to how local housing need is calculated. These changes have significantly increased SKDCs annual housing requirement from 701 dwellings (as previously published in the 2024 Draft Plan) to 886 dwellings per year, an uplift of 185 dwellings. Consequently, the minimum housing requirement for the revised plan period (2023–2043) is now 17,720 dwellings, compared to 14,020 dwellings set out in the 2024 Draft Plan. This increase has required South Kesteven District Council to revise its options for site allocations and to identify additional sites for residential development.

Strata

- 1.4. Marrons are instructed by Strata to prepare and submit representations to the South Kesteven District Council Regulation 18 - Proposed Housing and Mixed-Use Site Allocations document. Strata are promoting the site **Land to the North of Belton Lane, Great Gonerby** (“the Site”) for residential development. The Site is referenced and has been assessed under the code SKPR-290.

- 1.5. For context, Strata is a family-run homebuilder with roots dating back to 1919. Operating primarily across Yorkshire and the East Midlands, the company delivers up to around 700 homes annually from its Doncaster headquarters. With a century-long heritage, a modern design ethos, strong customer advocacy, and a culture of inclusivity Strata is a well-established and respected name in the UK housebuilding sector.

Site Context

- 1.6. By way of background, the Site and accompanying supporting representations were submitted to the 2024 Draft Plan consultation. It was not included or assessed as part of the previous 2024 Draft Plan consultation, due to the timing of its submission.
- 1.7. The representations were accompanied by a Promotion Document (**Appendix 1**), which demonstrated that the Site represents a logical and deliverable extension to Great Gonerby, directly adjoining the existing settlement to the north. The Promotion Document also showed how the site could deliver high-quality, contextually appropriate new homes alongside much-needed transport infrastructure, providing benefits that extend beyond the village and support the wider South Kesteven District.
- 1.8. In addition, a Transport and Travel Assessment prepared by BWB (**Appendix 2**) accompanied the representation to the 2024 Draft Plan consultation. The assessment considered the potential to provide safe and suitable access for all users, the capacity of the highway network to accommodate additional traffic without significant congestion or safety concerns, and the site's sustainability credentials, including opportunities to connect to existing off-site infrastructure to promote active travel.
- 1.9. Notwithstanding this, the Land to the North of Belton Lane, Great Gonerby has not been proposed for allocation. This is surprising given the District's acute housing need (recently increased following changes to the Standard Method), the absence of significant site constraints, the site's sustainable location within Great Gonerby (one of the highest-scoring Larger Villages), and clear evidence of both technical and commercial deliverability. In addition, the site offers a unique opportunity to deliver a bespoke solution to the B1174/Belton Lane junction through a potential link road, helping to address existing peak capacity and visibility issues which are acting a barrier to growth within the wider area.

Structure

1.10. Strata submits these representations to the Regulation 18 – Proposed Housing and Mixed-Use Site document and its evidence base, with a particular focus on Land to the North of Belton Lane, Great Gonerby. They confirm ongoing support for the promotion and development of the site and consider that the proposal aligns with SKDCs approach that development should be focused on villages with good levels of services and facilities as established in the 2024 Draft Plans Vision and Objectives.

1.11. The structure of this representation will follow the format set out below. It is understood that the Council's focus is solely on the proposed housing and mixed-use allocations Accordingly, this representation will

- Provide comments on the housing requirement, spatial strategy and SA Process
- Address site-specific matters relating to the land north of Belton Lane Great Gonerby, including commentary on the supporting evidence base.
- Conclusion of the representation

2. The Housing Requirement, Spatial Strategy and SA Process

- 2.1. Through the current consultation, South Kesteven District Council (SKDC) proposes to allocate some 3,622 additional dwellings. This reflects an uplift in local housing need, recalculated using the Standard Method, from 701 dwellings per annum to 886 dwellings per annum.
- 2.2. Although not expressly stated in the Regulation 18 - Proposed Housing and Mixed-Use Site Allocations document, the base date of the Plan has also been reset from 2021 to 2023, and the end date extended from 2041 to 2043.
- 2.3. The current consultation seeks views only on the additional allocations identified following the earlier 2024 Draft Plan consultation. Its focus, and that of the accompanying evidence base, is therefore limited to those new sites. Critically, the LPR is silent on the housing requirement itself and on the strategic distribution of growth across the District.
- 2.4. This omission is material. The 2024 consultation was based on a significantly lower housing requirement and a different distributional strategy. The current draft now proposes a substantially larger quantum of housing, in different locations, yet no updated consideration of the overarching strategy is presented through this current consultation or its evidence base, including the Sustainability Appraisal addendum (SA).
- 2.5. It is acknowledged that the SKDC must respond to the revised “stock-based” Standard Method. However, national policy is clear that the local housing need figure is a starting point. The PPG confirms that:

*“Housing need is an unconstrained assessment of the minimum number of homes needed in an area. Assessing housing need is the first step in the process of deciding how many homes need to be planned for. **It should be undertaken separately from assessing land availability, establishing a housing requirement figure and preparing policies to address this such as site allocations.**”*
- 2.6. Notwithstanding this, SKDC has conflated local housing need with the housing requirement. Whilst the Council has produced a Local Housing Needs Assessment (2023), (LHNA) this relates to the earlier Standard Method and a different Plan period. No updated evidence has been produced to demonstrate what the Plan’s requirement should be, or why the proposed figure is justified when assessed against reasonable alternatives.

2.7. Strata deem that there are clear reasons why the housing requirement could, and should, exceed the minimum local housing need. In South Kesteven, these include:

- **Alignment of homes and jobs:** SKDC is seeking to provide for significantly more employment land than the Employment Land Study recommended. No analysis has been undertaken to demonstrate whether the housing numbers proposed will support the Council's economic strategy.
- **Delivery of affordable housing:** the PPG requires affordable housing need to be considered and in the context of mixed market and affordable provision. Increasing the overall housing requirement may be necessary if the District is to secure the total affordable homes required.

Alignment of Homes and Jobs:

2.8. SKDCs overall strategy for employment growth remains unaltered by the present consultation. The Employment Land Study (2023) identified a requirement for 79.5 hectares of additional employment land beyond existing commitments. By contrast, SKDC is proposing to allocate some 338 hectares across the District, a quantum significantly in excess of identified need, but one which nonetheless seeks to capitalise on the Council's ambitions to reduce out commuting and deliver economic growth.

2.9. To date, no evidence has been provided to demonstrate that this increased level of employment growth will be matched by the scale of housing proposed over the Plan period, or that sufficient new homes will be delivered to support the number of jobs anticipated. Ensuring such alignment is critical to achieving sustainable patterns of development and reducing out-commuting,

Delivery of Affordable Housing:

2.10. The LHNA identifies an annual affordable housing need of 402 dwellings, equivalent to 45% of the annualised housing requirement of 886 dpa. However, as noted above, the LHNA has not been updated to reflect the revised base date or extended Plan period and therefore likely underestimates the true scale of affordable housing need.

2.11. Even against that lower figure, delivery is falling far short. Government statistics record an average of only 120 affordable completions per annum or less than one-third of objectively assessed need. Policy H2 of the adopted Local Plan (2020 -2036) requires 30% affordable provision on qualifying sites (reduced to 20% in the Grantham urban area), but the

Council's reliance on Grantham as the primary focus for growth, in a weaker housing market makes it improbable that delivery will approach the level required.

- 2.12. Despite this, the current consultation makes no attempt to consider whether the housing requirement should be increased in order to deliver the number of affordable homes needed.

Spatial Strategy

Settlement Hierarchy:

- 2.13. The Regulation 18 – Proposed Housing and Mixed-Use Site document evidence base includes an updated Settlement Hierarchy Review dated May 2025. It is unclear whether the Council is seeking views on this evidence given that it post-dates the last consultation and, moreover, the recommended hierarchy does not appear in the Consultation Document.
- 2.14. Strata are of the opinion that there are clear differences in the relative sustainability credentials of the larger Villages which should reasonably inform the settlement hierarchy.
- 2.15. For example, Great Gonerby is the one of the highest scoring Larger Villages within the with updated Settlement Hierarchy Review with excellent connectivity and links to the 'Sub Regional Centre' of Grantham and the Gonerby Moor Interchange providing for easy access to nearby services, facilities, higher education and job opportunities. These factors strengthen its credentials as a sustainable location for growth, yet the current consultation and evidence base do not reconsider the appropriateness of the hierarchy in light of such differences when compared to other Larger Villages across the district.

Spatial Distribution:

- 2.16. Despite these concerns, we acknowledge that the settlement hierarchy itself provides a broadly appropriate framework for the distribution of growth. However, the Council does not appear to have applied it when determining the spatial apportionment of housing. The sole exception is the decision to allocate further significant growth at Grantham. Yet even here, serious questions of deliverability remain given long-standing commitments which have failed to materialise.
- 2.17. Elsewhere, the Regulation 18 – Proposed Housing and Mixed-Use Site document directs around 1,000 dwellings to the Deepings, despite it being the smallest of the Market Towns

and already carrying a significant undelivered commitment from the adopted Local Plan (2020).

- 2.18. The current consultation also proposes substantial allocations of approximately 1,000 dwellings across the larger villages. Strata are supportive to the principle of growth in such locations, such as Great Gonerby. However, it is believed that the scale proposed is disproportionate to the role and function of these settlements across the hierarchy, and risks generating a less sustainable pattern of development. For example, Great Gonerby, given its score in the updated Settlement Hierarchy Review and links to Grantham is identified as more sustainable than Baston a much lower scoring village. Baston is being targeted for the allocation of 282 units whereas Great Gonerby has been allocated only 86 through the site Off Church Lane (SKPR-241). This therefore demonstrates disproportion in terms of the spatial distribution around the Larger Villages which does not reflect the Settlement Hierarchy scoring.
- 2.19. Crucially, SKDC provides no explanation of its approach to the spatial strategy in light of the changes to overall housing numbers. Instead, the selection of site allocations appears to have been undertaken in advance of, and in isolation from, any coherent appraisal of spatial options. This reverses the logical sequence of plan-making.
- 2.20. Overall, a strategy that focuses a significant amount of growth within Grantham (despite deliverability challenges) and substantially increases growth in the smallest Market Town (The Deepings) and within the lesser scoring Larger Villages cannot credibly be regarded as delivering a sustainable pattern of growth.

Sustainability Appraisal

- 2.21. The SA underpinning the LPR is legally deficient and fails to comply with the requirements of the SEA Directive (2001/42/EC) and the Environmental Assessment of Plans and Programmes Regulations 2004.
- 2.22. The case law is clear on what compliance requires. In Save Historic Newmarket Ltd v Forest Heath DC [2011] EWHC 606 (Admin), Collins J confirmed that:
- The public must be presented with an *accurate picture* of what reasonable alternatives existed to the proposed policies and why they were not the preferred option.

- The Environmental Report and the draft Plan must operate *together*, enabling consultees to understand each in the light of the other.
- While it is legitimate for alternatives to be ruled out before the final draft plan, the Environmental Report must still refer to, summarize or repeat the reasons given for rejecting those alternatives, and those reasons must remain valid.

2.23. These principles are not followed here. The current consultation does not set out, appraise, or explain any reasonable alternatives to the chosen spatial strategy or the housing requirement. In fact, the approach to the spatial strategy and housing requirement is entirely left to be inferred by respondents. Instead, the consultation document is little more than a list of additional allocations, with no corresponding assessment of alternative strategies or growth distributions. The SA does not operate alongside the Regulation 18 – Proposed Housing and Mixed-Use Site document where major changes in housing need, plan period, and allocations have been introduced which are not reflected within the SA process.

2.24. Similarly, in Heard v Broadland DC [2012] Env LR 23, Ouseley J held that the failure to properly assess reasonable alternatives rendered the Joint Core Strategy unlawful. The Court found the SA deficient because:

- Alternatives were not assessed on the same basis as the preferred option (para. 54).
- No explanation was provided for the selection of alternatives, nor reasons for their rejection (paras. 61 and 66).
- There was no proper cross-reference to other documents where such analysis could be found.
- A purposive interpretation of the SEA Directive requires an outline of the reasons for selecting the preferred option — and these were missing (paras. 69–70).

2.25. The same deficiencies are evident here. The SA accompanying the current consultation provides no proper assessment of spatial alternatives, no explanation of why the selected allocations were preferred, and no clear reasons for rejecting other reasonable options (such as additional growth within more sustainable high scoring Larger Villages such as Great Gonerby). The result is a process that is unclear, fails to inform the public or decision-makers, and is therefore contrary to the SEA Directive and settled case law.

- 2.26. It may be suggested that deficiencies in the SA/SEA could be remedied at the Regulation 19 stage. However, the case law makes clear that this is not an adequate solution where fundamental choices (such as the housing requirement and the spatial strategy) have already been made.
- 2.27. The assessment of reasonable alternatives to be undertaken at a stage *when* they can genuinely inform decision-making. This is to ensure environmental considerations are taken into account before a plan is adopted and not as an afterthought.
- 2.28. Similarly, in Save Historic Newmarket Ltd v Forest Heath DC [2011] EWHC 606 (Admin), Collins J held that consultees must be presented with an “accurate picture” of what alternatives were available at the relevant stage of plan-making, and why they were not selected. That requirement cannot be met if alternatives are only assessed once the allocations and strategy are already fixed.
- 2.29. In this case, the Council has already selected additional allocations and will, in effect, retrofit a spatial strategy to them. The Regulation 18 – Proposed Housing and Mixed-Use Site document consultation presents a list of sites without a coherent or evidenced strategy against which alternatives can be assessed. The result is that the SA has not informed the selection of the strategy. Rather, the allocations have come first, with the strategy and appraisal following after.

3. Representations in relation to a Land to the North of Belton Lane, Great Gonerby (SKPR-290)

Site background

3.1. As set out in the introduction to this representation, Strata are seeking to promote the following site for allocation within the emerging Local Plan. This section addresses the site's suitability, deliverability and demonstrates that it represents a logical and available housing allocation. In addition, the site offers the unique ability to deliver a solution to the existing highway issues at the B1174/ Belton Lane junction, providing a significant wider benefit to the local community and the strategic road network. The site's potential outputs are summarised in the table below

Site Name	Allocation Reference	Size	Outputs
Land North of Belton Land – Great Gonerby	SKPR-290	19.4ha	Residential development of up to 350

3.2. The Site is located on the northern edge of the sustainable settlement of Great Gonerby, with existing access available from both Belton Lane and Newark Hill. These two access points provide the opportunity to deliver a strategically important new link road through the Site . The site is comprised of around 19 hectares of agricultural land with a carrying degree of parcel sizes. While not part of the submission site, a cemetery occupies the south-western corner of the B1174/Belton Lane junction, served by a small car park which is also used by visitors to the Great Gonerby Memorial Hall, located on the opposite side of Belton Lane. The site is bound by hedgerows and the B1174 to the east, the existing built environment across from Belton Lane to the south (including Great Gonerby Memorial Hall) and other agricultural land to the north and east.

3.3. The Site, together with its supporting representation and evidence, was submitted to SKDC as part of the 2024 Draft Plan. Supported by a promotion document and Transport and Travel Assessment which set out how the site could provide a highly sustainable and logical extension to the village, capable of delivering up to 350 homes, including affordable housing in line with policy requirements, alongside significant green infrastructure. Around 50% of the total site area was proposed as public open space and biodiversity enhancement land, securing measurable net gains and improving landscape character.

- 3.4. In the published response documentation, the Council acknowledged the representation as an ‘additional site submission’. However, the site has not subsequently been included as a draft allocation within the Regulation 18 – Proposed Housing and Mixed-Use Sites.
- 3.5. The assessment of the site’s suitability for allocation has been determined by the following study undertaken by SKDC. The conclusion of the assessment is summarised in the table below

SKDC Study Document	Summary
Draft Site Assessment Document 2025	Site has been identified as having the potential to have a major impact on the Strategic Highway Network. Significant mitigation measures would be required through the use of transport assessments and modelling. Other more suitable sites are available to meet required need across the plan period.

[Draft Site Assessment Report \(2025\)](#)

- 3.6. The Draft Site Assessment Report (2025) forms a key part of the evidence base as part of the SKDC Local Plan review. In summary, the document provides context on how all sites submitted through the Local Plan Review process have been considered and assessed. It explains the reasoning behind which proposed sites have been included as ‘preferred options’ in the Local Plan Review, whether within the 2024 Draft Plan or in this subsequent Regulation 18 – Proposed Housing and Mixed-Use Site document.
- 3.7. The Draft Site Assessment Report (2025) draws on the SA Addendum, statutory consultee responses, and other evidence to assess sites leading to an overall site summary. Sites have been assessed against ‘major criteria’ which were identified as critical issues such as flood risk, highway safety, and impacts on designated ecological sites and ‘other criteria’ which have been determined as locally important issues such as impacts on the historic environment, contamination, or accessibility.
- 3.8. The Sites are assessed against the major and other criteria using a Red-Amber-Green (RAG) system, with each site’s rating represented by the appropriate colour. Green indicates the lowest level of impact, Amber represents a moderate impact, and Red denotes the highest

level of impact. An extract of the RAG outcomes is presented in the table below for reference.

'Title of identified assessment criteria'	'Assessment question in relation to identified criteria'
RAG Rating	Potential 'Outcome'
Green	Score would mean low impact rating and potential to deliver wider economic, environmental, or social benefits
Amber	Score would mean moderate impact rating and the possibility to deliver economic, environmental, or social benefits with mitigation measures.
Red	Score would mean high impact rating and could bring economic, environmental, or social risks/harm.

3.9. The Site to the north of Belton Lane, Great Gonerby, promoted by Strata, has been assessed in the Draft Site Assessment Report (2025) between pages 290 and 392. The site's RAG scoring against the identified major and other criteria is summarised in the table below.

Criteria	RAG Rating	Total
Major	Green	3
	Amber	2
	Red	3
Other	Green	11
	Amber	13
	Red	2

Major Criteria (Constraints)

3.10. For major criteria The Draft Site Assessment Report (2025) scored the Site as red against the following

- Surface water flood Risk
- Proximity to closest Designated Site (SAC, SPA, SSSI)
- Impact on the Strategic Highway Network

3.11. These major criteria are important factors that would have influenced the decision on whether to allocate the site as a preferred option. Strata consider it important to provide commentary on these outputs in order to test their robustness in relation to the site.

Surface Water

3.12. The site has been rated Red against the “surface water flood risk” criterion. It is acknowledged that there is an element of surface water flood risk affecting the site. However, Strata have concerns that the assessment does not break this down into the percentage or extent of land affected, nor does it consider any mitigation measures that could be implemented to address such risk.

3.13. It is important to note the findings on page 14 of the Draft Site Assessment Report (2025), which confirm that the Council is still awaiting the outcomes of the Strategic Flood Risk Assessment (SFRA). The SFRA is a fundamental evidence base document, providing a comprehensive and robust appraisal of the extent and nature of flood risk from all sources, taking into account the effects of climate change and their implications for land use planning. In addition, flood mapping in the UK has recently been updated through the new National Flood Risk Assessment (NaFRA2). It is unclear whether either of these elements have been considered in determining the site assessment outcomes, as the evidence base does not currently include an SFRA.

3.14. From Strata’s own assessment of the NaFRA2 the updated mapping shows that only the northern part of the site lies within the 1/1000-year surface water flood risk area. This part of the site is proposed as open space, and no access or development infrastructure would cross into it. In accordance with the supporting promotion document, this risk area can be entirely avoided through sensitive site design.

3.15. Given this, it is considered that the surface water flood risk is capable of being addressed and mitigated. Accordingly, the RAG rating for this criterion should be green rather than red to better reflect these outcomes. It is also noted that there are no comments or objections from Lincolnshire County Council, as the Lead Local Flood Authority.

Proximity to Designated Site (SAC, SPA, SSSI, NNR)

- 3.16. The site has been rated red against the “Proximity to Designated Site” criterion. Which according to the assessment RAG breakdown means that the Site directly overlaps or is between 0 – 5km away from designated nature site. Strata recognise the importance of protecting designated habitats, however, consider this approach to be disproportionate and not robust. The use of a blanket 5 km buffer results in all sites within that distance being automatically scored as red, regardless of whether there is any functional relationship or realistic pathway for impact. Therefore, the methodology fails to distinguish between sites that are genuinely constrained (e.g. those immediately adjacent overlapping a designation) and those where there is no risk of significant effects.
- 3.17. Strata believe that a more robust approach would be to apply an evidence-led assessment which considers actual impact pathways and site-specific circumstances, rather than relying solely on distance. There also appears to be no professional ecological input in terms of statutory consultee response.
- 3.18. In terms of the Sites proximity to designated sites, the nearest SSSI is Allington Meadows, located approximately 2.8 km away, which falls outside of the recommended screening distances typically applied for Environmental Impact Assessment. The nearest SAC is The Wash and North Norfolk Coast, located over 20 km away, and the nearest SPA is Rutland Water, located more than 30 km away, again both well outside recommended screening ranges. Given these distances, there is no reasonable basis to conclude that development of the site would give rise to impacts on designated sites. Therefore, applying a ‘red’ rating simply on the grounds of being within an arbitrary buffer is overly precautionary and not proportionate. We therefore submit that the site should not be scored as red against this criterion.

Impact on Strategic Highway Network.

- 3.19. The site has been rated Red against the “Impact on the Strategic Highway Network” (SNR) criterion. Which according to the assessment RAG breakdown means that the Site has been identified as high priority site for Highways England in terms of SNR Junction impact, with Highways England (now National Highways) as a statutory consultee commenting;

“This site is located in close proximity to the SRN. It is likely to produce some cumulative impacts on the SRN, in conjunction with other proposals in the area. Subject to further

traffic and capacity assessments. Likely to require a Transport Assessment, Travel Plan and CTMP. Cumulative Impact Assessments may be required with other policies in the area (SKPR-303, SKPR-302)”.

- 3.20. Strata consider the assessment criteria and comments from National Highways to be contradictory and not robust as at this stage of plan-making. This is as the assessment does not factor in any mitigation measures that could be implemented to address such risks on the SNR which have been presented by National Highways in terms of requiring a Transport Assessment, Travel Plan and CTMP.
- 3.21. Strata also believe that it is inappropriate to assume cumulative impacts with other sites which may or may not be allocated or delivered, as in this case for both SKPR- 303 and SKPR-302 which remain presently un-allocated. The assessment should have only been looking at cumulative impacts in relation to committed developments, not speculative proposals.
- 3.22. Paragraph 116 of the NPPF (2024) states that development should only be prevented or refused on highways grounds where there would be an unacceptable impact on highway safety, or where the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios. In this case, National Highways’ comments do not indicate severe impacts, but rather that further assessment and mitigation measures would be required. On this basis, and in line with the high bar set by the NPPF, Strata believe that the site’s impacts on the Strategic Road Network are not severe and therefore do not justify a red score through the site assessment.
- 3.23. Furthermore, a Traffic and Transport Appraisal has already been prepared for the site to support its promotion through the 2024 Draft Plan consultation. The appraisal demonstrates that additional traffic generated by the development can be accommodated without significant capacity or safety issues, and that local highway improvements can be implemented where required. Notably, by altering the priority of Belton Lane and routing traffic through the site through the provision of a spine road, the B1174/Belton Lane junction constraints could be relieved. An updated Transport Assessment and Travel Plan would be provided with any planning application, and residual matters, such as a CTMP, can be addressed via a planning condition. On this basis, Strata consider that National Highways’ points have been addressed, and that again a red rating against this criterion is not justified.

Othe Criteria (Constraints)

3.24. In terms of Other Criteria The Draft Site Assessment Report (2025) has scored the Site as red against the following

- Distance to Local Nature reserve (LNR)
- Overlap with Agricultural Grade 2

3.25. It is It is acknowledged that ‘other criteria’ relate to a wide range of locally important issues. Strata consider that, in terms of demonstrating the site’s merits as a sustainable, comprehensive development, the assessments under which the site has been scored red should be re-considered.

Distance to Local Nature Reserve (LNR)

While it is accepted that the Site is not located within a walkable distance proximity to an LNR with Stations Pit being located 26km away, it is important to note that distance to an LNR is not, in itself, a critical constraint to the suitability of a site for development. The NPPF does not require all development to be in close proximity to LNRs, and the absence of nearby LNRs does not generate any environmental or accessibility harm that cannot be mitigated through other means, for instance the Site proposing the substantial provision of 50% open space and green infrastructure. Therefore, scoring the site red solely on this basis is disproportionate and not justified.

Overlap with Agricultural Grade 2

3.26. Strata have concerns over the site being scored as red when the extent of the overlap is only 24% of the land being identified as Grade 2, with the majority falling below best and most versatile (BMV) quality. The Site is therefore being categorised in the same way as one that is 100% BMV. Strata believe that this blanket assessment overstates the level of constraint and risks undermining the comparative assessment of options. Additionally, the NPPF requires that the presence of BMV land is considered as part of the planning balance, but it does not establish that any overlap is treated as a significant constraint.

3.27. Furthermore, a detailed Agricultural Land Classification (ALC) survey would provide robust evidence of the actual quality of soils across the site. As identified, the present proportion of BMV land is limited, and its loss should be weighed against the sites benefits such as housing delivery, critical road infrastructure and provision of open space. On this basis, the

current red categorisation is unjustified and should be revisited to ensure a more proportionate and evidence-led assessment.

Site Summary

- 3.28. As set out in the Draft Site Assessment Document (2025), the Site is identified as having the potential to result in a major impact on the Strategic Highway Network, with significant mitigation measures to be required. The assessment further concludes that alternative sites are considered to be more suitable to meet identified needs across the plan period.
- 3.29. In relation to the conclusion that the Site would have a major impact on the Strategic Highway Network, these matters have already been addressed in paragraphs 3.19–3.23. It is Stata’s position that appropriate mitigation measures can be delivered, as demonstrated within the supporting Traffic and Transport Appraisal (Appendix 2) and through the proposed link road, which will alleviate the B1174/Belton Lane peak congestion pressures and provide overall improvements to the local highway network. On this basis, the Site should be reassessed considering the evidence provided, which confirms that transport impacts can be appropriately managed.
- 3.30. The conclusion that “other more suitable sites are available” appears to not be supported by the evidence. The Council’s preferred site for allocation within Great Gonerby (Land off Church Lane – SKPR 241) performs less favourably against the RAG assessment, recording seven red scores across the criteria. Most notably, the site comprises 100% Grade 2 BMV land and lies in close proximity to Great Gonerby’s Conservation Area, raising the potential for adverse heritage impacts. It is also relevant that Lincolnshire County Council, as the Local Highway Authority, has identified transport concerns in relation to Church Lane, which is a single-track restricted byway surfaced only to the bend, with no footways, kerbing, or drainage provision.
- 3.31. Additionally, review of the Statement of Consultation from the 2024 Draft Plan confirms that SKPR-241 generated a substantial level of local opposition. A total of 54 objections were submitted through 2024 Draft Plan consultation, alongside a petition with 450 signatures, ranking it as the third most objected-to site in the district. This level of community concern further undermines the appropriateness of the allocation and highlights the need to give greater consideration to more suitable and deliverable alternatives.

3.32. By comparison, the promotion of this site offers a deliverable solution to acknowledged infrastructure concerns, including the provision of a through-route that would relieve pressure on the Belton Lane junction, alongside significant housing delivery, open space, and green infrastructure. These benefits directly align with the plan’s objectives for sustainable growth, infrastructure improvement, and community wellbeing. In this context Strata believe that it is not accurate to suggest that the Council’s preferred site is “more suitable”; rather, the evidence demonstrates that this site is both preferable and necessary to ensure a sound Local Plan that is capable of meeting housing needs in full.

Site benefits

3.33. This section sets out the additional sustainable development benefits that the Site can deliver, ensuring that the Plan achieves positive outcomes for Great Gonerby. In particular, in accordance with paragraph 124 of the NPPF (Making Effective Use of Land), which outlines that site allocations are fundamental to delivering sustainable development and provide certainty over where growth will occur, directing new housing to the most suitable and sustainable locations with the necessary infrastructure in place.

3.34. For Great Gonerby, the Site allocation is particularly important due to the following factors;

3.35. **Maximising sustainability benefits** – Great Gonerby is a sustainable location for growth, reflecting its role as one of the top scoring Larger Villages within the most recent Settlement Hierarchy update (May 2025). It provides a good range of day-to-day services and facilities, including a primary school, convenience store, post office/newsagents, pub, church, social club, village hall, and accessible open spaces. Importantly, Great Gonerby is located only 3km to the north-west of Grantham, the identified ‘Sub-Regional’ Centre for the district. Grantham provides a much wider range of services and facilities, including secondary and higher education, employment opportunities, Grantham and District Hospital, and direct access to the East Coast Main Line railway.

3.36. The Site is well placed to integrate with the existing settlement pattern of Great Gonerby and would contribute positively to the social sustainability of the settlement. It can deliver a policy-compliant level of affordable housing, subject to viability outcomes as part of the overall Local Plan Review evidence base, alongside a mix of market housing that responds to identified local needs. This is particularly important in the context of the shortfall in housing land supply across the District. The development would support social cohesion by extending the community in a logical and well-connected manner, integrating with the

established character of the area and reinforcing Great Gonerby's role within the settlement hierarchy.

- 3.37. The Site can deliver substantial wider environmental enhancements. Approximately 36% of the land is proposed to be set aside for biodiversity improvements and green infrastructure. Its scale allows for the creation of new publicly accessible open space, biodiversity net gain in line with national and emerging local policy, and a high-quality green network. The Site's location also facilitates sustainable modes of travel, with opportunities for walking, cycling and public transport connections into Great Gonerby and Grantham that will reduce reliance on the private car and actively support climate change objectives.
- 3.38. The development will generate a range of economic benefits. These include job creation during the construction phase, increased local expenditure in shops and services, and additional Council Tax revenue. Crucially, the Site is located in close proximity to significant employment opportunities, most notably at the Gonerby Interchange where SKDC is proposing to allocate around 172ha of employment land for logistics and distribution related uses. This strategic location on the A1 corridor presents an opportunity for housing and employment growth to come forward in a complementary manner, supporting both labour supply and economic development objectives of the Council.
- 3.39. **Realignment of Belton Lane** - In contrast to many of the preferred sites identified in the Draft Site Assessment Report 2025, this Site can provide a comprehensive solution to the highway capacity and visibility issues at the B1174/Belton Lane junction as part of the development, through the realignment of Belton Lane. The purpose of realigning Belton Lane is to remove traffic away from the B1174/ Belton Lane junction, which suffers from capacity issues at peak times and poor visibility in both directions, and a significant downhill gradient on approach from the north
- 3.40. As set out in the supporting promotion document the draft layout demonstrates how Belton Lane could be realigned so that vehicular travel priority is through the Site itself. Through initial layouts, the Site can provide a 6.75m wide carriageway with a centreline radius of 35m (with wide around the bend to accommodate refuse collection vehicles). The location of the realigned carriageway would avoid impacting the Covill Close junction and avoid the downhill section of Belton Lane on approach to the B1174. Overall, this is a solution, which would reduce the reliance on the piecemeal accumulation of section 106 contributions

from a varying degree of developments throughout the area and negate the need for very costly, time-consuming, and potentially unachievable upgrades to the existing junction.

3.41. The Realignment would ensure that the allocation delivers tangible benefits to the wider settlement and local highways network. It is also worth highlighting the LHA statutory comments within the Draft Site Assessment Report 2025 acknowledges that the Belton Lane/ B1174 junction requires mitigation and goes further on to suggest that a site of this scale is uniquely capable of providing alternative junction arrangements and delivering sustainable connections into both Great Gonerby and Grantham. This represents a clear opportunity to integrate growth with infrastructure delivery in a way that smaller or more constrained sites cannot achieve.

3.42. **Deliverability and Market Commitment** – Allocated sites with no major constraints, such as Land to the North of Belton Lane, can be delivered quickly, helping maintain a robust five-year housing land supply and reducing pressure for unplanned development elsewhere. The site has the capacity to accommodate up to 350 dwellings and in accordance with the NPPF objectives to make the most effective use of land, consider that the final quantum of development would be informed by a constraints-led master-planning exercise at the planning application stage.

3.43. The Site is in single ownership and is subject to confirmed market interest, with Strata engaged to deliver the scheme with a solid track record of delivery. This demonstrates a firm commitment to its early delivery. Medium-sized sites of this nature in sustainable locations are well placed to:

- Deliver housing quickly, with short lead-in times;
- Require proportionately less new infrastructure;
- Provide early completions to support the Local Plan housing trajectory.

3.44. The Site is capable of providing a number of configurations to achieve the number of homes and type of development required for Great Gonerby. Strata are willing and able to take a flexible approach to the development and welcome further discussions with SKDC as the Local Plan Review continues to develop.

3.45. Vehicular access can be provided from both Belton Lane and Newark Hill, with no anticipated constraints in relation to highway safety or capacity. This represents a

significant advantage over a number of other draft allocations in Great Gonerby, as well as meets the access requirements by the guidance (Lincolnshire Development Roads and Sustainable Drainage Design Approach, 2017).

- 3.46. **Landscape and Environmental Design Integration** - The Site benefits from a strong existing landscape framework, with boundary hedgerows and the influence of adjacent built form providing containment. A landscape-led approach will guide development, with the retention and augmentation of trees and hedges ensuring natural screening appropriate to its edge-of-settlement location. The northern part of the Site also incorporates the Priority Habitat – Deciduous Woodland at “Hook Cliff”, the retention and enhancement of which will deliver biodiversity gains and wider environmental benefits, consistent with the sustainability factors already identified.
- 3.47. Wider site design features will be developed in accordance with the South Kesteven and Rutland Design Guide (2021) and the emerging District-wide Design Code, ensuring that the scheme responds positively to local character and delivers high-quality place-making.
- 3.48. **Great Gonerby Neighbourhood Plan** - Great Gonerby was formally designated as a Neighbourhood Plan area in June 2024. Since that time, Strata has been in dialogue with the Neighbourhood Plan Steering Group, who have expressed an interest in allocating the site through the Neighbourhood Plan process. While it is acknowledged that the Neighbourhood Plan is still at an early draft stage and the Group will be making an independent representation on this matter, their support for the site demonstrates broad local backing and recognition of the wider community benefits that the development could deliver.

4. Conclusion

- 4.1. Strata are promoting Land to the North of Belton Lane Great Gonerby (SKPR-290) for residential development comprising up to 350 dwellings. The appended Promotion Document demonstrates how a high-quality development can come forward quickly, would not result in any materially harmful impacts, and will deliver a much-needed solution to the highway issues at the B1174/ Belton Lane junction.
- 4.2. Strata have concerns that SKDC has conflated local housing need with the housing requirement and that no updated evidence has been produced to demonstrate what the Plan's requirement should be, or why the proposed figure is justified when assessed against reasonable alternatives. Especially around the alignment of homes and jobs and the delivery of affordable housing.
- 4.3. The distribution of housing growth appears inconsistent with the settlement hierarchy and risks producing a less sustainable pattern of development. For example, Great Gonerby, which scores highly in the Settlement Hierarchy Review and benefits from excellent connectivity, is allocated only 86 homes, while villages which have scored less, such as Baston are targeted with higher allocations. This demonstrates a lack of alignment between the hierarchy and site selection, resulting in an inequitable and unjustified distribution of growth.
- 4.4. The Sustainability Appraisal (SA) is legally deficient, failing to comply with the SEA Directive and relevant case law. It does not identify or assess reasonable alternatives to the chosen strategy, nor does it provide reasons for rejecting them. Instead, the consultation is presented as a list of allocations with no proper assessment of different growth patterns. This means consultees are not given a transparent or accurate picture of options, undermining both the credibility of the process and its compliance with legal requirements.
- 4.5. In respect of the Land North of Belton Lane, Great Gonerby, Strata strongly contests the Draft Site Assessment Report's (2025) conclusion that the site would have a "major impact" on the Strategic Road Network. The assessment does not appear to have fully taken account of the submitted Transport and Travel Appraisal, which demonstrates that traffic from the development can be safely accommodated without severe impacts.
- 4.6. The Site performs favourably against alternative options in Great Gonerby. Unlike the preferred allocation at Church Lane (SKPR-241), which faces significant community

opposition, access limitations, and adverse impacts on best and most versatile agricultural land, the Belton Lane site can be accessed safely and directly, avoids heritage impacts, and has attracted strong market interest. Its technical constraints are capable of mitigation and do not represent barriers to development, as demonstrated through proportionate evidence.

- 4.7. Deliverability is a critical consideration for the soundness of a Local Plan. In contrast to large, strategic allocations around Grantham that face levels of uncertainty, long lead-in times and complex infrastructure dependencies, the Land to the North of Belton Lane (SKPR-290) is unconstrained and capable of contributing to the five-year housing land supply in the short term.
- 4.8. Land to the North of Belton Lane, Great Gonerby (SKPR-290) represents a logical, sustainable, and deliverable opportunity to support South Kesteven's revised housing requirement. The site is available now, in single ownership, and backed by a committed developer, Strata, with a proven record of delivery. The Site offers a scale of growth that is proportionate to its location, aligning with the settlement hierarchy which identifies Great Gonerby as a 'Larger Village' capable of accommodating growth
- 4.9. Critically the Site presents an opportunity to resolve a known existing highway issue, by diverting traffic through the site via the realignment of Belton lane, thus alleviating the traffic impacts at the B1174/ Belton Lane junction without the necessity of very costly/time consuming/complex (and possibly unachievable) highway improvement works.
- 4.10. Overall, the Land to the North of Belton Lane (SKPR-290) is a suitable, available and deliverable site that can make a meaningful contribution to SKDCs housing requirements. It offers significant social, economic and environmental benefits, delivers critical infrastructure improvements, and provides a balanced, proportionate scale of growth at a sustainable location broadly supported by its Neighbourhood Planning group. Allocating the site will strengthen the Local Plan's evidence of deliverability, enhance resilience in the housing trajectory, and ensure the strategy is consistent with national policy requirements for soundness. Strata therefore respectfully request that the site be allocated for residential development within the emerging Local Plan Review process.

5. Appendix 1 – Promotion Document



Land to the North of Belton Lane Great Gonerby

PROMOTION DOCUMENT

Prepared by
DL Design Studio and Marrons
on behalf of
Saint Land and Development Ltd

November 2023

Prepared by

DL DesignStudio



on behalf of

saint

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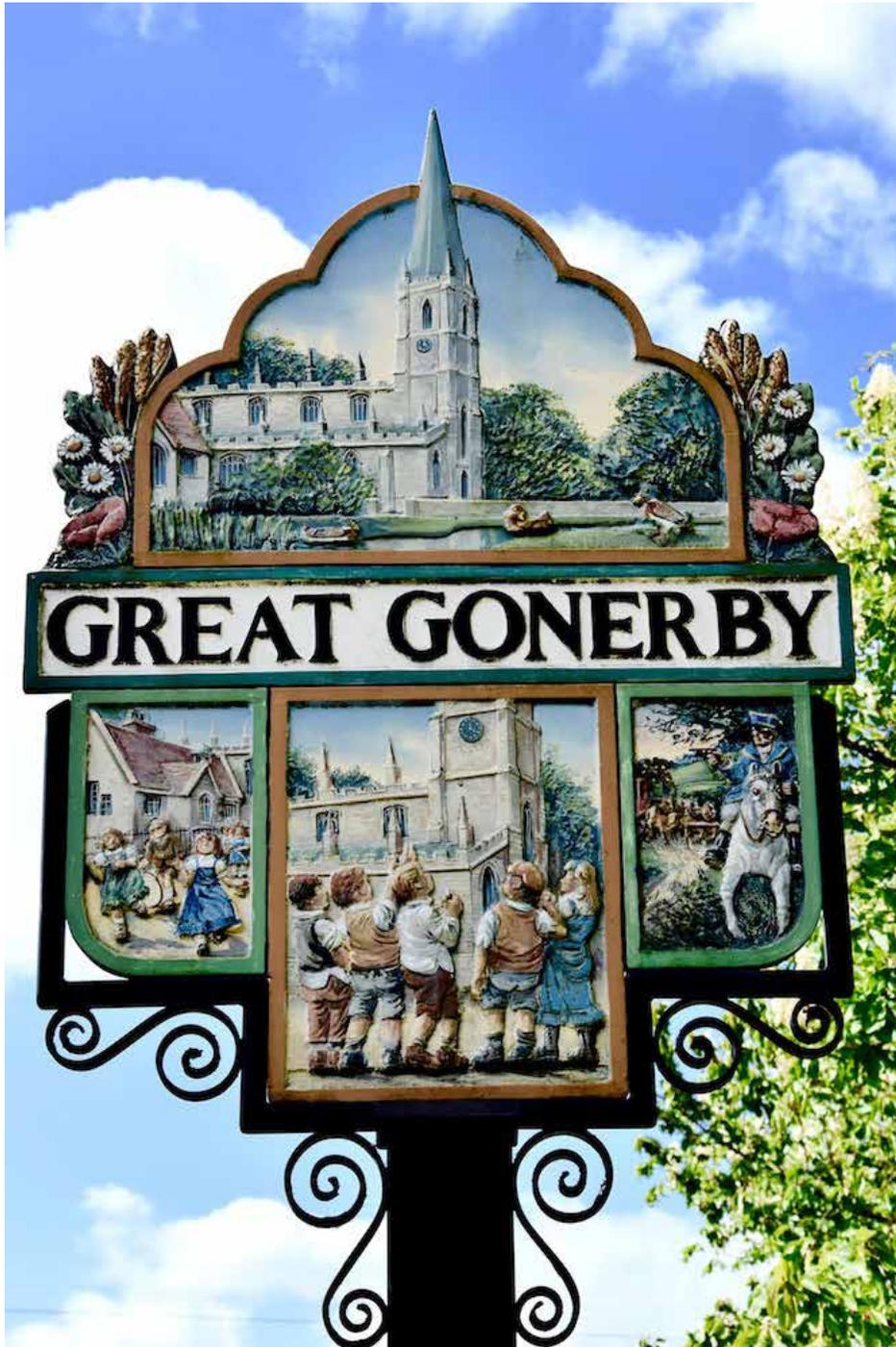
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Introduction

Executive Summary

Marrons alongside DL Design Studio have been instructed by Saint Land and Development Ltd to prepare a Promotion Document to demonstrate the deliverability of Land to the North of Belton Lane, Great Gonerby (the Site). In line with the findings of this document it is considered that the Site could deliver up to 350 homes alongside much needed new highways infrastructure for South Kesteven.

The Site would be a logical and deliverable extension to Great Gonerby adjoining the existing settlement boundary to the north of the village. Development would represent a natural extension to this wholly sustainable larger village, which will not only provide future homes for the settlement that are well designed and appropriate to the context, but will also deliver important and much needed new transport infrastructure for the South Kesteven area as a whole.

This scheme offers a solution to a problem for which no other solution seems apparent. Condition 24 of approved planning application reference S15/3189, at Land to the North of Longcliffe Road, Grantham, for 480 dwellings and associated infrastructure (including a neighbourhood centre and a primary school) required various highway improvements, including to the junction of Belton Lane and Newark Hill. As demonstrated in application s23/0785 (which is pending consideration at the time of writing), the Local Highways Authority (LHA) no longer consider that the junction improvements are feasible within the confines of the highway boundary. It was advised by the LHA that in order to improve capacity at the junction a much wider scheme would be required, involving third party land. However, development of this site presents an opportunity to resolve this issue, by diverting traffic through the Site via a new spine road, thus alleviating the traffic impacts at the Belton Lane junction. This is discussed in more detail within the highways and access section of this document.

An analysis of the Site's attributes and local context, in conjunction with technical input from key disciplines, has informed the opportunities and constraints for development of the site. In turn, these have influenced the development vision for the Site and the Illustrative Master plan.



Introduction

The Site & Location

The majority of the Site is vacant although there is a cemetery (and associated car parking) at the southwest corner which is accessed from Belton Lane via a priority-controlled junction. Whilst the cemetery and car park site outside of the red line boundary for the Site, access requirements are accommodated within the redline boundary as denoted on the Illustrative Master plan. There is also a second field access from the B1174 at the Northwest corner of the site, which is shared by the adjacent land owners to other fields, one of which appears to be used as an area of outdoor storage.

Great Gonerby is a large village in Lincolnshire, situated within the District of South Kesteven. Located along the B1174, the village is located around 2.8km to the Northwest of Grantham Town Centre.



Introduction

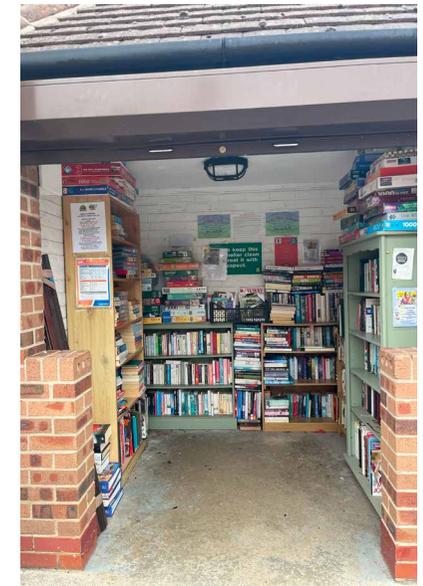
The Site & Location



A historic settlement which was mentioned in the Domesday Book, Great Gonerby maintains much of its original village form centred on High Street and Green Street. These streets now sit at the centre of the adopted Conservation Area for the village. The village grew and expanded most significantly during the 20th and 21st century, with a mixture of infill development within the village core and minor expansions occurring to the east and west.

The village is highly sustainable and benefits from good connectivity. The nearest bus stops to the Site are located to the south of the Site near the Post Office. From these bus stops there are regular bus services to Grantham and some to Newark. By car, Grantham Town Centre is accessible within 10 minutes. Newark-on-Trent Town Centre is accessible within 25 minutes by car.

Both Belton Lane and Newark Hill, the two roads which bound the Site, benefit from continuous foot ways which run from the Site to the village centre and its amenities which include the St Sebastian's C of E Primary School, a pub, a children's play area with sports court, a post office and small convenience shop. These facilities are all within 600m of the Site, a 10 minute walking distance which is considered a sustainable walk-able distance



Introduction

The Site & Location



Planning Overview

The Development Plan

The statutory development plan insofar as it relates to this site is comprised of:

South Kesteven District Council Local Plan

Adopted 31st January 2020

The South Kesteven District Council (SKDC) Local Plan covers the period from 2011-2036. Policy SP2 of the settlement hierarchy sets out that Great Gonerby is a 'Larger Village'. This is the second highest settlement tier in the hierarchy, after Grantham which is characterised as a Sub Regional Centre.

Policy SP4 of the plan sets out the authority's stance towards proposed development outside of the settlement boundary. The authority will support development on the edge of a settlement if it meets specific criteria, one of which is if the locality can demonstrate housing need which the development can help to mitigate.

Policy SP5 is also relevant, it sets out the South Kesteven's position regarding development in open countryside. It states that development in the open countryside will be limited to that which has an essential need.

Policy H1 set out the districts housing allocations and housing need, the 2017 SHMA update establishes an assessed need of 16,125 dwellings in South Kesteven across the plan period of 2019-2036. 10% of all new supply is allocated to larger villages in the plan period. This equates to a total of 1,612 dwellings to be built in 'large villages'.

Policy H2 sets out the districts expectations for affordable housing contributions. SKDC expects all developments which provide 11 or more dwellings should have an affordable housing provision of 30%.

Policy EN1 states that the settlement of Great Gonerby is located within the 'Grantham Scarps and Valleys' Landscape Character Area (LCA). As a result SKDC expects prospective development within these landscape areas to adequately assess the impact of development on the character of the area.

Policy DE1 states that SKDC expects prospective development in the district to achieve high quality design that makes a positive contribution to the existing built environment.

Policy SB1 sets out the expectations regarding sustainable building practice, new development will be expected to mitigate and adapt to climate change complying with national and local targets unless it can be demonstrated to be unfeasible.

Planning Overview

The Development Plan

Other Plans and Documents

There are no Neighbourhood Development Plans made, in preparation or currently proposed which would affect the Site.

SKDC has produced a design guideline SPD for development in the district. It provides a direction for the urban design and open space values that SKDC expects for prospective development in the district.



Emerging Local Plan

SKDC is committed to undertaking an early review of their Local Plan, which will set out the framework for development up to 2041. The Council's most recent Local Development Scheme update stated that the Draft Consultation Regulation 18 stage would occur in Winter 2023/24, with the pre-submission consultation Regulation 19 stage in summer 2024. The eventual examination would begin in winter 2024 with adoption in spring 2026.

Housing Land Supply

As of 2023, the published housing land supply is 6.1 years. South Kesteven are one of only a few local authorities who publish an Annual Position Statement each year, where their housing land supply is submitted to and examined by the Planning Inspectorate. If found sound through examination, the 5YHLS cannot then be challenged, and is considered 'fixed' for a period of one year. The figure of 6.1 years for 2023 has recently been submitted to the Inspectorate. In the meantime, the figure from 2022 of 5.22 years remains in place and 'fixed' until October 2023.

Planning Overview

The Case for Development

As a 'Larger Village' within the Settlement Hierarchy, which is likely to be carried forward into the new Local Plan, Great Gonerby is expected to accommodate a proportion of development for South Kesteven, particularly given its close proximity to the Sub Regional Centre of Grantham.

Under the current Local Plan there is one allocated site in Great Gonerby, known as Easthorpe Road (LV-H6). LV-H6 was granted an outline permission in October 2019 (planning ref: s19/1138). This permission pre-dates the adoption of the Local Plan.

Elsewhere in Great Gonerby, the following applications have been made for residential development following the adoption of the Local Plan:

Reference	Site	Proposal	Outcome	Date
s23/1356	25 Pond Street	1.no barn conversion and 1.no new bungalow	Permitted with conditions	05/10/2023
s23/0553	Land adjacent to 61 Belton Lane	Outline application for 8 dwellings	Refused	16/05/2023
s23/0165	1 Grantham Road	1 new dwelling	Refused - appeal in progress	09/03/2023

In terms of the ongoing Local Plan Review, an Issues and Options Document Consultation was carried out in October-November 2020. This indicated that the Local Plan Review would see the majority of policies remain unchanged, including key policies relating to the distribution of development and the settlement hierarchy. What impact the revised NPPF, which is expected later this year, will have upon that remains unknown. Of note from the Issues and Options Document is that the new Local Plan intended to utilise the Standard Method for calculating Housing Need, which would result in a greater number of dwellings required per annum - from 650pa in the adopted Local Plan to an estimated 754pa which could be required under the Standard Method.

This Promotion Document is intended to support our assertion that the Site represents a logical and beneficial expansion to the sustainable settlement of Great Gonerby and that there are no site constraints which would prevent development, particularly in the context of the delivery of vital highways infrastructure for the area as a whole. This document should be read in conjunction with the Traffic and Transport Appraisal prepared by BWB Consulting which is submitted as an appendix in support of this Promotion Document.

Site Analysis

The Site is located to the northern edge of the sustainable settlement of Great Gonerby, with access taken off Belton Road and Newark Hill and comprises around 19 hectares of agricultural land north of Belton Lane. A cemetery occupies the south-western corner alongside a small car park (outside of the redline boundary).

The Site slopes gently away to the north, with topography presenting an opportunity for a development which works with the natural land levels to create a visually interesting and sympathetic extension to the village.

The Site is bordered to the west by hedgerow and separated from the highway along Newark Hill by a roadside bank. To the north and east, it currently does not have distinctive boundary features, as the wider agricultural parcel extends beyond the Site's red line. This provides opportunity for ecological enhancement through the addition of suitable native species planting to form new site boundaries, linking in with existing areas of vegetation within the wider parcel, and provide important landscaped buffers to the development parcels.

The Site is located adjacent to the built up area of Great Gonerby and the amenities and facilities that are provided in Great Gonerby. These include a primary school, public house, convenience store, Locally Equipped Area for Play (LEAP) and memorial hall, the latter being just opposite the site on Belton Lane. In terms of onward connections Great Gonerby has regular bus services to nearby villages as well as larger settlements such as Newark and Grantham, the latter of which is within very close proximity to Great Gonerby.

This site is considered to be very minimally affected by the main common constraints to development. The site is at very low risk of flooding, being located within flood zone 1, with no watercourses on or adjacent to the site. Matters of highways & access, heritage, and landscape will be addressed below.

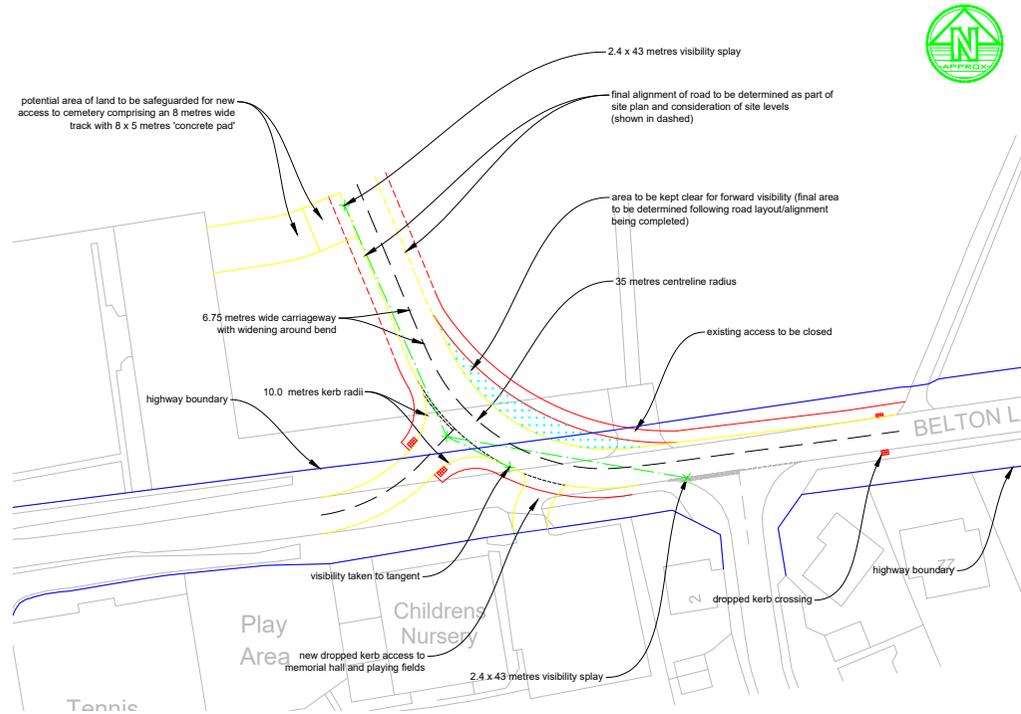


Site Analysis

Highways & Access

With the site being capable in spatial terms of accommodating up to 350 homes, guidance contained within the 'Lincolnshire Development Roads and Sustainable Drainage Design Approach' document (LCC, 2017) states that only one 'Major Access Road' would be required, however the Appraisal carried out for the site considered the possibility of providing two accesses.

This has been considered in order to primarily resolve a known problem locally; under approved scheme S15/3189 at the northern edge of Grantham, mitigation measures were required for western entrance to Belton Lane. This was considered necessary to accommodate the increased traffic generated by the development. However, these mitigation measures are considered undeliverable because of the existing retaining structures. Therefore, the development of the Site offers an ideal opportunity for alternative mitigation, by diverting traffic away from the Belton Lane/Newark Hill junction via a new spine road through the Site.



Drawing Number HCF-BWB-HML-00-DR-TR-103 Revision P2 which has been included alongside this submission shows how Belton Lane could be realigned so that priority is through the site, providing a 6.75m wide carriageway with a centreline radius of 35m (with wide around the bend to accommodate refuse collection vehicles). The location of the realigned carriageway would avoid impacting the Covill Close junction and avoid the downhill section of Belton Lane on approach to the B1174. Footways of 2m in width could be provided along the proposed access road and the existing section of Belton Lane to the east, supported with crossing points to transfer pedestrians to the south towards Great Gonerby. It also shows how a new access could be provided to the cemetery further north.

The purpose of realigning Belton Lane is to remove traffic away from the B1174/ Belton Lane junction, which would have benefits in that the junction has poor visibility in both directions, has a significant downhill gradient on approach to the junction and is forecast to operate over capacity with planned development in place. There are also no tangible improvements that are deliverable to address these issues because of the existing retaining structures. The site therefore provides an opportunity to resolve these issues and transfer a large proportion of traffic to the B1174 further north via a fully compliant junction.

Site Analysis

Highways & Access

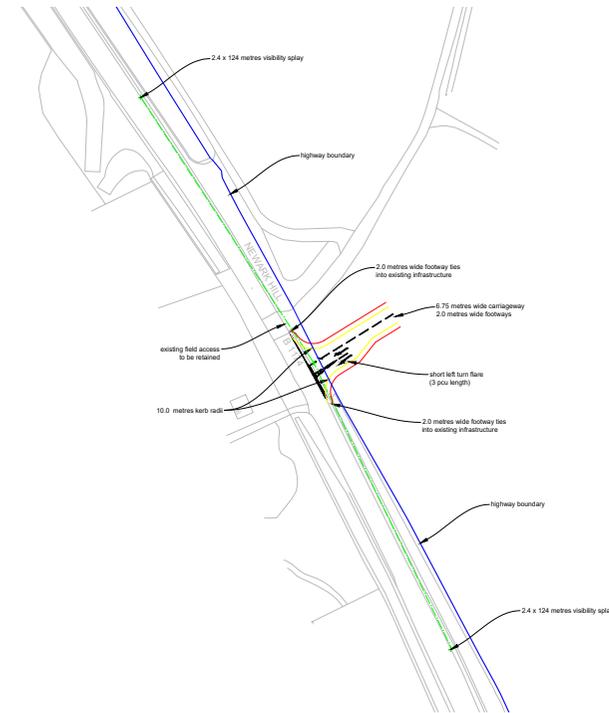
Drawing Number HCF-BWB-HML-00-DR-TR-102 Revision P2 shows the form and location of a new site access from the B1174. The access has been positioned 20 metres south of the existing field access (centreline to centreline) to avoid the existing retaining wall but also to allow the field access to be retained to separate residential and agricultural/commercial traffic.

The access has been designed to show a 6.75 metres wide carriageway, with 10 metres kerb radii. A short left turn flare (3 pcu length) has been provided to separate left and right turning movements at the junction. Footways of 2 metres in width are provided at both sides of the carriageway which would tie into the existing footway infrastructure along the eastern side of the B1174 at both sides.

As part of the highways work undertaken to inform this submission, traffic modelling has also been carried out.

An assessment of the potential impacts of a development of 350 dwellings at the four main junctions locally has been undertaken to establish whether the additional traffic is likely to be accommodated on the network. This analysis concluded that the proposed development is not expected to cause any significant capacity problems at any junction in the vicinity of the site along the B1174. Furthermore, the site has the potential to transfer background traffic away from the B1174/Belton Lane junction, which is expected to exceed capacity and has highway safety issues with poor visibility. This removes the need for the approved mitigation scheme to be delivered as part of the Grantham SUE development, which appear to be undeliverable. Hence, the site has the opportunity to provide benefits to the existing highway layout for other road users.

If required, there are also opportunities to deliver physical infrastructure improvements off-site to mitigate impacts from the development, which would have benefits on both capacity and highway safety. Any highway improvements schemes would be part of any Transport Assessment in consultation with Lincolnshire County Council.



For a full analysis of the highways and access impacts of the development please see the accompanying Traffic and Transport Appraisal, prepared by BWB Consulting in support of this submission.

Site Analysis

Heritage

In order to inform the assessment of this site, a Heritage Scoping Report has been prepared by Marrons (Heritage).

Their research concludes that no designated heritage assets lie within the Site, and as such its development would not directly impact upon a designated heritage asset.

The Site currently makes a neutral contribution to the setting and significance of all designated heritage assets with the Study Area and to the group of designated heritage assets within Belton Park c.3km to the east. From easternmost parts of the Site the uppermost part of the spire of the Grade I Church of St. Sebastian can be seen. The views are incidental and their character and extent do not make any marked contribution to the significance of the listed building.

Redevelopment of the Site for residential use would not alter the experience of any designated heritage assets from within their settings. As such, designated assets within the Study Area show no sensitivity to the Site's development.

There is currently no local list of non-designated heritage assets available for South Kesteven. Review of the Site and the surrounding area revealed no candidate non-designated heritage assets beyond those buildings that positively contribute to the character and appearance of the Great Gonerby Conservation Area to the south. As such, no non-designated assets within the Study Area show any sensitivity to the Site's development.



Site Analysis

Landscape

Currently, the site area consists of open farmland, divided by hedgerows and contains a few small copses of trees including the Priority Habitat – Deciduous Woodland area of “Hook Cliff”. The site is located within NCA 48 Trent and Belvoir Vales and some of the characteristics do resonate with the locality, most notably, reference to the strongly rural and predominantly arable farmland landscape. However, in the main, the NCA is described as a low lying-rural landscape which is a key characteristic of the landscape further north and south of Great Gonerby, beyond the immediate environs of the Site. The proposals for the Site are a small component part of this NCA and therefore the local landscape character assessment has been considered in more detail.

The Site is within LCA Grantham Scarps and Valleys as categorised within the SKDC Landscape Character Assessment. The Site has some characteristics as described within this LCA such as, steep scarp slopes with small scale hedged pasture fields and hedgerow trees.

The proposals seek to enhance the biodiversity and landscape of the northern area of the Site, whilst also retaining the existing Priority Habitat – Deciduous Woodland area of “Hook Cliff”, which would also provide natural landscape screening for the proposed residential developments. The proposals also seek to create a new point of access from the B1174 / High Street and improve the existing access from Belton Lane.



Site Analysis

Landscape

The topography of the site and its surrounding area slopes down towards the north and the majority of the views are almost exclusively available from the Public Right of Way (PRoW) network to the north and west of the Site. Near views from the west are limited by the intervening topography and the vegetation on the edge of the B1174 and from the south, of Belton Road, only the south western most aspect of the site will be visible due to the set back of the development and the proposed open space. The proposed development would provide a visual barrier between the road and the currently unrestricted, long distance views towards the north. Despite this, the area where development would restrict these views is limited to the site itself and the concept allows for green links to be designed through the space to maintain some view.

Belton Road is a residential street and the proposed development of new residential units within the site would be read against the existing built edge of Great Gonerby. Further to the north, the wider landscape is a busy and active landscape. Gonerby Moor Retail Park and Services are located at the junction with the A1 main trunk road and the B1174, which runs adjacent to the Site, effecting the rural context.

The proposals would introduce a new element into the immediate landscape of Great Gonerby, as the site area will change from an open field to a residential development. The natural sloping topography of the site area also allows views of the site from the north, although these are from limited locations and the site is seen within a panoramic view.

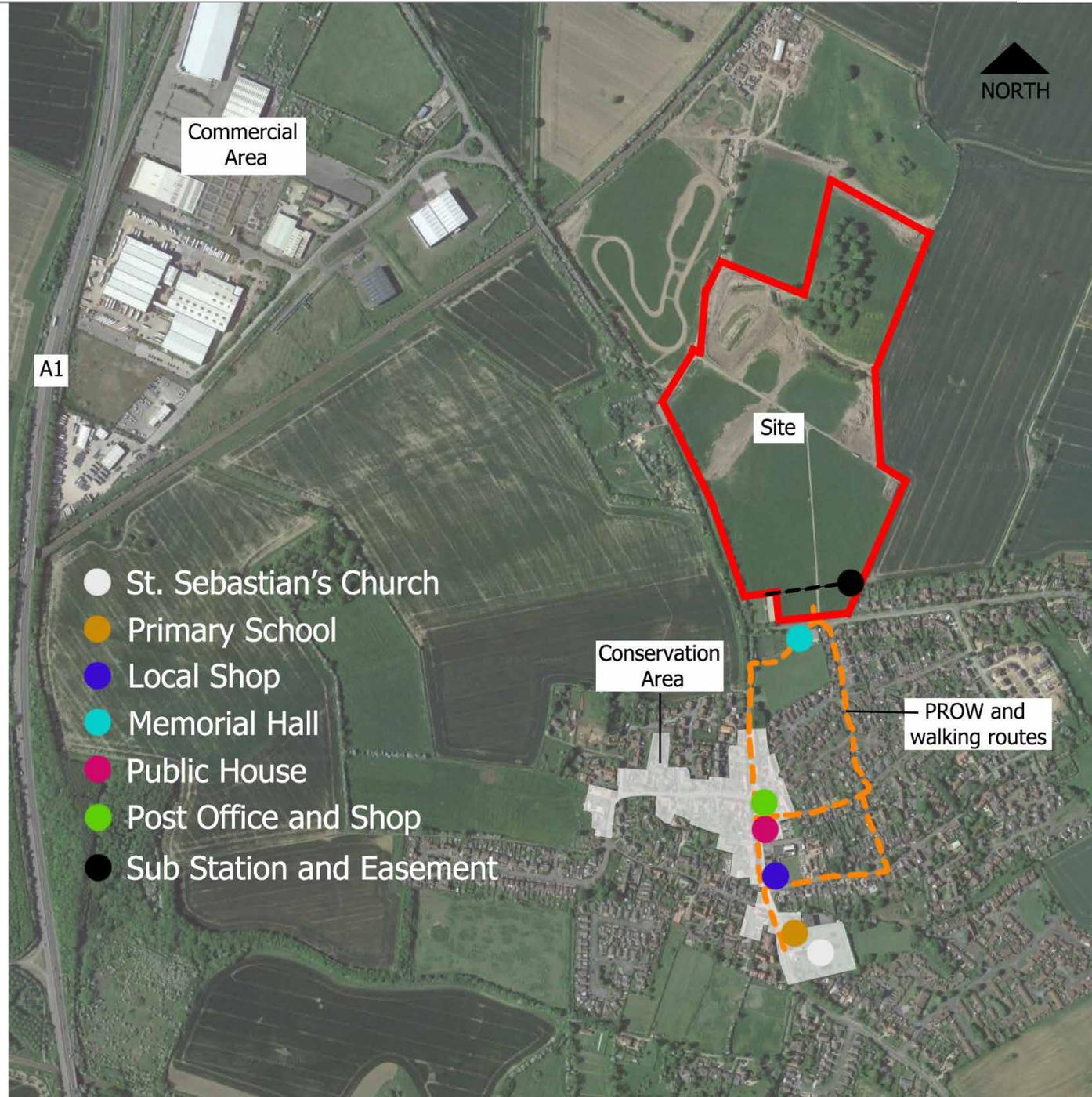
Additionally, with the surrounding context of the site currently consisting of residential developments and other built forms, the change in character and views experienced within a close proximity to the site will not be completely contrasting and can be mitigated by planting and a considered layout.



Opportunities & Considerations

not to scale

- Improved vehicular connection between Belton Lane and Newark Hill.
- Delivery of up to 350 new homes.
- Approximately 36% of the site will be utilised for biodiversity enhancements and public open space.
- Sustainable location with good connectivity.
- Creation of new access required from Belton Lane to provide new spine road.
- Sub-station and easement crossing existing site.
- Site is within LCA Grantham Scarps and Valleys.



The Development Vision

An Framework Plan has been prepared in response to the identified opportunities and constraints set out in this document. This masterplan provides a framework for development to deliver a high quality sustainable new community for Great Gonerby and the wider South Kesteven area equating to circa 333 dwellings (at a density of 35 dwellings per hectare).

The development would seek to deliver much needed market and affordable housing alongside significant areas of open space and green infrastructure. Of the total site area of 19 hectares, the developable area constitutes of 9.52 hectares (excluding the Sustainable Urban Drainage (SUDs) features, LEAP and other areas of internal public open space). An area for biodiversity enhancements and public open space is included equating to a total of 6.87 hectares. On top of that, 2.61 hectares are devoted to additional internal areas of public open space, a LEAP and areas for SUDs features). This equates to a total of circa 50% of the Site being devoted to green infrastructure.

The framework plan includes the potential to provide a new link road through the site, diverting traffic away from the currently inadequate Belton Lane/Newark Hill junction.

A key design rationale for development would be to sensitively integrate the proposed development into the landscape, and to minimise impacts on landscape character, visual amenity and ecology.

Development would include the delivery of a large area of green infrastructure that could provide benefits for biodiversity (net gains), local landscape character, recreation, health and well-being, and adaptation to climate change.

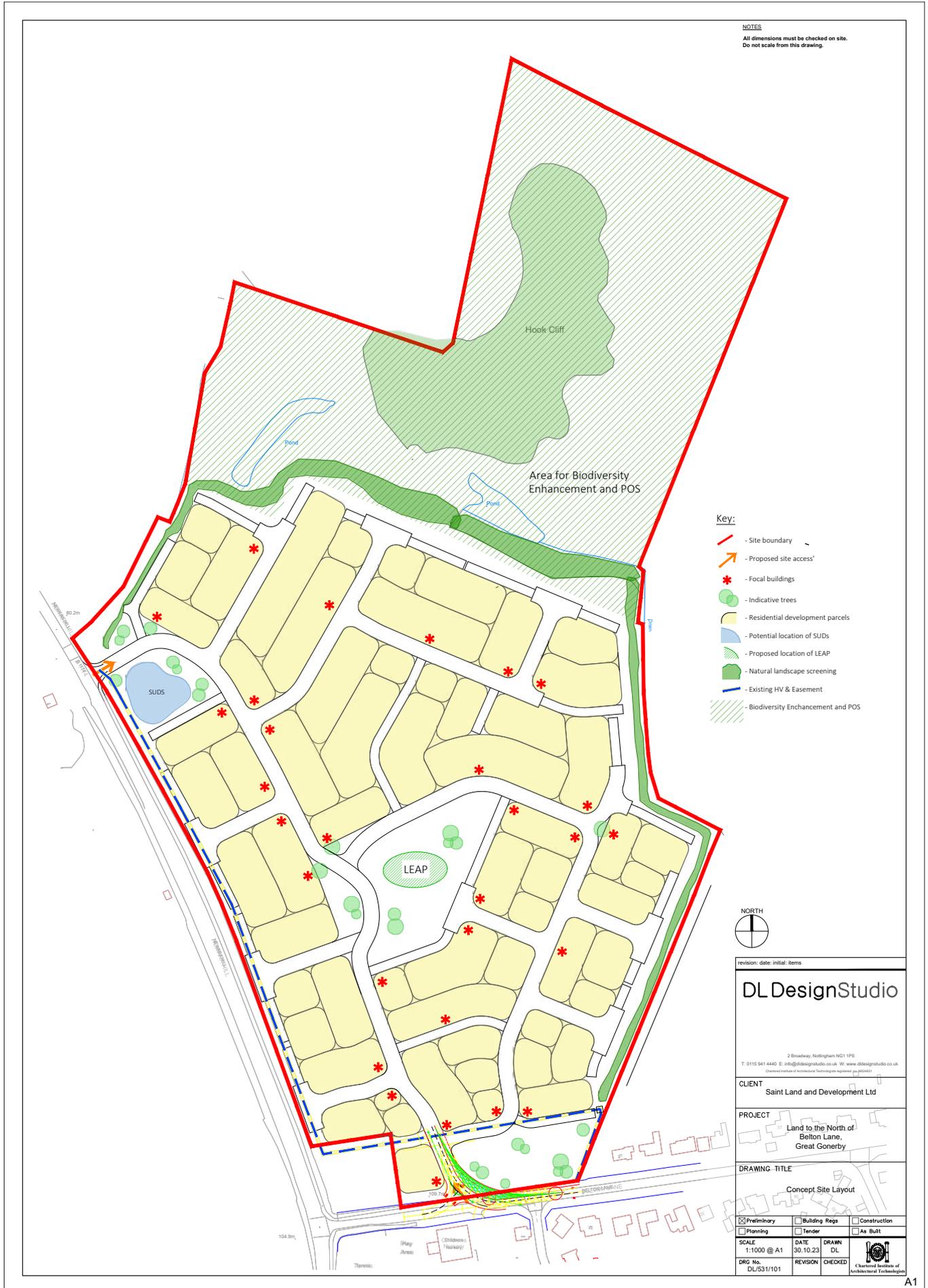
Sustainable drainage infrastructure such as an attenuation basin can also be integrated into the layout and an allowance has been made for this.

Initial layouts envisage a central spine road linking Belton Lane with Newark Hill as previously described. From this would be secondary routes and private drives serving the dwellings. In the centre of the development would be a pleasant area of open greenspace including a LEAP, providing a community focal point and providing children with further opportunities for play. Trees would be planted throughout the development and in particular along the primary spine road which will provide a tree lined boulevard through the site. Landscape buffers are to be provided along the Site boundaries of the developable parcels to provide natural screening and in order to minimise views from the wider landscape.



Proposed Site Layout

NOTES
All dimensions must be checked on site.
Do not scale from this drawing.



- Key:**
- Site boundary
 - Proposed site access
 - Focal buildings
 - Indicative trees
 - Residential development parcels
 - Potential location of SUDS
 - Proposed location of LEAP
 - Natural landscape screening
 - Existing HV & Easement
 - Biodiversity Enhancement and POS



revision: date: initial: items

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CLIENT
Saint Land and Development Ltd

PROJECT
Land to the North of
Belfon Lane,
Great Gonerby

DRAWING TITLE
Concept Site Layout

<input checked="" type="checkbox"/> Preliminary	<input type="checkbox"/> Building Regs	<input type="checkbox"/> Construction
<input type="checkbox"/> Planning	<input type="checkbox"/> Tender	<input type="checkbox"/> As Built
SCALE 1:1000 @ A1	DATE 30.10.23	DRAWN DL
DRG No. DL/SS1/101	REVISION	CHECKED



A1

Summary

This site is sustainably located and offers an ideal opportunity for a well-designed and sensitive extension to a wholly sustainable large village. This would be a logical and sensible location for new residential development which will be necessary to meet the increased housing requirement expected to be forthcoming in the Local Plan review.

The Site also offers the opportunity to resolve a known highways problem, namely the capacity of the Belton Lane/Newark Hill junction, in lieu of the mitigation measures previously suggested which have now been found to be undeliverable.

The Site is deliverable, being under the ownership of a single landowner, and is being promoted by Saint Land and Development Limited. It is also available now, offers a suitable location for development and is achievable with the potential for housing and the highlighted highways improvements to be delivered on the site within five years.

Accordingly, for the reasons set out within this Promotion Document, it is requested that the site be allocated for the residential development of up to 350 dwellings in the Local Plan Review.

saint

DL DesignStudio

 **Marrons**

6. Appendix 2 – Transport and Travel Statement

PROJECT	Hook Cliff Farm, Great Gonerby, Lincolnshire		
DOCUMENT NUMBER	HCF-BWB-GEN-XX-RP-TR-0001_TTA	BWB REF	232815
AUTHOR	Matt Corner	STATUS	S2
CHECKED	Sara Terrey	REVISION	P5
APPROVED	Matt Corner	DATE	23/10/2023

1. INTRODUCTION

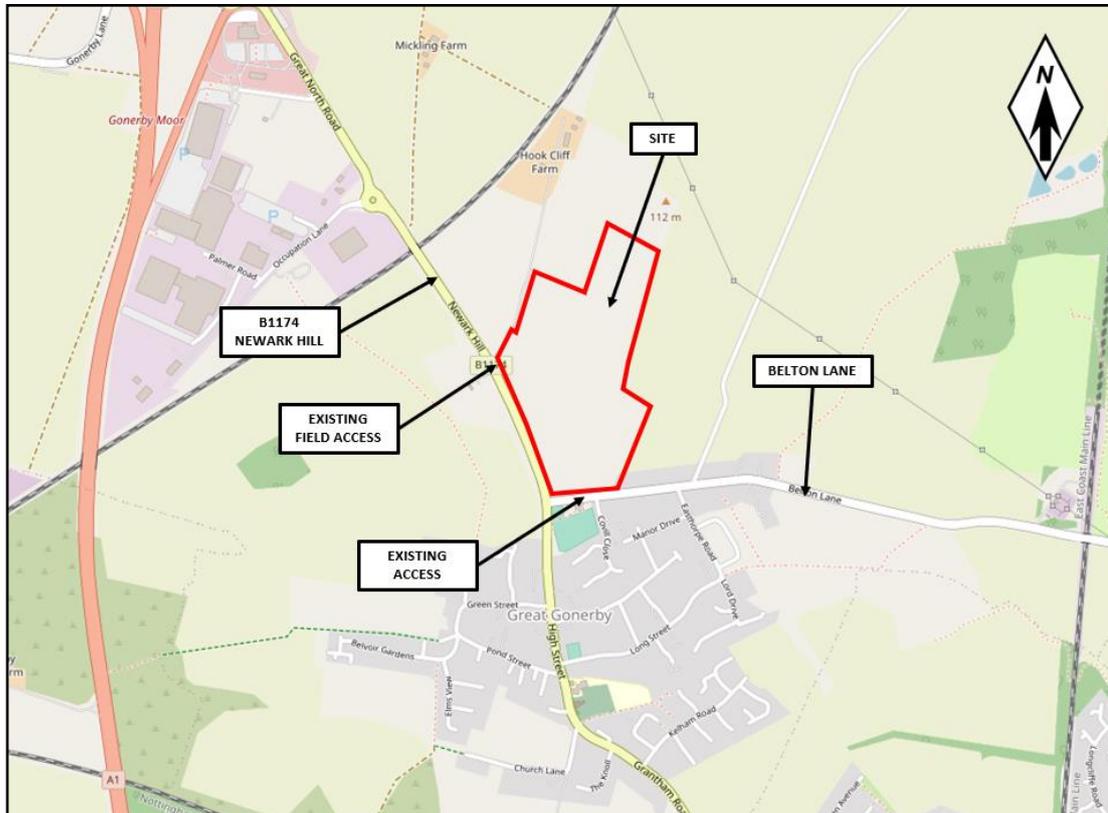
- 1.1 BWB Consulting Ltd (BWB) has been appointed by Saint Land and Development Ltd to provide highways and transportation advice in respect of a potential residential development on land to the north of Belton Lane in Great Gonerby, Lincolnshire.
- 1.2 South Kesteven District Council (Local Planning Authority) is consulting on its Local Plan and has issued a Call for Sites to landowners for possible development. The purpose of this Traffic and Transport Appraisal is to assist in promoting the site through the Call for Sites representation for inclusion in the revised Local Plan by examining the following key transport areas:
- Whether safe and suitable access is achievable for all users.
 - Whether the additional traffic is likely to be accommodated on the highway network without causing any significant capacity or safety problems.
 - Whether the site is in a sustainable location and how it could connect to the existing off-site infrastructure to promote active travel.

2. EXISTING CONDITIONS

Site Details

- 2.1 The site comprises an irregular shaped parcel of land located to the north of Great Gonerby in Lincolnshire. It is bound by undeveloped land to the north and east, Belton Lane to the south and the B1174 Newark Hill to the west. Further afield, Grantham is located approximately 3 kilometres to the south.
- 2.2 The majority of the site is vacant although there is a cemetery and parking area at the southwest corner, which is accessed from Belton Lane via a priority-controlled junction. There is also a second field access from the B1174 at the northwest corner of the site, which is shared by the adjacent land owners to other fields, one of which appears to be used as an area of outdoor storage. **Figure 1** shows the location of the site and the two existing points of access.

Figure 1: Site Location



Highway Layout

- 2.3 Belton Lane is a single carriageway road measuring 5.5 metres wide that extends in an east to west direction past the southern side of the site. It is subject to a 30mph speed limit and 7.5 tonnes weight restriction and serves the Great Gonerby Memorial Hall at the southern side opposite the site and a number of direct private driveways to residential dwellings along both sides to the east of the site. Belton Lane features a footway along its southern edge and a verge along its northern edge, although there is a short section of footway around the existing site access that leads to the cemetery/car park. At the existing access location, the carriageway is relatively flat but features a downhill gradient approximately 50 metres to the west for a distance of 70 metres where it forms a priority-controlled T-junction with the B1174.
- 2.4 The B1174/Belton Lane junction is priority controlled with the B1174 forming the major arms and Belton Lane forming the minor arm. The junction operates from a stop line because of the downhill gradient along Belton Lane and also because visibility appears to be restricted in both directions. There is limited scope to deliver any significant improvements to the junction because of retaining structures that bound the carriageway at both sides.
- 2.5 The B1174 Newark Hill extends in a north to south direction from the Belton Lane junction and past the western side of the site. It is subject to a 30mph speed limit at the junction which increases to the National Speed Limit (60mph) approximately 20 metres to the

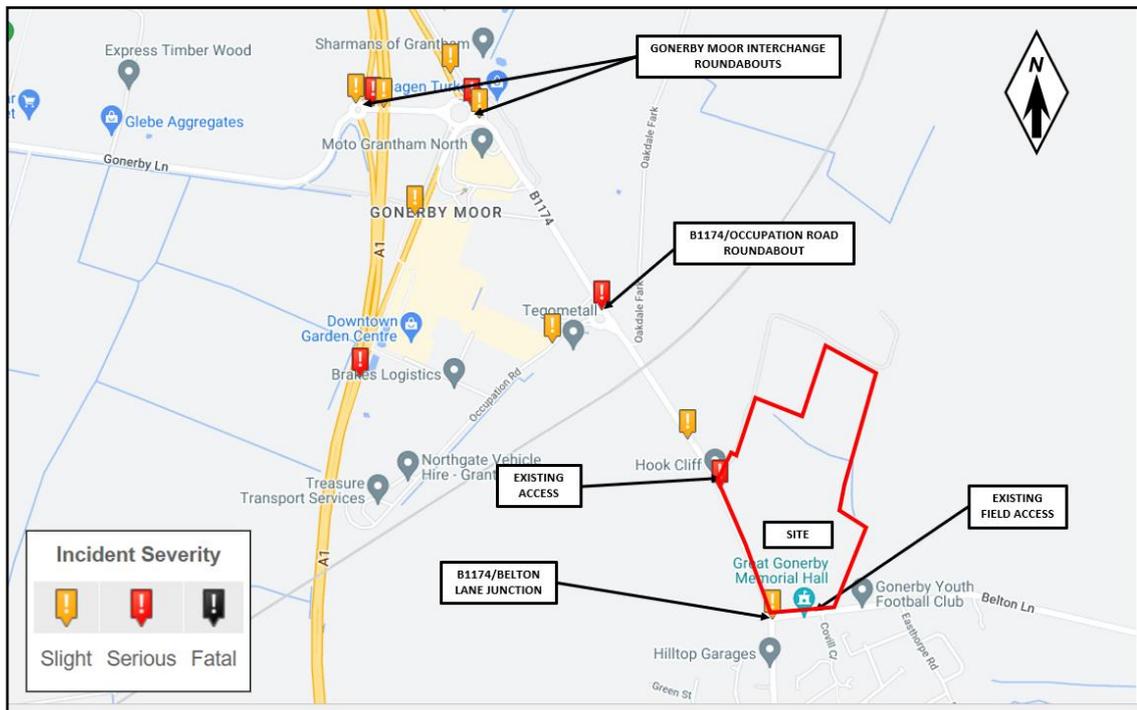
north. The B1174 measures approximately 6.5 metres wide and provides a footway along its eastern edge. There is a retaining wall that separates the majority of the site frontage from the B1174, as the ground level of the site is raised significantly higher than the road. This limits access into the site from the northwest corner only where the existing field access is located.

- 2.6 Highway land boundary information has been purchased from Lincolnshire County Council for both Belton Lane and the B1174 in the vicinity of the site, a copy of which is included at **Appendix 1**. This has been taken into account in the preliminary access designs presented in Section 3.

Road Safety Review

- 2.7 The Crashmap website (www.crashmap.co.uk) has been reviewed to understand whether there are any on-going highway safety problems along Belton Lane or the B1174 in the vicinity of the site. **Figure 2** contains an extract from the website covering the latest 5-year period (2017 to 2022) showing the locations and severity of all recorded Personal Injury Collisions (PIC) that have occurred during this time.

Figure 2: Personal Injury Collision Records



- 2.8 The records show that there has not been a single recorded PIC at the existing site access on Belton Lane. A single PIC has occurred approximately 20 metres south of the existing field access from the B1174, which involved two vehicles and was classified as serious.
- 2.9 There has been a single recorded PIC at the B1174/Belton Lane junction, which involved two vehicles and was classified as slight. Further afield, there has been a single recorded

PIC at the B1174/Occupation Road roundabout, which was classified as slight and two recorded PICs at the Gonerby Moor Interchange comprising one slight and one serious.

- 2.10 Whilst any future Transport Assessment would purchase and review full PIC records from Lincolnshire County Council, the frequency of accidents on the local road network is relatively low given the volume of traffic they accommodate and hence there appear to be no significant highways safety problems in the local area.

Committed Development & Traffic Flows

- 2.11 Traffic flow data along Belton Lane and the B1174 has been obtained from a Transport Assessment supporting a Sustainable Urban Extension (SUE) on land at the northern edge of Grantham, which is being delivered by Allison Homes (planning reference S15/3189). The application was granted planning permission for up to 480 residential dwellings, a neighbourhood centre and single form entry primary school.
- 2.12 The traffic impacts of the Grantham SUE were assessed using Lincolnshire County Council's SATURN model. Relevant extracts of the Transport Assessment detailing the schemes included in the SATURN model are included at **Appendix 2**, with the 2024 forecast future year traffic flows along Belton Lane and the B1174 shown at **Diagram 1** and **Diagram 2** for the morning and evening peak hours respectively. This shows the following traffic flows are expected to be generated along both roads.

B1174

	AM Peak Hour	PM Peak Hour
Northbound	630	426
Southbound	455	638
Two-Way	1,085	1,064
AADT	6,717*	

**taken from DfT traffic count*

Belton Lane

	AM Peak Hour	PM Peak Hour
Eastbound	363	440
Westbound	353	300
Two-Way	716	740

- 2.13 The data shows that the B1174 is forecast to accommodate 1,085 movements in the AM peak hour and 1,064 movements in the PM peak hour. It also shows that the B1174 carries 6,717 movements based on Annual Average Daily Traffic (AADT). Belton Lane is expected to accommodate less traffic with 716 movements in the AM peak hour and 740 movements in the PM peak hour.
- 2.14 The Grantham SUE Transport Assessment includes a scheme of mitigation at the B1174/Belton Lane junction, which involves widening Belton Lane and signalling the junction. Whilst this scheme has been approved, it is understood that it is undeliverable

because of the retaining structures along both sides of Belton Lane meaning there is an issue with resolving traffic impacts at this junction. **Appendix 3** includes a copy of the approved improvement scheme.

3. POTENTIAL DEVELOPMENT

Scale

- 3.1 At this stage, the site is considered suitable in accommodating up to 350 residential dwellings, with the accommodation mix/house types to be confirmed at a later stage.

Access Opportunities

Introduction and Design Standards

- 3.2 Table 5.1 of the 'Lincolnshire Development Roads and Sustainable Drainage Design Approach' document (LCC, November 2017) sets out the 'indicative highway design parameters' for various road types serving different scales of development. It states that a 'Major Access Road' is suitable in serving 200 dwellings from a cul-de-sac, or 400 dwellings from a loop/circuit arrangement. A Major Access Road should comprise a carriageway width of between 5 and 6.75 metres, with 10 metres kerb radii and provide 2 metres wide footways on both sides.
- 3.3 Whilst Lincolnshire County Council's standards allow for a development of 350 dwellings to be served by a single point of access (subject to the design of the internal layout), the following section of this Traffic and Transport Appraisal assesses the opportunities of delivering new accesses from both Belton Lane and the B1174 to serve a residential development at the site, taking into account the above design standards.

Belton Lane

- 3.4 As mentioned in Section 2, there is an approved mitigation scheme at the B1174/Belton Lane junction that was designed as part of the Grantham SUE scheme being delivered by Allison Homes (contained at **Appendix 3**). This scheme is required to accommodate the future traffic volumes along the B1174 and Belton Lane, however, is undeliverable because of the existing retaining structures. With this, there is an opportunity for the site to provide an alternative mitigation strategy by transferring traffic travelling towards the A1 through the site and out onto the B1174 further north.
- 3.5 **Drawing Number HCF-BWB-HML-00-DR-TR-103 Revision P2** shows how Belton Lane could be realigned so that the priority is through the site. The road would comprise a carriageway width of 6.75 metres and have a centreline radius of 35 metres (with widening around the bend to accommodate refuse collection vehicles). The location of the realigned carriageway would avoid impacting the Covill Close junction and avoid the downhill section of Belton Lane on approach to the B1174. Footways of 2 metres in width could be provided along the proposed access road and the existing section of Belton Lane to the east, supported with crossing points to transfer pedestrians to the south towards Great Gonerby. It also shows how a new access could be provided to the cemetery further north.

- 3.6 The purpose of realigning Belton Lane is to remove traffic away from the B1174/Belton Lane junction, which would have benefits in that the junction has poor visibility in both directions, has a significant downhill gradient on approach to the junction and is forecast to operate over capacity with planned development in place. There are also no tangible improvements that are deliverable to address these issues because of the existing retaining structures. The site therefore provides an opportunity to resolve these issues and transfer a large proportion of traffic to the B1174 further north via a fully compliant junction, further details of which are provided below.

B1174 Newark Hill

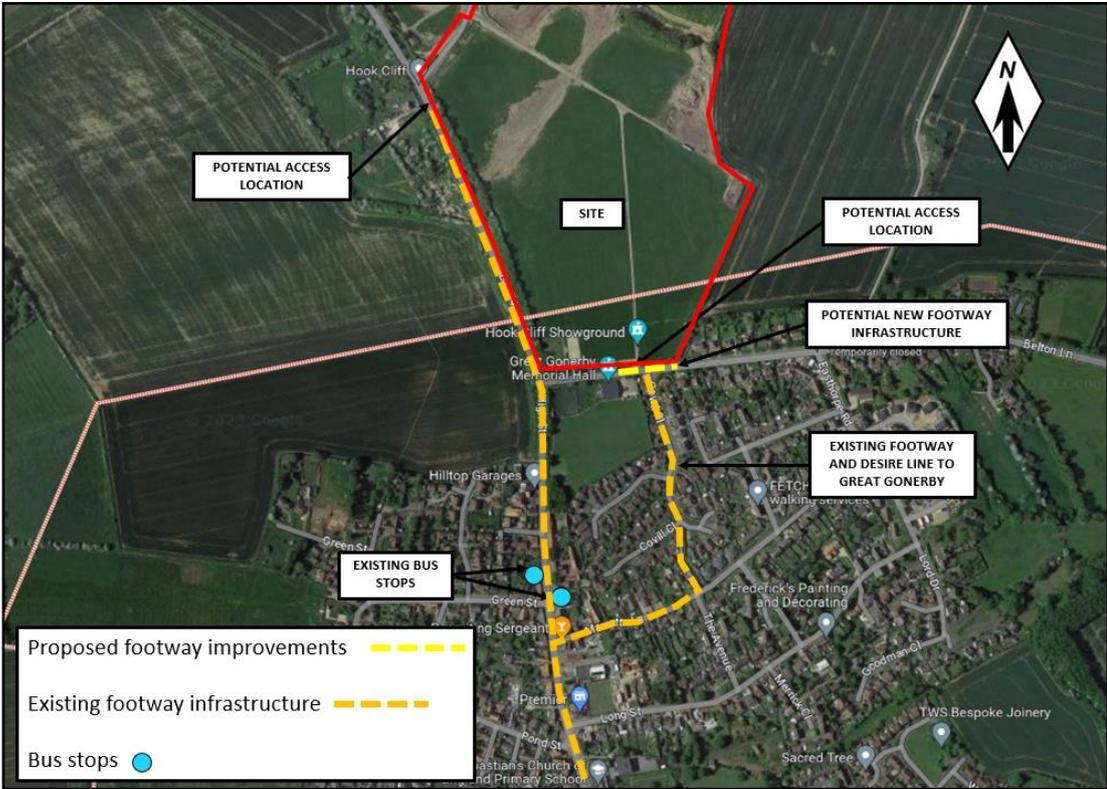
- 3.7 **Drawing Number HCF-BWB-HML-00-DR-TR-102 Revision P2** shows the form and location of a new site access from the B1174. The access has been positioned 20 metres south of the existing field access (centreline to centreline) to avoid the existing retaining wall but also to allow the field access to be retained to separate residential and agricultural/commercial traffic.
- 3.8 The access has been designed to show a 6.75 metres wide carriageway, with 10 metres kerb radii. A short left turn flare (3 pcu length) has been provided to separate left and right turning movements at the junction. Footways of 2 metres in width are provided at both sides of the carriageway which would tie into the existing footway infrastructure along the eastern side of the B1174 at both sides.
- 3.9 The B1174 is subject to National Speed Limit restrictions past the site access location and hence consideration has been given to the need for a right turn lane. The design standards for right turn lanes are outlined in the Design Manual for Roads and Bridges document 'CD 123 – Geometric design of at-grade and priority and signal controlled junctions'. Paragraph 2.12 states:
- “priority junctions shall include a major road central treatment when the minor road flow exceeds 300 vehicles 2-way annual average daily traffic (AADT), or the major road flow exceeds 13,000 vehicles 2-way AADT”*
- 3.10 The B1174 carries approximately 6,717 movements two-way AADT (based on 2022 survey data) and hence significantly below the 13,000-movement threshold specified in DMRB. Whilst a development of 350 dwellings would generate more than 300 movements AADT along the site access, this is a low flow and often side roads are able to accommodate much higher traffic numbers before capacity problems are triggered. These standards are also specific to the Strategic Road Network where the primary purpose of the road is to transport vehicular traffic and hence greater flexibility is often applied to the local road network where the needs of other non-motorised users take priority.
- 3.11 The safety of any simple T-junction could be improved by relocating the existing 30/60mph speed limit to north of the access to reduce the speed of vehicles travelling northbound on the B1174 and towards any vehicle waiting to turn right into the site. With this and noting that all other existing junctions along the B1174 further south comprise simple T-junctions, it is considered that a right turn lane would not be required and simple T-junction would suffice, subject to further detailed capacity assessments.

- 3.12 In terms of visibility and based on the existing 60mph speed limit along the B1174, visibility splays of 124 metres are required from the site access, in accordance with Table 5.2 of Lincolnshire County Council's design guidance. **Drawing Number HCF-BWB-HML-00-DR-TR-102 Revision P2** shows how visibility splay distances of 124 metres are achievable in both directions from a 2.4 metres setback distance to the nearside kerb line and demonstrates worst-case without reducing the speed limit at this location.
- 3.13 Overall, it is considered that a fully compliant access is deliverable from the eastern side of the B1174 that meets Lincolnshire County Council's design standards from both a geometric and visibility perspective. Whilst this is subject to further capacity assessments to confirm that a simple T-junction is suitable (detailed in Section 4), it is considered that this would be the most suitable junction type for the traffic volumes it would accommodate and be in keeping with other junctions in the local area.

Active Travel Infrastructure

- 3.14 The main facilities within Great Gonerby are located on High Street approximately 800 metres from a central point within the site. This includes:
- Retail (Post Office and Premier Convenience Store)
 - Commercial (Recruiting Sergeant Pub)
 - Leisure (Gonerby Social Club)
 - Education (St Sebastian's Church of England Primary School)
- 3.15 The main desire lines to the above facilities are likely to be via Covill Road (for residents departing from Belton Lane) and via the B1174 (for residents departing from the B1174).
- 3.16 At Belton Lane, the design of the access would include 2 metres wide footways at both sides which would extend to new dropped kerb and tactile paving crossings to transfer pedestrians to the southern side of the road. Covill Road provides footways on both sides of the carriageway that continue south to a footpath that leads to Marratts Lane and then west to the High Street.
- 3.17 Residents travelling from the B1174 access would be able to use the proposed infrastructure internally that would connect to the existing footway that extends along the eastern side of the road directly towards the High Street.
- 3.18 **Figure 3** shows the existing and potential future infrastructure/desire lines from the site towards Great Gonerby. Whilst there are no dedicated cycle facilities in the local area, the residential roads within the site and within Great Gonerby should be suitable in accommodating cyclists within the carriageway.

Figure 3: Walking/Cycling Desire Lines



- 3.19 **Figure 3** also shows the location of the closest bus stops on High Street approximately 800 metres from a central point within the site, which is within the maximum walking distances for rural locations. These stops are served by Route Number 24, which operates at an hourly frequency between 0720 and 1820 hours Monday to Friday and connects Great Gonerby with Newark, Grantham and Long Bennington. **Appendix 4** includes the current bus timetable information.

- 3.20 As part of any future Transport Assessment, negotiations could take place with the bus operators, alongside Lincolnshire County Council, to establish whether new bus stops could be provided closer to the site, or improvements made to increase the frequency of the existing services. Notwithstanding this, it is considered at this stage that there are a variety of transport modes for future residents to use to travel within the local area and further afield.

4. HIGHWAY IMPACT

Potential Increase in Activity

4.1 To understand the potential increase in traffic from the potential development, the TRICS database has been interrogated to obtain suitable trip rates. To do this, the TRICS database was filtered using the following parameters:

- Land Use: Residential – Houses Privately Owned
- Regions: England (excluding Greater London)
- Range: 200 to 800 dwellings
- Date: 01/01/15 to 27/09/22 (default)
- Locations: suburban and edge of town
- Survey days: weekdays only (excluding Friday)

4.2 The above filtering criteria generated 16 surveys from 16 sites and average trips rates were calculated. **Appendix 5** includes the TRICS output data, whilst **Table 1** includes the morning and evening peak hour trip rates and corresponding traffic generation based on a development of 350 dwellings.

Table 1: Trip Rates and Traffic Generation Calculations (350 dwellings)

Time Period	Trip Rates			Trip Generation		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
08:00 – 09:00	0.152	0.406	0.558	53	142	195
17:00 – 18:00	0.374	0.161	0.535	131	56	187

4.3 To understand how the above traffic could distribute across the network, the split of traffic north and south on the B1174 from the 2024 forecast flows within the Allison Homes Transport Assessment has been used. This would be revisited as part of any future Transport Assessment but provides a reasonable estimation at this stage. The data shows the following percentage distribution.

- Morning peak hour – 58% northbound, 42% southbound
- Evening peak hour – 40% northbound, 60% southbound

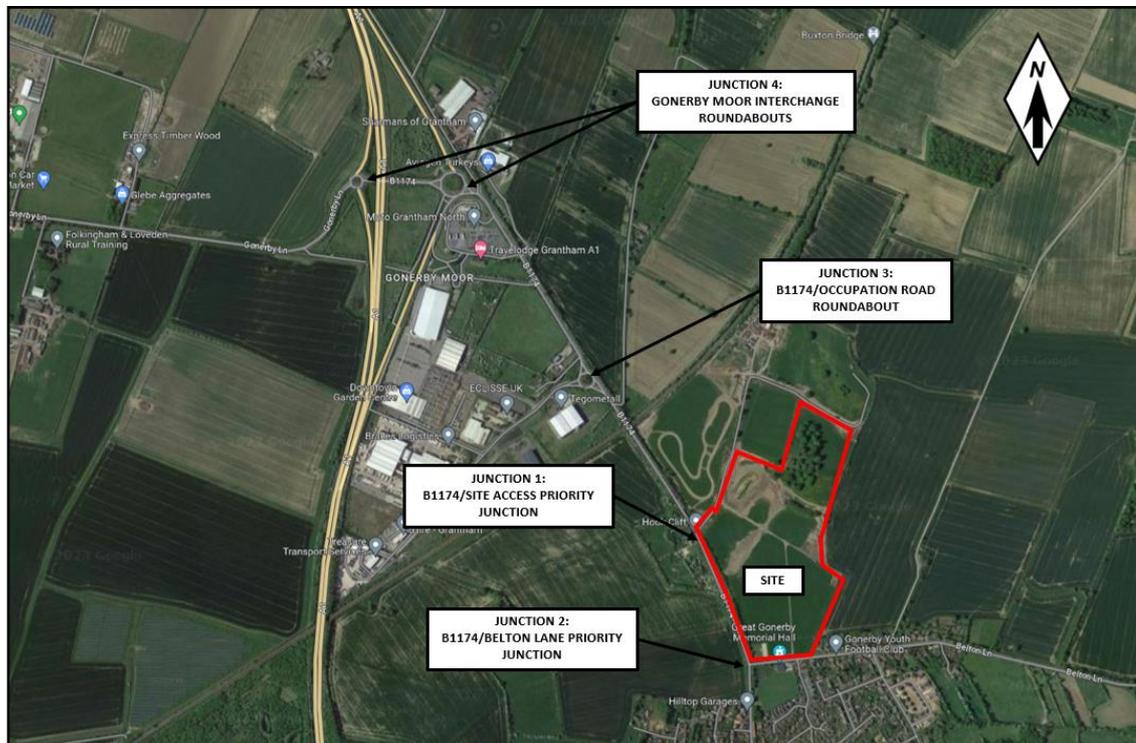
4.4 **Diagram 3** and **Diagram 4** show the development distribution pattern in the morning and evening peak hours respectively. **Diagram 5** and **Diagram 6** subsequently show the development traffic assignment based on the above distribution pattern assumptions.

Off-site Vehicular Impact

4.5 The details in **Diagram 5** and **Diagram 6** show that the following junctions would likely need assessing as part of any future Transport Assessment (the locations of which are shown on **Figure 4**).

1. B1174/Site Access junction – 132 additional movements
 2. B1174/Belton Lane priority junction – 81 additional movements
 3. B1174/Occupation Road roundabout – 113 additional movements
 4. Gonerby Moor Interchange roundabout dumbbell roundabout (A1 Strategic Road Network) – 113 additional movements
- 4.6 An assessment of the potential impacts of a development of 350 dwellings at the above four junctions has been undertaken to establish whether the additional traffic is likely to be accommodated on the network. As the access strategy involves re-aligning Belton Lane so that the priority is through the site towards the B1174, a proportion of the background traffic shown in **Diagram 1** and **Diagram 2** has been transferred through the site. At this stage, it is anticipated that 70% of the background traffic heading towards the A1 would route through the site within 30% continuing along Belton Lane to the B1174. The transferred background traffic flows are shown in **Diagram 7** and **Diagram 8** for the morning and evening peak hours respectively.
- 4.7 **Diagram 9** and **Diagram 10** subsequently show the 2024 transferred background plus development traffic flows for the morning and evening peak hours. This includes for a significant number of committed development and infrastructure schemes that were included in the SATURN model.

Figure 4: Off-Site Junction Locations



Junction 1: B1174/Site Access Priority Junction

- 4.8 To understand the future operation of a new priority-controlled T-junction to the site from the B1174 a model has been created using Junctions 10 software. **Appendix 6** includes a scaled plan showing the junction geometry and the Junctions 10 output data. The junction has been tested using the 2024 transferred background plus development traffic flows shown in **Diagram 9** and **Diagram 10**. **Table 2** summarises the results.

Table 2: Junctions 10 Modelling Results (B1174/Site Access Junction)

Arms	Weekday AM Peak			Weekday PM Peak		
	Q (pcu)	Delay (secs)	RFC	Q (pcu)	Delay (secs)	RFC
2024 Transferred Background plus Development Traffic Flows						
Stream B-C (Site Access)	0.1	16.01	0.06	0.0	8.81	0.02
Stream B-A (Site Access)	4.0	43.00	0.82	1.0	17.97	0.51
Stream C-AB (B1174 S)	0.0	4.88	0.01	0.1	5.63	0.04

- 4.9 The results show that the priority-controlled T-junction layout from the B1174 shown in **Drawing Number HCF-BWB-HML-00-DR-TR-102 Revision P2** is forecast to operate within capacity, even when accommodating the transferred background traffic flows.

Junction 2: B1174/Belton Lane Priority Junction

- 4.10 To understand the future capacity levels at the B1174/Belton Lane junction, a Junctions 10 model has been created. **Appendix 7** includes a scaled plan showing the junction geometry and the Junctions 10 output data. The junction has been tested using the 2024 transferred background plus development traffic flows shown in **Diagram 9** and **Diagram 10**. **Table 2** summarises the results.

Table 3: Junctions 10 Modelling Results (B1174/Belton Lane Junction)

Arms	Weekday AM Peak			Weekday PM Peak		
	Q (pcu)	Delay (secs)	RFC	Q (pcu)	Delay (secs)	RFC
2024 Transferred Background plus Development Traffic Flows						
Stream B-AC (Belton Lane)	0.9	17.62	0.48	0.9	16.51	0.47
Stream C-AB (B1174 S)	0.8	7.03	0.36	1.2	9.40	0.47

- 4.11 The results show that the junction is expected to operate comfortably within capacity. Therefore, it can be concluded that by transferring background traffic through the site and onto the B1174 via the new site access, the previous capacity problems at the B1174/Belton Lane junction would be resolved. This would remove the need for the approved highway mitigating improvements (noting they are also undeliverable) and also reduce turning movements from a junction that has poor visibility (operating off a stop line) and features a downhill gradient along Belton Lane approaching the junction. Therefore, the site and the possible highway infrastructure changes along Belton Lane would provide significant overall benefits to highway capacity and safety at the B1174/Belton Lane junction.

Junction 3: B1174/Occupation Road Roundabout

- 4.12 The B1174/Occupation Road junction is a 3-arm roundabout. The B1174 arms provide single lane approaches with a short flare into two lanes at the roundabout, whilst the Occupation Road arm features a single lane. The traffic flow data summarised in Section 2, shows that the B1174 is forecast to accommodate 1,085 movements (two-way) in the busier morning peak hour. Whilst this excludes movements to/from Occupation Road from the B1174 (north), the additional 113 movements from the development equates to less than 2 additional movements per minute in either direction.
- 4.13 Therefore, whilst a detailed capacity assessment has not been undertaken at this stage, this additional volume of traffic is not expected to cause any significant capacity problems at the junction, subject to further detailed assessment as part of any future Transport Assessment. However, should improvements be required, then these are expected to be minor and possibly involve increasing the length of the flare and two-lane approach by widening out the inside kerb along both B1174 arms using the existing verge space. This is subject to confirmation of the highway boundary at this location, albeit there appears to be space within the verge to deliver minor improvements.

Junction 4: Gonerby Moor Interchange Roundabout

- 4.14 The Gonerby Moor Interchange junction is a dumbbell roundabout providing access to the A1 in all directions with both roundabouts providing 3 entry arms. Whilst existing traffic flows are unknown at this junction and would be surveyed as part of any Transport Assessment, given the strategic nature of the junction it is likely that the 113 additional movements generated by the residential development would be a small percentage. As such, it is not anticipated that there would be any significant impacts caused by the proposed development at this location.
- 4.15 However, should improvements be required, then there is scope to widen the entry arm on the B1174 arms to provide a short flare or deliver a scheme of signalisation. This is subject to confirmation of the highway boundary at this location, albeit there appears to be space within the verge to deliver minor improvements.

Summary

- 4.16 A potential development of 350 dwellings is not expected to cause any significant capacity problems at any junction in the vicinity of the site along the B1174. Furthermore, the site has the potential to transfer background traffic away from the B1174/Belton Lane junction, which is expected to exceed capacity and has highway safety issues with poor visibility. This removes the need for the approved mitigation scheme to be delivered as part of the Grantham SUE development, which appear to be undeliverable. Hence, the site has the opportunity to provide benefits to the existing highway layout for other road users.
- 4.17 If required, there are opportunities to deliver physical infrastructure improvements off-site to mitigate impacts from the development, which would have benefits on both capacity and highway safety. Any highway improvements schemes would be

determined as part of any Transport Assessment in consultation with Lincolnshire County Council.

5. SUMMARY AND CONCLUSIONS

5.1 This Traffic and Transport Appraisal has been prepared to promote the site through the Call for Sites representation for inclusion in South Kesteven District Council's revised Local Plan. The key transport conclusions are as follows:

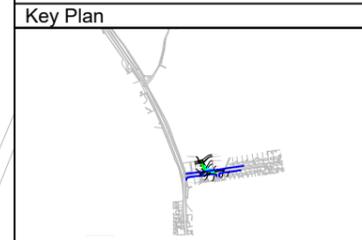
- The site could be served by new accesses from both Belton Lane and the B1174 Newark Hill that meets Lincolnshire County Council's adopted design standards from a geometric layout and visibility perspective.
- The site could connect to the existing infrastructure within Great Gonerby by providing new footway infrastructure at both site access and along Belton Lane as well as delivering new pedestrian crossings. This would provide a continuous route for pedestrians and cyclists to reach the existing facilities and amenities.
- The closest bus stops are located within a reasonable walking distance of the site, although there would be scope to consider introducing new stops and improving the frequency of services as part of any future Transport Assessment.
- The additional traffic generation by development at the site is expected to be accommodated on the local road network without causing any significant capacity or safety problems. There should however be scope to deliver highway improvements to improve both highways safety and capacity at nearby junctions should this be required.
- By changing the priority of Belton Lane and transferring traffic through the site, the B1174/Belton Lane junction would be relieved of its capacity problems removing the need for the approved mitigation scheme which is undeliverable because of the existing retaining structures. Hence, developing the site would have significant benefits in relieving existing capacity issues that are difficult to mitigate.

5.2 Overall, it is considered that the site constitutes sustainable development and would not result in any significant highway safety or capacity impacts that could not be mitigated. In addition, two points of access should be deliverable that meets Lincolnshire County Council's design standards. On this basis, the site is considered suitable for inclusion in South Kesteven District Council's Local Plan for residential development.

DRAWINGS



- Notes**
1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
 2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
 3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
 4. Any discrepancies noted on site are to be reported to the engineer immediately.



Legend

Rev	Date	Details of issue / revision	Dwn	Rev
P2	23.10.23	NEW CEMETERY ACCESS INCLUDED	MC	AJO
P1	23.08.23	PRELIMINARY ISSUE	MC	AJO

Issues & Revisions

Rev	Date	Details of issue / revision	Dwn	Rev
P2	23.10.23	NEW CEMETERY ACCESS INCLUDED	MC	AJO
P1	23.08.23	PRELIMINARY ISSUE	MC	AJO

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Client
SAINT LAND AND DEVELOPMENT LTD

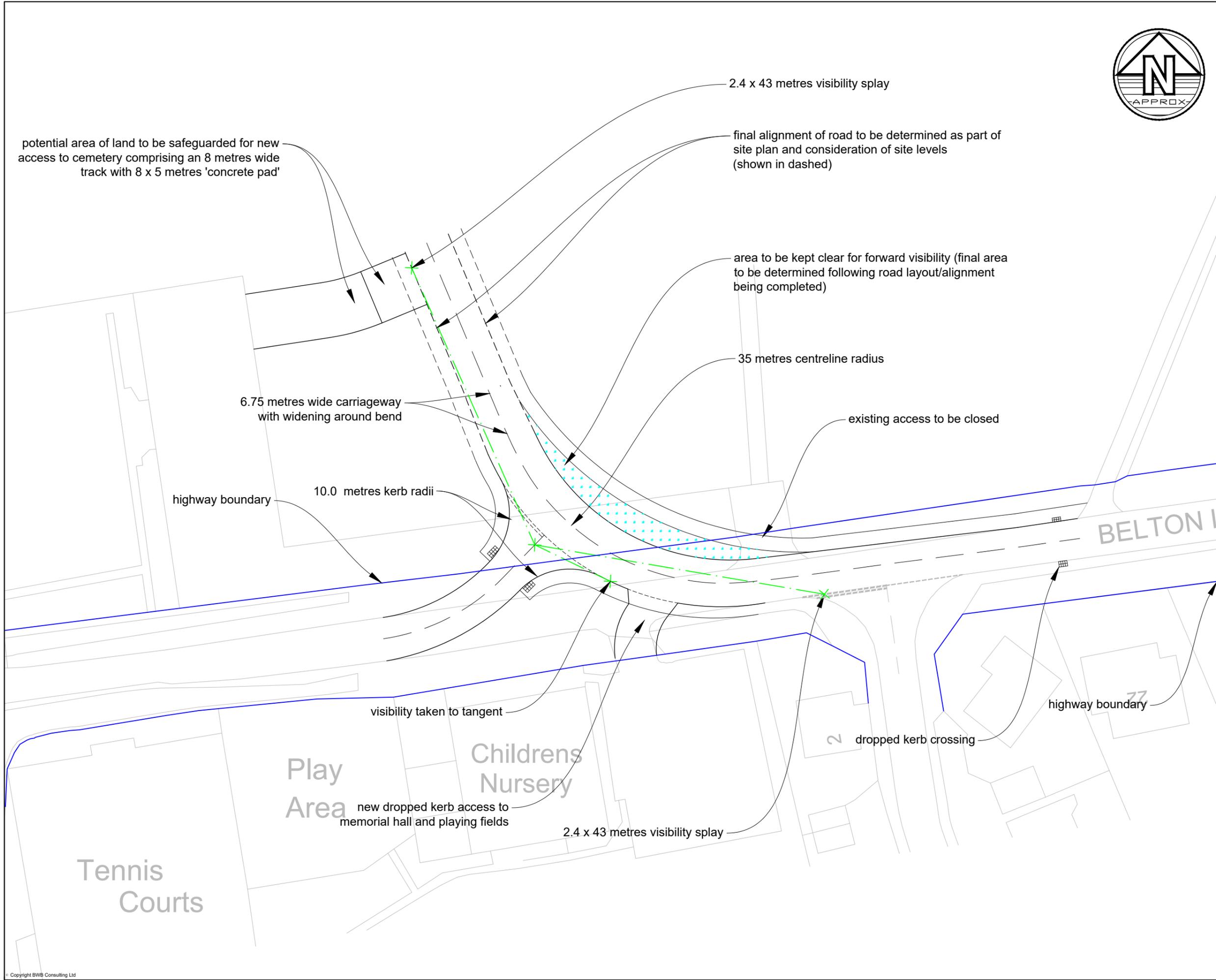
Project Title
HOOK CLIFF FARM, GREAT GONERBY

Drawing Title
POTENTIAL RE-ALIGNMENT OF BELTON LANE INTO SITE

Drawn:	M. Corner	Reviewed:	AJ. Oakes
BWB Ref:	232815	Date:	28.07.23
Scale:	A3	Scale:	1:500

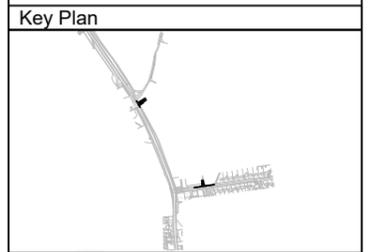
Drawing Status
PRELIMINARY

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
HCF-BWB-HML-00-DR-TR-103	S2	P2





- Notes**
1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
 2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
 3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
 4. Any discrepancies noted on site are to be reported to the engineer immediately.



Legend

Rev	Date	Details of issue / revision	Dwn	Rev
P2	31.08.23	UPDATED TO INCLUDE LEFT TURN FLARE	MC	MC
P1	28.07.23	PRELIMINARY ISSUE	FS	MC

Issues & Revisions

Rev	Date	Details of issue / revision	Dwn	Rev
P2	31.08.23	UPDATED TO INCLUDE LEFT TURN FLARE	MC	MC
P1	28.07.23	PRELIMINARY ISSUE	FS	MC

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Client
SAINT LAND AND DEVELOPMENT LTD

Project Title
HOOK CLIFF FARM, GREAT GONERBY

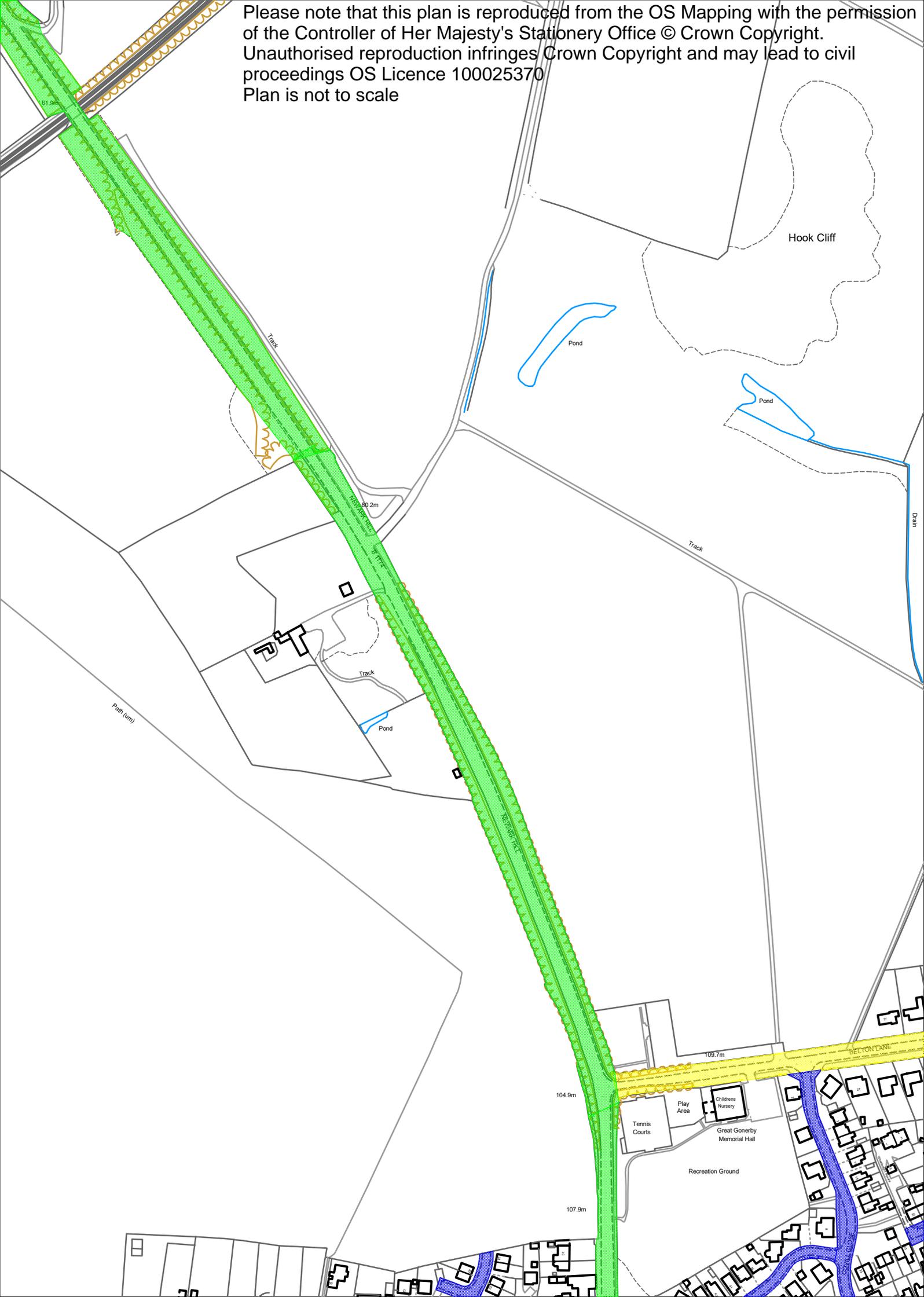
Drawing Title
POTENTIAL SITE ACCESS FROM B1174

Drawn:	F. Summerfield	Reviewed:	M. Corner
BWB Ref:	232815	Date:	28.07.23
Scale:	A3	Scale:	1:1000
Drawing Status			
PRELIMINARY			
Project - Originator - Zone - Level - Type - Role - Number	Status	Rev	
HCF-BWB-HML-00-DR-TR-102	S2	P2	

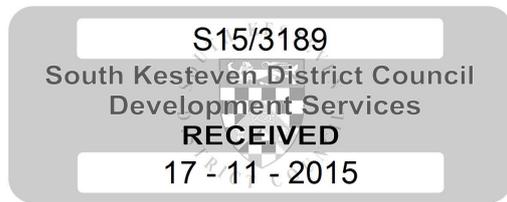
APPENDICES

Appendix 1: Highway Boundary Information

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Plan is not to scale



Appendix 2: Relevant Extracts from the Grantham SUE Transport Assessment



LAND ON THE NORTHERN EDGE OF THE GRANTHAM URBAN AREA

Transport Assessment

Client : Larkfleet Homes

Project No. 14-022

July 2015

6 LCC'S SATURN MODEL

Introduction

6.1 As stated in Section 5 it has been agreed with LCC to make use of Grantham Traffic Model to investigate the impact of the proposed development. The resultant Traffic Modelling Report is shown in full in Appendix E. The following paragraphs provide a summary of the main modelling assumptions.

Assessment Year

6.2 The SATURN model has a base year of 2016 and a future year of 2024 is available. It is anticipated that development on the site would be completed and occupied by 2022, but it has been agreed to utilise the 2024 model for the purpose of this assessment.

Network Improvement Schemes

6.3 The 2016 model includes the following highway improvements:

- Bridge End Road/ London Road junction improvement
- A1- B1174 Link Road
- Southern Quadrant Link Road

6.4 In addition, the 2024 model also includes the Pennine Link Road.

Committed Development

6.5 The 2016 model includes the following committed residential development:

- Springfield Road
- Impress Site, Springfield Road
- Station Road

- Kwiksave Site
- Beacon Lane
- St Vincent Lodge
- Rycroft Street
- Bairds Malt
- Station Approach
- Greyfriars
- Land north of Dysart Road
- Stonebridge House, Stonebridge Road
- Land north of Peachwood Close
- Southern Quadrant (200 dwellings at Valley North)

6.6 The 2016 model also includes the following committed employment developments:

- South of Barrowby Road, east of A1
- North of Harlaxton Road, west of A1
- Old Quarry, Spittlegate Level
- King 31 / Hampton Brook

6.7 The 2024 models also include the Poplar Farm East and Poplar Farm West residential development and Phase 1 (Valley North Residential and Employment North) and Phase 2 (Plateau North Residential and Employment South) of the Southern Quadrant development.

Scenarios Modelled

6.8 The following scenarios were modelled:

- Scenario 1 – 2016. Including all committed development and highway improvement previously identified for this year.
- Scenario 2- 2024. Including all committed development and highway improvement previously identified for this year
- Scenario 3a – 2024. As scenario 2 with the addition of the proposed development accessed from Longcliffe Road only (to

provide a basis for comparison with scenario 3b with regard to flows using Belton Lane).

- Scenario 3b – 2024. As Scenario 2 with the addition of the proposed development accessed from both Longcliffe Road and Belton Lane

6.9 Traffic flows using the A607 / Belton Lane junction were slightly lower in Scenario 3b and there was no significant increase in traffic at the Belton Lane / Newark Hill junction when compared to Scenario 3a. This confirmed that appropriateness of the chosen site access strategy.

Use of the Model Results

6.10 Turning flows for each scenario have been provided for the following junctions:

- A607 Manthorpe Road / Belton Lane
- A607 Manthorpe Road / Belton Lane
- A607 Manthorpe Road / Sandcliffe Road
- B1174 Newark Hill / Belton Lane
- Belton Lane site access

6.11 These flows for Scenarios 2 and 3b have been used in conjunction with the PICADY models referred to in Section 3 to assess the impact of the development proposals on these junctions.

6.12 In addition to turning flows, data on junction delays and journey times has been provided from the model. These are examined in detail in Section 7.

7 TRAFFIC IMPACT AND MITIGATION

Traffic Impact at Local Junctions

7.1 The junctions most likely to be impacted by traffic generated by the development are the A607 / Longcliffe Road, the A607 / Sandcliffe Road, A607 / Belton Lane and the B1174 / Belton Lane junctions. These junctions have all been assessed under Scenario 2 and Scenario 3b traffic flows. The results of this junction capacity analysis is discussed in further detail below. Full PICADY outputs are included in Appendix G.

A607/ Sandcliffe Road junction

7.2 Table 7.1 summarises the main PICADY output for this junction.

Table 7.1 : A607 / Sandcliffe Road

Junction / Arm	AM Peak (0800 - 0900)		PM Peak (1700 - 1800)	
	RFC	End Queue	RFC	End Queue
AM 2024 Do Minimum				
Sandcliffe Road	0.578	1.33	0.551	1.19
A607 Right Turn	0.106	0.14	0.097	0.12
AM 2024 DS2				
Sandcliffe Road	0.769	3.03	0.724	2.42
A607 Right Turn	0.116	0.16	0.127	0.17

7.3 The two of the main outputs from PICADY that indicate how a junction is performing are the RFC (ratio of flow to capacity) and queue lengths. Junctions with RFC's of less than 0.85 are considered to be operating within capacity. RFC's between 0.85 and 1.0 show that the junction has exceeded practical capacity but remains within theoretical capacity.

Queuing would start to become more significant with RFC's in this range. An RFC over 1.0 shows the junction is over its theoretical capacity and queues increase considerably with the introduction of any additional traffic.

- 7.4 It can be seen that under both scenarios assessed this junction continues to operate with RFC's below 0.85 and would therefore be considered to remain within capacity.

A607 / Longcliffe Road

- 7.5 Table 7.2 summarises the main PICADY output for this junction.

Table 7.2 : A607 / Longcliffe Road

Junction / Arm	AM Peak (0800 - 0900)		PM Peak (1700 - 1800)	
	RFC	End Queue	RFC	End Queue
AM 2024 Do Minimum				
Longcliffe Rd Right Turn	0.595	1.42	0.522	1.06
Longcliffe Rd left Turn	0.186	0.23	0.138	0.16
A607 Right Turn	0.099	0.12	0.150	0.20
AM 2024 DS2				
Longcliffe Rd Right Turn	0.822	3.97	0.699	2.18
Longcliffe Rd left Turn	0.427	0.71	0.224	0.28
A607 Right Turn	0.105	0.13	0.156	0.21

- 7.6 In the Do Minimum Scenario (i.e. without the development proposal in place) the A607 / Longcliffe Road junction is shown to be operating within capacity with a maximum RFC of 0.595 in the AM peak and 0.522 in the PM peak. With the development site in place the maximum RFC is 0.822 and indicates that the junction would remain within capacity.

A607 / Belton Lane

7.7 Table 7.3 summarises the main PICADY output for this junction.

Table 7.3 : A607 / Belton Lane

Junction / Arm	AM Peak (0800 - 0900)		PM Peak (1700 - 1800)	
	RFC	End Queue	RFC	End Queue
AM 2024 Do Minimum				
Belton Lane	0.988	13.17	0.943	9.09
A607 Right Turn	0.459	1.19	0.499	1.30
AM 2024 DS2				
Belton Lane	0.940	9.01	0.927	8.04
A607 Right Turn	0.494	1.36	0.512	1.38

7.8 In 2024 without the development in place the Belton Lane arm of this junction is over-capacity in both AM and PM peak periods, with RFC's of 0.988 and 0.943 respectively. With the development in place the RFC's reduce to 0.940 and 0.927. The queue lengths decrease by 4 vehicles in the AM peak and by 1 vehicle in the PM peak. The proposals do not have a severe adverse impact on the performance of this junction.

Newark Hill / Belton Lane

7.9 Table 7.4 summarises the main PICADY output for this junction.

Table 7.4 : Newark Hill / Belton Lane

Junction / Arm	AM Peak (0800 - 0900)		PM Peak (1700 - 1800)	
	RFC	End Queue	RFC	End Queue
AM 2024 Do Minimum				
B-AC – Belton Lane	1.167	30.06	0.944	8.66
B C-AB – Newark Lane Right Turn	0.376	0.85	0.345	0.72
AM 2024 DS2				
B-AC – Belton Lane	1.246	46.15	1.012	13.76
B C-AB – Newark Lane Right Turn	0.364	0.83	0.389	0.86

- 7.10 It can be seen that in 2024 without the development in place the Belton Lane approach to the junction is already over theoretical capacity in the AM peak hour. Adding on development traffic, as would be expected, worsens the performance of the junction. Even though the increase in flows on Belton Lane towards Newark Hill is only 14 vehicles, the increase results in a queue length increase of approximately 12 vehicles. The additional vehicles simply add onto the existing queue. In the PM peak the impact is less, with a queue length increases of 3 vehicles.

Proposed Mitigation

- 7.11 It can be seen from the above assessments that the only junction that is over-capacity and suffers a worsening in performance as a result of the proposals is the B1774 Newark Hill / Belton Lane junction. The potential for improvement to this junction has therefore been examined in the following paragraphs. The LINSIG outputs for this assessment can be found in Appendix H.

B1174 Newark Hill / Belton Lane signal junction

- 7.12 The S106 Agreement for the previous Appeal Scheme included an allowance for signalisation of this junction if post-development monitoring identified a capacity problem. A LINSIG model of a simple three arm signal junction with a pedestrian crossing included over Belton Lane has been produced and the results of this are summarised in Table 7.5.

Table 7.5 : Newark Hill / Belton Lane Signal Junction

Junction / Arm	AM Peak (0800 - 0900)		PM Peak (1700 - 1800)	
	DoS	Queue	DoS	Queue
Newark Hill North	44.7%	9.8	58.0%	14.3
Belton Lane	78.3%	12.7	80.4%	11.5
High Street South	76.5%	13.7	83.4%	13.0

7.13 It can be seen that the provision of a signal controlled junction in this location would result in the junction operating well within capacity (DoS of less than 90%). This not only mitigates the impact of the development proposals, but also results in a dramatic improvement over the 2024 baseline situation.

7.14 The existing priority junction has no footways on Belton Lane or on the west side of Newark Hill, the junction is in a fairly deep cutting, the carriageway on Belton Lane is narrow and the corner radii are tight. These constraints mean that it is necessary to set the stopline on Belton Lane well back from the B1174 in order to safely accommodate large vehicles turning. This means that stopline intervisibility is not achieved. However:

- The visibility at the existing priority junction is substandard and signalisation, even without full stopline intervisibility, would be safer arrangement
- Any large vehicles using this junction to access existing residential properties (i.e. refuse lorries) currently has to use the full width of the road to turn in or out of the junction, conflicting with other vehicle movements. Introducing signals with appropriately located stoplines means that these conflicts are removed.
- Pedestrians waiting to crossing Belton Lane are visible from all stoplines and therefore the substandard intervisibility does not pose a risk to pedestrians.
- A controlled pedestrian crossing of Belton Lane is introduced.

7.15 On this basis the provision of signals without full stopline intervisibility would result in a safer arrangement than the current priority junction.

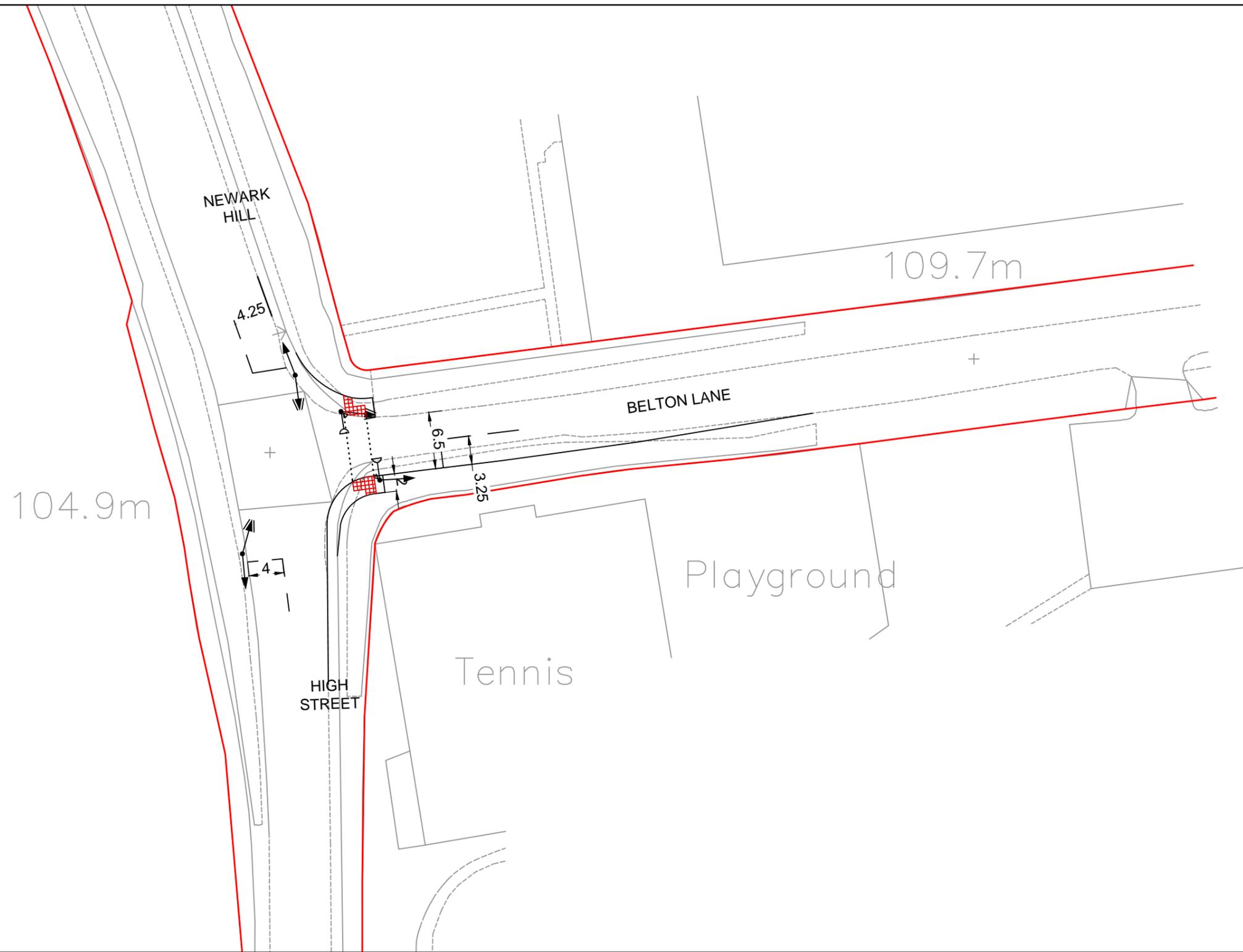
J3 A607 Manthorpe Road / Sandcliffe Road

	From	To	Scenario 1 -2016 DM		Scenario 2 -2024 DM		Scenario 3a -2024 DS1		Scenario 3b -2024 DS2	
			AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Manthorpe Road S	Arm A	Arm B	142	110	153	130	163	163	163	163
		Arm C	415	610	441	653	457	736	453	707
Sandcliffe Road	Arm B	Arm A	122	111	136	122	176	144	176	144
		Arm C	47	36	44	33	56	41	56	41
Manthorpe Road N	Arm C	Arm A	721	537	709	532	737	577	729	565
		Arm B	53	44	46	38	50	47	50	47

J4 B1174 Newark Hill / Belton Lane / B1174 High Street

	From	To	Scenario 1 -2016 DM		Scenario 2 -2024 DM		Scenario 3a -2024 DS1		Scenario 3b -2024 DS2	
			AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Newark Hill	Arm A	Arm B	219	226	215	265	216	267	221	295
		Arm C	213	289	235	341	235	348	234	343
Belton Lane	Arm B	Arm A	222	146	316	190	350	205	352	218
		Arm C	30	54	23	108	1	93	1	82
High Street	Arm C	Arm A	223	209	270	208	278	210	278	208
		Arm B	90	88	148	131	148	142	142	145

Appendix 3: Approved Mitigation Scheme at B1174/Belton Lane Junction



NOTES:-

1. DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED DIMENSIONS ONLY. ——— HIGHWAY BOUNDARY
2. ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN METRES.

Rev	Amendments	Drn	Chk	App	Date

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 SE1 7NQ
 Telephone: 0207 620 2444
 Fax: 0207 620 1168
 E: enquiries@odysseymarkides.com
 W: www.odysseymarkides.com

Job Title
LAND NORTH OF GRANTHAM

Drawing Title
**B1174/BELTON LANE
 SIGNAL SCHEME**

Client
LARKFLEET HOMES

Scale 1:500 @ A3	Date APR' 15	Designed MM
Drawn MM	Checked JB	Approved ACM
Job No 14-022	Figure No FIGURE 12	Rev -

Q:\14-022 - Land North of Grantham, Lincs\Tech\Graphics\Figure 12.dwg

Appendix 4: Bus Timetable Information

Monday to Friday

Ref.No.: 2301

Service No	24	24	24	24	24	24	24	24	24
					K				
Grantham, Bus Station	NBH 0733	NBH 0845	NBH 0910	NBH 1045	NBH 1135	NBH 1245	NBH 1410	NBH 1630	NBH 1800
Hornsby Road	.....	.....	.....	.....	.....	.....	.....	1638	1808
Trent Road, Meres	.....	.....	.....	.....	.....	.....	.....	1641	1811
Cliffe Road	.....	0854	0919	1054	1141	1254	1419	1647	.....
Great Gonerby, High St	0740	0857	0922	1057	1152	1257	1422	1655	1820
Downtown	0744	0900	0925	1100	1155	1300	1425	1658	1822
Allington, Green	0753	.....	.....	.....	.....	.....	.....	1705	.....
Long Bennington, Church St	.....	0910	.....	1110	.....	1310	.....	.....	1832
Long Bennington, Village Hall	0800	.....	.....	.....	.....	.....	.....	1712	.....
Long Bennington, Reindeer	.....	0913	.....	1113	.....	1313	.....	.....	1834
Westborough	.....	0918	.....	1118	.....	1318	.....	.....	.....
Dry Doddington	.....	0921	.....	1121	.....	1321	.....	.....	.....
Claypole	.....	0925	.....	1125	.....	1325	.....	.....	.....
Balderton, Grove	.....	0934	.....	1134	.....	1334	.....	.....	.....
Newark, Bus Station	.....	0940	.....	1140	.....	1340	.....	.....	.....

NBH - Not on Bank Holidays
K - via Kelham Road

Service No	24	24	24	24	24	24	24	24	24
			K						
Newark, Bus Station	.....	.....	.....	0945	.....	1145	.....	1440	.....
Balderton, Grove	.....	.....	.....	0951	.....	1151	.....	1446	.....
Claypole	.....	.....	.....	1000	.....	1200	.....	1455	.....
Dry Doddington	.....	.....	.....	1004	.....	1204	.....	1459	.....
Westborough	.....	.....	.....	1007	.....	1207	.....	1502	.....
Long Bennington, Village Hall	0704	0800	.....	1013	.....	1213	.....	1508	1712
Long Bennington, Church St	0706	0802	.....	1014	.....	1214	.....	1509	1714
Foston, Long St/Main St	0710	0806	.....	.....	.....	.....	.....	.....	1719
Downtown	0718	0814	0925	1023	1155	1223	1425	1518	1728
Great Gonerby, High St	0720	0817	0929	1027	1159	1227	1429	1522	1731
Cliffe Road	.....	0822	0938	1032	1204	1232	1434	1527	.....
Grantham, Bus Station	0730	0830	0947	1040	1212	1240	1442	1537	1742

NBH - Not on Bank Holidays
K - via Kelham Road

Saturday

Ref.No.: 2301

<i>Service No</i>	<i>24</i>	<i>24</i>	<i>24</i>	<i>24</i>
Grantham, Bus Station	0845	1145	1345	1545
Gonerby, Cliffe Rd	0854	1154	1354	1554
Great Gonerby, High St	0857	1157	1357	1557
Downtown	0900	1200	1400	1600
Long Bennington, Church St	0910	1210	1410	1610
Long Bennington, Reindeer	0913	1213	1413	1613
Westborough	0918	1218	1418	.....
Dry Doddington	0921	1221	1421	.....
Claypole	0925	1225	1425	.....
Balderton, Grove	0934	1234	1434	.....
Newark, Bus Station	0940	1240	1440	.....

<i>Service No</i>	<i>24</i>	<i>24</i>	<i>24</i>	<i>24</i>
Newark, Bus Station	.....	0945	1245	1445
Balderton, Grove	.....	0951	1251	1451
Claypole	.....	1000	1300	1500
Dry Doddington	.....	1004	1304	1504
Westborough	.....	1007	1307	1507
Long Bennington, Village Hall	0813	1013	1313	1513
Long Bennington, Church St	0814	1014	1314	1514
Downtown	0823	1023	1323	1523
Great Gonerby, High St	0827	1027	1327	1527
Gonerby, Cliffe Rd	0832	1032	1332	1532
Grantham, Bus Station	0840	1040	1340	1540

Appendix 5: TRICS Output Data

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED
 TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	1 days
	HC HAMPSHIRE	2 days
	KC KENT	2 days
	SC SURREY	1 days
	SP SOUTHAMPTON	1 days
	WS WEST SUSSEX	1 days
04	EAST ANGLIA	
	NF NORFOLK	6 days
05	EAST MIDLANDS	
	DY DERBY	1 days
06	WEST MIDLANDS	
	ST STAFFORDSHIRE	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: No of Dwellings
 Actual Range: 212 to 799 (units:)
 Range Selected by User: 200 to 800 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/15 to 27/09/22

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Tuesday	5 days
Wednesday	7 days
Thursday	3 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	13 days
Directional ATC Count	3 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	1
Edge of Town	15

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	13
Out of Town	3

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included 7 days - Selected
 Servicing vehicles Excluded 23 days - Selected

Secondary Filtering selection:

Use Class:

C3 16 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000 2 days
 5,001 to 10,000 7 days
 10,001 to 15,000 4 days
 15,001 to 20,000 2 days
 20,001 to 25,000 1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000 3 days
 25,001 to 50,000 1 days
 50,001 to 75,000 2 days
 75,001 to 100,000 3 days
 125,001 to 250,000 5 days
 250,001 to 500,000 2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0 3 days
 1.1 to 1.5 12 days
 1.6 to 2.0 1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes 11 days
 No 5 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present 16 days

This data displays the number of selected surveys with PTAL Ratings.

Covid-19 Restrictions Yes At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions

LIST OF SITES relevant to selection parameters

1	DY-03-A-01 RADBOURNE LANE DERBY	MIXED HOUSES	DERBY
	Edge of Town Residential Zone Total No of Dwellings: 371 <i>Survey date: TUESDAY 10/07/18</i>		<i>Survey Type: MANUAL</i>
2	ES-03-A-03 SHEPHAM LANE POLEGATE	MIXED HOUSES & FLATS	EAST SUSSEX
	Edge of Town Residential Zone Total No of Dwellings: 212 <i>Survey date: MONDAY 11/07/16</i>		<i>Survey Type: MANUAL</i>
3	HC-03-A-24 STONEHAM LANE EASTLEIGH	MIXED HOUSES & FLATS	HAMPSHIRE
	Edge of Town Residential Zone Total No of Dwellings: 243 <i>Survey date: WEDNESDAY 10/11/21</i>		<i>Survey Type: MANUAL</i>
4	HC-03-A-26 BOTLEY ROAD WHITELEY	MIXED HOUSES & FLATS	HAMPSHIRE
	Edge of Town Out of Town Total No of Dwellings: 270 <i>Survey date: THURSDAY 24/06/21</i>		<i>Survey Type: MANUAL</i>
5	KC-03-A-06 MARGATE ROAD HERNE BAY	MIXED HOUSES & FLATS	KENT
	Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 363 <i>Survey date: WEDNESDAY 27/09/17</i>		<i>Survey Type: MANUAL</i>
6	KC-03-A-07 RECVLVER ROAD HERNE BAY	MIXED HOUSES	KENT
	Edge of Town Residential Zone Total No of Dwellings: 288 <i>Survey date: WEDNESDAY 27/09/17</i>		<i>Survey Type: MANUAL</i>
7	NF-03-A-17 ROUND HOUSE WAY NORWICH CRINGLEFORD	MIXED HOUSES & FLATS	NORFOLK
	Edge of Town Residential Zone Total No of Dwellings: 716 <i>Survey date: TUESDAY 20/10/15</i>		<i>Survey Type: DIRECTIONAL ATC COUNT</i>

LIST OF SITES relevant to selection parameters (Cont.)

8	NF-03-A-23 SILFIELD ROAD WYMONDHAM	MIXED HOUSES & FLATS		NORFOLK
	Edge of Town Out of Town Total No of Dwellings:		514	
	<i>Survey date: WEDNESDAY</i>		<i>22/09/21</i>	<i>Survey Type: MANUAL</i>
9	NF-03-A-31 BRANDON ROAD SWAFFHAM	MIXED HOUSES		NORFOLK
	Edge of Town Residential Zone Total No of Dwellings:		321	
	<i>Survey date: THURSDAY</i>		<i>22/09/22</i>	<i>Survey Type: DIRECTIONAL ATC COUNT</i>
10	NF-03-A-38 BEAUFORT WAY GREAT YARMOUTH BRADWELL	MIXED HOUSES		NORFOLK
	Edge of Town Residential Zone Total No of Dwellings:		537	
	<i>Survey date: TUESDAY</i>		<i>20/09/22</i>	<i>Survey Type: MANUAL</i>
11	NF-03-A-39 HEATH DRIVE HOLT	MIXED HOUSES		NORFOLK
	Edge of Town Residential Zone Total No of Dwellings:		212	
	<i>Survey date: TUESDAY</i>		<i>27/09/22</i>	<i>Survey Type: MANUAL</i>
12	NF-03-A-47 BURGH ROAD AYLSHAM	MIXED HOUSES & FLATS		NORFOLK
	Edge of Town Residential Zone Total No of Dwellings:		300	
	<i>Survey date: WEDNESDAY</i>		<i>21/09/22</i>	<i>Survey Type: DIRECTIONAL ATC COUNT</i>
13	SC-03-A-08 REIGATE ROAD HORLEY	MIXED HOUSES		SURREY
	Edge of Town Residential Zone Total No of Dwellings:		790	
	<i>Survey date: WEDNESDAY</i>		<i>04/05/22</i>	<i>Survey Type: MANUAL</i>
14	SP-03-A-02 BARNFIELD WAY NEAR SOUTHAMPTON HEDGE END	MIXED HOUSES & FLATS		SOUTHAMPTON
	Edge of Town Out of Town Total No of Dwellings:		250	
	<i>Survey date: TUESDAY</i>		<i>12/10/21</i>	<i>Survey Type: MANUAL</i>

LIST OF SITES relevant to selection parameters (Cont.)

15	ST-03-A-07 BEACONSIDE STAFFORD MARSTON GATE Edge of Town Residential Zone Total No of Dwellings: <i>Survey date: WEDNESDAY</i>	DETACHED & SEMI -DETACHED 248 <i>22/11/17</i>	STAFFORDSHIRE <i>Survey Type: MANUAL</i>
16	WS-03-A-06 ELLIS ROAD WEST HORSHAM S BROADBRIDGE HEATH Edge of Town Residential Zone Total No of Dwellings: <i>Survey date: THURSDAY</i>	MIXED HOUSES 799 <i>02/03/17</i>	WEST SUSSEX <i>Survey Type: MANUAL</i>

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

BWB CONSULTING STATION STREET NOTTINGHAM

Licence No: 714101

RANK ORDER for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
TOTAL VEHICLES

Ranking Type: TOTALS Time Range: 08:00-09:00 CALCULATION FACTOR 100m2 DWELLS

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. 14 NF-03-A-39 Tot: 0.415

85th Percentile = No. 3 ES-03-A-03 Tot: 0.627

Median Values

Arrivals: 0.171
Departures: 0.363
Totals: 0.534

Mean Values

Arrivals: 0.142
Departures: 0.400
Totals: 0.542

Rank	Site-Ref	Description	Town/City	Area	DWELLS	Day	Date	Trip Rate (Sorted by Totals)			Park Spaces Per Dwelling
								Arrivals	Departures	Totals	
1	SP-03-A-02	MIXED HOUSES &	NEAR SOUTHAMPTON	SOUTHAMPTON	250	Tue	12/10/21	0.184	0.584	0.768	2.44
2	NF-03-A-38	MIXED HOUSES	GREAT YARMOUTH	NORFOLK	537	Tue	20/09/22	0.201	0.505	0.706	2.56
3	ES-03-A-03	MIXED HOUSES &	POLEGATE	EAST SUSSEX	212	Mon	11/07/16	0.165	0.462	0.627	1.68
4	WS-03-A-06	MIXED HOUSES	WEST HORSHAM	WEST SUSSEX	799	Thu	02/03/17	0.164	0.463	0.627	2.15
5	KC-03-A-07	MIXED HOUSES	HERNE BAY	KENT	288	Wed	27/09/17	0.240	0.385	0.625	3.09
6	NF-03-A-23	MIXED HOUSES &	WYMONDHAM	NORFOLK	514	Wed	22/09/21	0.183	0.422	0.605	2.48
7	SC-03-A-08	MIXED HOUSES	HORLEY	SURREY	790	Wed	04/05/22	0.151	0.432	0.583	2.20
8	NF-03-A-47	MIXED HOUSES &	AYLSHAM	NORFOLK	300	Wed	21/09/22	0.130	0.413	0.543	2.41
9	NF-03-A-17	MIXED HOUSES &	NORWICH	NORFOLK	716	Tue	20/10/15	0.212	0.314	0.526	2.35
10	DY-03-A-01	MIXED HOUSES	DERBY	DERBY	371	Tue	10/07/18	0.089	0.402	0.491	2.92
11	ST-03-A-07	DETACHED & SEM	STAFFORD	STAFFORDSHIRE	248	Wed	22/11/17	0.105	0.383	0.488	3.55
12	HC-03-A-26	MIXED HOUSES &	WHITELEY	HAMPSHIRE	270	Thu	24/06/21	0.111	0.374	0.485	2.06
13	KC-03-A-06	MIXED HOUSES &	HERNE BAY	KENT	363	Wed	27/09/17	0.091	0.386	0.477	2.17
14	NF-03-A-39	MIXED HOUSES	HOLT	NORFOLK	212	Tue	27/09/22	0.118	0.297	0.415	2.31
15	HC-03-A-24	MIXED HOUSES &	EASTLEIGH	HAMPSHIRE	243	Wed	10/11/21	0.049	0.366	0.415	2.19
16	NF-03-A-31	MIXED HOUSES	SWAFFHAM	NORFOLK	321	Thu	22/09/22	0.072	0.218	0.290	2.86

This section displays actual (not average) trip rates for each of the survey days in the selected set, and ranks them in order of relative trip rate intensity, for a given time period (or peak period irrespective of time) selected by the user. The count type and direction are both displayed just above the table, along with the rows within the table representing the 85th and 15th percentile trip rate figures (highlighted in bold within the table itself).

The table itself displays details of each individual survey, alongside arrivals, departures and totals trip rates, sorted by whichever of the three directional options has been chosen by the user. As with the preceding trip rate calculation results table, the trip rates shown are per the calculation factor (e.g. per 100m2 GFA, per employee, per hectare, etc). Note that if the peak period option has been selected (as opposed to a specific chosen time period), the peak period for each individual survey day in the table is also displayed.

BWB CONSULTING STATION STREET NOTTINGHAM

Licence No: 714101

RANK ORDER for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
TOTAL VEHICLES

Ranking Type: TOTALS Time Range: 17:00-18:00 CALCULATION FACTOR 100m2 DWELLS

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. 14 ST-03-A-07 Tot: 0.444

85th Percentile = No. 3 ES-03-A-03 Tot: 0.651

Median Values

Arrivals: 0.350
Departures: 0.169
Totals: 0.518

Mean Values

Arrivals: 0.376
Departures: 0.160
Totals: 0.536

Rank	Site-Ref	Description	Town/City	Area	DWELLS	Day	Date	Trip Rate (Sorted by Totals)			Park Spaces Per Dwelling
								Arrivals	Departures	Totals	
1	SP-03-A-02	MIXED HOUSES &	NEAR SOUTHAMPTON	SOUTHAMPTON	250	Tue	12/10/21	0.528	0.216	0.744	2.44
2	NF-03-A-38	MIXED HOUSES	GREAT YARMOUTH	NORFOLK	537	Tue	20/09/22	0.426	0.272	0.698	2.56
3	ES-03-A-03	MIXED HOUSES &	POLEGATE	EAST SUSSEX	212	Mon	11/07/16	0.434	0.217	0.651	1.68
4	KC-03-A-07	MIXED HOUSES	HERNE BAY	KENT	288	Wed	27/09/17	0.444	0.149	0.593	3.09
5	NF-03-A-23	MIXED HOUSES &	WYMONDHAM	NORFOLK	514	Wed	22/09/21	0.393	0.198	0.591	2.48
6	KC-03-A-06	MIXED HOUSES &	HERNE BAY	KENT	363	Wed	27/09/17	0.380	0.198	0.578	2.17
7	NF-03-A-47	MIXED HOUSES &	AYLSHAM	NORFOLK	300	Wed	21/09/22	0.357	0.183	0.540	2.41
8	WS-03-A-06	MIXED HOUSES	WEST HORSHAM	WEST SUSSEX	799	Thu	02/03/17	0.367	0.168	0.535	2.15
9	NF-03-A-17	MIXED HOUSES &	NORWICH	NORFOLK	716	Tue	20/10/15	0.332	0.169	0.501	2.35
10	DY-03-A-01	MIXED HOUSES	DERBY	DERBY	371	Tue	10/07/18	0.407	0.084	0.491	2.92
11	HC-03-A-26	MIXED HOUSES &	WHITELEY	HAMPSHIRE	270	Thu	24/06/21	0.363	0.104	0.467	2.06
12	NF-03-A-39	MIXED HOUSES	HOLT	NORFOLK	212	Tue	27/09/22	0.297	0.165	0.462	2.31
13	SC-03-A-08	MIXED HOUSES	HORLEY	SURREY	790	Wed	04/05/22	0.353	0.105	0.458	2.20
14	ST-03-A-07	DETACHED & SEM	STAFFORD	STAFFORDSHIRE	248	Wed	22/11/17	0.319	0.125	0.444	3.55
15	NF-03-A-31	MIXED HOUSES	SWAFFHAM	NORFOLK	321	Thu	22/09/22	0.312	0.125	0.437	2.86
16	HC-03-A-24	MIXED HOUSES &	EASTLEIGH	HAMPSHIRE	243	Wed	10/11/21	0.309	0.074	0.383	2.19

This section displays actual (not average) trip rates for each of the survey days in the selected set, and ranks them in order of relative trip rate intensity, for a given time period (or peak period irrespective of time) selected by the user. The count type and direction are both displayed just above the table, along with the rows within the table representing the 85th and 15th percentile trip rate figures (highlighted in bold within the table itself).

The table itself displays details of each individual survey, alongside arrivals, departures and totals trip rates, sorted by whichever of the three directional options has been chosen by the user. As with the preceding trip rate calculation results table, the trip rates shown are per the calculation factor (e.g. per 100m2 GFA, per employee, per hectare, etc). Note that if the peak period option has been selected (as opposed to a specific chosen time period), the peak period for each individual survey day in the table is also displayed.

Calculation Reference: AUDIT-714101-230823-0808

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED
 TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	1 days
	HC HAMPSHIRE	2 days
	KC KENT	2 days
	SC SURREY	1 days
	SP SOUTHAMPTON	1 days
	WS WEST SUSSEX	1 days
04	EAST ANGLIA	
	NF NORFOLK	6 days
05	EAST MIDLANDS	
	DY DERBY	1 days
06	WEST MIDLANDS	
	ST STAFFORDSHIRE	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: No of Dwellings
 Actual Range: 212 to 799 (units:)
 Range Selected by User: 200 to 800 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/15 to 27/09/22

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Tuesday	5 days
Wednesday	7 days
Thursday	3 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	13 days
Directional ATC Count	3 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	1
Edge of Town	15

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	13
Out of Town	3

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	7 days - Selected
Servicing vehicles Excluded	23 days - Selected

Secondary Filtering selection:

Use Class:

C3	16 days
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This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	2 days
5,001 to 10,000	7 days
10,001 to 15,000	4 days
15,001 to 20,000	2 days
20,001 to 25,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	3 days
25,001 to 50,000	1 days
50,001 to 75,000	2 days
75,001 to 100,000	3 days
125,001 to 250,000	5 days
250,001 to 500,000	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	3 days
1.1 to 1.5	12 days
1.6 to 2.0	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	11 days
No	5 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	16 days
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This data displays the number of selected surveys with PTAL Ratings.

Covid-19 Restrictions	Yes	At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions
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LIST OF SITES relevant to selection parameters

1	DY-03-A-01 RADBOURNE LANE DERBY	MIXED HOUSES	DERBY
	Edge of Town Residential Zone Total No of Dwellings: 371 <i>Survey date: TUESDAY 10/07/18</i>		<i>Survey Type: MANUAL</i>
2	ES-03-A-03 SHEPHAM LANE POLEGATE	MIXED HOUSES & FLATS	EAST SUSSEX
	Edge of Town Residential Zone Total No of Dwellings: 212 <i>Survey date: MONDAY 11/07/16</i>		<i>Survey Type: MANUAL</i>
3	HC-03-A-24 STONEHAM LANE EASTLEIGH	MIXED HOUSES & FLATS	HAMPSHIRE
	Edge of Town Residential Zone Total No of Dwellings: 243 <i>Survey date: WEDNESDAY 10/11/21</i>		<i>Survey Type: MANUAL</i>
4	HC-03-A-26 BOTLEY ROAD WHITELEY	MIXED HOUSES & FLATS	HAMPSHIRE
	Edge of Town Out of Town Total No of Dwellings: 270 <i>Survey date: THURSDAY 24/06/21</i>		<i>Survey Type: MANUAL</i>
5	KC-03-A-06 MARGATE ROAD HERNE BAY	MIXED HOUSES & FLATS	KENT
	Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 363 <i>Survey date: WEDNESDAY 27/09/17</i>		<i>Survey Type: MANUAL</i>
6	KC-03-A-07 RECVLVER ROAD HERNE BAY	MIXED HOUSES	KENT
	Edge of Town Residential Zone Total No of Dwellings: 288 <i>Survey date: WEDNESDAY 27/09/17</i>		<i>Survey Type: MANUAL</i>
7	NF-03-A-17 ROUND HOUSE WAY NORWICH CRINGLEFORD	MIXED HOUSES & FLATS	NORFOLK
	Edge of Town Residential Zone Total No of Dwellings: 716 <i>Survey date: TUESDAY 20/10/15</i>		<i>Survey Type: DIRECTIONAL ATC COUNT</i>

LIST OF SITES relevant to selection parameters (Cont.)

8	NF-03-A-23 SILFIELD ROAD WYMONDHAM	MIXED HOUSES & FLATS		NORFOLK
	Edge of Town Out of Town Total No of Dwellings:		514	
	<i>Survey date: WEDNESDAY</i>		<i>22/09/21</i>	<i>Survey Type: MANUAL</i>
9	NF-03-A-31 BRANDON ROAD SWAFFHAM	MIXED HOUSES		NORFOLK
	Edge of Town Residential Zone Total No of Dwellings:		321	
	<i>Survey date: THURSDAY</i>		<i>22/09/22</i>	<i>Survey Type: DIRECTIONAL ATC COUNT</i>
10	NF-03-A-38 BEAUFORT WAY GREAT YARMOUTH BRADWELL	MIXED HOUSES		NORFOLK
	Edge of Town Residential Zone Total No of Dwellings:		537	
	<i>Survey date: TUESDAY</i>		<i>20/09/22</i>	<i>Survey Type: MANUAL</i>
11	NF-03-A-39 HEATH DRIVE HOLT	MIXED HOUSES		NORFOLK
	Edge of Town Residential Zone Total No of Dwellings:		212	
	<i>Survey date: TUESDAY</i>		<i>27/09/22</i>	<i>Survey Type: MANUAL</i>
12	NF-03-A-47 BURGH ROAD AYLSHAM	MIXED HOUSES & FLATS		NORFOLK
	Edge of Town Residential Zone Total No of Dwellings:		300	
	<i>Survey date: WEDNESDAY</i>		<i>21/09/22</i>	<i>Survey Type: DIRECTIONAL ATC COUNT</i>
13	SC-03-A-08 REIGATE ROAD HORLEY	MIXED HOUSES		SURREY
	Edge of Town Residential Zone Total No of Dwellings:		790	
	<i>Survey date: WEDNESDAY</i>		<i>04/05/22</i>	<i>Survey Type: MANUAL</i>
14	SP-03-A-02 BARNFIELD WAY NEAR SOUTHAMPTON HEDGE END	MIXED HOUSES & FLATS		SOUTHAMPTON
	Edge of Town Out of Town Total No of Dwellings:		250	
	<i>Survey date: TUESDAY</i>		<i>12/10/21</i>	<i>Survey Type: MANUAL</i>

LIST OF SITES relevant to selection parameters (Cont.)

15	ST-03-A-07 BEACONSIDE STAFFORD MARSTON GATE Edge of Town Residential Zone Total No of Dwellings: <i>Survey date: WEDNESDAY</i>	DETACHED & SEMI -DETACHED 248 <i>22/11/17</i>	STAFFORDSHIRE <i>Survey Type: MANUAL</i>
16	WS-03-A-06 ELLIS ROAD WEST HORSHAM S BROADBRIDGE HEATH Edge of Town Residential Zone Total No of Dwellings: <i>Survey date: THURSDAY</i>	MIXED HOUSES 799 <i>02/03/17</i>	WEST SUSSEX <i>Survey Type: MANUAL</i>

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
 TOTAL VEHICLES
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	16	402	0.090	16	402	0.339	16	402	0.429
08:00 - 09:00	16	402	0.152	16	402	0.406	16	402	0.558
09:00 - 10:00	16	402	0.137	16	402	0.173	16	402	0.310
10:00 - 11:00	16	402	0.119	16	402	0.141	16	402	0.260
11:00 - 12:00	16	402	0.134	16	402	0.148	16	402	0.282
12:00 - 13:00	16	402	0.150	16	402	0.149	16	402	0.299
13:00 - 14:00	16	402	0.149	16	402	0.141	16	402	0.290
14:00 - 15:00	16	402	0.149	16	402	0.171	16	402	0.320
15:00 - 16:00	16	402	0.252	16	402	0.161	16	402	0.413
16:00 - 17:00	16	402	0.271	16	402	0.172	16	402	0.443
17:00 - 18:00	16	402	0.374	16	402	0.161	16	402	0.535
18:00 - 19:00	16	402	0.314	16	402	0.162	16	402	0.476
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.291			2.324			4.615

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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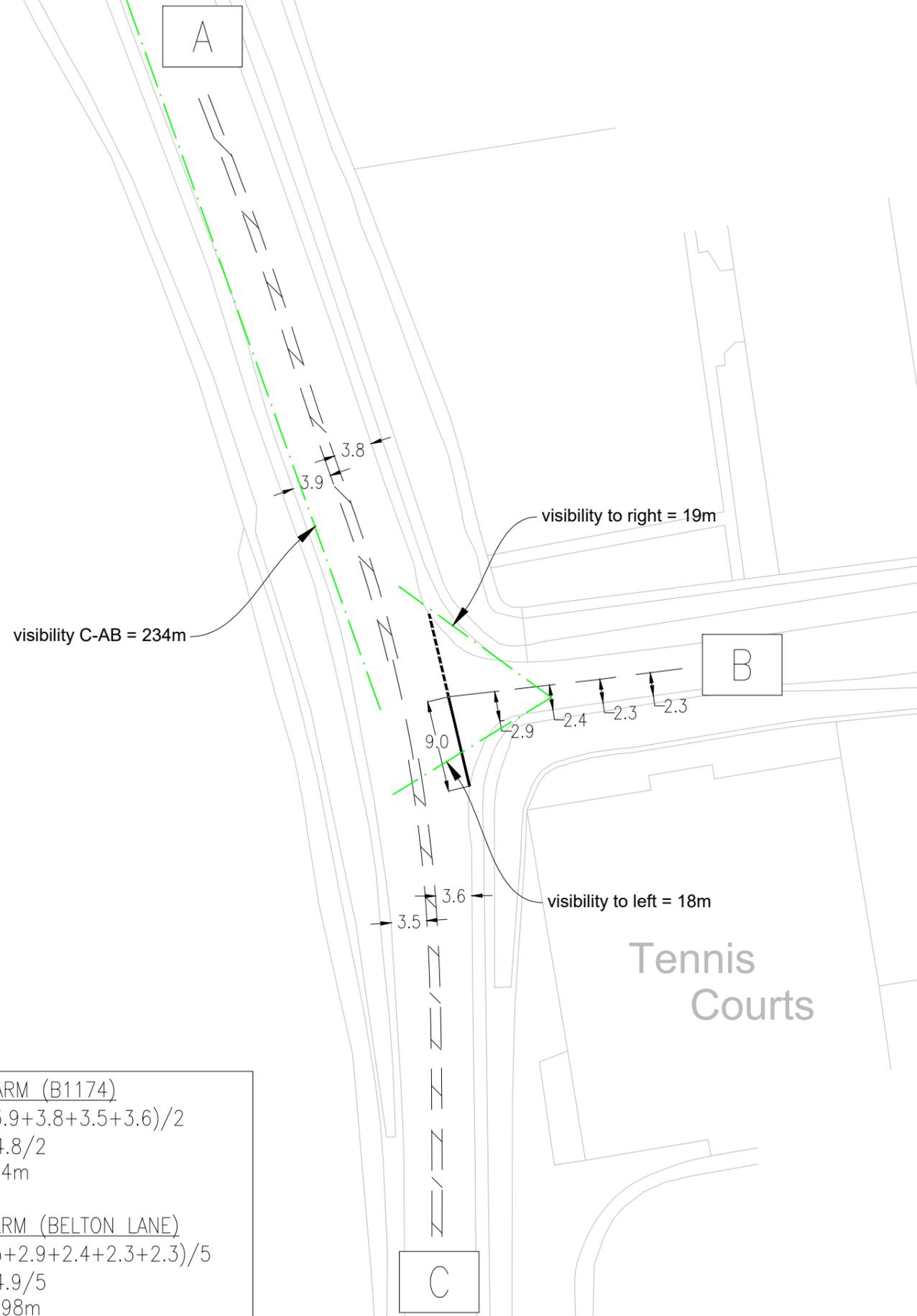
Parameter summary

Trip rate parameter range selected: 212 - 799 (units:)
 Survey date date range: 01/01/15 - 27/09/22
 Number of weekdays (Monday-Friday): 16
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 14
 Surveys manually removed from selection: 0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Appendix 6: B1174/Site Access Junction Measurements and Modelling Output Data

PICADY MEASUREMENTS OF B1174/BELTON LANE JUNCTION
SCALE - 1:500@A3



MAJOR ARM (B1174)	
=	$(3.9+3.8+3.5+3.6)/2$
=	$14.8/2$
=	7.4m
MINOR ARM (BELTON LANE)	
=	$(5+2.9+2.4+2.3+2.3)/5$
=	$14.9/5$
=	2.98m

PICADY MEASUREMENTS OF B1174/SITE ACCESS JUNCTION
SCALE - 1:500@A3



MAJOR ARM (B1174)	
=	$(3.4+3.4+3.6+3.7)/2$
=	$14.1/2$
=	7.05m
MINOR ARM (BELTON LANE)	
=	$(5+3.9+2.8+2.8+2.7)/5$
=	$17.2/5$
=	3.44m

Junctions 10
PICADY 10 - Priority Intersection Module
Version: 10.0.4.1693 © Copyright TRL Software Limited, 2021
For sales and distribution information, program advice and maintenance, contact TRL Software: +44 (0)1344 379777 software@trl.co.uk trlsoftware.com
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: Import of B1174_Site Access PICADY Model.j10
Path: J:\2023\232815-Hook Cliff Farm, Great Gonerby\ProjectDelivery\01-WIP\DesignAndCalculations\T&I Planning\Junction Modelling
Report generation date: 05/09/2023 14:15:36

»2024 SATURN Transferred Flows with Development, AM
 »2024 SATURN Transferred Flows with Development, PM

Summary of junction performance

	AM								PM							
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
2024 SATURN Transferred Flows with Development																
Stream B-C	D1	0.1	16.01	0.06	C	11.81	B	-4 %	D2	0.0	8.81	0.02	A	2.95	A	23 %
Stream B-A		4.0	43.00	0.82	E			1.0		17.97	0.51	C				
Stream C-AB		0.0	4.88	0.01	A			0.1		5.63	0.04	A	[Stream B-A]			

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	Hook Cliff Farm, Great Gonerby
Location	B1174/Site Access Junction
Site number	
Date	24/08/2023
Version	
Status	(new file)
Identifier	MC
Client	Saint Land and Development
Jobnumber	232815
Enumerator	BWB\matt.corner
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	Delay	0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2024 SATURN Transferred Flows with Development	AM	ONE HOUR	08:00	09:30	15
D2	2024 SATURN Transferred Flows with Development	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2024 SATURN Transferred Flows with Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	B1174/Site Access	T-Junction	Two-way	Two-way	Two-way		11.81	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-4	Stream B-A	11.81	B

Arms

Arms

Arm	Name	Description	Arm type
A	B1174 (N)		Major
B	Site Access		Minor
C	B1174 (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.05			158.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	8.00	7.10	7.10	6.30		3.00	70	50

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	630	0.110	0.277	0.174	0.396
B-C	636	0.093	0.235	-	-
C-B	665	0.246	0.246	-	-

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2024 SATURN Transferred Flows with Development	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	486	100.000
B		✓	342	100.000
C		✓	389	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	186	300
	B	328	0	14
	C	384	5	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	10
	B	0	0	0
	C	10	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.06	16.01	0.1	C
B-A	0.82	43.00	4.0	E
C-AB	0.01	4.88	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	11	485	0.022	10	0.0	7.580	A
B-A	247	501	0.493	243	0.9	13.795	B
C-AB	6	772	0.008	6	0.0	4.864	A
C-A	287			287			
A-B	140			140			
A-C	226			226			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	13	425	0.030	13	0.0	8.720	A
B-A	295	475	0.620	292	1.6	19.413	C
C-AB	8	796	0.010	8	0.0	4.743	A
C-A	342			342			
A-B	167			167			
A-C	270			270			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	15	262	0.059	15	0.1	14.573	B
B-A	361	441	0.820	352	3.7	37.585	E
C-AB	11	831	0.014	11	0.0	4.589	A
C-A	417			417			
A-B	205			205			
A-C	330			330			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	15	240	0.064	15	0.1	16.009	C
B-A	361	441	0.820	360	4.0	42.996	E
C-AB	11	831	0.014	11	0.0	4.605	A
C-A	417			417			
A-B	205			205			
A-C	330			330			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	13	412	0.031	13	0.0	9.017	A
B-A	295	475	0.620	304	1.7	22.036	C
C-AB	8	796	0.010	8	0.0	4.775	A
C-A	342			342			
A-B	167			167			
A-C	270			270			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	11	481	0.022	11	0.0	7.645	A
B-A	247	501	0.493	250	1.0	14.518	B
C-AB	6	772	0.008	6	0.0	4.882	A
C-A	287			287			
A-B	140			140			
A-C	226			226			

2024 SATURN Transferred Flows with Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	B1174/Site Access	T-Junction	Two-way	Two-way	Two-way		2.95	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	23	Stream B-A	2.95	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2024 SATURN Transferred Flows with Development	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	718	100.000
B		✓	193	100.000
C		✓	286	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	286	432
	B	187	0	6
	C	273	13	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	10
	B	0	0	0
	C	10	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.02	8.81	0.0	A
B-A	0.51	17.97	1.0	C
C-AB	0.04	5.63	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	5	498	0.009	4	0.0	7.288	A
B-A	141	477	0.295	139	0.4	10.607	B
C-AB	14	677	0.021	14	0.0	5.582	A
C-A	201			201			
A-B	215			215			
A-C	325			325			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	5	468	0.012	5	0.0	7.789	A
B-A	168	447	0.376	167	0.6	12.834	B
C-AB	18	683	0.027	18	0.0	5.585	A
C-A	239			239			
A-B	257			257			
A-C	388			388			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	7	416	0.016	7	0.0	8.785	A
B-A	206	406	0.507	204	1.0	17.703	C
C-AB	25	693	0.037	25	0.1	5.597	A
C-A	290			290			
A-B	315			315			
A-C	476			476			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	7	415	0.016	7	0.0	8.808	A
B-A	206	406	0.507	206	1.0	17.966	C
C-AB	25	693	0.037	25	0.1	5.617	A
C-A	290			290			
A-B	315			315			
A-C	476			476			

18:00 - 18:15

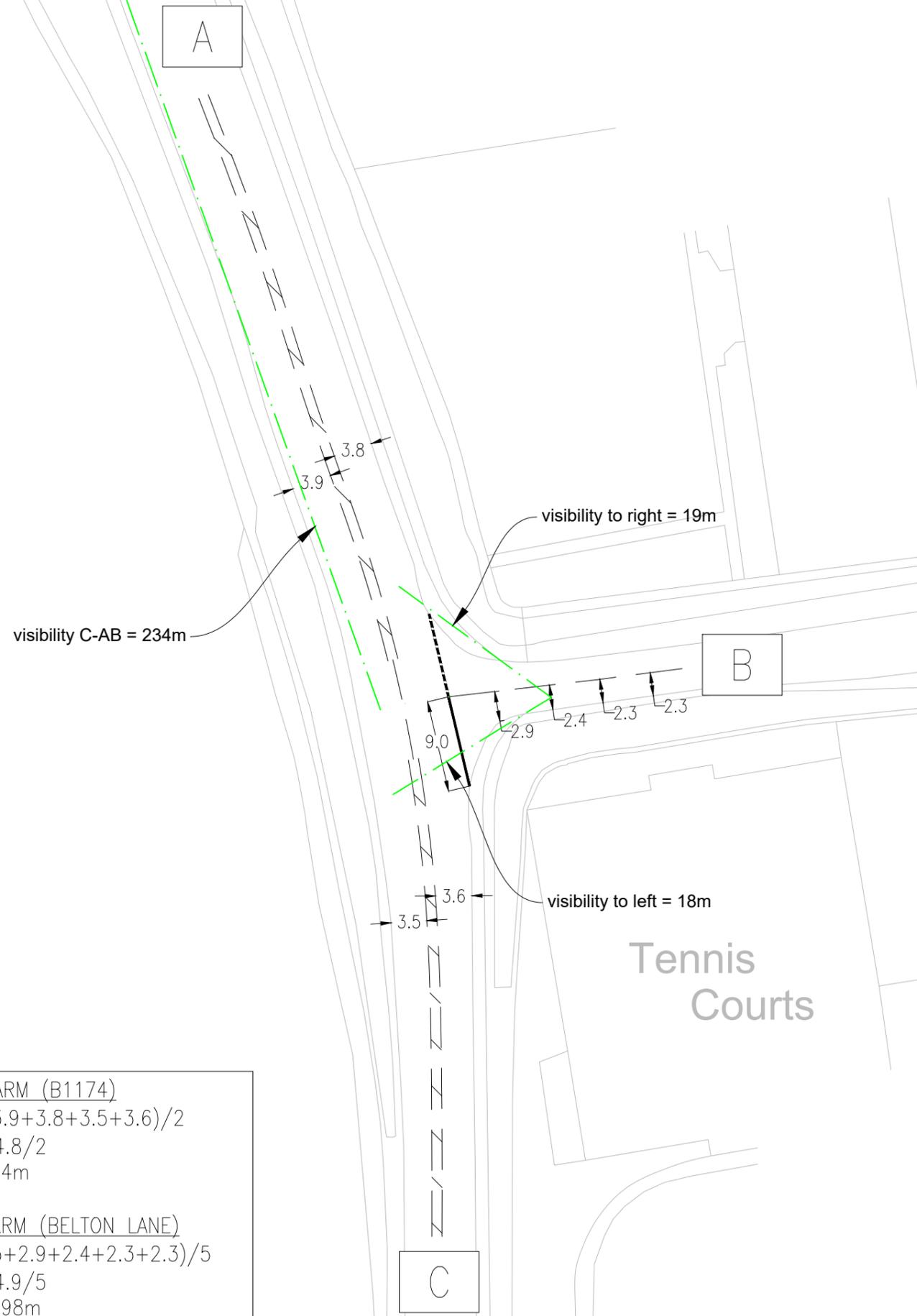
Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	5	467	0.012	5	0.0	7.806	A
B-A	168	447	0.376	170	0.6	13.046	B
C-AB	18	683	0.027	18	0.0	5.626	A
C-A	239			239			
A-B	257			257			
A-C	388			388			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	5	498	0.009	5	0.0	7.303	A
B-A	141	477	0.295	142	0.4	10.758	B
C-AB	14	677	0.021	14	0.0	5.603	A
C-A	201			201			
A-B	215			215			
A-C	325			325			

Appendix 7: B1174/Belton Lane Junction Measurements and Modelling Output Data

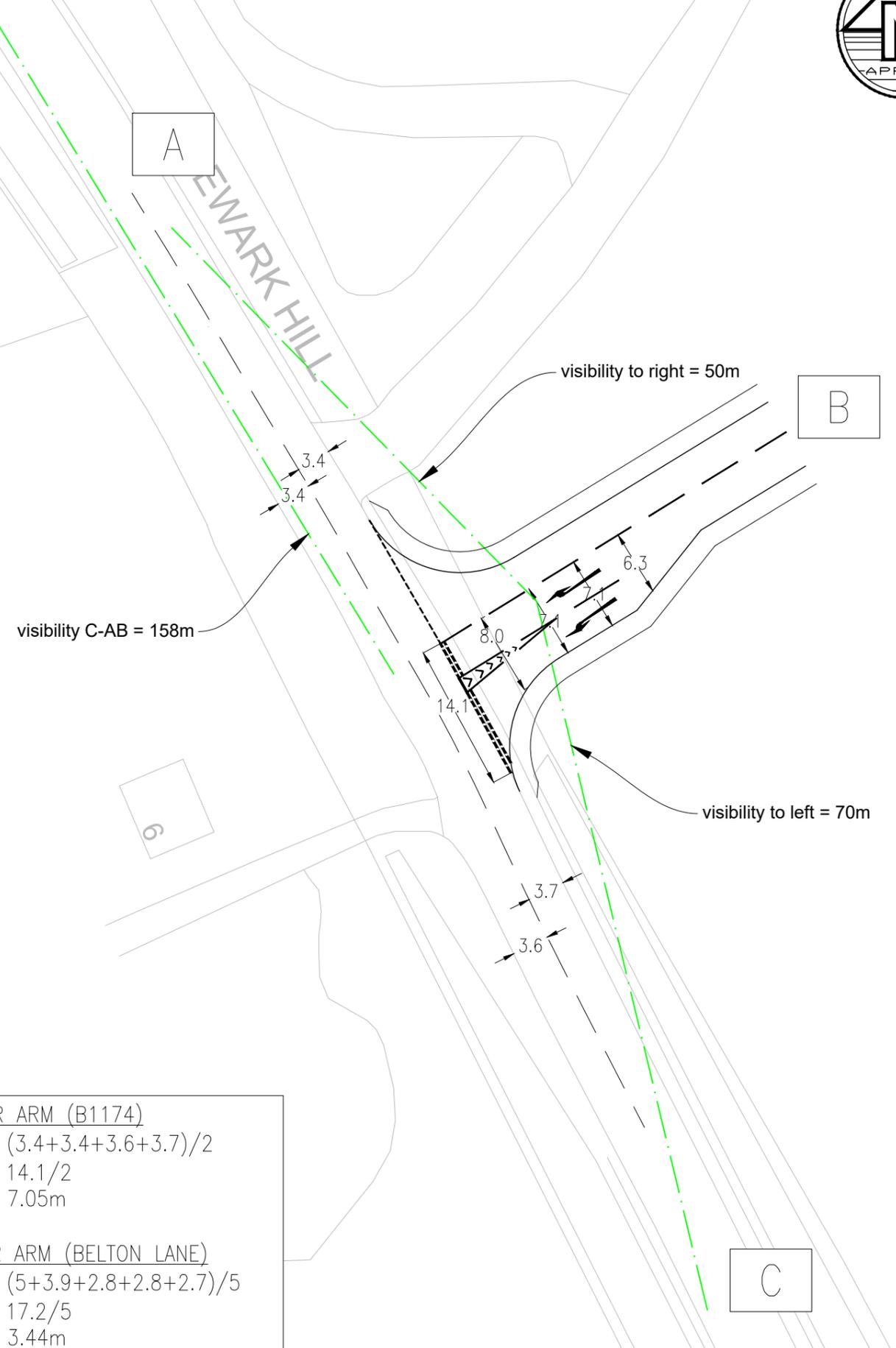
PICADY MEASUREMENTS OF B1174/BELTON LANE JUNCTION
SCALE - 1:500@A3



MAJOR ARM (B1174)
 = $(3.9+3.8+3.5+3.6)/2$
 = $14.8/2$
 = 7.4m

MINOR ARM (BELTON LANE)
 = $(5+2.9+2.4+2.3+2.3)/5$
 = $14.9/5$
 = 2.98m

PICADY MEASUREMENTS OF B1174/SITE ACCESS JUNCTION
SCALE - 1:500@A3



MAJOR ARM (B1174)
 = $(3.4+3.4+3.6+3.7)/2$
 = $14.1/2$
 = 7.05m

MINOR ARM (BELTON LANE)
 = $(5+3.9+2.8+2.8+2.7)/5$
 = $17.2/5$
 = 3.44m

Junctions 10
PICADY 10 - Priority Intersection Module
Version: 10.0.4.1693 © Copyright TRL Software Limited, 2021
For sales and distribution information, program advice and maintenance, contact TRL Software: +44 (0)1344 379777 software@trl.co.uk trlsoftware.com
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: Import of B1174_Belton Lane PICADY Model.j10
Path: J:\2023\232815-Hook Cliff Farm, Great Gonerby\ProjectDelivery\01-WIP\DesignAndCalculations\T&I Planning\Junction Modelling
Report generation date: 05/09/2023 14:14:26

»2024 SATURN Transferred Flows with Development, AM
 »2024 SATURN Transferred Flows with Development, PM

Summary of junction performance

	AM								PM							
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
2024 SATURN Transferred Flows with Development																
Stream B-AC	D1	0.9	17.62	0.48	C	5.06	A	30 %	D2	0.9	16.51	0.47	C	5.48	A	31 %
Stream C-AB		0.8	7.03	0.36	A			[Stream B-AC]		1.2	9.40	0.47	A			[Stream B-AC]

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	Hook Cliff Farm, Great Gonerby
Location	B1174/Belton Lane Junction
Site number	
Date	24/08/2023
Version	
Status	(new file)
Identifier	MC
Client	Saint Land and Development
Jobnumber	232815
Enumerator	BWB\matt.corner
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	ü	Delay	0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2024 SATURN Transferred Flows with Development	AM	ONE HOUR	08:00	09:30	15
D2	2024 SATURN Transferred Flows with Development	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2024 SATURN Transferred Flows with Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	B1174/Belton Lane	T-Junction	Two-way	Two-way	Two-way		5.06	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	30	Stream B-AC	5.06	A

Arms

Arms

Arm	Name	Description	Arm type
A	B1174 (N)		Major
B	Belton Lane		Minor
C	B1174 (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.40			234.0	ü	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.98	18	19

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	492	0.084	0.213	0.134	0.304
B-C	635	0.091	0.231	-	-
C-B	709	0.258	0.258	-	-

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2024 SATURN Transferred Flows with Development	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ü	315	100.000
B		ü	169	100.000
C		ü	449	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	66	249
	B	106	0	63
	C	284	165	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	10
	B	0	0	0
	C	10	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.48	17.62	0.9	C
C-AB	0.36	7.03	0.8	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	127	439	0.290	126	0.4	11.443	B
C-AB	171	785	0.217	169	0.4	5.986	A
C-A	167			167			
A-B	50			50			
A-C	187			187			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	152	418	0.363	151	0.6	13.441	B
C-AB	218	802	0.272	218	0.5	6.336	A
C-A	185			185			
A-B	59			59			
A-C	224			224			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	186	390	0.477	185	0.9	17.394	C
C-AB	293	825	0.356	292	0.8	6.978	A
C-A	201			201			
A-B	73			73			
A-C	274			274			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	186	390	0.477	186	0.9	17.617	C
C-AB	294	826	0.356	294	0.8	7.031	A
C-A	201			201			
A-B	73			73			
A-C	274			274			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	152	418	0.363	153	0.6	13.647	B
C-AB	219	802	0.273	220	0.5	6.416	A
C-A	185			185			
A-B	59			59			
A-C	224			224			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	127	438	0.290	128	0.4	11.627	B
C-AB	171	785	0.218	172	0.4	6.050	A
C-A	167			167			
A-B	50			50			
A-C	187			187			

2024 SATURN Transferred Flows with Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	B1174/Belton Lane	T-Junction	Two-way	Two-way	Two-way		5.48	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	31	Stream B-AC	5.48	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2024 SATURN Transferred Flows with Development	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ü	438	100.000
B		ü	178	100.000
C		ü	438	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	89	349
	B	65	0	113
	C	222	216	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	10
	B	0	0	0
	C	10	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.47	16.51	0.9	C
C-AB	0.47	9.40	1.2	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	134	468	0.286	132	0.4	10.677	B
C-AB	211	734	0.287	209	0.5	6.988	A
C-A	119			119			
A-B	67			67			
A-C	263			263			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	160	446	0.359	159	0.5	12.544	B
C-AB	266	740	0.360	266	0.7	7.758	A
C-A	127			127			
A-B	80			80			
A-C	314			314			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	196	414	0.473	195	0.9	16.312	C
C-AB	354	750	0.471	352	1.1	9.278	A
C-A	128			128			
A-B	98			98			
A-C	384			384			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	196	414	0.474	196	0.9	16.513	C
C-AB	354	751	0.472	354	1.2	9.396	A
C-A	128			128			
A-B	98			98			
A-C	384			384			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	160	445	0.359	161	0.6	12.727	B
C-AB	267	741	0.360	269	0.7	7.902	A
C-A	127			127			
A-B	80			80			
A-C	314			314			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	134	468	0.287	135	0.4	10.834	B
C-AB	211	734	0.288	212	0.5	7.091	A
C-A	118			118			
A-B	67			67			
A-C	263			263			



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