Appendix 40

LAWSON PLANNING PARTNERSHIP Ltd

CHARTERED TOWN PLANNERS

Neighbourhood Plan Clerk
Tiptree Parish Council
Parish Office
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Kathrynoelman@lppartnership.co.uk

Tel 01206 835150

Co. Reg. No. 5677777

18th July 2019

Dear Sir or Madam,

Tiptree Neighbourhood Plan (Consultation Edition) 2019: Submission on behalf of Colchester United Football Club – Florence Park Redevelopment, Grange Road, Tiptree

We write to you in relation to the consultation edition of the Tiptree Neighbourhood Plan (the emerging neighbourhood plan). This submission is made on behalf of our client, Colchester United Football Club (CUFC), the owner-occupier of Florence Park Training Ground in Tiptree.

In summary, CUFC objects to the exclusion of the Florence Park training ground from the settlement boundary and recommends that this is reinstated alongside the open space designation in order for the plan to be consistent with the adopted and emerging Borough wide Local Plan and be considered 'sound' in line with the requirements of the National Planning Policy Framework (NPPF). CUFC also objects to the rationale provided on Page 26 of the emerging neighbourhood plan, which states that the 100 homes development north and south of Grange Road will *"significantly increase the traffic and pressure on the Vine Road/Kelvedon Road junction"*; CUFC requests that this statement, and its associated paragraph, is removed in its entirety from the plan given that it is factually incorrect.

1.0 Background & Sports Strategy

1.1 CUFC owns 9.18 hectares (22.69 acres) of land south of Grange Road in the west of Tiptree as well as further parcels to the north and east (see Appendix 1 to this letter). The land occupied by Florence Park training ground contains five football pitches, a sports accommodation building and ancillary parking area.

1.2 Established in 1937, CUFC has played an important role in the provision and development of Sport in the Borough. CUFC is an asset valued by many members of the community who enjoy participating in and watching football as a spectator sport. These activities in turn contribute to inspiring members of the community of all age groups and levels to take up sport themselves. CUFC is also a valued local employer and its reputational benefits have positive effects for associated elements of the local economy.

1.3 CUFC has invested significantly in its sports facilities, including the Community Stadium and the Florence Park training ground, in recent years. In addition, CUFC has also invested in the Warriors Rest Ground located east of Tiptree and owned by Colchester Borough Council (CBC).

1.4 Planning permission was granted for the Florence Park training ground in 2010 (reference 091627). The development was dependent upon cross-funding from the provision of 103 dwellings on adjacent land to the north and south of Grange Road (granted under permission reference 122134 & 151886).

1.5 Tiptree has a local community football team known as Tiptree Jobserve Youth Football Club, open to all youth players in the locality. The Club is extremely popular and runs several teams for varying age groups and uses the ground at Warriors Rest and the designated community pitch at Florence Park and associated facilities.

1.6 In order to maintain its positive influence in the provision and development of Sport in the Borough, CUFC cannot sit still; it must continually advance its offer and grow as a professional sports club and business. Fundamental to CUFC's long term development strategy is the need to achieve Category 1 status as a football training academy as designated by the Football League's Elite Players Performance Plan (EPPP) youth development scheme.

1.7 If CUFC is able to achieve Category 1 status, it will be able to set up a football training academy to attract the very best talent, which will in turn raise its profile, increasing its influence encouraging more members of the community into sport and enhancing its ability to re-invest funds directly into community aspects such as the local community football team.

1.8 Category 1 status has formed a cornerstone of CUFC's sports strategy for several years, but unfortunately the training ground at Florence Park is not of sufficient size to allow this accreditation to be achieved. The current site suffers from restrictions imposed on its use under planning conditions (controlling hours and times of operation), and expansion into adjacent land has been ruled out due to a lack of availability and suitability.

1.9 As the Parish Council is aware, CUFC has therefore been looking to relocate its existing facilities to a new larger site which is capable of attaining Category 1 Status and this search is currently ongoing.

1.10 As part of the above strategy, and in order to cross-fund a relocation, CUFC will seek to redevelop some of the existing Florence Park training ground to provide housing for approximately 120 new homes. However, it would also retain and upgrade the pitch used by the local community football team, retain the sports building and car park, again for community use at least in part, as shown on the attached illustrative concept masterplan.

1.11 The above strategy has been shared with the Neighbourhood Plan Steering Group and formed part of CUFC's submission to the neighbourhood plan *'Call For Sites'* consultation in 2017 (see LPP letter dated 10th July 2017 and accompanying illustrative concept plan at Appendix 2). The strategy was

further discussed during a meeting with the Steering Group which took place following this on 8th October 2018.

1.12 In summary, CUFC therefore provides a range of wider sustainability benefits, which create positive impacts socially, economically and environmentally. The club's longstanding redevelopment strategy is therefore consistent with the objectives of local and national policy to date, which seeks to encourage, rather than hinder these benefits from accruing. Although the Local Plan provides a policy framework to enable this development strategy and vision to be realised, the draft Neighbourhood Plan, which is not compliant with the Development Plan for the area is disappointingly at odds with both elements.

2.0 Tiptree Neighbourhood Plan: Settlement Boundary & Open Space Designation

2.1 The current adopted Local Plan Policies Map for Tiptree (October 2010) identifies the training ground at Florence Park as lying within the settlement boundary and affords it an open space designation to which Colchester Borough Council (CBC) Local Plan Development Policy DP15 (Retention of Open Space and Indoor Sports Facilities) and Core Strategy Policy PR1 (Open Space) applies.

2.2 CBC Emerging Local Plan Policy SS14 (Tiptree) explains how the neighbourhood plan will define its own settlement boundary and open space allocations. Policies DP15 and PR1 are however listed as strategic policies within the emerging neighbourhood plan, and therefore the emerging neighbourhood plan should not seek to undermine these policies in accordance with paragraph 29 of the National Planning Policy Framework (NPPF).

2.3 The purpose of any change to the settlement boundary, should be to accommodate new development growth such as the proposed additional 600 new homes, or to reflect a clearly identified abandoned site-specific policy. It should not be used to intentionally 'de-allocate' existing local plan designations, or to seek to reverse planning policies and proposals which are in compliance with national and local policy, for sites such as Florence Park where there is a clear and legitimate planning strategy in place. Consequently, the draft Neighbourhood Plan's attempt to re-create 'white land' in this way, represents a perverse and 'unsound' measure, which should be rectified.

2.4 Paragraph 91(c) of the NPPF requires that planning policies seek to support the provision of sports facilities and paragraph 92(a) requires planning policies to *"plan positively for the provision of community facilities",* including sports facilities. Paragraph 97 permits sports facilities and playing pitches to be built upon if they would lead to better provision or the benefits would outweigh the loss.

2.5 The CBC Settlement Boundary Review document (2017), which provided an evidence base to the emerging CBC local plan, notes that the Council does not generally seek to substantially alter settlement boundaries in order to ensure they continue to *"reflect both national and local policy*

aimed at promoting brownfield development, allocating the most sustainable sites and protecting the countryside" (pg. 8).

2.6 The CBC Settlement Boundary Review document also explains that settlement boundaries have been drawn to *"define the main nucleus of the settlement".* Thus, to date, the spatial and functional relationship of the Florence Park training ground to the settlement has been acknowledged; this being evidenced by the inclusion of the ground within the adopted Local Plan settlement boundary of Tiptree over the years to date.

2.7 CUFC are therefore unclear why the settlement boundary has been redrawn within the Tiptree Policies Map (page 16 of the emerging neighbourhood plan) specifically to exclude the Florence Park training ground and why Map 8.1 (page 24 of the emerging neighbourhood plan) has removed its open space designation, which appears as an 'unsound' and flawed approach.

2.8 It is noted that, in all other areas on the plan, historic open space designations appear to have been retained; these spaces appearing to share the similar qualities as the Florence Park training ground. It is also noted that the training ground at Florence Park potentially has a better relationship with the settlement than it has possessed historically given the housing sites adjacent to the east are now being developed.

2.9 Consequently, CUFC objects to the exclusion of the Florence Park training ground from the settlement boundary as this has the direct effect of removing the principle in favour of this site being redeveloped for housing, subject to compliance with national and local policy which already comprehensively controls the circumstances by which loss of a sports facilities may be acceptable.

2.10 This action will actively damage and prejudice the Club's strategy to obtain Category 1 status, reducing its potential to offer sustainability benefits to the local community and the Borough as a whole. This runs contrary to the general principles of both the local and national policy to support the expansion of sports facilities, and is also not in general conformity with approach applied elsewhere in the Borough regarding settlement boundary changes.

2.11 Until the above actions have been rectified, the emerging neighbourhood plan is not justified, effective or consistent with local policy. CUFC therefore considers it essential that both the settlement boundary and the open space designations are reinstated to ensure that the emerging local plan remains sound, does not undermine, and is in general conformity with, local and national policy.

2.12 This unsatisfactory position is particularly disappointing given our recent productive liaison with Chris Bowden (Navigus Planning) and the Neighbourhood Plan Group, where CUFC's overall strategy was discussed in the context over the emerging Plan for Tiptree.

3.0 Tiptree Neighbourhood Plan: Approach to Housing Allocation & Transport Mitigation

3.1 The emerging Neighbourhood Plan allocates land to the west and north of the village for housing and the plan aspires to provide a *'possible future road'* to the north of Tiptree to connect these.

3.2 It is noted that the 600 dwellings proposed on these sites are the minimum that the neighbourhood plan should seek to provide. The Neighbourhood Plan should seek to maximise its potential to provide sustainable windfall sites within the settlement boundaries in order to ensure that, should the major strategic sites not come forwards, the effectiveness of the plan is not compromised.

3.3 CUFC raises concerns that the possible future road, which is required to mitigate the highways impacts of the new housing proposed may not be deliverable due to land assembly issues; the allocated land is in multiple ownerships and not likely to come forwards at the same time, in addition, some of the land required is not allocated and lies outside the settlement boundary of Tiptree.

3.4 Page 26 of the emerging neighbourhood plan states that *"Currently there is only light traffic in Grange Road (Marked in pink on the map) however the present development of over 100 homes will significantly increase the traffic and the pressure on the Vine Road/Kelvedon Road junction. The provision of the alternative Grange Road – Kelvedon Road link is an essential part of a strategic plan for Tiptree".*

3.5 CUFC objects to the above rationale, which infers the provision of the alternative Grange Road is justified on the basis that the 103 homes development at Grange Road will *"significantly increase the traffic and pressure on the Vine Road/Kelvedon Road junction".*

3.6 There is no justification for the above statement, particularly as the 103 homes development has been the subject of a Transport Assessment and is delivering significant transportation improvements to both Grange Road and the Vine Road/Kelvedon Road junction and an improved pedestrian route to the village centre to the south. This mitigation was undertaken with the sole objective of ensuring that traffic impacts from the development will not be *"significant"* in highway terms (see paragraph 108 of the NPPF).

3.7 CUFC therefore requests that the paragraph identified in 3.4 above is removed in its entirety from the plan given that this reasoning is not factually correct, not backed up by any technical survey work that we are aware of and therefore is unjustified in the context of its assertions towards the necessity for future highway mitigation measures. Again, this background position was explained to the Neighbourhood Plan Group and it is therefore, further disappointing to note that CUFC's related planning and transport work does not appear to have been properly considered.

4.0 Conclusions

4.1 CUFC objects to the exclusion of the Florence Park training ground from the settlement boundary and removal of the open space designation on the basis that it is unjustified, does not acknowledge

the spatial and functional relationship of the ground to the settlement and undermines national and local strategic policy which ultimately seeks to promote the expansion of sports facilities.

4.2 CUFC considers it essential that both the settlement boundary and the open space designations are reinstated, in order that the emerging Neighbourhood Plan can be found to be 'sound', remains in general conformity with Development Plan and national policy and does not undermine the aforementioned strategic policies. Removal of these designations serves no 'sound' policy purpose and would simply frustrate and delay CUFC's legitimate planning objectives. Consequently, this part of the Neighbourhood Plan is 'unjustified' and 'ineffective' when considered against the development plan soundness tests set out in paragraph 35 of the NPPF and therefore, warrant amendment.

4.3 It is also considered that the proposed new housing allocations to the north of the settlement, which rely on the provision of a new link road, may not be deliverable, due to a lack of land assembly required to deliver the scheme, which also points towards the Plan being 'unsound' on deliverability grounds.

4.4 CUFC also objects to the assertion provided on Page 26 of the emerging Neighbourhood Plan that the 103 homes development north and south of Grange Road will *"significantly increase the traffic and pressure on the Vine Road/Kelvedon Road junction"*.

4.5 CUFC requests that the above statement, and its associated paragraph, is removed from the emerging Neighbourhood Plan as it is factually incorrect and not based on any available technical assessment.

We trust that these submissions will be taken into consideration in the preparation and drafting of the next stages of the emerging neighbourhood plan.

Should you have any queries regarding any of the information submitted, or require further clarification, please do not hesitate to contact us using the details provided.

Yours sincerely,

Kathryn Oelman
Lawson Planning Partnership Ltd

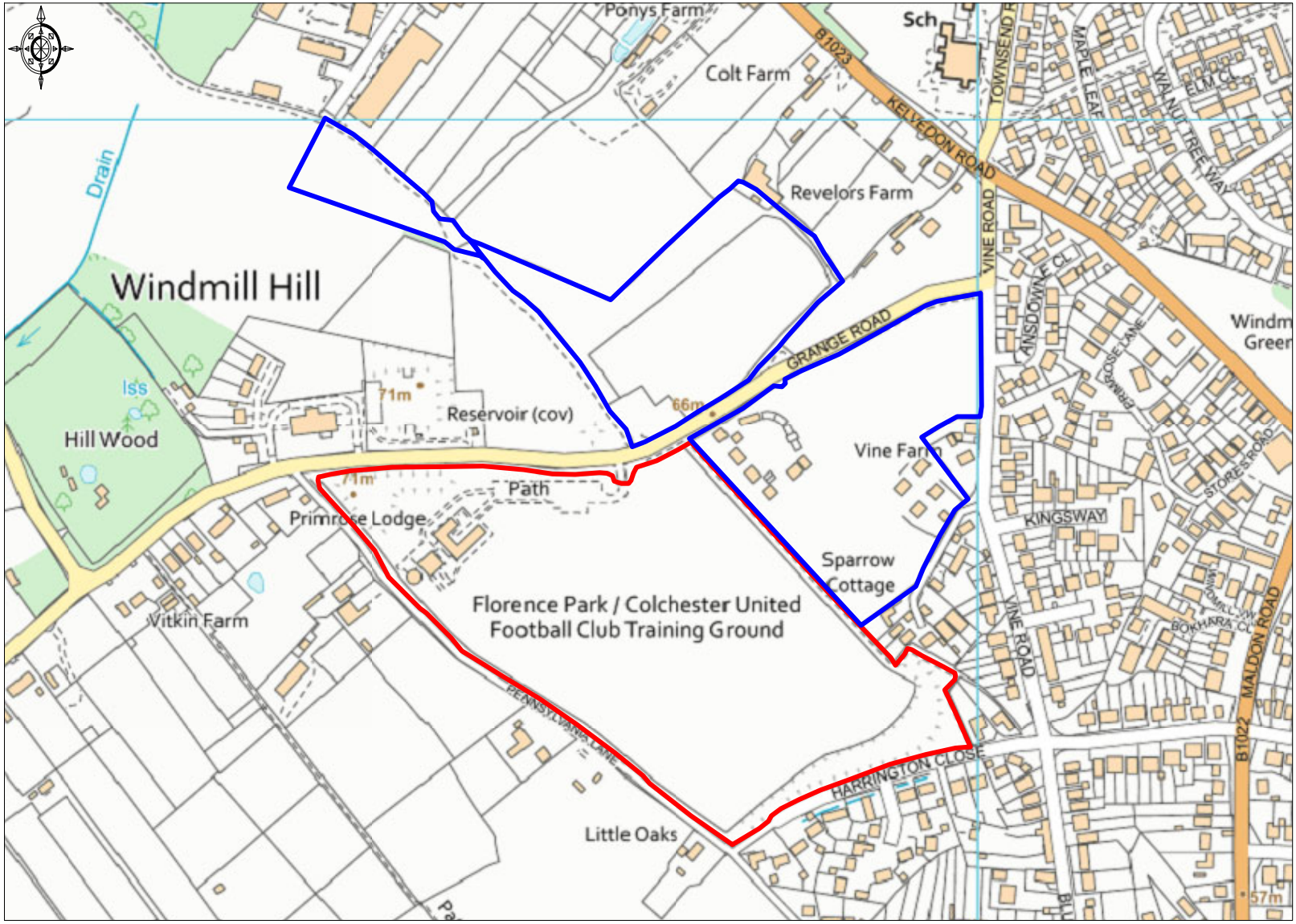
Encs:

Site Plan (red & blue areas)
LPP Letter dated 10/7/17
Illustrative Concept Plan (July 2017)

Appendix 1

Location of Florence Park Training Ground

Grange Road, Tiptree, Colchester
Site Plan and other Land in Client Ownership



09/07/2019 Lawson Planning Partnership Ltd

Appendix 2

LPP Letter dated 10/7/17 including Illustrative Concept Plan (July 2017)

LAWSON PLANNING PARTNERSHIP Ltd

LPP
CHARTERED TOWN PLANNERS

Neighbourhood Plan Clerk
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Tiptree
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aartioleary@lppartnership.co.uk

Tel 01206 835150

Co. Reg. No. 5677777

10th July 2017

by email & post

Dear Sir/Madam

Neighbourhood Plan Call For Sites Consultation: Submission on behalf of Colchester United Football Club - Florence Park Redevelopment, Grange Road, Tiptree

We write to you in relation to the preparation of the Tiptree Neighbourhood Plan. This submission is made on behalf of Colchester United Football Club (CUFC), the owner-occupier of Florence Park football training ground in Tiptree.

1. The purpose of this submission is to inform the Parish Council of the Club's development intentions and to seek recognition of the associated planning strategy in the emerging Neighbourhood Plan. As part of this submission, we enclose a completed Call for Sites form, a site location plan and proposed concept and land use zoning plans. In summary, as part of CUFC's overall planning strategy we are seeking:

   - The allocation of 6.41 hectares (15.84 acres) of land at Florence Park, Grange Road, Tiptree for the provision of approximately 120 homes; and

   - The retention of the northern football pitch, sports accommodation building and car park (approximately 2.77 hectares / 6.85 acres) for the provision of sports and community use and potential new business units.

2. This submission builds on the related representations submitted on behalf of CUFC concerning the emerging Colchester Borough Local Plan.

Background and Sports Strategy

3. Established in 1937, CUFC has played an important role in the provision and development of sport in the Borough and is a recognised key community asset, encouraging active

participation in sport for all age groups and levels. Since the opening of the Community Stadium in 2008, the Club has put significant investment into sports facilities and infrastructure, and, in 2013, the Florence Park training ground was opened at Grange Road, Tiptree. Further to this, the Club Chairman has also put significant investment into Warriors Rest sports ground on Maypole Road, Tiptree, for the benefit of community use.

4. The need for continued investment in football training facilities and associated management structures is fundamental to CUFC's longer term development and success. A key objective for the Club is to improve overall standards through the provision of a state of the art training facility, capable of achieving Category 1 status as a football training academy, in accordance with the Football League's Elite Players Performance Plan (EPPP) youth development scheme.

5. Due to the land-take associated with the requirements of a Category 1 training academy, a new self-contained sports ground is required. In summary, the extensive range of sports facilities required to qualify for a Category 1 EPPP training ground include the following:

   - 6 x Full Size Football Pitches (3 x 1st Team squad & 3 x Academy pitches ranging from Under 14 to Under 21 age groups)
   - 6 x Further Football Pitches (to accommodate junior age groups comprising Under 9/10, Under 10/11 & Under 12/13 age categories)
   - 1 x Full Size floodlit 4G pitch & 1 x Full Size covered sports pitch with viewing area
   - Other outdoor training and viewing areas
   - Ancillary built accommodation to provide for:
     - Physical development rooms, including treatment and rehabilitation rooms, gymnasium and a hydro pool
     - Meeting rooms, offices, classrooms and lounges (for players and parents)
     - Canteen and toilet facilities
     - Dressing rooms, kit and equipment rooms
     - Grounds staff office and storage
     - Car parking, including coach and minibus parking
     - Accommodation (bedrooms for under 19s and trialists)

6. The above list is not exhaustive, but provides a summary of the key facilities required. In addition to these essential facilities, CUFC is seeking to provide related sports facilities to further enhance the level of sports provision. These supplementary facilities could include an outside multi-pitch area, video room, media area and other outdoor and indoor ancillary provision; this would be determined at a later date.

7. The existing training facility site at Florence Park, which includes five football pitches, a sports accommodation building and ancillary parking area, is insufficient in size to

accommodate all of the facilities required for a Category 1 level facility. The restrictions imposed on the hours and times of operation also mean that the Club is not able to utilise the facility to the extent required.

8. Therefore, to enable the construction of a Category 1 facility, it will be necessary to identify a suitable alternative greenfield site. The new site will need to be sufficient in size to accommodate the new training facility and will also need to be located away from residential areas. This will enable the full range of facilities to be provided on a new self-contained site, and for the training ground to be utilised to its full potential.

Florence Park Development Proposal

9. In order to create a single, self-contained and flexible facility, the majority of the existing training facilities at Florence Park would be relocated to the new site, which the Club is currently seeking to identify. However, as part of CUFC's continued commitment and support for sports development at the local grassroots level, it is proposed that the existing first team pitch, sports building and car park at Florence Park will be retained. The use of these facilities could be shared between the Club and the local community, with an arrangement similar to that in place for the existing community pitch. The sports building would be available for a suitable community use(s), to be identified in liaison with the Parish Council and any other relevant bodies. Further surplus land which may be available in the northern part of the site, called also be developed for a range of business units as shown on the Concept Plan.

10. The level of investment required to provide and sustain the new Category 1 status facility is significant. For this reason, it is proposed that the land occupied by the remaining four pitches and associated run-off areas at Florence Park, would be redeveloped to provide approximately 120 new homes to help fund the new training ground (see enclosed plans). This redevelopment would only take place once the new training ground had been completed.

11. Florence Park is located within the existing Tiptree settlement boundary and is well related to existing and new residential areas. The site is also located within the broad directions of growth identified on CBC's emerging Local Plan Policies Map and would provide an ideal opportunity to accommodate a proportion of Tiptree's requirement for 600 new homes, identified within the emerging Local Plan. The new housing in this location would have good links with existing and committed housing areas, and would be well located for access to shops and services, as well as bus services to higher order settlements, providing a greater range of facilities and services.

12. The site is visually contained by the existing and committed development to the south (along Harrington Close) and east respectively, and the existing hedgerow to the west, adjacent to Pennsylvania Lane, could be retained to help "frame" the site.

13. A sufficient landscape buffer would be provided between the northern area of housing where it adjoins the retained playing pitch to the north. This would be consistent with the buffer distance permitted between the existing football pitches and the approved housing area to the east.

Call for Sites Assessment

14. To aid the Neighbourhood Plan site assessment and allocation process, we have completed the Call for Sites assessment form for the site at Grange Road, in order to test the suitability and sustainability of the proposed redevelopment.

15. In summary, the assessment shows that the proposed development including approximately 120 new homes would amount to sustainable development, with wide ranging social, economic and environmental benefits, representing an ideal extension to Tiptree, and providing the opportunity to accommodate a proportion of the 600-home requirement. The redevelopment would also enable the development of a state of the art sports facility in a location to be identified and will release a large modern building for use by the community, along with additional community sports provision.

We hope that you find this submission useful as part of the Neighbourhood Plan preparation process, and we look forward to hearing from you in due course. In the meantime, please do not hesitate in contacting us if you have any queries or if you require any further information.

We would also be content to meet with the Neighbourhood Plan Group to discuss the proposals further, if that would be helpful to the process.

Yours faithfully

Aarti O'Leary

Enc

cc – CUFC Chairman

Tiptree Neighbourhood Plan

Call for Sites Consultation (May 2017)

Colchester United FC Submission

Florence Park Tiptree Redevelopment

CONCEPT PLAN

- Previously Approved Housing (under construction)
- Proposed New Housing
- Retained Sports & Community Facilities
- Potential Business units

Lawson Planning Partnership Ltd.

Scale 1: 2500 approx. @ A3 size

July 2017

Job 196

LPP
CHARTERED TOWN PLANNERS

EDWARD GITTINS & ASSOCIATES
PLANNING & DEVELOPMENT CONSULTANTS

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17th July 2019

Tiptree Parish Council
Mynott Court,
Church Road,
Tiptree,
CO5 0UP

Dear Sir/Madam,

Tiptree Neighbourhood Plan: Consultation Edition

These representations concern two related matters:

Part A: The need to review the defined Tiptree settlement boundary to provide for smaller sites; and
Part B: The extent of the Inworth Grange & Brook Meadows Local Wildlife Site and its future management.

Part A: The need to review the defined Tiptree settlement boundary to provide for smaller sites.

The Plan defines a settlement boundary for Tiptree which embraces the proposed Site Allocations and existing development commitments. In all other respects, the proposed settlement boundary is drawn tightly around the existing built-up area. Apart from infilling and rounding-off within the existing village, therefore, the Plan makes no provision for small edge-of-village sites.

Objective 8 aims to identify and allocate sites to support the construction and delivery of 600 homes. Section 12: Site Allocations, however, states that Tiptree Parish is "required to provide a minimum of 600 new homes by 2034". (Our emphasis). Whilst we note that all 600 dwellings would be delivered within the proposed Site Allocations, (and we do not contest the logic of this), and whilst this provision will be supplemented by consolidation within the settlement boundary, no information has been provided on the housing capacity envisaged within the remainder of the built-up area. After many years of consolidation of the built-up area, it seems such capacity is now extremely limited - whilst a dearth of in-envelope sites will inevitably lead to pressure for "garden severance" and "village cramming" and a push to achieve higher densities. This can lead to harm to the character of the area - but of equal if not greater importance, the lack of provision for smaller sites limits the opportunities for local people and incomers to live in locations other than the larger estates. Finally, unless reasonable provision is made for smaller sites, local builders will find it difficult to secure land for development and this can act as a constraint on the local economy and employment.

There are therefore compelling reasons for considering whether the Plan makes sufficient provision for future housing in the form of smaller sites. We therefore urge that in order to improve the soundness of the Plan, and in view of the limited opportunities to deliver smaller

sites within the village, a review be conducted of the draft settlement boundary. As this is drawn tightly to the existing built-up area, opportunities for infilling and rounding-off sites should be identified where such sites do not materially harm matters of planning importance especially if they would provide some specific community benefit.

Making such limited additional provision would therefore improve the choice of location for existing and future residents, reduce pressure and provide counter arguments to resist "village cramming", and assist the rural economy and local employment. We consider such steps would in particular be in line with Objective 7 : Delivery of a housing growth strategy tailored to the needs and context of Tiptree, Objective 9 : To include variety and choice to meet existing and future needs in terms of housing type and tenure, and Objective 26 : To encourage small businesses and local employment.

For the above reasons, therefore, we advocate the supplementation of future housing capacity within smaller sites by limited provision being made on the edge of the village where this can be achieved without material harm to the countryside or the setting of the village - especially where such would achieve specific community benefits.

Part B: The extent of the Inworth Grange and Brook Meadows Local Wildlife Site and its future management.

Land lying between the Inworth Grange gravel pits and the defined settlement boundary, (here reflecting the small group of dwellings known as Brook Meadows), was proposed for inclusion as part of a Local Wildlife Site (LWS) in a report commissioned by Colchester Borough Council from EECOS which was published in 2017. No permission was requested from or given by the landowner to enter the land to undertake survey work nor has any official notification been received from Colchester Borough Council in relation to the findings of the study, the proposed extent of the LWS, or indeed its designation. Coincident with the unbeknown work which was being conducted and which has led to the LWS designation, detailed work was being undertaken by a local housebuilder to prepare a mixed use scheme for the Brook Meadows land. This made provision for the partial use of a large part of the site for nature conservation and open space alongside a housing scheme for up to 200 houses – a scheme which appeared compatible with indications by the Borough Council at that time that this represented a preferred direction of growth. The LWS proposals only came to light by chance as a result of a liaison meeting with the Neighbourhood Plan Group to discuss future allocations and the possibility of providing a western bypass. By this time, however, the local housebuilder had invested considerable resources and incurred substantial expense in undertaking technical studies and public consultation on the scheme.

It is known and acknowledged that the Brook Meadows site does contain significant ecological resources including protected species of flora and fauna, but subject to appropriate mitigation measures and the management of the remainder of the site, there remains scope to develop some land at its eastern extremity accessed via the Brook Meadows cul-de-sac. This raises the question as how best to safeguard the ecological resources of this site to reflect Objective 29: To protect local wildlife sites and other locally valued habitats. Furthermore, the land in question is lawfully private agricultural land which has been trespassed by the public for dog-walking and for recreation and there is the question as to how these uses impact on the ecological value of the site.

Having regard to the above, the landowner wishes to explore with the Neighbourhood Plan Group and Parish Council the best way forward for the future use and management of the Brook Meadows LWS in conjunction with the Borough Council and the Essex Wildlife Trust (EWT). The EWT has indicated it would oppose any housing development within the LWS irrespective of any associated proposals to manage the remainder of the site as a nature reserve. At present, however, there are no management agreements in place to safeguard the ecological resources from potentially damaging agricultural and recreational uses whilst allowing the current unauthorised access to and use of the site by the public to continue may need to be curtailed. The status quo could therefore be more detrimental to the LWS than a limited development of one corner of the site with appropriate mitigation measures and a comprehensive management plan to safeguard the ecological resources and to enable controlled public access to continue. The possibility of the land being transferred into public ownership in association with housing development would also be a matter for discussion.

The future ownership, use and management of the LWS would form part of any review of the settlement boundary at Brook Meadows. The size and boundaries of any housing site would be defined by follow-up studies to establish the most appropriate area to be used for village housing having regard to the need safeguard the ecological resources. We therefore urge that careful consideration be given to the above with a view to an amendment being made to the settlement boundary to provide for some village housing in conjunction with the future management of the remainder of the Brook Meadows LWS.

Yours faithfully,

Chartered Town Planner

On behalf of

Lisa Bonnett
67 Maldon Road
Tiptree
Colchester
CO5 0BW


Hawker Softeners
Station Rd
Station Rd
Peakes Cl
Maldon Rd
Orchard Mews
Hall Rd
M S S
Bull Ln
Surrey Ln
Brookland
Gorse Ln
Bainbridge Dr
Sign in
Bull Lane Livery
Tiptree Heath Primary School
B1022
Hall Rd
Essex Golfer
Bull Ln
International Farm Camp
Hall Rd
Google
Map
3D

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17th July 2019

Tiptree Parish Council,
Mynott Court,
Church Road,
Tiptree,
CO5 0UP

Dear Sir/Madam,

Tiptree Neighbourhood Plan: Consultation Edition

These representations concern two related matters:

Part A: General Representations; and

Part B: Land in the vicinity of Hall Road and Bull Lane, Tiptree.

We submit representations of behalf of certain landowners within the red line area shown on the attached Site Plan. Part A concerns General Representations addressing wider planning considerations which impinge on the contents of the Neighbourhood Plan whilst Part B concerns site specific aspects relating to land in the vicinity of Hall Road and Bull Lane, Tiptree.

Part A : General Representations

The Neighbourhood Plan is being prepared at a time of uncertainty in relation to the Local Plan to which it must conform. Whilst the Neighbourhood Plan has greater affinity with the Section 2 Local Plan dealing with smaller sites and detailed policies and has already been submitted to the Secretary of State, the submitted Section 1 Plan dealing with strategic sites is facing problems and delay. This follows the finding of the Examination Inspector that the North Essex Authorities (NEAs) have provided insufficient justification for the large scale garden communities and hence will require the Examination to be re-opened in due course. In the event that the Section1 Local Pan is found to be unsound, or if major modifications are required to it, this could have consequent implications for the Section 2 Plan. For example, any diminution of the housing capacity of strategic sites may require a review of the future scale and distribution of smaller non-strategic sites.

Having regard to the concerns and deficiencies raised by the Section 1 Examination Inspector, and as a response to these, an Alternative Growth Strategy (AGS) for North Essex has been submitted to the NEAs by myself which provides a framework for growth without recourse to the development of the proposed 3 large-scale Garden Communities. The Key Diagram and Settlement Classification for this AGS is attached. The aspects which have particular relevance for Tiptree are as follows:-

- Having regard to its population of some 10,000, Tiptree is classified as a Small Town as having similar status to Brightlingsea, Coggeshall, Halstead, Manningtree, West Mersea and Wivenhoe (ie: Towns with a population of under 15,000) but with a footnote to record the unique distinction that : *"Tiptree is a village that functions as a Small Town".* (Further references to Tiptree in the AGS may refer to "Towns" but this important distinction remains and is taken as read).

- Small Towns offer a wide range of local services, including for the most part Secondary Schools, and have the potential for non-strategic growth – which is defined as housing sites of under 300 dwellings.

- In view of the different sizes of the Small Towns, the amount of non-strategic growth for each settlement will vary considerably but should not be disproportional to the size of the town. Whilst smaller scale extensions to "Small Towns" may be permissible, the main focus should be on infilling and rounding-off and the re-use of previously developed (brownfield) land.

It is considered that the draft Neighbourhood Plan is in general accord with the approach advocated in the AGS, namely the proposed extensions to the built-up area of Tiptree are of under 300 dwellings and hence constitute non-strategic growth, although there is no specific content or proposals relating to the contribution of infilling, rounding-off or brownfield sites to the future housing needs of the village.

We consider that in the light of current uncertainty in relation to the Local Plan and the possibility that further changes may ensue to the amount and distribution of future growth within Colchester Borough, it would not be unreasonable to consider an additional non-strategic Site Allocation if only as a reserve site or contingency measure. This could also be justified to reflect the constraints which affect development to the west of the village and to counterbalance the Neighbourhood Plan's proposed concentration of future growth to the north of the village.

Part B: Land in the vicinity of Hall Road and Bull Lane, Tiptree.

The land identified in red on the attached Site Plan (The Tiptree Policies Map) largely lies between Hall Road to the west and Bull Lane to the east but includes a separate undeveloped triangle to the south containing a group of established dwellings with a small undeveloped triangular paddock at it southern tip bordering Hall Road and a public footpath; this site is reference 011 in the Colchester Borough Local Plan - Call for Sites. The site includes established housing development on the eastern side of Hall Road as well as the detached group referred to above together with a poultry house complex operated by Tiptree Farm Eggs and accessed off Bull Lane. The northern part of this site is reference 113 in the Colchester Borough Local Plan – Call for Sites. The red line therefore incorporates both sites 011 and 113 together with land between.

Land fronting Hall Road to the immediate west - the former International Camp site - has been developed for housing (Salis Close) immediately south of which is a 32 pitch mobile homes site. There is also a housing estate off Bull Lane (Brookland) to the immediate north east. Residential development along Surrey Lane lies to the north. With the established housing along Hall Road, Bull Lane and the southern triangle, the site is largely surrounded by established housing.

The red line depicted on the Site Plan therefore adjoins and incorporates established housing development but also includes greenfield land forming part of the egg farm and the undeveloped tip of the southern triangle. The site lies within easy walking distance of the village centre and amenities.

The Site Plan therefore defines a proposed amendment to the settlement boundary in the draft Tiptree Neighbourhood Plan: Consultation Edition.

The site represents a natural extension to the village within well-defined boundaries and directly adjoins established village housing. Existing perimeter hedgerow planting would be retained or strengthened along Hall Road and Bull Lane wherever possible. Other external field boundaries would be retained whilst internal open space and landscaping would be incorporated within the development. Access to the main greenfield part of the site – land surrounding the existing poultry building complex – would be accessed off the northern section of Bull Lane.

New housing on the site would be screened by existing housing and peripheral landscaping and would have limited visual impact on the adjoining open countryside to the east and south.

The proposed amendment to the settlement boundary is shown on the attached Tiptree Policies Map as it appears in the draft Tiptree Neighbourhood Plan Consultation Edition and it is respectfully requested that this amendment be made prior to the Examination and adoption of the Neighbourhood Plan.

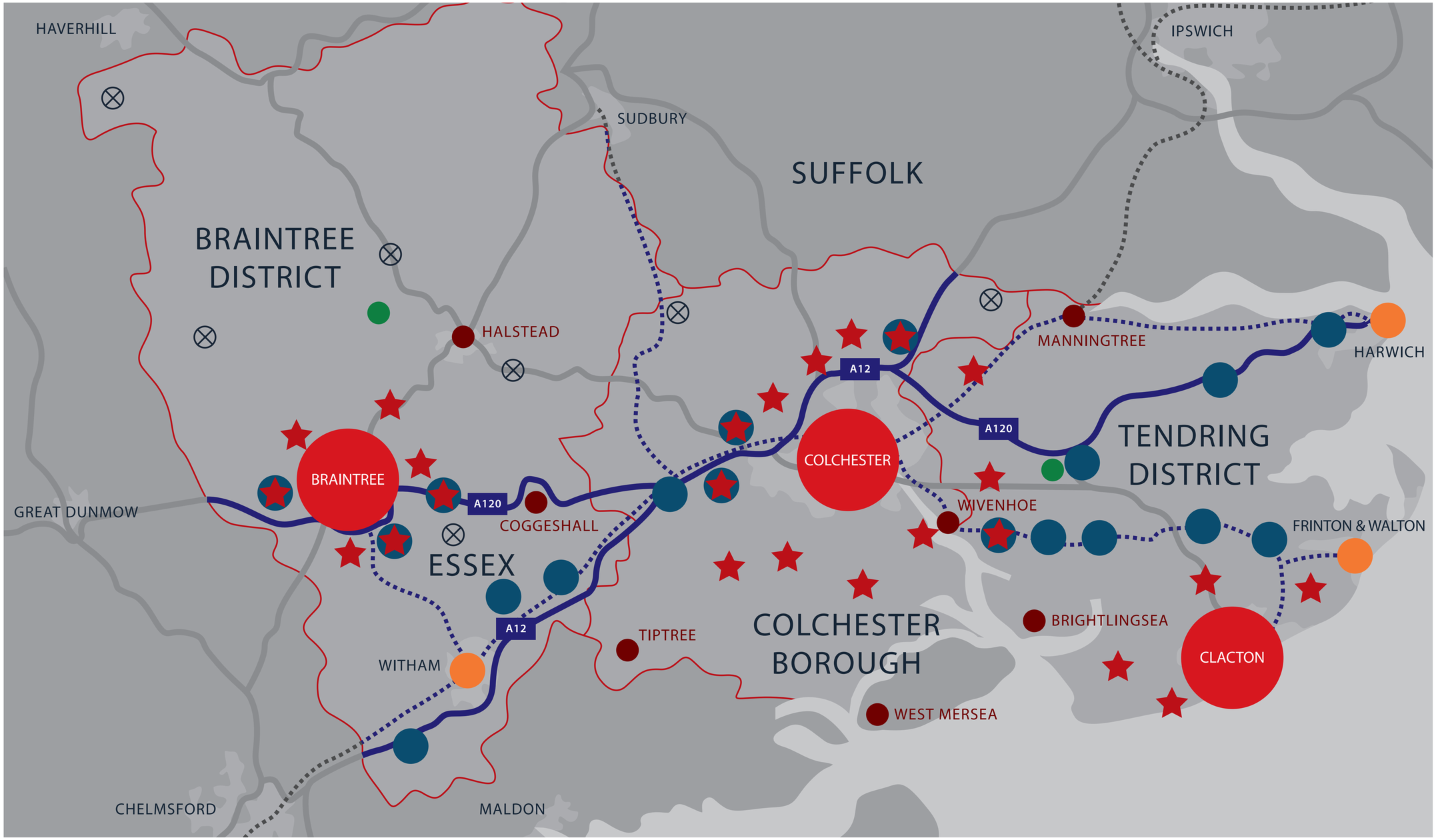
Yours faithfully,

Chartered Town Planner

On behalf of

Mr C. Coughlan
6 St Christopher's Road
Colchester
CO4 0LA

AN ALTERNATIVE GROWTH STRATEGY FOR NORTH ESSEX



EDWARD GITTINS & ASSOCIATES

PLANNING & DEVELOPMENT CONSULTANTS

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- LARGE TOWNS
- MEDIUM-SIZED TOWNS
- SMALL TOWNS
- KEY SATELLITE VILLAGES CLOSEST TO LARGE TOWNS
- TRANSPORT CORRIDOR VILLAGES
- GARDEN VILLAGES NOT EXCEEDING 5,000 DWELLINGS
- LARGE VILLAGES
- RAIL
- ROAD
- NORTH ESSEX AND DISTRICT COUNCIL BOUNDARIES

AN ALTERNATIVE GROWTH STRATEGY FOR NORTH ESSEX – KEY DIAGRAM

SETTLEMENT CLASSIFICATION

- Large Towns (with a population of 40,000 +)
- Medium-sized Towns (with a population of 15 – 40,000)
- Small Towns (with a population of under 15,000)
- Key Satellite Villages closest to Large Towns
- Transport Corridor Villages
- Garden Villages not exceeding 5,000 dwellings
- Large Villages.

  Smaller Villages (Not identified)

Large Towns

- Braintree (including Bocking and Great Notley)
- Clacton-on-Sea (including Great Clacton and Holland-on-Sea)
- Colchester (including Stanway)

Medium-sized Towns

- Frinton & Walton (including Kirby Cross)
- Harwich (including Dovercourt and Parkeston)
- Witham

Small Towns

- Brightlingsea
- Coggeshall
- Halstead
- Manningtree (including Lawford and Mistley)
- Tiptree†
- West Mersea
- Wivenhoe

† Tiptree is a village but functions as a small town.

Key Satellite Villages closest to the Large Towns (KSVs)

KSVs closest to Braintree –

- Black Notley*†
- Bradwell (TCV)
- Cressing Tye (TCV) *†
- High Garrett
- Panfield
- Rayne (TCV)
- Stisted

KSVs closest to Clacton-on-Sea

- Great Holland
- Jaywick
- Little Clacton
- St.Osyth

KSVs closest to Colchester

- Abberton & Langenhoe
- Ardleigh
- Alresford* (TCV)
- Birch & Layer Breton
- Boxted
- Copford (TCV)
- Eight Ash Green (TCV)
- Elmstead Market
- Gt. Horkesley (Horkesley Heath)
- Langham (TCV)
- Layer de la Haye
- Rowhedge
- West Bergholt

* KSVs with a local railway station. (TCV) = Also classified as a Transport Corridor Village.
† Cressing Tye and Black Notley are jointly served by Cressing Station.

Transport Corridor Villages (TCVs)

The A12 Trunk Road and Mainline Rail TC –

- Hatfield Peverel*
- Rivenhall
- Kelvedon & Feering*
- Marks Tey*
- Eight Ash Green (KSV)
- Langham (KSV)
- Copford (KSV)

The A120 Trunk Road TC –

- Rayne (KSV)
- Cressing Tye (KSV)
- Bradwell (KSV)
- Marks Tey*
- Frating/Hare Green
- Wix
- Ramsey

The Colchester - Clacton/Frinton & Walton Rail TC –

- Alresford* (KSV)
- Thorrington**
- Great Bentley*
- Weeley*
- Thorpe-le-Soken*

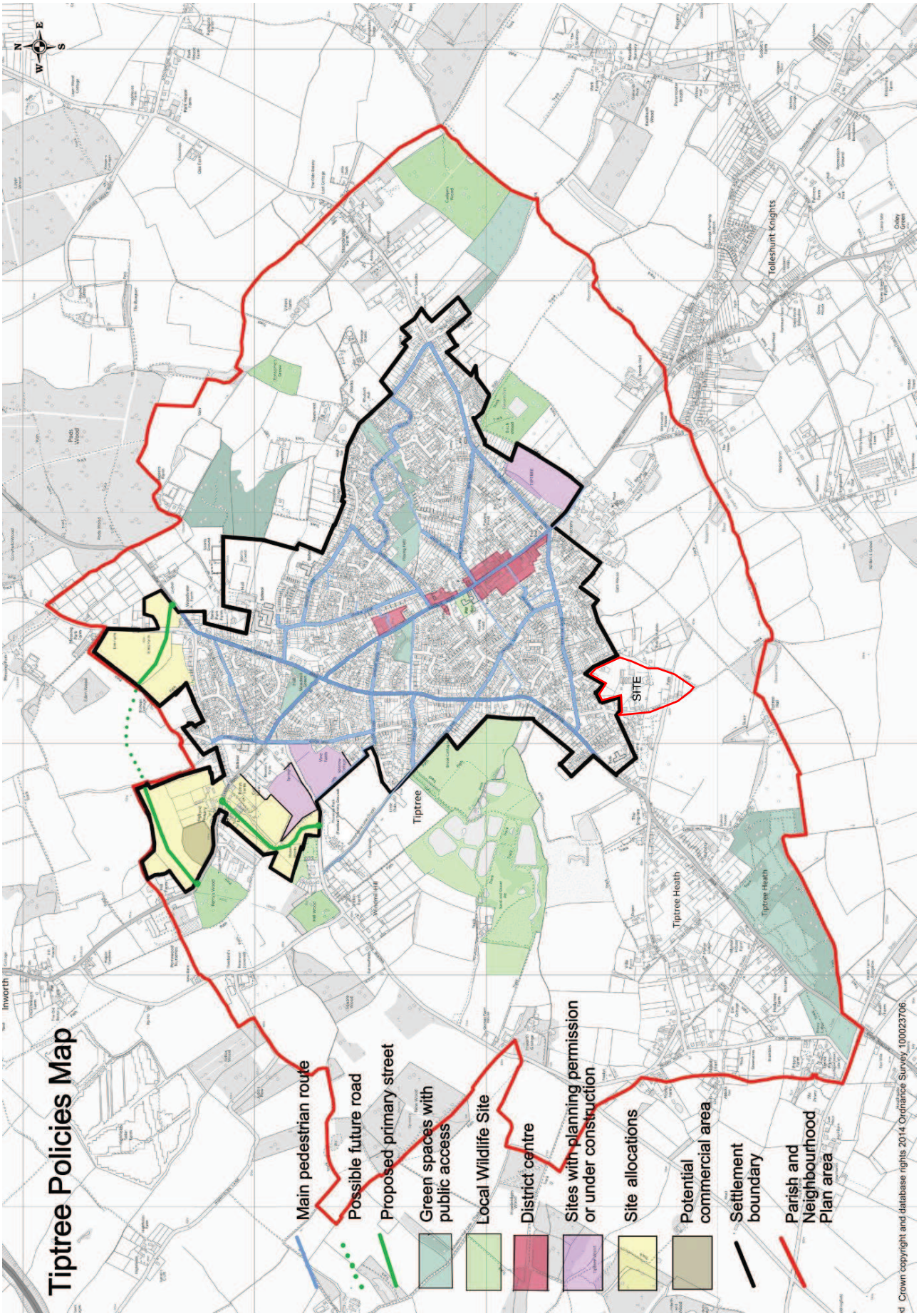
* TCVs with a local railway station. ** Settlement with a proposed railway station.
(KSV) = Also classified as a Key Satellite Village

Garden Villages

- Gosfield Airfield
- Tendring Central

Large Villages

- Bures Hamlet
- Dedham
- Earls Colne
- Great Bardfield
- Sible Hedingham
- Silver End
- Steeple Bumpstead


Tiptree Policies Map
Main pedestrian route
Possible future road
Proposed primary street
Green spaces with public access
Local Wildlife Site
District centre
Sites with planning permission or under construction
Site allocations
Potential commercial area
Settlement boundary
Parish and Neighbourhood Plan area
SITE
Tiptree
Tiptree Heath
Tolleshunt Knights
Inworth
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17th July 2019

Tiptree Parish Council,
Mynott Court,
Church Road,
Tiptree,
CO5 0UP

Dear Sir/Madam,

Tiptree Neighbourhood Plan: Consultation Edition

These representations concern two related matters:

Part A: The need to review the defined Tiptree settlement boundary to provide for smaller sites; and

Part B: Frontage site adj. Rhubarb Hall, Grove Road, Tiptree. Site 134.

Part A: The need to review the defined Tiptree settlement boundary to provide for smaller sites.

The Plan defines a settlement boundary for Tiptree which embraces the proposed Site Allocations and existing development commitments. In all other respects, the proposed settlement boundary is drawn tightly around the existing built-up area. Apart from infilling and rounding-off within the existing village, therefore, the Plan makes no provision for small edge-of-village sites.

Objective 8 aims to identify and allocate sites to support the construction and delivery of 600 homes. Section 12: Site Allocations, however, states that Tiptree Parish is "required to provide a minimum of 600 new homes by 2034". (Our emphasis). Whilst we note that all 600 dwellings would be delivered within the proposed Site Allocations, (and we do not contest the logic of this), and whilst this provision will be supplemented by consolidation within the settlement boundary, no information has been provided on the housing capacity envisaged within the remainder of the built-up area. After many years of consolidation of the built-up area, it seems such capacity is now extremely limited - whilst a dearth of in-envelope sites will inevitably lead to pressure for "garden severance" and "village cramming" and a push to achieve higher densities. This can lead to harm to the character of the area - but of equal if not greater importance, the lack of provision for smaller sites limits the opportunities for local people and incomers to live in locations other than the larger estates. Finally, unless reasonable provision is made for smaller sites, local builders will find it difficult to secure land for development and this can act as a constraint on the local economy and employment.

There are therefore compelling reasons for considering whether the Plan makes sufficient provision for future housing in the form of smaller sites. We therefore urge that in order to improve the soundness of the Plan, and in view of the limited opportunities to deliver smaller

sites within the village, a review be conducted of the draft settlement boundary. As this is drawn tightly to the existing built-up area, opportunities for infilling and rounding-off sites should be identified where such sites do not materially harm matters of planning importance especially if they would provide some specific community benefit.

Making such limited additional provision would therefore improve the choice of location for existing and future residents, reduce pressure and provide counter arguments to resist "village cramming", and assist the rural economy and local employment. We consider such steps would in particular be in line with Objective 7 : Delivery of a housing growth strategy tailored to the needs and context of Tiptree, Objective 9 : To include variety and choice to meet existing and future needs in terms of housing type and tenure, and Objective 26 : To encourage small businesses and local employment.

For the above reasons, therefore, we advocate the supplementation of future housing capacity within smaller sites by limited provision being made on the edge of the village where this can be achieved without material harm to the countryside or the setting of the village - especially where such would achieve specific community benefits.

Part B: Frontage site adj. Rhubarb Hall, Grove Road, Tiptree. Site 134.

The frontage site on Grove Road is shown on the attached Site Plan and is put forward as a small infilling/rounding-off site on the edge of Tiptree. Its release would represent the natural completion of development on this section of Grove Road and would supplement the limited supply of small sites available within the existing built-up area of Tiptree.

Development would be confined to frontage development only and the site has an estimated capacity of up to 9 dwellings. It is envisaged that a small development here would include a mix of 2, 3 and 4 bedroom dwellings with a possible mix of both houses and bungalows.

The periphery of the site on its interface with the countryside to the north east would be landscaped and defined by a new native deciduous hedgerow and hedgerow trees.

Having regard to the limited availability of small housing sites within Tiptree, this site on Grove Road adjacent to Rhubarb Hall is put forward for inclusion within the proposed settlement boundary.

Yours faithfully,

Chartered Town Planner

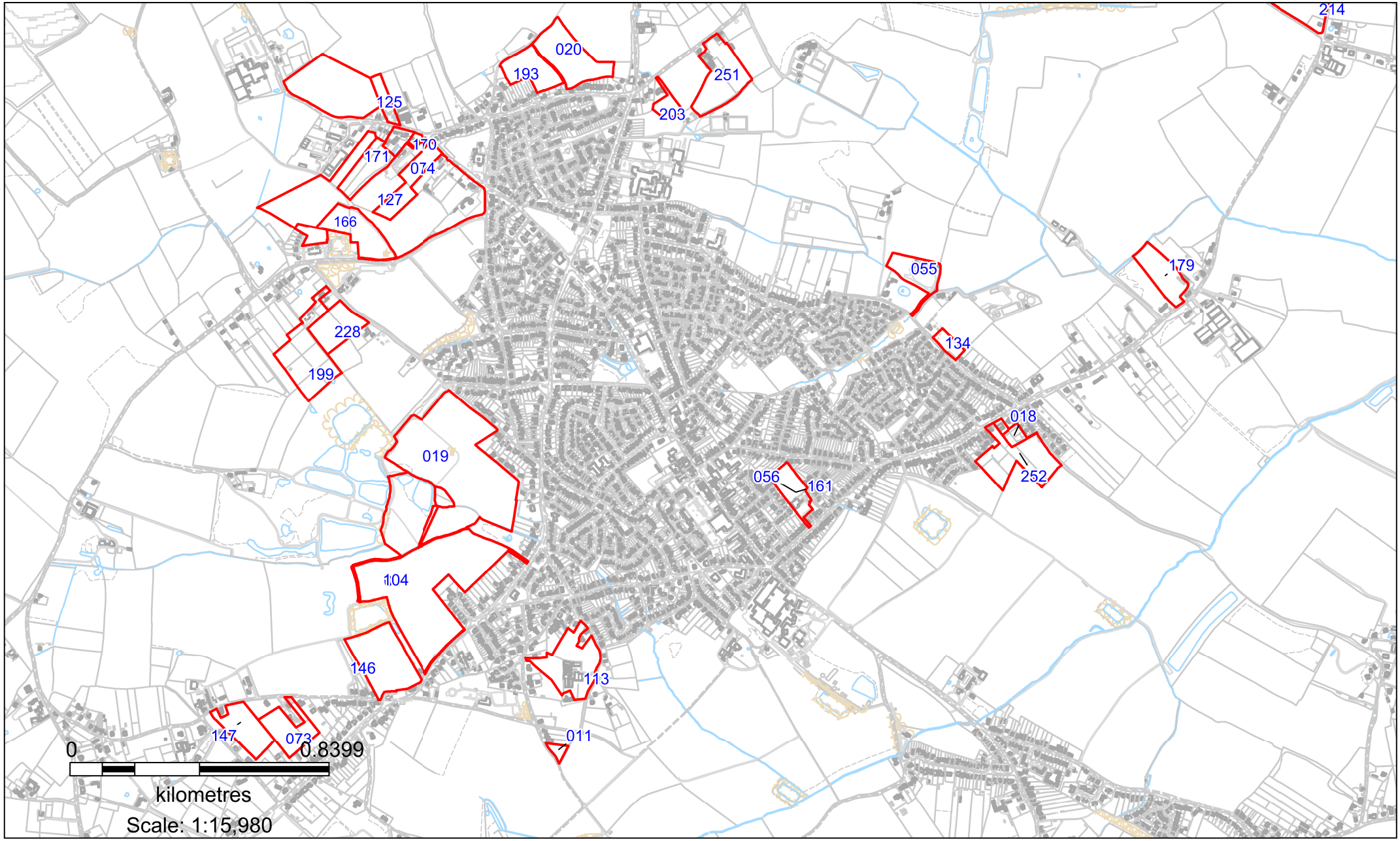
On behalf of

Mrs D. Morrall
Rhubarb Hall
Grove Road
Tiptree
CO5 0JB

COLCHESTER BOROUGH
LOCAL PLAN -
CALL FOR SITES

Tiptree

These sites have been submitted to the Council for consideration only. No decision has been made on whether they will be allocated for development in the new Local Plan.



17th July 2019

Tiptree Parish Council Office,
Mynott Court,
Church Road,
Tiptree,
CO5 0UP

Re: Tiptree Neighbourhood Plan: Consultation Edition

Dear Sir/Madam,

We would like to thank the Parish Council for providing an opportunity to comment on this draft Neighbourhood Plan. We offer our broad support for the general policy approach taken throughout but we have a number of comments, observations and suggestions that we wish to make in the following paragraphs.

Alongside Mersea Homes, we are promoting the land on the northern edge of Tiptree which is the subject of the "Highland Nursery & Elms Farm" Site Allocation, as depicted in Map 12.2 in the Tiptree Neighbourhood Plan. More specifically, our representations relate to the major part of the Elms Farm allocation which lies to the north of Oak Road and west of Messing Road and is referred to as "the site". It is therefore confirmed that the site is available and deliverable in the short-term.

The site comprises two fields with a frontage to Messing Road to the east. Its north western and western boundaries are defined by a public footpath accessed off Oak Road with the north western boundary coinciding with the Parish boundary. The eastern boundary is the undeveloped frontage on Messing Road whilst the southern boundary is alongside and to the rear of established frontage development on Oak Road. Elms Park Farm is situated to the immediate north and the small woodland of Eden Wood just to the north-west.

The key attributes of the site and points relating to its future development are as follows:-

- It constitutes a natural extension to the village within well-defined defensible boundaries.
- It is able to contribute the majority of housing provision to meet the 225 dwellings earmarked for this allocation.
- It will deliver a wide range of different house types and designs as required in Policy TIP05.
- It will provide a key leg of the proposed northern link road – compliant with Policies TIP07 & TIP14.

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601 London Road, Westcliff-on-Sea, Essex

- It will incorporate recreational and open space including a MUGA as required in Policy TIP11 and a green buffer to existing housing on Oak Road and on the interface with the countryside.

- It will create a small new neighbourhood of high quality to reflect Policy TIP02.

We have the following comments in respect to the detailed policy elements of the Neighbourhood Plan: -

Tiptree Policies Map - There appears to be a discrepancy between the 'Tiptree Policies Map' and the 'Tiptree Policies Map – Details of Site Allocations Map' which will require correction to ensure consistency across these plans.

Policy Boxes - We consider there is a need for additional text to explain the role of the Policy Boxes within the Neighbourhood Plan and how they relate to the Tiptree Policies Map.

TIP03: Residential Car Parking - As the standards within the 'Planning - Essex Parking Standards: Design and Good Practice 2009' will be sufficient to accommodate a transit van, we suggest the removal of this reference.

Policy TIP07 - Mitigating the Impact of Vehicular Traffic through Tiptree Village – We consider this policy requires further review to ensure that it succinctly and with clarity achieves the desired aspirations. For example, the reference to the number of access points is confusing and contradictory. With regard to the access points, more weight should be given to the indication of access points on Map 8.2. Clarity is also needed in respect of how proposed key highway infrastructure will be delivered and by whom. A mechanism should be included to ensure that all major development, including any significant windfall sites, should provide some contribution to highway improvements.

Policy TIP10 - Business Development – We consider this policy should incorporate a greater degree of flexibility to support a wider range of employment-generating, non-residential uses. The modern economy is evolving and the business demand for space does not always fit within traditional Class B uses. There is a need to provide this flexibility to respond to emerging business practices, for example it may be appropriate to include some Class A and D1 uses.

Policy TIP11 - Community Infrastructure Provision – We consider further clarity is required to ensure that there is clear certainty in regards to what and how key infrastructure projects will be delivered and funded. In this respect, reference should be made to the legal position concerning planning obligations.

Policy TIP14: Highland Nursery and Elms Farm – We consider this policy requires refinement to provide clarity and certainty in respect to what the development at

Highlands Nursery will deliver and separately, what the development at Elms Farm will deliver.

We hope the above remarks are helpful and we look forward to working with the Parish Council to deliver the site at Elms Farm. Should you require any further information from us, please do not hesitate to get in contact.

Yours faithfully,

Granville Developments

Granville Developments – Part of the Granville Group.
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Representations on Tiptree Neighbourhood Plan

Introduction

These representations are submitted on behalf of GO Homes Limited relevant to ongoing discussions with landowners for land options within the Neighbourhood Plan area.

Tower End (Policy TIP13)

The Tiptree Policies Map identifies Tower End as one of 3 no areas for identified growth.

The allocation for Tower End refers to an indicative capacity for 175 dwellings and seeks to provide a new highway from the B1022, Maldon/Colchester Road and towards Feering on the B1023 Kelvedon Road.

It is noted that the Policy text refers to 3 arm roundabouts, given no traffic analysis has been undertaken at this stage it would perhaps be more prudent to note new junctions subject to detailed design and review.

Discussions with the landowners adjacent to the Northumbrian Water Limited ownership shows a willingness to enter into a collaboration type arrangement with GO, which would ensure the deliverability of the safeguarded route within the design concept for the site. Given the operational status of the Essex and Suffolk Water site and infrastructure pipework and easements which serve the facility, the Neighbourhood Plan should perhaps consider the opportunity to allocate additional land to the west and north of the draft proposals.

At present there is an existing application for approximately 150 dwellings submitted by Marden Homes for the northern element of the allocation from Kelvedon Road, which provides for the 'safeguarded route in part'. However, to ensure the commercial viability of such a primary street, the landowners to the southern section will require enough development numbers to conclude the primary street and provide the connectivity the Plan requires. The landowners to the north of the waterboard land (prior to the land Marden Homes have submitted their scheme), for which GO Homes are their preferred development partner, would benefit by additional land to the west and north being included within the allocation.

This would provide for increased biodiversity improvements, open space, water easements and the primary street to all be delivered as a comprehensive development that would achieve the aims and aspirations of the Plan's vision as sustainable development.

Conclusion

The site is deliverable and achievable with GO Homes and landowners for whom they work with, as such Tower End Policy is generally supported. However, in summary, whether the reference to roundabouts is needed at this stage and whether enough land is allocated, especially to the western and northern boundaries, to provide for a quality urban design framework delivering the vision of the Plan is in some doubt.

Tiptree Draft Neighbourhood Plan Consultation Response

Land at Kelvedon Road, Tiptree

Prepared on behalf Marden Homes

July 2019

Site Name:		Land at Kelvedon Road, Tiptree
Client Name:		Marden Homes
Type of Report:		Tiptree Draft Neighbourhood Plan consultation response
Prepared by:		Laura Dudley-Smith MRTPI
Approved by:		James Firth MRTPI
Date:		July 2019

Strutt & Parker, Coval Hall, Rainsford Road, Chelmsford, Essex CM1 2QF
ChelmsfordPlanning@struttandparker.com
Tel No: 01245 258201

CONTENTS

1.0 Introduction

1.1 This representation on the Tiptree Draft Neighbourhood Plan (DNP) (June 2019) is made on behalf of our clients, Marden Homes. Having reviewed the DNP in detail, we have the following comments to make.

1.2 Our clients strongly support the proposed allocation of land south of Kelvedon Road (Tiptree Strategic Housing Land Availability Assessment Site reference TIP16, forming part of Tower End). This proposed allocation accords with the emerging Colchester Borough Council (which is at an advanced stage, and to which the Neighbourhood Plan is required to conform). It is a sustainable and deliverable site for the development of homes to help meet local needs, and its development will help contribute towards meeting the objectives of the Neighbourhood Plan.

1.3 Our clients do however have concerns in respect of matters of detail of some of the policy requirements, and their potential impacts in terms of ensuring the suitable, viable and timely delivery of development sites. We are of the view that these concerns can be addressed through relative modest changes which will not alter the strategy proposed, or the objectives the DNP seeks to achieve. Our suggested changes are focused on ensuring the requisite flexibility and provision of additional clarification within the associated policies where appropriate. We consider such changes are necessary to ensure the final Neighbourhood Plan meets the basic conditions required in order for it to progress to referendum.

2.0 Policy TIP03 – Residential Car Parking

2.1 Marden Homes do not consider it appropriate to require parking in excess of existing adopted Essex County Council standards, as adopted by Colchester Borough Council on a new development with no existing parking pressures.

2.2 Essex County Council's parking standards introduced in 2009 represented a departure from the previous, nationally driven approach put in place in the early 2000s, in which residential parking standards were set as maximums. It is recognised that this previous approach generated concerns that insufficient parking spaces were being provided, and whilst the approach may be appropriate in certain circumstances (e.g. town centre development) it was not always appropriate, particularly within more rural areas of Essex. However, Essex County Council's parking standards responded positively to such concerns, and re-introduced minimum residential parking standards, based on empirical evidence, which have been successfully implemented since.

2.3 The DNP's proposed parking requirements will result in the delivery of parking-dominated development to the detriment of high quality site design and the enjoyment of the public realm.

2.4 Marden Homes also do not consider it necessary for every space on the site to be able to accommodate a 'transit' style van. Again, Essex Parking Standards have been set and used successfully across Essex – including in Colchester Borough. The parking space requirements within these standards are generous and were proposed to accommodate a range of vehicle sizes. It is unreasonable to make allowances for every new dwelling to have up to three 'transit' style vans.

2.5 Excessive parking requirements, along with a requirement for every space to accommodate a 'transit' style van will require an inefficient use of land which will impact on the viability of new housing schemes in the village. It would also introduce an urban character to sites which will be visually dominated by the

parking of cars and associated hardstanding and parking courts, and limit the potential to provide green space within developments.

2.6 We suggest the policy be amended to align with the Essex County parking standards. Alternatively, the Parish may wish to consider setting out policy support for development which propose greater parking provision (without requiring such provision), where appropriate and subject to the development still being able to be of a high quality design which reflects local characteristics.

3.0 Policy TIP07 – Mitigating the Impact of Vehicular Traffic through Tiptree Village

3.1 Marden Homes agrees that land allocated for development under Policy TIP13 has the potential to safeguard a route for a new link road, and that this may help to reduce the levels of vehicular traffic within the village on the B1022 and the B1023.

3.2 Marden Homes can confirm their willingness to provide the element of the link road on land within their control as part of residential development of the site proposed under Policy TIP13.

3.3 In addition, we suggest the policy should also confirm the intended technical requirements for the road associated with the reference to a 'primary street'. The emerging Neighbourhood Plan should not be overly prescriptive with regards to the size and nature of the road. Whilst Marden Homes accept the need for such a route to be able to serve bus routes and suitable footpath provision, it will also be important the road is not in excess to requirements to the detriment of the existing character of this village location.

3.4 Our clients also suggest that where an appropriate road connection is to be provided as part of a development, that additional contributions to the overall delivery of the road will not be required in addition – such a requirement would be overly onerous on a developer, undermining viability, and would also be disproportionate to the development (i.e. it would not comply with s122 of the Community Infrastructure Regulation 2010).

4.0 Policy TIP12 – Comprehensive Development

4.1 We support the concept of development being comprehensively planned. This can be achieved through the normal planning application process, with policies in place to ensure this. It is important there is flexibility for the delivery of development through the normal application process.

5.0 Policy TIP13 – Tower End

5.1 Marden Homes support the allocation of Tower End for the provision of at least 175 homes.

5.2 The allocation proposed through Policy TIP13 accords with the emerging Local Plan for Colchester Borough, which requires at least 600 new homes to be delivered in Tiptree, and makes clear that development should be directed to the western side of the village.

5.3 It is not simply that it is a requirement for the Neighbourhood Plan to conform to the Local Plan, but it should be recognised that the emerging Local Plan's proposed approach (which is at an advanced stage and has weight) is supported by technical evidence – as the national Planning Practice Guidance (PPG) notes (009 Reference ID: 41-009-20190509), evidence informing the Local Plan process is likely to be relevant to the consideration of the basic conditions against which a Neighbourhood Plan is tested.

5.4 Site reference TIP16 (which forms part of proposed allocation TIP13) has clearly defined site boundaries, as well as a degree of built form on the site already, and is private land that presently offers no merit to the public. The site represents an opportunity to provide homes through development whilst minimising potential harm to landscape and character of the countryside.

5.5 Within the current, out-of-date Development Plan for Colchester Borough (which the emerging Local Plan will supersede) part of the site is designated as an Employment Zone, and a small portion has a Gypsy and Traveller allocation. As such, allocation of this element for residential development would not entail loss of open countryside. Furthermore, the evidence base for the Local Plan suggests that neither of the existing allocations are any longer required: in respect of employment, the Colchester Employment Land Needs Assessment (2015) recommends employment allocations be concentrated in the areas of strongest market demand, including Colchester Town, the Northern Gateway and Strategic Employment Zones at Stanway and the Knowledge Gateway; in respect of the Gypsy and Traveller allocation, the loss of a small allocation will not undermine the ability to accommodate need, with the emerging Local Plan supporting expansion of other sites and provision within the new Garden Communities.

5.6 The DNP proposed policy recognises the inability to deliver the existing Employment Allocation which covers part of the site within Colchester's existing and emerging Plan, due to land ownership and access constraints and as a result promotes the land for residential use exclusively.

5.7 The site is not subject to any ecological, environmental or heritage designations which suggests its development for homes is constrained.

5.8 Our clients do have concerns regarding the DNP's proposal that no dwellings front the proposed connecting road. The implications of this request on the design of a safe, secure and useable site layout are significant and would in turn risk sites' deliverability.

5.9 Dwellings can be set back from road frontages, but an ultimate outward aspect is required to provide surveillance along this public route, to aid way-finding along the road, and to ensure that the character of the road is not defined by parking and the rear of properties.

5.10 Moving forward, we recommend the Neighbourhood Plan Group seek to engage with Colchester Borough Council's urban design consultants to ensure policies mitigate any concerns for the local community, whilst still ensuring high quality design of sites and useable public realm.

5.11 Marden Homes propose that one solution to ensure a safe, secure and usable site layout whilst addressing what we have inferred are the aims of the DNP policy, is that the policy be amended to state dwellings should not be accessed directly from the street, but can still front the road behind footpaths/grass verges and parallel access roads.

5.12 In addition, it is important to recognise that, whilst the provision for onward connectivity to neighbouring sites for pedestrians and cycles be made (as the DNP proposes), each developer or landowner can only guarantee this provision on the land which they control.

6.0 Overview

6.1 Allocation of Tower Hill for residential development is considered to be sustainable and deliverable, and its allocation is supported.

6.2 Our clients do however have concerns regarding some of the specific policies, as detailed above, that present a risk to the deliverability and suitability of the Neighbourhood Plan. We consider that it will be important for these to be addressed through the preparation of the next draft of the Neighbourhood Plan, to ensure that the final plan can pass the basic conditions.

6.3 We would welcome the opportunity to meet with Tiptree Neighbourhood Plan Group to discuss the points raised within this representation, and the delivery of our client's site in line with the Plan's objectives.

Policy TIP13 – Essex and Suffolk Water

Essex & Suffolk Water own and operate Tiptree Water Works, and part of the land surrounding it is proposed to be allocated within the 'Tower End' residential allocation.

Essex & Suffolk Water support this allocation. However, they would stress that the water works and surrounding land is extensive, highlighting an area of 2.50 Ha to the west of the proposed 'Tower End' residential allocation. This land is available for development and is well related to the proposed allocation. It is considered that this land should be included in the allocation to allow flexibility in the delivery of the proposed housing and could allow for additional housing, open space or biodiversity enhancements if required as part of any planning application. This land is shown on the attached plan.

It is also important to note that Essex & Suffolk Water will require an operational easement on the south easterly most section of the proposed allocation where the new access is proposed on Grange Road. Whilst a road could be located over the easement, residential property could not. Ultimately this may affect housing numbers across the allocation. Acknowledging this, there would be significant benefit in extending the allocation to include the 2.50 Ha referenced above, the land being available and appropriate for development.

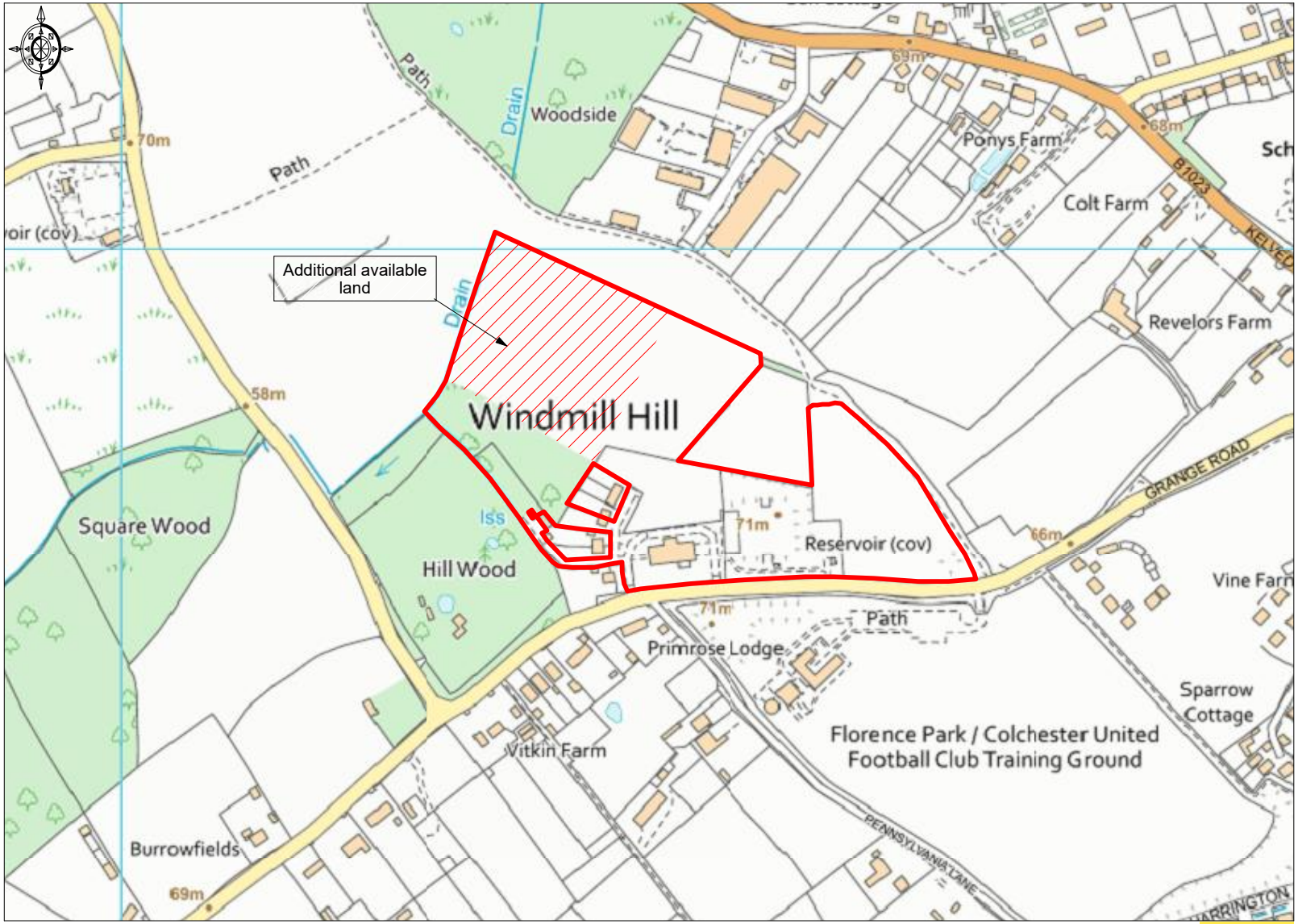
In any event it is important that a new criterion is added to the policy to ensure that the operational mains running across the southern most portion of the site are protected. This should state the following:

The operational water mains across the site should be protected from development to ensure that access can be maintained

In terms of highways, Stantec have investigated the feasibility of providing a junction on Grange Road, and the potential alignment of the new road to assist Essex & Suffolk Water in the assessment of the impact of the proposed road on their land. Based on an initial investigation, it is concluded that a new junction on Grange Road giving access to the proposed 'Tower End' allocation would be deliverable. The junction could take the form of a compact roundabout, but other forms of junction may also be appropriate and a more efficient use of the land. Consequently we consider that the final sentence of criterion iii of Policy TIP13 should be deleted and replaced with:

~~*This road to include three-way roundabouts at the Junctions with Grange Road and Kelvedon Road (In accordance with Policy TIP07)*~~

This road to include appropriate junctions with Grange Road and Kelvedon Road



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HOPHOUSE – COLCHESTER ROAD - WEST BERGHOLT – COLCHESTER – ESSEX CO6 3TJ

Dear Sir/Madam,

Tiptree Neighbourhood Plan: Consultation Edition

We would like to congratulate the Parish Council on putting together a comprehensive and well thought out Neighbourhood Plan and we support the general policy approach taken throughout.

We have made a number of suggested changes and amendments in the following paragraphs to further refine the emerging policy position and to provide greater clarity and robustness.

Policy Boxes and Policy Maps

As a general comment, the role of the 'Policy Box' requires an explanation in the supporting text to emphasise that these boxes are the primary policy instrument within the Neighbourhood Plan.

The 'Policy Proposals Map' needs to be more clearly defined, with an explanation in the supporting text to define its role within the Neighbourhood Plans.

All the other maps need to be clearly titled and labelled.

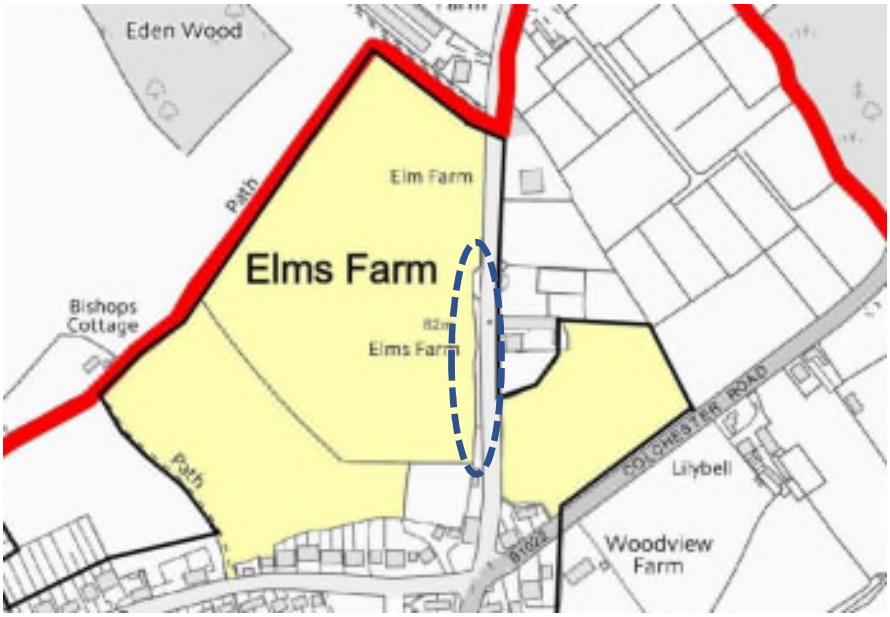
Tiptree Policies Map

There is a discrepancy between the boundaries shown on the 'Tiptree Policies Map' and the 'Tiptree Policies Map – Details of Site Allocations Map'. Specifically, the eastern boundary for Highland Nursery on the 'Tiptree Policies Map' is incorrect. The correct eastern boundary for Highland Nursery is set out on 'Tiptree Policies Map Site Allocation', on page 17. Please correct the 'Tiptree Policies Map' to reflect this boundary.

It is our view that it is not necessary to include the 'Tiptree Policies Map – Details of Site Allocations' Map as it repeats the Tiptree Policies Map and that it should be removed.

However, if it is to be retained, the 'Tiptree Policies Map Allocations Map' should just be a zoomed-in version of 'Tiptree Policies Map' to ensure consistency across both maps. Both plans should have the same title.

The boundary of Elms Farm on its eastern boundary and where it fronts New Road has not been correctly drawn, please see image below. Please amend the boundary to include the white parcel of land as part of the site allocation.



The commercial area marked to the south of Highland Nursery should be labelled as an indicative commercial area, as the precise boundaries may change following the masterplan process.

Policy TIP03: Residential Car Parking

Policy TIP03 requires refinement to ensure that it is robust and based on sound evidence. Our comments relate to Part B of the policy. Our concerns with this element of the policy are:

- Whilst we understand the concern regarding space for transit vehicles, no evidence has been provided to justify the need for spaces to accommodate this size vehicle.
- As currently written, every space will be required to accommodate a transit vehicle, which is impractical and inappropriate for a number of reasons including general urban design principles, and the proportionate need for such vehicles.
- No evidence has been provided to indicate the actual size of transit vehicles to be accommodated. These vehicles do vary in size.
- No suggestions have been given to the size of the parking bays, which would need to be evidenced.
- The 'Planning - Essex Parking Standards: Design and Good Practice 2009' suggests parking bays of 5.5m x 2.9m to serve residential properties. Most transit vehicles could be accommodated within this space.

It is our suggestion that Part B be amended as follows:

B. In order to ensure that off-street parking is fully utilised, the provision of open parking under car ports, on drives or on parking courts with designated spaces is encouraged in preference to garages. Height and width of parking spaces should be ~~sufficient to accommodate a 'transit' style van~~ in accordance with the space dimensions set out in 'Essex Parking Standards: Design and Good Practice document' or successor document.

Policy TIP07: Mitigating the Impact of Vehicular Traffic Through Tiptree Village

Policy TIP07 requires further clarity to understand what each site allocation and potential windfall development will be expected to deliver in respect to highways infrastructure.

We are also concerned that the policy position in respect to the number of access points, as written, could be quite constraining to the detriment of good urban design principles and deliverability. It would also appear contrary to the policy advice given by Essex County Council in its 'Development Management Policies' document, which seeks to generally minimise access points.

It is our suggestion that Policy TIP07 be amended as follows:

A. Development proposals that improve traffic flow and/or avoid increased congestion on existing roads and junctions will be strongly supported.

B. ~~To avoid congestion new developments should have more than one access point for car users and wherever space allows access should be via a roundabout.~~ To avoid congestion, new developments will be required to provide a safe and efficient access, in accordance with the requirements of the highway's authority.

C. Vehicular access to the site allocations, identified in TIP13 and TIP14, should be made in consideration of the indicative access points identified on Map 8.2.

D. New development should contribute to the construction of linked streets. Cul-de-sacs should be limited in number, restricted in the numbers of dwellings that they serve and only located where dwellings cannot be served in any other way.

~~C.~~ E. Proposals to mitigate the level of additional vehicular traffic travelling through the centre of Tiptree village (along the B1022 and B1023) are strongly encouraged.

~~D. As part of the site allocations relating to development of land in the north and north west of Tiptree (Policies TIP13 and TIP14) a route is safeguarded for the provision of a new road which will help to reduce the levels of vehicular traffic travelling through the village on the B1022, Maldon/Colchester Road and towards Feering on the B1023 Kelvedon Road (as shown on the Tiptree Policies Map). Development of the land in the north and north west of Tiptree will be expected to contribute towards the delivery of the road and applicants will be expected to work with the Highway Authority to ensure that:~~

~~i. the new 'primary street' meets the necessary specifications as given in the Essex Design Guide (2018), in particular ensuring it is sufficient to support a bus route; and~~
~~ii. the optimum route corridor, reflecting the indicative corridor shown on the Tiptree Policies Map, is safeguarded in order to maximise the potential for the road to be delivered whilst ensuring that development in north Tiptree is sustainable over the long term, including growth beyond the plan period.~~

F. The allocated sites identified in TIP13 and TIP14, and where appropriate, windfall developments, will be expected to contribute towards the delivery of the new 'primary Street' to the north of Tiptree. The new 'primary street' will help to reduce the levels of vehicular traffic travelling through the village on the B1022, Maldon / Colchester Road and towards Feering on the B1023 Kelvedon Road, as shown on the Tiptree Policies Map.

The new 'primary street' will reflect the rural character of this edge of settlement location and will meet the necessary specifications as set out in the Essex Design Guide (2018), in particular, ensuring it is sufficient to support a bus route.

The following developments will contribute to the implementation of the 'primary street' as follows:

- Highlands Nursery - to deliver the Primary Street from Kelvedon Road to the eastern point of the safeguarded route.
- Elm Farm - to deliver the Primary Street from Colchester Road to the western point of the safeguarded route.
- Tower End - to deliver the Primary Street between Kelvedon Road and Grange Road.
- Windfall Sites of 10 dwellings or more – to provide appropriate highways contributions to support the delivery of the safeguarded route.

Land required for the implementation of the Primary Street to its full extent will be safeguarded to enable the future provision of land outside of the Neighbourhood Plan area, as shown on Map 8.2.

Maps 8.2 and 8.3

Maps 8.2 and 8.3 appear to overlap in their function and it's our view that a single map that could be tied to Policy TIP07 should be presented instead.

With specific regard to Map 8.3, we have the following comments:

- 'New Road', marked in green should be titled 'Primary Street' to allow it be linked to Policy TIP07.
- 'Possible Future Road' marked in a green dotted line should be titled 'Future extension to the Primary Street (safeguarded route)'.
- Include 'Indicative Access Points' on the key.
- The 'Upgraded Route' marked in purple should be removed. This is not explained in the supporting text or policy and it is not clear how this would be funded. If this 'Upgraded Route' is to be retained, then it should be changed to yellow to reflect its role as an 'other connecting road'. This designation would require further explanation. It would also be inappropriate for allocated development to contribute to this aspiration.

Policy TIP10: Business Development

Policy TIP10 requires some refinement to ensure that it is sufficiently flexible to be able to respond to an adapting and evolving economy. Economic development and employment generating uses do not always fit within the traditional Class B use. To promote economic development locally, the policy focus should be encouraging business development.

It is our suggestion that Policy TIP10 be amended as follows:

Land ~~in north-west Tiptree~~ at Highlands Nursery (Policy TIP14A) is required to deliver approximately 1.5 hectares of ~~B-Class employment~~ non-residential employment land to support Class B uses and other appropriate employment generating uses.

As part of this provision, ~~the employment~~ 0.6 ha non-residential employment land is expected to be serviced and ~~commercial~~ the buildings delivered on the site ~~are expected to be designed to be suitable for use by existing larger businesses currently located adjacent to the District Centre boundary of Tiptree village~~ will comprise a mix of unit types suitable of accommodating larger businesses, currently located adjacent to the village boundary, but also small and medium sized flexible units aimed at a variety of business types, including expanding companies, micro and start-up businesses.

It is important that developments are compatible with their surroundings and that the business site is appropriately screened with trees and hedgerows.

Policy TIP11: Community Infrastructure Provision

We have a number of concerns regarding the current draft of Policy TIP11 as it lacks clarity and certainty and is unclear how the listed items will be delivered and how it relates to planning obligations.

It is our view that the policy should be re-titled 'Planning Obligations' and that items which are specifically related to the site allocations be removed from this policy and transferred to the respective site allocation policies, under Policy TIP13 and Policy TIP14. On this basis, we have suggested a number of changes to the policy text, as follows:

~~A. In order to address the needs arising from growth, new development is expected to be supported by the delivery of the following community infrastructure items:~~
~~i. A Local Equipped Area for Play (LEAP) in north-west Tiptree (secured as part of the delivery of the allocated land at Highland Nursery) – Policy TIP14.~~
~~ii. A Multi-Use Games Area (MUGA) in north-west Tiptree (secured as part of the delivery of the allocated land at Elms Farm) – Policy TIP14.~~

Planning obligations will be required that support the delivery of appropriate infrastructure in Tiptree that is:

- Necessary to make the development acceptable in planning terms
- Directly to the development
- Fairly and reasonable related in scale and kind to the development

Where appropriate, all major development will be ~~is also~~ expected to contribute (through Section 106 as appropriate or through Community Infrastructure Levy contribution) to the following community infrastructure projects which will address the needs arising from growth:
~~i. Replacement of children's play equipment at Grove Road.~~
~~ii.~~ i. Replacement of the Scout Hut.
~~iii.~~ ii. Improvements to the Sports Centre.
~~iv.~~ iii. Provision of an adult fitness trail in Park Lane.
~~v.~~ iv. Education expansion.
~~vi.~~ v. Health facilities.

~~C. Suitable site proposals for burial land will be supported (see Policy TIP01).~~

We note that this policy includes support for a burial site. It is our view that this policy element would be better served by having its own specific policy.

Policy TIP12: Comprehensive Development

Policy TIP12 requires some refinement, specifically, Part B should be more strategic in its approach to reflect the role and function of a masterplan. Our suggested amendment to this policy is as follows:

B. ~~These masterplans should demonstrate that development is in keeping with the character of Tiptree across a range of aspects which may include layout, roads, footpaths, housing mix and design~~. These masterplans will set out general design principles and provide a comprehensive indicative framework to guide the development of the area in accordance with the aspirations of the Neighbourhood Plan and demonstrate an understanding of the intrinsically semi-rural nature and evolution of the Tiptree settlement pattern.

Policy TIP13: Tower End

TIP13 requires some refinement to reflect our suggestions to other policies in the Neighbourhood Plan. Suggested policy text as follows:

Tower End totalling 8 hectares is allocated for approximately 175 homes. Development at Tower End will deliver:

i. ~~The development provides for a mix of dwelling sizes in accordance with Policy TIP05.~~ A mix of dwelling sizes in accordance with Policy TIP05; and
ii. 0.27Ha is provided as green space for community use; and
iii. A 'primary street' is provided connecting Kelvedon Road with Grange Road~~. This road must be provided so that, when completed, it is sufficient to accommodate a public bus route and non-residential traffic. The safeguarded route should ensure that the final road can have grass verges, wide pavements and vehicular access to residential areas. No dwellings should front directly onto this road. This road to include three-way roundabouts at the junctions with Grange Road and Kelvedon Road (~~In accordance with Policy TIP07~~)~~ and Map 8.2; and
iv. Pedestrian and cycle access into surrounding housing estates, towards the village centre and towards Perrywood Garden Centre is provided; and
v. The replacement of children's play equipment at Grove Road.

Policy TIP14: Highland Nursery and Elms Farm

Policy TIP14 lacks clarity and it is not clear what part of the allocation will deliver what infrastructural element. We have based our suggested changes to Policy TIP14 on the basis that it is retained as a single policy, however, it may add clarity if Highland Nursery and Elms Farm are presented as separate allocations with their own policy.

Highland Nursery and Elms Farm are together allocated for approximately 450 homes. ~~The following criteria must be met:~~

~~i. Residential development is focused in the western and eastern areas of the site; and~~
~~ii. The development provides for a mix of dwelling sizes in accordance with Policy TIP05; and~~
~~iii. The western end of the site to provide 1.5Ha for business use (Class B1). This should include 0.6Ha of serviced land which is made available for first occupation by existing commercial trades that choose to relocate from the existing premises close to the centre of Tiptree village.~~

~~iv. The provision of a green buffer between the existing houses in Oak Road and the new estate; and~~
~~v. 0.36Ha of green space is provided and includes a Local Equipped Area for Play in the western end (Highland Nursery); and~~
~~vi. 0.8Ha of green space is provided for a Multi-Use Games Area in the eastern end (Elms Farm); and~~
~~vii. A 'primary street' is provided around the back of the development from the junction with Kelvedon Road and being capable of extension through the eastern portion of the development into Colchester Road in the future (In accordance with Policy TIP07). This road must be provided so that, when completed, it is sufficient to accommodate a public bus route and non-residential traffic. The safeguarded route should ensure that the final road can have grass verges, wide pavements and vehicular access to residential areas. No dwellings should front directly onto this road. This road to include three-way roundabouts at the junction of Kelvedon Road at the western end and at the junction of Colchester Road at the eastern end (In accordance with Policy TIP07); and~~
~~viii. Appropriate improvements are made to the junction of Messing Road with Colchester/Maypole Road in agreement with the Highway Authority.~~

A. Highlands Nursery

Development at Highlands Nursery will deliver:

i. 215 to 235 residential dwellings on the land identified on the 'Tiptree Policies Map Site Allocations'; and
ii. A mix of dwelling sizes in accordance with Policy TIP05; and
iii. Approximately 1.5 ha of non-residential employment land for Class B uses and other appropriate employment generating uses in accordance with Policy TIP10; and
iv. 0.36Ha of green space is provided and includes a Local Equipped Area for Play; and
v. A 'primary street' is provided from the junction with Kelvedon Road and being capable of extension through the eastern portion of the development into Colchester Road in the future, as set out in Policy TIP07 and Map 8.2.

B. Elms Farm

Development at Elms Farm will deliver:

i. 215 to 235 residential dwellings on the land identified on the 'Tiptree Policies Map Site Allocations'; and
ii. A mix of dwelling sizes in accordance with Policy TIP05; and
iii. The provision of a green buffer between the existing houses in Oak Road and the new estate; and
iv. 0.8Ha of green space is provided for a Multi-Use Games; and
v. A 'primary street' is provided from the junction with Colchester Road and being capable of extension through the western portion of the development into Kelvedon Road in the future, as set out in Policy TIP07 and Map 8.2.

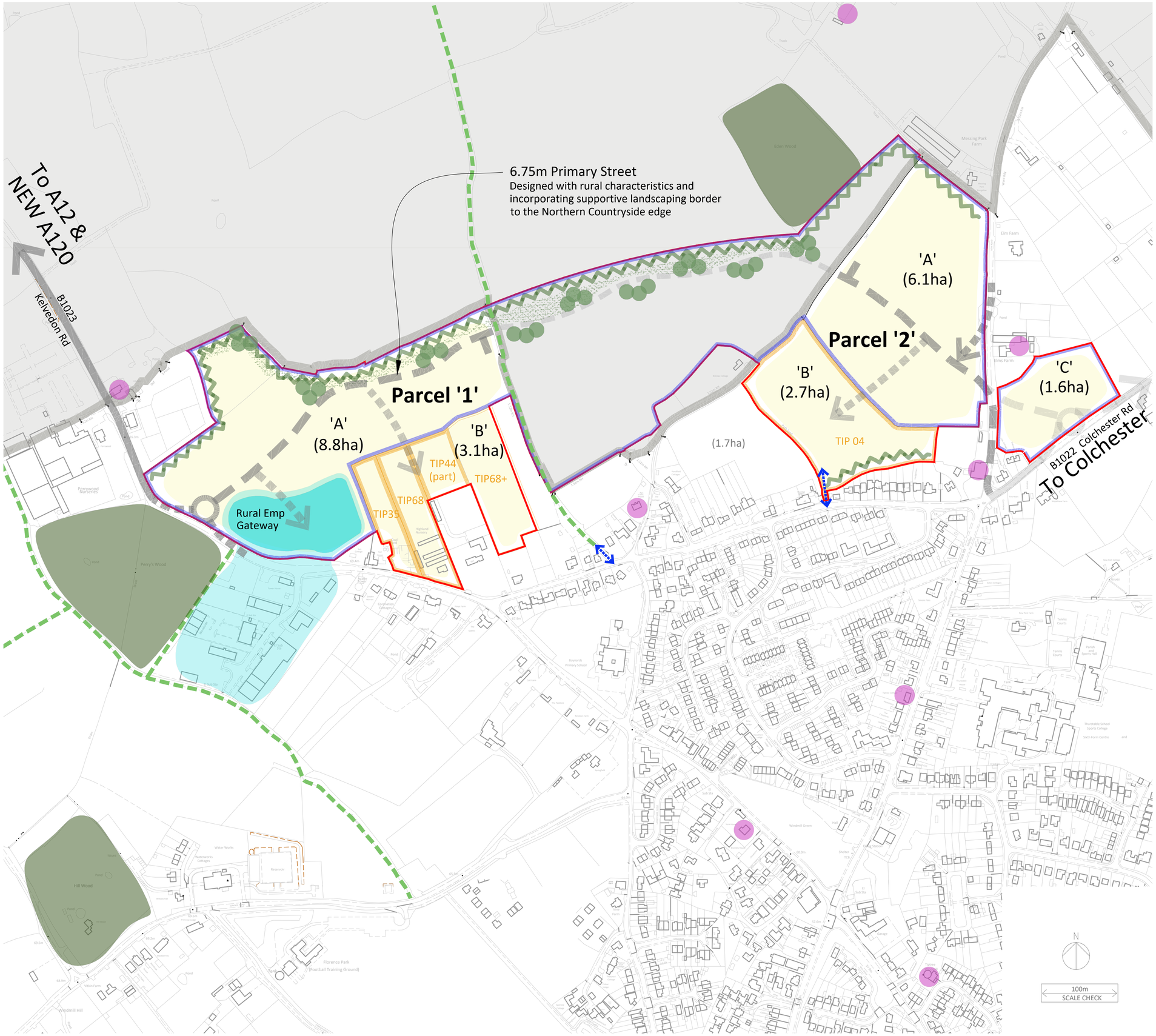
If it would be of use to the Parish Council, we would be happy to meet and run through these policy suggestions.

We look forward to working with the Parish Council to deliver this exciting vision for Tiptree. To aid future discussions, please find attached out latest emerging development framework for the site.

Yours faithfully,

Andrew Ransome MRTPI
Planning Director

Cc Mr Stuart Cock – Mersea Homes



Legend

- Messing boundary
- Listed Buildings
- Public Footpaths
- Potential pedestrian &/or cycle connectivity
- Illustrative routes
- Potential future rural connector safeguarded route
- Landscaping / ecological enhancement
- Land Edged Red = 32.1ha
- Mersea Homes = 26.3ha
- Additional Land = 5.8ha
- Mersea Homes land within TP NP Parcel 1 & 2 = 16.5ha
- (Mersea Homes land within Messing = 9.8ha)
- Additional land 'A' within TP NP Parcel 1 & 2 = 5.8ha

Parcel '1' = approx. 11.9 (8.8/3.1) ha
1.3ha: Employment
2.4ha: 20% Road, Open space, Ecology/Landscaping, SUDs etc
8.2ha: Residential:
'A': MH (-20% & Emp) = 6.0ha @ 27-33dph = 165 dwellings
'B': Other (-20% etc) = 60 dwellings
Total = 8.2ha @ 27-33dph = 225 dwellings

Parcel '2' = approx. 10.4 (6.1/2.7/1.6) ha
2.1ha: 20% Road, Open space, Ecology/Landscaping, SUDs etc
8.3ha: Residential:
'A'& 'C': MH (-20%) = 6.16ha @ 27-33dph = 167 dwellings
'B': Other (-20%) = 2.16ha @ 27-33dph = 58 dwellings
Total = 8.3ha @ 27-33dph = 225 dwellings

Total = approx. 22.3 (11.9/10.4) ha
1ha: Employment
4.4ha: 20% Road, Open space, Ecology/Landscaping, SUDs etc
16.9ha: Residential:
MH = 11.1ha @ 27-33dph = 280 dwellings
Other = 5.8ha @ 27-33dph = 170 dwellings
Total = 16.9ha @ 27-33dph = 450 dwellings

Amendments		
A 'C' included in MH land; calcs updated	04.07.19	DR

Client: merseahomes

Project: Land North of Kelvedon Rd (B1023)
Tiptree, Essex

Drg. Title: Tiptree Neighbourhood Plan
Land Use Area and Connectivity Objectives

Purpose of issue: Amended to accord with Draft NP

Drg. No:	Drawn	Checked
TP NP - PLAN 1 (A)	DR	DR

Scale:	Original Sheet Size:	Date:
1:2500	A1	10.12.18

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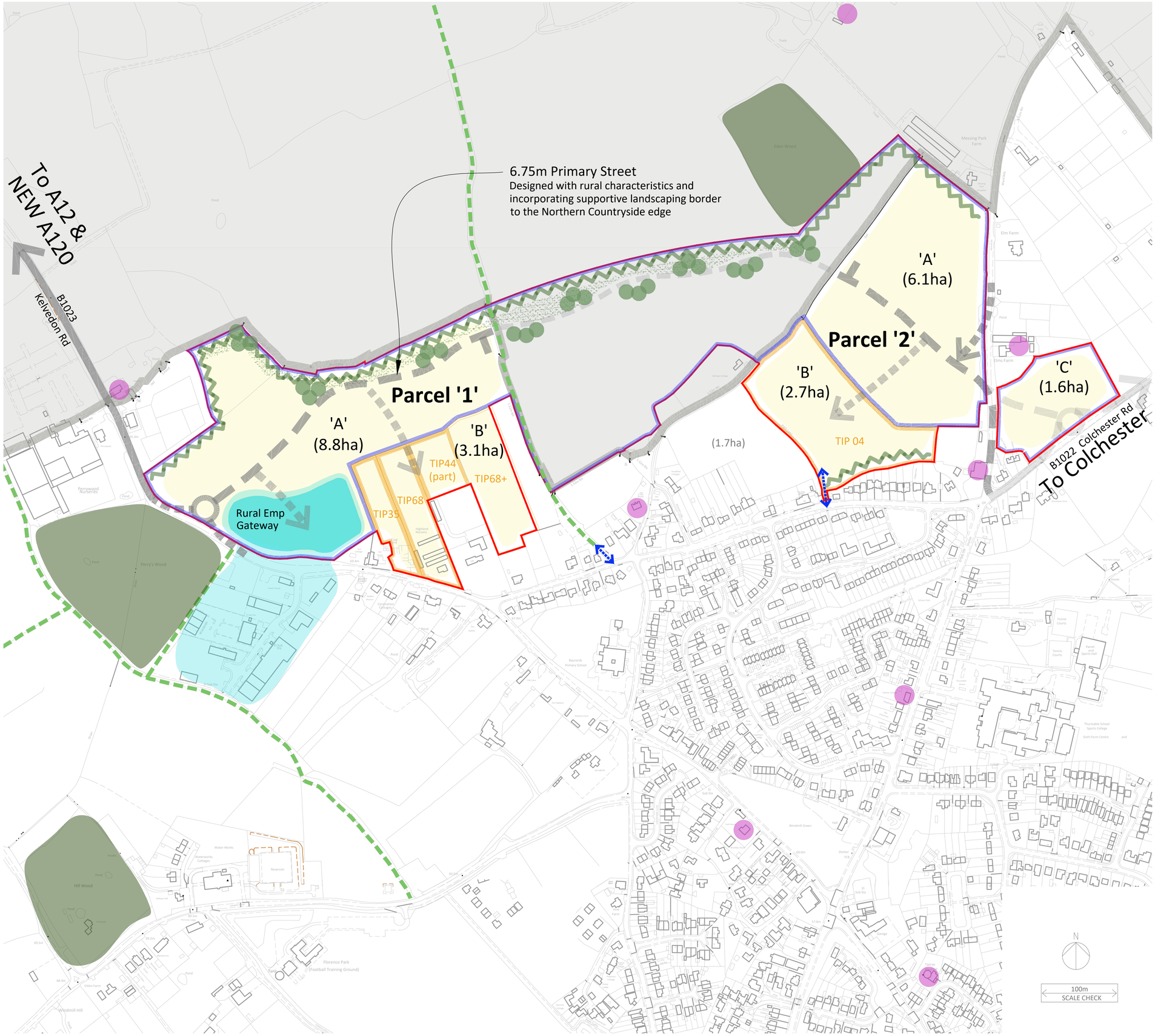

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Client: merseahomes

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Tiptree, Essex

Drg. Title: Tiptree Neighbourhood Plan
Land Use Area and Connectivity Objectives

Purpose of issue: Client Issue - Amended to accord with Draft NP

Drg. No:	Drawn	Checked
TP NP - PLAN 1 (A)	DR	DR

Scale:	Original Sheet Size:	Date:
1:2500	A1	10.12.18

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Draft Neighbourhood Plan Consultation Response

Tiptree Neighbourhood Plan Consultation Edition (June 2019)

Bloor Homes

July 2019

Site Name:		Land at Maldon Road, Tiptree
Client Name:		Bloor Homes
Type of Report:		Neighbourhood Plan Consultation Response
Prepared by:		Sam Hollingworth MRTPI
Approved by:		Richard Clews (Senior Associate Director)
Date:		July 2019

Strutt & Parker, Coval Hall, Rainsford Road, Chelmsford, Essex CM1 2QF
ChelmsfordPlanning@struttandparker.com
Tel No: 01245 258201

CONTENTS

1. Introduction and Overview

1.1 These representations on the Draft Tiptree Neighbourhood Plan (referred to as the Consultation Edition) ('the DNP') dated June 2019 are submitted on behalf of Bloor Homes.

1.2 Bloor Homes are actively promoting the development of Land at Maldon Road, Tiptree ('the Site') (site reference TIP 65 in the Neighbourhood Plan process) for housing. The Site is referenced TIP01 in Colchester Borough Council's (CBC) Local Plan process.

1.3 The Site is within a broad area of growth identified for Tiptree in the emerging CBC Local Plan (eLP).

1.4 The current DNP does not propose to allocate the Site for development.

1.5 We have a number of concerns in respect of the DNP which we set out within this representation. We have sought to provide constructive comments and, as such, where we have identified issues / elements we considered to be flawed, we have suggested how these can be addressed. We would welcome the opportunity to discuss further with the Neighbourhood Plan Group prior to the next iteration of the Neighbourhood Plan.

1.6 We are of the view – supported by technical evidence – that the Site is a sustainable and deliverable site for housing to help meet the need for homes, and that the Neighbourhood Plan should allocate it for residential development. This would be the case even if one were to disregard the eLP. However, it cannot be ignored that the eLP identifies the broad areas of growth within which sites should be allocated. As explained within this representation, one of our key concerns with the DNP is that it does not conform to the eLP, and suggests allocation of sites outside of these broad areas, contrary to the eLP. This represents a significant concern, given the requirement for the Neighbourhood Plan to be in conformity with eLP. However, this concern can be readily addressed through changes to the DNP, including the allocation of sites which are in conformity with the eLP, such as this Site.

1.7 In addition to concerns that the DNP does not conform to the eLP, we also have substantial concerns in respect of the Strategic Environmental Assessment / Sustainability Appraisal (SEA/SA) which accompanies the DNP. The Neighbourhood Plan is required to be prepared in accordance with relevant legislation, including the Strategic Environment Assessment Directive, which is transposed into UK law by the Environmental Assessment of Plans and Programmes Regulations (2004) ('the SEA Regulations'). We set out in this representation where we consider there to be deficiencies in the SEA/SA, including those that give rise to concerns as to whether the Neighbourhood Plan can be considered legally compliant unless they are addressed. We do, however, consider that the issues with the SEA/SA can be remedied, as discussed within this representation.

1.8 This representation is structured as follows:

Section 2: Provides details on the Site, and its sustainability and deliverability for residential development.

Section 3: Provides comments on specific elements of the DNP, including elements we suggest require additional explanation and / or amendments before the next stage of the Neighbourhood Plan.

Section 4: Concerns the SEA/SA and sets out not only our comments on how the Site has been assessed; but also includes the concerns we have identified which go to matters of legal compliance.

Section 5: Provides an overview of matters raised in the representation.

2. The Site

Site characteristics

2.1 The Site is located on Maldon Road (B1022) in south-west Tiptree. The Site sits outside of, but adjacent to, the defined settlement boundary of Tiptree in the adopted Colchester Local Plan Proposals Map (2010). The site abuts existing residential development along Maldon Road and Peakes Close, as demonstrated in the Location Plan extract below.

2.2 The Site is referenced as site TIP01 in Colchester Borough Council's Strategic Land Availability Assessment 2017 Update (SLAA 2017); and site TIP65 on the Neighbourhood Plan Group's Tiptree Strategic Land Availability Assessment Sites – 2018 Map.

2.3 The Site measures 10.11 hectares and is currently arable, agricultural land.

2.4 The Site is relatively flat and featureless, with dense planting at its northern and eastern boundaries. The tree population is almost entirely around the boundary of the Site, with the exception of one oak tree which is set 12m from the northern boundary.

2.5 The Site can currently be accessed via Maldon Road. There are two public footpaths (PRoW 150_19 and PRoW 150_21) at the northern and western boundaries of the Site. There are also a number of established informal walking routes to the north east of the Site.

2.6 The Environment Agency (Flood Map for Planning) confirms the Site is in Flood Zone 1. The Site is therefore at a low risk of fluvial or tidal flooding and is therefore suitable for all types of development, from a flood risk perspective.

2.7 The Site is not within any area designated for its ecological or conservation importance, and it neither contains nor is located in close proximity to any designated heritage assets.

2.8 The Site relates well to the existing residential development within Tiptree, and adjoins the existing settlement boundary and residential areas. To the north of the Site is an existing reservoir, which is currently used for recreational activities. To the south of the Site, beyond Maldon Road, is Tiptree Heath Primary School.

2.9 Inworth Grange Pits are located to the north west of the Site. The Pits are designated as a mineral and safeguarding zone, as well as a Local Wildlife Site. The Pits are no longer in use and the reservoirs now serve as commercial fishing lakes for leisure use.

2.10 A bus stop is located directly in front of the Site on Maldon Road, which facilitates the 75 and 506 services. The 75 bus provides frequent, daily services to destinations which include Essex University, Greenstead, Colchester, Colchester Zoo, Heybridge and Maldon. The 506 bus is a school bus route which provides Monday to Friday services to Colchester and Heybridge. Other bus stops within walking distance to the Site provide services to Colchester and other surrounding settlements.

2.11 The Site is considered to be a highly sustainable for development, as it is not subject to any physical, environmental, ecological or heritage constraints to development; represents a logical extension to the existing settlement which can integrate into and respond positively to the existing character of the village;

Proposed Development

Overview

2.12 Proposals for the Site's development comprise:

- Development of the Site to provide up to 275 dwellings (30% of which will be affordable homes, comprising shared ownership and affordable rent homes);
- Predominately, 2 / 2.5 storey accommodation;
- On-plot parking for all units in accordance with policy requirements;
- Private amenity space for all units in accordance with policy requirements;
- Provision of a landscaping scheme throughout the Site;

- Provision of 2.67ha of public open space, consisting of; recreational areas, local equipped areas of play (LEAP), and sustainable drainage system (SuDS);
- Improved public routes for pedestrians and cyclists throughout the Site;
- Incorporation of a parent drop-off / pick-up area for Tiptree Heath Primary School.

Design – the Proposed Approach

2.13 It is proposed that the overall concept of the design will be for the Site to act as transitional development between Maldon Road and the open countryside beyond, in addition to being a gateway to Tiptree. The development is proposed to add to the existing nature of Tiptree by using distinct character areas that are sympathetic to their immediate environment. In doing so, it is proposed for the Site to becomes an extension of the historic town and provide a seamless connection between existing and new development.

Landscaping and Public Open Space

2.14 It is proposed to provide high levels of landscaping, particularly within areas which will adjoin the countryside beyond the Site. In total 2.67ha of public open space is proposed to be provided as part of the development.

2.15 The creation of a robust green edge to the development, incorporating a landscape buffer/green corridor to the northern and western edges of the site, and the focussing of proposed open space within the westernmost site area is considered integral to the successful integration of future development into the landscape. These features will provide an appropriate transition between the site and the wider countryside setting, and will, alongside the provision of new tree, shrub and hedge planting throughout the internal site area, provide an attractive, sustainable and appropriate level of development.

2.16 The proposed public open space wraps the boundaries of the site and encompass a series of existing public foot paths that connect to the wider area of Tiptree. These areas of public open space are proposed to have a number of uses for example; recreational activities, a LEAP, SuDS and a trim trail. They will create green corridors across the site, making pedestrian movement safe and will encourage residents and the wider community to use the existing amenities.

2.17 The green area proposed to be located in the south-west corner of the Site, adjacent to Maldon Road will acts as a landscaped gateway to the site.

2.18 Existing landscaping will be reinforced where necessary.

2.19 The design of the development will take into consideration the existing footpaths and routes to, from and across the Site. Existing footpath and routes to, from and across the Site will also been considered within the overall landscape strategy to ensure that they are maintained and respected. These routes link to the wide hinterland and also have connections to other major public open spaces, such as Tiptree Heath.

Transport and Access

2.20 Our plans will also include pedestrian and cycle links, as well as other measures to promote and encourage sustainable transport. All pedestrian and cycle links will be naturally surveyed to create a safe and pleasant usable environment. These paths will promote walking and a healthy lifestyle for existing and future residents. Pedestrian access entry points will provide safe access to and from the site for those on foot and bicycle and ensure that both new and existing residents have access to existing amenities and the surrounding countryside.

2.21 Primary vehicular access to the new development will be taken from Maldon Road by means of a new T-junction with a right turn lane on the main road.

2.22 The provision of new homes at the site also provides the opportunity to deliver improvements to the junction of Maldon Road with Station Road to increase capacity and improve safety.

2.23 As a part of our design we are seeking to “future proof” the proposal, by presenting the opportunity for a future link road and reserving space for a roundabout to improve connectivity should future development come forward in Tiptree.

2.24 The main entrance road will be a boulevard design lined with high quality landscaping, footpaths and cycle ways. There is an allowance for a future roundabout at the access point but, until that time, it will remain as a new landscaped gateway to Tiptree.

2.25 We understand that a significant proportion of pupils arrive to Tiptree Heath Primary School by car and have shaped our proposal to help improve safety on Maldon Road. That's why our proposals include a number of spaces for parents to park up to drop off and collect their children. This is to help contribute to quick, safe and easy pick up and drop off during school hours.

Sustainability and Deliverability

2.26 The proposed development will direct growth to a sustainable location for growth, identified as such through the eLP. Development at the Site will have the benefit of helping to meet an identified need whilst reducing pressure to develop potentially less sustainable locations in order to do so.

2.27 Development anywhere to meet housing need will have some impact on the environment. The proposed development will entail loss of greenfield land. However, the Local Planning Authority has already determined that the loss of some greenfield land is inevitable in order to meet housing needs within the District. Consequently, the key issue is whether the loss of this particular greenfield site would result in any additional environmental harm particularly to this site and the Proposed Development.

2.28 In this respect, it should be noted that the Site is not subject to any specific environmental, ecological, landscape or heritage designations. Its development would not result in any harm to sensitive areas that are subject to such designation, and indeed will help to alleviate pressure to develop more sensitive sites in order to meet development needs.

2.29 The development proposals have been carefully formulated such as not to have an undue impact on local landscape, the rural character of the wider area, or designated heritage assets within the locality.

2.30 Development of the Site is supported by a full range of technical assessment works that confirms the development would not result in undue environmental harm, and we would be happy to share these with the Neighbourhood Plan Group.

2.31 The Site's development represents an opportunity to make a significant contribution towards housing need on a site from which future residents will be able to access

services, facilities and employment opportunities without reliance on the private car, with resultant environmental benefits. The provision of homes within a location from which services can be accessed without reliance on the private car is also a social benefit, given that not all residents may not have access or be able to use a private car.

2.32 Nationally, private car traffic associated with transportation of pupils to and from schools makes a significant contribution towards congestion: Sustrans estimate that the school run contributes 24% of all traffic at peak times. This Site is extremely well placed in respect of accessibility to Tiptree Heath Primary School by alternatives to the car, such as walking and cycling.

2.33 The proposed development would deliver significant social benefits. The provision of additional homes to meet housing need, including affordable housing at a level which accords with the eLP, to meet affordable housing need, represents a substantial benefit.

2.34 The provision of additional homes at this location will help support local services and facilities, helping ensure they remain used and viable, and are sustained for the local community.

2.35 Other social benefits include the creation of public accessible green spaces within this Site, over which there is currently limited public access.

2.36 Furthermore, development will have positive local economic impacts (discussed further below), which in turn as resultant positive impacts on well-being.

2.37 Development of additional homes results in intrinsic local and wider economic benefits.

2.38 Employment relating directly to the construction of the development will have positive economic and social impacts; as will jobs relating to the supply chain which will be supported during the construction period.

2.39 Development of the Site for homes will also engender sustained local economic benefits relating to additional local expenditure, with additional expenditure on goods and services by future occupiers of the Site on first occupation of their new homes, on home set up cost, and on an ongoing basis in local shops and services in the local area.

2.40 The Site is in close proximity to Tiptree Heath Primary School.

2.41 In addition to the environmental social, environmental and economic benefits of the proposed development, a further benefit is its potential to help meet emerging objectives of the Neighbourhood Plan.

2.42 A benefit which helps address concerns identified through community engagement in the Neighbourhood Plan, is the improvement to the school drop-off / pick-up arrangements the proposed development of the Site will deliver. Through public consultation on the Neighbourhood Plan, 66 comments by residents noted that there were problems with parking at all schools at start and end times, as reported in the Tiptree Village Questionnaire Results. Development of land at Maldon Road (TIP65) provide opportunity to address this concern in respect of Tiptree Heath Primary School.

2.43 If the Neighbourhood Plan wishes to deliver a link road which requires use of land within the Site, we can confirm that Bloor Homes are willing to accommodate such a road as part of the Site's development.

2.44 The Site sat within Location E (Maldon Road – Grange Road) of the potential locations for development. Although one of the most preferred locations for development (191 respondents voted it as the most preferable), some residents did provide comments to why they thought the location would be unsuitable for residential development. However, we consider that these can be addressed and mitigated through the development of the Site.

2.45 The Site is sustainable and deliverable one, with the potential to contribute towards meeting the minimum 600 additional homes the Neighbourhood Plan is required to seek to provide, whilst delivering additional community benefits.

2.46 Development of the Site is being promoted by a long-established housebuilder with a proven record of delivering high-quality developments in the region. In allocating the Site, the Neighbourhood Plan Group can be confident of a high-quality scheme.

3. The Draft Neighbourhood Plan

National and District Policy

3.1 In order for a Neighbourhood Plan to be successful at examination and proceed to referendum, it is required to meet the 'basic conditions' as set out within paragraph 8(2) of Schedule 4B to the Town and Country Planning Act 1990.

3.2 Neighbourhood Plans are required to be in general conformity with strategic policies within the Development Plan. A Neighbourhood Plan which does not, cannot meet the basic conditions against which it will be tested prior to it being capable of being adopted.

3.3 The relevant Development Plan in this instance is that of Colchester Borough Council. The current adopted Development Plan for Colchester Borough Council consists of the Core Strategy (2008), Site Allocations (2010), Development Policies (2010) and the Local Plan Focussed Review (2014).

3.4 The Core Strategy (2008) includes Policy H1 which seeks to deliver 830 dwellings per year between 2001 and 2023. This figure was based on the requirements of the now defunct East of England Plan, and these policies are now out of date.

3.5 Tiptree is the largest settlement outside of Colchester Town and Table SD1 within the Core Strategy (2008) and Policy H1 and the corresponding Table H1a confirms Tiptree is considered a sustainable location for growth.

3.6 Colchester Borough Council is currently in the process of progressing a new Local Plan which is required to *inter alia* deliver the District's development needs – including housing – in full, and the unmet needs of neighbouring areas where reasonable and sustainable to do so. This Local Plan is at a relatively advanced stage, having been submitted for examination and hearing sessions having taken place. The emerging Local Plan (eLP) has weight in decision making.

3.7 The Government's Planning Practice Guidance (PPG) notes that reasoning and evidence informing the Local Plan process is likely to be relevant to the consideration

of the basic conditions against which a Neighbourhood Plan is tested.[1] As such, the eLP is of very much relevance to the Neighbourhood Plan.

3.8 In relation to the eLP and housing provision, it should also be recognised that whilst the eLP is predicated on the need to deliver 920 dwellings per annum, this predates the current Government guidance on the calculation of housing need which now identifies a housing need for the Borough of 1,086 dwellings per annum[2].

3.9 In terms of what is meant by the requirement to be in general conformity with the Development Plan, this is explained within the PPG[3], which confirms the following issues need to be considered:

- whether the Neighbourhood Plan policy or development proposal supports and upholds the general principle that the strategic policy is concerned with;
- the degree, if any, of conflict between the draft neighbourhood plan policy or development proposal and the strategic policy;
- whether the draft Neighbourhood Plan policy or development proposal provides an additional level of detail and/or a distinct local approach to that set out in the strategic policy without undermining that policy; and
- the rationale for the approach taken in the draft Neighbourhood Plan or Order and the evidence to justify that approach.

3.10 The NPPF requires the Neighbourhood Plan's ambitions to be aligned with the strategic needs and priorities of the wider area; and confirms that it should not promote less development than set out in the Local Plan, or undermine its strategic priorities.

3.11 It is also relevant to note that the PPG[4] states that sustainability appraisal may be a useful tool in demonstrating that a Neighbourhood Plan meets the basic conditions. It is noted that the Tiptree Neighbourhood Plan requires sustainability appraisal, and one has been produced alongside the DNP. This sustainability appraisal is discussed further within Section 4 of this representation, but in short we consider there are

[1] Paragraph: 009 Reference ID: 41-009-20190509
[2] Calculated using the Standard Method, as Planning Practice Guidance Paragraph: 004 Reference ID: 2a-004-20190220
[3] Paragraph: 074 Reference ID: 41-074-20140306
[4] Paragraph: 072 Reference ID: 41-072-20190509

fundamental defects in respect of the sustainability appraisal which not only give rise to concerns as to its robustness, but also to issues in respect of legal compliance.

3.12 The PPG also notes that sustainability appraisal undertaken in respect of Local Plans may be relevant to a Neighbourhood Plan[5]. Sustainability appraisal has been undertaken of the eLP, and is likely of use to the Tiptree Neighbourhood Plan process.

3.13 Separately, but also of particular relevance in the case of the Tiptree Neighbourhood Plan and the approach proposed by the DNP, a further requirement for the Neighbourhood Plan as per PPG is the need to ensure it is deliverable[6].

Proposed Residential Allocations (including Policy TIP14)

3.14 The eLP provides a specific policy on the growth of Tiptree, as well as a Policies Map for Tiptree.

3.15 Policy SS14 of the eLP states that the Neighbourhood Plan will *inter alia* allocate specific sites for housing to deliver 600 homes; that such allocations will be in the broad areas of grown shown on the Tiptree Policies Map; and that proposals for development outside of the identified broad areas and settlement boundary.

3.16 The Policies Map in the eLP shows the broad areas of growth are located on the western side of Tiptree.

3.17 We note that, whilst the text for Policy SS14 has been included within the DNP, the Policies Map has not. We are surprised at its omission, and consider this raises potential issues. In particular, we are concerned that local residents are being asked to comment on a proposed strategy for the distribution of growth in Tiptree without being presented with a complete picture of the parameters for such growth as proposed by the eLP. This concern is particularly pertinent given that the DNP does not propose allocations which accord with the eLP.

[5] Paragraph: 072 Reference ID: 41-072-20190509
[6] Paragraph: 005 Reference ID: 41-005-20190509

3.18 The DNP evidently considers the eLP, noting and seeking to address the eLP's proposal for Tiptree to accommodate a minimum of 600 new homes. However, the DNP does not account for other elements of eLP policies, including the broad areas of growth it identifies for Tiptree.

3.19 Indeed, we note that not only does the DNP not propose allocation of sites which do conform to the eLP, it does propose allocation of sites which clearly do not conform to the eLP's broad areas of growth. Most notable is the proposed allocation of Elms Farm, which is located to the north of the village and does not relate to the eLP's broad areas of growth.

3.20 The lack of conformity with the eLP is in itself a significant concern. In addition, we are concerned with the lack of justification for the DNP's approach. As noted earlier within this representation, the Neighbourhood Plan is not only required to be in general conformity with the Local Plan, but it is also required to be justified.

3.21 Reference is made within the DNP to each site being subject to through assessment through a Strategic Housing Land Availability Assessment (SHLAA). A map entitled 'Tiptree Strategic Land Availability Assessment Sites – 2018' is available via the Neighbourhood Plan website, but no details of the assessment itself. On request for further information on the assessment, we were provided with a copy of the template used, but not the actual assessment of the sites. Further, whilst we are grateful to the Neighbourhood Plan Group for providing us with the assessment template on request, we would suggest that such information should be available via the website. It is important to recognise that not all of those with an interest in the Neighbourhood Plan will be au fair with the planning process and necessarily think to request such information. In any case, even with the assessment template, it is still unclear: a) what the results of this assessment were; and b) how consultees can make informed comments on the proposed allocations without having the evidence on which decisions were made available to them. We consider that it is important for the decision-making process to be open and transparent.

3.22 Furthermore, whilst the Tiptree Strategic Land Availability Assessment Sites – 2018 Map shows sites which have been put forward for consideration, neither the type nor the quantum of development for which they were put forward is made clear. It is also

unclear who has put forward sites, i.e. it is not clear if the party putting forward the land has control of the land and is able to deliver its development if it were to be allocated.

3.23 The proposed allocation of Elms Farm through Policy TIP14 exemplifies concerns in respect of the DNP. The extent of the proposed allocation of Elms Farm as shown in Map 12.2 of the DNP is broadly commensurate with site TIP50 shown on the Tiptree Strategic Land Availability Assessment Sites – 2018 Map. However, the proposed allocation includes additional land to the east of New Road which is not within TIP50. It is not clear if this additional land proposed to be allocated to the east of New Road has been assessed, due to the absence of the SHLAA. In addition, due to the lack of availability of the evidence base, it is not clear if this element of the allocation is available for any form of development, let alone specifically housing.

3.24 Notwithstanding the absence of evidence to support the DNP's proposed allocation, it is in case difficult to see how the allocation of Elms Farm could be considered to be suitable and justified, as discussed in detail below.

3.25 Impact of the Elms Farm allocation on heritage is a particular concern. Objective 2 of the DNP is "To value and protect our heritage". The NPPF makes clear (at paragraph 190) of the need to identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset). It goes on to stress that the impact of a proposal on a heritage asset should be accounted for with the aiming of avoiding / minimising any conflict between the heritage asset's conservation and any aspect of the proposal. It should be recognised that the protection of listed buildings is also a statutory requirement.

3.26 The proposed Elms Farm allocation is immediately adjacent to a Grade II listed building (Elms Farm). The NPPF makes clear that any harm or loss of significance of a Grade II listed building (including from development within its setting) should require clear and convincing justification, and should be exceptional. The setting of this building is currently characterised by open countryside, which currently surrounds this heritage asset. The delivery of the allocation the DNP proposes here would fundamentally alter the setting of this listed building, yet there is no evidence that the impact of the proposed development on it has been considered, let alone evidence that demonstrates how harm to its setting will be avoided or suitably mitigated; or whether

there are alternative options for allocation which would not risk harm to heritage objectives.

3.27 Furthermore, it is notable that the proposed Elms Farm allocation extends east of New Road – the same side of New Road as the Grade II listed building sits. However, the TIP50 shown on Tiptree Strategic Land Availability Assessment Sites – 2018 Map does extend east of New Road. The draft allocation would promote development to the east, south, north-west and west of the listed building; whereas development of TIP50 would result in development to the west and north-west of this heritage asset. Whilst the development of either the draft allocation or TIP50 have the potential to harm the setting of the listed building, the level of harm resulting from the proposed allocation may be significantly greater than that of development of TIP50. This illustrates the importance of ensuring that assessment of sites reflects proposed allocations, yet it is not clear this has been the case.

3.28 If a Heritage Impact Assessment were to be undertaken, it may be the case that this could demonstrate that the proposed Elms Farm allocation could be developed without harm to the setting of the listed building. However, this is likely to require significant mitigation which, if indeed possible at all, would likely entail provision of a buffer around the listed building.

3.29 Given the location of the listed building relative to the existing village envelope, this may well result in the new residential development being separated from the existing. It would also reduce the potential number of homes that could be provided through this allocation – potentially significantly so. By way of example, we wish to draw the Neighbouring Plan Group's attention to residential development that was approved by Braintree District Council at Braintree Road, Cressing (reference 16/02144/OUT). In this instance, like at Elms Farm, it was necessary to consider the impact of proposed development on the existing rural setting of a Grade II listed building. In the case of Braintree Road, Cressing, as confirmed through the Committee Report, it was considered necessary to provide a buffer of 115-140m between the developable area and the Grade II listed building. Applying this approach to Elms Farm, a significant area of the proposed allocation would be left undevelopable, and the capacity of the proposed allocation significantly reduced. In the event of a significantly reduced capacity, it would be necessary to establish whether the allocations in the DNP would

deliver at least 600 homes, as required by the eLP; and also necessary to ascertain whether development was still viable.

3.30 The aforementioned approach does, of course, assume that this form of mitigation appropriate in respect of Braintree Road, Cressing, would be effective in relation to Elms Farm. However, this cannot be confirmed without detailed assessment of the significance of the heritage asset and its setting.

3.31 In any case, the DNP is required to consider whether there are alternatives that may avoid harm to the heritage asset altogether, and we suggest that the allocation of Land at Maldon Road (site TIP65) represents a sustainable and deliverable alternative which would not result in harm to a designated heritage asset. The need to consider alternatives is a legal requirement of the Environmental Assessment of Plans and Programmes Regulations 2004 (as discussed in detail within Section 4 of our representation). Separately, the need to consider potential alternatives when a proposed development may entail harm has been confirmed through case law (see *The Governing Body of Langley Park School for Girls v London Borough of Bromley* [2009] EWCA Civ 734).

3.32 As noted earlier within this section of this representation, reasoning and evidence informing the preparation of the Local Plan can help inform a Neighbourhood Plan. Colchester Borough Council has undertaken and published a Strategic Land Availability Assessment (SLAA) (2017). The SLAA includes a map which shows which sites have put forward for consideration and assessed by the Borough Council for Tiptree – the map suggests such sites do not include that proposed to be allocated at Elms Farm. As such, not only is there no published assessment of Elms Farm as part of the Neighbourhood Plan evidence base, there is no evidence to support its allocation within the eLP's evidence base.

3.33 Conversely, the eLP evidence base *does* provide evidence to support the allocation of Land at Maldon Road, as noted within Section 2 of this representation. The allocation of Land at Maldon Road (TIP65) would also be in conformity with the eLP's policy in relation to the growth of Tiptree.

3.34 It is recognised that Objective 14 of the DNP is "to avoid increased congestion on existing roads and junctions in and around Tiptree by steering development to the north and west edge of the village", but this in itself does not constitute justification for a spatial strategy without a) evidence as to how this will be the case; b) evidence of the deliverability of the measures required to achieve this objective; and c) assessment of whether there are alternative approaches which may equally or better achieve this objective; and d) evidence that other impacts of the approach, including in relation to other objectives of the Neighbourhood Plan, have been appropriately considered.

3.35 Whilst the justification for the allocation of sites through the DNP is somewhat unclear (particularly in relation to those which entail a departure from the eLP), the SA/SEA suggests a determinant factor is that these allocations will facilitate provision of a new link road to the north of the village (including between Kelvedon Road and Colchester Road), and that this will reduce congestion in Tiptree.

3.36 However, such an approach gives rise to a number of issues, as discussed below.

3.37 Firstly, there are a number of doubts as to the deliverability of this proposed link road. Part of the safeguard route lies outside of the Neighbourhood Plan Area. As such, the Neighbourhood Plan simply does not have the ability to safeguard this route in the manner it appears to be attempting. The land through which the safeguarded routes passes is within Messing-cum-Inworth Parish. Where land is within an area of a Parish Council, only that Parish Council may prepare a Neighbourhood Plan for it, as prescribed through legislation[7]. Only Messing-cum-Inworth Parish Council may prepare a Neighbourhood Plan for land within Messing-cum-Inworth Parish. Indeed, the DNP itself acknowledges the safeguarded route lies outside of the Parish and it is not possible for this route to be safeguarded. As such, it is somewhat odd that the DNP still proposes it be identified as a possible future road, and that other decisions within the DNP appear to be based on the assumption it will be delivered.

3.38 Messing-cum-Inworth Parish Council wrote to Colchester Borough Council on 21 July 2013 to apply to designate a Neighbourhood Plan Area which comprised the entirety

[7] Section 61G(2) of the 1990 Act (inserted by paragraph 2 of Schedule 9 to the Localism Act 2011 (c.20)

of the Parish, including land which the Tiptree DNP relies upon to facilitate the link road.

3.39 Whether or not to include a safeguarded route for a new link road within Messing-cum-Inworth Parish will be a matter for the Messing-cum-Inworth Neighbourhood Plan. At this time, there are no indications that a Neighbourhood Plan is being progressed which will seek to do this.

3.40 An alternative vehicle through which land outside of Tiptree Parish could be addressed is through a Local Plan. Indeed, this may be the more appropriate approach, given for matters which impact on more than one Parish. However, as noted already, the Borough Council is at an advanced stage in the preparation of its Local Plan and the eLP does not propose such a safeguarded route.

3.41 Even if one were to ignore the aforementioned barriers to delivery (which is in itself, are substantial issues) then it is still far from clear how the safeguarded route would be delivered through land on which no development is proposed; and whether its delivery would be viable. The SA/SEA itself acknowledges doubts to the deliverability of the proposed new link road.

3.42 In addition to there being substantial doubts as to the deliverability of the new link road as proposed in the DNP, there is a lack of evidence as to the benefits it will deliver and whether it will meet the objectives of the DNP. There does not, for example, appear to be any highway modelling work which sets out whether this will result in any benefits, any evidence as to how substantial these benefits will be, nor evidence of whether there are alternatives which would engender greater benefits. Furthermore, in relation to the Elms Farm proposed allocation, there does not appear to be any evidence as to how such benefits could be considered to outweigh potential harm to the setting of a listed building.

3.43 As noted earlier, Neighbourhood Plans are required to be deliverable. The lack of evidence of deliverability or the justification for the road link as proposed in the DNP is a concern in itself, but particularly so given that potential sites' perceived ability to help facilitate this link road appears to have been a determinant factor in their selection or rejection for allocation. Not only does this represent an issue in terms of the

Neighbourhood Plan being capable of passing the basic conditions tests, it also gives rise to legal compliance concerns, as set out within Section 4 of this representation.

Policy TIP07: Mitigating the Impact of Vehicular Traffic through Tiptree Village

Part B (To avoid congestion new developments should have more than one access point for car users and wherever space allows access should be via a roundabout).

3.44 Whilst we support what Part B of Policy TIP07 appears to be seeking to achieve here, we are concerned that the approach is overly prescriptive and will not necessarily result in an appropriate approach to the provision of new access points, or an approach which is most suitable. As currently worded, it could be inferred that the policy requires *all* new developments regardless of type or scale to be accompanied be served by multiple access points including, where possible, a roundabout; and would, for example, apply to proposals for a single dwelling. There may well be instances where the provision of more than one access point is inappropriate, and / or where the provision of a roundabout would not be the best form of access in terms of highway safety or efficiency (indeed, there may well be instances where the provision of a roundabout would have a negative impact in this respect).

3.45 We suggest policy wording which requires the provision of appropriate access point(s), informed by a robust and proportionate assessment of the proposed development's specific access requirements, having regard to highways safety and efficiency. Separately, the Neighbourhood Plan may wish to identify specific junctions / access points where new roundabouts are supported, but the justification and deliverability of this would need to be evidenced.

Part D

3.46 Part D of Policy TIP07 proposes the safeguarding of a route to provision of a new road, including between Kelvedon Road and Colchester Road, and states this will be incorporated into the DNP proposed site allocations TIP13 and TIP14.

3.47 As noted earlier within this representation, neither the DNP nor published evidence underpinning it demonstrate that this link road is deliverable, and that concerns in this respect are particularly acute given that decisions on site allocations appear to be predicated on the assumption it can and will be delivered.

3.48 To reiterate, the safeguarded route shown on the DNP's Policies Map crosses into Messing-cum-Inworth Parish, and as such is beyond the scope of the Tiptree Neighbourhood Plan.

3.49 In addition to this significant barrier to delivery, there are other deliverability concerns. Part D of TIP07 states that development within the north and north-west of Tiptree will be expected to contribute towards the delivery of the road. This could include through provision of sections of the route within their developments, but we have been unable to find any evidence that the promoters of developments in the north and north-west of the village are willing or able to accommodate this. If financial contributions are envisaged from developers of sites in the north and north-west, it is not clear how much contribution will be required, and whether this will be viable. Furthermore, it must be recognised that any financial contribution sought is required to meet Regulation 122 of the Community Infrastructure Levy Regulations 2010. This sets out that planning obligations must be: necessary to make the development acceptable in planning terms; directly related to the development; and fairly and reasonably related in scale and kind to the development. It is implied within the DNP that the link road will seek to, at least in part alleviate an existing issue and, as such, it would appear that it will not be possible for developer's to contribute to the entirety its funding, even if viable to do so.

3.50 In addition to whether financial viability can be demonstrated, it will be necessary to also confirm relevant landowners' support for the delivery of the new link road, including elements which pass through land which is not proposed to be allocated for other development.

3.51 Separately to the issue of deliverability, there is also the issue of suitability. The proposed link road runs east-west to the south of Grade II listed Elms Farm, within the proposed Elms Farm allocation, and passes in close proximity to this heritage asset. As we have set out in our concerns in respect of the proposed Elms Farm allocation, national policy (and, indeed, legislation) places great emphasise on the need to

conserve heritage assets, and that any harm to the setting of a Grade II listed building should be both exceptional and subject to clear and convincing justification.

3.52 We have not been able to identify any evidence as to how the impact of the proposed link road on the setting of the Grade II listed Elms Farm has been considered. We suggest this will be essential to consider this issue in detail, if this element of the DNP is to be carried forward into the next iteration of the Neighbourhood Plan. Once the impact on the listed building has been fully assessed, it will be necessary to consider whether there is clear and convincing justification for the proposals which warrants any harm identified, which the NPPF makes clear will only be appropriate in exceptional circumstances.

3.53 We consider that in order to establish whether there may be clear and convincing justification it will be first necessary to a) confirm the extent of the benefits the link road will deliver; b) confirm the deliverability of the link road in its entirety, including the safeguarded route (as if only part of the link road can be justified, this will have a fundamental impact on the potential for it to be of benefit; and c) consider potential alternatives which would not result in harm to a heritage asset. As noted in relation to our concerns in respect of the Elms Farm allocation, which also apply to the proposed link road, case law confirms the need for alternatives to be considered, particularly where a development may result in harm.

Local Wildlife Sites

3.54 Whilst not of direct relevance to Land at Maldon Road (which can be sustainably delivered irrespective of the issue discussed here in respect of the Inworth Grange Pits Local Wildlife Site) we nevertheless wished to bring this to the attention of the Parish Council, both as it will be important to address prior to the finalisation of the Neighbourhood Plan; and also in case it has impacted on how potential development sites have been assessed.

3.55 The extent of Inworth Grange Pits Local Wildlife Site as shown on the DNP Policies Map differs to that on the eLP Policies Map.

3.56 The DNP Policies Map suggests the Local Wildlife Site extends as far east as the settlement boundary, whereas the eLP Policies Map excludes the field between the lagoons and the settlement boundary.

3.57 In addition, the DNP Policies Map excludes a number of lagoons within the area, creating a number of small pockets within the site which are not proposed to be allocated; whereas the eLP contains no such pockets not subject to the Local Wildlife Site allocation.

3.58 We consider that it is important that the District's Local Plan and the Parish's Neighbourhood Plan are consistent on this allocation, given that both plans are proposing to make an allocation for the same use at a similar time.

3.59 The NPPF states that weight may be given to policies in an emerging plan subject to, in short, how advanced the emerging plan is; its degree of consistency with the NPPF; and the extent to which there are any unresolved objections.

3.60 As noted previously within this representation, the eLP is at a relatively advanced stage. We consider allocating Local Wildlife Sites to be an approach which is consistent with the NPPF. In addition, it should be recognised that all consultation on the eLP has been undertaken, and it has been submitted for examination. Consequently, the extent to which there are any objections can be determined. In the case of the proposed extent of eLP Local Wildlife Site allocations, we note that whilst some objections have been made by Essex Wildlife Trust and others in respect of the eLP's approach to other Local Wildlife Sites, none appear to have been made in respect of Inworth Gravel Pits.

3.61 As there are no objections to the extent of the allocation of Inworth Gravel Pits (unresolved or otherwise), and there are no opportunities to make further objections on the eLP, then it is considered that the eLP's proposed allocation can be afforded significant weight.

3.62 We are mindful that the eLP's approach has been informed by evidence base, including Local Wildlife Site Review dated 2015. We are not aware of any material changes in the evidence base since which would justify changes to the approach taken by the eLP.

3.63 Naturally, the Parish Council may wish to discuss further with the Borough Council how this issue can be resolved, but it would appear – in the absence of any additional evidence – that the Neighbourhood Plan should ensure the extent of the Inworth Gravel Pits Local Wildlife Site aligns with those in the eLP.

Overview and suggested modifications

3.64 As set out above, the approach taken by the DNP:

- conflicts with the proposed objectives of the Neighbourhood Plan (as set out in the DNP itself);
- would result in a Neighbourhood Plan which does not the meet the basic conditions;
- is not justified;
- is not supported by evidence to confirm it will not entail harm to a designated heritage asset which has clear potential to be affected by proposals;
- has not considered alternatives;
- does not conform to the eLP; and
- is not supported by evidence to demonstrate deliverability.

3.65 We suggest that the above issues be addressed, and that this will necessitate revisions to the allocations proposed such that they confirm to the eLP. Land at Maldon Road (site TIP65) *does* conform to the eLP. It is also a sustainable and deliverable site, the development of which would also engender wider community benefits, as set out within Section 2 of this representation.

3.66 We consider that a Neighbourhood Plan which includes allocation of TIP65 is far more likely to be considered justified and to pass the basic conditions required in order for the plan to be able to proceed to referendum.

4 Sustainability Appraisal / Strategic Environmental Assessment

4.1 Whilst Sustainability Appraisal / Strategic Environmental Assessment (SA/SEA) is not always required in respect of the preparation of a Neighbourhood Plan, it clearly is in the case of the Tiptree Neighbourhood Plan, given that it will make decisions on strategic issues such as the location of new development and the provision of new roads.

4.2 The DNP is accompanied by SA/SEA.

4.3 However, the SA/SEA – both in itself and how it has subsequently been advertised for consultation – give rise to significant concerns, in relation to both the robustness of the assessment and to matters of legal compliance.

4.4 The SA/SEA can be a useful tool to demonstrate how the Neighbourhood Plan promotes sustainable development, and that the approach taken justified. However, the deficiencies within the SA/SEA of the DNP are such that it merely strengthens concerns as to justification for the proposed approach.

4.5 We wish to make clear that whilst flaws in respect of the SA/SEA are substantial, we do not consider they have rendered the whole preparation of the Neighbourhood Plan irretrievably flawed. We do consider, nevertheless, that substantial additional work in respect of SA/SEA is required to ensure the Neighbourhood Plan is legally compliant and meets the basic conditions.

Legal Compliance

4.6 The relevant aspects of European Directive 2001/42/EC (SEA Directive), in relation to plan-making are transposed into UK law through the Environmental Assessment of Plans and Programmes Regulations 2004 (Statutory Instrument 2004 No.1633) ('the SEA Regulations').

4.7 Sustainability Appraisals incorporate the requirements of the Environmental Assessment of Plans and Programmes Regulations 2004 ('the SEA Regulations'), and are required to meet these regulations.

4.8 We have identified a number of elements of the SA/SEA of the DNP which currently do meet the SEA Regulations, as set out in detail below.

Consultation

4.9 Regulation 13 of the SEA Regulations concerns the consultation procedural requirements of SA/SEA.

4.10 Regulation 13 requires *inter alia* that as soon as reasonable practicable after the preparation of the SA/SEA, the responsible authority should bring this to the attention of persons who are affected or likely to be affected by, or have an interest in its findings. However, the consultation material we have seen to date has been very much focused on local residents. Whilst we certainly agree that it is important to engage with local residents, and support efforts to do so, it must be borne in mind that there are other interested parties in addition, including developers and their representatives.

4.11 More fundamentally, we have not been able to find any evidence that any persons or consultation bodies have been invited to comment expressly on the SA/SEA. As confirmed through case law (*Kendall vs Rochford District Council* [2014] EWHC 3866 (Admin)), Regulation 13 requires that consultations must make clear that views specifically on the SA/SEA are being sought, and the publication of an SA/SEA alongside a draft plan being consulted upon is not sufficient. However, in the case of the DNP and its accompanying SA/SEA, the material we have seen only makes reference to the opportunity to comment on the DNP; and indeed the questionnaire only pertains to the DNP.

Description and evaluation of effects

4.12 Regulation 12(2) of the SEA Regulations requires the SA/SEA to identify, describe, and evaluate the likely significant effects on the environment of proposed options, as well as on reasonable alternatives.

4.13 Regulation 12(3) sets out the information required to be included within an SA/SEA, referring to Schedule 2 of the SEA Regulations. In turn, Schedule 2 states that SA/SEA

should consider short, medium and long term effects; permanent and temporary effects; positive and negative effects; and secondary, cumulative and synergistic effects.

4.14 Whilst the DNP SA/SEA scores various options against sustainability objectives, it does so in a highly simplistic manner with little to no description or evaluation of effects. Against each objective, selected options are scored are "+", "-", "O" or "++". The SA/SEA does not explain what these mean, but it can be inferred that "++" equates to a significant positive effect; "+" a minor positive effect, "O" neutral effect, and "-" negative. However, no text is provided explaining how these scores have been derived – there is no description of the effects, and no evidence as to how they have been evaluated. There is a similar lack of any detail in respect of the consideration of the temporal aspects of the effects.

4.15 Problems such breaches of the regulations engender is exemplified by the SA/SEA's appraisal of Policy TIP14 against sustainability objective 6 (to value and protect our heritage). The SA/SEA simply states that the proposed policy score "O" against this objective. There is no explanation as to how the Grade II listed building in close proximity to this proposed allocation has been considered by the SA/SEA, or how the current, open, undeveloped setting of this listed building could reasonably be considered to be unaffected by the proposed residential development.

4.16 A further concern in respect of TIP14 is that it is far from clear that the SA/SEA's limited assessment and commentary do in fact relate to the full extent of the allocation. As discussed elsewhere in this representation, the proposed allocation of land at Elms Farm is materially different to the extent of the site (TIP50) shown on the Tiptree Strategic Land Availability Assessment Sites – 2018 Map. The SA/SEA suggests (page 42) that Elms Farm comprises (TIP04, TIP49 and TIP50); and, at page 31, that the SLAA has been used to inform the SA/SEA. This suggests that the full extent of the Elms Farm proposed allocation has not been appraised through SA/SEA. This is of particular relevance given that the draft allocation has the potential to have a materially different impact on the setting of a Grade II listed building than the sites submitted and considered through the SLAA.

4.17 The approach to the assessment of TIP07 is also problematic. The SA/SEA scores this proposed policy "+" in relation to sustainability objective 2 and the question "Will it avoid

congestion on existing roads and junctions". There is no explanation as to how this view has been reached, or reference to any evidence to support such a conclusion. Indeed, the SA/SEA simply asserts within text following the appraisal that "The policy explains that a route has been safeguarded for a new road, which will help reduce congestion" without further explanation.

4.18 Concerns in respect of the approach to the appraisal of TIP07 give rise to concerns with the strategy more generally, as the appraisal of other policies appear to rely on the assumption that TIP07 is both deliverable and capable of delivering benefits.

Consideration of reasonable alternatives

4.19 As noted earlier, Regulation 12(2) requires assessment of not only selected options, but also reasonable alternatives.

4.20 The SA/SEA suggests that, in respect of many policies in the DNP, there are no reasonable alternatives. One such policy is TIP07, which *inter alia* promotes provision of a new link road as part of site allocations to the north of Tiptree. The Policy is relatively specific, and refers to the DNP Policies Map, on which the location of the link road is clear. Despite a proposed route being shown, the SA/SEA claims there are no reasonable alternatives. Such a view is simply baseless: it is simply not credible to suggest that there is only one possible option for the route of a new link road. Furthermore, this approach presupposes the Neighbourhood Plan must propose a link road, when clearly the provision of no link road is an option. In seeking to justify the lack of consideration of alternatives, the SA/SEA states:

> "*There are no reasonable alternatives as this policy looks at the principles of promoting sustainable development.*"

4.21 Policy TIP07 contains specific policies to deliver specific development (i.e. a road) within a specific location – it is far more than a policy which simply promote principles of sustainable development in a more generalised manner. If the purported reasoning is intended to suggest that there are no reasonable alternatives as the policy aims to achieve sustainable development, then again this reasoning is inherently flawed – simply because a policy intends to achieve sustainable development does not mean it will. If

this were the case, there would be no need for appraisal of policies. The justification for the failure to consider reasonable alternatives to this policy represents a substantial flaw in the process, not least because assumptions that this is the only possible location for the road, and there are no alternative strategies to its provision, appear to have been determinant in respect of other policies – particularly proposed residential allocations.

4.22 Notwithstanding the difference in scale, there are clear parallels between the approach being taken by the DNP and that in the preparation of the Greater Norwich Joint Core Strategy (the JCS). The JCS proposed a spatial strategy which promoted the delivery of a new road (the Norwich Northern Distributor Road), and identified areas for growth based on the delivery of this new road. This approach was subject to successful legal challenge due to SA/SEA failings (*Heard v Broadland DC, South Norfolk DC & Norwich City Council* [2012] EWHC 344 (Admin)). The judgment confirmed the need to consider reasonable alternatives through SA/SEA, and to do so to the same level of detail as the preferred option. Further to this, it is considered essential that the SA/SEA of the Neighbourhood Plan addresses both alternatives to the proposed link road, and alternative site allocations having regard to alternatives to the link road, to the same level of detail as the approach set out in the DNP.

4.23 As noted earlier within this representation, the aforementioned case law not only confirms that reasonable alternatives need to be assessed, but also to the same level of detail as the preferred approach. In respect of the DNP SA/SEA, it is not clear that this is the case. Whilst it provides some, albeit limited, commentary around preferred options, it does not do so for all. It is far from clear how TIP65 has been assessed. Indeed, it appears that it as an option for development in its own right has not been assessed at all, but rather grouped with other potential sites.

Reason for the selection of options and the rejection of alternatives

4.24 Regulation 16 of the SEA Regulations requires that the reason for the selection of options, and the reasons for the rejection of reasonable alternatives, be made clear within the SA/SEA. This required in relation to plan-making has been confirmed through case law (for example, *Save Historic Newmarket Ltd v Forest Heath District Council* [2011] EWHC 606 (Admin)).

4.25 In terms of the reasons for the rejection of alternatives, the SA/SEA simply fails to explain why site TIP65 has been rejected as a potential residential allocation.

4.26 In terms of the reasons for selecting the alternatives, whilst the SA/SEA does attempt to provide justification, the reasoning given is so specious that, in our view, it is questionable whether this will meet the legal requirement for justification to be given if this is approach were to be maintained through to the end of the plan-making process. Regardless, even if not a breach of the regulation per se, the rationale given is clear not sufficient to ensure the SA/SEA provides a robust assessment to justify the approach taken, as discussed later within this representation.

4.27 Separately, and further to our concerns in respect of the SA/SEA's failure to acknowledge potential reasonable alternatives in relation to TIP07, once these alternatives have been recognised, it will be important for the SA/SEA to explain why they have been rejected (assuming once they have been identified and assessed, their rejection is justified).

Ensuring the SA/SEA is legally compliant

4.28 We do not wish to be overly negative, but we consider that it is important to raise issues of legal compliance now, to enable the Parish Council to address these before it is too late and the Neighbourhood Plan process cannot be rescued. Case law (see *Cogent Land LLP v Rochford District Council [*2012] EWHC 2542 (Admin)) confirms that defects in the SA/SEA process *can* be addressed, and we would urge the Parish Council to look to take on board the comments made. The Parish Council may of course wish to seek specialist advise on the preparation of SA/SEA, which we appreciate is a technical process.

Robustness of appraisal

4.29 It is of course necessary to ensure that the SA/SEA is legally compliant. But in addition, the SA/SEA also needs to provide a robust appraisal which justifies decisions made to ensure the Neighbourhood Plan passes the basic conditions. We consider that the SA/SEA is very much lacking in this respect, in relation to a number of issues.

SEA objectives and baseline characteristics

4.30 The SEA considers the baseline characteristics of Tiptree, and includes a number of maps which helpfully identify the location of various features (e.g. Tree Preservation Orders, Flood Zone 2 and 3) which provide a useful context and help inform the reader as to issues which may impact on spatial distribution of development in Tiptree. The SA/SEA notes that there are 26 listed buildings in Tiptree, but – unlike other features recognised – does not map these. We consider that a plan showing the location of designated heritage assets in and around Tiptree would be of benefit, particularly given that sustainability objective 6 relates to the protection of heritage assets.

4.31 In terms of the sustainability objectives and their accompanying decision-aiding questions, it is unclear how these have been formulated other than for a somewhat vague reference to them corresponding to a review of plans and programmes and sustainability objectives, baseline data, environmental problems and neighbourhood plan objectives. We suggest that this is explained in far greater detail: it is important that the formulation of objectives is robust and transparent, given they will be fundamental in how options are subsequently appraised.

4.32 In respect of sustainability objective 6 (To value and protect our heritage) we support the inclusion of this as part of the SA/SEA. The NPPF makes clear that the protection of heritage assets is an important component of sustainable development. In relation to its accompanying decision-aiding question, we consider that the question as drafted already encompasses consideration of the setting of heritage assets (as the protection of their settings is an important component of protecting heritage), but for clarity we suggest that it may be of benefit to make it expressly clear that the setting is a consideration.

Appraisal of options (including description and evaluation of effects)

4.33 We have already set out concerns in relation to how options have been appraised within our concerns pertaining to legal compliance, including in relation to the lack of detail or evidence as to how options have been appraised against the various sustainability objectives; and to the lack of a specific assessment of site TIP65. Such concerns evidently also relate to the robustness of the SA/SEA.

4.34 We have already highlighted the issue in relation Policy TIP07, with the SA/SEA assessing this as having a score of "+" against the sustainability objective 2 decision-aiding question regarding reducing congestion, without evidence as to how this will be the case. In addition, it should be noted that the SA/SEA scores proposed Policy TIP07 "O" against the sustainability objective 2 and the question "*Will it protect and enhance heritage and cultural assets?*", despite the proposed link road's close proximity to a Grade II listed farmstead. We suggest that this score should be altered to reflect the potential negative impact on the setting of this heritage asset.

4.35 The SA/SEA should also recognise that the Maypole Public House (now restaurant) is also Grade II listed and in close proximity to the proposed Elms Farm allocation. We suggest that the SEA/SA must also consider the impact of the draft allocation on the setting of this heritage asset, in order for the appraisal to be robust.

4.36 We also question the SA/SEA assessment that proposed Policy TIP14 will avoid congestion on existing roads and junctions, in the absence of any evidence to support this; the lack of evidence as to the deliverability of the proposed link road; particularly in relation to the element of the proposed link road which sits outside of the Neighbourhood Plan Area, necessary to connect the link road to the proposed Elms Farm allocation.

4.37 Turning to the proposed residential allocations, as already noted, it is imperative that the SA/SEA assess the actual proposed allocations, rather than simply the extent of sites which have been submitted for consideration, noting in particular that the proposed Elms Farm allocation is not commensurate with the site shown as having been put forward. The same concerns as to how the SA/SEA has assessed TIP07 against sustainability objective 6 also apply to how the proposed Elms Farm allocation. Indeed, we consider that the proposed residential allocation covering land to the east, south, north-west and west of the listed building has the potential to be of even greater harm to this designated heritage asset.

4.38 In terms of how site TIP65 has been assessed, we note that it (or rather the site combined with others) has been given a score of "-" against sustainability objective 3 and decision-aiding question "Will it retain and enhance community facilities?" It appears from the text on page 34 of the SA/SEA that this is due to its proximity to Tiptree Heath Primary School. The SA/SEA states that this school does "not have capacity". No evidence is

provided or cited to confirm this. Furthermore, we note that Essex County Council's Commissioning School Places in Essex 2017 – 2022 report forecasts that, adjusted to account for new housing, Tiptree Heath Primary School will have a surplus of 41 places by 2021/22.

4.39 In respect of sustainability objective 2 and decision-aiding question "*Will it deliver sustainable transport infrastructure*" we note the grouping of sites which includes TIP65 has been scored "O" against this; but that proposed Policy TIP14 has been scored as "+". It is far from clear how the SA/SEA has come to the conclusion that allocations proposed through proposed Policy TIP14 would have a different impact in respect of this issue than site TIP65. Similarly, we note that proposed Policy TIP14 has been scored "+" against "Will it increase the number of public car spaces in the village centre and improve sustainable transport links?"; whilst the grouping including TIP65 scores "O". Again, there is no justification for the different scores.

4.40 In relation to SA objective 5 and decision-aiding question "Will existing open spaces be protected & new open spaces be created?", again proposed Policy TIP14 scored "+" but the grouping including TIP65 negative. The text under the assessment of appears to seek to justify this score of "+", stating that two areas of open space are proposed; a Local Equipped Area for Play and a Multi-Use Games Area, which will benefit the community. However, clearly such public open space could also be proposed as part of other allocations. Indeed, proposal for TIP65 incorporate provision of additional areas of public open space. This issue exemplifies problems which arise when selected options are not assessed to the same level of detail and consistency with those being rejected.

Justification for the selection of sites

4.41 In terms of justifying the selection of the residential sites allocations, the SA/SEA seeks to set this out at page 42. This confirms that the principal reason for the selection of the site is that:

> *"The neighbourhood plan authors believe that that the preferred sites are most likely to meet the vision and objectives of the plan than the alternative sites"*

4.42 The above does not constitute robust justification, it merely cites an opinion. One would expect the authors of the DNP to consider their preferred allocations meet the plan's proposed objectives – otherwise, why would the authors have proposed their allocation? Testing whether proposals will in fact meet the proposed objectives of a plan, and achieve what the authors of a plan hope they will achieve, is one of the key benefits of an SA/SEA. To merely repeat the views of a plan's authors, and to do so as part of the justification of the process, totally undermines a key role and benefit of the SA/SEA process.

4.43 Other points the SA/SEA raises to seek to justify the selection include that the allocation of adjacent sites will deliver comprehensive development; that they are supported by the results of community involvement; and that they will facilitate the delivery of a link road. Each of these are addressed in turn below.

4.44 Firstly, the ability to deliver comprehensive development is not unique to sites which are adjacent. In any case, the Elms Farm allocation does not adjoin the others proposed, and is separated from these by land which is in part outside of the Neighbourhood Plan Area.

4.45 Secondly, whilst we agree that the results of community involvement are important part of the plan-making process, they do not alone constitute robust justification for selection being made. In any case, it is not clear that the results of community involvement did in fact specifically favour the sites the DNP proposes. Furthermore, it is similarly unclear how other findings from community engagement not expressly focussed on residential development have been considered. For example, Community involvement as part of the preparation of the Neighbourhood Plan suggested there is particular concern with the drop-off / pick-up arrangements at Tiptree Heath Primary School. 66 comments by residents noted that there were problems with parking at all schools at start and end times, as reported in the Tiptree Village Questionnaire Results. Development of land at Maldon Road (TIP65) provides opportunity to address this concern in respect of Tiptree Heath Primary School, but this does not appear to have been considered. If the SA/SEA is to seek to rely on the results of community involvement, it must consider such results in a holistic manner.

4.46 In terms of the new link road, we have already outlined how the deliverability of the one proposed by the DNP is highly questionable; and how its route, as opposed to alternative, has not been justified. As such, this cannot constitute reason for the selection or rejection of sites.

4.47 The lack of robust justification is particularly problematic in respect of sites proposed to be allocated to the north of Tiptree, which represent a departure from the eLP.

Remedying defects in the SA/SEA

4.48 The flaws in the SA/SEA noted within this section of the representation constitute a significant concern, and give rise to issues of legal compliance if they are not remedied. However, we wish to stress that we believe it is likely that the SA/SEA process is not irretrievably flawed – Case law (*Cogent Land LLP v Rochford District Council* [2012] EWHC 2542 (Admin)) confirms that defects in the SA/SEA process can be cured through subsequent SA/SEA work.

4.49 We consider that it will be likely that remedying defects in the SA/SEA will result in changes having to be made to the DNP to ensure it accounts for the revised appraisal. We would urge the Neighbourhood Plan to ensure a detailed and robust appraisal of all reasonable alternatives is undertaken, and for decisions in respect of the Neighbourhood Plan to have due regard to this.

4.50 As already discussed, there are a number of complex legal issues relating to the preparation of SA/SEA, and the Neighbourhood Plan Group may wish to seek legal advice and / or other independent specialist advice in its preparation and how to ensure issues are most effectively addressed.

5 Overview

5.1 We appreciate that the contents of this representation set out a number of potentially challenging issues for the Neighbourhood Plan Group to address, and which will necessitate considerable additional work. However, we feel it is important we bring this issue to your attention now, while there is still opportunity for these matters to be considered and for the Neighbourhood Plan to respond appropriately to them ahead of the preparation of a final draft. We consider it is important that they are addressed in order to ensure a legally compliant Neighbourhood Plan which will meet the basic conditions when examined, and we hope the Neighbourhood Plan Group will see this representation as constructive, as it is intended to be.

5.2 A key flaw, in our view, is that the DNP includes proposes allocation of sites that do not conform to the eLP, the justification for which appears to be based on their perceived ability to deliver a link road. However, not only is there a lack of evidence as to the extent of benefits the proposed link road will deliver, but there is a lack of evidence that other potential options for / instead of a link road have been considered. In addition, there are substantial concerns as to the deliverability of the link road as currently proposed.

5.3 Other concerns in relation to the process of identifying preferred sites include a lack of consideration of all relevant factors, including, for example, potential impact on designated heritage assets and how the presence of heritage assets may impact on the extent of developable land within proposed allocations.

5.4 There are also concerns in respect of how sites have been selected and the transparency of the process, given that reference is made to documents supporting decisions which do not appear to be publically available.

5.5 Land at Maldon Road (TIP65) is a sustainable and deliverable site for development to help meet local housing needs, which will also deliver other benefits linked to objectives of the Neighbourhood Plan. It is far from clear why it has been rejected as an option, and we have not been able to identify evidence that it has been appropriately considered. We consider that its allocation will help ensure a Neighbourhood Plan which conforms to the eLP, meets the basic conditions, delivers sustainable development for Tiptree, and assist in meeting the objectives of the Neighbourhood Plan.

5.6 The SA/SEA is subject to substantial flaws and we would urge the Neighbourhood Plan Group to look to address these, given that issues include those which relate to matters of legal compliance. The Neighbourhood Plan Group may wish to obtain legal advice as to how to best address this. Even where concerns we have set out may not pertain to issues of legal compliance, they are still relevant in ensuring a robust and justified Neighbourhood Plan which will achieve sustainable development for the village.

5.7 We would welcome the opportunity to discuss matters within this representation, as well as the development of the Site and how it can contribute to meeting local objectives, with the Neighbourhood Plan Group.

Tiptree Neighbourhood Development Plan

Regulation 14 Consultation

Pre-submission Version

GLADMAN

July 2019

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CONTENTS

Appendices

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1 INTRODUCTION

1.1 Context

1.1.1 Gladman specialise in the promotion of strategic land for residential development and associated community infrastructure. From this experience, we understand the need for the planning system to deliver the homes, jobs and thriving local places that the country needs.

1.1.2 These representations provide Gladman's response to the current consultation on the pre-submission version of the Tiptree Neighbourhood Plan (TNP) under Regulation 14 of the Neighbourhood Planning (General) Regulations 2012.

1.1.3 As the Parish Council are aware Gladman are promoting land in the neighbourhood area, land off Barbrook Lane, Tiptree. We submitted an application (reference: 182014) on this site in August 2018, which is currently subject to appeal (reference: APP/A1530/W/19/3223010). The site represents a suitable and sustainable location for housing and is well related to the existing urban area. The site is capable of accommodating up to 200 dwellings (including 30% affordable) and could therefore contribute significantly to housing needs in Tiptree. The site will also incorporate the provision of 0.6ha of land safeguarded for school expansion, informal open space and a children's play area. It will also provide for a contribution towards the rebuilding of Tiptree Scout Hut (secured by legal agreement) in accordance with Policy TIP11. These are significant benefits of the scheme and as such we submit that this site should be included as an allocation within the Tiptree Neighbourhood Plan.

1.1.4 Through these representations, Gladman provides an analysis of the TNP and the policy decisions promoted within the draft Plan. Comments made by Gladman through these representations are provided in consideration of the TNP's suite of policies and its ability to fulfil the Neighbourhood Plan Basic Conditions as established by paragraph 8(2) of Schedule 4b of the Town and Country Planning Act 1990 (as amended) and supported by the Neighbourhood Plan chapter of the PPG[1].

1.1.5 We currently have significant concerns about the plan's ability to meet the basic conditions as drafted, which will be detailed below through the following matters:

- Legal compliance; Strategic Environmental Assessment and Habitats Regulations Assessment
- National Planning Policy and Guidance;
- Neighbourhood plan policies; and
- Site submission.

[1] Section ID: 41

2 LEGAL REQUIREMENTS, NATIONAL POLICY & GUIDANCE

2.1 Legal Requirements

2.1.1 Before a neighbourhood plan can proceed to referendum it must be tested against a set of basic conditions, set out in paragraph 8(2) of Schedule 4b of the Town and Country Planning Act 1990 (as amended). The Basic Conditions that the TNP must meet are as follows:

a) Having regard to national policies and advice contained in guidance issued by the Secretary of State it is appropriate to make the neighbourhood plan;
b) Having special regard to the desirability of preserving any listed building or its setting or any features of special architectural or historic interest that it possesses, it is appropriate to make the order;
c) Having regard to the desirability of preserving or enhancing the character or appearance of any conservation area, it is appropriate to make the order;
d) The making of the neighbourhood plan contributes to the achievement of sustainable development;
e) The making of the neighbourhood plan is in general conformity with the strategic policies contained within the development plan for the area of the authority; and
f) The making of the neighbourhood plan does not breach, and is otherwise compatible with, EU obligations.
g) The making of the neighbourhood plan does not breach the requirements of Chapter 8 of Part 6 of the Conservation of Habitats and Species Regulations 2017.

2.1.2 Through the preparation of the neighbourhood plan it is important for the Steering Group to ensure that the policies contained in the Plan are in accordance with the Basic Conditions as set out above. If regard has not been given to the basic conditions through the drafting of policies that are to be contained in the neighbourhood plan, then there is a real risk that the policies may be found inconsistent with the basic conditions when the plan reaches independent examination and may be unable to proceed to referendum.

2.2 National Planning Policy Framework, & Planning Practice Guidance

National Planning Policy Framework

2.2.1 On 24th July 2018, the Ministry of Housing, Communities and Local Government (MHCLG) published the Revised National Planning Policy Framework (NPPF2018). This publication forms the first revision of the Framework since 2012 and implements changes that have been informed through the Housing White Paper, The Planning for the Right Homes in the Right Places consultation and the draft NPPF2018 consultation. This version was itself superseded on the 19th February 2019, when MHCLG published a further revision to the NPPF (2019) which implements further changes to

national policy, relating to the Government's approach for Appropriate Assessment as set out in Paragraph 177, clarification to footnote 37 and amendments to the definition of 'deliverable' in Annex 2.

2.2.2 The NPPF (2019) sets out the Government's planning policies for England and how these are expected to be applied. In doing so it sets out the requirements of the preparation of neighbourhood plans within which locally-prepared plans for housing and other development can be produced. Crucially, the changes to national policy reaffirms the Government's commitment to ensuring up to date plans are in place which provide a positive vision for the areas which they are responsible for to address the housing, economic, social and environmental priorities to help shape future local communities for future generations. In particular, paragraph 13 states that:

"The application of the presumption has implications for the way communities engage in neighbourhood planning. Neighbourhood plans should support the delivery of strategic policies contained in local plans or spatial development strategies; and should shape and direct development that is outside of these strategic policies."

2.2.3 Paragraph 14 further states that:

"In situations where the presumption (at paragraph 11d) applies to applications involving the provision of housing, the adverse impact of allowing development that conflicts with the neighbourhood plan is likely to significantly and demonstrably outweigh the benefits, provided all of the following apply:

a. The neighbourhood plan became part of the development plan two years or less before the date on which the decision is made;

b. The neighbourhood plan contains policies and allocations to meet its identified housing requirement;

c. The local planning authority has at least a three-year supply of deliverable housing sites (against its five-year supply requirement, including the appropriate buffer as set out in paragraph 73); and

d. The local planning authority's housing delivery was at least 45% of that required over the previous three years."

2.2.4 The NPPF (2019) also sets out how neighbourhood planning provides local communities with the power to develop a shared vision for their area in order to shape, direct and help deliver sustainable development needed to meet identified housing needs. Neighbourhood plans should not promote less development than set out in Local Plans and should not seek to undermine those strategic policies. Where the strategic policy making authority identifies a housing requirement for a neighbourhood area, the neighbourhood plan should seek to meet this figure in full as a minimum. Where it is not possible for a housing requirement figure to be provided i.e. where a neighbourhood

plan has progressed following the adoption of a Local Plan, then the neighbourhood planning body should request an indicative figure to plan taking into account the latest evidence of housing need, population of the neighbourhood area and the most recently available planning strategy of the local planning authority.

2.2.5 In order to proceed to referendum, the neighbourhood plan will need to be tested through independent examination in order to demonstrate that it is compliant with the basic conditions and other legal requirements before it can come into force. If the Examiner identifies that the neighbourhood plan does not meet the basic conditions as submitted, the plan may not be able to proceed to referendum.

2.3 Planning Practice Guidance

2.3.1 Following the publication of the NPPF (2018), the Government published updates to its Planning Practice Guidance (PPG) on 13th September 2018 with further updates being made in the intervening period. The updated PPG provides further clarity on how specific elements of the Framework should be interpreted when preparing neighbourhood plans.

2.3.2 Although a draft neighbourhood plan must be in general conformity with the strategic policies of the adopted development plan, it is important for the neighbourhood plan to provide flexibility and give consideration to the reasoning and evidence informing the emerging Local Plan which will be relevant to the consideration of the basic conditions against which a neighbourhood plan is tested against. For example, the neighbourhood planning body should take into consideration up-to-date housing needs evidence as this will be relevant to the question of whether a housing supply policy in a neighbourhood plan contributes to the achievement of sustainable development. Where a neighbourhood plan is being brought forward before an up-to-date Local Plan is in place, the qualifying body and local planning authority should discuss and aim to agree the relationship between the policies in the emerging Neighbourhood Plan, the emerging Local Plan and the adopted Development Plan[2]. This should be undertaken through a positive and proactive approach working collaboratively and based on shared evidence in order to minimise any potential conflicts which can arise and ensure that policies contained in the neighbourhood plan are not ultimately overridden by a new Local Plan.

2.3.3 It is important that the neighbourhood plan sets out a positive approach to development in the area by working in partnership with local planning authorities, landowners and developers to identify their housing need figure and identifying sufficient land to meet this requirement. Furthermore, it is important that policies contained in the neighbourhood plan do not seek to

[2] PPG Reference ID: 41-009-20160211

prevent or stifle the ability of sustainable growth opportunities from coming forward. Indeed, the PPG emphasises that;

> **"…blanket policies restricting housing development in some settlements and preventing other settlements from expanding should be avoided unless their use can be supported by robust evidence"[3]**

2.3.4 Accordingly, the TNP will need to ensure that it takes into account the latest guidance issued by the SoS so that it can be found to meet basic conditions (a) and (d).

[3] Paragraph: 001 Reference ID: 50-001-20160519

3 DEVELOPMENT PLAN

3.1 Adopted Development Plan

3.1.1 To meet the requirements of the Framework and the Neighbourhood Plan Basic Conditions, neighbourhood plans should be prepared to conform to the strategic policy requirements set out in the adopted Development Plan.

3.1.2 The adopted Development Plan relevant to the preparation of the Tiptree Neighbourhood Plan, and the Development Plan which the TNP will be tested against, consists of the Colchester Local Plan DPD. This is made up of the Core Strategy, Site Allocations DPD and Development Policies DPD. The Core Strategy was adopted in December 2008, with selected policies having been revised in July 2014. The Core Strategy sets out the strategic planning policy framework for the district until 2021 and sets out an overall housing requirement of a minimum of 17,100 new homes between 2001 and 2021. This figure is derived from the East of England Plan. Within this plan Tiptree was identified as one of the key district settlements that provides essential services and facilities to its rural hinterland.

3.2 Emerging Development Plan

3.2.1 To meet the requirements of the Framework, the Council has commenced work on a new Local Plan. Part 1 of the emerging Local Plan has been prepared jointly with Braintree and Tendring District Councils and provides strategic policies for the North Essex Area. Part 2 of the Local Plan deals specifically with local policies for the Colchester Borough. Within the emerging Plan, Tiptree is designated as a Sustainable Settlement (Tier 2) and identified as a District Centre with a number of key services and community facilities. As set out through Policy SS14, which sets out the expectations for Tiptree Neighbourhood Plan and the Colchester Spatial Hierarchy (Colchester's Housing Provision Table), 600 dwellings are expected to be accommodated in Tiptree.

3.2.2 Gladman consider that this figure should be considered as a minimum and at least 600 dwellings should be delivered in Tiptree. This is necessary to support the strategic policy target of at least 14,720 new homes in Colchester Borough between 2017 and 2033. Sustainable settlements such as Tiptree should not be seeking to limit growth as this may undermine the Local Plan's ability to meet this strategic target. The SEA recognises that Tiptree has fewer people aged 0-40 and more people aged 51-80 compared to Colchester, East England and the UK averages, with a particularly low proportion of 21-30. Using this target as a minimum will encourage growth to deliver new homes and support families moving into the area helping to change this demographic.

3.2.3 On 9th October 2017 the Councils submitted the Local Plan and its accompanying documents to the Planning Inspectorate. Part 1 Examination in Public began on the 16th January 2018, with an additional hearing session taking place in May 2018. Following initial hearing sessions dealing with

the Part 1 document, Planning Inspector, Roger Clewes has written to the three local authorities expressing a number of concerns, particularly around the proposed garden communities.

3.2.4 In his letter, the Inspector said that parts of the plan and indeed its evidence base "require significant further work" and that "the evidence provided to support the garden communities policies in the submitted plan is lacking in a number of respects". The Inspector's letter goes on to raise further issues relating to the submitted Sustainability Appraisal and states that further viability work needs to be undertaken before ultimately concluding that;

> *"I consider that the garden community proposals contained in the plan are not adequately justified and have not been shown to have a reasonable prospect of being viably developed. As submitted, they are therefore unsound."*

3.2.5 Mr Clewes' letter outlines three options for how the Councils could proceed with their proposals. The first of which would be for the councils to "agree to remove the garden communities proposals from the Section 1 Plan at this stage, and commit to submitting a partial revision of Section 1 for examination by a defined time, for example within two or three years". The second option suggests the councils carry out "the necessary further work on the evidence base and sustainability appraisal, and bringing forward any resulting revised strategic proposals, before the commencement of the Section 2 examinations". A third option "would be to withdraw the Section 1 and Section 2 Plans from examination and to re-submit them with any necessary revisions, after carrying out the required further work on the evidence base and sustainability appraisal, and the relevant consultation and other procedures required by legislation".

3.2.6 Further to the receipt of the Inspector's letter, the Council have opted to carry out the further necessary work on the evidence base to support the preparation of the plan and in particular the strategic proposals.

3.2.7 As a result, the Part 2 Examination is yet to commence and as such there remains considerable uncertainty over what level of development that Tiptree may need to accommodate to assist the Council in meeting its OAN for housing. Accordingly, the Plan will need to ensure that it allows for sufficient flexibility, such as reference to a minimum housing target, to ensure that it is able to react to changes that may arise through the emerging Local Plan Examination.

3.2.8 Given the above, should the emerging Local Plan be subject to significant modifications before it can be found sound through examination, it is important that policies contained in the TNP allow for flexibility so that they are able to respond positively to changes in circumstance which might arise through the examination of the Local Plan to seek minimise any potential conflicts. This degree of flexibility is required to ensure that the TNP is capable of being effective over the duration of the plan period and not ultimately superseded by s38(5) of the Planning and Compulsory Purchase Act 2004.

4 TIPTREE NEIGHBOURHOOD PLAN POLICIES

4.1 Context

4.1.1 These representations are made in response to the current consultation on the pre-submission version of the TNP, under Regulation 14 of the Neighbourhood Planning (General) Regulations 2012. This chapter of the representation highlights the key points that Gladman raise with regard to the content of the TNP as currently proposed. As stated earlier, we currently have significant concerns about the TNP's ability to meet the basic conditions.

4.1.2 As background, we consider Tiptree to be a highly sustainable settlement as acknowledged by both the neighbourhood plan (page 12) and the emerging Local Plan Paragraphs 4.216 and 4.217, quoted below:

> **'Tiptree is a District Centre with a high number of key services and community facilities. There are two supermarkets, 4 primary schools, a secondary school, a community centre, as well as a range of independent shops, cafes and restaurants. These services support the needs of local residents and businesses in Tiptree as well as communities from the surrounding rural areas. It will be important to protect the function of the District Centre in Tiptree to ensure that it continues to meet the needs of the local communities who use it. There are regular bus routes serving the village to and from Colchester. Accordingly, Tiptree is considered to be a sustainable settlement for growth during the plan period.**
>
> **Tiptree is very well served in terms of educational facilities as it has four primary schools and Thurstable Secondary school within the village. There is also a Leisure Centre located at Thurstable School and Colchester United's training ground is located off Grange Road. There are four Local Economic Ares in Tiptree.'**

4.1.3 Accordingly, the policies of the TNP should be seeking to provide a framework to exceed this growth target where possible.

4.2 Neighbourhood Plan Policies

4.2.1 This section of the representations provides Gladman's comments on the draft TNP policies. As currently proposed, Gladman believe that a number of the TNP's policies require further modification/amendment, before they can be considered consistent with the Neighbourhood Plan Basic Conditions.

<u>Vision and Objectives</u>

4.2.2 Gladman are concerned with Objectives 12 and 14 of the Plan and how they appear to have pre-determined the spatial strategy for the neighbourhood plan, with little evidence to support the

needs for these objectives. These two objectives may prejudice against other landowners and stakeholders in the neighbourhood area with land outside these listed areas, this will be a continued theme throughout this representation. In principle, we would not object to an objective that seeks to avoid congestion on existing roads and junctions in and around Tiptree but references that seek to steer where this development should take place without sufficient evidence are unsubstantiated and should be removed.

4.2.3 We acknowledge that the emerging Local Plan has identified broad areas of growth to the north and west, but this should not preclude development coming forward in other parts of the village. Gladman note that the TNP states on the last paragraph of page 12 that expansion to the north east of Tiptree is constrained by Thurstable School and Warriors Rest. However, this is not the case for the land being promoted by Gladman, for which the submitted planning application (reference: 182014) has confirmed that there are no technical constraints to the delivery of the proposed development. In particular, Essex County Council, as the Local Highways Authority, have not raised any objection to 200 dwellings at Barbrook Lane, subject to conditions. The SEA, on Page 35, makes reference to parts of this site being within a high landscape value area, in evidence dated from 2005, but again there has been no landscape objection from the Council and our up to date assessment of the site suggests that this is not the case (Appendix A).

4.2.4 The emerging Local Plan has left it to the neighbourhood plan to determine what infrastructure/community facilities will be needed to support the preferred allocations. Gladman have not seen such an assessment to date and this will be essential to support the neighbourhood plan. Gladman contend that when undertaking this assessment it is likely to identify that development can take place in other parts of the village such as to the east, off Barbrook Lane.

<u>Policy TIP01: Tiptree Settlement Boundaries</u>

4.2.5 Gladman object to the use of settlement boundaries in circumstances such as this where they would preclude otherwise sustainable development from coming forward. The Framework is clear that development which is sustainable should go ahead without delay. The use of settlement limits to arbitrarily restrict suitable development from coming forward on the edge of settlements does not accord with the positive approach to growth required by the Framework.

4.2.6 Whilst Part B sets out the circumstances that development would be considered appropriate outside the settlement boundaries these are considered to be drafted unclearly, likely to be applied inconsistently and could be used to restrict sustainable development, conflicting with national policy.

4.2.7 We acknowledge that the TNP is seeking to amend the current settlement boundary to incorporate the draft site allocations to meet the draft requirement of the emerging plan however this figure is yet to be tested through examination in public and may be subject to change. Therefore, Gladman suggest that this policy should be worded more flexibly in the interim to be in accordance with

Paragraphs 11 and 16(b) of the NPPF (2019) and the requirement for policies to be sufficiently flexible to adapt to rapid change and prepared positively.

4.2.8 In this regard, Gladman submit that sustainable development proposals adjacent to the development boundary that are proportionate in size to Tiptree's role as a settlement within the District should be supported and wording should be added to the policy to reflect this. Indeed, this approach was taken in the examination of the Godmanchester Neighbourhood Plan. Paragraph 4.12 of the Examiner's Report states:

> *"…Policy GMC1 should be modified to state that "Development …shall be focused within or adjoining the settlement boundary as identified in the plan." It should be made clear that any new development should be either infill or of a minor or moderate scale, so that the local distinctiveness of the settlement is not compromised. PM2 should be made to achieve this flexibility and ensure regard is had to the NPPF and the promotion of sustainable development. PM2 is also needed to ensure that the GNP will be in general conformity with the aims for new housing development in the Core Strategy and align with similar aims in the emerging Local Plan."*

TIP04: Building for Life

4.2.9 This policy reads more as an aspiration rather than a policy in encouraging development to meet Building for Life standards. Therefore, it is considered that this should not form a policy itself and may be better located in the supporting text to Policy TIP02: Good Quality Design in suggesting how applicants can meet design expectations.

Policy TIP05: Dwelling Mix

4.2.10 Gladman do not consider a neighbourhood plan to be the appropriate mechanism to set requirements for Building Regulations and this should be left to the Local Plan where the requirements can be interrogated robustly at examination in public, supported by the Plan's Viability Assessment, taking in to account other factors that may also affect viability. Part C of this policy should therefore be removed.

Policy TIP07: Mitigating the Impact of Vehicular Traffic Through Tiptree Village

4.2.11 Gladman have significant concerns about Part D of this policy, a policy that appears to have been the determining factor in deciding the proposed site allocations.

4.2.12 Part D proposes to safeguard a route for the provision of a new road, which as is described will help reduce the levels of vehicular traffic travelling through the village. Part of this route is beyond the plan area and as such the TNP has no jurisdiction on this land and no certainty that this road can or will be delivered. It is also noted by Gladman that there is a strip of unregistered land in the area where the new road is proposed to be delivered, which could result in issues to the deliverability of

the new road. Land registry title documents and plans for this area can be found at Appendix B. This is a significant issue that will need to be overcome in ensuring that the Plan's strategy is deliverable.

4.2.13 The SEA acknowledges this lack of certainty and describes that whilst there is no certainty that the safeguarded route will be delivered in the plan period, it would not be possible without allocating the preferred sites. This lack of certainty should be a consideration and the potential impacts should this road not be delivered should be assessed. **Sites that would contribute to the delivery of this road can not score positive at this time due to this lack of certainty.**

4.2.14 Further, Gladman have seen no evidence that this proposed route is necessary nor that it would reduce the levels of vehicular traffic travelling through the village as suggested. Steering development to the north in addition to development already approved is likely to create the problem that this policy is trying to fix and if development was more dispersed there may not be the necessity for the safeguarded road.

4.2.15 Gladman have evidence (Appendix C) supporting our application on land off Barbrook Lane that development in the east of the settlement can be accommodated into the existing local highway network without having a material impact or giving rise to any highways related issues. For this reason, we question why development is only being steered to the north of the settlement when development can be accommodated suitably in other areas.

4.2.16 Without evidence demonstrating the necessity of the safeguarded route it should be deleted and the spatial strategy reconsidered.

Policy TIP11: Community Infrastructure Provision

4.2.17 This policy sets out how development will be expected to contribute through Section 106 as appropriate or through Community Infrastructure Levy contribution. In line with this, land off Barbrook Lane will safeguard land for education expansion, make contributions for increased healthcare facilities, make contributions to the replacement of the Scout Hut, as well as providing new children's play equipment near to Grove Road. As such, allocation of land off Barbrook Lane would make a significant contribution to the community infrastructure projects identified however this must be considered in the context of our concerns with a lack of infrastructure capacity assessment as set out below.

Site Allocations

4.2.18 The emerging Local Plan Policy SS14 sets out the expectations of the Tiptree Neighbourhood Plan. Policy SS14 requires the TNP to provide housing allocations to deliver 600 dwellings within the broad areas of growth shown as well as setting out the policy framework to guide the delivery of any infrastructure/community facilities to support the development. As set out above in Paragraph 3.2.1, we consider that this should be set out as a minimum.

4.2.19 To seek to accord with emerging Policy SS14 the TNP proposes to allocate two sites to the north of Tiptree totalling 625 dwellings. This provides a low level of flexibility on the emerging Local Plan's housing target of a minimum of 600 for Tiptree and as set out above this is yet to be tested at examination and may yet increase.

4.2.20 At the time of writing, land at Tower End (TIP13) is subject to a planning application for 150 dwellings (Council ref: 190647). Firstly, it is noted that this application comprises fewer dwellings than the preferred allocation (175) on this site under TIP13. It also excludes land north of the waterworks and west of the public footpath on Grange Road, which are included in the preferred allocation. It is presently subject to objections from both Tiptree Parish Council and Messing Cum Inworth Parish Council. Natural England has also advised the Council that it should undertake an Appropriate Assessment (AA) before it determines the application.

4.2.21 In this regard, Gladman would have expected discussions with relevant bodies such as the County Highways Authority and an assessment of the current infrastructure and facilities of Tiptree to determine what may be required to support the new development. We have seen no evidence of such an assessment having been undertaken yet infrastructure is sought from the proposed developments and potential delivery of this infrastructure has played a part in where this development will be located. Indeed, one of the objectives of the TNP is to favour new developments to the north and west of the village on sites that allow access to main routes with minimal impact on the village centre but it is not clear what this is based upon. **This would appear to have predetermined the location of the proposed allocations and has been the determining factor for the proposed allocations.**

4.2.22 Neighbourhood plans should be based upon up to date evidence. In this regard we submit that our application (reference: 182014) is supported by evidence that demonstrates that infrastructure and highways capacity is not a concern for development to the east. As such it is important for the Steering Group to undertake work to determine infrastructure capacity and once known reconsider the spatial strategy and site selection once completed.

Policy TIP15: Countryside and Green Spaces

4.2.23 Gladman note the intentions of this policy and suggest it could be worded more positively in accordance with Paragraph 16(b) of the NPFP (2019). In this regard we suggest that wording is added to the policy that states '*development will be supported where it would protect and enhance public access… particularly where this is not currently available*'.

Policy TIP16: Recreational Disturbance Avoidance and Mitigation

4.2.24 This policy states that in the interim to the adoption of the Essex coast RAMS all residential development will need to deliver all measures identified through project level HRAs or otherwise, to mitigate any recreational disturbance impacts in compliance with the Habitats Regulations and Habitats Directive. Whilst this is the case, the TNP will also need to be subject to an Appropriate

Assessment to determine whether the effects of the TNP's proposals will either alone or in combination with other projects or development plans produced in the area have a significant effect on Habitat Sites.

4.2.25 Gladman are aware that other neighbourhood plans, such as West Bergholt and Eight Ash Green, produced in Colchester, have been subject to an Appropriate Assessment. The TNP should not be relying on the Habitat Regulation Assessment (HRA) supporting the emerging Local Plan, as that Assessment relates to a different plan with different considerations e.g. the emerging Local Plan does not refer to the provision of a relief road to the north of Tiptree. Basic conditions (f) and (g) would potentially not be met if the Steering Group does not undertake a separate HRA exercise alongside the TNP.

5 STRATEGIC ENVIRONMENTAL ASSESSMENT

5.1 Context

5.1.1 In accordance with PPG ID: 11-027, the preparation of Neighbourhood Plans may fall under the scope of the Environmental Assessment of Plans and Programmes Regulations 2004 (SEA Regulations) that require a Strategic Environmental Assessment (SEA) to be undertaken where a Plan's proposals would be likely to have significant environmental effects.

5.1.2 The SEA is a systematic process that should be undertaken at each stage of a Plan's preparation. It should assess the effects of a Neighborhood Plan's proposals and whether they would be likely to have significant environmental effects and whether the Plan is capable of achieving the delivery of sustainable development when judged against all reasonable alternatives.

5.1.3 The decision making and scoring of the SEA should be robust, justified and transparent and should be undertaken through a comparative and equal assessment of each reasonable alternative. Too often SEA flags up the negative aspects of development whilst not fully considering the positive aspects which can be brought about through new opportunities for housing development and how these can influence landscape issues, social concerns and the economy.

5.2 Tiptree Neighbourhood Plan -Strategic Environmental Assessment

5.2.1 Gladman have significant concerns with the current SEA supporting the draft Tiptree Neighbourhood Plan, notably the assessment of reasonable alternatives or lack of in some cases. We are also concerned with how the SEA has tackled the assessment of sites and how this led to the determination of the preferred approach in the draft neighbourhood plan.

5.2.2 A number of policy options have been dismissed as having no reasonable alternatives as 'the policy looks at the principles of promoting sustainable development'. This is simply not the case and will need to be rectified for the TNP to satisfy the SEA regulations and therefore basic condition (e). Where we consider further work will needed in relation to this is set out below:

- Policy 1 – there are alternatives to the use of a settlement boundary for Tiptree that could be explored through the SEA such as supporting development adjacent to the boundary or the removal of a boundary with a criterion-based approach instead followed. Both these approaches would be consistent with both the adopted and emerging development plan and should be considered.
- Policy 2 – an alternative to this policy approach would be not to contain a policy on design, instead relying on national policy in this regard.
- Policy 7 – there are alternatives to the route that is sought to be safeguarded through this policy, despite being outside the neighbourhood plan boundary and

therefore beyond the remit of the neighbourhood plan. Gladman have seen no evidence supporting the consultation to demonstrate the necessity of such a road nor that if needed that this is the only possible route. **Considerable further work will be necessary in testing this policy.**

5.2.3 Gladman are also concerned with how the SEA overcomplicates the testing of the reasonable alternatives for site allocation. Some sites are tested in isolation whilst others are tested in combination where there is potential for the sites to be delivered together, yet there is no combined testing of the individual sites that make up the preferred locations for site allocation. This is a further point that will need addressing through the SEA.

5.2.4 As the Parish Council are aware Gladman are promoting land off Barbrook Lane, Tiptree, currently subject to appeal (reference: APP/1530/W/19/3223010). In the SEA this site is made up from a number of smaller sites yet have not been assessed collectively. This site is therefore clearly a reasonable alternative that should be assessed through the SA. We reserve the right to comment on the scoring of the site through the SEA once an assessment of this site in its entirety as a reasonable alternative has been undertaken. We consider that this site will score positively through the SEA and should be considered for allocation in the neighbourhood plan. Our following site submission clearly sets out our reasoning for this.

5.2.5 We are also concerned with how the cumulative impacts have been considered and what appears to have been minimal consideration of the other development proposals already in Tiptree and the likely effects of increasing development in these locations. This is another issue that the SEA will need to address.

5.3 Conclusions

5.3.1 We have flagged significant flaws with the SEA as presented and suggest that considerable further work is undertaken in supporting the current policy choices. Should amendments to the SEA result in other policy choices being progressed the TNP will require further Regulation 14 consultation to be legally compliant and meet the basic conditions.

6 SITE SUBMISSION

6.1 Land off Barbook Lane, Tiptree

6.1.1 The Council and the Parish are aware of Gladman's land interest at Land off Barbrook Lane, Tiptree. A site location plan can be found at Appendix D. The proposed development has been the subject of a planning application and is now subject to a live planning appeal. We continue to consider that this site presents an ideal opportunity to create a sustainable, high quality residential development located in a sought-after location.

6.1.2 The site is located to the north eastern built edge of Tiptree and extends to some 9.79 hectares. The site lies approximately 7.5km to the east of Witham, 13.5km to the south west of Colchester and 20k to the north east of Chlemsford. Within a 1,600m radius of the site (equivalent to a 20-minute walk) there are number of local facilities and services including, but not limited to: Milldene Primary School, accessible bus stops, local convenience stores, Thurstable School, Tiptree Library, ASDA supermarket and public houses.

6.1.3 The site comprises several fallow fields directly adjoining the existing settlement edge. The southern fields adjoin the rear gardens of existing properties on Barbrook Lane and Grove Road. The site is currently accessed via two tracks between existing properties on Barbrook Lane. The easternmost field partly fronts onto Grove Road. Immediately to the north of the site lies Warriors Rest. To the east of the site area agricultural fields which surround Poyston Fruit Farm and its entrance off Grove Road and to the west of the site lies the playing fields of Milldene Primary School. The site itself is not subject of any formal historic or environmental designations.

6.1.4 The site is currently subject to an ongoing planning appeal (appeal reference: APP/A1530/W/19/3223010) against the refusal of an outline planning application for up to 200 dwellings (including 30% affordable housing), provision of 0.6ha of land safeguarded for school expansion, new car parking facility, introduction of structural planting and landscaping, sustainable drainage system (SuDS) and informal public open space and a children's play area. All technical matters were dealt with during the course of the application.

6.1.5 In accordance with the National Planning Policy Framework, for a site to be considered deliverable, it must be achievable now, offer a suitable location for development now and there should be a realistic prospect that development would be delivered within five years. The site should also be viable.

6.1.6 We consider the site to be a sustainable and viable location for growth and believe that up to 200 dwellings would make an important contribution to the Council's five- year housing land supply. The proposed development will bring benefits to the local community, including:

- The delivery of market and affordable housing in a sustainable location to meet housing needs;
- The provision of 0.6ha of land safeguarded for school expansion, located adjacent to the existing premises of Milldene Primary School, as per the request of Essex County Council in their consultee response to the planning application;
- The provision of new public open space including a children's play area that is not currently available and a high-quality landscape setting, along with more informal recreation space and landscaping to meet the needs of existing and future residents; and,
- The creation of a high quality residential development which respects the character of the surrounding area.

6.1.7 The delivery of this scheme will result in benefits for the local community and surrounding area including the provision of New Homes Bonus payments, increasing the economic activity of the area and provide a number of aspirations that are currently being targeted by the Tiptree Neighbourhood Plan.

7 CONCLUSIONS

7.1 Assessment against Basic Conditions

7.1.1 Gladman recognises the Government's ongoing commitment to neighbourhood planning and the role that such Plans have as a tool for local people to shape the development of their local community. However, it is clear from national guidance that the TNP must be consistent with national planning policy and the need to take account of up-to-date evidence. If the plan is found not to meet the Basic Conditions at Examination, then the plan will be unable to progress to referendum.

7.1.2 As detailed through these submissions, we have significant concerns with the SEA underpinning the TNP and suggest that considerable further work will need to be undertaken and the possibilities of an amended spatial strategy considered.

7.1.3 In this regard, we have submitted our development proposal off Barbook Lane as a suitable site that should be allocated within the TNP.

7.1.4 We also consider that the Plan should be subject to an Appropriate Assessment to demonstrate that the effects of the TNP either alone or in combination with other projects or development plans produced in the area would not have a significant effect on Habitats Sites.

7.1.5 As currently drafted, we submit that the TNP does not meet basic conditions (a), (d), (f) and (g) and considerable further work will need to be undertaken to make the plan legally compliant and to meet the basic conditions.

Appendices

Appendix A – Landscape and Visual Impact Assessment

CSA environmental

Land off Barbrook Lane, Tiptree

Landscape and Visual Impact Assessment

Prepared by
CSA Environmental

on behalf of
Gladman Developments Ltd.

Report No: CSA/3725/02

October 2018

urban design | ecology | landscape

Report Reference	Revision	Date	Prepared by	Approved by	Comments
CSA/3725/01	-	15/06/18	JJ	CA	Draft for review
CSA/3725/01	A	16/07/18	JJ	CA	Final
CSA/3725/01	B	18/07/18	JJ	CA	Final with minor amendments
CSA/3725/01	C	31/07/18	JJ	CA	NPPF 2018 amendments
CSA/3725/01	D	19/09/18	JJ	CA	Alteration to DFP
CSA/3725/01	E	17/10/18	JJ	CA	Alteration to DFP – school safeguarded land

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1.0 INTRODUCTION

1.1 CSA Environmental has been appointed by Gladman Developments Ltd to undertake a landscape and visual impact assessment of land north of Barbrook Lane, Tiptree ('the Site'). The report supports an outline planning application for up to 200 residential dwellings, 0.6ha of school safeguarded land, public open space and associated infrastructure. This assessment has informed the preparation of a Development Framework Plan (Appendix E).

1.2 The Site lies within the parish of Tiptree, Essex, in the south western part of the borough of Colchester. It adjoins the north eastern built edge of Tiptree, and comprises a series of connected semi-improved grassland fields containing some sheds and small stables, with a stream along the northern boundary, a ditch on a roughly east-west alignment through the centre of the Site and a residential property on Barbrook Lane. It measures 9.79ha in size. For ease of description, the Site is divided into Areas A to E. The location and extent of the Site is shown on the Location Plan in Appendix A and on the Aerial Photograph in Appendix B, which also includes the land parcel labels.

1.3 This assessment describes the landscape character and quality of the Site and the surrounding area, and its visual characteristics. The report then goes on to discuss the suitability of the Site to accommodate development, and the potential landscape and visual effects on the wider area.

Methodology

1.4 This assessment is based on a site visit undertaken by a suitably qualified and experienced Landscape Architect in May 2018. The weather conditions at the time were clear and visibility was good.

1.5 In landscape and visual impact assessments, a distinction is drawn between landscape effects (i.e. effects on the character or quality of the landscape irrespective of whether there are any views of the landscape, or viewers to see them) and visual effects (i.e. effects on people's views of the landscape from public vantage points, including public rights of way and other areas with general public access, as well as effects from any residential properties). This report therefore considers the potential impact of the development on both landscape character and visibility. The methodology utilised in this report is contained in Appendix F.

1.6 Photographs contained within this document (Appendix C) were taken using a digital camera with a lens focal length approximating to 50mm,

to give a similar depth of vision to the human eye. In some instances images have been combined to create a panorama.

2.0 LANDSCAPE POLICY CONTEXT

National Planning Policy Framework (July 2018)

2.1 National policy is set out in the National Planning Policy Framework ('NPPF') and those parts relevant to this assessment are summarised below.

2.2 Paragraph 10 and 11 of the NPPF states that at the heart of the Framework is a presumption in favour of sustainable development, which should be applied in relation to both plan-making and decision-taking.

2.3 Paragraph 20 of the NPPF states that strategic policies should set out an overall strategy for the pattern, scale and quality of development, and make sufficient provision for, among other elements, the '*(d) conservation and enhancement of the natural, built and historic environment, including landscapes and green infrastructure, and planning measures to address climate change mitigation and adaptation.'*

2.4 Section 12 of the NPPF sets out that planning policies and decisions should support the creation of high quality buildings and places. Paragraph 125 states that '*... design policies should be developed with local communities so they reflect local aspirations, and are grounded in an understanding and evaluation of each area's defining characteristics*.'

2.5 Paragraph 127 states that planning policies and decisions, should ensure that developments, amongst others:

- '*will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development;*
- *are visually attractive as a result of good architecture, layout and effective landscaping;*
- *are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change*...'

2.6 Section 15 of the NPPF deals with conserving and enhancing the natural environment. Paragraph 170 of the document states that the planning system should contribute to the protection and enhancement of the natural and local environment through, among other things, protecting and enhancing valued landscapes, '*... (in a manner commensurate with their statutory status or identified quality in the development plan)*'.

The paragraph also outlines that the planning system should recognise the, '*…intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland.*'

Planning Policy Guidance

2.7 The NPPF is supported by the Planning Practice Guidance ('PPG') which contains guidance on the design of new developments and on landscape and the natural environment, with reference to the relevant policy contained in the NPPF.

2.8 The Design section of the guidance describes the importance of good design as an integral part of providing sustainable development. Paragraph 6 (ID: 26-006-20140306) states:

2.9 '*Design impacts on how people interact with places. Although design is only part of the planning process it can affect a range of economic, social and environmental objectives beyond the requirement for good design in its own right. Planning policies and decisions should seek to ensure the physical environment supports these objectives*.'

2.10 Paragraph 7 of the Design section notes that the successful integration of all forms of development with their surrounding context is an important consideration.

2.11 Paragraph 001 of the Natural Environment Section of the Guidance notes that one of the core principles of the NPPF is that planning should recognise the intrinsic character and beauty of the countryside. It notes that '*Local Plans should include strategic policies for the conservation and enhancement of the natural environment, including landscape. This includes designated landscapes but also the wider countryside*.'

Local Policy Context

2.12 Colchester Borough Council has a suite of adopted Development Plan Documents ('DPD') which plan for the future development of the borough to 2021 and which are relevant to the Site. These include the Core Strategy (adopted 2008, selected policies amended 2014), Development Policies DPD (adopted 2010, selected policies revised 2014) and the Site Allocations DPD (adopted 2010) and each supported by the Proposals Map (adopted 2010). The 2014 revisions to the Core Strategy and the Development Policies were undertaken following the issue of the NPPF in 2012, and involved a limited review and adjustment of any policies that were not in compliance with the NPPF. The Council

is currently preparing their emerging Local Plan which will cover planning policy to 2033.

Colchester Borough Council Core Strategy 2001-2033 (adopted 2008, selected polices revised 2014)

2.13 The Core Strategy sets out the overall planning strategy for the Borough and provides a framework for more detailed policies contained within other documents which form part of the DPD. Those policies relevant to the Site and this assessment are summarised below.

2.14 The Spatial Vision for the Borough is set out under a number of objectives. The spatial vision identifies Tiptree as one of the key district settlements which will provide essential services and facilities to the surrounding rural areas. It aims to conserve and enhance the natural environment, countryside and coastline, and secure strategic green spaces for health and recreational needs. In addition, the spatial vision aims to protect biodiversity, cultural and amenity value of the countryside and coast, and minimise the use of scarce resources.

2.15 Policy SD1 – Sustainable Development Locations states among other things, that the Council will aim to sustain the character of small towns, villages and the countryside, and expect new development to display high design standards, sustainability and compatibility with the local character of the area.

2.16 Policy UR2 – Built Design and Character requires that new developments are designed to respond to context appraisals, are locally distinctive, and enhance the built character and public realm of the area. The policy states that new development which is discordant with its context, and which fails to enhance the character, quality and function of the area will not be supported.

2.17 Policy PR1 – Open Space in relation to new development states that provision of open space should be guided by an appraisal of local context and community need, it should provide for new development needs and mitigate the impacts on the needs of existing communities paying particular attention to its impact on biodiversity.

2.18 Policy ENV1 – Environment states that the Borough Council will conserve and enhance Colchester's natural and historic environment, countryside and coastline, and will protect and enhance environmental and cultural sites of international, national, regional and local importance. The policy states that among other things the green infrastructure links between the urban and rural environments will be protected and enhanced, and that in appropriate locations, development should improve public access, visual amenity and

rehabilitate the natural environment. The policy goes on to note that unallocated greenfield land outside settlement boundaries will be protected and where possible enhanced, guided by Landscape Character Assessment, and development will be strictly controlled to conserve the environmental assets and open character of the Borough. Where development is proposed in a rural location the policy requires among other things, that it:

- Accords with national, regional and local policies for development in rural areas;
- Is appropriate in scale, siting and design;
- Protects, conserves and enhances the landscape and townscape character, and maintains settlement separation;
- Protects, conserves and enhances the interests of natural and historic assets;
- Conserves and enhances the biodiversity of the Borough, and protects habitats and species; and
- Provides for any necessary mitigation or compensatory measures.

Colchester Borough Council Development Policies DPD (adopted October 2010, selected policies revised 2014)

2.19 Policy DP1: Design and Amenity states that all development should be designed to a high standard, avoiding unacceptable impacts on amenity and among others, it should demonstrate environmental sustainability. The policy goes on to require that the character of the site, its context and surroundings should be respected and enhanced, including the landscape and other assets which contribute positively to the site and its environs. The policy also notes that where appropriate, Sustainable Drainage Systems ('SuDS') should be included in development sites.

2.20 Policy DP16: Private Amenity Space and Open Space Provision for New Residential Development states that all new development will be required to provide high standard private amenity space, including new areas of accessible strategic or local public open space, with the precise quantum dependent upon the location of the proposal and the nature of the open space needs in the area.

The Publication Draft stage of the Colchester Borough Council Local Plan (emerging policy) 2017-2033

2.21 The emerging Local Plan is divided into two parts, Local Plan Section 1 is a strategic plan shared with the neighbouring local authorities of Braintree and Tendering, and Local Plan Section 2 focuses on Colchester Borough. The emerging Local Plan has been submitted for examination to the Planning Inspectorate with each Section being examined separately. According to the Local Development Scheme, the Local Plan is anticipated to be adopted in September 2018. Those policies of relevance to this assessment and the Site in Section 1 of the emerging Local Plan are summarised below.

2.22 Draft Policy SP1 – Spatial Strategy for North Essex states, among other things, that '*… future growth will be planned to ensure that settlements maintain their distinctive character and role*'.

2.23 Draft Policy SP6 – Place Shaping Principles requires all new development, to reflect the following principles, among others:

- To positively respond to local character and context, by preserving and enhancing the quality of existing communities and their environs;
- To protect and enhance natural and historical assets; and
- To connect to existing green infrastructure, where possible, by providing an integrated network of multi-functional public open space containing green and blue infrastructure.

2.24 Those policies of relevance to this assessment and the Site in Section 2 of the emerging Local Plan are summarised below.

2.25 In Vision: Colchester 2033 Tiptree is identified as one of three large sustainable settlements which will provide services and facilities for the surrounding rural area. Under the Natural Environment objective, the aim includes the protection of the countryside and coast, the development of a network of green infrastructure, and the protection and enhancement of landscapes, biodiversity, green spaces, river corridors, designated sites, geodiversity and soils. Under the Places objective, policies and allocations should aim to ensure high quality development which responds to the local character and identifies, protects and enhances the unique qualities of different communities and environments, and streetscapes, open spaces and green links should provide attractive and accessible spaces for residents.

2.26 **Draft Policy SG1: Colchester's Spatial Strategy** identifies Tiptree as a sustainable settlement.

2.27 Draft Policy ENV1: Natural Environment states that the Borough Council will conserve and enhance Colchester's natural and historic environment, countryside and coastline, and safeguard those elements which define the landscape character of the Borough, by protecting and enhancing environmental and cultural sites of international, national, regional and local importance in the Borough.

2.28 Draft Policy ENV3: Green Infrastructure states that the Council will aim to deliver a comprehensive green infrastructure network which benefits both wildlife, communities and the environment, linking existing blue / green infrastructure to new green infrastructure, and addressing existing deficiencies and gaps in green infrastructure through new development among other means. The policy goes on to require that where there are unavoidable impacts on green infrastructure, suitable mitigation to the network should be provided.

2.29 Draft Policy PP1: Generic Infrastructure and Mitigation Requirements requires new development, among other things, to minimise any negative effect on the surrounding landscape using suitable design and landscaping.

2.30 Draft Policy DM15: Design and Amenity requires all development to display high design standards, and to respect and, where possible, enhance the character of the site, and positively integrate into its context and surroundings, and through architecture and landscaping, provide a sense of place.

2.31 Draft Policy DM18: Provision of Public Open Space requires all new residential development to provide for the recreational needs of the communities in which it is located, by providing new public areas of accessible open space, with sites larger than 5 hectares to provide at least one strategic area of open space within the site.

Guidelines for Developers – Landscape Proposals for Development Sites

2.32 Colchester Borough Council has produced landscape guidance for developers, which includes a guidance document for strategic proposals. The purpose of Guidance Note A is for '*strategic (concept) landscape proposals, generally required as part of a full planning application*'. As this assessment accompanies an outline application, most of the guidance is too detailed at this stage, however paragraph 2.1 could be considered a general guide to the landscape approach for the Site, and section 9 is of relevance.

2.33 In the guidance, para. 2.1 states that strategic landscape proposals need to complement the structure, pattern and character of the landscape in which the site is located, giving particular attention to tree

cover, external works and enclosure. Where the landscape is in a poor condition, the proposals will be expected to strengthen and re-introduce relevant landscape characteristics.

2.34 Section 9 provides guidance in relation to Landscape Appraisals and LVIAs and requires reference to be made to the relevant paragraphs of the Guidelines for Landscape and Visual Impact Assessment ('GLVIA'). The section then sets out as a minimum that Appraisals should professionally and impartially include the following:

- Assess the proposed development's visibility, using a digital ZTV (Zone of Theoretical Visibility) or through desk and field evaluation depending upon the scale of the development;
- Identify principle public viewpoints in the identified visual envelope and illustrate these views, providing photomontages where there are sensitive receptors;
- Make an assessment of the sensitivity of receptors and the impact of the scheme on them;
- Propose any mitigation, and preferably through photomontage, demonstrate the effect of proposed planting in the initial, intermediate and mature stages;
- Clearly assess and tabulate landscape and visual effects; and
- For all landscape assessment, the Colchester Borough Landscape Character Assessment should be referenced. The relevant character area for the Site should be identified, how the development integrates into the character of the area should be demonstrated, and how it responds to the planning and management guidelines should be described.

3.0 SITE CONTEXT

Site Context

3.1 The Site is located adjacent to the north eastern built edge of Tiptree, approximately 13km to the southwest of Colchester, approximately 15.6km southeast of Braintree and approximately 22km northeast of Chelmsford. The Site location and its immediate context are illustrated on the Location Plan at Appendix A, the Aerial Photograph at Appendix B and on the photographs contained within Appendix C.

3.2 The majority of the settlement of Tiptree extends to the southwest, northwest and southeast of the Site. The southern Site boundary adjoins the rear boundaries of properties along Barbrook Lane and Grove Road, with the exception of the south eastern corner of the Site, which fronts onto, and is accessed via a field gate from Grove Road. The housing which adjoins the southern Site boundary comprises post war medium density housing, with a recently completed housing developments off Wilkin Drive to the southeast of Grove Road.

3.3 To the west of the Site, playing fields adjoin the western Site boundary, with those of Milldene Primary School at the southern part. The northern part of the western Site boundary adjoins the playing fields of Thurstable School, and these extend further to the northwest. Beyond these schools lies residential development at the northern part of Tiptree.

3.4 Immediately to the north of the Site lies a wooded area of designated public open space, while to the east of the Site are agricultural fields which surround Poyston Fruit Farm and its entrance off Grove Road.

3.5 In the wider landscape around the Site are a number of areas of woodland, including two large areas of publically accessible woodland, Pods Wood and Conyfield Wood either side of the B1022 and Layer Wood, which lie to the north and northeast of the Site, respectively. Away from the settlement edges there are large, irregularly shaped arable fields, some with scattered hedgerow trees, but often without hedgerows while others are more densely treed. Smaller areas of woodland are a feature of the landscape to the southeast and south of the settlement. Junction 24 of the A12 dual carriageway lies approximately 4km to the northwest of the Site, accessed near Kelvedon via the B1024.

National Landscape Character

3.6 Natural England has produced profiles for England's National Character Areas ('NCAs'), which divides England into 159 distinct natural areas, defined by a unique combination of landscape, biodiversity,

geodiversity and cultural and economic activity. The Site lies in the far north western corner of the Northern Thames Basin NCA (Area Profile 111). This NCA extends from St Albans, Hertfordshire, in the west along the northern bank of the Thames before sweeping northeast through Colchester to Harwich and Clacton-on-Sea on the Essex coast.

3.7 The Northern Thames Basin NCA occupies an area of varied landform, with a wide plateau divided by river valleys. Soil types also vary, from heavy clay supporting considerable areas of ancient woodland, to areas of glacial sands and gravels with remnant lowland heaths, alluvial soils which are well drained and fertile, and chalk which carry the London Basin Chalk aquifer. There is a greater presence of woodland in Hertfordshire and western parts of Essex, while much of eastern Essex is more open in character. Wood pasture and pollarded veteran trees are also a feature of this character area. Field pattern reflects historical activity, with nationally important enclosure patterns dating to the Romano-British period through to the medieval period, 18th and 19th century enclosures, and 20th century field enlargement. This activity is reflected in the rich archaeology of the area, as well as the settlement patterns. In the areas away from Greater London, there is a medieval pattern of small villages and dispersed farming settlements. Market towns have expanded, as have London suburbs and commuter settlements, and the NCA includes Welwyn Garden City, and the planned town of Basildon.

Essex Landscape Character Assessment

3.8 In 2003 Chris Blandford Associates produced a county-wide Landscape Character Assessment on behalf of Essex County Council. The assessment sub-divides the five NCAs that cover the district into seven Landscape Character Types ('LCT') and then sub-divides these into 35 Landscape Character Areas ('LCA').The Site lies within the *Wooded Hill and Ridge Landscapes* (D) LCT and the *Tiptree Ridge* (D4) LCA.

3.9 The key characteristics of the *Wooded Hill and Ridge Landscapes* LCT include:

- Woodland on hills and ridges extending from Epping Forest to Tiptree;
- Ancient and secondary woodland in wooded commons defined by medieval wood banks;
- Historic parkland, comprising small estates and areas, is a feature;
- Landscape contains ancient, semi-natural woodland and good hedgerows; and

- Settlement pattern is historically scattered and fairly sparse, while modern development has expanded from historic market towns.

3.10 The character assessment identifies the key characteristics of the *Tiptree Ridge* LCA as follows:

- Broad, elevated ridge, which is strongly wooded on the western side;
- Field pattern is small to medium scale;
- Strong landscape structure, providing a well enclosed character, of many tall, thick hedgerows and woodland, but former heathland and wood pasture has been largely lost;
- Views are framed over the Blackwater Valley and its coastal farmlands where gaps in hedgerows allow; and
- Settlement pattern is dispersed, with isolated farmsteads to the west, while to the east there is a mix of small and large villages, hamlets, small farmsteads, cottages and modern houses.

3.11 The assessment considers the landscape condition of the farmland hedgerows to be moderate to good, with localised fragmentation, while out of character, poor quality development is found around Tiptree and in the small settlements to the southwest.

3.12 The assessment makes a series of judgements as to the sensitivity of the LCA to a variety of different types or scales of development or change. The proposed development at the Site most closely resembles number 1 – Major urban extensions (>5ha), to which the assessment considers the landscape sensitivity level to be high. The methodology defines high landscape sensitivity as, being '*... very sensitive to this type or scale of development due to the potential for very adverse impacts on:*

- *Distinctive physical and cultural components or key characteristics;*
- *Strength of character/condition of the landscape'*
- *AONB landscape;*
- *Landscape of high intervisibility/visual exposure; and*
- *Tranquil area.*

With very limited opportunities for mitigation.'

3.13 The definition of landscape sensitivity goes on to state that sites of this size are unlikely to be capable of absorbing the impacts of development

and other change, and consequently there would be a presumption against development unless there is an over-riding need.

3.14 In relation to *Tiptree Ridge* LCA, the key landscape sensitivity and accommodation of change issues identified in the Character Assessment are:

- *Integrity of woodlands, hedgerow field pattern;*
- *Visual exposure of some ridgesides;* and
- *Small areas of tranquillity in the west.*

3.15 Our assessment of the wider landscape in the vicinity of Tiptree broadly concurs with this description, however there are substantial differences between the Site and the wider landscape. The Site is separated from the wider landscape, and contained by its boundaries. Adjoining the Site's northern boundary is a wooded area of publically owned open space, with Pods Wood and Conyfield Wood to its north. To the west are the playing fields of Milldene Primary School and Thurstable School, to the east are strongly wooded boundaries, while to the south is the north eastern built edge of Tiptree. Edge of settlement land uses of horse grazing and other small livestock predominate at the Site, and lines of post mounted overhead cables which cross the Site north to south and east to west are detracting features. As a result of this containment and its location, despite the Site falling into the Major extensions category, in this instance, we would not consider the Site to be of high sensitivity.

Colchester Borough Landscape Character Assessment

3.16 The Colchester Borough Landscape Character Assessment ('CBLCA'), November 2005 was undertaken by Chris Blandford Associates on behalf of Colchester Borough Council as part of the documentation for the current Local Plan evidence base.

3.17 The CBLCA identifies seven landscape character types in the district. The Site lies within the *F - Wooded Farmland Landscape Character Type* ('LCT') and on the northern side of the *F2 Tiptree Wooded Farmland Landscape Character Area* ('LCA').

3.18 The document sets out the relevant key characteristics of *Wooded Farmland LCT* (LCT A):

- *'Elevated broad ridge landform (part of SW-NE aligned ridge);*
- *Mixture of arable and pasture farmland;*

- *Several nucleated settlements, with a clustered settlement pattern;*
- *Well wooded with woodland blocks (including areas of ancient and semi-natural woodland); copses and hedges;*
- *Framed views of the Blackwater Valley through gaps in hedgerows;* and
- *Enclosed character in places.'*

3.19 The relevant key characteristics of *F2 Tiptree Wooded Farmland LCA* according to the document are as follows:

- LCA lies to the east of a broad ridge which extends to the west into Braintree District;
- Small patches of mixed woodland are a strong feature, giving an overall wooded feel;
- LCA influenced by the nucleated settlement of Tiptree, and lies to its southern, eastern and western edges, and there are farmsteads scattered through the wider area;
- Predominantly small-scale field pattern with a mosaic of small to medium-sized, mainly arable fields;
- Tiptree Heath Site of Special Scientific Interest ('SSSI') to the south of the village of Tiptree Heath is an important feature of landscape and conservation interest; and
- On the fringes of Tiptree, human influence is evident in the land-uses, such as orchards and the associated Tiptree preserves factory and the sewage works.

3.20 The visual characteristic identified in the report and of relevance to the Site and this assessment is the restricted views to the north as a result of large areas of woodland (Pods Wood and Layer Wood within F1 - Messing Wooded Farmland LCA which adjoins F2 - Tiptree Wooded Farmland LCA).

3.21 The landscape strategy objective of this LCA is to 'conserve and enhance'.

3.22 The landscape planning guidelines for the LCA of relevance to the Site and this assessment include:

- To conserve and enhance the landscape setting of Tiptree and Tiptree Heath; and

- To ensure that the historic settlement pattern of the villages is respected, with appropriate new development to be well integrated into the surrounding landscape using vernacular materials.

3.23 The land management guideline for the LCA which is of relevance to the Site and this assessment is to conserve and restore the existing hedgerow network.

3.24 Our assessment of the landscape in the vicinity of Tiptree broadly concurs with the above characterisation. The Site itself consists of a number of small fields, mainly used for horse grazing and the rearing of small livestock, adjoining the edge of the settlement, and is well contained by woodland and well treed boundaries to the north and east and by the settlement to the west and south. The high degree of physical containment provided by its boundaries, its land uses and its small scale fields set it apart from the adjacent landscape in the wider area, where the fields are generally larger and mainly in arable production. In addition, the post mounted cables are detracting features.

Landscape Capacity of Settlement Fringes in Colchester Borough

3.25 The Landscape Capacity of Settlement Fringes in Colchester Borough, August 2005 was undertaken by Chris Blandford Associates on behalf of Colchester Borough Council as part of the documents for the current Local Plan evidence base. The assessment divided the areas around Colchester into Landscape Setting Areas, and assessed their capacity for development based on landscape sensitivity and landscape value. Landscape sensitivity was considered in relation to its inherent sensitivity as a resource, and included its intrinsic landscape qualities, the contribution it makes to the distinctive settlement setting and the visual characteristics, including visual prominence and intervisibility. The report defined the areas with the greatest capacity and therefore potential to accommodate development as those with low sensitivity and low landscape value.

3.26 The Site lies within Landscape Setting Area 1 on the *Tiptree Fringes,* which is on the north eastern side of Tiptree and is shown on Figure 10 of the report. The analysis of Landscape Setting Area 1 sets out the characteristics of the Landscape Setting Area as follows:

- Relatively steeply sloping topography which stretches towards a broad ridge to the northwest of Tiptree;

- Fields range from small to large, containing intact boundaries;

- Views are limited by the woodland in the area, including the larger Pod's Wood, which is a designated SINC and which creates a distinctive wooded backdrop to the Setting Area, and smaller woodland including Ransome's Grove;

- Sports grounds and playing fields are a feature of the Setting Area off Maypole Road; and

- Generally green settlement edges.

3.27 The Site forms a small part of the larger Setting Area which stretches from the north eastern edge of Tiptree beyond Pod's Wood. 'Visually significant trees and woodland' are shown on Figure 10, and these include trees along the field boundaries within the interior and along the majority of the northern boundary of the Site. In addition, immediately to the west of the Site a key view towards the sports grounds from Barbrook Lane is shown on Figure 10. The report summarises its findings in a table which classifies each setting area according to a set of criteria. Landscape Setting Area 1 is considered to have 'limited' landscape capacity, which is based on its 'many' intrinsic landscape qualities and its 'very important' contribution to the distinctive settlement setting. The report considers the Setting Area to have moderate visual prominence and intervisibility, on account of the woodland to the north and northeast of the area, high landscape sensitivity and landscape value.

3.28 In our assessment, although we would concur with the assessment of the wider area, the vegetation adjoining the Site's northern and north eastern boundaries provide containment of the Site and are identified in the Capacity Study as being visually important. The Site forms a small component of the wider Setting Area, and it's location adjoining the settlement to the south and west reduces its sensitivity. In addition, the woodland to its north separates it from the wider landscape, thus reducing its contribution to the settlement setting and its visibility.

Statutory and Non-Statutory Designations

3.29 The Multi Agency Geographic Information for the Countryside Map ('MAGIC') and the adopted Colchester Borough Council Proposals Map (2010) shows that the Site is not covered by any statutory or non-statutory designations for landscape character or quality.

3.30 There are no ecologically or other designated areas adjacent to the Site. Areas of Ancient Woodland are located in the wider area around the Site, including Ransome's Grove, which is just over 0.5km to the east, and part of Pods Wood and Conyfield Wood, and Layer Wood which are located to the north and northeast of the Site between 0.65km and 2.5km. Other blocks of Ancient Woodland are found in the wider area.

Pod's Wood is also a designated Site of Important Nature Conservation ('SINC'), which is a local designation. The Tiptree Parish Field Local Nature Reserve ('LNR') lies to the southeast between 1.5km and 2km of the Site. Please refer to MAGIC Map and Heritage Plan in Appendix D.

Scheduled Monuments and Listed Buildings

3.31 There are no designated heritage assets located within the Site, or on the boundaries of the Site. The closest listed buildings to the Site, all of which are Grade II Listed, lie along Maypole Road, and are separated from the Site by intervening built development. Further listed buildings are located to the northwest, northeast, east and south between 1km and 1.5km of the Site. There is one Scheduled Monument located between 1km and 1.5km of the Site to the northeast.

3.32 Due to the built form of the village and the woodland and trees along the field boundaries, there is no intervisibility between these heritage assets and the Site. Please refer to Appendix D for further details.

Public Rights of Way

3.33 There are no public footpaths which run through or along the boundaries of the Site.

3.34 The closest public footpath, PROW 150_12 lies to the east of the Site, and connects Grove Road to Ransome's Grove and a wider network of public footpaths to the north of the Site which link Pods Wood to B1022 (Colchester Road) and Haynes Green Road.

3.35 There are other public footpaths and bridleways which extend through the landscape in the vicinity of the Site, however views from them are not available due to woodland or intervening landform or built form.

Tree Preservation Orders

3.36 There are no trees on the boundaries or within the Site which are covered by Tree Preservation Orders ('TPOs').

4.0 SITE DESCRIPTION AND VISIBILITY

Site Description

4.1 The Site occupies a series connected semi-improved grassland fields containing some sheds and small stables, with a stream along the northern boundary, a ditch on a roughly east-west alignment through the centre of the Site and a residential property which fronts onto Barbrook Lane. For clarity, these are referred to as Areas A to E (as shown on the Aerial Photograph at Appendix B).

4.2 Area A comprises a square grassland field which is periodically mown, with post mounted overhead cables which roughly cross through the centre of the Area. It is bound to the west by a 1.5m wire mesh fence which adjoins the sports fields of Thurstable School. There is a dense tree belt which meets the southern edge of the western boundary. A wooded area of public open space lies along the northern boundary of the Area, separated by a stream. An area of scrub has encroached into the north eastern corner of the Area, while a dense line of trees marks the eastern boundary, with an open field entrance into Area C at the south eastern corner. A ditch with some willow trees and other shrubs defines the southern boundary which adjoins Area B and runs through the width of the Site.

4.3 Area B comprises a rough square grassland field which is periodically mown, with an extension at the south eastern corner to include the bungalow at no. 97 Barbrook Lane. This property consists of a bungalow and large outbuilding which reaches into the field, along with a small greenhouse, a shed and some fruit trees. Marking the boundary on Barbrook Lane is a low brick wall with metal railings and a pair of metal gates, with the wall extending from the road to the north eastern corner of the house. A 1.8m closeboard fence defines the western side of the property and reaches northwards to meet the northern boundaries of the neighbouring properties. These boundaries which define the rest of the southern boundary of the Area comprise a mix of domestic hedges and fences, with some trees. The rest of the eastern boundary of the Area, which is shared with Area D is marked by post and wire fencing and an intermittent line of trees.

4.4 Area C is a large wedge-shaped grassland field, with a polytunnel in the north western corner, and a strip of land along the eastern part of the southern boundary separated from the rest by a post and wire fence and trees. There are also a number of trees within this strip of land. The stream, which runs along the northern Site boundary, continues along the northern boundary of Area C as it curves towards the south, with the wooded public open space providing a well treed northern edge to the

Area. The southern boundary is defined by the ditch which continues from the west, becoming more treed along this part of the boundary. The ditch has been culverted at the field entrances at Areas A, B, C and D.

4.5 Area D comprises a number of fields of grassland separated by timber posts and wires, some with electric fencing. A number of small timber stables are located in the fields, and the westernmost side is more intensively worked with a greenhouse, shed, vegetables and fruit trees. The Area is roughly square in shape, with the eastern part of the southern boundary indented by two properties off Grove Road. This boundary is marked by domestic hedges, some trees and low fencing. The eastern boundary is defined by a post and wire fence and a dense outgrown hedgerow.

4.6 Area E is a roughly rectangular field which contains among other things, a number of sheds, a caravan, fenced areas for small livestock and an above ground swimming pool. The western boundary is marked with a densely planted outgrown hedgerow with trees on the western boundary, while to the north the boundary consists of a tree-lined ditch, with a post and wire fence. A stock fence continues along the eastern boundary which is planted with some trees towards the north eastern corner. The southern boundary contains a field gate, and to the east is defined by a large Oak tree and an outgrown hedgerow. To the west of the gate, the boundary is unmarked.

Topography

4.7 The Site lies on an area of land which gently rises from the east to the west, while also rising to the north and south from the ditch through the centre of the Site. The low point of the Site is at the north eastern corner of Area E along the ditch at around 42.5m Above Ordnance Datum ('AOD'), with the land rising along the ditch to approximately 51 m AOD at the western boundary. From the south eastern edge of the Site at approximately 47m AOD, the land rises to approximately 53m AOD at the south western corner of the Site, reaching approximately 52m AOD at the north western corner.

4.8 The land beyond the Site continues to follow this pattern of gentle undulation, falling gradually to the southeast and rising to the northwest to a clear ridge beyond the north western edge of Tiptree. A spot height of 72m AOD marks the high point, which falls to the further to the northwest and southeast, to between 20m and 35m AOD respectively along the watercourses.

Visibility

4.9 An assessment of the visibility of the Site was undertaken and a series of photographs taken from public vantage points, rights of way and public highways. The assessment was undertaken in May, when the vegetation at the Site was in leaf. The viewpoints are illustrated on the Location Plan and Aerial Photograph contained in Appendices A and B and on the photographs in Appendix C.

4.10 From our assessment, it is apparent that the interior of the Site is largely screened from view from public vantage points. The Site lies behind existing properties on Barbrook Lane and Grove Road, with limited views into the Site from these roads. To the west the school premises screen the Site, while the well wooded northern and north eastern boundary screens it from the east and northeast. There are no views from the wider landscape to the south, southeast and northwest, as a result of existing development, and the well wooded wider area, and the slight undulation in the landform prevents views from the east. The key views of the Site are described in the tables contained in Appendix F and are summarised below.

Near Distance Views

4.11 There are limited views into the interior of the site from Barbrook Lane and Grove Road to the south of the Site. From Barbrook Lane, there is a narrow view through the field access to the east of no. 97, mainly filtered by trees within the Site (Photographs 22, 23 and 24). Close to the south eastern corner of the Site, there is a view into the south eastern field from Grove Road, but views further into the Site are limited by trees along the central ditch (Photographs 18, 20 and 21). From each of these roads, some of the trees within the Site can be seen over and between the rooftops of the properties along the southern Site boundary.

4.12 There is a very limited and indistinct view from public footpath PROW 150_12 to the east of the Site, to the south of Ransome's Grove (Photograph 26). For the rest of the footpath, views are prevented by intervening buildings and vegetation.

4.13 There are views of the Site from the schools which adjoin the western Site boundary. From Milldene Primary School, there are filtered views from some of the windows which face the Site and from the playground (Photographs 03, 04 and 06). From Thurstable School, the buildings are set approximately 260m to the west of the Site, and while there are some filtered views from it, the southern playing fields lie adjacent to the western Site boundary, where views into Area A at the northwest are possible, as the fence along this boundary is largely not vegetated.

Beyond this, views further into the Site from the playing fields would be restricted by the vegetation within the Site (Photographs 03 and 04).

4.14 In relation to residential views, views are possible from the properties which adjoin the southern Site boundary along Barbrook Lane (Photographs 03, 05 and 06) and Grove Road (Photographs 14, 15, 16 and 17). These views are from rear windows, some from ground floors, while others from first floors, partly limited by higher fences and vegetation along their boundaries. There a limited number of properties on Heaton Way, where filtered views are possible from upper floors of properties facing the Site, while most of these views are prevented by the intervening Milldene School building (Photograph 14).

Middle and Longer Distance Views

4.15 There are no middle or longer distance views due to the well vegetated area, a slight rise in landform to the east, and rest of the settlement to the south, southeast and northwest.

Landscape Quality, Value and Sensitivity

4.16 The Site does not carry any statutory or non-statutory designations for landscape character or quality. The landscape in the vicinity of the Site has been assessed by a number of landscape studies, including the Essex Landscape Character Assessment, the Colchester Borough Landscape Character Assessment and the Landscape Capacity of Settlement Fringes in Colchester Borough (see Section 3 above).

4.17 The two documents produced by the Borough, broadly identify similar characteristics in the wider area around the Site, although the Landscape Character Assessment finds a smaller-scale field pattern than identified in the Landscape Capacity report. Each identify the distinctive broad ridge to the northwest of Tiptree and mixed woodland as a strong feature in the area, and we broadly concur with these assessments in relation to the landscape to the north and northwest of the Site. The woodland, including the wooded public open space along the northern Site boundary, and the gently rising topography assist in containing the Site to the north and east, while the residential properties and school premises contain it to the south and west respectively. Its character is further separated from that of the wider landscape around Tiptree by its edge of settlement land uses and its small-scale field pattern, while the lines of post mounted overhead cables also detract from the Site's character.

4.18 Figure 10 of the Landscape Capacity report for Landscape Setting Area 1 of the Tiptree Fringes in which the Site is located identifies the 'visually significant trees and woodland' within and on the northern boundary of

the Site, as well as showing the woodland in the wider Setting Area. Also included in Figure 10 is a key view from Barbrook Lane to the playing fields of the primary and the secondary school, which are marked as 'key open space'. The Milldene School buildings and the trees on its frontage prevent much of the view from the lane to these playing fields, although the trees in the public open space to the north of the Site, and some trees on the Site boundary can be seen between the rooftops from the lane.

4.19 The Site benefits from a framework of well-established trees within the interior and along some of its boundaries which contribute to the general tree cover in the area, and which assist in separating the Site from the wider landscape. The Arboricultural Impact Assessment which accompanies this application identifies an English Oak tree adjacent to the current access into Area E, and two tree groups as of high quality (Category A). One of these tree groups, which comprises English Oak and Hornbeam with a Blackthorn understorey, lies between Areas A and C within the Site, while the other group is identified as the off Site group along the north eastern boundary. In addition, there are several moderate quality (Category B) trees and tree groups, predominantly on the boundaries of the Site, both internally and on the perimeter, some poorer quality trees and a small number of trees which are recommended for removal. Overall the trees and hedgerows considerably add to the general arboricultural resource and landscape character of the Site and the wider landscape, and they are assessed as being of medium to high quality and sensitivity. The Site itself is generally pleasant, but with some detracting features including a number of post mounted overhead cables, as well as edge of settlement land uses, and is assessed as being at the lower end of medium landscape quality.

4.20 Landscape sensitivity is judged according to the type and scale of development proposed, and the ability of the landscape as a resource to accommodate this development. The Site is very well contained by its vegetated boundaries to the north and northeast and by existing built development to the west and south. The Site has an edge of settlement character, with many of the southern fields used as horse paddocks or for small livestock rearing, while others contain small greenhouses and vegetable plots. Development at the Site would inevitably change its character, however given the adjoining existing development, the containment afforded by its boundaries, and its edge of settlement character, residential development would not be atypical or discordant in this context. The Site is therefore assessed as being of medium/low landscape sensitivity.

4.21 For the reasons set out above, given the Site's containment and its consequent lack of visibility, and its relatively small scale in comparison to the size of the settlement of Tiptree, we do not accept the assessment of high landscape sensitivity which is applied to all sites over 5 hectares in the Essex Landscape Character Assessment. Similarly, while we concur with the Capacity Study that the wider landscape around the Site has limited landscape capacity, the visually significant vegetation identified in the report and the containment discussed above, set the Site apart from the wider landscape.

4.22 In relation to landscape value, the Site does not carry any statutory or non-statutory designation for landscape quality or character. The Site is not publicly accessible, nor are there any heritage assets within, or on the boundaries of the Site, and given its proximity to the settlement, it could not reasonably be considered wild or tranquil. The Site is not known to have any particular archaeological, historical or cultural significance. Accordingly, we assess it as being of medium landscape value. It does not constitute a 'valued' landscape under paragraph 170 of the Revised NPPF 2018, as it is not statutorily designated, nor is it identified in the development plan as a 'valued' landscape.

4.23 The adjoining townscape in proximity to the Site is characterised by mainly later 20th and early 21st century residential housing, with later 20th century school premises adjoining the western Site boundary. It is generally pleasant, but undistinguished and is considered to be of medium townscape quality and sensitivity.

4.24 The wider landscape around the village is pleasant countryside, comprising mainly arable farmland with well-defined field boundaries marked by hedgerows and hedgerow trees, and punctuated by woodland of varying sizes. It is assessed as being of medium landscape quality and sensitivity.

5.0 SUITABILITY OF THE SITE TO ACCOMMODATE DEVELOPMENT

5.1 The following section assesses the ability of the Site to accommodate the proposed development with associated infrastructure, and then considers potential impacts on the character of the landscape and visual amenity.

5.2 The proposals, which are in outline, are for a residential development of up to 200 new dwellings, 0.6ha of school safeguarded land, associated infrastructure and areas of public open space. The new housing will be predominately two storeys in height, with 1.5 storeys, or the equivalent along the majority of the southern Site boundary. The findings of this assessment have informed the preparation of a Development Framework Plan (Appendix E), and the landscape principles which are included are as follows:

- Existing high and moderate quality trees to be retained and managed on all boundaries and within the Site where possible, to maintain the well treed character of the Site and integrate it into the wider wooded landscape;
- Vehicular access to be gained off Barbrook Lane, with pedestrian access off Grove Road at the south eastern corner of the development;
- New housing adjoining the southern Site boundary, to be limited to a maximum of 1.5 storeys in height to complement the height and style of the housing along Barbrook Lane and Grove Road and to respect their residential amenity;
- New housing in the south eastern parcel (Area E) to be set back from Grove Road to follow the existing building line, with public open space and new tree planting at the south eastern corner of the development;
- An area for potential future educational use to be reserved at the south western edge of the development (western side of Area B);
- Green corridor, with housing set back from it, to be maintained through the development along the central route of the current ditch, with new tree planting to add to the well treed character of the Site and the wider area;
- New public open space roughly in the centre of the development adjoining the green corridor with an area for children's play. New tree planting within this area, some orchard

trees retained making reference to the cultural heritage of Tiptree;

- New public open space with tree planting along the northern boundary, with the housing set back from it provide a publicly accessible route along the stream close to the Parish Council owned public open space;

- New access to the Parish owned open space adjoining the northern boundary, with a small carpark (for up to 10 cars) to be provided;

- Pedestrian access through the development creating circular walks and allowing access for existing and new residents to public open space within the Site and the wooded open space north of the Site from footways on Barbrook Lane and Grove Road;

- Ecological enhancements and new habitats created through the development including new tree planting, grassland meadows and new wildlife ponds on the eastern side of the Site;

- Further provision within the development for informal children's play within the areas of public open space;

- Proposals to include a sustainable drainage features ('SuDS') along the northern and north eastern development boundary, with the pedestrian route passing by them to allow them to be enjoyed on walks through the Site.

Relationship to Existing Settlement

5.3 The Site is strongly related to the existing settlement, with residential housing along the southern boundary and two schools adjoining its western boundary. Development at the Site would expand the settlement to the north, however the adjoining wooded Parish Council owned public open space and the well treed north eastern Site boundary provides physical and visual containment to the proposals. To the east, development will extend no further than an existing residential property, and the proposed planting along the eastern boundary would, once established continue the containment afforded by the well treed north eastern boundary. Tree planting within the Site would further add to the tree cover in the area, and assist in assimilating the new development into the northern side of the village.

Impact on Landscape Features

5.4 The landscape features are located on the Site boundaries and within the Site and contribute to the well treed landscape to the northeast of

Tiptree. The Development Framework Plan shows how the Site can be developed while retaining the vast majority of the trees and hedgerows. New tree planting is proposed within the public open space, including along the central green corridor, on the boundaries of the development which adjoin the existing residential properties and school premises and along the eastern Site boundary. In addition, a new community orchard is proposed within the public open space.

5.5 The new vehicular access off Barbrook Lane will not result in the loss of any significant vegetation, with losses restricted predominantly to poorer quality trees and hedges, although one moderate quality tree will be lost as a result of the new housing. The vehicular access through the interior of the Site will result in the loss of some trees and the trees close to the southern boundary of Area C be lost to new housing, however these losses have been kept to a minimum, and the vast majority of the losses will be Category C (poor quality) trees and hedgerows. The loss of higher quality trees has been largely avoided in these areas. In addition, any losses will be more than compensated for by new tree planting, and consequently, the development and the wider area will benefit from a net increase in tree cover.

Impact on Heritage Assets

5.6 There are no heritage assets which will be directly or indirectly affected by the development as indicated by the Archaeology and Built Heritage Assessment which accompanies this application.

Public Rights of Way

5.7 There are no public footpaths which are directly affected by the proposals.

5.8 The Development Framework Plan shows the potential for new pedestrian routes around the development which would link the public open space to the footways on Barbrook Lane and Grove Road.

Visual Impact and Effects

5.9 The visual appraisal in Section 4 identified that the Site is very well contained. It adjoins built development on its southern and western boundaries, and it is contained by woodland and a dense line of trees along its northern and north eastern boundaries respectively. To the east, views are limited by the general tree cover on the area and slight undulation in the landform. A summary of the impact of the proposals on the key views of the Site is contained in Appendix F and these are discussed briefly below.

Visual Effects from Public Vantage Points

5.10 There will be partial and glimpsed views of the development between the rooftops of the existing housing along Barbrook Lane and Grove Road. By limiting the height of the new housing to 1.5 storeys along the southern development boundary the effect on these views will be minimised. Limited opportunities for views into the interior of the development will be possible from the entrance off Barbrook Lane and through the pedestrian access off Grove Road. New tree planting at the entrance off Barbrook Lane will filter these views in due course, while the tree planting within the public open space off Grove Road and setting the housing back to the existing building line will assist in reducing views from these roads. In all these views, the new development will be seen in the context of the existing built form.

5.11 From public footpath PROW 150_12 to the east, a very narrow view of a small section of the development will be possible from south of Ransome's Grove, however this will not be particularly noticeable or prominent. New tree planting within the public open space at the north eastern edge of the development will further add to the filtered view.

Visual Effects from existing development

5.12 In relation to residential views, the new housing development will be visible from rear ground and first floor windows of the majority of the adjoining properties on the southern Site boundary, with views becoming filtered as the proposed planting matures. Restricting the height of the new adjoining housing to 1.5 storeys and respecting the usual privacy distances will assist in partly mitigating the impact on these views. Views from the properties adjoining the south western corner of the development will comprise the educational safeguarded land, with the new housing beyond this seen through the central landscape corridor. Some oblique views of the new housing to the east and northeast will be possible form these properties. These views will become filtered in due course as the new planting along the southern development boundary establishes.

5.13 Views from the properties on the southern side of Barbrook Lane and Grove Road will be of the new housing seen between the rooftops of the existing properties on the northern side, and therefore will be perceived as an extension of the existing built form to their north. As the planting along the southern Site boundary establishes, these views will become filtered. Partial views of the new housing and of the green corridor through the centre of the Site, with some filtered views of housing further to the east will be possible from a limited number of properties on the eastern side of Heaton Way. As the new planting

matures along the western boundary and along the green corridor, these views will become filtered.

5.14 There will be views of the new housing on the western side of the development from the windows of the school buildings which face the Site and from the playground of Milldene Primary School and the sport fields of Thurstable School. As the new planting along the western boundary establishes these views will become filtered.

5.15 In summary, as a result of the well contained nature of the Site, views are limited to the near vicinity of the Site and from public vantage points views are assessed as no greater than negligible once the proposed new planting has established. From residential properties and the schools, the visual effects are assessed no greater than moderate adverse by year 15, limited to those properties which adjoin the southern Site boundary. These effects are not atypical given that these properties adjoin the development boundary.

Landscape Change and Effects

5.16 As set out in Section 4 the Site is not covered by any statutory designations for landscape character or quality. Overall the Site is assessed as being of medium landscape quality and value, and medium / low landscape sensitivity.

5.17 Development at the Site will result in the loss of a series of interconnected grassland fields on the north eastern urban edge of Tiptree. These would be replaced by residential development, areas of public open space and infrastructure. The development would be strongly related to the settlement edge, being adjoined on the west and south by school premises and residential development respectively. The development would be well contained from the wider landscape by the wooded Parish owned public open space to the north and to the east by the slight undulation in the topography, with a well wooded landscape framework beyond it. Development at this location would therefore have little impact on the landscape character beyond the Site and given the residential uses adjoining the Site, would not be out of character on the north eastern edge of the settlement.

5.18 The Capacity Assessment found that the overall Setting Area in which the Site is located has a limited capacity to accommodate development. The area covered by the Setting Area extends from the north of the settlement edge of Tiptree along New Road to Messing-cum-Inworth, to the southeast of Tiptree at Birch Wood. The Area contains significant stands of woodland at Pod's Wood and Conyfield Wood, and the smaller Ransome's Wood. There are also two wooded

areas immediately to the north of the Site, which meet Pod's Wood, including the area of publically owned woodland adjoining the northern and north eastern Site boundary. In addition, there is a mix of pastoral and arable fields, with some of the vegetation along their boundaries marked as visually significant. The two sports ground associated with the schools occupy a substantial area immediately to the northwest of the Site, and urbanise this part of the Setting Area. While we concur that the wider landscape of the Setting Area does have a low capacity to accommodate development, the Site is capable of accommodating development as indicated on the Development Framework Plan, and for the following reasons.

- Development would be well contained by the mature landscape framework and slight topographical variation to the north and east;
- Development would be strongly related to existing development to the south and west;
- Views of the new housing within the development would be seen in the context of the existing development at the north eastern edge of the settlement; and
- Additional tree planting in areas of public open space will strengthen the already identified visually significant vegetation within the Site.

5.19 The development will inevitably change the character of the Site from edge of settlement grassland to an extension of the village, however the containment of the Site, and its strong relationship to the existing settlement mean that the wider character area will remain largely unaffected by the proposals. In addition, the retention of the well-treed framework of the Site, will provide a level of maturity to the development which will assist in its integration into the wider landscape character.

5.20 Based on the principles of the development set out in Section 5, we consider that the Site can be developed by retaining the majority of the Site's established landscape framework without resulting in significant harm to the landscape and visual character of the surrounding countryside. A summary table detailing the anticipated Landscape Effects can be found in Appendix F.

Compliance with Published Landscape Guidance

5.21 The Colchester Borough Landscape Character Assessment, identified the Site as falling into the F2 Tiptree Wooded Farmland LCA. This assessment provides a set of landscape planning and landscape

management guidelines for this area. The proposals respond in the following ways:

- The proposals respond to the landscape setting, and will not be discordant with the existing development on the edge Tiptree; and
- The majority of the vegetation within the Site will be retained, with new tree planting adding to the Site's landscape features.

6.0 CONCLUSION

6.1 The Site is situated on north eastern edge of Tiptree, in the Borough of Colchester. It comprises a series connected semi-improved grassland fields containing some sheds and small stables, with a stream along the northern boundary, a ditch on a roughly east-west alignment through the centre of the Site and a residential property which fronts onto Barbrook Lane. Barbrook Lane runs alongside the southernmost part of the Site.

6.2 Neither the Site nor the immediate landscape is covered by any statutory or non-statutory designations for landscape character or quality. The Site is strongly related to the north eastern built edge of Tiptree, with mainly modern development adjoining the southern and western Site boundaries. Adjoining the northern Site boundary is a wooded Parish Council owned area of public open space, which contains the Site, while to the east the slight change in topography provides containment. The Site is assessed as being of medium (at the lower end) landscape quality, medium / low landscape sensitivity and medium landscape value.

6.3 The visual assessment found that the Site is well contained by existing development and by the adjoining vegetation, as well as the tree cover and woodland in the wider area. From public vantage points views of the interior of the Site are limited to a narrow access to the east of no. 97 Barbook Lane and a very limited view for a short section of the public footpath to the east of the Site. There are residential views from properties which adjoin the Site's southern boundary and there are partial and some filtered views from the adjoining school premises, including from some buildings and playing fields.

6.4 The Development Framework Plan shows how an appropriate development can be accommodated at the Site which respects the majority of the Site's existing landscape features, providing it with an established landscape framework. New tree planting, on the boundaries and within the public open space will further add to the tree cover within the Site and in the wider area, and in time will filter views from adjoining properties.

6.5 For the reasons set out in this assessment, it is considered that development in accordance with the Development Framework Plan and the principles set out in Section 5, can be accommodated without giving rise to significant adverse landscape / townscape or visual effects.

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Appendix A

Site Location Plan
(Showing middle to long distance photo locations)

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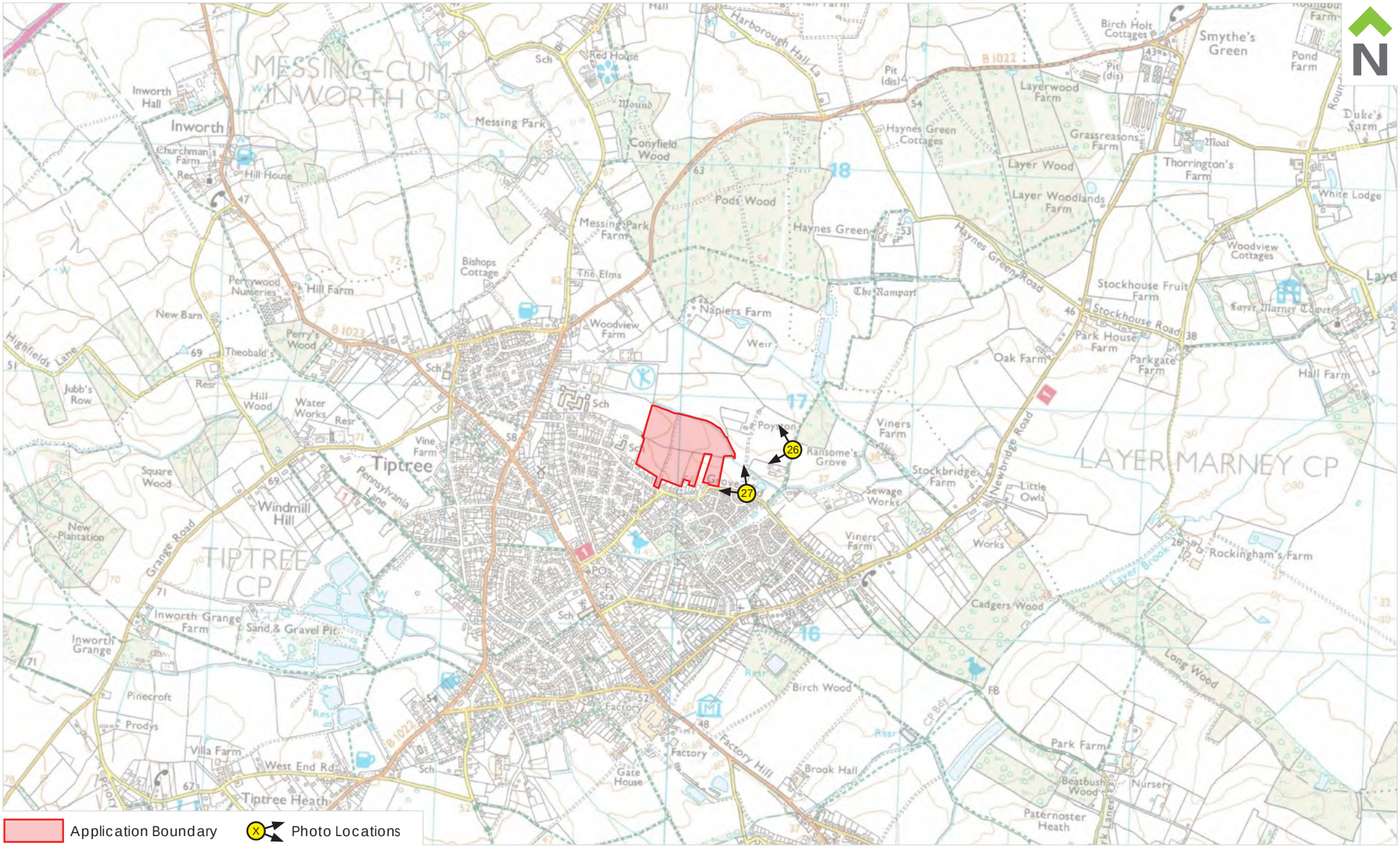

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Project	Land off Barbrook Lane, Tiptree	Date April 2018	Drawing No. CSA/3725/103
Drawing Title	Site Location Plan	Scale @ A4 NTS	Rev A
Client	Gladman Developments Ltd	Drawn JH	Checked JJ

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Appendix B

Aerial Photograph
(Showing near distance photo locations)

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Project	Land off Barbrook Lane, Tiptree	Date April 2018	Drawing No. CSA/3725/104
Drawing Title	Aerial Photograph	Scale @ A4 NTS	Rev A
Client	Gladman Developments Ltd	Drawn JH	Checked JJ

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Appendix C

Photosheets

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View from the north western corner of Area A looking southeast Photograph 01

View from the southern boundary of Area A looking north Photograph 02

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Drawing Title	Photosheets	Date May 2018	
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View from the eastern boundary of Area A looking southwest Photograph 03

View from the eastern boundary of Area A looking northwest Photograph 04

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Properties along Barbrook Lane

View from the north western corner of Area B looking southeast Photograph 05

Properties along Barbrook Lane

View from the north eastern corner of Area B looking southwest Photograph 06

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View from the south western corner of Area B looking northeast Photograph 07

View from the north western corner of Area C looking southeast Photograph 08

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View from the northern boundary of Area C looking southwest Photograph 09

View from the north eastern boundary of Area C looking northwest Photograph 10

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View from the south eastern corner of Area C looking west Photograph 11

Properties along Grove Road

View from within Area C looking southeast Photograph 12

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Drawing Title	Photosheets	Date May 2018	
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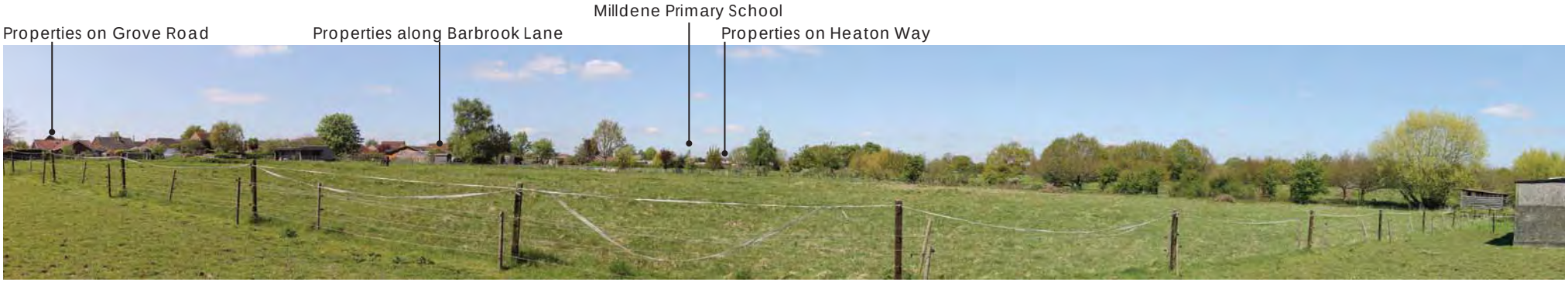
View from within Area C looking northeast Photograph 13



View from within Area D looking west Photograph 14

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Project	Land off Barbrook Lane, Tiptree	Drawing No. CSA/3725/105	Rev A
Drawing Title	Photosheets	Date May 2018	
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View from the north eastern corner of Area D looking southwest Photograph 15

View from the north western corner of Area E looking southeast Photograph 16

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Drawing Title	Photosheets	Date May 2018	
Client	Gladman Developments Ltd	Drawn JH	Checked JJ

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Properties along Grove Road

View from the north eastern corner of Area E looking southwest Photograph 17

View from the southern boundary of Area E looking north Photograph 18

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Project	Land off Barbrook Lane, Tiptree	Drawing No. CSA/3725/105	Rev A
Drawing Title	Photosheets	Date May 2018	
Client	Gladman Developments Ltd	Drawn JH	Checked JJ

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View from the south eastern corner of Area D looking northwest Photograph 19

View from junction of Barbrook Lane and Grove Road looking northwest towards the Site Photograph 20

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Drawing Title	Photosheets	Date May 2018	
Client	Gladman Developments Ltd	Drawn JH	Checked JJ

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View from Grove Road looking northeast towards the Site Photograph 21

View from footway on Barbrook Lane looking northwest Photograph 22

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Project	Land off Barbrook Lane, Tiptree	Drawing No. CSA/3725/105	Rev A
Drawing Title	Photosheets	Date May 2018	
Client	Gladman Developments Ltd	Drawn JH	Checked JJ

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View from Barbrook Lane looking east Photograph 23

View from Barbrook Lane looking north east towards the Site Photograph 24

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Project	Land off Barbrook Lane, Tiptree	Drawing No. CSA/3725/105	Rev A
Drawing Title	Photosheets	Date May 2018	
Client	Gladman Developments Ltd	Drawn JH	Checked JJ

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View from Heaton Way looking east towards the Site Photograph 25

View from public footpath PROW 150_12 looking west towards the Site Photograph 26

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Project	Land off Barbrook Lane, Tiptree	Drawing No. CSA/3725/105	Rev A
Drawing Title	Photosheets	Date May 2018	
Client	Gladman Developments Ltd	Drawn JH	Checked JJ

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Grove Road

View from Grove Road looking west towards the Site Photograph 27

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Project	Land off Barbrook Lane, Tiptree	Drawing No. CSA/3725/105	Rev A
Drawing Title	Photosheets	Date May 2018	
Client	Gladman Developments Ltd	Drawn JH	Checked JJ

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Appendix D

MAGIC map and Heritage Information

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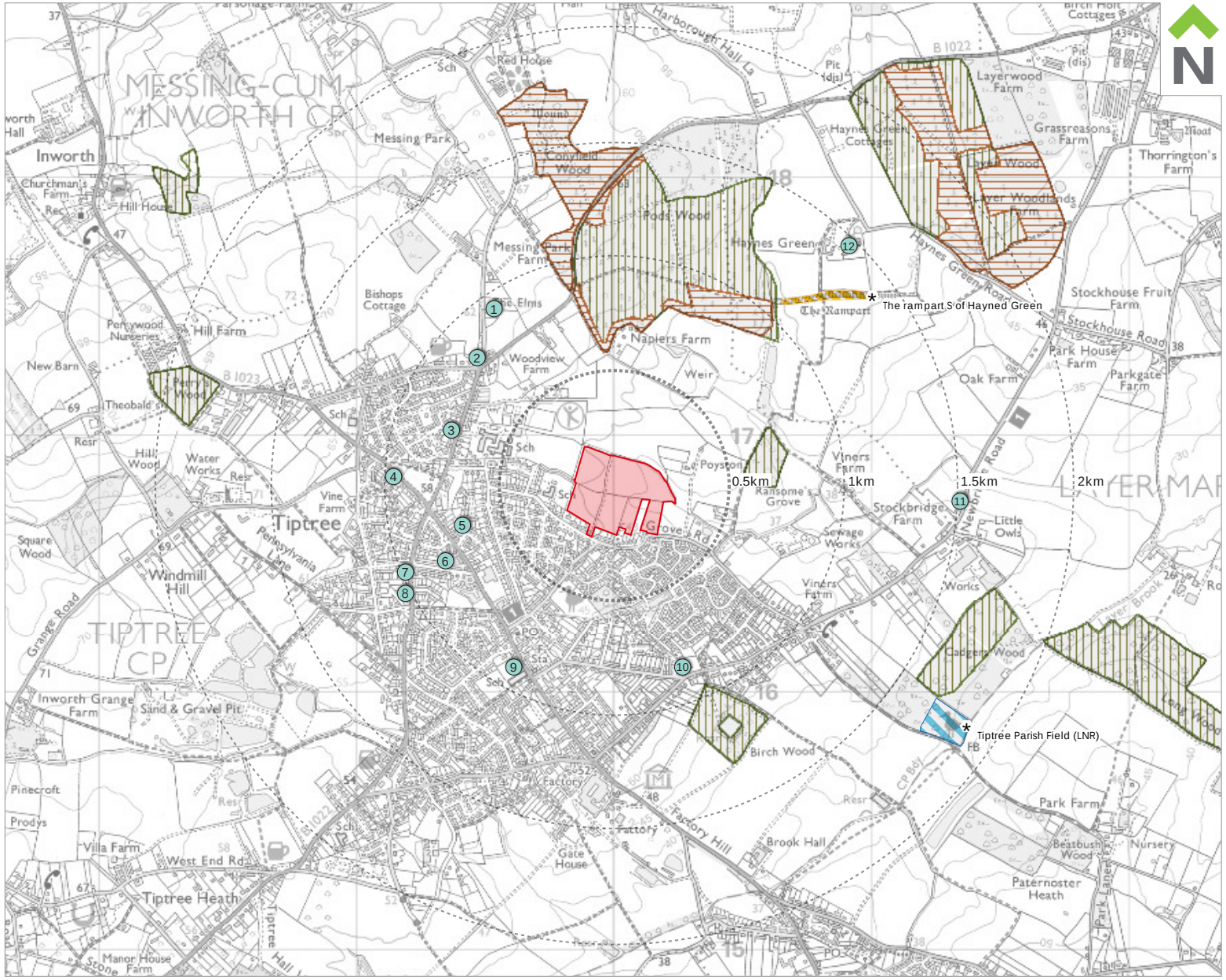

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Project	Land off Barbrook Lane, Tiptree	Date May 2018	Drawing No. CSA/3725/106
Drawing Title	MAGIC Map Extract & Heritage Plan	Scale @ A4 NTS	Rev A
Client	Gladman Developments Ltd	Drawn JH	Checked JJ

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Appendix E

Development Framework Plan

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N

0 50 100 metres

- Site Boundary: **9.79ha**
- Proposed residential area: **5.74ha** **Up to 200 dwellings @ 35 dph**
- Maximum 1.5 storey dwellings to echo the existing properties overlooking the southern boundary
- Land adjacent to Milldene Primary School to be reserved for future educational use: **0.6ha**
- Proposed vehicular access point
- Proposed 3m wide reinforced grass route with bollards creates a loop road for emergency services
- Potential spine street
- Potential secondary streets
- Potential private lanes/driveways
- Potential key spaces - priority given to pedestrians
- Public footpath
- Potential pedestrian linkages
- Potential pedestrian and maintenance access to Parish Council's designated public open space, which is not currently accessible
- Potential recreational routes
- National cycle route (Sustrans)
- Existing facilities
- Existing vegetation to be retained where appropriate
- Existing vegetation to be removed to facilitate development
- Public open space to serve the new development
- Proposed play provision for children and young people
- Existing ditches to be retained
- Proposed sustainable drainage basins (SuDS)
- New wildlife ponds
- Tiptree Parish Council's designated public open space
- Colchester Borough Council's adopted public open space
- Proposed car parking provision (approximately 10 spaces)
- Proposed foul pump station

Rev	Date	By	Description
I	15.10.18	RC	School extension site added
H	17.09.18	RC	Amended to reflect client's comments
G	19.07.18	SE	Amended to reflect client's comments
F	17.07.18	SE	Amended to reflect client's comments

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Project	Land off Barbrook Lane, Tiptree
Title	Development Framework Plan
Client	Gladman Developments Ltd

Scale	1:2500 @ A3	Drawn	SE
Date	April 2018	Checked	RR
Drawing No.	CSA/3725/107	Rev	I

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Appendix F

Methodology and Summary Landscape and Visual Effects

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METHODOLOGY FOR LANDSCAPE AND VISUAL IMPACT ASSESSMENTS

M1 In landscape and visual impact assessment, a distinction is normally drawn between ***landscape/townscape effects*** (i.e. effects on the character or quality of the landscape (or townscape), irrespective of whether there are any views of the landscape, or viewers to see them) and ***visual effects*** (i.e. effects on people's views of the landscape, principally from residential properties, but also from public rights of way and other areas with public access). Thus, a development may have extensive landscape effects but few visual effects (if, for example, there are no properties or public viewpoints nearby), or few landscape effects but substantial visual effects (if, for example, the landscape is already degraded or the development is not out of character with it, but can clearly be seen from many residential properties and/or public areas).

M2 The assessment of landscape & visual effects is less amenable to scientific or statistical analysis than some environmental topics and inherently contains an element of subjectivity. However, the assessment should still be undertaken in a logical, consistent and rigorous manner, based on experience and judgement, and any conclusions should be able to demonstrate a clear rationale. To this end, various guidelines have been published, the most relevant of which (for assessments of the effects of a development, rather than of the character or quality of the landscape itself), form the basis of the assessment and are as follows:

- 'Guidelines for Landscape & Visual Impact Assessment', produced jointly by the Institute of Environmental Assessment and the Landscape Institute (GLVIA 3rd edition 2013); and
- 'An Approach to Landscape Character Assessment', October 2014 (Christine Tudor, Natural England) to which reference is also made. This stresses the need for a holistic assessment of landscape character, including physical, biological and social factors.

LANDSCAPE/TOWNSCAPE EFFECTS

M3 Landscape/townscape quality is a subjective judgement based on the value and significance of a landscape/townscape. It will often be informed by national, regional or local designations made upon it in respect of its quality e.g. AONB. Sensitivity relates to the ability of that landscape/townscape to accommodate change.

Landscape sensitivity can vary with:

(i) existing land use;
(ii) the pattern and scale of the landscape;
(iii) visual enclosure/openness of views, and distribution of visual receptors;
(iv) the scope for mitigation, which would be in character with the existing landscape; and
(v) the value placed on the landscape.

M4 There is a strong inter-relationship between landscape/townscape quality and sensitivity as high quality landscapes/townscapes usually have a low ability to accommodate change.

M5 For the purpose of our assessment, landscape/townscape quality and sensitivity has been combined and is assessed using the criteria in Table LE1. Typically,

landscapes/townscapes which carry a quality designation and which are otherwise attractive or unspoilt will in general be more sensitive, while those which are less attractive or already affected by significant visual detractors and disturbance will be generally less sensitive.

M6 The concept of landscape/townscape value is also considered, in order to avoid consideration only of how scenically attractive an area may be, and thus to avoid undervaluing areas of strong character but little scenic beauty. The value of the landscape is assessed in the LVIA using Table LV1. In the process of making this assessment, the following factors, among others, are considered with relevance to the site in question: landscape quality (condition), scenic quality, rarity, representativeness, conservation interest, recreation value, perceptual aspects and associations.

M7 Nationally valued landscapes are recognised by designation, such as National Parks and Areas of Outstanding Natural Beauty ('AONB') which have particular planning policies applied to them. Nationally valued townscapes are typically those covered by a Conservation Area or similar designation. Paragraph 170 of the Revised NPPF (July 2018) outlines that planning policies and decisions should contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes *'…in a manner commensurate with their statutory status or identified quality in the development plan)'.*

M8 The magnitude of change is the scale, extent and duration of change to a landscape arising from the proposed development and was assessed using the criteria in Table LE2.

M9 Landscape/townscape effects were assessed in terms of the interaction between the magnitude of the change brought about by the development and the quality, value & sensitivity of the landscape resource affected. The landscape/townscape effects can be either beneficial or adverse.

M10 In this way, landscapes of the highest sensitivity and quality, when subjected to a high magnitude of change from the proposed development, are likely to give rise to 'substantial' landscape effects which can be either adverse or beneficial. Conversely, landscapes of low sensitivity and quality, when subjected to a low magnitude of change from the proposed development, are likely to give rise to only 'slight' or neutral landscape effects. Beneficial landscape effects may arise from such things as the creation of new landscape features, changes to management practices and improved public access. For the purpose of this assessment the landscape effects have been judged at completion of the development.

VISUAL EFFECTS

M11 Visual effects are concerned with people's views of the landscape/townscape and the change that will occur. Like landscape effects, viewers or receptors are categorised by their sensitivity. For example, views from private dwellings are generally of a higher sensitivity than those from places of work.

M12 In describing the content of a view the following terms are used:

- No view - no views of the development;
- Glimpse - a fleeting or distant view of the development, often in the context of wider views of the landscape;
- Partial - a clear view of part of the development only;
- Filtered - views to the development which are partially screened, usually by intervening vegetation - the degree of filtering may change with the seasons;
- Open - a clear view to the development.

M13 The sensitivity of the receptor was assessed using the criteria in Table VE1.

M14 The magnitude of change is the degree in which the view(s) may be altered as a result of the proposed development and will generally decrease with distance from its source, until a point is reached where there is no discernible change. The magnitude of change in regard to the views was assessed using the criteria in Table VE2.

M15 Visual effects were then assessed in terms of the interaction between the magnitude of the change brought about by the development and also the sensitivity of the visual receptor affected.

M16 As with landscape effects, a high sensitivity receptor, when subjected to a high magnitude of change from the proposed development, is likely to experience 'substantial' effects which can be either adverse or beneficial. Conversely, receptors of low sensitivity, when subjected to a low magnitude of change from the proposed development, are likely to experience only 'slight' or neutral landscape effects, which can be either beneficial or adverse.

M17 Photographs were taken with a digital camera with a lens that approximates to 50mm, to give a similar depth of view to the human eye. In some cases images have been joined together to form a panorama. The prevailing weather and atmospheric conditions, and any effects on visibility are noted.

M18 Unless specific slab levels of buildings have been specified, the assessment has assumed that slab levels will be within 750mm of existing ground level.

MITIGATION AND RESIDUAL EFFECTS

M19 Mitigation measures are described as those measures, including any process or activity, designed to avoid, reduce and compensate for adverse landscape and/or visual effects of the proposed development.

M20 In situations where proposed mitigation measures are likely to change over time, as with planting to screen a development, it is important to make a distinction between any likely effects that will arise in the short-term and those that will occur in the long-term or 'residual effects' once mitigation measures have established. In this assessment, the visual effects of the development have been considered at completion of the entire project and at 15 years.

M21 Mitigation measures can have a residual, positive impact on the effects arising from a development, whereas the short-term impact may be adverse.

ASSESSMENT OF EFFECTS

M22 The assessment concisely considers and describes the main landscape and visual effects resulting from the proposed development. The narrative text demonstrates the reasoning behind judgements concerning the landscape and visual effects of the proposals. Where appropriate, the text is supported by tables which summarise the sensitivity of the views/landscape, the magnitude of change and describe any resulting effects.

CUMULATIVE EFFECTS

M23 Cumulative effects are *'the additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments, taken together.'*

M24 In carrying out landscape assessment it is for the author to form a judgement on whether or not it is necessary to consider any planned developments and to form a judgement on how these could potentially affect a project.

ZONE OF THEORETICAL VISIBILITY (ZTV)

M25 A ZTV map can help to determine the potential visibility of the site and identify those locations where development at the site is likely to be most visible from the surrounding area. Where a ZTV is considered appropriate for a proposed development the following methodology is used.

M26 The process is in two stages, and for each, a digital terrain model ('DTM') using Key TERRA-FIRMA computer software is produced and mapped onto an OS map. The DTM is based on Ordnance Survey Landform Profile tiles, providing a digital record of existing landform across the UK, based on a 10 metre grid. There is the potential for minor discrepancies between the DTM and the actual landform where there are topographic features that are too small to be picked up by the 10 metre grid. A judgement will be made to determine the extent of the study area based on the specific site and the nature of the proposed change, and the reasons for the choice will be set out in the report. The proposed development is introduced into the model as either a representative spot height, or a series of heights, or a detailed 3D model of the development, and a viewer height of 1.7m is used. This is the first stage, or 'bare earth' ZTV which illustrates the theoretical visibility of a proposed development based on topography alone and does not take account of any landscape features such as buildings, woodland or settlements.

M27 The second stage is to produce a 'with obstructions' ZTV with the same base as the 'bare earth' ZTV, but which gives a more accurate representation of what is 'on the ground'. Different heights are assigned to significant features such as buildings and woodland thus refining the model to aid further analysis. This data is derived from OS Maps and aerial photographs, and verified during the fieldwork, with any significant discrepancies in the data being noted and the map adjusted accordingly. Fieldwork is confined to accessible parts of the site, public rights of way, the highway network and other publically accessible areas.

M28 The model is based on available data and fieldwork and therefore may not take into account all development or woodland throughout the study area, nor the effect of smaller scale planting or hedgerows. It also does not take into account areas of recent or continuous topographic change from, for instance, mining operations.

Table LE 1

LANDSCAPE / TOWNSCAPE QUALITY AND SENSITIVITY

Description of the Landscape/Townscape	Very High	High	Medium	Low
	Landscape Quality: Intact and very attractive landscape which may be nationally recognised/designated for its scenic beauty. e.g. National Park or Area of Outstanding Natural Beauty Townscape Quality: A townscape of very high quality which is unique in its character, and recognised nationally/ internationally, e.g. World Heritage Site Sensitivity: A landscape/townscape with a very low ability to accommodate change because such change would lead to a significant loss of valuable features or elements, resulting in a significant loss of character and quality. Development of the type proposed would be discordant and prominent.	Landscape Quality: A landscape, usually combining varied topography, historic features and few visual detractors. A landscape known and cherished by many people from across the region. e.g. County Landscape Site such as a Special Landscape Area. Townscape Quality: A well designed townscape of high quality with a locally recognised and distinctive character e.g. Conservation Area Sensitivity: A landscape/townscape with limited ability to accommodate change because such change would lead to some loss of valuable features or elements, resulting in a significant loss of character and quality. Development of the type proposed would likely be discordant with the character of the landscape/townscape.	Landscape Quality: Non-designated landscape area, generally pleasant but with no distinctive features, often displaying relatively ordinary characteristics. May have detracting features. Townscape Quality: A typical, pleasant townscape with a coherent urban form but with no distinguishing features or designation for quality. Sensitivity: A landscape/townscape with reasonable ability to accommodate change. Change would lead to a limited loss of some features or elements, resulting in some loss of character and quality. Development of the type proposed would not be especially discordant.	Landscape / Townscape Quality: Unattractive or degraded landscape/townscape, affected by numerous detracting elements e.g. industrial areas, infrastructure routes and un-restored mineral extractions. Sensitivity: A landscape/townscape with good ability to accommodate change. Change would not lead to a significant loss of features or elements, and there would be no significant loss of character or quality. Development of the type proposed would not be discordant with the landscape/ townscape in which it is set.

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Footnote:

1. A distinction has been drawn between landscape/townscape quality and sensitivity. Quality is as a subjective judgement on perception and value of a landscape/townscape and may be informed by national, regional or local designations for its quality. Sensitivity relates to the ability of that landscape/townscape to accommodate change.

Table LE 2 LANDSCAPE / TOWNSCAPE MAGNITUDE OF CHANGE

Description of the Change predicted	High	Medium	Low	Negligible	Neutral
	Total loss of or severe damage to key characteristics, features or elements	Partial loss of or damage to key characteristics, features or elements	Minor loss of or alteration to one or more key landscape/ townscape characteristics, features or elements	Very minor loss or alteration to one or more key landscape/townscape characteristics, features or elements	No loss or alteration of key landscape/ townscape characteristics, features or elements

Table LE 3 LANDSCAPE / TOWNSCAPE EFFECTS

Description of the Effect	Substantial	Moderate	Slight	Neutral
	The proposals are damaging to the landscape/townscape in that they: • are at variance with the landform, scale and pattern of the landscape/ townscape; • are visually intrusive and would disrupt important views; • are likely to degrade or diminish the integrity of a range of characteristic features and elements and their setting; • will be damaging to a high quality or highly vulnerable landscape/ townscape; • cannot be adequately mitigated.	The proposals are: • out of scale or at odds with the landscape; • are visually intrusive and will adversely impact on the landscape/townscape; • not possible to fully mitigate; • will have an adverse impact on a landscape/townscape of recognised quality or on vulnerable and important characteristic features or elements.	The proposals: • do not quite fit the landform and scale of the landscape/ townscape; • will impact on certain views into and across the area; • cannot be completely mitigated because of the nature of the proposal or the character of the landscape/townscape; • affect an area of recognised landscape/townscape quality.	The proposals: • complement the scale, landform and pattern of the landscape/townscape; • incorporate measures for mitigation to ensure that the scheme will blend in well with the surrounding landscape/ townscape; • avoid being visually intrusive and adversely effecting the landscape/ townscape; • maintain or improve existing landscape/townscape character.

Footnote:
1. Each level (other than neutral) of change identified can be either regarded as 'beneficial' or 'adverse'.

Table LV 1 LANDSCAPE VALUE

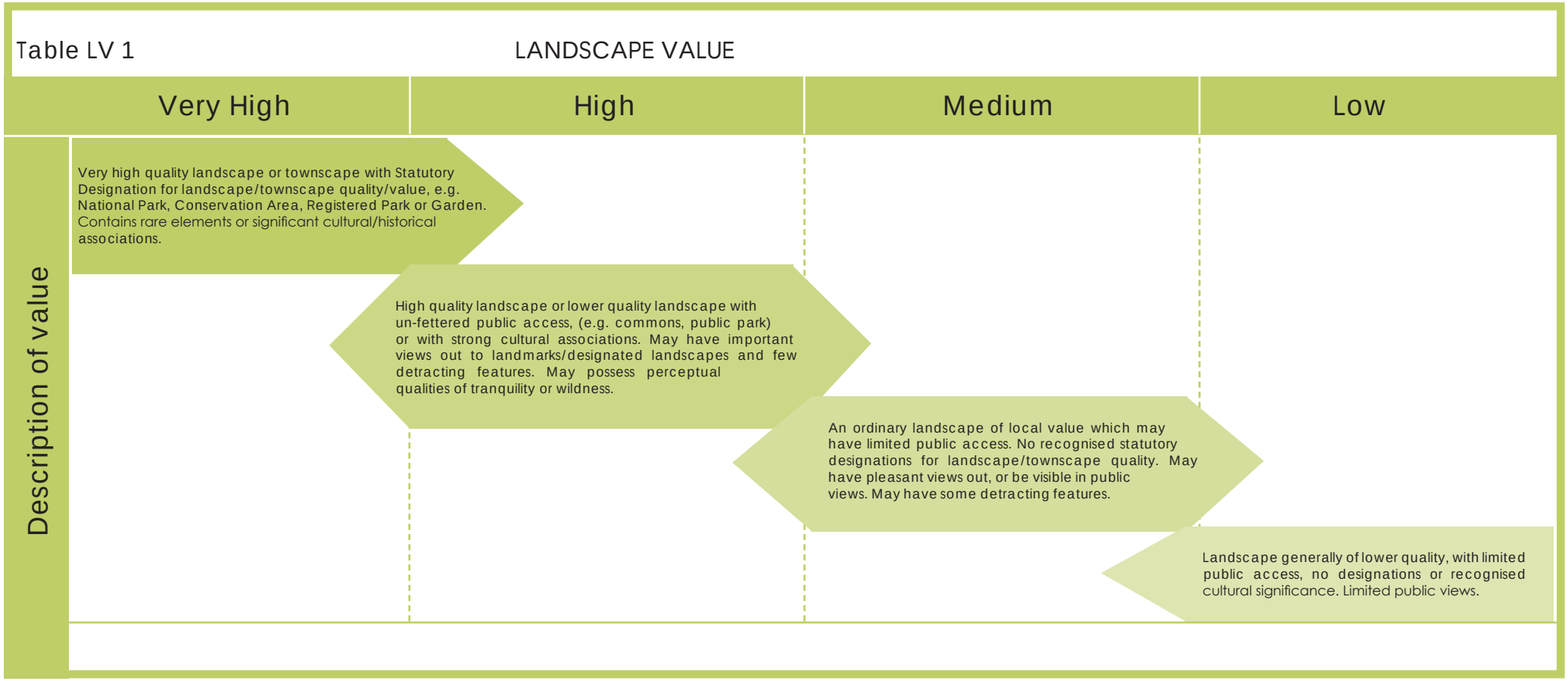

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Table VE 1

VISUAL SENSITIVITY

Description of the Receptor	High	Medium	Low
	Residential properties with predominantly open views from windows, garden or curtilage. Views will normally be from ground and first floors and from two or more windows of rooms in use during the day. Users of Public Rights of Way in sensitive or generally unspoilt areas. Predominantly non-motorised users of minor or unclassified roads in the countryside. Visitors to recognised viewpoints or beauty spots. Users of outdoor recreational facilities with predominantly open views where the purpose of that recreation is enjoyment of the countryside - e.g. Country Parks, National Trust or other access land etc.	Residential properties with partial views from windows, garden or curtilage. Views will normally be from first floor windows only, or an oblique view from one ground floor window, or may be partially obscured by garden or other intervening vegetation. Users of Public Rights of Way in less sensitive areas or where there are significant existing intrusive features. Users of outdoor recreational facilities with restricted views or where the purpose of that recreation is incidental to the view e.g. sports fields. Schools and other institutional buildings, and their outdoor areas. Users of minor or unclassified roads in the countryside, whether motorised or not.	People in their place of work. Users of main roads or passengers in public transport on main routes. Users of outdoor recreational facilities with restricted views and where the purpose of that recreation is unrelated to the view e.g. go-karting track.

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Table VE 2 VISUAL MAGNITUDE OF CHANGE

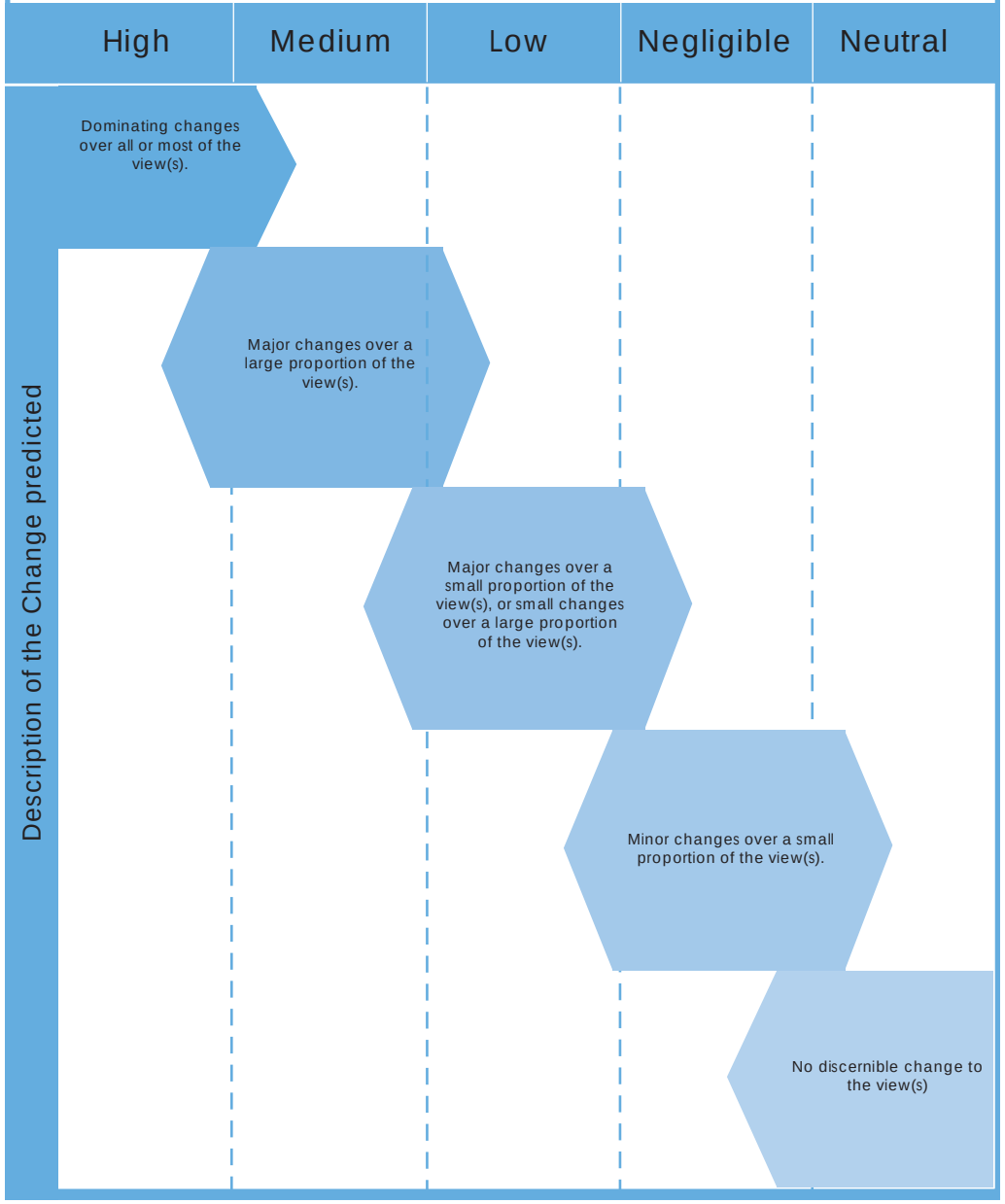
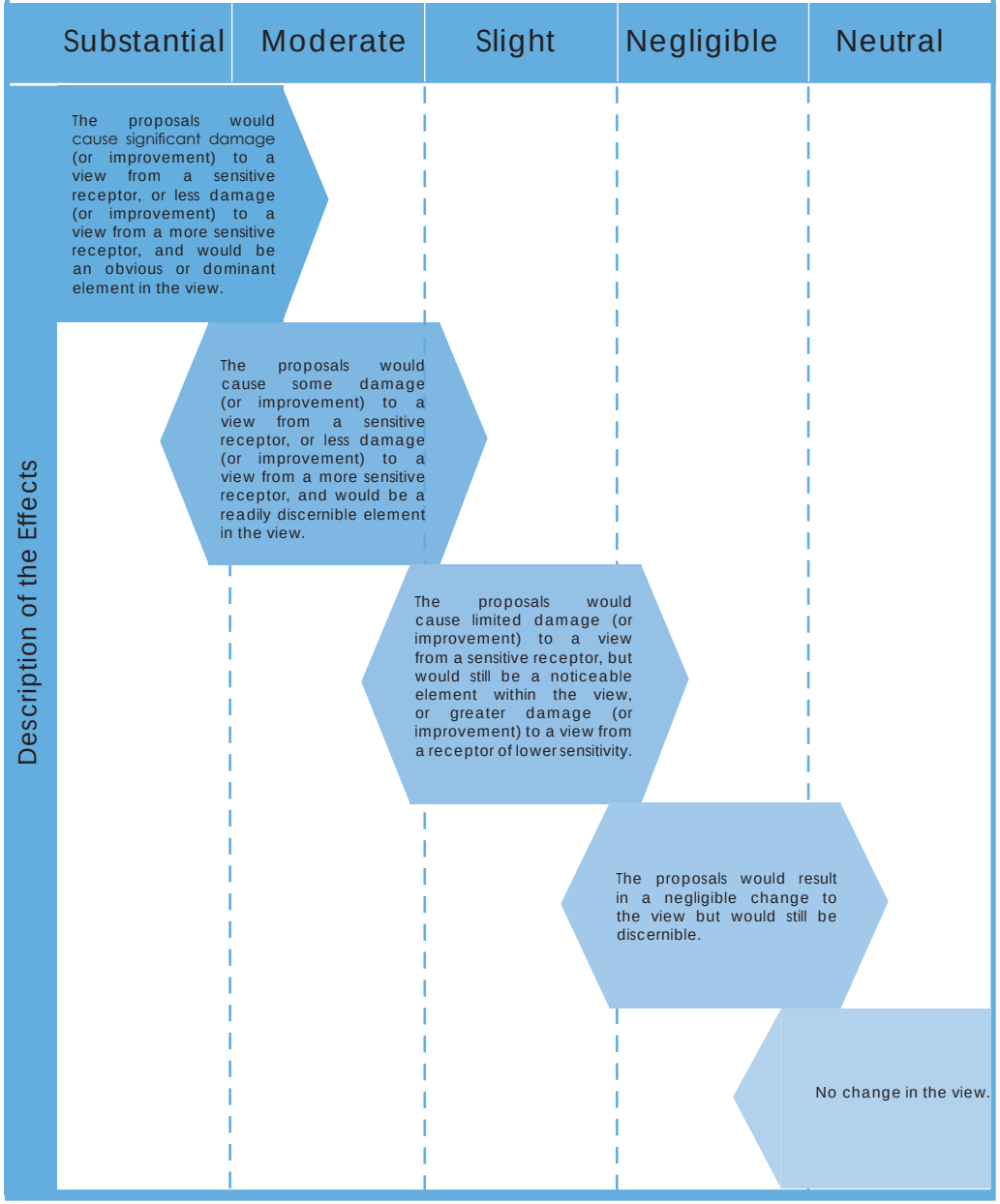


Table VE 3 VISUAL EFFECTS



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Footnote:
1. Each level (other than neutral) of change identified can be either regarded as 'beneficial' or 'adverse'.

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LANDSCAPE/TOWNSCAPE EFFECTS						
Direct effects on landscape features	Quality & Sensitivity	Existing Conditions	Impact and Mitigation	Magnitude of Change	Effect Year 1	Effect Year 15
Trees	Medium / High	There are a large number of trees and hedgerows which lie mainly on the Site boundaries or along the internal field boundaries within the Site. One tree, an English Oak and two tree groups are identified as Category A (high quality). The Oak tree is located at the current access into the Site at Area E, while one of the tree groups is situated between Areas A and C, and the other off Site on the north eastern boundary. There are several Category B (moderate quality) trees and tree groups along the internal boundaries as well as along the Site perimeter. There are also a number of Category C, poor quality trees and those recommended for removal (Category U).	The Development Framework Plan shows that with the exception of one Category B tree close to the entrance into the Site, all the other trees which will be lost will be Category C trees (poor quality). The Framework Plan shows new tree planting at the boundaries of the development and within incidental open space within the development parcels, which will more than compensate for these losses. All retained trees on the boundaries and within the Site can be protected during and after construction.	Low	Slight Adverse reducing as the proposed planting matures.	Slight Beneficial as the proposed planting matures.
Hedgerows	Low	There are a limited number of hedgerows, which are mainly located on some of the boundaries of the Site, and all are categorised as poor quality (Category C) in the Arboricultural Impact Assessment.	The hedgerows around the rear garden of no. 97 Barbrook Road will be lost, however this can be compensated for, by the planting of new hedgerows within the development parcels.	Negligible	Slight Adverse / Neutral	Slight Beneficial as the newly planted hedges mature.
Watercourses	Medium	There is a stream which runs along the northern Site boundary and a ditch which runs in a rough east-west alignment through the centre of the Site.	The course of the stream will be unaltered by the development. A number of pedestrian crossing points are shown on the Development Framework Plan, which allow access into the Parish Council owned public open space. The route of the ditch will remain unaltered, and the Development Framework Plan shows public open	Neutral	Neutral	Neutral

			space either side of it, with new planting along it.			
Public footpaths and public access	N/A	No public footpaths cross, or follow the boundaries of the Site, and there is currently no public access.	N/A			
Land use of the Site	Medium	The Site comprises a series of mainly grassland fields, some of which are periodically mown, while others are used for horse grazing. There are a number of small sheds, small greenhouses and areas for growing vegetable within the fields.	The Site will be converted from mainly grassland fields with ordinary characteristics to a suburban development. This loss will be partly mitigated by the environmental improvements within the proposed public open space, by new public access into the Site and provision of access into the Parish Council owned public open space adjoining the northern boundary of the Site.	High	Moderate Adverse	Moderate Adverse
Heritage Assets	N/A	There are no heritage assets located within the Site or on its boundaries.	N/A			
Indirect effects on landscape / townscape character		Existing Conditions	Impact and Mitigation	Magnitude of Change	Effect Year 1	Effect Year 15
Landscape/ townscape character of neighbouring area	Medium (lower end) – quality; Medium / Low sensitivity (Site)	The Site is not covered by any statutory or non-statutory designations for landscape character or quality. The Site, which lies on the north eastern settlement edge, differs from the assessment of the wider landscape character as it is very well contained by built development to the south and west, by wooded boundaries to the north and northeast and by the slight undulation of the landscape to the east. It has detracting features in the form of post mounted overhead cables, which cross the Site in two directions and is widely used for horse grazing, with some presence of small livestock raising and vegetable growing.	There would be a change in character of the Site, however the development would be strongly related to the settlement, and well contained by it to the west and south. The Parish owned public open space which lies immediately to the north of the Site, the general well treed and wooded character of the wider area and the slight undulation to the east would contain the development from the wider landscape. Development at this location would not be out of character with the rest of the largely residential area at the northeast of	Low – while the Site itself would undergo significant change, there would be lower impact on the adjoining townscape and landscape beyond the immediate	Slight Adverse	Slight Adverse

	Medium – quality and sensitivity (town-scape in the vicinity of the Site);	Existing development in the vicinity of the Site consists of mainly later 20th, and early 21st century residential housing, and later 20th century school premises. While it is pleasant, it has no distinguishing features.	the settlement, and would not be incongruous in this location. By retaining existing trees and planting new trees within the public open space the development will be further integrated into the well treed character of the area.	vicinity of the Site		
Wider Landscape Character	Medium – quality and sensitivity	The wider landscape around the Site is broadly typical of the characteristics identified in F2 Tiptree Wooded Farmland Landscape Character Area (in the Colchester Borough Landscape Character Assessment), and Setting Area 1 as set out in the Landscape Capacity of Settlement Fringes in Colchester Borough. These characteristics are identified as being the distinctive broad ridge to the northwest of Tiptree, arable land with varying field sizes and some larger and smaller blocks of mixed woodland.	Given the containment of the Site, the effect on the wider landscape character is very limited. New tree planting in the public open space will add to the wooded landscape character of the area.	Negligible to Neutral (moving away from the Site)	Slight Adverse to Neutral (moving away from the Site)	Slight Adverse to Neutral (moving away from the Site)
Other Effects						
Cumulative impacts	There are two developments on the edge of Tiptree, one to the northwest off Grange Road and another at the south eastern edge of the village, to the northeast of Factory Hill. Neither of these developments would affect this assessment, as they would not be seen in sequence with the Site, nor will they be seen in conjunction with the Site.					
Lighting	The Site is currently unlit, and used for horse grazing, with some vegetable and small livestock rearing. Although the interior is unlit, it adjoins the properties along Barbrook Lane and Grove Road where there is street lighting, and where there will be background lighting from these properties. The neighbouring school buildings to the west are lit, and there is a hard surfaced court in the playing fields to the northwest of the Site which is floodlit. The neighbouring woodland and farmland to the north and east is unlit. The residential areas to the south, southeast and northwest of the Site have street lighting. The proposal is for a medium density residential development with associated lighting. The development is not anticipated to give rise to any abnormal night time effects, it will be contained by the wooded public open space to its north and by its wooded boundaries to the east. Lighting at the Site will result in a limited increase in background lighting levels which will be seen in the context of existing lighting within the neighbouring residential area.					
Construction Phase	There will be temporary landscape and visual effects arising from the construction phase of the scheme. These will include, amongst other things, stock piling of materials, temporary hoardings/fencing and vehicle and plant movements, both on Site and on the surrounding road network. It is not anticipated that the scheme will give rise to any abnormal landscape or visual effects above those that would be expected from a development of this nature. It is anticipated that the extent and timing of these effects will be controlled through a Construction Management Plan.					

VISUAL EFFECTS						
Viewpoint	Sensitivity	Existing Conditions	Proposals and mitigation	Magnitude of Change	Visual Effect Year 1	Visual Effect Year 15
Views from Barbrook Lane (Photographs 22, 23 and 24)	Low	Views of the interior of the Site are restricted to a field access to the east of no. 97, from where a narrow view of a very small part of the Site can be seen. Beyond this, some of the trees within the Site can be seen between the rooftops of the existing housing along the lane.	There will be views of some upper floors and rooftops of the new housing between the existing housing along the lane, and will be seen as an extension of the built development at the north eastern side of the village. A tree lined entrance to the development will allow some views through to the development beyond, with retained and new trees further into the development filtering these views.	Low	Slight Adverse	Negligible Adverse as the proposed planting establishes
View from Grove Road (Photographs 18, 20 and 21)	Low	Views into the interior of the Site are possible of part of the south eastern section of the Site from Grove Road. Views from the southern spur of Grove Road are prevented by existing housing along the northern part of road, and by the housing which lines the southern spur.	There will be views of the new housing for a short section of Grove Road. Views will be possible from the south eastern corner of the development, seen from the proposed pedestrian entrance into the Site. This housing will be seen in the context of the adjoining existing housing and the newly built housing to the southeast of the Site on Brock Close. The retention of the large Oak tree at the corner and new tree planting within the public open space will filter these views. Views from a short section of the northern spur and its junction with the southern spur, where possible will comprise rooftops of the new housing seen between the rooftops of existing housing. The 1.5 storey housing proposed alongside the southern development boundary act to limit the effects of these views, as they will be seen in the context of similar building heights along Grove Road.	Low	Slight Adverse	Negligible Adverse as the proposed planting establishes
View from public footpath PROW 150_12 to the east of the Site (Photograph 26)	High	A very limited and indistinct view of the interior of the Site is possible for a short section of this footpath to the south of Ransome's Grove, with the view towards the Site	A very limited view of the new housing will be possible for a short section to the south of Ransome's Grove, while for the rest of the route the intervening trees and woodland will prevent views. New tree planting on the north eastern edge of the development around the SuDS features and the new wildlife ponds will further assist in filtering these views.	Negligible (where visible) to Neutral (where the Site cannot be seen)	Negligible Adverse (where visible) to Neutral (where the Site cannot be seen)	Negligible Adverse (where visible) to Neutral (where the Site cannot be seen)

		mainly dominated in the middle distance by trees and other vegetation. In the background of the view, a residential property can be seen. A small, newly planted plantation is located in the near distance. Beyond this intervening vegetation prevents views.				
Residential Views and Views from Schools						
Views from properties along Barbrook Lane (Photographs 03, 05 and 06)	Medium / High	There are views, where boundary vegetation allows from the rear windows of the properties which back onto the Site. The trees within the Site can be seen from some of the front windows of properties on the southern side of Barbrook Lane.	There will be views of the new housing from the properties which adjoin the development boundary. Usual privacy distances will be observed and the proposed one and a half storey housing adjoining the existing properties, will partially assist in limiting the effect on the neighbouring housing, themselves being mainly bungalows. New planting along the southern development boundary will filter views in due course. At the south western corner of the development, the view will be slighting altered due to the reserved educational land. Until the new planting along the southern development boundary establishes, the properties adjoining the south western corner of the development will have views of the safeguarded land, with views of the new houses to the north, beyond the proposed landscape corridor. Oblique views of the new housing to the east and northeast will be possible from some of these properties where their own boundary vegetation does not obscure views. From the southern side of Barbrook Lane, views of the new housing behind the existing housing in the northern side of the lane will be seen as	Medium	Substantial / Moderate Adverse	Moderate Adverse as the planting establishes

			an extension of the built form of the village to northeast.			
Views from properties Grove Road (Photographs 14, 15, 16 and 17)	Medium / High	Views are possible where boundary vegetation allows from the rear windows of the properties which back onto the Site. The trees within the Site can be seen from some of the front windows of properties on the southern side of Grove Road.	Views of the new housing will be possible from the properties which adjoin the development boundary. Usual privacy distances will be observed and the proposed one and a half storey housing adjoining the existing properties, will assist in limiting the effect, as these properties are mainly bungalows. New planting along the southern development boundary will assist in filtering these views in due course. From the southern side of Grove Road, views of the new housing behind the existing housing in the northern side of the road will be seen as part of an extension of development on the north eastern edge of the village.	Medium	Substantial / Moderate Adverse	Moderate Adverse as the planting establishes
Views from properties on Heaton Way to the west of the Site (Photograph 14)	Medium	Views are restricted by intervening trees on the boundaries of the properties and the Site and by the buildings of Milldene Primary School, and therefore there are limited opportunities for views from these properties.	A limited number of new houses on the western side of the development will be seen from upper floor rear windows of the properties to the north of Heaton Way, with partial views of the linear green corridor through the centre of the development and further housing beyond this to the east. New planting along the western boundary and within the green corridor will assist in filtering these views in due course.	Medium / Low	Slight Adverse	Negligible Adverse as the planting establishes
Views from Milldene Primary School (Photographs 03, 04 and 06)	Low	There are filtered views of the western parts of the Site from windows which face the Site and from the playground.	Filtered views of the new housing on the western side of the development will be possible from the school buildings and the playgrounds. New planting along the western boundary will further filter these views.	Medium	Slight Adverse	Negligible Adverse as the planting establishes
Views from playing fields of Thurstable School (Photographs 03 and 04)	Low	There are filtered views of the north western parts of the Site from windows which face the Site and from the playing fields.	Filtered views of the new housing on the western side of the development will be possible from the school buildings and the playgrounds. New planting along the western boundary will further filter these views.	Medium	Slight Adverse	Negligible Adverse as the planting establishes
Seasonal Variation						
The above assessment is based upon an appraisal of summer views. When the vegetation is out of leaf there will be some limited, highly filtered views of the development for a short section of the public footpath (PROW 150_12) to the east of the Site and south of Ransome's Grove, however the general tree and woodland cover of the area, and the slight undulation in the intervening topography will screen the majority of the views. Filtered views of the development from the entrance to the Site off Barbrook Lane, and from the pedestrian entrance off Grove Road will be possible once the new tree planting establishes.						

In relation to residential views in the winter months, the adjoining new development will be less filtered by any boundary vegetation of the existing development, however as the new planting along the southern development boundary matures, these views will be more filtered. There will be filtered views of the western part of the development from a limited number of properties along the northern part of Heaton Way, and where views are possible from Poyston (farm) to the northeast of the development, these will be highly filtered.

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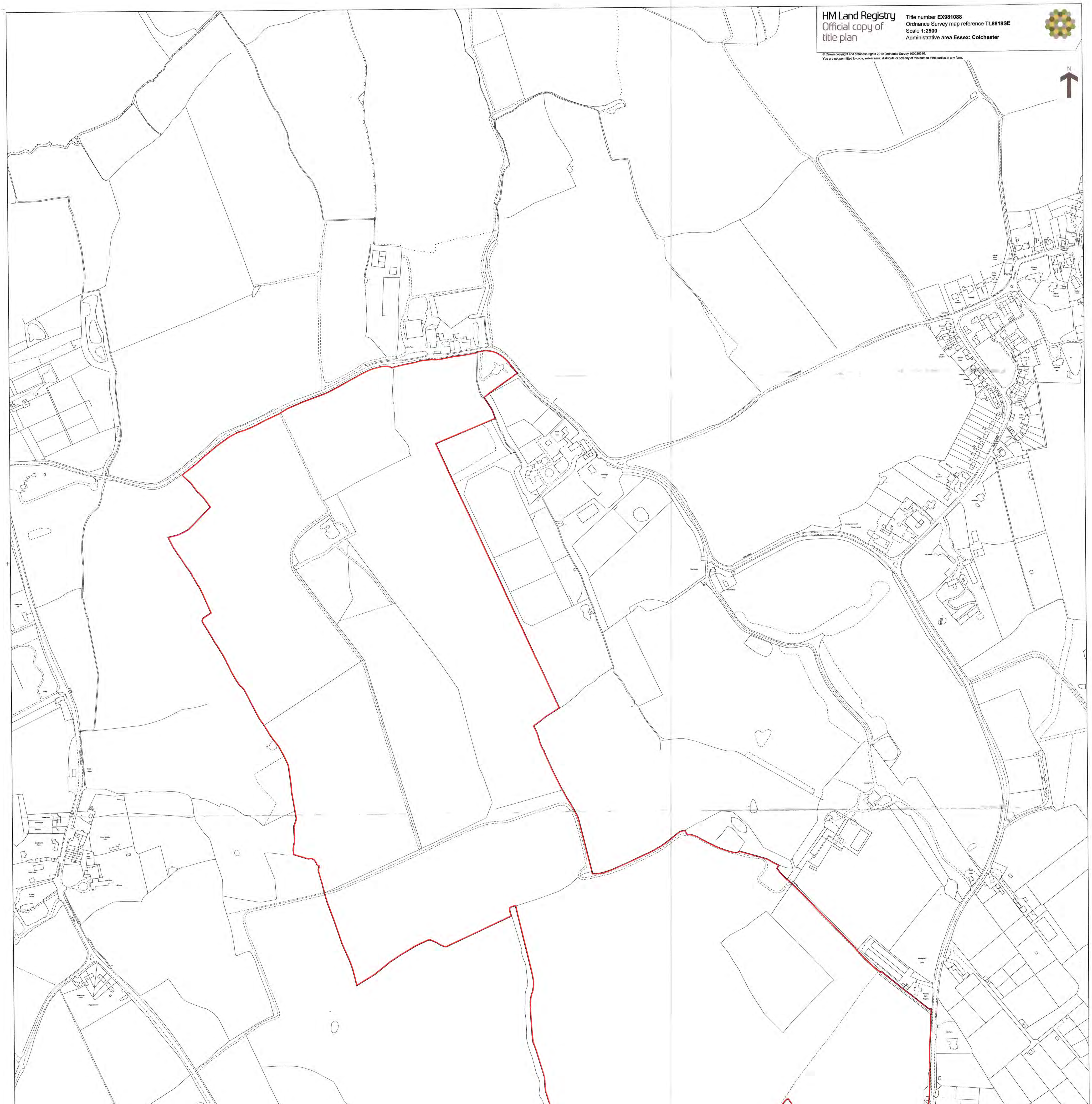
Appendix B – Land registry documents

HM Land Registry
Official copy of title plan

Title number **EX981088**
Ordnance Survey map reference **TL8818SE**
Scale **1:2500**
Administrative area **Essex: Colchester**



This official copy issued on 14 June 2019 shows the state of this title plan on 14 June 2019 at 13:20:58.
It is admissible in evidence to the same extent as the original (s.67 Land Registration Act 2002).
This title plan shows the general position, not the exact line, of the boundaries. It may be subject to distortions in scale. Measurements scaled from this plan may not match measurements between the same points on the ground.
This title is dealt with by HM Land Registry, Durham Office.

The electronic official copy of the register follows this message.

Please note that this is the only official copy we will issue. We will not issue a paper official copy.

HM Land Registry

Official copy of register of title

Title number EX981088 | Edition date 26.11.2018

This official copy shows the entries on the register of title on 14 JUN 2019 at 11:53:46.

This date must be quoted as the "search from date" in any official search application based on this copy.

The date at the beginning of an entry is the date on which the entry was made in the register.

Issued on 14 Jun 2019.

Under s.67 of the Land Registration Act 2002, this copy is admissible in evidence to the same extent as the original.

This title is dealt with by HM Land Registry, Peterborough Office.

A: Property Register

This register describes the land and estate comprised in the title.

ESSEX : COLCHESTER

1 (26.11.2018) The Freehold land shown edged with red on the plan of the above title filed at the Registry and being Land on the south side of Yewtree Farm, Kelvedon Road, Messing, Colchester (CO5 9TA).

2 (26.11.2018) As to such parts of the land as were formerly copyhold of the Manor of Messing Hall Boucher Hall and Harborough Hall there are excepted from this registration the mines and minerals and rights excepted on the enfranchisement thereof.

3 (26.11.2018) The land has the benefit of any legal easements granted by a Conveyance of the land in this title and other land dated 1 September 1986 made between (1) The Royal Bank Of Scotland PLC and (2) John S. Campbell & Company Limited but is subject to any rights that are reserved by the said deed and affect the registered land.

NOTE 1: No copy of the Conveyance dated 30 November 1983 referred to in the above Conveyance was supplied on First Registration.

NOTE 2: The Conveyance dated 24 June 1960 referred to in the above Conveyance comtained no matters requiring entry in the register.

¬NOTE 2 :-Copy filed.

4 (26.11.2018) The land has the benefit of any legal easements reserved by a Conveyance land adjoining the southern boundary of the land in this title dated 9 December 2002 made between (1) John S Campbell And Company Limited and (2) Richard John Baldwin and Betty Irene Baldwin.

¬NOTE: Copy filed.

5 (26.11.2018) The land has the benefit of any legal easements reserved by a Transfer of land adjoining Bishops Cottage, Rookery Lane dated 31 December 2008 made between (1) John S. Campbell and Company Limited and (2) Peter Robert Young and Victoria Louise Young.

¬NOTE: Copy filed.

B: Proprietorship Register

This register specifies the class of title and identifies the owner. It contains any entries that affect the right of disposal.

Title absolute

1 (26.11.2018) PROPRIETOR: JOHN S CAMPBELL & COMPANY LIMITED (Co. Regn. No. 00230798) of Bouchers Hall, Kelvedon Road, Messing, Colchester CO5 9TW.

2 (26.11.2018) The value stated as at 26 November 2018 was £2,700,000.

C: Charges Register

This register contains any charges and other matters that affect the land.

1 (26.11.2018) The land is subject to any rights that are granted by a Deed dated 20 November 1929 made between (1) John Edward Caldwell Eaton and (2) The South Essex Waterworks Company and affect the registered land.

¬NOTE: Copy filed.

2 (26.11.2018) The land is subject to any rights that are granted by a Conveyance of Brook Farm dated 4 July 1991 made between (1) John S Campbell & Company Limited and (2) Robert Alexander Buchanan and Sarah Elizabeth Buchanan and affect the registered land.

¬NOTE: Copy filed.

3 (26.11.2018) REGISTERED CHARGE contained in a Debenture dated 1 September 1986.

4 (26.11.2018) Proprietor: BARCLAYS BANK PLC (Co. Regn. No. 1026167) of Business Lending Services, P O Box 16276, Birmingham B2 2XE.

5 (26.11.2018) REGISTERED CHARGE dated 1 September 1986.

6 (26.11.2018) Proprietor: BARCLAYS BANK PLC (Co. Regn. No. 1026167) of Business Lending Services, P O Box 16276, Birmingham B2 2XE.

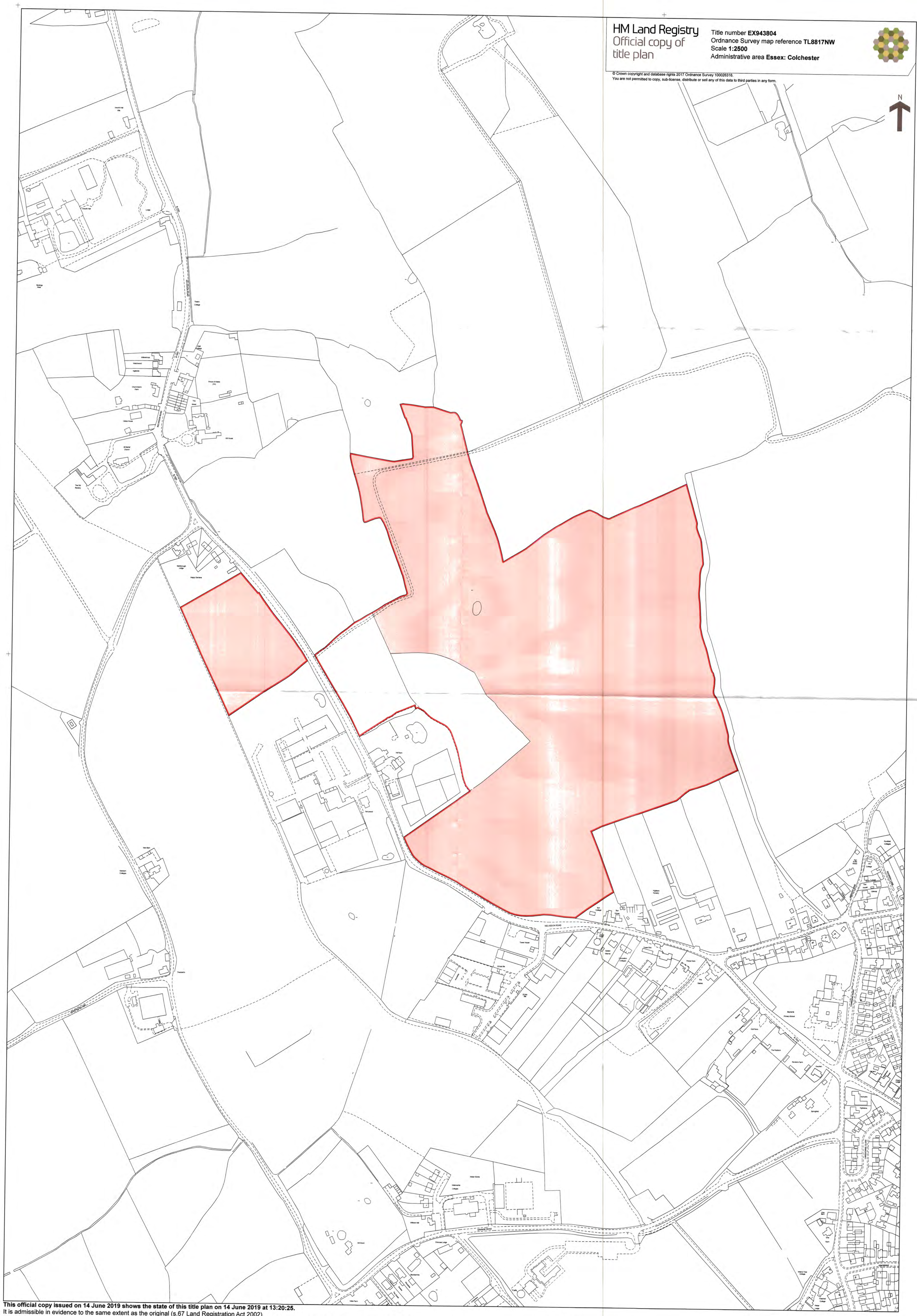
7 (26.11.2018) REGISTERED CHARGE dated 28 August 2002.

8 (26.11.2018) Proprietor: BARCLAYS BANK PLC (Co. Regn. No. 1026167) of Business Lending Services, P O Box 16276, Birmingham B2 2XE.

End of register

HM Land Registry
Official copy of title plan

Title number **EX943804**
Ordnance Survey map reference **TL8817NW**
Scale **1:2500**
Administrative area **Essex: Colchester**



This official copy issued on 14 June 2019 shows the state of this title plan on 14 June 2019 at 13:20:25.
It is admissible in evidence to the same extent as the original (s.67 Land Registration Act 2002).
This title plan shows the general position, not the exact line, of the boundaries. It may be subject to distortions in scale. Measurements scaled from this plan may not match measurements between the same points on the ground.
This title is dealt with by HM Land Registry, Durham Office.

The electronic official copy of the register follows this message.

Please note that this is the only official copy we will issue. We will not issue a paper official copy.

HM Land Registry

Official copy of register of title

Title number EX943804 | Edition date 03.04.2017

This official copy shows the entries on the register of title on 14 JUN 2019 at 11:54:15.

This date must be quoted as the "search from date" in any official search application based on this copy.

The date at the beginning of an entry is the date on which the entry was made in the register.

Issued on 14 Jun 2019.

Under s.67 of the Land Registration Act 2002, this copy is admissible in evidence to the same extent as the original.

This title is dealt with by HM Land Registry, Peterborough Office.

A: Property Register

This register describes the land and estate comprised in the title.

ESSEX : COLCHESTER

1 (21.09.2016) The Freehold land shown edged with red on the plan of the above title filed at the Registry and being Land adjoining Hill Farm, Kelvedon Road, Inworth, Colchester (CO5 9SX).

2 (21.09.2016) The land has the benefit of any legal easements granted by a Conveyance of the land tinted pink on the title plan dated 29 July 1964 made between (1) Mark Archibald Secrett and (2) William Deaves & Sons Limited.

¬NOTE: Copy filed.

B: Proprietorship Register

This register specifies the class of title and identifies the owner. It contains any entries that affect the right of disposal.

Title absolute

1 (03.04.2017) PROPRIETOR: JANE ANNE WILSON of Hill Farm, Mill Hill, Purleigh, Chelmsford CM3 6PT and MALCOLM NICHOLAS SMITH CAMPBELL of Yewtree Farm, Kelvedon Road, Messing, Colchester CO5 9TA and RICHARD NORMAN SMITH CAMPBELL of Scourie Hotel, Scourie, Lairg IV27 4SX.

2 (21.09.2016) The value stated as at 21 September 2016 was £560,000.

3 (21.09.2016) RESTRICTION: No disposition by a sole proprietor of the registered estate (except a trust corporation) under which capital money arises is to be registered unless authorised by an order of the court.

C: Charges Register

This register contains any charges and other matters that affect the land.

1 (21.09.2016) The land tinted pink on the title plan is subject to any

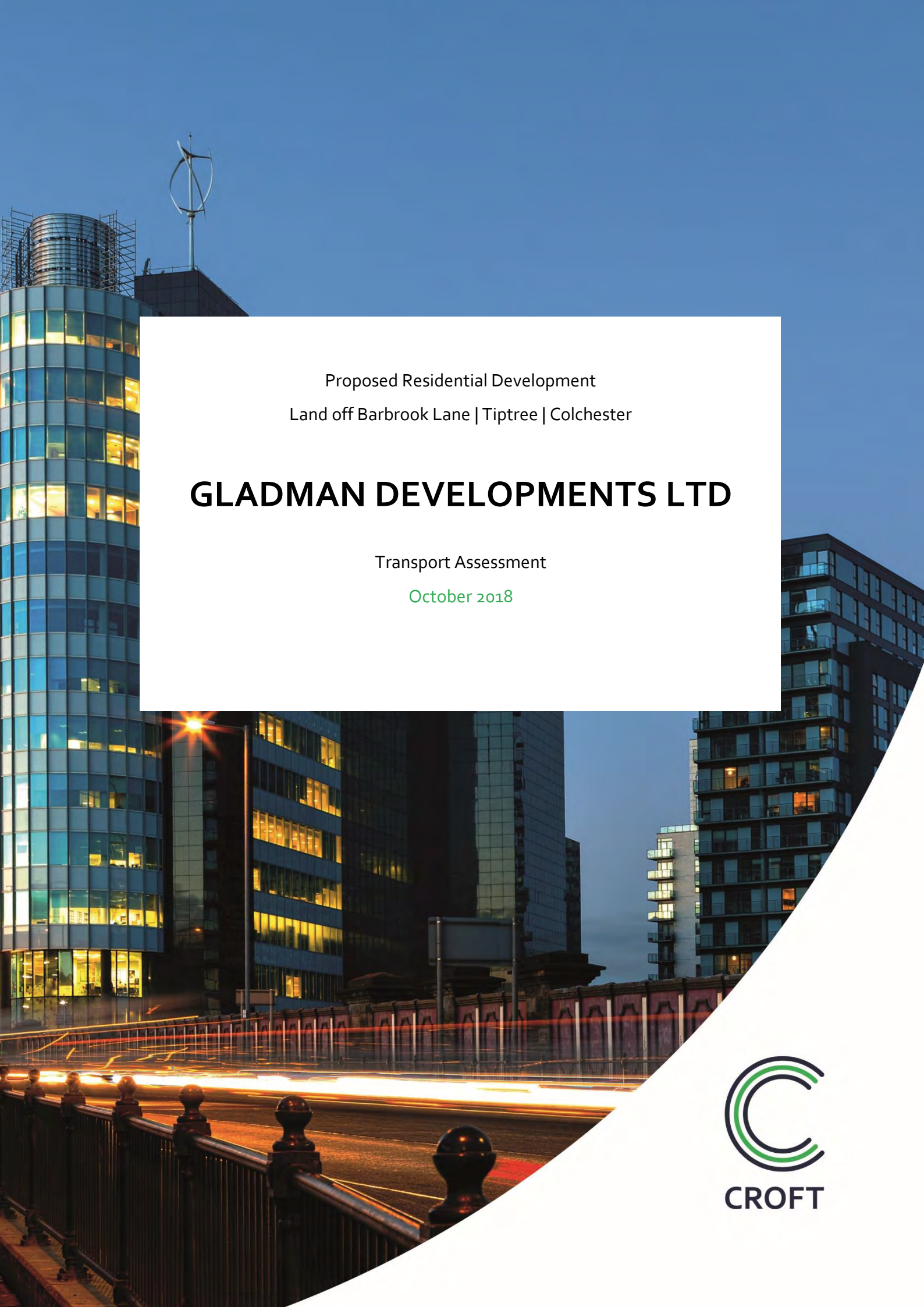
C: Charges Register continued

rights that are granted by a Deed dated 2 May 1966 made between (1) William Deaves And Sons Limited and (2) Eastern Gas Board and affect the registered land.
The said Deed also contains restrictive covenants by the grantor.

¬NOTE: Copy filed.

End of register

Appendix C – Transport Assessment



Proposed Residential Development

Land off Barbrook Lane | Tiptree | Colchester

GLADMAN DEVELOPMENTS LTD

Transport Assessment

October 2018

CROFT

REPORT CONTROL

Document:	Transport Assessment
Project:	Proposed Residential Development, Barbrook Lane, Tiptree, Colchester
Client:	Gladman Developments Ltd
Job Number:	2179
File Origin:	Z:\projects\2179 Land off Barbrook Lane, Tiptree\Docs\Reports\2179TA.4.docx

Document Checking:

Primary Author	MR	**Initialled:**
Contributor	SM/GM	**Initialled:**
Review By	PJW	**Initialled:**

Issue	Date	Status	Checked for Issue
1	24-10-18	Final	
2			
3			
4			

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Contents

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1 INTRODUCTION

1.1 Preamble

1.1.1 Croft have been instructed by Gladman Developments Ltd to advise on the traffic and transportation issues relating to a proposed residential development on land off Barbrook Lane in Tiptree, Essex.

1.1.2 The report will form supplementary information to assist in the determination of a forthcoming outline planning application on the site for up to 200 residential dwellings, with associated car parking and landscaping.

1.1.3 The Highway Authority responsible for Tiptree is Essex County Council (ECC) and the Local Planning Authority is Colchester Borough Council (CBC).

1.1.4 A Framework Travel Plan has also been prepared to ensure that travel to and from the site by sustainable modes is maximised.

1.1.5 The proposed quantum of development does not require a Travel Plan to be submitted, although this Transport Assessment (TA) will confirm the applicants' commitment to provide all households with a Residents Travel Information Pack (RTIP) to ensure that travel to and from the site by sustainable modes is maximised.

1.1.6 Due to the location of the site close to the village centre of Tiptree and all its' services and facilities, the proposed development will help deliver much needed housing in a sustainable location which is well integrated and connected to local facilities and employment opportunities.

1.2 Scope of Report

1.2.1 This TA has been prepared to consider the development in transport and highways terms in order to provide the necessary reassurance that the proposals can be accommodated by the local transport network.

1.2.2 The scope of this Transport Assessment conforms to the guidance provided in the Ministry of Housing, Communities and Local Government (MHCLG) Planning Practice Guidance 'Transport Evidence Bases in Plan Making'.

1.2.3 The guidance covers the following issues;

- Reducing the need to travel, especially by car – ensure at the outset that thought is given to reducing the need to travel; consider the types of uses (or mix of uses) and the scale of development in order to promote multipurpose or linked trips;
- Sustainable accessibility – promote accessibility by all modes of travel, in particular public transport, cycling and walking; assess the likely travel behaviour or travel pattern to and from the proposed site; and develop appropriate measures to influence travel behaviour;
- Dealing with residual trips – provide accurate quantitative and qualitative analyses of the predicted impacts of residual trips from the proposed development and ensure that suitable measures are proposed to manage these impacts; and
- Mitigation measures – ensure as much as possible that the proposed mitigation measures avoid unnecessary physical improvements to highways and promote innovative and sustainable transport solutions.

1.3 Structure of Report

1.3.1 Following this introduction, Section 2 of the Report will detail the existing site conditions and describe the adjacent highway, while Section 3 will set out the development proposals, including vehicular access.

1.3.2 Section 4 will consider relevant national and local policy, while Section 5 will consider the accessibility of the site by non-car modes, including walking, cycling and public transport.

1.3.3 Section 6 will consider the trip generation and traffic impact assessment of the local highway network.

1.3.4 A review of road safety and personal injury accidents in the vicinity of the site over the last 3 years will be detailed in Section 7.

1.3.5 Section 8 will outline the Residents Travel Information Packs and Section 9 will detail the Stage 1 Road Safety Audit undertaken for the proposed site access.

1.3.6 Section 10 will draw together the Report's findings and conclusions.

2 EXISTING CONDITIONS

2.1 Introduction

2.1.1 This section will detail the existing site and surroundings and provide details about the existing highway network.

2.2 Site Location

2.2.1 The application site comprises pasture land which extends to approximately 9.79 hectares (24.2 acres). An approximate red line boundary for the site is identified in **Figure 2.1** below.

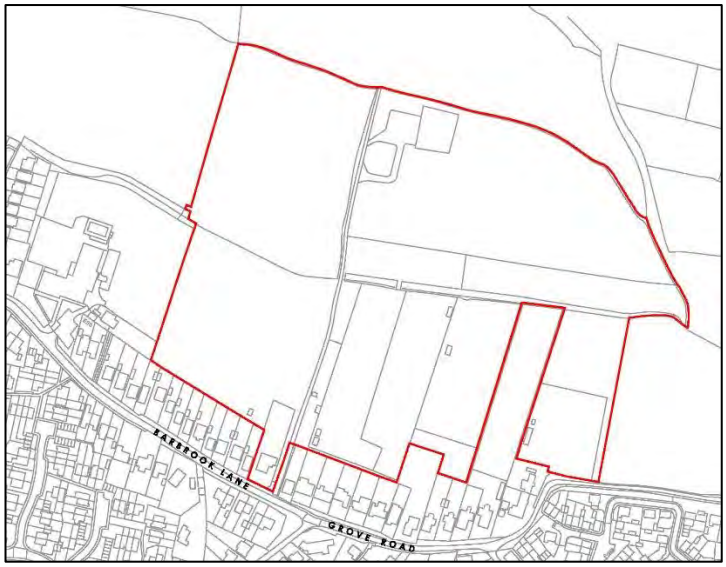


Figure 2.1 – Approximate Red Line Boundary

2.2.2 The site is located approximately 11.5 kilometres to the south-west of Colchester and around 17.9 kilometres to the north-east of Chelmsford. The location of the site in relation to the surrounding area is presented in **Plan 1.**

2.2.3 The site is bordered by open land and Mildene Primary School to the west, north and east and by residential properties fronting Barbrook Lane to the south.

2.3 Existing Site Information

2.3.1 The site is currently undeveloped and so has no formal point of access at present, other than the existing gated access track between properties no.97 and 101 Barbrook Lane.

2.3.2 From a review of ECC's definitive mapping there would appear to be no Public Rights of Way (PRoW's) that traverse the site, as illustrated in **Figure 2.2** below.

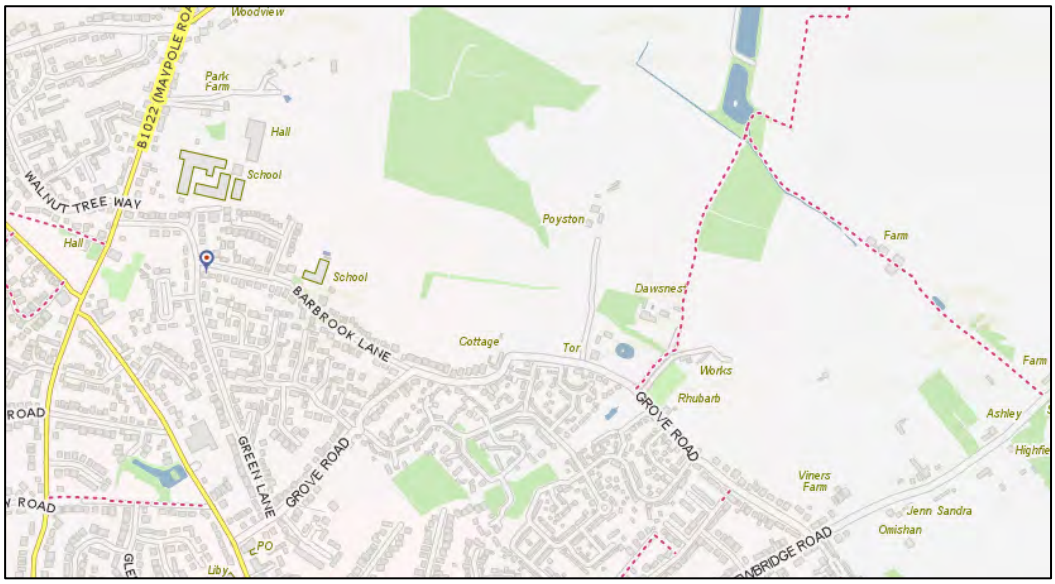


Figure 2.2 – Existing PRoW's in the Vicinity of the Site

2.3.3 As can be seen above, however, there is PRoW approximately 100 metres to the east of the site boundary off Grove Road, which is identified as Footpath no.12. It extends in a north-easterly direction for approximately 580 metres and terminates at Haynes Green.

2.4 Local Highway Network

2.4.1 In the vicinity of the site, Barbrook Lane is a two-way approximately 4.8 metres single carriageway, with footways on both sides, with varying widths between 1.2 metres and 2 metres on the northern verge and a 3 metre wide grass verge with footway on the southern verge. There are dropped kerbs on both sides allowing driveway access to residential properties.

2.4.2 Barbrook Lane is subject to a 30mph speed limit and benefits from street lighting.

2.4.3 There are 'No Stopping' signs and 'Keep Clear' markings at the section where Barbrook Lane provides access to the primary school.

2.4.4 To the north, Barbrook Lane meets with Colchester Road (B1022) which provides links towards Colchester and the A12 for strategic links throughout the wider area.

2.4.5 To the south Barbrook Lane forms a priority controlled junction with Grove Road.

2.4.6 To the south Grove Road meets with Newbridge Road and to the south-west Grove Road meets the B1023 and enters the centre of Tiptree village. The B1023 then provides routes both north and southwards to/from the village centre.

2.4.7 Grove Road is subject to a 30mph speed limit, with speed and pedestrian/ crossing signs on the southern section of Grove Road. At the section of Grove Road which runs south-west, the carriageway is approximately 4.5m wide, with grass verges and footways, and dropped kerbs providing access to the residential properties on both sides.

2.4.8 Grove Road has been effectively by-passed by the Wilkin Drive/Kiltie Road developments.

3 DEVELOPMENT PROPOSALS

3.1 Introduction

3.1.1 The following paragraphs will describe the development proposals and report on proposed access arrangements and car parking.

3.2 Proposed Development

3.2.1 The applicant is seeking outline planning permission to develop the site for up to 200 residential dwellings, along with associated car parking, landscaping and public open space.

3.2.2 An indicative site layout is included within other documents submitted as part of the planning application.

3.2.3 While not proposed as part of this application, it has been requresetd by the Essex County Council Economic Growth and Development team that the applicant safeguards 0.6 hectares of land adjacent to Milldene Primary School, to accommodate future educational use.

3.3 Car Parking and Internal Layout

3.3.1 Car parking across the site will comply with the Councils' current car parking standards.

3.3.2 Whilst the internal layout of the site will be subject to a reserved matters application, it will be designed with the Manual for Streets (MfS) documents in mind to ensure maximum permeability, as well as reduced vehicular speeds allowing for walking and cycling provision to be central to the development site.

3.3.3 Furthermore, ECC has its own highways design guidance for new developments, The Essex Design Guide 2225. Whilst this documentation predates Manual for Streets (MfS), it has been confirmed by ECC Highways department, that The Essex Design Guide has evolved over time to reflect local issues and that the latest guidance is not too dissimilar to MfS.

3.3.4 Reference will also be made to the Design Manual for Roads and Bridges (DMRB).

3.3.5 The introduction of a 20mph zone within the development will be considered to promote walking and cycling and create a pedestrian friendly environment. This will often negate the need for segregated cycle facilities within residential areas.

3.4 Vehicular Access

3.4.1 In order to achieve vehicular access, it is proposed to demolish property no. 97 Barbrook Lane, which an existing detached property.

3.4.2 The proposed vehicular access is shown in **Plan 2** and demonstrates that visibility splays of 2.4 metres by 43 metres can be achieved which are commensurate with traffic speeds of 30mph, as set out in Manual for Streets guidance.

3.4.3 The design and criteria of the proposed site access junction conforms with current guidance for priority-controlled junctions (TD42/95 - Geometric Design of Major/Minor Priority Junctions) and on the above guidance by the provision of a 5.5 metre carriageway with 6 metre corner radii and footways of 2 metres on both sides.

3.4.4 It should be noted that ECC have reviewed the different categories of road and the various geometric parameters for those categories of road. ECC no longer prescribe to the use of 4.8m carriageways for residential streets, their minimum carriageway width now being 5.5m. ECC have also relaxed the radius requirements at junctions from 10.5m to 6m.

3.4.5 On that basis, it is considered that the proposed vehicular access point would be deemed acceptable by the local highway authority.

3.5 Servicing

3.5.1 The internal layout will be designed to accommodate waste and delivery vehicles to enter the site, turn around and exit in a forward gear.

3.5.2 This will ensure there is no detrimental impact to the public highway and confirm that the site can be serviced without giving rise to any road safety issues.

3.6 Pedestrian and Cycle Access

3.6.1 The main point of pedestrian and cycle access will be from the main site access point on Barbrook Lane.

3.7 Off Site Highway Works

3.7.1 During scoping discussions with the highways officer at ECC, it is understood that the use of Grove Road by development traffic should be discouraged.

3.7.2 The applicant is therefore willing to provide a financial contribution for the improvement to the Barbrook Lane/Grove Road junction, along the lines of the how the Grove Road/Wilkin Way and Grove Road/Kiltie Road junctions have been treated to try and dissuade drivers from using the old section of Grove Road and to use the above routes instead.

3.7.3 This can be discussed and agreed with the local highway authority at a later stage of the planning process.

4 RELEVANT PLANNING POLICY

4.1 Introduction

4.1.1 This section of the TA reviews the relevant national transport planning policy and guidance documents in the context of the proposed development.

4.1.2 It will focus on the National Planning Policy Framework (NPPF), which was first published in March 2012 and updated in July 2018, sets out the Government's planning policies for achieving sustainable development. It will also make reference to National Planning Practice Guidance and PPG13 Good Practice Guide, issued in 1995.

4.1.3 Local planning policy for Tiptree is taken from Kent County Council's Third Local Plan (LTP3), Colchester Borough Local Plan and the emerging Tiptree Neighbourhood Plan.

4.2 National Planning Policy Framework (NPPF)

4.2.1 The Department for Communities and Local Government, now the Ministry of Housing, Communities and Local Government (MHCLG) updated its National Planning Policy Framework (NPPF) in 2018. The NPPF replaces previous Planning Policy Guidance (PPG) Notes and Planning Policy Statements (PPS) with a single document.

4.2.2 Local authorities are expected to grant permission, using the NPPF where the Local Plan is absent, silent, indeterminate or where relevant policies are out of date, unless the adverse effects of granting planning permission significantly and demonstrably outweigh the benefits of the scheme.

4.2.3 At the heart of NPPF is *'a presumption in favour of sustainable development'* (Paragraph 11).

4.2.4 With regard to sustainable transport set out in Section 9, the NPPF states in paragraph 103 that:

'Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health.'

4.2.5 The NPPF goes on to consider parking provision, stating in paragraph 106:

'Maximum parking standards for residential and non-residential development should only be set where there is a clear and compelling justification that they are necessary for managing the local road network, or for optimising the density of development in city and town centres and other locations that are well served by public transport.'

4.2.6 In considering development proposals, paragraph 108 of the NPPF states that:

'In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;

b) safe and suitable access to the site can be achieved for all users; and

c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.

4.2.7 Developments are required to provide and promote pedestrian and cyclist movements as a priority, facilitate access to public transport services and maximise the catchment areas for bus and other public transport services.

4.2.8 With regard to traffic impact, paragraph 109 states that;

'Development should only be prevented or refused on highway grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road networks would be severe.'

4.2.9 The following sections of this report will demonstrate that the proposals will not have a material impact on the adjoining highway network and would not give rise to any highways safety issues.

4.2.10 It is also demonstrated in the subsequent sections of this TA that the site is located close to good pedestrian links and public transport networks and is therefore ideally situated to encourage trips by sustainable modes of travel.

4.2.11 It is therefore clear from the NPPF that development:

- Should be assessed with a presumption in favour of approval.
- Should be capable of being accessed satisfactorily with safe and suitable access provided for all.
- Should be sustainable, with preference given to accessibility by sustainable modes of transport.

4.2.12 Therefore, as set out in paragraph 110, developments should be located and designed where practical to;

a) *give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;*

b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;

c) create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;

d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and

e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.

4.2.13 The location of the proposed development close to a number of local amenities (as described in Section 5.2 of this TA), in accordance with the guidance contained within paragraph 20, which states that:

'Strategic policies should set out an overall strategy for the pattern, scale and quality of development, and make sufficient provision for:

a) housing (including affordable housing), employment, retail, leisure and other commercial development;

b) infrastructure for transport, telecommunications, security, waste management, water supply, wastewater, flood risk and coastal change management, and the provision of minerals and energy (including heat);

c) community facilities (such as health, education and cultural infrastructure); and

d) conservation and enhancement of the natural, built and historic environment, including landscapes and green infrastructure, and planning measures to address climate change mitigation and adaptation'.

4.2.14 It is therefore concluded that as the development is located a short distance from a range of local amenities, is accessible by public transport and has been designed in accordance with the guidance contained within Manual for Streets, it is considered that the proposed development accords with the aims and objectives of the Framework.

4.2.15 In addition to the above, the safe guarding of 0.6 heactares of land within the site for future educational use meets the aims of bullet point c), as detailed above.

4.2.16 Paragraph 111 of the NPPF states:

'All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed'.

4.2.17 In order to satisfy this policy requirement, and as requested by the highways officer at ECC, this TA is accompanied by a Residential Travel Information Pack (RTIP) for all properties which provides commitment to encourage the use of sustainable travel to and from the site.

4.3 National Planning Practice Guidance

4.3.1 The National Planning Practice Guidance (NPPG) web-based resource was published on 6 March 2014 by the Department for Communities and Local Government, now MHCLG. This resource collates relevant planning practice guidance and provides links between the NPPF and relevant legislation and guidance.

4.3.2 In terms of transportation, the guidance on 'Travel Plans, Transport Assessments and Statements in Decision-Taking' is relevant to the proposals.

4.3.3 It essentially replaces the DFT's 'Guidance on Transport Assessment' (2227) and states in Paragraph 005 that:

'Transport Assessments and Transport Statements primarily focus on evaluating the potential transport impacts of a development proposal. (They may consider those impacts net of any reductions likely to arise from the implementation of a Travel Plan, though producing a Travel Plan is not always required). The Transport Assessment or Transport Statement may propose mitigation measures where these are necessary to avoid unacceptable or "severe" impacts. Travel Plans can play an effective role in taking forward those mitigation measures which relate to on-going occupation and operation of the development.'

'Transport Assessments and Statements can be used to establish whether the residual transport impacts of a proposed development are likely to be "severe", which may be grounds for refusal, in accordance with the National Planning Policy Framework'.

4.3.4 Paragraph 014 provides guidance on establishing the need and scope of a Transport Assessment or Statements.

4.3.5 It states that *'The need for, scale, scope and level of detail required of a Transport Assessment or Statement should be established as early in the development management process as possible as this may positively influence the overall nature or the detailed design of the development.'*

4.3.6 Paragraph 014 goes on to state that the key issues to consider at the start of preparing a Transport Assessment are as follows:

- The planning context of the development proposal;
- Appropriate study parameters (i.e. area, scope and duration of study);

- Assessment of public transport capacity, walking / cycling capacity and road network capacity;
- Road trip generation and trip distribution methodologies and/or assumptions about the development proposal;
- Measures to promote sustainable travel;
- Safety implications of development; and
- Mitigation measures (where applicable) – including scope and implementation strategy.

4.3.7 Regarding treatment of cumulative impact of development, the NPPG also states in Paragraph 014 that *'It is important to give appropriate consideration to the cumulative impacts arising from other committed development (i.e. development that is consented or allocated where there is a reasonable degree of certainty will proceed within the next three years'*).

At the decision-taking stage this may require the developer to carry out an assessment of the impact of those adopted Local Plan allocations which have the potential to impact on the same sections of transport network as well as other relevant local sites benefitting from as yet unimplemented planning approval.'

4.3.8 The scope for preparing this TA is in line with current guidance and conforms to the principles outlined in the NPPG.

4.3.9 While there is no requirement for a Travel Plan as part of this application, the applicant is committed to delivering a sustainable development and will ensure that all residents are provided with a Residents Travel Information Pack to inform them of their travel choices and opportunities to travel by non-car modes.

4.3.10 The principles of the NPPG in relation to Travel Plans states that;

'Travel Plans are long-term management strategies for integrating proposals for sustainable travel into the planning process. They are based on evidence of the anticipated transport impacts of development and set measures to promote and encourage sustainable travel (such as promoting walking and cycling)'. (Paragraph 003)

'Travel Plans should where possible, be considered in parallel to development proposals and readily integrated into the design and occupation of the new site rather than retrofitted after occupation'. (Paragraph 003)

'The primary purpose of a Travel Plan is to identify opportunities for the effective promotion and delivery of sustainable transport initiatives e.g. walking, cycling, public transport and telecommuting, in connection with both proposed and existing developments and through this to thereby reduce the demand for travel by less sustainable modes.' (paragraph 005).

4.3.11 On the basis of the above, the provision of RTIP's to all residents addresses the potential for modal shift from private car use to sustainable transport modes. It will contain information to encourage walking, cycling and public transport, thereby meeting the principals set out above.

4.4 PPG13: A Guide to Better Practice

4.4.1 Whilst the Planning Policy Framework replaces a number of planning policy guidance documents, including PPG13 'Transport', the PPG13 Good Practice Guide, issued in 1995, is not a document that has been identified as being replaced.

4.4.2 The guidance provided in the document continues to provide a widely accepted guide to best practice and as such is generally considered to continue to be relevant.

4.4.3 With regards to pedestrians, paragraph 6.24 states that 'journeys on foot accounted for 29 per cent of journeys and 81 per cent of journeys under 1 mile (1.6 km). Journeys under 1 mile (1.6 km) accounted for 30 per cent of all journeys by all means of travel.'

4.4.4 Regarding cycling, paragraph 6.38 advises that 'cycling is economical and efficient for local journeys, environmentally friendly and healthy. About half the journeys in the country are under 5 miles (8km). The bicycle is an ideal mode of transport for such trips.'

4.4.5 On the matter of public transport, paragraph 6.78 confirms that 'for trips over 3 miles (5km), public transport is the main alternative mode of transport to the private car. New developments should ideally be sited at locations with good public transport accessibility.'

4.5 Local Planning Policy

Essex Transport Strategy: The Local Transport Plan

4.5.1 The Essex Transport Strategy: The Local Transport Plan (referred to as LTP3) was adopted as policy in June 2011 and sets out how ECC will manage and improve transport between 2011 and 2026. The plan aims to achieve the following five broad outcomes:

- *Provide connectivity for Essex communities and international gateways to support sustainable economic growth and regeneration;*
- *Reduce carbon dioxide emission and improve air quality through lifestyle changes, innovation and technology;*
- *Improve safety on the transport network and enhance and promote a safe travelling environment;*

- *Secure and maintain all transport assets to an appropriate standard and ensure that the network is available for use; and*
- *Provide sustainable access and travel choice for Essex residents to help create sustainable communities.*

4.5.2 Policy 2 of LTP3 states that new developments should be located in areas which are accessible to key services by sustainable forms of transport. Furthermore, Policy 7 states that new development should minimise the number and length of trips made by private vehicles.

4.5.3 Policy 8 of LTP3 states that more sustainable travel will be supported by ensuring adequate provision is made within new developments for public transport and other low carbon forms of travel.

4.5.4 It also states that new development should comply with current Council parking standards and that low carbon travel choices are promoted through travel planning and similar measures.

4.5.5 Policy 15 goes on to state that ECC will ensure that the public rights of way network is well maintained and easy to use by walkers, cyclists and equestrians.

Development Management Policies – February 2011

4.5.6 The Development Management Policies are to achieve the following aims:

- *Protect and maintain a reliable and safe highway infrastructure;*
- *Improve access to services in both rural and urban locations;*
- *Offer where possible alternative travel options to the private car;*

- *Support and enhance public transport provision;*
- *Address the impact of commercial vehicles on the highway network and communities; and*
- *Support the aims and objectives of the County Council as the Highway Authority.*

4.5.7 The policies considered applicable to this application are as follows:

Policy DM7 – Application of Design Standards

'The Highway Authority will protect the highway network for the safe and efficient movement of people and goods by ensuring that all works within the highway comply with the current national ECC design standards appropriate for the category of road and ensuring that:

I. Visibility Splays and Stopping Sight Distances (SSD) for all roads with the exception of internal estate roads which carry, or are intended to carry, HGV's and/or passenger transport vehicles at a level of less than 5% of the overall traffic flow, must comply with standards contained within DMRB unless otherwise agreed with the Highway Authority.

II. Visibility Splays and Stopping Sight Distances (SSD) for internal estate roads must comply with standards contained within the Essex Design Guide or Manual for Streets, or their subsequent replacement documents, except where 5% or more of the overall traffic flow consists of Heavy Goods Vehicles (HGV's and/or passenger transport vehicles).'

Policy DM8 – Vehicle Parking Standards

'The Highway Authority will ensure that development proposals comply with Essex County Council's current 'Parking Standards: Design and Good Practice' documents, or its subsequent replacement.'

Policy DM9 – Accessibility and Transport Sustainability

'The Highway Authority will ensure that the developer will minimise the number of trips by private vehicle through the provision of alternative transport modes and/or associated infrastructure.'

Policy DM10 – Travel Plans

'The Highway Authority will require the provision of a Travel Plan and monitoring fee as part of any development proposals that meets the following criteria:

i. All new residential dwellings will require the provision for a Residential Travel Information Pack.'

4.5.8 It is intended to provide residents with a Residential Travel Information Pack as part of the measures to maximise the use of non-car modes.

Policy DM11 – Public Rights of Way

The Highway Authority will:

i. Safeguard the existing network of Definitive Public Rights of Way where affected by development, ensuring that it remains protected and open for use by the public.

ii. *Require that, where Definitive Rights of Way exist through a development site, it will be retained on its existing alignment and the development designed and laid out to accommodate it. In the event that there is no alternative and the development cannot accommodate the existing Definitive Public Right of Way, a diversion and / or alternative route shall be provided. Any such diversion and / or alternative must be approved as convenient and suitable in all aspects by the Highway Authority and will be constructed in accordance with current standards.*

iii. *Require the creation of new and / or enhancement of existing Definitive Rights of Way and / or permissive routes to encourage alternative modes of transport.*

iv. *Take appropriate consideration of Rights of Way reasonably alleged to subsist, where affected by development.'*

Policy DM13 – Transport Assessments

'The Highway Authority will require:

i. A Transport Assessment (TA) to accompany a planning application with the thresholds as set out in Appendix B (C3 Residential dev >50 units), or where the Highway Authority deems it necessary.'

Policy DM14 – Safety Audits

'The Highway Authority will require:

i. A Stage 1 Safety Audit report will include designer's response where appropriate to accompany any planning application which seeks to materially alter the existing highway.

ii. Any Safety Audit accompanying a planning application to have carried out in accordance with current standards by an independent auditor.'

4.5.9 As Stage 1 Road Safety Audit has been undertaken at the proposed site access junction and is discussed in Section 10.

Policy DM 15 – Congestion

'The Highway Authority will protect the safety and efficiency of the public highway by:

i. Requiring the developer to demonstrate that the development proposal has no detrimental impact upon the existing or proposed highway in congestion terms, as measured by assessing existing and proposed link / junction capacity relevant to the development site; or

ii. Require the developer to provide appropriate mitigation measures to ensure that there is no detrimental impact to the existing highway.'

Colchester Borough Council Core Strategy 2221– 2023 (adopted December 2228, amended July 2014)

4.5.10 This is the current planning policy document for the Colchester Borough Council (CBC) area which was adopted in December 2228 but updated in July 2014 as a result of CBC's Focused Review of its Local Plan.

4.5.11 Policies relating to transport include the following:

TA 1 – Accessibility and Changing Travel Behaviour

i. The Council will work with partners to improve accessibility and change travel behaviour as part of a comprehensive transport strategy for Colchester.

ii. *The Council will improve accessibility by enhancing sustainable transport links and encouraging development that reduces the need to travel. Sustainable transport will be improved to provide better connections between the community and their needs. In congested areas, the Council will seek to prioritise the movement of sustainable transport. Innovative solutions will also be implemented to overcome severance that is currently inflicted by busy roads.*

iii. *Future development in the Borough will be focused on highly accessible locations, such as centres, to reduce the need to travel. Developments that are car-dependent or promote unsustainable travel behaviour will not be supported.*

iv. *Travel behaviour change towards sustainable modes will be encouraged through travel plans, improvements to gateways, and by managing travel demand. Major developments, employers and institutions should develop travel plans to promote sustainable travel behaviour. The quality of gateways will be enhanced, whilst traffic and car parking will be carefully managed, to encourage sustainable travel within Colchester.*

TA 2 – Walking and Cycling

i. *The Council will work with partners to promote walking and cycling as an integral and highly sustainable means of transport. Regional and rural links, including national cycle routes, will be improved and better connected with local destinations. The design and construction of facilities and infrastructure will be improved to make walking and cycling more attractive, direct and safe. Quality and convenient pedestrian crossings will be promoted to facilitate safe and direct movement across busy roads.*

ii. *Walking and cycling improvements will be focused on centres, schools, workplaces, and public transport interchanges. In particular, the Council will seek to provide excellent walking and cycling connections into and through the Town Centre. Development shall contribute towards these connections and quality cycle parking where appropriate.*

TA 3 – Public Transport

i. *The Council will work with partners to further improve public transport and increase modal shift towards sustainable modes. Demand responsive services will be promoted to help rural communities access their needs.*

TA 4 – Roads and Traffic

i. *The Borough Council will work with partners to accommodate necessary car travel making the best use of the existing network and manage demand for road traffic.*

ii. *Streets and junctions should be designed to provide people-friendly street environments and to give priority to sustainable transport.*

iii. *Developments will need to contribute towards transport infrastructure improvements to support development itself and to enhance the broader network to mitigate impacts on existing communities.*

TA 5 – Parking

i. *Development should manage parking to accord with the accessibility of the location and to ensure people friendly street environments.*

Colchester Borough Council Local Plan 2017-2033

4.5.12 The emerging Local Plan will *"determine the way forward for Colchester Borough. It will provide the strategy for the growth of our district, setting out what development will take place and where, to 2033 and beyond"*.

4.5.13 Further the document *"will set out a vision for the area, establishing the long term aims and aspirations for the Borough going forward'. The emerging Local Plan will include policies and allocations that will assist in delivering the said aims and aspirations"*.

Tiptree Neighbourhood Plan

4.5.14 Tiptree Neighbourhood Plan area was designated on the 2nd February 2015.

4.5.15 Since then the Council has been preparing evidence and producing surveys. The Council underwent a call for sites from April 2017 which closed on the 12th July 2017.

4.5.16 The Council also underwent a Housing Needs Survey which closed on the 21st July 2017.

4.5.17 The information following these studies is being analysed. Documents for the call for sites have not been issued.

4.5.18 The plan will look to allocate 600 dwellings in line with the emerging Local Plan.

4.5.19 The Neighbourhood Plan website has cancelled all meetings on the website since the end of 2016. The Parish Councils meeting minutes are only available up to the 14th August 2017.

4.5.20 No timetable is available for the delivery of the Neighbourhood Plan.

4.6 Policy and Guidance Summary

4.6.1 Reference to national guidance contained within NPPF has helped to establish that the site is well related to the surrounding area and will contribute towards the creation of a sustainable development.

4.6.2 The review of both national and local transport planning policy has shown that the proposals conform to the aims and aspirations of the Council and will assist in delivering the policies contained within.

4.6.3 The NPPF seeks to ensure access to all road users including pedestrians and cyclists, as well as delivering a scheme, which allows the promotion of travel by public transport to result in an encompassing strategy to provide a high-quality development whilst not compromising a high level of sustainability.

4.6.4 One of the key aims of local policy is to focus on the accessibility of a site by modes other than the private car to ensure that new development is located where a range of transport modes can access it. Locations which offer alternatives to the use of the private car should be encouraged.

4.6.5 The site is ideally located to assist in delivering these aims and aspirations and has potential, through the implementation of the site Travel Plan to deliver a highly sustainable development in transport terms.

4.6.6 It can therefore be concluded that the development proposals fully conform to the main aims and aspirations of the wider and economic objectives of national and local policy.

5 ACCESSIBILITY BY NON-CAR MODES

5.1 Introduction

5.1.1 In order to accord with the aspirations of the NPPF, any new proposals should extend the choice in transport and secure mobility in a way that supports sustainable development.

5.1.2 New proposals should attempt to influence the mode of travel to the development in terms of gaining a shift in modal split towards non-car modes, thus assisting in meeting the aspirations of current national and local planning policy.

5.1.3 The accessibility of the proposed site has been considered by the following modes of transport:

- Accessibility on foot.
- Accessibility by cycle.
- Accessibility by bus.
- Accessibility by rail.

5.2 Accessibility on Foot

5.2.1 It is important to create a choice of direct, safe and attractive routes between where people live and where they need to travel in their day-to-day life.

5.2.2 This philosophy clearly encourages the opportunity to walk whatever the journey purpose and also helps to create more active streets and a more vibrant neighbourhood.

5.2.3 The nearest footways to the site are those on the northern side of Barbrook Lane which are around 2 metres in width and provide pedestrian links throughout Tiptree and direct linkages to the nearby day to day amenities within the village.

5.2.4 The CIHT document 'Planning for Walking' from 2015 states, in paragraph 2.1, that in 2012 that 79% of all journeys made in the UK of less than a mile (1.6 kilometres) are carried out on foot.

5.2.5 Within the Institution of Highways and Transportation (IHT) document, entitled "Guidelines for Providing for Journeys on Foot", Table 2.2 suggests distances for desirable, acceptable and preferred maximum walks to 'town centres', 'commuting/schools' and 'elsewhere'. The 'preferred maximum' distances are shown below in **Table 5.1**.

Suggested Preferred Maximum Walk		
Town Centre	**Commuting/School**	**Elsewhere**
800m	2,000m	1,222m

Table 5.1 – IHT 'Providing for Journeys on Foot' Walk Distances

5.2.6 Reference to the 2,000 metre walk distance is also made in the now superseded Planning Policy Guidance (PPG) Note 13 which advised that 'walking is the most important mode of travel at the local level and offers the greatest potential to replace short car trips, particularly under 2km'.

5.2.7 Manual for Streets (MfS) continues the theme of the acceptability of the 2,000 metre distance in paragraph 4.4.1. This states that '*walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes' (up to about 800m) walking distance of residential areas which residents may access comfortably on foot.*

However, this is not an upper limit and PPS13 states that walking offers the greatest potential to replace short car trips, particularly those under 2 km'.

5.2.8 **Table 5.2** below summarises this guidance in tabular form.

'Comfortable' Walk	'Preferred Maximum' Walk
800m	2,000m

Table 5.2 – Manual for Streets Walk Distances

5.2.9 More specific guidance on the distances that children will walk to school is found in the July 2014 document published by the Department for Education (DfE) entitled 'Home to School Travel and Transport' statutory guidance document. This suggests that the maximum walking distance to schools is 2 miles (3.2 kilometres) for children under 8 and 3 miles (4.8 kilometres) for children over the age of 8. This is summarised below in **Table 5.3**.

Children under 8 Walk Distance	Children over 8 Walk Distance
3,222m	4,800m

Table 5.3 – DfE Walk Distances to Schools

5.2.10 Further evidence that people will walk further than the suggested 'preferred maximum' distances in the IHT 'Providing for Journeys on Foot' is contained in a WYG Report entitled 'Accessibility – How Far do People Walk and Cycle'.

This report refers to National Travel Survey (NTS) data for the UK as a whole, excluding London, that the 85th percentile walk distance for:

- All journey purposes – 1,930 metres.
- Commuting – 2, 400 metres.
- Shopping – 1,600 metres.
- Education – 3,222 or 4,800 metres.
- Personal business – 1,600 metres.

5.2.11 Overall, in Table 5.1, the document states that 1,950 metres is the 85th percentile distance for walking as the main mode of travel. **Table 5.4** below summarises the various 85th percentile walk distances suggested as guidelines in the WYG Study.

85th Percentile Walk Distances					Overall Recommended Preferred
All Journeys	Commuting	Shopping	Education	Personal	
1,950m	2,100m	1,600m	3,222/4,800m	1,600m	1,950m

Table 5.4 – WYG Report/NTS Data Walk Distances

5.2.12 In summary, it is considered that the distance of 1,950 metres, or around 2 kilometres, represents an acceptable maximum walking distance for the majority of land uses although clearly the DfE guidance for walking to school is up to 3.2 kilometres.

5.2.13 Section 3.1 of the CIHT guidance 'Planning for Walking' mentioned earlier in this report provides a useful reminder of the health benefits of walking.

5.2.14 This states that:

'A brisk 20 minute walk each day could be enough to reduce an individual's risk of an early death'.

5.2.15 A 20 minute walk equates to a walking distance of around 1,600 metres.

5.2.16 In light of the above review, a pedestrian catchment of 2 kilometres from the centre of the site, using all available pedestrian routes, has been provided in **Plan 3** and provides an illustrative indication of the areas that can be reached based on a leisurely walk from the site.

5.2.17 In addition, to the pedestrian catchment plan, a review of the proximity of local facilities such as pharmacies/doctor's surgeries, schools (both primary and secondary) local shops/retail outlets and leisure facilities has been undertaken and the location of these is also shown in Plan 3.

5.2.18 The 2,000 metre pedestrian catchment illustrates that the majority of Tiptree can be accessed along with various amenities such as Mildene Primary School, Grove Park, McColl's Convenience Store, Thurstable School, Tiptree Library, ASDA, Shell Petrol Station, Maypole Chinese Restaurant, Baynards Primary School and The Oak Public House.

5.2.19 **Table 5.5** below, shows the walking distance from the centre of the site to the local amenities in the vicinity of the site. The table also confirms whether or not the particular amenity is within the 'preferred maximum' walk distances using the above guideline criteria:

Local Amenity	Distance	Guidance Criteria	Meets with Guidance?
Milldene Primary School	460m	3,222m	**YES**
Grove Park	490m	1,600m	**YES**
McColl's Convenience Store	770m	1,600m	**YES**
Thurstable School	820m	3,222m	**YES**
Tiptree Library	850m	1,600m	**YES**
ASDA	930m	1,600m	**YES**
Shell Petrol Station	960m	1,600m	**YES**
Maypole Chinese Restaurant	1,330m	1,600m	**YES**
Baynards Primary School	1,480m	3,222m	**YES**
The Oak Public House	1,530m	1,600m	**YES**

Table 5.5 - Distance from Site to Local Facilities

5.2.20 As can be seen in the above table, the site is located within close proximity to a number of local amenities including primary services as well as leisure facilities.

5.2.21 All of the day to day amenities are well within the 'preferred maximum' walk distances described earlier in this section and indeed many, including the nearest convenience store and nearest primary school which are within the 800 metres 'comfortable walk' from the site as contained within MfS guidance.

5.2.22 As can be seen on Plan 3, the amenities around Tiptree are located to the west of the site on Maypole Road and to the south of the site on Church Road. In order to access the amenities on Maypole Road, pedestrians would use the existing footway on the northern side of Barbrook Lane which is approximately 2 metres in width. This connects with the existing provision on Maypole Road. In order to access the amenities on Church Road, pedestrians would use Grove Road. It is noted however, that the initial section of Grove Road i.e. for the first 100 metres from the site does not benefit from a formal footway, although it is considered that Grove Road is very lightly trafficked and vehicle speeds are low, meaning pedestrians can still walk safely. From this point onwards, Grove Road has a footway on the south eastern side of around 2 metres in width which leads to Church Road, which then connects to the existing provision on Church Road. It is noted that there is zebra crossing on Church Road to assist pedestrians in accessing the northbound bus stop.

5.2.23 It is therefore considered that the existing pedestrian infrastructure will facilitate safe and direct pedestrian linkages between the site and local destinations.

5.3 Access by Cycle

5.3.1 An alternative mode of travel to the site could be achieved by bicycle.

5.3.2 A distance of 5 kilometres is generally accepted as a distance where cycling has the potential to replace short car journeys.

5.3.3 This distance equates to a journey of around 25 minutes based on a leisurely cycle speed of 12 kilometres per hour and would encompass Great Braxted, Tolleshunt, Kelvedon and Smythe's Green.

5.3.4 National cycle route 1 is located approximately 222 metres from the centre of the site, this is a long-distance cycle route connecting Dover and the Shetland Islands, via the east coast of England and Scotland.

5.3.5 The site can therefore be considered as being accessible by cycle.

5.4 Access by Bus

5.4.1 An effective public transport system is essential in providing good accessibility for large parts of the population to opportunities for work, education, shopping, leisure and healthcare in the area and beyond.

5.4.2 The nearest bus stops to the site are located to the south east of the site on Church Road with an approximate walking distance of 890 metres from the centre of the site consisting of a bus stop pole with passing services shown and a bus service timetable. There are also further bus stops located further along Church Road and Maypole Road. All the nearest bus stops to the site are shown on Plan 3.

5.4.3 A summary of the services available from the nearest bus stops from the development site is provided in **Table 5.6** below.

Service No	Route	Monday – Friday Frequency per hour				Sat	Sun
		AM Peak	Midday	PM Peak	Eve		
75	Maldon – Colchester	1	2	2	1	2	0.5
91	Tollesbury - Witham	1	0	1	0	0.5	0

Table 5.6 - Existing Bus Services Operating Past the Site

5.4.4 As can be seen from Table 5.6, the nearest bus stops to the site provides up to 3 services in peak periods to Kelvedon, Witham and Colchester town centre.

5.4.5 It is noted that the above services provide a choice of how people travel with the bus services operating from around 6.30am to around 8.00pm, making travel by public transport a real alternative to travelling by car for commuting trips.

5.4.6 In order to demonstrate the level of accessibility some example journey times by bus are presented below **Table 5.7** below.

Destination	Duration
Kelvedon	12 minutes
Witham	20 minutes
Maldon	30 minutes
Colchester	36 minutes

Table 5.7 - Example Bus Journey Times from the Site

5.4.7 The above table demonstrates that Witham is just a 20-minute bus journey from the site and Colchester town centre is just a 36-minute bus journey.

5.4.8 It is therefore concluded that the proposed development site is accessible by bus.

5.5 Accessibility by Rail

5.5.1 The most accessible train station to the site is Kelvedon. Although this is situated outside the 2km pedestrian catchment, it is accessible via a 12 minute bus journey on the no.91 bus. This train station is managed by Greater Anglia and has 2 platforms, offering 4 services per hour to destinations such as Colchester, London Liverpool Street and Ipswich.

5.5.2 Alternatively, Colchester station is accessible more regularly using the no.75 bus. Both stations run on the same line with a journey from Colchester to Ipswich taking around 20 minutes, while a journey to London takes around 1 hour.

5.5.3 This provides opportunities for commuting/leisure opportunities from the site via rail.

5.6 Accessibility Summary

5.6.1 The proposals have been considered in terms of accessibility by non-car modes for the proposed residential development.

5.6.2 The following conclusions can be drawn from this section of the Report:

- The site is accessible on foot and these provisions will be improved as part of the works on the development site.
- The area surrounding the site is relatively flat, making it highly conducive to trips to and from the site by cycle.
- The services from the bus stops on Church Road and Maypole Road, travelling to Kelvedon, Witham and Colchester town centre, shows that the proposed development can be accessed by bus.
- The site is accessible via rail with Kelvedon train station located just a 12-minute bus journey away from the site.

5.6.3 In light of the above, it is considered the site is highly accessible by non-car modes and will cater for needs of the development's residents and assist in promoting a choice of travel modes other than the private car.

6 TRAFFIC IMPACT ANALYSIS

6.1 Introduction

6.1.1 Having established that the development site is accessible by modes of transport other than the private car and would be in general accordance with land use and transport policies, the following section considers the traffic impact of the development proposals on the local highway network.

6.2 Assessment Criteria

6.2.1 Given the proposed residential land use, it is assumed reasonable to consider the AM and PM weekday peak hours, as being those with the greatest impact on the local highway network.

6.3 Traffic Survey Data

6.3.1 In order to assess the impact of the proposed development on the local highway network traffic surveys were undertaken at the following junctions:

- Barbrook Lane/Green Lane (priority controlled junction)
- Green Lane/B1022 (priority controlled junction)
- B1022/B1023 (double mini-roundabout)
- Church Road/Grove Road (priority controlled junction)

6.3.2 The surveys were undertaken between 0730 and 0930 hours in the morning and between 1630 and 1830 hours in the evening. The full traffic survey data is contained within **Appendix 1**.

6.3.3 The peak hours were identified as 0800 to 0900 hours and 1630 to 1730 hours, for the AM and PM peaks respectively.

6.3.4 The 2018 surveyed flows for the peak hours converted into Passenger Car Units (PCU's) are shown in **Figures 1** and **2**.

6.4 Growthed Traffic Flows

6.4.1 For the purpose of this Report, assessments have been undertaken for a design horizon of 2023, representing five years after the application registration.

6.4.2 This can be considered to be a robust approach.

6.4.3 To derive the baseline 2023 flows, the 2018 surveyed flows have been growthed to 2023 using National Traffic Model (NTM) factors adjusted by using the Trip End Model Program (TEMPro) local growth factors.

6.4.4 The resultant 2023 growthed traffic flows are shown in **Figures 3** and **4** for the AM and PM peak periods.

6.4.5 The resultant growth factors are shown below:

- 2018 to 2023 AM Peak - 1.0712
- 2018 to 2023 PM Peak - 1.0696

6.5 Committed Development

6.5.1 During the preparation of this TA, consideration has been given to any committed developments in the area that would need to be included and these have been confirmed by the highways officer.

6.5.2 It is considered that there are three committed developments to take into account, which are;

- App ref no. 13/0244 which refers to the relocation of the Tiptree Jam Factory and associated residential development comprising approximately 118 dwellings on what will be the old factory site.
- App ref no. 13/0245 which refers to a residential development comprising approximately 126 dwellings on Factory Hill, opposite the above site; and
- App ref no. 12/2134 which refers to a residential development comprising approximately 103 dwellings to the north and south of Grange Road.

6.5.3 The resultant associated development flows for App ref no. 13/0244 and 13/2045 are shown in **Figures 5** and **6** for the AM and PM peak periods.

6.5.4 The resultant associated development flows for App ref no. 12/2134 are shown in **Figures 7** and **8** for the AM and PM peak periods.

6.5.5 The total committed development traffic for the above applications are shown in **Figures 9** and **10** for the AM and PM peak periods.

6.6 Base Flows

6.6.1 To establish the 2023 'Without Development' flows, the total committed development flows shown in Figures 9 and 10 for the AM and PM peak respectively have been added to the factored 2023 flows shown in Figures 3 and 4.

6.6.2 The resulting 2023 'Without Development' traffic flows are presented in **Figures 11** and **12**.

6.7 Trip Distribution

6.7.1 The directional distribution of the traffic associated with the proposals has been assigned to the local highway network in line with existing patterns of movements on the local highway network.

6.7.2 The resulting traffic assignment for the AM peak period is shown in **Figure 13** whilst the assigned PM peak traffic is shown in **Figure 14**.

6.8 Proposed Development

6.8.1 As previously stated it is proposed to develop the site for up to 200 dwellings.

6.8.2 In order to establish the number of trips which the proposed residential element is forecast to generate, rather than use the TRICS database, reference has been made to a traffic survey at the Brindle Road/Bluebell way junction in Bamber Bridge in Lancashire. It serves around 182 dwellings and generates two-way minimum of 0.6, as requested by the highways officer at ECC. These trip rates have been subsequently agreed with the highways officer at ECC as being suitable for use for the purpose of this TA.

6.8.3 The peak hour trip rates and forecast trip generation based on the provision of up to 200 dwellings are summarised within **Table 6.1**.

Peak Period	Trip Rate (per unit)		Number of Trips	
	Arr	Dep	Arr	Dep
AM Peak Hour	0.15	0.43	29	86
PM Peak Hour	0.34	0.24	69	47

Table 6.1 - Forecast Trip Generation of Proposed Residential Development

6.8.4 As demonstrated above, the residential development is forecast to generate a two-way total of approximately 115 trips in the AM peak hour and around 116 trips in the PM peak hour.

6.8.5 The resultant proposed residential development flows for the AM Peak are shown in **Figure 15** whilst the development flows for the PM Peak are shown in **Figure 16**.

6.9 With Development Flows

6.9.1 In order to calculate the 2023 'With Development' flows, the development flows contained within Figures 15 and 16 have been added to the 2023 base flows contained within Figures 11 and 12.

6.9.2 The resulting 2023 'With Development' Flows are presented in **Figures 17** and **18** respectively for the AM and PM peak hours.

6.10 Capacity Assessments

6.10.1 As already stated, vehicular access into the site is proposed directly from Barbrook Lane.

6.10.2 In addition to the site access, the capacity assessments will include the following junctions on the wider road network;

- Barbrook Lane/Green Lane (priority controlled junction)
- Green Lane/B1022 (priority controlled junction)
- B1022/B1023 (double mini-roundabout)
- Church Road/Grove Road (priority controlled junction)

Site Access/Barbrook Lane

6.10.3 The proposed residential site access off Barbrook Lane will be a priority controlled junction and so has been assessed using PICADY.

6.10.4 The results for the 'With Development' flow scenario for 2023 are summarised within **Table 6.2** with the full results contained within **Appendix 2**.

Arm	2023 Assessment Flows			
	Weekday AM		Weekday PM	
	Max RFC	Q	Max RFC	Q
Site Access	0.19	0	0.11	0
Barbrook Lane	0.02	0	0.07	0

Table 6.2 - Summary of PICADY Results for Site Access/Barbrook Lane

6.10.5 As can be seen above, the results show the new access junction serving the development will operate efficiently in both the AM and PM peak hours in the 'With Development' 2023 flow scenario.

6.10.6 The above demonstrates that the proposed access is suitable in terms of its geometric layout and design and will provide a safe point of vehicular access into the site.

Barbrook Lane/Green Lane (priority controlled junction)

6.10.7 The Barbrook Lane/Green Lane junction is priority controlled and so has been assessed using PICADY.

6.10.8 The results for the 'With Development' flow scenario for 2023 are summarised within **Table 6.3** with the full results contained within **Appendix 3**.

Arm	2023 Assessment Flows				2023 Assessment Flows			
	Weekday AM		Weekday PM		Weekday AM		Weekday PM	
	Max RFC	Q	Max RFC	Q	Max RFC	Q	Max RFC	Q
Barbrook Lane	0.19	0	0.10	0	0.30	0	0.16	0
Green Lane (s)	0.03	0	0.02	0	0.03	0	0.02	0

Table 6.3 - Summary of PICADY Results for Barbrook Lane/Green Lane

6.10.9 As can be seen above, the results show the junction will operate efficiently in the 2023 'Without Development' flow scenario in both the AM and PM peak hours.

6.10.10 The results for the 2023 'With Development' assessments show that the junction will continue to operate efficiently in both peak hours, in a similar manner to the base situation.

Green Lane/B1022 (priority controlled junction)

6.10.11 The Green Lane/B1022 junction is priority controlled junction and so has been assessed using PICADY.

6.10.12 The results for the 'Without Development' and 'With Development' flow scenario for 2023 are summarised within **Table 6.4** with the full results contained within **Appendix 4**.

Arm	2023 Base Flows				2023 Assessment Flows			
	Weekday AM		Weekday PM		Weekday AM		Weekday PM	
	Max RFC	Q	Max RFC	Q	Max RFC	Q	Max RFC	Q
Green Lane	0.43	1	0.24	0	0.56	1	0.32	1
B1022 (s)	0.14	0	0.12	0	0.16	0	0.17	0

Table 6.4 - Summary of PICADY Results for Green Lane/B1022

6.10.13 As can be seen above, the 2023 results show the Green Lane/B1022 junction will operate within capacity in the AM and PM peaks.

6.10.14 The results for the assessments which include the traffic associated with the proposals show the development traffic will not have a material impact and the junction will operate at a similar level to the base situation in both peak hours.

B1022/B1023 (double mini-roundabout)

6.10.15 The B1022/B1023 is a double mini-roundabout and so has been assessed using ARCADY.

6.10.16 The ARCADY model has firstly been run for the 2018 flow scenario without any adjustments to establish how accurately it was reflecting the base flow conditions.

6.10.17 Following these assessments of the junction and reviewing the queue survey data, it became apparent that the baseline 2018 model was not replicating the operation or queuing conditions on site.

6.10.18 The results for the unadjusted 'Without Development' flow scenario for 2018 and observed queues are summarised within **Table 6.5** with the full results contained within **Appendix 5**.

Arm	2018 Surveyed Flows (Unadjusted)				Observed Average Queues	
	Weekday AM		Weekday PM		Weekday AM	Weekday PM
	Max RFC	Q	Max RFC	Q		
B1022 (N)	0.94	10	0.68	2	4	2
B1022 (S)	0.94	10	0.82	5	4	2
Kelvedon Road	0.58	1	1.03	22	7	14
B1022 (n)	1.04	28	1.09	41	4	3
B1023	0.93	9	0.67	2	5	2
B1022 (s)	0.90	7	0.94	10	4	3

Table 6.5 - Summary of ARCADY Results for B1022/B1023 (Unadjusted)

6.10.19 As can be seen above, the model is overestimating the levels of queuing in both the AM and PM peak hours, when compared to those observed on site during the survey.

6.10.20 In light of the above, adjustments have been made using the 'capacity adjustment' facility within the program to ensure that the model reflects the observed conditions.

6.10.21 The results for the adjusted 'Without Development' flow scenario for 2018 and observed queues are summarised within **Table 6.6** with the full results contained within **Appendix 5**.

Arm	2018 Surveyed Flows (Adjusted)				Observed Average Queues	
	Weekday AM		Weekday PM		Weekday AM	Weekday PM
	Max RFC	Q	Max RFC	Q		
B1022 (N)	0.82	4	0.69	2	4	2
B1022 (S)	0.83	4	0.78	3	4	2
Kelvedon Road	0.92	7	0.98	14	7	14
B1022 (n)	0.83	4	0.71	2	4	3
B1023	0.86	5	0.70	2	5	2
B1022 (s)	0.83	4	0.78	3	4	3

Table 6.6 - Summary of ARCADY Results for B1022/B1023 (Adjusted)

6.10.22 As can be seen above, the 2018 surveyed flow model now validates well against the observed queuing levels and is therefore deemed acceptable to use for the future year assessments.

6.10.23 The results for the 'Without Development' and 'With Development' flow scenario for 2023 are summarised within **Table 6.7** with the full results contained within **Appendix 5**.

Arm	2023 Base Flows				2023 Assessment Flows			
	Weekday AM		Weekday PM		Weekday AM		Weekday PM	
	Max RFC	Q	Max RFC	Q	Max RFC	Q	Max RFC	Q
B1022 (N)	0.90	8	0.78	3	0.97	14	0.80	4
B1022 (S)	0.91	8	0.86	5	0.91	8	0.90	7
Kelvedon Road	1.13	30	1.16	54	1.12	30	1.22	71
B1022 (n)	0.89	7	0.76	3	0.94	10	0.77	3
B1023	1.02	19	0.79	3	1.13	44	0.83	5
B1022 (s)	0.95	10	0.87	6	0.97	13	0.94	10

Table 6.7 - Summary of ARCADY Results for B1022/B1023

6.10.24 As can be seen above, the 2023 'Without Development' results show the B1022/B1023 junction will be operating above its theoretical capacity in the AM and PM peak hours.

6.10.25 The results which include the development show that overall, the junction will operate at a similar level albeit with some increase in queueing on some arms.

Church Road/Grove Road (priority controlled junction)

6.10.26 The Church Road/Grove Road junction is priority controlled and so has been assessed using PICADY.

6.10.27 An assessment based on the 2018 surveyed flows shows the model validates well against observed queuing levels out of Grove Road and is therefore deemed to be acceptable for use.

6.10.28 The results for the 'Without Development' and 'With Development' flow scenario for 2023 are summarised within **Table 6.8** with the full results contained within **Appendix 6**.

Arm	2023 Base Flows				2023 Assessment Flows			
	Weekday AM		Weekday PM		Weekday AM		Weekday PM	
	Max RFC	Q	Max RFC	Q	Max RFC	Q	Max RFC	Q
Grove Road	0.65	2	0.42	1	0.80	4	0.54	1
Church Road (s)	0.23	0	0.32	1	0.23	0	0.33	1

Table 6.8 - Summary of PICADY Results for Church Road/Grove Road

6.10.29 As can be seen above, the 2023 results show the Church Road/Grove Road junction will be operating within its theoretical capacity in the AM and PM peak hours in the 2023 'Without Development' scenario.

6.10.30 The results which include the development traffic show the junction will continue to operate satisfactorily in both peak hours.

6.11 Wider Traffic Impact

6.11.1 As part of the traffic impact assessment, consideration has also been given to the potential impact on the A12, which is maintained by Highways England.

6.11.2 With reference to GoogleMaps routing software the following routes have been considered;

- For traffic travelling to the east i.e. Colchester, given the location of the site, traffic is assigned to the B1022 Colchester Road which is the quickest and shortest route and so development traffic is unlikely to use the A12; and
- For traffic travelling to the west i.e Witham - the assigned routes are;
    1. The B1022 Maldon Road - turning onto Braxted Park Road;
    2. The B1023 Kelvedon Road - Vine Road - Grange Rd - Tiptree Road - Braxted Park Road; and
    3. The B1023 Kelvedon Road - Vine Road - Grange Road - Highfields Lane- through Kelvedon and accessing the A12 at Junction 23. The quickest and shortest routes are the first two to access the A12 at Junction 22, rather than through Kelvedon.

6.11.3 On that basis, the potential impact on the slips at A12 J.22 south of Rivenhall based on Route 1 above (which is the most likely scenario, given it would be easier/quicker to turn left out of Barbrook Lane onto the B1022, as opposed to turning right and negotiating the double mini-roundabout and then Kelvedon Road) is summarised in **Table 6.9** for the AM peak below;

Link	AM Peak Hour		
	2017 Base	Dev Flows	% Increase
A12 Rivenhall westbound on-slip	580	5	0.9%
A12 Rivenhall eastbound off-slip	692	4	0.6%

Table 6.9 – Summary of AM Peak Impact on the A12

6.11.4 A summary of the potential impact in the PM peak is summarised in **Table 6.10** below.

Link	PM Peak Hour		
	2017 Base	Dev Flows	% Increase
A12 Rivenhall westbound on-slip	194	7	3.6%
A12 Rivenhall eastbound off-slip	735	9	1.2%

Table 6.9 – Summary of AM Peak Impact on the A12

6.11.5 As can be seen above the proposals will not have a material impact on the slip road junctions on the A12.

6.12 Summary

6.12.1 This section of the Report has considered the impact of the proposal in transport terms.

6.12.2 The above assessment has demonstrated that the impact of the proposals will not give rise to any highway capacity issues.

6.12.3 It is therefore considered that the predicted level of traffic can be accommodated onto the local highway network.

6.12.4 Furthermore, as detailed previously, the applicant is willing to provide a financial contribution for the improvement to the Barbrook Lane/Grove Road junction to dissuade drivers from using the old section of Grove Road.

6.12.5 On that basis, it can be assumed that the impact of the proposals on the local highway network would be minimal and, in any event, could not be considered to be severe, as is the test set out within paragraph 109 of the NPPF.

7 ROAD SAFETY

7.1 Introduction

7.1.1 In order to consider the potential impact of the development on road safety, a review of the Crashmap website (www.crashmap.co.uk) has been undertaken. The information provided on the website covered the five-year period 2013 to 2017 in the vicinity of the development site. The CrashMap personal injury accident data, including location maps is contained within **Appendix 7**.

7.2 Accident Review

7.2.1 According to the data provided there have been seven recorded accidents within the study area, as identified in **Figure 7.1** below.

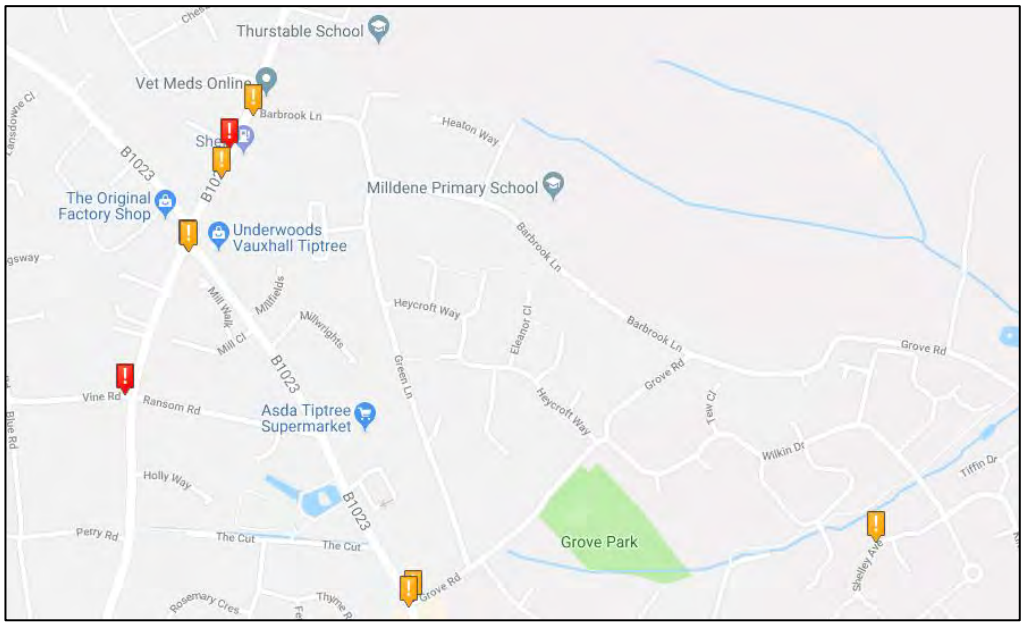


Figure 7.1 – Location of Recorded Accidents

7.2.2 The data shows there have been two accidents at the B1023 Church Road/Grove Road junction, one in 2013 and the other in 2015. The details for the first one show that the weather conditions were fine and the road surface dry, although the incident did take place in darkness, with street lighting present. The details show the accident involved a motorcycle that collided with a pedestrian who was crossing the road, and who was then also struck by the car, resulting in slight injuries to the pedestrian. While the cause of the accident is not clear, the details suggest that the motorcyclist, car driver and/or pedestrian were not paying sufficient attention to other road users, rather than there being any safety problems with the junction layout or geometry.

7.2.3 The second incident took place when the weather and road conditions were fine and dry. The details show that the accident involved two cars, one of which struck the other as it was turning right, resulting in slight injuries to one of the drivers. Again, the details suggest that one or both of the car drivers was not paying adequate attention to other road users.

7.2.4 The accident records show that two accidents took place at the B1023 Church Road/B1022 Maldon Road junction.

7.2.5 The first took place in 2013 when the road surface was frosty/icy although it was daylight at the time. The details indicate that two cars were involved where one collided with the other while negotiating the roundabout, as they were unable to see properly due to the window being iced up. This type of accident can be attributed to driver error. The accident resulted in slight injuries being sustained.

7.2.6 The second recorded accident took place in 2015 and involved a car and a light goods van. The weather conditions were dry and fine. The details show that one of the vehicles pulled out onto the roundabout and collided with the other car, resulting in slight injuries. The details indicate that the causal factor was simply driver error.

7.2.7 The records show that there have been three accidents further along the B1022 Maypole Road.

7.2.8 The first took place in 2014 when the weather conditions and road surface were dry. It involved a car and a pedal cycle, where the car driver was in the act of turning right and did not see the cyclist. The records show that slight injuries were sustained to the cyclist. The details show that the car driver was not paying sufficient attention to the other road users.

7.2.9 The second recorded accident took place in 2016 when the road surface and weather was dry. The details show that the incident involved two cars and a motorcycle, where the motorcyclist was turning right and one of the cars was overtaking the other which was stationary. The incident resulted in serious injuries being sustained to the motorcyclist. While the details are not provided, it is likely that the car driver or motorcyclist (or both) were not paying adequate attention to other road users.

7.2.10 The third recorded accident took place in 2013 when the road surface was dry and the weather conditions were fine. The details show that the accident involved a car and a pedal cycle, where the car was turning right when it struck the cyclists on their offside. The records show that the cyclist sustained slight injuries. Again, the details suggest that the car driver was not paying adequate attention to other road users, rather than there being any safety issues with the road geometry or layout.

7.2.11 All of the above accidents took place between 2013 or 2016.

7.2.12 Overall, the evidence shows that there have been no accidents in the vicinity since 2016, which indicates that there is a trend of accidents reducing.

7.3 Accident Summary

7.3.1 The data reviewed has not identified any untypical accidents.

7.3.2 The evidence shows that there are no particular engineering issues or problems with the road network or junction layouts.

7.3.3 The data reviewed has demonstrated that there are no particular road safety issues in the vicinity of the site.

7.3.4 It is not considered that the proposals for a residential development will unduly change the characteristics or nature of the surrounding highway network and as such will not have a detrimental impact on overall road safety.

8 PROMOTING SMARTER CHOICES VIA TRAVEL PLANS

8.1 Introduction

8.1.1 It is understood from the highways officer at ECC that the quantum of this particular development (up to 200 units) does not trigger a requirement for a Travel Plan.

8.1.2 However, in order to manage the travel by residents at the new development, the applicant wishes to offer commitment to the provision of a Residential Travel Information Pack (RTIP) for all properties.

8.2 Residential Travel Information Pack

8.2.1 It is an important and emerging principle in residential developments that where appropriate the implementation of travel plan type measures can establish a pattern of travel behaviour favouring sustainable modes from the inception of the development.

8.2.2 The proposed development is very well placed for encouraging access on foot or by cycle to a wide range of facilities. Similarly, the existence of a local bus service will encourage choice of public transport as a primary means of travel for the development.

8.2.3 It is recommended that an RTIP is provided for the occupants of each new residential unit, prior to the occupation of the first unit.

8.2.4 The contents of such a travel pack would include information relating to walking and cycling routes in the area and the provision of up to date bus and rail timetable information in addition to an identification of the location of nearby amenity facilities as part of the information supplied to purchasers.

8.2.5 The adoption of such Travel Packs is recognised as being an important element in ensuring that access by non-car modes is promoted from the earliest occupation of a residential development.

8.2.6 Within the Residential Travel Information Pack, residents will be encouraged to consider ways in which to reduce their need to travel such as home delivery for shopping and working from home. The first issue of the Residents Travel Information Pack will be the responsibility of the house builder.

8.2.7 The provision of a Residential Travel Information Pack will form part of the terms of the sale or occupancy of the dwellings and therefore residents are aware in advance of what is required of them in terms of travelling by sustainable transport modes.

8.2.8 The application site has been demonstrated to benefit from excellent non-car accessibility and it should, therefore, be expected that the adoption of a Travel Plan would be particularly effective.

8.2.9 A Residential Travel Plan has been prepared and is submitted as a separate document within the application package.

9 ROAD SAFETY AUDIT

9.1 Introduction

9.1.1 As detailed in Section 4 of this Report, the Essex Transport Strategy: The Local Transport Plan (referred to as LTP3) sets out how ECC will manage and improve transport between 2011 and 2026. The plan aims to achieve five broad outcomes, with the pertinent one in this instance being as follows;

Policy DM14 – Safety Audits

'The Highway Authority will require:

i. A Stage 1 Safety Audit report will include designer's response where appropriate to accompany any planning application which seeks to materially alter the existing highway.

ii. Any Safety Audit accompanying a planning application to have carried out in accordance with current standards by an independent auditor.'

9.2 Road Safety Audit

9.2.1 In light of the above, as Stage 1 Road Safety Audit has been undertaken at the proposed site access junction. The Road Safety Audit and Designers Response is presented in **Appendix 8**.

9.2.2 Only one point was raised in the audit and this related to the *"Omission of uncontrolled pedestrian crossing including dropped kerbs and tactile paving may result in a number of trip hazards to pedestrians particularly those with mobility impairments".*

9.2.3 This has been addressed in the Designers Response and the site access plan has been revised accordingly to provide an uncontrolled crossing with dropped kerbs and tactile paving on both sides.

9.3 Summary

9.3.1 There are no safety issues with the proposed site access on Barbrook Lane with adequate visibility being achieved.

9.3.2 The provision of dropped kerbs and tactile paving will improve and encourage safe pedestrian movement, including the mobility impaired.

10 CONCLUSIONS

10.1.1 Croft have been instructed to advise on the traffic and transport aspects of a proposed residential development on land off Barbrook Lane in Tiptree in Colchester.

10.1.2 The following conclusions can be drawn with regard to the proposed development:

- The application site is accessible by non-car travel modes, such as walking and cycling.

- The site is also accessible by public transport with bus stops within walking distance of the site, offering direct services to a range of destinations including Colchester town centre, Maldon and Witham.

- Opportunities also exist for residents to travel by rail with Kelvedon station being accessible via a 12 minute bus journey and providing services to Colchester, London Liverpool Street and Ipswich.

- The site can be accessed in a safe and efficient manner off Barbrook Lane and the access point has been designed in accordance with current design guidelines. An uncontrolled crossing with dropped kerbs and tactile paving have been added following the Road Safety Audit.

- The impact of the proposals has been assessed using very robust trip rates and the assessment undertaken has shown that the proposals will not have a material impact or give rise to any highways related issues. It can therefore be concluded that the proposed development would be able to be accommodated onto the local highway network.

- The applicant is also willing to provide a financial contribution for the improvement to the Barbrook Lane/Grove Road junction to dissuade drivers from using the old section of Grove Road.

- While not proposed as part of this application, the applicant is willing to dedicate 0.6 hectares of land adjacent to Milldene Primary School, as requested by the Essex County Council Economic Growth and Development team in their consultee response.

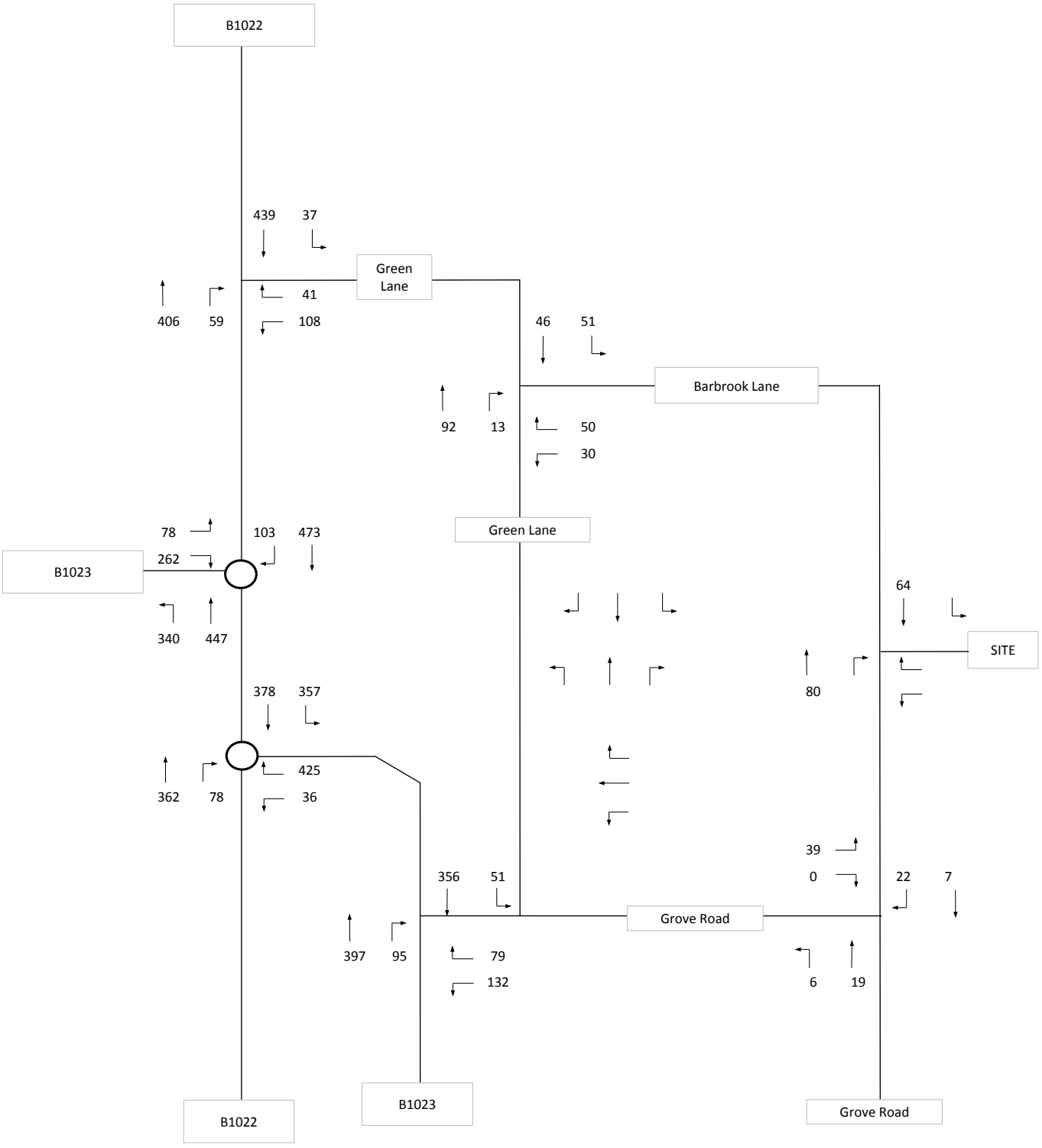
- There is no evidence to suggest that the proposals would have an adverse effect on road safety or the number of accidents in the vicinity.

- The provision of a Residential Travel Information Pack for all households will assist in reducing vehicular impact and help to create a wider choice of travel to residents and visitors.

10.1.3 In conclusion, the proposals will provide a sustainable development in transport terms and planning permission should be granted in accordance with the National Planning Policy Framework.

FIGURES

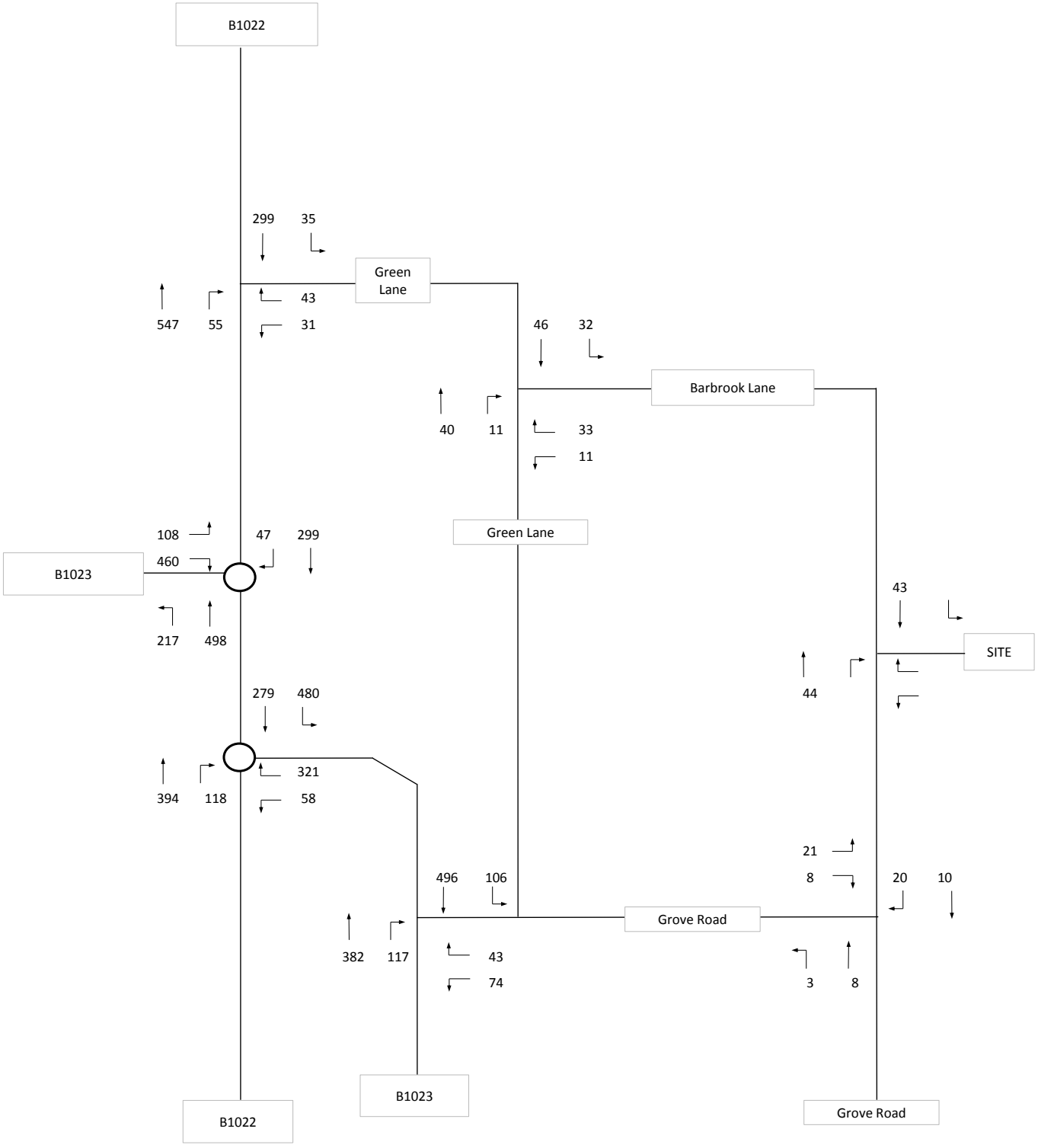
FIGURE	DESCRIPTION	SCENARIO	CALC
FIGURE 1	2018 SURVEYED FLOWS	AM PEAK	See TA
FIGURE 2	2018 SURVEYED FLOWS	PM PEAK	See TA
FIGURE 3	2023 FACTORED FLOWS	AM PEAK	FIG1xNTM
FIGURE 4	2023 FACTORED FLOWS	PM PEAK	FIG2xNTM
FIGURE 5	COMMITTED DEVELOPMENT (APP REF 13/0244 & 13/0245)	AM PEAK	See TA
FIGURE 6	COMMITTED DEVELOPMENT (APP REF 13/0244 & 13/0245)	PM PEAK	See TA
FIGURE 7	COMMITTED DEVELOPMENT (APP REF 12/2134)	AM PEAK	See TA
FIGURE 8	COMMITTED DEVELOPMENT (APP REF 12/2134)	PM PEAK	See TA
FIGURE 9	TOTAL COMMITTED DEVELOPMENT	AM PEAK	See TA
FIGURE 10	TOTAL COMMITTED DEVELOPMENT	PM PEAK	See TA
FIGURE 11	2023 BASE FLOWS	AM PEAK	F3+F9
FIGURE 12	2023 BASE FLOWS	PM PEAK	F4+F10
FIGURE 13	TRIP DISTRIBUTION	AM PEAK	See TA
FIGURE 14	TRIP DISTRIBUTION	PM PEAK	See TA
FIGURE 15	DEVELOPMENT FLOWS	AM PEAK	See TA
FIGURE 16	DEVELOPMENT FLOWS	PM PEAK	See TA
FIGURE 17	2023 ASSESSMENT FLOWS	AM PEAK	F11+F15
FIGURE 18	2023 ASSESSMENT FLOWS	PM PEAK	F12+F16



Flows in PCU's

Figure 1 - 2018 Surveyed Flows - AM Peak (0800 to 0900)

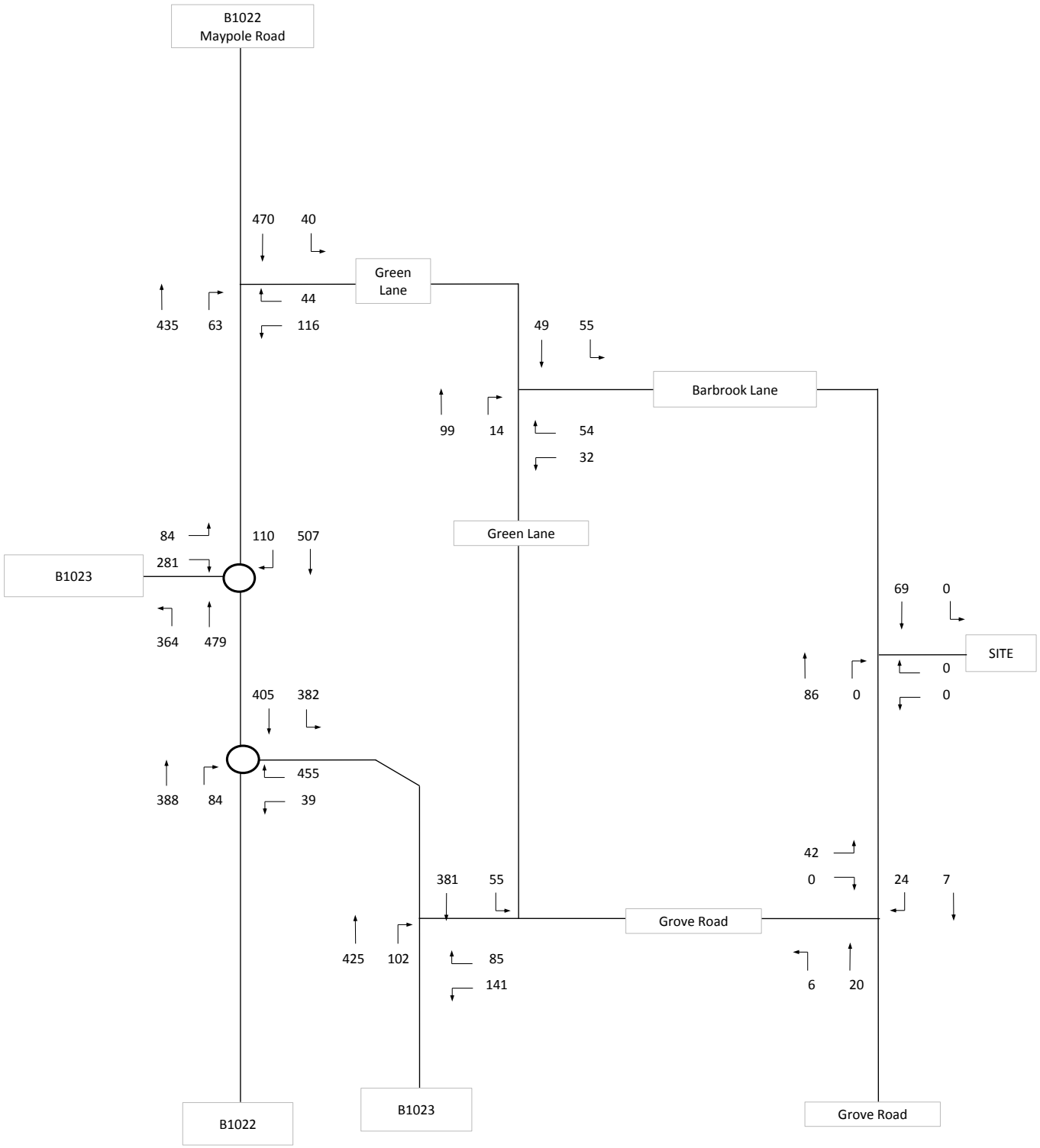
Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY



Flows in PCU's

Figure 2 - 2018 Surveyed Flows - PM Peak (1700 to 1800)

Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

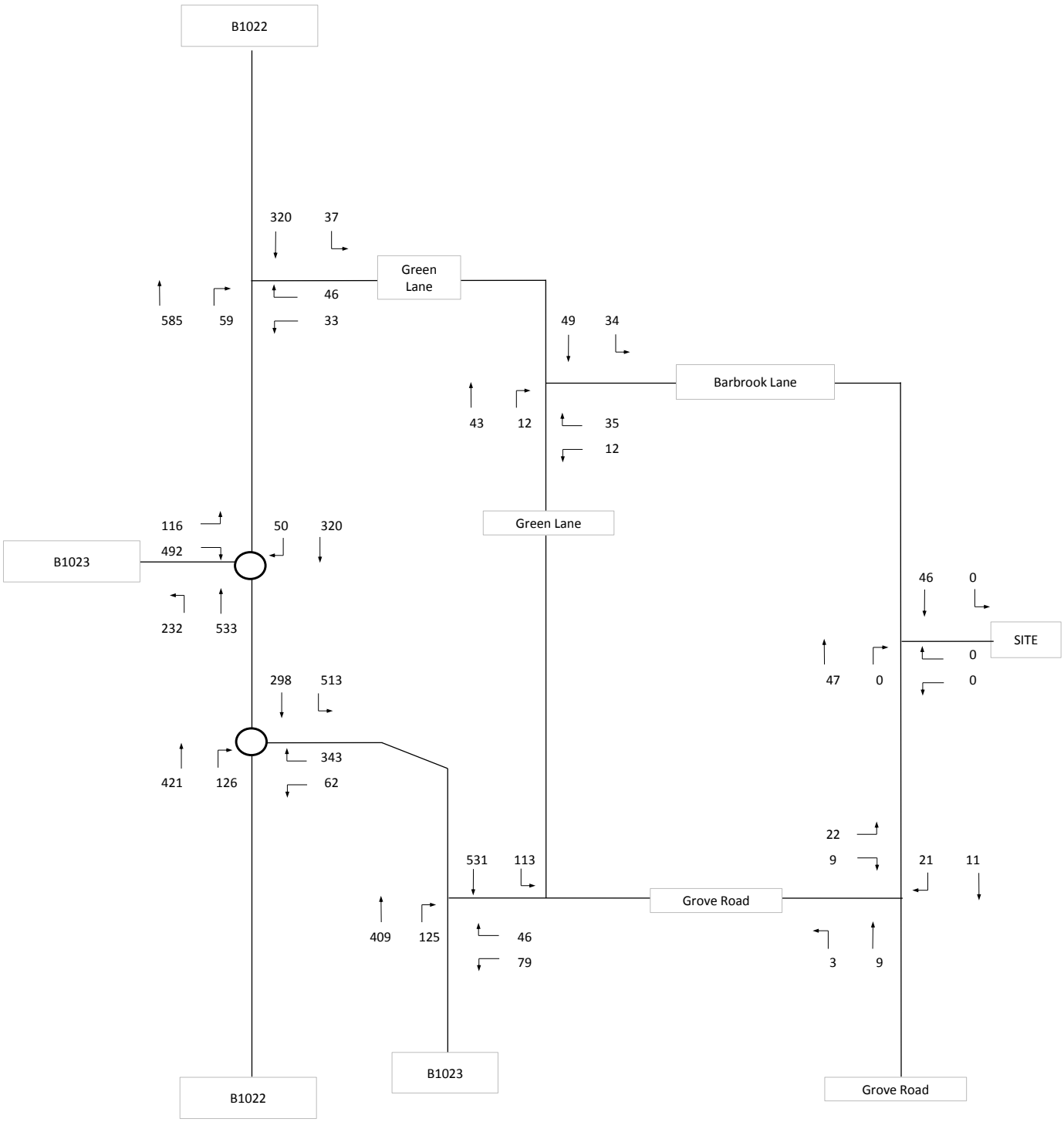


Growth factor 2018 to 2023 = 1.0712

Flows in PCU's

Figure 3 - 2023 Factored Flows - AM Peak (0800 to 0900)

Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY



Growth factor 2018 to 2023 = 1.0696

Flows in PCU's

Figure 4 - 2023 Factored Flows - PM Peak (1700 to 1800)

Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

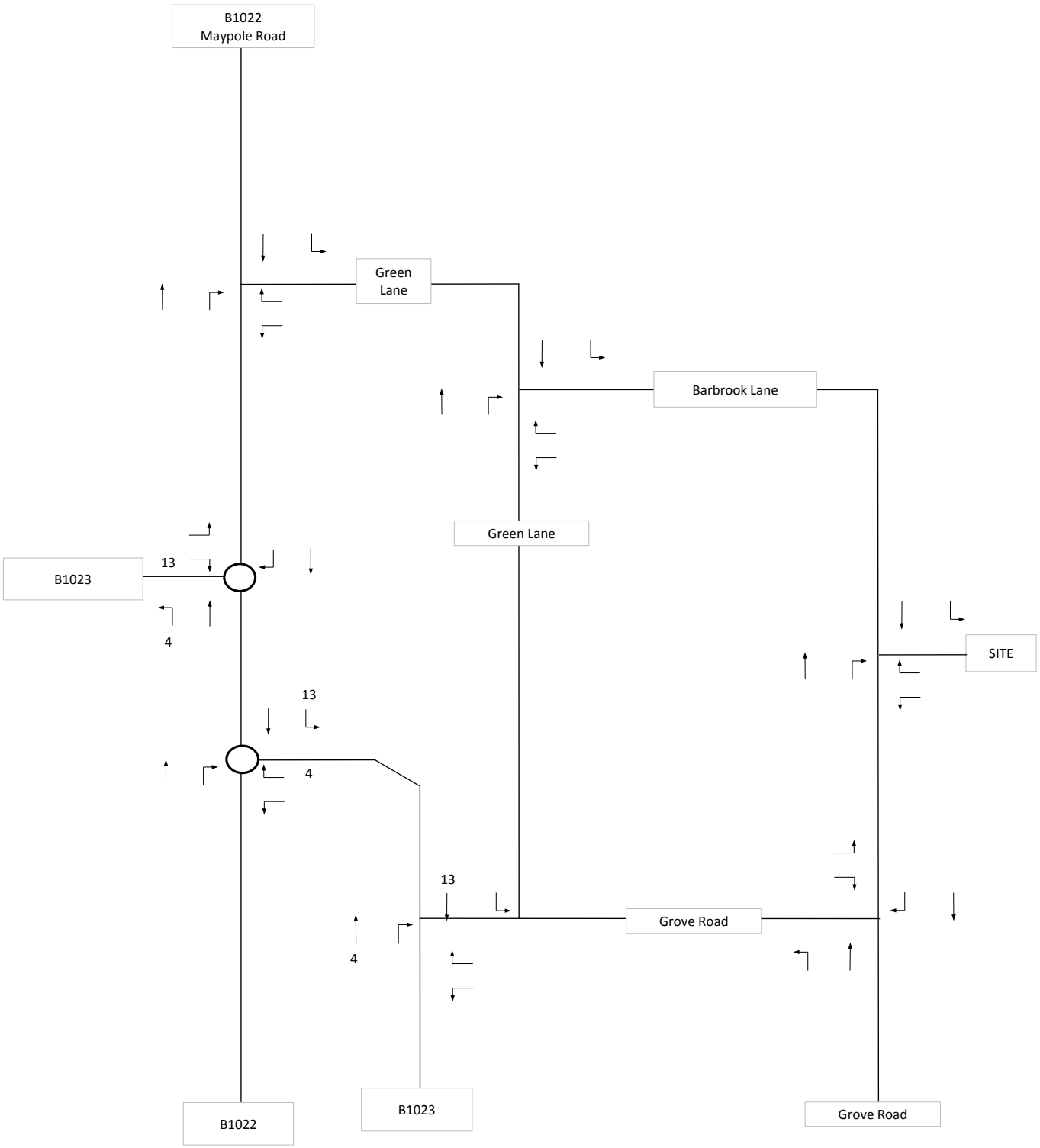


Figure 5 - Committed Development (App ref 12/2134)

AM Peak

Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

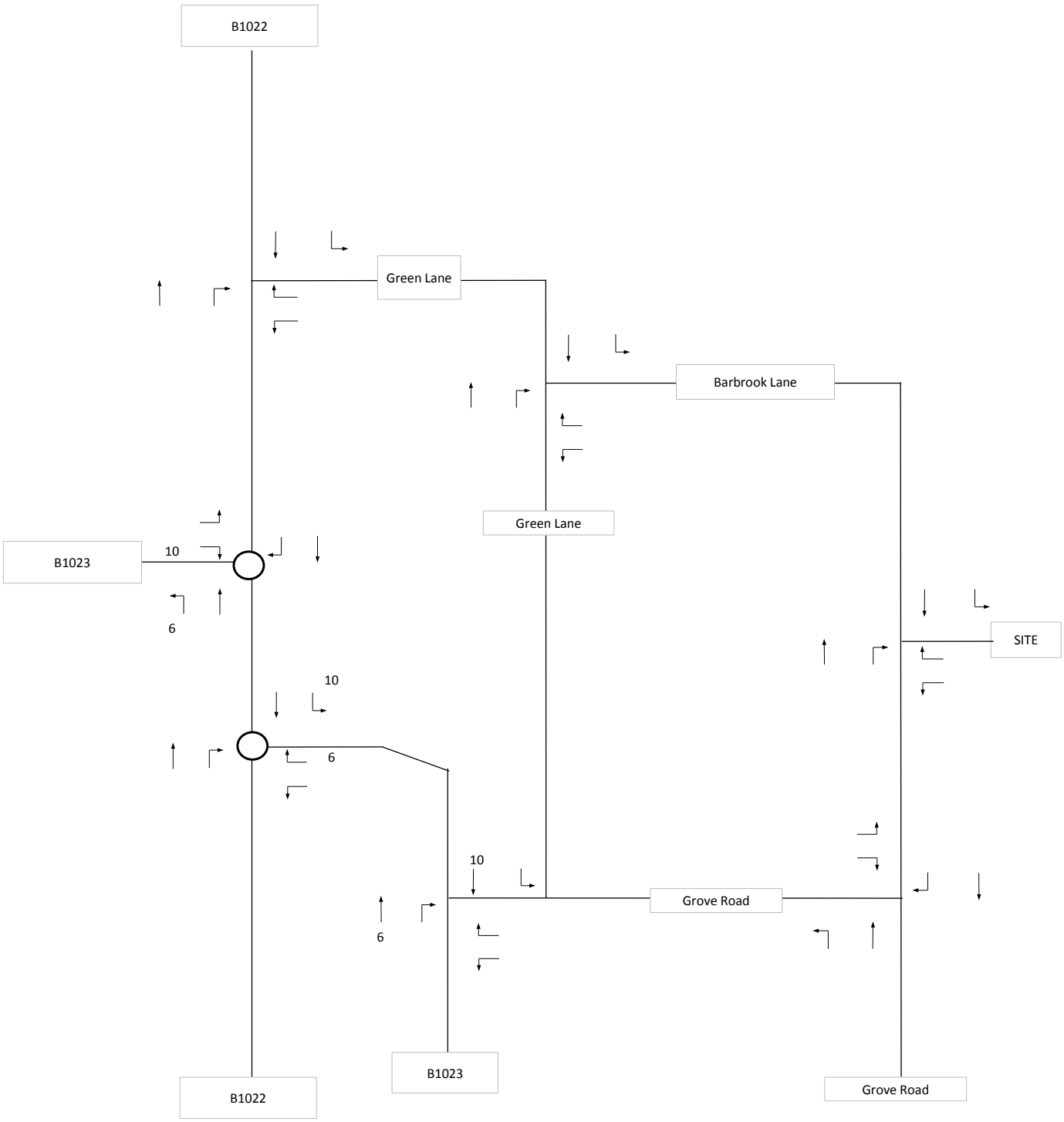


Figure 6 - Committed Development (App ref 12/2134)

PM Peak

Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

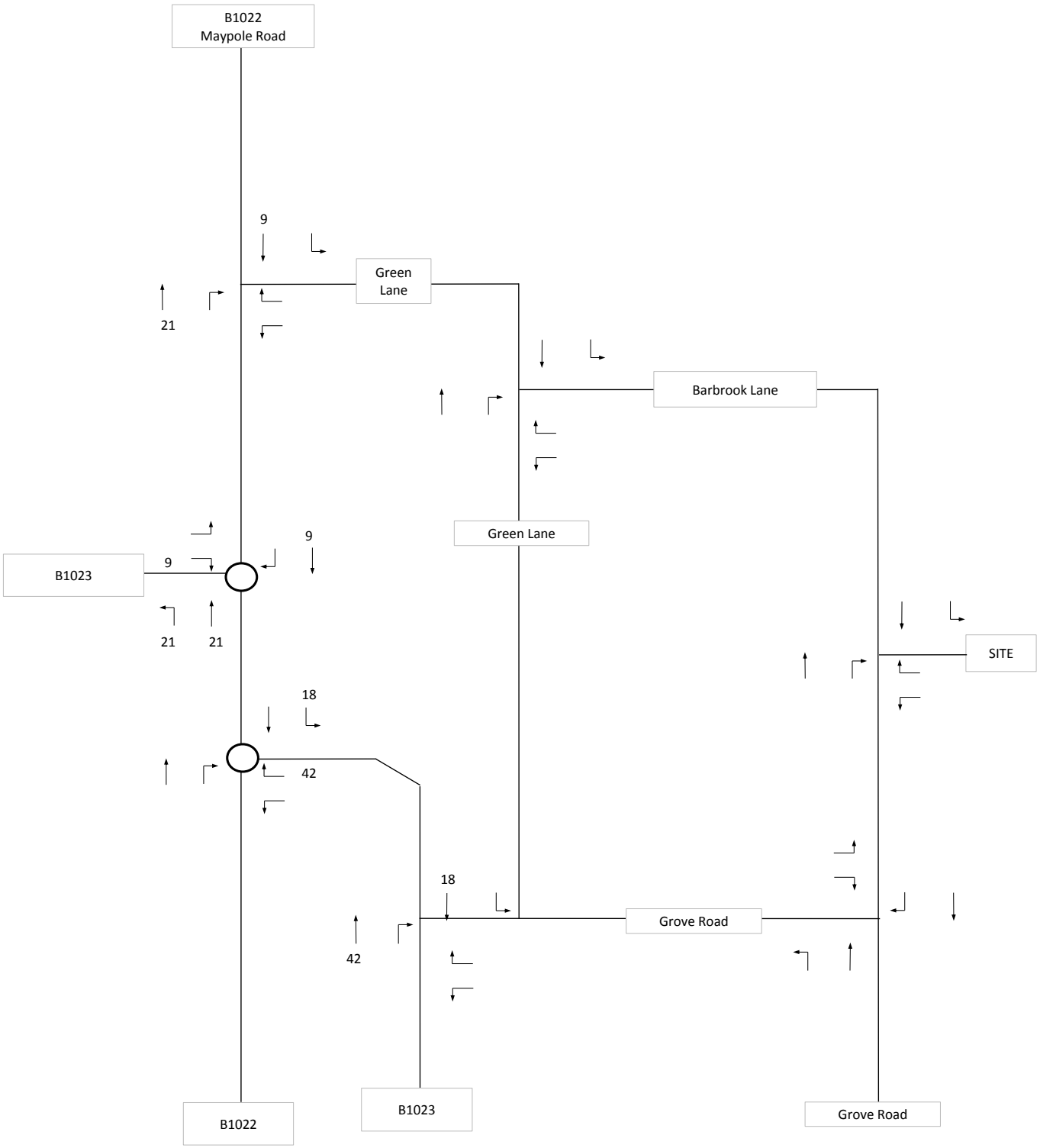


Figure 7 - Committed Development (App ref 13/0244&13/0245)

AM Peak

Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

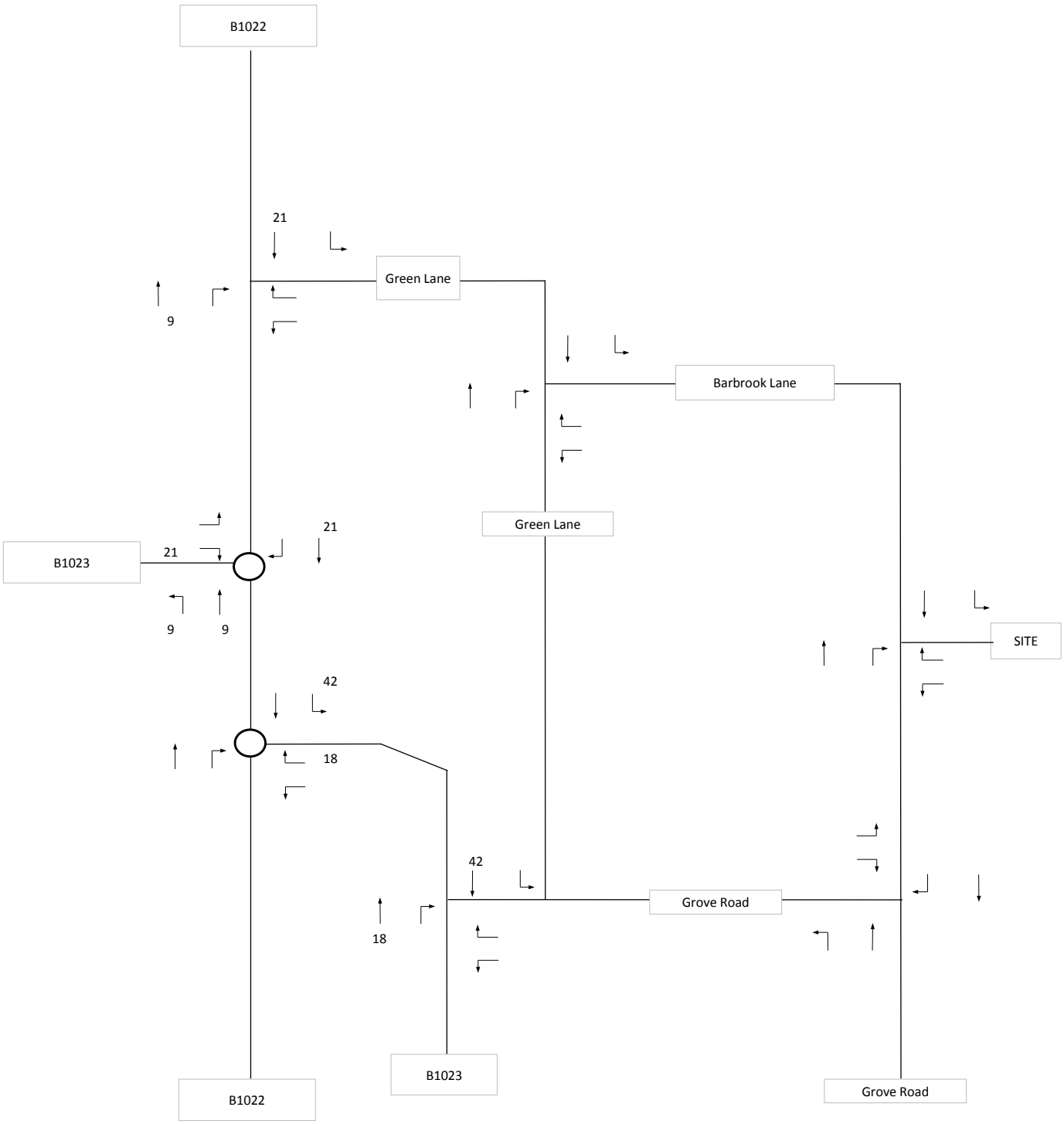
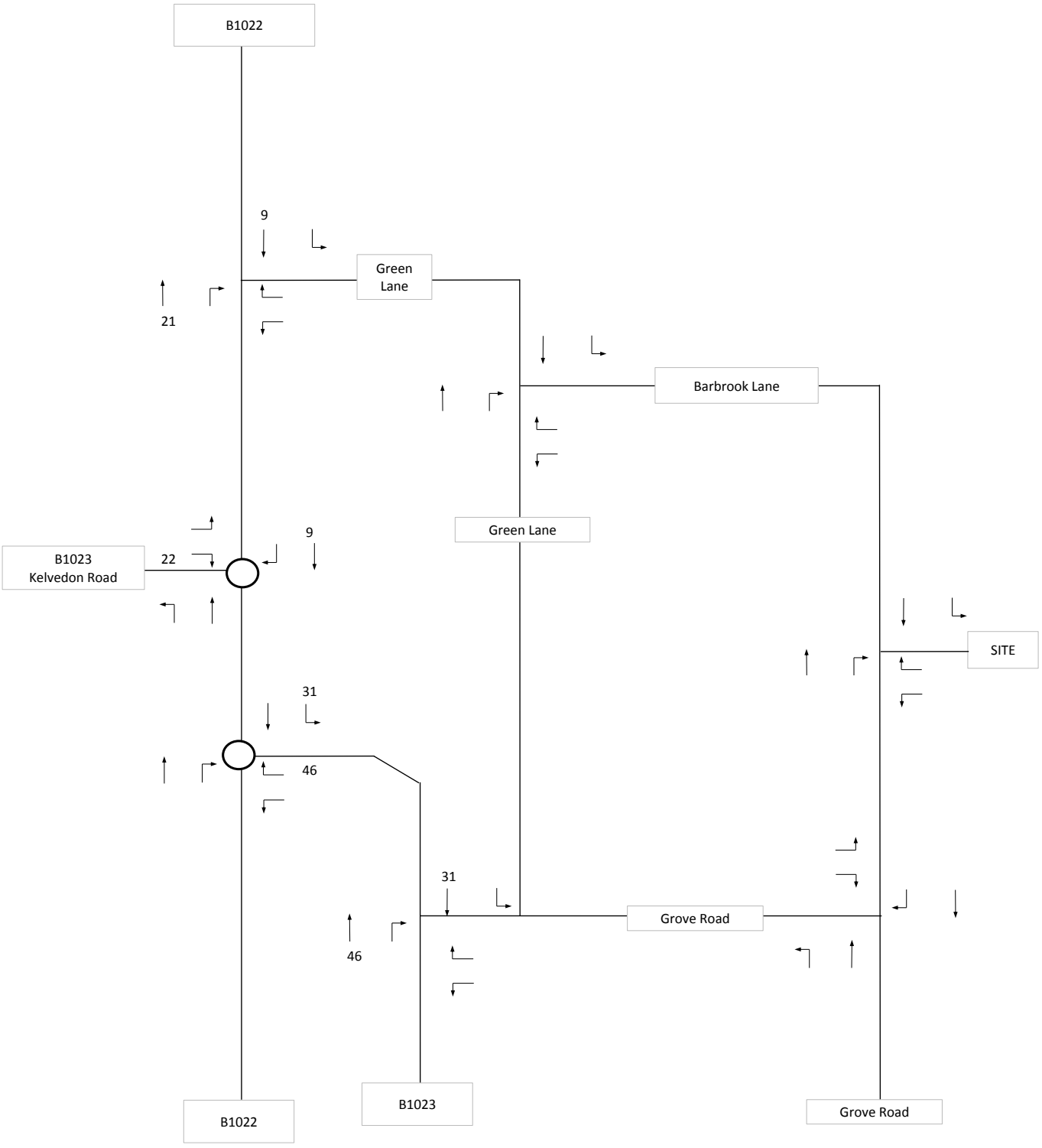


Figure 8 - Committed Development (App ref 13/0244&13/0245)

PM Peak

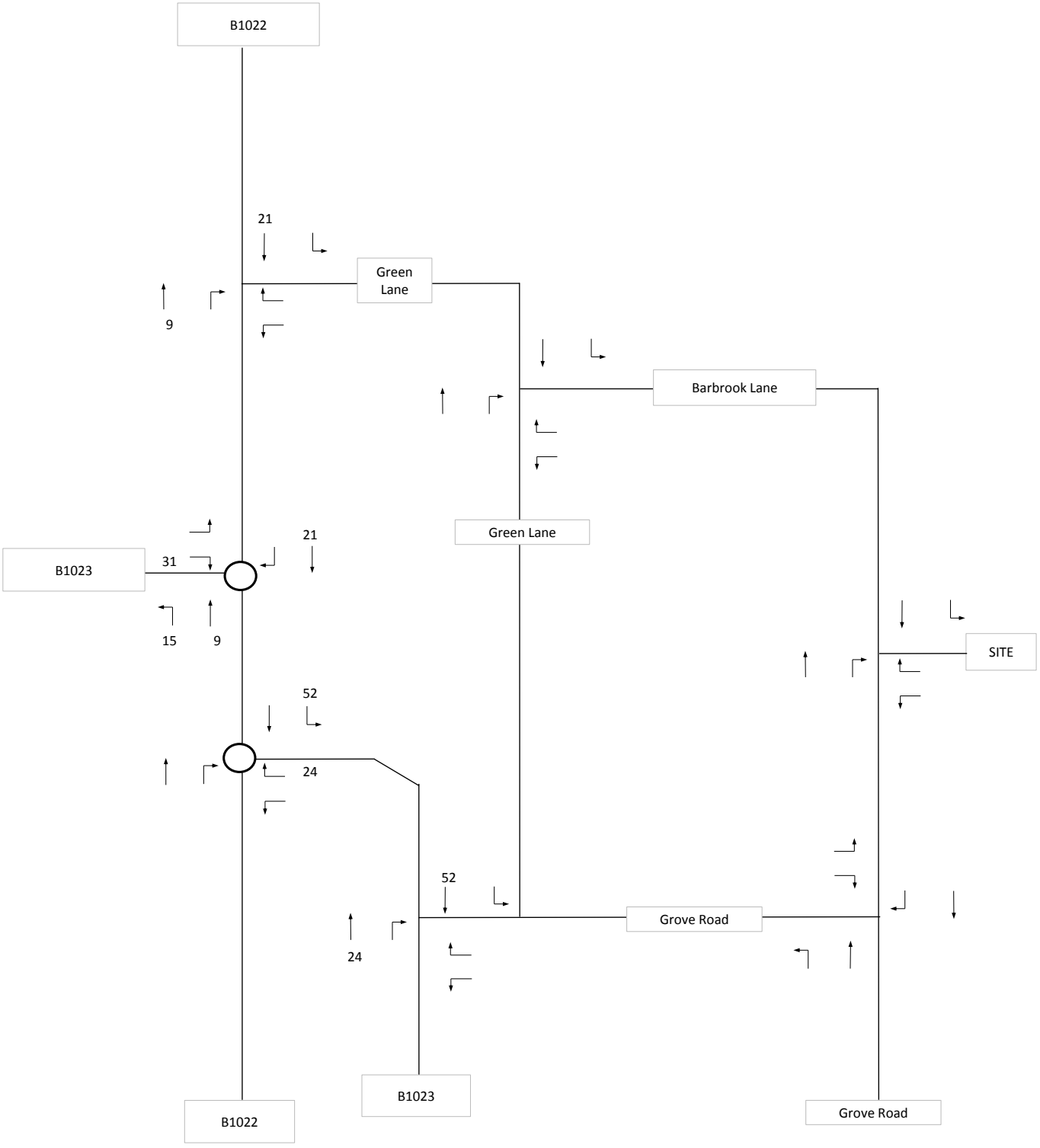
Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY



Flows in PCU's

Figure 9 - Total Committed Development (AM Peak)

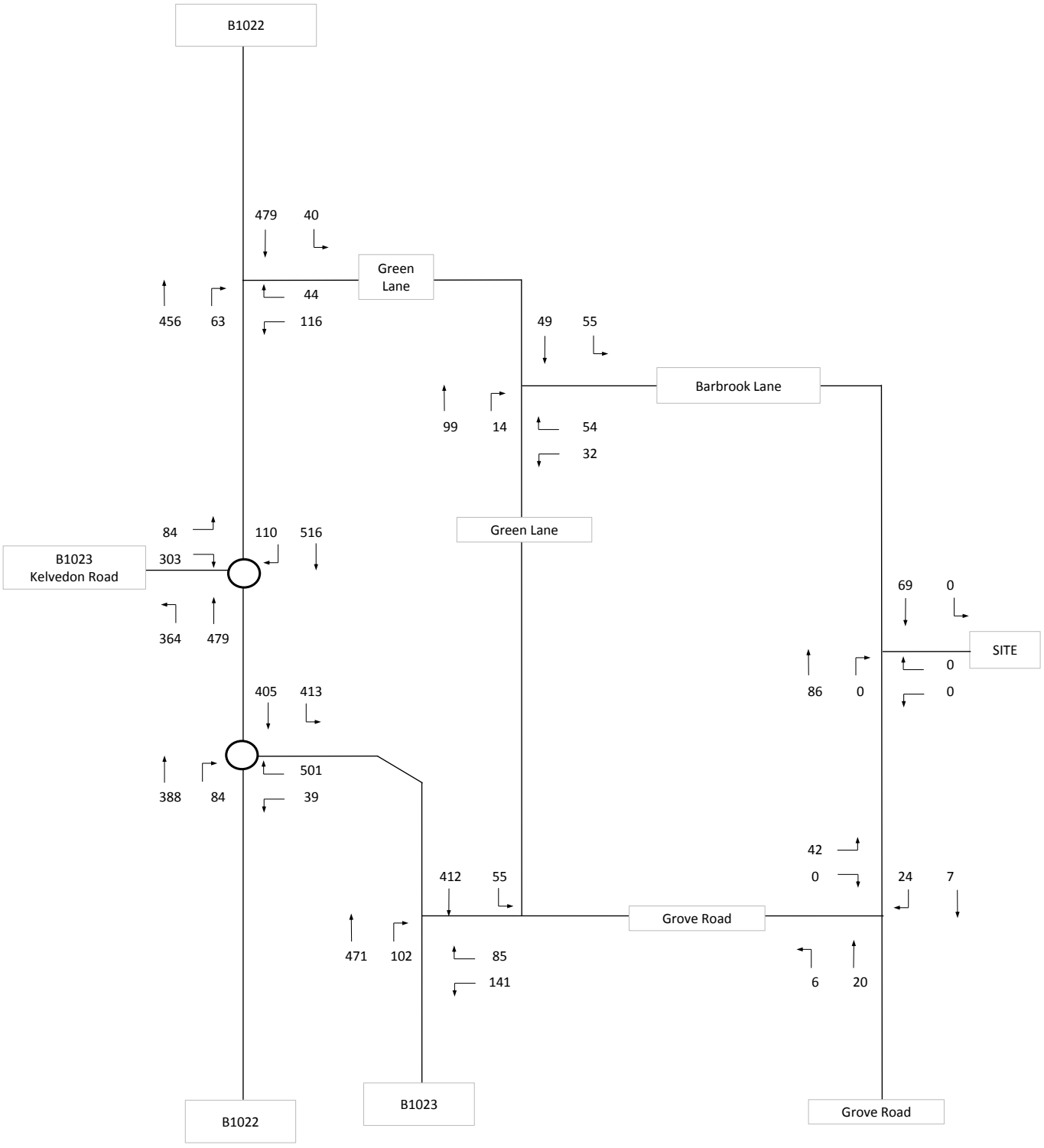
Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY



Flows in PCU's

Figure 10 - Total Committed Development (PM Peak)

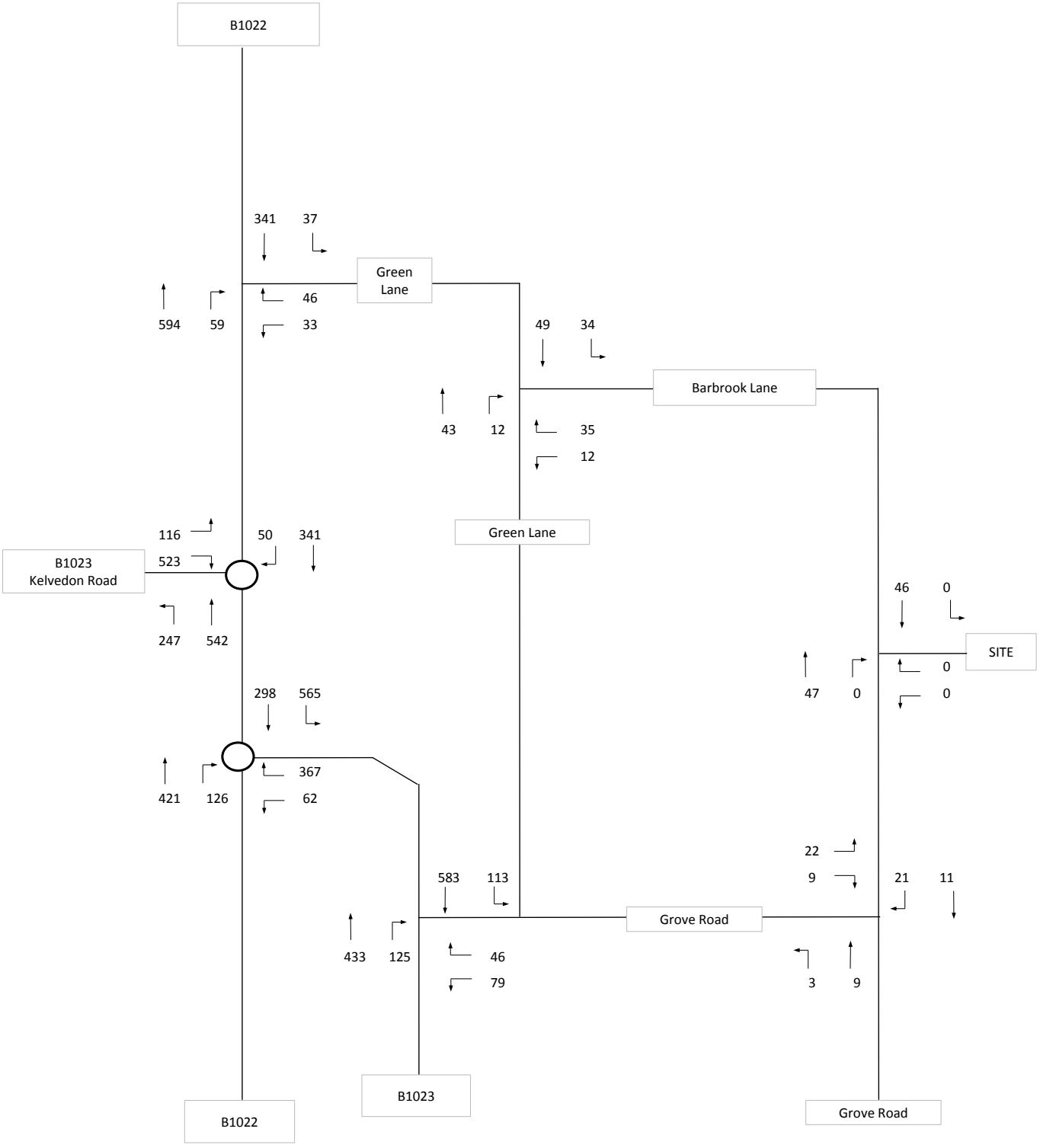
Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY



Flows in PCU's

Figure 11 - 2023 Base Flows - AM Peak (0800 to 0900)

Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY



Flows in PCU's

Figure 12 - 2023 Base Flows - PM Peak (1700 to 1800)

Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

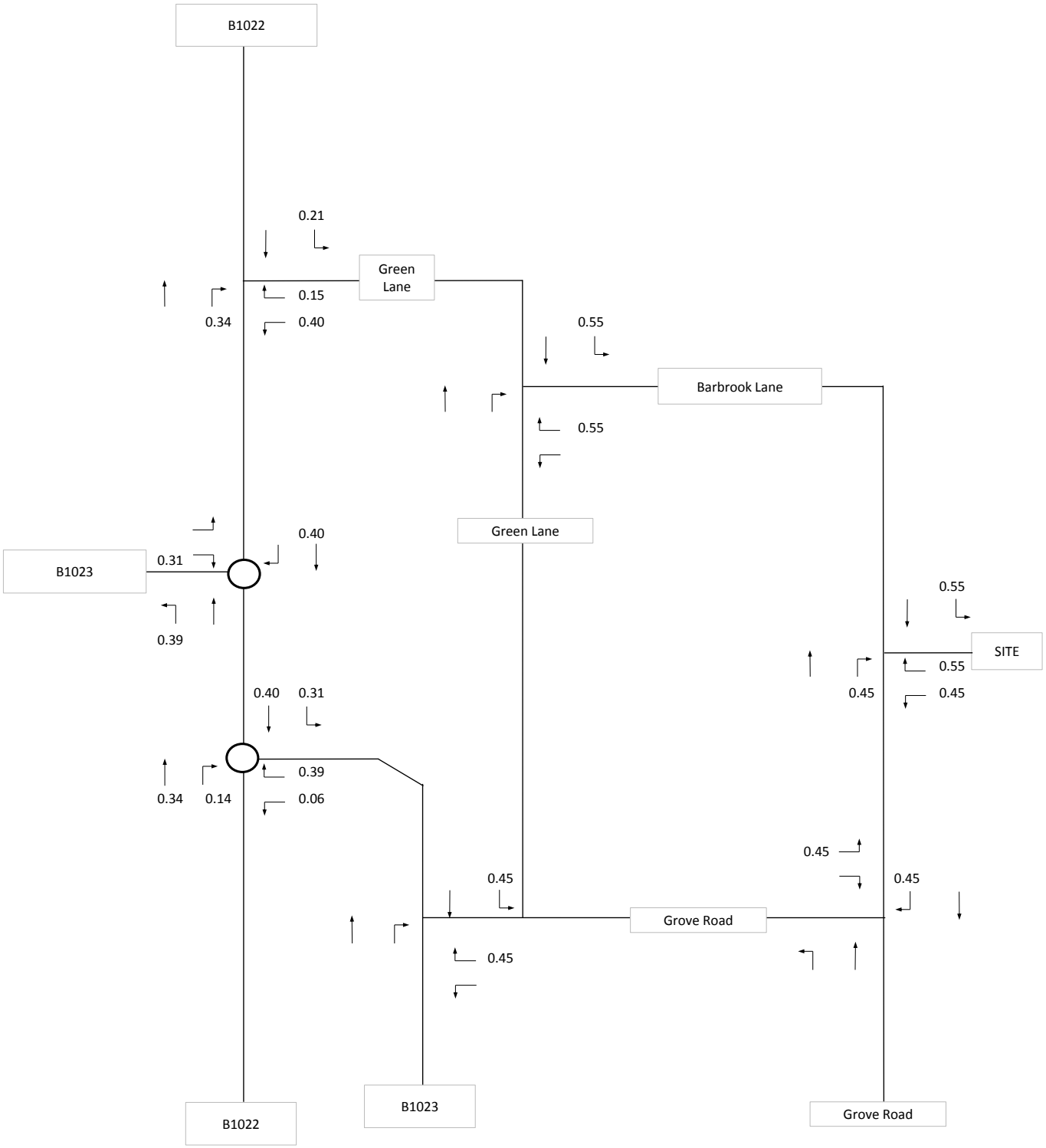


Figure 13 - Trip Distribution - AM Peak (0800 to 0900)

Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

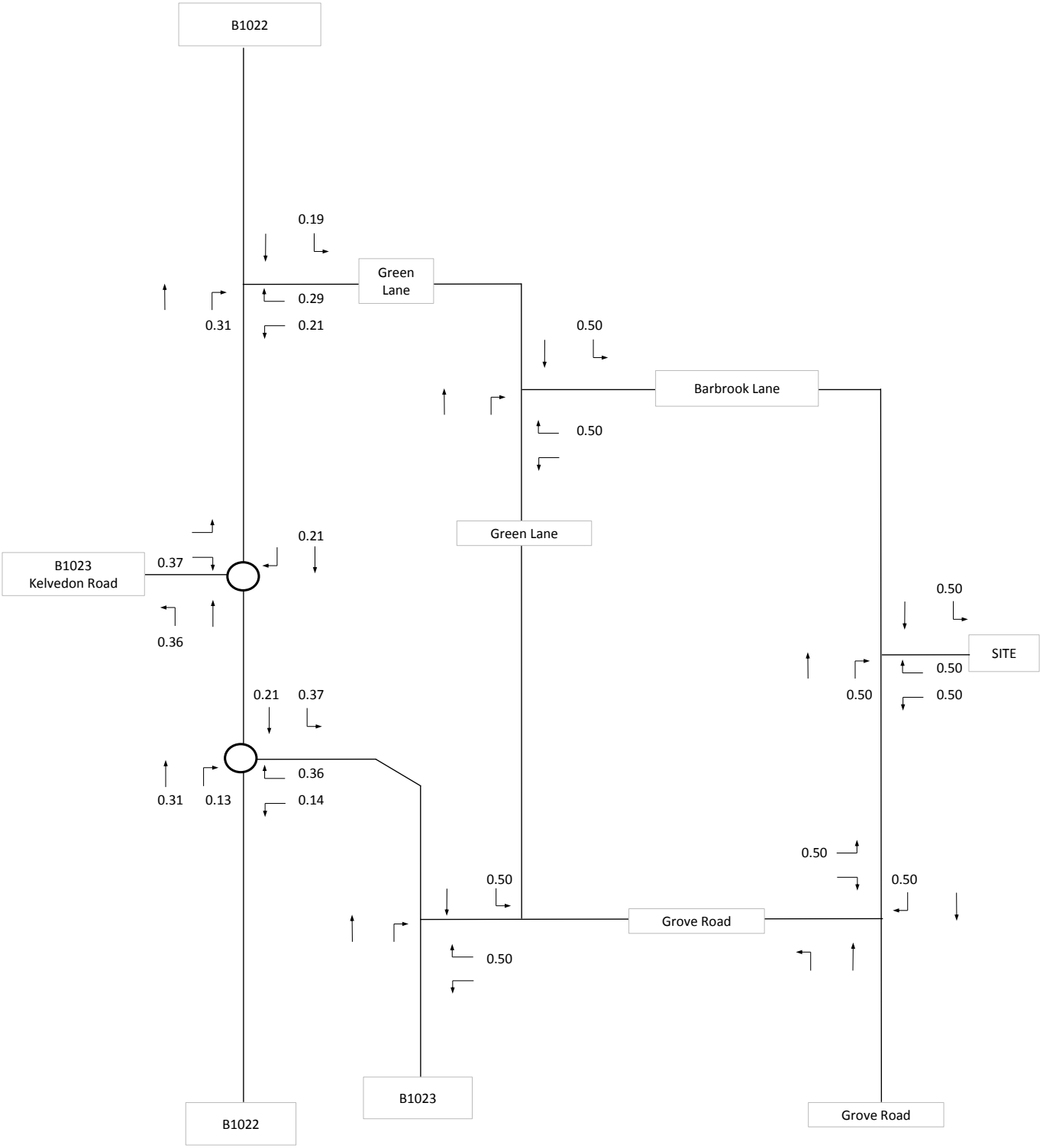


Figure 14- Trip Distribution - PM Peak (1700 to 1800)

Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

IN	29
OUT	86

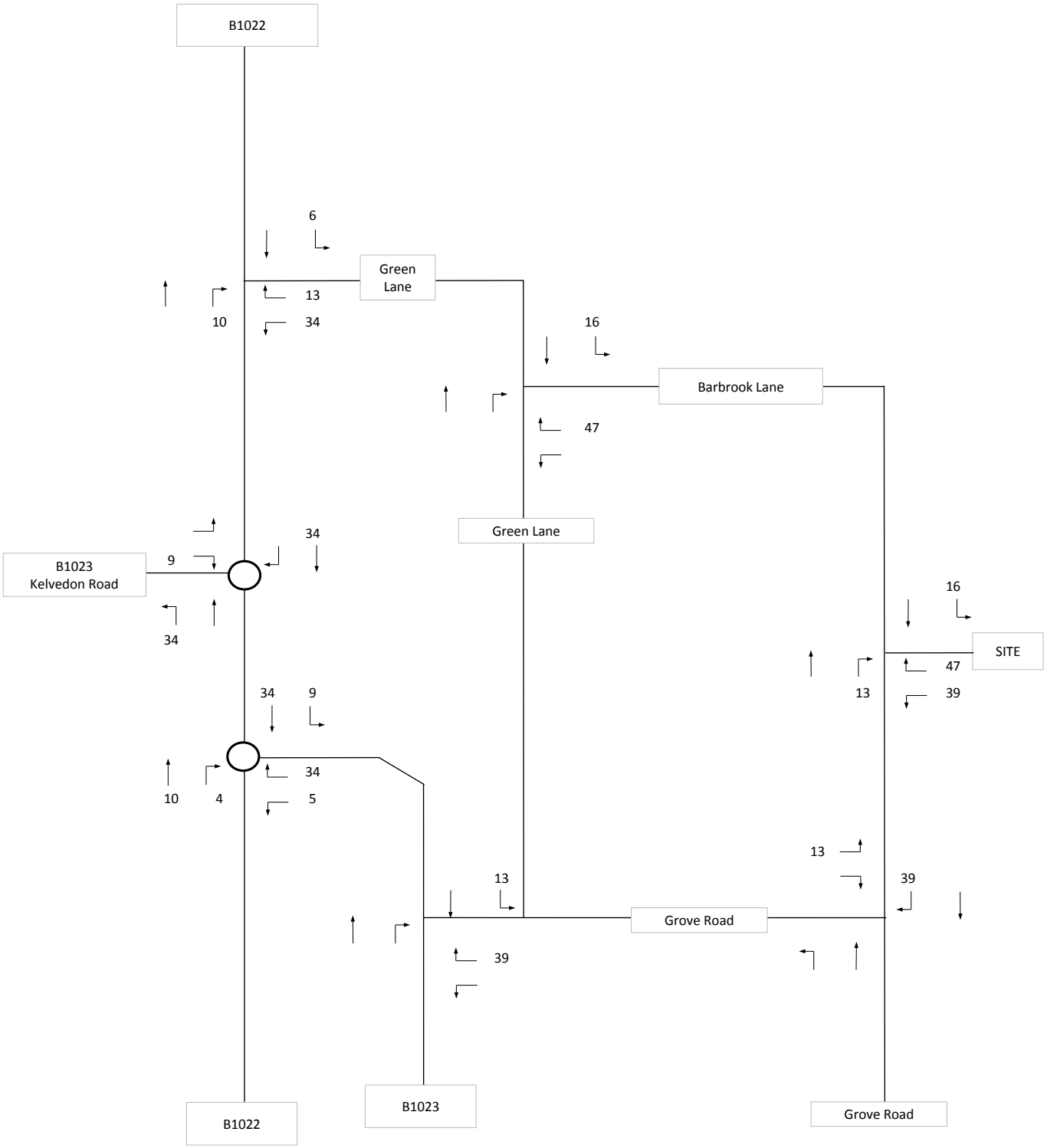


Figure 15 - Development Trips - AM Peak (0800 to 0900)

Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

IN	69
OUT	47

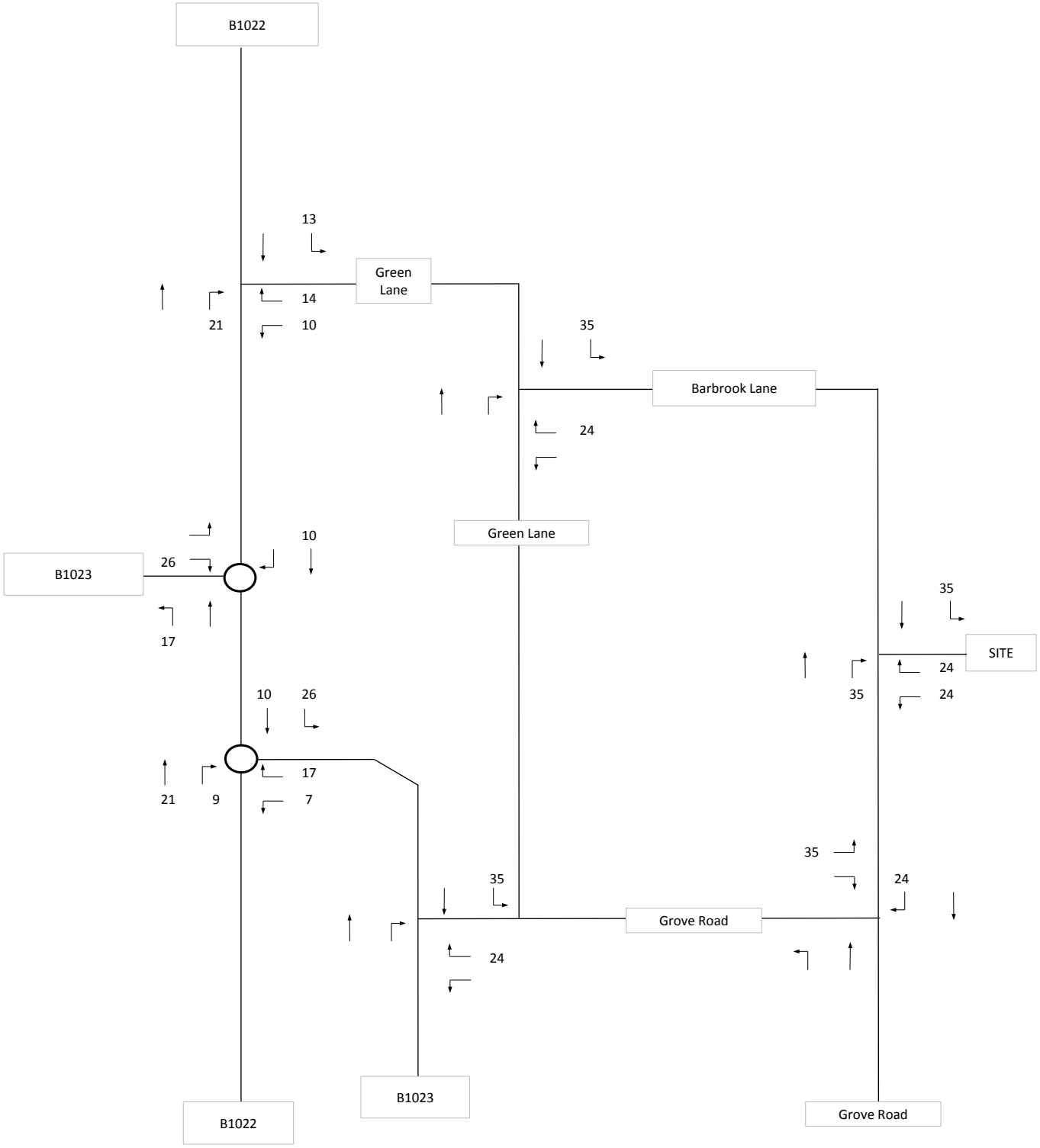
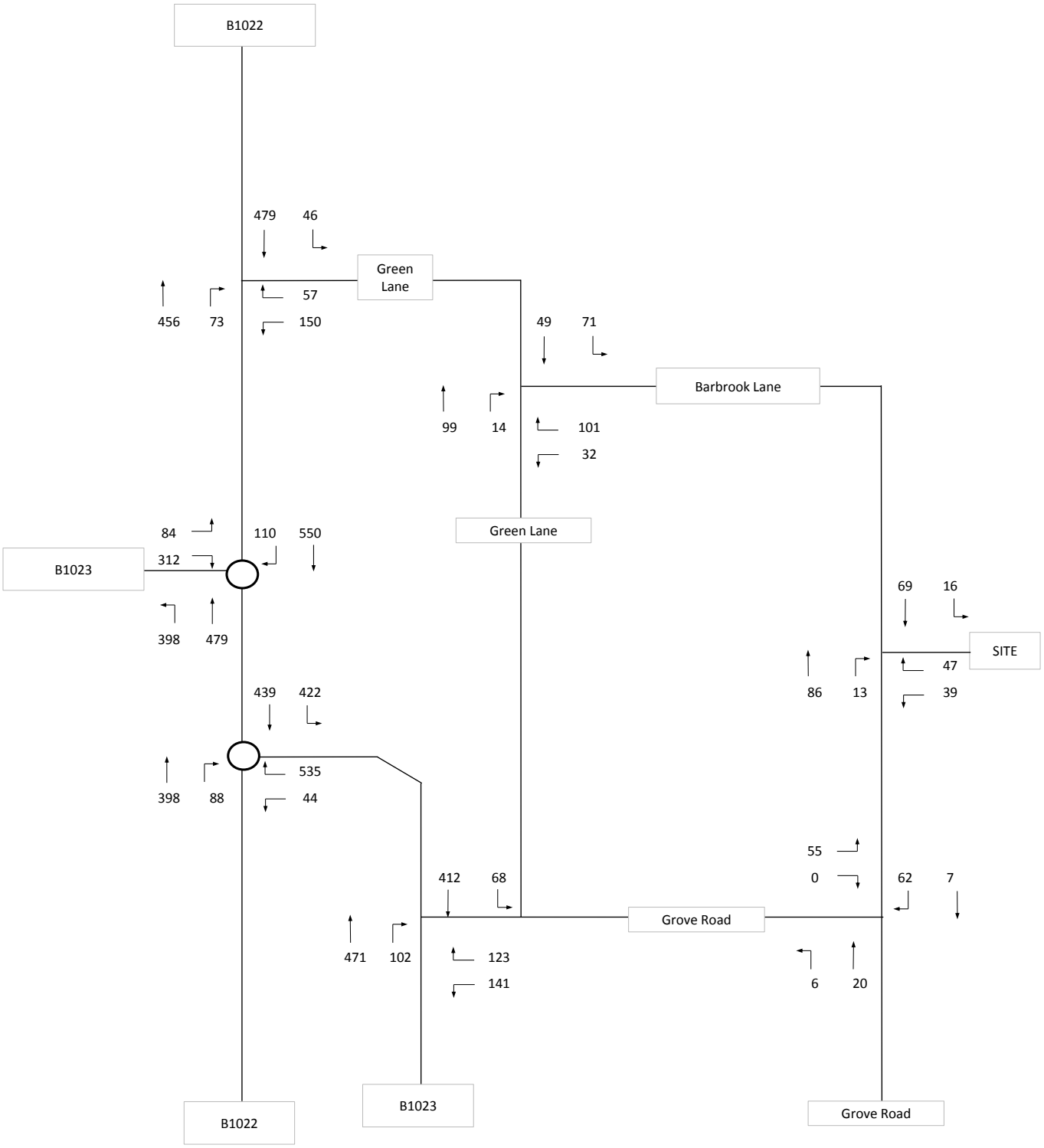


Figure 16 - Development Flows - PM Peak (1700 to 1800)

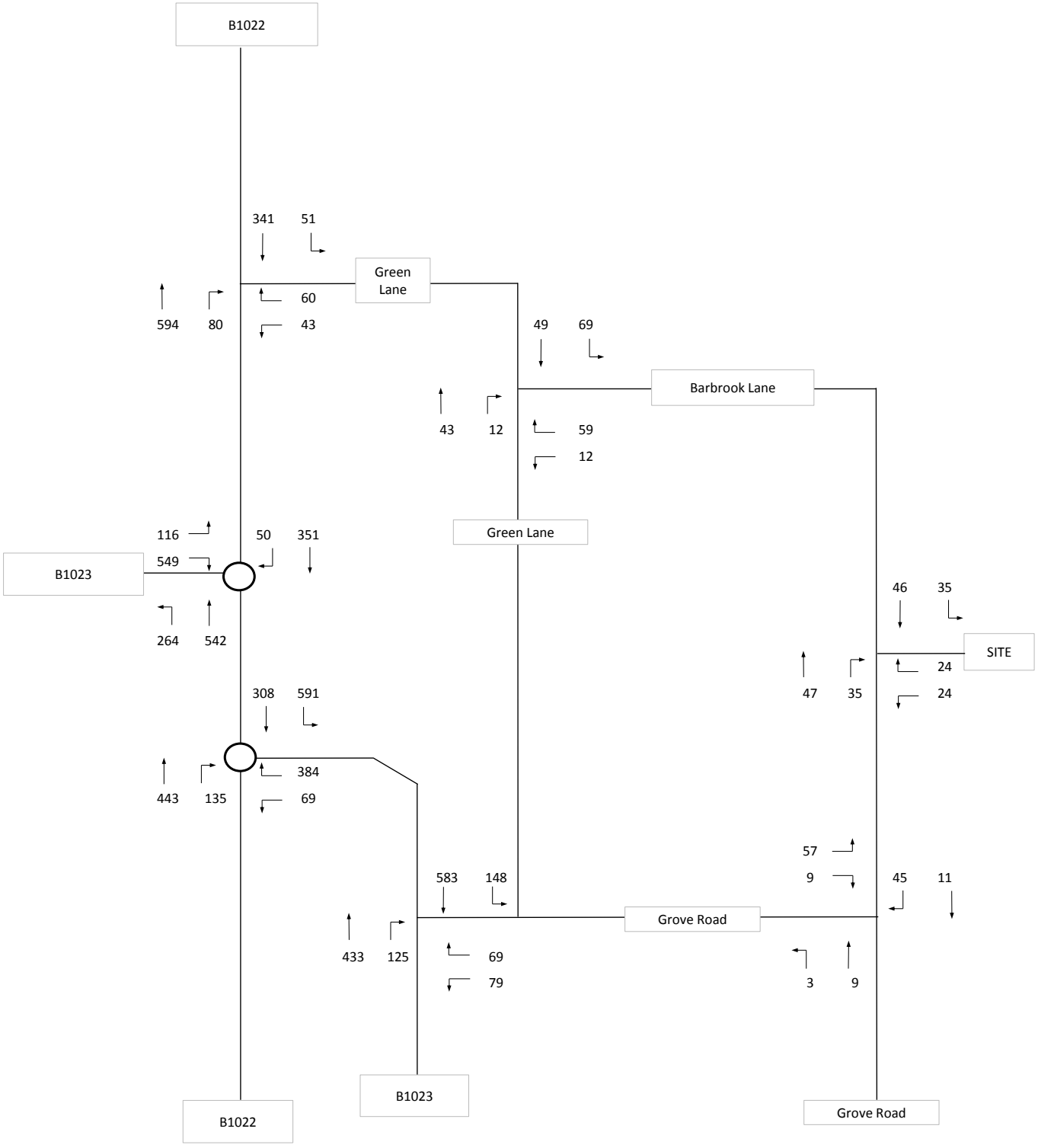
Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY



Flows in PCU's

Figure 17 - 2023 Assessment Flows - AM Peak (0800 to 0900)

Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

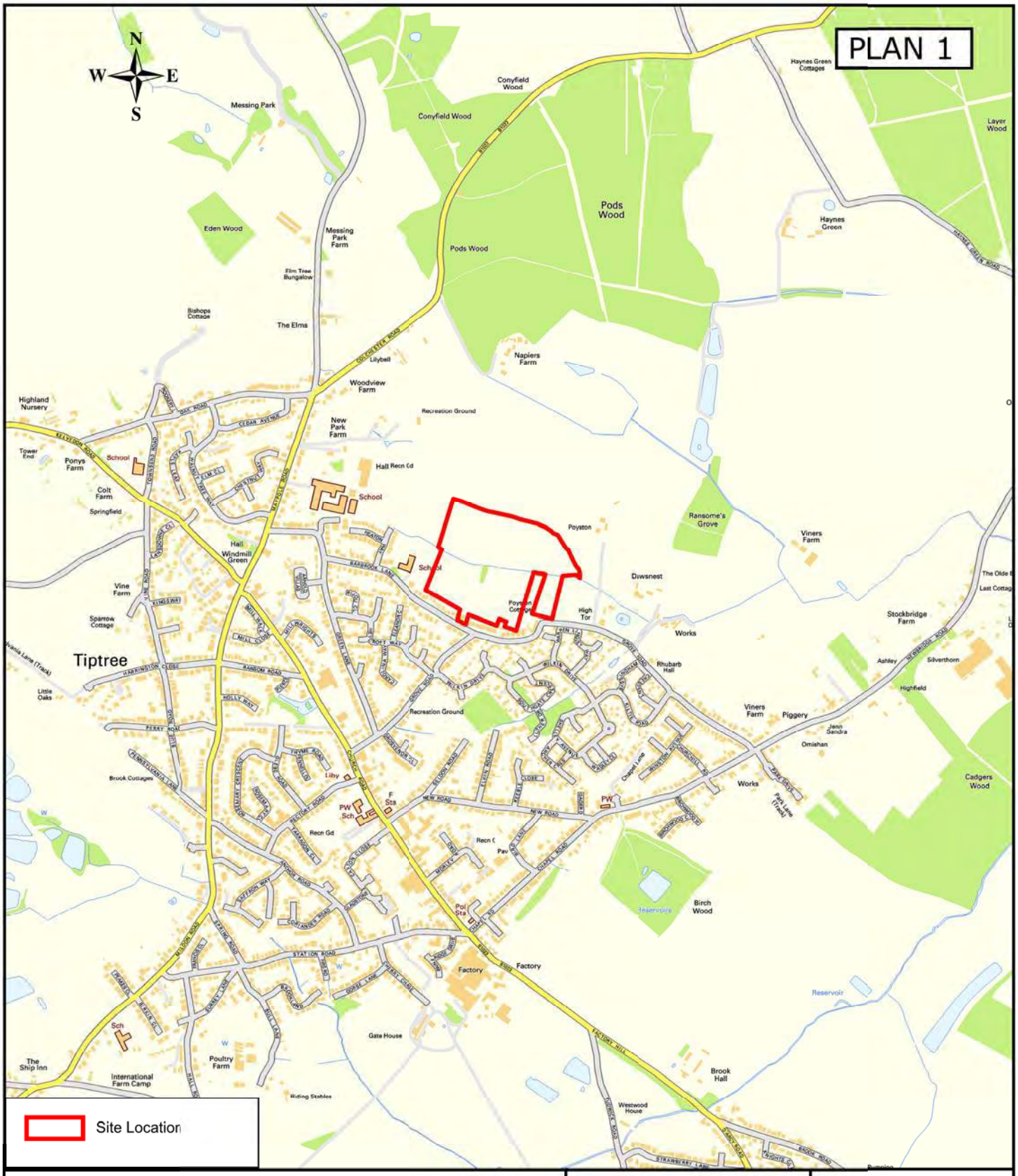


Flows in PCU's

Figure 18 - 2023 Assessment Flows - PM Peak (1700 to 1800)

Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

PLANS



GLADMAN

PROPOSED RESIDENTIAL DEVELOPMENT
LAND OFF BARBROOK LANE, TIPTREE
SITE LOCATION PLAN

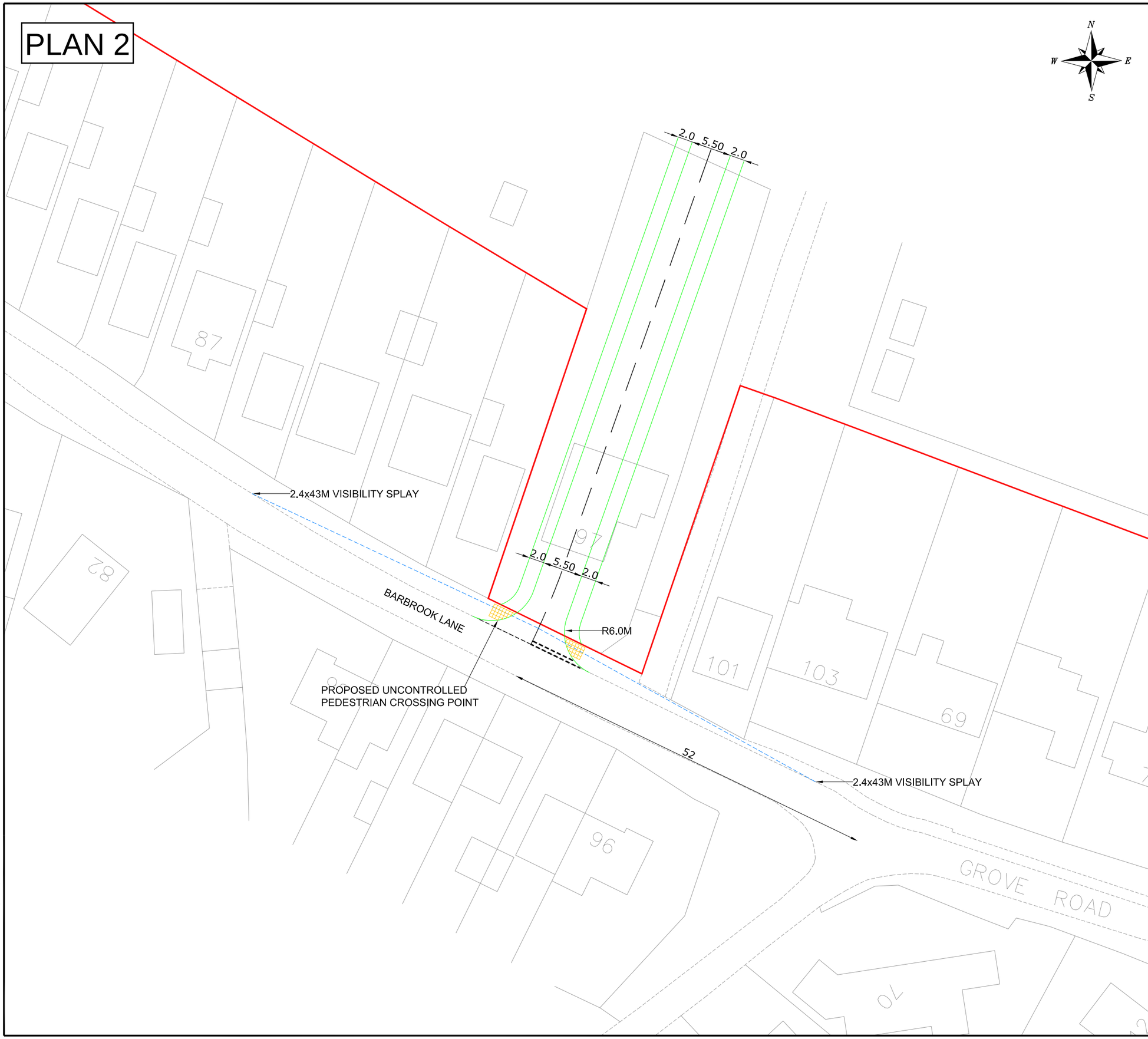
Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

Email: info@croftts.co.uk
Tel: 0161 667 3746
Web: www.croftts.co.uk

CROFT

DRAWN:	DATE	CHECKED:	DATE	SCALE	DRAWING NUMBER:	REVISION:
GM	17.05.18	MR	17.05.18	N.T.S	2179-01	.

PLAN 2



NOTES

THIS IS NOT A CONSTRUCTION DRAWING AND IS FOR INDICATIVE PURPOSES ONLY. THE DRAWING WILL BE SUBJECT TO CHANGE FOLLOWING LOCAL AUTHORITY REVIEW AND CONFIRMATION OF PUBLIC HIGHWAY AND THIRD PARTY LAND BOUNDARIES.

INDICATIVE SITE BOUNDARY

DENOTES NEW KERBS

REV	DETAILS	DRAWN	CHECKED	DATE
B	RED LINE BOUNDARY AMENDED	SM	MR	JUL 18
A	REVISED IN LINE WITH STAGE 1 RSA	JC	JC	JUL 18

CLIENT:

GLADMAN

PROJECT:

LAND OFF BARBROOK LANE, TIPTREE

DRAWING TITLE:

PROPOSED SITE ACCESS ARRANGEMENT

SCALES:

1:500 @ A3

DRAWN:	CHECKED:	DATE:
JC	PJW	MAY 18

Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

Email: info@croftts.co.uk
Tel: 0161 667 3746
Web: www.croftts.co.uk

DRAWING NUMBER:	REVISION:
2179-F01	B

CROFT

\\CADWORKSTATION\Shared Storage\projects\2179 Land off Barbrook Lane, Tiptree\CAD\Croft Drawings\2179-F01 REV B.dwg

NOTES

PLAN 3

Legend

- Site Location
- 800m
- 2km
- Nearest Bus Stops
- Cafe/Takeaway/Public House
- Education
- Healthcare/Medical
- Leisure/Sport
- Library
- Retail

REV	DETAILS	DRAWN	CHECKED	DATE
-	-	-	-	-

CLIENT:

GLADMAN

PROJECT:

LAND OFF BARBROOK LANE, TIPTREE

DRAWING TITLE:

800M AND 2KM PEDESTRIAN CATCHMENT WITH AMENITIES

SCALES:

NTS @ A3

DRAWN:	CHECKED:	DATE:
GM	MR	MAY 18

Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

Email: info@croftts.co.uk
Tel: 0161 667 3746
Web: www.croftts.co.uk

DRAWING NUMBER: 2179-03

REVISION: -

CROFT

Z:\projects\2179 Land off Barbrook Lane, Tiptree\GIS\Workspaces\2179-G01.dwg

APPENDICES

APPENDIX 1

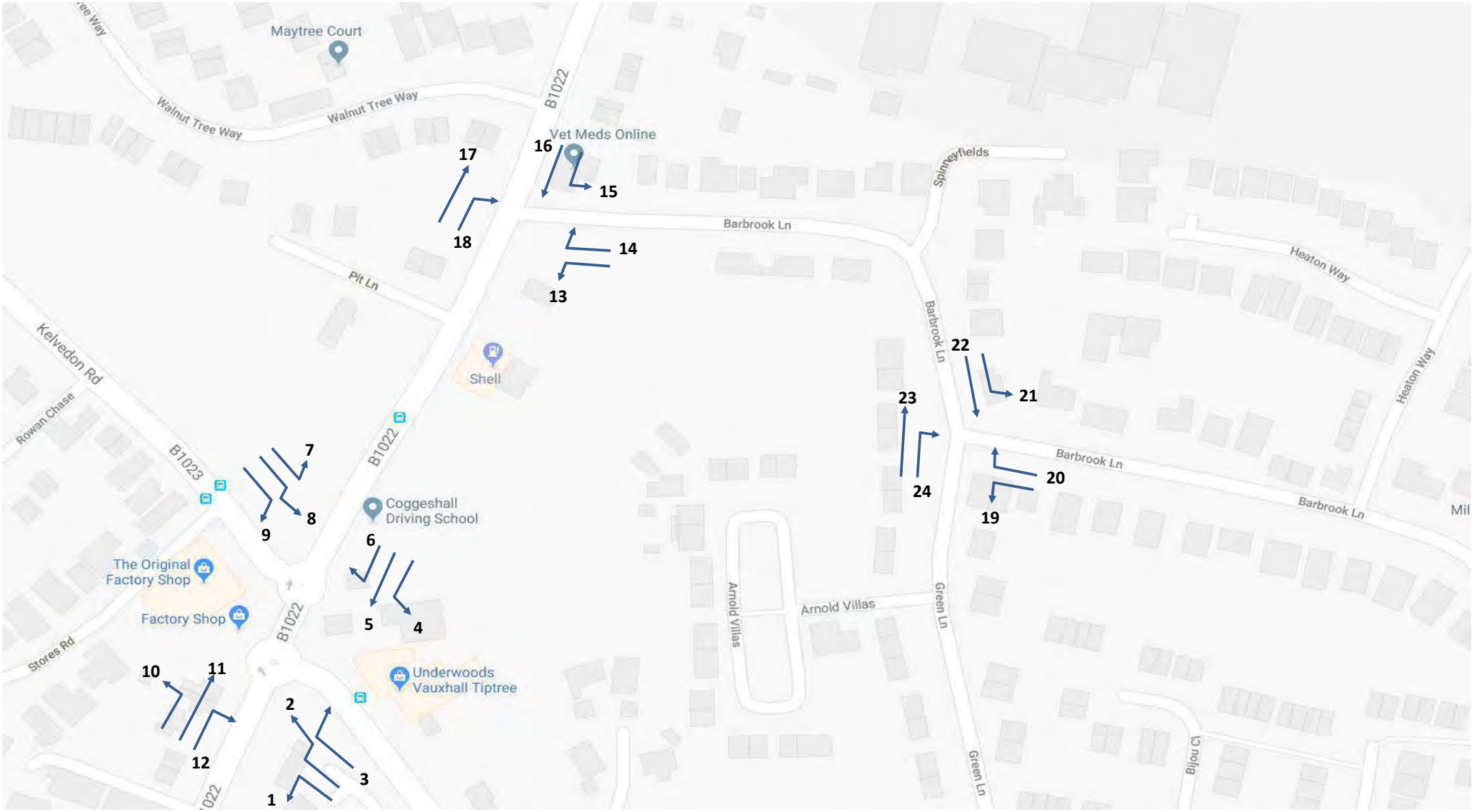
Traffic Survey Data

K&M TRAFFIC SURVEYS

DATE : 17th MAY 2018

DAY : THURSDAY

LOCATION : TIPTREE, ESSEX.



K&M TRAFFIC SURVEYS

DATE : 17th MAY 2018

DAY : THURSDAY

LOCATION : TIPTREE, ESSEX.

K&M TRAFFIC SURVEYS

DATE : 17th MAY 2018

DAY : THURSDAY

LOCATION : TIPTREE, ESSEX.

	B1023 - CHURCH ROAD TO B1022 - MALDON RD (SOUTH) MOVEMENT 1						B1023 - CHURCH ROAD TO KELVEDON RD MOVEMENT 2						B1023 - CHURCH ROAD TO B1022 - MALDON RD (NORTH) MOVEMENT 3						B1022 - MALDON RD (NORTH) TO B1023 - CHURCH RD MOVEMENT 4						B1022 - MALDON RD (NORTH) TO B1022 - MALDON RD (SOUTH) MOVEMENT 5						B1022 - MALDON RD (NORTH) TO KELVEDON RD MOVEMENT 6					
	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL
0730-0745	8	0	0	0	0	**8**	64	1	0	2	0	**67**	23	2	0	0	0	**25**	34	0	0	0	0	**34**	82	2	1	1	0	**86**	33	2	0	0	0	**35**
0745-0800	9	1	1	0	0	**11**	83	1	0	0	0	**84**	19	0	2	0	0	**21**	30	1	1	0	0	**32**	56	0	0	0	0	**56**	21	3	0	0	0	**24**
0800-0815	8	0	0	0	0	**8**	69	3	0	1	1	**74**	40	0	0	0	0	**40**	33	1	0	0	0	**34**	54	1	0	0	0	**55**	23	3	0	1	0	**27**
0815-0830	6	0	0	0	0	**6**	41	2	1	0	0	**44**	40	0	5	0	0	**45**	50	2	0	0	0	**52**	75	1	1	1	0	**78**	26	0	3	0	0	**29**
0830-0845	11	0	0	0	0	**11**	62	0	0	0	1	**63**	52	3	0	1	0	**56**	49	2	1	0	0	**52**	72	1	1	1	0	**75**	21	0	0	0	0	**21**
0845-0900	11	0	0	0	0	**11**	52	1	0	0	0	**53**	34	1	0	1	0	**36**	38	0	1	0	0	**39**	68	3	1	0	0	**72**	19	0	0	1	0	**20**
0900-0915	12	0	0	0	0	**12**	56	2	0	0	0	**58**	31	0	1	2	0	**34**	35	3	0	1	0	**39**	40	3	0	0	0	**43**	8	0	0	0	0	**8**
0915-0930	15	1	0	0	0	**16**	53	0	0	0	0	**53**	28	0	0	0	0	**28**	25	2	0	1	0	**28**	34	0	0	0	0	**34**	9	0	0	0	0	**9**
0730-0930	**80**	**2**	**1**	**0**	**0**	**83**	**480**	**10**	**1**	**3**	**2**	**496**	**267**	**6**	**8**	**4**	**0**	**285**	**294**	**11**	**3**	**2**	**0**	**310**	**481**	**11**	**4**	**3**	**0**	**499**	**160**	**8**	**3**	**2**	**0**	**173**
0730-0830	31	1	1	0	0	**33**	257	7	1	3	1	**269**	122	2	7	0	0	**131**	147	4	1	0	0	**152**	267	4	2	2	0	**275**	103	8	3	1	0	**115**
0745-0845	34	1	1	0	0	**36**	255	6	1	1	2	**265**	151	3	7	1	0	**162**	162	6	2	0	0	**170**	257	3	2	2	0	**264**	91	6	3	1	0	**101**
0800-0900	36	0	0	0	0	**36**	224	6	1	1	2	**234**	166	4	5	2	0	**177**	170	5	2	0	0	**177**	269	6	3	2	0	**280**	89	3	3	2	0	**97**
0815-0915	40	0	0	0	0	**40**	211	5	1	0	1	**218**	157	4	6	4	0	**171**	172	7	2	1	0	**182**	255	8	3	2	0	**268**	74	0	3	1	0	**78**
0830-0930	49	1	0	0	0	**50**	223	3	0	0	1	**227**	145	4	1	4	0	**154**	147	7	2	2	0	**158**	214	7	2	1	0	**224**	57	0	0	1	0	**58**

	B1023 - CHURCH ROAD TO B1022 - MALDON RD (SOUTH) MOVEMENT 1						B1023 - CHURCH ROAD TO KELVEDON RD MOVEMENT 2						B1023 - CHURCH ROAD TO B1022 - MALDON RD (NORTH) MOVEMENT 3						B1022 - MALDON RD (NORTH) TO B1023 - CHURCH RD MOVEMENT 4						B1022 - MALDON RD (NORTH) TO B1022 - MALDON RD (SOUTH) MOVEMENT 5						B1022 - MALDON RD (NORTH) TO KELVEDON RD MOVEMENT 6					
	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL
1630-1645	14	0	0	0	0	**14**	48	0	0	0	0	**48**	43	0	0	1	2	**46**	42	1	1	1	0	**45**	38	2	0	0	1	**41**	15	0	0	0	0	**15**
1645-1700	16	0	0	0	0	**16**	40	2	1	0	0	**43**	29	0	1	0	0	**30**	46	0	0	0	0	**46**	34	0	0	1	0	**35**	17	0	0	0	0	**17**
1700-1715	14	0	0	0	0	**14**	35	1	0	2	0	**38**	50	0	0	0	0	**50**	35	1	0	0	0	**36**	43	1	0	0	0	**44**	15	2	0	0	0	**17**
1715-1730	13	1	0	0	0	**14**	32	0	2	0	0	**34**	33	0	0	0	0	**33**	39	0	0	1	1	**41**	43	3	0	1	0	**47**	10	0	0	1	0	**11**
1730-1745	15	0	0	0	0	**15**	32	0	0	0	0	**32**	38	0	0	0	0	**38**	34	1	1	0	0	**36**	31	0	0	0	0	**31**	9	1	0	0	0	**10**
1745-1800	12	1	0	0	0	**13**	39	0	1	0	0	**40**	50	0	1	0	0	**51**	29	1	1	1	0	**32**	23	0	0	1	0	**24**	6	0	0	0	0	**6**
1800-1815	23	0	0	0	0	**23**	34	0	0	1	0	**35**	37	0	0	1	0	**38**	33	0	0	0	0	**33**	41	1	0	1	1	**44**	10	0	0	0	0	**10**
1815-1830	17	0	0	0	0	**17**	32	1	0	0	0	**33**	29	0	0	0	1	**30**	33	1	0	0	0	**34**	62	1	0	0	1	**64**	4	0	0	0	0	**4**
1630-1830	**124**	**2**	**0**	**0**	**0**	**126**	**292**	**4**	**4**	**3**	**0**	**303**	**309**	**0**	**2**	**2**	**3**	**316**	**291**	**5**	**3**	**3**	**1**	**303**	**315**	**8**	**0**	**4**	**3**	**330**	**86**	**3**	**0**	**1**	**0**	**90**
1630-1730	57	1	0	0	0	**58**	155	3	3	2	0	**163**	155	0	1	1	2	**159**	162	2	1	2	1	**168**	158	6	0	2	1	**167**	57	2	0	1	0	**60**
1645-1745	58	1	0	0	0	**59**	139	3	3	2	0	**147**	150	0	1	0	0	**151**	154	2	1	1	1	**159**	151	4	0	2	0	**157**	51	3	0	1	0	**55**
1700-1800	54	2	0	0	0	**56**	138	1	3	2	0	**144**	171	0	1	0	0	**172**	137	3	2	2	1	**145**	140	4	0	2	0	**146**	40	3	0	1	0	**44**
1715-1815	63	2	0	0	0	**65**	137	0	3	1	0	**141**	158	0	1	1	0	**160**	135	2	2	2	1	**142**	138	4	0	3	1	**146**	35	1	0	1	0	**37**
1730-1830	67	1	0	0	0	**68**	137	1	1	1	0	**140**	154	0	1	1	1	**157**	129	3	2	1	0	**135**	157	2	0	2	2	**163**	29	1	0	0	0	**30**

K&M TRAFFIC SURVEYS

DATE : 17th MAY 2018

DAY : THURSDAY

LOCATION : TIPTREE, ESSEX.

	KELVEDON RD TO B1022 - MALDON RD (NORTH) MOVEMENT 7						KELVEDON RD TO B1023 - CHURCH RD MOVEMENT 8						KELVEDON RD TO B1022 - MALDON RD (SOUTH) MOVEMENT 9						B1022 - MALDON RD (SOUTH) TO KELVEDON RD MOVEMENT 10						B1022 - MALDON RD (SOUTH) TO B1022 - MALDON RD (NORTH) MOVEMENT 11						B1022 - MALDON RD (SOUTH) TO B1023 - CHURCH RD MOVEMENT 12					
	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL
0730-0745	8	1	1	0	0	**10**	32	5	1	0	0	**38**	15	2	1	0	0	**18**	24	1	0	1	0	**26**	49	3	0	0	0	**52**	10	0	0	0	0	**10**
0745-0800	10	0	0	0	0	**10**	28	0	1	0	2	**31**	22	3	0	0	0	**25**	36	2	1	1	0	**40**	52	2	1	1	0	**56**	14	1	0	0	0	**15**
0800-0815	14	1	1	0	0	**16**	33	4	0	0	0	**37**	16	1	0	0	0	**17**	25	0	0	0	0	**25**	62	0	0	0	0	**62**	17	0	0	1	0	**18**
0815-0830	23	1	1	0	0	**25**	39	3	0	0	1	**43**	16	3	1	0	0	**20**	23	0	0	1	0	**24**	79	1	2	2	0	**84**	21	0	0	0	0	**21**
0830-0845	14	2	0	1	0	**17**	38	2	0	0	0	**40**	22	2	0	0	0	**24**	21	0	0	0	0	**21**	55	3	0	1	0	**59**	21	0	0	0	0	**21**
0845-0900	12	1	0	0	0	**13**	40	2	0	1	0	**43**	15	3	0	0	0	**18**	29	0	1	0	0	**30**	46	2	0	0	0	**48**	18	0	0	0	0	**18**
0900-0915	13	2	0	0	0	**15**	58	4	1	1	0	**64**	17	0	0	0	0	**17**	23	1	1	0	0	**25**	17	1	0	0	0	**18**	24	0	0	0	0	**24**
0915-0930	9	0	0	0	0	**9**	49	3	0	0	0	**52**	15	0	0	0	0	**15**	15	1	0	0	0	**16**	37	0	0	0	0	**37**	17	1	0	0	0	**18**
0730-0930	**103**	**8**	**3**	**1**	**0**	**115**	**317**	**23**	**3**	**2**	**3**	**348**	**138**	**14**	**2**	**0**	**0**	**154**	**196**	**5**	**3**	**3**	**0**	**207**	**397**	**12**	**3**	**4**	**0**	**416**	**142**	**2**	**0**	**1**	**0**	**145**
0730-0830	55	3	3	0	0	**61**	132	12	2	0	3	**149**	69	9	2	0	0	**80**	108	3	1	3	0	**115**	242	6	3	3	0	**254**	62	1	0	1	0	**64**
0745-0845	61	4	2	1	0	**68**	138	9	1	0	3	**151**	76	9	1	0	0	**86**	105	2	1	2	0	**110**	248	6	3	4	0	**261**	73	1	0	1	0	**75**
0800-0900	63	5	2	1	0	**71**	150	11	0	1	1	**163**	69	9	1	0	0	**79**	98	0	1	1	0	**100**	242	6	2	3	0	**253**	77	0	0	1	0	**78**
0815-0915	62	6	1	1	0	**70**	175	11	1	2	1	**190**	70	8	1	0	0	**79**	96	1	2	1	0	**100**	197	7	2	3	0	**209**	84	0	0	0	0	**84**
0830-0930	48	5	0	1	0	**54**	185	11	1	2	0	**199**	69	5	0	0	0	**74**	88	2	2	0	0	**92**	155	6	0	1	0	**162**	80	1	0	0	0	**81**

	KELVEDON RD TO B1022 - MALDON RD (NORTH) MOVEMENT 7						KELVEDON RD TO B1023 - CHURCH RD MOVEMENT 8						KELVEDON RD TO B1022 - MALDON RD (SOUTH) MOVEMENT 9						B1022 - MALDON RD (SOUTH) TO KELVEDON RD MOVEMENT 10						B1022 - MALDON RD (SOUTH) TO B1022 - MALDON RD (NORTH) MOVEMENT 11						B1022 - MALDON RD (SOUTH) TO B1023 - CHURCH RD MOVEMENT 12					
	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL
1630-1645	25	0	0	1	1	**27**	66	2	1	0	0	**69**	21	1	0	0	0	**22**	15	0	1	0	0	**16**	59	3	1	0	0	**63**	27	0	0	2	0	**29**
1645-1700	20	0	0	0	0	**20**	78	1	0	1	0	**80**	19	0	0	0	0	**19**	26	0	0	0	0	**26**	53	1	0	0	0	**54**	33	0	0	0	0	**33**
1700-1715	15	1	1	0	0	**17**	76	2	0	0	0	**78**	30	0	0	3	0	**33**	18	1	0	0	0	**19**	69	0	0	3	0	**72**	24	0	0	0	0	**24**
1715-1730	31	0	0	0	0	**31**	82	1	0	2	1	**86**	28	2	0	1	0	**31**	16	0	0	0	1	**17**	83	1	1	0	0	**85**	26	0	0	1	0	**27**
1730-1745	30	1	0	0	0	**31**	93	2	0	0	0	**95**	28	2	0	0	0	**30**	11	2	0	0	0	**13**	66	0	0	1	0	**67**	28	0	0	0	0	**28**
1745-1800	26	0	0	0	0	**26**	66	1	0	0	0	**67**	28	1	0	1	0	**30**	18	0	0	0	0	**18**	99	0	0	0	0	**99**	38	0	0	1	0	**39**
1800-1815	13	0	0	0	0	**13**	77	2	0	1	0	**80**	17	1	0	0	0	**18**	13	0	0	0	0	**13**	65	1	0	1	0	**67**	33	0	0	0	0	**33**
1815-1830	15	0	0	0	0	**15**	49	0	1	0	2	**52**	19	1	0	0	0	**20**	15	0	1	0	0	**16**	38	0	0	0	0	**38**	31	0	0	0	0	**31**
1630-1830	**175**	**2**	**1**	**1**	**1**	**180**	**587**	**11**	**2**	**4**	**3**	**607**	**190**	**8**	**0**	**5**	**0**	**203**	**132**	**3**	**2**	**0**	**1**	**138**	**532**	**6**	**2**	**5**	**0**	**545**	**240**	**0**	**0**	**4**	**0**	**244**
1630-1730	91	1	1	1	1	**95**	302	6	1	3	1	**313**	98	3	0	4	0	**105**	75	1	1	0	1	**78**	264	5	2	3	0	**274**	110	0	0	3	0	**113**
1645-1745	96	2	1	0	0	**99**	329	6	0	3	1	**339**	105	4	0	4	0	**113**	71	3	0	0	1	**75**	271	2	1	4	0	**278**	111	0	0	1	0	**112**
1700-1800	102	2	1	0	0	**105**	317	6	0	2	1	**326**	114	5	0	5	0	**124**	63	3	0	0	1	**67**	317	1	1	4	0	**323**	116	0	0	2	0	**118**
1715-1815	100	1	0	0	0	**101**	318	6	0	3	1	**328**	101	6	0	2	0	**109**	58	2	0	0	1	**61**	313	2	1	2	0	**318**	125	0	0	2	0	**127**
1730-1830	84	1	0	0	0	**85**	285	5	1	1	2	**294**	92	5	0	1	0	**98**	57	2	1	0	0	**60**	268	1	0	2	0	**271**	130	0	0	1	0	**131**

K&M TRAFFIC SURVEYS

DATE : 17th MAY 2018

DAY : THURSDAY

LOCATION : TIPTREE, ESSEX.

	BARBROOK LANE TO B1022 MALDON RD (SOUTH) MOVEMENT 13						BARBROOK LANE TO B1022 MALDON RD (NORTH) MOVEMENT 14						B1022 MALDON RD - NORTH TO BARBROOK LANE MOVEMENT 15						B1022 MALDON RD - NORTH TO GREEN LANE (SOUTH) MOVEMENT 16						B1022 MALDON RD - SOUTH TO GREEN LANE (NORTH) MOVEMENT 17						B1022 MALDON RD - SOUTH TO BARBROOK LANE MOVEMENT 18					
	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL
0730-0745	22	0	0	0	0	**22**	6	0	0	0	0	**6**	5	0	0	0	2	**7**	106	3	1	0	0	**110**	58	5	1	0	0	**64**	3	1	0	0	0	**4**
0745-0800	30	1	0	0	0	**31**	7	0	0	0	0	**7**	4	0	0	0	0	**4**	91	3	0	0	0	**94**	68	1	3	1	0	**73**	5	0	0	0	0	**5**
0800-0815	29	0	0	1	0	**30**	13	0	0	0	0	**13**	6	0	0	0	0	**6**	93	5	1	0	0	**99**	92	2	1	0	1	**96**	11	0	0	0	0	**11**
0815-0830	33	0	0	0	0	**33**	8	0	0	0	0	**8**	11	1	0	0	0	**12**	100	2	4	1	0	**107**	80	2	5	1	0	**88**	23	0	0	0	0	**23**
0830-0845	22	0	0	0	0	**22**	9	0	0	0	2	**11**	14	0	0	0	0	**14**	117	3	3	1	0	**124**	99	10	2	3	0	**114**	16	0	0	0	0	**16**
0845-0900	22	0	0	1	0	**23**	11	0	0	0	0	**11**	4	0	0	0	0	**4**	79	4	2	0	0	**85**	74	6	0	1	0	**81**	9	0	0	0	0	**9**
0900-0915	6	0	0	0	0	**6**	1	0	0	0	0	**1**	3	0	0	0	0	**3**	72	5	0	1	0	**78**	45	2	1	2	0	**50**	10	1	0	0	0	**11**
0915-0930	14	0	0	0	0	**14**	3	0	0	0	0	**3**	7	0	0	0	0	**7**	48	2	0	0	0	**50**	58	2	0	0	0	**60**	9	0	0	0	0	**9**
0730-0930	**178**	**1**	**0**	**2**	**0**	**181**	**58**	**0**	**0**	**0**	**2**	**60**	**54**	**1**	**0**	**0**	**2**	**57**	**706**	**27**	**11**	**3**	**0**	**747**	**574**	**30**	**13**	**8**	**1**	**626**	**86**	**2**	**0**	**0**	**0**	**88**
0730-0830	114	1	0	1	0	**116**	34	0	0	0	0	**34**	26	1	0	0	2	**29**	390	13	6	1	0	**410**	298	10	10	2	1	**321**	42	1	0	0	0	**43**
0745-0845	114	1	0	1	0	**116**	37	0	0	0	2	**39**	35	1	0	0	0	**36**	401	13	8	2	0	**424**	339	15	11	5	1	**371**	55	0	0	0	0	**55**
0800-0900	106	0	0	2	0	**108**	41	0	0	0	2	**43**	35	1	0	0	0	**36**	389	14	10	2	0	**415**	345	20	8	5	1	**379**	59	0	0	0	0	**59**
0815-0915	83	0	0	1	0	**84**	29	0	0	0	2	**31**	32	1	0	0	0	**33**	368	14	9	3	0	**394**	298	20	8	7	0	**333**	58	1	0	0	0	**59**
0830-0930	64	0	0	1	0	**65**	24	0	0	0	2	**26**	28	0	0	0	0	**28**	316	14	5	2	0	**337**	276	20	3	6	0	**305**	44	1	0	0	0	**45**

	BARBROOK LANE TO B1022 MALDON RD (SOUTH) MOVEMENT 13						BARBROOK LANE TO B1022 MALDON RD (NORTH) MOVEMENT 14						B1022 MALDON RD - NORTH TO BARBROOK LANE MOVEMENT 15						B1022 MALDON RD - NORTH TO GREEN LANE (SOUTH) MOVEMENT 16						B1022 MALDON RD - SOUTH TO GREEN LANE (NORTH) MOVEMENT 17						B1022 MALDON RD - SOUTH TO BARBROOK LANE MOVEMENT 18					
	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL
1630-1645	9	0	0	0	0	**9**	7	0	0	0	0	**7**	5	0	0	1	0	**6**	69	1	1	0	1	**72**	85	3	0	1	3	**92**	13	0	0	1	0	**14**
1645-1700	13	0	0	0	0	**13**	5	0	0	0	0	**5**	9	0	0	0	0	**9**	72	1	0	1	0	**74**	93	2	0	0	0	**95**	17	0	0	0	0	**17**
1700-1715	10	0	0	0	0	**10**	8	0	0	0	0	**8**	11	0	0	0	0	**11**	92	3	1	1	0	**97**	117	3	1	1	0	**122**	7	0	0	2	0	**9**
1715-1730	4	0	0	1	0	**5**	6	0	0	0	0	**6**	7	0	0	0	3	**10**	75	1	0	2	0	**78**	116	1	1	1	0	**119**	15	0	0	0	0	**15**
1730-1745	7	0	0	0	0	**7**	15	0	0	0	0	**15**	8	0	0	1	1	**10**	59	1	1	0	1	**62**	128	2	0	0	0	**130**	11	0	0	1	0	**12**
1745-1800	9	0	0	0	0	**9**	14	0	0	0	0	**14**	8	0	0	0	0	**8**	52	1	0	2	0	**55**	166	0	1	0	0	**167**	19	0	0	0	0	**19**
1800-1815	8	0	0	0	0	**8**	11	0	0	0	1	**12**	3	0	0	0	1	**4**	74	2	1	1	1	**79**	115	2	1	0	0	**118**	23	0	0	0	0	**23**
1815-1830	10	0	0	0	0	**10**	7	0	0	0	0	**7**	4	0	0	0	1	**5**	59	0	0	0	1	**60**	60	0	0	1	0	**61**	15	0	0	0	0	**15**
1630-1830	**70**	**0**	**0**	**1**	**0**	**71**	**73**	**0**	**0**	**0**	**1**	**74**	**55**	**0**	**0**	**2**	**6**	**63**	**552**	**10**	**4**	**7**	**4**	**577**	**880**	**13**	**4**	**4**	**3**	**904**	**120**	**0**	**0**	**4**	**0**	**124**
1630-1730	36	0	0	1	0	**37**	26	0	0	0	0	**26**	32	0	0	1	3	**36**	308	6	2	4	1	**321**	411	9	2	3	3	**428**	52	0	0	3	0	**55**
1645-1745	34	0	0	1	0	**35**	34	0	0	0	0	**34**	35	0	0	1	4	**40**	298	6	2	4	1	**311**	454	8	2	2	0	**466**	50	0	0	3	0	**53**
1700-1800	30	0	0	1	0	**31**	43	0	0	0	0	**43**	34	0	0	1	4	**39**	278	6	2	5	1	**292**	527	6	3	2	0	**538**	52	0	0	3	0	**55**
1715-1815	28	0	0	1	0	**29**	46	0	0	0	1	**47**	26	0	0	1	5	**32**	260	5	2	5	2	**274**	525	5	3	1	0	**534**	68	0	0	1	0	**69**
1730-1830	34	0	0	0	0	**34**	47	0	0	0	1	**48**	23	0	0	1	3	**27**	244	4	2	3	3	**256**	469	4	2	1	0	**476**	68	0	0	1	0	**69**

K&M TRAFFIC SURVEYS

DATE : 17th MAY 2018

DAY : THURSDAY

LOCATION : TIPTREE, ESSEX.

	BARBROOK LANE - EAST TO GREEN LANE						BARBROOK LANE - EAST TO BARBROOK LANE - NORTH						BARBROOK LANE - NORTH TO BARBROOK LANE						BARBROOK LANE - NORTH TO GREEN LANE						GREEN LANE TO BARBROOK LANE - NORTH						GREEN LANE TO BARBROOK LANE					
	MOVEMENT 19						MOVEMENT 20						MOVEMENT 21						MOVEMENT 22						MOVEMENT 23						MOVEMENT 24					
	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL
0730-0745	2	0	0	0	0	**2**	15	0	0	0	0	**15**	3	0	0	0	0	**3**	6	1	0	0	2	**9**	18	0	0	0	0	**18**	0	0	0	0	0	**0**
0745-0800	2	0	0	0	0	**2**	11	0	0	0	0	**11**	8	0	0	0	0	**8**	4	0	0	0	0	**4**	27	1	0	0	0	**28**	2	0	0	0	0	**2**
0800-0815	4	0	0	0	0	**4**	9	0	0	1	0	**10**	7	0	0	0	0	**7**	6	0	0	0	0	**6**	21	0	0	0	0	**21**	3	0	0	0	0	**3**
0815-0830	4	0	0	0	0	**4**	6	0	0	1	1	**8**	13	0	0	0	0	**13**	25	1	0	0	0	**26**	45	0	0	0	3	**48**	3	0	0	0	0	**3**
0830-0845	7	0	0	0	0	**7**	16	0	0	0	0	**16**	24	0	0	0	1	**25**	8	0	0	0	0	**8**	15	0	0	0	1	**16**	3	0	0	0	0	**3**
0845-0900	15	0	0	0	0	**15**	17	0	0	0	0	**17**	7	0	0	0	0	**7**	5	0	0	0	0	**5**	10	0	0	1	0	**11**	4	0	0	0	0	**4**
0900-0915	2	0	0	0	0	**2**	3	0	0	0	0	**3**	7	0	0	0	0	**7**	5	1	0	0	0	**6**	6	0	0	0	0	**6**	4	0	0	0	0	**4**
0915-0930	3	0	0	0	0	**3**	10	0	0	0	0	**10**	8	0	0	0	0	**8**	4	0	0	0	0	**4**	6	0	0	0	0	**6**	1	0	0	0	0	**1**
0730-0930	**39**	**0**	**0**	**0**	**0**	**39**	**87**	**0**	**0**	**2**	**1**	**90**	**77**	**0**	**0**	**0**	**1**	**78**	**63**	**3**	**0**	**0**	**2**	**68**	**148**	**1**	**0**	**1**	**4**	**154**	**20**	**0**	**0**	**0**	**0**	**20**
0730-0830	12	0	0	0	0	**12**	41	0	0	2	1	**44**	31	0	0	0	0	**31**	41	2	0	0	2	**45**	111	1	0	0	3	**115**	8	0	0	0	0	**8**
0745-0845	17	0	0	0	0	**17**	42	0	0	2	1	**45**	52	0	0	0	1	**53**	43	1	0	0	0	**44**	108	1	0	0	4	**113**	11	0	0	0	0	**11**
0800-0900	30	0	0	0	0	**30**	48	0	0	2	1	**51**	51	0	0	0	1	**52**	44	1	0	0	0	**45**	91	0	0	1	4	**96**	13	0	0	0	0	**13**
0815-0915	28	0	0	0	0	**28**	42	0	0	1	1	**44**	51	0	0	0	1	**52**	43	2	0	0	0	**45**	76	0	0	1	4	**81**	14	0	0	0	0	**14**
0830-0930	27	0	0	0	0	**27**	46	0	0	0	0	**46**	46	0	0	0	1	**47**	22	1	0	0	0	**23**	37	0	0	1	1	**39**	12	0	0	0	0	**12**

	BARBROOK LANE - EAST TO GREEN LANE						BARBROOK LANE - EAST TO BARBROOK LANE - NORTH						BARBROOK LANE - NORTH TO BARBROOK LANE						BARBROOK LANE - NORTH TO GREEN LANE						GREEN LANE TO BARBROOK LANE - NORTH						GREEN LANE TO BARBROOK LANE					
	MOVEMENT 19						MOVEMENT 20						MOVEMENT 21						MOVEMENT 22						MOVEMENT 23						MOVEMENT 24					
	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL
1630-1645	2	0	0	0	0	**2**	5	0	0	0	2	**7**	5	0	0	2	0	**7**	11	0	0	0	0	**11**	13	0	0	0	0	**13**	4	0	0	0	0	**4**
1645-1700	1	0	0	0	0	**1**	7	0	0	0	0	**7**	8	0	0	1	0	**9**	17	0	0	1	0	**18**	6	0	0	0	0	**6**	4	0	0	0	0	**4**
1700-1715	2	0	0	0	0	**2**	7	0	0	1	0	**8**	8	0	0	0	0	**8**	9	0	0	0	0	**9**	8	0	0	0	0	**8**	2	0	0	0	0	**2**
1715-1730	1	0	0	0	0	**1**	4	0	0	1	0	**5**	8	0	0	0	2	**10**	12	0	0	1	1	**14**	9	0	0	0	0	**9**	3	0	0	0	0	**3**
1730-1745	4	0	0	0	0	**4**	8	0	0	0	0	**8**	5	0	0	0	0	**5**	11	0	0	1	1	**13**	12	0	0	0	0	**12**	2	0	0	0	0	**2**
1745-1800	4	0	0	0	0	**4**	12	0	0	0	0	**12**	11	0	0	0	0	**11**	12	0	0	0	0	**12**	11	0	0	0	0	**11**	4	0	0	0	0	**4**
1800-1815	0	0	0	1	0	**1**	7	0	0	0	0	**7**	13	0	0	0	0	**13**	9	0	0	0	1	**10**	8	0	0	0	2	**10**	2	0	0	0	0	**2**
1815-1830	2	0	0	0	0	**2**	5	0	0	0	0	**5**	7	0	0	0	0	**7**	3	0	0	0	0	**3**	8	0	0	0	1	**9**	2	0	0	0	0	**2**
1630-1830	**16**	**0**	**0**	**1**	**0**	**17**	**55**	**0**	**0**	**2**	**2**	**59**	**65**	**0**	**0**	**3**	**2**	**70**	**84**	**0**	**0**	**3**	**3**	**90**	**75**	**0**	**0**	**0**	**3**	**78**	**23**	**0**	**0**	**0**	**0**	**23**
1630-1730	6	0	0	0	0	**6**	23	0	0	2	2	**27**	29	0	0	3	2	**34**	49	0	0	2	1	**52**	36	0	0	0	0	**36**	13	0	0	0	0	**13**
1645-1745	8	0	0	0	0	**8**	26	0	0	2	0	**28**	29	0	0	1	2	**32**	49	0	0	3	2	**54**	35	0	0	0	0	**35**	11	0	0	0	0	**11**
1700-1800	11	0	0	0	0	**11**	31	0	0	2	0	**33**	32	0	0	0	2	**34**	44	0	0	2	2	**48**	40	0	0	0	0	**40**	11	0	0	0	0	**11**
1715-1815	9	0	0	1	0	**10**	31	0	0	1	0	**32**	37	0	0	0	2	**39**	44	0	0	2	3	**49**	40	0	0	0	2	**42**	11	0	0	0	0	**11**
1730-1830	10	0	0	1	0	**11**	32	0	0	0	0	**32**	36	0	0	0	0	**36**	35	0	0	1	2	**38**	39	0	0	0	3	**42**	10	0	0	0	0	**10**

K&M TRAFFIC SURVEYS

DATE : 17th MAY 2018

DAY : THURSDAY

LOCATION : TIPTREE, ESSEX.

	BARBROOK LANE TO GROVE RD - EAST						BARBROOK LANE TO GROVE RD - SOUTH						GROVE ROAD - SOUTH TO BARBROOK LANE						GROVE ROAD - SOUTH TO GROVE RD - EAST						GROVE ROAD - EAST TO GROVE RD - SOUTH						GROVE ROAD - EAST TO BARBROOK LANE					
	MOVEMENT 25						MOVEMENT 26						MOVEMENT 27						MOVEMENT 28						MOVEMENT 29						MOVEMENT 30					
	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL
0730-0745	0	0	0	0	0	**0**	2	0	0	0	0	**2**	5	0	0	0	0	**5**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	5	0	0	0	0	**5**
0745-0800	0	0	0	0	0	**0**	2	0	0	0	0	**2**	9	0	0	0	0	**9**	0	0	0	0	1	**1**	0	0	0	0	0	**0**	2	0	0	0	0	**2**
0800-0815	1	0	0	0	0	**1**	3	0	0	0	0	**3**	8	0	0	0	0	**8**	0	0	0	0	0	**0**	1	0	0	0	0	**1**	3	0	0	0	0	**3**
0815-0830	2	0	0	0	0	**2**	2	0	0	0	0	**2**	5	0	0	0	0	**5**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	2	0	0	1	2	**5**
0830-0845	2	0	0	0	0	**2**	6	0	0	0	0	**6**	16	0	0	0	0	**16**	0	0	0	0	0	**0**	2	0	0	0	0	**2**	9	0	0	0	0	**9**
0845-0900	2	0	0	0	0	**2**	11	0	0	0	0	**11**	10	0	0	0	0	**10**	0	0	0	0	0	**0**	3	0	0	0	0	**3**	4	0	0	0	0	**4**
0900-0915	1	0	0	0	0	**1**	6	0	0	0	0	**6**	3	0	0	0	0	**3**	2	0	0	0	0	**2**	2	0	0	0	0	**2**	1	0	0	0	0	**1**
0915-0930	4	0	0	0	0	**4**	6	0	0	0	0	**6**	6	0	0	0	0	**6**	1	0	0	0	0	**1**	0	0	0	0	0	**0**	2	0	0	0	0	**2**
0730-0930	**12**	**0**	**0**	**0**	**0**	**12**	**38**	**0**	**0**	**0**	**0**	**38**	**62**	**0**	**0**	**0**	**0**	**62**	**3**	**0**	**0**	**0**	**1**	**4**	**8**	**0**	**0**	**0**	**0**	**8**	**28**	**0**	**0**	**1**	**2**	**31**
0730-0830	3	0	0	0	0	**3**	9	0	0	0	0	**9**	27	0	0	0	0	**27**	0	0	0	0	1	**1**	1	0	0	0	0	**1**	12	0	0	1	2	**15**
0745-0845	5	0	0	0	0	**5**	13	0	0	0	0	**13**	38	0	0	0	0	**38**	0	0	0	0	1	**1**	3	0	0	0	0	**3**	16	0	0	1	2	**19**
0800-0900	7	0	0	0	0	**7**	22	0	0	0	0	**22**	39	0	0	0	0	**39**	0	0	0	0	0	**0**	6	0	0	0	0	**6**	18	0	0	1	2	**21**
0815-0915	7	0	0	0	0	**7**	25	0	0	0	0	**25**	34	0	0	0	0	**34**	2	0	0	0	0	**2**	7	0	0	0	0	**7**	16	0	0	1	2	**19**
0830-0930	9	0	0	0	0	**9**	29	0	0	0	0	**29**	35	0	0	0	0	**35**	3	0	0	0	0	**3**	7	0	0	0	0	**7**	16	0	0	0	0	**16**

	BARBROOK LANE TO GROVE RD - EAST						BARBROOK LANE TO GROVE RD - SOUTH						GROVE ROAD - SOUTH TO BARBROOK LANE						GROVE ROAD - SOUTH TO GROVE RD - EAST						GROVE ROAD - EAST TO GROVE RD - SOUTH						GROVE ROAD - EAST TO BARBROOK LANE					
	MOVEMENT 25						MOVEMENT 26						MOVEMENT 27						MOVEMENT 28						MOVEMENT 29						MOVEMENT 30					
	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL
1630-1645	0	0	0	0	0	**0**	3	0	0	1	0	**4**	1	0	0	0	0	**1**	1	0	0	0	0	**1**	0	0	0	0	0	**0**	3	0	0	0	3	**6**
1645-1700	2	0	0	0	0	**2**	2	0	0	0	0	**2**	5	0	0	0	0	**5**	2	0	0	0	1	**3**	1	0	0	0	0	**1**	5	0	0	0	0	**5**
1700-1715	4	0	0	2	1	**7**	8	0	0	0	0	**8**	9	0	0	0	0	**9**	0	0	0	0	0	**0**	2	0	0	0	0	**2**	0	0	0	0	0	**0**
1715-1730	2	0	0	1	2	**5**	2	0	0	0	0	**2**	1	0	0	0	0	**1**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	2	0	0	0	0	**2**
1730-1745	0	0	0	0	0	**0**	7	0	0	0	0	**7**	5	0	0	0	0	**5**	4	0	0	0	0	**4**	1	0	0	0	0	**1**	1	0	0	0	0	**1**
1745-1800	1	0	0	0	0	**1**	3	0	0	0	0	**3**	6	0	0	0	0	**6**	4	0	0	0	0	**4**	0	0	0	0	0	**0**	5	0	0	0	0	**5**
1800-1815	5	0	0	0	0	**5**	4	0	0	0	0	**4**	1	0	0	1	0	**2**	5	0	0	0	0	**5**	5	0	0	0	0	**5**	1	0	0	0	0	**1**
1815-1830	2	0	0	0	0	**2**	3	0	0	0	0	**3**	1	0	0	0	0	**1**	2	0	0	0	0	**2**	1	0	0	0	0	**1**	2	0	0	0	0	**2**
1630-1830	**16**	**0**	**0**	**3**	**3**	**22**	**32**	**0**	**0**	**1**	**0**	**33**	**29**	**0**	**0**	**1**	**0**	**30**	**18**	**0**	**0**	**0**	**1**	**19**	**10**	**0**	**0**	**0**	**0**	**10**	**19**	**0**	**0**	**0**	**3**	**22**
1630-1730	8	0	0	3	3	**14**	15	0	0	1	0	**16**	16	0	0	0	0	**16**	3	0	0	0	1	**4**	3	0	0	0	0	**3**	10	0	0	0	3	**13**
1645-1745	8	0	0	3	3	**14**	19	0	0	0	0	**19**	20	0	0	0	0	**20**	6	0	0	0	1	**7**	4	0	0	0	0	**4**	8	0	0	0	0	**8**
1700-1800	7	0	0	3	3	**13**	20	0	0	0	0	**20**	21	0	0	0	0	**21**	8	0	0	0	0	**8**	3	0	0	0	0	**3**	8	0	0	0	0	**8**
1715-1815	8	0	0	1	2	**11**	16	0	0	0	0	**16**	13	0	0	1	0	**14**	13	0	0	0	0	**13**	6	0	0	0	0	**6**	9	0	0	0	0	**9**
1730-1830	8	0	0	0	0	**8**	17	0	0	0	0	**17**	13	0	0	1	0	**14**	15	0	0	0	0	**15**	7	0	0	0	0	**7**	9	0	0	0	0	**9**

K&M TRAFFIC SURVEYS

DATE : 17th MAY 2018

DAY : THURSDAY

LOCATION : TIPTREE, ESSEX.

	GROVE RD TO B1023 - SOUTH						GROVE RD TO B1023 - NORTH						B1023 - NORTH TO GROVE RD						B1023 - NORTH TO B1023 - SOUTH						B1023 - SOUTH TO B1023 - NORTH						B1023 - SOUTH TO GROVE RD					
	MOVEMENT 31						MOVEMENT 32						MOVEMENT 33						MOVEMENT 34						MOVEMENT 35						MOVEMENT 36					
	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL
0730-0745	20	1	0	0	2	**23**	23	1	0	1	0	**25**	13	0	0	0	0	**13**	50	4	2	0	0	**56**	74	2	1	1	0	**78**	8	0	0	0	0	**8**
0745-0800	20	0	0	0	0	**20**	20	0	0	0	0	**20**	9	0	0	0	0	**9**	52	2	1	0	2	**57**	95	6	1	0	1	**103**	16	0	0	0	0	**16**
0800-0815	28	0	0	0	0	**28**	23	1	0	0	0	**24**	13	0	0	0	0	**13**	67	3	1	0	0	**71**	98	4	0	0	1	**103**	17	0	0	0	0	**17**
0815-0830	30	0	0	0	0	**30**	14	0	0	0	0	**14**	14	0	0	0	0	**14**	85	5	0	0	1	**91**	82	3	5	0	0	**90**	32	1	0	0	0	**33**
0830-0845	35	0	0	0	0	**35**	25	0	0	0	0	**25**	10	0	0	0	0	**10**	89	4	2	0	0	**95**	94	4	0	2	1	**101**	20	0	0	1	0	**21**
0845-0900	39	0	0	0	0	**39**	13	1	0	0	0	**14**	14	0	0	0	0	**14**	78	2	1	1	0	**82**	84	2	0	1	0	**87**	23	0	0	0	0	**23**
0900-0915	23	0	0	0	0	**23**	10	0	0	0	0	**10**	14	0	0	0	0	**14**	90	7	1	1	0	**99**	84	4	1	1	0	**90**	15	1	0	0	0	**16**
0915-0930	16	0	0	0	0	**16**	16	0	0	0	0	**16**	6	0	0	0	0	**6**	99	9	0	1	0	**109**	84	1	0	1	0	**86**	13	0	0	0	0	**13**
0730-0930	**211**	**1**	**0**	**0**	**2**	**214**	**144**	**3**	**0**	**1**	**0**	**148**	**93**	**0**	**0**	**0**	**0**	**93**	**610**	**36**	**8**	**3**	**3**	**660**	**695**	**26**	**8**	**6**	**3**	**738**	**144**	**2**	**0**	**1**	**0**	**147**
0730-0830	98	1	0	0	2	**101**	80	2	0	1	0	**83**	49	0	0	0	0	**49**	254	14	4	0	3	**275**	349	15	7	1	2	**374**	73	1	0	0	0	**74**
0745-0845	113	0	0	0	0	**113**	82	1	0	0	0	**83**	46	0	0	0	0	**46**	293	14	4	0	3	**314**	369	17	6	2	3	**397**	85	1	0	1	0	**87**
0800-0900	132	0	0	0	0	**132**	75	2	0	0	0	**77**	51	0	0	0	0	**51**	319	14	4	1	1	**339**	358	13	5	3	2	**381**	92	1	0	1	0	**94**
0815-0915	127	0	0	0	0	**127**	62	1	0	0	0	**63**	52	0	0	0	0	**52**	342	18	4	2	1	**367**	344	13	6	4	1	**368**	90	2	0	1	0	**93**
0830-0930	113	0	0	0	0	**113**	64	1	0	0	0	**65**	44	0	0	0	0	**44**	356	22	4	3	0	**385**	346	11	1	5	1	**364**	71	1	0	1	0	**73**

	GROVE RD TO B1023 - SOUTH						GROVE RD TO B1023 - NORTH						B1023 - NORTH TO GROVE RD						B1023 - NORTH TO B1023 - SOUTH						B1023 - SOUTH TO B1023 - NORTH						B1023 - SOUTH TO GROVE RD					
	MOVEMENT 31						MOVEMENT 32						MOVEMENT 33						MOVEMENT 34						MOVEMENT 35						MOVEMENT 36					
	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL	LIGHT	HEAVY	BUS	MCYCLE	PCYCLE	TOTAL
1630-1645	20	0	0	1	0	**21**	9	0	0	0	0	**9**	14	0	0	1	0	**15**	112	6	1	0	0	**119**	92	2	2	2	2	**100**	17	0	0	0	0	**17**
1645-1700	17	0	0	0	0	**17**	12	0	0	0	0	**12**	26	0	0	1	1	**28**	121	1	0	1	0	**123**	74	1	1	0	0	**76**	28	0	0	1	0	**29**
1700-1715	21	0	0	0	0	**21**	13	0	0	0	0	**13**	10	1	0	0	0	**11**	130	2	1	1	0	**134**	87	2	0	2	0	**91**	27	0	0	1	0	**28**
1715-1730	18	0	0	0	0	**18**	6	0	0	3	0	**9**	30	1	0	0	0	**31**	122	1	0	5	2	**130**	83	1	2	0	0	**86**	25	0	0	0	0	**25**
1730-1745	15	0	0	2	0	**17**	6	0	0	1	0	**7**	36	0	0	0	0	**36**	119	2	1	0	1	**123**	96	0	0	2	0	**98**	30	0	0	4	0	**34**
1745-1800	18	0	0	0	1	**19**	13	0	0	1	0	**14**	26	0	0	0	0	**26**	102	1	0	1	0	**104**	98	0	2	0	0	**100**	29	0	0	1	0	**30**
1800-1815	18	0	0	0	0	**18**	11	0	0	1	0	**12**	24	0	0	0	0	**24**	120	1	1	3	0	**125**	72	0	1	2	0	**75**	18	0	0	1	0	**19**
1815-1830	13	0	0	0	0	**13**	7	0	0	1	0	**8**	27	0	0	1	0	**28**	101	1	1	0	4	**107**	74	2	0	0	1	**77**	21	0	0	0	0	**21**
1630-1830	**140**	**0**	**0**	**3**	**1**	**144**	**77**	**0**	**0**	**7**	**0**	**84**	**193**	**2**	**0**	**3**	**1**	**199**	**927**	**15**	**5**	**11**	**7**	**965**	**676**	**8**	**8**	**8**	**3**	**703**	**195**	**0**	**0**	**8**	**0**	**203**
1630-1730	76	0	0	1	0	**77**	40	0	0	3	0	**43**	80	2	0	2	1	**85**	485	10	2	7	2	**506**	336	6	5	4	2	**353**	97	0	0	2	0	**99**
1645-1745	71	0	0	2	0	**73**	37	0	0	4	0	**41**	102	2	0	1	1	**106**	492	6	2	7	3	**510**	340	4	3	4	0	**351**	110	0	0	6	0	**116**
1700-1800	72	0	0	2	1	**75**	38	0	0	5	0	**43**	102	2	0	0	0	**104**	473	6	2	7	3	**491**	364	3	4	4	0	**375**	111	0	0	6	0	**117**
1715-1815	69	0	0	2	1	**72**	36	0	0	6	0	**42**	116	1	0	0	0	**117**	463	5	2	9	3	**482**	349	1	5	4	0	**359**	102	0	0	6	0	**108**
1730-1830	64	0	0	2	1	**67**	37	0	0	4	0	**41**	113	0	0	1	0	**114**	442	5	3	4	5	**459**	340	2	3	4	1	**350**	98	0	0	6	0	**104**

K&M TRAFFIC SURVEYS

DATE : 17th MAY 2018

DAY : THURSDAY

LOCATION : TIPTREE, ESSEX.

JUNCTION OF B1022 / B1023 / KELVEDON RD - DOUBLE MINI RBOUTS

	QUEUES OUT OF B1023	QUEUES OUT OF B1022 - NORTH	QUEUES OUT OF KELVEDON RD	QUEUE OUT OF B1022 - SOUTH	QUEUE OUT OF GROVE RD (@ B1023)
07:30	0	0	0	0	0
07:35	2	0	0	0	0
07:40	3	4	6	0	0
07:45	4	2	0	6	2
07:50	5	3	0	0	3
07:55	2	3	9	0	0
08:00	0	0	0	6	3
08:05	4	6	5	6	0
08:10	8	0	12	12	0
08:15	5	8	12	8	0
08:20	2	8	3	2	6
08:25	3	12	15+	5	0
08:30	10	2	15+	0	2
08:35	15+	6	15+	0	0
08:40	15+	0	12	5	4
08:45	4	0	5	0	2
08:50	2	4	2	5	3
08:55	3	0	0	0	4
09:00	0	0	3	0	0
09:05	6	0	0	0	2
09:10	0	0	2	0	3
09:15	2	0	3	0	3
09:20	0	0	0	0	5
09:25	2	0	0	0	3
09:30	0	0	0	0	2

JUNCTION OF B1022 / B1023 / KELVEDON RD - DOUBLE MINI RBOUTS

	QUEUES OUT OF B1023	QUEUES OUT OF B1022 - NORTH	QUEUES OUT OF KELVEDON RD	QUEUE OUT OF B1022 - SOUTH	QUEUE OUT OF GROVE RD (@ B1023)
16:30	3	0	3	0	0
16:35	3	0	3	6	0
16:40	8	8	6	8	0
16:45	0	5	8	4	0
16:50	0	9	7	0	3
16:55	0	3	0	0	0
17:00	0	0	9	6	3
17:05	6	7	12	0	6
17:10	0	0	15+	0	0
17:15	0	0	15+	5	0
17:20	0	0	15+	0	0
17:25	5	3	15+	6	0
17:30	0	0	15+	0	2
17:35	2	3	15+	0	0
17:40	0	4	15+	6	0
17:45	3	0	15+	12	0
17:50	2	0	15+	0	4
17:55	5	4	10	6	0
18:00	4	0	12	0	0
18:05	5	8	12	0	2
18:10	2	4	0	2	5
18:15	3	0	0	0	0
18:20	0	0	2	0	0
18:25	0	6	0	0	0
18:30	0	0	0	0	0

APPENDIX 2

PICADY Output for Barbrook Lane/Site Access

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: Site Access.j9
Path: Z:\projects\2179 Land off Barbrook Lane, Tiptree\Picady
Report generation date: 24/10/2018 11:12:11

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2023 Assessment Flows							
Stream B-AC	0.2	8.69	0.19	A	0.1	7.82	0.11	A
Stream C-AB	0.0	6.24	0.02	A	0.1	6.54	0.07	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Barbrook Lane - Site Access
Location	Tiptree, Colchester
Site number	
Date	24/05/2018
Version	
Status	
Identifier	
Client	
Jobnumber	2179
Enumerator	Croft Transport Solutions
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	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		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)
D3	2023 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
D4	2023 Assessment Flows	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2023 Assessment Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		3.07	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Batbrook Lane (W)		Major
B	Site Access		Minor
C	Batbrook Lane (E)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.00			65.0	✓	1.00

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	2.80	16	25

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	485	0.088	0.223	0.141	0.319
1	B-C	627	0.096	0.243	-	-
1	C-B	612	0.237	0.237	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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)
D3	2023 Assessment Flows	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		✓	85	100.000
B		✓	86	100.000
C		✓	99	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	16	69
	B	47	0	39
	C	86	13	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.19	8.69	0.2	A
C-AB	0.02	6.24	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-AC	65	519	0.125	64	0.1	7.907	A
C-AB	10	598	0.016	10	0.0	6.130	A
C-A	65			65			
A-B	12			12			
A-C	52			52			

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	77	515	0.150	77	0.2	8.225	A
C-AB	12	595	0.020	12	0.0	6.177	A
C-A	77			77			
A-B	14			14			
A-C	62			62			

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	95	509	0.186	94	0.2	8.684	A
C-AB	14	592	0.024	14	0.0	6.240	A
C-A	95			95			
A-B	18			18			
A-C	76			76			

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	95	509	0.186	95	0.2	8.692	A
C-AB	14	592	0.024	14	0.0	6.240	A
C-A	95			95			
A-B	18			18			
A-C	76			76			

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	77	515	0.150	78	0.2	8.238	A
C-AB	12	595	0.020	12	0.0	6.177	A
C-A	77			77			
A-B	14			14			
A-C	62			62			

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	65	519	0.125	65	0.1	7.931	A
C-AB	10	598	0.016	10	0.0	6.131	A
C-A	65			65			
A-B	12			12			
A-C	52			52			

2023 Assessment Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		2.97	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)
D4	2023 Assessment Flows	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		✓	84	100.000
B		✓	52	100.000
C		✓	85	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	38	46
	B	26	0	26
	C	47	38	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.11	7.82	0.1	A
C-AB	0.07	6.54	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-AC	39	527	0.074	39	0.1	7.368	A
C-AB	29	598	0.048	28	0.1	6.322	A
C-A	35			35			
A-B	29			29			
A-C	35			35			

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	47	523	0.089	47	0.1	7.555	A
C-AB	34	596	0.058	34	0.1	6.413	A
C-A	42			42			
A-B	34			34			
A-C	41			41			

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	57	518	0.111	57	0.1	7.814	A
C-AB	42	593	0.071	42	0.1	6.536	A
C-A	51			51			
A-B	42			42			
A-C	51			51			

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	57	518	0.111	57	0.1	7.817	A
C-AB	42	593	0.071	42	0.1	6.536	A
C-A	51			51			
A-B	42			42			
A-C	51			51			

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	47	523	0.089	47	0.1	7.561	A
C-AB	34	596	0.058	34	0.1	6.414	A
C-A	42			42			
A-B	34			34			
A-C	41			41			

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	39	527	0.074	39	0.1	7.382	A
C-AB	29	598	0.048	29	0.1	6.328	A
C-A	35			35			
A-B	29			29			
A-C	35			35			

APPENDIX 3

PICADY Output for Barbrook Lane/Green Lane

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: Barbrook Lane-Green Lane.j9
Path: Z:\projects\2179 Land off Barbrook Lane, Tiptree\Picady
Report generation date: 24/10/2018 11:19:20

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2023 Base Flows							
Stream B-AC	0.2	8.79	0.19	A	0.1	8.07	0.10	A
Stream C-AB	0.0	6.33	0.03	A	0.0	6.27	0.02	A
	2023 Assessment Flows							
Stream B-AC	0.4	10.67	0.30	B	0.2	8.89	0.16	A
Stream C-AB	0.0	6.38	0.03	A	0.0	6.37	0.02	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Barbrook Lane - Green Lane
Location	Tiptree, Colchester
Site number	
Date	24/05/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	2179
Enumerator	Croft Transport Solutions
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	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		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	2023 Base Flows	AM	ONE HOUR	08:00	09:30	15
D2	2023 Base Flows	PM	ONE HOUR	17:00	18:30	15
D3	2023 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
D4	2023 Assessment Flows	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2023 Base Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		2.79	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Green Lane (N)		Major
B	Barbrook Lane		Minor
C	Green Lane (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.00			60.0	✓	1.00

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	3.00	17	20

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	493	0.090	0.227	0.143	0.324
1	B-C	637	0.098	0.247	-	-
1	C-B	609	0.236	0.236	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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	2023 Base Flows	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		✓	104	100.000
B		✓	86	100.000
C		✓	113	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	55	49
	B	54	0	32
	C	99	14	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.19	8.79	0.2	A
C-AB	0.03	6.33	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-AC	65	515	0.126	64	0.1	7.977	A
C-AB	11	592	0.018	10	0.0	6.201	A
C-A	75			75			
A-B	41			41			
A-C	37			37			

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	77	510	0.151	77	0.2	8.307	A
C-AB	13	589	0.021	13	0.0	6.256	A
C-A	89			89			
A-B	49			49			
A-C	44			44			

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	95	504	0.188	94	0.2	8.784	A
C-AB	15	585	0.027	15	0.0	6.331	A
C-A	109			109			
A-B	61			61			
A-C	54			54			

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	95	504	0.188	95	0.2	8.792	A
C-AB	15	585	0.027	15	0.0	6.331	A
C-A	109			109			
A-B	61			61			
A-C	54			54			

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	77	510	0.151	78	0.2	8.321	A
C-AB	13	589	0.021	13	0.0	6.256	A
C-A	89			89			
A-B	49			49			
A-C	44			44			

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	65	515	0.126	65	0.1	8.001	A
C-AB	11	592	0.018	11	0.0	6.201	A
C-A	75			75			
A-B	41			41			
A-C	37			37			

2023 Base Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		2.46	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2023 Base Flows	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		✓	83	100.000
B		✓	47	100.000
C		✓	55	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	34	49
	B	35	0	12
	C	43	12	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.10	8.07	0.1	A
C-AB	0.02	6.27	0.0	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	35	506	0.070	35	0.1	7.643	A
C-AB	9	594	0.015	9	0.0	6.154	A
C-A	32			32			
A-B	26			26			
A-C	37			37			

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	42	502	0.084	42	0.1	7.821	A
C-AB	11	592	0.018	11	0.0	6.201	A
C-A	39			39			
A-B	31			31			
A-C	44			44			

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	52	498	0.104	52	0.1	8.068	A
C-AB	13	588	0.023	13	0.0	6.266	A
C-A	47			47			
A-B	37			37			
A-C	54			54			

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	52	498	0.104	52	0.1	8.071	A
C-AB	13	588	0.023	13	0.0	6.266	A
C-A	47			47			
A-B	37			37			
A-C	54			54			

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	42	502	0.084	42	0.1	7.828	A
C-AB	11	592	0.018	11	0.0	6.201	A
C-A	39			39			
A-B	31			31			
A-C	44			44			

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	35	506	0.070	35	0.1	7.657	A
C-AB	9	594	0.015	9	0.0	6.155	A
C-A	32			32			
A-B	26			26			
A-C	37			37			

2023 Assessment Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		4.12	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)
D3	2023 Assessment Flows	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		✓	120	100.000
B		✓	133	100.000
C		✓	113	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	71	49
	B	101	0	32
	C	99	14	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.30	10.67	0.4	B
C-AB	0.03	6.38	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-AC	100	496	0.202	99	0.2	9.055	A
C-AB	11	589	0.018	10	0.0	6.231	A
C-A	75			75			
A-B	53			53			
A-C	37			37			

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	120	491	0.244	119	0.3	9.685	A
C-AB	13	585	0.022	13	0.0	6.293	A
C-A	89			89			
A-B	64			64			
A-C	44			44			

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	146	484	0.303	146	0.4	10.642	B
C-AB	15	580	0.027	15	0.0	6.377	A
C-A	109			109			
A-B	78			78			
A-C	54			54			

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	146	484	0.303	146	0.4	10.669	B
C-AB	15	580	0.027	15	0.0	6.377	A
C-A	109			109			
A-B	78			78			
A-C	54			54			

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	120	491	0.244	120	0.3	9.722	A
C-AB	13	585	0.022	13	0.0	6.293	A
C-A	89			89			
A-B	64			64			
A-C	44			44			

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	100	496	0.202	100	0.3	9.113	A
C-AB	11	589	0.018	11	0.0	6.232	A
C-A	75			75			
A-B	53			53			
A-C	37			37			

2023 Assessment Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		2.90	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)
D4	2023 Assessment Flows	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		✓	118	100.000
B		✓	71	100.000
C		✓	55	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	69	49
	B	59	0	12
	C	43	12	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.16	8.89	0.2	A
C-AB	0.02	6.37	0.0	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	53	492	0.109	53	0.1	8.182	A
C-AB	9	588	0.015	9	0.0	6.220	A
C-A	32			32			
A-B	52			52			
A-C	37			37			

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	64	489	0.131	64	0.1	8.473	A
C-AB	11	584	0.018	11	0.0	6.281	A
C-A	39			39			
A-B	62			62			
A-C	44			44			

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	78	483	0.162	78	0.2	8.882	A
C-AB	13	579	0.023	13	0.0	6.366	A
C-A	47			47			
A-B	76			76			
A-C	54			54			

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	78	483	0.162	78	0.2	8.889	A
C-AB	13	579	0.023	13	0.0	6.366	A
C-A	47			47			
A-B	76			76			
A-C	54			54			

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	64	489	0.131	64	0.2	8.484	A
C-AB	11	584	0.018	11	0.0	6.282	A
C-A	39			39			
A-B	62			62			
A-C	44			44			

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	53	492	0.109	54	0.1	8.207	A
C-AB	9	588	0.015	9	0.0	6.223	A
C-A	32			32			
A-B	52			52			
A-C	37			37			

APPENDIX 4

PICADY Output for Green Lane/B1022

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: Green Lane-B1022.j9
Path: Z:\projects\2179 Land off Barbrook Lane, Tiptree\Picady
Report generation date: 24/10/2018 11:17:32

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2023 Base Flows							
Stream B-AC	0.7	15.53	0.43	C	0.3	13.28	0.24	B
Stream C-AB	0.2	7.46	0.14	A	0.2	6.73	0.12	A
	2023 Assessment Flows							
Stream B-AC	1.3	20.31	0.56	C	0.5	15.24	0.32	C
Stream C-AB	0.2	7.53	0.16	A	0.2	6.81	0.17	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Green Lane - B1022
Location	Tiptree, Colchester
Site number	
Date	24/05/2018
Version	
Status	
Identifier	
Client	
Jobnumber	2179
Enumerator	Croft Transport Solutions
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	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		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	2023 Base Flows	AM	ONE HOUR	08:00	09:30	15
D2	2023 Base Flows	PM	ONE HOUR	17:00	18:30	15
D3	2023 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
D4	2023 Assessment Flows	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2023 Base Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		2.51	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	B1022 (N)		Major
B	Green Lane		Minor
C	B1022 (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.00			100.0	✓	1.00

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	3.00	19	16

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	492	0.090	0.226	0.142	0.323
1	B-C	634	0.097	0.246	-	-
1	C-B	632	0.245	0.245	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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	2023 Base Flows	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		✓	519	100.000
B		✓	160	100.000
C		✓	519	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	40	479
	B	44	0	116
	C	456	63	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.43	15.53	0.7	C
C-AB	0.14	7.46	0.2	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	120	468	0.258	119	0.3	10.286	B
C-AB	50	567	0.088	50	0.1	6.967	A
C-A	341			341			
A-B	30			30			
A-C	361			361			

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	144	443	0.325	143	0.5	11.988	B
C-AB	62	563	0.109	61	0.1	7.190	A
C-A	405			405			
A-B	36			36			
A-C	431			431			

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	176	408	0.432	175	0.7	15.397	C
C-AB	79	563	0.141	79	0.2	7.447	A
C-A	492			492			
A-B	44			44			
A-C	527			527			

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	176	408	0.432	176	0.7	15.533	C
C-AB	79	563	0.141	79	0.2	7.456	A
C-A	492			492			
A-B	44			44			
A-C	527			527			

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	144	443	0.325	145	0.5	12.118	B
C-AB	62	563	0.109	62	0.1	7.200	A
C-A	405			405			
A-B	36			36			
A-C	431			431			

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	120	468	0.258	121	0.4	10.403	B
C-AB	50	567	0.088	50	0.1	6.982	A
C-A	341			341			
A-B	30			30			
A-C	361			361			

2023 Base Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.34	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2023 Base Flows	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		✓	378	100.000
B		✓	79	100.000
C		✓	653	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	37	341
	B	46	0	33
	C	594	59	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.24	13.28	0.3	B
C-AB	0.12	6.73	0.2	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	59	419	0.142	59	0.2	9.967	A
C-AB	47	598	0.079	47	0.1	6.538	A
C-A	444			444			
A-B	28			28			
A-C	257			257			

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	71	394	0.180	71	0.2	11.133	B
C-AB	58	600	0.097	58	0.1	6.642	A
C-A	529			529			
A-B	33			33			
A-C	307			307			

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	87	358	0.243	87	0.3	13.243	B
C-AB	75	610	0.123	75	0.2	6.727	A
C-A	644			644			
A-B	41			41			
A-C	375			375			

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	87	358	0.243	87	0.3	13.284	B
C-AB	75	610	0.123	75	0.2	6.732	A
C-A	644			644			
A-B	41			41			
A-C	375			375			

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	71	394	0.180	71	0.2	11.175	B
C-AB	58	600	0.097	58	0.1	6.650	A
C-A	529			529			
A-B	33			33			
A-C	307			307			

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	59	419	0.142	60	0.2	10.020	B
C-AB	47	598	0.079	47	0.1	6.551	A
C-A	444			444			
A-B	28			28			
A-C	257			257			

2023 Assessment Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		3.82	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)
D3	2023 Assessment Flows	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		✓	525	100.000
B		✓	207	100.000
C		✓	529	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	46	479
	B	57	0	150
	C	456	73	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.56	20.31	1.3	C
C-AB	0.16	7.53	0.2	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	156	466	0.334	154	0.5	11.464	B
C-AB	59	570	0.103	58	0.1	7.027	A
C-A	340			340			
A-B	35			35			
A-C	361			361			

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	186	441	0.422	185	0.7	14.039	B
C-AB	72	569	0.127	72	0.2	7.256	A
C-A	403			403			
A-B	41			41			
A-C	431			431			

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	228	405	0.563	226	1.2	19.879	C
C-AB	94	573	0.164	94	0.2	7.519	A
C-A	489			489			
A-B	51			51			
A-C	527			527			

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	228	405	0.563	228	1.3	20.306	C
C-AB	94	573	0.164	94	0.2	7.529	A
C-A	489			489			
A-B	51			51			
A-C	527			527			

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	186	441	0.422	188	0.7	14.363	B
C-AB	72	569	0.127	73	0.2	7.271	A
C-A	403			403			
A-B	41			41			
A-C	431			431			

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	156	466	0.335	157	0.5	11.685	B
C-AB	59	570	0.103	59	0.1	7.046	A
C-A	340			340			
A-B	35			35			
A-C	361			361			

2023 Assessment Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.88	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)
D4	2023 Assessment Flows	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		✓	392	100.000
B		✓	103	100.000
C		✓	674	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	51	341
	B	60	0	43
	C	594	80	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.32	15.24	0.5	C
C-AB	0.17	6.81	0.2	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	78	414	0.187	77	0.2	10.640	B
C-AB	65	608	0.108	65	0.1	6.631	A
C-A	442			442			
A-B	38			38			
A-C	257			257			

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	93	387	0.239	92	0.3	12.182	B
C-AB	81	616	0.132	81	0.2	6.735	A
C-A	525			525			
A-B	46			46			
A-C	307			307			

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	113	350	0.324	113	0.5	15.155	C
C-AB	106	636	0.167	106	0.2	6.801	A
C-A	636			636			
A-B	56			56			
A-C	375			375			

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	113	350	0.324	113	0.5	15.239	C
C-AB	106	636	0.167	106	0.2	6.810	A
C-A	636			636			
A-B	56			56			
A-C	375			375			

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	93	387	0.239	93	0.3	12.267	B
C-AB	81	616	0.132	81	0.2	6.746	A
C-A	525			525			
A-B	46			46			
A-C	307			307			

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	78	414	0.187	78	0.2	10.726	B
C-AB	65	608	0.108	66	0.1	6.649	A
C-A	442			442			
A-B	38			38			
A-C	257			257			

APPENDIX 5

ARCADY Output for B1022/B1023

Junctions 9

ARCADY 9 - Roundabout Module

Filename: B1022-B1023 (Double mini) - Unadjusted.j9
Path: Z:\projects\2179 Land off Barbrook Lane, Tiptree\Arcady
Report generation date: 13/07/2018 14:33:55

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2018 Surveyed Flows							
Junction 1 - Arm 1	10.0	60.52	0.94	F	2.0	19.63	0.68	C
Junction 1 - Arm 2	10.1	45.06	0.94	E	4.3	20.76	0.82	C
Junction 1 - Arm 3	1.3	13.15	0.58	B	22.0	123.56	1.03	F
Junction 2 - Arm 1	27.8	119.32	1.04	F	41.0	201.66	1.09	F
Junction 2 - Arm 2	8.9	67.18	0.93	F	2.0	17.83	0.67	C
Junction 2 - Arm 3	7.1	56.38	0.90	F	9.6	65.56	0.94	F

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.

File summary

File Description

Title	B1022 - B1023
Location	Tiptree
Site number	
Date	24/05/2018
Version	
Status	
Identifier	
Client	
Jobnumber	2179
Enumerator	Croft Transport Solutions
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

Mini-roundabout model	Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
JUNCTIONS 9			0.85	36.00	20.00

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
2018 Surveyed Flows	AM	ONE HOUR	08:00	09:30	15
2018 Surveyed Flows	PM	ONE HOUR	17:00	18:30	15

2018 Surveyed Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	Junction 1 - Arm 2	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 2 - Arm 1	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	B1022 (N) - B1022 (S) - Kelvedon Road	Mini-roundabout	43.91	E
2	B1022 (N) - B1023 - B1022 (S)	Mini-roundabout	87.68	F

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Junction	Arm	Name	Description
1	1	B1022 (N)	
	2	B1022 (S)	
	3	Kelvedon Road	
2	1	B1022 (N)	
	2	B1023	
	3	B1022 (S)	

Capacity Options

Junction	Arm	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
1	1	0.00	99999.00
	2	0.00	99999.00
	3	0.00	99999.00
2	1	0.00	99999.00
	2	0.00	99999.00
	3	0.00	99999.00

Mini Roundabout Geometry

Junction	Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	1	3.00	3.00	3.00	0.0	15.60	2.00	0.0	
	2	3.00	3.00	5.60	1.5	11.10	11.20	0.0	
	3	3.35	3.35	5.50	2.4	8.80	16.00	0.0	
2	1	3.00	3.00	4.60	0.8	14.90	9.20	0.0	
	2	3.65	3.65	5.20	1.2	14.10	8.00	0.0	
	3	3.65	3.50	3.50	0.0	20.00	2.00	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/hr)
1	1	0.590	846.394
	2	0.609	981.177
	3	0.666	967.198
2	1	0.600	822.092
	2	0.627	788.778
	3	0.609	816.549

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D1	2018 Surveyed Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	2	2	1	Simple (vertical queueing)	Normal	0.00	100.00	
2	1	1	2	Simple (vertical queueing)	Normal	0.00	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	1		✓	576.00	100.000
	2	✓			
	3		✓	340.00	100.000
2	1	✓			
	2		✓	461.00	100.000
	3		✓	440.00	100.000

Origin-Destination Data

Junction 1

Demand (PCU/hr)

		To		
		1	2	3
From	1	0.000	473.000	103.000
	2	447.000	0.000	340.000
	3	78.000	262.000	0.000

Junction 2

Demand (PCU/hr)

		To		
		1	2	3
From	1	0.000	357.000	378.000
	2	425.000	0.000	36.000
	3	362.000	78.000	0.000

Vehicle Mix

Junction 1

Heavy Vehicle proportion

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Junction 2

Heavy Vehicle proportion

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	1	0.94	60.52	10.0	F
	2	0.94	45.06	10.1	E
	3	0.58	13.15	1.3	B
2	1	1.04	119.32	27.8	F
	2	0.93	67.18	8.9	F
	3	0.90	56.38	7.1	F

Main Results for each time segment

Main results: (08:00-08:15)

Junction	Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1	433.64	195.67	730.94	0.593	427.99	1.4	11.677	B
	2	584.26	76.53	934.58	0.625	577.78	1.6	9.920	A
	3	255.97	328.17	748.78	0.342	253.92	0.5	7.247	A
2	1	547.12	57.94	787.35	0.695	538.47	2.2	14.022	B
	2	347.06	276.93	615.16	0.564	342.06	1.3	12.957	B
	3	331.26	315.34	624.49	0.530	326.86	1.1	11.928	B

Main results: (08:15-08:30)

Junction	Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1	517.81	234.79	707.86	0.732	513.28	2.5	18.074	C
	2	700.72	91.79	925.30	0.757	695.49	2.9	15.312	C
	3	305.65	395.03	704.28	0.434	304.69	0.8	8.986	A
2	1	656.29	69.51	780.41	0.841	646.81	4.5	25.246	D
	2	414.43	332.65	580.23	0.714	410.15	2.3	20.643	C
	3	395.55	378.12	586.26	0.675	392.11	2.0	18.214	C

Main results: (08:30-08:45)

Junction	Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1	634.19	286.85	677.14	0.937	611.58	8.2	44.301	E
	2	836.52	109.36	914.59	0.915	817.82	7.6	32.144	D
	3	374.35	464.51	658.04	0.569	372.24	1.3	12.503	B
2	1	789.07	83.14	772.24	1.022	740.00	16.8	66.942	F
	2	507.57	380.57	550.19	0.923	488.82	7.0	48.101	E
	3	484.45	450.65	542.09	0.894	469.02	5.8	42.356	E

Main results: (08:45-09:00)

Junction	Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1	634.19	288.28	676.29	0.938	627.08	10.0	60.517	F
	2	855.61	112.13	912.91	0.937	845.59	10.1	45.058	E
	3	374.35	480.28	647.54	0.578	374.11	1.3	13.145	B
2	1	803.23	85.00	771.13	1.042	759.13	27.8	119.321	F
	2	507.57	390.41	544.02	0.933	500.18	8.9	67.183	F
	3	484.45	461.12	535.71	0.904	479.49	7.1	56.379	F

Main results: (09:00-09:15)

Junction	Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1	517.81	237.08	706.51	0.733	545.85	3.0	25.531	D
	2	742.51	97.61	921.75	0.806	764.66	4.6	25.310	D
	3	305.65	434.31	678.13	0.451	307.67	0.8	9.771	A
2	1	685.32	73.42	778.07	0.881	752.38	11.1	100.420	F
	2	414.43	386.94	546.19	0.759	435.81	3.5	36.868	E
	3	395.55	401.78	571.85	0.692	414.15	2.4	25.052	D

Main results: (09:15-09:30)

Junction	Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1	433.64	198.16	729.47	0.594	439.45	1.5	12.647	B
	2	604.14	78.58	933.33	0.647	614.82	1.9	11.655	B
	3	255.97	349.21	734.78	0.348	257.15	0.5	7.557	A
2	1	559.03	59.58	786.37	0.711	592.79	2.6	21.395	C
	2	347.06	304.86	597.65	0.581	355.37	1.4	15.331	C
	3	331.26	327.62	617.01	0.537	336.10	1.2	13.027	B

2018 Surveyed Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	Junction 1 - Arm 2	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 2 - Arm 1	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	B1022 (N) - B1022 (S) - Kelvedon Road	Mini-roundabout	56.39	F
2	B1022 (N) - B1023 - B1022 (S)	Mini-roundabout	117.13	F

Junction Network Options
[same as above]

Arms

Arms
[same as above]

Capacity Options
[same as above]

Mini Roundabout Geometry
[same as above]

Slope / Intercept / Capacity
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D2	2018 Surveyed Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	2	2	1	Simple (vertical queueing)	Normal	0.00	100.00	
2	1	1	2	Simple (vertical queueing)	Normal	0.00	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	1		✓	346.00	100.000
	2	✓			
	3		✓	568.00	100.000
2	1	✓			
	2		✓	379.00	100.000
	3		✓	512.00	100.000

Origin-Destination Data

Junction 1

Demand (PCU/hr)

		To		
		1	2	3
From	1	0.000	299.000	47.000
	2	498.000	0.000	217.000
	3	108.000	460.000	0.000

Junction 2

Demand (PCU/hr)

		To		
		1	2	3
From	1	0.000	480.000	279.000
	2	321.000	0.000	58.000
	3	394.000	118.000	0.000

Vehicle Mix

Junction 1

Heavy Vehicle proportion

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Junction 2

Heavy Vehicle proportion

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	1	0.68	19.63	2.0	C
	2	0.82	20.76	4.3	C
	3	1.03	123.56	22.0	F
2	1	1.09	201.66	41.0	F
	2	0.67	17.83	2.0	C
	3	0.94	65.56	9.6	F

Main Results for each time segment

Main results: (17:00-17:15)

Junction	Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1	260.49	341.77	644.74	0.404	257.82	0.7	9.244	A
	2	531.74	35.02	959.85	0.554	526.87	1.2	8.226	A
	3	427.62	366.97	722.96	0.591	422.01	1.4	11.754	B
2	1	564.57	87.63	769.55	0.734	554.27	2.6	16.042	C
	2	285.33	203.74	661.04	0.432	282.35	0.7	9.435	A
	3	385.46	239.14	670.90	0.575	380.23	1.3	12.180	B

Main results: (17:15-17:30)

Junction	Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1	311.05	408.72	605.23	0.514	309.59	1.0	12.114	B
	2	638.22	42.05	955.57	0.668	635.32	1.9	11.137	B
	3	510.62	442.50	672.68	0.759	504.68	2.9	20.714	C
2	1	676.26	105.10	759.08	0.891	661.84	6.2	32.842	D
	2	340.71	243.28	636.26	0.536	339.21	1.1	12.056	B
	3	460.28	287.30	641.57	0.717	456.02	2.4	18.960	C

Main results: (17:30-17:45)

Junction	Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1	380.95	470.89	568.55	0.670	377.41	1.9	18.488	C
	2	767.73	51.27	949.96	0.808	760.19	3.8	18.253	C
	3	625.38	529.47	614.80	1.017	581.45	13.9	68.865	F
2	1	797.03	124.91	747.20	1.067	728.31	23.4	88.996	F
	2	417.29	267.72	620.94	0.672	414.01	1.9	17.119	C
	3	563.72	350.65	602.99	0.935	541.99	7.8	47.448	E

Main results: (17:45-18:00)

Junction	Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1	380.95	480.05	563.15	0.676	380.57	2.0	19.627	C
	2	781.46	51.70	949.70	0.823	779.60	4.3	20.760	C
	3	625.38	542.99	605.80	1.032	592.76	22.0	123.561	F
2	1	808.92	128.26	745.19	1.086	739.86	40.6	168.749	F
	2	417.29	271.96	618.28	0.675	417.01	2.0	17.827	C
	3	563.72	353.19	601.44	0.937	556.53	9.6	65.560	F

Main results: (18:00-18:15)

Junction	Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1	311.05	471.31	568.30	0.547	314.11	1.2	14.330	B
	2	666.29	42.67	955.20	0.698	673.85	2.4	13.118	B
	3	510.62	469.34	654.82	0.780	581.97	4.2	65.347	F
2	1	742.75	112.37	754.72	0.984	741.19	41.0	201.665	F
	2	340.71	272.45	617.97	0.551	343.69	1.3	13.267	B
	3	460.28	291.10	639.26	0.720	487.56	2.8	27.126	D

Main results: (18:15-18:30)

Junction	Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1	260.49	354.86	637.01	0.409	262.66	0.7	9.672	A
	2	543.87	35.68	959.45	0.567	548.14	1.3	8.840	A
	3	427.62	381.78	713.10	0.600	438.17	1.5	13.562	B
2	1	581.84	90.10	768.07	0.758	729.82	4.0	107.461	F
	2	285.33	268.27	620.59	0.460	286.92	0.9	10.842	B
	3	385.46	243.01	668.55	0.577	390.96	1.4	13.214	B

Junctions 9

ARCADY 9 - Roundabout Module

Filename: B1022-B1023 (Double mini) - Validated AM.j9
Path: Z:\projects\2179 Land off Barbrook Lane, Tiptree\Arcady
Report generation date: 24/10/2018 11:45:18

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	2018 Surveyed Flows			
Junction 1 - Arm 1	4.3	25.87	0.82	D
Junction 1 - Arm 2	4.4	19.46	0.83	C
Junction 1 - Arm 3	7.4	75.95	0.92	F
Junction 2 - Arm 1	4.4	20.81	0.83	C
Junction 2 - Arm 2	5.3	39.84	0.86	E
Junction 2 - Arm 3	4.4	34.67	0.83	D
	2023 Base Flows			
Junction 1 - Arm 1	7.6	42.30	0.90	E
Junction 1 - Arm 2	8.2	33.21	0.91	D
Junction 1 - Arm 3	29.8	241.97	1.13	F
Junction 2 - Arm 1	6.7	29.86	0.89	D
Junction 2 - Arm 2	19.4	117.02	1.02	F
Junction 2 - Arm 3	10.4	76.17	0.95	F
	2023 Assessment Flows			
Junction 1 - Arm 1	13.5	70.08	0.97	F
Junction 1 - Arm 2	8.2	33.40	0.91	D
Junction 1 - Arm 3	29.1	235.02	1.12	F
Junction 2 - Arm 1	10.3	43.48	0.94	E
Junction 2 - Arm 2	44.2	246.87	1.13	F
Junction 2 - Arm 3	12.5	88.49	0.97	F

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.

File summary

File Description

Title	B1022 - B1023
Location	Tiptree
Site number	
Date	24/05/2018
Version	
Status	
Identifier	
Client	
Jobnumber	2179
Enumerator	Croft Transport Solutions
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

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
JUNCTIONS 9	5.75				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)	Run automatically
D1	2018 Surveyed Flows	AM	ONE HOUR	08:00	09:30	15	✓
D2	2023 Base Flows	AM	ONE HOUR	08:00	09:30	15	✓
D3	2023 Assessment Flows	AM	ONE HOUR	08:00	09:30	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2018 Surveyed Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	Junction 1 - Arm 2	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 2 - Arm 1	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	B1022 (N) - B1022 (S) - Kelvedon Road	Mini-roundabout		1, 2, 3	32.92	D
2	B1022 (N) - B1023 - B1022 (S)	Mini-roundabout		1, 2, 3	29.91	D

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Junction	Arm	Name	Description
1	1	B1022 (N)	
	2	B1022 (S)	
	3	Kelvedon Road	
2	1	B1022 (N)	
	2	B1023	
	3	B1022 (S)	

Mini Roundabout Geometry

Junction	Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	1	3.00	3.00	3.00	0.0	15.60	2.00	0.0	
	2	3.00	3.00	5.60	1.5	11.10	11.20	0.0	
	3	3.35	3.35	5.50	2.4	8.80	16.00	0.0	
2	1	3.00	3.00	4.60	0.8	14.90	9.20	0.0	
	2	3.65	3.65	5.20	1.2	14.10	8.00	0.0	
	3	3.65	3.50	3.50	0.0	20.00	2.00	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/hr)
1	1	0.590	846
	2	0.609	981
	3	0.666	967
2	1	0.600	822
	2	0.627	789
	3	0.609	817

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Junction	Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
1	1	Direct		90
	2	Direct		130
	3	Direct		-235
2	1	Direct		200
	2	Direct		60
	3	Direct		50

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)	Run automatically
D1	2018 Surveyed Flows	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	2	2	1	Simple (vertical queueing)	Normal	0	100.00	
2	1	1	2	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	576	100.000
	2	✓				
	3		ONE HOUR	✓	340	100.000
2	1	✓				
	2		ONE HOUR	✓	461	100.000
	3		ONE HOUR	✓	440	100.000

Origin-Destination Data

Junction 1

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	473	103
	2	447	0	340
	3	78	262	0

Junction 2

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	357	378
	2	425	0	36
	3	362	78	0

Vehicle Mix

Junction 1

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Junction 2

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	0.82	25.87	4.3	D	529	793
	2	0.83	19.46	4.4	C	721	1081
	3	0.92	75.95	7.4	F	312	468
2	1	0.83	20.81	4.4	C	673	1010
	2	0.86	39.84	5.3	E	423	635
	3	0.83	34.67	4.4	D	404	606

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	434	108	194	822	0.528	429	388	0.0	1.1	9.075	A
	2	586	146	77	1064	0.550	581	547	0.0	1.2	7.372	A
	3	256	64	330	513	0.499	252	328	0.0	1.0	13.627	B
2	1	547	137	58	987	0.554	542	586	0.0	1.2	7.999	A
	2	347	87	279	674	0.515	343	321	0.0	1.0	10.744	B
	3	331	83	316	674	0.491	327	305	0.0	0.9	10.281	B

08:15 - 08:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	518	129	233	799	0.648	515	467	1.1	1.8	12.559	B
	2	703	176	92	1055	0.666	700	656	1.2	1.9	10.047	B
	3	306	76	397	468	0.654	302	394	1.0	1.8	21.367	C
2	1	656	164	70	980	0.669	653	703	1.2	2.0	10.899	B
	2	414	104	336	638	0.649	411	387	1.0	1.8	15.672	C
	3	396	99	379	636	0.622	393	368	0.9	1.6	14.685	B

08:30 - 08:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	634	159	276	773	0.820	625	559	1.8	4.0	23.004	C
	2	848	212	112	1043	0.813	840	790	1.9	4.0	17.064	C
	3	374	94	477	415	0.903	359	475	1.8	5.7	53.454	F
2	1	790	197	84	972	0.813	782	848	2.0	3.9	18.222	C
	2	508	127	402	597	0.851	496	464	1.8	4.6	32.647	D
	3	484	121	457	588	0.824	475	441	1.6	4.0	29.627	D

08:45 - 09:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	634	159	283	769	0.825	633	573	4.0	4.3	25.872	D
	2	863	216	113	1042	0.828	861	803	4.0	4.4	19.465	C
	3	374	94	489	407	0.920	368	485	5.7	7.4	75.951	F
2	1	803	201	86	971	0.827	801	863	3.9	4.4	20.806	C
	2	508	127	412	590	0.860	505	475	4.6	5.3	39.841	E
	3	484	121	466	583	0.831	483	451	4.0	4.4	34.675	D

09:00 - 09:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	518	129	251	788	0.657	527	493	4.3	2.0	14.250	B
	2	728	182	94	1054	0.691	736	684	4.4	2.3	11.626	B
	3	306	76	418	454	0.673	326	412	7.4	2.2	31.754	D
2	1	684	171	72	979	0.699	692	728	4.4	2.4	12.886	B
	2	414	104	356	626	0.662	427	408	5.3	2.1	19.170	C
	3	396	99	394	627	0.631	406	389	4.4	1.8	17.005	C

09:15 - 09:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	434	108	201	818	0.530	437	402	2.0	1.2	9.535	A
	2	599	150	78	1064	0.563	603	560	2.3	1.3	7.877	A
	3	256	64	342	504	0.507	261	338	2.2	1.1	15.039	C
2	1	560	140	59	987	0.567	564	599	2.4	1.3	8.605	A
	2	347	87	290	667	0.520	351	333	2.1	1.1	11.525	B
	3	331	83	323	670	0.495	334	317	1.8	1.0	10.839	B

2023 Base Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	Junction 1 - Arm 2	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 2 - Arm 1	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	B1022 (N) - B1022 (S) - Kelvedon Road	Mini-roundabout		1, 2, 3	78.73	F
2	B1022 (N) - B1023 - B1022 (S)	Mini-roundabout		1, 2, 3	67.55	F

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

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)	Run automatically
D2	2023 Base Flows	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	2	2	1	Simple (vertical queueing)	Normal	0	100.00	
2	1	1	2	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	626	100.000
	2	✓				
	3		ONE HOUR	✓	387	100.000
2	1	✓				
	2		ONE HOUR	✓	540	100.000
	3		ONE HOUR	✓	472	100.000

Origin-Destination Data

Junction 1

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	516	110
	2	479	0	364
	3	84	303	0

Junction 2

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	413	405
	2	501	0	39
	3	388	84	0

Vehicle Mix

Junction 1

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Junction 2

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	0.90	42.30	7.6	E	574	862
	2	0.91	33.21	8.2	D	814	1221
	3	1.13	241.97	29.8	F	355	533
2	1	0.89	29.86	6.7	D	750	1125
	2	1.02	117.02	19.4	F	496	743
	3	0.95	76.17	10.4	F	433	650

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	471	118	224	804	0.586	466	433	0.0	1.4	10.478	B
	2	660	165	82	1061	0.622	653	608	0.0	1.6	8.691	A
	3	291	73	371	485	0.601	286	364	0.0	1.4	17.582	C
2	1	608	152	62	985	0.617	601	660	0.0	1.6	9.247	A
	2	407	102	298	662	0.614	400	366	0.0	1.5	13.462	B
	3	355	89	372	640	0.555	351	327	0.0	1.2	12.231	B

08:15 - 08:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	563	141	266	779	0.722	558	520	1.4	2.5	16.003	C
	2	790	197	98	1051	0.751	785	727	1.6	2.9	13.240	B
	3	348	87	446	435	0.799	340	437	1.4	3.3	35.226	E
2	1	727	182	75	977	0.744	722	790	1.6	2.7	13.841	B
	2	485	121	357	625	0.777	479	439	1.5	3.1	23.704	C
	3	424	106	444	596	0.712	420	392	1.2	2.3	19.965	C

08:30 - 08:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	689	172	292	764	0.902	672	598	2.5	6.7	34.224	D
	2	924	231	118	1039	0.890	910	846	2.9	6.5	25.292	D
	3	426	107	517	388	1.098	373	511	3.3	16.6	119.820	F
2	1	846	212	89	969	0.873	834	924	2.7	5.7	24.682	C
	2	595	149	413	590	1.008	556	510	3.1	12.8	68.840	F
	3	520	130	516	553	0.941	497	453	2.3	7.9	51.592	F

08:45 - 09:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	689	172	292	764	0.902	686	615	6.7	7.6	42.301	E
	2	946	237	120	1038	0.912	939	858	6.5	8.2	33.208	D
	3	426	107	534	377	1.130	373	526	16.6	29.8	241.973	F
2	1	858	214	91	968	0.886	854	946	5.7	6.7	29.861	D
	2	595	149	423	584	1.018	568	522	12.8	19.4	117.020	F
	3	520	130	527	545	0.953	510	464	7.9	10.4	76.169	F

09:00 - 09:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	563	141	301	759	0.742	581	587	7.6	3.1	21.898	C
	2	875	219	102	1049	0.834	886	780	8.2	5.6	23.299	C
	3	348	87	503	397	0.876	384	484	29.8	20.7	236.660	F
2	1	780	195	80	974	0.800	789	875	6.7	4.4	20.344	C
	2	485	121	391	604	0.804	543	479	19.4	5.0	71.081	F
	3	424	106	504	560	0.758	452	430	10.4	3.5	38.886	E

09:15 - 09:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	471	118	287	767	0.614	477	479	3.1	1.6	12.663	B
	2	688	172	84	1060	0.649	703	680	5.6	1.9	10.465	B
	3	291	73	399	466	0.625	367	387	20.7	1.8	58.150	F
2	1	680	170	65	983	0.692	688	688	4.4	2.3	12.525	B
	2	407	102	341	635	0.640	419	412	5.0	1.9	17.541	C
	3	355	89	389	630	0.564	364	371	3.5	1.3	13.962	B

2023 Assessment Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	Junction 1 - Arm 2	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 2 - Arm 1	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	B1022 (N) - B1022 (S) - Kelvedon Road	Mini-roundabout		1, 2, 3	85.76	F
2	B1022 (N) - B1023 - B1022 (S)	Mini-roundabout		1, 2, 3	115.90	F

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

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)	Run automatically
D3	2023 Assessment Flows	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	2	2	1	Simple (vertical queueing)	Normal	0	100.00	
2	1	1	2	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	664	100.000
	2	✓				
	3		ONE HOUR	✓	396	100.000
2	1	✓				
	2		ONE HOUR	✓	579	100.000
	3		ONE HOUR	✓	486	100.000

Origin-Destination Data

Junction 1

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	554	110
	2	479	0	398
	3	84	312	0

Junction 2

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	422	439
	2	535	0	44
	3	398	88	0

Vehicle Mix

Junction 1

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Junction 2

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	0.97	70.08	13.5	F	609	914
	2	0.91	33.40	8.2	D	853	1280
	3	1.12	235.02	29.1	F	363	545
2	1	0.94	43.48	10.3	E	792	1188
	2	1.13	246.87	44.2	F	531	797
	3	0.97	88.49	12.5	F	446	669

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	500	125	230	801	0.624	493	435	0.0	1.6	11.504	B
	2	691	173	82	1061	0.651	683	642	0.0	1.8	9.355	A
	3	298	75	373	484	0.616	292	392	0.0	1.5	18.252	C
2	1	642	160	65	983	0.653	635	691	0.0	1.8	10.133	B
	2	436	109	324	646	0.675	428	376	0.0	2.0	15.998	C
	3	366	91	396	626	0.585	360	356	0.0	1.4	13.329	B

08:15 - 08:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	597	149	274	775	0.770	591	520	1.6	3.1	18.983	C
	2	823	206	98	1052	0.783	817	767	1.8	3.4	14.960	B
	3	356	89	446	435	0.818	347	469	1.5	3.7	37.726	E
2	1	767	192	78	975	0.786	760	823	1.8	3.4	16.274	C
	2	521	130	388	606	0.859	509	451	2.0	4.9	33.699	D
	3	437	109	470	580	0.753	431	426	1.4	2.8	23.329	C

08:30 - 08:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	731	183	302	758	0.964	701	583	3.1	10.5	47.987	E
	2	931	233	116	1040	0.895	918	887	3.4	6.8	26.567	D
	3	436	109	501	399	1.094	384	533	3.7	16.8	119.047	F
2	1	887	222	92	967	0.918	869	931	3.4	7.9	31.920	D
	2	637	159	443	571	1.117	558	518	4.9	24.8	114.492	F
	3	535	134	515	553	0.968	508	486	2.8	9.5	59.526	F

08:45 - 09:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	731	183	305	757	0.966	719	595	10.5	13.5	70.077	F
	2	946	236	119	1039	0.910	940	904	6.8	8.2	33.397	D
	3	436	109	513	391	1.116	387	546	16.8	29.1	232.788	F
2	1	904	226	95	965	0.937	895	946	7.9	10.3	43.484	E
	2	637	159	456	563	1.133	560	533	24.8	44.2	235.954	F
	3	535	134	517	551	0.970	523	499	9.5	12.5	88.491	F

09:00 - 09:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	597	149	306	756	0.790	634	579	13.5	4.2	35.295	E
	2	906	226	105	1047	0.865	910	835	8.2	7.2	27.400	D
	3	356	89	497	401	0.887	388	518	29.1	21.1	235.022	F
2	1	835	209	85	971	0.860	848	906	10.3	7.0	31.544	D
	2	521	130	432	578	0.901	565	500	44.2	33.1	246.874	F
	3	437	109	522	549	0.796	469	475	12.5	4.6	52.959	F

09:15 - 09:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	500	125	293	764	0.655	509	536	4.2	2.0	14.605	B
	2	822	206	84	1060	0.776	836	717	7.2	3.7	16.966	C
	3	298	75	457	428	0.696	372	464	21.1	2.7	90.865	F
2	1	717	179	68	981	0.731	734	822	7.0	2.9	15.438	C
	2	436	109	374	614	0.710	557	428	33.1	2.9	96.623	F
	3	366	91	514	553	0.661	376	417	4.6	2.1	21.331	C

Junctions 9

ARCADY 9 - Roundabout Module

Filename: B1022-B1023 (Double mini) - Validated PM.j9
Path: Z:\projects\2179 Land off Barbrook Lane, Tiptree\Arcady
Report generation date: 24/10/2018 11:47:38

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
	2018 Surveyed Flows			
Junction 1 - Arm 1	2.1	20.50	0.69	C
Junction 1 - Arm 2	3.4	15.94	0.78	C
Junction 1 - Arm 3	14.2	84.12	0.98	F
Junction 2 - Arm 1	2.4	10.79	0.71	B
Junction 2 - Arm 2	2.2	19.63	0.70	C
Junction 2 - Arm 3	3.4	22.48	0.78	C
	2023 Base Flows			
Junction 1 - Arm 1	3.3	28.63	0.78	D
Junction 1 - Arm 2	5.4	23.96	0.86	C
Junction 1 - Arm 3	53.5	254.42	1.16	F
Junction 2 - Arm 1	3.0	12.85	0.76	B
Junction 2 - Arm 2	3.4	27.51	0.79	D
Junction 2 - Arm 3	5.9	37.40	0.87	E
	2023 Assessment Flows			
Junction 1 - Arm 1	3.6	31.12	0.80	D
Junction 1 - Arm 2	7.2	30.73	0.90	D
Junction 1 - Arm 3	71.1	364.18	1.22	F
Junction 2 - Arm 1	3.2	13.58	0.77	B
Junction 2 - Arm 2	4.5	34.10	0.83	D
Junction 2 - Arm 3	9.7	58.80	0.94	F

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.

File summary

File Description

Title	B1022 - B1023
Location	Tiptree
Site number	
Date	24/05/2018
Version	
Status	
Identifier	
Client	
Jobnumber	2179
Enumerator	Croft Transport Solutions
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

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
JUNCTIONS 9	5.75				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)	Run automatically
D1	2018 Surveyed Flows	PM	ONE HOUR	17:00	18:30	15	✓
D2	2023 Base Flows	PM	ONE HOUR	17:00	18:30	15	✓
D3	2023 Assessment Flows	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2018 Surveyed Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	Junction 1 - Arm 2	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 2 - Arm 1	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	B1022 (N) - B1022 (S) - Kelvedon Road	Mini-roundabout		1, 2, 3	40.70	E
2	B1022 (N) - B1023 - B1022 (S)	Mini-roundabout		1, 2, 3	16.45	C

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Junction	Arm	Name	Description
1	1	B1022 (N)	
	2	B1022 (S)	
	3	Kelvedon Road	
2	1	B1022 (N)	
	2	B1023	
	3	B1022 (S)	

Mini Roundabout Geometry

Junction	Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	1	3.00	3.00	3.00	0.0	15.60	2.00	0.0	
	2	3.00	3.00	5.60	1.5	11.10	11.20	0.0	
	3	3.35	3.35	5.50	2.4	8.80	16.00	0.0	
2	1	3.00	3.00	4.60	0.8	14.90	9.20	0.0	
	2	3.65	3.65	5.20	1.2	14.10	8.00	0.0	
	3	3.65	3.50	3.50	0.0	20.00	2.00	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/hr)
1	1	0.590	846
	2	0.609	981
	3	0.666	967
2	1	0.600	822
	2	0.627	789
	3	0.609	817

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Junction	Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
1	2	Direct		60
	3	Direct		35
2	1	Direct		410
	2	Direct		0
	3	Direct		120

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)	Run automatically
D1	2018 Surveyed Flows	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	2	2	1	Simple (vertical queueing)	Normal	0	100.00	
2	1	1	2	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	346	100.000
	2	✓				
	3		ONE HOUR	✓	568	100.000
2	1	✓				
	2		ONE HOUR	✓	379	100.000
	3		ONE HOUR	✓	512	100.000

Origin-Destination Data

Junction 1

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	299	47
	2	498	0	217
	3	108	460	0

Junction 2

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	480	279
	2	321	0	58
	3	394	118	0

Vehicle Mix

Junction 1

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Junction 2

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	0.69	20.50	2.1	C	317	476
	2	0.78	15.94	3.4	C	655	983
	3	0.98	84.12	14.2	F	521	782
2	1	0.71	10.79	2.4	B	695	1043
	2	0.70	19.63	2.2	C	348	522
	3	0.78	22.48	3.4	C	470	705

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	260	65	342	644	0.404	258	449	0.0	0.7	9.248	A
	2	533	133	35	1020	0.523	529	565	0.0	1.1	7.267	A
	3	428	107	368	757	0.565	423	195	0.0	1.3	10.607	B
2	1	565	141	88	1179	0.479	561	533	0.0	0.9	5.793	A
	2	285	71	206	659	0.433	282	443	0.0	0.7	9.474	A
	3	385	96	239	791	0.487	382	250	0.0	0.9	8.722	A

17:15 - 17:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	311	78	410	605	0.514	310	540	0.7	1.0	12.138	B
	2	640	160	42	1016	0.630	637	677	1.1	1.7	9.461	A
	3	511	128	444	707	0.723	506	236	1.3	2.4	17.521	C
2	1	677	169	106	1169	0.579	675	640	0.9	1.4	7.271	A
	2	341	85	248	633	0.538	339	533	0.7	1.1	12.181	B
	3	460	115	287	762	0.604	458	300	0.9	1.5	11.774	B

17:30 - 17:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	381	95	481	562	0.677	377	651	1.0	2.0	19.044	C
	2	779	195	51	1010	0.771	773	807	1.7	3.1	14.796	B
	3	625	156	538	644	0.971	594	286	2.4	10.2	53.352	F
2	1	807	202	128	1155	0.699	804	779	1.4	2.2	10.136	B
	2	417	104	295	604	0.691	413	637	1.1	2.1	18.551	C
	3	564	141	350	723	0.779	557	359	1.5	3.2	20.791	C

17:45 - 18:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	381	95	494	555	0.686	380	663	2.0	2.1	20.500	C
	2	786	197	52	1010	0.779	786	823	3.1	3.4	15.935	C
	3	625	156	547	638	0.980	610	290	10.2	14.2	84.120	F
2	1	823	206	130	1154	0.713	822	786	2.2	2.4	10.792	B
	2	417	104	302	599	0.696	417	650	2.1	2.2	19.630	C
	3	564	141	353	722	0.781	563	366	3.2	3.4	22.479	C

18:00 - 18:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	311	78	450	581	0.535	315	564	2.1	1.2	13.693	B
	2	652	163	43	1015	0.642	658	722	3.4	1.8	10.231	B
	3	511	128	458	697	0.732	555	242	14.2	3.0	31.511	D
2	1	722	180	108	1167	0.618	725	652	2.4	1.7	8.185	A
	2	341	85	266	622	0.548	345	566	2.2	1.2	13.159	B
	3	460	115	292	759	0.607	467	319	3.4	1.6	12.641	B

18:15 - 18:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	260	65	352	639	0.408	262	462	1.2	0.7	9.610	A
	2	542	135	36	1019	0.531	545	578	1.8	1.2	7.625	A
	3	428	107	379	750	0.570	434	201	3.0	1.4	11.626	B
2	1	578	145	89	1178	0.491	581	542	1.7	1.0	6.052	A
	2	285	71	214	655	0.436	287	457	1.2	0.8	9.839	A
	3	385	96	243	788	0.489	388	258	1.6	1.0	9.045	A

2023 Base Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	Junction 1 - Arm 2	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 2 - Arm 1	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	B1022 (N) - B1022 (S) - Kelvedon Road	Mini-roundabout		1, 2, 3	106.03	F
2	B1022 (N) - B1023 - B1022 (S)	Mini-roundabout		1, 2, 3	23.57	C

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

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)	Run automatically
D2	2023 Base Flows	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	2	2	1	Simple (vertical queueing)	Normal	0	100.00	
2	1	1	2	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	391	100.000
	2	✓				
	3		ONE HOUR	✓	639	100.000
2	1	✓				
	2		ONE HOUR	✓	429	100.000
	3		ONE HOUR	✓	547	100.000

Origin-Destination Data

Junction 1

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	341	50
	2	542	0	247
	3	116	523	0

Junction 2

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	565	298
	2	367	0	62
	3	421	126	0

Vehicle Mix

Junction 1

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Junction 2

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	0.78	28.63	3.3	D	359	538
	2	0.86	23.96	5.4	C	722	1083
	3	1.16	254.42	53.5	F	586	880
2	1	0.76	12.85	3.0	B	791	1186
	2	0.79	27.51	3.4	D	394	590
	3	0.87	37.40	5.9	E	502	753

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	294	74	388	618	0.477	291	485	0.0	0.9	10.908	B
	2	587	147	37	1019	0.576	581	641	0.0	1.3	8.137	A
	3	481	120	399	736	0.653	474	219	0.0	1.8	13.370	B
2	1	641	160	94	1176	0.546	637	587	0.0	1.2	6.622	A
	2	323	81	220	651	0.496	319	511	0.0	1.0	10.731	B
	3	412	103	273	770	0.535	407	266	0.0	1.1	9.802	A

17:15 - 17:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	352	88	461	574	0.612	349	584	0.9	1.5	15.810	C
	2	704	176	45	1014	0.694	700	766	1.3	2.2	11.354	B
	3	574	144	481	682	0.842	564	264	1.8	4.5	28.180	D
2	1	766	191	113	1165	0.658	763	704	1.2	1.9	8.902	A
	2	386	96	263	624	0.618	383	612	1.0	1.6	14.828	B
	3	492	123	328	737	0.667	489	319	1.1	1.9	14.310	B

17:30 - 17:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	430	108	495	554	0.777	424	688	1.5	3.1	26.460	D
	2	852	213	54	1008	0.845	841	865	2.2	4.8	20.379	C
	3	704	176	578	618	1.139	605	318	4.5	29.0	117.284	F
2	1	865	216	136	1151	0.752	861	852	1.9	2.9	12.253	B
	2	472	118	297	602	0.784	466	700	1.6	3.2	25.143	D
	3	602	151	398	694	0.868	589	365	1.9	5.2	30.997	D

17:45 - 18:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	430	108	496	554	0.777	430	702	3.1	3.3	28.628	D
	2	865	216	55	1008	0.858	862	871	4.8	5.4	23.962	C
	3	704	176	592	608	1.157	606	325	29.0	53.5	254.422	F
2	1	871	218	138	1149	0.758	870	865	2.9	3.0	12.846	B
	2	472	118	300	600	0.787	472	708	3.2	3.4	27.507	D
	3	602	151	403	691	0.872	600	369	5.2	5.9	37.396	E

18:00 - 18:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	352	88	535	531	0.662	356	625	3.3	2.1	21.147	C
	2	725	181	46	1013	0.716	737	845	5.4	2.6	13.488	B
	3	574	144	506	665	0.863	653	276	53.5	33.8	241.248	F
2	1	845	211	117	1162	0.727	846	725	3.0	2.8	11.457	B
	2	386	96	292	606	0.637	392	671	3.4	1.8	17.336	C
	3	492	123	335	732	0.672	507	349	5.9	2.1	16.891	C

18:15 - 18:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	294	74	497	553	0.532	298	525	2.1	1.2	14.310	B
	2	599	150	38	1018	0.588	603	757	2.6	1.5	8.778	A
	3	481	120	415	726	0.662	608	227	33.8	2.1	58.502	F
2	1	757	189	96	1175	0.645	761	599	2.8	1.9	8.774	A
	2	323	81	263	624	0.518	326	594	1.8	1.1	12.191	B
	3	412	103	279	767	0.537	416	310	2.1	1.2	10.363	B

2023 Assessment Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	Junction 1 - Arm 2	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 2 - Arm 1	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	B1022 (N) - B1022 (S) - Kelvedon Road	Mini-roundabout		1, 2, 3	148.05	F
2	B1022 (N) - B1023 - B1022 (S)	Mini-roundabout		1, 2, 3	31.99	D

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

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)	Run automatically
D3	2023 Assessment Flows	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	2	2	1	Simple (vertical queueing)	Normal	0	100.00	
2	1	1	2	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	401	100.000
	2	✓				
	3		ONE HOUR	✓	665	100.000
2	1	✓				
	2		ONE HOUR	✓	453	100.000
	3		ONE HOUR	✓	578	100.000

Origin-Destination Data

Junction 1

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	351	50
	2	542	0	264
	3	116	549	0

Junction 2

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	591	308
	2	384	0	69
	3	443	135	0

Vehicle Mix

Junction 1

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Junction 2

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	0.80	31.12	3.6	D	368	552
	2	0.90	30.73	7.2	D	757	1136
	3	1.22	364.18	71.1	F	610	915
2	1	0.77	13.58	3.2	B	820	1230
	2	0.83	34.10	4.5	D	416	624
	3	0.94	58.80	9.7	F	530	796

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	302	75	406	607	0.498	298	495	0.0	1.0	11.531	B
	2	615	154	37	1019	0.604	609	667	0.0	1.5	8.670	A
	3	501	125	410	730	0.686	492	237	0.0	2.1	14.705	B
2	1	667	167	100	1172	0.569	662	615	0.0	1.3	6.999	A
	2	341	85	227	647	0.527	337	536	0.0	1.1	11.465	B
	3	435	109	285	763	0.571	430	278	0.0	1.3	10.663	B

17:15 - 17:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	360	90	481	563	0.641	358	595	1.0	1.7	17.309	C
	2	738	184	45	1014	0.727	733	794	1.5	2.5	12.634	B
	3	598	149	493	674	0.887	583	285	2.1	5.9	34.760	D
2	1	794	199	120	1160	0.685	791	738	1.3	2.1	9.673	A
	2	407	102	271	619	0.658	404	640	1.1	1.8	16.534	C
	3	520	130	343	728	0.714	515	333	1.3	2.4	16.609	C

17:30 - 17:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	442	110	499	552	0.800	434	692	1.7	3.5	28.930	D
	2	886	221	54	1008	0.879	872	879	2.5	6.0	24.263	C
	3	732	183	587	612	1.197	604	340	5.9	37.8	147.403	F
2	1	879	220	143	1146	0.767	875	886	2.1	3.1	13.080	B
	2	499	125	300	601	0.830	490	719	1.8	4.1	30.100	D
	3	636	159	415	684	0.931	614	374	2.4	7.9	42.374	E

17:45 - 18:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	442	110	495	555	0.796	441	709	3.5	3.6	31.119	D
	2	904	226	55	1008	0.897	899	880	6.0	7.2	30.733	D
	3	732	183	604	600	1.220	599	349	37.8	71.1	333.343	F
2	1	880	220	147	1144	0.770	880	904	3.1	3.2	13.584	B
	2	499	125	301	600	0.832	497	725	4.1	4.5	34.104	D
	3	636	159	422	680	0.936	629	377	7.9	9.7	58.800	F

18:00 - 18:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	360	90	529	534	0.675	366	642	3.6	2.2	22.087	C
	2	773	193	46	1013	0.762	788	849	7.2	3.4	16.907	C
	3	598	149	530	650	0.920	641	304	71.1	60.4	364.182	F
2	1	849	212	128	1155	0.735	851	773	3.2	2.9	11.898	B
	2	407	102	291	606	0.672	416	687	4.5	2.2	19.801	C
	3	520	130	353	722	0.720	547	355	9.7	2.8	23.423	C

18:15 - 18:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	302	75	582	503	0.601	304	551	2.2	1.6	18.394	C
	2	630	157	38	1018	0.618	637	849	3.4	1.7	9.604	A
	3	501	125	428	717	0.698	706	246	60.4	9.2	184.711	F
2	1	849	212	103	1170	0.725	850	630	2.9	2.7	11.270	B
	2	341	85	291	606	0.563	344	661	2.2	1.3	13.918	B
	3	435	109	292	759	0.574	441	344	2.8	1.4	11.503	B

APPENDIX 6

PICADY Output for Church Road/Grove Road

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: Church Road-Grove Road.j9
Path: Z:\projects\2179 Land off Barbrook Lane, Tiptree\Picady
Report generation date: 24/10/2018 11:15:11

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2023 Base Flows							
Stream B-AC	1.8	26.39	0.65	D	0.7	18.77	0.42	C
Stream C-AB	0.4	7.72	0.23	A	0.6	9.15	0.32	A
	2023 Assessment Flows							
Stream B-AC	3.7	48.33	0.80	E	1.1	25.82	0.54	D
Stream C-AB	0.4	7.77	0.23	A	0.7	9.34	0.33	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Church Road - Grove Road
Location	Tiptree, Colchester
Site number	
Date	24/05/2018
Version	
Status	
Identifier	
Client	
Jobnumber	2179
Enumerator	Croft Transport Solutions
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	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		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	2023 Base Flows	AM	ONE HOUR	08:00	09:30	15
D2	2023 Base Flows	PM	ONE HOUR	17:00	18:30	15
D3	2023 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
D4	2023 Assessment Flows	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2023 Base Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		5.44	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Church Road (N)		Major
B	Grove Road		Minor
C	Church Road (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.00			60.0	✓	1.00

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	2.80	19	30

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	489	0.089	0.225	0.141	0.321
1	B-C	630	0.097	0.244	-	-
1	C-B	609	0.236	0.236	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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	2023 Base Flows	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		✓	467	100.000
B		✓	226	100.000
C		✓	573	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	55	412
	B	85	0	141
	C	471	102	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.65	26.39	1.8	D
C-AB	0.23	7.72	0.4	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	170	447	0.381	168	0.6	12.806	B
C-AB	84	578	0.146	84	0.2	7.280	A
C-A	347			347			
A-B	41			41			
A-C	310			310			

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	203	421	0.483	202	0.9	16.340	C
C-AB	105	586	0.180	105	0.2	7.488	A
C-A	410			410			
A-B	49			49			
A-C	370			370			

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	249	384	0.647	246	1.7	25.348	D
C-AB	140	607	0.230	139	0.4	7.701	A
C-A	491			491			
A-B	61			61			
A-C	454			454			

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	249	384	0.647	249	1.8	26.393	D
C-AB	140	607	0.230	140	0.4	7.717	A
C-A	491			491			
A-B	61			61			
A-C	454			454			

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	203	421	0.483	206	1.0	17.021	C
C-AB	105	586	0.180	106	0.3	7.509	A
C-A	410			410			
A-B	49			49			
A-C	370			370			

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	170	446	0.381	171	0.6	13.161	B
C-AB	84	578	0.146	85	0.2	7.310	A
C-A	347			347			
A-B	41			41			
A-C	310			310			

2023 Base Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		2.74	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2023 Base Flows	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		✓	696	100.000
B		✓	125	100.000
C		✓	558	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	113	583
	B	46	0	79
	C	433	125	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.42	18.77	0.7	C
C-AB	0.32	9.15	0.6	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	94	411	0.229	93	0.3	11.268	B
C-AB	106	548	0.194	105	0.3	8.111	A
C-A	314			314			
A-B	85			85			
A-C	439			439			

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	112	378	0.297	112	0.4	13.508	B
C-AB	135	556	0.244	135	0.4	8.552	A
C-A	366			366			
A-B	102			102			
A-C	524			524			

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	138	329	0.418	137	0.7	18.550	C
C-AB	187	581	0.322	186	0.6	9.112	A
C-A	427			427			
A-B	124			124			
A-C	642			642			

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	138	329	0.418	138	0.7	18.771	C
C-AB	187	581	0.322	187	0.6	9.154	A
C-A	427			427			
A-B	124			124			
A-C	642			642			

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	112	378	0.298	113	0.4	13.684	B
C-AB	135	556	0.244	136	0.4	8.611	A
C-A	366			366			
A-B	102			102			
A-C	524			524			

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	94	411	0.229	95	0.3	11.397	B
C-AB	106	548	0.194	107	0.3	8.167	A
C-A	314			314			
A-B	85			85			
A-C	439			439			

2023 Assessment Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		10.40	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)
D3	2023 Assessment Flows	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		✓	480	100.000
B		✓	264	100.000
C		✓	573	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	68	412
	B	123	0	141
	C	471	102	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.80	48.33	3.7	E
C-AB	0.23	7.77	0.4	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	199	426	0.466	195	0.8	15.370	C
C-AB	84	575	0.147	84	0.2	7.309	A
C-A	347			347			
A-B	51			51			
A-C	310			310			

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	237	400	0.594	235	1.4	21.606	C
C-AB	106	584	0.181	105	0.3	7.527	A
C-A	410			410			
A-B	61			61			
A-C	370			370			

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	291	361	0.805	283	3.3	42.184	E
C-AB	140	604	0.232	140	0.4	7.749	A
C-A	491			491			
A-B	75			75			
A-C	454			454			

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	291	361	0.805	289	3.7	48.334	E
C-AB	140	604	0.232	140	0.4	7.765	A
C-A	491			491			
A-B	75			75			
A-C	454			454			

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	237	399	0.594	246	1.5	24.559	C
C-AB	106	584	0.181	106	0.3	7.549	A
C-A	410			410			
A-B	61			61			
A-C	370			370			

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	199	426	0.466	201	0.9	16.189	C
C-AB	84	575	0.147	85	0.2	7.340	A
C-A	347			347			
A-B	51			51			
A-C	310			310			

2023 Assessment Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		3.68	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)
D4	2023 Assessment Flows	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		✓	731	100.000
B		✓	148	100.000
C		✓	558	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	148	583
	B	69	0	79
	C	433	125	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.54	25.82	1.1	D
C-AB	0.33	9.34	0.7	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	111	388	0.287	110	0.4	12.880	B
C-AB	107	543	0.197	106	0.3	8.215	A
C-A	313			313			
A-B	111			111			
A-C	439			439			

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	133	353	0.377	132	0.6	16.273	C
C-AB	136	550	0.248	136	0.4	8.689	A
C-A	365			365			
A-B	133			133			
A-C	524			524			

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	163	302	0.539	161	1.1	25.118	D
C-AB	189	576	0.329	188	0.6	9.297	A
C-A	425			425			
A-B	163			163			
A-C	642			642			

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	163	302	0.540	163	1.1	25.822	D
C-AB	189	576	0.329	189	0.7	9.345	A
C-A	425			425			
A-B	163			163			
A-C	642			642			

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	133	352	0.378	135	0.6	16.721	C
C-AB	136	550	0.248	137	0.4	8.754	A
C-A	365			365			
A-B	133			133			
A-C	524			524			

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	111	387	0.288	112	0.4	13.120	B
C-AB	107	543	0.197	107	0.3	8.275	A
C-A	313			313			
A-B	111			111			
A-C	439			439			

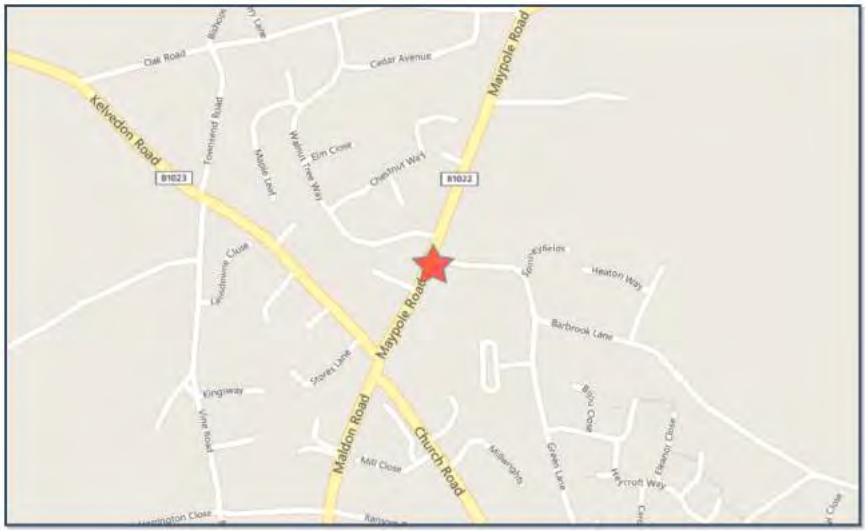
APPENDIX 7

Personal Injury Accident Data

crashmap.co.uk

Crash Date:	Saturday, July 27, 2013	**Time of Crash:**	10:10:00 AM	**Crash Reference:**	**201342I221007**

Highest Injury Severity:	Slight	**Road Number:**	B1022	**Number of Casualties:**	1
Highway Authority:	Essex			**Number of Vehicles:**	2
Local Authority:	Colchester District (B)			**OS Grid Reference:**	589357 216876
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	T or staggered junction				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Single carriageway				
Junction Control:	Give way or uncontrolled				



For more information about the data please visit: *www.crashmap.co.uk/home/aboutthedata* and *www.crashmap.co.uk/home/definitions*

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Car (excluding private hire)	12	Female	26 - 35	Vehicle is in the act of turning right	Front	Other	None	None
2	Pedal cycle	-1	Male	26 - 35	Vehicle proceeding normally along the carriageway, not on a bend	Offside	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
2	1	Slight	Driver or rider	Male	26 - 35	Unknown or other	Unknown or other

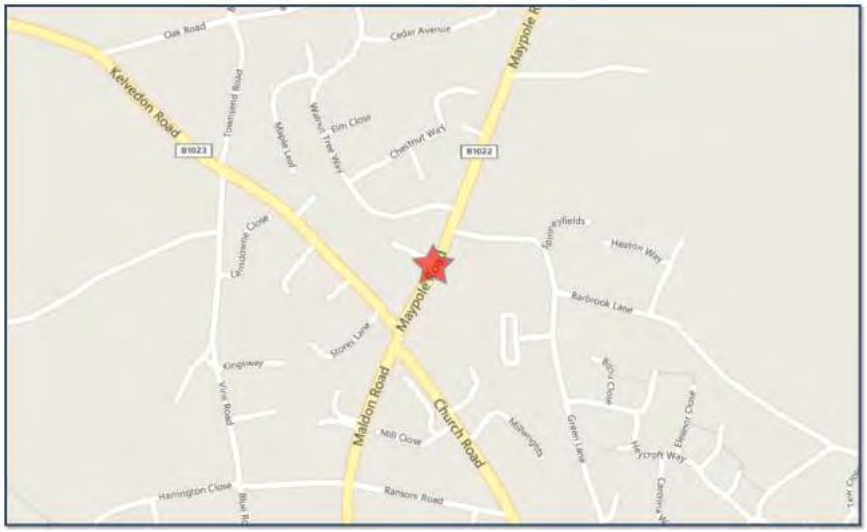
Accident Description: V1 WAS TRAVELLING NORTH ALONG MAYPOLE ROAD. V2 WAS TRAVELLING IN THE OPPOSITE DIRECTION. V1 HAS TURNED RIGHT INTO BARBROOK LANE AND COLLIDED WITH V2 AT THE JUNCTION.

Accident description text kindly provided by Essex County Council - https://saferessexroads.org

crashmap.co.uk

Crash Date:	Wednesday, September 21, 2016	**Time of Crash:**	8:50:00 PM	**Crash Reference:**	**2016420108520**

Highest Injury Severity:	Serious	**Road Number:**	B1022	**Number of Casualties:**	1
Highway Authority:	Essex			**Number of Vehicles:**	3
Local Authority:	Colchester Borough			**OS Grid Reference:**	589331 216825
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
Light Conditions:	Darkness: street lights present and lit				
Carriageway Hazards:	None				
Junction Detail:	Not at or within 20 metres of junction				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Single carriageway				
Junction Control:	Not Applicable				



For more information about the data please visit: *www.crashmap.co.uk/home/aboutthedata* and *www.crashmap.co.uk/home/definitions*

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Car (excluding private hire)	-1	Male	21 - 25	Vehicle is passing another moving vehicle on its offside	Front	Commuting to/from work	None	None
2	Motorcycle over 50cc and up to 125cc	4	Male	16 - 20	Vehicle is in the act of turning right	Offside	Other	None	None
3	Car (excluding private hire)	8	Male	16 - 20	Vehicle proceeding normally along the carriageway, not on a bend	Did not impact	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
2	1	Serious	Driver or rider	Male	16 - 20	Unknown or other	Unknown or other

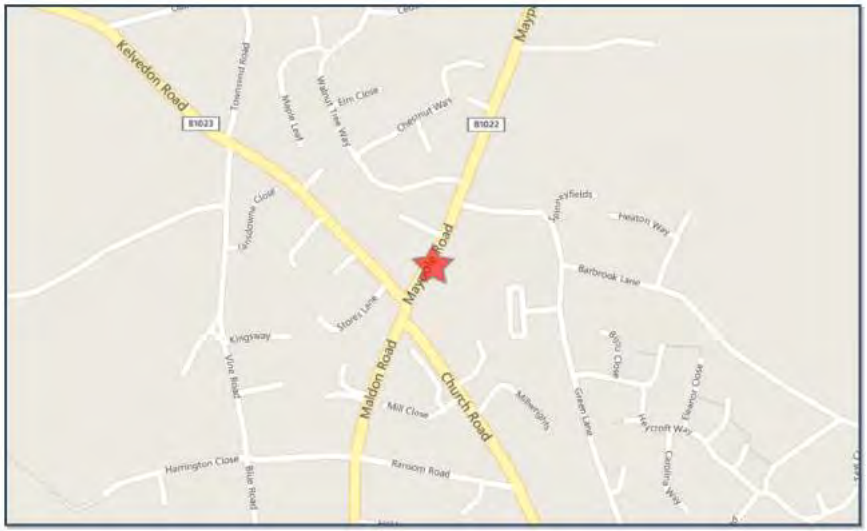
Accident Description: Not Available

Accident description text kindly provided by Essex County Council - https://saferessexroads.org

crashmap.co.uk

Crash Date:	Saturday, January 25, 2014	**Time of Crash:**	2:00:00 PM	**Crash Reference:**	**201442I024401**

Highest Injury Severity:	Slight	**Road Number:**	B1022	**Number of Casualties:**	1
Highway Authority:	Essex			**Number of Vehicles:**	2
Local Authority:	Colchester District (B)			**OS Grid Reference:**	589318 216793
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Not at or within 20 metres of junction				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Single carriageway				
Junction Control:	Not Applicable				



For more information about the data please visit: *www.crashmap.co.uk/home/aboutthedata* and *www.crashmap.co.uk/home/definitions*

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Car (excluding private hire)	9	Male	36 - 45	Vehicle is in the act of turning right	Nearside	Other	None	None
2	Pedal cycle	-1	Male	26 - 35	Vehicle proceeding normally along the carriageway, not on a bend	Front	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
2	1	Slight	Driver or rider	Male	26 - 35	Unknown or other	Unknown or other

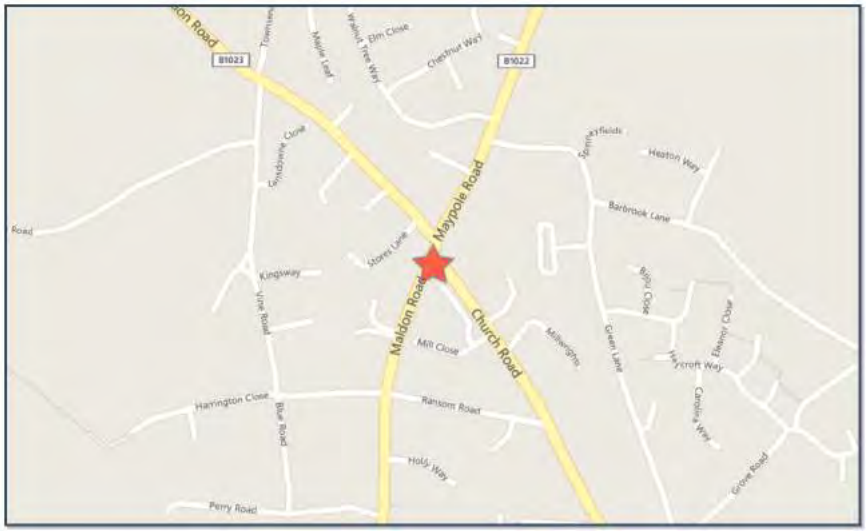
Accident Description: VEHICLE 1 WAS TURNING RIGHT ACROSS ONCOMING TRAFFIC INTO PETROL STATION FORECOURT, BUT FAILED TO SEE PEDAL CYCLIST, VEHICLE 2 TRAVELLING IN OPPOSITE DIRECTION AND THEY COLLIDED.

Accident description text kindly provided by Essex County Council - https://saferessexroads.org

crashmap.co.uk

Crash Date:	Wednesday, June 17, 2015	**Time of Crash:**	9:30:00 AM	**Crash Reference:**	**201542I179106**

Highest Injury Severity:	Slight	**Road Number:**	B1022	**Number of Casualties:**	1
Highway Authority:	Essex			**Number of Vehicles:**	2
Local Authority:	Colchester District (B)			**OS Grid Reference:**	589280 216692
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Roundabout				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Roundabout				
Junction Control:	Give way or uncontrolled				



For more information about the data please visit: *www.crashmap.co.uk/home/aboutthedata* and *www.crashmap.co.uk/home/definitions*

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Car (excluding private hire)	12	Male	Over 75	Vehicle is in the act of turning right	Offside	Other	None	Wall or fence
2	Van or goods vehicle 3.5 tonnes mgw and under	9	Male	26 - 35	Vehicle proceeding normally along the carriageway, not on a bend	Front	Journey as part of work	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Slight	Driver or rider	Male	Over 75	Unknown or other	Unknown or other

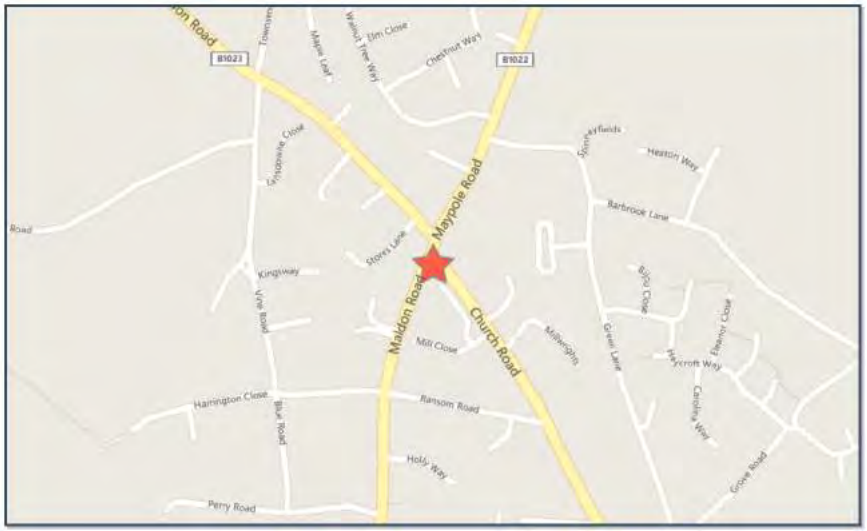
Accident Description: V1 TRAVELLING ALONG CHURCH ROAD TO ITS JUNCTION WITH MALDON ROAD. AT THE MINI ROUNDABOUT AT THE JUNCTION V1 PULLED OUT TURNING RIGHT. V2 WAS TRAVELLING FROM COLCHESTER TOWARDS MALDON WHILST TRAVELLING ACROSS MINI ROUNDABOUT. V1 PULLED OUT IN FRONT OF V3 CAUSING IT TO HIT V1 IN THE OFFSIDE.

Accident description text kindly provided by Essex County Council - https://saferessexroads.org

crashmap.co.uk

Crash Date:	Thursday, March 14, 2013	**Time of Crash:**	6:30:00 AM	**Crash Reference:**	**201342I071503**

Highest Injury Severity:	Slight	**Road Number:**	B1022	**Number of Casualties:**	1
Highway Authority:	Essex			**Number of Vehicles:**	2
Local Authority:	Colchester District (B)			**OS Grid Reference:**	589279 216696
Weather Description:	Other				
Road Surface Description:	Frost or Ice				
Speed Limit:	30				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Mini roundabout				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Roundabout				
Junction Control:	Give way or uncontrolled				



For more information about the data please visit: *www.crashmap.co.uk/home/aboutthedata* and *www.crashmap.co.uk/home/definitions*

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Car (excluding private hire)	8	Male	26 - 35	Vehicle is in the act of turning right	Front	Commuting to/from work	None	None
2	Car (excluding private hire)	13	Male	56 - 65	Vehicle proceeding normally along the carriageway, not on a bend	Nearside	Commuting to/from work	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Slight	Driver or rider	Male	26 - 35	Unknown or other	Unknown or other

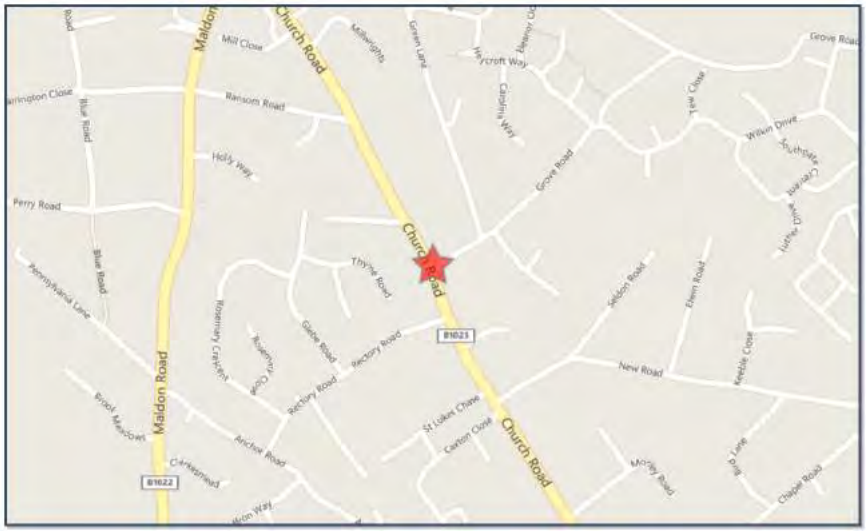
Accident Description: V1 TRAVELLING ON CHURCH ROAD UP TO MINI ROUNDABOUT JUNCTION WITH MALDON ROAD, FAILED TO SEE V2 TRAVELLING ON MALDON ROAD TOWARDS THE HEATH. V1 PULLED OUT AND COLLIDED WITH V2. V1 HAD ICED UP WINDOWS UNABLE TO GAIN VIEW OUT OF SIDE WINDOW.

Accident description text kindly provided by Essex County Council - https://saferessexroads.org

crashmap.co.uk

Crash Date:	Wednesday, August 19, 2015	**Time of Crash:**	7:20:00 PM	**Crash Reference:**	**201542I259708**

Highest Injury Severity:	Slight	**Road Number:**	B1023	**Number of Casualties:**	1
Highway Authority:	Essex			**Number of Vehicles:**	2
Local Authority:	Colchester District (B)			**OS Grid Reference:**	589592 216246
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	T or staggered junction				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Single carriageway				
Junction Control:	Give way or uncontrolled				



For more information about the data please visit: *www.crashmap.co.uk/home/aboutthedata* and *www.crashmap.co.uk/home/definitions*

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Car (excluding private hire)	-1	Male	Unknown	Vehicle is moving off	Front	Other	None	None
2	Car (excluding private hire)	12	Female	66 - 75	Vehicle is in the act of turning right	Offside	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
2	1	Slight	Vehicle or pillion passenger	Female	36 - 45	Unknown or other	Unknown or other

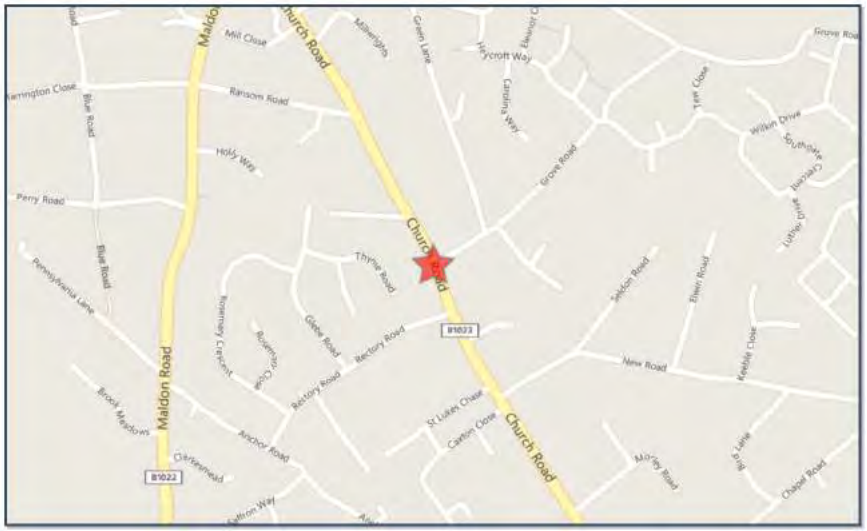
Accident Description: V1 WAS PARKED ROADSIDE IN GROVE ROAD 10 YARDS FROM J/W CHURCH ROAD. V2 TURNED RIGHT FROM CHURCH ROAD INTO GROVE ROAD. AS V2 TURNED RIGHT, V1 MOVED OFF FORWARDS AND COLLIDED WITH THE OFFSIDE WING OF V2. V1 THEN REVERSED AND CONTINUED ON LEFT INTO CHURCH ROAD, FAILING TO STOP.

Accident description text kindly provided by Essex County Council - https://saferessexroads.org

crashmap.co.uk

Crash Date:	Sunday, May 19, 2013	**Time of Crash:**	10:30:00 PM	**Crash Reference:**	**201342I134405**

Highest Injury Severity:	Slight	**Road Number:**	B1023	**Number of Casualties:**	1
Highway Authority:	Essex			**Number of Vehicles:**	2
Local Authority:	Colchester District (B)			**OS Grid Reference:**	589584 216244
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
Light Conditions:	Darkness: street lights present and lit				
Carriageway Hazards:	None				
Junction Detail:	T or staggered junction				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Single carriageway				
Junction Control:	Give way or uncontrolled				



For more information about the data please visit: *www.crashmap.co.uk/home/aboutthedata* and *www.crashmap.co.uk/home/definitions*

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Motorcycle over 500cc	12	Male	16 - 20	Vehicle proceeding normally along the carriageway, not on a bend	Offside	Other	None	None
2	Taxi/Private hire car	13	Male	16 - 20	Vehicle proceeding normally along the carriageway, not on a bend	Nearside	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
2	1	Slight	Pedestrian	Male	26 - 35	In carriageway, crossing elsewhere	Crossing from driver's offside

Accident Description: PEDESTRIAN CROSSING ROAD FROM OFFSIDE FOOTPATH. V1 TRAVELLING FROM DIRECTION OF TOLLESHUNT D'ARCY TOWARDS KELVEDON, OVERTAKES V2 ALSO TRAVELLING IN THAT DIRECTION. V1 WENT TOWARDS NEARSIDE KERB UNDER HEAVY BRAKING THE PILLION COLLIDED WITH PEDESTRIAN, PEDESTRIAN WAS THEN HIT BY V2.

Accident description text kindly provided by Essex County Council - https://saferessexroads.org

APPENDIX 8

Road Safety Audit & Designers Response

Croft TS

PROPOSED SITE ACCESS, BARBROOK LANE, TIPTREE

STAGE 1 - ROAD SAFETY AUDIT
JUNE 2018

Transport Planning /Traffic Surveys/ Road Safety Audits

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go-surveys Ltd Registered in England and Wales No:5841452
Registered office: go-surveys Ltd, 72 Plasturton Avenue, Cardiff, CF11 9HJ

REPORT CONTROL

Document:	Proposed Site Access Arrangements, Barbrook Lane, Tiptree – S1 RSA
Project:	Proposed Site Access Arrangements, Barbrook Lane, Tiptree – S1 RSA
Client:	Croft TS
Job Number:	gs-609-2018
File Origin:	/go-surveys/Road Safety Audits/GS609 - Barbrook Lane, Tiptree (nr Colchester) - Stage 1 RSA /GS609-2018 - Proposed Site Access, Barbrook Lane, Tiptree - Stage 1 RSA - Final.docx

Document Checking:

Primary Author	T Brooks	Initialled:	TB
Contributor	R Lister	Initialled:	RL
Review By		Initialled:	

Issue	Date	Status	Checked for Issue
1	25/06/2018	Final	Tristan Brooks
2			
3			
4			

Contents

Appendices

1 INTRODUCTION

1.1 This report presents the findings from a Stage 1 Road Safety Audit (RSA) undertaken on the proposed site access arrangements to a residential development of up to 220 dwellings to the north of Barbrook Lane, Tiptree.

1.2 The audit was carried out by the following:

Tristan Brooks BSc (Hons), MBA, CMILT, MCIHT, MSoRSA, HE RSA Cert of Competency	-	Road Safety Audit Team Leader
R Lister BSc (Hons), MSc, MRTPI, CMILT, MCIHT, MSoRSA	-	Road Safety Audit Team Member

1.3 The RSA was commissioned by Croft TS (the designers of the scheme) on behalf of Gladman (the developers of the scheme). The overseeing organisation is Essex County Council.

1.4 The site visit was undertaken on Friday 15th June 2018 between 13:00-13:35 and comprised a walk and drive through of the area in the vicinity of the scheme. During the site visit both the weather and road surface were dry. Traffic in the vicinity of the scheme was light.

1.5 Barbrook Lane in the vicinity of the proposed access is subject to a 30mph speed limit and is street lit.

1.6 The drawings and documents supplied for audit are listed at Appendix A. An annotated drawing showing the locations of the problems identified is provided at Appendix B.

1.7 The terms of reference of the audit are as that described in DMRB HD19/15 Guidelines on Road Safety Audits. This standard has been used for guidance only. The team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria.

1.8 The scope of the RSA is limited to the proposed access arrangements to the site that in summary will include:

- A new priority controlled 'T' Junction to the north of Barbrook Lane;
- Visibility splays of 2.4 metres by 43 metres from the proposed site access (which it is noted accords with MfS guidance on vehicle speeds of 37mph); and
- Access road with a width of 5.5 metres, 6.0 metre kerb radii and 2.0 metre wide footways on either side of the access road.

1.9 A review of the Personal Injury Collisions (PIC) data between 01/01/2013 and 31/06/2017 in the vicinity of the proposed site access has indicated that there have been no PICs recorded along the entirety of Barbrook Lane.

1.10 The Audit Team have not been made aware of any previous RSA's undertaken on the scheme, nor have they been made aware of any departures or relaxations from standard within the design of the scheme.

1.11 The recommendations included within this report should not be regarded as being prescriptive design solutions to the problems raised. They are intended only to indicate a proportionate and viable means of eliminating or mitigating the identified problem, in accordance with HD19/15. There may be alternative methods of addressing a problem which would be equally acceptable in achieving the desired elimination or mitigation and these should be considered when responding to this report.

2 ROAD SAFETY AUDIT FINDINGS FROM RSA 1

PROBLEM 1

LOCATION: Proposed site access.

2.1 SUMMARY: Omission of uncontrolled pedestrian crossing including dropped kerbs and tactile paving may result in a number of trip hazards to pedestrians particularly those with mobility impairments.

2.2 The drawings provided for Audit do not indicate the provision of an uncontrolled crossing point (i.e. tactile paving and dropped kerbs) at the bellmouth of the site access. The omission of an uncontrolled crossing at the mouth of the site access, where pedestrian are likely to cross may result in trip hazards to pedestrians particularly those with mobility impairments.

RECOMMENDATION

2.3 It is recommended that uncontrolled pedestrian crossing including dropped kerbs and tactile paving is provide across the mouth of the junction.

CROFT RESPONSE

Problem noted. Our access design has now been amended to include an uncontrolled pedestrian crossing across the mouth of the junction to improve and encourage safe pedestrian movement.

3 OBSERVATIONS/NOTES

3.1 It was noted during the site visit that vehicles were observed to park on-street in the vicinity of the proposed site access.

4 AUDIT STATEMENT

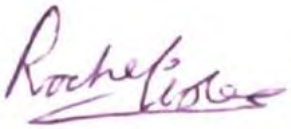
4.1 We certify that this audit has been carried out broadly in accordance with HD 19/15.

Signed:

Date: 25 June 2018

T Brooks – BSc (Hons), MBA, CMILT, MCIHT, MSoRSA, HE RSA Cert of Competency.
Audit Team Leader
go-surveys Ltd
72 Plasturton Avenue
Cardiff
CF11 9HJ

Signed:



Date: 25 June 2018

R Lister - BSc (Hons), MSc, MRTPI, MILT, MCIHT, MSoRSA
Audit Team Member
go-surveys Ltd
72 Plasturton Avenue
Cardiff
CF11 9HJ

APPENDIX A

List of Drawings and Documents Provided for Audit

2179-F01
Proposed Site Access Arrangement

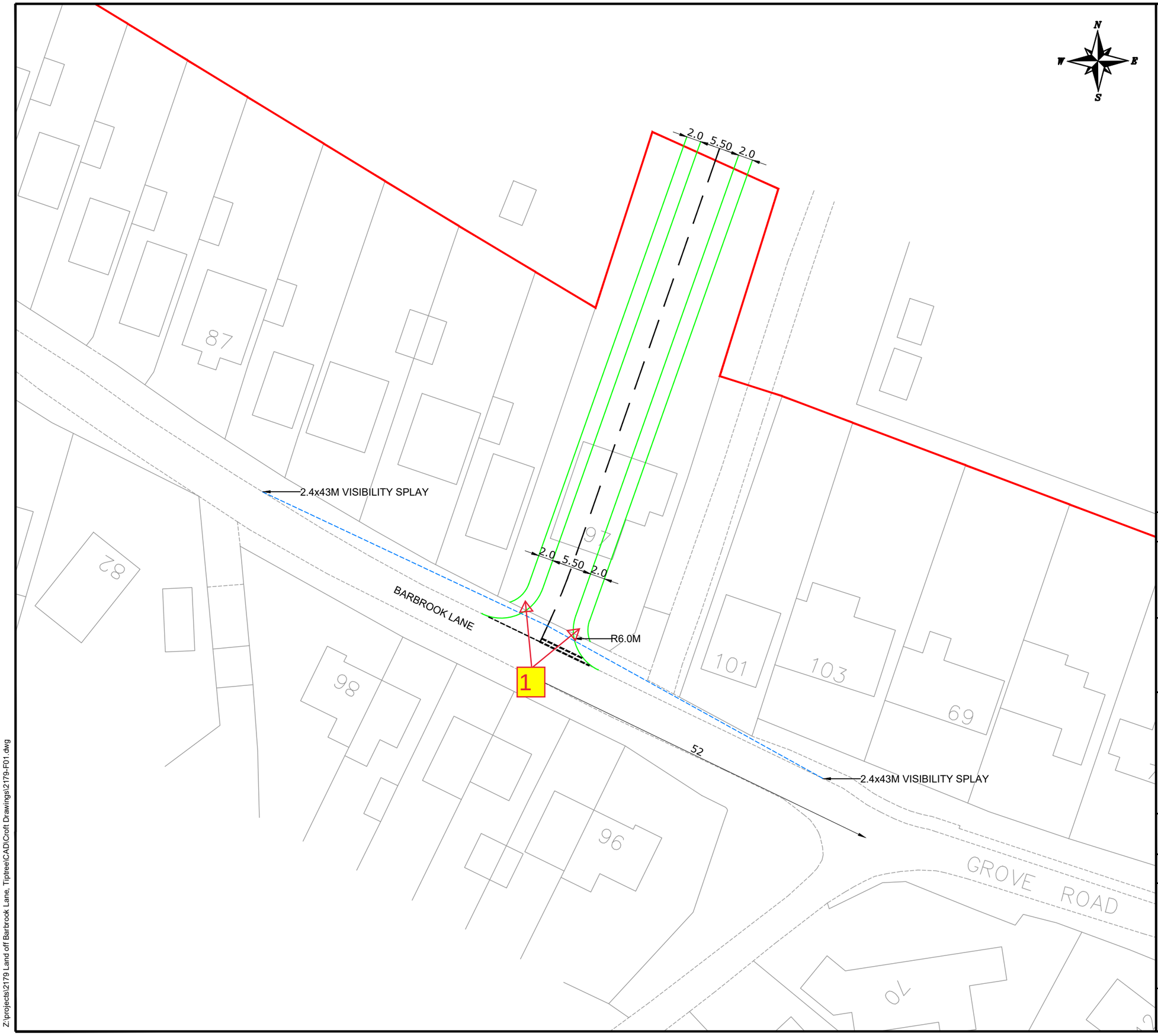
2179-SP01
Vehicle Swept Path Analysis – Large Refuse Vehicle

2179-SP02
Vehicle Swept Path Analysis – Large Car

PIC Data
(Jan 2013 - June 2017)

APPENDIX B

Location of Identified Problems



NOTES

THIS IS NOT A CONSTRUCTION DRAWING AND IS FOR INDICATIVE PURPOSES ONLY. THE DRAWING WILL BE SUBJECT TO CHANGE FOLLOWING LOCAL AUTHORITY REVIEW AND CONFIRMATION OF PUBLIC HIGHWAY AND THIRD PARTY LAND BOUNDARIES.

INDICATIVE SITE BOUNDARY

DENOTES NEW KERBS

REV	DETAILS	DRAWN	CHECKED	DATE
-	-	-	-	-

CLIENT:

GLADMAN

PROJECT:

LAND OFF BARBROOK LANE, TIPTREE

DRAWING TITLE:

PROPOSED SITE ACCESS ARRANGEMENT

SCALES:

1:500 @ A3

DRAWN:	CHECKED:	DATE:
JC	PJW	MAY 18

Croft Transport Planning & Design
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M15 4PY

Email: info@croftts.co.uk
Tel: 0161 667 3746
Web: www.croftts.co.uk

CROFT

DRAWING NUMBER: 2179-F01

REVISION: -

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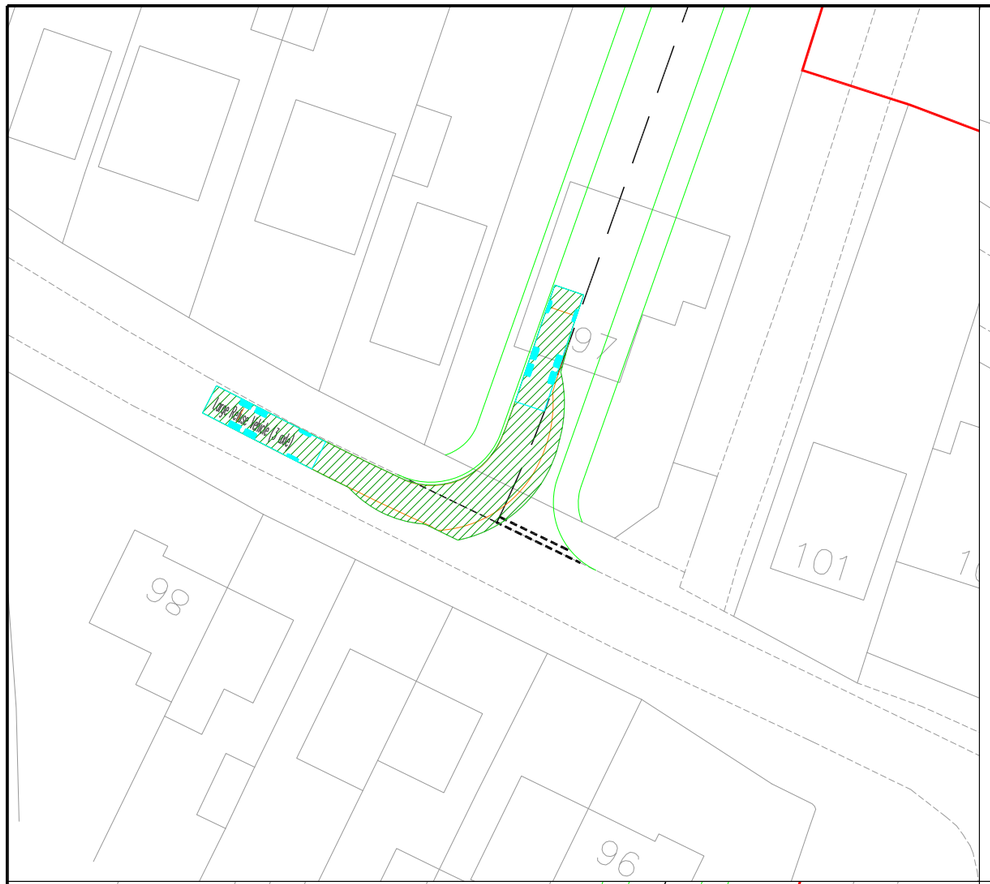

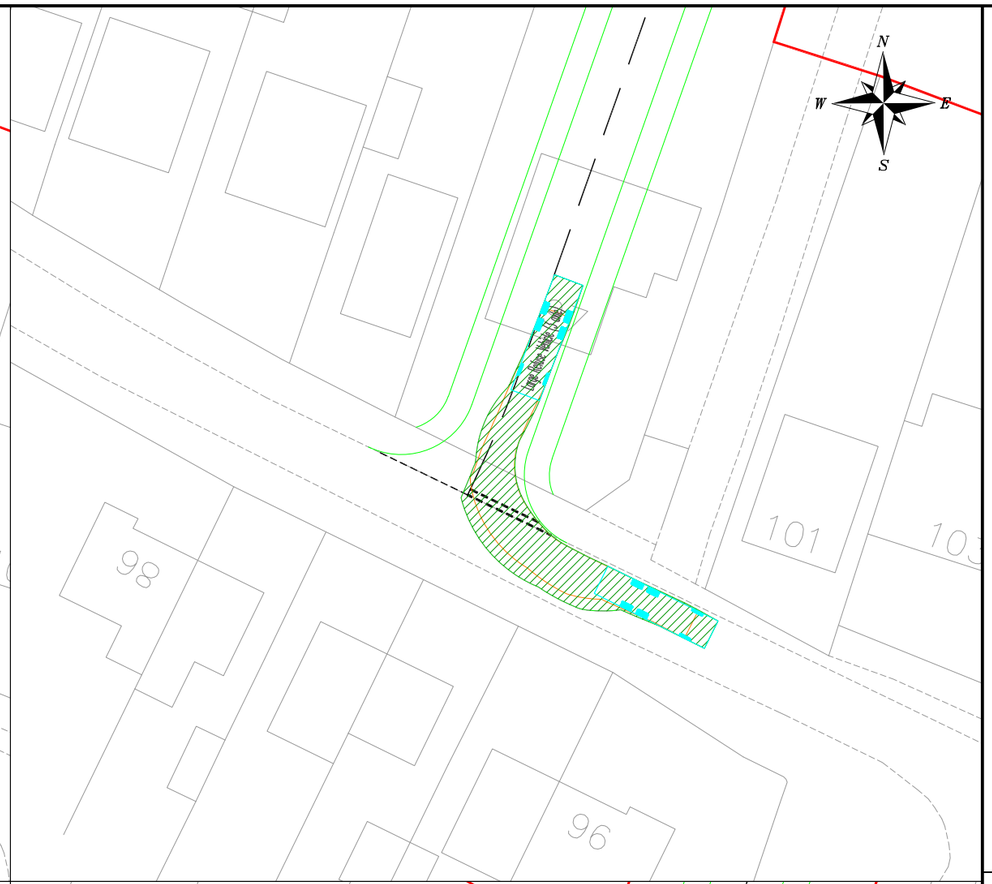

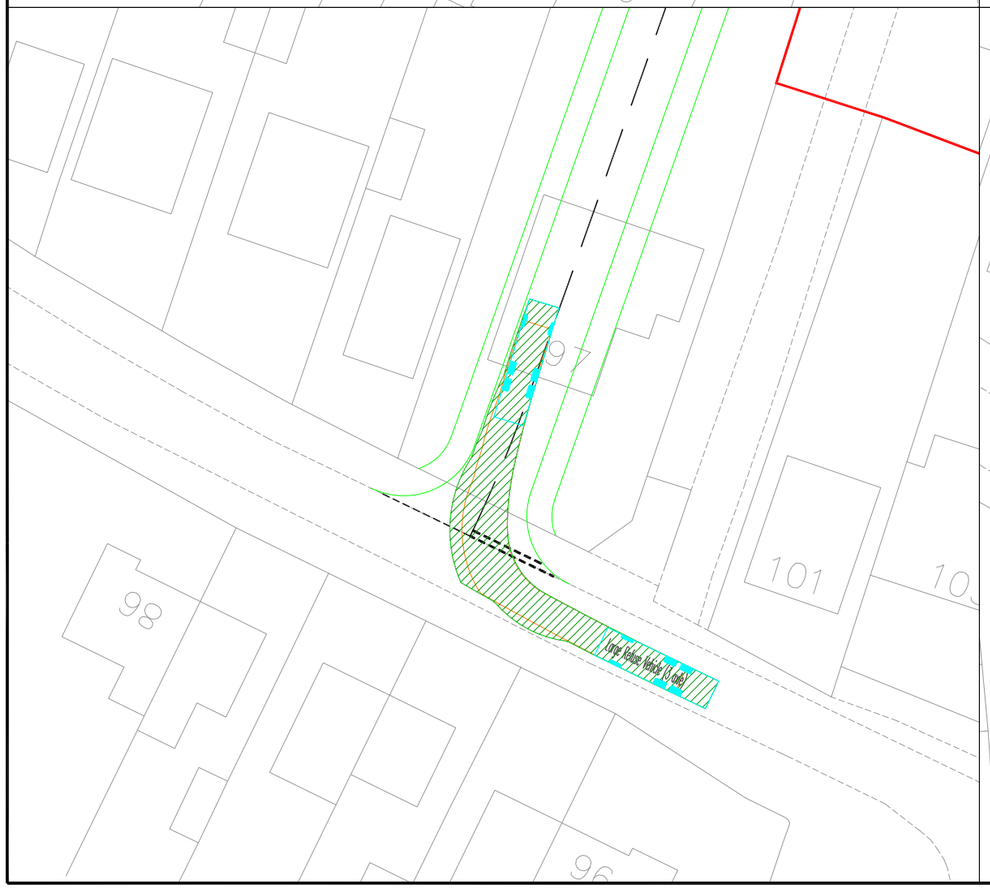

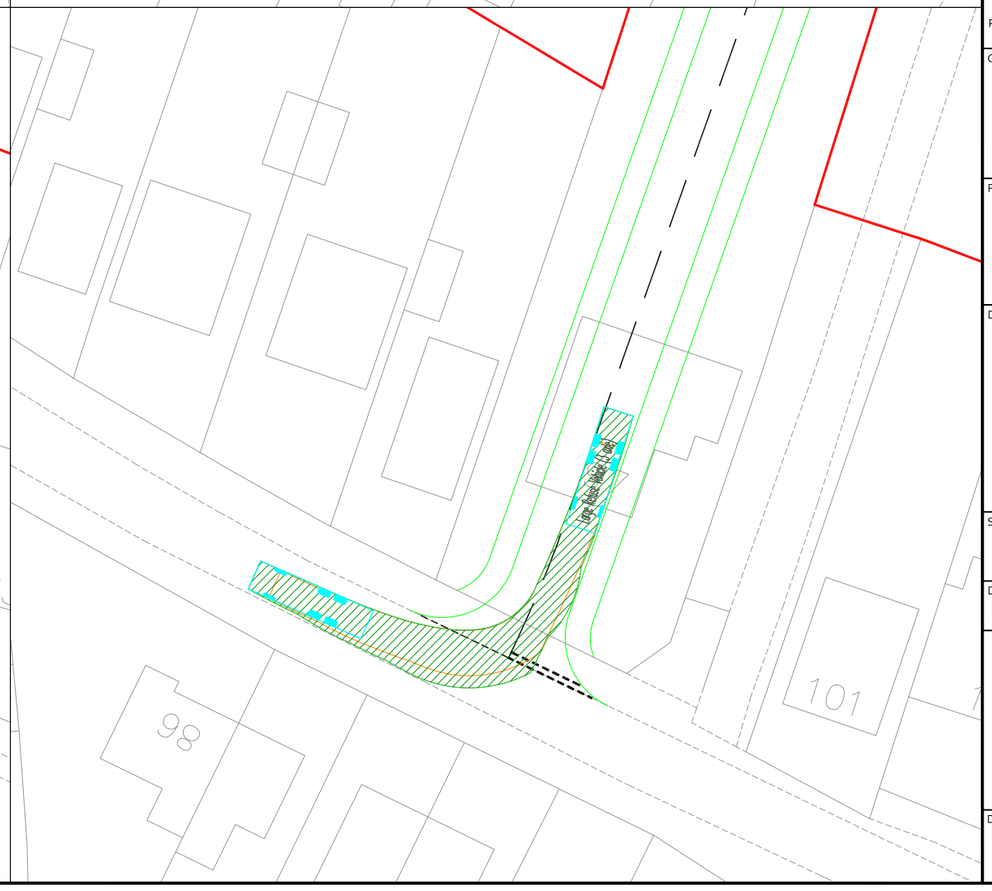

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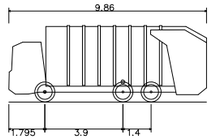

Large Refuse Vehicle (3 axle)	
Overall Length	9.860m
Overall Width	2.450m
Overall Body Height	3.814m
Min Body Ground Clearance	0.366m
Track Width	2.450m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	9.500m

REV	DETAILS	DRAWN	CHECKED	DATE
-	-	-	-	-

CLIENT:

GLADMAN

PROJECT:

LAND OFF BARBROOK LANE, TIPTREE

DRAWING TITLE:

SWEPT PATH ANALYSIS

SCALES:

1:500 @ A3

DRAWN:	CHECKED:	DATE:
GM	MR	JUN 18

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DRAWING NUMBER:	REVISION:
2179-SP01	-

CROFT

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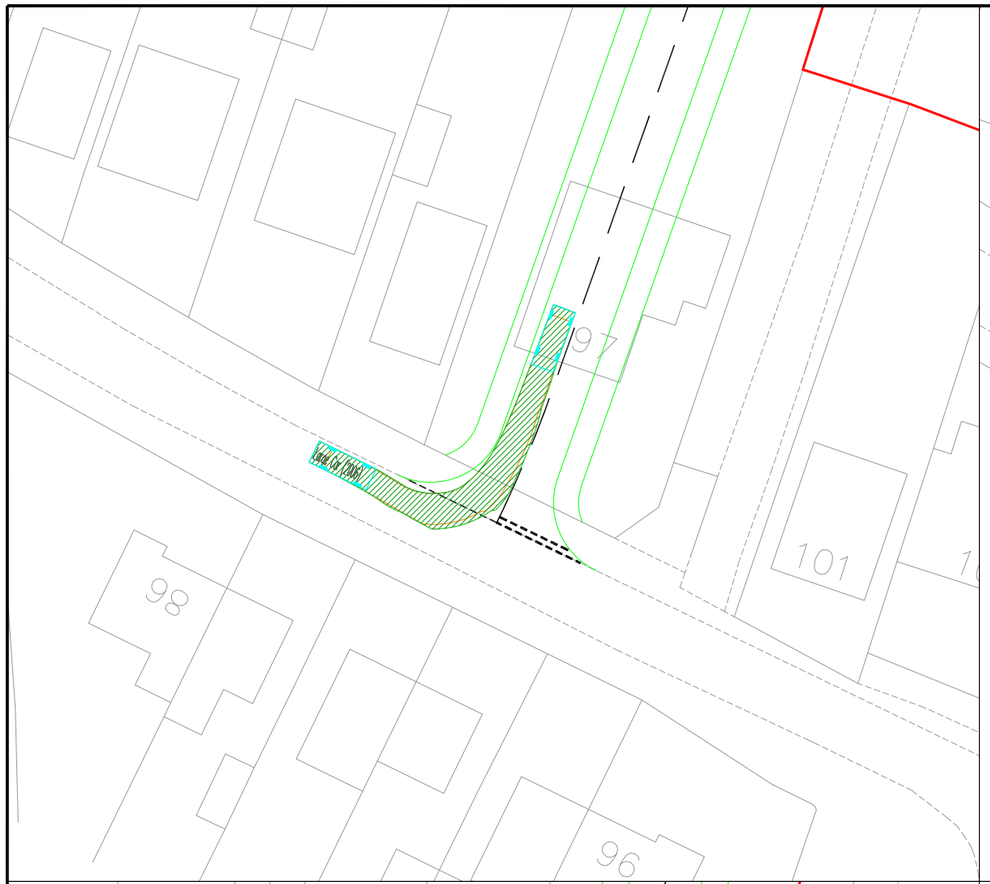

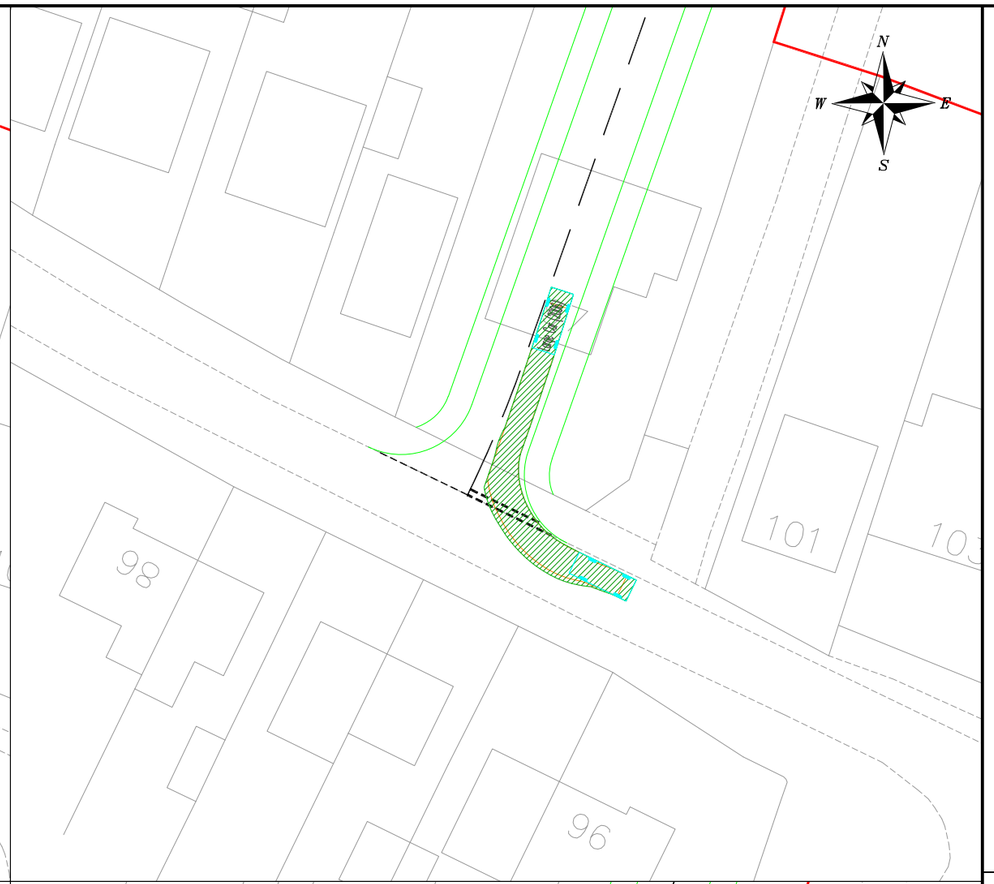

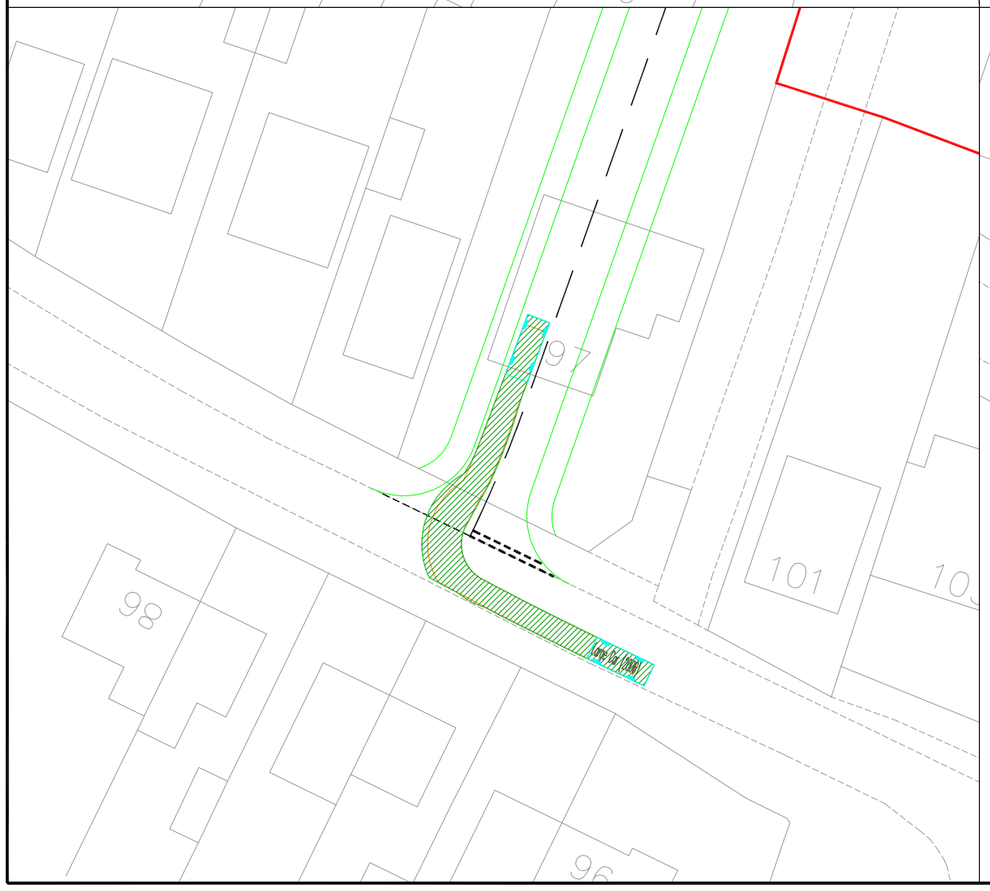

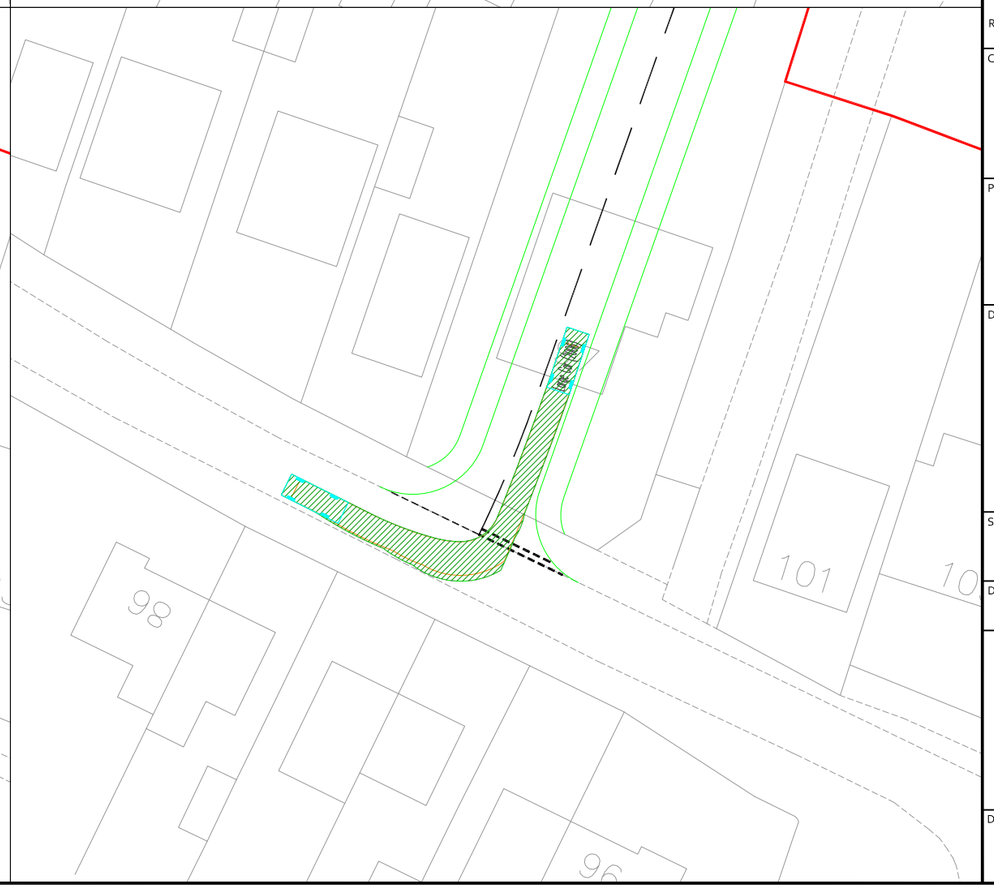

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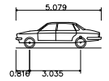

Large Car (2006)	
Overall Length	5.079m
Overall Width	1.872m
Overall Body Height	1.525m
Min Body Ground Clearance	0.310m
Max Track Width	1.831m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	5.900m

Large Car (2006)

REV	DETAILS	DRAWN	CHECKED	DATE
-	-	-	-	-

CLIENT:

GLADMAN

PROJECT:

LAND OFF BARBROOK LANE, TIPTREE

DRAWING TITLE:

SWEPT PATH ANALYSIS

SCALES:

1:500 @ A3

DRAWN:	CHECKED:	DATE:
GM	MR	JUN 18

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DRAWING NUMBER:	REVISION:
2179-SP02	-

CROFT

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Croft Transport Planning & Design

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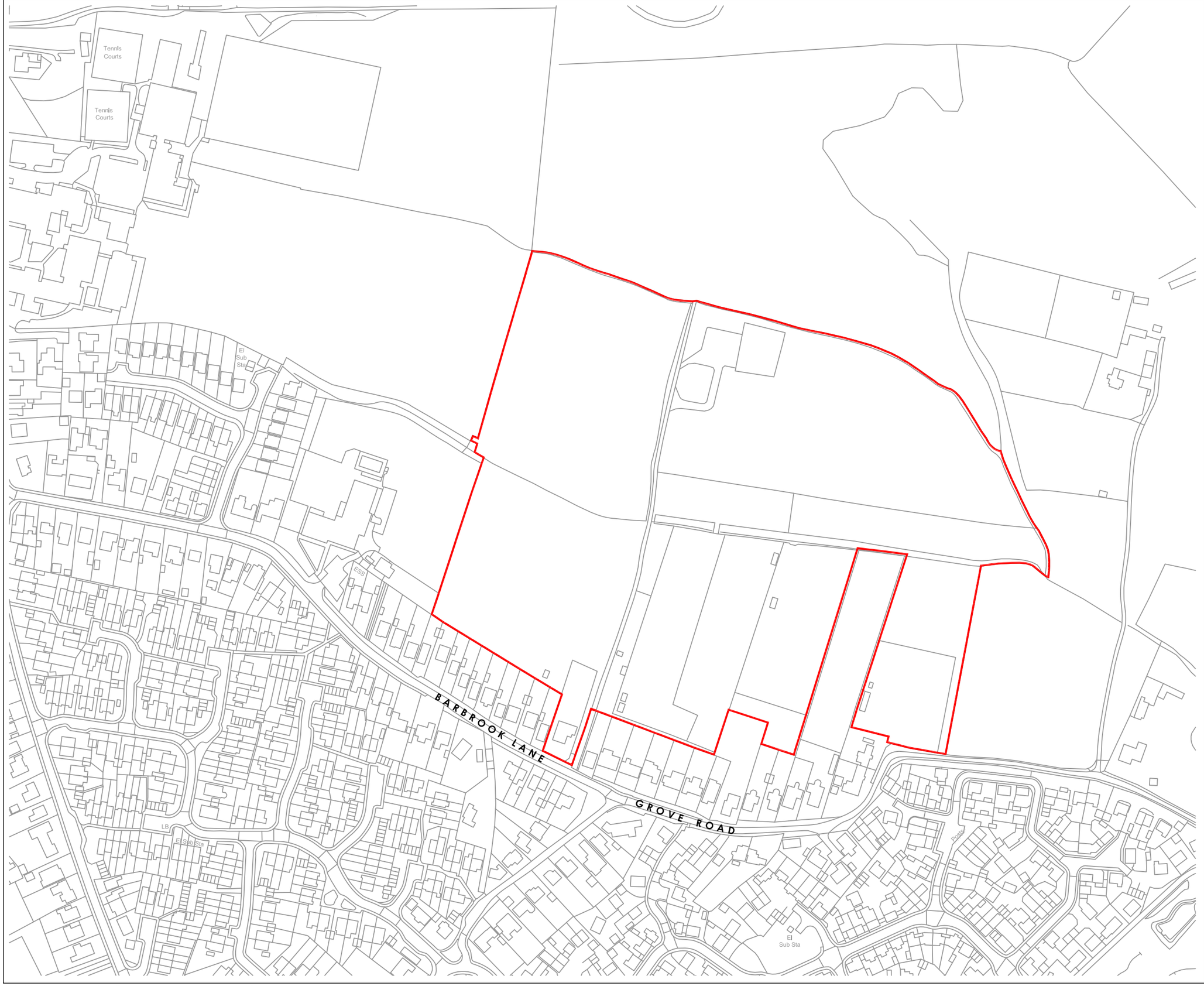
Appendix D – Site Location Plan



0 50 100 metres

Application Site Boundary:
9.79ha

Rev	Date	By	Description

CSA environmental

Dixies Barns, High Street,
Ashwell, Hertfordshire SG7 5NT

t 01462 743647
e ashwell@csaenvironmental.co.uk
w csaenvironmental.co.uk

Project	Land off Barbrook Lane, Tiptree		
Title	Site Location Plan		
Client	Gladman Developments Ltd		
Scale	1:2500 @ A3	Drawn	SE
Date	July 2018	Checked	RR
Drawing No.	CSA/3725/111	Rev	-