

Hearing Statement
On behalf of Guildcrest Commercial Ltd [The Representor] – Objecting to
Policy SP6 (and the Council's Employment Land Strategy)

To the Examination of the Dover District Local Plan to 2040 (Regulation 19 draft)

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Our Ref: RS/0794

1. Introduction

- 1.1. On behalf of Guildcrest Commercial Ltd, we submit this statement to the Examination of the Submission draft of the Dover District Local Plan and specifically in relation to Policy SP6; its Reasoned Justification and supporting evidence (with other policies). We confirm our attendance at the forthcoming examination hearing (currently scheduled for the 17th November 2023) and present this paper in preparation for that discussion.
- 1.2. This statement provides an update to the Representor's submission in December 2022 in relation to the Council's approach to the allocation of land for employment purposes. In this regard the Representor continues to express concerns in relation to the employment land strategy and asserts that insufficient land has been identified in which to support the Council's over-arching approach to employment land 'over supply' given identified uncertainties in the market.
- 1.3. At **Section 2** of this statement we provide confirmation of the Representor's 'credentials' as an experienced, local developer capable of delivering high-quality commercial schemes.
- 1.4. In **Section 3**, we provide an analysis of the Council's employment land supply in assessing and summarising the background evidence to the proposed strategy which, in the view of the Representor, fails to provide sufficient land for traditional B Class uses for the district over the planning period.
- 1.5. In **Section 4** we assess and address where possible the Inspectors' Matters, Issues and Questions (ED14).
- 1.6. In **Section 5** we provide the examination with details of 'the Omission Site' and draw attention to accompanying documentation relating to landscape impacts, ecological and transportation issues. We provide these details in the event that the Inspectors require any main modifications to the Plan given the Representor's (and others) submissions and because the site is available and developable for employment development.
- 1.7. We provide our conclusions at **Section 6**.

2. The Representor and Land South of the A2, Whitfield.

- 2.1. Guildcrest Commercial Ltd, part of the Guildcrest Group of companies, is an experienced, local developer specialising in the delivery of industrial and office developments; principally in the Dover and Thanet Districts. Having acquired, and developed, land at the hugely successful Manston Business Park (Manston, Thanet) Guildcrest has, for some time now, been looking to acquire land in the Dover District for the more traditional 'B Class' uses (light and general industrial and distribution/storage). We provide, at **Appendix 1**, some examples of Guildcrest's commercial work.
- 2.2. Working with a local land agent; Guildcrest have been in discussion with a local (to Whitfield) landowner with a view of bringing a site forward for commercial development. As the approach of the landowner came very late in the Local Plan process (late Autumn 2022), the Council advised the Representor that given the intended submission of the Local Plan for examination, any further consideration of alternative sites would be a matter for the examining Inspector/s.
- 2.3. It is, of course, acknowledged that it is not the role of the Inspectors to consider the suitability, or otherwise, of omission sites at this stage of the Examination. It is however the Representor's submission that the Council's Preferred Options in seeking to deliver sufficient employment land over the plan period is unsound for reasons now set out in Section 3.

3. Employment Land Supply Position

- 3.1. As part of the submission made on behalf of Guildcrest Commercial under the Regulation 19 consultation process, we summarised the economic context and Dover's historic employment land position from the time that the adopted Site Allocations DPD Local Plan (2015) was in preparation. As detailed in that submission, the economic backdrop was quite different at that time with the Local Plan preparation process influenced by the former 'credit crunch' (later confirmed recession) and the major contraction of the pharmaceutical research and development facility at Sandwich (Discovery Park).
- 3.2. There followed a significant reduction in the identified quantitative need for employment land with the 2015 Site Allocations DPD Local Plan allocating land at White Cliffs Business Park (WCBP) for 'B Class uses'.¹
- 3.3. As documented; both in our previous submission and submissions from other representors, the majority of the former 'B Use Class' land at WCBP has been lost to retail and leisure facilities and, more recently, land associated with the 'Fastrack' bus service. It is, of course, now well documented that land acquired by the Government's originally planned Inland Border Facility (no longer required) remains an unknown factor in assessing the Council's employment land supply position.
- 3.4. Following the Regulation 19 Consultation process, the Council produced a 'Schedule of Additional Modifications to the Regulation Submission Local Plan' (SD06) It is of note that other than minor amendments to some of the technical requirements of draft Policy SAP2, there are no revisions, amendments or points of clarification.
- 3.5. Some minor modifications have, however, been made to draft Policy SP6 which seeks to acknowledge the conclusions of the Council's Economic Development Strategy (2021) that the District may well see considerable growth in the environmental/green goods and services sector.

The Inspector's Initial Questions for Examination (May 2023).

- 3.6. The first round of Inspectors' questions to the Council (ED4, May 2023) raised three initial queries (paragraphs 19 – 21) in relation to "Employment". The Council's responses are set out in paragraphs 19 to 21 of their Core Document ED5, June 2023.
- 3.7. Key to the Representor's submission to the Examination is the Council's responses that:
 - The 2021 update to the Economic Development Needs Assessment (EDNA – EEBD01) is to be relied upon for the purposes of identifying the required supply. Two scenarios for future employment growth, are identified, and in consideration of this the Council promotes (a minimum) of 31.1 ha of office, industrial and distribution uses to 2040.
 - The provision of land against the identified need will mainly be achieved through the allocation "and development" of the sites listed in "Table 3 and that this will lead to 30.44 ha over the minimum target as set out in Policy SP6 but...
 - Some of the identified land at WCBP may not come forward for office, industrial and distribution purposes because of ongoing and unresolved unknowns with regard to the Inland Border Facility and potential pressures from other E Class uses and uses falling within *sui generis*.
 - "The Market" will determine, to large extent, the type of development that will come forward.

¹ Prior to 2020 changes to the 1982 Use Classes Order.

- ‘Back-up sites’ (draft policies SAP26, SAP4, SAP5 and SAP3) have been identified as being capable of contributing to wider growth.
- The reference to Phases 2 and 3 (in the draft plan) relate to those phases identified as Phases 2 and 3 in the adopted plan but that those have now been updated. The land previously identified as the Inland Border Facility is that located to the east and north of the Fastrack route – identified as Phase 3 “and does not contain any land now identified as Phase 2”. As such, minor modifications are proposed.
- No communications from the Department for Transport have been forthcoming.
- A mix of uses involving office, light and general industrial and distribution are proposed for Phases 2 and 3.
- For Phase 3, the draft policy only permits restricted ‘Class E’ uses and for Phase 4 additional sports uses have been identified as being acceptable.
- The Council considers this strategy to be sufficiently clear.

3.8. In relation to the last bullet point, the Representor does not believe that the Council’s employment land strategy is sufficiently clear.

3.9. The Council’s responses to the Inspectors’ initial questions (ED4) (considered further below in Section 4) have confirmed, in the opinion of The Representor, that the Council’s Strategic Solution in seeking to meet the updated EDNA’s conclusion requires further scrutiny.

The 2021 EDNA update

3.10. The Council confirms (ED5) that following the EDNA update, and consideration of the two ‘scenarios’ summarised by Table 4.6 (EEB01) that it has ‘opted’ for the “Past Development Rates 2020 to 2040” scenario; a scenario supported by the Representor in principle given the level of interest (to the Representor) expressed in both the Manston Site ² and following the submission of a planning application to provide industrial units at Discovery Park, Sandwich.³

3.11. The ‘Past Development Rates’ Scenario also makes sense to the Representor when considering the Experian results as assessed in the labour demand growth scenario and given recent (anecdotal) enquires in relation to ‘Light Industrial employment land/units’ within the Dover district.

3.12. Nevertheless although the ‘2nd’ scenario is one supported, in principle, by the Representor, but the Council’s Strategic Solution is called into question.

Does Policy SP6 allocate sufficient Employment Land?

3.13. It is the Representor’s position that in consideration of the “past development rates scenario”, the Plan fails to provide for sufficient employment land supply to meet anticipated demand for the ‘traditional’ B Class uses; an issue identified by the least preferred option of the “labour demand growth scenario”.

3.14. In answering the Inspectors’ initial questions (ED4) particularly those at 19 – 21 and having regard to the Inspectors’ MIQs (ED14) the Council also seeks to clarify (i) the extent of phases 2 and 3 and (ii) the extent of land available for employment purposes with reference to Fig. 4.2 of the Plan.

² Guildcrest is currently building out the latest phase at Manston Business Park (Thanet) of 25 units at Innovation Business Park.

³ Planning application DOV/22/0798 for the erection of 41 units (mix of office and industrial) – awaiting determination at the point of this submission.

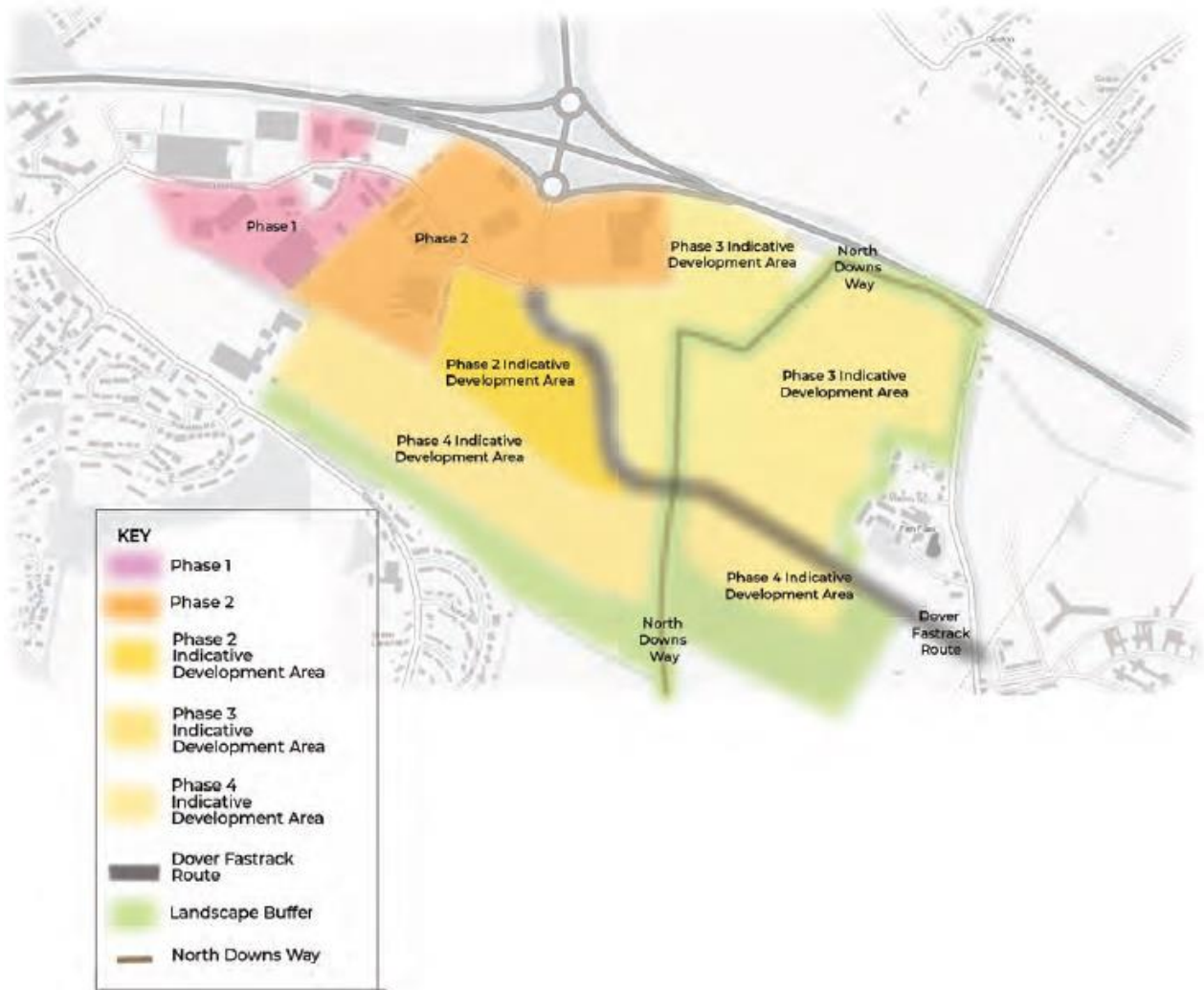


Fig. 1 – 4.2 White Cliffs Business Park Indicative strategy (Policy SAP 2)

3.15. Given the Representor’s assertions at paragraph 3.13 above, we first seek to clarify the proposed indicative extent of available employment land at WCBP.

The Extent of Available Employment Land at WCBP.

3.16. The Council clarifies at paragraph 21.1 of Core Document ED5 that reference to the remaining areas Phases 2 and 3 (at paragraphs 3.109 and 4.86 of the submission Plan) are those identified by the Government as a location for the Inland Border Facility and that the reference to those phases are taken from the adopted Land Allocations Plan.

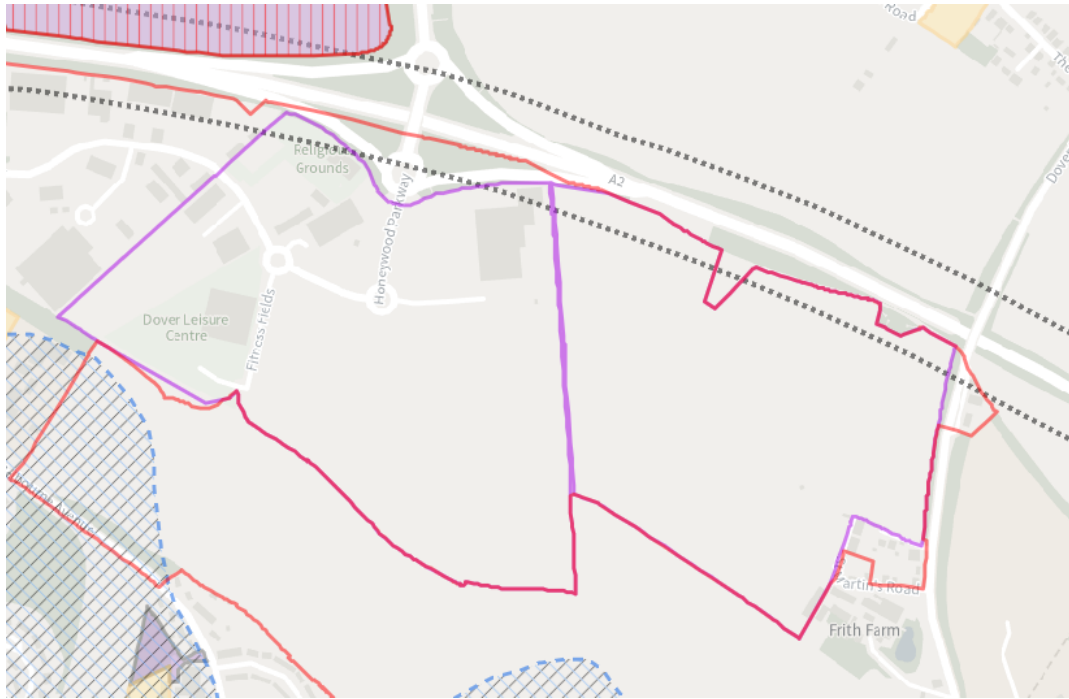


Fig. 2 – Extract from the adopted Policies Map showing the extent of Phases 2 and 3 as promoted by adopted (2015) Policy LA2

3.17. This translates to land shown in purple overlaid in the aerial view below.

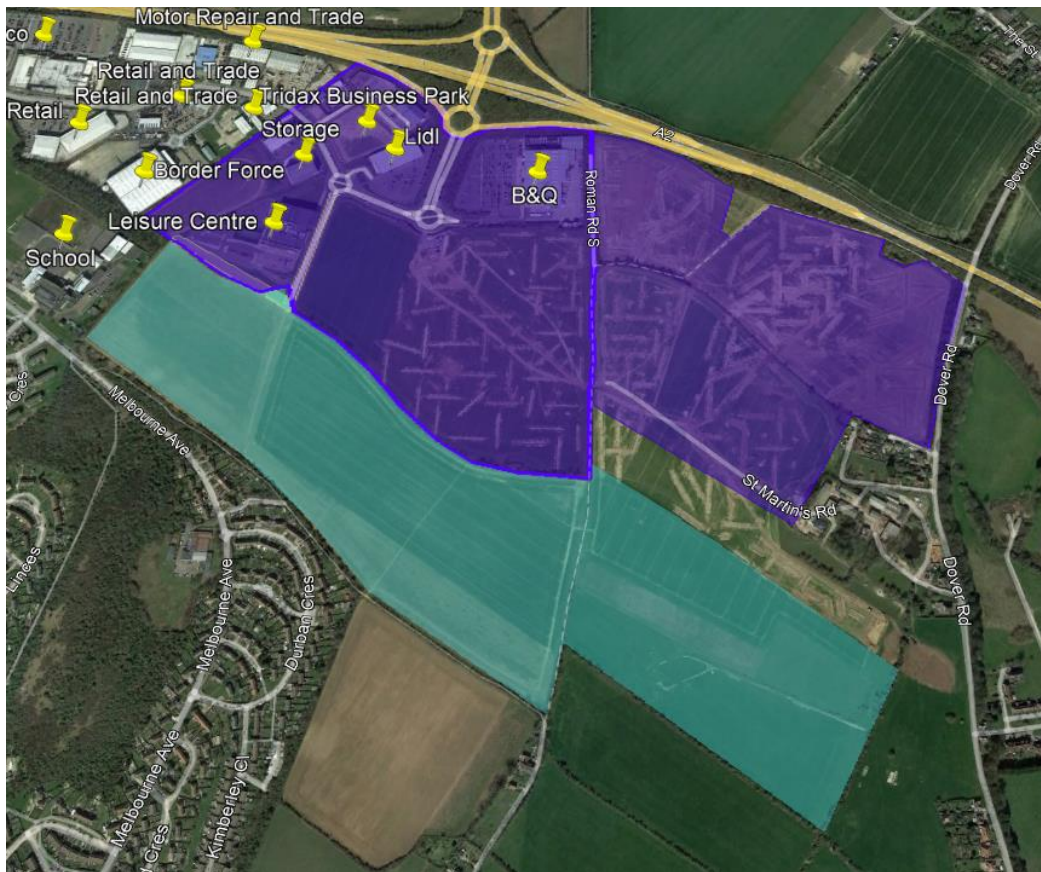


Fig. 3 – Phases 2 and 3 (adopted Policy LA2) overlaid on the aerial view. (The green area is proposed Phase 4) (2023 (c) Google)

- 3.18. Comparing the above with the indicative area strategy (Fig. 4.2 of the submission Plan inserted here at Fig. 1) it is evident that the “Phase 2” orange coloured area (Fig.4.2) has long since been built out.
- 3.19. Comparing the Phases 2 and 3 areas shown on the extract from the 2015 adopted Plan Policies map above at Fig. 2 it can be seen that almost all of Phases 2 and 3 have either been built out already or is land in the control of the Department for Transport (DfT). The only remaining land parcel within this ‘adopted’ Phase 2 and 3 area that would appear to be (i) free from development and (ii) outside of DfT controlled land is the land parcel shown highlighted in blue (approximate area) adjoining the leisure centre and within the “Phase 2 Indicative Development Area” as shown on Fig. 4.2 (See Fig. 4 below).

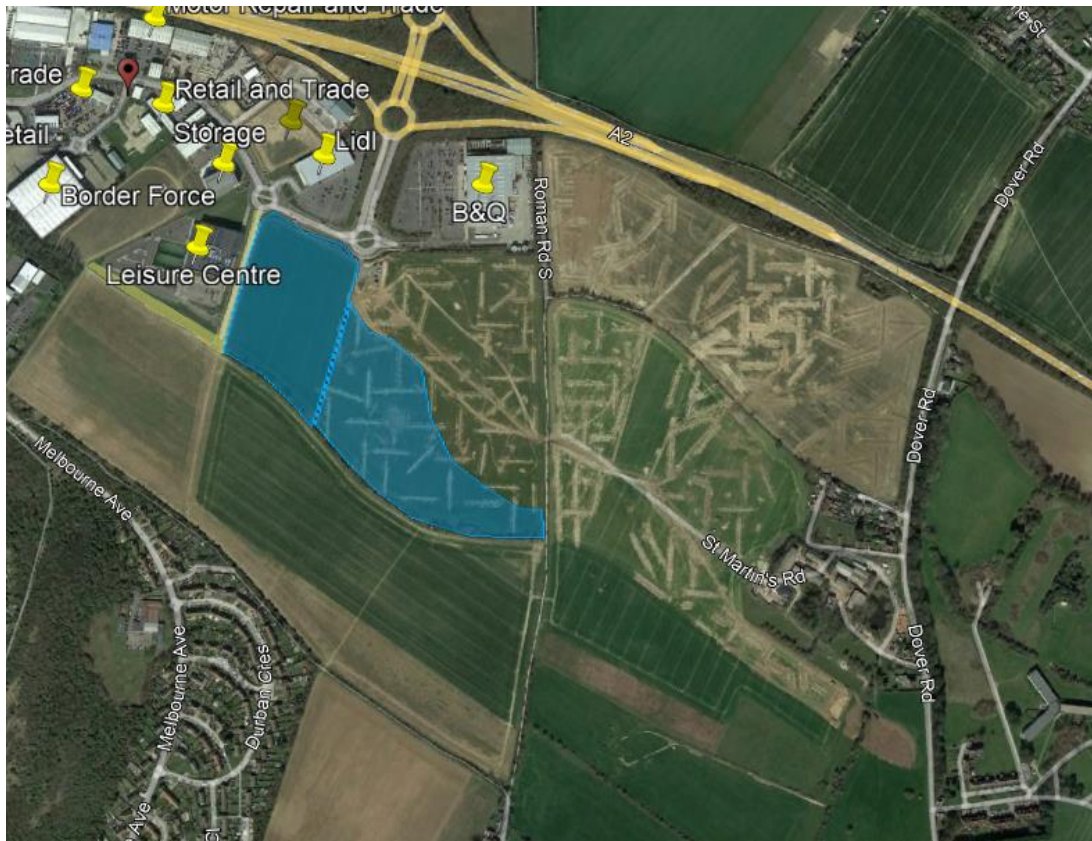


Fig.4 - seemingly the only available land available outside of (i) Fastrack land (ii) Government owned land and (iii) free from development (Phase 2 and 3)

- 3.20. The Council later confirms this position at paragraph 21.2 of ED5 and proposes minor modifications to the Plan to clarify this. Thereafter, the Council confirms at paragraph 21.4 (ED5) that:
- A mix of uses are proposed for Phases 2 and 3 of WCBP which include the traditional B Class uses and that ancillary retail/trade uses may also be acceptable.
 - That there are specific restrictions set out in paragraph (P) in relation to Phase 3 and in referring to paragraph (P) of draft Policy SAP2 this restricts development adjacent to the buffer zones as use Class E(g) (I, ii, iii) only and to less than 5 metres in height, and
 - That the western part of Phase 4 (again referring to Fig. 4.2 (Fig. 1 above)) “*will be considered suitable for additional sports facilities* as confirmed by paragraph (u) of draft policy SAP2.

3.21. The approximate extent of the “Phase 4 indicative area” is shown in green on the aerial view at Fig. 3.

3.22. Having regard to the above, and in consideration of (i) the Council’s advice to the Inspectors at paragraphs 21.2 – 21.4 of Core Document ED5 and (ii) taking into consideration the developable areas of each phase as confirmed by the footnotes to Table 3 (ED5) it appears that:

- WCBP, Phase 2 comprises 7.3 hectares of developable land within, at least, 2 different land ownerships.⁴
- WCBP, Phase 3 comprises 26.5 hectares of developable land within the ownership of the Department for Transport⁵ and with one small land parcel shown to be in a different ownership.⁶
- WCBP, Phase 4 comprises 14.27 hectares of developable land within at least two different ownerships (one being the DfT).⁷

3.23. It is therefore the Representor’s submission that of 61.54 hectares of employment land identified by the Plan:

1. 26.5 hectares (Phase 3) may well not come forward as a consequence of the Government using land within their control for other purposes outside of those uses envisaged by the Plan and particularly traditional B Class uses. The 2021 EDNA highlights the fact that the loss of land owned by the DfT for other uses than those envisaged by draft policy SP6, would significantly reduce the scale of employment land supply available across this location (paragraph 6.13 of Core Document EEB01);
2. that the Phase 3 indicative area of 26.5 hectares may well be less in any event as a result of Fastrack taking up more land than envisaged;
3. that multiple land ownership issues may affect the delivery of Phase 2;
4. the provision of sports facilities on the Phase 4 indicative development area (and a recognition that retail development may also come forward as part of the overall area) erodes the overall employment land Supply Strategy being promoted at WCBP;
5. that there is no explanation how access to Phase 4 will be achieved and again having regard to land ownership issues and severance of the entire allocation by Fastrack and the Downs Way, whether Phase 4 can actually be delivered; and
6. restrictions imposed by Policy SAP2 in relation to Phase 3 (should it come forward) would appear to discount the ability for general industrial development to come forward. In association with this fact, the proximity of Phase 4 (if deliverable) would appear to be rather too close to the neighbouring residential areas to accommodate general industrial uses.

3.24. It is therefore the Representor’s submission to the Examination that with, at least, 26.5 hectares of land (Phase 3) currently unavailable and potentially not available whatsoever for employment purposes and with other phases either constrained by ownership, Fastrack and access issues, the Council’s strategy for WCBP as set out in draft Policy SAP2 has not been prepared positively, is not justified and will not be effective. When we further consider that much of the remaining land on Phases 2 and 3 has been highlighted, by Policy SAP2 itself, not suitable for uses outside of ‘light industrial’, the

⁴ Titles K975046 and K822769

⁵ Title TT118147 “The Secretary of State for Transport”

⁶ At April 2023 under Title K822769

⁷ Titles K162700 (with a number of legal casements) TT118147

potential for the WCBP to deliver any heavy industry (with or without trade counters) or larger distribution uses is heavily constrained.

Discovery Park

- 3.25. Draft Policy SAP2 advises that 10.77 hectares of land is available for employment uses at Discovery Park.
- 3.26. The 2020 Topic Paper “*Proposed Site Allocations – Reasons for Site Allocations*” had identified that employment growth related to Discovery Park may not be able to be accommodated within the existing site and further land maybe required to support growth. This potential requirement is reiterated in the updated 2021 EDNA (EEB01).
- 3.27. However, the allocated areas in the around Discovery Park would appear wholly unsuitable for general industrial and distribution uses as the Council’s response to the Inspector’s initial questions (ED5) confirms.

Redevelopment land at Discovery Park, a designated Life Sciences Opportunity Zone, received outline permission in 2015 for the re-purposing of replacement of buildings at the former Pfizer site. The planning permission is for a broader range of use classes to those where an identified need has been established through the EDNA. The additional uses that may be provided at Discovery Park are E(g)(i) office and (ii) the research and development of products or processes. F1 (learning and non-residential institutions) and sui generis (energy).

- 3.28. We advise the Inspectors that “the broader range of use classes . . .” mentioned in Core Document ED5 and as evidenced by the Council’s Economic Growth Strategy (EEB02) would suggest that the identified remaining available employment land at Discovery Park would potentially only be available to current users at Discovery Park or possible expansion of the development and research of medicines and associated technology already associated with Discovery Park.

Aylesham Development Area

- 3.29. The 2021 EDNA (EEB01) identifies that the remaining land at Aylesham (2.1 hectares) appears to offer a good extension opportunity and has the potential to come forward along with additional homes, providing a sustainable mixed-use opportunity. However, with such close proximity to homes and constrained in terms of access (particularly for HGV movements)⁸ the site is evidentially unsuitable for industrial or distribution uses.

Statenborough Farm, Eastry

- 3.30. Draft Policy SAP2 advises of the potential for Statenborough Farm to deliver 0.6 hectares of employment land (confirmed by Core Document ED5) and draft Policy SAP31 confirms the draft allocation advising that the site is capable of bringing forward employment uses falling within Class E and B2 uses. The Reasoned Justification to the Policy (paragraph 4.230) however, confirms that “*The intention for the site is for commercial space to complement the existing businesses at the site for food and drink production, with a focus on Kentish Products*”.

Summary Position – Allocated Employment Sites (Policy SP6)

- 3.31. It is evident that the Plan places great reliance upon the various phases at WCBP for the majority of the District’s employment land supply. Indeed, this is confirmed by the 2021 EDNA (EEB01) where in consideration of both the potential and existing employment sites, that only 9 (of the 18 sites

⁸ Paragraph 5.11, 2021 EDNA (EEB01)

identified) offer capacity for B Class development equivalent to just under 102,000 sqm of floor space in total, and that 86% of this is at WCBP. The remaining 14%, as identified, is either unsuitable for B2 or distribution uses or where these are identified as being suitable i.e Statenborough Farm, there is no capacity for speculative development or targeted provision outside of the current uses on site.

3.32. In referring to the 2021 EDNA and, in particular paragraph 5.20, it is assumed that reference to WCBP “Phases 1 – 3” relate to Phases 2 – 4 as set out in draft Policy SP6. The Council acknowledges that *“market demand will to a large extent drive the type of employment that will come forward so it is therefore considered necessary to oversupply the provision of land to ensure there is sufficient flexibility in the supply in case of proposal for low density employment coming forward”*. In this regard the Plan goes on to identify four other sites that may contribute to the wider economic growth strategy; those being:

- The former Snowdown Colliery, Aylesham
- Western Heights (including the Citadel)
- Fort Burgoyne, Dover, and
- Dover Waterfront

3.33. However, it is evident from (i) an assessment of Table 4, paragraph 19.8 of Core Document ED5 and (ii) review of policies SAP3 (Dover Water front), SAP4 (Western Heights), SAP5 (Fort Burgoyne) and SAP26 (Snowdown Colliery) that there is little or no opportunity for B2 and distribution uses beyond those potentially at Snowdown Colliery which itself is heavily constrained by the presence of heritage assets and its location within a regionally important geological site (paragraph 11.20 of the Plan confirms). Indeed the Plan acknowledges, at paragraph 3.117, that the mix of development and floorspace requirements will need to be determined through the planning application process in accordance with other policies of the Plan.

3.34. With this in mind, we turn to the Inspector’s Matters, Issues and Questions

4. Inspectors Matters, Inspectors Matters, Issues and Questions.

Matter 6, Issue 1, Question 1.

- 4.1. The Inspectors have asked whether the requirement for employment land, and the amount of land to be provided by the employment allocations, should be set out in the plan. It is the Representor's submission that it should, given the recommendations as provided by the 2021 EDNA and the overarching strategy in providing the "step-change in economic growth in the district" as highlighted by the Plan at paragraph 3.100.
- 4.2. As set out above in Section 3, the Representor raises concerns with regard to the deliverability of the majority of the White Cliffs Business Park Policy SAP2 area particularly for traditional B Class uses. This being the case, and in the event that the Department for Transport/Government announce an alternative, non-employment generating use (in the traditional sense) of their site at Whitfield e.g. for immigration accommodation/processing centres then there is the potential that other sites will need to be brought online or favourably considered against other relevant policies of the local plan in meeting the Council's 'step-change strategy' for the delivery of economic growth.
- 4.3. It is of concern to the Representor that Policy E1 suggests, by inference, that traditional B Class uses (including light industrial under Class E) may be suitable within some of the allocated/listed sites that would clearly not be suitable for such uses i.e. Fort Burgoyne and Western Heights.

Matter 6, Issue 1, Question 3

- 4.4. The Inspectors have queried the reason for the additional land over and above the identified employment land requirement asking whether this is justified. For reasons as set out above in Section 3, and the Representor's concerns that (i) much of the WCBP land will not come forward for employment purposes (Government ownership issues) and (ii) much of the other land will not be available or suitable for some industrial uses/processes, then the allocation of additional land will, in principle, be justified.

Matter 6, Issue 2, Question 1

- 4.5. The Inspectors query the wording of Policy E1 seeking clarification for allowing new employment development on land adjacent to all settlements in the hierarchy. This is a matter for the Council although the Representor would respectfully suggest that a more generalised approach to the potential suitability of sites could be addressed by replacing "on land within or immediately adjoining the settlement confines of designated settlements" with "*on land providing transport choice for future users/occupiers and on sustainably located sites close to the Regional, District or Rural Service Centres as identified in the settlement hierarchy*".

Matter 6, Issue 4, Question 2

- 4.6. The Inspectors have queried whether land comprising Phase III of WCBP is actually available for development given that the inland border facility is no longer being taken forward. In this regard and following on from the Representor's concerns as raised above in Section 3, there is no evidence to suggest that the land will come forward for development and although the Representor is unable to provide the Examination with evidence to the contrary, anecdotally⁹ it is believed that the Government will retain ownership of the site for uses in connection with port activities/border

⁹ The Representor has received this information from separate sources, those being a land agent and separately a land promoter working in the area.

control/immigration. In this regard and given the unknowns with regard to 'Phase III', deliverability (including access to Phase IV) would be affected.

Matter 6, Issue 4, Question 3

- 4.7. The Inspectors query the wording of the policy insofar as "employment generating uses" is concerned. In this regard the Representor does not consider the wording of the policy as being particularly effective as any use coming forward which employs just one person may, under the terms of the policy, comply with it. If the 'Phase III' site does not come forward for employment generating development (in the traditional sense) there is the potential for the desired 'step-change' to be adversely affected through the potential loss of the only phase at WCBP that may be considered suitable for general industrial and distribution uses (given (i) the proximity of other phases to residential properties and (ii) the potential for sports facilities and retail provision to form part of the overall allocation at WCBP.

Matter 6, Issue 4, Questions 1-6

- 4.8. In relation to Policy SAP5 Fort Burgoyne, it is the Representor's view that the type and amount of development proposed at Fort Burgoyne should be set out in the plan. The Representor believes that land ownership has recently changed and that whilst some of the Casemates at the Fort have been converted, aspirations for Fort Burgoyne may have changed since the draft plan was first prepared. In addition, given the incredible heritage values associated with the site, it is not considered that the more traditional B Class or distribution uses would be particularly suitable at Fort Burgoyne and, indeed, allocation of Fort Burgoyne as an employment site may well conflict with The Framework at Paragraph 199.

Matter 6, Issue 4, and questions in relation to Policy SAP26 – former Snowdown Colliery, Aylesham

- 4.9. The Representor has similar concerns as those raised in relation to Fort Burgoyne (given the presence of heritage assets) but that, principally, the mix of uses proposed, or considered as potentially suitable by the policy, may not be compatible.
- 4.10. It is for the reasons above, and again those set out in Section 3 above, that the Representor considers the Plan to be unsound insofar as the district's future employment land provision is concerned. In the event that the Inspectors are of the same view and require main modifications to enable the plan to be made sound, and in the event that the Council agrees, we provide details of a deliverable, developable and available employment site in Section 5 as follows.

5. The Omission Site – Land South of the A2, Whitfield.

- 5.1. Again, it is acknowledged that Inspectors will not be in a position to consider the suitability, or otherwise, of this ‘Omission Site’ but having made representations at the Regulation 19 stage, and given that the approach to the Representor by the landowner was very late in the local plan preparation process, we provide additional information here to support the Representor’s case for further consideration of the site, in the event that the Inspectors determine that the Plan can only be made sound if major modifications are made to it in which to ensure that sufficient employment land is found throughout the plan period.

The Omission Site and its Context

- 5.2. The site in question lies to the south of the A2, the eastern boundary of which lies, approximately, 280m west of the Whitfield roundabout with the only, currently, available access lying approximately 400m to the west of the roundabout. The location of the site is shown outlined in red on the site plan attached at **Appendix 2**.



Fig. 5 – Location of the Omission Site – Land south of the A2

- 5.3. The site extends to some 20 hectares and comprises a regularly-shaped land parcel currently in agricultural use. The site appears relatively flat (topographical work is, at the time of submission, underway) and is bordered to the south and to the west by woodland. Beyond the wooded areas to the south and west lie the residential areas of Temple Ewell. To the east lies an open field, also in agricultural use, connecting the site to Whitfield Hill (A256) and the roundabout. In between, and along the north-east boundary of the site, lies green infrastructure including Herald Wood separating the land parcel from the A2.

- 5.4. There are no specific countryside designations applicable to the site albeit that the land parcel does lie within the Groundwater Source Protection Zone No. 3 and part of the site's frontage (adjoining the A2) is safeguarded for improvements to the A2 under adopted policy TR4. The Regulation 19 draft Plan indicates that the site is within the Dover Downs and River Ward and within the Parish boundary of Temple Ewell and lies within the Lydden and Temple Ewell SAC 75% ZOI and 90% ZOI (draft Policy SP13 applies). The Regulation 19 Policies Map also identifies that land immediately adjoining the site (north-west corner) is a local wildlife site and this includes land along the west boundary of the wooded area to the south

Site Deliverability

- 5.5. The Representor has entered into an Option Agreement with the landowner. The site is available as an employment land allocation.
- 5.6. The Representor would also like it known that land immediately adjoining Whitfield Roundabout (and that land not owned by the County or National Highway Authorities) is also in his control.
- 5.7. Given the site's location, and the work undertaken to date insofar as assessing the landscape impact is concerned, the 190,000 square metre land parcel is capable of delivering, at least, 66,500 square metres of industrial (light and general) and storage and distribution uses. This would equate to an approximate 35% of the developable footprint alongside extensive landscaping/green infrastructure provision. As such, the site is developable without the need to encroach upon any adjoining land parcel and without impacting upon existing woodland located to the edge of the site nor the woodland extending along the western boundary.
- 5.8. Significant work has been undertaken to date in relation to the site access which could only reasonably be from the A2 and at a point where the A2 becomes a single carriageway (north-westwards direct of travel). Extensive consultation with National Highways has been undertaken and remains in progress. In this regard, it is submitted that development of the site (employment provision only) is achievable.

Highways Access and Transportation Issues.

- 5.9. Accompanying the submission at **Appendix 3** is a transportation technical note as prepared by Stantec on behalf of the Representor which confirms the relevant engagement with National Highways and that a suitable access could potentially be introduced on the A2 in which to serve the site. Stantec's summary is considered relevant:

*The technical transport planning work described above provides evidence, at an appropriate level of detail at this stage, that an access junction could be provided to serve proposed development and that mitigation of its effects off site could be provided. (Section 12.1 – see **Appendix 3**)*

- 5.10. In this regard, this work provides a starting basis upon which to move forward in assessing the site's development potential further and in association with on-going discussions between KCC Highways & Transportation, the Council and Highways England; both in terms of the Whitfield Expansion programme in general terms and as part of the Examination in Public. Much is of course dependent upon the Whitfield Expansion Masterplan, including the A2/Sandwich Road link, and the Inspectors examining the Plan to be satisfied with the Council's approach to the delivery of the Masterplan.

Landscape Impacts

5.11. The submission is accompanied by a Landscape Visual Impact Technical Note (Huskisson Brown) at **Appendix 4** which assesses the development potential of the site insofar as landscape impacts are concerned. It is because of the conclusions of this preliminary work that the developable area of the site was identified as being, approximately one third of the site which would still realise a sizeable contribution to the district's employment land supply whilst contributing a sizeable degree of new Green Infrastructure alongside the development. As such, the Landscape Visual Assessment concludes:

"Any proposed development on this site would need to be demonstrably landscape led in order to ensure it is well located such that it respects the character of Temple Ewells and the Lydden Hills and protects the landscape character of the Kent Downs AONB."

5.12. As such, and with the need for a robust landscape-led approach, the Assessment (**Appendix 4**) concludes:

"... the particular characteristics of the site suggest that the relatively enclosed nature of the southern part of the site offers some opportunities for sensitively designed commercial units, ideally, with access secured from the existing entrance track on the A2"

Ecology/Biodiversity

5.13. The submission is accompanied by a Preliminary Ecological Assessment (Mr. Martin Newcombe, Ecologist) at **Appendix 5**. Mr. Newcombe's conclusions are simply that the site does not offer any potential for protected species.

Other Technical Issues

5.14. If the site were to be brought forward for development, it is acknowledged that the following issues would need to be further considered:

- The archaeological potential of the site.
- The loss of agricultural land.
- Drainage and flood risk issues arising.
- Impact upon the amenities of residential properties (and other neighbouring occupiers).
- Biodiversity net gain.
- The need to explore/ensure that development of the site is safe given the location of it within 'bomb alley' (unexploded ordinance surveys required).
- The manner in which delivery of the site could contribute towards development related infrastructure, particularly required improvements to the Whitfield and Duke of York's roundabouts.

5.15. These are, however issues that can be addressed and in much the same way as they would be in the Council's preferred option sites at WCBP.

6. Conclusions

- 6.1. This representation is made, on behalf of Guildcrest Commercial Ltd, to the Examination of Dover's submission Regulation 19 Local Plan, and in relation to the Plan's proposed employment land provision – Policy SP6. This representation is particularly concerned with the *deliverability* of employment land, especially at Whitfield, (and the White Cliffs Business Park (WCBP)) as promoted by Policy SAP2).
- 6.2. It is the Representor's submission that approximately half of the intended allocation at WCBP is unlikely to be available for employment provision and that, as a consequence, this may affect the ability of additional land at WCBP from coming forward. Further to these concerns the Plan itself, supported by background evidence, suggests that the employment land phases at WCBP may also be suitable for the accommodation of retail and community uses contradicting the over-arching aspiration of the Plan of seeking to introduce a 'step-change' in the District's employment growth strategy.
- 6.3. The Representors further concerns relate to the additional 'supporting' employment land provision; much of which would appear wholly unsuitable for the more traditional B Class uses. As such, it is the Representor's submission that the Plan is unsound because it is:
- a) **Not positively prepared** – failing to provide any confidence that (i) the Council's preferred approach to the provision of employment land choice would meet the aspirations presented by the Plan itself and The Economic Growth Strategy and that (ii) the land that is available is actually deliverable. Furthermore, the land that would actually be available for employment purposes does not, in many cases, seem suitable for the more traditional B Class uses.
 - b) **Not justified** – principally as a consequence of the Council's own admissions that a large proportion of the supply may well be undeliverable. However, concerns extend to the fact that much of the allocated employment land appears heavily constrained by inadequate road infrastructure, the proximity of residential properties and/or the presence of heritage assets.
 - c) **Not effective** as a Plan that would deliver the employment land provision that the District needs, and
 - d) It is therefore **Inconsistent with national policy** - contrary to paragraphs 16, 20a), 73b) and 106 of The Framework as a consequence of the above.
- 6.4. As such, the Representors promote land south of the A2, as shown above in Fig.5 and on the view attached at **Appendix 2** as an Omission site capable of delivering circa 66,500 square metres of employment land for the more traditional B Class uses – full details of which accompany this submission.

List of Appendices

- Appendix 1 - Guildcrest Commercial presentation
- Appendix 2 - Site Location – Aerial View – The Omission Site
- Appendix 3 - A Highway Infrastructure technical Note – Stantec
- Appendix 4 - A Landscape Visual Assessment Technical Note – Huskisson Brown
- Appendix 5 - A Preliminary Ecological Appraisal – Mr M Newcombe

Appendix 1



GUILDCREST

COMMERCIAL

GUILDCREST COMMERCIAL LTD

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03	Maple Leaf	08	DJ Civils
04	Merlin Business Park	09	Lake View Business Park
05	Innovation Business Park		

INTRODUCTION

Guildcrest Commercial Ltd, a member of the Guildcrest Group of companies that was established in 2014, entered the commercial construction industry in 2020. Since our inception, we have gained a reputation for excellence in delivering outstanding light industrial, commercial, and office buildings in the East Kent area.

Our hallmark properties, each approximately 2000 square feet, are designed to meet the ever-evolving needs of new, growing and established businesses and entrepreneurs.

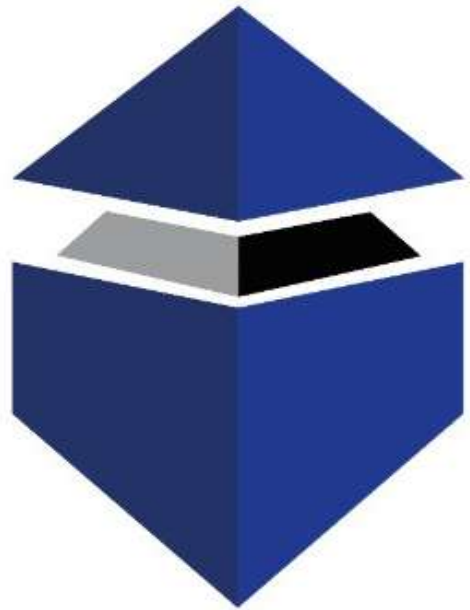
These modern units come equipped with an array of amenities, including a mezzanine floor, insulated roller shutter doors, WC, pedestrian and electric roller shutter doors, fibre broadband, EV Chargers, private parking and more. The versatility of these commercial units ensures the utmost convenience for all business needs.

It is important, understanding the need for versatility, which is why our properties hold usage classifications of B2 (General Industrial), B8 (storage and distribution), and class E (commercial, business, and services).

These properties are freehold, providing an attractive investment opportunity for potential buyers. Working alongside Guildcrest Estates Ltd, we offer a tenant finder and management service to those investing in commercial properties.

We pride ourselves on the care of each business park, not only the ensuring all occupants abide by the landscaping and creating areas of clean trades, with restrictions to the trades who can occupy and creating zones where the less clean trades, motor trades for example, can operate.

With our commitment to excellence and our forward-thinking approach we are established as a trusted partner in the East Kent commercial property market.



MANSTON BUSINESS PARK

Just over a decade ago, the construction of Manston Business Park began.

What was once a modest plot of land has now evolved into a thriving industrial and commercial hub, spanning an impressive 110 acres. The growth of this park has been a testament to the collective efforts of investors and developers who have contributed to its development over various phases and Guildcrest Commercial continue to enhance and develop it further.

Comprising over 500 units, each housing a unique array of enterprises and industries, you will find trades who use their units for offices and storage. There are trade counters, a Veterinarian Practice, recording studios, brewery, and soon even an NHS Critical Care Hub, to name just a few.

Guildcrest Commercial Ltd has undertaken the construction of an additional 100 units, expanding the park's capacity to accommodate even more thriving businesses including three large, bespoke, and prestigious buildings.



The success and growth of Manston Business Park have undoubtedly acted as a magnet for a diverse range of businesses. The park's strategic location, state-of-the-art infrastructure, have consistently attracted entrepreneurs and investors from all areas of the business world. As a result, the area has become a hotbed for innovation, collaboration, and economic development.



MAPLE LEAF

(BUILD COMPLETE & FULLY OCCUPIED)

- Construction initiated on Maple Leaf in 2018
- Total Units - 163
- Total Unit area - 327,000 square foot
- Business occupied and operating - 83
- Investment and let to business - 65
- Private purchase - 15



- Usage Classes - B2 & B8
- 3 phase electricity, Fibre Broadband
- EV Chargers
- W.C.
- Mezzanine Floor
- Private Parking



MERLIN BUSINESS PARK

(BUILD COMPLETE & FULLY OCCUPIED)

- Construction initiated on Merlin Business Park in 2022
- Total Units - 16
- Total Unit area - 32,500 square foot
- Business occupied and operating - 11
- Investment and let to business - 4
- Private purchase - 1
- Employment Opportunities Created - 70 (approx.)



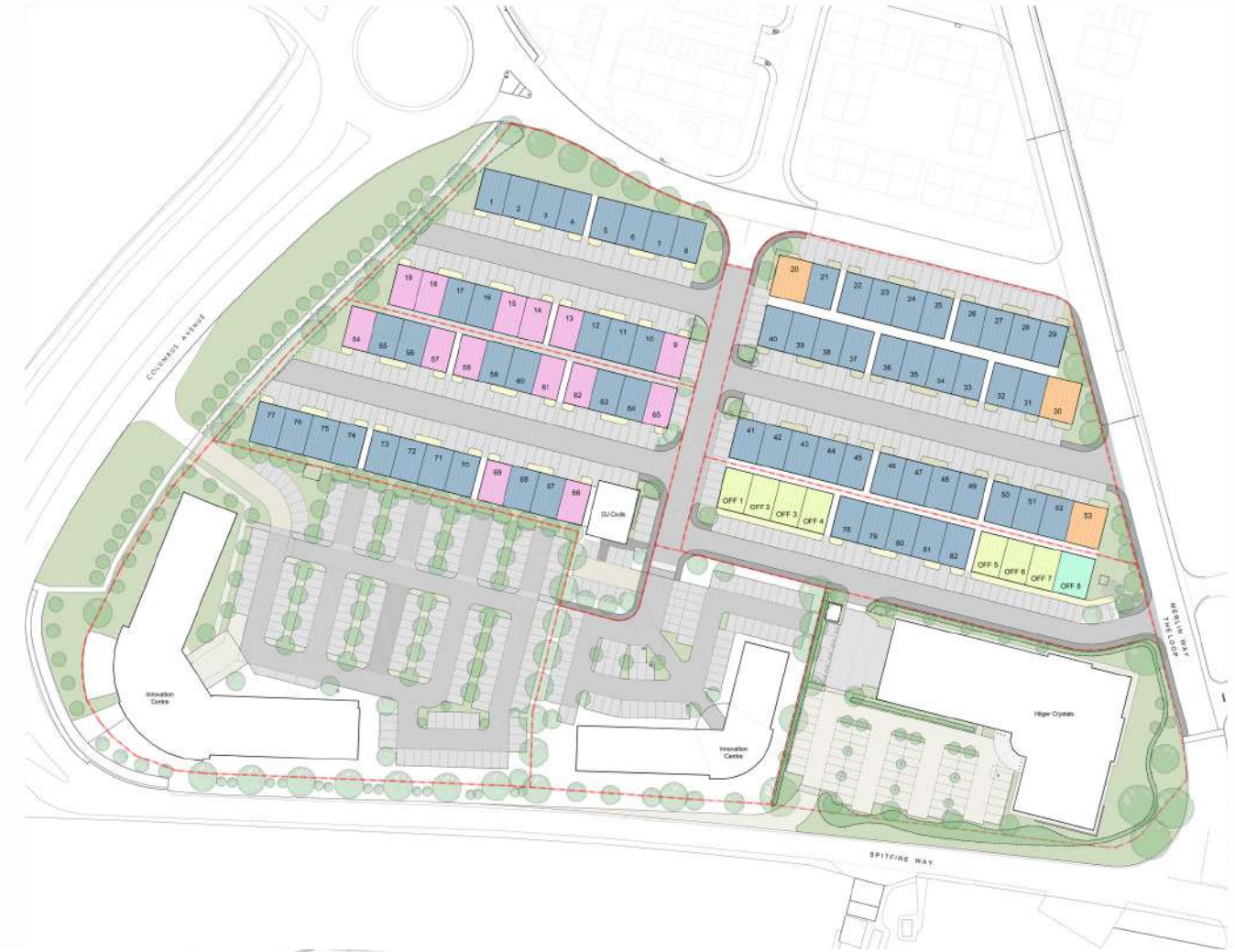
- Usage classes - B2 & B8
- 3 phase electricity, fibre oadband
- EV chargers
- W.C
- Mezzanine floor
- Private parking
- Site security



INNOVATION BUSINESS PARK

(UNDER CONSTRUCTION)

- Construction initiated on Innovation Business Park in 2023
 - Total units - 92 (all under construction)
 - Total unit area - 184,000 square foot
 - Pre-sold units - 12
 - Pre-let units - 4
 - Employment opportunities that could be created - 500+
- * All excluding the three large, bespoke buildings*



INNOVATION CENTRE

(PRE PLANNING)

- Construction projected start 2024
- Total unit area - 65,000 square foot
- Usage class - E
- Fully serviced offices
- Conference suites, bistro & restaurant
- Fibre broadband, climate control
- Innovative and sustainable building using solar power generation
- 200+ car parking spaces



HILGER CRYSTALS

(IN PLANNING)

Hilger Crystals are part of the multinational corporation Dynasil, whose headquarters are in the US, a company focused on cutting-edge research and commercial product development.

Hilger Crystals, who produce high-volume commercial-grade optical crystals for IR spectroscopy and scintillation crystals for state-of-the-art radiation detection, approached Guildcrest Commercial.



Looking for a new location and state of the art manufacturing facility, the directors of Dynasil and Hilger Crystals approached Guildcrest Commercial.

Guildcrest Commercial found the right location within Manston Business Park, a design they approved of and will commence building early 2024.



DJ CIVILS

(IN PLANNING)

DJ Civils are a Kent based construction and civil engineering company, employing a range of operatives from management, supervisors, engineers and groundworkers.

They require a bespoke office building to be their headquarters for their growing company.

Guildcrest Commercials have found the location, design and will commence the building of this unit early 2024.



LAKE VIEW BUSINESS PARK

(IN PLANNING)

As the commercial development and contracting grows, Guildcrest Commercial will be venturing out of Thanet and soon to create a new business park, in Sandwich , Kent.

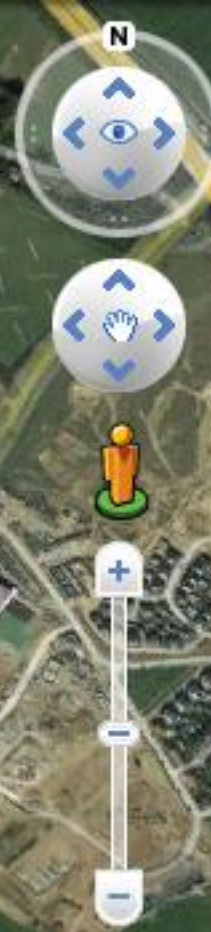
- Construction programmed for late 2023
- Total Units - 41
- Total Unit area - approx. 85,000 square foot
- Pre-sold units - 0
- Pre-let units - 0



- Usage Classes - B2, B8 & E(g)
- 3 phase electricity, Fibre Broadband
- EV Chargers
- W.C.
- Mezzanine Floor
- Private Parking



Appendix 2



Google Earth

Imagery Date: 3/30/2021 51°09'16.73" N 1°16'48.96" E elev 128 m eye alt 2.69 km

1940

Appendix 3

TECHNICAL NOTE

Job Name: Land south of A2 at Whitfield, Dover
Job No: 332410944
Date: 18th October 2023
Prepared By: Gary Heard
Subject: Summary of technical Transport Planning work

1. Introduction

- 1.1. The Guildcrest Group have appointed Stantec UK Ltd (Stantec) to provide transport support in relation to the promotion of a potential development at Whitfield, Dover.
- 1.2. This technical note (TN) has been prepared by Stantec to provide a summary of the technical transport work completed to date and the supporting evidence available to demonstrate technical deliverability of the site (in transport planning terms).
- 1.3. This TN has been prepared in the context of positive engagement between Stantec and National Highways to discuss site access options and detailed highway network capacity modelling, both for the site access junction and off site junctions (the Whitfield roundabout and the Duke of York roundabout on the A2). The positive engagement has comprised two meetings and subsequent technical correspondence which has been referred to within this technical note.

2. Site location

- 2.1. The proposed site is located to the south of the A2 at Whitfield (to the west of the Whitfield roundabout) as illustrated by the figure opposite.
- 2.2. The site is bound by the A2 to the north, Lousyberry Wood to the west and south, and Whitfield Valley to the east.



3. Potential development

- 3.1. The site is around 190,000m² in area and it has been assumed that any commercial development would comprise 35% of the developable footprint. On this basis a commercial development floor area of 66,500m² has been assumed at this stage. Hence, this forms the quantum envelope of the development assessed at this stage.
- 3.2. The site will be promoted for commercial development, and it has been assumed for the purposes of this assessment that this would comprise a 50 / 50 split of industrial and warehouse employment uses. Hence, this forms the land use envelope of the development assessed at this stage.
- 3.3. Whilst the above assumptions define an envelope of assessment, the assessment can be updated as appropriate as the masterplan options are developed and refined, potentially leading to a planning application for a fixed proposal.

TECHNICAL NOTE

4. Traffic generation

- 4.1. For the purposes of a robust assessment, reference has been made to the TRICs database to extract trip generation rates for similar land uses to those proposed. This is usual practise for understanding the potential traffic generation from a development proposal.
- 4.2. Based upon the TRICs data extracted, and shared with national Highways, the proposed development would generate 341 vehicle movements (two way) during the morning peak hour and 218 movements (two way) during the evening peak hour. Of these, 70 movements (two way) would be HGVs during the morning peak hour and 36 movements (two way) during the evening peak hour.
- 4.3. The trip generation analysis would be reviewed and agreed during a scoping exercise with National Highways at the time of preparing a planning application. This would allow formal agreement on trip generation rates appropriate for the land use mix proposed and in accordance with circular 01/22. We would anticipate that trip generation rates agreed would be less than adopted within this exercise once a “Vision” for the site (to encourage sustainable travel) is developed and agreed.
- 4.4. At this stage, it is considered that the trip generation rates adopted are robust and appropriate to test the principle and operation of a development envelope at this location, particularly in the absence of a definitive masterplan or fixed details with respect to the proposed development mix and quantum.
- 4.5. Trip generation rates would be further informed by the development of a “Vision” for the proposed development which would be discussed and agreed with National Highways at the time of preparing a planning application in accordance with circular 01/22. The “Vison” would be agreed during a scoping exercise and would define targets for reducing trip generation rates from a standard TRICs database approach as described within this technical note.
- 4.6. The “Vision” would need to consider how the site will maximise walking, cycling, and public transport use. This would include consideration of items such as safe and secure cycle parking, the provision of mobility or micro mobility hubs and EV charge points.

5. Traffic distribution

- 5.1. An assumption has been adopted within this assessment that the development traffic will access directly onto the A2 and distribute in accordance with the 2040 prevailing traffic flows on the A2 and at Whitfield roundabout as presented within the Local Plan evidence base assessment flows.
- 5.2. The trip distribution assumptions would be reviewed during a scoping exercise with National Highways at the time of preparing a planning application for the site. This would refine the assumptions made within this technical note and would consider the specific uses and quanta being applied for by a proposed masterplan.
- 5.3. Nevertheless, at this stage it is considered that the trip distribution assumed in this assessment is robust and appropriate to assess the principle and operation of a development envelope at this location and its potential effects off site, particularly in the absence of a definitive masterplan or fixed details with respect to the proposed development mix and quantum.

6. Principle of a site access junction on the A2

- 6.1. Stantec’s engagement with National Highways has considered the principle of implementing a site access junction on the A2. National Highways have advised that circular 01/22 resists new access to particular (special) roads, predominantly motorways. However, in terms of access to other roads on the Strategic Road Network (which would include this section of the A2) National Highways have confirmed that access would be considered on a case by case basis.

TECHNICAL NOTE

- 6.2. Hence, at the time of considering a planning application proposal, National Highways would consider the context of circular 01/22 alongside modelling evidence presented. A view would then be taken by National Highways as to whether the access proposed, and modelling evidence presented demonstrates that they can accept the proposed access junction.
- 6.3. A further point that would be considered by National Highways for an access to serve the site from the A2 would include the importance of the A2 corridor to serve the ports, particularly if / when the Lower Thames Crossing is opened. Hence, National Highways will look for any proposal to keep disruption to traffic flow on the A2 to a minimum.
- 6.4. Nevertheless, the principle of gaining an access from the A2 at this location has not been ruled out as a result of Stantec's engagement with National Highways.

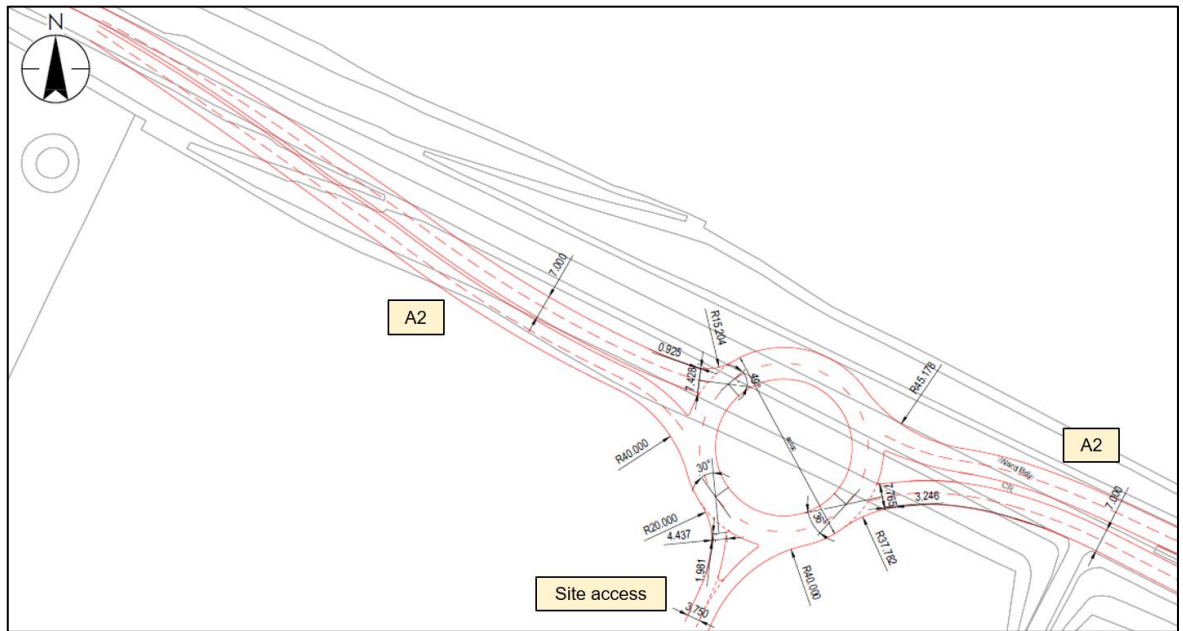
7. Site access junction layout

- 7.1. Initially, both a roundabout option and a signal controlled option were considered in detail for the site access junction. Correspondence with National Highways has resulted in the roundabout option being considered further.
- 7.2. With respect to a site access roundabout, a conventional 3 arm roundabout junction has been considered and also a 3 arm roundabout with an eastbound filter lane. Based upon constructive comments received from National Highways, the option of a conventional 3 arm roundabout has been considered further on the basis of National Highways' comments below:

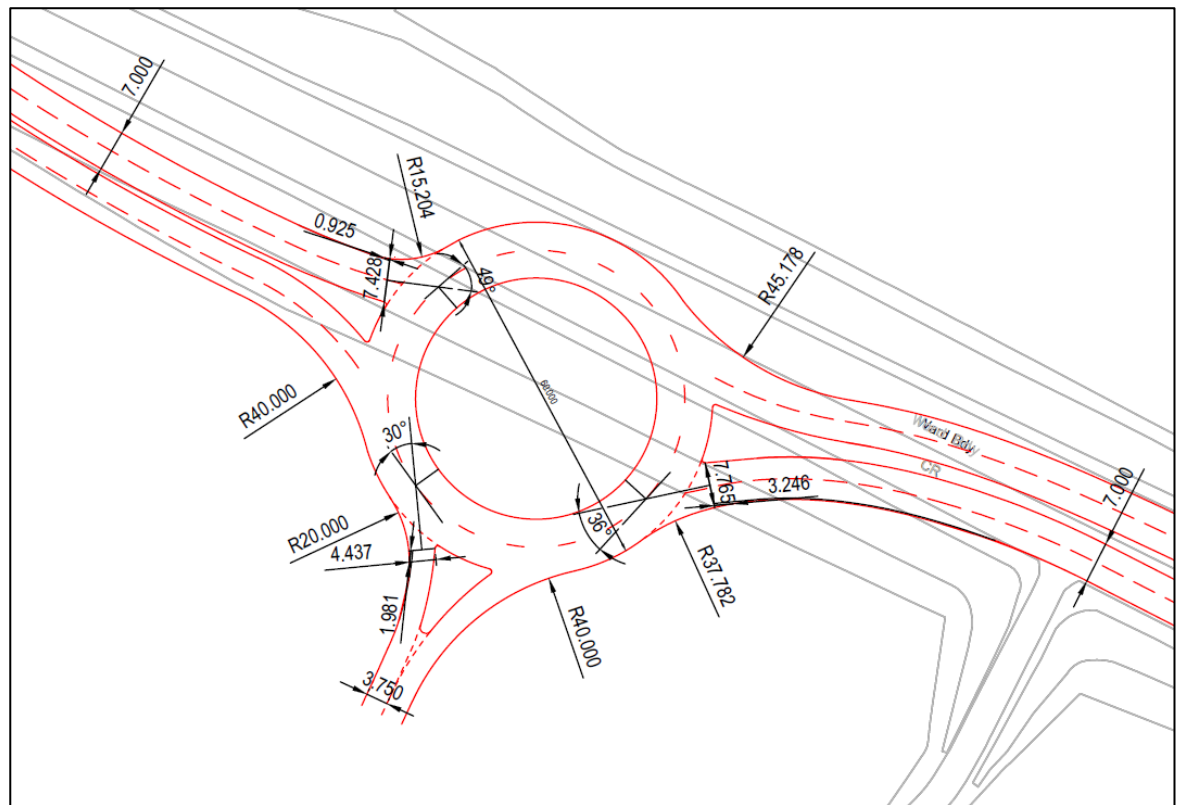
".....as a next step, we would suggest the applicant considers a larger more conventional three arm roundabout positioned at a point which does not interfere with other DMRB standards in terms of junction spacing and weaving. This may involve lengthening the existing section of dual carriageway."

- 7.3. On this basis, a three arm site access roundabout has been considered as follows:
- An inscribed circular diameter of 60m has been considered.
 - The east arm is formed by the A2 which will continue the existing two westbound lanes further to the give way entry to the roundabout.
 - The west arm is formed by the A2 which will flare the existing eastbound single lane to two lanes to the give way entry to the roundabout.
 - The south arm will be the site access and comprise a one lane entry.
 - The westbound exit from the roundabout will allow two lanes merging down to one lane.
 - Allowance could be made for pedestrian movements through the use of dropped kerbs at splitter islands if this is considered appropriate.
- 7.4. The roundabout scheme is illustrated by the concept sketch extracts shown below (a zoomed out extract and a zoomed in extract).

TECHNICAL NOTE



Potential site access roundabout within site frontage (zoomed out)



Potential site access roundabout within site frontage (zoomed in)

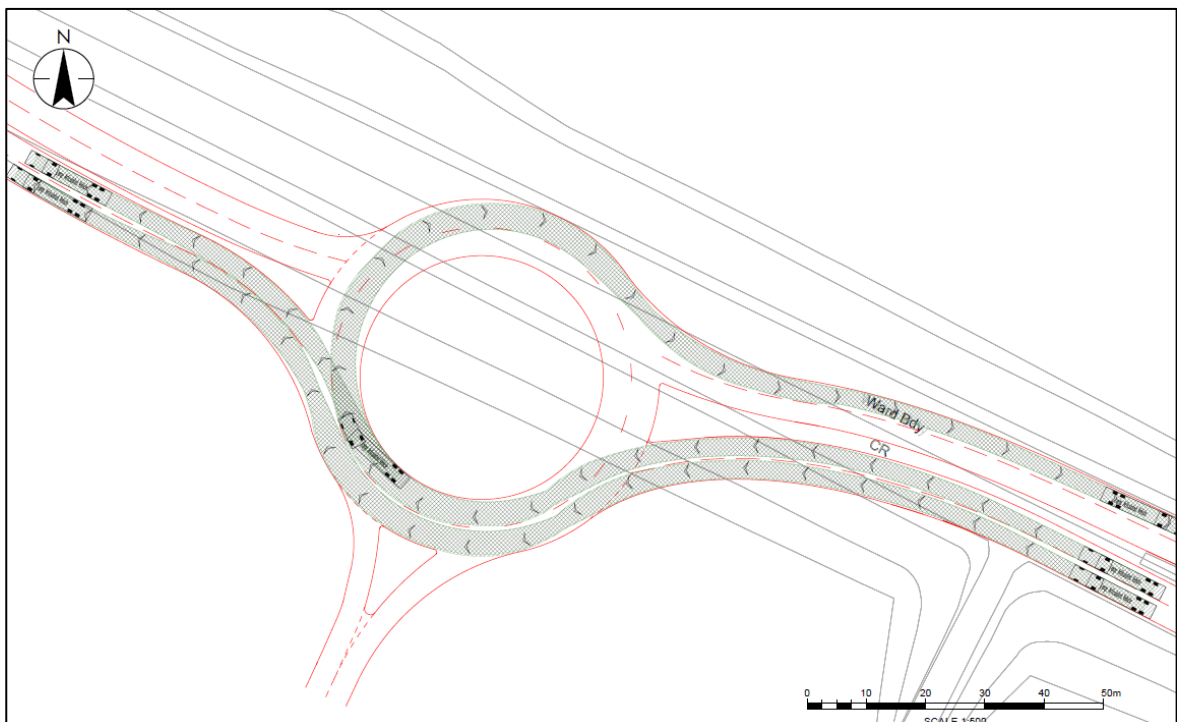
7.5. Stantec have undertaken the following design checks for the above roundabout against “CD116 - Geometric design of roundabouts”.

- The circulatory carriageway width proposed is 9.5m, which is less than the maximum of 15m stated in paragraph 3.6.5 of CD116.

TECHNICAL NOTE

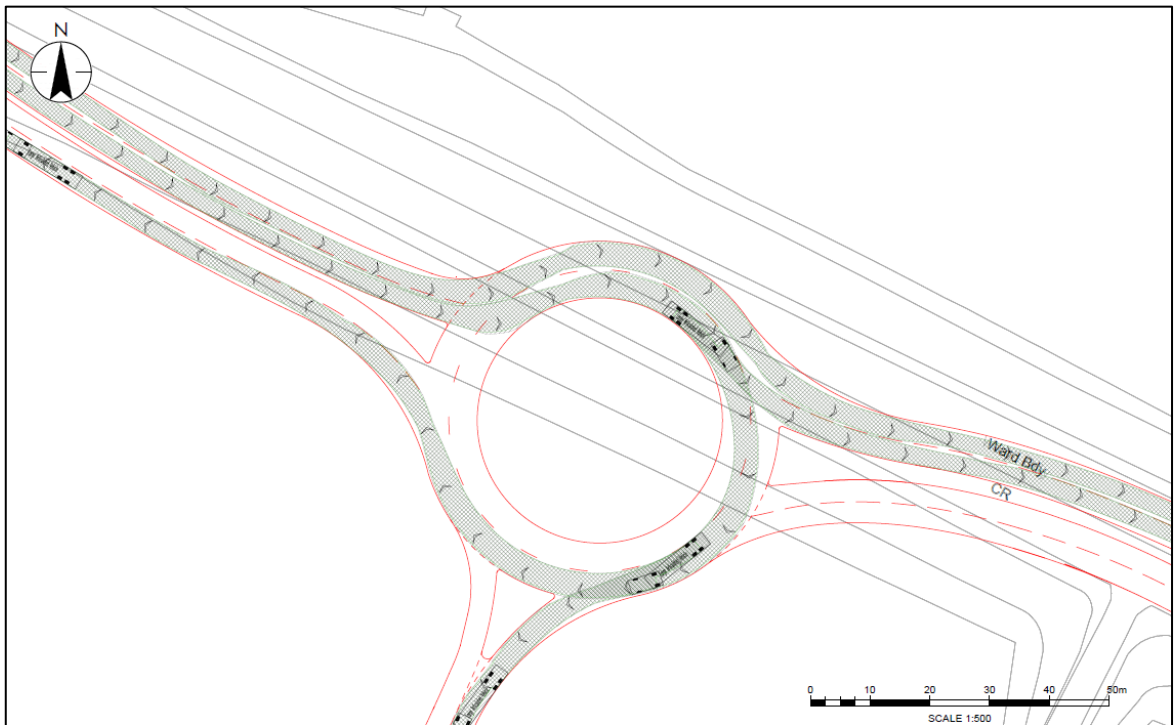
- The maximum entry width is 7.8m on the westbound entry to the roundabout. This is less than the maximum 15m stated in paragraph 3.13 of CD116.
- The entry kerb radii are 38m, 20m and 15m for the eastern, southern, and western entry respectively. These fit within the range of 10m and 100m as required by paragraphs 3.19.1 and 3.19.2 in CD116.
- Exit kerb radii are 40m, 40m and 45m for the southern, eastern and western exits respectively. These each fit within the required range of 20m and 100m as required by paragraph 3.29.3 of CD116.
- The entry path radius is 90m on the western approach and 85m on the eastern approach. This is less than the maximum of 100m stated by paragraphs 3.25 and 3.26 of CD116.
- The stopping sight distance for a national speed limit road (dual carriageway on the east arm) is 295m. this distance is achievable within the highway boundary and / or site frontage on both the eastern and western approaches.
- Entry angles of 36, 30 and 49 degrees are shown on the eastern, southern, and western entries respectively. These each fit within the required range of 20 and 60 degrees as required by paragraph 3.18.1 of CD116.

7.6. In addition to the geometric review against standards summarised above, a vehicle tracking exercise has been completed assuming HGV movements. These are illustrated below.

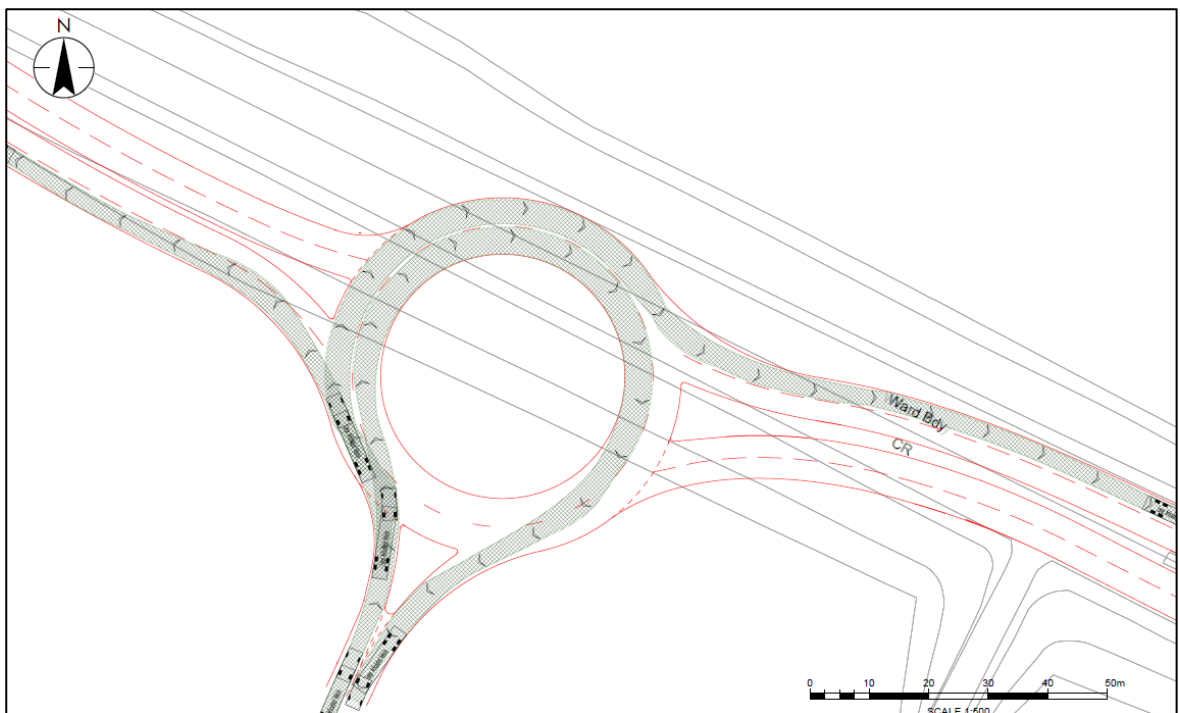


HGV entry and circulation from A2 east arm

TECHNICAL NOTE



HGV entry and circulation from A2 west arm



HGV entry and circulation from site access arm

- 7.7. It is demonstrated by the figures above that the roundabout would be navigable by large (HGV) vehicles from all arms.

TECHNICAL NOTE

- 7.8. Consideration would also need to be given to the existing public right of way (ER182) that is available on either side of the A2. The interaction and / or incorporation of this public right of way within any site access design would be reviewed at a later design stage when preparing a planning application. It may, for example, be possible to provide an appropriate means of crossing the A2 within the site access junction that offers a safer option than currently exists.

8. Site access junction capacity assessment

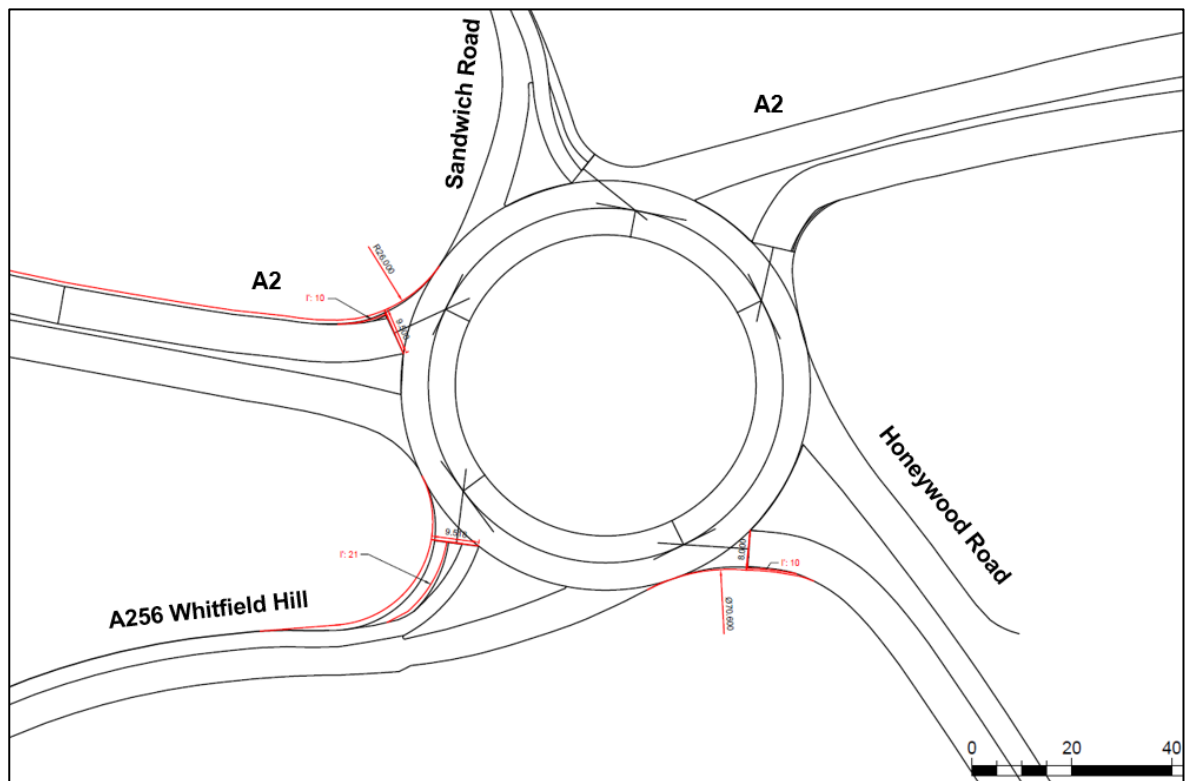
- 8.1. The site access roundabout layout has been capacity assessed using the Junctions10 software package. The output from this modelling is included as Appendix A to this TN.
- 8.2. The results of the modelling show that all arms of the junction are predicted to operate within capacity in both the AM and PM peak hours in 2040.
- 8.3. Hence the layout and modelling described above demonstrate that in principle a site access roundabout junction is considered feasible to serve the proposed development. This modelling can be reviewed and refined during the preparation of a planning application to reflect the application proposals and the agreed residual traffic generation that needs to be assessed following scoping with National Highways.

9. Whitfield roundabout

- 9.1. The Local Plan forecast modelling report contains 2040 modelling information for the A2 Whitfield roundabout, including mitigation modelling. This Local Plan data has been referred to for modelling the effect of the development proposals at Whitfield roundabout.
- 9.2. Stantec have developed a Junctions10 model for Whitfield roundabout based upon the existing layout of the junction. The geometry and resulting saturation flows and slope intercept values from the Whitfield roundabout model used in the Local Plan assessments have been provided by National Highways and this data has been adopted within the modelling. The Local Plan traffic flows have been used to demonstrate baseline conditions in 2040.
- 9.3. The model output is included at Appendix B. The results of the modelling show that the junction is predicted to operate in excess of capacity during both peak hours.
- 9.4. The development traffic has been distributed at Whitfield roundabout and is predicted to increase traffic flows at this roundabout by 208 and 128 PCUs in the AM and PM peaks respectively, increasing traffic flows by 4.3% and 2.7% compared to the baseline.
- 9.5. The model has been re-run with the proposed development traffic added. The addition of the development worsens the operation of the junction compared to the baseline and would require mitigation. The model output is also included at Appendix B.
- 9.6. The baseline model has been re-run with a potential nil detriment mitigation scheme as summarised and illustrated below.
- A2 west entry width increased from 9.03m to 9.50m, flare length increased from 2.7m to 10.0m.
 - Honeywood Road entry width increased from 7.41m to 8.00m, flare length increased from 1.2m to 10.0m.
 - A256 Whitfield Hill entry width increased from 8.85m to 9.00m, flare length increased from 15.7m to 21.0m.

TECHNICAL NOTE

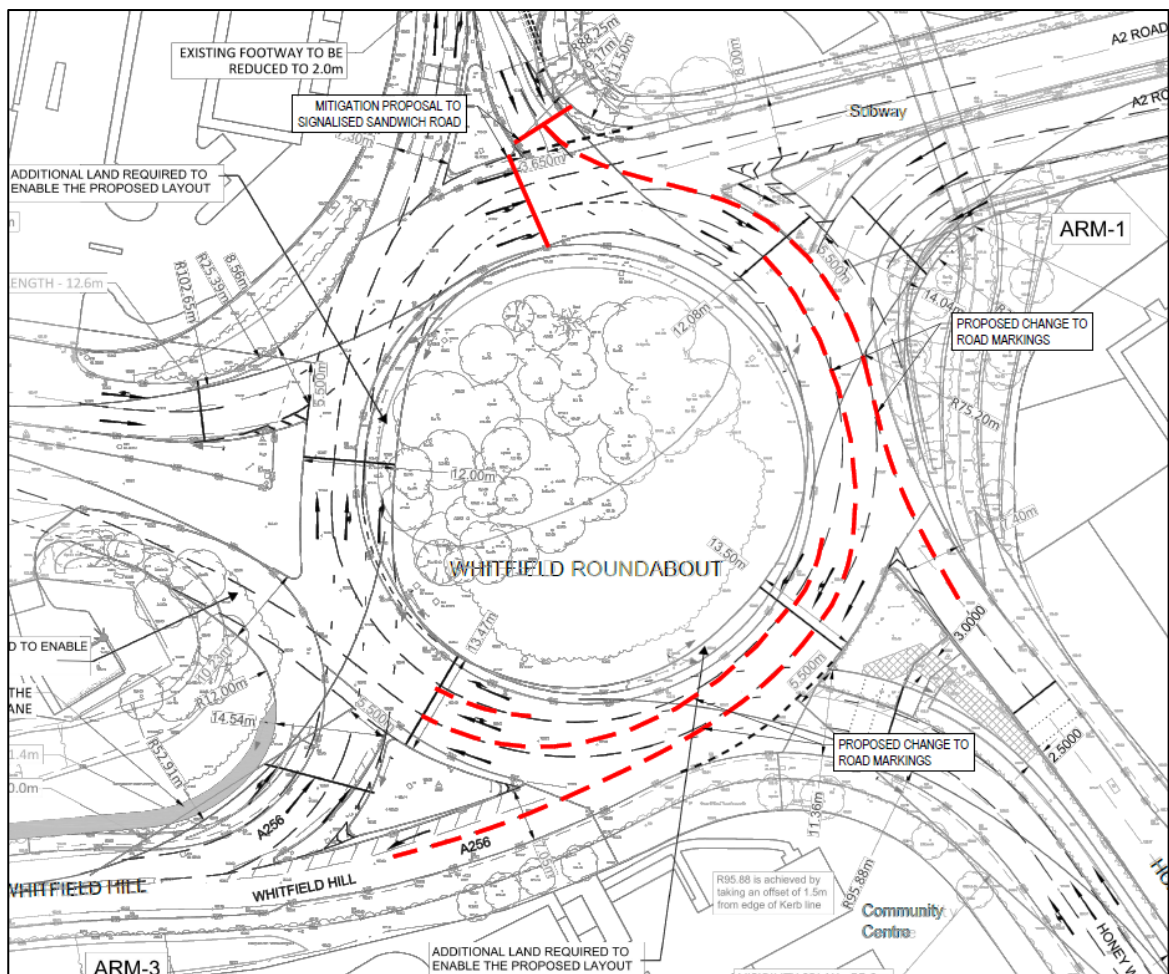
- 9.7. The results of the modelling are included as Appendix C and demonstrate that the mitigation measures assessed would demonstrate a nil detriment (or better) scheme at this location.



Potential nil detriment scheme at Whitfield roundabout shown in red line

- 9.8. The Local Plan forecasting report also illustrates a mitigation scheme for Whitfield roundabout that is predicted to offset the effect of Local Plan traffic through the use of signal control. Stantec have replicated the modelling used within the Local Plan to assess the potential effects of the proposed development.
- 9.9. Further modelling was completed to optimise the signal timings of the Local Plan scheme and to add a number of physical changes that may be possible to mitigate the effect of the proposed development. The following changes were modelled.
- Change Sandwich Road from give way to signal control.
 - Change conflicting circulatory from bottleneck to signal controlled traffic streams.
 - Add new controller to control these conflicting sections.
 - Change connector pathing at Sandwich Road to move traffic heading into the middle lane on the circulatory at the A2 east from the nearside to outside lane.
 - Change connector pathing at the circulatory adjacent to the A2 east entry moving the middle lane to middle lane circulatory movement to the outside lane to allow traffic to spiral outwards.
 - Change of connector pathing at the circulatory adjacent to the Honeywood Road entry moving the middle lane to middle lane circulatory movement to the outside lane to allow traffic to spiral outwards.
- 9.10. The additional mitigation highlighted above is illustrated below by red lining.

TECHNICAL NOTE



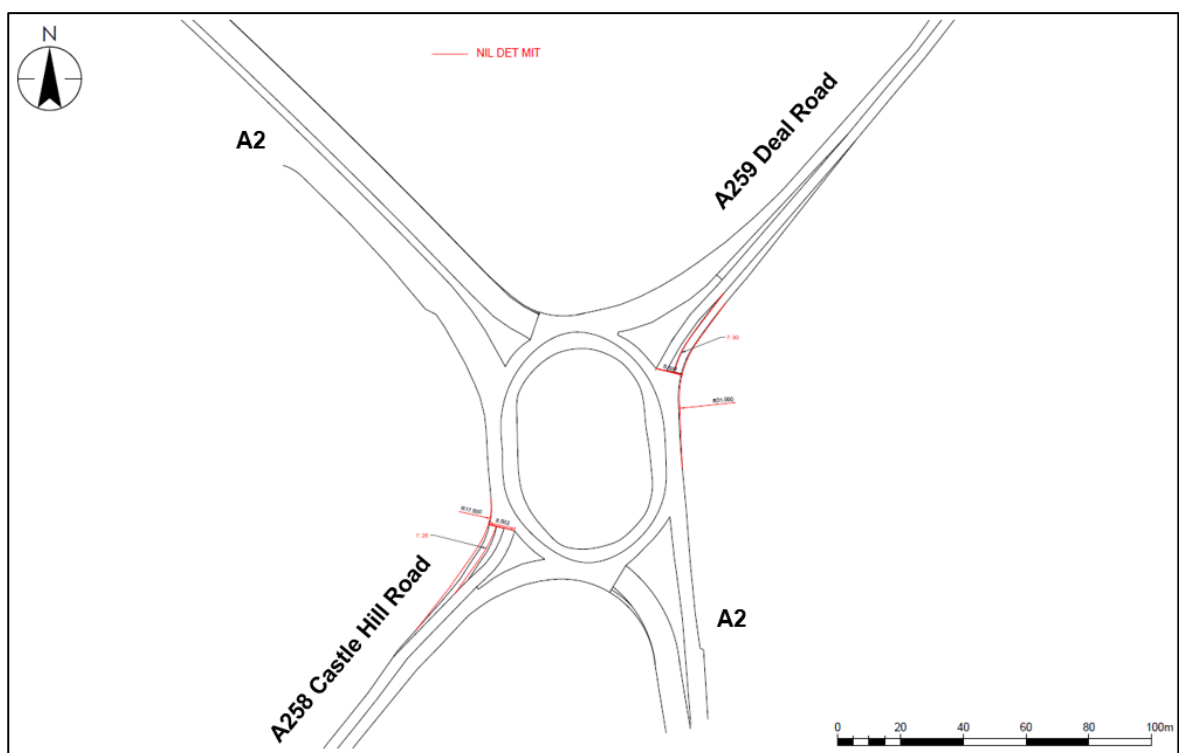
- 9.11. The main objective of these changes is to rebalance the traffic around the circulatory allowing for shorter cycle times and reduced queuing. With the further mitigation measures described above the junction is predicted to work within capacity. The modelling and outputs have been provided to National Highways for review.
- 9.12. Hence, the modelling described above demonstrates that additional works at the Whitfield roundabout (over and above the Local Plan scheme) could offset the effects of the proposed development, and potentially allow the roundabout to work in absolute capacity terms.
- 9.13. At the time of preparing a planning application it would be necessary to undertake crash data analysis and submit a Road Safety Audit for any mitigation works proposed at this roundabout. However, at this stage it is considered that the modelling completed is an appropriate level of detail to demonstrate the principle of development traffic effects and its potential mitigation.

10. Duke of York roundabout

- 10.1. The Local Plan forecast modelling report contains 2040 modelling information for the Duke of York roundabout, including mitigation modelling. This Local Plan data has been referred to for modelling the effect of the development proposals at the Duke of York roundabout.
- 10.2. Stantec have developed a Junctions10 model for the Duke of York roundabout based upon the existing layout of the junction based upon the model parameters within the Local Plan Regulation 19 document. The results of the modelling are included as Appendix D and show that the junction is predicted to exceed capacity during the morning peak hour.

TECHNICAL NOTE

- 10.3. Development traffic has been distributed at the Duke of York roundabout and this accounts for an increase of 120 and 72 PCUs in the AM and PM peaks respectively, increasing traffic flows by 2.7% and 1.8%.
- 10.4. The baseline model has been re-run with the proposed development traffic added. The addition of the development worsens the operation of the junction compared to the baseline and would require mitigation.
- 10.5. The baseline model has been re-run with the proposed development traffic added and a nil detriment mitigation scheme as described and illustrated below:
- A259 Deal Road entry width increased from 8.20m to 8.50m.
 - A258 Castle Hill Road entry width increased from 8.20m to 8.50m and flare length increased from 19.1m to 25.0m.



Potential nil detriment scheme at Duke of York roundabout shown in red line

- 10.6. The results of the modelling are included as Appendix E and show that the mitigation measures assessed would demonstrate a nil detriment (or better) scheme at this location.
- 10.7. The Local Plan forecasting report also illustrates a mitigation scheme for the Duke of York roundabout that is predicted to offset the effect of Local Plan traffic through the use of signal control. Stantec have replicated the modelling used within the Local Plan to assess the potential effects of the proposed development.
- 10.8. The modelling demonstrates that the proposed Local Plan scheme at the Duke of York roundabout would also provide sufficient capacity for the proposed development.

TECHNICAL NOTE

- 10.9. At the time of preparing a planning application it would be necessary to undertake crash data analysis and submit a Road Safety Audit for any mitigation works proposed at this roundabout. However, at this stage it is considered that the modelling completed is an appropriate level of detail to demonstrate the principle of development traffic effects and its potential mitigation.

11. Travel Plan

- 11.1. At the time of preparing a planning application a Travel Plan will be scoped and agreed with National Highways and KCC and prepared for the development proposals. The Travel Plan will identify measures and initiatives (linked to the "Vision" for the site) to reduce the traffic effect of development and maximise the use of sustainable transport modes.
- 11.2. Targets for achieving a modal shift to sustainable transport modes would be set and these would be the subject of a monitor and manage process in line with circular 01/22. The Travel Plan would look to build upon and enhance the existing sustainable transport options within Whitfield and the local surrounds.
- 11.3. A number of existing bus services serve the Whitfield area, including services 12, 980 and 982 which pass along the frontage of the site on the A2. There may be potential to reroute these services into the site or incorporate a stop within the site access junction.
- 11.4. In preparing a planning application, discussions would be held with the KCC public transport team and local transport providers. This may result in support to existing local services or support to new services.
- 11.5. In March 2021, plans were approved by Kent County Council for the Dover Fastrack network to come forward. This will provide infrastructure between Dover Priory station and Whitfield for a new electric bus service to operate on a dedicated route. This new infrastructure will provide greater accessibility to and from Whitfield through a new dedicated, high speed network from Dover Priory rail station.
- 11.6. Stagecoach and KCC have also been looking at how to improve the connectivity to Dover from the more rural areas around Dover. The option being considered is a Demand Responsive Transport service which will be trialled in Aylesham. This may be extended to other rural areas within the district if successful. The proposed development could provide support to such new public transport services through increased patronage.
- 11.7. There is a Public Right of Way network serving the Whitfield area of Dover. Footpath ER182 runs along the west boundary of the site and connects Whitfield, to the north, with the site and Temple Ewell to the south.
- 11.8. Use of ER182 currently requires uncontrolled crossing movements of the A2. The provision of a site access junction in this location could incorporate a safer facility for pedestrian, and potentially cycle, movements.
- 11.9. The build out of the Whitfield Urban Extension will create a new network of footways and cycleways surrounding Whitfield to the north of the site, as well as providing a potential catchment area for local employees.

12. Summary

- 12.1. The technical transport planning work described above provides evidence, at an appropriate level of detail at this stage, that an access junction could be provided to serve proposed development and that mitigation of its effects off site could be provided.

TECHNICAL NOTE

- 12.2. The technical transport planning work described above further demonstrates that positive progress and engagement has been completed with National Highways in deriving a site access to serve the proposed development and in demonstrating potential off site effects and mitigation.
- 12.3. Whilst there would be further detailed work to undertake at planning application stage to receive National Highways acceptance of the access and off site mitigation proposals, at this stage it is possible to state the following:
- National Highways have positively engaged with Stantec in providing advice and guidance on the proposals for a site access on the A2 and off site mitigation works.
 - National Highways have not ruled out the principle of gaining an access directly from the A2 as demonstrated. Instead, National Highways have confirmed that they would treat such a proposal on the A2 on its merits and after considering circular 01/22, modelling evidence and design standards (as would be the case with any other proposal on the strategic road network).
 - A site access junction layout comprising a three arm conventional roundabout could be accommodated within the site frontage available to the development site.
 - The site access roundabout layout described within this technical note has been demonstrated to conform to the principal geometric parameters contained within the design standards in document CD116.
 - A Travel Plan will be scoped and agreed with National Highways and KCC and prepared for the development proposals to support a planning application. The Travel Plan will identify measures and initiatives (linked to the “Vision” for the site) to reduce the traffic effect of development and maximise the use of sustainable transport modes.
 - A number of existing bus services serve the Whitfield area and there may be potential to reroute these services into the site or incorporate a stop within the site access junction. The additional patronage from the site will further support these services.
 - Stagecoach and KCC have been looking at how to improve the connectivity to Dover from the more rural areas around Dover using a Demand Responsive Transport service. The proposed development could provide support to such new public transport services through increased patronage.
 - Use of the existing footpath ER182 currently requires uncontrolled crossing movements of the A2. The provision of a site access junction in this location could incorporate a safer facility for pedestrian, and potentially cycle, movements.
 - The build out of the Whitfield Urban Extension will create a new network of footways and cycleways surrounding Whitfield to the north of the site, as well as providing a potential catchment area for local employees.
 - At the time of preparing a planning application it is proposed that additional work tasks would be completed and / or information would be submitted as follows:
 - Definition of a refined masterplan for the site illustrating land use mix and quanta.
 - Detailed scoping exercise with National Highways to agree a “Vision” for the proposed masterplan.
 - Agree trip generation and distribution parameters with National Highways and KCC that reflect the masterplan proposals seeking permission.

TECHNICAL NOTE

- Agreement with National Highways and KCC with respect to the detailed modelling input parameters suitable for its assessment.
- Refine the site access junction layout based upon updated modelling to reflect the application proposals.
- Refine the off site mitigation works based upon updated modelling to reflect the application proposals.
- Road Safety Audit (Stage 1) and Designers Response for the site access junction and off site mitigation works.
- Updated junction modelling (site access and off site) to reflect the masterplan proposed.
- Full and detailed Transport Assessment.
- Full and detailed Travel Plan.

Appendix A

<h1>Junctions 10</h1>
<h2>ARCADY 10 - Roundabout Module</h2>
Version: 10.0.4.1693 © Copyright TRL Software Limited, 2021
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Filename: Site Access.j10

Path: J:\332410944 - RE - Land South of A2 Whitfield Dover\BRIEF 0001 - TRANSPORT\MODELLING\TRANSPORT\03. JUNCTION 9\Site Access

Report generation date: 17/10/2023 15:26:00

» 2040 + Dev, AM

» 2040 + Dev, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
2040 + Dev										
1 - A2 West	D1	3.1	7.58	0.76	A	D2	2.1	6.11	0.68	A
2 - A2 East		2.8	6.39	0.74	A		1.2	3.55	0.55	A
3 - Site Access		0.4	8.65	0.27	A		2.7	20.04	0.73	C

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.

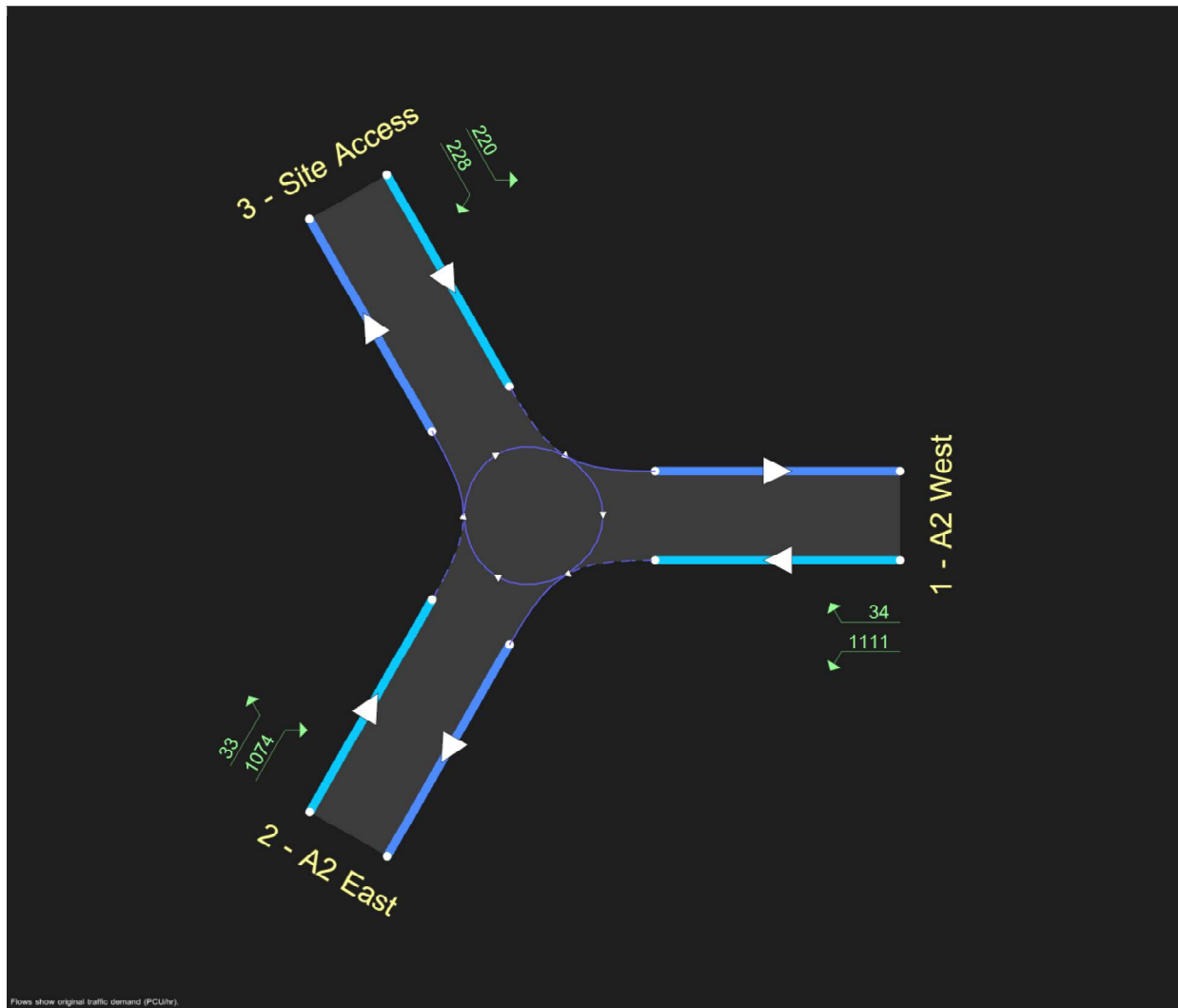
File summary

File Description

Title	
Location	
Site number	
Date	24/01/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\dansmith
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



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75						0.85	36.00	20.00		500

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	2040 + Dev	AM	ONE HOUR	00:00	01:30	15	✓
D2	2040 + Dev	PM	ONE HOUR	00:00	01:30	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2040 + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	7.05	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	7.05	A

Arms

Arms

Arm	Name	Description	No give-way line
1	A2 West		
2	A2 East		
3	Site Access		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - A2 West	7.00	7.43	0.9	15.2	60.0	49.0		
2 - A2 East	7.00	7.77	3.2	37.8	60.0	36.0		
3 - Site Access	3.75	4.44	2.0	20.0	60.0	30.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A2 West	0.587	1996
2 - A2 East	0.654	2258
3 - Site Access	0.476	1235

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	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2040 + Dev	AM	ONE HOUR	00:00	01:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A2 West		ONE HOUR	✓	1342	100.000
2 - A2 East		ONE HOUR	✓	1434	100.000
3 - Site Access		ONE HOUR	✓	143	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To		
	1 - A2 West	2 - A2 East	3 - Site Access
1 - A2 West	0	1180	162
2 - A2 East	1261	0	173
3 - Site Access	74	69	0

Vehicle Mix

Heavy Vehicle Percentages

From	To		
	1 - A2 West	2 - A2 East	3 - Site Access
1 - A2 West	0	0	0
2 - A2 East	0	0	0
3 - Site Access	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A2 West	0.76	7.58	3.1	A	1231	1847
2 - A2 East	0.74	6.39	2.8	A	1316	1974
3 - Site Access	0.27	8.65	0.4	A	131	197

Main Results for each time segment

00:00 - 00:15

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 - A2 West	1010	253	52	1966	0.514	1006	1001	0.0	1.0	3.733	A
2 - A2 East	1080	270	121	2179	0.496	1076	936	0.0	1.0	3.254	A
3 - Site Access	108	27	946	784	0.137	107	251	0.0	0.2	5.312	A

00:15 - 00:30

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 - A2 West	1206	302	62	1960	0.616	1204	1198	1.0	1.6	4.750	A
2 - A2 East	1289	322	145	2163	0.596	1287	1121	1.0	1.5	4.101	A
3 - Site Access	129	32	1132	696	0.185	128	301	0.2	0.2	6.343	A

00:30 - 00:45

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 - A2 West	1478	369	76	1952	0.757	1472	1465	1.6	3.0	7.409	A
2 - A2 East	1579	395	178	2142	0.737	1574	1370	1.5	2.7	6.281	A
3 - Site Access	157	39	1384	576	0.274	157	368	0.2	0.4	8.586	A

00:45 - 01:00

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 - A2 West	1478	369	76	1952	0.757	1477	1470	3.0	3.1	7.577	A
2 - A2 East	1579	395	178	2141	0.737	1579	1375	2.7	2.8	6.393	A
3 - Site Access	157	39	1388	573	0.275	157	369	0.4	0.4	8.653	A

01:00 - 01:15

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 - A2 West	1206	302	62	1960	0.616	1212	1205	3.1	1.6	4.851	A
2 - A2 East	1289	322	146	2162	0.596	1294	1128	2.8	1.5	4.170	A
3 - Site Access	129	32	1138	693	0.186	129	302	0.4	0.2	6.394	A

01:15 - 01:30

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 - A2 West	1010	253	52	1966	0.514	1013	1007	1.6	1.1	3.787	A
2 - A2 East	1080	270	122	2178	0.496	1082	942	1.5	1.0	3.290	A
3 - Site Access	108	27	951	782	0.138	108	253	0.2	0.2	5.346	A

2040 + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	7.37	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	7.37	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2040 + Dev	PM	ONE HOUR	00:00	01:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A2 West		ONE HOUR	✓	1145	100.000
2 - A2 East		ONE HOUR	✓	1107	100.000
3 - Site Access		ONE HOUR	✓	448	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A2 West	2 - A2 East	3 - Site Access
From	1 - A2 West	0	1111	34
	2 - A2 East	1074	0	33
	3 - Site Access	220	228	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A2 West	2 - A2 East	3 - Site Access
From	1 - A2 West	0	0	0
	2 - A2 East	0	0	0
	3 - Site Access	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A2 West	0.68	6.11	2.1	A	1051	1576
2 - A2 East	0.55	3.55	1.2	A	1016	1524
3 - Site Access	0.73	20.04	2.7	C	411	617

Main Results for each time segment

00:00 - 00:15

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 - A2 West	862	216	170	1896	0.455	859	971	0.0	0.8	3.457	A
2 - A2 East	833	208	25	2241	0.372	831	1004	0.0	0.6	2.548	A
3 - Site Access	337	84	806	851	0.396	335	50	0.0	0.6	6.941	A

00:15 - 00:30

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 - A2 West	1029	257	204	1877	0.549	1028	1162	0.8	1.2	4.233	A
2 - A2 East	995	249	31	2238	0.445	994	1201	0.6	0.8	2.893	A
3 - Site Access	403	101	965	775	0.519	401	60	0.6	1.1	9.578	A

00:30 - 00:45

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 - A2 West	1261	315	248	1851	0.681	1257	1420	1.2	2.1	6.027	A
2 - A2 East	1219	305	37	2234	0.546	1217	1468	0.8	1.2	3.531	A
3 - Site Access	493	123	1181	672	0.734	487	74	1.1	2.6	18.877	C

00:45 - 01:00

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 - A2 West	1261	315	251	1849	0.682	1261	1425	2.1	2.1	6.114	A
2 - A2 East	1219	305	37	2234	0.546	1219	1474	1.2	1.2	3.546	A
3 - Site Access	493	123	1182	672	0.735	493	74	2.6	2.7	20.036	C

01:00 - 01:15

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 - A2 West	1029	257	208	1874	0.549	1033	1168	2.1	1.2	4.296	A
2 - A2 East	995	249	31	2238	0.445	997	1210	1.2	0.8	2.905	A
3 - Site Access	403	101	967	774	0.520	409	60	2.7	1.1	10.016	B

01:15 - 01:30

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 - A2 West	862	216	173	1895	0.455	864	976	1.2	0.8	3.497	A
2 - A2 East	833	208	26	2241	0.372	834	1010	0.8	0.6	2.561	A
3 - Site Access	337	84	809	849	0.397	339	51	1.1	0.7	7.078	A

Appendix B

Junctions 10
ARCADY 10 - Roundabout Module
Version: 10.1.0.1820 © Copyright TRL Software Limited, 2023
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Filename: Whitfield Roundabout (Local Plan Geo).j10
Path: J:\332410944 - RE - Land South of A2 Whitfield Dover\BRIEF 0001 - TRANSPORT\MODELLING\TRANSPORT\03.
 JUNCTION 9
Report generation date: 11/10/2023 13:11:54

- »2017 Base Year, AM
- »2017 Base Year, PM
- »2040 DS1, AM
- »2040 DS1, PM
- »2040 DS1 + DEV, AM
- »2040 DS1 + DEV, PM

Summary of junction performance

	AM				PM			
	Q (PCU)	Delay (s)	RFC	Junction Delay (s)	Q (PCU)	Delay (s)	RFC	Junction Delay (s)
2017 Base Year								
1 - A2 West	10.9	32.61	0.93	29.12	4.4	15.83	0.82	20.44
2 - Sandwich Road	8.4	41.83	0.92		1.1	8.03	0.53	
3 - A2 east	1.3	5.06	0.56		0.7	3.36	0.41	
4 - Honeywood Road	3.2	14.52	0.76		2.9	11.20	0.74	
5 - A256 Whitfield Hill	11.3	54.58	0.95		13.6	57.81	0.96	
2040 DS1								
1 - A2 West	12.9	38.24	0.94	148.01	13.3	41.76	0.95	290.13
2 - Sandwich Road	3.2	18.31	0.77		1.0	7.91	0.50	
3 - A2 east	3.2	8.74	0.75		2.0	5.79	0.66	
4 - Honeywood Road	123.9	371.06	1.27		69.4	195.71	1.12	
5 - A256 Whitfield Hill	74.1	342.16	1.19		261.3	1078.20	1.53	
2040 DS1 + DEV								
1 - A2 West	15.4	43.19	0.96	222.66	33.9	89.30	1.02	313.86
2 - Sandwich Road	3.6	20.43	0.79		1.1	8.39	0.52	
3 - A2 east	4.4	11.50	0.81		2.2	6.11	0.67	
4 - Honeywood Road	176.8	585.44	1.41		80.6	227.00	1.15	
5 - A256 Whitfield Hill	102.7	525.96	1.28		272.5	1127.53	1.54	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted Av.s.

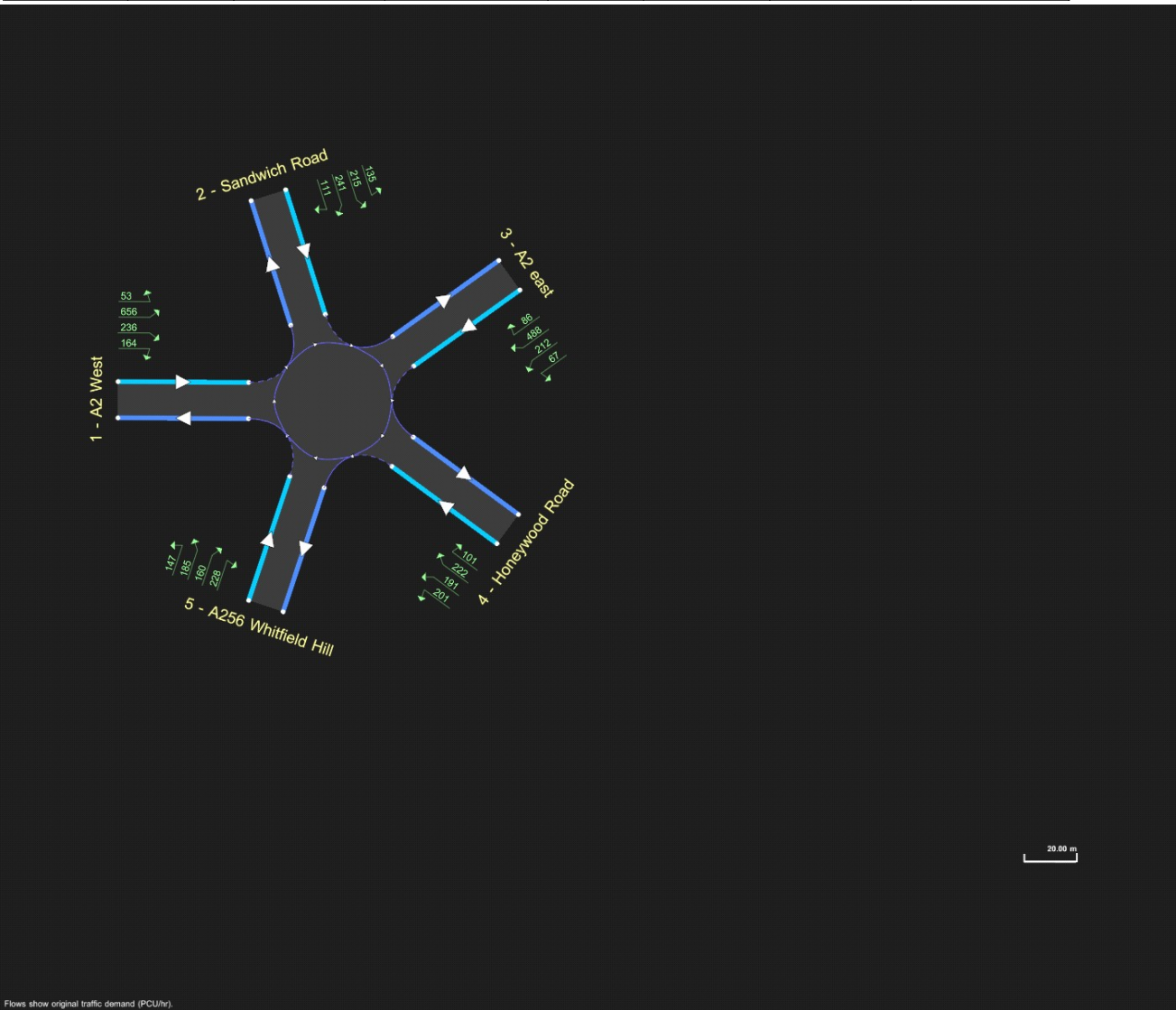
File summary

File Description

Title	
Location	
Site number	
Date	13/06/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\dansmith
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75						0.85	36.00	20.00		500

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	2017 Base Year	AM	ONE HOUR	00:00	01:30	15	✓
D2	2017 Base Year	PM	ONE HOUR	00:00	01:30	15	✓
D3	2040 DS1	AM	ONE HOUR	00:00	01:30	15	✓
D4	2040 DS1	PM	ONE HOUR	00:00	01:30	15	✓
D5	2040 DS1 + DEV	AM	ONE HOUR	00:00	01:30	15	✓
D6	2040 DS1 + DEV	PM	ONE HOUR	00:00	01:30	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2017 Base Year, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Whitfield Roundabout	Standard Roundabout		1, 2, 3, 4, 5	29.12	D

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	29.12	D

Arms

Arms

Arm	Name	Description	No give-way line
1	A2 West		
2	Sandwich Road		
3	A2 east		
4	Honeywood Road		
5	A256 Whitfield Hill		

Roundabout Geometry

Arm	V (m)	E (m)	I' (m)	R (m)	D (m)	PHI (deg)	Entry only	Exit only
1 - A2 West	7.58	9.03	2.7	26.0	82.0	23.0		
2 - Sandwich Road	3.19	7.71	18.3	12.2	82.0	34.5		
3 - A2 east	7.95	8.73	12.1	15.3	82.0	37.0		
4 - Honeywood Road	7.27	7.41	1.2	35.3	82.0	27.0		
5 - A256 Whitfield Hill	3.31	8.85	15.7	20.7	82.0	44.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A2 West	0.599	2546
2 - Sandwich Road	0.450	1650
3 - A2 east	0.576	2502
4 - Honeywood Road	0.563	2304
5 - A256 Whitfield Hill	0.459	1707

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
1 - A2 West	Direct		-500
4 - Honeywood Road	Direct		-400
5 - A256 Whitfield Hill	Direct		-220

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	2017 Base Year	AM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - A2 West		ONE HOUR	✓	1169	100.000
2 - Sandwich Road		ONE HOUR	✓	705	100.000
3 - A2 east		ONE HOUR	✓	860	100.000
4 - Honeywood Road		ONE HOUR	✓	732	100.000
5 - A256 Whitfield Hill		ONE HOUR	✓	720	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A2 West	2 - Sandwich Road	3 - A2 east	4 - Honeywood Road	5 - A256 Whitfield Hill
From	1 - A2 West	60	53	656	236	164
	2 - Sandwich Road	111	3	135	215	241
	3 - A2 east	488	86	7	67	212
	4 - Honeywood Road	191	222	101	17	201
	5 - A256 Whitfield Hill	147	185	160	228	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To				
		1 - A2 West	2 - Sandwich Road	3 - A2 east	4 - Honeywood Road	5 - A256 Whitfield Hill
From	1 - A2 West	0	2	9	2	2
	2 - Sandwich Road	2	0	2	2	2
	3 - A2 east	9	2	0	2	2
	4 - Honeywood Road	2	2	2	0	2
	5 - A256 Whitfield Hill	2	2	2	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A2 West	0.93	32.61	10.9	D	1073	1609
2 - Sandwich Road	0.92	41.83	8.4	E	647	970
3 - A2 east	0.56	5.06	1.3	A	789	1184
4 - Honeywood Road	0.76	14.52	3.2	B	672	1008
5 - A256 Whitfield Hill	0.95	54.58	11.3	F	661	991

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	880	220	755	1594	0.552	875	747	0.0	1.3	5.257	A
2 - Sandwich Road	531	133	1219	1102	0.482	527	411	0.0	0.9	6.351	A
3 - A2 east	647	162	953	1953	0.331	645	792	0.0	0.5	2.908	A
4 - Honeywood Road	551	138	1028	1326	0.416	548	571	0.0	0.7	4.704	A
5 - A256 Whitfield Hill	542	136	964	1045	0.519	538	613	0.0	1.1	7.176	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1051	263	903	1505	0.698	1047	894	1.3	2.4	8.220	A
2 - Sandwich Road	634	158	1458	994	0.638	631	492	0.9	1.7	10.017	B
3 - A2 east	773	193	1141	1845	0.419	772	948	0.5	0.8	3.546	A
4 - Honeywood Road	658	165	1230	1212	0.543	656	683	0.7	1.2	6.580	A
5 - A256 Whitfield Hill	647	162	1153	958	0.675	643	733	1.1	2.0	11.513	B

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1287	322	1085	1396	0.922	1260	1084	2.4	9.1	24.260	C
2 - Sandwich Road	776	194	1751	862	0.901	756	594	1.7	6.8	30.268	D
3 - A2 east	947	237	1368	1715	0.552	945	1140	0.8	1.3	4.935	A
4 - Honeywood Road	806	201	1493	1064	0.758	799	819	1.2	3.0	13.485	B
5 - A256 Whitfield Hill	793	198	1405	843	0.940	765	887	2.0	9.1	37.889	E

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1287	322	1103	1385	0.929	1280	1094	9.1	10.9	32.612	D
2 - Sandwich Road	776	194	1782	848	0.915	770	602	6.8	8.4	41.827	E
3 - A2 east	947	237	1393	1700	0.557	947	1159	1.3	1.3	5.056	A
4 - Honeywood Road	806	201	1506	1057	0.763	805	834	3.0	3.2	14.518	B
5 - A256 Whitfield Hill	793	198	1414	839	0.945	784	897	9.1	11.3	54.583	F

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1051	263	940	1483	0.709	1084	913	10.9	2.7	10.276	B
2 - Sandwich Road	634	158	1517	967	0.655	659	507	8.4	2.0	12.855	B
3 - A2 east	773	193	1192	1816	0.426	775	985	1.3	0.8	3.670	A
4 - Honeywood Road	658	165	1255	1198	0.549	666	712	3.2	1.3	6.985	A
5 - A256 Whitfield Hill	647	162	1169	951	0.680	683	751	11.3	2.3	15.423	C

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	880	220	764	1588	0.554	885	754	2.7	1.3	5.456	A
2 - Sandwich Road	531	133	1234	1095	0.485	535	415	2.0	1.0	6.609	A
3 - A2 east	647	162	967	1946	0.333	648	802	0.8	0.5	2.939	A
4 - Honeywood Road	551	138	1037	1321	0.417	553	578	1.3	0.7	4.796	A
5 - A256 Whitfield Hill	542	136	971	1042	0.520	547	619	2.3	1.1	7.480	A

2017 Base Year, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Whitfield Roundabout	Standard Roundabout		1, 2, 3, 4, 5	20.44	C

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	20.44	C

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	2017 Base Year	PM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - A2 West		ONE HOUR	✓	956	100.000
2 - Sandwich Road		ONE HOUR	✓	473	100.000
3 - A2 east		ONE HOUR	✓	715	100.000
4 - Honeywood Road		ONE HOUR	✓	851	100.000
5 - A256 Whitfield Hill		ONE HOUR	✓	812	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A2 West	2 - Sandwich Road	3 - A2 east	4 - Honeywood Road	5 - A256 Whitfield Hill
From	1 - A2 West	17	79	516	206	138
	2 - Sandwich Road	42	0	94	147	190
	3 - A2 east	401	102	4	70	138
	4 - Honeywood Road	172	242	117	4	316
	5 - A256 Whitfield Hill	124	328	183	175	2

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To				
From		1 - A2 West	2 - Sandwich Road	3 - A2 east	4 - Honeywood Road	5 - A256 Whitfield Hill
	1 - A2 West	0	2	9	2	2
	2 - Sandwich Road	2	0	2	2	2
	3 - A2 east	9	2	0	2	2
	4 - Honeywood Road	2	2	2	0	2
	5 - A256 Whitfield Hill	2	2	2	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A2 West	0.82	15.83	4.4	C	877	1316
2 - Sandwich Road	0.53	8.03	1.1	A	434	651
3 - A2 east	0.41	3.36	0.7	A	656	984
4 - Honeywood Road	0.74	11.20	2.9	B	781	1171
5 - A256 Whitfield Hill	0.96	57.81	13.6	F	745	1118

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	720	180	865	1528	0.471	716	567	0.0	0.9	4.663	A
2 - Sandwich Road	356	89	1019	1191	0.299	354	562	0.0	0.4	4.378	A
3 - A2 east	538	135	689	2105	0.256	537	684	0.0	0.4	2.426	A
4 - Honeywood Road	641	160	776	1468	0.437	638	451	0.0	0.8	4.405	A
5 - A256 Whitfield Hill	611	153	826	1109	0.551	606	588	0.0	1.2	7.244	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	859	215	1035	1426	0.603	857	678	0.9	1.6	6.652	A
2 - Sandwich Road	425	106	1220	1101	0.386	424	673	0.4	0.6	5.419	A
3 - A2 east	643	161	825	2027	0.317	642	819	0.4	0.5	2.750	A
4 - Honeywood Road	765	191	928	1382	0.554	763	539	0.8	1.2	5.916	A
5 - A256 Whitfield Hill	730	182	988	1034	0.706	726	703	1.2	2.3	11.727	B

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1053	263	1243	1302	0.809	1042	825	1.6	4.1	14.138	B
2 - Sandwich Road	521	130	1474	986	0.528	519	811	0.6	1.1	7.821	A
3 - A2 east	787	197	1001	1926	0.409	786	992	0.5	0.7	3.339	A
4 - Honeywood Road	937	234	1135	1266	0.740	931	653	1.2	2.8	10.775	B
5 - A256 Whitfield Hill	894	224	1207	934	0.958	860	858	2.3	10.7	39.134	E

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1053	263	1264	1289	0.817	1051	831	4.1	4.4	15.828	C
2 - Sandwich Road	521	130	1493	978	0.533	521	822	1.1	1.1	8.027	A
3 - A2 east	787	197	1011	1920	0.410	787	1003	0.7	0.7	3.361	A
4 - Honeywood Road	937	234	1138	1264	0.741	937	660	2.8	2.9	11.199	B
5 - A256 Whitfield Hill	894	224	1212	931	0.960	882	863	10.7	13.6	57.806	F

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	859	215	1080	1399	0.614	870	689	4.4	1.7	7.336	A
2 - Sandwich Road	425	106	1255	1085	0.392	427	696	1.1	0.7	5.597	A
3 - A2 east	643	161	843	2017	0.319	644	839	0.7	0.5	2.777	A
4 - Honeywood Road	765	191	933	1379	0.555	771	554	2.9	1.3	6.103	A
5 - A256 Whitfield Hill	730	182	995	1031	0.708	774	710	13.6	2.6	16.555	C

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	720	180	876	1521	0.473	723	571	1.7	1.0	4.782	A
2 - Sandwich Road	356	89	1031	1186	0.300	357	568	0.7	0.4	4.434	A
3 - A2 east	538	135	696	2101	0.256	539	691	0.5	0.4	2.438	A
4 - Honeywood Road	641	160	780	1465	0.437	643	455	1.3	0.8	4.472	A
5 - A256 Whitfield Hill	611	153	831	1106	0.553	617	592	2.6	1.3	7.577	A

2040 DS1, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Whitfield Roundabout	Standard Roundabout		1, 2, 3, 4, 5	148.01	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	148.01	F

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	2040 DS1	AM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - A2 West		ONE HOUR	✓	1180	100.000
2 - Sandwich Road		ONE HOUR	✓	598	100.000
3 - A2 east		ONE HOUR	✓	1208	100.000
4 - Honeywood Road		ONE HOUR	✓	1023	100.000
5 - A256 Whitfield Hill		ONE HOUR	✓	758	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A2 West	2 - Sandwich Road	3 - A2 east	4 - Honeywood Road	5 - A256 Whitfield Hill
From	1 - A2 West	60	54	662	238	166
	2 - Sandwich Road	94	3	115	182	204
	3 - A2 east	685	121	10	94	298
	4 - Honeywood Road	267	310	141	24	281
	5 - A256 Whitfield Hill	155	194	169	240	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To				
From		1 - A2 West	2 - Sandwich Road	3 - A2 east	4 - Honeywood Road	5 - A256 Whitfield Hill
	1 - A2 West	0	2	9	2	2
	2 - Sandwich Road	2	0	2	2	2
	3 - A2 east	9	2	0	2	2
	4 - Honeywood Road	2	2	2	0	2
	5 - A256 Whitfield Hill	2	2	2	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A2 West	0.94	38.24	12.9	E	1083	1624
2 - Sandwich Road	0.77	18.31	3.2	C	549	823
3 - A2 east	0.75	8.74	3.2	A	1108	1663
4 - Honeywood Road	1.27	371.06	123.9	F	939	1408
5 - A256 Whitfield Hill	1.19	342.16	74.1	F	696	1043

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	888	222	903	1505	0.590	882	943	0.0	1.5	6.055	A
2 - Sandwich Road	450	113	1277	1075	0.419	447	509	0.0	0.7	5.819	A
3 - A2 east	909	227	905	1981	0.459	906	819	0.0	0.9	3.531	A
4 - Honeywood Road	770	193	1230	1212	0.635	763	581	0.0	1.7	8.053	A
5 - A256 Whitfield Hill	571	143	1283	899	0.635	564	710	0.0	1.7	10.750	B

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1061	265	1071	1404	0.755	1054	1125	1.5	3.1	10.677	B
2 - Sandwich Road	538	134	1521	965	0.557	535	605	0.7	1.3	8.496	A
3 - A2 east	1086	271	1079	1881	0.577	1084	977	0.9	1.4	4.769	A
4 - Honeywood Road	920	230	1471	1076	0.854	906	692	1.7	5.2	20.075	C
5 - A256 Whitfield Hill	681	170	1530	786	0.867	667	847	1.7	5.4	27.962	D

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1299	325	1112	1380	0.942	1268	1292	3.1	10.9	28.363	D
2 - Sandwich Road	658	165	1739	867	0.759	651	641	1.3	3.0	16.512	C
3 - A2 east	1330	333	1266	1773	0.750	1323	1125	1.4	3.1	8.349	A
4 - Honeywood Road	1126	282	1791	896	1.257	890	798	5.2	64.4	152.820	F
5 - A256 Whitfield Hill	835	209	1709	703	1.187	694	971	5.4	40.4	134.294	F

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1299	325	1117	1377	0.943	1291	1298	10.9	12.9	38.235	E
2 - Sandwich Road	658	165	1764	856	0.769	657	644	3.0	3.2	18.315	C
3 - A2 east	1330	333	1281	1765	0.754	1330	1140	3.1	3.2	8.743	A
4 - Honeywood Road	1126	282	1804	889	1.267	888	806	64.4	123.9	371.056	F
5 - A256 Whitfield Hill	835	209	1715	701	1.191	700	978	40.4	74.1	303.346	F

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1061	265	1186	1336	0.794	1095	1184	12.9	4.4	17.658	C
2 - Sandwich Road	538	134	1614	924	0.582	545	667	3.2	1.5	9.858	A
3 - A2 east	1086	271	1124	1855	0.585	1093	1035	3.2	1.5	5.040	A
4 - Honeywood Road	920	230	1491	1065	0.864	1056	725	123.9	89.7	358.092	F
5 - A256 Whitfield Hill	681	170	1648	731	0.932	722	900	74.1	64.1	342.162	F

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	888	222	1230	1309	0.679	897	1083	4.4	2.3	9.406	A
2 - Sandwich Road	450	113	1457	994	0.453	453	670	1.5	0.9	6.806	A
3 - A2 east	909	227	987	1934	0.470	912	923	1.5	0.9	3.734	A
4 - Honeywood Road	770	193	1240	1206	0.638	1121	658	89.7	2.0	119.609	F
5 - A256 Whitfield Hill	571	143	1548	777	0.734	765	813	64.1	15.5	192.999	F

2040 DS1, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Whitfield Roundabout	Standard Roundabout		1, 2, 3, 4, 5	290.13	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	290.13	F

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
D4	2040 DS1	PM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - A2 West		ONE HOUR	✓	1111	100.000
2 - Sandwich Road		ONE HOUR	✓	424	100.000
3 - A2 east		ONE HOUR	✓	1152	100.000
4 - Honeywood Road		ONE HOUR	✓	1038	100.000
5 - A256 Whitfield Hill		ONE HOUR	✓	1042	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A2 West	2 - Sandwich Road	3 - A2 east	4 - Honeywood Road	5 - A256 Whitfield Hill
From	1 - A2 West	20	92	600	239	160
	2 - Sandwich Road	38	0	84	132	170
	3 - A2 east	646	165	6	113	222
	4 - Honeywood Road	210	295	143	5	385
	5 - A256 Whitfield Hill	160	421	234	224	3

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To				
From		1 - A2 West	2 - Sandwich Road	3 - A2 east	4 - Honeywood Road	5 - A256 Whitfield Hill
	1 - A2 West	0	2	9	2	2
	2 - Sandwich Road	2	0	2	2	2
	3 - A2 east	9	2	0	2	2
	4 - Honeywood Road	2	2	2	0	2
	5 - A256 Whitfield Hill	2	2	2	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A2 West	0.95	41.76	13.3	E	1019	1529
2 - Sandwich Road	0.50	7.91	1.0	A	389	584
3 - A2 east	0.66	5.79	2.0	A	1057	1586
4 - Honeywood Road	1.12	195.71	69.4	F	952	1429
5 - A256 Whitfield Hill	1.53	1078.20	261.3	F	956	1434

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	836	209	1110	1381	0.605	830	803	0.0	1.6	6.821	A
2 - Sandwich Road	319	80	1216	1103	0.290	318	723	0.0	0.4	4.668	A
3 - A2 east	867	217	739	2077	0.418	864	795	0.0	0.8	3.133	A
4 - Honeywood Road	781	195	1072	1301	0.601	775	531	0.0	1.5	6.911	A
5 - A256 Whitfield Hill	784	196	1144	963	0.815	768	703	0.0	4.0	17.674	C

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	999	250	1259	1292	0.773	992	948	1.6	3.4	12.366	B
2 - Sandwich Road	381	95	1418	1012	0.377	380	832	0.4	0.6	5.809	A
3 - A2 east	1036	259	866	2003	0.517	1034	932	0.8	1.1	3.924	A
4 - Honeywood Road	933	233	1282	1183	0.789	925	618	1.5	3.6	13.823	B
5 - A256 Whitfield Hill	937	234	1367	860	1.089	840	840	4.0	28.3	85.131	F

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1223	306	1257	1293	0.946	1192	1092	3.4	11.1	30.902	D
2 - Sandwich Road	467	117	1578	940	0.497	465	871	0.6	1.0	7.714	A
3 - A2 east	1268	317	992	1931	0.657	1265	1051	1.1	2.0	5.690	A
4 - Honeywood Road	1143	286	1564	1024	1.116	1005	693	3.6	37.9	87.004	F
5 - A256 Whitfield Hill	1147	287	1593	757	1.516	756	977	28.3	126.0	378.225	F

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1223	306	1259	1292	0.947	1215	1096	11.1	13.3	41.756	E
2 - Sandwich Road	467	117	1598	931	0.502	467	875	1.0	1.0	7.912	A
3 - A2 east	1268	317	1001	1926	0.659	1268	1064	2.0	2.0	5.790	A
4 - Honeywood Road	1143	286	1572	1020	1.121	1017	698	37.9	69.4	195.707	F
5 - A256 Whitfield Hill	1147	287	1603	752	1.525	752	986	126.0	224.8	825.165	F

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	999	250	1318	1257	0.795	1034	991	13.3	4.4	19.324	C
2 - Sandwich Road	381	95	1469	989	0.385	383	883	1.0	0.6	6.072	A
3 - A2 east	1036	259	875	1999	0.518	1039	977	2.0	1.1	3.983	A
4 - Honeywood Road	933	233	1295	1176	0.794	1159	619	69.4	13.0	133.201	F
5 - A256 Whitfield Hill	937	234	1519	791	1.185	791	935	224.8	261.3	1078.203	F

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	836	209	1280	1280	0.654	846	843	4.4	2.0	8.949	A
2 - Sandwich Road	319	80	1315	1058	0.302	320	810	0.6	0.4	4.981	A
3 - A2 east	867	217	785	2050	0.423	869	850	1.1	0.8	3.226	A
4 - Honeywood Road	781	195	1080	1296	0.603	827	573	13.0	1.6	8.594	A
5 - A256 Whitfield Hill	784	196	1180	946	0.829	942	727	261.3	221.9	923.583	F

2040 DS1 + DEV, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Whitfield Roundabout	Standard Roundabout		1, 2, 3, 4, 5	222.66	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	222.66	F

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
D5	2040 DS1 + DEV	AM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - A2 West		ONE HOUR	✓	1238	100.000
2 - Sandwich Road		ONE HOUR	✓	610	100.000
3 - A2 east		ONE HOUR	✓	1294	100.000
4 - Honeywood Road		ONE HOUR	✓	1056	100.000
5 - A256 Whitfield Hill		ONE HOUR	✓	777	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A2 West	2 - Sandwich Road	3 - A2 east	4 - Honeywood Road	5 - A256 Whitfield Hill
From	1 - A2 West	60	57	696	250	175
	2 - Sandwich Road	106	3	115	182	204
	3 - A2 east	771	121	10	94	298
	4 - Honeywood Road	300	310	141	24	281
	5 - A256 Whitfield Hill	174	194	169	240	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To				
		1 - A2 West	2 - Sandwich Road	3 - A2 east	4 - Honeywood Road	5 - A256 Whitfield Hill
From	1 - A2 West	0	2	9	2	2
	2 - Sandwich Road	2	0	2	2	2
	3 - A2 east	9	2	0	2	2
	4 - Honeywood Road	2	2	2	0	2
	5 - A256 Whitfield Hill	2	2	2	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A2 West	0.96	43.19	15.4	E	1136	1704
2 - Sandwich Road	0.79	20.43	3.6	C	560	840
3 - A2 east	0.81	11.50	4.4	B	1187	1781
4 - Honeywood Road	1.41	585.44	176.8	F	969	1454
5 - A256 Whitfield Hill	1.28	525.96	102.7	F	713	1069

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	932	233	902	1506	0.619	925	1055	0.0	1.7	6.483	A
2 - Sandwich Road	459	115	1317	1057	0.434	456	510	0.0	0.8	6.076	A
3 - A2 east	974	244	929	1968	0.495	970	844	0.0	1.0	3.812	A
4 - Honeywood Road	795	199	1309	1167	0.681	787	589	0.0	2.1	9.440	A
5 - A256 Whitfield Hill	585	146	1380	854	0.685	577	716	0.0	2.1	12.851	B

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1113	278	1055	1414	0.787	1105	1252	1.7	3.7	12.015	B
2 - Sandwich Road	548	137	1560	948	0.579	546	600	0.8	1.4	9.082	A
3 - A2 east	1163	291	1104	1867	0.623	1160	1002	1.0	1.7	5.385	A
4 - Honeywood Road	949	237	1566	1023	0.928	923	698	2.1	8.7	30.890	D
5 - A256 Whitfield Hill	699	175	1637	736	0.949	670	852	2.1	9.2	43.624	E

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1363	341	1038	1424	0.957	1327	1408	3.7	12.7	31.207	D
2 - Sandwich Road	672	168	1758	859	0.782	664	607	1.4	3.4	18.126	C
3 - A2 east	1425	356	1284	1763	0.808	1415	1138	1.7	4.2	10.668	B
4 - Honeywood Road	1163	291	1904	833	1.397	830	794	8.7	91.9	229.895	F
5 - A256 Whitfield Hill	855	214	1778	672	1.273	668	956	9.2	56.1	190.927	F

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1363	341	1037	1425	0.957	1352	1414	12.7	15.4	43.195	E
2 - Sandwich Road	672	168	1782	848	0.792	670	607	3.4	3.6	20.431	C
3 - A2 east	1425	356	1299	1754	0.812	1424	1153	4.2	4.4	11.500	B
4 - Honeywood Road	1163	291	1921	823	1.413	823	802	91.9	176.8	551.543	F
5 - A256 Whitfield Hill	855	214	1782	670	1.277	670	962	56.1	102.6	430.534	F

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1113	278	1114	1379	0.807	1155	1293	15.4	4.8	19.605	C
2 - Sandwich Road	548	137	1635	914	0.600	557	634	3.6	1.6	10.503	B
3 - A2 east	1163	291	1143	1844	0.631	1174	1049	4.4	1.8	5.776	A
4 - Honeywood Road	949	237	1593	1008	0.942	1002	723	176.8	163.7	585.442	F
5 - A256 Whitfield Hill	699	175	1709	704	0.993	698	886	102.6	102.7	525.958	F

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	932	233	1179	1340	0.696	941	1197	4.8	2.5	9.763	A
2 - Sandwich Road	459	115	1465	991	0.464	462	655	1.6	0.9	6.981	A
3 - A2 east	974	244	992	1931	0.505	977	935	1.8	1.1	4.017	A
4 - Honeywood Road	795	199	1322	1160	0.685	1153	648	163.7	74.2	373.182	F
5 - A256 Whitfield Hill	585	146	1656	728	0.804	721	819	102.7	68.7	429.612	F

2040 DS1 + DEV, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Whitfield Roundabout	Standard Roundabout		1, 2, 3, 4, 5	313.86	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	313.86	F

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
D6	2040 DS1 + DEV	PM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - A2 West		ONE HOUR	✓	1207	100.000
2 - Sandwich Road		ONE HOUR	✓	425	100.000
3 - A2 east		ONE HOUR	✓	1171	100.000
4 - Honeywood Road		ONE HOUR	✓	1044	100.000
5 - A256 Whitfield Hill		ONE HOUR	✓	1047	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A2 West	2 - Sandwich Road	3 - A2 east	4 - Honeywood Road	5 - A256 Whitfield Hill
From	1 - A2 West	20	100	653	260	174
	2 - Sandwich Road	39	0	84	132	170
	3 - A2 east	665	165	6	113	222
	4 - Honeywood Road	216	295	143	5	385
	5 - A256 Whitfield Hill	165	421	234	224	3

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To				
From		1 - A2 West	2 - Sandwich Road	3 - A2 east	4 - Honeywood Road	5 - A256 Whitfield Hill
	1 - A2 West	0	2	9	2	2
	2 - Sandwich Road	2	0	2	2	2
	3 - A2 east	9	2	0	2	2
	4 - Honeywood Road	2	2	2	0	2
	5 - A256 Whitfield Hill	2	2	2	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A2 West	1.02	89.30	33.9	F	1108	1661
2 - Sandwich Road	0.52	8.39	1.1	A	390	585
3 - A2 east	0.67	6.11	2.2	A	1075	1612
4 - Honeywood Road	1.15	227.00	80.6	F	958	1437
5 - A256 Whitfield Hill	1.54	1127.53	272.5	F	961	1441

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	909	227	1109	1382	0.658	901	826	0.0	2.0	7.782	A
2 - Sandwich Road	320	80	1281	1074	0.298	318	729	0.0	0.4	4.850	A
3 - A2 east	882	220	765	2062	0.428	878	834	0.0	0.8	3.213	A
4 - Honeywood Road	786	196	1097	1287	0.611	780	546	0.0	1.6	7.155	A
5 - A256 Whitfield Hill	788	197	1163	954	0.826	771	713	0.0	4.3	18.652	C

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1085	271	1249	1298	0.836	1074	973	2.0	4.9	16.172	C
2 - Sandwich Road	382	96	1488	980	0.390	381	834	0.4	0.6	6.121	A
3 - A2 east	1053	263	895	1987	0.530	1051	975	0.8	1.2	4.065	A
4 - Honeywood Road	939	235	1312	1166	0.805	929	634	1.6	3.9	14.962	B
5 - A256 Whitfield Hill	941	235	1390	850	1.107	832	852	4.3	31.5	93.363	F

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1329	332	1240	1303	1.020	1258	1117	4.9	22.6	50.974	F
2 - Sandwich Road	468	117	1631	916	0.511	466	867	0.6	1.0	8.140	A
3 - A2 east	1289	322	1015	1918	0.672	1286	1083	1.2	2.1	5.989	A
4 - Honeywood Road	1149	287	1595	1007	1.142	992	705	3.9	43.3	98.202	F
5 - A256 Whitfield Hill	1153	288	1607	750	1.537	750	979	31.5	132.3	403.762	F

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1329	332	1241	1303	1.020	1283	1121	22.6	33.9	89.303	F
2 - Sandwich Road	468	117	1654	906	0.517	468	871	1.0	1.1	8.388	A
3 - A2 east	1289	322	1025	1912	0.674	1289	1097	2.1	2.2	6.114	A
4 - Honeywood Road	1149	287	1603	1002	1.147	1000	711	43.3	80.6	227.003	F
5 - A256 Whitfield Hill	1153	288	1616	746	1.545	746	988	132.3	233.9	864.966	F

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1085	271	1300	1267	0.856	1190	1014	33.9	7.8	57.953	F
2 - Sandwich Road	382	96	1604	928	0.412	383	885	1.1	0.7	6.761	A
3 - A2 east	1053	263	931	1966	0.535	1056	1057	2.2	1.2	4.207	A
4 - Honeywood Road	939	235	1337	1152	0.815	1138	651	80.6	30.9	179.052	F
5 - A256 Whitfield Hill	941	235	1527	787	1.196	787	947	233.9	272.5	1127.534	F

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	909	227	1281	1279	0.711	929	877	7.8	2.7	11.460	B
2 - Sandwich Road	320	80	1387	1026	0.312	321	824	0.7	0.5	5.217	A
3 - A2 east	882	220	809	2036	0.433	883	898	1.2	0.8	3.311	A
4 - Honeywood Road	786	196	1108	1281	0.614	903	585	30.9	1.7	13.228	B
5 - A256 Whitfield Hill	788	197	1245	916	0.860	913	765	272.5	241.4	1013.703	F

Appendix C

Junctions 10
ARCADY 10 - Roundabout Module
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Filename: Whitfield Roundabout (Local Plan Geo) - Nil Det Mit.j10
Path: J:\332410944 - RE - Land South of A2 Whitfield Dover\BRIEF 0001 - TRANSPORT\MODELLING\TRANSPORT\03.JUNCTION 9
Report generation date: 11/10/2023 13:12:43

»2040 DS1 + DEV, AM
 »2040 DS1 + DEV, PM

Summary of junction performance

	AM				PM			
	Q (PCU)	Delay (s)	RFC	Junction Delay (s)	Q (PCU)	Delay (s)	RFC	Junction Delay (s)
2040 DS1 + DEV								
1 - A2 West	7.4	20.52	0.88	131.49	13.0	37.58	0.94	181.77
2 - Sandwich Road	4.2	23.56	0.82		1.2	9.12	0.54	
3 - A2 east	4.6	11.97	0.82		2.2	6.28	0.68	
4 - Honeywood Road	119.4	341.27	1.25		33.1	98.26	1.03	
5 - A256 Whitfield Hill	71.0	306.97	1.18		189.4	697.60	1.42	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted Av.s.

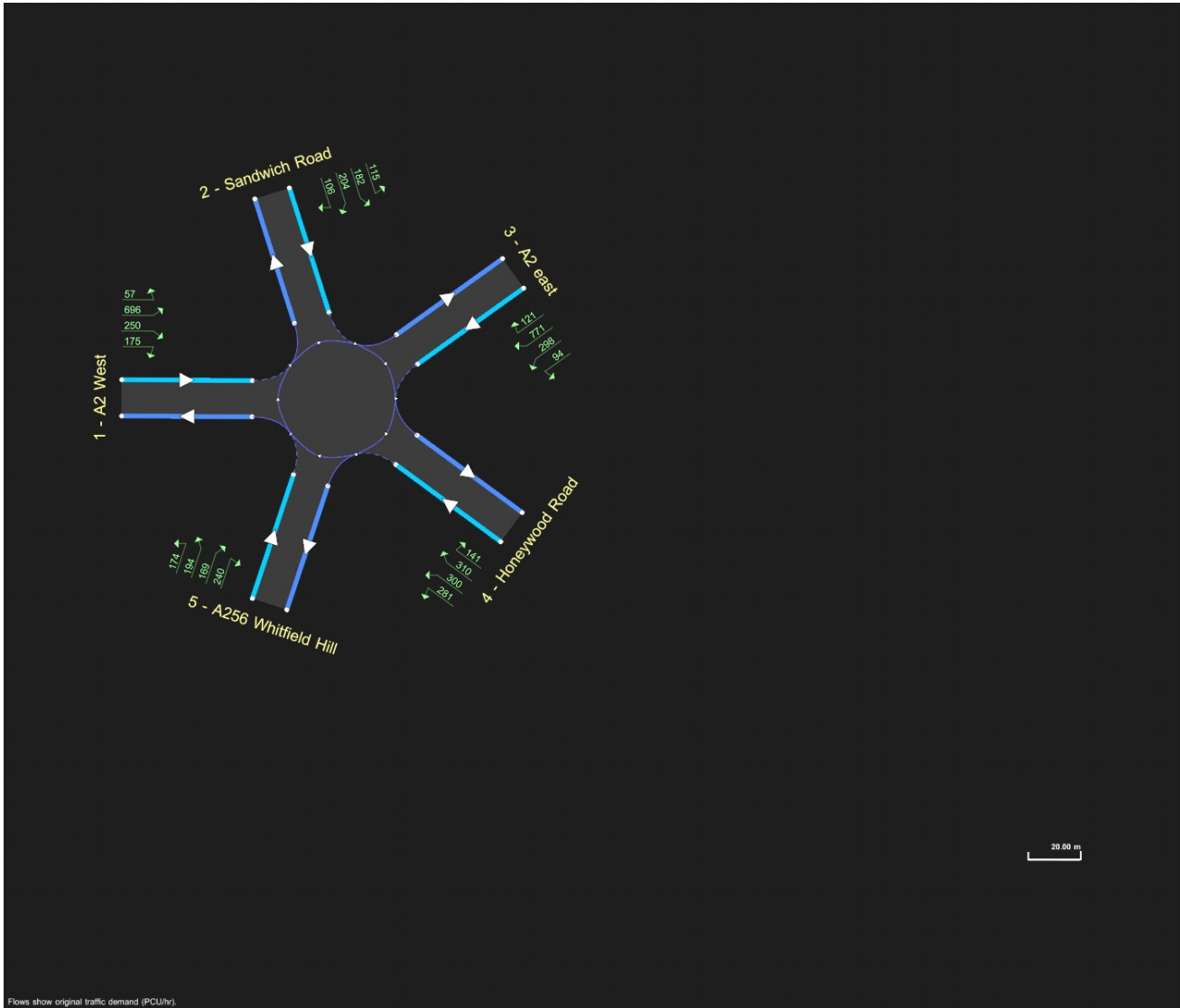
File summary

File Description

Title	
Location	
Site number	
Date	13/06/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\dansmith
Description	

Units

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



Analysis Options

Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75						0.85	36.00	20.00		500

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
D5	2040 DS1 + DEV	AM	ONE HOUR	00:00	01:30	15	✓
D6	2040 DS1 + DEV	PM	ONE HOUR	00:00	01:30	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2040 DS1 + DEV, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Whitfield Roundabout	Standard Roundabout		1, 2, 3, 4, 5	131.49	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	131.49	F

Arms

Arms

Arm	Name	Description	No give-way line
1	A2 West		
2	Sandwich Road		
3	A2 east		
4	Honeywood Road		
5	A256 Whitfield Hill		

Roundabout Geometry

Arm	V (m)	E (m)	I' (m)	R (m)	D (m)	PHI (deg)	Entry only	Exit only
1 - A2 West	7.58	9.50	10.0	26.0	82.0	23.0		
2 - Sandwich Road	3.19	7.71	18.3	12.2	82.0	34.5		
3 - A2 east	7.95	8.73	12.1	15.3	82.0	37.0		
4 - Honeywood Road	7.27	8.00	10.0	35.3	82.0	27.0		
5 - A256 Whitfield Hill	3.31	9.00	21.0	20.7	82.0	44.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A2 West	0.629	2752
2 - Sandwich Road	0.450	1650
3 - A2 east	0.576	2502
4 - Honeywood Road	0.585	2457
5 - A256 Whitfield Hill	0.477	1836

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
1 - A2 West	Direct		-500
4 - Honeywood Road	Direct		-400
5 - A256 Whitfield Hill	Direct		-220

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
D5	2040 DS1 + DEV	AM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - A2 West		ONE HOUR	✓	1238	100.000
2 - Sandwich Road		ONE HOUR	✓	610	100.000
3 - A2 east		ONE HOUR	✓	1294	100.000
4 - Honeywood Road		ONE HOUR	✓	1056	100.000
5 - A256 Whitfield Hill		ONE HOUR	✓	777	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A2 West	2 - Sandwich Road	3 - A2 east	4 - Honeywood Road	5 - A256 Whitfield Hill
From	1 - A2 West	60	57	696	250	175
	2 - Sandwich Road	106	3	115	182	204
	3 - A2 east	771	121	10	94	298
	4 - Honeywood Road	300	310	141	24	281
	5 - A256 Whitfield Hill	174	194	169	240	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To				
		1 - A2 West	2 - Sandwich Road	3 - A2 east	4 - Honeywood Road	5 - A256 Whitfield Hill
From	1 - A2 West	0	2	9	2	2
	2 - Sandwich Road	2	0	2	2	2
	3 - A2 east	9	2	0	2	2
	4 - Honeywood Road	2	2	2	0	2
	5 - A256 Whitfield Hill	2	2	2	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A2 West	0.88	20.52	7.4	C	1136	1704
2 - Sandwich Road	0.82	23.56	4.2	C	560	840
3 - A2 east	0.82	11.97	4.6	B	1187	1781
4 - Honeywood Road	1.25	341.27	119.4	F	969	1454
5 - A256 Whitfield Hill	1.18	306.97	71.0	F	713	1069

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	932	233	904	1683	0.554	927	1056	0.0	1.3	4.999	A
2 - Sandwich Road	459	115	1320	1056	0.435	456	512	0.0	0.8	6.086	A
3 - A2 east	974	244	930	1967	0.495	970	846	0.0	1.0	3.815	A
4 - Honeywood Road	795	199	1310	1291	0.616	789	590	0.0	1.6	7.213	A
5 - A256 Whitfield Hill	585	146	1381	957	0.612	579	717	0.0	1.6	9.567	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1113	278	1074	1576	0.706	1108	1260	1.3	2.5	8.053	A
2 - Sandwich Road	548	137	1574	942	0.582	546	609	0.8	1.4	9.221	A
3 - A2 east	1163	291	1110	1863	0.624	1160	1009	1.0	1.7	5.413	A
4 - Honeywood Road	949	237	1567	1141	0.832	938	704	1.6	4.5	17.150	C
5 - A256 Whitfield Hill	699	175	1648	829	0.842	686	856	1.6	4.7	23.843	C

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1363	341	1125	1544	0.883	1346	1449	2.5	6.8	17.794	C
2 - Sandwich Road	672	168	1820	831	0.808	662	651	1.4	3.8	20.610	C
3 - A2 east	1425	356	1308	1749	0.815	1414	1174	1.7	4.4	11.064	B
4 - Honeywood Road	1163	291	1906	942	1.234	934	816	4.5	61.7	139.529	F
5 - A256 Whitfield Hill	855	214	1855	731	1.171	720	986	4.7	38.5	123.310	F

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1363	341	1130	1541	0.884	1361	1458	6.8	7.4	20.518	C
2 - Sandwich Road	672	168	1837	823	0.816	670	654	3.8	4.2	23.564	C
3 - A2 east	1425	356	1322	1741	0.818	1424	1185	4.4	4.6	11.972	B
4 - Honeywood Road	1163	291	1923	933	1.247	932	824	61.7	119.4	341.267	F
5 - A256 Whitfield Hill	855	214	1862	727	1.177	726	992	38.5	71.0	280.592	F

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1113	278	1206	1493	0.745	1130	1337	7.4	3.2	10.897	B
2 - Sandwich Road	548	137	1656	905	0.606	559	680	4.2	1.6	10.903	B
3 - A2 east	1163	291	1153	1838	0.633	1174	1062	4.6	1.9	5.840	A
4 - Honeywood Road	949	237	1590	1127	0.842	1118	737	119.4	77.3	313.223	F
5 - A256 Whitfield Hill	699	175	1793	760	0.919	749	914	71.0	58.3	306.968	F

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	932	233	1221	1484	0.628	938	1200	3.2	1.8	7.037	A
2 - Sandwich Road	459	115	1498	976	0.471	462	660	1.6	0.9	7.187	A
3 - A2 east	974	244	1016	1917	0.508	977	944	1.9	1.1	4.074	A
4 - Honeywood Road	795	199	1321	1284	0.619	1097	672	77.3	1.7	67.260	F
5 - A256 Whitfield Hill	585	146	1615	845	0.692	807	804	58.3	2.9	129.174	F

2040 DS1 + DEV, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Whitfield Roundabout	Standard Roundabout		1, 2, 3, 4, 5	181.77	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	181.77	F

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
D6	2040 DS1 + DEV	PM	ONE HOUR	00:00	01:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - A2 West		ONE HOUR	✓	1207	100.000
2 - Sandwich Road		ONE HOUR	✓	425	100.000
3 - A2 east		ONE HOUR	✓	1171	100.000
4 - Honeywood Road		ONE HOUR	✓	1044	100.000
5 - A256 Whitfield Hill		ONE HOUR	✓	1047	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A2 West	2 - Sandwich Road	3 - A2 east	4 - Honeywood Road	5 - A256 Whitfield Hill
From	1 - A2 West	20	100	653	260	174
	2 - Sandwich Road	39	0	84	132	170
	3 - A2 east	665	165	6	113	222
	4 - Honeywood Road	216	295	143	5	385
	5 - A256 Whitfield Hill	165	421	234	224	3

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To				
From		1 - A2 West	2 - Sandwich Road	3 - A2 east	4 - Honeywood Road	5 - A256 Whitfield Hill
	1 - A2 West	0	2	9	2	2
	2 - Sandwich Road	2	0	2	2	2
	3 - A2 east	9	2	0	2	2
	4 - Honeywood Road	2	2	2	0	2
	5 - A256 Whitfield Hill	2	2	2	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A2 West	0.94	37.58	13.0	E	1108	1661
2 - Sandwich Road	0.54	9.12	1.2	A	390	585
3 - A2 east	0.68	6.28	2.2	A	1075	1612
4 - Honeywood Road	1.03	98.26	33.1	F	958	1437
5 - A256 Whitfield Hill	1.42	697.60	189.4	F	961	1441

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	909	227	1114	1551	0.586	903	827	0.0	1.5	5.815	A
2 - Sandwich Road	320	80	1285	1072	0.299	318	732	0.0	0.4	4.864	A
3 - A2 east	882	220	767	2061	0.428	878	836	0.0	0.8	3.216	A
4 - Honeywood Road	786	196	1098	1415	0.555	781	548	0.0	1.3	5.744	A
5 - A256 Whitfield Hill	788	197	1164	1060	0.743	777	714	0.0	2.8	12.517	B

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1085	271	1304	1432	0.758	1078	984	1.5	3.2	10.566	B
2 - Sandwich Road	382	96	1521	965	0.396	381	861	0.4	0.7	6.274	A
3 - A2 east	1053	263	910	1978	0.532	1051	992	0.8	1.2	4.102	A
4 - Honeywood Road	939	235	1313	1289	0.728	933	648	1.3	2.6	10.154	B
5 - A256 Whitfield Hill	941	235	1392	951	0.989	896	854	2.8	14.1	47.040	E

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1329	332	1336	1411	0.942	1298	1146	3.2	10.9	27.901	D
2 - Sandwich Road	468	117	1711	880	0.532	466	923	0.7	1.1	8.832	A
3 - A2 east	1289	322	1045	1900	0.678	1285	1132	1.2	2.2	6.155	A
4 - Honeywood Road	1149	287	1601	1120	1.026	1076	729	2.6	20.9	51.819	F
5 - A256 Whitfield Hill	1153	288	1661	823	1.401	821	1016	14.1	97.0	255.181	F

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1329	332	1341	1408	0.944	1321	1153	10.9	13.0	37.575	E
2 - Sandwich Road	468	117	1732	870	0.538	468	929	1.1	1.2	9.118	A
3 - A2 east	1289	322	1054	1895	0.680	1289	1146	2.2	2.2	6.281	A
4 - Honeywood Road	1149	287	1609	1116	1.030	1101	734	20.9	33.1	98.261	F
5 - A256 Whitfield Hill	1153	288	1680	814	1.416	814	1030	97.0	181.7	596.347	F

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	1085	271	1371	1390	0.781	1121	1016	13.0	4.0	15.782	C
2 - Sandwich Road	382	96	1585	937	0.408	384	907	1.2	0.7	6.662	A
3 - A2 east	1053	263	932	1965	0.536	1057	1036	2.2	1.2	4.212	A
4 - Honeywood Road	939	235	1326	1281	0.732	1059	663	33.1	3.0	25.680	D
5 - A256 Whitfield Hill	941	235	1477	911	1.033	910	909	181.7	189.4	697.604	F

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A2 West	909	227	1349	1403	0.648	917	876	4.0	2.0	7.941	A
2 - Sandwich Road	320	80	1420	1011	0.316	321	846	0.7	0.5	5.327	A
3 - A2 east	882	220	834	2022	0.436	883	907	1.2	0.8	3.352	A
4 - Honeywood Road	786	196	1106	1410	0.557	793	611	3.0	1.3	6.006	A
5 - A256 Whitfield Hill	788	197	1176	1055	0.747	1049	723	189.4	124.1	538.905	F

Appendix D

Junctions 10
ARCADY 10 - Roundabout Module
Version: 10.0.4.1693 © Copyright TRL Software Limited, 2021
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Filename: Duke of York Roundabout (Reg19 Geo).j10

Path: J:\332410944 - RE - Land South of A2 Whitfield Dover\BRIEF 0001 - TRANSPORT\MODELLING\TRANSPORT\03. JUNCTION 9

Report generation date: 15/06/2023 09:30:03

- »2017 Base Year, AM
- »2017 Base Year, PM
- »2040 DS1, AM
- »2040 DS1, PM
- »2040 DS1 + DEV, AM
- »2040 DS1 + DEV, PM

Summary of junction performance

	AM			PM		
	Q (PCU)	Delay (s)	RFC	Q (PCU)	Delay (s)	RFC
2017 Base Year						
1 - A259 Deal Road	2.6	10.73	0.72	0.5	3.44	0.34
2 - A2 East	0.8	3.44	0.43	1.0	3.16	0.50
3 - A258 Castle Hill Road	0.9	6.52	0.47	1.4	8.24	0.58
4 - A2 West	1.7	4.16	0.63	0.8	2.78	0.42
2040 DS1						
1 - A259 Deal Road	9.5	31.44	0.92	2.7	9.98	0.73
2 - A2 East	1.4	4.31	0.57	1.6	4.62	0.59
3 - A258 Castle Hill Road	30.7	117.96	1.04	3.1	19.04	0.76
4 - A2 West	3.4	7.10	0.77	2.0	4.29	0.65
2040 DS1 + DEV						
1 - A259 Deal Road	13.4	43.14	0.95	2.9	10.75	0.75
2 - A2 East	1.5	4.60	0.59	1.6	4.75	0.60
3 - A258 Castle Hill Road	57.9	203.90	1.13	3.4	20.59	0.78
4 - A2 West	3.7	7.51	0.78	2.2	4.59	0.68

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.

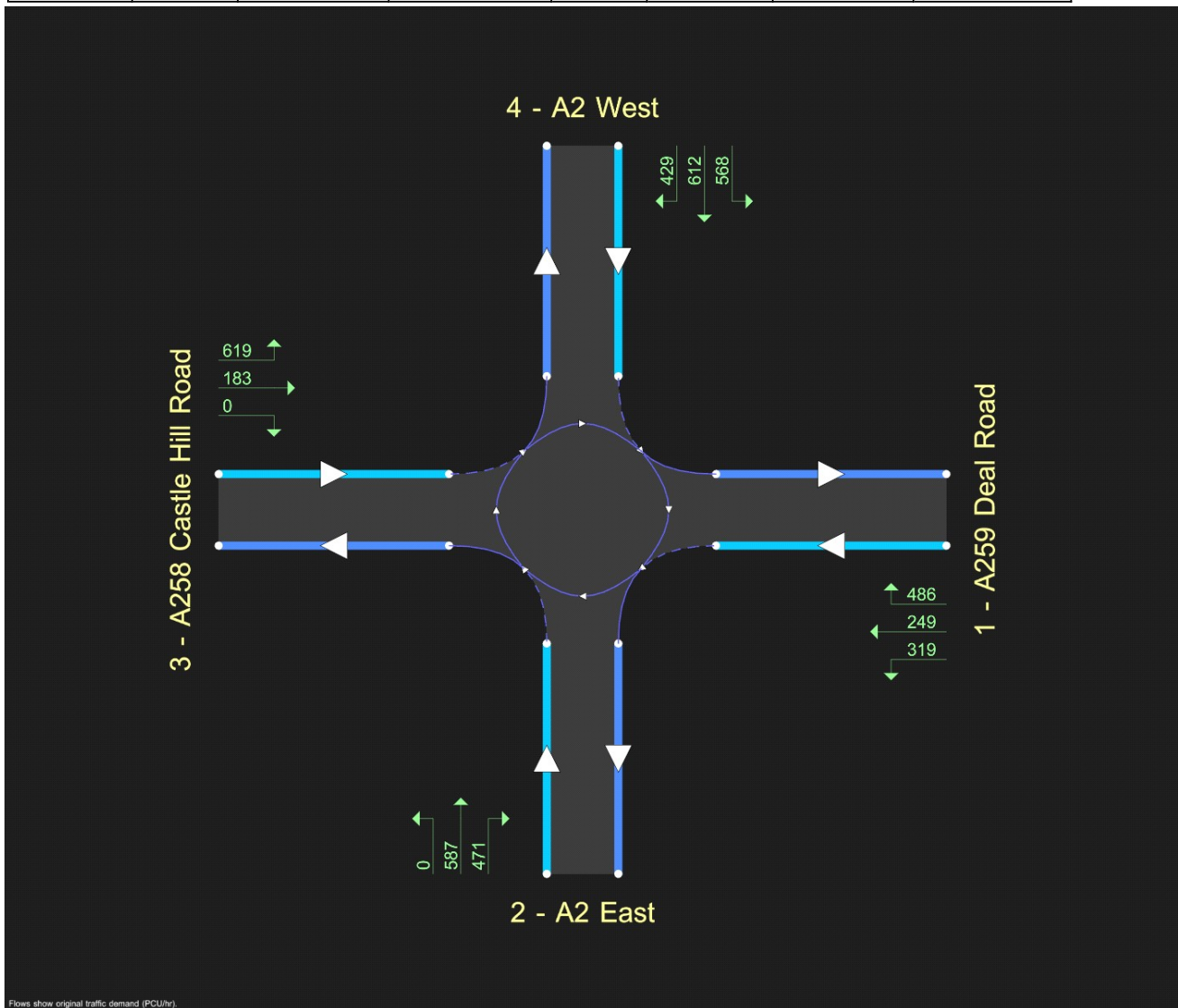
File summary

File Description

Title	
Location	
Site number	
Date	13/06/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\dansmith
Description	

Units

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



Analysis Options

Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75						0.85	36.00	20.00		500

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	2017 Base Year	AM	ONE HOUR	00:00	01:30	15	✓
D2	2017 Base Year	PM	ONE HOUR	00:00	01:30	15	✓
D3	2040 DS1	AM	ONE HOUR	00:00	01:30	15	✓
D4	2040 DS1	PM	ONE HOUR	00:00	01:30	15	✓
D5	2040 DS1 + DEV	AM	ONE HOUR	00:00	01:30	15	✓
D6	2040 DS1 + DEV	PM	ONE HOUR	00:00	01:30	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2017 Base Year, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Duke of York Roundabout	Standard Roundabout		1, 2, 3, 4	5.89	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.89	A

Arms

Arms

Arm	Name	Description	No give-way line
1	A259 Deal Road		
2	A2 East		
3	A258 Castle Hill Road		
4	A2 West		

Roundabout Geometry

Arm	V (m)	E (m)	I' (m)	R (m)	D (m)	PHI (deg)	Entry only	Exit only
1 - A259 Deal Road	3.20	8.20	30.0	31.0	60.0	36.0		
2 - A2 East	7.80	10.00	8.1	30.0	83.0	18.0		
3 - A258 Castle Hill Road	3.50	8.20	19.1	17.5	60.0	34.0		
4 - A2 West	8.10	9.20	2.5	25.0	83.0	15.5		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A259 Deal Road	0.600	1951
2 - A2 East	0.649	2878
3 - A258 Castle Hill Road	0.572	1818
4 - A2 West	0.631	2749

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	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2017 Base Year	AM	ONE HOUR	00:00	01:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - A259 Deal Road		ONE HOUR	✓	810	100.000
2 - A2 East		ONE HOUR	✓	747	100.000
3 - A258 Castle Hill Road		ONE HOUR	✓	453	100.000
4 - A2 West		ONE HOUR	✓	1372	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A259 Deal Road	2 - A2 East	3 - A258 Castle Hill Road	4 - A2 West
From	1 - A259 Deal Road	1	33	335	441
	2 - A2 East	331	0	7	409
	3 - A258 Castle Hill Road	130	9	8	306
	4 - A2 West	302	529	521	20

Vehicle Mix

HV %s

		To			
		1 - A259 Deal Road	2 - A2 East	3 - A258 Castle Hill Road	4 - A2 West
From	1 - A259 Deal Road	0	2	2	2
	2 - A2 East	2	0	2	9
	3 - A258 Castle Hill Road	2	2	0	2
	4 - A2 West	2	9	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A259 Deal Road	0.72	10.73	2.6	B	743	1115
2 - A2 East	0.43	3.44	0.8	A	685	1028
3 - A258 Castle Hill Road	0.47	6.52	0.9	A	416	624
4 - A2 West	0.63	4.16	1.7	A	1259	1888

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	610	152	816	1462	0.417	607	573	0.0	0.7	4.282	A
2 - A2 East	562	141	994	2232	0.252	561	429	0.0	0.4	2.275	A
3 - A258 Castle Hill Road	341	85	902	1302	0.262	340	653	0.0	0.4	3.807	A
4 - A2 West	1033	258	360	2522	0.410	1030	882	0.0	0.7	2.520	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	728	182	976	1366	0.533	726	686	0.7	1.1	5.731	A
2 - A2 East	672	168	1190	2105	0.319	671	513	0.4	0.5	2.654	A
3 - A258 Castle Hill Road	407	102	1079	1201	0.339	407	782	0.4	0.5	4.616	A
4 - A2 West	1233	308	430	2477	0.498	1232	1056	0.7	1.0	3.021	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	892	223	1195	1235	0.722	886	840	1.1	2.5	10.378	B
2 - A2 East	822	206	1453	1934	0.425	821	627	0.5	0.8	3.418	A
3 - A258 Castle Hill Road	499	125	1319	1064	0.469	497	956	0.5	0.9	6.463	A
4 - A2 West	1511	378	526	2416	0.625	1508	1290	1.0	1.7	4.131	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	892	223	1197	1233	0.723	892	841	2.5	2.6	10.728	B
2 - A2 East	822	206	1460	1930	0.426	822	629	0.8	0.8	3.436	A
3 - A258 Castle Hill Road	499	125	1323	1061	0.470	499	959	0.9	0.9	6.523	A
4 - A2 West	1511	378	527	2416	0.625	1511	1295	1.7	1.7	4.158	A

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	728	182	979	1364	0.534	734	688	2.6	1.2	5.883	A
2 - A2 East	672	168	1199	2099	0.320	673	515	0.8	0.5	2.671	A
3 - A258 Castle Hill Road	407	102	1085	1198	0.340	409	786	0.9	0.5	4.661	A
4 - A2 West	1233	308	432	2476	0.498	1236	1062	1.7	1.0	3.044	A

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	610	152	819	1460	0.418	612	576	1.2	0.7	4.340	A
2 - A2 East	562	141	1001	2228	0.252	563	430	0.5	0.4	2.286	A
3 - A258 Castle Hill Road	341	85	906	1300	0.262	342	657	0.5	0.4	3.835	A
4 - A2 West	1033	258	361	2521	0.410	1034	887	1.0	0.7	2.533	A

2017 Base Year, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Duke of York Roundabout	Standard Roundabout		1, 2, 3, 4	4.03	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.03	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2017 Base Year	PM	ONE HOUR	00:00	01:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - A259 Deal Road		ONE HOUR	✓	501	100.000
2 - A2 East		ONE HOUR	✓	1081	100.000
3 - A258 Castle Hill Road		ONE HOUR	✓	559	100.000
4 - A2 West		ONE HOUR	✓	900	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A259 Deal Road	2 - A2 East	3 - A258 Castle Hill Road	4 - A2 West
From	1 - A259 Deal Road	1	75	167	258
	2 - A2 East	331	0	148	602
	3 - A258 Castle Hill Road	254	7	6	292
	4 - A2 West	412	247	230	11

Vehicle Mix

HV %s

		To			
		1 - A259 Deal Road	2 - A2 East	3 - A258 Castle Hill Road	4 - A2 West
From	1 - A259 Deal Road	0	2	2	2
	2 - A2 East	2	0	2	9
	3 - A258 Castle Hill Road	2	2	0	2
	4 - A2 West	2	9	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A259 Deal Road	0.34	3.44	0.5	A	460	690
2 - A2 East	0.50	3.16	1.0	A	992	1488
3 - A258 Castle Hill Road	0.58	8.24	1.4	A	513	769
4 - A2 West	0.42	2.78	0.8	A	826	1239

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	377	94	376	1725	0.219	376	749	0.0	0.3	2.719	A
2 - A2 East	814	203	505	2550	0.319	812	247	0.0	0.5	2.190	A
3 - A258 Castle Hill Road	421	105	903	1302	0.323	419	414	0.0	0.5	4.149	A
4 - A2 West	678	169	449	2465	0.275	676	873	0.0	0.4	2.087	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	450	113	450	1681	0.268	450	896	0.3	0.4	2.983	A
2 - A2 East	972	243	605	2485	0.391	971	296	0.5	0.7	2.514	A
3 - A258 Castle Hill Road	503	126	1081	1200	0.419	502	495	0.5	0.7	5.247	A
4 - A2 West	809	202	538	2409	0.336	809	1044	0.4	0.5	2.335	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	552	138	551	1620	0.340	551	1097	0.4	0.5	3.431	A
2 - A2 East	1190	298	740	2397	0.497	1189	362	0.7	1.0	3.147	A
3 - A258 Castle Hill Road	615	154	1323	1062	0.580	613	606	0.7	1.4	8.133	A
4 - A2 West	991	248	658	2333	0.425	990	1278	0.5	0.8	2.780	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	552	138	552	1620	0.340	552	1099	0.5	0.5	3.435	A
2 - A2 East	1190	298	741	2396	0.497	1190	362	1.0	1.0	3.156	A
3 - A258 Castle Hill Road	615	154	1325	1061	0.580	615	607	1.4	1.4	8.241	A
4 - A2 West	991	248	659	2332	0.425	991	1280	0.8	0.8	2.785	A

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	450	113	451	1680	0.268	451	899	0.5	0.4	2.989	A
2 - A2 East	972	243	606	2484	0.391	973	296	1.0	0.7	2.522	A
3 - A258 Castle Hill Road	503	126	1083	1199	0.419	505	496	1.4	0.7	5.311	A
4 - A2 West	809	202	540	2408	0.336	810	1048	0.8	0.5	2.341	A

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	377	94	377	1725	0.219	378	752	0.4	0.3	2.728	A
2 - A2 East	814	203	507	2548	0.319	815	248	0.7	0.5	2.198	A
3 - A258 Castle Hill Road	421	105	907	1300	0.324	422	415	0.7	0.5	4.187	A
4 - A2 West	678	169	452	2463	0.275	678	877	0.5	0.4	2.095	A

2040 DS1, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Duke of York Roundabout	Standard Roundabout		1, 2, 3, 4	31.78	D

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	31.78	D

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	2040 DS1	AM	ONE HOUR	00:00	01:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - A259 Deal Road		ONE HOUR	✓	1054	100.000
2 - A2 East		ONE HOUR	✓	1058	100.000
3 - A258 Castle Hill Road		ONE HOUR	✓	802	100.000
4 - A2 West		ONE HOUR	✓	1609	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A259 Deal Road	2 - A2 East	3 - A258 Castle Hill Road	4 - A2 West
From	1 - A259 Deal Road	0	319	249	486
	2 - A2 East	471	0	0	587
	3 - A258 Castle Hill Road	183	0	0	619
	4 - A2 West	568	612	429	0

Vehicle Mix

HV %s

		To			
		1 - A259 Deal Road	2 - A2 East	3 - A258 Castle Hill Road	4 - A2 West
From	1 - A259 Deal Road	0	2	2	2
	2 - A2 East	2	0	2	9
	3 - A258 Castle Hill Road	2	2	0	2
	4 - A2 West	2	9	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A259 Deal Road	0.92	31.44	9.5	D	967	1451
2 - A2 East	0.57	4.31	1.4	A	971	1456
3 - A258 Castle Hill Road	1.04	117.96	30.7	F	736	1104
4 - A2 West	0.77	7.10	3.4	A	1476	2215

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	794	198	781	1483	0.535	789	917	0.0	1.2	5.260	A
2 - A2 East	797	199	872	2311	0.345	794	698	0.0	0.6	2.507	A
3 - A258 Castle Hill Road	604	151	1158	1156	0.522	599	508	0.0	1.1	6.548	A
4 - A2 West	1211	303	490	2439	0.497	1207	1267	0.0	1.0	3.045	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	948	237	934	1391	0.681	944	1096	1.2	2.1	8.146	A
2 - A2 East	951	238	1043	2200	0.432	950	835	0.6	0.8	3.042	A
3 - A258 Castle Hill Road	721	180	1385	1026	0.703	716	608	1.1	2.3	11.670	B
4 - A2 West	1446	362	586	2378	0.608	1444	1515	1.0	1.6	4.019	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	1160	290	1142	1266	0.916	1136	1327	2.1	8.3	24.524	C
2 - A2 East	1165	291	1262	2058	0.566	1163	1015	0.8	1.4	4.243	A
3 - A258 Castle Hill Road	883	221	1686	854	1.034	817	739	2.3	18.9	61.174	F
4 - A2 West	1772	443	704	2304	0.769	1764	1799	1.6	3.4	6.885	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	1160	290	1146	1264	0.918	1156	1334	8.3	9.5	31.442	D
2 - A2 East	1165	291	1278	2048	0.569	1165	1024	1.4	1.4	4.313	A
3 - A258 Castle Hill Road	883	221	1698	847	1.042	835	745	18.9	30.7	117.962	F
4 - A2 West	1772	443	709	2301	0.770	1771	1824	3.4	3.4	7.097	A

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	948	237	940	1387	0.683	976	1128	9.5	2.3	9.544	A
2 - A2 East	951	238	1068	2184	0.436	953	848	1.4	0.8	3.101	A
3 - A258 Castle Hill Road	721	180	1404	1015	0.710	833	618	30.7	2.7	32.379	D
4 - A2 West	1446	362	615	2361	0.613	1454	1622	3.4	1.7	4.182	A

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	794	198	785	1480	0.536	798	923	2.3	1.2	5.415	A
2 - A2 East	797	199	880	2306	0.345	798	703	0.8	0.6	2.527	A
3 - A258 Castle Hill Road	604	151	1165	1152	0.524	610	512	2.7	1.1	6.853	A
4 - A2 West	1211	303	494	2437	0.497	1214	1281	1.7	1.0	3.086	A

2040 DS1, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Duke of York Roundabout	Standard Roundabout		1, 2, 3, 4	7.63	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	7.63	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2040 DS1	PM	ONE HOUR	00:00	01:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - A259 Deal Road		ONE HOUR	✓	900	100.000
2 - A2 East		ONE HOUR	✓	1118	100.000
3 - A258 Castle Hill Road		ONE HOUR	✓	551	100.000
4 - A2 West		ONE HOUR	✓	1503	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A259 Deal Road	2 - A2 East	3 - A258 Castle Hill Road	4 - A2 West
From	1 - A259 Deal Road	0	109	288	503
	2 - A2 East	197	0	0	921
	3 - A258 Castle Hill Road	114	0	0	437
	4 - A2 West	605	559	339	0

Vehicle Mix

HV %s

		To			
		1 - A259 Deal Road	2 - A2 East	3 - A258 Castle Hill Road	4 - A2 West
From	1 - A259 Deal Road	0	2	2	2
	2 - A2 East	2	0	2	9
	3 - A258 Castle Hill Road	2	2	0	2
	4 - A2 West	2	9	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A259 Deal Road	0.73	9.98	2.7	A	826	1239
2 - A2 East	0.59	4.62	1.6	A	1026	1539
3 - A258 Castle Hill Road	0.76	19.04	3.1	C	506	758
4 - A2 West	0.65	4.29	2.0	A	1379	2069

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	678	169	674	1547	0.438	674	687	0.0	0.8	4.195	A
2 - A2 East	842	210	847	2327	0.362	839	501	0.0	0.6	2.600	A
3 - A258 Castle Hill Road	415	104	1216	1123	0.369	412	470	0.0	0.6	5.154	A
4 - A2 West	1132	283	233	2601	0.435	1128	1395	0.0	0.8	2.548	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	809	202	806	1467	0.551	807	822	0.8	1.2	5.546	A
2 - A2 East	1005	251	1014	2219	0.453	1004	600	0.6	0.9	3.187	A
3 - A258 Castle Hill Road	495	124	1455	986	0.502	494	563	0.6	1.0	7.433	A
4 - A2 West	1351	338	279	2572	0.525	1350	1670	0.8	1.1	3.074	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	991	248	987	1359	0.729	985	1005	1.2	2.6	9.679	A
2 - A2 East	1231	308	1238	2073	0.594	1228	734	0.9	1.6	4.572	A
3 - A258 Castle Hill Road	607	152	1779	801	0.758	599	688	1.0	3.0	17.564	C
4 - A2 West	1655	414	340	2534	0.653	1652	2038	1.1	1.9	4.249	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	991	248	989	1358	0.730	991	1008	2.6	2.7	9.980	A
2 - A2 East	1231	308	1244	2070	0.595	1231	735	1.6	1.6	4.620	A
3 - A258 Castle Hill Road	607	152	1785	798	0.761	606	690	3.0	3.1	19.045	C
4 - A2 West	1655	414	342	2533	0.653	1655	2048	1.9	2.0	4.285	A

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	809	202	809	1466	0.552	815	827	2.7	1.3	5.691	A
2 - A2 East	1005	251	1022	2214	0.454	1008	602	1.6	0.9	3.222	A
3 - A258 Castle Hill Road	495	124	1463	981	0.505	504	566	3.1	1.1	7.809	A
4 - A2 West	1351	338	282	2571	0.526	1354	1685	2.0	1.2	3.099	A

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	678	169	677	1545	0.439	679	691	1.3	0.8	4.251	A
2 - A2 East	842	210	853	2324	0.362	843	504	0.9	0.6	2.621	A
3 - A258 Castle Hill Road	415	104	1223	1119	0.371	417	473	1.1	0.6	5.242	A
4 - A2 West	1132	283	235	2600	0.435	1133	1404	1.2	0.8	2.565	A

2040 DS1 + DEV, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Duke of York Roundabout	Standard Roundabout		1, 2, 3, 4	50.35	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	50.35	F

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
D5	2040 DS1 + DEV	AM	ONE HOUR	00:00	01:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - A259 Deal Road		ONE HOUR	✓	1079	100.000
2 - A2 East		ONE HOUR	✓	1088	100.000
3 - A258 Castle Hill Road		ONE HOUR	✓	833	100.000
4 - A2 West		ONE HOUR	✓	1643	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A259 Deal Road	2 - A2 East	3 - A258 Castle Hill Road	4 - A2 West
From	1 - A259 Deal Road	0	319	249	511
	2 - A2 East	471	0	0	617
	3 - A258 Castle Hill Road	183	0	0	650
	4 - A2 West	580	625	438	0

Vehicle Mix

HV %s

		To			
		1 - A259 Deal Road	2 - A2 East	3 - A258 Castle Hill Road	4 - A2 West
From	1 - A259 Deal Road	0	2	2	2
	2 - A2 East	2	0	2	9
	3 - A258 Castle Hill Road	2	2	0	2
	4 - A2 West	2	9	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A259 Deal Road	0.95	43.14	13.4	E	990	1485
2 - A2 East	0.59	4.60	1.5	A	998	1498
3 - A258 Castle Hill Road	1.13	203.90	57.9	F	764	1147
4 - A2 West	0.78	7.51	3.7	A	1508	2261

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	812	203	798	1473	0.552	807	925	0.0	1.2	5.479	A
2 - A2 East	819	205	897	2295	0.357	817	708	0.0	0.6	2.573	A
3 - A258 Castle Hill Road	627	157	1199	1132	0.554	622	515	0.0	1.2	7.129	A
4 - A2 West	1237	309	490	2439	0.507	1233	1331	0.0	1.1	3.110	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	970	242	954	1379	0.704	966	1107	1.2	2.3	8.791	A
2 - A2 East	978	245	1073	2181	0.449	977	846	0.6	0.9	3.162	A
3 - A258 Castle Hill Road	749	187	1434	998	0.750	742	616	1.2	2.9	14.014	B
4 - A2 West	1477	369	586	2379	0.621	1475	1591	1.1	1.7	4.151	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	1188	297	1165	1252	0.949	1154	1330	2.3	11.0	30.257	D
2 - A2 East	1198	299	1293	2038	0.588	1195	1026	0.9	1.5	4.507	A
3 - A258 Castle Hill Road	917	229	1742	822	1.116	803	746	2.9	31.4	91.324	F
4 - A2 West	1809	452	694	2311	0.783	1801	1851	1.7	3.6	7.280	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	1188	297	1170	1249	0.951	1178	1335	11.0	13.4	43.145	E
2 - A2 East	1198	299	1312	2026	0.591	1198	1036	1.5	1.5	4.603	A
3 - A258 Castle Hill Road	917	229	1756	814	1.127	811	754	31.4	57.9	203.896	F
4 - A2 West	1809	452	697	2309	0.784	1809	1870	3.6	3.7	7.514	A

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	970	242	961	1375	0.706	1013	1160	13.4	2.5	11.326	B
2 - A2 East	978	245	1110	2157	0.453	981	864	1.5	0.9	3.245	A
3 - A258 Castle Hill Road	749	187	1461	983	0.762	961	630	57.9	4.8	122.292	F
4 - A2 West	1477	369	636	2347	0.629	1485	1786	3.7	1.8	4.402	A

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	812	203	802	1470	0.553	817	934	2.5	1.3	5.671	A
2 - A2 East	819	205	906	2289	0.358	820	713	0.9	0.6	2.597	A
3 - A258 Castle Hill Road	627	157	1207	1128	0.556	641	519	4.8	1.3	7.754	A
4 - A2 West	1237	309	496	2436	0.508	1240	1353	1.8	1.1	3.154	A

2040 DS1 + DEV, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Duke of York Roundabout	Standard Roundabout		1, 2, 3, 4	8.13	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	8.13	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2040 DS1 + DEV	PM	ONE HOUR	00:00	01:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - A259 Deal Road		ONE HOUR	✓	905	100.000
2 - A2 East		ONE HOUR	✓	1128	100.000
3 - A258 Castle Hill Road		ONE HOUR	✓	556	100.000
4 - A2 West		ONE HOUR	✓	1556	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A259 Deal Road	2 - A2 East	3 - A258 Castle Hill Road	4 - A2 West
From	1 - A259 Deal Road	0	109	288	508
	2 - A2 East	197	0	0	931
	3 - A258 Castle Hill Road	114	0	0	442
	4 - A2 West	626	579	351	0

Vehicle Mix

HV %s

		To			
		1 - A259 Deal Road	2 - A2 East	3 - A258 Castle Hill Road	4 - A2 West
From	1 - A259 Deal Road	0	2	2	2
	2 - A2 East	2	0	2	9
	3 - A258 Castle Hill Road	2	2	0	2
	4 - A2 West	2	9	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A259 Deal Road	0.75	10.75	2.9	B	830	1246
2 - A2 East	0.60	4.75	1.6	A	1035	1553
3 - A258 Castle Hill Road	0.78	20.59	3.4	C	510	765
4 - A2 West	0.68	4.59	2.2	A	1428	2142

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	681	170	698	1532	0.445	678	703	0.0	0.8	4.282	A
2 - A2 East	849	212	860	2319	0.366	847	516	0.0	0.6	2.628	A
3 - A258 Castle Hill Road	419	105	1227	1116	0.375	416	479	0.0	0.6	5.227	A
4 - A2 West	1171	293	233	2601	0.450	1168	1410	0.0	0.9	2.618	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	814	203	835	1450	0.561	812	841	0.8	1.3	5.734	A
2 - A2 East	1014	254	1029	2209	0.459	1013	618	0.6	0.9	3.238	A
3 - A258 Castle Hill Road	500	125	1469	978	0.511	498	573	0.6	1.0	7.619	A
4 - A2 West	1399	350	279	2572	0.544	1397	1688	0.9	1.2	3.197	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	996	249	1022	1338	0.745	990	1028	1.3	2.8	10.367	B
2 - A2 East	1242	310	1257	2062	0.602	1239	755	0.9	1.6	4.698	A
3 - A258 Castle Hill Road	612	153	1795	792	0.773	604	701	1.0	3.2	18.750	C
4 - A2 West	1713	428	340	2534	0.676	1710	2058	1.2	2.1	4.544	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	996	249	1024	1337	0.745	996	1031	2.8	2.9	10.752	B
2 - A2 East	1242	310	1263	2058	0.604	1242	757	1.6	1.6	4.752	A
3 - A258 Castle Hill Road	612	153	1801	788	0.777	611	703	3.2	3.4	20.592	C
4 - A2 West	1713	428	342	2533	0.676	1713	2070	2.1	2.2	4.591	A

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	814	203	838	1448	0.562	820	846	2.9	1.3	5.901	A
2 - A2 East	1014	254	1038	2204	0.460	1017	621	1.6	0.9	3.273	A
3 - A258 Castle Hill Road	500	125	1477	973	0.513	509	577	3.4	1.1	8.055	A
4 - A2 West	1399	350	282	2571	0.544	1402	1704	2.2	1.3	3.232	A

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	681	170	701	1530	0.445	683	707	1.3	0.8	4.346	A
2 - A2 East	849	212	866	2316	0.367	850	519	0.9	0.6	2.648	A
3 - A258 Castle Hill Road	419	105	1234	1113	0.376	420	482	1.1	0.6	5.322	A
4 - A2 West	1171	293	235	2600	0.450	1173	1420	1.3	0.9	2.640	A

Appendix E

Junctions 10
ARCADY 10 - Roundabout Module
Version: 10.0.4.1693 © Copyright TRL Software Limited, 2021
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Filename: Duke of York Roundabout (Reg19 Geo) - Nil Det Mit.j10
Path: J:\332410944 - RE - Land South of A2 Whitfield Dover\BRIEF 0001 - TRANSPORT\MODELLING\TRANSPORT\03. JUNCTION 9
Report generation date: 15/06/2023 09:33:17

- »2040 DS1 + DEV, AM
- »2040 DS1 + DEV, PM

Summary of junction performance

	AM			PM		
	Q (PCU)	Delay (s)	RFC	Q (PCU)	Delay (s)	RFC
	2040 DS1 + DEV					
1 - A259 Deal Road	9.9	32.00	0.92	2.6	9.62	0.72
2 - A2 East	1.5	4.61	0.59	1.6	4.75	0.60
3 - A258 Castle Hill Road	25.4	96.36	1.02	2.3	13.99	0.70
4 - A2 West	3.8	7.66	0.79	2.2	4.59	0.68

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.

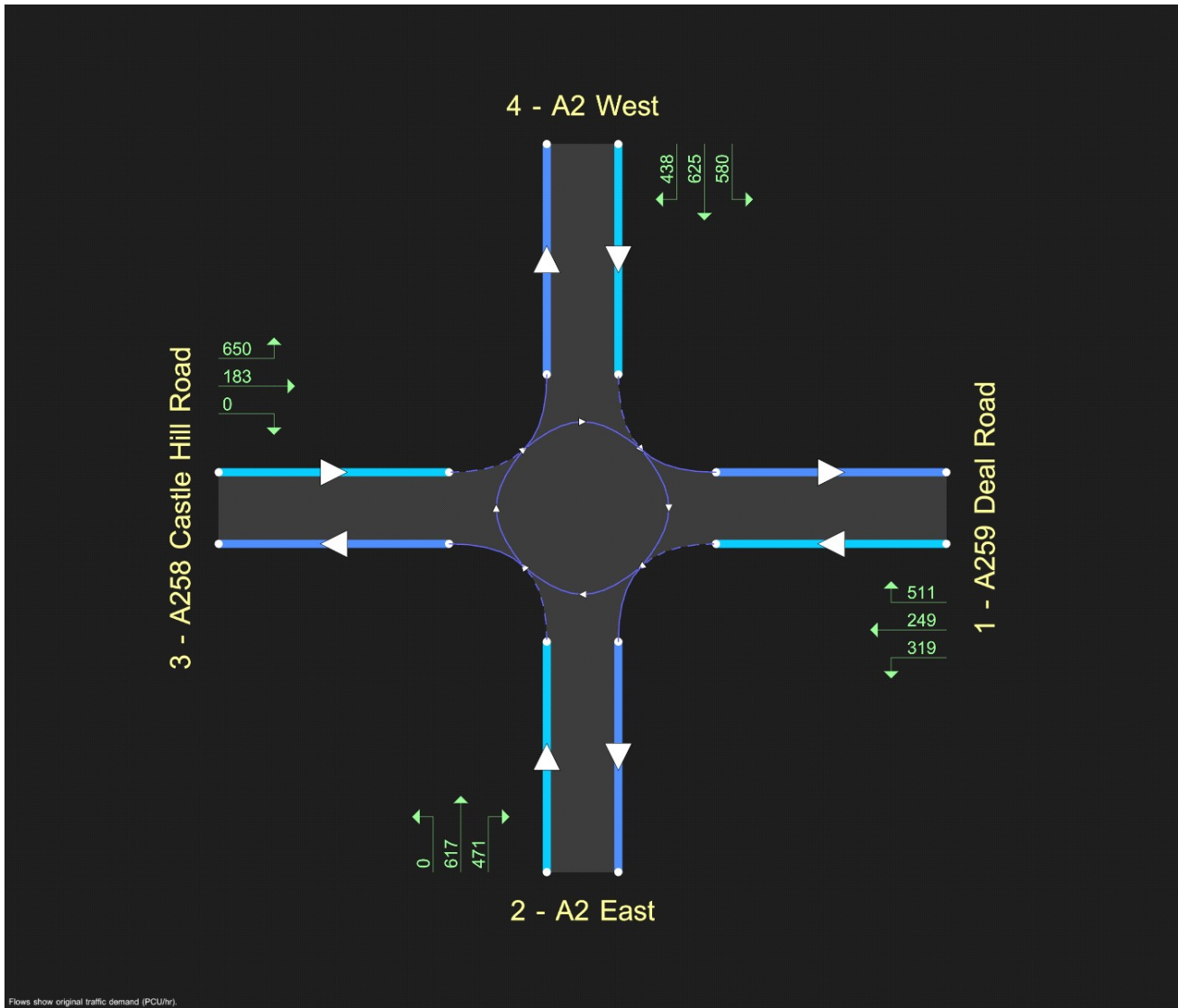
File summary

File Description

Title	
Location	
Site number	
Date	13/06/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\dansmith
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75						0.85	36.00	20.00		500

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
D5	2040 DS1 + DEV	AM	ONE HOUR	00:00	01:30	15	✓
D6	2040 DS1 + DEV	PM	ONE HOUR	00:00	01:30	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2040 DS1 + DEV, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Duke of York Roundabout	Standard Roundabout		1, 2, 3, 4	28.52	D

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	28.52	D

Arms

Arms

Arm	Name	Description	No give-way line
1	A259 Deal Road		
2	A2 East		
3	A258 Castle Hill Road		
4	A2 West		

Roundabout Geometry

Arm	V (m)	E (m)	I' (m)	R (m)	D (m)	PHI (deg)	Entry only	Exit only
1 - A259 Deal Road	3.20	8.50	30.0	31.0	60.0	34.0		
2 - A2 East	7.80	10.00	8.1	30.0	83.0	18.0		
3 - A258 Castle Hill Road	3.50	8.50	25.0	17.5	60.0	34.0		
4 - A2 West	8.10	9.20	2.5	25.0	83.0	15.5		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A259 Deal Road	0.610	2002
2 - A2 East	0.649	2878
3 - A258 Castle Hill Road	0.594	1943
4 - A2 West	0.631	2749

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	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2040 DS1 + DEV	AM	ONE HOUR	00:00	01:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - A259 Deal Road		ONE HOUR	✓	1079	100.000
2 - A2 East		ONE HOUR	✓	1088	100.000
3 - A258 Castle Hill Road		ONE HOUR	✓	833	100.000
4 - A2 West		ONE HOUR	✓	1643	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1 - A259 Deal Road	2 - A2 East	3 - A258 Castle Hill Road	4 - A2 West
From				
1 - A259 Deal Road	0	319	249	511
2 - A2 East	471	0	0	617
3 - A258 Castle Hill Road	183	0	0	650
4 - A2 West	580	625	438	0

Vehicle Mix

HV %s

	To			
	1 - A259 Deal Road	2 - A2 East	3 - A258 Castle Hill Road	4 - A2 West
From				
1 - A259 Deal Road	0	2	2	2
2 - A2 East	2	0	2	9
3 - A258 Castle Hill Road	2	2	0	2
4 - A2 West	2	9	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A259 Deal Road	0.92	32.00	9.9	D	990	1485
2 - A2 East	0.59	4.61	1.5	A	998	1498
3 - A258 Castle Hill Road	1.02	96.36	25.4	F	764	1147
4 - A2 West	0.79	7.66	3.8	A	1508	2261

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	812	203	798	1516	0.536	808	926	0.0	1.2	5.153	A
2 - A2 East	819	205	897	2295	0.357	817	708	0.0	0.6	2.573	A
3 - A258 Castle Hill Road	627	157	1199	1231	0.509	623	515	0.0	1.0	6.000	A
4 - A2 West	1237	309	490	2439	0.507	1233	1332	0.0	1.1	3.110	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	970	242	954	1420	0.683	966	1107	1.2	2.1	8.018	A
2 - A2 East	978	245	1074	2181	0.449	977	847	0.6	0.9	3.163	A
3 - A258 Castle Hill Road	749	187	1435	1091	0.686	744	616	1.0	2.2	10.455	B
4 - A2 West	1477	369	586	2378	0.621	1475	1592	1.1	1.7	4.152	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	1188	297	1165	1291	0.920	1162	1342	2.1	8.6	24.681	C
2 - A2 East	1198	299	1299	2034	0.589	1195	1029	0.9	1.5	4.528	A
3 - A258 Castle Hill Road	917	229	1746	907	1.012	860	748	2.2	16.4	52.579	F
4 - A2 West	1809	452	706	2303	0.786	1801	1899	1.7	3.7	7.387	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	1188	297	1170	1288	0.922	1183	1351	8.6	9.9	31.997	D
2 - A2 East	1198	299	1315	2024	0.592	1198	1038	1.5	1.5	4.615	A
3 - A258 Castle Hill Road	917	229	1758	899	1.020	881	755	16.4	25.4	96.362	F
4 - A2 West	1809	452	712	2299	0.787	1809	1927	3.7	3.8	7.660	A

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	970	242	961	1416	0.685	1000	1133	9.9	2.3	9.453	A
2 - A2 East	978	245	1101	2163	0.452	981	861	1.5	0.9	3.231	A
3 - A258 Castle Hill Road	749	187	1454	1079	0.694	841	627	25.4	2.4	21.490	C
4 - A2 West	1477	369	609	2364	0.625	1485	1686	3.8	1.8	4.322	A

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	812	203	802	1513	0.537	817	932	2.3	1.2	5.308	A
2 - A2 East	819	205	906	2290	0.358	820	713	0.9	0.6	2.595	A
3 - A258 Castle Hill Road	627	157	1207	1226	0.511	633	519	2.4	1.1	6.237	A
4 - A2 West	1237	309	494	2437	0.508	1240	1345	1.8	1.1	3.150	A

2040 DS1 + DEV, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Duke of York Roundabout	Standard Roundabout		1, 2, 3, 4	6.99	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	6.99	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2040 DS1 + DEV	PM	ONE HOUR	00:00	01:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1 - A259 Deal Road		ONE HOUR	✓	905	100.000
2 - A2 East		ONE HOUR	✓	1128	100.000
3 - A258 Castle Hill Road		ONE HOUR	✓	556	100.000
4 - A2 West		ONE HOUR	✓	1556	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A259 Deal Road	2 - A2 East	3 - A258 Castle Hill Road	4 - A2 West
From	1 - A259 Deal Road	0	109	288	508
	2 - A2 East	197	0	0	931
	3 - A258 Castle Hill Road	114	0	0	442
	4 - A2 West	626	579	351	0

Vehicle Mix

HV %s

		To			
		1 - A259 Deal Road	2 - A2 East	3 - A258 Castle Hill Road	4 - A2 West
From	1 - A259 Deal Road	0	2	2	2
	2 - A2 East	2	0	2	9
	3 - A258 Castle Hill Road	2	2	0	2
	4 - A2 West	2	9	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A259 Deal Road	0.72	9.62	2.6	A	830	1246
2 - A2 East	0.60	4.75	1.6	A	1035	1553
3 - A258 Castle Hill Road	0.70	13.99	2.3	B	510	765
4 - A2 West	0.68	4.59	2.2	A	1428	2142

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	681	170	698	1576	0.432	678	703	0.0	0.8	4.075	A
2 - A2 East	849	212	860	2319	0.366	847	516	0.0	0.6	2.629	A
3 - A258 Castle Hill Road	419	105	1227	1214	0.345	416	479	0.0	0.5	4.591	A
4 - A2 West	1171	293	233	2601	0.450	1168	1411	0.0	0.9	2.618	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	814	203	835	1493	0.545	812	841	0.8	1.2	5.378	A
2 - A2 East	1014	254	1029	2209	0.459	1013	618	0.6	0.9	3.238	A
3 - A258 Castle Hill Road	500	125	1469	1071	0.467	498	574	0.5	0.9	6.397	A
4 - A2 West	1399	350	279	2572	0.544	1397	1688	0.9	1.2	3.197	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	996	249	1022	1379	0.723	991	1029	1.2	2.6	9.340	A
2 - A2 East	1242	310	1257	2061	0.603	1239	755	0.9	1.6	4.700	A
3 - A258 Castle Hill Road	612	153	1795	877	0.698	607	701	0.9	2.2	13.324	B
4 - A2 West	1713	428	341	2533	0.676	1710	2061	1.2	2.1	4.546	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	996	249	1024	1377	0.723	996	1032	2.6	2.6	9.617	A
2 - A2 East	1242	310	1263	2058	0.604	1242	757	1.6	1.6	4.752	A
3 - A258 Castle Hill Road	612	153	1801	874	0.701	612	703	2.2	2.3	13.990	B
4 - A2 West	1713	428	342	2532	0.676	1713	2071	2.1	2.2	4.591	A

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	814	203	838	1491	0.546	819	845	2.6	1.2	5.511	A
2 - A2 East	1014	254	1037	2204	0.460	1017	621	1.6	0.9	3.272	A
3 - A258 Castle Hill Road	500	125	1477	1066	0.469	505	577	2.3	0.9	6.611	A
4 - A2 West	1399	350	281	2571	0.544	1402	1701	2.2	1.3	3.228	A

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A259 Deal Road	681	170	701	1575	0.433	683	707	1.2	0.8	4.127	A
2 - A2 East	849	212	865	2316	0.367	850	519	0.9	0.6	2.647	A
3 - A258 Castle Hill Road	419	105	1234	1210	0.346	420	482	0.9	0.5	4.656	A
4 - A2 West	1171	293	235	2600	0.450	1173	1419	1.3	0.9	2.637	A

Appendix 4



LANDSCAPE AND VISUAL BASELINE TECHNICAL NOTE

relating to

LAND SOUTH OF THE A2, WHITFIELD, KENT

on behalf of

Guildcrest Commercial

July 2023

<p>Date of Issue: 06 10/07/2023 Status/Revision: 2nd DRAFT Checked: ER Approved: NB</p>
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1 INTRODUCTION AND BACKGROUND

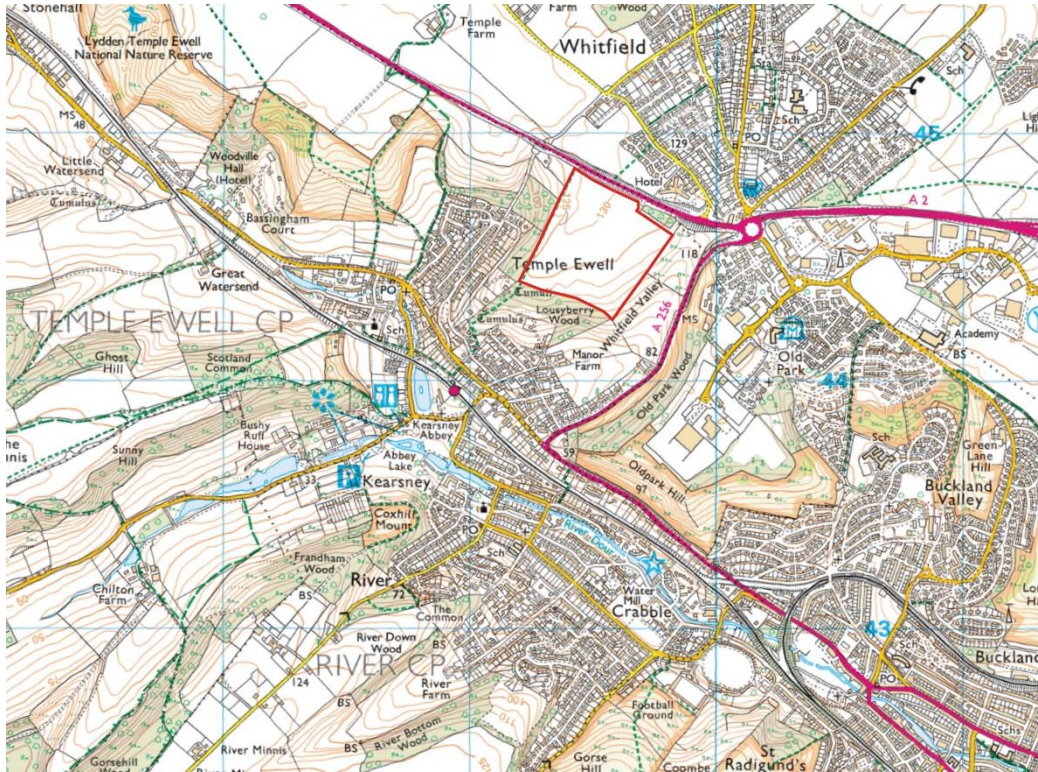
- 1.1 Huskisson Brown Associates (HBA) is a firm of Chartered Landscape Architects, established in 1987 and registered since then with the Landscape Institute. HBA has been a member of the Institute of Environmental Management and Assessment since 1992.
- 1.2 The practice has undertaken a range of landscape and visual assessment work for many clients including public bodies, private companies and individuals. This includes projects in the commercial, industrial, retail, recreational, healthcare, agricultural, infrastructure and residential development sectors including the presentation of evidence at Public Inquiries. The Practice has also given extensive development management and strategic planning advice to Local Planning Authorities on a wide range of projects.
- 1.3 HBA is now appointed by Guildcrest Commercial to undertake a high-level Landscape and Visual Appraisal, set out in this Technical Note, of land that lies south of the A2, Whitfield (the 'Site'; the extent of which is identified on the appended Figures). The purpose of this Technical Note is to advise on the landscape and visual implications of potential commercial development on the site.
- 1.4 This Technical Note records the landscape and visual baseline and give consideration to the range of landscape and visual issues relating to the potential development of the site for commercial use. It identifies the key landscape and visual opportunities and constraints that might inform the layout and design development of a commercial scheme proposal, including landscape features and visual attributes to be safeguarded and a broad strategy for landscape mitigation with regard to overcoming potential landscape constraints or where improvements might be able to be secured by a proposal for commercial development. The Technical Note is supported by a Landscape Strategy drawing illustrating the broad approach to landscape mitigation that would need to be achieved to accommodate development whilst minimising landscape and visual harm.
- 1.5 The preparation of this Technical Note has involved both desk-based and site work. Site work involved a walkover review of the site and walking some of the Public Rights of Way (PRoW) and roads in the local area to help determine the landscape character and visual context of the site and surrounding area, and to start to evaluate the degree of change that might be expected to arise from any proposed development. A site visit was carried out in April 2023 in clear weather conditions, when vegetation was predominantly defoliated.
- 1.6 The following documents and sources have been briefly reviewed and are considered to be the primary ones of relevance to the landscape and visual context of the site and its immediately surrounding area:
 - National Planning Policy Framework (July 2021)
 - Planning Practice Guidance Notes:
 - Design: Process and Tools (Published 6 March 2014, last updated 1 October 2019)
 - Natural Environment (Published 21 January 2016, last updated 21 July 2019)

- National Design Guide (30 January 2021)
- Kent Biodiversity Strategy (2020)
- Kent Downs AONB Management Plan 2021-2026
- Dover District Council Core Strategy (Adopted February 2021)
- Whitfield Urban Expansion Supplementary Planning Document (April 2011)
- The Landscape Assessment of Kent (2004)
- Kent Downs AONB Landscape Character Assessment Update 2020, by Fiona Fyfe Associates Ltd
- Dover District Landscape Character Assessment (January 2006)
- National Character Area profile 119 North Downs (NE431) (8 April 2013)
- MAGIC website
- KLIS Map
- Historic England website
- Online review of Historic Ordnance Survey mapping
- Google Earth and Google Map
- An Approach to Landscape Character Assessment, by Christine Tudor, Natural England (October 2014)
- Technical Guidance Note 02/21, Assessing Landscape Value Outside National Designations, the Landscape Institute.
- Guidelines for Landscape and Visual Impact Assessment, (GLVIA3) published in April 2013 by the Landscape Institute and the Institute of Environmental Management and Assessment, and associated clarifications.

1.7 This Technical Note is not a Landscape and Visual Impact Assessment (LVIA) and accordingly it does not assess the predicted impacts of any proposal upon landscape and visual receptors. It does however offer a preliminary consideration of landscape condition/quality and landscape value. The baseline information gathered could form the basis of a subsequent assessment when preliminary considerations could be refined. It should be noted that this Technical Note does not consider any other potential sites in the vicinity.

2 LANDSCAPE AND VISUAL SITE CONTEXT

2.1 The site and its local context are illustrated on the Ordnance Survey (OS) and aerial photograph below. Landscape designations and constraints are mapped on the accompanying Figure 911-001 'Landscape Constraints'.



HBA TN Figure 1 - Site Location on OS Explorer Map



HBA TN Figure 2 - Site Location on aerial photograph (Google Earth)

- 2.2 The site is a large and broadly square shaped agricultural field of approximately 20.33 hectares. It lies in open countryside to the south-west of Whitfield and north-east of the villages of Temple Ewell and Kearsney, on the north-western edge of the wider urban area of Dover.
- 2.3 The site is separated from Whitfield by the A2 trunk road which bounds the site to the north, save for at the eastern end of the site's northern boundary where a small 'memorial wood' separates this part of the site from the A2. There is a private and gated vehicular access track from the A2 into the site (and also appearing to provide access to the memorial wood), located approximately 175m from the north-east corner of the site and 425m west of the Whitfield roundabout junction on the A2.
- 2.4 On the northern side of the A2, clustered to the west of the Whitfield roundabout there are a range of commercial uses including a petrol filling station, McDonalds fast food restaurant and a Holiday Inn. Housing at the edge of Whitefield lies to the north of this. There is a new housing development on the northern side of the A2 opposite the site's northern boundary.
- 2.5 On its eastern side, the site boundary is defined by a hedgerow field boundary, with a further agricultural field beyond this. Whitfield Hill (A256) lies to the west of the neighbouring field and connects Whitfield roundabout (A2) and London Road in Kearsney. A stretch of woodland and open land follows the eastern side of the A256 with the White Cliffs Business Park set above this.
- 2.6 To the south, the site borders Lousyberry Wood, a deciduous woodland which forms part of the Temple Ewell and Lydden Download Local Wildlife Site. The Local Wildlife Site designation extends north-west across an area of woodland that addresses the western site boundary and separates the site from housing on the northern side of Temple Ewell.

Landform

- 2.7 The site is located in a relatively elevated position on the broadly south facing and undulating slopes of the valley to the River Dour, a chalk stream that runs through Kearsney and around 850m south of the site. The valley is one of numerous river and dry valleys that cut through the distinctive chalk ridge and dip slope landform of the North Downs. The north facing valley slopes to the River Dour lie within the Kent Downs Area of Outstanding Natural Beauty (AONB).
- 2.8 The landform of the site itself rises to a high point of around 130m Above Ordnance Datum (AOD) and a very localised ridge running north-east to south-west through the western side of the site. From this area of higher ground, the land falls to the western boundary (average 120m – 125m AOD) and has an overall fall to the south, with a low point of approximately 100m AOD in the site's south-eastern corner.
- 2.9 Beyond the site, the land continues to fall to the east through the Whitfield Valley, rising to the A256 and Old Park Wood.
- 2.10 To the south and south-west, the built form of the village of Temple Ewell is stepped into the lower and steeper wooded valley slopes, lying at between 25m AOD and 125m AOD. Temple Ewell and Kearsney sit at the head of the wider Alkham Valley and fall to the River Dour which

runs broadly south-east to north west (the railway line being offset but running almost parallel) and divides the villages.

- 2.11 To the north, the A2 road corridor generally forms a ridge in the landscape where it is predominantly located on embankment (or in false cutting) but is for the most part in cutting where it passes the site, the cutting grading out to the east. North of the A2 the landform is less intricate and is relatively flat. level open space and commercial development platforms addressing the opposite side of the A2.

Vegetation

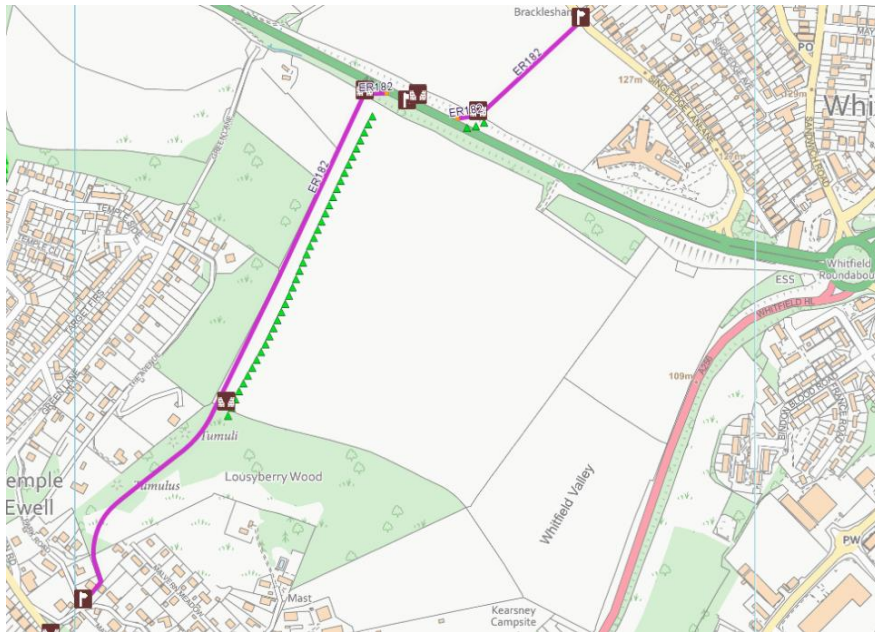
- 2.12 The land cover of the site is arable crops.
- 2.13 Site boundaries are vegetated by hedgerows (to the east and west), native woodland (to the south and west), roadside native planting belts (to the north) and tree cover associated with the memorial woods (to the north east). Hedgerow and woodland species are predominantly native and deciduous, including English Oak (*Quercus robur*), Field maple (*Acer campestre*), Beech (*Fagus sylvatica*), Ash (*Fraxinus excelsior*), Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*) and Hazel (*Corylus avellana*), and some holly (*Ilex aquifolium*).
- 2.14 To the north of the site (and A2), the landscape is more open although where there are hedgerows these tend to form quite significant and defining features to the fields and roadsides. A group of Pines forms a distinctive landmark near Temple Farm approximately 800m north-west of the site.
- 2.15 The chalk downland of Lydden Temple Ewell Nature Reserve to the west of the site is distinctive habitat and an important characteristic of the North Downs landscape.
- 2.16 To the east, the north-west facing upper slopes of the Whitfield Valley are wooded. The A256 sits above the valley floor and includes numerous semi-mature pine specimens that appear to have been planted over recent years.
- 2.17 Locally, the landscape includes a relatively high level of tree and woodland cover, with woodland frequently located on the valley sides and upper slopes and forming a backdrop to settlement. Many of the rural roads are hedge lined providing a good deal of containment.

Recreation, Public Rights of Way and Access

- 2.18 The site itself provides some recreational use as public footpath ER182 follows the western site boundary. The western side of the localised ridge on the site therefore forms the immediate visual setting to the footpath.
- 2.19 At the time of the site visit, the footpath did not provide a link to the A2 as indicated on Ordnance Survey and Kent County Council (KCC) online Rights of way map¹ (definitive map not inspected), the path terminating at the top of the densely vegetated cutting slope to the A2. Approximately halfway along the western site boundary, the footpath links to a permissive path through the woodland to the west.

¹ [Public Rights of Way - Public Rights of Way Map \(kent.gov.uk\)](https://www.kent.gov.uk/public-rights-of-way-map)

- 2.20 Public footpath 182 is severed by the A2, the footpath continuing on the northern side of the A2 where access to and across the trunk road is also blocked. On the northern side of the A2, the footpath crosses a public open space on the southern side of a new residential development, the open space including a pathway 'circuit' within it but this is not coincidental with the footpath alignment which is no longer demarcated on the ground.



HBA TN Figure 3 - Extract from KCC online Rights of Way map (purple line denotes footpath, green triangles denote vegetation management regime)

- 2.21 Further afield, the area is relatively well served by a network of rights of way and several areas of open access land, notably to the east, south and west of the site. This includes a stretch of land running to the east of the A256 through Old Park Wood, (around 230m east of the site), and within the Lydden Temple Ewell National Nature Reserve, over 500m west of the site. Gorse Hill and Whinless Down open access land lie on north facing slopes south of Crabble and St Radigunds.
- 2.22 North of the A2, bridleway ER128 follows the farm track to Temple Farm, an historic farmhouse set in the more open countryside on this side of the trunk road and passes under the A2 to provide access into the Temple Ewell Nature reserve and open access land within it.
- 2.23 There are numerous public rights of way following the valley slopes to the Alkham Valley and minor valleys that intersect the chalk ridges.

Ancient Woodland

- 2.24 The site does not contain or border onto any areas of ancient woodland.
- 2.25 Lenacre Wood is an area of ancient woodland that lies 580m north of the site. This is the only ancient woodland located within 1 km of the site.
- 2.26 Other areas of ancient woodland can be found more than 1 km to the south and west of the site and within the Kent Downs AONB.

Designations

2.27 The site is not covered by any landscape or heritage designation, however the following lie within close proximity:

Kent Downs AONB

2.28 The Kent Downs Area of Outstanding Natural Beauty (AONB) is a nationally protected landscape spanning from the white cliffs of Dover to Westerham in Kent where it meets the Surrey Hills AONB. The designated area covers 33% of Kent's land area. The Kent Downs AONB lies approximately 700m to the west of the site, at its closest point, and extends broadly northwest-southeast across the countryside west of Temple Ewell and Kearsney.

Historic landscape

2.29 The site is not located within a designation heritage landscape and does not contain any identified or designated historic landscape features.

2.30 In the wider landscape, Temple Ewell Conservation Area is located approximately 450m to the south west of the site's south-west corner, whilst Kearsney Court is a Grade II listed park and garden (list ref. 1001696), lying approximately 850m to the south-west of the site. Kearsney Court is notable for having been laid out in around 1900 by Thomas Mawson.

2.31 Listed buildings in the surrounding area include:

- Woodville, Grade II listed building, (ref. 1070035) lying around 450m south-west of the site.
- Numerous listed buildings associated with the Grade II listed Kearsney Abbey (list ref. 1069502), including a bridge, wall and ruins. All lie over 650m to the southwest of the site.

2.32 Reference to historic Ordnance Survey mapping² indicates that the field of the site was historically part of a larger field that extended to the north. Lousyberry Wood is a distinctive feature on historic mapping, with Green Lane forming a track on its western extent.

² National Library of Scotland website. [Home | National Library of Scotland \(nls.uk\)](https://www.nls.uk)



HBA TN Figure 4 - 2nd edition OS Map (1894 – 1895) overlaid on Bing aerial photograph (2022)

2.33 3rd edition OS mapping from the early 1900's indicates the larger field having been split into four, three areas lying in the site. Various revisions to the 3rd edition maps show either two or three field areas within the site. The wider landscape to the north and south-west has become more built-up, notably through the creation of Whitfield village to the north-east and development in-depth to the east and west of Green Lane where housing (on Target Firs, Temple Side and The Avenue) replaces around 1/3 of the original extent of Lousyberry Wood.



HBA TN Figure 5 - 3rd edition OS Map (1901 – 1910) overlaid on Bing aerial photograph (2022)

2.34 The A2 trunk road was constructed during the 1970's, resulting in a further change in land use around the site

Nature Conservation

- 2.35 The site is not designated for its wildlife or nature conservation interest.
- 2.36 To the west of the site, there is an interconnected network of designated wildlife sites that extend across the broadly south facing slopes above Temple Ewell and Lydden to the west. These include:
- Temple Ewell and Lydden Downland Local Wildlife Site (total area: 22 hectares), the eastern extent of which adjoins the site's southern and western boundaries.
 - Lydden Temple Ewell National Nature Reserve (NNR) (165m west of the site).
 - Lydden and Temple Ewell Downs Site of Special Interest (SSSI) (540m west of the site).
 - Lydden and Temple Ewell Downs Special Area of Conservation (SAC) (540m west of the site and contiguous with parts of the SSSI).
 - Lydden Temple Ewell Wildlife Trust Reserve (165m west of the site and contiguous with the NNR).

Associations

- 2.37 The landscape of the site is not known to have any particular cultural or literary association or connection with a famous person/people or historical event.

Visual Amenity

Landscape and visual attributes

- 2.38 A key positive landscape and visual attribute of the site is the undulating and elevated nature of its landform set beyond Lousyberry Wood and the wooded slopes to Temple Ewell.
- 2.39 The adjoining memorial wood to the north of the site lacks any sense of tranquillity due to its location next to the A2 and has awkward access. However, it has its own distinctive sense of place.
- 2.40 The site lies at a point of change in the landscape, at the northern edge of a wider tract of generally attractive undulating landform combined with woodland cover that are characteristic of the wider Kent Downs landscape to the south of the A2. Woodland vegetation and hedgerow boundaries on ridges and steeper slopes frequently frame the skyline and make an important contribution to the character of the settlements.
- 2.41 The setting of Temple Ewell and Kearsney at the head of the Alkham Valley and set into the wooded valley slopes with chalk downland, provides a strong sense of enclosure and identity to the villages.

Landscape and visual detractors

- 2.42 The main landscape and visual detractors are considered to be the busy A2 trunk road and nearby Whitfield roundabout and their associated traffic, signage and lighting and range of urban detailing, buildings and structures associated with the petrol filling stations and fast food restaurant. These factors impact on the tranquillity and character of the local landscape.

- 2.43 A line of telegraph poles and overhead cables cross the site running broadly north-east to south-west along the area of higher ground.
- 2.44 The large-scale warehouses and logistics centres at White Cliffs Business Park to the eastern side of the A256 (and south of the A2) are noticeable detracting features in views from high ground within the Kent Downs AONB due to their predominantly white and bright green cladding and roofing and their height and scale which tends to jut above any tree cover.

Visibility and Key Views

- 2.45 Refer to Photosheets and Viewpoints Location Plan at **Appendix A**
- 2.46 The local roads and rights of way network have been inspected to consider the visibility of the site in tandem with desktop study and review of initial viewshed data.
- 2.47 There are open views of the western side and west facing slopes of the site from footpath ER 128 along the western site boundary (Refer to Photograph 1 and 2). The landform of the site limits wider views. The site is screened by woodland in views from the southern part of footpath ER 128 through Lousyberry Wood.
- 2.48 Views from the adjoining permissive path are screened by woodland, however at the eastern end on immediate approach to the site, a central portion of the west facing slopes of the site can be seen over the access gate and framed by the woodland vegetation.
- 2.49 Views from footpath ER 128 and the public open space on the opposite side of the A2 to the site are limited by the roadside vegetation on both sides of the A2 (Refer to Photograph 4). Landform and vegetation contain views to the site from other public rights of way inspected on the northern side of the A2.
- 2.50 The elevated position of the site with open land spanning south, east and west slopes allied with the complex ridge and valley topography of the wider landscape means that there is potential for the higher land of the site to be visible from other areas of high ground to the east, south and west. Lousyberry Wood to the south and the woodland to the west provide a degree of containment to the site when viewed from the wider landscape to the west and south.
- 2.51 The level of woodland and hedgerow cover in the wider countryside and disposition of built form on valley slopes in the settlements limits visibility however the following viewpoint locations and visual receptors have been identified where the site is either visible or possible development on the site would have the potential to be visible:
- *Users of the A256.* (Refer to Photographs 5 and 7). Roadside planting is intermittent and allows occasional views north and west towards the south-eastern corner and eastern edge of the site beyond the eastern boundary hedge.
 - *Old Park Woods open access land.* Similar views are available from occasional locations in the open ground to the open access land east of the A256 (Refer to Photograph 6). Views from the open access land are for the most part obscured by vegetation
 - *Lydden Temple Ewell wildlife sites and open access land.* The site sits on high ground beyond the wooded valley slopes above the village of Temple Ewell. The ridge and west

facing slopes on the western edge of the site can be glimpsed as part of the wider backdrop to views which are across the open grassland foreground to the valley, with Temple Ewell attractively stepped down the wooded valley slopes. The skyline is for the most part tree-lined, becoming more sparse where the site forms the skyline.

- *Users of the A2.* The site is not currently visible from the A2, being screened by cutting slopes and roadside trees and vegetation. There is however potential for any development to be seen along any entrance road or glimpsed beyond vegetation.
- *Users of Public Rights of Way in the Kent Downs AONB.* A number of footpaths were inspected on the higher valley slopes of the Kent Downs. Views are mostly screened by field boundary hedgerows and intervening woodland and settlement. Long distance views have been identified from footpath ER 125 on higher ground near Ghost Hill and The Minnis approximately 1km south-west of the site (refer to Photograph 10) and looking along the open valley floor to Temple Ewell at the head of the valley, the village being set below woodland and Lousyberry Wood that form part of the wooded backdrop to the view. The site forms a minor component of the view and sits beyond the tree line to the western side of the site with high ground on the ridge and upper west facing slopes of the site just perceptible above this. Please note that not all footpaths have been inspected at this stage but there is potential for other glimpsed and long distance views of the high ground on the site to be possible from other rights of way on high ground and valley slopes that face towards the site.
- *Gorse Hill open access land.* Views are looking through woodland or across the valley landscape and settlements. Views to the site are therefore generally screened by the containing woodland and intervening built form and vegetation. There is scope for glimpsed views to be available of the high ground on the site as part of the visual backdrop above Lousyberry Wood.
- *Abbey Road south-west of River and Crabble.* Abbey Road partly follows a ridge above the northfacing slopes approximately 1km + south of the site. Views looking south are mostly screened by a roadside hedge but glimpsed views are possible from gateways and above the hedge in winter (Refer to Photograph 11) The site is not discernible in the view but Louseberry Wood can be identified and the site would be located beyond this, forming a very minor component of the view. The warehouse and logistics buildings at White Cliffs Business Park can be seen where their scale, height and colour contrasts with the otherwise countryside scene and muted tones of the landscape.

3 RELEVANT LANDSCAPE PLANNING POLICY

3.1 A summary of planning policy relevant to the landscape and visual context of the site and the proposed development is set out below.

National Policy

3.2 The National Planning Policy Framework (NPPF) (updated 20th July 2021) sets out the Government's national planning policy for England. The NPPF is a material consideration in determining planning applications (NPPF Paragraph 2). The Framework should be read as a whole (including its footnotes and annexes) (NPPF Paragraph 3). Its overall thrust is to promote sustainable development (NPPF Paragraph 7).

3.3 The following paragraphs of NPPF are of particular relevance to landscape and visual issues for the site and setting:

- **NPPF Section 12: Achieving well-designed places** is of relevance, in particular **paragraph 130** which states that planning policies and decisions should ensure that developments, inter alia, *“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”* and *“are sympathetic to local character and history, including the surrounding built environment and landscape setting...”* and *“establish or maintain a strong sense of place...”*
- **NPPF Section 15: Conserving and enhancing the natural environment, paragraph 174** requires that planning policies and decisions should contribute to and enhance the natural and local environment by, inter alia: *“a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan)”* and *“b) recognising 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.”* Whilst **Paragraph 176** requires that *“Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty...”*, also noting that *“The scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas.”*

3.4 Planning Practice Guidance (PPG) sits alongside the NPPF. Various sections of the PPG are of relevance to landscape and visual matters and should be taken into account:

- **Effective use of land.** (Provides guidance on making effective use of land, including planning for higher density development).
- **Natural Environment.** (Explains key issues in implementing policy to protect and enhance the natural environment, including local requirements). The Natural Environment section of the PPG in particular refers to development within the setting of AONBs, reiterating the importance of conserving and enhancing landscape and scenic beauty stating that *“Land within the setting of these areas often makes an important contribution to maintaining their natural beauty, and where poorly located or designed development can do significant*

harm. This is especially the case where long views from or to the designated landscape are identified as important, or where the landscape character of land within and adjoining the designated area is complementary. Development within the settings of these areas will therefore need sensitive handling that takes these potential impacts into account.” (PPG Paragraph: 042 Reference ID: 8-042-20190721, Revision date: 21 07 2019).

- 3.5 The **National Design Guide (NDG)** should also be used to inform any development proposal on the site.

Local Policy

- 3.6 The **Dover District Local Development Framework Core Strategy** was adopted in 2010 to set out the overall ambitions and priorities for the district between the time of adoption and 2026. The following policies are of relevance:

- **Policy CP 7 – Green Infrastructure Network** *“The integrity of the existing network of green infrastructure will be protected and enhanced through the lifetime of the Core Strategy. Planning permission for development that would harm the network will only be granted if it can incorporate measures that avoid the harm arising or sufficiently mitigate its effects. Proposals that would introduce additional pressure on the existing and proposed Green Infrastructure Network will only be permitted if they incorporate quantitative and qualitative measures, as appropriate, sufficient to address that pressure. In addition, the Council will work with its partners to develop the Green Infrastructure Framework and implement proposed network improvements.”*
- **Policy DM 1 – Settlement Boundaries** *“Development will not be permitted on land outside the urban boundaries and rural settlement confines shown on the proposals map unless specifically justified by other development plan policies, or it functionally requires such a location, or it is ancillary to existing development or uses.”*
- **Policy DM 3 – Commercial Buildings in the Rural Area.** *“Permission for new commercial development or the expansion of an existing business in the rural area will be given provided that:*
 - i. *It is located at a Rural Service Centre or a Local Centre as designated in the Settlement Hierarchy;*
 - ii. *It is consistent with the scale and setting of the settlement, or*
 - iii. *It is at a Village as designated in the Settlement Hierarchy provided that it would not generate significant travel demand and is in other respects consistent with the scale and setting of the settlement.*

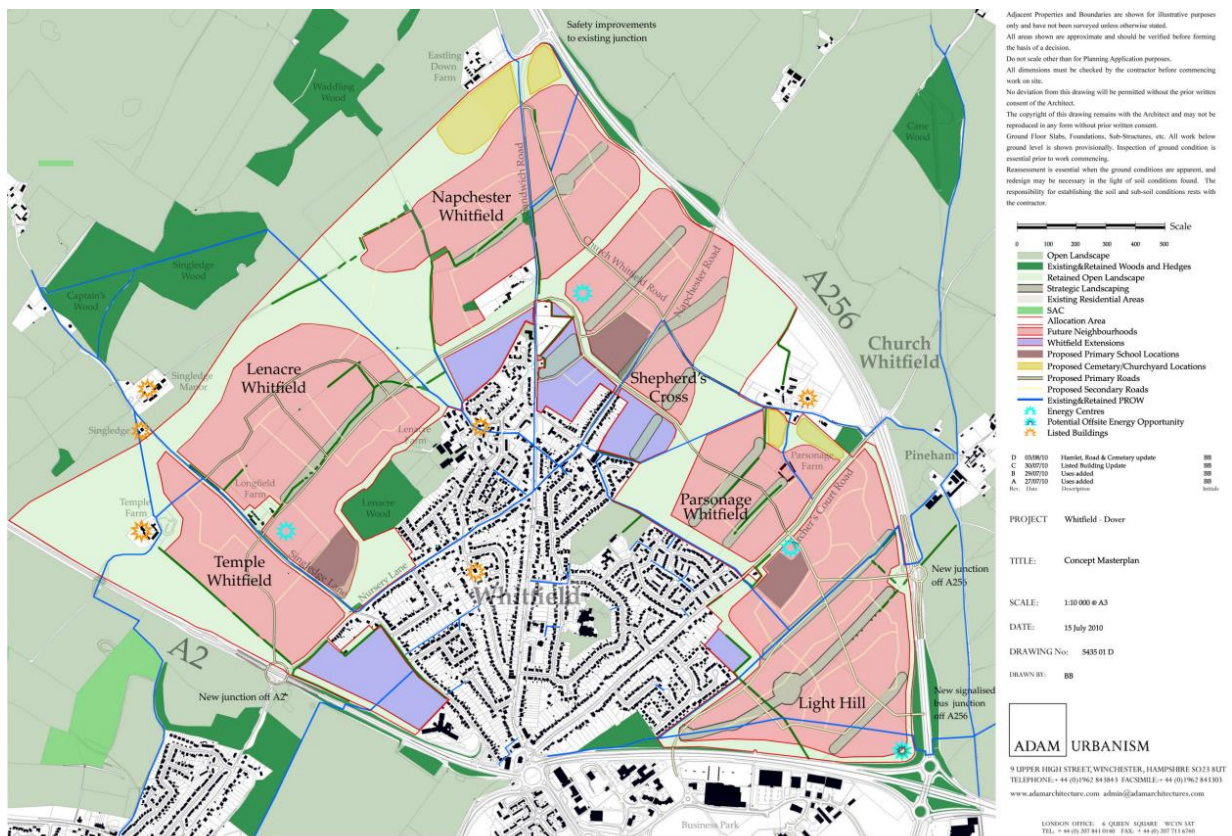
In all cases development should be within rural settlement confines unless it can be demonstrated that no suitable site exists, in which event it should be located adjacent to the settlement unless there is a functional requirement for it to be located elsewhere.”

- **Policy DM 15 - Protection of the Countryside** *“Development which would result in the loss of, or adversely affect the character or appearance, of the countryside will only be permitted if it is:*

- i. In accordance with allocations made in Development Plan Documents, or
- ii. justified by the needs of agriculture; or
- iii. justified by a need to sustain the rural economy or a rural community;
- iv. it cannot be accommodated elsewhere; and
- v. it does not result in the loss of ecological habitats.

Provided that measures are incorporated to reduce, as far as practicable, any harmful effects on countryside character.”

3.7 Whitfield is allocated (**Policy CP 11**) as a location for major urban expansion in the Core Strategy with land allocated for the development of around 5,750 homes supported by a range of physical, social and green infrastructure, retail, small scale professional offices and other uses such as pubs, cafés and community facilities. The Whitfield Urban Expansion Supplementary Planning Document (SPD) dated April 2011 provides the adopted Masterplan for the development. A copy of the Concept Masterplan is extracted below:



HBA TN Figure 6 - Concept Masterplan for Whitfield Expansion

3.8 The delivery of the masterplan will be phased and will see significant change over a phased period of time to the settlement of Whitfield and land on the northern side of the A2.

3.9 The new Dover District Local Plan to 2040 was submitted for Examination on 31st March 2023 and is not reviewed in this Technical Note.

Kent Nature Partners Biodiversity Strategy

- 3.10 The Kent Nature Partners Biodiversity Strategy was published in 2020 with the aim to *“deliver, over a 25- year period, the maintenance, restoration and creation of habitats that are thriving with wildlife and plants and ensure that the county’s terrestrial, freshwater, intertidal and marine environments regain and retain good health.”*
- 3.11 Objectives for terrestrial ecosystems, habitats and species include, by 2045:
- *“An ecological network of semi-natural habitat (high and low value) covering 30% of Kent (112,000 ha) (from the 2015 baseline of 27% and 100,872 ha).*
 - *More, bigger and less fragmented areas of wildlife-rich habitat outside the protected sites network for wildlife, with an increase in the overall extent of all priority habitats to ensure greater connectivity and resilience to climate change.*
 - *New development to better provide for a greener urban environment, through increased urban tree planting, the inclusion of integral wildlife niches, and green building and landscape design.*
 - *Protect and restore existing trees, hedgerow and woodland, whilst increasing the county’s tree cover with the right trees in the right places, which supports the recovery of wildlife, delivers natural climate solutions and enriches people’s lives.”*

Kent Downs AONB Management Plan

- 3.12 The Kent Downs AONB Management Plan sets out the long-term overall vision for the landscape of the AONB for the years 2021-2026 whilst also considering a longer term vision. The management plan sets out the special qualities for which the AONB is designated. This includes dramatic landform and views, biodiversity-rich habitats and a rich legacy of historic and cultural heritage.
- 3.13 Whilst the site does not lie within the AONB, the character and special qualities described are of relevance to considering appropriate landscape treatments whilst policies relating to the setting of the AONB may also be of relevance:
- *SD1 – “Ensure that policies, plans, projects and net gain investments affecting the Kent Downs AONB take a landscape led approach are long term, framed by the Sustainable Development Goals appropriate to the Kent Downs, cross cutting and recurrent themes, the vision, aims and principles of the AONB Management Plan.”*
 - *SD2 – “The local character, qualities, distinctiveness and natural resources of the Kent Downs AONB will be conserved and enhanced in the design, scale, siting, landscaping and materials of new development, redevelopment and infrastructure and will be pursued through the application of appropriate design guidance and position statements.”*
 - *SD8 – “Ensure proposals, projects and programmes do not negatively impact on the distinctive landform, landscape character, special characteristics and qualities, the setting and views to and from the Kent Downs AONB.”*

- SD11 – *“Major development should avoid the Kent Downs AONB in line with NPPF guidance. Where it is decided that development will take place that will have a negative impact on the landscape character, characteristics and qualities of the Kent Downs AONB or its setting, mitigation and or compensatory measures appropriate to the national importance of the Kent Downs landscape will be identified, pursued, implemented and maintained. The removal or mitigation of identified landscape detractors will be pursued.”*

4 LANDSCAPE CHARACTER

4.1 Landscape Character is defined in the Guidance for Landscape and Visual Impact Assessment 3rd Edition (GLVIA3) as:

“A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.”

4.2 The general hierarchy of the Landscape Character studies relevant to the site and its surroundings are set out below:

National Character

National Character Area (NCA) profiles were prepared by Natural England for the 159 NCA's defined across England. These NCA profiles include a description of the natural and cultural features that shape the landscape, how the landscape has changed over time, the current key drivers for ongoing change, and a broad analysis of each area's characteristics.

4.3 At this very broad landscape scale, the site lies within **NCA 119: North Downs**, *“a chain of chalk hills extending from the Hog's Back in Surrey and ending dramatically at the internationally renowned White Cliffs of Dover”*.

4.4 The key characteristics of relevance to the site and its surroundings include:

- *“Cretaceous Chalk forms the backbone of the North Downs. A distinctive chalk downland ridge rises up from the surrounding land, with a steep scarp slope to the south providing extensive views across Kent, Surrey and Sussex and across the Channel seascape to France.*
- *The south-facing scarp is incised by a number of short, bowl-shaped dry valleys, cut by periglacial streams and often referred to as combes. The undulating topography of the dip slope has also been etched by streams and rivers, today forming dry valleys, some of which carry winterbournes that occasionally flow in the dip slope, depending on the level of the chalk aquifer.*
- *The footslope of the escarpment supports arable cropping, the dominant land use within the NCA. In the east, the richer, loamy soils of the lower dip slope support large tracts of mixed arable and horticultural production.”*

4.5 Statements of Environmental Opportunity (SEO) of relevance are:

- *“SEO 1: Manage, conserve and enhance the distinctive rural character and historic environment of the North Downs, including the long-established settlement pattern, ancient routeways and traditional buildings. Protect the tranquillity of the landscape and sensitively manage, promote and celebrate the area's rich cultural and natural heritage, famous landmarks and views for future generations.”*

The Landscape Assessment of Kent

4.6 The Landscape Character Assessment of Kent was reported by Jacobs Baktie on behalf of Kent County Council in October 2004. The Site lies within the **East Kent Arable Belt** Landscape Character Area and is characterised by:

- *“Open, rolling landform with large arable fields and well-wooded hilltops. Simple pattern to the landscape.*
- *Narrow, winding lanes and dispersed settlement.*
- *Parkland trees and 18th century estate villages.*
- *Pine trees on field boundaries.*
- *Disused collieries, and associated colliery villages.”*

4.7 The condition of the character area was assessed as **Good** while its sensitivity is **Moderate**.

4.8 With regards to landscape actions for the character area, actions include:

- *“Conserve the large scale and manage the woodlands to promote wildlife interest.*
- *Upgrade the ecological value of some of the arable land by reverting selected areas to grasslands.*
- *Conserve the tranquillity and remote quality of the area.*
- *Conserve the remote settings of small hamlets and villages.”*

4.9 The summary of actions is to **Conserve and Reinforce**.

[Dover District Landscape Character Assessment](#)

4.10 The Dover District Landscape Character Assessment was published in January 2006 and identifies 12 landscape character areas within the district. The site lies at the eastern side of Landscape Character Area (LCA) 11: Lydden Hills.

4.11 Key Characteristics of LCA 11 Lydden Hills are noted as:

- *Steep valley sides*
- *Native hedgerows and tree clumps*
- *Pasture and arable land*
- *Small-medium sized fields*
- *Lack of development*
- *Flint walls and church*
- *Mixed building materials-brick, thatch, slate and Kent peg tiles*
- *Few roads*
- *Open views from north of area*
- *Lack of enclosure to the north*
- *Sheltered village settlement*

4.12 The description of LCA 11 Lydden Hills notes that “There is a distinct change in character south of the A2 caused by a difference in the landform and subsequent availability of views.” And that “The Lydden Hills area is characterised by landform. The topography is flat directly

south of the A2, becoming hilly, with steep south facing slopes overlooking Lydden valley towards the south of the character area.”

- 4.13 The geology of the Lydden Hills is noted as being *“dominated by upper chalk with some clay with flints to the north. A small ribbon of dry valley and nailbourne deposits runs along the contours of the downs above Lydden. Soils change from deep loam to clay to the north, to shallow well drained calcareous silty soils across the upper chalk.”*
- 4.14 In terms of land use and land cover:
“Land is used for farming, with pasture being dominant. Pasture land is situated within small enclosed fields around farmsteads and arable land dominates the fields to the south of the busy A2. Most of the steeper slopes are used for rough grazing, presumably too steep for tractors to cultivate. Fields are small in comparison to those in character areas to the north and boundaries run at 90 degrees to the contours. Boundaries comprise native hedgerows and some post and wire fencing. A mosaic like pattern is formed by the rhythmical occurrence of trees, hedgerows and fields. The Lydden and Temple Ewell Downs SSSI stretches across the chalk and lowland grassland of the downs, designated for the comprehensive assemblages of plants and invertebrates. It is also designated as a National Nature reserve”.
- 4.15 The above published assessments are considered to give a comprehensive overall summary of the landscape character of the wider rural landscape in which the site lies, and its landscape and visual context. The site itself differs from the more dominant wider pattern of flat pasture land adjacent to the A2.

Landscape Condition (Quality)

- 4.16 Landscape Condition (or Landscape Quality) is defined in GLVIA3 as being:
‘A measure of the physical state of the landscape. It may include the extent to which typical character is represented in individual areas, the intactness of the landscape and the condition of individual elements.’
- 4.17 The site is not a fully intact landscape having been historically ‘severed’ by the A2 road corridor, and the containing public footpath also having been interrupted by the trunk road. The northern field boundary is addressed by the vegetated cutting slopes to the A2 and management of this is outside of the landowner’s control. Other field boundaries are in relatively good condition although trees to the west are of mixed health and are unmanaged. As one might expect for active farmland, the landcover is well maintained. Overall, the landscape condition of the site itself is considered to be good to average.
- 4.18 The local and wider landscape is heavily influenced by the intricate and attractive ridge and valley landforms and their generally wooded slopes. It is for the most part, a coherent and settled landscape, although this has been slightly eroded by the introduction of largescale industrial warehouses at White Cliffs Business Park and associated with the A2 and around the Whitfield Roundabout.
- 4.19 Given the findings of the local character assessments and the observations from site visit, it is considered that the landscape quality of the countryside to in the vicinity of the site (south of

the A2) is generally good, according with most of the typical character traits identified in the published landscape character studies. There are however pockets of average and low quality landscape such as around Whitfield roundabout and where the White Cliffs Business Park intrudes upon the landscape.

Landscape Value

- 4.20 Landscape value is defined by GLVIA3 as: *“The relative value that is attached to different landscapes by society. A landscape may be valued by different stakeholders for a whole variety of different reasons”*.
- 4.21 Whilst the NPPF does not define ‘valued landscapes’ (NPPF Paragraph 174), it is acknowledged and established by case law, that value is not merely something that is designated either by statute, such as an Area of Outstanding Natural Beauty, or non-statutory process.
- 4.22 GLVIA3 notes at paragraph 5.19, where the valuing of the landscape is addressed that:
- “A review of the existing landscape designations is usually the starting point in understanding landscape value, but the value attached to undesignated landscapes also needs to be carefully considered and individual elements of the landscape – such as trees, buildings or hedgerows – may also have a value. All need to be considered where relevant”*.
- 4.23 It may also be appropriate to have regard to the other factors including those identified in Box 5.1, Page 84 of GLVIA3, listed as ‘range of factors that can help in the identification of valued landscapes’. Since GLVIA3 was published in 2013, appeal decisions, high court judgements and practitioners’ experience have provided further information about the factors which can be considered in assessing landscape value outside nationally designated landscapes. The Box 5.1 criteria have therefore been updated and refined in TGN 02/21 ‘Assessing landscape value outside national designations’ (Table 1) to cover the headings of:
- *Natural heritage*
 - *Cultural heritage*
 - *Landscape Condition*
 - *Associations*
 - *Distinctiveness*
 - *Recreational*
 - *Perceptual (scenic)*
 - *Perceptual (wildness and tranquillity)*
 - *Functional*
- 4.24 The wider landscape of the AONB should be expected to be considered a landscape of high value and also a ‘valued landscape’ in NPPF terms.

- 4.25 Key features of value in relation to the site include the recreational value provided by footpath ER 182 which although now severed by the A2 provides a connection to the permissive path at the edge of Temple Ewell woodland west of the site leading to the wider open access land beyond.
- 4.26 With regard to distinctiveness and perceptual scenic qualities, the site provides a contribution to the perception of the settlement of Temple Ewell, the local ridge providing a part of the backdrop to the otherwise wooded valley slopes within which the village is set and also that create a wooded skyline.
- 4.27 The site does not include land or features valued for their cultural heritage and neither is it wild, remote, secluded or tranquil. The presence of the lit A2 corridor and Whitfield Roundabout prevents a sense of dark night sky. The natural heritage and biodiversity value of the site is unknown.
- 4.28 North of the A2, the landscape has been widely allocated for a large scale settlement expansion and although not without features of value, could be considered to be of lower value than the landscape to the south. It is considered that any features or characteristics of particular value do not currently influence the site and would not be likely to be impacted by potential development on the site.

5 LANDSCAPE AND VISUAL CONSIDERATIONS

- 5.1 The site lies in open countryside on elevated ground spanning a local ridge to the Whitfield Valley that intersects the wider Dour River Valley. It lies beyond the contained settlement edge to Temple Ewell and is separated from Whitfield by the A2 road corridor.
- 5.2 Any proposed development on this site would need to be demonstrably landscape led in order to ensure it is well located such that it respects the character of Temple Ewells and the Lydden Hills and protects the landscape character of the Kent Downs AONB.
- 5.3 Clearly, as a greenfield site, there would be an inherent loss of rural landscape resource (as would be the case for any other greenfield development around Temple Ewell and Whitfield), however, it is considered that there is some scope for a modest and small-scale commercial development to be sensitivity accommodated on the north-eastern part of the site and set within a robust woodland structure that would assist with respecting the intrinsic character and visual amenity of the locality.
- 5.4 Viewed from the west and south-west, the site rises to the localised ridge on site making the western edge of the site (and west facing slopes) more locally exposed and partially visible in winter above the wooded valley slopes to Temple Ewell. Development on the western side of the site and along the ridge and its upper slopes would be noticeable and could be locally significant and adverse to the established character of the area and significant from the wider landscape. The high ground on the site is that part which is most likely to be visible, even where only glimpsed, in long-distance views from the wider landscape to the south and south-west, including the AONB.
- 5.5 There is potential for any built form on the higher ground to be visible in views from the northern side of the A2 where the site and built form in the locality are currently screened from view although this should be considered in the context of the widespread changes that will take place in this landscape due to the allocated Whitefield extension.
- 5.6 The visual amenity of public footpath ER 182 which runs along the site's western boundary would also be significantly adversely impacted by any development at this side of the site.
- 5.7 Built development on the crest and upper slopes of the localised ridge (notably the west facing slopes) should be avoided. This area could instead incorporate woodland and tree planting that would make a positive contribution to the setting of Temple Ewell and any wider views from the south and south-west by increasing tree cover along the ridge and strengthening the wooded backdrop to the settlement and skyline. This could also provide greater habitat connectivity between Lousyberry Wood and the hedgerows to the north and east of the site.
- 5.8 The south-east facing slopes in the south-east corner of the site are visible on the skyline in occasional views from the A259 and open access land to the east, looking along the Whitfield Valley. Built development would be apparent at Day One and should be avoided or very carefully sited in this location to ensure that it is set within a robust landscape structure that provides 'layers' of tree planting that would help to break up built forms, provide a wooded backdrop and containment in the longer term.
- 5.9 The north-eastern part of the site is considered to offer the most appropriate location where

a low-level commercial development might be able to be sensitively sited, with potential for a larger development footprint to extend through the lower slopes to the south and taking into consideration the ability to achieve a robust landscape structure of containing woodland that would also contribute to wider landscape character. Careful consideration would need to be given to the siting and extent of built form, which would inevitably need to incorporate areas of level hard surface for car parking and vehicular access. This would require cutting into the natural landform of the site and should be considered as a 'sunken' platform using subtle mounding/false cutting or terracing separated by tree lines belts, both planted with trees and woodland to help set the buildings into the landform. The natural valley landform means that this could be difficult to achieve without the use of retaining structures or incorporating split levels across building footprints.

- 5.10 The scale, height and materiality of any buildings are important considerations. Buildings should sit comfortably below the predicted canopy height of new woodland and tree planting so that they do not break the skyline and a wooded skyline is retained to views from the south and south-west. Muted colours and modest building footprints should be used to avoid creating noticeable and contrasting built features in the view such as is noted for some buildings at White Cliffs Business Park in long distance views to the south.
- 5.11 The existing access from the A2 provides the most logical location for access to a new development in landscape and visual terms. Care would need to be taken to minimising vegetation loss and achieving appropriate gradients and retaining solutions through the existing cutting and sloping ground. Opportunity could also be taken for a new access to combine improved access and a small area of parking for the adjoining offsite memorial wood.
- 5.12 Any development proposal for the site should respect the key sensitivities outlined in the various landscape characterisation studies and within this Technical Note, in particular with regard to ensuring that development does not intrude into views from the wider landscape, notably from the AONB and respecting the character of Temple Ewell and the Lydden Hills.
- 5.13 A diagrammatic Landscape Strategy plan (drawing **HBA-911-009** at **Appendix A**) indicates the broad approach that should be adopted to help avoid landscape and visual harm. An additional approach is indicated on drawing **HBA-911-010** at **Appendix A** that illustrates how a larger development area might be accommodated on the site within a strong landscape framework that would be in keeping with and help to embed the development into the wider landscape character and minimise the potential for adverse visual effects in the longer term.
- 5.14 Recommendations and mitigation measures for aiming to achieve this are set out below:

Mitigation measures

- 5.15 The overarching objective of the landscape strategy for any development proposal should be as far as possible to protect and enhance the character of the site's landscape setting, with particular regard to the special qualities of the Kent Downs AONB, and to ensure that the inevitable changes arising from any development would as far as practicable be appropriately mitigated over time.

- 5.16 Any future development proposal would need to be subject to iterative design informed by both a Landscape and Visual Impact Assessment and contributions from an appropriate design team to ensure the wider environmental setting is appropriately addressed. A detailed topographic survey and associated specialist surveys should inform any development proposal.
- 5.17 The following key landscape and visual mitigation measures should also be given consideration to help achieve this:
- The overall heights, scale and materiality of new buildings will need to be very carefully considered and be such as to avoid appearing industrial or overly urbanising. Buildings should be low level and sit well below the canopy of existing trees and predicted tree heights to avoid intruding into the skyline. Colours should be muted. Materials should reflect local vernacular and could incorporate timber cladding to assist with integration.
 - Buildings should be set into the site – for example, through the creation of a ‘sunken’ platform and use of subtle mounding and grading to the new containing woodland belt, through the use of terracing of built/surfaced area and separation of terraces with tree belts and the use of split level buildings.
 - Buildings should not be located on the west facing slope/western side of the ridge on site.
 - Buildings and landscape belts will need to be very carefully sited on the eastern side of the site. The treatment of the eastern edge of the proposed development platform and layout of buildings within it should have regard to views towards the site from the A256 and nearby open access land, where parts of the high ground, south-east corner and eastern boundary are visible. The intention should be that buildings sit below a wooded backdrop created by the woodland belt to the western side of the site and spanning the localised landform ridge (ie. that rooflines do not break the skyline), with generous tree planting belts separating built forms.
 - A new woodland belt and structural planting should wrap around the proposed development platform and in particular span the localised ridge on site to both contain the new development, mask landform alterations and strengthen the existing wooded backdrop and skyline to Temple Ewell when viewed from the west/south-west. This will also create a wooded backdrop to the site when viewed from the east and south. The aim should be to create an attractive woodland corridor managed for the long term to achieve both landscape enhancement, screening and biodiversity gain. This would have the effect of containing development on the site and screening views of built form from public viewpoints to the south and south-west, in the longer term.
 - The woodland belt could be strengthened by groundworks to both lower the level of the development ‘platform’ and slightly elevate the landform to the woodland planting and help set built form into the site.
 - On the eastern site boundary, the existing hedgerow should be augmented with additional tree planting, to minimise views of new buildings when viewed from the A256 and nearby open access land.

- Views from footpath ER 182 should be respected by the location of built form on the other side of the local ridge and through setting out of the proposed woodland planting so that there is an open margin on the lower slopes adjoining the footpath.
- The location and setting out of trees and new woodland planting should respond to the site's natural topography and the wider landscape patterns, with woodland used to frame the ridge and upper valley slopes, provide connectivity with Lousyberry Wood and hedgerows to the north and east and also ensure that built form is set well below the tree canopies.
- Additional tree cover, scrub planting and wildflower margins could be incorporated both within the development and at its boundaries to help retain a strong sense of tree cover, soften built forms and create spaces for workers and visitors to relax outside, without detracting from the character of the site.
- The overall planting strategy objective should be to embed the development into a landscape framework that respects the landscape character of the local area and links to existing offsite woodland patterns. Species local to the area and of local provenance such as Hawthorn, Hazel, Field Maple, Thorn, Blackthorn and Oak should be used but Ash should be avoided. Some evergreen cover could be provided by Holly and Box.
- Any development proposal must demonstrate a positive contribution towards the Kent Downs AONB and achieving the objectives of the Management Plan and show how relevant guidance has been considered to meet the design standards required by the Management Plan of the other national and local policies.
- It will probably be appropriate to curtail Permitted Development Rights to control outer boundary treatments and limit commercial paraphernalia (such as bins and storage).
- There is an opportunity to create a footpath / permissive path connection from the northern end of footpath ER 182 to the proposed site entrance (existing access track to the A2) that would also serve the memorial wood.
- Sensitive design measures should also be employed to ensure that the impacts of lighting are minimised.
- Any development will need to deliver minimum statutory Biodiversity Net Gain, either on or off site, with habitats secured for at least 30 years. This should involve a coordinated approach to landscape and ecological design and management such that the appropriate solutions are delivered both in landscape and ecological terms that also respond to operational, environmental and financial requirements.

5.18 It will be expected that there would be a requirement for the woodland buffer area to be sustainably managed for the long term by means of a detailed Landscape and Environmental Management plan (LEMP) secured either by condition or legal agreement.

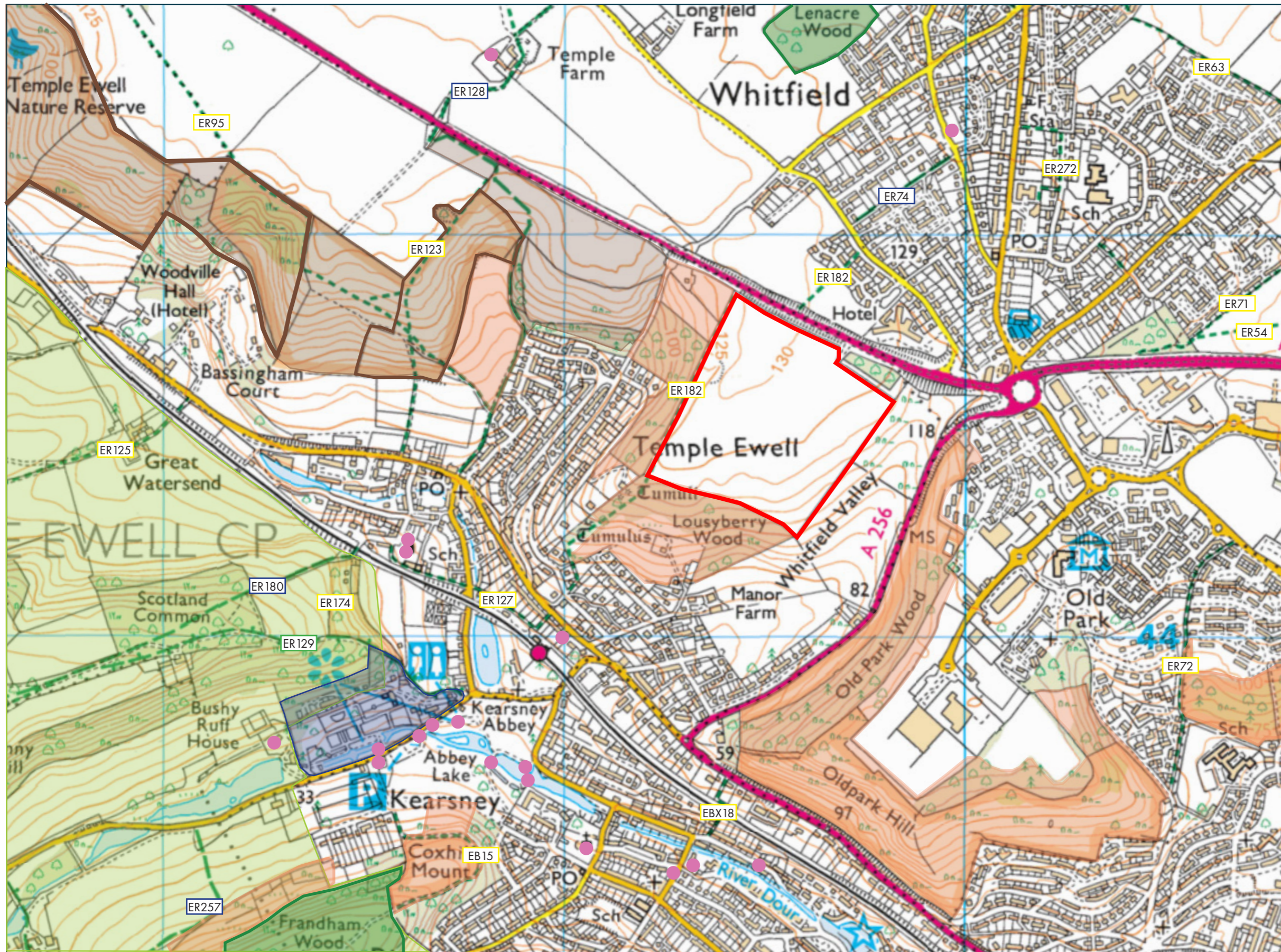
6 CONCLUSION

- 6.1 The site is a large and broadly square shaped agricultural field of approximately 20.33 hectares to the north of Temple Ewell and southwest of Whitfield.
- 6.2 The site is not designated for its landscape quality but lies in an open countryside location on elevated ground spanning a local ridge to the Whitfield Valley that intersects the wider Dour River Valley. Much of the wider countryside to the south of Kearsney and Temple Ewell lies within the Kent Downs Area of Outstanding Natural Beauty (AONB). The site could be considered to lie within the setting of the AONB.
- 6.3 The site lies beyond the contained settlement edge to Temple Ewell and is separated from Whitfield by the A2 road corridor which borders the site to the north. Lousyberry Wood adjoins the site to the south whilst a remnant part of the wood follows the site's western boundary.
- 6.4 Public footpath ER 182 is aligned along the site's western boundary but has been severed by the A2 in the north. It does however provide a link to a permissive path that links through the adjoining woodland to a wider network of public rights of way and open access land that span a chain of grassland and woodland habitats around Temple Ewell Nature Reserve to the west of the site.
- 6.5 The site lies within NCA 119 North Downs (2013) assessed by Natural England, the East Kent Arable Belt in the Landscape Assessment of Kent (2004) and LCA 11: Lydden Hills in the Dover District Landscape Character Assessment (2006).
- 6.6 Much of the area north of the A2 is allocated for a large-scale urban extension to Whitfield that is being built out in phases over several years.
- 6.7 The landscape of the site in its countryside context, is attractive undulating landform of intersecting dry and river valleys with frequently wooded valley sides. The site forms part of the otherwise wooded backdrop to the settlement of Temple Ewell and the wooded skyline to countryside views from the south and south-west (including from within the Kent Downs AONB). The landscape is divided by the A2 road corridor and as such the site has limited intervisibility or connectivity with the landscape to the north.
- 6.8 Any proposed development on this site would need to be demonstrably landscape led in order to ensure it is well located such that it respects the character of Temple Ewells and the Lydden Hills and protects the landscape character of the Kent Downs AONB.
- 6.9 The levels and shape of the landform of the site and existing distribution of woodland cover suggests that any development should be contained to the north-east and parts of the eastern portion of the site. This is further confirmed by the range of views of the site from the public footpath on its western boundary and wider views from the rights of way to the west and south-west and potential visibility from the AONB to the south, although it is acknowledged that the eastern end of this part of the site (and the south-east corner) are also in view from the A259 and adjoining open access land.
- 6.10 A larger development footprint would inevitably result in a degree of adverse visual effects when viewed from the A259 and open access land to the east where the south-east facing slopes in the south-east corner of the site and parts of the ridge are visible on the skyline in

occasional views from the A259 and open access land to the east, looking along the Whitfield Valley. Built development would be apparent at Day One and should be avoided or very carefully sited in this location to ensure that it is set within a robust landscape structure that provides 'layers' of tree planting that would help to break up built forms, provide a wooded backdrop and containment in the longer term.

- 6.11 Very careful consideration of levels and the scale, height and materiality/colours of buildings would be required to ensure that a proposal would be as sympathetic as possible to the local context.
- 6.12 A wrap-around woodland landscape buffer area and robust belts of tree planting within the development are considered essential to provide a suitable landscape framework. All the site should fall within the long term coverage of a detailed and fully funded Landscape and Ecological Management Plan.
- 6.13 Notwithstanding the above, it would be inevitable that there would be a loss of landscape resource by any development of a green field site. However, the particular characteristics of the site suggest that the relatively enclosed nature of the southern part of the site offers some opportunities for sensitively designed commercial units, ideally, with access secured from the existing entrance track on the A2.

APPENDIX 1 – FIGURES AND PHOTOSHEETS



- KEY:
- Site Boundary
 - Kent Downs AONB
 - Ancient Woodland
 - National Nature Reserve (NNR)
 - Site of Special Scientific Interest (SSSI) also contiguous with Special Area of Conservation (SAC)
 - Local Wildlife Site (LWS)
 - Registered Parks and Gardens
 - Listed buildings
 - Public Rights of Way
 - FP Footpath
 - BR Bridleway
 - BY Byway (Open to all traffic)





- KEY:
- Site Boundary
 - View Location

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View 1 - View looking north-east from footpath ER182



View 2 - View looking south-east from a permissive path connecting PRow ER182 to open access land at Lydden Temple Ewell Nature Reserve



View 3 - View looking south-east from footpath ER182



View 4 - View looking south-west from PRoW ER182 to the north of the A2



View 5 - View looking west from A256 opposite field gate



View 6- View looking west across Whitfield Valley from Oak Wood Park open access land



View 7 - View looking north-west from escape on A256



View 8 - View looking east from footpath ER123 in open access land at Lydden Temple Ewell Nature Reserve



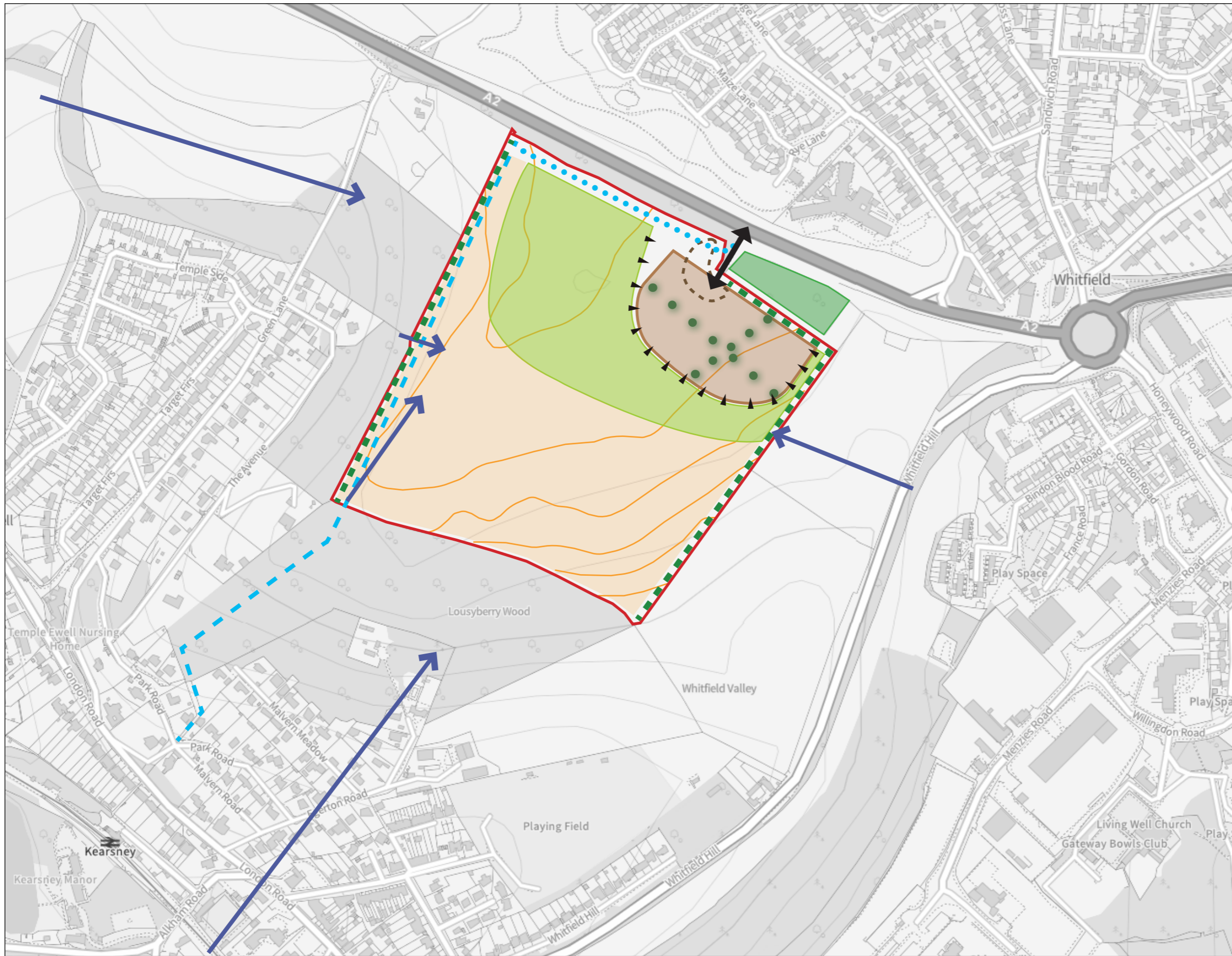
View 9 - View looking east from footpath ER123 in open access land



View 10 - View looking north-east from footpath ER125

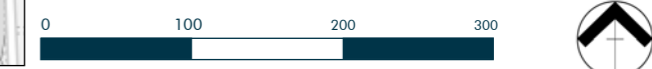


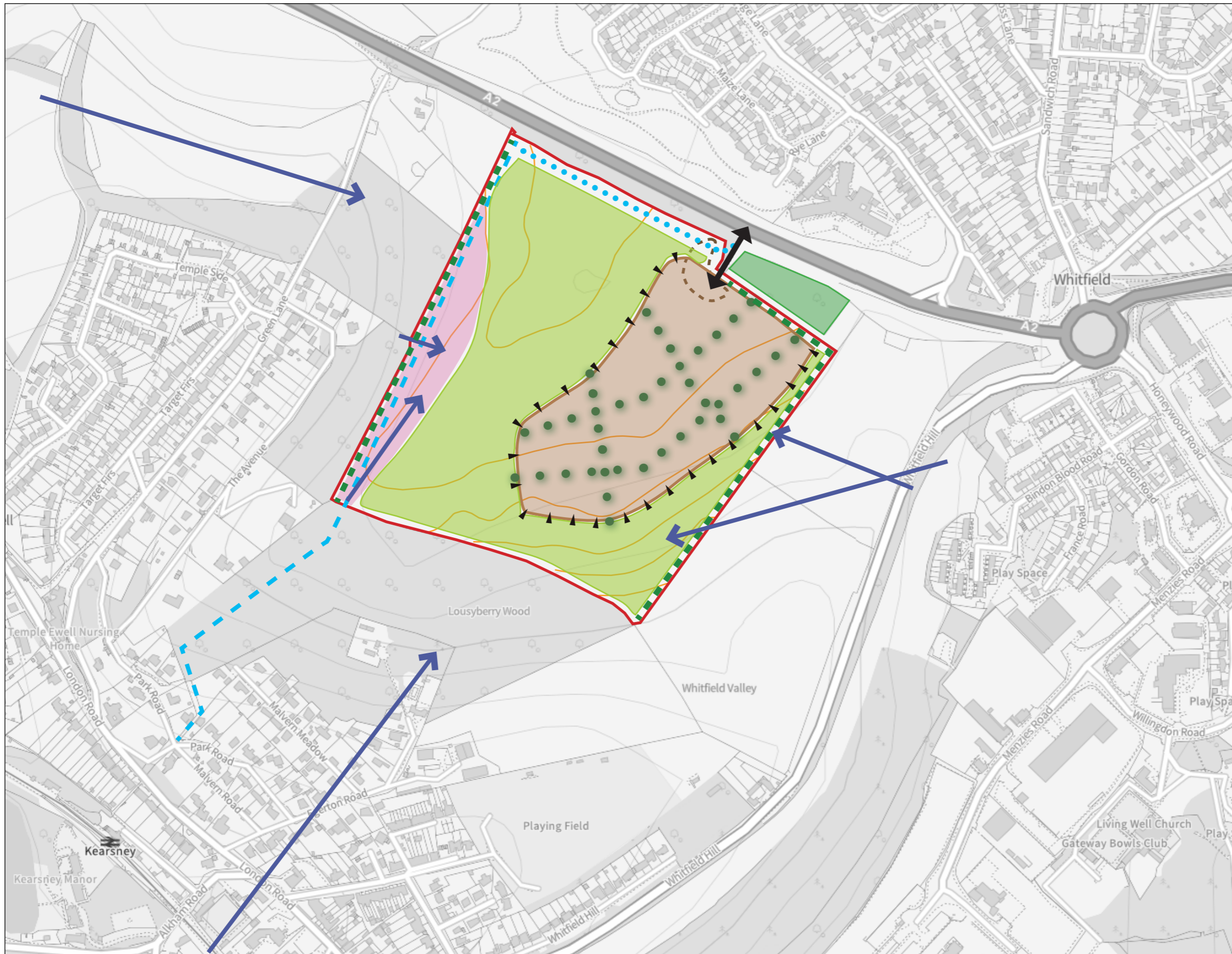
View 11 - View looking north from Abbey Road



- KEY:
- Site Boundary
 - Potential commercial development area
 - Small scale units to be located in a 'sunken' platform/terraced or split level forms.
 - Muted colour palette to be used
 - Terraces, areas of parking and buildings to be broken up with belts of tree planting.
 - ↔ Preferred access
 - ➔ Key view to be retained
 - Existing mound
 - Existing hedgerow retained and reinforced
 - Proposed meadow edge (woodland glade) to public footpath
 - Existing memorial woodland retained - Opportunity to create improved access and parking provision within proposed commercial
 - Proposed woodland belt and structural planting to contain development and mask earthwork alterations
 - Existing footpath ER132
 - Potential footpath/permissive route connection
 - ~ Existing contours on site (interpreted from OS Explorer mapping and subject to site survey).

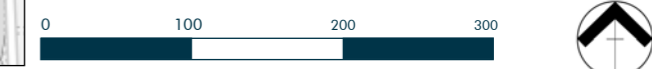
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- KEY:**
- Site Boundary
 - Potential commercial development area
 - Small scale units to be located in a 'sunken' platform/terraced or split level forms.
 - Muted colour palette to be used
 - Terraces, areas of parking and buildings to be broken up with belts of tree planting.
 - ↔ Preferred access
 - ➔ Key view to be retained
 - Existing mound
 - Existing hedgerow retained and reinforced
 - Proposed meadow edge (woodland glade) to public footpath
 - Existing memorial woodland retained - Opportunity to create improved access and parking provision within proposed commercial
 - Proposed woodland belt and structural planting to contain development and mask earthwork alterations
 - Existing footpath ER132
 - Potential footpath/permissive route connection
 - Existing contours on site (interpreted from OS Explorer mapping and subject to site survey).

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Appendix 5

**LAND AT WHITFIELD VALLEY
TEMPLE EWELL
KENT:
PRELIMINARY ECOLOGICAL ASSESSMENT**

BY

MARTIN NEWCOMBEⁱ

21st November 2022

D165 Temple Ewell (TR294445)R



Martin Newcombe Wildlife Management Consultancy
01233 720229

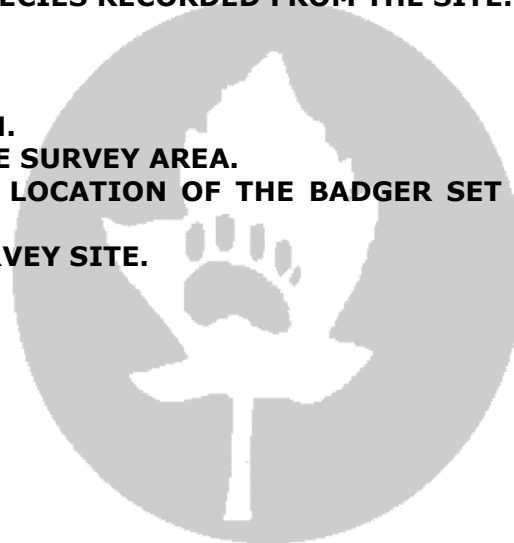
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1.0 INTRODUCTION	3
2.0 METHODS	5
3.0 RESULTS	6
4.0 DISCUSSION AND CONCLUSIONS	7
5.0 BIBLIOGRAPHY	10

APPENDIX

1 INITIAL LIST OF SPECIES RECORDED FROM THE SITE.

FIGURES

- 1 THE SITE LOCATION.**
- 2 SKETCH MAP OF THE SURVEY AREA.**
- 3 THE APPROXIMATE LOCATION OF THE BADGER SET IS SHOWN BY THE BLUE CIRCLE.**
- 4 A VIEW OF THE SURVEY SITE.**



1.0 INTRODUCTION

1.1 This document was compiled in order to report upon a preliminary ecological survey of land on the eastern side, and above the village of Temple Ewell, Kent¹. The survey site consists of an approximately level area of arable land which is in a rural area and is surrounded by woodland on the south – eastern and part of the north – western border; it is surrounded by scrub and pasture on the rest of the north – western boundary, by the remainder of the field, scrub and then the A2 trunk road on the north – eastern boundary, and by the steep pastures of the Whitfield Valley on the south – eastern side. There is a narrow margin of vegetation on the north – eastern, south – eastern and south – western sides which averages approximately one metre wide. The site is located approximately 100 metres east of the nearest part of Temple Ewell village. There were no buildings on site. The property is located at a maximum of 130 metres OD and the soil is clay – sand drift over chalk. The location of the survey site is shown in Figure 1 whilst there is a sketch map of the layout of the site in Figure 2.

1.2 There are the following designated **sites** within approximately one kilometre of the survey site:

- Lydden and Temple Ewell Downs, which is a Kent Wildlife Trust nature reserve, a National Nature Reserve², a Site of Special Scientific Interest³ and a Special Area of Conservation⁴. It 630 metres to the west of the survey site.
- Alkham, Lydden and Swingfield woodlands SSSI is located one kilometre to the west.
- Next to the south – eastern and part of the south – western edge of the survey site is Lousyberry Wood which is a Local Wildlife Site⁵ as part of Temple Ewell and Lydden LWS.
- Old Park Hill, which is a Kent Wildlife Trust nature reserve and an LWS, is located 250 metres south – east of the survey site.
- Whitfield Down and Buckland Down LWS is located 290 metres to the south – east.

¹ OS / TR294445– approximate centre. Grid reference taken from <http://gridreferencefinder.com/#>

² These are nature reserves which are designated under Part III of the National Parks and Access to the Countryside Act 1949 and are considered to be of national importance.

³ Hereafter 'SSSI'. SSSIs are protected by law to conserve their wildlife or geology.

⁴ Hereafter 'SAC'. SACs are defined by the European Union's Habitats Directive, in order to protect the habitats and species listed in annex I and II of the directive which are considered to be of European interest.

⁵ Hereafter 'LWS'. LWS are protected against development at a local (county) level.

- Lenacre Wood LWS is located 670 metres north of the survey site. The wood is also ancient woodland⁶.

1.3 It is proposed to develop the site⁷.



⁶ Ancient Woodland is protected by the provisions of the National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2021).

⁷ Rebus Planning Solutions Ltd., verb. comm.

2.0 METHODS

2.1 The site **visit** took place on Friday 18th November 2022 and took approximately two hours, during which time the entire site was visited. The purpose of the visit was to carry out ecological scoping surveys as follows:

2.1.1 A search was made for any species, or habitat suitable for any species that are specifically **protected** for conservation purposes by wildlife legislation⁸ such as badgers⁹, bats and common reptiles¹⁰, using appropriate established techniques e.g.:

- Assessment of potential habitat for reptiles by comparison of the habitat on site with descriptions of potential reptile habitat given by Gent and Gibson (2003) as augmented by earlier personal experience.
- Identifying plants using Stace (2019) and Poland and Clement (2009).

2.1.2 A search was also made for species¹¹ that are included within the short list of the national **Biodiversity Action Plans** and associated lists¹². For birds, a search was made for species which are included within the red part of the national bird '**Red List**'¹³ as well as any other species that were recorded within the Kent Red Data Book¹⁴, Kent Rare Plant Register¹⁵ and other similar publications.

2.1.3 Because of the proximity of protected sites, the **biological records** for the site were obtained from the Kent and Medway Biological Records Centre¹⁶.

⁸ Mostly, this included species listed in <http://jncc.defra.gov.uk/page-3408> as being protected by the Wildlife and Countryside Act 1981 and related legislation.

⁹ Meles meles.

¹⁰ E.g. common lizard (*Zootoca vivipara*), grass snake (*Natrix helvetica*) and slow – worm (*Anguis fragilis*).

¹¹Or habitat suitable for species.

¹² Biodiversity Steering Group, 1995 as amended. Hereafter known as the 'BAP'. Also, the species subject of Biodiversity 2020 (<https://www.gov.uk/government/publications/biodiversity-2020-a-strategy-for-england-s-wildlife-and-ecosystem-services>).

¹³ Stanbury (2021).

¹⁴ Waite, 2001. Hereafter referred to as 'KRDB'.

¹⁵ <http://bsbi.org/kent>

¹⁶ Hereafter 'KMBRC'.

3.0 RESULTS

3.1 The **vegetation** of the survey site was probably closest to Rodwell's (1992) MG7 *Lolium perenne* leys. The list of species is given in Appendix 1, but it was noteworthy that all of these species were mainly in the one metre margin of the survey site.

3.2 The following evidence of species, or habitat suitable for any species which are specifically **protected** under wildlife legislation was found:

- There were paths, foraging signs and footprints of **badger** throughout much of the site. In addition, an outlying badger sett was found close to the western end of the southern edge of the survey site, on sloping land just below the boundary hedgerow. The sett was impossible to directly access from the survey site due to the density of the hedge and the presence of a substantial fence, but it appeared to consist of two active entrances with recent spoil heaps of plateau drift soil and flints.

3.3 No evidence of any **BAP**, KRDB or other notable species was found on site.

3.4 The **KMBRC** records, which were significant included:

- The nearest record of slow worm was dated 2013 and was in TR297451, which is from the Kearsney campsite, 153 metres south – west of the survey area. There were large numbers of records from TR290440 at Kearsney, but none of them were recent.
- The nearest records of common lizard were from Old Park Hill which is the other side of the Whitfield Valley and is separated by the A256 Whitfield Hill road. The habitat at Old Park Hill nature reserve is very suitable, so it was no surprise that there were 39 records of lizards from here, all dating from between June 2003 to November 2006. There were also large numbers of records of slow worm from the same place.
- Hedgehog¹⁷ was found at the nearest location at TR297441 at Lydden on 14/6/04 and 22/9/18, neat the Kearsney campsite.

¹⁷ Hedgehog (*Erinaceus europaeus*) is a species of 'principal importance' under Section 41 of the Natural Environment and Rural Communities Act (2006) and is protected from deliberate harm by Schedule 6 of the Wildlife and Countryside Act (1981).

4.0 DISCUSSION AND CONCLUSIONS

- 4.1** Short surveys such as this one are good at giving a sample of the ecological value of a given site and showing which species, if any, require more detailed survey¹⁸.
- 4.2** The **methods** of the survey have been used extensively elsewhere with consistent results and accord with good practice guidelines¹⁹. Signs of protected species and their habitat parameters are reasonably obvious to an experienced surveyor and ecological surveys of this type are valuable in terms of helping to decide whether protected or notable animals or plants are likely to be present, are present, or have been present in or around a site and whether further, more detailed Phase 2 survey is needed for certain species. However, the results of a survey are partially decided by the time of year at which the survey takes place, the stages in an organism's life cycle, and the accessibility of the site. At this site, access was complete.
- 4.3** The **vegetation** type of the site is a widespread and common one²⁰ which is widespread throughout the British Isles, as were the plants which occurred in the arable margins; the presence of some species reflected the habitats on neighbouring land.
- 4.4** The presence of **badger** as a species that uses the existing habitat for feeding and travelling across is not really significant, as it is the setts and the animals themselves which are protected. However, consideration must be given to the layout of any proposed development and the requirement for badgers to continue crossing the site, as otherwise, although they may adapt, they can cause significant long-term problems in the built environment. As far as the sett is concerned, the underground parts of the sett will be present beneath the survey site, and so it may be necessary to consider this when developing the site, as penetration of badger tunnels and chambers during the installation of foundations and trenches would be an offence if not licenced under the 1992 Protection of Badgers Act after planning permission has been granted. In addition, it would be desirable to inspect the sett more closely so that an assessment could be made as to the need, or otherwise, for underground badger protection fencing to protect any built structures that are to be located in close proximity to the sett.

¹⁸ Stork and Samways, 1995.

¹⁹ E.g. Chartered Institute of Ecology and Environmental Management, 2013: British Standards Institute, 2013, Collins, 2016.

²⁰ Rodwell, 1998.

4.5 The **records** from the KMBRC, as expected, largely related to the nearby protected areas, and nearly all of them could be discounted because of lack of suitable intervening habitat, development or transport obstacles; for example, although common lizard appears to be common in Old Park Wood, the A256 Whitfield Hill road is a very busy thoroughfare, and is an effective barrier to wildlife that tries to cross it. Even were animals able to cross it, there is ribbon development in the way along part of the road, as well as short grassland in the form of grazing land in the Whitfield Valley as well as the short grass of the recreation ground. The survey site itself is very unsuitable habitat, with the only potentially suitable habitat in terms of food resources being the strip at the edge of the field. Hedgehog occurred much nearer, on the north side of the A256 but there is likely to be little to attract the species in the survey site for most of the year for the same reasons.

4.6 Consideration was also given to a wide range of other protected species that might occur on site, but none were found. For example:

- There were no suitable trees or buildings on site which offered habitat for roosting **bats**. As a result there is no impact and no need for mitigation.
- It appears that no scrub or hedgerows are being affected by the proposed development, although there has been no indication of where access roads would enter the site. The hedgerows round the site were all on neighbouring land, so are unlikely to be affected by any proposed development. As a result, there is no impact on **dormouse**²¹ and no requirement for mitigation.
- There were no ponds within 500 metres of the survey site, but Kearsney pond is located 546 metres to the south – west. However, it is separated from the survey site by the former A2 London Road and a railway line, as well as a large amount of development, so the probability of there being any terrestrial **great crested newts**²² on site is minimal. This species was not included in the KMBRC data, is not therefore considered to be likely to suffer any impact from any proposed development.
- The peripheral hedgerows and woodland, although outside the survey site, will be used by nesting **birds** in the breeding season²³, due to their density. Since wild birds, their nests and eggs are protected by the Wildlife and Countryside Act 1981, any work close to these habitats must take place outside this period.

²¹ Dormice (*Muscardinus avellanarius*) are protected by the Wildlife and Countryside Act 1981, and the Conservation of Habitats and Species Regulations 2019.

²² Anon, verb. comm. Great crested newts (*Triturus cristatus*) are protected by the Wildlife and Countryside Act 1981 and the Habitat Regulations 2019.

²³ Which is approximately mid – March to July inclusive.

4.7 Any potential development proposals for the survey site will not directly affect the **designated sites** in the area.

4.8 In **summary**, therefore, there is no suitable habitat on site for protected species.

4.9 It is, however, strongly recommended that, in order to accord with the National Planning Policy Framework²⁴ and to supply some positive ecological benefits, some of the wildlife conservation measures and **mitigation** suggested by Gunnell, Murphy and Williams (2013) for instance, should be incorporated into any proposed Scheme by means of a biodiversity plan for the completed development. This should include:

- A range of bird nest boxes should be erected on the site for breeding birds.
- A range of Schwegler bat boxes should be erected on the site for the purposes of supplying bat roosting opportunities.
- Any areas which are to be reseeded or landscaped should be reseeded with a suitable wildflower seed mix to encourage pollinating insects.
- In order to support the needs of bats and nocturnal insects, any lighting that is erected on site should be either low - pressure sodium lamps or mercury lamps fitted with ultraviolet filters. The brightness of lamps should be kept as low as possible and be directed to where it is needed to avoid unnecessary spillage of light. Lighting should not be upwardly - directed light and lighting durations should be limited by fitting timers to all external lights.

²⁴ Ministry of Housing, Communities and Local Government, 2021.

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APPENDIX 1: INITIAL LIST OF SPECIES RECORDED FROM THE SITE (All data approximate) (Notable species in red)				
	SCIENTIFIC NAME	VERNACULAR NAME	NOTES	NO SPP
MOSESSES				
	<i>Brachythecium rutabulum</i>	A moss		
	<i>Thuidium tamariscinum</i>	A moss		1
VASCULAR PLANTS				
	<i>Acer pseudoplatanus</i>	Sycamore	Seedlings.	
	<i>Alliaria petiolata</i>	Hedge Garlic		
	<i>Anthriscus sylvestris</i>	Cow Parsley		
	<i>Arctium sp.</i>	Burdock		
	<i>Arrhenatherum elatius</i>	False Oat - grass		
	<i>Brachypodium sylvaticum</i>	Wood Tor - grass		
	<i>Brassica nigra</i>	Black Mustard		
	<i>Carex sp.</i>	Unidentified Sedge		
	<i>Clematis vitalba</i>	Old Man's Beard		
	<i>Dipsacus fullonum</i>	Fuller's Teazel		
	<i>Epilobium ciliatum</i>	American Willow herb		
	<i>Epilobium hirsutum</i>	Great Hairy Willow herb		
	<i>Galium aparine</i>	Goosegrass		
	<i>Geranium dissectum</i>	Cut-leaved Cranesbill		
	<i>Geranium robertianum</i>	Herb Robert		
	<i>Geum urbanum</i>	Herb Bennett		
	<i>Hedera helix</i>	Ivy		
	<i>Helminthotheca echoides</i>	Bristly Oxtongue		
	<i>Heracleum sphondylium</i>	Hogweed		
	<i>Iris foetidissima</i>	Stinking Iris		
	<i>Lolium perenne</i>	Rye Grass	Provisional identification.	
	<i>Ranunculus repens</i>	Creeping Buttercup		
	<i>Rosa canina</i>	Dog Rose	Seedlings.	
	<i>Rubus fruticosus agg.</i>	Blackberry		
	<i>Rumex acetosa</i>	Sorrel		
	<i>Rumex obtusifolius</i>	Broad Dock		
	<i>Sambucus nigra</i>	Elderberry		
	<i>Smyrniolum olusatrum</i>	Alexanders		
	<i>Taraxacum officinale agg.</i>	Dandelion		
	<i>Thelycrania sanguinea</i>	Dogwood		
	<i>Urtica dioica</i>	Stinging Nettle		
	<i>Veronica chamaedrys</i>	Birdseye Speedwell		
	<i>Vicia faba</i>	Broad Bean	Crop aftermath?	33
BIRDS				
	<i>Columba palumbus</i>	Woodpigeon	Flying over.	
	<i>Corvus corone</i>	Carrion Crow	Flying over.	
	<i>Erithacus rubecula</i>	Robin		
	<i>Troglodytes troglodytes</i>	Wren		
	<i>Turdus merula</i>	Blackbird		5
MAMMALS				
	<i>Meles meles</i>	Badger	Foraging signs only.	
	<i>Oryctolagus cuniculus</i>	Rabbit		2
Total number of species: 41				

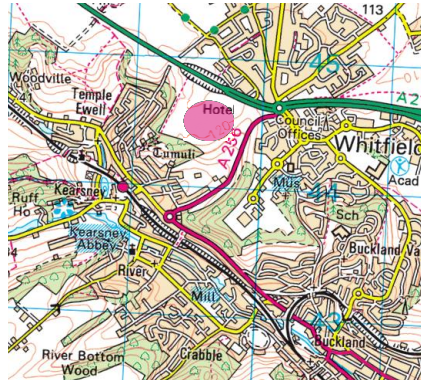


Figure 1: THE SITE LOCATION.
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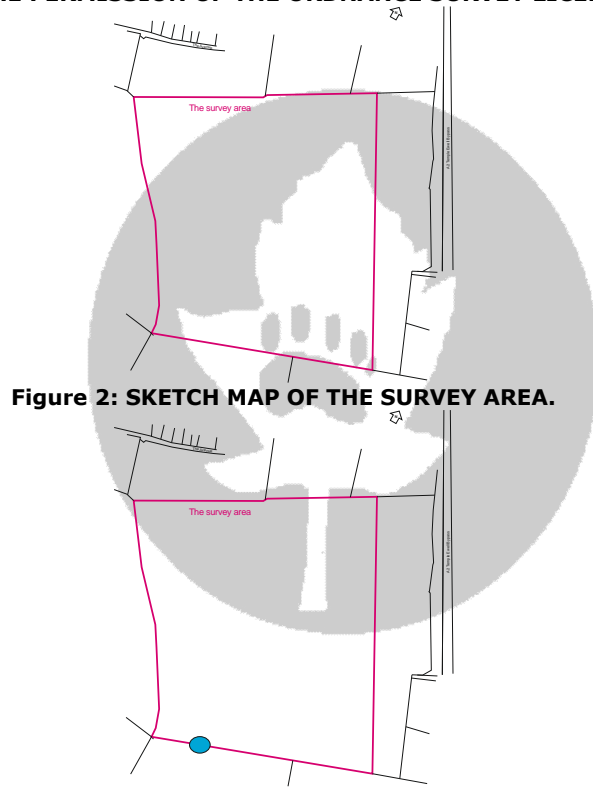


Figure 2: SKETCH MAP OF THE SURVEY AREA.

Figure 3: THE APPROXIMATE LOCATION OF THE BADGER SET IS SHOWN BY THE BLUE CIRCLE.



Figure 4: A VIEW OF THE SURVEY SITE.

ⁱ Martin Newcombe is principal of MN Wildlife, a small ecological practice in Kent, which has now been running for over 30 years. Martin studied botany and zoology at college before qualifying as a further education lecturer. His interests and that of his practice are in mammals and woodland matters, with extensive experience in badgers, bats, dormice, deer, woodland management and conservation and general ecology. He holds a Natural England (NE) bat class licence level 2, and a NE dormouse licence, and has also held many NE badger licenses.