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**TECHNICAL NOTE – 05**

**JERSEY FARM TRAFFIC AND TRANSPORT TECHNICAL NOTE**

**JERSEY FARM, CRAWLEY, WEST SUSSEX**

**PROMOTION OF SITE INTO CRAWLEY BOROUGH COUNCIL LOCAL PLAN**

**18<sup>TH</sup> NOVEMBER 2021**

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**1.0 Introduction and Context**

- 1.1 Crawley Borough Council (CBC) is currently consulting on its Draft Local Plan (Regulation 19 consultation).
- 1.2 Connect Consultants has been instructed to support the promotion of land to the north of Crawley and adjacent to Manor Royal, know herein as Jersey Farm, for a strategic employment site within the Local Plan.
- 1.3 The site comprises approximately 20 hectares of largely undeveloped greenfield land, located south of Gatwick Airport and northwest of the Manor Royal employment zone on the north side of Crawley.
- 1.4 The site lies partially within the Gatwick Safeguarded Land (CBC Local Plan Policy GAT2), and partially within the Indicative Search Corridor for a Crawley Western Relief Road (CWRR) (CBC Local Plan Policy ST4) [also known as the Crawley Western Link Road (CWLR)] which passes approximately east-west through the site.
- 1.5 The Local Plan evidence base is supported by strategic traffic modelling undertaken by Stantec on behalf of CBC. The "*Crawley Transport Study: Transport Study of Strategic Development Options and Sustainable Transport Measures: Draft Crawley Local Plan 2021 – 2037*" by Stantec (dated December 2020) was published on 18<sup>th</sup> May 2021.
- 1.6 All three of the strategic modelling assessment scenarios include 2,095sqm of B8 use on Land at Jersey Farm (Site A), which is not included in the Reference Case scenario.
- 1.7 Planning permission exists within the site for a unit of approximately 1,780sqm (gross external area) for B8 use, accessed off the northwest end of County Oak Way.
- 1.8 The Jersey Farm proposal for the CBC Local Plan is for an employment site comprising a mix of B2 and B8 land-uses in buildings of various sizes, as an extension to the existing Manor Royal employment zone.
- 1.9 The proposed Jersey Farm development comprises the following: -
  - 48,150sqm Warehousing.
  - 4,070sqm Industrial uses.
- 1.10 An initial illustrative site masterplan is provided at Appendix 1.
- 1.11 Connect Consultants engaged in a formal pre-application enquiry with the Local Highway Authority (LHA) West Sussex County Council (WSSCC) via a video-meeting on 16<sup>th</sup> June 2021. The advice received from WSSCC following that meeting has been used to guide the next stages of work, which are set out within this Technical Note (TN).

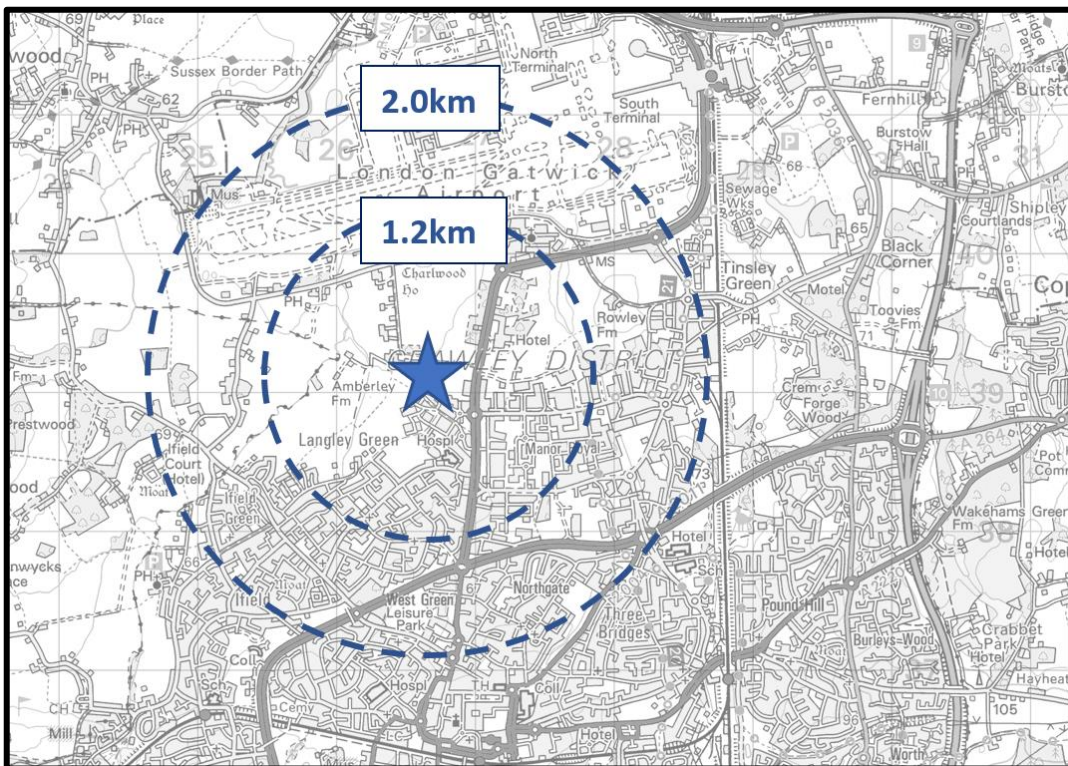
## 2.0 Site Access Arrangements

- 2.1 The site benefits from an existing access route via County Oak Way, providing vehicle and non-vehicle access, and from Public Rights of Way connecting the site to County Oak Lane / Whitworth Road, and to the A23 London Road.
- 2.2 The site also benefits from approximately 120m of its eastern boundary lying congruent with the public highway on the western side of the A23 London Road, opposite the junction of the A23 with Hydehurst Lane.

### Pedestrian Access

- 2.3 The Institute of Highways and Transportation (IHT) guidance document titled 'Providing for Journeys on Foot' identifies a maximum walk distance of 2.0km for commuter, school and sightseeing walk trips, 800m for town centre walk trips and 1.2km for trips elsewhere.
- 2.4 The approximate 2.0km commuter walk catchment and the 1.2km catchment, based on an 'as the crow flies' distance from the approximate centre of the Jersey Farm site, are shown at Figure 2.1.

**Figure 2.1 – 1.2km and 2.0km Walk Catchment**



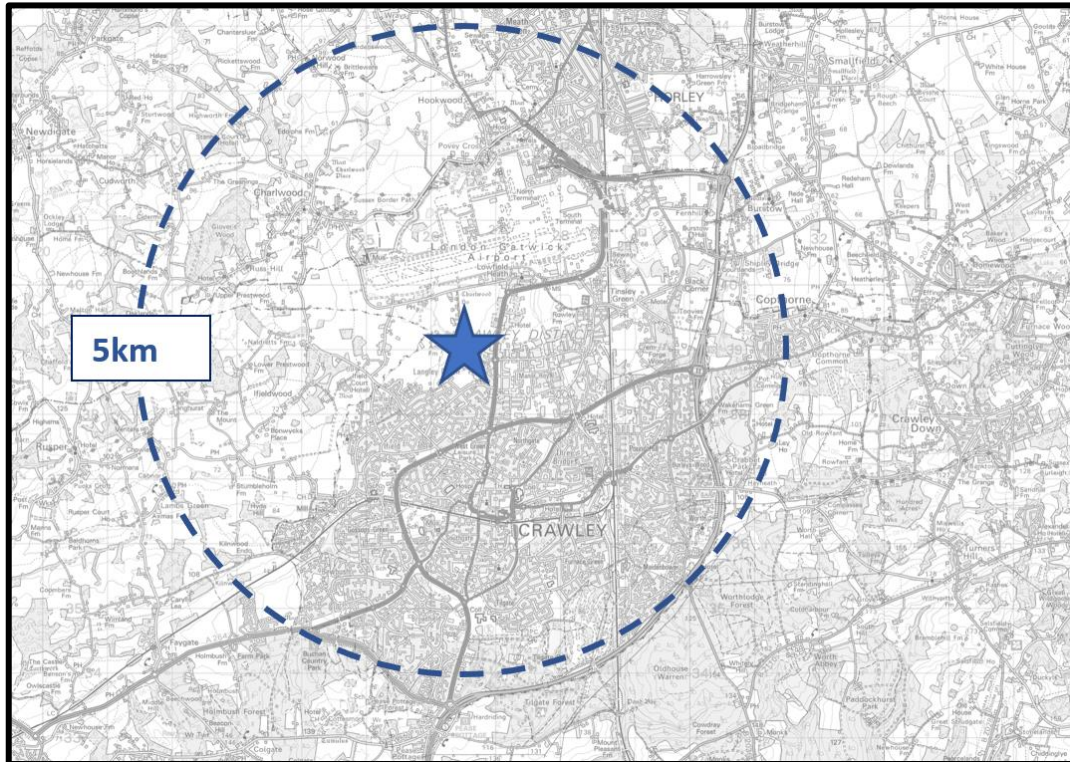
Map source: Bing / Ordnance Survey. Site is denoted by a blue star.

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- 2.5 Figure 2.1 indicates that the residential areas of Langley Green, Ifield, and West Green lie within the 2km walk-commute catchment, comprising a resident population of approximately 17,000. To the east of the site, the walking catchments include the adjoining County Oak Retail Park, and also the Manor Royal business quarter and Northgate area.
- 2.6 The Jersey Farm site benefits from Public Rights of Way connecting the site to County Oak Lane / Whitworth Road, and to the A23 London Road. It has direct access to the existing network of pedestrian footways and road crossings within the County Oak and Manor Royal areas, and therefore has ready-made pedestrian connections between the site and the surrounding areas, including residential areas and other employment and retail land uses.
- 2.7 The site is located within the CBC corridor of search for the CWLR which would connect the site to major new residential areas to the south-west, which could be as close as 1.6km to Jersey Farm. The delivery of the CWLR would bring with it a dedicated pedestrian and cycling route, thereby providing a direct link between Jersey Farm and significant new residential areas.
- 2.8 The Jersey Farm site provides realistic opportunities for future employees and visitors to travel on foot.

#### Cycle Access

- 2.9 The 2019 National Travel Survey identified average journey lengths by cycle in England of c.5.3km. This suggests that cycling can offer a realistic alternative to car travel, particularly for trips of less than approximately 5km.
- 2.10 Cycling has the potential to play an important part in sustainable travel to and from the proposed development for visitors and staff.
- 2.11 Using 5km as an indicator of the national average cycling distance, the approximate cycle catchment of the Jersey Farm site is shown at Figure 2.2 below.
- 2.12 The 5km cycle catchment includes the majority of Crawley to the south and southeast, all of Gatwick Airport, and the southern portion of Horley, to the north. This comprises a total resident population of approximately 120,000 within the 5km catchment.
- 2.13 The 5km cycle catchment encompasses a significant local population within cycle distance of the site, and with direct access to the existing network of cycle routes and infrastructure within Manor Royal and wider Crawley, there are real opportunities for future employees and visitors to travel by bike.
- 2.14 The future delivery of the CWLR would bring with it a dedicated pedestrian and cycling route, thereby providing a direct link between Jersey Farm and significant new residential areas.

**Figure 2.2 – 5km Cycle Catchment**

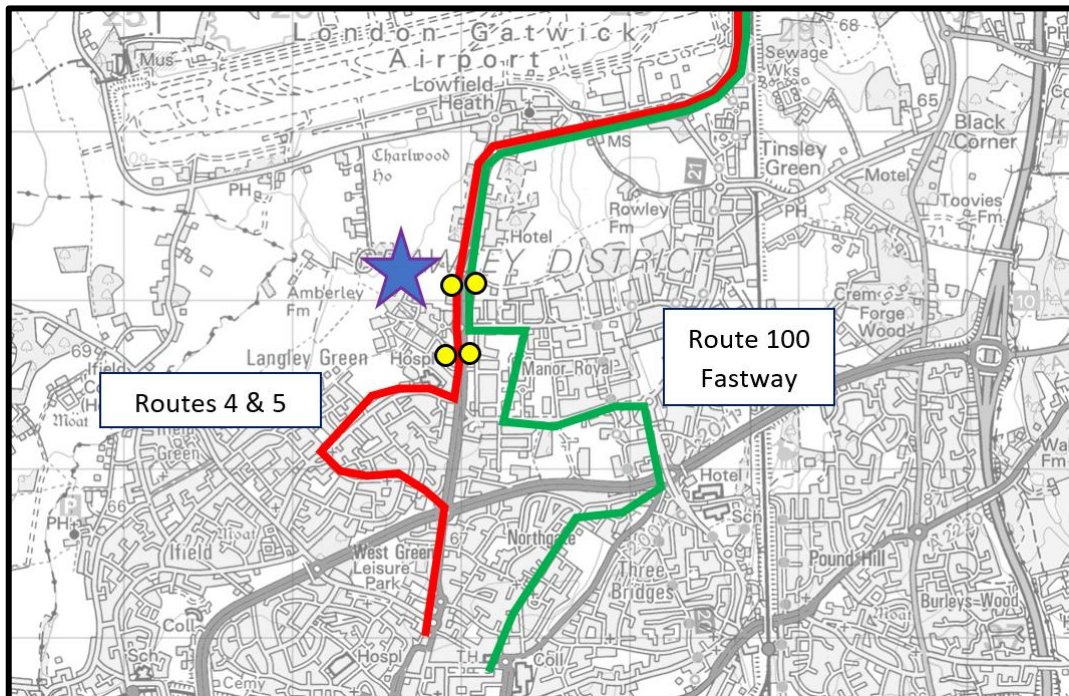


*Map source: Bing / Ordnance Survey. Site is denoted by a blue star.*

**Bus Access**

- 2.15 The closest bus stops to the Jersey Farm site are on London Road adjacent to the site's eastern boundary. These are served by regular and frequent buses on Routes 4 and 5 (providing four buses per hour), and the 100 Fastway service (providing three buses per hour).
- 2.16 There is also a bus stop located on County Oak Way, adjacent to the Retail Park, which is also served by buses on Routes 4 and 5. This stop is approximately 500m from the southern boundary of the Jersey Farm site, accessible on foot via County Oak Way and via Whitworth Road / County Oak Lane.
- 2.17 These bus stops and routes are shown in Figure 2.3, below.

**Figure 2.3 – Bus Routes Map**



Map source: Bing / Ordnance Survey. Site is denoted by a blue star.

- 2.18 The Crawley Growth Programme includes improvements to bus infrastructure within the Manor Royal area, aimed at enhancing and promoting bus travel. The plans include replacing the existing bus stop on County Oak Way with two new stops nearby on London Road.
- 2.19 The future delivery of the CWLR would bring with it bus lanes in both directions, providing a connection between the Jersey Farm site and the major new residential areas to the west. The Jersey Farm masterplan is capable of providing bus stops within the site, with interconnectivity with the on-site pedestrian network.
- 2.20 The bus stops could be exemplar 'superhubs', with all-round weather protection, bar-type work station with charging points, CCTV, lighting, landscaping/planting/green roof, electric scooter/bike docks, adjacent coffee shop etc.

#### Vehicular Access

- 2.21 The Jersey Farm proposal is that vehicle access will be solely via a new priority-controlled (give-way) left-in-left-out (LILO) junction connecting the site access road to the east side of the A23 London Road. Vehicular access will not be permitted via the County Oak Way access.
- 2.22 The new access road and the Jersey Farm masterplan have been designed so as to facilitate the future provision of the CWLR, such that the new site access road could ultimately form part of the CWLR.
- 2.23 This would likely include upgrading the Jersey Farm LILO junction with the A23 London Road, which would be subject to further assessment and design work, and to the availability of additional land which may be required.

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- 2.24 It is understood that the vision is for the CWLR to have a bus lane and a separate general traffic lane in each direction, and segregated cycle ways and segregated footways.
  - 2.25 Land within the Jersey Farm site will be safeguarded to allow the CWLR to be connected to the access road from the west, and to allow the access road to be widened to accommodate bus lanes and pedestrian/cycleways to be consistent with the anticipated design of the CWLR.
  - 2.26 The design of the new LILO junction on the A23 London Road has been informed by traffic modelling, capacity testing, and swept-path tracking of the largest vehicles expected to use them, and has been subject to a Stage 1 Road Safety Audit (RSA).
  - 2.27 The proposed design of the Jersey Farm LILO junction is provided at Appendix 2, which shows the swept-path tracking of a 16.5m articulated truck.
  - 2.28 The length of deceleration lane is limited by the available land within the Jersey Farm promotor's control. The deceleration lane length is consequently one step below the DMRB standard for a 120kph road which is considered acceptable in this instance because the junction location is only c.60m past the derestricted speed signs (derestricted from 40mph), and northbound vehicles will generally not be up to speed having just left the Fleming Way roundabout.
  - 2.29 The RSA considered the highway safety of the proposed junction design and concluded that the audit team were unable to identify any areas of concern regarding highway road safety. The RSA Report is provided at Appendix 3.

### **3.0 Traffic Analysis and Junction Capacity Assessment**

#### Jersey Farm Vehicle Access

- 3.1 The initial stage of the analysis was to consider the potential for some of the proposed Jersey Farm development to be accessed via County Oak Way.
- 3.2 A computer model (LinSig) of the A23 / County Oak Way signal-controlled junction has been purchased from WSCC. The model represents the forthcoming form of the junction once a WSCC-planned capacity-improvement scheme has been completed.
- 3.3 The LinSig model has been used to assess the expected future ability of County Oak Way to accommodate additional traffic to/from the Jersey Farm development.
- 3.4 To do this, the model was run using traffic flow data extracted from each of the future assessment scenarios of the CBC strategic traffic model. The extracted traffic flow data was supplied to Connect Consultants by Stantec on behalf of CBC.
- 3.5 The junction capacity analysis shows that future capacity at the A23 / County Oak Way junction is not sufficient to accommodate a viable amount of the proposed Jersey Farm development.
- 3.6 As such, the proposal is that all vehicular access will be via a new LILO junction connecting the site access road to the east side of the A23 London Road.

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### Local Road Network

- 3.7 As the proposed LILO access junction requires Jersey Farm traffic to U-turn at Lowfield Heath Roundabout and Fleming Way Roundabout, both roundabouts have been considered in terms of their future ability to accommodate the proposed development traffic in the weekday AM and PM peak hours.
- 3.8 The following sections set out the analysis of the future capacity and operation of Lowfield Heath Roundabout and Fleming Way Roundabout in the CBC Local Plan scenarios.

### CBC Local Plan Strategic Traffic Modelling Scenarios

- 3.9 The CBC Local Plan strategic traffic modelling assesses the traffic impact of three different Local Plan scenarios (Scenarios 1-3).
- 3.10 In terms of employment sites, Scenario 1 includes only sites in the Employment Land Trajectory.
- 3.11 Scenario 2 is the same as Scenario 1 with the addition of a strategic employment site at Gatwick Green.
- 3.12 Scenario 3 is the same as Scenario 2 with the addition of the potential new settlements known as West of Ifield and West of Kilnwood Vale within Horsham District.
- 3.13 An additional scenario is included to test the effect of providing the Crawley Western Link Road (CWLR) to mitigate the impact of the potential new settlements in Scenario 3. This is known as 'Scenario 3 with CWLR'.
- 3.14 Each of the scenarios is assessed in the strategic modelling both with and without the effect of a proposed package of sustainable travel measures aimed at reducing the number of car-borne journeys made in the borough.

### CBC Local Plan Traffic Flows and Junction Capacity

- 3.15 The forecast traffic flow data at both Lowfield Heath Roundabout and Fleming Way Roundabout in each of the CBC Local Plan assessment scenarios has been purchased from Stantec/CBC.
- 3.16 The CBC Local Plan strategic traffic modelling provides a high-level indication of the operation of junctions in the forecast traffic scenarios, in terms of the ratio of predicted volume of traffic against the theoretical capacity of a junction. This is known as 'volume over capacity' or V/C, expressed as a percentage of a junction's theoretical capacity.
- 3.17 The data purchased from CBC includes the predicted V/C for each of the turning movements on the approaches to both roundabouts.
- 3.18 It shows that Lowfield Heath Roundabout is predicted to be over-capacity in the weekday AM peak hour in scenarios LP1, LP2, and LP3 (ranging from 102% to 106%), and also in the scenario 'LP3 with CWLR' (101%). In the weekday PM peak it is predicted to be over-capacity only in scenario LP3 (at 102%).
- 3.19 Fleming Way Roundabout is predicted to be within capacity in all scenarios in the weekday AM and PM peak-hours, except for the AM peak in scenarios LP3 and 'LP3 with CWLR' without sustainable mitigation (100% and 104% respectively), and scenario 'LP3 with CWLR' with sustainable mitigation (103%).

- 3.20 Given that both roundabouts are indicated by the CBC strategic traffic modelling to be over-capacity in various of local plan future scenarios, more detailed junction capacity analysis has been undertaken to more accurately assess the ability to accommodate the proposed Jersey Farm development traffic.

Jersey Farm Development Traffic Generation

- 3.21 Pre-application advice received from WSCC Highways suggests the use of “*the vehicular trip rates used at Table 3.1 of the published Crawley Local Plan transport study, unless there is compelling evidence to support any significant difference for this site*”.
- 3.22 The CBC Transport Study Table 3.1 identifies weekday AM and PM peak-hour trip rates for a range of land-uses, including warehousing and industrial estate uses which are proposed at Jersey Farm. Those trip rates, and the resultant weekday AM and PM peak-hour trip numbers for the proposed 48,150sq.m of warehousing and 4,070sq.m. of industrial estate uses are set out in Table 3.1.

**Table 3.1 – Jersey Farm Trip Rates & Trip Numbers (CBC Transport Study)**

Warehousing Vehicles	Trip Rates per 100sqm			Trip Numbers per 48,150 sqm		
	Arrivals	Departures	Total	Arrivals	Departures	Total
AM peak	0.121	0.049	0.17	58	24	82
PM peak	0.017	0.076	0.093	8	37	45
<b>Industrial Estate</b>						
Industrial Estate Vehicles	Trip Rates per 100sqm			Trip Numbers per 4070 sqm		
	Arrivals	Departures	Total	Arrivals	Departures	Total
AM peak	0.436	0.153	0.589	18	6	24
PM peak	0.119	0.407	0.526	5	17	21
<b>Total site</b>						
AM peak	0.557	0.202	0.759	76	30	106
PM peak	0.136	0.483	0.619	13	53	66

- 3.23 The vehicle trip rates shown in Table 3.1 represent all vehicles. For the purposes of junction capacity assessment associated with the proposed industrial / commercial uses, it is important to understand how much of the development traffic is heavy goods vehicle (HGV) traffic.
- 3.24 The CBC Transport Study does not identify the number or proportion of HGVs, so this information has instead been derived from the industry-standard TRICS database.
- 3.25 A sample of traffic survey data from development sites with similar characteristics to Jersey Farm has been selected from TRICS using the selection criteria set out in Table 3.2.



**Table 3.2 – TRICS Database Selection Criteria**

<u>TRICS 7.8.2 key selection criteria</u>		
<b>Land use and trip rate selection</b>		
Select Land Use By:	Full list Of Active Main/Sub Land Uses	
Main Land Use:	02 - EMPLOYMENT	
Sub Land Use:	F - WAREHOUSING (COMMERCIAL)	D - INDUSTRIAL ESTATE
Calculation Options:	Vehicle Trip Rates	
Regions:	All England excluding Greater London	
<b>Primary filtering</b>		
Trip Rate Parameters:	Gross Floor Area	
Range:	10,446 - 37,530 sq.m.	708 - 10,000 sq.m.
Selected Dates:	01/01/13 to 14/10/20	01/01/13 to 17/09/20
Week days to include:	Weekdays	
Location Types to include:	Edge of Town	
<b>Secondary filtering</b>		
Population < 1 Mile:	Default range (<25,000)	10,000 - 50,000
Population < 5 Miles:	Default range (100,001 - 500,000)	

- 3.26 Based on the average of the resultant sample sites, the proportion of HGVs (referred to as Other Goods Vehicles [OGVs] in TRICS) for the two proposed land uses in the AM and PM peak hours are set out in Table 3.3.
- 3.27 The full TRICS output reports can be supplied if required.

**Table 3.3 – Proportion and Number of HGVs (from TRICS and CBC data)**

<b>Warehousing OGVs</b>	OGV as % of total vehicles (from TRICS)			Number of OGVs (TRICS % applied to CBC total)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
AM peak	18%	54%	30%	10	13	24
PM peak	69%	12%	28%	6	4	13
<b>Industrial Estate OGVs</b>						
<b>Industrial Estate OGVs</b>	OGV as % of total vehicles (from TRICS)			Number of OGVs (TRICS % applied to CBC total)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
AM peak	3%	4%	3%	1	0	1
PM peak	4%	1%	1%	0	0	0

- 3.28 The numbers of total vehicles associated with Jersey Farm in the AM and PM peak hours (from Table 3.1) and the constituent numbers of HGVs (from Table 3.3) are set out in Table 3.4.

**Table 3.4 – Jersey Farm Development AM and PM Peak Hour Traffic**

Whole site	Total Vehicles (from Table 3.1)			Constituent OGVs (from Table 3.3)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
AM peak	76	30	106	11	13	25
PM peak	13	53	66	6	5	13

Jersey Farm Traffic Distribution

- 3.29 Given the location of the Jersey farm site and the layout of the local road network, the simplifying assumption is made that the Jersey Farm development traffic will be split equally to/from the north and south at the proposed site access junction on the A23 London Road.
- 3.30 With a LILO access junction, all Jersey Farm traffic would have to U-turn on arrival or departure, which would involve the Lowfield Heath Roundabout north of the junction and Fleming Way Roundabout south of the junction.
- 3.31 The distribution of the development traffic beyond both Lowfield Heath Roundabout and Fleming Way Roundabout (i.e., traffic not U-turning on arrival/departure) is assumed to be proportionate to the background traffic, identified by the CBC strategic traffic modelling.
- 3.32 The distribution of the proposed Jersey Farm traffic in the weekday AM and PM peak hours is shown on diagrams provided at Appendix 4.

Junction Capacity Assessments – Without Jersey Farm Traffic

- 3.33 The ARCADY computer program is an industry standard computer package for modelling the operation of roundabouts. ARCADY uses the geometry of the junction combined with traffic flow information to predict capacity. The software provides a number of results in its output; often the most meaningful metric is the Ratio of Flow to Capacity (RFC), where an RFC of 1.00 on any approach to the junction reflects a traffic flow equal to the theoretical capacity of that approach.
- 3.34 ARCADY is typically operated using 'One Hour' mode which estimates the traffic flow profile for an hour-long period based on a bell-shaped curve with a 15-minute 'Warm Up' period before, and a 15-minute 'Cool Down' period either side of the 60-minute peak-hour. This simulates the robust scenario of a peak within the peak hour.
- 3.35 ARCADY models have been created of both Lowfield Heath Roundabout and Fleming Way Roundabout. These models use the same geometric parameters as those which have been accepted by the Local Highway Authority, WSCC, through the Transport Assessment of a recent planning application at Hydehurst Lane (CBC planning reference CR/2021/0167/FUL).
- 3.36 The computer models of the roundabouts are therefore consistent with those which have already been considered to be acceptable for simulating the capacity and delay of the two roundabouts.

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Lowfield Heath Roundabout Without Jersey Farm Traffic

- 3.37 The ARCADY model of Lowfield Heath Roundabout is shown to be overcapacity in the weekday AM peak in all of the Local Plan Scenarios, with and without sustainable mitigation measures. The RFC on the A23 (north) approach is shown to range from 1.05 to 1.10, while on the Old Brighton Road approach it ranges from 0.96 to 1.05.
- 3.38 In the weekday PM peak, the roundabout is shown to be approaching capacity in scenarios LP1 and LP2, and overcapacity in LP3 with and without sustainable mitigation and the CWLR.
- 3.39 The summary results from the ARCADY software are provided at Appendix 5.

Fleming Way Roundabout Without Jersey Farm Traffic

- 3.40 The ARCADY modelling shows the A23 (north) approach to the Fleming Way Roundabout to be overcapacity in the weekday AM peak in all of the Local Plan scenarios, with and without sustainable mitigation measures; its RFC ranges from 1.04 to 1.19. All other approaches are within capacity in the weekday AM peak in all scenarios.
- 3.41 In the weekday PM peak, the roundabout is shown to be within capacity in all scenarios.
- 3.42 The summary results from the ARCADY software are provided at Appendix 5.

Junction Capacity Assessments – With the Addition of Jersey Farm Traffic

- 3.43 The CBC Local Plan scenario 'LP2' comprises the proposed Local Plan development plus the Gatwick Green strategic employment site.
- 3.44 The aim of promoting the Jersey Farm development is to provide an alternative to Gatwick Green as the strategic employment site allocation in the CBC Local Plan.
- 3.45 The equivalent scenario to 'LP2' is a scenario of 'LP1 plus Jersey Farm' (representing the Local Plan development plus Jersey Farm instead of Gatwick Green).
- 3.46 Scenario 'LP3' is also considered because it includes the potential major development sites in neighbouring Horsham District Council. LP3 also includes traffic associated with Gatwick Green, so adding the proposed Jersey Farm traffic to this scenario will effectively double-count the traffic associated with strategic employment sites. However, it seems unlikely that much Gatwick Green traffic will use Lowfield Heath and Fleming Way roundabouts, so the double-counting effect is not likely to be significant.
- 3.47 WSCC has published guidance on the assessment of junction capacity and the thresholds above which it considers the impact of a proposed development to be a material impact which requires mitigation. Reference to this guidance is included in the following sections.

Lowfield Heath Roundabout with Jersey Farm Traffic

- 3.48 Without Jersey Farm traffic, Lowfield Heath Roundabout is shown to be overcapacity on the Old Brighton Road and the A23 (north) approaches in all scenarios in the weekday AM peak, and overcapacity on Old Brighton Road in the weekday PM peak in scenario 'LP3'.

- 3.49 With the addition of Jersey Farm traffic, the RFC values on the Old Brighton Road and A23 (north) approaches increase by only a small absolute number in each of the scenarios (increase ranging from 0.02-0.04), but because the approaches are already overcapacity, the small increase in RFC translates to a disproportionately large increase in queue lengths and delay.
- 3.50 *A23 (north) approach:* In all of the CBC Local Plan scenarios the delay is greater than 90 seconds, and with the addition of Jersey Farm the increase in delay exceeds 5 seconds in all scenarios, therefore it is categorised by WSCC as a material impact and needs mitigating to nil-detriment.
- 3.51 *Old Brighton Road approach:* In all of the CBC Local Plan scenarios the delay is less than 90 seconds except in 'LP3 with CWLR' in which it exceeds 90 seconds. With the addition of Jersey Farm in 'LP3' the delay increases to greater than 90 seconds. Old Brighton Road will need mitigation in the 'LP3' and 'LP3 with CWLR' scenarios.
- 3.52 *A23 (south) approach:* In all of the CBC Local Plan scenarios the delay is less than 90 seconds except in 'LP3 with CWLR' in which it exceeds 90 seconds. The impact of Jersey Farm on this approach is not material in any of the scenarios, so no mitigation is needed on this approach except in 'LP3 with CWLR'.
- 3.53 The summary results from the ARCADY software are provided at Appendix 5; the orange-coloured cells in the summary tables indicate where the resultant delay exceeds the WSCC threshold for material impact which will require mitigation.

Fleming Way Roundabout with Jersey Farm Traffic:

- 3.54 Without Jersey Farm traffic, at Fleming Way Roundabout only the A23 (north) approach in the weekday AM peak is shown to be overcapacity.
- 3.55 With the addition of Jersey Farm traffic, the RFC value on this approach increases by only a small absolute number in each of the scenarios (0.04 increase), but because the approach is already over capacity, the small increase in RFC translates to a disproportionately large increase in queue length and delay.
- 3.56 The A23 (north) approach is the only approach which is shown to have capacity issues.
- 3.57 In all of the CBC Local Plan scenarios the delay is greater than 90 seconds, and with the addition of Jersey Farm the increase in delay exceeds 5 seconds in all scenarios, therefore it is categorised by WSCC as a material impact and needs mitigating to nil-detriment.
- 3.58 The summary results from the ARCADY software are provided at Appendix 5; the orange-coloured cells in the summary tables indicate where the resultant delay exceeds the WSCC threshold for material impact which will require mitigation.

**4.0 Proposed Mitigation**

Mobility Strategy and Site-Wide Travel Plan

- 4.1 A key element of the Jersey Farm proposal is that it will incorporate a comprehensive Mobility Strategy which will ensure that sustainable travel is at the centre of the development's ethos.

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- 4.2 The development will maximise its inherent accessibility by non-car modes through a site wide Travel Plan to promote sustainable travel, including collaboration with Manor Royal BID, and will ensure the individual occupiers and operators promote non-car travel to their workforces.

#### Physical Mitigation Schemes

- 4.3 The junction capacity modelling, as described in the previous section, has identified that capacity improvement schemes will be required in the future CBC Local Plan scenarios to accommodate the proposed Jersey Farm traffic at both Fleming Way Roundabout and Lowfield Heath Roundabout.
- 4.4 Based on the results of the ARCADY modelling described in the previous section, capacity improvement schemes have been identified at both Fleming Way Roundabout and Lowfield Heath Roundabout to mitigate the traffic impact of Jersey Farm.

#### Fleming Way Roundabout

- 4.5 The identified capacity improvement scheme provides the necessary capacity improvement on the A23 approach from the north (southbound). This comprises an additional lane on the southbound approach, which is achieved by using some land from the grass verge, some from the splitter island, and some from the roundabout island. All of the land required to deliver this scheme is within the public highway.
- 4.6 A drawing of the capacity improvement scheme, drawing number 21071-011, is provided at Appendix 6. The scheme takes into account the recommendations of a Stage 1 RSA which is provided, along with the Designer's Response, at Appendix 3.
- 4.7 The capacity improvement scheme has been tested in ARCADY; the summary results of the improvement scheme in the various assessment scenarios are shown in Appendix 5, which show that the scheme results in the roundabout operating within capacity in all scenarios.
- 4.8 An initial estimate of the cost to construct the scheme is c.£290,000.

#### Lowfield Heath Roundabout

- 4.9 The capacity improvement scheme at Lowfield Heath Roundabout creates a short length of one additional lane on the Old Brighton Road approach, and an additional lane on the A23 westbound approach. This is achieved using land entirely within public highway.
- 4.10 A drawing of the capacity improvement scheme, drawing number 21071-012, is provided at Appendix 6. The scheme takes into account the recommendations of a Stage 1 RSA which is provided, along with the Designer's Response, at Appendix 3.
- 4.11 The capacity improvement scheme has been tested in ARCADY; the summary results of the improvement scheme in the various assessment scenarios are shown in Appendix 5, which show that the scheme results in the roundabout operating within capacity in all scenarios.
- 4.12 An initial estimate of the cost to construct the scheme is c.£690,000.

## 5.0 Comparison with Gatwick Green Employment Site

- 5.1 The CBC strategic traffic modelling assesses the traffic impact of three different Local Plan scenarios (1-3).
- 5.2 In terms of employment, Scenario 1 includes only sites in the Employment Land Trajectory.
- 5.3 Scenario 2 is the same as Scenario 1, with the addition of a strategic employment site at Gatwick Green. The Gatwick Green assumptions comprise 77,500sqm gross floor area, split into:
  - B8 Parcels Distribution (10%) or 7,750 sqm
  - B8 Commercial Warehousing (60%) or 46,500 sqm
  - B2 Industrial estate (30%) or 23,250 sqm

### Gatwick Green Site

- 5.4 In Scenario 2 (with Gatwick Green employment site), the Gatwick Green site is estimated to generate 333 two-way trips in the AM peak and 298 two-way trips in the PM peak.
- 5.5 There are impacts predicted on the B2036 Balcombe Road for most of its length both north and south of the B2037 Antlands Lane junction with Balcombe Road. These impacts are greater in the PM peak than in the AM peak.
- 5.6 A significant proportion of these trips are freight/HGV traffic that cannot be replaced by active modes or public transport. The modelling has assumed that there will be an element of car trips for employees working at the site and these would respond to sustainable mitigation measures.
- 5.7 Overall, the residual Gatwick Green trips assumed to impact the network are 312 two-way trips in the AM peak and 281 trips in the PM peak.
- 5.8 An HGV ban is proposed for traffic heading to Gatwick Green from the north on Balcombe Road to prevent this traffic travelling through the built-up area in Horley.
- 5.9 A right turn ban is also proposed for HGV traffic egressing the site, to prevent this traffic using the northern sections of Balcombe Road thus mitigating any potential adverse impacts from this HGV traffic such as noise and air pollution.
- 5.10 A committed/planned new link road between the A2011 and Balcombe Road, designed to improve the access route to the North East Sector developments, is shown to have capacity problems in the Reference Case and the Local Plan scenarios, even after the proposed sustainable travel mitigation is applied.
- 5.11 Clearly, there are concerns and issues regarding the Gatwick Green freight traffic using the local roads, and with Gatwick Green traffic generally on the surrounding road network.

### Jersey Farm Site

- 5.12 Jersey Farm is located in an existing employment district, with purpose-built roads which connect to the principal and strategic road network.

- 5.13 The site has ready-made non-car access options, providing excellent opportunities for the future occupiers to travel sustainably, and it offers safeguarded land for the future provision of the CWLR and its adjoining bus, foot, and cycle routes.
- 5.14 The off-site traffic impact of Jersey Farm at the two closest roundabout junctions can be mitigated by relatively straightforward capacity improvement schemes which are effective, safe, deliverable, and viable.

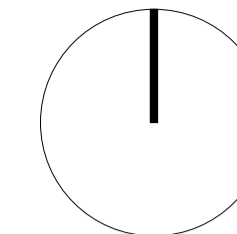
## **6.0 Conclusion**

- 6.1 The Jersey Farm proposal for the CBC Local Plan is for an employment site comprising a mix of B2 and B8 land-uses in buildings of various sizes, as an extension to the existing Manor Royal employment zone.
- 6.2 The proposed Jersey Farm development comprises the following: -
- 48,150sqm Warehousing.
  - 4,070sqm Industrial uses.
- 6.3 This Technical Note demonstrates that the Jersey Farm site is in a highly sustainable location within an existing employment district, with excellent opportunities for employees and visitors to travel on foot, cycle, and bus, and with purpose-built roads which connect to the principal and strategic road network.
- 6.4 The Jersey Farm site offers safeguarded land for the future provision of the CWLR and its adjoining bus, foot, and cycle routes.
- 6.5 It is demonstrated that Jersey Farm can be accessed via a new simple left-in-left-out junction on the A23 London Road.
- 6.6 Following consultation with the local highway authority, WSCC, and using forecast traffic flow data from CBC's own strategic traffic modelling, this Technical Note demonstrates that the off-site traffic impact at the two closest roundabout junctions can be mitigated by relatively straightforward capacity-improvement schemes which are effective, safe, deliverable, and viable.
- 6.7 It is therefore concluded that in traffic and transport terms, Jersey Farm offers a realistic, viable, and deliverable employment site which should be considered as CBC's Local Plan strategic employment site in preference to the Gatwick Green site.

**APPENDIX 1**  
**INITIAL INDICATIVE MASTERPLAN**

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Disclaimer  
No responsibility is implied for the accuracy or for any consequence resulting from the miss use or alteration of this information

Explanations  
Unless otherwise stated:  
• General tolerances are to ISO 2768-mK  
• Dimensions are in millimetres  
• Symbols should be read in conjunction with BS 8541-2

Instructions  
Responsibility is not accepted for values obtained in scaling from this drawing  
Construction information should be taken from written dimensions only  
Inconsistencies should be reported to the legal owner immediately



PUBLIC REALM IMPROVEMENT AND PLACEMAKING



SUSTAINABLE TRANSPORT AND INTERCONNECTIVITY



DOTTED LINE INDICATES WIDER ROAD / CONNECTIVITY TO THE WEST / FIELD HOMES ENGLAND PROPOSALS

7.3M WIDE SINGLE CARRIAGEWAY INDICATED IN SEARCH CORRIDOR, ROAD LINKAGE AND POTENTIAL BUS STOPS SUBJECT TO TRANSPORT ASSESSMENT / DETAILED DESIGN.

PURPLE DOTTED LINE INDICATES SIGNALLED PEDESTRIAN CROSSING WITH REFUGE ISLAND

GRASS VERGE VARIES  
FOOTPATH 2.0 m  
CYCLE PATH 3.0 m  
LANDSCAPED VERGE 1.0 m  
BUS LANE 3.5 m  
TWO-WAY SINGLE CARRIAGEWAY 7.3 m  
BUS LANE 3.5 m  
FOOTPATH 2.0 m  
GRASS VERGE VARIES

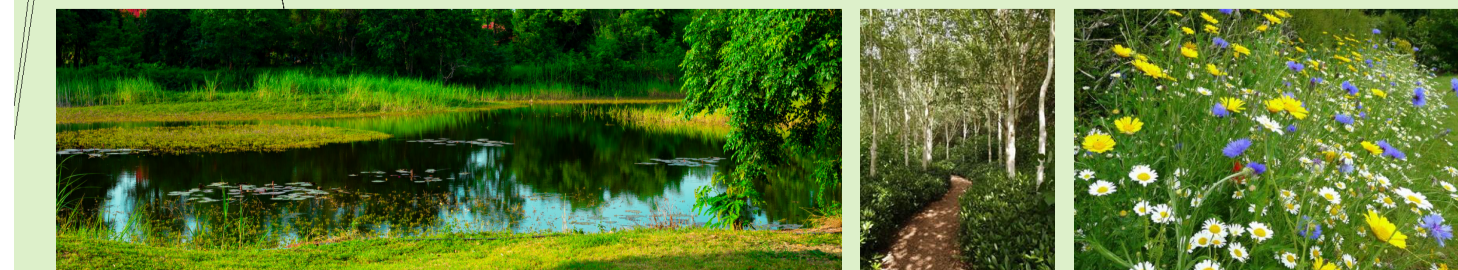
DOTTED LINE INDICATES POTENTIAL WIDENING OF CARRIAGEWAY IN SEARCH CORRIDOR, ROAD LINKAGE SUBJECT TO TRANSPORT ASSESSMENT / DETAILED DESIGN.

JUNCTION IMPROVEMENT AND CROSSING INDICATED, POTENTIAL ROUNDABOUT OPTION DOTTED SUBJECT TO DETAILED DISCUSSION

INDICATIVE SEARCH CORRIDOR FOR CRAWLEY WESTERN RELIEF ROAD

INCUBATION / START UP SPACE

LANDSCAPE / BIODIVERSITY & ENHANCEMENT & AMENITY ADJACENT TO PUBLIC RIGHT OF WAY



- LEGEND**
- PUBLIC RIGHT OF WAY
  - - - PERMISSIVE ROUTE
  - - - PROPOSED CYCLE PATH
  - - - CBC SAFEGUARDING LINE TAKEN FROM LDF ENVIRONMENTAL PLAN (NOT SURVEYED)
  - - - POSSIBLE EXPANSION OF GATWICK AIRPORT (LINE TAKEN FROM ARUP CAD PLAN)
  - OWNERSHIP / BOUNDARY
  - - - EXTENT OF CRAWLEY WESTERN RELIEF ROAD SEARCH CORRIDOR (POLICY ST4) ACCURACY TO BE CHECKED AS THE EXTENTS ARE BASED ON THE MAP PRODUCED IN PUB353177
  - BRIDLEWAY
  - PROPOSED BUILDING
  - ROAD NETWORK
  - GRASSCRETE
  - EXISTING BUILDINGS
  - WATERCOURSE / FEATURE
  - GRAVEL PATH
  - EXISTING TREES / LANDSCAPING
  - PROPOSED TREES / LANDSCAPING

**SCHEDULE OF ACCOMMODATION (GEA)**

UNIT A	1,780.1m <sup>2</sup> / 19,161.3ft <sup>2</sup>
UNIT B	1,620m <sup>2</sup> / 17,437.7ft <sup>2</sup>
UNIT C	10,100m <sup>2</sup> / 108,716.4ft <sup>2</sup>
UNIT D	2,550m <sup>2</sup> / 27,448.2ft <sup>2</sup>
UNIT E	5,250m <sup>2</sup> / 56,511ft <sup>2</sup>
UNIT F	1,900m <sup>2</sup> / 20,451.6ft <sup>2</sup>
UNIT G	3,000m <sup>2</sup> / 32,292ft <sup>2</sup>
UNIT H	3,600m <sup>2</sup> / 38,750.4ft <sup>2</sup>
UNIT I	4,850m <sup>2</sup> / 52,205.4ft <sup>2</sup>
UNIT J	400m <sup>2</sup> / 4,305.6ft <sup>2</sup>
<b>SUB TOTAL</b>	<b>- 35,050.1m<sup>2</sup> / 377,279.27ft<sup>2</sup></b>
UNIT K	1,150m <sup>2</sup> / 12,378.6ft <sup>2</sup>
UNIT L	1,150m <sup>2</sup> / 12,378.6ft <sup>2</sup>
UNIT M	445m <sup>2</sup> / 4,790ft <sup>2</sup>
UNIT N	445m <sup>2</sup> / 4,790ft <sup>2</sup>
UNIT O	440m <sup>2</sup> / 4,736.2ft <sup>2</sup>
UNIT P	440m <sup>2</sup> / 4,736.2ft <sup>2</sup>
UNIT Q	12,000m <sup>2</sup> / 129,168ft <sup>2</sup>
UNIT R	1,100m <sup>2</sup> / 11,840.4ft <sup>2</sup>
<b>SUB TOTAL</b>	<b>- 17,170m<sup>2</sup> / 184,817.88ft<sup>2</sup></b>
<b>GRAND TOTAL</b>	<b>- 52,220.1m<sup>2</sup> / 562,097.15ft<sup>2</sup></b>

**NOTES:**  
UNIT A - B8 (AS APPROVED)  
UNITS B, C, E-I, Q & R - B8  
UNITS D & K-P - B1(c), B2 OR B8  
UNIT J - CLASS A1 / SUPPORT / SERVICE BUILDING

**PARKING PROVISIONS**  
PARKING CONTRIBUTIONS ARE AS FOLLOWS:  
LORRIES - B2 / B8 1:500m<sup>2</sup>  
CARS - A1 1:14m<sup>2</sup> / B1 1:31m<sup>2</sup> / B2 1:40m<sup>2</sup> / B8 1:100m<sup>2</sup>

P8	29/06/21	General Update	AT - KMD
P7	14/06/21	Parking Area Amended	AT - KMD
P6	08/06/21	Legend Updated	AT - KMD
P5	04/06/21	General Update	AT - KMD
P4	17/05/21	Minor Amendments	AT - KMD
P3	14/05/21	Amended To Suit Transport Planners Comments	AT - KMD
P2	12/05/21	Layout Amendments & Notes / Images Added	AT - KMD
P1	11/03/21	First Issue	AT - KMD
REV	DATE	COMMENT	AT - KMD
			CHK - APD

Key - CHK = Checked by APD = Approved by

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PROJECT  
Jersey Farm  
County Oak Way  
Crawley

TITLE  
Proposed Masterplan

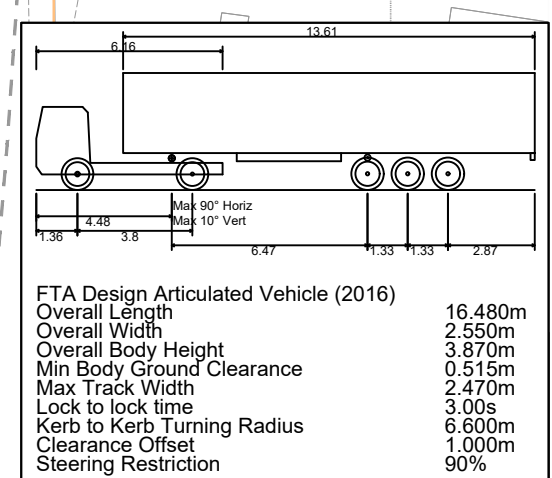
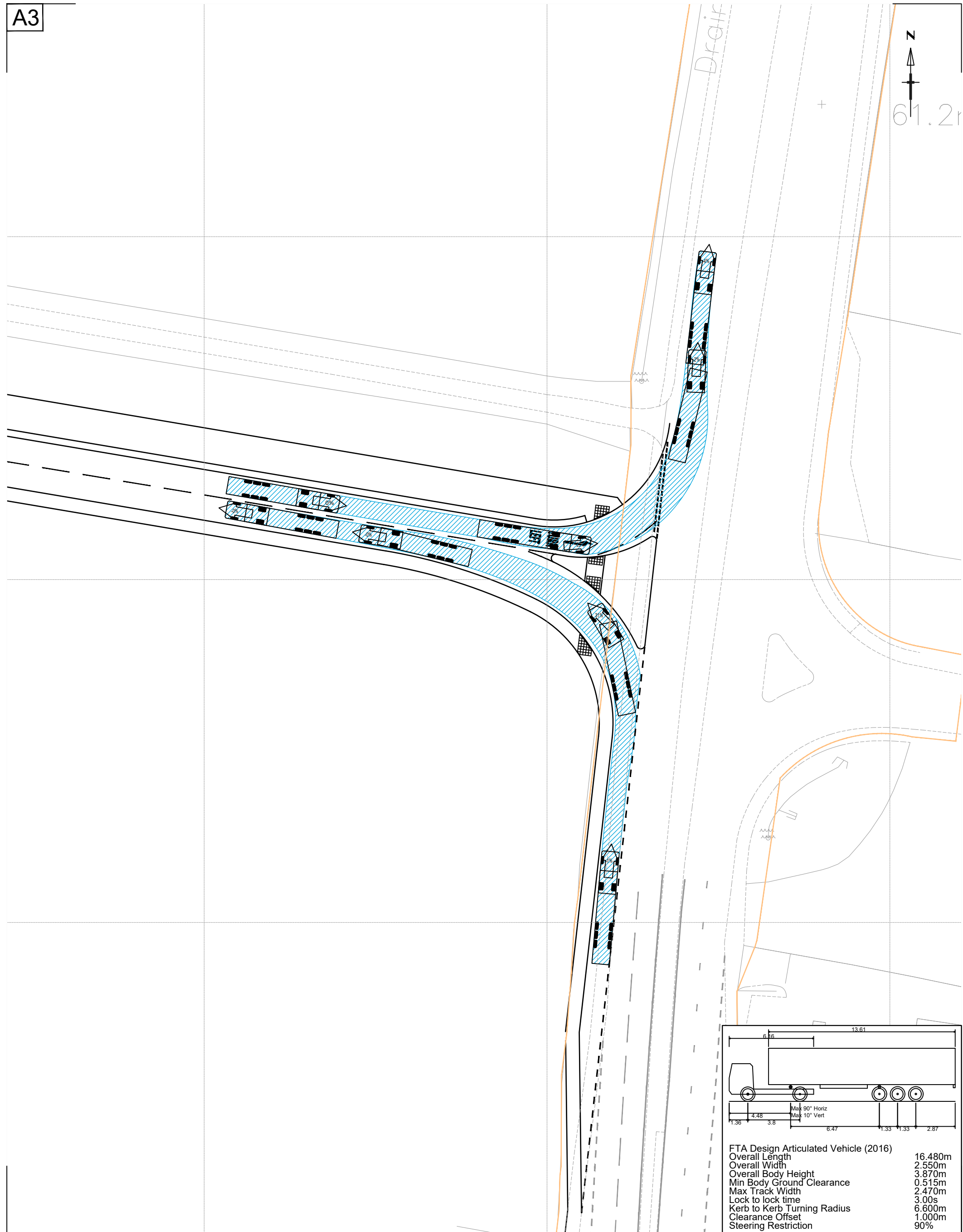
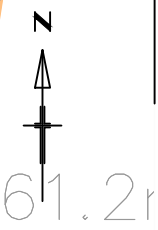
PURPOSE OF ISSUE	DRAWN BY	CHECKED BY
Preliminary	AT	KMD
PROJECT No	STATUS	REVISION
0390	S3	P8
SCALE @ A1		
As indicated		
DRAWING NUMBER		
0390-RDJWL-ZZ-XX-DR-A-0050		



UNIT A CGI - PHASE 1

**APPENDIX 2**  
**PROPOSED JERSEY FARM ACCESS JUNCTION**

---



FTA Design Articulated Vehicle (2016)	
Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock to lock time	3.00s
Kerb to Kerb Turning Radius	6.600m
Clearance Offset	1.000m
Steering Restriction	90%

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Fax: 01454 320 099 Email: bristol@connect-consultants.com



client	WINDSOR DEVELOPMENTS		scale	1:500	date	OCTOBER 2021
project	PROPOSED DEVELOPMENT JERSEY FARM, CRAWLEY		drawn by	T.A.S	checked by	T.B
title	PROPOSED SITE ACCESS		drawing number	21071 - 010		
			status	PLANNING		
			rev.			

**APPENDIX 3**  
**RSA REPORT AND DESIGNER'S RESPONSE**

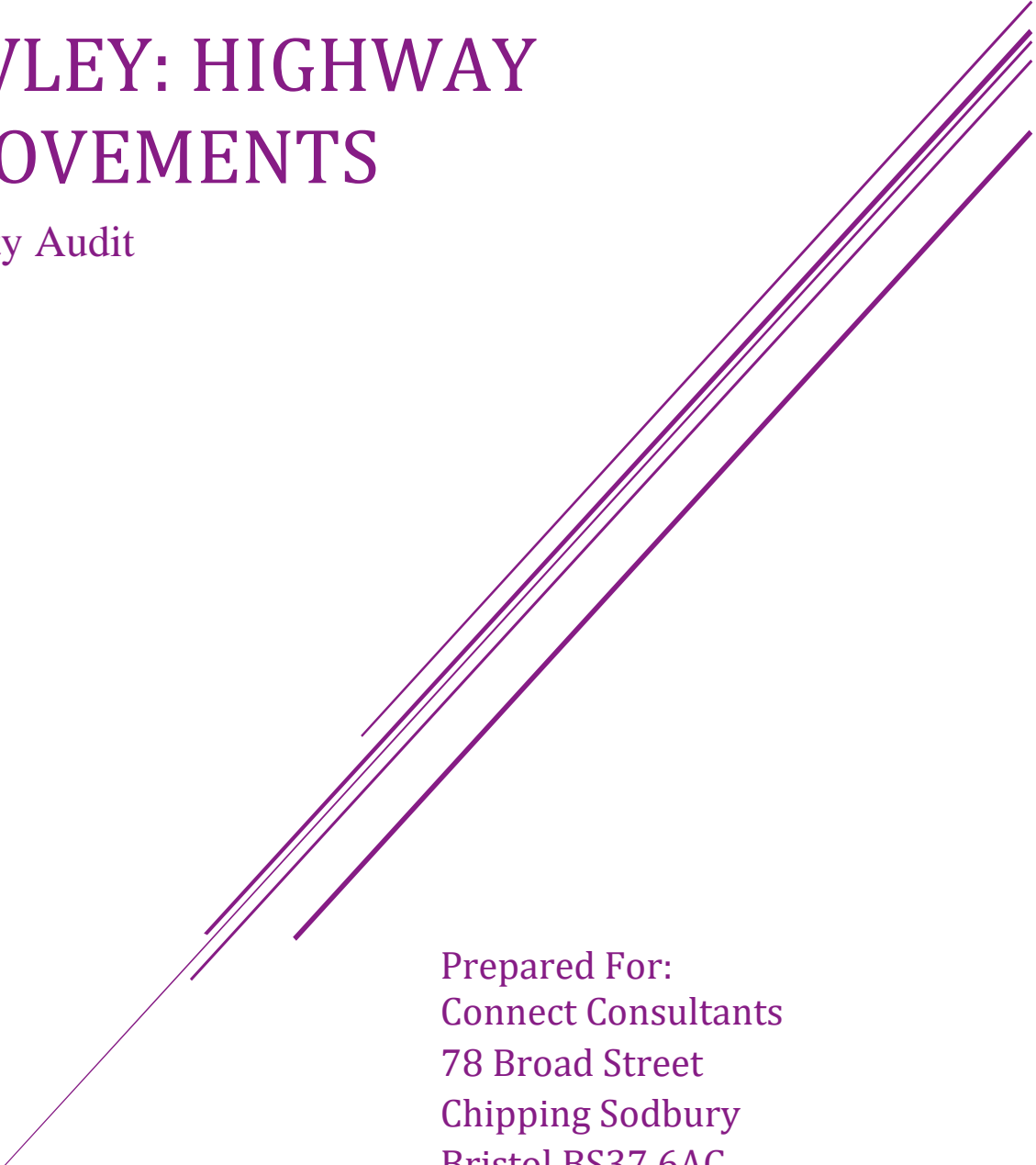
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Report Number: Connect/1260  
Date: 4<sup>th</sup> October 2021  
Prepared by: Julian Bartlett

**JBartlett**  
Consulting Ltd  
UK Company Number 8270647

# JERSEY FARM DEVELOPMENT CRAWLEY: HIGHWAY IMPROVEMENTS

Road Safety Audit  
Stage 1



Prepared For:  
Connect Consultants  
78 Broad Street  
Chipping Sodbury  
Bristol BS37 6AG

Prepared By: J Bartlett Consulting Ltd  
Ysgubor Y Ferch  
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Job Number: 1260

Client: Connect Consultants

Highway Authority: Surrey County Council

Project: Jersey Farm Development, Highway Improvements

Report Title: Stage 1 Road Safety Audit

Date: 4<sup>th</sup> October 2021

Issue	Purpose / Status	Prepared By	Checked	Approved	Date
D1	DRAFT	Julian Bartlett	Lyn Jones	Julian Bartlett	October 2021
D2	Minor Typos	Julian Bartlett	Lyn Jones	Julian Bartlett	October 2021

J Bartlett Consulting Ltd has prepared this report in accordance with the instructions of the above named Client for their sole and specific use. Any other persons who may use the information contained herein do so at their own risk.

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## 1 INTRODUCTION

- 1.1 This report results from a Stage 1 Road Safety Audit undertaken by J Bartlett Consulting Limited following a request from Tim Britton of Connect Consultants. The Audit was carried out during October 2021. It should be noted that the effects of the coronavirus pandemic on traffic movements may still be evident however best advice is that traffic movements are returning to pre-covid levels.
- 1.2 This Safety Audit considers the introduction of a series of improvements to the Lowfield Heath Roundabout, Fleming Way Roundabout and left in left out junction to serve the development.
- 1.3 The audit team comprised the following individuals:
- |                                      |                               |
|--------------------------------------|-------------------------------|
| Julian Bartlett<br>BEng FCIHT FSoRSA | Road Safety Audit Team Leader |
| Lyn Jones<br>HNC MCIHT MSoRSA        | Road Safety Audit Team Member |
- Both Julian Bartlett and Lyn Jones hold a Highways England Certificate of Competency in Road Safety Audit gained through the education route.
- 1.4 The following documents and drawings were made available to the Audit Team for this safety audit:

### Drawings

Drawing Number	Rev	Title
21071 SK210923.2	-	Proposed Site Access
21071 SK210831.1	-	Fleming Way Roundabout Proposed Improvements
21071 SK210923.1	-	Lowfield Heath Roundabout Proposed Improvements

### Documents

Jersey Farm Strategic Employment Site, Crawley: CBC LP3 + Jersey Farm Left-In-Left-Out  
0390-RDJWL-ZZ-XX-DR-A-0050: Proposed Masterplan

### Departures,

None Notified.

Specialists in Road Safety, Traffic and Transportation Engineering;  
Quality, Environment Health & Safety Management Systems



- 1.5 A site visit was undertaken by the Audit Team on 4<sup>th</sup> October 2021 between 10:30 and 11:45. It was fine but overcast and the road surface was drying during the site visit. Traffic movements were as expected at the time of the site visit with free movements in both directions on the A23. One motorcycle was seen, no pedal cyclist and two pedestrians using footway opposite the development site. While unable to verify the observation it appeared that vehicles speeds were relatively high with hard acceleration into the derestricted limit. It has been assumed that these movements may not be typical for the area and that more realistic movements have been accounted for under the traffic modelling undertaken for the scheme. See also paragraphs 1.1
- 1.6 The scheme has been examined and this report compiled only regarding the safety implications for road users of the scheme as presented. It has not been examined or verified for compliance with any other Standards or criteria. However, to clearly explain a safety problem or the recommendation to resolve a problem, the Audit Team may on occasion have referred to a design standard for information only. Any audit comments should not be construed as implying that a technical audit has been undertaken in any respect.
- 1.7 The terms of reference for the audit are as described in the Highways England Design Manual for Roads and Bridges (DMRB), Volume 5, Section 2, GG119 (2020) 'Road Safety Audit'. The audit has also been undertaken in light of the philosophy outlined in the CIHT 'Road Safety Guidelines' 2020 Edition.
- 1.8 The Audit Team have referred to appropriate design documentation as required while undertaking this audit. Reference texts include but are not limited to
- Design Manual For Roads And Bridges (DMRB);
  - Manual For Streets;
  - Manual For Streets 2;
  - Highway Construction Details;
  - Specification For Highway Works;
  - Traffic Signs Manual Chapter 6;
  - Traffic Signs Regulations and General Directions (TSRDG)
- 1.9 Any recommendations included within this report should not be regarded as being prescriptive design solutions to the problems raised. They are intended only to indicate a proportionate and viable means of eliminating or mitigating the identified problem, in accordance with GG 119 (2020), and in no way, imply that a formal design process has been undertaken. There may be alternative methods of addressing a problem which would be equally acceptable in achieving the desired elimination or mitigation and these should be considered when responding to this report.

- 
- 1.10 If issues were identified that are strictly outside the scope of this Road Safety Audit, or could not be classified as likely to increase the risk of crashes occurring, these have been included as Section 3 for completeness. It is also recommended that these are brought to the attention of the highway authority for their consideration if deemed appropriate
- 1.11 As far as the audit team are aware no previous stages of road safety audit have been undertaken on the proposals presented as part of this road safety audit

## 2 ISSUES RAISED BY THE STAGE 1 ROAD SAFETY AUDIT

2.1 Problems in this Audit will be identified linearly and by drawing number

Drg: 21071 SK210923.2 Rev -

2.2 After due and careful consideration, the audit team have been unable to identify any areas of concern regarding highway road safety associated with the information provided on this drawing.

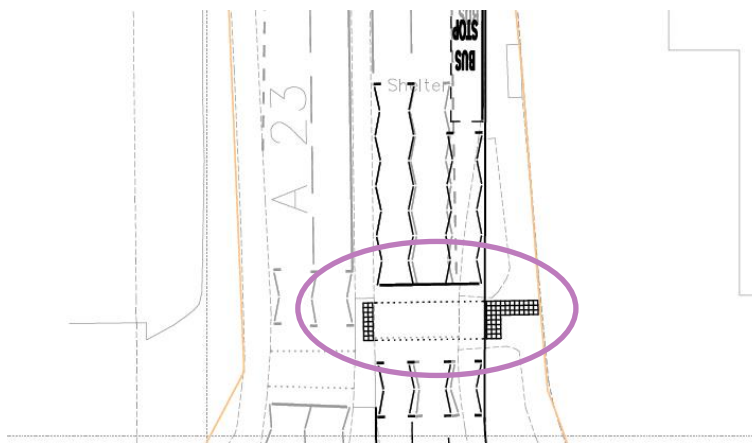
Drg: 21071 SK210831.1 Rev -

2.3 Problem 1

Location: Fleming Way Roundabout: Southbound approach to controlled pedestrian crossing

Summary: High sided vehicles (including buses) blocking forward visibility of nearside and offside signal heads

There is the potential for the drivers of vehicles approaching the crossing to be unaware of the signal operation should a high sided vehicle be located to either side in lanes 1 and 3. This in turn could resulting in failure to conform and an increased risk of collision with users of the crossing



### Recommendation

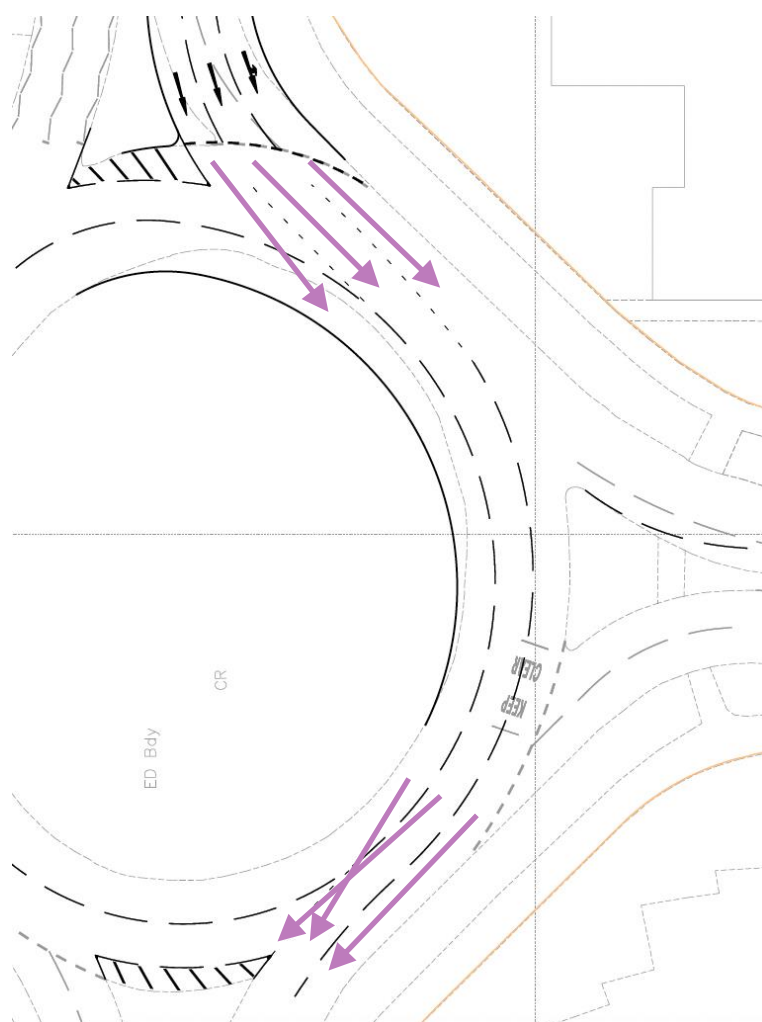
It is recommended that as part of the detailed design secondary signal poles are located such that signal heads can be viewed from all lanes, the use of double height signal heads may also be beneficial

2.4 Problem 2

Location: Fleming Way Roundabout: Southbound approach to roundabout give way

Summary: The approach is marked for three lanes to travel straight ahead with lane 1 also being marked for left turn whereas the straight ahead exit lane only allows for two lane exit

There is the potential for drivers seeking to travel north to south through the roundabout to choose any of the three approach lanes to undertake the desired manoeuvre as indicated by the lane markings. Realistically lane 3 continues round the circulatory carriageway rather than allowing the movement identified to occur leading to the potential for inappropriate lane changing and an increased risk of side impact collisions on the circulatory carriageway



#### Recommendation

Specialists in Road Safety, Traffic and Transportation Engineering;  
Quality, Environment Health & Safety Management Systems

It is recommended that the arrows on the approach to the give way from the north are supplemented with route destination marking in the form of route designation numbers and directional signing is provided to provide appropriate driver information in terms of lane choice for destinations. Lane 1 should be marked for left turn only. There appears to be sufficient space within the circulatory carriageway to allow for lane widths to be adjusted and spiral markings introduced which would guide drivers to appropriate exit points.

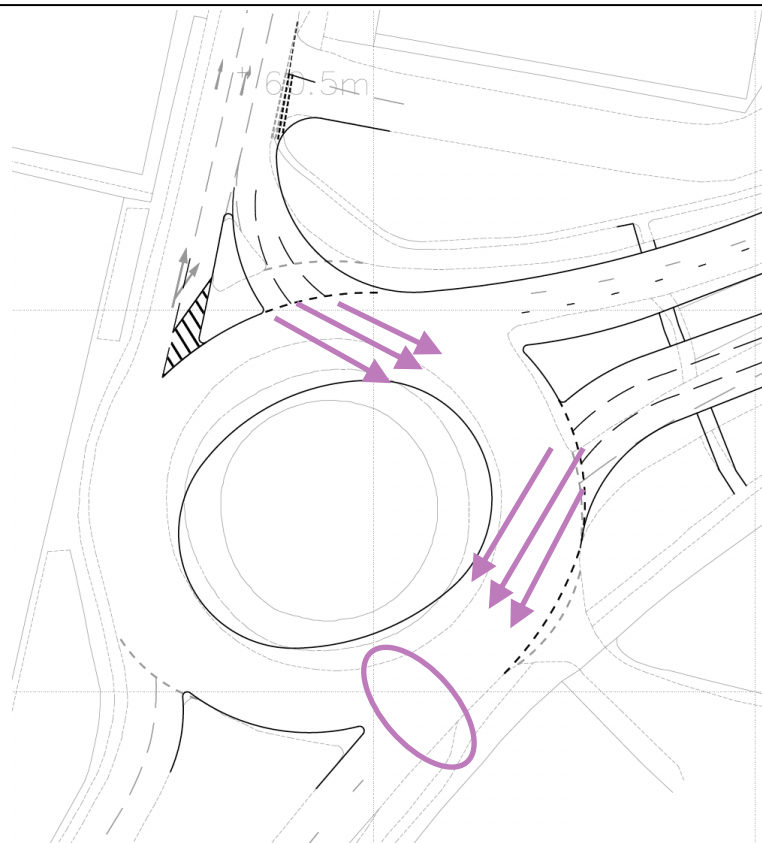
Drg: 21071 SK210923.1 Rev -

## 2.5 Problem 3

Location: Lowfield Heath Roundabout: Southbound and Westbound approaches to roundabout give way

Summary: The approaches are marked for three lanes entry to the circulatory carriageway whereas the exit lanes only allows for two lane exit

Similarly, to Fleming Way Roundabout the entry arms indicated are marked into three lanes whereas exits are two lane only. This leads to driver confusion as to appropriate lane selection and as such increased the potential for side impact type collisions on the circulatory carriageway as drivers seek to take the desired exit. In this case the circulatory carriageway is not marked which is likely to exacerbate the confusion and increase potential for collisions



#### Recommendation

It is recommended that arrows and route destination marking in the form of route designation numbers and directional signing are provided for all approaches. Lane 1 for each approach being marked marked for left turn only. Similarly, to Fleming Way Roundabout there appears to be sufficient space within the circulatory carriageway to allow for lane widths to be adjusted and spiral markings introduced which would guide drivers to appropriate exit points.

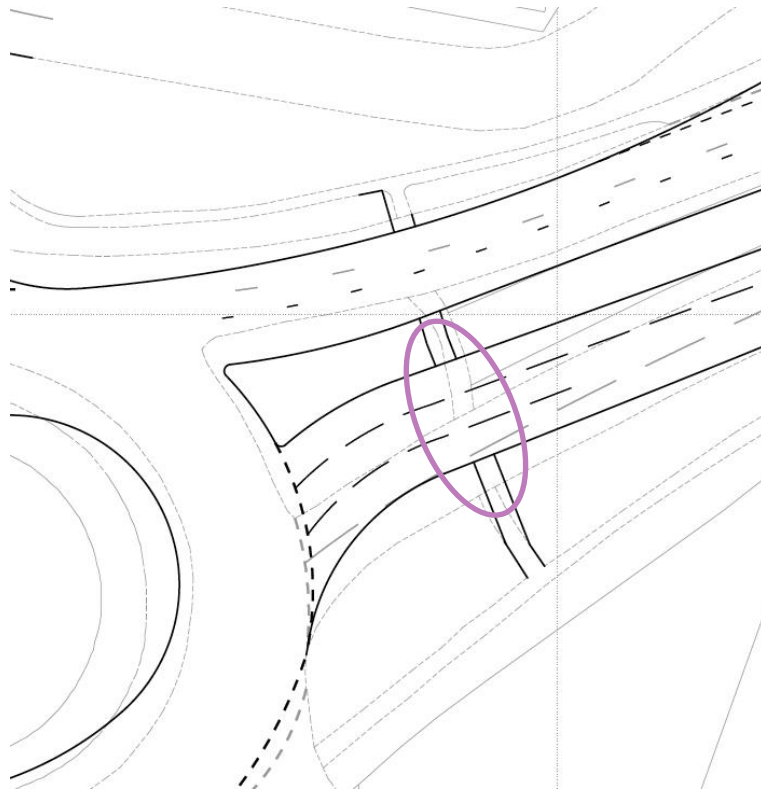
#### 2.6 Problem 4

Location: Lowfield Heath Roundabout: Westbound uncontrolled crossing

Summary: Through carriageway widened to three lanes making pedestrian crossing distances unsustainable.

The proposals lead to the widening of the west bound approach to the roundabout to three lanes at the uncontrolled pedestrian crossing point. It is virtually impossible for pedestrians, particularly the elderly, young and disabled to cross three lanes of live traffic in a safe manner. If pedestrians seek to cross between stationary or slow-moving traffic driver visibility of the crossing movement and also pedestrian visibility

of the oncoming vehicles is compromised leading to an increased risk of vehicle pedestrian collisions



#### Recommendation

It is recommended that either the crossing location is removed, and pedestrians directed to the other side of the roundabout where maximum crossing distances are over two lanes or that a signal-controlled pedestrian crossing is provided.

### 3 ISSUES OUTSIDE THE SCOPE OF THIS ROAD SAFETY AUDIT

#### 3.1 No further issues were identified




#### 4 AUDIT TEAM STATEMENT

We certify that this Audit has been carried out adopting the principles contained in the Highways England standard GG 119 'Road Safety Audits' and in line with the philosophy outlined in the CIHT 'Road Safety Guidelines' 2020 Edition.

##### Road Safety Audit Team Leader

Name: Julian Bartlett

Signed:



Position: Director

Organisation J Bartlett Consulting Ltd

Date: 14<sup>th</sup> October 2021

##### Road Safety Audit Team Member

Name: Lyn Jones

Signed:



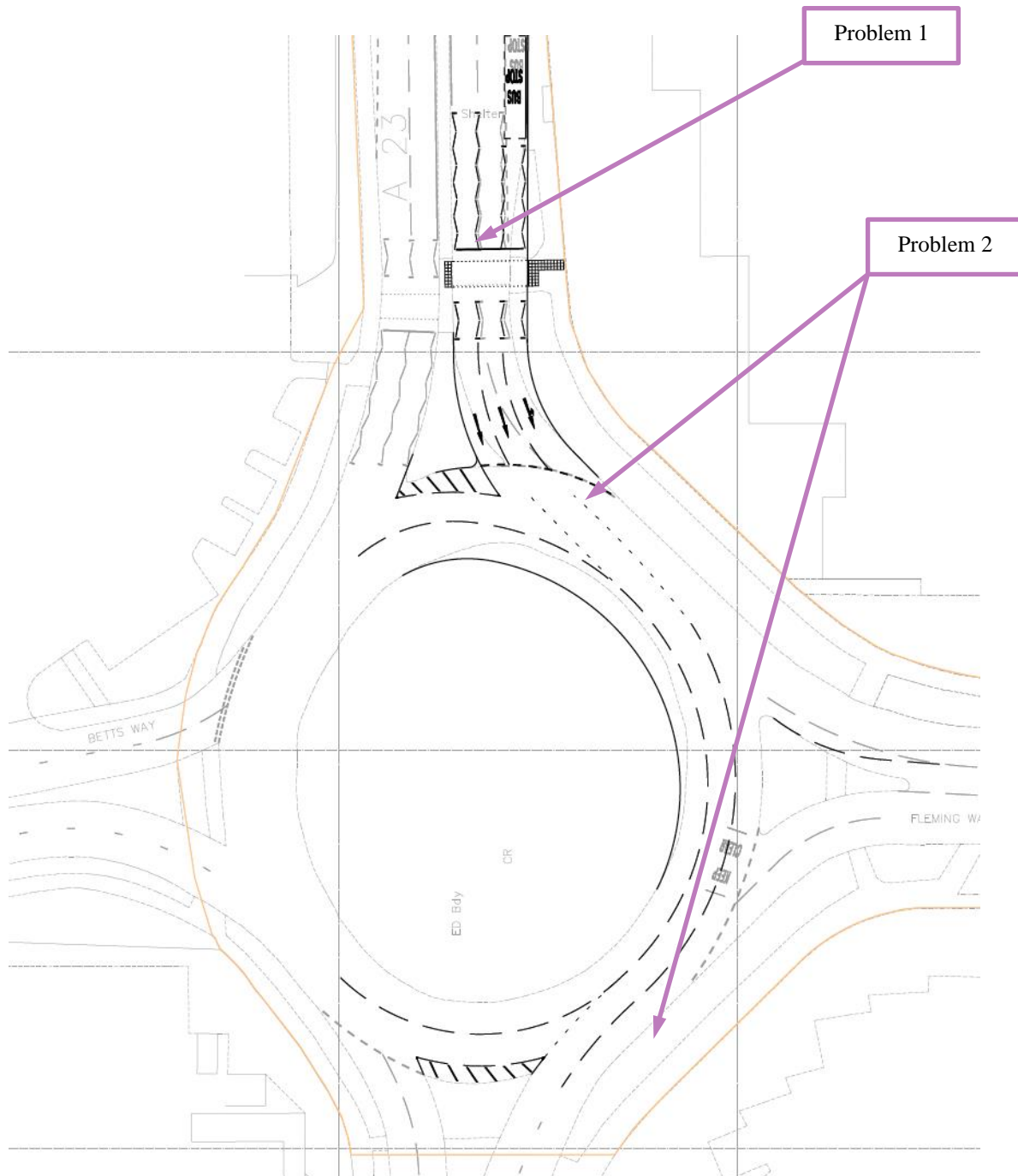
Position: Associate

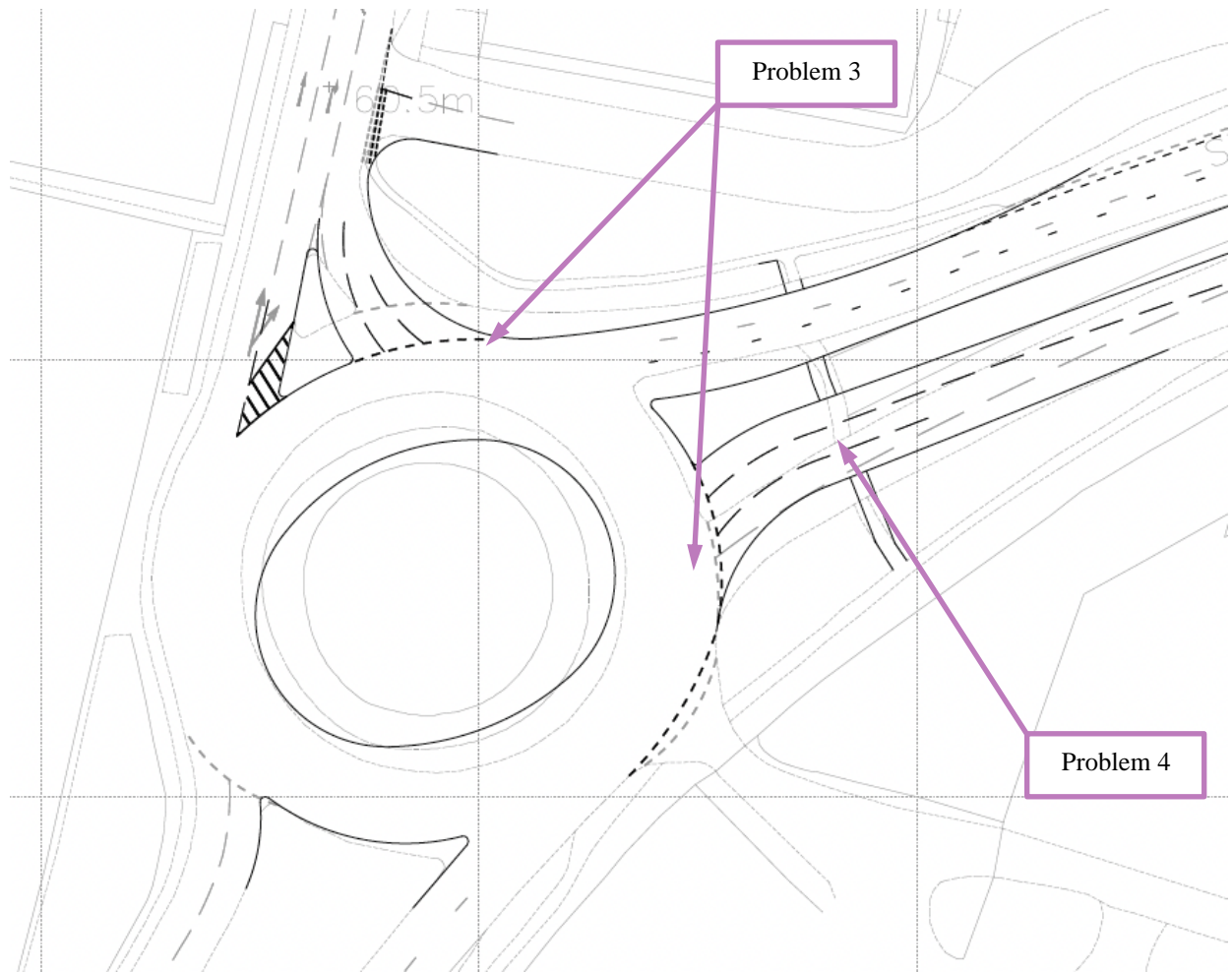
Organisation J Bartlett Consulting Ltd

Date: 14<sup>th</sup> October 2021

Contact Details as per record sheet

## 5 AUDIT LOCATION PLAN





## Road Safety Audit Response Report

### F1 - Project details

Table F.1 Project details

<b>Report title:</b>	Jersey Farm Development, Crawley: Highway Improvements, Road Safety Audit Stage 1
<b>Date:</b>	4 <sup>th</sup> October 2021
<b>Document reference and revision:</b>	21071-RSARR-Jersey Farm A23 - 20211015
<b>Prepared by:</b>	Tim Britton
<b>On behalf of:</b>	Connect Consultants

Table F.2 Authorisation sheet

<b>Project:</b>	21071 – Jersey Farm, Crawley
<b>Report title:</b>	Jersey Farm Development, Crawley: Highway Improvements – RSA1 Response Report
<b>Prepared by:</b>	
Name:	Tim Britton
Position:	Associate Transport Planner
Signed:	
Organisation:	Connect Consultants Ltd
Date:	15 <sup>th</sup> October 2021
<b>Approved by:</b>	
Name:	Tim Britton
Position:	Associate Transport Planner
Signed:	
Organisation:	Connect Consultants Ltd
Date:	15 <sup>th</sup> October 2021

## F2 - Introduction

This response report is relating to the proposed development of a mixed-use employment site at Jersey Farm, Crawley. The proposals include a new left-in-left-out junction on the A23 London Road, and highway capacity improvement works on the A23 Fleming Way roundabout and the A23 Lowfield Heath roundabout. This report is in response to the RSA Stage 1, completed by J Bartlett Consulting Ltd dated 4<sup>th</sup> October 2021. The J Bartlett Consulting report reference number is Connect/1260.

This RSA response report was written by Tim Britton of Connect Consultants Ltd.

## F3 - Key personnel

**Table F.3 Key personnel**

<b>Overseeing Organisation:</b>	West Sussex County Council
<b>RSA team:</b>	Julian Bartlett BEng MCIHT FSoRSA, Audit Team Leader, J Bartlett Consulting Ltd Lyn Jones HNC MCIHT MSoRSA, Audit Team Member, J Bartlett Consulting Ltd
<b>Design organisation:</b>	Tim Britton, Associate Transport Planner, Connect Consultants Ltd

#### F4 - Road safety audit decision log

The RSA report identifies four problems and offers recommendations to resolve them.

**Table F.4 Road safety audit decision log**

RSA problem	RSA recommendation	Design organisation response	Overseeing Organisation response	Agreed RSA action
<p>21071 SK210923.2 - Proposed Site Access 2.2 After due and careful consideration, the audit team have been unable to identify any areas of concern regarding highway road safety associated with the information provided on this drawing</p>	<p>None.</p>	<p>The RSA was undertaken based on Connect sketch drawing 21071 SK210923.2. As the RSA found no problems, the scheme drawing has been finalised as drawing 21071 – 010.</p>		<p>Scheme drawing finalised as drawing 21071 – 010.</p>
<p>21071 SK210831.1 – Fleming Way Roundabout 2.3 Problem 1 There is the potential for the drivers of vehicles approaching the crossing to be unaware of the signal operation should a high sided vehicle be located to either side in lanes 1 and 3. This in turn could resulting in failure to conform and an increased risk of collision with users of the crossing</p>	<p>It is recommended that as part of the detailed design secondary signal poles are located such that signal heads can be viewed from all lanes, the use of double height signal heads may also be beneficial</p>	<p>Drawing will be updated to show location of new secondary signal heads mounted on double height poles.</p>		<p>Scheme drawing to be updated and finalised as drawing 21071 – 011.</p>

RSA problem	RSA recommendation	Design organisation response	Overseeing Organisation response	Agreed RSA action
<p>21071 SK210831.1 – Fleming Way Roundabout 2.4 Problem 2 Southbound approach to roundabout give way. There is the potential for drivers seeking to travel north to south through the roundabout to choose any of the three approach lanes to undertake the desired manoeuvre as indicated by the lane markings. Realistically lane 3 continues round the circulatory carriageway rather than allowing the movement identified to occur leading to the potential for inappropriate lane changing and an increased risk of side impact collisions on the circulatory carriageway.</p>	<p>It is recommended that the arrows on the approach to the give way from the north are supplemented with route destination marking in the form of route designation numbers and directional signing is provided to provide appropriate driver information in terms of lane choice for destinations. Lane 1 should be marked for left turn only. There appears to be sufficient space within the circulatory carriageway to allow for lane widths to be adjusted and spiral markings introduced which would guide drivers to appropriate exit points.</p>	<p>Lane markings will be supplemented with route destinations as suggested, however, the predominant traffic flow on this approach is straight ahead to the A23 south, so the left lane will be marked for both left and ahead, which means there is no need for spiral lane markings on the circulatory carriageway.</p>		<p>Scheme drawing to be updated and finalised as drawing 21071 – 011.</p>
<p>21071 SK210923.1 – Lowfield Heath Roundabout 2.5 Problem 3 Southbound and Westbound approaches to roundabout give way. Similarly, to Fleming Way Roundabout the entry arms indicated are marked into three lanes whereas exits are two lane only. This leads to</p>	<p>It is recommended that arrows and route destination marking in the form of route designation numbers and directional signing are provided for all approaches. Lane 1 for each approach being marked for left turn only. Similarly, to Fleming Way Roundabout there appears to</p>	<p>Lane markings will be supplemented with arrows and route destination markings as suggested, and spiral lane markings will be shown on the circulatory carriageway.</p>		<p>Scheme drawing to be updated and finalised as drawing 21071 – 012.</p>

RSA problem	RSA recommendation	Design organisation response	Overseeing Organisation response	Agreed RSA action
<p>driver confusion as to appropriate lane selection and as such increased the potential for side impact type collisions on the circulatory carriageway as drivers seek to take the desired exit. In this case the circulatory carriageway is not marked which is likely to exacerbate the confusion and increase potential for collisions.</p>	<p>be sufficient space within the circulatory carriageway to allow for lane widths to be adjusted and spiral markings introduced which would guide drivers to appropriate exit points</p>			
<p>21071 SK210923.1 – Lowfield Heath Roundabout 2.6 Problem 4 Westbound uncontrolled crossing. The proposals lead to the widening of the west bound approach to the roundabout to three lanes at the uncontrolled pedestrian crossing point. It is virtually impossible for pedestrians, particularly the elderly, young and disabled to cross three lanes of live traffic in a safe manner. If pedestrians seek to cross between stationary or slow-moving traffic driver visibility of the crossing movement and also pedestrian visibility of the</p>	<p>It is recommended that either the crossing location is removed, and pedestrians directed to the other side of the roundabout where maximum crossing distances are over two lanes or that a signal-controlled pedestrian crossing is provided.</p>	<p>The crossing location will be removed, and relocated on the southern arm of the junction as suggested.</p>		<p>Scheme drawing to be updated and finalised as drawing 21071 – 012.</p>



RSA problem	RSA recommendation	Design organisation response	Overseeing Organisation response	Agreed RSA action
oncoming vehicles is compromised leading to an increased risk of vehicle pedestrian collisions				

**F5 - Design organisation and Overseeing Organisation statements**

**Table F.5 Overseeing Organisation Statement**

<b>On behalf of the Overseeing Organisation, I certify that:</b>	
<p>1) the RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the Overseeing Organisation, and</p> <p>2) the agreed RSA actions will be progressed.</p>	
Name:	
Signed:	
Position:	
Organisation:	
Date:	

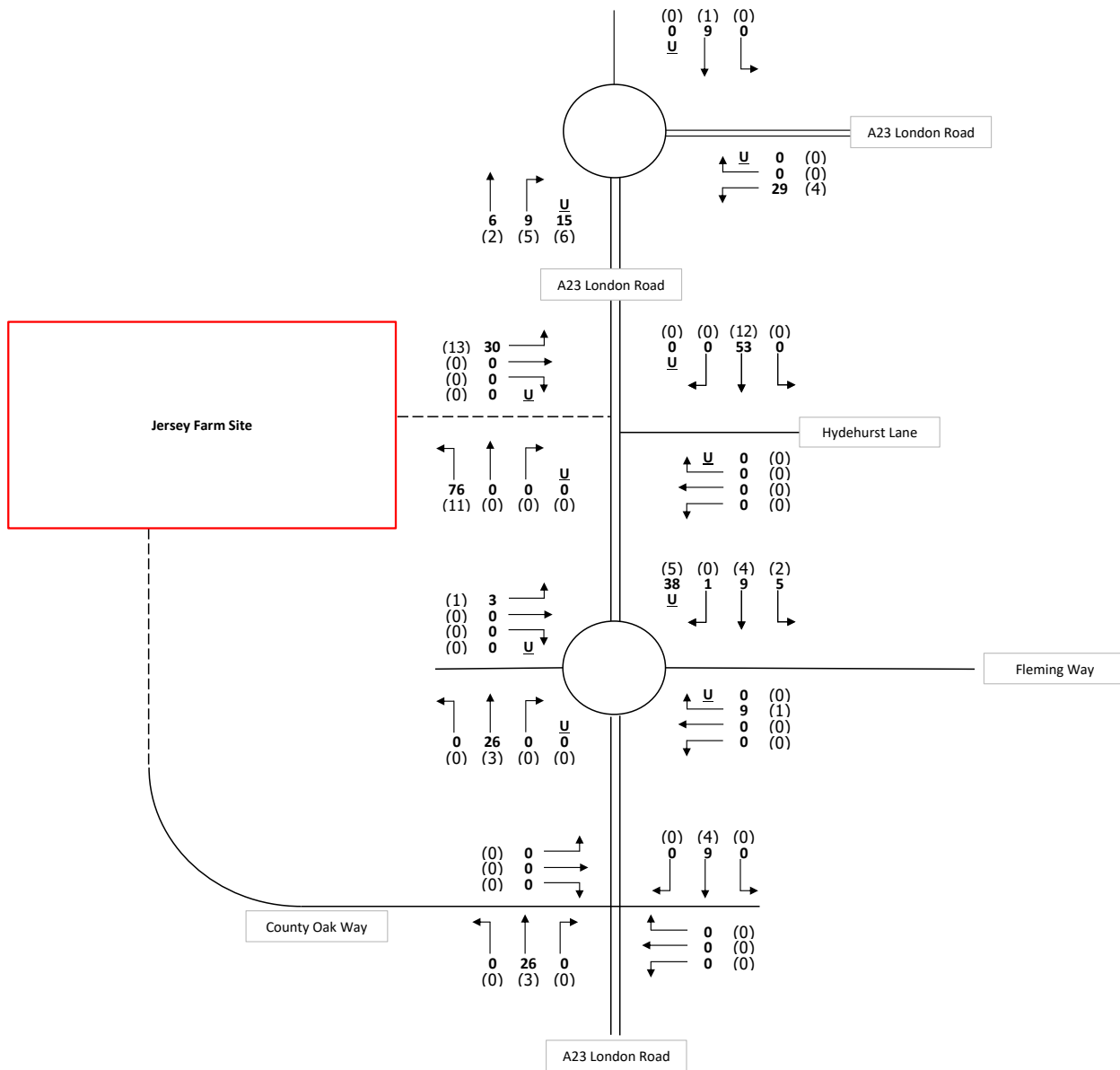
**Table F.6 Design Organisation Statement**

<b>On behalf of the Design Organisation, I certify that the RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the Overseeing Organisation.</b>	
Name:	Tim Britton
Signed:	Tim Britton
Position:	Associate Transport Planner
Organisation:	Connect Consultants Ltd
Date:	15 <sup>th</sup> October 2021

# **APPENDIX 4**

## **JERSEY FARM TRAFFIC DISTRIBUTION**

**Key:**  
 0 Total Flows  
 (0) HGVs



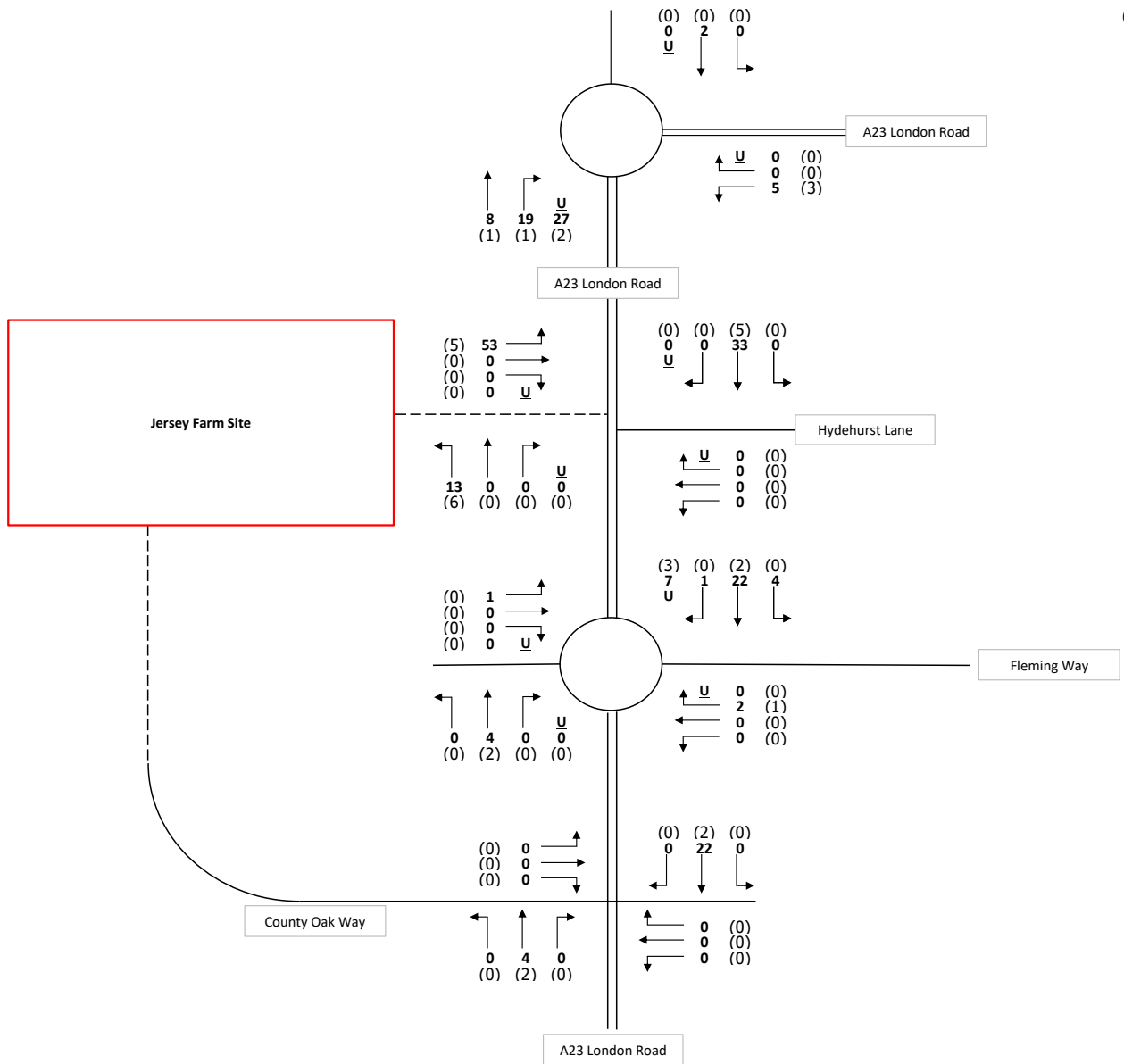
**Jersey Farm Strategic Employment Site, Crawley**

**Jersey Farm Development Traffic (left-in-left-out access)**

AM Peak 0800-0900



**Key:**  
 0 Total Flows  
 (0) HGVs



**Jersey Farm Strategic Employment Site, Crawley**

PM Peak 1700-1800

**Jersey Farm Development Traffic (left-in-left-out access)**



**APPENDIX 5**  
**SUMMARY ARCADY ASSESSMENT RESULTS**

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**Fleming Way Roundabout ARCADY Modelling Summary Results**

**No Jersey Farm**

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
<b>CBC LP1</b>						
Arm A23 N	64.4	114.38	1.06	2.6	7.1	0.73
Arm Flemg	1.3	6.83	0.57	1	5.56	0.49
Arm A23 S	1.6	4.78	0.62	1.3	4.27	0.57
Arm Betts	0.3	4	0.25	0.8	5.46	0.45
<b>CBC LP1 with Sust Mit</b>						
Arm A23 N	50.3	92.12	1.04	3	7.88	0.76
Arm Flemg	1.3	6.64	0.56	0.7	5.05	0.42
Arm A23 S	1.6	4.71	0.61	0.9	3.47	0.48
Arm Betts	0.3	3.92	0.24	0.7	4.45	0.4
<b>CBC LP3</b>						
Arm A23 N	140.8	243.26	1.15	4.7	11.25	0.83
Arm Flemg	1.5	7.46	0.6	0.9	5.91	0.47
Arm A23 S	1.6	4.73	0.61	1.4	4.4	0.59
Arm Betts	0.4	4.04	0.26	0.8	5.56	0.45
<b>CBC LP3 with Sust Mit</b>						
Arm A23 N	111.9	183.99	1.12	5.3	12.36	0.85
Arm Flemg	1.4	7.13	0.58	0.7	5.54	0.41
Arm A23 S	1.6	4.69	0.61	1.1	3.86	0.53
Arm Betts	0.3	3.98	0.25	0.8	5.02	0.43
<b>CBC LP3 with CWLR</b>						
Arm A23 N	178.7	328.44	1.19	6.4	14.22	0.87
Arm Flemg	1.6	7.15	0.62	4.4	16.8	0.82
Arm A23 S	1.7	5.09	0.63	2.4	7.19	0.71
Arm Betts	0.4	4.23	0.27	1.3	9.17	0.56
<b>CBC LP3 with CWLR with Sust Mit</b>						
Arm A23 N	172.1	313.15	1.18	4.9	11.16	0.83
Arm Flemg	1.6	7.26	0.62	2.8	11.42	0.75
Arm A23 S	1.7	4.99	0.63	2.1	6.46	0.68
Arm Betts	0.3	4.12	0.26	1	7.79	0.51

**With Jersey Farm with LiLo access**

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
<b>CBC LP1 + JF LiLo</b>						
Arm A23 N	99.4	168.45	1.1	3	7.96	0.76
Arm Flemg	1.4	7.16	0.59	1	5.89	0.51
Arm A23 S	1.8	5.26	0.64	1.3	4.34	0.57
Arm Betts	0.4	4.28	0.26	0.8	5.58	0.46
<b>CBC LP1 with Sust Mit + JF LiLo</b>						
Arm A23 N	83.1	141.84	1.08	3.4	8.69	0.78
Arm Flemg	1.3	6.98	0.58	0.7	5.28	0.43
Arm A23 S	1.8	5.19	0.64	0.9	3.51	0.49
Arm Betts	0.3	4.2	0.25	0.7	4.54	0.4
<b>CBC LP3 + JF LiLo</b>						
Arm A23 N	180.3	340.77	1.2	5.5	12.82	0.85
Arm Flemg	1.5	7.72	0.61	0.9	6.22	0.49
Arm A23 S	1.8	5.18	0.64	1.4	4.48	0.59
Arm Betts	0.4	4.31	0.28	0.8	5.68	0.46
<b>CBC LP3 with Sust Mit + JF LiLo</b>						
Arm A23 N	145.2	252.9	1.16	6.3	14.38	0.87
Arm Flemg	1.4	7.41	0.59	0.7	5.76	0.42
Arm A23 S	1.8	5.15	0.64	1.2	3.91	0.54
Arm Betts	0.4	4.25	0.26	0.8	5.1	0.44

**With Jersey Farm with LiLo access - Improved Layout 21071 - 011**

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
<b>Improved layout - CBC LP1 + JF LiLo</b>						
Arm A23 N	3.9	7.52	0.8	1.2	3.16	0.55
Arm Flemg	1.7	8.48	0.63	1	5.89	0.51
Arm A23 S	1.8	5.34	0.65	1.3	4.34	0.57
Arm Betts	0.4	4.29	0.27	0.8	5.58	0.46
<b>Improved layout - CBC LP1 with Sust Mit + JF LiLo</b>						
Arm A23 N	3.6	6.95	0.78	1.3	3.25	0.57
Arm Flemg	1.5	7.97	0.61	0.7	5.28	0.43
Arm A23 S	1.8	5.25	0.64	0.9	3.51	0.49
Arm Betts	0.3	4.21	0.25	0.7	4.54	0.4
<b>Improved layout - CBC LP3 + JF LiLo</b>						
Arm A23 N	6.1	11.23	0.87	1.6	3.7	0.62
Arm Flemg	2.2	11.44	0.7	0.9	6.23	0.49
Arm A23 S	1.8	5.3	0.65	1.4	4.48	0.59
Arm Betts	0.4	4.33	0.28	0.8	5.68	0.46
<b>Improved layout - CBC LP3 with Sust Mit + JF LiLo</b>						
Arm A23 N	5	9.13	0.84	1.7	3.81	0.64
Arm Flemg	1.9	9.82	0.66	0.7	5.76	0.42
Arm A23 S	1.8	5.25	0.64	1.2	3.91	0.54
Arm Betts	0.4	4.26	0.26	0.8	5.1	0.44

Lowfield Heath Roundabout ARCADY Modelling Summary Results

No Jersey Farm

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
<b>CBC LP1</b>						
Arm OBR	14.8	53.34	0.96	4.9	24.31	0.84
Arm A23 N	55.4	102.78	1.05	4.6	11.59	0.83
Arm A23 S	1.6	5.69	0.62	10	26.06	0.92
<b>CBC LP1 with Sust Mit</b>						
Arm OBR	14.1	52.08	0.96	5.3	24.89	0.85
Arm A23 N	56.1	103.06	1.05	5.2	13	0.85
Arm A23 S	1.7	5.95	0.64	3.2	9.54	0.77
<b>CBC LP3</b>						
Arm OBR	21.8	74.03	1	22.3	87.79	1.01
Arm A23 N	89.8	157.83	1.1	5.7	14.27	0.86
Arm A23 S	1.5	5.33	0.6	9.6	24.12	0.92
<b>CBC LP3 with Sust Mit</b>						
Arm OBR	20.6	71.56	0.99	20.8	82.43	1
Arm A23 N	89.8	157.08	1.1	8	19.27	0.9
Arm A23 S	1.6	5.64	0.62	6.3	16.53	0.87
<b>CBC LP3 with CWLR</b>						
Arm OBR	29.9	127.38	1.05	7.7	39.09	0.91
Arm A23 N	40.8	80.29	1.02	124	215.35	1.13
Arm A23 S	66.3	121.96	1.06	63.8	116.82	1.06
<b>CBC LP3 with CWLR with Sust Mit</b>						
Arm OBR	24.2	110.1	1.02	6.5	33.6	0.88
Arm A23 N	39.3	77.72	1.02	97.8	162.4	1.1
Arm A23 S	109.9	200.1	1.12	43.8	85.46	1.03

With Jersey Farm with LiLo access

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
<b>CBC LP1 + JF LiLo</b>						
Arm OBR	19.7	68.51	0.99	5.8	28.46	0.87
Arm A23 N	82	145.97	1.09	4.9	12.54	0.84
Arm A23 S	1.8	6.06	0.64	16.2	40.15	0.96
<b>CBC LP1 with Sust Mit + JF LiLo</b>						
Arm OBR	20.2	71.12	0.99	6.4	29.95	0.88
Arm A23 N	83.4	147.13	1.09	5.7	14.21	0.86
Arm A23 S	2	6.52	0.66	4	11.4	0.8
<b>CBC LP3 + JF LiLo</b>						
Arm OBR	29.8	96.14	1.02	29.2	110.37	1.04
Arm A23 N	112.2	207.97	1.12	6.2	15.45	0.87
Arm A23 S	1.7	5.75	0.63	14.7	35.58	0.95
<b>CBC LP3 with Sust Mit + JF LiLo</b>						
Arm OBR	28.8	94.67	1.02	28	106.11	1.03
Arm A23 N	112.5	207.18	1.12	8.8	21.3	0.91
Arm A23 S	1.8	6.18	0.65	8.7	22.15	0.91

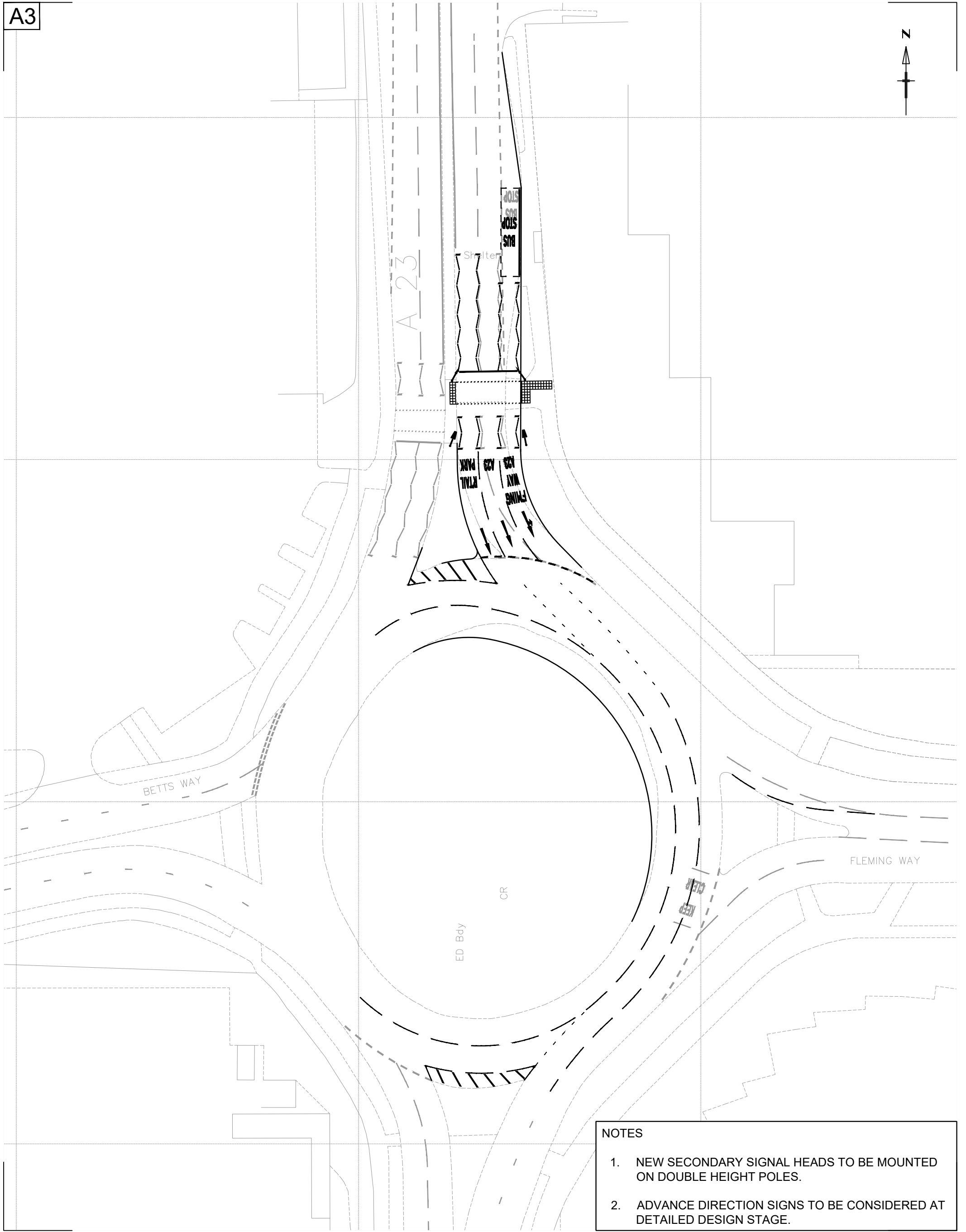
With Jersey Farm with LiLo access - Improved Layout 21071-012

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
<b>Improved layout - CBC LP1 + JF LiLo</b>						
Arm OBR	5.4	19.32	0.85	2.6	12.41	0.73
Arm A23 N	3.6	7.4	0.79	1.6	3.84	0.61
Arm A23 S	1.8	6.13	0.64	14.9	37.17	0.96
<b>Improved layout - CBC LP1 with Sust Mit + JF LiLo</b>						
Arm OBR	5.5	19.73	0.85	2.8	12.72	0.74
Arm A23 N	3.7	7.41	0.79	1.7	3.99	0.63
Arm A23 S	2	6.61	0.67	3.9	11.05	0.8
<b>Improved layout - CBC LP3 + JF LiLo</b>						
Arm OBR	6.8	23.83	0.88	5.9	24.71	0.87
Arm A23 N	4.3	8.61	0.82	1.7	4.14	0.63
Arm A23 S	1.7	5.85	0.63	13.9	33.6	0.95
<b>Improved layout - CBC LP3 with Sust Mit + JF LiLo</b>						
Arm OBR	6.6	23.49	0.88	5.7	23.96	0.86
Arm A23 N	4.3	8.59	0.82	2	4.5	0.66
Arm A23 S	1.9	6.31	0.66	8.3	21.16	0.9



## **APPENDIX 6**

# **OFF-SITE MITIGATION SCHEMES**



- NOTES**
1. NEW SECONDARY SIGNAL HEADS TO BE MOUNTED ON DOUBLE HEIGHT POLES.
  2. ADVANCE DIRECTION SIGNS TO BE CONSIDERED AT DETAILED DESIGN STAGE.

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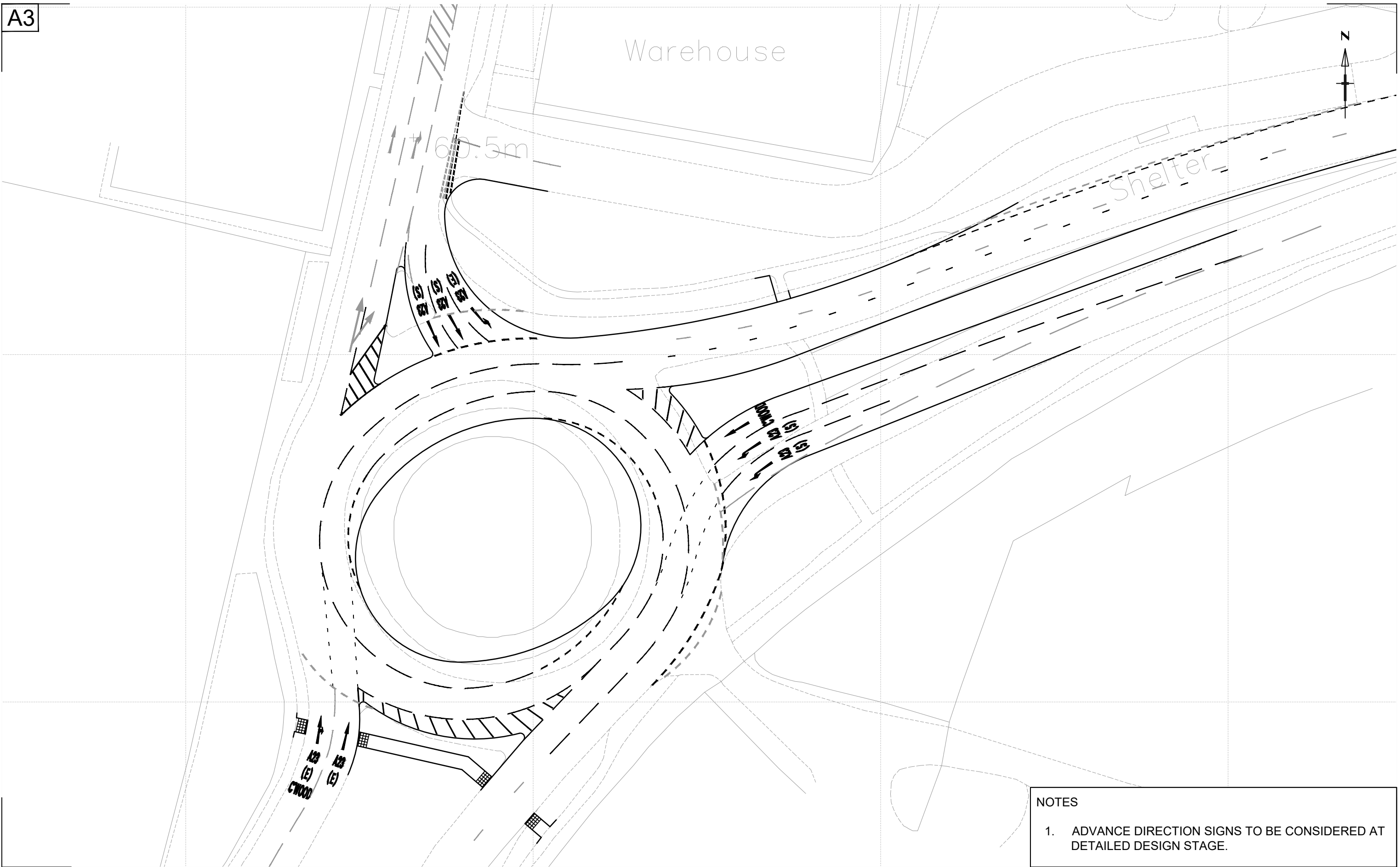
client  
WINDSOR DEVELOPMENTS  
project  
PROPOSED DEVELOPMENT  
JERSEY FARM, CRAWLEY  
title  
FLEMING WAY ROUNDABOUT  
PROPOSED IMPROVEMENTS

scale 1:500	date OCTOBER 2021
drawn by T.A.S	checked by T.B
drawing number 21071 - 011	
status PLANNING	rev.

Warehouse

60.5m

Shelter



NOTES

- 1. ADVANCE DIRECTION SIGNS TO BE CONSIDERED AT DETAILED DESIGN STAGE.

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client  
WINDSOR DEVELOPMENTS

project  
PROPOSED DEVELOPMENT  
JERSEY FARM  
CRAWLEY

title  
LOWFIELD HEATH ROUNDABOUT  
PROPOSED IMPROVEMENTS

date OCTOBER 2021	drawn by T.A.S	checked by T.B
scale 1:500	status PLANNING	
drawing number 21071 - 012	rev.	

