

WEST OF IFIELD PHASE 1A

Stage 1 Road Safety Audit

10051123-ARC-XXX-1A-TR-HE-00001

NOVEMBER 2024



WEST OF IFIELD PHASE 1A.
Stage 1 Road Safety Audit

Producer Charles Hutchinson

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Approver Steve Davies

Report No 10051123-ARC-XXX-1A-TR-HE-00001

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Version	Date	Author	Checker	Reviewer	Approver	Changes
P01	05/11/2024	C. Hutchinson	J. Lewis	D.Threlfall	S. Davies	First issue to the Client

This report dated 05 November 2024 has been prepared for Homes England (the “Client”) in accordance with the terms and conditions of appointment dated 23 February 2023 (the “Appointment”) between the Client and **Arcadis Consulting (UK) Limited** (“Arcadis”) for the purposes specified in the Appointment. For avoidance of doubt, no other person(s) may use or rely upon this report or its contents, and Arcadis accepts no responsibility for any such use or reliance thereon by any other third party.

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1 Introduction

- 1.1.1 This report results from a Stage 1 Road Safety Audit carried out on the West of Ifield Phase 1A development proposals on behalf of Chris Bearton, Project Sponsor, Homes England. The Road Safety Audit was carried out between August and November 2024.
- 1.1.2 The Road Safety Audit Team membership approved by Chris Bearton, Project Sponsor, Homes England, was as follows:
- | | |
|--------------------|---|
| Charles Hutchinson | BEng, MSc, CMILT, MCIHT, MSoRSA,
Arcadis Consulting (UK) Limited (Highways)
(Certificate of Competency in Road Safety Audit gained in June 2014). |
| Jon Lewis | BEng (Hons) IEng FIHE, CMILT, PRINCE2
Arcadis Consulting (UK) Limited (Highways)
(Certificate of Competency in Road Safety Audit gained in September 2023). |
- 1.1.3 The Road Safety Audit took place at the London office of Arcadis Consulting (UK), as well as home working in October and November 2024. The Road Safety Audit was undertaken in accordance with the Audit Brief provided by Sucha Panesar, Arcadis Consulting (UK) Ltd on 27th August 2024, and approved by Chris Bearton, Project Sponsor, Homes England.
- 1.1.4 The audit comprised an examination of the drawings/documents provided by Arcadis Consulting (UK) Ltd and listed in Appendix A. Drainage Layout Overview, General Arrangement Overview, General Arrangement, Carriageway Long Sections, Typical Cross Sections and Typical Urban Rain Garden Section. In addition, traffic flow data in the form of Annual Average Daily Traffic and Annual Average Weekly flows were also provided
- 1.1.5 The Audit Team visited the site together on Monday 28th October 2024 between 12:00hrs-13:00hrs during the hours of daylight. Traffic flow along Rusper Road, Ifield Green, Ifield Avenue, Bonnetts Lane and Charlwood Road was low with no walkers, cyclists or equestrians observed along the route. During the site visit the weather was sunny and warm and the carriageway was dry.
- 1.1.6 The Terms of Reference of the Road Safety Audit are as described in GG 119 Road Safety Audit. The Road Safety Audit Team has examined and reported on the road safety implications of the scheme as presented and has not been examined or verified for compliance with any other criteria. However, to clearly explain a problem or a recommendation to resolve a problem, it may be necessary to refer to another Standard or Advice Note, but such reference will not conflict with the requirements of the above Terms of Reference.
- 1.1.7 All comments and recommendations are referenced to the layout drawings and the locations have been indicated on the A3 plans supplied with the Road Safety Audit Brief and provided in Appendix B. It is noted that when making recommendations, any design related strategic decisions agreed by the Overseeing Organisation (i.e., route choice, junction type or departures etc.), may not change irrespective of the Road Safety Audit, as these decisions already reflect an appropriate balance of factors including road safety.

- 1.1.8 Homes England (HE) intends to redevelop approximately 203 ha of land west of Ifield in West Sussex for a residential led mixed-use settlement. The Proposed Development will form a sustainable urban extension of Crawley and includes land within Horsham District Council and Crawley Brough Council's administrative areas. Phases 1A and 1B (covered in a separate Road Safety Audit) are required to unlock the following development on the West of Ifield site which is near Crawley in West Sussex.
- 1.1.9 The scheme involves site preparation, demolition of existing buildings and site clearance works; Delivery of c.3,000 homes; Early phases of a new, mixed-use neighbourhood centre; A new 6FE – 8FE secondary school (targeted opening of 2026); A new primary school provision (currently assumed to be single 3FE delivered by WSCC); Other associated community and commercial development.
- 1.1.10 The Phase 1A infrastructure works would support the start of delivery of new homes and will include the following; Site clearance, demolition and enabling works; utilities and drainage. The Phase 1A Primary Street highway works connect the Phase 1 development area to Rusper Road to the east with a bus gate and active travel connections and to the Crawley Western Link (CWL) Road, also providing highway access to the proposed primary and secondary schools.
- 1.1.11 The Phase 1 Primary Street extends for approximately 850 metres connecting to a section of Secondary Street approximating 150 metres. These roads are designed as single carriageways with a speed limit of 20mph. The Primary Street serves as the main artery, facilitating movement through the proposed development.
- 1.1.12 The Primary Street connects to Rusper Road to the east with a 3-arm priority junction, incorporating a bus gate. The Primary street extends westward for approximately 550 metres joining a portion of Secondary Street and link to the CWL with a signalized 3-arm junction. The Primary Street then continues northward for a further 300 metres, joining the CWL with a signalized junction. Primary Street then connects to the point of tie-in at the existing rural road network, connecting to the new urban-context CWL via an S2 spur and signalised 3-arm junction. The existing rural road is of restricted width and low traffic demand.
- 1.1.13 There are no Identified Departures or Relaxations from Standards proposed.
- 1.1.14 In terms of strategic decisions, Phase 1A has been designed using Manual for Streets. The Urban Mainline cross-section in the Southern section of the overall West of Ifield Development has been developed and agreed in conjunction with the overall scheme Master-planners and in consultation with West Sussex County Council (as Local Highway Authority) to give a deliberately width-constrained configuration to geometrically discourage speeds in excess of the 20mph speed limit. This includes deliberately narrowed bus lanes, near-flush texture/colour contrast parallel separation features, no super-elevation, and a high density of pedestrian crossing facilities to emphasise an "urban-centre" context. Horizontal and vertical curvatures are, however, designed to permit future reconfiguration of the southern section for incorporation into a future Crawley Western Link Road strategic route.
- 1.1.15 The Road Safety Audit Team confirm that any recommendations to significantly change any strategic decisions are unlikely to be acceptable.
- 1.1.16 Collision data was not available at this design stage as it is predominantly new build.

2 Items Raised in Previous Road Safety Audits

- 2.1.1 The Audit Team are not aware of this scheme being the subject of previous Road Safety Audits.
- 2.1.2 It is noted that where the design has changed, it may be necessary to revise an earlier problem and recommendation. If such an occasion were to arise, this will be included in section 3 of this Road Safety Audit.

3 Items Raised in this Stage 1 Road Safety Audit

3.1 General

3.1.1 PROBLEM

Location: General – West of Ifield Phase 1A (Drg. 10051123_ARC-050-1A-DR-CE-00001 Rev P04).

Summary: Poor drainage of surface water may lead to skidding / loss of control collisions.

Although proposed Sustainable Urban Drainage Systems (SuDS) zones within the street corridor have been proposed, it is not clear whether the proposed entry treatments incorporate suitable drainage, or whether kerbing in general incorporates a combined drainage and kerb system. If surface water cannot be drained from the carriageway or at junction entry treatments this may lead to ponding of surface water and wet road collisions, particularly during icy or wet weather conditions.

Carriageway low points have been identified along RD_1A_P01, RD_1A_P02 and RD_1A_S04, so these areas may be particularly prone to ponding during wet weather conditions.

The Audit Team notes that the Drainage Layout Overview drawing refers to the site-wide proposed drainage strategy report 10051123-ARC-050-ZZ-TR-CE-00001 for further details, however, this was not available at the time of the audit.

RECOMMENDATION

Ensure surface water is suitably drained from the carriageway and areas designated for walking and cycling.

3.1.2 PROBLEM

Location: A – Northern bus stops along RD_1A_P02, West of Ifield Phase 1A (Drg. 10051123_ARC-070-1A-DR-CE-00008 Rev P06).

Summary: Position of bus stop may hinder motorists exiting the residential plot.

The in-carriageway bus stop is proposed close to the access / egress associated with the northern residential plot. The presence of a stationary bus may restrict sight lines for those exiting the plot, particularly those seeking to turn right along RD_1A_P02. This may lead to collisions between those exiting the plot and eastbound motorists attempting to overtake the stationary bus.

RECOMMENDATION

Ensure those exiting the residential plot have suitable sightlines. This may be achieved by instead providing an inset bus layby.

3.1.3 PROBLEM

Location: General – Bus Gate along RD_1A_P02, West of Ifield Phase 1A (Drg. 10051123_ARC-070-1A-DR-CE-00008 Rev P06 & 10051123_ARC-070-1A-DR-CE-00009 Rev P06).

Summary: Proposed bus gate may lead to indecision and /or shunt collisions.

The bus gate proposals (yet to be fully developed) consist of two physical islands creating a chicane layout over a distance of approximately 50m. This arrangement may lead to indecision or tempt motorists to accelerate through the bus gate to beat the approaching vehicle, leading to side-swipe and late braking collisions. Furthermore, the eastern end of the bus gate is positioned close to the junction with Rusper Road and there is a risk that motorists waiting at the build-out may extend back into Rusper Road and conflict with oncoming traffic leading to collisions.

RECOMMENDATION

Ensure that the operation of the bus gate does not tempt motorist to take risks or result in any undue queueing back onto Rusper Road.

3.1.4 PROBLEM

Location: B – RD_1A_S01 near Entry treatment JC_1A_S01, West of Ifield Phase 1A (Drg. 10051123_ARC-050-1A-DR-CE-00001 Rev P04).

Summary: Risk of slip hazards for exiting motorists.

There is a risk that cyclists and powered-two-wheelers exiting the RD_1A_S02 side road may ride across the path of manhole cover MH-40 whilst turning and become unseated (see insert). This may lead to leading to secondary collisions (see insert).

A similar situation occurs at the following locations (ref. Drg. 10051123_ARC-070-1A-DR-CE-00004 Rev P06):

- MH-10 near the foul pumping station
- MH-4 (opposite above pumping station)



RECOMMENDATION

Ensure the manhole cover does not pose a slip / skid risk to riders.

Similarly, there is a risk that if motorists do yield to cyclists at the 'partial setback road markings,' (i.e. set back 'less' than a full car length relative to the major road kerblines), the rear of their vehicle may still overhang back into the carriageway and cause late braking collisions.

Furthermore, there may also be a risk of collisions if the give way markings at the junction are not visible or conspicuous. This may be due to traffic volumes affecting headways or wet weather conditions making the markings less conspicuous.

RECOMMENDATION

It is not preferable to prioritise cyclists at junctions, unless it is possible to establish clear and suitable junction priority.

Consultation of the measures should be discussed with local walking, cycling and mobility / sensory impaired groups.

It is also preferable in safety terms that cycle tracks crossing side roads are one way in the direction of traffic on the main carriageway. Drivers are less likely to be aware of cyclists travelling in the other direction when turning into and out of the side road.

3.3 Walking, Cycling and Horse Riding

3.3.1 PROBLEM

Location: General – Inset bus stops, West of Ifield Phase 1A (Drg. 10051123_ARC-050-1A-DR-CE-00001 Rev P04).

Summary: Provision of bus stops may lead to boarding / alighting hazards

The inset layby bus stop facilities require bus drivers to access the layby and park parallel and close to the kerblines. If bus drivers are unable to stop close or parallel to the kerblines they may be at risk of leaving sizeable gaps creating problems with boarding and alighting activities. These gaps could become hazardous to passengers especially those mobility or sight impaired, who could misjudge, slip or lose their footing, leading to injury.

RECOMMENDATION

Ensure the geometry of the bus stops promote parking close to and parallel with the kerblines. Furthermore, ensure that boarding and alighting zones can be accommodated for all bus types using the bus stop.

3.3.2 PROBLEM

Location: General – Inset bus stops, West of Ifield Phase 1A (Drg. 10051123_ARC-050-1A-DR-CE-00001 Rev P04).

Summary: Provision of bus stops may result in buses partially blocking the carriageway

The width of the inset layby bus stop facilities appears to be narrower than those on-carriageway bus stops. If bus drivers are unable to accommodate their bus within the layby and inadvertently extend back onto the carriageway, this may lead to late braking collisions with motorists along the carriageway.

RECOMMENDATION

Ensure that buses can be accommodated within the layby.

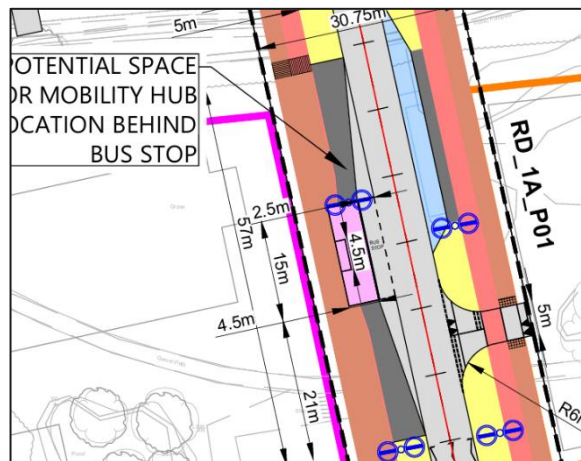
3.3.3 PROBLEM

Location: General – Rear of bus stops along RD_1A_P01 & RD_1A_P02 West of Ifield Phase 1A (Drg. 10051123_ARC-050-1A-DR-CE-00004 Rev P06 & 10051123_ARC-050-1A-DR-CE-00007 Rev P06).

Summary: Access to and from bus shelters may conflict with cyclists

There does not appear to be any designated or prioritised route generally for users walking to or from the proposed bus shelters (see insert). Given that passenger numbers alighting can notably be high, with some users distracted, looking the wrong way, impaired, or unaware of approaching cyclists, there is a risk that pedestrians may proceed towards the footpath heedless of approaching cyclists.

In addition, the space behind some bus shelters becomes narrow and creates a potential pinch point for pedestrians and cyclists alike, and this is likely to exacerbate conflicts further.



RECOMMENDATION

Establish a safe route to the bus stop shelters and encourage courtesy from approaching cyclists. This may consist of additional formal or informal measures to calm approach speeds and manage the shared space more effectively.

3.3.4 PROBLEM

Location: D –Bus stop along south side of RD_1A_P02, West of Ifield Phase 1A (Drg. 10051123_ARC-050-1A-DR-CE-00004 Rev P06).

Summary: Position of bus stop may hinder northbound walkers crossing RD_1A_P02.

The in-carriageway bus stop is proposed just east of and close to the uncontrolled crossing facility. The presence of a stationary westbound bus may restrict sight lines for those attempting to cross RD_1A_P02 northbound. This may lead to collisions between walkers and motorists.

RECOMMENDATION

Ensure those crossing have suitable sightlines of approaching traffic. This may be achieved by instead providing an inset bus layby.

3.3.5 PROBLEM

Location: General – Phase 1A Highway, West of Ifield Phase 1A (Drg. 10051123_ARC-050-1A-DR-CE-00009 Rev P06).

Summary: Risk of walkers (and cyclists??) being struck by motorists during wet weather conditions.

There is a risk that during wet weather periods motorist may take longer to come to a stop at formal and informal crossing facilities. This may lead to crossing collisions with walkers.

RECOMMENDATION

Provide suitable lengths of high skid resistant surfacing in advance and through all crossing facilities.

3.3.6 PROBLEM

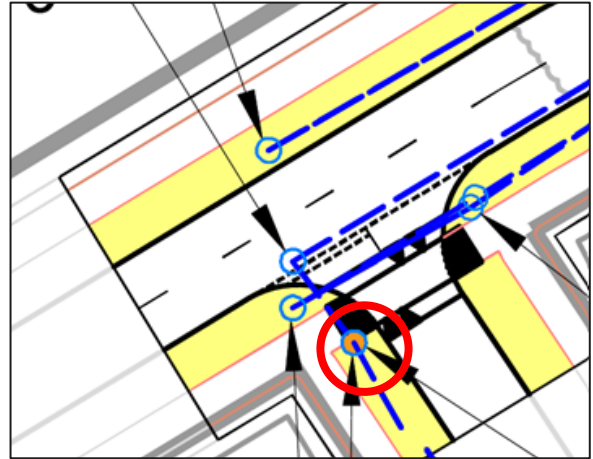
Location: B – RD_1A_S02 Entry treatment crossing facility, West of Ifield Phase 1A (Drg. 10051123_ARC-050-1A-DR-CE-00001 Rev P04).

Summary: Risk of slip / trip hazards associated with manhole cover.

The position of manhole cover MH-39 appears to be located at or near the southern side road uncontrolled crossing RD_1A_S02 tactile paving (see insert). This may present a slip / trip hazard to those using the uncontrolled crossing facility particularly if the manhole cover is uneven, incorporates an upstand or is slippery underfoot.

A similar situation occurs at the following locations:

- MH-73 RD_1A_P01
- MH-30 RD_1A_P01
- MH-53 RD_1A_P02
- MH-87 RD_1A_P02
- MH-143 RD_1A_P02



RECOMMENDATION

Ensure manhole covers does not pose a risk to walkers or cyclists.

3.3.7 PROBLEM

Location: E – RD_1A_P02 / Rusper Road crossing facility, West of Ifield Phase 1A (Drg. 10051123_ARC-050-1A-DR-CE-00009 Rev P06).

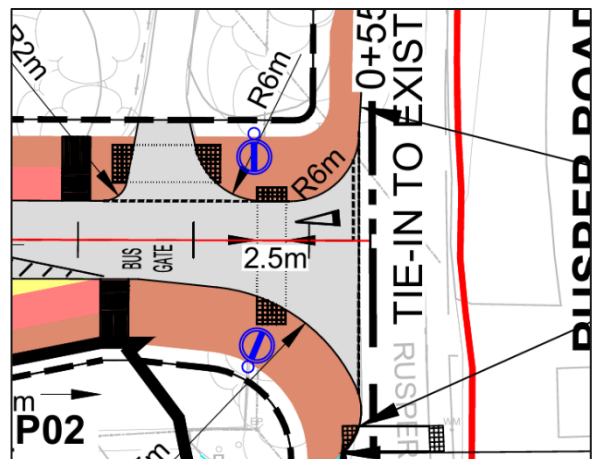
Summary: Risk of crossing collisions.

Walkers crossing at the junction are expected to cross the carriageway in one go or risk being stranded in the middle of the road where they may be struck by turning traffic.

This may be a particular problem for those frail, mobility / sensory impaired crossing the wide carriageway, looking in multiple directions and avoiding large turning vehicles such as buses.

RECOMMENDATION

The use of a refuge island at the junction bellmouth may allow crossing walkers to cross safely in two halves, whilst providing a safe space to wait and observe oncoming traffic.



3.3.8 PROBLEM

Location: General – RD_1A_P01 & RD_1A_P02 Entry treatment junctions, West of Ifield Phase 1A (Drg. 10051123_ARC-050-1A-DR-CE-00001 Rev P04).

Summary: Risk of cycle collisions with walkers and motorists.

There is a risk of cycle collisions with walkers and motorists as cyclists attempt to access the cycleway or shared use space. There does not appear to be any clear or defined access routes for cyclists to access the cycle facilities.

Furthermore, as junction entry treatments in general provide a flush surface across the highway this appears to tempt cyclists to access / leave the cycle facilities at multiple locations rather than at designated locations. This may put fellow walkers at risk of being struck as they may not expect to be joined by cyclists anywhere from the junction, or for cyclists to cross into their path, particularly when there is little space to do so.

RECOMMENDATION

Provide suitable clearly signed designated cycle access facilities. Furthermore, the use of pedestrian priority signs (or similar) may help remind cyclists to be mindful / respectful of pedestrian safety by not obstructing or endangering them. It is incumbent for cyclists to recognise that pedestrians can walk anywhere, and that cyclists are required adjust cycling accordingly to avoid unduly harming pedestrians.

3.3.9 PROBLEM

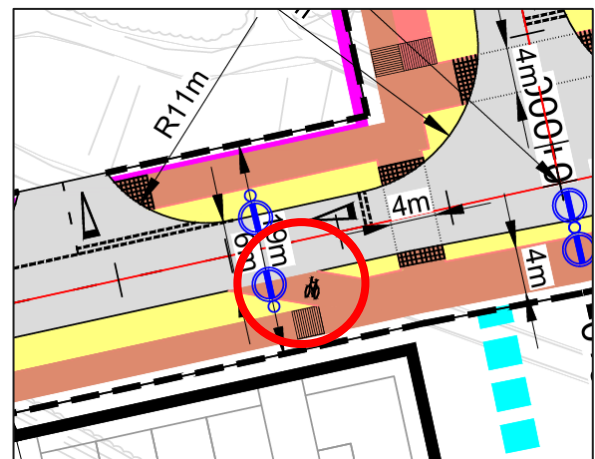
Location: F – RD_1A_S01 opposite RD_1A_P01 Southern shared use facility, West of Ifield Phase 1A (Drg. 10051123_ARC-050-1A-DR-CE-00007 Rev P06).

Summary: Risk of cycle collisions.

Cyclists are required to exit the share use facility and rejoin the carriageway with their backs to oncoming westbound traffic (see insert). If cyclists continue to enter the road heedless of oncoming traffic, this may lead to side-swipe collisions.

RECOMMENDATION

Ensure cyclists entering the carriageway to join traffic have a clear sight of oncoming traffic, or be expected to yield accordingly.



3.3.10 PROBLEM

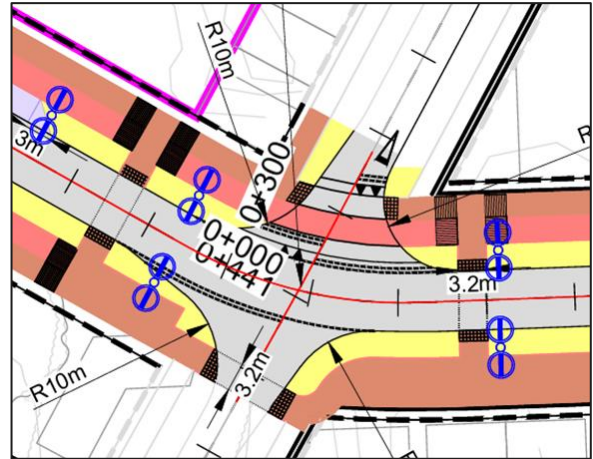
Location: G – JC_1A_S06 Junction crossing facilities, West of Ifield Phase 1A (Drg. 10051123_ARC-070-1A-DR-CE-00007 Rev P06).

Summary: Risk of walker collisions.

Poorly located crossing facilities either side of the junction may lead to collisions with walkers (see insert). There is a risk that motorists approaching the junction may be preoccupied by turning manoeuvres or focus on emerging traffic, rather than concentrating on crossing activities.

RECOMMENDATION

Provide suitable refuge islands at the junction to enable walkers to cross one stream of traffic at a time.



3.3.11 PROBLEM

Location: H & I – RD_1A_P02, West of Ifield Phase 1A (Drg. 10051123_ARC-070-1A-DR-CE-00007 Rev P06).

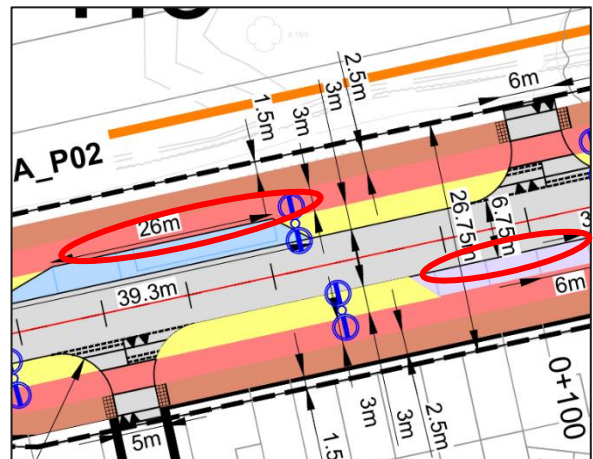
Summary: Risk of cyclists being struck by car doors.

Parking and loading bays positioned immediately adjacent to cycleways may put cyclists at risk of collisions when vehicle doors are opened directly into the path of approaching cyclists.

A similar situations occurs along multiple locations eastwards along RD_1A_P02.

RECOMMENDATION

Provide a suitable 'buffer zone' between cyclists and parked vehicles to mitigate the risk of vehicle doors opening onto oncoming cyclists.




4 AUDIT TEAM STATEMENT

4.1.1 We certify that this Road Safety Audit has been carried out in accordance with GG 119.


ROAD SAFETY AUDIT TEAM LEADER

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Appendix A

Documents forming the Audit Brief

DRAWING TITLE	DRAWING NUMBER	REV
West Of Ifield Phase 1A Drainage Layout Overview	10051123-ARC-050-1A-DR-CE-00001	P04
West Of Ifield Phase 1A Highway General Arrangement Overview	10051123-ARC-070-1A-DR-CE-00001	P06
West Of Ifield Phase 1A Highway General Arrangement Sheet 3	10051123-ARC-070-1A-DR-CE 00004	P06
West Of Ifield Phase 1A Highway General Arrangement Sheet 6	10051123-ARC-070-1A-DR-CE-00007	P06
West Of Ifield Phase 1A Highway General Arrangement Sheet 7	10051123-ARC-070-1A-DR-CE-00008	P06
West Of Ifield Phase 1A Highway General Arrangement Sheet 8	10051123-ARC-070-1A-DR-CE-00009	P06
West Of Ifield Phase 1A Highway Carriageway Long Sections Sheet 1 Of 4	10051123-ARC-071-1A-DR-CE-00001	P03
West Of Ifield Phase 1A Highway Carriageway Long Sections Sheet 2 Of 4	10051123-ARC-071-1A-DR-CE-00002	P03
West Of Ifield Phase 1A Highway Carriageway Long Sections Sheet 3 Of 4	10051123-ARC-071-1A-DR-CE-00003	P03
West Of Ifield Phase 1A Highway Carriageway Long Sections Sheet 4 Of 4	10051123-ARC-071-1A-DR-CE-00004	P03
West Of Ifield Phase 1A Highway Typical Cross Sections Sheet 1 Of 2	10051123-ARC-072-1A-DR-CE-00001	P05
West Of Ifield Phase 1A Highway Typical Cross Sections Sheet 2 Of 2	10051123-ARC-072-1A-DR-CE-00002	P05
West Of Ifield Phase 1A Drainage Typical Urban Rain Garden Section	10051123-ARC-072-1A-DS-CE-00001	P01
West Of Ifield Phase 1A Drainage Layout Overview	10051123-ARC-050-1A-DR-CE-00001	P01
DOCUMENT NUMBER	DOCUMENT DETAILS	
West of Ifield Phase 1 Road Safety Audit Brief	10053900-ARC-GEN-ZZZ-TR-CE-00001	N/A
Annual Average Daily Traffic and Annual Average Weekly	N/A	5

Appendix B
Problem Locations

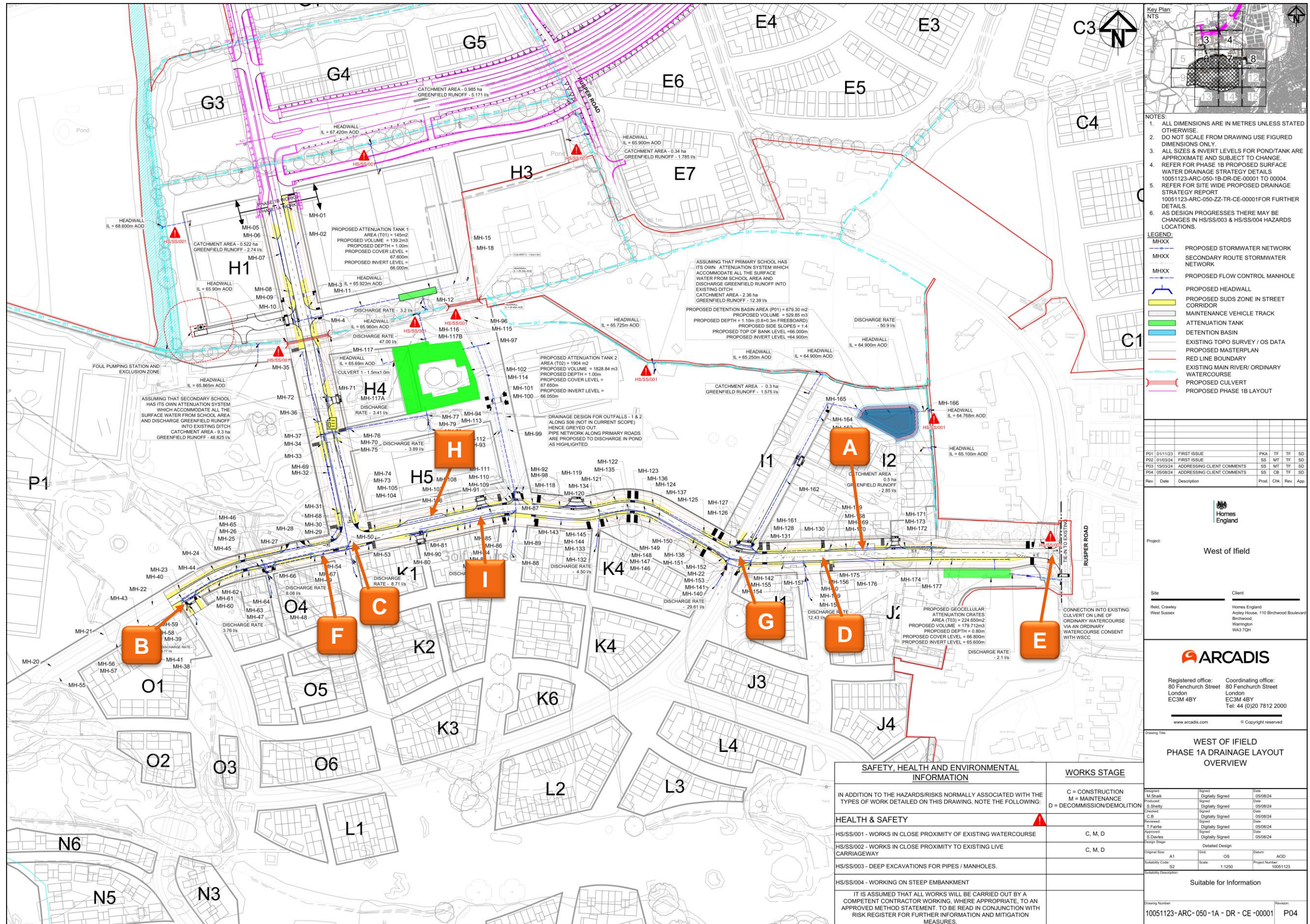


Image 1: Extract of drawing 10051123-ARC-050-1A-DR-CE-00001 Rev P04

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