

LAND AT NORTH WEST BICESTER

TRANSPORT ASSESSMENT VOL 2 (ii) – APPENDIX E - J

PROJECT NO. 4600/1100 DOC NO. D002

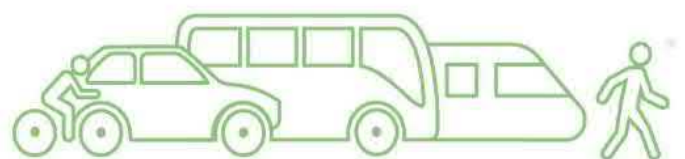
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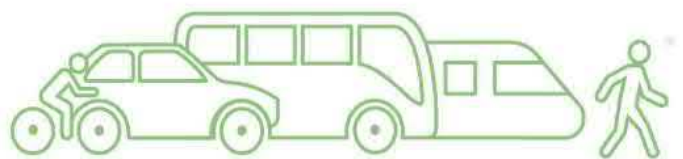
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APPENDIX E

BTM – UNCERTAINTY LOGS & HEYFORD PARK INCLUSIONS



ID	Name	Description	Dev Type	Complete by Year (Units,			Certainty
				2021	2026	2031	
Inf101	London Road level crossing	Closure time was a total of 16 minutes during the 2016 base surveys. Do Minimum to assume total closure every hour for 31 minutes from 2026.	Infrastructure	No	Yes	Yes	Near Certain
Inf102	NW Bicester Interim Scheme	Need to confirm this with OCC	Infrastructure	No	N/A	N/A	Hypothetical
Inf103	NW Bicester Infrastructure	See MasterPlan	Infrastructure	Partial	Partial	Yes	More Than Likely
Inf104	SE Bic Wretchwick Green	Associated Infrastructure	Infrastructure	Partial	Partial	Partial	More Than Likely
Inf105	SE Bic Additional Area	Access Arrangements	Infrastructure	Yes	Yes	Yes	More Than Likely
Inf106	Proposed new Garden Town motorway junction	(location to be determined)	Infrastructure	No	No	No	Hypothetical
Inf107	A41 infrastructure improvements and bus priority	Potential bus priority improvements on A41 from Jn 9 to Boundary Way.	Infrastructure	No	No	No	Hypothetical
Inf108	Vendee Drive improvements	To be determined	Infrastructure	No	No	No	Hypothetical
Inf109	Western peripheral corridor:	realigning the A4095 Howes Lane, including a new tunnel under the railway	Infrastructure	Yes	Yes	Yes	Near Certain
Inf110	Western peripheral corridor:	improvements to Lord's Lane / B4100 roundabout	Infrastructure	No	Yes	Yes	More Than Likely
Inf111	Eastern peripheral corridor:	replace level crossing with road bridge as part of EWR Phase 2 (Charbridge Lane)	Infrastructure	No	Yes	Yes	Near Certain
Inf112	Eastern peripheral corridor:	upgrade the A4421 Charbridge Lane to dual facility plus junction improvements - to Charbridge Lane/ Bicester Rd roundabout	Infrastructure	No	No	No	Hypothetical
Inf113	Eastern peripheral corridor:	upgrade the A4421 Skimmingdish Lane to dual facility plus junction improvements (to A4421/Bicester Rd roundabout)	Infrastructure	No	No	No	Hypothetical
Inf114	Eastern peripheral corridor:	a link through the SE development site to aid connectivity and provide capacity	Infrastructure	No	Yes	Yes	More Than Likely
Inf115	Pioneer Road roundabout improvements		Infrastructure	No	Yes	Yes	More Than Likely
Inf116	Southern peripheral corridor:	a new south east link road - route options	Infrastructure	No	No	No	Hypothetical
Inf117	London Road level crossing solution		Infrastructure	No	No	No	Hypothetical
Inf118	Oxford Rd/ Pingle Drive - upgraded signalised access	Bicester Village?	Infrastructure	Yes	Yes	Yes	Completed
Inf119	A41/ Neunkirchen Way Roundabout (Rodney House)		Infrastructure	Yes	Yes	Yes	Near Certain
Inf120	A41 Oxford Rd/ Boundary Way roundabout improvement scheme	Bicester Village?	Infrastructure	Yes	Yes	Yes	Completed
Inf121	Upper Heyford improvements. Split into more detail below		Infrastructure				
Inf122	Bus Route S5/X5	Inter Urban 8ph (2 pk via Kingsmere) need to change IP	Infrastructure	Yes	Yes	Yes	Near Certain
Inf123	Bus Route 25A (Now renamed 250)	THIS IS AS PER 2016	Infrastructure	1ph	1ph	1ph	
Inf124	Bus Route E1	NW Bicester NE	Infrastructure	2ph	No	No	More Than Likely
Inf125	Bus Route E2	NW Bicester SE	Infrastructure	2ph	2ph	6ph	More Than Likely
Inf126	Bus Route E3	NW Bicester NE	Infrastructure	No	4ph	6ph	More Than Likely
Inf127	Bus Route 21	Highfield 2ph	Infrastructure	Yes	Yes	Yes	Near Certain
Inf128	Bus Route SEB	SE Bicester 2ph	Infrastructure	Yes	Yes	Yes	More Than Likely
Inf129	Bus Route GH	Graven Hill 2ph	Infrastructure	Yes	Yes	Yes	More Than Likely
Inf130	Bus Route 26	Kingsmere 2ph	Infrastructure	Yes	Yes	Yes	More Than Likely
Inf131	Reading – Bedford with a headway of 60 minutes all day;	East West Rail comprises four new services:	Infrastructure	Yes	Yes	Yes	More Than Likely
Inf132	Reading – Milton Keynes with a headway of 60 minutes all day;	East West Rail comprises four new services:	Infrastructure	Yes	Yes	Yes	More Than Likely
Inf133	Bletchley – Milton Keynes with a headway of 60 minutes all day;	East West Rail comprises four new services:	Infrastructure	Yes	Yes	Yes	More Than Likely
Inf134	Milton Keynes – Marylebone with a headway of 60 minutes all day.	East West Rail comprises four new services:	Infrastructure	Yes	Yes	Yes	More Than Likely
Inf135	Evergreen3 from Chiltern Railway	consists in the creation of a new service between Oxford and London Marylebone, with a headway of 30 minutes all day.	Infrastructure	N/A	N/A	N/A	Completed
Inf136	Kingsmere Retail Mitigation Scheme	16/02505/OUT	Infrastructure	Yes	Yes	Yes	Near Certain
Inf137	Bicester 10 transport mitigation	16/02586/OUT	Infrastructure	Yes	Yes	Yes	Near Certain
Inf138	Bicester 11 Transport Mitigation	15/01012/OUT	Infrastructure	Yes	Yes	Yes	Near Certain
Inf139	Skimmingdish Lane housing site mitigation	14/00697/F	Infrastructure	Yes	Yes	Yes	Near Certain
Inf140	Shipton Junction A4095/A4260	Quarry site access requirements	Infrastructure	No	No	Yes	Near Certain
Inf141	Heyford Park 2016 Infrastructure	This is what is on the ground at 2016	Infrastructure				
Inf142	Heyford Park Existing Permission Infrastructure	This is the access roads required to allow connection to the highway network only e.g. access junctions on Camp Road.	Infrastructure	Yes	Yes	Yes	Near Certain
Inf143	Heyford Park Existing Permission Mitigation	Includes S278 mitigation schemes that are not access (i.e. narrowing on Camp Road) and consented scheme at Middleton Stoney and Camp Road/Chilgrove Drive	Infrastructure	Yes	Yes	Yes	Near Certain
Inf144	Bicester 4	Improvements at A41 / Lakeview Drive signal junction	Infrastructure	Yes	Yes	Yes	Near Certain

INFRASTRUCTURE SCHEMES

ID	Development Name	Description	Note	Dev Type	Total Dev Units/ Area	Complete by Year (Units,			Certainty
						2021	2026	2031	
Res101	Bicester Community Hospital	Application (12/00809/F) for demolition of existing community hospital and redevelopment of site to provide a new community hospital and 14 residential units was approved on 27 September 2012.	OX26 6DU	C3Dwellings		14	14	14	Near Certain
Res102	Highways Depot	Completed prior to June 2016		C3Dwellings		0	0	0	Completed
Res103	Bicester 13 (Gavray Drive)	A strategic allocation in the adopted Local Plan 2011-2031 for 300 dwellings (Bicester 13). HELAA273. Application (15/00837/OUT) for 180 dwellings was received on 11/5/2015 and is at appeal.	300 dwellings should be applied in a 2031 high growth scenario	C3Dwellings		180	180	180	More Than Likely
Res104	Bicester 2 (Graven Hill)	See 2017 AMR for planning information	2100 in 2031 high growth scenario	C3Dwellings		571	1571	1900	More Than Likely
Res105	Kingsmere	See 2017 AMR for planning information	950 taken from 2016 AMR	C3Dwellings		950	950	950	Near Certain
Res106	Land at Skimmingdish Lane	Application (14/00697/F) for 46 dwellings was approved on 9 December 2015.		C3Dwellings		46	46	46	Near Certain
Res107	Land south of Church Lane (Old Place Yard and St Edburgs)	Non-Statutory allocation for 15 dwellings. Development principles approved in June 2007. Permission for 11 units (16/00043/F) on either side of the former Bicester Library and is currently under construction. The former Library site is site HELAA080. Total units expected on site is 16.	OX26 6AU. 16 should be applied to 2031 high growth scenario.	C3Dwellings		11	11	11	Near Certain
Res108	Land south of Talisman Road	Outline application 09/01592/OUT for 140 dwellings granted on appeal (APP/C3105/A/11/2147212) on 18 August 2011. Reserved Matters application for 125 dwellings (13/01226/REM) was approved on 13 February 2014.	The site was completed in March 2018	C3Dwellings		125	125	125	Near Certain
Res109	NWB Eco-town Exemplar	See 2017 AMR for planning information		C3Dwellings		213	303	303	Near Certain
Res110	NWB Phase 2	See 2017 AMR for planning information		C3Dwellings		405	1505	2605	More Than Likely
Res111	SE Bicester (12) (Wretchwick Green)	A strategic allocation in the adopted Local Plan 2011-2031 for 1500 dwellings (Bicester 12). HELAA261. Please see 2017 AMR for planning information. A revised outline planning application is expected soon.	Could be seen as a high growth scenario as no houses have permission.	C3Dwellings		175	1175	1500	More Than Likely
Res112	South West Bicester Phase 2 (Bicester 3)	A strategic allocation in the adopted Local Plan 2011-2031 for 726 dwellings (Bicester 3). Resolution (7 August 2014) to approve 709 homes (13/00847/OUT) subject to legal agreement.		C3Dwellings		190	709	709	Near Certain
Res113	St Edburg's School, Cemetery Road	Development principles approved in October 2008. A planning application for residential development was submitted in 2009 (09/00082/OUT) but withdrawn to enable land ownership issues to be resolved. HELAA262.	OX26 6BB	C3Dwellings		10	10	10	More Than Likely
Res114	Winners Bargain Centres, Victoria Road	Application (15/00412/F) for redevelopment to form 42 sheltered apartments for the elderly, communal facilities, access, carparking and landscaping was approved on 15 June 2015.	OX26 6QD. Completed in September 2016	C3Dwellings		42	42	42	More Than Likely
Res115	Windfall allowance	Windfall allowance at Bicester is 10 units for the start of the trajectory and then reduced to 5 towards the end Please note this allowance cannot be included in the model due to lack of location details.		C3Dwellings		134	174	199	
Res116	Bessemere Close/Launton Rd	Non-statutory allocation for 70 dwellings. See 2017 AMR for details		C3Dwellings		70	70	70	More Than Likely
Res117	Cattlemarket	Non-statutory allocation for 40 dwellings. HELAA264. See 2017 AMR for details		C3Dwellings		0	40	40	More Than Likely
Res118	Upper Heyford Consented	574 dwellings by 2016. Additional 665 by 2031 (1239 total) Based on PBA drawings See Figures 1 and 2	Permitted development	C3Dwellings		665	665	665	Near Certain

RESIDENTIAL DEVELOPMENTS

ID	Development Name	Description	Location	Dev Type	Complete by Year (Units, sqm,			Certainty
					2021	2026	2031	
Emp101	NW Bicester	17/01090/OUT - Development of B1 B2 and B8 (Use Classes) employment buildings including landscaping; parking and service areas; balancing ponds and swales; and associated utilities and infrastructure. Construction of a new access off Middleton Stoney Road (B4030); 53,000 sq metres of flexible employment provision covering an area of 9.45ha. Part superseded by 17/01090/OUT (eastern part).	Bic 1 - OS Parcel 4200 Adjoining And North East Of A4095 And Adjoining And South West Of Howes Lane Bicester	B8/B1/B2	26,500	53,000	53,000	Near Certain
Emp102	Graven Hill	11/01494/OUT - facilities to include A1 A2 A3 A5 and D1 uses totalling up to 1358sqm up to 1000sqm gross A1 uses a pub/restaurant/hotel (class A4/A3/C1) up to 1000sqm. employment floorspace comprising up to B1(a) 2160sqm B1(b) 2400sqm B1(c) and B2 20520sqm and B8 uses up to 66960sqm. Erection of a 70400sqm fulfilment centre on 'C' s.	Bic 2 - Site C Ploughley Road	A1/A2/A3/A4/A5/D1/C1/B1a/B1b/B1c/B2/B8		46,619	93,238	Near Certain
Emp103	Bicester Business Park	17/02534/OUT (Not determined) - The construction of a business park of up to 60,000 sq.m (GEA) of flexible Class B1(a) office / Class B1(b) research & development floorspace. High Growth scenario could be 103,250 in 2031 in line with the local plan employment trajectory.	Bic 4	B1	30,000	60,000	60,000	More Than Likely
Emp104	Bicester Gateway	16/02586/OUT - 14 972 sq m (Gross External Area) of B1 employment based buildings plus a hotel (up to 149 bedrooms). 63,000 would be a high growth scenario from 2026	Bic 10	B1 and hotel	14,972	14,972	14,972	Near Certain
Emp105	NE Bicester Business Park	15/01012/OUT - OUTLINE - Development of up to 48,308sqm of employment floorspace (Class B1c B2 B8 and ancillary B1a uses.	Bic 11	B1ac/B2/B8	48,308	48,308	48,308	Under Construction
Emp106	Wretchwick Green	16/01268/OUT - up to 18ha of employment land for B1 and/ or B8 uses, a local centre with retail and community use to include A1 and/ or A2 and/ or A3 and/ or A4 and/ or A5 and/ or D1 and/ or D2 and/ or B1 and/ or uses considered as sui generis. This could be viewed as a high growth scenario as is currently being adapted, but it is likely that something will come forward and so Local Plan employment trajectories have been used, less symmetry park.	Bic 12	B1(c)/B8	-	38,646	77,292	More Than Likely
Emp107	SE Bicester	16/00861/HYBRID (not determined) -Full planning permission for 18,394 SQM (198,000 SQ FT) of logistics floor space within class B8 with ancillary class B1 (A) offices. Outline planning permission for up to 44,314 SQM (477,000 SQ FT) of logistics floor space within class B8 with ancillary class B1 (A) offices.	Bic 12: Symetry Park	B8 plus ancillary B1a	62,708	62,708	62,708	Near Certain
Emp108	Canalside		Ban 1	Town centre/commercial uses (not including B use classes)	-	-	-	Reasonably Foreseeable
Emp109	Land West of M40	10/01816/HYBRID - 24,005sq meters B2 (Industrial) and/or B8 (warehouse/distribution) uses. Could assume a high growth scenario of 122500 in 2031 in line with Local Plan trajectory. 24k sqm completed prior to June 2016 65k LP allocation	Ban 6	B1/B2/B8		32,736	65,472	Reasonably Foreseeable
Emp110	Land East of M40		Ban 15	B1/B2/B8	22750	45500	45500	Reasonably Foreseeable
Emp111	Former SAPA Site	Completed pre June 2016		B1, B2 and B8	0	0	0	Reasonably Foreseeable
Emp113	Kingsmere	Superseded by Kingsmere retail	Bic 3	B1				Near Certain
Emp114	Bicester Village Phase 4	15/00082/F - 5,181 sqm (GIA) retail floorspace and 118sqm ancillary toilet floorspace	Bicester Village	A1	5181	5181	5181	Near Certain
Emp115	Bicester Gateway (Kingsmere Retail)	16/02505/OUT A1 - 7832sqm, A3 - 443sqm, D2 - 967sqm			9242	9242	9242	Near Certain
Emp116	McDonalds Drive-thru	17/00889/F Two storey drive-thru restaurant (class A3/A5) - 548sqm		A1/A5	548	548	548	Near Certain
Emp117	Heyford Park Consented	2016 = 1,509 2021 onwards = 1,700			191	191	191	Near Certain

EMPLOYMENT DEVELOPMENTS

This tab is for shopping trips. Jobs are covered under employment

ID	Development Name	Description	Location	Dev Type	Complete by Year (Units, sqm) Cummulative			Certainty
					2021	2026	2031	
Ret1	Bicester Village Phase 4	15/00082/F - 5,181 sqm (GIA) retail floorspace and 118sqm ancillary toilet floorspace		A1	5181	5181	5181	Near Certain
Ret2	Bicester Gateway (Kingsmere Retail)	16/02505/OUT A1 - 7832sqm, A3 - 443sqm, D2 - 967sqm	Bic 3		9242	9242	9242	Near Certain
Ret3	McDonalds Drive-thru	17/00889/F Two storey drive-thru restaurant (class A3/A5) - 548sqm		A1/A5	548	548	548	Near Certain

RETAIL DEVELOPMENT

ID	Development Name	Notes	Dev Type	Complete by Year (Units,			Certainty
				2021	2026	2031	
Sch101	Bicester – SW (Kingsmere)	Due to open 2019	600-place secondary	600	600	600	Near Certain
Sch102	Bicester – SW (Kingsmere)	Possibly +420 places, most likely after 2021 but by 2026	Primary – prob 2fe	0	420	420	More Than Likely
Sch103	Bicester – S (Graven Hill)	Possibly +210 places by 2021 and another +420 places by 2026	Primary – 2-3fe	210	630	630	Near Certain
Sch104	Bicester – NW (Ecotown)	+210 places in 2017; probably another +210 places by 2021; by 2026 say another +420 places; another +420 places possible by 2031 or might be later.	3-4 primaries	420	840	1260	More Than Likely
Sch105	Bicester – NW (Ecotown)	Assume +600 by 2026; possibly another +600 by 2031	Secondary – size tbc	0	600	1200	More Than Likely
Sch106	Bicester – SE	Possibly +420 places, most likely after 2021 but by 2026	Primary – 2fe?	0	420	420	More Than Likely
Sch107	Longfield	Longfield increase this year from 1.5fe to 2fe	Primary	58	79	101	Completed
Sch108	Launton	Launton is looking at going up from 175 to 210 places from 2017, subject to consultation	Primary	35	35	35	Hypothetical
Sch109	St Edburgs	St Edburg's is now 2fe in its new location, with actual pupil numbers still to rise.	Primary	169	348	528	Completed
Sch110	Upper Heyford committed	These are additional places as part of the existing permission	Primary			280	Near Certain
Sch111	Upper Heyford committed	These are additional places as part of the existing permission	Secondary – size tbc			180	Near Certain

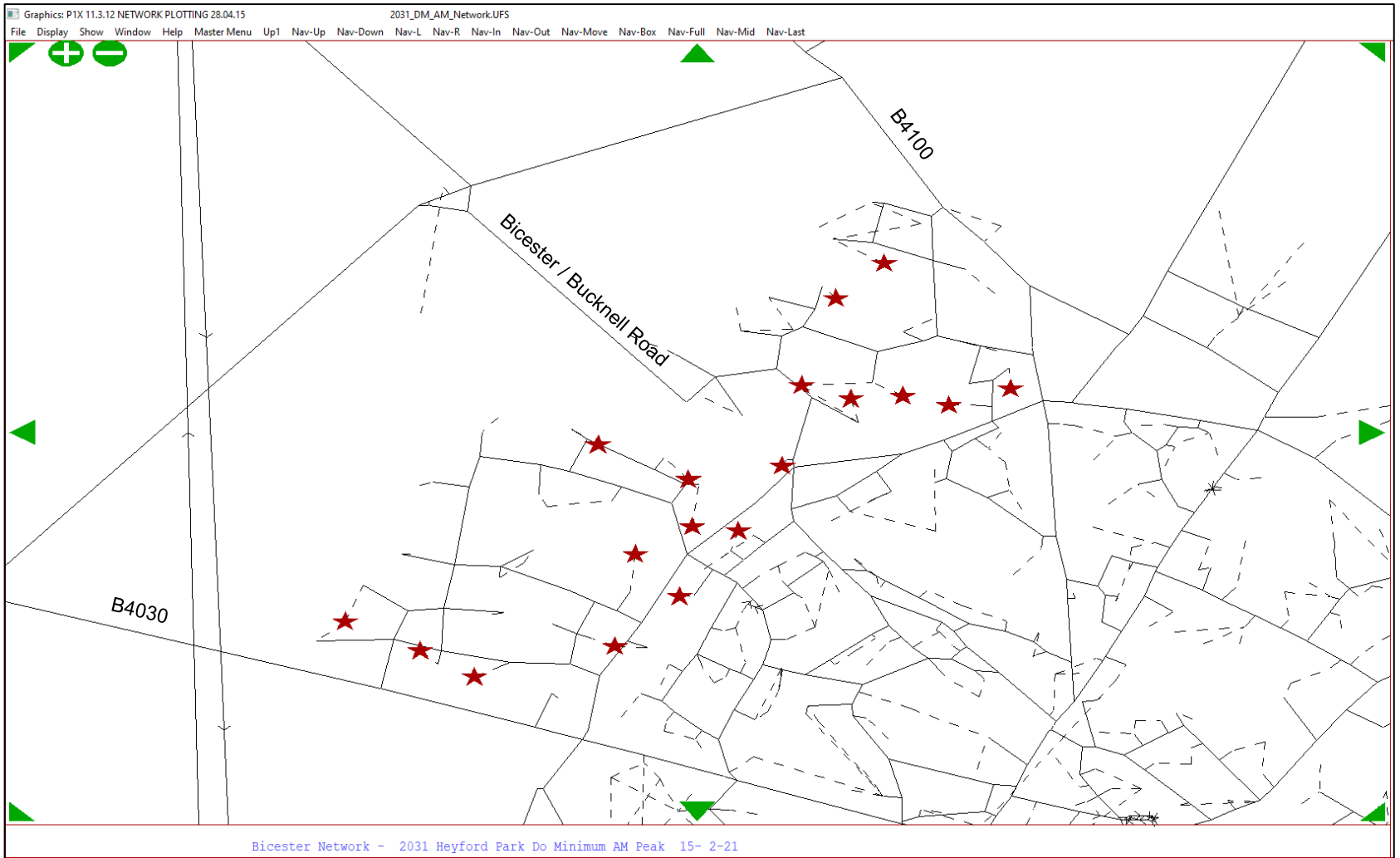
EDUCATION

Originator	Reason for Modelling	Model Name	HPA Traffic Included	Heyford Park Allocation Mitigation											Comments		
				Public Transport Improvements (1)	HPA M40 J10 Improvements (2)	B430 / Unamed Road Junction (3)	Hopcrofts Holt Junction (4)	B4027 / A4260 Junction (5)	Middleton Stoney Bus Gate (6)	Middleton Stoney Junction (7)	Middleton Stoney Bypass	HGV Weight Restriction on B4030 (8)	HGV Weight Restriction on B4030 (9)	Ardley Village B430 Signalisation (10)		Chilgrove Drive / Camp Road Junction Upgrade (11)	
Oxfordshire County Council	Testing Impact and Mitigation of Heyford Park Allocation (HPA)	2016 Base Year	No	No	No	No	No	No	No	No	No	No	No	No	No		
		2026 Reference Case	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
		2031 Reference Case	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
		2031 Do Nothing	Yes	No	No	No	No	No	No	No	No	No	No	No	No	Yes	
		2031 Do Minimum	Yes	Yes	Yes	Yes (see comments)	Yes	Yes	No	No	No	No	No	No	No	Yes	B430 / Unnamed junction improvements are the basic signalisation of the existing priority junction.
		2031 Do Something 1	Yes	Yes	Yes	Yes (see comments)	Yes	Yes	Yes	Yes	No	No	No	No	No	Yes	B430 / Unnamed junction improvements are the signalisation of the junction with increased capacity from the Do Minimum scenario.
		2031 Do Something 1a	Yes	Yes	Yes	Yes (as DS1)	Yes	Yes	Yes (see comments)	No	No	No	No	No	No	Yes	Bus gate in alternative location, on Camp Road.
		2031 Do Something 1b	Yes	Yes	Yes	Yes (as DS1)	Yes	Yes	Yes	Yes	No	No	No	No	No	Yes	
		2031 Do Something 2	Yes	Yes	Yes	Yes (as DS1)	Yes	Yes	Yes	Yes	Yes	Yes (see comments)	No	No	No	Yes	Eastern section of bypass only.
		2031 Do Something 3	Yes	Yes	Yes	Yes (as DS1)	Yes	Yes	Yes	Yes	Yes	Yes (see comments)	No	No	No	Yes	Full bypass scheme included.
Kingsmere	Kingsmere Update	2026 Reference Case Kingsmere Update	No	No	No	No	No	No	No	No	No	No	No	No	No	Amendment of the 2026 Reference Case to limit access to Kingsmere development from the Pioneer Way junction	
		2031 Reference Case Kingsmere Update	No	No	No	No	No	No	No	No	No	No	No	No	No		

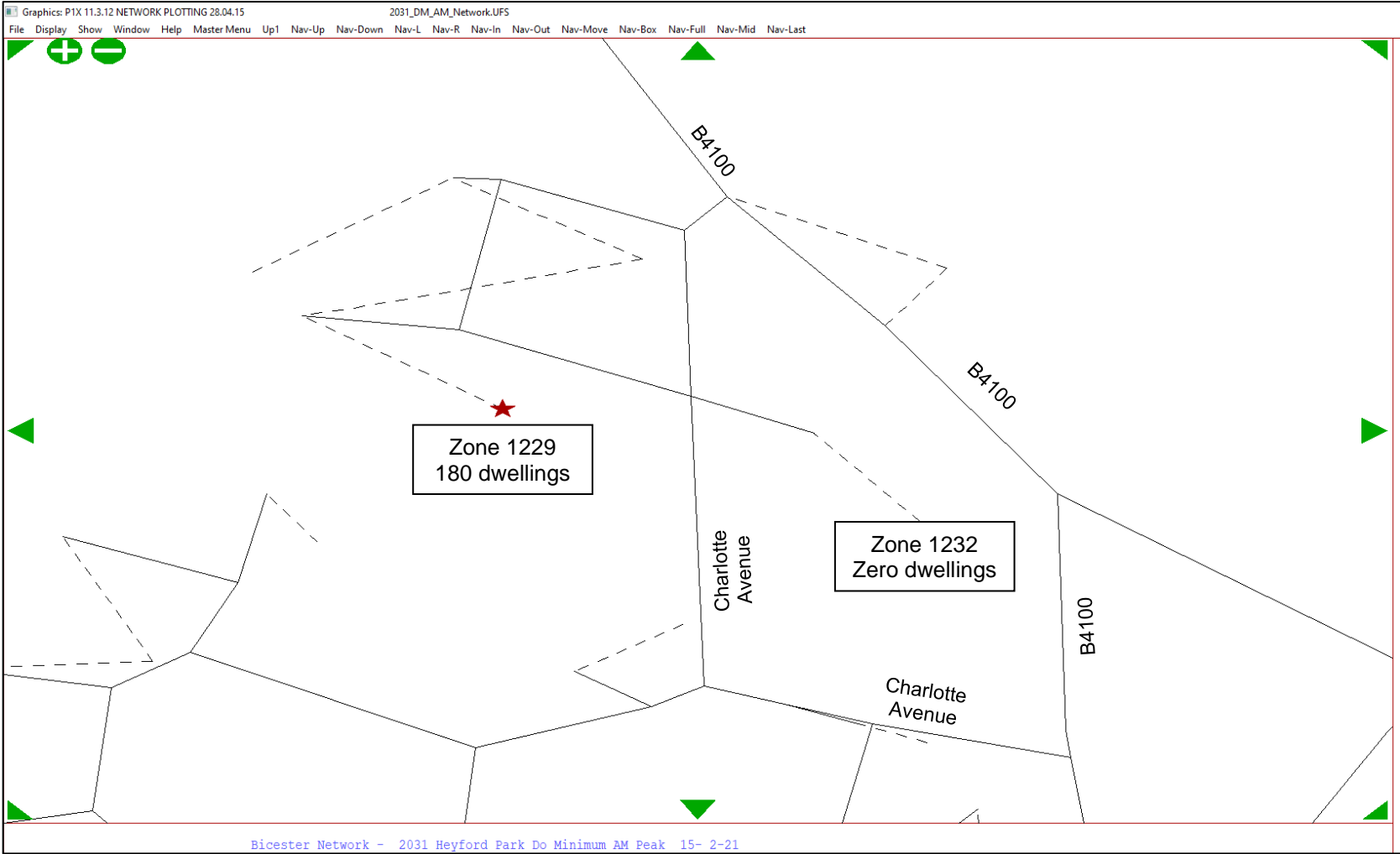
NOTES:

1. Increased bus services to to HPA site.
2. Signals on Baynards Green roundabout. Signals on Padbury roundabout. Additional southbound lane on Cherwell signal junction. Signals on Ardley road roundabout.
3. Existing three arm priority junction changed to signal controlled junction. (Node 40995)
4. Increased capacity at existing signal controlled junction. (Node 90880)
5. Existing staggered priority crossroads changed to a four arm roundabout. (Nodes 42058 and 40392)
6. Bus gate on B4030 to the north-west of Middleton Stoney. (Between nodes 40235 and 90298 or for DS1a only between nodes 4235 and 40990)
7. Improvements to existing four arm signal controlled junction in the centre of Middleton Stoney. (Nodes 40230 and 41480)
8. HGV weight restriction is on the B4030 directly to the east of Middleton Stoney. (Between nodes 41480 and 96030)
9. HGV weight restriction is on the B4030 directly to the west of Lower Heyford. (Between nodes 40245 and 40387)
10. Existing staggered priority crossroads changed to a signal junction. (Nodes 901880 and 410220)
11. Existing staggered priority crossroads changed to a signal junction. (Nodes 40990 and 96550)

Summary of inclusions in the Heyford Park Allocation (HPA) Bicester Transport Model scenarios (Simplified Table)

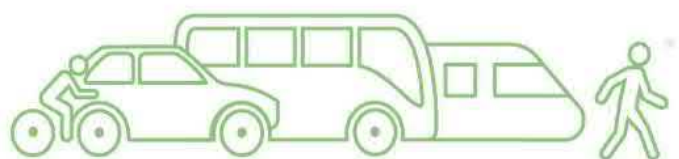


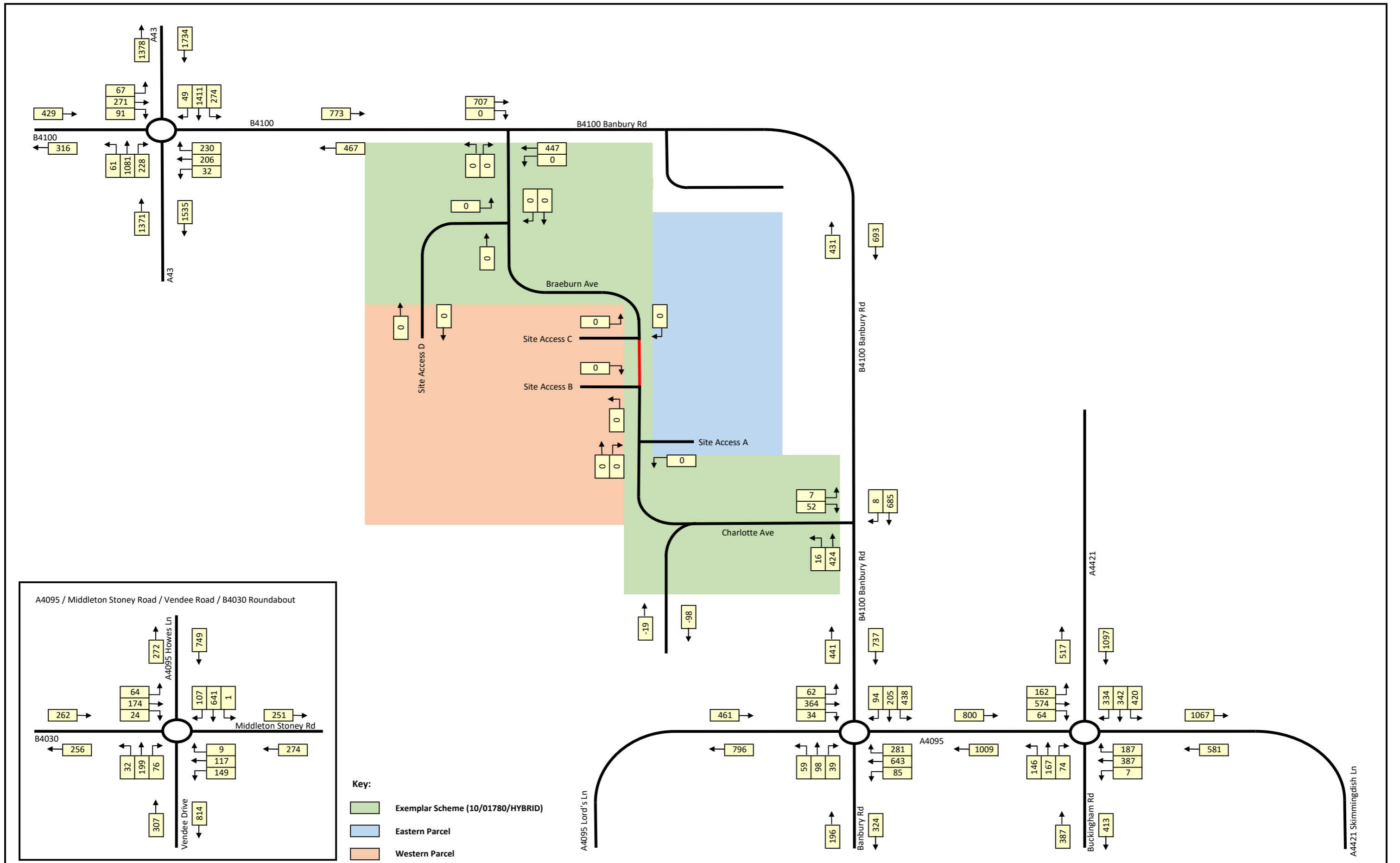
North West Bicester (Bicester 1) Zones with Dwellings in 2031



APPENDIX F

TRAFFIC FLOW DIAGRAMS





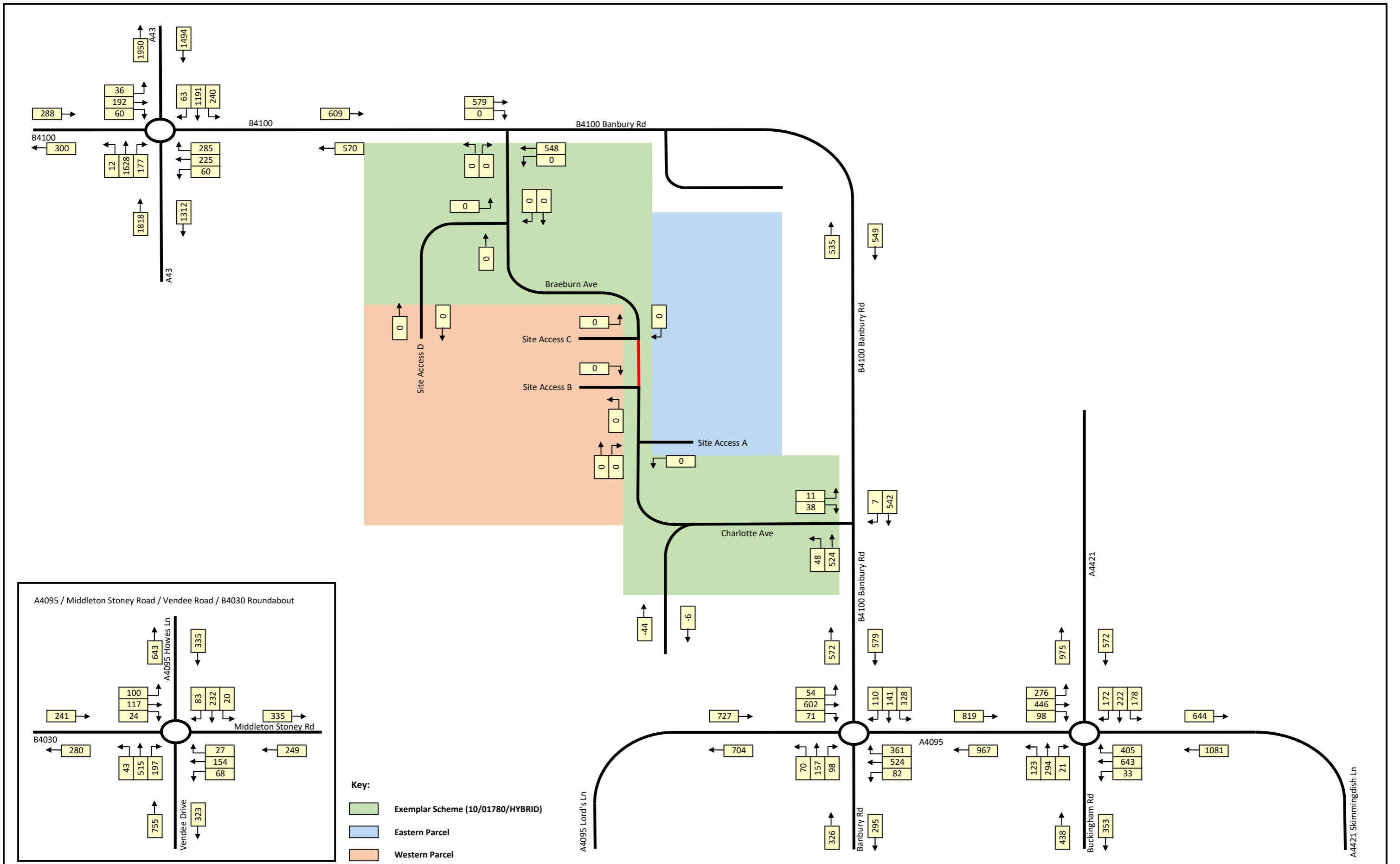
Project:
Land at North West Bicester

Client:
FirethornTRUST

Title:
2016 Base Traffic Flows (Total Vehicle)
AM Peak Hour

Date:
28/03/2021
Diagram:
1

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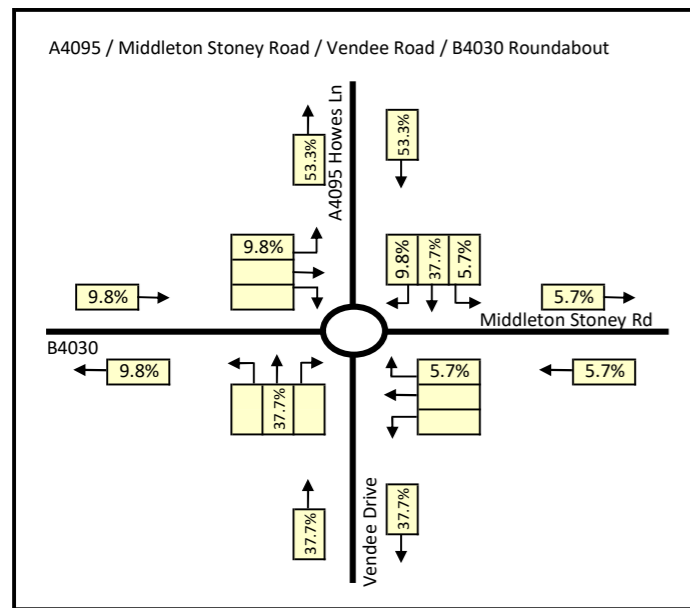
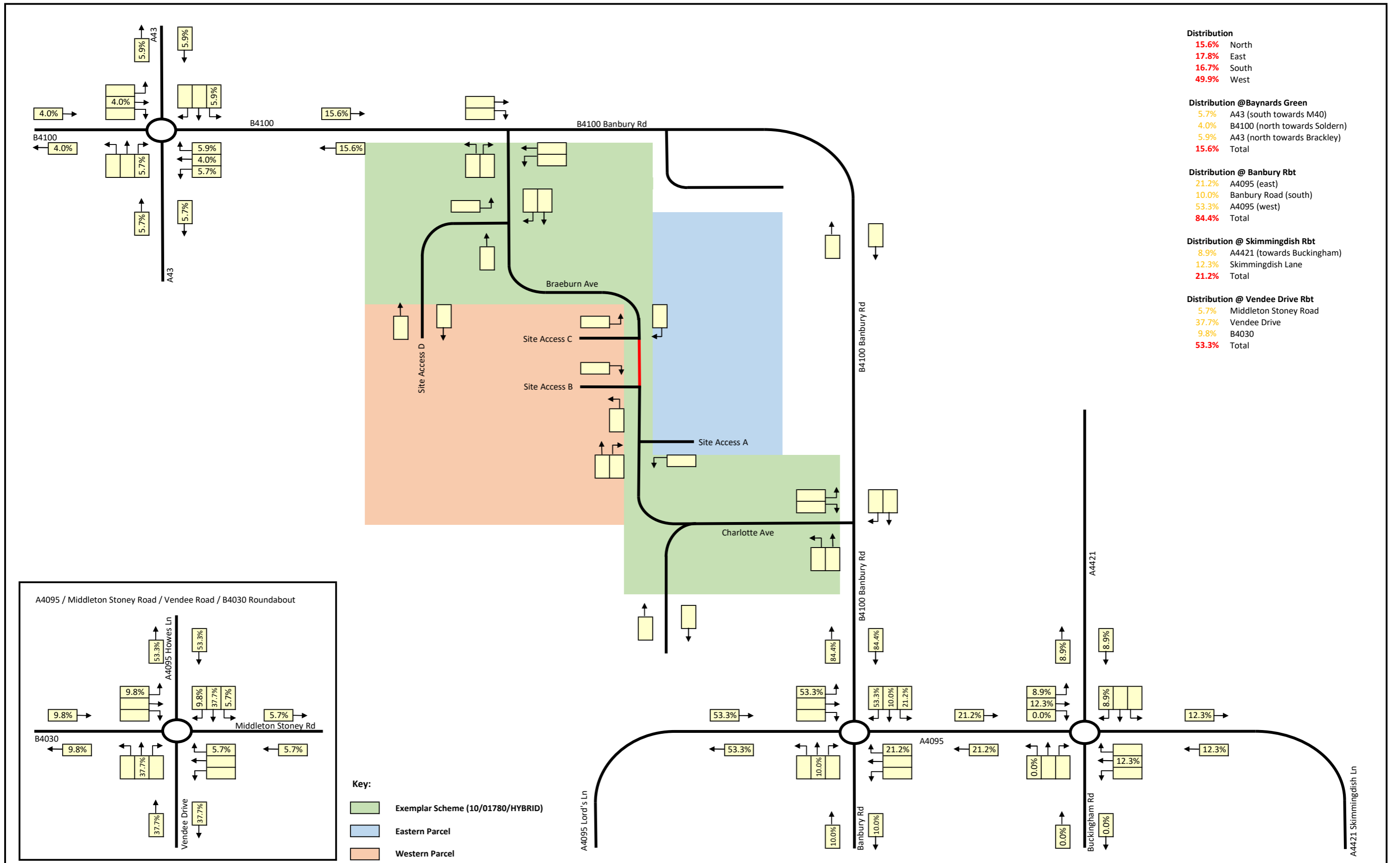
Project:
Land at North West Bicester

Client:
FirethornTRUST

Title:
2016 Base Traffic Flows (Total Vehicle)
PM Peak Hour

Date:
28/03/2021
Diagram:
2

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Project: **Land at North West Bicester**

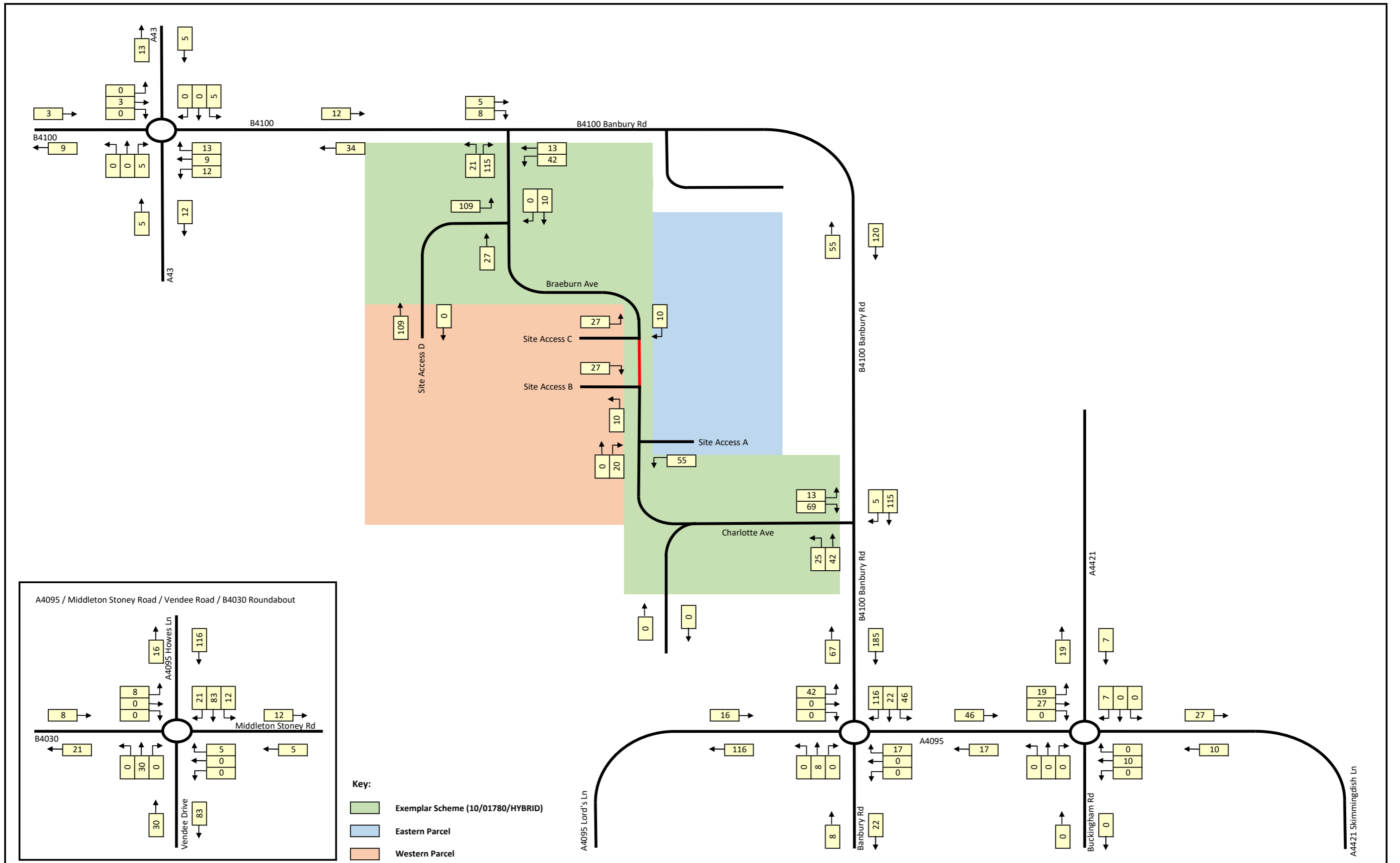
Client: **FirethornTRUST**

Title: **Agreed Distribution Profile**

Date: **28/03/2021**

Diagram: **3**

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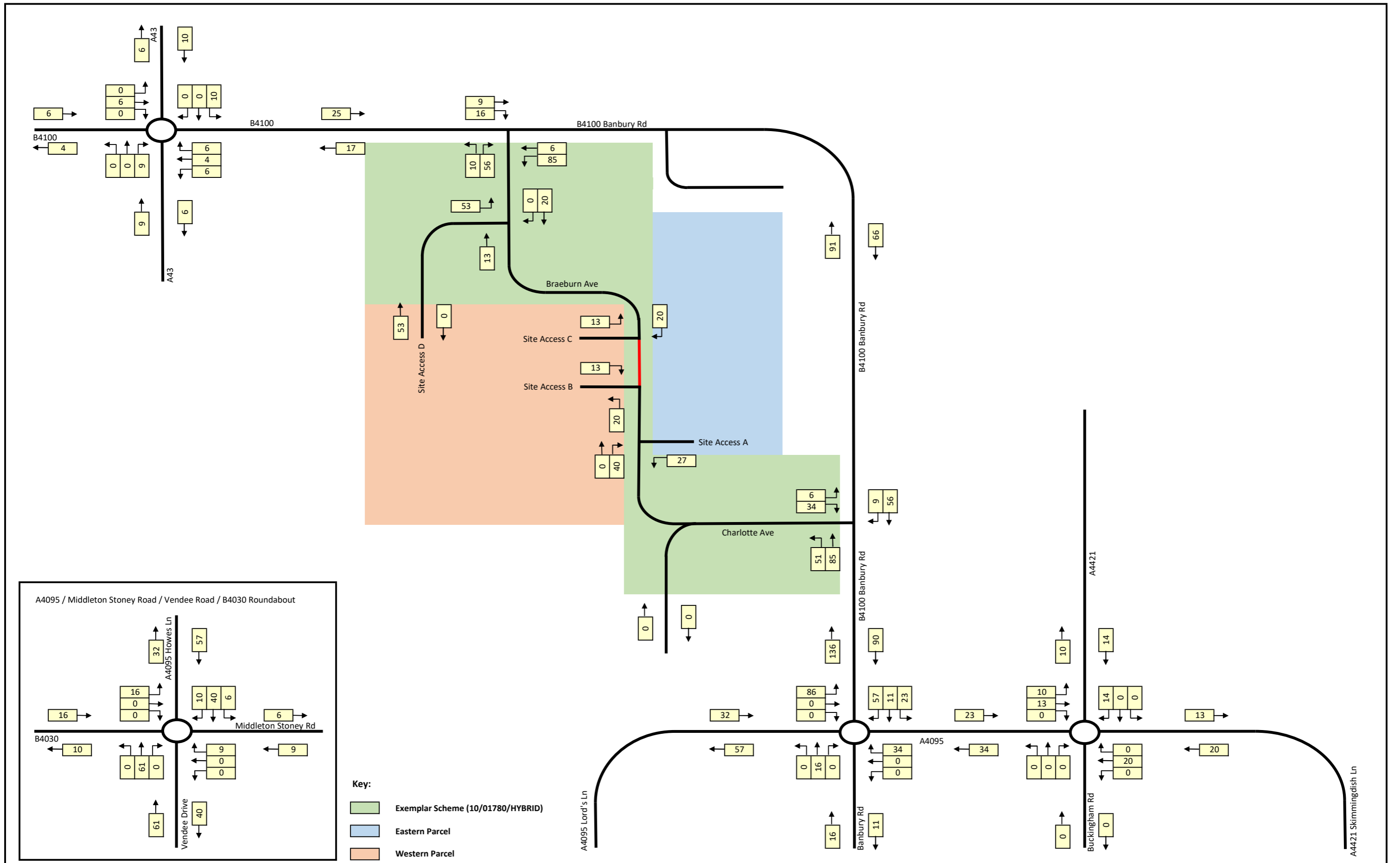
Project:
Land at North West Bicester

Client:
FirethornTRUST

Title:
Proposed Development Traffic Flows (Total Vehicles)
AM Peak Hour

Date:
28/03/2021
Diagram:
4

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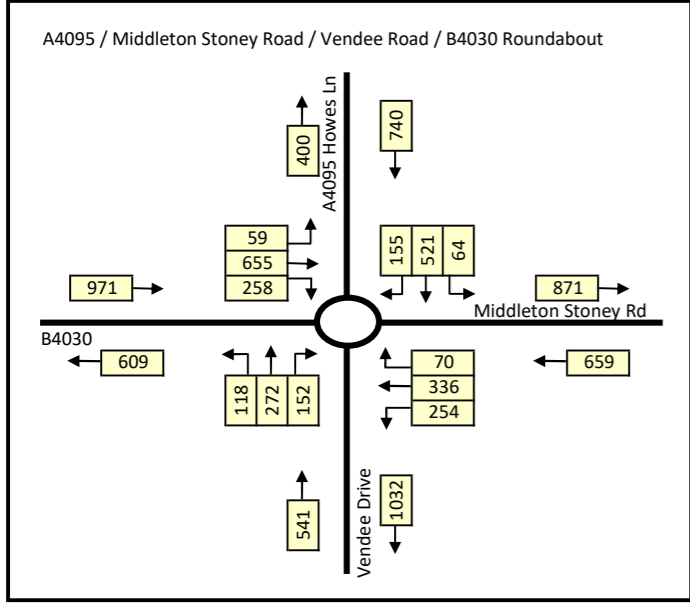
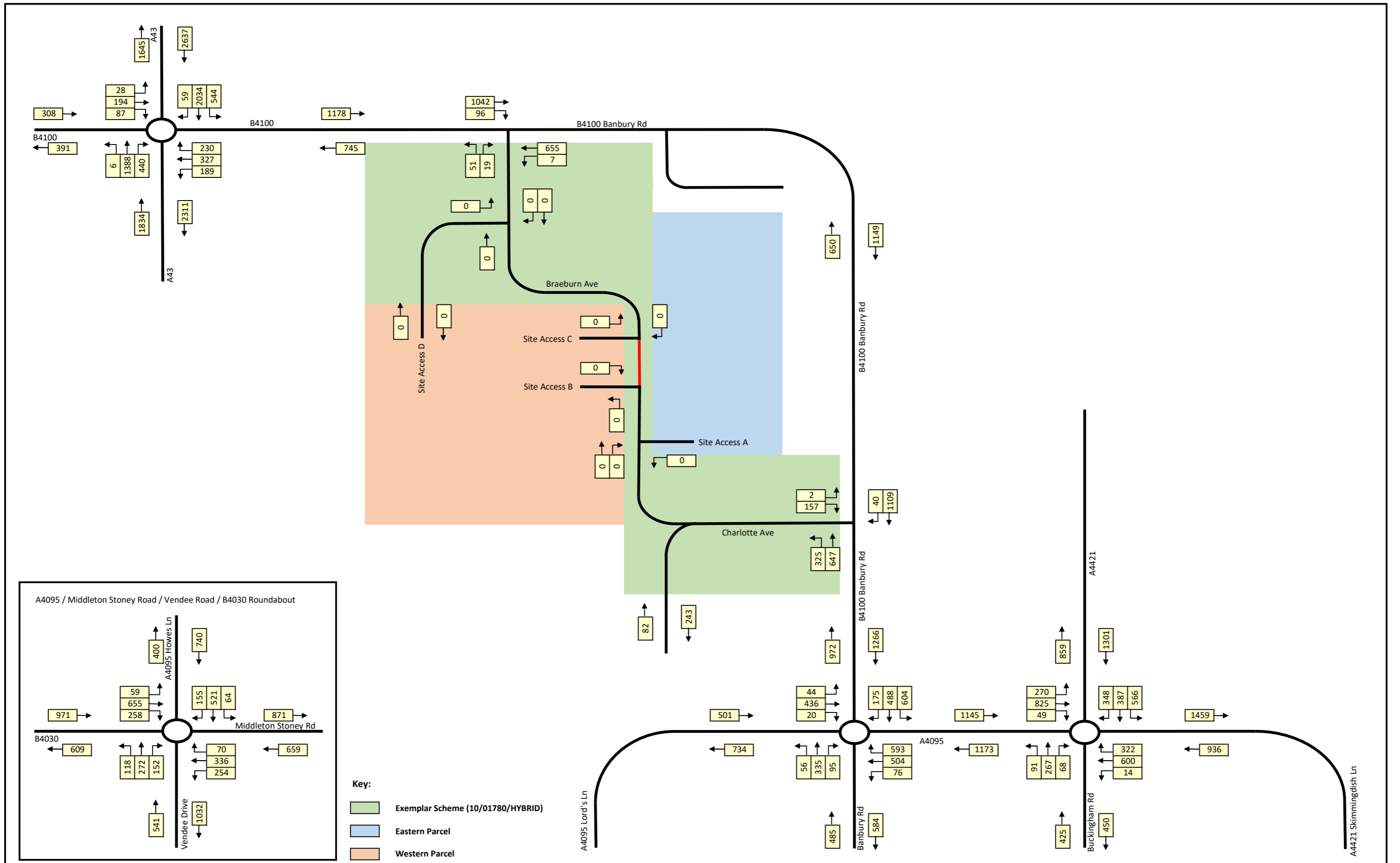
Project:
Land at North West Bicester

Client:
FirethornTRUST

Title:
Proposed Development Traffic Flows (Total Vehicles)
PM Peak Hour

Date:
28/03/2021
Diagram:
5

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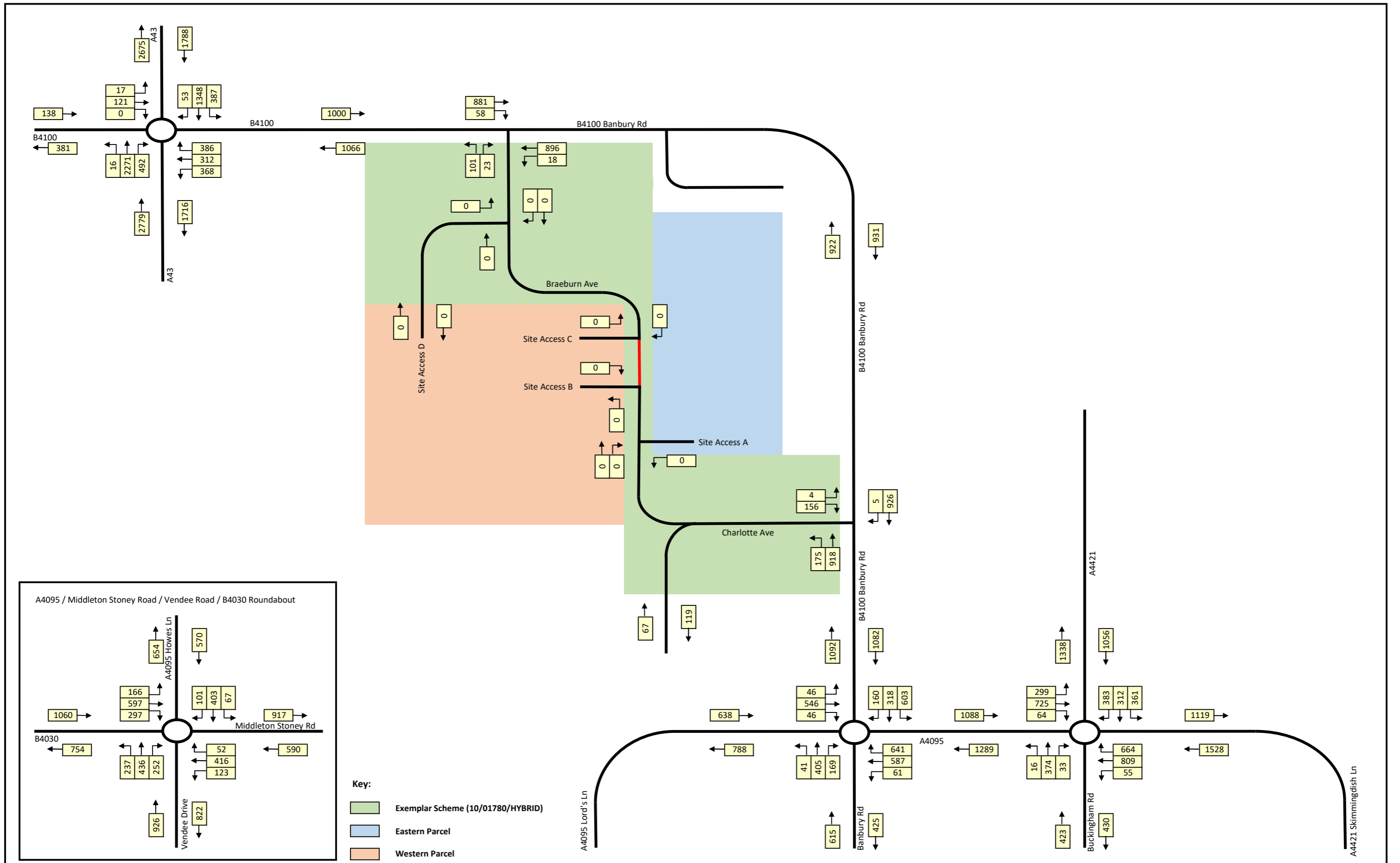
Project:
Land at North West Bicester

Client:
FirethornTRUST

Title:
2031 Base Traffic Flows (Total Vehicle)
AM Peak Hour

Date:
28/03/2021
Diagram:
6

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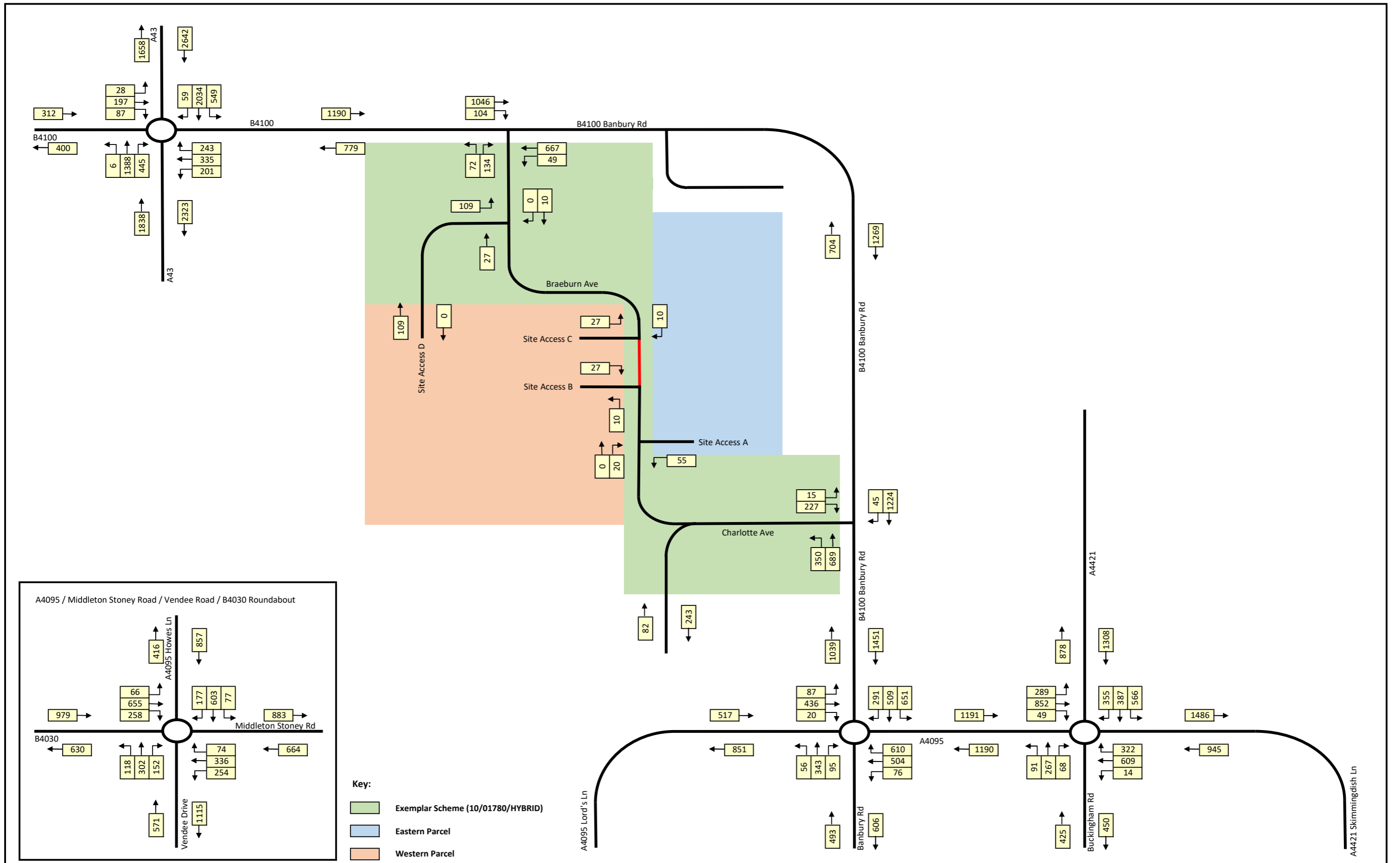
Project:
Land at North West Bicester

Client:
FirethornTRUST

Title:
2031 Base Traffic Flows (Total Vehicle)
PM Peak Hour

Date:
28/03/2021
Diagram:
7

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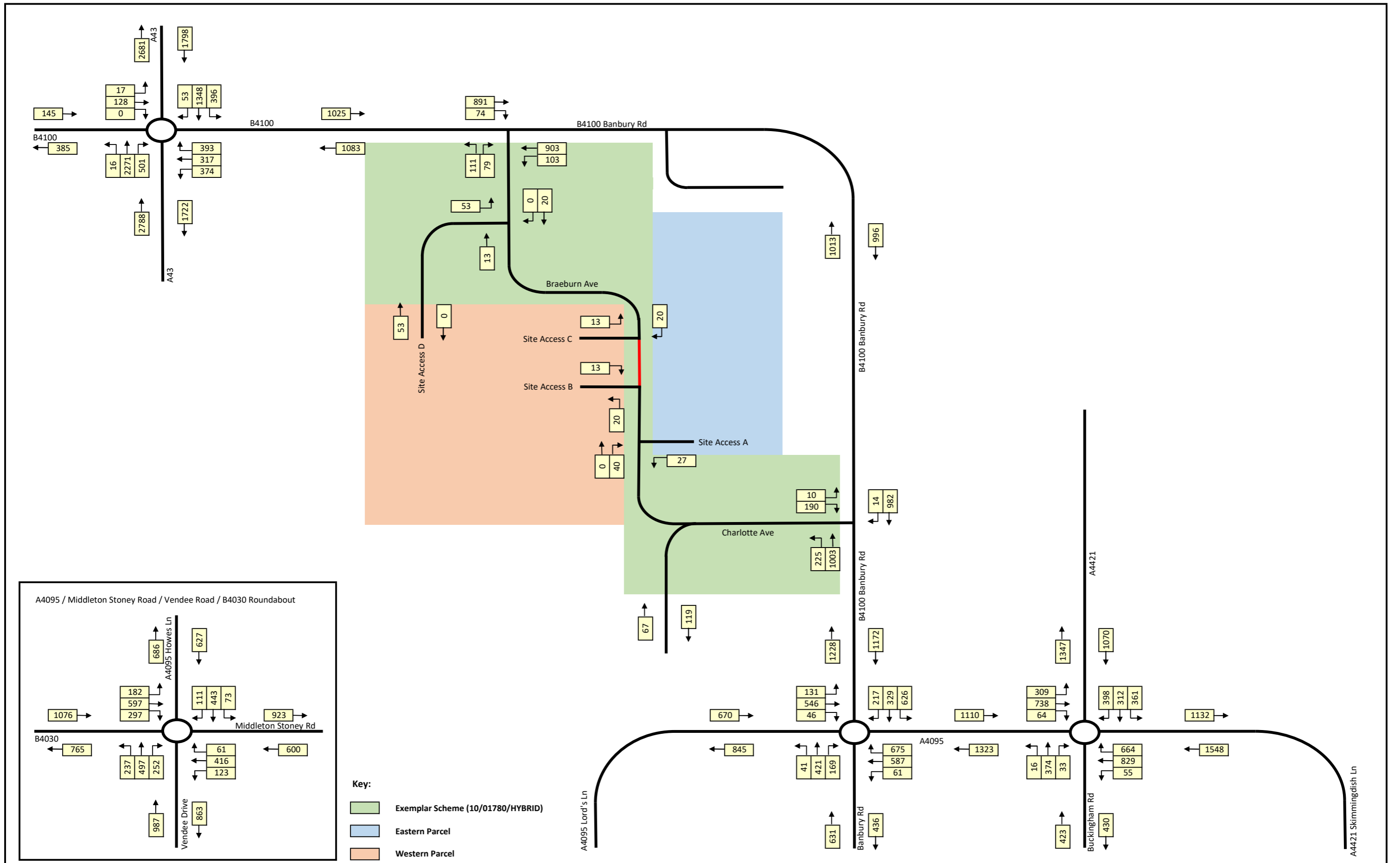
Project:
Land at North West Bicester

Client:
FirethornTRUST

Title:
2031 Base + Proposed Development Traffic Flows (Total Vehicles)
AM Peak Hour

Date:
28/03/2021
Diagram:
8

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Project:
Land at North West Bicester

Client:
FirethornTRUST

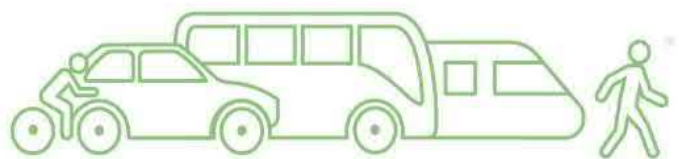
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PM Peak Hour

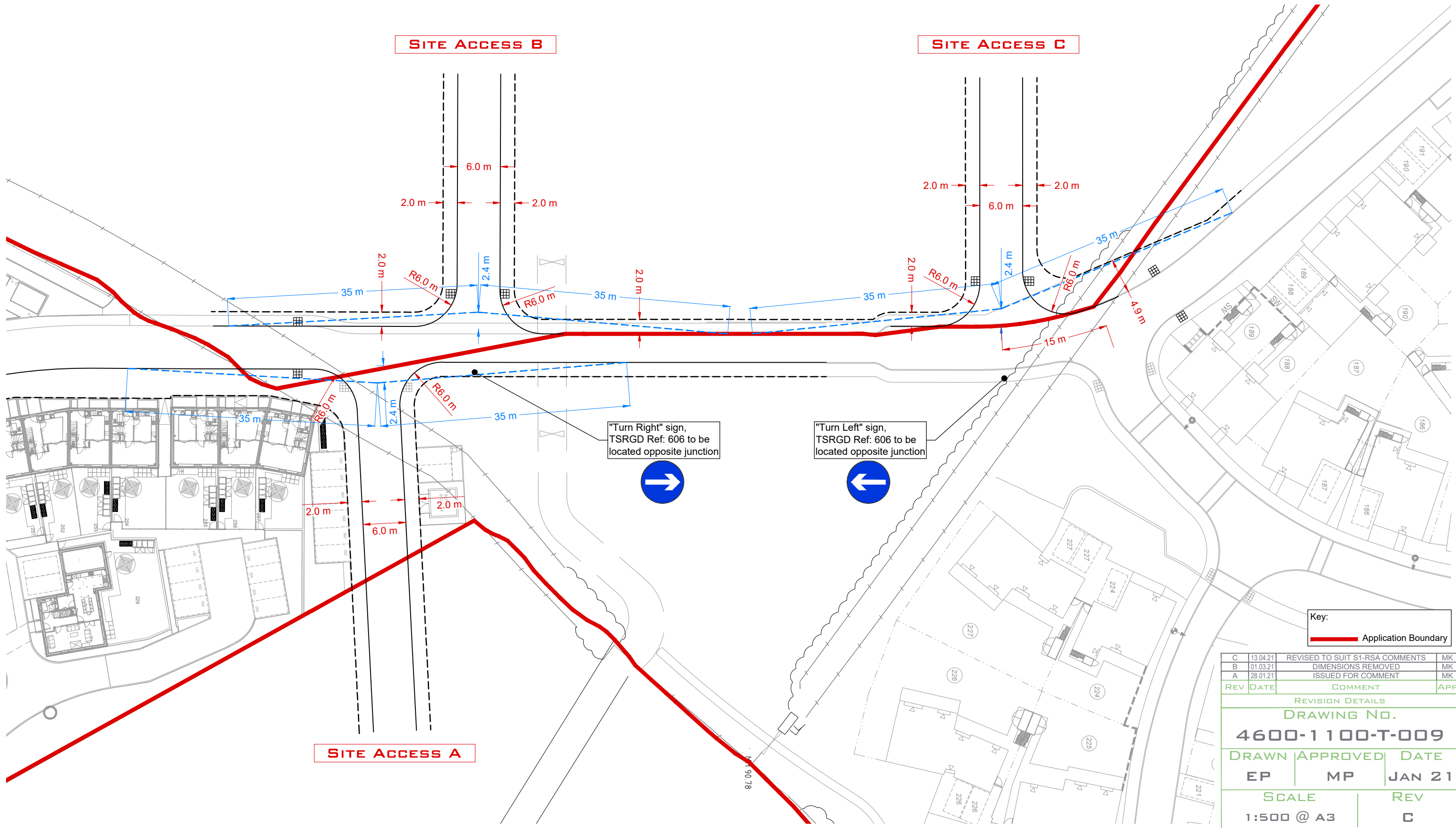
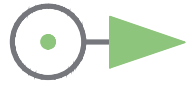
Date:
28/03/2021
Diagram:
9

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APPENDIX G

SITE ACCESS DRAWINGS





REV	DATE	COMMENT	APP
C	13.04.21	REVISED TO SUIT S1-RSA COMMENTS	MK
B	01.03.21	DIMENSIONS REMOVED	MK
A	28.01.21	ISSUED FOR COMMENT	MK

REVISION DETAILS

DRAWING No.
4600-1100-T-009

DRAWN	APPROVED	DATE
EP	MP	JAN 21

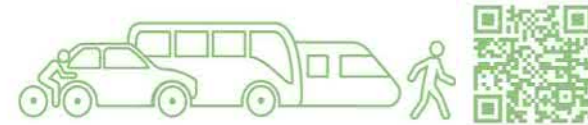
SCALE	REV
1:500 @ A3	C

CLIENT
FIRETHORN TRUST

PROJECT
LAND AT NORTH WEST BICESTER

DRAWING TITLE

SITE ACCESS A - DIRECT ACCESS TO THE EASTERN PARCEL
SITE ACCESS B - PRIORITY JUNCTION SOUTH OF THE BUS ONLY LINK
SITE ACCESS C - PRIORITY JUNCTION NORTH OF THE BUS ONLY LINK





Key:
Application Boundary

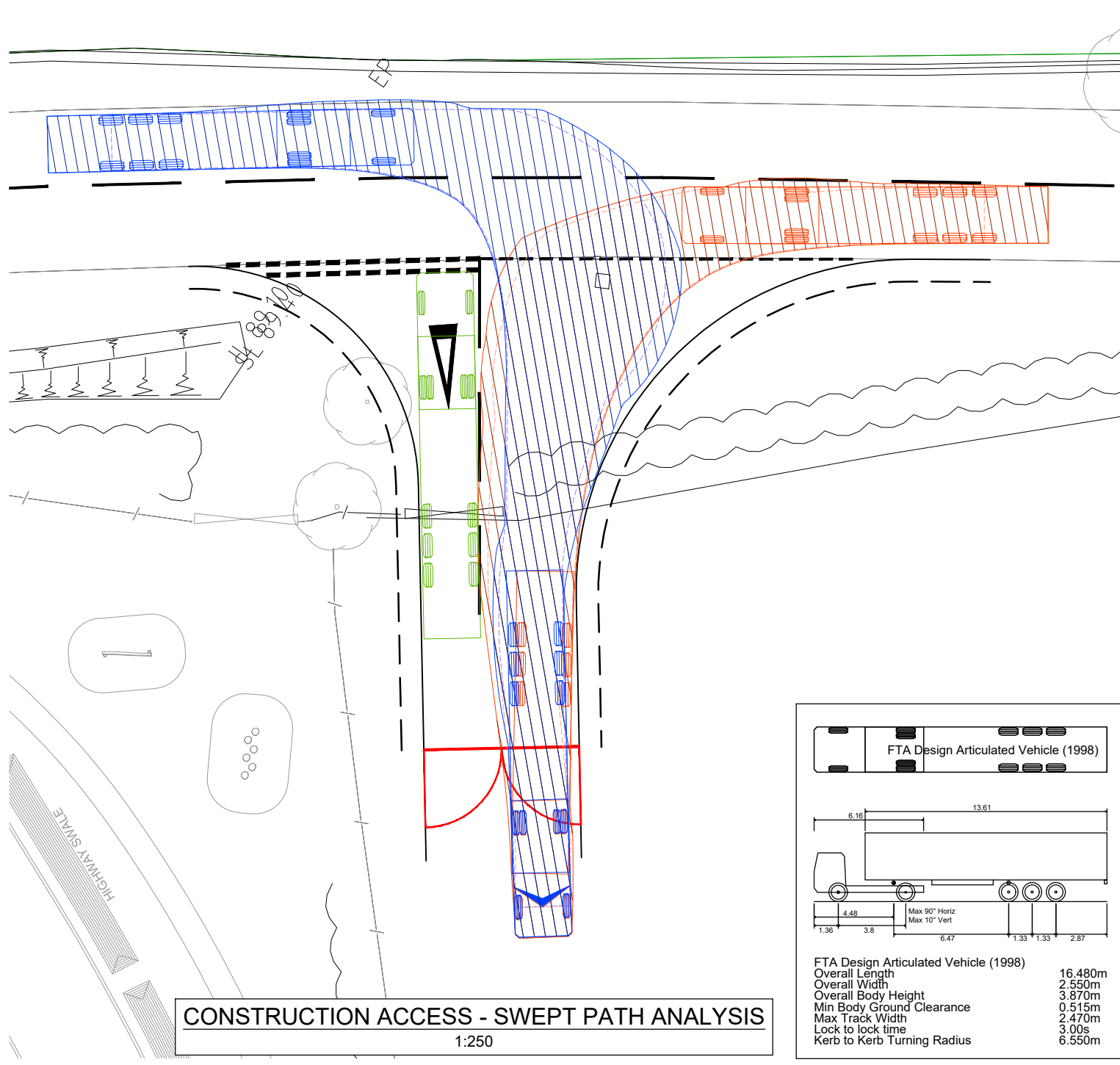
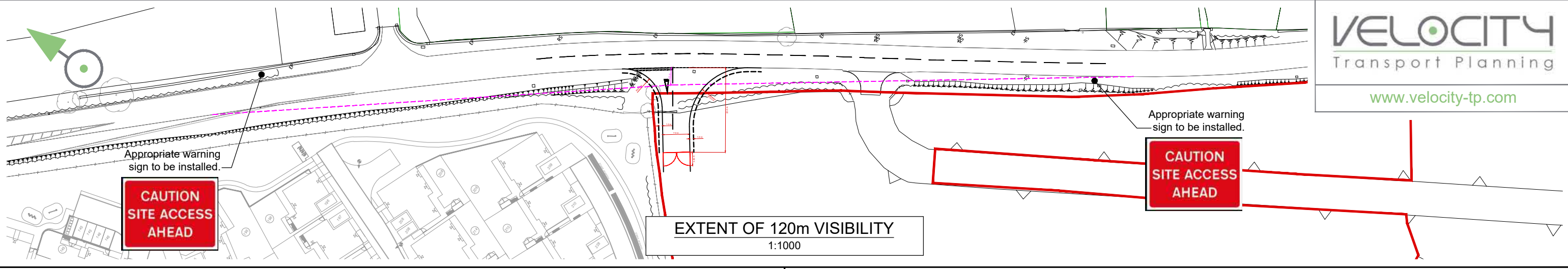
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REV	DATE	COMMENT	APP
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DRAWING NO.			
4600-1100-T-010			
DRAWN		APPROVED	DATE
EP		MP	JAN 21
SCALE			REV
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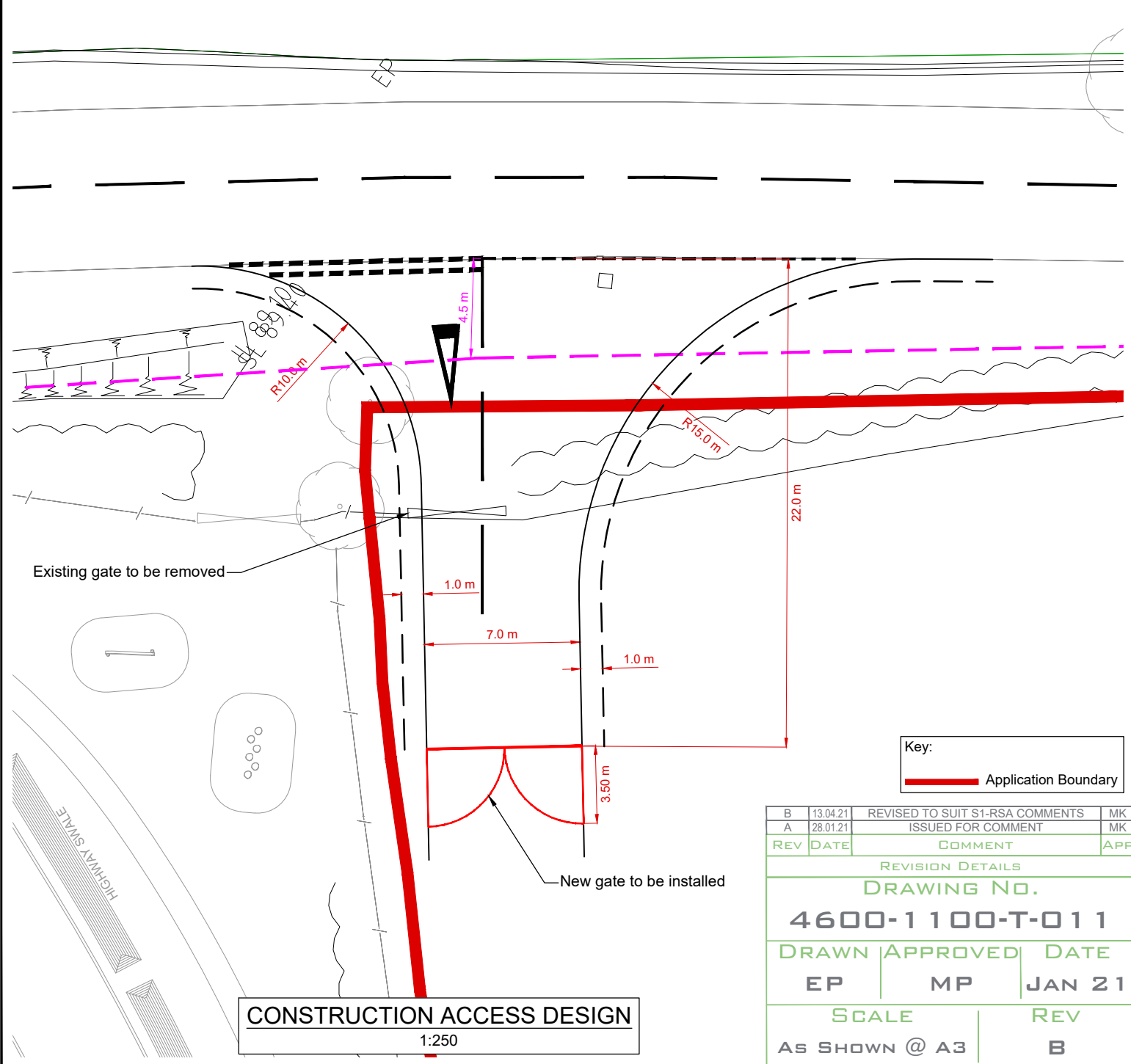
PROJECT
LAND AT NORTH WEST BICESTER

DRAWING TITLE
**SITE ACCESS D
DIRECT ACCESS TO NORTH OF THE WESTERN PARCEL**



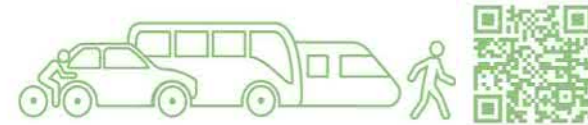


FTA Design Articulated Vehicle (1998)	
Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock to lock time	3.00s
Kerb to Kerb Turning Radius	6.550m



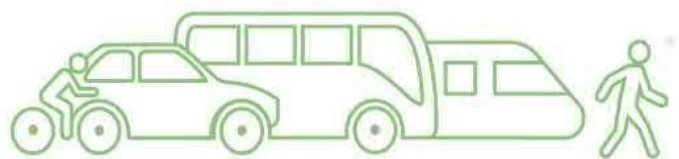
Key:
Application Boundary

REV	DATE	COMMENT	APP
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A	28.01.21	ISSUED FOR COMMENT	MK
REVISION DETAILS			
DRAWING No.			
4600-1100-T-011			
DRAWN	APPROVED	DATE	
EP	MP	JAN 21	
SCALE		REV	
AS SHOWN @ A3		B	



APPENDIX H

OCC RESIDENTIAL DESIGN GUIDE EXTRACTS



TECHNICAL

5. Road Types

5.1. The following table outlines some different road types within residential developments, their characteristics and where they should be used. This list is not exhaustive and innovation is encouraged.

5.2. If necessary further information is available on request regarding these suggested road types. See next Chapter for some further information on road alignments etc.

Road Description	Max. recommended Number of Dwellings*	Design Speed	Carriageway & Footway Details**	Description and Comments
Local Distributor	n/a	50kph (30mph)	7.3m 2 X 2m footways	Multipurpose local road, generally forming part of local County network. Collected frontage access in forward gear only.
Link Road	n/a	50kph (30mph)	6.75m 2 X 2m footways	Links residential elements and accommodates regular non-residential uses. Frontage access in forward gear only. Min 3m verges required.
Major Access Road	700 400 link or loop 200 cul-de-sac	30kph (20mph)	6.75m 5.5m 2 X 1.8 footways.	Direct access in or out of a residential area may serve non-residential uses regularly accessed by vehicles <7.5T (a plated HGV). If a bus route 6.75m carriageway required.
Minor Access Road	200 link or loop 100 cul-de-sac	30kph (20mph)	5m (5.5m for first 12m) 2 X 1.8m footways.	No access restrictions. Special surface finish.
Access Way	50 link or loop 25 cul-de-sac	30kph (20mph)	4.8m 2 X 1.5m.	No access restrictions. Special surface finish.
Access Lane	50 link or loop 25 cul-de-sac	30kph (20mph)	6.0 m overall 4.2m vehicle 1.8m pedestrian over- runnable or 2 x 1m where kerb height is < 25mm.	Specifically designed for rural access. Pedestrian margin over- runnable.
Mews	25 cul-de-sac	30kph (20mph)	6.0m overall 4.8 vehicle tracked route. Pedestrian safe area to be considered by design	Urban form. Special surface finish. Special junction criterion.
Residential Square	Defined by space enclosed	As host road	4.8m tracked vehicle way.	Urban form. Ramped approaches to tabled area. Special surface finish. Central feature for driver orientation.

* Number of residential units is guidance only as to hierarchy road hierarchy. Other factors may produce a demand for a higher category street.

** The widths given are minimums for the road description and additional width may be required for adoptable roads.

6. Technical Support Data

Junction Design and Sight Lines

6.1. Street junctions, within a residential development should be considered as integral part of the overall layout, requiring careful consideration.

6.2. One of the main requirements of a street junction, within a residential development, is to provide for pedestrian crossing on a direct desire line. This requires either:

- i. The junction radii should be kept to a minimum (1.0m max radius). Large vehicles will have to use the offside running lane to complete the left turn without the rear wheels mounting the kerb. Vehicle tracking drawings should be provided to ensure this is possible. The small kerb radius at the junction has several advantages. In addition to providing for direct pedestrian crossing, vehicle speeds are reduced to 10 mph - 15 mph which reduces the likelihood of vehicle- cycle conflicts.

Or

- ii. Larger radii may be used for the junction but the footways are built out at the corners. These junctions should be combined with a speed table at the junction.

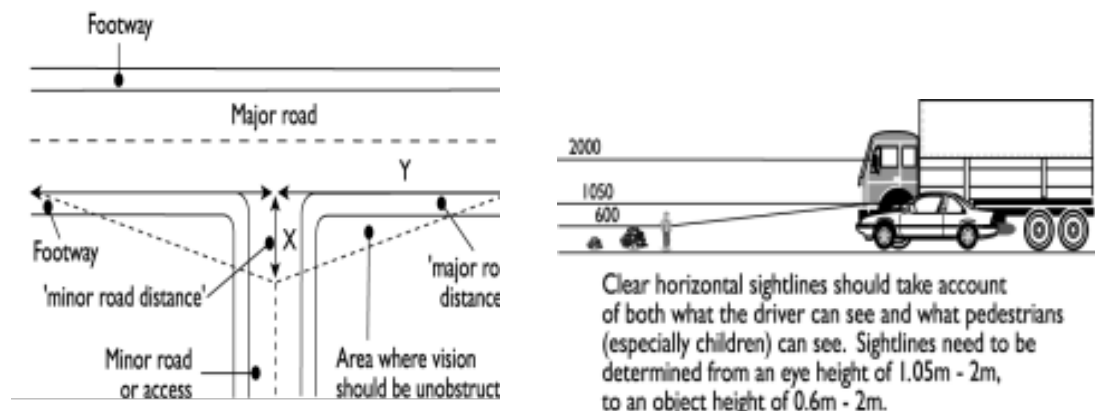
The actual treatment of junctions will be on a case by case assessment that best suits the overall design of the development. However, in all cases tactile paving should be provided to assist the blind and partially sighted.

6.3. Generally, overrun areas should be avoided, although there may be occasions when these are acceptable. Bringing the carriageway up flush with the footway level at the junction at busy crossings should be considered at all junctions as it implies priority to pedestrians.

Visibility at Junctions

6.4. Visibility at junctions is defined by means of the 'X'-distance and 'Y'-distance shown on the following diagram.

6.5. The sightlines should take account of what the driver can see and what pedestrians (particularly children) can see – hence they should be determined from a drivers eye height of 1.05-2.0m and an object height of 0.6-2m.



6.6. An 'X'-distance of 2.4m is normally required but in certain circumstances (e.g. lightly trafficked, slow speed street) 2.0m may be acceptable. Agreement should be sought with the Highway Authority at an early stage for this dispensation.

6.7. Speed surveys should be carried out to determine actual road speeds rather than posted Speed Limit Orders. The following table provides the default required sightlines unless the standards of other guidance can be shown to be appropriate to context.

Table of Required Sightline ('Y')-Distance for Speed on Through Road

Kph	30	40	50	60	70	85	100	120
Mph	19	25	31	37	43	53	62	75
SSD (m)	33	45	70	90	120	160	215	295

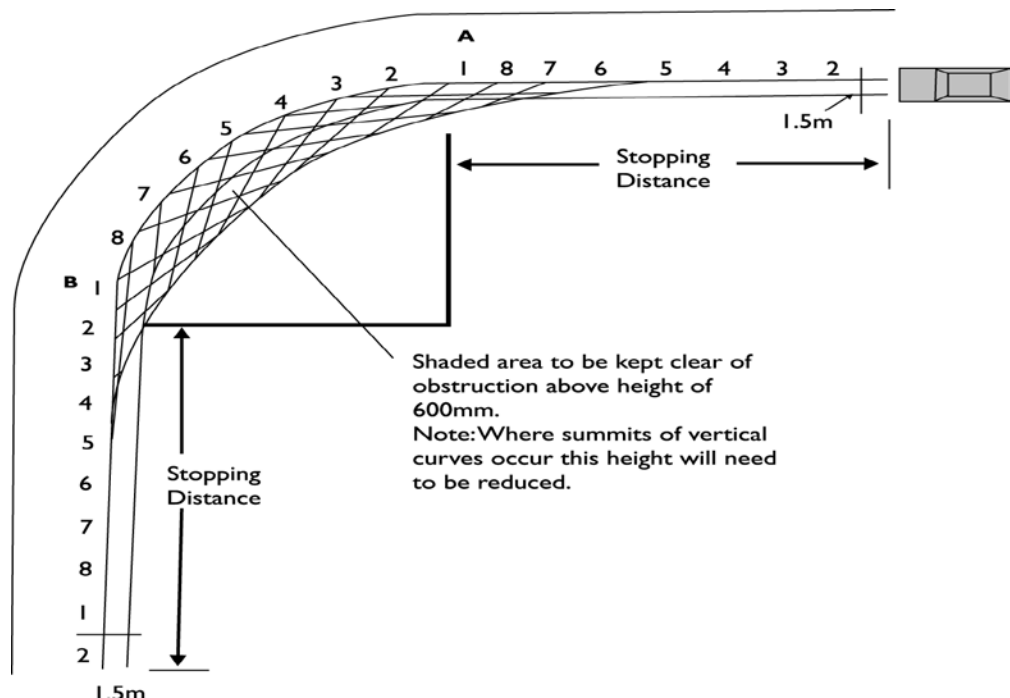
Speed Restraint and Forward Visibility

- 6.8. One of the key design aims should be to reduce speeds within the development to 20mph. Generally speed can be restrained by limiting straight or uninterrupted lengths of street to less than 70m. Other features which can be introduced to control speeds are listed below:
- Physical features, involving vertical or horizontal deflection. However, speed humps should be considered only as a last resort and other measures should be given preference.
 - Changes in priority at junctions can help to produce a reduction in speed and roundabouts are particularly effective in this respect.
 - Street dimensions. In addition, to the width between buildings influencing driver speed, keeping lengths of street between junctions short should also be a key design element.
 - Limiting forward visibility has a major influence on speed – refer to table below.
 - Providing appropriate street features such as on street parking, obstructions in the street, edge marking that visually narrow the carriageway and changes in texture or colour can be part of the tool box of measures. All these features give a psychological message, which encourages drivers to reduce their speed.

6.9. Limiting forward visibility should be used to control speeds within the development and this should be given priority in formulating layouts. The following table gives the forward stopping sight distance required for given speeds.

Table of Required Forward Visibility Distance for Speed on Through Road

Kph	16	20	24	25	30	32	40	45	48	50	60
Mph	10	12	15	16	19	20	25	28	30	31	37
SSD (m)	9	12	15	16	20	22	31	36	40	43	56



- 6.10. All new residential developments containing an adoptable highway network will be expected to form part of a 20mph (30kph) zone. Residential developments, which have streets not offered for adoption, will not be excepted from the imposition of the principles outlined in this document.
- 6.11. Speed restraint measures should be used throughout the 20mph zone and no warning signs are required within the zone. Signs (in accordance with Traffic Advisory Leaflet 2/93) and an entrance gateway are, however, required to indicate to drivers that they are entering the zone.
- 6.12. It is essential that the designer appreciates that speed restraint is not just a matter of using the engineering features, described in this section. A driver's perception of a safe speed is also materially affected by the spacing, form and proximity of the buildings served by the road, in addition to the surface materials used and the effective use of hard and soft landscaping. A composite design will be called for, which must be agreed at an early stage by both Planning and Highway Authorities.

Number of Access points

- 6.13. A minimum of two access points from the surrounding highway network should be provided where the number of dwellings exceeds 500 units.

Emergency Access

- 6.14. If more than 150 dwellings and less than 500 dwellings are served by a single access an emergency access should be provided. This may take the form of an uprated cycle track or a reinforced grass area. The details must be agreed with the Highway Authority.

Access for Servicing

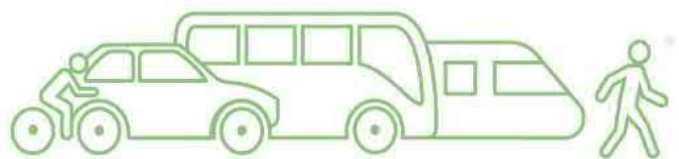
- 6.15. Refuse vehicles must be able to reach refuse collection within 25m for single domestic refuse bin or 5m for larger communal (shared) bins. Developers proposals should show the location of the refuse storage and ensure by means of vehicle tracking plots that refuse vehicles can access the location without reversing.
- 6.16. It is common in recently built developments to see refuse bins left on street mainly because there is no suitable place within the cartilage of the property to store them. Developers should therefore give consideration where residents will store bins and avoid the need to keep bins on street for convenience.

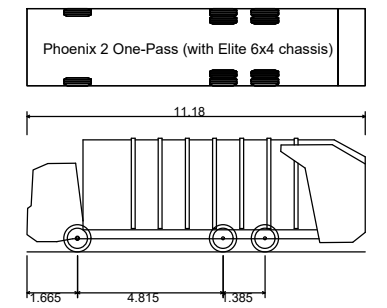
Access for Fire Tenders

- 6.17. Building Regulations require access for fire tenders to a point no further than 45m from all parts of the ground floor of any residential building. Any road or private drive being part of that access must be no less than 3.7m wide between kerbs (3.1m minimum for a gateway or similar short narrowing), and should have a minimum centre line radius of 6.6m (or 7.8 between walls) and headroom of 3.7m.
- 6.18. The access (including manholes etc.) should have a carrying capacity of a 12.5 tonne vehicle (bridges etc. should have a minimum carrying capacity of 17 tonnes).
- 6.19. A cul-de-sac longer than 20m must have a turning area suitable to enable a fire tender to carry-out a three point turn.
- 6.20. Where there are flats of more than four storeys there are additional access requirements, about which, the local Building Control Authority / Building Regulations should be consulted.

APPENDIX I

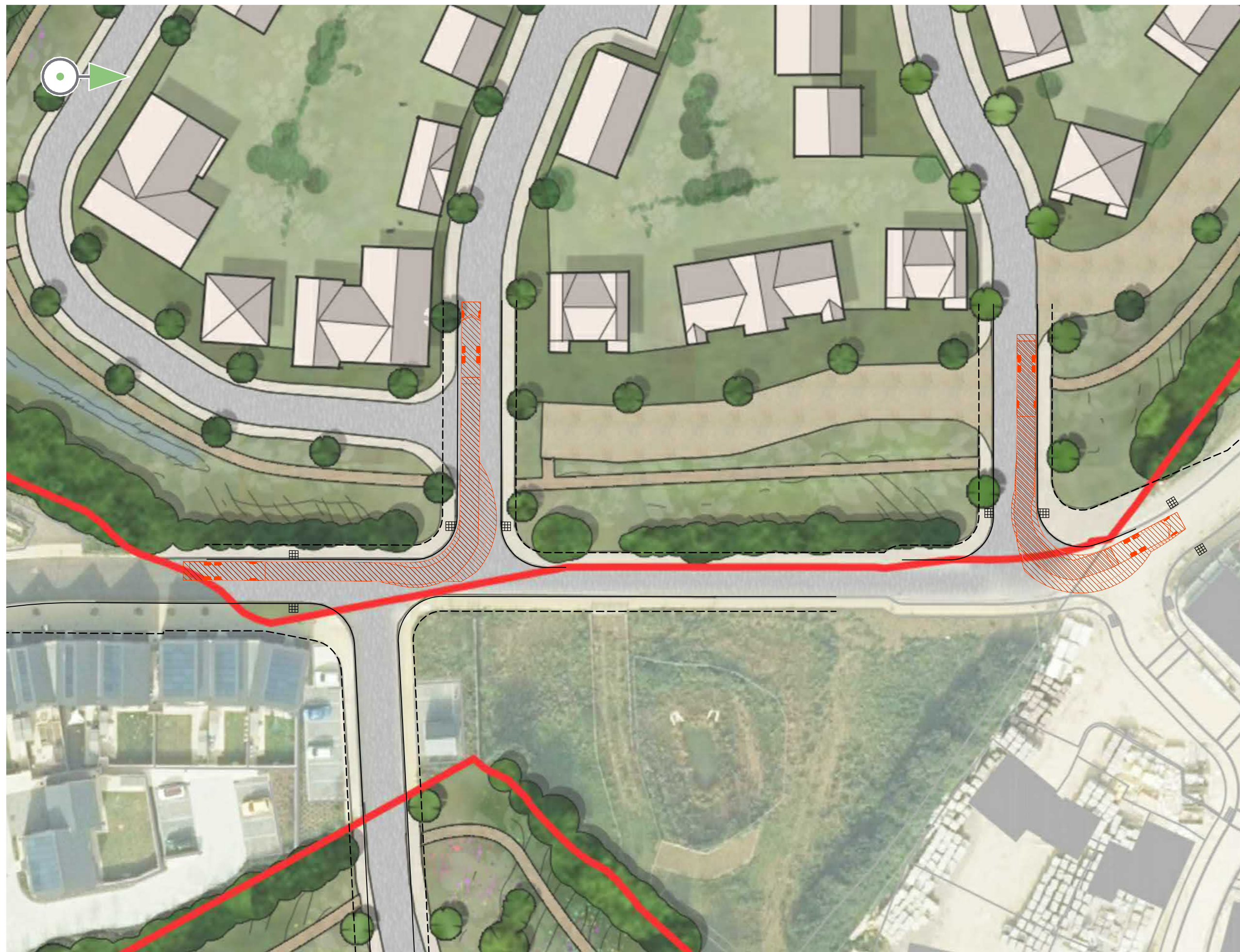
Swept Path Drawings





Phoenix 2 One-Pass (with Elite 6x4 chassis)

Overall Length	11.180m
Overall Width	2.550m
Overall Body Height	3.760m
Min Body Ground Clearance	0.312m
Track Width	2.550m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	10.150m



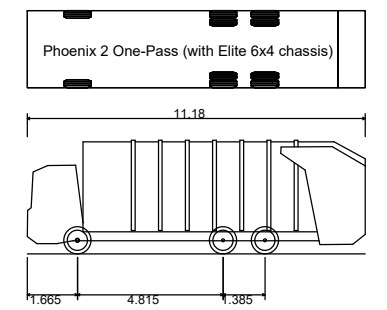
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DRAWN	APPROVED	DATE	
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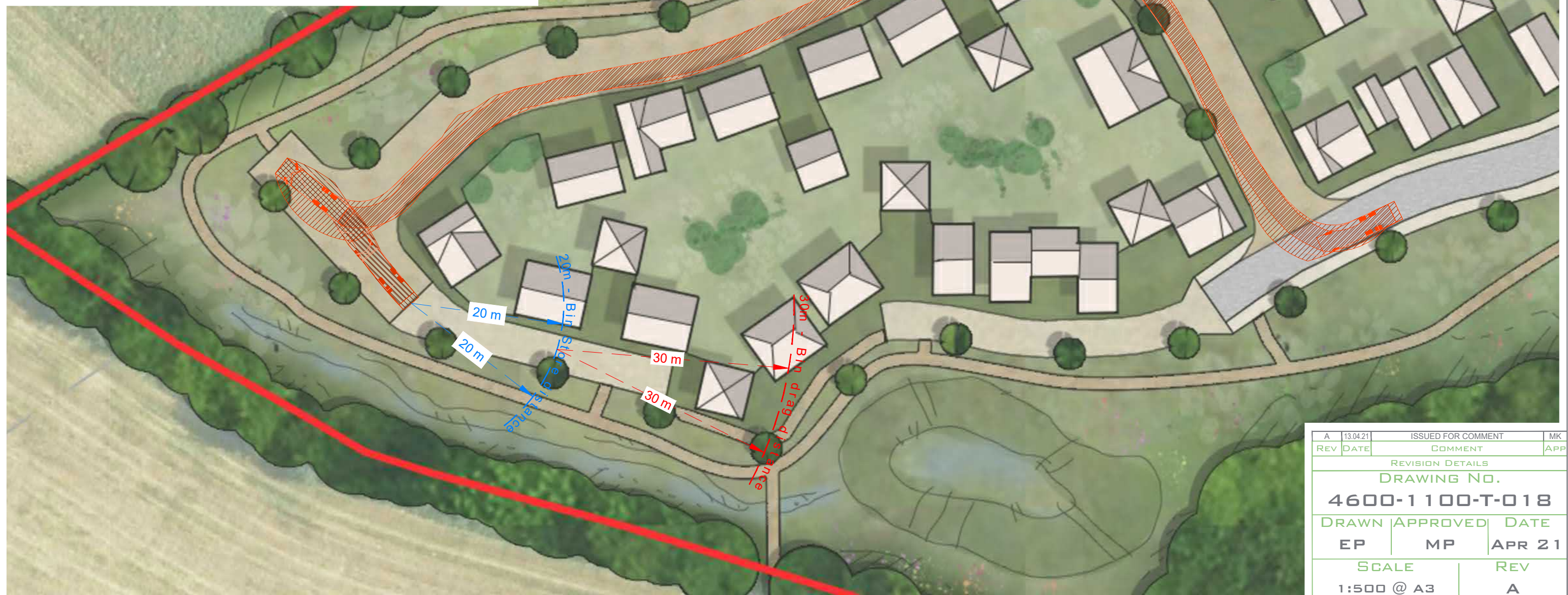
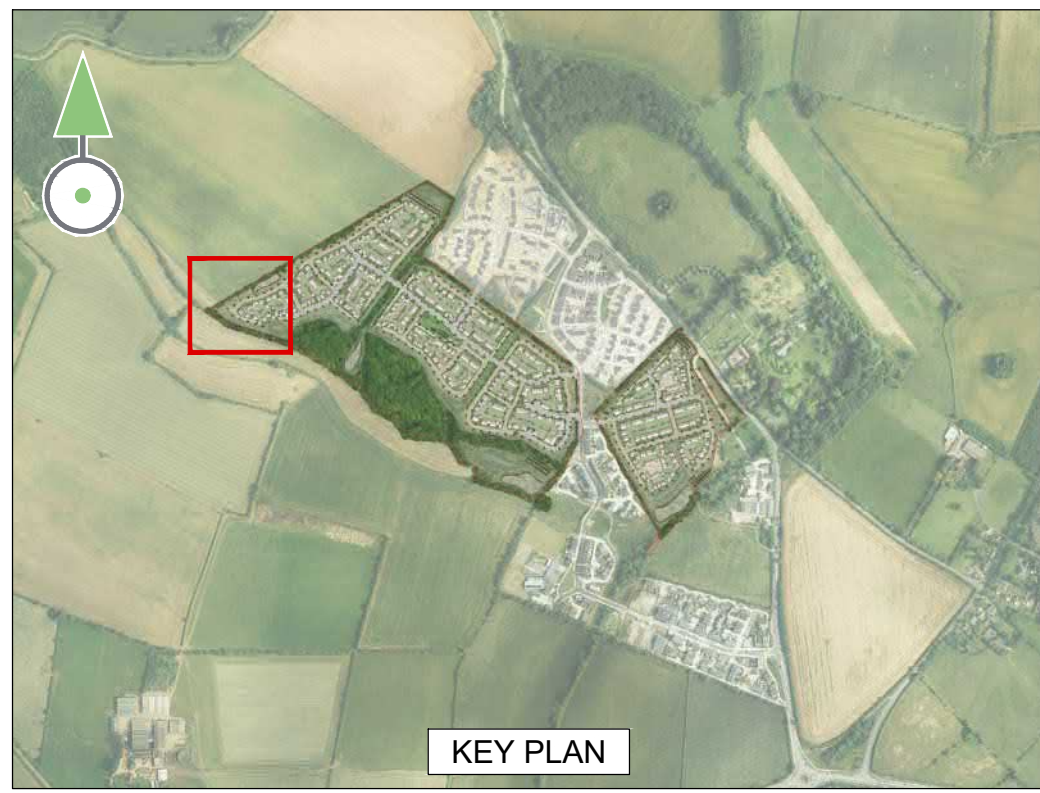
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**SITE ACCESS B & C
REFUSE VEHICLE - SWEEP PATH ANALYSIS**





Phoenix 2 One-Pass (with Elite 6x4 chassis)

Overall Length	11.180m
Overall Width	2.550m
Overall Body Height	3.760m
Min Body Ground Clearance	0.312m
Track Width	2.550m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	10.150m



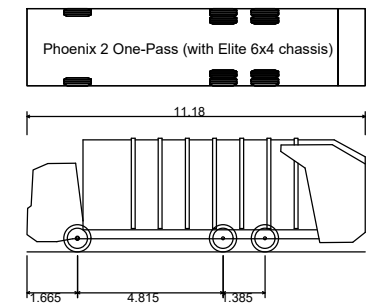
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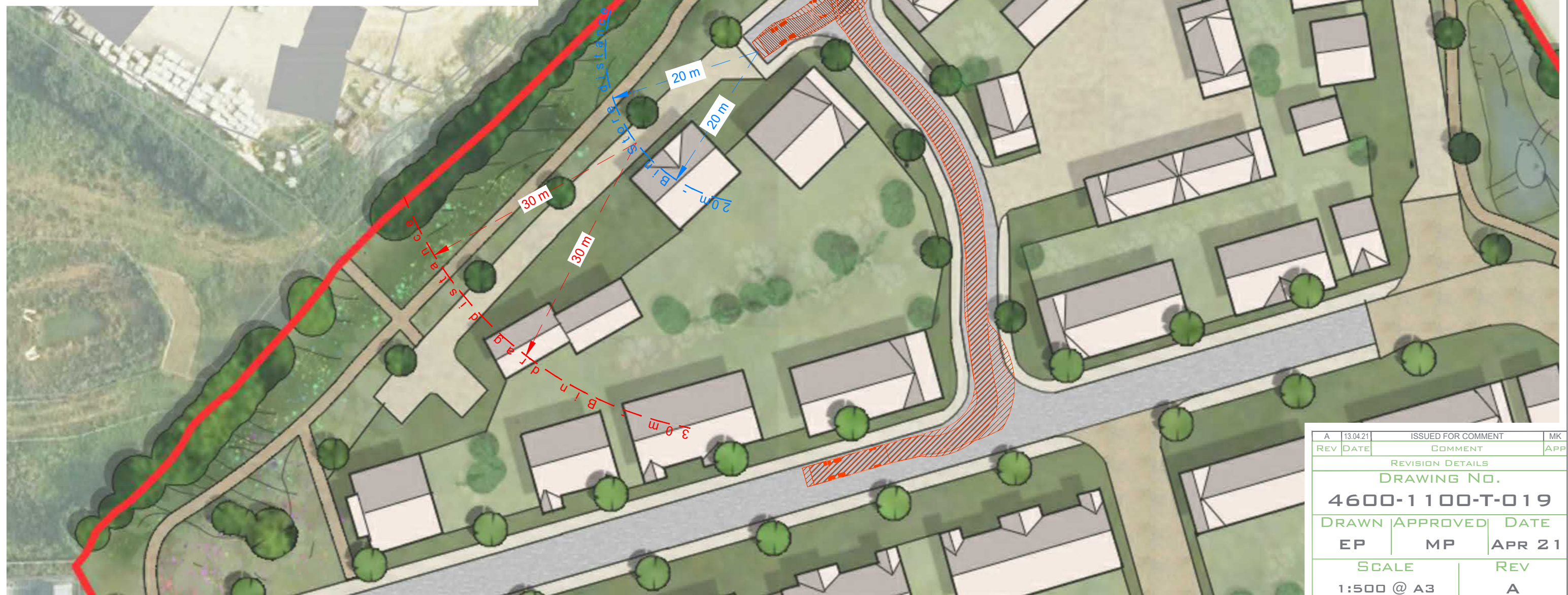
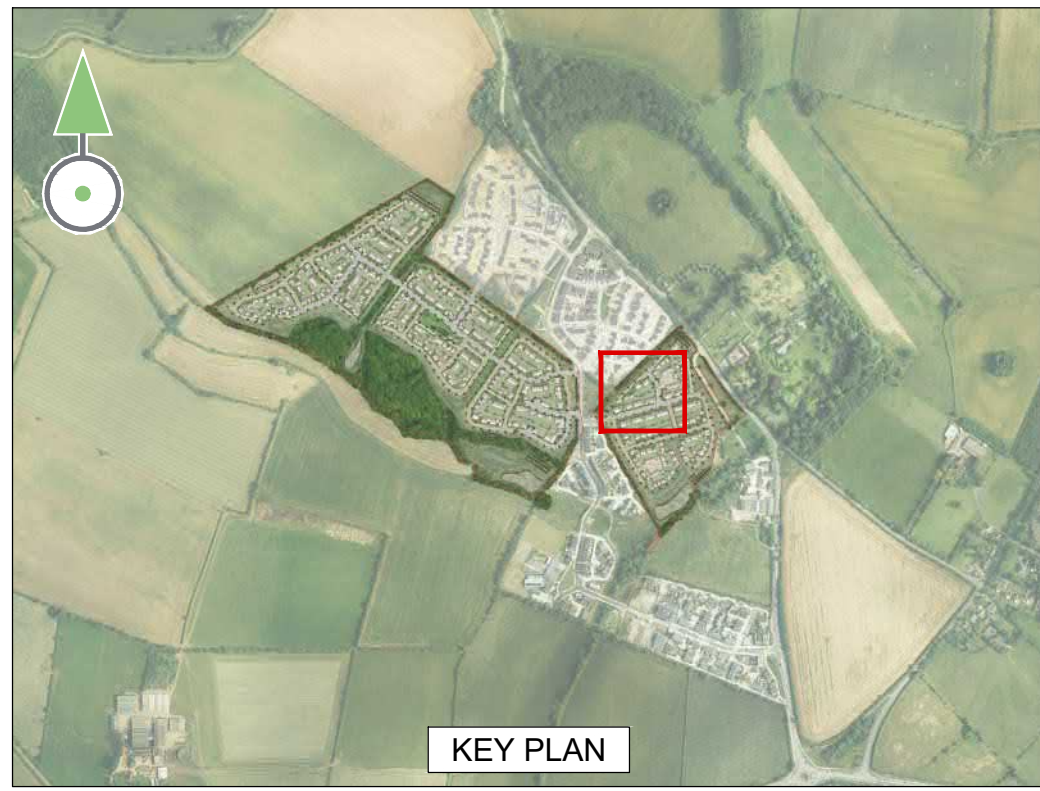
DRAWING TITLE
**REFUSE VEHICLE - SWEEP PATH ANALYSIS
BIN STORE DISTANCE CHECKS - LOCATION A (WESTERN PARCEL)**





Phoenix 2 One-Pass (with Elite 6x4 chassis)

Overall Length	11.180m
Overall Width	2.550m
Overall Body Height	3.760m
Min Body Ground Clearance	0.312m
Track Width	2.550m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	10.150m



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DRAWING NO.			
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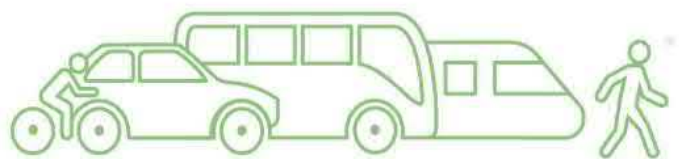
PROJECT
LAND AT NORTH WEST BICESTER

DRAWING TITLE
REFUSE VEHICLE - SWEEP PATH ANALYSIS
BIN STORE DISTANCE CHECKS - LOCATION B (EASTERN PARCEL)



APPENDIX J

Stage 1 Road Safety Audit & Designer's Response



LAND AT NORTH WEST BICESTER

STAGE 1 RSA DESIGNER'S RESPONSE

PROJECT NO. 4600/1100 DOC NO. D004

DATE: APRIL 2021

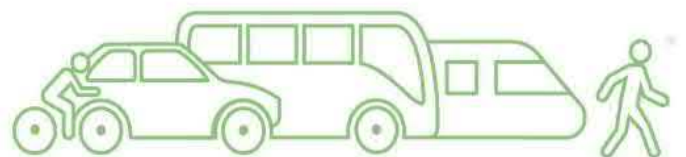
VERSION: 0.1

CLIENT: FIRETHORN TRUST



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1	DESIGNER'S STATEMENT	1
2	INTRODUCTION	2
3	DESIGNER'S RESPONSE TABLES	3

APPENDICES

APPENDIX A	STAGE 1 RSA BRIEF
APPENDIX B	STAGE 1 RSA
APPENDIX C	UPDATED JUNCTION DRAWINGS



1 DESIGNER'S STATEMENT

1.1 INTRODUCTION

- 1.1.1 Velocity Transport Planning (VTP) prepared the junction designs for the proposals associated with Land at North West Bicester, Oxfordshire. The development of this design has involved consultation with the local highway authority, Oxfordshire County Council, and is to provide vehicular access to a development of up to 550 dwellings.
- 1.1.2 The Stage 1 Road Safety Audit (RSA) was carried out by an independent audit company, Road Safety Consulting Ltd, and a number of problems were raised which this Designer's Response addresses.
- 1.1.3 I have considered the issues and problems raised in the Stage 1 RSA and my comments are set out within this Designer's Response.

Signed



Date: 14th April 2021



2 INTRODUCTION

2.1 INTRODUCTION

2.1.1 Road Safety Consultants Ltd (RSC) were commissioned by VTP to carry out a Stage 1 RSA of the proposed site access arrangements and the proposed traffic signalisation of the existing Charlotte Avenue junction with the B4100 Banbury Road.

2.1.2 The proposed development is expected to accommodate up to 550 dwellings and is the subject of a current outline planning application to be submitted to Cherwell District Council.

2.1.3 The Stage 1 RSA considered the following schemes:

- VTP Drawing 4600-1100-T-009 Rev A – Site Accesses A, B, C
- VTP Drawing 4600-1100-T-010 Rev A – Site Access D
- VTP Drawing 4600-1100-T-011 Rev A – Site Access E
- VTP Drawing 4600-1100-T-016 Rev A – Charlotte Avenue Signal Junction

2.1.4 This Designer's Response addresses the problems raised in the Stage 1 RSA and draws together the following documents and information:

a) The Designer's Response to the Stage 1 RSA is set out as follows:

- Column 1 – identifies the item number in the Stage 1 RSA;
- Column 2 – summarises the problem identified within the Stage 1 RSA;
- Column 3 – sets out the Auditor's recommendation;
- Column 4 – sets out the Designer's Response; and
- Column 5 – allows for comments from the Local Highway Authority.

b) A summary of the Stage 1 RSA Brief (excluding all of the attachments) is included at **Appendix A**.

2.1.5 The signed Stage 1 RSA prepared by RSC is included at **Appendix B**.

2.1.6 The updated drawings to reflect the comments raised through the Stage 1 RSA, are included at **Appendix C**, as follows:

- VTP Drawing 4600-1100-T-009 Rev C – Site Accesses A, B, C
- VTP Drawing 4600-1100-T-010 Rev A – Site Access D
- VTP Drawing 4600-1100-T-011 Rev B – Site Access E
- VTP Drawing 4600-1100-T-016 Rev B – Charlotte Avenue Signal Junction



3 DESIGNER'S RESPONSE TABLES

Stage 1 RSA Report (RSC/KS/EB/200069 – Residential Development Access Proposals)				
Item	Problem	Auditor's Recommendation	Designer's Response	Highway Authority Response
3.1 – Site Accesses A, B, C (Drawing 4600-1100-T-009 Rev A)				
3.1.1	<p>Location: Site accesses B & C</p> <p>Summary: Tactile paving layout may be confusing and lead to pedestrian to vehicle collisions involving sight-impaired people</p> <p>At the side road crossing points, the tactile paving layout at the junction radii may be confusing for some sight-impaired pedestrians. Some sight-impaired users may find it difficult to align themselves to cross the junction and this may lead to them to walking into the carriageway, or towards upstand kerbs, which may result in pedestrian to vehicle collisions, or trips / falls at kerb upstands.</p>	<p>It is recommended that the crossing points are inset into the side road, to simplify the tactile paving layouts, minimise crossing distances and provide clear crossing alignment.</p>	<p>VTP Drawing 4600-1100-T-009 Rev C has been prepared to reflect the Auditor's recommendation. This updated arrangement shows the informal crossing points being relocated, which will include dropped kerbs and tactile paving. The full detailed design of these crossing facilities will be finalised at the detailed design stage.</p>	
3.1.2	<p>Location: General to the location</p> <p>Summary: Lack of pedestrian crossing facilities on pedestrian desire routes may lead to mobility impaired user trips or falls at upstand kerbs</p> <p>It is unclear what routes pedestrians will take east-west across the existing spine road. Should there be a desire to cross the road east-west, the lack of dropped kerb facilities may lead to mobility impaired users, such as older pedestrians or wheelchair users, trips or falls at upstand kerbs.</p>	<p>It is recommended that pedestrian desire routes are assessed and suitable dropped kerb crossing facilities provided, where appropriate.</p>	<p>As per the Auditor's recommendation, the pedestrian desire lines have been assessed and additional informal crossing points identified either side of the existing bus gate. VTP Drawing 4600-1100-T-009 Rev C presents the informal crossing facilities. The full detailed design of these crossing facilities will be finalised at the detailed design stage.</p>	

3.3 – Construction Site Access (Drawing 4600-1100-T-011 Rev A)

3.3.1	<p>Location: At the access</p> <p>Summary: Large vehicle swept paths may lead to late braking on the B4100 and shunt type collisions</p> <p>This section of the B4100 is subject to a 40mph speed limit, although there is no street lighting and speed limit repeater signing appears to be widely spaced. By observation, vehicle speeds appeared to be in excess of the posted speed limit. It is unclear whether large construction vehicles will be able to pass each other at the junction mouth and this may lead to construction vehicles stopping suddenly within the main carriageway, with consequent risk of shunt type collisions.</p>	<p>It is recommended that the construction access is sufficiently wide to allow large vehicles to enter and exit the junction simultaneously.</p> <p>It may also be appropriate to provide temporary signing in advance of the construction access, to encourage appropriate vehicle speeds and highlight the likelihood of large slow moving vehicles.</p>	<p>As per the Auditor's recommendation, VTP have reviewed the construction access arrangement and amended this to ensure that simultaneous access can be achieved by 2 large HGVs. VTP Drawing 4600-1100-T-011 Rev B presents the revised layout, which now includes the swept path assessment of a large HGV and an indication of appropriate warning signage.</p> <p>The full detailed design of the construction access arrangement will be finalised at the detailed design stage.</p>	
3.3.2	<p>Location: At the access</p> <p>Summary: Muck and detritus on the carriageway may lead to loss of control type collisions</p> <p>Construction activities may lead to deposits of muck and detritus on the B4100, with consequent risk of loss of control type collisions, particularly in wet weather conditions.</p>	<p>It is recommended that adequate measures are introduced to ensure muck and detritus is not deposited on the B4100, which may include effective wheel washing facilities</p>	<p>Prior to the implementation of the construction access junction, a Construction Environment Management Plan (CEMP) will be submitted to and approved by the LPA. This will include details of the appropriate measures to be introduced that will ensure that the carriageway of the B4100 will be kept clear of muck and detritus.</p>	

3.4 – Charlotte Avenue Traffic Signal Controlled Junction (Drawing 4600-1100-T-016 Rev A)				
3.4.1	<p>Location: At the junction</p> <p>Summary: Pedestrian to vehicle collisions involving main road right turning vehicles</p> <p>The staging layout on the drawing indicates that right turners turn within gaps in the opposing traffic or within the inter-green period.</p> <p>The stacking space for waiting right turners may lead to up to four / five vehicles passing the signal stop line and attempting to clear the junction in the intergreen period. The intergreen period at the end of stage 1 may not be sufficient to clear the right turn queue leading to an increased risk of pedestrian to vehicle collisions at the crossing</p>	<p>It is recommended that the right turn manoeuvre is positively signalled, to minimise the possible pedestrian to vehicle conflict. Measures may include an early cut off with an indicative arrow and that an adequate inter-green period is provided to ensure queuing right turn vehicles can clear the crossing area before the pedestrian crossing signal is given a green person aspect.</p>	<p>The design of the traffic signal junction has been revisited to ensure that adequate time is afforded to the right turners to perform the manoeuvre. The results of this revised signal arrangement are set out within the supporting Transport Assessment.</p>	
3.4.2	<p>Location: At the junction</p> <p>Summary: Collisions involving main road right turning vehicles</p> <p>The staging layout on the drawing indicates that right turners turn within gaps in the opposing traffic or within the inter-green.</p> <p>The junction layout on the drawing indicates a far sided secondary signal head for the southbound traffic stream. Drivers making the main road right turn manoeuvre may take their cue to commence a right turn based on this signal aspect. With the 40mph speed limit and observed high northbound speeds, northbound vehicles passing the stop line at the end of the stage may come into conflict with right turning vehicles</p>	<p>It is recommended that the right turn manoeuvre is positively signalled, to minimise the possible right turn across path conflict. Measures may include an early cut off with an indicative arrow or if the staging arrangement is to remain as a two stage, the far sided signal aspect should be relocated to be closely associated.</p>	<p>See comment above.</p>	

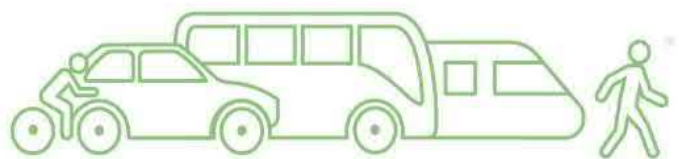
3.4.3	<p>Location: At the junction</p> <p>Summary: Pedestrian to vehicle collisions leading to pedestrian injury</p> <p>The Linsig analysis shows no inter-green period between the termination of the traffic phase D to the start of pedestrian phase E and vice a versa. If insufficient time is provided between the termination of these phases, it may lead to a slow walking pedestrian being hit by a vehicle, leading to pedestrian injury</p>	It is recommended that appropriate inter-green periods are provided between the phases	See comment above.	
4.0 – Other Observations				
4.1	<p>Location: Site Access A</p> <p>At the existing pedestrian crossing point, there are sections of dropped kerbs, that are unprotected by tactile paving. Sight-impaired pedestrians may not perceive the change from footway to carriageway and inadvertently walking into the path of vehicles.</p> <p>It is acknowledged that this is an existing issue and should be discussed with the highway authority and be resolved, with appropriate remedial measures such as extending tactile paving to cover the dropped kerb areas</p>		It is acknowledged that this is an existing issue, but the layout of the existing crossing facility, including the dropped kerbs and tactile paving, can be revisited as part of the detailed design stage.	

4.2	<p>Location: At the bus / cycle gate</p> <p>The existing signing at this location may confuse users, as the 'No Entry' signs appear to prohibit all traffic at this facility. The issue should be discussed with the highway authority for resolution. It would be appropriate to simplify and clarify signing at both ends of the bus only gate facility; an 'exception' plate would be appropriate underneath the 'No Entry' signing.</p> <p>The position of the no-entry signage may need to be relocated to suit the new accesses B and C, so that drivers wishing to enter Access B and C do not need drive through the no entry signage.</p>		<p>It is acknowledged that the signage and location of the signage at the existing bus gate might be reconfigured to not only reflect the prohibition of vehicles through the bus gate, with the exception of buses and cycles, but also to simply the arrangement and therefore be less confusing for road users.</p> <p>As part of the detailed design of the site access junctions, amendments to the bus gate, and introduction of the new footway along the western side of the bus gate, the appropriate signage can be agreed with OCC at the detailed design stage.</p>	
4.3	<p>Location: Along the B4100</p> <p>Along the western verge, there appears to be a pedestrian route. It is unclear what pedestrian desire there is in the vicinity, however, any unexpected pedestrian movements in the vicinity of construction traffic may lead to an increased risk of pedestrian to vehicle collisions at the site construction access.</p> <p>It is recommended that an assessment of pedestrian movements is carried out to establish the need for measures to mitigate the risk to pedestrians in the vicinity of the access</p>		<p>As the Auditor has identified, it is unclear what pedestrian desire there is along this highway verge. As set out within the TA, it is considered that there would be a very limited desire for pedestrians along this verge.</p> <p>However, it is acknowledged that as part of the detailed design of the construction access, the potential presence of pedestrians in proximity to the new junction will be factored in to the configuration of the junction at the detailed design stage.</p>	

4.4	<p>Location: Charlotte Avenue Traffic Signal Junction</p> <p>It is unclear from the information provided (as indicated by the tactile paving layout), whether the crossing on Charlotte Avenue will be installed as controlled crossing with traffic signal push button units and indicators, or as an uncontrolled crossing, although the phasing diagram appears to show the pedestrian movements as signal phases.</p> <p>It is recommended the type of crossing should be clarified and at the detail design stage the colour and layout of the tactile paving should comply with latest guidance for the chosen crossing type</p>		<p>The proposed signal junction arrangement as presented within the TA includes signalised pedestrian crossing phases. The colour and layout of the tactile paving will be finalised at the detailed design stage.</p>	
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APPENDIX A

Stage 1 Road Safety Audit Brief



LAND AT NORTH WEST BICESTER, OXFORDSHIRE

TECHNICAL NOTE: STAGE 1 RSA BRIEF

CLIENT: FIRETHORN TRUST

DATE: APRIL 2021

Table 1: Project Summary

Date:	1 st April 2021
Document Reference:	4600-1100 Doc: 007 V1.0
Prepared by:	Velocity Transport Planning
On behalf of:	Firethorn Trust
AUTHORISATION SHEET	
Project:	Land at North West Bicester
Report title:	Stage 1 RSA Brief
PREPARED BY	
Name:	Mark Kirby
Signed:	
Organisation:	Velocity Transport Planning
Date:	1 st April 2021

Table 2: General Details

Highway scheme name and road number:		NW Bicester, B4100 Banbury Road			
Type of scheme:	Two new priority junctions accessed from the existing estate road (north and south of the bus gate) and two extended links into the development from existing roads. One new temporary priority junction to be used during construction and one existing priority junction to be signalised; both accessed from the B4100 Banbury Road.				
RSA Stage (tick as appropriate)	1 <input checked="" type="checkbox"/>	2	3	4	
	Interim				
Overseeing Organisation Details		Design Organisation Details			
Oxfordshire County Council, County Hall, New Road, Oxford. OX1 1ND		Velocity Transport Planning. Unit A, Taper Studios, The Leather Market, 120 Weston Street, London, SE1 4GS			
Police Contact Details:		Maintaining Agent Contact Details:			
(Required for Stage 3 RSAs)		Oxfordshire County Council			
RSA Team Membership					
N/A					
Terms of Reference					



LAND AT NORTH WEST BICESTER, OXFORDSHIRE

TECHNICAL NOTE: STAGE 1 RSA BRIEF

CLIENT: FIRETHORN TRUST

DATE: APRIL 2021

Table 3: Scheme Details

General
<ul style="list-style-type: none">• Two new site access junctions to be created from the existing estate road that bisects the site located to the north and south of the existing bus gate.• Two existing access points extended into the proposed development.• A signalised junction to be created at the existing priority junction of Charlotte Avenue and B4100.• A temporary priority junction to be created for construction use only on the B4100 Banbury Road. There is currently an existing farm gate at the location.
Design Standards Applied to the Scheme
MfS/MfS2, the OCC Residential Design Guide (2 nd Edition – 2015), and DMRB – visibility calculations (as per the request of the OCC)
Design Speed
No speed surveys were undertaken
Speed Limits
The existing speed limit on the estate road is 20mph. The existing speed limit on B4100 Banbury Road is 40mph
Existing Traffic Flows/Queues
Traffic Survey information has been extracted from the Bicester Transport Model (BTM) and included within the Transport Assessment.
Forecast Traffic Flows
Traffic flows have been extracted from the BTM and traffic flow diagrams have been included within the Transport Assessment. The traffic flow diagrams are included.
Pedestrian, Cyclist and Equestrian Desire Lines
The proposed access junctions and extended links include provision for a 2.0m wide footway on either side of the carriageway. Separate dedicated footpath/cycleways are also to be provided on-site.
Environmental Constraints
N/A

Table 4: Locality

Description of Locality
The site is located to the immediate north-west of Bicester Town Centre and forms part of the North West Bicester Eco Town development.
General Description:



LAND AT NORTH WEST BICESTER, OXFORDSHIRE

TECHNICAL NOTE: STAGE 1 RSA BRIEF

CLIENT: FIRETHORN TRUST

DATE: APRIL 2021

The proposed development is for up to 550 residential units, the access to the development is to be taken from the as-built estate road that runs from a priority junction with the B4100 to the south-east of the proposed development with Charlotte Avenue to a priority junction to the north-east of the proposed development with Braeburn Avenue.

A Bus Only link is located between the Eastern and Western Parcels of the proposed development. Two site access junctions will be formed to the south of the bus gate and one new access junction to be formed to the north of the bus gate. A new extended access road is to be provided on the northern boundary of the proposed development. A temporary access is proposed to access the Eastern Parcel of land from the B4100 during construction only.

The proposed signalised junction forms an existing priority junction with the estate road (Charlotte Avenue) and the B4100 to the south-east of the proposed development.

Relevant Factors which may Affect Road Safety

N/A

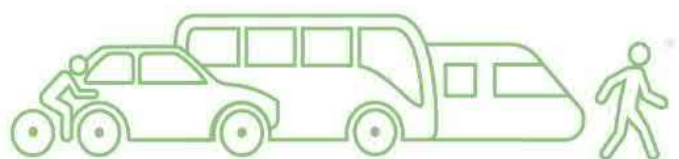
Table 5: Analysis

Collision Data Analysis
Latest three-year PIA data is included.
Departures from Standards:
N/A
Previous Road Safety Audit Stage Reports, Road Safety Audit Responses and Evidence of Agreed Actions
N/A
Strategic Decisions:
N/A
List of Included Documents & Drawings:
Documents: <ul style="list-style-type: none">• Extracts from VTP Transport Assessment (Accident Data, Traffic Flow Diagrams)
Drawings: <ul style="list-style-type: none">• Site Location Plan• Illustrative Masterplan• VTP Drawing 4600-1100-T-009 Rev A – Site Accesses A to C• VTP Drawing 4600-1100-T-010 Rev A – Site Access D• VTP Drawing 4600-1100-T-011 Rev A – Site Access E• VTP Drawing 4600-1100-T-016 Rev A – Charlotte Avenue Signal Junction



APPENDIX B

Stage 1 Road Safety Audit



Stage 1 Road Safety Audit

Land North-west of Bicester, Oxfordshire

Residential Development Access Proposals

Date: 09/04/2021

Report produced for: Firethorn Trust

Report requested by: Velocity Transport Planning Ltd

On behalf of: Oxfordshire County Council

Report prepared by: Kevin Seymour, Road Safety Consulting Ltd

Reference: RSC/KS/EB/20069

Document Control Sheet

Project Title Land North-west of Bicester, Oxfordshire
Residential Development Access Proposals

Report Title Stage 1 Road Safety Audit
Reference: RSC/KS/EB/20069

Revision -

Status Final

Control Date 09/04/2021

Record of Issue

Issue	Author	Date	Check	Date	Authorised	Date
Final	KS	08/04/21	EB	09/04/21	EB	09/04/21

Distribution

Organisation	Contact	Copies
Velocity Transport Planning Ltd	Mark Kirby	ecopy

Road Safety Consulting Ltd
4 Paramore Close
Whetstone
Leicestershire
LE8 6EY
Registered in England and Wales
Company Number 5225549

1. Introduction

- 1.1. This report results from a Stage 1 Road Safety Audit carried out on the proposed Residential Development Access Proposals on Land North-west of Bicester, Oxfordshire. The Audit was carried out during April 2021.
- 1.2. This Road Safety Audit was produced for (client organisation): Firethorn Trust, requested by (design organisation): Velocity Transport Planning Ltd, on behalf of (overseeing organisation): Oxfordshire County Council.
- 1.3. The Road Safety Audit Brief was provided by Mark Kirby of Velocity Transport Planning Ltd. The audit team has reviewed the brief and consider it adequate to enable the audit to be carried out.
- 1.4. The Audit Team membership was as follows:

Audit Team Leader
Kevin Seymour
B Sc, PG Dip TS, MCIHT, MSoRSA
Highways England Certificate of Competence (Road Safety Audit)
Road Safety Consulting Ltd

Audit Team Member
Elaine Bingham
B Eng (Hons), MCIHT, MSoRSA
Highways England Certificate of Competence (Road Safety Audit)
Road Safety Consulting Ltd
- 1.5. The audit took place at the offices of Road Safety Consulting Ltd between 6th and 9th April 2021. The audit was undertaken in accordance with the audit brief and the report has been prepared with reference to the Design Manual for Roads and Bridges (DMRB) GG 119.
- 1.6. The Audit Team visited the site together on the on the 7th April 2021 between 1:30pm and 3:00pm. At the time of the audit the weather was dry and overcast. The road surface was dry. Traffic flows were low. Pedestrian volumes were low and no cyclists were observed.
- 1.7. The audit comprised an examination of the information provided by the Design Organisation and listed in Appendix 1.
- 1.8. The team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria.
- 1.9. All comments and recommendations are referenced to the design drawing and the locations have been indicated on plans in Appendix 2.
- 1.10. The audit team is unaware of any previous road safety audits on the current access proposals.

2. Items Considered

2.1. Scheme Proposals

2.1.1. The proposed development is for up to 550 residential units, the access to the development is to be taken from the as-built estate road that runs from a priority junction with the B4100 to the south-east of the proposed development with Charlotte Avenue to a priority junction to the north-east of the proposed development with Braeburn Avenue.

2.1.2. The access proposal consists of:

- Two new site access junctions to be created from the existing estate road that bisects the site located to the north and south of the existing bus gate.
- Two existing access points extended into the proposed development.
- A signalised junction to be created at the existing priority junction of Charlotte Avenue and B4100.
- A temporary priority junction to be created for construction use only on the B4100 Banbury Road. There is currently an existing farm gate at this location.

2.2. Information Provided to the Audit Team

2.2.1. Information that has been provided to the Audit Team, for the purpose of this audit, is as outlined within Appendix 1 of this report.

2.3. Departures from Standards (Design)

2.3.1. The Audit Team has not been advised of any design departures from standards.

2.4. Departures from Standards (Road Safety Audit)

2.4.1. This Road Safety Audit has been produced, with reference to DMRB – GG 119 – Road Safety Audit with the following exceptions.

- The Audit Team has not received a formally approved Road Safety Audit Brief by the overseeing organisation; however, the Audit Team has a brief prepared by the design organisation and therefore did not consider that the lack of a formal brief would compromise the production of a Road Safety Audit for these proposals.
- Section 4 of this report provides additional Observations, that are outside of the scope of GG119 (which specifically excludes the provision of additional comments within Road Safety Audit report). These comments, whilst considered outside the scope of the audit, have been produced to assist the designer in providing a safe design where any safety comment may be conditional on receiving more detailed information.

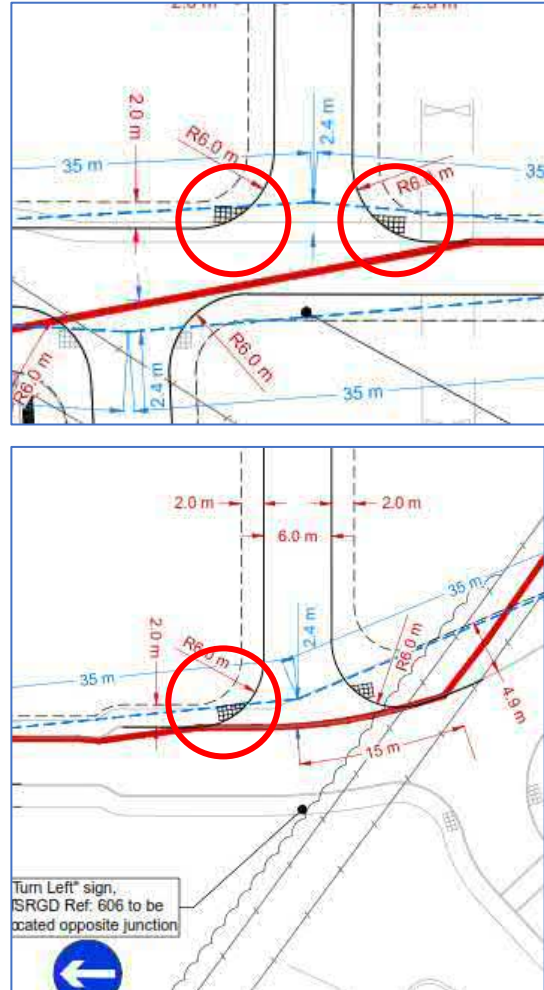
3. Items Raised by this Stage 1 Road Safety Audit

3.1. Site Accesses A, B, C (Drawing 4600-1100-T-009)

3.1.1. Problem

Location: Site accesses B & C

Summary: Tactile paving layout may be confusing and lead to pedestrian to vehicle collisions involving sight-impaired people



At the side road crossing points, the tactile paving layout at the junction radii may be confusing for some sight-impaired pedestrians. Some sight-impaired users may find it difficult to align themselves to cross the junction and this may lead to them walking into the carriageway, or towards upstand kerbs, which may result in pedestrian to vehicle collisions, or trips / falls at kerb upstands.

Recommendation:

It is recommended that the crossing points are inset into the side road, to simplify the tactile paving layouts, minimise crossing distances and provide clear crossing alignment.

3.1.2. **Problem**

Location: General to the location

Summary: Lack of pedestrian crossing facilities on pedestrian desire routes may lead to mobility impaired user trips or falls at upstand kerbs

It is unclear what routes pedestrians will take east-west across the existing spine road. Should there be a desire to cross the road east-west, the lack of dropped kerb facilities may lead to mobility impaired users, such as older pedestrians or wheelchair users, trips or falls at upstand kerbs.

Recommendation:

It is recommended that pedestrian desire routes are assessed and suitable dropped kerb crossing facilities provided, where appropriate.

3.2. **Site Access D (Drawing 4600-1100-T-010)**

No Comments

3.3. **Construction Site Access E (Drawing 4600-1100-T-011)**

3.3.1. **Problem**

Location: At the access

Summary: Large vehicle swept paths may lead to late braking on the B4100 and shunt type collisions

This section of the B4110 is subject to a 40mph speed limit, although there is no street lighting and speed limit repeater signing appears to be widely spaced. By observation, vehicle speeds appeared to be in excess of the posted speed limit. It is unclear whether large construction vehicles will be able to pass each other at the junction mouth and this may lead to construction vehicles stopping suddenly within the main carriageway, with consequent risk of shunt type collisions.

Recommendation:

It is recommended that the construction access is sufficiently wide to allow large vehicles to enter and exit the junction simultaneously.

It may also be appropriate to provide temporary signing in advance of the construction access, to encourage appropriate vehicle speeds and highlight the likelihood of large slow moving vehicles.

3.3.2. Problem

Location: At the access

Summary: Muck and detritus on the carriageway may lead to loss of control type collisions

Construction activities may lead to deposits of muck and detritus on the B4100, with consequent risk of loss of control type collisions, particularly in wet weather conditions.

Recommendation:

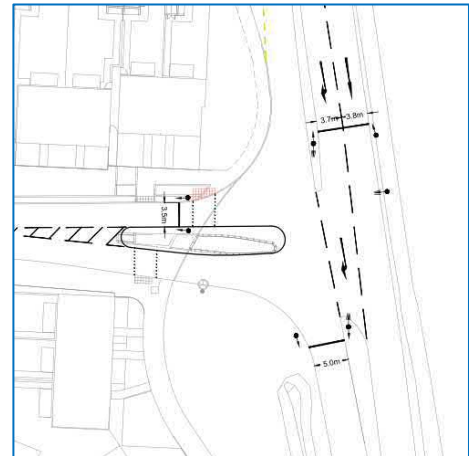
It is recommended that adequate measures are introduced to ensure muck and detritus is not deposited on the B4100, which may include effective wheel washing facilities.

3.4. Charlotte Avenue Traffic Signal Controlled Junction (Drawing 4600-1100-T-016)

3.4.1. Problem

Location: At the junction

Summary: Pedestrian to vehicle collisions involving main road right turning vehicles



The staging layout on the drawing indicates that right turners turn within gaps in the opposing traffic or within the inter-green period.

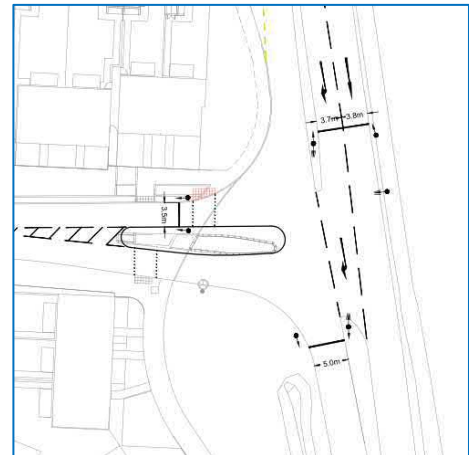
The stacking space for waiting right turners may lead to up to four / five vehicles passing the signal stop line and attempting to clear the junction in the intergreen period. The intergreen period at the end of stage 1 may not be sufficient to clear the right turn queue leading to an increased risk of pedestrian to vehicle collisions at the crossing.

Recommendation:

It is recommended that the right turn manoeuvre is positively signalled, to minimise the possible pedestrian to vehicle conflict. Measures may include an early cut off with an indicative arrow and that an adequate inter-green period is provided to ensure queuing right turn vehicles can clear the crossing area before the pedestrian crossing signal is given a green person aspect.

3.4.2. Problem

Location: At the junction
Summary: Collisions involving main road right turning vehicles



The staging layout on the drawing indicates that right turners turn within gaps in the opposing traffic or within the inter-green.

The junction layout on the drawing indicates a far sided secondary signal head for the southbound traffic stream. Drivers making the main road right turn manoeuvre may take their cue to commence a right turn based on this signal aspect. With the 40mph speed limit and observed high northbound speeds, northbound vehicles passing the stop line at the end of the stage may come into conflict with right turning vehicles.

Recommendation:

It is recommended that the right turn manoeuvre is positively signalled, to minimise the possible right turn across path conflict. Measures may include an early cut off with an indicative arrow or if the staging arrangement is to remain as a two stage, the far sided signal aspect should be relocated to be closely associated.

3.4.3. Problem

Location: At the junction
Summary: Pedestrian to vehicle collisions leading to pedestrian injury

		Starting Phase					
		A	B	C	D	E	F
Terminating Phase	A	-	-	-	5	-	10
	B	-	-	-	5	-	10
	C	-	-	-	-	-	8
	D	8	6	5	-	-	-
	E	-	-	-	-	-	-
	F	8	8	8	-	-	-

The Linsig analysis shows no inter-green period between the termination of the traffic phase D to the start of pedestrian phase E and vice a versa. If insufficient time is provided between the termination of these phases, it may lead to a slow walking pedestrian being hit by a vehicle, leading to pedestrian injury.

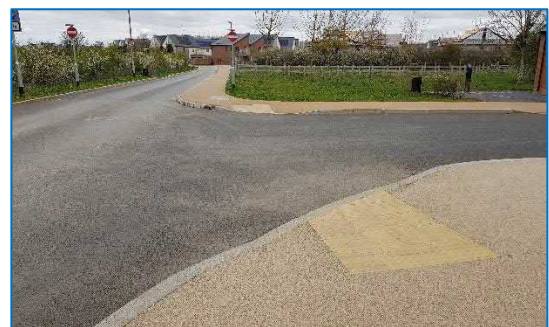
Recommendation:

It is recommended that appropriate inter-green periods are provided between the phases.

4. Other Observations

4.1. Observation

Location: Site Access A



At the existing pedestrian crossing point, there are sections of dropped kerbs, that are unprotected by tactile paving. Sight-impaired pedestrians may not perceive the change from footway to carriageway and inadvertently walking into the path of vehicles.

It is acknowledged that this is an existing issue and should be discussed with the highway authority and be resolved, with appropriate remedial measures such as extending tactile paving to cover the dropped kerb areas.

4.2. Observation

Location: At the bus / cycle only gate



The existing signing at this location may confuse users, as the 'No Entry' signs appear to prohibit all traffic at this facility. The issue should be discussed with the highway authority for resolution. It would be appropriate to simplify and clarify signing at both ends of the bus only gate facility; an 'exception' plate would be appropriate underneath the 'No Entry' signing.

The position of the no-entry signage may need to be relocated to suit the new accesses B and C, so that drivers wishing to enter Access B and C do not need drive through the no entry signage.

4.3. Observation

Location: Along the B4100



Along the western verge, there appears to be a pedestrian route. It is unclear what pedestrian desire there is in the vicinity, however, any unexpected pedestrian movements in the vicinity of construction traffic may lead to an increased risk of pedestrian to vehicle collisions at the site construction access.

It is recommended that an assessment of pedestrian movements is carried out to establish the need for measures to mitigate the risk to pedestrians in the vicinity of the access.

4.4. Observation

Location: Charlotte Avenue Traffic Signal
Junction

It is unclear from the information provided (as indicated by the tactile paving layout), whether the crossing on Charlotte Avenue will be installed as controlled crossing with traffic signal push button units and indicators) or as an uncontrolled crossing, although the phasing diagram appears to show the pedestrian movements as signal phases.

It is recommended the type of crossing should be clarified and at the detail design stage the colour and layout of the tactile paving should comply with latest guidance for the chosen crossing type.

5. Audit Team Statement

We certify that this Stage 1 Road Safety Audit has been carried with reference to GG 119.

Audit Team Leader

Kevin Seymour
B Sc, PG Dip TS, MCIHT, MSoRSA
Highways England Certificate of Competence (Road Safety Audit)

Signed:  Dated 8th April 2021
Director of Road Safety Consulting Ltd

Audit Team Member

Elaine Bingham,
B Eng (Hons), MCIHT, MSoRSA
Highways England Certificate of Competence (Road Safety Audit)
Director of Road Safety Consulting Ltd

Signed:  Dated 9th April 2021
Director of Road Safety Consulting Ltd

Road Safety Consulting Ltd
4 Paramore Close
Whetstone
Leicestershire
LE8 6EY

APPENDIX 1: Information Provided

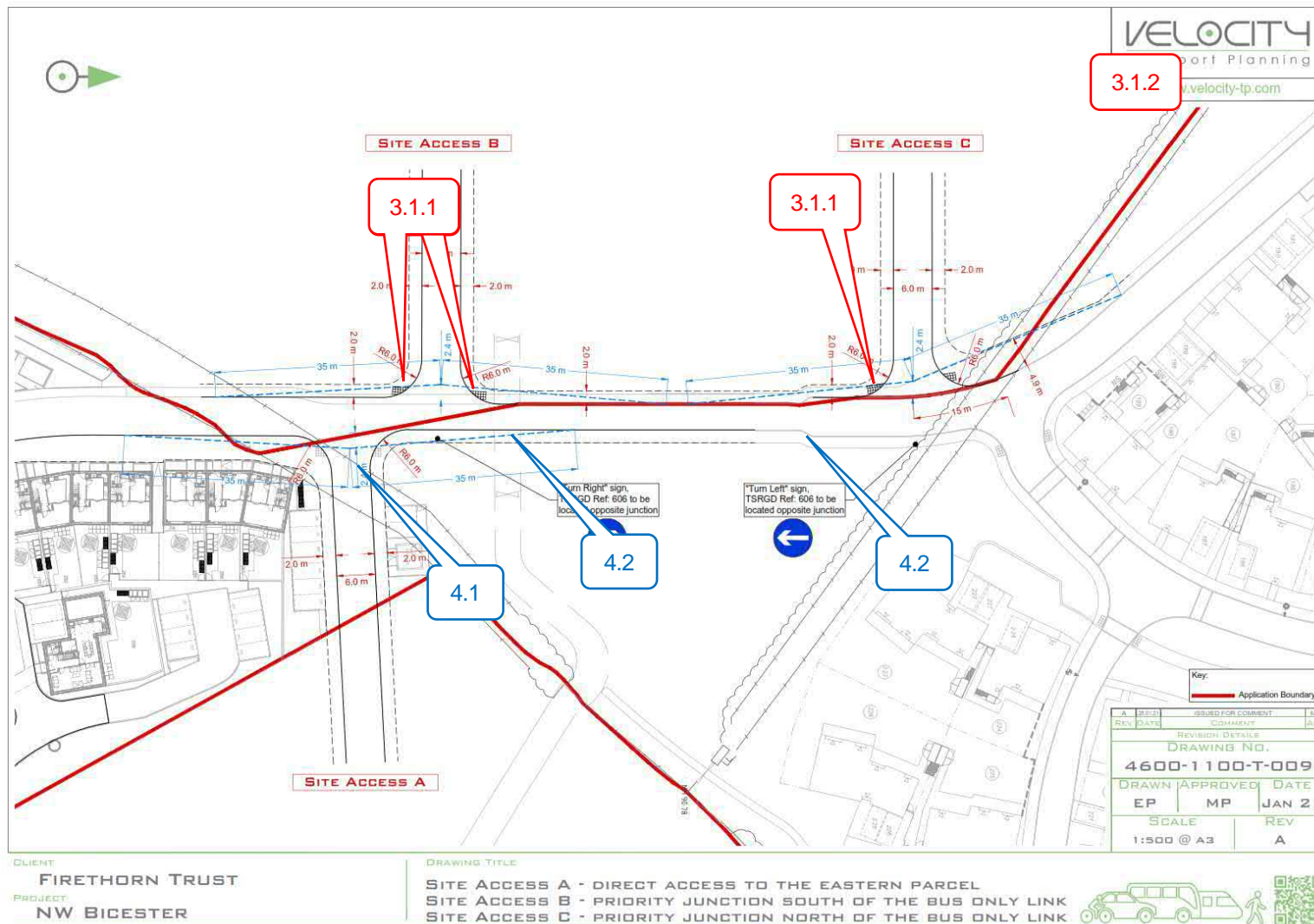
List of Information Provided

Document Reference Number	Revision	Title
Drawing 4600-1100-T-009	A	Site Access A, B, C
Drawing 4600-1100-T-010	A	Site Access D – Direct Access to North of the Western Parcel
Drawing 4600-1100-T-011	A	Site Access E – Proposed Construction Access
Drawing 4600-1100-T-016	A	Charlotte Avenue Traffic Signals
Drawing 1192-SK004A	-	Illustrative Masterplan
Drawing 1192-SK001	G	Site Location Plan
Document 4600-1100-T-016	A	Charlotte Avenue Traffic Signals V1 – Full Input Data and Results
Document 2021.04.01	-	Stage 1 Road Safety Audit Brief
Document Extract from TA	-	Traffic Collision Data
Document Traffic Flow Diagrams -	-	Plans 1-9

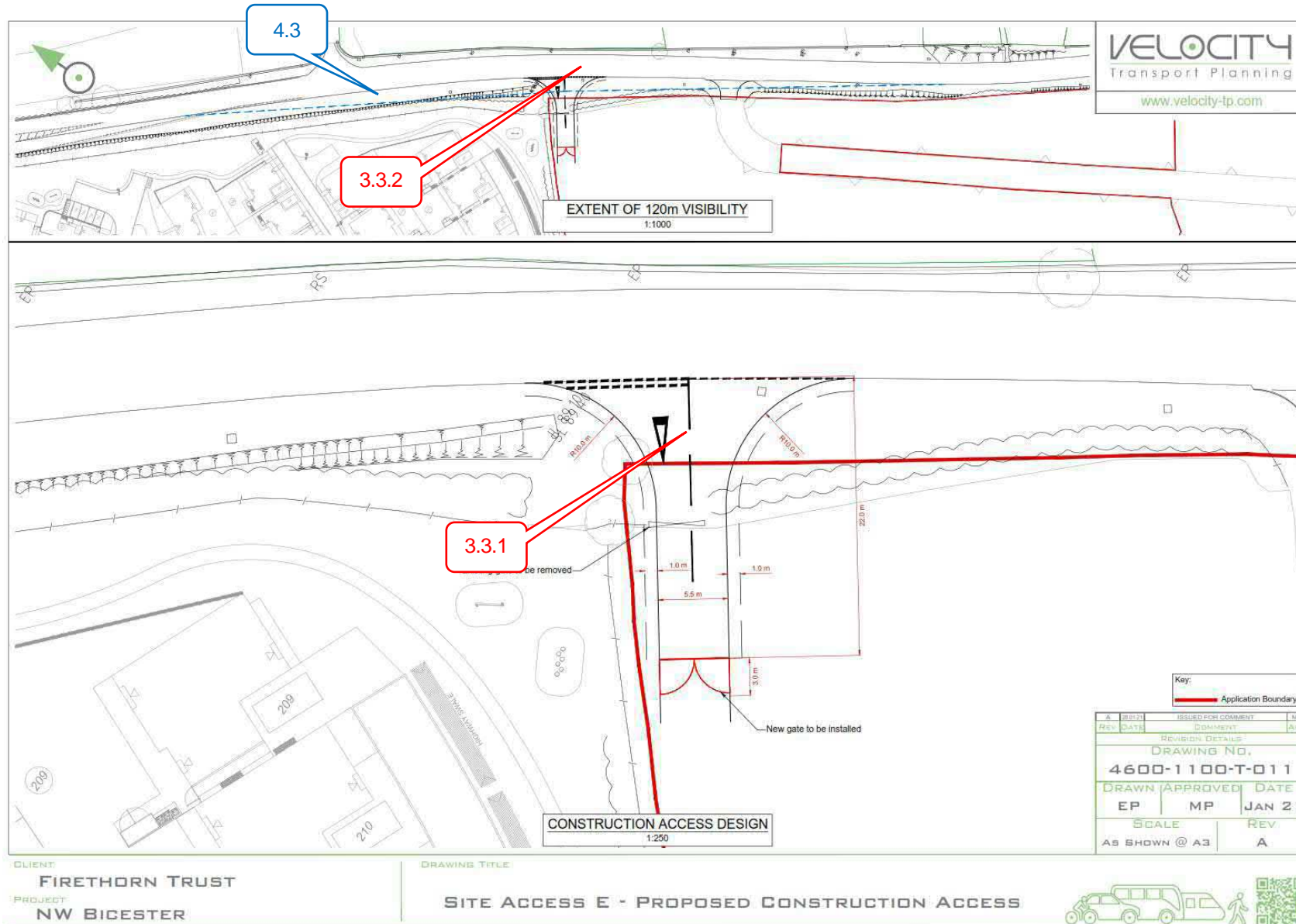
APPENDIX 2: Drawing Showing Problem Locations

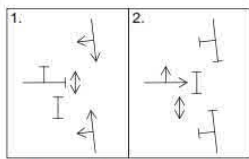
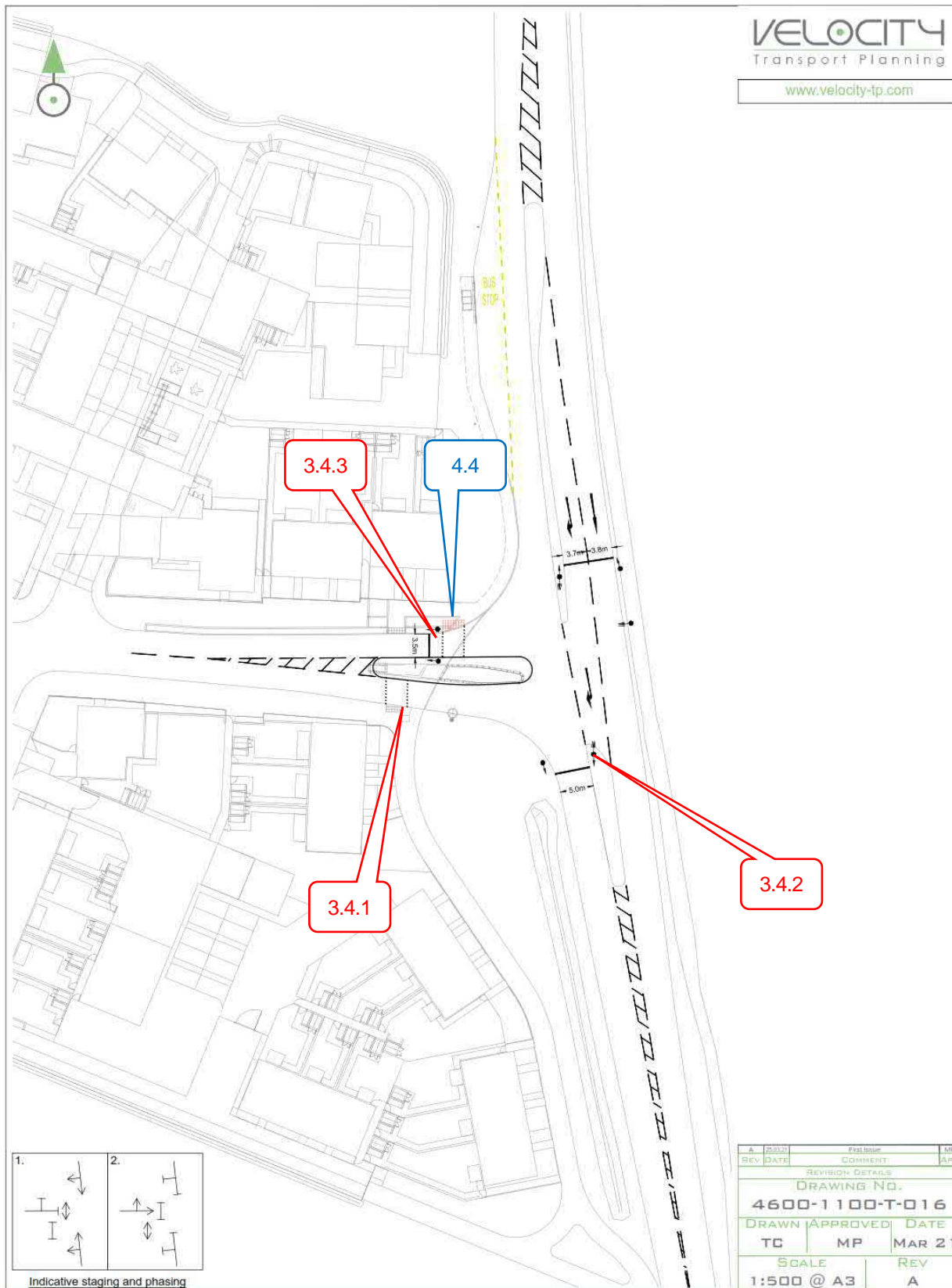
Problem numbers shown on the attached drawing refer to Problem numbers within the report.

General to the Scheme









Indicative staging and phasing

REV	DATE	REVISION DETAILS	APP
A	2022	PRELIM	MP
DRAWING NO.			
4600-1100-T-016			
DRAWN		APPROVED	DATE
TC	MP		MAR 21
SCALE		REV	
1:500 @ A3		A	

CLIENT
FIRETHORN TRUST

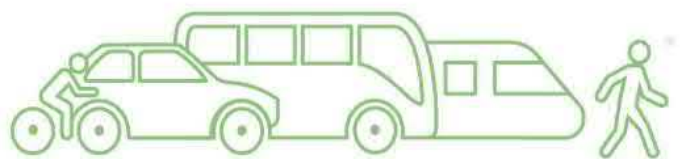
PROJECT
NW BICESTER

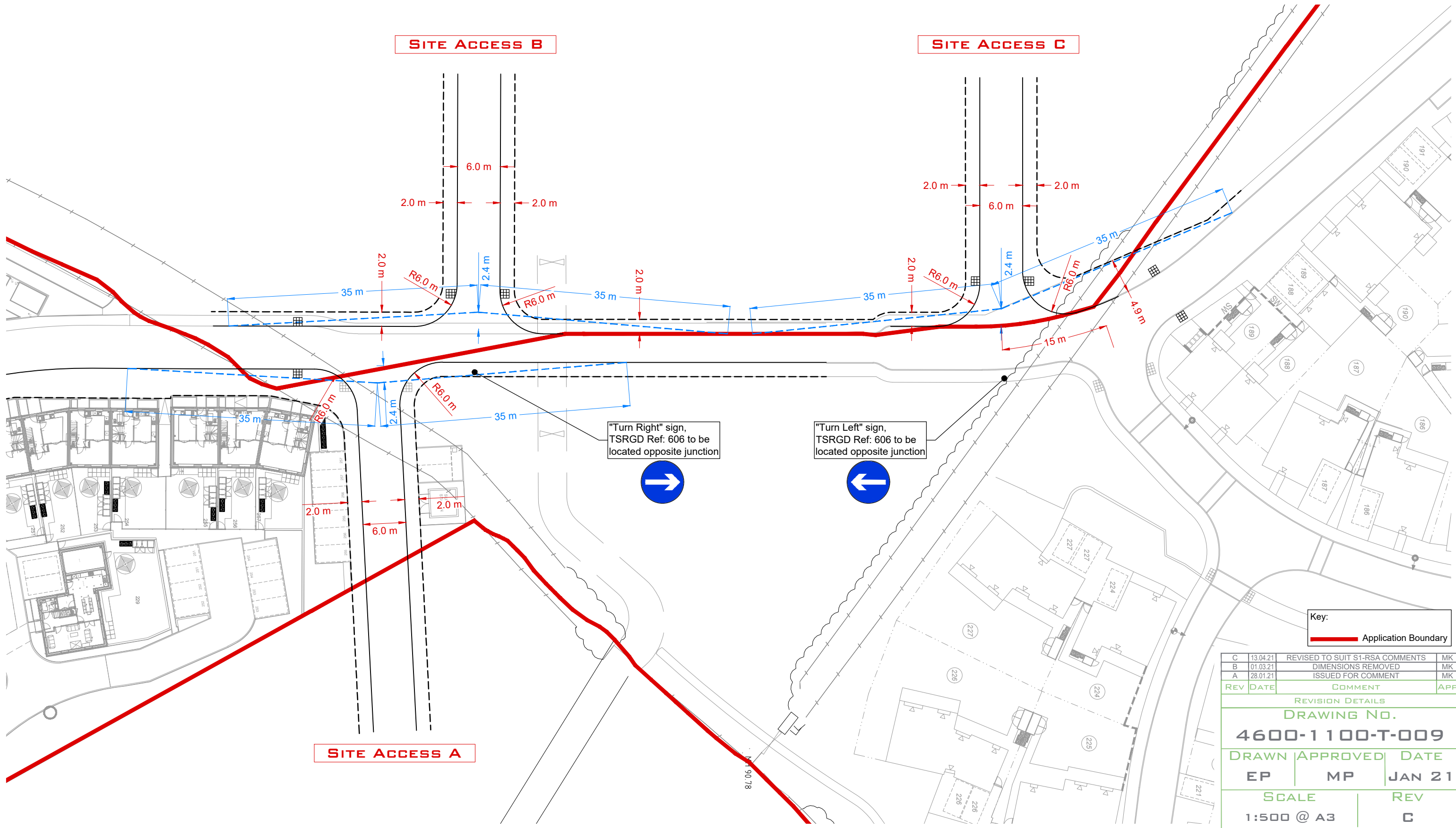
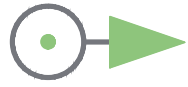
DRAWING TITLE
POSSIBLE B4100/CHARLOTTE AVENUE TRAFFIC SIGNALS



APPENDIX C

Updated Junction Drawings





CLIENT

FIRETHORN TRUST

PROJECT

LAND AT NORTH WEST BICESTER

DRAWING TITLE

SITE ACCESS A - DIRECT ACCESS TO THE EASTERN PARCEL

SITE ACCESS B - PRIORITY JUNCTION SOUTH OF THE BUS ONLY LINK

SITE ACCESS C - PRIORITY JUNCTION NORTH OF THE BUS ONLY LINK





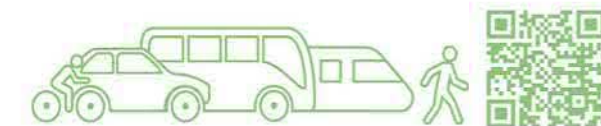
Key:
Application Boundary

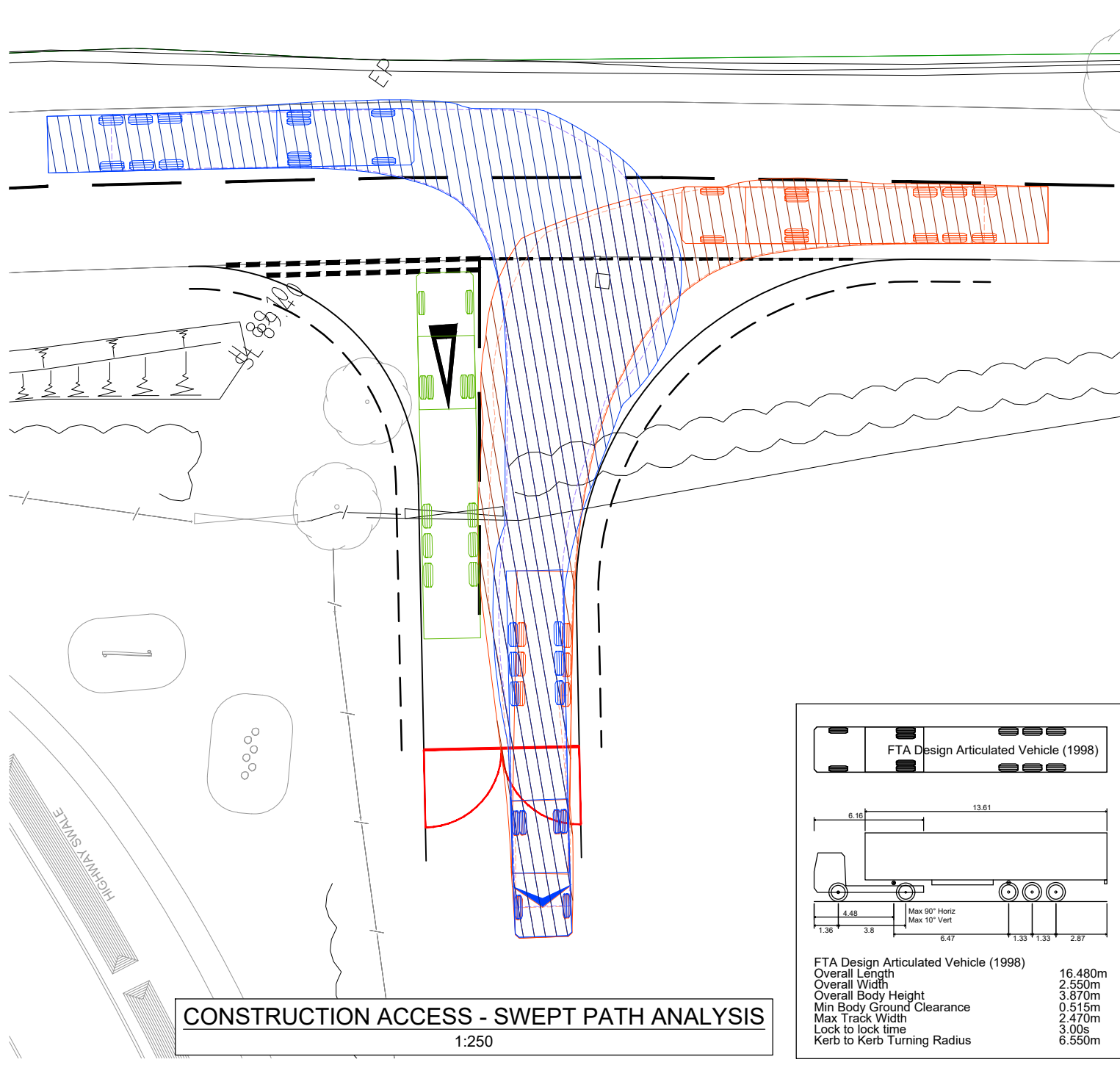
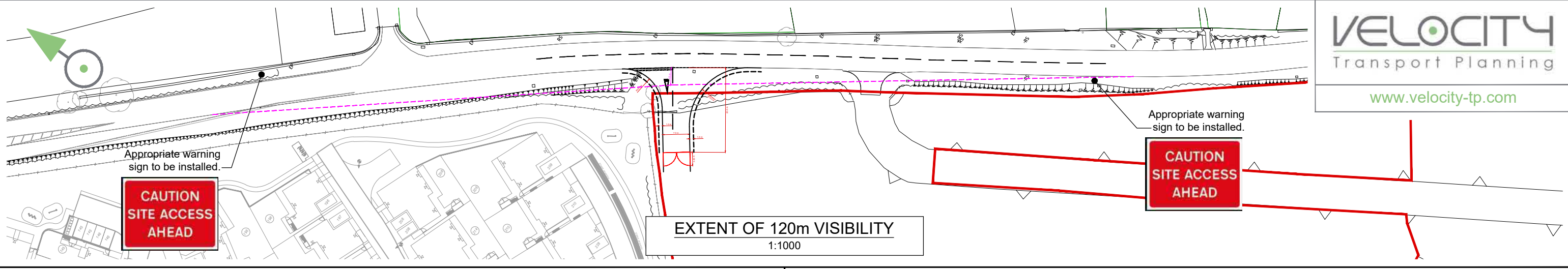
A	28.01.21	ISSUED FOR COMMENT	MK
REV	DATE	COMMENT	APP
REVISION DETAILS			
DRAWING NO.			
4600-1100-T-010			
DRAWN		APPROVED	
EP		MP	
SCALE			REV
1:500 @ A3			A

CLIENT
FIRETHORN TRUST

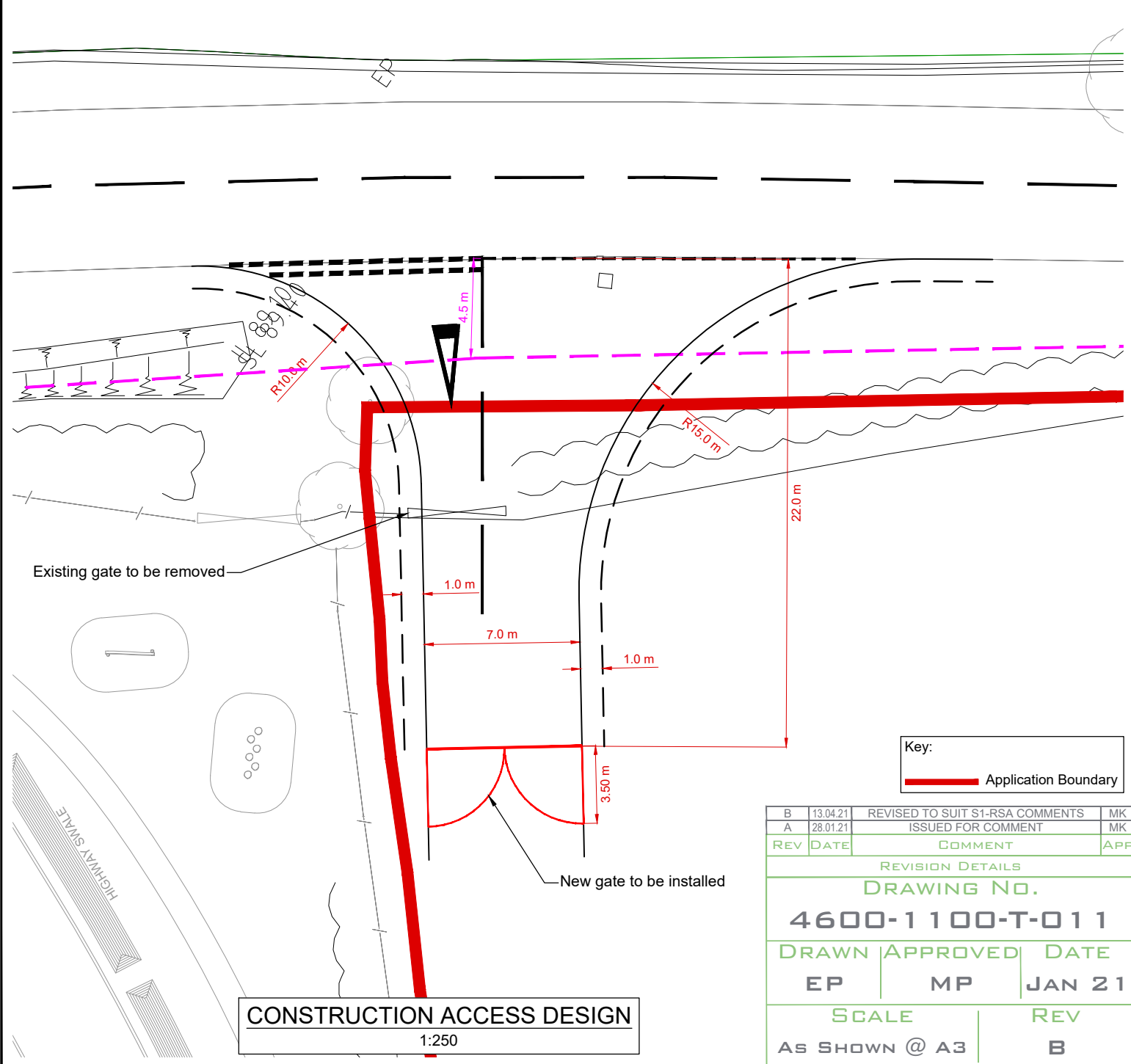
PROJECT
LAND AT NORTH WEST BICESTER

DRAWING TITLE
**SITE ACCESS D
DIRECT ACCESS TO NORTH OF THE WESTERN PARCEL**



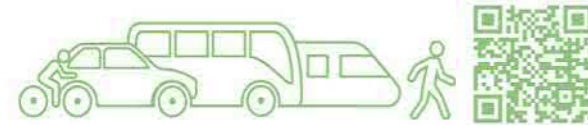


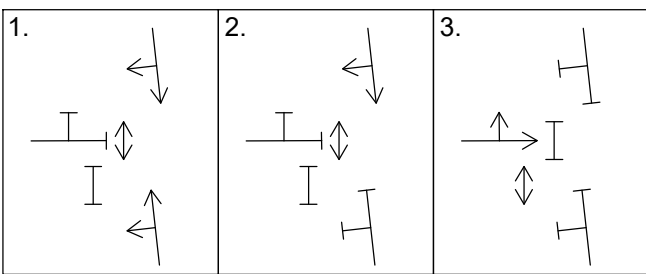
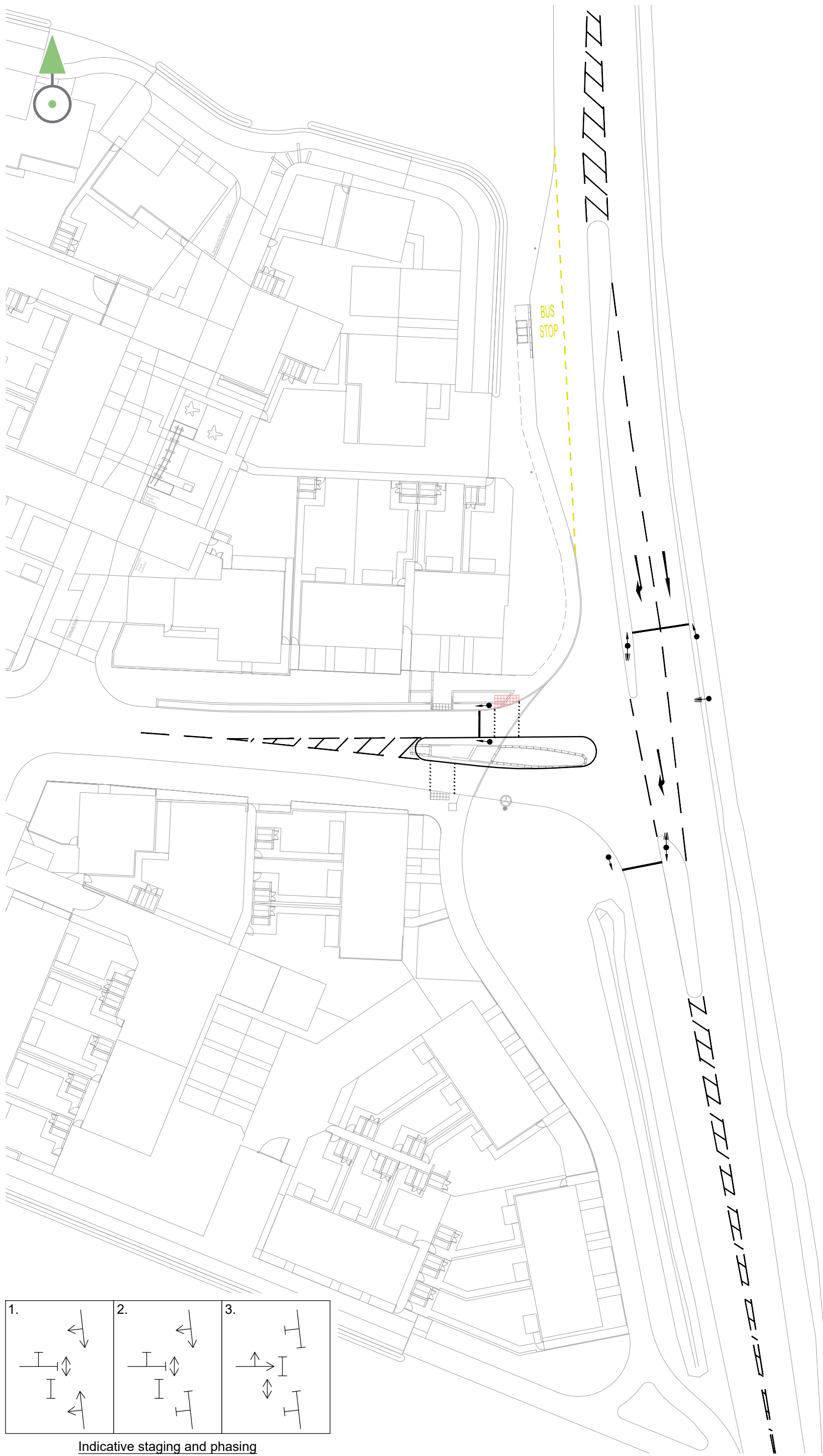
FTA Design Articulated Vehicle (1998)	
Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock to lock time	3.00s
Kerb to Kerb Turning Radius	6.550m



Key:
Application Boundary

REV	DATE	COMMENT	APP
B	13.04.21	REVISED TO SUIT S1-RSA COMMENTS	MK
A	28.01.21	ISSUED FOR COMMENT	MK
REVISION DETAILS			
DRAWING NO.			
4600-1100-T-011			
DRAWN	APPROVED	DATE	
EP	MP	JAN 21	
SCALE		REV	
AS SHOWN @ A3		B	





Indicative staging and phasing

B	13.04.21	Staging diagram amended	MP
A	25.03.21	First issue	MP
REV	DATE	COMMENT	APP
REVISION DETAILS			
DRAWING NO.			
4600-1100-T-016			
DRAWN	APPROVED	DATE	
TC	MP	MAR 21	
SCALE			REV
1:500 @ A3			B



