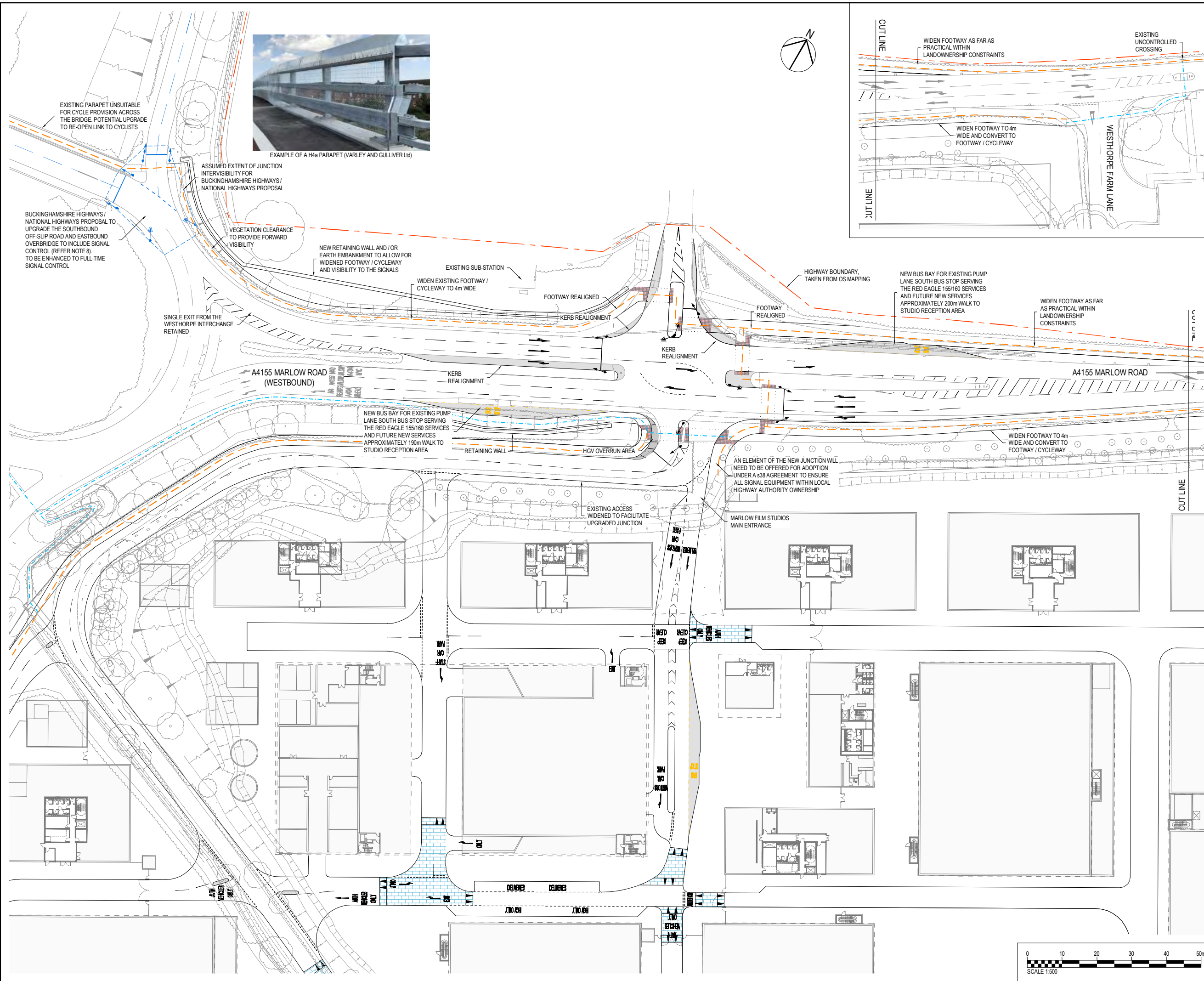


Appendix B Option 2 Drawings

Document Number	Document Title	Revision
60654980-ACM-XX-XX-DR-HW-000003	Conceptual Junction Arrangement, Option 2	P03
60654980-ACM-XX-XX-DR-HW-000004	Conceptual Junction Arrangement, Option 2, Swept Path Analysis	P03
60654980-ACM-XX-XX-DR-HW-000006	Conceptual Junction Arrangement, Option 2, Visibility Analysis	P02



PROJECT
 Marlow Film Studios

CLIENT
 Dido Property Limited

CONSULTANT
 AECOM Limited
 Midpoint, Alencon Link,
 Basingstoke, Hampshire, RG21 7PP
 +44 (0)1256 824 500 tel
 www.aecom.com

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7. JUNCTION DESIGN BASED ON DESIGN SPEED OF 70kph (40mph). EXISTING NATIONAL SPEED LIMIT TO BE REDUCED TO 40mph FROM WEST OF A404 WESTHORPE INTERCHANGE TO LITTLE MARLOW.
8. BUCKINGHAMSHIRE HIGHWAYS / NATIONAL HIGHWAYS SCHEME (IN BLUE) REPRODUCED FROM BALFOUR BEATTY A404/A4155 WESTHORPE JUNCTION IMPROVEMENTS SOUTHBOUND OFFSLIP GENERAL ARRANGEMENT DRAWING (WIS-STN-PH1-XX-DR-C-0150 P03) TAKEN FROM THE BUCKINGHAMSHIRE WEBSITE.

KEY

	PEDESTRIAN ROUTE
	PEDESTRIAN AND CYCLE ROUTE
	HIGHWAY BOUNDARY

ISSUE/REVISION

NO	DATE	DESCRIPTION
P03	16.05.2022	ISSUED FOR PLANNING
P02	07.04.2022	SECOND ISSUE
P01	08.02.2022	FIRST ISSUE
I/R	DATE	DESCRIPTION

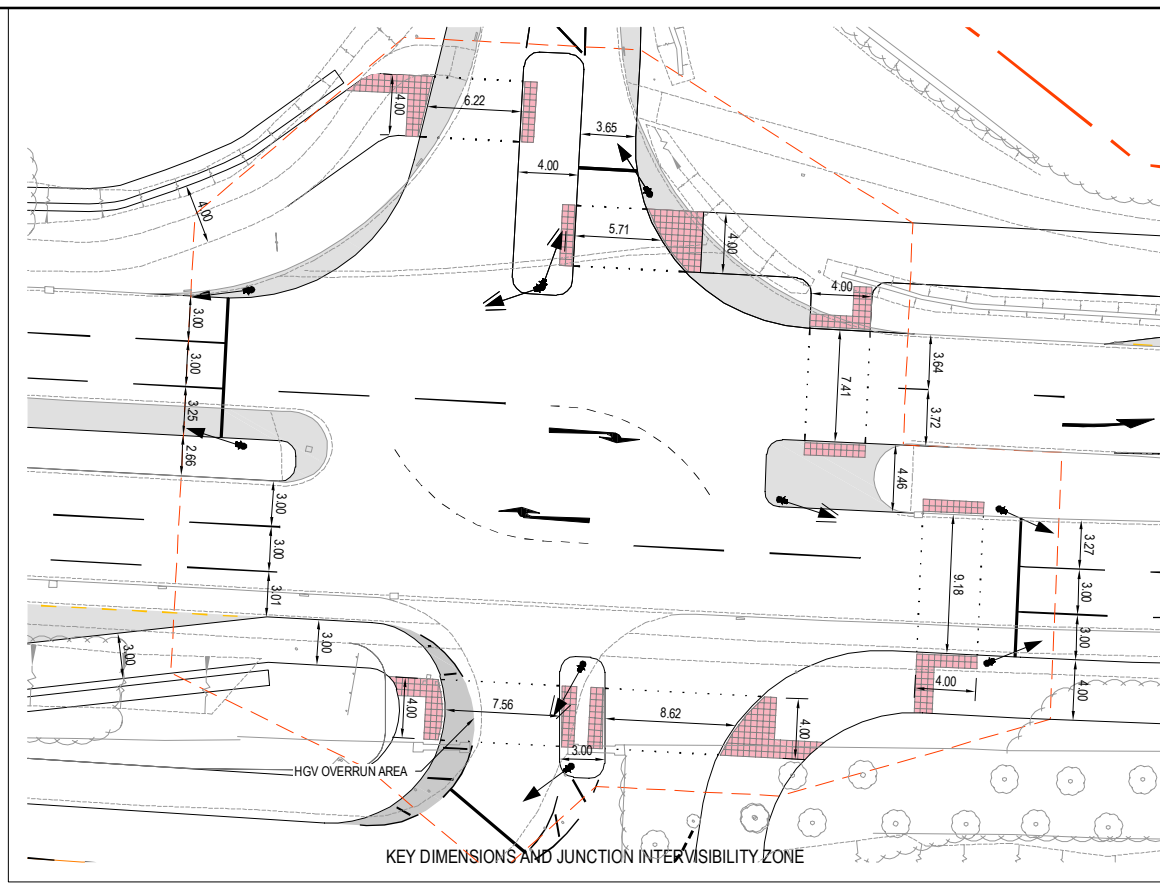
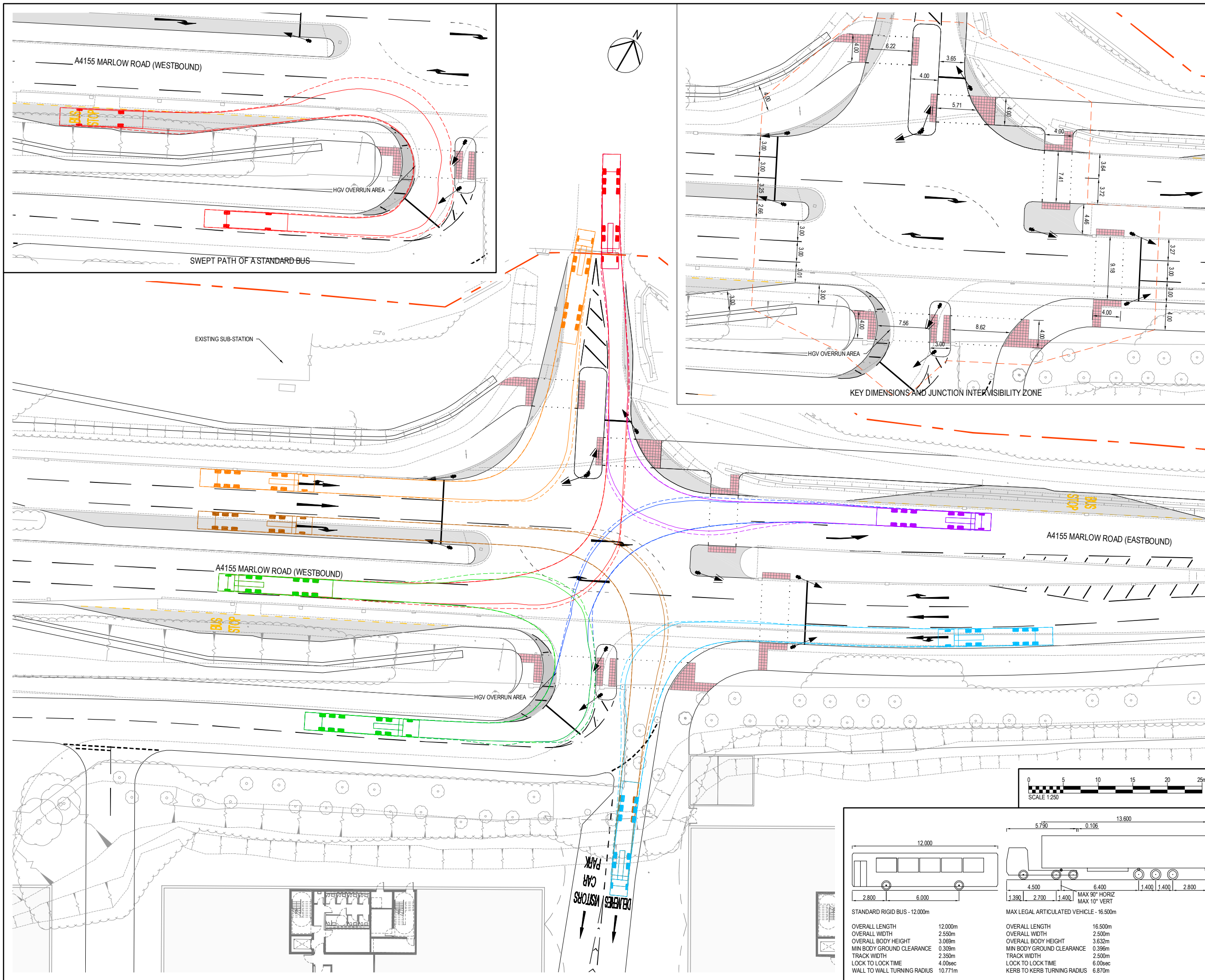
SUITABILITY

PROJECT NUMBER
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SHEET TITLE
 CONCEPTUAL JUNCTION
 ARRANGEMENT
 OPTION 2

SHEET NUMBER
 60654980-ACM-XX-XX-DR-HW-000003

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- KEY**
- VEHICLE WHEEL PATH
 - - - VEHICLE BODY OVERHANG PATH
 - - - HIGHWAY BOUNDARY
 - - - JUNCTION INTERVISIBILITY ZONE

ISSUE/REVISION

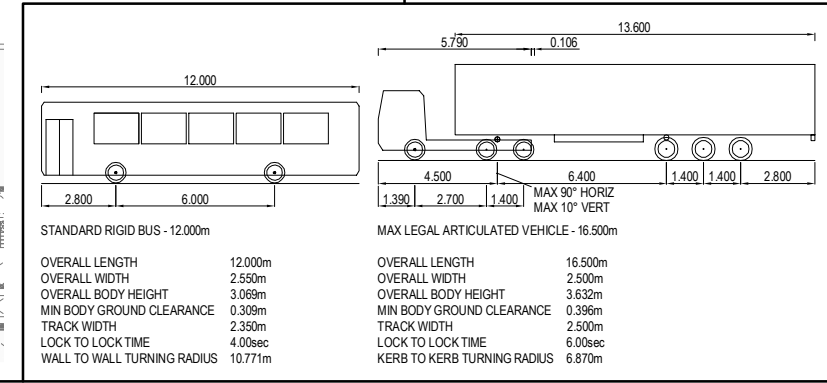
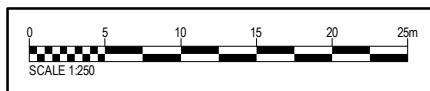
I/R	DATE	DESCRIPTION
P03	16.05.2022	ISSUED FOR PLANNING
P02	07.04.2022	SECOND ISSUE
P01	08.02.2022	FIRST ISSUE

SUITABILITY

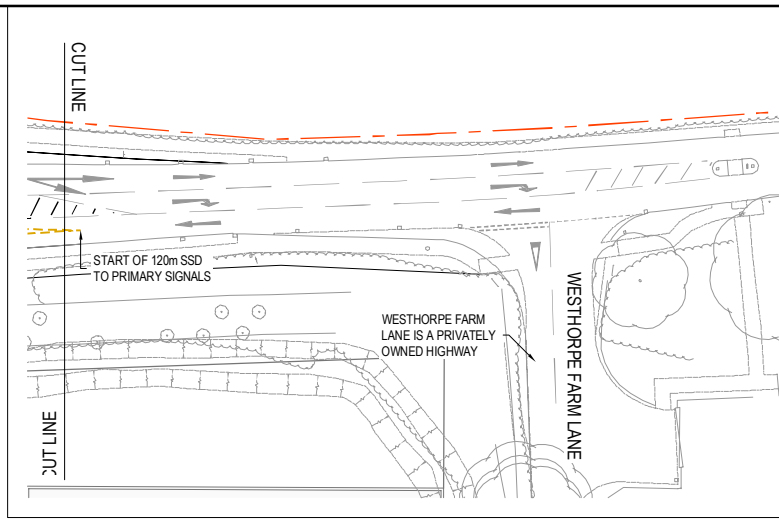
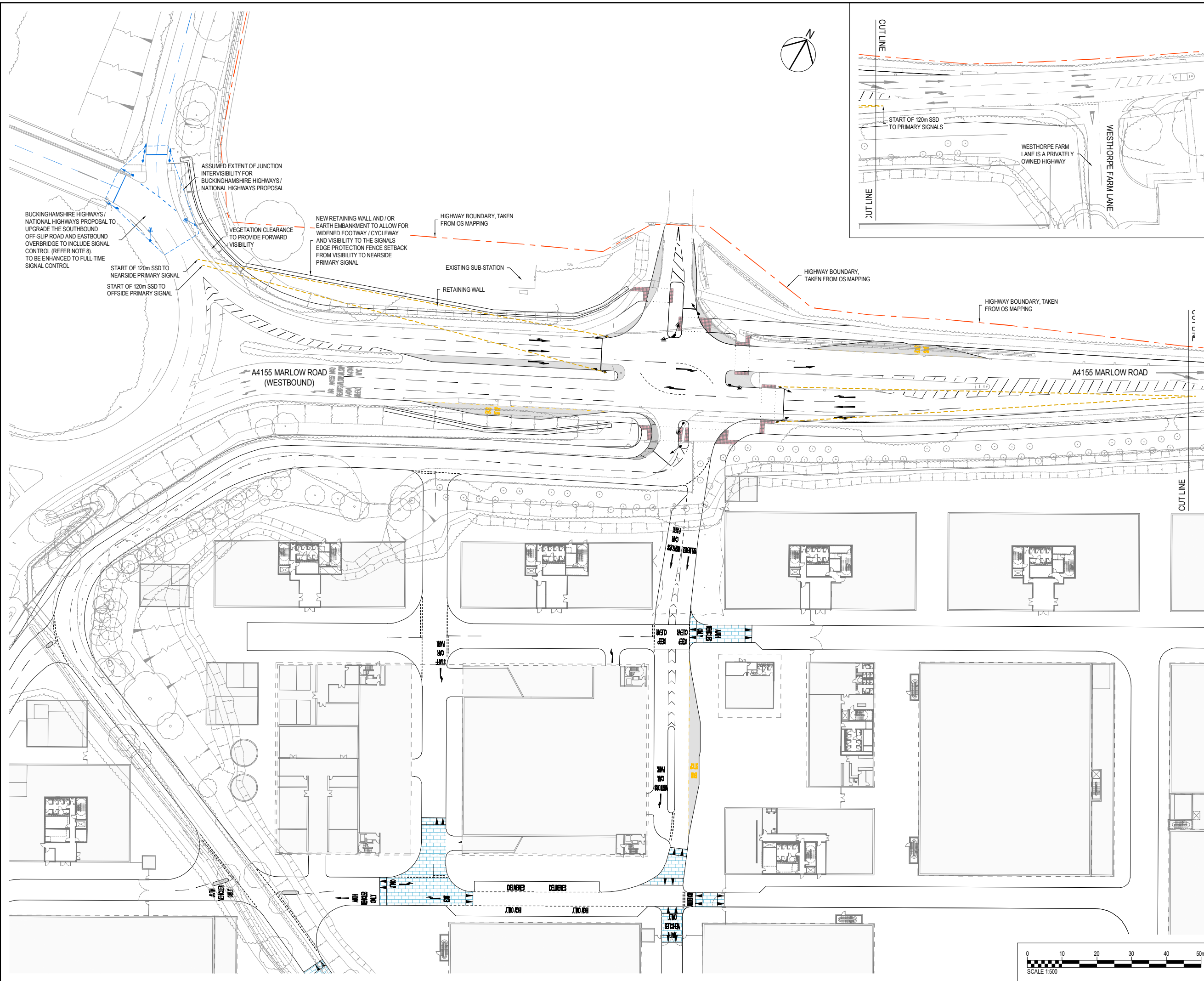
PROJECT NUMBER
 60654980

SHEET TITLE
 CONCEPTUAL JUNCTION
 ARRANGEMENT, OPTION 2
 SWEEP PATH ANALYSIS

SHEET NUMBER
 60654980-ACM-XX-XX-DR-HW-00004



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AECOM

PROJECT
 Marlow Film Studios

CLIENT
 Dido Property Limited

CONSULTANT
 AECOM Limited
 Midpoint, Alencon Link,
 Basingstoke, Hampshire, RG21 7PP
 +44 (0)1256 824 500 tel
 www.aecom.com

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KEY

- HIGHWAY BOUNDARY
- - - 120m SSD TO PRIMARY SIGNAL (NOTE 7)

ISSUE/REVISION

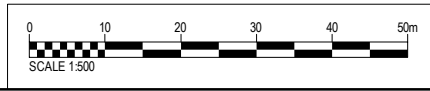
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P02	16.05.2022	ISSUED FOR PLANNING
P01	07.04.2022	FIRST ISSUE
I/R	DATE	DESCRIPTION

SUITABILITY

PROJECT NUMBER
 60654980

SHEET TITLE
 CONCEPTUAL JUNCTION
 ARRANGEMENT, OPTION 2
 VISIBILITY ANALYSIS

SHEET NUMBER
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Appendix C Stage 1 Road Safety Audit, Brief

Document Number	Document Title	Revision
60654980-ACM-XX-XX-RP-HW-000001	Marlow Studio Project, Stage 1 Road Safety Audit, Brief	P01

Marlow Studio Project

Stage 1 Road Safety Audit, Brief

Dido Property Limited

Project number: 60654980
60654980-ACM-XX-XX-RP-HW-000001

11 February 2022

Quality information

<u>Prepared by</u>	<u>Checked by</u>	<u>Verified by</u>	<u>Approved by</u>
Neil Tims Principal Engineer	Bryn Milliner Technical Director		Bryn Milliner Technical Director

Revision History

<u>Revision</u>	<u>Revision date</u>	<u>Details</u>	<u>Authorised</u>	<u>Name</u>	<u>Position</u>
P01	11 February 2022	Draft for Comment		B.Milliner	Technical Director

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Prepared for:

Dido Property Limited

Prepared by:

AECOM Limited
Midpoint, Alencon Link
Basingstoke
Hampshire RG21 7PP
United Kingdom

T: +44(0)1256 824500
aecom.com

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1. Introduction

AECOM has been commissioned by Dido Property Limited to provide selected engineering and sustainability advice to support development of a masterplan and Planning Application of a new film studio proposed to be located on land to the east of Marlow in the jurisdiction of Buckinghamshire Council.

The Stage 1 Road Safety Audit shall be undertaken by the Road Safety Audit Team based in the AECOM Chelmsford office and will address two preliminary designs for a proposed upgraded access junction required on the A4155 Marlow Road to cater for the increased traffic demand. This brief has been prepared by the AECOM Design Team to outline the scheme and detail the documents to be audited by the RSA.

The Audit Team will comprise Mark Watson and Chris Burlton, with the audit scheduled to take place during the daytime of week commencing 14 February 2022.

1.1 Purpose of the Scheme

The proposed Marlow Studio development is expected to comprises a new film studio providing up to 1 million sq.ft of floorspace (including sound stages, backlots, workshops, offices, public and private amenities, a cultural and skills academy, storage and ancillary backlot uses), with associated circulation and service floorspace, parking and landscaping. A copy of the concept masterplan for the proposed development is show in Figure 1-1.



Figure 1-1: Marlow Studio Masterplan (Aerial image Google Maps, © 2022 Google)

The proposed Marlow Studio development site hereafter referred to as 'the Site' covers an area of approximately 34 ha and is located at National Grid Reference SU865874, refer to Figure 1-2 below.



Figure 1-2: Site Location (Aerial image Google Maps, © 2022 Google)

The Site is bounded to the north by the A4155 Marlow Road, the west by the A404 and the associated slip road from the grade separated interchange at the north west corner of the site, Westhorpe Farm Lane to the east and a combination of an existing access road to the Crowne Plaza Hotel (Fieldhouse Lane) and existing lakes to the south.

Westhorpe House is located close to the centre of the Site, which is an existing residential caravan park towards the south east corner. These developments are served by an existing access road, which joins the A4155 midway along the northern Site boundary, turning west towards the north west corner of the site, before crossing the Site in a south easterly direction. This existing access road is to be retained on the current alignment, which therefore forms a constraint to the proposed development.

1.2 Road Safety Audit Brief

The Stage 1 Road Safety Audit shall be conducted in accordance with GG 119 Road Safety Audit (which has superseded Design Manual for Roads & Bridges (DMRB) standard HD 19/15).

2. Project Summary

Table 2-1: Project Details

Date:	11 February 2022
Document Reference and Revision:	60654980-ACM-XX-XX-RP-HW-000001 P01
Prepared By:	AECOM Limited
On Behalf of:	Dido Property Limited

Table 2-2: Authorisation Sheet

Project:	Marlow Studio Project
Report Title:	Stage 1 Road Safety Audit, Brief
Prepared By:	
Name:	Bryn Milliner
Signed:	
Organisation:	AECOM Limited
Date:	11 February 2022
I APPROVE THE RSA BRIEF AND INSTRUCT THE RSA TO TAKE PLACE ON BEHALF OF THE OVERSEEING ORGANISATION	
Name:	
Signed:	
Organisation:	Buckinghamshire Highways
Date:	

3. General Details

Table 3-1: General Details

Highway Improvement Scheme Name and Road Number:	Marlow Studio Project Comprising an upgraded junction on the A4155 Marlow Road with Pump Lane South and the existing access to Westhorpe House.			
Type of Scheme	Highway scheme to compliment Marlow Studio Project, comprising of a new signal-controlled junction and footway improvements on the A4155 Marlow Road.			
Road Safety Audit Stage	1 ✓	2	3	4
	Interim			
Overseeing Organisation Project Sponsor Details	Design Organisation Details			
Buckinghamshire Highways Walton Street Offices, Walton Street, Aylesbury, Buckinghamshire, HP20 1UA	AECOM Ltd Midpoint Alencon Link Basingstoke Hampshire RG21 7PP			
Police Contact Details Not required for this Stage.	Maintaining Agent Contact Details Not required.			
Road Safety Audit Team Membership				
AECOM Infrastructure and Environment Ltd Saxon House 27 Duke Street Chelmsford, CM1 1HT United Kingdom				
Attendee	Company	Role	Daytime	Night-time
Mark Watson	AECOM	Audit Team Leader	Yes	No
Chris Burlton	AECOM	Audit Team Member	Yes	No
Notes				
<ul style="list-style-type: none"> Audit Team CVs are included in Appendix D. 				
Terms of Reference				
The Road Safety Appraisal is to be undertaken based on the DMRB Standard GG 119 for a Stage 1 Road Safety Audit, as well as the contents of this Road Safety Audit Brief (document reference: 60654980-ACM-XX-XX-RP-HW-000001).				

4. Scheme Details

Table 4-1: Scheme Description / Objective

General

For a general description and objective of the scheme, refer to Section 1.1.

A summary of the key proposed highway works is described below:

- Upgrading of the existing priority crossroad on the A4155 Marlow Road with Pump Lane South (north arm) and Westhorpe House (south arm) to instal a signal-control junction.
- Widening (where feasible) the existing northern shared use footpath / cycleway from the A404 Westhorpe Interchange southbound off-slip road to Westhorpe Farm Lane.
- Widening the existing southern footway between the A404 Westhorpe Interchange southbound on-slip road and the upgraded junction.
- Widening the existing southern footway between the upgraded junction and Westhorpe Farm Lane and re-designating to shared use.
- Two new shared use crossings within the new signal-controlled junction, one across the A4155 Marlow Road on the eastern side of the junction and one across the Pump Lane South arm.
- A new pedestrian crossing within the new signal-controlled junction across the studio entrance arm.
- New road markings and traffic signs to suit the new layout.
- Modifications to the highway drainage networks to suit the new highway alignments.
- Existing utility/service chambers and covers amended to suit new pavement levels and diversion of utilities where adversely affected by the proposed works.

Design Standards Applied to the Scheme Design

Design Manual for Roads and Bridges (DMRB)

- CD 123 – Geometric Design of At-Grade Priority and Signal Controlled Junctions
- CD 143 – Designing for Walking, Cycling and Horse Riding
- CD 239 – Footway and Cycleway Pavement Design

Other

- LTN 1/95 – Assessment of Pedestrian Crossings
- LTN 2/95 – Design of Pedestrian Crossings
- LTN 1/20 – Cycle Infrastructure Design
- Manual for Streets
- Manual for Street 2
- Traffic Signs Regulations and General Directions
- Traffic Signs Manual
- DfT Publication – Guidance on the Use of Tactile Paving Surfaces
- DfT Publication – Inclusive Mobility

Design Speeds

The existing speed limit for the A4155 Marlow Road is national (60mph) from western side of the A404 Westhorpe Interchange to approximately 110m west of the A4155 Marlow Road junction with Church Road. The design speed has been considered as 64kph (40 mph).

Speed Limits (state whether mandatory or advisory)

The existing speed limit for the A4155 Marlow Road is national (60mph) from western side of the A404 Westhorpe Interchange to approximately 110m west of the A4155 Marlow Road junction with Church Road.

An application to Buckinghamshire Highways will be made to reduce the existing speed limit to 40mph supported by the introduction of repeater signs in appropriate locations. A TRO will need to be enacted to coincide with the completion of the highway works.

Existing Traffic Flows/Queues

The existing traffic flows are currently being determined between the Transport Consultant and Buckinghamshire Highways. Therefore, at this time it is not possible to provide this information.

Forecast Traffic Flows

The forecast traffic flows are currently being determined between the Transport Consultant and Buckinghamshire Highways. Therefore, at this time it is not possible to provide this information.

Non-Motorised User (NMU) Desire Line

A separate NMU Audit has not been undertaken at this time.

Environmental Constraints

To the north of the A4155 Marlow Road sits the Chiltern Hills Area of Outstanding Natural Beauty (AONB). This AONB extends to the existing northern kerb line of the A4155 Marlow Road and as such the conceptual designs have sought to retain the existing kerb line so to limit impact on the AONB.

There are also a number of popular trees along the northern edge of the Site which the scheme would like to minimise impact on.

5. Description of Locality

Table 5-1: Description of Locality

Description of Locality

Refer to Section 1.1.

General Description

The A4155 Marlow Road is a rural road leaving the A404 Westhorpe Interchange and Marlow to the west, travelling to the town of Bourne End. No individual properties join the A4155 Marlow Road in the vicinity of the proposed upgraded junction.

The existing Westhorpe House access road is a privately owned 'driveway' allowing access for residents of Westhorpe House and the Westhorpe Park Homes.

Pump Lane South is a privately owned road, providing public access to a Wyevale Garden Centre. There are also some private residential properties and a small industrial unit.

Relevant Factors which may affect Road Safety

With the introduction of the Marlow Studio development, increased traffic will be a consequence however, the scheme will seek to partially mitigate this impact through the introduction of sustainable travel measures which are still being developed by the Transport Consultant.

As noted in Section 4, the existing and forecast traffic flows are still being developed. As such, at this time we are not able to determine whether any improvements to the wider highway network are required to mitigate for the traffic increase as a consequence of the development.

Buckinghamshire Highways, in consultation with National Highways, are promoting a scheme to partially signalise the existing A404 Westhorpe Interchange. This scheme will provide signal control to the top of both off-slip roads and the overbridge carriageway at those locations. In addition, a dedicated slip road will be constructed from the A404 northbound off-slip onto Parkway. The latest scheme drawings for this proposal are included in Appendix C and the full details can be found at <https://buckinghamshire.moderngov.co.uk/ieDecisionDetails.aspx?ID=471>. The concept junction designs submitted for this Stage 1 Road Safety Audit anticipate that this scheme will be completed and the signals from the Marlow Studio junction can be integrated with the A404 Westhorpe Interchange signals to respond to live traffic flows. In the case that the A404 Westhorpe Interchange signals scheme is not brought forward, it is anticipated that the current junction designs would still be valid however, further modelling of the proposed signals will be required.

The existing cycle route from Marlow travelling eastbound is currently located across the northern side of the northern A404 Westhorpe Interchange overbridge. However, existing signage tells cyclists to dismount when crossing the overbridge to a low bridge parapet. The concept junction designs include a proposal to replace this existing bridge parapet with a compliant parapet to allow cyclists resume cycling over the overbridge.

6. Analysis

Table 6-1: Analysis

Collision Data Analysis

Summary of Personal Injury Collision Data

Based on report from CrashMap Pro, there were two slight injury accidents between the A404 Westhorpe Interchange and Westhorpe Farm Lane, with a single serious injury accident

- 26 July 2016: A4155 Marlow Road at the junction with the A404 Westhorpe Interchange. The severity was recorded as serious. Two vehicles were reported as involved, with a single casualty.
- 17 December 2017: A4155 Marlow Road junction with Pump Lane South and Westhorpe House. The severity was recorded as slight. Two vehicles were reported as involved, with four casualties, one of which was a child.
- 11 April 2018: A4155 Marlow Road junction with Westhorpe Farm Lane. The severity was recorded as slight. Two vehicles were reported as involved, with a single casualty.

Personal Injury Collision Details

Details of the accidents described above can be found in Appendix B of this document with a reproduction of the mapping output from CrashMap Pro.

Departures and Relaxations from Standard

General

The proposed scheme has no known Departures from Standard or Relaxations at this stage of the design.

Departure from Standards

None identified at this stage.

Previous Road Safety Audit Reports, Road Safety Audit Response Reports and Exception Reports

Stage 1

There have been no Road Safety Audits undertaken at this time for this road.

Exception Reports

No Exception Reports have been prepared in relation to the proposed scheme.

Strategic Decisions

General

It has been assumed that the Buckinghamshire Highways / National Highways scheme to partially signalise the existing A404 Westhorpe Interchange will be constructed.

It has been assumed that the existing speed limit on the A4155 Marlow Road can be reduced to 40mph.

It has been assumed that the future traffic forecast and modelling will identify that a signal-controlled junction is acceptable for the new Marlow Studio access.

It has been assumed that no other development is proposed in the immediate vicinity (for instance, along Pump Lane South) that would impact on the conceptual junction designs.

7. Documents and Drawings

Table 7-1: List of Included Documents

Reference	Title	Date
-	Five-Year PIA Data – Site Access	27.01.2022

Table 7-2: List of Included Drawings

Reference	Drawing Title	Revision
60654980-ACM-XX-XX-DR-HW-000001	Conceptual Junction Arrangement, Option 1	P01
60654980-ACM-XX-XX-DR-HW-000002	Conceptual Junction Arrangement, Option 1, Swept Path Analysis	P01
60654980-ACM-XX-XX-DR-HW-000003	Conceptual Junction Arrangement, Option 2	P01
60654980-ACM-XX-XX-DR-HW-000004	Conceptual Junction Arrangement, Option 2, Swept Path Analysis	P01

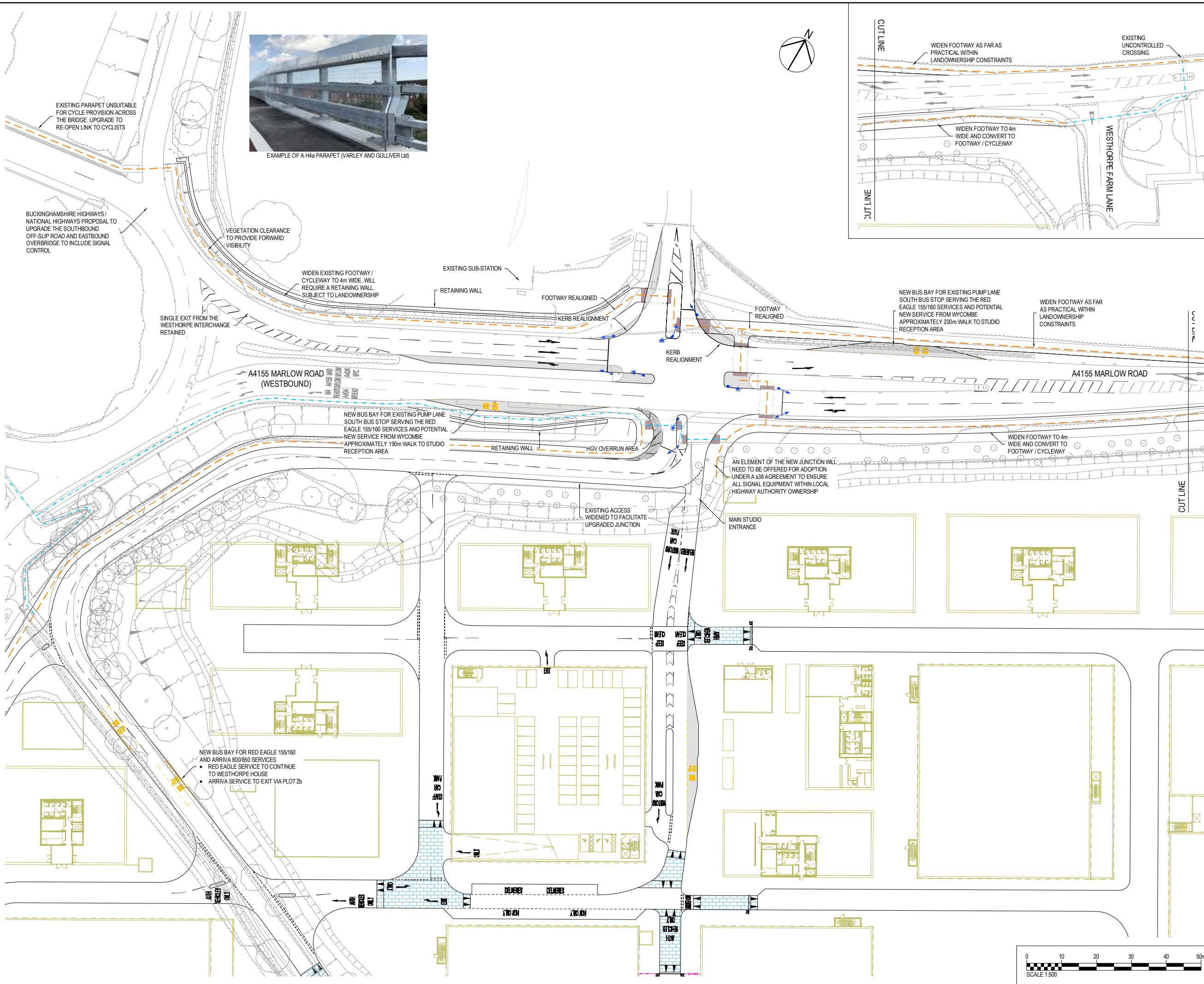
8. Checklist

Table 8-1: Checklist

Item	Included
Road Safety Audit Brief including description of scheme objectives	✓
Scale Layout Plans	✓
Previous Road Safety Audit Reports	No data available
Road Safety Audit Exception Reports	None required
Traffic Signal staging	No data available
Personal Injury Collision plot	✓
Speed surveys	No data available
NMU Context and Audit Report	No NMU reports produced
Other factors that may impact on road safety	✓
Design Standards used	✓
Site Location Plan	✓
Construction/typical details	No data available
Previous Road Safety Audit Response Reports	No data available
Departures and Relaxations from Standards	None on the Scheme
Personal Injury Collision data	✓
Traffic counts	No data available
NMU desire lines and volumes	No data available
Items outside the scope of the RSA/strategic decisions	✓
Design speeds/speed limits	✓
Adjacent land uses	No data available

Appendix A Drawings

Reference	Drawing Title	Revision
60654980-ACM-XX-XX-DR-HW-000001	Conceptual Junction Arrangement, Option 1	P01
60654980-ACM-XX-XX-DR-HW-000002	Conceptual Junction Arrangement, Option 1, Swept Path Analysis	P01
60654980-ACM-XX-XX-DR-HW-000003	Conceptual Junction Arrangement, Option 2	P01
60654980-ACM-XX-XX-DR-HW-000004	Conceptual Junction Arrangement, Option 2, Swept Path Analysis	P01



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- KEY**
- PEDESTRIAN ROUTE
 - PEDESTRIAN AND CYCLE ROUTE

ISSUE/REVISION

NO	DATE	DESCRIPTION
P01	08.02.2022	FIRST ISSUE
I/R	DATE	DESCRIPTION

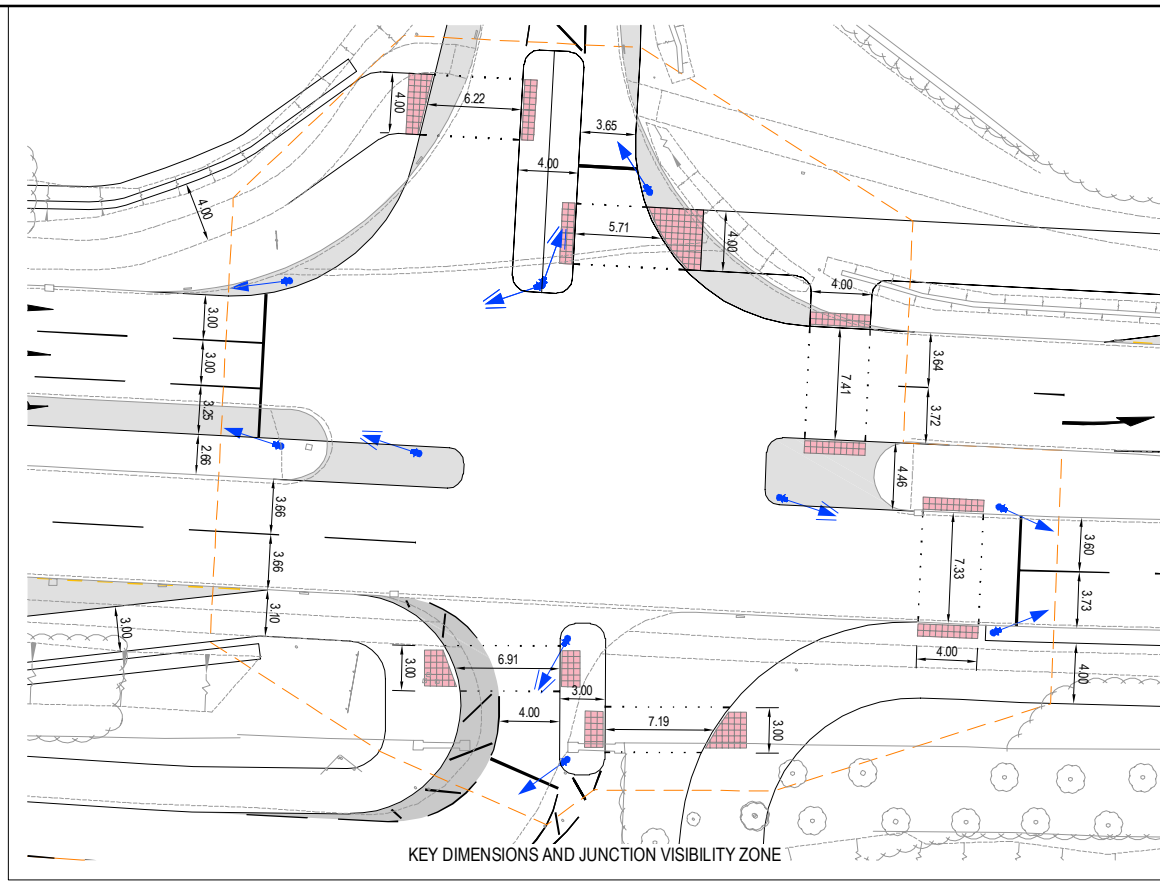
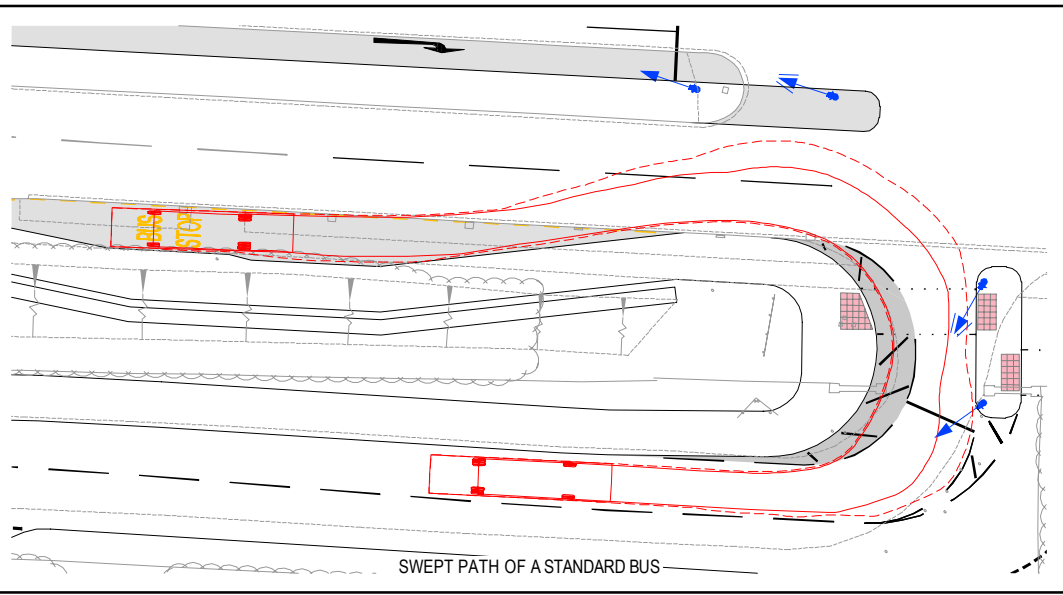
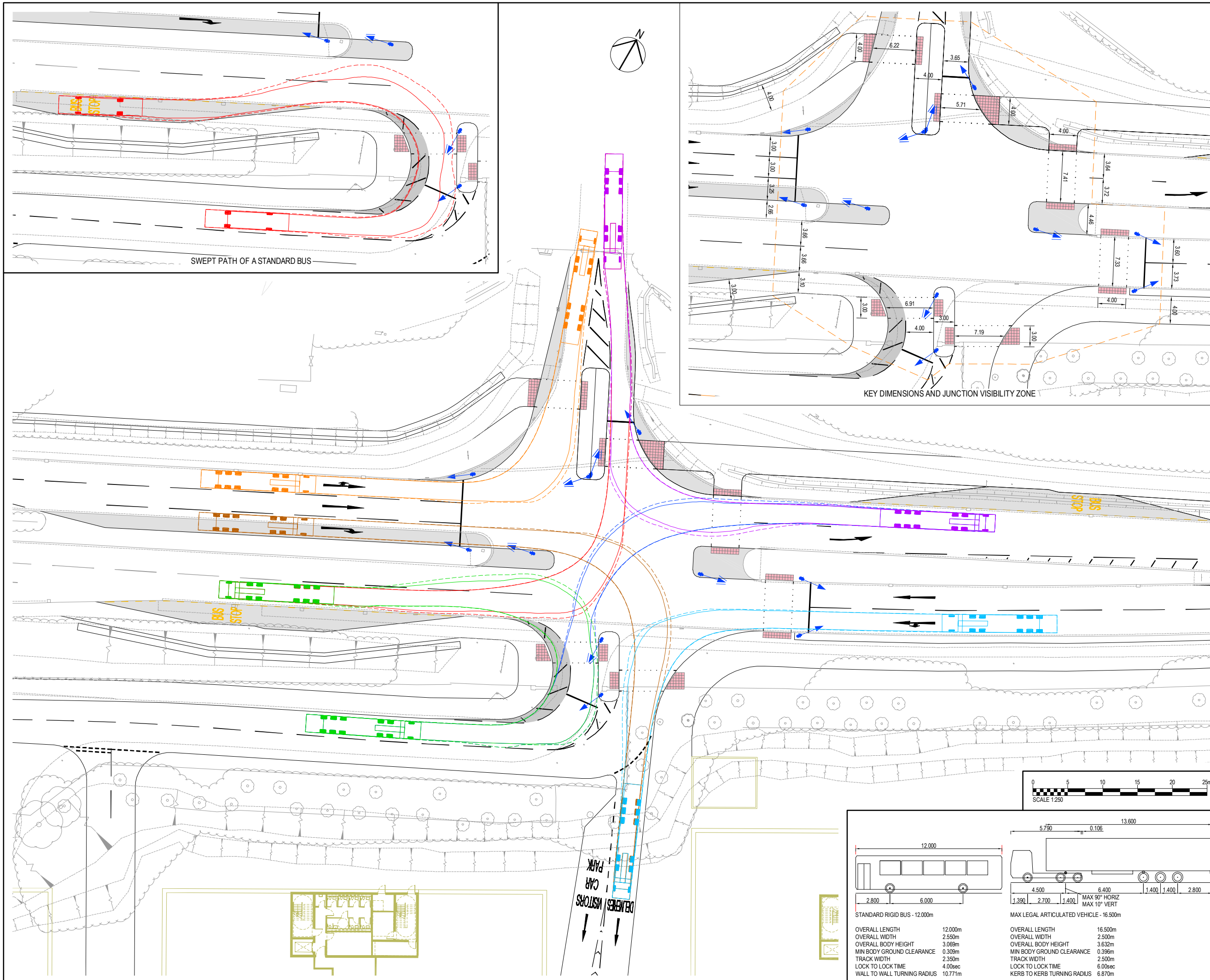
SUITABILITY

PROJECT NUMBER
60654980

SHEET TITLE
CONCEPTUAL JUNCTION ARRANGEMENT
OPTION 1

SHEET NUMBER
60654980-ACM-XX-XX-DR-HW-00001

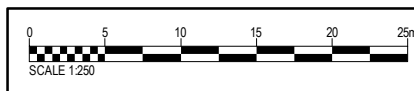
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 3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
 4. DO NOT SCALE THIS DRAWING.
 5. THIS CONCEPT PROPOSAL IS PREPARED FOR THE PURPOSE OF PROJECT CONSULTATION AND A STAGE 1 ROAD SAFETY AUDIT.
 6. THE USE OF HIGH FRICTION SURFACING WILL BE DETERMINED IN CONSULTATION WITH BUCKINGHAMSHIRE HIGHWAYS DURING THE DETAILED DESIGN.

KEY

	VEHICLE WHEEL PATH
	VEHICLE BODY OVERHANG PATH



<p>STANDARD RIGID BUS - 12,000m</p>		<p>MAX LEGAL ARTICULATED VEHICLE - 16,500m</p>	
OVERALL LENGTH	12,000m	OVERALL LENGTH	16,500m
OVERALL WIDTH	2,550m	OVERALL WIDTH	2,500m
OVERALL BODY HEIGHT	3,069m	OVERALL BODY HEIGHT	3,632m
MIN BODY GROUND CLEARANCE	0,309m	MIN BODY GROUND CLEARANCE	0,396m
TRACK WIDTH	2,350m	TRACK WIDTH	2,500m
LOCK TO LOCK TIME	4,00sec	LOCK TO LOCK TIME	6,00sec
WALL TO WALL TURNING RADIUS	10,771m	KERB TO KERB TURNING RADIUS	6,870m

ISSUE/REVISION

NO	DATE	DESCRIPTION
P01	08.02.2022	FIRST ISSUE
I/R	DATE	DESCRIPTION

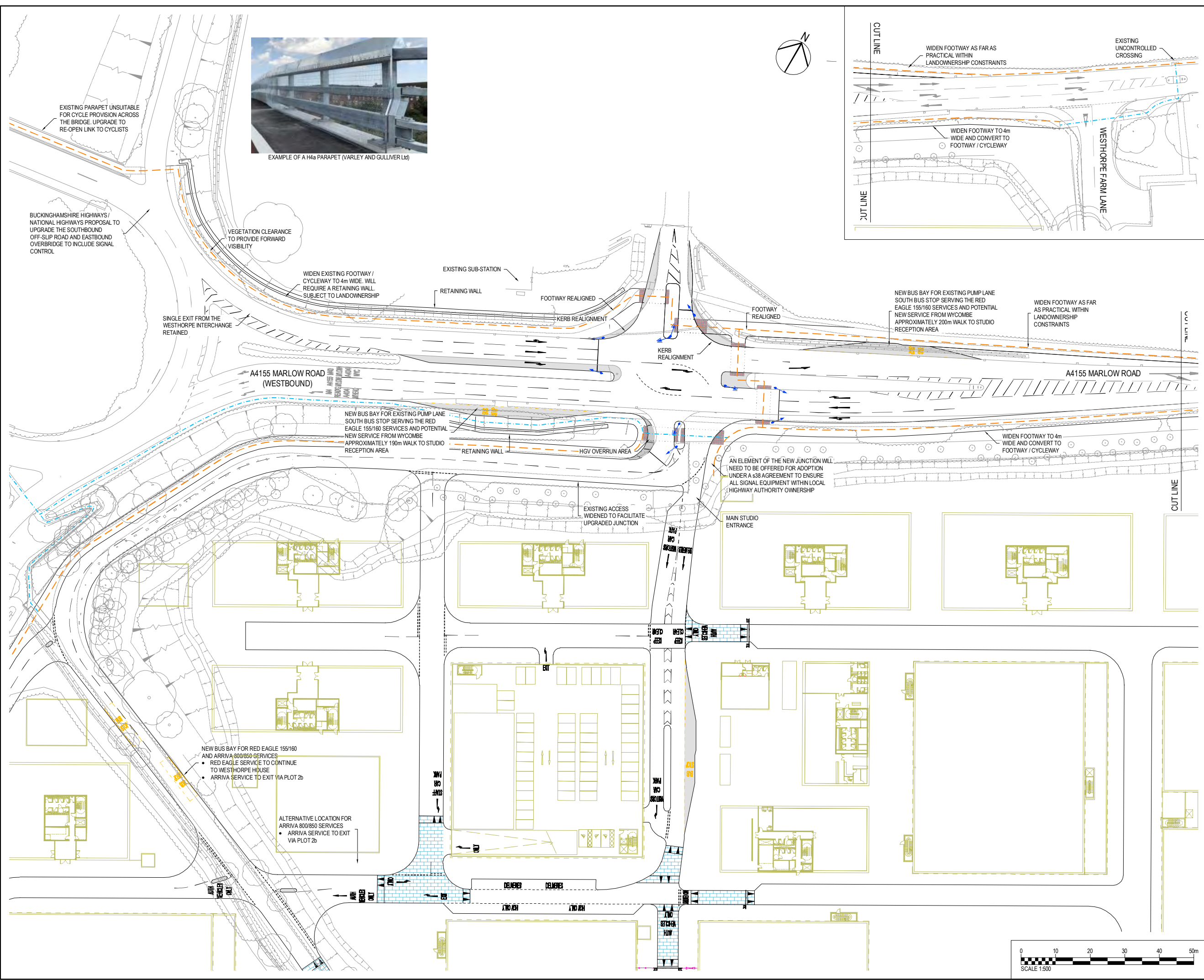
SUITABILITY

PROJECT NUMBER
60654980

SHEET TITLE
CONCEPTUAL JUNCTION
ARRANGEMENT, OPTION 1
SWEEP PATH ANALYSIS

SHEET NUMBER
60654980-ACM-XX-XX-DR-HW-000002

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ISSUE/REVISION

NO	DATE	DESCRIPTION
P01	08.02.2022	FIRST ISSUE
I/R	DATE	DESCRIPTION

SUITABILITY

PROJECT NUMBER

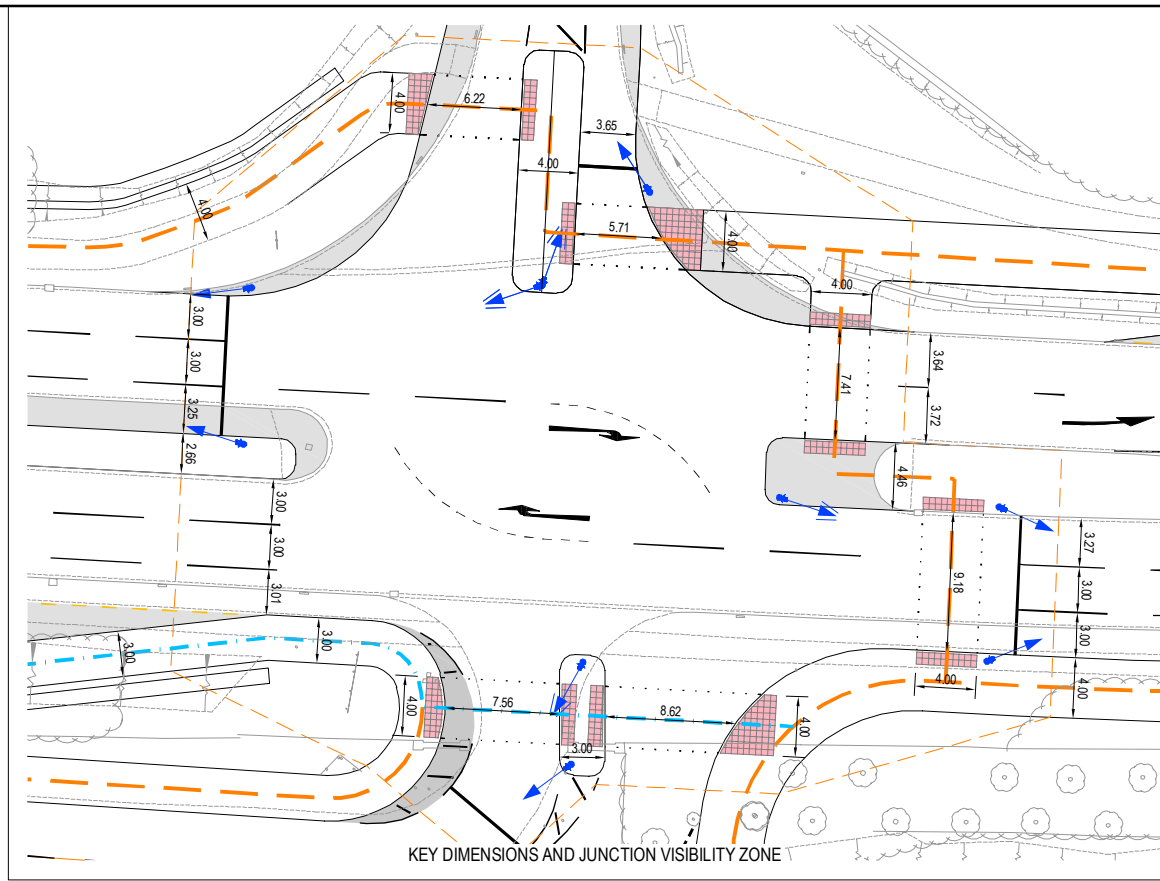
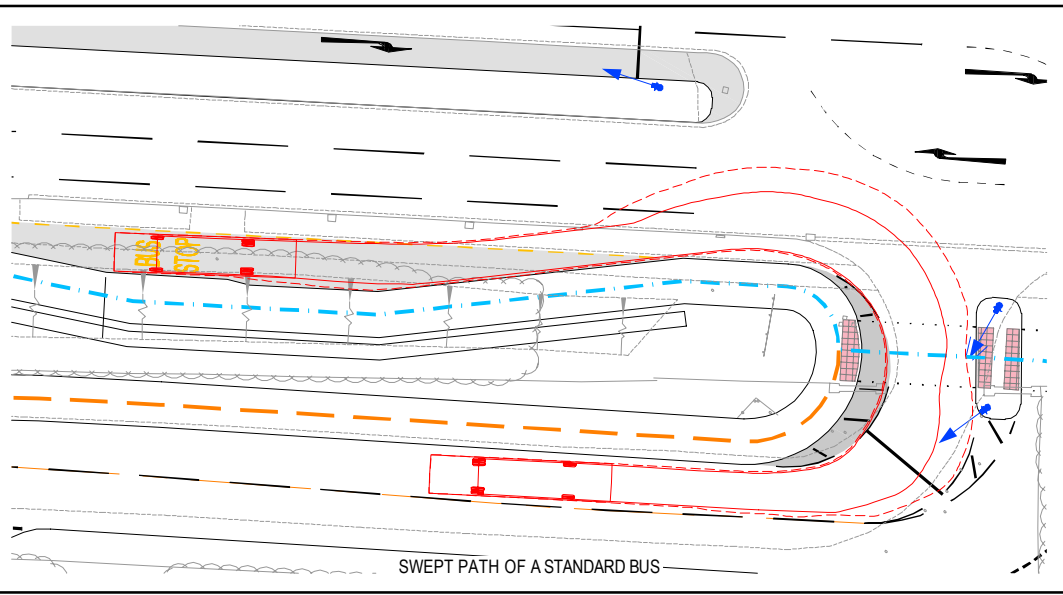
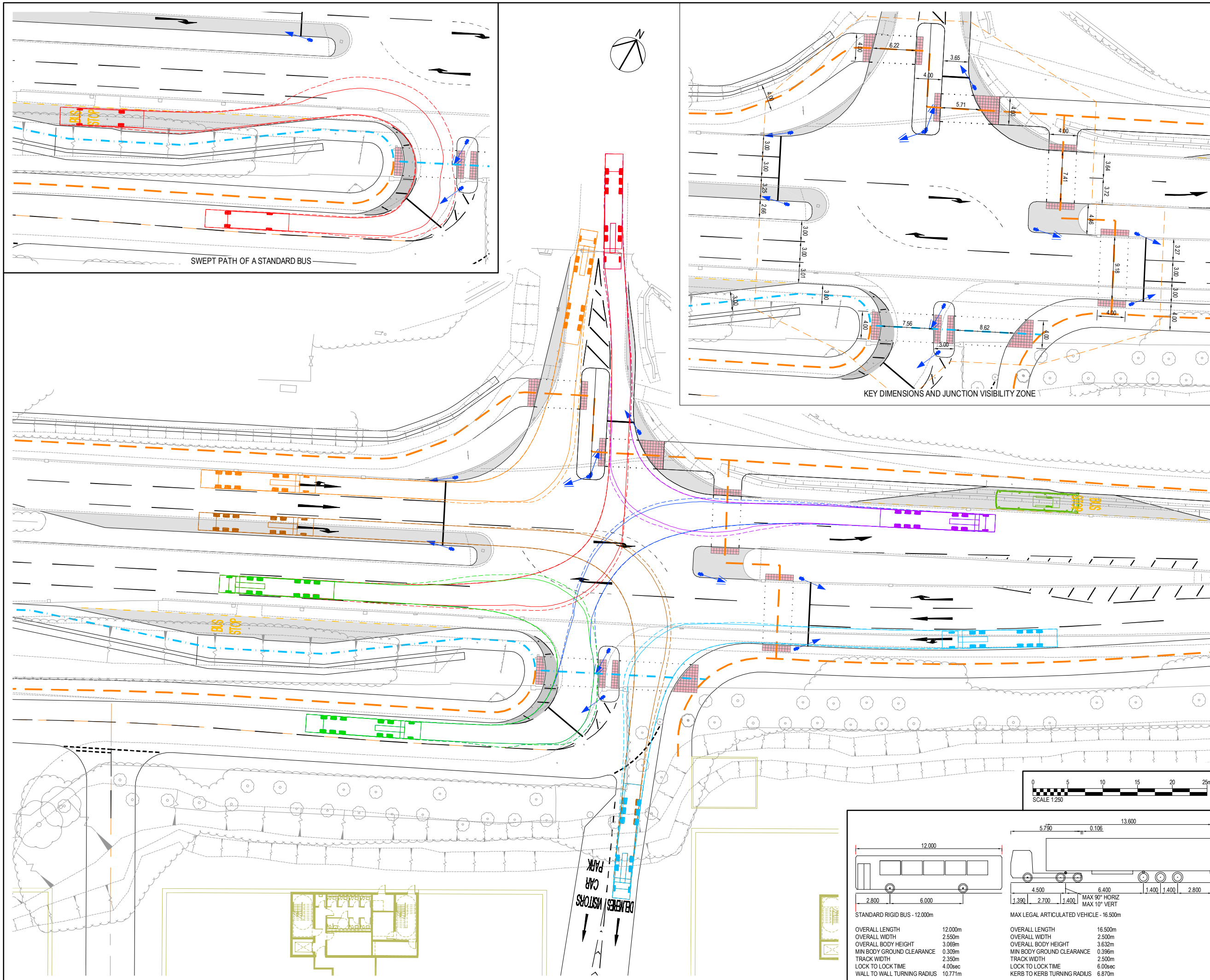
60654980

SHEET TITLE

CONCEPTUAL JUNCTION ARRANGEMENT OPTION 2

SHEET NUMBER

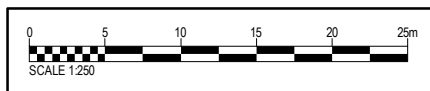
60654980-ACM-XX-XX-DR-HW-000003



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 2. ANY DISCREPANCIES IN DIMENSIONS OR DETAILS ON OR BETWEEN THESE DRAWINGS SHOULD BE DRAWN TO THE ATTENTION OF THE ARCHITECT AND/OR THE ENGINEER FOR CLARIFICATION.
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 6. THE USE OF HIGH FRICTION SURFACING WILL BE DETERMINED IN CONSULTATION WITH BUCKINGHAMSHIRE HIGHWAYS DURING THE DETAILED DESIGN.

KEY

	VEHICLE WHEEL PATH
	VEHICLE BODY OVERHANG PATH



	12,000	5,790	0,106	13,600
STANDARD RIGID BUS - 12,000m				
OVERALL LENGTH	12,000m	OVERALL LENGTH	16,500m	
OVERALL WIDTH	2,550m	OVERALL WIDTH	2,500m	
OVERALL BODY HEIGHT	3,069m	OVERALL BODY HEIGHT	3,632m	
MIN BODY GROUND CLEARANCE	0,309m	MIN BODY GROUND CLEARANCE	0,396m	
TRACK WIDTH	2,350m	TRACK WIDTH	2,500m	
LOCK TO LOCK TIME	4,00sec	LOCK TO LOCK TIME	6,00sec	
WALL TO WALL TURNING RADIUS	10,771m	KERB TO KERB TURNING RADIUS	6,870m	

ISSUE/REVISION

NO	DATE	DESCRIPTION
P01	08.02.2022	FIRST ISSUE
I/R		

SUITABILITY

PROJECT NUMBER
 60654980

SHEET TITLE
 CONCEPTUAL JUNCTION ARRANGEMENT, OPTION 2 SWEEP PATH ANALYSIS

SHEET NUMBER
 60654980-ACM-XX-XX-DR-HW-000004

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Appendix B Accident Data

Reference	Title	Date
-	Five-Year PIA Data – Site Access	27.01.2022

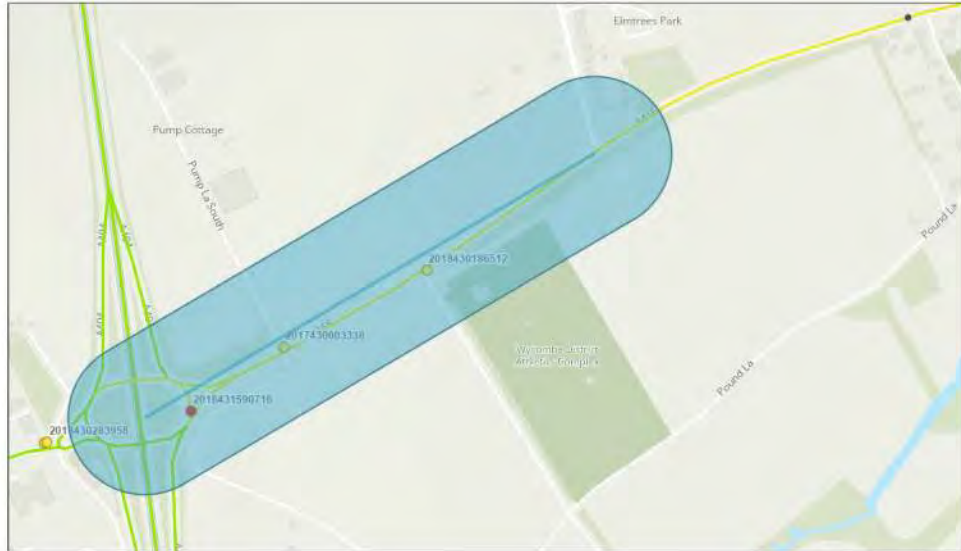


Marlow Studio Project

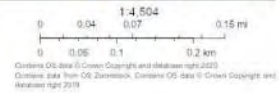
Area of Interest (AOI) Information

Area : 167,858.65 m²

Jan 27 2022 9:00:39 Greenwich Mean Time



Crashes	RSF EuroRAP Risk Rating 2021
Slight	Green
Serious	Yellow



Summary

Name	Count	Area(m ²)	Length(m)
Crashes	3	N/A	N/A

Crashes

#	Carriageway_Hazards	Severity	Officer_Attended	Accident_DateTime	Year	Number_of_vehicles	Number_of_casualties	Easting
1	None	Slight	Police officer attended crash scene	December 17, 2017	2017	2	4	486423
2	None	Slight	Police officer attended crash scene	April 11, 2018	2018	2	1	486610
3	None	Serious	No officer attended crash scene	July 26, 2016	2016	2	1	486302

#	Northing	Highway_Authority	Road_Number	Weather_conditions	Road_Type	Road_surface	Speed_Limit	Light_conditions
1	187749	Buckinghamshire	A4155	Raining without high winds	Dual carriageway	Wet or Damp	60	Daylight: regardless of presence of streetlights
2	187849	Buckinghamshire	A4155	Fine without high winds	Single carriageway	Dry	60	Daylight: regardless of presence of streetlights
3	187665	Buckinghamshire	A404	Fine without high winds	Roundabout	Dry	60	Daylight: regardless of presence of streetlights

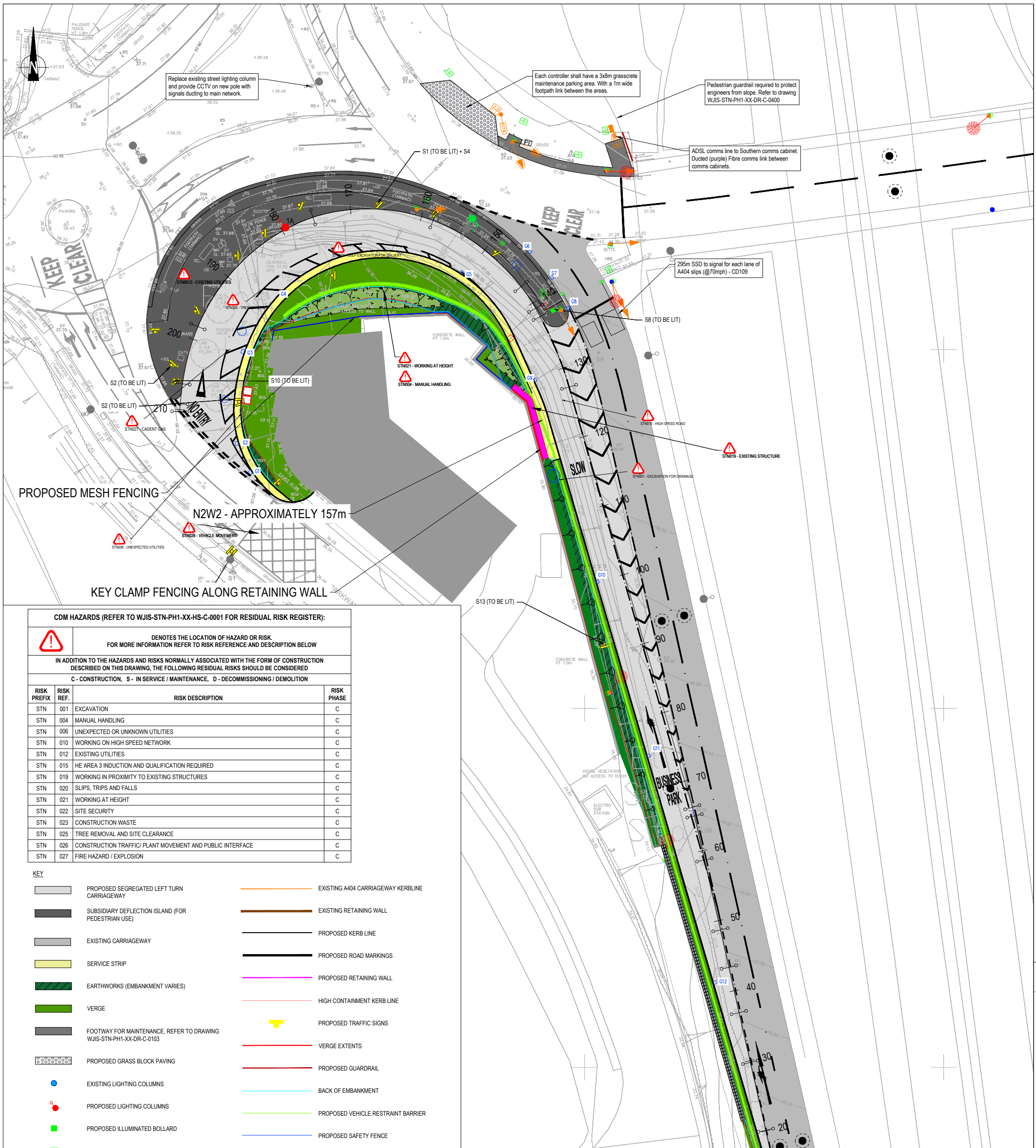
#	Junction_detail	Pedestrian_Crossing	Involved_pedalcycle	Involved_Motorcycle	Pedestrian_casualty	Child_casualty	Pedal_cycleuser_casualty	Motorcycle_user_casualty
1	T or staggered junction	No physical crossing facility within 50 metres	0	0	0	1	0	0
2	T or staggered junction	Central refuge - no other controls	0	0	0	0	0	0
3	Roundabout	No physical crossing facility within 50 metres	0	0	0	0	0	0

#	Involved_car	Involved_goodsvehicle	Involved_Bus	Involved_young_driver	Local_Authority_District	Junction_control	Is_Provisional	Is_Amended	Web_Link	Count
1	1	0	0	0	Wycombe District	Give way or uncontrolled	No	No	https://www.crashmap.co.uk/reports/prereportservice?reportId=2017430003338	1
2	1	0	0	1	Wycombe District	Give way or uncontrolled	No	No	https://www.crashmap.co.uk/reports/prereportservice?reportId=2018430186512	1
3	1	0	0	1	Wycombe District	Give way or uncontrolled	No	No	https://www.crashmap.co.uk/reports/prereportservice?reportId=2016431590716	1

Report produced from CrashMap Pro

Appendix C Terms of Reference and other Relevant Data

Reference	Drawing Title	Revision
WJIS-STN-PH1-XX-DR-C-0100	A404 / A4155 Westhorpe Junction Improvements, General Arrangement	P03
WJIS-STN-PH1-XX-DR-C-0150	A404 / A4155 Westhorpe Junction Improvements, Southbound off-slip, General Arrangement	P03



CDM HAZARDS (REFER TO WJIS-STN-PH1-XX-HS-C-0001 FOR RESIDUAL RISK REGISTER):

⚠ DENOTES THE LOCATION OF HAZARD OR RISK. FOR MORE INFORMATION REFER TO RISK REFERENCE AND DESCRIPTION BELOW

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE FORM OF CONSTRUCTION DESCRIBED ON THIS DRAWING, THE FOLLOWING RESIDUAL RISKS SHOULD BE CONSIDERED

C - CONSTRUCTION, S - IN SERVICE / MAINTENANCE, D - DECOMMISSIONING / DEMOLITION

RISK PREFIX	RISK REF.	RISK DESCRIPTION	RISK PHASE
STN	001	EXCAVATION	C
STN	004	MANUAL HANDLING	C
STN	006	UNEXPECTED OR UNKNOWN UTILITIES	C
STN	010	WORKING ON HIGH SPEED NETWORK	C
STN	012	EXISTING UTILITIES	C
STN	015	HE AREA 3 INDUCTION AND QUALIFICATION REQUIRED	C
STN	019	WORKING IN PROXIMITY TO EXISTING STRUCTURES	C
STN	020	SLIPS, TRIPS AND FALLS	C
STN	021	WORKING AT HEIGHT	C
STN	022	SITE SECURITY	C
STN	023	CONSTRUCTION WASTE	C
STN	025	TREE REMOVAL AND SITE CLEARANCE	C
STN	026	CONSTRUCTION TRAFFIC/ PLANT MOVEMENT AND PUBLIC INTERFACE	C
STN	027	FIRE HAZARD / EXPLOSION	C

KEY

	PROPOSED SEGREGATED LEFT TURN CARRIAGEWAY		EXISTING A404 CARRIAGEWAY KERBLINES
	SUBSIDIARY DEFLECTION ISLAND (FOR PEDESTRIAN USE)		EXISTING RETAINING WALL
	EXISTING CARRIAGEWAY		PROPOSED KERB LINE
	SERVICE STRIP		PROPOSED ROAD MARKINGS
	EARTHWORKS (EMBANKMENT VARIES)		PROPOSED RETAINING WALL
	VERGE		HIGH CONTAINMENT KERB LINE
	FOOTWAY FOR MAINTENANCE, REFER TO DRAWING WJIS-STN-PH1-XX-DR-C-0103		PROPOSED TRAFFIC SIGNS
	PROPOSED GRASS BLOCK PAVING		VERGE EXTENTS
	EXISTING LIGHTING COLUMNS		PROPOSED GUARDRAIL
	PROPOSED LIGHTING COLUMNS		BACK OF EMBANKMENT
	PROPOSED ILLUMINATED BOLLARD		PROPOSED VEHICLE RESTRAINT BARRIER
	PROPOSED TRAFFIC SIGNALS DRAWPIT		PROPOSED SAFETY FENCE
	PROPOSED VIRGIN MEDIA CHAMBER		GULLIES
	BAGWORK RETAINING WALL		MANHOLES
	SPECIES RICH HEDGE		FILTER DRAIN
	SEMI-NATIVE SHRUB MIX		
	SPECIES RICH GRASS MIX		

KEY (not to scale):

- ELV RAG signal (LED) - refer to Pole Schedule
- 114 dia passively safe pole with low level terminations - refer to Pole Schedule
- NAL Retention Socket - refer to Pole Schedule
- PE cell
- ELV Junction Controller (on NAL cabinet base), a 600x600mm drawpit, an electric feeder pillar and a comms cabinet - all located on a level hard standing area
- NAL STAKAbox drawpit - 450x450mm
- Clearview M110 Access Point
- Clearview M100 Magnetometer
- NAL IN-CARRIAGEWAY LOOP BOX WITH 50mmØ ORANGE DUCT TO DRAWPIT
- VEHICLE DETECTOR LOOP AND SLOT CUTTING
- CCTV Camera
- 215m SSD (as per CD109)

- NOTES:**
- ALL MEASUREMENTS ARE IN METRES UNLESS NOTED OTHERWISE.
 - THIS DRAWING IS TO BE READ WITH ALL OTHER RELEVANT SCHEME DRAWING SPECIFICATIONS.
 - DO NOT SCALE. IF IN DOUBT CONTACT STANTEC.
 - THE PROPOSED RETAINING WALL WILL HAVE AN AVERAGE HEIGHT OF APPROXIMATELY 1.2m. THE LENGTH IS BASED ON INFORMATION AVAILABLE AT THIS TIME SO WILL BE SUBJECT TO CHANGE. SEE DRAWING NO. WJIS-STN-PH1-XX-DR-C-1600.
 - FIRE STATION BOUNDARY BASED ON INFORMATION RECEIVED FROM BUCKINGHAMSHIRE COUNCIL, LAND REGISTRY TITLE NO. BM287059.
 - EXISTING HIGHWAY BOUNDARY BASED ON INFORMATION RECEIVED FROM BUCKINGHAMSHIRE COUNCIL ON 13.09.2019.
 - FOR PAVEMENT CONSTRUCTION AND HIGHWAY DETAILS, REFER TO DRAWING NO. WJIS-STN-PH1-XX-DR-C-0103.
 - FOR VEHICLE RESTRAINT SYSTEM, REFER TO DRAWING NO. WJIS-STN-PH1-XX-DR-C-0400.
 - MINIMUM VERGE WIDTH 1.0m.
 - MINIMUM SERVICE MARGIN WIDTH 1.0m.
 - FOR PROPOSED ROAD MARKINGS AND SIGNS LOCATION PLAN AND SCHEDULE, REFER TO DRAWING NO. WJIS-STN-PH1-XX-DR-C-1200 AND WJIS-STN-PH1-XX-DR-C-1202.
 - FOR TRAFFIC SIGNALS DRAWING, REFER TO WJIS-STN-PH1-XX-DR-C-1210 AND WJIS-STN-PH1-XX-DR-C-1211.
 - FOR BAGWORK RETAINING WALL DRAWING, REFER TO WJIS-STN-PH1-XX-DR-C-0115
 - FOR STREET LIGHTING DRAWING, REFER TO WJIS-STN-PH1-XX-DR-C-1300

P03	SCHEME TITLE CHANGE	-	RMLM	TG	SE
P02	AMENDED TO BB/BC COMMENTS DATED 17.12.20	14.01.21	RMLM	TG	SE
Mark	Revision	Date	Drawn	Chkd	Appd

SCALING NOTE: Do not scale from this drawing. If in doubt, ask.
 UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

Drawing Issue Status
S4 - TECHNICAL APPROVAL

A404 / A4155 WESTHORPE JUNCTION IMPROVEMENTS GENERAL ARRANGEMENT

Client

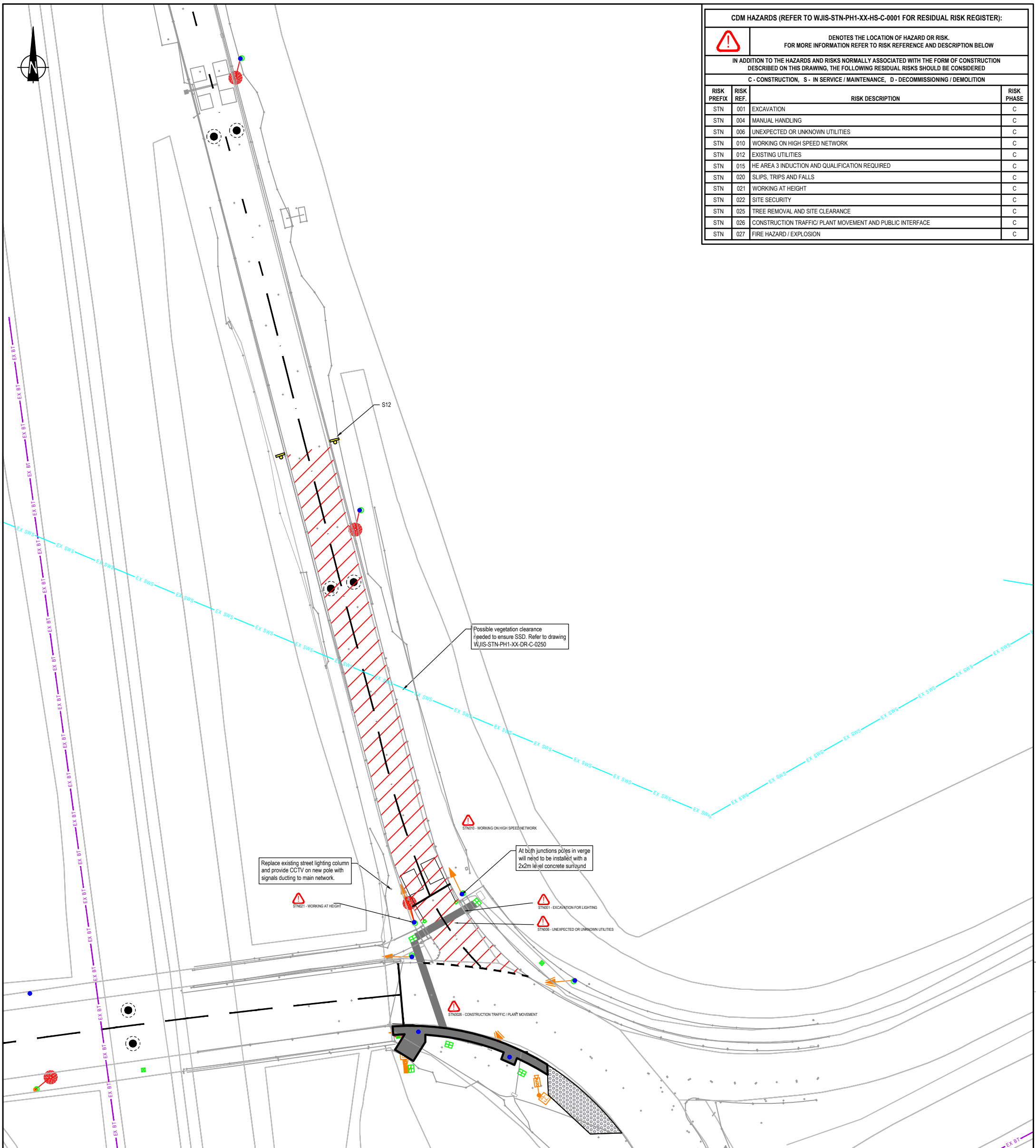
stantec.com/uk

Date of 1st Issue: 26.11.2020
 Designed: VL
 Drawn: JM

PK: 1:250
 Checked: TG
 Approved: TG

Drawing Number: WJIS-STN-PH1-XX-DR-C-0100
 Revision: P03

READING
 Tel: 01189 500 761



CDM HAZARDS (REFER TO WJIS-STN-PH1-XX-HS-C-0001 FOR RESIDUAL RISK REGISTER):

⚠ DENOTES THE LOCATION OF HAZARD OR RISK.
FOR MORE INFORMATION REFER TO RISK REFERENCE AND DESCRIPTION BELOW

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE FORM OF CONSTRUCTION DESCRIBED ON THIS DRAWING, THE FOLLOWING RESIDUAL RISKS SHOULD BE CONSIDERED

C - CONSTRUCTION, S - IN SERVICE / MAINTENANCE, D - DECOMMISSIONING / DEMOLITION

RISK PREFIX	RISK REF.	RISK DESCRIPTION	RISK PHASE
STN	001	EXCAVATION	C
STN	004	MANUAL HANDLING	C
STN	006	UNEXPECTED OR UNKNOWN UTILITIES	C
STN	010	WORKING ON HIGH SPEED NETWORK	C
STN	012	EXISTING UTILITIES	C
STN	015	HE AREA 3 INDUCTION AND QUALIFICATION REQUIRED	C
STN	020	SLIPS, TRIPS AND FALLS	C
STN	021	WORKING AT HEIGHT	C
STN	022	SITE SECURITY	C
STN	025	TREE REMOVAL AND SITE CLEARANCE	C
STN	026	CONSTRUCTION TRAFFIC/ PLANT MOVEMENT AND PUBLIC INTERFACE	C
STN	027	FIRE HAZARD / EXPLOSION	C

KEY

- HIGH PSV SURFACING
- EXISTING HIGHWAY BOUNDARY - BCC
- EXISTING BT CABLE
- EXISTING VIRGIN MEDIA CABLE
- EXISTING 4" THAMES WATER SEWER
- KEY (not to scale):- ELV RAG signal (LED) - refer to Pole Schedule
- 114 dia passively safe pole with low level terminations - refer to Pole Schedule
- NAL Retention Socket - refer to Pole Schedule
- PE cell
- ELV Junction Controller (on NAL cabinet base), a 600x600mm drawpit, an electric feeder pillar and a comms cabinet - all located on a level hard standing area
- NAL STAKKAbox drawpit - 450x450mm
- Clearview M110 Access Point
- Clearview M100 Magnetometer
- NAL IN-CARRIAGEWAY LOOP BOX WITH 50mmØ ORANGE DUCT TO DRAWPIT
- VEHICLE DETECTOR LOOP AND SLOT CUTTING
- CCTV Camera
- 215m SSD (as per CD109)
- PROPOSED GRASSCRETE
- FOOTWAY FOR MAINTENANCE, REFER TO DRAWING WJIS-STN-PH1-XX-DR-C-0103

- NOTES:**
- ALL MEASUREMENTS ARE IN METRES UNLESS NOTED OTHERWISE.
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 - FOR TRAFFIC SIGNALS DRAWING, REFER TO WJIS-STN-PH1-XX-DR-C-1211.

P03	SCHEME TITLE CHANGE	10.02.21	RMLM	TG	SE
P02	AMENDED TO BB/BC COMMENTS DATED 17.12.20	14.01.21	RMLM	TG	TG
Mark	Revision	Date	Drawn	Chkd	Appd

SCALING NOTE: Do not scale from this drawing. If in doubt, ask.
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Drawing Issue Status
S4 - TECHNICAL APPROVAL

A404 / A4155 WESTHORPE JUNCTION IMPROVEMENTS SOUTHBOUND OFFSLIP GENERAL ARRANGEMENT

Client

Balfour Beatty

Stantec

stantec.com/uk

Date of 1st Issue: 19.11.20
Designed: VL
Drawn: JM

A1 Scale: 1:250
Checked: TG
Approved: TG

Drawing Number: WJIS-STN-PH1-XX-DR-C-0150
Revision: P03

READING
Tel: 01189 500 761

Appendix D Audit Team CVs

Mark Watson BA (Hons) MCIHT MSoRSA
Associate Director

Mark is an Associate Director specialising in Road Safety Engineering, Auditing, Transport Planning and Development Planning and has over twenty-two years of project management experience in the areas of road safety, traffic engineering and transport planning. Mark leads the AECOM transport teams based in Chelmsford, St Albans and London and he leads and coordinates the road safety workload for the south east.

Mark has extensive experience within the field of Road Safety and is a Member of the Society of Road Safety Auditors (MSoRSA). He has had a key role in delivering hundreds of Road Safety Audits both as Team Leader and Team Member, in accordance with DMRB GG119, TfL SQA-0170 and bespoke local standards. Mark's experience includes road safety auditing within the UK and Ireland for a wide range of clients including the National Highways, TfL, local authorities, private developers and other AECOM offices and/ or departments. Mark holds the National Highways Approved Certificate of Competency (IAN 152/11) allowing him to lead road safety audits on the Trans European Road Network and the UK Trunk Road and Motorway Network.

In line with GG119 Mark has assumed the role of Audit Team Leader for more than five road safety audits over the past 12 months. Mark has substantial experience of Road Safety Engineering work and studies. In addition to Road Safety Audit work Mark is highly experienced in undertaking large scale road safety 'site-wide' or campus studies, following the principles of road safety auditing whilst balancing these with wider site-wide strategic developments or masterplans.

Academic Training

- BA (Hons) in Geography

Affiliations/ Qualifications

- Member of the Chartered Institute of Highways and Transportation (MCIHT)
- Member of Society of Road Safety Auditors (MSoRSA)
- National Highways Approved Certificate of Competency (IAN 152/11)

Further Training

- 10 day Road Safety Engineering, Accident Investigation and Prevention (RoSPA) Course (May 2004)

Recent RSA-related CPD (past 12 months)

- SoRSA Annual Conference 2021 (June 2021) – 12 hours
- Road Safety GB 2 Day Conference - Joining The Dots (March 2021) – 10 hours

Key Skills

- Highly experienced RSA Team Leader (GG119, HD19/15, TfL SQA-0170) – AECOM southeast lead for Road Safety; vast experience of critically reviewing other developer's RSAs and WCHARs on behalf of National Highways
- Experienced Project Manager for wide range of transport planning, development planning (TAs, TPs, CLPs) projects/ schemes and road Safety based projects
- Team Manager for AECOM Chelmsford, St Albans and London transport teams

Sample of Recent/ Relevant RSAs**Sunnica Solar Farm Newmarket Road Site Access, Mildenhall, Stage 1 RSA (September 2021)**

Mark was team leader for a Stage 1 RSA of a proposed new construction access on Newmarket Road, a short distance from the A11 trunk road, in Suffolk. The proposed junction was part of the access strategy for constructing a large solar farm.

SEALR (South East Aylesbury Link Road) Phase 2, Stage 1 RSA Aylesbury, Bucks (September 2021)

Stage 1 Road Safety Audit team leader for second phase of new road scheme consisting of a new link road, incorporating two new roundabouts, one at each extent of the study area and associated pedestrian/ cycle and crossing facilities

Abbey Road/ Belsize Road S106 Development, LB Camden Stage 1 RSA (September 2021)

Team leader for the proposed Section 106 (S106) pedestrian and cycle improvements at the Abbey Road/ Belsize Road junction, with associated works on Abbey Road and Belsize Road, within the London Borough of Camden.

EALR (East Aylebury Link Road) North, Aylesbury, Bucks Stage 1 RSA (August 2021)

Mark led the Stage 1 Road Safety Audit for a proposed retro-fit dualling scheme of an existing single carriageway link road to the east of Aylesbury, seeking to create a continuous dual carriageway 'bypass' around the town, intersecting with a number of residential feeder roads at roundabouts along the route

EALR (East Aylebury Link Road) South Dual and Single Options, Aylesbury, Bucks Stage 1 RSA (July 2021)

Mark was Audit Team Leader for two substantial Stage 1 road safety audit commissions for a new complex signalised 'hamburger' gyratory to replace the A41 Woodlands Roundabout and a new link road, featuring two roundabout junctions along its route. Separate RSAs were undertaken for each of the single carriageway and dual carriageway options.

Chalk Farm Road Pop-up Cycle Lanes, Stage 3 RSA (July 2021)

Team leader for the Chalk Farm Road Pop-up Cycle Lane and pedestrian improvement scheme on Chalk Farm Road in the London Borough of Camden as part of a series of road safety audits on similar schemes in the borough over 2020 and 2021.

Hounslow School Residential Development, Pears Road, Stage 3 RSA (July 2021)

Mark led the Stage 3 RSA auditing the implemented works on Pears Road, within the London Borough of Hounslow. The improvements were associated with a new Countryside residential development located on the northern side of Pears Road.

Salisbury Square Development, Stage 1 RSA (April 2021)

Mark assumed role of team leader for the proposed improvements to the road network surrounding Salisbury Square in association with the redevelopment of the Salisbury Square site within the City of London.

Mildenhall Hub, Mildenhall, Suffolk (Jan 2020/ March 2021)

Stage 2 and subsequent Stage 3 RSA Team Leader for junction improvements and realigned access route for all modes providing improved access to public service hub within town of Mildenhall in Suffolk.

Prince of Wales Road, Pop-up cycle lane scheme, LB Camden (July 2020)

Team leader for a Stage 1 RSA for a proposed pop-up cycle lane in LB Camden. Scheme incorporated removal of on-street parking bays to provide the cycle lane and redistribution of carriageway widths, amendments to crossings and bus stop layouts etc.

Kilburn High Road Footway Build Out Scheme (July 2020)

Audit Team Leader for a Stage 3 RSA for a LB Camden-led COVID-19 Response Scheme which involved the implementation of social distancing measures (the temporary reallocation of road space to pedestrians via temporary barriers) on Kilburn High Road in the London Borough of Camden.

SEALR (South East Aylesbury Link Road) Phase 1, Aylesbury, Bucks (June 2020)

Mark led the Stage 2 Road Safety Audit work for the first phase of the SEALR scheme, a new link road, incorporating two new roundabouts, one at each extent of the study area with a link/overbridge between.

A5(T) and Mere Lane Highway Improvements, Magna Park Extension, Lutterworth (December 2019)

RSA team leader for a stage 3 road safety audit for a large new dualling and roundabout scheme on the A5(T), including associated improvements including the reconfiguration and realignment of local roads associated with the expansion proposals of the Magna Park commercial area.

Land South of Whittingham Way, Bishops Stortford (December 2019)

Stage 1/2 RSA team leader of proposed S278 works associated with three priority junctions and a roundabout providing access to a large residential development south of Whittington Way in Bishops Stortford.

A5 Symmetry Park Emergency Access, Stage 1 RSA (December 2019)

Led a Stage 1 RSA for a proposed scheme to implement an emergency access on the A5 providing access to/ from a large warehousing distribution site.

A4303/ Rugby Road Roundabout, Stage 3 RSA (December 2019)

RSA team leader for a Stage 3 road safety audit of recent capacity and safety improvements on a large roundabout in Leicestershire located adjacent to M1 J20.

Northern Arc, Burgess Hill, Stage 1 RSA (September 2019)

Stage 1 Road Safety Audit RSA team leader for a suite of audits carried out in accordance with DMRB GG119 for multiple (17 No.) junction and network improvements on a mix of HE (A272 Cowfold Road/ London Road and A23/ A2300 Roundabout) and local authority roads.

Collision Study/ Road Safety Review Experience (4+ years):**University of Essex, Initial Transport Infrastructure Road Safety Review – 2017-2020 (ongoing)**

Mark is leading a team which developed a number of preliminary mitigation schemes to reduce speeds and provide safer network

conditions for all users, particularly non-motorised users, throughout the campus.

Cambridge Biomedical Campus Road Safety Review - November 2019

Mark project managed a road safety review being undertaken at CBC, assessing the existing site infrastructure for all transport modes. The study identified a number of existing road safety problems throughout the site, implementing a risk rating to concerns raised and providing recommendations.

Rolls-Royce: Derby Campus, Collision Investigation Study – August 2019

Mark has recently led a road safety engineering/ collision review scheme for the road network surrounding the Rolls Royce Derby campus. The work involved analysis of collision data and the existing conditions of the key routes and access points to the campus and provided recommendations to improve road safety.

A11 Fiveways Roundabout, Barton Mills (National Highways) – October 2018

Mark led the compilation of a report which covered a detailed analysis of the existing collision record of the junction, identifying which collisions could potentially be saved during the opening year should various the proposed interventions be implemented.

A14 J55 Scheme Options (National Highways) – August 2018

A review of the existing collision dataset to estimate the potential collision savings that could be achieved at the A14 J55 (Copdock Interchange) should one of three options for improvement at the junction be implemented.

Larkfield Homes, Eyebury Road, Eye, Peterborough – March 2018

Mark led a review (on behalf of National Highways) to independently assess the collision investigation work undertaken by a developer as part of their TA for a development in Eye, Peterborough that had potential to impact on the A47 trunk road. The review critically assessed the work and raised a number of issues which it was felt had been omitted from the TA.

A1(M) Junctions 9 and 10 (Baldoek) – February 2018

Mark led a review (on behalf of National Highways) to independently assess a third party's collision investigation chapter from their TA for a nearby development which had potential to impact on the trunk road. The work included a comprehensive 'fresh look' at the collisions which had been recorded on the two junctions and reporting.

JLR Solihull, Crossing N16 Option Review, Jaguar Land Rover – January 2018

Mark led a road safety engineering study at a heavily used zebra crossing within the Jaguar Land Rover (JLR) Solihull plant to address concerns relating to the use of the crossing at peak shift change time. The study surveyed movements at the crossing, reviewed collision and near miss data and produced a report including potential options/ recommendations for remediation.

WCHAR and Non-Motorised Users Audit Work

Mark has undertaken numerous non-motorised user audits and WCHARs on behalf of National Highways, LHA and developers to ensure scheme development considers non-motorised user opportunities. More recently Mark has also reviewed other developer's WCHARs on behalf of National Highways.

Chris Burlton BSc (Hons) MSoRSA MCIHT
Principal Transport Planner

Chris is a Principal Transport Planner in AECOM's Transport Planning for Development group and a road safety audit team member qualified to DMRB GG 119 and TfL SQA-0170. He has 13 years' experience in the transport planning industry and has been a Member of the Chartered Institute of Highways and Transportation (MCIHT) since 2011. Chris has also been a Member of the Society of Road Safety Auditors (MSoRSA) since 2018.

Chris' road safety work focuses upon collision investigation including analysing personal injury accident data, problem identification and exploring potential remedial measures in addition to undertaking road safety audits within the UK.

Chris is based within the Chelmsford and London offices and has experience of working on a variety of projects for both public and private sector clients. He has been involved with the production of Transport Assessments, Transport Statements and Travel Plans and has experience of consulting with key stakeholders.

Academic Training

- BSc (Hons) in Geography

Affiliations

- Member of the Chartered Institute of Highways and Transportation (MCIHT)
- Member of the Society of Road Safety Auditors (MSoRSA)

Further Training/ Experience

- 10-day RoSPA Road Safety Engineering Course (June 2016)
- CIHT/ SoRSA Webinars: Two separate courses (2.5 hours CPD) completed between January 2021 and February 2021
- Road Safety Great Britain (RSGB) Joining the Dots 2021:11 webinars (5.5 hours CPD) completed in March 2021
- SoRSA Annual Conference 2021 (7 hours CPD) completed in June 2021

Key Skills

- Road Safety Audit Team Member to DMRB GG 119 (formerly HD19/15) and TfL SQA-0170
- Preparation of Transport Assessments, Travel Plans, Servicing and Delivery Plans, Construction Logistics Plans and Road Safety Audits (RSAs)

Selected RSA Experience**Abbey Road/ Belsize Road S106 Development, Stage 1 RSA (September 2021)**

Team member for the proposed Section 106 (S106) pedestrian and cycle improvements at the Abbey Road/ Belsize Road junction, with associated works on Abbey Road and Belsize Road, within the London Borough of Camden.

Chalk Farm Road Pop-up Cycle Lanes, Stage 3 RSA (July 2021)

Team member for the Chalk Farm Road Pop-up Cycle Lane scheme on Chalk Farm Road in the London Borough of Camden.

Hounslow School Residential Development, Pears Road, Stage 3 RSA (July 2021)

Team member for the implemented works on Pears Road, within the London Borough of Hounslow. The improvements were associated with the new residential development located on the northern side of Pears Road.

Salisbury Square Development, Stage 1 RSA (April 2021)

Team member for the proposed improvements to the road network surrounding Salisbury Square in association with the redevelopment of the Salisbury Square site within the City of London.

Livingstone Academy s278 Highway Modifications (Phase 1), Stage 1/2 Road Safety Audit (March 2021)

Team leader for the proposed Phase 1 Section 278 (s278) highway modifications on Stafford Road in conjunction with the Livingstone Academy scheme in Bournemouth.

Harold Wood: Eastern Spine Road & Phases 1A, 2A, 2B, 3A, 4A and 4B, Stage 3 RSA (November 2020)

Team leader for the Spine Road (eastern section) and estate roads associated with the development to the west of Gubbins Lane, Harold Wood in the London Borough of Havering.

Livingstone Academy s278 Highway Modifications, Stage 1 RSA (October 2020)

Team leader for the proposed Section 278 (s278) highway modifications on Madeira Road and Stafford Road in conjunction with the Livingstone Academy scheme in Bournemouth, as well as the wider School Streets scheme which also incorporates Lorne Park Road and Trinity Road.

Arts University Bournemouth – Fern Barrow/ Gillett Road Cycle Scheme, Stage 1/2 RSA (October 2020)

Team leader for the proposed Fern Barrow and Gillett Road Cycle Scheme associated with the Arts University Bournemouth in Wallisdown.

Lewisham Gateway Phase 2: A20 Rennell Street, Stage 1 RSA (September 2020)

Team member for the proposed hoarding, scaffolding and temporary pedestrian barrier proposal to be provided in the vicinity of the A20 Rennell Street/ Molesworth Street junction during the construction period of Lewisham Gateway Phase 2; a large mixed-use development.

St Pancras Way Pop-up Cycle Lanes, Stage 1/2 RSA (September 2020)

Team member for a COVID-19 Response Scheme which include proposed cycle lanes on St Pancras Way, in LB Camden.

Road Safety Engineering Experience and Collision Studies**Slyfield Industrial Estate, Guildford, Road Safety Review (May 2021)**

A review of a circa. 500m section of Westfield Road and Moorfield Road at the eastern extent of Slyfield Industrial Estate near Guildford. The purpose of the study was to identify any road safety concerns relating to the existing condition of Westfield Road and Moorfield Road and to provide recommendations to improve the road safety of the network prior to the implementation of full improvements. It was recommended that measures to reduce vehicle movements through the worst-affected section should be explored such as by preventing through-access or by converting part of the network to one-way, with the localised suspension of parking. Chris attended site and prepared the report.

Longfield Solar Farm, Access Appraisal including Collision Review and Review of Visibility Requirements (January 2021)

The Access Appraisal included a high-level collision review covering the most recent three-year period for the Waltham Road and Boreham Road corridor. The Access Appraisal also examined the visibility requirements for each of the potential access points based on 85th percentile speeds recorded in October 2019 (i.e. prior to COVID-19 restrictions). The report then identified whether the required level of visibility (based on the DMRB standards) would be achievable (informed by a site visit, OS mapping and highway boundary information), or whether remedial measures may be needed to improve visibility to meet the requirements based on the surveyed speeds. Chris prepared the report, attended the site visit, carried out the collision review and reviewed the visibility requirements based on the speed survey data.

Brent Cross Shopping Centre: Temporary Drive-In Cinema, Transport Statement including Collision Review and Research into Driver Distraction (September 2020)

The Transport Statement included a collision review utilising collision data provided by TfL for the most recent three-year period, covering the A406 North Circular Road and internal roads to the shopping centre. In addition, the report included a review of the proposals to determine whether the cinema screens would have the potential to distract road users on the surrounding highway network, informed by a review of related guidance/ literature. Chris prepared the report, conducted the collision review and carried out the review of guidance/ literature to understand the potential issues associated with driver distraction and to inform the proposed remedial measures.

International Quarter London – S10 Outline Planning Application, Transport Assessment including Collision Review and Active Travel Zone Assessment (April 2020)

The Transport Assessment included a collision review for the ten Healthy Streets Assessment routes, using Personal Injury Accident (PIA) data obtained from TfL. A total of eight KSIs were recorded directly on the routes, which were examined in greater detail to determine whether any potential remedial measures could be considered. Chris checked the report including the collision review chapter and Active Travel Zone assessment.

Rolls-Royce: Derby Aerospace Campus – Wilmore Road, Road Safety Review including Collision Review (August 2019)

The road safety review set out recommendations to improve road safety along Wilmore Road; an integral part of the Rolls-Royce campus. The study included a daytime site visit as well as a review of recent Road Safety Audits, collision data and speed survey data. The findings were used to inform a series of concept highway designs (prepared by the highway engineering team) to address the safety concerns raised. Two presentations were conducted as part of the study to discuss and refine the proposed remedial measures with the client. Chris attended site, prepared the report, carried out the collision review and presented the findings of the report during the first presentation.

Magna Park Extension, Lutterworth, A5 Junction Upgrade, Road Safety Review (February 2019)

The study involved a desktop road safety review of two proposed Traffic Management (TM) phases on the A5 in the vicinity of the Magna Park site. The TM works were associated with proposed highway improvement works including the construction of a new roundabout. Chris produced the report which set out a number of general and specific road safety concerns based on the review of the plans received.

New Covent Garden Market, Nine Elms, Road Safety Review (November 2018)

An initial road safety review of the revised masterplan for the internal road layout improvements associated with the redevelopment of the NCGM site. Chris produced the Technical Note which examined the previous Stage 1 RSA and the associated Designer's Response to determine whether any of the problems raised (on the original masterplan) could be considered to be outstanding, or whether any new problems may potentially be introduced as a result of the revised layout. The review also outlined the additional details which should be provided to inform a Stage 2 RSA prior to this being undertaken.

A11 Fiveways Roundabout, Barton Mills, Collision Review & Estimate of Collision Savings (October 2018)

A study which estimated the potential collision savings that could potentially be achieved at the A11 Fiveways junction as a result of a proposed set of short-term interventions at the junction. Chris produced the Technical Note which examined the existing collision record of the junction, before identifying how many collisions could potentially be saved during the opening year based on the proposed interventions.

A14 J55 Scheme Options, Collision Review & Estimate of Collision Savings (August 2018)

A review of three scheme options and existing collision data to estimate the potential collision savings that could be achieved at the A14 J55. Chris carried out a review of the collision data and prepared a Technical Note to identify which collisions could potentially be saved based on forecast reductions in traffic flows and queuing on the approaches to and at the junction (due to each scheme).

Cirencester Market Place Scheme, Pedestrian Safety Review (August 2018)

A pedestrian safety review of the Cirencester Market Place scheme located within Cirencester town centre in Gloucestershire. The study included a site visit during the day and the hours of darkness to review the scheme, with a report to set out the findings with respect to safety concerns and recommendations. The review was informed by a Stage 3 RSA, accident data (eight collisions) and other reported pedestrian incidents. Chris attended site, reviewed the evidence base and produced the report.

AECOM Limited
Midpoint, Alencon Link
Basingstoke
Hampshire RG21 7PP
United Kingdom

T: +44(0)1256 824500
aecom.com

Appendix D Stage 1 Road Safety Audit

Document Number	Document Title	Revision
60654980-ACM-XX-XX-RP-HW-000002	Marlow Studio Project, Stage 1 Road Safety Audit	P01

Marlow Studio Project

Stage 1 Road Safety Audit

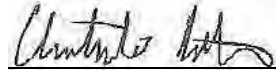
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60654980-ACM-XX-XX-RP-HW-000002

02 March 2022

Quality information

Prepared by



Chris Burlton
Principal Transport Planner, AECOM

Checked by



Mark Watson
Associate Director, AECOM

Verified and Approved by



Mark Watson
Associate Director, AECOM

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Distribution List

# Hard Copies	PDF Required	Association / Company Name

Prepared for:

Dido Property Limited

Prepared by:

AECOM Limited
Saxon House
27 Duke Street
Chelmsford CM1 1HT
United Kingdom

T: +44 (0)1245 771 200
aecom.com

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1. Introduction

This report results from a Stage 1 Road Safety Audit (RSA) carried out for two preliminary design options for a proposed signalised access junction on the A4155 Marlow Road to cater for increased traffic demand associated with the proposed Marlow Studio development on land to the east of Marlow, Buckinghamshire.

The Audit has been carried out at the request of the Design Team; AECOM Basingstoke, on behalf of the client, Dido Property Limited.

The Road Safety Audit Team consisted of the following members:

Mark Watson

BA (Hons) MCIHT MSoRSA CoC

Audit Team Leader AECOM Limited

Chris Burlton

BSc (Hons) MCIHT MSoRSA

Audit Team Member AECOM Limited

The Road Safety Audit was undertaken in accordance with the Audit Brief received on 11th February 2022 from the Design Team; AECOM Basingstoke, on behalf of Dido Property Limited. The Audit Brief was prepared by AECOM Basingstoke and approved by Buckinghamshire Council on xx February 2022. The Audit Team was also approved by Buckinghamshire Council on xx February 2022. The Audit Team confirms that they accept the brief provided.

The Road Safety Audit took place in February and March 2022 and comprised an examination of the documents provided by the Design Team, which are listed in **Appendix A**, and an examination of the site during daylight hours.

The site visit was carried out on Tuesday 15th February between the off-peak hours of 10:15 and 11:45 when traffic was flowing freely. The weather during the site visit was overcast with rain and the road surface was wet.

The locations of problems shown in conjunction with the two preliminary design options for the proposed upgraded access junction on the A4155 Marlow Road are held in **Appendix B** where the reference numbers relate to the problems identified in **Section 4** of this report.

The Terms of Reference of the Audit are as described in GG 119 'Road Safety Audit' of Highways England's Design Manual for Roads and Bridges (DMRB). The advice issued in the GG119 applies to trunk road and motorway highway improvement schemes, as well as highway schemes on the Trans-European Road Network (TERN) but has been used in this report to define the scope of this Audit.

The scheme has been examined, and this report compiled, only with regards to the safety implications to road users of the scheme as presented. It has not been examined or verified for compliance with any other standards, best practice guidance or criteria. However, to clearly explain a safety problem or the recommendation to resolve a problem, the Road Safety Audit Team may, on occasion, have referred to a design standard without touching on technical audit.

The RSA does not consider structural safety or cover health and safety issues concerning road users during the construction, maintenance and operation of the road.

An absence of comment relating to specific road users/ modes in **Section 4** of this report does not imply that they have not been considered; instead the Audit Team feels they are not adversely affected by the proposed changes.

This Road Safety Audit is not intended to identify pre-existing hazards which remain unchanged due to the proposals; hence they are not raised in **Section 4** of this report as they fall outside the remit of Road Safety Audit in general.

Nothing in this Audit should be regarded as a direct instruction to include or remove a measure from within the scheme. Responsibility for designing the scheme lies with the designer and as such the Audit Team accepts no design responsibility for any changes made to the scheme as a result of this Audit.

All traffic sign and road marking diagram number references are made to the Traffic Signs Regulations and General Directions, 2016 (TSRGD).

DRAFT

2. Scheme Description

The proposed Marlow Studio development is expected to comprise a new film studio providing up to one million sq.ft of floorspace (including sound stages, backlots, workshops, offices, public and private amenities, a cultural and skills academy, storage and ancillary backlot uses), with associated circulation and service floorspace, parking and landscaping. The proposed Marlow Studio development site (hereafter referred to as 'the Site') covers an area of approximately 34 ha.

The Site is bounded to the north by the A4155 Marlow Road, the west by the A404 and the associated slip road from the grade separated interchange at the north west corner of the site, Westhorpe Farm Lane to the east and a combination of an existing access road to the Crowne Plaza Hotel (Fieldhouse Lane) and lakes to the south.

Westhorpe House is located close to the centre of the Site, with Westhorpe Park Homes located towards the south east corner. These developments are served by an existing access road, which joins the A4155 midway along the northern Site boundary, turning west towards the north west corner of the site, before crossing the Site in a south easterly direction. This existing access road is to be retained on the current alignment.

The Scheme comprises two preliminary design options for a proposed upgraded access junction (new signal-controlled junction and footway/ cycleway improvements) at the existing priority crossroads junction formed by the A4155 Marlow Road, Pump Lane South and the existing access to Westhorpe House.

A summary of the key proposed highway works which are relevant to both design options is described below:

- Upgrading of the existing priority crossroad on the A4155 Marlow Road with Pump Lane South (north arm) and Westhorpe House (south arm) to install a signal-control junction.
- Widening of the existing northern shared use footpath / cycleway from the A404 Westhorpe Interchange southbound off-slip road to Westhorpe Farm Lane.
- Widening of the existing southern footway between the A404 Westhorpe Interchange southbound on-slip road and the upgraded junction.
- Widening of the existing southern footway between the upgraded junction and Westhorpe Farm Lane and re-designating it to shared use.
- Two new shared use crossings within the new signal-controlled junction, one across the A4155 Marlow Road on the eastern side of the junction and one across the Pump Lane South arm.
- A new pedestrian crossing within the new signal-controlled junction across the studio entrance arm.
- New road markings and traffic signs to suit the new layout.

As above, the scope of this audit includes two preliminary design options for the proposed upgraded access junction which both incorporate the elements outlined above, but have the following differences:

- Option 1:
 - Two lanes on the A4155 Marlow Road westbound approach to the junction, with the nearside lane for left turn/ straight ahead movements, and the offside lane for straight ahead movements only (no right turn permitted)
 - Three lanes on the A4155 Marlow Road eastbound approach to the junction, with the offside lane for right turn movements (with right turners required to cross two opposing lanes on the eastern arm)
 - Staggered pedestrian crossing on the Westhorpe House (south arm).
- Option 2
 - Three lanes on the A4155 Marlow Road westbound approach to the junction, with the nearside lane for left turn/ straight ahead movements, middle lane for straight ahead movements and the offside lane for right turn movements (with right turners required to cross three opposing lanes on the western arm and to 'hook' with right turn movements from the opposite direction)
 - Three lanes on the A4155 Marlow Road eastbound approach to the junction, with the offside lane for right turn movements (with right turners required to cross three opposing lanes on the eastern arm and to 'hook' with right turn movements from the opposite direction)
 - Straight-ahead pedestrian crossing on the Westhorpe House (south arm).

The scope of this audit covers the area shown on the plans referenced in **Appendix A**, associated with the two preliminary designs (Option 1 and Option 2) for the proposed upgraded access junction.

The problems identified for both options of the Scheme are set out within **Section 4** of this report, supported by the locations of problems plans held in **Appendix B**. The identified problems relate to both options unless otherwise specified.

DRAFT

3. Items Raised at Previous Road Safety Audits

The Audit Team is not aware that any other Audits have previously been carried out on the proposals.

DRAFT

4. Items Raised at this Road Safety Audit

A GENERAL

A1 PROBLEM

Location: A4155 Marlow Road/ Pump Lane South/ Westhorpe House junction

Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003

Summary: Unclear whether proposed signalised junction will operate safely with risk of collisions between road users and/ or between road users and pedestrians

No signal staging/ phasing details, traffic flows or junction capacity modelling results have been provided for review and as such, it is unclear whether the proposed signalised junction would be expected to operate safely in terms of traffic signal sequences and timings. This could result in a risk of collisions between road users on the approaches to or when turning/ passing through the junction, as well as between road users and pedestrians using the proposed signalised crossings on the northern, eastern and southern arms of the junction i.e. in the instance that inappropriate signal sequences or timings are utilised. See also Problem D1.

RECOMMENDATION

It is recommended that details of signal staging/ phasing, traffic flows and junction capacity modelling results are provided at detailed design to demonstrate that the proposed signalised junction will operate safely. See also Recommendation D1.

A2 PROBLEM

Location: Approaches to A4155 Marlow Road/ Pump Lane South/ Westhorpe House junction

Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003

Summary: Absence of High Friction Surfacing (HFS) on proposed signalised junction approaches may result in losses of control, junction overshoots or rear end shunt type collisions

The proposals seek to introduce traffic signals at the A4155 Marlow Road/ Pump Lane South/ Westhorpe House junction and whilst the proposed speed limit is set to reduce from derestricted to 40mph, there is a concern that vehicles may nonetheless approach the junction at relatively high speeds (particularly for road users approaching the junction from the west after having just exited the A404 Westhorpe Interchange – see Problem D1). No existing or proposed pavement details have been provided and if HFS or surfacing with a suitably high Polished Stone Value (PSV) is not provided on the approaches to the junction (particularly on the A4155 approaches), then there is a heightened risk of loss of control collisions, junction overshoots or rear end shunt type collisions. This risk would be exacerbated during periods of inclement weather e.g. on a wet road surface.

RECOMMENDATION

It is recommended that HFS or surfacing with a suitably high PSV is provided as part of the detailed design for the approaches to the stop lines in the Scheme where appropriate.

B LOCAL ALIGNMENT

B1 PROBLEM

Location: Eastbound movements through A4155 Marlow Road/ Pump Lane South/ Westthorpe House junction

Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003

Summary: Alignment of nearside and middle lanes through proposed signalised junction may result in side-swipe collisions as road users merge after exiting the junction

The proposed entries to and exits from the proposed signalised junction for road users travelling straight ahead within the nearside and middle eastbound lanes on A4155 Marlow Road are not aligned. In addition, eastbound road users travelling within these two lanes will be required to merge to a single lane approximately 15m to the east, downstream of the junction. These factors could increase the risk of side-swipe collisions as eastbound road users travel straight ahead through the junction.

RECOMMENDATION

It is recommended that the alignment and merge distance of the nearside and middle lanes for eastbound road users through the proposed signalised junction is reviewed at detailed design, so that eastbound road users on A4155 Marlow Road are able to merge safely after exiting the junction.

B2 PROBLEM

Location: Northern entry to the A4155 Marlow Road/ Pump Lane South/ Westthorpe House junction

Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003

Summary: Abrupt change in the proposed alignment of the northern approach to the proposed signalised junction may result in kerb-strikes and/ or losses of control

There is an abrupt change in the proposed alignment of the northern approach to the proposed signalised junction which may cause approaching road users to strike the splitter island or the nearside kerb and lose control when attempting to follow the alignment of the nearside kerb line. This in turn could result in subsequent collisions and/ or personal injury.

RECOMMENDATION

It is recommended that the alignment of the northern approach to the proposed signalised junction is reviewed at detailed design, so that road users are able to safely approach the junction.

C NON-MOTORISED USER PROVISION

C1 PROBLEM

Location: Southern arm of the A4155 Marlow Road/ Pump Lane South/ Westhorpe House junction

Drawing: 60654980-ACM-XX-XX-DR-HW-000001

Summary: Lack of onward provision for cyclists may result in cyclists utilising the pedestrian crossing (with risk of pedestrian/ cycle collisions) or to join the carriageway unsafely with risk of road user collisions

The proposals include a shared cycle/ footway along the southern side of the A4155 Marlow Road to the east of the proposed signalised junction, as well as a shared cycle/ footway along the northern side of the internal access road within the Site to the west of the junction. However, the proposals only include a signalised pedestrian crossing on the southern arm of the junction. Cyclists will therefore be required to utilise the pedestrian crossing or to travel within the carriageway to continue their journey between the two sections of cycle/ footway. This could result in collisions between cyclists and pedestrians or with other road users.

RECOMMENDATION

It is recommended that a staggered signalised toucan crossing is provided on the southern arm of the junction to provide continuous provision for cyclists so that they can safely continue their journey.

C2 PROBLEM

Location: A4155 Marlow Road/ Westhorpe Farm Lane junction and uncontrolled crossing on A4155 Marlow Road to the east of the proposed signalised junction

Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003

Summary: Lack of onward provision for cyclists may result in cyclists continuing within the footway/ utilising the pedestrian crossings (with risk of pedestrian/ cycle collisions) or to join the carriageway unsafely with risk of road user collisions

The proposals include a cycle/ footway along the southern and northern sides of the A4155 Marlow Road to the east of the proposed signalised junction. However, only uncontrolled pedestrian crossings are available at the A4155 Marlow Road/ Westhorpe Farm Lane junction and on the A4155 Marlow Road circa. 25m to the east of the junction which are connected by a short section of footway on the southern side of the A4155 Marlow Road. Cyclists will therefore be required to utilise the pedestrian facilities (including the uncontrolled pedestrian crossings) or to travel within the carriageway to continue their journey between the two sections of cycle/ footway. This could result in collisions between cyclists and pedestrians (on the footway) or with other road users (on the carriageway).

RECOMMENDATION

It is recommended that combined pedestrian/ cycle crossings are provided at the A4155 Marlow Road/ Westhorpe Farm Lane junction and at the uncontrolled crossing on the A4155 Marlow Road, connected by a short section of cycle/ footway on the southern side of A4155 Marlow Road, to provide continuous provision for cyclists so that they can safely continue their journey.

C3 PROBLEM (OPTION 2 ONLY)

Location: Southern arm of the A4155 Marlow Road/ Pump Lane South/ Westhorpe House junction

Drawing: 60654980-ACM-XX-XX-DR-HW-000003

Summary: Straight-ahead pedestrian crossing may cause visually impaired users to step out into the carriageway unknowingly, resulting in subsequent collisions with road users

The proposals (Option 2) include a straight-ahead pedestrian crossing on the southern arm of the junction. The absence of a stagger may confuse visually impaired users and result in them stepping into the carriageway unknowingly after reaching the central island, resulting in a subsequent collision with road users. This concern is exacerbated by the absence of signal staging/ phasing details for the junction (see Problem A1).

RECOMMENDATION

It is recommended that a staggered signalised toucan crossing is provided on the southern arm of the junction to provide continuous and safe provision for all users. See also Recommendation C1.

C4 PROBLEM

Location: Proposed signalised crossings at the A4155 Marlow Road/ Pump Lane South/ Westhorpe House junction

Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003

Summary: Incorrect tactile paving layouts may confuse visually impaired users and result in subsequent collisions between pedestrians and road users

The tactile paving layouts shown at the dropped kerbs on the northern, eastern and southern arms of the proposed signalised junction are incorrect as the stems do not extend to the back of the footways. Visually impaired users may therefore be unaware of the crossings causing them to step out into the carriageway unknowingly (away from formal crossing facilities), with a subsequent risk of collisions with road users.

RECOMMENDATION

It is recommended that the tactile paving layouts are reviewed at detailed design and amended such that the stems extend to the back of the footways.

C5 PROBLEM

Location: Southern arm of the A4155 Marlow Road/ Pump Lane South/ Westhorpe House junction

Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003

Summary: Road hatching within crossing carpet may be confusing to visually impaired users or tempt pedestrians to stand within the hatched area where they would be at risk of being struck by passing road users

The proposed signalised crossing includes hatched road markings to demarcate an HGV overrun area within the western side of the crossing carpet. This may cause confusion to visually impaired users who may subsequently attempt to cross at an unsafe location elsewhere with a risk of collisions with road users. In addition, pedestrians may be tempted to stand within the hatched area (as they may deem it to be very rarely trafficked) when waiting to cross the carriageway, where they would subsequently be at risk of being struck by passing road users (particularly HGVs).

RECOMMENDATION

It is recommended that the hatched road markings are removed from (just) the crossing carpet to avoid any potential confusion and to indicate that the full extent of the crossing is within the live carriageway.

D JUNCTIONS

D1 PROBLEM

Location: A4155 Marlow Road/ Pump Lane South/ Westhorpe House junction

Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003

Summary: High vehicle speeds/ insufficient forward visibility to traffic signals and the back of queues may result in collisions

No traffic flows, junction capacity results or details of forecast junction queues have been provided for review and it is therefore unclear whether sufficient forward visibility will be available to the traffic signals and the back of the queue(s) at the proposed signalised junction for road users approaching the junction. This is a particular concern for road users approaching the junction from the west after having just exited the A404 Westhorpe Interchange, given that vehicle speeds are likely to be higher than the proposed 40mph speed limit in some cases and forward visibility for road users turning left from the northern (A404) arm to the eastern (A4155) arm is restricted by the alignment of the bend and a retaining wall. This could result in junction overshoots/ mid-junction collisions, or rear end shunt type collisions between road users approaching the junction and those already slowing/ queuing at the junction.



RECOMMENDATION

It is recommended that sufficient forward visibility is provided to the traffic signals and the back of the forecast queues for each approach at the junction (with particular consideration to the western A4155 junction approach). Details of forecast traffic flows, speeds, queues and forward visibility splays should be considered at detailed design to demonstrate that the proposed signalised junction is expected to operate safely. See also Recommendation A1.

D2 PROBLEM

Location: A4155 Marlow Road/ Pump Lane South/ Westthorpe House junction

Drawing: 60654980-ACM-XX-XX-DR-HW-000002 and 60654980-ACM-XX-XX-DR-HW-000004

Summary: Insufficient junction intervisibility to/ from southern arm may result in collisions

The proposed stop line on the southern arm of the proposed signalised junction is situated circa. 10m back (Option 1) and 15m back (Option 2) from the southern entry to the junction. Therefore, the junction intervisibility splays to/ from the southern arm pass through areas behind the proposed cycle/ footway which currently contain vegetation to the east and west, as well as a large road sign to the west. In the instance that the traffic signals fail, these factors could result in collisions between road users at the junction, as well as between road users and pedestrian/ cyclists using the crossings on the eastern and southern arms.

RECOMMENDATION

It is recommended that sufficient junction intervisibility is provided at the proposed signalised junction by removing and keeping areas clear of vegetation, signage and other off-street furniture where necessary.

**D3 PROBLEM**

Location: Proposed priority junction on southern (Westthorpe House) access road circa. 60m west of A4155 Marlow Road/ Pump Lane South/ Westthorpe House junction

Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003

Summary: Unclear whether sufficient junction visibility splays will be available, which may result in collisions

The proposed speed limit of the southern (Westthorpe House) access road is not known. Therefore, it is unclear whether sufficient junction visibility splays will be available at the proposed priority junction (located circa. 60m to the west of the proposed signalised junction), particularly around the bend to/ from the west. Should insufficient junction visibility splays be available, then this may result in collisions between mainline road users approaching the junction and emerging road users (as well as those slowing to turn at the junction).

RECOMMENDATION

It is recommended that further details are provided to demonstrate that sufficient junction visibility splays will be achievable at the proposed priority junction.

D4 PROBLEM

Location: Proposed Main Studio access on southern (Westhorpe House) access road circa. 15m south of A4155 Marlow Road/ Pump Lane South/ Westhorpe House junction

Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003

Summary: Road users attempting to turn right into the access may collide with oncoming road users

The proposed Main Studio access is situated on the southern (Westhorpe House) access road circa. 15m to the south of the proposed signalised junction. Whilst it is acknowledged that the majority of road users would be expected to turn left into the access after passing through the signalised junction from the north, road users may also attempt to turn right into the access road. This may result in collisions between right-turning vehicles and oncoming road users having just exited the proposed signalised junction, particularly due to the close proximity of the traffic signals.

RECOMMENDATION

It is recommended that road users are prohibited from turning right to the Main Studio access from the southern (Westhorpe House) access road.

E ROAD SIGNS, CARRIAGEWAY MARKINGS & LIGHTING

No comments.

5. Audit Team Statement

We certify that this road safety audit has been carried out in accordance with GG119.

ROAD SAFETY AUDIT TEAM LEADER

Mark Watson

BA (Hons) MCIHT MSoRSA CoC

Signed: 

Position: Associate Director

AECOM Limited
Saxon House
27 Duke Street
Chelmsford, Essex
CM1 1HT
UK

Date: 02/03/2022

ROAD SAFETY AUDIT TEAM MEMBER

Chris Burlton

BSc (Hons) MCIHT MSoRSA

Signed: 

Position: Principal Transport Planner

AECOM Limited
Saxon House
27 Duke Street
Chelmsford, Essex
CM1 1HT
UK

Date: 02/03/2022

Appendix A List of Provided Information

The following documents were provided to the Audit Team as part of the Road Safety Audit:

Table A-1. List of Included Drawings

Drawing Number	Drawing Title	Revision
60654980-ACM-XX-XX-DR-HW-000001	Conceptual Junction Arrangement, Option 1	P01
60654980-ACM-XX-XX-DR-HW-000002	Conceptual Junction Arrangement, Option 1, Swept Path Analysis	P01
60654980-ACM-XX-XX-DR-HW-000003	Conceptual Junction Arrangement, Option 2	P01
60654980-ACM-XX-XX-DR-HW-000004	Conceptual Junction Arrangement, Option 2, Swept Path Analysis	P01

List of Included Documents

Road Safety Audit Brief (60654980-ACM-XX-XX-RP-HW-000001 P01, dated 11/02/2022)

Five-Year Personal Injury Accident (PIA) Data – Site Access (dated 27/01/22)

*Drawings showing Buckinghamshire Highways' proposals (in consultation with National Highways) to partially signalise the existing A404 Westthorpe Interchange (WJIS-STN-PH1-XX-DR-C-0100 P03, WJIS-STN-PH1-XX-DR-C-0150 P03, dated 10/02/21)

*for context only, but this does not part of the scope of the Audit

Departures from Standard

None identified.

Appendix B Locations of Problems

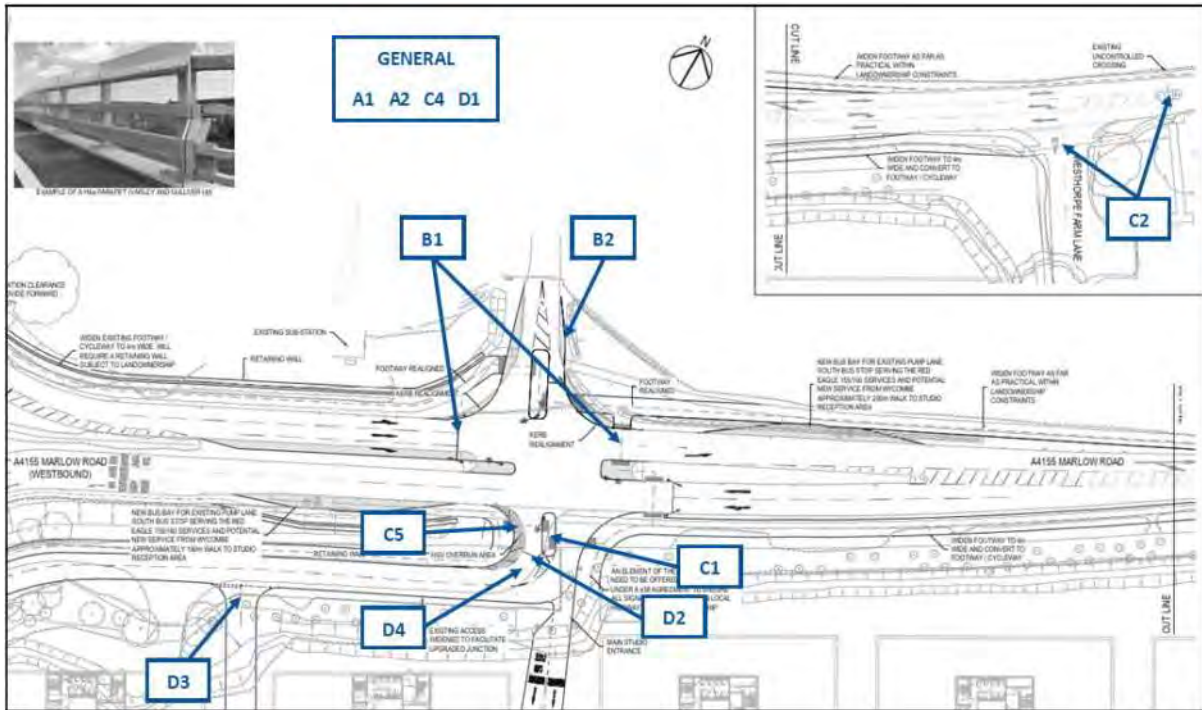


Figure B-1. Locations of Problems (Option 1)

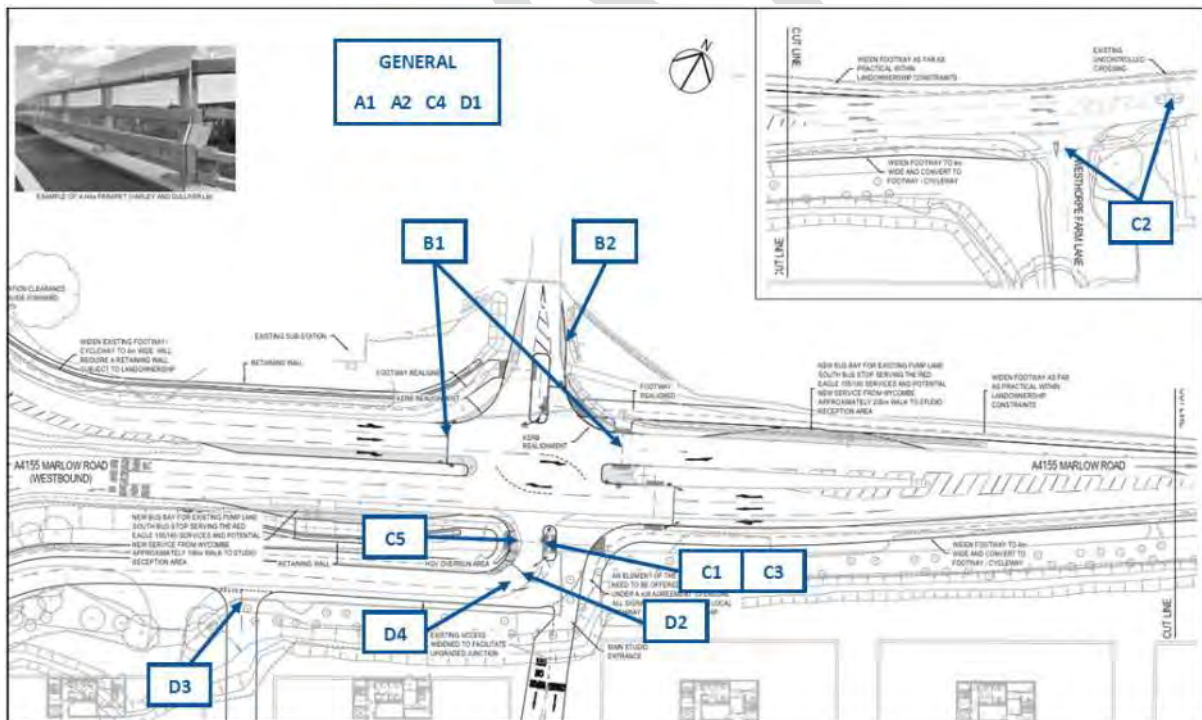


Figure B-2. Locations of Problems (Option 2)

AECOM Limited
Saxon House
27 Duke Street
Chelmsford CM1 1HT
United Kingdom

T: +44 (0)1245 771 200
aecom.com

Appendix E Stage 1 Road Safety Audit, Designers Response

Document Number	Document Title	Revision
60654980-ACM-XX-XX-RP-HW-000001	Marlow Studio Project, Stage 1 Road Safety Audit, Designer's Response	P01

Marlow Studio Project

Stage 1 Road Safety Audit
Designers Response

Dido Property Limited

Project number: 60654980
60654980-ACM-XX-XX-RP-HW-000003

1 April 2022

Quality information

<u>Prepared by</u>	<u>Checked by</u>	<u>Verified by</u>	<u>Approved by</u>
Neil Tims Principal Engineer	Joe Boyman Senior Engineer		

Revision History

<u>Revision</u>	<u>Revision date</u>	<u>Details</u>	<u>Authorised</u>	<u>Name</u>	<u>Position</u>
P01	1 April 2022	Draft for Buckinghamshire Council Input			

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Prepared for:

Dido Property Limited

Prepared by:

AECOM Limited
Midpoint, Alencon Link
Basingstoke
Hampshire RG21 7PP
United Kingdom

T: +44(0)1256 824500
aecom.com

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1. Designers Response

Project Details

Table 1: Project Details

Report Title:	Marlow Studio Project
Date:	1 April 2022
Document Reference and Revision:	60654980-ACM-XX-XX-RP-HW-000003
Prepared By:	AECOM Limited
On Behalf of:	Dido Property Limited

Table 2: Authorisation Sheet

Project:	Marlow Studio Project
Report Title:	Stage 1 Road Safety Audit, Designers Response
Prepared By:	
Name:	Neil Tims
Position:	Principal Engineer
Signed:	
Organisation:	AECOM Limited
Date:	1 April 2022
Approved By:	
Name:	Bryn Milliner
Position:	Technical Director
Signed:	
Organisation:	AECOM Limited
Date:	1 April 2022

Introduction

This Designers Response is related to the Stage 1 Road Safety Audit document, dated 2 March 2022, for a proposed upgraded access junction (new signal-controlled junction and footway / cycleway improvements) at the existing priority crossroads junction formed by the A4155 Marlow Road, Pump Lane South and the existing access to Westhorpe House. The upgraded junction is planned to provide a access to the proposed Marlow Studio Project which comprises: sound stages; workshops; office accommodation; Studio Hub; associated open space such as backlots and unit bases; entrance structures and reception; security offices; mobility hub; cafes; parking; bridge; incidental supporting buildings; associated infrastructure; public art; upgraded vehicular access onto Marlow Road; new cycle and pedestrian accesses; a new community / educational / environmental / recreational building; a new community building; and, associated landscaping, publicly accessible recreational land and ecological enhancements / habitat creation.

Two conceptual junction layouts were submitted for a Stage 1 Road Safety Audit. A summary of the key proposed highway works which are relevant to both design options is described below:

- Upgrading of the existing priority crossroad on the A4155 Marlow Road with Pump Lane South (north arm) and Westhorpe House (south arm) to install a signal-control junction.
- Widening of the existing northern shared use footpath / cycleway from the A404 Westhorpe Interchange southbound off-slip road to Westhorpe Farm Lane.
- Widening of the existing southern footway between the A404 Westhorpe Interchange southbound on-slip road and the upgraded junction.
- Widening of the existing southern footway between the upgraded junction and Westhorpe Farm Lane and re-designating it to shared use.
- Two new shared use crossings within the new signal-controlled junction, one across the A4155 Marlow Road on the eastern side of the junction and one across the Pump Lane South arm.
- A new pedestrian crossing within the new signal-controlled junction across the studio entrance arm.
- New road markings and traffic signs to suit the new layout.

As noted above, the scope of this audit includes two conceptual design options for the proposed upgraded access junction which both incorporate the elements outlined above, but have the following differences:

- **Option 1:**
 - Two lanes on the A4155 Marlow Road westbound approach to the junction, with the nearside lane for left turn/ straight ahead movements, and the offside lane for straight ahead movements only (no right turn permitted).
 - Three lanes on the A4155 Marlow Road eastbound approach to the junction, with the offside lane for right turn movements (with right turners required to cross two opposing lanes on the eastern arm).
 - Staggered pedestrian crossing on the Westhorpe House (south arm).
- **Option 2:**
 - Three lanes on the A4155 Marlow Road westbound approach to the junction, with the nearside lane for left turn/ straight ahead movements, middle lane for straight ahead movements and the offside lane for right turn movements (with right turners required to cross three opposing lanes on the western arm and to 'hook' with right turn movements from the opposite direction).
 - Three lanes on the A4155 Marlow Road eastbound approach to the junction, with the offside lane for right turn movements (with right turners required to cross three opposing lanes on the eastern arm and to 'hook' with right turn movements from the opposite direction).
 - Straight-ahead pedestrian crossing on the Westhorpe House (south arm).

The existing speed limit for the A4155 Marlow Road is national (60mph) from western side of the A404 Westhorpe Interchange to approximately 110m west of the A4155 Marlow Road junction with Church Road. It is proposed that an application to Buckinghamshire Highways will be made to reduce the existing speed limit to 40mph supported by the introduction of repeater signs in appropriate locations. A Traffic Regulation Order will need to be enacted to coincide with the completion of the highway works.

The audit covered the area shown on the plans referenced associated with the two conceptual designs (Option 1 and Option 2) for the proposed upgraded access junction.

The Stage 1 Road Safety Audit identified a number of problems associated with the conceptual designs proposed for the existing public highway and this Designers Response is provided in accordance with the requirements of GG 119.

Table 3: Key Personnel

Role	Organisation
Overseeing Organisation	Buckinghamshire Council
Road Safety Audit Team	AECOM (Chelmsford)
Design Organisation	AECOM (Basingstoke)

Highway Works

Table 4: Road Safety Audit Decision Log

Road Safety Audit Problem	Road Safety Audit Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed Road Safety Audit Action
---------------------------	----------------------------------	------------------------------	----------------------------------	---------------------------------

Area: General

Problem: A1

Location: A4155 Marlow Road / Pump Lane South / Westthorpe House junction

Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003

Summary: Unclear whether proposed signalised junction will operate safely with risk of collisions between road users and / or between road users and pedestrians.

No signal staging / phasing details, traffic flows or junction capacity modelling results have been provided for review and as such, it is unclear whether the proposed signalised junction would be expected to operate safely in terms of traffic signal sequences and timings. This could result in a risk of collisions between road users on the approaches to or when turning / passing through the junction, as well as between road users and pedestrians using the proposed signalised crossings on the northern, eastern and southern arms of the junction i.e. in the instance that inappropriate signal sequences or timings are utilised. See also Problem D1.

It is recommended that details of signal staging / phasing, traffic flows and junction capacity modelling results are provided at detailed design to demonstrate that the proposed signalised junction will operate safely.

See also Recommendation D1.

Problem Agreed:

Details of the traffic flows and junction capacity modelling will be provided by the Transport Consultant to inform development of the signal staging and phasing at the detailed design stage.

Area: General

Problem: A2

Location: Approaches to A4155 Marlow Road / Pump Lane South / Westthorpe House junction

Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003

Summary: Absence of High Friction Surfacing (HFS) on proposed signalised junction approaches may result in losses of control, junction overshoots or rear end shunt type collisions.

The proposals seek to introduce traffic signals at the A4155 Marlow Road / Pump Lane South / Westthorpe House junction and whilst the proposed speed limit is set to reduce from derestricted to 40mph, there is a concern that vehicles may nonetheless approach the junction at relatively high speeds (particularly for road users approaching the junction from the west after having just exited the A404 Westthorpe Interchange – see Problem D1). No existing or proposed pavement details have been provided and if HFS or surfacing with a suitably high Polished Stone Value (PSV) is not provided on the approaches to the junction (particularly on the A4155 approaches), then

It is recommended that HFS or surfacing with a suitably high PSV is provided as part of the detailed design for the approaches to the stop lines in the Scheme where appropriate.

Problem Agreed:

Surfacing (HFS or high PSV) suitable for the junction layout and expected traffic flows and queues will be determined at the detailed design stage.

Road Safety Audit Problem	Road Safety Audit Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed Road Safety Audit Action
<p>there is a heightened risk of loss of control collisions, junction overshoots or rear end shunt type collisions. This risk would be exacerbated during periods of inclement weather e.g. on a wet road surface.</p> <p>Area: Local Alignment Problem: B1 Location: Eastbound movements through A4155 Marlow Road / Pump Lane South / Westthorpe House junction Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003</p> <p>Summary: Alignment of nearside and middle lanes through proposed signalised junction may result in side-swipe collisions as road users merge after exiting the junction. The proposed entries to and exits from the proposed signalised junction for road users travelling straight ahead within the nearside and middle eastbound lanes on A4155 Marlow Road are not aligned. In addition, eastbound road users travelling within these two lanes will be required to merge to a single lane approximately 15m to the east, downstream of the junction. These factors could increase the risk of side-swipe collisions as eastbound road users travel straight ahead through the junction.</p>	<p>It is recommended that the alignment and merge distance of the nearside and middle lanes for eastbound road users through the proposed signalised junction is reviewed at detailed design, so that eastbound road users on A4155 Marlow Road are able to merge safely after exiting the junction.</p>	<p>Problem Agreed: The alignment will be refined at detailed design. This can be done through a reallocation of lane widths to reduce the slight offset between the eastbound stop line lanes and the exit lane alignment, though it should be noted that the offset happens over a taper of ~1:66 and only in Option 1. The eastbound exit merge from two lanes to one happens over a distance of 100m in accordance with DMRB CD 123.</p>		
<p>Area: Local Alignment Problem: B2 Location: Northern entry to the A4155 Marlow Road / Pump Lane South / Westthorpe House junction Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003</p> <p>Summary: Abrupt change in the proposed alignment of the northern approach to the proposed signalised junction may result in kerb-strikes and / or losses of control. There is an abrupt change in the proposed alignment of the northern approach to the proposed signalised junction which may cause approaching road users to strike the splitter island or the nearside kerb and lose control when attempting to follow the alignment of the nearside kerb line. This in turn could result in subsequent collisions and / or personal injury.</p>	<p>It is recommended that the alignment of the northern approach to the proposed signalised junction is reviewed at detailed design, so that road users are able to safely approach the junction.</p>	<p>Problem Agreed: The approach to the junction when existing the Site is tight. However, this has been necessitated by a requirement to retain the existing Westthorpe House access road on its current alignment in order to retain as many of the existing Popular trees as possible within the Development. The Site will operate with very slow speeds and the exit alignment from the Site has been developed to ensure that maximum legal</p>		

Road Safety Audit Problem	Road Safety Audit Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed Road Safety Audit Action
<p>Area: Non-Motorised User Provision Problem: C1 Location: Southern arm of the A4155 Marlow Road / Pump Lane South / Westthorpe House junction Drawing: 60654980-ACM-XX-XX-DR-HW-000001</p>		<p>articulated HGVs (44t) and bus services can exit without hindrance.</p>		
<p>Summary: Lack of onward provision for cyclists may result in cyclists utilising the pedestrian crossing (with risk of pedestrian/ cycle collisions) or to join the carriageway unsafely with risk of road user collisions. The proposals include a shared cycle/ footway along the southern side of the A4155 Marlow Road to the east of the proposed signalised junction, as well as a shared cycle/ footway along the northern side of the internal access road within the Site to the west of the junction. However, the proposals only include a signalised pedestrian crossing on the southern arm of the junction. Cyclists will therefore be required to utilise the pedestrian crossing or to travel within the carriageway to continue their journey between the two sections of cycle/ footway. This could result in collisions between cyclists and pedestrians or with other road users.</p>	<p>It is recommended that a staggered signalised toucan crossing is provided on the southern arm of the junction to provide continuous provision for cyclists so that they can safely continue their journey.</p>	<p>Problem Agreed: It may not be feasible to include a wider shared use toucan island (complying with LTN 2/95) across the southern arm of the junction to allow cyclists to cross the arm and continue their journey via the shared use route from the junction eastbound or into the Site. Space is limited and the feasibility of this will be reviewed at detailed design. The current arrangement is that the shared route from the A404 Westthorpe Interchange towards Little Marlow is on the northern side of the A4155 Marlow Road. During consultation at detailed design, it may be shown to be more appropriate to remove the southern shared use facility between the Site entrance and Westthorpe Farm Lane, instead signing shared use across the A4155 Marlow Road via the toucan crossing at the junction and then along the northern side.</p>		
<p>Area: Non-Motorised User Provision Problem: C2 Location: A4155 Marlow Road/ Westthorpe Farm Lane junction and uncontrolled crossing on A4155 Marlow Road to the east of the proposed signalised junction Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003</p>				
<p>Summary: Lack of onward provision for cyclists may result in cyclists continuing within the footway/ utilising the pedestrian crossings (with risk of pedestrian/ cycle collisions) or to join the carriageway unsafely with risk of road user collisions.</p>	<p>It is recommended that combined pedestrian/ cycle crossings are provided at the A4155 Marlow Road / Westthorpe Farm Lane junction</p>	<p>Problem Agreed: It is known that cycle provision in the local area is minimal due to low demand and/or lack of space to incorporate.</p>		

Road Safety Audit Problem	Road Safety Audit Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed Road Safety Audit Action
<p>The proposals include a cycle/ footway along the southern and northern sides of the A4155 Marlow Road to the east of the proposed signalised junction. However, only uncontrolled pedestrian crossings are available at the A4155 Marlow Road/ Westhorpe Farm Lane junction and on the A4155 Marlow Road circa. 25m to the east of the junction which are connected by a short section of footway on the southern side of the A4155 Marlow Road. Cyclists will therefore be required to utilise the pedestrian facilities (including the uncontrolled pedestrian crossings) or to travel within the carriageway to continue their journey between the two sections of cycle/ footway. This could result in collisions between cyclists and pedestrians (on the footway) or with other road users (on the carriageway).</p>	<p>and at the uncontrolled crossing on the A4155 Marlow Road, connected by a short section of cycle / footway on the southern side of A4155 Marlow Road, to provide continuous provision for cyclists so that they can safely continue their journey.</p>	<p>Additional cycle provision in the location of the Westhorpe Farm Lane will be discussed with the Highway Authority at detailed design in coordination with the Transport Consultant to ensure any proposals are proportionate to the current and anticipated level of cycle users.</p> <p>Alternatively, the current arrangement is that the shared route from the A404 Westhorpe Interchange towards Little Marlow is on the northern side of the A4155 Marlow Road. During consultation at detailed design, it may be shown to be more appropriate to remove the southern shared use facility between the Site entrance and Westhorpe Farm Lane, instead signing shared use across the A4155 Marlow Road via the toucan crossing at the junction and then along the northern side.</p>		
<p>Area: Non-Motorised User Provision</p> <p>Problem: C3</p> <p>Location: Southern arm of the A4155 Marlow Road/ Pump Lane South/ Westhorpe House junction</p> <p>Drawing: 60654980-ACM-XX-XX-DR-HW-000003</p>				
<p>Summary: Straight-ahead pedestrian crossing may cause visually impaired users to step out into the carriageway unknowingly, resulting in subsequent collisions with road users. The proposals (Option 2) include a straight-ahead pedestrian crossing on the southern arm of the junction. The absence of a stagger may confuse visually impaired users and result in them stepping into the carriageway unknowingly after reaching the central island, resulting in a subsequent collision with road users. This concern is exacerbated by the absence of signal staging/ phasing details for the junction (see Problem A1).</p>	<p>It is recommended that a staggered signalised toucan crossing is provided on the southern arm of the junction to provide continuous and safe provision for all users. See also Recommendation C1.</p>	<p>Problem Agreed:</p> <p>It may not be feasible to include a staggered island (complying with LTN 2/95) across the southern arm of the junction to allow cyclists to cross the arm and continue their journey via the shared use route from the junction eastbound or into the Site. Space is limited and the feasibility of this will be reviewed at detailed design.</p>		

Road Safety Audit Problem	Road Safety Audit Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed Road Safety Audit Action
<p>Area: Non-Motorised User Provision</p> <p>Problem: C4</p> <p>Location: Proposed signalised crossings at the A4155 Marlow Road/ Pump Lane South/ Westhorpe House junction</p> <p>Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003</p> <p>Summary: Incorrect tactile paving layouts may confuse visually impaired users and result in subsequent collisions between pedestrians and road users.</p> <p>The tactile paving layouts shown at the dropped kerbs on the northern, eastern and southern arms of the proposed signalised junction are incorrect as the stems do not extend to the back of the footways. Visually impaired users may therefore be unaware of the crossings causing them to step out into the carriageway unknowingly (away from formal crossing facilities), with a subsequent risk of collisions with road users.</p>	<p>It is recommended that the tactile paving layouts are reviewed at detailed design and amended such that the stems extend to the back of the footways.</p>	<p>Problem Accepted:</p> <p>Agreed, the tactile paving provision will be reviewed at detailed design to ensure the layouts are appropriate.</p>		
<p>Area: Non-Motorised User Provision</p> <p>Problem: C5</p> <p>Location: Southern arm of the A4155 Marlow Road/ Pump Lane South/ Westhorpe House junction</p> <p>Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003</p> <p>Summary: Road hatching within crossing carpet may be confusing to visually impaired users or tempt pedestrians to stand within the hatched area where they would be at risk of being struck by passing road users.</p> <p>The proposed signalised crossing includes hatched road markings to demarcate an HGV overrun area within the western side of the crossing carpet. This may cause confusion to visually impaired users who may subsequently attempt to cross at an unsafe location elsewhere with a risk of collisions with road users. In addition, pedestrians may be tempted to stand within the hatched area (as they may deem it to be very rarely trafficked) when waiting to cross the carriageway, where they would subsequently be at risk of being struck by passing road users (particularly HGVs).</p>	<p>It is recommended that the hatched road markings are removed from (just) the crossing carpet to avoid any potential confusion and to indicate that the full extent of the crossing is within the live carriageway.</p>	<p>Problem Accepted:</p> <p>The hatching within the HGV overrun area was excluded from the extent of the pedestrian crossing within the conceptual layouts however, the Auditors' point is valid and the extent and layout of the hatching on either side of the pedestrian crossing extent will be reviewed at detailed design.</p>		

Road Safety Audit Problem	Road Safety Audit Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed Road Safety Audit Action
<p>Area: Junctions</p> <p>Problem: D1</p> <p>Location: A4155 Marlow Road/ Pump Lane South/ Westhorpe House junction</p> <p>Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003</p>	<p>It is recommended that sufficient forward visibility is provided to the traffic signals and the back of the forecast queues for each approach at the junction (with particular consideration to the western A4155 junction approach). Details of forecast traffic flows, speeds, queues and forward visibility splays should be considered at detailed design to demonstrate that the proposed signalised junction is expected to operate safely. See also Recommendation A1.</p>	<p>Problem Agreed:</p> <p>Details of the traffic flows, junction capacity modelling and queue lengths will be provided by the Transport Consultant to inform development of the detailed design. Visibility splays will likely require further mitigation measures, such as the Buckinghamshire Highways proposal to instal signal-control on the southbound A404 off-slip road / northern A404 overbridge, which will reduce vehicle speeds exiting the A404 Westhorpe Interchange. Consideration of appropriate warning signage will also be required.</p>		
<p>Area: Junctions</p> <p>Problem: D2</p> <p>Location: A4155 Marlow Road/ Pump Lane South / Westhorpe House junction</p> <p>Drawing: 60654980-ACM-XX-XX-DR-HW-000002 and 60654980-ACM-XX-XX-DR-HW-000004</p>	<p>It is recommended that sufficient junction intervisibility is provided at the proposed signalised junction by removing and keeping areas clear of vegetation, signage and other off-street furniture where necessary.</p>	<p>Problem Agreed:</p> <p>Removal of existing vegetation will be specified at detailed design to remove obstructions within the junction intervisibility zone. In addition, the location of the existing advanced direction sign on the A4155 Marlow Road will be reviewed at detailed design to ensure it is located in an appropriate location, sized appropriately for the speed of the road and, if remaining in the intervisibility zone, positioned at a height whereby the intervisibility</p>		

Road Safety Audit Problem	Road Safety Audit Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed Road Safety Audit Action
		zone will be available below the sign face.		
<p>Area: Junctions</p> <p>Problem: D3</p> <p>Location: Proposed priority junction on southern (Westhorpe House) access road circa. 60m west of A4155 Marlow Road/ Pump Lane South/ Westhorpe House junction</p> <p>Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003</p>				
<p>Summary: Unclear whether sufficient junction visibility splays will be available, which may result in collisions.</p> <p>The proposed speed limit of the southern (Westhorpe House) access road is not known. Therefore, it is unclear whether sufficient junction visibility splays will be available at the proposed priority junction (located circa. 60m to the west of the proposed signalised junction), particularly around the bend to/ from the west. Should insufficient junction visibility splays be available, then this may result in collisions between mainline road users approaching the junction and emerging road users (as well as those slowing to turn at the junction).</p>	<p>It is recommended that further details are provided to demonstrate that sufficient junction visibility splays will be achievable at the proposed priority junction</p>	<p>Problem Accepted:</p> <p>The on-site highway network will remain in private ownership (including the existing Westhorpe House access road). It is anticipated through the design that the speed limit will not exceed 20mph. Further details will be provided on the visibility of the junction identified by the auditor.</p>		
<p>Area: Junctions</p> <p>Problem: D4</p> <p>Location: Proposed Main Studio access on southern (Westhorpe House) access road circa. 15m south of A4155 Marlow Road/ Pump Lane South/ Westhorpe House junction</p> <p>Drawing: 60654980-ACM-XX-XX-DR-HW-000001 and 60654980-ACM-XX-XX-DR-HW-000003</p>				
<p>Summary: Road users attempting to turn right into the access may collide with oncoming road users.</p> <p>The proposed Main Studio access is situated on the southern (Westhorpe House) access road circa. 15m to the south of the proposed signalised junction. Whilst it is acknowledged that the majority of road users would be expected to turn left into the access after passing through the signalised junction from the north, road users may also attempt to turn right into the access road. This may result in collisions between right-turning vehicles and oncoming road users having just exited the proposed signalised junction, particularly due to the close proximity of the traffic signals.</p>	<p>It is recommended that road users are prohibited from turning right to the Main Studio access from the southern (Westhorpe House) access road.</p>	<p>Problem Accepted:</p> <p>It is unlikely that this manoeuvre will occur and the entry junction into the development has been aligned to deter this manoeuvre from happening. However, the Auditors' point is valid and further consideration of this item, such as lengthening the island, will be undertaken at detailed design.</p>		

Table 5: Design Organisation Statement

On behalf of the Design Organisation I certify that:

The Road Safety Audit actions identified in response to the road safety problems in this road safety audit have been discussed and agreed with the Overseeing Organisation.

Name:

Signed:

Position:

Organisation: AECOM Limited

Date:

Table 6: Overseeing Organisation Statement

On behalf of the Overseeing Organisation I certify that:

1. The Road Safety Audit actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the design organisation; and

The agreed Road Safety Audit actions will be progressed.

Name:

Signed:

Position:

Organisation: Buckinghamshire Council

Date:

AECOM Limited
Midpoint, Alencon Link
Basingstoke
Hampshire RG21 7PP
United Kingdom

T: +44(0)1256 824500
aecom.com

Appendix F Statutory Undertakers Asset Plans

Statutory Undertaker	Utility
Buckinghamshire Council	Highway Surface Water Gully Plans
Thames Water	Foul Sewage
Scottish and Southern Electricity Networks	Electricity
Thames Water	Potable Water
Cadent	Gas
Openreach	Telecommunications
Virgin Media	Telecommunications
Tata Communications	Telecommunications
GTT (Hibernia)	Telecommunications
Zayo Europe	



Fire Station

Sub Sta



36.6m

MARLOW ROAD

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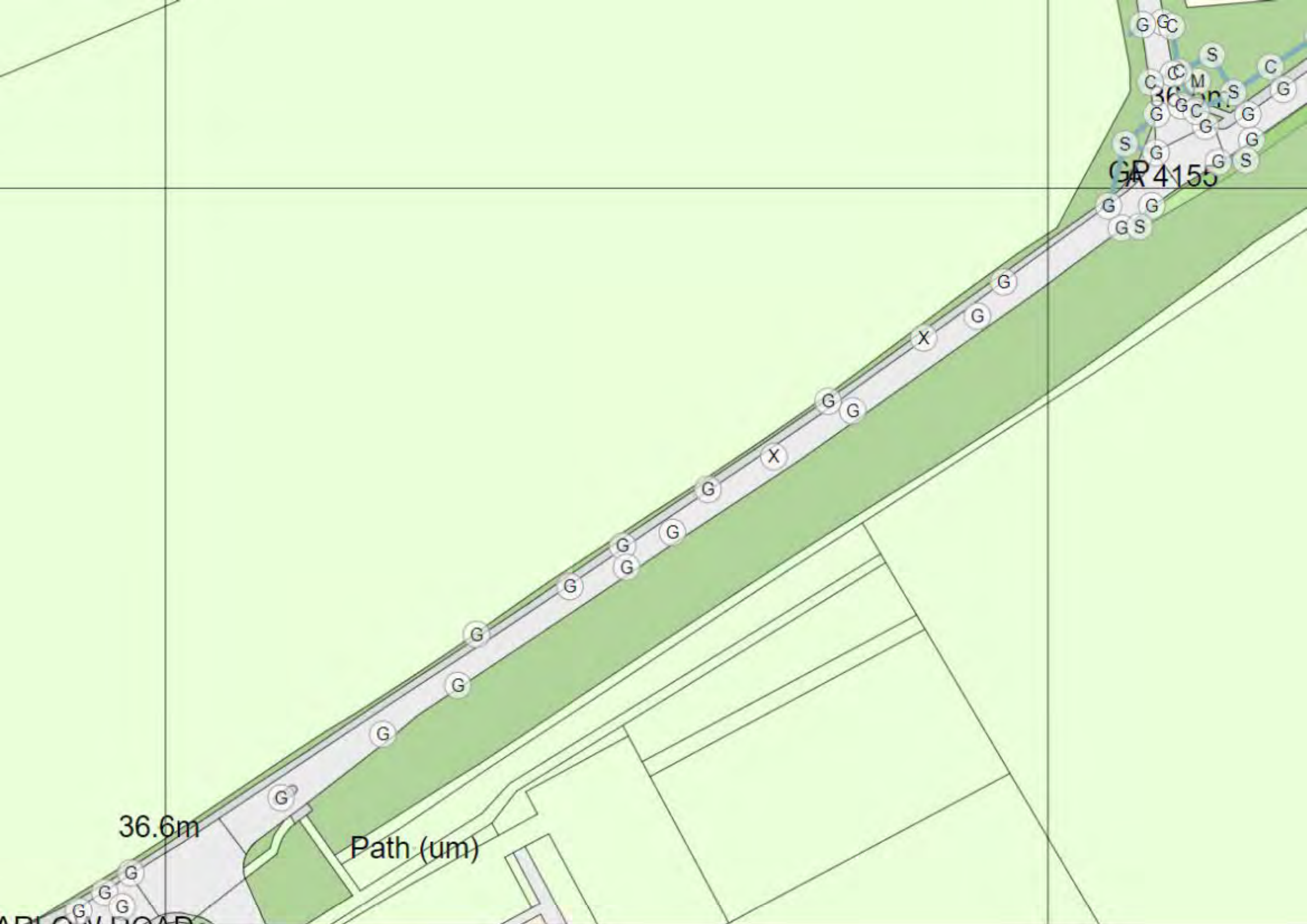
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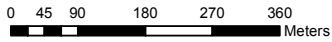
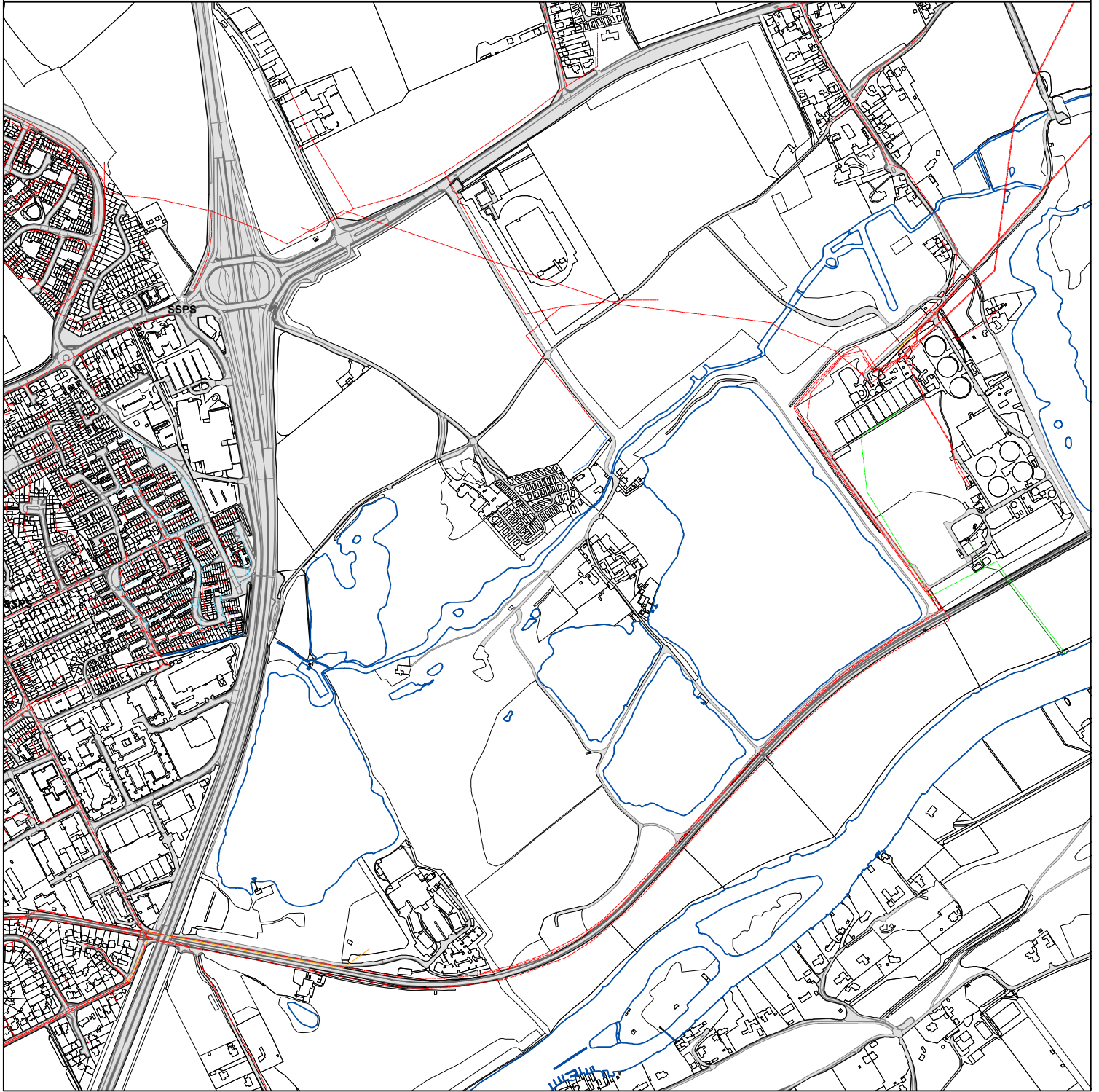
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36.6m

Path (um)

GR 4155



The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified before any works are undertaken. Crown copyright Reserved






















Scale: 1:7158
Width: 2000m
Printed By: G1KANAGA
Print Date: 15/03/2021
Map Centre: 486796,187181
Grid Reference: SU8687SE

Comments:



ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

	Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.		Trunk Foul
	Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.		Trunk Combined
	Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.		Trunk Combined
	Trunk Surface Water		Trunk Foul
	Storm Relief		Trunk Combined
	Vent Pipe		Bio-solids (Sludge)
	Proposed Thames Surface Water Sewer		Proposed Thames Water Foul Sewer
	Gallery		Foul Rising Main
	Surface Water Rising Main		Combined Rising Main
	Sludge Rising Main		Proposed Thames Water Rising Main
	Vacuum		

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plans are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
- 5) 'na' or 'D' on a manhole level indicates that data is unavailable.

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

	Air Valve
	Dam Chase
	Fitting
	Meter
	Vent Column




Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

	Control Valve
	Drop Pipe
	Ancillary
	Weir

End Items





End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

	Outfall
	Undefined End
	Inlet

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Searches on 0800 009 4540.

Other Symbols

Symbols used on maps which do not fall under other general categories








	Public/Private Pumping Station
	Change of characteristic indicator (C.O.C.I.)
	Invert Level
	Summit

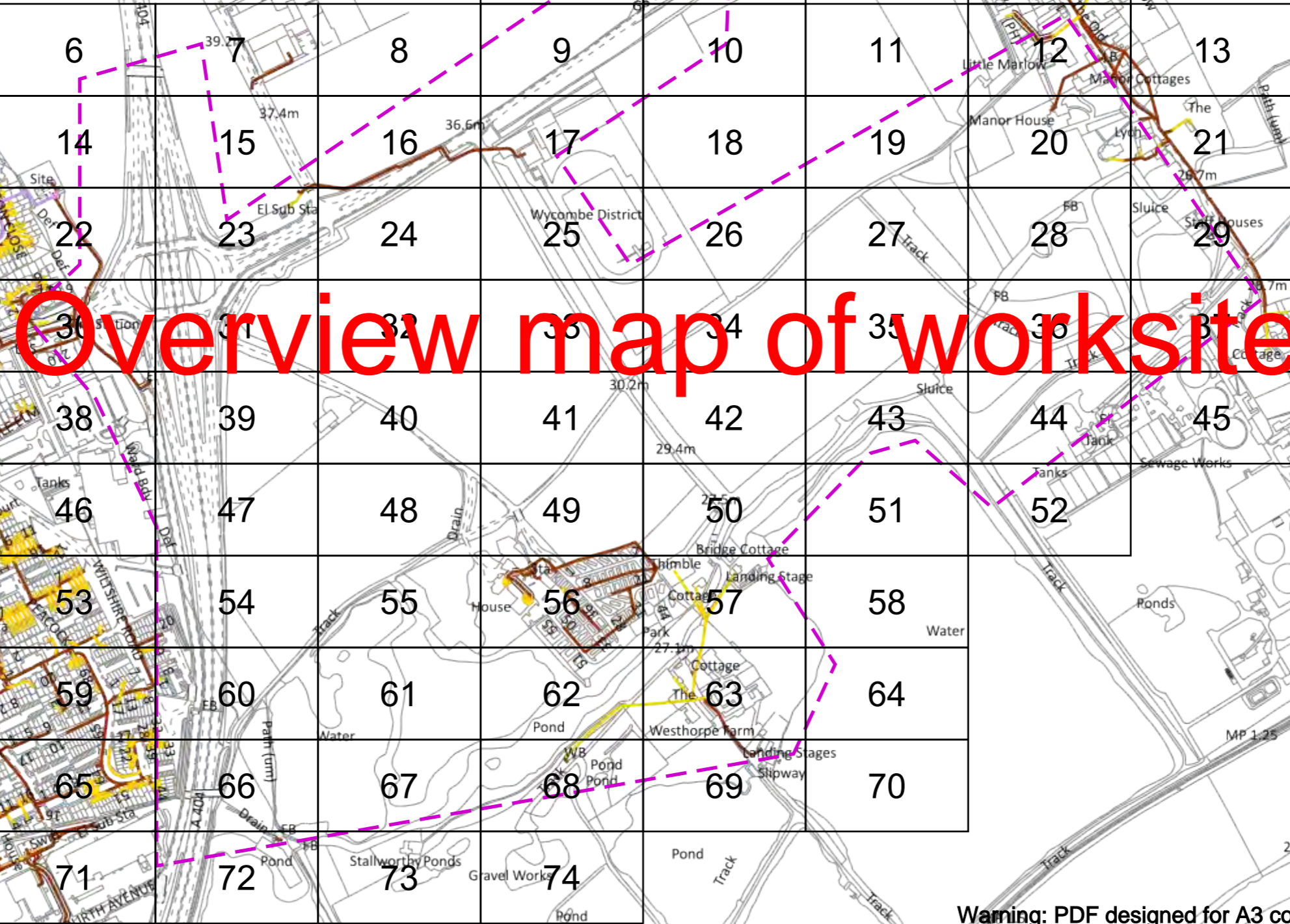
Areas

Lines denoting areas of underground surveys, etc.

	Agreement
	Operational Site
	Chamber
	Tunnel
	Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

	Foul Sewer		Surface Water Sewer
	Combined Sewer		Gully
	Culverted Watercourse		Proposed
			Abandoned Sewer



Warning: PDF designed for A3 colour print only with no page scaling

Dig Sites Area: Line:

Date Requested: 12/03/2021
 Job Reference: 21561632
 Site Location: 486812 187576
 Requested by:
 Mr Brian McMaster
 Your Scheme/Reference:
 NOC/ADDWK846

WARNING
 There may have been subsequent alteration to the surface levels. Trial holes must be undertaken to determine position and depths of cables. HS (G) 47 Booklet from the Health and Safety Executive – Avoiding Danger from Buried Cables – should be consulted before commencing excavation work.
 WHEN WORKING IN THE VICINITY OF OVERHEAD LINES THE HEALTH AND SAFETY GUIDANCE NOTES GS6 SHOULD BE CONSULTED (AVAILABLE FROM THE HSE WEBSITE)

	Voltages (V)			
	LV (Low Voltage) and Services	Up to 1,000V	Over 1,000V to 11,000V	22,000V to 132,000V
LV (High Voltage)				275,000V and 400,000V
EHV (Extra High Voltage)				
Transmission				
NORMAL DEPTH TO THE TOP OF THE CABLE WHEN LAID				
	Services	LV	HV	EHV
Footpath/Unmade	0.45m	0.45m	0.6m	0.8m
Road Crossing	0.6m	0.6m	0.75m	0.9m
Agricultural	1m	1m	1m	1.1m

Legend

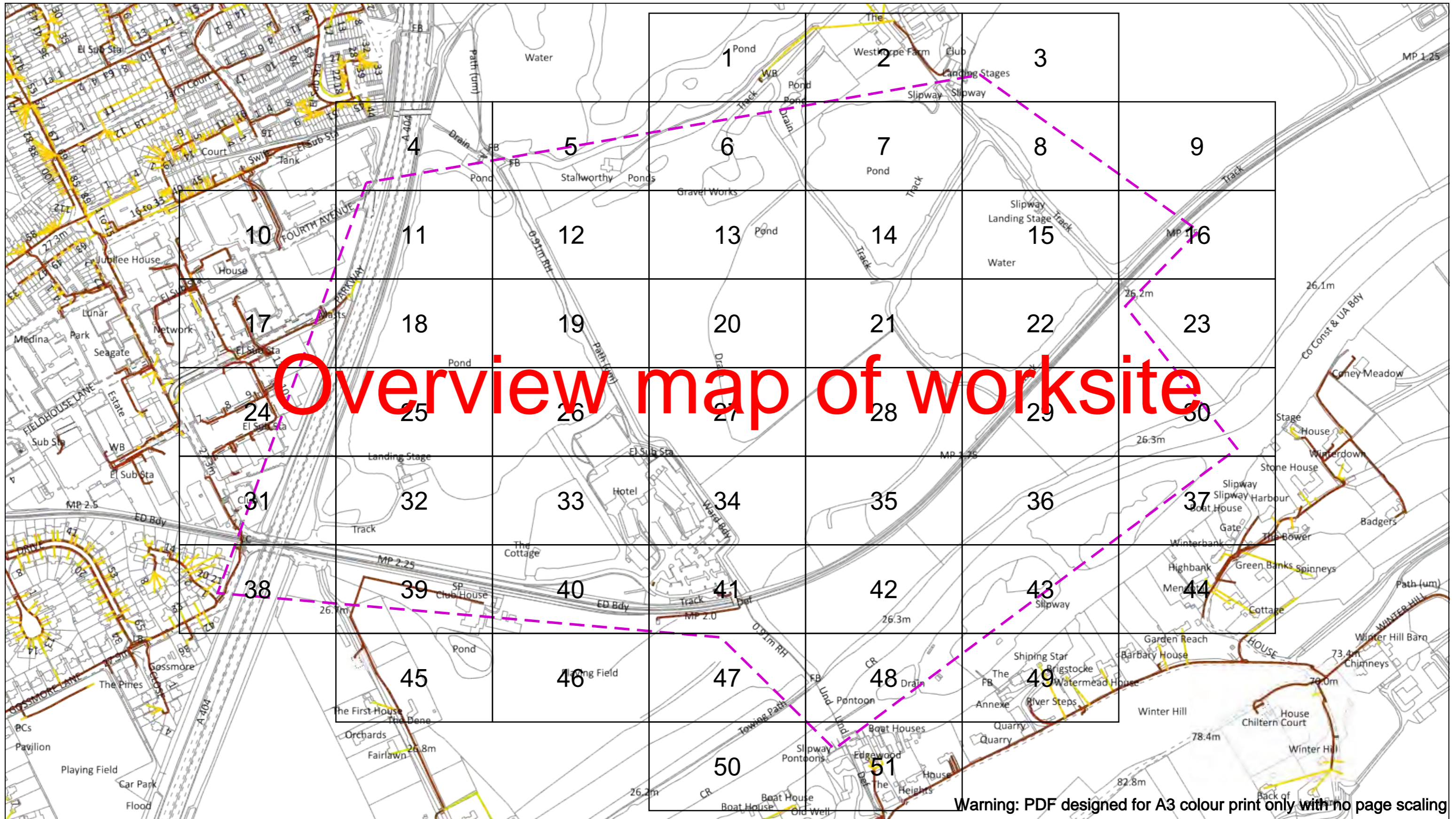
- Service Cable
- LV Mains
- 2-3.3kV
- 6.6kV
- 11kV
- 22kV
- 33kV
- 66kV
- 132kV
- 275kV
- 400kV
- Fibre Optic
- Pilot Cable

Distribution Structures (Electric)

- Pole, Existing Location
- Pole Structure, Existing Location - Single
- Pole Structure, Existing Location - H
- Duct Route
- Cross Section Route

Scottish and Southern Energy Power Distribution Ltd.
 Registered Office: Inveralmond House,
 200 Dunkeld Road, Perth, PH1 3AQ
 Registered in Scotland No. SC213459
 If you're unsure & need to seek advice before commencing excavations please contact:
 General Enquiries: 0800 048 3516
 Subject to revision – Master held by SSEN Asset Data Team:
Asset.Data@sse.com
 01256 337 294

Scale: 1:6150 (When plotted at A3)



Warning: PDF designed for A3 colour print only with no page scaling

Dig Sites Area: Line:

Date Requested: 12/03/2021
 Job Reference: 21561648
 Site Location: 486692 186668
 Requested by:
 Mr Brian McMaster
 Your Scheme/Reference:
 NOC/ADDWK846
 Scale: 1:4613 (When plotted at A3)

WARNING
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 WHEN WORKING IN THE VICINITY OF OVERHEAD LINES THE HEALTH AND SAFETY GUIDANCE NOTES GS6 SHOULD BE CONSULTED (AVAILABLE FROM THE HSE WEBSITE)

		Voltages (V)			
LV (Low Voltage) and Services		Up to 1,000V			
HV (High Voltage)		Over 1,000V to 11,000V			
EHV (Extra High Voltage)		22,000V to 132,000V			
Transmission		275,000V and 400,000V			
		NORMAL DEPTH TO THE TOP OF THE CABLE WHEN LAID			
Footpath/Unmade	Services	LV	HV	EHV	
Road Crossing		0.45m	0.45m	0.6m	0.8m
Agricultural		0.6m	0.6m	0.75m	0.9m
		1m	1m	1m	1.1m

Legend

- Service Cable
- LV Mains
- 2-3.3kV
- 6.6kV
- 11kV
- 22kV
- 33kV
- 66kV
- 132kV
- 275kV
- 400kV
- Fibre Optic
- Pilot Cable

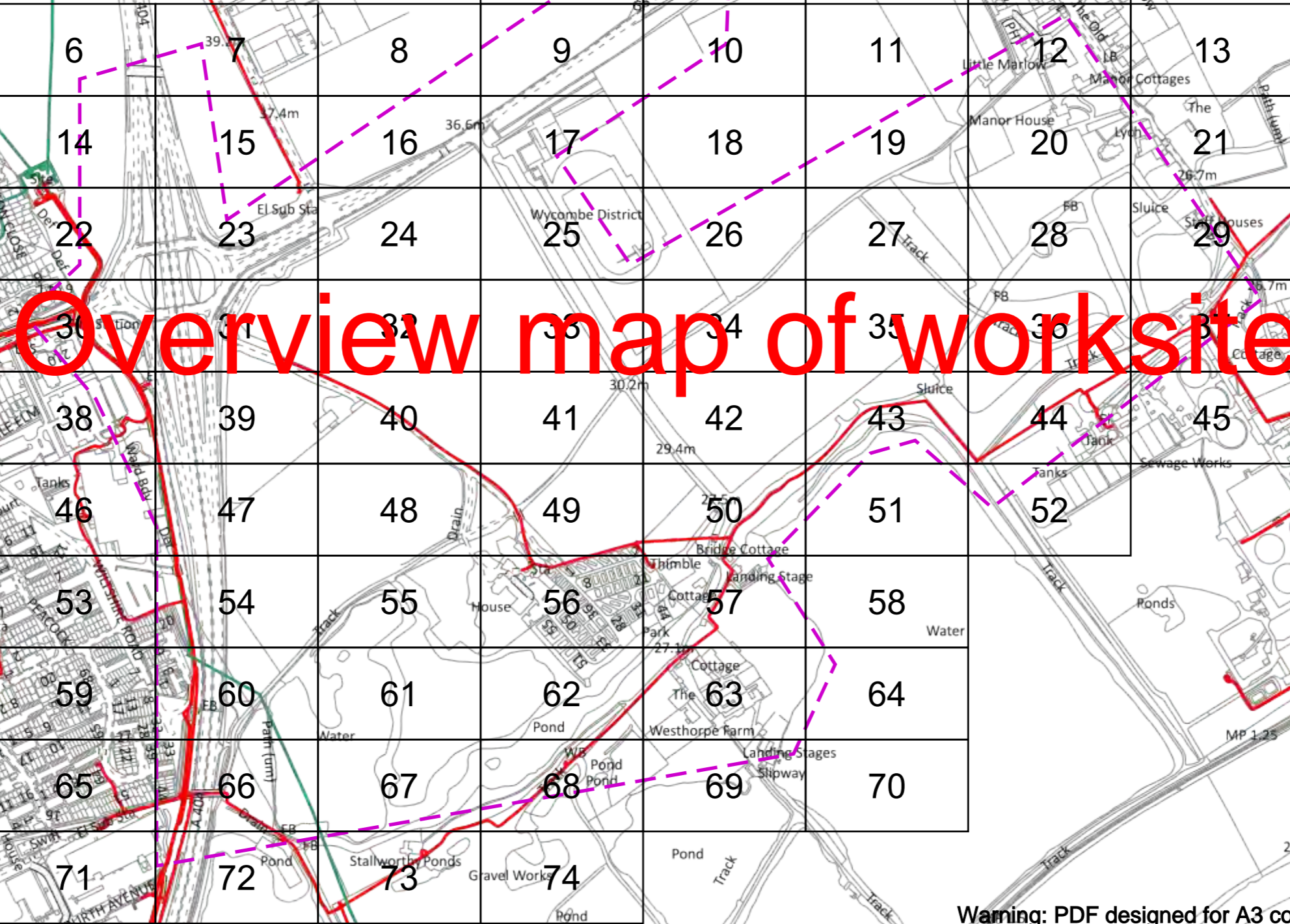
Distribution Structures (Electric)

- Pole, Existing Location
- Pole Structure, Existing Location - Single
- Pole Structure, Existing Location - H
- Duct Route
- Cross Section Route

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Dig Sites Area: Line:

Extra High Voltage cables in vicinity



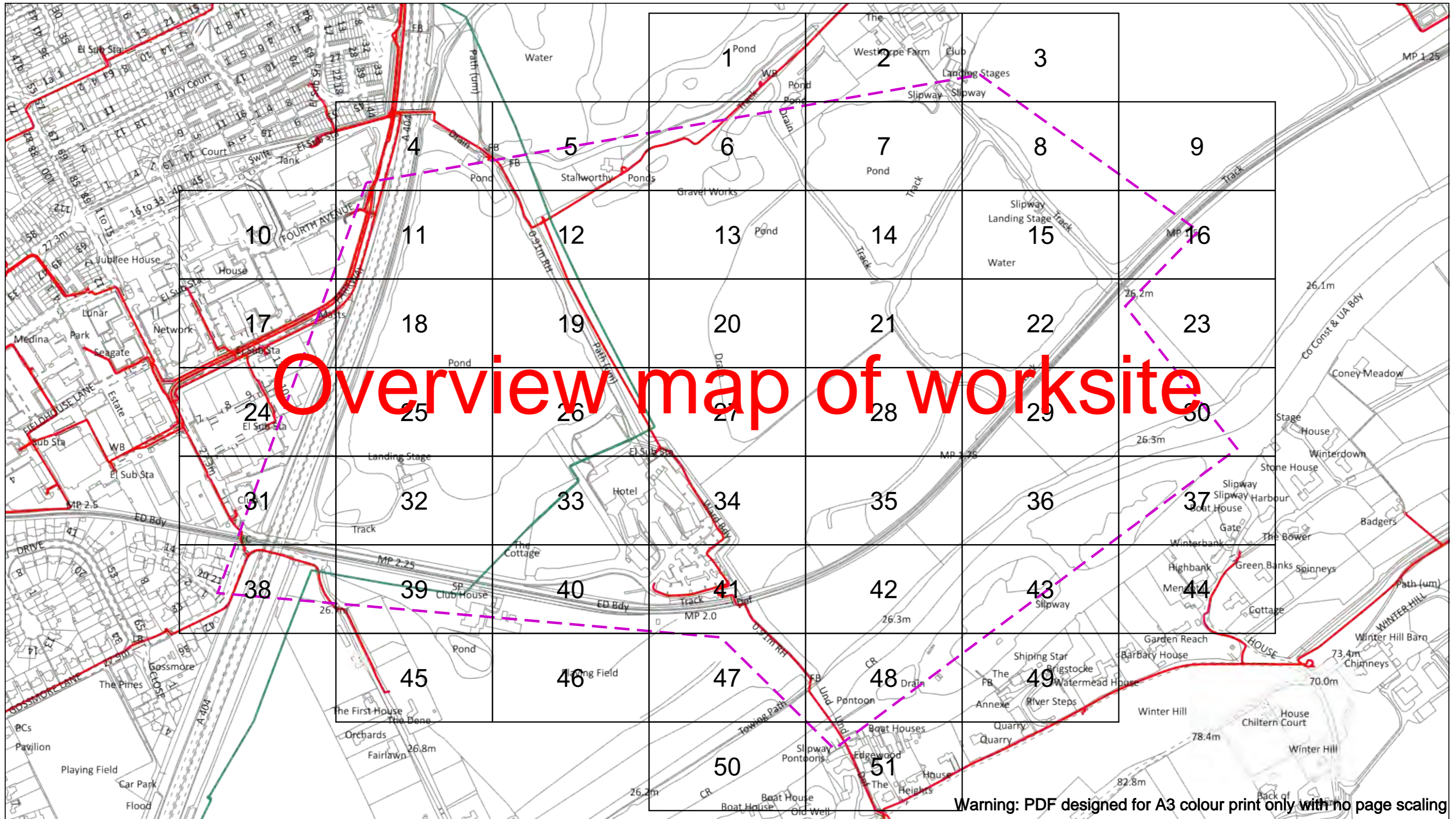
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LV (Low Voltage) and Services	Up to 1,000V			
HV (High Voltage)	Over 1,000V to 11,000V			
EHV (Extra High Voltage)	22,000V to 132,000V			
Transmission	275,000V and 400,000V			
	NORMAL DEPTH TO THE TOP OF THE CABLE WHEN LAID			
	Services	LV	HV	EHV
Footpath/Unmade	0.45m	0.45m	0.6m	0.8m
Road Crossing	0.6m	0.6m	0.75m	0.9m
Agricultural	1m	1m	1m	1.1m

<p>Legend</p> <ul style="list-style-type: none"> Service Cable LV Mains 2-33kV 6.6kV 11kV 22kV 33kV 66kV 132kV 275kV 400kV Fibre Optic Pilot Cable 	<p>Distribution Structures (Electric)</p> <ul style="list-style-type: none"> Pole, Existing Location Pole Structure, Existing Location - Single Pole Structure, Existing Location - H Duct Route Cross Section Route
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	Voltages (V)			
	LV (Low Voltage) and Services	Up to 1,000V	Over 1,000V to 11,000V	EHV (Extra High Voltage)
Transmission		22,000V to 132,000V	275,000V and 400,000V	
NORMAL DEPTH TO THE TOP OF THE CABLE WHEN LAID				
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<p>Legend</p> <ul style="list-style-type: none"> Service Cable LV Mains 2-33kV 6.6kV 11kV 22kV 33kV 66kV 132kV 275kV 400kV Fibre Optic Pilot Cable 	<p>Distribution Structures (Electric)</p> <ul style="list-style-type: none"> Pole, Existing Location Pole Structure, Existing Location - Single Pole Structure, Existing Location - H Duct Route Cross Section Route
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