



Basildon Local Plan
Frithwood Lane, Billericay
Outline Design Options Technical Note
May 2021

Document Control Sheet

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Report Title	Basildon Local Plan – Frithwood Lane, Billericay , Outline Design Options Technical Note
Document Ref	B3553R9A-BAS-Frith-01
Project Number	B3553R9A-01
Status	Final
Revision	V2
Control Date	30/09/2020

Record of Issue

Issue	Status	Author	Date	Check	Date	Review	Date
0	Draft		30/09/20		02/10/20		02/10/20
1	Final		21/05/21		22/05/21		22/05/21

Approved for issue by	Date
	22/05/21

Distribution

Organisation	Contact	Number of Copies
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1 Background

The Basildon Local Plan has determined that land between Frithwood Lane and London Road, and Blunts Wall Road and Tye Common Road will be acceptable for development.

To support the development of these sites the “SW Relief Road” is proposed between the roundabout junction of A176 Noak Hill, Laindon Road and Kennel Lane to a new junction on A129 London Road via the existing junction of Frithwood Lane and Tye Common Lane, with improvements proposed to the Highway Network on and within the vicinity of Frithwood Lane and Tye Common Lane.

This report is concerned with the layout of the SW Relief Road for the extents covering the existing length of Frithwood Lane.

A previous report has been completed which carried out an Engineering Review of the original proposals shown in Pell Frischmann’s drawing no. A13304-C-SB-JUN1 – SW Billericay Frithwood Lane Option 1 as shown in Figure 6-3 (page 51) of the Basildon HLDFs South West Billericay Development Framework report, dated 14 July 2017. The review deemed that the design was insufficient on a number of points.

This report has been commissioned to complete an outline design exercise for two further options for the route through the Frithwood Lane corridor.

It should be noted that both of these options are high level Outline Designs and although they have been completed using a topographical survey base, further additional design work would be required prior to the schemes being suitable for approval. This would include both Preliminary and Detailed Design stages.

It should be noted that since this report was originally commissioned and issued, new guidance (Local Transport Note 1/20) has been issued by the Department for Transport in July 2020 this relates to the design of cycling infrastructure and outlines recommended requirements for segregated cycling infrastructure. As this was not available at the time of writing the original version of this report the designs and recommendations highlighted in the Summary do not take these additional requirements into account. Generally, it is likely that the footway / cycleway provisions including crossing points would need to be wider resulting in additional land requirements outside of the existing Highway Boundary. Local Transport note (LTN) 1/20 requirements will need to be considered fully before any further design works are carried out and any infrastructure implemented.

2 Proposals

2.1 Option 1

The purpose of this option is to determine what improvements could be made to the existing layout of Frithwood Lane to facilitate the new relief road whilst remaining, where possible, within the existing Highway Boundary.

The alignment has generally followed that of the original Pell Frischmann design, but has been amended to reduce the amount of land take required resulting in a number of departures from standard and reduction of facilities provided.

Lane widths along the main route of the Relief Road have been maintained to standard in order to ensure that opposing traffic flows do not conflict with each other.

2.2 Option 2

The Purpose of this option is to determine the additional Land Take required from the adjacent properties to facilitate a DMRB compliant alignment through the corridor that allows for all expected vehicle movements.

The alignment generally follows that of the original Pell Frischmann design and has retained all of the features contained within that proposal, but has been amended to meet DMRB standards both in terms of alignment, visibility and vehicle tracking.

3 Engineering review

3.1 General

Both options have been designed and assessed against the Design Manual for Roads and Bridges (DMRB) and classified as an Urban All Purpose Road – Single Carriageway. It is deemed that these standards are the most suitable for the intended use of the route. It is expected that usage will be relatively high and as Tye Common Road is classified as a PR2 route in Essex' hierarchy, it is assumed that the SW Relief Road shall be classified thus or higher (PR1) as it shall form the link between the A129 (Brentwood) and A176 (Basildon).

The outline design exercise has mainly concentrated on the section of the route occupying the existing Frithwood Lane Corridor and although the proposed new alignment of Tye Common Road (south) has been shown and the junction designed to accommodate the required vehicle tracking, as this is wholly located within the development area this can be treated as indicative only.

As the Non – Motorised User requirements of the adjacent developments are not known, footways, cycleways and crossing points have not been indicated within the development areas. Since this report was originally commissioned, new guidance has been issued by the Department for Transport. Local Transport Note (LTN) 120 specifies recommended requirements for segregated cycling infrastructure. Requirements for non-motorised users and the LTN 120 guidance will need to be considered fully at detail design stage.

The revised junction between the Relief Road, Frithwood Lane and Frithwood Close has been shown as indicated on the original Pell Frischmann proposal and vehicle tracking has been carried out on the alignment; however, both the Design Team and the Road Safety Team have concerns over the viability of this layout. The close proximity of the junction between Frithwood Close and Frithwood Lane to the

junction with the Relief Road could cause queueing on the Relief Road if a right turn movement into Frithwood Close is blocked by vehicles travelling along Frithwood Lane. The constricted alignment of Frithwood Close restricts the vehicle types that are able to access this road. As this junction is partially located within the development area there is potential for this junction to be substantially re-modelled to provide better access.

Swept path analysis has been carried out using a 16.5m articulated vehicle (FTA 1998) design vehicle as well as a standard refuse vehicle. It should be noted that the Scrub Rise has been treated as an estate road based on its existing characteristics and has not been extensively altered as part of this design exercise and as such the design vehicle utilises the full width of the carriageway when making manoeuvres at the junction. This is deemed acceptable. It should be noted that although Tye Common Road has now been severed by the Relief Road the northern section (extending to the A129) should still be treated as a significant road that retains its ECC PR2 route status and as such, the junction has been modelled to allow the design vehicle to access safely.

All of the side road junctions are located on bends. For the purpose of this exercise these have been treated as Junctions and designed using the DMRB standards associated as such rather than applying the full link road requirements for a horizontal bend, which would have required additional widening.

Junction Tapers have been designed following vehicular swept paths in order to minimise land take and tie in with the existing infrastructure.

The designs have not been assessed for vertical forward visibility as the vertical alignment has not been carried out.

The Designs have not been assessed for overtaking visibility as this requires vertical alignment to have been carried out and it is not considered appropriate to allow for overtaking on this section of the route.

Lighting and signage requirements have not been assessed and these would either affect the land take (additional land required for locating them outside of the footway) or compromise the available footway widths.

3.2 Option 1

In order to minimise land take the right turn lanes and associated ghost islands located at the side road junctions have been removed from the design.

Lane widths of 3.65m have been maintained throughout the length of the route with localised widening on the bends to facilitate the swept path of the design vehicle.

The footway widths have been reduced to a minimum of 1.5m in order to minimise land take.

Although a footway has been shown, the property on the corner of Tye Common Lane and Frithwood Lane (no. 4), this could be removed to reduce land take further although this would sever connectivity for non-motorised users.

It is not possible for the design vehicle to enter or exit the side roads without encroaching on opposing running lanes, some footway over-run still occurs.

When consulted the Essex Highways Road Safety Team had concerns over the lack of right turn lanes along the length of the Relief Road, The conflict at the junctions caused by vehicles over-running opposing lanes in order to make manoeuvres, the width of the footways provided and the suitability of the proposal to accommodate the expected traffic travelling between the A176 and A129.

3.3 Option 2

Right turn lanes and associated ghost islands have been retained at the side road junctions with widths of between 3.5m and 4.0m being provide in order to accommodate the design vehicle.

Lane widths of 3.65m have been maintained throughout the length of the route with localised widening on the bends to facilitate the swept path of the design vehicle.

Footways have been reduced to 1.8m with further local reductions to 1.5m at pinch points in order to reduce land take, however these could be increased to 2m if the additional land take is accepted.

A pedestrian crossing point has been indicated to the west of the Tye Common Lane (north) junction as it is not known what the proposals are for continuing pedestrian routes through the new development.

The design vehicle can successfully navigate the junctions with Tye Common Road (north and south), Scrub Rise and Frithwood Lane (although this junction should be fully re-assessed – see separate comments)

When consulted the Essex Highways Road Safety Team were generally in acceptance of the proposal however did have concerns over the footway provision in places and lack of cycling facilities.

3.4 Statutory Undertakers

A high level review of the C2 stats returns has been carried out to ascertain if there is any apparatus present which could affect the viability of the construction of the proposal.

The following services were found to be in the area:

- UKPN (electricity)
- Street Lighting
- Cadent Gas
- BT
- Virgin Media
- Anglian Water (waste)
- Essex & Suffolk Water (supply)

It is highly likely that all of the above would require some amount of diversion works due to the construction, however the following should be noted for being of possible high cost but achievable:

- There is a large amount of asbestos concrete pipework in the E&SW network which would likely require the replacement of a large amount of the network in the area
- The estate is on a Virgin Media cable TV network with feeds accessing every property, all of which would likely require diversion
- Both BT and UKPN have overhead apparatus which would require diversion (likely relocated underground)

The following should be noted of concern to the delivery of the project:

- There is a High Pressure Gas Main located within the development field to the south east of Frithwood Lane. This would need to be crossed by the new route before it joins the existing alignment of Frithwood Lane. This is likely to cause a number of issues, as there are specific requirements about how close and what you can construct to this depending on the depth of the apparatus. A large amount of investigation will be required and consultation with the Utility Supplier which could result in the provision of a bespoke protection system, a very expensive diversion or compromised carriageway design.

3.5 Land take and compensation

A comprehensive review of the land take requirements and possible cost implications for both options is covered in a separate addendum to this report; however, a brief overview is covered below:

Option 1: Land take has been kept to the minimum required to achieve a workable solution that allows two vehicles travelling in the opposite direction to pass each other. 2 plots are affected and can be seen on drawing B35539A-01-230.14

Option 2: land take is much more extensive and affects at least 14 plots with varying degrees of severity. These areas allow for both the actual carriageway construction and the visibility splays required. The affected areas can be seen on drawing B35539A-01-210.

It should be noted that as this report only covers the horizontal alignment of the route and has not considered the vertical alignment some additional areas of land could be required in order to facilitate the re-profiling of the adjacent land if these works could not be included within any accommodation work agreed with the surrounding landowners.

4 Departures from Standard / Relaxations

Option 1

Departure / Relaxation	Title	details
Relaxation	Design speed	Reduced from 60kph to 50kph (1 step below)
Departure	Sight Stopping Distance (SSD)	Forward visibility through horizontal curves reduced to match back of footway to reduce land take
Departure	Minimum horizontal curvature	Minimum radius of kerblines not achieved within Highway boundary
Departure	Junction Radii	Minimum radius of kerblines at side roads not achieved within Highway Boundary
Departure	Taper lengths	Tapers not included on approach to Junction Radii in order to remain within Highway Boundary
Departure	Footway Width	Reduced from 2m to 1.5m in places to reduce land take

Option 2

Departure / Relaxation	Title	details
Relaxation	Design speed	Reduced from 60kph to 50kph (1 step below)

Relaxation	Sight Stopping Distance (SSD)	Reduced from 70m to 50m where required (1 step below)*
Relaxation	Minimum horizontal curvature	Reduced to 90m where required (2 step below)*
Departure	Footway Width	Reduced from 2m to 1.5m in places to reduce land take

Note: items marked with * are based on the already relaxed design speed of 50kph

5 Conclusions and Recommendations

Highway Boundary and land take

Based on the deviation from the existing Highway Boundary corridor and the amount of additional Land Take Required (incurring significant cost and time) as detailed in section 3.3, Option 1 would appear to be the better option.

Highway Geometry and Visibility Requirements for Links and Junctions

Based on the details explained in sections 3.1, 3.2 and 4, Option 2 would appear to be the better option.

The horizontal design of Option 1 is compromised on a number of levels:

- Meeting DMRB design standards – a number of departures are required
- Lack of right turn lanes into side roads – resulting in delay and congestion of the main road
- Inability to accommodate large vehicles manoeuvring in and out of side roads without having a conflict with other road users
- Vehicular over-run of footways when manoeuvring in and out of side roads
- Substandard footway widths

The above, combined with the large number of vehicular access present and the expected usage of the route (all users travelling between Basildon and Brentwood via the A176 and A129 wishing to bypass the town centre) results in the opinion of this report that this option does not satisfy the requirements of the relief Road within the Local Plan and is wholly inappropriate for implementation.

Recommendations

It is recommended that if the provision of a Relief Road utilising the existing route of Frithwood Road is pursued, then Option 2 is the proposal that is progressed based on the engineering review, however the following actions should be considered before any decisions are finalised and any land negotiations are progressed:

Assessment of vertical design to determine any additional land requirements / the extents of any accommodation works.

Statutory Undertakers C3 assessment in order to assess potential diversion costs and programmes.

Assessment of the route in line with CD143 for walking / cycling and equestrian usage to determine the facilities required – this would need to be aligned with the strategies for the adjacent developments and the requirements in the recently issued LTN 1/20 design guidance.

Review of the design for the Frithwood Close / Frithwood Lane / Relief Road junction to cater for all turning movements.

Review of the separate land assessment addendum to assess the viability of the route from a financial and legal view.

Review of the effects of the proposal on the large number of private access (vehicular crossovers) located along the route.

Complete a level 1 construction cost estimate.

Carry out a formal Stage 1 Road Safety Audit on the revised proposals.

6 Appendices

6.1 Appendix A – Drawings

Drawing no. B3553R9A-01-200 - General Arrangement - Option 2

Drawing no. B3553R9A-01-201 - Junction Visibility Splays and Stopping Sight Distances Sht1 - Option 2

Drawing no. B3553R9A-01-202 - Junction Visibility Splays and Stopping Sight Distances Sht2 - Option 2

Drawing no. B3553R9A-01-203 - Swept Path Analysis sht 1 - Option 2

Drawing no. B3553R9A-01-204 - Swept Path Analysis sht 2 - Option 2

Drawing no. B3553R9A-01-205 - Swept Path Analysis sht 3 - Option 2

Drawing no. B3553R9A-01-206 - Swept Path Analysis sht 4 - Option 2

Drawing no. B3553R9A-01-207 - Swept Path Analysis sht 5 - Option 2

Drawing no. B3553R9A-01-208 - Swept Path Analysis sht 6 - Option 2

Drawing no. B3553R9A-01-210 – Land Take and Highway Boundary Option 2

Drawing no. B3553R9A-01-220 - General Arrangement - Option 1

Drawing no. B3553R9A-01-221 - Junction Visibility Splays and Stopping Sight Distances Sht1 - Option 1

Drawing no. B3553R9A-01-222 - Junction Visibility Splays and Stopping Sight Distances Sht2 - Option 1

Drawing no. B3553R9A-01-223 - Swept Path Analysis sht 1 - Option 1

Drawing no. B3553R9A-01-224 - Swept Path Analysis sht 2 - Option 1

Drawing no. B3553R9A-01-225 - Swept Path Analysis sht 3 - Option 1

Drawing no. B3553R9A-01-226 - Swept Path Analysis sht 4 - Option 1

Drawing no. B3553R9A-01-227 - Swept Path Analysis sht 5 - Option 1

Drawing no. B3553R9A-01-228 - Swept Path Analysis sht 6 - Option 1

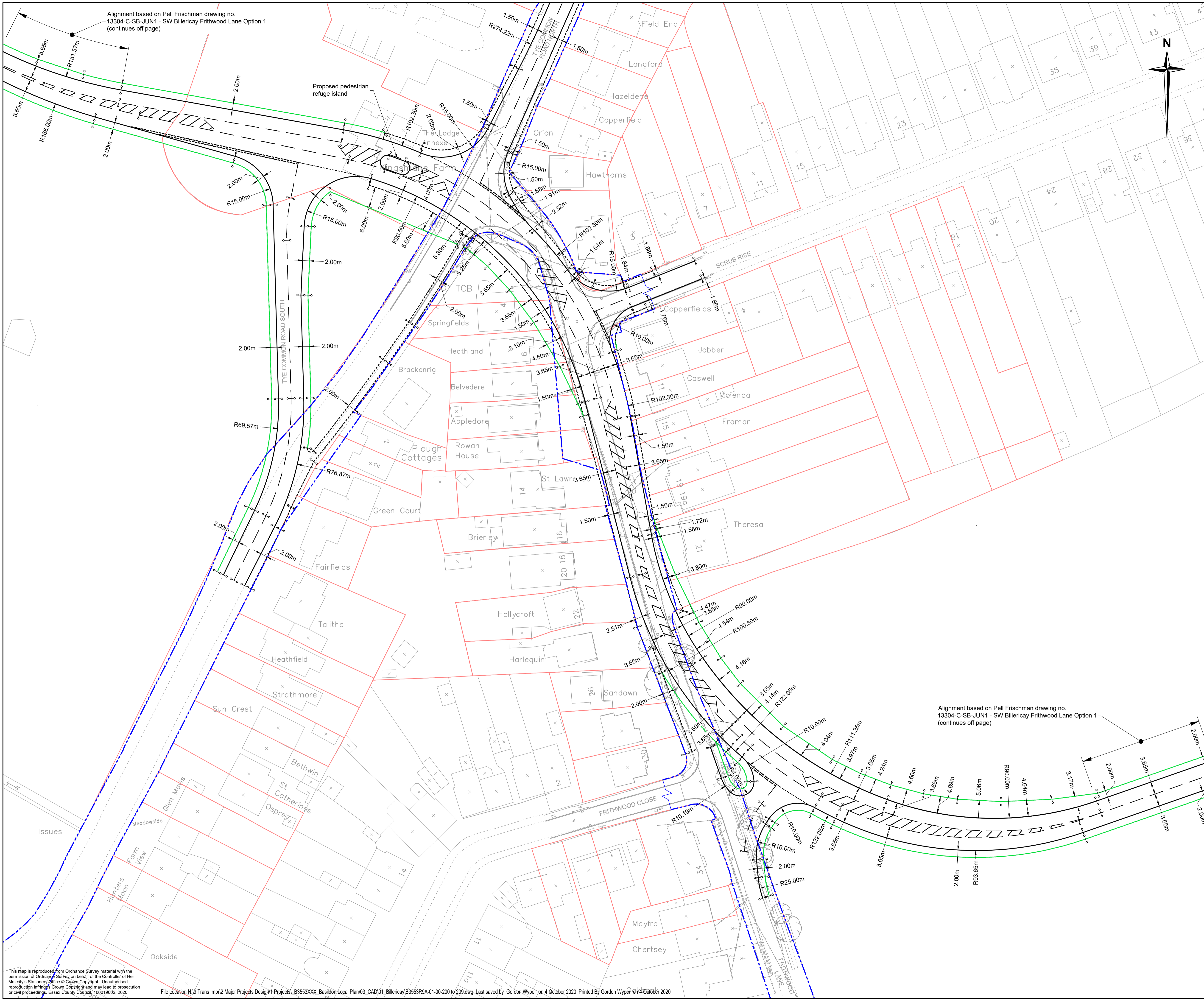
Drawing no. B3553R9A-01-230 – Land Take and Highway Boundary Option 1

6.2 Appendix B – Land Registry

Map search print out from land registry showing all land plots

6.3 Appendix C – Highway Boundary

2513290 - Tye Common Road Billericay Highway Boundary



- Notes**
- Do not scale.
 - Arrangement based upon standards in Design Manual for Roads and Bridges (DMRB) tying into alignments based on that shown in drawing no. A13304-C-SB-JUN1 - SW Billericay Frithwood Lane Option 1 prepared by Pell Frischman.
 - Verge alignment shown allows provision for 2.00m minimum and 70m forward visibility Stopping Sight Distance (SSD) / junction visibility splays.
- Key**
- Proposed kerb
 - Proposed edging/back of footway
 - Proposed back of verge
 - Proposed road markings
 - Existing Highway boundary
 - Land Registry plot boundary
 - Tangent points

Rev	Date	Description of revision	Drawn	Checked	Reviewed/Approved

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SCHEME TITLE: **BASILDON LOCAL PLAN - FRITHWOOD LANE, BILLERICAY OPTION 2 - DMRB STANDARDS**

DRAWING TITLE: **GENERAL ARRANGEMENT**

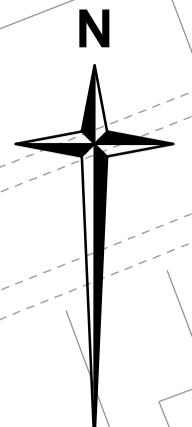
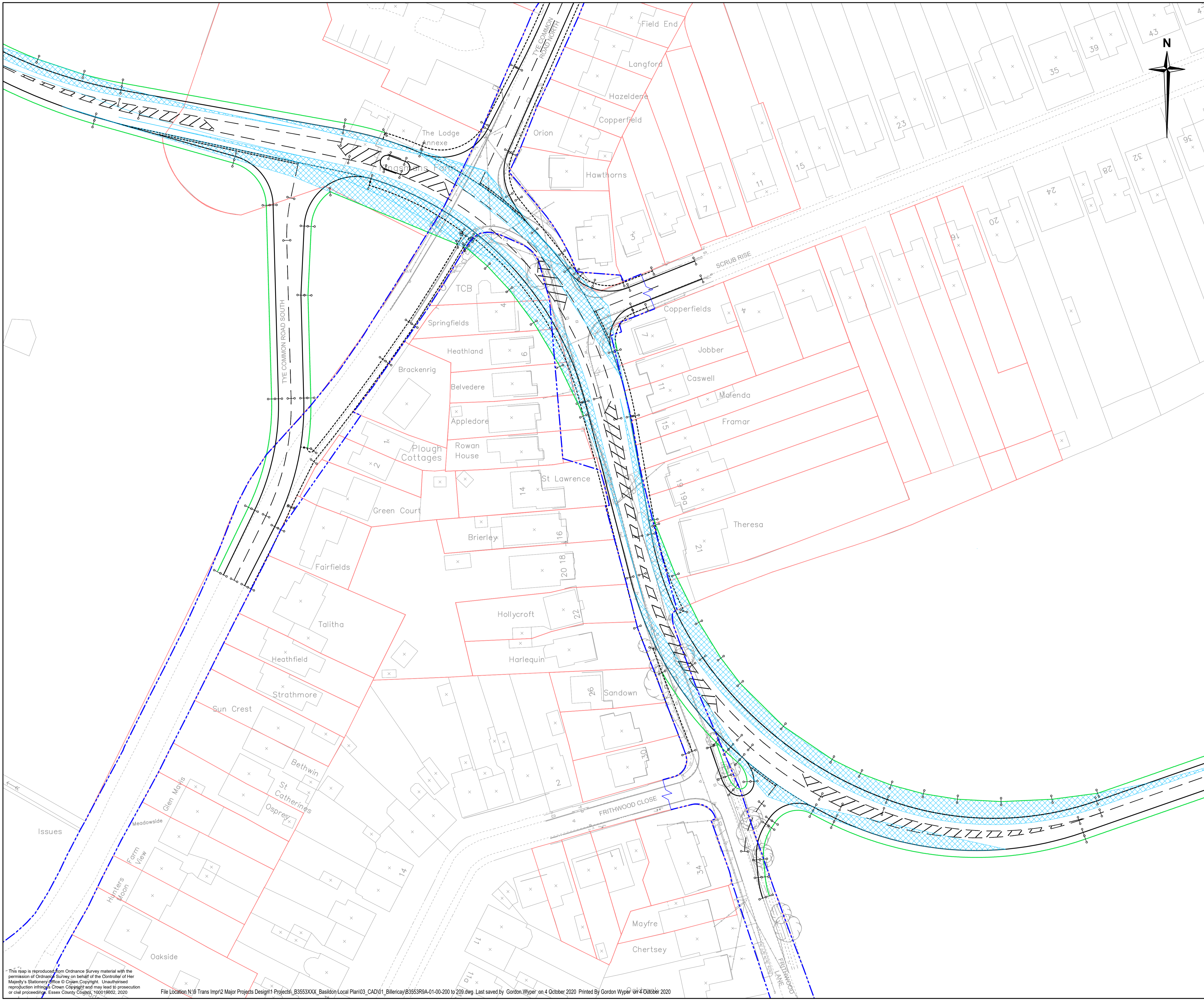
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DRAWING UNITS U.N.O. DIMENSIONS AS SHOWN SCALE AT A1 (841x594mm) 1:500

DRAWING No. **B3553R9A-01-00-200** REV. -



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- Notes**
1. Do not scale.
 2. Arrangement based upon standards in Design Manual for Roads and Bridges (DMRB) tying into alignments based on that shown in drawing no. A13304-C-SB-JUN1 - SW Billericay Frithwood Lane Option 1 prepared by Pell Frischman.
 3. Junction visibility splays X distance = 4.5m.
 4. Verge alignment shown allows provision for 2.00m minimum and 70m forward visibility Stopping Sight Distance (SSD) / junction visibility splays.
 3. For dimensions, refer to General Arrangement, drawing number B3553R9A-01-00-200.
- Key**
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 - Land Registry plot boundary
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 - ▨ Forward visibility and junction visibility splay requirements

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SCHEME TITLE
**BASILDON LOCAL PLAN -
 FRITHWOOD LANE, BILLERICAY
 OPTION 2 - DMRB STANDARDS**

DRAWING TITLE
**JUNCTION VISIBILITY SPLAYS
 AND STOPPING SIGHT DISTANCES
 50KPH DESIRABLE MINIMUM (70m)**

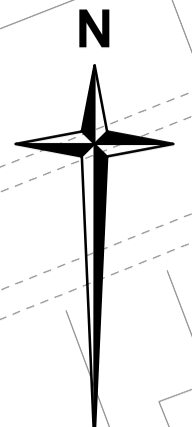
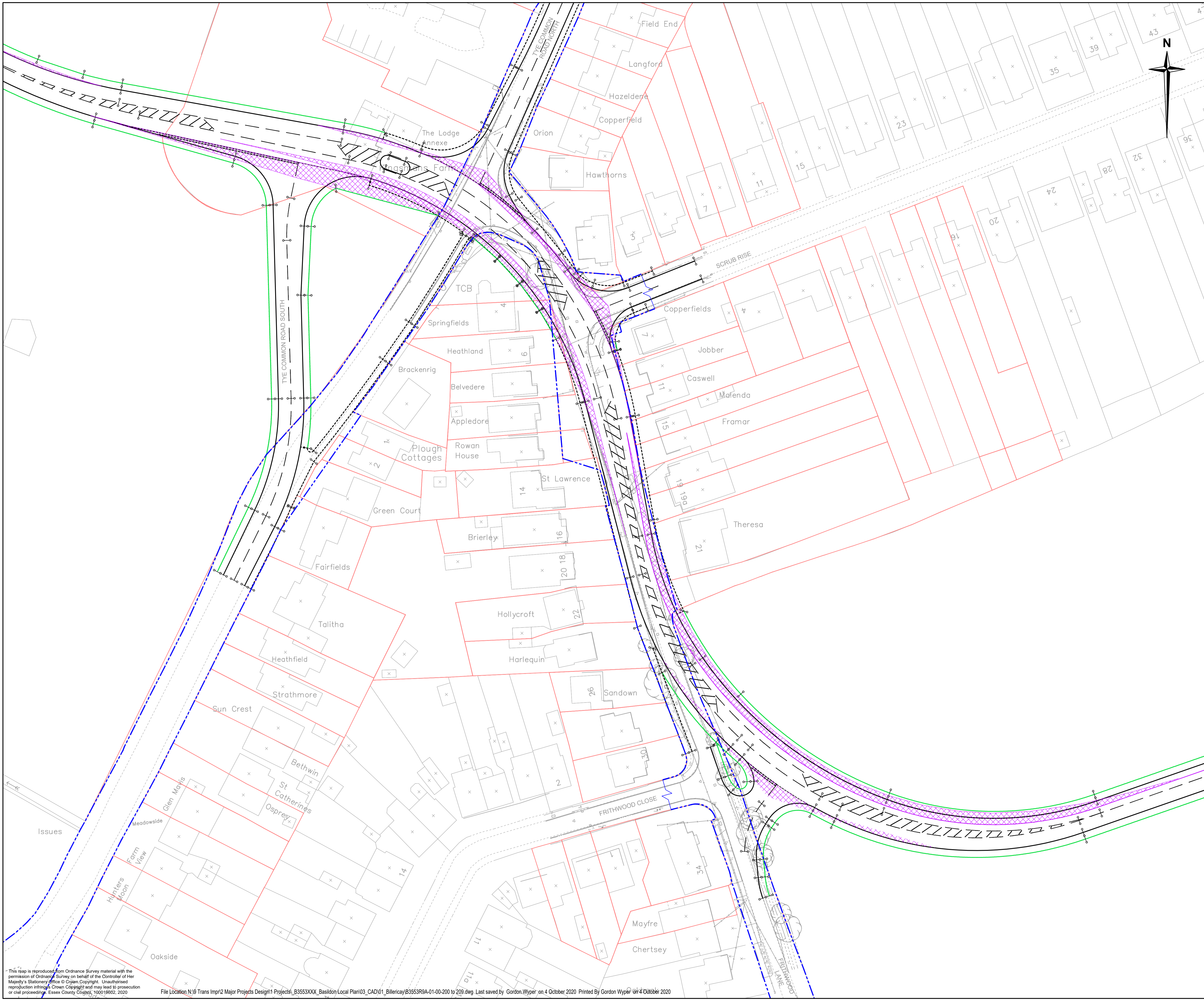
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- Key**
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SCHEME TITLE
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OPTION 2 - DMRB STANDARDS**

DRAWING TITLE
**JUNCTION VISIBILITY SPLAYS AND
STOPPING SIGHT DISTANCES 50KPH
ONE STEP BELOW DESIRABLE
MINIMUM (50m)**

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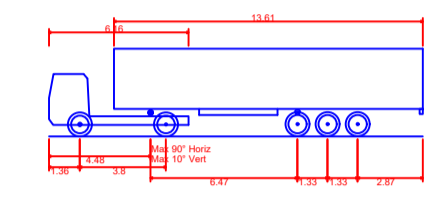


Notes

1. Do not scale.
2. Design Vehicle is 16.5m long articulated Heavy Goods Vehicle as defined by the Design Manual for Roads and Bridges.
3. Verge alignment shown allows provision for 2.00m minimum and 70m forward visibility Stopping Sight Distance (SSD) / junction visibility splays.
4. For dimensions, refer to General Arrangement, drawing number B3553R9A-01-00-200.

Key

- Proposed kerb
- - - Proposed edging/back of footway
- Proposed back of verge
- Proposed road markings
- Swept path (green = body overhang; red = vehicle track)



FTA Design Articulated Vehicle (1998)	16.480m
Overall Length	2.520m
Overall Width	3.370m
Overall Height	0.515m
Min Body Ground Clearance	2.470m
Max Track Width	0.910m
Max Back Overhang	6.000m
Kerb to Kerb Turning Radius	

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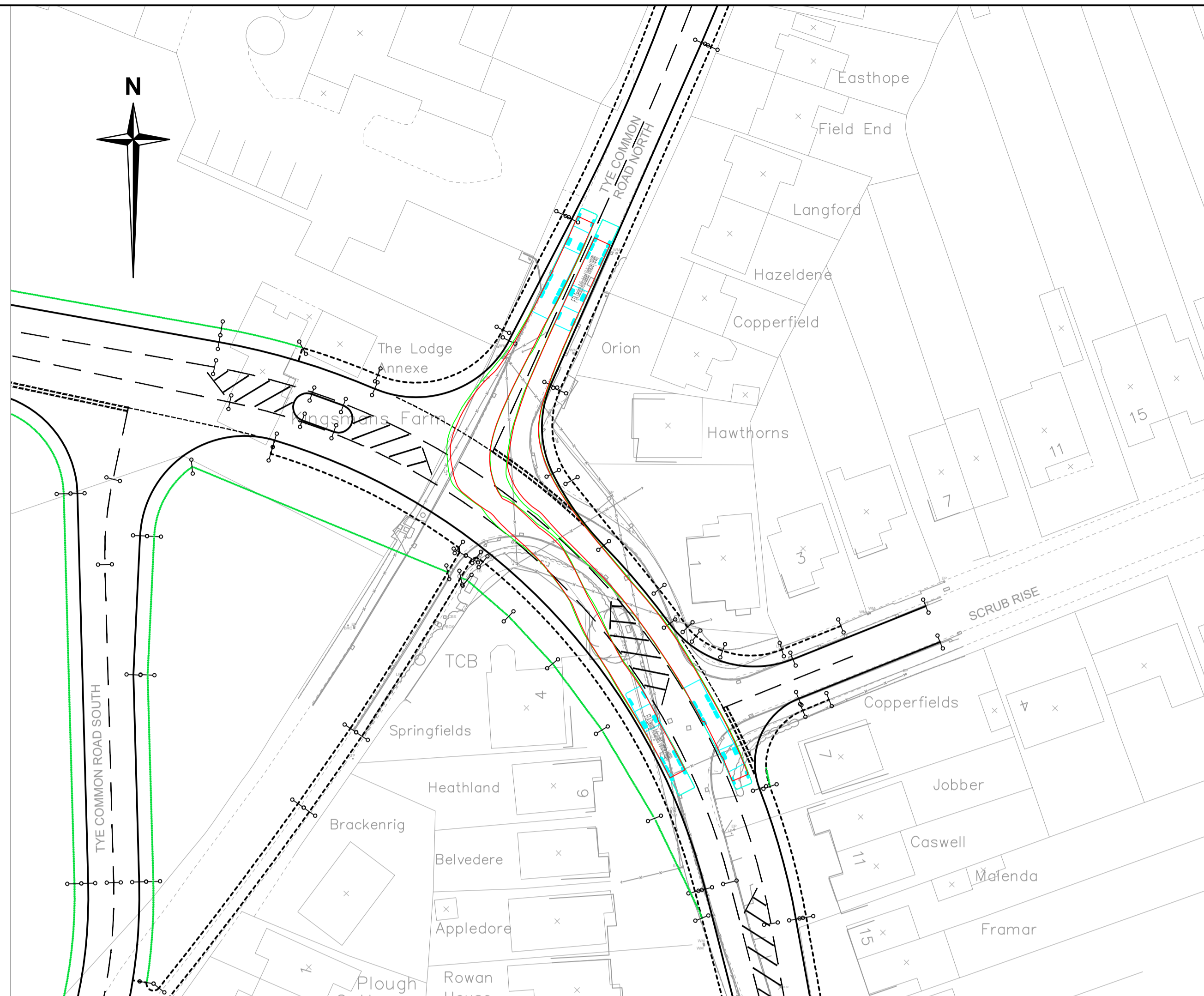
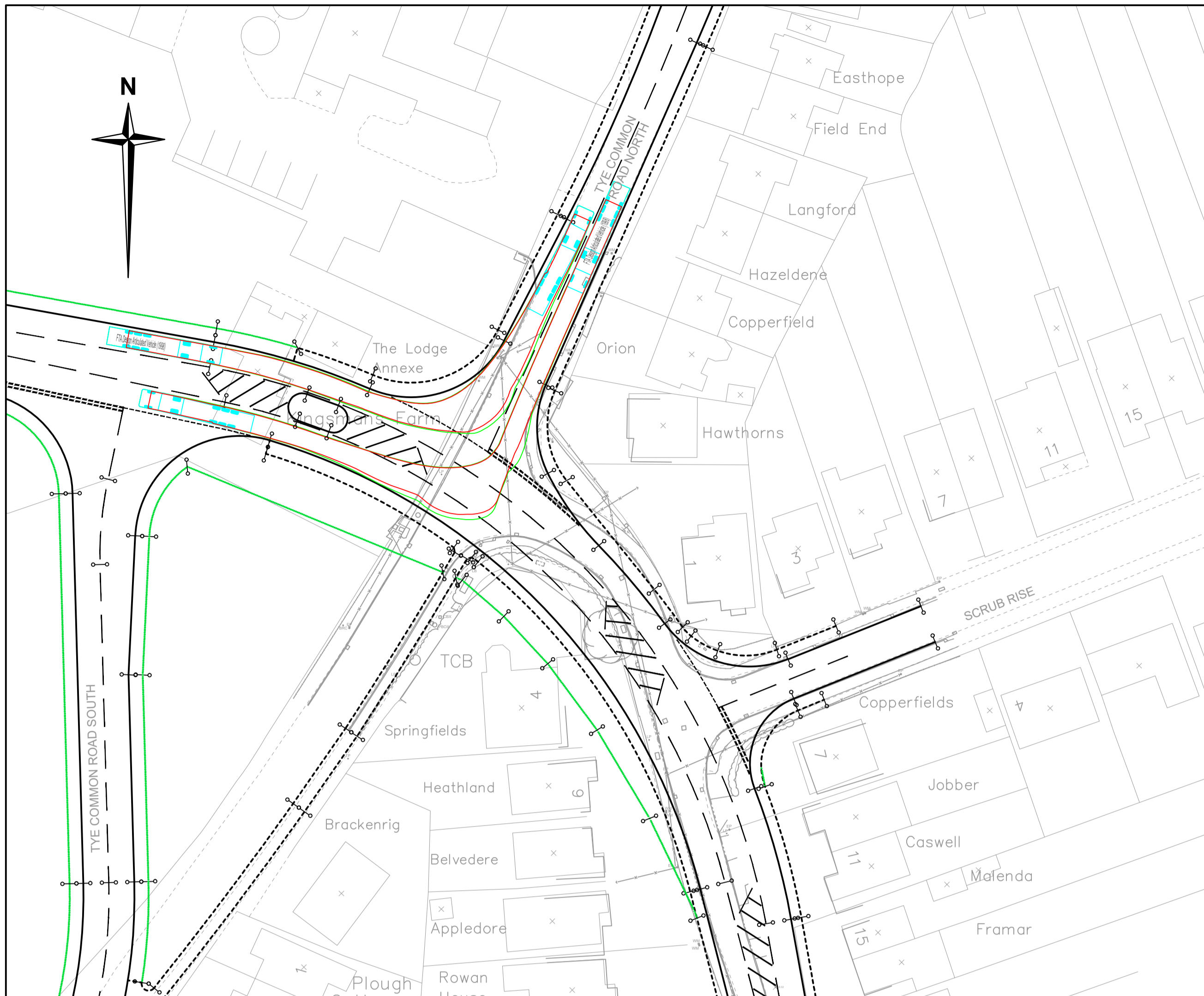
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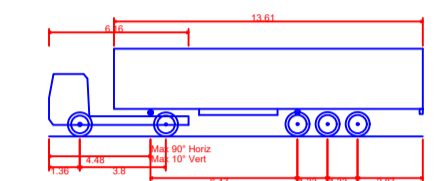


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- - - Proposed edging/back of footway
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- Swept path (green = body overhang; red = vehicle track)



FTA Design Articulated Vehicle (1998)
 Overall Length 16.400m
 Overall Width 2.550m
 Overall Height 3.370m
 Min Body Ground Clearance 0.915m
 Max Track Width 2.470m
 Kerb to Kerb Turning Radius 8.500m

Rev	Date	Description of revision	Drawn	Checked	Reviewed/Approved

DRAWING STATUS: **DRAFT**



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SCHEME TITLE:
**BASILDON LOCAL PLAN -
 FRITHWOOD LANE, BILLERICAY
 OPTION 2 - DMRB STANDARDS**

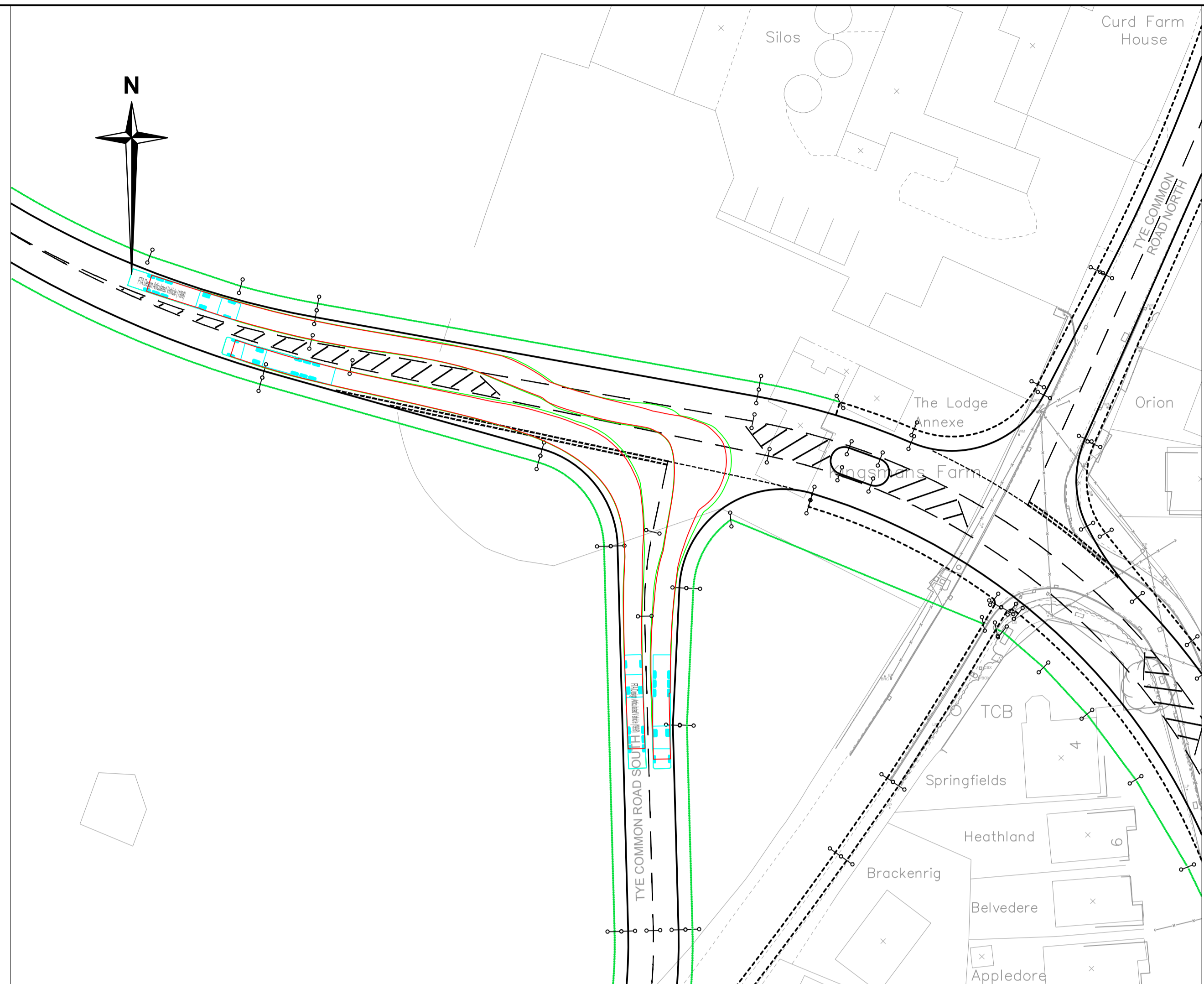
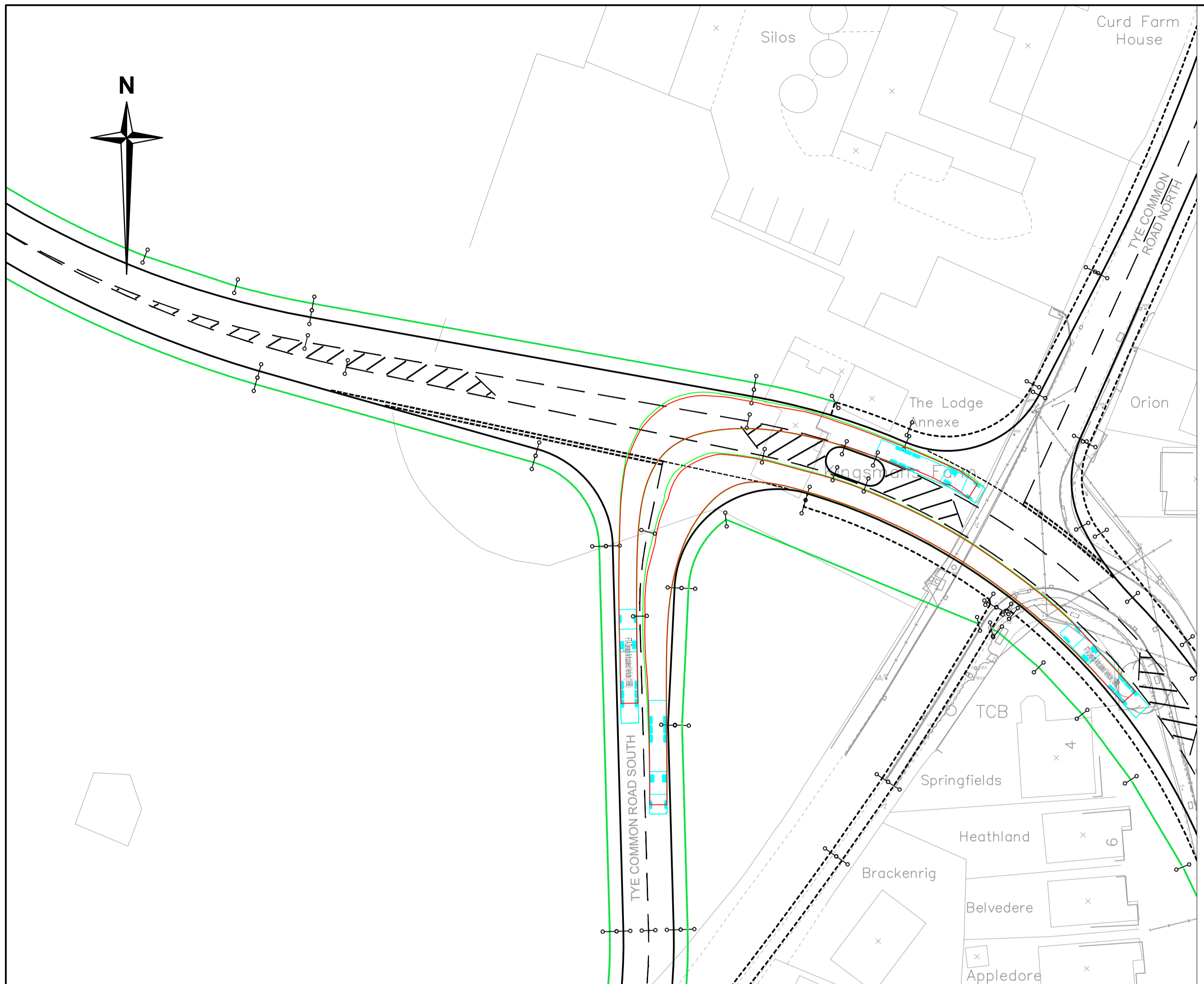
DRAWING TITLE:
**SWEPT PATH ANALYSIS
 SW RELIEF ROAD J/W
 TYE COMMON ROAD NORTH**

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
GCW	GCW	MPA	MPA	GCW
DATE	DATE	DATE	DATE	DATE
SEP 20	SEP 20	SEP 20	SEP 20	SEP 20

DRAWING UNITS U.N.O. DIMENSIONS AS SHOWN SCALE AT A1 (841X594mm) 1:500

DRAWING No. **B3553R9A-01-00-204** REV. -



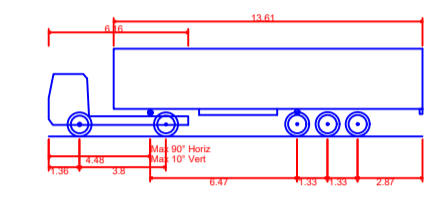


Notes

1. Do not scale.
2. Design Vehicle is 16.5m long articulated Heavy Goods Vehicle as defined by the Design Manual for Roads and Bridges.
3. Verge alignment shown allows provision for 2.00m minimum and 70m forward visibility Stopping Sight Distance (SSD) / junction visibility splays.
4. For dimensions, refer to General Arrangement, drawing number B3553R9A-01-00-200.

Key

- Proposed kerb
- Proposed edging/back of footway
- Proposed back of verge
- Proposed road markings
- Swept path (green = body overhang; red = vehicle track)



FTA Design Articulated Vehicle (1998)	16.400m
Overall Length	16.400m
Overall Width	2.550m
Overall Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Max Track Overhang	0.900m
Kerb to Kerb Turning Radius	8.500m

Rev	Date	Description of revision	Drawn	Checked	Reviewed	Approved

DRAWING STATUS: **DRAFT**



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SCHEME TITLE:
BASILDON LOCAL PLAN - FRITHWOOD LANE, BILLERICAY OPTION 2 - DMRB STANDARDS

DRAWING TITLE:
SWEPT PATH ANALYSIS SW RELIEF ROAD J/W TYE COMMON ROAD SOUTH

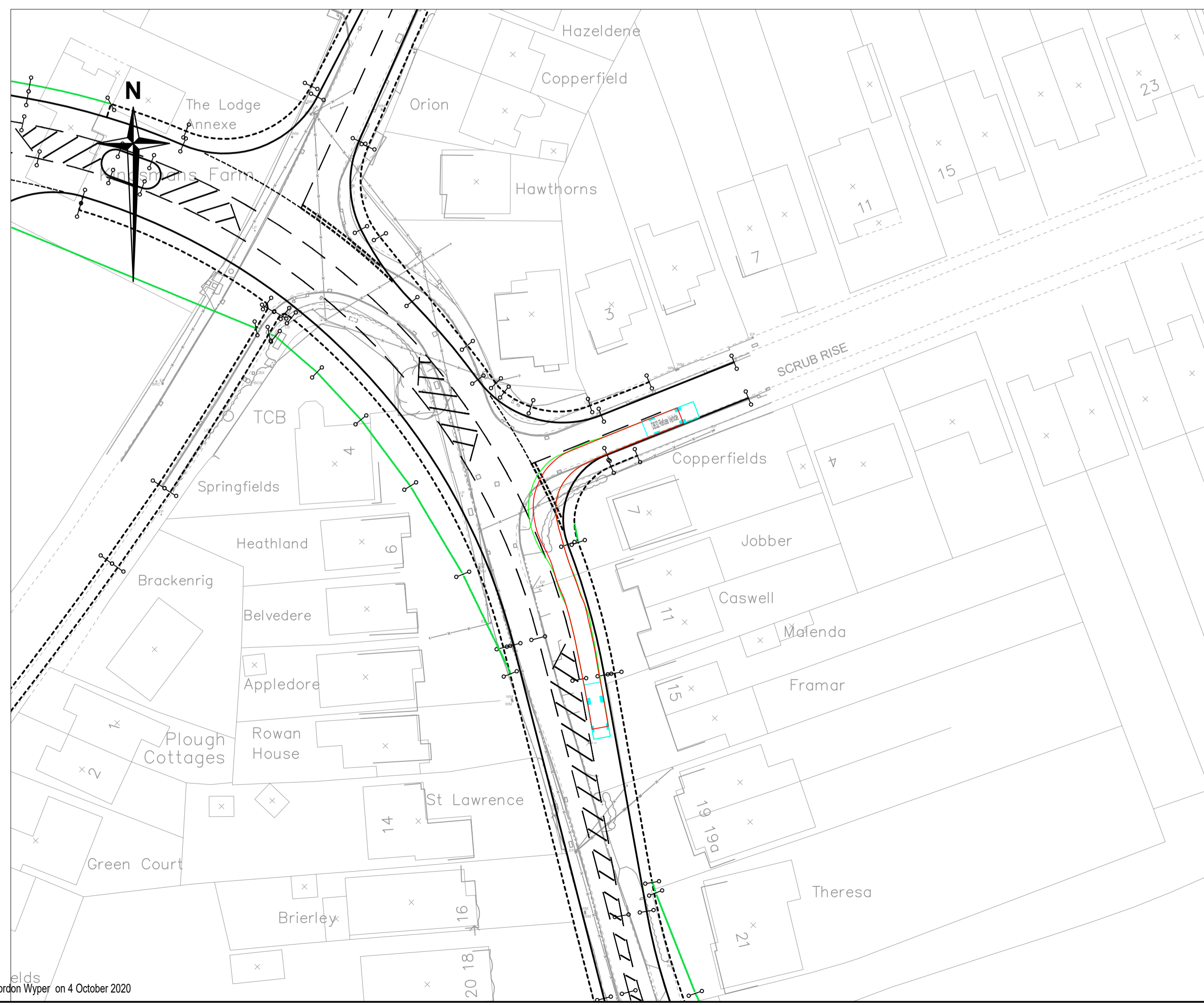
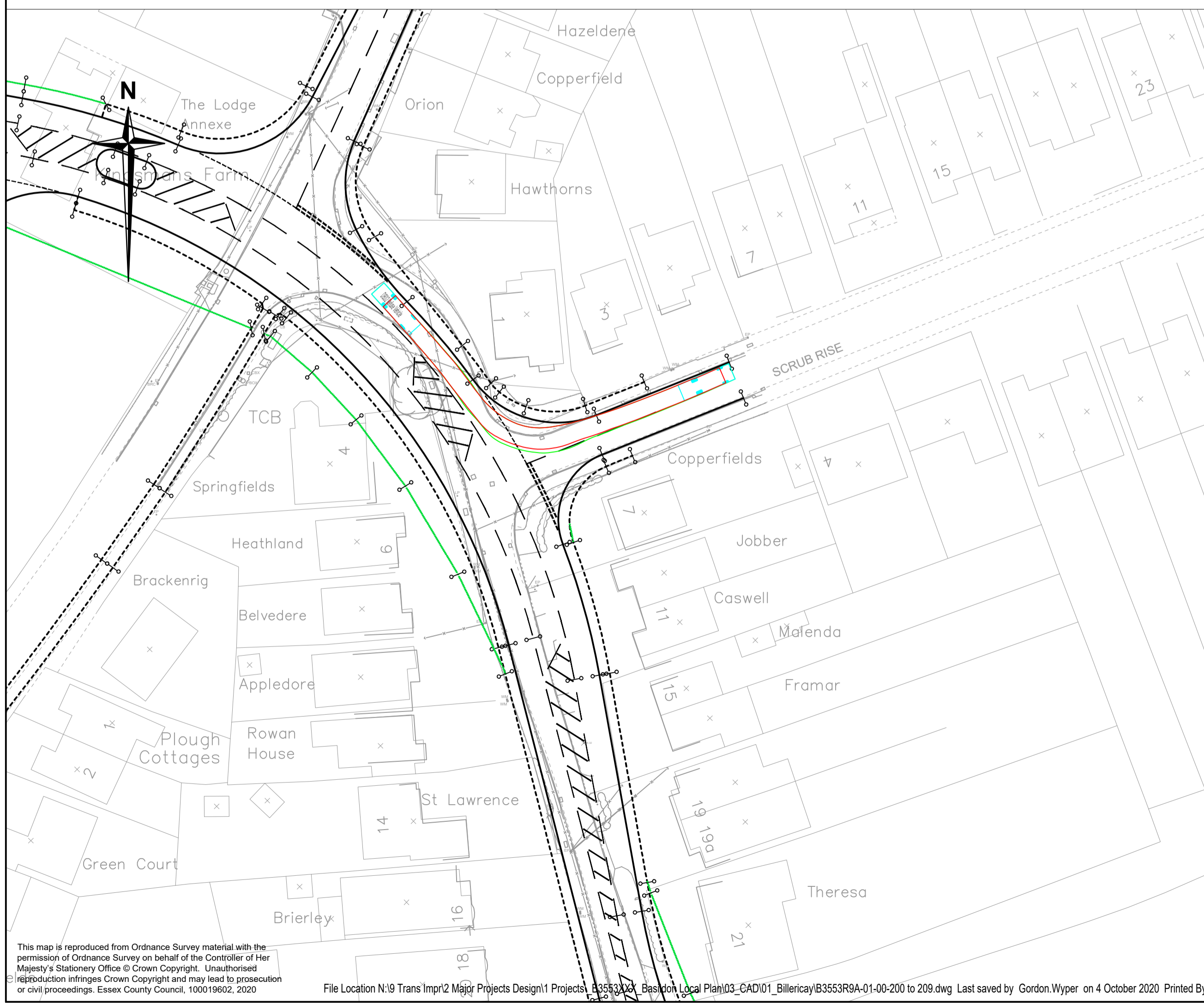
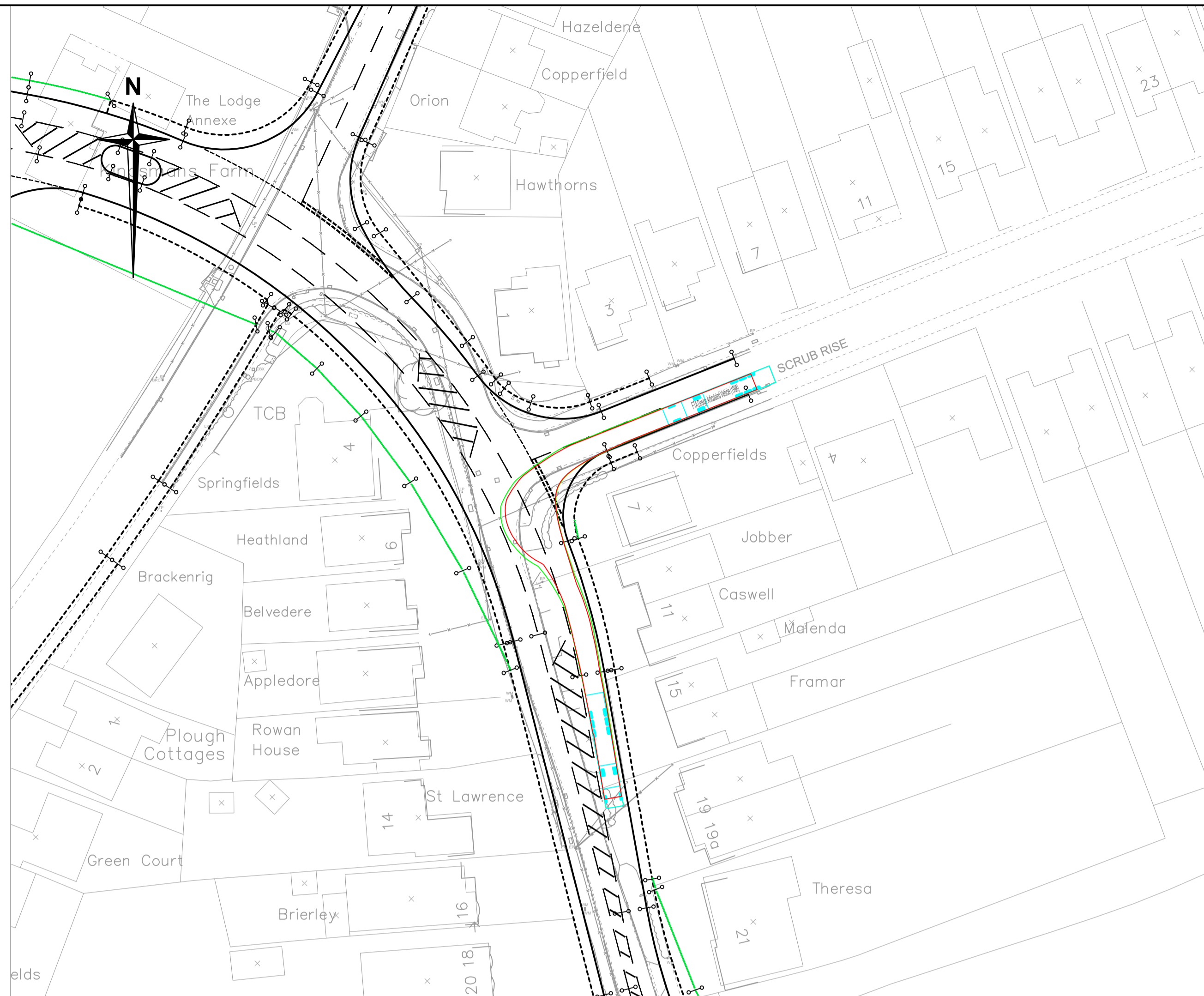
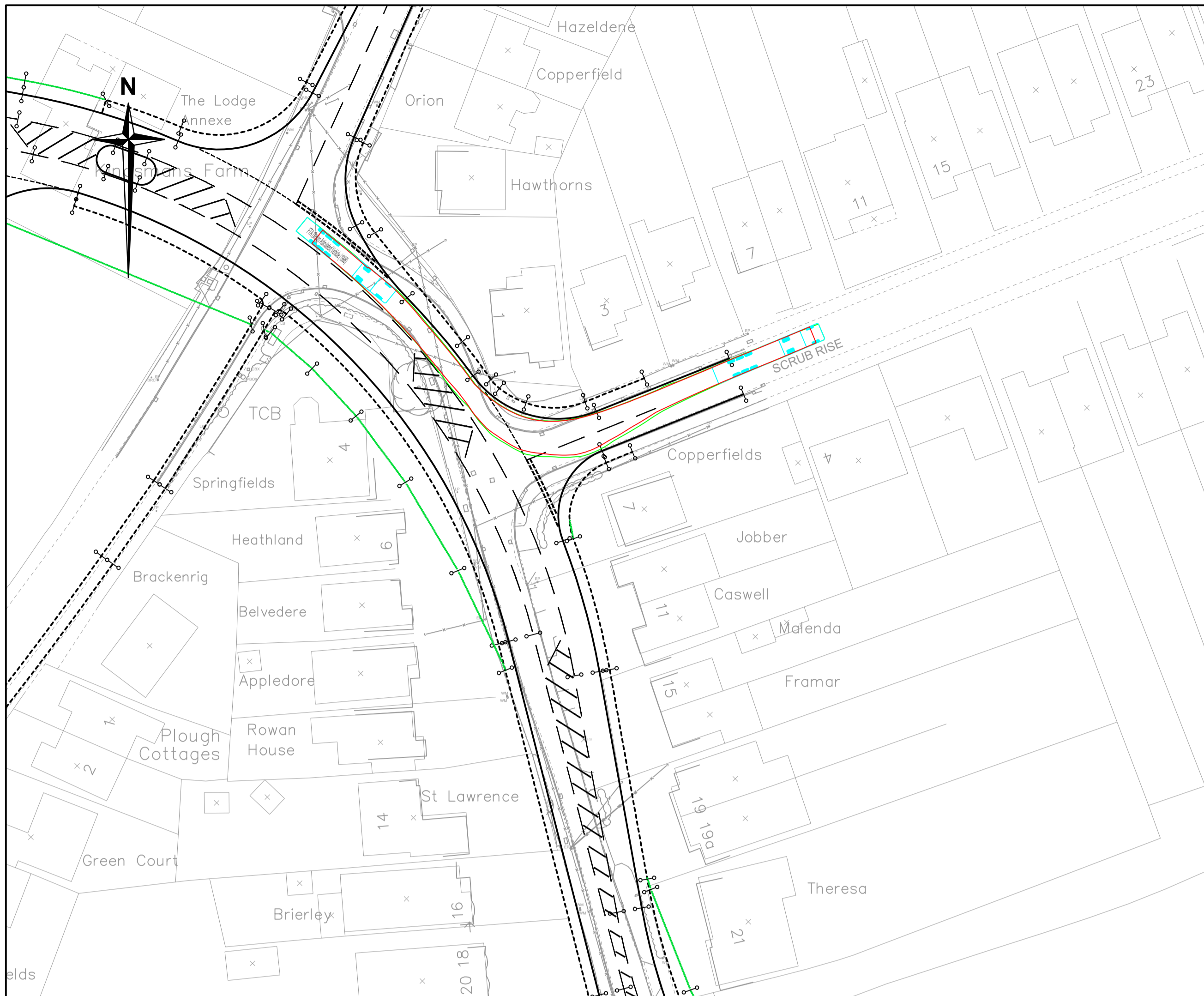
DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
GCW	GCW	MPA	MPA	GCW
DATE	DATE	DATE	DATE	DATE
SEP 20	SEP 20	SEP 20	SEP 20	SEP 20

DRAWING UNITS U.N.O. DIMENSIONS AS SHOWN SCALE AT A1 (841x594mm) 1:500

DRAWING No. **B3553R9A-01-00-205** REV. -



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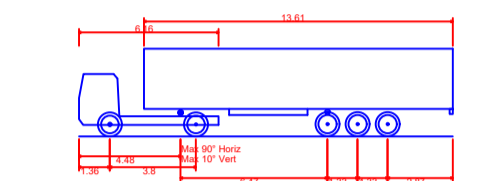


Notes

1. Do not scale.
2. Design Vehicle is 16.5m long articulated Heavy Goods Vehicle as defined by the Design Manual for Roads and Bridges.
3. Verge alignment shown allows provision for 2.00m minimum and 70m forward visibility Stopping Sight Distance (SSD) / junction visibility splays.
4. For dimensions, refer to General Arrangement, drawing number B3553R9A-01-00-200.

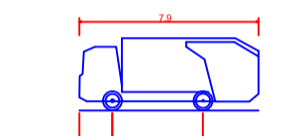
Key

- Proposed kerb
- - - Proposed edging/back of footway
- Proposed back of verge
- Proposed road markings
- Swept path (green = body overhang; red = vehicle track)



FTA Design Articulated Vehicle (1998)

Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.070m
Min Body Ground Clearance	0.915m
Max Track Width	2.470m
Lock to lock time	0.91m
Kerb to Kerb Turning Radius	6.500m



DB32 Refuse Vehicle

Overall Length	7.900m
Overall Width	2.400m
Overall Body Height	2.130m
Min Body Ground Clearance	0.388m
Max Track Width	2.200m
Lock to lock time	0.609m
Kerb to Kerb Turning Radius	4.625m

Rev	Date	Description of revision	Drawn	Checked	Reviewed/Approved

DRAWING STATUS: **DRAFT**



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SCHEME TITLE: **BASILDON LOCAL PLAN - FRITHWOOD LANE, BILLERICAY OPTION 2 - DMRB STANDARDS**

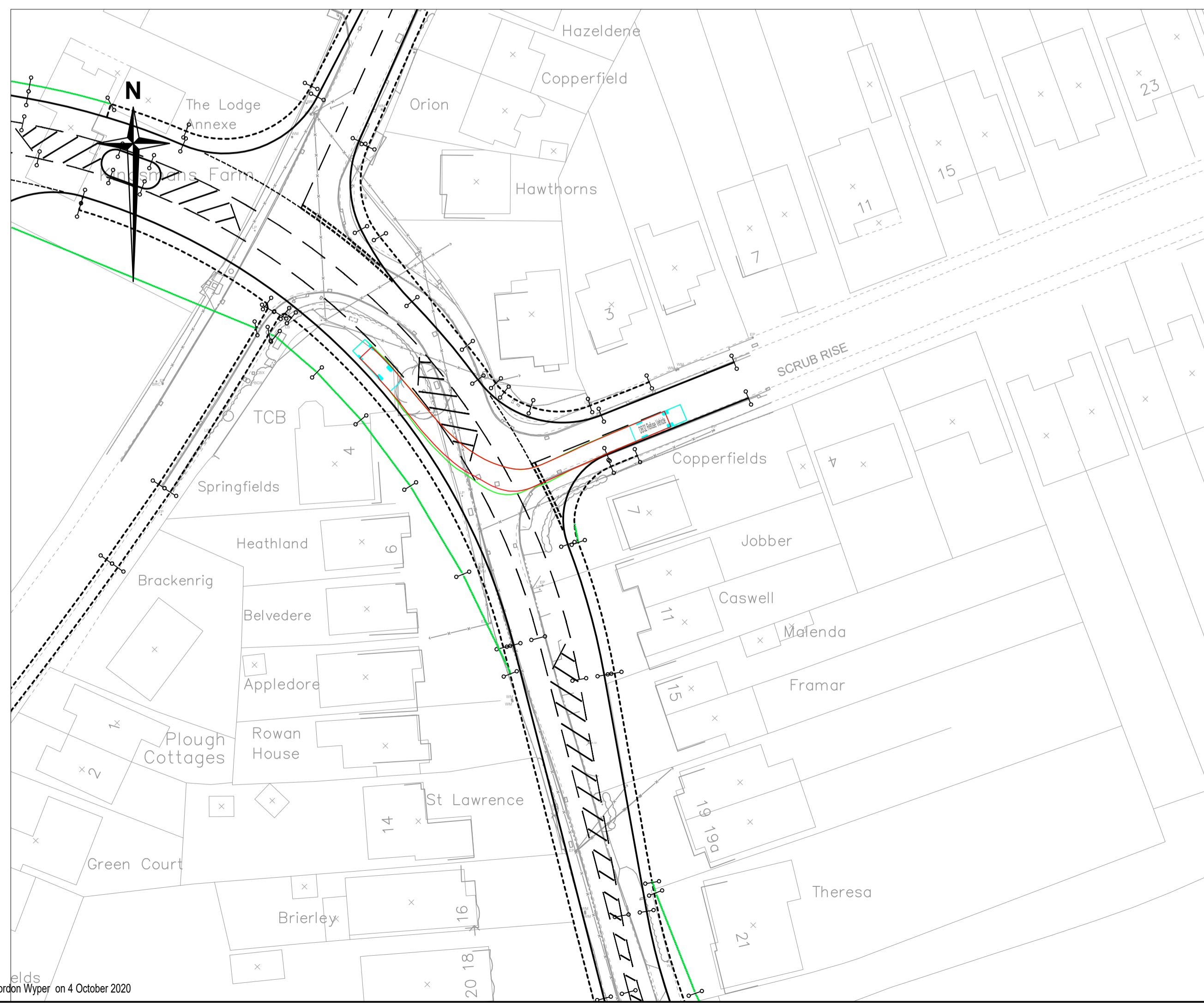
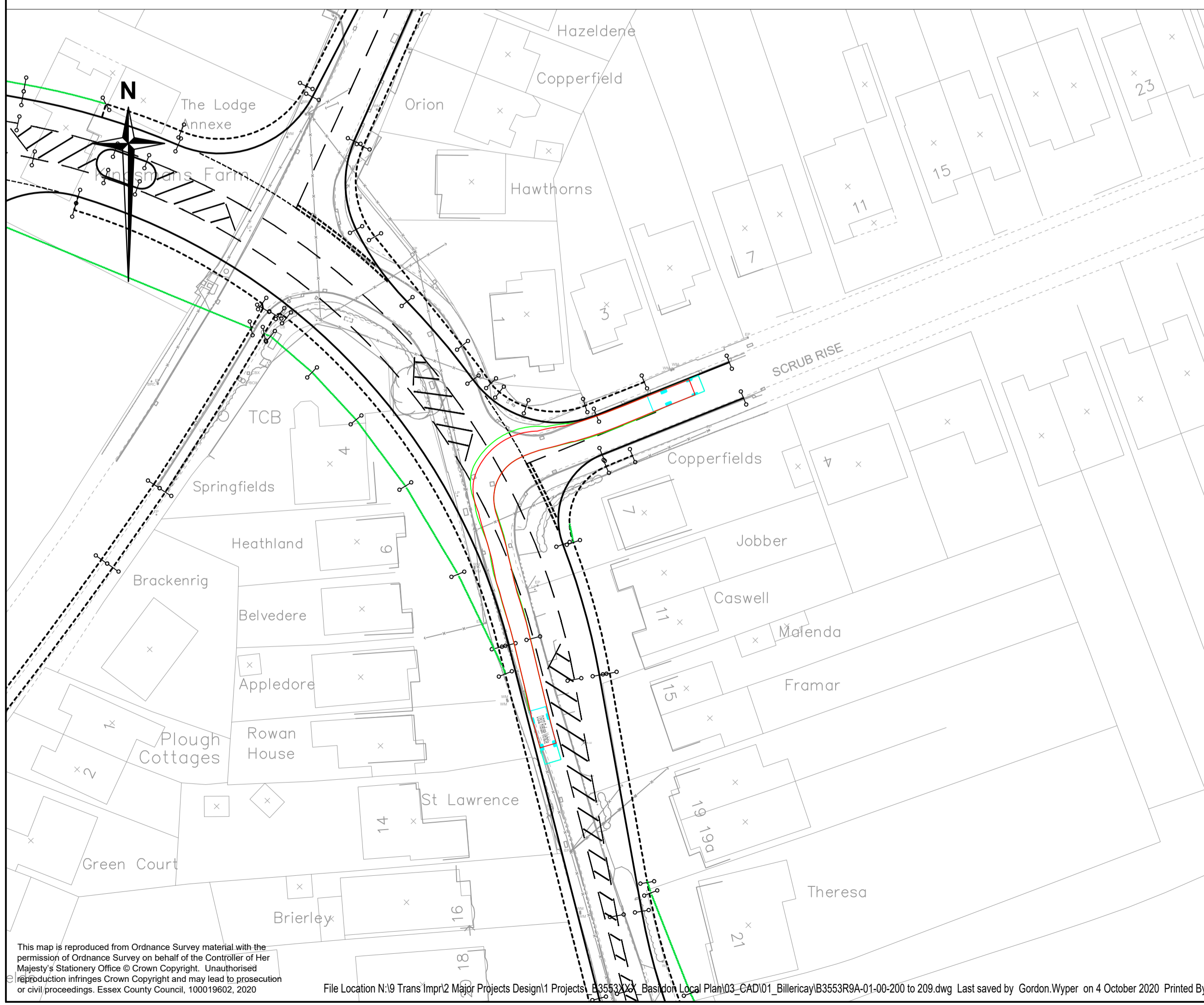
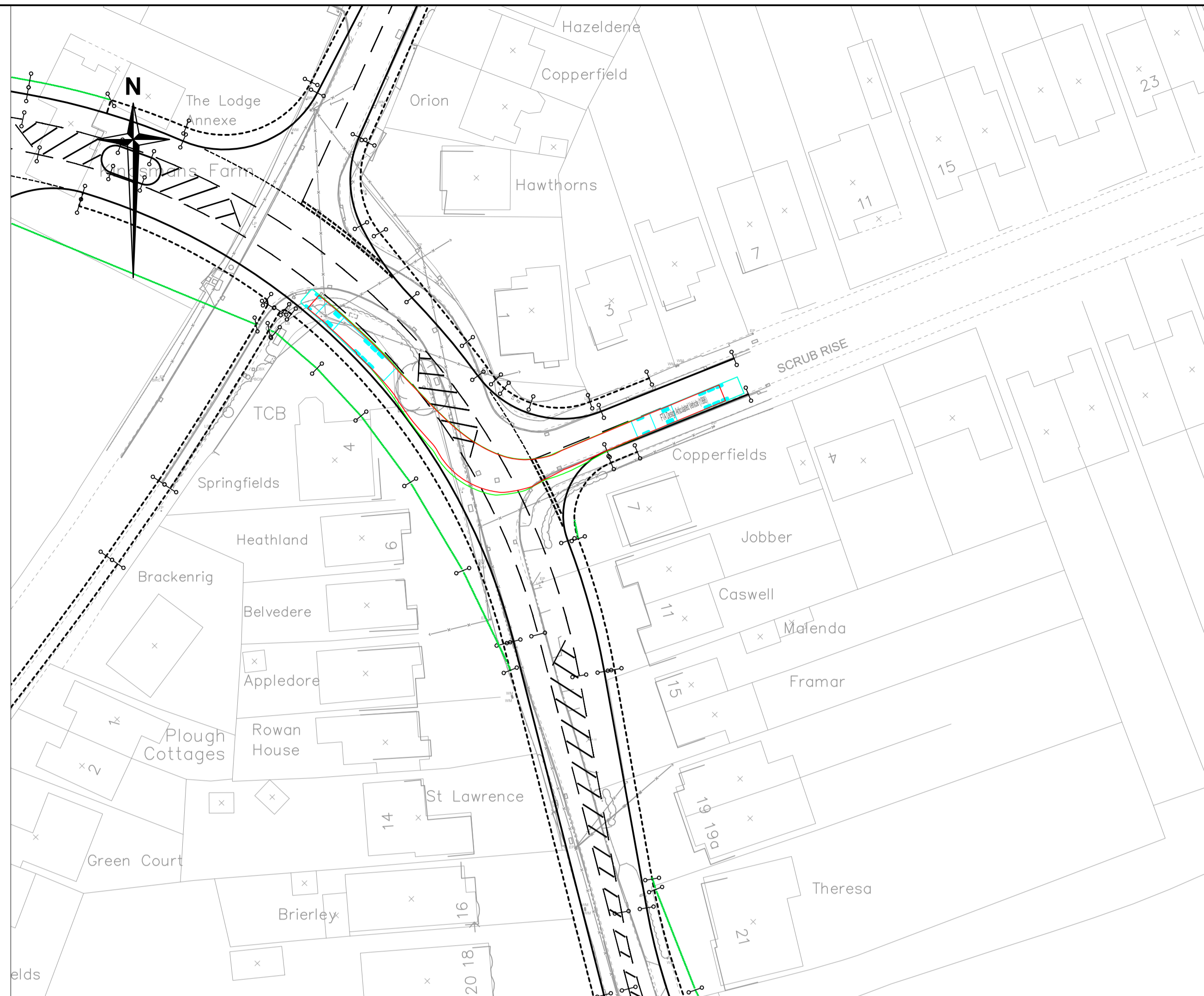
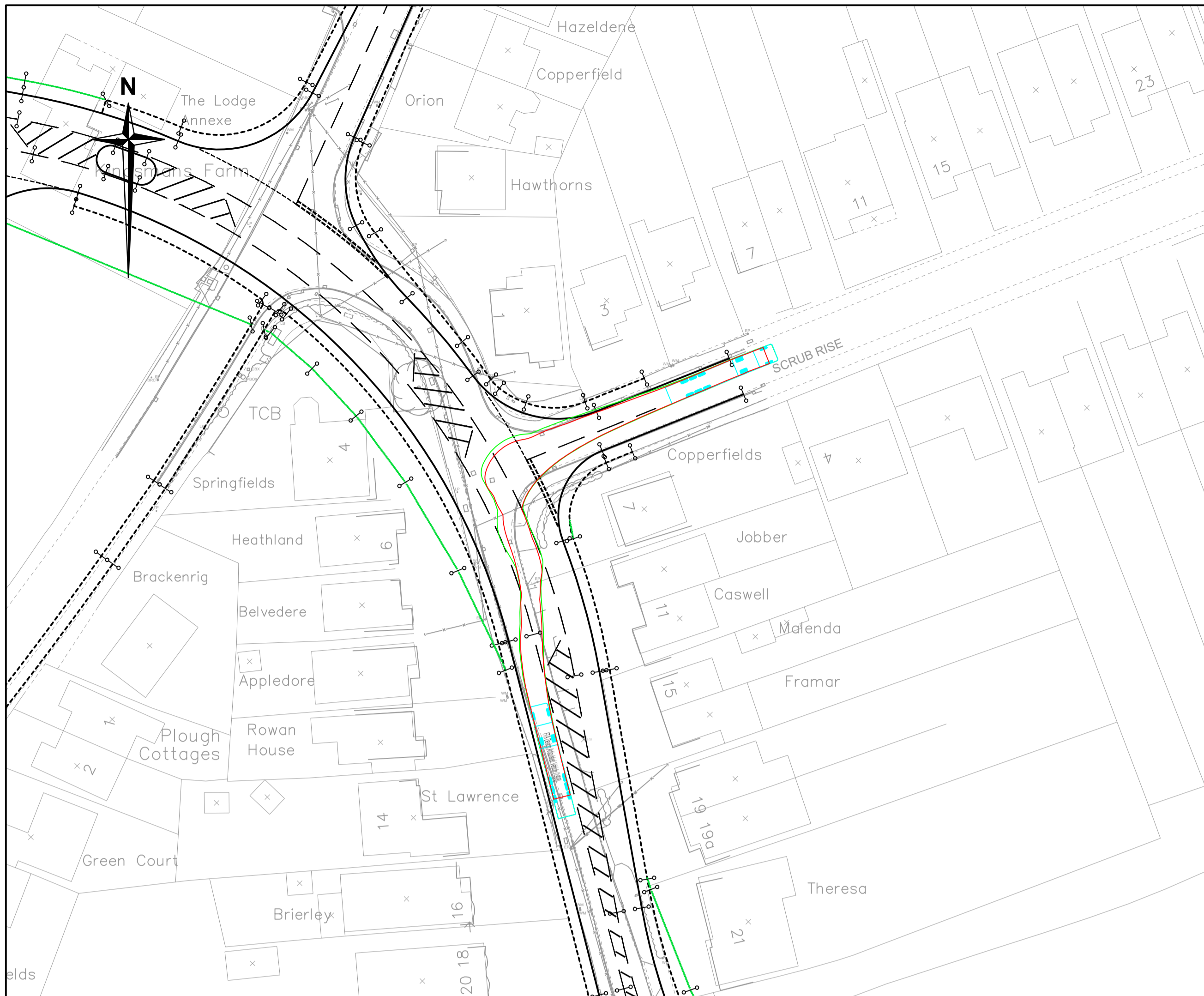
DRAWING TITLE: **SWEPT PATH ANALYSIS SW RELIEF ROAD J/W SCRUB RISE SHEET 1 OF 2**

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
GCW	GCW	MPA	MPA	GCW
DATE	DATE	DATE	DATE	DATE
SEP 20	SEP 20	SEP 20	SEP 20	SEP 20

DRAWING UNITS U.N.O. DIMENSIONS AS SHOWN SCALE AT A1 (841X594mm) 1:500

DRAWING No. **B3553R9A-01-00-206** REV. -



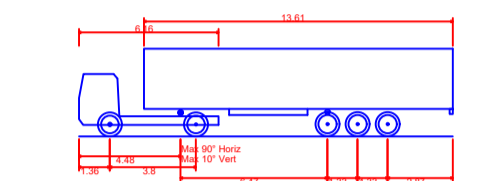


Notes

1. Do not scale.
2. Design Vehicle is 16.5m long articulated Heavy Goods Vehicle as defined by the Design Manual for Roads and Bridges.
3. Verge alignment shown allows provision for 2.00m minimum and 70m forward visibility Stopping Sight Distance (SSD) / junction visibility splays.
4. For dimensions, refer to General Arrangement, drawing number B3553R9A-01-00-200.

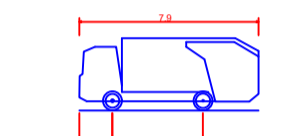
Key

- Proposed kerb
- - - Proposed edging/back of footway
- Proposed back of verge
- - - Proposed road markings
- Swept path (green = body overhang; red = vehicle track)



FTA Design Articulated Vehicle (1998)

Overall Length 16.400m
 Overall Width 2.500m
 Overall Body Height 3.070m
 Min Body Ground Clearance 0.915m
 Max Track Width 2.470m
 Lock to lock time 0.91s
 Kerb to Kerb Turning Radius 6.500m



DB32 Refuse Vehicle

Overall Length 7.900m
 Overall Width 2.400m
 Overall Body Height 2.100m
 Min Body Ground Clearance 0.380m
 Max Track Width 2.200m
 Lock to lock time 0.60s
 Kerb to Kerb Turning Radius 4.625m

Rev	Date	Description of revision	Drawn	Checked	Reviewed/Approved

DRAWING STATUS **DRAFT**



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SCHEME TITLE
BASILDON LOCAL PLAN - FRITHWOOD LANE, BILLERICAY OPTION 2 - DMRB STANDARDS

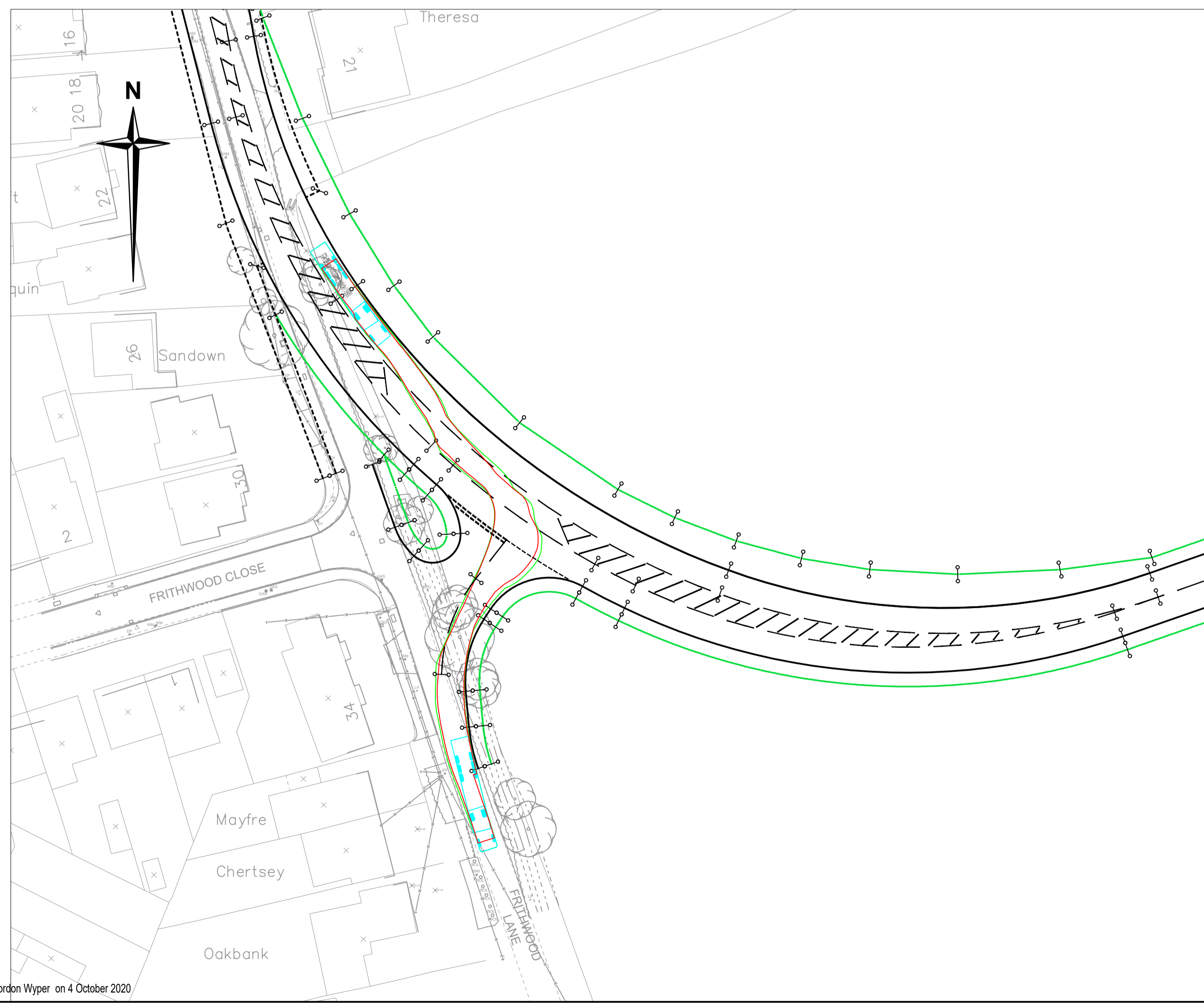
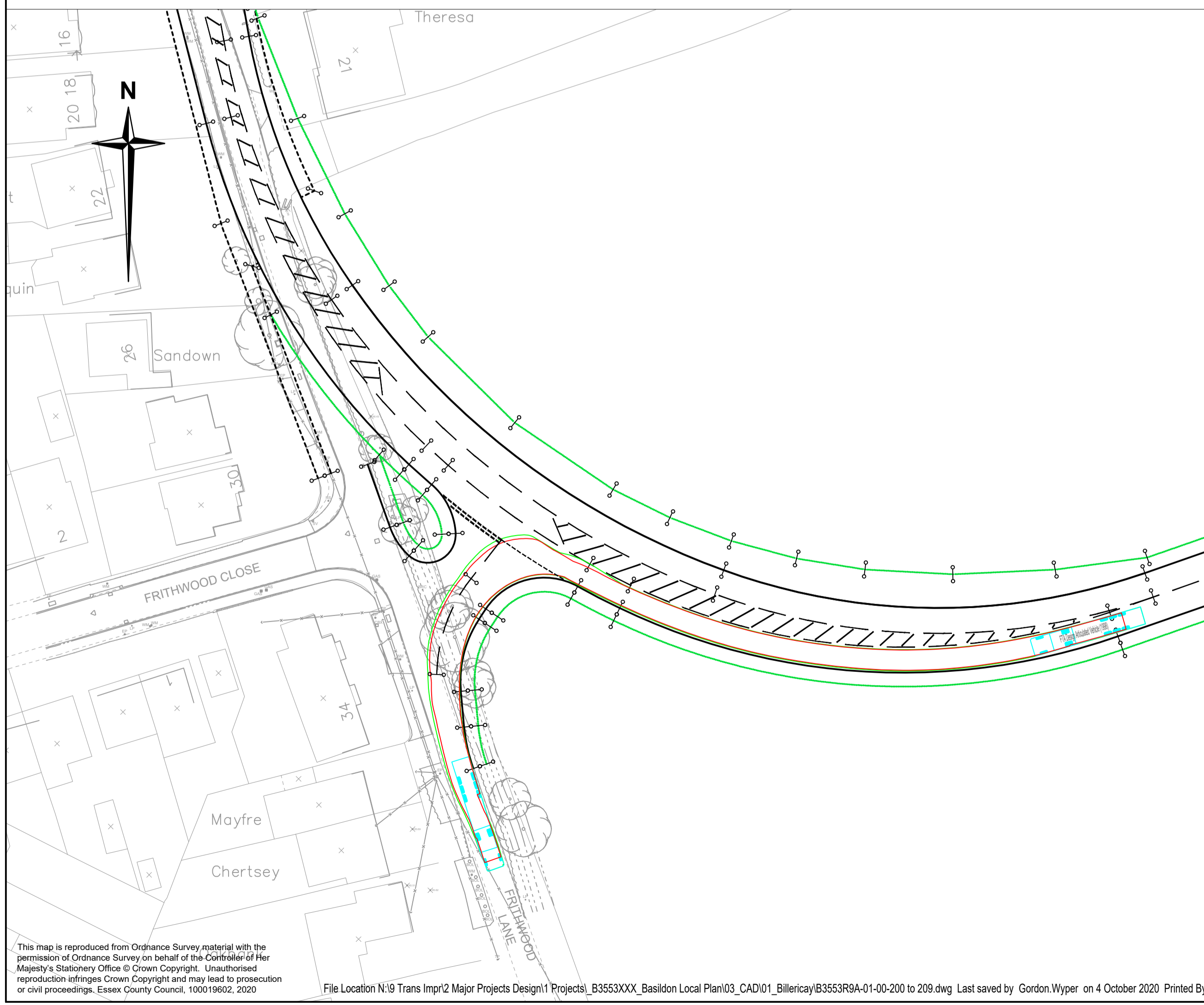
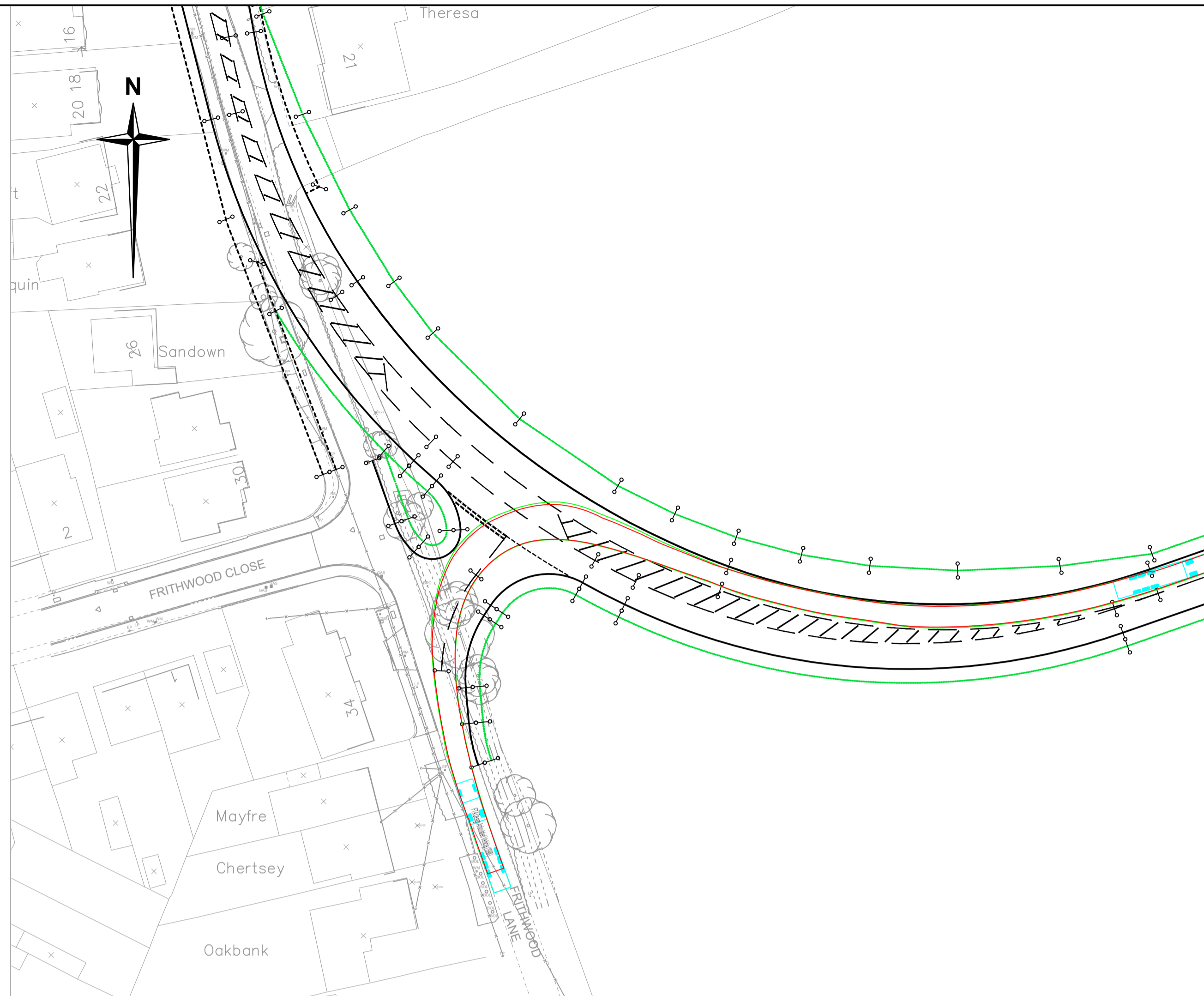
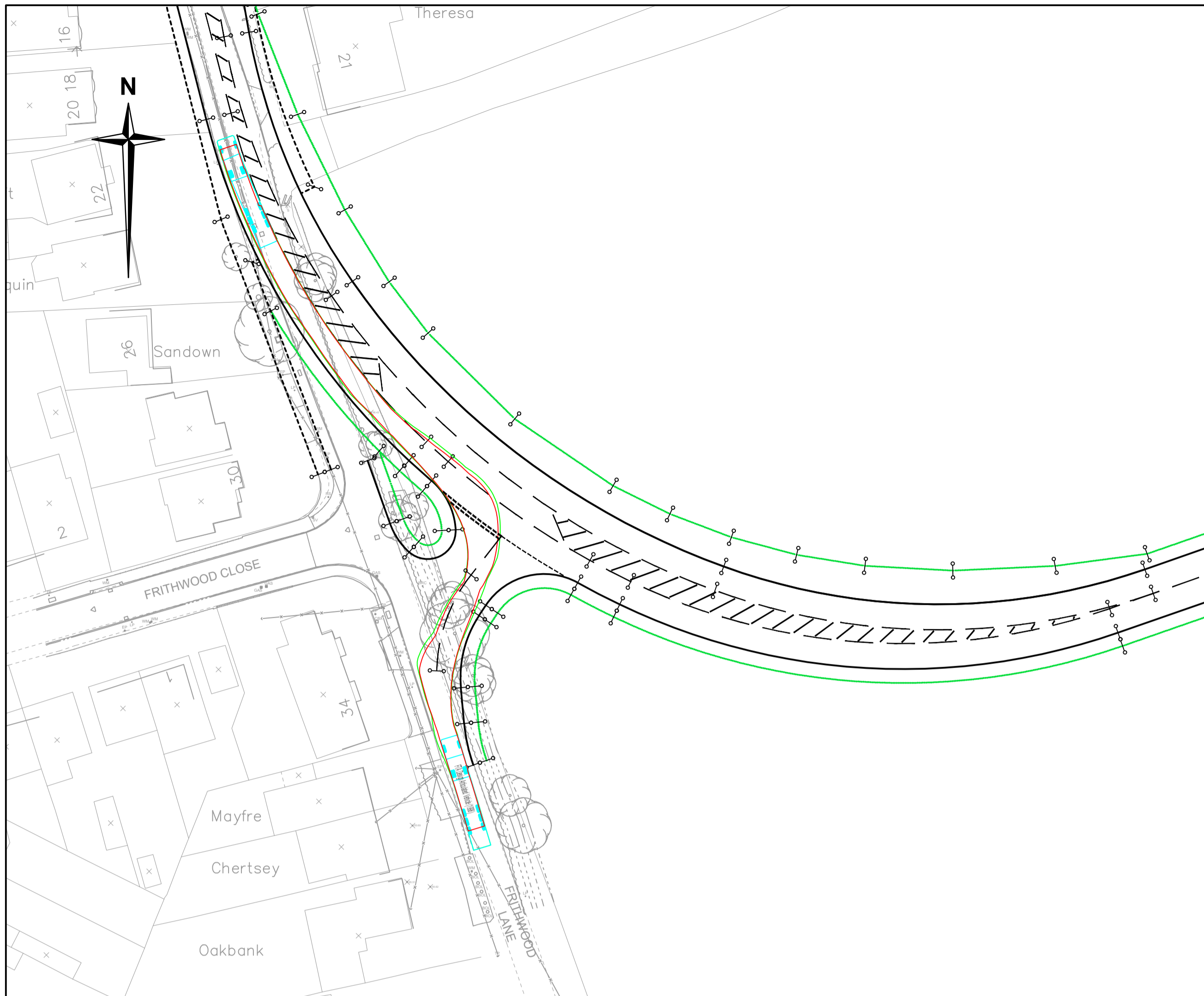
DRAWING TITLE
SWEPT PATH ANALYSIS SW RELIEF ROAD J/W SCRUB RISE SHEET 2 OF 2

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
GCW	GCW	MPA	MPA	GCW
DATE	DATE	DATE	DATE	DATE
SEP 20	SEP 20	SEP 20	SEP 20	SEP 20

DRAWING UNITS U.N.O. DIMENSIONS AS SHOWN SCALE AT A1 (841X594mm) 1:500

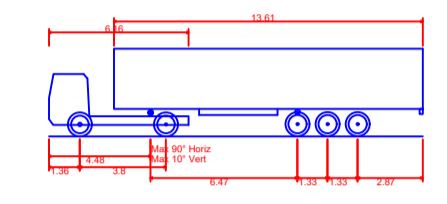
DRAWING No. **B3553R9A-01-00-207** REV. -





- Notes**
1. Do not scale.
 2. Design Vehicle is 16.5m long articulated Heavy Goods Vehicle as defined by the Design Manual for Roads and Bridges.
 3. Verge alignment shown allows provision for 2.00m minimum and 70m forward visibility Stopping Sight Distance (SSD) / junction visibility splays.
 4. For dimensions, refer to General Arrangement, drawing number B3553R9A-01-00-200.

- Key**
- Proposed kerb
 - Proposed edging/back of footway
 - Proposed back of verge
 - Proposed road markings
 - Swept path (green = body overhang; red = vehicle track)



FTA Design Articulated Vehicle (1998)	16.400m
Overall Length	2.520m
Overall Width	3.370m
Overall Height	3.370m
Min Body Ground Clearance	0.915m
Max Track Width	2.470m
Line Back Splay	3.00m
Kerb to Kerb Turning Radius	8.500m

Rev	Date	Description of revision	Drawn	Checked	Reviewed	Approved

DRAWING STATUS: **DRAFT**



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SCHEME TITLE
BASILDON LOCAL PLAN - FRITHWOOD LANE, BILLERICAY OPTION 2 - DMRB STANDARDS

DRAWING TITLE
SWEPT PATH ANALYSIS SW RELIEF ROAD J/W FRITHWOOD LANE / FRITHWOOD CLOSE

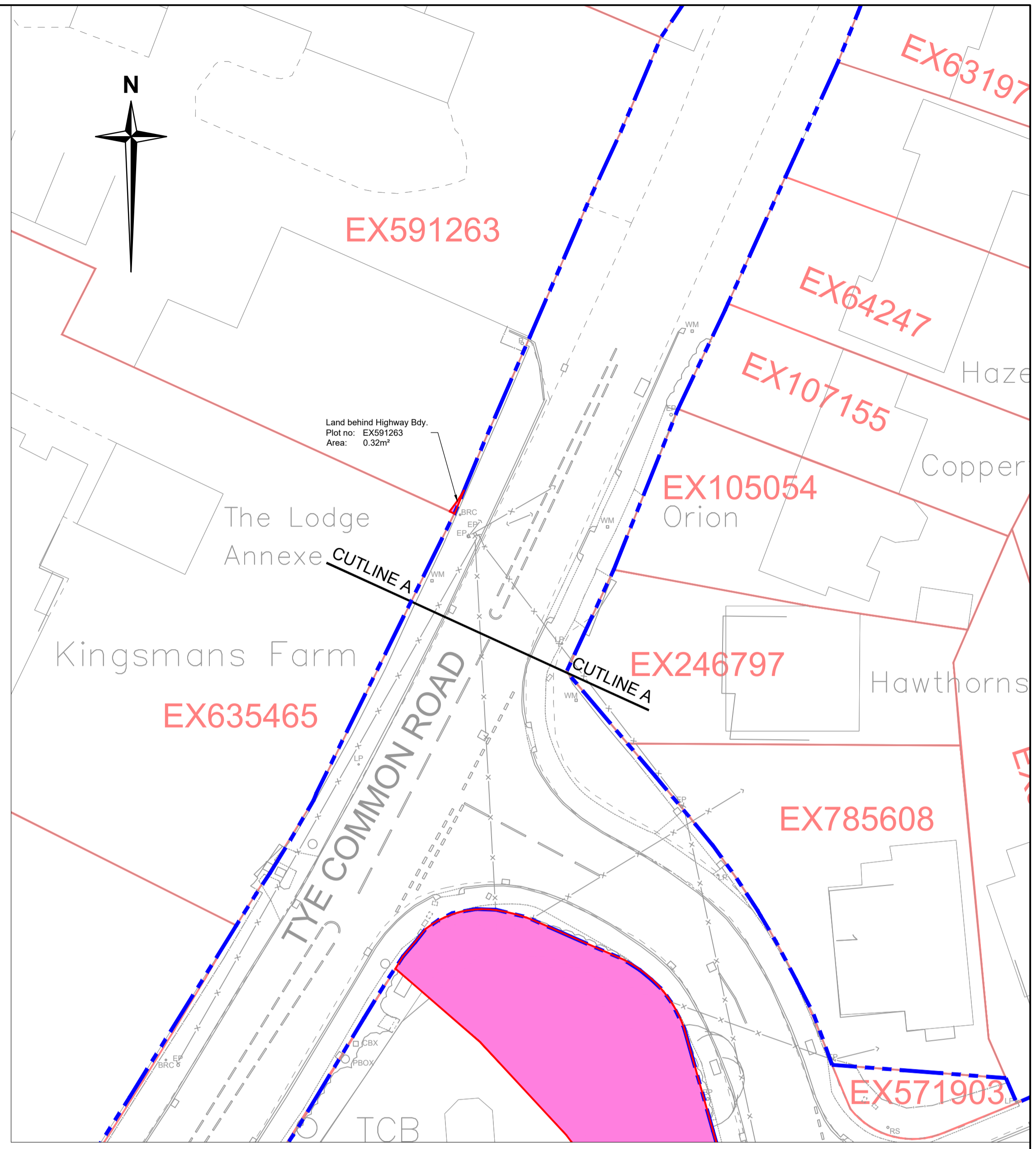
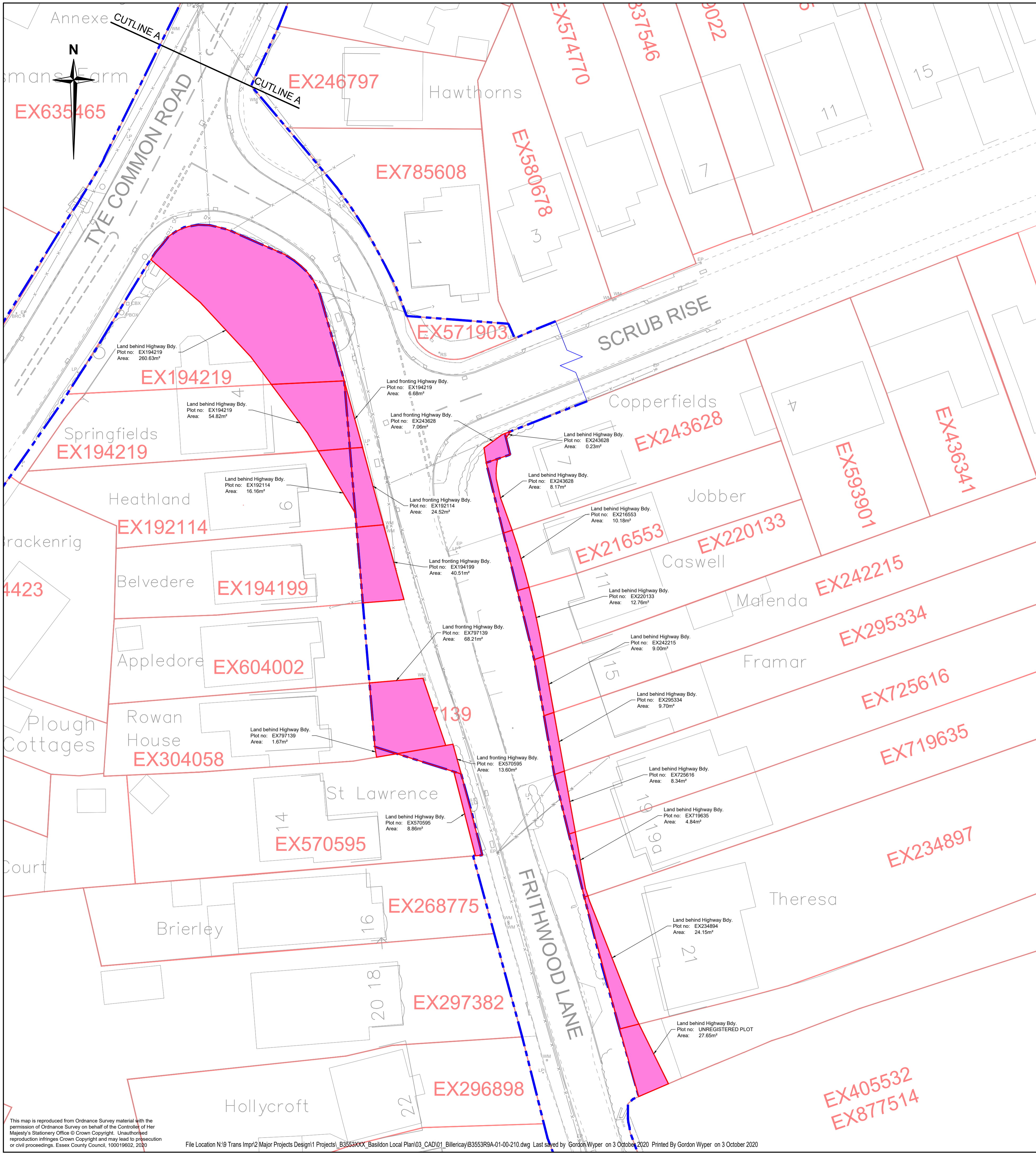
DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
GCW	GCW	MPA	MPA	GCW
DATE	DATE	DATE	DATE	DATE
SEP 20	SEP 20	SEP 20	SEP 20	SEP 20

DRAWING UNITS U.N.O. DIMENSIONS AS SHOWN SCALE AT A1 (841X594mm) 1:500

DRAWING No. **B3553R9A-01-00-208** REV. -



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Notes

- Do not scale.
- Land requirements identified based upon provision of 70m forward visibility Stopping Sight Distance (SSD) and junction visibility splays as shown on drawing no. B3553R9A-01-00-201.
- Consideration of land required from affected properties fronting Frithwood Lane and Tye Common Road with exception of following Land Registry plot numbers which are considered to be dealt with by Others as part of development proposals:
 - EX405532 and EX877514 fronting Frithwood Lane to East.
 - EX635465 and EX935879 fronting Tye Common Road to the West.

Key

- Existing Highway boundary
- Land Registry plot boundary
- Required land acquisition

PLOT No.	LAND BEHIND HIGHWAY BDY. (m2)	LAND FRONTING HIGHWAY BDY. (m2)	TOTAL LAND REQUIREMENT (m2)
EX192114	16.16	24.52	40.68
EX194199		40.51	40.51
EX194219	260.63		260.63
EX194219	54.82	6.68	61.50
EX216553		10.18	10.18
EX220133	12.76		12.76
EX234894	24.15		24.15
EX242215	9.00		9.00
EX243628	0.23	7.06	7.29
EX243628	8.17		8.17
EX295334	9.70		9.70
EX570595	8.86	13.60	22.46
EX591263	0.32		0.32
EX719635	4.84		4.84
EX725616	8.34		8.34
EX797139	1.67	68.21	69.88
UNREGISTERED	27.65		27.65
TOTALS	457.48	160.58	618.06

Rev	Date	Description of revision	Drawn	Checked	Reviewed	Approved

DRAWING STATUS: **DRAFT**



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BASILDON LOCAL PLAN - FRITHWOOD LANE, BILLERICAY OPTION 2 - DMRB STANDARDS

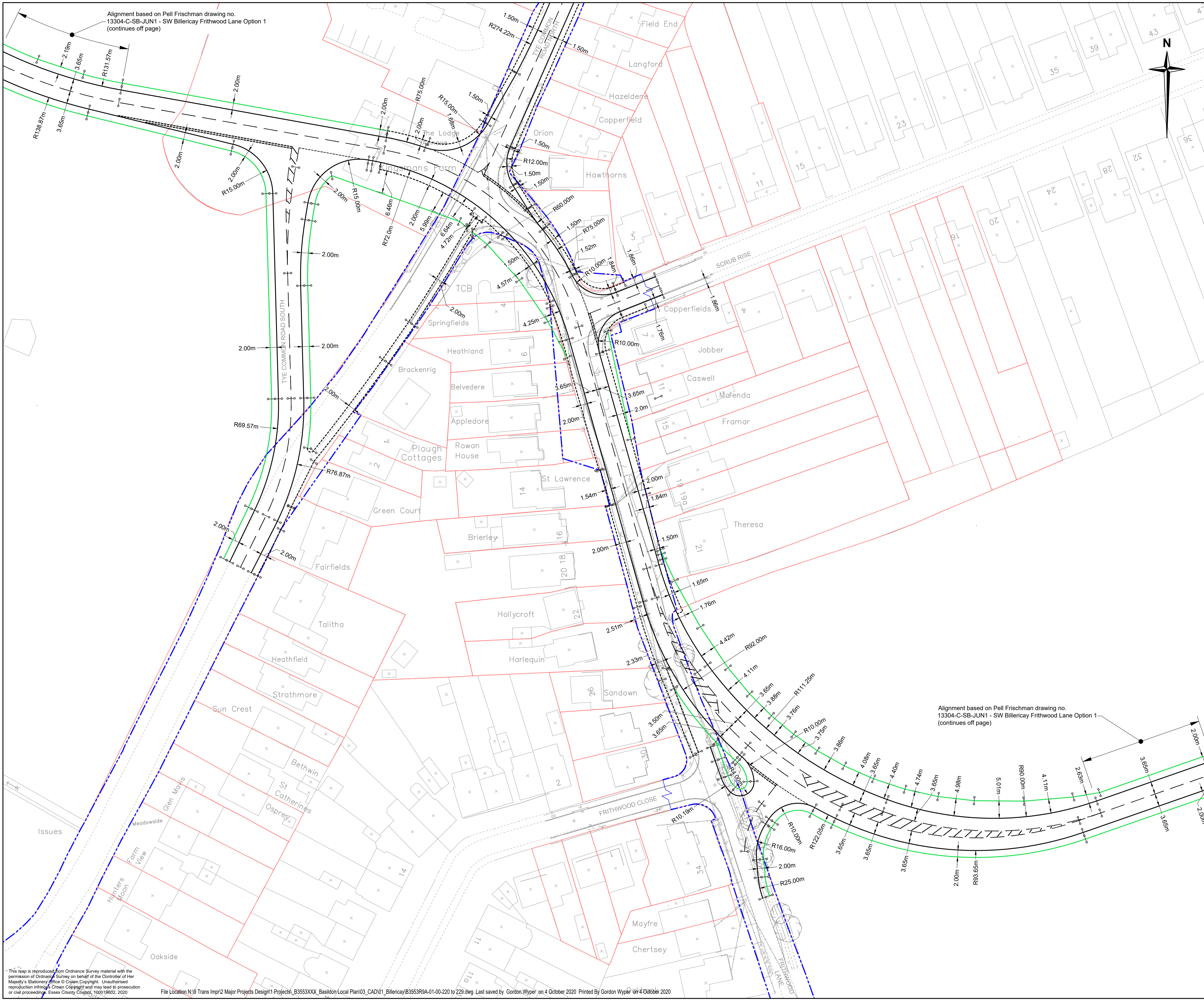
LAND PLAN SHEET 1 OF 2 (70M VISIBILITY)

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
GCW	GCW	MPA	MPA	GCW
DATE	DATE	DATE	DATE	DATE
SEP 20	SEP 20	SEP 20	SEP 20	SEP 20

DRAWING UNITS U.N.O. SCALE AT A1 (841X594mm) DIMENSIONS AS SHOWN 1:250

DRAWING No. **B3553R9A-01-00-210** REV. -





Notes

1. Do not scale.
2. Arrangement based upon standards in Design Manual for Roads and Bridges (DMRB) tying into alignments based on that shown in drawing no. A13304-C-SB-JUN1 - SW Billericay Frithwood Lane Option 1 prepared by Pell Frischman.
3. Verge alignment shown allows provision for 2.00m minimum and 70m forward visibility Stopping Sight Distance (SSD) / junction visibility splays.

Key

- Proposed kerb
- - - Proposed edging/back of footway
- Proposed back of verge
- Proposed road markings
- Existing Highway boundary
- Land Registry plot boundary
- Tangent points

Rev	Date	Description of revision	Drawn	Checked	Reviewed/Approved

DRAWING STATUS: **DRAFT**



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SCHEME TITLE: **BASILDON LOCAL PLAN - FRITHWOOD LANE, BILLERICAY OPTION 1 - EXISTING HIGHWAY CORRIDOR**

DRAWING TITLE: **GENERAL ARRANGEMENT**

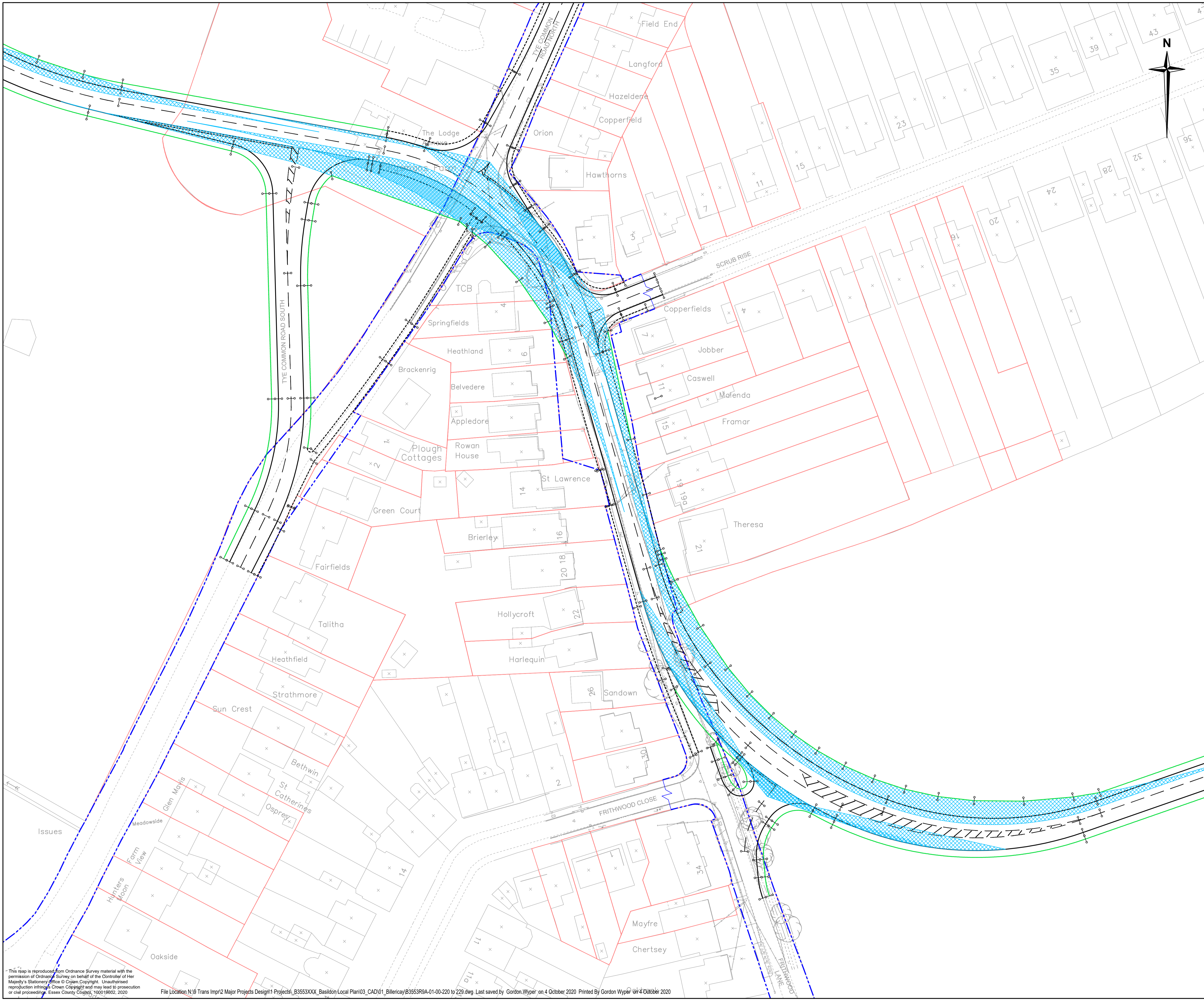
DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
GCW	GCW	MPA	MPA	GCW
DATE	DATE	DATE	DATE	DATE
SEP 20	SEP 20	SEP 20	SEP 20	SEP 20

DRAWING UNITS U.N.O. DIMENSIONS AS SHOWN SCALE AT A1 (841X594mm) 1:500

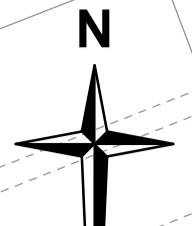
DRAWING No. **B3553R9A-01-00-220** REV. -



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- Notes**
1. Do not scale.
 2. Arrangement based upon standards in Design Manual for Roads and Bridges (DMRB) tying into alignments based on that shown in drawing no. A13304-C-SB-JUN1 - SW Billericay Frithwood Lane Option 1 prepared by Pell Frischman.
 3. Junction visibility splays X distance = 4.5m.
 4. Verge alignment shown allows provision for 2.00m minimum and 70m forward visibility Stopping Sight Distance (SSD) / junction visibility splays.
 3. For dimensions, refer to General Arrangement, drawing number B3553R9A-01-00-220.
- Key**
- Proposed kerb
 - Proposed edging/back of footway
 - Proposed back of verge
 - Proposed road markings
 - Existing Highway boundary
 - Land Registry plot boundary
 - Tangent points
 - Forward visibility and junction visibility splay requirements



Rev	Date	Description of revision	Drawn	Checked	Reviewed	Approved

DRAWING STATUS: **DRAFT**



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SCHEME TITLE: **BASILDON LOCAL PLAN - FRITHWOOD LANE, BILLERICAY OPTION 1 - EXISTING HIGHWAY CORRIDOR**

DRAWING TITLE: **JUNCTION VISIBILITY SPLAYS AND STOPPING SIGHT DISTANCES 50KPH DESIRABLE MINIMUM (70m)**

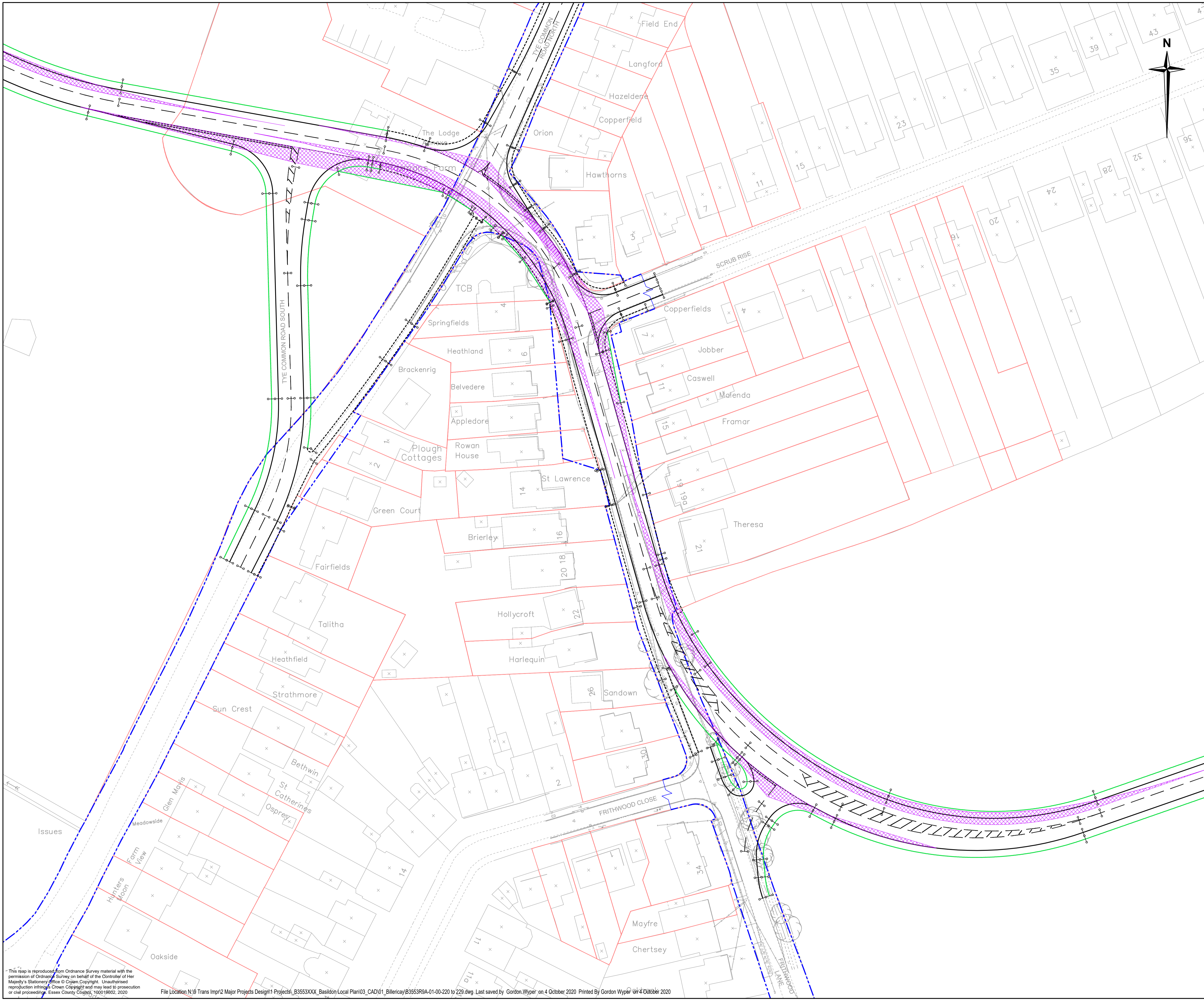
DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
GCW	GCW	MPA	MPA	GCW
DATE	DATE	DATE	DATE	DATE
SEP 20	SEP 20	SEP 20	SEP 20	SEP 20

DRAWING UNITS U.N.O. DIMENSIONS AS SHOWN SCALE AT A1 (841x594mm) 1:500

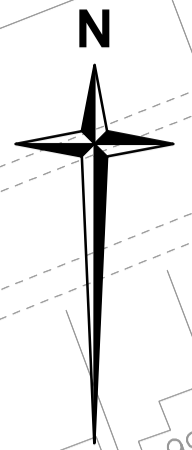
DRAWING No. **B3553R9A-01-00-221** REV. -



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- Notes**
1. Do not scale.
 2. Arrangement based upon standards in Design Manual for Roads and Bridges (DMRB) tying into alignments based on that shown in drawing no. A13304-C-SB-JUN1 - SW Billericay Frithwood Lane Option 1 prepared by Pell Frischman.
 3. Junction visibility splays X distance = 4.5m.
 4. Verge alignment shown allows provision for 2.00m minimum and 50m forward visibility Stopping Sight Distance (SSD) / junction visibility splays.
 3. For dimensions, refer to General Arrangement, drawing number B3553R9A-01-00-220.
- Key**
- Proposed kerb
 - Proposed edging/back of footway
 - Proposed back of verge
 - Proposed road markings
 - Existing Highway boundary
 - Land Registry plot boundary
 - Tangent points
 - Forward visibility and junction visibility splay requirements



Rev	Date	Description of revision	Drawn	Checked	Reviewed	Approved

DRAWING STATUS: **DRAFT**



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SCHEME TITLE: **BASILDON LOCAL PLAN - FRITHWOOD LANE, BILLERICAY OPTION 1 - EXISTING HIGHWAY CORRIDOR**

DRAWING TITLE: **JUNCTION VISIBILITY SPLAYS AND STOPPING SIGHT DISTANCES 50KPH ONE STEP BELOW DESIRABLE MINIMUM (50m)**

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
GCW	GCW	MPA	MPA	GCW
DATE	DATE	DATE	DATE	DATE
SEP 20	SEP 20	SEP 20	SEP 20	SEP 20

DRAWING UNITS U.N.O. DIMENSIONS AS SHOWN SCALE AT A1 (841x594mm) 1:500

DRAWING No. **B3553R9A-01-00-222** REV. -

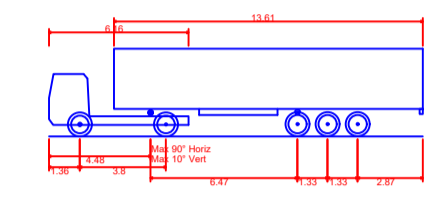


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- Notes**
1. Do not scale.
 2. Design Vehicle is 16.5m long articulated Heavy Goods Vehicle as defined by the Design Manual for Roads and Bridges.
 3. Verge alignment shown allows provision for 2.00m minimum and 70m forward visibility Stopping Sight Distance (SSD) / junction visibility splays.
 4. For dimensions, refer to General Arrangement, drawing number B3553R9A-01-00-220.

- Key**
- Proposed kerb
 - Proposed edging/back of footway
 - Proposed back of verge
 - Proposed road markings
 - Swept path (green = body overhang; red = vehicle track)



FTA Design Articulated Vehicle (1998)	16400mm
Overall Length	16400mm
Overall Width	2500mm
Overall Height	3000mm
Min Body Ground Clearance	950mm
Max Track Width	2400mm
Kerb to Kerb Turning Radius	8000mm

Rev	Date	Description of revision	Drawn	Checked	Reviewed	Approved

DRAWING STATUS: **DRAFT**



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SCHEME TITLE: **BASILDON LOCAL PLAN - FRITHWOOD LANE, BILLERICAY OPTION 1 - EXISTING HIGHWAY CORRIDOR**

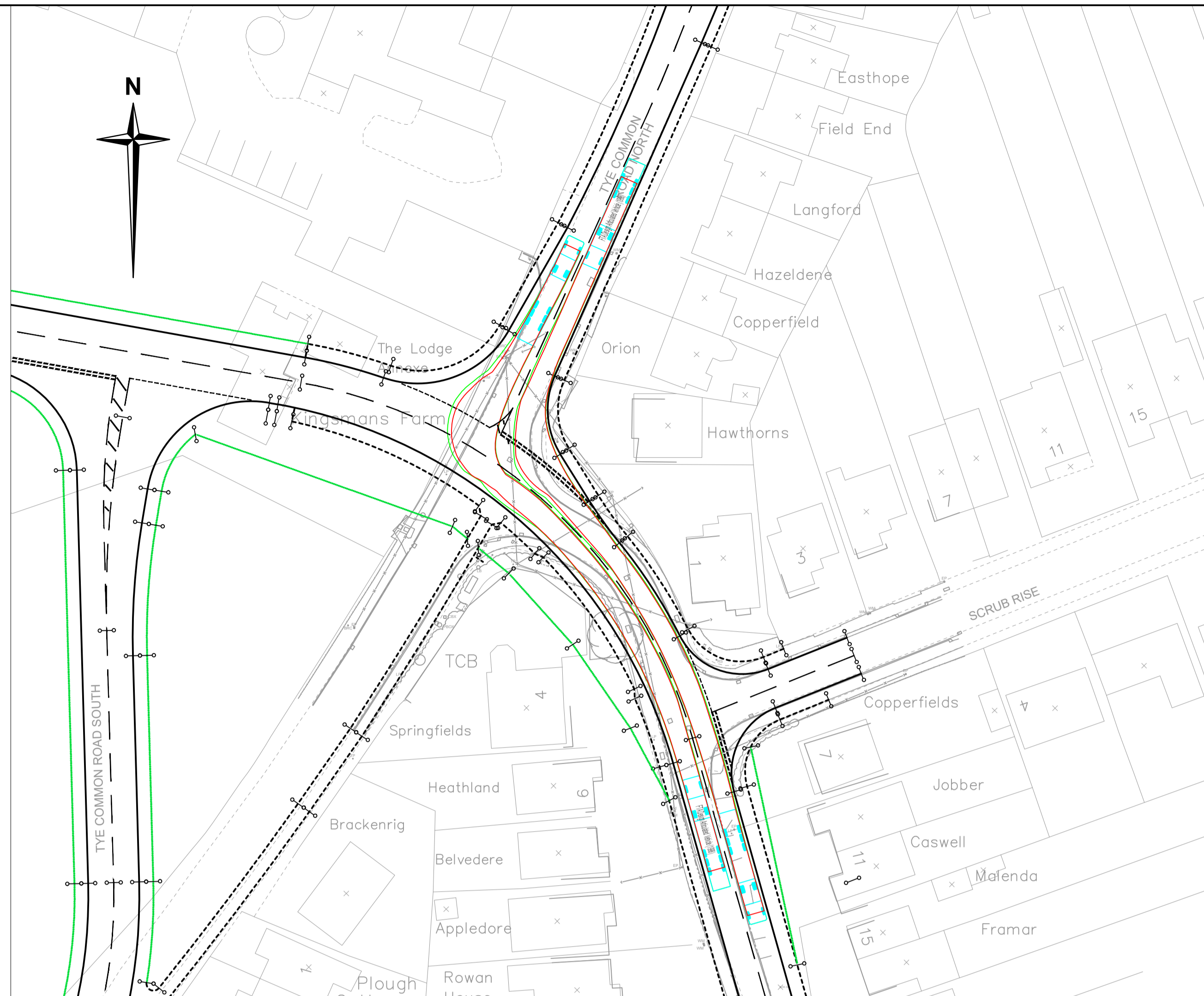
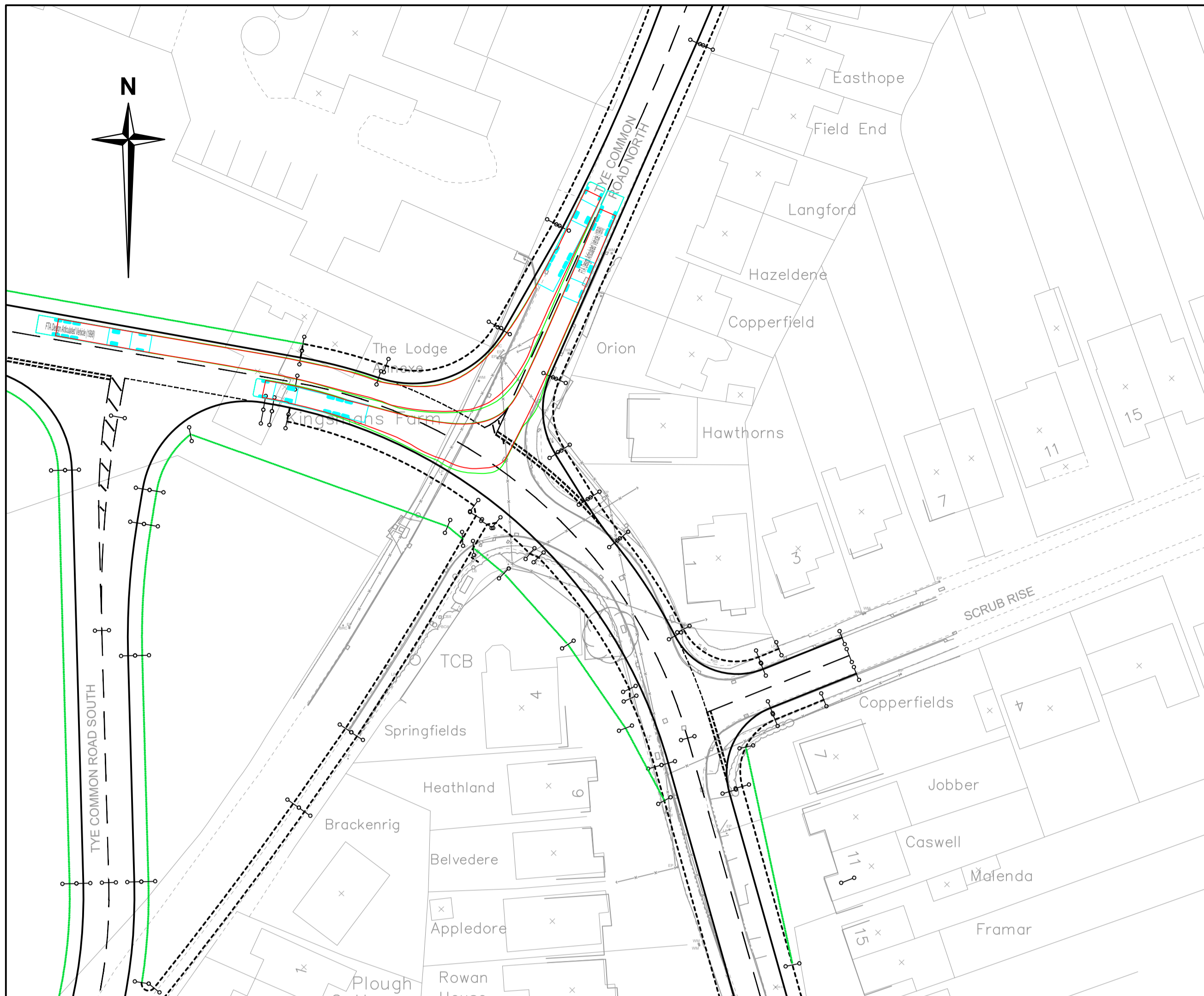
DRAWING TITLE: **SWEPT PATH ANALYSIS SW RELIEF ROAD MAINLINE**

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
GCW	GCW	MPA	MPA	GCW
DATE	DATE	DATE	DATE	DATE
SEP 20	SEP 20	SEP 20	SEP 20	SEP 20

DRAWING UNITS U.N.O. DIMENSIONS AS SHOWN SCALE AT A1 (841X594mm) 1:500

DRAWING No. **B3553R9A-01-00-223** REV. -



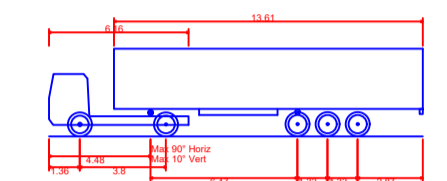


Notes

1. Do not scale.
2. Design Vehicle is 16.5m long articulated Heavy Goods Vehicle as defined by the Design Manual for Roads and Bridges.
3. Verge alignment shown allows provision for 2.00m minimum and 70m forward visibility Stopping Sight Distance (SSD) / junction visibility splays.
4. For dimensions, refer to General Arrangement, drawing number B3553R9A-01-00-220.

Key

- Proposed kerb
- - - Proposed edging/back of footway
- Proposed back of verge
- - - Proposed road markings
- Swept path (green = body overhang; red = vehicle track)



FTA Design Articulated Vehicle (1998)
 Overall Length 16.400m
 Overall Width 2.550m
 Overall Height 3.870m
 Min Body Ground Clearance 0.915m
 Max Track Width 2.470m
 Lock-to-Lock Turn 5.00m
 Kerb to Kerb Turning Radius 8.000m

Rev.	Date	Description of revision	Drawn	Checked	Reviewed/Approved

DRAWING STATUS: **DRAFT**



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 Tel: 0345 6037631 © Essex County Council

SCHEME TITLE: **BASILDON LOCAL PLAN - FRITHWOOD LANE, BILLERICAY OPTION 1 - EXISTING HIGHWAY CORRIDOR**

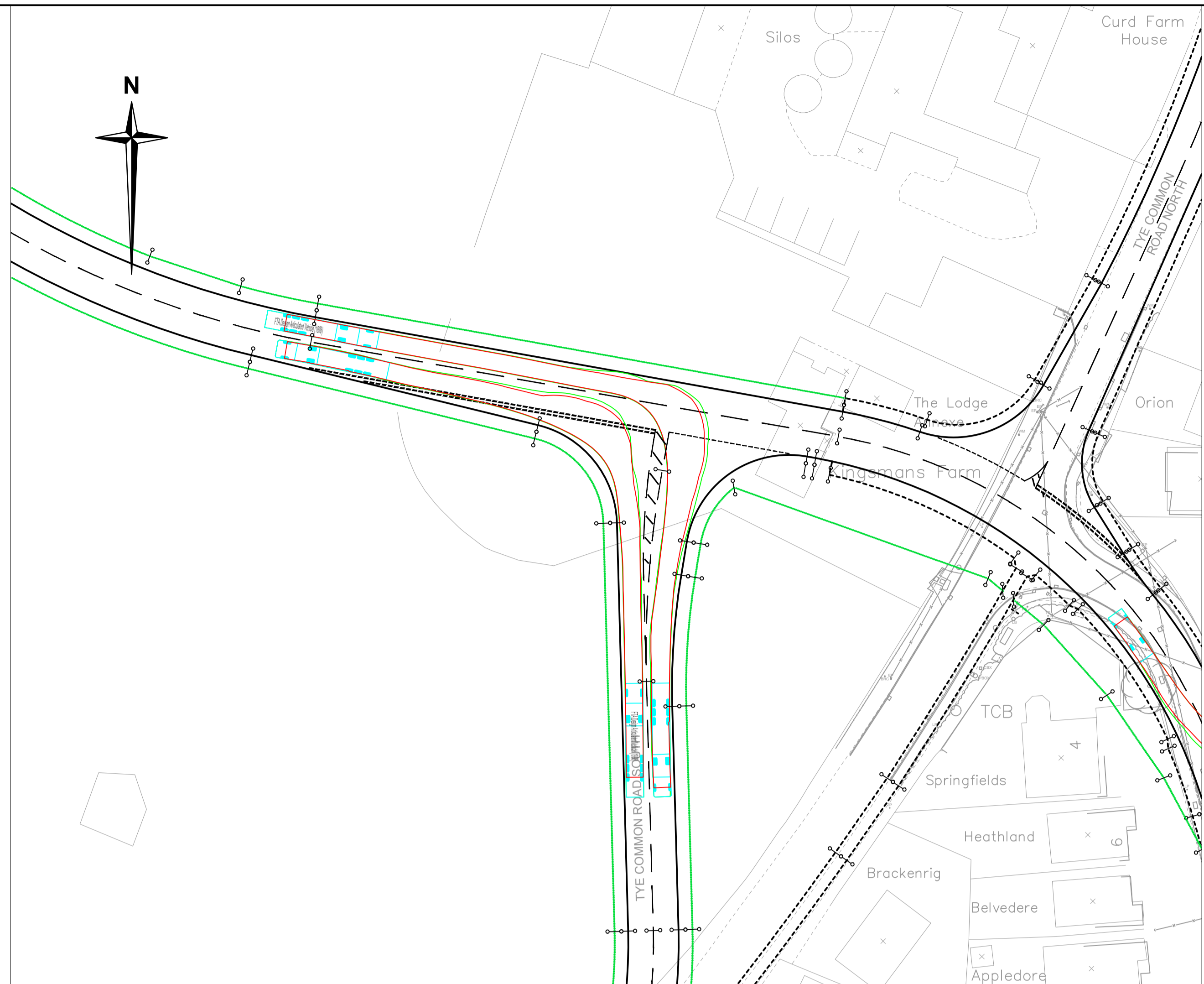
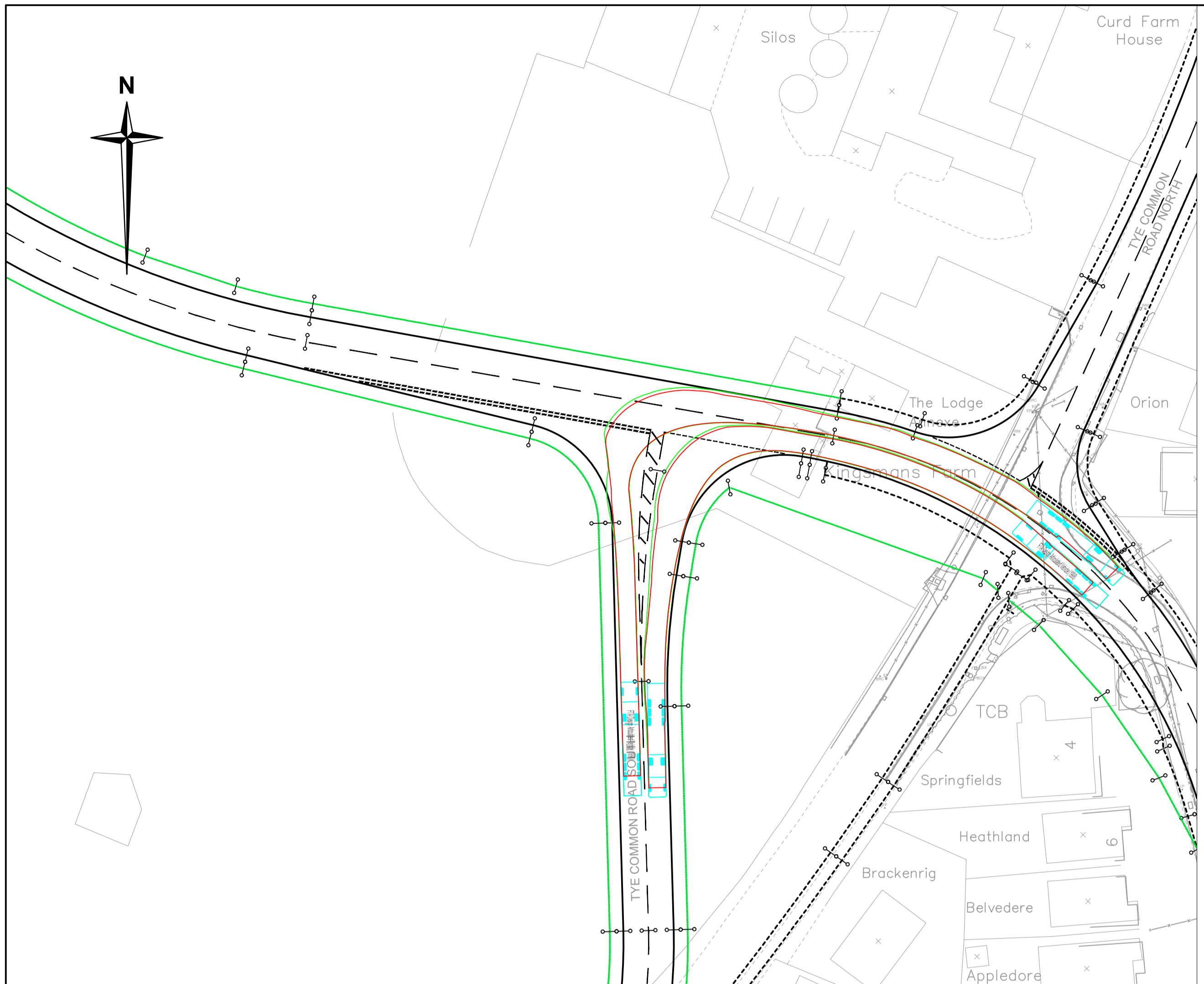
DRAWING TITLE: **SWEPT PATH ANALYSIS SW RELIEF ROAD J/W TYE COMMON ROAD NORTH**

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
GCW	GCW	MPA	MPA	GCW
DATE	DATE	DATE	DATE	DATE
SEP 20	SEP 20	SEP 20	SEP 20	SEP 20

DRAWING UNITS U.N.O. DIMENSIONS AS SHOWN SCALE AT A1 (841X594mm) 1:500

DRAWING No. **B3553R9A-01-00-224** REV. -



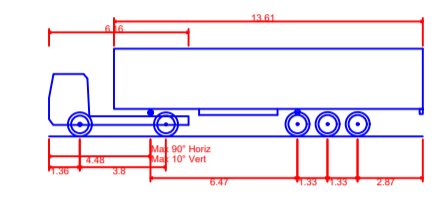


Notes

1. Do not scale.
2. Design Vehicle is 16.5m long articulated Heavy Goods Vehicle as defined by the Design Manual for Roads and Bridges.
3. Verge alignment shown allows provision for 2.00m minimum and 70m forward visibility Stopping Sight Distance (SSD) / junction visibility splays.
4. For dimensions, refer to General Arrangement, drawing number B3553R9A-01-00-220.

Key

- Proposed kerb
- - - Proposed edging/back of footway
- Proposed back of verge
- - - Proposed road markings
- Swept path (green = body overhang; red = vehicle track)



FTA Design Articulated Vehicle (1998)	16.480m
Overall Length	2.520m
Overall Width	3.470m
Overall Height	0.915m
Min Body Ground Clearance	2.470m
Max Track Width	8.500m
Kerb to Kerb Turning Radius	

Rev	Date	Description of revision	Drawn	Checked	Reviewed	Approved

DRAWING STATUS: **DRAFT**



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SCHEME TITLE: **BASILDON LOCAL PLAN - FRITHWOOD LANE, BILLERICAY OPTION 1 - EXISTING HIGHWAY CORRIDOR**

DRAWING TITLE: **SWEPT PATH ANALYSIS SW RELIEF ROAD J/W TYE COMMON ROAD SOUTH**

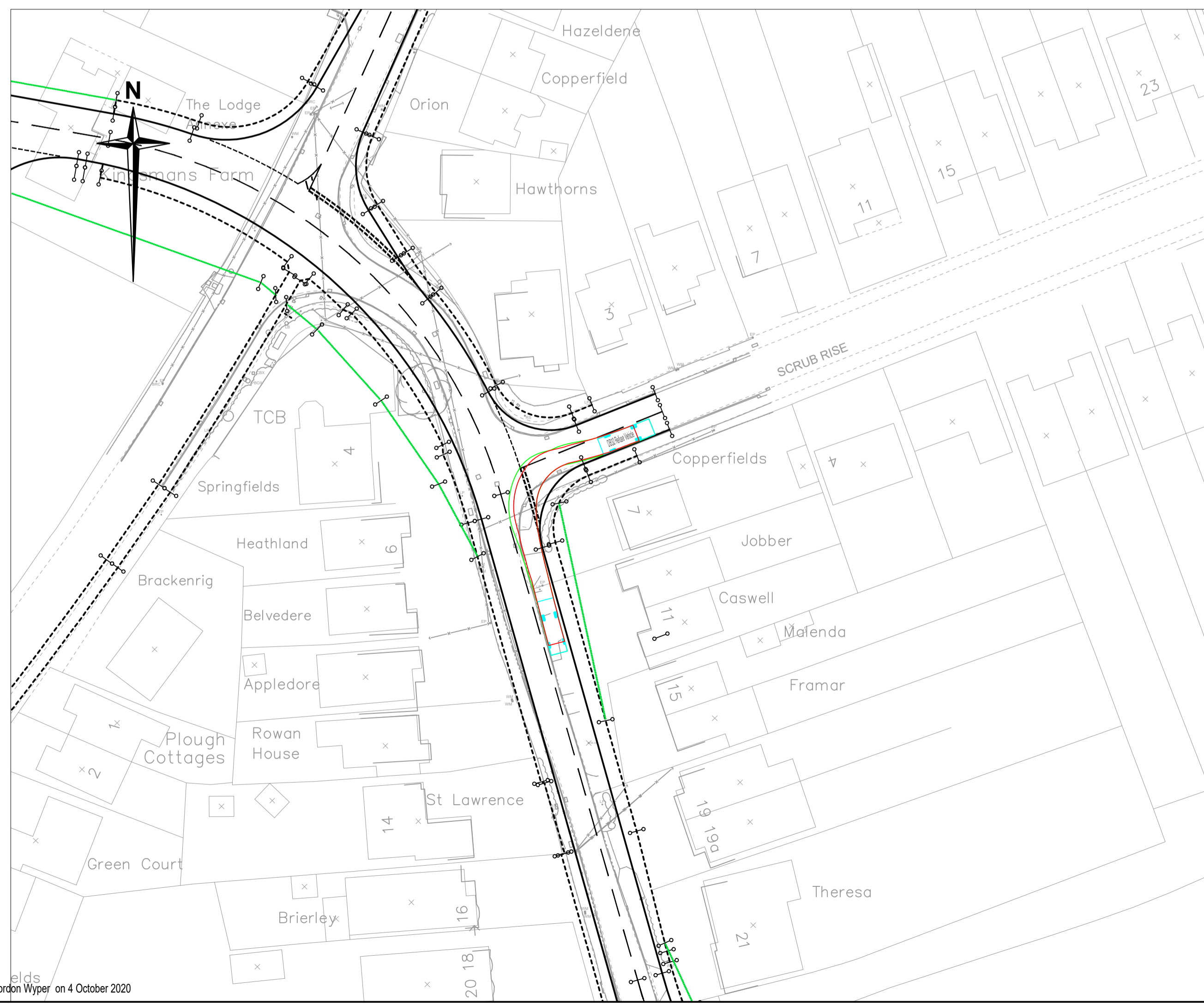
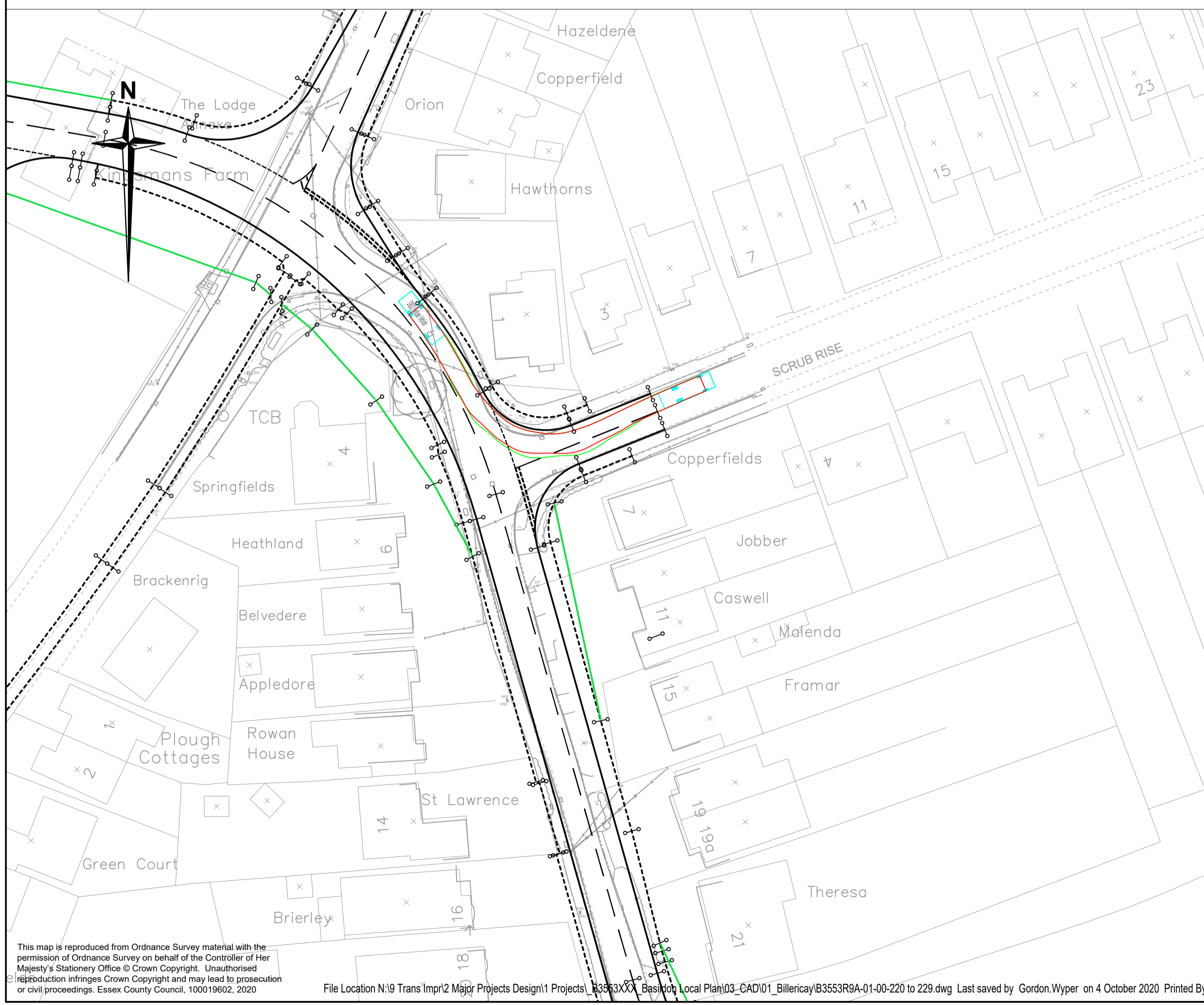
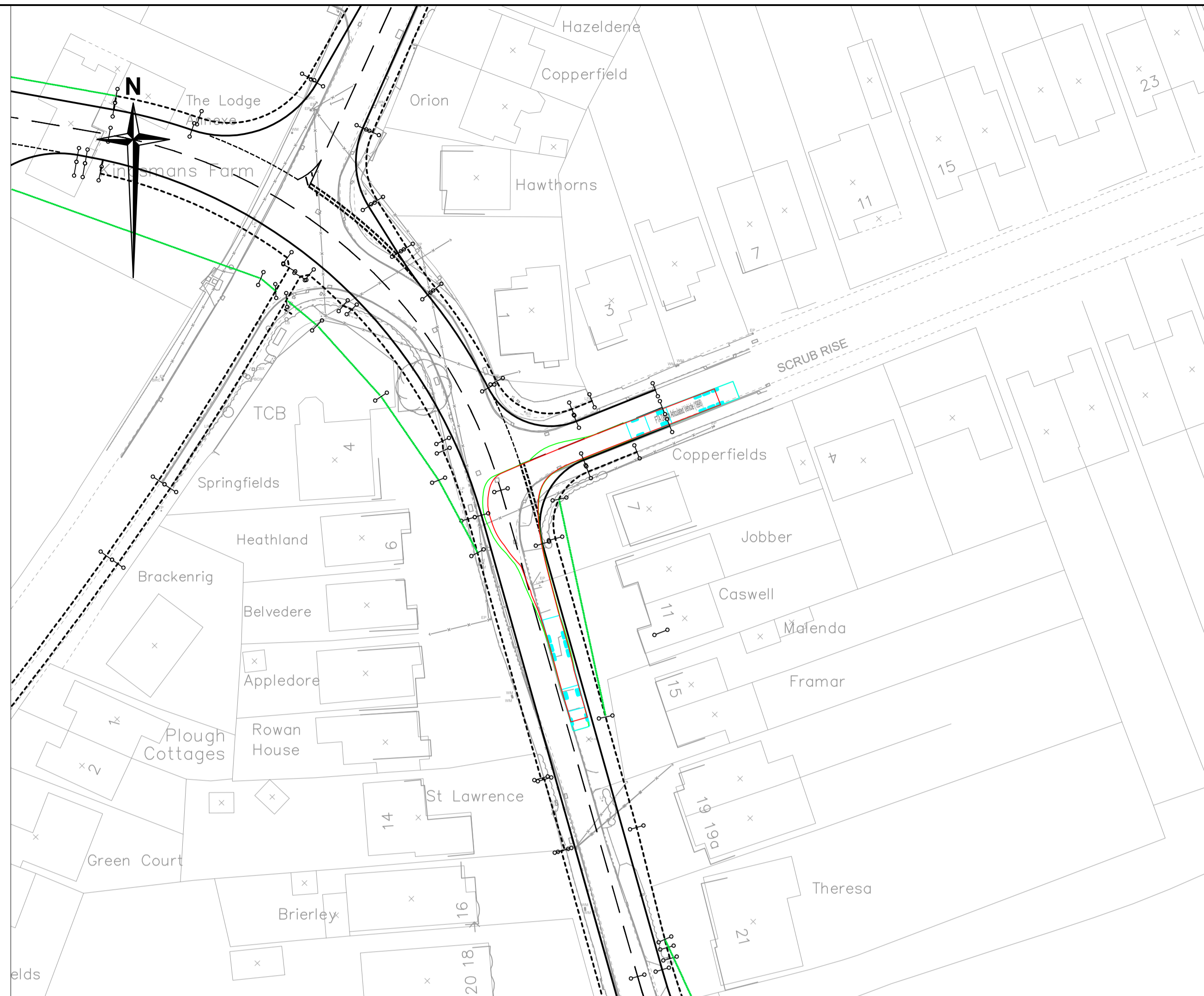
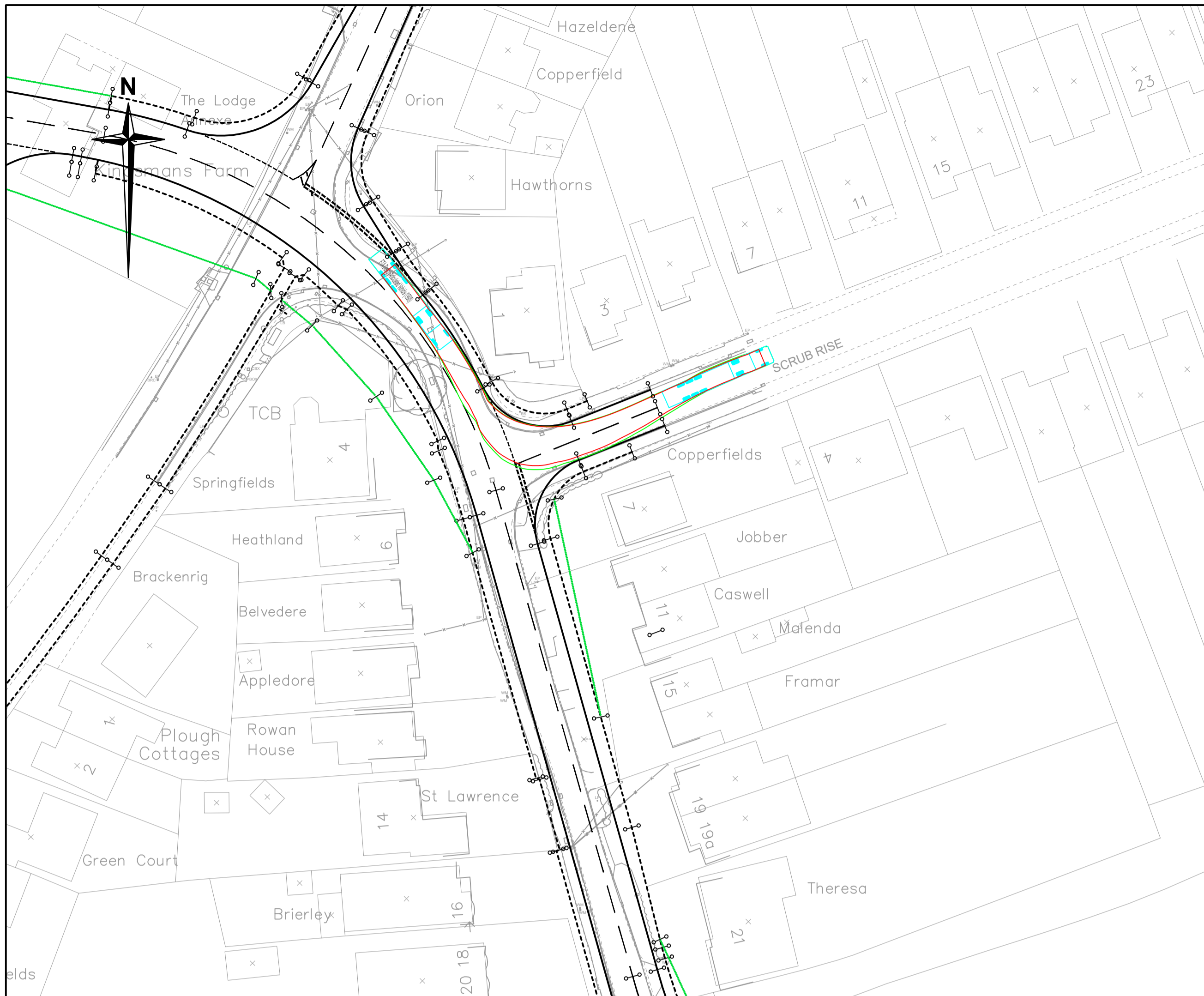
DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
GCW	GCW	MPA	MPA	GCW
DATE	DATE	DATE	DATE	DATE
SEP 20	SEP 20	SEP 20	SEP 20	SEP 20

DRAWING UNITS U.N.O. DIMENSIONS AS SHOWN SCALE AT A1 (841X594mm) 1:500

DRAWING No. **B3553R9A-01-00-225** REV. -



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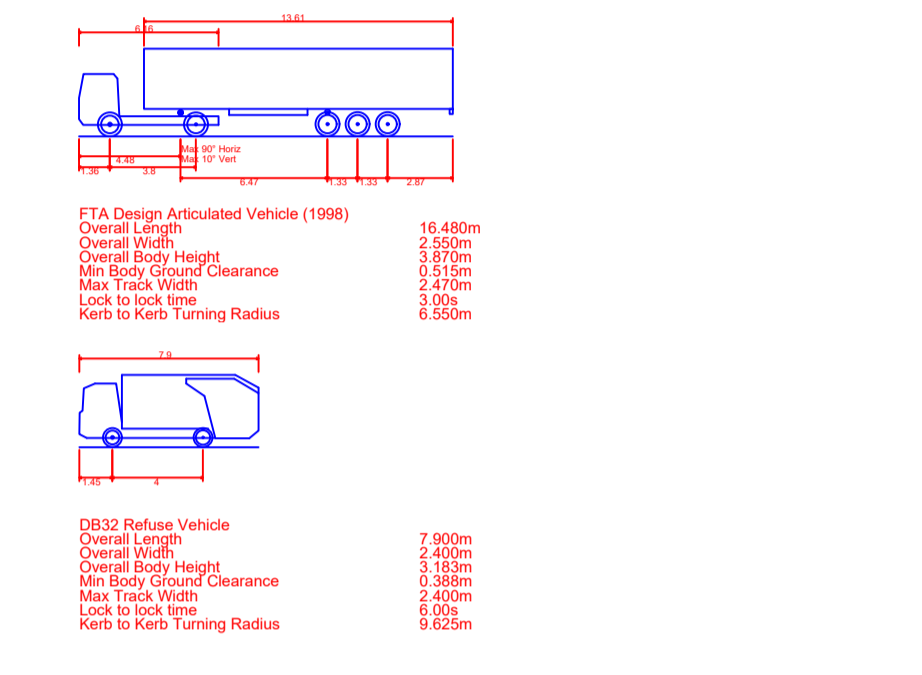


Notes

1. Do not scale.
2. Design Vehicle is 16.5m long articulated Heavy Goods Vehicle as defined by the Design Manual for Roads and Bridges.
3. Verge alignment shown allows provision for 2.00m minimum and 70m forward visibility Stopping Sight Distance (SSD) / junction visibility splays.
4. For dimensions, refer to General Arrangement, drawing number B3553R9A-01-00-220.

Key

- Proposed kerb
- - - Proposed edging/back of footway
- Proposed back of verge
- Proposed road markings
- Swept path (green = body overhang; red = vehicle track)



Rev	Date	Description of revision	Drawn	Checked	Reviewed/Approved

DRAWING STATUS **DRAFT**



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SCHEME TITLE **BASILDON LOCAL PLAN - FRITHWOOD LANE, BILLERICAY OPTION 1 - EXISTING HIGHWAY CORRIDOR**

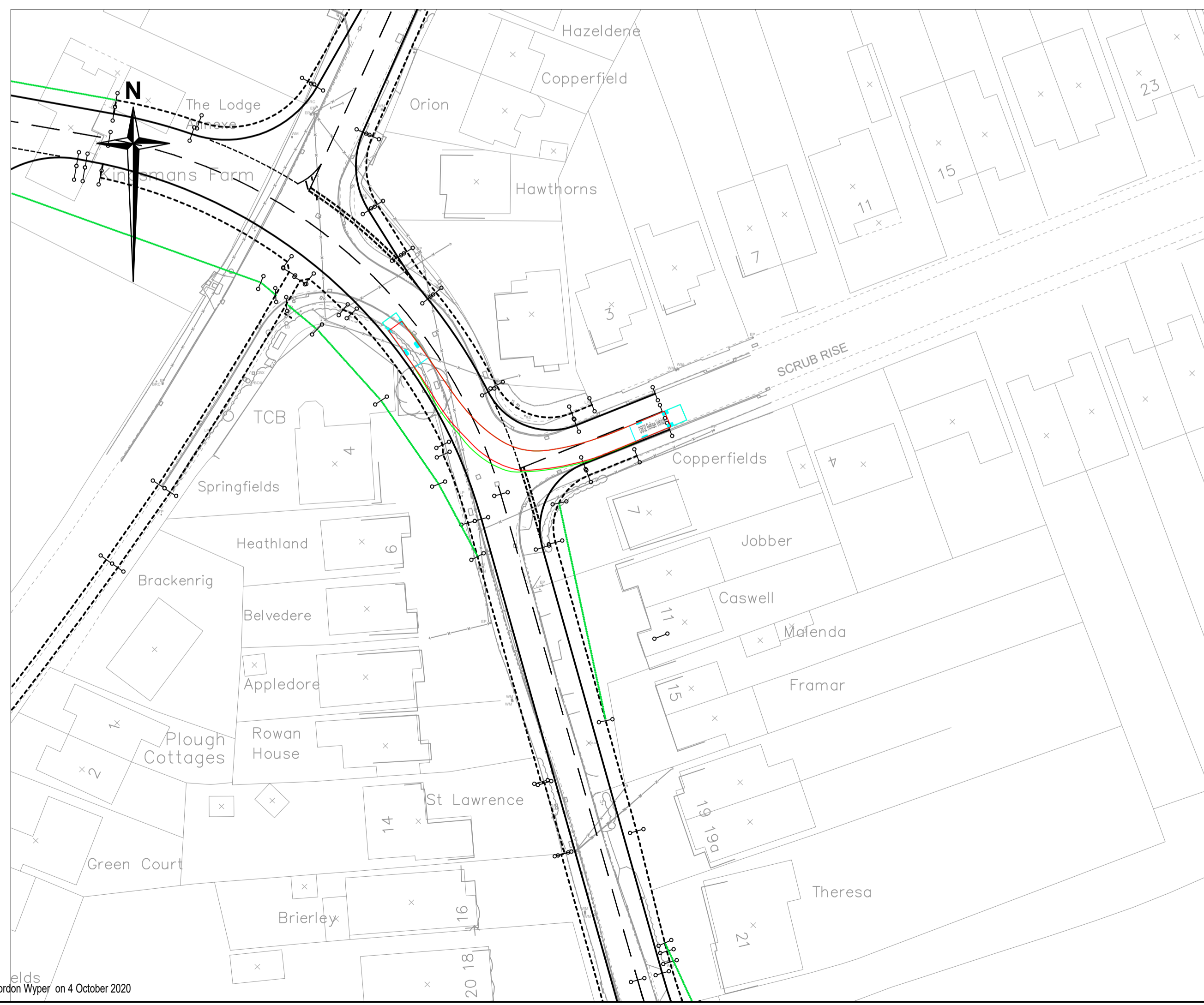
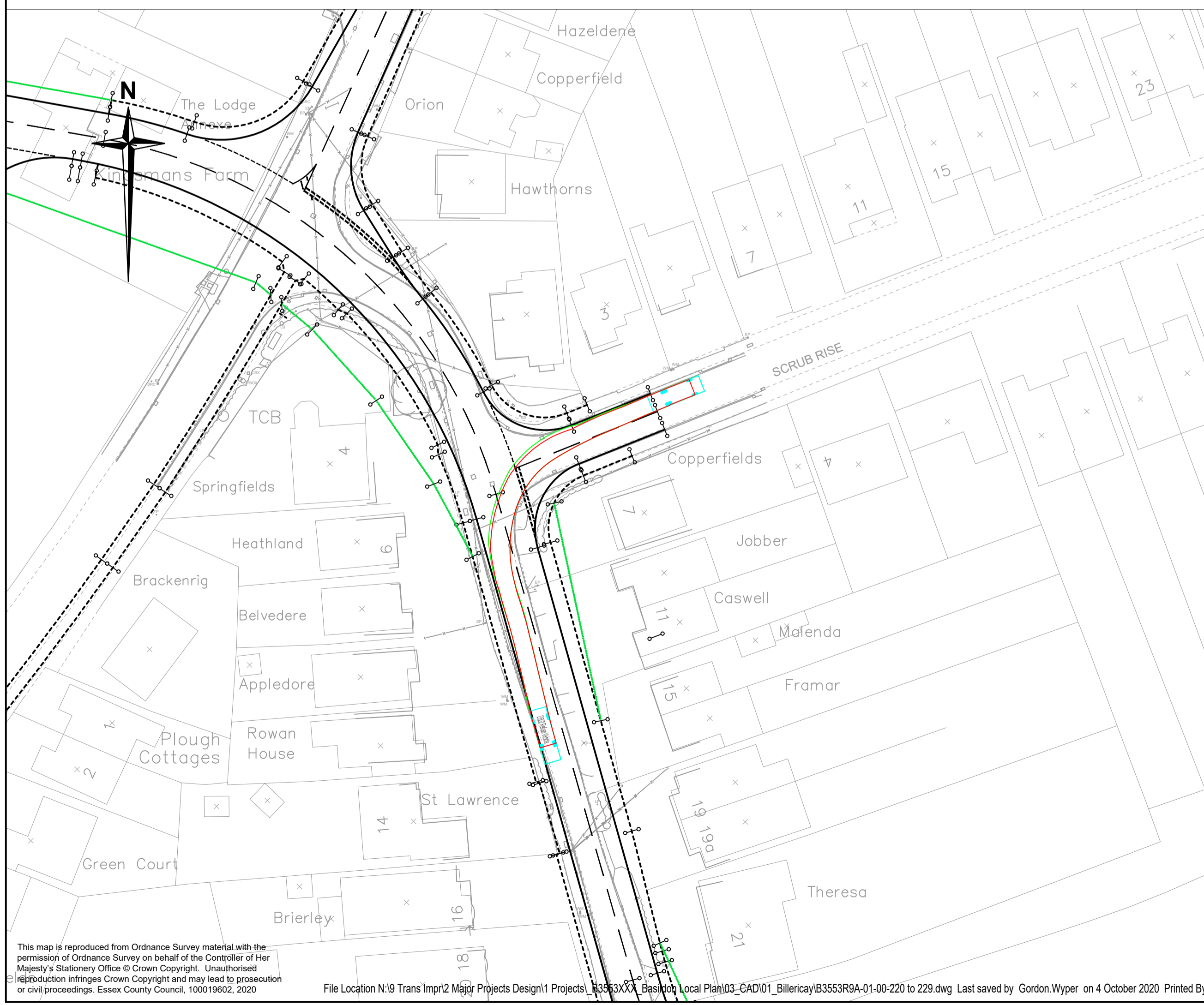
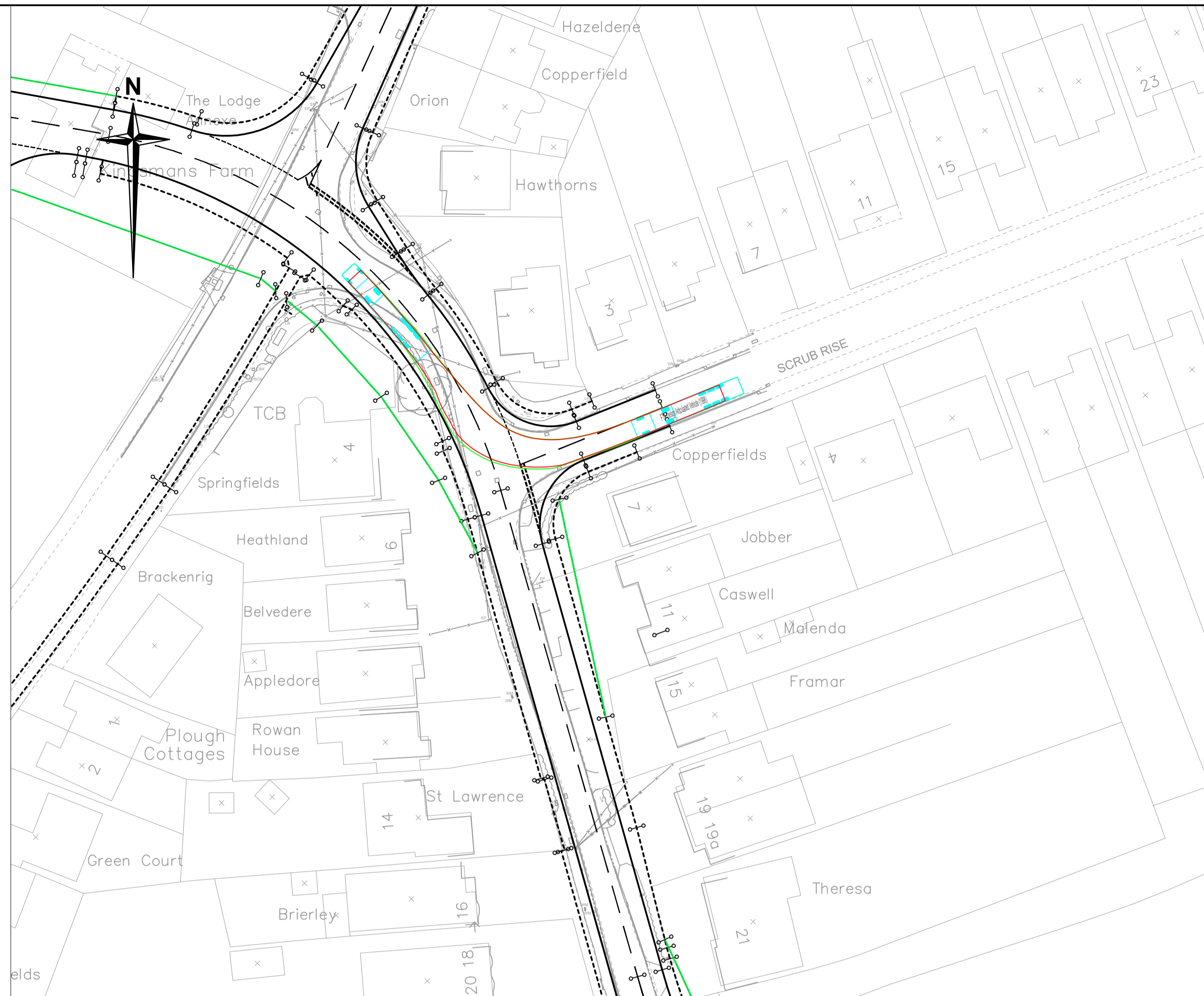
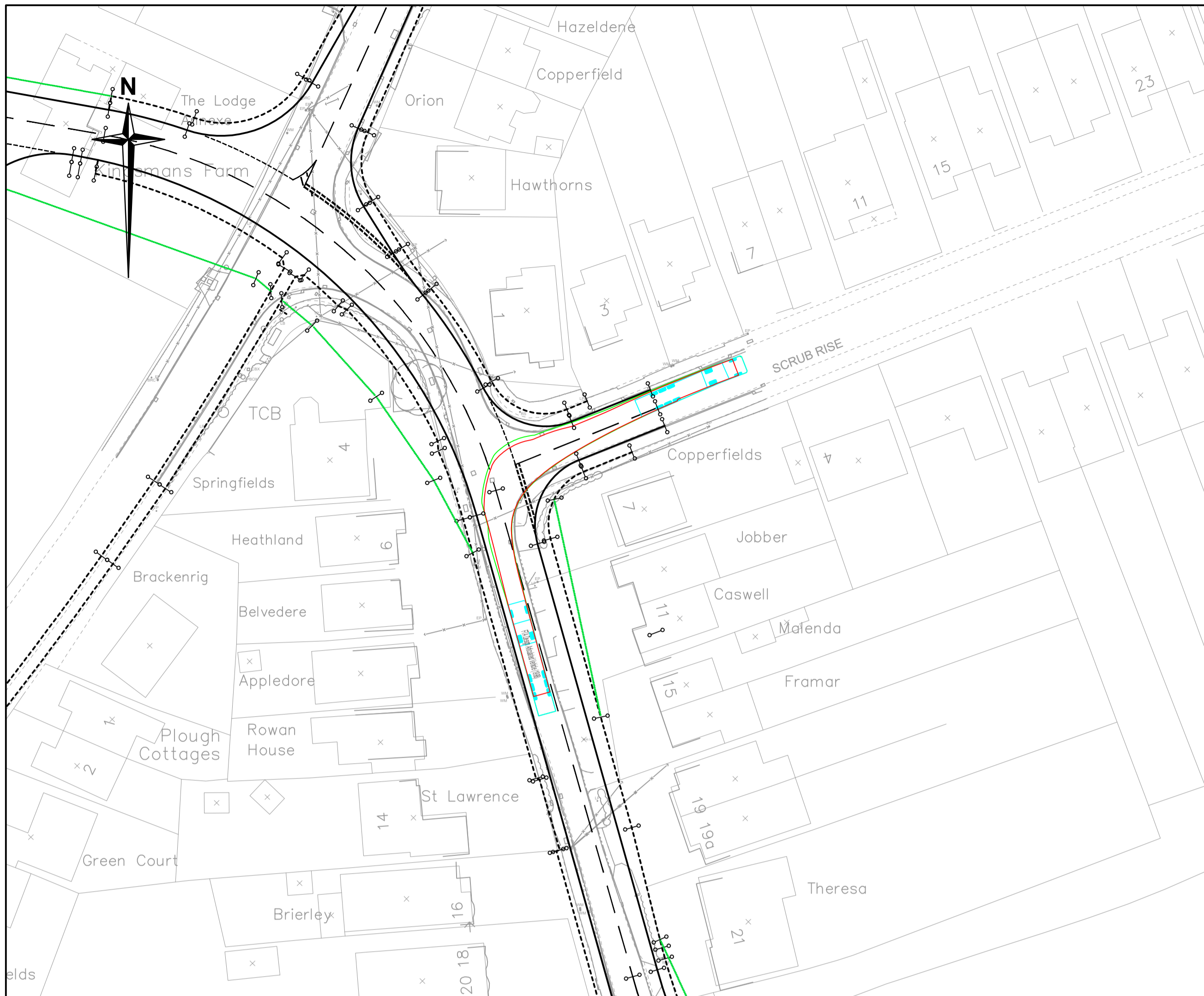
DRAWING TITLE **SWEPT PATH ANALYSIS SW RELIEF ROAD J/W SCRUB RISE SHEET 1 OF 2**

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
GCW	GCW	MPA	MPA	GCW
DATE	DATE	DATE	DATE	DATE
SEP 20	SEP 20	SEP 20	SEP 20	SEP 20

DRAWING UNITS U.N.O. DIMENSIONS AS SHOWN SCALE AT A1 (841X594mm) 1:500

DRAWING No. **B3553R9A-01-00-226** REV. -



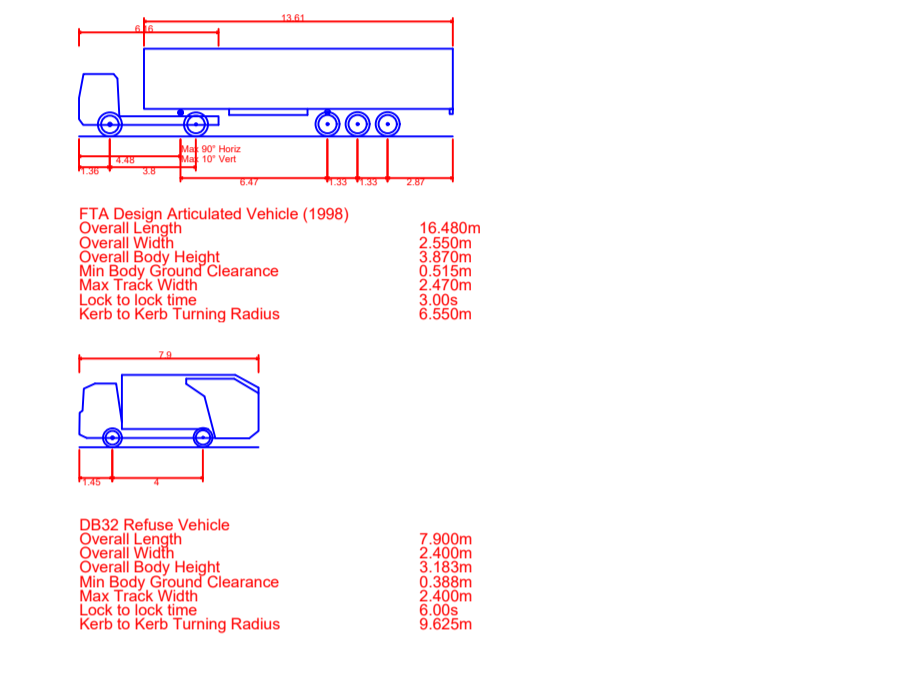


Notes

1. Do not scale.
2. Design Vehicle is 16.5m long articulated Heavy Goods Vehicle as defined by the Design Manual for Roads and Bridges.
3. Verge alignment shown allows provision for 2.00m minimum and 70m forward visibility Stopping Sight Distance (SSD) / junction visibility splays.
4. For dimensions, refer to General Arrangement, drawing number B3553R9A-01-00-220.

Key

- Proposed kerb
- - - Proposed edging/back of footway
- Proposed back of verge
- Proposed road markings
- Swept path (green = body overhang; red = vehicle track)



Rev	Date	Description of revision	Drawn	Checked	Reviewed/Approved

DRAWING STATUS: **DRAFT**



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SCHEME TITLE: **BASILDON LOCAL PLAN - FRITHWOOD LANE, BILLERICAY OPTION 1 - EXISTING HIGHWAY CORRIDOR**

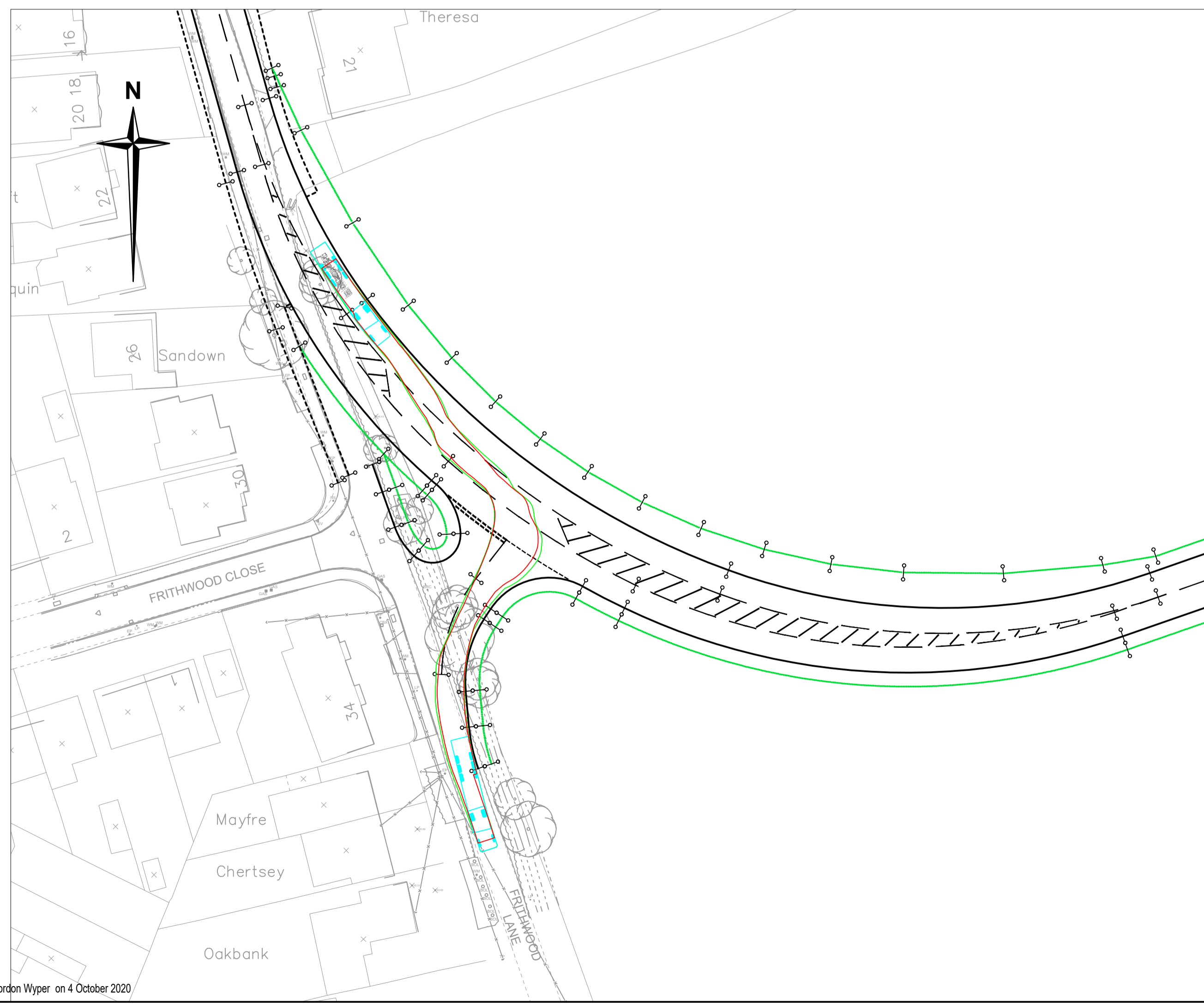
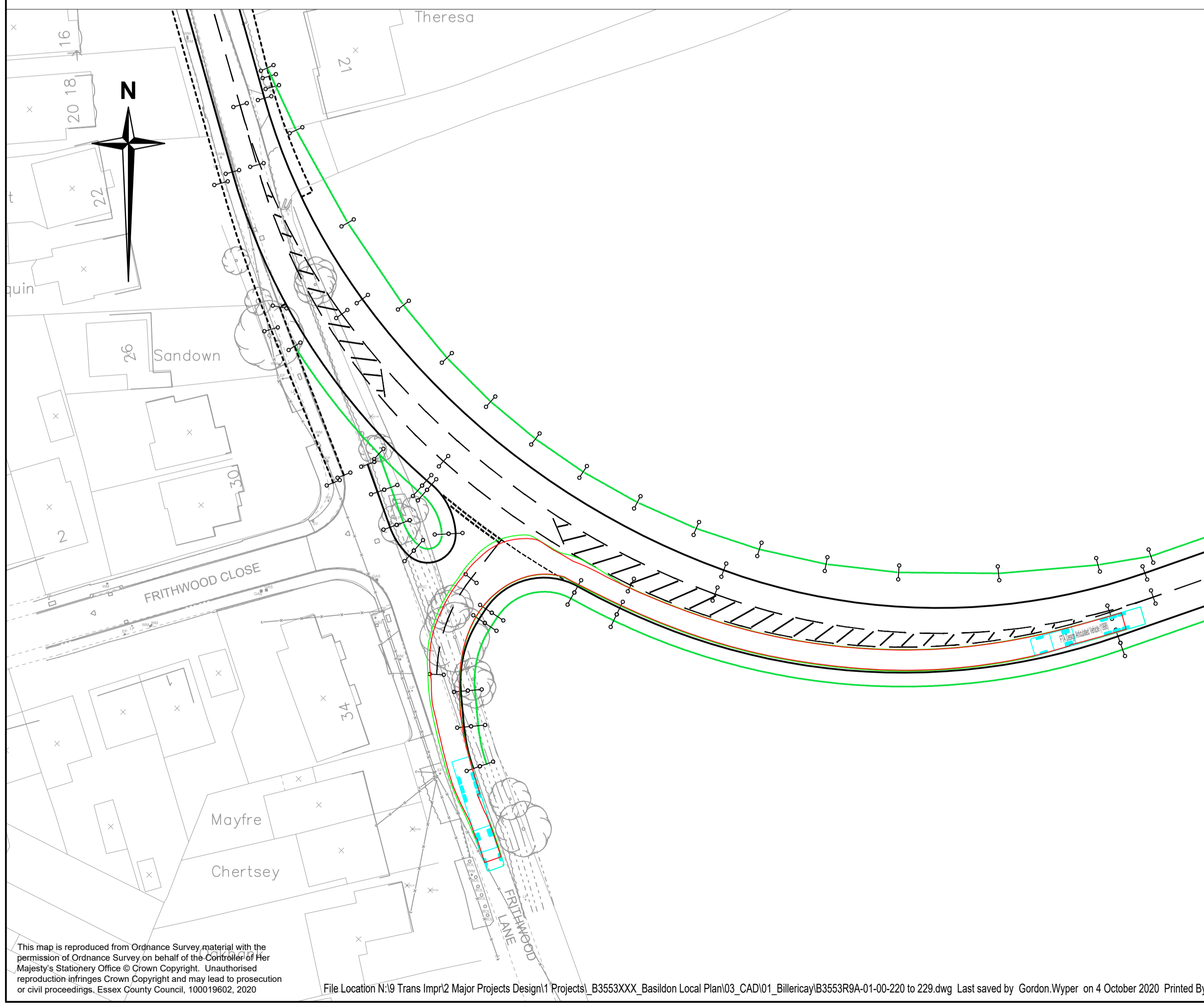
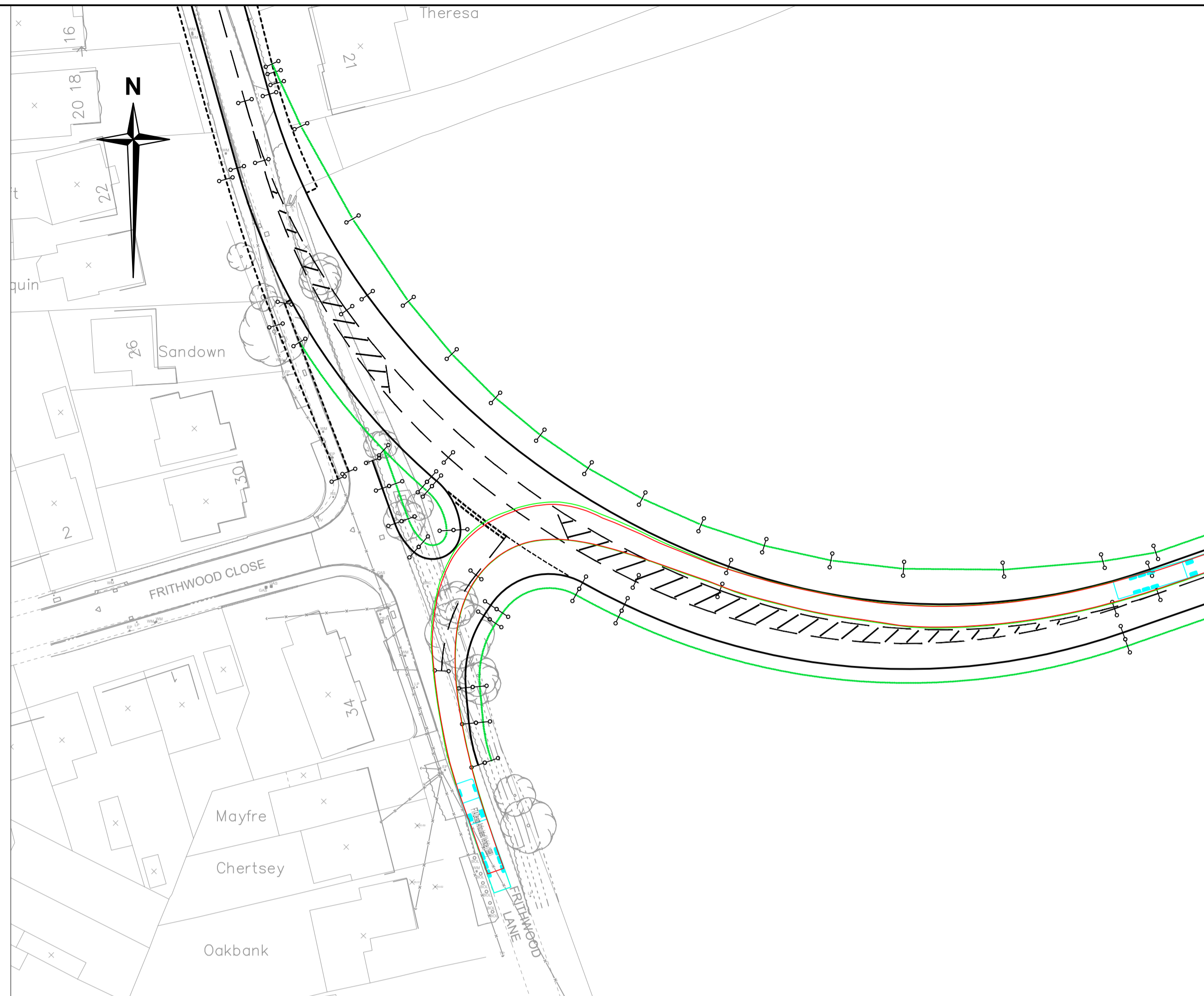
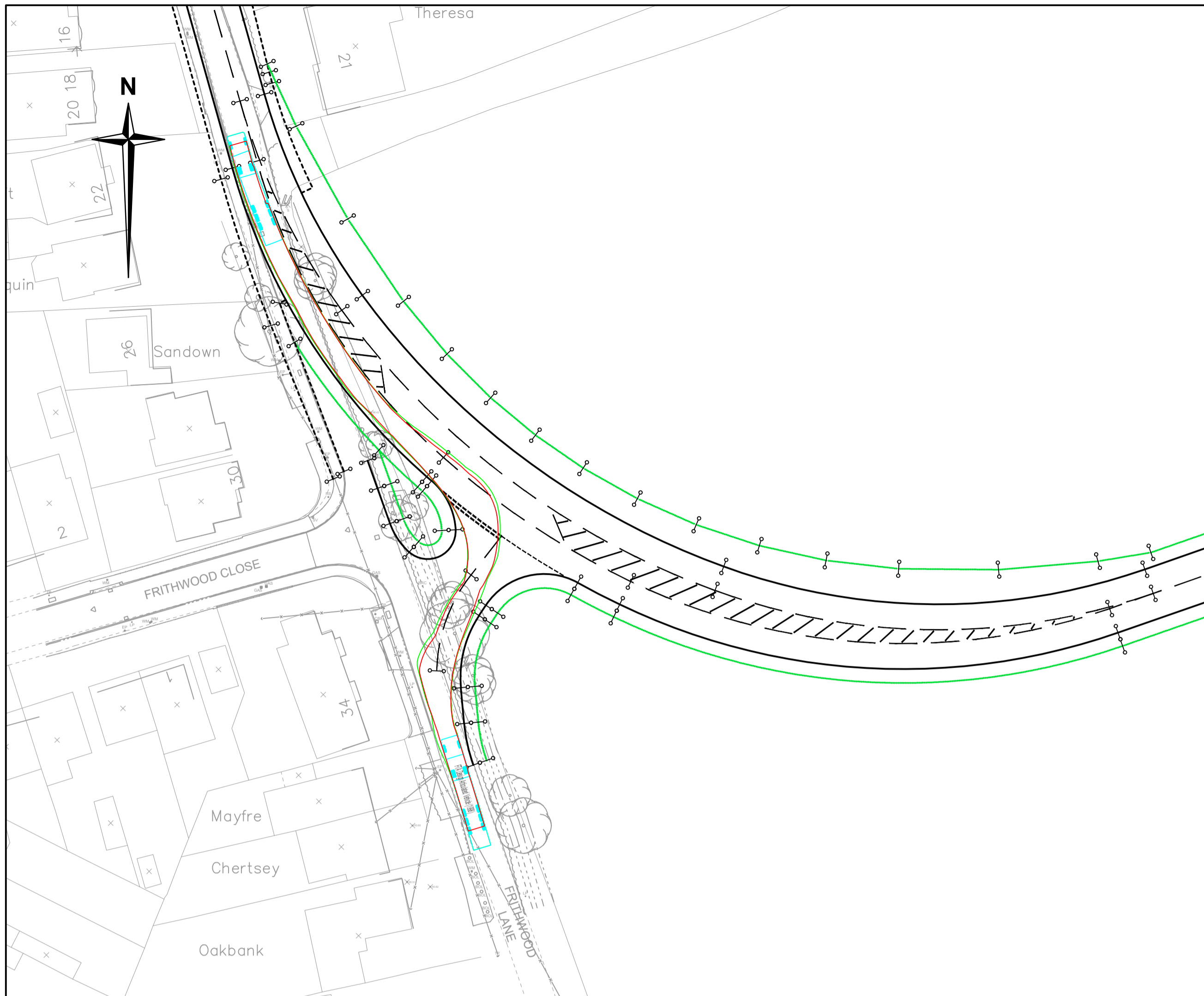
DRAWING TITLE: **SWEPT PATH ANALYSIS SW RELIEF ROAD J/W SCRUB RISE SHEET 2 OF 2**

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
GCW	GCW	MPA	MPA	GCW
DATE	DATE	DATE	DATE	DATE
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DRAWING UNITS U.N.O. DIMENSIONS AS SHOWN SCALE AT A1 (841X594mm) 1:500

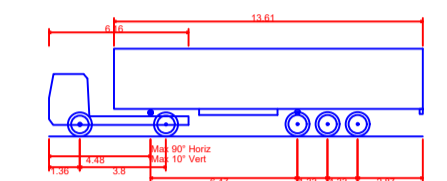
DRAWING No. **B3553R9A-01-00-227** REV. -





- Notes**
1. Do not scale.
 2. Design Vehicle is 16.5m long articulated Heavy Goods Vehicle as defined by the Design Manual for Roads and Bridges.
 3. Verge alignment shown allows provision for 2.00m minimum and 70m forward visibility Stopping Sight Distance (SSD) / junction visibility splays.
 4. For dimensions, refer to General Arrangement, drawing number B3553R9A-01-00-220.

- Key**
- Proposed kerb
 - Proposed edging/back of footway
 - Proposed back of verge
 - Proposed road markings
 - Swept path (green = body overhang; red = vehicle track)



FTA Design Articulated Vehicle (1998)	16.400m
Overall Length	2.520m
Overall Width	3.370m
Overall Height	2.915m
Max Body Height	2.470m
Max Track Width	0.915m
Max Body Ground Clearance	2.470m
Max Back Overhang	2.470m
Kerb to Kerb Turning Radius	8.500m

Rev	Date	Description of revision	Drawn	Checked	Reviewed	Approved

DRAWING STATUS: **DRAFT**



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SCHEME TITLE
BASILDON LOCAL PLAN - FRITHWOOD LANE, BILLERICAY OPTION 1 - EXISTING HIGHWAY CORRIDOR

DRAWING TITLE
SWEPT PATH ANALYSIS SW RELIEF ROAD J/W FRITHWOOD LANE / FRITHWOOD CLOSE

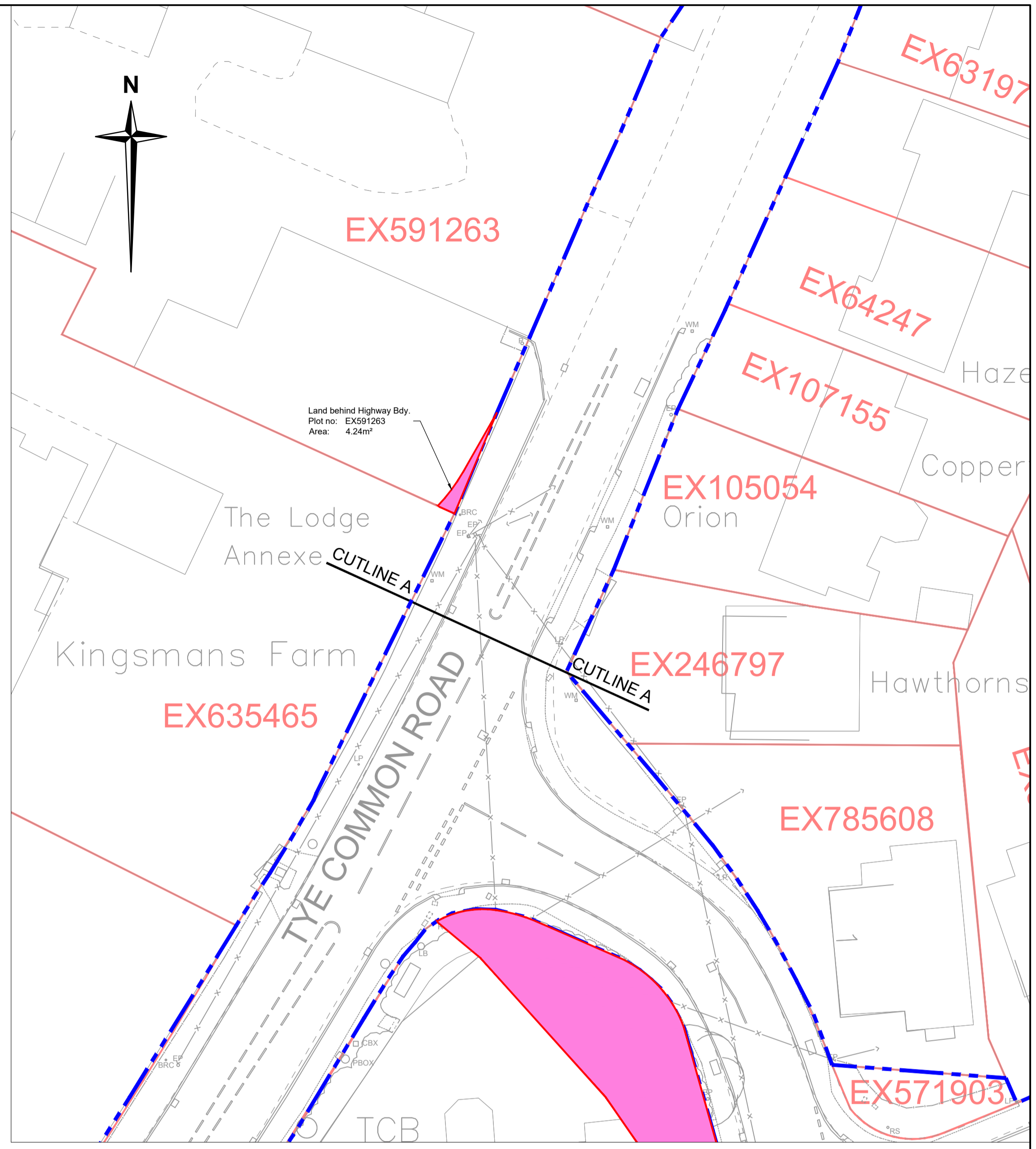
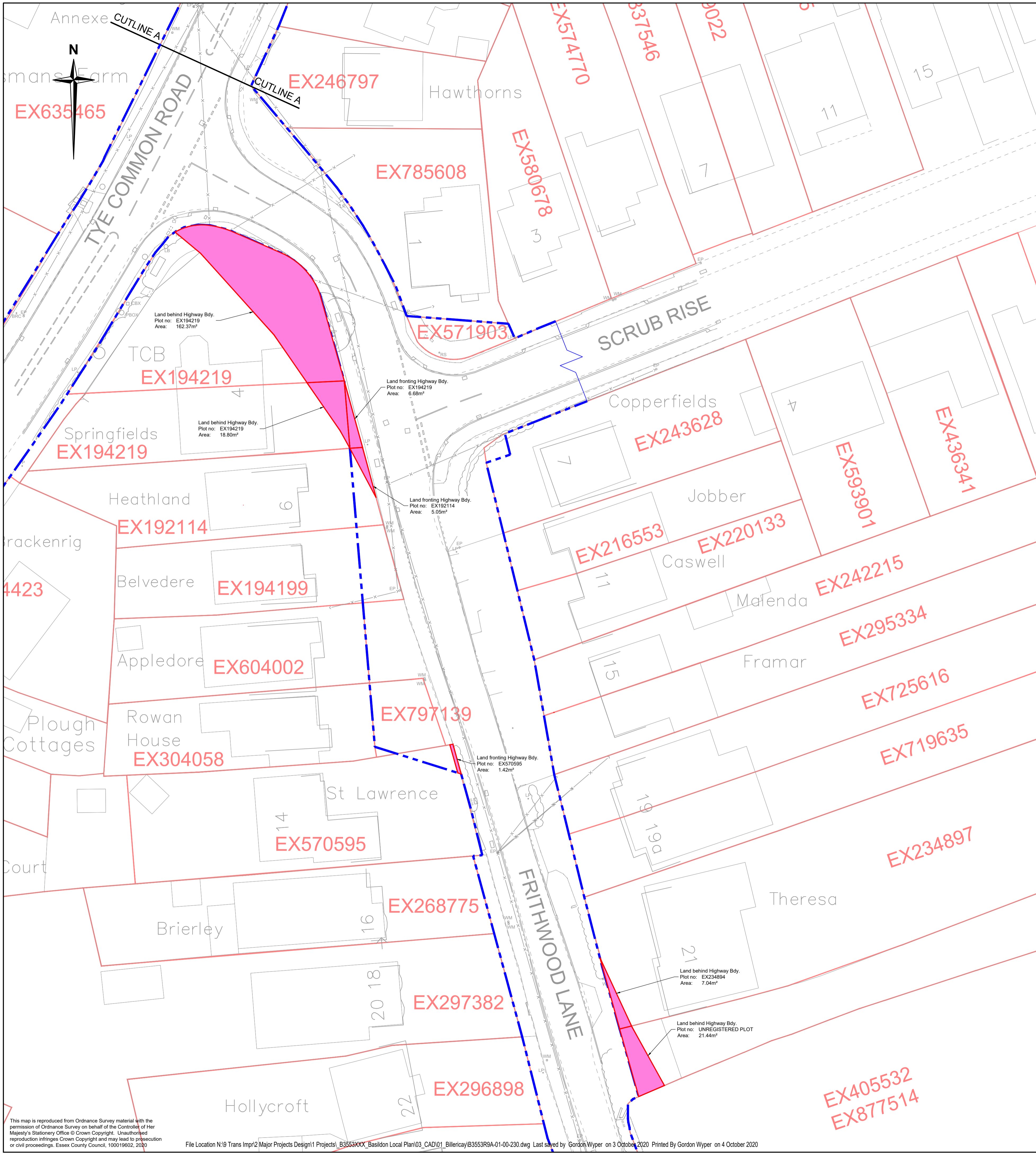
DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
GCW	GCW	MPA	MPA	GCW
DATE	DATE	DATE	DATE	DATE
SEP 20	SEP 20	SEP 20	SEP 20	SEP 20

DRAWING UNITS U.N.O. DIMENSIONS AS SHOWN SCALE AT A1 (841X594mm) 1:500

DRAWING No. **B3553R9A-01-00-228** REV. -



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 File Location N:\9 Trans Impr\2 Major Projects Design\1 Projects_B3553XXX_Basildon Local Plan\03_CAD\01_Billericy\B3553R9A-01-00-220 to 229.dwg Last saved by Gordon.Wyper on 4 October 2020. Printed By Gordon.Wyper on 4 October 2020.



Notes

1. Do not scale.
2. Land requirements identified based upon provision of 70m forward visibility Stopping Sight Distance (SSD) and junction visibility splays as shown on drawing no. B3553R9A-01-00-221.
3. Consideration of land required from affected properties fronting Frithwood Lane and Tye Common Road with exception of following Land Registry plot numbers which are considered to be dealt with by Others as part of development proposals:
 - 3.1. EX405532 and EX877514 fronting Frithwood Lane to East.
 - 3.2. EX635465 and EX935879 fronting Tye Common Road to the West.

Key

- Existing Highway boundary
- Land Registry plot boundary
- Required land acquisition

PLOT No.	LAND BEHIND HIGHWAY BDY. (m2)	LAND FRONTING HIGHWAY BDY. (m2)	TOTAL LAND REQUIREMENT (m2)
EX192114		5.05	5.05
EX194219	162.37		162.37
EX194219	18.80	5.68	25.48
EX234894	7.04		7.04
EX570595	1.42		1.42
EX591263	4.24		4.24
UNREGISTERED	21.44		21.44
TOTALS	215.31	11.73	227.04

Rev	Date	Description of revision	Drawn	Checked	Reviewed	Approved

DRAWING STATUS: **DRAFT**



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SCHEME TITLE: **BASILDON LOCAL PLAN - FRITHWOOD LANE, BILLERICAY OPTION 1 - EXISTING HIGHWAY CORRIDOR**

DRAWING TITLE: **LAND PLAN SHEET 1 OF 2 (70M VISIBILITY)**

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
GCW	GCW	MPA	MPA	GCW
DATE	DATE	DATE	DATE	DATE
SEP 20	SEP 20	SEP 20	SEP 20	SEP 20

DRAWING UNITS U.N.O. SCALE AT A1 (841x594mm) DIMENSIONS AS SHOWN 1:250

DRAWING No. **B3553R9A-01-00-230** REV. **-**

