

Job Name: Stag Brewery, Mortlake
Job No: 38262-5520
Note No: TN046C
Date: 5th April 2023
Prepared by: Richard Mallett and Peter Wadey
Reviewed by: George Daugherty
Subject: Assessment of Bus Stops (Lower Richmond Road and Mortlake High Street)

Introduction

Background

This Technical Note is the third update to a note produced in June 2022 [TN46A] and prepared in response to comments made by Transport for London (TfL) on the proposed bus stop arrangements along Lower Richmond Road and Mortlake High Street as part of development proposals for the former Stag Brewery site in Mortlake, south-west London. These proposals enhance, relocate and create new bus stops. The 3 bus stands on Mortlake High Street are retained but relocated to accommodate new development accesses with the intention these bus stands are an interim facility to the future delivery of a dedicated off-road bus stand within the site on the corner of Lower Richmond Road and Williams Lane.

A plan showing the location of existing bus stops and stands is provided in Figure 1.

Initial TfL Comments

Comments received from TfL (20th May 2022) related to the proposed bus stops are as follows:

“.....to facilitate the proposed development along Lower Richmond Road and Mortlake High Street, the applicant is proposing alterations to some bus stop locations along this corridor. Whilst TfL agreed the principle of these changes in 2016, TfL would recommend that the applicant reconfirms the length and widths of each stop and stand to ensure they meet TfL’s current standards and include tracking with a 12m single deck rigid bus to demonstrate that they are accessible.

The applicant should also provide tracking for the Sheen Lane mini roundabout to demonstrate that buses can still circumnavigate this roundabout in order to turn from the westbound side of the high street onto the eastbound side to access the bus stands.

The applicant should confirm that these stops and stands meet the TfL design standards for Accessible Bus Stops.”

The response to these comments led to the preparation of this Technical Note (Revision A) and Drawing Number: 38262-5520-28A.

Follow up TfL Comments

While no change had been made to the bus stops, discussions with TfL as part of a hybrid scheme for the site raised further comments (3rd February 2023) which can be summarised as:

“.....there is still concern with some of the stop/ shelter positions and layouts. TfL would recommend that further discussions are held with the applicant to resolve these concerns including the proposed positioning of trees by the bus stops. Furthermore, it is noted that the last two stop on Lower Richmond Road by Clifford Avenue (FW36 & FW46) have not been included in the further information.”

Comments also related to a bus driver welfare facility for the Mortlake High Street bus stand¹ and the need to update the funding contribution for bus stop infrastructure in line with inflation were raised by TfL but which are addressed separately.

¹ TfL have stated that terminating services must have driver welfare facilities located within 200 metres of the bus standing area and be accessible 24/7

TfL-Buses Meeting

To address the comments from TfL dated 3rd February 2023, a meeting was held with representatives from TfL-Buses on 28th February 2023 to clarify the bus stop design requirements. These can be summarised as:

General points

- a. The Design Vehicle should be a 12 metre long single decker electric bus (vehicle tracking details subsequently provided to Stantec by TfL)
- b. Cage road markings must include a 9 metre exit zone to ensure that buses pulling away from a stop are not obstructed by parked or waiting vehicles
- c. Cage road markings should preferably be 3.2 metres deep (3.0m minimum)
- d. Traffic lanes passing a bus stop should be 3.25 metres wide (3.4m preferred)
- e. A clear 8-10 metre long zone is required behind the alighting zone
- f. A minimum kerb height of 125mm
- g. The foundations and electrical connections of bus shelters must be located within the limits of the adopted highway to protect the position of the bus stop from future change. The option to cantilever shelters oversailing development boundaries/ private land will be considered on a case by case basis.

Specific bus stop and stand (refer to Figure 1) points raised during the meeting included:

- a. Bus Stop **Q**: Lower Richmond Road (WB) adjacent to No.119. No change to the proposed layout although a recently introduced disabled parking bay will need to be relocated as part of the proposals
- b. Bus Stop **M**: Lower Richmond Road (EB) adjacent to Chertsey Court. No change to the existing layout
- c. Bus Stop **P**: Lower Richmond Road (WB). Move the inset parking bay to the opposite side of the bus stop. This may require the bus stop clearway being shortened to one bus length
- d. Bus Stop **N**: Lower Richmond Road (EB). Move the shelter so that it sits within the public highway
- e. Bus Stop **B**: Mortlake High Street (WB). Extend the build out by another 2 metres beyond the alighting zone. This may require (with the bus tracking) the right turn lane to be narrowed to widen the cage marking. Also, re-position the bus shelter so the footings are within the public highway
- f. Bus Stop **A**: Mortlake High Street (EB). Show the tree between the boarding and alighting zones 'To be removed' and the tree between the Stop and Zebra crossing 'At risk of removal' following detailed design
- g. Bus Stands: Mortlake High Street (EB): Redo the bus tracking to show buses on the westbound side of the road straddling the two approach lanes before doing a U-turn at the Sheen Lane roundabout.

TfL-Buses Site Meeting

A meeting was held in Mortlake on the 29th March to discuss the above proposals and from this TfL requested further options were developed for Bus Stop Q and Bus Stop P on Lower Richmond Road and Bus Stop A on Mortlake High Street. The aim was to ensure the bus stop changes along Lower Richmond Road did not result in a loss of on-street parking and that the connectivity and accessibility of Bus Stop A was improved.

Scope

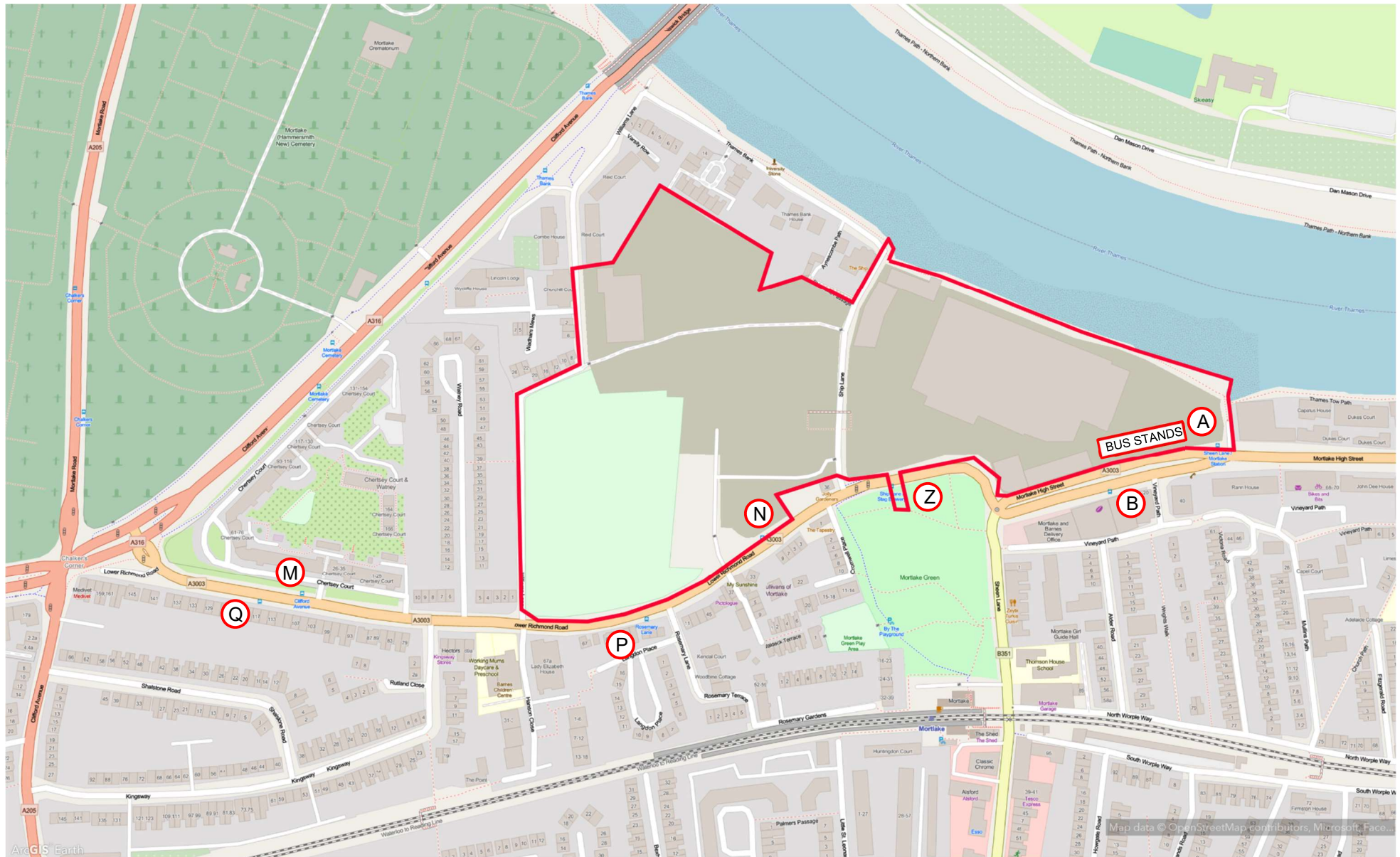
The following provides a response to the above comments, picking up on the general and specific points made. As mentioned previously, the driver welfare facility and funding contribution issues will be addressed separately within the Planning Application process.

For each bus stop a description of the existing layout is provided, how this has changed as part of the development proposals and the extent of any outstanding design issues. TfL's Accessible Bus Stop Design Guidance Updated 2017 Edition ('TfL Standards') has been used to develop the bus stop layouts but also to highlight where the designs may not be fully compliant due to site constraints.

TECHNICAL NOTE



Figure 1: Location of bus stops and stands along Lower Richmond Road and Mortlake High Street



Bus Stop Design Commentary

Overview

The proposed bus stop locations, design, dimensions and tracking of a 12 metre single decker bus (based upon specifications for an electric bus supplied by the TfL Buses team) are provided on Drawing Numbers [38262-5520-28C](#), [31](#), [32](#), [33](#), [34](#) and [35](#) (Appendix A).

For each bus stop layout, its compliance with the TfL Standards has been assessed with respect to the bus stop clearway/ cage dimensions and that the boarding and alighting zones are not obstructed.

Bus shelter positions generally differ from the TfL standard layouts due to various site constraints, however, where possible we have sought to improve on the current arrangements. To improve road safety all shelters have been located outside the visibility splays of side road traffic.

Bus Stop Q: Lower Richmond Road (Westbound)

Existing Provision

Bus stop Q is located on the westbound carriageway of Lower Richmond Road adjacent to No. 119. The only supporting infrastructure is a bus stop flag attached to a lighting column located on the boundary of No.'s 117 and 119. There is no bus stop clearway/ cage road marking or shelter which results in the stop being a poor provision for bus users and non-compliant with the TfL Standards. In 2018, an on-road disabled parking bay was introduced outside No. 115. The footway is about 2.2 metres wide.

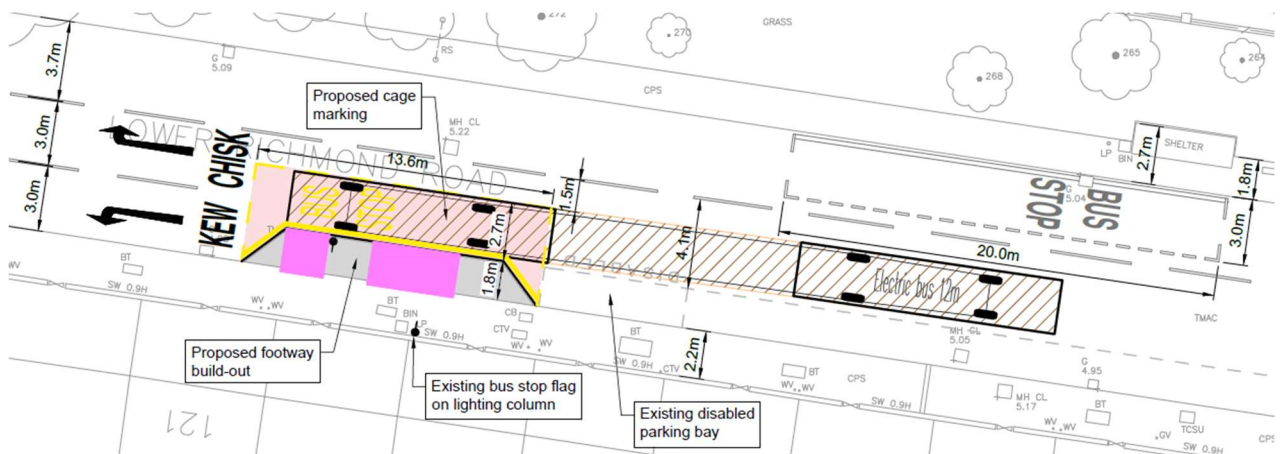


Proposal (Drawing Number: 38262-5520-31 and 34)

The proposal is to introduce a 27 metre long bus stop clearway/ cage road marking outside No.'s 113 to 121. The new cage marking will result in the loss of 2 parking spaces as previously agreed but the more recently introduced disabled parking bay will need to be relocated behind the bus stop. While the opportunity to add a shelter is limited due to the narrow footway, the proposals represent a significant improvement for bus users over the current provision.

At the site meeting, TfL suggested a full width bus boarder could be installed to provide a more accessible stop with improved boarding and alighting areas (Figure 2). The option still results in the loss of two parking spaces, but an additional space was identified just to the east of Rosemary Lane to partially compensate. Parking impacts along Lower Richmond Road are discussed in more detail later on in this Note. Variations of this option included relocating the disabled bay to the west of the bus boarder and the installation of a shelter. The exact position of the bus stop boarder would need to be confirmed by the post application VISSIM modelling proposed as part of the Traffic Management Act Notification (TMAN) scheme approval process.

Figure 2: Bus Stop Q alternative road layout (image taken from Drawing Number: 38262-5520-34)



Compliance

The dimensions of the bus stop layouts are compliant with those shown in:

- TfL Standards Figure 12 (see image below) for a bus stop where there is parking on the approach. In this case, there is no need for the exit taper because the Chalkers Corner design includes a no waiting/ no loading restriction (at any time) between this stop and the junction stop lines.
- TfL Standards Figure 16 (see image below) for a bus stop located on a shorter full width boarder.

Figure 12: Kerbside approach with parking on approach and exit

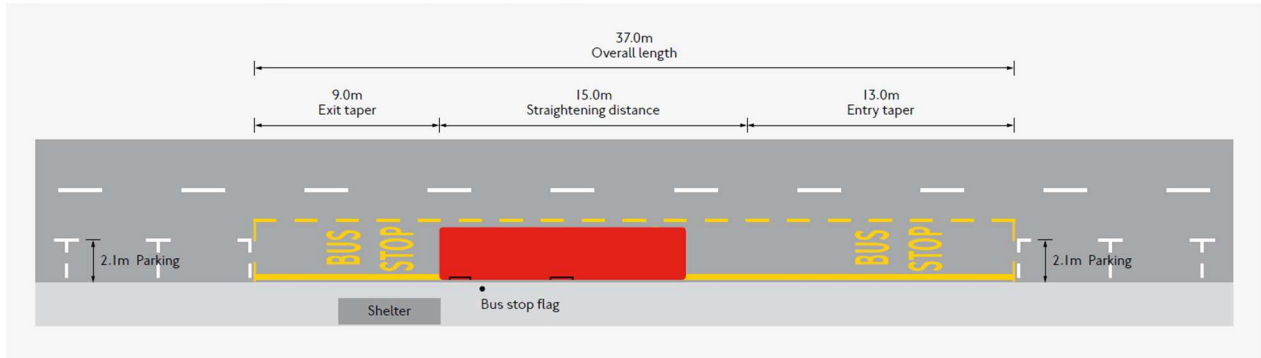


Image taken from the TfL Accessible Bus Stop Design Guidance (2017 Revised Edition)

Figure 16: Alternative full-width boarder layouts

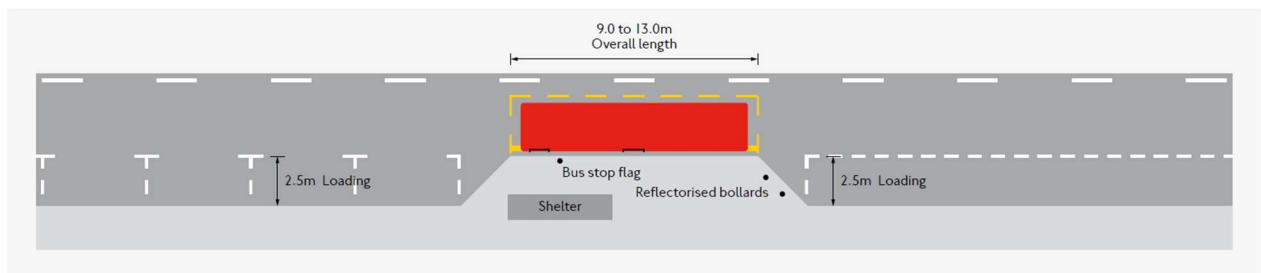


Image taken from the TfL Accessible Bus Stop Design Guidance (2017 Revised Edition)

Bus Stop M: Lower Richmond Road (Eastbound)

Existing Provision

Bus Stop M is located on the east carriageway of Lower Richmond Road adjacent No.'s 36 to 52 Chertsey Court. The bus stop clearway/ cage road marking is 19 metres long with a bus shelter located adjacent to No.'s 36 to 44 Chertsey Court. The bus shelter is inset into the verge to maintain a 1.8 metre wide footway.

Proposal (Drawing Number: 38262-5520-31)

There are no proposals to change this bus stop layout.

Compliance

At 19 metres the bus stop clearway/ cage length is long enough for a bus to fully access the stop if there is no parking on the approach to, or exit from, the stop. Refer to the TfL Standards (Figure 12) without the need for the entry and exit tapers.



The current kerb side restrictions ban waiting (at any time) but not loading. Given the location of this bus stop close to the exit from Chalkers Corner and the vehicular access to Chertsey Court, the risk of loading activity along this section of Lower Richmond Road is likely to be low and so no further restrictions or changes to the clearway/ cage road marking is proposed.

Bus Stop P: Lower Richmond Road (Westbound)

Existing Provision

Bus Stop P is located on the westbound carriageway of Lower Richmond Road adjacent to No.'s 51 to 55 just west of Rosemary Lane. The bus stop clearway/ cage road marking is 19 metres long with the shelter located outside No. 53. The footway width is approximately 2.2 metre wide.

Proposal (Drawing Number: 38262-5520-28C and 35)

It is proposed to relocate this stop to the east of Rosemary Lane outside No.'s 39 to 49. The reason for this is to provide a wider footway and waiting area to accommodate the forecast increase in people using the stop (mainly from the school). This enlarged stop will also replace Bus Stop Z which needs to be removed to provide a new crossing between the development and Mortlake Green with wider links to the station.

The proposed bus stop has a 33 metre clearway/ cage road marking and the shelter is located on the footway build-out. By building out and straightening the southern kerb line, it is possible to provide a wider footway and waiting area which is 2.5 metre at the shelter and 4.6 metre (max) elsewhere along the clearway. **This new stop would require the loss of four parking spaces but these can be relocated to where the original stop was, west of Rosemary Lane.**

The layout (Figure 3) is compromised slightly by the need to include a vehicle crossover for No. 43 (Figure 4) as this would be in the alighting zone of any second bus that arrives at the stop. The parking bay outside No. 35 (Figure 5) also falls within the visibility splay of drivers exiting Waldeck Road.

Figure 3: Bus Stop P proposed road layout (image taken from Drawing Number: 38262-5520-28C)

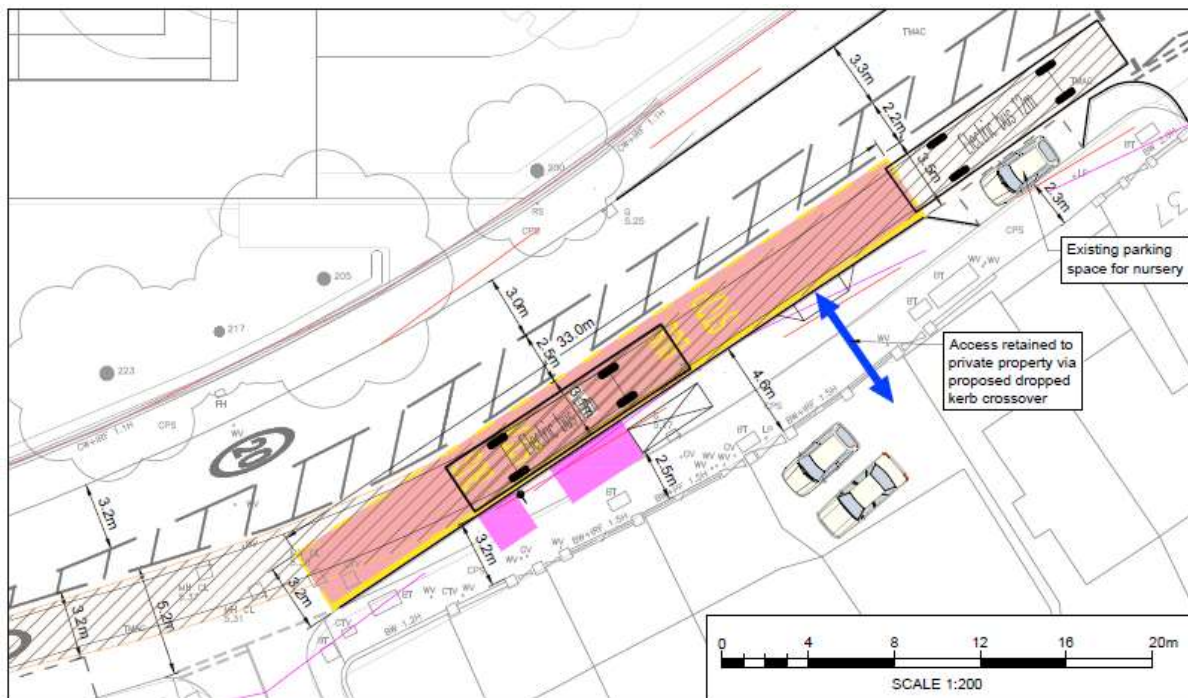


Figure 4: Bus Stop P proposed location showing driveway at No. 43

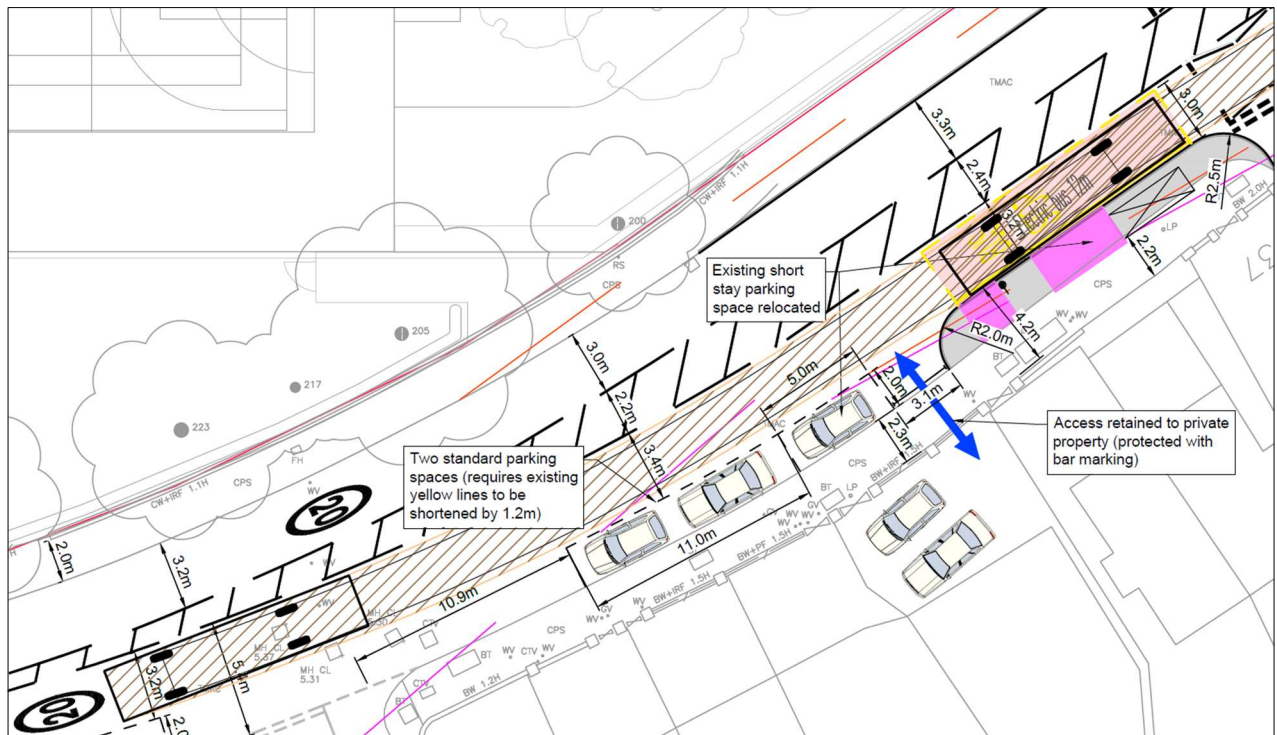


Figure 5: Bus Stop P proposed location showing short stay parking bay outside No. 35



Following meetings with TfL, an alternative layout was suggested that had parking bays retained on the exit side of the bus stop. This layout is shown in image below (Figure 6).

Figure 6: Bus Stop P alternative road layout (image taken from Drawing Number: 38262-5520-35)



The design team considered this alternative layout and have the following observations:

- The driveway access to No. 43 is now located outside the bus stop clearway
- Three rather than five parking bays would be lost but this would be compensated by the four parking spaces introduced to the west of Rosemary Lane where the bus stop was originally located
- The bus stop capacity is reduced to one vehicle with any second bus arriving at the stop having to wait for the bus in front to depart
- The shelter position is some distance from the boarding zone.

Compliance

Both options are compliant with the TfL Standards in terms of clearway/ cage road markings, boarding/ alighting zones and the position of the bus stop flag. In the first option, the alighting zone for any second bus that arrives at the stop would be obstructed by the vehicle crossover.

Bus Stop N: Lower Richmond Road (Eastbound)

Existing Provision

Bus Stop N is located on the eastbound carriageway of Lower Richmond Road adjacent to No.'s 38 to 44. The bus stop clearway/ cage road marking is 21 metres long with the shelter located in front of the Network Business Centre entrance. The footway width is about 2.6 metres wide but partially obstructed by the shelter.



Proposal (Drawing Number: 38262-5520-28C)

The bus stop is moved slightly eastwards, allowing the length of the bus stop clearway/ cage road marking to be extended to 23 metres. The shelter is moved away from the Network Business Centre entrance.

The original shelter position showed it located outside the highway boundary (i.e. within the site) but following future proofing concerns raised by TfL, the shelter position has been changed. The proposed layout now keeps the shelter footings within adopted highway, but the shelter roof is cantilevered to ensure an unobstructed footway width of 2.2 metres. It should be noted that the position of the shelter is constrained by an existing telecoms cabinet.

Compliance

The dimensions of the bus stop are compliant with those shown in the TfL Standards Figure 14 (see image below) for a bus stop on the exit side of a junction.

Figure 14: Exit side of junction

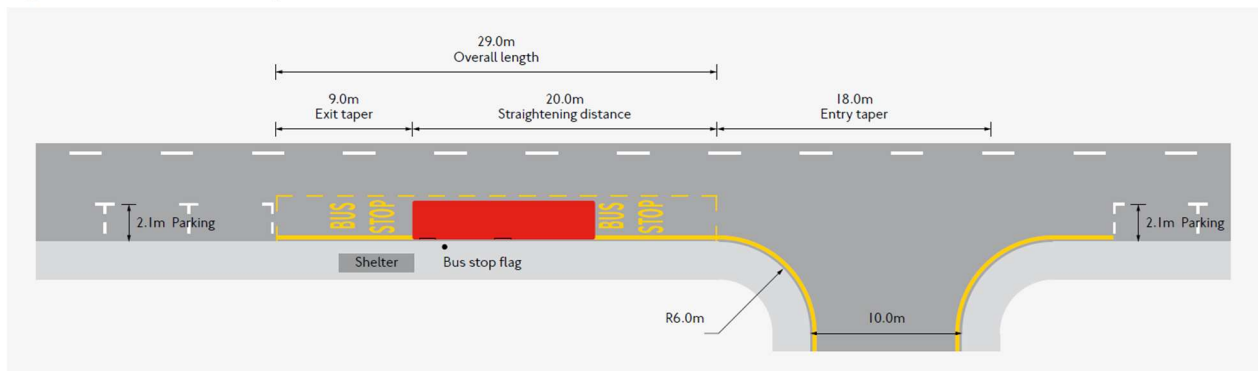


Image taken from the TfL Accessible Bus Stop Design Guidance (2017 Revised Edition)

Bus Stop Z: Lower Richmond Road (Westbound)

Existing Provision

Bus Stop Z is located on the westbound carriageway adjacent to Mortlake Green. The bus stop clearway is 27 metres long with the bus shelter and flag located at the western end. The footway adjacent to the bus shelter is less than 2 metres wide.

Proposal

This bus stop is removed as part of the proposals to accommodate a new controlled shared use crossing that provides a direct link between the development, Mortlake Green, Mortlake station and retail area on Sheen Lane beyond the level crossing. Existing bus passengers will use either Bus Stop P or B.



Compliance

Not applicable.

Bus Stop B: Mortlake High Street (Westbound)

Existing Provision

Bus Stop B is located on the westbound carriageway of Mortlake High Street adjacent to No. 30. There is a shelter and flag but no clearway or cage road marking although no waiting and no loading restrictions (at any time) do exist. The shelter is offset from the kerb and cantilevered over the footway which is 2.6 metres wide in total but with an effective width of less than 2 metres.

Proposal (Drawing Number: 38262-5520-28C)

The bus stop is moved westwards towards the Sheen Lane mini-roundabout and west of the proposed Zebra crossing to help improve the connectivity of the stop.

The shelter would be located opposite the cycle stands associated with No. 20 (Business Centre) while the bus stop would have a 19 metre long clearway/ cage marking starting after the Zebra crossing exit zig-zag markings. The location is constrained by the narrow footway, Royal Mail staff parking (behind footway), trees and the entrance to No.20. One tree will need to be removed to ensure the boarding and alighting zones are unobstructed while a second tree may need to be cut back to reduce overhanging branches conflicting with buses as they pull into the stop.



To achieve required widths for the bus stop cage road marking and adjacent running lane the proposed widening of the central reservation needed to be reduced from 4.0 to 3.5 metres.

Compliance

The dimensions of the bus stop are compliant with those shown in the TfL Standards Figure 13 (see image below) for a bus stop on the exit side of a pedestrian crossing. It should be noted that a bus stop clearway can be moved back to within a zig-zag of the crossing and in this case, the exit taper is not required because there are no waiting/ no loading (at any time) restrictions on the exit to the stop.

Figure 13: Exit side of pedestrian crossing

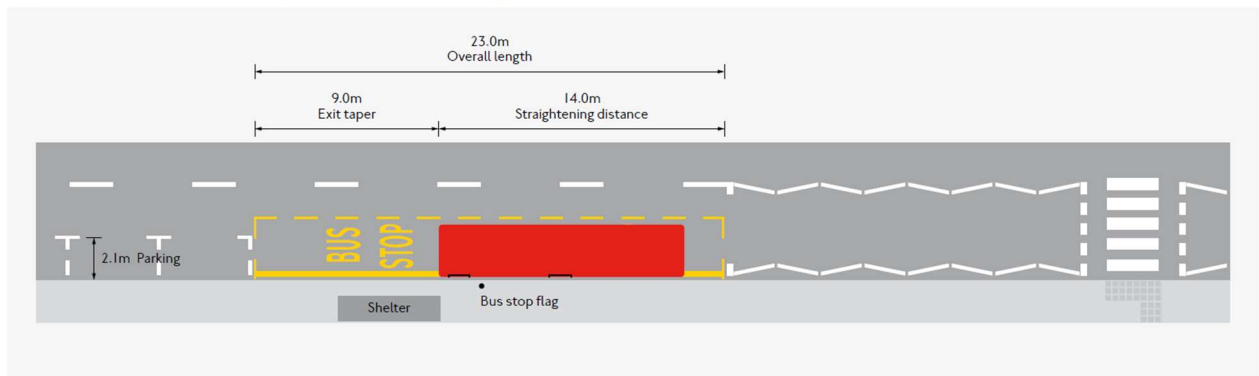


Image taken from the TfL Accessible Bus Stop Design Guidance (2017 Revised Edition)

Bus Stop A: Mortlake High Street (Eastbound)

Existing Provision

Bus Stop A is located on the eastbound carriageway of Mortlake High Street just to the west of Bulls Alley. There is a shelter and flag with the shelter located at the back of the footway (as shown). The bus stop clearway/ cage marking is 49 metres long which includes capacity for the stop but also 3 bus stands in advance of the stop. Changes to this bus stand provision is described in the following section.



Proposal (Drawing Number: 38262-5520-28C)

The bus stop is relocated closer to the Sheen Lane mini-roundabout between the proposed Zebra crossing and the development car park ramp. This helps improve the overall connectivity of the stop.

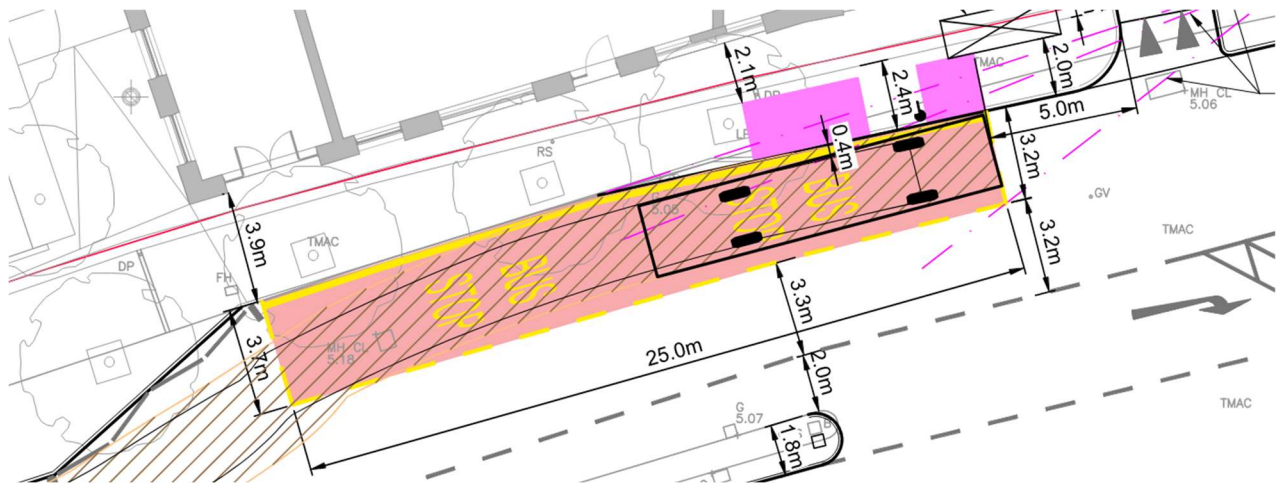
The layout initially included a 25 meter long clearway/ cage road marking and a shallow build-out to help reduce the horizontal gap between the bus floor at the central doors and the kerb height level within the alighting zone (see Drawing Number: 38262-5520-28B).

The car park entrance and associated visibility splays constrain the shelter position so the proposal is to locate the shelter footings at the back of the footway and cantilever the shelter roof over the development boundary. This also improves the effective width of the footway adjacent to the shelter which is approximately 2 metres wide.

Compliance

The swept path analysis for a 12 metre EV bus (Figure 7) indicated that even with the bus stop build-out, the horizontal gap between the bus floor and kerb is up to 400mm and under the guidance, a bus should line up within 200mm of and parallel to the kerb.

Figure 7: Bus Stop A swept path analysis (taken from Drawing Number: 38262-5520-28B)



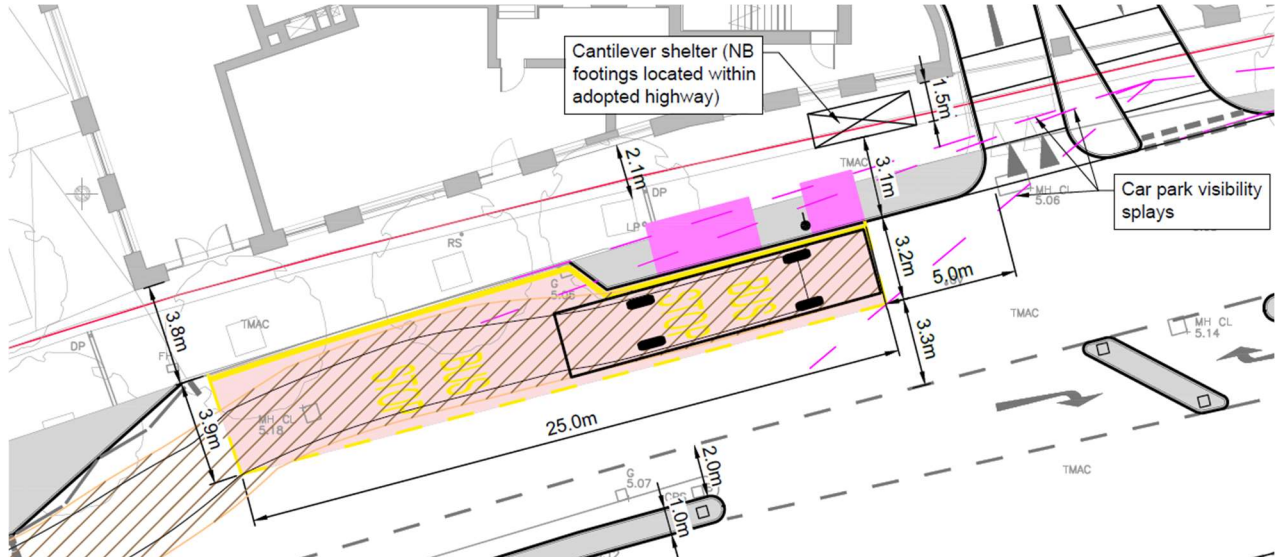
Further design work was undertaken to improve the accessibility of the stop following comments from TfL. This included looking at:

- Alternative locations for the bus stop, moving the stop either just east of the car park ramp (Drawing Number: 38262-5520-32) or retaining the stop in its current location west of Bulls Alley (Drawing Number: 38262-5520-32)
- Retain the bus in its proposed location but increase the width of the footway buildout by narrowing the width of the adjacent right-turn lane and separator traffic island.

The alternative options were ultimately rejected because they reduced the connectivity of the stop both to the development but also to its paired stop on the other side of the road (Bus Stop B).

Changes made to the stop layout in its proposed location resulted in a more accessible layout (see Figure 8) and better compliance with TfL Standards in terms of clearway/ cage road markings, boarding/ alighting zones and the position of the bus stop flag. In this arrangement, the shelter could be brought closer to the boarding zone to reduce the extent to which the canopy overhangs the site boundary.

Figure 8: Bus Stop A proposed road layout (taken from Drawing Number: 38262-5520-28C)



Bus Stands: Mortlake High Street (Eastbound)

Existing Provision

There are 3 bus stands located on the approach to Bus Stop A and which share a clearway/ cage road marking that is 39 metres long.

Proposal (Drawing Number: 38262-5520-28C)

The 3 bus stands are relocated closer to the Sheen Lane mini-roundabout just west of the proposed Zebra crossing with a 39 metre long clearway/ cage road marking.

The vehicle tracking shown in Drawing Number: 38262-5520-28A indicated buses can access the stands from Lower Richmond Road and Mortlake High Street (WB) by undertaking a U-turn at the Sheen Lane mini-roundabout.



The safety of this U-turn was discussed at the meeting with TfL and although this manoeuvre is currently undertaken by bus drivers, there is pressure on TfL to reduce collisions (and injuries) on London's bus network by the adoption of the Vision Zero policy in the Mayor's Transport Strategy.

In the current situation, bus drivers perform the U-turn from the nearside lane on Mortlake High Street, rather than the off-side lane to make enough space for the turn (Figure 9).

The concern is that this unconventional manoeuvre, although done at low speed, represents a risk to any vehicle (including cyclists) that find themselves on the off-side of the bus. To improve the safety of the U-turn, TfL requested that the vehicle tracking shows buses making the manoeuvre while straddling the centre line of the road, as this would discourage drivers of other vehicles passing alongside the bus when turning.

The updated vehicle swept path analysis (Figure 10) shows that this manoeuvre is feasible but the proposed footway widening on the north-east corner of the roundabout would need to be cut-back to avoid a potential overhang of the kerb. This would return the footway on this corner to its existing width, resulting in the narrow footway at this location being retained. **The proposed footway widening has been removed from Drawing**

Number: 38262-5520-28C but it is recommended that as part of the detailed design, TfL and the Council highway team are consulted on the preferred road layout for the Sheen Lane roundabout.

Figure 9: Bus making a u-turn at the Sheen Lane mini-roundabout from the nearside lane (Drawing Number: 38262-5520-28A)

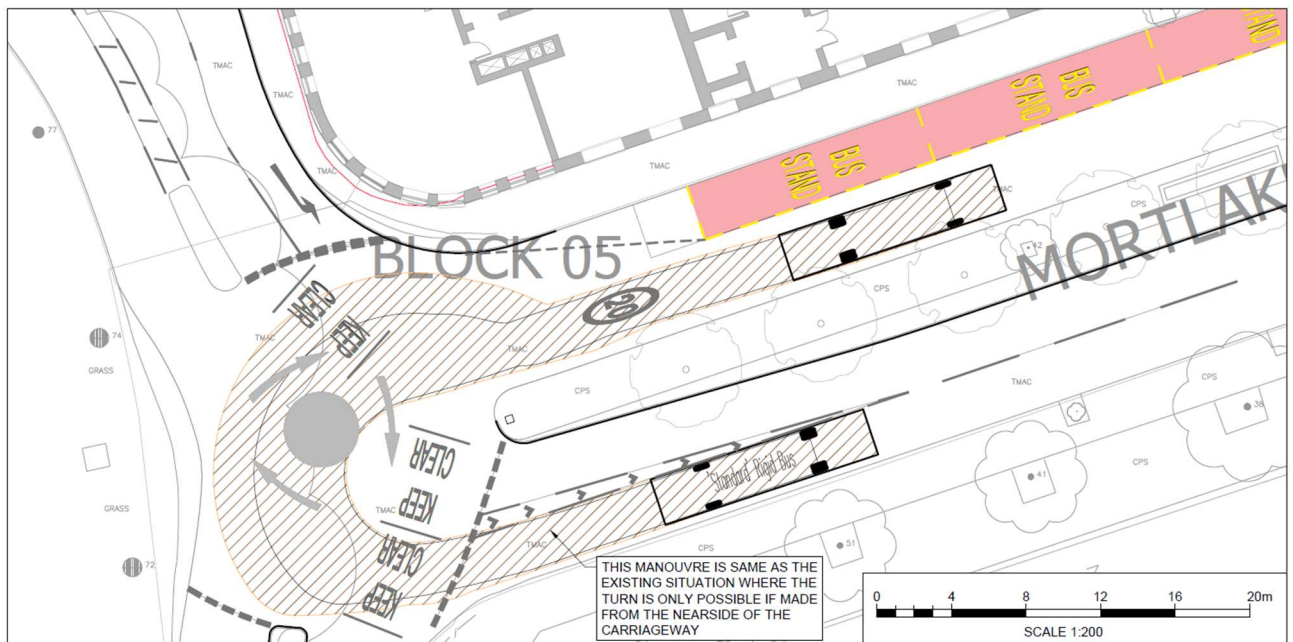
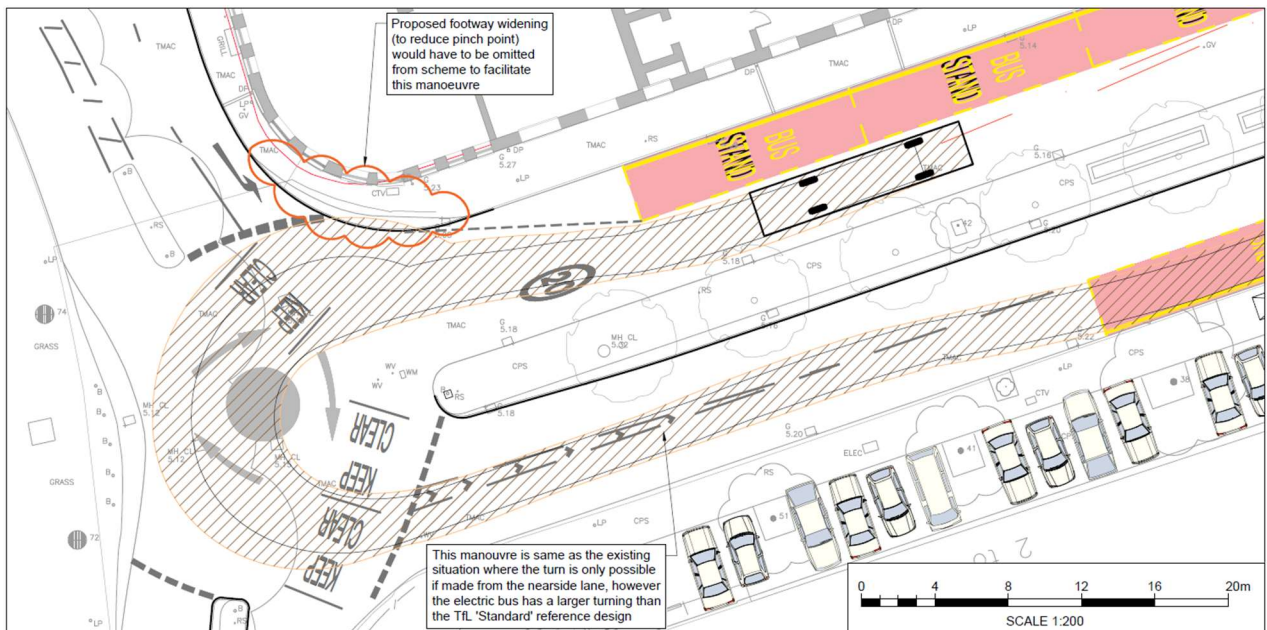


Figure 10: Bus making a u-turn at the Sheen Lane mini-roundabout straddling the centre line (Drawing Number: 38262-5520-28B)



Compliance

Three 12 metre buses can be accommodated within the 39 metres long clearway/ cage road marking as per the current provision, with the addition of 13 metre exit taper which is consistent with that required at bus stops.

Summary & Conclusions

This Note provides an update to the designs of the bus stops identified as requiring improvement to support the development proposals at the former Stag Brewery site in Mortlake, south-west London. The Note responds to comments made by TfL on the 20th May 2022, 3rd February 2023 and follow up meetings with representatives of TfL-Buses held on the 28th February and 29th March 2023.

The conclusions of these discussions are as follows with the drawings referenced provided in Appendix A.

Bus Stop Q: Lower Richmond Road (Westbound)

There are two potential layouts for this bus stop as shown in Drawing Numbers: 38262-5520-31 and 34. Both layouts are compliant with the TfL Standards, and both require the loss of two parking spaces. This loss of car parking is however mitigated by other changes to the road layout along Lower Richmond Road.

It is recommended that as part of the detailed design and traffic modelling required for TMAN scheme approval a preferred layout is agreed.

Bus Stop M: Lower Richmond Road (Eastbound)

No change to the existing layout as shown in Drawing Number: 38262-5520-31.

Bus Stop P: Lower Richmond Road (Westbound)

There are two potential layouts for this bus stop as shown in Drawing Numbers: 38262-5520-28C and 35. Both layouts are compliant with the TfL Standards and result in no loss of parking. The layout shown in Drawing 28C can accommodate two buses while the layout in Drawing 35 only accommodates one bus but provides a simpler solution to accommodating the vehicle crossover. As with Bus Stop Q it is recommended the preferred layout is agreed as part of the detailed design process.

Bus Stop N: Lower Richmond Road (Eastbound)

The bus shelter has been adjusted so that it is located within the public highway boundary and the dimensions of the bus stop road markings increased following comments from TfL. Bus stop to be delivered should be based on the layout as shown in Drawing Number: 38262-5520-28C.

Bus Stop Z: Lower Richmond Road (Westbound)

No change, in that the bus stop is to be removed to allow a new signal controlled shared use crossing to be implemented, linking the development with Mortlake Green. Existing bus passengers will use the improved Bus Stops P and B.

Car Parking Provision on Lower Richmond Road

The bus stop proposals set out in the original Planning Application resulted in the loss of up to three parking spaces along Lower Richmond Road although this could be partly mitigated by the additional parking provided on Williams Lane.

Under the revised proposals, there is potentially no loss to the on-street parking provision depending on the layout options chosen for Bus Stop P and Q. This assumes one additional space can be provided to the east of Hansen Close and four spaces provided where Bus Stop P is currently located i.e. west of Rosemary Place. This is a significant improvement over the previous proposals.

Bus Stop B: Mortlake High Street (Westbound)

No significant change to the proposed layout although the relocation of the bus stop will involve the removal of one tree that potentially obstructs the boarding and alighting zones. A second tree may need to be cut-back to reduce the risk of buses hitting overhanging branches. As with other stops, the dimensions of the bus stop road markings have been increased following TfL comments. Bus stop to be delivered based on the layout as shown in Drawing Number: 38262-5520-28C.

Bus Stop A: Mortlake High Street (Eastbound)

The proposed layout for this bus stop was constrained by the distance between the proposed Zebra crossing and the ramped access to the development car park and when tracked with a 12 metre EV bus, the minimum 200mm horizontal gap between the bus floor at the central doors and kerb within the alighting zone could not be met.

In consultation with TfL, an alternative layout was prepared which retained the stop in its proposed location while achieving compliance with the TfL Standards. This layout is shown in Drawing Number: 38262-5520-28C.

Bus Stands: Mortlake High Street (Eastbound)

No change is proposed to the layout for these stands other than an increase to the width of the bus stand cage road markings following TfL comments. The vehicle tracking to access these bus stands when straddling the lane marking on the westbound approach to the Sheen Lane mini-roundabout suggested further work needs to be undertaken at the detailed design stage to develop a road layout where the U-turn can be undertaken as safely as possible. This may require removing the proposed footway widening to the north of the roundabout.

DOCUMENT ISSUE RECORD

Technical Note No	Rev	Date	Prepared	Checked	Reviewed (Discipline Lead)	Approved (Project Director)
38262/5520/TN046	A	01.07.22	Richard Mallett		Peter Wadey	
38262/5520/TN046	B	13.03.23	Richard Mallett		George Daugherty	Greg Callaghan
38262/5520/TN046	C	06.04.23	Richard Mallett		George Daugherty	Greg Callaghan

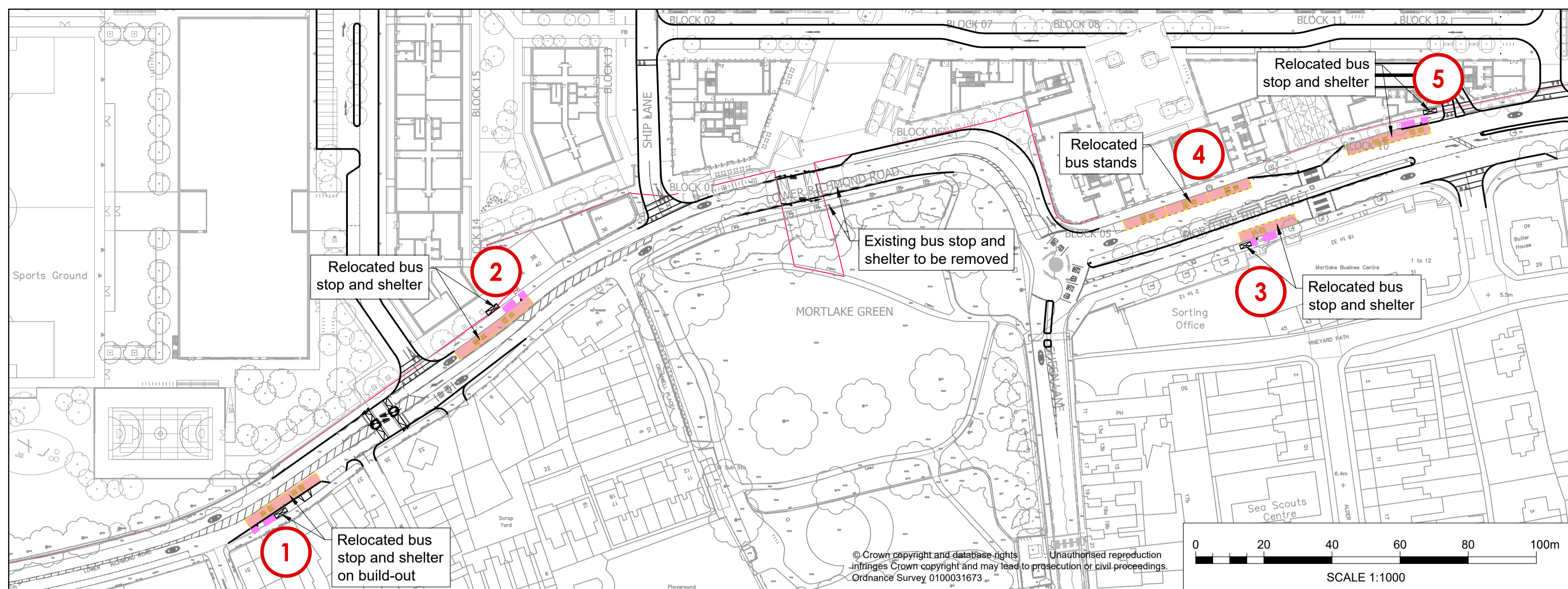
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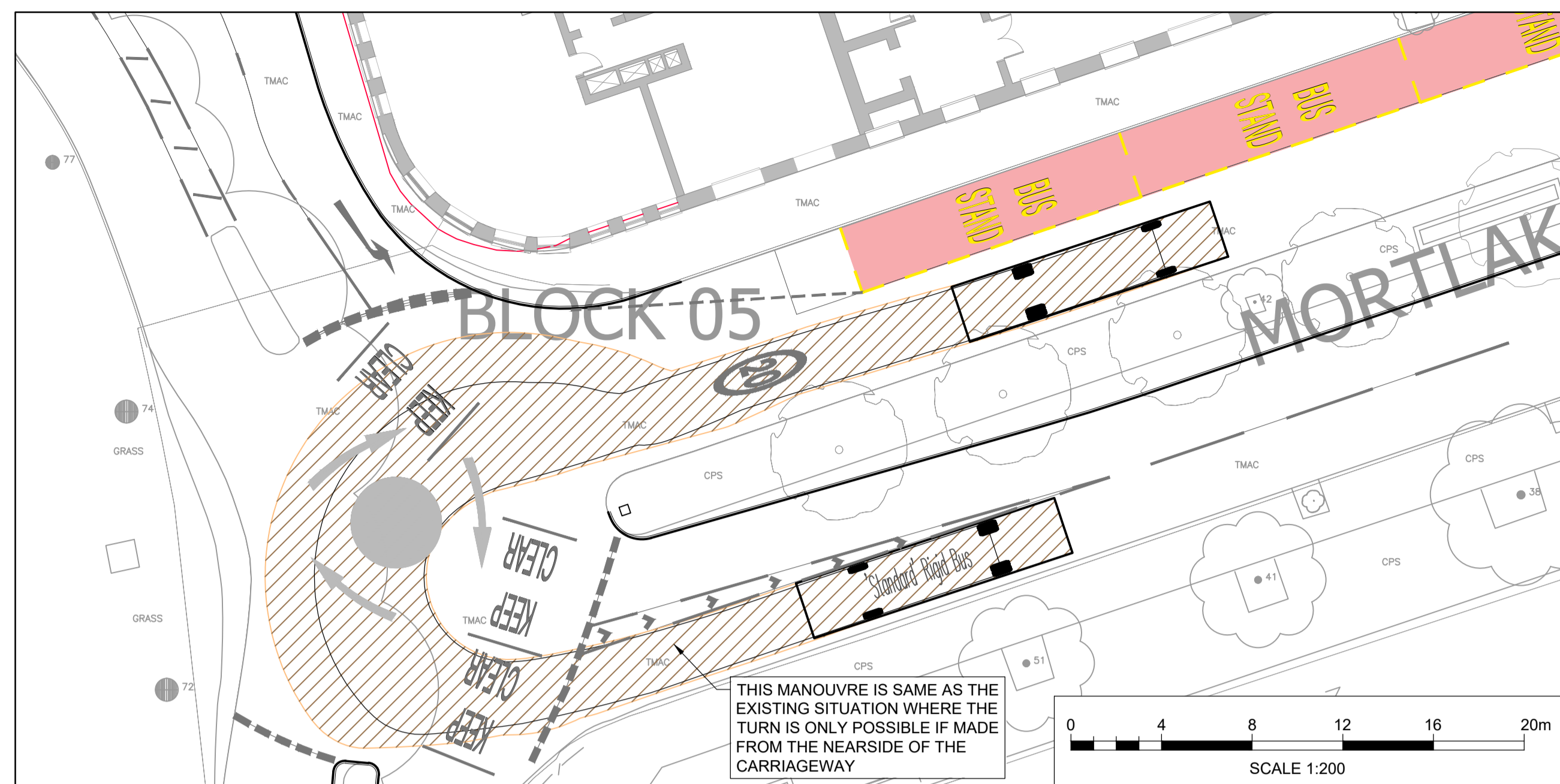
Appendix A: Drawings

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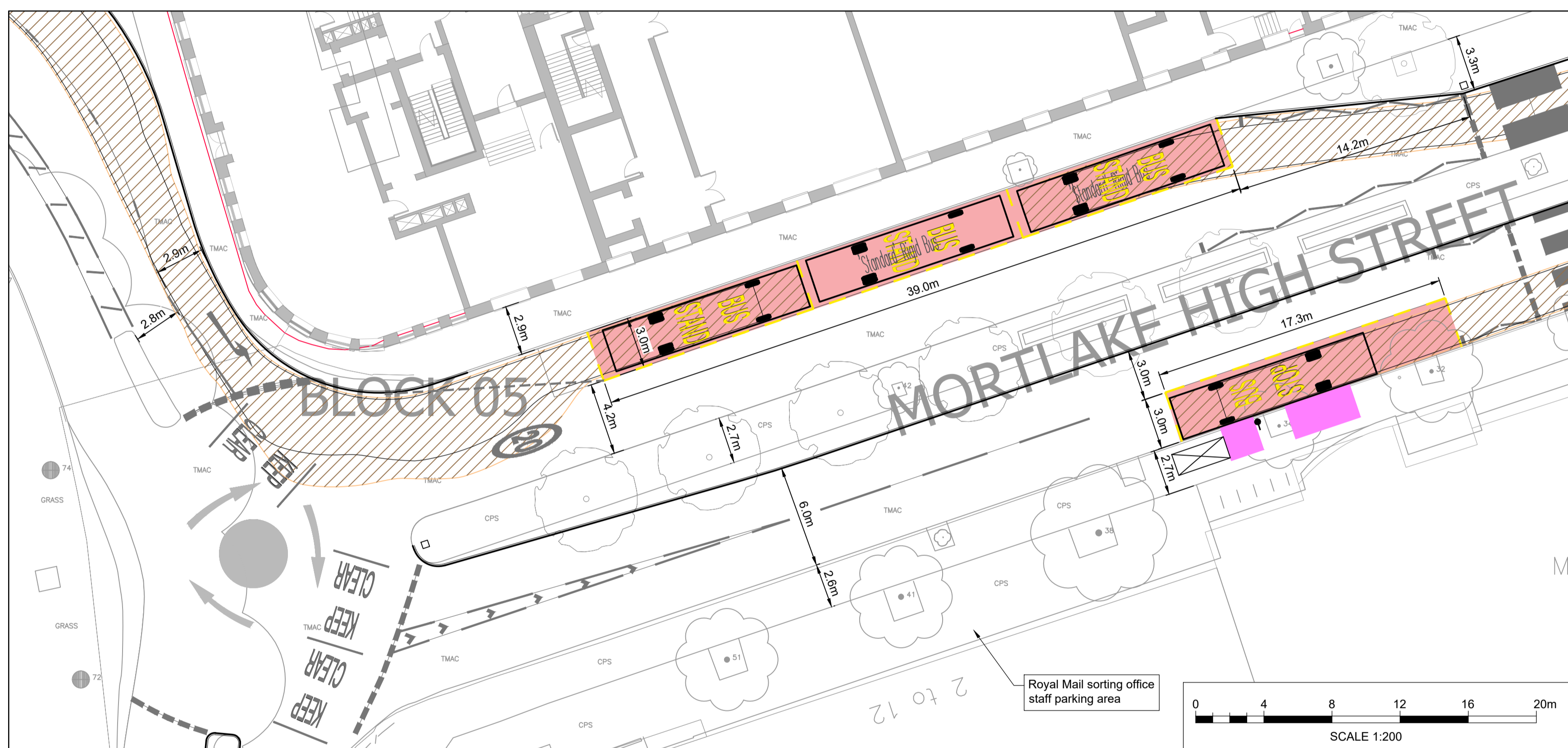
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38262-5520-28B	Superseded
38262-5520-28C	Updated (Latest Version)
38262-5520-31	No change
38262-5520-32	Option rejected
38262-5520-33	Option rejected
38262-5520-34	New
38262-5520-35	New



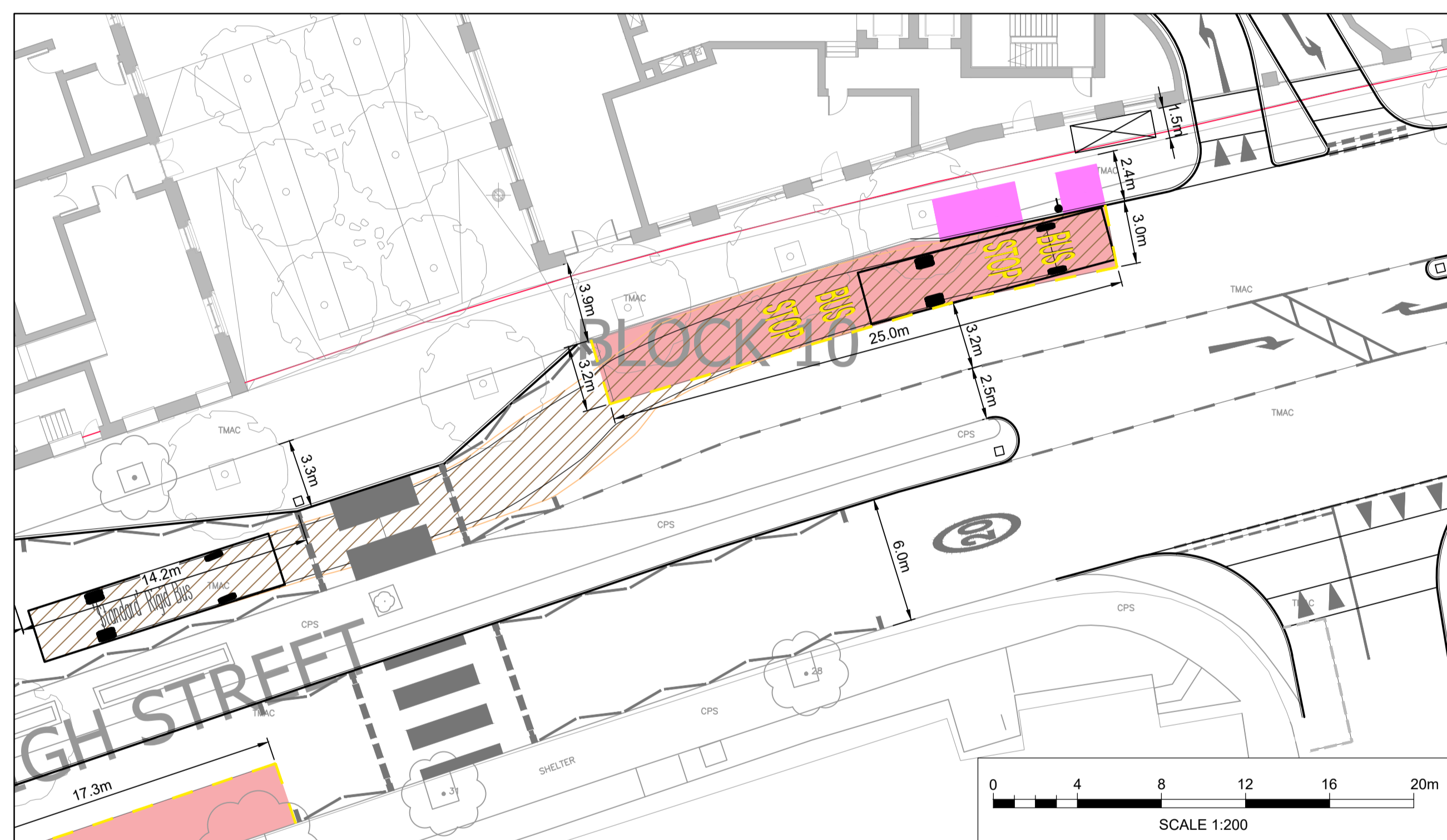
BUS STOP LOCATION PLAN



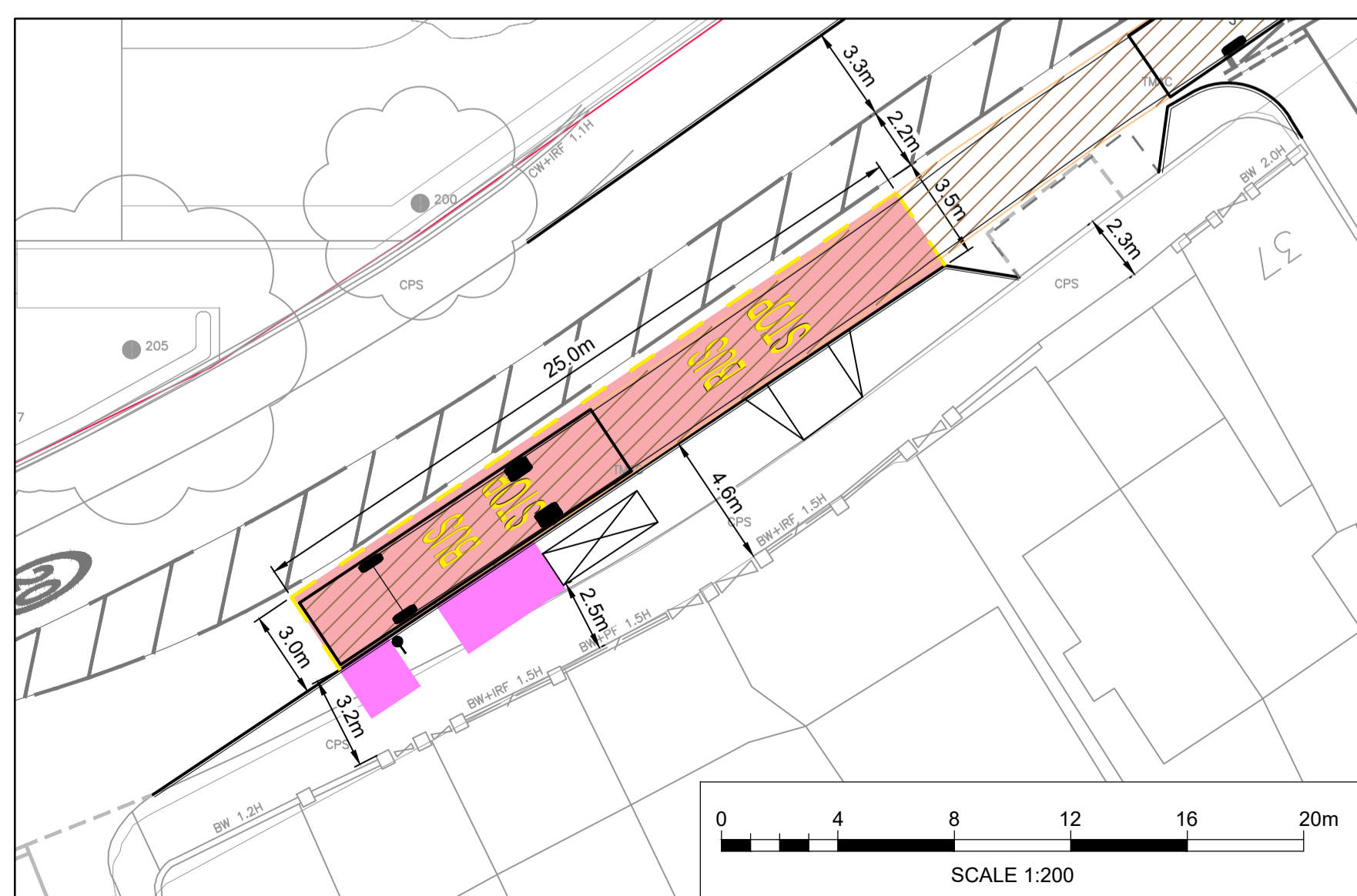
U-TURN MANOUVRE



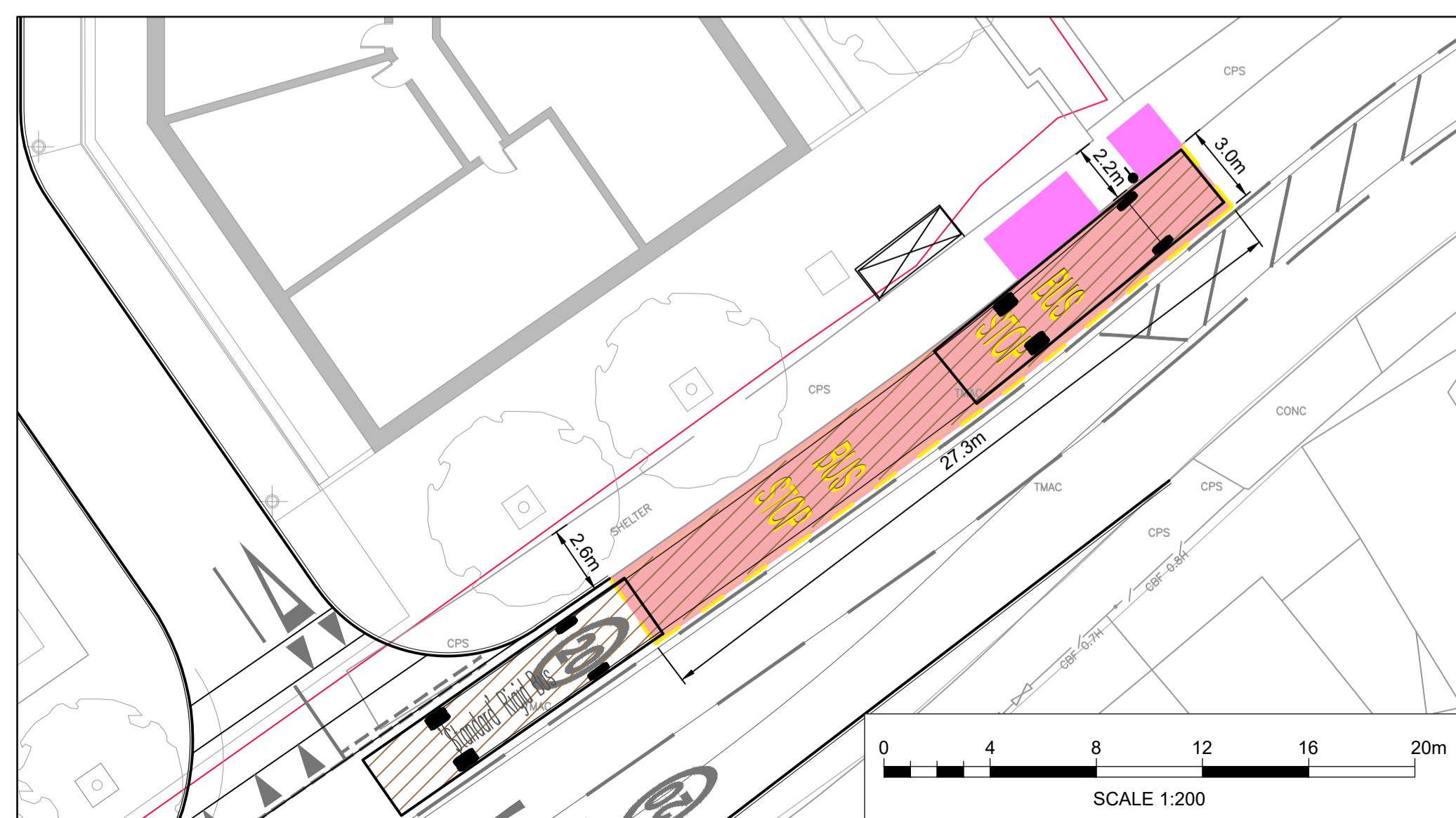
BUS STOPS 3 AND 4



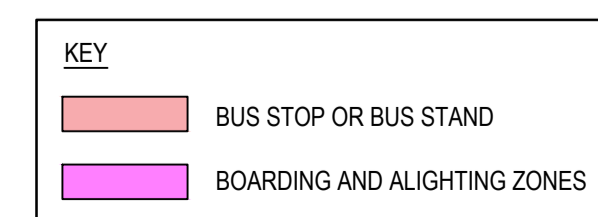
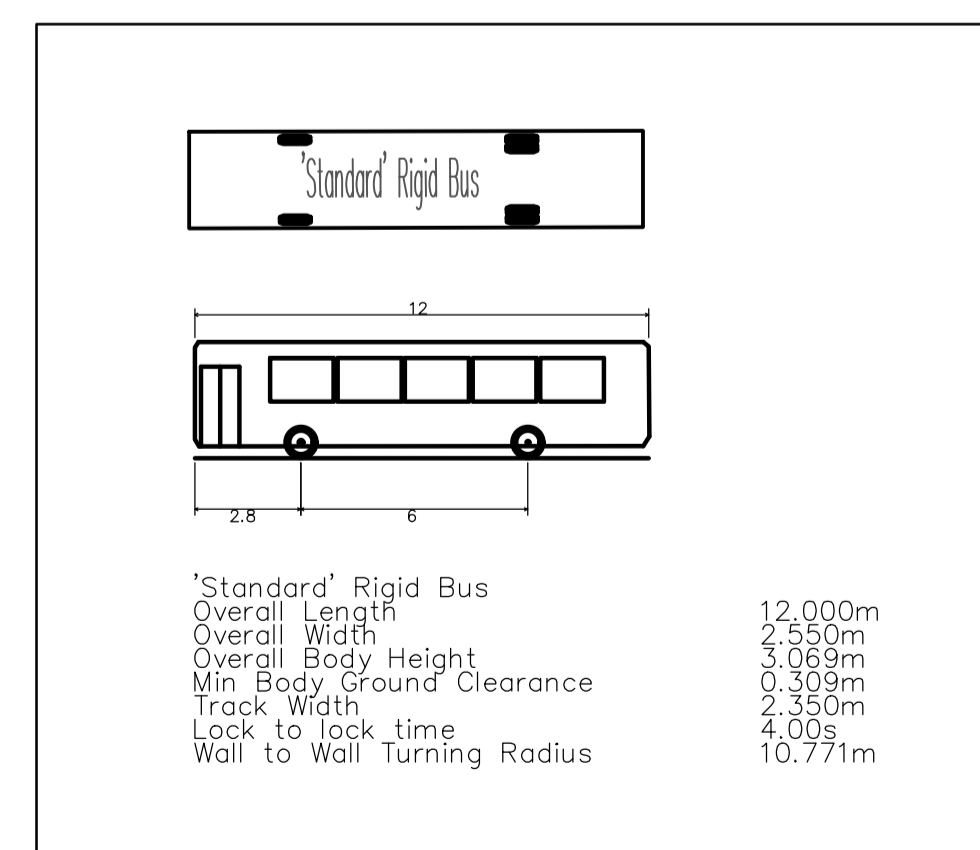
BUS STOP 5



BUS STOP 1



BUS STOP 2



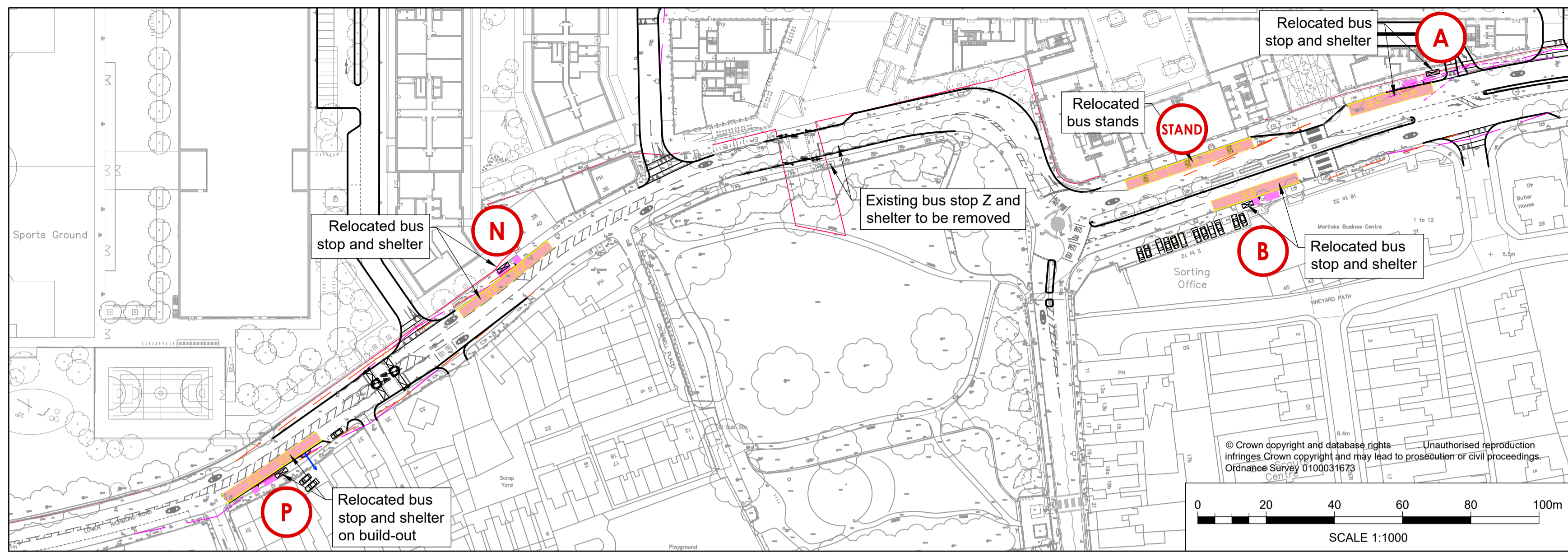
A	Masterplan updated	20.07.22	REM	PW	PW
Mark	Revision	Date	Drawn	Chkd	Appd

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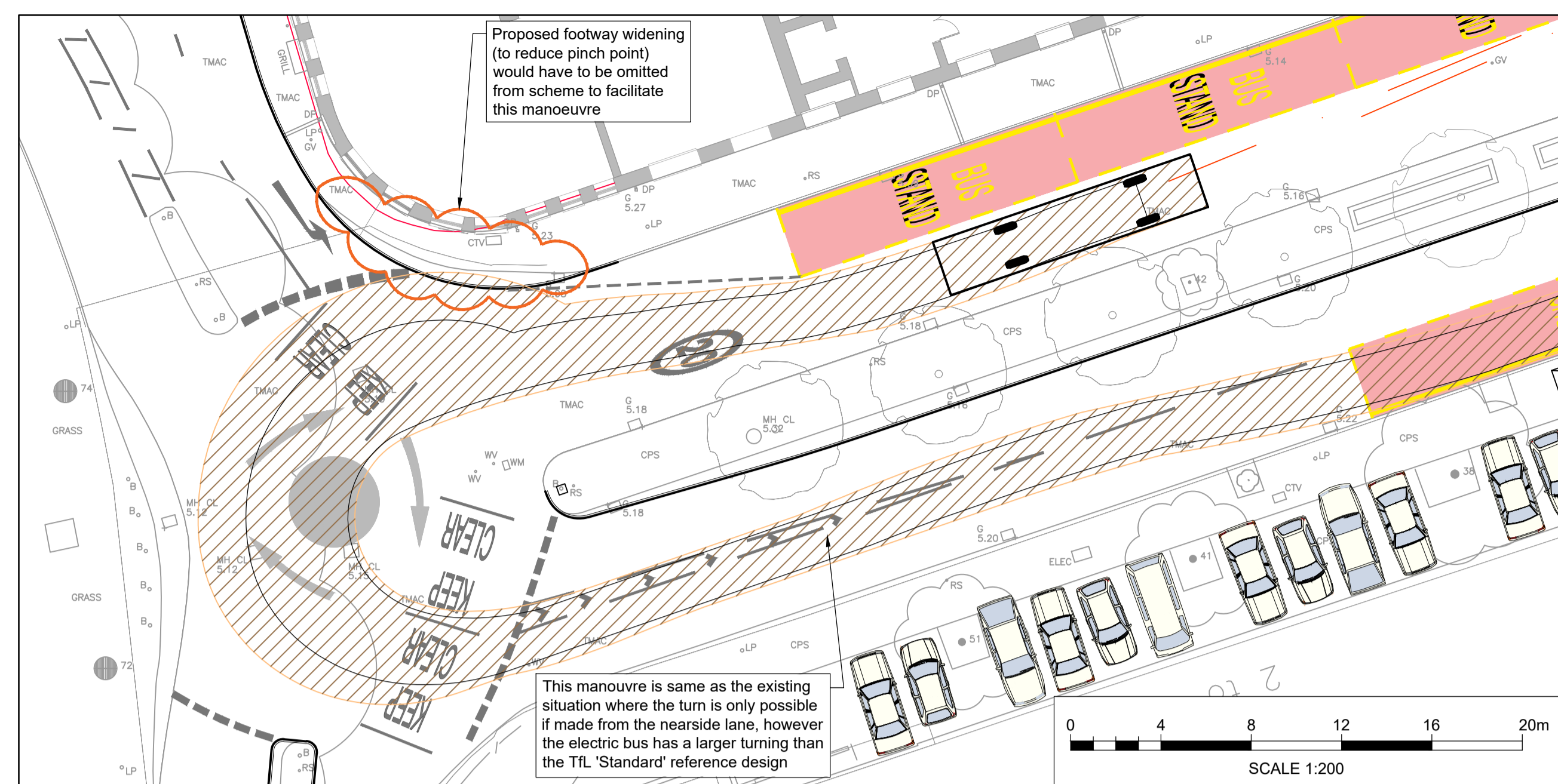
Drawing Issue Status: **FOR INFORMATION**

**STAG BREWERY, MORTLAKE
 SUSTAINABLE TRANSPORT STRATEGY
 BUS STOP LAYOUT & VEHICLE SWEEP PATH
 ANALYSIS FOR A 12m SINGLE DECKER BUS**

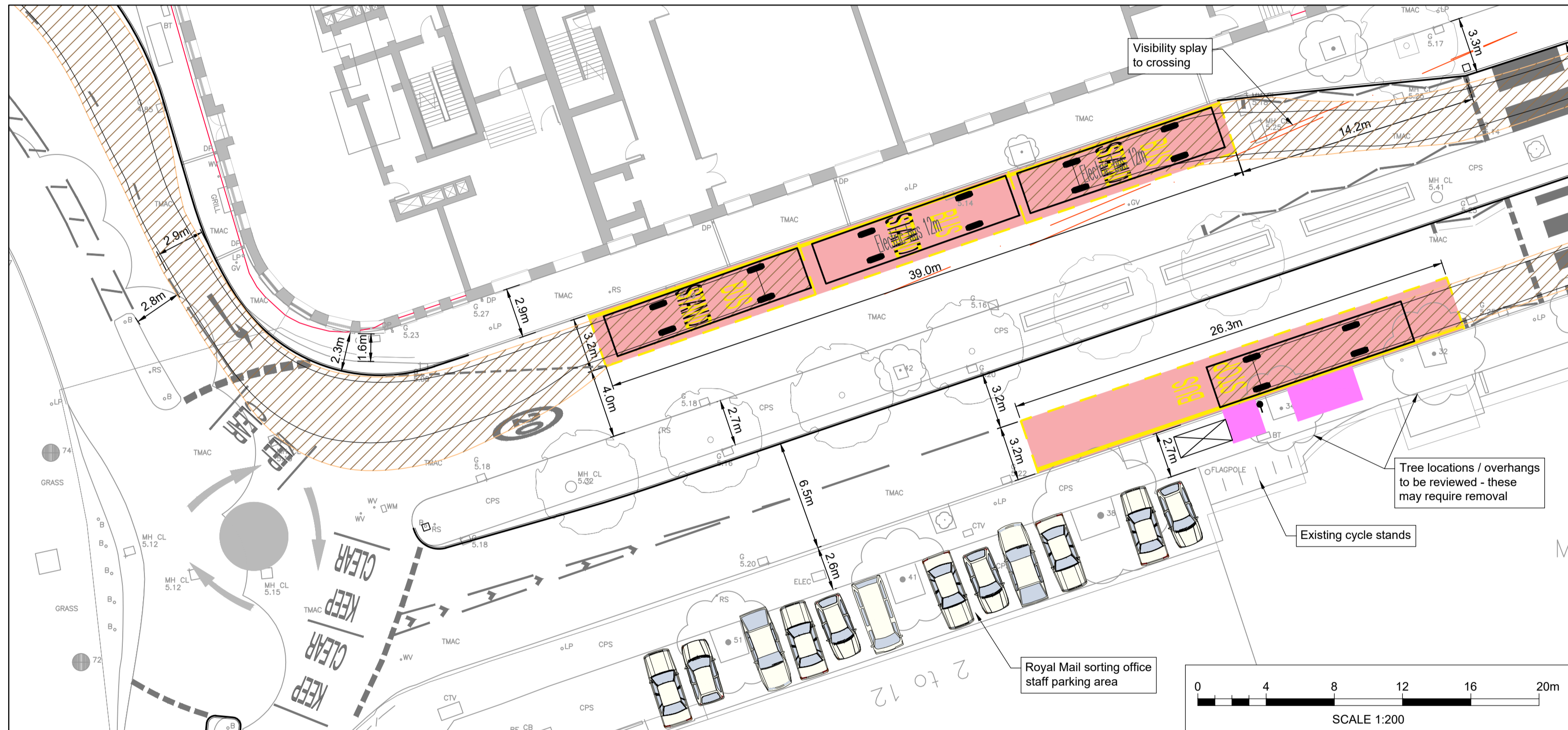
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Date of 1st Issue 30.06.2022	Designed REM	Drawn REM	
A1 Scale 1:1000 & 1:200	Checked GD	Approved PW	
Drawing Number 38262/5520/28	Revision A		



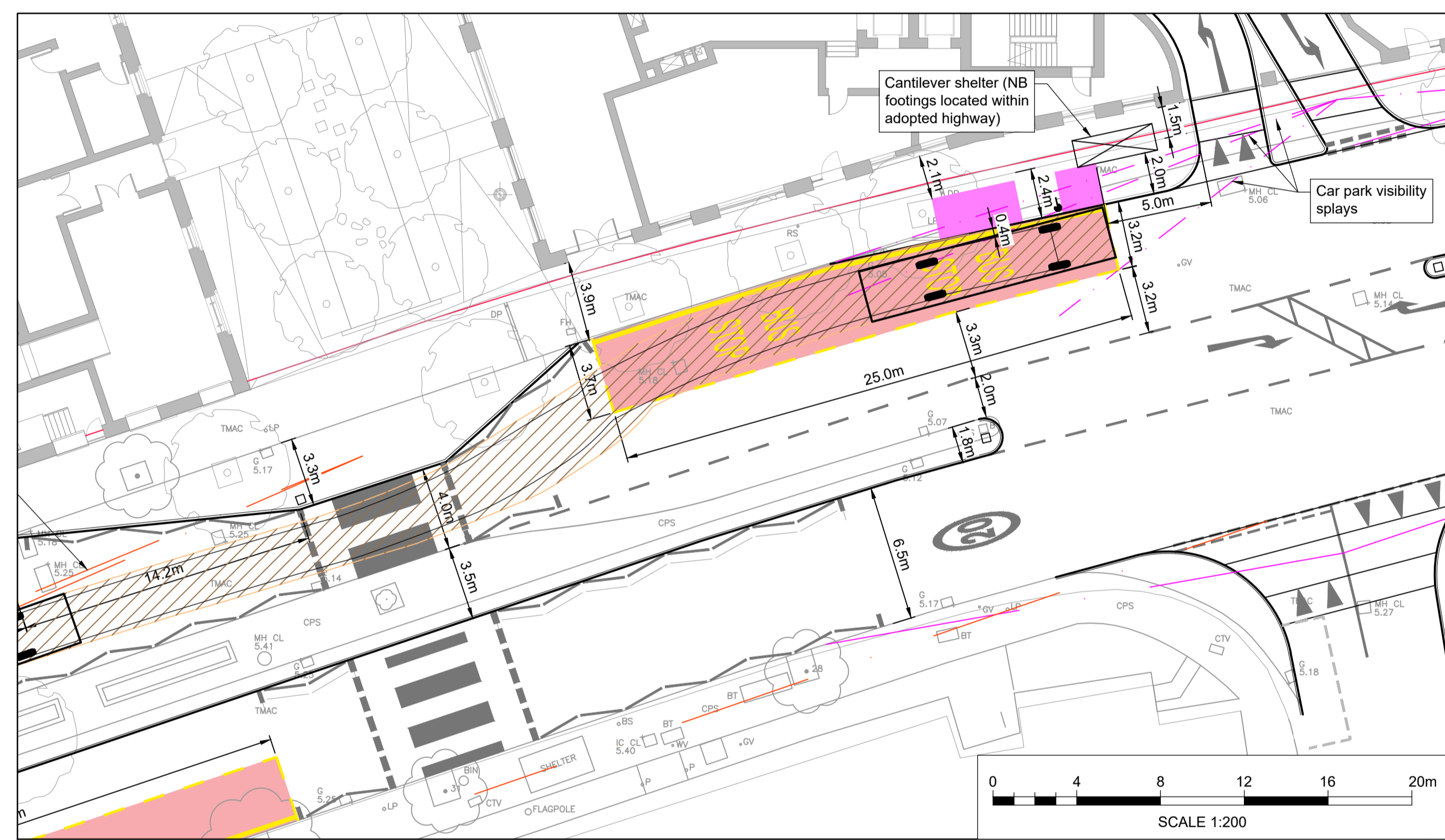
BUS STOP LOCATION PLAN



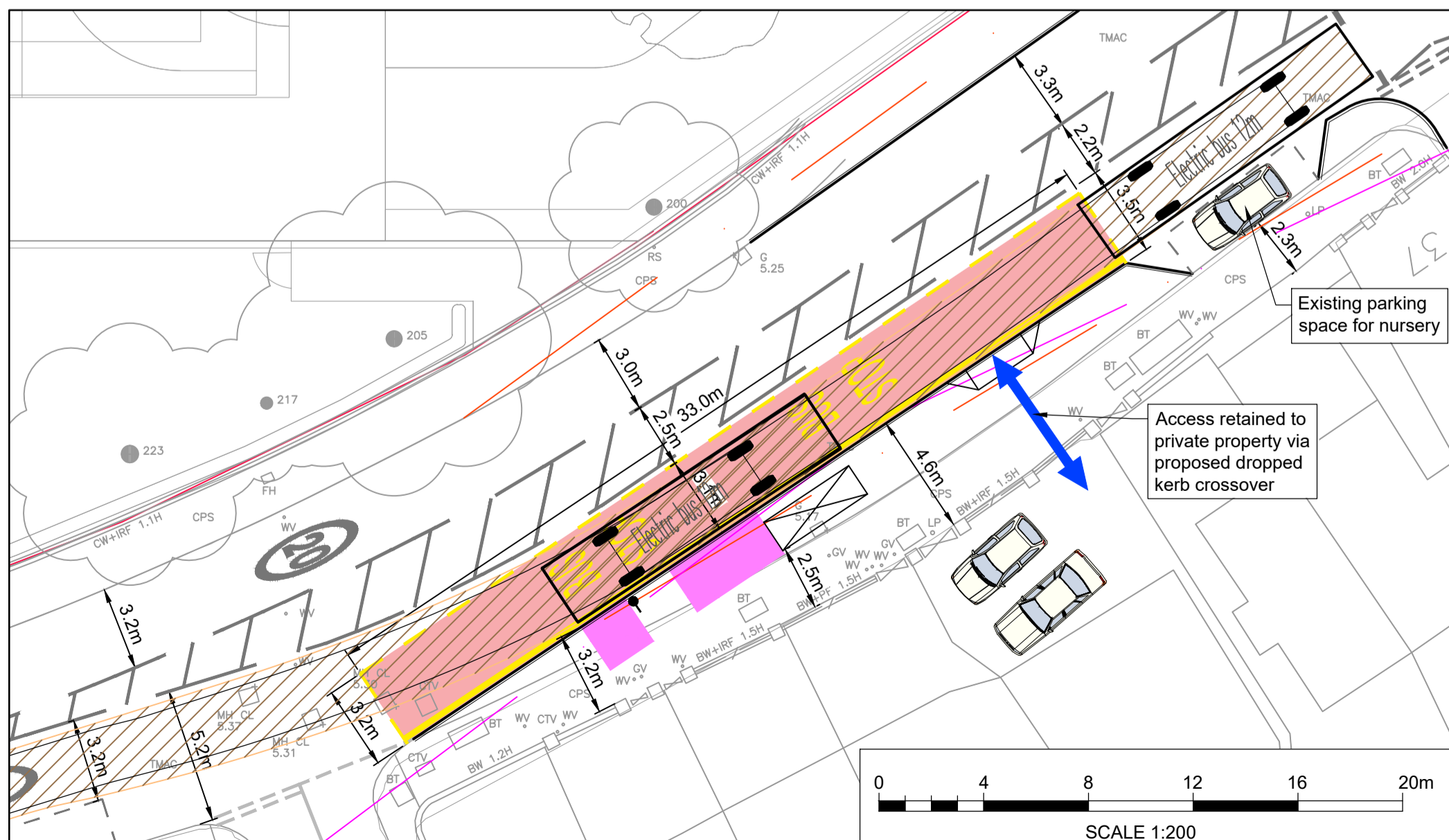
U-TURN MANOUVRE



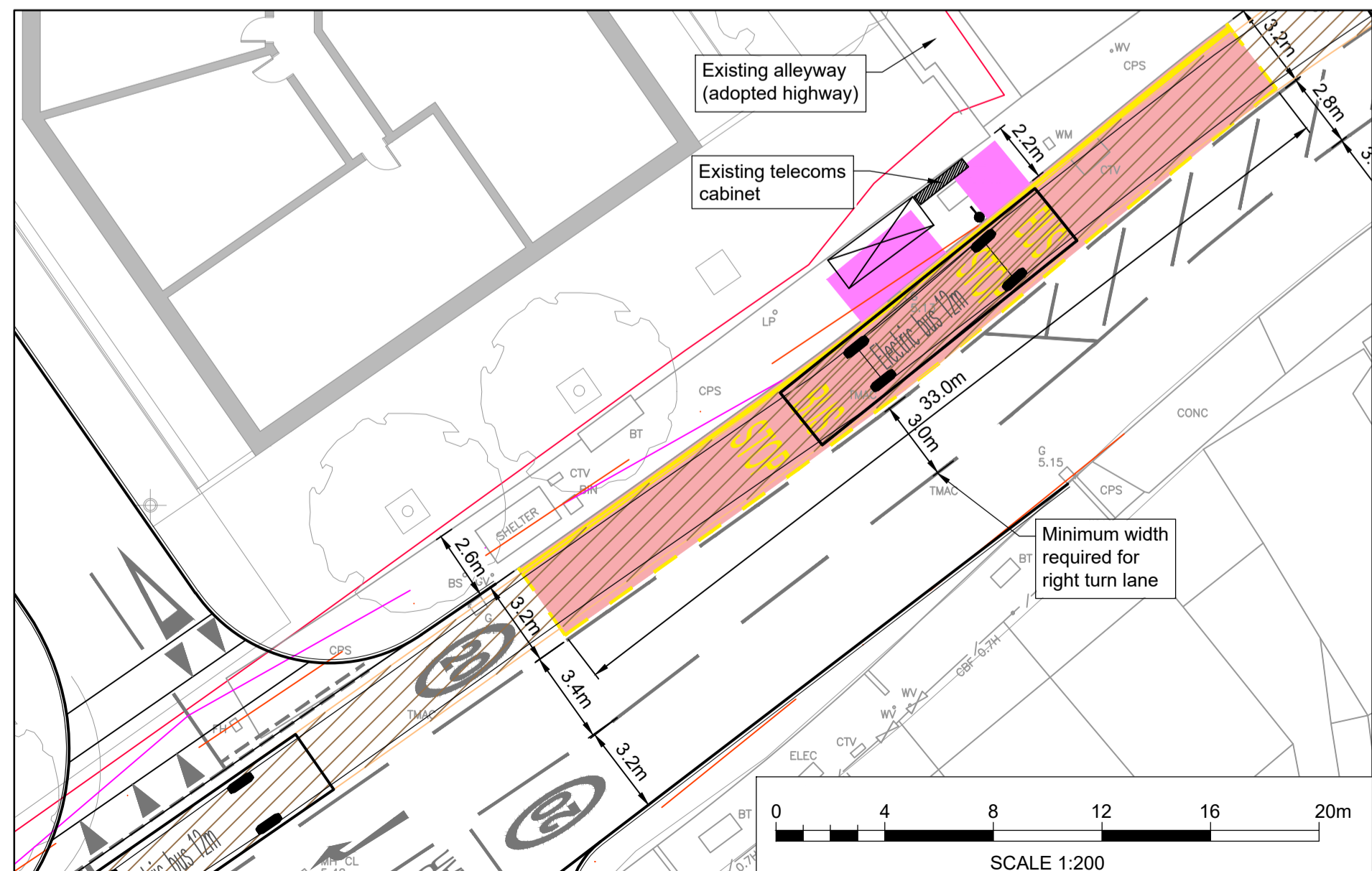
BUS STOP B AND STANDS



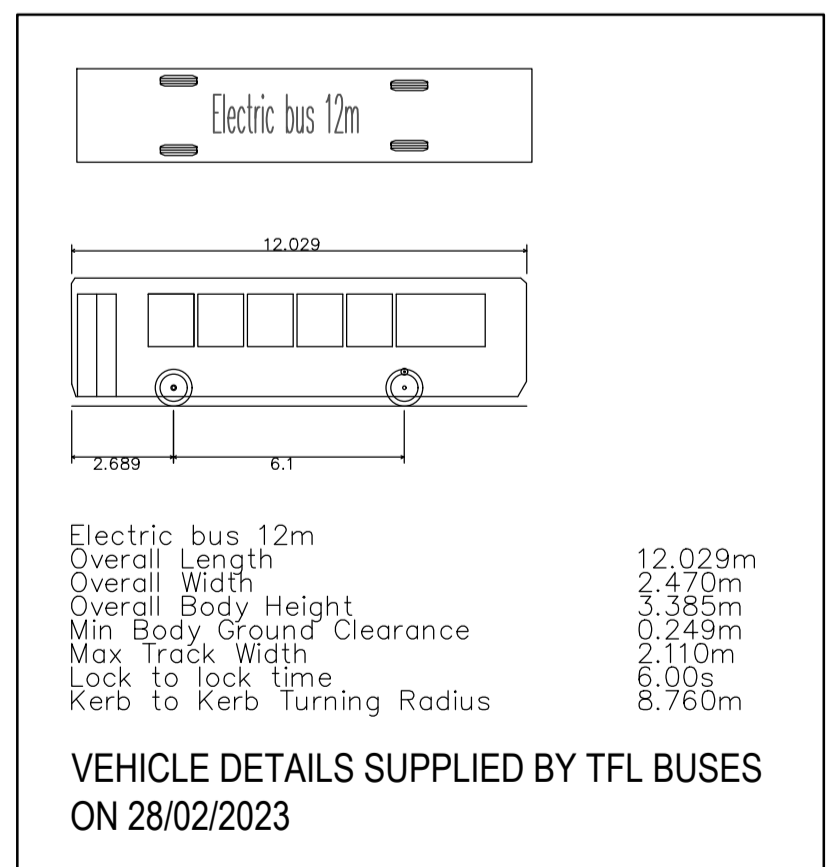
BUS STOP A



BUS STOP P



BUS STOP N



KEY

- BUS STOP OR BUS STAND
- BOARDING AND ALIGHTING ZONES

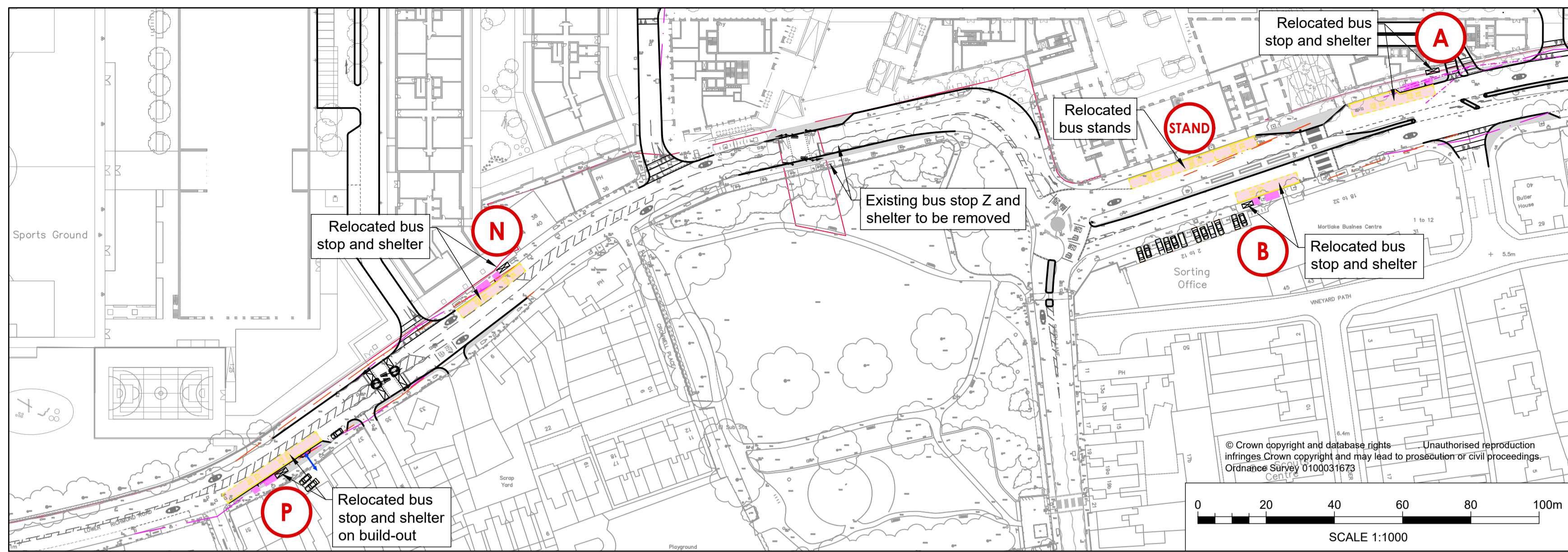
B	Updated as per TFL Buses comments of 28/02/2023	03.03.23	REM	GD	GD
A	Masterplan updated	20.07.22	REM	PW	PW
Mark	Revision	Date	Drawn	Chkd	Appd

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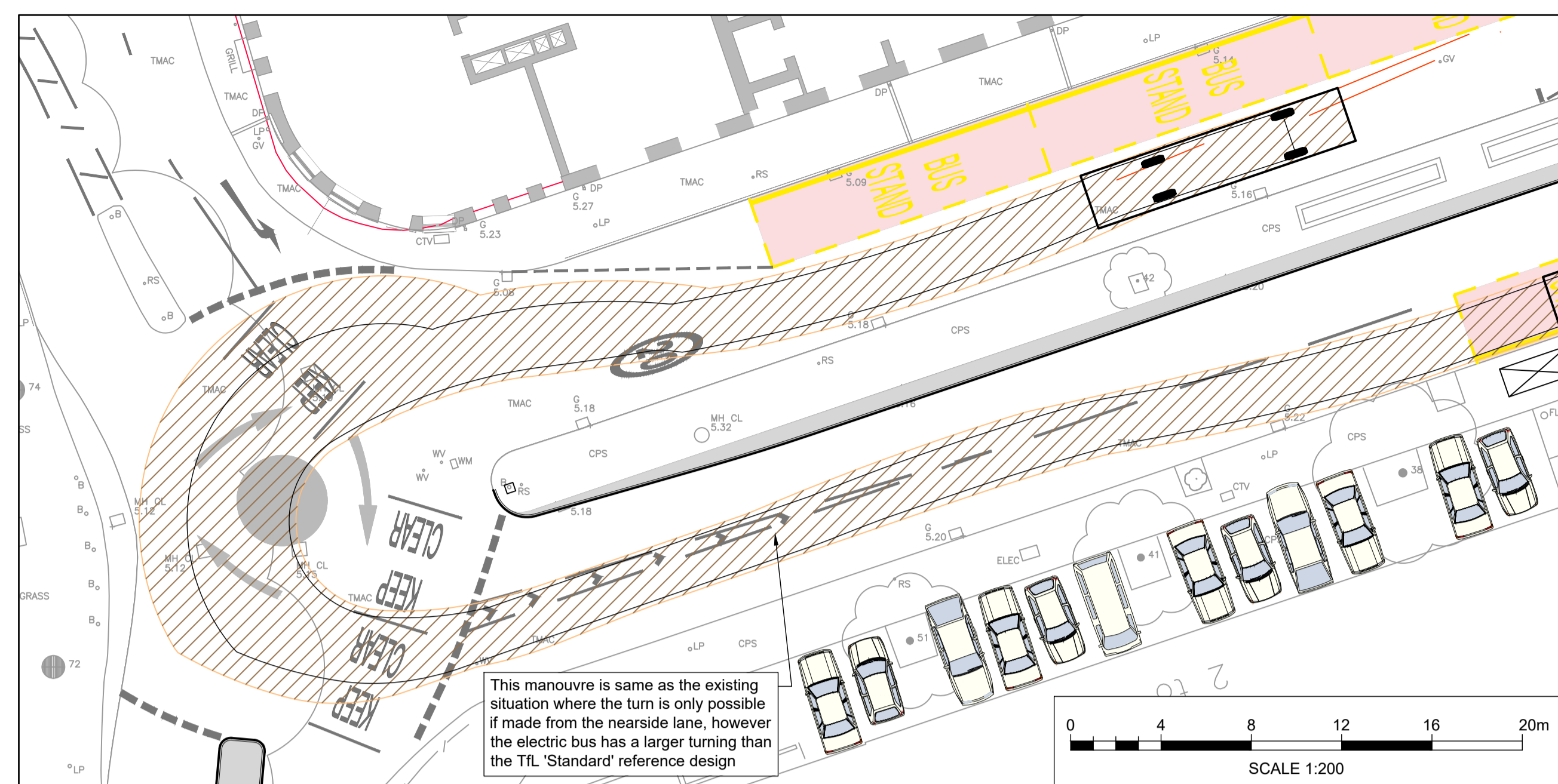
Drawing Issue Status
FOR INFORMATION

**STAG BREWERY, MORTLAKE
 SUSTAINABLE TRANSPORT STRATEGY
 BUS STOP LAYOUT & VEHICLE SWEEP PATH
 ANALYSIS FOR A 12m SINGLE DECKER BUS**

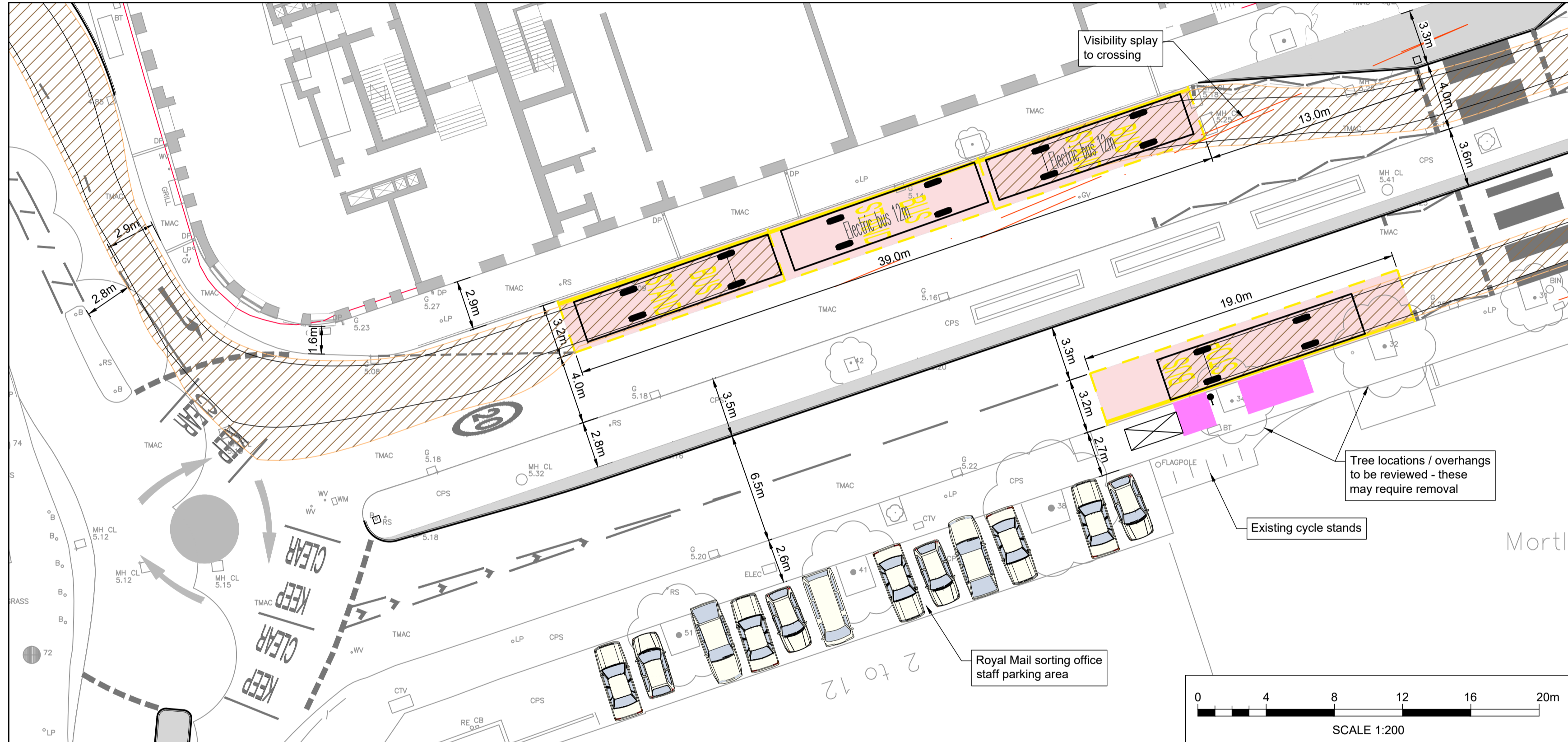
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A1 Scale 1:1000 & 1:200	Checked GD	Approved PW	stantec.com/uk Copyright reserved The copyrights in all designs and drawings are the property of Stantec. Reproduction or use for any purpose other than that authorised by Stantec is forbidden.
Drawing Number 38262/5520/28	Revision B		



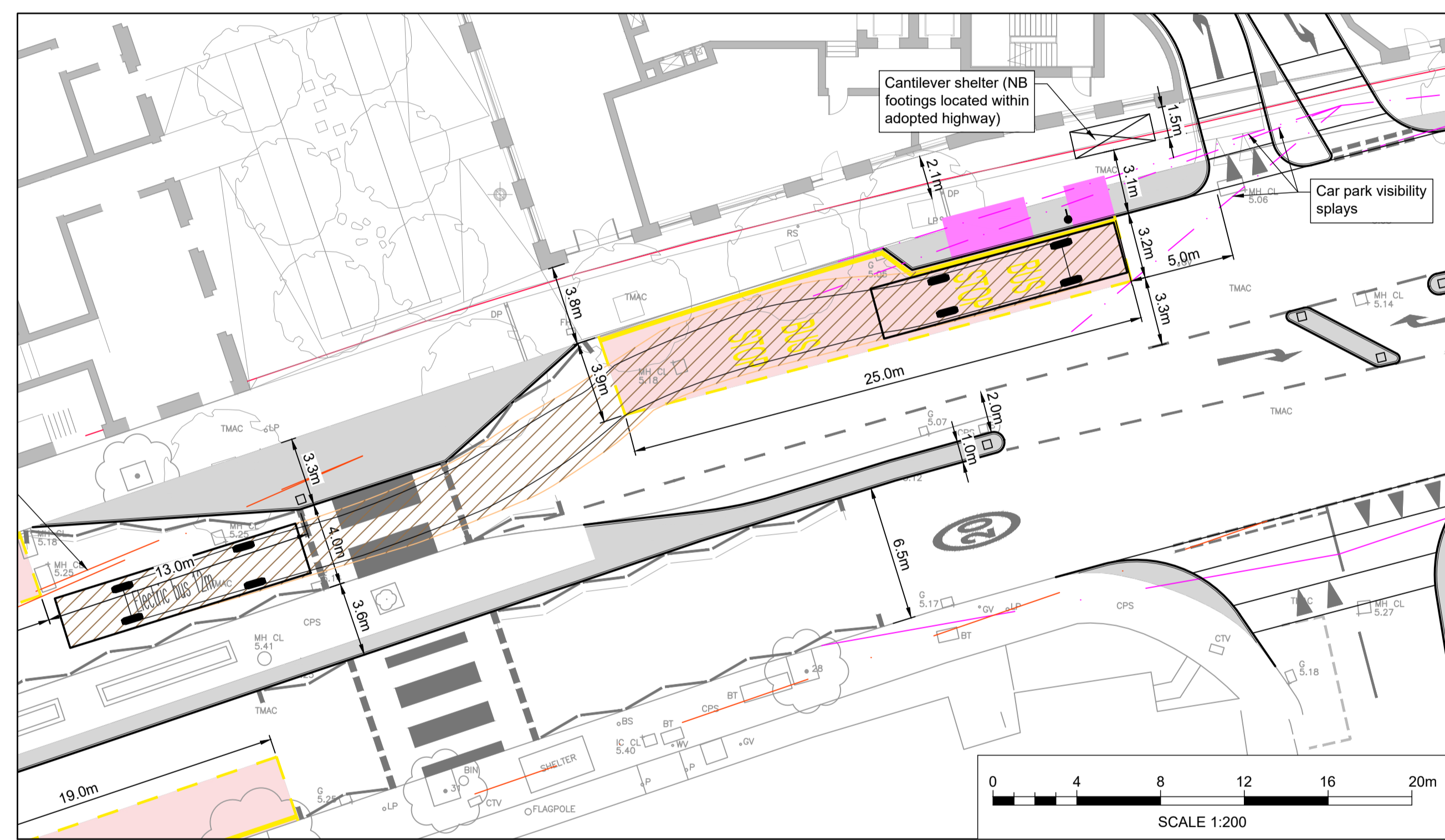
BUS STOP LOCATION PLAN



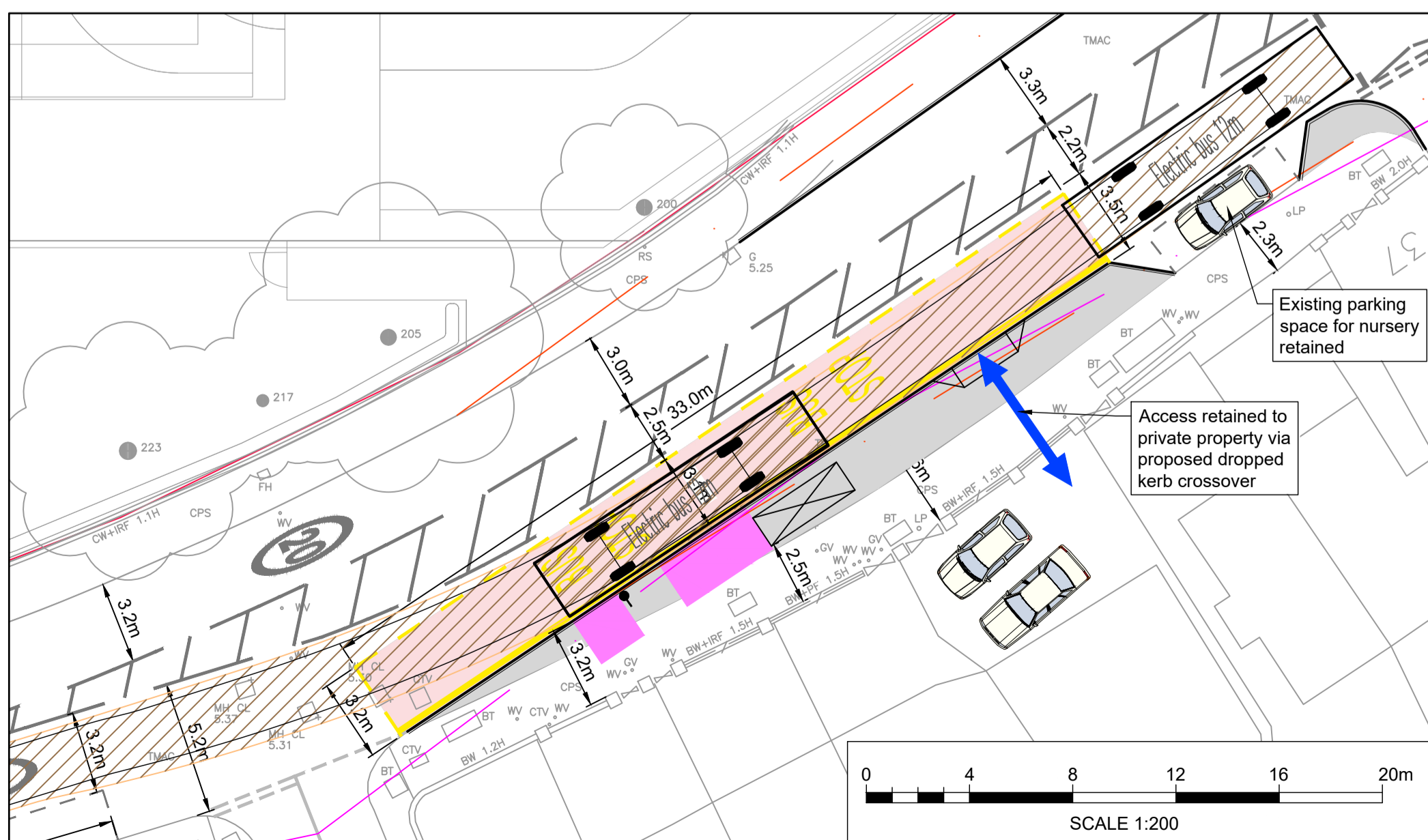
U-TURN MANOUVRE



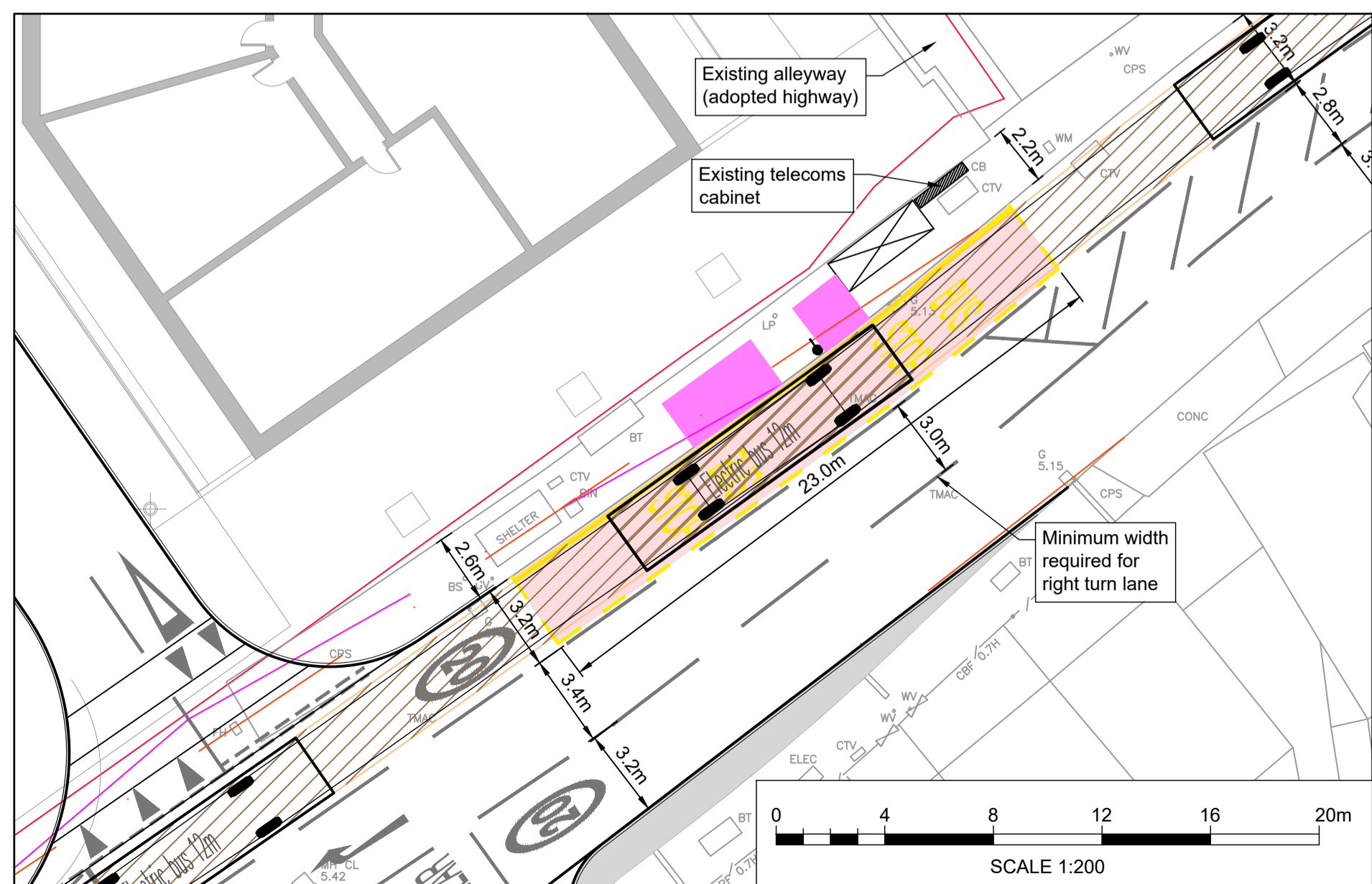
BUS STOP B AND STANDS



BUS STOP A



BUS STOP P (OPTION 1)



BUS STOP N

Electric bus 12m

VEHICLE DETAILS SUPPLIED BY TFL BUSES ON 28/02/2023

KEY

- BUS STOP OR BUS STAND
- BOARDING AND ALIGHTING ZONES
- FOOTWAY BUILD-OUT

C	Updated as per site meeting of 29/03/2023	04.04.23	REM	GD	GD
B	Updated as per TFL Buses comments of 28/02/2023	03.03.23	REM	GD	GD
A	Master plan updated	20.07.22	REM	PW	PW
Mark	Revision	Date	Drawn	Chkd	Appd

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Drawing Issue Status
FOR INFORMATION

STAG BREWERY, MORTLAKE
 SUSTAINABLE TRANSPORT STRATEGY
 BUS STOP LAYOUT & VEHICLE SWEEP PATH
 ANALYSIS FOR A 12m SINGLE DECKER BUS

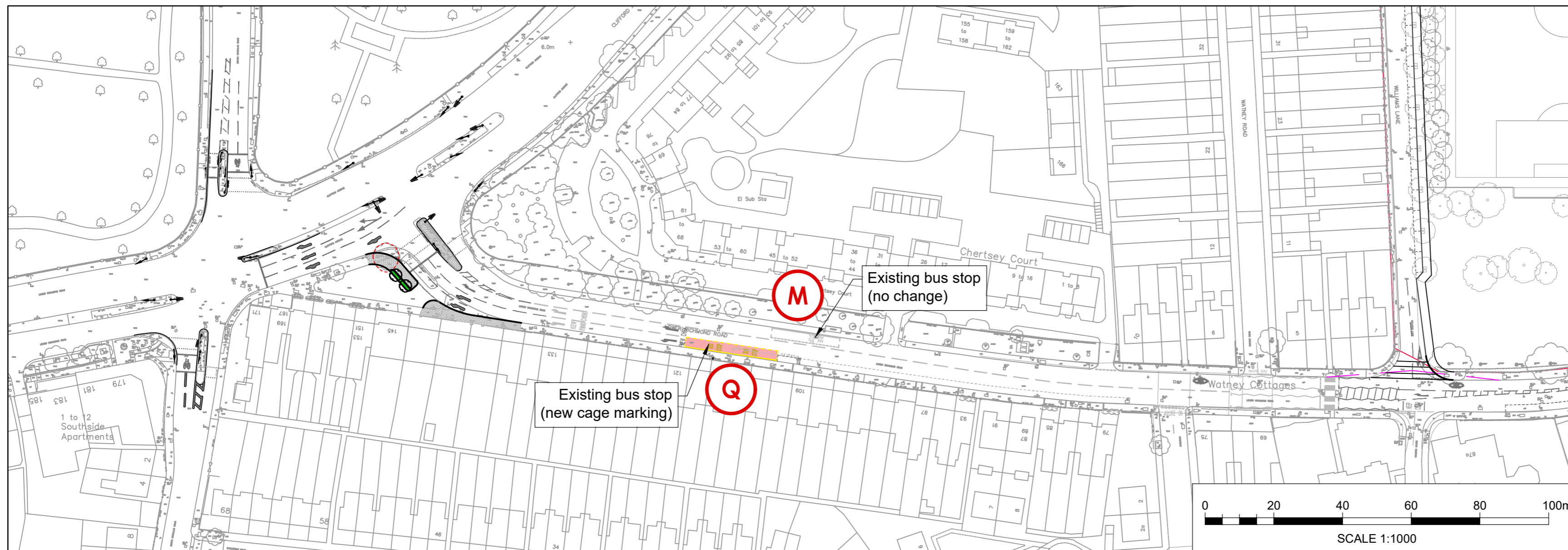
Client
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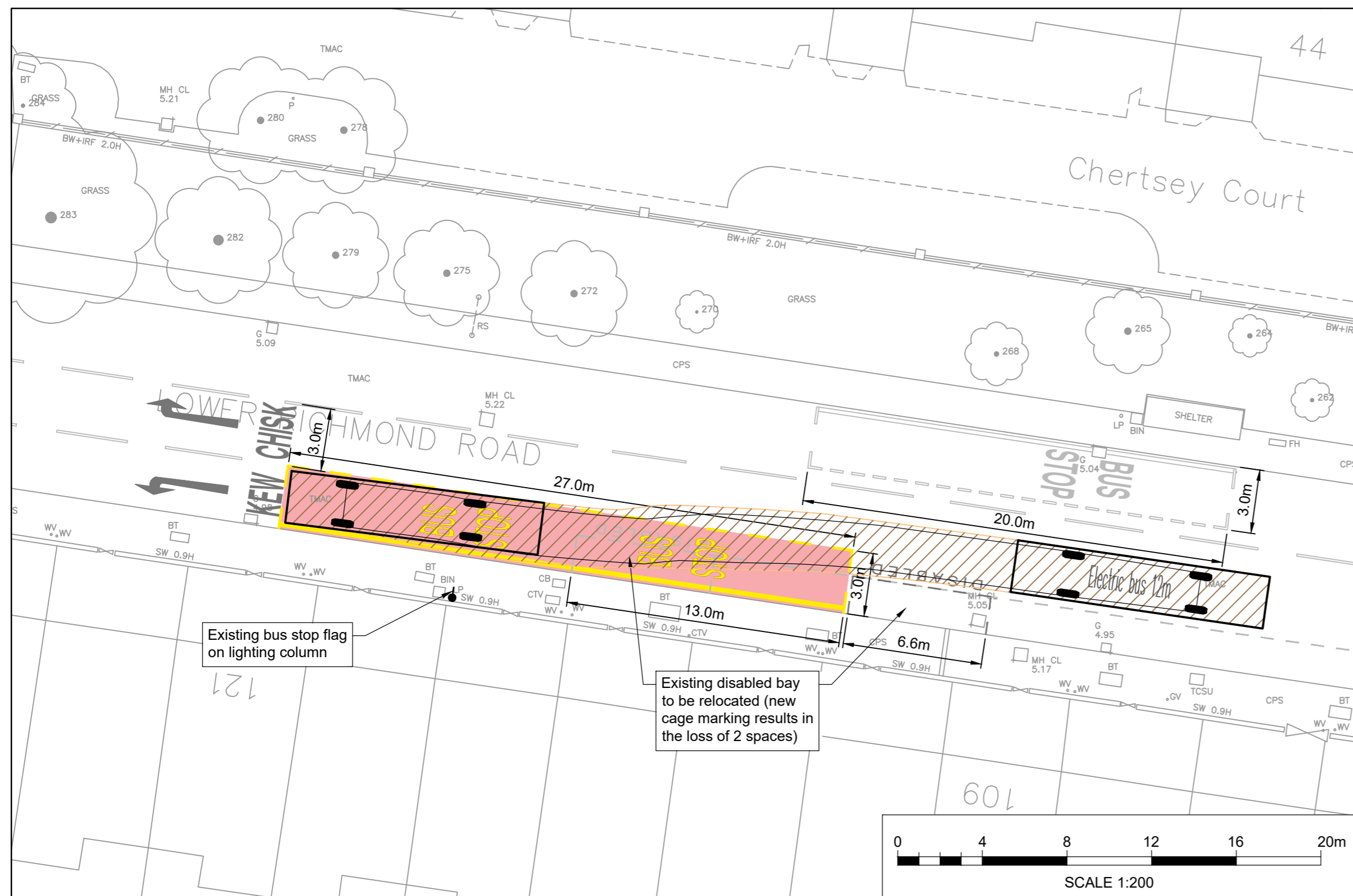
Date of 1st Issue: 30.06.2022
 A1 Scale: 1:1000 & 1:200
 Drawing Number: 38262/5520/28

Designed: REM
 Checked: GD
 Drawn: REM
 Approved: PW
 Revision: C

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BUS STOP LOCATION PLAN



BUS STOPS M AND Q

KEY	
	BUS STOP OR BUS STAND
	BOARDING AND ALIGHTING ZONES

	Electric bus 12m
	12.029
	2.689 6.1
Electric bus 12m	12.029m
Overall Length	2.470m
Overall Width	3.385m
Overall Body Height	0.249m
Min Body Ground Clearance	2.110m
Max Track Width	6.00s
Lock to lock time	8.760m
Kerb to Kerb Turning Radius	

VEHICLE DETAILS SUPPLIED BY TFL BUSES
ON 28/02/2023

Mark	Revision	Date	Drawn	Chkd	Appd
-	-	-	-	-	-

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Drawing Issue Status

FOR INFORMATION

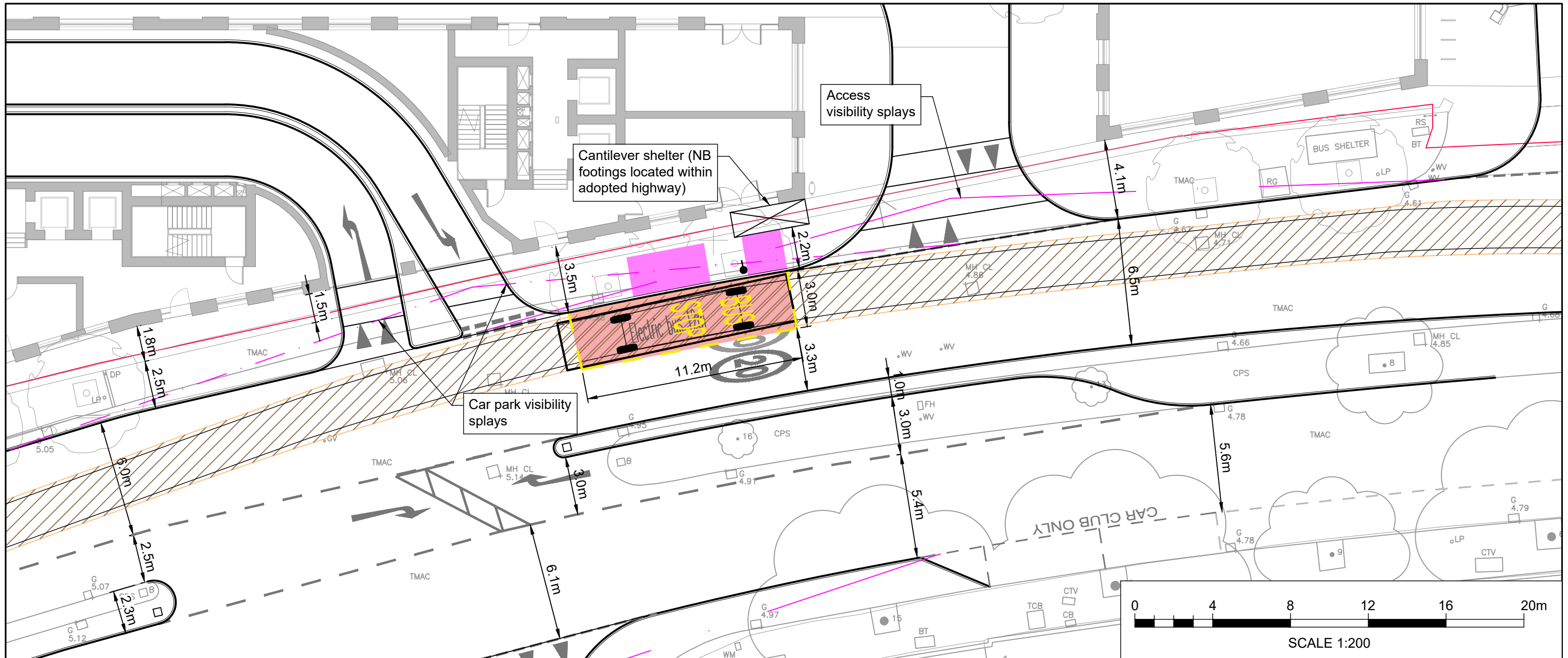
**STAG BREWERY, MORTLAKE
SUSTAINABLE TRANSPORT STRATEGY
BUS STOP LAYOUT & VEHICLE SWEEP PATH
ANALYSIS FOR A 12m SINGLE DECKER BUS**

Client		
RESELTON PROPERTIES		
Date of 1st Issue	Designed	Drawn
03.03.2023	REM	REM
A2 Scale	Checked	Approved
1:1000 & 1:200	GD	GD
Drawing Number	Revision	
38262/5520/31	-	

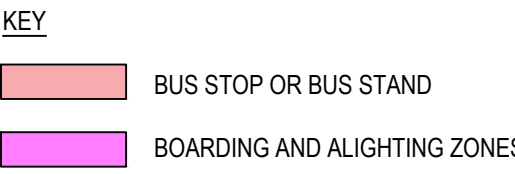
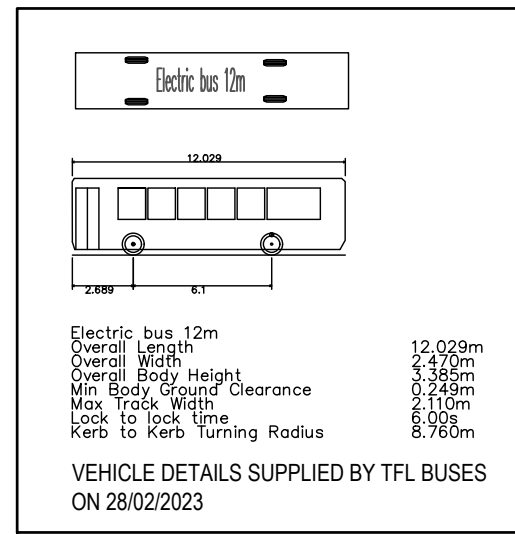
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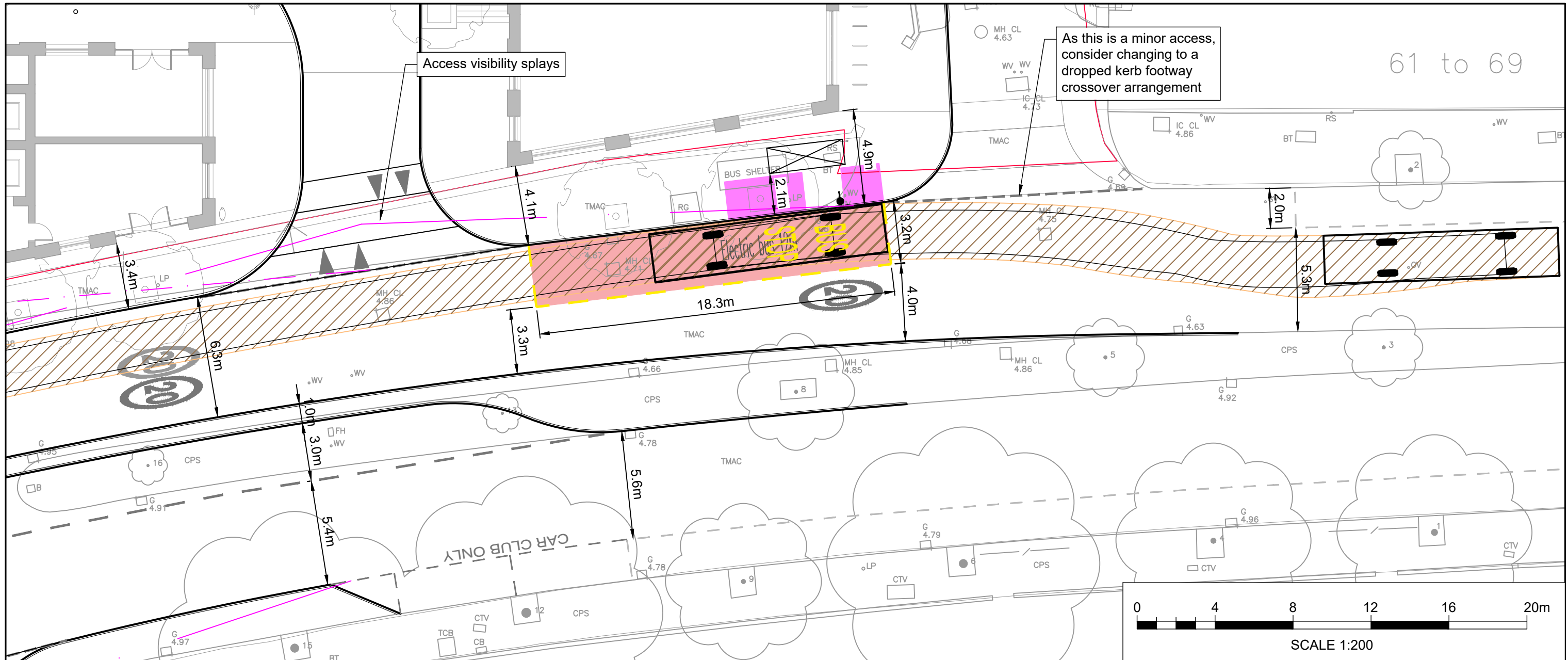


BUS STOP A

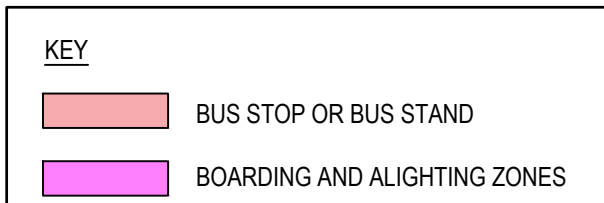
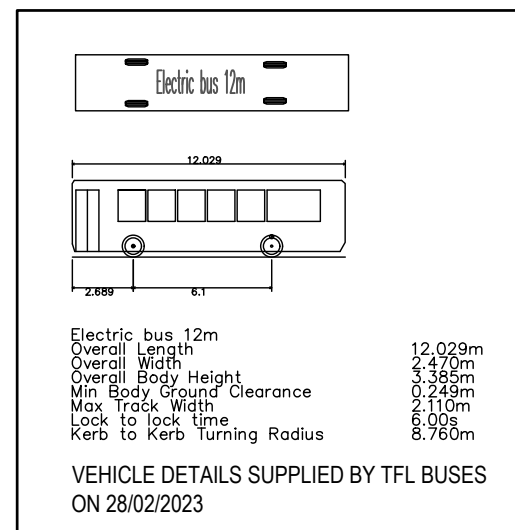



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<p>Drawing Issue Status</p> <p style="text-align: center;">FOR INFORMATION</p>					
<p>STAG BREWERY, MORTLAKE</p> <p>SUSTAINABLE TRANSPORT STRATEGY</p> <p>BUS STOP LAYOUT & VEHICLE SWEEP PATH ANALYSIS FOR A 12m SINGLE DECKER BUS</p>					
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Date of 1st Issue	Designed	Drawn			
06.03.2023	REM	REM			
A3 Scale	Checked	Approved			
1:200	GD	GD			
Drawing Number	Revision				
38262/5520/32	-				

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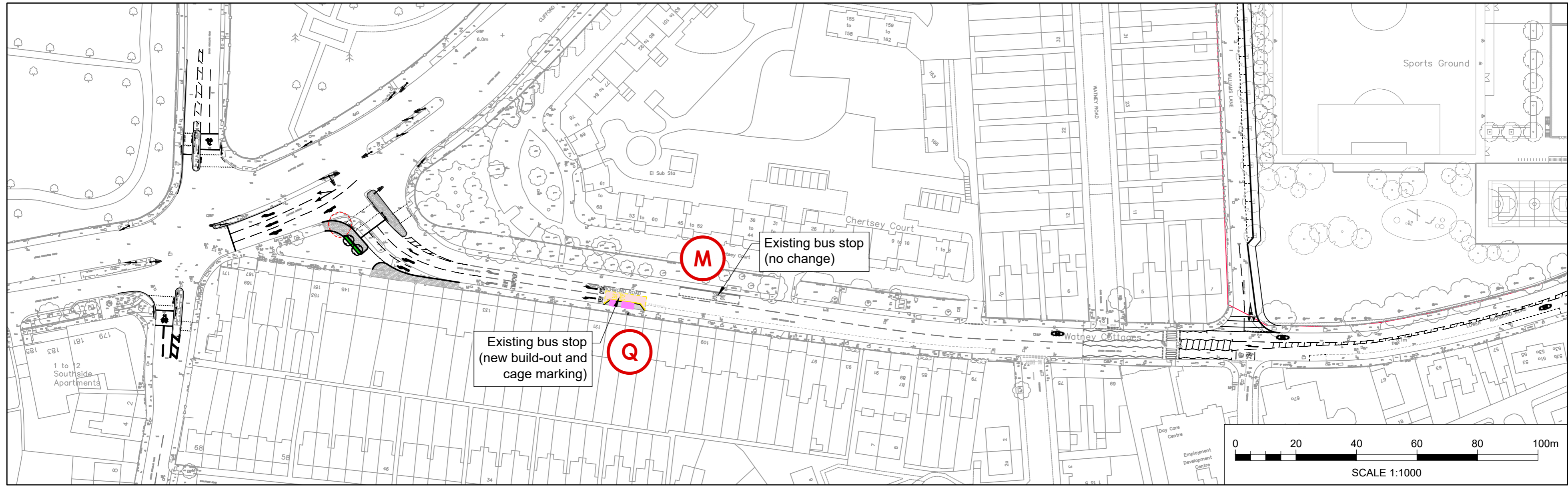


BUS STOP A

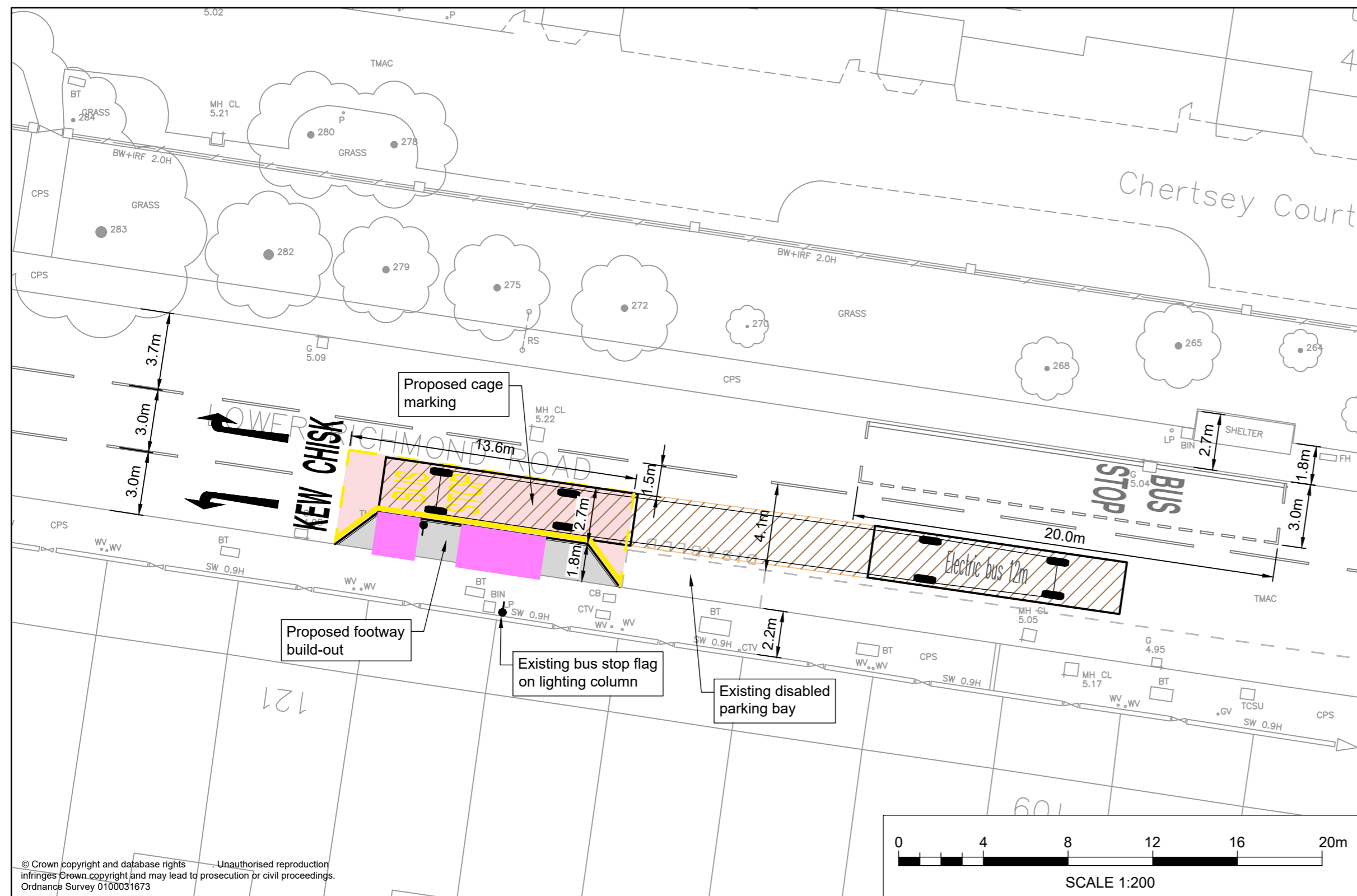


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<p>STAG BREWERY, MORTLAKE</p> <p>SUSTAINABLE TRANSPORT STRATEGY</p> <p>BUS STOP LAYOUT & VEHICLE SWEEP PATH ANALYSIS FOR A 12m SINGLE DECKER BUS</p>					
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Date of 1st Issue	Designed	Drawn			
06.03.2023	REM	REM			
A3 Scale	Checked	Approved			
1:200	GD	GD			
Drawing Number	Revision				
38262/5520/33	-				

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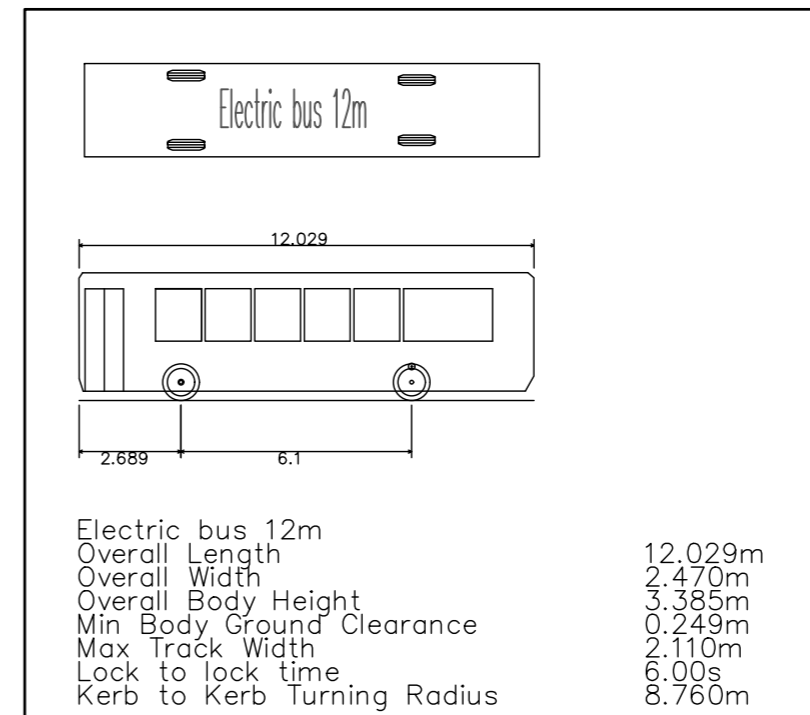
BUS STOP LOCATION PLAN



BUS STOPS M AND Q

KEY

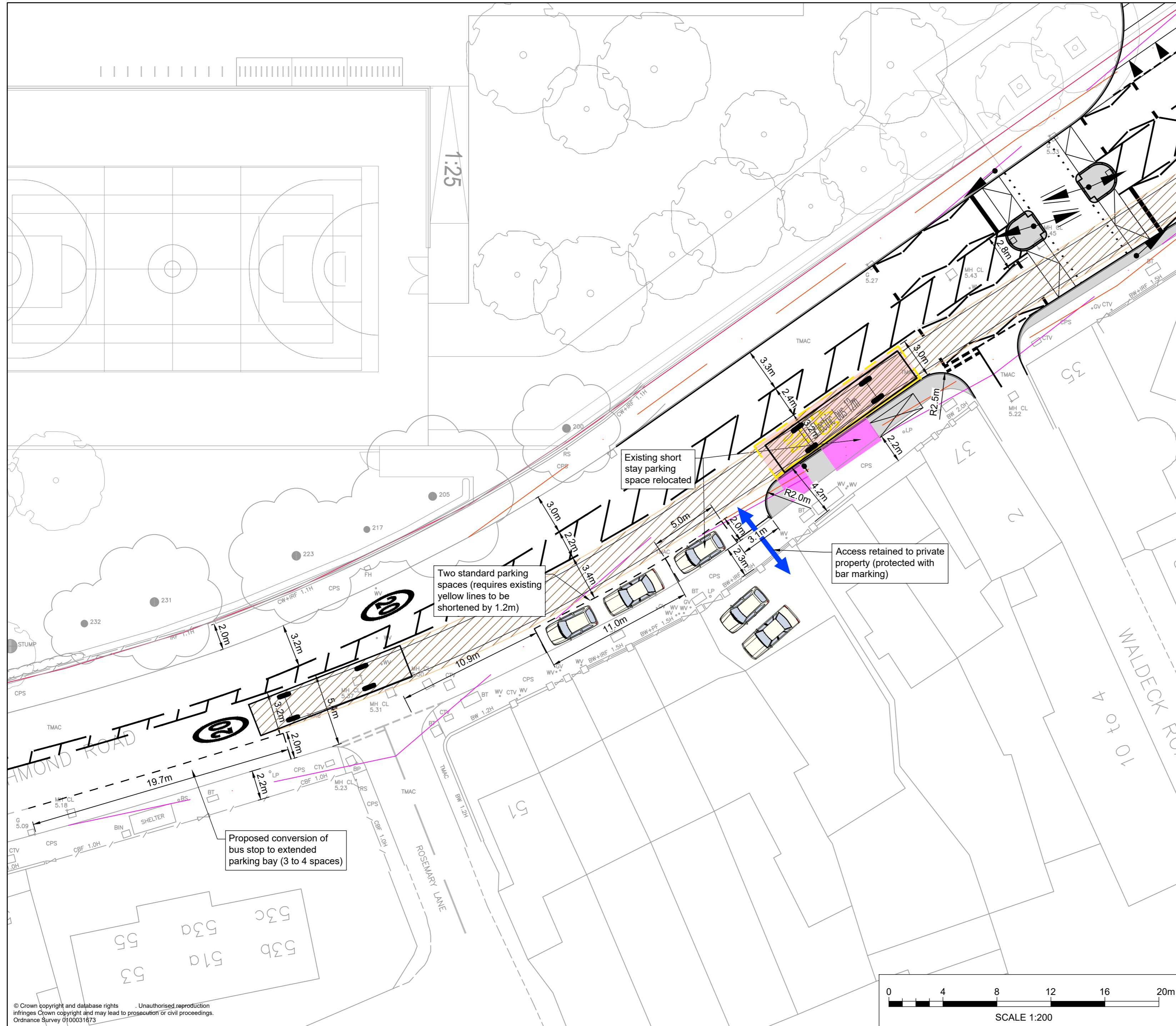
	BUS STOP OR BUS STAND
	BOARDING AND ALIGHTING ZONES
	FOOTWAY BUILD-OUT



VEHICLE DETAILS SUPPLIED BY TFL BUSES ON 28/02/2023

Mark	Revision	Date	Drawn	Chkd	Appd
-	-	-	-	-	-
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<p>Drawing Issue Status</p> <p>FOR INFORMATION</p>					
<p>STAG BREWERY, MORTLAKE</p> <p>SUSTAINABLE TRANSPORT STRATEGY</p> <p>BUS STOP 'Q' LAYOUT & VEHICLE SWEEP</p> <p>PATH ANALYSIS FOR A 12m BUS - OPTION 2</p>					
<p>Client</p> <p>RESELTON</p> <p>PROPERTIES</p>					
<p>Date of 1st Issue: 04.04.2023</p> <p>Designed: REM</p> <p>Drawn: REM</p> <p>A2 Scale: 1:1000 & 1:200</p> <p>Checked: GD</p> <p>Approved: GD</p>					
<p>Drawing Number</p> <p>38262/5520/34</p>				<p>Revision</p> <p>-</p>	
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KEY	
	BUS STOP OR BUS STAND
	BOARDING AND ALIGHTING ZONES
	FOOTWAY BUILD-OUT

Electric bus 12m

Overall Length 12.029m
 Overall Width 2.470m
 Overall Body Height 3.385m
 Min Body Ground Clearance 0.249m
 Max Track Width 2.110m
 Lock to lock time 6.00s
 Kerb to Kerb Turning Radius 8.760m

VEHICLE DETAILS SUPPLIED BY TFL BUSES
ON 28/02/2023

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Drawing Issue Status

FOR INFORMATION

**STAG BREWERY, MORTLAKE
 SUSTAINABLE TRANSPORT STRATEGY
 BUS STOP 'P' LAYOUT & VEHICLE SWEEP
 PATH ANALYSIS FOR A 12m BUS - OPTION 2**

Client
**RESELTON
 PROPERTIES**



Date of 1st Issue	Designed	Drawn
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1:200	GD	GD

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BUS STOP P