

LB Southwark 20mph Speed Limit Review



Prepared by: 
Baber Beg
Senior Consultant

Checked by: 
Andy Blanchard
Associate Director

Verified by: 
Jimi Edwards
Associate Director

Approved by: 
Andy Blanchard
Associate Director

60343287 - C0334 Southwark 20mph Review

| Rev No | Comments | Written by | Verified by | Checked & Approved by | Date |
|--------|-------------|------------|-------------|-----------------------|------------|
| 0 | First draft | BAB | ABE | AGB | 22/2/2017 |
| 1 | Final | BAB | JE | AGB | 05/09/2017 |

Website: <http://www.conwayaecom.com>

Job No: 60343287-C0334

Reference:

Date Created: 22/2/2017

This document has been prepared by CONWAY AECOM Limited for the sole use of our client (the "Client") and in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between CONWAY AECOM Limited and the Client. Any information provided by third parties and referred to herein has not been checked or verified by CONWAY AECOM Limited, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of CONWAY AECOM Limited.

Table of Contents

Executive Summary

| | | |
|-----|---------------------------------|----|
| 1. | Introduction..... | 4 |
| 2. | Methodology | 5 |
| 3. | Barry Road..... | 8 |
| 4. | Forest Hill Road | 11 |
| 5. | Sydenham Hill | 15 |
| 6. | Brenchley Gardens | 20 |
| 7. | Croxted Road | 24 |
| 8. | Plough Way..... | 27 |
| 9. | Redriff Road..... | 31 |
| 10. | Dulwich Wood Park..... | 34 |
| 11. | Salter Road..... | 37 |
| 12. | Grove Lane..... | 41 |
| 13. | Prioritisation of Schemes | 44 |

List of Tables

| | |
|---|----|
| Table 1: Roads with speeds greater than the level of speed that legal enforcement action is instigated..... | 4 |
| Table 2: Traffic speeds in both directions on Barry Road (24hr/7day)..... | 8 |
| Table 3: Casualties by mode of travel along Barry Road..... | 9 |
| Table 4: Collisions and KSI per year along Barry Road..... | 9 |
| Table 5: Collisions in Light/Dark and Dry/Wet conditions along Barry Road (2013-2016)..... | 9 |
| Table 6: Contributory factors for the collisions on Barry Road..... | 10 |
| Table 7: Traffic speeds in both directions on Forest Hill Road..... | 11 |
| Table 8: Casualties by mode of travel along Forest Hill Road..... | 12 |
| Table 9: Collisions and KSI per year along Forest Hill Road..... | 12 |
| Table 10: Collisions in Light/Dark and Dry/Wet conditions along Forest Hill Road (2013-2016)..... | 13 |
| Table 11: Contributory factors for the collisions on Forest Hill Road..... | 13 |
| Table 12: Traffic speeds in both directions on Sydenham Hill..... | 16 |
| Table 13: Casualties by mode of travel along Sydenham Hill..... | 17 |
| Table 14: Collisions and KSI per year along Sydenham Road..... | 17 |
| Table 15: Collision in Light/Dark and Dry/Wet conditions along Sydenham Hill (2013-2016)..... | 18 |
| Table 16: Contributory factors for the collisions on Sydenham Hill..... | 18 |
| Table 17: Traffic speeds in both directions on Brenchley Gardens..... | 20 |
| Table 18: Casualties by mode of travel along Brenchley Gardens..... | 21 |
| Table 19: Collisions and KSI per year along Brenchley Gardens..... | 21 |
| Table 20: Collisions in Light/Dark and Dry/Wet conditions along Brenchley Gardens (2013-2016)..... | 22 |
| Table 21: Contributory factors for the collisions on Brenchley Gardens..... | 22 |
| Table 22: Traffic speeds in both directions on Croxted Road..... | 24 |
| Table 23: Casualties by mode of travel along Croxted Road..... | 25 |
| Table 24: Collisions and KSI per year along Croxted Road..... | 25 |
| Table 25: Collisions in Light/Dark and Dry/Wet conditions along Croxted Road (2013-2016)..... | 25 |
| Table 26: Contributory factors for the collisions on Croxted Road..... | 25 |
| Table 27: Traffic speeds in both directions on Plough Way..... | 28 |
| Table 28: Casualties by mode of travel along Plough Way..... | 28 |
| Table 29: Collisions and KSI per year along Plough Way..... | 28 |
| Table 30: Collisions in Light/Dark and Dry/Wet conditions along Plough Way (2013-2016)..... | 29 |
| Table 31: Contributory factors for the collisions on Plough Way..... | 29 |
| Table 32: Traffic speeds in both directions on Redriff Road..... | 31 |
| Table 33: Casualties by mode of travel along Redriff Road..... | 31 |
| Table 34: Collisions and KSI per year along Redriff Road..... | 32 |
| Table 35: Collisions in Light/Dark and Dry/Wet conditions along Redriff Road (2013-2016)..... | 32 |
| Table 36: Contributory factors for the collisions on Redriff Road..... | 33 |
| Table 37: Traffic speeds in both directions on Dulwich Wood Park..... | 34 |
| Table 38: Casualties by mode of travel along Dulwich Wood Park..... | 35 |
| Table 39: Collisions and KSI per year along Dulwich Wood Park..... | 35 |
| Table 40: Collisions in Light/Dark and Dry/Wet conditions along Dulwich Wood Park (2013-2016)..... | 35 |
| Table 41: Contributory factors for the collisions on Dulwich Wood Park..... | 36 |
| Table 42: Traffic speeds in both directions on Salter Road..... | 38 |
| Table 43: Casualties by mode of travel along Salter Road..... | 38 |
| Table 44: Collisions and KSIs per year along Salter Road..... | 39 |
| Table 45: Collisions in Light/Dark and Dry/Wet conditions along Salter Road (2013-2016)..... | 39 |
| Table 46: Contributory factors for the collisions on Salter Road..... | 40 |
| Table 47: Traffic speeds in both directions on Grove Lane..... | 41 |
| Table 48: Casualties by mode of travel along Grove Lane..... | 42 |
| Table 49: Collisions and KSI per year along Croxted Road..... | 42 |
| Table 50: Collisions in Light/Dark and Dry/Wet conditions along Grove Lane (2013-2016)..... | 42 |
| Table 51: Contributory factors for the collisions on Grove Lane..... | 43 |
| Table 52: Roads with collision per km, VRU casualties and speed..... | 44 |
| Table 53: Priority ranking of the roads with excessive speeding..... | 44 |

Executive Summary

Executive Summary

This report was commissioned by LB Southwark Council to determine the level of additional traffic calming measures that can be used to reduce excessive traffic speeds on 10 roads where speeds remained high after the implementation of the borough-wide 20mph scheme. The scheme, which was completed in March 2015, was a signage-only approach with a view to monitor and introduce further measures following a period of review post implementation.

The 10 sites have been targeted by the borough as highest priority roads based on an assessment of traffic speeds and accident statistics post implementation of the 20mph scheme. Two further roads (Lordship Lane and Herne Hill) were included in the review, but these will be documented in separate reports.

| ROAD NAME | MEAN SPEED (mph) | 85th PERCENTILE SPEED (mph) |
|-------------------|------------------|-----------------------------|
| DULWICH WOOD PARK | 27.8 | 32.8 |
| SALTER ROAD | 27.5 | 33.3 |
| SYDENHAM HILL | 26.7 | 30.6 |
| BRENCHLEY GARDENS | 26.5 | 31.1 |
| CROXTED ROAD | 25.3 | 30.5 |
| BARRY ROAD | 25.1 | 30.2 |
| REDRIFF ROAD | 24.9 | 29.6 |
| FOREST HILL ROAD | 24.7 | 30.0 |
| PLOUGH WAY | 24.2 | 29.8 |
| GROVE LANE | 24.4 | 29.2 |

The method of analysis included site visits to review the existing situation, examination of speed survey data, analysis for each of the sites of collisions recorded over a three year period, including the identification of collisions where speed was a contributory factor and those resulting in vulnerable road user casualties; preparation of indicative plans of options, identification of preferred interventions, preparation of concept plans, producing cost estimates for these interventions, and finally, prioritisation of the schemes for delivery.

The interventions considered to reduce the speeds along the 10 roads included various physical traffic calming measures. These comprised horizontal (chicanes, traffic islands) and/or vertical measures (raised junction treatment, raised signalised and zebra crossings, and road humps), to ensure that speeds are reduced on the studied roads.

The resulting recommended interventions contained in the concept plans have been ranked against collisions per km, number of casualties involving injury to a vulnerable road user (VRU) and speed, as well as the cost of implementing the recommendation per road. The results of this prioritisation are shown in the table below, and it is proposed that LBS implement the proposals on the top ranked roads first, in order to achieve the greatest impact on addressing the speeding and collisions along these roads.

| ROAD NAME | Speed weighting | collisions per km weighting | VRU weighting | Cost weighting | SCORE | RANK | Estimated Cost |
|-------------------|-----------------|-----------------------------|---------------|----------------|-------|------|----------------|
| Barry Road | 3 | 4 | 4 | 3 | 14 | 1 | £ 65,500.00 |
| Forest Hill Road | 2 | 4 | 5 | 2 | 13 | 2 | £ 82,900.00 |
| Sydenham Hill | 4 | 4 | 3 | 1 | 12 | 3 | £ 158,100.00 |
| Brenchley Gardens | 4 | 3 | 3 | 2 | 12 | 3 | £ 56,500.00 |
| Croxted Road | 3 | 3 | 1 | 4 | 11 | 4 | £ 32,700.00 |
| Plough Way | 1 | 3 | 2 | 5 | 11 | 4 | £ 13,500.00 |
| Redriff Road | 2 | 2 | 2 | 4 | 10 | 5 | £ 25,200.00 |
| Dulwich Wood Park | 5 | 2 | 1 | 1 | 9 | 6 | £ 194,400.00 |
| Salter Road | 5 | 1 | 2 | 1 | 9 | 6 | £ 124,200.00 |
| Grove Lane | 1 | 2 | 1 | 2 | 7 | 7 | £ 80,600.00 |

1. Introduction

1.1. General

1.1.1. CONWAY AECOM (CA) was requested to undertake a review of 10 roads where 20mph speed limits were introduced in the London Borough of Southwark (LBS), as part of a borough-wide 20mph scheme in March 2015. In October 2013 classified counts were undertaken at various locations prior to the 20mph scheme being implemented. In October/November 2015 LBS conducted classified counts at 167 locations to review the before and after implementation speeds. The counts were undertaken for 24 hours over a seven day period. There was a significant reduction observed in the mean speed of traffic across the borough.

1.1.2. However, it was found that on 10 of the roads listed below in Table 1 that the mean speeds were more than the level of speed that legal enforcement action is instigated (24mph) (Crown Prosecution Services) within a 20mph limit.

| ROADNAME | MEAN | 85th PERCENTILE | MEAN SPEED VARIANCE | CYCLES/ MC | CARS | LGVs | HGVs & PSV | COLLISIONS - 36 MONTHS (JULY 2013 - JUNE 2016) | SPEED RELATED COLLISIONS | LENGTH OF ROAD (m) |
|-------------------|------|-----------------|---------------------|--------------------|-----------------|-------------|----------------|--|--------------------------|--------------------|
| DULWICH WOOD PARK | 27.8 | 32.8 | -2.2 | 1542 (2%) | 67569.5 (88.8%) | 562 (0.7%) | 6378 (8.4%) | 8 | 1 | 980 |
| SALTER ROAD | 27.5 | 33.3 | -3.0 | 724.5 (4.5%) | 13617.5 (84.3%) | 42.5 (0.3%) | 1768 (10.9%) | 3 | 1 | 3730 |
| SYDENHAM HILL | 26.7 | 30.6 | -1.8 | 944 (2%) | 41129.5 (87.6%) | 170 (0.4%) | 4683 (10%) | 7 | 1 | 1120 |
| BRENCHLEY GARDENS | 26.5 | 31.1 | -2.6 | 677.5 (2.3%) | 25589.5 (88.5%) | 89.5 (0.3%) | 2550.5 (8.8%) | 7 | 0 | 1112 |
| CROXTED ROAD | 25.3 | 30.5 | -2.5 | 1971 -4.4% | 38787.5 (86.6%) | 216 (0.5%) | 3834 (8.6%) | 8 | 0 | 581 |
| BARRY ROAD | 25.1 | 30.2 | -3.0 | 1050 (3.5%) | 25051 (82.7%) | % | 4093.5 (13.5%) | 15 | 1 | 1275 |
| REDRIFF ROAD | 24.9 | 29.6 | -4.5 | 810 (3.2%) | 21744 (85.6%) | 98 (0.4%) | 2755 (10.8%) | 5 | 1 | 1025 |
| FOREST HILL ROAD | 24.7 | 30.0 | 1.1 | 1669.5 (2.5%) | 59957 (89.6%) | 360 (0.5%) | 4938 (7.4%) | 19 | 1 | 960 |
| PLOUGH WAY | 24.2 | 29.8 | -1.7 | 1061 (8.1%) | 10366 (79.5%) | 25.5 (0.2%) | 1589.5 (12.2%) | 6 | 1 | 855 |
| GROVE LANE * | 24.4 | 29.2 | | DATA NOT AVAILABLE | | | | 6 | 1 | 415 |

NOTES

* Grove Lane speed surveys were carried out in June 2016

Table 1: Roads with speeds greater than the level of speed that legal enforcement action is instigated

1.1.3. It should be noted that the speed surveys have been conducted by LBS where it was determined that the vehicles are travelling at the fastest speed.

1.1.4. LBS requested CA to review physical measures that could be implemented on the above listed roads to reduce the speeds.

2. Methodology

2.1. General

2.1.1. The road environment of the sites being assessed varied from a rural to an urban nature or a combination of both. Department for Transport Circular 01/2013 Setting Local Speed Limits mentions road environment as part of a number of key factors that affect driver perception of what is a safe speed to drive. Other factors that should be taken into account when making decisions on speed limits are:

- Collisions
- Geometry/engineering
- Road function
- Link length
- Composition of road users
- Traffic speeds

2.1.2. At the inception meeting held on 18th November 2016 with LBS, potential traffic calming measures were discussed. Some were considered by LBS to be acceptable for inclusion as traffic calming proposals, while others were dismissed by LBS, so do not appear in any of the proposals. These measures are discussed in Section 2.2 below. It was also agreed at the meeting to investigate only the areas where excessive speeding (greater than 24mph) had been recorded in cases where more than one speed survey had been carried out along a route.

2.1.3. Site visits were undertaken to review the existing conditions and observe the traffic behaviour with regards to speed along the routes. A general observation made on the site visits was that most of the "SLOW" road markings have been worn away due to wear and tear. It is recommended that these are remarked.

2.1.4. The current collision data for a period of 36 months from July 2013 to June 2016 was reviewed and speed related collision and collisions involving vulnerable road users were highlighted. It should be noted that the records obtained from Transport for London (TfL) are only the ones that have been reported to the Metropolitan Police or where Officers were called to the scene of the collision. A large majority of collisions resulting in slight injury often go unrecorded and are not reported to the Police. This means that the cause and site of the collision is unknown which limits the mitigation measures that could be used by local authorities.

2.1.5. Indicative plans of two options were prepared for each road to address the issue of speeding, and approximate cost estimates for these options provided. These were reviewed with LBS and a recommended design was identified. Detailed concept plans were prepared along cost estimates for each of the roads.

2.1.6. The roads were then scored and prioritised based on the number of collisions per km, vulnerable road user casualties obtained for the three year period and speed.

2.2. Potential traffic calming and engineering measures

2.2.1. At the inception meeting a number of potential traffic calming measures to reduce speeds were discussed. However, it should be noted that there was a preference for sinusoidal road humps over speed cushions from LBS on bus routes.

- Road Humps are the most widely used form of traffic calming device because they have proven to be effective at controlling speeds and can generally be engineered to suit most road layouts. Road humps serve as vertical deflections to discourage high vehicle speeds and require measures to slow approach traffic speeds in advance of their introduction. They are suitable for residential areas but are not acceptable on bus routes. Effectiveness decreases as the spacing of adjacent features increases, with 150metres considered the allowable maximum to achieve speed reduction. The installation of road humps is usually met by local stakeholder opposition due to issues associated with noise, vibration, ride quality and in some cases vehicle damage. For these reasons no road humps have been proposed as part of this study.

- Speed cushions have rectangular profiles with gaps and provide less discomfort to the occupants of buses and larger commercial vehicles compared to road humps. However, they are not suitable for reducing speeds of motorcyclists and can cause discomfort to drivers of smaller vehicles (cars, light commercial vehicles and some ambulances). LBS is currently replacing existing speed cushions with sinusoidal humps as part of the borough maintenance programme.
- Raised tables/ raised junctions are similar to road humps but longer and with a flattened top, sometimes used to give pedestrians a level crossing between footways. They can also be incorporated within a junction and are used to restrain speeds and provide a perception of reduced car dominance at areas with high pedestrian volumes. If they are long enough, they provide a smoother ride for buses compared to road humps.
- Lane width restrictions/buildouts/chicanes and traffic islands are engineering measures that provide horizontal displacement to traffic and also incorporate restricted widths that encourage reduced approach speeds. These would require waiting restrictions to be introduced around them to ensure that traffic lanes are not obstructed by parked vehicles. Consideration would also need to be given to appropriate passing widths that do not create safety concerns for cyclists.
- Mini-roundabouts are used on roads with a speed limit of 30mph or less and where the 85th percentile is less than 35mph. These can be used in traffic calming schemes provided that they are used with suitable speed reduction measures, sufficient deflection and fairly equal traffic flows within the scheme.
- Speed activated signs were also considered but rejected on the grounds that they would encourage speeding rather than reducing it. Additional 20mph signage was also considered but rejected on the grounds that drivers tend to ignore the signage.
- Average speed cameras systems utilise state of the art video system with Automatic Number Plate Recognition (ANPR) digital technology. Each camera features infrared illuminators, so they remain operational even at night. SPECS speed cameras are located in multiple (at least 2 at a minimum of 200 metres apart) locations along a single stretch of road for monitoring your average speed along that particular road. So unlike other fixed speed cameras which capture vehicle speed at a fixed point, SPECS average speed camera determine vehicle speeds over a distance between two fixed points. The shortest average speed check zone in the UK is located on Tower Bridge, London and is just less than a mile in length.

2.2.2. It is acknowledged that the most effective means to reduce traffic speeds is to install vertical deflections in the carriageway. However, this is not always possible due to the effect on road users as well as public opposition. Therefore, a combination of various speed reduction measures are proposed to achieve speed reduction and improved compliance of the 20mph speed limit.

2.2.3. Due to cost consideration, the introduction of average speed cameras and dual red light/speed cameras on roads identified within this report will not be considered for implementation at the present time. A post-implementation review will be undertaken to assess the impact of all other proposed traffic calming measures and, if appropriate, consider the installation of average speed cameras and dual red light/speed cameras to further assist in reducing speeds, where they were highlighted within the concept plans to aid in reducing average speeds.

2.3. Collision Contributory Factors

2.1.7. The contributory factors can be used to provide a greater understanding into the causes of the collision than can be gained from the facts about the collision circumstances contained in the collision record. However it is important to note that there are certain limitations which mean that the contributory factors recorded can only be taken as an indication of the cause of the collision (IAM, 2011).

2.1.8. The factors can be subjective, reflecting the opinion of the Police Officer reporting on the collision. They are not necessarily based on a detailed investigation of the collision. Some factors are more 'obvious' than others at the

time when the police officer attends the scene and because the information recorded is admissible as evidence in court, any factors that are recorded need to be supported by clear evidence.

2.1.9. Factors are assigned to each road user involved in the collision, and multiple factors can be recorded for individuals. Hence, more than one factor can be attributed to accidents, individuals and their vehicles. The percentages presented in this report are the percentage of accidents or vehicles having a specific contributory factor attributed to them, and because more than one factor can be attributed, they do not total 100.

2.1.10. From the table of contributory factors there are only two that relate to speeding:

- 306 Exceeding speed limit
- 307 Travelling too fast for conditions

These are considered as injudicious actions.

2.1.11. There are other factors that can be taken as speeding such as 601 – Aggressive driving, 602 – Careless/reckless/in a hurry. However, these factors are defined as behavioural factors. For the purpose of this study these will be considered as factors relating to speed.

2.1.12. To avoid confusion with other factors having similar descriptions in the table. These have been further defined as either down to driver/rider or pedestrian.

3. Barry Road

3.1. Existing Conditions

- 3.1.1. Barry Road is located between Lordship Lane at its southern end and Peckham Rye at the northern end. Barry Road is predominantly a residential street approximately 1.3km in length with a straight alignment. The road consists of single lane carriageway with one traffic lane in each direction and is part of the B219. The road width varies between 6m at its narrowest point to 11m wide.
- 3.1.2. It has limited vertical traffic calming measures with a single raised junction treatment at the junction with Goodrich Road. The junctions of Upland Road, Underhill Road and Silvester Road have side road raised entry treatments. Also the existing bus stops incorporate buildouts that narrows the road at these locations.
- 3.1.3. Barry Road is serviced by buses on routes 12 and 197. The main trip generators in the local area are St Anthonys RC Primary School, Christ Church, the shops along Lordship Lane including Dulwich Library at the southern end, and Peckham Rye Park and Common at the northern end. Some of the residential properties towards the southern end have driveways. There are no parking restrictions along Barry Road except statutory waiting restrictions at the junctions so local residents generally park on both sides of the street.

3.2. Speed Data

- 3.2.1. Speed survey carried out by LBS along Barry Road in November 2015 indicated that vehicles were exceeding the 20mph speed limit. The mean speed was 25.1mph and the 85th percentile was 30.2mph. The speeds for northbound and southbound traffic are shown below in Table 2 and suggests traffic adopts high speeds in both directions.

| ROADNAME | DIRECTION | MEAN SPEED (mph) | 85th PERCENTILE SPEED (mph) |
|------------|-----------|------------------|-----------------------------|
| BARRY ROAD | NORTH | 25.2 | 30.2 |
| BARRY ROAD | SOUTH | 24.9 | 30.2 |
| AVERAGE | | 25.1 | 30.2 |

Table 2: Traffic speeds in both directions on Barry Road (24hr/7day)

3.3. Collision Analysis

- 3.3.1. From the three year collision data reviewed a total of 29 collisions were recorded on Barry Road. However, 12 of these occurred on Lordship Lane within a 50m radius of the junction with Barry Road and two accidents on Peckham Rye within 50m radius of the junction with Barry Road. These 14 collisions have not been included in the analysis below, as they are considered to be heavily influenced by activities at the junctions and so fall outside of the scope of this study, which addresses the speeding issue on the link between the junctions.
- 3.3.2. There were 15 collisions along Barry Road that resulted in 19 casualties for the period between 1 July 2013 and 30 June 2016. The collision analysis by mode of travel is shown below in Table 3.

| BARRY ROAD JULY 2013 - JUNE 2016 | 2013-14 | | | 2014-15 | | | 2015-16 | | | % Mode of Travel | % Inner borough roads |
|-------------------------------------|---------|---|----|---------|---|----|---------|---|----|------------------|-----------------------|
| | K | S | SI | K | S | SI | K | S | SI | | |
| 1 Pedestrian | | | | | | 2 | | | 2 | 21.1% | 25.7% |
| 2 Pedal Cycle | | | 2 | | | 1 | | | 1 | 21.1% | 29.7% |
| 3 Powered 2 Wheeler | | | | | | | | | 1 | 5.3% | 23.3% |
| 4 Car | | | 5 | | | 1 | | | 4 | 52.6% | 66.2% |
| TOTALS | | | 7 | | | 4 | | | 8 | 100% | |

Key: K – Killed; S – Serious; SI – Slight

Table 3: Casualties by mode of travel along Barry Road

- 3.3.3. All the vulnerable road user collisions have resulted in slight injuries. There was one speed collision that occurred at the junction of Underhill Road with Barry Road. One vehicle was headed southbound and the other vehicle pulled out at speed from Underhill Road heading northbound.
- 3.3.4. From Table 3 the percentages of collisions by mode of travel for Barry Road, indicates that the levels of collisions for these road user types on Barry Road are lower than the average experienced on similar roads in all inner London boroughs.
- 3.3.5. There were nine collisions involving vulnerable road users that resulted in nine casualties. It can be seen from Table 4 below that the majority of collisions occurred in 2015-16. The current trend along Barry Road is showing an increase in the number of collisions.

| BARRY ROAD | 2013-14 | 2014-15 | 2015-16 | TOTALS |
|---------------------|---------|---------|---------|--------|
| Collisions per year | 5 | 4 | 6 | 15 |
| KSI per year | 0 | 0 | 0 | 0 |

Table 4: Collisions and KSI per year along Barry Road

- 3.3.6. From Table 5 below, the majority of the collisions took place in daylight conditions and when the road surface was dry. The percentage of collisions in the dark is 13.3% and the percentage of collisions in the wet is 6.7%, these are less than the expected percentages of 29.4% and 17.7% respectively when compared to the Table 3.5 for Inner Borough Roads (TfL, 2015).

| | Dry | Wet | TOTALS |
|----------|-------------|-----------|-------------|
| Light % | 12 80% | 1 6.7% | 13 86.7% |
| Dark % | 2 13.3% | 0 0% | 2 13.3% |
| TOTALS % | 14 93.3% | 1 6.7% | 15 100% |

Table 5: Collisions in Light/Dark and Dry/Wet conditions along Barry Road (2013-2016)

3.3.7. The main contributory factors for the collisions on Barry Road are shown below in Table 6.

| Contributory Factor | Description | % |
|---------------------|---|-----|
| 405 | Failed To Look Properly (Driver/Rider) | 31% |
| 302 | Disobeyed Give Way Or Stop Sign Or Markings | 14% |
| 602 | Careless/Reckless/In A Hurry (Driver/Rider) | 11% |
| 802 | Failed To Look Properly (Pedestrian) | 11% |
| 808 | Careless/Reckless/In A Hurry (Pedestrian) | 6% |
| 403 | Poor Turn Or Manoeuvre | 6% |
| 308 | Following Too Close | 6% |
| 307 | Travelling Too Fast For Conditions | 3% |
| 402 | Junction Restart | 3% |
| 410 | Loss Of Control | 3% |
| 509 | Distraction In Vehicle | 3% |
| 804 | Wrong Use Of Pedestrian Crossing Facility | 3% |

Table 6: Contributory factors for the collisions on Barry Road

3.3.8. It can be seen that the majority of collisions occurred due to the driver/rider failing to look properly, disobeying give way or stop sign or markings, being careless/reckless/in a hurry and failing to look properly. However, as highlighted above and referring to the collision data obtained only one collision with speeding as a contributory factor occurred on Barry Road.

3.3.9. The contributory factor 602 Careless/Reckless/In a Hurry is mainly down to driver behaviour or inexperience and helps to explain why a drivers/rider's actions contributed to the accident and can be considered as speeding. Contributory factor 808 refers to pedestrians only. The only two contributory factors that are considered as directly relating to speeding are 306 Exceeding the speed limit, and 307 Travelling too fast for conditions.

3.4. Options

3.4.1. Two options were investigated to mitigate the excessive traffic speeds along Barry Road.

3.4.2. Option 1 - included the introduction of five traffic islands to reduce vehicle speeds by providing horizontal traffic deflection from the straight alignment of Barry Road. This would require waiting restrictions around the traffic islands to ensure access is unobstructed. Raised tables were also proposed as part of this option at the junctions with Underhill Road and Upland Road where currently only the side roads have raised entry treatments.

3.4.3. Option 2 – proposed five sinusoidal road humps to provide vertical deflection to reduce traffic speeds, along with raised tables at the junctions of Underhill Road and Upland Road. There is likely to be opposition from local residents to the introduction of sinusoidal road humps.

3.5. Recommendation

3.5.1. Option 1 (See Appendix A) was determined as the preferred option to be taken forward to reduce speeds by providing a mix of horizontal and vertical deflections along the route. Option 2 was rejected given the effect of several sinusoidal humps on ride quality for buses that serve Barry Road.

3.6. Estimated Costs

3.6.1. The estimated costs for the preferred option would be approximately £65,500 see Appendix B.

4. Forest Hill Road

4.1. Existing Conditions

- 4.1.1. Forest Hill Road lies partially on the borough boundary with the London Borough of Lewisham from the junction with Honor Oak Road in the south towards Peckham Rye at the junction with St Aidan's Road at its northern most point. The length of the road is approximately 0.96km and forms part of the B238. The road is predominantly a single carriageway with one lane in each direction, but it widens into a dual carriageway over a stretch of approximately 80m between the junctions with Brenchley Gardens and Wood Vale.
- 4.1.2. The road width varies between 6m at its narrowest point to 15.3m at it widest on the northbound approach to the junction with Wood Vale.
- 4.1.3. Forest Hill Road is serviced by buses P12 between Brenchley Gardens and Honor Oak Road and 63, 363 and N63 over the remainder of the road. The trip generators in the vicinity of Forest Hill Road are St Francesca Cabrini RC Primary School, Brenchley Gardens, Camberwell Old Cemetery, Honor Oak Baptist Church. There are two parade with shops along Forest Hill Road one opposite the junction with Mundania Road and the other between the junctions of Ryedale and St Aidan's Road.
- 4.1.4. The road environment varies from being predominantly residential at the southern end to semi-rural and then more urban in nature towards the northern end.

4.2. Speed Data

- 4.2.1. Speed surveys were carried out at three locations along Forest Hill Road in November 2015. The results indicate that speeding was only a significant problem in one location and only in the northbound direction. The speeds are shown below in Table 7.

| ROADNAME | DIRECTION | MEAN SPEED (mph) | 85th PERCENTILE SPEED (mph) | LOCATION |
|------------------|-----------|------------------|-----------------------------|--|
| FOREST HILL ROAD | NORTH | 26.2 | 31.8 | Approx. 57m south of j/w Canonbie Road |
| FOREST HILL ROAD | SOUTH | 23.2 | 28.2 | |
| AVERAGE | | 24.7 | 30.0 | |
| FOREST HILL ROAD | NORTH | 22.8 | 27.7 | Approx. 57m south of j/w Ryedale |
| FOREST HILL ROAD | SOUTH | 22.6 | 27.7 | |
| AVERAGE | | 22.7 | 27.7 | |
| FOREST HILL ROAD | NORTH | 19.5 | 25.9 | Near j/w Ryedale |
| FOREST HILL ROAD | SOUTH | 21.7 | 27.3 | |
| AVERAGE | | 20.6 | 26.6 | |

Table 7: Traffic speeds in both directions on Forest Hill Road

4.3. Collision Analysis

- 4.3.1. The collision data obtained showed there were 19 collisions along Forest Hill Road, however, four of these occurred on the junction with Honor Oak Road, one occurred at the junction of St Aidan's Road toward the Peckham Rye side. These collisions have not been included in the analysis below, as they are considered to be

heavily influenced by activities at the junctions and so fall outside of the scope of this study, which addresses the speeding issue on the link between the junctions.

4.3.2. There were 14 collisions along Forest Hill Road that resulted in 16 casualties for the period from 1 July 2013 to 30 June 2016. The analysis by mode of travel is shown below in Table 8.

| FOREST HILL ROAD JULY 2013 - JUNE 2016 | 2013-14 | | | 2014-15 | | | 2015-16 | | | % Mode of Travel | % Inner borough roads |
|---|---------|---|----|---------|---|----|---------|---|----|------------------|-----------------------|
| | K | S | SI | K | S | SI | K | S | SI | | |
| 1 Pedestrian | | | 1 | | 1 | | | | | 12.5% | 25.7% |
| 2 Pedal Cycle | | | 1 | | | 2 | | | | 18.8% | 29.7% |
| 3 Powered 2 Wheeler | | | 1 | | | 2 | | | 2 | 31.3% | 23.3% |
| 4 Car | | | 1 | | | 1 | | | | 12.5% | 66.2% |
| 5 Taxi | | | | | | 2 | | | | 12.5% | 66.2% |
| 6 Bus Or Coach | | | 1 | | | | | | | 6.3% | 9.4% |
| 7 Goods Vehicle | | | 1 | | | | | | | 6.3% | 12.4% |
| TOTALS | | | 6 | | 1 | 7 | | | 2 | 100.0% | |

Key: K – Killed; S – Serious; SI – Slight

Table 8: Casualties by mode of travel along Forest Hill Road

4.3.3. From Table 8 the percentages of collisions by mode of travel for Forest Hill Road, indicating that the levels of collisions for these road user types on Forest Hill Road are lower than the average that is experienced on similar roads in all Inner Boroughs in the London area. The percentage of motorcycle casualties is 8% higher than the London average for inner boroughs. This situation should be monitored and if a further increase is noted then this should be addressed as a concern.

4.3.4. There were 10 collisions involving vulnerable road users. Two involving pedestrians, one that resulted in a serious injury to a pedestrian who was not paying due attention to the traffic and tried crossing the road haphazardly. Nine of the vulnerable user collisions resulted in slight collisions.

| FOREST HILL ROAD | 2013-14 | 2014-15 | 2015-16 | TOTALS |
|---------------------|---------|---------|---------|--------|
| Collisions per year | 6 | 6 | 2 | 14 |
| KSI per year | 0 | 1 | 0 | 1 |

Table 9: Collisions and KSI per year along Forest Hill Road

4.3.5. From Table 9 most collisions occurred in 2013-14 and 2014-15 with the number of collisions dropping in 2015-16.

| | Dry | Wet | TOTALS |
|-------------|------------|------------|------------|
| Light % | 6 42.9% | 3 21.4% | 9 64.3% |
| Dark % | 3 21.4% | 2 14.3% | 5 35.7% |
| TOTALS % | 9 64.3% | 5 35.7% | 14 100% |

Table 10: Collisions in Light/Dark and Dry/Wet conditions along Forest Hill Road (2013-2016)

4.3.6. From Table 10 above the majority of the collisions took place in daylight conditions and when the road surface was dry. The percentage of collisions in the dark is 35.7% and the percentage of collisions in the wet is 35.7%, these are greater than the expected percentages of 29.4% and 17.7% respectively when compared to the Table 3.5 for Inner Borough Roads (TfL, 2015). It is recommended that the road surface and street lighting provisions be reviewed along Forest Hill Road.

4.3.7. The main contributory factors for the collisions on Forest Hill Road are shown below in Table 11.

| Contributory Factor | Description | % |
|---------------------|---|-----|
| 405 | Failed To Look Properly (Driver/Rider) | 31% |
| 602 | Careless/Reckless/In A Hurry (Driver/Rider) | 14% |
| 403 | Poor Turn Or Manoeuvre | 11% |
| 302 | Disobeyed Give Way Or Stop Sign Or Markings | 6% |
| 802 | Failed To Look Properly (Pedestrian) | 6% |
| 808 | Careless/Reckless/In A Hurry (Pedestrian) | 6% |
| 306 | Exceeding Speed Limit | 3% |
| 406 | Failed To Judge Other Person's Path Or Speed | 3% |
| 408 | Sudden Braking | 3% |
| 409 | Swerved | 3% |
| 410 | Loss Of Control | 3% |
| 509 | Distraction In Vehicle | 3% |
| 701 | Vision Affected - Stationary Or Parked Vehicle(S) | 3% |
| 804 | Wrong Use Of Pedestrian Crossing Facility | 3% |
| 999 | Other Factor | 3% |

Table 11: Contributory factors for the collisions on Forest Hill Road

4.3.8. From Table 11 it can be seen that there was only one speed related collision (highlighted). The main contributory factors are the driver/rider failing to look properly, being careless/reckless/in a hurry and poor turn or manoeuvre.

4.4. Options

- 4.4.1. Option 1 – a raised junction treatment was proposed along with a raised crossing to reduce the traffic speeds by vertical deflection. These measures have been proposed at the southern end of Forest Hill Road where the high speed was recorded.
- 4.4.2. Option 2 – looked at introducing a sinusoidal road hump on the east of the junction with Brenchley Gardens and provide a raised crossing just west of the junction with Brenchley Gardens to provide vertical deflection to address the recorded speeding.

4.5. Recommendation

- 4.5.1. Option 1 was determined as the preferred option to be taken forward to reduce speeds by the provision of vertical deflections.

4.6. Estimated Costs

- 4.6.1. The estimated costs for the preferred option would be approximately £82,900 (See Appendix B).

5. Sydenham Hill

5.1. Existing Conditions

5.1.1. Sydenham Hill lies between Westwood Hill in the south and London Road in the north and is a boundary road with the London Borough of Lewisham (LB Lewisham). LBS is the highway authority for the section between Westwood Hill and the northern junction with Crescent Wood Road, for the remaining section Lewisham is the highway authority. The road connects the A205 road in the north-east at Forest Hill with the A212 road to the south-west at Crystal Palace. The length of the road is approximately 1.1km for which LBS is the highway authority. The remaining 0.9km falls within the LB Lewisham area of responsibility.

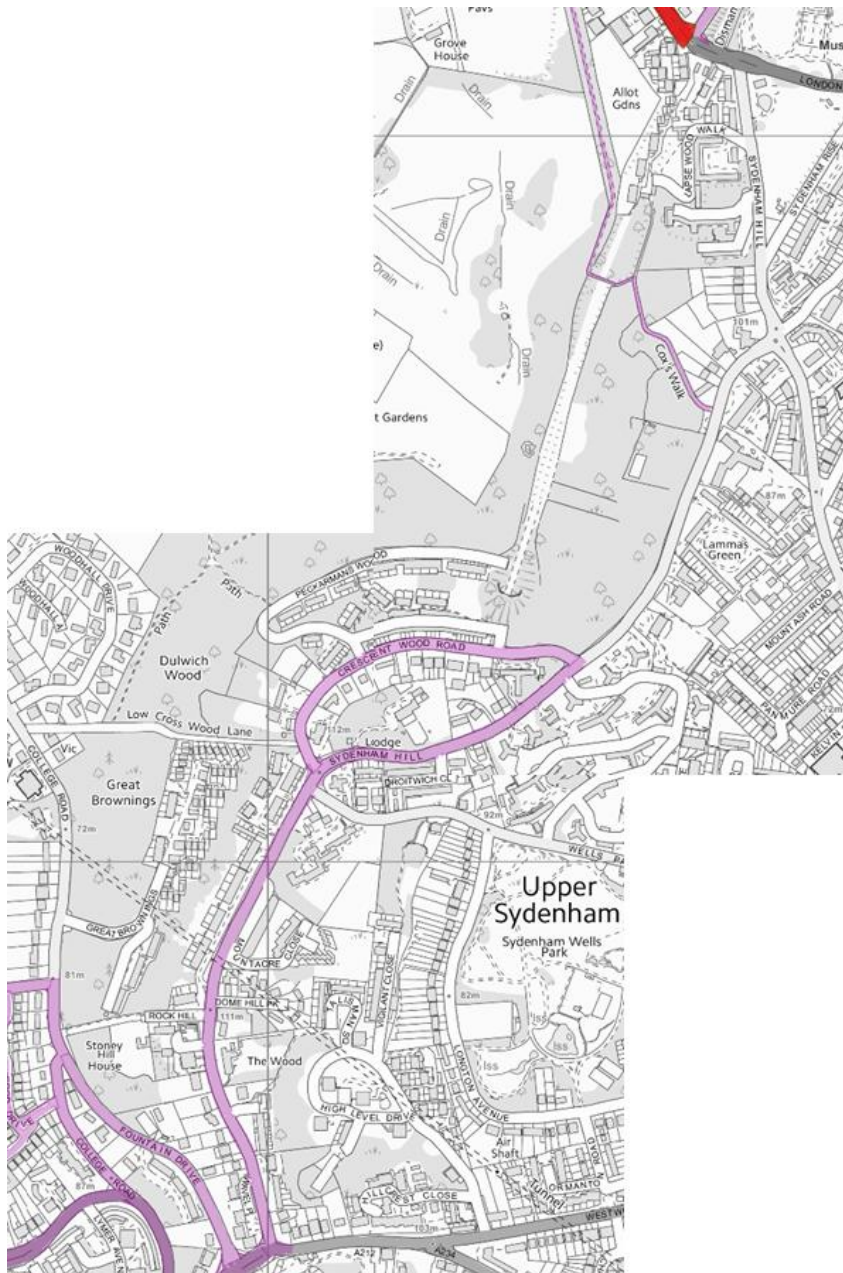


Figure 1: Plan showing Southwark adopted highway on Sydenham Hill (highlighted purple)

5.1.2. The road width varies between 7.7m to 14.3m at it widest point at the junction with London Road. The road does not have any traffic calming features, but there is a speed camera located near the junction with Mountacre Close.

5.1.3. Sydenham Hill is a bus route serviced by buses on routes 202, 356, 363, 931, and N63. The trip generators in vicinity of Sydenham Hill are Horniman Museum to the north, Sydenham Hill Railway Station, Sydenham Hill Wood nature reserve and Dulwich and Sydenham Hill Golf Course are located to the west.

5.1.4. The road environment is mainly residential in the south with the properties set some distance back from the road at the southern end. The remainder of the road gives the impression of being semi-rural in nature.

5.2. Speed Data

5.2.1. Speed surveys were carried out by LBS in three locations along Sydenham Hill in November 2015. The results indicate that speeding is problem in all three locations. The speeds are shown below in Table 12.

| ROADNAME | DIRECTION | MEAN | 85th PERCENTILE | LOCATION |
|---------------|-----------|------|-----------------|--|
| SYDENHAM HILL | NORTH | 26.0 | 30.9 | Approx. 165m north from j/w Westwood Hill (LBS) |
| SYDENHAM HILL | SOUTH | 24.8 | 29.8 | |
| AVERAGE | | 25.4 | 30.4 | |
| SYDENHAM HILL | EAST | 27.5 | 31.8 | Approx. 20m south from j/w Droitwich Close (LBS) |
| SYDENHAM HILL | WEST | 25.8 | 29.3 | |
| AVERAGE | | 26.7 | 30.6 | |
| SYDENHAM HILL | NORTH | 28.2 | 35.3 | Approx. 25m south from j/w Lapse Wood Walk (LB Lewisham) |
| SYDENHAM HILL | SOUTH | 23.4 | 28.2 | |
| AVERAGE | | 25.8 | 31.8 | |

Table 12: Traffic speeds in both directions on Sydenham Hill

5.2.2. It can be seen from Table 12 that speeding is an issue along Sydenham Hill. There is only once instance heading southbound from LB Lewisham probably due to the steep uphill gradient where it is within the 20mph speed limit.

5.3. Collision Analysis

- 5.3.1. From the collision data obtained there were a total of 25 collisions that occurred on Sydenham Hill between 1 July 2013 and 30 June 2016. However, there were seven that occurred at the junction with London Road, one that occurred in Lapse Wood Walk, and three at the junction with Westwood Hill. These 11 collisions have not been included in the analysis below, as they are considered to be heavily influenced by activities at the junctions and so fall outside of the scope of this study, which addresses the speeding issue on the link between the junctions.
- 5.3.2. The 14 collisions have resulted in 14 slight casualties. It should be noted that nine of these collisions occurred within Sydenham Hill where Lewisham is the highway authority. The analysis by mode of travel is shown below in Table 13.

| SYDENHAM HILL JULY 2013 - JUNE 2016 | 2013-14 | | | 2014-15 | | | 2015-16 | | | % Mode of Travel | % Inner borough roads |
|--|---------|---|----|---------|---|----|---------|---|----|---------------------|-----------------------------|
| | K | S | SI | K | S | SI | K | S | SI | | |
| 1 Pedestrian | | | | | | 2 | | | | 14.3% | 25.7% |
| 3 Powered 2 Wheeler | | | 2 | | | | | | 1 | 21.4% | 23.3% |
| 4 Car | | | 5 | | | 1 | | | 2 | 57.1% | 66.2% |
| 6 Bus Or Coach | | | 1 | | | | | | | 7.1% | 9.4% |
| TOTALS | | | 8 | | | 3 | | | 3 | 100% | |

Key: K – Killed; S – Serious; SI – Slight

Table 13: Casualties by mode of travel along Sydenham Hill

- 5.3.3. From Table 13 the percentages of collisions by mode of travel for Sydenham Hill, indicating that the levels of collisions for these road user types on Sydenham Hill are lower than the average that is experienced on similar roads in all Inner Boroughs in the London area.
- 5.3.4. There were five vulnerable user collisions, two that involved pedestrians and three involving motorcyclists. One involving the pedestrian occurred when the pedestrian stepped into the road and collided with a car, and in the other the pedestrian ran into the road.
- 5.3.5. With one of the motorcyclist collisions the collision data states that it “occurred when a speeding LGV caused the motorcyclist to brake and lose control because the LGV driver thought the motorcyclist wouldn't give way”. This description is unclear, however, the main cause appears to be speeding by the LGV. The second occurred when a car was performing a U-turn manoeuvre and the motorcyclist collided with the car. The final collision occurred when a car pulled out into the path of the motorcyclist.
- 5.3.6. From Table 14 it can be seen that the collisions along Sydenham Hill have declined over the three period and that there were no recorded fatalities or serious injuries reported.

| SYDENHAM HILL | 2013-14 | 2014-15 | 2015-16 | TOTALS |
|---------------------|---------|---------|---------|--------|
| Collisions per year | 8 | 3 | 3 | 14 |
| KSI per year | 0 | 0 | 0 | 0 |

Table 14: Collisions and KSI per year along Sydenham Road

| | Dry | Wet | TOTALS |
|-------------|-------------|------------|------------|
| Light % | 6 42.9% | 2 14.3% | 8 57.1% |
| Dark % | 4 28.6% | 2 14.3% | 6 42.9% |
| TOTALS % | 10 71.4% | 4 28.6% | 14 100% |

Table 15: Collision in Light/Dark and Dry/Wet conditions along Sydenham Hill (2013-2016)

5.3.7. From Table 15 the majority of the collisions took place in daylight conditions and when the road surface was dry. The percentage of collisions in the dark is 42.9% which is greater than the expected percentage of 29.4% and the percentage of collisions in the wet is 28.6%, which is greater than the expected percentage of 17.7% when compared to the Table 3.5 for Inner Borough Roads (TfL, 2015). This suggests that the street lighting provisions and condition of the road surface needs to be reviewed in conjunction with Lewisham Council.

5.3.8. The main contributory factors for the collisions on Sydenham Hill are shown in Table 16.

| Contributory Factor | Description | % |
|---------------------|---|-----|
| 405 | Failed To Look Properly (Driver/Rider) | 20% |
| 403 | Poor Turn Or Manoeuvre | 12% |
| 602 | Careless/Reckless/In A Hurry (Driver/Rider) | 12% |
| 410 | Loss Of Control | 7% |
| 307 | Travelling Too Fast For Conditions | 5% |
| 406 | Failed To Judge Other Person's Path Or Speed | 5% |
| 408 | Sudden Braking | 5% |
| 503 | Fatigue | 5% |
| 701 | Vision Affected - Stationary Or Parked Vehicle(s) | 5% |
| 802 | Failed To Look Properly (Pedestrian) | 5% |
| 808 | Careless/Reckless/In A Hurry (Pedestrian) | 5% |
| 402 | Junction Restart | 2% |
| 601 | Aggressive Driving | 2% |
| 603 | Nervous/Uncertain/ Panic | 2% |
| 605 | Inexperienced Or Learner Driver/Rider | 2% |
| 806 | Impaired By Alcohol | 2% |
| 999 | Other Factor | 2% |

Table 16: Contributory factors for the collisions on Sydenham Hill

5.3.9. The main contributory factor involved factors are failing to look properly, poor turn or manoeuvres, being careless/reckless/in a hurry. Two of the collisions were speed related (highlighted).

5.4. Options

- 5.4.1. Option 1 – proposed three traffic islands and widening two existing crossing points to providing horizontal deflections to reduce traffic speeds. Raising three existing zebra crossings and providing a raised junction treatment was also proposed to provide vertical deflections to reduce traffic speeds.
- 5.4.2. Option 2 – proposed four sinusoidal road humps and raising three existing zebra crossing to provide vertical deflections to reduce traffic speeds.

5.5. Recommendation

- 5.5.1. After discussion with LBS it was agreed to present an alternative design. The alternative design included introducing mini-roundabouts at the junctions with Wells Park Road and Crescent Wood Road and providing a segregated cycle lane heading southbound between the junctions of Bluebell Close and Wavel Place and raising the three existing zebra crossings. LBS to liaise with LB Lewisham regarding any measures on Sydenham Hill where LB Lewisham is the highway authority.

5.6. Estimated Costs

- 5.6.1. The estimated costs for the alternative design above in 5.5.1 would be approximately £158,100 (See Appendix B).

6. Brenchley Gardens

6.1. Existing Conditions

- 6.1.1. Brenchley Gardens is located between Forest Hill Road at its southern end and Brockley Way at the northern end and is approximately 1.1km long. The road consists of single lane carriageway with one traffic lane in each direction and is classified as a C Road. The road width varies between 7m to 9.7m wide.
- 6.1.2. There are some traffic calming features along Brenchley Gardens. These include a raised junction treatment at the junction with Kelvington Grove and a speed camera approximately 60m south of this junction, as well as a number of uncontrolled pedestrian crossing points incorporating refuge islands spaced intermittently along the length of the road.
- 6.1.3. Brenchley Gardens is a bus route served by bus route P12. It is a boundary road between LBS and the London Borough of Lewisham. There are several trip generators along Brenchley Gardens, these including One Tree Hill Local Nature Reserve, the Aquarius Golf Club and the Camberwell New Cemetery. There are residential properties located at either end of Brenchley Gardens.

6.2. Speed Data

- 6.2.1. Speed surveys carried out by LBS along Brenchley Gardens in November 2015 indicated that vehicles were exceeding the 20mph speed limit. The mean speed was 26.5mph and the 85th percentile was 31.1mph. The speeds for northbound and southbound traffic are shown below in Table 17, and indicate that speeds in either direction are well above the 20mph speed limit.

| ROADNAME | DIRECTION | MEAN SPEED (mph) | 85th PERCENTILE SPEED (mph) |
|-------------------|-----------|------------------|-----------------------------|
| BRENCHLEY GARDENS | NORTH | 26.6 | 31.3 |
| BRENCHLEY GARDENS | SOUTH | 26.3 | 30.9 |
| AVERAGE | | 26.5 | 31.1 |

Table 17: Traffic speeds in both directions on Brenchley Gardens

6.3. Collision Analysis

6.3.1. There have been seven collisions that have resulted in eight casualties for the period between 1 July 2013 and 30 June 2016. It was observed that none of the collisions were speed related. The analysis by mode is shown below in Table 18.

| BRENCHLEY GARDENS JULY 2013 - JUNE 2016 | 2013-14 | | | 2014-15 | | | 2015-16 | | | % Mode of Travel | % Inner borough roads |
|--|---------|---|----|---------|---|----|---------|---|----|---------------------|-----------------------------|
| | K | S | SI | K | S | SI | K | S | SI | | |
| 1 Pedestrian | | 1 | 1 | | | | | | | 25.0% | 25.7% |
| 2 Pedal Cycle | | | | | | 2 | | | 1 | 37.5% | 29.7% |
| 4 Car | | | 3 | | | | | | | 37.5% | 66.2% |
| TOTALS | | 1 | 4 | | | 2 | | | 1 | 100% | |

Key: K – Killed; S – Serious; SI – Slight

Table 18: Casualties by mode of travel along Brenchley Gardens

6.3.2. From Table 18 the percentages of collisions by mode of travel for Brenchley Gardens indicate that the levels of collisions for pedestrians and car users on Brenchley Gardens are lower than averages experienced on similar roads in all inner London boroughs. The percentage of casualties involving cyclists was higher compared to inner London averages. However due to the low number of collisions and associated casualties at Brenchley Gardens this is not considered to be representative of a specific safety issue for cyclists on Brenchley Gardens.

6.3.3. Two of the collisions occurred on Forest Hill Road at the junction with Brenchley Gardens and the remaining five occurred close to junctions along Brenchley Gardens. These collisions have not been included in the analysis below, as they are considered to be heavily influenced by activities at the junctions and so fall outside of the scope of this study, which addresses the speeding issue on the link between the junctions.

6.3.4. There were five vulnerable user casualties, one that resulted in a serious injury to a pedestrian. The analysis of the serious collisions shows pedestrians crossing the road some distance away from the Zebra crossing. The remaining four casualties were slight involving three cyclists and one pedestrian as shown in Table 18 above.

| BRENCHLEY GARDENS | 2013-14 | 2014-15 | 2015-16 | TOTALS |
|---------------------|---------|---------|---------|--------|
| Collisions per year | 4 | 2 | 1 | 7 |
| KSI per year | 1 | 0 | 0 | 1 |

Table 19: Collisions and KSI per year along Brenchley Gardens

6.3.5. It can be seen from Table 19 above that the highest number of collisions occurred in 2014 with a reduction in collisions over the three year period. Only one KSI was recorded in 2013-14 before the implementation of the 20mph borough wide scheme.

6.3.6. From Table 20 below, the majority of the collisions took place in daylight conditions and when the road surface was dry. The percentage of collisions in the dark is 28.6% and the percentage of collisions in the wet is 14.3%, these are less than the expected percentages of 29.4% and 17.7% respectively when compared to the Table 3.5 for Inner Borough Roads (TfL, 2015).

| | Dry | Wet | TOTALS |
|-------------|------------|------------|------------|
| Light % | 5 71.4% | 0 0% | 5 71.4% |
| Dark % | 1 14.3% | 1 14.3% | 2 28.6% |
| TOTALS % | 6 85.7% | 1 14.3% | 7 100% |

Table 20: Collisions in Light/Dark and Dry/Wet conditions along Brenchley Gardens (2013-2016)

6.3.7. The main contributory factors for the collisions on Brenchley Gardens are shown below in Table 21.

| Contributory Factor | Description | % |
|---------------------|---|-----|
| 405 | Failed To Look Properly (Driver/Rider) | 31% |
| 403 | Poor Turn Or Manoeuvre | 19% |
| 802 | Failed To Look Properly (Pedestrian) | 13% |
| 808 | Careless/Reckless/In A Hurry (Pedestrian) | 13% |
| 402 | Junction Restart | 6% |
| 406 | Failed To Judge Other Person's Path Or Speed (Driver/Rider) | 6% |
| 801 | Crossed Road Masked By Stationary Or Parked Vehicle | 6% |
| 904 | Vehicle Door Opened Or Closed Negligently | 6% |

Table 21: Contributory factors for the collisions on Brenchley Gardens

6.3.8. From Table 21 it can be seen that there are no speed related collisions. The collisions occurred due to the driver/rider failing to look properly or poor turn or manoeuvre and due to pedestrians not looking properly and being careless/reckless/in a hurry when crossing the road.

6.4. Options

6.4.1. Two options were investigated to mitigate the excessive speeds along Brenchley Gardens.

6.4.2. Option 1 – Introduction of one additional traffic island located near the junction with Brockley Rise and the introduction of a new raised Zebra crossing. Also, it was proposed to incorporate a raised table with the existing Zebra crossing by the entrance to the cemetery and apply a similar treatment to the three existing crossing points. This would provide vertical deflection to reduce traffic speeds and also highlight the crossing points. The existing raised junction treatment at the junction with Kelvington Road would be retained.

6.4.3. Option 2 – Installation of additional 20mph roundel markings, raising the existing Zebra crossing and providing a new Zebra crossing between the bus stops near the junction with Brockley Rise. A sinusoidal road hump was proposed near to the location of the speed survey in order to reduce the downhill speeds towards Brockley Way.

6.5. Recommendation

6.5.1. After discussion with LBS it was agreed to present an alternative design that incorporated the two raised zebra crossings (one existing and one new) from Option 1, but replaced the proposed raised crossings points with chicanes to provide horizontal deflection to reduce traffic speed along Brenchley Gardens. Option 2 was rejected as it was considered that it included too many raised features for a bus route.

6.6. Estimated Costs

6.6.1. The estimated costs for the alternative design above in 6.5.1 would be approximately £82,900. (See Appendix B).

7. Croxted Road

7.1. Existing Conditions

7.1.1. Croxted Road lies on the borough boundary with the London Borough of Lambeth. The section that falls within LBS is between the junction with Thurlow Park Road at the northern end and Park Hall at the southern end. The length of the road is approximately 0.6km. The road consists of single lane carriageway with one traffic lane in each direction and is classified as an A Road and is part of the A2199. The width of the road varies between 9m to 11m wide. There is no traffic calming along this stretch of the road.

7.1.2. Croxted Road is serviced by buses on routes 3 and N3. There are trip generators with West Dulwich Station near the junction with Thurlow Park Road and there is a shopping area located at the junction with Park Hall. Croxted Road is predominantly a residential street with a large number of flats and quiet mews. During the site visit it was observed that there was significant on-street parking along the entire length of the road, as few properties have off-street parking restrictions.

7.2. Speed Data

7.2.1. Speed surveys carried out by LBS along Croxted Road in November 2015 indicated that vehicles are exceeding the 20mph speed limit. The mean speed was 25.3mph and the 85th percentile was 30.5mph. The speeds recorded for both directions show that speeding is a problem (see Table 22).

| ROADNAME | DIRECTION | MEAN SPEED (mph) | 85th PERCENTILE SPEED (mph) |
|--------------|-----------|------------------|-----------------------------|
| CROXTED ROAD | NORTH | 24.7 | 29.8 |
| CROXTED ROAD | SOUTH | 25.9 | 31.1 |
| AVERAGE | | 25.3 | 30.5 |

Table 22: Traffic speeds in both directions on Croxted Road

7.3. Collision Analysis

7.3.1. The collision data obtained showed there were eight collisions along Croxted Road in a three year period, however, one of these has occurred on South Croxted Road. Three have occurred at the junction with Park Hall Road. These collisions have not been included in the analysis below, as they are considered to be influenced by activities at the junctions and so fall outside of the scope of this study, which addresses the speeding issue on the link between the junctions.

7.3.2. There were four collisions along Croxted Road that resulted in four casualties for the period from 1 July 2013 to 30 June 2016. The analysis by mode of travel is shown below in Table 23.

| CROXTED ROAD JULY 2013 - JUNE 2016 | 2013-14 | | | 2014-15 | | | 2015-16 | | | % Mode of Travel | % Inner borough roads |
|---------------------------------------|---------|---|----|---------|---|----|---------|---|----|------------------|-----------------------|
| | K | S | SI | K | S | SI | K | S | SI | | |
| 1 Pedestrian | | | 1 | | | | | | | 25.0% | 25.7% |
| 3 Powered 2 Wheeler | | | | | | | | 1 | | 25.0% | 29.7% |
| 4 Car | | 1 | | | | | | | 1 | 50.0% | 66.2% |
| TOTALS | | 1 | 1 | | | | | 1 | 1 | 100% | |

Key: K – Killed; S – Serious; SI – Slight

Table 23: Casualties by mode of travel along Croxted Road

7.3.3. From Table 23 the percentages of collisions by mode of travel for Croxted Road, indicating that the levels of collisions for these road user types on Croxted Road are lower than the average that is experienced on similar roads in all Inner Boroughs in the London area.

7.3.4. There were two collisions involving vulnerable road users. One involved a pedestrian being hit stepping on to the Zebra crossing and a motorcyclist braking suddenly and falling off his bike resulting in a serious injury.

| CROXTED ROAD | 2013-14 | 2014-15 | 2015-16 | TOTALS |
|---------------------|---------|---------|---------|--------|
| Collisions per year | 2 | 0 | 2 | 4 |
| KSI per year | 1 | 0 | 1 | 2 |

Table 24: Collisions and KSI per year along Croxted Road

7.3.5. From Table 24 the recorded collisions are low and there is little variance over the three year period. There were a total of two KSIs overall recorded in 2013/14 and 2015/16.

7.3.6. From Table 25 below, the percentage of collisions in the dark is 100% and the percentage of collisions in the wet is 50%, these are greater than the expected percentages of 29.4% and 17.7% respectively when compared to the Table 3.5 for Inner Borough Roads (TfL, 2015). However, due to the number of collisions, this is not considered to be a representative sample of these specific issues relating to hours of darkness and road surface conditions. This suggests that the street lighting conditions and road surface will need to be reviewed along Croxted Road.

| | Dry | Wet | TOTALS |
|--------|-----|-----|--------|
| Light | 0 | 0 | 0 |
| % | 0% | 0% | 0% |
| Dark | 2 | 2 | 4 |
| % | 50% | 50% | 100% |
| TOTALS | 2 | 2 | 4 |
| % | 50% | 50% | 100% |

Table 25: Collisions in Light/Dark and Dry/Wet conditions along Croxted Road (2013-2016)

7.3.7. The main contributory factors for the collisions on Croxted Road are shown below in Table 26.

| Contributory Factor | Description | % |
|---------------------|---|-----|
| 410 | Loss Of Control | 38% |
| 405 | Failed To Look Properly (Driver/Rider) | 25% |
| 409 | Swerved | 13% |
| 802 | Failed To Look Properly (Pedestrian) | 13% |
| 808 | Careless/Reckless/In A Hurry (Pedestrian) | 13% |

Table 26: Contributory factors for the collisions on Croxted Road

7.3.8. From Table 26 it can be seen that there are no speed related collisions. The collisions occurred due to driver/rider losing control, failing to look properly and swerving. The pedestrians involved failed to look properly and were careless/reckless/in a hurry.

7.4. Options

7.4.1. Option 1 – included the introduction of additional roundels and two traffic islands to reduce the width of the available carriageway thereby reducing traffic speeds through provision of horizontal deflections. This would also require the introduction of parking restrictions around the traffic islands to ensure the approaches remain free of obstructions.

7.4.2. Option 2 – proposed four sinusoidal road humps to provide vertical deflection to mitigate traffic speeds. This may divert traffic to parallel residential streets. As Croxted Road is a bus route this option is not being taken forward.

7.5. Recommendation

7.5.1. In the discussions held with LBS Option 1 was the preferred option but raising the existing Zebra crossing was included in the design.

7.6. Estimated Costs

7.6.1. The estimated costs for the preferred option including raising the existing Zebra crossing would be £32,700 (See Appendix B).

8. Plough Way

8.1. Existing Conditions

8.1.1. Plough Way lies between Lower Road in the west and the River Thames towards the east. LBS is the highway authority for Plough Way from Lower Road up to approximately 25m east of the junction with Sweden Gate as shown below in

8.1.2. Figure 2. London Borough of Lewisham is the highway authority for the remainder of the road eastbound.

8.1.3. The total length of the road is approximately 0.9km, however, LBS is the highway authority for only the westernmost 0.46km. The road width varies between 7.8m and 9.3m. The road consists of single lane carriageway in each direction and is classified as a B road forming the B206. There are some shops at the western end of Plough Way with residential properties above; the remainder of the road is predominantly residential in nature.

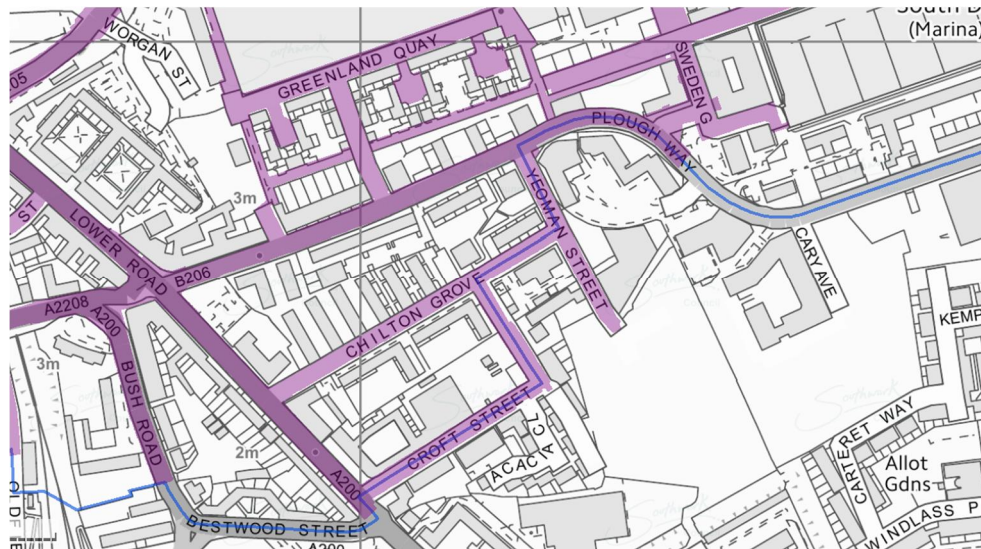


Figure 2: Southwark adopted highway on Plough Way

8.1.4. Plough Way is serviced by buses on routes 199 and N199. There are several trip generators within the vicinity of Plough Way with National Rail Surrey Quays station (to the north) and National Rail and London Underground Canada Water Station (Jubilee Line) to the north, Tesco Surrey Quays Mall located just off Redriff Road to the north, and Tesco Marine Wharf located in Plough Way.

8.2. Speed Data

8.2.1. A speed survey carried out by LBS in Plough Way in November 2015 indicated that vehicles were exceeding the 20mph speed limit. The results indicate that speeding was only a significant problem eastbound as shown below in Table 27. The two-way mean speed was 24.2mph and the 85th percentile was 29.8mph.

| ROADNAME | DIRECTION | MEAN | 85th PERCENTILE |
|------------|-----------|------|-----------------|
| PLOUGH WAY | EAST | 25.3 | 30.6 |
| PLOUGH WAY | WEST | 23.1 | 28.9 |
| AVERAGE | | 24.2 | 29.8 |

Table 27: Traffic speeds in both directions on Plough Way

8.3. Collision Analysis

8.3.1. From the collision data obtained there were a total of eight collisions along Plough Way for the period between 1 July 2013 and 30 June 2016. However, four of these collisions occurred at the junction with Lower Road. These collisions have not been included in the analysis below, as they are considered to be heavily influenced by activities at the junctions and so fall outside of the scope of this study, which addresses the speeding issue on the link between the junctions.

8.3.2. There were three collisions along Plough Way that resulted in three casualties for the period from 1 July 2013 to 30 June 2016. The analysis by mode of travel is shown below in Table 28.

| PLOUGH WAY JULY 2013 - JUNE 2016 | 2013-14 | | | 2014-15 | | | 2015-16 | | | % Mode of Travel | % inner borough oads |
|-------------------------------------|---------|---|----|---------|---|----|---------|---|----|------------------|----------------------|
| | K | S | SI | K | S | SI | K | S | SI | | |
| 2 Pedal Cycle | | | | | | 1 | | | | 33.3% | 29.7% |
| 3 Powered 2 Wheeler | | | 2 | | | | | | | 66.7% | 23.3% |
| TOTALS | | | 2 | | | 1 | | | | 100% | |

Key: K – Killed, S – Serious, SI – Slight

Table 28: Casualties by mode of travel along Plough Way

8.3.3. From Table 28 the percentage of casualties involving cyclists and motorcyclists is higher than the London average for inner boroughs, however due to the low number of collisions and associated casualties on Plough Way this is not considered to be representative of a safety issue for cyclists on Plough Way.

8.3.4. All three collisions involved vulnerable road users. One involved a cyclist not looking properly and riding off the footway onto the carriageway and collided with a car. The other involving a motorcyclist, where a car pulled off from the kerb and the driver not looking properly collided with a motorcyclist. All the collisions resulted in slight injuries.

| PLOUGH WAY | 2013-14 | 2014-15 | 2015-16 | TOTALS |
|---------------------|---------|---------|---------|--------|
| Collisions per year | 2 | 1 | 0 | 3 |
| KSI per year | 0 | 0 | 0 | 0 |

Table 29: Collisions and KSI per year along Plough Way

8.3.5. From Table 29 the collisions on Plough Way are low and the trend shows that they have declined over the period along Plough Way. There were no KSIs recorded over the three year period.

8.3.6. From Table 30 it can be seen that the majority of the collisions took place in daylight conditions and when the road surface was dry. The percentage of collisions in the dark is 0% which is less than the expected percentage of 29.4% and the percentage of collisions in the wet is 33.3%, which is greater than the expected percentage of 17.7% when compared to the Table 3.5 for Inner Borough Roads (TfL, 2015). This suggests that the condition of the road surface needs to be reviewed. However, due to the number of collisions, this is not considered to be a representative sample of the specific issues relating to road surface conditions.

| | Dry | Wet | TOTALS |
|-------------|------------|------------|-----------|
| Light % | 2 66.7% | 1 33.3% | 3 100% |
| Dark % | 0 0% | 0 0% | 0 0% |
| TOTALS % | 2 66.7% | 1 33.3% | 3 100% |

Table 30: Collisions in Light/Dark and Dry/Wet conditions along Plough Way (2013-2016)

8.3.7. The main contributory factors for the two collisions on Plough Way are shown below in Table 31 below

| Contributory Factor | Description | % |
|---------------------|---|-----|
| 405 | Failed To Look Properly (Driver/Rider) | 44% |
| 602 | Careless/Reckless/In A Hurry (Driver/Rider) | 33% |
| 409 | Swerved | 11% |
| 410 | Loss Of Control | 11% |

Table 31: Contributory factors for the collisions on Plough Way

8.3.8. It can be seen from the three collisions that occurred the main causation factors were failing to look properly and careless/reckless/in a hurry.

8.4. Options

8.4.1. Option 1 - included the introduction of two traffic islands to reduce vehicle speeds by providing horizontal traffic calming. This would negatively impact parking as waiting restrictions would need to be introduced around the traffic islands to ensure buses and HGVs could pass the islands.

8.4.2. Option 2 – proposed five sinusoidal road humps to provide vertical deflection to reduce traffic speeds. As Plough Way is a bus route.

8.5. Recommendation

8.5.1. Option 1 was determined as the preferred option to be taken forward to reduce speeds by the provision of horizontal deflections. Option 2 was rejected as it was considered that it included too many raised features for a bus route.

8.6. Estimated Costs

8.6.1. The estimated costs for the preferred option would be approximately £13,500 (See Appendix B).

9. Redriff Road

9.1. Existing Conditions

- 9.1.1. Redriff Road lies between Lower Road in the west and on the east side leads into Salter Road (see Chapter 11). The length of the road is approximately 1km and forms part of the B205. The road starts from the junction with Lower Road as a four lane single carriageway, with two lanes in each direction. East of the signalised junction with Worgan Street it narrows to a single lane in each direction. The road width varies in width from 6.5m to 15.5m.
- 9.1.2. On Redriff Road there are signalised junctions at the Lower Road end and at junction with Worgan Street, mini-roundabouts at the junctions with Surrey Quays Road, and Quebec Way and a zebra crossing just north of the junction with Surrey Quays Road. There are no traffic calming features along Redriff Road.
- 9.1.3. Redriff Road is a bus route serviced by buses on routes 381, C10 and N381. The trip generators are London Overground Rotherhithe station (to the north), the National Rail and London Underground Canada Water station (Jubilee Line) and the National Rail Surrey Quays station (to the south). There is Surrey Quays Shopping Centre, Odeon Cinema, bowling alley and a Gala Bingo.
- 9.1.4. The road environment is mainly residential with flats and houses offset some distant from the footway.

9.2. Speed Data

- 9.2.1. Speed survey carried out by LBS on Redriff Road in November 2015 indicated that vehicles were exceeding the 20mph speed limit. The results indicate that speeding is only a significant problem southbound as shown in Table 32 below. The mean speed was 24.9mph and the 85th percentile was 29.6mph

| ROADNAME | DIRECTION | MEAN | 85th PERCENTILE |
|------------|-----------|------|-----------------|
| REDRIFF RD | NORTH | 23.5 | 27.7 |
| REDRIFF RD | SOUTH | 26.2 | 31.5 |
| AVERAGE | | 24.9 | 29.6 |

Table 32: Traffic speeds in both directions on Redriff Road

9.3. Collision Analysis

- 9.3.1. From the collision data obtained there were a total of five collisions on Redriff Road for the period between 1 July 2013 and 30 June 2016. The analysis by mode of travel is shown below in Table 33 below.

| REDRIFF ROAD JULY 2013 - JUNE 2016 | 2013-14 | | | 2014-15 | | | 2015-16 | | | % Mode of Travel | % Inner borough roads |
|---------------------------------------|---------|---|----|---------|---|----|---------|---|----|------------------|-----------------------|
| | K | S | SI | K | S | SI | K | S | SI | | |
| 1 Pedestrian | | | 1 | | | | | | | 16.7% | 25.7% |
| 3 Powered 2 Wheeler | | | 1 | | | 1 | | | | 33.3% | 23.3% |
| 4 Car | | | 1 | | | | | | 2 | 50.0% | 66.2% |
| TOTALS | | | 3 | | | 1 | | | 2 | 100% | |

Key: K – Killed, S – Serious, SI – Slight

Table 33: Casualties by mode of travel along Redriff Road

9.3.2. From Table 33 the percentages of collisions by mode of travel for Redriff Road, indicating that the levels of collisions for pedestrians and cars users on Redriff Road are lower than the average that is experienced on similar roads in all Inner Boroughs in the London area. The percentage of casualties involving motorcyclists was higher than the London average for inner boroughs, however due to the low number of collisions and associated casualties on Redriff Road this is not considered to be representative of a safety issue for motorcyclists on Redriff Road.

9.3.3. There were three collisions that involved vulnerable road users. The casualties were all slight. The pedestrian collision occurred when the pedestrian was trying to board a bus but the bus moved off resulting in the pedestrian falling over. Two vulnerable user collisions involved motorcyclists, one where the car collided with a stationary motorcycle causing injury to the rider. The other occurred at the junction Worgan Street with both vehicles making right turn manoeuvres and colliding, resulting in a slight injury to the motorcyclist.

| REDRIFF ROAD | 2013-14 | 2014-15 | 2015-16 | TOTALS |
|---------------------|---------|---------|---------|--------|
| Collisions per year | 3 | 1 | 1 | 5 |
| KSI per year | 0 | 0 | 0 | 0 |

Table 34: Collisions and KSI per year along Redriff Road

9.3.4. From Table 34 most collisions occurred in 2013-14, and the number of collisions in the following years have declined. There were no KSIs reported on Redriff Road.

| | Dry | Wet | TOTALS |
|--------|------|-----|--------|
| Light | 4 | 0 | 4 |
| % | 80% | 0% | 80% |
| Dark | 1 | 0 | 1 |
| % | 20% | 0% | 20% |
| TOTALS | 5 | 0 | 5 |
| % | 100% | 0% | 100% |

Table 35: Collisions in Light/Dark and Dry/Wet conditions along Redriff Road (2013-2016)

9.3.5. From Table 35 above the majority of the collisions took place in daylight conditions and when the road surface was dry. The percentage of collisions in the dark is 20% which is less than the expected percentage of 29.4% and the percentage of collisions in the wet is 0%, which is less than the expected percentage of 17.7% when compared to the Table 3.5 for Inner Borough Roads (TfL, 2015).

9.3.6. The main contributory factors for the collisions on Redriff Road are shown below in Table 36.

| Contributory Factor | Description | % |
|---------------------|---|-----|
| 405 | Failed To Look Properly (Driver/Rider) | 43% |
| 602 | Careless/Reckless/In A Hurry (Driver/Rider) | 29% |
| 307 | Travelling Too Fast For Conditions | 7% |
| 308 | Following Too Close | 7% |
| 808 | Careless/Reckless/In A Hurry (Driver/Rider) | 7% |
| 904 | Vehicle Door Opened Or Closed Negligently | 7% |

Table 36: Contributory factors for the collisions on Redriff Road

9.3.7. There was a single collision involving speeding on Redriff Road when a car hit the back of another car. The main contributory factors being failing to look properly and being careless/reckless/in a hurry.

9.4. Options

9.4.1. Option 1 - proposed the introduction of three traffic islands to reduce vehicle speeds by providing horizontal traffic calming measures and to raise the zebra existing crossing just west of junction with Brunswick Quay. This last proposal would provide a vertical deflection to reduce vehicular speeds.

9.4.2. Option 2 - proposed three sinusoidal road humps to provide vertical deflection to reduce traffic speeds. Along with the proposal to raise and lengthen the existing signalised crossing.

9.5. Recommendation

9.5.1. Option 1 was determined as the preferred option to be taken forward to reduce speeds by the provision of horizontal deflections and the raising the existing crossing providing a single vertical deflection feature. Option 2 was rejected as it was considered that it included too many raised features for a bus route.

9.6. Estimated Costs

9.6.1. The estimated costs for the preferred option would be approximately £25,200 (See Appendix B).

10. Dulwich Wood Park

10.1. Existing Conditions

10.1.1. Dulwich Wood Park lies near the borough boundary with the London Borough of Lambeth at its western end (at the Paxton Green Roundabout) with an upward gradient to the junction with College Road at its eastern end. The length of the road is approximately 1km and forms part of the A2199. The road at the western end is a single lane carriageway with one lane in each direction but then widens to a dual carriageway for the section 100m either side of the junction with Farquhar Road. The dual carriageway section is generally marked as one lane in each direction, with a cycle lane provided in the eastbound carriageway. The road changes in alignment with bends east of Farquhar Road, and drivers were observed to travel at inappropriate speeds over this steeply inclined section.

10.1.2. Dulwich Wood Park is serviced by buses on routes 3, 450, 931 and N3. The trip generators in the vicinity of Dulwich Wood Park are the Gipsy Hill and Sydenham Hill Stations, St Margaret Clitherow Church and Crystal Palace Park. The land use in the areas is predominantly residential with a number of high rise flats.

10.2. Speed Data

10.2.1. Speed surveys carried out by LBS along Dulwich Wood Park in November 2015 indicated that vehicles are exceeding the 20mph speed limit. The mean speeds were taken along the dual carriageway section of the road in both directions. The mean speed eastbound was 27.7mph and the 85th percentile was 32.2mph, the mean speed westbound was 23.5mph and the 85th percentile was 28.6mph. The speeds are shown below in Table 37 showing that the most significant problem is with eastbound vehicles speeding uphill through the dual carriageway section and the approach to College Road.

| ROADNAME | DIRECTION | MEAN SPEED (mph) | 85th PERCENTILE SPEED (mph) |
|-------------------|-----------|------------------|-----------------------------|
| DULWICH WOOD PARK | EAST | 27.7 | 32.2 |
| DULWICH WOOD PARK | WEST | 23.5 | 28.6 |
| AVERAGE | | 25.6 | 30.4 |

Table 37: Traffic speeds in both directions on Dulwich Wood Park

10.3. Collision Analysis

10.3.1. The collision data obtained showed there were eight collisions along Dulwich Wood Park, however, three of these occurred on the Paxton Green Roundabout, one occurred in the junction of Dulwich Wood Avenue and one occurred on College Road. These collisions mentioned have not been included in the analysis below, as they are considered to be heavily influenced by activities at the junctions and so fall outside of the scope of this study, which addresses the speeding issue on the link between the junctions.

10.3.2. There were three collisions along Dulwich Wood Park that resulted in four casualties for the period from 1 July 2013 to 30 June 2016. The analysis by mode of travel is shown below in Table 38.

| DULWICH WOOD PARK JULY 2013 - JUNE 2016 | 2013-14 | | | 2014-15 | | | 2015-16 | | | % Mode of Travel | % Inner borough roads |
|--|---------|---|----|---------|---|----|---------|---|----|------------------|-----------------------|
| | K | S | SI | K | S | SI | K | S | SI | | |
| 3 Powered 2 Wheeler | | | | | | | | | 1 | 25.0% | 23.3% |
| 4 Car | | | | | | 2 | | | 1 | 75.0% | 66.2% |
| TOTALS | | | | | | 2 | | | 2 | 100% | |

Key: K – Killed; S – Serious; SI – Slight

Table 38: Casualties by mode of travel along Dulwich Wood Park

10.3.3. From Table 38 the percentages of collisions by mode of travel for Dulwich Wood Park, indicating that the levels of collisions for motorcyclists and cars users on Dulwich Wood Park are greater than the average that is experienced on similar roads in all inner London boroughs. The percentage of casualties involving motorcyclists and cars was higher than the London average for inner boroughs, however due to the low number of collisions and associated casualties at Dulwich Wood Park this is not considered to be representative of a safety issue on Dulwich Wood Park.

10.3.4. There was only one collision involving a vulnerable road user, a motorcyclist who was speeding hit the back of a stationary vehicle. This resulted in a slight injury to the motorcyclist.

10.3.5. It can be seen from Table 39 below that three collisions have occurred overall with two in 2015 and one in 2016. The number of collisions is low and there is little variance over the three year period. There have been no KSIs recorded for Dulwich Wood Park.

| DULWICH WOOD PARK | 2013-14 | 2014-15 | 2015-16 | TOTALS |
|---------------------|---------|---------|---------|--------|
| Collisions per year | 0 | 1 | 2 | 3 |
| KSI per year | 0 | 0 | 0 | 0 |

Table 39: Collisions and KSI per year along Dulwich Wood Park

10.3.6. From Table 40 below, all the collisions occurred in daylight conditions, and one occurred when it was raining. The percentage of collisions in the dark is 0% and the percentage of collisions in the wet is 33.3%. The collisions in the night are less than the expected percentage of 29.4%. However the collisions in wet conditions are greater than the expected 17.7% when compared to the Table 3.5 for Inner Borough Roads (TfL, 2015). However, due to the number of collisions, this is not considered to be a representative sample of these specific issues relating to hours of darkness and road surface conditions.

| | Dry | Wet | TOTALS |
|-------------|------------|------------|-----------|
| Light % | 2 66.7% | 1 33.3% | 3 100% |
| Dark % | 0 0% | 0 0% | 0 0% |
| TOTALS % | 2 66.7% | 1 33.3% | 3 100% |

Table 40: Collisions in Light/Dark and Dry/Wet conditions along Dulwich Wood Park (2013-2016)

10.3.7. The main contributory factors for the collisions on Dulwich Wood Park are shown below in Table 41.

| Contributory Factor | Description | % |
|---------------------|--|-----|
| 405 | Failed To Look Properly (Driver/Rider) | 29% |
| 308 | Following Too Close | 29% |
| 406 | Failed To Judge Other Person's Path Or Speed | 14% |
| 307 | Travelling Too Fast For Conditions | 14% |
| 602 | Careless/Reckless/In A Hurry (Driver/Rider) | 14% |

Table 41: Contributory factors for the collisions on Dulwich Wood Park

10.3.8. From Table 41 it can be seen that there was a speed related collision (highlighted). The other contributory factors for the collision occurred due to the driver/rider failing to judge the other person's path or speed, and being careless/reckless/in a hurry.

10.3.9. The contributory factor 602 Careless/Reckless/In a Hurry is mainly down to driver behaviour or inexperience and helps to explain why a drivers/rider's actions contributed to the accident and can be considered as speeding.

10.4. Options

10.4.1. Only one design was prepared for this road, as the layout and gradient restricted the options that could be introduced. The initial design for Dulwich Wood Park included raising existing crossing points to provide vertical deflection to reduce traffic speeds. Extending the grassed median to narrow the eastbound traffic lane width and building out the footway westbound to reduce the road width and remove the descending left turn lane into Farquhar Road. LBS requested additional features to be introduced.

10.5. Recommendation

10.5.1. The amended proposal included making the existing uphill eastbound cycle lane into a segregated cycle lane through the dual carriageway section of Dulwich Wood Park and raised junction treatments at Baird Gardens and Farquhar Road to reduce vehicle speeds

10.6. Estimated Costs

10.6.1. The estimated costs for the recommended would be approximately £194,400 (See Appendix B).

11. Salter Road

11.1. Existing Conditions

11.1.1. Salter Road lies between Brunel Road in the north and extends into Redriff Road in the south (See Chapter 9) as shown highlighted in Figure 3 below. The length of the road is approximately 3.7km. The road consists of single lane carriageway with one traffic lane in each direction and is classified as a C road. The road width varies between 6.5m to 7.5m.

11.1.2. There are no traffic calming features, however, there are zebra crossings, numerous 20mph roundels and slow markings and opposite the junction with Norway Gate there is a speed camera.

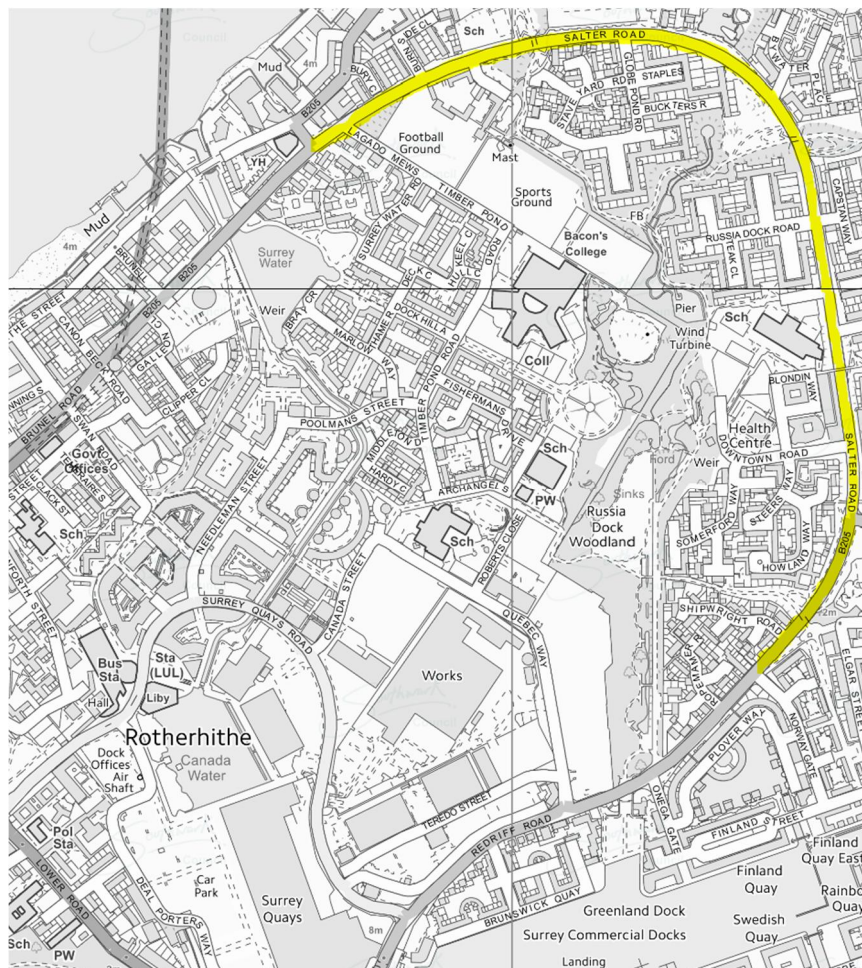


Figure 3: Salter Road

11.1.3. Salter Road is serviced by bus routes 381 and N381. There are several trip generators in the area namely London Overground Rotherhithe station (to the west), the National Rail and London Underground Canada Water station and the National Rail Surrey Quays station (to the south). There is Surrey Quays Shopping Centre, Odeon Cinema, bowling alley and a Gala Bingo.

11.1.4. The road environment is mainly residential with flats and houses set some distance back from the road. Salter Road was built in the 1980s, to improve access to the Rotherhithe peninsula. At the time, the peninsula was undergoing regeneration. Formerly the site of Surrey Docks, new housing was being built. The horizontal

alignment has large radii probably due to the building works around the peninsula and to accommodate the large vehicles moving around the sites. The road environment is rural in nature, therefore driving at speeds greater than 20mph feels natural along Salter Road.

11.2. Speed Data

- 11.2.1. Speed surveys carried out by LBS on Salter Road in November 2015 indicated that vehicles were significantly exceeding the 20mph speed limit, particularly at the location near the junction with Russia Dock Road, where the mean speed was 27.5mph and the 85th percentile was 33.2mph. At the other location near the junction with Lagado Mews the mean speed was 24.1mph and the 85th percentile was 30.7mph.

| ROADNAME | DIRECTION | MEAN SPEED (mph) | 85th PERCENTILE SPEED (mph) |
|-------------|-----------|------------------|-----------------------------|
| SALTER ROAD | EAST | 23.1 | 30.0 |
| SALTER ROAD | WEST | 25.1 | 31.3 |
| AVERAGE | | 24.1 | 30.7 |
| SALTER ROAD | NORTH | 27.3 | 32.7 |
| SALTER ROAD | SOUTH | 27.7 | 33.8 |
| AVERAGE | | 27.5 | 33.3 |

Table 42: Traffic speeds in both directions on Salter Road

- 11.2.2. It can be seen from Table 42 that speeding is a significant problem along Salter Road, this is probably due to the nature of the road, which gives the impression that it is a rural road and driving at speeds of greater than 20mph are feel natural and are comfortable.

11.3. Collision Analysis

- 11.3.1. From the collision data obtained there were only three collisions that occurred on Salter Road between 1 July 2013 to 30 June 2016.
- 11.3.2. The three collisions resulted in four casualties three of which were serious injuries. The analysis by mode of travel is shown below in Table 43.

| SALTER ROAD JULY 2013 - JUNE 2016 | 2013-14 | | | 2014-15 | | | 2015-16 | | | % Mode of Travel | % inner borough roads |
|--------------------------------------|---------|---|----|---------|---|----|---------|---|----|------------------|-----------------------|
| | K | S | SI | K | S | SI | K | S | SI | | |
| 1 Pedestrian | | | | | 2 | | | | | 50.0% | 25.7% |
| 3 Powered 2 Wheeler | | | | | 1 | | | | | 25.0% | 23.3% |
| 4 Car | | | | | | | | | 1 | 25.0% | 66.2% |
| TOTALS | | | | | 3 | | | | 1 | 100% | |

Key: K – Killed; S – Serious; SI – Slight

Table 43: Casualties by mode of travel along Salter Road

- 11.3.3. From Table 43 the percentages of collisions by mode of travel for Salter Road, indicating that the levels of casualties for cars users on Salter Road are lower than the average that is experienced on similar roads in all Inner Boroughs in the London area. The percentage of casualties involving pedestrians and motorcyclists was higher than the London average for inner boroughs, however due to the low number of collisions and associated casualties on Salter Road this is not considered to be representative of a safety issue these vulnerable road users on Salter Road.
- 11.3.4. One collision occurred when a speeding motorcyclist hit a pedestrian in the carriageway resulting in serious injury to both the pedestrian and rider. The other pedestrian involved a pedestrian running out into the carriageway and colliding with a car. From the collision records it is noted that both these collisions occurred in the dark.
- 11.3.5. From Table 44 the recorded collisions on Salter Road are low and there is small variance over the three year period. There were three KSIs reported in 2014.

| SALTER ROAD | 2013-14 | 2014-15 | 2015-16 | TOTALS |
|---------------------|---------|---------|---------|--------|
| Collisions per year | 0 | 2 | 1 | 3 |
| KSI per year | 0 | 3 | 0 | 3 |

Table 44: Collisions and KSIs per year along Salter Road

- 11.3.6. From Table 45 it can be seen that the majority of the collisions occurred in dark conditions. It is recommended that the street lighting conditions be reviewed along Salter Road.

| | Dry | Wet | TOTALS |
|--------|-------|-----|--------|
| Light | 1 | 0 | 1 |
| % | 33.3% | 0% | 33.3% |
| Dark | 2 | 0 | 2 |
| % | 66.7% | 0% | 66.7% |
| TOTALS | 3 | 0 | 3 |
| % | 100% | 0% | 100% |

Table 45: Collisions in Light/Dark and Dry/Wet conditions along Salter Road (2013-2016)

11.3.7. The main contributory factors for the collisions on Salter Road are shown below in Table 46 below.

| Contributory Factor | Description | % |
|---------------------|---|-----|
| 405 | Failed To Look Properly (Driver/Rider) | 29% |
| 307 | Travelling Too Fast For Conditions | 14% |
| 308 | Following Too Close | 14% |
| 802 | Failed To Look Properly (Pedestrian) | 14% |
| 808 | Careless/Reckless/In A Hurry (Pedestrian) | 14% |
| 901 | Stolen Vehicle | 14% |

Table 46: Contributory factors for the collisions on Salter Road

11.3.8. From Table 46 it can be seen that there was only one speed related collision (highlighted). The main contributory factor in the collisions was failing to look properly.

11.4. Options

11.4.1. Option 1 – proposed raising five existing zebra crossings and providing two traffic islands. These measures would provide both horizontal and vertical deflections to reduce traffic speeds through Salter Road.

11.4.2. Option 2 – proposed raising the five existing zebras and providing five sinusoidal road humps to provide frequent vertical deflections to reduce traffic speeds.

11.5. Recommendation

11.5.1. Option 1 was determined as the preferred option to be taken forward to reduce speeds by provision of both horizontal and vertical deflections. Option 2 was rejected as it was considered that it included too many raised features for a bus route.

11.6. Estimated Costs

11.6.1. The estimated costs for the preferred option would be approximately £124,200 (See Appendix B).

12. Grove Lane

12.1. Existing Conditions

- 12.1.1. Grove Lane lies between Peckham Road in the north and the junction with Grove Hill Road/ Champion Hill at its southernmost end. However, only the principal road section between the junctions with Champion Park and Grove Hill Road/ Champion Hill are included in this study. This section forms part of the Strategic Road Network (SRN) and is part of the A2216. This section of Grove Lane is approximately 0.4km.
- 12.1.2. The road width varies from 10.2m at its narrowest point to 14m at its widest point at the junction with Grove Hill/Champion Hill. There are road narrowings in the southbound carriageway near the junction with Grove Hill Road/Champion Hill and approximately 112m south of the junction with Champion Park.
- 12.1.3. This studied section of Grove Lane is serviced by buses 40, 176, 185 and 484. The trip generators in the vicinity of Grove Lane are Denmark Hill Station, Kings College Hospital, William Booth College Camberwell, Sainsbury’s Superstore, Dulwich Hamlet Football Club, St. Francis Park and East Dulwich Station in the south.
- 12.1.4. The road environment is predominantly residential with flats and houses with on-street parking.

12.2. Speed Data

- 12.2.1. Speed surveys were carried out at two locations along this stretch of Grove Lane in June 2016. The results indicate that speeding is a problem at both locations in the northbound direction. This is probably due, in part, to the downhill approach towards Champion Park. The speeds are shown below in Table 47.

| ROADNAME | DIRECTION | MEAN SPEED (mph) | 85th PERCENTILE SPEED (mph) | LOCATION |
|------------|-----------|------------------|-----------------------------|--|
| GROVE LANE | NORTH | 25.2 | 31.5 | Approx. 83m south of j/w Champion Park |
| GROVE LANE | SOUTH | 23.9 | 33.1 | |
| AVERAGE | | 24.6 | 32.3 | |
| GROVE LANE | NORTH | 25.0 | 29.3 | Approx. 40m south of southern j/w Champion Grove |
| GROVE LANE | SOUTH | 23.8 | 29.1 | |
| AVERAGE | | 24.4 | 29.2 | |

Table 47: Traffic speeds in both directions on Grove Lane

12.3. Collision Analysis

- 12.3.1. The collision data obtained showed there were seven collisions that occurred in the period from 1 July 2013 to 30 June 2016. Three of the collisions occurred between Champion Park and Peckham Road in the north and two collisions occurred in Champion Park. These collisions have not been included in the analysis below, as they are considered to be influenced by activities at the junctions and so fall outside of the scope of this study, which addresses the speeding issue on the link between the junctions.

12.3.2. There were only two collisions that occurred in SRN section of Grove Lane. These both resulted in slight injuries to vulnerable road users. The analysis by mode of travel is shown below in Table 48

| GROVE LANE JULY 2013 - JUNE 2016 | 2013-14 | | | 2014-15 | | | 2015-16 | | | % Mode of Travel | % Inner borough roads |
|-------------------------------------|---------|---|----|---------|---|----|---------|---|----|------------------|-----------------------|
| | K | S | SI | K | S | SI | K | S | SI | | |
| 1 Pedestrian | | | | | | | | | 1 | 50.0% | 25.7% |
| 3 Powered 2 Wheeler | | | | | | | | | 1 | 50.0% | 23.3% |
| TOTALS | | | | | | | | | 2 | 100% | |

Key: K – Killed; S – Serious; SI – Slight

Table 48: Casualties by mode of travel along Grove Lane

12.3.3. From Table 48 the percentages of casualties involving pedestrians and motorcyclists are higher than the London average for inner boroughs, however, due to the relatively low number of collisions and associated casualties on Grove Lane this is not considered to representative of a safety issue for these vulnerable road users on Grove Lane.

| GROVE LANE | 2013-14 | 2014-15 | 2015-16 | TOTALS |
|---------------------|---------|---------|---------|--------|
| Collisions per year | 0 | 0 | 2 | 2 |
| KSI per year | 0 | 0 | 0 | 0 |

Table 49: Collisions and KSI per year along Croxted Road

12.3.4. Table 49 shows that the collisions have only occurred in 2015. This could be due to the fact that not all the collisions happening on this stretch of the SRN are being reported to the Police.

| | Dry | Wet | TOTALS |
|----------|-----------|---------|-----------|
| Light % | 2 100% | 0 0% | 2 100% |
| Dark % | 0 0% | 0 0% | 0 0% |
| TOTALS % | 2 100% | 0 0% | 2 100% |

Table 50: Collisions in Light/Dark and Dry/Wet conditions along Grove Lane (2013-2016)

12.3.5. From Table 50, it can be seen that both the majority of the collisions took place in daylight conditions and when the road surface was dry. The percentage of collisions in the dark is 0% and the percentage of collisions in the wet is 0%, these are less than the expected percentages of 29.4% and 17.7% respectively when compared to the Table 3.5 for Inner Borough Roads (TfL, 2015). However, due to the number of collisions, this is not considered to be a representative sample of the specific issues relating to hours of darkness and road surface conditions.

12.3.6. The main contributory factors for the collisions on Grove Lane are shown below in Table 51.

| Contributory Factor | Description | % |
|---------------------|--|-----|
| 405 | Failed To Look Properly (Driver/Rider) | 40% |
| 410 | Loss Of Control | 40% |
| 406 | Failed To Judge Other Person's Path Or Speed | 20% |

Table 51: Contributory factors for the collisions on Grove Lane

12.3.7. The main contributory factor in the two collisions was failing to look properly. This indicates that driver/rider is not paying attention to the road environment.

12.4. Options

12.4.1. Option 1 – included the introduction of four traffic islands to reduce the width of the available carriageway and reduce vehicle speeds by providing horizontal traffic calming measures. This would negatively impact parking, as waiting restrictions would need to be introduced around the traffic islands to ensure access was unobstructed on the approaches. This proposal included raising the existing crossing point outside property number 141 and widening the size of the buildout so that pedestrians could easily pass the existing tree that has restricted the footway width.

12.4.2. Option 2 – proposed two sinusoidal road humps to provide vertical deflection to reduce traffic speeds. Along with the proposal to raise and lengthen the existing crossing point. As the section of Grove Lane forms part of the SRN and is a bus route this option is not being taken forward.

12.5. Recommendation

12.5.1. After discussion with LBS it was agreed to present an alternative design that incorporated the raised crossing outside No 141, but also included a raised junction with Champion Grove (southern arm). This option minimises the impact on parking, but would provide vertical deflection to reduce the speeds of vehicles.

12.6. Estimated Costs

12.6.1. The estimated costs for the recommended design would be approximately £80,600 (See Appendix B).

13. Prioritisation of Schemes

13.1. General

13.1.1. The roads have been prioritised based on collisions per km, number of casualties involving injury to a vulnerable road user (VRU) and speed. A matrix was developed using this criteria and weighting was then applied ranging from 1 being the lowest to 5 the highest.

| ROADNAME | Collisions per km | Vulnerable road user casualties | Speed |
|-------------------|-------------------|---------------------------------|-------|
| Barry Road | 11.8 | 9 | 25.1 |
| Brenchley Gardens | 6.3 | 5 | 26.5 |
| Croxted Road | 6.9 | 2 | 25.3 |
| Dulwich Wood Park | 3.1 | 1 | 27.8 |
| Forest Hill Road | 14.6 | 10 | 24.7 |
| Grove Lane | 4.8 | 2 | 24.4 |
| Plough Way | 6.5 | 3 | 24.2 |
| Redriff Road | 4.9 | 3 | 24.9 |
| Salter Road | 0.8 | 3 | 27.5 |
| Sydenham Hill | 12.5 | 5 | 26.7 |

Table 52: Roads with collision per km, VRU casualties and speed

13.1.2. The scoring and ranking are shown below prioritising the roads.

| ROADNAME | Speed Weighting | collisions per km weighting | VRU weighting | Cost Weighting | SCORE | RANK | Estimated Cost |
|-------------------|-----------------|-----------------------------|---------------|----------------|-------|------|----------------|
| Barry Road | 3 | 4 | 4 | 3 | 14 | 1 | £ 65,500.00 |
| Forest Hill Road | 2 | 4 | 5 | 2 | 13 | 2 | £ 82,900.00 |
| Sydenham Hill | 4 | 4 | 3 | 1 | 12 | 3 | £ 158,100.00 |
| Brenchley Gardens | 4 | 3 | 3 | 2 | 12 | 3 | £ 56,500.00 |
| Croxted Road | 3 | 3 | 1 | 4 | 11 | 4 | £ 32,700.00 |
| Plough Way | 1 | 3 | 2 | 5 | 11 | 4 | £ 13,500.00 |
| Redriff Road | 2 | 2 | 2 | 4 | 10 | 5 | £ 25,200.00 |
| Dulwich Wood Park | 5 | 2 | 1 | 1 | 9 | 6 | £ 194,400.00 |
| Salter Road | 5 | 1 | 2 | 1 | 9 | 6 | £ 124,200.00 |
| Grove Lane | 1 | 2 | 1 | 3 | 7 | 7 | £ 80,600.00 |

Table 53: Priority ranking of the roads with excessive speeding

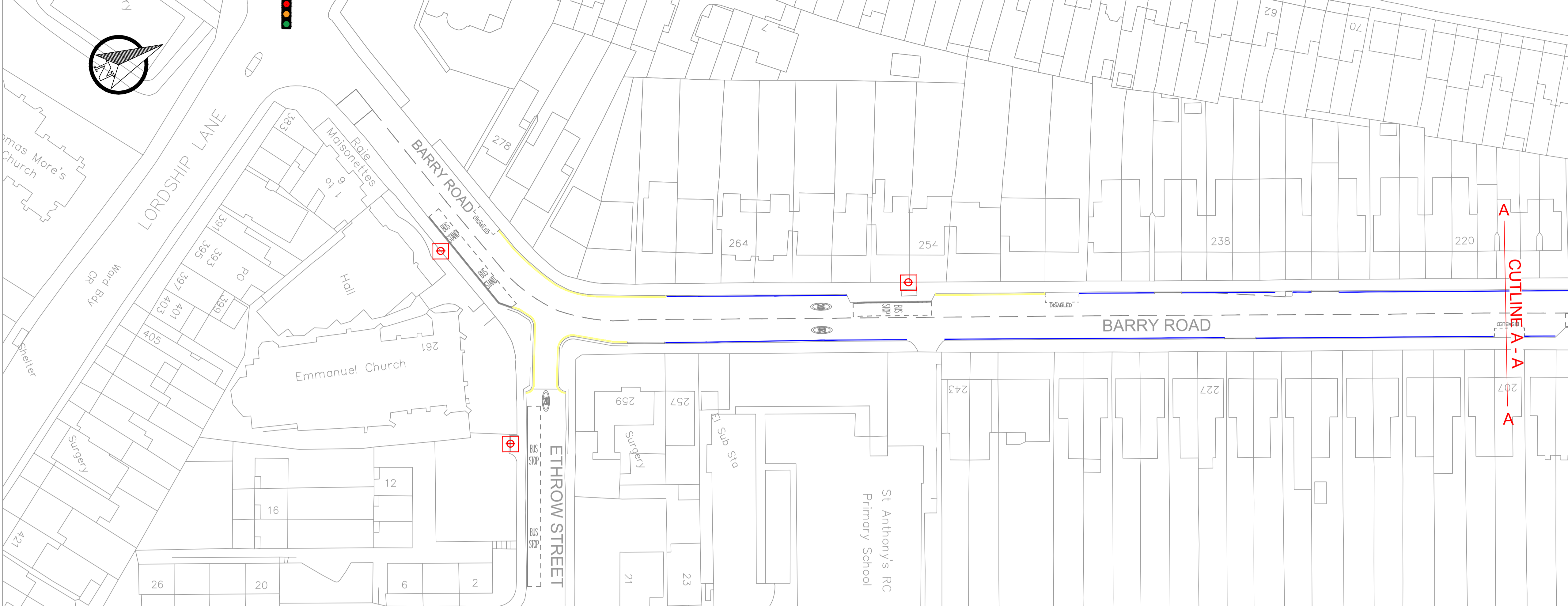
13.2. Recommendation

- 13.2.1. The roads that physical traffic calming should be implemented on to reduce speeds are Barry Road, Forest Hill Road, Sydenham Hill, and Brenchley Gardens.
- 13.2.2. The preferred options for the remaining roads should be implemented as additional funding comes available, beginning with the remaining road with the highest ranking. These roads should also be monitored to see if the levels of collision severity and/or casualties to the vulnerable road users increases, which could change their ranking.

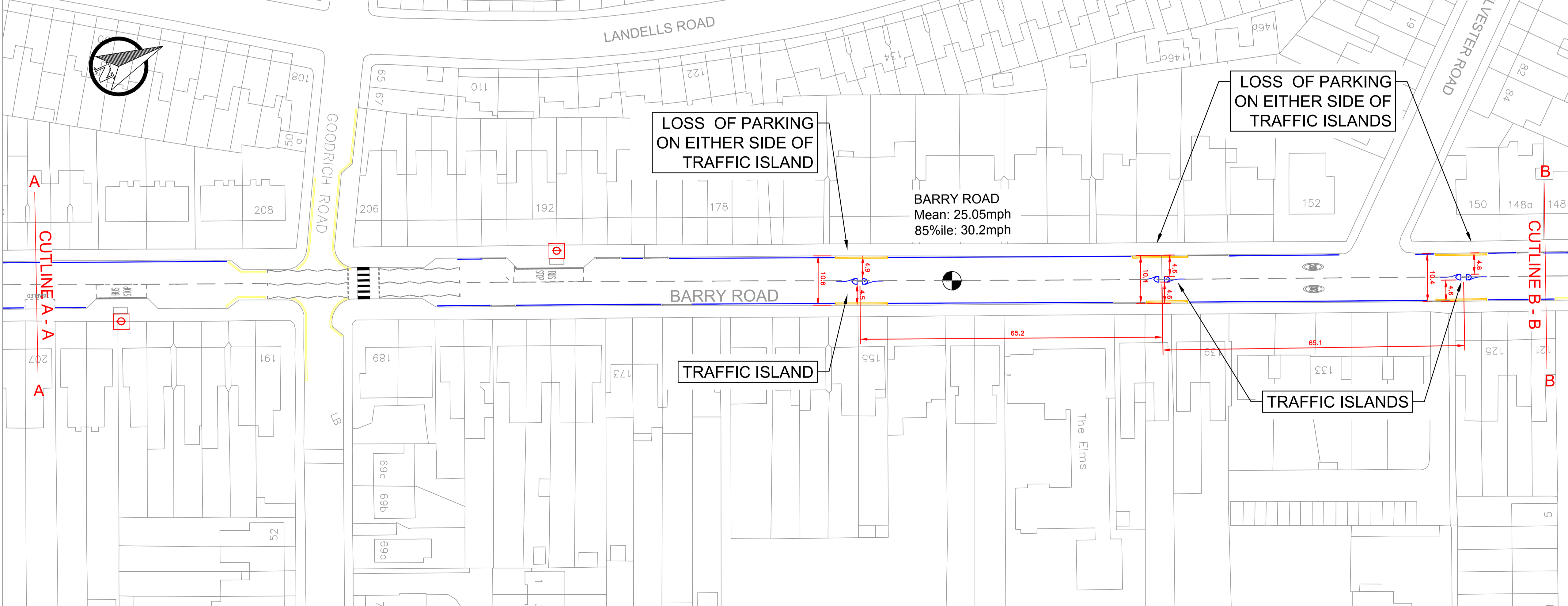
APPENDIX A

DRAWINGS

SECTION 1

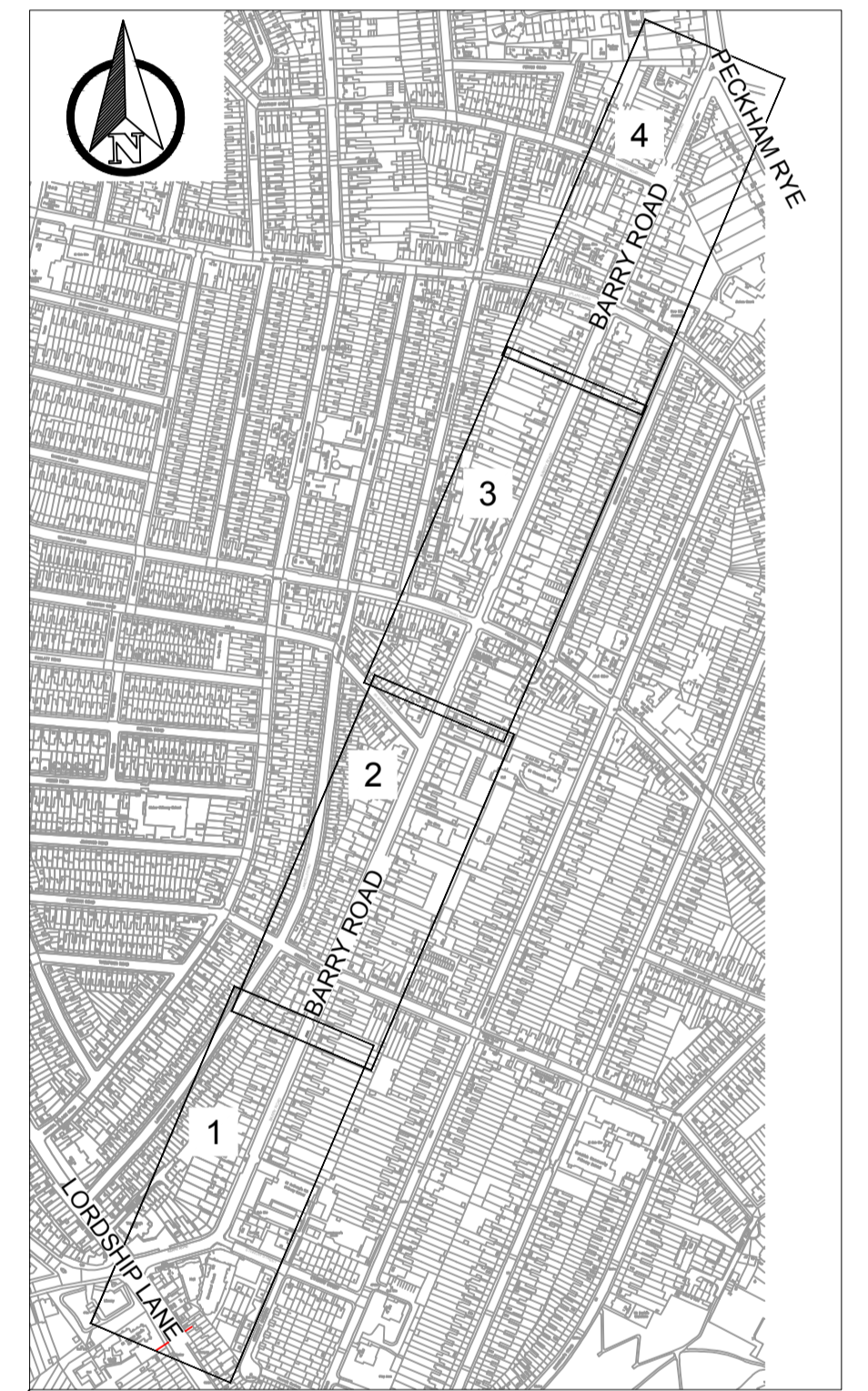


SECTION 2



LEGEND / NOTES.

- KEY:**
- SPEED SURVEY LOCATION
 - EXISTING BUS STOP
 - EXISTING SIGNALS
 - EXISTING ROUNDELS
 - EXISTING ROAD MARKINGS
 - EXISTING PARKING RESTRICTIONS
 - PROPOSED TRAFFIC ISLAND
 - PROPOSED RAISED JUNCTION
 - PROPOSED PARKING RESTRICTIONS
 - UNRESTRICTED PARKING



| REV | DATE | REVISION DESCRIPTION / DETAILS | DRN BY | CHKD BY | APPRD BY |
|-----|------|--------------------------------|--------|---------|----------|
| | | | | | |

Shaping Southwark's Highways
160 TOOLEY STREET LONDON SE1P 5LX

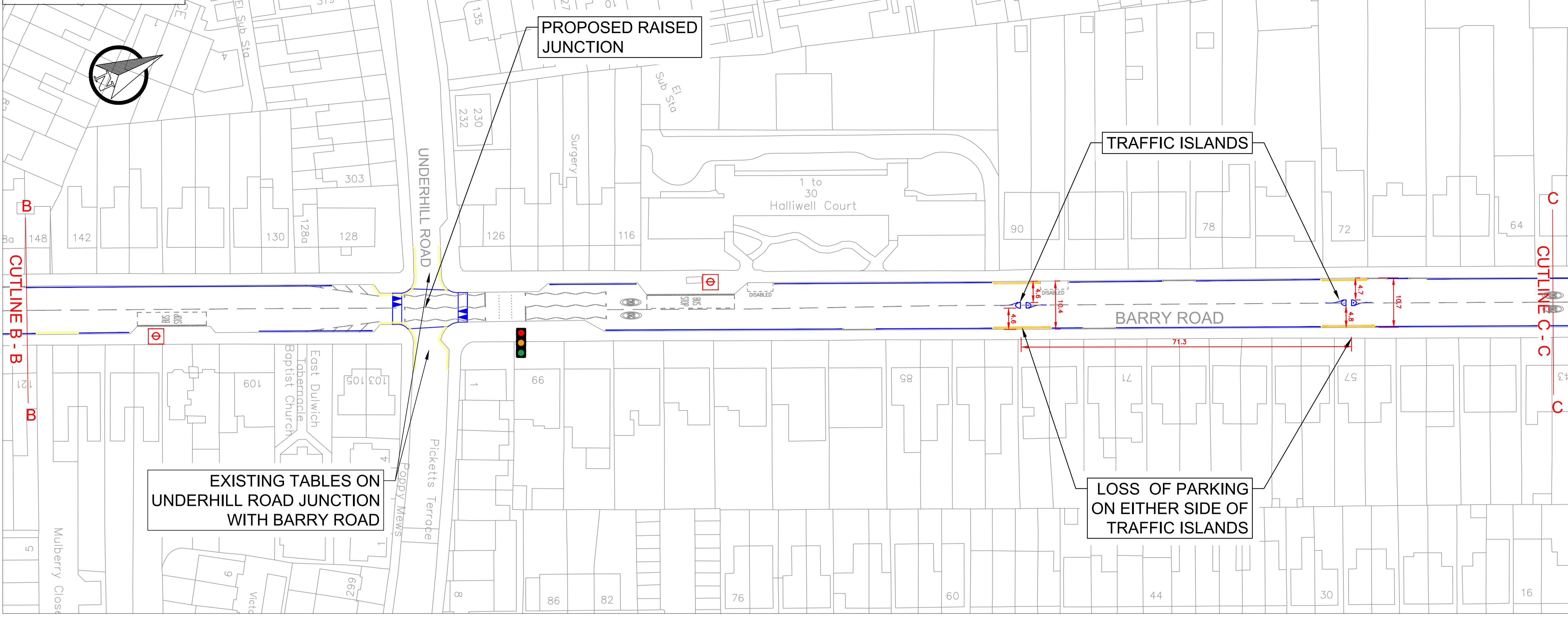
PROJECT:
**20mph REVIEW
FEASIBILITY DESIGN**

TITLE:
**BARRY ROAD
SHEET 1 OF 2**

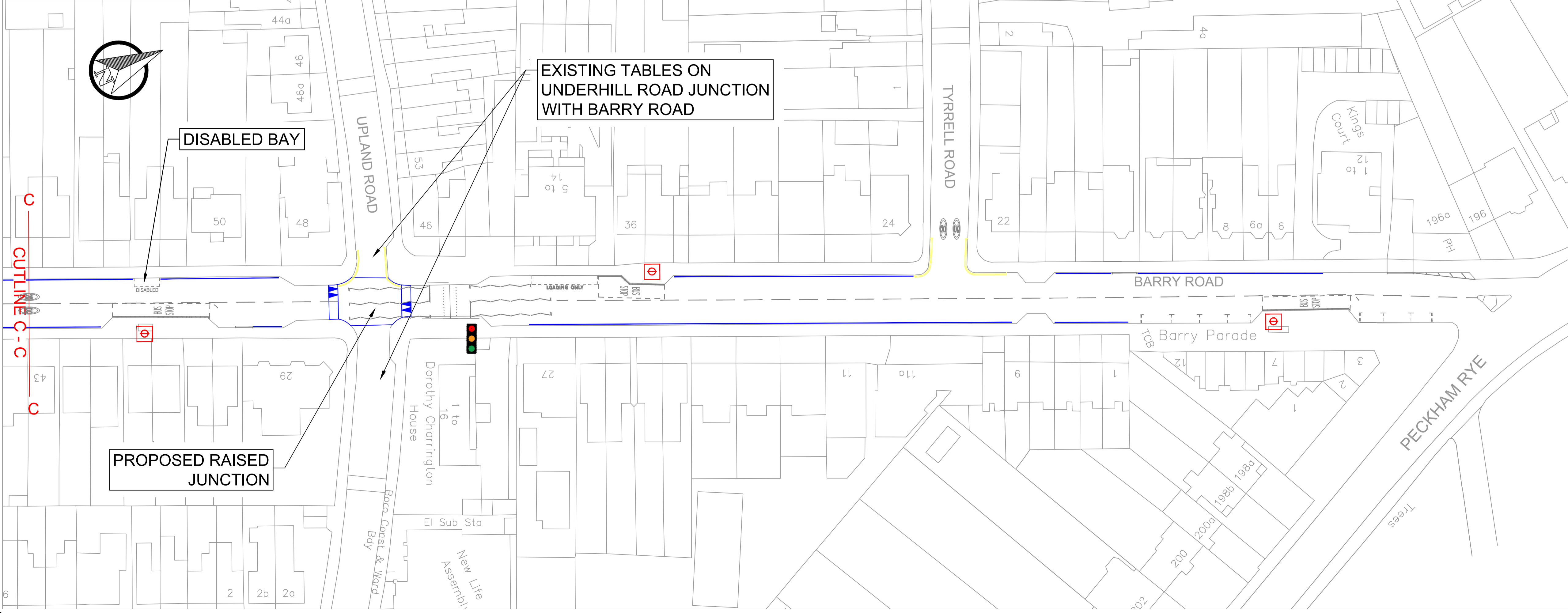
| | | |
|-------------------------------------|----------------------------------|---------------------|
| CONTRACT NO: 60493382-C0334 | DRAWN BY: LO | DESIGNED BY: BAB |
| SCALE: 1 : 500 @A1 | PURPOSE: FEASIBILITY | CHECKED BY: BAB |
| DRAWING NO: 60493382-C0334-BR-01 | APPROVED BY: AGB | REV: - |
| DATE DRAWN: 12 DECEMBER 2016 | DATE ISSUED: 20 DECEMBER 2016 | |

C:\USERS\BEGDES\TOP20MPH\REVIEW\20170205-REV103-2235 - COPY (2) - STANDARD\20MPH REVIEW\20170205-REV103-2235 - COPY (2) - STANDARD\20MPH REVIEW\20170205-REV103-2235 - COPY (2).DWG

SECTION 3

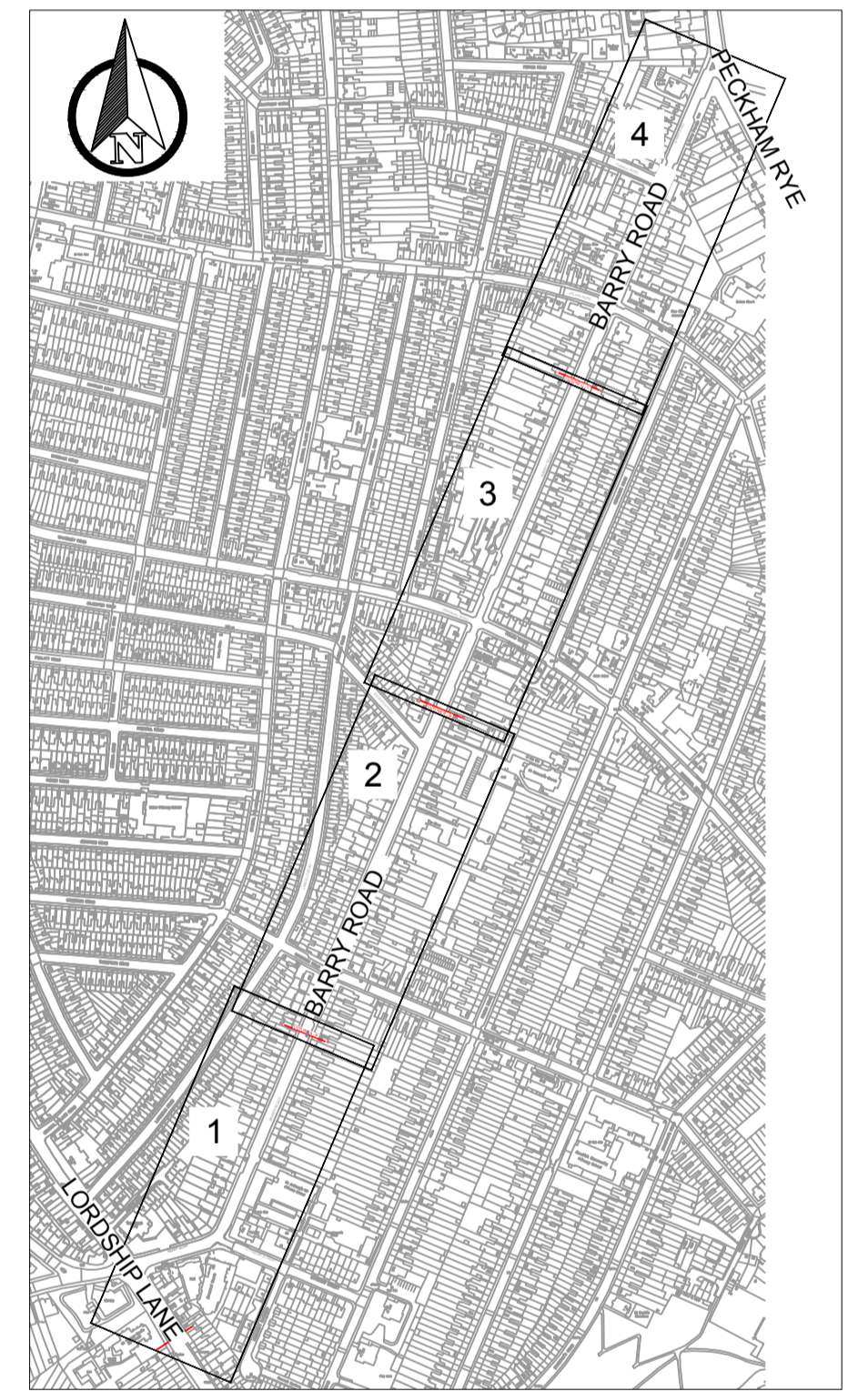


SECTION 4



LEGEND / NOTES.

- KEY:**
- SPEED SURVEY LOCATION
 - EXISTING BUS STOP
 - EXISTING SIGNALS
 - EXISTING ROUNDELS
 - EXISTING ROAD MARKINGS
 - EXISTING PARKING RESTRICTIONS
 - PROPOSED TRAFFIC ISLAND
 - PROPOSED RAISED JUNCTION
 - PROPOSED PARKING RESTRICTIONS
 - UNRESTRICTED PARKING



| REV | DATE | REVISION DESCRIPTION / DETAILS | DRN BY | CHKD BY | APPRD BY |
|-----|------|--------------------------------|--------|---------|----------|
| | | | | | |

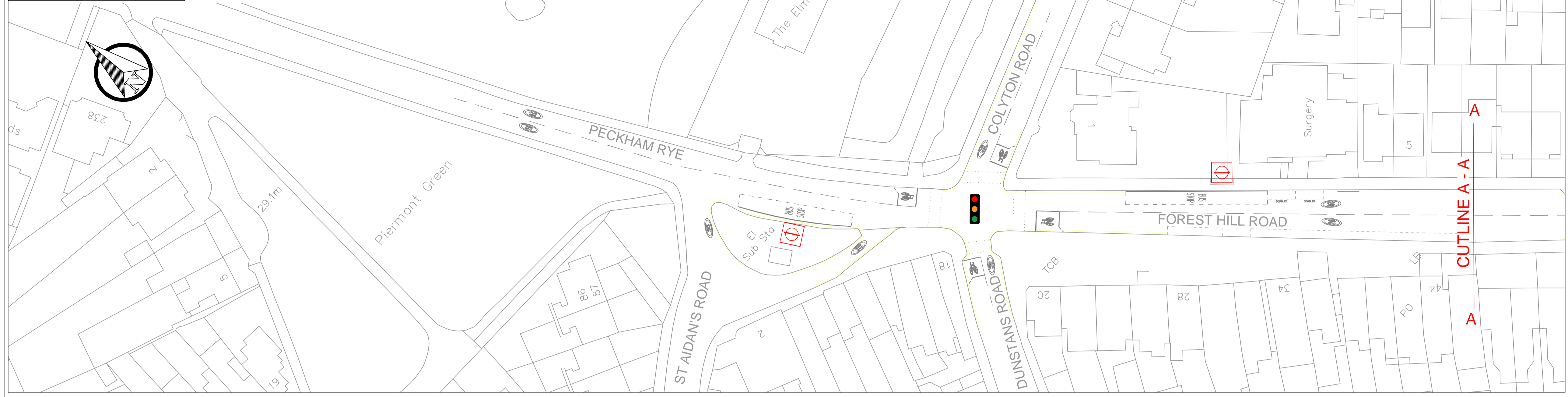
Shaping Southwark's Highways

 160 TOOLEY STREET LONDON SE1P 5LX

| | | | |
|--|----------------------|--------------|----------------|
| PROJECT: | | | |
| 20mph REVIEW FEASIBILITY DESIGN | | | |
| TITLE: | | | |
| BARRY ROAD SHEET 2 OF 2 | | | |
| CONTRACT NO: | 60493382-C0334 | DRAWN BY: | LO BAB |
| SCALE: | 1 : 500 @A1 | PURPOSE: | FOR DISCUSSION |
| DRAWING NO: | 60493382-C0334-BR-01 | CHECKED BY: | BAB |
| DATE DRAWN: | 12 DECEMBER 2016 | APPROVED BY: | AGB |
| DATE ISSUED: | 20 DECEMBER 2016 | REV: | - |

C:\USERS\BEGDES\TOP\20MPH REVIEW\20170205-REV103-2235 - COPY (2) - STANDARD\20MPH REVIEW\20170205-REV103-2235 - COPY (2).DWG

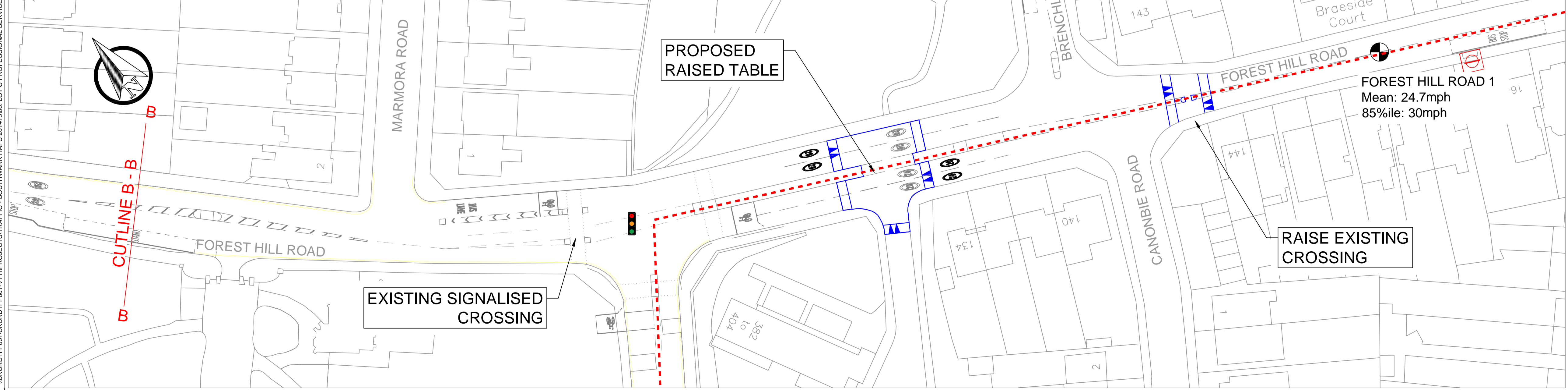
SECTION 1



SECTION 2



SECTION 3

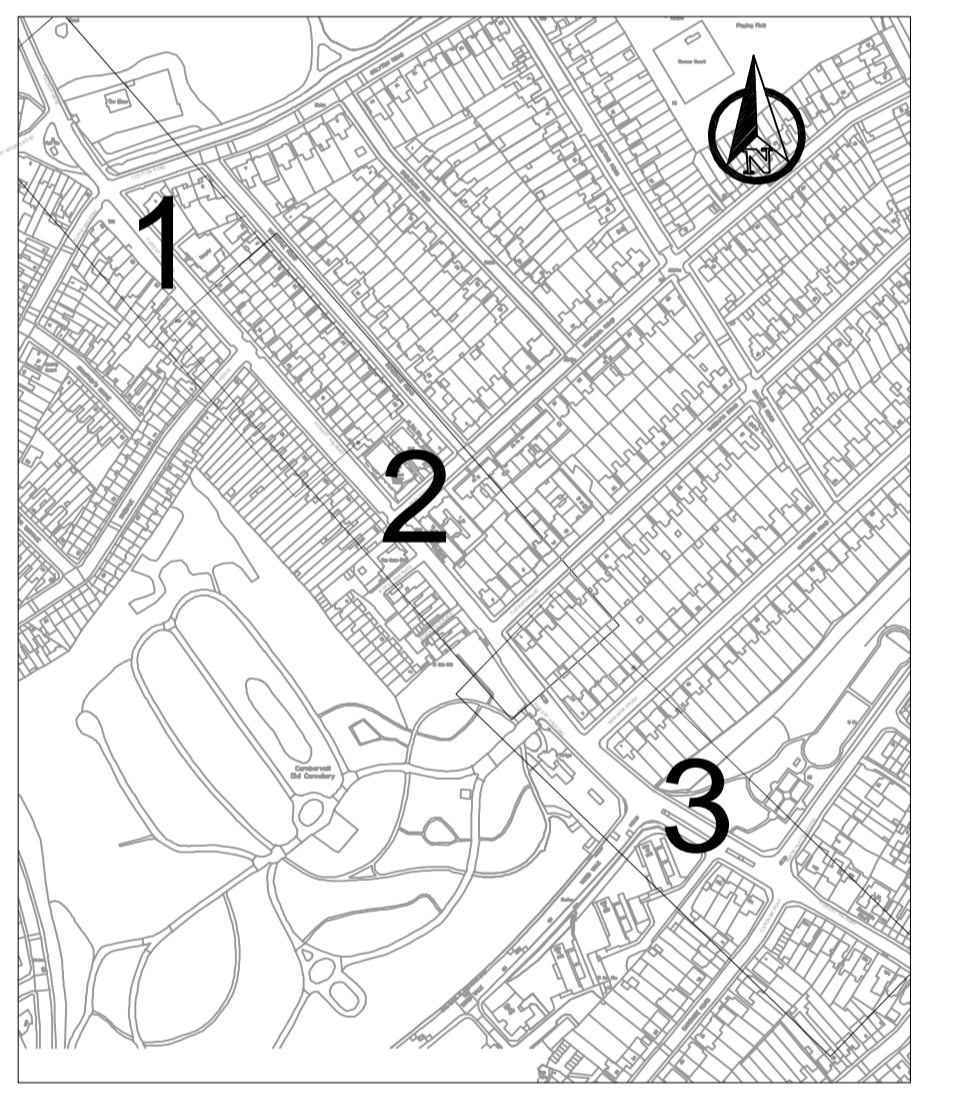


LEGEND / NOTES.

- KEY:**
- SPEED SURVEY LOCATION
 - EXISTING BUS STOP
 - EXISTING SIGNALS
 - EXISTING PARKING AND STOPPING RESTRICTIONS
 - EXISTING ROAD MARKINGS
 - EXISTING BOROUGH BOUNDARY
 - EXISTING ROUNDELS
 - PROPOSED RAISED JUNCTION TREATMENT
 - RAISE EXISTING CROSSING
 - PROPOSED 20MPH ROUNDELS

NOTES:

1. ALL DIMENSIONS ARE IN METRES.



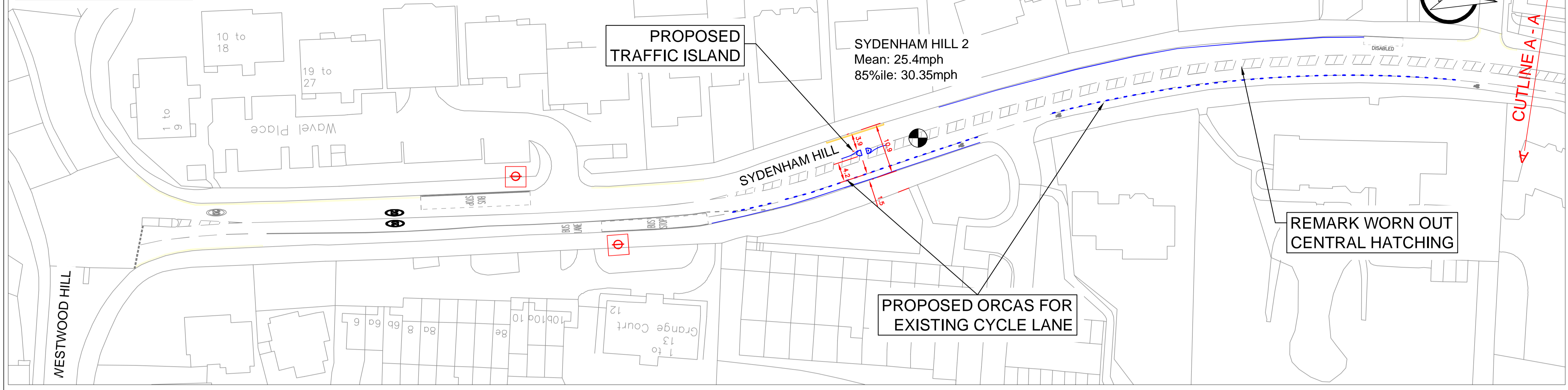
| REV | DATE | REVISION DESCRIPTION / DETAILS | DRN BY | CHKD BY | APPRD BY |
|-----|------|--------------------------------|--------|---------|----------|
| | | | | | |



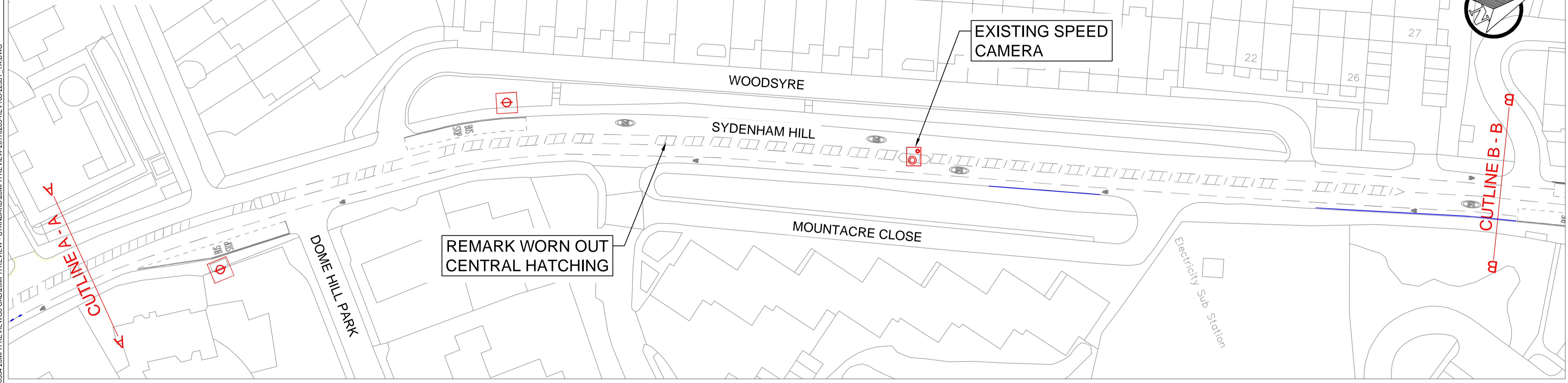
| | | | |
|--|-----------------------|--------------|------------------|
| PROJECT: | | | |
| 20mph REVIEW FEASIBILITY DESIGN | | | |
| TITLE: | | | |
| FOREST HILL ROAD | | | |
| CONTRACT NO: | 60493382-C0334 | DRAWN | LO |
| SCALE: | 1 : 500 @A1 | DESIGNED | BAB |
| DRAWING NO: | 60493382-C0334-FHR-02 | CHECKED | BAB |
| DATE DRAWN: | 12 DECEMBER 2016 | APPROVED | AGB |
| | | REV: | - |
| | | DATE ISSUED: | 19 DECEMBER 2016 |

WUKCRD1\FP001\UKGRO1\FP001-V1\PROJECTS\TRAFFIC - SOUTHWARK HARPS 2014\506 - LOT C PROFESSIONAL SERVICES\PROJECTS\C0334 - 20MPH REVIEW\50 CAD\20MPH REVIEW - STANDARD\FOREST HILL ROAD AND GROVE LANE.DWG

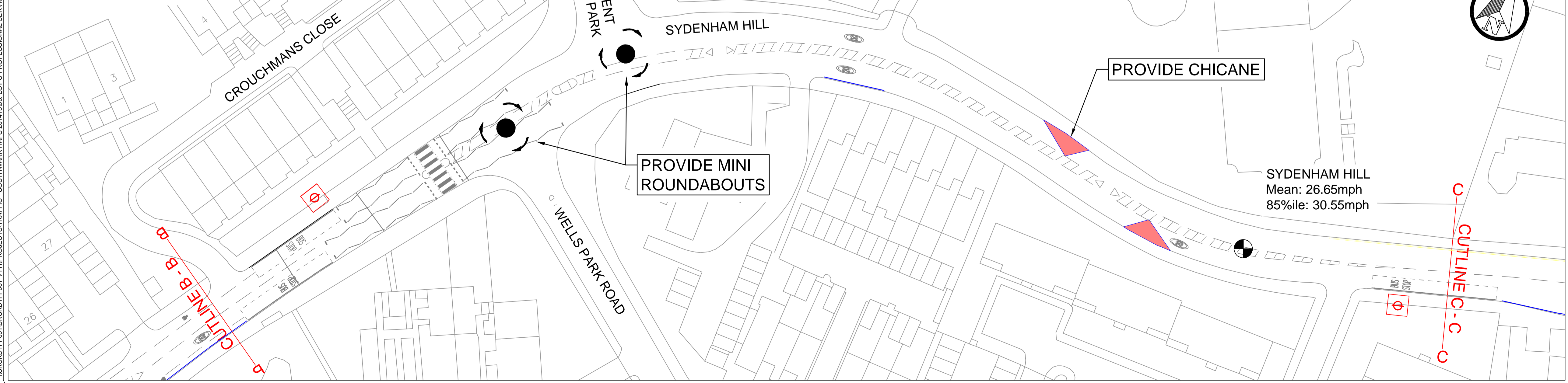
SECTION 1



SECTION 2



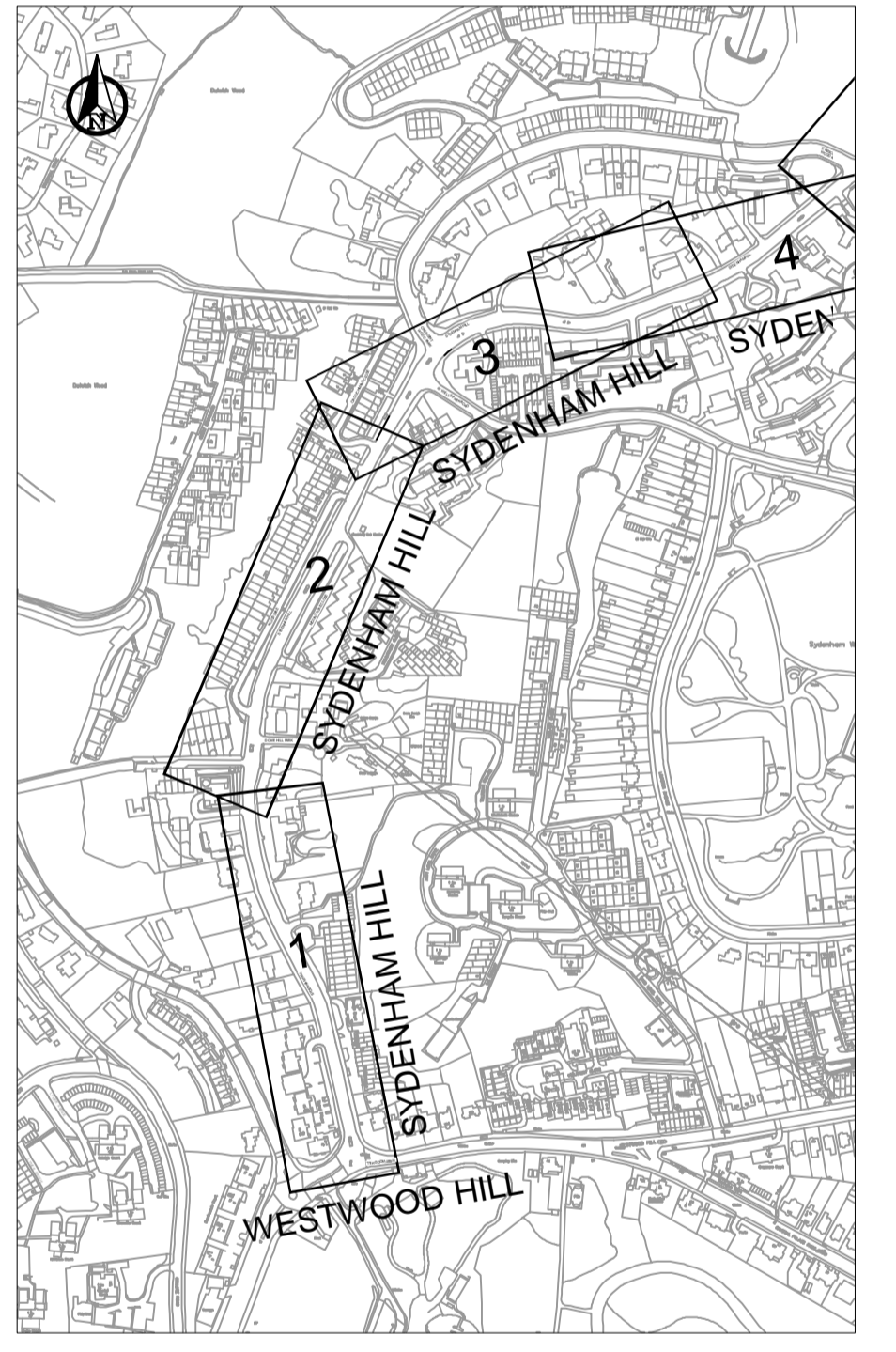
SECTION 3



LEGEND / NOTES.

KEY:

- SPEED SURVEY LOCATION
- EXISTING BUS STOP
- EXISTING ROUNDELS
- EXISTING SPEED CAMERA
- EXISTING ROAD MARKINGS
- EXISTING PARKING RESTRICTIONS
- UNRESTRICTED PARKING
- PROPOSED PARKING RESTRICTIONS
- PROPOSED 20MPH ROUNDELS
- PROPOSED TRAFFIC ISLAND
- PROPOSED BUILDOUT
- PROPOSED ORCAS



| REV | DATE | REVISION DESCRIPTION / DETAILS | DRN BY | CHKD BY | APRVD BY |
|-----|------|--------------------------------|--------|---------|----------|
| | | | | | |

Shaping Southwark's Highways

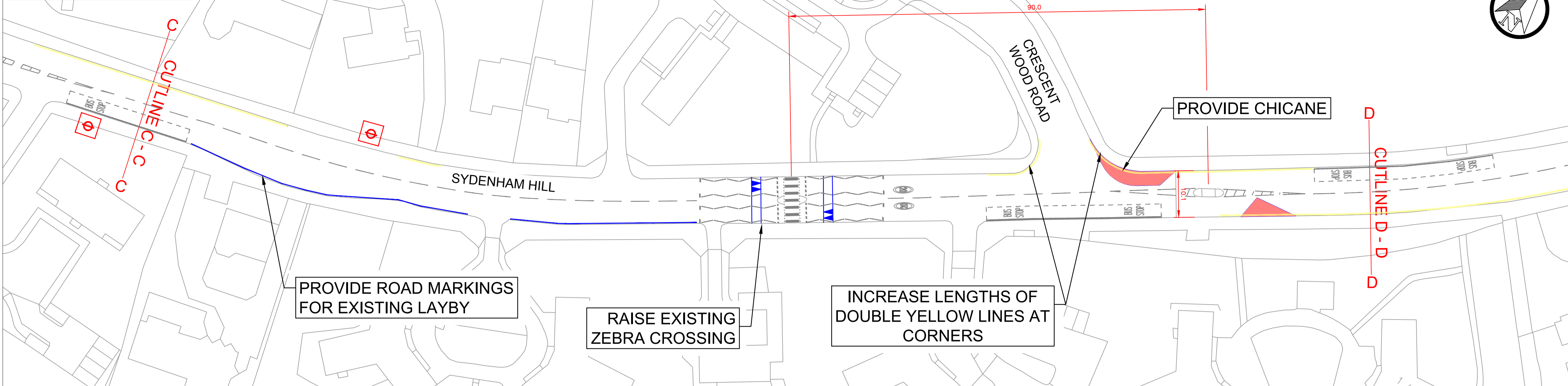
 160 TOOLEY STREET LONDON SE1P 5LX

PROJECT: 20mph REVIEW
FEASIBILITY DESIGN

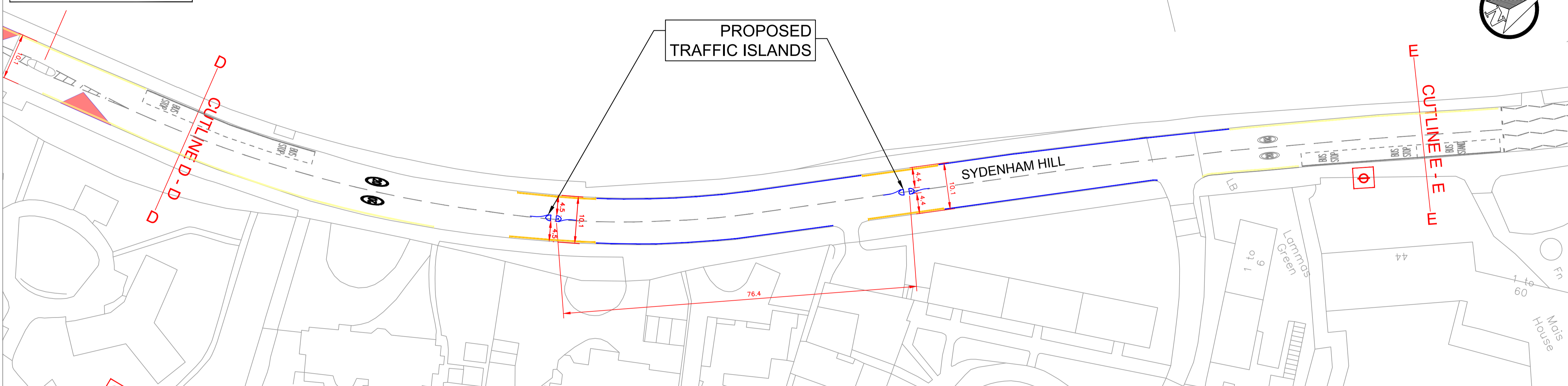
TITLE: SYDENHAM HILL SHEET 1 OF 3

| | | | |
|--------------|----------------------|--------------|------------------|
| CONTRACT NO: | 60493382-C0334 | DRAWN | LO |
| SCALE: | 1 : 500 @A1 | DESIGNED | BAB |
| DRAWING NO: | 60493382-C0334-SH-01 | CHECKED | BAB |
| DATE DRAWN: | 12 DECEMBER 2016 | APPROVED | AGB |
| | | REV: | - |
| | | DATE ISSUED: | 19 DECEMBER 2016 |

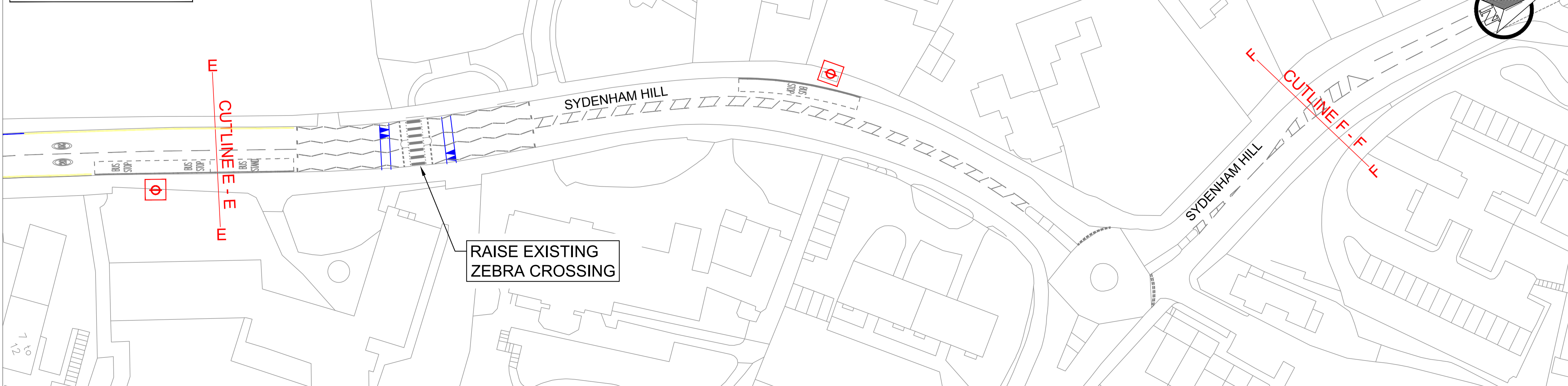
SECTION 4



SECTION 5

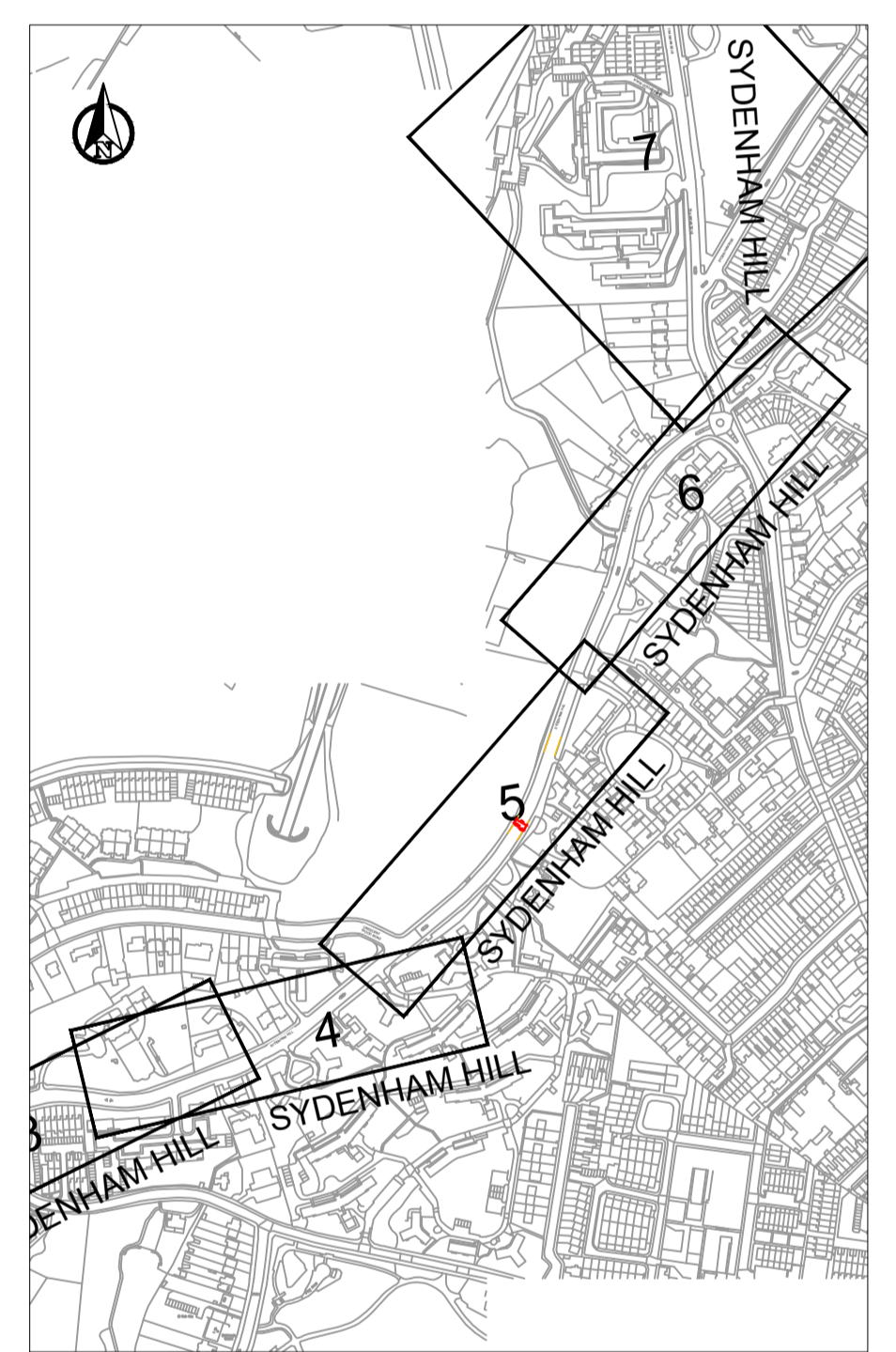


SECTION 6



LEGEND / NOTES.

- KEY:**
- SPEED SURVEY LOCATION
 - EXISTING BUS STOP
 - EXISTING ROUNDELS
 - EXISTING ROAD MARKINGS
 - EXISTING PARKING RESTRICTIONS
 - UNRESTRICTED PARKING
 - RAISE EXISTING CROSSING
 - PROPOSED 20MPH ROUNDELS
 - PROPOSED TRAFFIC ISLAND
 - PROPOSED BUILDOUT
 - PROPOSED PARKING RESTRICTIONS



| REV | DATE | REVISION DESCRIPTION / DETAILS | DRN BY | CHKD BY | APRVD BY |
|-----|------|--------------------------------|--------|---------|----------|
| | | | | | |

Shaping Southwark's Highways

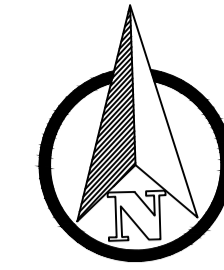
 160 TOOLEY STREET LONDON SE1P 5LX

PROJECT: 20mph REVIEW
FEASIBILITY DESIGN

TITLE: SYDENHAM HILL
SHEET 2 OF 3





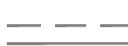


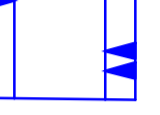


| | | | |
|--------------|----------------------|-----------|-----|
| CONTRACT NO: | 60493382-C0334 | DRAWN: | LO |
| SCALE: | 1 : 500 @A1 | DESIGNED: | BAB |
| DRAWING NO: | 60493382-C0334-SH-02 | CHECKED: | BAB |
| DATE DRAWN: | 12 DECEMBER 2016 | APPROVED: | AGB |
| DATE ISSUED: | 19 DECEMBER 2016 | REV: | B |

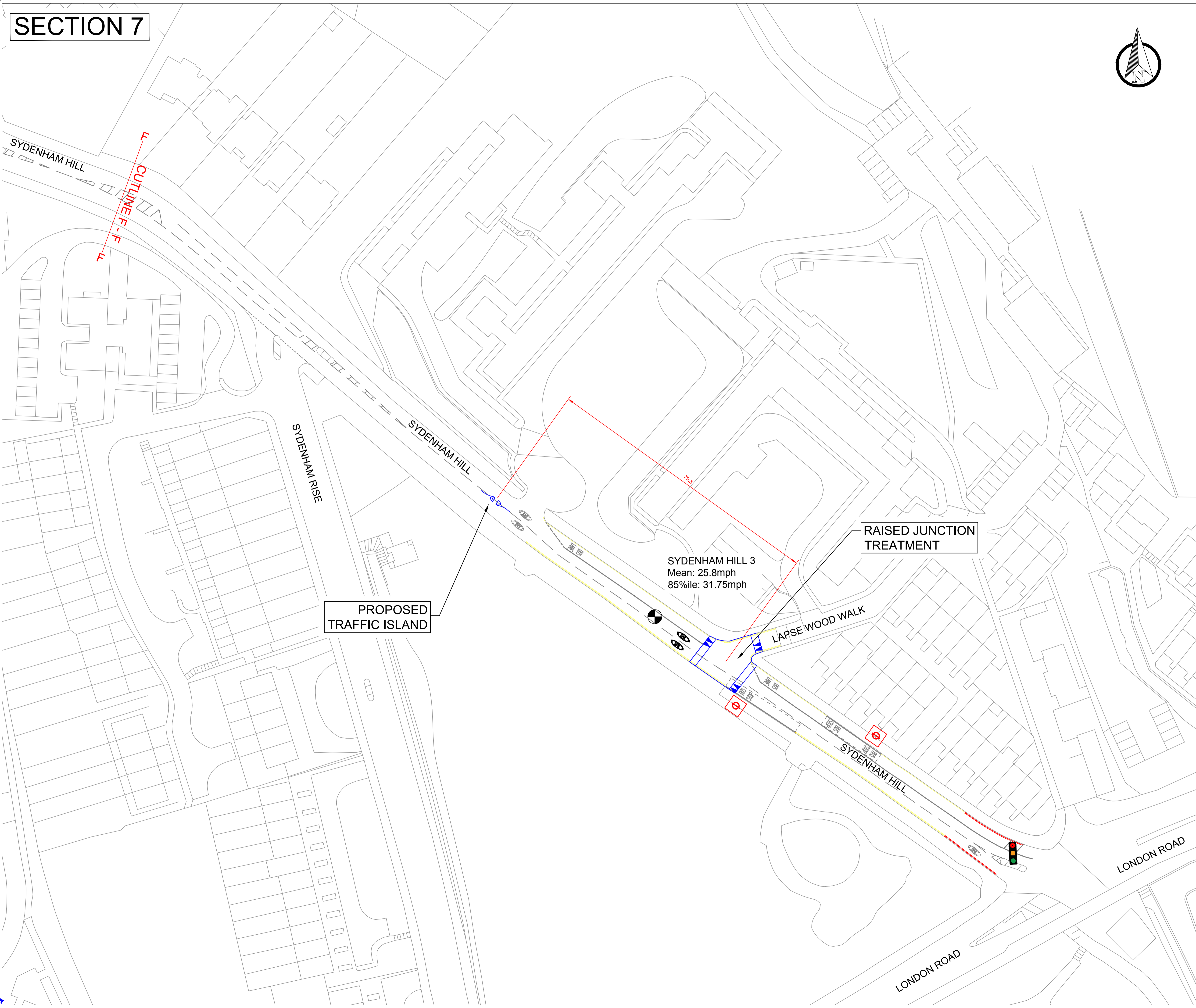
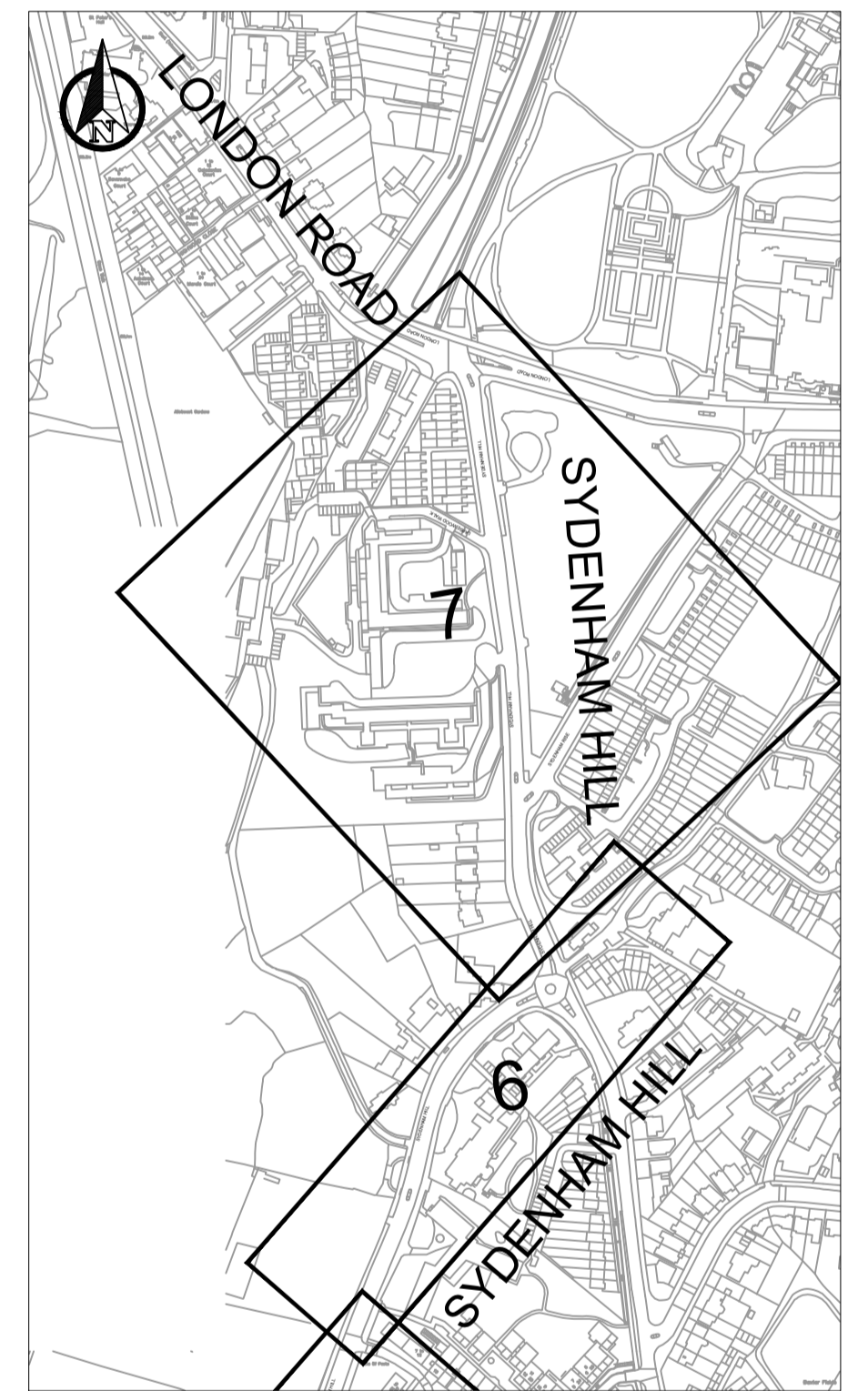
SECTION 7



LEGEND / NOTES.

KEY:

-  SPEED SURVEY LOCATION
-  EXISTING BUS STOP
-  EXISTING BUS STOP
-  EXISTING ROUNDELS
-  EXISTING ROAD MARKINGS
-  EXISTING PARKING RESTRICTIONS
-  EXISTING RED ROUTE
-  PROPOSED RAISED JUNCTION
-  PROPOSED 20MPH ROUNDELS
-  PROPOSED TRAFFIC ISLAND



PROPOSED TRAFFIC ISLAND

RAISED JUNCTION TREATMENT

SYDENHAM HILL 3
Mean: 25.8mph
85%ile: 31.75mph

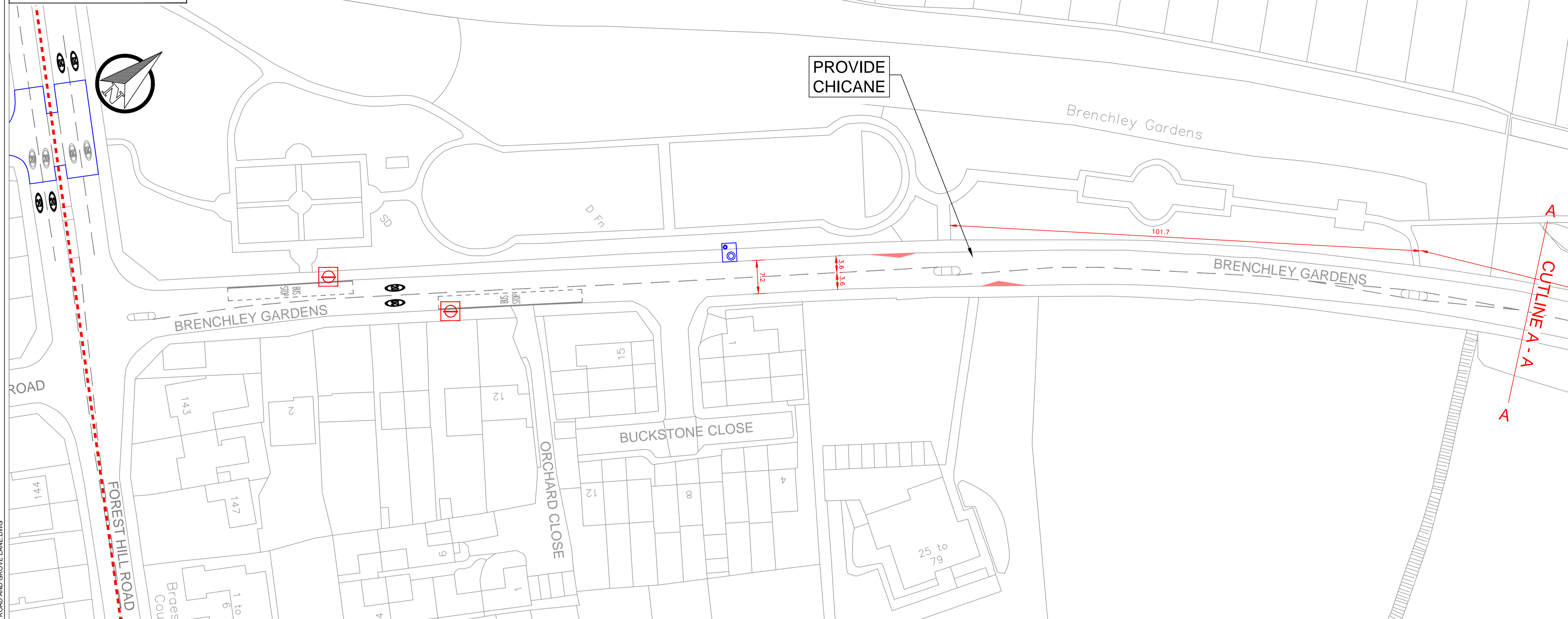
| REV | DATE | REVISION DESCRIPTION / DETAILS | DRN BY | CHKD BY | APRVD BY |
|-----|------|--------------------------------|--------|---------|----------|
| | | | | | |



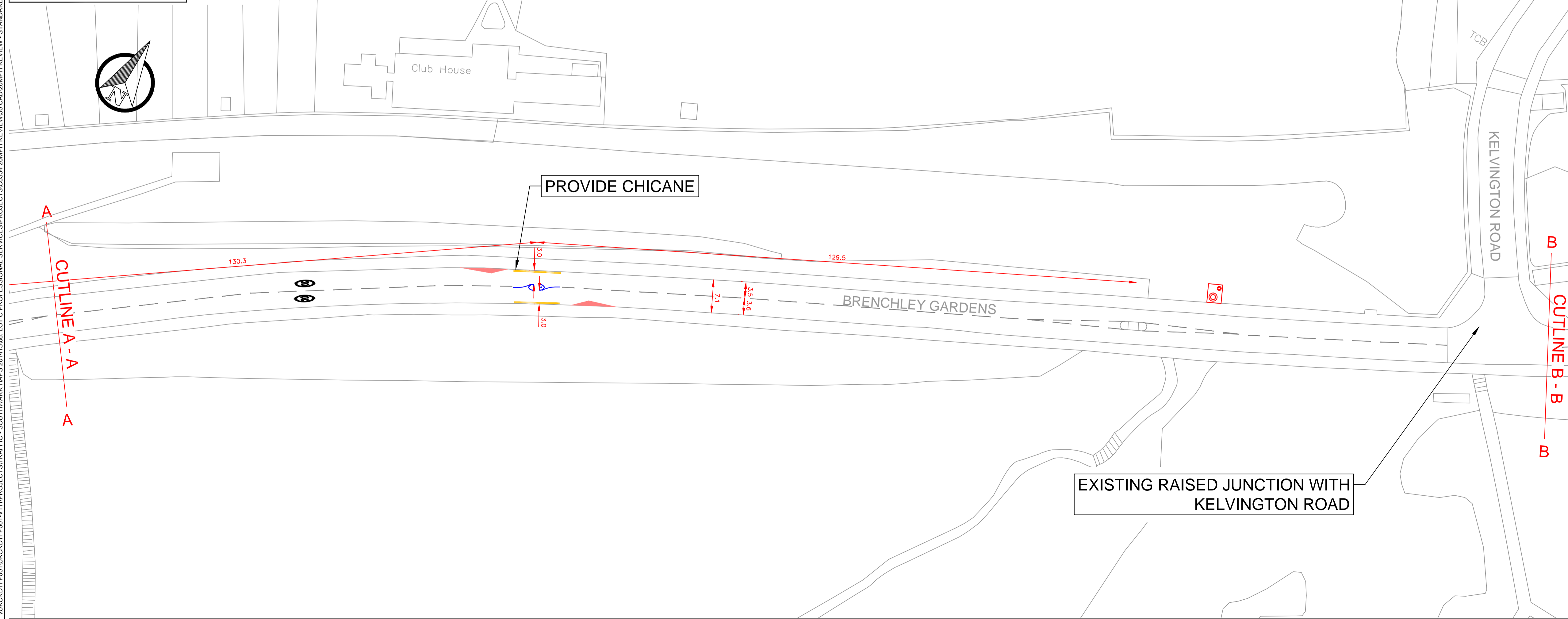
| | | | |
|--|----------------------|----------|-----|
| PROJECT: | | | |
| 20mph REVIEW FEASIBILITY DESIGN | | | |
| TITLE: | | | |
| SYDENHAM HILL SHEET 3 OF 3 | | | |
| CONTRACT NO: | 60493382-C0334 | DRAWN | LO |
| SCALE: | 1 : 500 @A1 | DESIGNED | BAB |
| PURPOSE: | FOR DISCUSSION | CHECKED | BAB |
| DRAWING NO: | 60493382-C0334-SH-03 | APPROVED | AGB |
| DATE DRAWN: | 12 DECEMBER 2016 | REV: | - |
| DATE ISSUED: | 19 DECEMBER 2016 | | |

K:\CADD\1600\UKCRD\16001-V1\PROJECTS\TRAFFIC - SOUTHWARK HWS 2014\1606_L07_C PROFESSIONAL SERVICES\PROJECTS\C0334_20MPH REVIEW\60 CAD\20MPH REVIEW - STANDARD\20MPH REVIEW\20170205-REV103-22581_VA.DWG

SECTION 1



SECTION 2



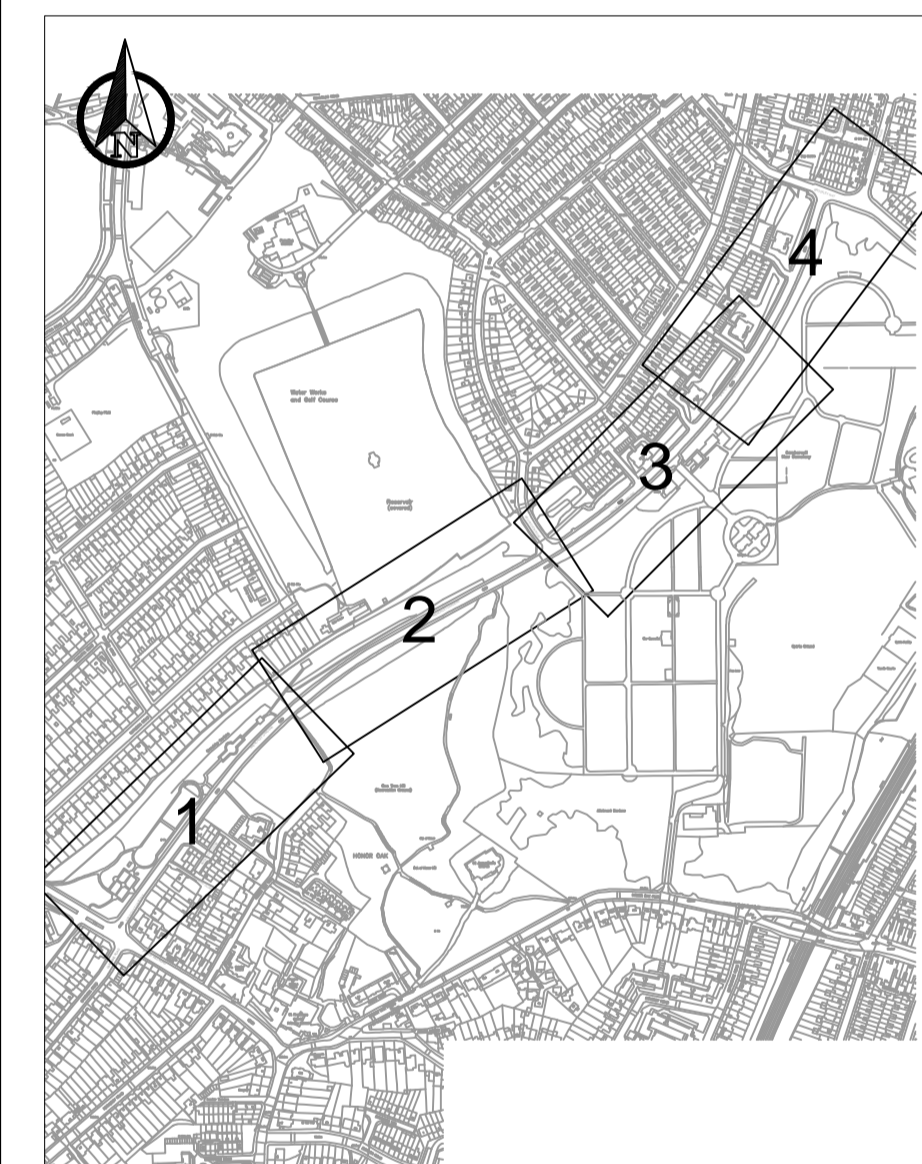
LEGEND / NOTES.

KEY:

- EXISTING SPEED CAMERA
- EXISTING BUS STOP
- EXISTING ROAD MARKINGS
- EXISTING BOROUGH BOUNDARY
- EXISTING ROUNDELS
- PROPOSED TRAFFIC ISLAND
- PROPOSED BUILDOUT
- PROPOSED PARKING RESTRICTIONS
- PROPOSED 20MPH ROUNDELS

NOTES:

1. ALL DIMENSIONS ARE IN METRES



| REV | DATE | REVISION DESCRIPTION / DETAILS | DRN BY | CHKD BY | APRVD BY |
|-----|------|--------------------------------|--------|---------|----------|
| | | | | | |

Shaping Southwark's Highways

 160 TOOLEY STREET LONDON SE1P 5LX

PROJECT:

20mph REVIEW

FEASIBILITY DESIGN

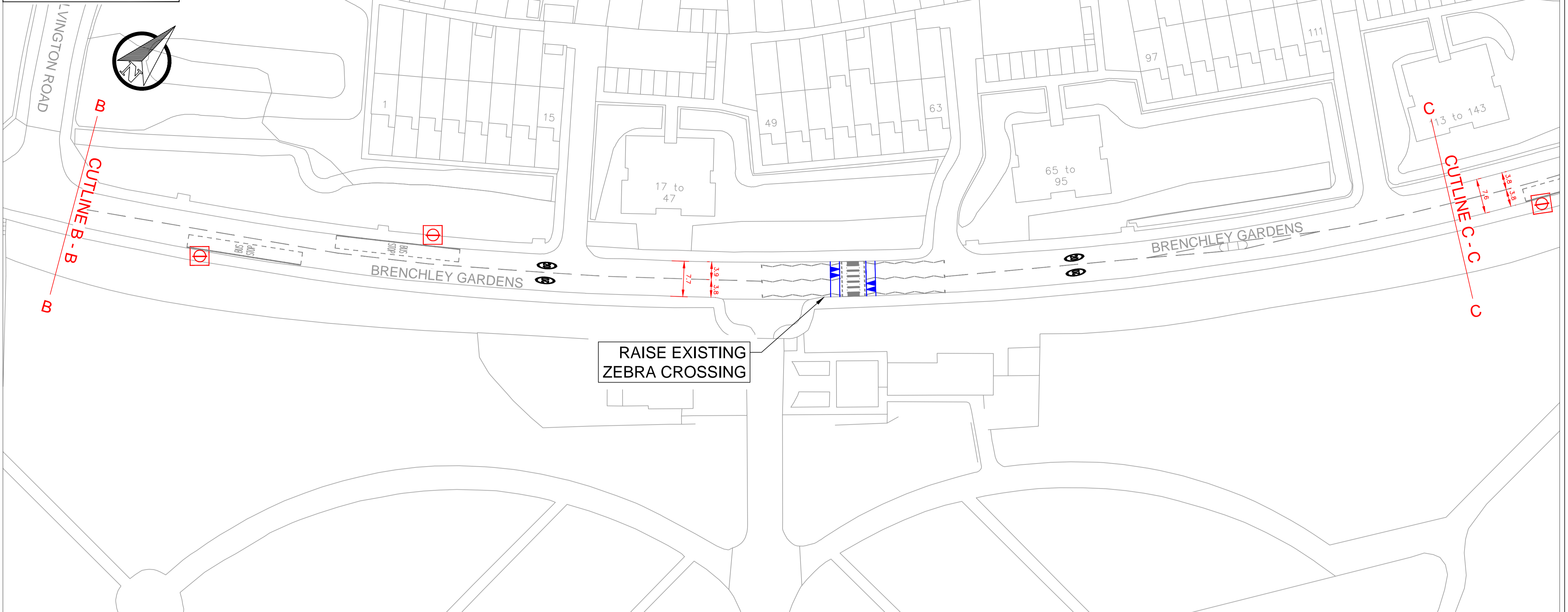
TITLE:

BRECHLEY GARDENS

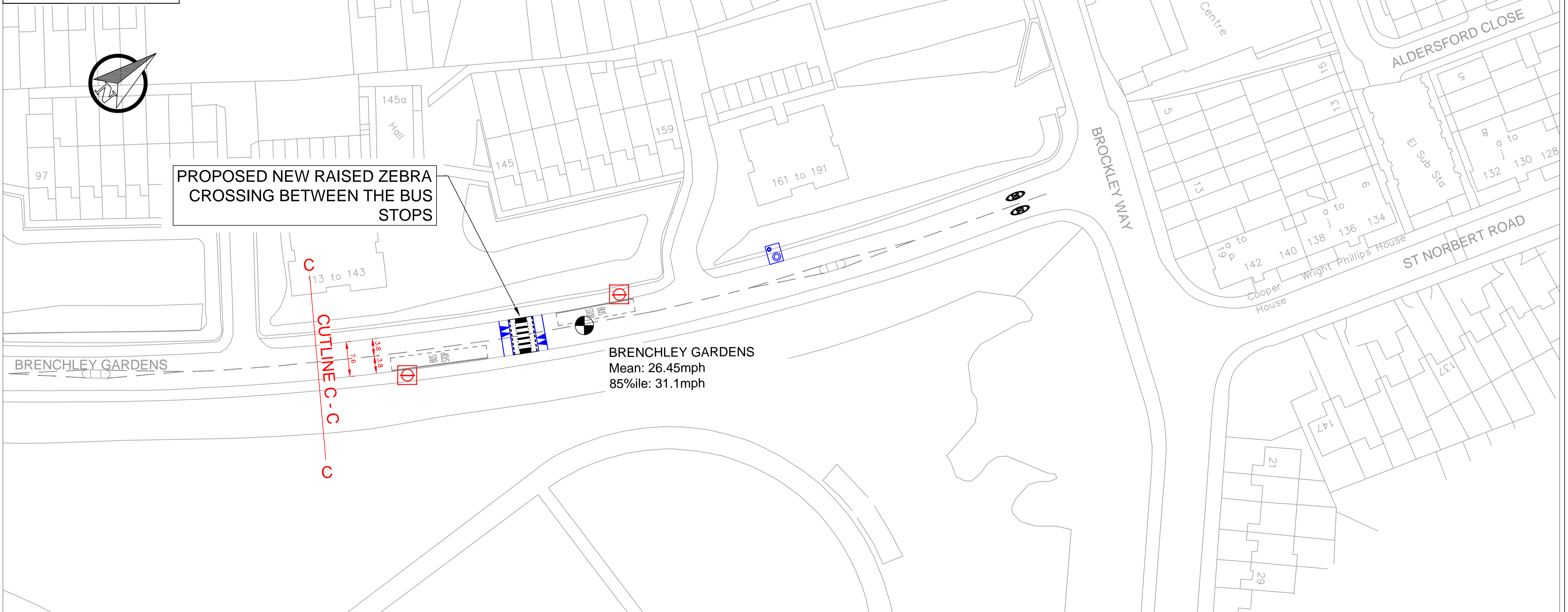
SHEET 1 OF 2

| | | | |
|--------------|----------------------|----------|-----|
| CONTRACT NO: | 60493382-C0334 | DRAWN | LO |
| SCALE: | 1 : 500 @A1 | DESIGNED | BAB |
| DRAWING NO: | 60493382-C0334-BG-01 | CHECKED | BAB |
| DATE DRAWN: | 12 DECEMBER 2016 | APPROVED | AGB |
| DATE ISSUED: | 19 DECEMBER 2016 | REV: | - |

SECTION 3




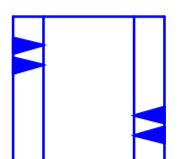





SECTION 4



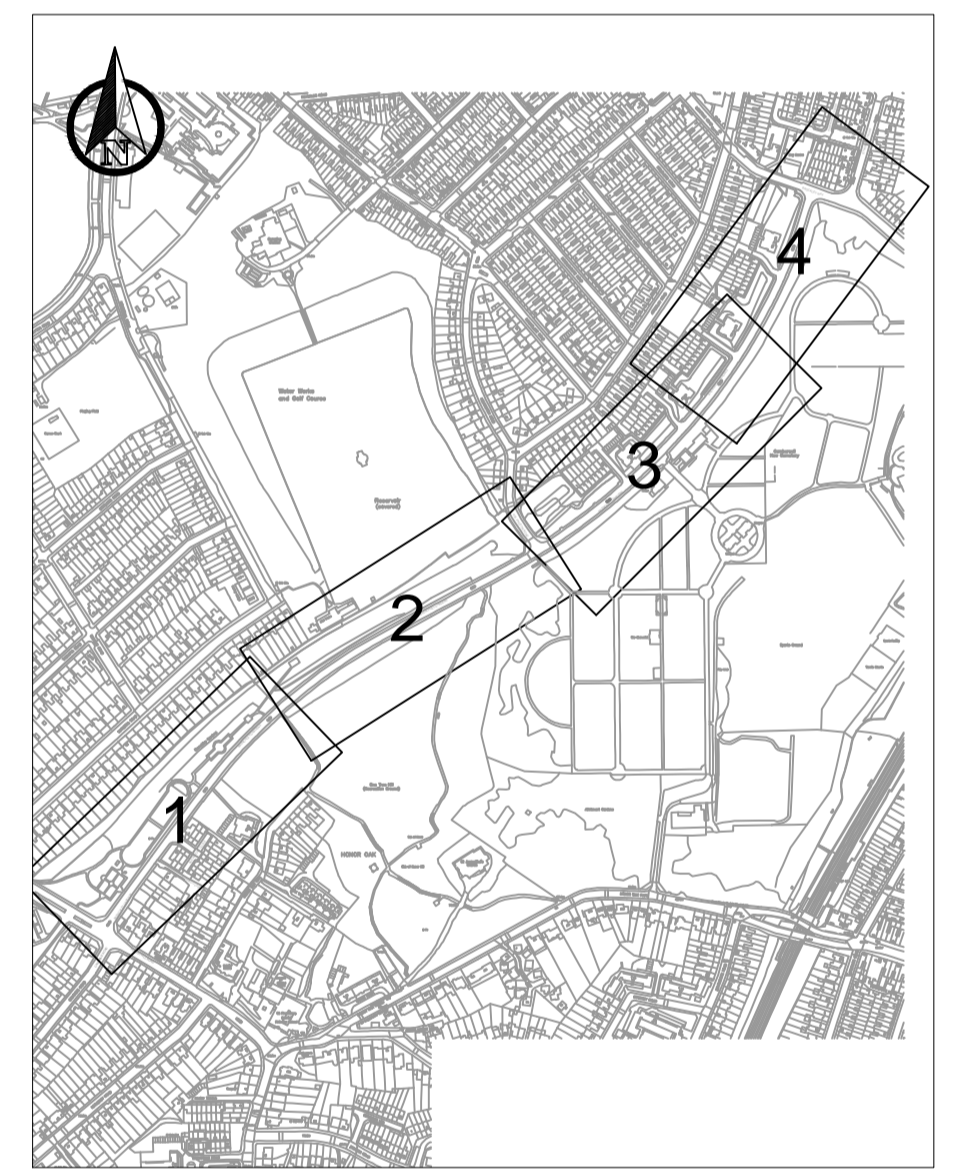
LEGEND / NOTES.

KEY:

-  EXISTING BUS STOP
-  EXISTING ROAD MARKINGS
-  EXISTING ROUNDELS
-  RAISE EXISTING CROSSING
-  PROPOSED AVERAGE SPEED CAMERA
-  PROPOSED ROAD MARKINGS
-  PROPOSED 20MPH ROUNDELS

NOTES:

1. ALL DIMENSIONS ARE IN METRES



| REV | DATE | REVISION DESCRIPTION / DETAILS | DRN BY | CHKD BY | APPRD BY |
|-----|------|--------------------------------|--------|---------|----------|
| | | | | | |

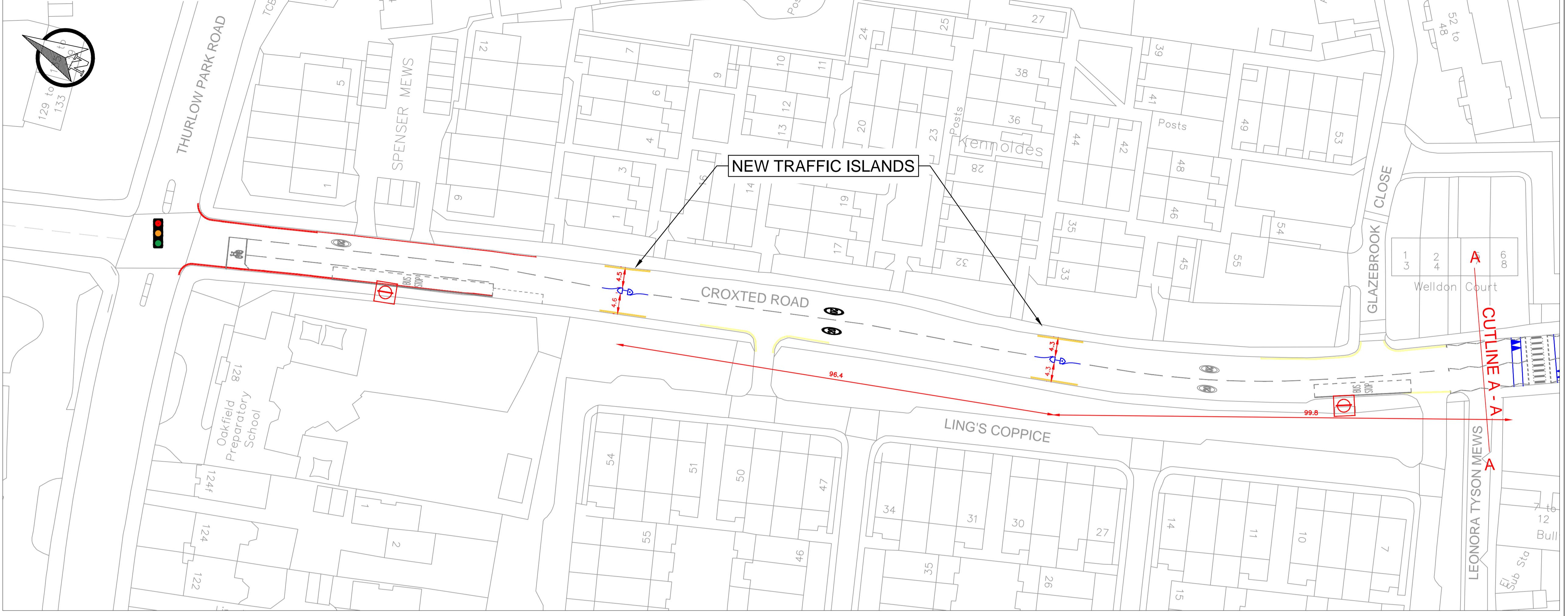
PROJECT: **20mph REVIEW FEASIBILITY DESIGN**

TITLE: **BRECHLEY GARDENS SHEET 2 OF 2**

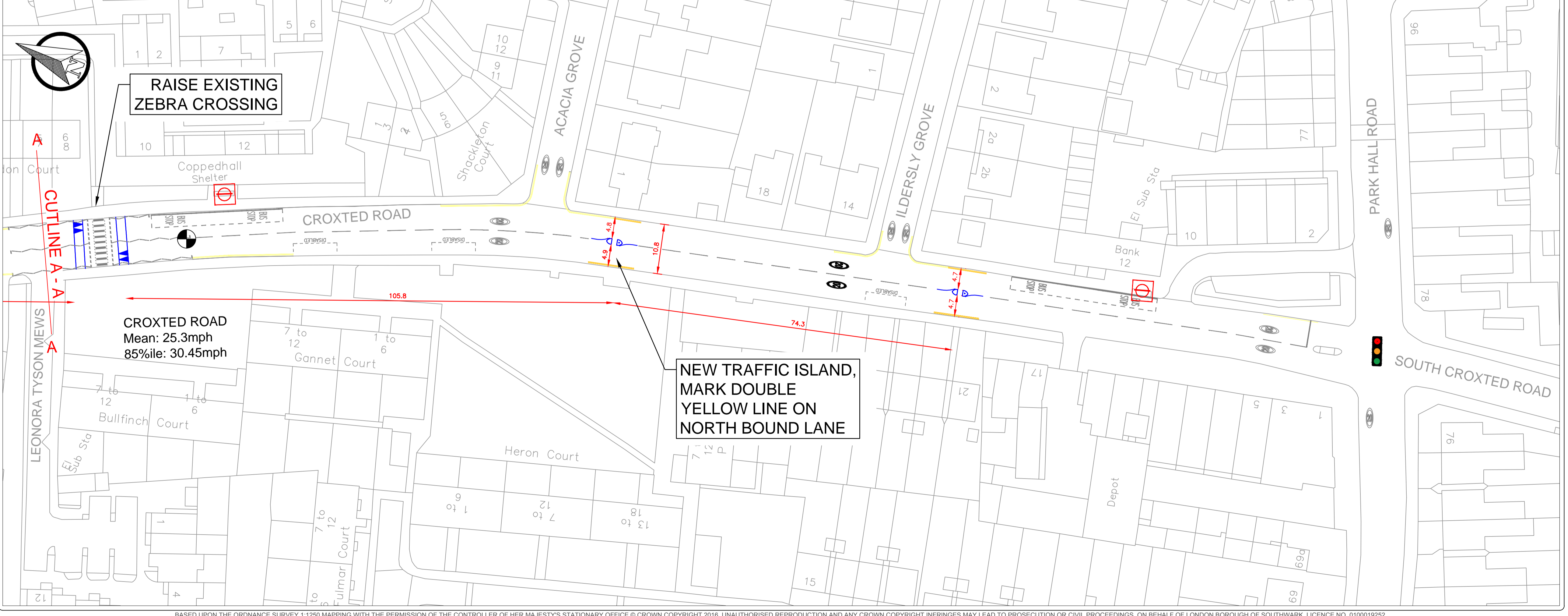
| | | |
|----------------------------------|-------------------------------|---------------|
| CONTRACT NO: 60493382-C0334 | DRAWN: LO | DESIGNED: BAB |
| SCALE: 1:500 @A1 | PURPOSE: FOR DISCUSSION | CHECKED: BAB |
| DRAWING NO: 60493382-C0334-BG-02 | APPROVED: AGB | REV: - |
| DATE DRAWN: 12 DECEMBER 2016 | DATE ISSUED: 19 DECEMBER 2016 | |

\\UKCRD1\F001\UKCRD1\F001-V1\PROJECTS\TRAFFIC - SOUTHWARK\HAP'S 2014\1606\LOT 2 PROFESSIONAL SERVICES\PROJECTS\C0334_20MPH REVIEW\50 CAD\50MPH REVIEW - STANDARD\FORREST HILL ROAD AND GROVE LANE.DWG

SECTION 1

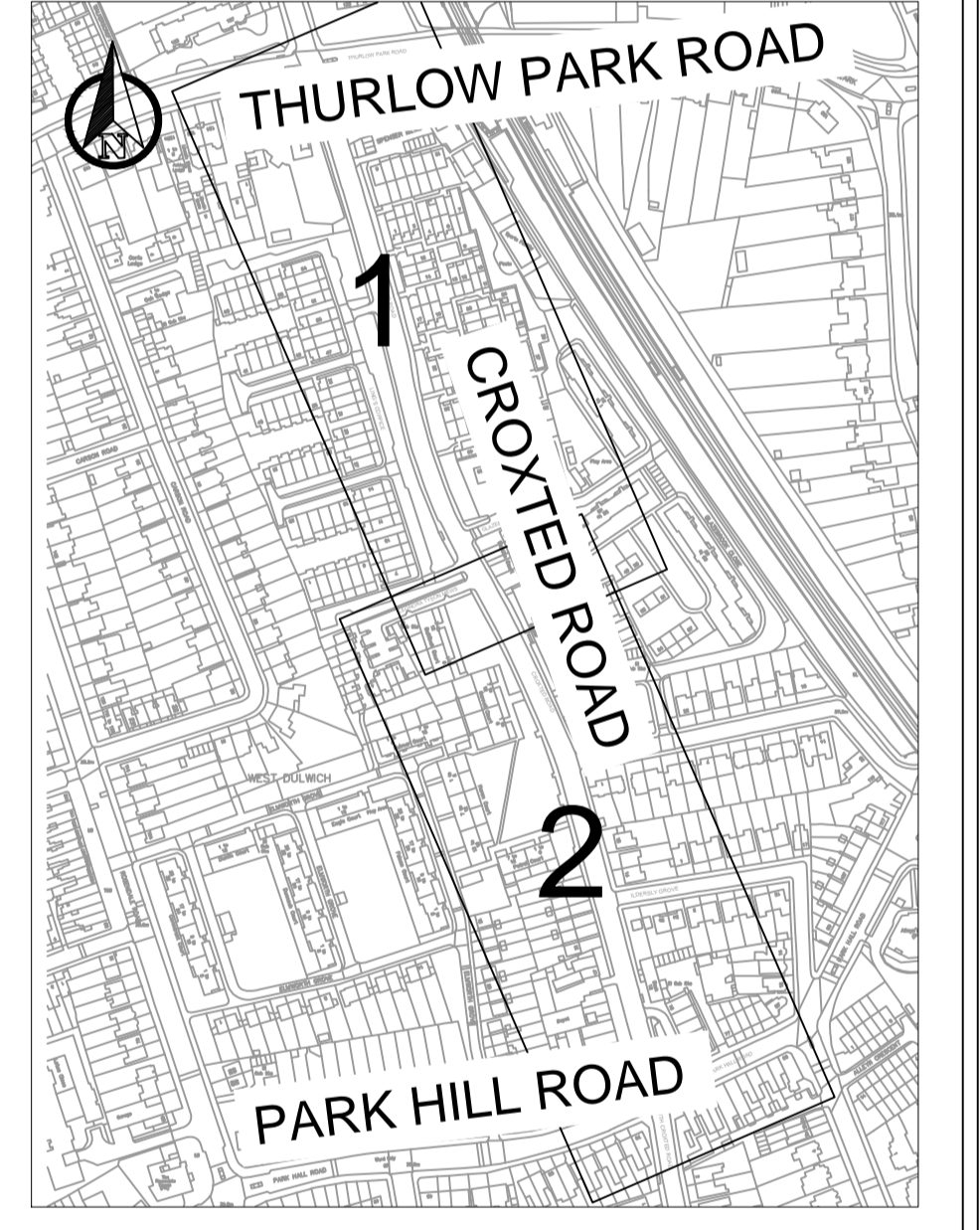


SECTION 2



LEGEND / NOTES.

- KEY:**
- SPEED SURVEY LOCATION
 - EXISTING BUS STOP
 - EXISTING SIGNALS
 - EXISTING PARKING AND STOPPING RESTRICTIONS
 - EXISTING ROAD MARKINGS
 - EXISTING ROUNDNELS
 - PROPOSED TRAFFIC ISLAND
 - RAISE EXISTING CROSSING
 - PROPOSED PARKING RESTRICTIONS
 - PROPOSED 20MPH ROUNDNELS
- NOTES:**
- ALL DIMENSIONS ARE IN METRES.
 - THE BOROUGH BOUNDARY BETWEEN THE LONDON BOROUGH OF SOUTHWARK AND LAMBETH RUNS IN THE MIDDLE OF CROXTED ROAD.

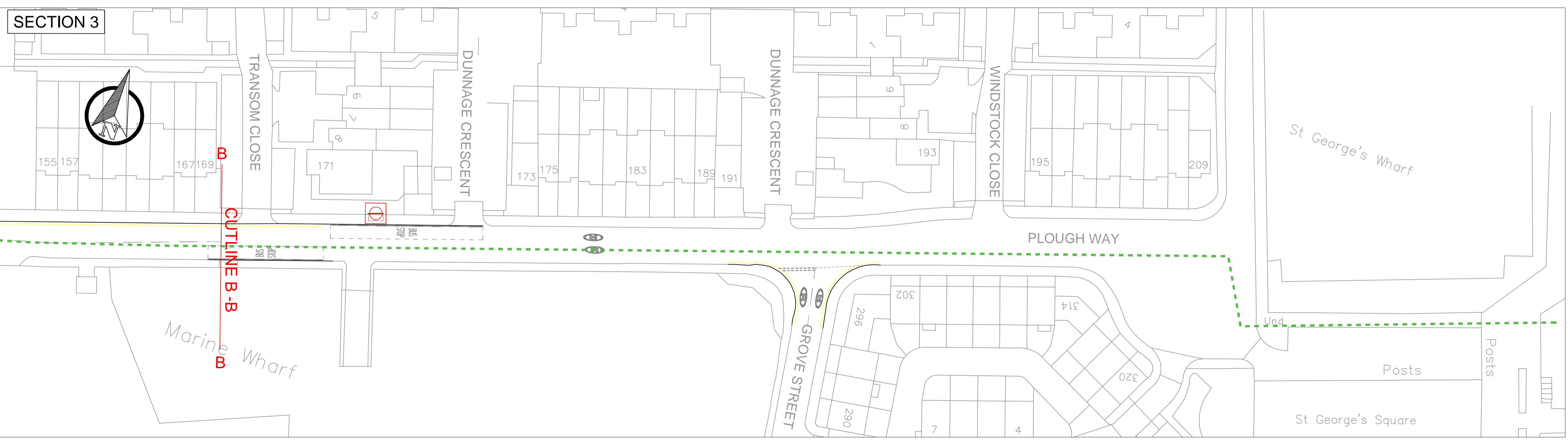
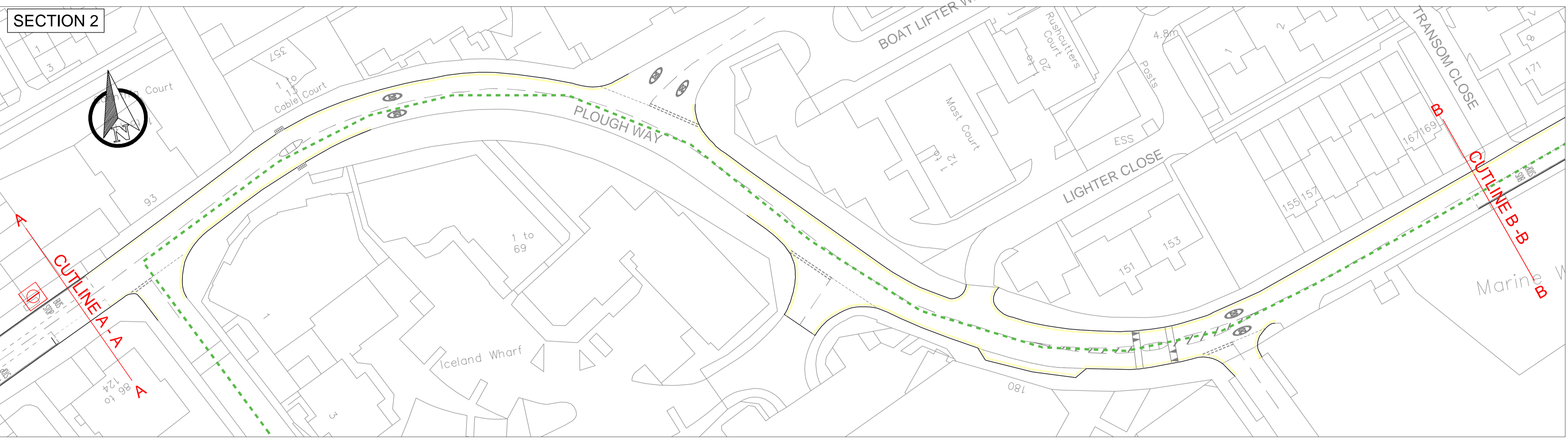
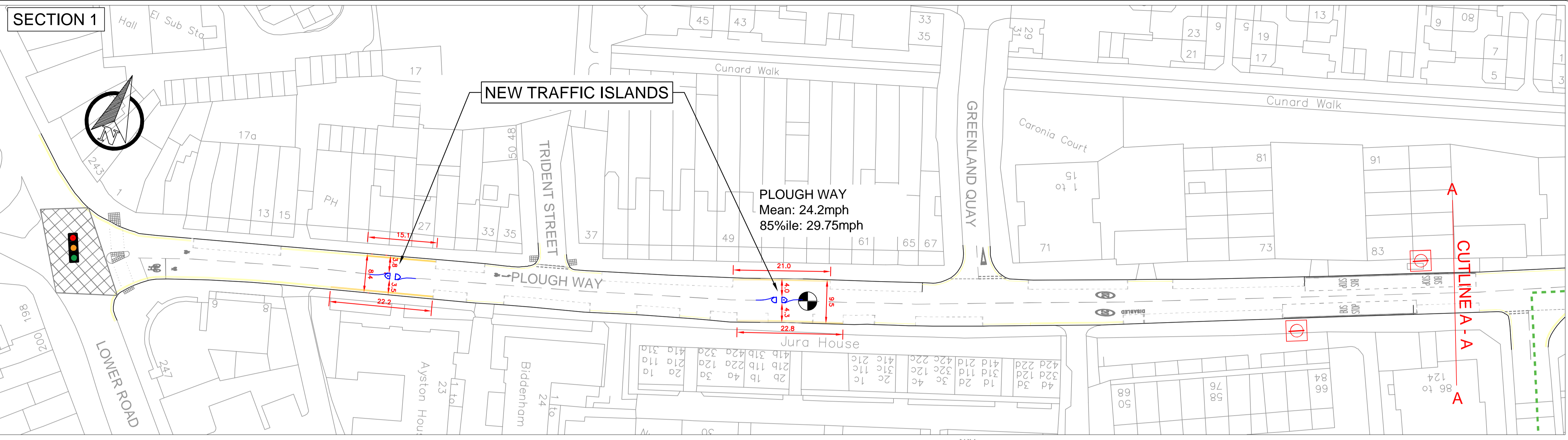


| REV | DATE | REVISION DESCRIPTION / DETAILS | DRN BY | CHKD BY | APRVD BY |
|-----|------|--------------------------------|--------|---------|----------|
| | | | | | |

Shaping Southwark's Highways

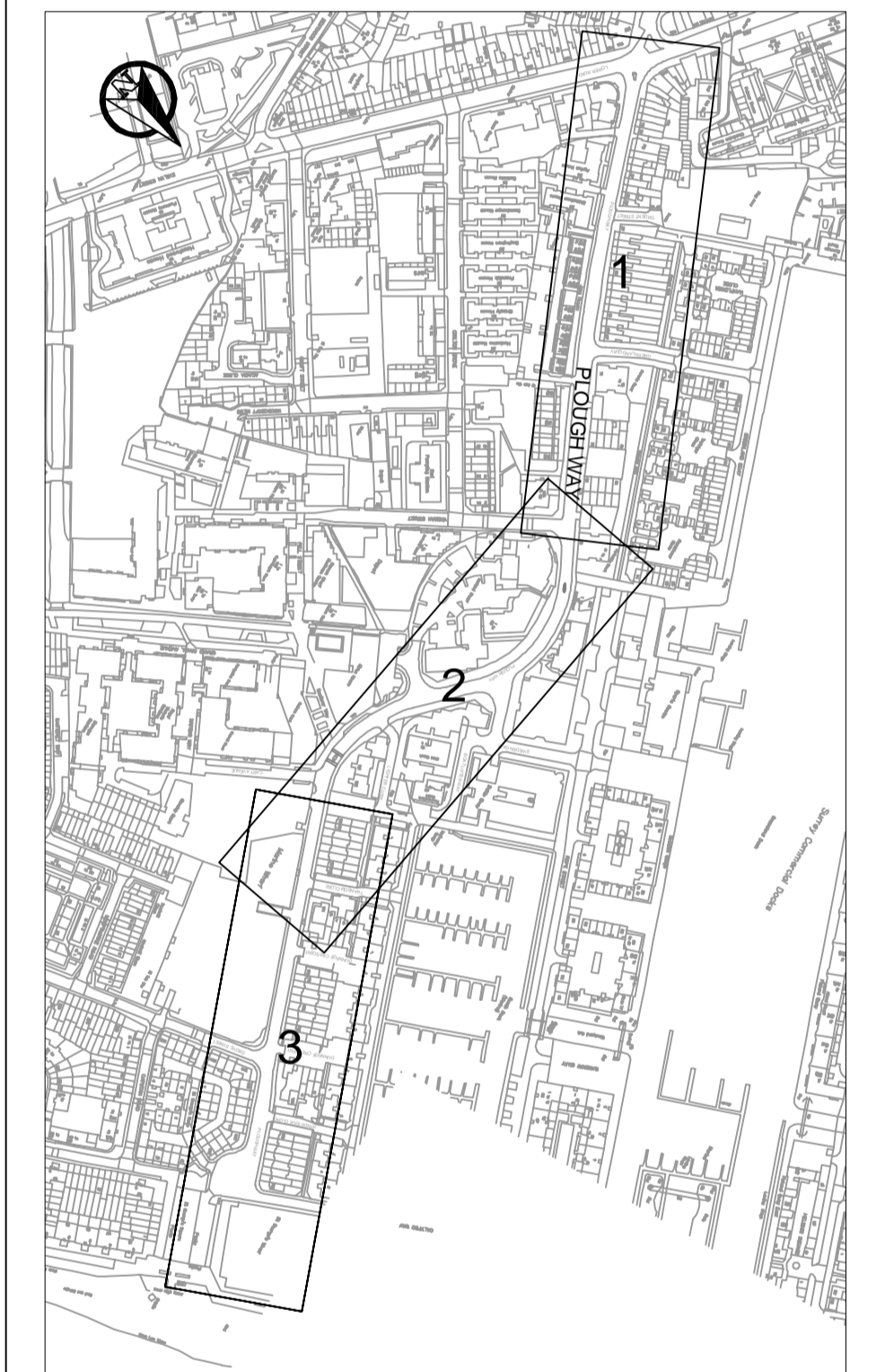
 160 TOOLEY STREET LONDON SE1P 5LX

| | | | |
|---------------------------|----------------------|----------|-----|
| PROJECT: | | | |
| 20mph REVIEW | | | |
| FEASIBILITY DESIGN | | | |
| TITLE: | | | |
| CROXTED ROAD | | | |
| CONTRACT NO: | 60493382-C0334 | DRAWN | LO |
| SCALE: | 1:500 @A1 | DESIGNED | BAB |
| DRAWING NO: | 60493382-C0334-CR-01 | CHECKED | BAB |
| DATE DRAWN: | 12 DECEMBER 2016 | APPROVED | AGB |
| DATE ISSUED: | 19 DECEMBER 2016 | REV: | - |



LEGEND / NOTES.

- KEY:**
- SPEED SURVEY LOCATION
 - EXISTING BUS STOP
 - EXISTING SIGNALS
 - EXISTING PARKING RESTRICTIONS
 - EXISTING ROAD MARKINGS
 - EXISTING ROUNDELS
 - BOROUGH BOUNDARY
 - PROPOSED TRAFFIC ISLAND



| REV | DATE | REVISION DESCRIPTION / DETAILS | DRN BY | CHKD BY | APPRD BY |
|-----|------|--------------------------------|--------|---------|----------|
| | | | | | |

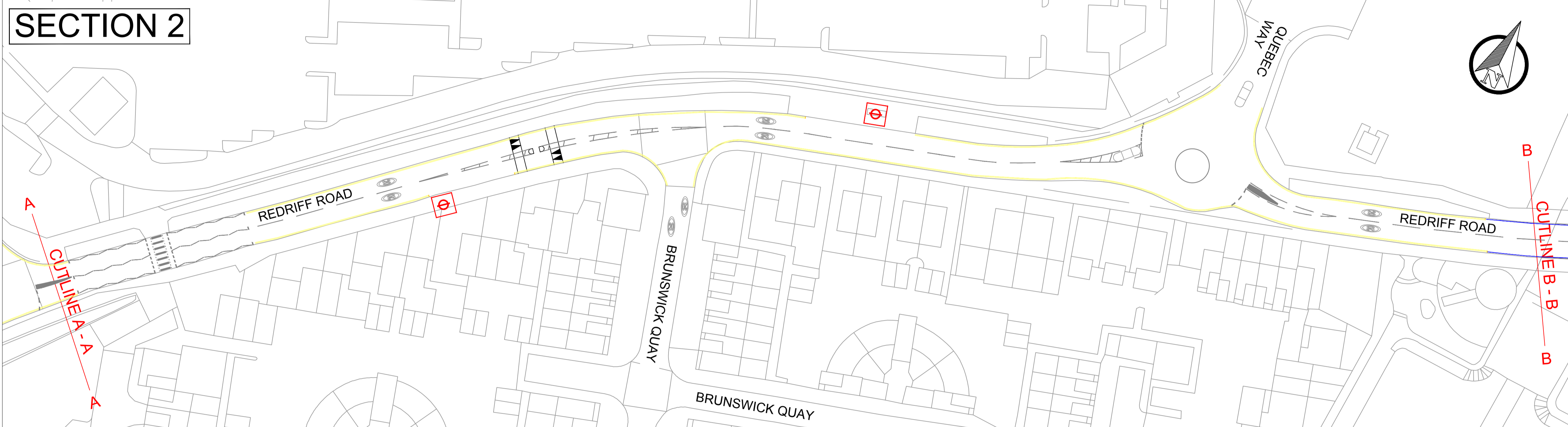


| | | | |
|--|----------------------|--------------|-----|
| PROJECT: | | | |
| 20mph REVIEW FEASIBILITY DESIGN | | | |
| TITLE: | | | |
| PLOUGH WAY | | | |
| CONTRACT NO: | 60493382-C0334 | DRAWN BY: | LO |
| SCALE: | 1:500 @A1 | DESIGNED BY: | BAB |
| DRAWING NO: | 60493382-C0334-PW-02 | CHECKED BY: | BAB |
| DATE DRAWN: | 12 DECEMBER 2016 | APPROVED BY: | AGB |
| | | REV: | - |
| DATE ISSUED: | 20 DECEMBER 2016 | | |

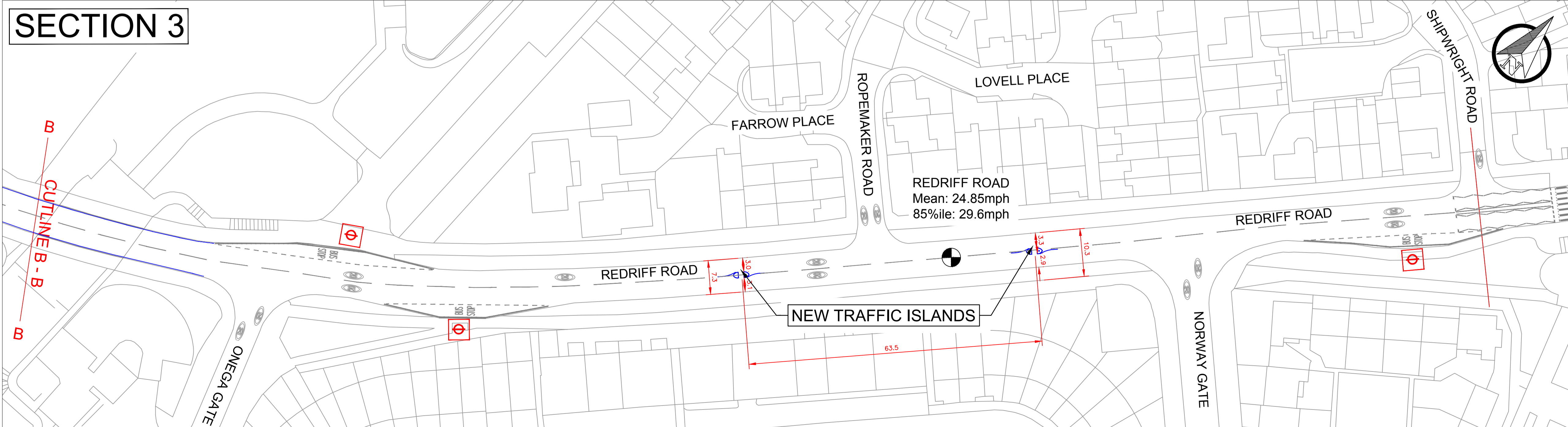
SECTION 1



SECTION 2

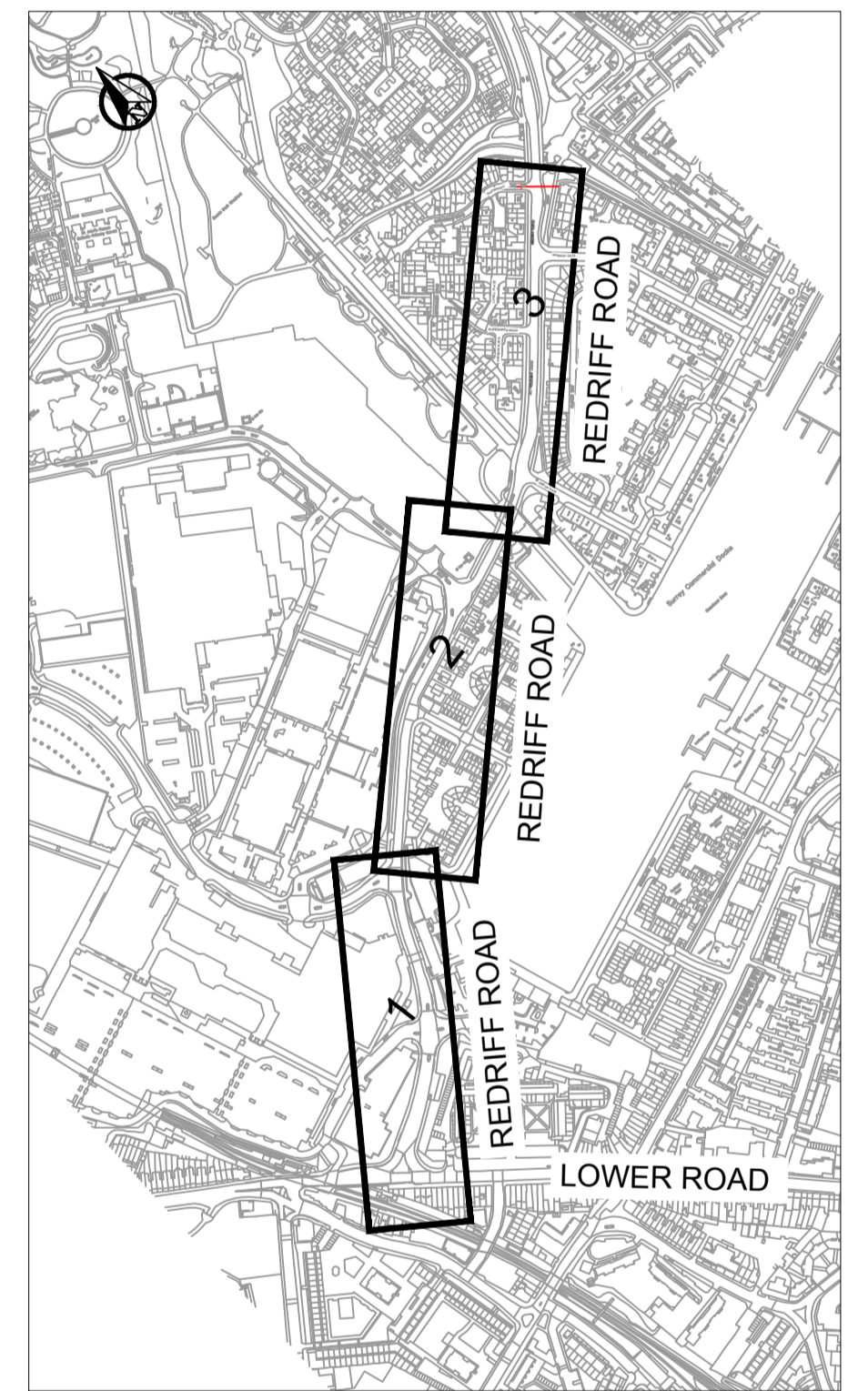


SECTION 3



LEGEND / NOTES.

- KEY:**
- SPEED SURVEY LOCATION
 - EXISTING BUS STOP
 - EXISTING BUS STOP
 - EXISTING ROUNDABOUTS
 - EXISTING ROAD MARKINGS
 - EXISTING PARKING
 - EXISTING PARKING
 - PROPOSED TRAFFIC ISLAND

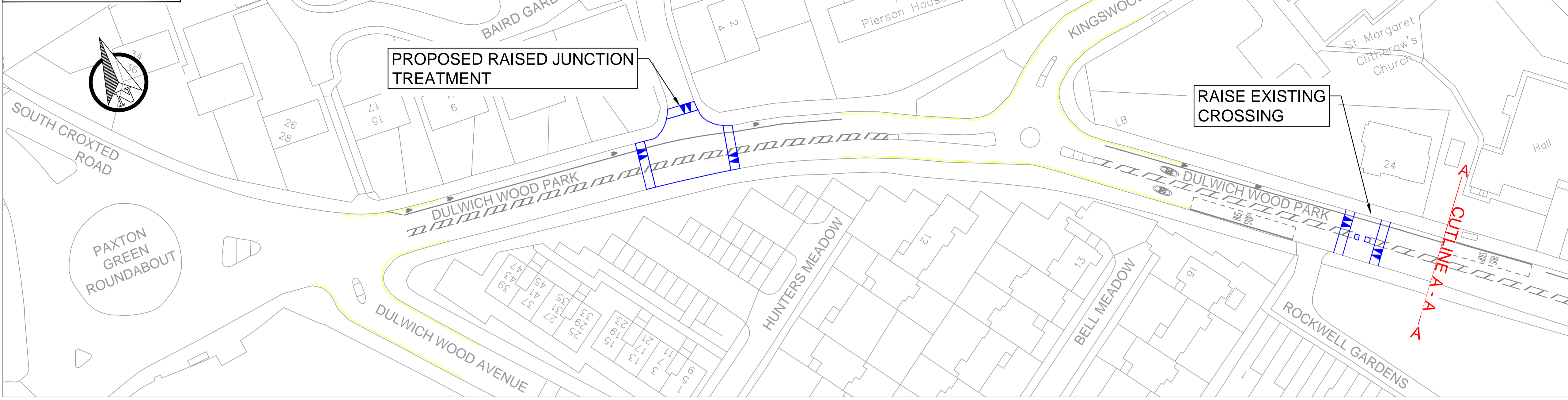


| REV | DATE | REVISION DESCRIPTION / DETAILS | DRN BY | CHKD BY | APRVD BY |
|-----|------|--------------------------------|--------|---------|----------|
| | | | | | |

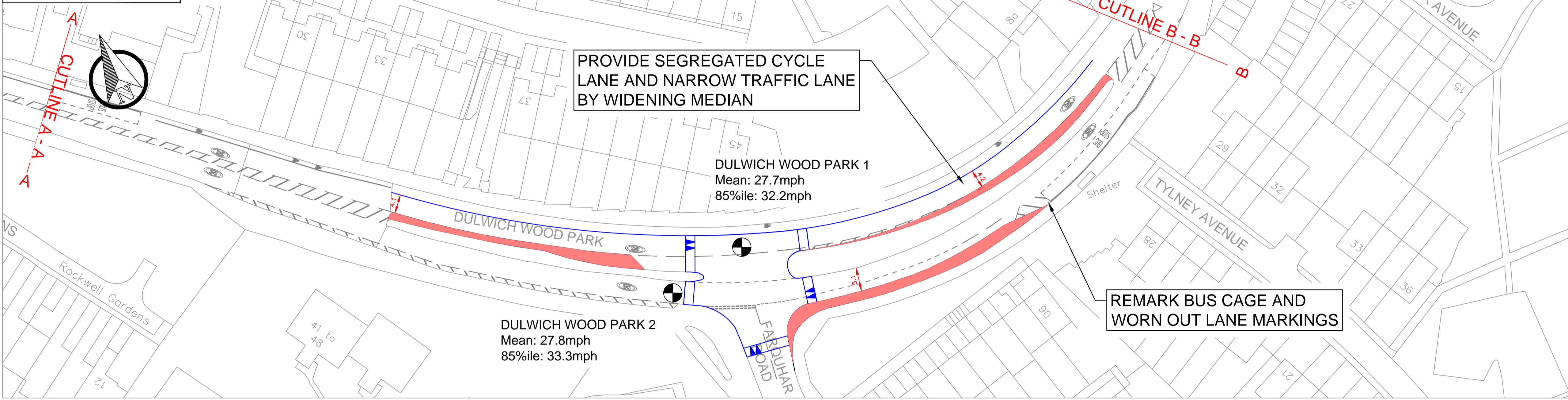


| | | | | | |
|--|----------------------|--------------|------------------|--------------|-----|
| PROJECT: | | | | | |
| 20mph REVIEW FEASIBILITY DESIGN | | | | | |
| TITLE: REDRIFF ROAD | | | | | |
| CONTRACT NO: | 60493382-C0334 | DRAWN BY: | LO | DESIGNED BY: | BAB |
| SCALE: | 1:500 @A1 | PURPOSE: | FOR DISCUSSION | CHECKED BY: | AGB |
| DRAWING NO: | 60493382-C0334-RR-01 | APPROVED BY: | AGB | REV: | - |
| DATE DRAWN: | 12 DECEMBER 2016 | DATE ISSUED: | 20 DECEMBER 2016 | | |

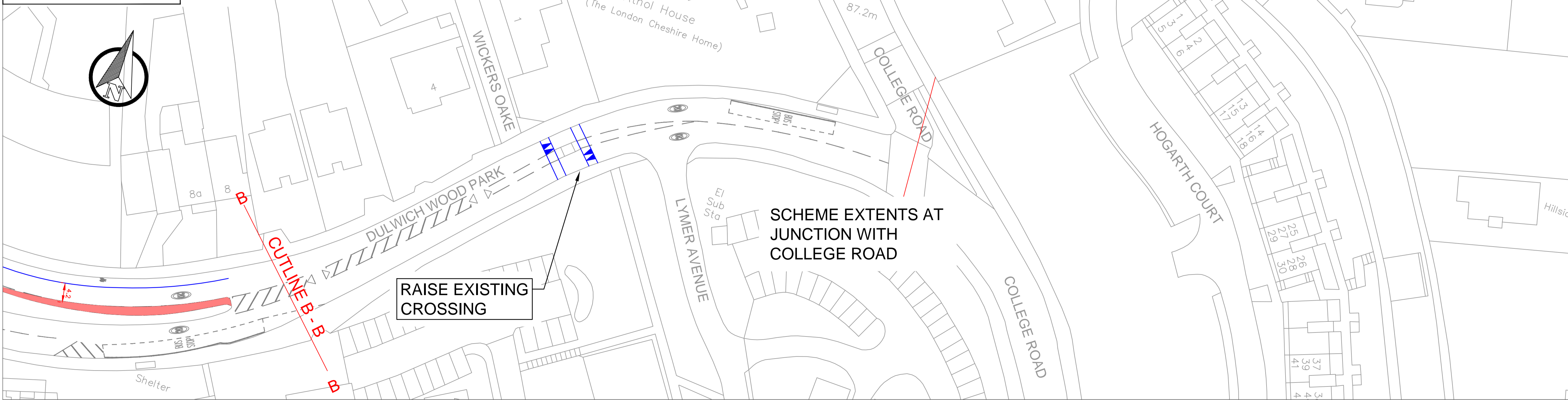
SECTION 1



SECTION 2

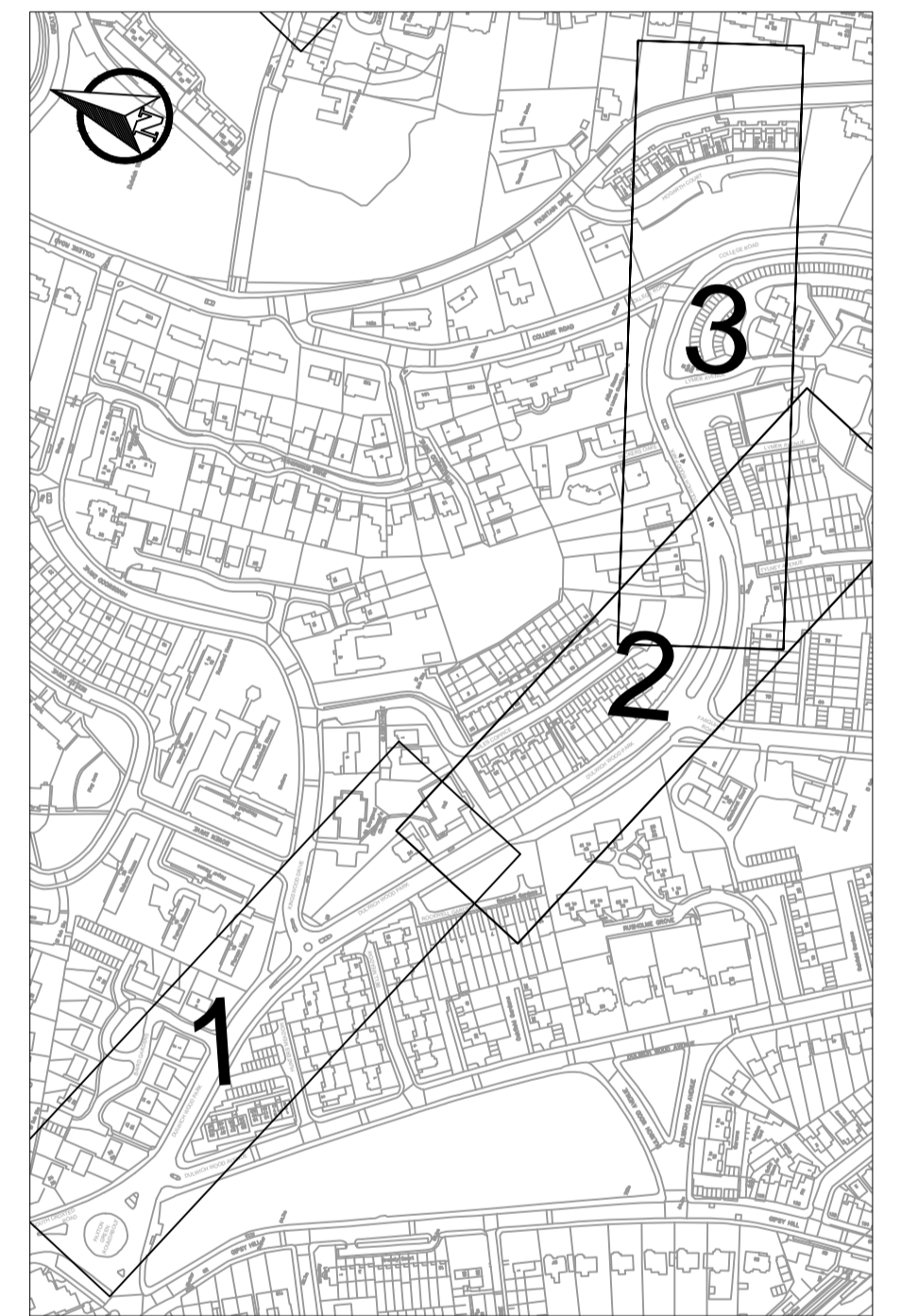


SECTION 3



LEGEND / NOTES.

- KEY:**
- SPEED SURVEY LOCATION
 - EXISTING BUS STOP
 - EXISTING SIGNALS
 - EXISTING PARKING RESTRICTIONS
 - EXISTING ROAD MARKINGS
 - EXISTING ROUNDELS
 - RAISE EXISTING CROSSING
 - PROPOSED RAISED JUNCTION TREATMENT
 - PROPOSED FOORWAY/MEDIAN BUILDOUT

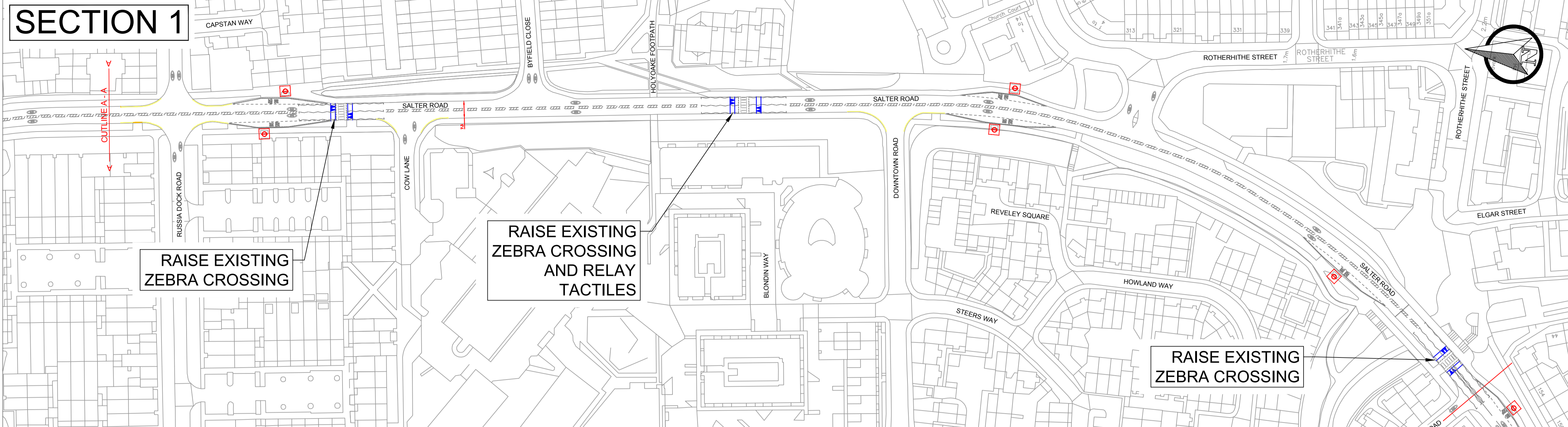


| REV | DATE | REVISION DESCRIPTION / DETAILS | DRN BY | CHKD BY | APRVD BY |
|-----|------|--------------------------------|--------|---------|----------|
| | | | | | |

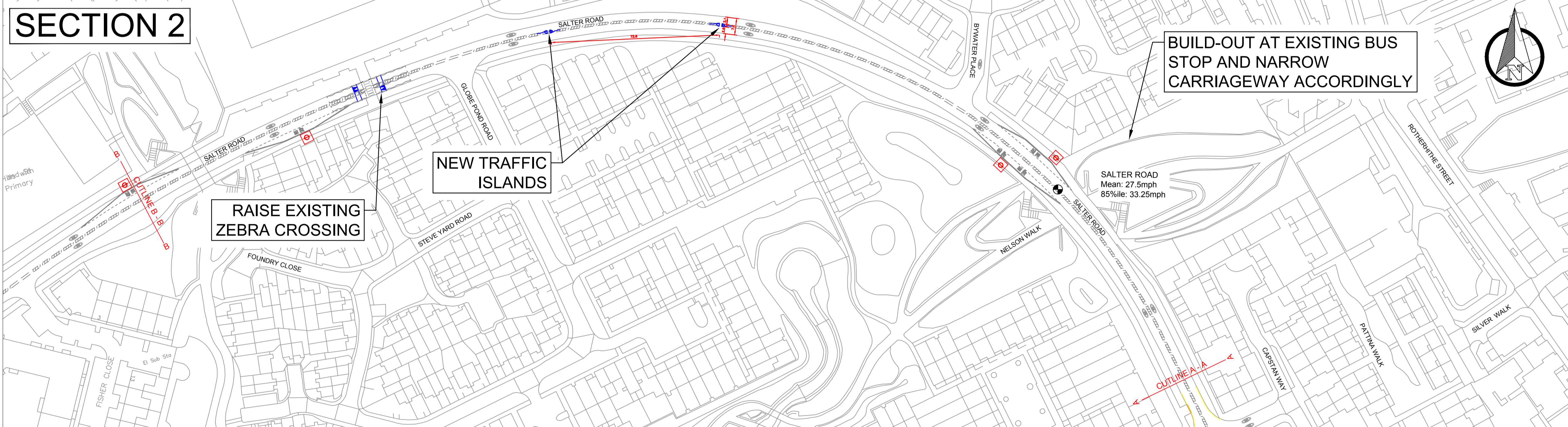


| | | | |
|--|---------------------------------|--|-------------------------|
| PROJECT: 20mph REVIEW FEASIBILITY DESIGN | | | |
| TITLE: DULWICH WOOD PARK | | | |
| CONTRACT NO: 60493382-C0334 | PURPOSE: FOR DISCUSSION | DRAWN DESIGNED CHECKED APPROVED | LO BAB BAB AGB |
| DRAWING NO: 60493382-C0334-DWP-01 | DATE DRAWN: 12 DECEMBER 2016 | DATE ISSUED: 20 DECEMBER 2016 | REV: - |

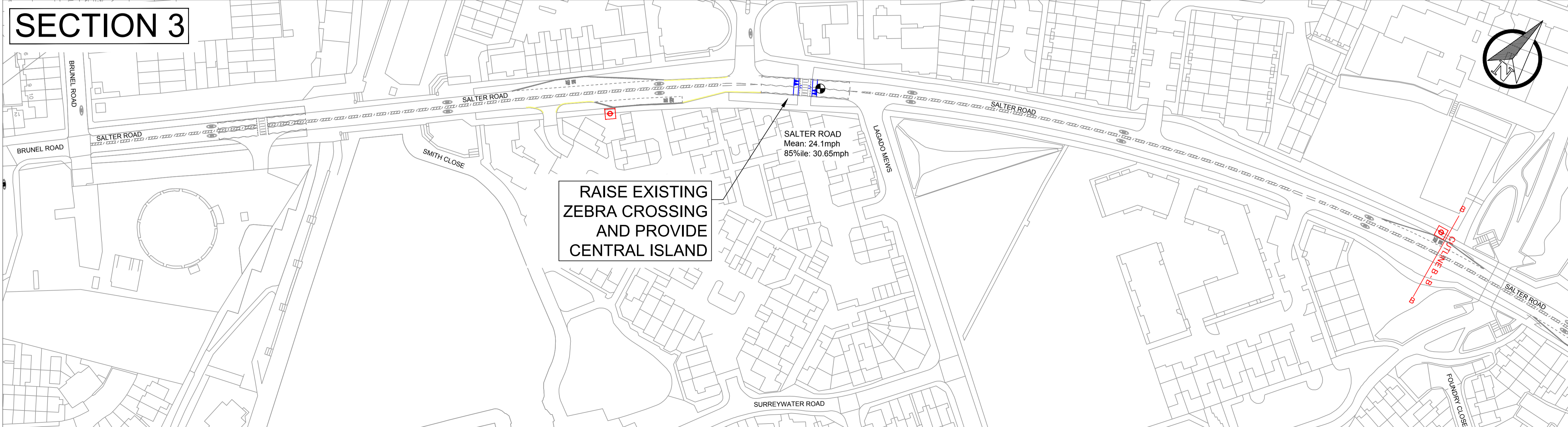
SECTION 1



SECTION 2

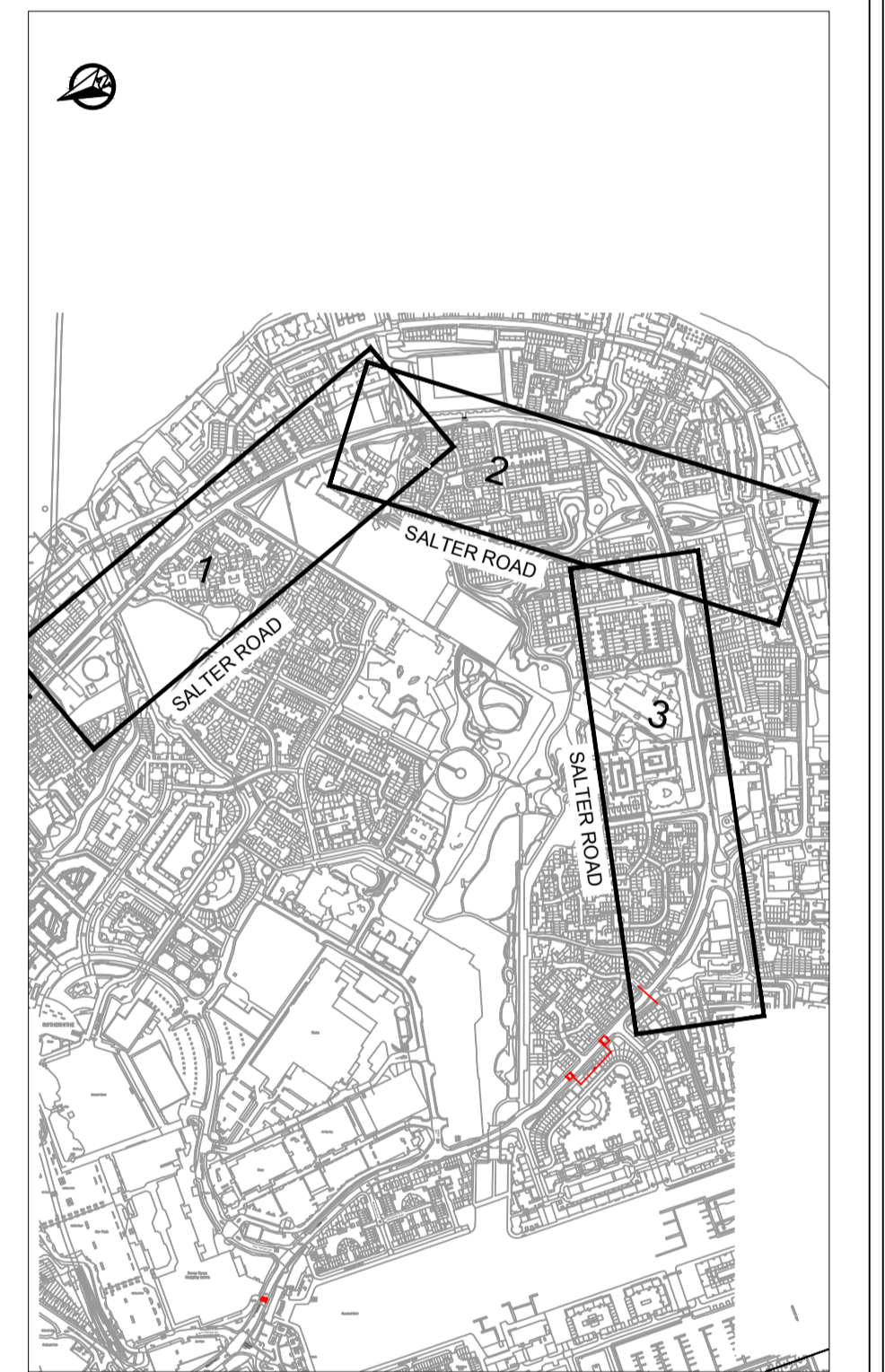


SECTION 3



LEGEND / NOTES.

- KEY:**
- SPEED SURVEY LOCATION
 - EXISTING BUS STOP
 - EXISTING ROUNDELS
 - EXISTING ROAD MARKINGS
 - EXISTING PARKING RESTRICTIONS
 - UNRESTRICTED PARKING
 - PROPOSED TRAFFIC ISLAND
 - PROPOSED TRAFFIC ISLAND
 - PROPOSED PARKING RESTRICTIONS



| REV | DATE | REVISION DESCRIPTION / DETAILS | DRN BY | CHKD BY | APRVD BY |
|-----|------|--------------------------------|--------|---------|----------|
| | | | | | |

Shaping Southwark's Highways

 160 TOOLEY STREET LONDON SE1P 5LX

| | | | | | |
|--------------------|----------------------|--------------|------------------|----------|-----|
| PROJECT: | | | | | |
| 20mph REVIEW | | | | | |
| FEASIBILITY DESIGN | | | | | |
| TITLE: | | | | | |
| SALTER ROAD | | | | | |
| CONTRACT NO: | 60493382-C0334 | DRAWN | LO | DESIGNED | BAB |
| SCALE: | 1: 1000 @A1 | PURPOSE: | FOR DISCUSSION | CHECKED | BAB |
| DRAWING NO: | 60493382-C0334-SR-01 | APPROVED | AGB | REV: | - |
| DATE DRAWN: | 12 DECEMBER 2016 | DATE ISSUED: | 20 DECEMBER 2016 | | |

U:\CROD\100\UKCRD\100\VTI\PROJECTS\TRAFFIC - SOUTHWARK\HWS 2014\1006.LOT 1\PROFESSIONAL SERVICES\PROJECTS\C0334_20MPH REVIEW\1050 CAD\20MPH REVIEW - STANDARD\20MPH REVIEW\20170205-REV103-22551 -YA.DWG

APPENDIX B

COST ESTIMATES

| Location | Item (units) | Units | Cost per unit | Total Cost |
|--|---|---------|---------------|--------------------|
| BARRY ROAD | Traffic islands | 5 | £1,021.59 | £5,107.93 |
| | Raise jw Underhill Rd | 1 | £15,378.97 | £15,378.97 |
| | Raise jw Upland Rd | 1 | £19,970.96 | £19,970.96 |
| | Gullies including connection to existing gully | 4 | £983.26 | £3,933.04 |
| | TMO | 1 | £1,500.00 | £1,500.00 |
| | Double yellow lines | 1 | £300.00 | £300.00 |
| | 20mph roundels | 8 | £72.38 | £579.04 |
| TOTAL FOR BARRY ROAD including 40% Contingencies | | | | £65,500.00 |
| FOREST HILL ROAD | Raised table between Wood Vale and Canonbie Road | 1 | £43,349.86 | £43,349.86 |
| | Raise existing crossing east of jw Canonbie Rd | 1 | £84.70 | £84.70 |
| | Gullies including connection to existing gully | 10 | £983.26 | £9,832.60 |
| | Gullies including connection to existing gully | 6 | £983.26 | £5,899.56 |
| TOTAL FOR FOREST HILL ROAD including 40% Contingencies | | | | £82,900.00 |
| SYDENHAM HILL | 20mph roundels | 10 | £72.38 | £723.80 |
| | Traffic islands | 4 | £1,021.59 | £4,086.34 |
| | Orca kerbs for segregated cycle lane | 1 | £5,545.00 | £5,545.00 |
| | Provide mini roundabouts | 2 | £8,000.00 | £16,000.00 |
| | Chicane | 2 | £5,453.62 | £10,907.24 |
| | Provide road markings for existing layby | 16 | £1.14 | £18.24 |
| | Raise existing zebra west of northern jw Crescent Wood Rd | 1 | £21,817.29 | £21,817.29 |
| | Road markings | 1 | £1,000.00 | £1,000.00 |
| | Raised crossing outside Castlebar (Old People's Home) | 1 | £19,753.97 | £19,753.97 |
| | Raised Table at jw Lapse Wood Park | 1 | £25,191.36 | £25,191.36 |
| Gullies including connection to existing gully | 8 | £983.26 | £7,866.08 | |
| TOTAL FOR SYDENHAM HILL including 40% Contingencies | | | | £158,100.00 |
| BRECHLEY GARDENS | 20mph roundels | 10 | £72.38 | £723.80 |
| | Chicanes | 2 | £1,749.70 | £3,499.40 |
| | Traffic islands | 1 | £1,021.59 | £1,021.59 |
| | Raise existing zebra crossing | 1 | £9,271.79 | £9,271.79 |
| | New raised zebra crossing between bus stops | 1 | £19,935.07 | £19,935.07 |
| | Gullies including connection to existing gully | 6 | £983.26 | £5,899.56 |
| TOTAL FOR BRECHLEY GARDENS including 40% Contingencies | | | | £56,500.00 |
| CROXTED ROAD | Traffic islands | 4 | £1,021.59 | £4,086.34 |
| | Double yellow lines | 80 | £1.14 | £91.20 |
| | 20mph roundels | 4 | £72.38 | £289.52 |
| | Raise existing zebra crossing | 1 | £14,952.51 | £14,952.51 |
| | Gullies including connection to existing gully | 4 | £983.26 | £3,933.04 |
| TOTAL FOR CROXTED ROAD including 40% Contingencies | | | | £32,700.00 |
| PLOUGH WAY | Traffic islands | 2 | £4,654.76 | £9,309.52 |
| | Road markings | 1 | £300.00 | £300.00 |
| TOTAL FOR PLOUGH WAY including 40% Contingencies | | | | £13,500.00 |
| REDRIFF ROAD | Traffic islands | 3 | £1,021.59 | £3,064.76 |
| | Raised table to the east of jw Norway Gate | 1 | £10,686.64 | £10,686.64 |
| | Gullies including connection to existing gully | 4 | £983.26 | £3,933.04 |
| | Road markings | 1 | £300.00 | £300.00 |
| TOTAL FOR REDRIFF ROAD including 40% Contingencies | | | | £25,200.00 |
| DULWICH WOOD PARK | Raised Table at jw Baird Gardens | 1 | £32,729.70 | £32,729.70 |
| | Raise existing crossing outside Rockwell gardens | 1 | £12,176.74 | £12,176.74 |
| | Raised Table outside number 8 Dulwich Wood Park | 1 | £64,504.89 | £64,504.89 |
| | Footway buildout | 1 | £8,487.75 | £8,487.75 |
| | Road markings | 1 | £500.00 | £500.00 |
| | Raised junction between jw Wickers Oake and Lymer Ave | 1 | £10,623.92 | £10,623.92 |
| Gullies including connection to existing gully | 10 | £983.26 | £9,832.60 | |
| TOTAL FOR DULWICH WOOD PARK including 40% Contingencies | | | | £194,400.00 |

| Location | Item (units) | Units | Cost per unit | Total Cost |
|--|--|-------|---------------|--------------------|
| SALTER ROAD | Traffic islands | 2 | £1,021.59 | £2,043.17 |
| | Raise existing crossing between Russia Dock Rd and Byefield Close | 1 | £12,104.00 | £12,104.00 |
| | Raise existing crossing between Byefield Close and Downtown Rd | 1 | £12,085.18 | £12,085.18 |
| | Relay tactiles on raised crossing | 1 | £1,519.25 | £1,519.25 |
| | Raise existing zebra crossing north of jw Shipwright Rd | 1 | £10,686.64 | £10,686.64 |
| | Raise existing zebra crossing between Fisher Close and Globe Pond Rd | 1 | £18,063.17 | £18,063.17 |
| | Build out at existing bus stop | 1 | £12,000.00 | £12,000.00 |
| | Raise existing zebra crossing between jw Rotherhithe St and Lagado Mews + traffic island | 1 | £10,361.11 | £10,361.11 |
| | Gullies including connection to existing gully | 10 | £983.26 | £9,832.60 |
| TOTAL FOR SALTER ROAD including 40% Contingencies | | | | £124,200.00 |
| GROVE LANE | Chicane | 1 | £2,108.87 | £2,108.87 |
| | Raised crossing | 1 | £9,173.95 | £9,173.95 |
| | Raised table on jw Champion Grove | 1 | £40,385.95 | £40,385.95 |
| | Gullies including connection to existing gully | 6 | £983.26 | £5,899.56 |
| TOTAL FOR GROVE LANE including 40% Contingencies | | | | £80,600.00 |

GRAND TOTAL £833,600.00