

**Long Ditton Schools,
Surbiton, KT6 5JR
Highway Safety Measures
Feasibility / Outline Design Report**

December 2013

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Highway Safety Measures

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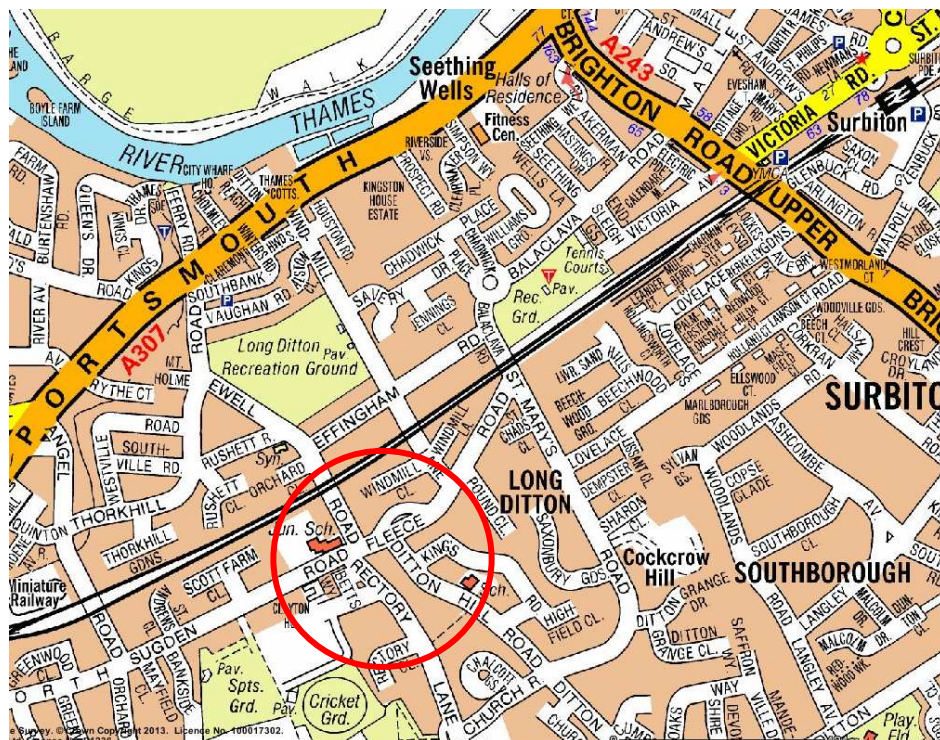
1. INTRODUCTION:

Long Ditton Infants School and St Mary's Junior School are located on Sudgen Road and Ditton Hill Road, respectively. These two roads are linked to Fleece Road by mini-roundabouts and are both single carriageway roads with one lane in each direction. They are subject to a 30mph speed limit and are well lit by a continuous system of street lighting.

A petition was submitted to the November 2012 meeting of the Local Committee, signed by 197 residents concerning safety, speed and volume of vehicular traffic in the vicinity of Long Ditton Infants School and St Mary's Junior School. The petition requested a 20mph zone encompassing both Long Ditton & St Mary's Schools, traffic calming, and a pedestrian crossing at the Infants School in the form of a raised table.

Further background information is included within the design brief that is attached as Appendix A.

The purpose of this report is therefore to assess the feasibility of any improvements so that the most appropriate solution is introduced. Based on the design brief, the main focus of this report is on the crossing point outside Long Ditton Infants School and what traffic calming measures could be introduced in order to provide a 20mph zone.



2. SITE ANALYSIS:

The project area encompasses Sugden Road, Ewell Road, Fleece Road, Rectory Lane and Ditton Hill road.

Sugden Road is relatively straight single carriageway residential road, which generally measures 8m wide. Footways are present on both sides within the project area and one of the schools in question (St Mary's Junior School) is located at its eastern end, just prior to its junction with Rectory Lane.

Ewell Road is a straight single carriageway residential road with parking laybys on both sides. The road is approximately 6m wide but this narrows to around 4.5m under the railway bridge where there is an existing priority give way system in place. Footways are present on both sides of the road and there is a pedestrian access into St Mary's Junior School located at the southern end, just before it meets Fleece Road at the mini roundabout.

Fleece Road is made up of two sections. The first links Ewell Road with Rectory Lane and has a mini roundabout at either end. This short section has a number of local businesses located along it and there is also capacity for some on street parking along the frontage of these businesses. Again, footways are present on both sides of the road and the road itself measures around 6m wide. The second section of Fleece Road links Ditton Hill Road with St Mary's Road to the east and is a single carriageway residential road. The road measures approximately 7m wide and has footways along both sides. There is some on street parking that occurs near to it's junction with Ditton Hill Road.

Rectory Lane is a single carriageway residential road measuring around 8m wide. There is a significant amount of on street parking that occurs on both sides of the road. Footways are present on both sides of the road.

Ditton Hill Road is more sinuous in alignment than the other roads within the project area. Its width varies between 7m and 10m and like Rectory Road, there is a significant amount of on street parking that occurs. Footways are present on both sides within the project area and the second of the schools in question (Long Ditton Infants School) is located half way between its junctions with Fleece Road and St Mary's Road.

In 1998 a comprehensive traffic calming and safer routes to school scheme was introduced in Ditton Hill Road, Fleece Road, Ewell Road, Sugden Road and Rectory Lane. This comprised a number of different traffic calming and highway safety measures, all of which are detailed in the design brief that is attached as Appendix A.

3. DATA COLLECTION:

3.1 Statutory Authorities Plant Request;

The following Statutory Authorities were approached with a level C2 Enquiry in October 2013. It should be noted that C2 enquiries are preliminary enquiries only and that depth of cover and possible costs of diversion would have to be established at the detailed design stage, prior to construction:

- 1 National Grid Gas
- 2 BT
- 3 UKPN (electricity)
- 4 Affinity Water
- 5 Scottish and Southern (electricity)
- 6 Thames Water
- 7 Virgin Media
- 8 Traffic Signals (SCC)
- 9 Linesearch (petroleum and high pressure gas)
- 10 South East Water
- 11 Sutton and East Surrey Water

The following Statutory Authorities do not have any apparatus in the area:

Affinity Water
Scottish and Southern (electricity)
Traffic Signals (SCC)
Linesearch (petroleum and high pressure gas)
South East Water
Sutton and East Surrey Water

Referring to the Statutory Authority plans, there could potentially be diversionary or protective works for all of the authorities who have apparatus in the area. In practice, it would be hoped that the majority of any conflict could be overcome during the detailed design stage. However, there may still be statutory authority works required. Costs for such works can only be identified at the detailed design stage.

Copies of the C2 replies are available upon request.

3.2 Vehicle Survey Analysis;

The 85th percentile speed is the speed at which 85% of drivers will travel at or below. This figure is recognised as a method of evaluating vehicle speeds when considering highway improvements.

Vehicle speed surveys were undertaken on 19 November 2013 using a hand held speed detection radar. Speed data was collected at four locations and the table below provides a summary of the speed surveys:

Sugden Road (110 m west of junction with Rectory Road)	85 th percentile mean speed
Westbound traffic	32
Eastbound traffic	33

Ewell Road (65m north of junction with Fleece Road)	85 th percentile mean speed
Northbound traffic	27
Southbound traffic	27

Fleece Road (40 m east of junction with Ditton Hill Road)	85 th percentile mean speed
Eastbound traffic	30
Westbound traffic	27

Ditton Hill Road (275m south of junction with Fleece Road)	85 th percentile mean speed
Southbound traffic	30
Northbound traffic	31

The speed information above was collected during free flowing traffic in order to provide evidence of the highest vehicle speeds. It is clear that in general the majority of vehicular traffic is travelling near to the current 30mph speed limit.

The data suggests that Sugden Road has the highest 85% percentile speed in both directions, followed by Ditton Hill Road. It is encouraging to see such results, which must be attributed to the improvement works implemented in 1998 and 2008, however the raw speed measurement data (not included in this report) did indicate that speeds as high as 41mph were recorded westbound on Sugden Road.

The section of Ewell Road between the junction with Fleece Road and the railway bridge measures approximately 120m in length. The raised table at the junction of Fleece Road and priority give way under the railway bridge do provide some traffic calming which could be contributing to the 85th percentile speed in both directions of 27mph.

Fleece Road generally experiences regular on-street parking, particularly near to its junction with Ditton Hill Road and this can offer a traffic calming effect. Whilst two cars can pass, vehicles often slow or even stop to give way to opposing traffic in order to pass the on-street parking. This effect was also observed on Sugden Road near the existing kerb build out and small traffic island outside the Junior School. Whilst on site one resident commented that HGVs sometime reverse along Fleece Road due to the restricted access under the bridge on Ewell Road, which presents a danger and has led to kerbs being damaged.

Significant on street parking occurs on Rectory Lane, which generally appears to increase north of Rectory Close to the extent that both sides of the road are regularly parked up all the way up to its junction with Sugden Road. This has the effect of creating one central running lane and therefore speeds are potentially reduced as vehicles are forced to informally give way to opposing traffic. Having said that, the volume of traffic on Rectory Lane was observed to be lower than other roads in the area so the likelihood of encountering opposing traffic is lessened.

Ditton Hill Road also experiences significant on street parking, which was observed to stretch southwards all the way from its junction with Fleece Road to St Mary's Road. Again, this does offer an element of traffic calming as drivers slow to pass parked vehicles but it also introduces a hazard for pedestrian wishing to cross the road. This is of particular concern having observed the manner of parking and available sight lines at the crossing location outside Long Ditton Infants School.

The on street parking at all locations mentioned is further exacerbated during the AM and PM peak periods for dropping off and collecting children from either school.

Sugden Road and Ewell Road are both on bus route K3.

3.3 Pedestrian Analysis;

During peak hours there is a pedestrian crossing patrol on Fleece Road between the junction with Rectory Road and Ewell Road, to assist pedestrian crossing this road.

A site observation was carried out on 22 November 2013 between 14.50 and 1535 to study pedestrian movements in the area concerned. Site observation indicates that the majority of pedestrian crossing movements are concentrated across Fleece Road / Sugden Road through the raised table / tactile paving in the vicinity of the shops. This is mainly from parents collecting their children from St Mary's Junior School. Most of these pedestrian walk along the footway adjacent to Rectory Lane whereas a moderate number of pedestrian use the footway on the southern side of Fleece Road and a small number walk along footway on the southern side of Sugden Road. A small number of pedestrian was observed crossing Ewell Road. It was also observed that some parents who collected their children from Long Ditton Infants and Nursery School walked down to St Mary's junior School to collect more of their children.

3.4 Collision Data;

The recorded collision data shows that there were 2 collisions within the project area during the three year period up to October 2013. These are broken down as follows;

Location/near to	Collisions	Date	Nature
Roundabout at the junction of Sugden Road, Ewell Road and Fleece Road.	2	17/05/2011 16/07/2012	Slight Slight

Neither of these two incidents involved pedestrians or were attributed to excessive speed.

4. DISCUSSION AND OPTIONS:

The brief makes reference to a petition requesting a 20mph zone encompassing both Long Ditton & St Mary's Schools, traffic calming, and a pedestrian crossing at the Infants School in the form of a raised table.

Currently this area is subject to a 30mph speed limit, which is the appropriate limit for this type of road and by itself, the personal injury accident record does not justify reducing the speed limit to 20mph. Having said that, this should not be the only consideration when investigating the feasibility of a 20mph zone and on this occasion the nature and layout of the existing roads are suitable for a 20mph zone to be considered.

Guidance states that 20mph speed limits must be self enforcing and experience has shown that this can only be achieved by the installation of severe traffic calming measures. Such measures usually involve vertical deflection such as speed cushions and raised tables, which can be expensive and not generally well received by the public. The principle of vertical traffic calming however, has already been introduced in the form of a number of raised tables and there is scope for further features to be implemented with a view to seeing if a 20mph zone can be justified.

20mph speed limits can also be 'advisory' whereby signage indicates the advisory speed limit during periods when the accompanying amber lights are flashing (morning and afternoon peaks). Advisory speed limits are not enforceable and do not affect the actual speed limit so rely on motorists adhering to the advised limit. Currently, Surrey County Council does not have an approved policy in relation to advisory 20mph speed limits so in order to help inform the drafting of such a policy, a number of trials are now being undertaken. The results of these trials and any conclusions are not yet available so with this in mind it is not recommended that an advisory 20mph speed limit be progressed in this location at this time.

With regard to a crossing outside Long Ditton Infant School, the improvements implemented in 2008 were designed in such a way that a pedestrian refuge or raised table could be added at a later date should the need arise. Surrey County Councils desired standard for pedestrian refuge islands recommends a minimum island depth of 2m along with a dropped kerb width of 2m. This would provide running lanes either side of 2.65m and whilst this could be made to work it is felt that the addition of a raised table offers the most appropriate solution for improving the existing crossing facility. This would also have the greatest slowing effect.

The options that could make up a package of improvements works are as follows:

4.1 Providing a raised table at the existing uncontrolled crossing facility outside Long Ditton Infants School;

Site observations indicate that during the school Am drop off and PM pick up periods; speeds are generally lower than at other times of the day. This is most likely due to the amount of on street and on footway parking that occurs in the vicinity of the Infants School.

This same parking however makes it much harder to cross the road safely as visibility is severely limited. This is particularly noticeable either side of the existing uncontrolled crossing facility where vehicles were observed parking hard up against the dropped kerbs and also across neighbouring driveways.

Parking poses a problem at many schools and unfortunately, even the provision of school keep clear markings and / or parking restrictions only has a limited impact. Attempting to ban parking near schools is therefore a difficult thing to achieve as understandably the desire to park as near to the entrance as possible is great. For this reason, a more pragmatic approach is suggested whereby pedestrian safety improvements can be developed with minimal impact on parking.

A raised table could be constructed between the driveway of number 50a on the southern side and the start of the layby on the northern side in order to improve the existing uncontrolled crossing facility. The provision of a table should further reduce vehicle speeds at this key crossing location. It is hoped that the presence of a raised table would discourage parking immediately adjacent to the dropped kerbs but consideration may need to be given to the provision of an additional school keep clear road marking. The school keep clear marking could be implemented after a period of monitoring if parking too near to the crossing point continued to be a problem post construction.

Occasional parking was also observed immediately to the west of the crossing location on the northern side of the road. This is despite the presence of pedestrian guardrail that in theory makes it difficult to get in and out of a vehicle directly onto the kerb. No action is proposed at this stage but if it is felt that additional measures should be included, the existing school keep clear marking could be extended west to cover the raised table up to the driveway of number 21. It would also be beneficial to remove the central road marking for a short length where the raised table is located.

There are some road gullies that would require relocating but in theory, these should not be insurmountable.

Estimated cost £12,500

4.2 Improving all of the school warning signs;

Currently, there are school warning signs at four locations. One is located on lamp column 9 in Ewell Road, just north of the railway bridge for vehicles travelling southbound towards St Mary's Junior School. This consists of a yellow backed triangular school warning sign and flashing amber lights. The flashing amber lights are the modern LED version and hence are in excellent condition but the triangular school warning sign would benefit from being replaced. The opportunity should also be taken to include the supplementary 'school' sign. Both could be combined onto one yellow backing board and the backing board itself could also extend around the existing flashing amber lights in order to tie all of the warning features into what will appear to be one assembly. This arrangement has been used elsewhere in Surrey and provides a neat solution.

The second location is on Sugden Road, adjacent to the boundary of St Mary's Junior School and number 65. This consists of a triangular school warning sign and supplementary 'school' sign combined on a yellow backing board. These signs are in good condition, however for consistency it is proposed that they are replaced with a new sign assembly to match that described in the paragraph above. It is also suggested that bearing in mind some of the other proposals in this report that the location is moved west to lamp column 9. Moving the sign location onto a lamp column would also provide a readymade electricity supply for new flashing amber lights. Note: Some nearby foliage currently overhanging the footway may require trimming back. To avoid waste, the combined sign to be removed could be relocated onto a lamp column in Rectory Lane for northbound traffic approaching St Mary's Junior School. There is currently no warning sign on this approach.

The third location is on Ditton Hill Road, just to the east of Kings Roads western entrance. This is made up of a triangular school warning sign and supplementary 'school' sign. There is also a new set of flashing amber lights located slightly east on lamp column 4. The suggestion here is to relocate the existing flashing amber lights to the existing sign location. The opportunity could then be taken to replace the signs with new to incorporate the flashing amber lights as previously described. A power supply for the lights will need to be provided in order to do this but that should not pose a problem. Again, this would free up a combined school warning sign and school plate, which could be relocated into Fleece Road, where there is no sign at present.

The fourth location is also on Ditton Hill Road, opposite the easternmost entrance into Kings Road on lamp column 9. This comprises a yellow backed triangular school warning sign and new style flashing amber lights. It is suggested that the sign be replaced with a yellow backed

combined triangular school warning sign and supplementary 'school' sign to incorporate the flashing amber lights.

Estimated cost £10,000

4.3 Providing additional traffic calming measures in order to introduce a 20mph zone;

As previously mentioned in this report, 20mph zones need to be self enforcing but it is very difficult to assess if a package of proposed measures will achieve this. To give a project the best chance of being successful in this goal the most suitable type of traffic calming to implement is vertical deflection (speed cushions and raised tables). Current guidance shows that these have been proven to provide the greatest speed reduction. At this location, the principle of vertical features has already been introduced so it also makes sense to continue that theme.

Suggested works could include the following;

Ewell Road

A gateway entry feature located just south of the railway bridge comprising signing and a 20mph roundel road marking. The existing priority narrowing under the railway bridge has a calming effect so starting the 20mph zone at this location ties in with where speeds have in many cases already been reduced.

Two sets of speed cushions located between the proposed entry gateway and the existing raised table outside the pedestrian entrance to St Mary's junior School. This layout would give a spacing of around 35m between the calming features and around 15m between the entry gateway and first set of cushions. This second measurement ensures vehicles are slowed soon after entering the proposed 20mph zone. Note that one set of speed cushions is likely to require a cushion in each layby on either side in order to discourage vehicles bypassing the features when one or both of the layby's are empty.

The existing raised table near the mini roundabout would also benefit from being reconstructed as its surface has started to fail and the on/off ramps could potentially be altered to provide an increased traffic calming effect.

Estimated cost £18,000

Sugden Road

A gateway feature located between the driveway accesses of numbers 44 and 65 comprising kerb build outs, signing and a 20mph roundel road marking. The purpose of the kerb build outs at this location is to narrow the carriageway to 6m at the start of the lower speed limit zone. The build outs should discourage on street parking meaning the new signs and road marking are more conspicuous. By narrowing the carriageway to 6m and removing the central road marking, speeds may also be affected.

The provision of a raised table approximately half way between the proposed entry gateway and the existing raised table at the main entrance to St Mary's Junior School. There is a lot of school related parking during the morning and afternoon peak along Sugden Road so taking that on board, it would be more appropriate to provide a raised table as their calming performance is not adversely affected by parking. Speed cushions are in many cases the preferred option as they minimise discomfort to bus passengers for example but the down side is that a single parked vehicle can nullify any benefit to passengers. They may in fact experience more difficulties than when negotiating a correctly specified full width raised table. Sugden Road and Ewell Road are on bus route K3. Surrey County Council good practice currently suggests that raised tables can be used on bus routes if they have a 7.5m long plateau and the on/off ramps are no steeper than 1:20.

Estimated cost £18,000

Rectory Lane

This road experiences regularly on street parking on both sides of the road from Rectory Close to its junction with Sugden Road, which has the effect of narrowing the available running lane to a single width and therefore vehicles are forced to give way to opposing flow. Whilst the observed vehicle flows were lower than on other roads and there is less opposing flow, this does still provide a calming effect on speeds.

No locations stood out as being particularly appropriate for traffic calming features or a gateway and the affect on parking in this area in particular has the potential to be a negative for residents. In this instance therefore it is felt the most appropriate way forward would be to only provide 20mph zone signing and a roundel at its junction with Sugden Road.

Estimated cost £4,000

Fleece Road (between Ewell Road and Ditton Hill Road)

Formalising the parking outside the shopping parade. It is noted that a raised table with uncontrolled pedestrian crossing was previously proposed on this section but subsequently not implemented. There is already a pedestrian crossing point at the western end so another one in such close proximity does not appear to be necessary. The area outside the parade of shops is regularly occupied by parked cars, which is a positive thing for local businesses so a feature without an uncontrolled crossing facility is proposed as that will not reduce this parking capacity.

The kerb alignment and presence of a marked disabled bay on the southern side gives the impression the area is specifically for short term parking and the road width can accommodate it so on that basis the suggestion is to formally mark the area for parking with white lining. The opportunity should also be taken to introduce a raised table located between the driveways of numbers 106 and 108.

A kerb build out at the mini roundabout junction with Ditton Hill Road. There is no horizontal deflection for vehicles travelling west to east i.e. continuing along Fleece Road. It was observed that this can lead to vehicles not slowing to negotiate the roundabout as much as they ought to so the inclusion of a kerbed build out should be considered. This would need to incorporate the driveway of property number 100 Fleece Road and turning movements would need to be carefully investigated so it would perhaps be prudent to trial this element first.

Estimated cost £8,000

Fleece Road (east of its junction with Ditton hill Road)

A gateway feature including signing and a 20mph roundel road marking located adjacent to the boundary of properties 37 and 39. In order to ensure the speed limit signing is clear it may also be necessary to include back to back 20mph and 30mph speed limit signing at the eastern junction of the crescent that serves property numbers 74 to 96 (not shown on the drawings). This will mean that the crescent is included in the new 20mph zone.

Estimated cost £4,000

Ditton Hill Road

A raised table incorporating an uncontrolled pedestrian crossing facility just to the south of the mini roundabout. The lack of dropped kerbs and amount of on street parking make it very difficult to cross Ditton Hill Road at this location so the introduction of a combined raised table and crossing facility would have dual benefits. The raised table should slow vehicles as they approach the roundabout and shops area and the uncontrolled pedestrian crossing will aid pedestrian movements. The crossing should also serve to discourage parking too near to the roundabout as you would hope that motorists would respect the dropped kerbs. Local parking enforcement officers are authorised to issue penalty charge notices to vehicles parked across a dropped kerb, even if there are no road markings present.

A raised table just south of the Kings Road access. A raised table covering the entire junction was considered and would appear to be feasible, however the provision of a single raised table as proposed is the most cost effective solution. A raised table is suggested at this location because it will not adversely affect on street parking, which seems to be in high demand.

A pair of speed cushions with adjacent kerb build outs to narrow the carriageway to 6m located outside property number 44. The level of on street parking appears to reduce at this point so it is considered more appropriate to provide cushions with build outs that will physically restrict parking. Speed cushions are generally preferred by public transport operators and although this is not on a bus route, they would provide a contrasting feature with the nearby raised tables.

A raised table at the existing uncontrolled crossing facility outside Long Ditton Infants School. This would serve the purpose of slowing vehicles and improving the existing crossing facility in this key area. Further details are included in section 4.1.

A pair of speed cushions with adjacent kerb build outs to narrow the carriageway to 6m located centrally across the boundary of property numbers 60 and 62. On street parking does occur at this location but in order to achieve a contrasting feature to those proposed either side it is felt that the loss of parking can be justified.

A raised table incorporating an uncontrolled pedestrian crossing facility positioned just to the southeast of the Kings Road access. A raised table covering the entire junction was considered and would appear to be feasible, however the provision of a single raised table as proposed is the most cost effective solution. By proposing this type of feature, the project would achieve improved pedestrian crossing facilities at three fairly evenly spaced locations along Ditton Hill Road, whilst hopefully having the desired reduction in vehicle speeds. This location means vehicles approaching Long Ditton Infants School meet a physical calming feature soon after entering the proposed 20mph zone (25m).

A gateway feature comprising kerb build outs, signing and a 20mph roundel road marking located between property numbers 53 and 55. The kerb build outs will narrow the carriageway to 6m at the start of the lower speed limit zone, which should discourage on street parking and make the new signs and road marking are more conspicuous.

Estimated cost £35,000 (not inc works detailed in section 4.1)

5. RECOMMENDATION:

It is recommended that:

1. A raised table and revised parking restrictions be implemented at the existing uncontrolled crossing facility outside Long Ditton Infants School as detailed in section 4.1;
2. All four of the school warning signs be improved and relocated if required to improve their conspicuousness as detailed in section 4.2;

It is impossible to determine if a scheme of proposed traffic calming measures will lower speeds to 20mph or below but in this instance, consideration should also be given to promoting a package of traffic calming measures incorporating a 20mph zone as detailed in section 4.3.

The total guide price for items 1 and 2 is £22,500

The total guide price for the remaining traffic calming is £87,000

The signing improvements (item 2 above) could be progressed relatively soon after funding was made available, which provides the flexibility for a phased implementation should this be desired.

6. APPENDICIES:

A) Design Brief

B) Drawings showing proposed options:

Dwg PC0347_04 Rev A Proposed raised table and pedestrian crossing improvements

Dwg PC0347_05 Rev A Proposed traffic calming and 20mph zone