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A415 Newbridge River Thames Crossing

Standlake Mitigation Measures - Feasibility

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Executive summary

It is proposed to replace the deficient and weak A415 river Thames crossing with a new crossing. This new crossing would be designed to modern standards, which would make the route more attractive to use and would enable the temporary restriction on HGVs over 18 tonnes to be removed. Shuttle working with traffic signals was proposed on the new crossing to control the potential increase in traffic flows on the route. This was primarily to mitigate the concerns of Standlake residents who were anxious that the attractiveness of the alternative crossing would increase traffic through their village.

A public consultation was carried out on the proposals in 2009. The exhibition was particularly well attended by residents of Standlake. The main concerns expressed related to the return of HGVs over 18 tonnes and pedestrian safety. The views expressed by the Standlake Parish Council also allude to primary concerns about an increase in traffic, primarily HGV.

This additional feasibility study has been carried out to determine what mitigation measures could be reasonably carried out to address Standlake residents' concerns taking into account the likely severity of the issue and the wider impact that the mitigation measure may have. The safety aspects related to the return of HGVs over 18 tonnes and the anticipated increase in traffic has been examined. The recorded rate of vehicle injury accidents on the A415 between the 30mph speed limit signs within Standlake and Brighthampton have been reviewed against national statistics and found to be low. There have been no recorded accidents involving an HGV over 18 tonnes on the A415 within a 10 year period, including 5 years prior to the implementation of the current temporary weight restriction. Justification for a restriction on HGVs through Standlake on safety grounds could not be found. An environmental weight restriction was considered, but due to the lack of more suitable HGV routes within the immediate vicinity it could not be recommended.

The review of the accident records indicated that safety benefits may be obtained from providing traffic signals on the A415 at the junction with the High Street and Shifford Lane and closing the junction to the unnamed road to the east where a high incidence of accidents has previously occurred, including one fatal. These signals would make it easier and safer to access the A415 from Standlake. Their timings could be adjusted to help slow down and regulate the traffic flows on the A415. However, if long delays were wished to be created it may be necessary to implement shuttle working depending on whether or not the amount of traffic turning into and out of the village created sufficient delay by itself. The phasing of the signals could be adjusted such that the majority of queuing traffic occurs to the east of the junction outside of Standlake. As these traffic signals would perform the required traffic control on the A415 route, those proposed on the new crossing could be removed thereby not greatly increasing the overall scheme costs for the proposals.

From a review of the previous feasibility study carried out, it is considered that there is also merit in enhancing the gateway features to the village and providing road markings through the village to encourage motorists to slow down and to take extra care at the narrow sections.

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1 Introduction

1.1 Objectives

The purpose of this report is to examine the justification and feasibility of mitigation measures suitable for implementation in the village of Standlake and Brighthampton to improve road safety for all road users and to offset any significant disbenefits associated with the improvement of the River Thames crossing at Newbridge.

The report will present a number of proposals for which outline costs will be provided.

1.2 Background

The A415 is a single carriageway principal A-road with rural characteristics that links the towns of Witney and Abingdon. The route of the road passes through a number of villages including Standlake and crosses the rivers Windrush and Thames at their confluence at Newbridge.

The existing River Thames crossing at Newbridge is a six span Gothic arched masonry bridge. It is a Scheduled Ancient Monument affording it statutory protection. The bridge is narrow and traffic is currently controlled by signals permitting traffic movements in one direction at a time.

The bridge has been structurally assessed by engineers who have concluded that its load carrying capacity is very low. An 18 tonne structural weight limit was imposed in 2006 as an interim measure to protect road users.

A study to establish how the bridge could be strengthened was undertaken but concluded that this could not be done effectively or appropriately. The feasibility of providing an alternative river crossing at Newbridge and so relieve the existing structure has been carried out. The results of this feasibility study were presented at a public exhibition in November 2009. Only one main alternative crossing route was recommended as no other options were as environmentally acceptable. A number of bridge options were investigated with two being put forward at the public consultation.

The existing bridge has a temporary 18 tonne weight restriction on it and the provision of the new crossing will enable the estimated 150-200 displaced HGVs to return to the A415 crossing route, which passes through the villages of Brighthampton and Standlake. The linking roads to the new crossing will be to modern standards, which will enable the traffic to flow more freely reducing journey times on the A415. This may attract additional traffic to the A415 route which was considered to be undesirable, so it was proposed to provide shuttle working controlled by traffic signals on the new crossing to delay traffic and make it less desirable.

A large proportion of the feedback obtained from the public exhibition carried out in November 2009 was from residents of Standlake. The analysis of the feedback overall showed that based on a small sample of the approximately 15,000 users per day of the A415, who do not live on the A415 or near the proposed crossing was very positive. The feedback from villagers on the surrounding minor roads which are

believed to be carrying the temporarily displaced HGVs was also very supportive of the proposals. The feedback from a high proportion of residents living on the A415 or close to it however expressed grave concerns of the impact of the return of the heaviest HGVs to the A415 and increased traffic on their quality of life and road safety. The main concerns of Standlake residents being an increased risk of pedestrians being struck by vehicles on the narrow footways adjacent to narrow sections of carriageway and increased noise, vibration and pollution. Concern was also expressed by these residents about speeding traffic and the difficulty of getting onto the A415 from the village and their drives and how this would likely to become worse if traffic increased.

The proposed shuttle working with traffic signals on the new bridge was the primary mitigation measure for Standlake. It was considered that Standlake resident's concerns warranted further investigation of the issues raised with a view to providing additional or alternative mitigation measures.

OCC arranged a meeting at Jacobs' offices in Haddenham on 22 December 2009 to discuss the scope of additional feasibility work.

The existing width of carriageway of the A415 Abingdon Road, from its junction with Witney Road to High Street, varies from 5.6m to 6.6m. For the purpose of this additional feasibility work it was agreed that for the provision of two-way traffic, including HGVs, the minimum carriageway width should ideally be 6.0m. OCC indicated that where this can not be achieved, the provision of a narrower carriageway with vehicles continuing either under the control of traffic signals or on a give/take basis should be investigated. This option would permit footway widening on the north side and the possible provision of a new footway on the south side of the road.

A previous feasibility study, published in 2008, was undertaken to consider mitigation measures that could be employed along the length of the A415 to ensure journey times were comparable. The report was made available with other related documents at the public consultation. Although the remit of this study was different, a number of options were evaluated for Standlake and, where relevant, these have been reviewed.

Basic survey work was undertaken to establish carriageway and highway widths for the previous study and this has been augmented with additional information about the existing condition.

1.3 Topography

The focus of interest for which this report is concerned is as shown on the key plan in Appendix A, through the existing 30mph speed limit zone on the A415. This area of interest extends from the village of Brighthampton north of the junction with the B4449 and continues south eastwards through Standlake towards Newbridge.

The carriageway along the A415 through the area of interest varies in width as described in the previous section and features a footway on its north side and highway verge on the south. Residential property is located on both sides of the road throughout this area with the exception of a short extent on the south side of the road to the south of Lancott Lane.

Property adjacent to the A415 benefits from garaging and/or off carriageway parking so on-carriageway parking is infrequent although there are no prevailing restrictions.

A bus route follows the A415 and a number of stops exist within the area of interest, including a bus lay-by on the south side of the road, approximately 100m south of the Brighthampton turn. This is complemented by a short section of narrow footway serving the properties immediately to the north of the bus stop.

As the provision of a contiguous footway is restricted to the north side of the highway there are no existing designated crossing points.

No pedestrian counts have been undertaken to assess the usage of the existing footway facility but on site observations suggest that it is low. This may be as a consequence of the narrow nature of the existing footway however it would be difficult to ascertain whether a desire line trend exists.

1.4 Traffic Data

An assessment of the traffic condition along the A415 route from Witney to Abingdon was undertaken as part of the 2008 report. The relevant information is abstracted below having been updated to include the latest data.

Site of Count	Direction of Flow	1999 Volume	2004 Volume	% Change (5 Year)	2009 Volume	% Change (5 Year)	% Change (10 Year)
A415, North of Brighthampton	South	3022	3541	+17.2	3473	-1.9	+14.9
	North	3142	3633	+15.6	3690	+1.6	+17.4
A415, Newbridge	South	3232	3837	+18.7	3882	+1.2	+20.1
	North	3229	3966	+22.8	4100	+3.4	+27.0

Table 1. Average 5 day, 12 hour traffic data at count sites adjacent to extent of interest

The data in Table 1 above shows that the rate of increase in traffic has reduced considerably in the second five year period. The measures introduced at Newbridge, and the additional signalisation of the bends at the River Windrush are likely to be contributory factors but there should be caution associated with this assumption as traffic data from other county roads generally shows a similar reduction in growth over the same period.

A traffic model has been produced to examine the movement of traffic around the network. This indicates that the proposed improvements to the Thames River Crossing are likely to slightly reduce journey times on the A415, which is likely to attract approximately 600 extra vehicles to the route per day. Proposals to minimise traffic growth include the provision of traffic signals on the new crossing to reduce the time savings. Mixed views were received on this proposal to create a delay and other alternatives are now being considered.

Vehicles over 18T are currently prohibited from crossing the river Thames on the A415 by the structural weight limit that was imposed on Newbridge as an interim measure in 2006. The proposed new Thames River crossing will enable these vehicles to return to the A415 route. It is estimated that this could see the return of approximately 200 HGVs over 18T per day to this route. These large HGVs on the derestricted speed limit lengths of the A415 have a lower speed limit of 40mph to other general traffic. This was not taken into account within the traffic model and may increase journey times on the A415 reducing the predicted traffic growth.

The graphs shown in Appendix B represent the average 5 day 12 hour flow of vehicles at count locations to the north and south of Standlake. Data is shown for the period 1998 through to 2009. This includes the period in 2005 when part of the A415 in Standlake was closed to facilitate construction work on behalf of Thames Water.

1.5 Accident Data

Accident data recorded by the police for the period January 2000 through to December 2009 has been collated and is shown on drawings B0161900/Standlake/04 and 05. The drawings identify the severity of each of the accidents that were reported in and around the Standlake and Brighthampton area over that period and separates accidents involving HGVs travelling on the A415.

The following tables show the breakdown of the accident statistics by different user and casualty type in and around the area of interest occurring within an approximately 10 year period. The number of these, if any, occurring within the area of interest are shown in brackets :

	Fatal	Serious	Slight	TOTAL
Vehicles Only	0	7 (1)	37 (8)	44 (9)
Motor Cycles	1	1	3	5
Bicycles	0	1	3	4
TOTAL	1	9 (1)	43 (8)	53 (9)

Table 2. Accidents involving different road user types, Jan 2000 through Dec 2009

	Fatal	Serious	Slight	TOTAL
Vehicle Driver	0	4	40 (7)	44 (7)
Passenger	0	2	14 (1)	16 (1)
Motorcyclist	1	1	4	6
Cyclist	0	1	3	4
Pedestrian	0	2 (1)	2 (1)	4 (2)
TOTAL	1	10 (1)	63 (9)	74 (10)

Table 3. Casualty Type, Jan 2000 through Dec 2009

	Goods over 3.5 tonnes and under 7.5 tonnes mgw			Goods 7.5 tonnes mgw and over		
	Fatal	Serious	Slight	Fatal	Serious	Slight
HGV on A415 within area of interest	0	0	0	0	0	1
HGV outside area of interest	0	0	1	0	1	2

Table 4. Traffic Accidents involving HGVs, Jan 2000 through Dec 2009

Within the area of interest, inside the current 30mph zone on the A415 through Brighthampton and Standlake, which is approximately 1.7km long there have been no recorded accidents involving HGVs over 18T between January 2000 and December 2009. There has been one accident involving an HGV in this period, which was below 18T and this occurred after the implementation of the 18T temporary weight restriction on Newbridge. From the Department for Transport's publication 'Reported Road Casualties Great Britian: 2008 Annual Report'(1) it can be seen how many accidents on average occur on a given type of road for the number of kilometres travelled by certain classes of vehicles. For the 10 year period of accident records the average annual daily traffic flow on the A415 through Standlake was approximately 8450 vehicles. From the Department for Transports national statistics for this 10 year period it can be calculated that for an average 1.7km length of rural* A road with an average daily traffic flow of 8450 vehicles approximately 4% of which are HGVs, one (all severity injury or fatal) accident involving an HGV (over 3.5T) would be expected to occur once every seventeen years. The recorded rate of one slight injury accident involving an HGV on the A415 within the area of interest over a 10 year period, indicates that there is not currently an unusually high incidence of accidents involving HGVs on this length of road.

The Department for Transport statistics also show that for a rural* A road with 8450 vehicles per day travelling over a 1.7km length an average of 12 (all severity injury or fatal) accidents involving a motor vehicle would have been expected to occur over the last 10 years. From Table 2 it can be seen that only 9 accidents have occurred in the area of interest within this 10 year period, which is approximately a quarter less than the national average accident rate for this type of road.

* Rural road is defined as major roads and minor roads outside urban areas having a population of less than 10 thousand.

From drawing no. B0161900/Standlake/04 it can be seen that there is a high concentration of accidents within the area of interest is at the cross-roads with the High Street and Shifford Lane. Outside the area of interest the highest concentration of accidents is to the east of this at the junction with the unnamed road leading to the sewage works. The only fatal accident recorded in this period within the general area considered also occurred at this junction.

	Standlake (A415)			Standlake (Other)		
Pedestrian Casualty Severity	CAR	LGV	HGV	CAR	LGV	HGV
SLIGHT	0	1	1	0	0	0
SERIOUS	1	0	0	0	1	0
FATAL	0	0	0	0	0	0

Table 5. Pedestrian casualty severity Jan 2000 – Dec 2009 by cause and location

A review of the pedestrian casualties reported to police show that there were four incidents in Standlake in the 10 year period January 2000 through to December 2009. This is shown in Table 5 above and on drawing no. B0161900/Standlake/06 in Appendix A. Three of the four incidents occurred on the A415 but only two in the area of interest. The severity of one of the incidents within the area of interest was 'serious'. This involved a boy being struck by a vehicle whilst crossing the A415 from Shifford Lane to the High Street.

It is not possible to demonstrate whether this reflects the national trend for similar roads however when considering the incidents there appears to be no specific cause for concern.

Each of the incidents recorded, including those beyond the area of interest, is distinct with no similarity between the causes or location. As the number of incidents involving pedestrians over the 10 year period is also small it can be concluded that there is not an-existing problem in Standlake regarding pedestrian safety.

The accident statistics do not correlate with the feedback received from the questionnaire that was returned in response to the Newbridge consultation in which Standlake residents made it clear that the perceived hazard was greater. It has been suggested that the constrained nature of the A415 through Standlake with the adjacent narrow footway may prompt motorists to take greater care as they travel through the village. Any measure adopted must therefore ensure that it does not discourage motorists from paying the same attention to the roadside environment and expose pedestrian users to greater risk.

2 Proposals

2.1 Measures Previously Proposed

The Oxfordshire Highways report, A415 Mitigation Measures – Feasibility Report, June 2008 (B0604300/60/02) examined a number of measures that could be implemented at strategic locations along the A415 between Witney and Abingdon. The objective of this report was to examine the effect of the proposed measures and offset this against the effect of improving the River Thames crossing. Measures along the A415 that were considered for Standlake specifically included:

- Enhancement of existing gateway features
- Modification of junction at Brighthampton turn
- Physical narrowing of existing highway
- Visual narrowing of existing highway

Additional consideration was also given to measures that could be implemented to deter drivers from using other roads as rat runs through the village.

2.1.1 Enhancement of Existing Gateways

Standlake benefits from gateway entry treatments on both A415 approaches. These consist of white painted timber field gates erected in the verge with adjacent coloured surfacing applied to the carriageway which has been marked with speed limit roundels. Their location coincides with the start and finish of the 30mph speed restriction which is in force throughout the village. This commences on Downs Road to the north west of Heyford Close and on Rack End by the Village Hall.

The 2008 report suggested enhancing these features with further carriageway markings and treatments to reinforce the existing condition at the same locations. This would increase the conspicuity of the village entry without affecting its existing character. It was further suggested that this could be complemented by a VAS warning sign to alert drivers to speeds in excess of the restriction.

Having reviewed these proposals relative to the scope of this report, it is considered that although these measures alone will not address the anticipated increase in traffic volume or the increase in HGV traffic arising from the removal of the structural weight limit at Newbridge, they remain meritous and would provide road safety improvements and enhancements to the village.

2.1.2 Junction Modification at Brighthampton Turn

The existing junction at the Brighthampton turn was reviewed in the 2008 report which identified that the right turn lane from the A415 fell below current design standards. Two options were proposed to address this with the alternatives of traffic signals or a roundabout being considered.

Although each of the proposals offered a degree of benefit, both were complicated by the proximity of residential accesses, extent of civil engineering work and limited benefit in offsetting the impact of an improved River Thames crossing. A review of the proposals, considered against the accident statistics at the site, demonstrated that neither option would contribute to a significant improvement in road safety.

2.1.3 Local Highway Narrowing

Proposals were previously investigated to assess the viability of narrowings of the highway to assist in controlling the speed of vehicles using the road. It was suggested that these could be created physically by re-kerbing short lengths of the road or by applying a surface treatment to the carriageway edge and complementing this with road markings.

This could provide benefit from a road safety perspective as it could assist in regulating traffic speeds. A consistent reduction in traffic speed would offset the effect of the potential increase in traffic volume.

Some concern remains that when an alternative River Thames crossing replaces the existing bridge at Newbridge, and there is no longer a structural weight limit, there will be an increase in HGV traffic as the volume is restored to the levels recorded prior to restriction being imposed.

The A415 is a road of varying width and is narrow in places, below what might be considered typical for a county A-road. By artificially creating further constrictions it is possible that unnecessary conflicts may be being introduced which themselves may constitute a hazard.

The concept of narrowing at suitable locations is one that demands further investigation and will be considered later in this section.

2.2 Shuttle Working Under Signal Control

Shuttle working is used to control vehicles travelling in opposing directions along short lengths of narrow or single carriageway road. Traffic signals are used to stop traffic in one direction to allow vehicles travelling the other way to pass. At the current time, the existing A415 route incorporates two sets of traffic signals permitting shuttle working. One at the River Thames crossing at Newbridge and one further north where the A415 crosses the River Windrush.

Comments received at the Newbridge Consultation suggested that a high proportion of Standlake residents were concerned that the removal of these constraints, through the construction of a new river crossing, would induce an unacceptably high increase in traffic onto the route.

Consideration has been given to replicating the shuttle working on the new structure but other comments received have indicated that this would be perceived by some as an inefficient strategy.

As some sections of the A415 in Standlake are below the desirable minimum width of carriageway, the feasibility of replicating the shuttle working from the bridge in the village has been considered.

The topography of the village has been examined, including the existing carriageway and footway widths and it has been concluded that it would not be possible to provide shuttle working at the narrowest sections of the A415 in the village. Moreover, any signalisation at these narrow sections on the A415 would be difficult to implement due to the number of residential accesses that would have to be retained and would offer little benefit. Dwellings exist extensively on both sides of the road through these narrow sections and there are neither suitable length

sections without conflicting driveways nor any features that could be used to justify the implementation of shuttle working signals. It is likely that the vibrations and emissions from queuing vehicles would also be unwelcome.

2.3 Signalisation of A415 Abingdon Road Junction with High Street and Closure of Unnamed Road Junction to the East

Consultation responses have indicated that a number of residents have experienced difficulty in egressing from High Street, Standlake onto the A415 at peak times. This is a crossroads which also incorporates Shifford Lane, a restricted byway leading to the Mulberry Bush Special School and a small number of dwellings. Several accidents in a 10 year period have occurred at this junction including one serious, involving a boy being struck by a vehicle whilst crossing the A415 from Shifford Lane to the High Street. A significant number of accidents, including one fatal, has occurred in a ten year period at the alternative egress point to the east on the unnamed road serving the water treatment works.

2.3.1 Traffic Signals at A415 Junction with High Street and Closure of Unnamed Road Junction to the East

It is feasible to install traffic signals at the A415 junction with the High Street and to close or prohibit through traffic on the unnamed road to the east. The method for partial closure of the unnamed road would need to be discussed with adjacent land owners but would provide an obvious safety benefit. It would also prevent this route being used as a rat run through Standlake to avoid the proposed traffic signals at peak periods. The traffic signals would make it easier and safer to egress from the village onto the A415 and could include a pedestrian phase to make it safer to cross the A415. The traffic signals would inevitably cause some delay to A415 traffic and these could be set up to help regulate traffic flows on the A415 and remove the need to provide traffic signals on the proposed new crossing which provides no positive safety benefit. It is difficult to quantify the delays and queue lengths that would be generated by the traffic signals at this stage without the benefit of traffic turning counts but it is fair to assume that outside of peak hours the provision of signals at this location is unlikely to cause significant queues. A layout drawing, B016900/Signals/1 Rev 0, is included in Appendix A.

It is possible to configure the junction to return to an all red state if no traffic is detected on the approaches. This would have two effects; the first would be to cause the first vehicle after a gap in traffic to be approaching a red signal which should promote a reduction in speed as they approach the junction. The second effect is to make the junction slightly more responsive to demands from the side road without having to wait for the delay of the safety intergreen period from the main road. This assumes that traffic arrives at the junction in distinct ‘platoons’, separated by significant gaps.

If the proposals were to be developed further, a number of site issues should be taken into consideration. These should include determining the exact limits of the Restricted Byway, highway adopted land and ownership of the land in this area to ensure that the Highway Authority has a legal right to install traffic signals on Shifford Lane.

While on site, engineers observed the junction being used by equestrians and these and other non-motorised road users should be accommodated. This is especially relevant given the proximity of the special school and Standlake C of E Primary

School which can be accessed via High Street. Pedestrian counts would be required to establish flows and desire lines to see if pedestrian crossing phases and footway improvements need be incorporated into the design.

2.3.2 Traffic Signals with Build Out and Shuttle Operation on A415

A variation of the above proposal would integrate a build out on one of the junction arms to constrain traffic and demand the operation of the signals in a shuttle scenario as shown on drawing B0161900/Signals/2 in Appendix A. This may be implemented if there are very low turning counts into High Street making it difficult to regulate traffic flows on the A415 by the demand of this turning traffic. The phasing of the lights would be setup to give priority to traffic leaving Standlake on the A415. This would discourage motorists from 'rat running' on village streets and would reduce traffic queues within Standlake.

If a build out were located at the junction in the A415 north bound carriageway traffic would be forced to undertake shuttle working under the control of the signals. The build out would identify the reason for the shuttle working and discourage drivers from passing through red signals as they would be brought into conflict with other vehicles.

The pedestrian demand should be assessed and if required separate phases incorporated into the signals to allow crossing movements from Shifford Lane to High Street via the build out.

2.4 Signalisation of A415 Standlake Road/Downs Road

Initial consideration of the measures that could be implemented have raised concerns about the attractiveness of an alternative route through Standlake village that bypasses the A415 between its junction with Downs Road and High Street or the unnamed road to the east.

Further junction signalisation at Downs Road has therefore been considered to reduce the attractiveness of this as an alternative route, although to date there is no evidence that this is an existing problem.

A signalised junction at this location is more likely to increase delays to the A415 and potentially risk increasing the attractiveness of the alternative route. The high speed nature of the road in its current layout would necessitate separate signalisation of each direction of the A415 to protect right turning traffic turning into Downs Road. This could be improved by implementing substantial carriageway works to provide a separately signalled right turn. This would increase the cost of provision which is already substantial due to the lack of existing electrical supply at the location and the higher speed limit of the road which would demand positioning of the traffic signal loops further from controller demanding more extensive duct work.

It is considered that the signalisation of this junction would do nothing to deter vehicles from using Downs Road, Church End and High Street as an alternative route.

If 'rat running' were to become a problem, it would be possible to adjust the timings of the proposed traffic signals at the A415 junction with High Street to create a longer delay at High Street which would offset the attractiveness of using the alternative route. This should be in association with the closure of the unnamed

road east of High Street as previously described in section 2.3.1. It is recognised that this may reduce the benefits for residents who would have to wait for an extended period, comparable with the current arrangement. Further measures to reduce the attractiveness of the alternative route were separately examined as part of the 2008 report and further examination of these would be encouraged should 'rat running' become a problem.

2.5 Footway and Carriageway Realignment within the Highway Boundary

The carriageway widths have been measured and found to range from approximately 5.6m to 6.6m. Some sections of the route therefore fall below the desirable minimum established as 6.0m.

The optimum layout included a 2.0m wide footway on both sides and a 6.0m wide carriageway. Although this could be provided in some areas, the width of the highway is insufficient along its whole length to permit the additional contiguous provision of a 2.0m footway on the south side. By omitting this there is scope to construct a 6.0m wide carriageway with an adjacent 2.0m footway within the existing highway boundary. A layout that reflects this is shown on drawings B0161900/Standlake/01 and 02 in Appendix A.

Adopting this layout would benefit all road users as its consistent width would eliminate the existing constraints and reduce the risk of conflict on a route that is already used by HGVs. It would deter drivers from speeding up in the wider sections leading to more predictable and consistent traffic speeds. Widening the footway would offer further benefits by better separating pedestrian users from passing vehicles. Any new kerbs laid should have a 125mm upstand that make the edge of the carriageway more conspicuous and encourage a reduction in vehicle speed.

The work required to implement this proposal will be extensive and will include significant kerbing works, footway construction, work to the existing highway drainage and resurfacing of the carriageway to create a new road profile. This will represent a significant investment in money and time and will also cause disruption to road users and residents. The limited benefit that would be achieved, relative to the overall cost seems disproportionate, especially when considering the accident record in that area.

2.6 Improvements to Targeted Areas

The work cited in 2.5 would offer road safety advantages by encouraging a consistent traffic speed throughout the village and providing improved footways for pedestrians which would move them away from being in such close proximity to the moving traffic.

It should be accepted that although desirable, this option may not be affordable and so alternatives that seek to achieve similar benefits have been considered.

2.6.1 Road Widening at Pinch Points

A number of sections have been identified where the existing width is below 6.0m. This is shown on drawing B0161900/Standlake/03 in Appendix A. It is proposed to widen these sections to 6.0m, thus creating a more suitable route for HGV vehicles and reducing the likelihood of conflict by reducing the number of pinch points.

Work to achieve this could be undertaken relatively easily as there is sufficient verge width on the south side of the road in all sections identified to allow the necessary widening. The average widening required is approximately 200mm, extending to 400mm at the narrowest point.

2.6.2 Footway Widening with Limited Carriageway Works

Taking the concept of a contiguous footway provision and applying it to the existing alignment offers the opportunity to vary the widening into both verge and carriageway. This differs from the proposal cited in 2.5 which considers total reconstruction along a new alignment within the highway boundary. In this alternative the widening is created by using available verge space on the north side where this exists and carriageway where it does not. Treatment of the carriageway is restricted to ensuring that the available width is not less than 6.0m. Where this is not achieved further local widening is proposed.

Three footway widths were examined; 2.0m, 1.8m and 1.6m. Reasonable length sections could be widened within the existing verge but a total length of approximately 840m would encroach into the carriageway demanding widening of a comparable length on the south side.

This approach would be more cost effective than the one suggested in Section 2.5 but would not provide the consistent width of carriageway and footway. From a road safety perspective, the lack of consistent width would be no better than the current arrangement and therefore of little benefit.

2.7 Road Narrowing at Pinch Points

In trying to establish a system of controlling traffic speeds through the village different options to create physical and virtual constraints have been examined.

2.7.1 Surface Treatment and Road Marking

The 2008 report concluded that there was little scope for further physical carriageway width restriction given its existing nature and the make up of traffic using the route. It proposed measures that included treatment of short sections of the route using road markings and surface treatments to create the impression of the road narrowing while not providing the physical constraints.

This recommendation was made because of the absence of a street lighting system in the village which would need to be present for any physical constraints to be implemented.

The provision of this type of feature remains meritous however the long term benefits that can be derived is limited as drivers' increased familiarity of such an arrangement can reduce its effectiveness.

2.7.2 Build Outs at Pinch Points

The provision of physical constraints within the highway is not normally something that a Highway Authority would implement on a classified A road, however there are exceptions. There would be a requirement to implement a system of street lighting to assist drivers by increasing night time conspicuity of the feature.

The creation of an artificial constriction through the construction of a build out at an existing location where the road width falls below 6.0m has been considered. This would create a traffic control at the existing pinch points that would throttle traffic speeds and offer priority to a specific direction of traffic. It should ideally be implemented as a pair offering priority to opposing flows of traffic at each. This would ensure that the peak flow in any direction was appropriately controlled.

In identifying the areas of carriageway that would be appropriate to implement this measure it has become clear that the proximity of residential accesses would restrict the suitability and introduce a nuisance factor to residents that is likely to be unacceptable. This would be further enhanced by the requirement to adequately illuminate the build outs.

2.8 Environmental Weight Limit

Standlake residents have expressed their concern about the HGVs using the A415 and currently benefit from the 18 tonne structural weight limit at Newbridge. This ensures that a percentage of traffic that would otherwise use the A415 is diverted elsewhere.

If a replacement river crossing is to be provided at Newbridge, the structural weight limit will no longer be appropriate and it is likely that some heavy vehicles will return to the route. An environmental weight limit may act as a deterrent and depending on the level at which it is set could assist in reducing the HGV traffic returning to the route.

Standlake residents are not alone in expressing concerns about the passage of HGV traffic through their village. To implement an environmental weight limit to address their concerns regarding noise, vibration and pollution is not an appropriate solution as it would lead to demands from other villages that would be impractical to meet. There are no alternative routes in close proximity to Standlake which are more appropriate for HGV traffic. The recognised alternative route for HGV traffic is via the A40 and A34 which is likely to substantially increase the distance of a large number of the journeys undertaken, increasing pollution. It may also lead to HGV traffic using closer, less appropriate alternative routes. It would not be practical to implement environmental weight restrictions on all these other less suitable Thames crossing routes as it would be too restrictive on HGV movements. The greater the restricted area is made the more legitimate reasons a lorry driver can give for passing through the environmental weight restriction area and the harder it is to enforce.

A review of the recorded accidents within the 30mph speed limit zone through Brighthampton and Standlake shows that over a ten year period there has been a much lower number of injury accidents than the national average for a road of this type and traffic flow, as described in Section 1.5. The national average rate of accidents involving HGVs is low, as HGVs form only a small percentage of the total traffic flow. No accidents involving an HGV over 18 tonnes has occurred on this

section of road within the last 10 years for which information is available. Only one accident involving a smaller HGV has occurred within this period. This is not a statistically significant variation from the national average rate of accidents involving vehicles of this type. There is therefore no current justification on safety grounds for providing an environmental weight restriction on the A415 through Brighthampton and Standlake.

3 Assessment of Proposals

3.1 Overview of Proposals

The proposals suggested vary in terms of practicality as do the benefits that are likely to be derived. The ideal arrangement of a 6.0m wide carriageway with 2.0m wide footways on both sides is unachievable within the existing highway boundary so the measures considered seek to gain similar benefits. These being improved road safety and maintenance of village environment.

3.1.1 Footway and Carriageway Improvements

Where it was seen that there would be benefit in providing improved footway provision, the possibility of providing this on both sides of the road was examined. Having established that the existing highway widths would not support this, the concept was further developed by considering how the existing footways alone could be improved. It was established that this could be achieved and a revised road alignment proposed that enabled a consistent footway and carriageway width.

3.1.2 Traffic Signals

Traffic speeds would be regulated better if the provision of traffic signals was adopted at the A415 Standlake Road junction with High Street. The signals would assist road users in being able to egress from the High Street, especially at peak times. The improved egress onto the A415 would enable the junction to the unnamed road to the east to be closed at which there has been an unusually high incidence of traffic accidents, including one fatal within a ten year period. The traffic signals would break up and produce gaps in the flow of traffic making it easier and safer for residents to cross the road or exit their drives.

In addition to the positive safety benefits these traffic signals would bring they could also be employed to regulate the flow of traffic on the A415 to compensate for the effect of the removal of the two sets of traffic signals at Newbridge. The traffic signals would provide the tool to regulate the flows as desired to balance the positive and negative effects of delaying traffic on this route. It may be determined that a build out needs to be provided in conjunction with these signals to safely introduce a long delay, i.e. to prevent jumping of red lights. Alternatively some form of camera enforcement could be considered. A long delay may however create excessive traffic queue lengths in Standlake, although the timing of the lights could be adjusted to some extent to give priority to traffic travelling from the northwest reducing queue lengths within the residential area of Standlake. The objective would be to provide the required regulation of traffic flow on the A415 route with this set of traffic signals alone enabling the proposed traffic signals on the new crossing to be removed as they provide no safety benefit at this location.

It is recognised that to achieve the desired benefits a number of the measures discussed may need to be developed.

3.2 Assessment of Proposals

3.2.1 Previously Considered Options in the 2008 Report

A review of the proposals made in the 2008 report suggests that the village gateway treatments remain viable however these in themselves will not relieve the problems described in the consultation responses.

The gateway treatments were examined as part of the 2008 report and were assessed to have a construction cost of £27,400.

It is concluded that there would be no benefit in undertaking work at the Brighthampton turn.

3.2.2 Provision of Build-Outs at the Narrow Sections of the A415

It has been determined that it would be impractical to implement physical build-outs with shuttle working at the narrow sections of the A415 through the village, because of the large number of accesses that must be maintained within these areas. It is proposed to provide additional road markings and surface treatment at these narrow sections to help encourage traffic to slow down and to take extra care whilst passing. It is however considered that regular users of the road will in time take less notice of these markings, reducing their beneficial effect.

3.2.3 Traffic Signals

(i) High Street

Benefit could be gained from the installation of traffic signals at High Street. This would respond to the comments received about the difficulties experienced by drivers trying to turn onto the A415 and signals located here could obviate the need for signals at the new river crossing.

Additional measures that may assist with the control of traffic speed would be the reversion to an all red signal. This could be part of the design of the signals for the conventional layout and the proposal that incorporates a build out on the northbound approach.

The traffic signals equipment required at this location would cost approximately £55,000 with civils costs of approximately £50,000 depending on the extent of work required at Shifford Lane. The total estimated construction cost is £105,000 however part of this cost would be offset by not having to provide signals at the new river crossing.

Additional cost would be incurred if the option to include a build out was taken forward however this would not substantially increase the overall cost.

The proposal to close the unnamed road to the east of High Street would prevent ‘rat running’ traffic using this road via Broad Bridges.

(ii) Downs Road

The benefits of signalisation at High Street can not be achieved at the A415 junction with Downs Road as the junction would be unlikely to attract sufficient turning traffic to and from the side road to make it effective in deterring “rat running” through the

centre of the village at peak times. If this were to manifest itself as a problem, then the separate measures to control signal timings at High Street or those detailed in the 2008 report would be more likely to deter drivers.

3.2.4 Footway and Carriageway Improvement

The option of improving both the footway and carriageway of the A415 was examined and although a footway to current standards could not be provided on both sides, it was established that it would be possible to provide one on the north side of the road for the length being examined. This would be complemented by a realigned carriageway that would be constructed to a constant 6.0m width, the desirable minimum width to accommodate passing traffic including HGVs. The work required to achieve this would be extensive with an estimated cost of £606,000. The construction work would be very disruptive to residents and road users.

The above proposal was scaled down so that only the parts of the carriageway that fell below 6.0m were widened to better accommodate the traffic. In this alternative no footway improvements were considered. Work would be more straight forward and less disruptive but there would be benefit to fewer road users. For this more limited option, the estimated construction cost is £52,000.

A similar approach to examine the provision of widened footways only has been undertaken and the feasibility of providing footways with a minimum width of not less than 1.6m, 1.8m and 2.0m was considered. In each case, limited carriageway widening would also be required however this would also be on a smaller scale. A construction cost for the three variations considered to widen the footway to 1.6m, 1.8m or 2.0m minimum width have been estimated and range from £143,000 to £166,000.

If narrow sections of carriageway are left road markings and surface treatment is proposed, however these may have a limited long term beneficial affect.

It should be noted that none of the estimates referenced within this section include for utility diversions or street lighting that may be required.

3.2.5 Environmental Weight Restriction

The provision of an environmental weight limit is not recommended as it would unfairly load other roads with disproportionate volumes of HGV traffic. The accident records for the area indicate that it would provide no safety benefit.

4 Conclusion and Recommendations

4.1 Summary

Each of the proposals made in Section 2 have benefits and disbenefits and it must be recognised that if any of the proposals are to be implemented, there will be an inevitable compromise between the requirements demanded by residents and those expected by road users in general. The measures that should be given the greatest priority are the ones that offer a suitable compromise between safety and convenience for all road users. The proposed measures may contribute to a reduction in noise and vibration but these criteria are considered of secondary importance.

The various options to provide for carriageway and footway widening do not seem to offer particularly good value when considering the number and severity of reported accidents associated with the extent of road. Proposals for widening the carriageway would offer little benefit to the majority of road users. Although it is accepted that the existing road width falls below a desirable minimum, there has only been one recorded accident within a 10 year period which could be partly attributable to this. The rate of accidents on this section of road is lower than the national average and so does not justify the implementation of any expensive measures. The perceived 'dangerously narrow' footway and carriageway widths may be encouraging road users to take extra care, resulting in the recorded low accidents rate.

The footway improvement options also seem to offer poor value given the current pedestrian numbers. If this was to be taken forward, the Highway Authority would have to satisfy itself that there is a long term demand for a facility.

The substantial improvements to the carriageway and footway, as described, would be desirable but the same concerns remain; the low pedestrian count on the footway and the relatively low accident history of the road would raise questions over the legitimacy of the development and whether the required funding would be better used elsewhere.

An environmental weight restriction through Standlake is not recommended, as there is not a more suitable alternative route for HGV traffic in close proximity. To prevent HGV traffic from using less suitable alternative routes would require too large an extension of the environmental weight restriction area which could not be practically enforced as it would be too restrictive on HGV movements.

4.2 Proposals to Carry Forward

Of the proposals being considered the following should be assessed further.

- Gateway treatments at village entry and carriageway markings and surface treatment to the narrow sections of road.
- Signalisation of A415, Abingdon Road with High Street with closure of the junction to the unnamed road to the east and removal of the proposed signals on the new crossing. If the turning counts into and out of the High Street do not enable the required delays to regulate the traffic to be achieved safely then the provision of a build out or camera enforcement should be considered to deter red light jumping.

4.3 Recommendations

Considering the effectiveness of the proposals and the associated construction cost estimates the following recommendations are made in order of priority.

The gateway features considered in the 2008 A415 Mitigation Measures report should be designed and implemented at both A415 entries to the village following a full topographic survey. These should be complemented by the carriageway markings at strategic locations along the A415 in Standlake to create the impression of road narrowing. Although as has been stated, this may only have a temporary benefit for drivers who are familiar with the road, it will aid conspicuity for those less familiar and assist in reminding drivers that they are in a village environment where speed should be kept in check.

Further design work should also be undertaken to provide a signalised junction on the A415 Abingdon Road, Standlake with High Street and Shifford Lane combined with closure of the junction to the unnamed road to the east and removal of the proposed traffic signals on the new crossing. This would respond to the comments received at the public consultation, only implementing a delay to traffic where it provides a positive safety benefit and would assist residents wishing to join the A415 from the side roads, especially at peak periods. Depending on the predicted turning counts and the required delay to regulate the traffic, the integration of a constriction to provide shuttle working should be considered to prevent jumping of the red lights.

Additional traffic data should be sought and a survey undertaken to provide details of predicted turning counts at the junction with High Street. This would enable traffic delays and queue lengths to be established and the signals designed such that queuing traffic on the A415 is curtailed west of the junction to minimise disbenefits to residents.

Up to date NRSWA enquiries should be made for each specific element of work and confirmation of the existing highway boundary along the A415 through Standlake should be sought.

Appendix A Drawings

Drawing number / Rev

B0161900/Standlake/KP R0

To Witney

DOWNS ROAD

THE DOWNS

A415 WITNEY ROAD

Extent of 30mph speed restriction

CHURCH END

RACK END

BROAD BRIDGES

STANDLAKE

HIGH STREET

LANCOTT LANE

BRIGHTHAMPTON

A415 ABINGDON ROAD

CROFT LANE

B4449 ASTON ROAD

SHIFFORD LANE

LANGLEY'S LANE

Unnamed Road

A415

To Bampton

To Abingdon

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
1	17.05.10	Text revised and 30mph speed restriction added	ND	RVA	RVA	RVA
0	16.03.10	Feasibility Report	ND	RVA	RVA	RVA

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Project: 1080 NEWBRIDGE STANDLAKE FEASIBILITY

Drawing title: Key Plan

Drawing status: INFORMATION

Scale	1:10,000@ A3	DO NOT SCALE
Jacobs No.	B0161900	
Client no.		

Drawing number: B0161900/Standlake/KP Rev 0

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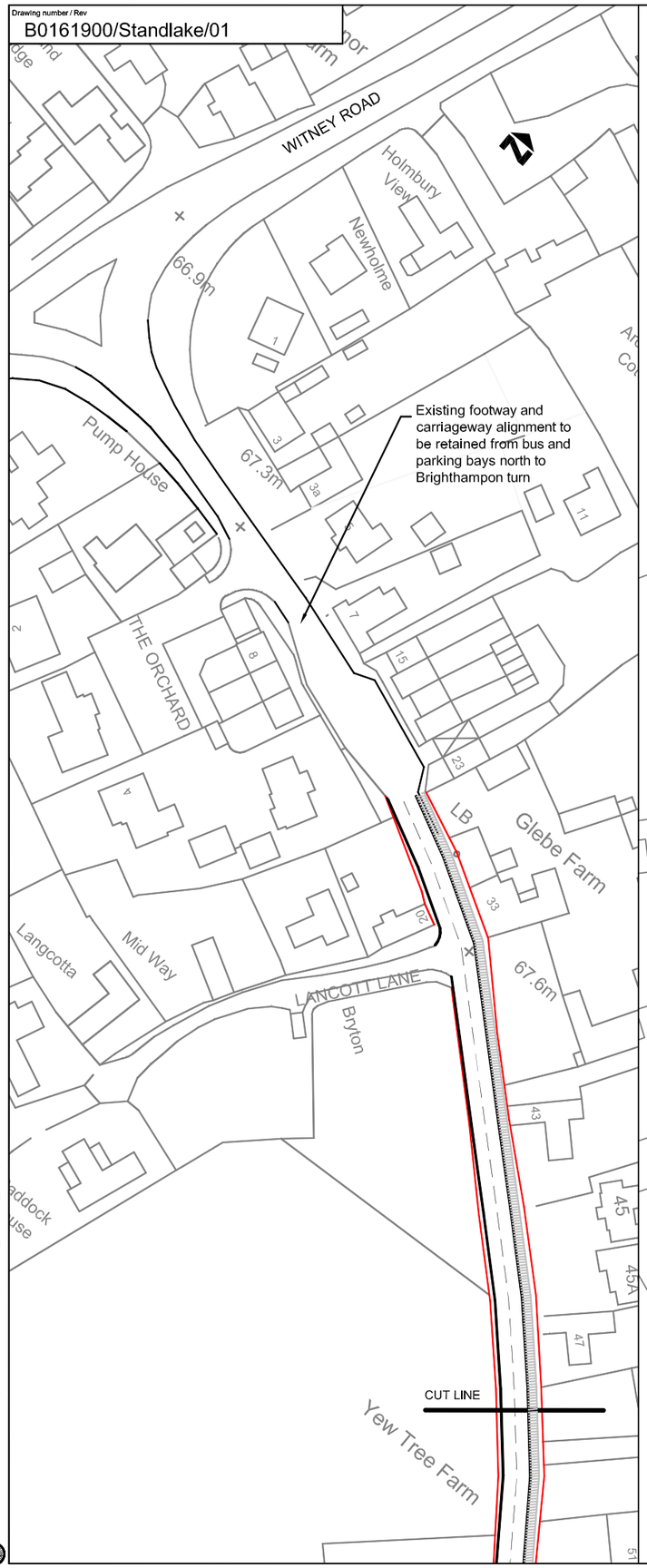
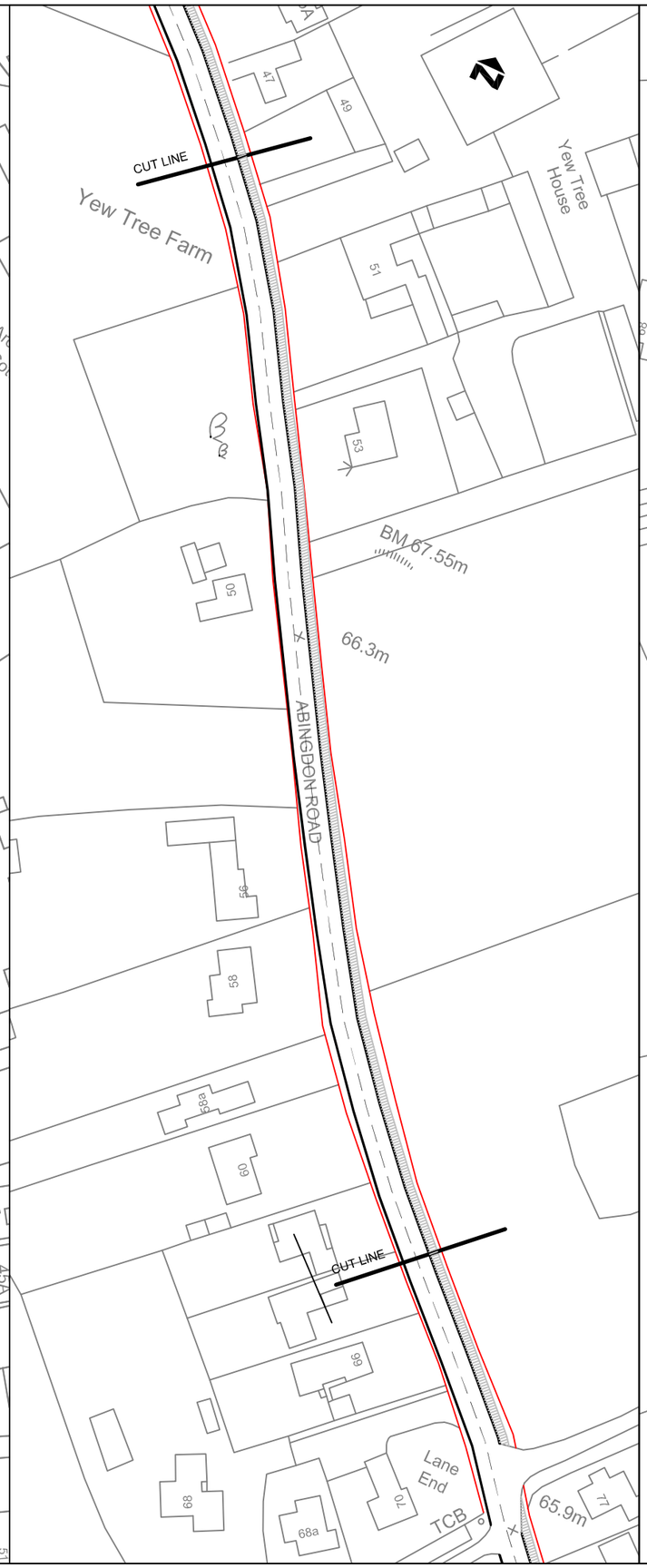
Drawing number / Rev

B0161900/Standlake/01





Key:

Measured limit of highway

Proposed Footway

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
0		Feasibility report				

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Drawing title: A415 Abingdon Road, Standlake Provision of Widened Footway and Realigned Carriageway Sheet 1of 2

Drawing status: INFORMATION

Scale	1:1250 @ A3	DO NOT SCALE
Jacobs No.	B0161900	
Client no.		

Drawing number: B0161900/Standlake/01 Rev: 0

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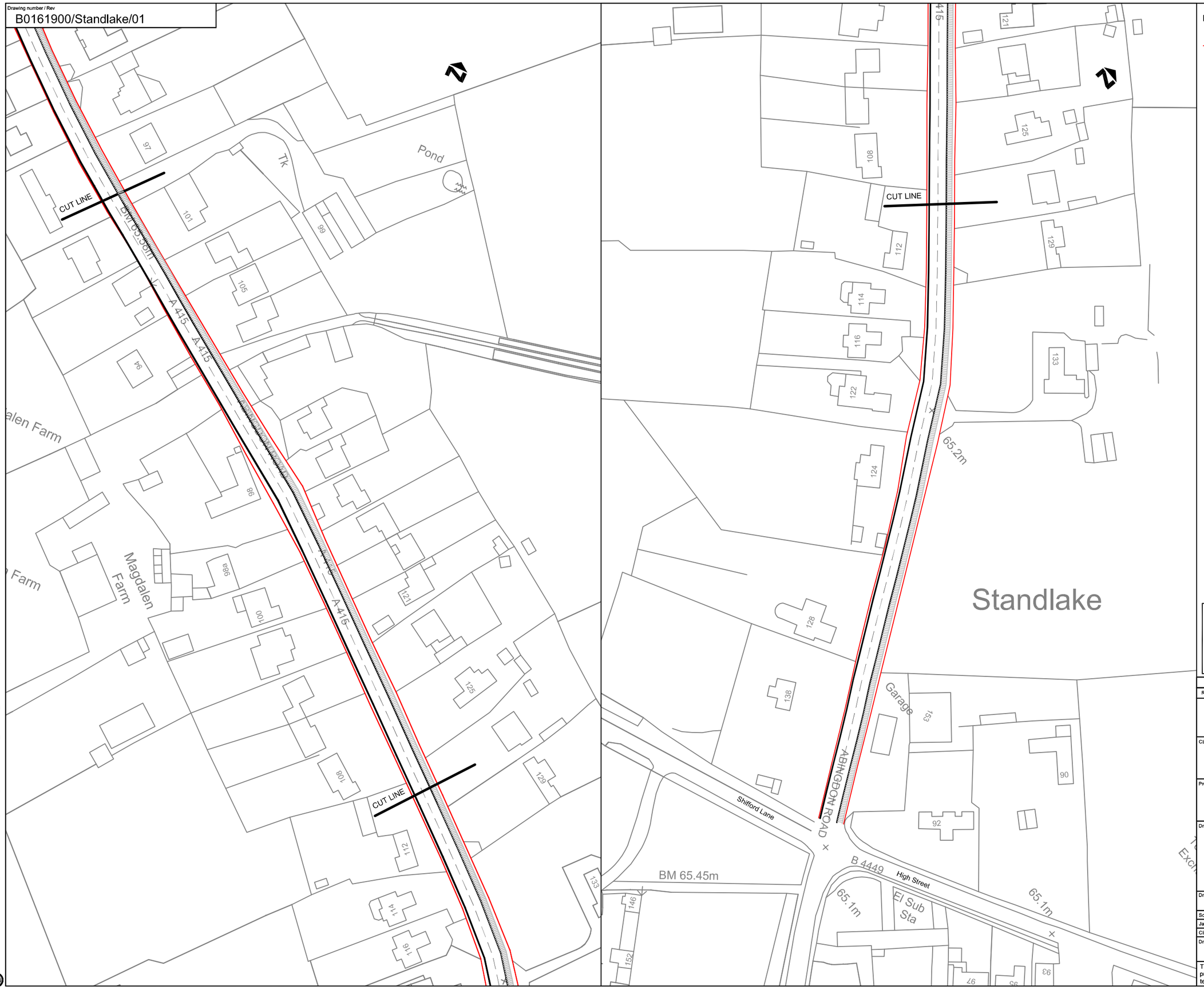

Key:

- Measured limit of highway
- Proposed Footway

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
0		Feasibility report				

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Project
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STANDLAKE FEASIBILITY

Drawing title
A415 Abingdon Road,
Provision of Widened Footway
and Realigned Carriageway
Sheet 2 of 2

Drawing status
INFORMATION

Scale	1:1250 @ A3	DO NOT SCALE
Jacobs No.	B0161900	
Client no.		

Drawing number
B0161900/Standlake/02

Rev
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Drawing number / Rev

B0161900/Standlake/03

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
0	08.06.10	Feasibility Report	ND	RVA	RVA	RVA

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STANLAKE FEASIBILITY

Drawing title

A415 Abingdon Road, Standlake
Local Carriageway Widening

Drawing status

INFORMATION

Scale	1:1250 @ A3	DO NOT SCALE
Jacobs No.	B0161900	
Client no.		

Drawing number

B0161900/Standlake/03

Rev 0

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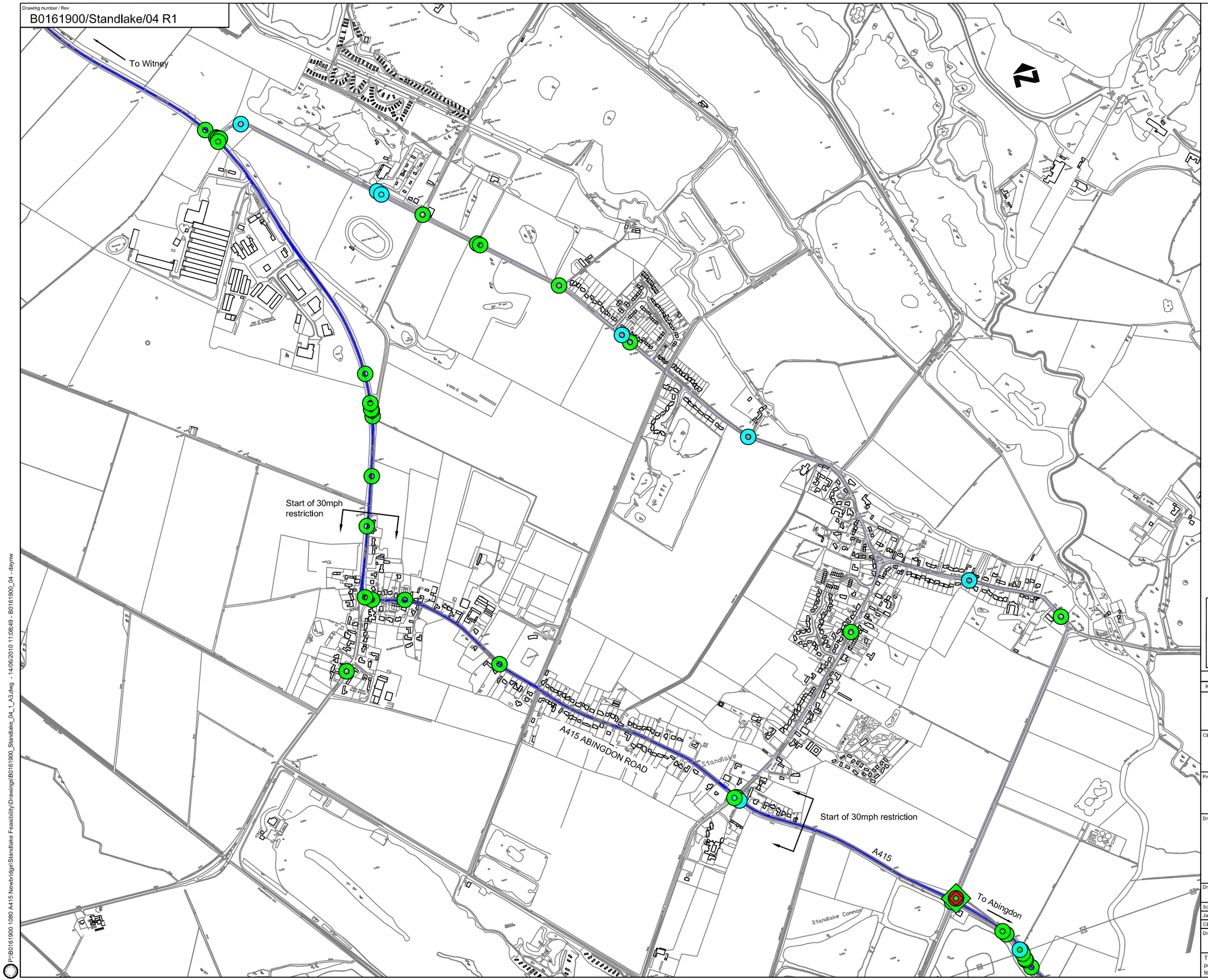
Drawing number / Rev

B0161900/Standlake/04 R1



'Slight' accident location

'Serious' accident location

'Fatal' accident location

'Slight' accident involving HGV not using A415

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
1	30/4/10	Colour removed from base plan	ND	RPC	RPC	RPC

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1080 NEWBRIDGE
STANDLAKE FEASIBILITY

Drawing title

Reported Accidents, Standlake January 2000 - December 2009 Excluding HGVs Travelling on A415

Drawing status: WORKING

Scale	1:10,000@ A3	DO NOT SCALE
Jacobs No.	B0161900	
Client no.		
Drawing number	B0161900/Standlake/04	Rev 1

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Drawing number / Rev

B0161900/Standlake/05 R1

To Witney

Start of 30mph restriction

A415 ABINGDON ROAD

Standlake

Start of 30mph restriction

A415

To Abingdon

Standlake Common

'Slight' accident involving HGV using A415

'Serious' accident involving HGV using A415

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
RPC	30/4/10	Colour removed from background	ND	RPC	RPC	RPC

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STANDLAKE FEASIBILITY

Drawing title

Reported Accidents, Standlake January 2000 - December 2009 HGVs Travelling on A415 only

Drawing status

WORKING

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Jacobs No.	B0161900	
Client no.		
Drawing number	B0161900/Standlake/05	Rev 1

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Drawing number / Rev

B0161900/Standlake/06 R0

'Slight' accident location

'Serious' accident location

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
0	08.06.10	Feasibility Report	ND	RVA	RVA	RVA

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STANDLAKE FEASIBILITY

Drawing title

Reported Accidents, Standlake January 2000 - December 2009 Pedestrian Casualty Locations

Drawing status: INFORMATION

Scale	1:10,000@ A3	DO NOT SCALE
Jacobs No.	B0161900	
Client no.		

Drawing number: B0161900/Standlake/06 Rev: 0

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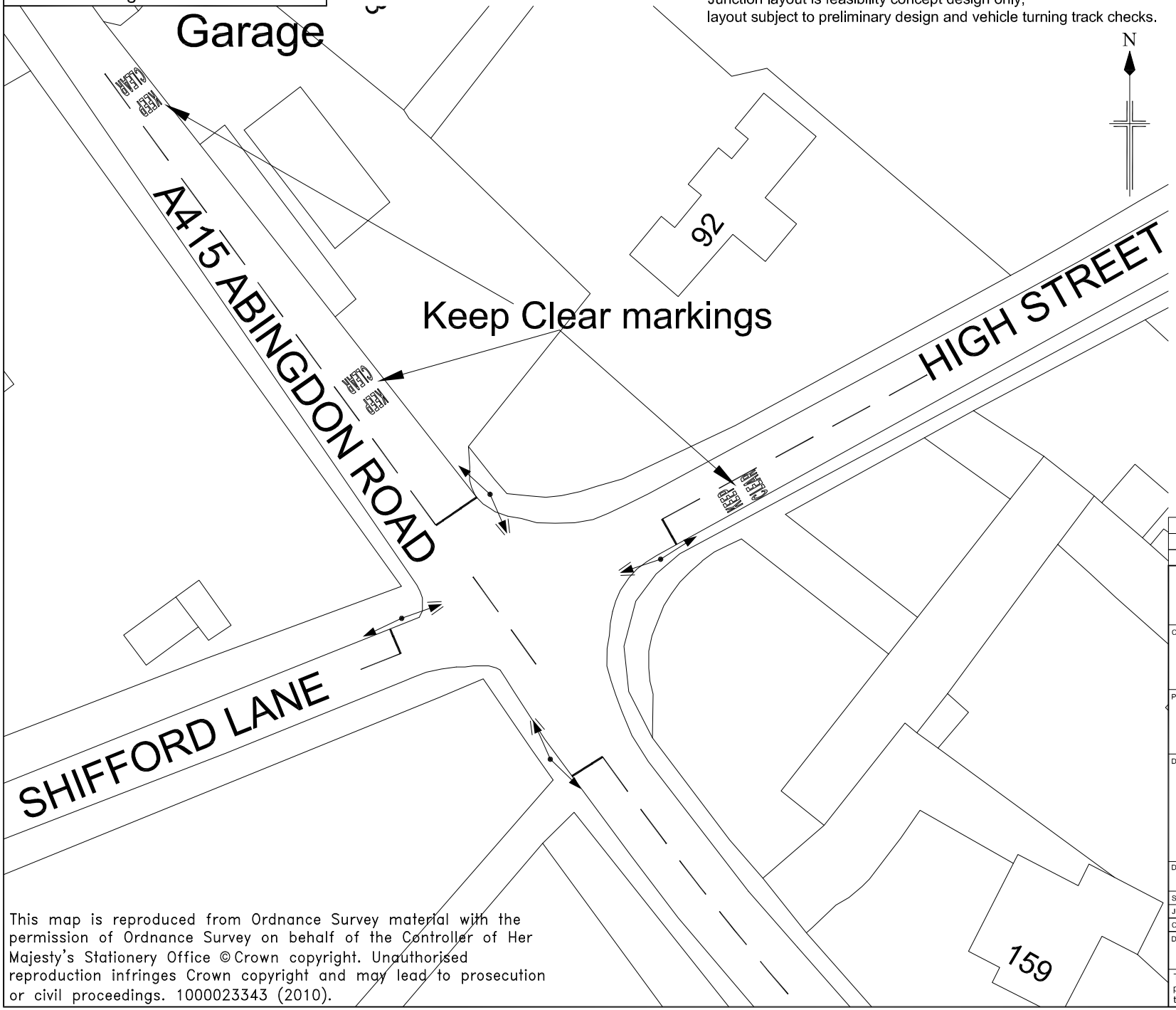
Drawing number / Rev

B0161900/Signals/1 Rev.1

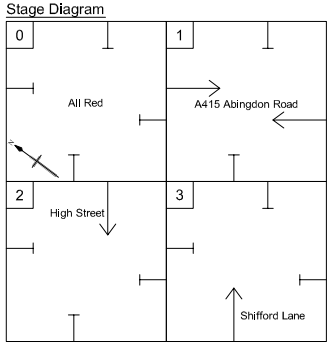
Notes:
Junction layout is feasibility concept design only,
layout subject to preliminary design and vehicle turning track checks.



Key

- Primary Traffic Signal Head
- Secondary Traffic Signal Head
- Traffic Signal Stop Line & Hazard Warning Line

Stage Diagram



The signals can rest in All Red or any other stage in the absence of demands.
The other stages only appear if demands are present.

Rev	Rev. Date	Purpose of revision	Drawn	Checked	Approved
1	17/2/10	Stage Diagram inserted, Hazard line added to junction centre	MS	CB	CB
0	29/1/10	Original Feasibility Design	MS	CB	CB

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Client: Oxfordshire Highways www.oxfordshirehighways.org

Project
A415 Newbridge
Feasibility of Traffic Signals
at Standlake

Drawing title
A415 Abingdon Road / High Street
Traffic Signal Layout
Feasibility Design

Drawing status: For Information

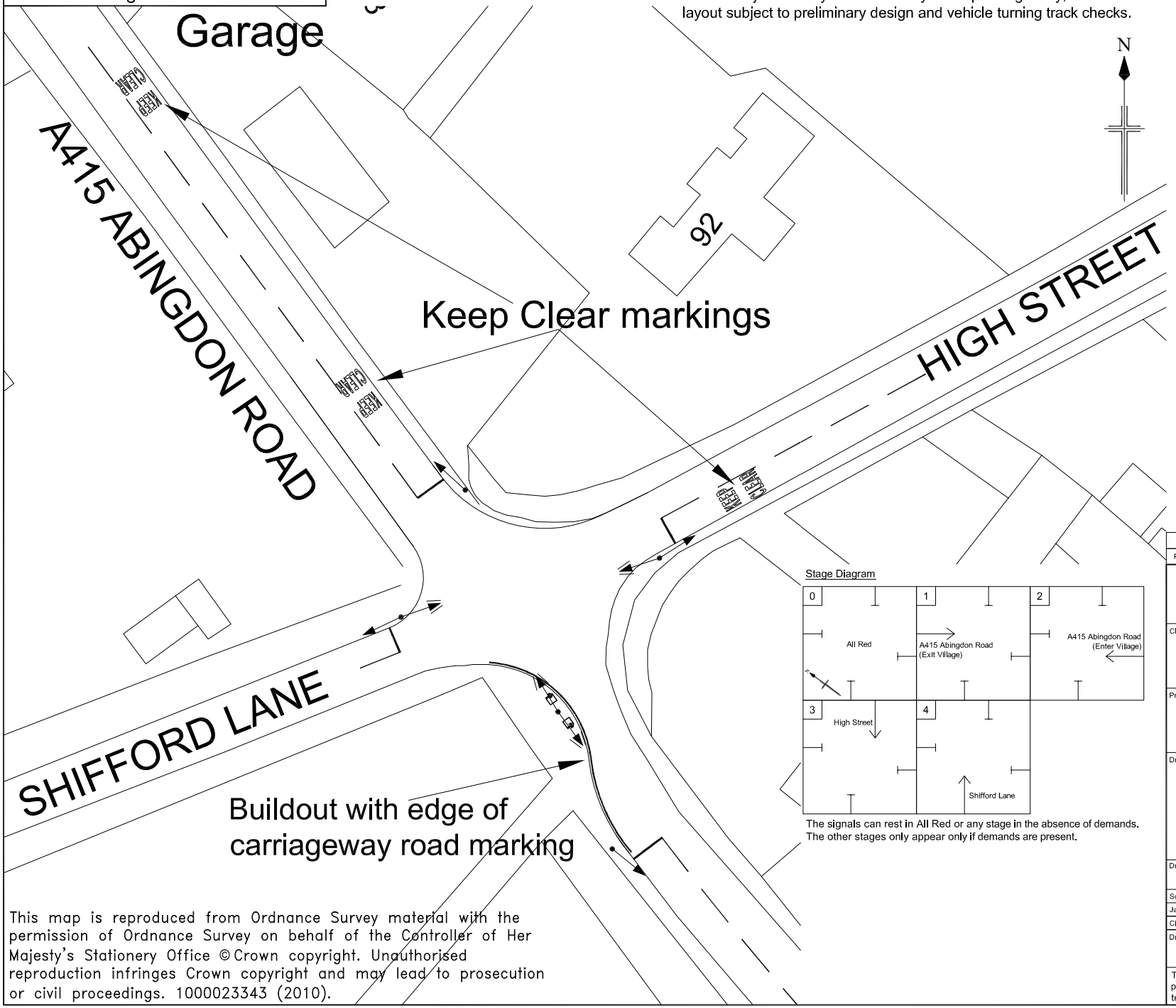
Scale	1:500 @ A4	DO NOT SCALE
Jacobs No.	B0161900	
Client no.	1080	

Drawing number: B0161900/Signals/1 Rev 1

Drawing number / Rev
B0161900/Signals/2

Notes:
Buildout & junction layout is feasibility concept design only,
layout subject to preliminary design and vehicle turning track checks.

Key
- Primary Traffic Signal Head
- Secondary Traffic Signal Head
- Traffic Signal Stop Line & Hazard Warning Line
- Keep Left and Keep Right Bollards (Non-illuminated type)



Stage Diagram

The signals can rest in All Red or any stage in the absence of demands.
The other stages only appear only if demands are present.

Rev	Rev. Date	Purpose of revision	Drawn	Checked	Approved
0	17/2/10	Original Feasibility Design	MS	CB	CB

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Project
A415 Newbridge
Feasibility of Traffic Signals
at Standlake

Drawing title
A415 Abingdon Road / High Street
Traffic Signal Layout with Buildout
Feasibility Design

Drawing status
For Information

Scale	1:500 @ A4	DO NOT SCALE
Jacobs No.	B0161900	
Client no.	1080	

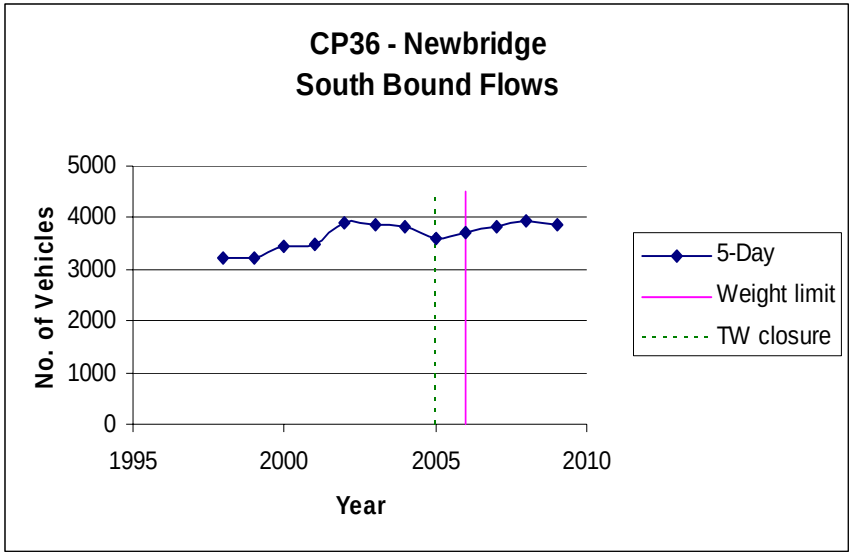
Drawing number
B0161900/Signals/2

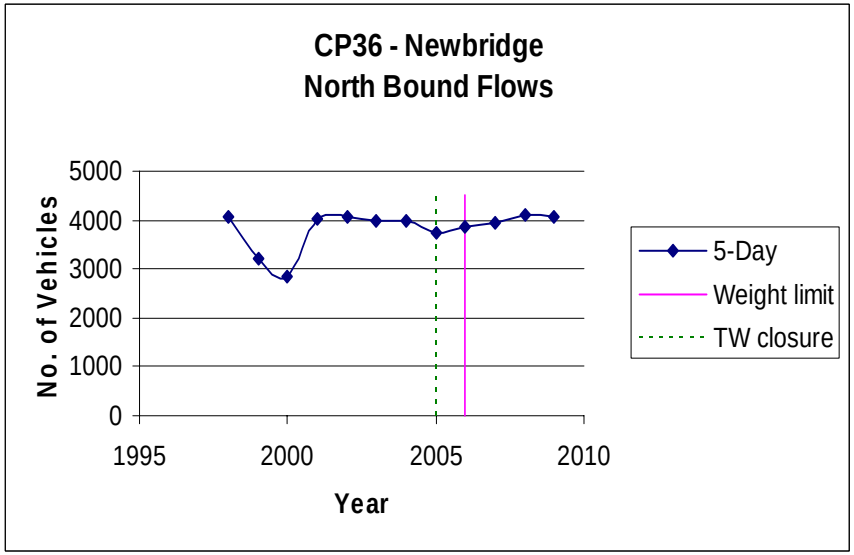
Rev
0

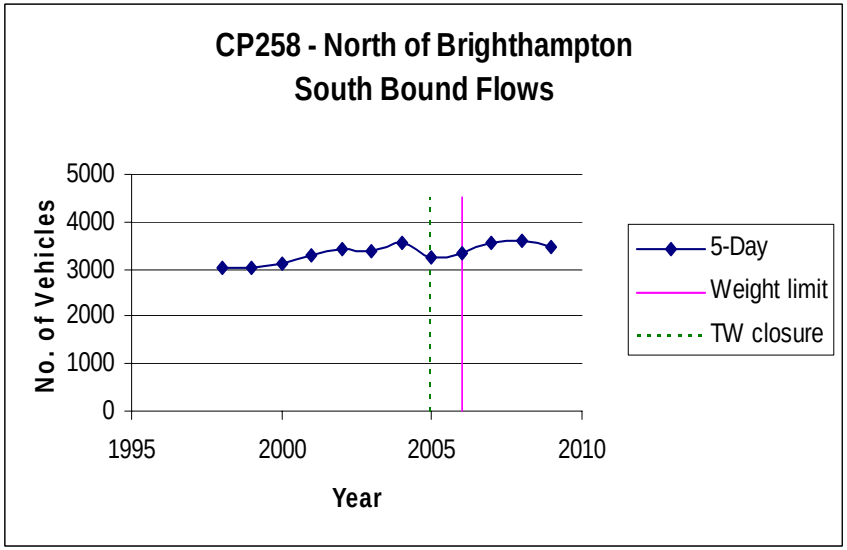
Appendix B Traffic Data

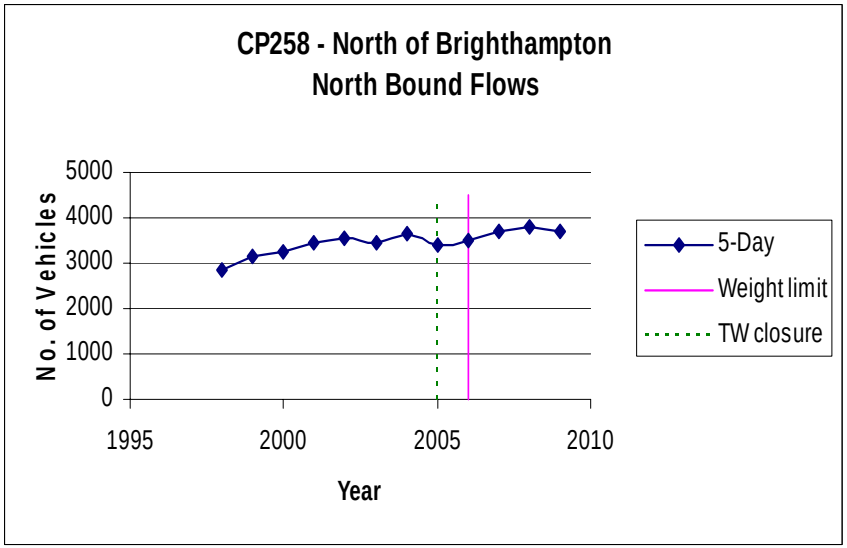
	CP36 NEWBRIDGE			CP258 NORTH OF BRIGHTHAMPTON		
	Survey Date	Southbound	Northbound	Survey Date	Southbound	Northbound
1998	26/04 – 31/12	3233	4047	28/04 – 24/06	3047	2835
1999	01/01 – 29/01	3232	3229	22/07 – 03/08	3022	3142
2000	06/09 – 31/12	3446	2844	14/08 – 27/09	3134	3265
2001	ANNUAL	3492	4019	02/04 -16/05	3299	3428
2002	ANNUAL	3916	4051	22/08 – 10/09	3426	3528
2003	ANNUAL	3851	3999	04/08 – 27/08	3369	3468
2004	ANNUAL	3837	3966	15/04 -05/05	3541	3633
2005	ANNUAL	3607	3755	14/04 – 18/05	3235	3378
2006	-	-	-	07/04 -10/05	3350	3486
2007	01/01 – 06/04	3834	3942	05/04 – 25/04	3546	3710
2008	ANNUAL	3942	4057	14/04 – 20/04	3576	3807
2009	ANNUAL	3882	4100	24/03 – 30/03	3473	3690

Table 6. Table Traffic Counts and Survey Dates









Graphs showing annual variations in average 5 day, 12 hour traffic data at count sites shown

References

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