

Alexandra Park and St Helen's Road, Hastings Cycle Route Review

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Document Issue

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Acronyms and Abbreviations

ESCC	East Sussex County Council
ESH	East Sussex Highways
HBC	Hastings Borough Council
ALARP	As Low As Reasonably Practicable
TPO	Tree Preservation Orders

Executive Summary

Alexandra Park forms a key link in ESCC's Walking and Cycling Strategy for Hastings. HBC has led on the delivery of a proposal to introduce a shared pedestrian and cycle facility within Alexandra Park with ESCC providing the necessary design support.

Following the County Council's Lead Member meeting for Transport and Environment in March 2017 concerns were raised about the potential for conflict between cyclists and pedestrians particularly at the popular sections of the Lower Park. ESH were subsequently instructed to conduct a route review to determine the suitability of using Alexandra Park for cycling and explore the alternative alignment of St Helen's Road to avoid the use of the Lower Park.

A risk-based assessment has been conducted for each section of the route and their respective route options. This assessment has initially been carried out on implementing a scheme without the introduction of improvement measures. From this it has been possible to identify the risks in promoting a shared facility through the Park and determine what interventions are required to mitigate these risks.

The outcomes of the assessment have concluded that except for a single stretch of path within The Upper Park, it is considered feasible to provide a continuous shared facility between Beaufort Road (north end of the Park) and Bethune Way (south end of the Park). To facilitate a shared facility would require the introduction of a package of improvement measures throughout before an acceptable layout can be achieved.

For the Upper Park section, from Beaufort Road to Dordrecht Way, there remains a discrete stretch of this route that cannot achieve the recommended design parameters for shared use paths, whether this is effective width or gradient. Whilst alternative route options have been considered, these still do not offer conducive facilities for a shared cycle/pedestrian route. In view of this, either it is accepted that a reduced standard facility can only be achieved, or a scheme that advises cyclists to dismount is promoted. Alternatively, a wider route review to explore further options is undertaken.

In terms of an option to use St Helen's Road as an alternative route to the Lower Park, the restricted highway corridor width along sections of St Helen's Road together with the requirement to retain on street parking and the existing mature trees within the footway mean this option cannot provide the sufficient width needed to accommodate a shared use facility. It is therefore recommended that a route through the Lower Park should be progressed provided adequate improvement measures, as identified within this report, can be introduced to accommodate a shared use path.

Introduction

HBC has led on the delivery of a proposal to introduce a shared pedestrian and cycle facility within Alexandra Park, Hastings, with ESCC providing the necessary design support. Amey consultants were initially commissioned by ESCC to undertake the preliminary design of this scheme through the park.

The proposed facility forms one of the principal routes identified in the Hastings Walking and Cycling Strategy approved by ESCC Lead Member for Transport and Environment on 15 September 2014. The Strategy focuses on identifying a borough-wide network of cycle routes.

As the Park is of registered status, as set by Heritage England, there are complexities with introducing such a facility through the Park, due to the need for signing and lining, which can conflict with the existing setting of the Park. In addition, there are mixed views on introducing such a facility, with concerns raised about the impact on the Park and potential conflicts between cyclists and other park users.

HBC have taken on responsibility for publicity and undertook extensive consultation in 2015 and 2016. From this they presented their findings and recommendations to their Cabinet in January 2016. The consultation feedback identified that public opinion was evenly split on the proposal to take a cycle route through the Park.

Subsequently the scheme was considered at the Lead Member meeting for Transport and Environment in March 2017 with a view to proceeding to detailed design and implementation.

At the Lead Member meeting concerns were raised about the potential for conflict between cyclists and pedestrians at the popular areas of the Lower Park, such as the café and the bandstand. As a result, ESCC officers were asked to defer the current proposal and consider alternative options for cyclists using St. Helen's Road as opposed to the lower section of Alexandra Park.

Aims of Report

ESH have been commissioned by ESCC to determine the viability of providing an off-road cycle facility along St Helen's Road as an alternative to providing a route for cyclists through the Lower Park. ESH will make comment on whether or not this is considered the most appropriate route option and make comparison with the original proposal to create a shared facility through the Lower Park.

ESH have also been commissioned to develop the proposed cycle route through the Upper Park as identified in the Client Brief. Previously designed by Amey, this route takes cyclists into the Upper Park via a path leading from Beaufort Road and through the Park using existing paths around the southern side of Shornden Reservoir. ESH are to review and develop this route option and determine whether there is scope to improve upon the design.

The aim of this report is to record the findings of this review. The review will determine the suitability of each section of the cycle route to accommodate cyclists and identify where measures are required to reduce the potential risks associated in providing a shared facility. To simplify the design and reporting, the route has been sub-divided into three distinct sections, as follows;

- Section 1: Upper Park
Through the Upper Park. From Beaufort Road to the Private Road near Harmers Reservoir.
- Section 2: Central Section
Between the Private Road near Harmers Reservoir and Dordrecht Way. As part of this section three route options will be considered, one of which includes using part of St Helen's Road.
- Section 3: Lower Park
Between the Dordrecht Way and Bethune Way. As part of this section four route options will be considered, one of which includes using part of St Helen's Road.

After completion of the design review and subject to ESCC and HBC acceptance of the results of this exercise the next step will be to develop the detail of the preferred route.

Routes to be Considered

The overall route extends between Beaufort Road at the western end and Bethune Way at the eastern end. The route has been sub-divided into three distinct sections. These are described below: -

- Section 1: Upper Park
 - This section links Beaufort Road with the private owned road leading from Upper Park Road by converting various footpaths leading to and through this section of the Upper Park to shared use.
- Section 2: Central Section
 - Option 1: This option continues the route from the private road by taking cyclists out of the park on the most direct route and along the southern footway alongside St Helen's Road to Dordrecht Way.
 - Option 2: The proposal is to continue the route from the private road through the Upper Park to Dordrecht Way by converting various footpaths within the park to shared use.
 - Option 3: The proposal is a slight variation on Option 2 using different paths in the Park between the private road and Dordrecht Way.
- Section 3: Lower Park
 - Option 1: This section continues the route along the southern footway of St Helen's Road between Dordrecht Way and the entrance to the Lower Park on Bethune Way.
 - Option 2: This was the route previously developed by Amey and sees cyclists using the Lower Park.
 - Option 3 and Option 4: These proposals are slight variations on Option 2 and use different paths in the Lower Park.

Review Methodology

Site visits were carried out on 12 September 2017, 3 October 2017 and later on 23 April 2018 to walk each of the proposed routes and associated options, take measurements and to check the feasibility of providing a shared facility between Beaufort Road and Bethune Way. The information gathered was used in conjunction with other information provided with the Brief to undertake this design review.

The methodology used a risk based assessment of two scenarios. Initially a risk-assessment of each route assuming that the cycle facility was introduced without any modifications to the existing layout was undertaken. From this exercise, it was possible to identify areas where, if left unmodified, the risks to public safety would be unacceptably high and unsuitable for the introduction of a cycle route.

The risk assessment was then repeated assuming that practicable mitigation measures had been carried out to reduce the level of risk. From this second assessment, it was possible to identify the residual risks and make a direct comparison between route options to determine which route, if any, presented the lowest level of risk.

The following risk matrix was used in the assessment and whilst it is accepted that the scoring methodology in any risk based assessment can be subjective, this approach enabled each route to be evaluated in a consistent manner, making it possible to make a true comparison between each of the route options.

Table 01. Risk Matrix

Likelihood	Very High	[4]	4	8	12	16
	High	[3]	3	6	9	12
	Medium	[2]	2	4	6	8
	Low	[1]	1	2	3	4
			[1]	[2]	[3]	[4]
			Low	Medium	High	Very High
Severity						

The likelihood of a risk manifesting itself has been valued between low (where it is considered that there is a minimal chance that an incident would occur) and Very High (where it is considered that the likelihood of an incident occurring is almost certain).

The severity following an incident is ranked as being between low and very high, where 'low' would be considered a 'near-miss' incident and 'very high' where the incident is likely to incur significant injury to either party.

By assessing the likelihood and severity the results provide us with an overall risk score for each element. This risk score is ranked as follows: -

Low Risk (1 to 3)	Considered broadly acceptable if all mitigation measures are in place.
Medium Risk (4 to 6)	Tolerable only if further mitigation measures are not reasonably practicable.
High Risk (7 to 9)	Not acceptable – further mitigation measures required or amend design.
Very High Risk (10 to 16)	Not acceptable.

Using this scoring method to assess the existing layouts helps identify how acceptable the existing conditions are to facilitate cyclists. From this, mitigation measures can be considered that would reduce the risk to an acceptable level or 'As Low As Reasonably Practicable' (ALARP). The risk has to be weighed against the overall cost (effort, time and money) needed to control or remove it.

This risk based approach assesses how the existing conditions compare with national design guidance and best practice. These include, but are not limited to:-

- TA 90/05 - The Geometric Design of Pedestrian, Cycle and Equestrian Routes
- LTN 1/12 – Shared Use Routes for Pedestrians and Cyclists
- LTN 2/08 – Cycle Infrastructure Design
- Cycling England Design Portfolio
- Manual for Streets (1 and 2)

It is accepted that meeting these standards will not be possible in most cases along the route given the various constraints imposed. Using the national standards as a baseline will, however, identify where relaxations and departures are required and in turn highlight the residual risks. For the case of assessing different route options, using a fully compliant design as a baseline will assist in the comparison exercise when assessing each route option.

The main design criteria that will be assessed is summarised below. Full details of these criteria are included in Appendix C.

- Width of route
- Headroom
- Forward visibility (sight stopping distance)
- Gradient of route

In addition, the review also takes into consideration the following:

- Opportunity to connect with wider links to the Hastings Walking and Cycle Strategy
- Presence of street lighting
- Conservation/environmental impact
- Desire lines
- Impact to parking

Key issues identified during the site visit together with the outcome of the risk assessment are discussed in the following sections.

Section 1 Upper Park

5.1.1 Route Description

From the design work undertaken by Amey this section of the route has emerged as the preferred option from Beaufort Road eastwards through the Upper Park to the private road. Several alternative route alignment options through the park have previously been investigated but the current route is now considered the most suitable to mitigate concerns raised with the previous route options.

The proposal is to take cyclists along the steep path leading from Beaufort Road into the park, across the bridge at the western end of Shornden Reservoir before taking a series of paths that lead eastwards through the Park. At the eastern end of this section the route connects into an un-adopted road that provides vehicular access into the Park as well as parking. It is understood HBC would take on future responsibility of this un-adopted thoroughfare should a cycle route be taken forward. With this said further discussions will be needed between ESCC and HBC.

This route has been progressed through the preliminary design stage by Amey who also undertook a Stage 1 Safety Audit on the proposal. In their safety audit a significant number of high-ranking problems were identified which are mirrored by the findings of our review. The inherent problems with the proposed route would mean that it would be very difficult to provide a cycle facility that fully meets current standards without undertaking significant additional works.

5.1.2 Existing Route Risk Assessment

The existing risk levels for the different sections of the route described below are illustrated on the drawing HGN-SCH0009–DR–CH-0009 contained in Appendix A. The detailed risk assessment is contained within Appendix B. The following paragraphs describe the issues identified with the existing layout along this section of the route.

5.1.2.1 General Comments

There is no street lighting throughout the Park. This presents a significant risk to providing a cycle route through the Park as much of the proposed route would pass through areas of dense vegetation where visibility is likely to be reduced during hours of darkness. This is of importance during the winter months when it is usually dark from 4pm onwards. Despite the availability of high intensity cycle lights, some rivalling car headlights in their intensity, it cannot be assumed that every cyclist would be in possession of such lights. Consequently, the risk that other users within the Park could find themselves confronted by an unseen cyclist approaching out of the dark is significantly increased, as is the risk of personal injury from collisions.

5.1.2.2 Section A

The width of the path measures between 2.5m and 2.7m with a 6' high chain-link fence on the northern side and a 1.2m high metal palisade fence on the southern side. Each vertical bar in the palisade fence is topped with a blunt, rusty, point. To be compliant with design standards this path should be 4m wide (3.0m effective width with 0.5m 'buffer zones either side). There is no scope to widen the path to achieve this without acquiring additional land from either the Park or private property. The narrow width increases the risk of conflict with other users and cyclists clipping the adjacent fence lines and losing control.

The following image shows the existing path



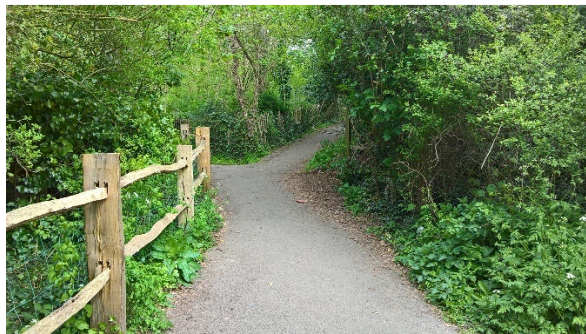
The gradient of the path is steep over its entire length. There is the risk of high cycle speeds when heading downhill towards the Park and loss of control / collision with other users. The problem is compounded at the top end of the slope which serves as a vehicular access to an adjacent private residence, with the obvious conflict issues.

5.1.2.3 Section B

At the bottom end of the steep path is a sharp right-hand bend. Minimum visibility standards require stopping sight visibility of 30m to minimise the risk of collision between cyclists and other users. The maximum visibility currently available measures approximately 9m but this doesn't take into consideration potential overhanging vegetation which would restrict visibility further. Significant tree / shrub removal within the park would be required to provide and maintain adequate visibility.

In addition to the visibility problems a footpath links with the route from the north at this corner. It is unlikely that cyclists or pedestrians with buggies etc will approach from this path as there is a flight of steps at its top end. It will be necessary, however, to install measures to prevent pedestrians from stepping into the path of a passing cyclist.

The following image highlights the poor visibility and the footpath link.



5.1.2.4 Section C

No critical risks were identified along this section. The existing path measures approximately 2.5m in width but there is scope to widen this by removal of a strip of the adjacent grass.

5.1.2.5 Section D

No critical risks were identified over the existing bridge which measures approximately 4.5m in width.

5.1.2.6 Section E

This section of path measures approximately 2.5m in width and is on an uphill gradient when heading eastwards away from the bridge. Stopping sight visibility is severely restricted on the corner by mature trees and dense shrubbery. The maximum visibility currently available measures approximately 12m but this doesn't take into consideration overhanging vegetation which would restrict visibility further. Significant tree / shrub removal would be required on this corner to provide and maintain adequate

visibility. It is important to ensure that visibility standards are maintained on this corner as westbound cyclists are likely to be travelling quite fast due to the downhill gradient on this section.

The following image highlights the poor visibility looking westwards.



5.1.2.7 Section F

No critical risks were identified along this section. The existing path measures approximately 2.5m in width but there is scope to widen this by removal of a strip of the adjacent grass.

5.1.2.8 Section G

This section of path measures approximately 2.5m in width and is on a slight uphill gradient when heading eastbound away from the bridge. Stopping sight visibility is severely restricted on this corner by mature trees and dense shrubbery. The maximum visibility currently available measures approximately 12m but this doesn't take into consideration overhanging vegetation which would restrict visibility further. Significant tree / shrub removal would be required on this corner to provide and maintain adequate visibility.

In addition, a sizeable branch from an adjacent mature tree overhangs the path, reducing available headroom to below the 2.4m required. It would be necessary to remove this branch and ensure that the canopy of the tree is raised and maintained to provide the necessary headroom.

5.1.2.9 Section H

No critical risks were identified along this section. The existing path measures approximately 2.5m in width but there is scope to widen this by removal of a strip of the adjacent grass.

5.1.2.10 Section I

This section of the route passes through an area of fairly dense woodland on an existing, narrow, path that measures approximately 1.5m in width. In order to provide a shared facility that can achieve the minimum recommended effective width of 3.0m, the path would have to be widened by a minimum of 2.0m to provide clearance to mature trees that are growing immediately adjacent to the path. The ground falls away along the northern side, particularly at the western end, and significant earthworks would be necessary to widen the path. It would not be possible to provide an effective width of 3.0m without impacting on the existing trees / shrubs.

The following image is of the narrow path (the right-hand path) through the woodland area, looking eastwards



5.1.2.11 Section J

No critical risks were identified along this section. The existing path measures approximately 2.5m in width but there is scope to widen this by removal of a strip of the adjacent grass to achieve an effective width of 3.0m.

5.1.2.12 Section K

On this section it is proposed to convert to shared use the northern sides of what is, effectively, a triangle of paths. Site observations indicate, however, that this is not the most suitable route as forward visibility is insufficient at the apex of the triangle. At this location another path joins from the north. Widening the path would impact on the adjacent trees and shrubs. It is felt that a better option, would be to widen and convert the southern side of the triangle which has the benefit of providing a more direct route and better visibility.

5.1.2.13 Section L

No critical risks were identified along this section. The existing path measures approximately 2.5m in width but there is scope to widen this by removal of a strip of the adjacent grass.

5.1.2.14 Section M

This final element of Section 1 provides the link to the privately owned, unmetalled, road and provides some particular challenges for converting to a shared route. The path falls at a fairly steep gradient towards the private road and is relatively narrow, requiring widening of approximately 0.5m – 1.0m. At the interface with the private road visibility in both directions is significantly impaired by overgrown shrubbery which would require removal and regular pruning. At the time of the site visit the path was covered with a layer of pine needles and leaves which made the path quite slippery, even in dry weather conditions. There is a high risk that cyclists could lose control on this slippery surface especially during the Autumn/ Winter months when the ground is likely to be wet. Some form of high friction surfacing would be recommended to help mitigate this potential problem together with routine maintenance of the path to remove fallen debris. It would also be necessary to introduce some form of barrier at the interface with the private road to prevent cyclists overshooting into the path of an oncoming vehicle.

The following images are taken from the path towards the private road and from the private road looking back towards the exit from Section 1.



5.1.3 Proposed Measures

The previous section of this report discussed the issues identified in introducing a shared cycle/footway to the existing footpaths or footways without the provision of improvement measures. This section considers appropriate measures that may be implemented to reduce the risk to an acceptable level or to ALARP. Refer to Drawing HGN-SCH0009-DR-CH-0012 (Appendix A) for route details together with the Risk Register within Appendix B.

As previously discussed, a Road Safety Audit Stage 1 has been carried out on this proposed section of the route. This identified number of high-ranking problems, many of which have been identified as part of this assessment. Critically, the lack of street lighting through the Park is identified in the Safety Audit as an item that would require an exception report if lighting was not to be provided.

To reduce the level of risk identified along Section 1 the following measures have been considered. Implementation of these measures would reduce the majority of the risks to an acceptable level. The measures include: -

Location	Proposed Measure
Section A	- Provide additional signing and lining to control speed of cyclists and raise awareness of shared path status. - Protect the spiked fence to prevent injury to errant path users by means of 'shielding' fixed to the fence.
Sections C to H	- Widen existing paths by approximately 500mm to provide a minimum 3m wide route
Sections J to M	- Widen existing paths by approximately 500mm to provide a minimum 3m wide route
Sections B, E G and M	- Cutting back vegetation to ensure that minimum visibility requirements are met.

5.1.4 Summary

Provided the recommended measures are implemented the risk associated with these sections would be reduced to an acceptable level. Key to these mitigation measures being successful is a regular maintenance regime to ensure that vegetation is regularly cut back to ensure that visibility splays are maintained. Failure in this will result in these risks increasing.

Despite the above, one area would still remain as having an unacceptably high level of risk, Section I, the narrow path through the woodland. Trees and shrubs alongside this narrow corridor prevent the existing footpath from being widened. Unless it is accepted that mature trees can be removed to accommodate a wider path it is not possible to reduce the level of risk over this section. In view of this it is recommended that an alternative route is considered.

One alternative option, to avoid this section of the route, is to utilise an existing path to the north (as detailed on drawing HGN-SCH0009–DR–CH-0012). For most of its length this alignment provides a 3.0m to 4.0m wide corridor. In the context of the rest of the Park the gradient of this route is generally suitable. For the most part this corridor is an ‘unmade’ track and in its current condition not suitable for cyclists. As shown in the image below.

The following image show the existing unmade track.



With this said, there is opportunity, subject to budget and environmental constraints, to construct a new bound surfaced path. The only concern with this option is the initial 60m section. As shown by the image overleaf. The combination of restricted width (only 2.2m) and steep gradient makes this section less conducive to a shared use path. Although there is limited scope to widen the path over the initial 30m, measures may be adopted, such as signing and lining, to encourage slow cycling speeds. With this said the gradient is such that it may discourage users from cycling up this section.

The following image show the initial 30m of alternative path.



Neither Section I or the first 60m of the alternative route can achieve the recommended design parameters for shared use paths, whether this is effective width or gradient. In view of this, either it is accepted that a reduced standard facility can only be achieved, or a scheme that advises cyclists to dismount is promoted. Alternatively, a wider route review to explore further options is undertaken which may lead to route options being considered outside the Park altogether.

Section 2 Central Section

6.1.1 Route Description (Option 1 St Helen's Road)

On the basis that it is accepted that the un-adopted private road can be used, this section of the route has been suggested as the natural progression of Section 1. The proposal is to take cyclists on the shortest distance through the central section of the Upper Park past the pumping station and toilet block to join St Helen's Road. Once on St Helen's Road the proposal is to convert the southern footway to provide a shared route eastwards to Dordrecht Way. The length of the shared facility alongside St Helen's Road measures approximately 390m.

6.1.2 Existing Route Risk Assessment (Option 1 St Helen's Road)

The existing risk levels for the different sections of the route described below are illustrated on the drawing HGN-SCH0009-DR-CH-0010 (Option 1) contained in Appendix A. The detailed risk assessment is contained within Appendix B. The following paragraphs describe the issues identified with the existing layout along this section of the route.

6.1.2.1 Section A

Access to the park from the un-adopted private road would be via an existing ramp which would be converted to shared use. Cyclists would use the un-adopted, un-metalled, track to this ramp from Section 1, a distance of 175m. It is understood HBC would take on future responsibility of this un-adopted thoroughfare should a cycle route be taken forward. With this said further discussions will be needed between ESCC and HBC.

The ramp measures approximately 2.5m in width with a retaining wall along one side and a timber rail fencing along the other side, but increasing the width of the ramp to the required 4m would need land within the Park to be re-designated. The ramp is on a fairly steep gradient and there are concerns that cyclists would gain speed on entering the Park, increasing the potential for loss of control and collision with other non-motorised users. The existing timber post and rail fence bounding the northern side of this ramp currently measures 1.2m high and may need to be replaced with a 1.4m high fence.

The following image shows the existing access path.



6.1.2.2 Section B

This alternative access point is not feasible as it comprises a flight of steps.

6.1.2.3 Section C

From the bottom of the ramped access the route then utilises an existing vehicular access into the park, used primarily by maintenance vehicles. The width of this access is sufficient for a shared route but there is the inherent risk of conflict between moving maintenance vehicles and cyclists.

6.1.2.4 Section D

The proposal is to convert the footway along the southern side St Helen's Road to shared use. In order to provide an effective width of 3.0m, the minimum path width should be 3.5m, to allow clearance to the adjacent park fencing, plus an additional 500mm along those sections where on-street parking is permitted or trees are growing adjacent to the kerb. The existing footway along this section of St Helen's Road only measures between 2.4m and 3.0m which means that kerb re-alignment works would be needed to widen the footway throughout. This would be achievable over the initial 150m as there is sufficient road width available. The remaining length up to Dordrecht Way, however, would remain substandard in width as the footway on this section measures approximately 2.4m in width with the adjacent carriageway measuring approximately 7.75m wide.

Over the initial 150m the existing footway is split into two strips, a 1.4m grass verge along the front edge with a 1.6m wide footway behind. There are 5 No. semi-mature trees growing within the verge adjacent to the carriageway and the average distance between the trees and the back of the footway measures 1.9m, giving a resultant effective shared path width of approximately 0.9m allowing for the 500mm clearances

required from the tree and fence. It is recommended that a shared route should have an effective width of 3.0m. To meet this requirement the path between the trees and park boundary fence would need to be 4.0m wide to allow for the necessary clearances.

The following image looks eastwards along St Helen's Road from where cyclists would exit the Park. Note the mature trees in the verge.



Over the initial 150m the footway is lower than the adjacent carriageway with the level difference being taken up by the grass verge. If the decision is taken to retain the trees, specialist advice will need to be sought to determine what measures are necessary to protect the trees when adjusting the level of, and widening, the footway. It is noted that none of the trees that are in the footway along St Helen's Road are subject to TPO.

The back of the footway is bounded by the standard park metal palisade fence and a short section of low hedging. For most of its length the fence measures in excess of 1.4m in height but there is a length of approximately 75m where the height is reduced to approximately 1.1m. This poses a significant risk of injury to an errant cyclist and would therefore require replacing with a higher fence. The section of hedging measures approximately 80m in length and is approximately 900mm high.

*The following image looks eastwards along St Helen's Road
Note the low metal fence (1.1m high) and distant hedge boundary.*



Immediately west of its junction with Dordrecht Way is a bus stop. This introduces an additional element of conflict between cyclists and passengers waiting for a bus. Patronage has been obtained from Stagecoach who indicate that approximately 50 passengers board and alight at this stop each day.

At these conflict points the width of the footway should, ideally, be increased to 4.0m to minimise the potential for conflict with passengers waiting for a bus. In this location the footway measures approximately 2.3m and the adjacent carriageway approximately 7.75m. With the northern footway only measuring approximately 2.4m in width, there is insufficient corridor width available allowing the footway to be sufficiently widened.

The following image highlights the narrow footway at the bus stop.



6.1.3 Proposed Measures (Option 1 St Helen's Road)

The previous section of this report discussed the issues identified in introducing a shared cycle/footway to the existing footpaths or footways without the provision of improvement measures. This section considers appropriate measures that may be implemented to reduce the risk to an acceptable level or to ALARP. Refer to Drawing HGN-SCH0009-DR-CH-0013 (Appendix A) for route details together with the Risk Register within Appendix B.

Even with a package of improvements measures along this route, there are still sections where the risk level is considered unacceptable to provide a shared facility. The measures required to reduce the risk are considered disproportionate to the benefits that they would provide.

The limited path width throughout Section A combined with the boundary constraints either side of the path prevents the corridor from being widened unless earthworks/retaining structures can be provided. The current effective width of the path is 1.5m taking into consideration the adjacent boundary features. This coupled with the steep longitudinal gradient which, in turn, will promote higher speeds, will not make this conducive for a shared facility.

In addition, the scope to make improvements along St Helen's Road (Section D) is limited by the existing highway boundary. The minimum corridor width needed to facilitate a shared cycle/footway on one verge would be 12.6m. This comprises: -

- 3.5m shared footway / cycle route (Effective width 3.0m)
- 7.3m carriageway
- 1.8m footway along the northern side

This assumes there is no on-street parking provision adjacent to the proposed section of shared route. Should parking be retained an additional 0.5m width would be required to provide the necessary separation between the parked vehicles and shared route.

Along the initial 150m length of St Helen's Road there is sufficient corridor width to enable a 3.5m wide cycle route to be created by widening the footway. Widening the footway would, however, require the removal of the five mature trees. From an environmental impact perspective, it is not considered that this would be acceptable. Retaining the trees would compromise the effective width of the shared route and therefore the risk level would increase due to the localised narrowing of the shared route.

Over the remaining length of St Helen's Road up to Dordrecht Way there is insufficient highway corridor width available to provide the a 3.5m wide shared route but there is scope to provide a route with the lesser width of approximately 3.2m. This could be achieved by re-aligning the kerbing along both sides to reduce the width of the carriageway to 7.3m and the northern footway to 1.8m. This would require the loss of on-street parking over this length of St Helen's Road, a distance of approximately 100m (the equivalent of approximately 17 spaces).

The existing bus stop immediately west of Dordrecht Way, Location D (iii), is located on a section of footway that is currently too narrow to provide the shared facility but also where the overall corridor width is insufficient to allow re-alignment of the carriageway to provide sufficient additional width. Because of this it is not possible to reduce the level of risk at this location and the high-risk score therefore remains.

ESH have considered an alternative option to provide a shared facility on the north footway. To achieve a 3.5m wide shared route the entire length of the north footway would need to be widened and in turn the southern kerb line would need adjustment to ensure a minimum 7.3m wide carriageway is maintained.

The north footway is lined with private dwellings, all with pedestrian access onto St Helen's Road and many with vehicular accesses. Each of these introduce the risk of conflict between cyclists and residents accessing their properties.

Furthermore, if a cycle facility uses the north footway it would be necessary to install specific crossing facilities to enable cyclists to safely cross between the southern and northern sides to link with the adjacent sections of cycle route. The positioning of these facilities would have to be carefully considered to maximise potential usage whilst minimising the impact on the adjacent properties.

Options for on road cycle lanes have not be investigated as it is understood that ESCC and HBC aim is to provide off road cycling facilities.

In view of the issues identified above it is recommended that this option is not taken forward.

6.1.4 Route Description (Option 2 Through Park)

This route provides a natural progression of Section 1 through the remainder of the Upper Park to Dordrecht Way. The proposal is to utilise an existing ramp slightly offset from where Section 1 joins the private road before continuing along the existing path network within the park.

It is then proposed to widen an existing narrow path between the tennis courts and the Hastings Peace Garden to link up with an existing path running parallel to St Helen's Road. From this point cyclists would use the existing path up to Dordrecht Way.

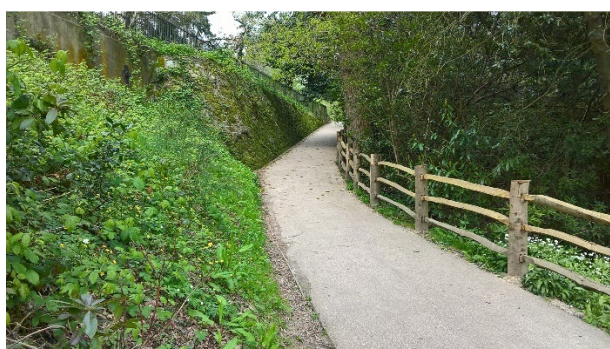
6.1.5 Existing Route Risk Assessment (Option 2 Through Park)

The existing risk levels for the different sections of the route described below are illustrated on the drawing HGN-SCH0009-DR-CH-0010 (Option 2) contained in Appendix A. The detailed risk assessment is contained within Appendix B. The following paragraphs describe the issues identified with the existing layout along this section of the route.

6.1.5.1 Section A

The proposal is to convert the existing ramped access into the park to shared use. The ramp measures approximately 35m in length and 3.2m in width but is bordered on one side by a high retaining wall and on the other side by a 1.2m high timber post and rail fence. This provides an effective shared path width of 2.2m. Because of these boundaries to the path the minimum width for this section of the route should be 4m to provide an effective width of 3.0m for a shared facility. The ramp is on a steep gradient and there are concerns that cyclists would gain speed on entering the Park, increasing the potential for loss of control and collision with other users. The existing timber post and rail fence may need replacing with a 1.4m high fence to protect against steep gradient in verge adjacent to path.

The following image is of the existing ramped access.



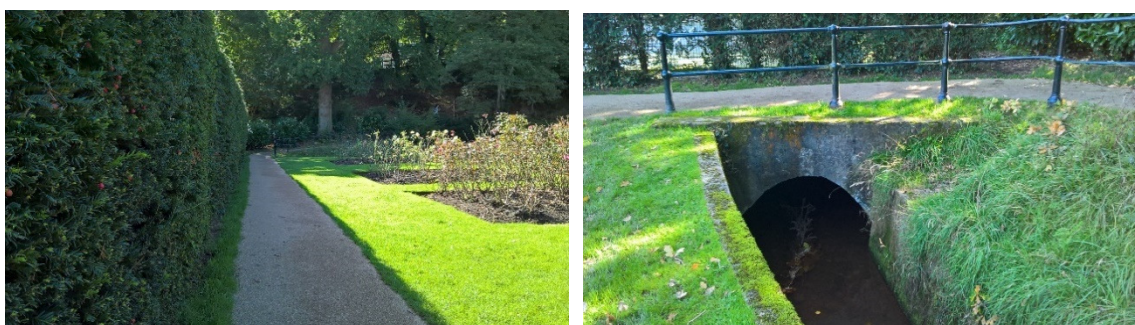
6.1.5.2 Section B

No critical risks were identified along this section. The existing path measures approximately 2.5m in width but there is scope to widen this by removal of a strip of the adjacent grass.

6.1.5.3 Section C

This section of the route would require widening which would impact on the Hastings Peace Gardens. The path currently measures 1.3m in width. Widening the path to provide a 3.0m shared facility would also mean widening the existing footbridge/culvert.

The following images show the existing narrow path and structure.



6.1.5.4 Section D

On this corner forward visibility is impacted by the existing mature hedgerow alongside used to screen the tennis courts. To improve visibility at this junction between paths it is recommended that a section of the hedge is removed.

6.1.5.5 Section E

This section passes across a narrow stone bridge that spans a small water course. The bridge width is 2.4m between parapets and the parapets themselves are only 0.85m in height. This falls below the required standard to facilitate cycle use. Given the nature of the existing structure it is unlikely that any modification can be made to bring it to current standards. In addition, an existing tree is positioned immediately to the east of the bridge. This significantly reduces visibility to approximately 7.0m. It is likely that someone approaching the path from the east would not see another user on the bridge. If no changes can be made to the structure removing this tree would be recommended to ensure visibility is not compromised.

Existing bridge with tree obstructing visibility



6.1.6 Proposed Measures (Option 2 Through Park)

The previous section of this report discussed the issues identified in introducing a shared cycle/footway to the existing footpaths or footways without the provision of improvement measures. This section considers appropriate measures that may be implemented to reduce the risk to an acceptable level or to ALARP. Refer to Drawing HGN-SCH0009-DR-CH-0013 (Appendix A) for route details together with the Risk Register within Appendix B.

As identified in the previous section of this report, the creation of a shared cycle/footway following this route would have too great an impact upon this area of the Upper Park in particularly the Hastings Peace Garden (Section D of the route). Widening of the existing culvert/footbridge is also recommended. It is considered that changes to the existing structure to reduce the risk would be disproportionate to the benefits it would provide. In view of this it is recommended that this route option, in its entirety is, not taken forward.

With that said, provision of a shared route using Sections A and B of this route could be considered acceptable, subject to implementing the necessary mitigation measures along Section A, notably additional signing and lining to both control speed of cyclists and raise awareness of the share path status as well as upgrading the existing fence adjacent to the path. However instead of continuing along Section C, it is proposed that the route would continue in the Park towards the southern end of Dordrecht Way using the existing paths, as shown on Drawing HGN-SCH0009-DR-CH-0013. Local widening of this path would be needed to provide a 3.0m wide shared route.

In addition, and in recognition of the Hastings Walking and Cycling Strategy, this route could provide an opportunity to link with a future, cycle link along St Helen's Road

towards the Hastings District General Hospital. This potential link is also shown on Drawing HGN-SCH0009-DR-CH-0013.

6.1.7 Route Description (Option 3 Through Park)

This route is a slight variation to Option 2. Instead of heading eastwards immediately after 'section A' it uses the existing path network to take the cycle route along the north side of the Hastings Peace Gardens before re-joining the route proposed in Option 2.

6.1.8 Existing Route Risk Assessment (Option 3 Through Park)

The existing risk levels for the different sections of the route described below are illustrated on the drawing HGN-SCH0009-DR-CH-0016 contained in Appendix A. The detailed risk assessment is contained within Appendix B. The following paragraphs describe the issues identified with the existing layout along this section of the route.

6.1.8.1 Section A

This follows the same route as Option 2. Refer to paragraph 6.1.5.1 for details.

6.1.8.2 Section B

With the exception that the existing path width is below the recommended width of 3.0m no other critical risks were identified along this section.

6.1.8.3 Section C

The route would need to pass over an existing bridge crossing a small water course. Although the width of the bridge measures 3.9m, the parapet height is lower than the required standard to facilitate cycle use. The metal surface of the bridge deck could also become slippery in wet conditions.

Existing bridge crossing water course



6.1.8.4 Section D

The route passes on the north side of the Peace Gardens. In general the existing path width is 3.0m and visibility is good. The only potential risk is conflict between path users should pedestrians who are leaving the Peace Gardens step out in front of a cyclist using the path.

6.1.8.5 Section E

This section of the route is elevated approximately 1.15m above adjacent ground level over a distance of approximately 35m. Edge protection is offered by a low level rail 0.85m high. The path width is approximately 2.7m. Except for increasing the parapet height there is little scope to improve the existing path.

Elevated path



6.1.8.6 Section F

This section passes to the north side of the tennis courts. The presence of a hedge along the western edge of the tennis courts compromises visibility. As a result, there is a risk of conflict between path users should pedestrians leaving the tennis courts and step out in front of a cyclist using the path.

6.1.8.7 Section G

This follows the same route as Option 2. Refer to paragraph 6.1.5.5 for details.

6.1.9 Proposed Measures (Option 3 Through Park)

The previous section of this report discussed the issues identified in introducing a shared cycle/footway to the existing footpaths or footways without the provision of improvement measures. This section considers appropriate measures that may be implemented to reduce the risk to an acceptable level or to ALARP. Refer to Drawing HGN-SCH0009-DR-CH-0016 (Appendix A) for route details together with the Risk Register within Appendix B.

It is considered that with a package of improvement measures the risk could be reduced along some of the sections of this route options. Measures would include changes to the existing bridge deck surface (section C) to improve slip resistance. In addition, repositioning the gate to the tennis courts would not only improve visibility but would increase the set back of the entrance so people leaving the tennis court would not immediately step out on to the path. With this said there are still several sections within this option that are a high risk even if mitigation measures are introduced. These mainly relate to the elevated sections of path in combination with the low railings together with the existing stone bridge coupled with poor visibility resulting from the tree. As previously discussed it is recommended that the tree is removed to maximise visibility.

6.1.10 Summary

Choosing which route option to progress for this central section is very much influenced by their interaction with the adjoining section in the Lower Park. As the next part of this report will explore it is considered more appropriate for the Lower Park route to commence a shared cycle facility at the northern end of Dordrecht Way. In view of this the natural continuation of the route would therefore be Option 3, even if the Option 2 variant, as described in paragraph 6.1.6, provides a better route option in respect to risk mitigation.

ESH has considered the provision of a shared cycle/footway along Dordrecht Way to allow Option 2 to connect into a route to the north end of this road however, unless on-street parking can be removed on one side of Dordrecht Way it would not be possible to provide a shared cycle/footway along its length.

Section 3 Lower Park

7.1.1 Route Description (Option 1 St Helen's Road)

This proposal is an alternative to the original proposal developed by Amey that takes cyclists through the Lower Park. To mitigate local concern about potential conflict between cyclists and other users within the Park, this alternative proposal will keep all cycle movements out of the Park by converting the existing footway along St Helen's Road to shared use between Dordrecht Way and the Lower Park entrance on Bethune Way.

7.1.2 Existing Route Risk Assessment (Option 1 St Helen's Road)

The existing risk levels for the different sections of the route described below are illustrated on the drawing HGN-SCH0009–DR–CH-0011 contained in Appendix A. The detailed risk assessment is contained within Appendix B. The following paragraphs describe the issues identified with the existing layout along this section of the route.

7.1.2.1 Section E

Over this section the footway measures, on average, 2.4m in width. To achieve a 3.0m effective width shared path the footway would require widening by 1.1m.

There is a zebra crossing on this section with standard belisha beacons positioned behind the kerb line. The clearance between the belisha beacon pole and the park fence measures 1.8m which is significantly narrower than the 4.0m required. The presence of pedestrians waiting to cross the road, when combined with this narrow width, introduces the risk of conflict between cyclists and other users at this location.

The following image is taken on St Helen's Road looking eastwards towards the zebra crossing.



7.1.2.2 Section F

Between the zebra crossing and St Helen's Crescent the existing footway measures approximately 2.35m in width. As highlighted above, the recommended width should be 3.5m, an increase of 1.15m to provide an effective width of 3.0m.

7.1.2.3 Section G

Between St Helen's Crescent and St Helen's Road the width of the existing footway continues at approximately 2.35m against the required minimum of 3.5m.

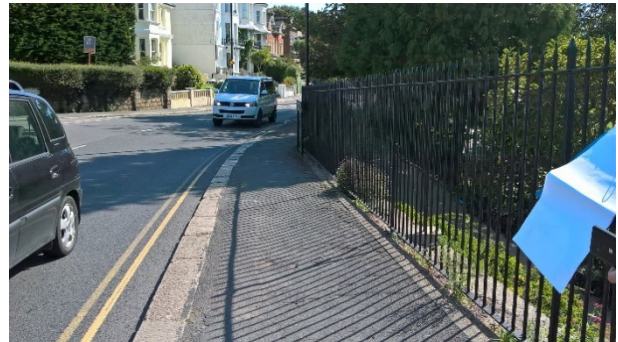
7.1.2.4 Section H

At this location, the existing footway narrows to a localised pinch point measuring 1.7m wide, some 1.8m narrower than the required width of 3.5m. The positioning of a lighting column at this pinch point serves to restrict the available footway width further to 1.6m. Stopping sight visibility at this point is significantly impaired in both directions by the palisade fence bounding the park.

The pinch point is on a natural bend in the carriageway and lies directly opposite St Helen's Park Road, at which point the carriageway measures approximately 8m in width. There would be very limited scope to alter the alignment of the carriageway or modify the junction layout at this location to provide additional footway width due to the proximity of the highway boundary and site levels. Immediately behind the footway at this pinch point is a ramped pedestrian access leading into the park which would require major re-alignment to enable additional footway width to be provided. Owing to the status of the Park it is unlikely that the necessary approvals would be granted to alter this access.

Due to the limited scope to provide additional footway width this localised pinch point introduces a large risk to the delivery of the shared facility. If the decision is taken to progress with this route option, signing would have to be erected instructing cyclists to dismount at this location. With the knowledge that cyclists generally take no heed of such signing, however, there remains the large potential for conflict between cyclists and other users at this point.

The following two images show the pinch point.



7.1.2.5 Section I

Over this section the existing footway is relatively wide, measuring on average 3.2m in width, thereby providing an effective width of 2.7m (500mm 'buffer zone' from fence).

The main issue along this length relates to existing trees that have been planted along the front of the footway. These are creating localised pinch points. There are 13 No. trees planted at regular spacing ranging in size between 200mm and 350mm in diameter. The average clearance between the tree trunk and the boundary fence at the back of the footway currently measures approximately 2.5m, which is 1.5m narrower than the recommended minimum of 4.0m (3.0m effective width with 0.5m 'buffer zones' either side of path). These trees will continue to grow over time, resulting in further reduced effective footway width.

7.1.2.6 Section J

This section is one of the most complex in terms of being able to achieve an effective width shared path of 3.0m. There is an existing bus stop at this location which comprises a ClearChannel bus shelter and half-depth bus layby with a 1.55m wide footway running along the back of the layby. It is assumed that the half-depth layby has been constructed to enable buses to move out of the path of traffic exiting the nearby roundabout onto St Helen's Road. At this location, the carriageway measures approximately 7.5m in width so there is very limited scope to re-align the kerbing to gain additional footway width. As the bus shelter is owned by ClearChannel further consultation with them would be required to discuss its removal or replacement to create additional footway space. The Park boundary fence is positioned immediately behind the narrow footway. ESH understand that this fence is of protected status and there is not scope for it to be repositioned.

The following two images show the existing layout.



7.1.2.7 Section K

At this location the narrow footway issues are compounded by the presence of a zebra crossing. The width of the footway at this point measures 3.25m but this should be increased to a minimum of 4.0m to remove potential conflict between cyclists and pedestrians using the crossing.

7.1.2.8 Section L

This section is equally as difficult an area to resolve in terms of providing an effective width path of 3.0m, as recommended. This section is on the south-western corner of the roundabout with the footway being at a lower level than the adjacent carriageway. The footway is divided into two strips – a pedestrian deterrent area along the front edge which is used to take up the level difference and the actual footway positioned at the back. The footway measures approximately 1.7m in width. Mature conifer trees are growing immediately behind the adjacent boundary wall and these overhang the footway by some distance. It would be necessary to hard-prune these conifers but this is likely to leave an unsightly boundary as mature conifers do not generally generate new growth where hard-pruning has taken place.

Around this corner stopping sight visibility is significantly impaired by the adjacent trees which overhang the footway and the sharpness of the corner radius. As the footway enters Bethune Way the problems are compounded as the width of the footway reduces to a pinch point measuring 1.8m in width, again with limited stopping sight visibility and no scope to widen into the carriageway.

The following images show the existing layout.



7.1.3 Proposed Measures (Option 1 St Helen's Road)

The previous section of this report discussed the issues identified in introducing a shared cycle/footway to the existing footpaths or footways without the provision of improvement measures. This section considers appropriate measures that may be implemented to reduce the risk to an acceptable level or to ALARP. Refer to Drawing HGN-SCH0009-DR-CH-0014 (Appendix A) for route details together with the Risk Register within Appendix B.

As previously discussed the minimum highway corridor width needed to facilitate a shared cycle/footway on one verge would be 12.6m increasing to 13.1m should on street parking provision be required adjacent to the shared route. It has been assumed that widening of the existing highway corridor, such as the realignment of the Park boundary fence line is not be acceptable.

By applying this minimum corridor width to St Helen's Road it has been possible to identify where a fully compliant shared route can be introduced or where additional mitigation measures would be required to achieve this.

Over significant lengths (Sections F, G and I) of this route there is scope to provide a 3.5m wide shared route along the southern footway, thereby creating an effective shared path width of 3.0m. This would be at the consequence of parking loss and the removal of trees.

Along sections F and G the overall corridor width is sufficient to allow for realignment of the kerb lines on both sides of the carriageway to provide a 3.5m shared route. This would, however, require the removal of two sections of on-street parking along the northern side over lengths of approximately 58m and 53m (a total loss of approximately 19 spaces).

Throughout Section I the existing footway measures approximately 3.25m in width, not far from the required width of 3.5m. The width of the carriageway over this section (7.5m in width) does provide scope to widen the footway to the required 3.5m thereby creating an effective shared path width of 3.0m. The introduction of a shared facility along this section would require the removal of 13 trees. From an environmental impact perspective it is not considered that this would be acceptable. By not removing the trees the effective width of the shared path at each tree would be reduced to approximately 1.6m, meaning that the risk of conflict between cyclists and other footway users would increase.

Site constraints along the remaining sections of St Helen's Road make the necessary measures required to reduce the risk disproportionate to the benefits that they would provide.

Through Section E the overall corridor width measures approximately 12.3m. It would be possible to adjust both north and south kerb lines to create a 3.2m wide shared surface (effective width of 2.7m) on the southern footway. This would result in reducing the north footway from 2.5m to 1.8m. However, given the presence of the existing zebra crossing, reducing footway widths would not be recommended. Generally, it is good practice to increase footway widths at crossing locations particularly if they need to accommodate cycle facilities.

Through Section H there are no mitigation measures achievable without significant impact on the Park. The overall corridor width is not sufficient to allow widening of the footway to anywhere near the 3.5m required and this, combined with the proximity of a ramped pedestrian access, means that major works would be necessary to ensure that a safe cycle route is achieved. As discussed in Section 5, the pinch point is on a natural bend in the carriageway and lies directly opposite St Helen's Park Road, at which point the carriageway width measures approximately 8m. There would be very limited scope to alter the alignment of the carriageway or modify the junction layout at this location to provide additional footway width due to the proximity of the highway boundary and site levels. Immediately behind the footway at this pinch point is a ramped pedestrian access leading into the park which would require major re-alignment to enable additional footway width to be provided.

The key constraint through Section J is the existing bus stop and half depth layby. To provide a suitable shared route through this section it would be necessary to remove the bus layby and replace/reposition the bus shelter. This in turn would allow the footway to be widened to 3.0m (effective width 2.5m). Ordinarily this reduced width would be acceptable over a discrete length however, best practice would advise that at bus stops a shared cycle/footway should be increased to 4.0m given the expected high volume of pedestrians present. In view of this it is recommended that the bus stop is re-located further west where the footway width is greater. Repositioning the bus stop away from the roundabout would also reduce the risk of congestion at the junction resulting for a stationary bus.

Through Sections K and L widening of the existing footway into the carriageway would result in significant changes to the roundabout, particularly given the level difference between the footway and carriageway. The alternative option would be to widen along the back edge of the footway by removal of the mature evergreen trees and re-aligning the boundary wall. However, it has already been established that removal of the existing park boundary is not permitted. Bearing in mind the difficulties in achieving this final section of the route it is recommended the cycle route is terminated in advance of the existing zebra crossing with cyclist re-joining the carriageway.

ESH understand that ESCC are considering future cycle route options from Queens Road roundabout. The outcome of this will influence how and where to terminate the route along St Helen's Road.

In recognition that there are difficulties in providing a shared route along the southern footway, consideration has also been made to the provision of a shared facility on the north footway. For the reasons identified previously for Section 2 of the route, it is not recommended that this option is pursued. Not only will the footway need to be widened throughout St Helen's Road but the northern footway is lined with private dwellings, all with pedestrian access onto St Helen's Road and many with vehicular accesses. Each of these introduce the risk of conflict between cyclists and residents accessing their properties.

Furthermore, there are two wide junctions that would have to be crossed, St Helen's Crescent and St Helen's Park Road. Each of these junctions would require re-modelling to reduce the crossing width to a safer distance but the geometry would have to be carefully considered so as not to impact on vehicular turning movements. Initial analysis indicates that there is only limited scope to alter the junction of St Helen's Crescent without impacting on left turning movements into the Crescent from St Helen's Road. It is likely that there is only very limited scope to reduce the crossing widths.

In view of site constraints identified above it is not recommended that this route option is taken forward.

7.1.4 Route Description (Option 2, Though Park)

This proposal was developed by Amey on behalf of ESCC and formed a part of the original public consultation undertaken by Hastings Borough Council. The proposal is to convert existing paths within the Lower Park to shared use between Dordrecht Way and Bethune Way and was the preferred route option until concerns about pedestrian / cyclist conflict were raised at the ESCC Lead Member Meeting in March 2017.

Amey undertook a Stage 1 Safety Audit on this proposed route in which the following issues were identified:-

- Lack of street lighting throughout the Park and associated increase in risk of collision between cyclists and pedestrians;
- Type and height of existing / proposed fencing;
- Risk of conflict between cyclists and pedestrians in the vicinity of the café / bandstand;
- Risk of collisions between motorised traffic and cyclists crossing Dordrecht Way.

To mitigate against these findings Amey's design was developed to include coloured surfacing at key areas and re-route cyclists away from the café / bandstand. Mitigation measures for cyclists crossing Dordrecht Way are to be considered in the detailed design stage. The lack of street lighting was considered an area where mitigation measures were not achievable and the audit report recommended that an exception report was prepared if it was determined that street lighting is not to be provided.

7.1.5 Existing Route Risk Assessment (Option 2, Though Park)

The existing risk levels for the different sections of the route are illustrated on the drawing HGN-SCH0009-DR-CH-0011 (Option 2) contained in Appendix A. The detailed risk assessment is contained within Appendix B.

There are several areas within the Lower Park that are considered to be a high risk if mitigation measures are not introduced. These mainly relate to the width of the existing paths through the Park as these do not provide the minimum 3.0m effective width required for a shared facility.

At two locations, the path interfaces with adjoining paths at locations where the proposed route passes through a tight radius (Locations B and E). At both locations the risk assessment resulted in a risk score of 9 meaning that further mitigation measures are required.

There are two critical areas within the Park where the risk is deemed to be sufficiently high enough to require significant mitigation measures or an alternative route alignment sought. Both areas are where the proposed route crosses over the watercourse (Locations C and F). At both these locations the width of the existing bridge is not sufficient, being 2.1m at the western bridge and 2.9m at the eastern bridge. Allowing for the 500mm additional clearance required between cyclists and adjacent boundary walls / parapets, the resultant effective widths are reduced.

The main concern raised at the Lead Member meeting in March 2016, was of the interaction between cyclists and other users of the park, particularly more vulnerable

users such as children. This risk assessment has taken this into consideration when identifying route suitability, particularly if a sub-standard layout can only be achieved.

7.1.6 Proposed Measures (Option 2 Though Park)

Refer to Drawing HGN-SCH0009–DR–CH-0014 (Appendix C) for route details.

For the most part Amey were proposing to widen the existing paths to provide a 3.0m wide shared route through the Lower Park. This would be considered an appropriate measure for a shared cycle/footway. With this said given the pedestrian footfall expected within the Park, particularly during the summer months, if a shared route can be widened to, say, 4.0m this would add further benefits to the operation of the route.

Amey were not proposing to undertake any mitigation measures where the proposed route crosses over the existing bridges. Without any improvement measures these bridges would remain narrow (2.2m to 2.8m in width) and, consequently, the ‘high risk’ score at these locations would remain. Consideration should be given to replacing the bridges with new, wider, structures or accept that these are localised pinch points along the route. Lower impact measures may include changes to the existing bridge deck metal surface to improve slip resistance.

Conflict points would exist where the proposed shared route is joined by pedestrian only routes and to mitigate against these potential conflicts, Amey were proposing to highlight each of these areas with the use of coloured surfacing. Due to the status of the Park this would have to be discussed at an early stage with the park authorities to ensure that they are fully supportive of the proposal.

The provision of warning and direction signing through the Park at key locations, as proposed by Amey, would also go some way to reminding park users of the presence of cyclists and reduce the risk of potential conflict. With this said the lack of any lighting should be a serious consideration in the decision whether or not to create a cycle route through the Park. The lack of street lighting was raised as a problem in the Stage 1 Safety Audit undertaken by Amey with the resultant increase in the risk of collision between cyclists and pedestrians. In their response, the Client acknowledged that an exception report would have to be prepared over this issue.

The lack of lighting is likely to restrict the use of the cycle route during the hours of darkness, particularly during the winter months when the daylight hours are significantly shorter. Cyclists who continue to use the route during the hours of darkness are at increased risk of collision with other park users although it is acknowledged that use of the Park during these times would be less.

7.1.7 Route Description (Option 3 & 4, Though Park)

Route Options 3 and 4 make use of the alternative path network within the Lower Park. For the most part Option 3 follows the same path as Option 2 although the western section terminates at the north end of Dordrecht Way utilising the wide path passing the toilet facilities and Park Rangers' offices. Option 4 follows the path running along the northern edge of the Lower Park adjacent to St Helen's Road. Whilst this route looks to take cyclists away from the central parts of the Lower Park, which may be consider routes heavily used by pedestrians, this is a more sinuous route compared to some of the other paths in the Park. In additions, this route option also passes close the existing water features. Both options terminate at the eastern gates near Bethune Way.

7.1.8 Existing Route Risk Assessment (Option 3 & 4, Though Park)

The existing risk levels for the different sections of Option 3 and Option 4 are illustrated on the drawings HGN-SCH0009-DR-CH-0017 and HGN-SCH0009-DR-CH-0018 respectively. Refer to Appendix A. The detailed risk assessment for both options is contained within Appendix B.

In view of the fact Option 3 follows the same alignment as Option 2, except for the western end (Section A and B) the risks previously identified for the Option 2 route will also be applicable for this Option.

In terms of Option 4 there are several areas of this route that are considered to be a high risk if mitigation measures are not introduced. These mainly relate to the width of the existing paths as well as location where the path runs adjacent to existing water features particularly sections C, D and F, as shown on the photographs below.

Option 4 Section C: Sharp corner, downhill gradient approaching water feature.



Option 4 Section D: Sharp corner, limited width to widen path to increase clearance to water feature.



Option 4 Section F: Limited width to widen path to increase clearance to water feature.



As stated for Option 2 the lack of lighting is likely to restrict the use of the cycle route during the hours of darkness. Cyclists who continue to use the route during the hours of darkness are at increased risk of collision with other park users although it is acknowledged that use of the Park during these times would be less.

7.1.9 Proposed Measures (Option 3 & 4 Though Park)

The mitigated risk levels for the different sections of Option 3 and Option 4 are illustrated on the drawings HGN-SCH0009–DR–CH-0017 and HGN-SCH0009–DR–CH-0018 respectively. Refer to Appendix A. The detailed risk assessment for both options is contained within Appendix B.

As previously stated, apart from the western end, Option 3 follows the same alignment as Option 2. In view of this, the proposed improvement measures would be the same as Option 2 and mainly comprise warning and direction signing at key locations to remind park users of the presence of cyclists. Where space permits path widening to a minimum of 3.0m would be recommended and the use of contrasting surface material at potential conflict points should be considered to raise awareness to all park users of the shared facility particularly at locations where other paths adjoin the shared route. One key location where it will be necessary to provide further signing is where the footpath to the café meets the proposed shared route. Additional measures will be provided at this location to deter cyclists using the path past the café.

With regards to Option 4, a similar approach would be taken as to the types of improvements recommended to raise awareness to all users of the shared route. Where space permits path widening to a minimum of 3.0m would be recommended in order to provide a suitable facility for shared use. With this said there are still sections along this route where improvement measures would not be possible, such as Sections C,D, and F and the risks would remain high.

7.1.10 Summary

The results of the risk assessment indicate that the proposed routes through the Lower Park (Option 2, 3 or 4) appear to present less risk than a route along St Helen's Road. In view of site constraints identified for Option 1 (St Helen's Road) it is not recommended that this route option should be taken forward.

Of the three route options within the Lower Park, Option 4 should also be dismissed given along its length there are four sections that are considered to be high risk with limited scope to introduce any interventions that could reduce the risk score.

Of the remaining options, it is considered that Option 3 provides a marginally improved route when compared to Option 2. Not only will Option 3 avoid a second bridge crossing but it is unlikely that cyclists will use the path running past the Café as a cut through given the designated cycle route directs cyclists to the northern end of Dordrecht Way as opposed to the southern end, as promoted by Option 2.

As discussed in the earlier sections of this report, taking forward Option 3 does in turn govern which route option is progressed through the central section of the Park, this being Option 3 even if other options provide a better route in respect to risk mitigation.

Conclusions

ESH have undertaken a detailed investigation into the feasibility of providing a shared footway / cycle route along the southern side of St Helen's Road and compared this with the original proposal to provide a cycle route through the Lower Park. ESH have also looked at developing Amey's design for the route through the Upper Park.

For the most part, it is considered feasible to provide a continuous shared facility between Beaufort Road and Bethune Way (Queens Road roundabout) although several areas would require significant mitigation measures before an acceptable layout could be achieved.

For Section 1, between Beaufort Road to the private road, a shared cycle/pedestrian facility may be introduced although it would be necessary to implement a number of improvements measures throughout its length to make the route suitable for shared use. With this said, it is not possible to mitigate against all the identified risks, as one section (Section I) remains unsuitable for a shared use facility. ESH have considered other route options to bypass this section but these also fall below recommended standards for shared paths. In view of this, either it is accepted that a reduced standard facility can only be achieved, or a scheme that advises cyclists to dismount is promoted. Alternatively, a wider route review to explore further alternatives is undertaken which may lead to options being proposed outside the Park altogether.

In respect to the three options considered for Section 2, the highway corridor restrictions along St Helen's Road does not make Option 1 a viable solution. Of the two options within the Park, Option 3 would be a natural continuation of the route when having to consider how best to tie in to the adjoining section in the Lower Park. With this said this may not be the favoured option in respect to risk mitigation.

In terms of Section 3, Option 1 proposes to take cyclists along St Helen's Road between Dordrecht Way and Bethune Way. In view of site constraints identified along this section, such as the restricted highway corridor width and the presents of trees within the footway, it is considered that this option should not be taken forward as a means of providing a suitable route for shared facilities. Provided suitable mitigation measures are introduced within the Lower Park, as identified in this report, it is recommended that Option 3 is taken forward for further design development.

The introduction of all three sections of cycle route would provide a continuous facility between Beaufort Road and Bethune Way. In addition, and in recognition of the Hastings Walking and Cycling Strategy, the opportunity is provided to link with future, potential cycle facilities along St Helen's Road towards the Hastings District General Hospital.

Given the issues that have been identified through earlier Road Safety Audits undertaken, any option to use the Park must consider the implications of no lighting provision or explore the feasibility of introducing lighting in the Park.

Appendix A

Drawings

Section 1 – Upper Park

Existing Layout Risk Assessment [HGN-SCH0009-DR-CH-0009]

With Mitigation Risk Assessment [HGN-SCH0009-DR-CH-0012]

Section 2 – Central Section

Options 1&2 Existing Layout Risk Assessment [HGN-SCH0009-DR-CH-0010]

Options 1&2 With Mitigation Risk Assessment [HGN-SCH0009-DR-CH-0013]

Options 3 Risk Assessment [HGN-SCH0009-DR-CH-0016]

Section 3 – Lower Park

Options 1&2 Existing Layout Risk Assessment [HGN-SCH0009-DR-CH-0011]

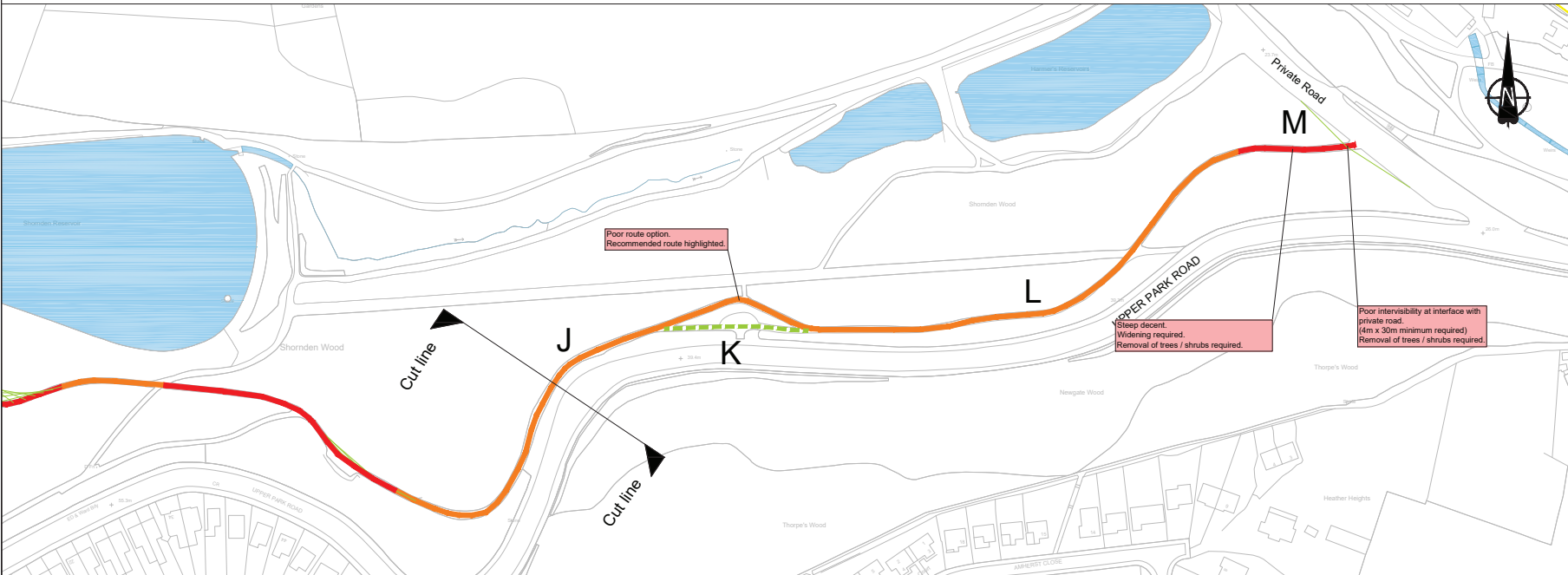
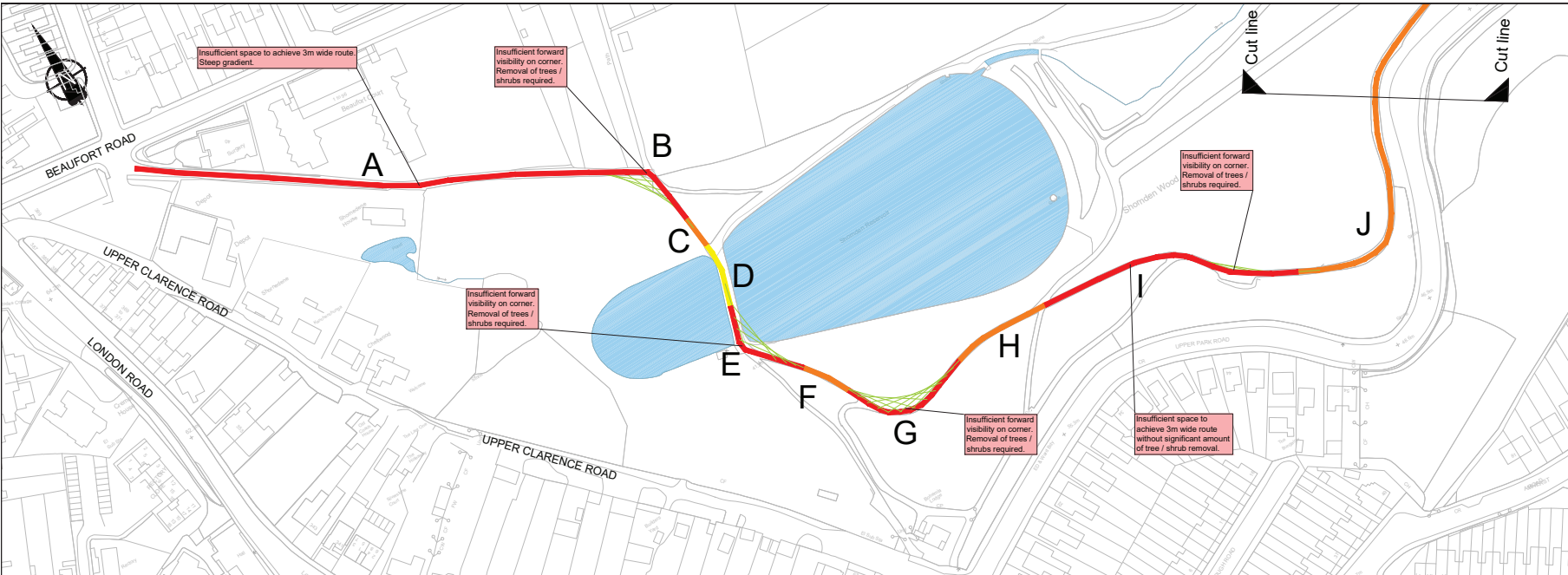
Options 1&2 With Mitigation Risk Assessment [HGN-SCH0009-DR-CH-0014]

Options 3 Risk Assessment [HGN-SCH0009-DR-CH-0017]

Options 4 Risk Assessment [HGN-SCH0009-DR-CH-0018]

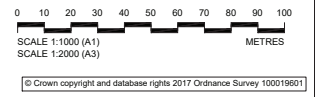
Suggested Route

Suggested route option [HGN-SCH0009-DR-CH-0015]



- Notes**
- Background based on Ordnance Survey mapping only.
 - Refer to Risk Assessment Matrices in Appendix D of Review Report for additional details.
 - Risk assessment is based on the existing layout without any mitigation measures.

- KEY**
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 - Sections of existing route that achieve a medium risk score (4-6) and are tolerable only if further mitigation measures are not reasonably practical.
 - Sections of existing route that achieve a high risk score (7-9) and are not acceptable unless further mitigation measures are applied or the design amended.
 - Sections of existing route that achieve a very high risk score (10-12) and are unacceptable.
 - Extent of required visibility envelope.

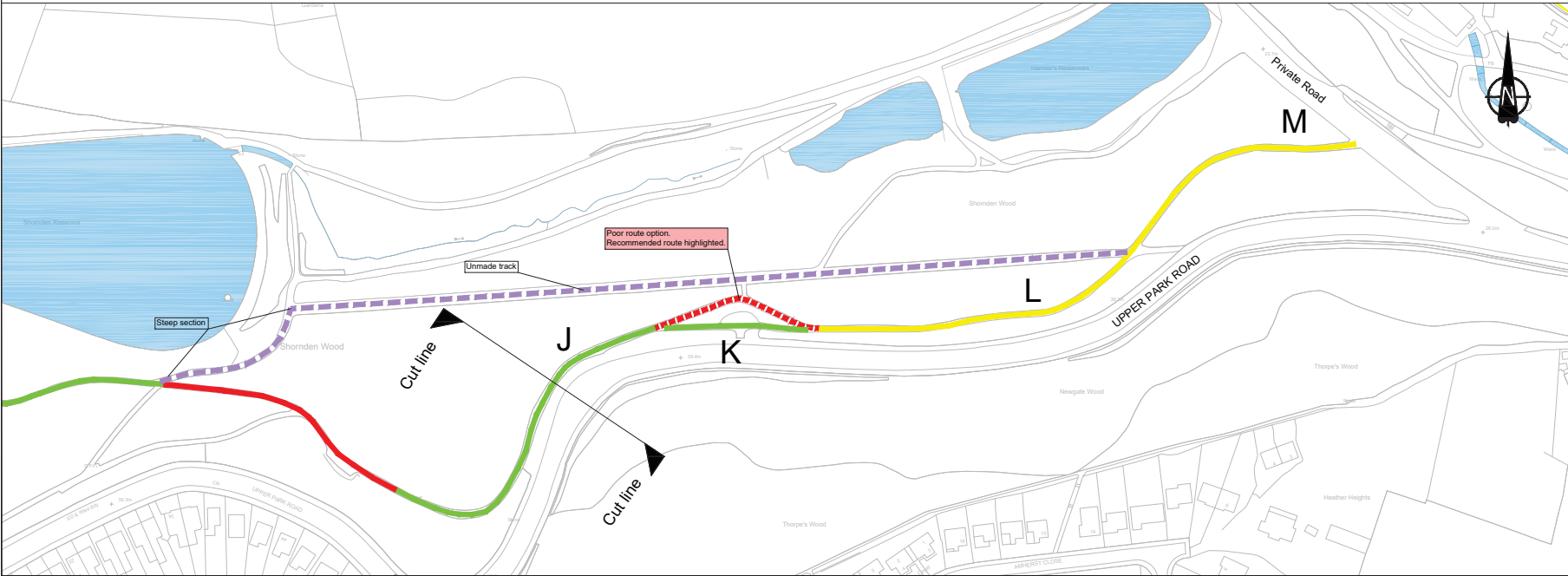
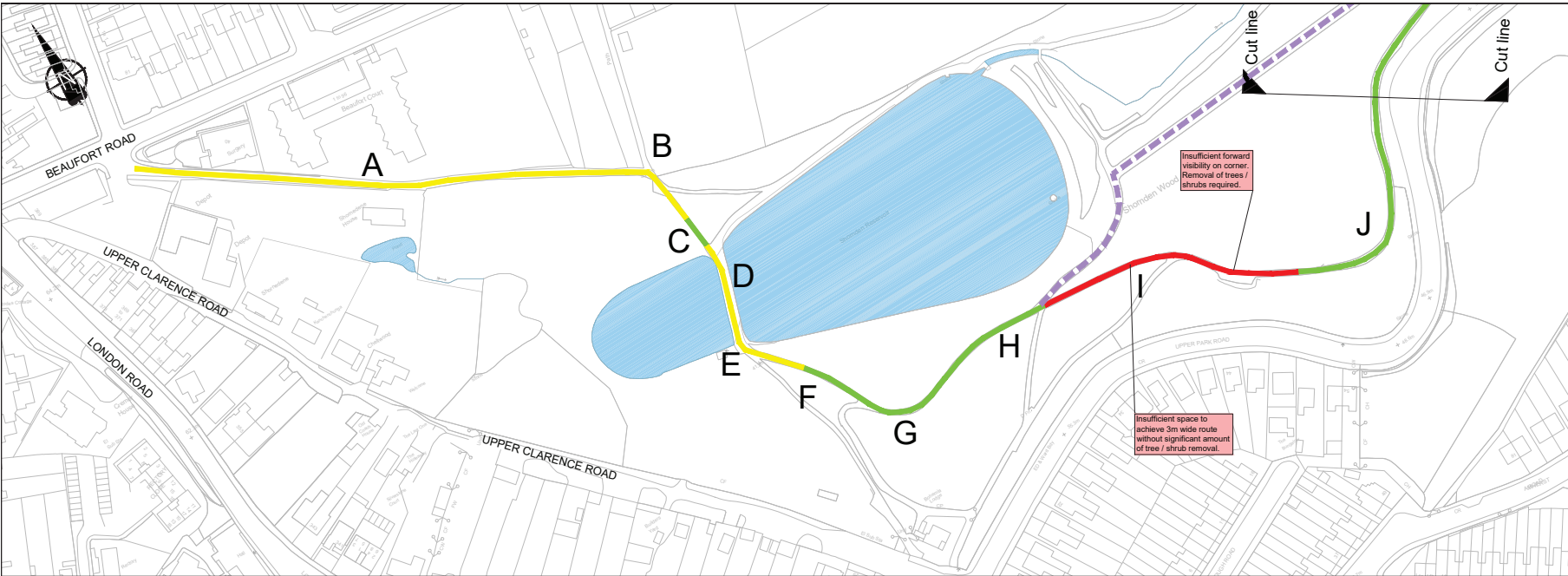


PD1	S3	Nov 17	First Issue	IMT	JV	CW
Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Approved

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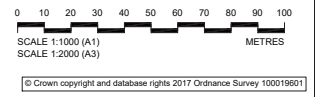
Project	ALEXANDRA PARK HASTINGS, CYCLE FACILITY
Drawing title	PRELIMINARY DESIGN REVIEW SECTION 1 BEAUFORT ROAD - PRIVATE ROAD RISK ASSESSMENT - EXISTING LAYOUT

Status	S3	Revision	P01
Scale	1:1000	Date	November 2017
Drawn By	J Tingley		
Checked By	J Vake		
Approved By	C Weedon		
Project No.	3520000	I Originator	ESH
Original Size			A1
Drawing number	Volume 1 Design A1: 1 Type 1 Risk 1 Number		HGN-SCH0009-DR-CH-0009



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 - Sections of existing route that achieve a very high risk score (10-12) and are unacceptable.
 - Alternative route option to avoid Section I.

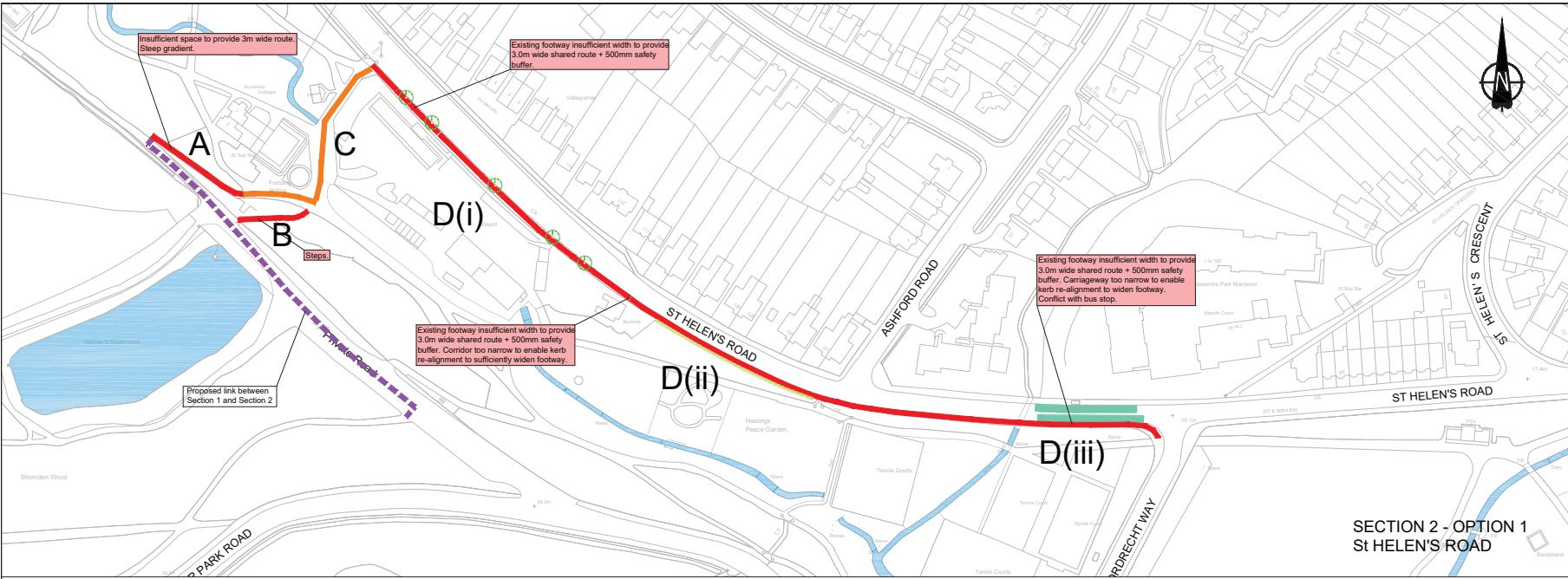


PD1	S3	Nov 17	First Issue	IMT	JV	CW
Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Approved

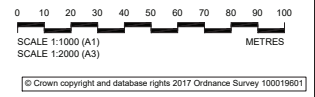
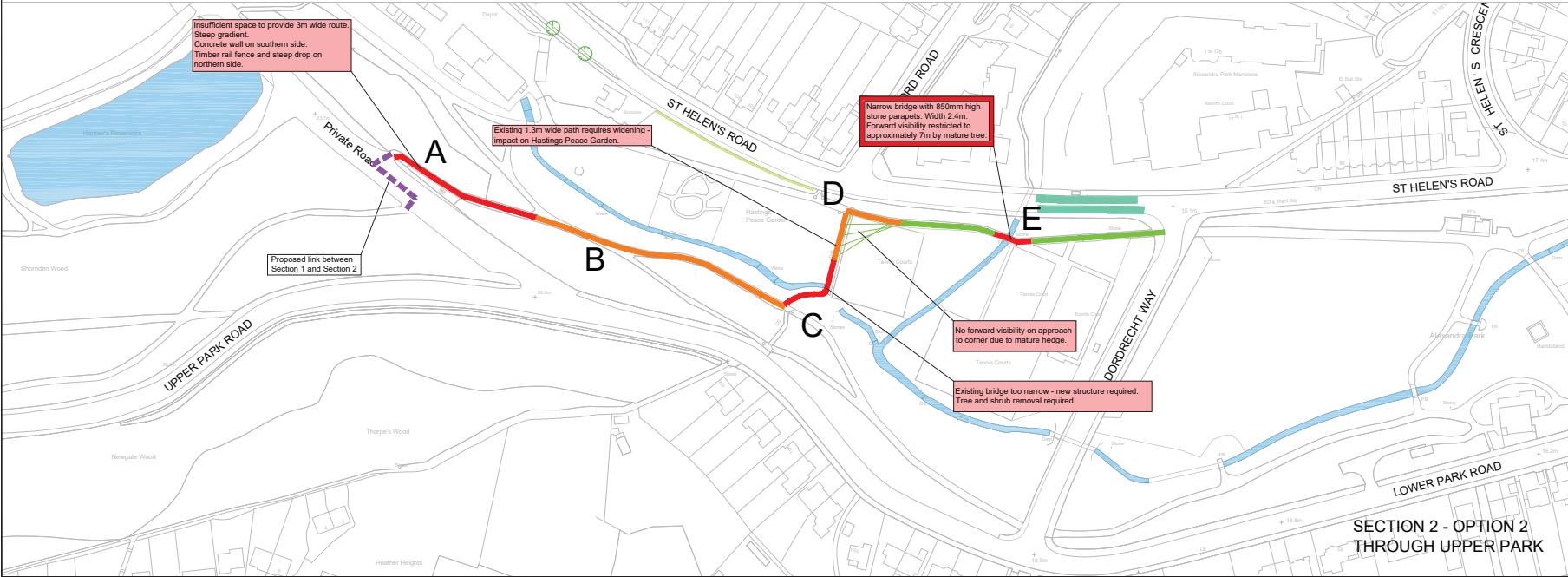
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Project	ALEXANDRA PARK, HASTINGS - CYCLE FACILITY
Drawing title	PRELIMINARY DESIGN REVIEW SECTION 1 BEAUFORT ROAD - PRIVATE ROAD POST MITIGATION RISK ASSESSMENT

Status	S3	Revision	P01
Scale	1:1000	Date	November 2017
Drawn By	J Tingley		
Checked By	J Vake		
Approved By	C Weedon		
Project No.	3520000	I Originator	ESH
Original Size			A1
Drawing number	Volume 1 Design Alt. 1 Type I Risk 1 Number		HGN-SCH0009-DR-CH-0012



- Notes**
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 - Sections of existing route that achieve a high risk score (7-9) and are not acceptable unless further mitigation measures are applied or the design amended.
 - Sections of existing route that achieve a very high risk score (10-12) and are unacceptable.
 - Existing bus stop
 - Extent of required visibility envelope.

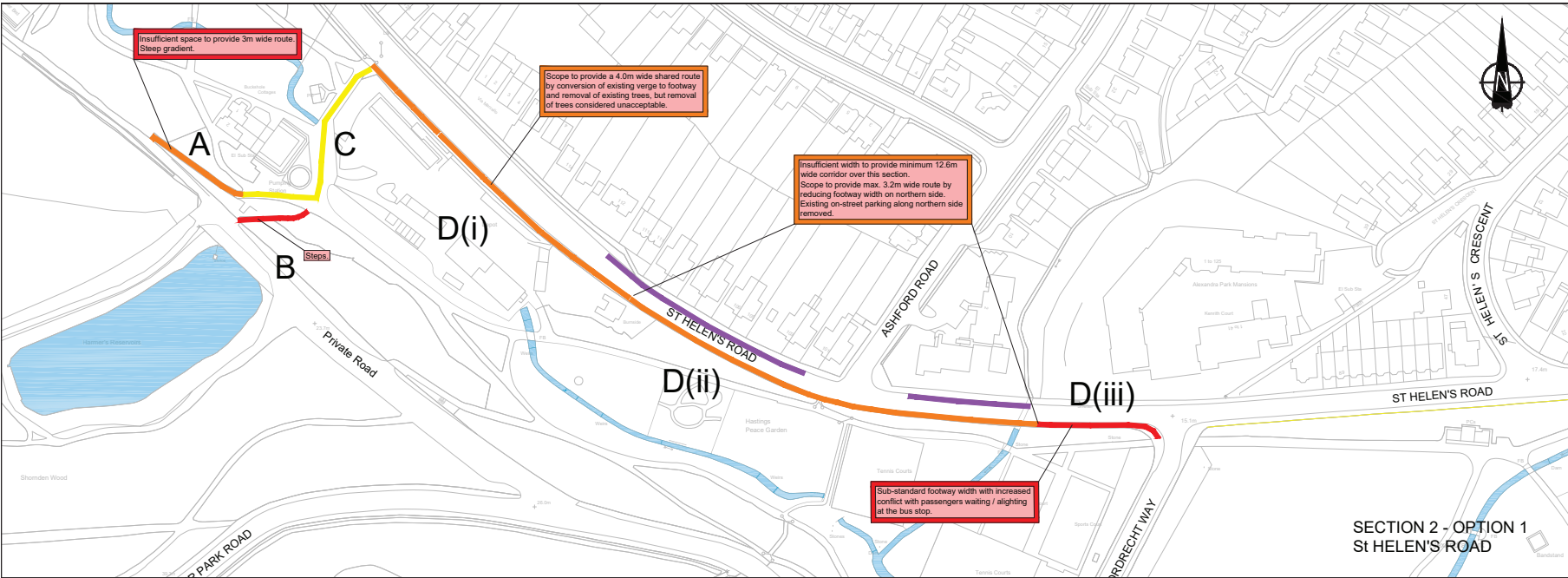


PD2	S3	01/05/2018	Minor amendments to risk classification (E)	IT	JV	JV
PD1	S3	01/12/2017	First Issue	IT	JV	CW
Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Approved

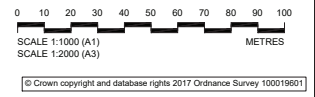
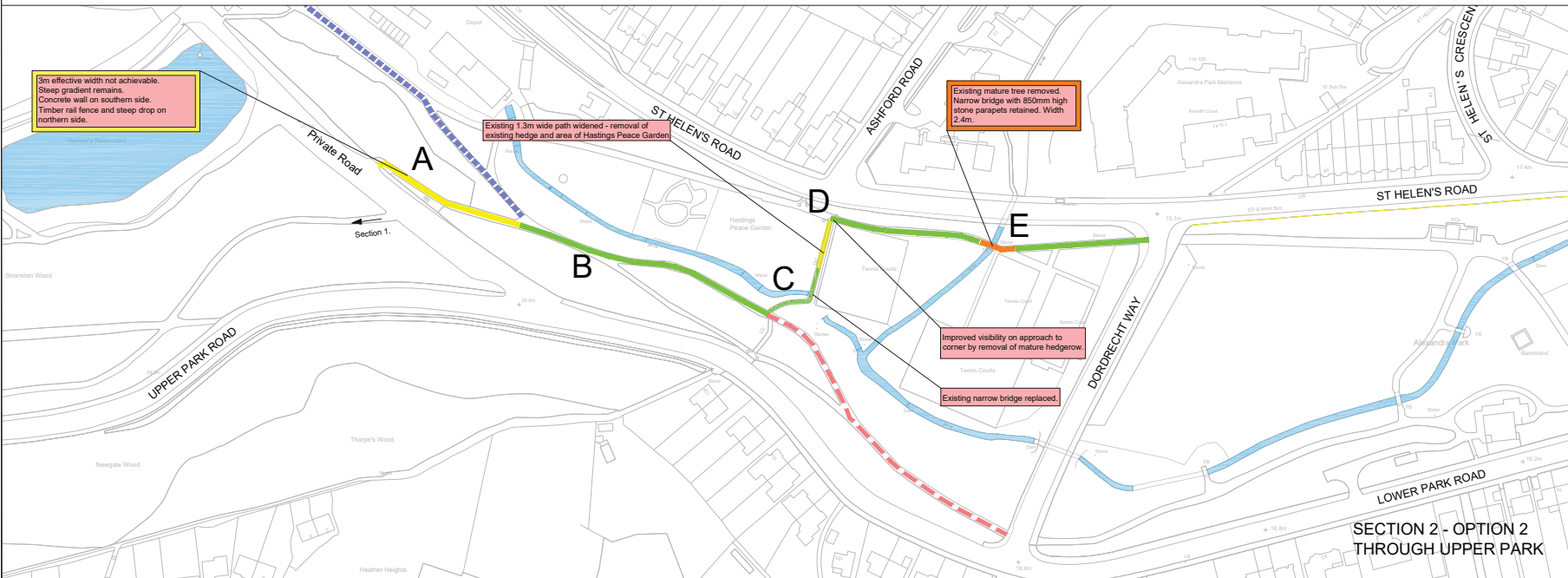
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Project	ALEXANDRA PARK CYCLE FACILITY
Drawing title	PRELIMINARY DESIGN REVIEW SECTION 2 - OPTIONS 1 AND 2 PRIVATE ROAD TO DORDRECHT WAY RISK ASSESSMENT - EXISTING LAYOUT

Status	S3	Revision	P02
Scale	1:1000	Date	01/12/2017
Drawn By	J Tingley		
Checked By	J Vake		
Approved By	C Wheeldon		
Project No.	3520000	1 Originator	Original Size
Drawn number	Volume 1 Design A3: 1 Type 1 Risk 1 Number		
	HGN-SCH0009-DR-CH-0010		



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 - Sections of existing route that achieve a high risk score (7-9) and are not acceptable unless further mitigation measures are applied or the design amended.
 - Sections of existing route that achieve a very high risk score (10-12) and are unacceptable.
 - Sections of existing on-street parking to be removed.
 - Suggested alternative link to Dordrecht Way. (See Para.6.3 in Review Report).
 - Potential future cycle link to Hastings District General Hospital.



PD2	S3	27/04/2018	Minor amend to risk assessment (B)	IT	JV	JV
PD1	S3	02/11/2017	First Issue	IT	JV	CW
Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Approved

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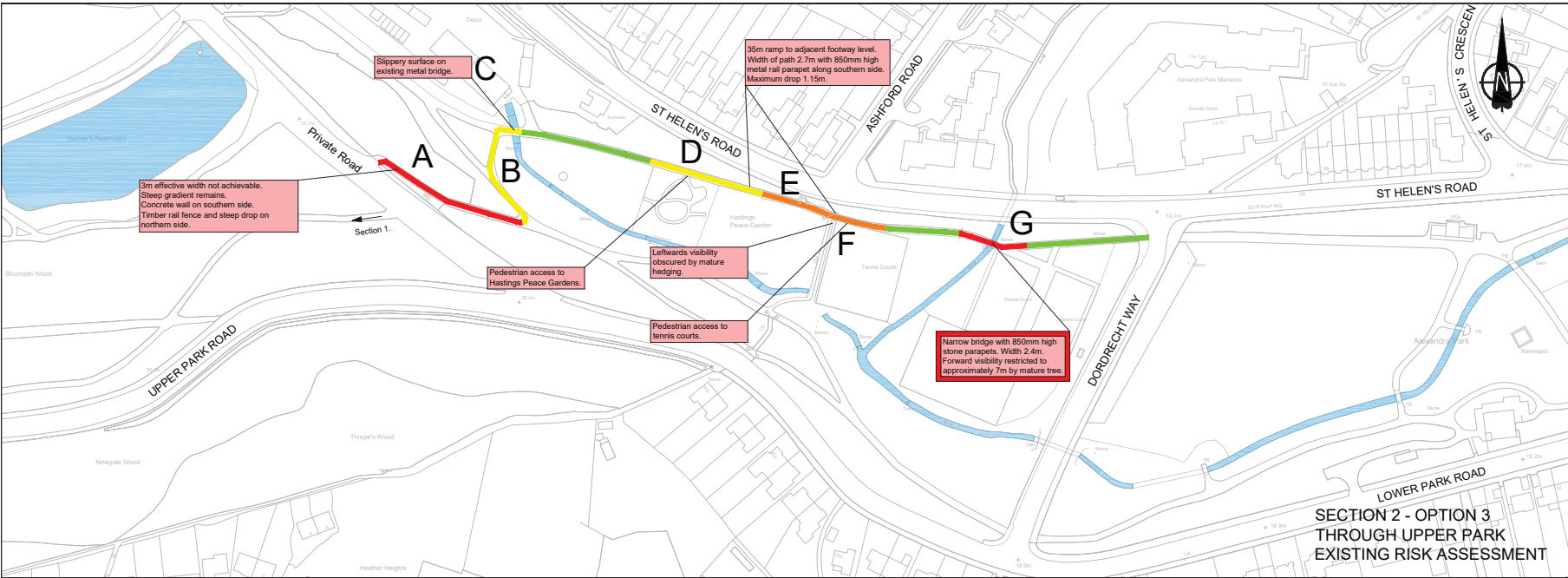
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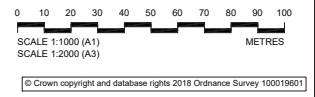
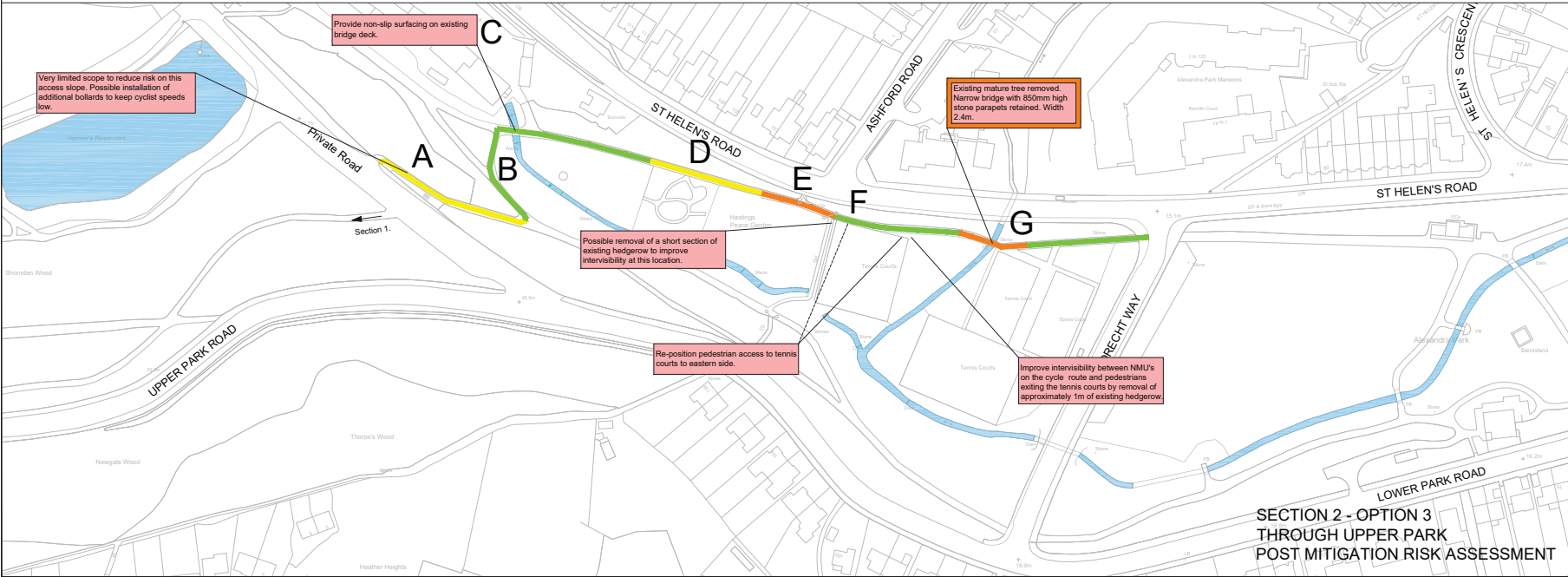
Project
ALEXANDRA PARK CYCLE FACILITY

Drawing title
**PRELIMINARY DESIGN
SECTION 2 - OPTIONS 1 AND 2
PRIVATE ROAD TO DORDRECHT WAY
POST MITIGATION RISK ASSESSMENT**

Status	S3	Revision	P02
Scale	1:1000	Date	02/11/2017
Drawn By	J Tingley		
Checked By	J Viala		
Approved By	C Weedon		
Project No.	3520000	I Originator	Original Size
Design number	Volume 1	Design Alt.	1 Type I Risk 1 Number
			HGN-SCH0009-DR-CH-0013



- Notes**
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 - Sections of existing route that achieve a high risk score (7-9) and are not acceptable unless further mitigation measures are applied or the design amended.
 - Sections of existing route that achieve a very high risk score (10-12) and are unacceptable.



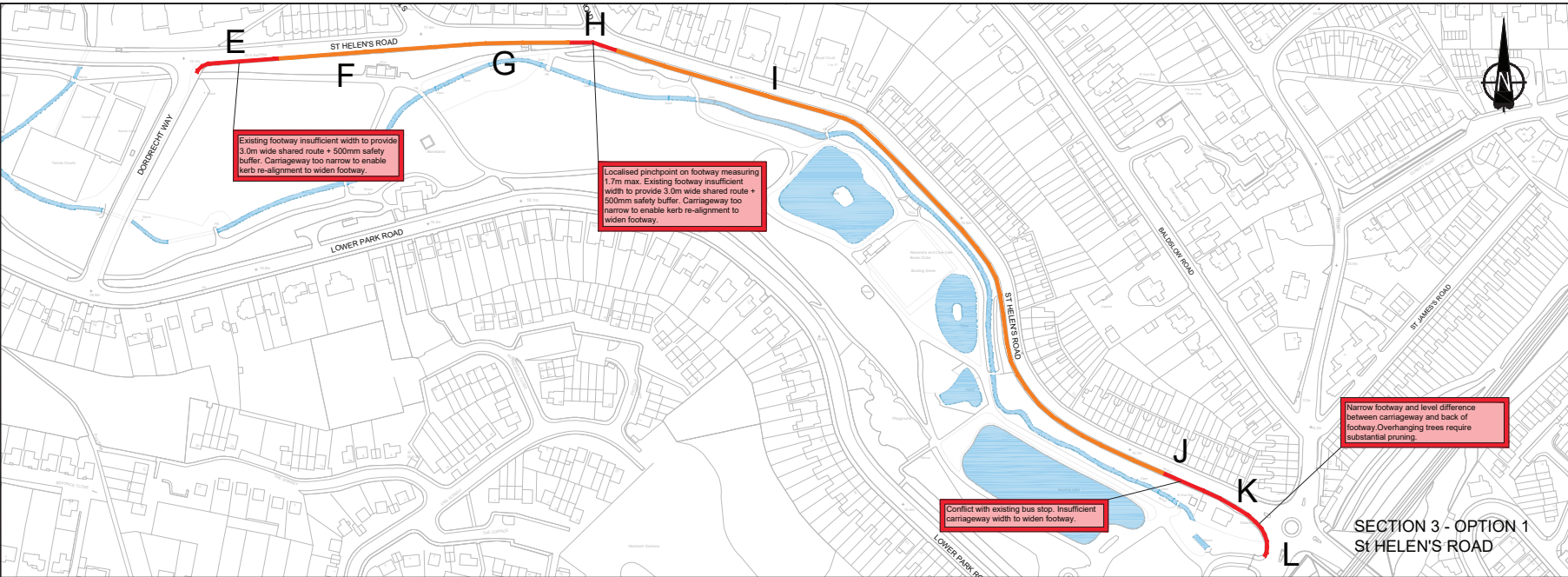
PD1	S3	27/03/2018	First Issue	IT	JV	JV
Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Approved

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Drawing title
**PRELIMINARY DESIGN
SECTION 2 - OPTION 3
PRIVATE ROAD TO DORDRECHT WAY
RISK ASSESSMENT**

Scale	Status	Revision
1:1000	S3	P01
Drawn By	1:1000	Date 27/03/2018
Checked By	J Tingley	
Approved By	J Vaks	
Project No.	3520000	1 Originator
Volume 1	Design A3	Original Size
Drawing number	HGN-SCH0009-DR-CH-0016	A1

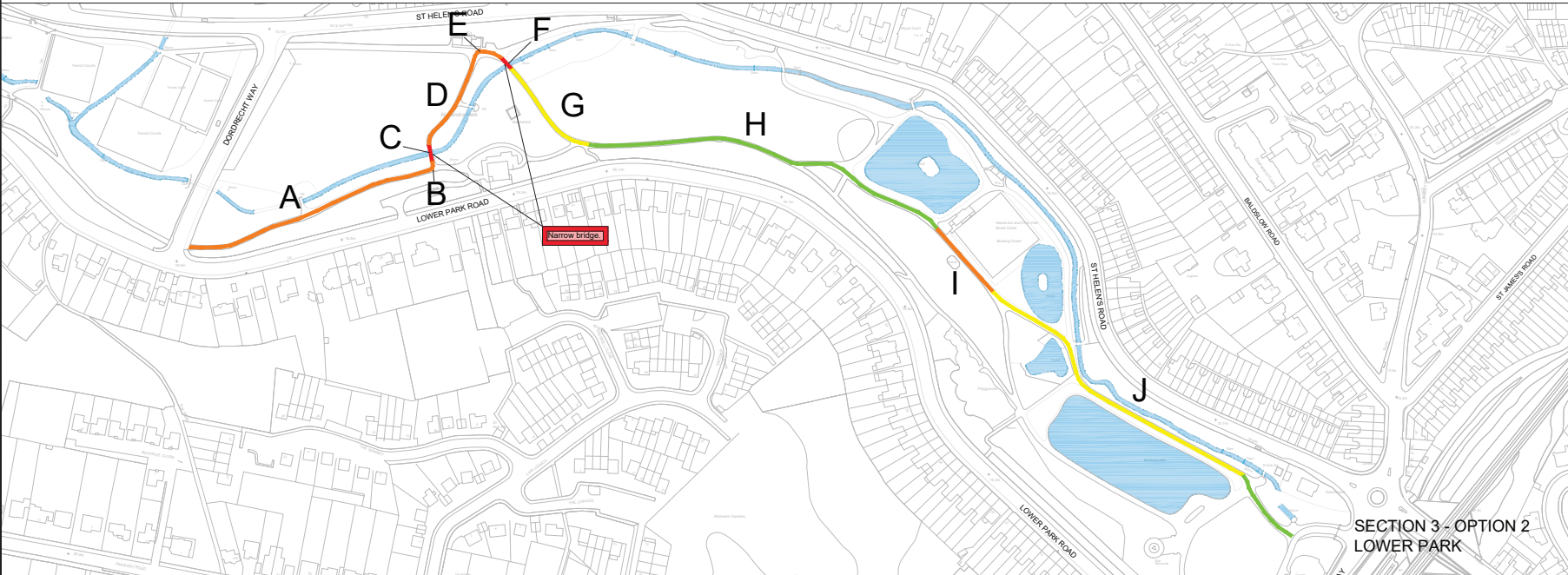


Notes

- 1 Background based on Ordnance Survey mapping only.
- 2 Refer to Risk Assessment Matrices in Appendix D of Review Report for additional details.
- 3 Risk assessment is based on the existing layout without any mitigation measures.

KEY

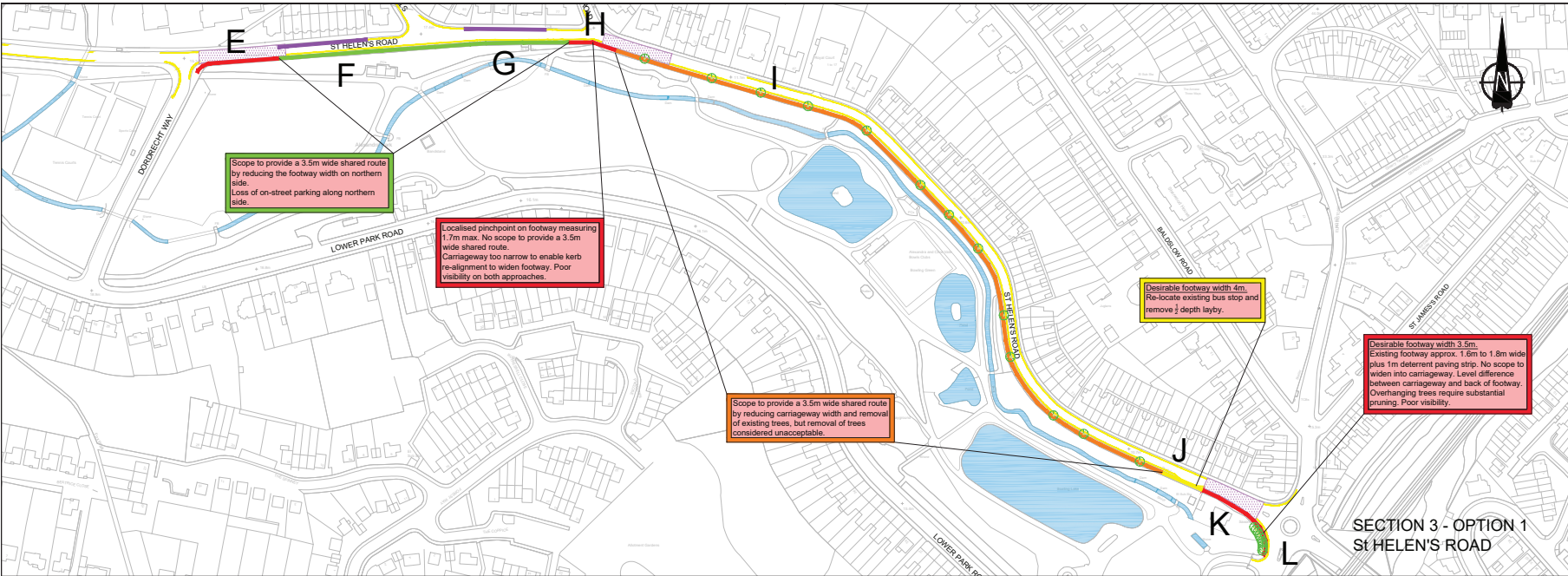
- Sections of existing route that achieve a low risk score (1-3) and are broadly acceptable.
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- Sections of existing route that achieve a very high risk score (10-12) and are unacceptable.



P02	S3	27/04/2018	Minor amendments to risk classifications.	IT	JV	JV
P01	S3	01/11/2017	First Issue	IT	JV	CW
Rev	Status	Rev. Date	Purpose of revision	Drawn	Checked	Approved

Project	ALEXANDRA PARK, HASTINGS - CYCLE FACILITY
Drawing title	PRELIMINARY DESIGN REVIEW SECTION 3 ST HELENS ROAD AND LOWER PARK RISK REVIEW

Status	S3	Revision	P02
Scale	1:1500	Date	23/03/1956
Drawn By	J Tingley		
Checked By	J Viles		
Approved By	C Weedon		
Project No.	3520000	1 Originator	ESH
Drawing number	Volume 1 Design Alt. 1 Type I Rule 1 Number	Original Size	A1
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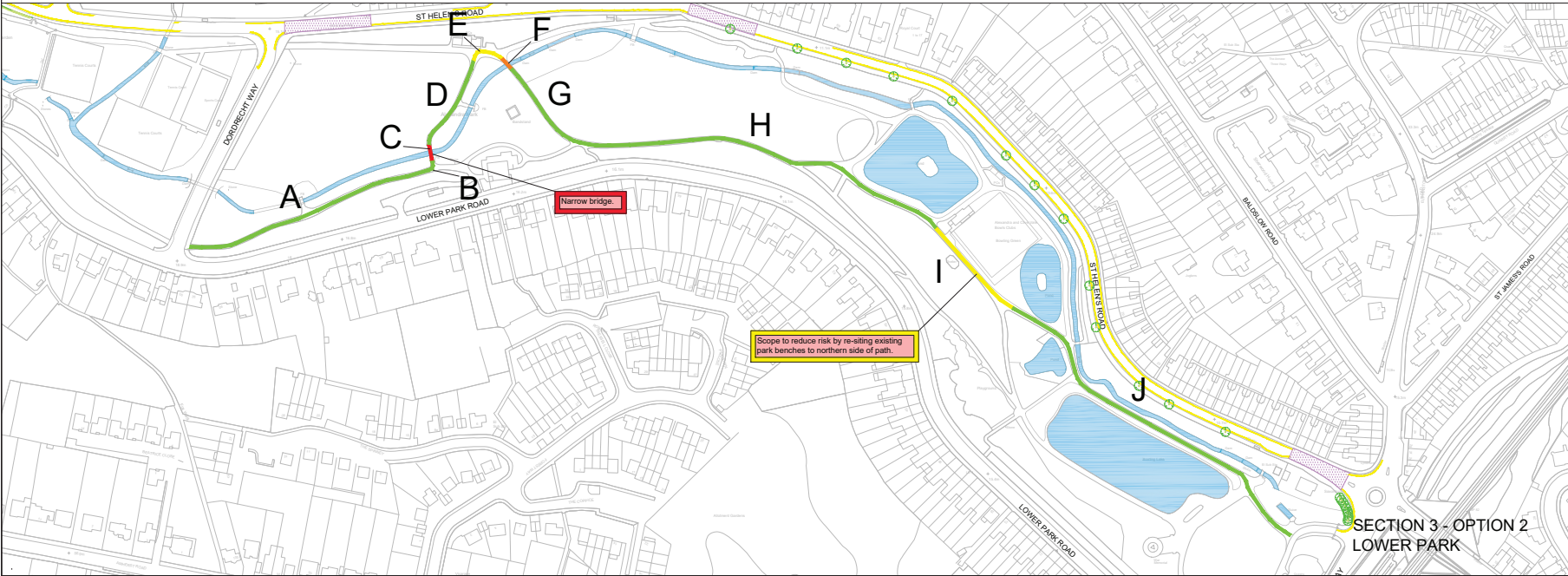


Notes

- Background based on Ordnance Survey mapping only.
- Refer to Risk Assessment Matrices in Appendix D of Review Report for additional details.
- Risk assessment is based on the proposed layout following the introduction of mitigation measures.

KEY

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- Sections of existing route that achieve a high risk score (7-9) and are not acceptable unless further mitigation measures are applied or the design amended.
- Sections of existing route that achieve a very high risk score (10-12) and are unacceptable.
- Sections of existing on-street parking to be removed.
- Existing Zebra Crossing controlled area.



0 10 20 30 40 50 100
SCALE 1:1500 (A1)
SCALE 1:3000 (A3)
METRES

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Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Approved
P03	S3	27/04/18	Amends to risk assessment (Sect.1) & (Cyl.2)	MT	JV	JV
P02	S3	22/01/18	Minor amends to route categorisation	MT	JV	CW
R01	S3	Nov 17	First Issue	MT	JV	CW

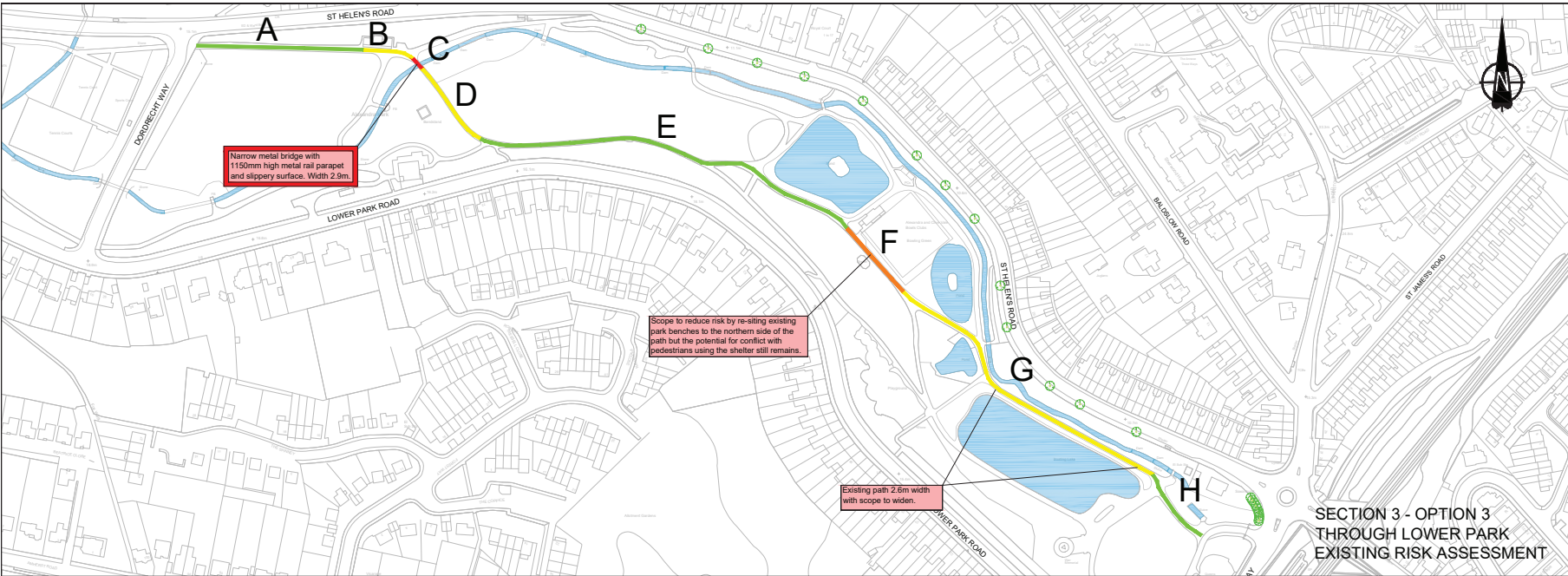
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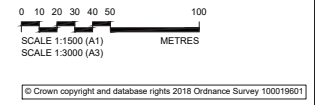
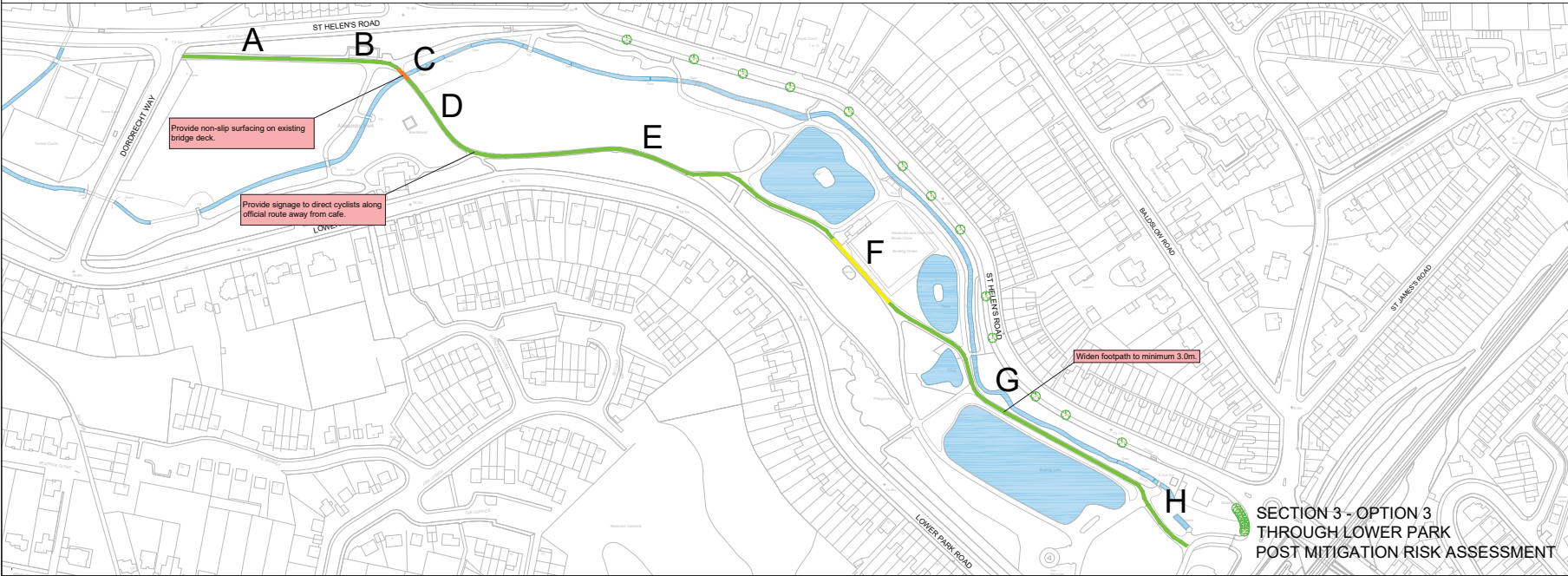
Drawing title
**PRELIMINARY DESIGN REVIEW
SECTION 3 - OPTIONS 1 AND 2
ST HELEN'S ROAD AND LOWER PARK
POST MITIGATION RISK ASSESSMENT**

Project No.	3520000	1 Originator	ESH	Original Size	A1
Drawing number	Volume 1	Design At.	1	Type 1	Risk 1 Number
HGN-SCH0009-DR-CH-0014					

Status	S3	Revision	P03
Scale	1:1500	Date	November 2017
Drawn By	I Tingley		
Checked By	J Vais		
Approved By	C Weedon		



- Notes
- Background based on Ordnance Survey mapping only.
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 - Risk assessments are based on the existing, unaltered, layout and the proposed layout following the introduction of mitigation measures.
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 - Sections of existing route that achieve a very high risk score (10-12) and are unacceptable.



Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Approved
R01	S3	27/03/18	First Issue	IMT	JV	JV

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Project	ALEXANDRA PARK, HASTINGS - CYCLE FACILITY
Drawing title	PRELIMINARY DESIGN REVIEW SECTION 3 - OPTION 3 LOWER PARK - EXISTING AND POST MITIGATION RISK ASSESSMENTS

Status	S3	Revision	P01
Scale	1:1500	Date	27 March 2018
Drawn By	J Tingley		
Checked By	J Vaks		
Approved By	J Vaks		
Project No.	3520000	1 Originator	ESH
Drawing number		Volume 1	Design A1: 1 Type 1 Risk 1 Number
			HGN-SCH0009-DR-CH-0017

Appendix B

Risk Assessment Matrices

Section 1 - Upper Park [Between Beaufort Road and Private Road] (Drawings HGN-SCH0009-DR-CH-0009 and HGN-SCH0009-DR-CH-0012)

Location	Hazard	Likelihood	Consequence	Consequence comment	Score	Proposed mitigation measures	Likelihood	Consequence	Residual Score	Comment
A	Steep gradient, narrow corridor (2.5m to 2.7m), no street lighting leading to cyclist conflict with other NMUs. Spiked palisade fence boundary on park side.	4	4	Collision between cyclist and NMU. Loss of control and conflict with spike fence, particularly in hours of darkness.	16	Additional signing and lining to maintain slow cycle speeds. Protect spikes by covering with suitable protective measures.	2	3	6	It is assumed third party land take is not available. Removal / re-location of the park fence is not permitted.
B	Poor forward visibility combine with steep decent, narrow corridor width and no street lighting leading to cyclist conflict with other NMUs	4	3	Collision between cyclist and NMU, particularly in hours of darkness.	12	Vegetation clearance at corner to improve forward visibility. Provide additional signing and road markings to advise users of route section	2	3	6	It is assumed third party land take is not available. Removal of fence line is not permitted. Proposals assume routine vegetation maintenance will take place.
C	Narrow corridor (2.5m) combined with no street lighting leading to cyclist conflict with other NMUs	3	3	Collision between cyclist and NMU, particularly in hours of darkness.	9	Widen path from 2.5m to 3.0m	1	3	3	Proposals look to create recommended width for a shared surface
D	Cycling adjacent to water	1	4	Existing route is sufficiently wide	4	Do nothing	1	4	4	
E	Poor forward visibility combined with narrow corridor width, steep gradient and no street lighting leading to cyclist conflict with other NMUs	4	3	Collision between cyclist and NMU, particularly in hours of darkness.	12	Vegetation clearance at corner to improve forward visibility. Widen existing 2.5m path to 3.0m	2	3	6	Proposals assume routine vegetation maintenance will take place. Topography dictates gradient.
F	Narrow corridor (2.5m) combined with no street lighting leading to cyclist conflict with other NMUs	3	3	Collision between cyclist and NMU, particularly in hours of darkness.	9	Widen path from 2.5m to 3.0m	1	3	3	Proposals look to create recommended width for a shared surface
G	Poor forward visibility combined with steep decent, narrow corridor width and no street lighting leading to cyclist conflict with other NMUs	4	3	Collision between cyclist and NMU, particularly in hours of darkness.	12	Vegetation clearance at corner to improve forward visibility. Widen existing 2.5m path to 3.0m	1	3	3	Proposals assume routine vegetation maintenance will take place
H	Narrow corridor (2.5m) combined with no street lighting leading to cyclist conflict with other NMUs	3	3	Collision between cyclist and NMU, particularly in hours of darkness.	9	Widen path from 2.5m to 3.0m	1	3	3	Proposals look to create recommended width for a shared surface
I	Narrow corridor (1.5m) combined with no street lighting leading to cyclist conflict with other NMUs. Land falls away to one side of proposed route	4	3	Collision between cyclist and NMU, particularly in hours of darkness. Loss of control and falling down steep bank.	12	Existing tree and topography of the land prevent any widening from being achieved. Cycle dismount signs to be provided.	3	4	12	Cyclist are likely to disobey cycle dismount signs. Consider alternative route.
J	Narrow corridor (2.5m) combined with no street lighting leading to cyclist conflict with other NMUs	3	3	Collision between cyclist and NMU, particularly in hours of darkness.	9	Widen path from 2.5m to 3.0m	1	3	3	Proposals look to create recommended width for a shared surface
K	Poor forward visibility combined with narrow corridor width (2.8m), no street lighting and NMU adjoining path leading to cyclist conflict with other NMUs	3	3	Collision between cyclist and NMU, particularly in hours of darkness.	9	Choose alternative alignment option	1	3	3	
L	Narrow corridor (2.5m to 2.75m) combined with no street lighting leading to cyclist conflict with other NMUs	3	3	Collision between cyclist and NMU, particularly in hours of darkness.	9	Widen path to 3.0m and using lining to highlight isolated pinch points around trees.	2	3	6	Assumes path widening is acceptable
M	Steep gradient, risk of slippery surface, narrow corridor (2.5m to 2.7m), no street lighting leading to cyclist conflict with other NMUs. Poor inter-visibility at junction with private road leading to cyclist conflict with moving vehicles.	3	4	Collision between cyclist and NMU. Loss of control and collision with motor vehicles.	12	Introduce signing and lining and possible staggered railing to control cycle speeds. Cut back vegetation at junction to improve visibility	2	3	6	

Section 2 Option 1 - [Between Private Road and Dordrect Way via St Helens] (Drawings HGN-SCH0009-DR-CH-0010 and HGN-SCH0009-DR-CH-0013)

Location	Hazard	Likelihood	Consequence	Consequence comment	Score	Proposed mitigation measures	Likelihood	Consequence	Residual Score	Comment
A	Steep gradient, narrow corridor (2.5m to 2.7m), adjacent steep drop in verge and wall on opposite side of route, no street lighting leading to cyclist conflict with other NMUs	4	4	Collision between cyclist and NMU. Loss of control and conflict with spike fence, particularly in hours of darkness.	16	Existing features and topography of the land prevent any widening from being achieved. Signing and lining to be provided to control speeds and raise awareness.	3	3	9	Cyclist are likely to disobey cycle dismount signs
B	Steps - Not assessed as cyclist will not use this route.	4	4		16	As existing.	4	4	16	
C	Conflict with vehicles accessing properties and maintenance depot	2	4	Collision between cyclist and vehicles. Loss of control and conflict with spike fence, particularly in hours of darkness.	8	Provision of signing to warn vehicles of cyclist present	1	4	4	Risk minimised by provision of national standard signing.
D (i)	Narrow footway (2.35m - 3m) with mature trees restricting available width along initial 150m. Low metal palisade fence with pointed tops over 75m length, conflict with passengers waiting at bus stop.	4	3	Collision with mature trees. Loss of control and impalement on palisade fence. Conflict with other NMUs.	12	Re-align existing road corridor to widen footway to 3.5m min. Tree to remain.	3	3	9	It is considered by ESCC and HBC that the removal of trees will not be acceptable. Effective width of shared route is therefore restricted.
D (ii)	Narrow footway (2.4m). Low hedge / metal palisade fence with pointed tops. Only limited scope to widen.	4	3	Collision between cyclists and other NMUs. Loss of control and impalement on palisade fence or falling into carriageway. Conflict with other NMUs.	12	Limited scope to widen footway to provide 3.2m width only.	3	3	9	Park fencing is protected and cannot be removed or replaced.
D (iii)	Narrow footway (2.35m) with bus stop.	4	3	Collision between cyclists and other NMUs waiting at bus stop. Loss of control and falling into carriageway.	12	Limited scope to widen footway to provide 3.2m width only - effective width 2.2m at bus stop.	4	3	12	

Section 2 Option 2 - [Between Private Road and Dordrect Way via Park] (Drawings HGN-SCH0009-DR-CH-0010 and HGN-SCH0009-DR-CH-0013)

Location	Hazard	Likelihood	Consequence	Consequence comment	Score	Proposed mitigation measures	Likelihood	Consequence	Residual Score	Comment
A	Steep gradient, narrow corridor (3.2m), adjacent steep drop in verge and wall on opposite side of route, no street lighting leading to cyclist conflict with other NMUs	3	4	Collision between cyclist and NMU. Loss of control and conflict with spike fence, particularly in hours of darkness.	12	Existing features and topography of the land prevent any widening from being achieved. Signing and lining to be provided to control speeds and raise awareness.	2	3	6	Cyclist are likely to disobey cycle dismount signs
B	Narrow path (2.5m)	3	3	Collision between cyclist and NMU, particularly in hours of darkness.	9	Existing path widened to provide 3m wide facility.	1	3	3	
C	Narrow path (1.3m), narrow bridge over watercourse, dense woodland / shrubs.	4	4	Collision between cyclist and NMU. Loss of control and falling into watercourse, particularly in hours of darkness.	16	Widen existing path and replace bridge with new structure.	1	2	2	Would require the loss of an area of the Hastings Peace Park and removal of existing mature hedge.
D	Poor visibility at junction between exiting paths adjacent to tennis court. Cyclist overshoot into path of passing NMU.	3	3	Conflict with other NMUs.	9	Removal of existing, mature, hedge to improve inter-visibility at path junction.	1	4	4	Risk minimised by provision of national standard signing.
E (at bridge)	Existing path (4.5m width) but narrow structure over watercourse, (2.4m width) low, stone, parapet walls (0.85m high), very limited forward visibility - restricted to approximately 7m by mature tree.	4	4	Conflict with other NMUs.	16	Removal of existing tree. No scope to widen the bridge or raise the level of the parapets.	2	4	8	

Section 2 Option 3 - [Between Private Road and Dordrect Way via Park] (Drawing HGN-SCH0009-DR-CH-0016)

Location	Hazard	Likelihood	Consequence	Consequence comment	Score	Proposed mitigation measures	Likelihood	Consequence	Residual Score	Comment
A	Steep gradient, narrow corridor (3.2m), adjacent steep drop in verge and wall on opposite side of route, no street lighting leading to cyclist conflict with other NMUs	3	4	Collision between cyclist and NMU. Loss of control and conflict with spike fence, particularly in hours of darkness.	12	Existing features and topography of the land prevent any widening from being achieved. Signing and lining to be provided to control speeds and raise awareness.	2	3	6	
B	Narrow path (2.5m)	2	3	Collision between cyclist and NMU, particularly in hours of darkness.	6	Existing path widened to provide 3m wide facility.	1	3	3	
C	Bridge over watercourse with low parapet rails (1.15m high) and slippery, metal, surface.	2	3	Loss of control and falling into watercourse, particularly in wet conditions.	6	Provide suitable anti-slip surface treatment to the bridge deck.	1	3	3	
D	No hazard - wide path with good visibility.	1	1	Path has sufficient width to provide shared facility.	1	-	1	1	1	
E	Potential for pedestrians to step out of the Peace Gardens into the path of an approaching cyclist. Small children most likely to be affected.	2	3	Conflict with other NMUs.	6	Ensure that the planting bounding the Peace Gardens is regularly maintained so that intervisibility is not reduced.	2	3	6	It is noted that the gate to the Gardens opens into the gardens and not onto the path.
F	Reduced width 35m long ramp (width 2.7m) leading up to pedestrian exit onto St Helens Road. Low railing along the southern side (0.85m high railing fence) with maximum 1.15m drop behind.	3	3	Conflict with other NMUs entering the park. Loss of control and falling over railings.	9	Replace the low railing with higher fencing to prevent cyclists from falling over.	3	3	9	Unlikely to obtain approval to replace the existing rail fencing. Replacement fencing unlikely to be in keeping with the park. If the fence can be replaced the risk could be reduced to 'medium'.
G	Poor visibility for pedestrians leaving the tennis courts.	3	3	Conflict with other NMUs.	9	Re-position the pedestrian gate to the eastern end of the tennis courts. Remove approximately 1m of the existing, adjacent, hedging to improve intervisibility at this location.	1	3	3	
H	No hazard - wide path with good visibility.	1	1	Path has sufficient width to provide shared facility.	1	-	1	1	1	
I	Narrow structure over watercourse, (2.4m width) low, stone, parapet walls (0.85m high), very limited forward visibility - restricted to approximately 7m by mature tree.	4	4	Collision between cyclist and NMU. Loss of control and falling into watercourse, particularly in hours of darkness.	16	Removal of existing tree. No scope to widen the bridge or raise the level of the parapets.	2	4	8	
J	No hazard - wide path with good visibility.	1	1	Path has sufficient width to provide shared facility.	1	-	1	1	1	

Section 3 - Option 1 - St Helens Road (Drawings HGN-SCH0009-DR-CH-0011 and HGN-SCH0009-DR-CH-0014)

Location	Hazard	Likelihood	Consequence	Consequence comment	Score	Proposed mitigation measures	Likelihood	Consequence	Residual Score	Comment
E	Narrow footway (2.4m), metal palisade fence along back edge, Zebra Crossing leading to cyclist conflict with other NMUs. Insufficient carriageway width available to widen footway.	3	4	Collision between cyclist and NMU. Loss of control and conflict with spike fence.	12	Additional signing and lining to maintain slow cycle speeds, cover spikes	3	4	12	It is assumed third party land take to re-position fence line is not permitted
F	Narrow footway (2.4m), metal palisade fence along back edge, street furniture at regular intervals creating localised pinch points. Insufficient carriageway width available to widen footway.	3	3	Collision between cyclist and NMU. Loss of control and conflict with spike fence.	9	Realign corridor to widen footway to 3.5m. Re-locate street furniture to the back of the footway.	1	3	3	Potential objection to TRO to remove on-street parking.
G	Narrow footway (2.4m), metal palisade fence along back edge. Carriageway width 8.25m, only sufficient to allow moderate footway widening.	3	3	Collision between cyclist and NMU. Loss of control and conflict with spike fence.	9	Realign corridor to widen footway to 3.5m. Re-locate street furniture to the back of the footway.	1	3	3	Potential objection to TRO to remove on-street parking.
H	Localised pinch-point (1.7m), forward visibility impaired by metal palisade fence	4	4	Collision between cyclist and NMU. Loss of control and conflict with spike fence. Loss of control and falling into carriageway.	16	No measures available - insufficient carriageway width available in which to widen, no scope to re-align park boundary fence. Erection of 'Cyclists Dismount' signs on each approach.	4	4	16	Cyclists Dismount' signs likely to be ignored.
I	Slightly reduced footway width (3.2m), existing street furniture and 13No. Mature trees along front edge of footway.	3	3	Collision between cyclist and NMU. Loss of control and collision with trees and street furniture.	9	Realign corridor to widen footway to 3.5m. Re-locate street furniture to the back of the footway. Trees to remain.	3	3	9	It is considered by ESCC and HBC that the removal of trees will not be acceptable. Effective width of shared route is therefore restricted.
J	Clearchannel bus shelter with limited clearance to kerb. 1/2 depth bus layby with narrow footway behind (1.55m) and metal palisade fence.	4	4	Collision between cyclist and NMU. Loss of control and collision with bus shelter and / or fence. Loss of control and falling into path of oncoming vehicle.	16	Re-locate bus stop and remove layby.	2	3	6	
K	Narrow footway (3.25m) and Zebra Crossing.	4	3	Collision between cyclist and NMU.	12	Carriageway 8m wide giving minimal scope to widen footway but insufficient to reduced risk.	3	4	12	Crossing very close to exit from roundabout - no scope to alter alignment.
L	Narrow footway, tight radius, limited visibility due to mature trees on boundary, level difference between carriageway and back of footway.	4	4	Collision between cyclist and NMU. Loss of control and falling into carriageway.	16	Prune adjacent trees to remove overhanging vegetation. Raise level of back of footway. Install 'Cyclists Dismount' signs on each approach.	3	4	12	Cyclists Dismount' signs likely to be ignored.

Section 3 - Option 2 - Through Lower Park (Drawings HGN-SCH0009-DR-CH-0011 and HGN-SCH0009-DR-CH-0014)

Location	Hazard	Likelihood	Consequence	Consequence comment	Score	Amey Proposed mitigation measures	Likelihood	Consequence	Residual Score	Comment
A - path between Dordrecht way and café.	2No. Sections of narrow path (2.6m) combined with steep gradient leading to cyclist conflict with other NMUs.	3	3	Collision between cyclist and NMU.	9	Widen path from 2.6m to minimum 3.0m	1	3	3	Widening to 3m absolute minimum. Preferably widen to 3.5 - 4.0m due to NMU numbers in the park.
B - 90 degree bend west of café.	Sharp 90 degree bend close to attractor (café) leading to cyclist overshoot and collision with other NMUs. Non cyclists unaware that they are entering onto a shared facility with consequential conflict with cyclists.	3	3	Collision between cyclist and NMU. Loss of control and falling from bike.	9	Provide coloured surfacing to enhance conspicuously of the bend. Install direction signing and shared use signing.	1	3	3	
C - 10m north of 'B-90 degree bend'.	Narrow bridge (2.1m) over watercourse. Loss of control resulting in fall into water.	3	4	Risk of collision with other NMUs, loss of control and falling into watercourse.	12	No mitigation measures proposed by Amey - risk still remains.	3	4	12	Risk could be reduced to 'low' if bridge were replaced.
D - north of 'C-narrow bridge'	Narrow path (2.1m to 2.6m), conflict with other NMUs.	3	3	Collision between cyclist and NMU.	9	Widen path from 2.6m to minimum 3.0m	1	2	2	
E - adjacent to toilet block	Sweeping 135 degree bend close to attractor (toilet facility) leading to cyclist collision with other NMUs. Non cyclists unaware that they are entering onto a shared facility with consequential conflict with cyclists.	3	3	Collision between cyclist and NMU.	9	Provide coloured surfacing to enhance conspicuously of the bend. Install direction signing and shared use signing.	2	3	6	Risk reduced but potential conflict still exists.
F - bridge over watercourse	Narrow bridge (2.9m)over watercourse. Loss of control resulting in fall into water.	3	4	Risk of collision with other NMUs, loss of control and falling into watercourse.	12	No mitigation measures proposed by Amey. ESH risk reduction by application of anti-slip surfacing to bridge deck.	2	4	8	Risk could be reduced to 'low' if bridge were replaced.
G - toilet block to path from café	Slightly narrow route (2.9m - 3.0m). Conflict point where path from café joins.	2	3	Collision between cyclist and NMU.	6	Widen path to minimum width of 3m throughout. Lay coloured surfacing at the conflict points. Install direction, shared use and cyclists dismount signing as appropriate.	1	3	3	
H - Café path to Pavilion	Slight gradient leading to loss of control.	1	3	Collision between cyclist and NMU.	3	Gradient is dictated by topography.	2	3	6	
I - east of Pavilion past bowling green.	Wooden benches at back of path - NMUs likely to be watching the bowling on the adjacent bowls green.	3	3	Collision between cyclist and NMU .	9	No mitigation measures proposed by Amey. ESH risk reduction by re-locating benches.	2	4	8	Risk could be reduced if benches were re-positioned to front of path.
J - Bowling Green to Bethune Way	Narrow path (2.6m min), 4No. Conflict areas where path adjoins adjacent paths. Low fencing with risk of cyclists falling over and into watercourse	2	3	Collision between cyclist and NMU .	6	Widen path to minimum width of 3m throughout. Lay coloured surfacing at the conflict points. Install direction, shared use and cyclists dismount signing as appropriate. Replace low fencing with 1.2m high timber rail fence.	1	3	3	

Section 3 - Option 3 - Through Middle of Lower Park (Drawing HGN-SCH0009-DR-CH-0017)

Location	Hazard	Likelihood	Consequence	Consequence comment	Score
A - path between Dordrecht Way and public toilets.	No hazard - wide path with good visibility.	1	1	-	1
B - path immediately in front of public toilet block.	Local attractor with potential increase in pedestrian numbers and conflict with cyclists.	2	3	Risk of collision between cyclist and other NMUs.	6
C - metal bridge	2.9m wide metal bridge (effective width 1.9m) with low, metal, parapet rails (1.15m high). Slippery bridge deck surface, particularly during wet conditions.	3	4	Risk of collision between cyclist and other NMUs. Loss of control and falling from bike.	12
D - footpath south-east of toilet block	Slightly narrow route (2.9m - 3.0m). Conflict point where path from café joins.	2	3	Risk of collision between cyclist and other NMUs.	6
E	No hazard - wide path with good visibility.	1	1	-	1
F - east of Pavilion past bowling green.	Wooden benches at back of path - NMUs likely to be watching the bowling on the adjacent bowls green.	3	3	Risk of collision with other NMUs, loss of control and falling into watercourse.	9
G - Bowling Green to boating lake.	Narrow path (2.6m min)	2	3	Risk of collision between cyclist and other NMUs.	6
H - eastern end of lower park.	No hazard - wide path with good visibility	1	1	-	1

Proposed mitigation measures	Likelihood	Consequence	Residual Score	Comment
-	1	1	1	
Provide coloured surfacing to enhance conspicuously of the area. Install appropriate shared use signing.	1	3	3	
Provide anti-slip surface treatment to the bridge deck.	2	4	8	
Widen path to minimum width of 3m throughout. Lay coloured surfacing at the conflict points. Install direction, shared use and cyclists dismount signing as appropriate.	1	3	3	
-	1	1	1	
Re-locate benches to the northern side of the path.	2	3	6	Potential for NMUs to exit the shelter into path of cyclists but this is considered a remote possibility as intervisibility is good and the shelter is set back from the edge of the path.
Widen path to minimum width of 3m throughout.	1	3	3	
-	1	1	1	

Section 3 - Option 4 - Through Northern side of Lower Park (Drawing HGN-SCH0009-DR-CH-0018)

Location	Hazard	Likelihood	Consequence	Consequence comment	Score
A - Dordrecht Way to public toilets	No hazards - wide path with good visibility.	1	1	-	1
A - path immediately in front of public toilet block.	Local attractor (toilet facilities) with potential increase in pedestrian numbers and conflict with cyclists.	2	3	Risk of collision between cyclist and other NMUs.	6
B - narrow path east of toilet block.	Narrow path (2.5m width) with stone wall along northern side and limited scope to widen on southern side.	3	3	Risk of collision between cyclist and other NMUs.	9
C - eastbound approach to bridge	Sharp deviation in route alignment combined with large level difference leading to narrow bridge (2.7m) over watercourse with low parapet height (1.15m high) and slippery surface. Poor forward visibility on eastbound approach due to mature shrubs.	3	4	Risk of collision with other NMUs, loss of control and falling into watercourse.	12
C	No hazards - wide path with good visibility.	1	1	-	
D - northern corner of pond.	Narrow path (2.7m), pedestrian access into the park, sharp bend in path alignment, low fencing and water hazards on both northern and southern sides.	3	4	Loss of control, risk of collision between cyclist and other NMUs. Risk of falling into water hazards.	12
E - toilet block by Bowling Green	Slightly narrow route (2.9m - 3.0m), conflict points where path adjoins other paths within the park.	2	2	Risk of collision between cyclist and other NMUs.	4
F - alongside pond SE of Bowling Green	Narrow path (2.6m wide) and only 2m (approx) clearance to edge of pond.	3	4	Risk of collision between cyclist and other NMUs. Risk of loss of control and falling into water.	12
G- Alongside Boating Lake to Bethune Way	Narrow path (2.6m min)	2	3	Risk of collision between cyclist and other NMUs.	6
G - eastern end of Lower Park	No hazards - wide path with good visibility.	1	1	-	1

Proposed mitigation measures	Likelihood	Consequence	Residual Score	Comment
-	1	1	1	
Provide coloured surfacing to enhance conspicuously of the area. Install appropriate shared use signing.	1	3	3	
Widen path where possible to provide a 3m wide route. Widening not achievable over one length over which the risk remains high.	3	3	9	
No mitigation measures achievable without substantial works within the park.	3	4	12	
-	1	1	1	
No scope to provide mitigation measures.	3	4	12	Replacement of existing fencing with 1.4m high fencing unlikely to be in keeping with the remainder of the park.
Widen path to minimum width of 3m where possible. Lay coloured surfacing at the conflict points. Install direction, shared use and cyclists dismount signing as appropriate.	2	2	4	
No scope to widen path or increase clearance to pond.	3	4	12	Installation of 1.4m high fencing to protect pond unlikely to be in keeping with the remainder of the park.
Widen path to minimum width of 3m throughout.	1	3	3	
-	1	1	1	

Appendix C

Design Criteria

Design Criteria

The criteria against which each route has been assessed is based on recommended design guidance included in, but not limited to, the following documentation: -

- TA 90/05 - The Geometric Design of Pedestrian, Cycle and Equestrian Routes
- LTN 1/12 – Shared Use Routes for Pedestrians and Cyclists
- LTN 2/08 – Cycle Infrastructure Design
- Cycling England Design Portfolio
- Manual for Streets (1 and 2)

Width

The minimum recommended effective width of a shared footway / cycle route is 3.0m. Shared paths should thereby be of this width but increased in accordance with the following:

- By 0.5m if a boundary feature or on-street parking is present along one side of the route;
- By 1.0m if a boundary feature or on-street parking is present along both sides of the route;

Headroom

The minimum recommended clearance to any overhead feature from the surface of the route shall be 2.4m

Design speed

Design speeds for cyclists can vary according to different types of user. The design cyclist types are:

- fast commuter;
- other utility cyclist;
- inexperienced utility cyclist (may travel more slowly than regular cyclists);
- child; and
- users of specialised equipment.

Different authorities in the UK and overseas have used a range of design speeds, from 10 kph to 50 kph. However, cyclists travelling in excess of 30 kph are less likely to be using off-carriageway facilities. It is recommended that a design speed of 30 kph should be adopted for most off-carriageway cycle routes.

Stopping sight distance

Depending on design speed this would be between 10m and 30m. Based on a design speed of 30kph a SSV of 30m is recommended to minimise potential conflict between cyclists and other non-motorised users.

Gradient

Preferred maximum gradient of 3% (1:33) is recommended, although this can be steepened to a maximum gradient of 5% (1:20). Where steeper slopes are unavoidable the limiting gradient is 7% (1:14) for lengths up to 30m. Gradients above this figure are not recommended, especially where cyclists will be sharing space with other non-motorised users, except over very short lengths.

The existing topography of Alexandra Park will lead to some sections of the route not meeting the recommended gradient, as stated above. Adjustment of existing gradients are not viable. By accepting a route through Alexandra Park will require acceptance of steeper gradients than recommended.

