

Abbey Fields, Kenilworth

Cycle Route Feasibility Study - DRAFT

February 2016



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1 - Introduction

Background

Provision of a cycle route through Abbey Fields in Kenilworth would be highly desirable to fill a key missing link in the local cycle network to encourage and enable people to cycle for local journeys, in line with local and national transport policy.

The Connect2 route from the University of Warwick currently ends at Bridge Street where the onward journey involves using the existing highway network, which is not conducive to cycling due to a number of issues. The gradient up Rosemary Hill is steep which has to be negotiated in heavy traffic while the junction with Priory Road/Abbey Hill is extremely challenging for cyclists due to a combination of gradient and priority of the junction, this places cyclists in considerable danger and at a key disadvantage.

Alternatively to travel from Castle Farm involves equally challenging gradients and busy highway along Borrowell Lane, which is an A category road carrying heavy flows of traffic. Neither of these options is attractive or safe for novice cyclists, children or those considering cycling. A properly considered and appropriate cycle route through Abbey Fields would provide a safe and continuous connection to allow people to travel to a number of important local destinations. These include the leisure centre, swimming pool, link residential areas to the north west and south of Kenilworth and ultimately all the way to the University of Warwick completely avoiding Abbey Hill. It would also complete National Cycle Network Route 52 in Kenilworth and contribute towards the completion of this strategic route between Warwick and Coventry.

Warwickshire County Council (WCC), as highway authority, has allocated funding towards a study to investigate the potential for a cycle route through Abbey Fields. Warwick District Council, as the landowner and manager of Abbey Fields, is supportive of this study.

Whilst WCC agreed to fund the study, it was agreed to delay the start of the study until results were available of the Town Council's public consultation on its Action Plan. As part of the Action Plan consultation a question was asked relating to cycle access in Abbey Fields. The outcome of this (Question 16) was a very large majority (nearly 80%) of respondents either strongly agreeing or agreeing to the routing of a dedicated cycle way through Abbey Fields. The analysis of the results is subject to copyright however it can be accessed on Kenilworth Town Council's website by following this link:

[Link to Kenilworth Town Council's Action Plan website page.](#)

As part of the study undertaken by the Cycling Issues Group of the Kenilworth Community Forum in 2012 a report was produced that looked at cycling more widely in Kenilworth but also in more detail at Abbey Fields. The report is attached in Appendix A.

One of the report's conclusions was that Sustrans be appointed to look in more detail at the feasible options for routes over Abbey Fields.

The report also identified that providing a cycle route through Abbey Fields should be consulted on by the wider community based on the outcome of this report.

2 – Study Requirements

The report seeks to explore options for provision of a safe, accessible, convenient and attractive cycle route through Abbey Fields, which connects to the existing cycle routes to the east and west of the park. The route should be suitable for novice cyclists, children or those considering cycling.

The results of the Kenilworth Town Council questionnaire survey on cycling in Abbey Fields have been analysed to ensure the proposals take into account the views and concerns of local people regarding provision for cyclists in Abbey Fields.

Direct contact with Kenilworth Town Council has also been made to understand its views on the provision of a cycle route through Abbey Fields.

The proposals should take into account the sensitive nature of Abbey Fields and its existing usage to ensure that the cycle route has minimal impact on pedestrians and the scenic value of the park.

Wider connections to the route should be considered to ensure that as many local residents as possible have easy access to the route.

The study should also identify any improvements to the local highway network in the immediate vicinity of Abbey Fields which would enhance accessibility to the proposed route.

Study Outputs

A preferred option should be put forward with detailed explanation of the reasons why this option was selected. Should it be considered that more than one option meets all requirements then up to three options should be put forward to enable consultation should the proposal proceed further.

An outline plan should be produced which shows details of the preferred route(s) and connections to existing cycle routes, surrounding residential areas and trip generators such as the town centre.

A cost estimate should be produced for the preferred option(s).

3 – Detailed route proposals

Route options

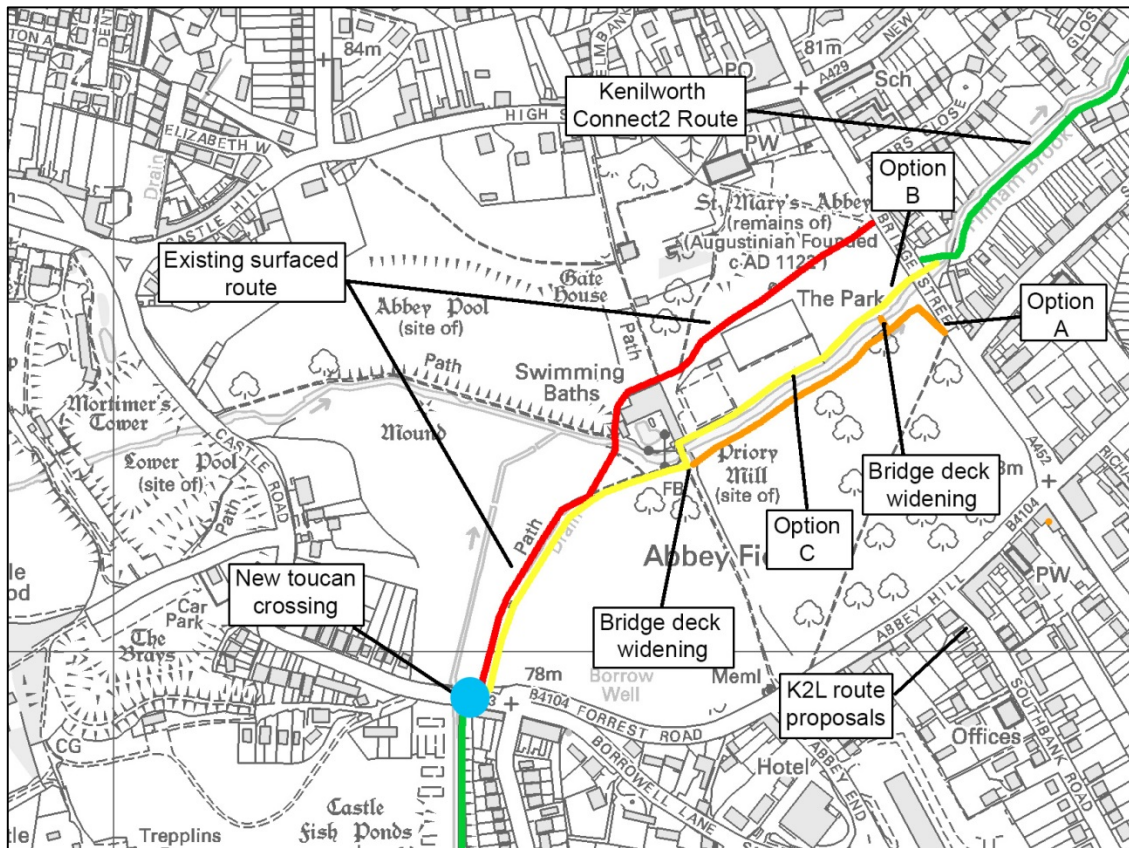
As per the requirement of the brief an early inception meeting was arranged with members of Kenilworth Town Council, Warwick District Council, Warwickshire County Council and English Heritage. The meeting was held on site to walk the potential options and gain an understanding of the views of the various organisations' representatives. The overriding elements required for incorporation into the design can be summarised as follows:

- Minimise the potential for conflict between pedestrians and cyclists by providing a dedicated cycle route.
- Minimise visual intrusion of the route on the existing park land.
- The route should be suitable for wheelchair users.
- The route and its construction should not impact on the local archaeology.
- Provide a high quality connection between Bridge Street and Borrowell Lane.

Reference should be made at this point to Cycling Issues Report produced by Kenilworth Community Forum in December 2012, which can be found in Appendix A.

As part of the study a number of potential routes over Abbey Fields were discussed by the group and three clearly preferred options were identified, which the group wanted this report to consider further. These are:




- A. From Bridge Street, on the south side of the Inch brook: enter the Fields close to the diagonal path (leading to the war memorial), then follow the Inchbrook, crossing the bottom of the steep path from the war memorial and linking up with the path to Borrowell/Castle Road.
- B. From near the end of the Connect2 route, go under the stone bridge on Bridge Street, then turn south but stay on the north side of the Inchbrook for a short distance before crossing it (at the point of the first footbridge) and continuing on the same line of route as option A to Borrowell/Castle Road.
- C. From near the end of the Connect2 route, go under the stone bridge on Bridge Street, then turn south but stay on the north side of the Inchbrook for a longer distance before crossing it (at the point of the second footbridge near the swimming pool) and then continuing on the same line of route as option A to Borrowell/Castle Road.






The preference for these three options, the existing topography, historical features and locations that need to be connected makes it quite clear that the proposals are strictly limited to these routes. In the next section the report looks at each option in detail and provides advice as to their feasibility and desirability.

4 – Route options.



Option A – War Memorial path


Location / Section to	Photo location	Proposal	Comments	Photo references	
Crossing on Bridge Street	1	Access point into park for Option A adjacent to path up to war memorial.	<p>Upgrade crossing to signal control crossing or new standard combined cycling and walking zebra crossing.</p> <p>Consider relocation of crossing to enable direct access from Connect2 route.</p>		
Looking from Bridge Street towards Inchbrook.	2	Provide 3m wide surfaced path.	Here new surfaced path will be required across the common to intersect with new route proposed along the southern side of Inchbrook.		

Looking from Abbey Fields back to Bridge Street.	3	As above.	<p>Note the gradient and hollow that will require engineering earthwork to prevent ponding and proper drainage to Inchbrook.</p> <p>The gradient does not pose any issues to prevent the route from being Equalities Act compliant.</p>		
Looking west alongside Inchbrook from adjacent first footbridge.	3	New 3m wide surfaced path would be required over the park land.	<p>Significant issues exist with placing a path in this location due to the existing mature trees.</p> <p>To protect the roots the path would have to be built outside the area covered by the tree's crown. This would mean that the path intrudes some 15m into the green space.</p> <p>This would be visually intrusive to the existing parkland nature.</p>		

Looking from the second footbridge and path intersection near the swimming pool towards the north eastern extent of Abbey Fields.	4	New 3m wide surfaced path would be required in the parkland.	<p>As above significant issues exist with constructing a path in this location.</p> <p>The clear depression in the landform is the site of the Priory Mill and as such is of important historical value. The route could not be provided over this area.</p> <p>The only option is to provide route at grade all the way around the site however this would significantly impact on the visual heritage and amenity of the parkland.</p>		
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Option B – Under Bridge Street and to the south of Inchbrook




Location / Section to	Photo location	Proposal	Comments	Photo references
Bridge under Bridge Street.	5	Construct new 3m surfaced path under bridge.	<p>The bridge currently has headroom of 2.1m. Current design standards require a clearance of 2.4m for cyclists. The route could be excavated to achieve the additional 300mm required however this would require retaining features under the structure.</p> <p>Alternatively the substandard headroom could remain with warning signage. A narrower path would ensure users keep to the central area with greater headroom.</p> <p>English Heritage has indicated they would not have objections to a route passing</p>	 



			underneath the structure.		
Looking from under bridge towards Kenilworth Connect2 scheme and Finham Brook.	6		<p>To achieve Equality Act compliance at this location earthworks would be required to re-profile the gradient.</p> <p>This would also be required to achieve sufficient headroom underneath the modern steel footbridge structure.</p>		
Looking from Abbey Fields back to Bridge Street.	7	An alternative proposal to providing route under the bridge would be to construct new 3m surfaced path from the existing park access parallel to Bridge Street.	This option would remove the requirement for earthworks under the bridge but would introduce more path into the park land increasing visual intrusion.		

Looking towards timber footbridge adjacent to Bridge Street.	8	Improve and upgrade bridge to current cycling standards.	<p>The current bridge would require widening to 3.5m wide with 1.4m high parapets to comply with current design standards.</p> <p>This could be achieved in a similar fashion to the bridge on Forge Road in Kenilworth where the existing foundations were retained and the deck and parapet replaced. This lessens the construction impact and will reduce cost.</p>	 
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Option C – Under Bridge Street and to the north of Inchbrook.

Location / Section to	Photo location	Proposal	Comments	Photo references	
Looking towards Bridge Street from north of Inchbrook	9	Construct new 3m surfaced path along north side of Inchbrook to connect with route under bridge.	<p>No significant technical considerations in this location.</p> <p>Trees are well back from the hedge line and no significant mature trees are to be encountered.</p> <p>The route can be constructed close to and largely within the un-mown margin, which reduces impact on amenity grassland.</p> <p>The route would be constructed on a slight fall to ensure it drained into Inchbrook.</p>		

Looking from the edge of the play area towards the swimming pool on the northern side of Inchbrook.	10	Construct new 3m surfaced path between Inchbrook and the fence to the play area.	Locating the route here would considerably reduce visual intrusion of the new route and it would also formalise a route that is already being well used.		
Looking at the available width in the fenced section behind the playing field.	11		<p>3.5m is required to provide a 3m useable path width.</p> <p>The photographs show that 5m is available from the fence line to where the land profile begins to drop off to Inchbrook.</p>	 	


Looking back towards the fenced area and also forwards to the swimming bath.	12	Construct new 3m wide surfaced path.	<p>At this point where the path emerges from the fenced area it should swing to the right in a gradual radius.</p> <p>This is to provide visibility and a clear connection to the existing path on approach and exit from over the bridge. This will improve sightlines and reduce the blind corners to prevent any collisions due to lack of visibility.</p> <p>Bollards or similar could be considered at this location to further reduce speed at the entry/exit of the route and also onto the bridge.</p> <p>This location will require shared use or a wider segregated path.</p>		
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Looking at the existing footbridge crossing Inchbrook near the swimming pool.	13	Reconstruct the bridge to upgrade it to current cycling and walking standards.	<p>As with the other footbridge this appears to have suitable foundations to allow for it to be provided with a new deck and parapets, leaving the existing supports in situ.</p> <p>The bridge would need to be widened to 3.5m to allow for a clear 2.5m shared use facility.</p> <p>Alternatively an entirely new bridge could be constructed on a better alignment and considerably wider to provide segregated or shared use route.</p> <p>Bridge engineers would need to undertake feasibility design on both structures to assess that they were fit for purpose and could be upgraded in the manner suggested.</p>
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			As per comment above bollards could be considered here reduce entry speeds.		
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Sections common to all routes – From Swimming pool to Castle Road.




Location / Section to	Photo location	Proposal	Comments	Photo references
Looking from path to west of footbridge adjacent to swimming pool	14	Widen path to provide 3m wide surfaced route or 4m wide segregated route.	<p>The existing path is little over 1.2m wide and is considered sub-standard for its existing use as a footway where 1.8m is the acceptable minimum.</p> <p>Widening the path would reduce any conflict that currently exists between pedestrians and cyclists who use the route contravening the bylaw.</p> <p>Here the route could be a wide shared use route or segregated. This is one of the short discrete sections where existing and proposed routes conjoin.</p> <p>The route would</p>	



			have to be swept in a gentle radius to the right to enable greater visibility on approach to the bridge.		
Looking from existing bridge exit towards the west.	15	Construct new 3m shared use path or 4m segregated path.	Two options exist from this point either to the left or right of the hedgerow.		
Looking from existing narrow footpath to the west of the hedge line.	16	Construct new 3m shared use path.	There are potential problems with this option as the path is built to the top of an embankment, which would require significant new earthworks and retention of materials to provide 3m of useable width. This would also have significant impact on the current view.		

			<p>This location also, because of the embankment, would require the path to be kept tight to the hedge line, which is on a bend and has poor visibility.</p> <p>A significant mature tree also impinges on the available width, which cannot be avoided.</p>		
Looking west from the swimming pool bridge to the left hand route option on the east of the hedge line.	17	Provide new 3m wide surfaced path over park land.	New path could be built here without changes in levels impacting on design or poor visibility due to bends.		

Looking north towards the swimming pool half way along eastern edge of hedge line.	18	Construct new 3m wide surfaced path over park land.	One significant mature tree prevents the path from being constructed tight to the hedgerow; here the route must divert to skirt the full extent of the tree's canopy.		
Looking north towards the swimming pool at a point of access through the hedgerow.	19	Construct new 3m wide surfaced path either in un-managed scrub or on park land.	Both photographs indicate where a 3m wide path would sit in relation to the hedgerow and the subsequent impact on land take.		

Access point in hedge.	20	Construct new 3m wide surfaced path over culvert.	<p>Natural break point in hedge line to allow path to swap from east or western side of hedge line.</p> <p>Ditch in hedge line is already culverted and would not require substantial additional work to introduce path to this location.</p>	 
Looking south towards Borrowell Lane.	21	Upgrade and improve existing path to 3m shared use path or 4m segregated path.	<p>The first photograph shows the current width of the path, which is 1.26m, current standards require footpath to be a minimum of 1.8m and shared use 3m.</p> <p>The second picture shows the width required for a 3m shared use path.</p> <p>Alternatively the route could continue on the western side of the hedge line and a new secondary access point be created on Forrest</p>	 

			Road.		
Looking towards and from Abbey Fields access point on Borrowell Lane.	22	Provide new crossing on alignment of path to direct allow access to existing shared use path.	WCC has undertaken an initial study and confirms that the crossing can be relocated, which will provide a direct and improved facility.		

Looking west towards existing zebra crossing on Borrowell Lane.	23		Currently the crossing is off-line and accessed by narrow footways however it is still well used despite this as the road can be difficult to cross.		
Looking towards Abbey Fields from Borrowell Lane.	24	Re-locate existing crossing and provide toucan or cycling zebra.	Tape indicates the 4m width required to provide a cycling zebra crossing.		

5 – Conclusions

The three route options provide similar solutions enabling a crossing of Abbey Fields to be made however they have some fundamental differences in terms of design and construction that enables a clear preferred option to be identified. Below each route is assessed:

Option A

- Ease of construction over existing parkland with no level differences or obstructions to overcome.
- No bridge crossing required reducing the cost.
- Significant diversions required due to tree location and historical remains.
- High visual intrusion on a side of the park that is currently relatively free from hard surfacing.

Option B

- Safe crossing of Bridge Street with continuity of route.
- Level difference to east of Bridge Street requires reconstruction.
- Possible requirement for excavation under bridge to achieve required headroom.
- Reconstruction of bridge deck and parapet to upgrade to shared use standard.
- Ease of construction over existing parkland with no level differences or obstructions to overcome.
- No bridge crossing required reducing the cost.
- Significant diversions required due to tree location and historical remains.
- High visual intrusion on a side of the park that is currently relatively free from hard surfacing.

Option C

- Safe crossing of Bridge Street with continuity of route.
- Level difference to east of Bridge Street requires reconstruction.
- Possible requirement for excavation under bridge to achieve required headroom.
- Considerably reduced visual intrusion with route shielded by play area fencing.
- Route location is further away from areas that are more intensively used.
- Reconstruction of bridge deck and parapet to upgrade to shared use standard.
- Potential for conflict at bridge/swimming pool corner however careful design can mitigate.

Common route options

West of hedgerow

- Poor visibility due to bend near northern end.
- Would effectively be used as a shared use route.
- Limited ability to avoid bend due to embankment levels forcing route close to hedgerow.
- Earthworks require engineering to provide suitable width for 3m shared use.
- Pinch point due to existing mature tree that cannot be avoided due to level difference.

East of hedgerow

- Simple construction of new path over park land.
- Clear visibility with no hidden corners.
- One mature tree requires diversion.
- Option to keep path tight to hedge line minimising intrusion into amenity grassland.
- Culverted access to re-join existing path.

There is a strong preference within the Town Council that the route be segregated to provide a clear cycle only route through Abbey Fields. In the most part the route will be new and clearly segregated from existing pedestrian routes however one location will require that the route is conjoined with an existing pedestrian route and that is over the bridge by the swimming pool. Here the new structure and lead in paths could be clearly demarked as segregated at this point to ensure cycles and pedestrians can identify the correct route.

It should be noted that whilst the new routes can be clearly marked as cycle use only, in reality pedestrians and other users may choose to use them in preference or in addition to existing routes. Sustrans' design advice advocates the use of shared use routes over segregated as they provide a more effective solution with less visual signage and demarcation required. Sustrans' 'Technical Information Note 19 – Segregation of shared use routes' is attached in Appendix F .

Sustrans also has a code of practice that we expect cyclists to adhere to, which clearly states that cyclists should give way to pedestrians. Clear signage can be used to reinforce this message should a shared use route be the preferred option.

Recommendations

Sustrans' recommends the following route options be taken forward for the following reasons:

- Option C
 - Safe crossing of Bridge Street.
 - Significantly less visual intrusion into parkland environment.
 - Clearly segregated away from busy park areas, especially the play area.
 - Formalises existing muddy path.
- Eastern side of hedgerow
 - Ease and simplicity of construction.
 - Leaves existing footpath intact providing an alternative for pedestrians.
 - Option to keep route close to hedgerow reducing impact on amenity grassland.
 - Avoidance of pinch points and sections with poor visibility.

Sustrans' also recommends that the following are also introduced:

- Advance warning signage for cyclists to give way to pedestrians at locations where routes are shared.
 - Example signage is shown in Appendix D.
- Upgrade and relocation of Bridge Street zebra crossing to align with new route proposals

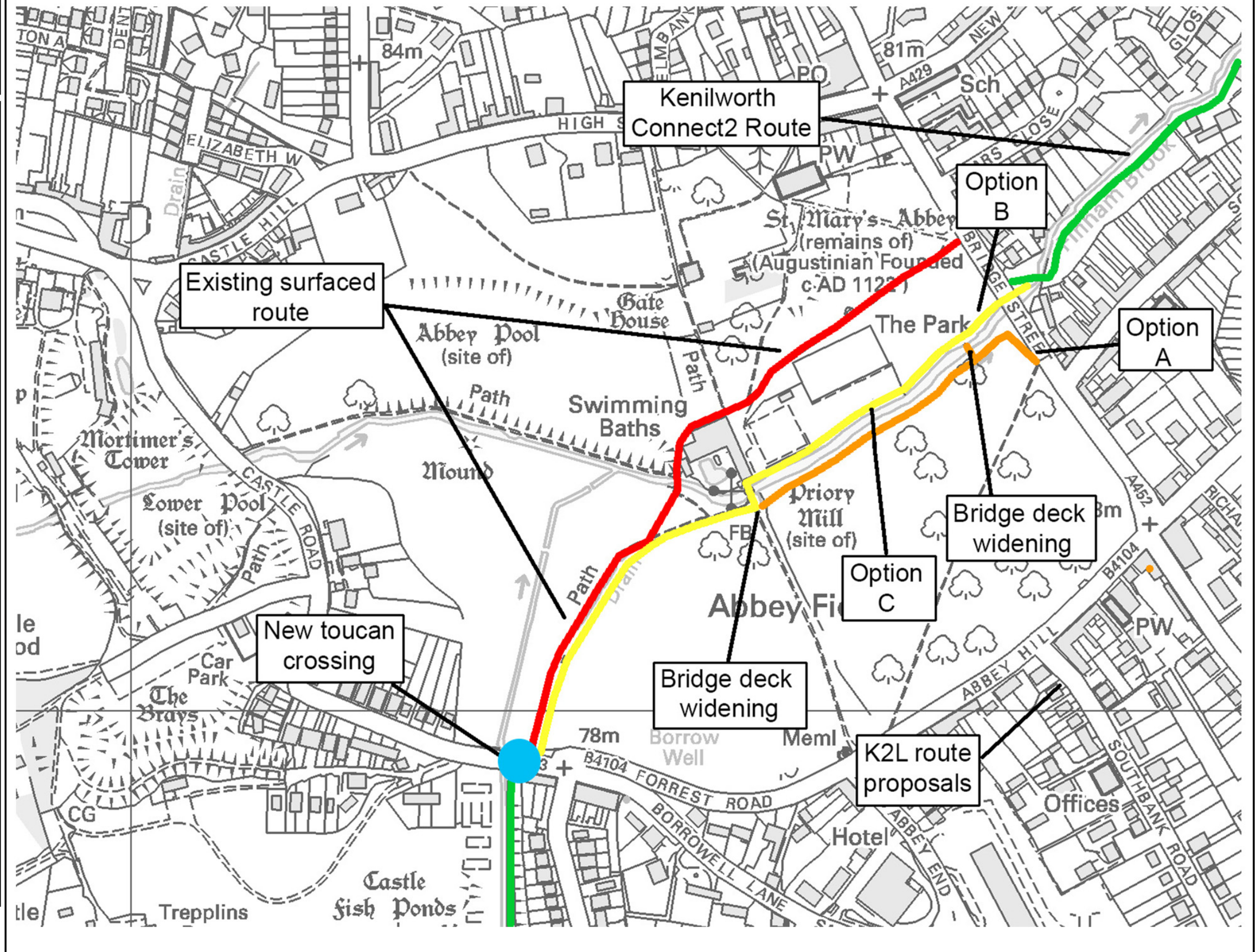
Estimated costing

A cost estimate has been produced to construct the above described route over Abbeyfields including improved ramp access under Bridge Street, Sarum Hardwood bridge over Finham Brook and new toucan crossing over Borrowell Lane.

To construct the route is estimated to cost £663,000 (17/18 prices).

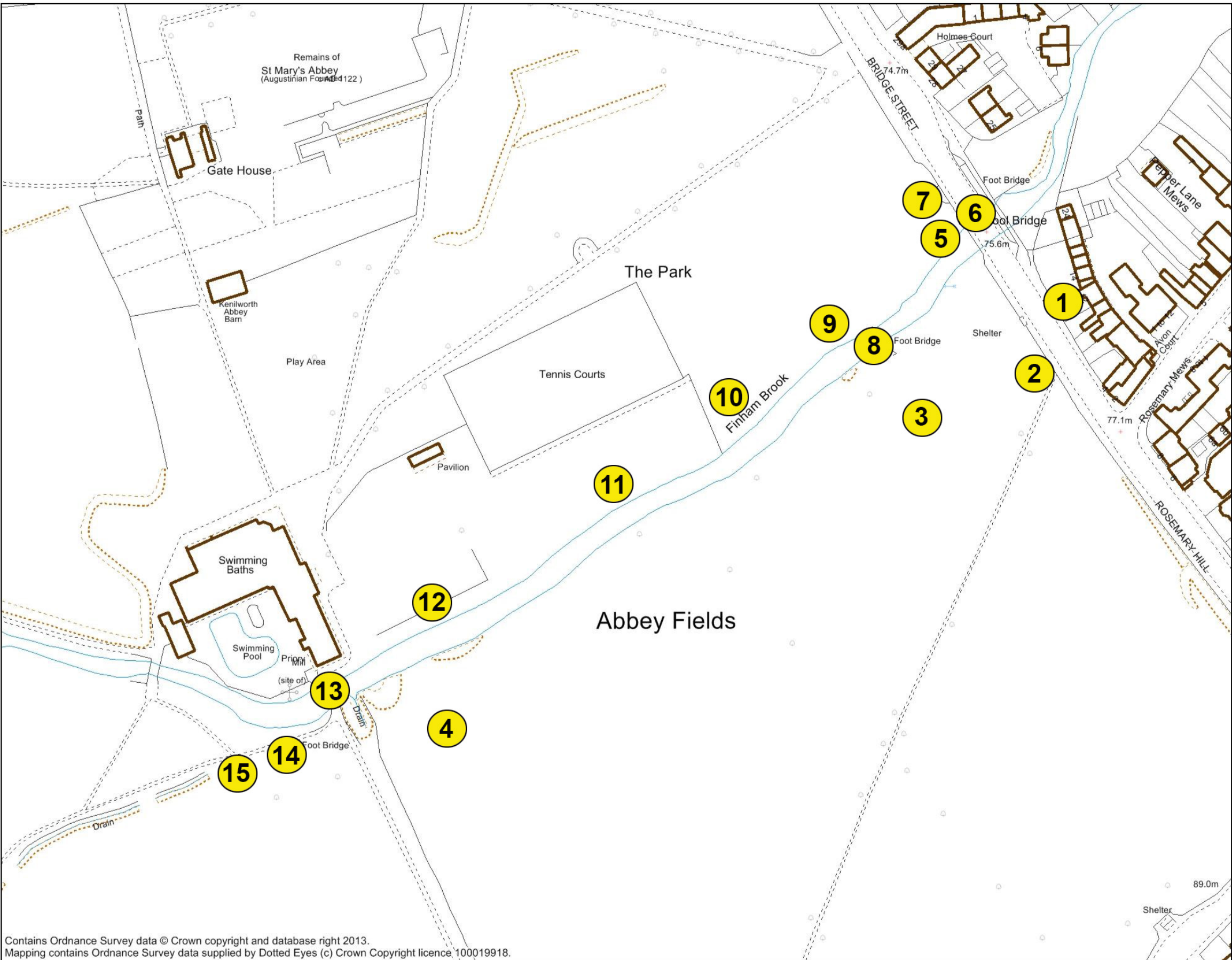
Appendix A – Cycling Issues in the Kenilworth & Burton Green Areas Report (December 2012)

Appendix B – Annotated Route Audit Maps



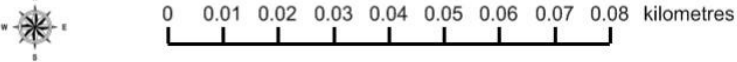
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 Photo location



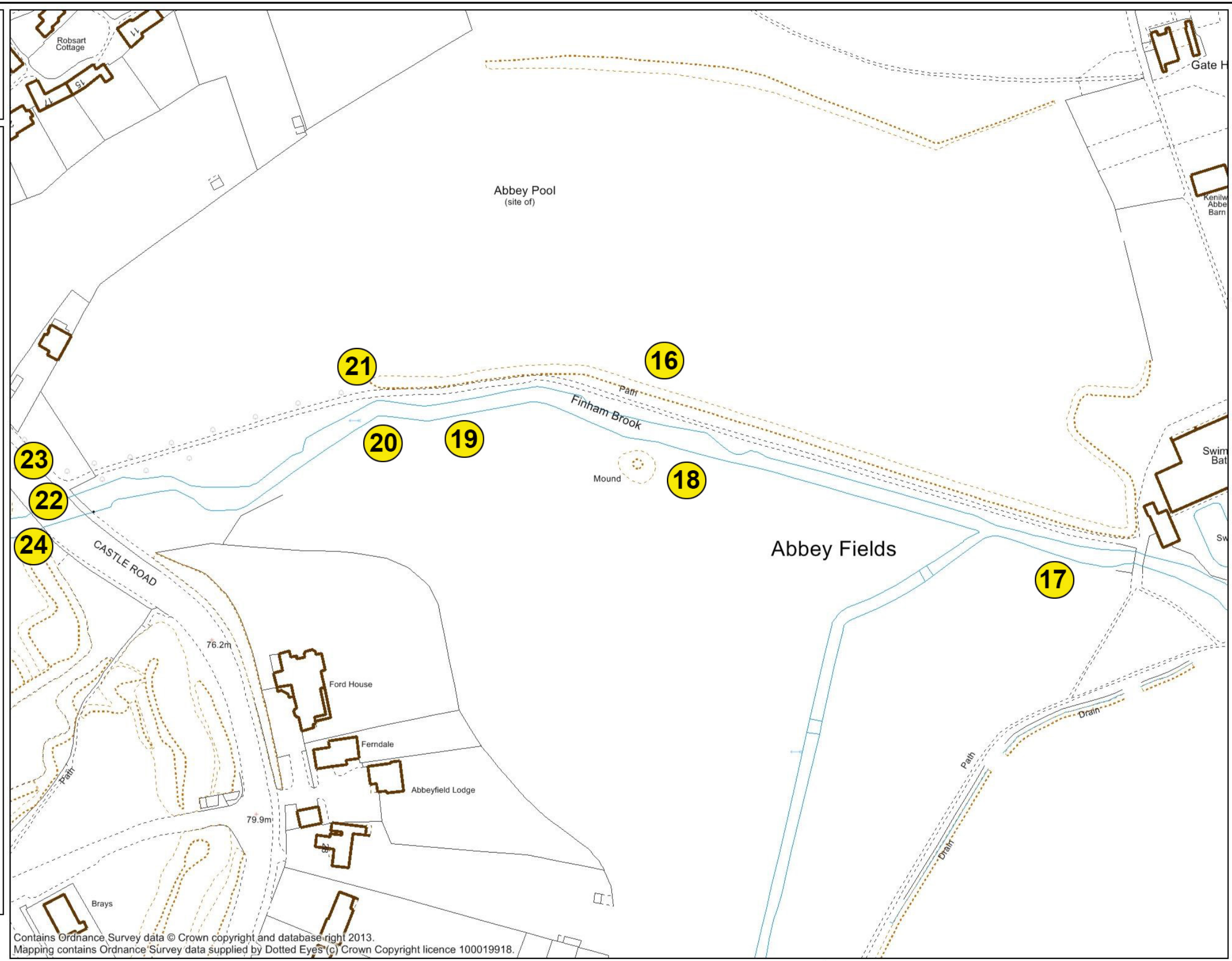
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Appendix C - Ecological considerations

Introduction

The scoping assessment below makes use of online aerial photography and data freely available on-line. As such it is intended to act as a guide to obvious ecological issues and is not a comprehensive assessment of ecological impacts. A Preliminary Ecological Appraisal (PEA) will need to be conducted in accordance with CIEEM guidelines 2012 prior to any planning application or prior to any work being undertaken. This will include a field survey, desk study and assessment of impacts. The PEA is likely to recommend that other species or habitat specific surveys or assessments are undertaken. These will also be required prior to any planning application.

Nature Conservation Sites

No internationally or nationally designated nature conservation sites are present within 5km of the proposed path. Two Local Nature Reserves (LNR) are present within 1km of the proposed path. LNR are locally designated sites with statutory protection. These are: Parliament Piece LNR and Kenilworth Common LNR.

Parliament Piece is a 6.7ha site situated 400m northeast of the proposed path creation. It comprises a single field surrounded by mature trees and scrub with a pond. Residential properties and gardens separate Parliament Piece from Abbey Fields. Given the distance between this site and the works, the nature of the intervening habitat and the limited scale of the proposals, no impacts are anticipated on this LNR.

Kenilworth Common is an 11.5ha site bisected by a live railway line. It is situated 850m from the proposed path. It comprises relict heathland and diverse woodland and supports common lizard *Zootoca vivipara*. Finham Brook forms part of the southern boundary of this site. A series of green spaces along the brook connect Kenilworth Common with Abbey Fields. Although there is a greater level of habitat connectivity with this LNR than with Parliament Piece, the distance and limited scale of the proposal make impacts upon the wildlife using Kenilworth Common unlikely.

Locally designated sites with protection through the planning system (but not statutory protection) may also be present (known as Local Wildlife Sites in Warwickshire). The presence of these local sites will be determined as part of the PEA. Any development must have minimal impact on the nature conservation value of locally designated sites, and improve them wherever possible.

Habitats and Flora

National habitat inventories list the eastern half of Abbey Fields as “Wood-Pasture and Parkland”, a Habitat of Principal Importance in Section 41 of the Natural Environment and Rural Communities Act (2006). This habitat type is protected through the planning process. The PEA will make an assessment of the habitats present and their ecological value. An initial scoping exercise based on photographs of the site suggests that;

- The main habitat to be affected by the proposal appears to be amenity grassland, a habitat of low ecological value. This must be confirmed through a site visit as part of the PEA. This would not be considered a significant impact of the proposal;
- The work may be situated in close proximity to mature trees. This could damage their root systems and would be a negative impact of the proposal. Path construction should be located outside the root protection area for significant trees or should be conducted in a manner that will minimise the impact on their roots.
- The path may cross the Finham Brook. Each of the four potential crossings are at existing bridges or culverts. No construction is required that will affect the water course or its banks. A method

statement will be required to minimise the risk of siltation or pollution into the watercourse during construction.

- Some clearance of tall ruderal or scrub habitats may be required. This could be a negative impact of the proposal, depending on the overall proportion of this less managed habitat in the park affected. This impact could be compensated by habitat manipulation elsewhere in the park.
- Invasive non-native species may be present along the route, particularly given the proximity of a watercourse. The presence of species listed on Schedule 9 of the Wildlife and Countryside Act (1982 as amended) will be identified by the PEA. Measures to prevent their spread would need to be designed into the proposed construction plan.

This scoping assessment has been conducted from photographs only. A PEA including a site visit is necessary to accurately identify habitat types present and their value and to make an assessment of the impact of the proposal on the parkland.

Fauna

Fauna with statutory protection or protection in the Planning Process through inclusion in the lists of Species of Principal Importance in Section 41 of the NERC Act (2006) may also be present. As part of the PEA a record search and habitat assessment will be made to determine the likelihood of these species being present. An initial scoping exercise based on photographs of the site suggests that;

- The mature trees and strip of less managed habitat along the brook may be of value to invertebrates. It is anticipated that both features can be retained.
- The strip of less managed habitat along the brook could be used by amphibians. The need for a survey for great crested newts or measures to protect amphibians will be determined by a PEA based on detailed path design.
- No significant loss of habitat for birds is anticipated, but construction could be situated in habitats that could be used by breeding birds. Disturbance to nesting birds can be readily avoided through appropriate timing of the works.
- Siltation and pollution to the brook, that might affect any notable fish populations can be readily avoided through adherence to best construction practice.
- It is considered unlikely that a badger sett would be present along the route but this cannot be ruled out without a site visit. The presence of a sett would be a consideration of the proposal but would be unlikely to be barrier to development.
- No impacts on commuting or foraging bats are anticipated as no lighting or significant vegetation changes are proposed. No trees will be removed. A bridge deck may require replacement and will need to be assessed for its suitability for roosting bats as part of the PEA.
- A stream is present but water voles are rare in the county. The PEA will assess habitat suitability and determine the need for a survey. Construction work would generally be located away from the bank tops and river crossings would use existing structures. Impacts on this species would therefore be extremely limited.
- Otter are likely to be present but unlikely to be affected due to their large territory size and nocturnal habitats. Holts are considered unlikely to be present due to the high levels of public access to the site.
- Other mammals such as hedgehog could use the park and the habitat along the brook could be suitable for use as a hibernation site. This is a consideration for the timing of works and there may be a need for habitat compensation in relation to this impact.
- Reptiles could potentially be present in the unmanaged margins of the park. The PEA will determine habitat suitability and anticipated impacts on reptiles and will advise on the need for further survey and/or method statements to avoid harm.

This is a preliminary assessment. The PEA will include a record search and habitat assessment to more accurately determine the likelihood of these species being present and impacts upon them.

Where protected or notable species may be present and may be affected by the proposal, further surveys and/or mitigation strategies will be required. These surveys can be costly and time consuming but if considered at an early stage can often be avoided by altering the scheme design or timings. An assessment of the impact on protected species will be required prior to a planning application.

The presence of protected species would be unlikely to be barrier to route construction, in most cases impacts on them can be avoided, minimised or compensated for; although this may be at additional cost.

Ecological Enhancement

Under current planning legislation developments must enhance sites for nature conservation wherever possible. Enhancement measures need to be proportional to the proposed development, and so given the limited scale of this proposal will not be onerous. The PEA should suggest appropriate measures and liaison is recommended with local wildlife groups or Local Authority ecologists to determine appropriate enhancement measures.

For the Bibliography and References;

CIEEM (2012) *Guidelines for Preliminary Ecological Appraisal*. Institute of Ecology and Environmental Management.

JNCC (2010) *Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit*. Joint Nature Conservation Committee, Peterborough.

MAGIC (Accessed January 2014) *website: www.magic.gov.uk* Multi-Agency Geographical Information for the Countryside.

Warwickshire Wildlife Trust (Accessed January 2014) *website <http://www.warwickshirewildlifetrust.org.uk/>* Parliament Piece and Kenilworth Common Local Nature Reserves.

Appendix D – Signing Examples

Example Directional signing



Figure 1 – Heritage style signing



Figure 2 – Thermoplastic on surface directional signing in Swindon



Figure 3 – Thermoplastic route signing

Example shared use signing



Figure 4 – Thermoplastic shared use symbol in Southampton



Figure 5 – Cycle route symbols in Sale.



Figure 6 – Thermoplastic shared use symbol in Loughborough



Figure 7 – Cyclists give way to pedestrians in Shrewsbury



Figure 8 – Share with care in Worcester

Appendix E – Example bridges and routes



Figure 1 – University of Warwick



Figure 2 – Forge Road, Kenilworth



Figure 3 – Newly constructed shared use route in Woodloes, Warwick



Figure 4 – Newly constructed shared use canal bridge in Woodloes, Warwick



Figure 5 – Newly constructed 3.5m shared use bridge in Woodloes, Warwick

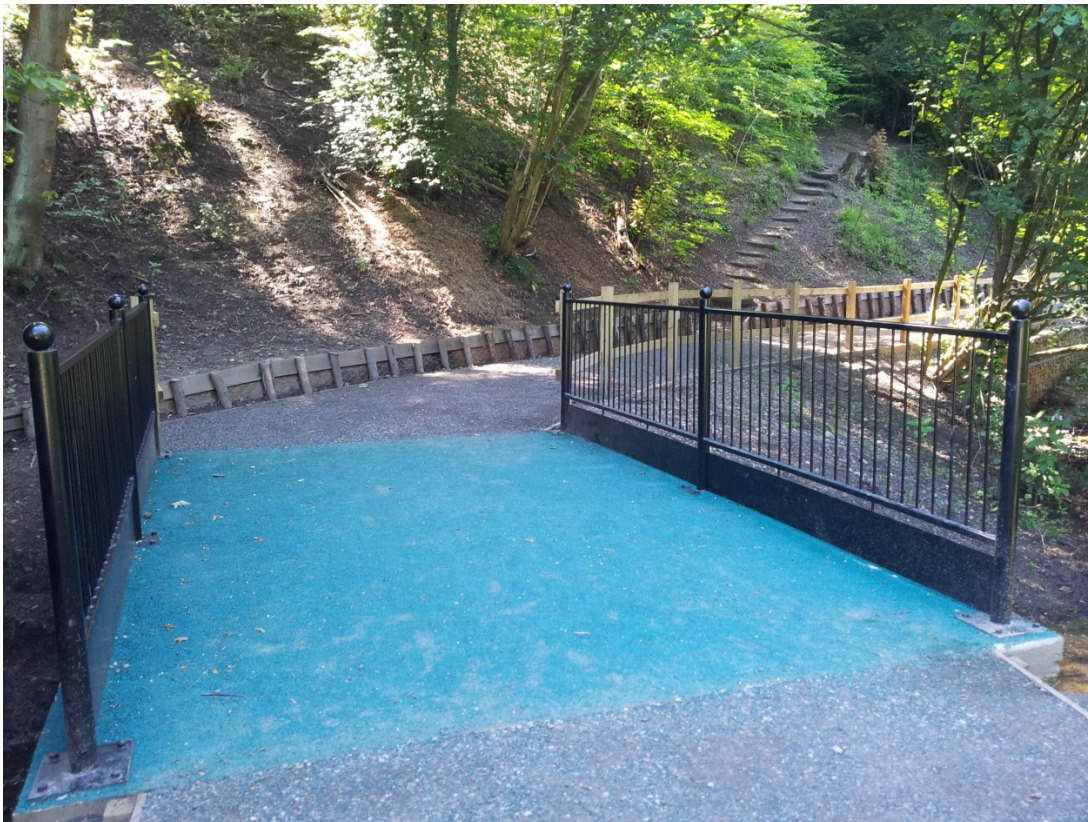


Figure 6 – Marple, Stockport



Figure 7 – Newton Abbey



Figure 8 – Swaffham, Bulbeck Lode



Figure 9 – Watermead Park, Leicester



Figure 10 – Shared use route, New Hall Valley, Birmingham

Appendix F – Sustrans Technical Information Note 19

Appendix G – Traffic Free Routes: Conceptual Design