AGENDA ITEM NO: 10

BRISTOL CITY COUNCIL

DOWNS COMMITTEE

18 November 2013

Report of: Dr Adrienn Tomor, UWE

Title: Pedestrian Bridge over the Bridge Valley Road

Officer Presenting Report: Dr Adrienn Tomor, UWE

Contact: Adrienn Tomor <Adrienn.Tomor@uwe.ac.uk>

RECOMMENDATION

Confirmation is sought if the Downs Committee would support a stone pedestrian bridge over Bridge Valley Road in principal.

Summary

Background:
- Need for a safe pedestrian link at the top of Bridge Valley Rd has been identified (Management Plan, Conservation Area Enhancement Statements)
- The crossing has been identified as 'dangerous' (Downs Committee Traffic Subgroup Report March 2013)
- Due to the complexity of the junction and dangerous crossing at road level, a pedestrian bridge is proposed.

The enclosed proposal refers to a classical stone pedestrian bridge, for which pre-application enquiry has been submitted to Bristol City Council. No alternative proposal is available for the location.

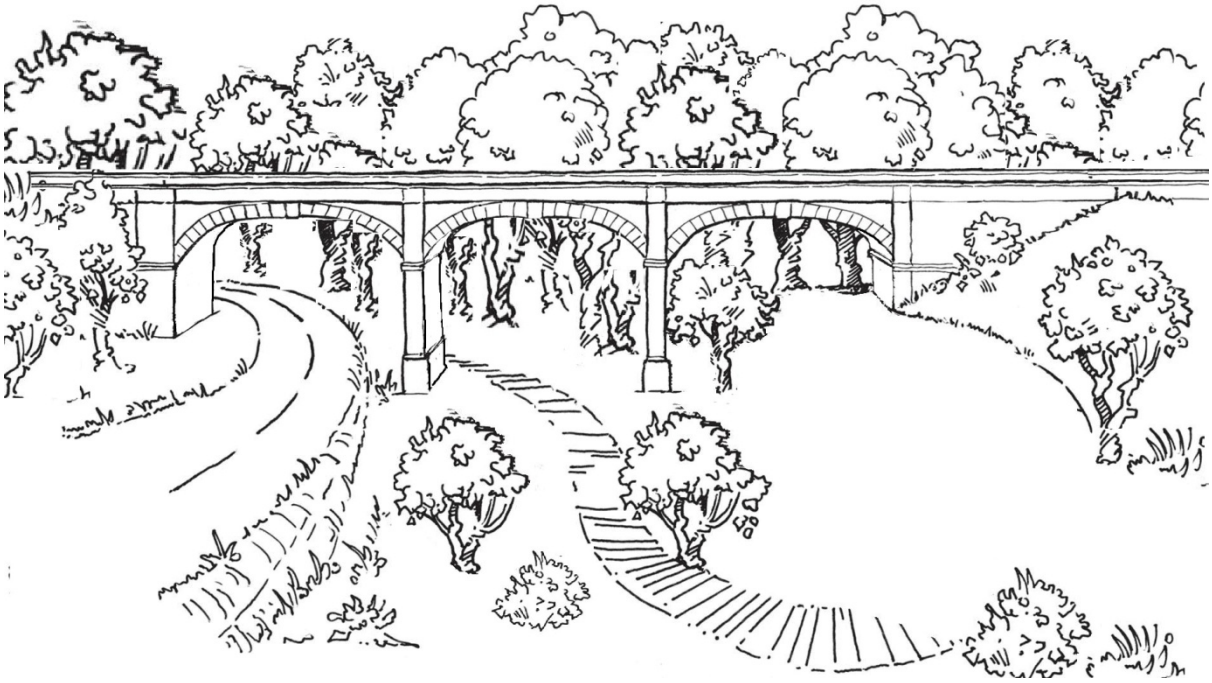
Benefits for the proposed stone bridge that would NOT exist for any other bridge type:
- 300+ years life expectancy
- minimal, low-cost maintenance during the life of the bridge
- show-case example of a highly sustainable project for Bristol '*European Green Capital for 2015*'

Community benefits:
- unique apprenticeship, training and educational programmes (e.g. stonemasonry)
- novel career opportunities for young people
- re-learning historical crafts / skills
- wide range of community engagement opportunities
- wide range of Widening Participation opportunities
- enhancing local tourism
- range of post-construction educational resources and income generation opportunities

Cost of the proposed stone bridge is likely to be similar to an average concrete or steel bridge. Funding would be sought from a range of funding resources (e.g. lottery funding, educational grants, community grants, engineering/research grants, sponsorship).

Bridge Valley Road - Bridge proposal

Image of the bridge



Bridge Valley Road – Pedestrian Bridge proposal

Copy of the Pre-application enquiry

Bridge location: Top of Bridge Valley Road, Bristol (Junction Bridge Valley Rd - Clifton Down - Ladies Mile)
Proposal submitted by: Dr Adrienn Tomor, UWE
Submission date: 8 Sept 2013

Description of proposal:
The junction Bridge Valley Road, Clifton Down and Ladies Mile is a dangerous crossing for pedestrians as well as vehicles. There is no zebra crossing or traffic lights to allow safe crossing for pedestrians, children and disabled, cyclists, etc. (see supporting information "Photographs").

The need to "create a safe circular path allowing people to access the Gorge from the Downs" has already been identified in "*A Management Plan for the Bristol side of the Avon Gorge, 2010-2015" (sections 5.6 and 6.29).* The *Conservation Area Enhancement Statements November 1993 – Bristol Local Plan Advice Note 2* also identified the "issue of over use of the peripheral routes to the Downs and encourage more protected pedestrian and cyclist movement through the spaces" (Section 20).

A pedestrian bridge has been proposed for the junction Bridge Valley Road, Clifton Down and Ladies Mile (see supporting information "Site location plan") with the aims to

- provide a safe pedestrian crossing
- complete the last missing link in a historical, environmental circular route which is an integral part of the "A Management Plan for the Bristol Side of the Avon Gorge"
- provide a quality, highly sustainable long-lasting bridge with low maintenance needs, low environmental impact and minimal long-term costs.

The choice of design for a classical stone arch bridge is being proposed (see supporting information "Proposed design"), to comply with current EU regulations and be suitable to carry pedestrians as well as emergency vehicles if necessary. The bridge is designed to last for 300+ years and be a highly sustainable structure with very little maintenance and environmental impact over its life (see "Sustainability statement"). The choice of design would become an pioneering example of a highly sustainable project for the Bristol for the "European Green Capital for 2015".

The choice of a stone bridge would offer a range of unique benefits to the local community that would not exist for a usual concrete or steel design alternative (see supporting information "Benefits"), for example:

- re-learning historical crafts and skills, providing unique training/apprenticeship opportunities
- generating a new industry sector and novel career opportunities
- providing a range of educational resources
- enhancing local tourism
- providing post-construction training opportunities and income generation.

The proposed bridge linking the Clifton Suspension Bridge, the Zoo, the Downs and the Avon Gorge would become a key strategic location for Bristol and a focal point for the local community. In order to ensure engagement with the community, a draft "community engagement strategy" is included (see supporting information).

A vegetation assessment has already been carried out and concluded that “Provided the three significant trees were protected there are no botanical reasons to prevent construction in this area (see supporting information “Vegetation assessment”).

Draft indicative outline costs for the proposed bridge have been included in the supporting information “Outline costs” and suggest that the cost of a classical stone bridge would not be significantly higher than of a steel bridge. Costs are however only indicative and more information in needed before they can be finalised.

If you would like to discuss any aspect of the proposal or require any further information please get in touch and we will be happy to assist.

Details of the Bristol Local Plan Policies/Guidance that you have referred to in preparing your scheme

- A Management Plan for the Bristol Side of the Avon Gorge 2010 – 2015
- Conservation Area Enhancement Statements November 1993 – Bristol Local Plan Advice Note 2
- Bristol Development Framework Core Strategy, 2011
- Sustainable Building Design and Construction, 2006
- In search of Chunky Dunsters - A Cultural Strategy for the South West

1) Photographs

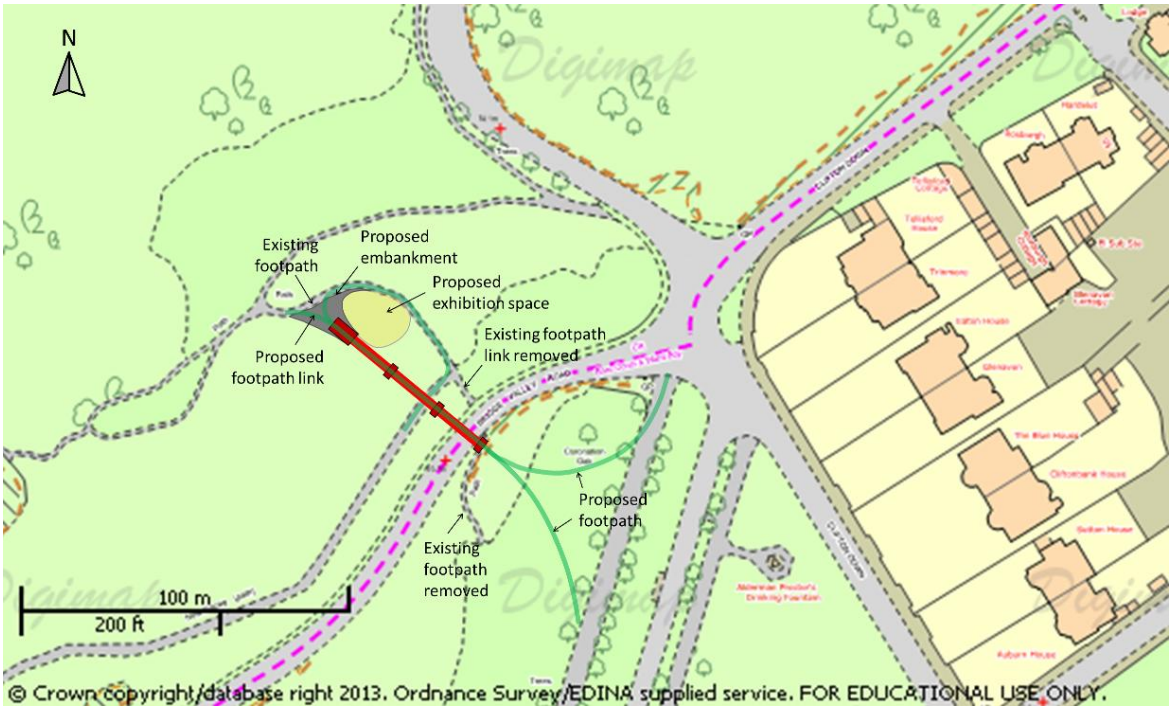
View from the Avenue

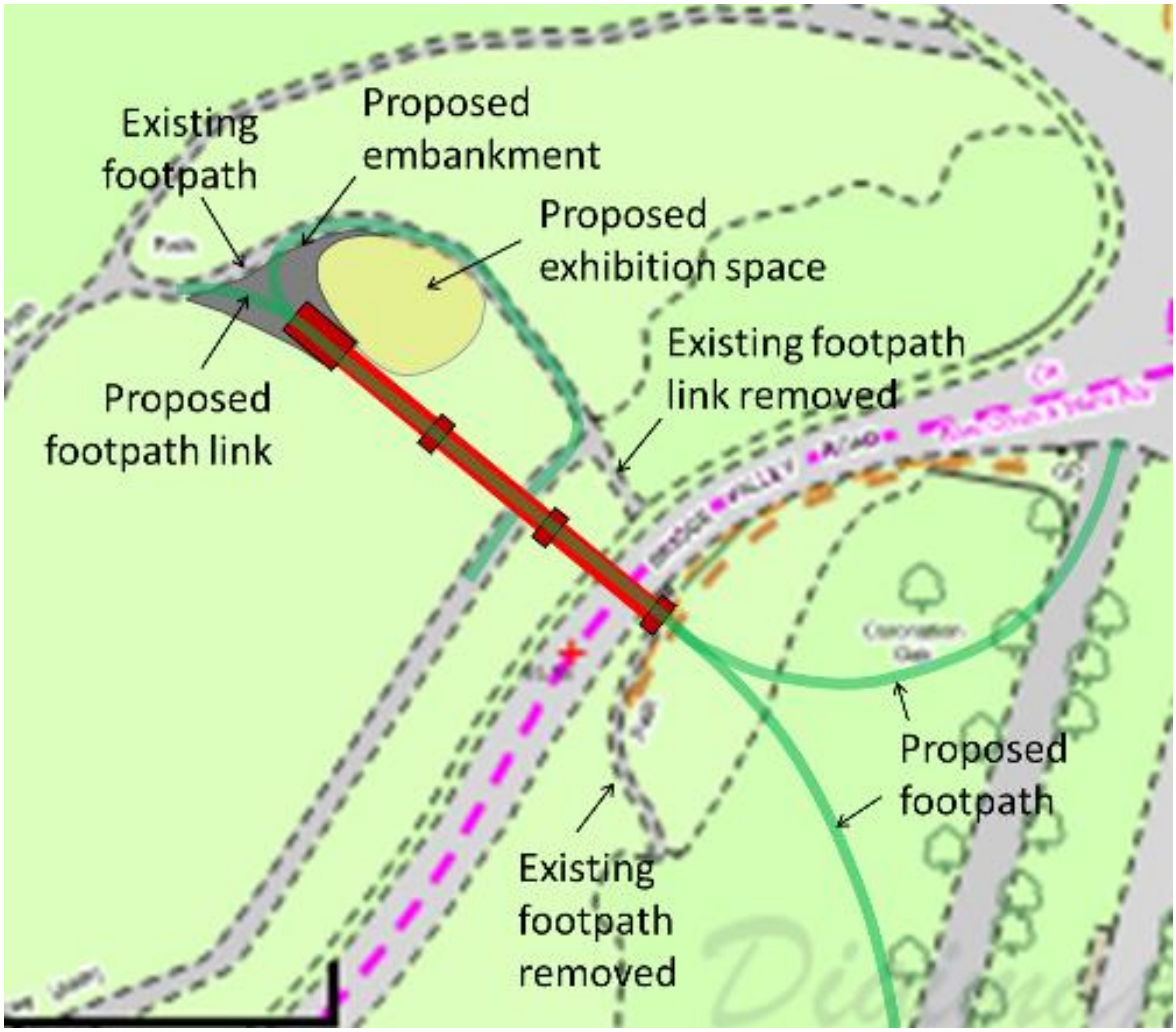
View downhill Bridge Valley Rd

View downhill Bridge Valley Rd with current footpath crossing

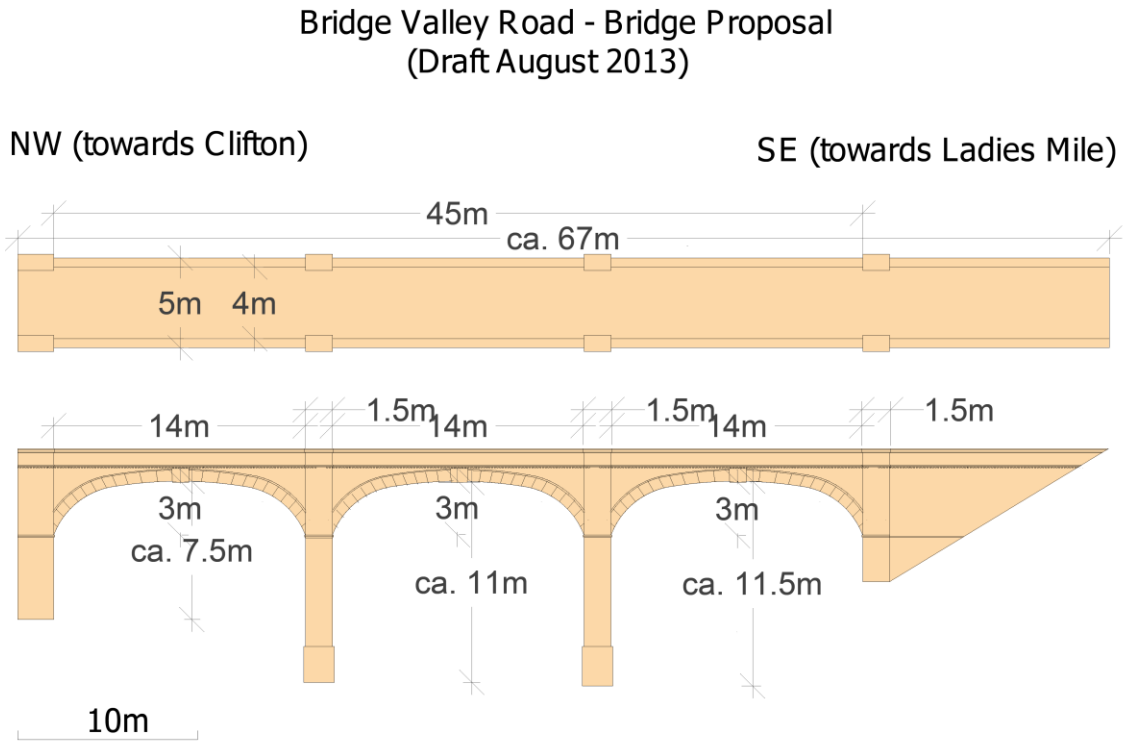
View from current footpath crossing (ca. 50m from the junction)

2) Location Plan





3) Proposed Design



4) Sustainability statement

Bristol has won the prestigious title of European Green Capital for 2015. This title means the eyes of the world will be looking towards Bristol for guidance on what it means to be a sustainable city. The construction and completion of the bridge by 2015 would provide an exemplary project in various aspects of sustainability (sustainable construction, sustainable use and sustainable skills).

The three pillars of sustainability: social, economic and environmental, have all been considered through the design, construction and the proposed lifespan of the bridge. Once constructed, the bridge will serve as a safe crossing for people, encourage walking in the area by completing the circular footpath around the Downs, thus reducing carbon emission, promoting healthy environment and living. Re-learning historical bridge building skills will provide a valuable opportunity for local people to generate sustainable skills and re-establish a new industry sector that will last for generations and provide new employment opportunities.

The choice of material and 300+ years design life for the bridge will serve both economic and environmental sustainability. In particular, the design process seeks to enhance environmental sustainability by selecting durable materials with zero carbon impact, using sustainable methods of construction and minimising maintenance needs.

Designers and engineers have been applying sustainable concepts for a considerable time. There are however no established sustainability guides, ratings or assessment tools in the UK at the moment that can assist bridge professionals and transportation authorities to achieve higher degrees of sustainability. The “Building Research Establishment Environmental Assessment Method” (BREEAM) infrastructure scheme is currently under evaluation and aims to include sustainability for bridges. In the proposed foot-bridge design the relevant criteria in current BREEAM guides are being followed to obtain the highest levels of sustainability rating once the bridge specific BREEAM schemes become available.

The project will also follow the guidelines of the “Bristol Development Framework Core Strategy” and “Sustainable Building Design and Construction” sustainability principles. The materials selected for the bridge are carbon neutral, the construction processes will have practically no waste and all materials will be re-useable. The design also enhances the access to open spaces for the community.

5) Benefits

The proposed masonry arch bridge would be a unique sustainability project, creating a new iconic structure for Bristol and generating a new industry sector. It would be the first bridge of its kind to be built in Europe in the past 50-100 years. After the Clifton Suspension Bridge and the First Severn Crossing, Bristol could offer another milestone for bridges that would benefit the local community as well as generate tourism.

Benefits

1) Provide a safe pedestrian crossing
2) Provide a long-lasting, low maintenance and attractive bridge for future generations (300+ years compared to the usual 100 years design life for new bridges)
3) Provide an example for a highly sustainable project for “Green City 2015” with sustainable construction, sustainable use and skills
4) Provide training, apprenticeship opportunities
5) Provide local employment and enhance local economy
6) Generate a new industry sector and novel employment prospects
7) Provide a range of educational resources
8) Generate higher educational and research opportunities and attract funding (e.g. masters programmes, PhDs)
9) Offer community involvement opportunities during construction (e.g. digging foundations, landscaping)
10) Enhance local tourism
11) Gain European exposure in sustainability and engineering sectors
12) Provide post-construction training opportunities for the industry and general public (e.g. master-classes, educational talks, courses).

6) Community engagement strategy

The proposed bridge would provide a safe crossing for pedestrians between the Clifton Suspension Bridge, the Zoo, the Downs and the Avon Gorge. The bridge would therefore become a key strategic location for Bristol and a focal point for the community. It is therefore essential that any new project engages with the community and creates another well-loved iconic structure for Bristol. The draft strategy for community engagement during the various stages of the project is laid out below.

Stage 1: Pre-construction

Website

A website would be created to include:
- project summary
- updates and progress of construction
- community engagement (submissions of views / ideas)
- news, talks
- community involvement opportunities
- history of bridges and traditional construction skills
- learning resources
- references

Community open day 1

Open day 1: A community open day would be organised early on during the planning process to provide information for the general public, gather views and identify wishes of the general public as per Section 38 of the Commons Act 2008.

Community vote for open space design

The current bridge design includes an area at the N side of the bridge that would be an ideal location for an open-air exhibition or educational space. Submissions from the community would be invited to propose/vote for the preferred use.

Media publicity

Information about the plans and proposal would be published in the local media to raise awareness.

Stage 3: Construction

Information updates

The blog/website would provide regular updates on progress and construction /crafts skills currently being employed.

Training, apprenticeship programmes, new industry sector

Construction of the bridge would be an ideal opportunity to re-gain historical skills and pass them on to new generations. Training programmes would be developed to train promising young people and give them unique crafts and skills. Re-learning historical skills would generate a new industry sector, new careers opportunities and novel employment prospects.

Community open days 2-4

During the construction process the following open days would be organised:

Open day 2: Laying the foundation: providing an opportunity for local community to physically take part in digging the foundations.

Open day 3: Completion of the three arches: removing the centering from under the arches has always been a cause for public celebration for historical bridges. It involves (a sometimes specular) knocking out of the wooden supporting frame once the keystone was been inserted and witnessing the arches standing up by themselves for the first time.

Open day 4: Completion of the bridge: once the roadway is completed.

Media interest

Information on the construction progress would be published in the local media to raise awareness.

Stage 4: Post-construction

Open-air exhibition space

The bridge, providing a safe crossing for pedestrians between the Clifton Suspension Bridge, the Zoo, the Downs and the Avon Gorge would automatically become a key strategic location for Bristol and a focal point for the community. The new iconic structure is hoped to further attract visitors and enhance local tourism. The proposed open-air space at the North side of the bridge would offer a suitable location for a meeting place, open-air exhibitions and educational purposes. For the use of the space public consultation would be carried out during the early stages of the project.

Professional training courses

Re-learning historical skills and having the know-how would enable future training opportunities for the local community as well as for professionals from Europe and further afield.

7) Vegetation assessment

Assessment of the botanical significance of the area.
R L Bland 7/6/11

The vegetation of the area that would be affected by the building of a footbridge north and south of Bridge valley Road.

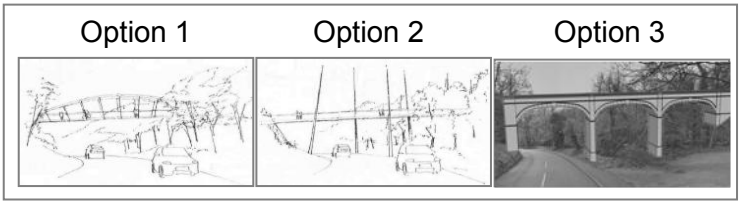
a) The South side
The cutting in which bridge valley road runs is topped by very dense, and very recent, scrub consisting of Ash, Sycamore, Turkey Oak, Holly, Holm Oak, Hazel, Common Elm, Wych Elm, Viburnum, Laurel, Bramble, Wild Privet, one Silver Birch, a couple of Yews and the unrotted stump of a Sequoia that died about a decade or more ago, and which must originally have been planted as a specimen among grass. The shade is very dense, and the ground flora is Ivy and a little Dogs Mercury. None of the trees are over 50 years old.
Outside on the grass are two fine Oak trees, one planted in 1902 to commemorate Edward VII coronation, and a much younger Oak planted five years ago by the Duke of Gloucester.

b) The North side, Fairyland.
This is also scrub, but much less dense, though equally young. It is mainly Ash, Sycamore, a little Elder at the edge, Hazel, Common Elm and Holly. The trees are very thin, the shade deep, and the ground flora mainly ivy and mercury and bramble. Again it is obvious that this scrub has developed inside the last fifty years. It spreads right up the slope until it meets the small section of grass on which cutting has been maintained, though there is a strong tendency during times when money is hard for the scrub to spread back over the paths, and some of this has only recently been cleared. Constructing an entrance route through this for the Bridge, and constructing a pillar to support it would do no damage.
Also on the North side, right alongside the road and in the grass is a magnificent double trunked Sycamore, with a total girth of 6 metres, and an implied age of 150 years.

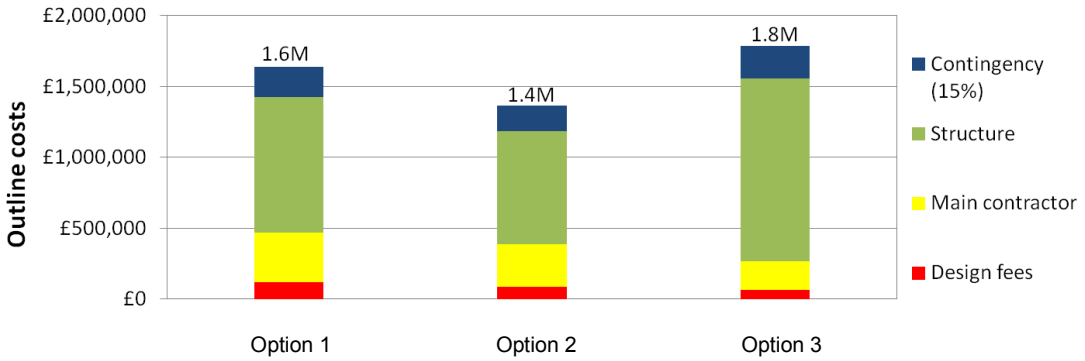
Conclusion
Provided the three significant trees were protected there are no botanical reasons to prevent construction in this area.

8) Outline costs

A rough estimate for possible building costs are indicated below. To provide a better comparison, costs for the proposed stone bridge (Option 3) is shown together with two alternative steel designs (Option 1 and 2).



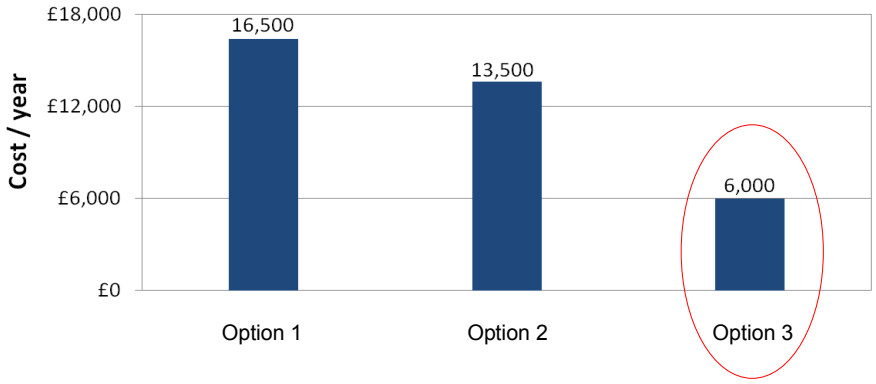
Building costs for a stone bridge is likely to be slightly higher (up to 30-40%) than a steel bridge.



Steel/concrete bridges are designed for up to 100 years with significant on-going maintenance costs. The proposed stone bridge is likely to last for 300 years with minimal maintenance costs.

Design life (years)	100	100	300

In terms of overall costs per year for the life of the bridge, the initially slightly higher building costs will be compensated by dramatically reduced long-term costs (ca. 1/3). The proposed design will also have a wide range of sustainable benefits as well as short- and long-term income generation opportunities (not included in the cost estimates) that will further reduce the additional investment and make the concept highly competitive against other bridge alternatives.



Bridge Valley Road - Bridge proposal

Possible funding routes
(Additional notes)

Initial estimates for the proposed stone bridge are similar to the cost of a concrete or steel bridge, ca. £1.5-1.8M. Funding would be sought from a range of funding sources, e.g.:

- Community grants
  - Lottery funding - Heritage grants (£100,000-2M)
- Educational grants
  - Lottery funding - Young Roots (£10-50,000)
  - Skills funding agency
  - Construction Skills
- Engineering/research grants
  - Engineering and Physical Sciences Research Council
  - Royal Society
- Sponsorship
  - E.g. possibility for sponsoring individual stones.

Please note that the above list is only indicative.