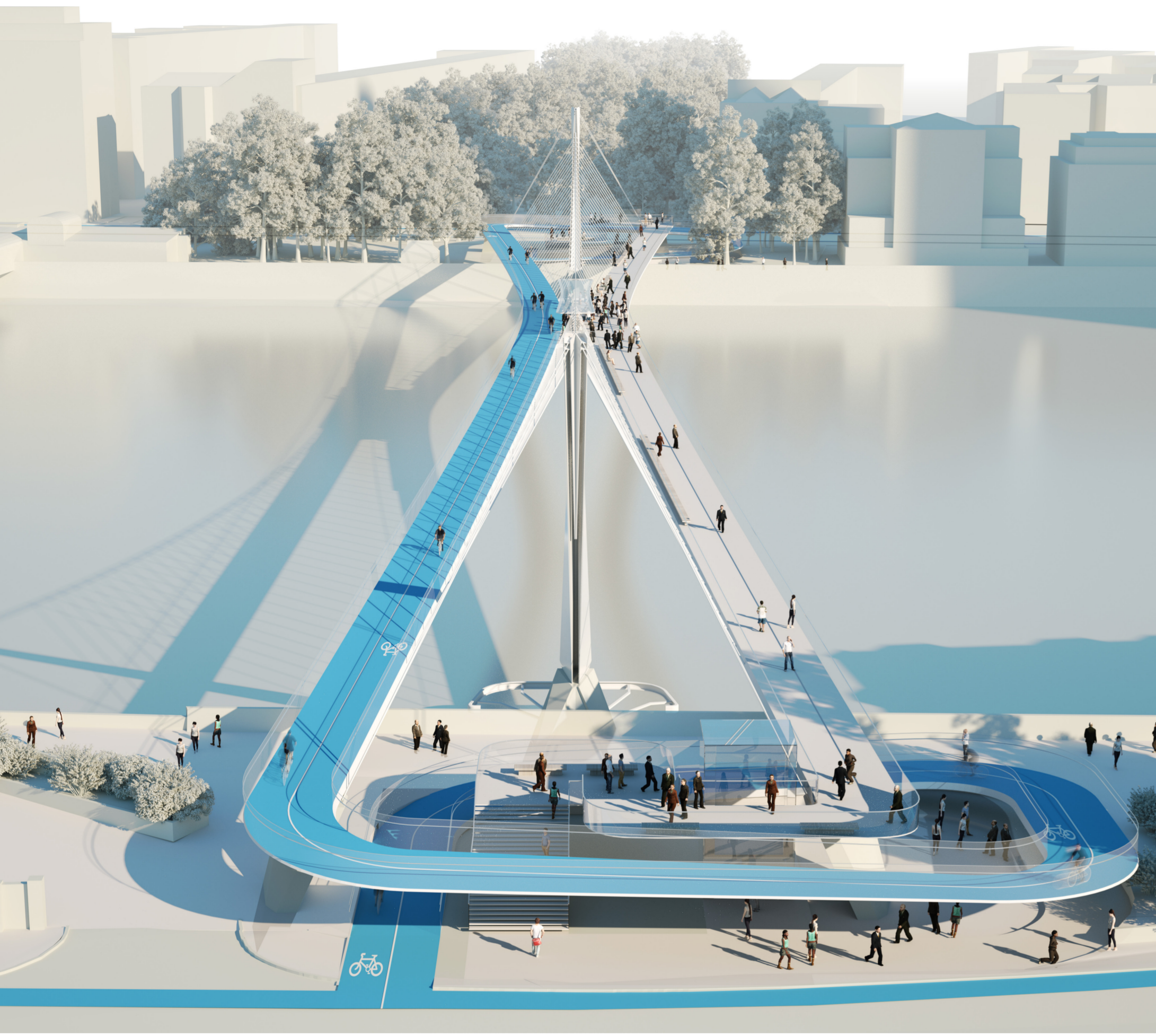


CHALLENGE 1: INTEGRATING CYCLE AND PEDESTRIAN TRAFFIC

Our concept is a practical and elegant solution which addresses the multiple design challenges inherent to the site. We have selected route Option 1 as we believe the logic of a direct connection between the proposed United States Embassy and Pimlico Garden / St George's Square Garden to be overwhelming.

The basic premise is that to accommodate a high volume of potential cycle traffic, the pedestrian and cycle routes must be segregated, and this is achieved by having two entirely separate pathways, with entirely separate approach ramps, stairs and lifts.



CHALLENGE 2: HEIGHT ACROSS THE RIVER AND THE INHERENT ACCESS ISSUES

To minimise the necessary gradient and length of ramps - and hence the overall height of the structure over the river and the physical impact on the landing areas - it is essential to keep the bridge deck as slender as possible. This is achieved by adopting a cable-supported solution: a monocable suspension bridge. A suspension bridge with a single main cable offers a highly distinctive landmark design, unique at this scale in the UK.

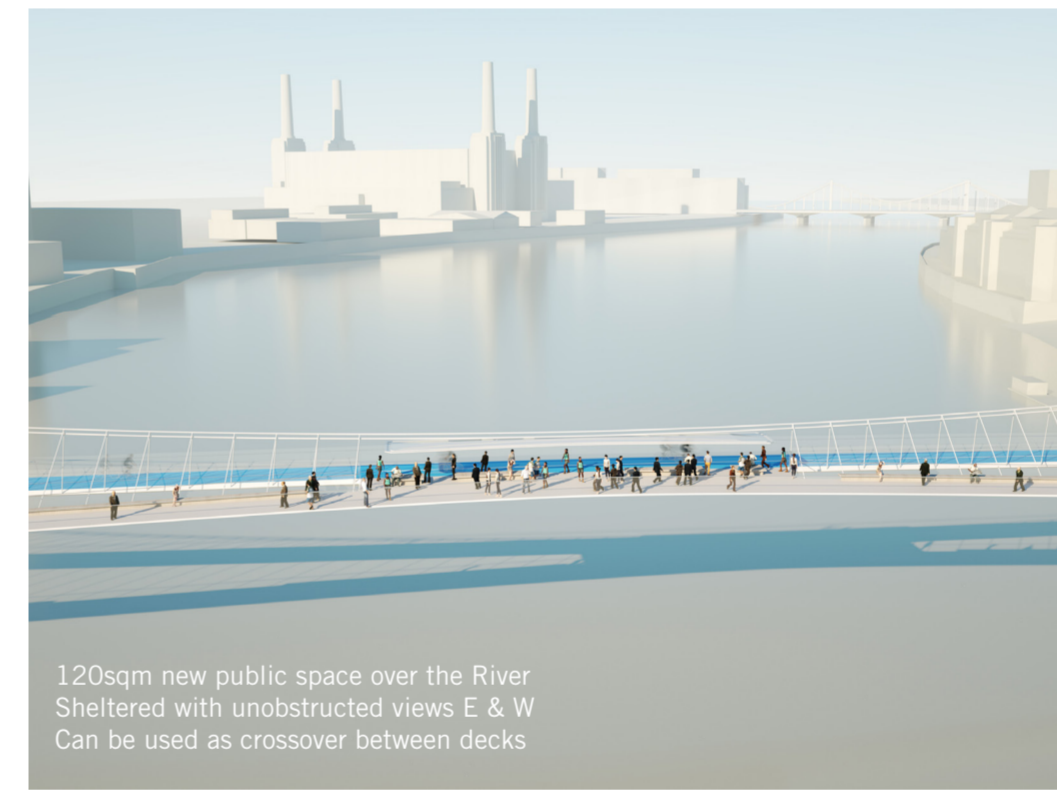
The challenge of accommodating the necessary ramp layouts led us to conclude that the pathways should originate in the "corners" of the site, allowing the vertical access stairs, ramps and lifts to "fill the gap". The plan layout of the bridge is derived from these constraints, with the two pathways "kissing" in the middle of the river to provide an attractive, dynamic layout and to satisfy the demands of structural stability.



CHALLENGE 4: PLACE MAKING ACROSS THE BRIDGE AND AT ITS LANDING POINTS

The 'kissing' layout described above also provides an appealing public space above the river with unobstructed views upstream and downstream. There is no requirement for hanger cables over this central section, so the main cable could be used to suspend a lightweight canopy - providing shelter and suggesting a number of possible uses: from a performance space to a 'mid-span market' - or simply a place to rest and take in the view.

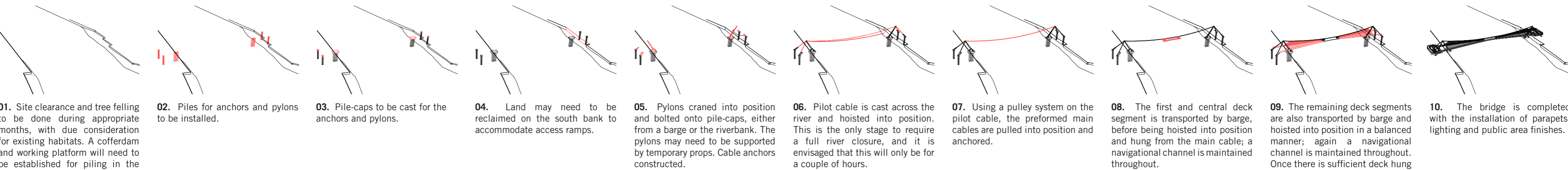
The generous access provision makes the landing points an opportunity for a broad range of public amenities as well as simply a means of transit. The shelter provided by the dynamic swooping cycle ramp could be an ideal location for bicycle storage, small scale retail startups or a public exhibition space. The lift and stair landings are ideal for picnic and seating areas: high amongst the trees with an elevated view across the River Thames.



CHALLENGE 3: PHASED CONSTRUCTION TO ENSURE THAT RIVER TRAFFIC CAN CONTINUE

We have depicted the bridge cables as anchored into concrete ground anchorages, and this solution minimises construction impact on the river navigation. Full river closure would only be required for a very brief period (an hour or so) while a pilot cable is towed across by a small tug. The anchorage structures are exploited in the design to also provide support for the cycle ramps and staircase, minimising clutter at the bridge ends.

The design also incorporates a degree of cable redundancy, so that the main cable and individual hanger cables can be replaced if required as part of future maintenance with no effect on future river navigation.



01. Site clearance and tree felling to be done during appropriate months, with due consideration for existing habitats. A cofferdam and working platform will need to be established for piling in the river.

02. Piles for anchors and pylons to be installed.

03. Pile-caps to be cast for the anchors and pylons.

04. Land may need to be reclaimed on the south bank to accommodate access ramps.

05. Pylons craned into position and bolted onto pile-caps, either from a barge or the riverbank. The pylons may need to be supported by temporary props. Cable anchors constructed.

06. Pilot cable is cast across the river and hoisted into position. This is the only stage to require a full river closure, and it is envisaged that this will only be for a couple of hours.

07. Using a pulley system on the river and hoisted into position, the preformed main cables are pulled into position and anchored.

08. The first and central deck segment is transported by barge, before being hoisted into position and hung from the main cable; a navigational channel is maintained throughout.

09. The remaining deck segments are also transported by barge and hoisted into position in a balanced manner; again a navigational channel is maintained throughout. Once there is sufficient deck hung from the main cables to stabilise the pylons, the temporary props and surrounding cofferdams are removed.

10. The bridge is completed with the installation of parapets, lighting and public area finishes.

