Nine Elms Pimlico Bridge Competition

Barber & Osgerby - Designers
Buro Happold - Engineers,
Turner & Townsend - Cost Consultants and Project Managment
Universal Design Studio - Architects
Movement Strategies - People Movement and Behavioral Design
Spiers & Major - Lighting

Designing a new bridge for London is a once in a lifetime opportunity.
In response to the brief we have created The Mirror Bridge, a design that is visually super-light, elegant and sculptural. Our bridge stands as an iconic landmark for the area. It is absolutely fit for purpose yet is sensitive to it's surroundings, actually reflecting them beautifully. It creates a salient gateway for river traffic.

The Mirror Bridge answers all the needs of pedestrians and cyclists. It provides a spine of permanent seating along its length, viewing platforms and a central 'pause' point. The elegant arch and thin mid section of the bridge stand as a strong silhouette from the river banks, whilst the underside of polished stain-less steel increases the lightness by reflecting the surrounding environment.

The bridge is supported by two sculpted trestles, they are brightly finished referencing other great engineered bridge structures. Combined, the Mirrored Arch and the bright trestle supports will create a striking link to both the estab-lished historical area to the North as well as the vibrant urban development on the Southern Bank.

The Mirror Bridge will not only change London's cityscape but more importantly people's lives and their experience of the city.

The proposed bridge is structurally a continuous pre-stressed beam of fabricated steel with 3 spans. The bridge will be supported on piled concrete foundation at both banks and two intermediate columns in the inter-tidal zone. Columns will support concealed bearings on the top which will be used for the bridge deck support. The bridge has a total width of 8.5m comprising 4m pedestrian lane and 4m of cycle lane and is slightly curved in plan.

Integrating Cycle and Pedestrian Traffic

The approach to the bridge is open plan and accessible from all linked routes, cycle paths and walkways. The lift and stairs are segregated between users groups but may be open to integration once usage and traffic volumes have been monitored.

When leaving the lifts platforms allow for safe merging of traffic and passage into the appropriate lanes across the bridge. We will use markings and texture of the deck finish to indicate cycle lanes and pedestrian areas.

Segregation is provided in the form of continuous seating running along 85% of the length of the bridge. This multifunctional barrier helps generate a feel-ing of inclusiveness between both modes by dividing use while maintaining a shared space. A break in the seating at the mid-point gives cyclists have the opportunity to stop and push / mount their bikes if preferred.

Height Across the River and Inherent Access Issues

Ensuring that the requirements for river traffic are met, allowing for optimum accessibility and limiting the gradients on the bridge was one of the greatest challenges of the brief.

The river traffic navigation zone of 150m x 10.91m has been maintained, as has a bridge deck gradient of between 1:21 and 1:20. We have provided 4m of cycle lane and 4m of pedestrian zone continually across the bridge.

The use of push ramps is a good solution for cyclists as they are faster, safer and more direct than 'ride-able ramps'. These are also beneficial for buggies and trolleys.

Phased Construction to Ensure that River Traffic can Continue

Our concept is developed with the following construction sequence in mind:

1. Enabling works: to allow access and the construction of bridge foundations.
2. River substructure work: two piers constructed in the river, approximately 15-20m from banks in the inter-tidal zone.
3. Construction of the bridge between banks and piers: steel segments of the bridge will be largely prefabricated off site to minimise requirement for site working and to reduce impact on traffic.
4. Construction of the central part of the bridge: prefabricated off-site and divided into transportable segments. Segments will be floated into place on barges and lifted to position.
5. Pre-stressing: the ends of the bridge at the river bank supports will be pulled down to achieve uplift movement at the mid-span and effectively pre-stress the bridge beam against its own self weight.
6. Installation of bridge finishes, access and landscaping works.

Place Making Across the Bridge and at it's Landing Points

Place making and user experience is key to our proposal, whether for regular commuters or for visitors enjoying a new perspective over the city.

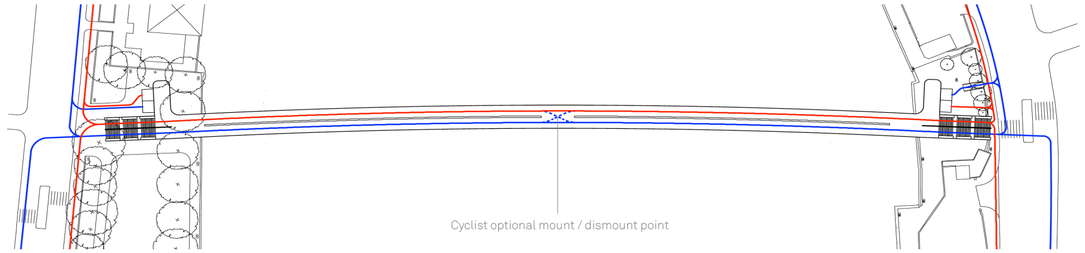
Two long continuous benches provide seating over 85% the length of the bridge. This allows for a high number of visitors to sit and is great for people of restricted mobility. Cyclists can use the seating without encroaching on pedestrian areas. This will be less used during peak commuter periods but becomes a real feature when traffic volume is lower.

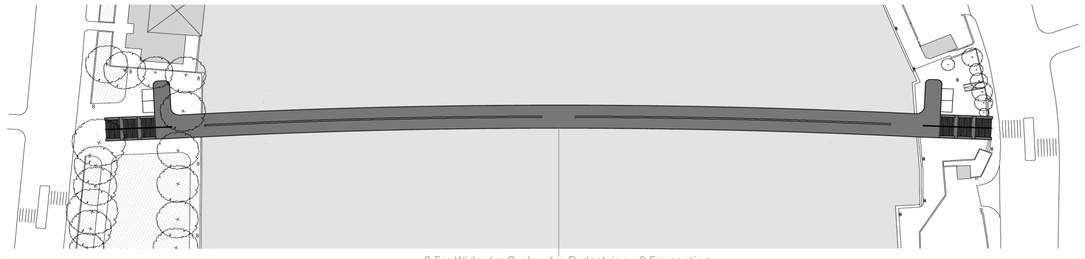
The open platform at the mid-point of the crossing makes this area a destination, encouraging users to stop and appreciate the view. At the top of the lift we have included platforms that provide ideal view points across the river and of the bridge itself.

The stairs at the ends of the bridge create landmark gateways while having a minimal foot print and low impact in the surrounding areas. The Thames path on the South bank is undisturbed as are Pimlico Gardens on the North bank.

Ingetrated Traffic

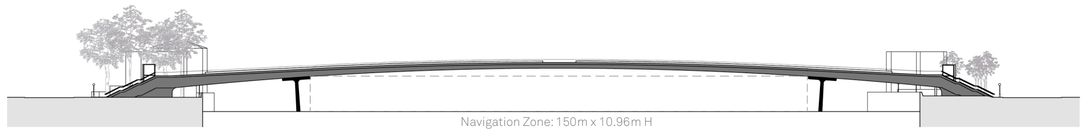
Cycle Route - Blue, Pedestrain Route - Red





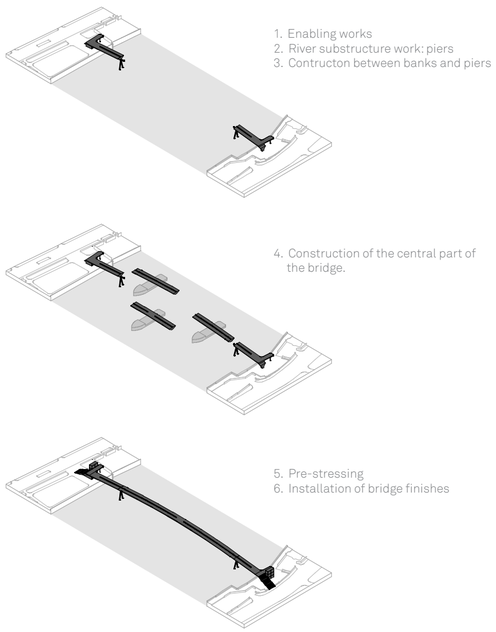
Plan

8.5m Wide: 4m Cycle - 4m Pedestrian - 0.5m seating

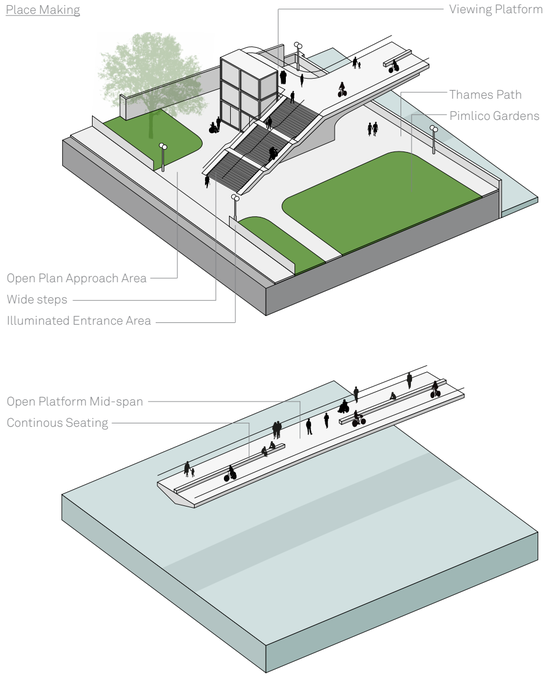


Elevation: View East

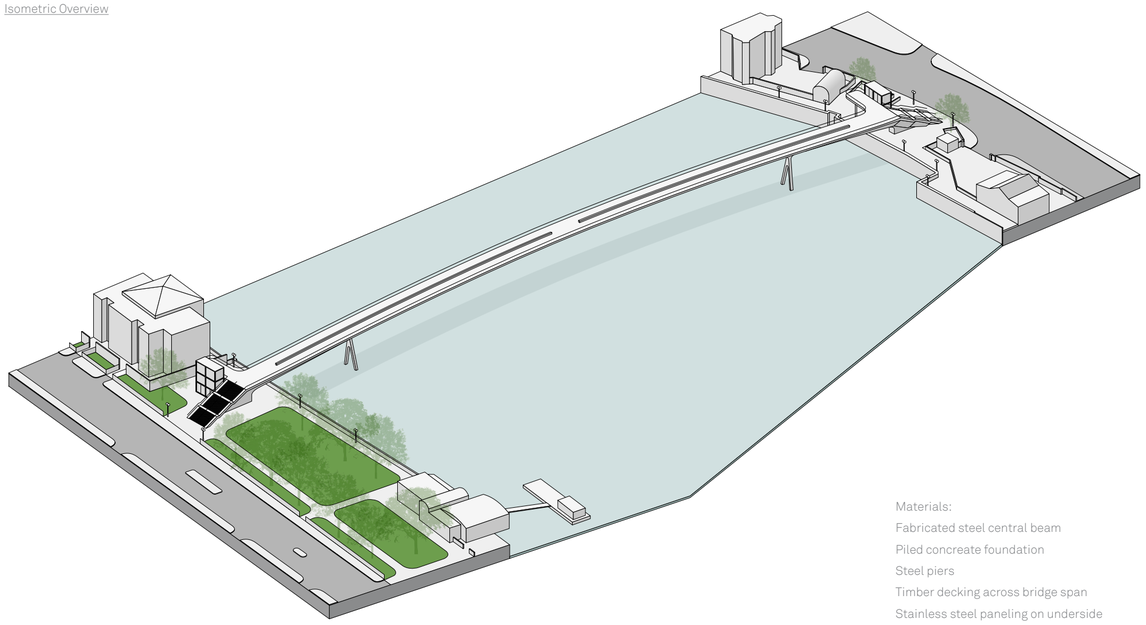
Phased Construction



Place Making



Isometric Overview



Materials:
Fabricated steel central beam
Piled concreate foundation
Steel piers
Timber decking across bridge span
Stainless steel paneling on underside
Ductal concrete walkways, steps and seating

No. 032

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The elegant arch and thin mid section of the bridge stand as a strong silhouette from the river banks, whilst the underside of polished stainless steel increases the lightness by reflecting the surrounding environment.

The bridge is supported by two sculpted trestles, they are brightly finished referencing other great engineered bridge structures. Combined, the Mirrored Arch and the bright trestle supports will create a striking link to both the established historical area to the North as well as the vibrant urban development on the Southern Bank.

The Mirror Bridge will not only change London's cityscape but more importantly people's lives and their experience of the city.

The bridge has a total width of 8.5m comprising 4m pedestrian lane and 4m of cycle lane and is slightly curved in plan. The gradient on the deck of the bridge is between 1:21 and 1:20 at the steepest point.

The proposed bridge is structurally a continuous pre-stressed beam of fabricated steel with 3 spans. Central span is dictated by local authorities requirements for a navigational zone defined in the technical background documents, 150m x 10.96m high

The bridge will be supported on piled concrete foundation at both banks and two intermediate columns in the inter-tidal zone. Columns will support concealed bearings on the top which will be used for the bridge deck support.

The bridge girder is pre-stressed by pulling the ends towards the banks which results in the uplift movement at the mid-span of the bridge and effectively pre-stress the bridge beam against its own self weight.