



Leonor Princess footbridge

Sevilla, Spain / 2023-2025

Owner
Client
Scope
Architect

KKH Property Investors
KKH Property Investors
detailed design
Kengo Kuma & Associates

The Guadalquivir River has been, throughout history, the fundamental axis of the geographic setting that shapes the urban landscape of Sevilla. Along its course, numerous bridges have, since the mid-19th century—when the first permanent structure, the Isabel II Bridge, was built—woven essential connections between its banks, combining functionality and identity and showcasing the construction artistry of each era. In this context, the new footbridge between the La Vera complex and the left bank of the Alfonso XIII basin is conceived as a work that not only fulfills a need for connection but also represents a technical challenge and an exercise in integrating a complex structure—though one of seemingly simple appearance—into such a special place.

The design of this footbridge meets extreme engineering requirements: it must span the basin with a 100-meter clear distance without intermediate supports and maintain a minimal depth of only 1.30 m at mid-span so as not to obstruct navigation or introduce any structural elements above the deck that could interfere with views of the city from the riverbanks.

The extraordinary slenderness of the bridge (the ratio between structural depth and span is 1/77, an exceptional value) is achieved through two main inclined blades that shorten the effective span of the girder, though at the cost of transmitting significant horizontal thrust to the foundations. This causes the structure to behave like a very shallow arch (with a rise-to-span ratio of 1/15). To partially counteract the horizontal thrust created by the two principal blades, additional inclined elements are set toward the riverbanks. Together, this small number of components forms the system designed to meet the site constraints with maximum structural efficiency, giving the bridge its distinctive image.

Thus, the shapes that Sevillians and visitors will admire once the footbridge is complete are the direct result of an engineering design that precisely responds to the forces generated by the structure's considerable span.

If achieving this harmony poses a technical challenge, building it in such a sensitive setting is no less demanding. Accordingly, as outlined in this project, the construction is planned to minimize disruption to the area and reduce environmental impact to the greatest extent possible.

The design of the footbridge follows the tradition of the two bridges that flank and accompany it: the San Telmo Bridge, designed by civil engineer José Eugenio Ribera (1931), and the Los Remedios Bridge, by civil engineer Carlos Fernández Casado (1968). Both structures are outstanding examples of the finest engineering of their time.

The project seeks to create a worthy companion to those magnificent bridges, guided by the same principles that inspired their design. As with those earlier works, the forms of the new footbridge arise from the engineering realm, where essence and appearance go hand in hand when executed well. And, like those structures, the bridge aspires to respect its setting and to become part of the magnificent collection of bridges that line the former course of the Guadalquivir as it passes through historic Sevilla.



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