

Urban ambiance, or *problem* and *virtue* in contemporary infrastructures: the case of the *National Coach Museum*

Ambiência urbana, ou problema e virtude nas infraestruturas contemporâneas: o caso do Museu Nacional dos Coches

Ambiente urbano, o problema y virtud en las infraestructuras contemporâneas: el caso del Museo Nacional de Coches

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Abstract

This article analyzes the *National Coach Museum*, designed by Paulo Mendes da Rocha with MMBB Arquitetos and Bak Gordon Arquitectos (2015), focusing on the relationship between urban context and design autonomy. The objective is to understand how the project articulates architectural and urban solutions for connectivity issues. The methodology combines analytical redrawing of primary sources, cross-sections, and an interview with engineer Rui Furtado (Afa Consult). Cross-sections are adopted as a tool to understand urban spatialities, linked to a Brazilian design tradition. The analysis reveals that the project operates through three elements – site plan, walkway, and new ground-level connections – that humanize infrastructural transitions. Results demonstrate how contemporary Brazilian architecture, particularly in Mendes da Rocha's work, engages with context through the section, contrasting with Portuguese architecture's plan-based logic. The study highlights urban transitions as key components in shaping urban ambiances and supports the section as a methodological device in architectural design research.

Keywords: Paulo Mendes da Rocha; MMBB; Ricardo Bak Gordon; Context; Autonomy; Transpositions.

Resumo

O presente artigo analisa o *Museu Nacional dos Coches* (2015), projeto de Paulo Mendes da Rocha com MMBB Arquitetos e Bak Gordon Arquitectos, a partir da relação entre contexto urbano e autonomia projetual. O objetivo é compreender como o projeto articula soluções arquitetônicas e urbanísticas para problemas de conectividade. A metodologia combina redesenho analítico de fontes primárias, elaboração de seções em corte e entrevista com o engenheiro Rui Furtado, da Afa Consult. As seções em corte constituem instrumento de compreensão das espacialidades urbanas, vinculando-se a uma tradição projetual brasileira. A análise mostra que o projeto opera por três elementos articulados – implantação, passarela e novas conexões urbanas no térreo – que humanizam as transposições infraestruturais. Conclui-se que a arquitetura contemporânea de Mendes da Rocha transforma o contexto por meio do corte, em diálogo com a tradição portuguesa, pautada na planta. O estudo evidencia as transposições urbanas como elementos estruturantes das ambiências e reforça a seção como ferramenta metodológica para a pesquisa em projeto de arquitetura.

Palavras-Chave: Paulo Mendes da Rocha; MMBB; Ricardo Bak Gordon; Contexto; Autonomia; Transposições.

Resumen

Este artículo analiza el Museo Nacional de Coches, proyecto de Paulo Mendes da Rocha con MMBB Arquitetos y Bak Gordon Arquitectos (2015), desde la relación entre contexto urbano y autonomía proyectual. El objetivo es comprender cómo el proyecto articula soluciones arquitectónicas y urbanas para los problemas de conectividad. La metodología combina el rediseño analítico de fuentes primarias, la elaboración de secciones transversales y una entrevista con el ingeniero Rui Furtado, de Afa Consult. Las secciones transversales se adoptan como herramienta para comprender las espacialidades urbanas, vinculadas a una tradición proyectual brasileña. El análisis muestra que el proyecto actúa mediante tres elementos – implantación, pasarela y nuevas conexiones urbanas en planta baja – que humanizan las transiciones infraestructurales. El estudio demuestra que la arquitectura contemporánea brasileña transforma el contexto mediante la sección, en diálogo con la tradición portuguesa basada en la planta, y refuerza el valor metodológico de la sección para la investigación en diseño arquitectónico.

Palabras clave: Paulo Mendes da Rocha; MMBB; Ricardo Bak Gordon; Contexto; Autonomía; Transposiciones.

1 Introduction

The *National Coach Museum*, also known as the *Coach Museum*, was designed by Paulo Mendes da Rocha in collaboration with the Brazilian firm MMBB Arquitetos and the Portuguese firm Bak Gordon Arquitectos. It was inaugurated in 2015 in the Belém district of Lisbon, Portugal. The project involved moving the collection of the former National Coach Museum, which was originally housed in the riding arena of the Belém Palace, to a new arts center located at the eastern end of the city's Monumental Axis. This project is part of the governmental program *Belém Redescoberta* ("Rediscovering Belém"), an urban initiative with cultural and tourist aims launched by the Portuguese Ministry of Economy and Innovation in 2008.

As Solot (2020) notes, Paulo Mendes da Rocha's work stands out for its originality and diversity of technological and formal solutions, as well as its impeccable conceptual thread. This confirms the coherence between thought and construction that marks his trajectory. This conceptual unity, which crosses different scales and contexts, is evident in the *Coach Museum* as a synthesis of technique, structure, and public space. The work reaffirms the architect's particular conception of the project as a territorial transformation – a material, political, and poetic operation. Stefany Trojan (2021, p. 5) contributes to this debate by arguing that the international circulation of contemporary architecture occurs amid a tension between cultural exchange and commodification. She describes this as a "phenomenon of commercial pressure that tends to turn everything into a commodity."¹ In this respect, the *Coach Museum* gains relevance by opposing that logic; its foreign presence on Portuguese soil does not impose an outsider's aesthetic but offers a critical and solidarity-based view of the place. This reaffirms architecture's role as cultural mediation rather than symbolic merchandise.

This work's significance goes beyond its museological function to enter the contemporary debate on Brazilian architecture abroad and its capacity to engage with established urban contexts. Pisani (2013a, p. 92) notes that Mendes da Rocha's museographic work shows that "architecture is, first and foremost, one and unique; only secondarily does it differentiate and adapt to meet various needs." This statement encapsulates the logic of the *Coach Museum* project, in which section and topography serve as instruments of spatial integration, creating a connection between the building and the urban landscape.

Within the scope of Paulo Mendes da Rocha's legacy, the *Coach Museum* exemplifies how contemporary Brazilian architecture employs specific design strategies, particularly those based on the section as a spatial design tool. This strategy, recurrent in his work, is not limited to graphic representation but rather constitutes a mode of thought that translates the relationship among structure, topography, and use. As Catherine Otondo (2013) notes, Mendes da Rocha uses the drawing of the section to understand built space and design the bodily experience in the city.

This article is specifically situated in the field of architectural design studies, a distinct investigative domain within architecture and urbanism that has consolidated over time. Unlike approaches that privilege typological or stylistic analyses, this research adopts a perspective that understands the design project as a form of thought – that is, as a cognitive process in which drawing, analysis, and redrawing form the basis of theoretical reflection. This conception aligns with what Otondo (2013, p. 14; 16) identifies in Mendes da Rocha's

¹ This and all other non-English citations hereafter have been translated by the authors.

work: “To draw is to think; it is a means of handling space.” According to Otondo, drawing is not mere representation but rather “a privileged instance on which the action of projective thought materializes.”

This relationship between drawing and ideation aligns with Peter Eisenman’s (1970) conceptual stance, which asserts that architecture communicates not through what it represents, but through the manifestation of its internal logic. This understanding positions the architectural project as an autonomous discourse capable of producing knowledge about space. Adopting redrawing and section as analytical instruments aligns this study with an investigative tradition that views drawing as a means of critique and thought rather than mere technical translation.

The aim is to contribute to the contemporary methodological debate by proposing the articulation of graphic analysis, redrawing, and territorial reading as modes of projective thought. This approach is shared by researchers associated with the Paulista School of Architecture, including Francisco Spadoni (2024), Daniele Pisani (2013a, 2013b), and Manuel Solà-Morales (2008). These researchers acknowledge the importance of drawing and sections as essential tools for architectural reasoning.

At the same time, this text’s central idea that space is an instance of sharing and social experience is grounded in the work of Stavros Stavrides (2019, p. 5), who writes that “Space is considered both the locus of experience and a powerful means for constructing thoughts [...]” According to Stavrides, collective spatial practices produce fragments of an “emancipatory future,” in which the common is manifested through forms of coexistence and shared territory use. Mendes da Rocha’s work fits within this dimension of the “common space” by proposing public infrastructure that connects urban levels and crosses infrastructural barriers. In this space, architecture, and urbanity fuse into an experience of cohabitation.

The concept of *ambiance*, as discussed by Jean-Paul Thibaud and Rachel Thomas (2004, p. 102-103), also informs the proposed reading here. For these authors, *ambiance* is a sensitive understanding of the city based on the shared perceptual experience between urban space and its inhabitants². This sensory understanding is particularly relevant to analyzing the *Coach Museum*, whose spatiality is constructed through the relationship between the elevated walkway, the urban ground, and the horizon of the Tagus River – a constellation of situations that articulates the structural dimension and the perceptual experience of space.

This article aims to contribute to architectural design research by analyzing the *Coach Museum* and understanding how the project establishes a dialogue between contextual problems and design virtues. The article aims to highlight the projective strategies that characterize contemporary Brazilian architecture in international contexts and demonstrate the efficacy of redrawing and sections as architectural investigation tools.

²In the original, Thibaud and Thomas (2004, p. 102-103) ask, “*D’une part, qu’est-ce qui fait l’unité sensible d’une ville? D’autre part, en quoi cette unité procède de la rencontre d’une ville et de ceux qui l’habitent ?*” [“On the one hand, what constitutes the sensory unity of a city? On the other hand, how does this unity arise from the encounter between a city and its inhabitants?”].

Further on (p. 103), the authors state, “*Premièrement, il en va de l’expérience sensible de la ville elle-même. Si toute ambiance convoque nécessairement le registre de la sensorialité, celui-ci repose sur des attitudes perceptives diverses et variées*” [“First, it concerns the sensory experience of the city itself. If every *ambiance* necessarily calls upon the register of sensoriality, this depends on diverse and varied perceptual attitudes”].

This museum was chosen as the object of study due to the complexity of its urban insertion and its exemplary demonstration of the dialogue between contextual problems and projective virtues. The context in which it was built reveals multiple layers of complexity, including the altered natural geography along the Tagus waterfront due to successive landfills, the relationship with the historic surroundings of Belém, and the issue of road-rail transpositions that fragment the urban fabric. These issues constitute what we call the “problem” – not in a derogatory sense, but rather as constraints that challenge the architectural intervention. In contrast, “virtue” refers to the spatial and urban qualities manifested in the project’s response and materialized in the site plan, designed walkway, and new ground-level urban connections. This concept, termed “virtues” here, also appears in Denise Chini Solot’s book *Paulo Mendes da Rocha: Horizonte Urbano*, which analyzes the *Museum* project from the perspective of flows, and states:

Faithful to architecture’s commitment to urban space, the determining references for placing the building blocks on the site are clear: locations for boarding and alighting from public transportation, commercial areas, restaurants, and well-known tourist attractions, such as the historic architectural heritage. (Solot, 2020, p. 221).

To understand the relationship between *problem* and *virtue*, the article presents a methodology based on three complementary strategies. First is the redrawing of primary sources, including plans, sections, and technical details provided by Afa Consult, the firm responsible for the structural and installation projects. Redrawing, as defined by Otondo (2013), is not merely graphic reproduction but rather an analytical process that enables comprehension of the project’s structural, spatial, and urban logics. This methodological strategy is similar to the graphic analysis work of researchers such as Francisco Spadoni (2024), who recognizes redrawing as a tool that is “not only practical, but also reflective” for understanding contemporary architecture.

The second strategy involves producing cross-sections from analytical and prospective standpoints and adopting them as privileged instruments for understanding the urban fabric and its spatialities. This choice is justified by the specificity of Brazilian architecture, whose design process often bases its design on sections, in contrast to architectural traditions that privilege plans. Sections reveal topographic relations and connections between different urban levels, as well as the implantation strategies that characterize Paulo Mendes da Rocha’s intervention.

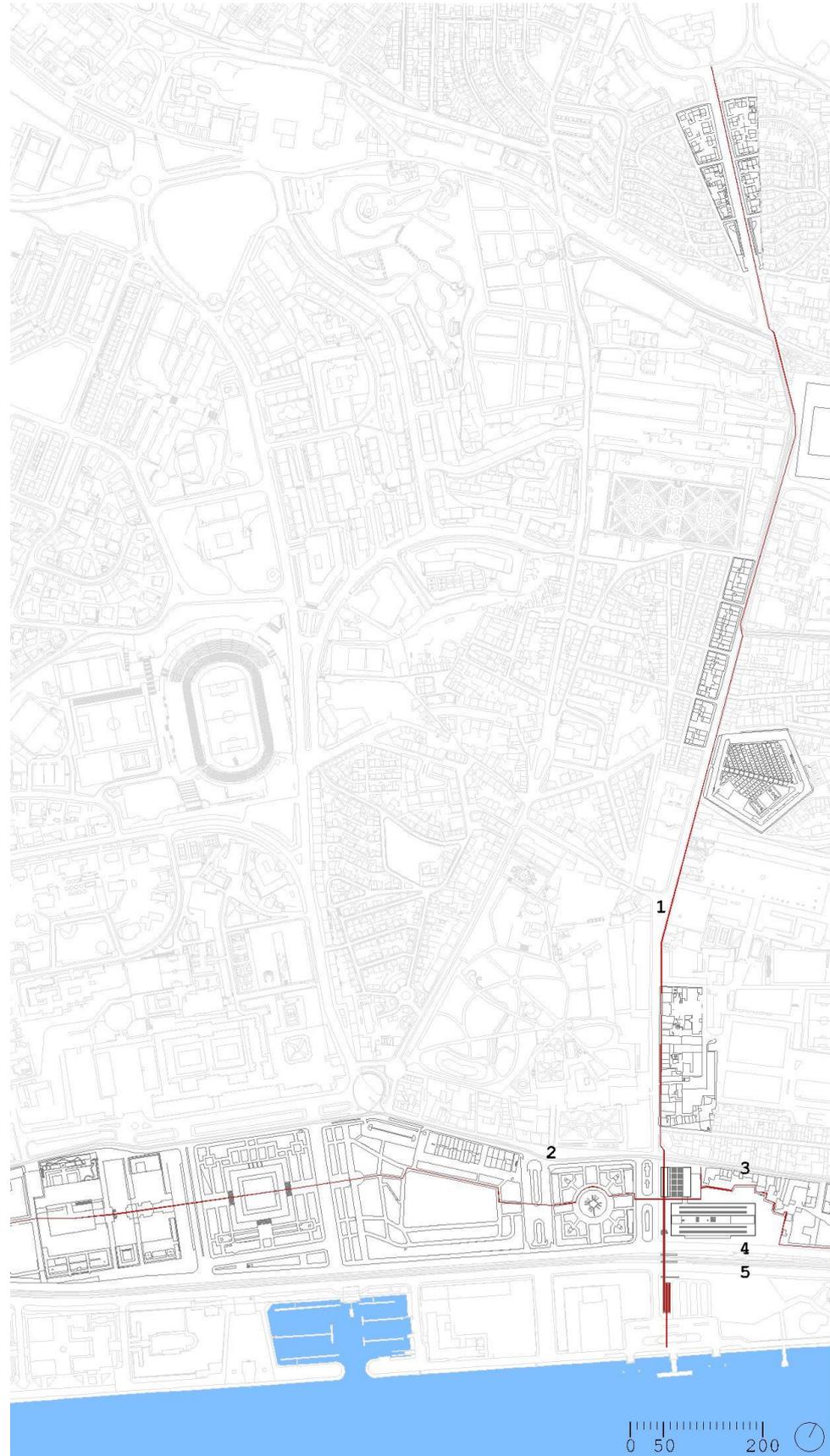
The third strategy consisted of an interview with Rui Furtado (2024), an engineer and partner-director at Afa Consult who was responsible for the *Museum*’s structural and installation projects. This primary source complements the graphic analysis by providing information on the design process and decisions made. The combination of graphic analysis and technical testimony provides a more comprehensive understanding of the design strategies and their materialization.

Finally, the article organizes its investigation around two axes of analysis: “Stitching” and “Transverse” (Figure 1). The *Stitching* axis refers to a longitudinal route that develops from the existing, high-quality urban pavement and alternates between the built environment and the squares that comprise Belém’s Monumental Axis. This axis illustrates how the project fits into the sequence of public spaces and monuments that characterize the region, establishing continuities and ruptures with the existing urban fabric. The *Transverse* axis, perpendicular to the first, analyzes the connections between Rua da

Ajuda and the riverfront. It shows how the project resolves the transposition of road and rail infrastructure via the designed walkway.

This differentiation reflects a particular approach to urban intervention strategies. The *Stitching* axis addresses urban continuities and the permanence and qualities of existing public spaces. The *Transverse* axis addresses necessary ruptures, infrastructural transpositions, and connections that overcome the fragmentation of urban fabric. Both axes converge on the concept of the project as an operational system that connects different urban scales, from pedestrian to metropolitan infrastructures. Thus, the distinction between the axes reflects a conception of the city as a field of shared experiences, not only a spatial organization. As Stavrides (2019, p. 8) proposes, “experience is socialized and socialization develops in time and ‘takes place’ in space through shared experiences.” The *Coach Museum* can be understood as an urban device that promotes new conditions of sociability – an ambiance that is simultaneously structure and life.

Figure 1: Site plan of Belém with the study axes indicated.



Legend: 1. Rua da Ajuda. 2. Rua de Belém. 3. Rua da Junqueira. 4. Av. da Índia. 5. Av. Brasília.

Source: Authors, 2025.

2 The *National Coach Museum* project

The *National Coach Museum* consists of two structures: a main exhibition block and an annex. The pedestrian walkway, which connects the *Museum* to the waterfront, extends perpendicularly from the annex. According to engineer Rui Furtado³, partner-director at Afa Consult, the firm responsible for the structural and building systems design, the walkway was included in the initial project briefing. However, Paulo Mendes did not treat it as a detached element but rather integrated it into the *Museum*'s architecture.

As a guiding principle of the project, the architects elevated the large exhibition volume of the *Museum*, freeing the ground floor for public use.

In an interview granted to the authors, Furtado (2024) stated that Mendes da Rocha presented him with a project whose structural concept was virtually complete. Furtado, who has known Mendes da Rocha since 2003, has always recognized a clear structural logic in the architect's work. Initially, Mendes proposed a concrete structure, but Furtado suggested a steel structure, which would be lighter – an important consideration in locations where structures must be designed to withstand seismic activity.

The main block, a 126-meter-long by 48-meter-wide rectangle, rests on fourteen 1.8-meter-diameter circular concrete columns. The structure spans 42 meters longitudinally, with 21-meter cantilevers at both ends. Transversely, spans of 18, 12, and 18 meters define the internal spaces. Furtado explained that the decision to use fewer support points on the ground was due to the sandy landfill soil of the site; fewer columns make foundation work more efficient.

The ground-floor columns are extensions of the concrete foundations. Upon these columns rests the large steel truss structure that Ricardo Bak Gordon says Paulo Mendes liked to call the “case.”⁴

Designed to achieve the building's large spans, the steel trusses appear on the four façades and in the central nave. This clad structure is not visible to visitors, only the openings between spaces and the façades hint at its presence. This structural solution results in a series of vast exhibition halls measuring 125 meters in length, 18 meters in width, and 8.5 meters in height that are entirely free of columns. The central columns of the building are located within the nave, where vertical circulation areas and support areas, such as restrooms, are concentrated.

The project concept stipulated that the annex should have a markedly different appearance and structure from the main volume, as in Renaissance constructions. When Furtado asked Mendes da Rocha about the contrast between the structural systems of the main block and the annex, Paulo Mendes replied ironically, “Which of these columns do you think is different? This one or that one?”

The annex structure consists of two concrete frames and four trusses on the upper level. These trusses define the enclosed mezzanine areas originally intended to house a restaurant and a library. The auditorium, supported by its own structural system, rests directly on the ground. The starting point of the pedestrian-and-cyclist ramp that crosses Avenida da Índia, connects to the Belém railway station, crosses Avenida Brasília, and

³ Interview granted to the authors (Furtado, 2024).

⁴ Interview with Ricardo Bak Gordon for the podcast *No País dos Arquitetos*, episode 9.

descends back to ground level at the Belém Ferry Terminal is adjacent to the auditorium. Paulo Mendes originally proposed a circular parking structure with a continuous ramp, but it was never built.

The pedestrian connection invites people to move through the *Museum* complex without requiring them to enter. It begins, rises, and “curls up”⁵ within the building. Its structure consists of three parallel H600 beams, the same type used in the edifice, and central columns that span between 23 and 30 meters. Elevator towers were also planned to serve accessibility and structural bracing purposes. According to Furtado, the original intention was for the walkway to align with the elevation of the *Museum*’s exhibition level. However, height regulations over the railway and roadway required raising the walkway, which is now 7.5 meters above ground. Therefore, a short ramp was added at the final stretch to reach the *Museum*’s elevation at the annex entrance.

While preserving and displaying historical artifacts, the *Museum*’s architecture creates spaces that encourage interaction and reflection, integrating harmoniously into the urban fabric. As Amphoux *et al.* (1998, p. 50) observe, “ambiance is not only an environmental state or an expected outcome” but also “a condition whose production and reproduction we control,” suggesting that preserving and adapting the *Museum* must involve a dynamic, participatory process.

3 The relationship between context and the project

Two events are worth noting here: the presumed elevated pedestrian route continuing from Calçada da Ajuda to the gardens by the Tagus at the pier (crossing Avenida da Índia, Avenida Brasília, and the railway), and the set of preserved buildings (Belém Redescoberta) along Rua da Junqueira. The buildings’ backs face the museum area, and the former Rua do Cais da Alfândega Velha, lending great charm to the place. These initiatives stimulate small local and private commerce. These are the roots of the project we are presenting today, together with drawings and model images. (Mendes da Rocha, 2008, p. 1).

In this passage from Paulo Mendes da Rocha’s project brief on the *Coach Museum*, two pivotal points to the discussion are identified: the proposed pedestrian walkway and the project’s relationship with the manor houses along Rua da Junqueira.

These two connection points were fundamental to composing the volumes of the *Coach Museum* project. One axis runs longitudinally along the Monumental Axis of Belém, cuts through the site, and connects with Rua do Cais da Antiga Alfândega. We call this the *Stitching Axis*. The other one, perpendicular to the first and called the *Transverse Axis*, links Rua da Ajuda with the riverfront via a new pedestrian walkway. This walkway facilitates crossing the avenues and connects the city to the railway station and the Tagus River. The first axis separates the main building from the annex, creating a portico entrance that leads pedestrians and tourists from the area into the small Museum Square. A series of stairs and ramps then link the Museum Square to the smaller squares and widened sections proposed for Travessa do Cais da Antiga Alfândega and Rua do Cais da Antiga Alfândega.

⁵ Term employed by Ricardo Bak Gordon in an interview for the podcast *No País dos Arquitetos*, episode 9.

3.1 Stitching Axis

3.1.1 The Monumental Axis

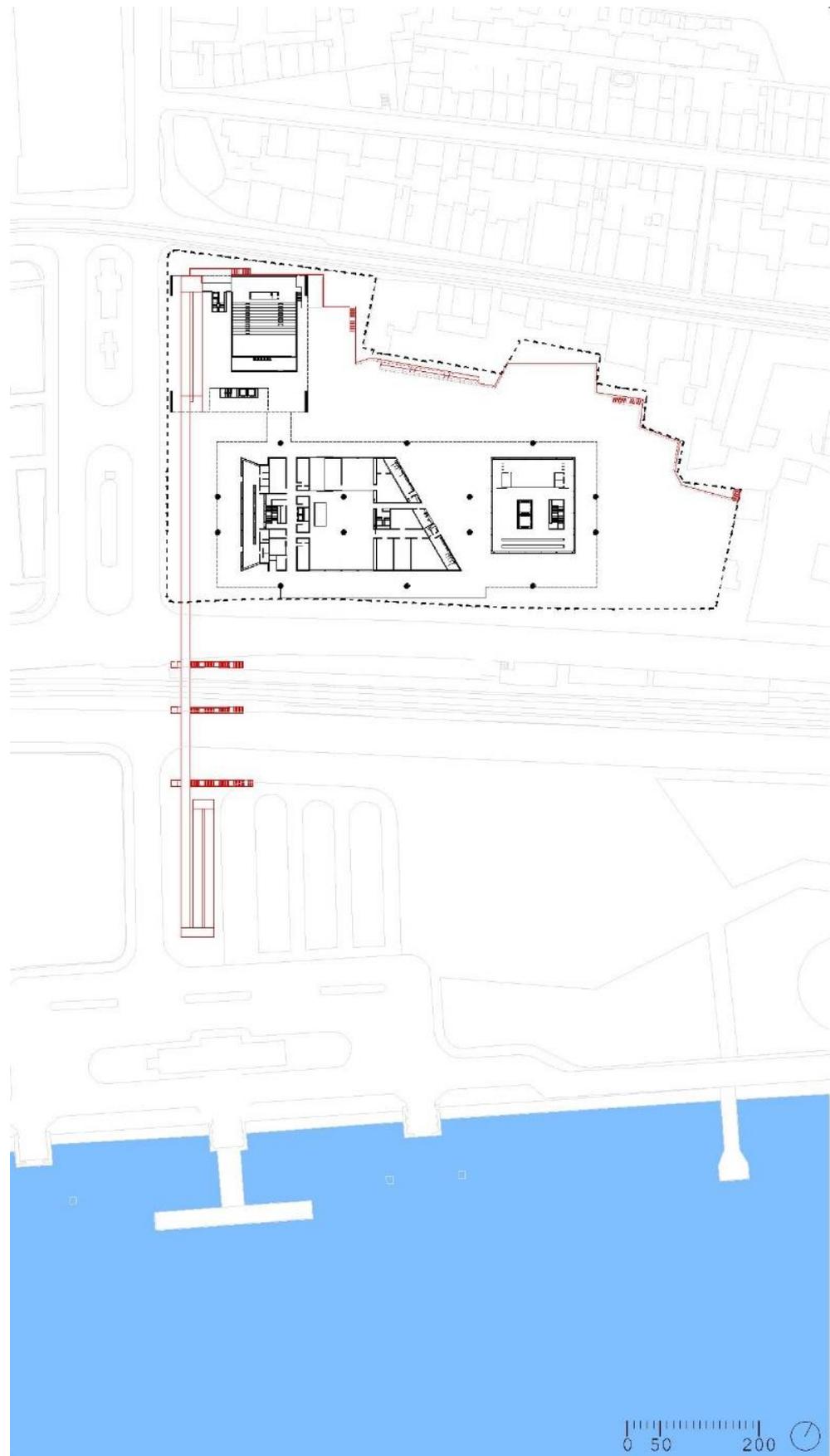
The Monumental Axis of Belém was created over many centuries. The Tagus riverfront was altered by successive landfills. The Monumental Axis is a linear area along the riverfront composed of significant constructions that are of great public importance to Belém and Lisbon. At the westernmost end of the Axis stands the Belém Tower (1514). Next is the *Centro Cultural de Belém*, designed by architects Manuel Salgado and Vittorio Gregotti. It was built to host the Portuguese Presidency of the European Union in 1992 and was converted into a cultural center the following year. Across from the cultural center is the Jerónimos Monastery (1501), one of the first major constructions in the area. The monastery faces the Jardim da Praça do Império, which was designed for the Great Exhibition of the Portuguese World in 1940. Other plazas and public parks along this axis include the Jardim Vasco da Gama (constructed between 1983 and 1985) and the Jardim Afonso de Albuquerque, both of which are remnants of the 1940 exhibition. Finally, within the current *Coach Museum* area stands the Palácio Nacional de Belém (1726), which housed the collection before the construction of the new building.

To the north of the axis are Rua de Belém, home to Portugal's most famous pastry shop known for its custard tarts, and Rua da Junqueira. To the south are Avenidas da Índia and Brasília, with the railway line running between them. Beyond the avenues, along the riverfront and in the order of the Belém Tower, are the *Padrão dos Descobrimentos*, a monument built for the *Great Exhibition of the Portuguese World* in 1940; the *Museu do Povo* (Museum of Popular Art, 1948), reworked from the former "Section of Popular Life" pavilion of the 1940 exhibition; the *Terreiro das Missas*, where ships received blessings before departing for cod fishing in the last century; the Belém Ferry Terminal, inaugurated for the 1940 exhibition; and the *Museum of Art, Architecture, and Technology* (MAAT), designed by AL_A in 2016.

3.1.2 Rua da Junqueira, Travessa do Cais da Antiga Alfândega, and Rua do Cais da Alfândega

Rua da Junqueira was once part of Lisbon's river beach in the 17th and 18th centuries. After repeated landfill operations in the region, it became a street of stately townhouses and large buildings, many of which survive today. The constructions are quite heterogeneous, lacking a rigid alignment of cornice heights and openings. Small alleys provide access to buildings in the interior of the block at some points along this street. This is the case with Travessa do Cais da Antiga Alfândega and Rua do Cais da Alfândega; in these areas, the mansions on Rua da Junqueira have two façades (Figure 2).

Figure 2: Ground-floor plan showing the *Coach Museum*. Lot boundary and walkway indicated.



Source: Authors, 2025.

3.2 Transverse Axis

3.2.1 Rua da Ajuda

Rua da Ajuda, also known as Calçada da Ajuda, is an important route that connects the Belém and Ajuda neighborhoods. It links the *Palácio Nacional da Ajuda* (1974) to Rua da Junqueira, connecting the neighborhood's interior to its riverfront. The palace currently houses the *Museum of the Royal Treasury*. Conservation and restoration work was completed on the palace in 2018 by architect João Carlos Santos. The street also contains the *Jardim Botânico da Ajuda* (1768) and several military structures.

3.2.2 The Belém Riverfront

The Belém riverfront holds enormous historical significance for Portugal and the world. Fifteenth-century maritime expeditions, including Pedro Álvares Cabral's voyage to Brazil, departed from there. The quay received and shipped goods to continental Europe. Over the years, the area underwent successive landfills and was converted into an extensive public space after the Great Exhibition of the Portuguese World in 1940. The exhibition was held to commemorate the foundation of the Portuguese state in 1140 and the restoration of independence in 1640, as well as to celebrate the Estado Novo.

4 The relationship between the *Coach Museum* and the *Transverse* and *Stitching* axes

As Jean-Paul Thibaud and Rachel Thomas (2004) highlight, a city's particular ambience results from the complex interaction between its physical elements and its inhabitants. In the context of the *Coach Museum*, this interaction is evident in the physical presence of the historic coaches and in how these artifacts are incorporated into contemporary city life.

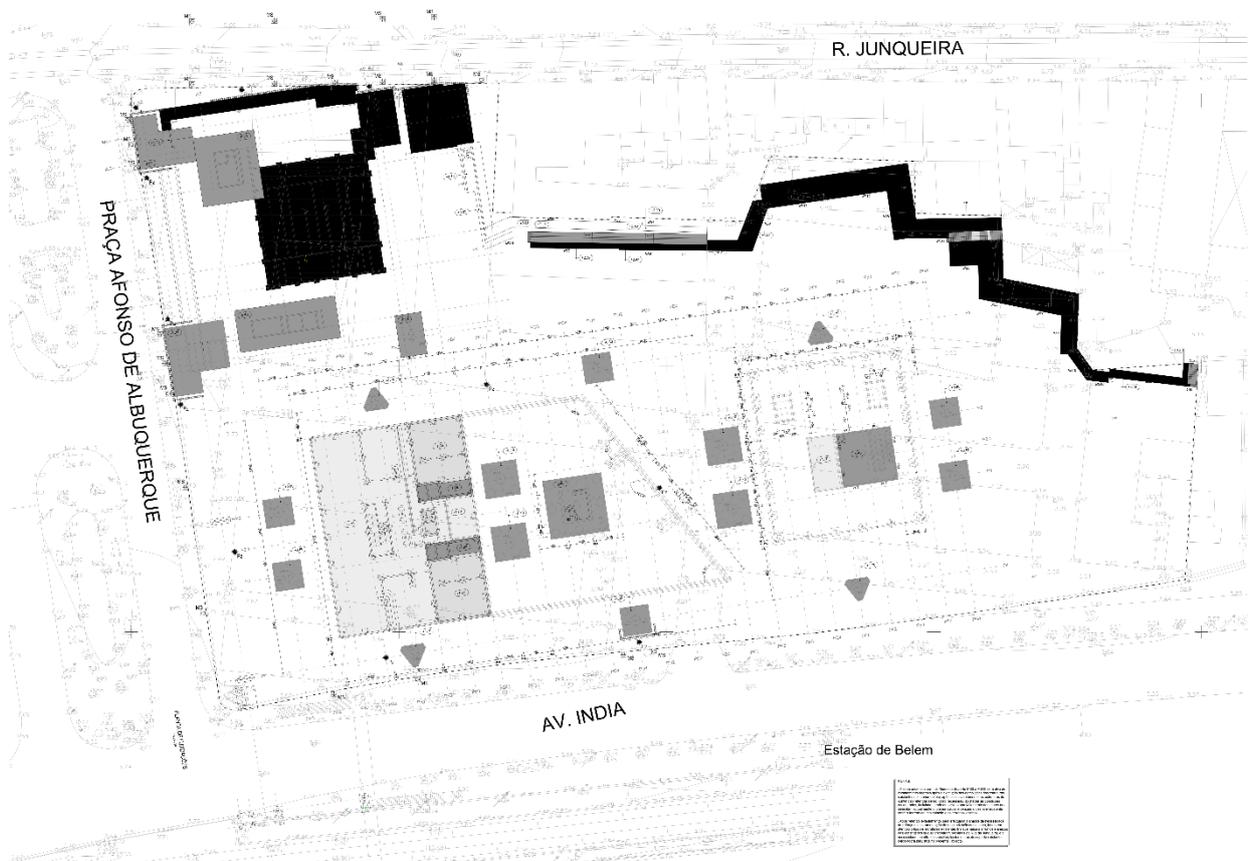
The urban context described above reveals the concentration of important and symbolic buildings in the area. When Paulo Mendes da Rocha was invited to design the *Museum*, the eastern tip of the Monumental Axis was occupied by army warehouses that had almost no relationship to the city. The new project aimed to complete the eastern tip of the Monumental Axis by weaving it into the existing city fabric. Furthermore, the project included the reconstruction of the pedestrian walkway over Avenidas da Índia and Brasília to link the *Museum's* pavement to the railway line and the riverfront.

The *Museum* project is based on two key concepts: the relationship between the Monumental Axis and Rua do Cais da Antiga Alfândega (the *Stitching Axis*) and the connection between Rua da Ajuda and the riverfront (the *Transverse Axis*). According to Ricardo Bak Gordon⁶, Paulo Mendes da Rocha was concerned with the arrangement of elements in space. He believed that once the arrangement was solved, the space would already be transformed. By displacing the annex from the main volume of the *Museum*, Paulo creates the necessary opening to work on the east-west connection. At the same time, he uses the annex to embrace the access ramps of the walkway, reestablishing the north-south connection. Creating a void between the two rigidly geometric volumes undoes the site's geometry, producing a new kind of urban void that contrasts with the intramural voids of many Portuguese buildings, such as the Centro Cultural de Belém.

⁶ Interview granted to Sara Nunes for the podcast *No País dos Arquitectos* (Gordon; Nunes, 2021).

The demolition of the warehouses that formerly occupied the site exposed the Travessa and Rua do Cais da Antiga Alfândega to the *Museum*. Rather than turning its back on this area, the project proposes interconnecting the Museum Square with these plots. Due to the difference in elevation between the Museum Square and the alleys, a series of retaining walls, stairs, and ramps were constructed to create new urban connections (Figure 3). In some places, the walls are set back within the lot boundary, creating plazas and widening the alleys. With the *Museum's* opening, Paulo Mendes imagined that the manor houses would be refurbished and turned into restaurants or cafés that open onto the small alley squares. According to Rui Furtado, Paulo Mendes deliberately located the ticket office and *café* toward the rear of the main block so that visitors would necessarily pass through Central Square.

Figure 3: Structural and foundation plan of the retaining walls and stairs at Travessa do Cais da Antiga Alfândega.



Source: Afa Consult (primary source).

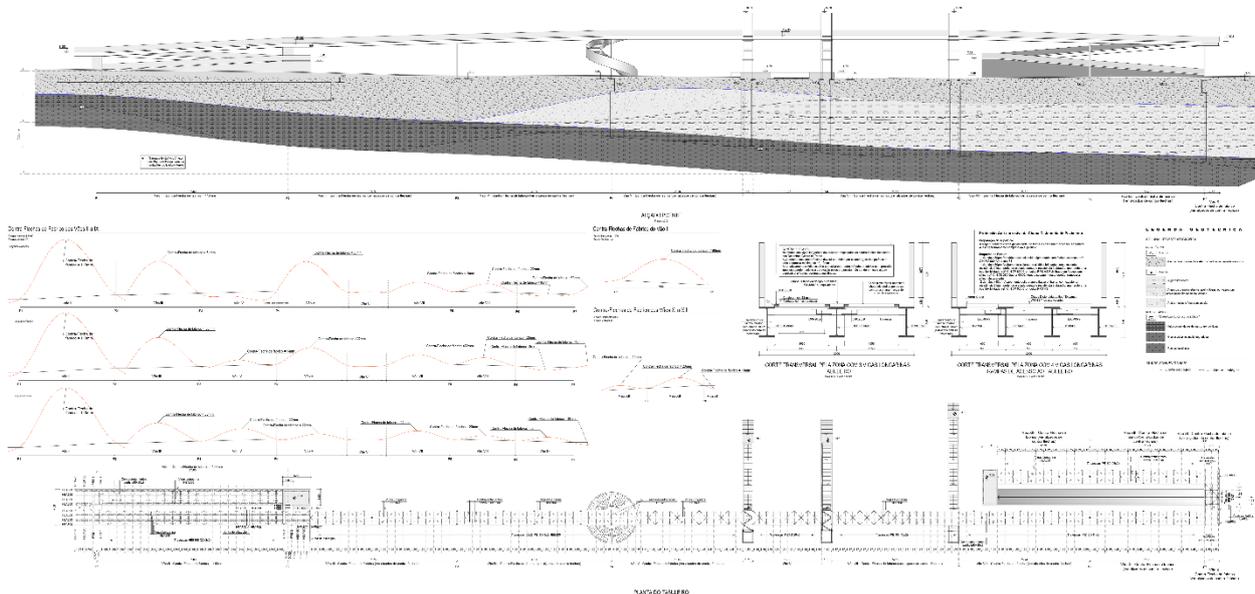
The *Terramoto-Quake Museum*, built in 2022 on Rua da Junqueira, pays tribute to the 1755 earthquake in Portugal. Designed by the firm Fragmentos (Jorge Ferreira, Marcus Cerdeira, and Rita Costa), the project occupies a formerly vacant lot within the block. Its siting builds upon Paulo Mendes da Rocha's proposal for the *Coach Museum*, opening onto Rua do Cais da Alfândega and creating a new *façade* along that street.

On its Rua da Junqueira *façade*, the *Coach Museum* relates harmoniously to its neighbors and the surrounding context. While it stands apart from the existing buildings through an access plaza, it nonetheless respects the cornice line of the pre-existing *façades* along the street. The project also positions the auditorium foyer at the same elevation as the small balconies of the adjacent buildings. The annex acts as a transitional element between the townhouses on Rua da Junqueira and the large exhibition volume. Although it

distinguishes itself from the neighboring structures through its tectonic expression, it reconnects with the local context by using a pink tone on the auditorium walls, echoing the color of the Palácio de Belém.

The new walkway connects four modes of transportation for pedestrians and cyclists: the Rua da Junqueira tram, the Belém railway station, the bike lane, and the Belém Ferry Terminal. Access to the walkway is via a ramp that begins at the level of Rua da Junqueira and connects to the auditorium entrance. The ramp provides an aerial crossing to the riverfront. Along this route, there is a metal spiral staircase that provides access to the Avenida da Índia sidewalk, as well as two other stairways that lead to the Belém train station. Another stairway is connected to an elevator that provides access to the Avenida Brasília sidewalk. This elevator terminates in a ramp that leads to the riverfront level of the Tagus (Figure 4). Instead of the car park originally proposed by Paulo Mendes da Rocha, there is now a charming *café* designed by Ricardo Bak Gordon at this arrival point.

Figure 4: Construction drawing of the walkway.



Source: Afa Consult (primary source).

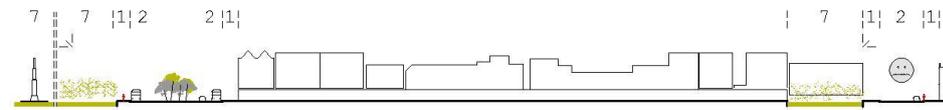
5 The dialogue between problem and virtue

The dialogue between “problem” and “virtue” reveals knowledge about the intricate relationship between context and autonomy. Context carries broad historical meaning and highlights its multifaceted complexity and the importance of spatializing it across material and immaterial dimensions. For this reason, we propose delimitating the contemporary problem of connections and infrastructures at the pedestrian scale. By foregrounding the problem, we aim to highlight its virtues by associating them with the building’s programmatic content. While these virtues are associated with the building’s programmatic content, they remain distinct and address not only universal accessibility but also urban ambiance. The concept of ambiance helps us to compose a critical text that provokes reflection on ambiance and context. In the chapter “*L’ambiance, c’est le contexte*,” Amphoux *et al.* (1998) state that the ambiance of a place is influenced by its context. Thus, to understand a particular environment, it is essential to consider its context.

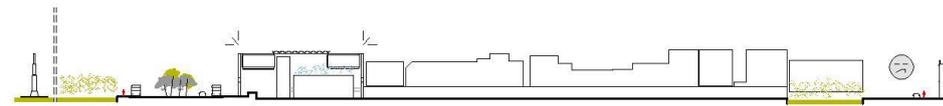
By following the axis extending from the Belém ferry terminal to the Palácio Nacional da Ajuda and emphasizing the facade analysis relating directly to vehicular and pedestrian

flows, we can identify three distinct periods and autonomous modes of intervention within the blocks comprising the transverse axis. The first period refers to the restoration project of the *Museum of the Royal Treasury* (at the Palácio Nacional da Ajuda), which was conceived from the ground up. It interprets the continuation of the pedestrian path through existing topographic differences and designs a monumental staircase. The second moment is defined by the area's specific historical context and local character, marked by ground-floor commercial uses that maintain a direct relationship with the pedestrian environment. This influences the longitudinal disposition of the blocks, which are defined by a set of terraced buildings that maintain a uniform height of three stories, with variations in window and balcony typologies. The Monumental Axis is also marked by solid, closed constructions, sometimes with internal courtyards, but never with visual or physical permeability for pedestrians. Upon reaching the *Coach Museum*, we encounter an operative action that renders the block spatial. Buildings set on the lot boundary are removed and replaced by constructions supported by *pilotis* that free the ground floor. This creates a continuation of the Monumental Axis and an urban ambiance uncommon in the Portuguese landscape (Figure 5).

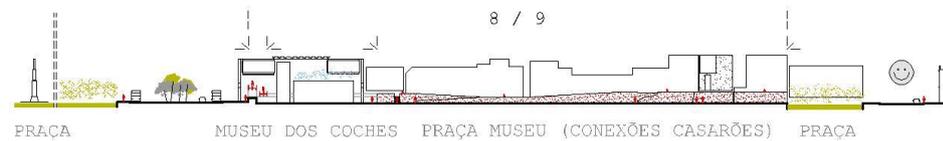
Figure 5: Analytical schematic sections of the project. Not to scale.



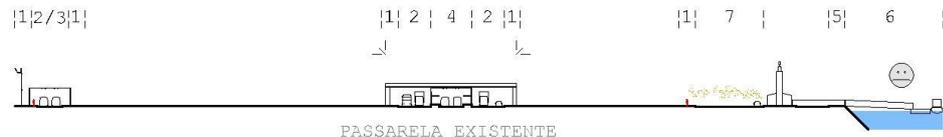
Eixo Costura - contexto existente



Eixo Costura - projeto



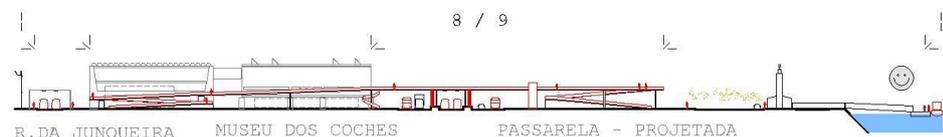
Eixo Costura - ambiência + conexões urbanas



Eixo Transverso - contexto existente



Eixo Transverso - projeto



Eixo Transverso - ambiência + conexões urbanas



Legend: 1. Pedestrian Lane 2. Vehicular Lane 3. Tram Lane 4. Railway Lane 5. Cycle Lane 6. River Lane 7. Existing gardens and squares 8. Projected square 9. Ambiência and urban connections.

Source: Authors, 2025.

5.1 Brazilian and Portuguese architectures: methodological distinctions

This text proposes establishing a connection between “problem” and “virtue,” which, although not synonymous, are expressed within Paulo Mendes da Rocha’s “genealogy” in a context loaded with historical meaning. In this context, a problem is posed when perceiving the complexities of coastal territories, such as tidal level variation and fluid soils. The designers’ autonomy in relation to the immediate context is evident in their design choices, which establish “hermetic” spaces at street level with programs pertinent and necessary for museological control.

The *Coach Museum* project illustrates how modern and contemporary Brazilian architecture primarily works with context and ambience through section, as opposed to Portuguese architecture in that region, which is more grounded in the plan. In his analysis of James Stirling’s work, who allegedly discovered “in the sections of nineteenth-century industrial buildings the matrix of a new architecture,” Rafael Moneo (2008) observes that:

[...] If Beaux-Arts architecture anchored itself in the plan, modern architecture did so in the section. On the one hand, all the building’s technical and constructive problems were reflected there, and with it, architecture reached the degree of positive knowledge required by the times. On the other hand, with the linear displacement of the section in space, the spirit of freedom that accompanies modernity was represented (Moneo, 2008, p. 16).

Due to the autonomy of projective making, the pedestrian path widens, creating a hierarchy of public, semi-public, and private spaces with ample use. Visual hierarchies emerge at the urban scale through perspectives and shading, reflecting the dispositions of the three suspended volumes: administrative, exhibition, and walkway, which functions as a canopy for shade. The walkway is designed as the aerial extension of the city sidewalk, an integral part of urban design, providing modal infrastructure that connects the water’s edge with the neighborhood’s internal structure. Similarly, at ground level, connections between the Monumental Axis squares and the Museum Square, as well as their links to Travessa do Cais da Antiga Alfândega, Rua do Cais da Antiga Alfândega, and Rua da Junqueira, promote straightforward pedestrian permeability through the city.

Looking to the future, one can envision the scenario that Paulo Mendes da Rocha may have imagined: a time when rising sea levels due to climate change inundate the area. The seams at the new “ground-floor” elevation persist through the use of boats, transforming the walkway into a pier, while the valuable treasure of the centuries-old coaches remains protected within the large, elevated body (Figure 6). Given this possibility, one might ask whether we are living through a transition in which cleaner, more collective modes of transportation, such as river navigation, rail, and cycling, may finally overcome the automobile’s centrality. As Paulo Mendes da Rocha observes, “[...] that infamous individual transport that pollutes everything will disappear over time [...]; the importance of the automobile should decline. Although it still exists, it is there” (Mendes da Rocha, 2015).

Figure 6: Schematic implantation and prospective section. Plan of Belém with the 1858 shoreline overlaid on the current shoreline. Schematic section of the *Coach Museum* in the 1858 shoreline scenario.



Source: Authors, 2025.

6 Final remarks

A The *National Coach Museum*'s analysis demonstrates how contemporary architecture can establish a fruitful dialogue between *contextual problems* and *design virtues*. The study shows that, through the Stitching and Transverse axes, Paulo Mendes da Rocha's project articulates the infrastructural demands of the contemporary city with the preservation and enhancement of Belém's historical heritage.

By integrating politics, art, and infrastructure into an operational system, the project transcends its traditional museological function, positioning itself as a catalyst for urban transformation. The walkway exemplifies how infrastructural elements can be humanized through architectural design, creating connections that transcend mere technical functionality.

The methodological distinctions identified between Brazilian and Portuguese architectures, particularly the preference for the section over the plan as a design instrument, help us understand the differences between these schools of architectural thought. The *Coach Museum* materializes this synthesis, demonstrating how the Brazilian approach can engage the Portuguese urban context productively, proposing new forms of integration between public space and infrastructure.

Urban drawing emerges as an essential tool for visualizing and debating ideas, enabling dialogue between history and modernity. The *Coach Museum* exemplifies how architecture and urban planning can create spaces that preserve a cultural legacy while responding to contemporary urban needs. It offers a platform for exploring future possibilities in the reconfiguration of urban spaces.

This research paves the way for future investigations into applying redrawing and sections as instruments of comparative analysis in distinct cultural and geographic contexts. The approach developed here can be expanded to include studies examining other works by Paulo Mendes da Rocha or broadening reflection on the export of Brazilian architectural language to foreign contexts, especially regarding road-rail transpositions associated with buildings, the spatiality of the city block, and the connections between the internal structure of blocks and modal infrastructures. Furthermore, the concept of *ambiance*, understood as the collective and sensory experience of space, offers a promising foundation for further explorations that bridge theory, design practice, and urban perception. Thus, rather than concluding an analysis, this article proposes continuing an investigative field that recognizes architecture as thought in action: a way of understanding and transforming the built world.

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