

### Abstract

This project explores the design of a supertall, smart, and sustainable skyscraper in central London, inspired by the dynamic flow of the River Thames and the historic legacy of Old London Bridge. Guided by the research question—"How can smart and sustainable supertall skyscraper design contribute to the resilience and future of urban architecture in London?"—the proposal addresses pressing urban challenges including climate change, population growth, and the evolving nature of the workplace.

The chosen site, One Undershaft, occupies a prime location within the City of London and has already been designated for significant vertical development. This aligns with the City of London Corporation's City Plan 2040, which highlights the need for at least 1.2 million square metres of additional office floorspace by 2040 to ensure sustainable economic growth (City of London Corporation, 2023).

This portfolio presents a comprehensive design process encompassing site analysis, contextual research, and an evaluation of planning and regulatory frameworks—such as the protection of St Paul's Cathedral sightlines and the Right of Light principle, in use since 1937 (City of London Corporation, 2015). Through concept development, functional programming, and spatial design, the proposal envisions a tower that embodies adaptability and fluidity—qualities drawn from the River Thames—while offering a forward-thinking architectural response to London's future urban landscape.

### RESEARCH ON SKYSCRAPER'S SITE

The selected site in between 'The Gherkin' and Lendenhall building (The city of london)

City of London gives permission for tallest tower FINANCIAL TIMES

1 Undershaft will be the same height as the Shard across the Thames



A computer generated image of how the City of London is expected to look after the construction of 1 Undershaft © DBOX for Eric Parry Architects

Fig. 01. The permission of tallest tower in london has been published in The Finencial Times (Financial Times, 2025)

Shard to share title of tallest building in UK as new skyscraper gets green light

The new building, 1 Undershaft, will be 309.6m tall, matching the height of the Shard to the centimetre



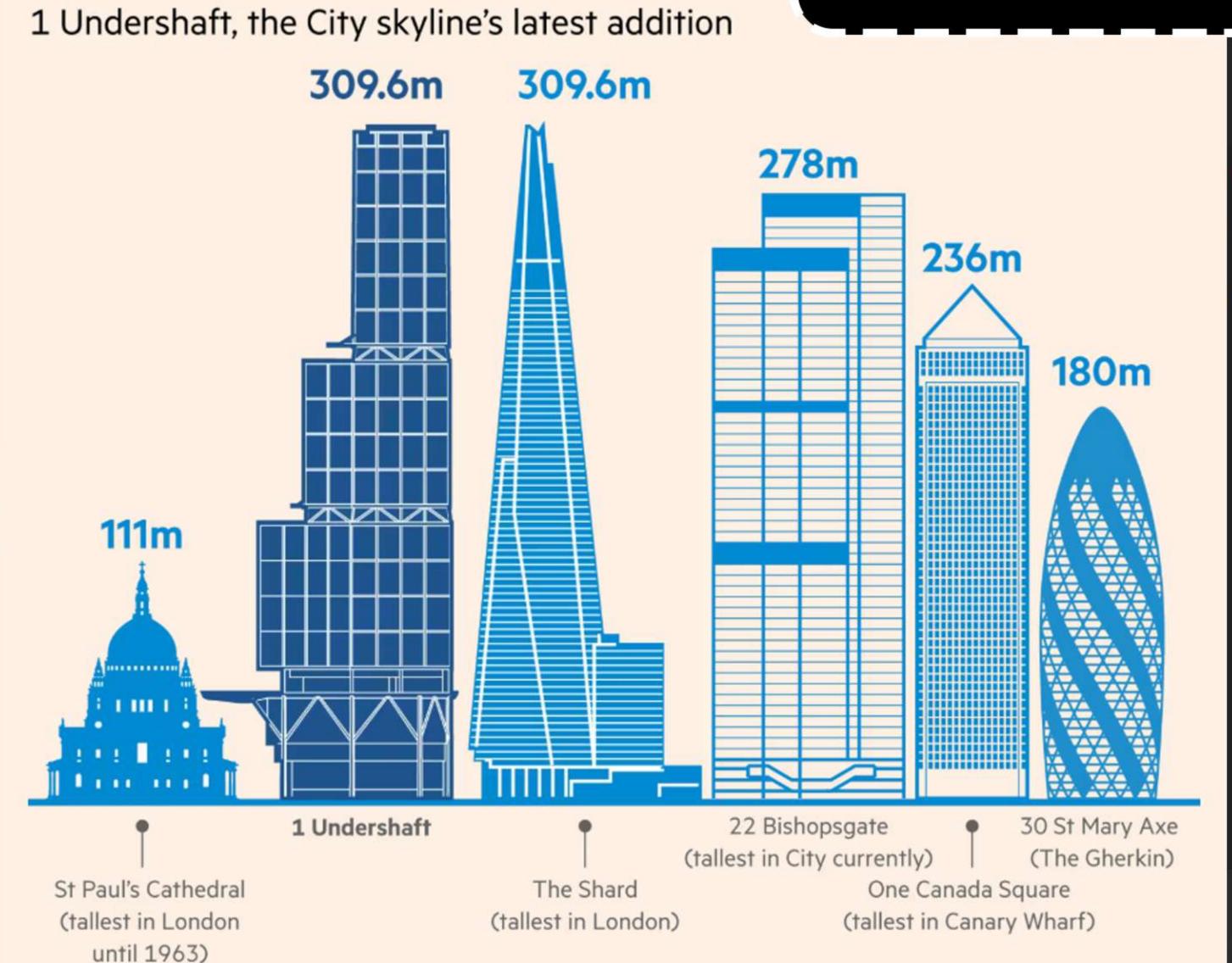
Between a cluster of high rise buildings as: The cheesegrater(The Landenhall building) & The Gherkin

Fig. 04. The Guardians publication about the new building matching the height of The Shard (The Guardian, 2024)

Identified opportunities for mixed-use development in the City of London.

Building complex with potential for integrated residential, commercial, and recreational spaces.

A unique chance to create a vibrant, dynamic hub in the heart of the city



1 Undershaft, also known as "The Trellis," is a planned skyscraper in London's financial district that has received approval for construction.

### **Key Features:**

- Height: At 309.6 meters (1,016 feet), it will match The Shard as the tallest building in the UK and Western Europe. The Guardian
- Design: The 74-story structure, designed by Eric Parry Architects, will replace the existing St Helen's tower.
- Public Amenities: Plans include Europe's highest publicly accessible viewing gallery, a public
  garden on the 11th floor, and educational spaces in collaboration with the London Museum.

  The Guardian
- Office Space: The building will provide approximately 154,156 square meters of office space, addressing future demands in the City of London.
- g. 03. Shows the 1 Undershaft key features through chatgpt (ChatGPT, 202

Fig. 02. 1 UNDERSHAFT, Compare to the existing skyscrapers of London (Financial Times,

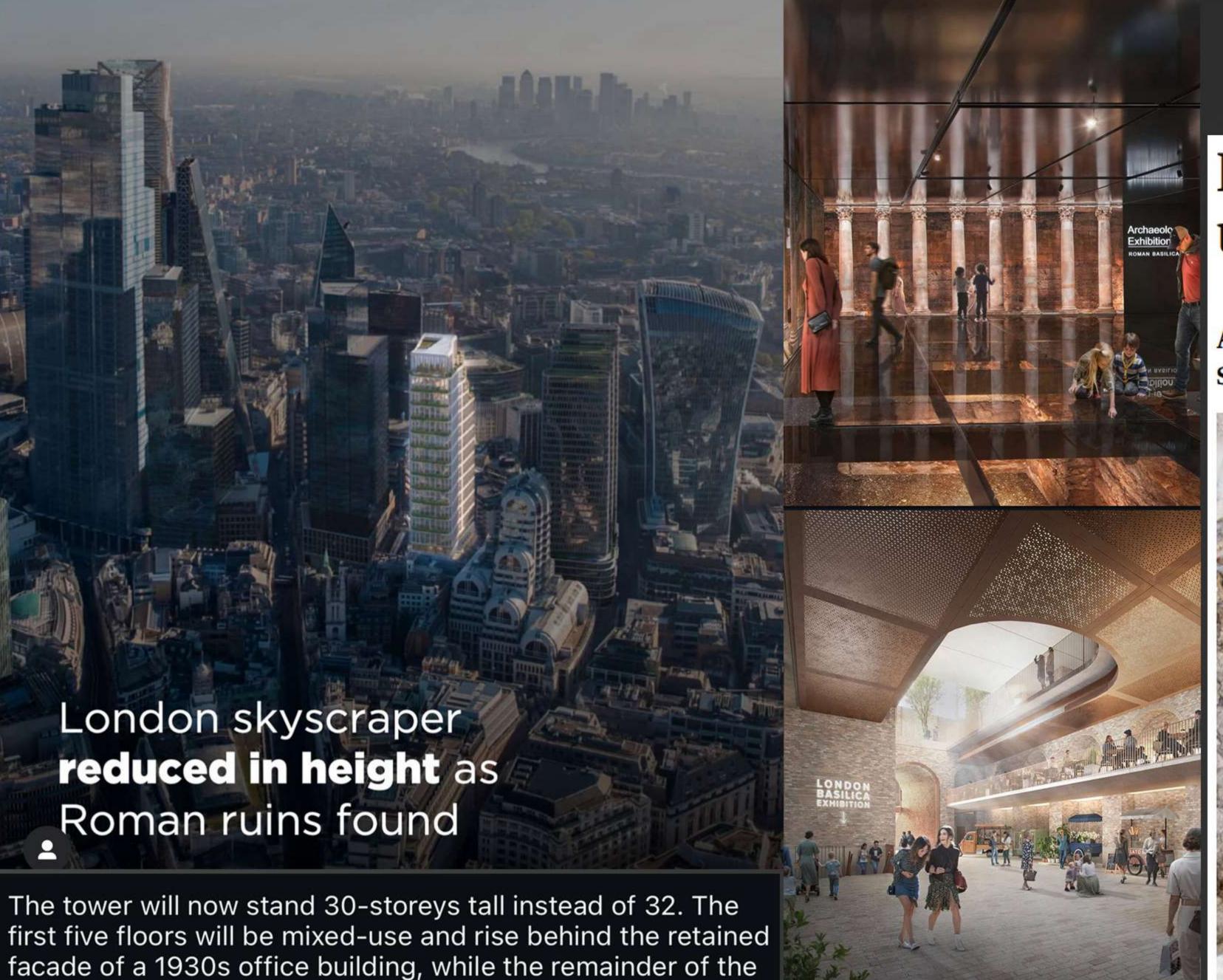


Fig. 05 to 08. London's underdeveloped skyscraper reduced in hight as Roman ruins found, cor

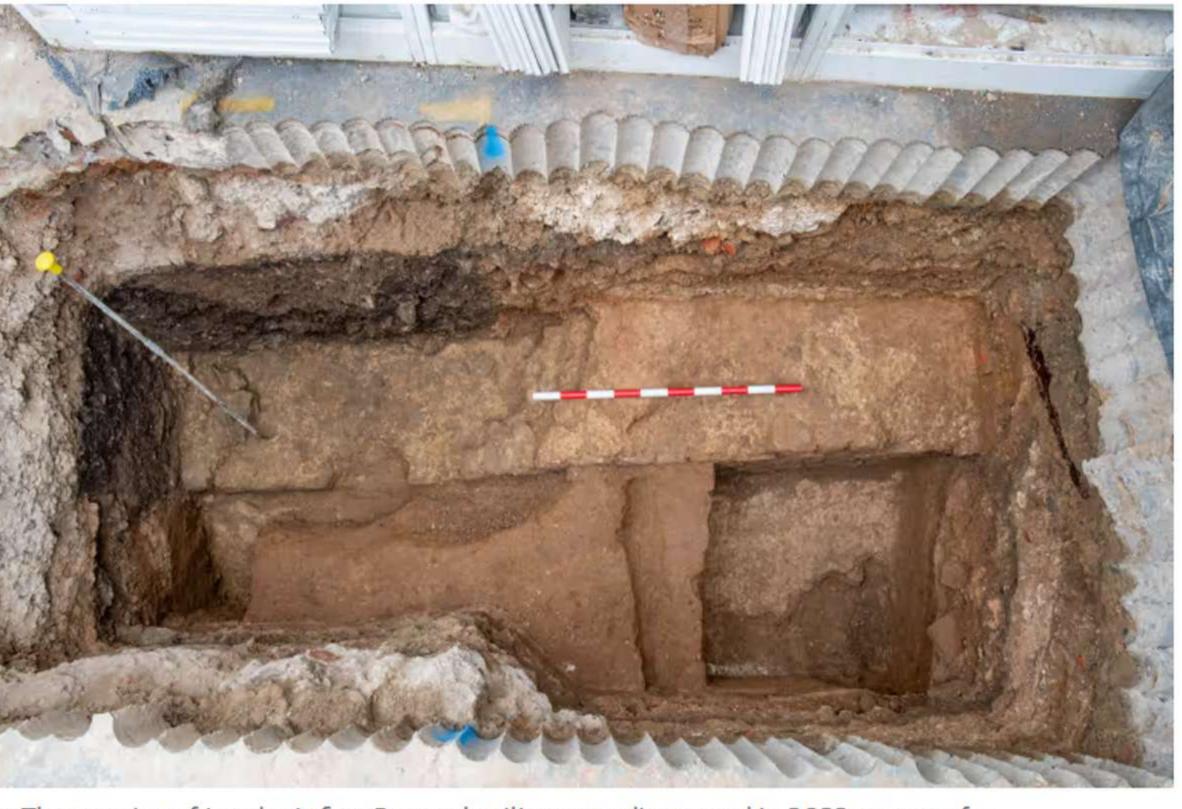
tower will provide new office space.

firmed by the publication of The Guardian (Woods Bagot, 2025)

# The Guardian

# London's first Roman basilica found under office block

Archaeologists hail discovery of near-2,000-year-old structure as one of most significant recent finds in the city



The remains of London's first Roman basilica were discovered in 2023 as part of a redevelopment on Gracechurch Street. Photograph: Mola

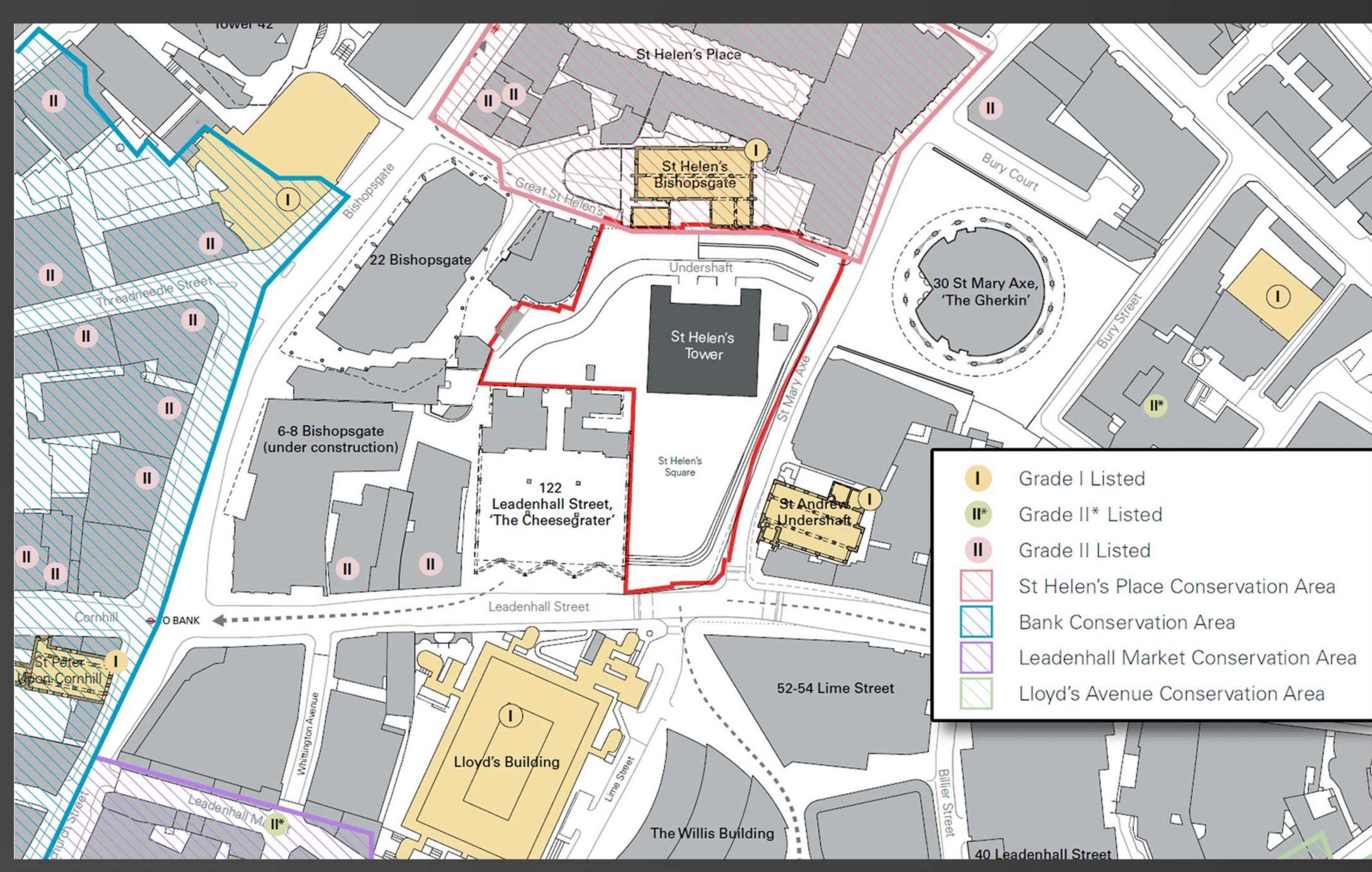


Fig. 09. Listed buildings around the St Helen's tower (1 Undershaft Consultation, n.d.)

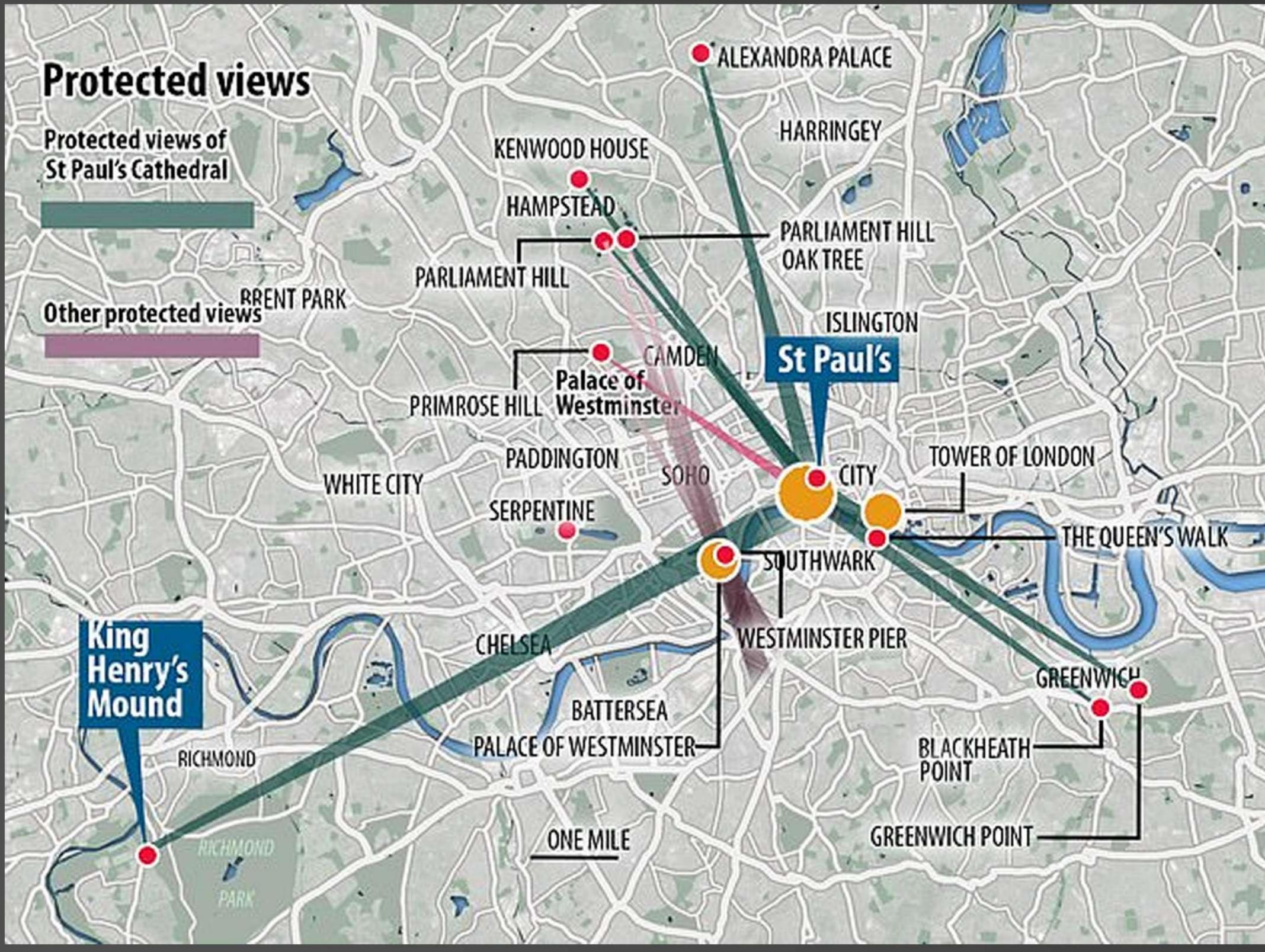


Fig. 10. Protected view's of St Paul's Cathedral (Daily Mail, 2018)

### ST PAUL'S CATHEDRAL VIEW FROM GREENSWICH PARK

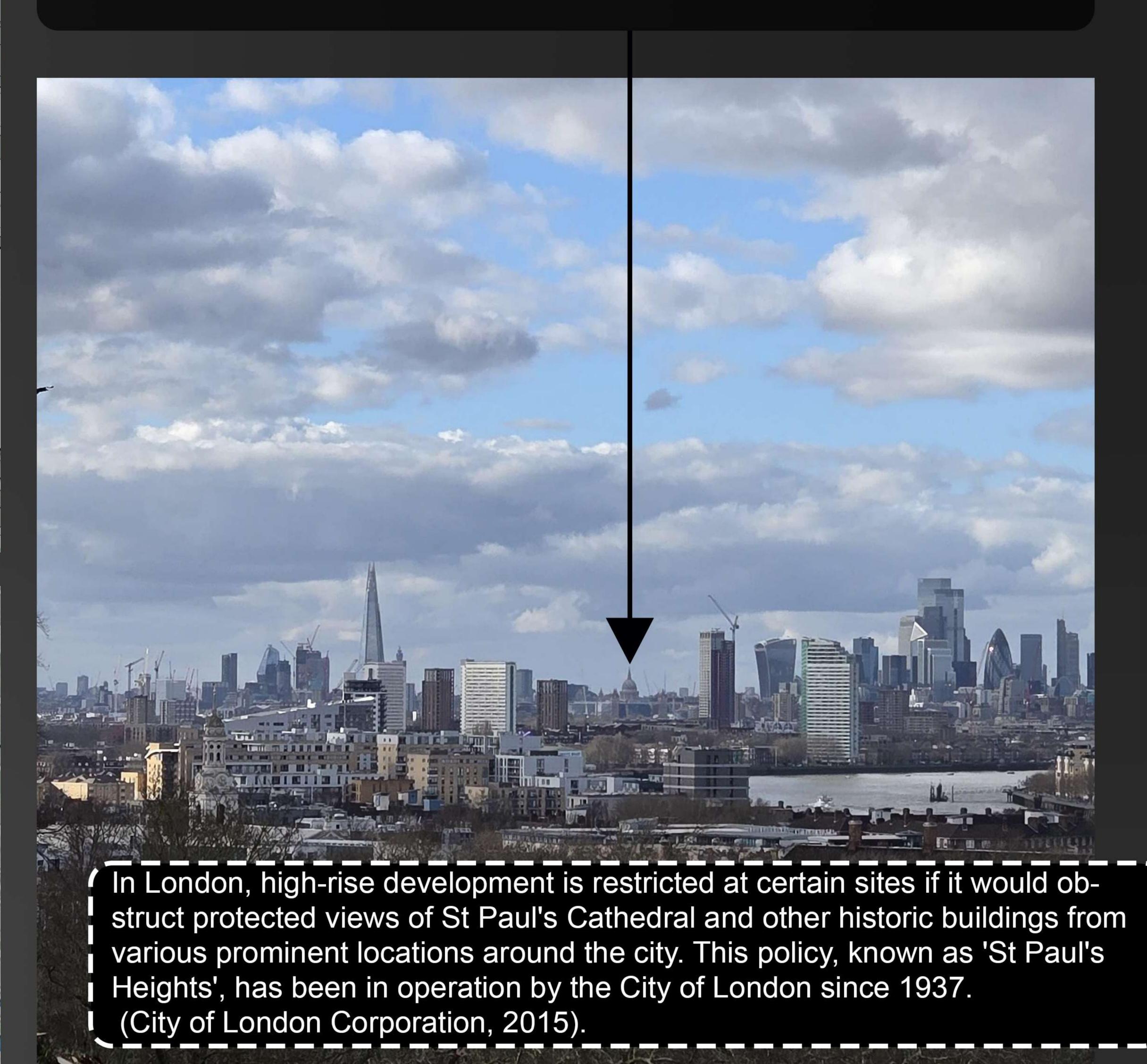


Fig. 11. Protected view's of St Paul's Cathedral from Greenswich park (Asadullah.A, 2024)

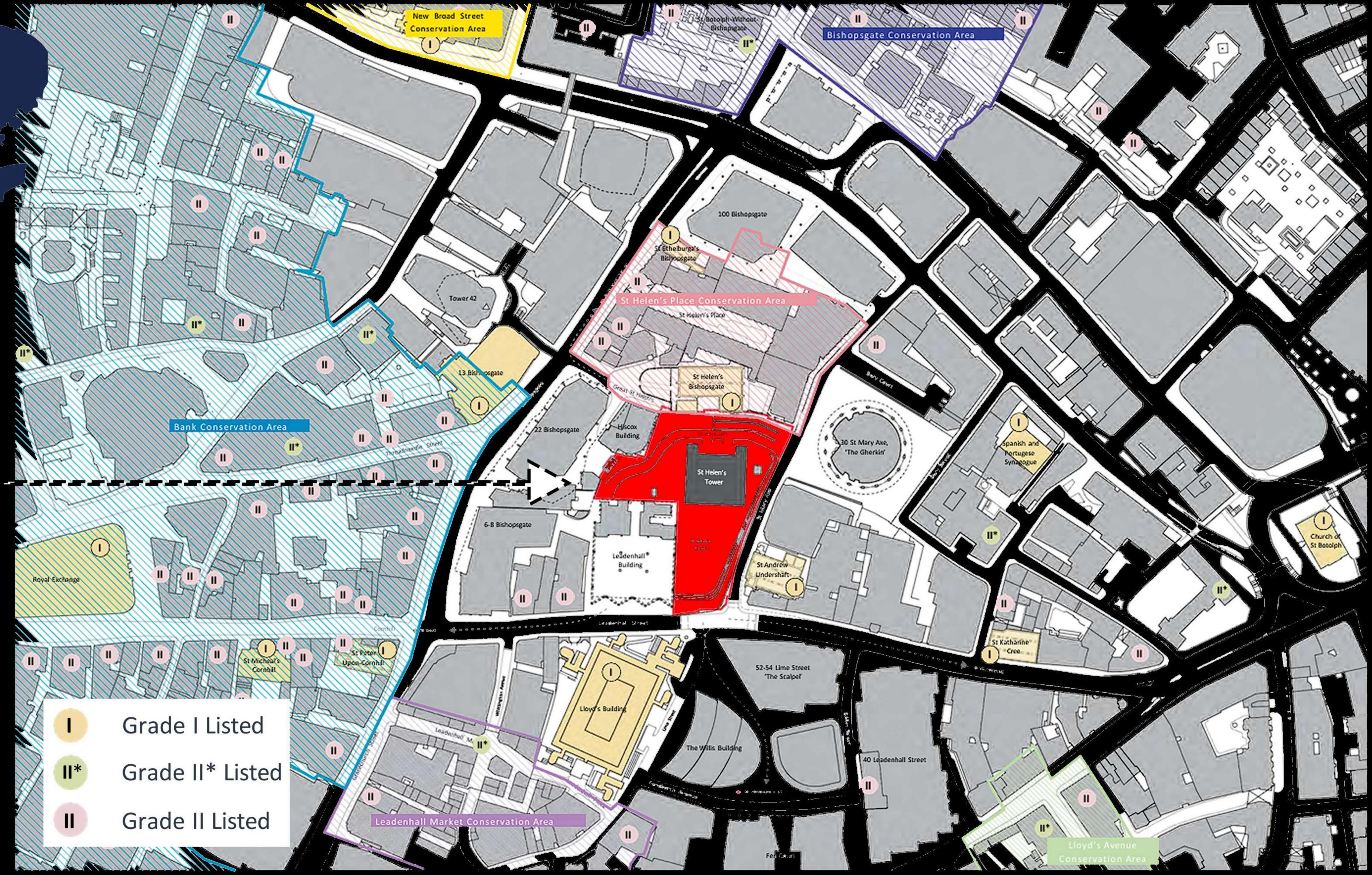
# London

# CITY OF LONDON Fig. 12. City of London map (Redit, 2025)

The City of London combines Grade-listed heritage buildings with modern towers, creating strict planning conditions that challenge innovative skyscraper development.

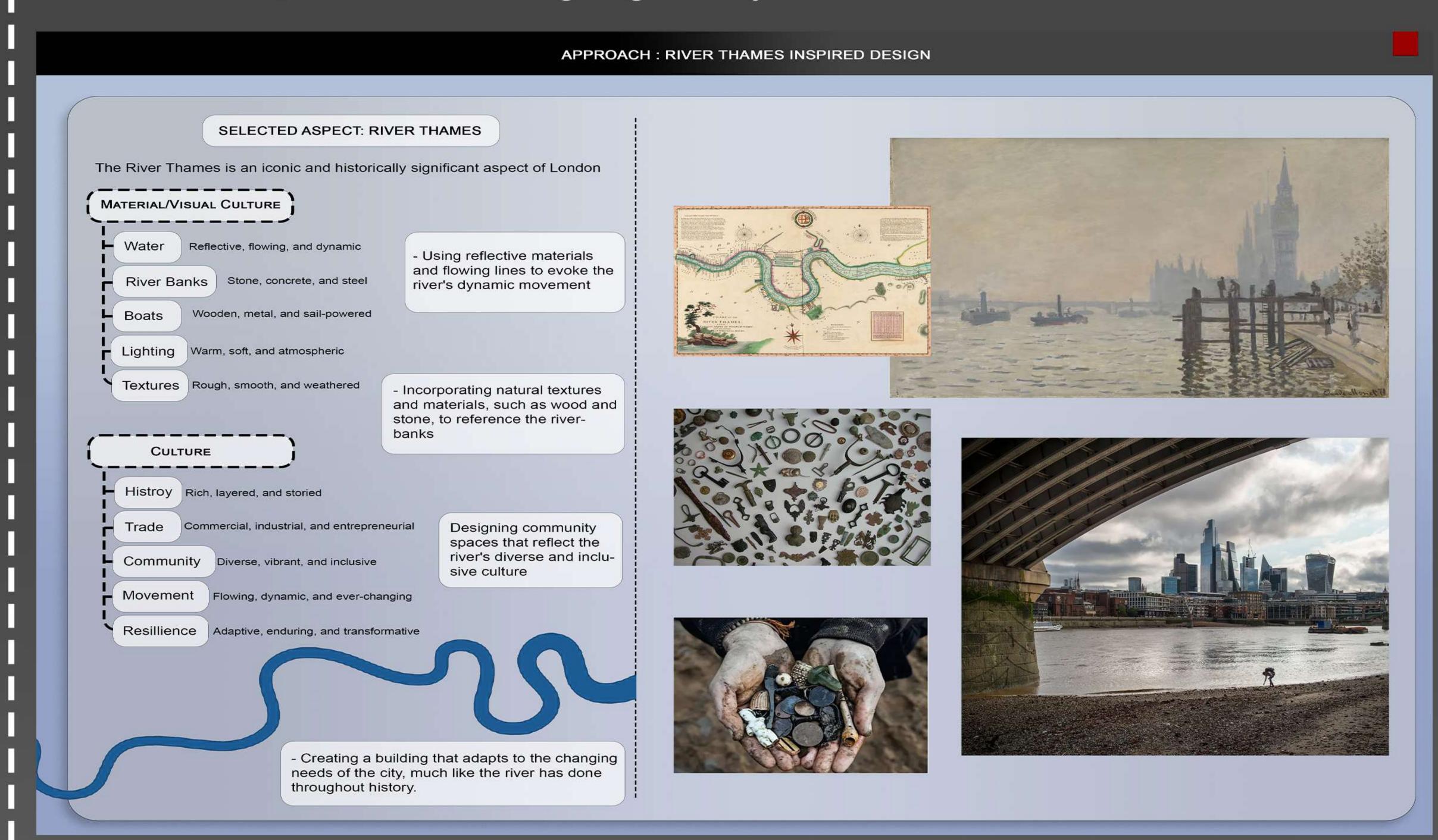
### ABOUT LOCATION

The City of London, the historic and financial heart of London, plays a crucial role as a global hub for business and innovation. Within this context, the St. Helens site stands out as an ideal location for a supertall skyscraper, positioned in the established high-rise cluster that defines the city's skyline. Its centrality ensures connectivity to finance, culture, and transport, while its visibility elevates the building's symbolic value. Although challenges such as strict planning laws, heritage protection, and sustainability demands exist, they enrich the design process. This site uniquely offers the opportunity to create London's tallest skyscraper, reinforcing its global identity.





Building on earlier research from the second semester, this project incorporates key studies on conceptual approach, spatial programming, planning regulations, and the Right of Light envelope. These investigations—framing the River Thames as a guiding design concept, defining the tower's space uses and functions, and addressing regulatory constraints—form the foundation for the subsequent design development presented in this portfolio.



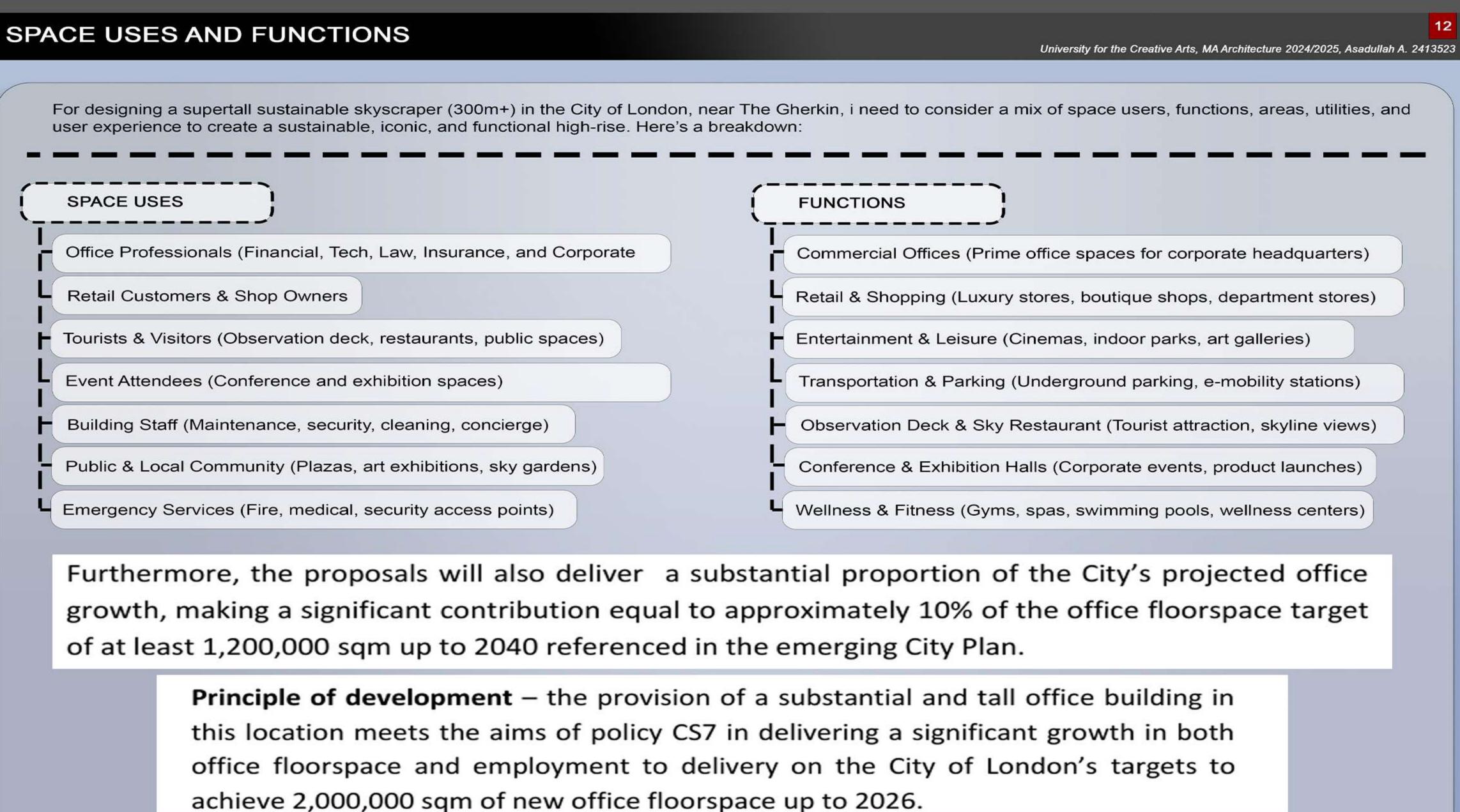
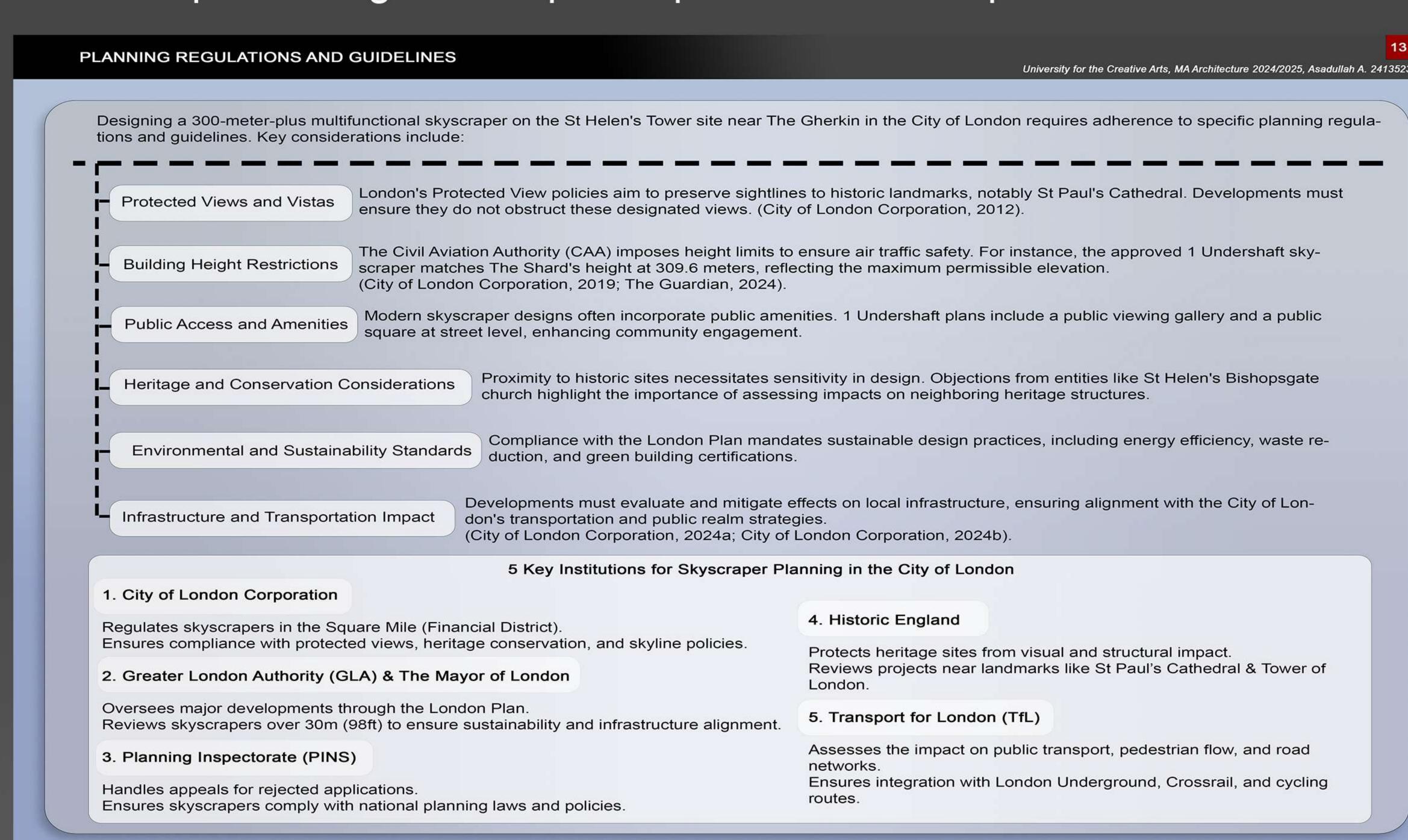


Fig. 33 & 34. Planning statement of the One Undershaft (City of London Planning Portal, 2023)



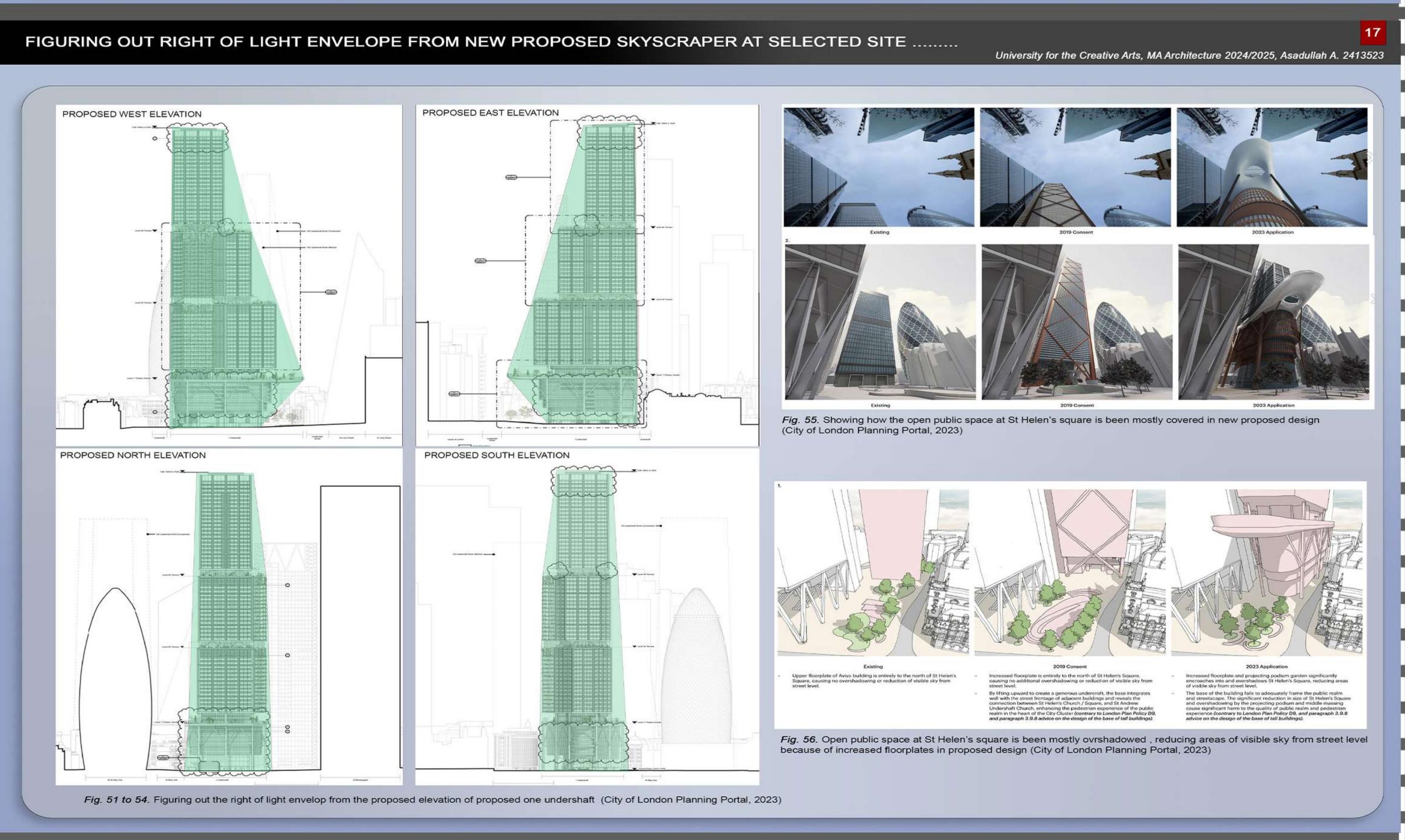
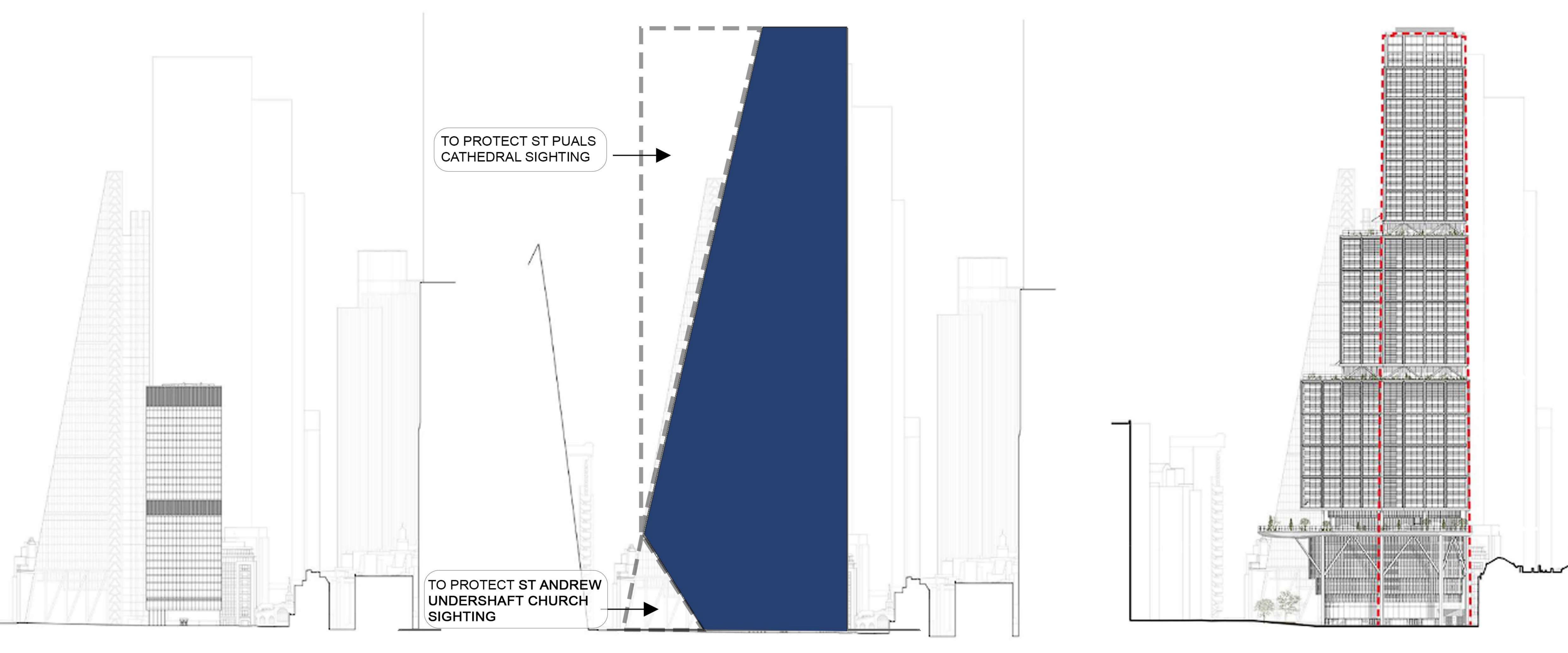


Fig. 13 to 16. Research from Semester 2, including conceptual approach inspired by the River Thames, space programming and functional distribution, analysis of City of London planning regulations, and exploration of the Right of Light envelope as a massing constraint. (Asadullah A., 2025)

The *trapezoidal form* of the design envelope at the *St Helen's site* was derived by studying the elevation drawings of the proposed *One Undershaft tower*, from which I extracted the *Right of Light envelope*. This shaped my massing strategy in response to essential planning constraints, including protected sightlines to *St Paul's Cathedral* and the *St Andrew Undershaft Church*. These constraints guided the development of a buildable form that respects historical view corridors while enabling vertical growth, forming a critical foundation for the skyscraper's architectural design.



Existing FORM OF FINAL BUILDABLE ENVELOPE 2023 Application

Total Height AOD: +133.0 m

Total GIA: 49,093 m<sup>2</sup>

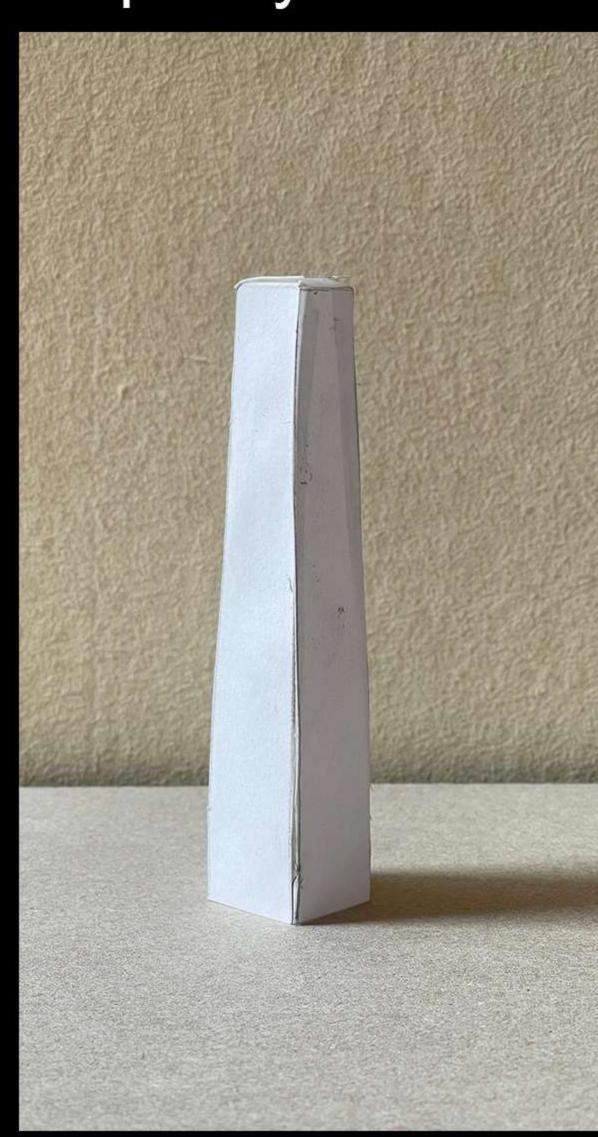
Total Height AOD+309.6 m<sup>2</sup>

Total Height AOD: +309.6 m<sup>2</sup> (+ 176.6)

Total GIA: 180,366 m<sup>2</sup> (+267.4%)

Building upon the trapezoidal envelope derived from planning constraints, I initiated a physical model-making process to explore diverse formal possibilities. Using this envelope as a volumetric base, I developed five distinct massing iterations, each investigating different spatial and compositional strategies. These abstract models focused purely on volume, proportion, and vertical articulation.









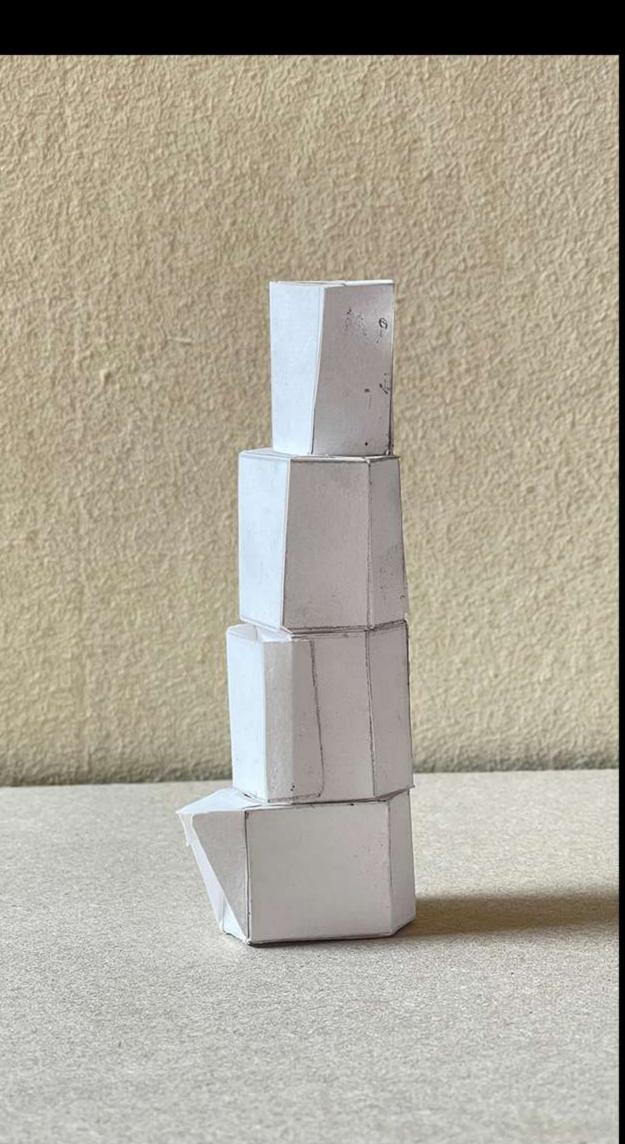


Fig. 17 to 21. A series of conceptual massing models based on the trapezoidal envelope, exploring variations in form and proportion (Asadullah A., 2025)

To further test the relationship between form and concept, I introduced a second layer of experimentation by referencing the fluid character of the River Thames, which underpins my design narrative. I wrapped wet white tissue paper around the massing models to simulate the organic flow and tactile softness of water.







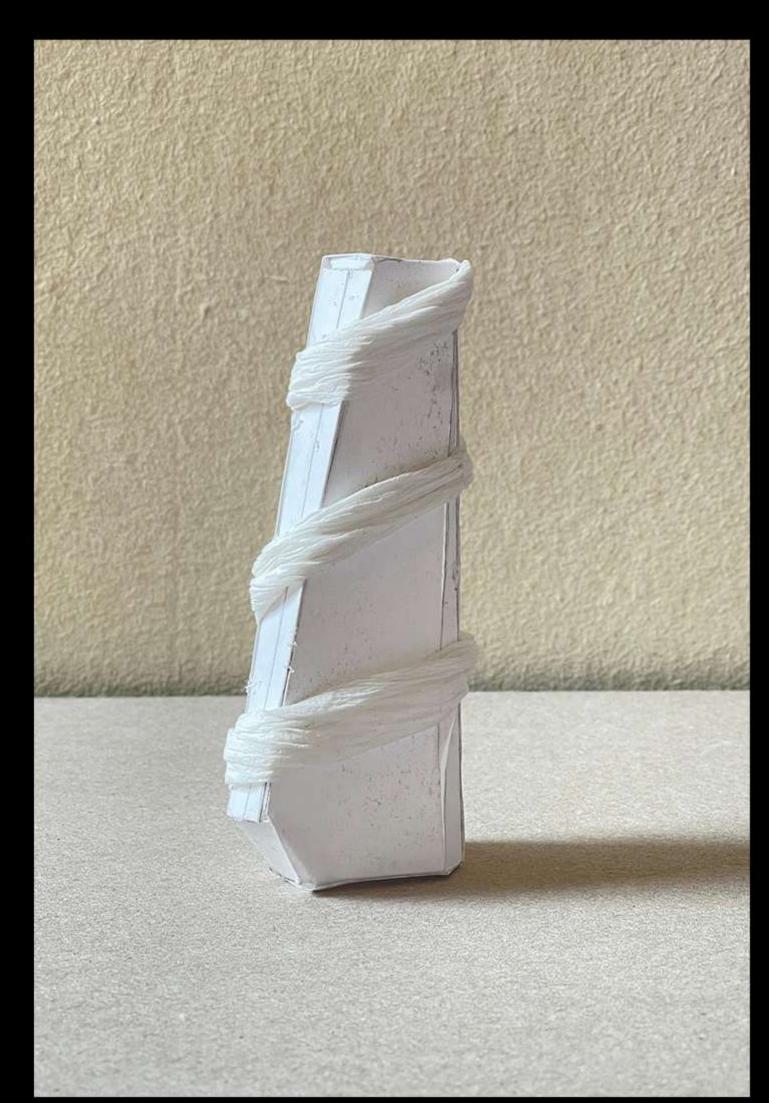
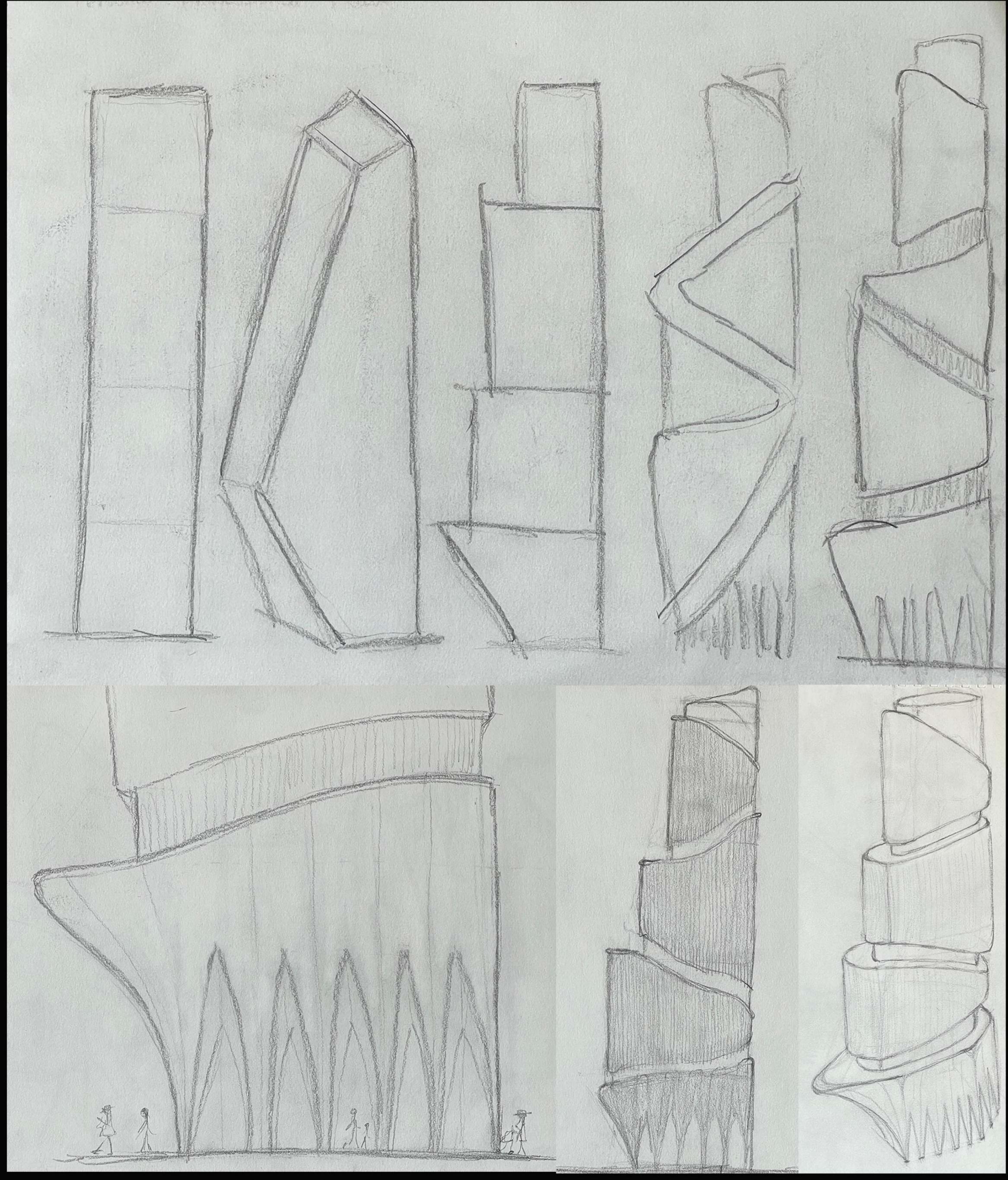




Fig. 22 to 26. Physical models wrapped in wet tissue to simulate the fluid movement of the River Thames, informing the tower's curvature and façade development. (Asadullah A., 2025)

This hands-on method helped me explore how the flowing movement of water could shape the tower's surface, curves, and overall form. These experiments supported the early stages of the façade design and helped me choose the most effective and visually appealing form.

To support my physical modelling process, I also created a series of hand-drawn sketches at home, capturing early ideas of movement, structure, and form inspired by the River Thames. These sketches included studies of the tower's podium, where I introduced arched forms—a response to the two nearby churches and their architectural language, as well as a structural strategy to ground the base with both stability and visual continuity. This combined approach of sketching and modelling helped me develop an initial final form that reflects both conceptual inspiration and contextual sensitivity.



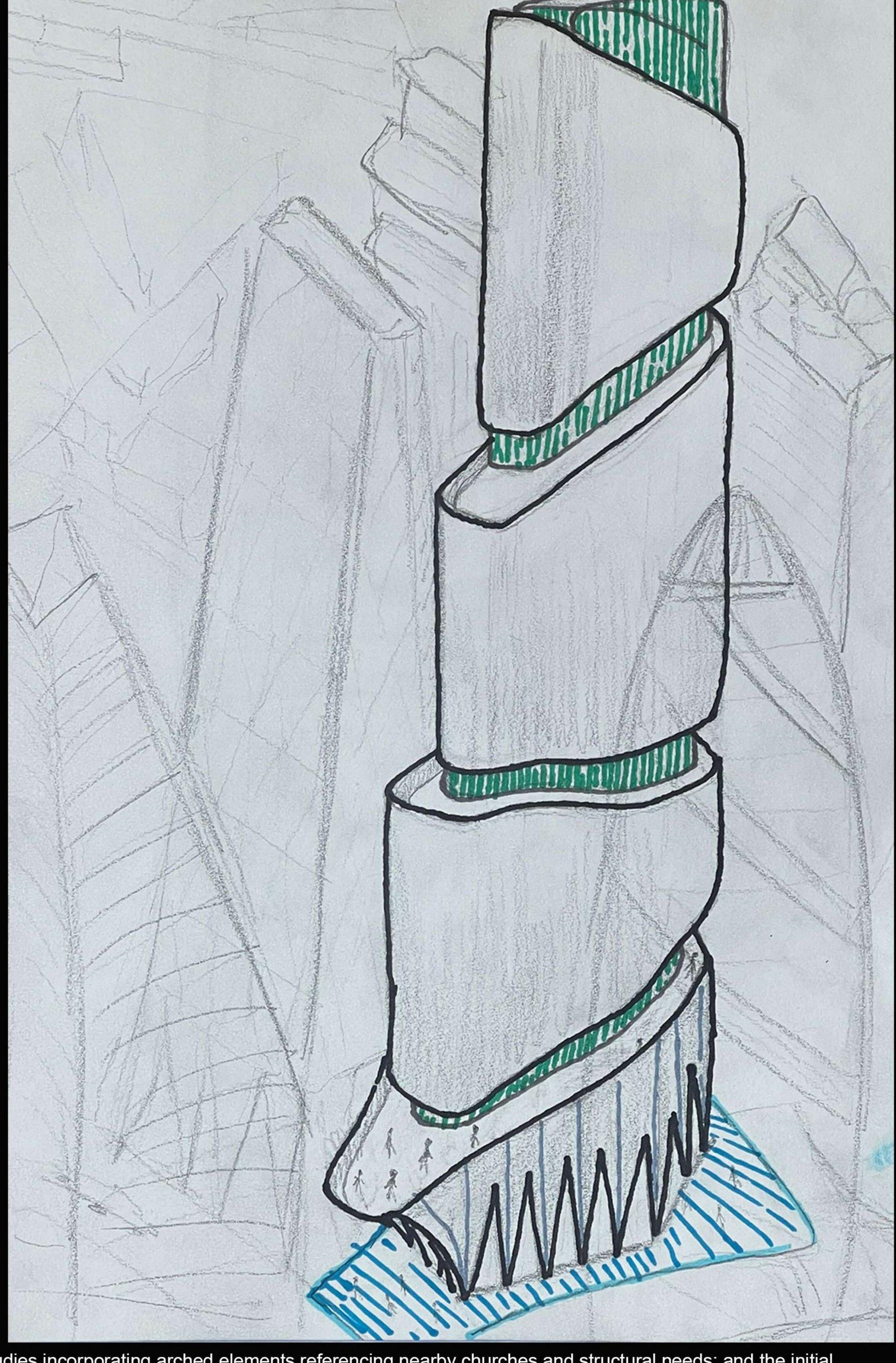
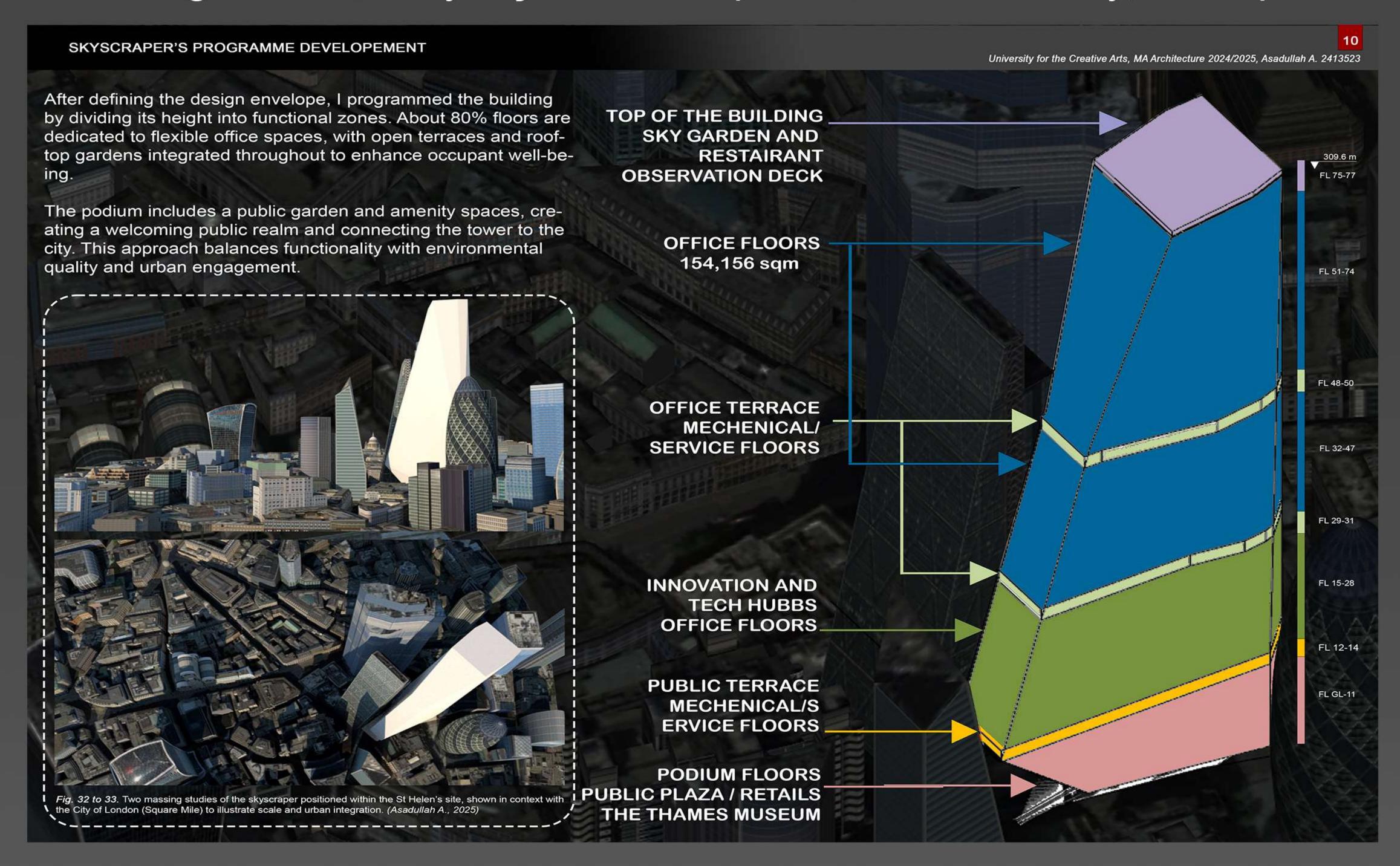
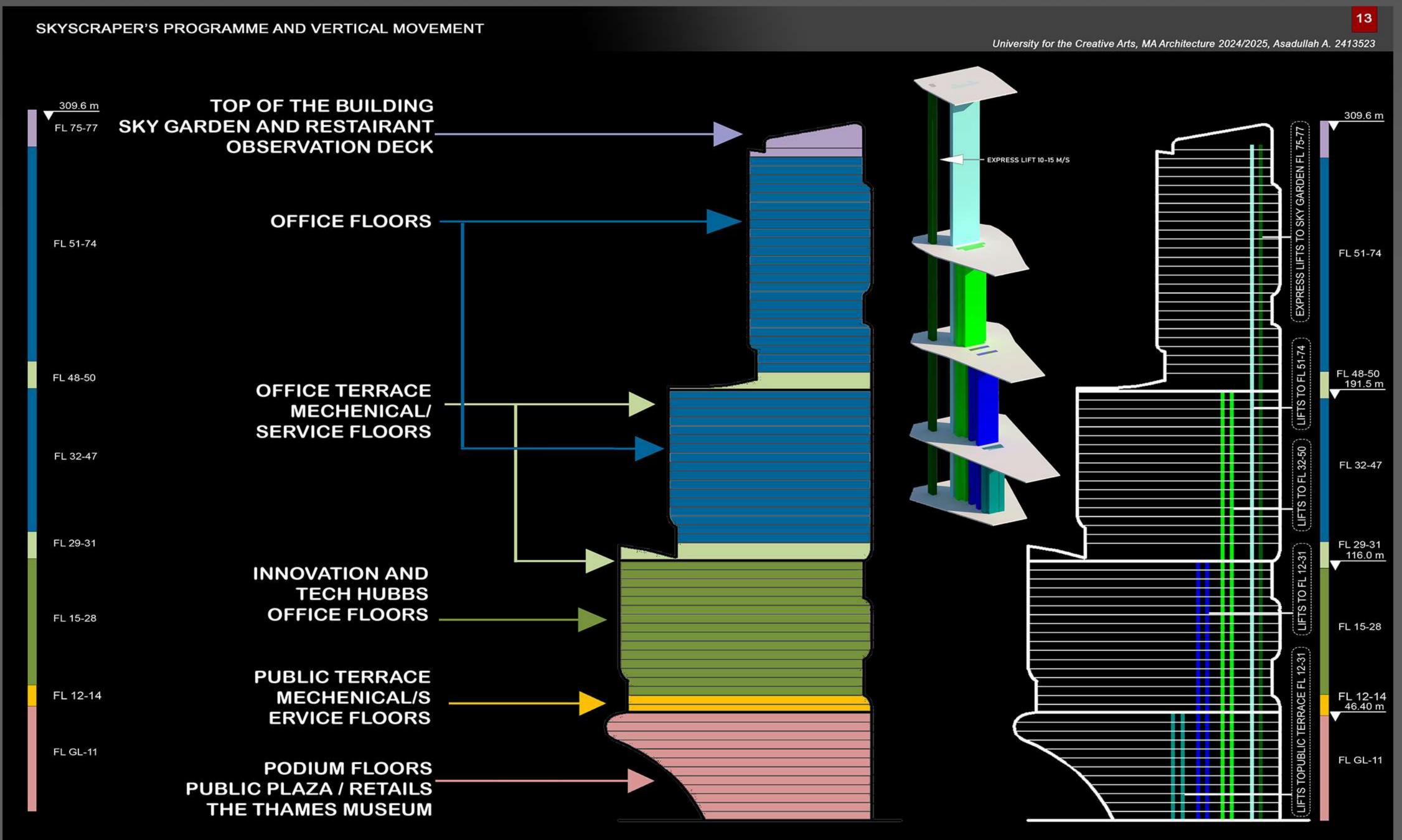
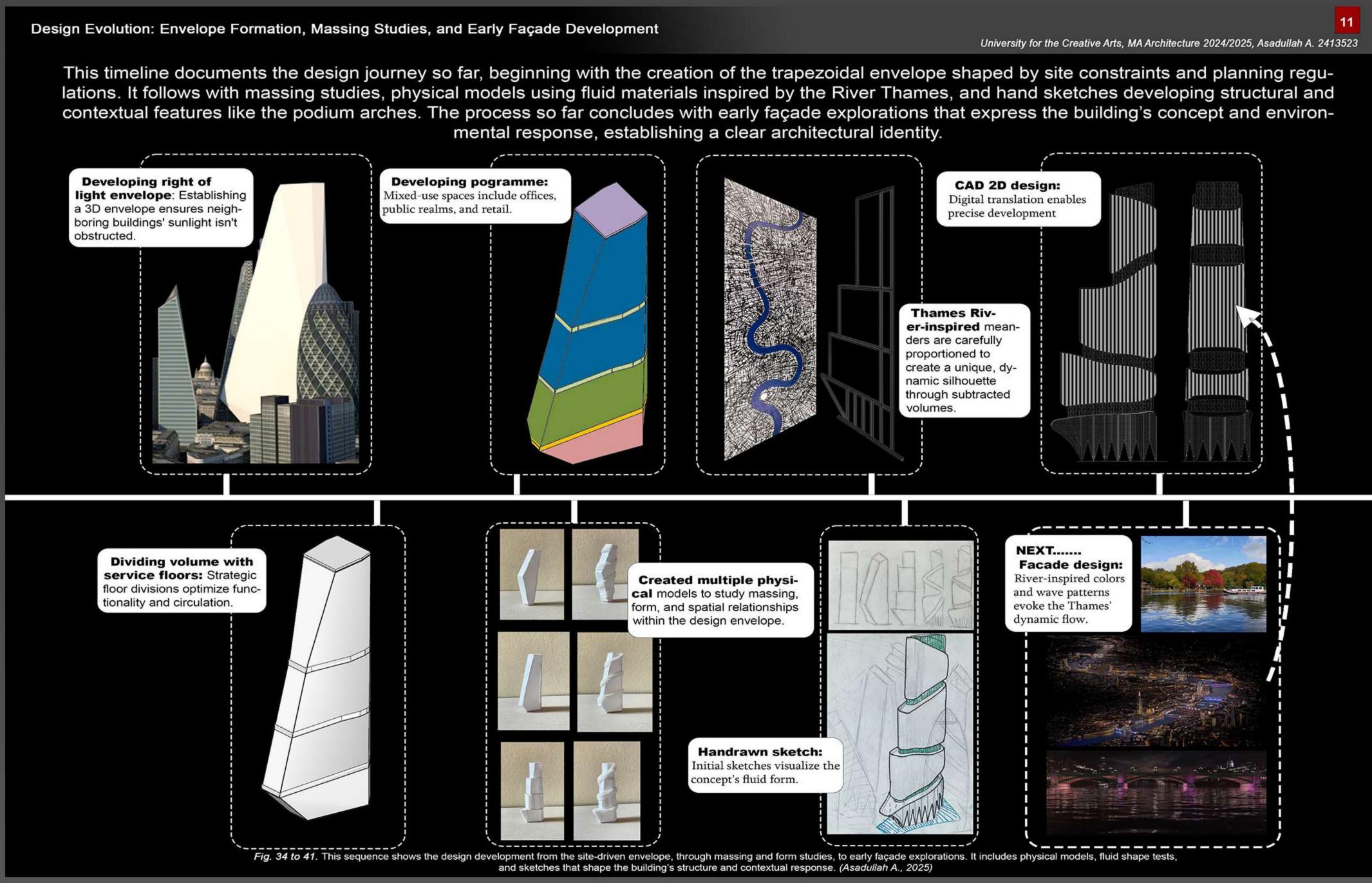


Fig. 27 to 31. Hand-drawn sketches exploring the tower's overall form, movement, and structure inspired by the River Thames; podium studies incorporating arched elements referencing nearby churches and structural needs; and the initial final form that integrates site constraints with conceptual and contextual design ideas. (Asadullah A., 2025)

In this section, I'm including some earlier research from a previous semester. The pages feature my work on skyscraper program development from the given envelope, as well as vertical planning. Additionally, I've included a design evolution study that showcases the progression from envelope formation to massing studies, early façade development, and ultimately, conceptual elevations that paved the way for my current façade design







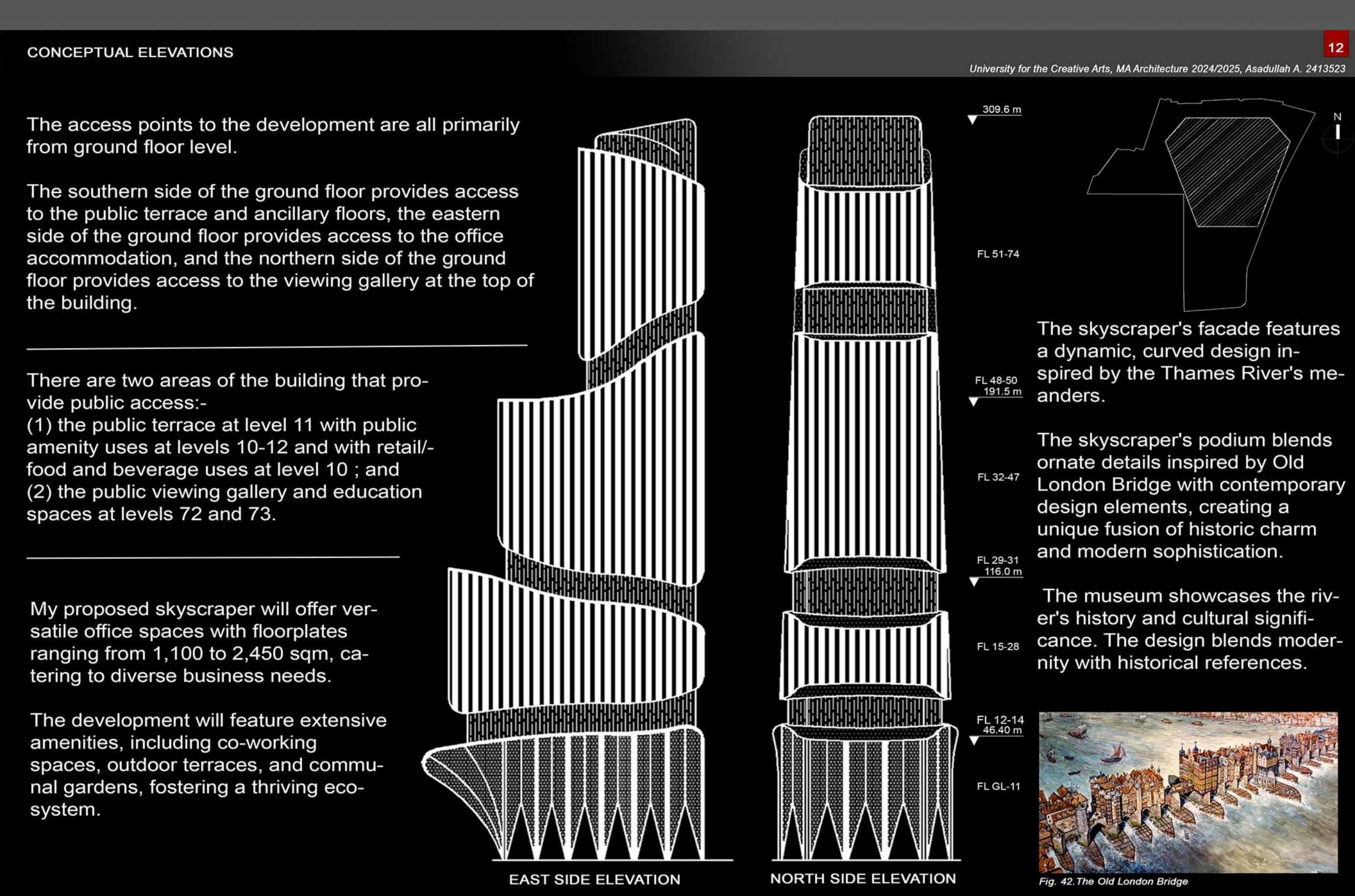


Fig. 32 to 35. Showcasing architectural research and design development skills through skyscraper program development, vertical planning, and design evolution studies (Asadullah A., 2025)

The design incorporates spacious sky gardens within the intervals formed by the River Thames-inspired flow around the building, reflecting London's abundant greenery. These gardens enhance the building's environment by allowing natural light and ventilation to reach interior spaces.

The structure is supported by a sustainable steel framework combined with a glass curtain wall system, creating flexible office spaces that respond to the vibrant urban context. The river-inspired form creates open areas that accommodate these landscaped terraces throughout the building.

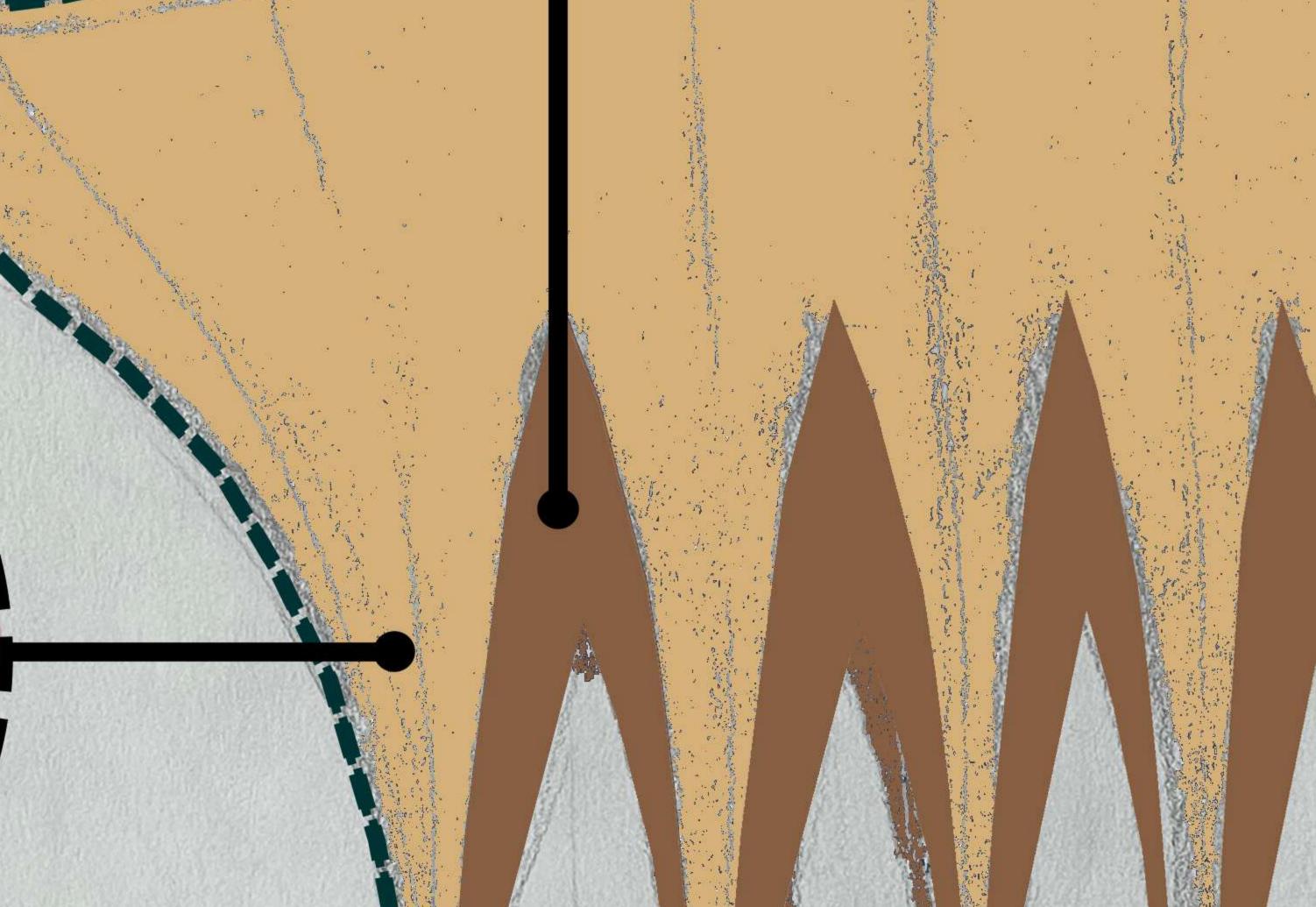
At the top, a rooftop observation deck offers expansive views of London. As the tallest building in the city, it serves as a prominent landmark and a public gathering space.

Above the podium, expanded public spaces and sky gardens offer communal areas, enhancing social interaction and

urban connectivity.

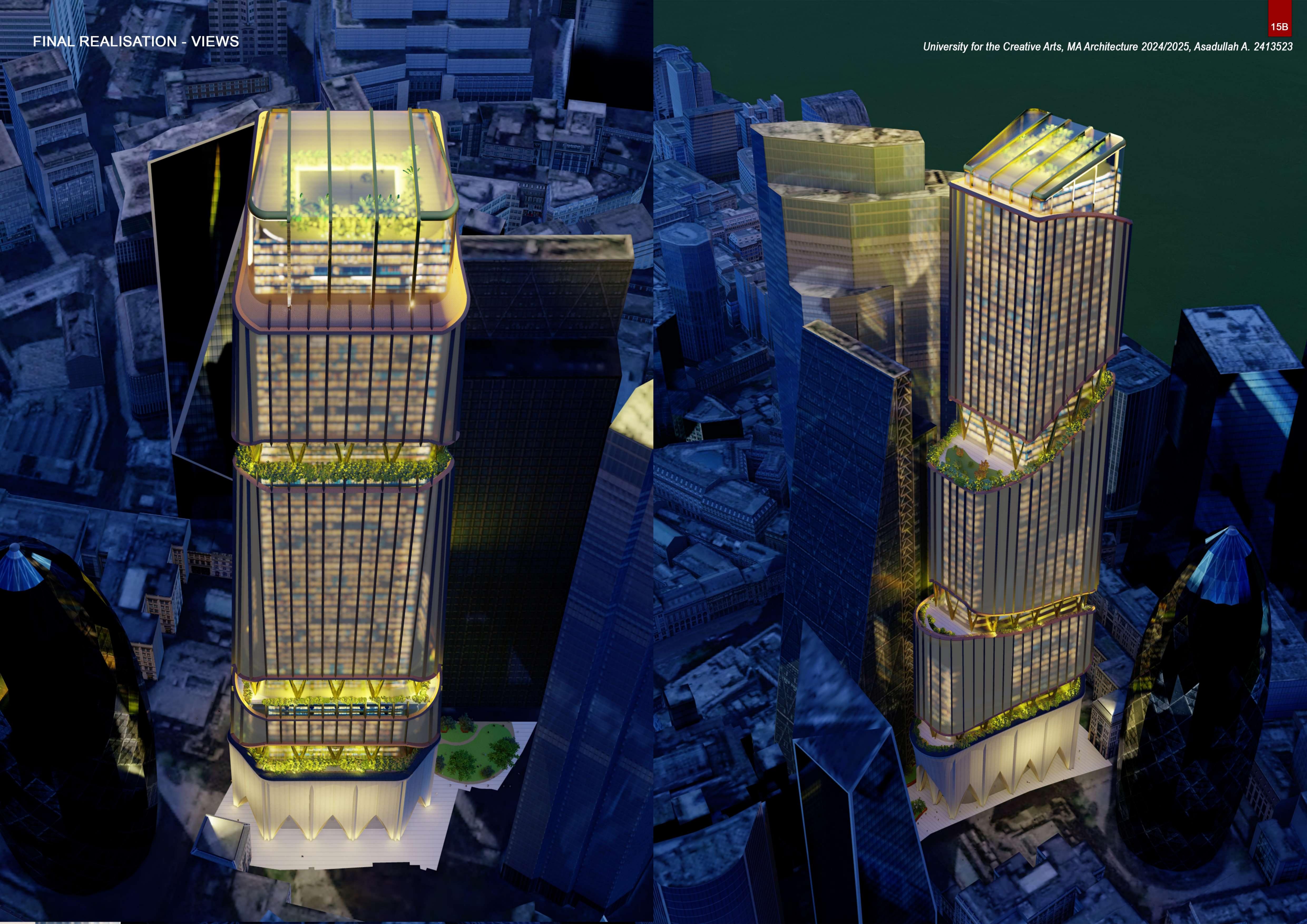
Glass curtain wall with metallic frames in-Vaulted arches reflect Old London Bridge, tegrates photovoltaics, helping the build-Gothic churches, and River Thames Museum. ing generate its own power sustainably. The River Thames theme gracefully circulates around the skyscraper, symbolizing the river's vital role in London's trade, connectivity, and rich cultural heritage. This flowing design element connects the building to the city's historic lifeblood, creating a dynamic relationship between nature and architecture. The podium, featuring golden Gothic arches inspired by Old London Bridge, houses vibrant commercial spaces. These arches provide structural rhythm and evoke London's architectural legacy, blending historical grandeur with modern functionality.

PHOTOCHROMATIC GLASS in river wave patterns changes color with UV light, mimicking river's natural shifts.



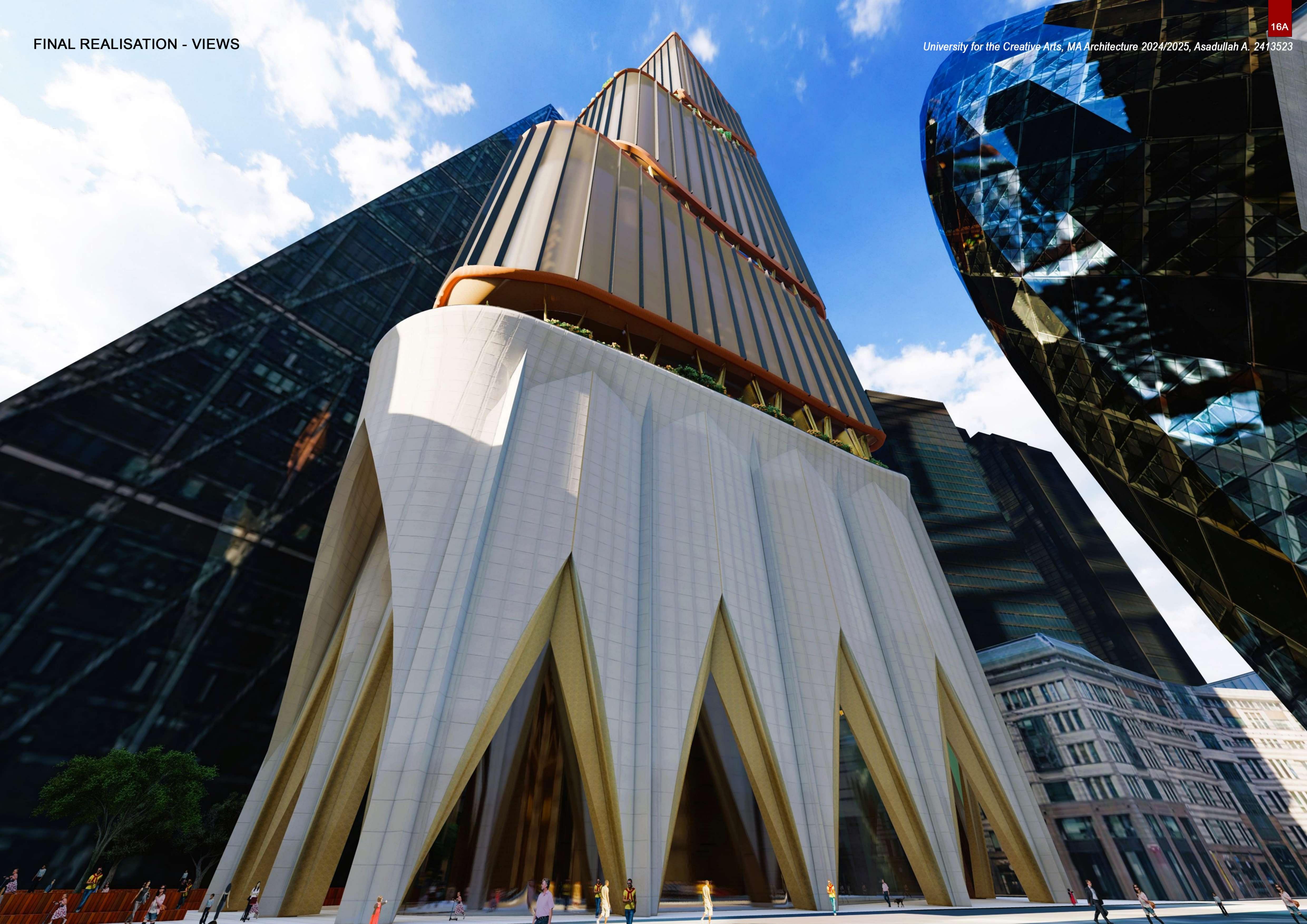


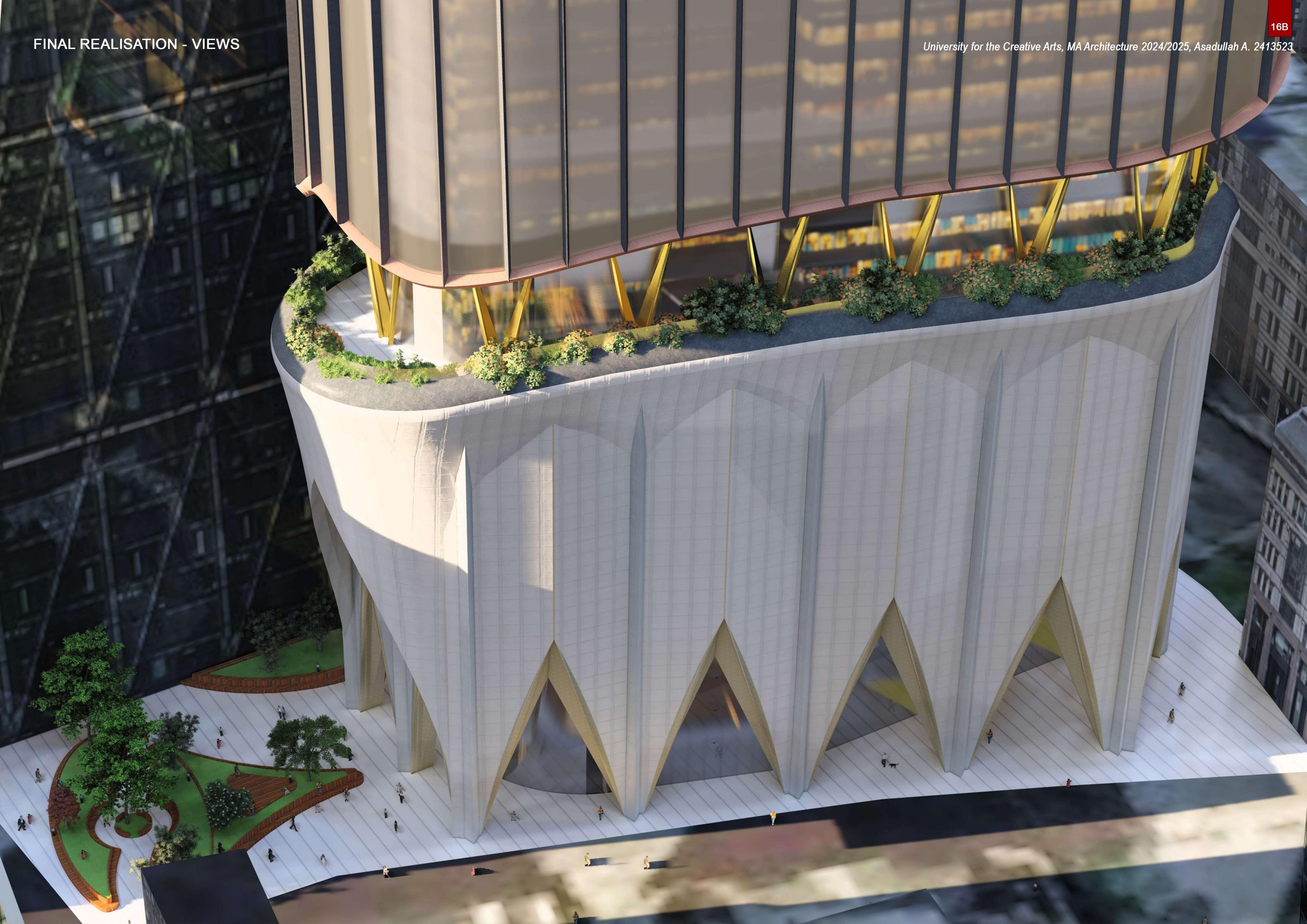














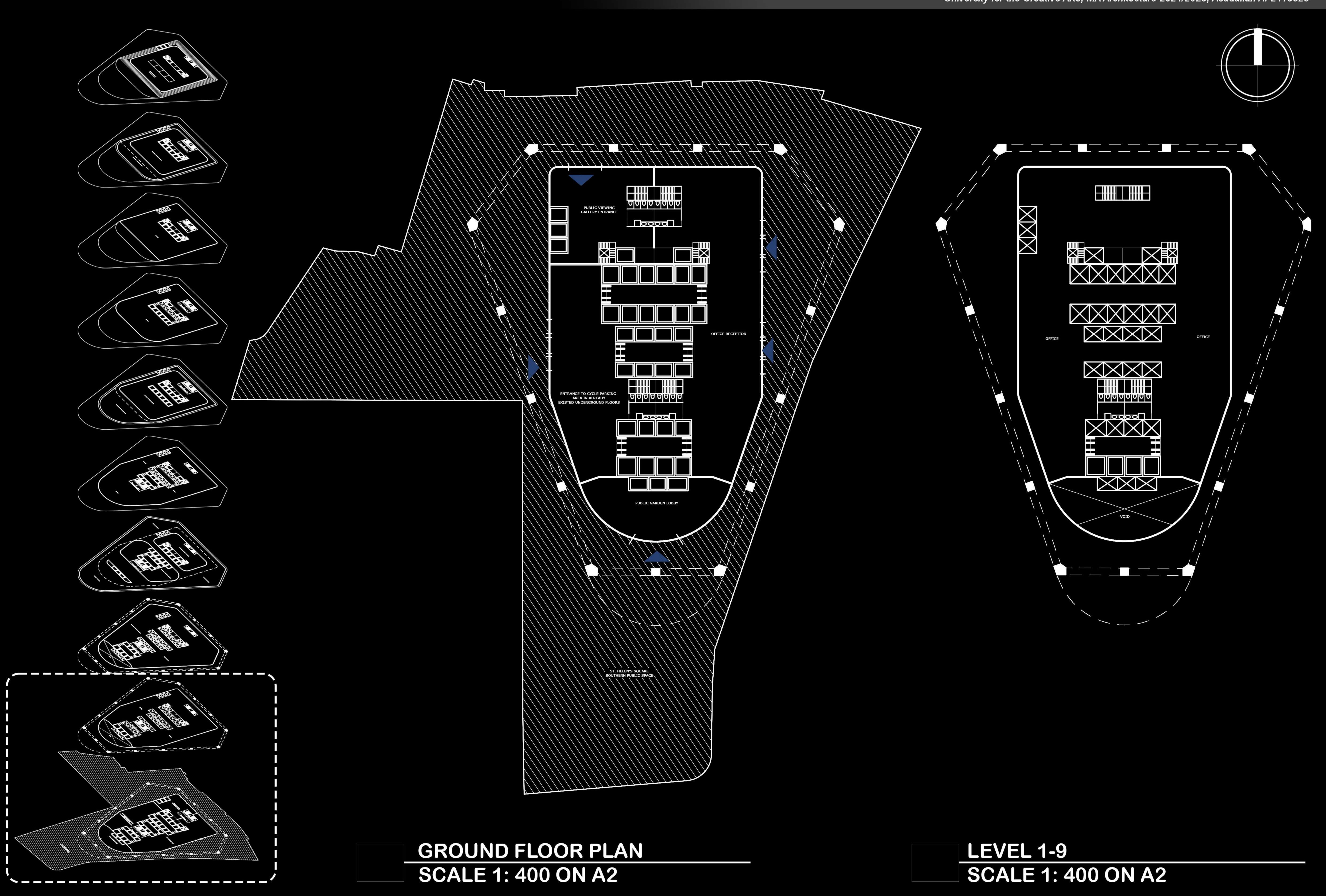


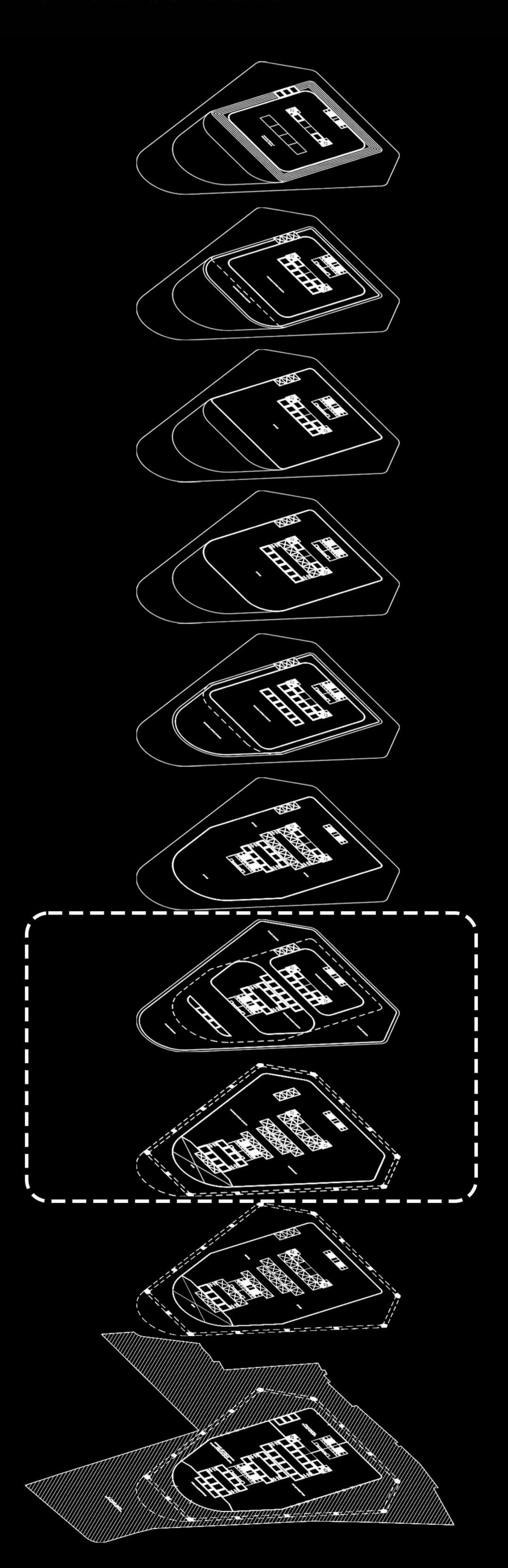


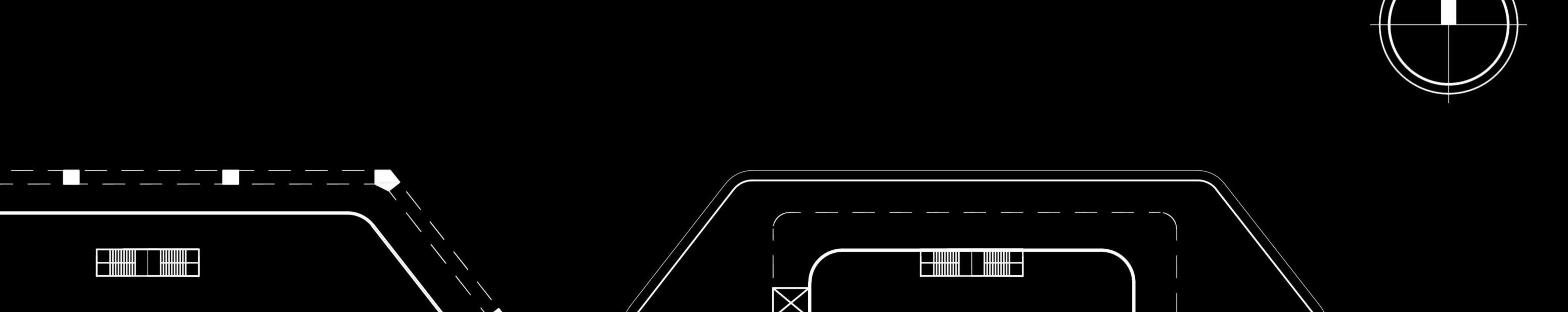


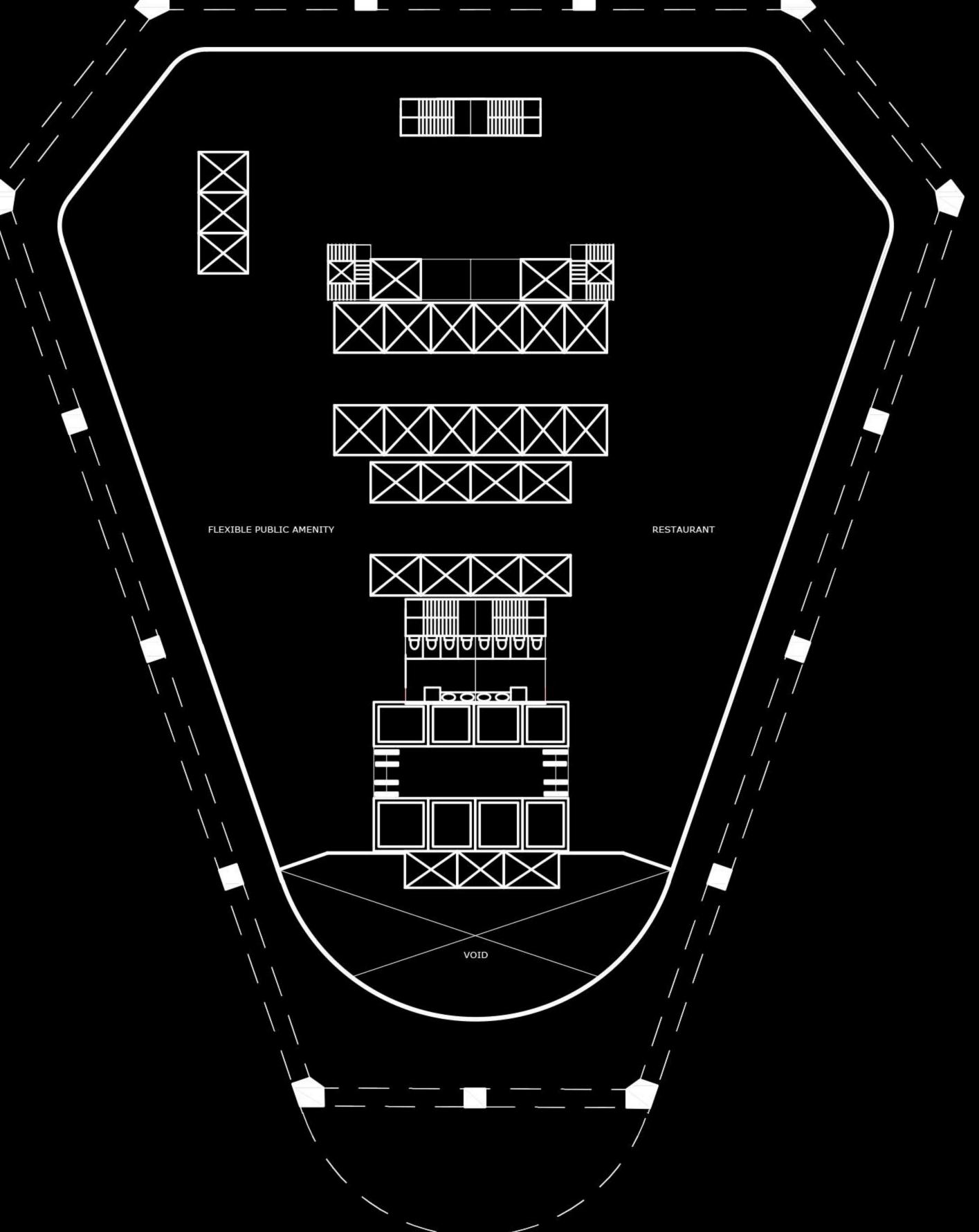


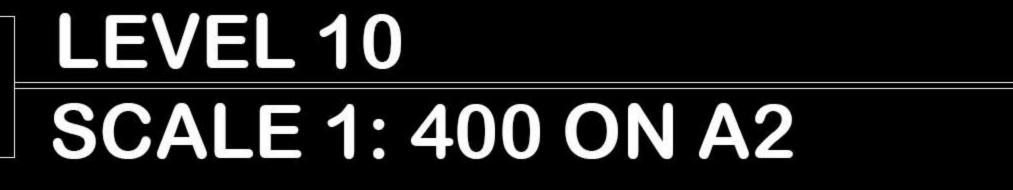


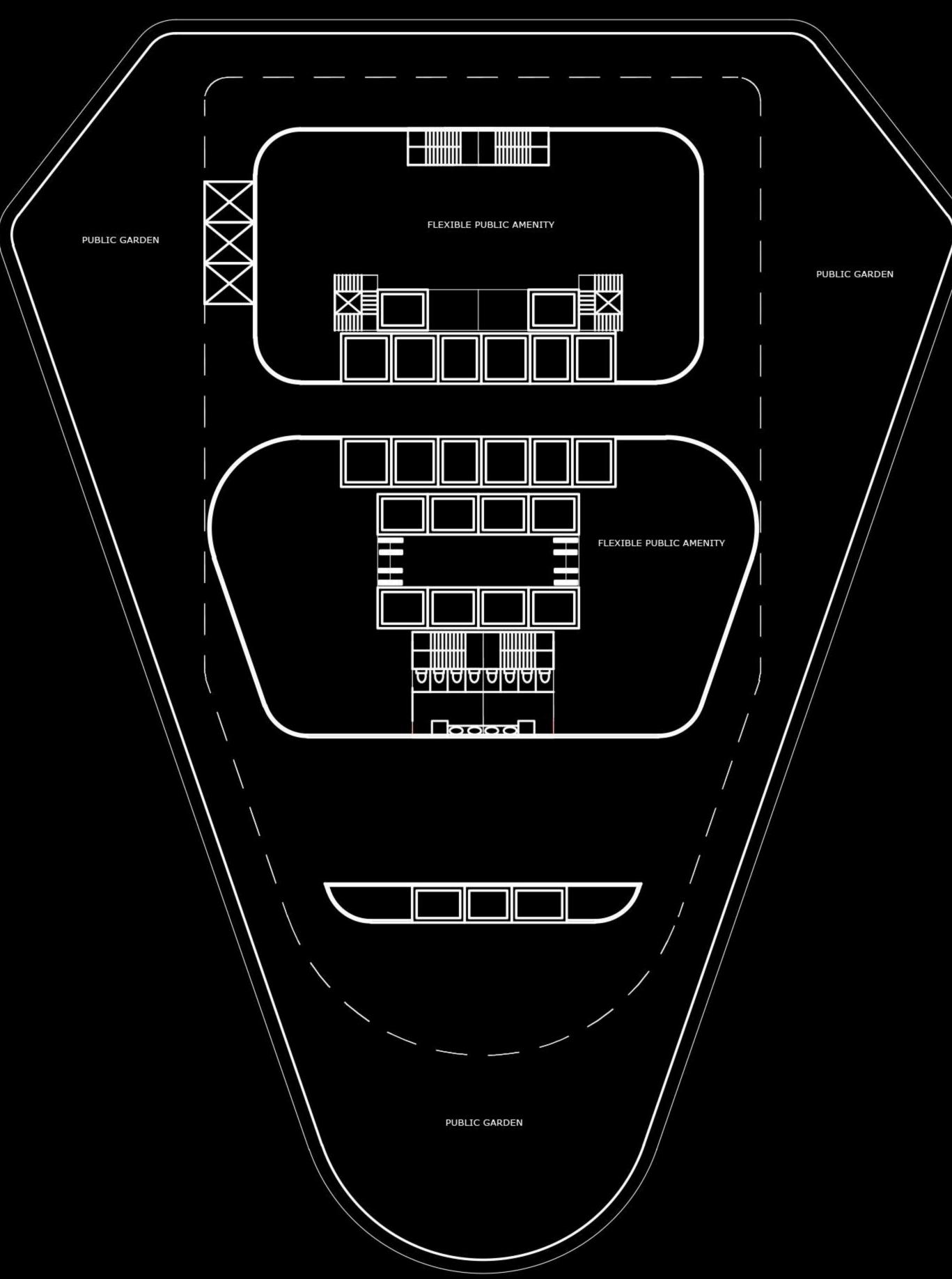






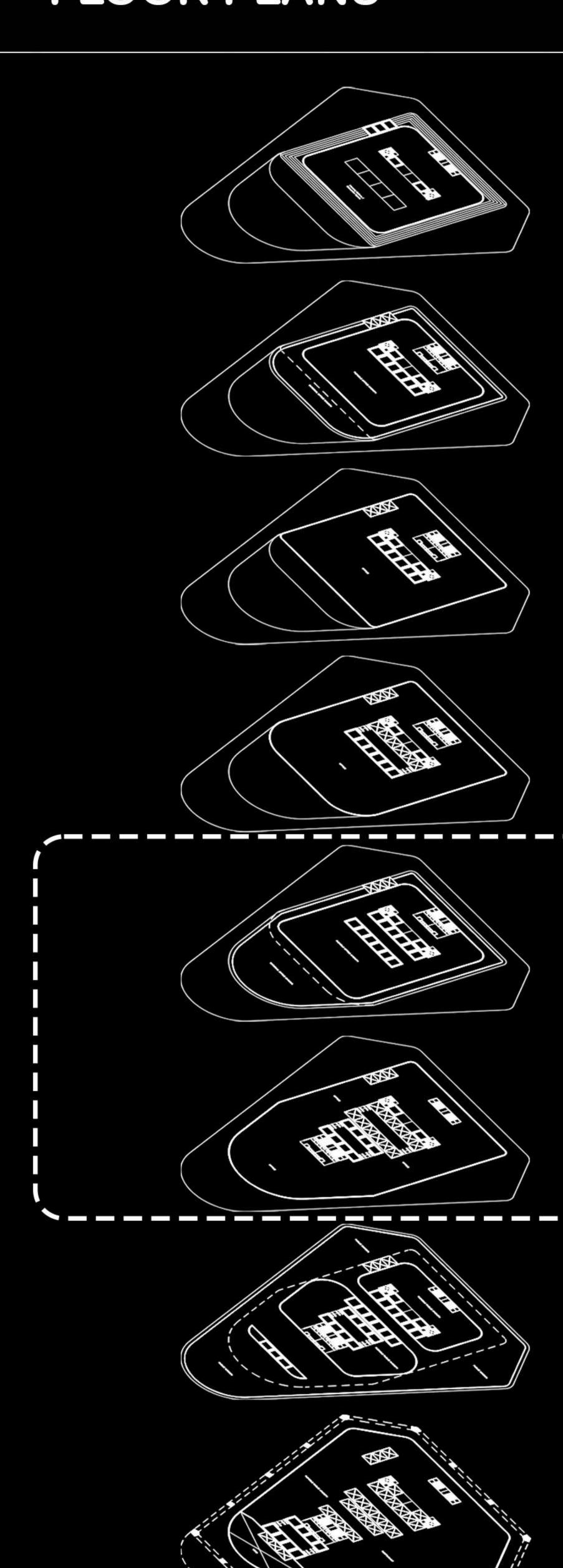


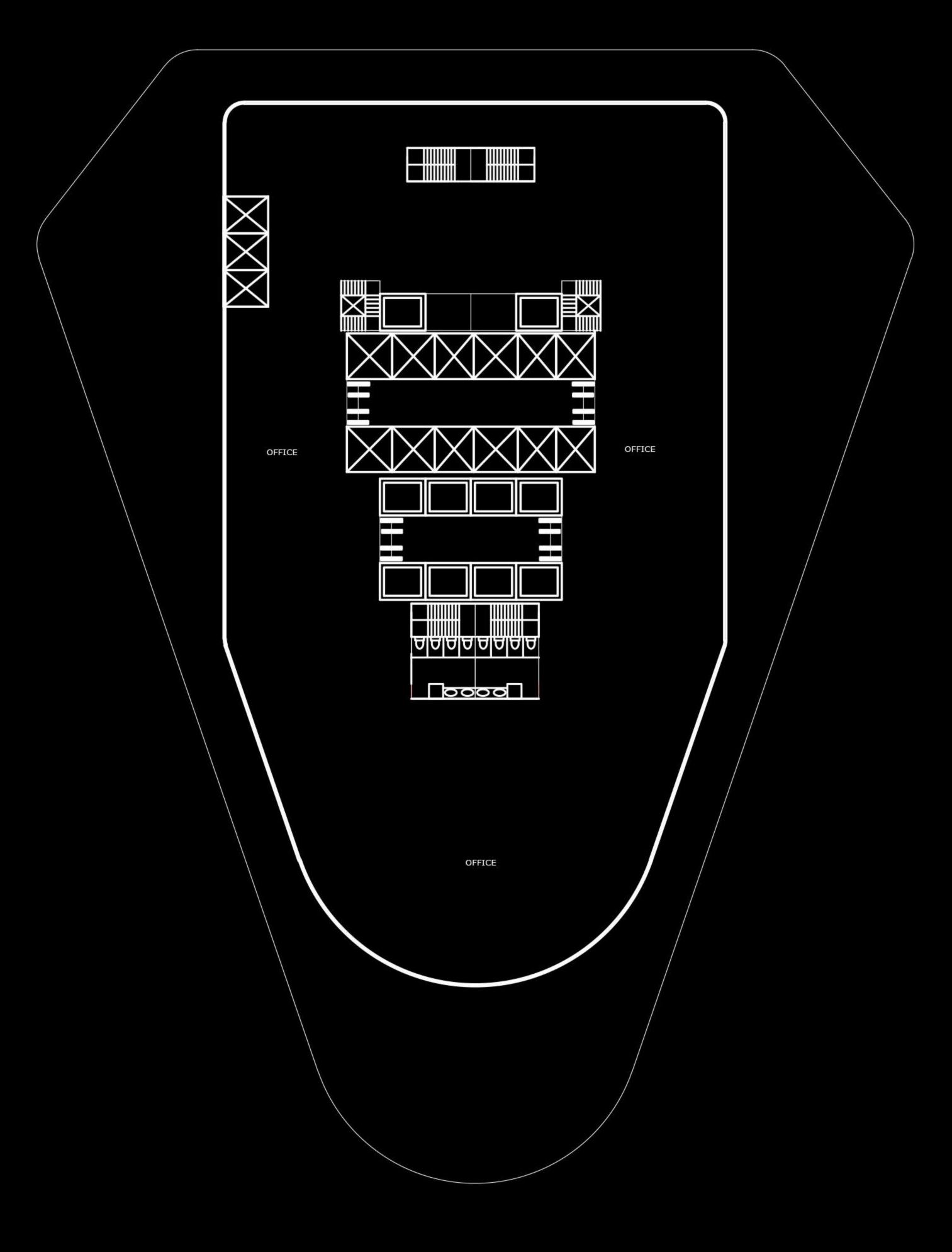


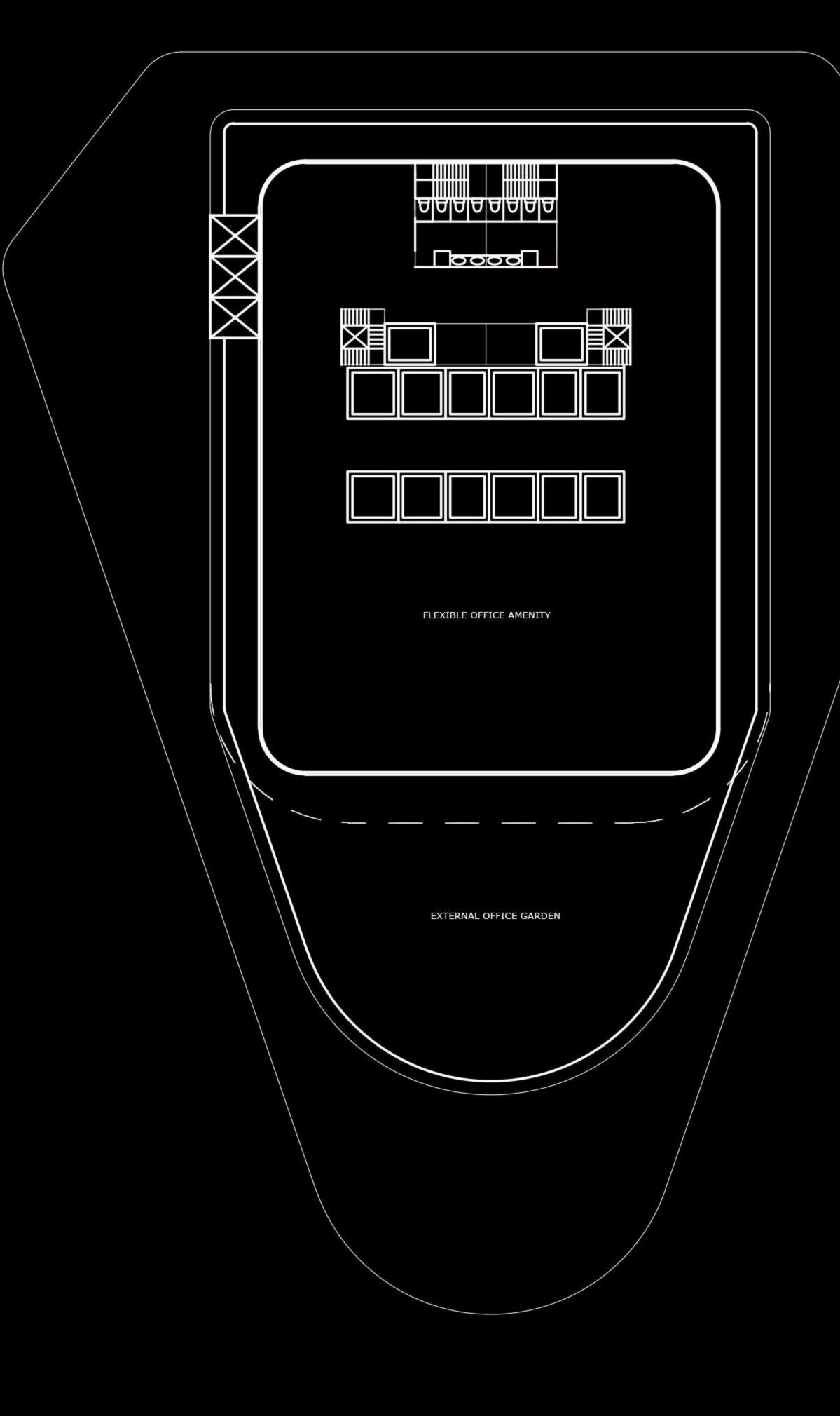


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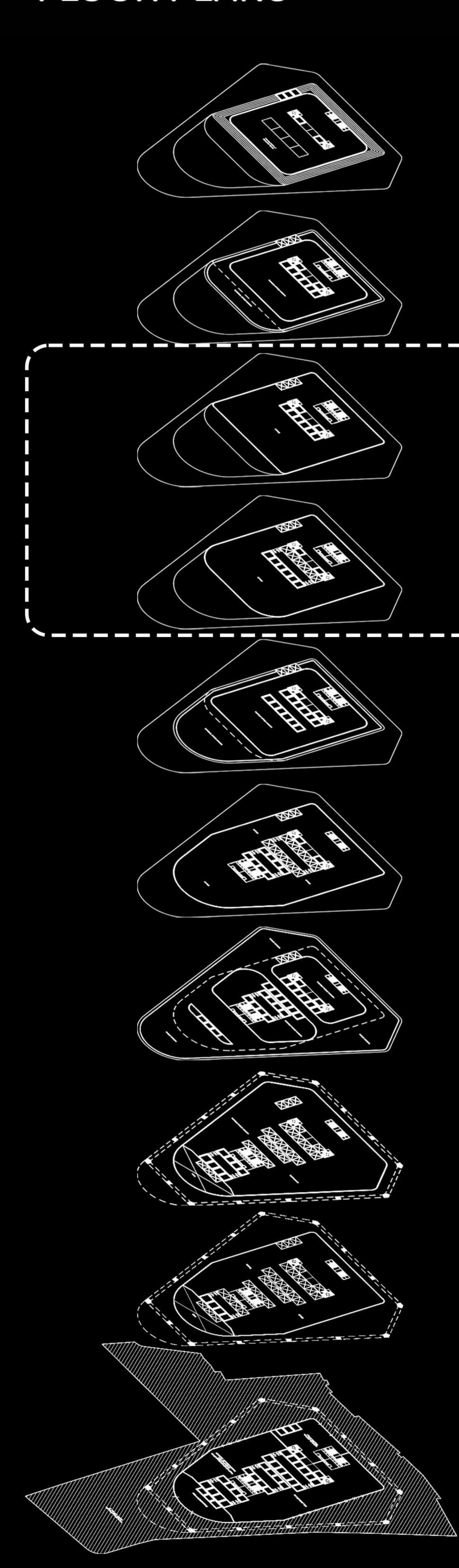


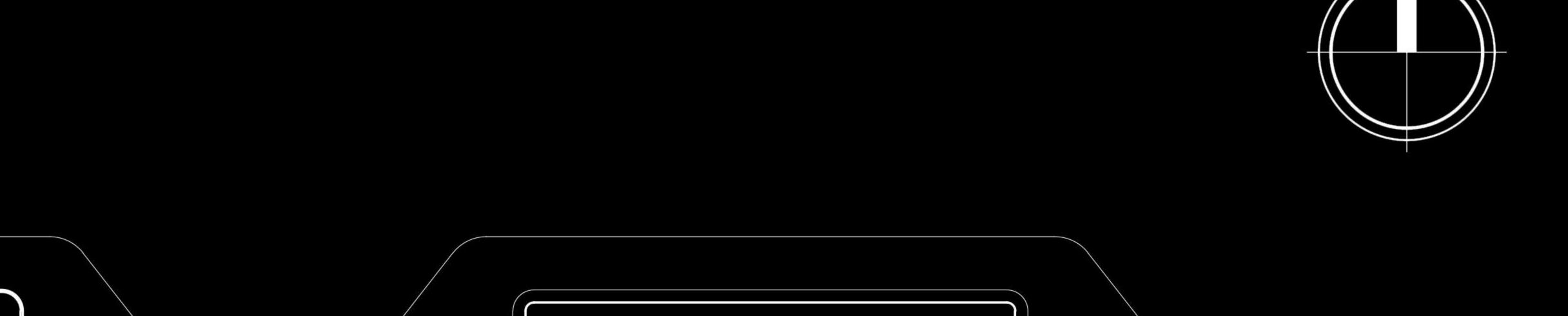


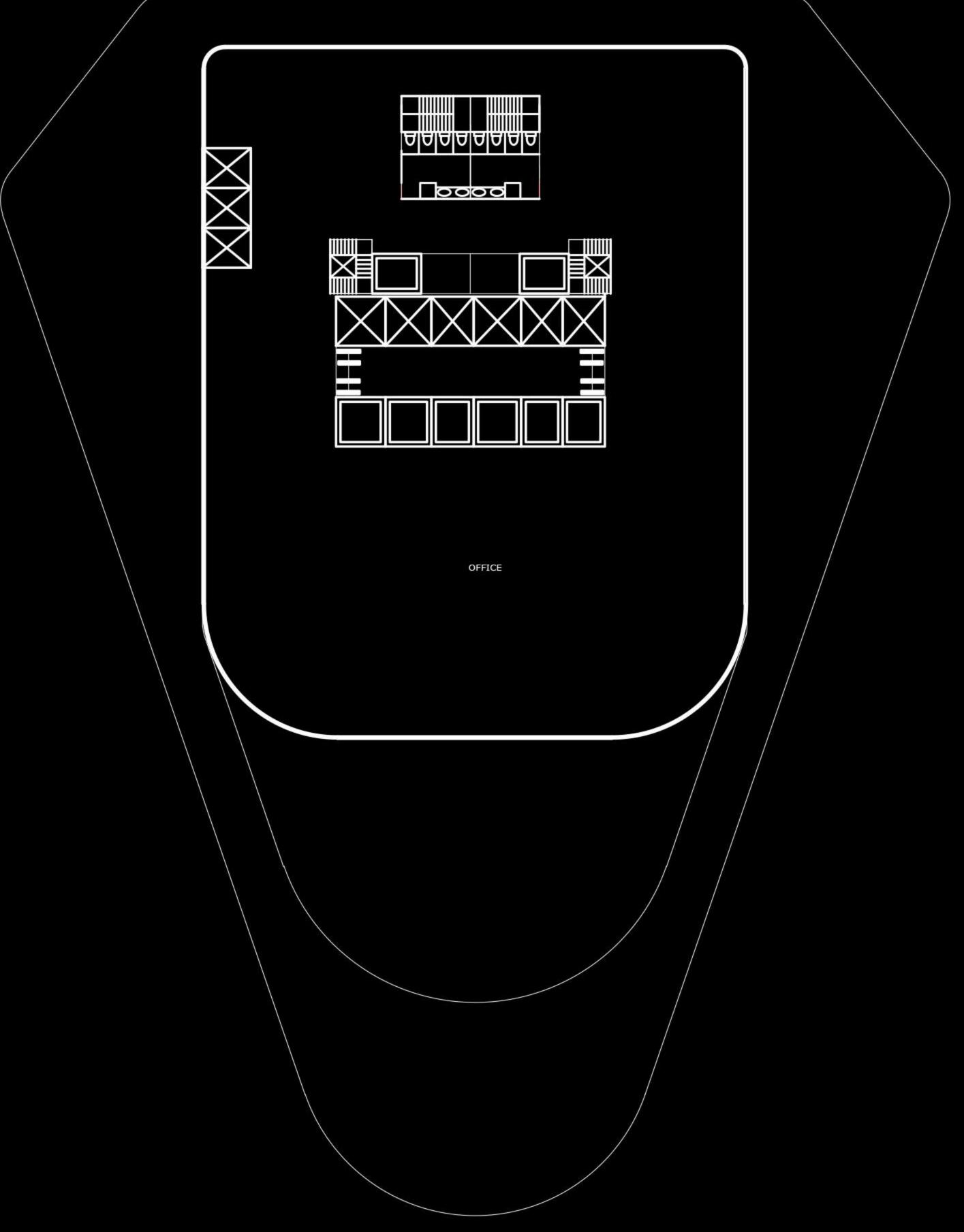
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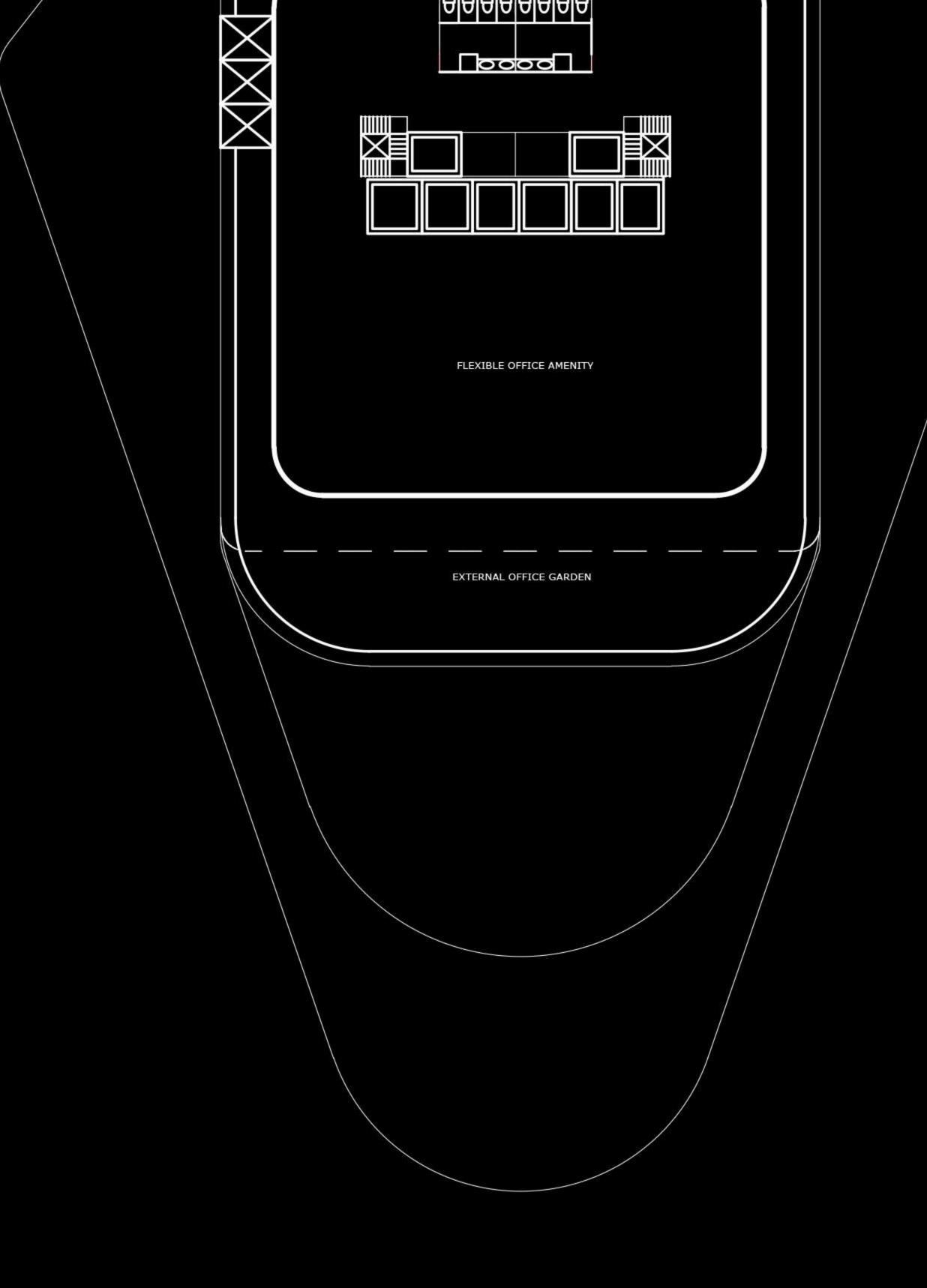
LEVEL 30-32 SCALE 1: 400 ON A2

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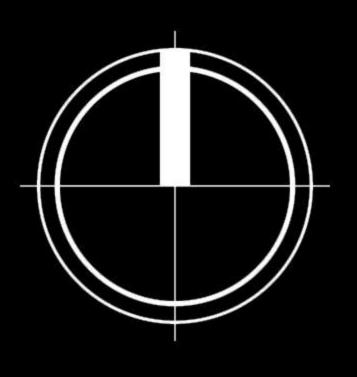


LEVEL 33-47

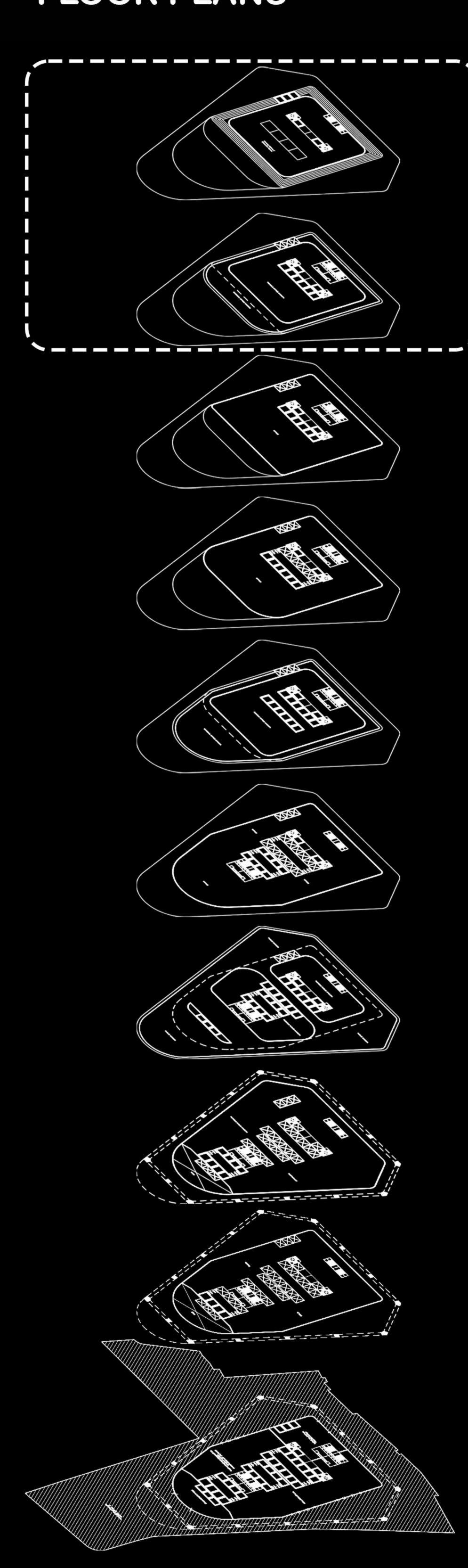
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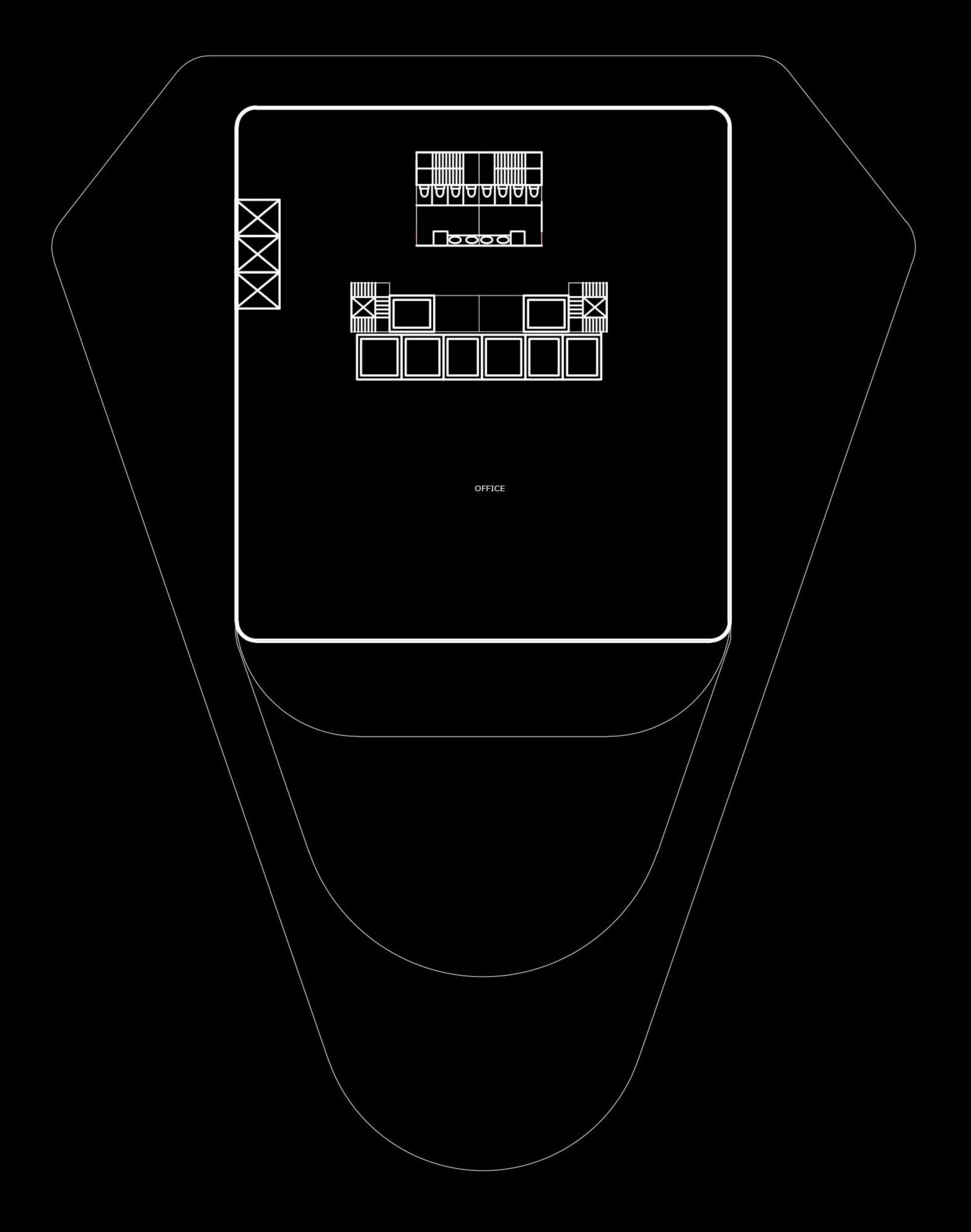
LEVEL 48-49

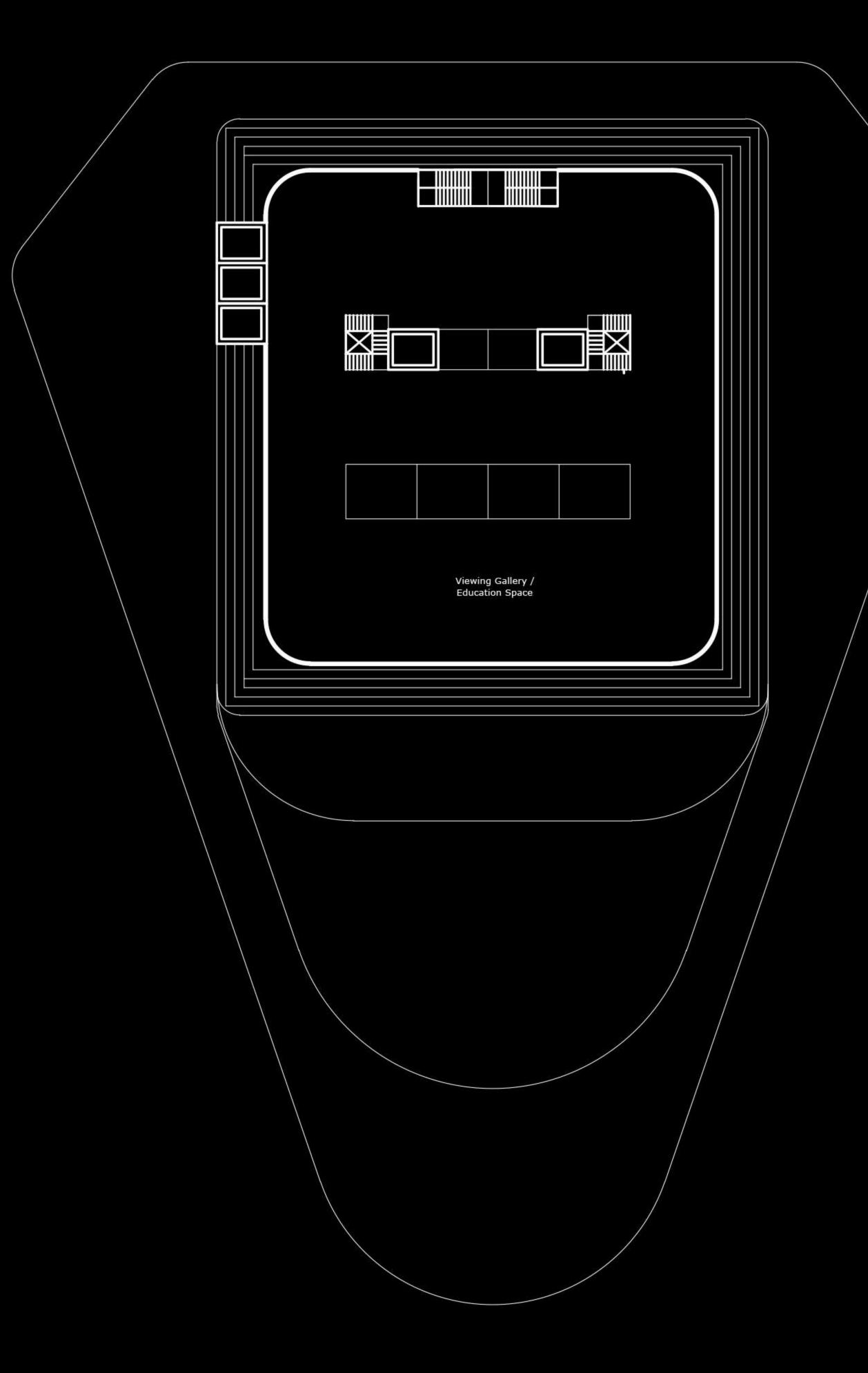
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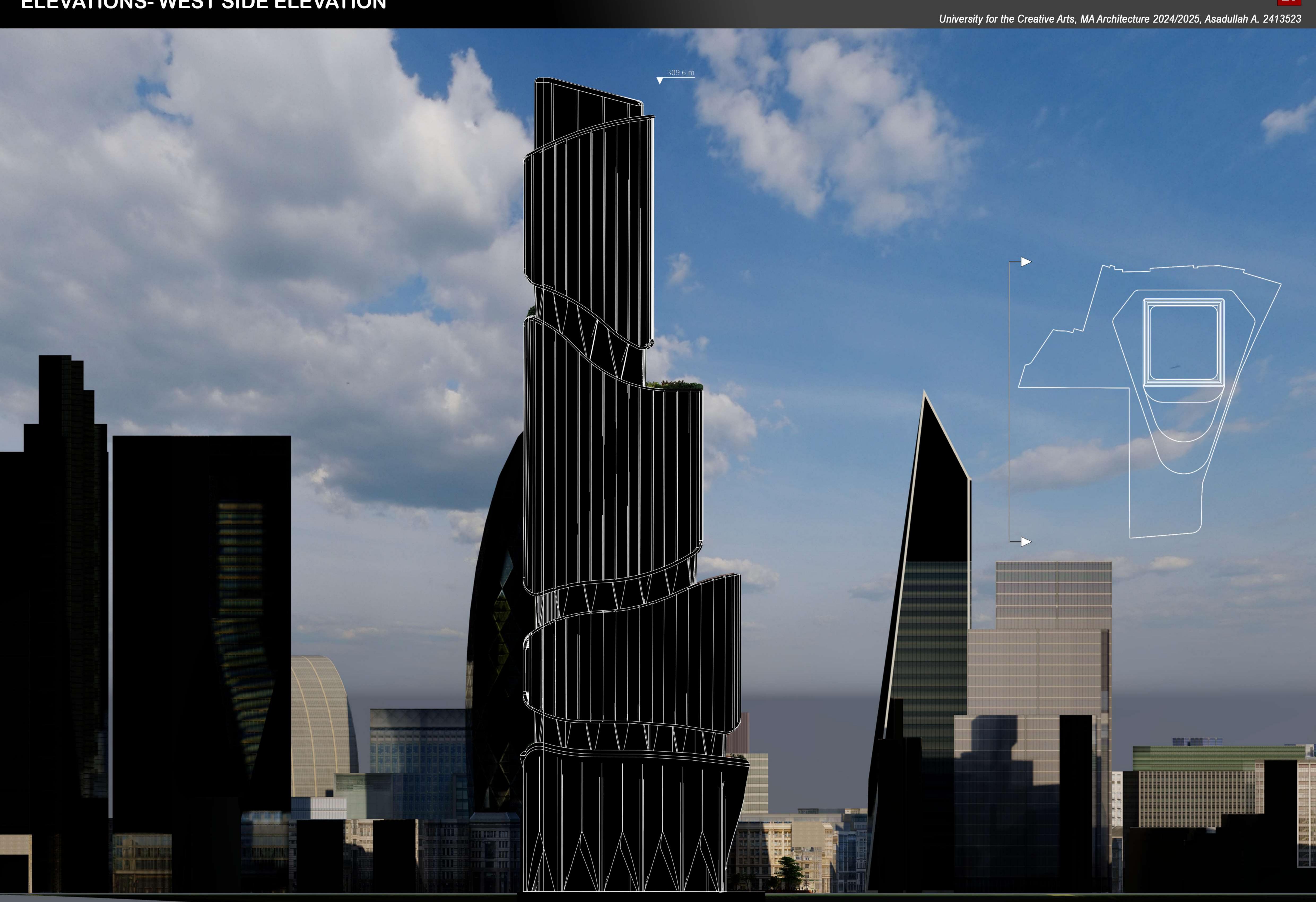




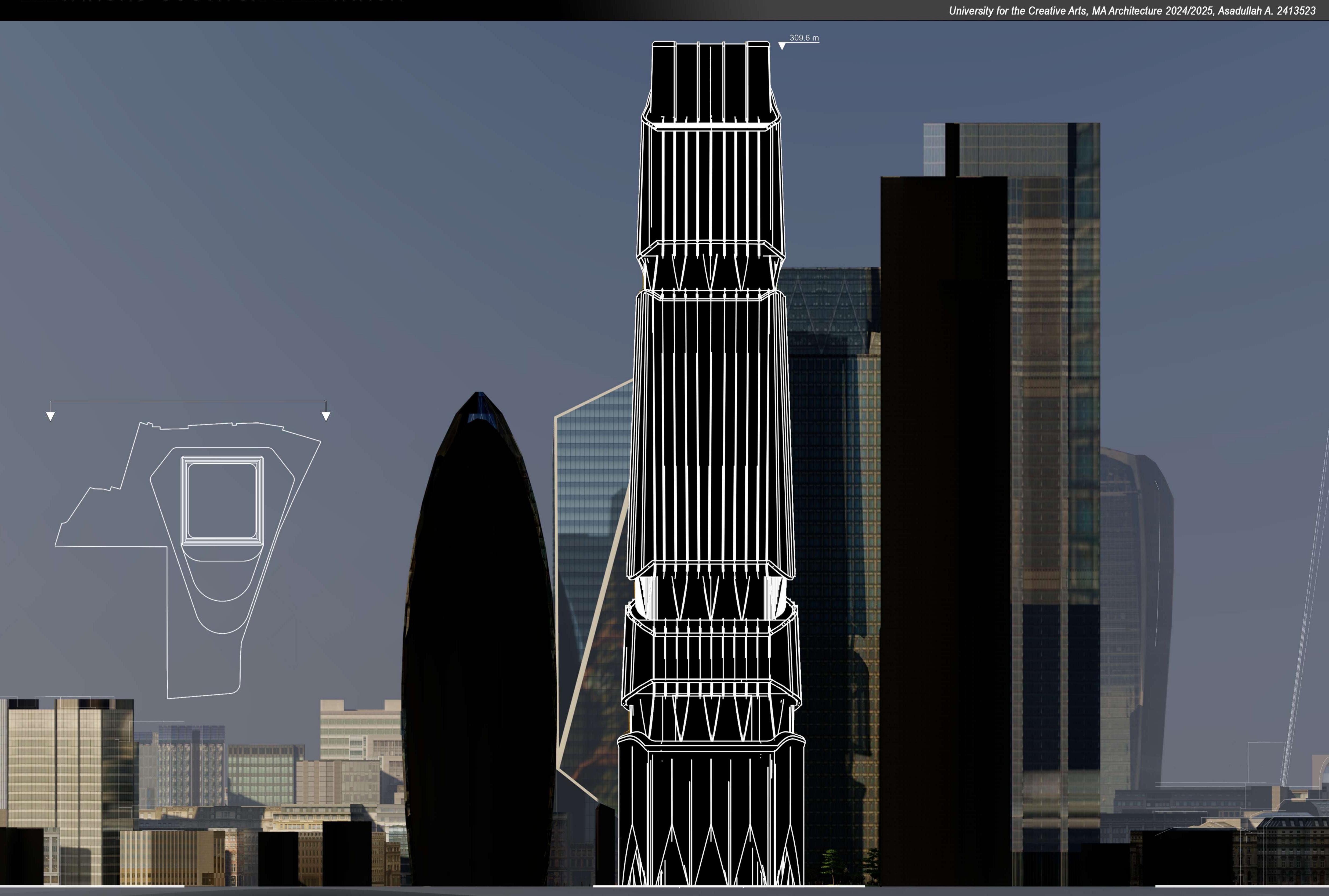
LEVEL 50-75
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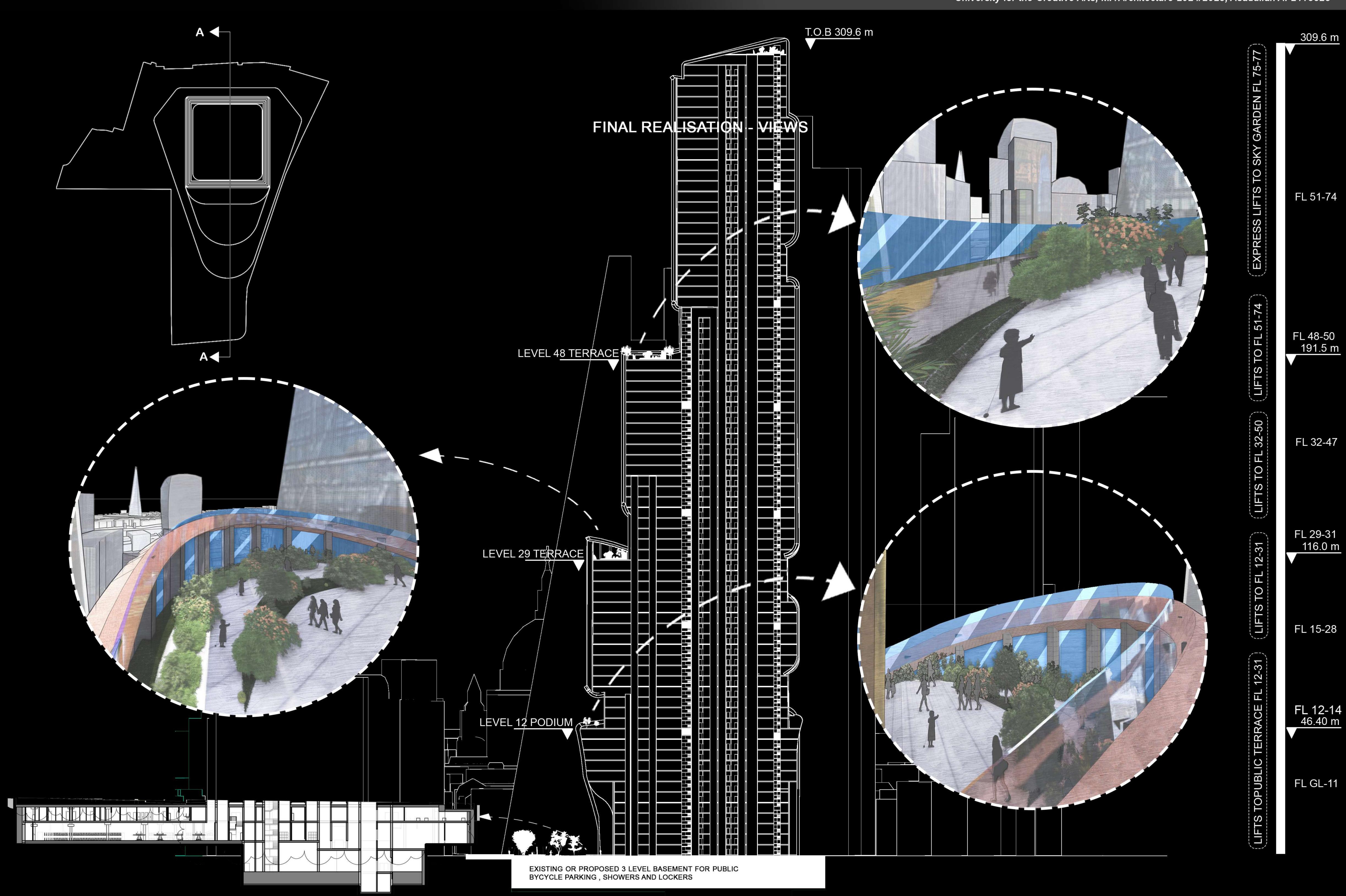
LEVEL 76-77 SKY GARDEN, OBSERVATION DECK SCALE 1: 400 ON A2

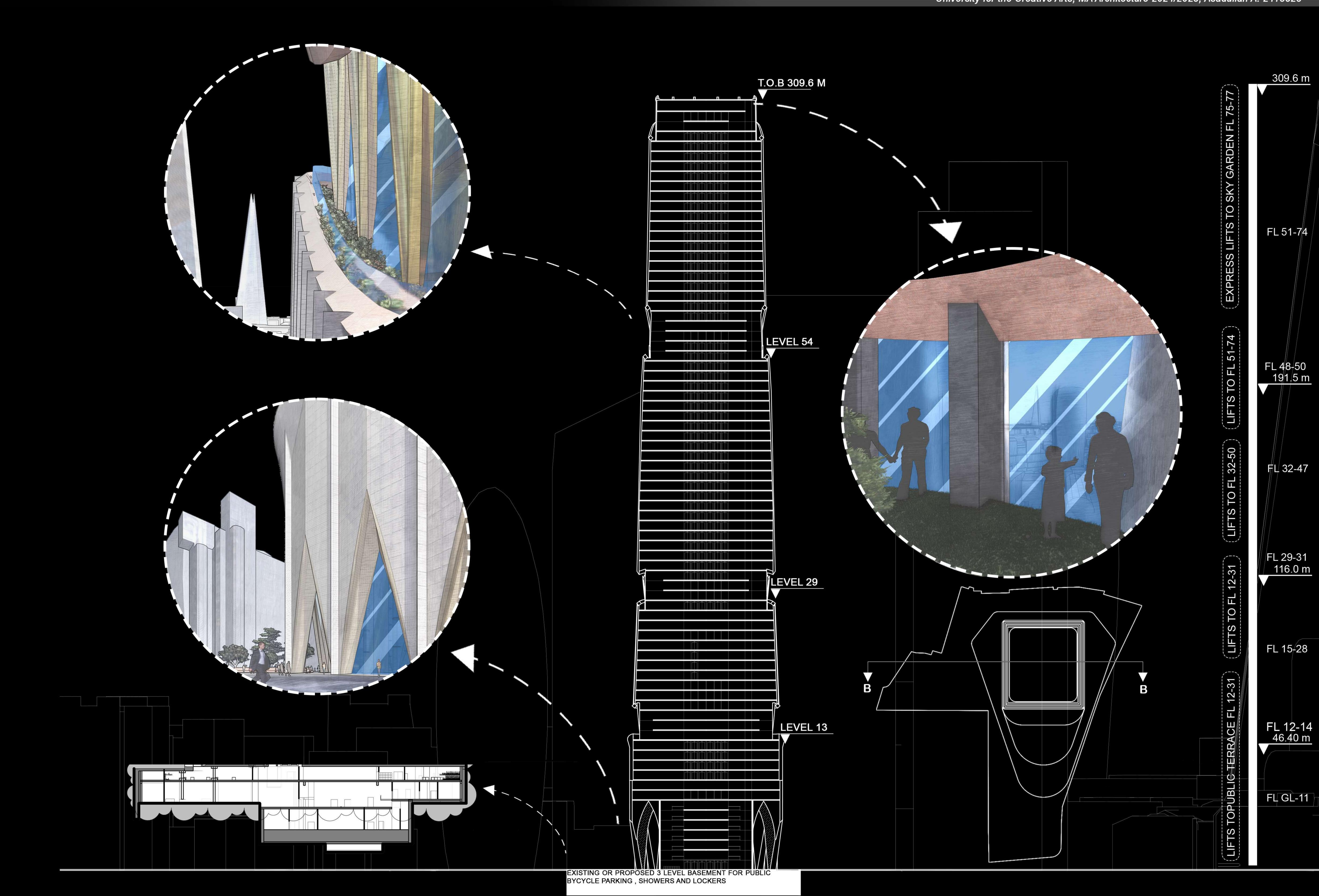




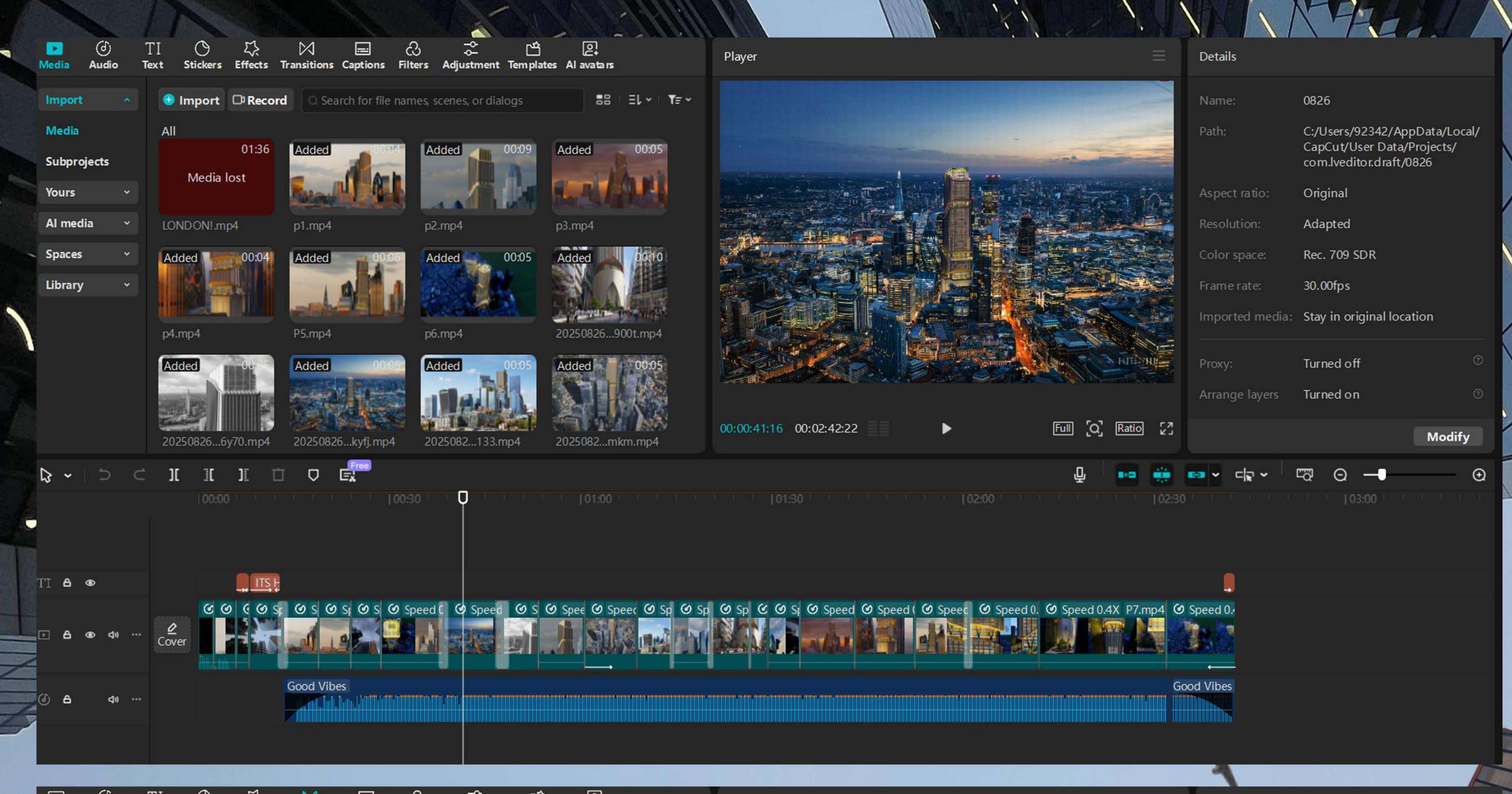








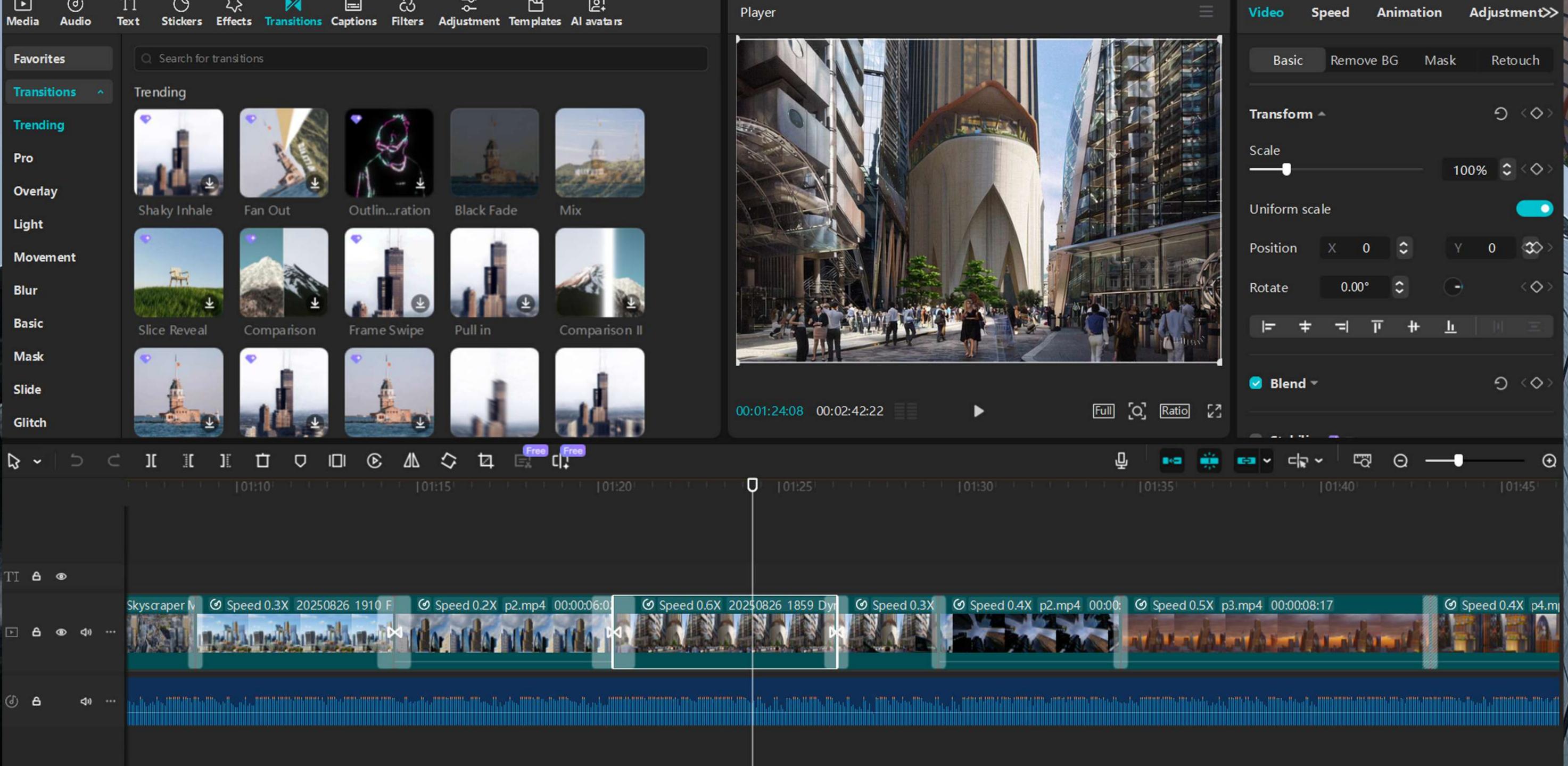




I've created an animation video showcasing the Thames Tower's unique design amidst London's cityscape. Using Lumion and Al-enhanced scenes, I've crafted a realistic visual narrative highlighting the tower's distinctive silhouette and harmonious integration into the urban fabric.

The video reveals the tower's intricate details and its contribution to London's skyline. Scan the QR code to witness the culmination of my efforts, showcasing innovative design and meticulous craftsmanship.

https://drive.google.com/file/d/1BFERGeSCqGgNo-QxYbjvcjD8oZ6yVD2Gz/view?usp=sharing





### MY CV & WORK INTEREST FOR JOB SEARCH

As an architecture enthusiast, I'm drawn to high-rise buildings and skyscrapers, particularly sustainable and supertall structures. My thesis project allowed me to explore the challenges and opportunities of designing such buildings. I learned to balance aesthetics, functionality, and environmental responsibility, while pushing the boundaries of conventional design.

Designing skyscrapers in London presents unique challenges, from navigating strict building codes and regulations to addressing the city's dense urban context. I'm excited to bring my skills and experience to a firm that shares my passion for designing iconic, sustainable, and efficient skyscrapers.

Some firms that align with my interests include:

### Foster + Partners

I'm excited to apply to Foster + Partners because of their innovative approach to high-rise design and sustainability. Their projects, like The Gherkin, showcase a blend of functionality and aesthetics that aligns with my interests in designing futuristic and environmentally conscious buildings.

### Zaha Hadid Architects

Zaha Hadid Architects' emphasis on parametric design and futuristic architecture resonates with my passion for creating bold, avant-garde structures. I'd love to contribute to their projects and learn from their expertise in pushing the boundaries of architecture.

### Skidmore, Owings & Merrill

SOM's portfolio of iconic skyscrapers, like the Burj Khalifa, demonstrates their expertise in designing complex, high-performance buildings. I'm drawn to their commitment to innovation and sustainability, which aligns with my interests in creating efficient and environmentally friendly structures.

### Pelli Clarke & Partners

Pelli Clarke & Partners' designs, such as the Petronas Twin Towers, showcase a perfect blend of form and function. I'm impressed by their ability to create iconic buildings that are both visually striking and functional, and I'd be thrilled to contribute to their projects.

### KPF (Kohn Pedersen Fox)

KPF's extensive experience in designing skyscrapers and high-rise buildings, like the Salesforce Tower, aligns with my interests in creating complex, high-performance structures. I'm excited about the opportunity to work with a firm that prioritizes innovation and sustainability.

### **Make Architects**

Make Architects' focus on sustainable design and innovative solutions resonates with my passion for environmentally conscious architecture. Their projects, like Three New Bailey, demonstrate a commitment to creating buildings that are both functional and aesthetically pleasing.

### Grimshaw Architects

Grimshaw Architects' emphasis on sustainability and innovative design aligns with my interests in creating environmentally friendly structures. I'd be excited to contribute to their projects and learn from their expertise in designing complex, high-performance buildings.

### Adrian Smith + Gordon Gill Architecture

AS+GG's focus on sustainable design and high-performance buildings resonates with my passion for creating efficient and environmentally conscious structures. Their projects, like the Jeddah Tower, demonstrate a commitment to innovation and sustainability that I'd love to be a part of.

Each of these firms offers a unique opportunity to contribute to innovative and sustainable design projects that align with my interests in high-rise architecture and skyscrapers. I'm excited to explore these opportunities and learn from the best in the industry!

### **ASADULLAH**

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(open to relocation)
+44 78 4213 9109
asadtariq726@gmail.com

### **PROFILE**

Dedicated architectural professional with a strong foundation in design and technical drawing. Holding a MA in Architecture degree from UCA, Canterbury, UK, specializing in sustainable skyscraper design, and a Bachelor's degree from MUET, Pakistan. With over 5 years of combined academic and industry experience, I possess a talent for navigating complex design projects, from historic preservation to modern housing, commercial developments, and public infrastructure initiatives. I've honed my skills in working to standard design protocols, having successfully collaborated with a foreign-based firm remotely for over a year. I'm a driven and detail-focused individual looking to join a dynamic UK practice and contribute to impactful architectural projects.

### **WORK EXPERIENCE**

### Intern Architect and 3D Modeller | Aug 2019 - Apr 2021 Rehmania Architects & Co, Hyderabad, Pakistan.

- Assisted in preparing presentations, designing floor plans, and developing technical documentation for architectural projects.
- Contributed to design development, conducted site visits, and collaborated with senior architects to refine project designs, utilizing software like Autodesk Revit and AutoCAD.
- Also creating 3D visualizations using Rhino, SketchUp, and Lumion to enhance design communication and provided support during construction administration.

## Junior Architect, Designer and 3D Visulaizer | Feb 2021 - March 2022 PAK CONSULTANTS, Hyderabad, Pakistan.

- Worked on commercial and residential projects, creating detailed floor plans, 3D models, and interior design layouts.
- · Coordinated with clients, contractors, and stakeholders, while also ensuring compliance with building bye-laws and regulations for government projects.
- Contributed to project management, including budgeting, scheduling, and quality control

# Assistant Architect, Designer and 3D Visulaizer | March 2022 - July 2024 NMEC MANAGEMENT INC, TEXAS, USA. (REMOTELY)

- · Planing and designing commercial and residential projects, developing plans and elevation ideas.
- Creating 3D designs with animations and renderings, and assist in generating working drawings while ensuring compliance with US standards and codes.

### **TECHNICAL SKILLS**

AutoCAD, Revit, Archicad, Rhino, SketchUp, Lumion, Twinmotion, Adobe Creative Suite (Photoshop, Illustrator, InDesign), MS Office, AI based Visualization Tools

### **EDUCATION**

# University for the Creative Arts (UK) MA ARCHITECTURE | 2024 - PRESENT

- · Enhanced design thinking and skills in spatial analysis, sustainability, and digital fabrication
- · Applied skills to large-scale projects, including skyscraper design in London, adhering to UK standards

# Mehran University of Engineering & Technology, Jamshoro, Pakistan. BACHELORS OF ARCHITECTURE | 2016 - 2022

- Designed diverse projects, including residential complexes, educational institutions, and community centers with my thesis focusing on a sustainable smart and adaptive megatall skyscraper.
- \*Integrated innovative tech and sustainable design for futuristic, resilient high-rises.

### LANGUAGES

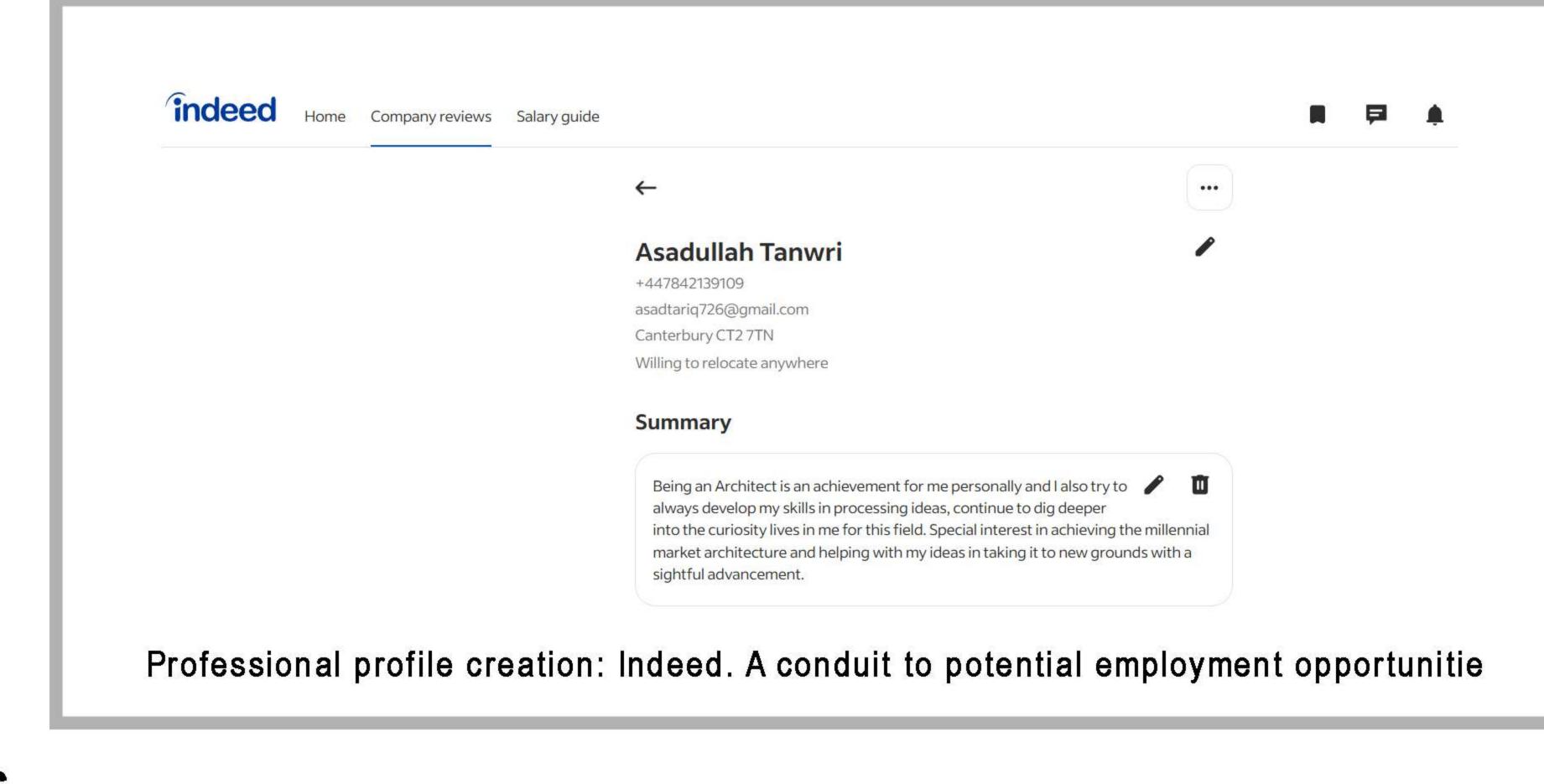
English Fluent Urdu Native

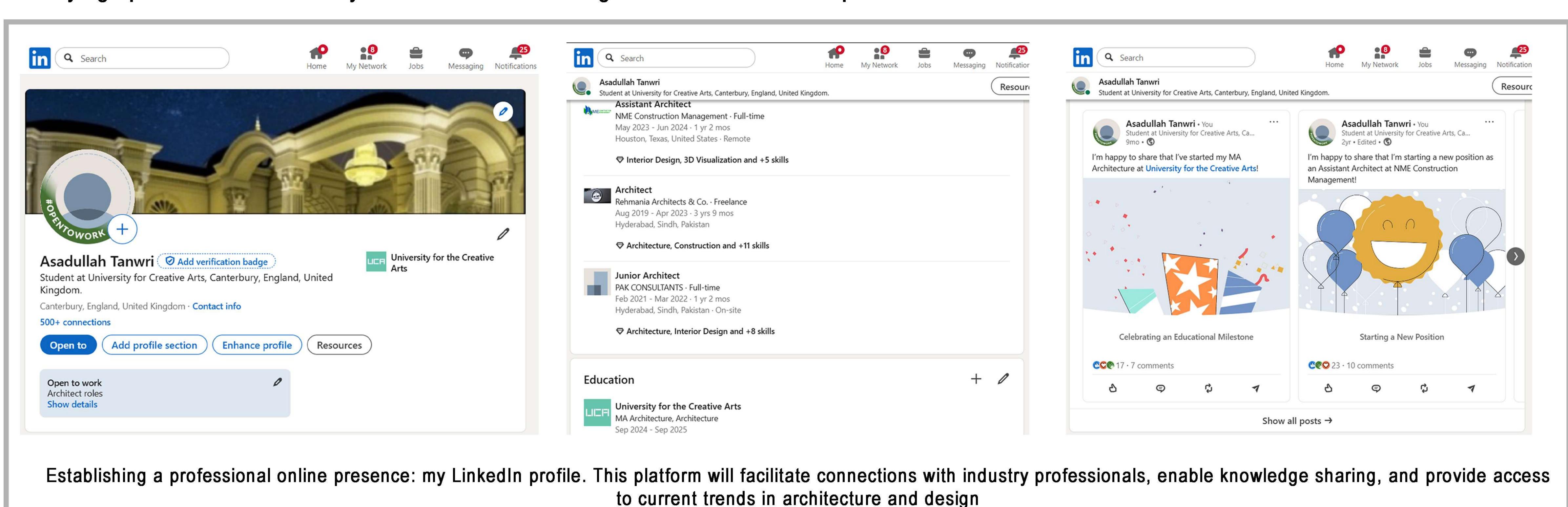
### PROFESSIONAL RESEARCH AND NETWORKING

I've recently taken proactive steps to strengthen my professional network by creating profiles on LinkedIn and Indeed. These platforms will enable me to connect with industry professionals, showcase my skills and experience, and stay updated on industry trends. As I continue to learn and grow, I'm focusing on developing my networking skills and conducting professional research to enhance my knowledge and stay competitive in the market. By building a strong online presence and expanding my network, I'm confident that I'll be well-prepared to take the next step in my career.

Specific goals or strategies i'm using to build my network, such as:

- Engaging with industry leaders and professionals on LinkedIn
- Participating in online discussions and forums related to my field
- Attending industry events and conferences
- Conducting informational interviews with experienced professionals
- Staying up-to-date with industry news and trends through online research and publications





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