

**BEYOND BOUNDARIES:
Building Public Access to an Urban Waterfront**

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Bachelor of Arts in Architectural Studies
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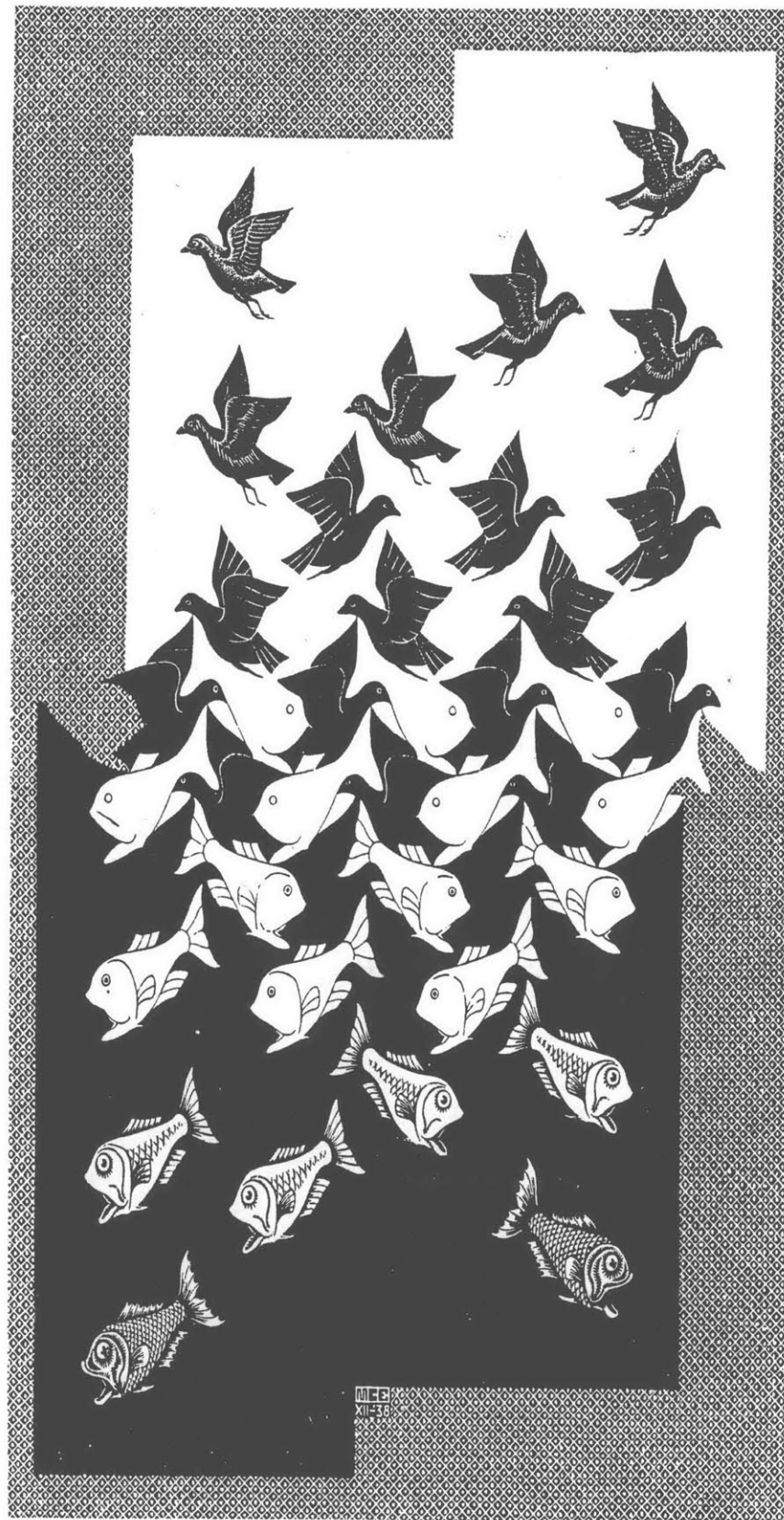
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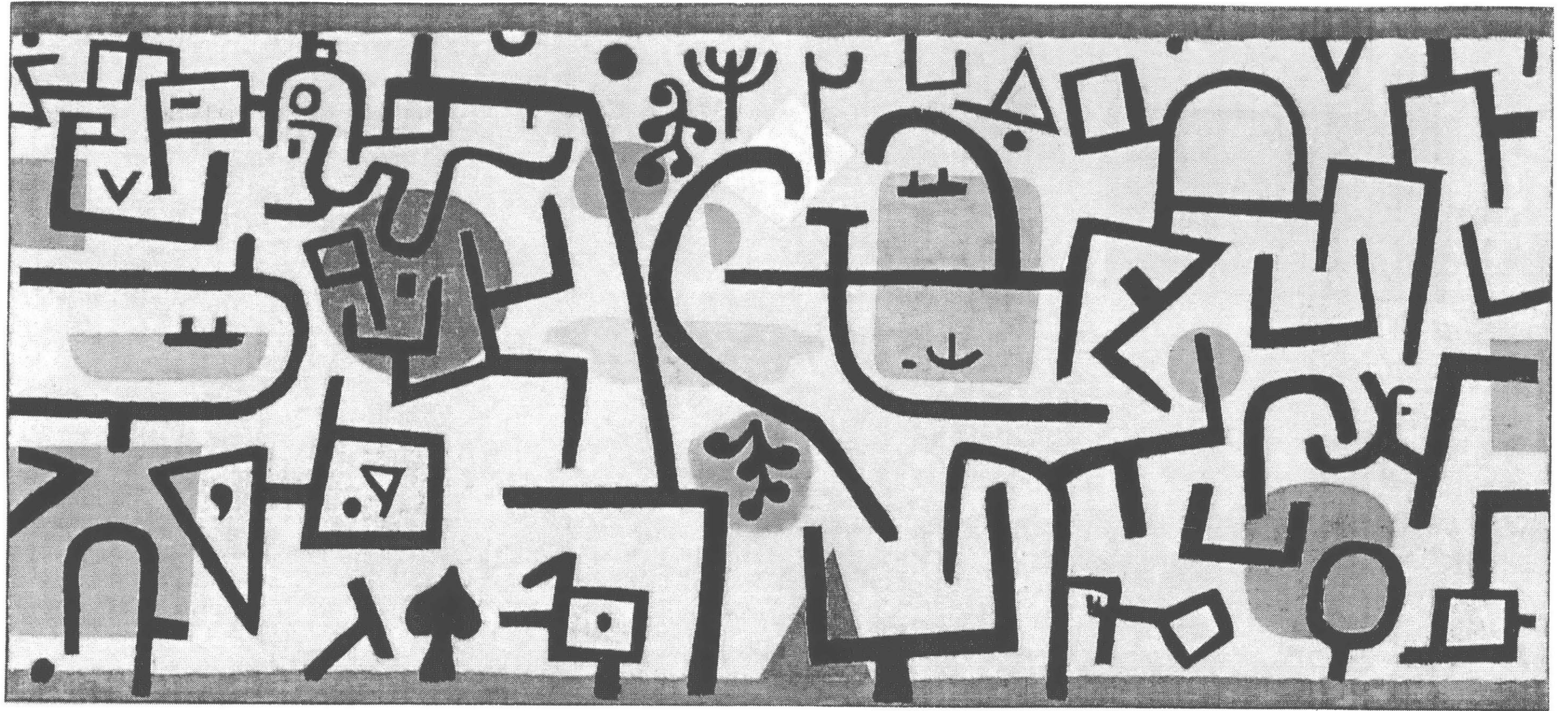


1. Sky and water II by M. C. Escher

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Rotch



2. Rich Harbour by Paul Klee

—
...here come more crowds, pacing straight for the water, and seemingly bound for a dive. Strange! Nothing will content them but the extremest limit of the land; loitering under the shady lee of yonder warehouses will not suffice. No. They must get just as nigh the water as they possibly can without falling in. And there they stand- miles of them- leagues. Inlanders all, they come from lanes and alleys, streets and avenues- north, east, south and west. Yet here they all unite.

-Herman Melville, Moby Dick

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ABSTRACT:

Waterfront cities have historically evolved through conditions generated by reciprocity between water and landscape. Just as water gives form to the natural landscape, it provokes form in the built environment. Today the relationship has become less apparent. The intention of this thesis is to explore the reintegration of a city with its waterfront through the building of public space and access.

This thesis proposes a design as an investigation of the following:

- how spatial and visual access between inland and waterfront public places can enrich one's experience and understanding of a city;
- how waterfront structures and built landscape can intensify the exchange between land and water;
- how pier and warehouse vocabulary may be transformed and reinterpreted; and finally
- how programmatic balance of public and private, utilitarian and commercial developments may help to redefine and revitalize an urban waterfront.

Thesis Supervisor: Renee Y. Chow

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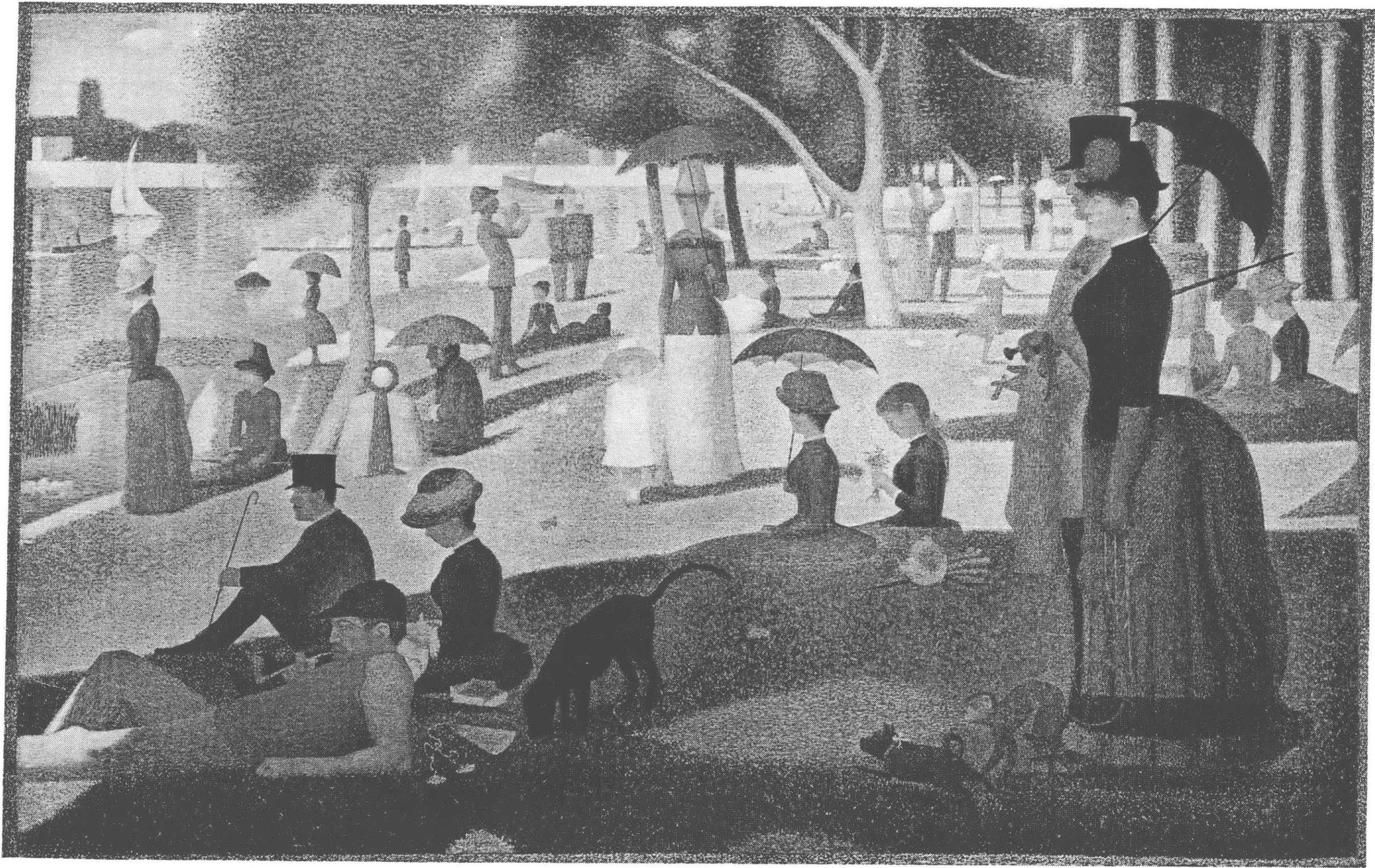
Andy, Helen and J.P., for their timely typing and printing of photographs

Patrick and Andrew, for their humor and good company

And especially Anoma, for her support, wisdom and inspiration. Her continual insights, design criticism, drawing, editing, and xeroxing were fundamental in completing this thesis.

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I. INTRODUCTION

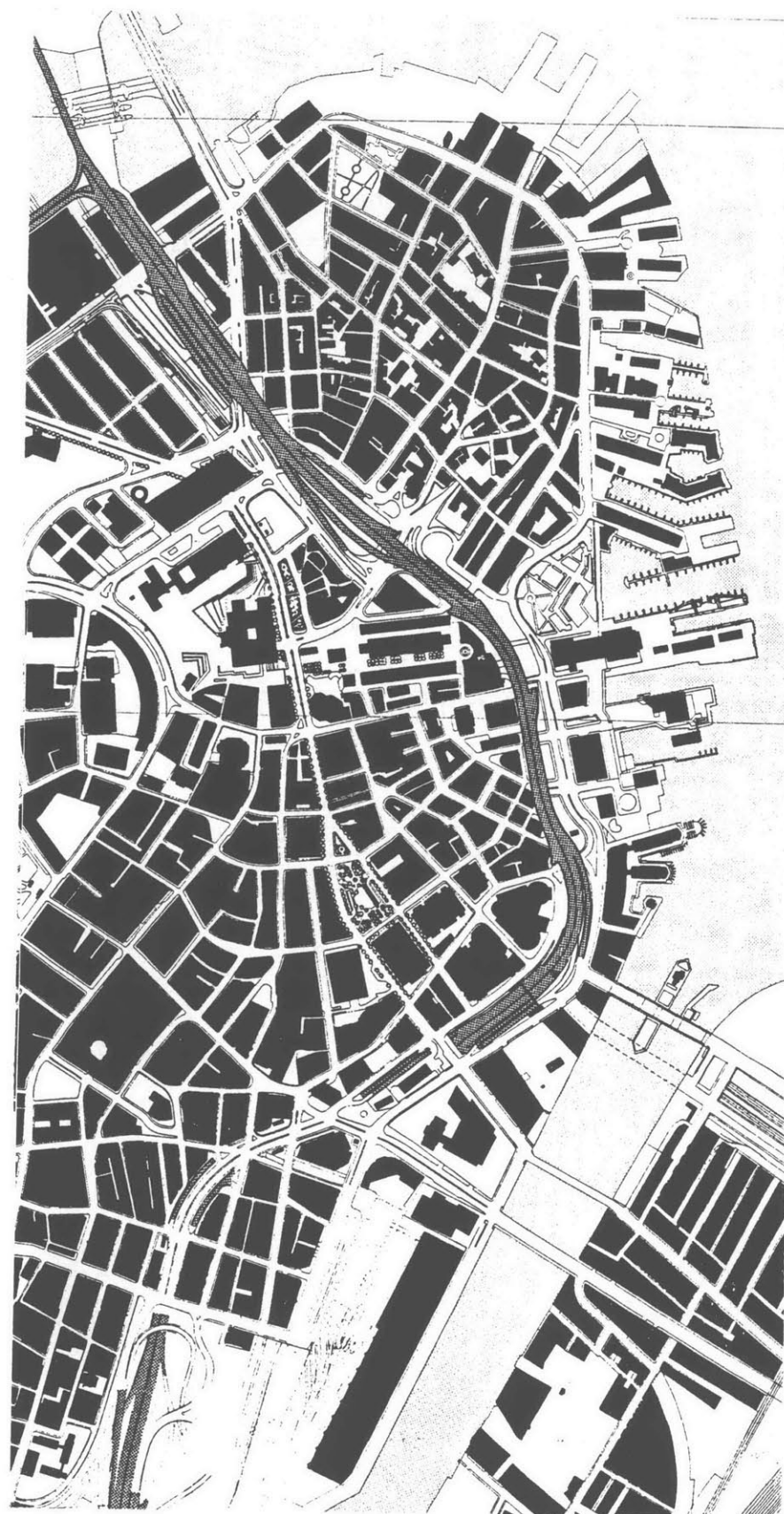
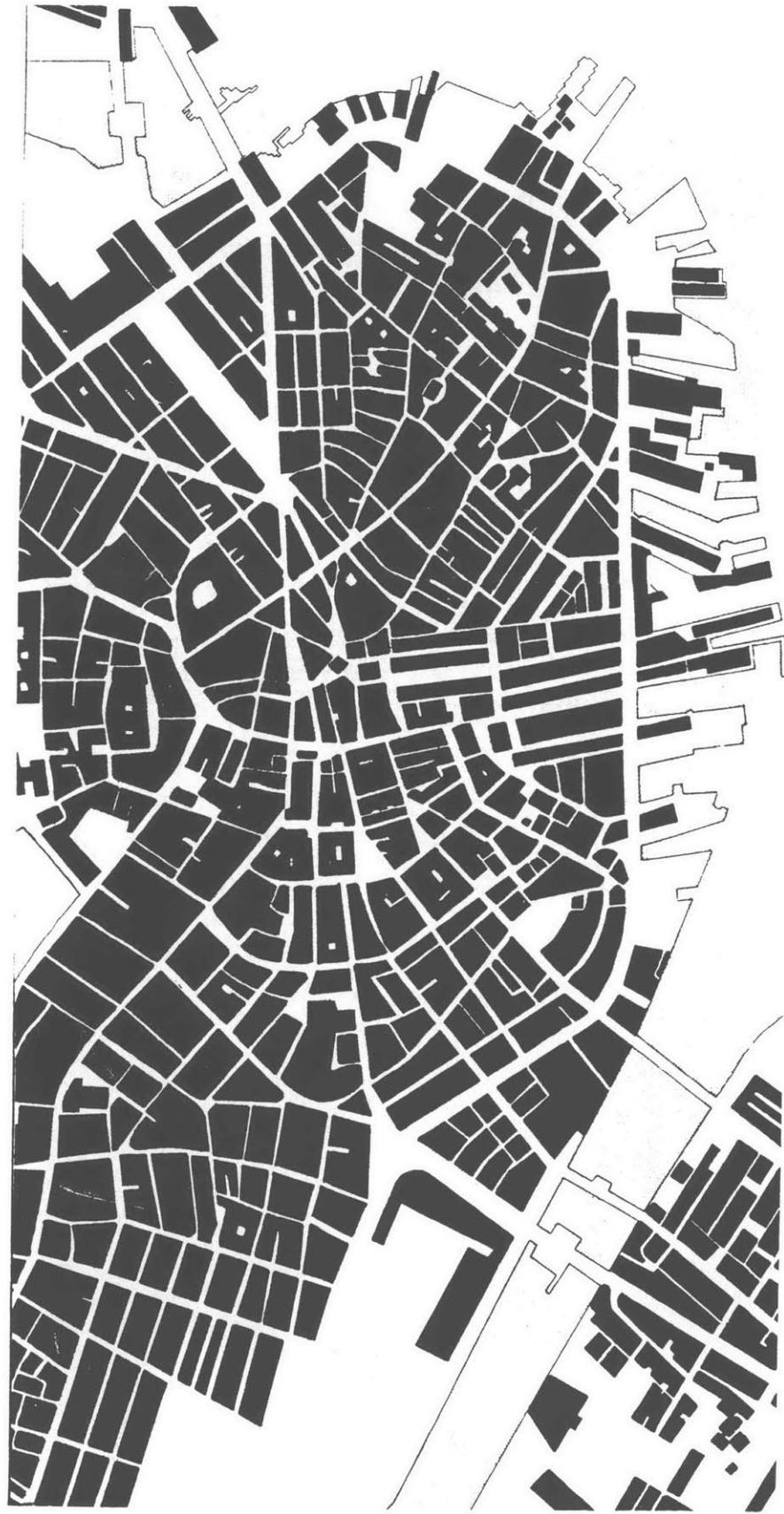
When Thoreau wrote "Whoever has been down to the end of Long Wharf, and walked through Quincy Market, has seen Boston.", he was speaking of a city whose form and identity was derived from its proximity to the water. It was a Boston of a previous era when commerce was dependant on access to and from the waterfront.

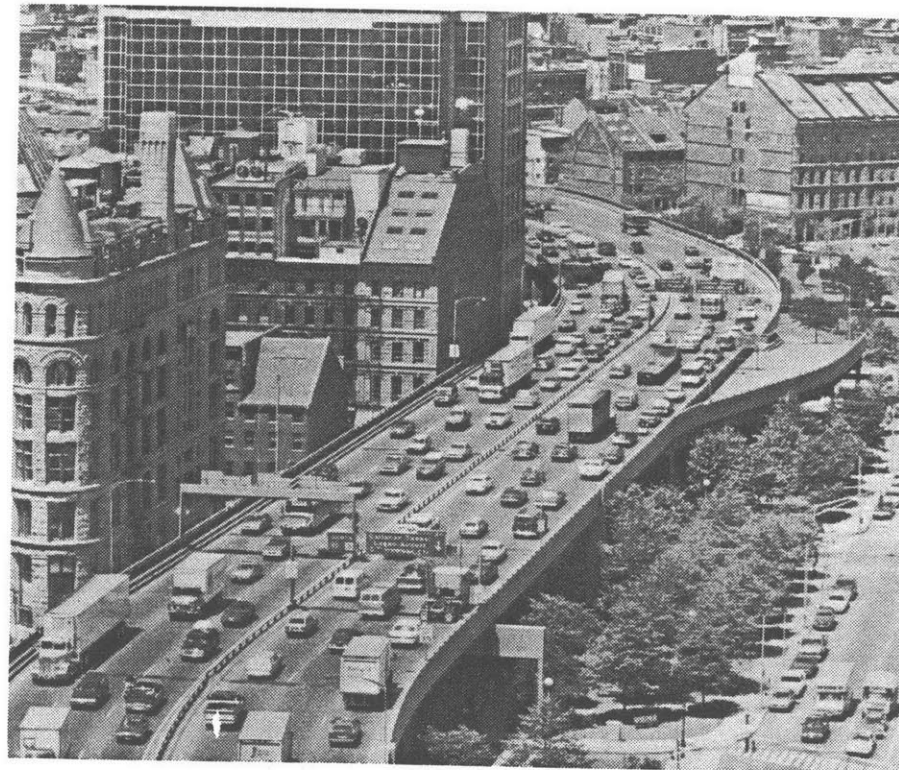
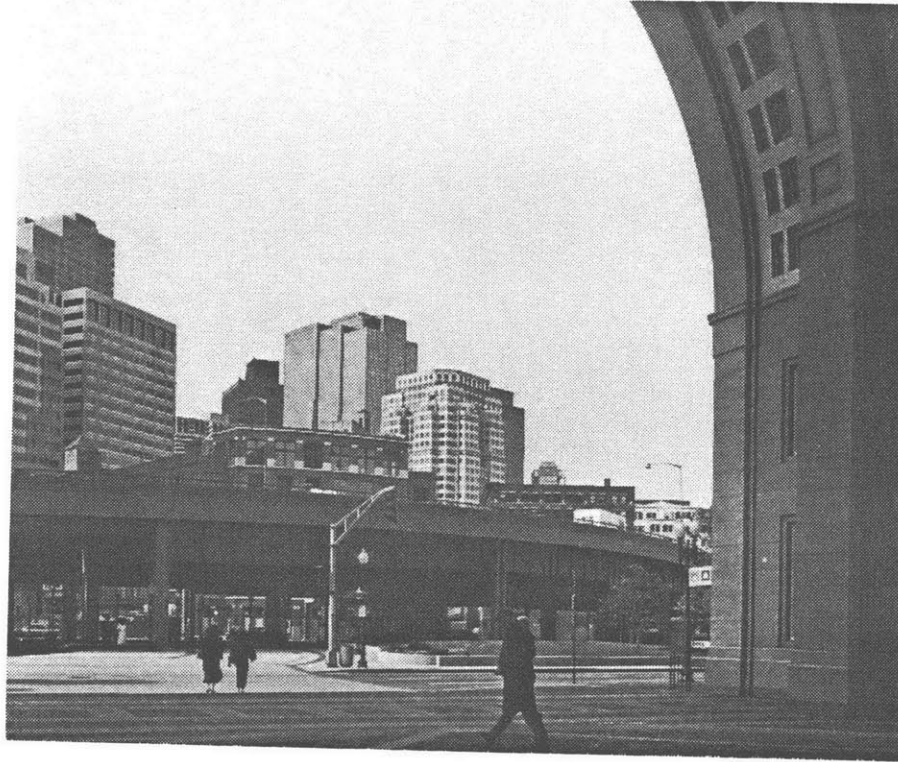
When post-industrial cities shifted from water to land and air-oriented commercial transport, their need for the waterfront diminished. This shift in the means of transport was articulated in the urban fabric by the introduction of major highways. These interstates not only usurped the function of the waterfront (draining its life), but also often physically separated it from the rest of the city.

I.I Stance

Mine is not a nostalgia for a waterfront of the past, nor is it advocating an unrealistic period revival. It is, however, the recognition of the enormous potential for a waterfront to enrich the urban environment with a variety of dynamic urban public places.

Views to the water down streets and panoramas at the water's edge provide visual continuity and orientational understanding that add greatly to the spatial experience of a city. Urban waterfronts should ideally have continuous pedestrian access both along their edge and to and from the city fabric. The water's edge may not only allow for a dramatic sense of arrival but can celebrate the exchange between man and nature. It is important to consider the waterfront not simply a point of destination but as a space which relates to the city and places beyond its boundaries.





II. IDENTIFYING AND INVESTIGATING THE PROBLEM

The post-industrial decline of the working waterfronts has created large tracts of under-utilized land adjacent to many urban centers. Generally this space is physically separated by major highways which set it apart from the context of the city. Too often the redevelopment of these waterfronts has reinforced this separation by failing to provide and to build a continuity between the public spaces at the water's edge and those further inland. Instead of building the access from the city to and along its waterfront, many developments have been conceived of as singular destination points that act as "people magnets"¹ to particular exclusive activities.

In the case of Boston, for example, the main streets were originally organized radially from the city center to the waterfront. This condition was drastically altered by the building of the central artery and other routes which truncated these streets just short of their waterfront destinations. The parallel decline of the working waterfront created land which has since been redeveloped and is now dominated by private and exclusive activities (hotels and commercial, office and apartment blocks).

4. (opposite) Boston Figure Ground Maps: 1940, 1990, 2000

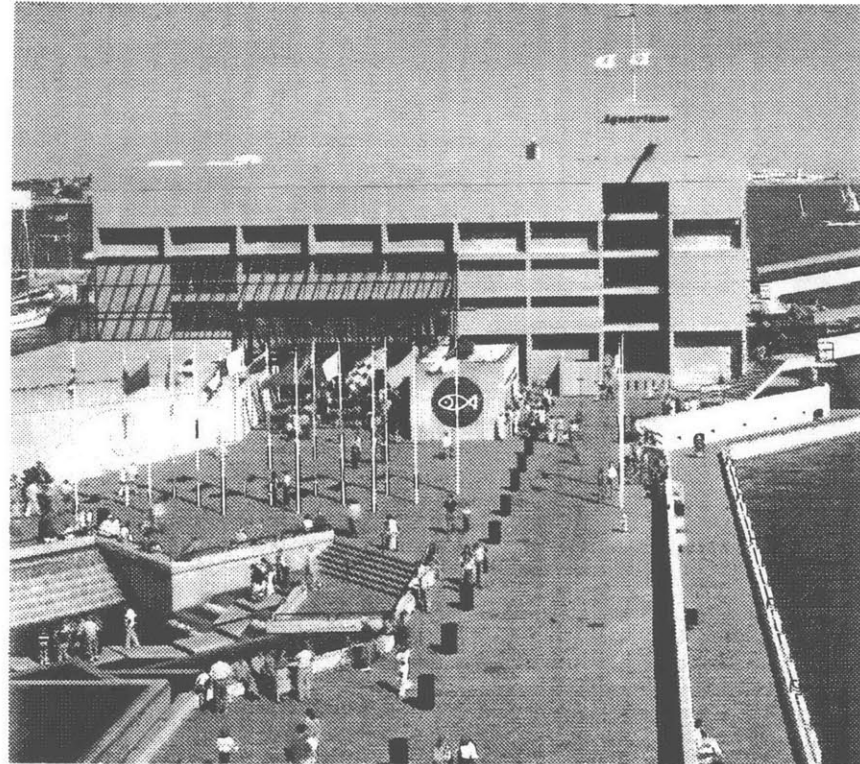
5. The Central Artery : views from Rowes Warf and from above

One of the most "public" development was the New England Aquarium, a forerunner in a recent trend of waterfront revitalization projects. The September '92 issue of Architecture comments on what it calls the "Age of Aquariums".

"The aquarium business is booming at the end of this century, with more than thirty projects in various stages of planning and construction. Aquariums have become one of the most visible and effective tools of cities hoping to rejuvenate decaying waterfronts and lure tourist dollars."

The article further states that these aquariums, "draw more up-scale visitors... and when placed next to other attractions such as convention centers or festival market places... help coax out-of-towners to extend their visits. And for cities seeking to build people magnets that will give their communities an image of being both on the move and environmentally sensitive, few attractions are more politically correct." ²

The result of these suggested developments is the creation of a public spectacle as a destination point rather than as a space which is integrated with its larger urban context. David Harvey describes this tendency towards spectacle as an evolution of the "Bread and Circus"³ phenomenon, "an ancient and well-tried formula for social control"⁴.



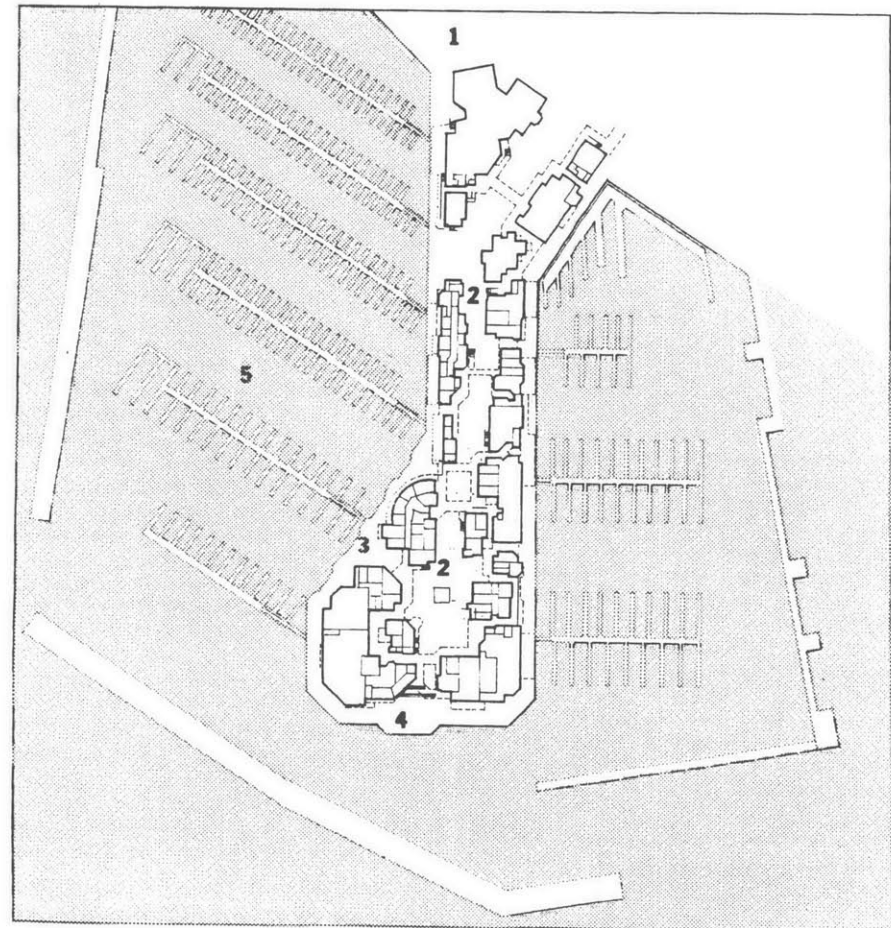
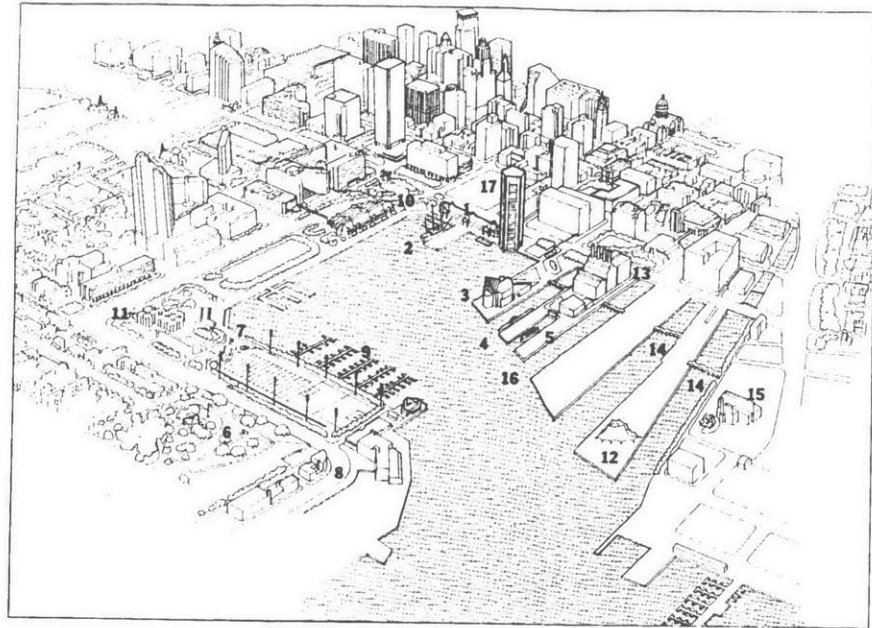
6. The New England Aquarium: a public activity at the waterfront with commercial objectives.



7. Baltimore Aquarium: one of the tourist attractions of the harbor place development in Baltimore

8. (opposite, top) **Baltimore Harbor Place.** It includes the following attractions: (1) harbor place, (2) US frigate *Constellation*, (3) aquarium, (4) Submarine Torsk, (5) lightship Chesapeake, (6) Federal Hill, (7) play area, (8) Industrial Museum, (9) marina, (10) Mckeldin Square and fountain, (11) science center, (12) performing arts tent, (13) themed building, (14) pedestrian bridges, (15) public works, (16) heliport and (17) trade center.

9,10. (opposite, bottom and right) **Plan of San Francisco's Pier 39.** includes the following: (1) Embarcadero, (2) pedestrian mall, (3) peripheral access road, (4) viewing point and (5) marina.



This combination of commerce and recreation becomes institutionalized in developments such as malls and theme parks. He writes:

"The construction of Harbor Place... (a waterfront development reputed to now draw in more people than Disneyland) is an institutionalized commercialization of more or less permanent spectacle... Judged by many as an outstanding success (though the impact upon city poverty, homelessness, health care, and educational provision has been negligible and perhaps even negative), such a form of development required a wholly different architecture from the austere modernism of the downtown renewal that had dominated in the 1960's. An architecture of spectacle, with its sense of surface glitter and transitory participatory pleasure, of display and ephemerality, of jouissance, became essential to the success of a project of this sort." ⁵

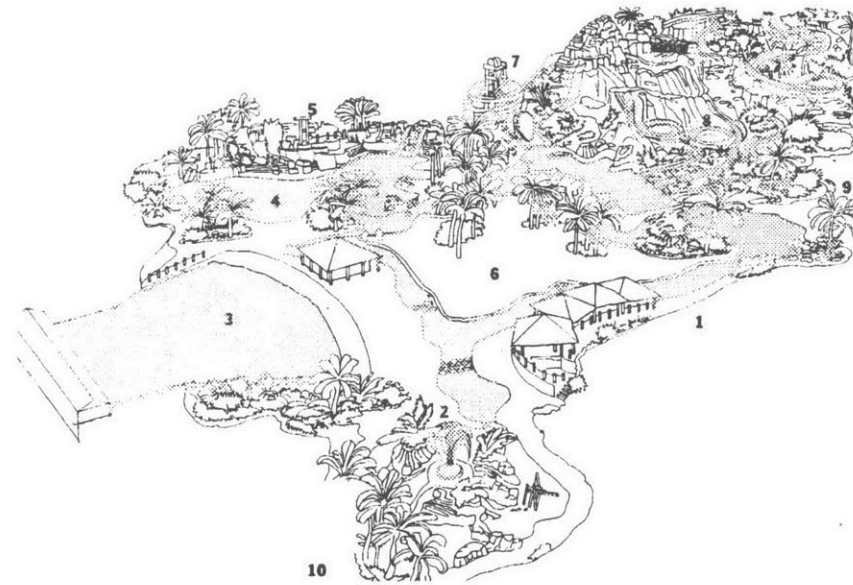
Baltimore was not alone in the construction of such urban spaces. Boston's Fanueil Hall, San Francisco's Fisherman's Wharf, New York's South Street Sea Port, San Antonio's River Walk, London's Covent Garden, and Gateshead's Metrocenter are but a few examples sited by Harvey employing this "bread and circus" formula.

He further mentions the phenomenon of the "heritage industry"⁶ where he explains that these tourist oriented developments promote a post-modern representation of history for commercial ends. "We have no understanding of history in depth, but instead are offered a contemporary creation, more costume drama and re-enactment than critical discourse."⁷

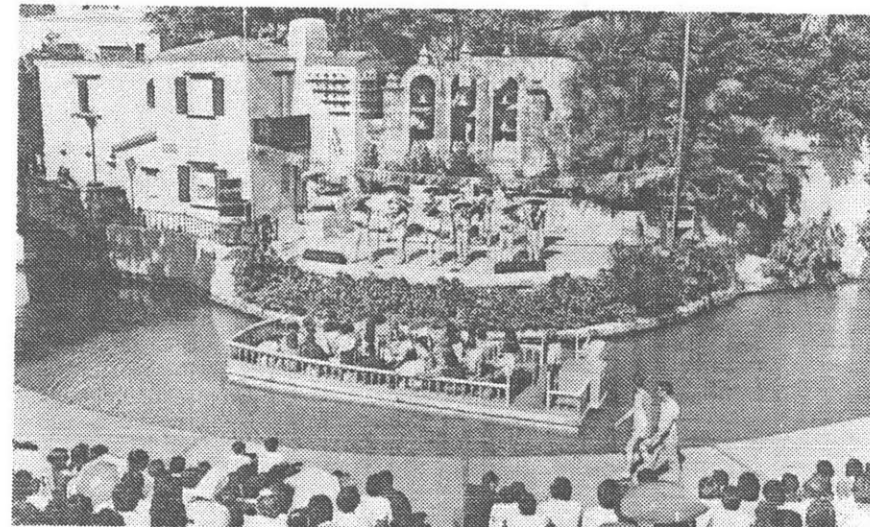
Addressing a commercial and tourist market removes the waterfront from a large section of the local population by creating an exclusive public place "Free market populism for example, puts the middle classes into the enclosed and protected spaces of shopping malls and atria, but it does nothing for the poor except to eject them into a new and quite nightmarish post-modern landscape of homelessness."⁸

The challenge therefore is to address spatial and programmatic qualities which create public spaces that are continuous with their adjacent urban fabric, are accessible to all strata's of society and provide a balance of public utility and commercial activities.

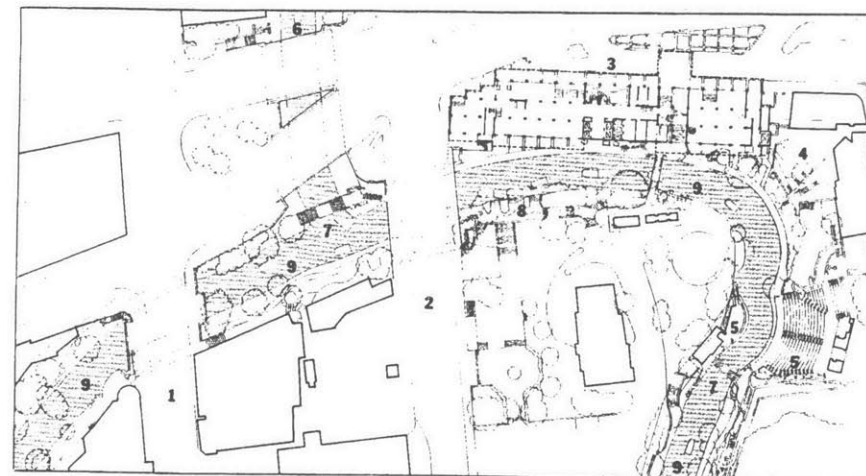
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- 1 Guntz, E, Age of Aquariums . *Architecture* Sep 1992 ,p 59
 - 2 *ibid* p59
 - 3 Harvey . D, " Post Modernism in The City: Architecture and Urban Design" in *The Condition of Post Modernity*, Oxford: Blackwell, 1990, p 88
 - 4 *ibid* p 88
 - 5 *ibid* p88 -93
 - 6 *ibid* p 87
 - 7 *ibid* p 87
 - 8 *ibid* p77



11. Tampa's Adventure Island. This island park features the following: (1) entrance, (2) Fountains of Youth, (3) wave pool, (4) activities pool, (5) trolley ride, (6) lagoon, (7) corkscrew flume, (8) flume rides through the 'rocky mountain' structure, (9) rapids ride, (10) speed ride.



12. Texas-San Antonio River-theater: musicians in "Mexican" dress performing for tourists



13. Texas-San Antonio River walk. This area includes the following: (1) Commerce Street, (2) E. Market Street, (3) Hilton Hotel, (4) terraced restaurants, (5) Arneson River Theater, (6) canal connection, (7) footbridge, (8) landing for river boats and (9) San Antonio River.



14. **Proposed cobblestone retail mall, Charlestown Navy Yard:**
Redevelopment of this area appears to be catering to a select group. Little effort to physically relate the area to the rest of Charlestown is evident.

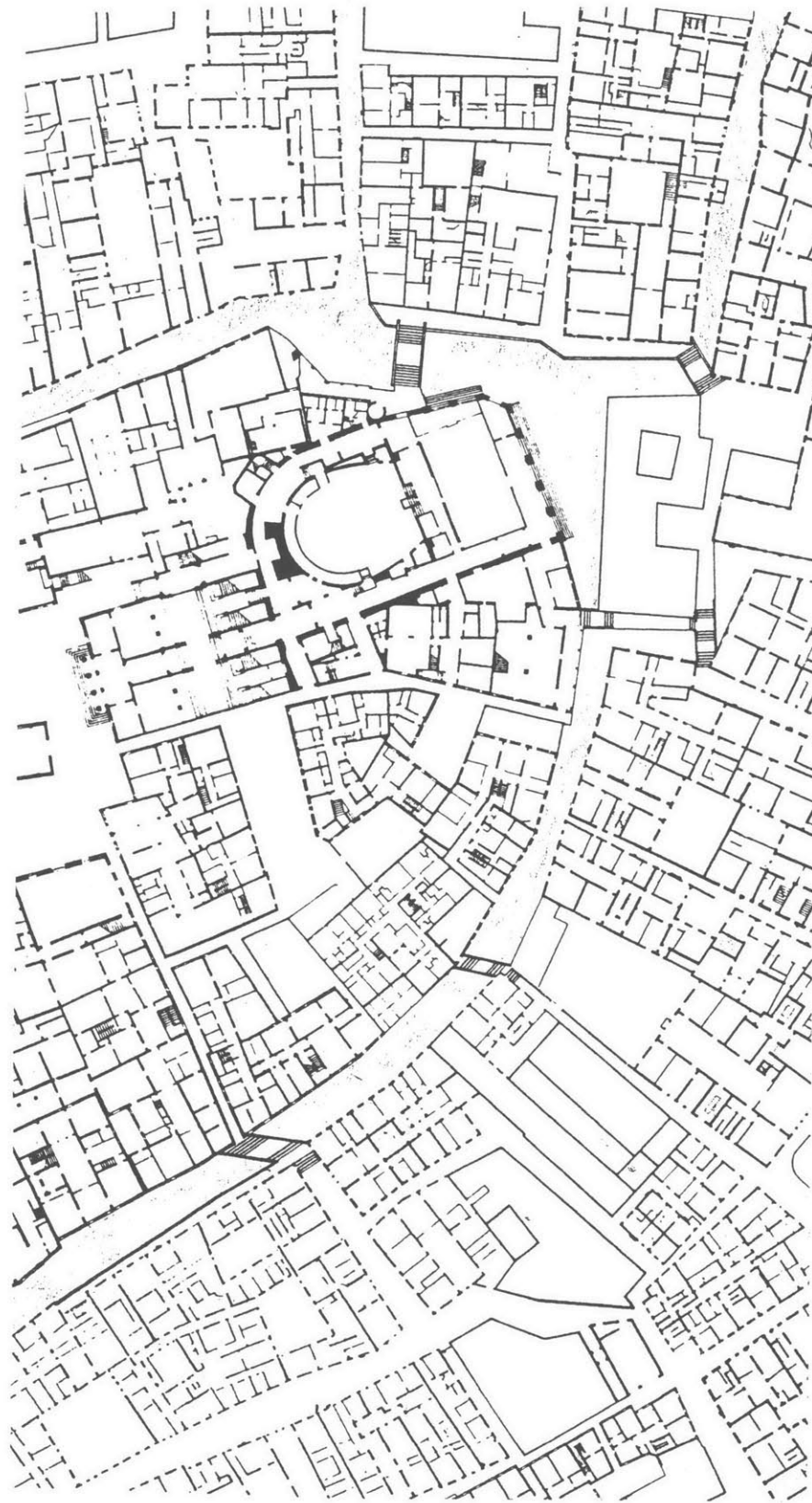


1. S. Girolamo de Schiavoni. 2. Palazzo di Ripetta. 3. Colonne a
 moto nelle quali sono segnate le stagioni e i mesi del Tevere. 4. Pa-
 lazzo del Principe Borghese. 5. Stadi dello stesso Principe. 6. Palazzo della

Veduta del Porto di Ripetta.

sua Famiglia. 7. Collegio Clementino.

Francesi, Architetto di



15. (opposite) Veduta del Porto di Ripetta by Piranesi.

16. (right) Teatro de Feniche ,Venice . The theatre can be approached by both land and water.

III. LEVELS OF INQUIRY / REFERENCES

Building beyond boundaries in an effort to reintegrate an urban fabric may be achieved at a variety of levels. Beginning at the larger metropolitan relationships we may study how the forces generated by the city and its topography may affect particular neighborhoods. Within the neighborhoods these forces may indicate appropriate locations for public spaces and activities. The definition of these spaces at both a public and personal level can be built in a way that reciprocates an understanding of the larger context.

Because the focus of this study is related to the development of an urban waterfront, these levels of inquiry may be illustrated by a few design references and inspirations grouped under the following categories:

- Cities whose form and identity reveal interactions with a water source (river, canal, ocean, etc.).
- Projects that exhibit ways to reinforce a local urban relationship to the water.
- Built configurations whose structure or behavior are related to water or industry and have potential for transformation.

III.I References

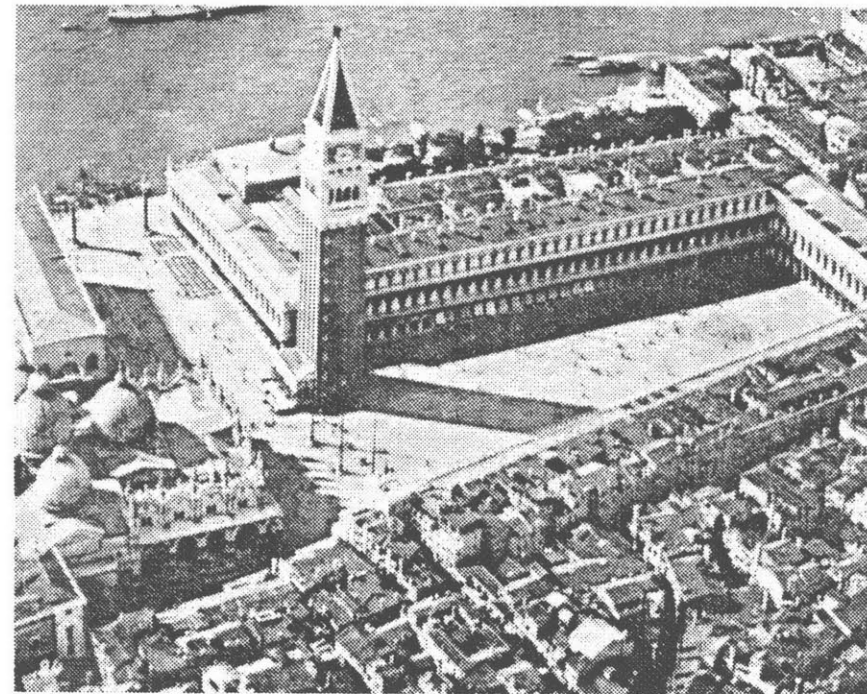
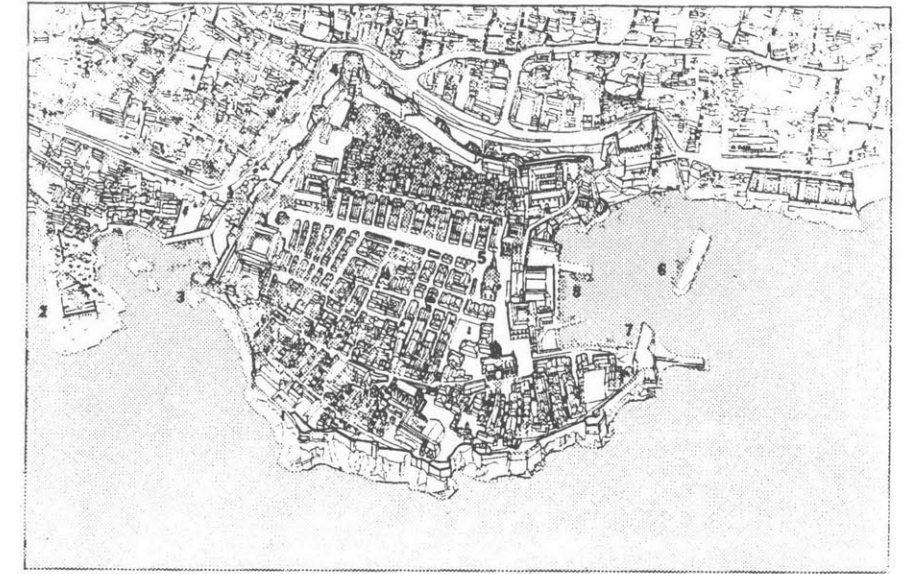
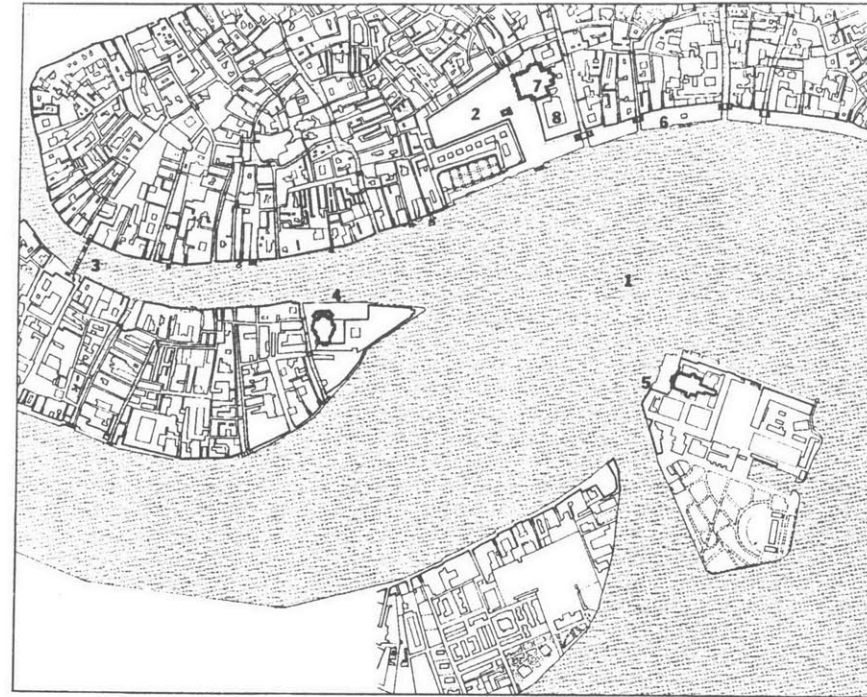
a) Cities

"Waterways and the urban waterfront have provided opportunities to enhance the urban environment and there have been periods in history when a distinct architectural character appropriate to the maritime context has emerged. Benevolent friend, threatening force, access for the enemy, opportunity for trade, utility for industry, and environment for leisure; there has been a continuous dialogue with the sea." (Wylson, Aquatecture, p25.)

"...the piazza San Marco in Venice. Highly differentiated, rich and intricate, it stands in sharp contrast to the general character of the city, and to the narrow twisting spaces of its immediate approaches. Yet it ties firmly to the major feature of the city, the Grand Canal and has an oriented shape that clarifies the direction from which one enters." (Lynch, Image of the City, p78.)

"The interface between city and sea has necessitated robust and permanent structures to withstand the remorseless temperament of nature. Historically, the scale of water transportation, the development of commercial trade, the desire for naval supremacy and the need for protection, promoted the construction of quays, wharfs, harbors, arsenals, docks and fortifications." (Wylson, Aquatecture, p25.)

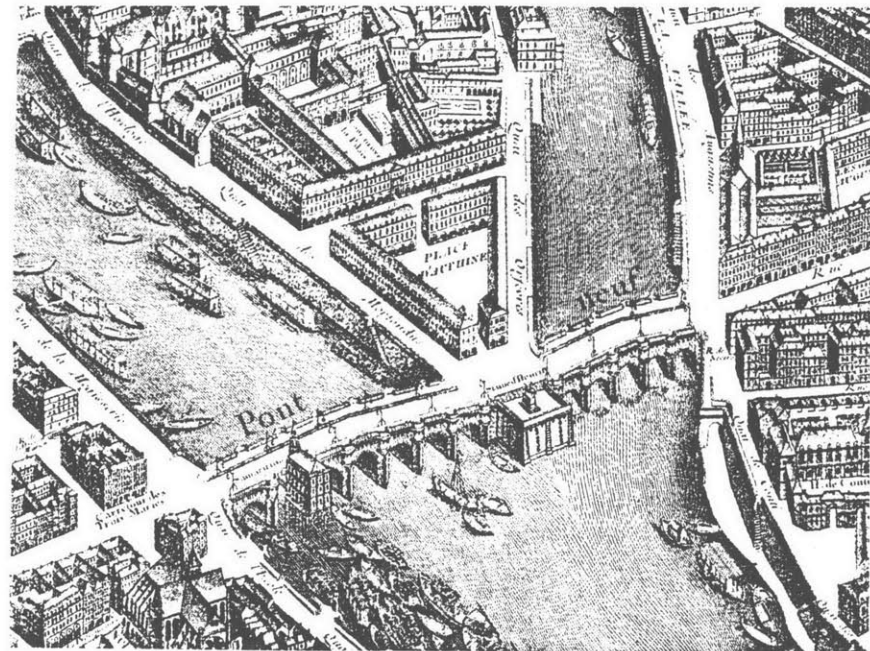
"Dubrovnik represents the medieval fortified port town, defended from the sea and land, but dependent on its accessibility for trade. The massive walls and fortification enclose the complex or regular streets and public spaces. From the walk that extends along the top and length of the fortifications, the relationship with the sea is identified." (Wylson, Aquatecture, p31.)



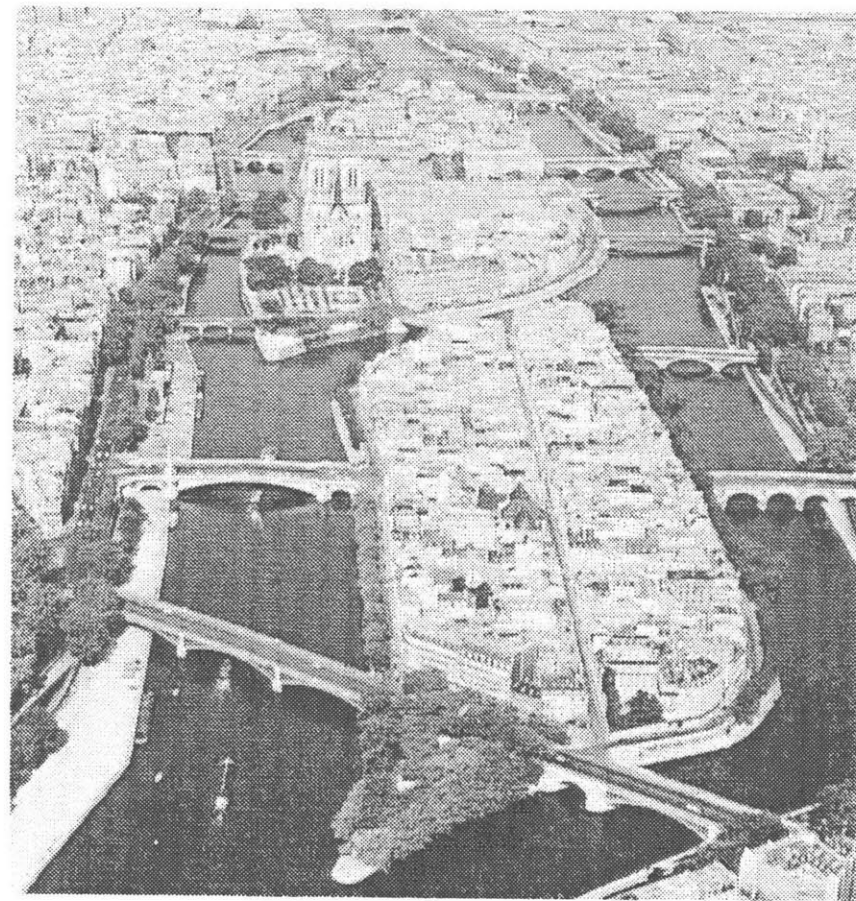
17. (top left) Venice: A plan showing building relationships within the context of land and water.

18. (bottom left) Piazza San Marco Venice. An example of a public space that displays a positive relationship to a waterfront.

19, 20. (right) Dubrovnik: A panoramic view showing the walled city and its relationship to the protected harbor (walkways run along top and base of walls)



21. **Place Dauphine and the Pont Neuf, Paris (Plan Turgot):** The river is perceived here as an element, a natural broad street of the city.
22. **Tip of L' Ile de la Cité, Paris:** Major Public Buildings and their relationships to one another across the Seine.



"In some cases the river and canal formed a major water transport corridor that traversed the protected enclosure and points of entry were heavily fortified...the civic spaces and ceremonial life were related to the canal or river the quays or waterfront. In the canal towns of Holland... the canal frontages had both commercial and civic value as the wealthy merchants combined or replaced warehousing and waterfront industry with residential accommodation." (Wylson, Aquitecture, p28)

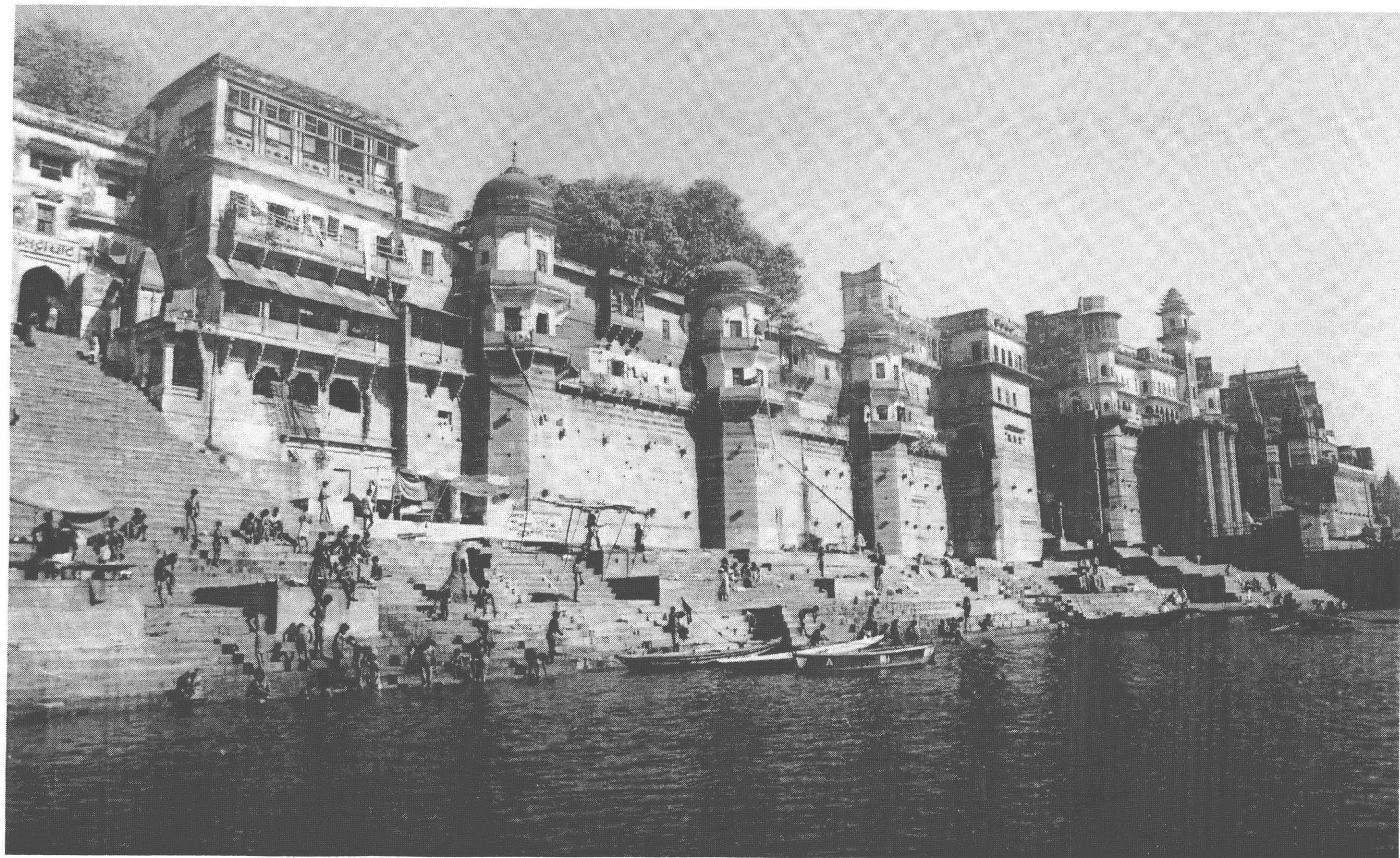
"The Renaissance aggrandizement of the Seine in Paris...at royal initiative, enabled the waterfront to gain aristocratic patronage and at the same time gave civic importance to the river basin. Through dramatic social change the grandeur and exclusiveness of noble palaces and private pleasure gardens gave way to the metropolitan prestige of public buildings and boulevards. Furthermore, in Paris the classical tradition of axial planning and civic spaces found particular expression in the restructuring of certain areas to extend the river space visually into the expanding city." (Evenson, Paris: A Century of Change, p12.)

"Here the street becomes a square, the sidewalk a street, the shop a museum, the cafe a theater, beauty elegance, splendor dazzling magnificence, and life a fever." (Evenson, Paris: A Century of Change, p4.)



2. Street life on the Boulevard des Italiens, 1872.

23. **Street Life on the Boulevard l' Italiens, Paris 1872**



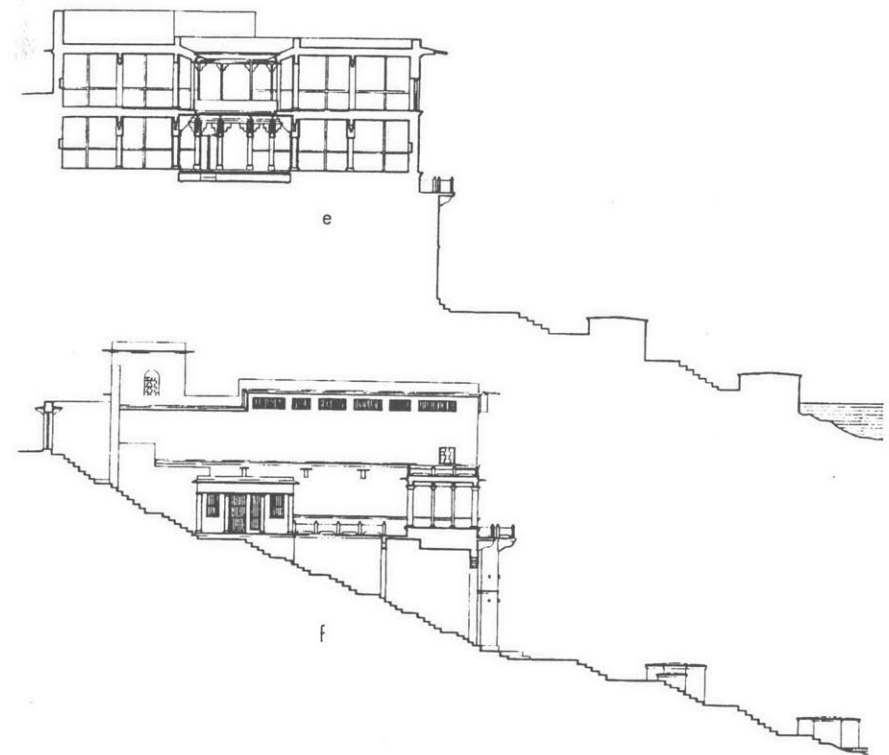
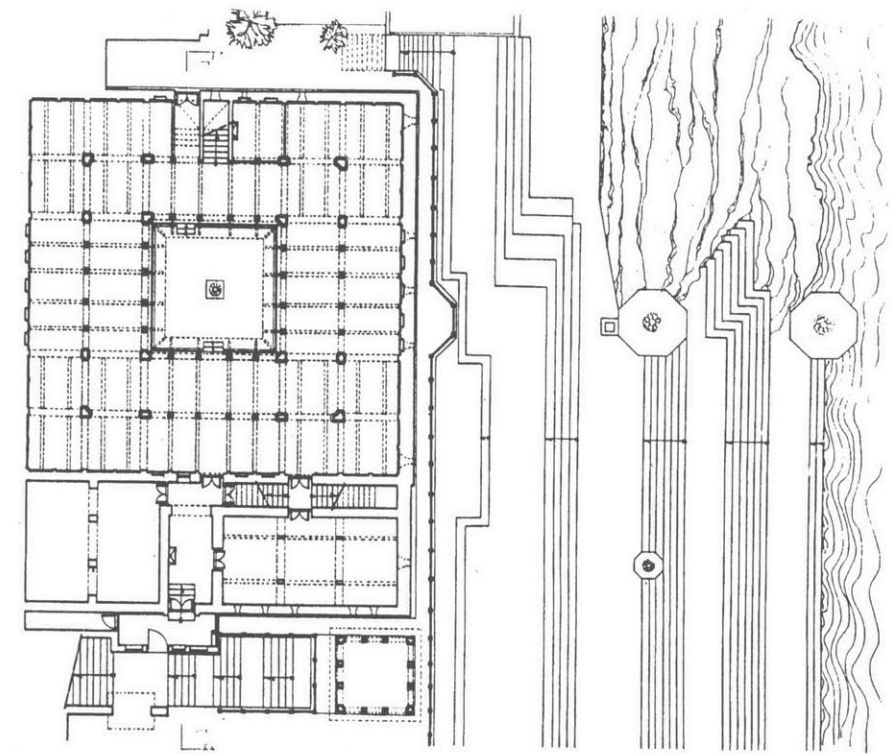
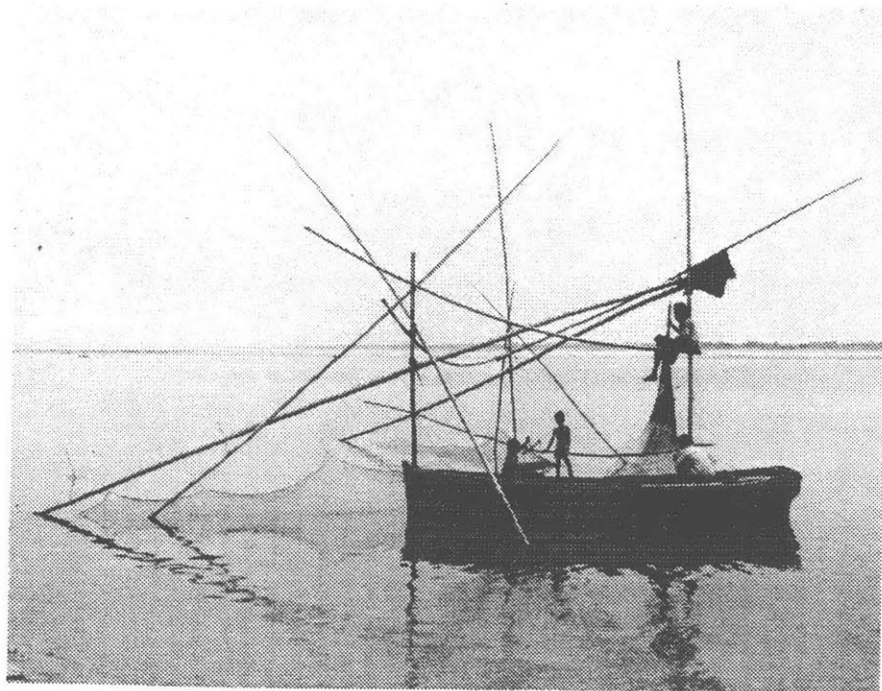
"The built up city is completed by the ghat, vast beaches of stones, pavements landings, ensuring passage towards the waters of the Ganges. They...ensure a space transition which develops continuously along the left shore of the Ganges...They are the place of numerous activities of the Banarasi Culture- trading, sports, wrestling- the ghat belong to the edifices which control them. They ensure free access to the pilgrims and to the public." (Coute and Leger, Benares. p16.)

24. (opposite) Rana Mahal and Rana Ghat, Benares, India. Continuous public access to the Ganges along a built edge.

25. (right) Benares: plan revealing diagonal approaches to river

26. (far right) Brahmins' Refectory at Raja Ghat, Benares: This plan and sections demonstrate the relationship between the built landscape and the adjacent water.

27. (below) fishing boat with net



b) Projects

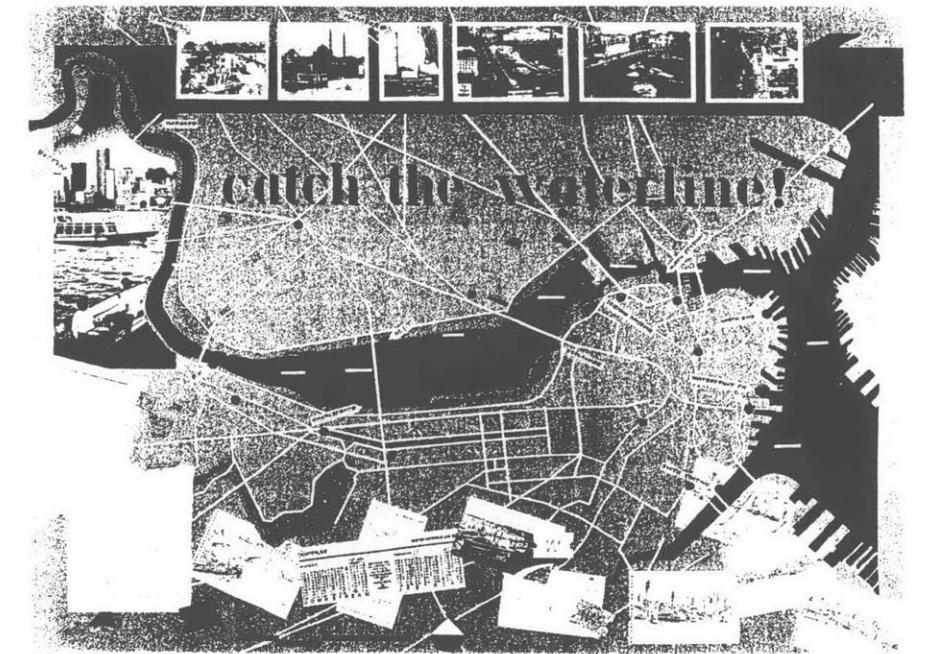
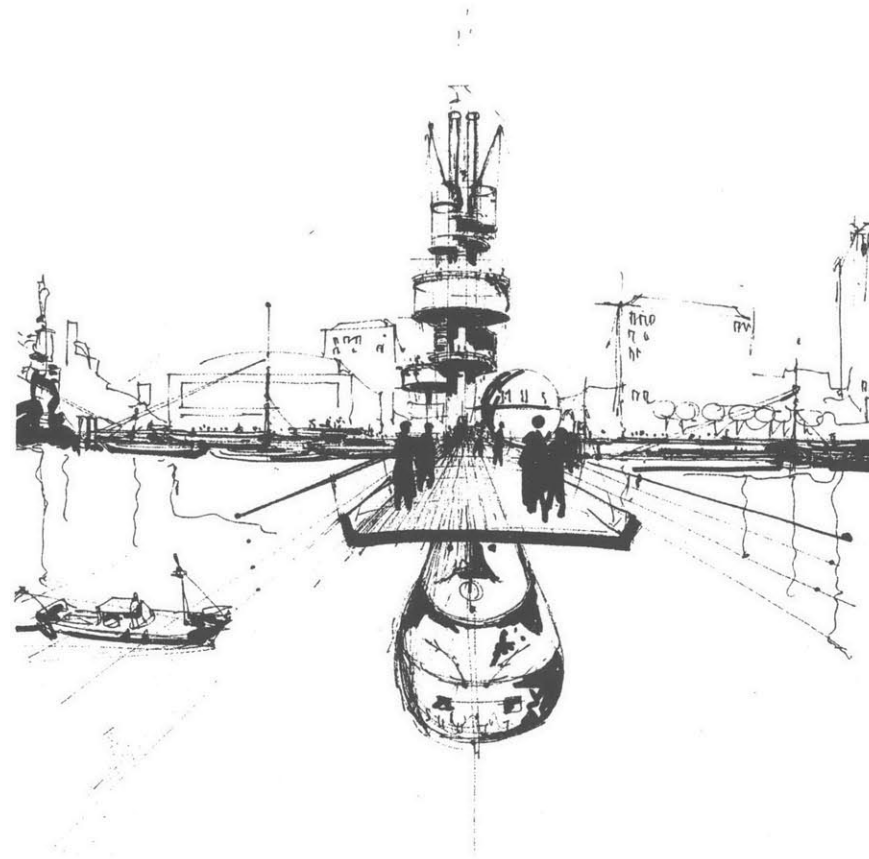
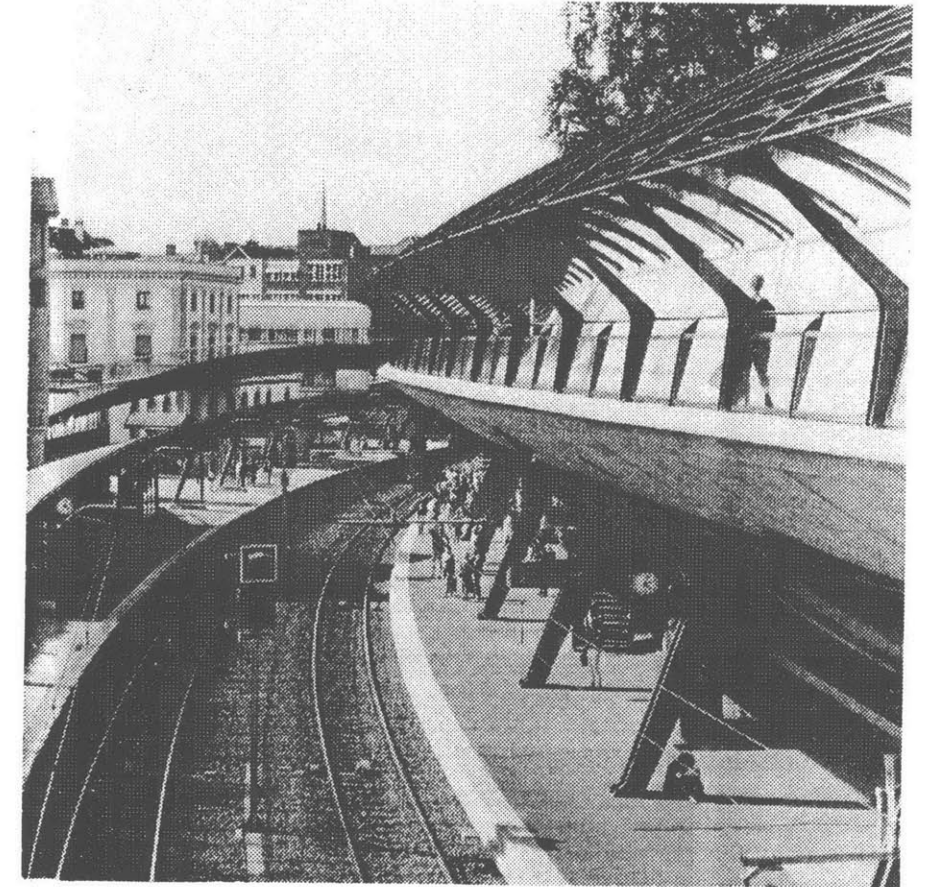
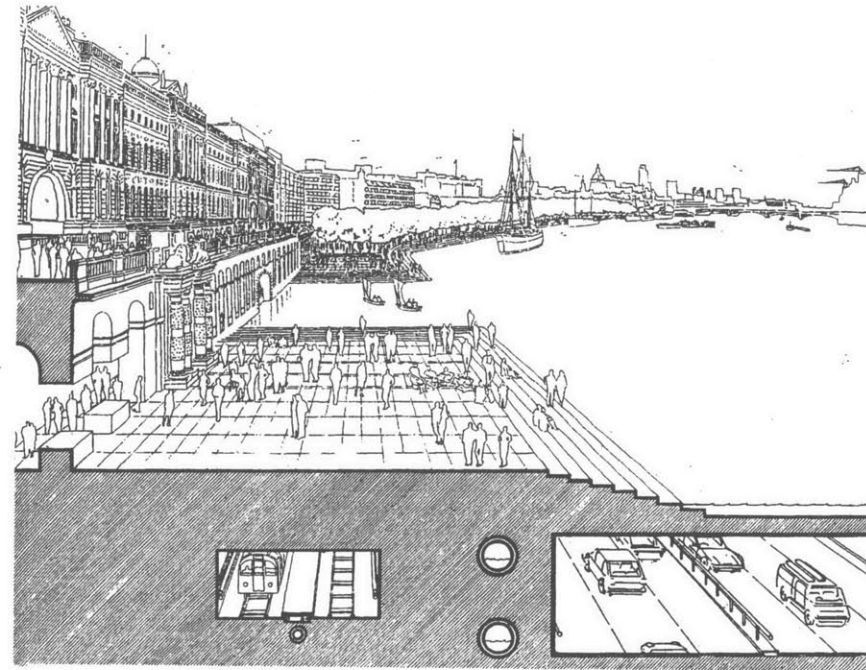
" The imposing watergate of Somerset House now fronts a 4 - lane motorway which creates an almost impenetrable barrier to the river. By sinking the highway, a major south - facing riverside linear park, lined with cafes restaurants, shops and galleries, can be created without the demolition of a single building." (Rogers. Richard, Architecture a modern view. p 31.)

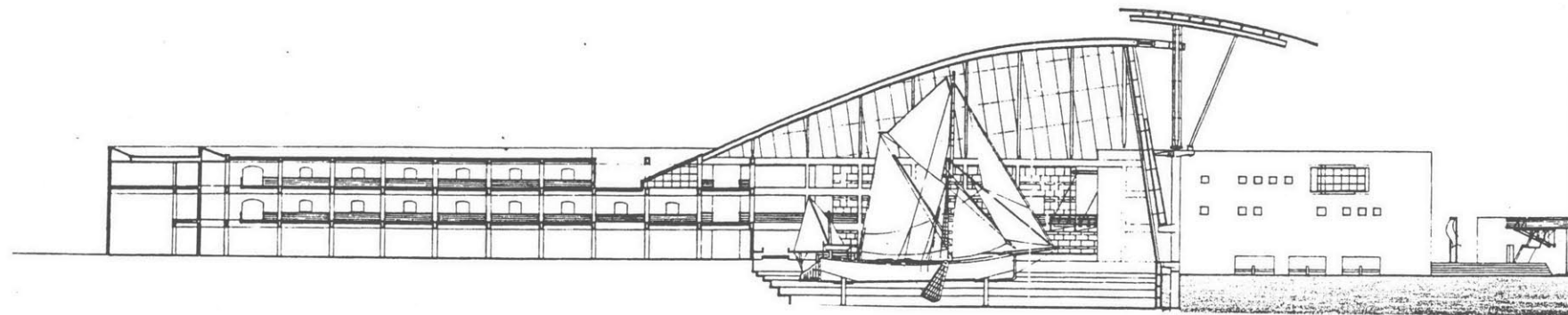
" The noisy and hideous Hungerford Railway Bridge with its adjoining footpath is replaced by a new suspension bridge and a number of floating islands containing public amenities such as museums and restaurants." (Rogers. Richard, Architecture a modern view. p 32.)

" We may identify these last as *urban sutures*, for on each occasion Calatrava has managed to introduce entirely new linkages into a disrupted urban fabric. This suturing operation has invariably entailed the unification of pre - existing tissues and lines of movement. I am alluding above all to....the rearrangement and extension of the Stadelhofen Station in Zurich.....

.....From a typological standpoint Stadelhofen is a synthesis of three urban typologies: the through station as a semi public realm, the railway terminus as a secular cathedral and, last but not least , the top lit galleria as a city in miniature." (Frampton, Calatrava at Stadelhofen. El Croque June 91)

Catch The Waterline - Bill Boehm and Sebastian Grey Proposal for the competition provoked by the Central Artery Project of the BRA. The proposal is for a water taxi service along the waterfront. (Process 79 Issue on Boston)





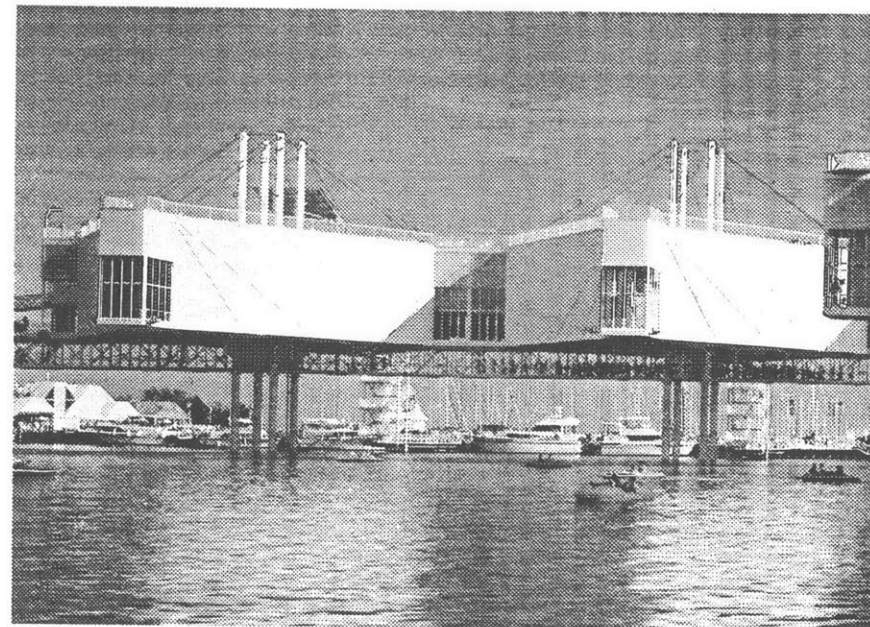
Competition for London Docklands Museum. Winning entry London design group. Allawi, Amer, Daraie, Heaps, and Kite.

Jury Comment: " By it's very subtle erosion of one end of the existing building, and the addition of a light roof , the scheme invites water into the museum and allows the building itself to become a new place."

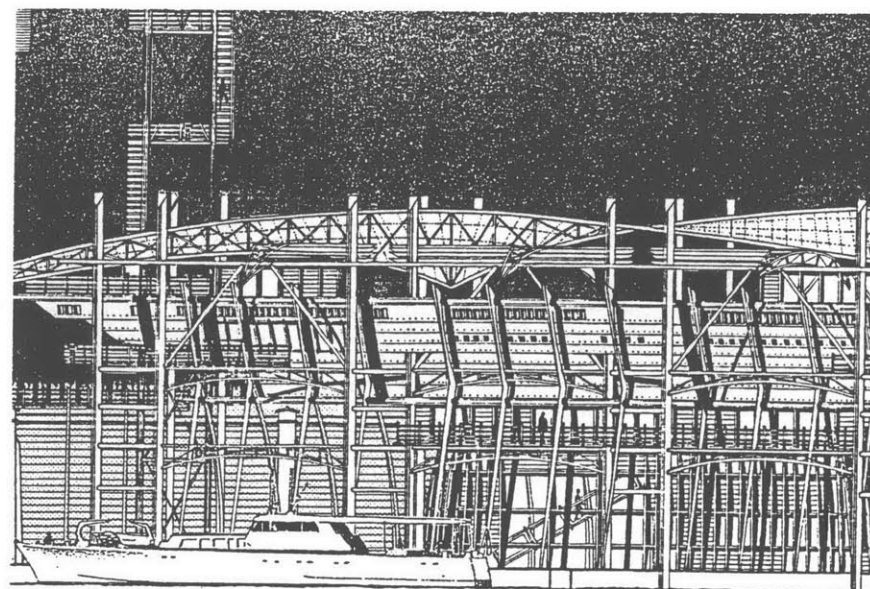
" A bold use of a once neglected shore is seen at Ontario Place, Toronto. The lakeside pleasure park was developed to revitalize the waterfront of the city consists of a lagoon partially enclosed by 46 acres of man made islands and a marina village..... The water surface is visually continuous under the raised structures, overcoming what would otherwise be a visual obstruction between land, lagoon and lake." (Wylson. Aquatecture pp 203 - 204)

"There was an attempt to reinforce and exploit some spatial qualities which were already in the site. That is why visually and physically permeable structure and enclosure are proposed in order to avoid an overwhelming building mass. On the level of spatial experience the final product does not compete with its site, rather it grows from it." (Germen, The Arsenal of Venice: A Study of the Degree of Context-Conscious Architecture. p40.)

- 28. (opposite, left top) Somerset House: Waterfront proposal by Richard Rogers
- 29. (opposite, left bottom) Proposed pedestrian bridge with monorail by Richard Rogers
- 30. (oppositetop right) Train Station, Zurich by Calatrava
- 31. (opposite, bottom right) Catch the Waterline: Boston Visions winning proposal for a harbor and river water-taxi service



- 32. (top) Docklands Waterfront Museum Competition: winning entry by London Design Group
- 33. (middle) Ontario Place Toronto: Waterfront development
- 34. (bottom) Design for a maritime museum in the Arsenal of Venice. This project studies issues related to the introduction of new buildings into a historic context.



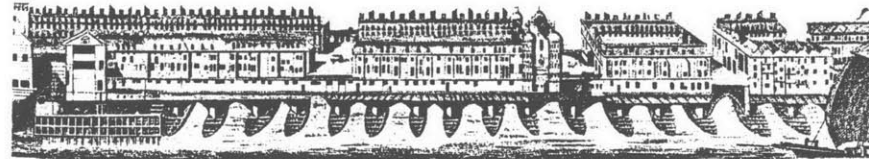
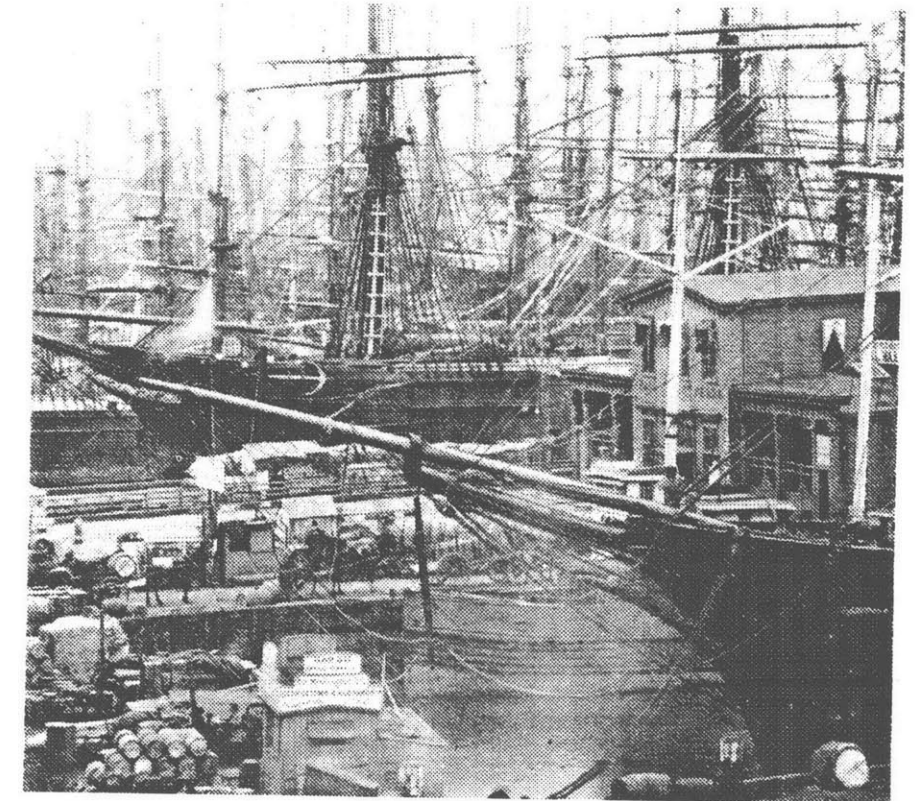
c) Built Configurations

"The bridge swings over the stream 'with ease and power' It does not just connect banks that are already there. The banks emerge as banks only as the bridge crosses the stream. The bridge designedly causes them to lie across from each other.. It brings stream and banks and land into each others neighborhood." (Heidegger, Building, Dwelling, Thinking, p330)

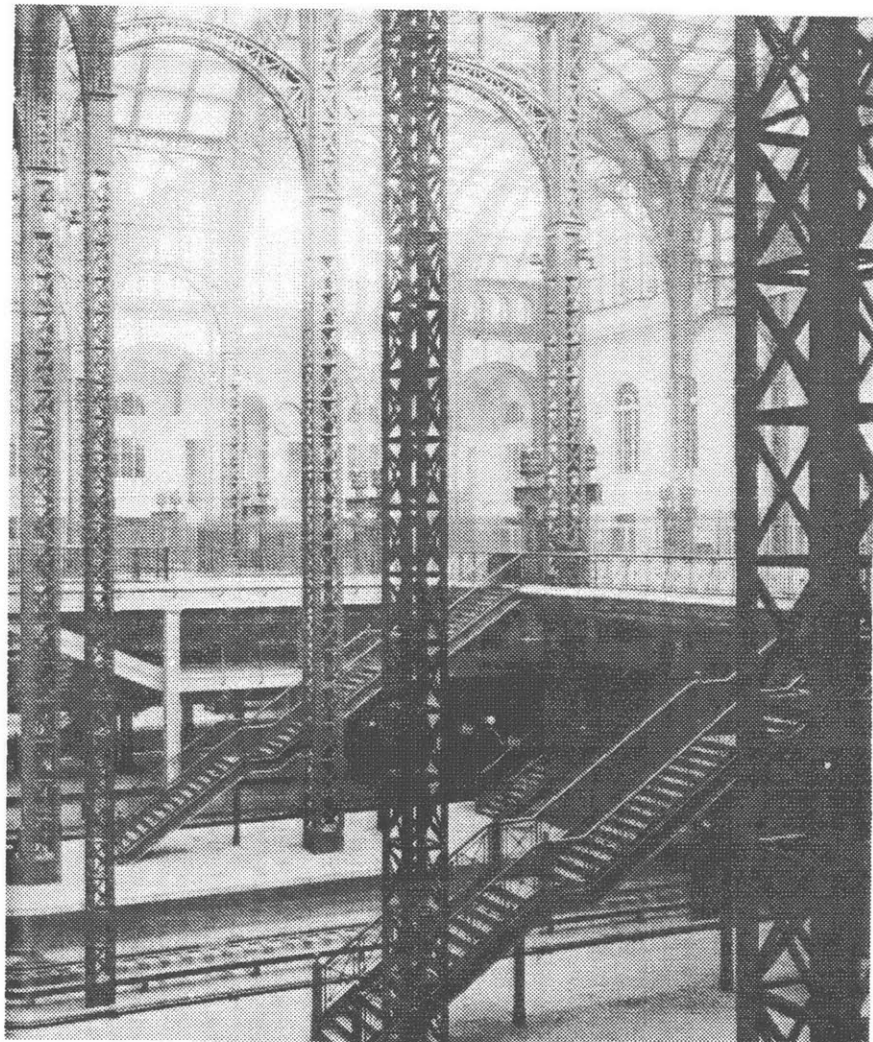
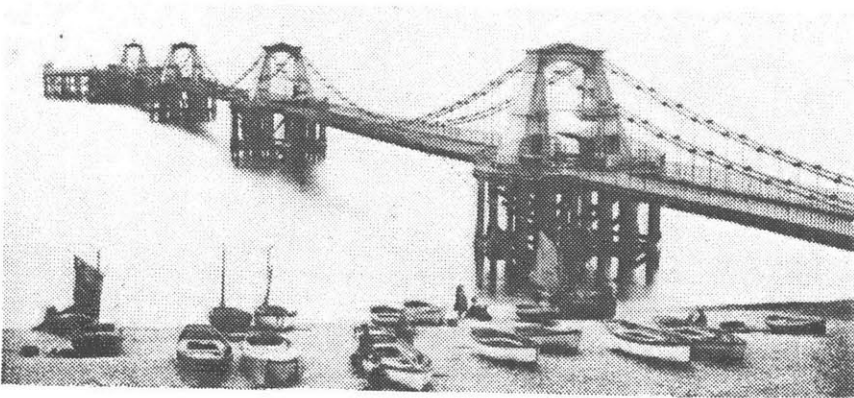
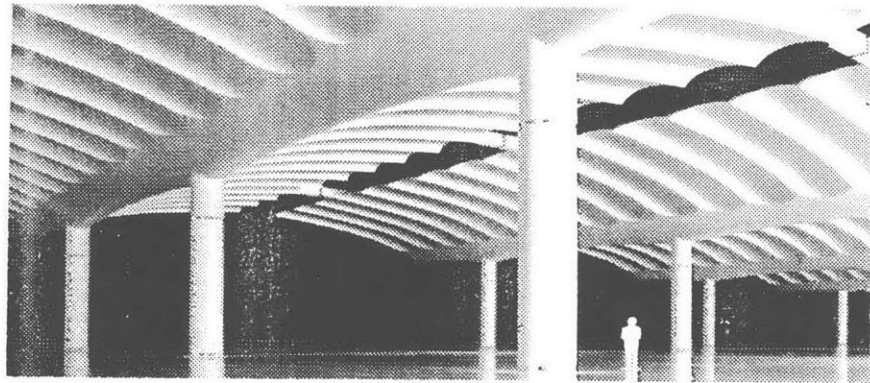
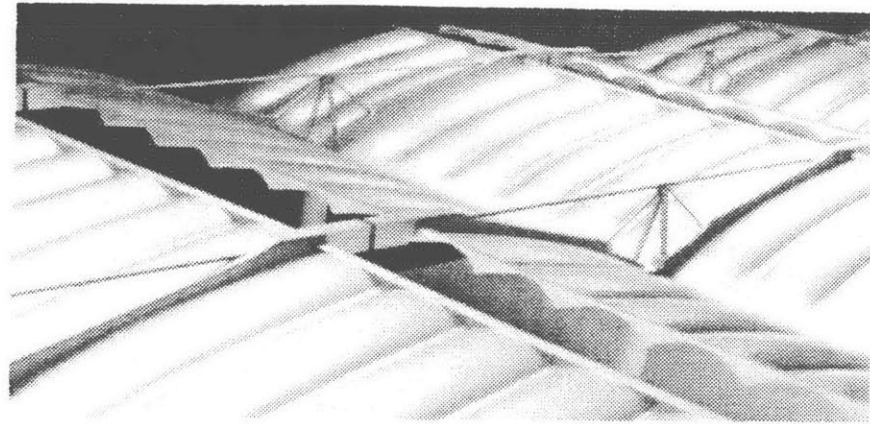
"In the case of the Old London Bridge, completed in 1209,...rows of houses lined a central roadway. This formed a continuation of the enclosed urban road pattern across the water, in the character of the Ponte Vecchio. The bridges were also used for fairs and tournaments, forming a nodal point of 'community life' suspended over the water." (Hibbert, London, p94.)

"In recent decades the scale of maritime transportation has rendered the jetties , quays, and wharfs of historic ports redundant. Methods of handling goods have radically changed, causing many historic ports to suffer, either by adding industrial traffic and structures to the urban waterfront, or by making the quays redundant and vulnerable to re - use for inner - city highway development." (Wylson, Aquatecture, p13.)

"In those days, there was a more human and intimate atmosphere on the waterfront In place of today's container ships...its piers were crowded with magnificent clipper ships and other fine craft. The docks were relatively unrestricted then, and we could have sauntered among the cargoes, brought from all over the world, piled in the open on the docks and streets." (Johnson and Lightfoot, Maritime New York in 19th Century Photographs, foreword.)



- 35. (top left) Brooklyn Bridge with ferry passing below
- 36. (middle left) London Bridge: Eighteenth century engravings of London Bridge before and after its houses were destroyed
- 37. (bottom left) Florence: Ponte Vecchio, 1345: This bridge bears shops on either side of a central roadway. It also has a central viewing gallery.
- 38. (above) Maritime New York , 1875: ships berthed at the Warfs



"A pier is about the only place left in any town where walking is possible without having to look back all the time for oncoming vehicle. It also provides a walk on the sea without the disadvantage of being sea sick. In fact, piers are havens of fresh air and freedom from anxiety which we can ill afford to lose." -Sir John Betjeman (Bainbridge, Pavilions on the sea, p17.)

"The utility of the suspension pier ... affords a certain means for a boat to land, and more particularly to get off the vessels in distress,to the man of pleasure ...it offers a marine promenade unequalled;" (Bainbridge, Pavilions on the Sea, p30.)

" Walking was the favorite past time...It was indulged in not only by residents but by visitors - ... The pier was a natural place on which to saunter. there was too, a fine formality and elegance about the practice of promenading. " (Bainbridge, Pavilions on the Sea, p31.)

"Whereas the classical architectural language as applied to the water crossing confronted nature, the nineteenth century engineering structures expressed an aesthetic latent in structural forms, revealing forces embodied in nature, the structures being anagrams of forces resolved... Whereas the pedestrian appreciation of river crossing is dependent upon scale, surroundings and proximity to the water, the age of the railway elevated the road or rail systems across wide estuaries and rivers without obstructing the movement of an increased scale in maritime vessels." (Wylson, Aquatecture, p100.)

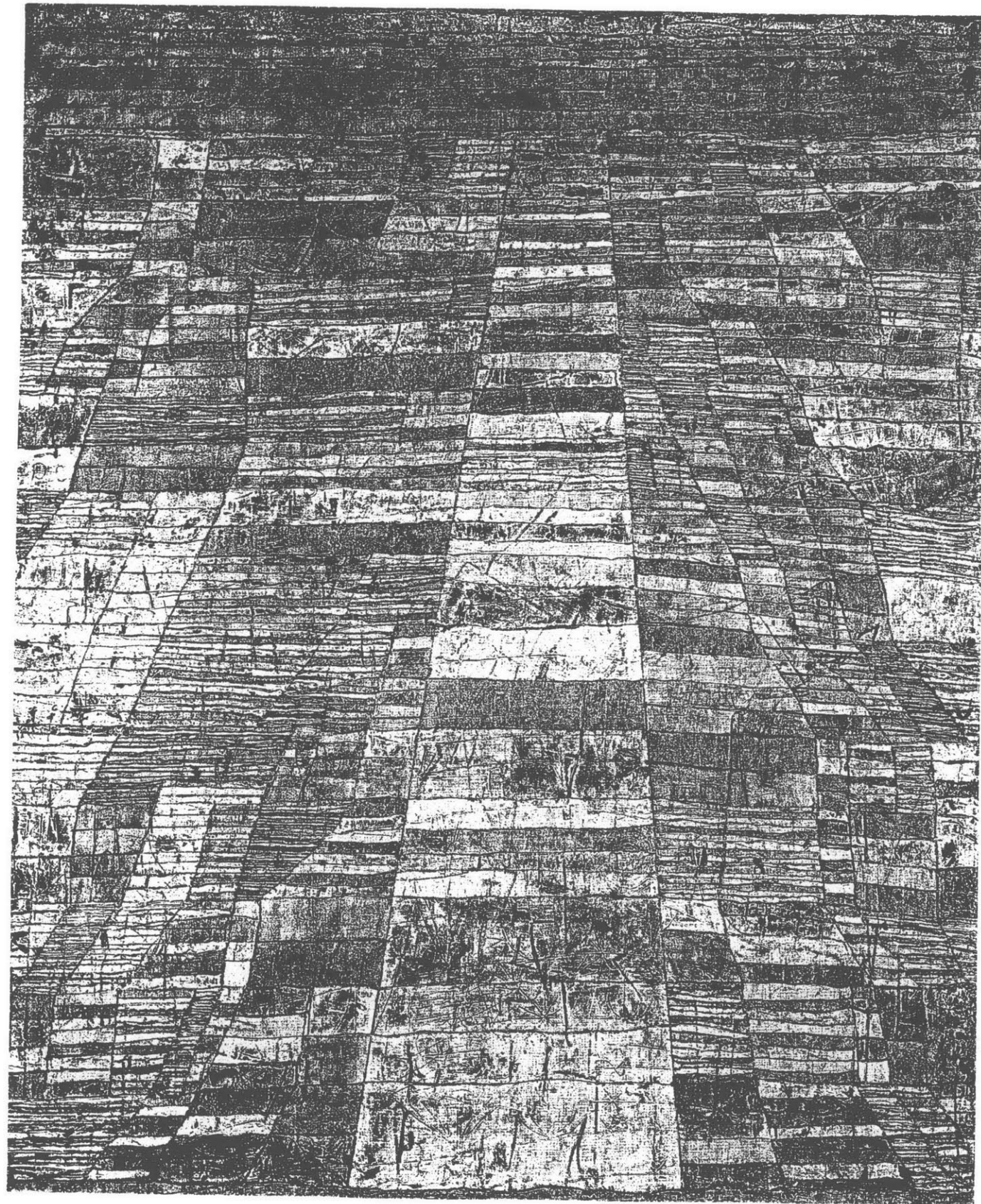
"The termini of a capital city are part of the lives of the nation...If the station houses- that is to say the waiting rooms and booking offices along the line- are the equivalent of parish churches, then the termini are the cathedrals of the Railway Age." (Betjeman and Gay, London's Historic Railway Stations, preface

39. (top left) Headquarters for Televisa, Norman Foster: model views of roof structure from above and from below .

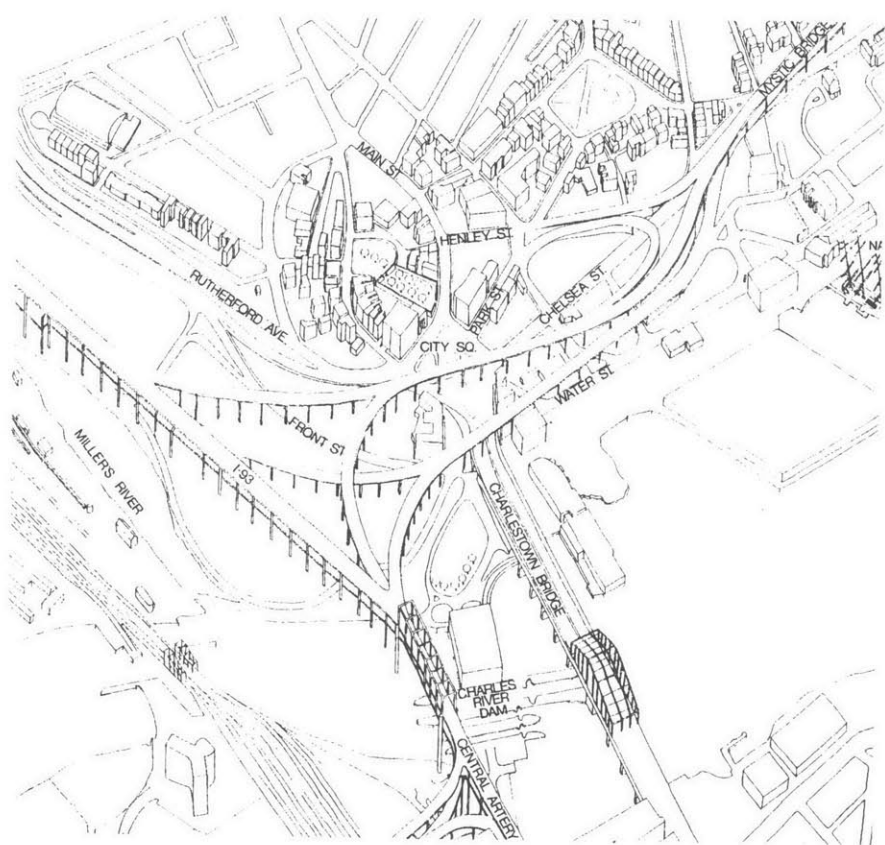
40. (above) Brighton Chain Pier, 1890. An unusual suspension design that was destroyed in 1896.

41. (right top) The Pier Used as a Promenade. A drawing (1885) of a British pier that served as a public promenade.

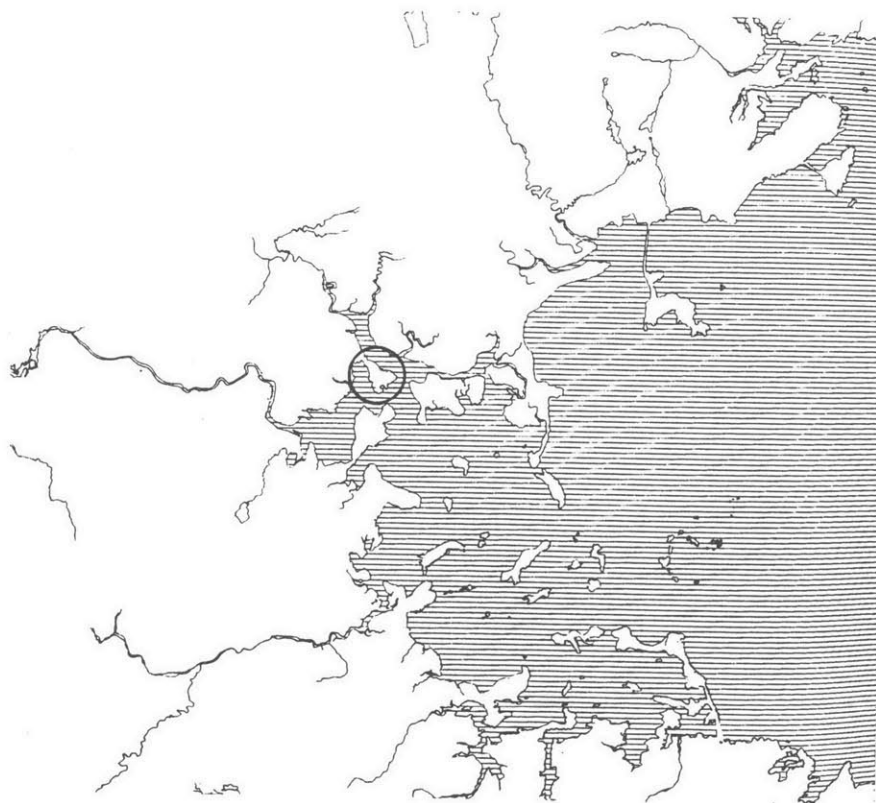
42. (right.bottom) Pennsylvania Station Concourse. Patterned on the iron train sheds of Europe, the concourse of Pennsylvania Station was intended to suggest the motion and power of the modern age.



43. Highroad and Byroads by Paul Klee



44. Charlestown, area of site: 1980's



45. Charlestown peninsula profile: 1620's

IV. SITE

IV.1 Selection

The ideas outlined in the abstract will be explored through the design of a public transportation node in area of Charlestown's City Square and its adjacent waterfront. This site was selected because of the present opportunity to redefine a continuity between what was once a thriving urban center (City Square) and a publicly accessible working waterfront.

IV.2 History

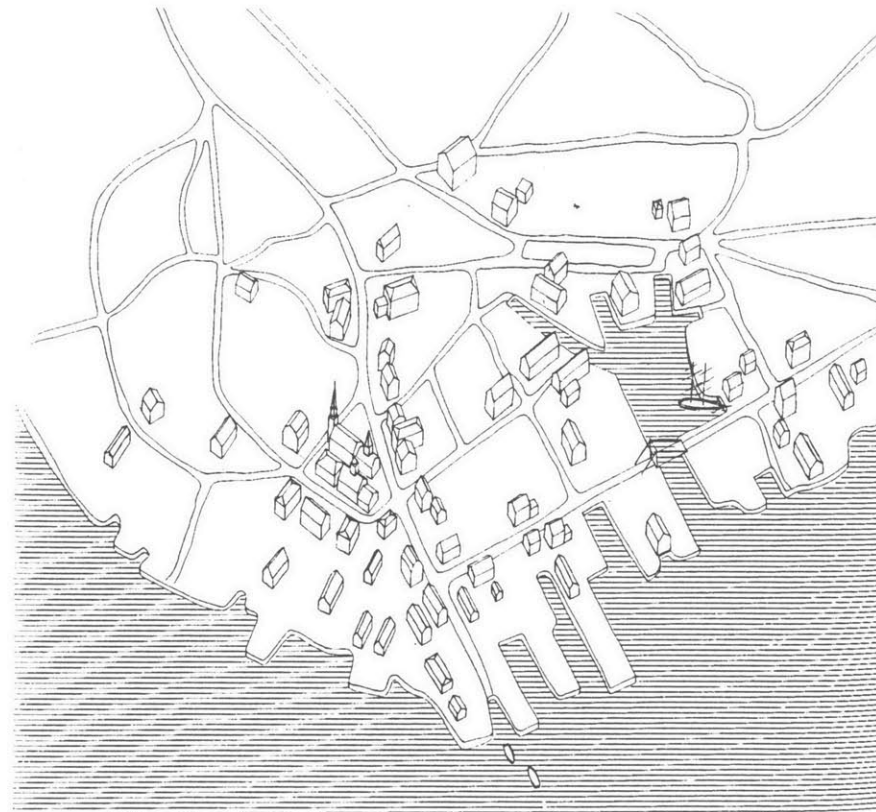
This area of Charlestown has a rich historical background whose physical evolution has been directly related to the forces of transportation. The following historical account and sequence of illustrations is largely from a study by the Massachusetts Department of Public Works entitled Charlestown's City Square, A Topographical History.

In the early seventeenth century, European colonists from Salem settled on the Charlestown peninsula due to its strategic location and abundant resources. Virtually surrounded by water it was sited at the junction of the Charles, Millers and Mystic Rivers, where seafaring and overland routes converged. In 1629, an engineer-planner sent from Salem laid out Main Street, then known as Country Lane. It ran from the waterfront to the hinterland via the Charlestown neck. A branch of this road led to Town Hill where a fort was built. A large wooden structure known as the Great House was

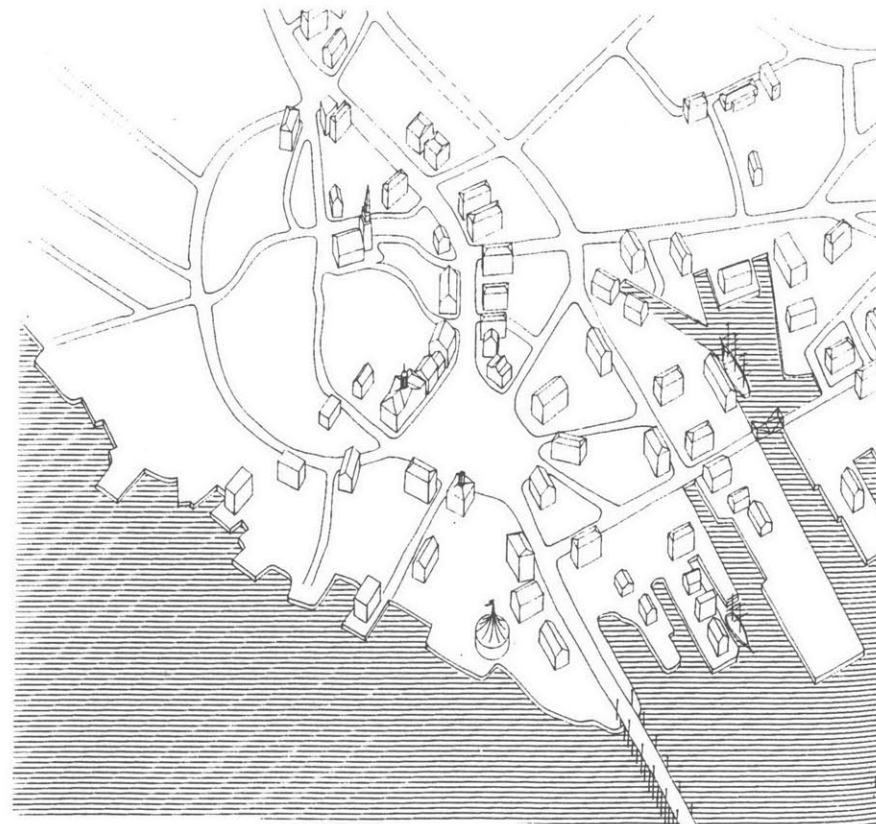
erected on present-day city square and served as a general meeting hall.

By the mid 1700's, the settlement had become a town of nearly four hundred residents. A new meeting house, recognizable by its tall steeple, the Middlesex County Courthouse, and a and the Three Cranes Tavern dominated the City Square Marketplace. It marked the center of activities and the focus of all major streets. Nearby, the Town Dock district flourished with business and shipping. A swing bridge on today's Water Street spanned the entrance to the docks the fingers of which reached well inland and were sharply defined with wharfs and warehouses. The deep channel of the Charles River gave easy access to large ships, and an active ferry service shuttled passengers to and from the North End of Boston.

On June 17, 1775, all this changed when the British ships bombarded Charlestown and started a blaze which consumed nearly all the town. Following the Revolutionary War, streets were straightened and extended as the community slowly rebuilt itself. The most apparent change was in the City Square area where the town bought up the land, moved property lines and formed a large open space to handle traffic. A new town hall was erected facing the square, emphasizing the public nature of the space. The building had offices upstairs and a series of market stalls on the ground floor, following the English tradition. A new meetinghouse was built on top of Town Hill and commercial structures spread out along Main Street toward the Town Dock. Mansions were built on the

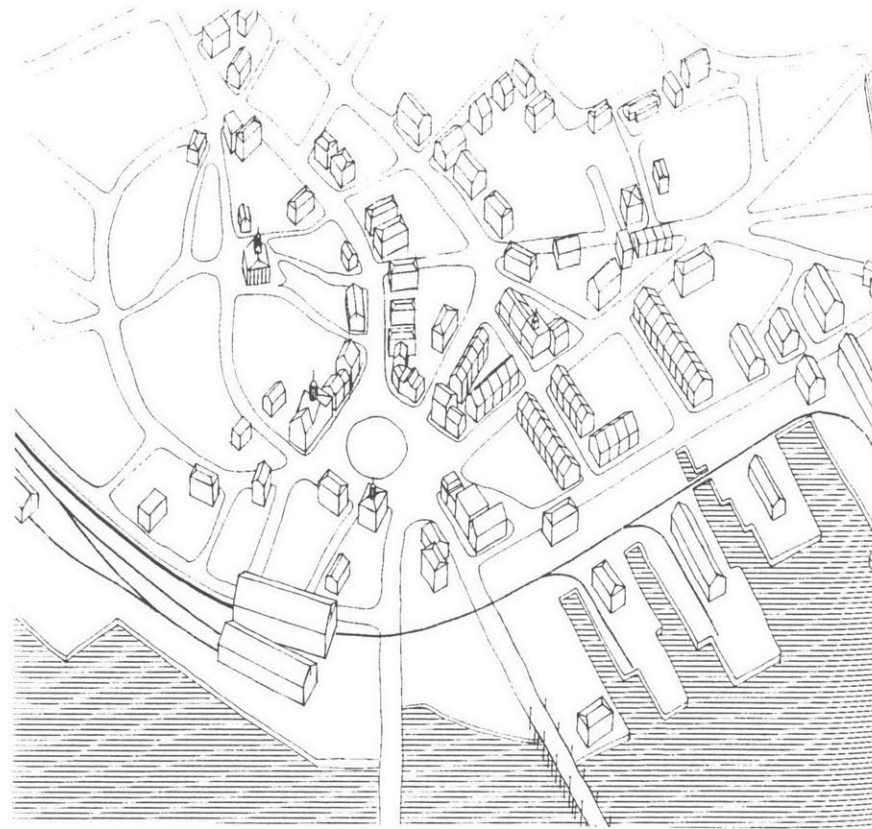


46. Charlestown: 1750's

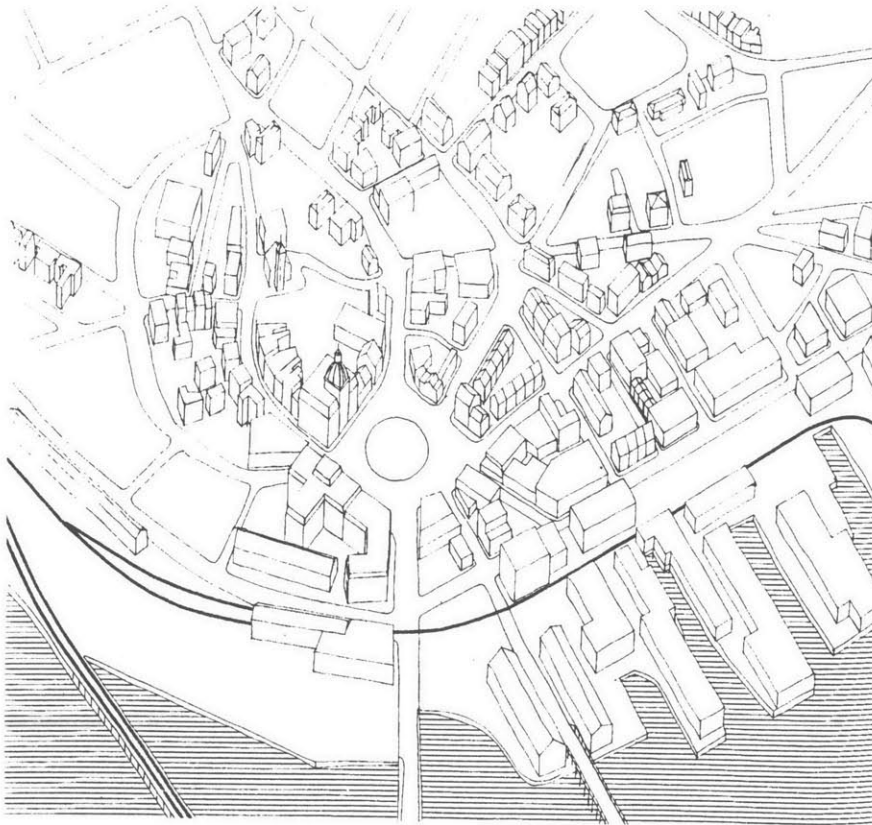


47. Charlestown: 1770's

48. Charlestown: 1780's



49. Charlestown: 1820's



south side of the new square and wharfs were built along the Charles River behind the mansions.

In 1786, a group of developers built a bridge over the Charles, replacing the ferry to Boston. A second bridge, crossing the Mystic into Chelsea opened in 1802. Traffic generated by the new bridges made street widening necessary in the Square, and its importance in the region's transportation network emerged. Charlestown Square took on a distinct urban quality.

In 1835, a fire swept across the Town Dock and destroyed everything between Charlestown Square and the new Navy Yard. The outer wharfs survived, but the inner ones did not and the town used the opportunity to fill in the narrow channels which no longer served the large ships coming into the port. The pre-1840 waterfront was buried beneath a layer of ashes, and new streets and building lots were laid out on the surface.

Traffic in Charlestown became so great that the Warren Avenue Bridge was built across the Charles in 1828. The growing community's square was now fronted by a hotel, town hall, post office, restaurants and stores. In the 1840's, the railroad arrived in Charlestown and two depots were built near the Warren Avenue Bridge- one for passengers and one for freight. During this decade, the town's population doubled and reached a total of 25,000. It became a city in the late 1840's and Charlestown Square was renamed City Square in honor of the occasion. Shortly thereafter, the streetcar was introduced, and for a 5 cents fare, the

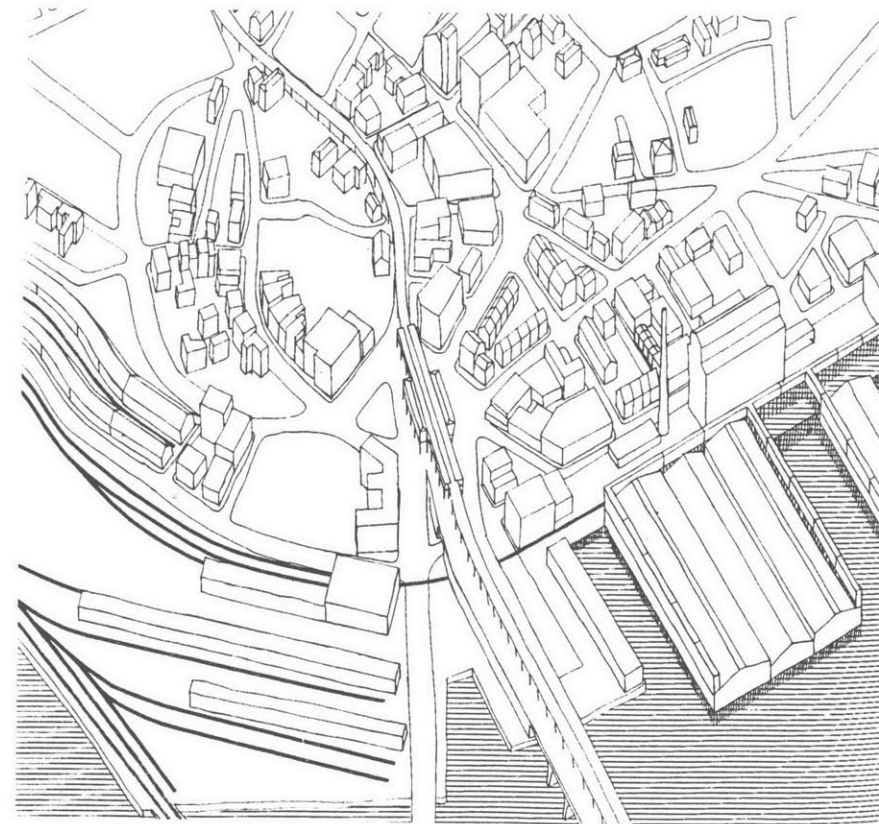
Middlesex Street Railway carried passengers to Medford, Somerville, Chelsea and other town via Charlestown.

The period during and after the Civil War was marked by rapid population growth and intense construction activity. A new city hall now stood on the site of the old town Hall, its octagonal dome dominating the Square. A formal circular park with fountains and iron railings formed the center of the new City Square. Commercial activities associated with shipping and the Navy Yard dominated the area between the Square and the waterfront. Chelsea Street became the most important route in the area, connecting the Charlestown Bridge, the Square, the Navy Yard and the Mystic River Bridge.

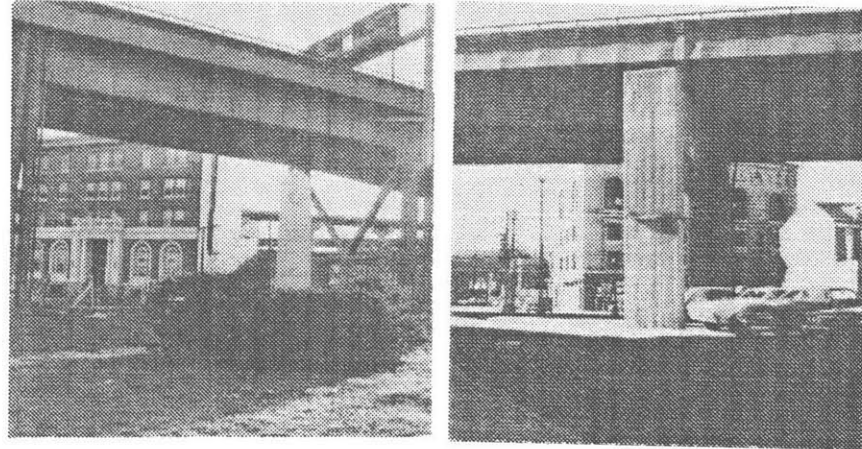
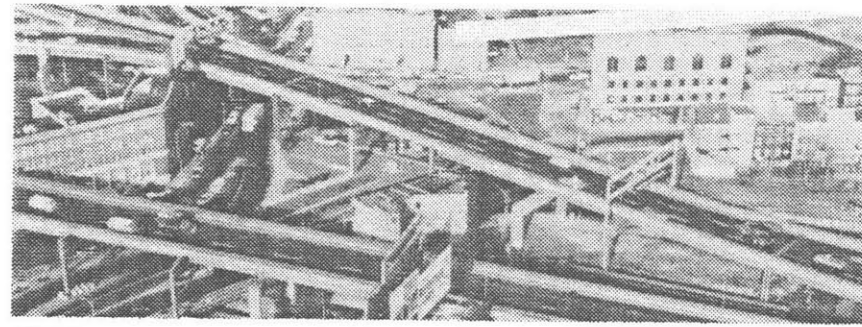
The twentieth century brought a new era to City Square with the introduction of the elevated rapid transit system. Although initially opposed, the "El", as it became known, quickly became a symbol of progress as better access improved the business climate of the area. Along the waterfront a series of new wharfs were built and linked to an enormous grain storage elevator. The scale of construction reflected the railroads optimism which its market never fully realized. West of the Square, the Boston and Maine Railroad continued earth-moving and filling to create additional track space. These railroad yards reached their peak with development of the North Station service yards in 1928. Activity fell off dramatically during the depression, and following a brief revival during World War II, the yard became outmoded by competition from the automobile and the interstate



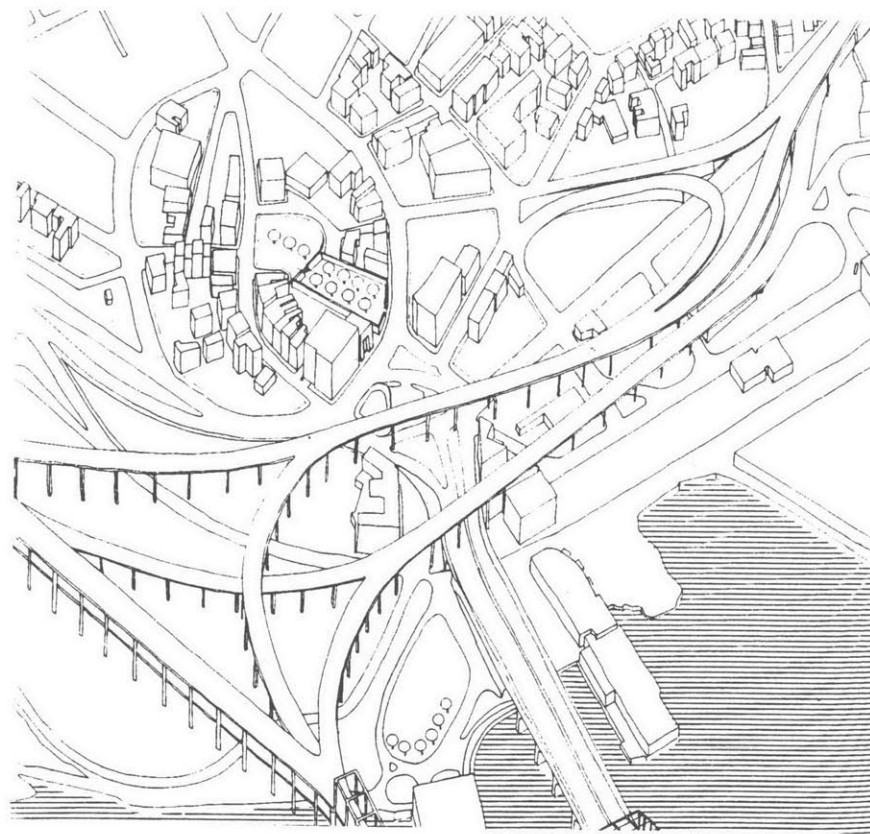
50. Charlestown City Hall: 1840's



51. Charlestown: 1900's



52: City Square area dominated by highways: 1970's



53: Charlestown: 1980's

highway. The grain piers also became outmoded because the piers were too narrow to provide adequate service for larger cargo ships. The piers were replaced by the broad and newly aligned Hoosac Pier. At the Navy Yard, employment declined greatly following World War II.

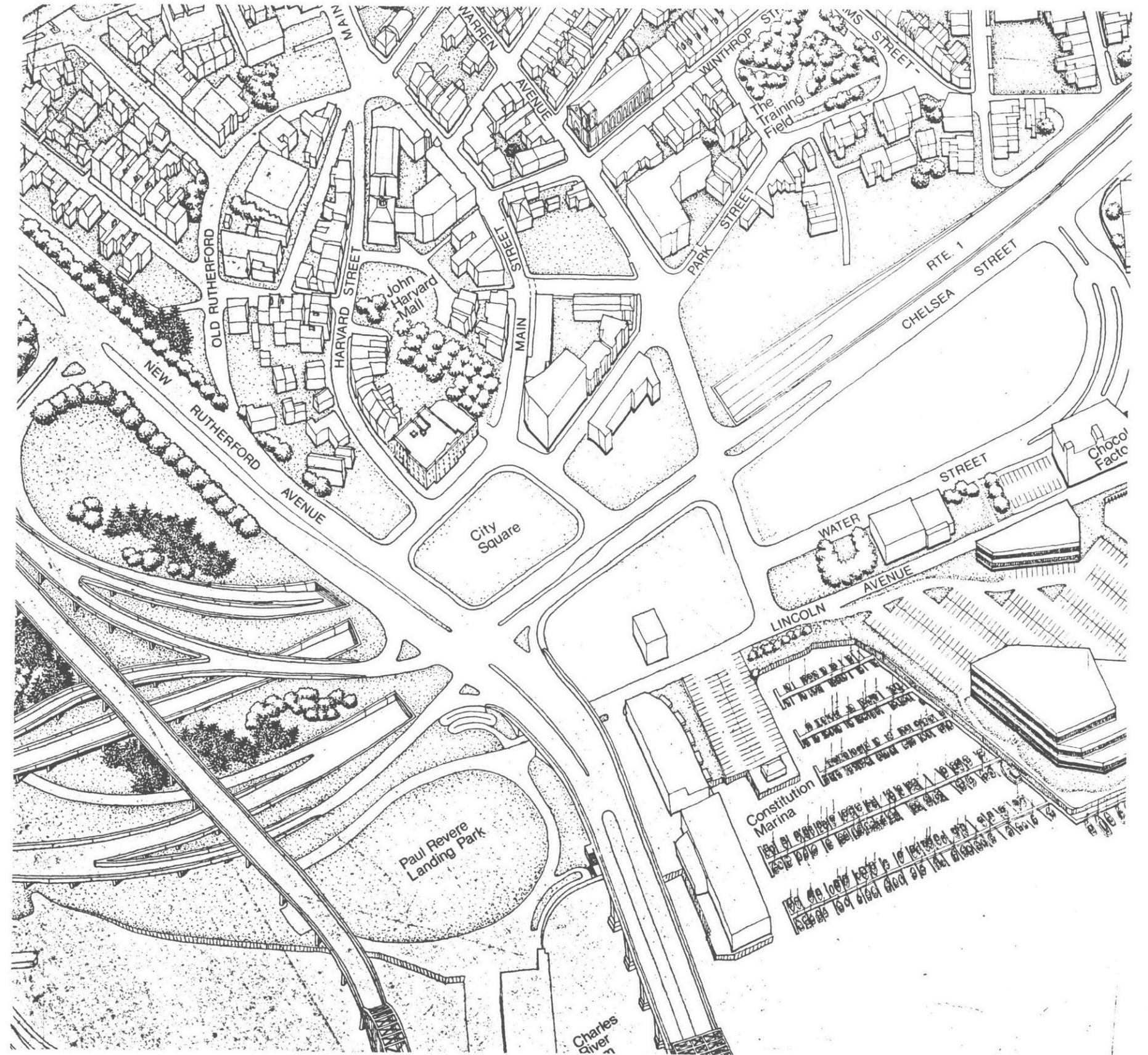
In the 1950's plans were under way for major changes in the area's transportation network. The Mystic River (Tobin) Bridge was the first facility to be constructed and ramps along Henley and Water Streets connected it to the Square. Plans were also under way to connect the Central Artery and the Mystic River Bridge. It was during this time that the City Square area began to physically deteriorate, lose population and business

By the early 1970's, the elevated interchange connecting the Mystic River Bridge to the Central Artery dominated the Square. Route I-93, which opened in 1973, completed the present expressway network. The overwhelming physical presence of the elevated highway further contributed to the economic and physical decline of the City Square and waterfront area. Other transportation changes called for the removal of the el which was replaced with a transit line running under the Charles River and I-93. In 1975, the Navy Yard was decommissioned, and by the end of the decade virtually all businesses had abandoned the derelict area. What was once a thriving urban center had been systematically dismembered until it had no life left.

IV.3 Present Potential

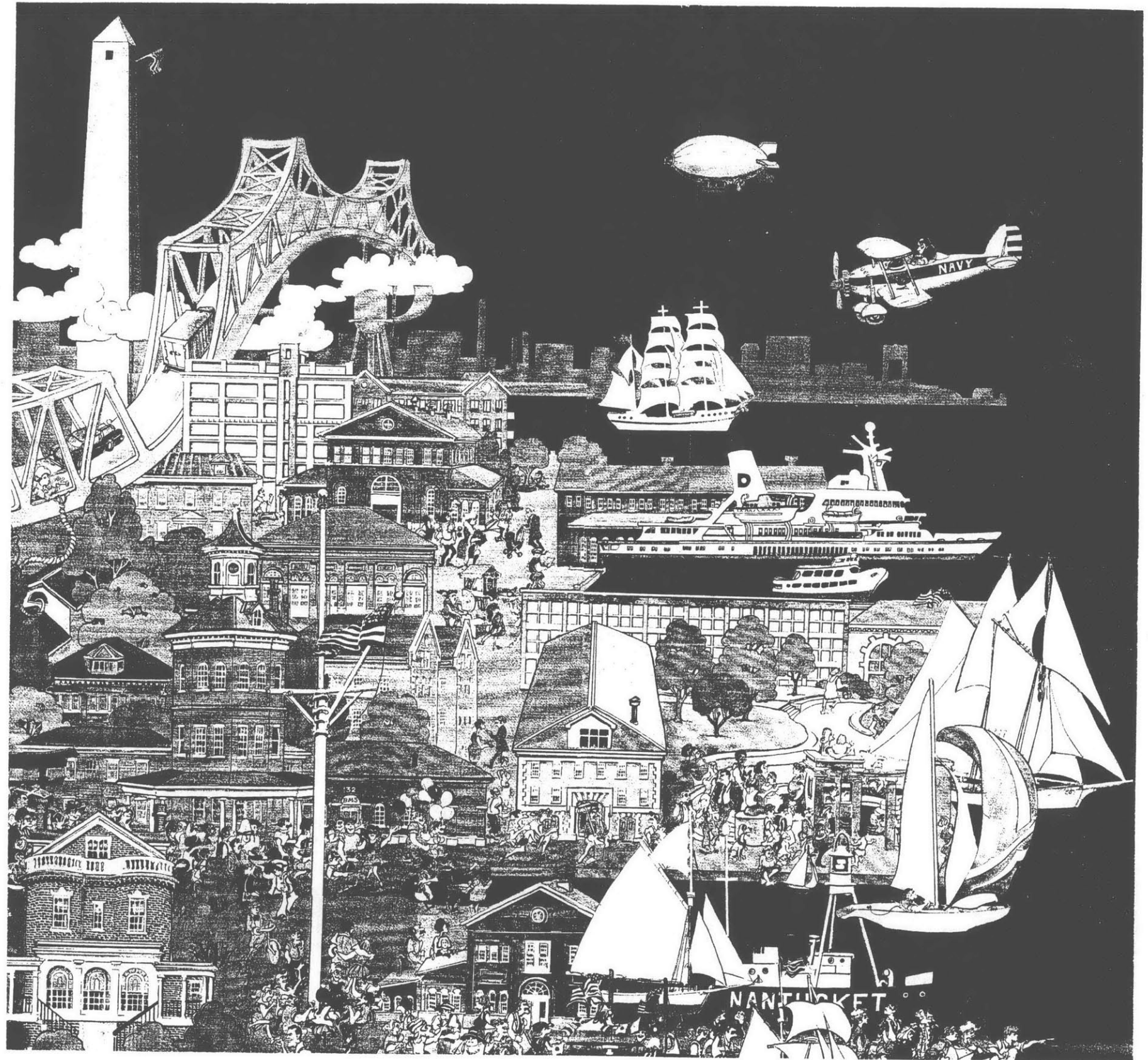
In the 1980's, plans were made to reconstruct the expressway interchange over City Square. The major elements of the reconstruction called for the following sequence: 1) a new interchange to be built over the non-residential area west of City Square; 2) expressway tunnels to be buried under the Square (connecting through traffic between the Mystic River Bridge, Route 1, and the new exchange; and 3) the old exchange to be removed.

This ambitious expressway reconfiguration is presently well under way. Soon the elevated exchange which has dominated the City Square area and separated it from the waterfront will be completely removed. This reconstruction provides a real opportunity for Charlestown not only to reclaim its former nucleus, but also to build an urban continuity to its waterfront.



54: (opposite) Charlestown: 1990's

55. Charlestown Navy Yard: Harbor Day poster





56. Benares, India: Public Access to an Urban Waterfront

¹**pub·lic** \ˈpəb-lik\ *adj* 1 : of, relating to, or affecting the people as a whole {~ opinion} 2 : CIVIC, GOVERNMENTAL {~ expenditures} 3 : of, relating to, or serving the community {~ officials} 4 : not private : SOCIAL {~ morality} 5 : open to all {~ library} 6 : exposed to general view {the story became ~} 7 : well known : PROMINENT {~ figures}
 — **pub·lic·ly** *adv*
²**public** *n* 1 : the people as a whole : POPULACE - 2 : a group of people having common interests {wrote for his ~}

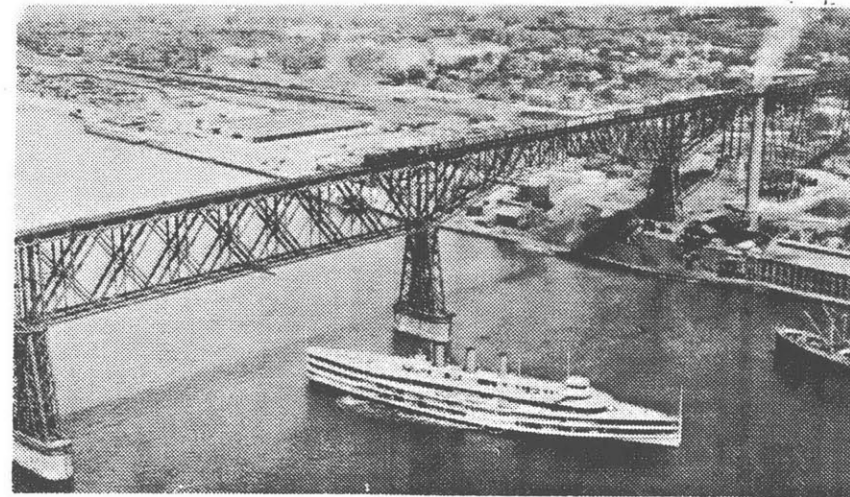
Public: Webster's Dictionary Definition.

V. ANALYZING THE CONTEXT.

V.1 Defining Attributes of Public Spaces

In understanding the urban context of the site and in generating a public-oriented space and program, it is necessary to establish what is meant by the term "public". What is it that makes a place public? What makes a public place successful?

If a place is located within a densely populated area or a particular community in need of public amenities, it is more likely to engender itself toward a group of people. Its **location** should also be seen in terms of relationships with local and larger access systems addressing pedestrian, vehicular, boat, train, bus and other means of transportation.



The success of a public place is largely dependent on **access** to and from its particular location. Its definition is formed by attributes of space **containment, continuity** of context, and the **direction** of access which it might address.

The **dimensions** of a public space and its physical definition, may depend more on the people or **activity** that it addresses. It is noteworthy that just as a program is enriched by a multiplicity of uses, a space may be layered by a coexistence of scales that encompass a range of personal and public dimensions.

Considering conditions which limit public access may also allow insights to the definition and success of public spaces. In other words, we may study the criteria that makes an urban place feel private. The need for privacy is often accompanied by an added level of security that defines the boundary of the public to private domain. There is also the factor of time which limits access to certain public activities (for example, within working hours). Often social and/or economic class/group determines accessibility, creating public places to be exclusive and essentially private.

Achieving a programmatic balance between commodity and utility as well as maintaining a plurality of use and occupation may be effective in keeping a space truly public.

57. The Washington Irving: a view of the 'Washington Irving' on the Hudson River sailing beneath a railway bridge.

V.2 Elements of the Urban Fabric (Lynch)

In analyzing the actual physical aspects that build public places, I would like to use some of the definitions presented by Kevin Lynch in Image of the City. The following are his descriptions of various elements that define the public domain:

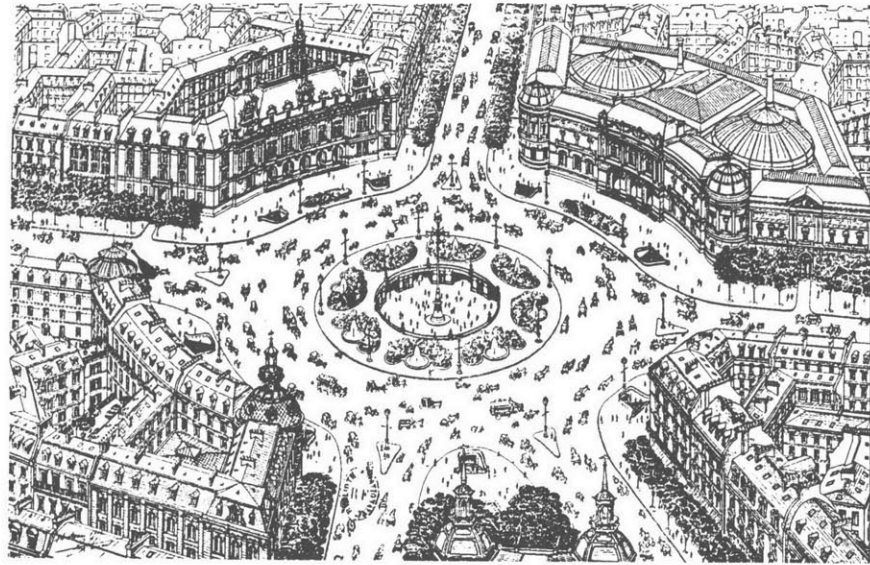
Paths: Paths are the channels along which the observer customarily, occasionally, or potentially moves...People observe the city while moving through it, and along these paths the other environmental elements are arranged and related.

Edges: Edges are linear elements not used or considered as paths by the observer. They are the boundaries between two places, linear breaks in continuity...lateral references rather than co-ordinate axes. Such edges may be barriers, more or less penetrable, which close one region off from another; or they may be seams, lines along which two regions are related and joined together. These edge elements although probably not as dominant as paths are for many people important organizing features, particularly in the role of holding together generalized areas, as in the outline of a city by water or wall.

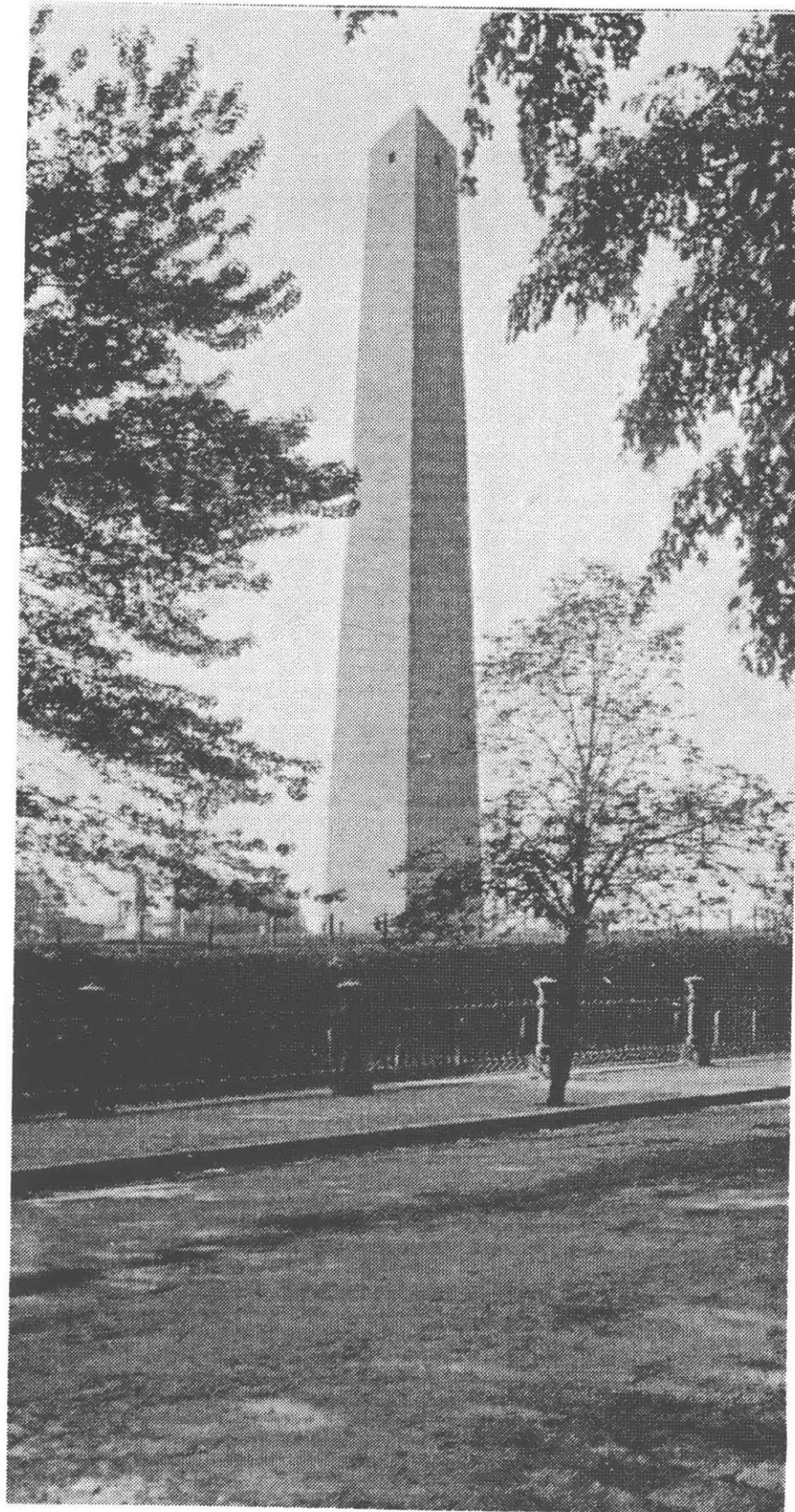
Districts: Districts are medium to large sections of the city, conceived of as having two dimensional extent, which the observer mentally enters "inside of", and which are recognizable as having some common, identifying character.



58. The Seine, Paris. The waterside quay relates to river space and is separated from traffic by trees and a change of level.



59. A carrefour design, Paris. This proposed rotary, with underground pedestrian walkways converging in the center, separated vehicular and pedestrian traffic.

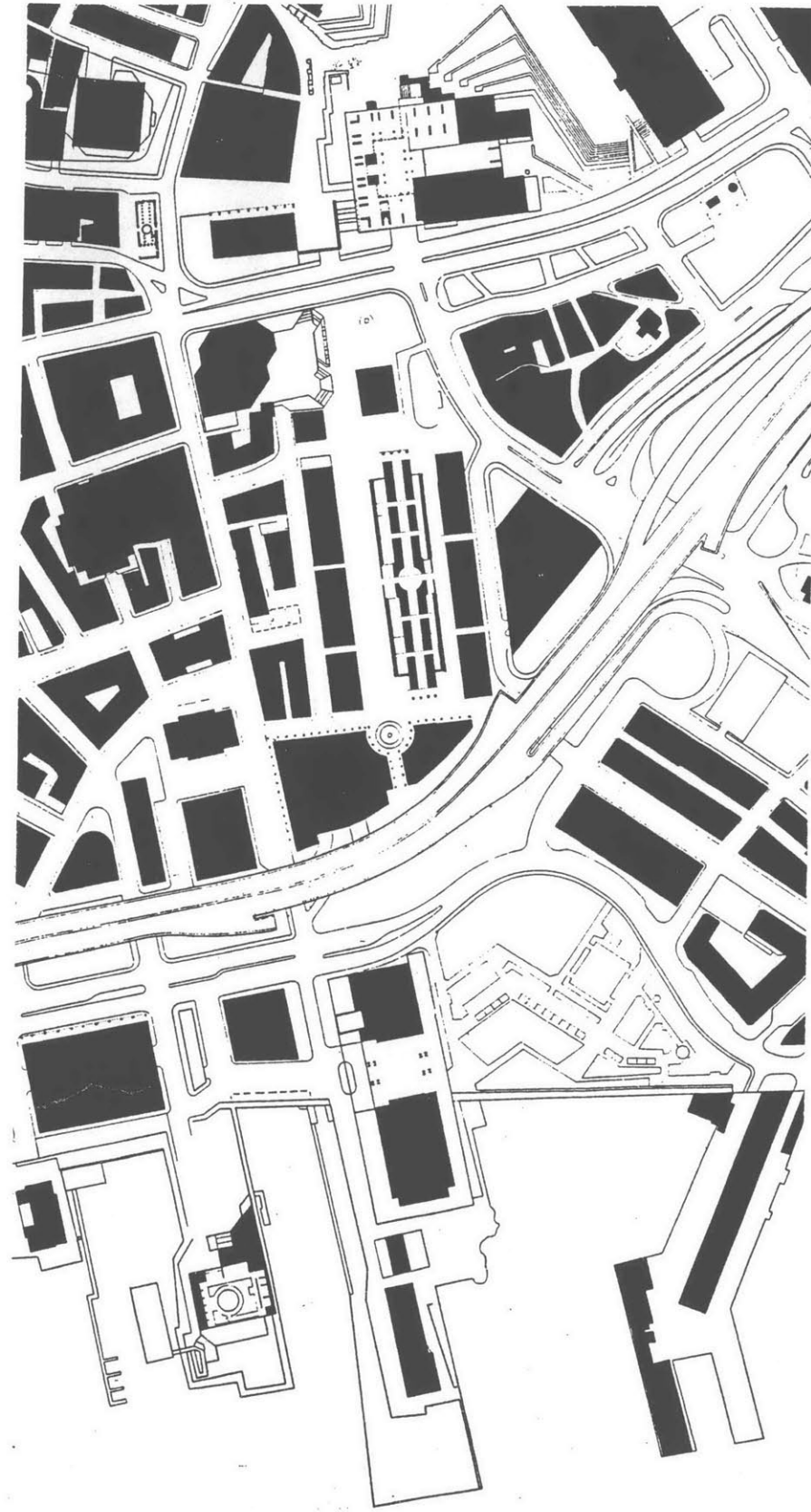


60. The Bunker Hill Monument, Charlestown

Nodes: Nodes are points, the strategic spots in a city into which an observer can enter, and which are the intensive foci to and from which he is travelling...Some of these concentration nodes are the focus and epitome of a district, over which their influence radiates and of which they stand as a symbol. They may be called cores. Many nodes of course, partake of the nature of both junctions and concentrations. The concept of a node is related to the concept of path, since junctions are typically the convergence of paths, events on the journey.

Landmarks: Landmarks are another type of point reference, but in this case the observer does not enter within them, they are external. They are usually a rather simply defined physical object: building, sign, store or mountain...they are frequently used clues of identification and even of structure, and seem to be increasingly relied upon as the journey becomes more and more familiar.

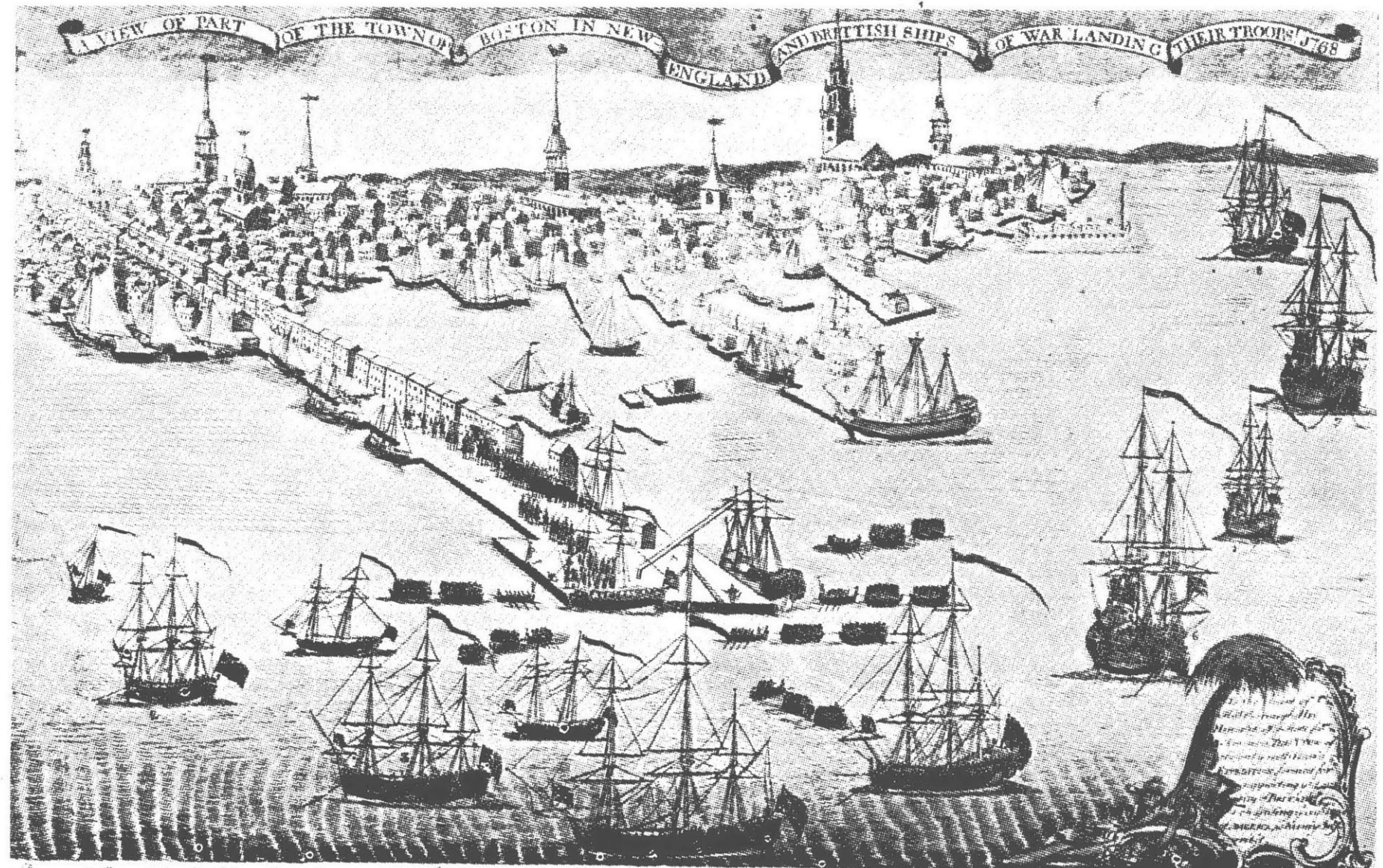
The diagrammatic study of public places and access within a section of Boston shows how the relationships of various elements can provide a continuous understanding of the city. More specifically, the public node at government center begins the path along State Street which leads through Quincy Market to Long Wharf setting up a series of public spaces that articulate the access from the city center to the urban edge, in this case, the waterfront. (See public access figure-ground.)



61. Figure Ground Diagram of Public Access, section of Boston: (Nolli-Plan approach showing major interior spaces of public buildings as extensions of urban open space)

Boston, New York, Philadelphia, Charleston, New Orleans, and the rest, are the names of wharves projecting into the sea (surrounded by the shops and dwellings of the merchants), good places to take in and to discharge a cargo (to land the products of other climes and load the exports of our own).... When I go to Boston, I naturally go straight through the city (taking the Market in my way), down to the end of Long Wharf, and look off, for I have no cousins in the back alleys,- and there I see a great many countrymen in their shirt sleeves from Maine, and Pennsylvania, and all along shore and shore, and some foreigners beside, loading and unloading and steering their teams about as at a country fair.

-Henry David Thoreau, Cape Cod



62. Copper engraving by Paul Revere (1770): indicates former importance of Long Wharf

On Friday Sept: 20th 1768 the Ships of War, armed Schooners, Frigates, &c. came up the Harbour and Anchored round the Town: their Cannon loaded, a Long Wharf a Spring on their Cables, as for a regular Siege. At noon on Saturday October the 1st the fourteenth & twentyfourth Regiments, a detachment from the 50th Regt. & Harbour Wharf and Wharf of 1st Mergant, two pieces of Cannon, landed on the Long Wharf; then Formed and Marched with military Parade, Drums beating, playing, and Cannon firing, up King Street. Each Soldier having received 15 rounds of Powder and Ball.

Col: by G. V. Davis

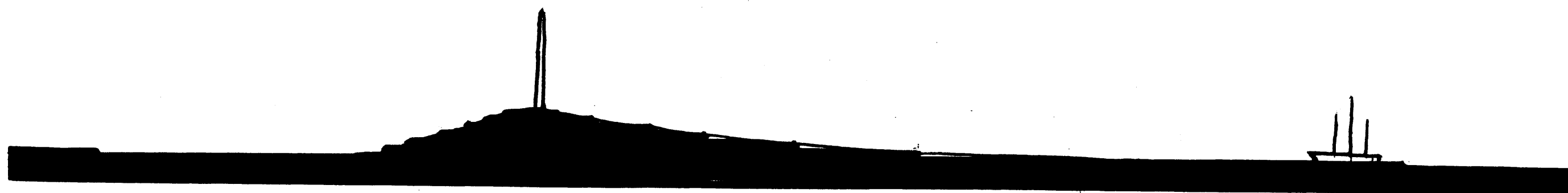
Engraved by Paul Revere & Sold by Ezra Ripley, Boston.

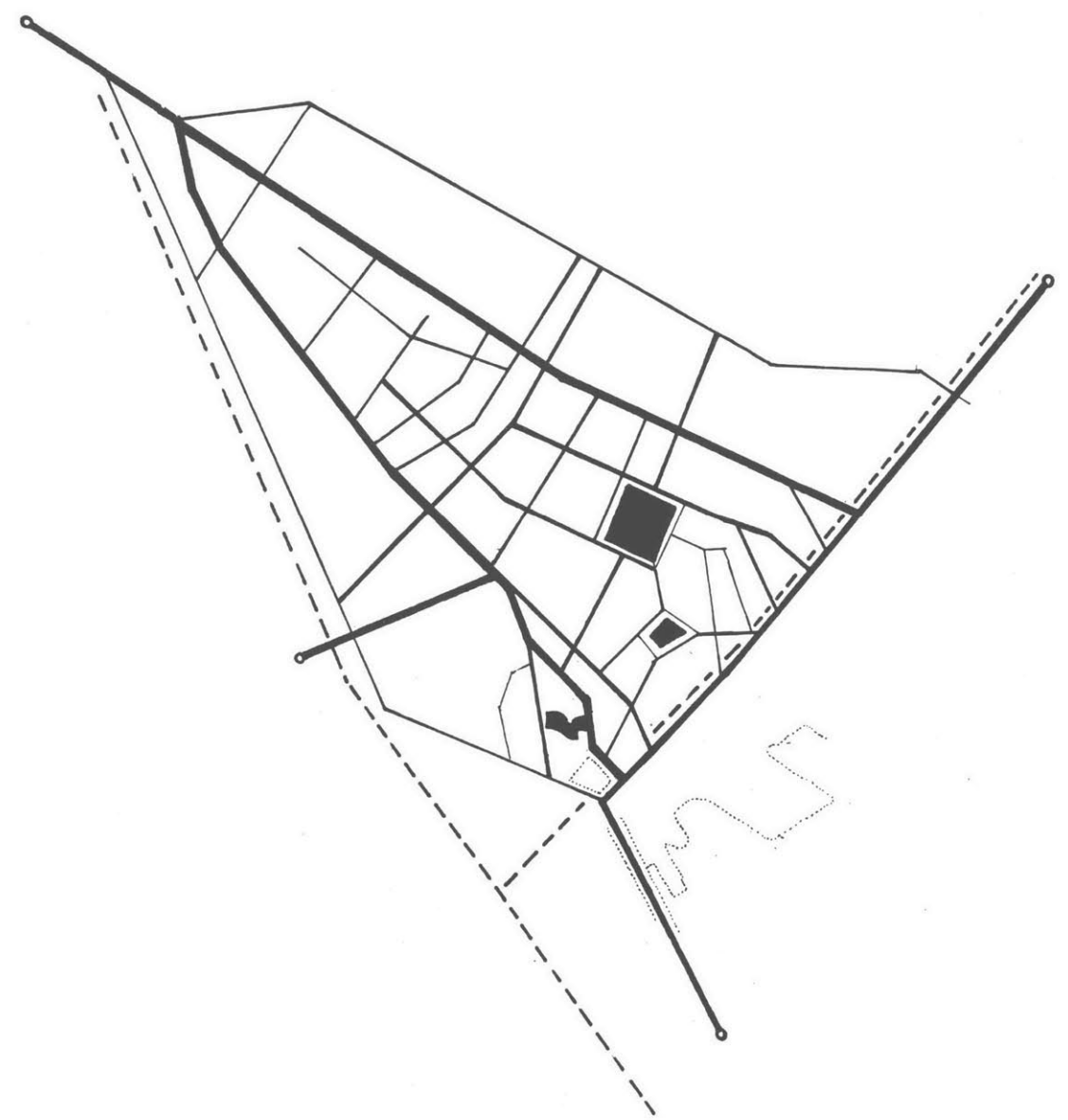
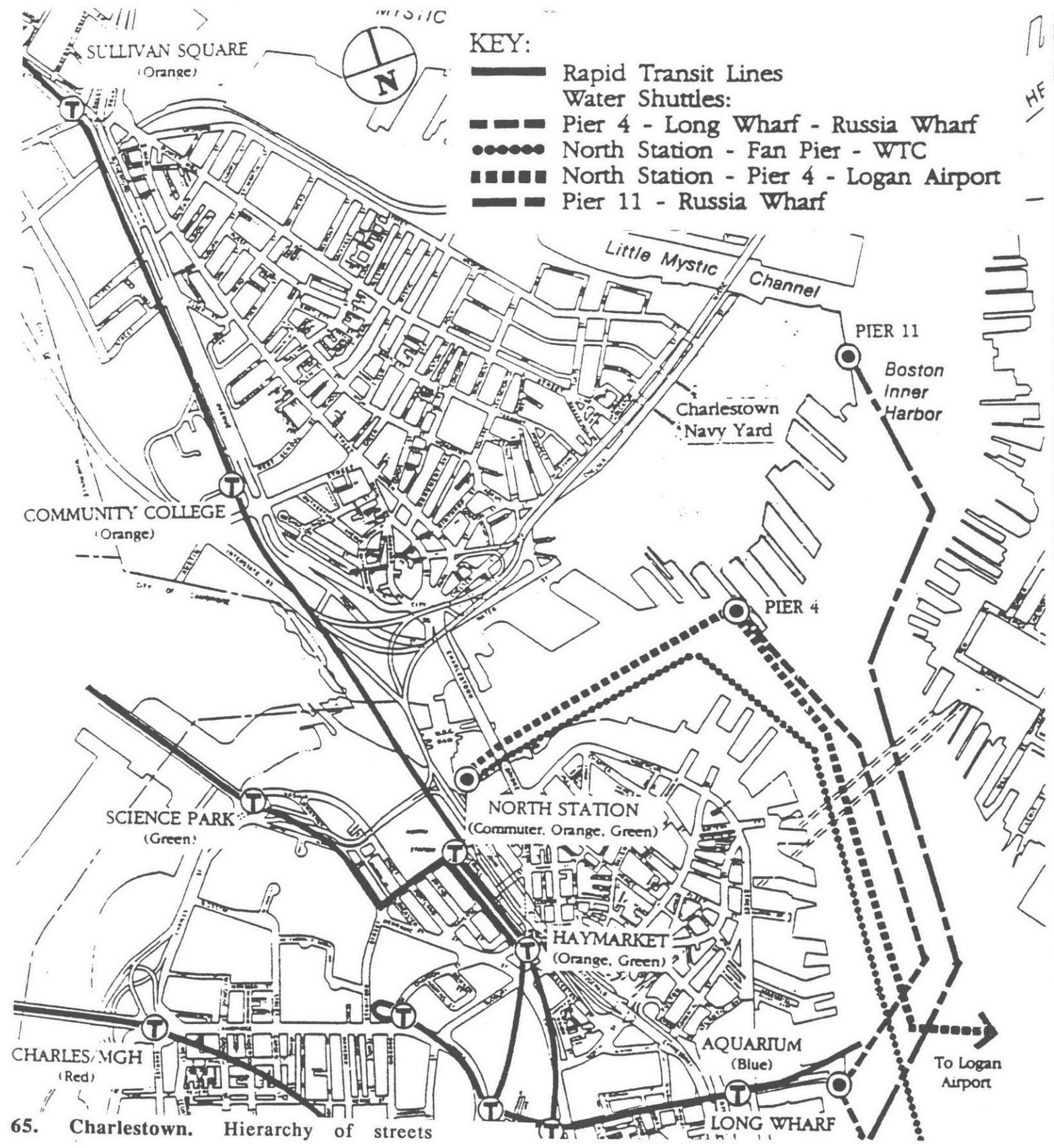
V.3 Charlestown's Built Fabric

The urban context of Charlestown is a relatively small neighborhood adjacent to the strong lateral reference of the waterfront. The built fabric is organized by the strong continuity of Main and Chelsea Streets and a cluster of public squares. The strongest of the organizational elements is the Bunker Hill Square and Monument, a prominent landmark both due to its height as an element and its placement at the highest topographical point in Charlestown. The elements that orient a person within Charlestown thus are three-fold: first, the pronounced topography, second the strong linear paths, and third, the prominent landmarks and nodes (See Charlestown figure-grounds.)

a) Path

With the depression of the Tobin Bridge ramp, the opportunity arises to redefine the historic square as a public place and to continue Main Street and other parallel streets in their orientation to the water's edge. An understanding of the hierarchy of access existing within Charlestown gives clues as to which streets may successfully provide optimum access to the water (See Hierarchy of Streets in Charlestown.)





HIERARCHY OF STREETS IN CHARLESTOWN

- EXPRESSWAY
- MAJOR STREET
- SECONDARY STREET
- CONNECTOR STREET
- LANE
- WATER'S EDGE



If we are to consider Main Street to be a "path" and at times an extended "linear node" the concern is to build access in terms of its point of origin and destination. In an attempting to integrate the urban fabric with the water's edge, the relationship between public places within the city and adjacent to the water needs to be defined through built form, built access, and visual continuities created by vistas to and across the water. An understanding of public access along the area's paths and nodes is essential. (See figure-ground study of public access to the City-Square region.)



66. Charlestown. Figure ground study of Public Access to the City Square region.



67. Charlestown. Diagram of City Fabric.



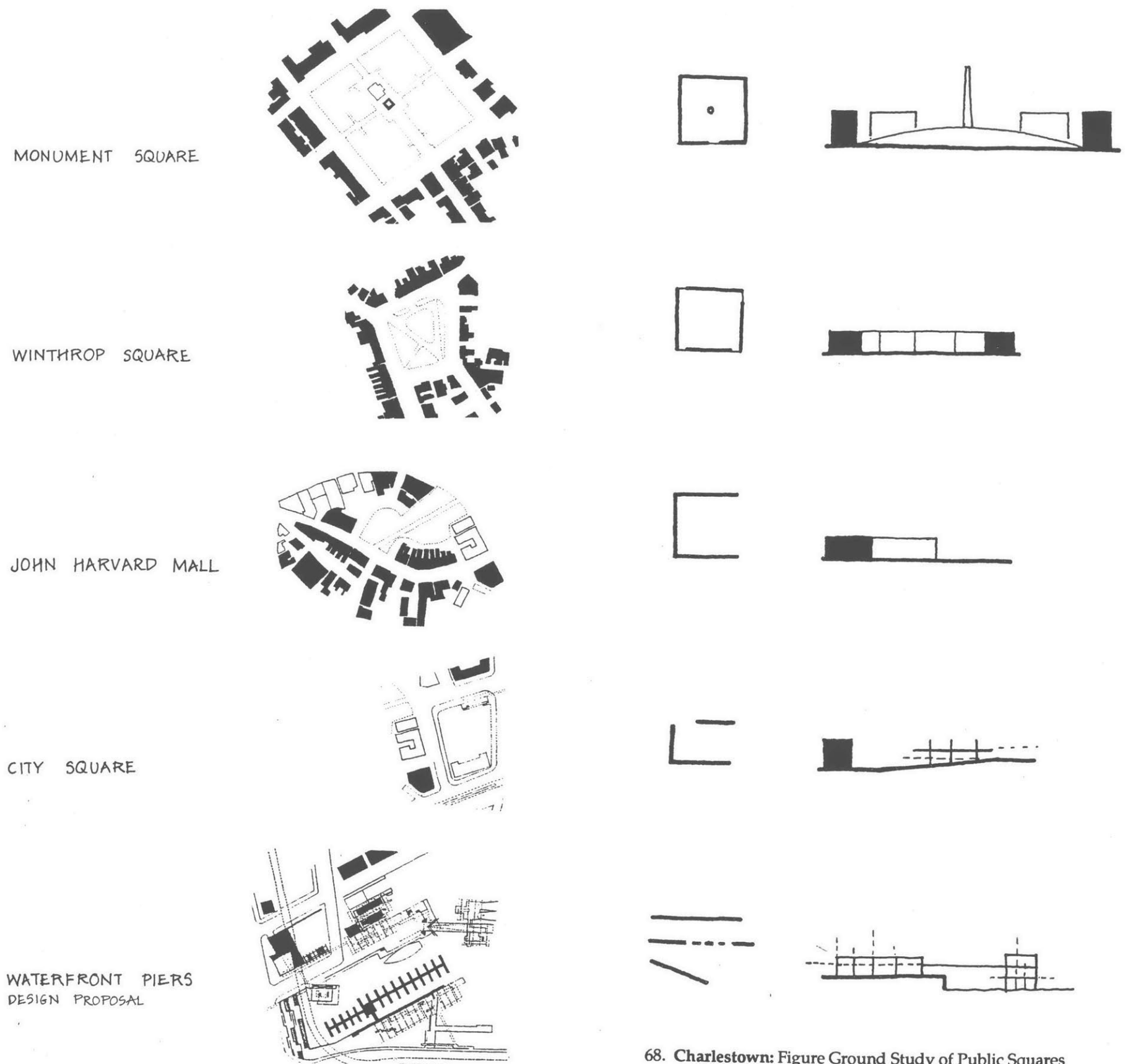
b) Fabric Transformation

The built fabric itself shows organizational transformations in the manner it addresses public space. It ranges from the row houses that build the public space to the mass housing developments that exist as objects placed in a loosely defined territory (not unlike warehouses). The manner in which the private occupation builds a public edge has in a sense undergone a complete reversal from objectifying space- in the row house fabric, to objects in space- 1960's housing projects (See diagram of Charlestown fabric.)

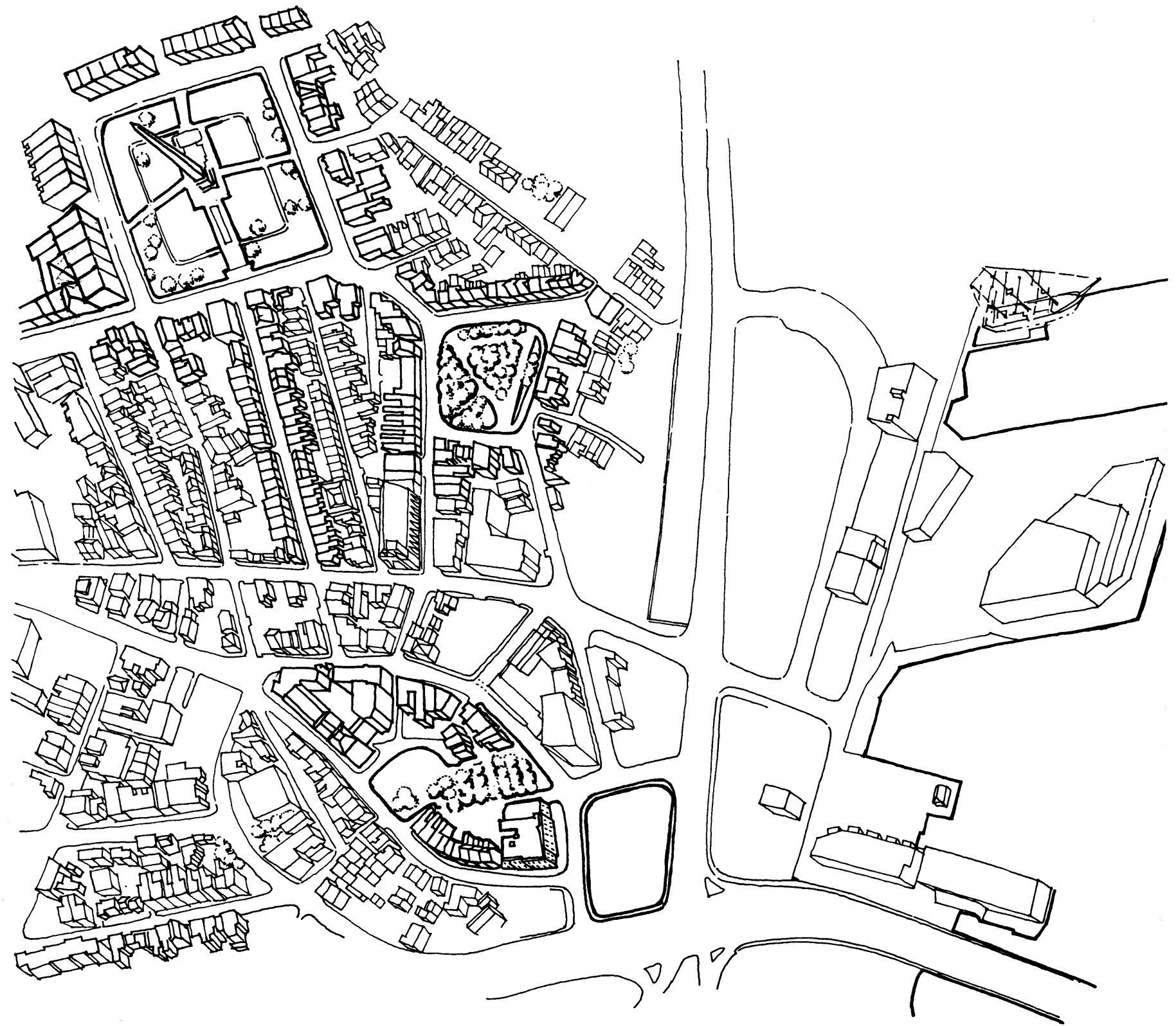
c) Node

The range of public squares in Charlestown themselves vary from more closed with well defined private edges to more flexible spaces addressing the stronger direction of access. Whereas Bunker Hill Square may be seen to be well defined by a uniformly built edge with additional territorial control created by the height of the monument, City Square appears very open and in need of definition. (See figure-ground study of public squares.)

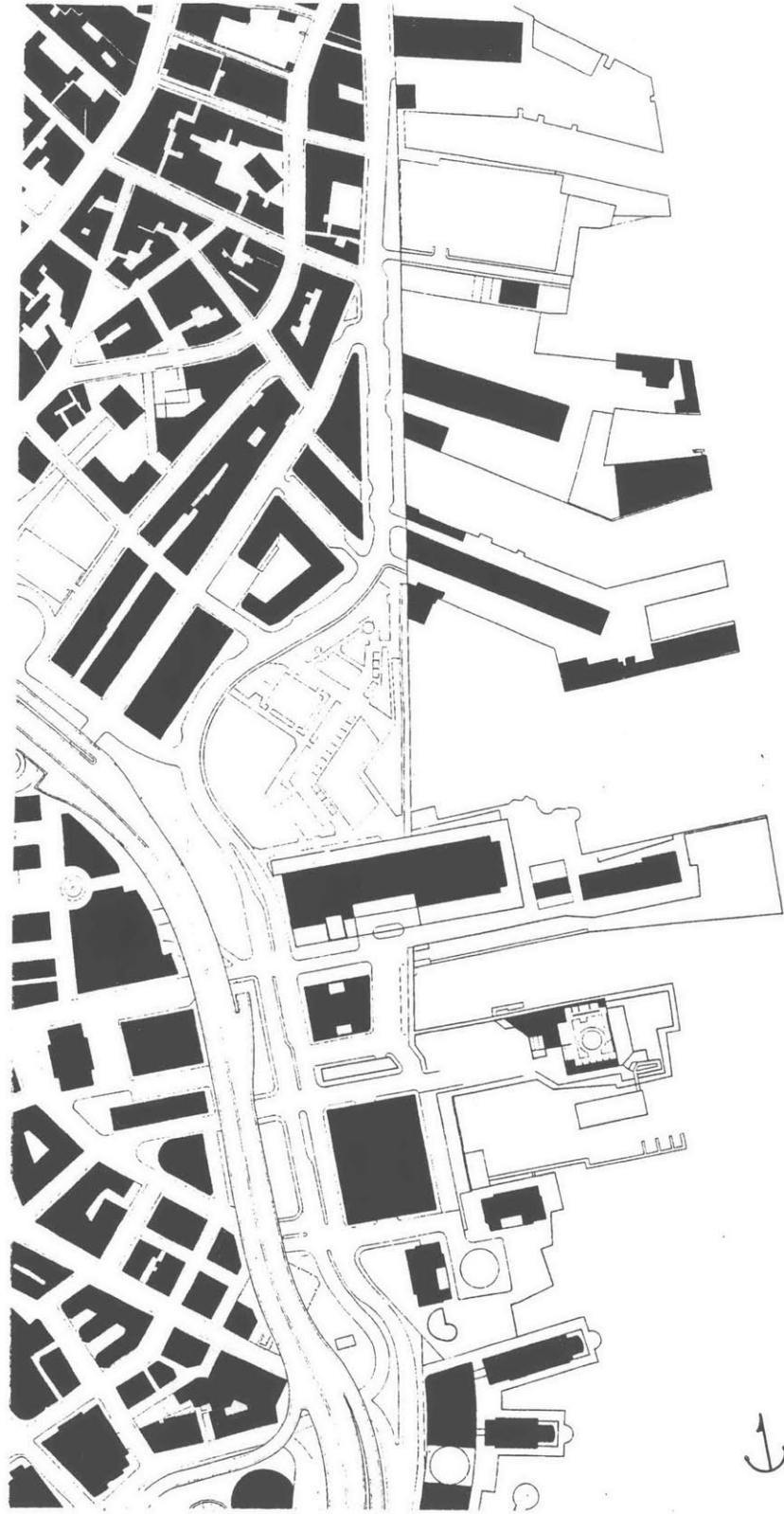
In building City Square as a public place directly addressing the places designed at the water front, an understanding of relationships and continuities in the urban context may be gained by recognizing the directional shifts of the Charlestown Bridge, Rutherford Avenue and Main Street and Hoosac Pier. The pedestrian zone leading from the Square to and along the water's edge may be articulated in a consistent vocabulary derived from material or built elements that are already common to Charlestown. The direction that City Square addresses and its orientation from the city towards the water could reinforce the access to and along the water's edge. City Square is thus perceived as the first public place of many that articulate the path (Main Street) from the city to the water and places beyond. It also is located at the entrance for the bridged access from Boston to Charlestown.



68. Charlestown: Figure Ground Study of Public Squares



69. Charlestown: Axonometric study of Public Squares



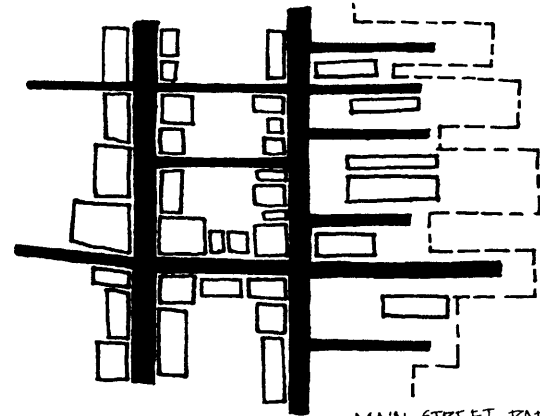
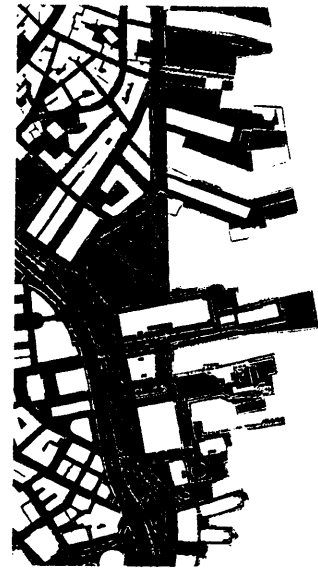
OCEAN EDGE : BOSTON WATERFRONT



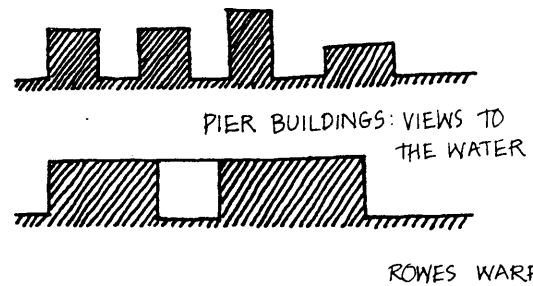
PIER : LONG WARF 1815



RIVER EDGE : CHARLES RIVER

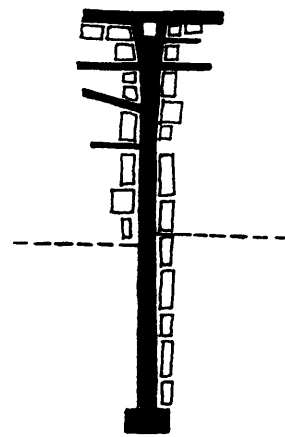


MAIN STREET PARALLEL TO WATER
PERPENDICULAR PIER BUILDINGS.

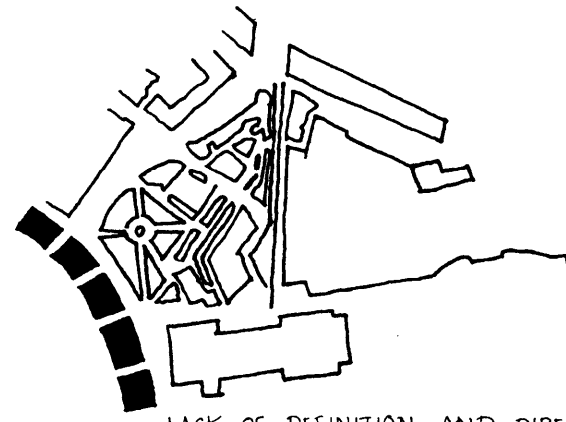


PIER BUILDINGS: VIEWS TO
THE WATER

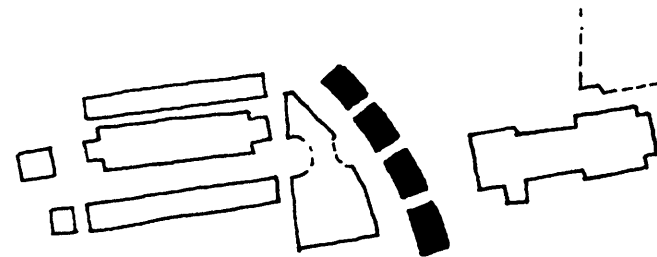
ROWES WARF



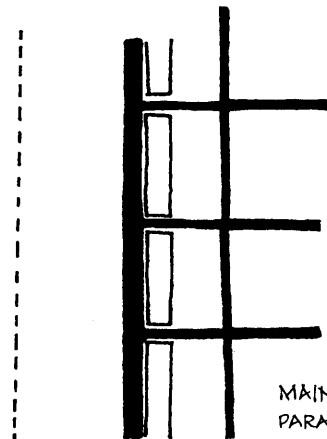
MAIN STREET PERPENDICULAR
TO THE WATER
TWO SIDED TO ONE SIDED STREET



LACK OF DEFINITION AND DIRECTION



TWO SIDED COMMERCIAL STREET
ORIENTED TO THE WATER



MAIN STREET PARALLEL TO WATER
PARALLEL BUILT EDGE DEFINITION

d) Edge

The water's edge in this instance should become a seam rather than a barrier. It may be both a point of arrival for the city as well as a point of embarkation across or along the water. The exchange between land and water presents a range of possibilities. The challenge would be to reinforce this Reciprocal relationship and maintain the primary directions of access that are prioritized by city and water.

Interestingly, water may provoke different organizations when referring to a river versus an ocean edge. The river with its distinct direction of flow and a less predictable flood level is often accompanied by a linear built edge displaced inland at a safe distance and parallel to its direction. The ocean, on the other hand, with its predictable tidal marks, generally allows for man-made finger piers to engage the water to a greater extent and to receive water-bore access from more orthogonal directions. The pier buildings, therefore, are themselves usually linear, allowing streets that arrive perpendicular to the water's edge direct access along the the pier.

In both the river and ocean edge conditions, a change in built fabric from two-sided to one-sided streets often occur. Thus, irrespective of the parallel or orthogonal relationship with the larger water's edge, the built form backs an access route along and open to the water. (See Ocean and River Edge-Condition studies.)

70. Charlestown: Ocean, Pier and River Edge conditions

The pier itself as a built element presents a range of conditions that articulate access to, from and along the water. Although the structural form of the pier has remained fairly consistent, the relationships displayed with the water's edge and the building types provoked are varied. A study of public access in the city of Boston and the manner in which streets and public places connect to piers on the waterfront give us some examples of these conditions. (See study of Boston Piers.)

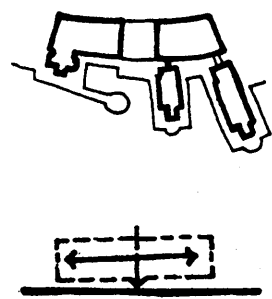
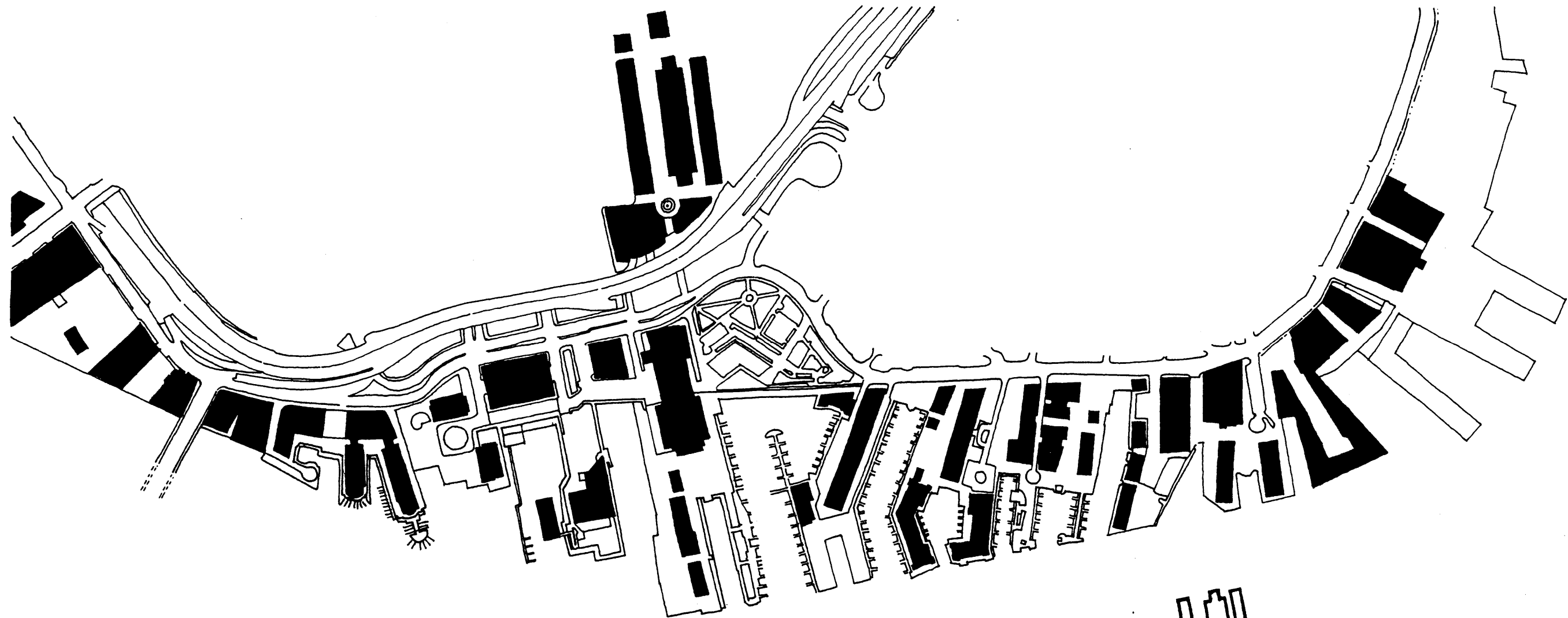
V.4 Waterfront Programs

This study of Boston piers presents not only a spatial range, but also indicates a sample of the various activities which have been recently introduced along the waterfront. The diagrammed examples include the following: Rowes Wharf (exclusive commercial, private offices and condominiums); Pei Towers (private condominiums); the New England Aquarium (public spectacle with commercial interest); Quincy Market (commercial building with public space); Marriott Hotel (private hotel with commercial public space); Waterfront Park (public space associated with private hotel). Although each one of these developments do display a degree of public access, one might argue that it is not a primary concern. The challenge is to provide public, non-exclusive activities at the waterfront (thus reclaiming it for the inhabitants of a city), rather than letting it become dominated by private developments and overly-commercialized tourist attractions.

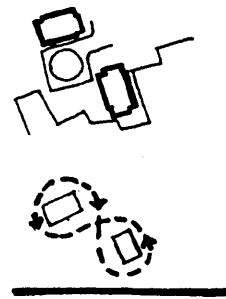


71. Boston: Marriott-Long Wharf waterfront area

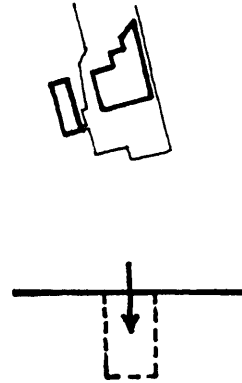
72. (opposite) Boston Piers: Built Edge Response to Water



ROWES WHARF
BUILT EDGE WITH
ACCESS THROUGH



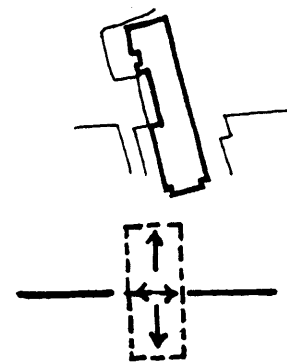
PEI TOWERS
UNDEFINED GROUND



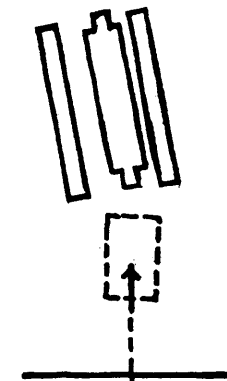
AQUARIUM
PUBLIC MAGNET



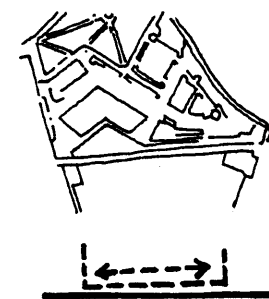
WATER MOVING IN



MARIOTT HOTEL
OCCUPATION OF BOTH
SIDES OF EDGE.



QUINCY MARKET
DISPLACEMENT



WATERFRONT PARK
HORIZONTAL EDGE.

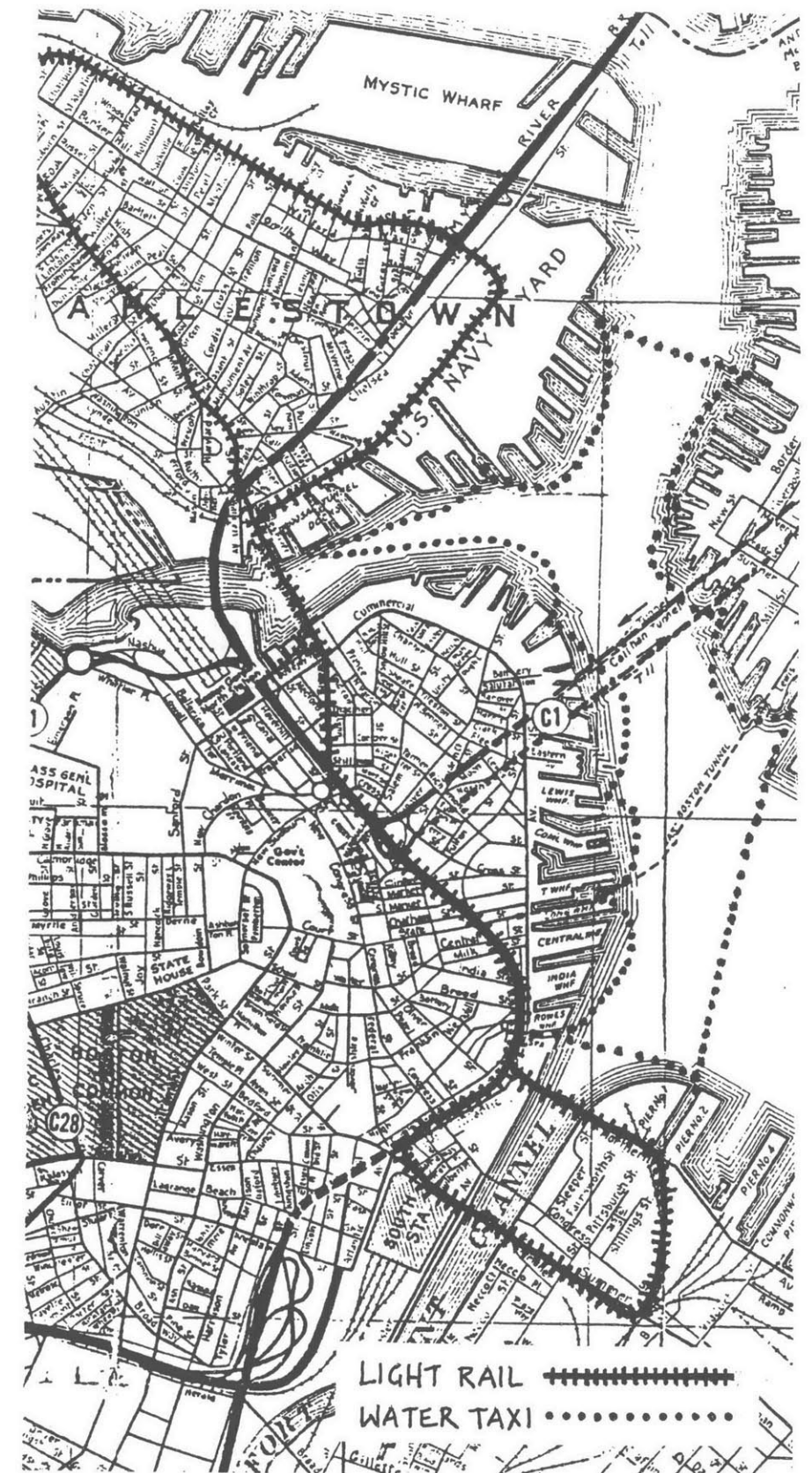
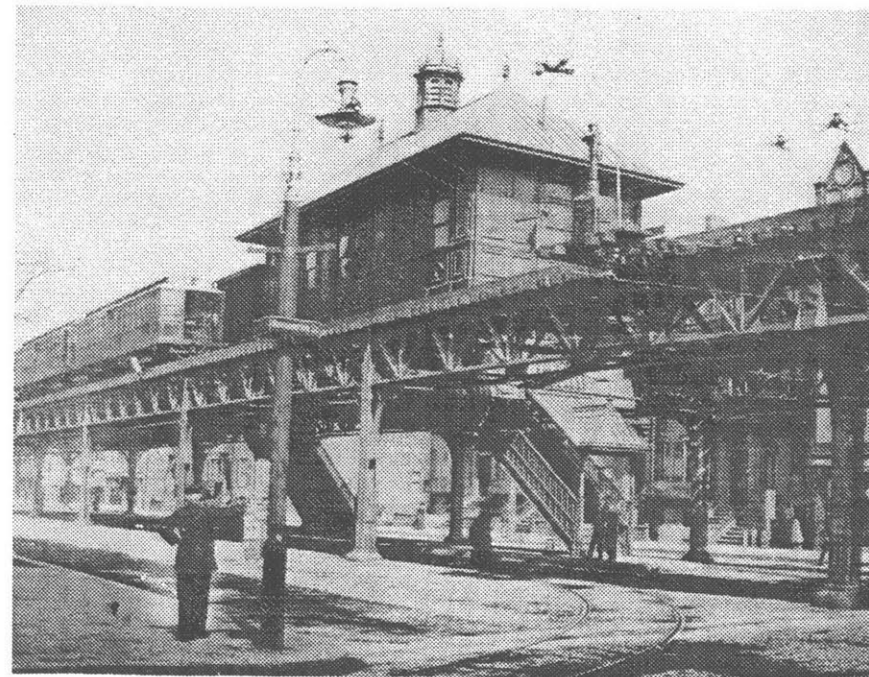
BUILT EDGE RESPONSE TO WATER

V.5 Charlestown Potential Program for City Square Waterfront Area

Charlestown, as indicated in its historical outline, is a city whose urban fabric reflects a sensitivity towards changing modes of transportation. It thus seem appropriate to suggest a public utility along these lines. If this facility is to be instrumental in augmenting the relationship between land and water, it needs to be a part of access systems that relate to both these elements

Considering these factors, the design proposal is for a transportation node combining an elevated light-rail with a ferry boat and water taxi service. It is an activity that generates an uncontrived degree of public participation. The rail builds the access in the direction parallel to the water's edge while the ferry station builds the access to and from the waterfront. Both systems of transportation existed previously in the same area of Charlestown and reinforce the memory of a previous identity

On the larger urban scale, the design schematically proposes a public transportation loop where the light-rail route could take advantage of the new boulevards created by the depression of the central artery and provide an important overland link between Boston's North and South stations (see map).





An elevated rail is able to maintain visual continuities along an access route unavailable to underground rail systems. Its elevation above ground level is important to avoid creating yet another barrier between the city and the water. Its position provokes secondary elevated pedestrian systems that may take advantage of topographical changes.

The ferry boat system could provide much needed connections along Boston's waterline, a largely under-utilized resource for transportation. The water taxi systems may easily extend along the Charles river. The choice of such an activity not only helps to enhance the perception of the water's edge as a continuity to other places across and along the water, but also assists the individual in physically moving beyond this boundary. Finally, this project's articulation of the zone where the Charles River meets the ocean by a public utility that combines public access on both land and water helps to identify this location in the resident's mental map of the city.

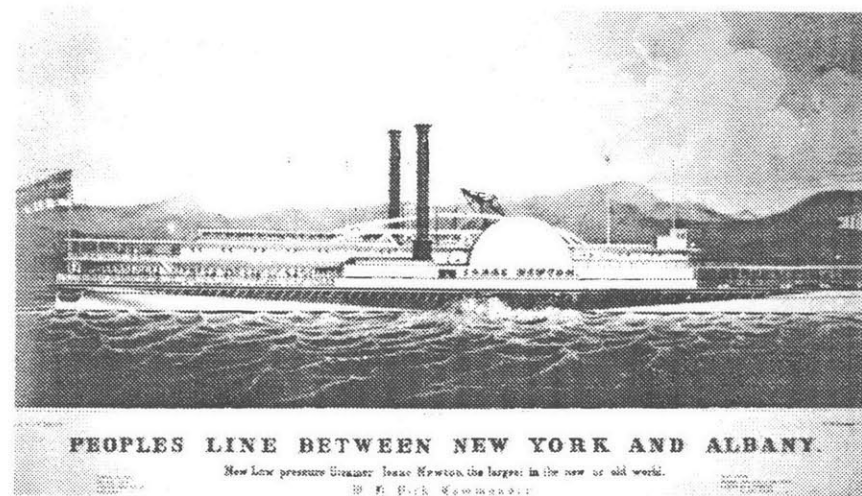
The creation of public places along the Charlestown waterfront needs to allow for a variety and flexibility of utilitarian, recreational, commercial, and non-programmed spaces to coexist. Although utility has been prioritized in this particular proposal, the program includes a number of other commercial and recreational activities, both public and private, which are used to build the public spaces.

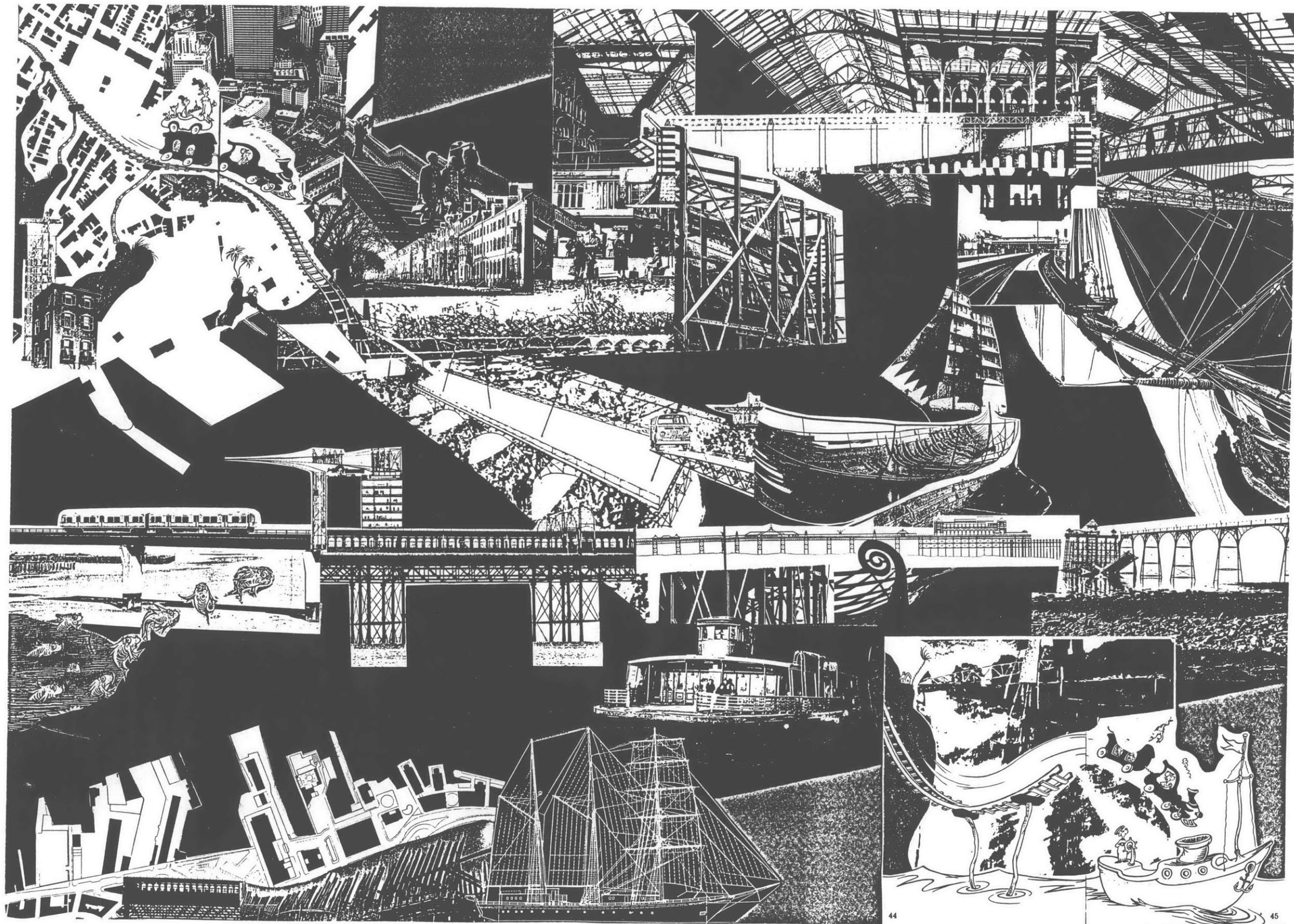
73, 74. (opposite, left) The "El": North Hampton Street Station, Charlestown 1901

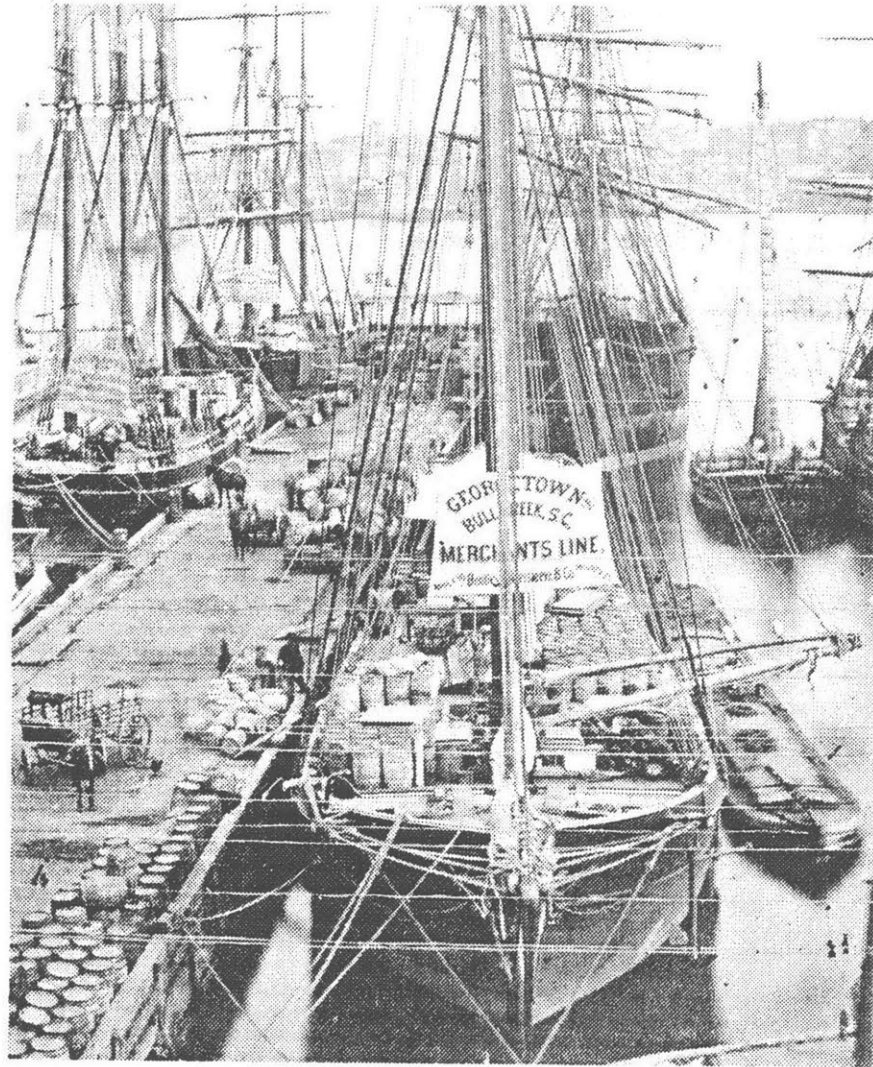
75. (opposite, right) Proposal for light-rail and water-taxi systems

76. (top) The Hudson River Daylines: an illustration of waterborne public transportation in New York

77. (bottom) The Nightboat, 'Isaac Newton.' the public orientation of waterborne transportation





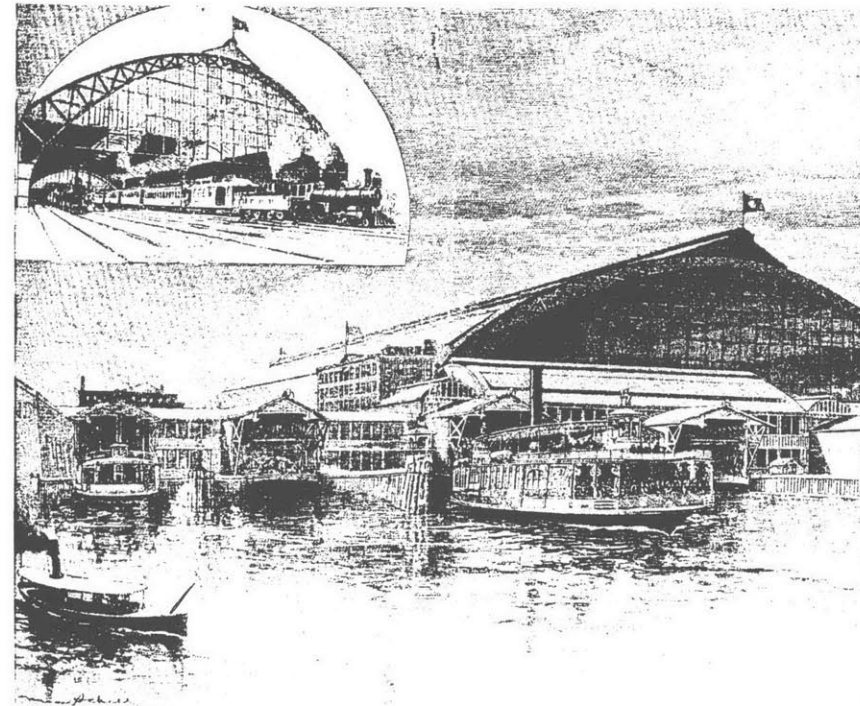


78. (opposite) Collage of Inspirations

79. (above) New York, 1865: Pier 15 on the East River near Wall Street.

80. (right top) The Pennsylvania Railroad Station at Exchange Place in Jersey City, 1890. At this location, train passengers could board ferries that would carry them across to Manhattan.

81. (right bottom) New York, 1903: The Bowery with its elevated rail.



VI. DESIGN

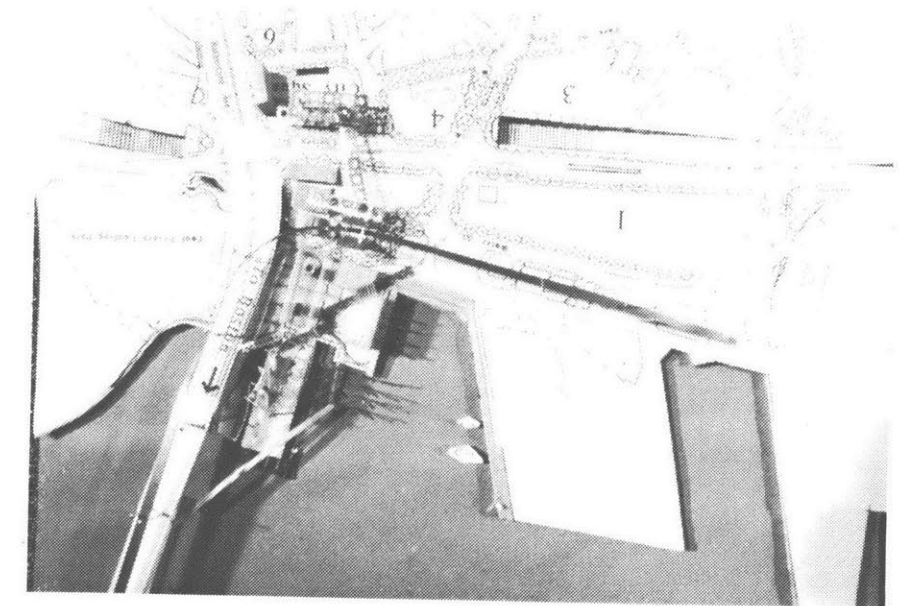
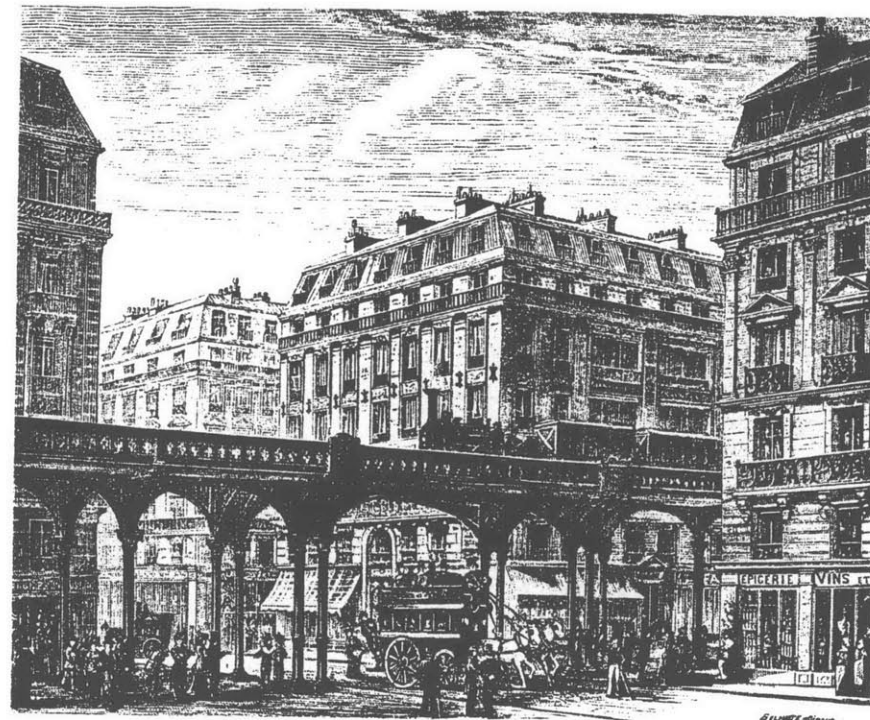
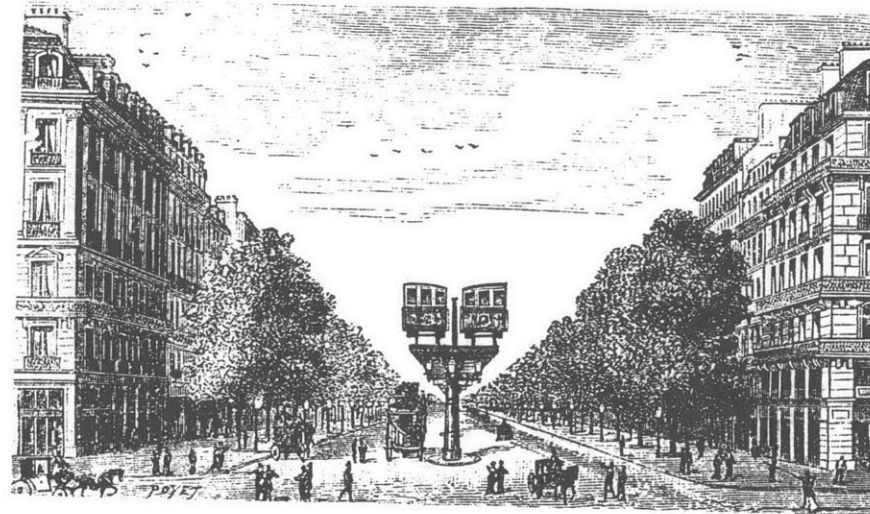
The design process has been approached with the intention of exploring means of reintegrating a local urban fabric with its waterfront. The investigations will be initially applied at a diagrammatic level so that the issues may be presented as applicable to a variety of urban waterfront situations. Although the design is site specific, what is more important is the formulation of some underlying principles by which a waterfront context may be approached.

Since the intention is to prioritize public space at both the city and building scale, the existing and designed access systems are primary factors in generating the design. The access will be employed to reintegrate the structural relationships on land with those provoked by water.

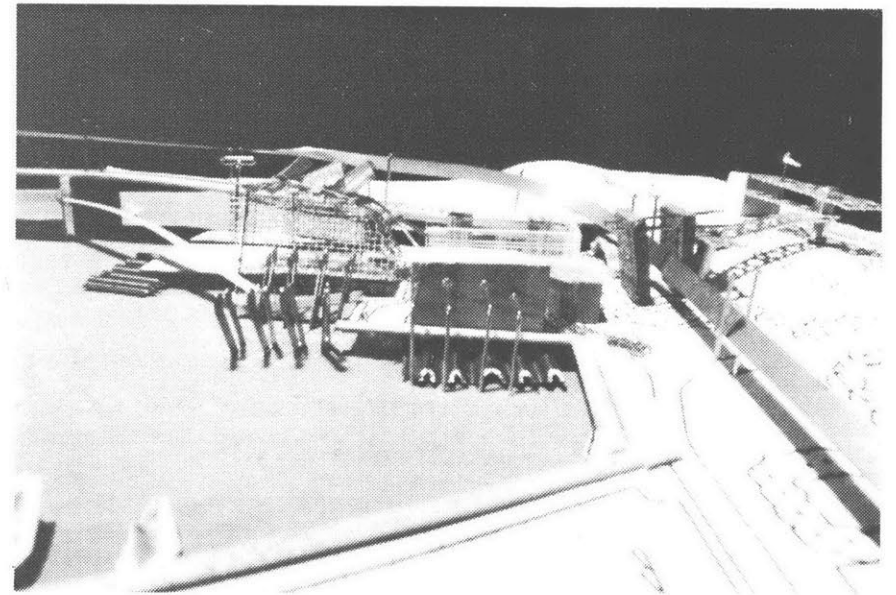
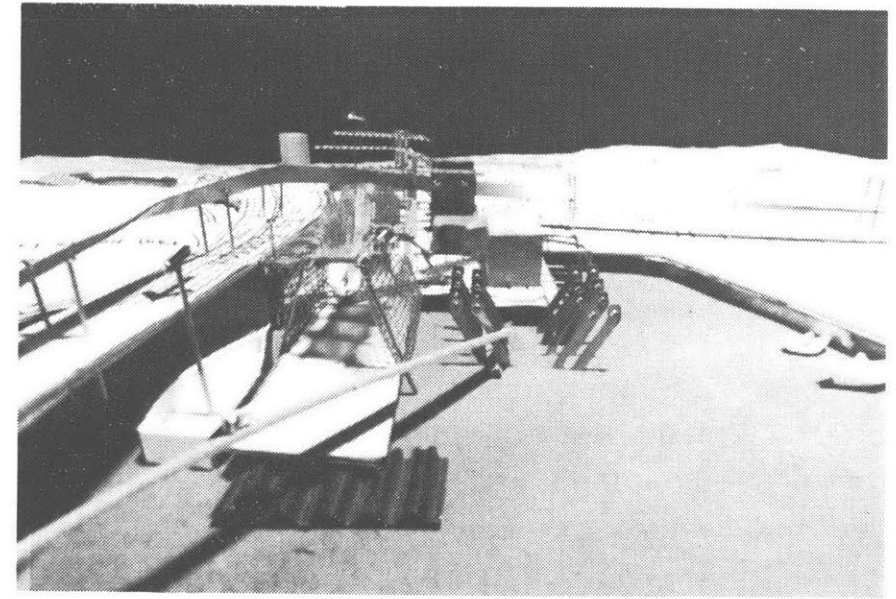
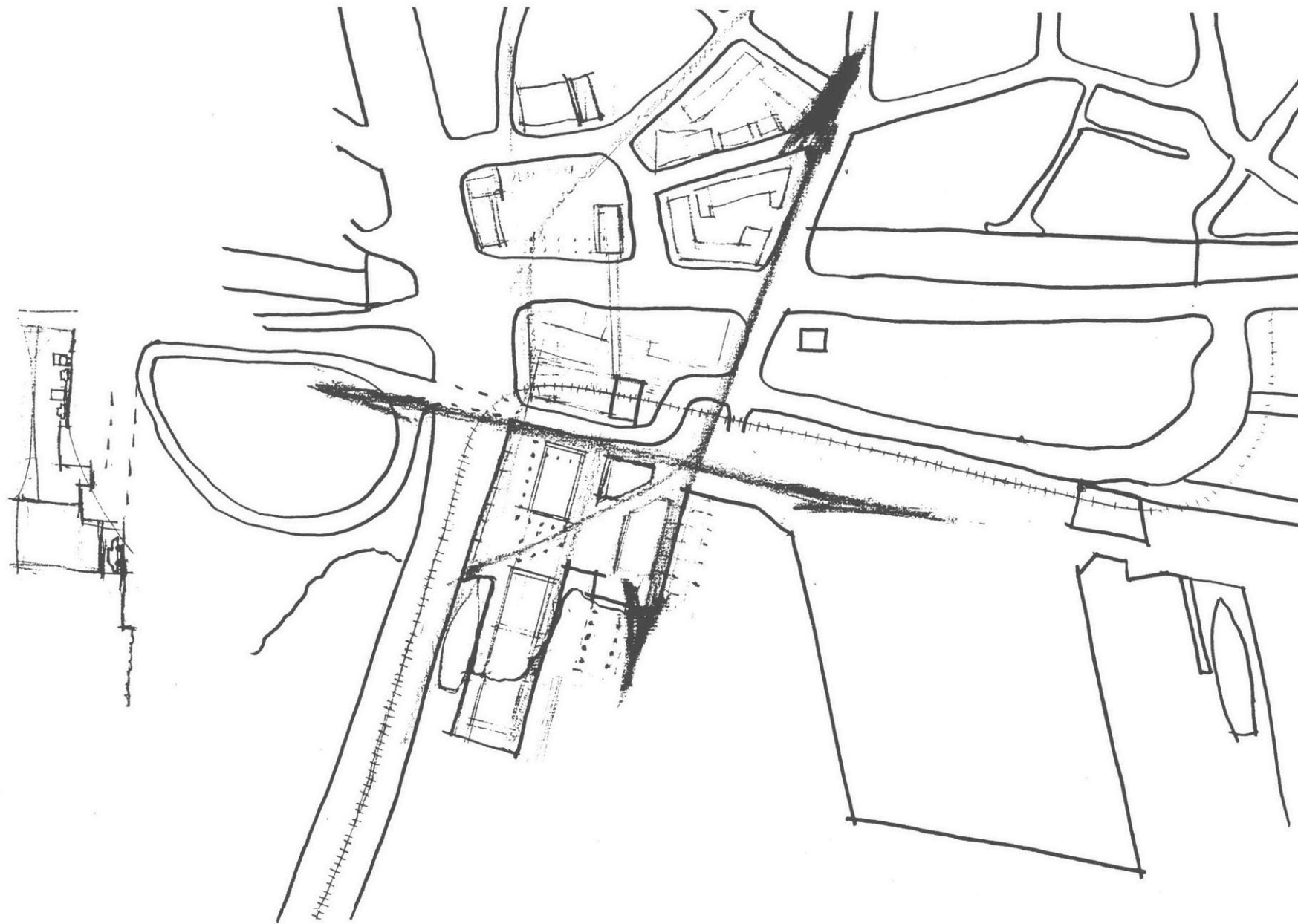
The site was initially conceived of in terms of its relationship within the greater urban context. It was seen as an incident in the larger schematic proposal for public access systems in the form of light-rail and water taxi loops. At the scale of the site, this infrastructure provoked major organizations augmenting the neighborhood relationships to the water.

VI.1 Stage One: Site Infrastructure

The elevated railway would run from Boston over the Charlestown bridge in a loop encircling the Charlestown area. On the site, the rail passes through an existing warehouse structure which would house station facilities immediately accessible to both the piers and the City Square. The first generation of the design allows this factor to take precedence and accepts the existing topography and waterline. The need to define and orient city square is addressed and certain programmatic elements are introduced at the water. A ferry station is centrally located with a direct connection to pedestrian access along the Charlestown bridge. At this stage, the location of programmatic elements is seen only as a means to provoke spatial organizations. The need to remove rather than to create barriers to the waterfront would determine the height position and relationships of the programmatic elements to the railway system. The concern is to avoid repeating the oppressive overhead presence of Route 1 yet to create a structure that would frame and enhance the view towards the water.



82. (top left) Elevated Railway, Paris: Design proposed by Jean Chrétien in 1881
83. (bottom right) Elevated Railway: A structure proposed for Paris by Henzé in 1877
84. (top right) Level Change Along base of the Charlestown Bridge: This area will be designed as the steps.
85. (bottom right) Conceptual model: Plan view 1" : 100' model which accepts existing topography and waterline



86. (left) **Orientations:** sketch showing major directions in the site
87. (top right) **View to the West:** Elevated rail passes through existing warehouse building housing station facilities.
89. (bottom right) **View to the North:** Ferry boat receiving structure is centrally located. Pedestrian bridge in the foreground spans from Charlestown Bridge to ferry landing.

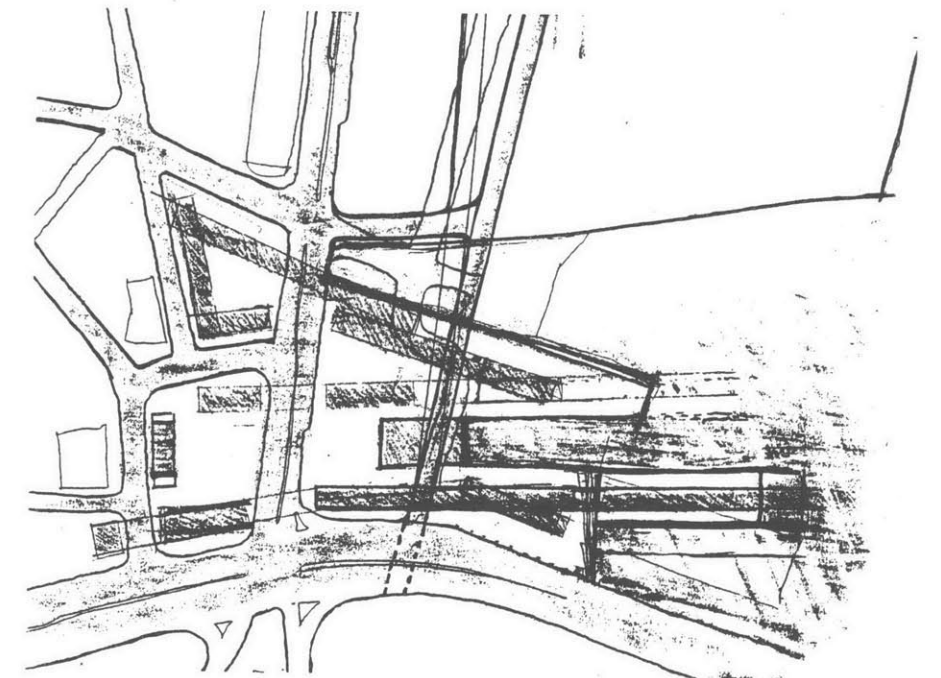
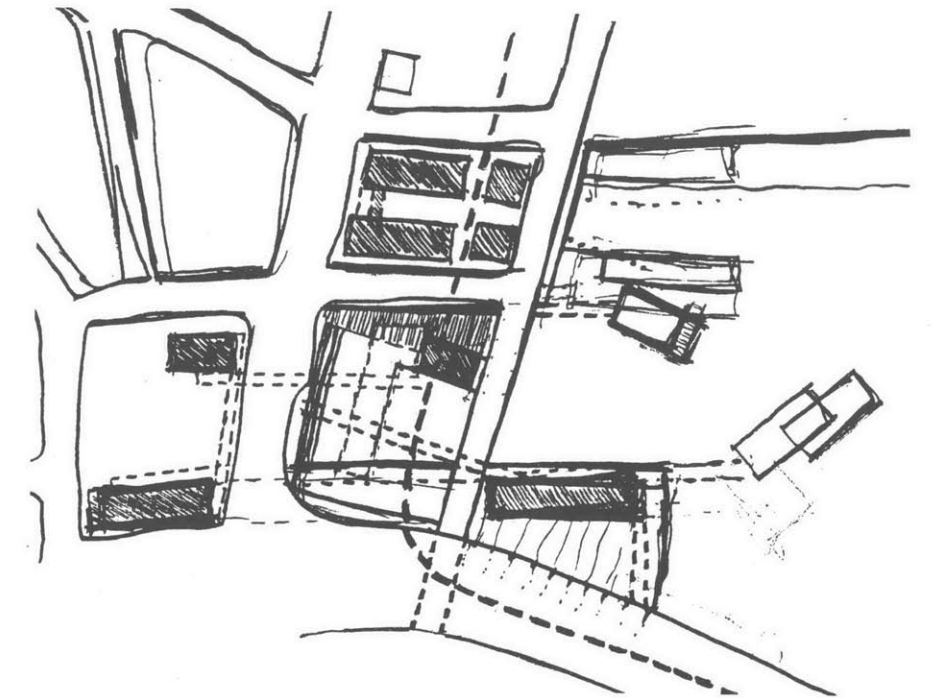
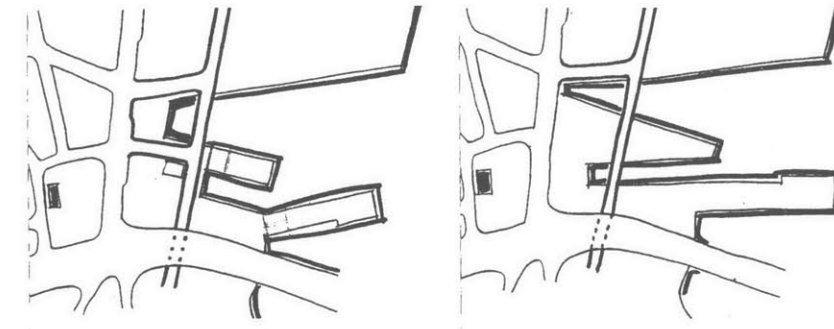
VI.2 Stage Two: Exploration of Edge Conditions & Definitions of Local Access Systems

The need to connect city square more directly with the waterfront leads to a series of studies that explore the exchange between land and water. The intention is to emphasize the connections to the water by the creation of panoramas and vistas along well-defined access systems. The topography of the site allows for the building of the landscape at the water's edge as a series of steps and platforms moving down to and addressing the water.

The definition and extension of existing streets is the next major concern. Main Street is aligned with the edge of City Square and extends straight to the water. The intention is to build a continuity of the city fabric along a path to the water. The direction of Main Street is further extended onto a pier and is reinforced by the parallel edge of Hoosac pier.

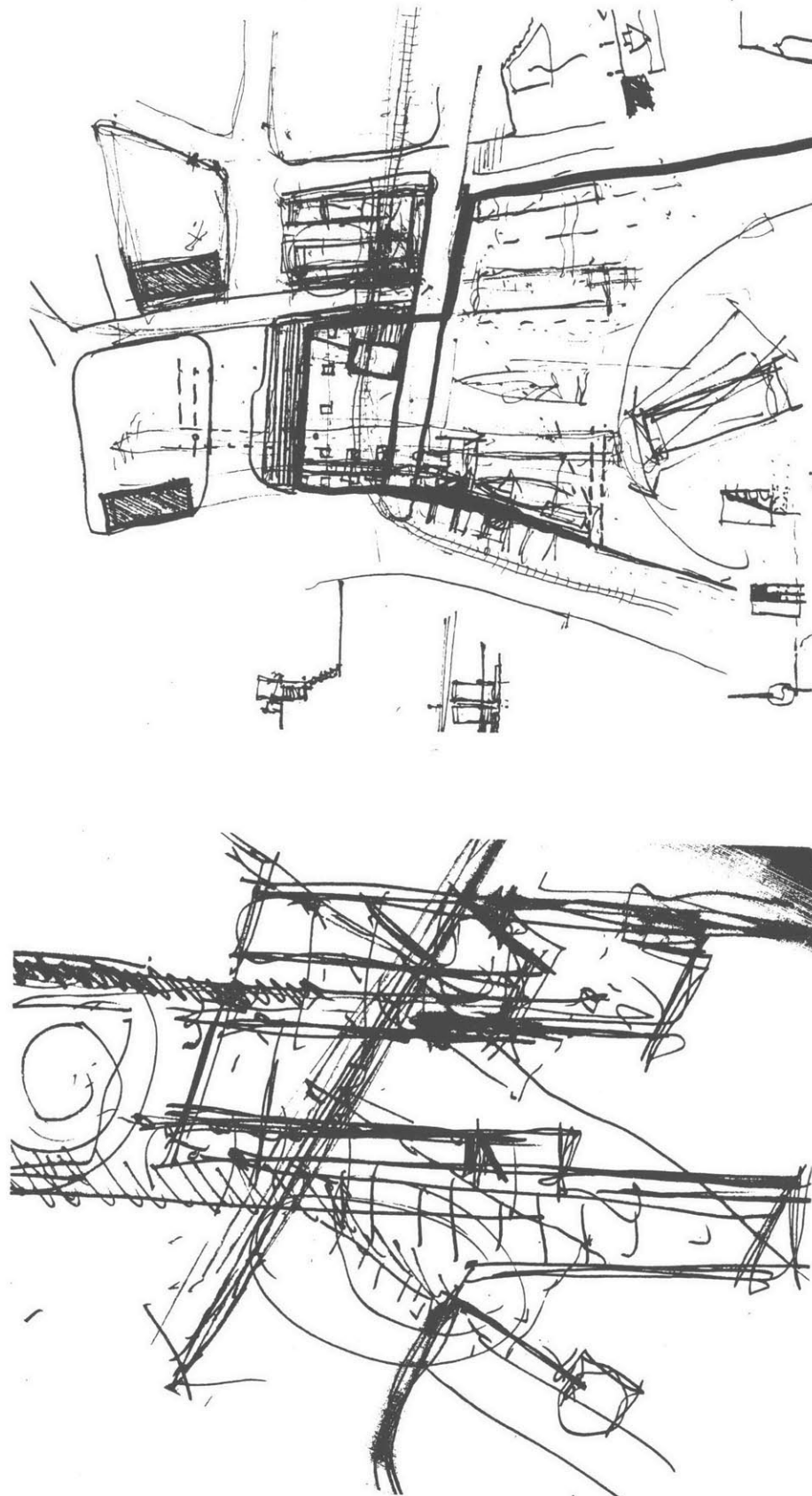
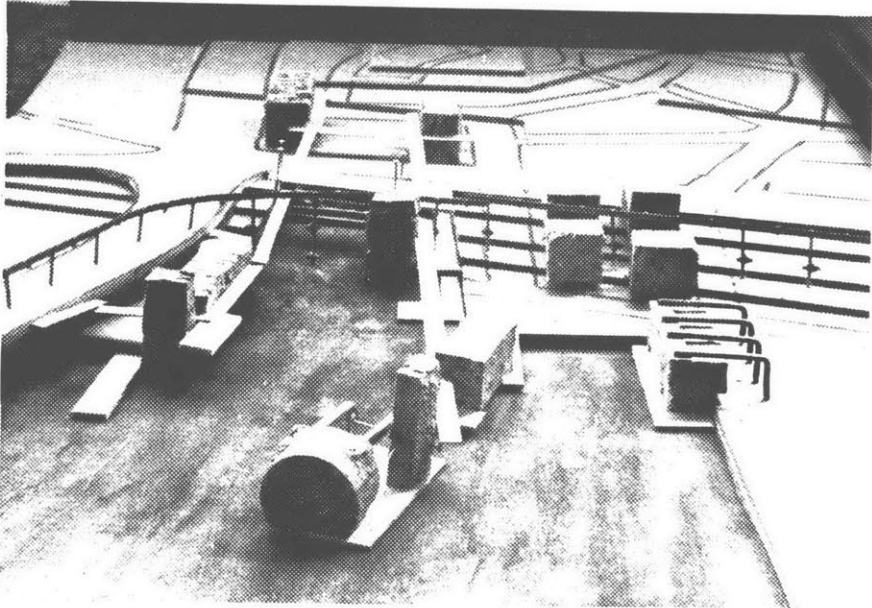
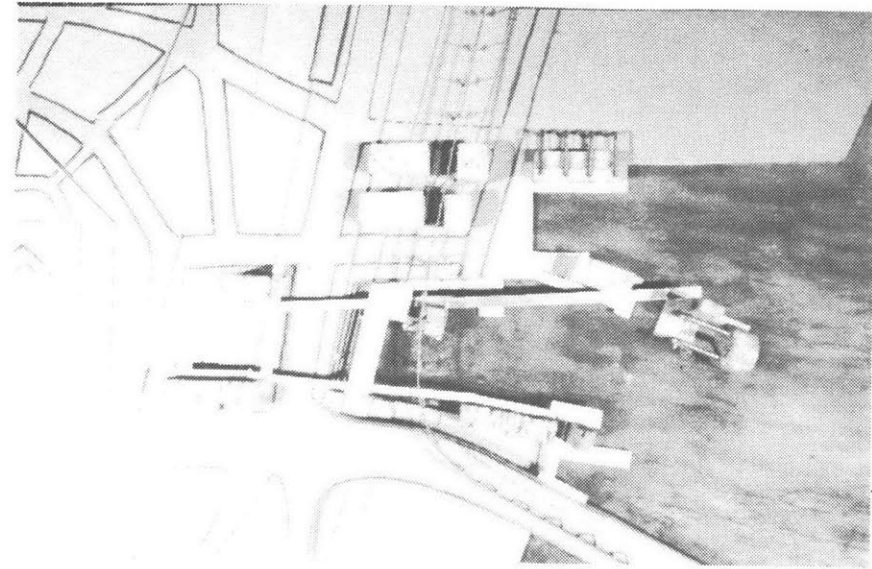
As a result of the extension of Main Street, Warren Street becomes secondary and is forced to accommodate a shift in direction. Since the elevated railway provokes a potential secondary level of pedestrian access, it reinforces the continuity between City Square and the waterfront. It also generates a system of elevated access throughout the design.

The extension of land in the form of piers, as in the case of Main Street, initiates a series of investigations into pier behaviors and the possibility of displacing built elements further out into the region of the water.



90, 91, 92. (above, top left) Edge explorations: letting water in, and projecting land out

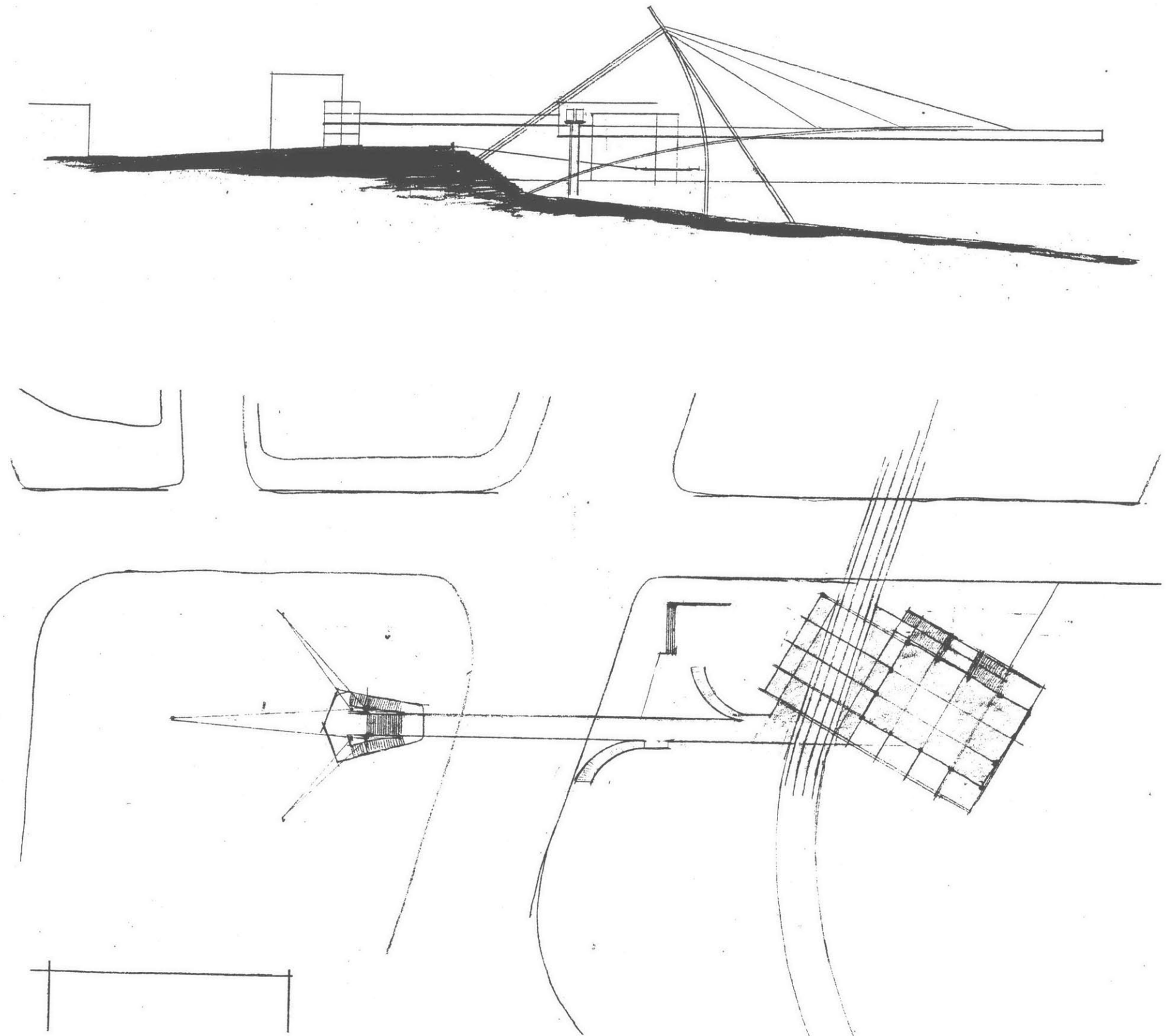
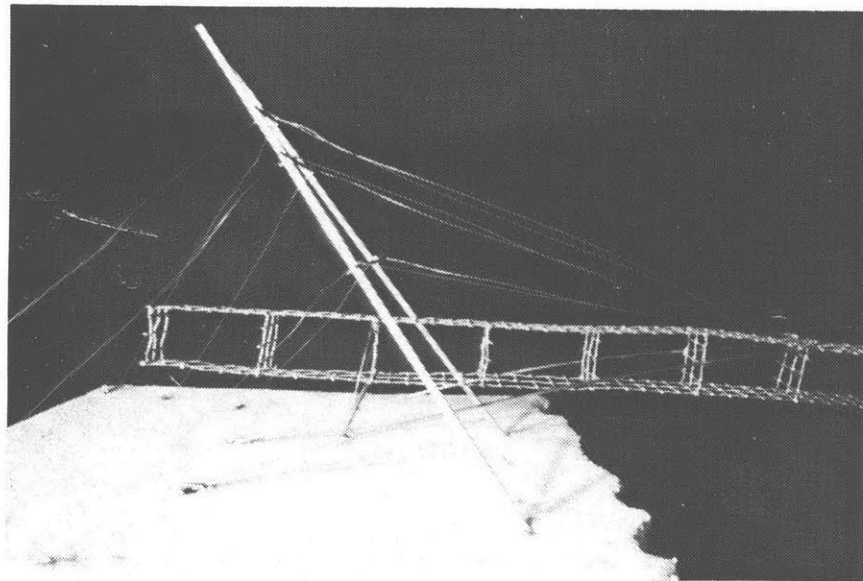
93. (bottom left) Piranesi: an example of a dense street entertainment affording simultaneous experience of numerous scales, levels and places

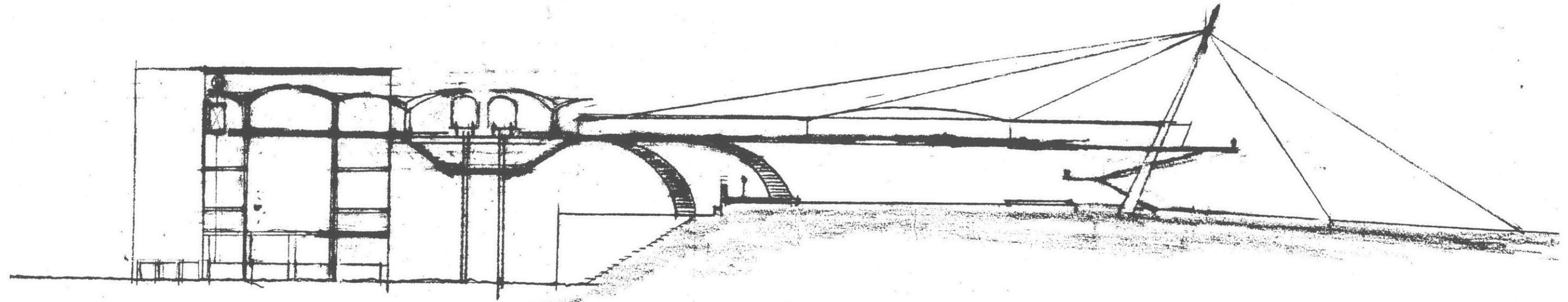


- 94. (top left) 1 : 100 Plan View: model shows extension of Main St. and letting in of water up to the edge of Chelsea St. in front of City Square
- 95. (bottom left) View from Water up Main Street to City Square: organization explores potential for elevated access systems and displaced elements in the water.
- 96, 97. (middle) Explorations: arriving at an edge organization
- 98. Blackfriars Station, London: The elevated catwalk serves as both an access route and a viewing area.

VI.3 Stage Three: The Cantilevered Pier

The challenge of building public access out into the region of the water inspires an exploration of forms of access provoked by the nature of water. The pier and the bridge present a new range of possibilities not simply as access or as connectors but as built public places. The act of reaching out into the water in a form that is free of vertical supports is investigated through a combination of a suspended bridge and a horizontal platform. This acts as a cantilevered pier and has the advantage of space for occupation both above and below its structure. The initial design attempts to connect City Square directly with the water in a singular move. The cantilever acts as a continuous elevated path with an inhabitable structure two to three stories high. This exercise helps to reinforce the attitude of path and presents an opportunity for rethinking the convention of structures previously provoked by the water.





99. (opposite, left) Model of Cantilevered Structure: elevation

100,101. (opposite, right) Plan and elevation of the cantilevered pier shown as a singular public access move from City Square to the water.

102. (top) Cantilevered pier showing possible connections to the elevated railway and station.

103. (right) Olympia Park, Munich (Behnisch and Partner): use of tensile suspension structure.

104. (far right) Cantilevered Structure: plan view

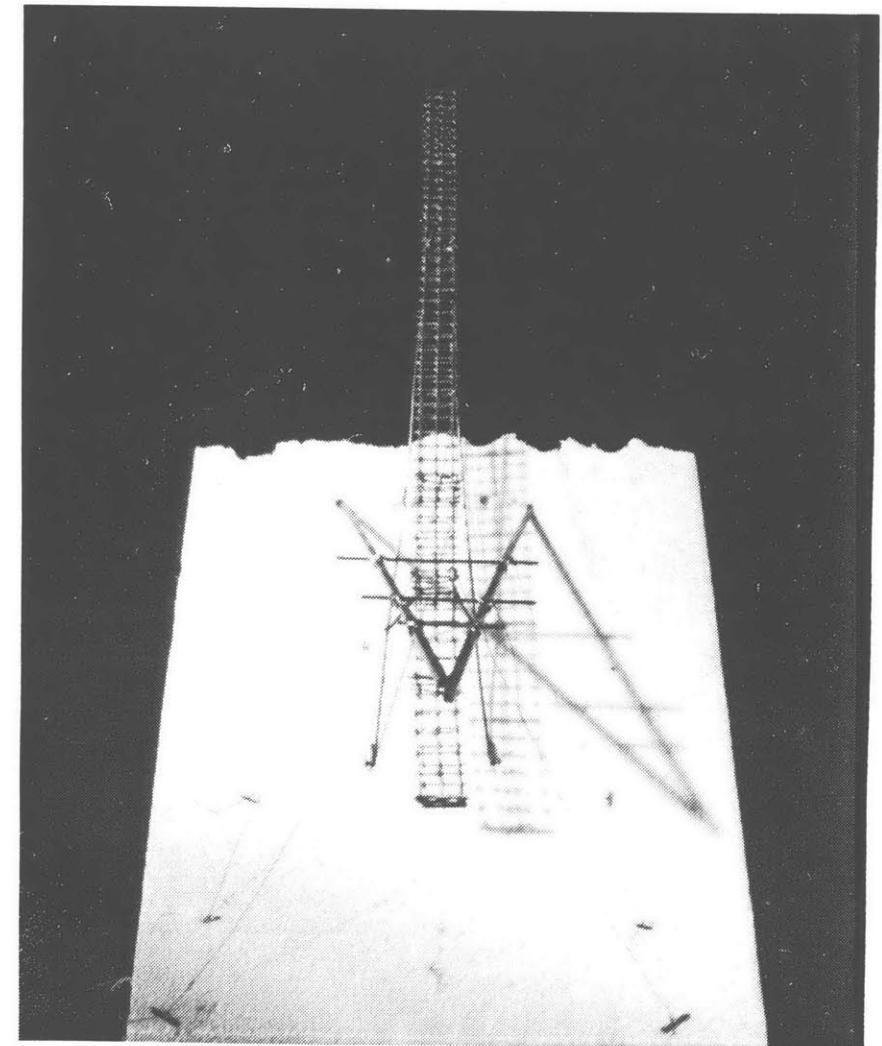
105. (page 58, top left) City Square: Civic buildings defining northern edge.

106,107. (page 58, bottom left) Model and Sketch illustrating rehabilitated warehouse housing light-rail station.

108. (page 58, top right) Holland-Leiden New Rhine Bridge Market: Note relationship of the central square to the canal system.

109. (page 58, bottom right) St. Leonard's Pier. Built in 1888 and demolished in 1951,, this pier served as a center of entertainment.

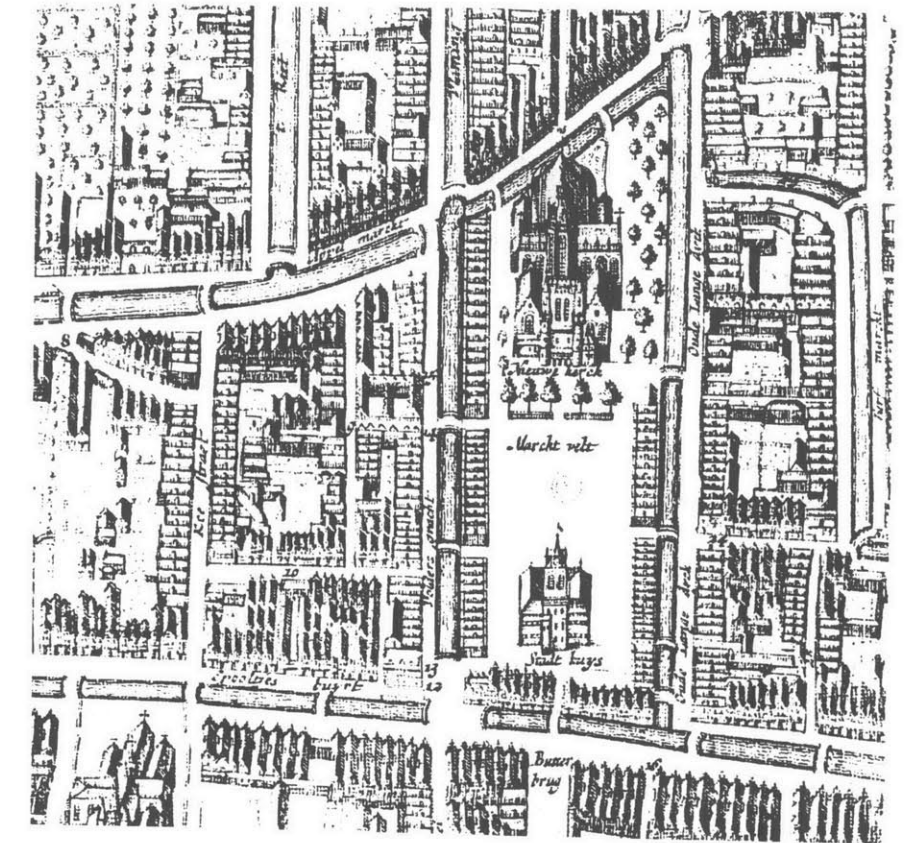
110. (page 59) Axonometric of site showing areas of design



VI.4 Stage Four: Schematic Evolution in The Design

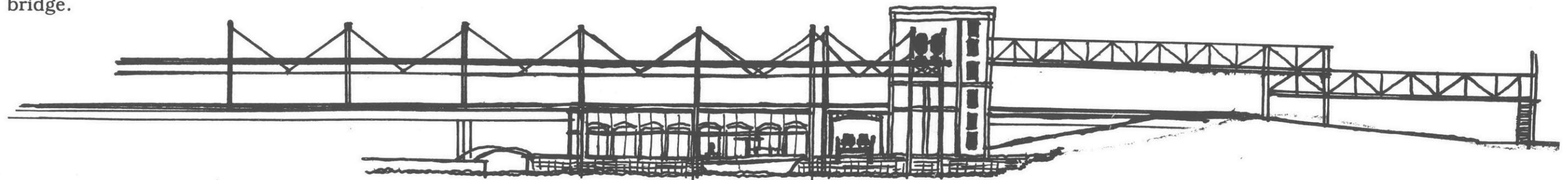
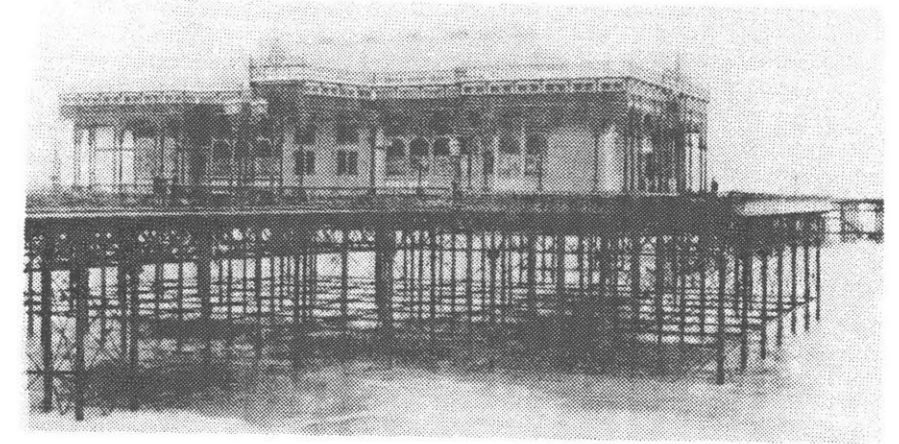
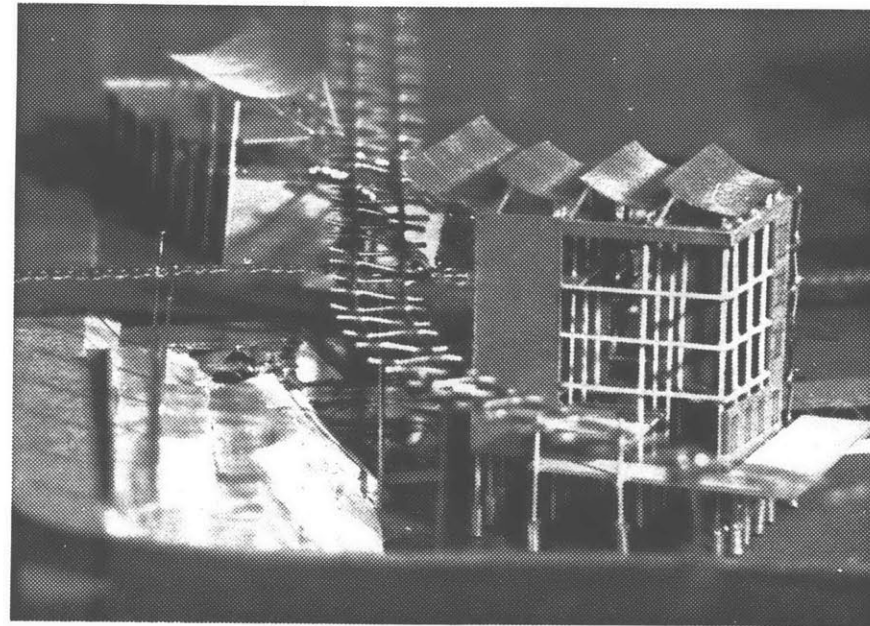
a) City Square

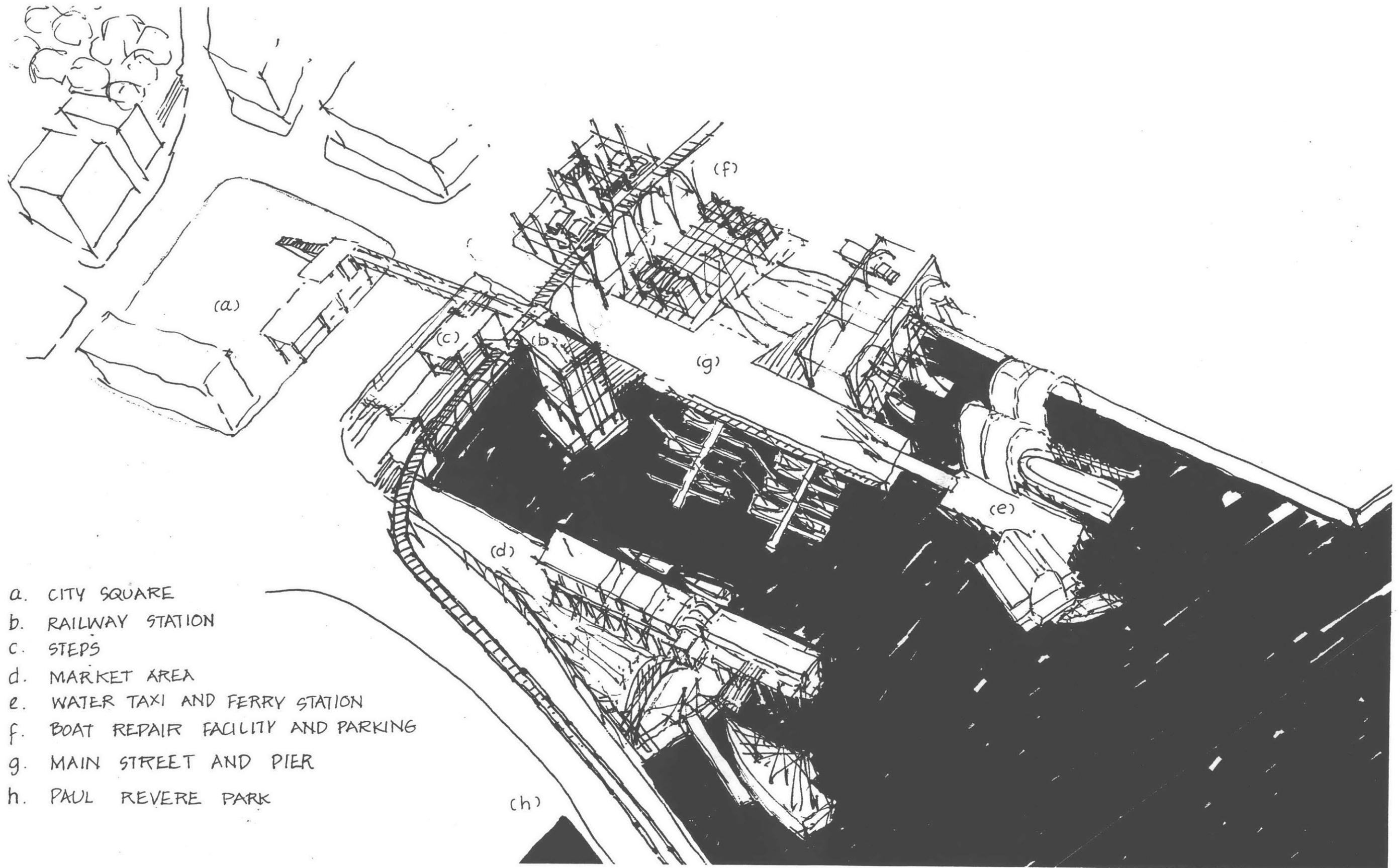
The orientation of City Square towards the water is created by defining its direction through built elements. On the north side of the square, existing civic buildings create a hard edge. The western side, adjacent to the expressway, would be defined by the design of a large public building, perhaps a library which faces the open square. The two remaining edges are defined by Main and Chelsea Streets and by a series of pavilions incorporating elevated access systems to the railway station.



b) The Railway Station

The elevated railway runs adjacent to the old warehouse building which provokes its transformation into a station. The platforms extending across meet the elevated access from City Square. At street level, the building is accessed from Main Street and its ground floor is used as a restaurant bar. The transformation of the old masonry building involves raising the structure on a pier type structural base. The masonry walls remain as a skeletal closure allowing a certain degree of glazing to be inserted. The orientation of the building reflects the direction of the Charlestown bridge.





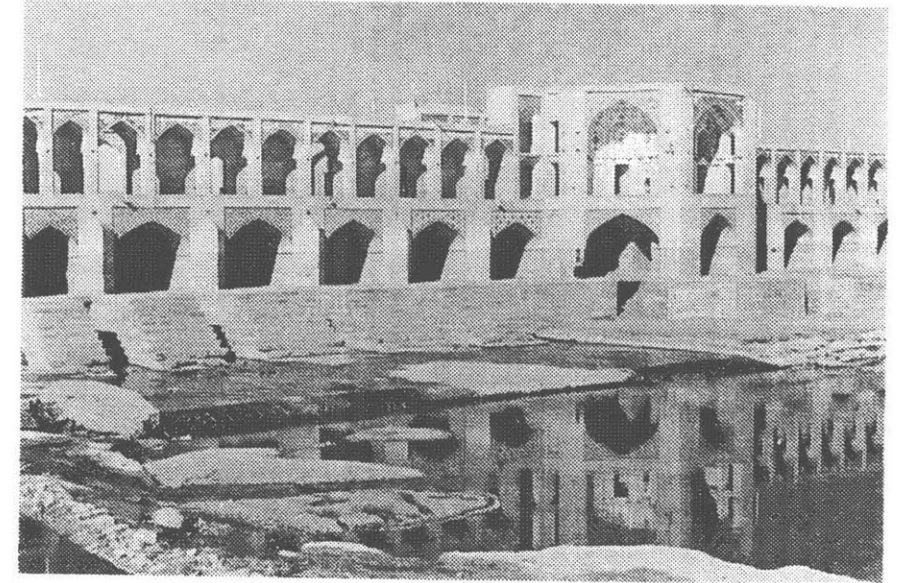
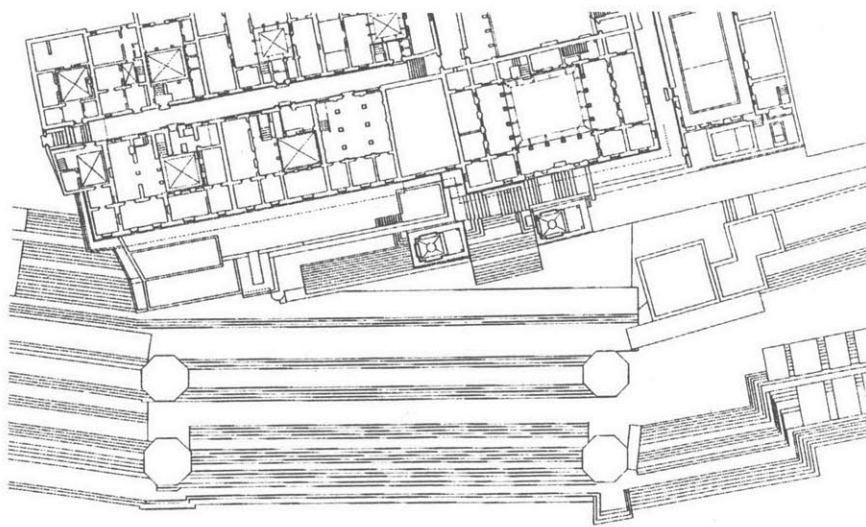
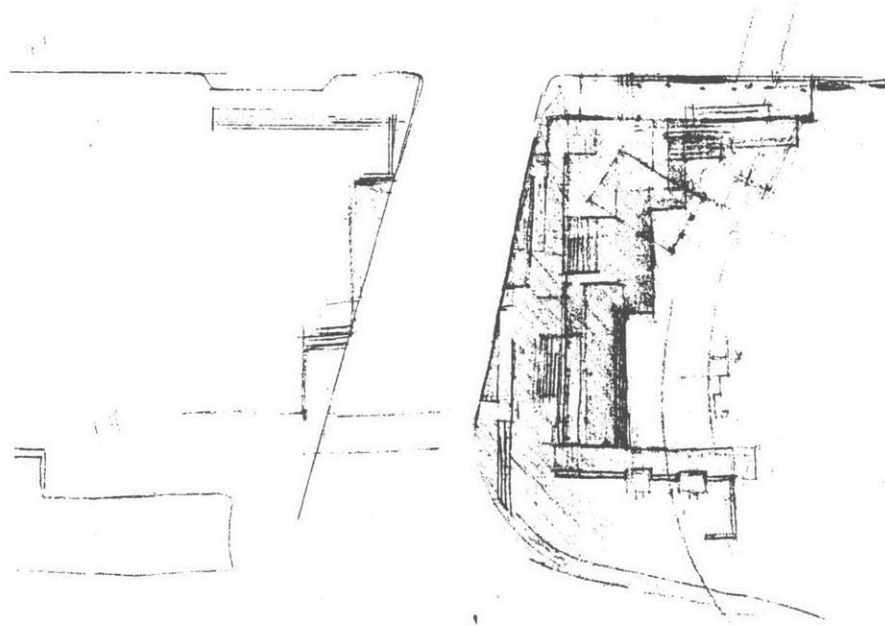
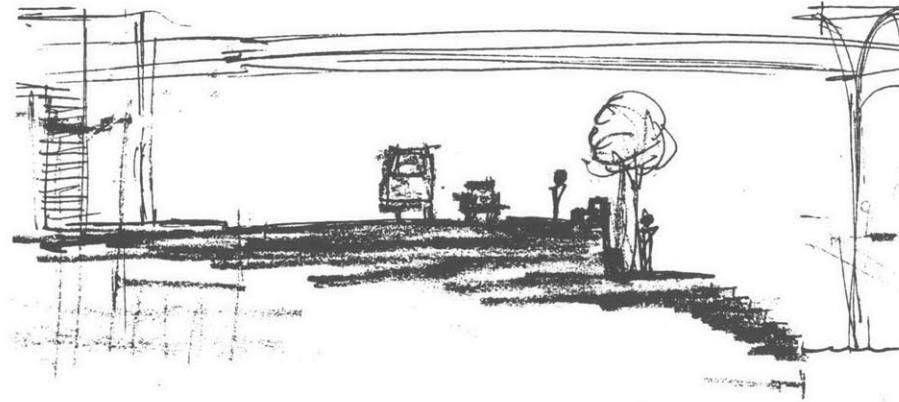
- a. CITY SQUARE
- b. RAILWAY STATION
- c. STEPS
- d. MARKET AREA
- e. WATER TAXI AND FERRY STATION
- f. BOAT REPAIR FACILITY AND PARKING
- g. MAIN STREET AND PIER
- h. PAUL REVERE PARK

c) The Steps

The steps and platforms leading from City Square to the water's edge are designed with the intention of enabling the public square to relate directly to the water. The built landscape steps down creating numerous public places to be experienced at a more personal level.

d) The Market Area

The market area occupies the portion of land directly under and adjacent to the Charlestown Bridge. The base of the bridge is defined by a row of stone archways. These archways are occupied by stalls along one side while a linear building reciprocates the same linear action along the water's edge. The space between the bridge and building becomes a public place that can be occupied by temporary structures whenever the market is active. An elevated pedestrian bridge connects the Charlestown Bridge to the market building and the Main Street pier beyond. The linear market building terminates in a series of steps which address and informal theater backed by a permanently moored tall ship. Finally, a walkway runs parallel to the water's edge, connecting the market area to Paul Revere Park, west of the bridge.



111, 112. (top left) Steps in front of City Square, section and plan

113. (bottom left) Indore State residential complex, Benares, India : note steps

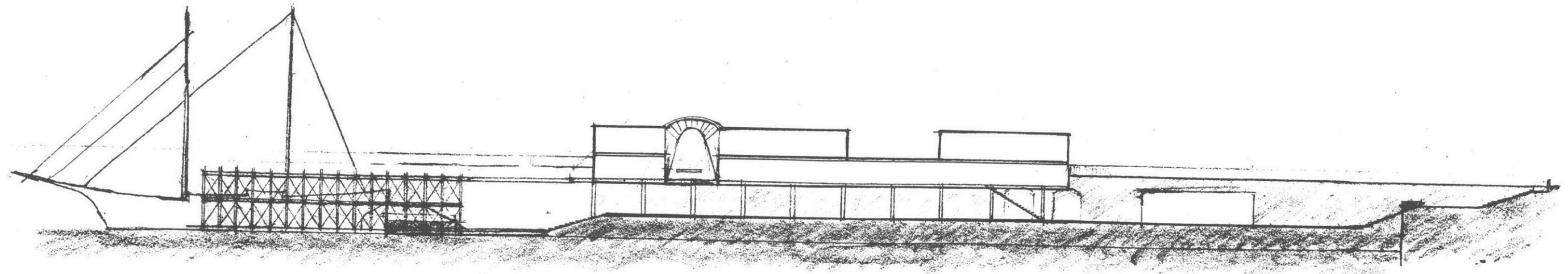
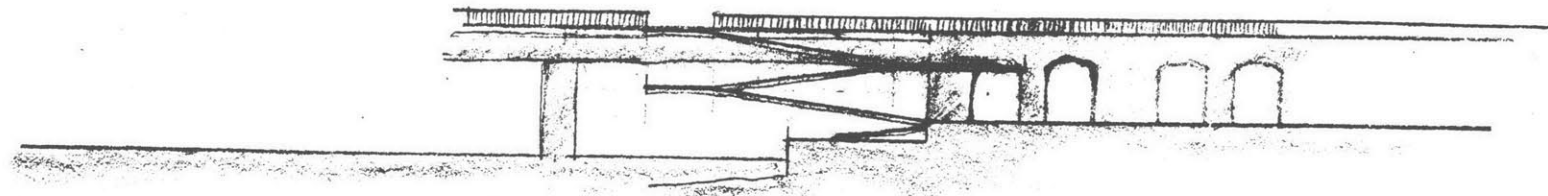
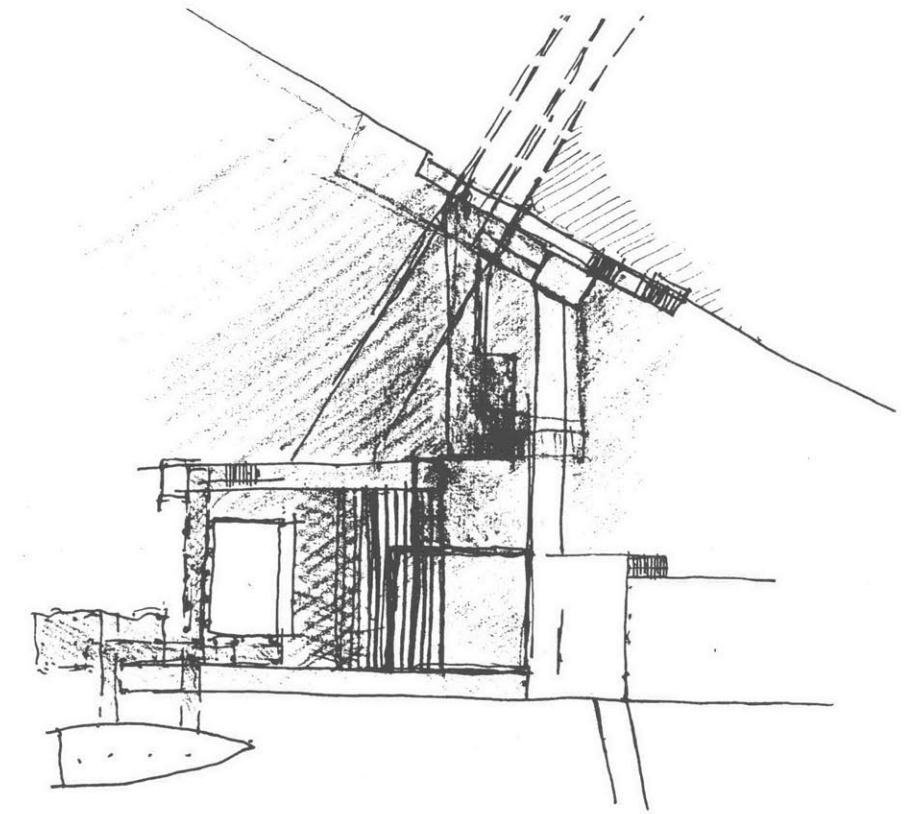
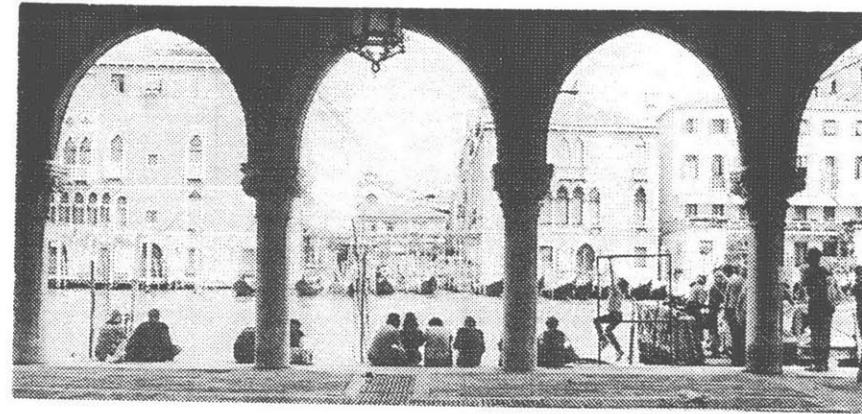
114. (top right) Pul Khaju Bridge, Isphahan : both a bridge and a dam

115. (bottom right) Potential Market Area: note arches in base of bridge

116. (top, left) **Pescheria Arcade Fish Market, Venice:** Building mass is raised, framing view and allowing ground-level space to relate to Grand Canal. This scenario is used in proposed market area.

117 (top, right) **Market Area:** Sketch design of the theater at the end of the market building with ramp and pedestrian walkway relating to the Charlestown Bridge.

118,119. (bottom) **Sections** along market area showing pedestrian ramp to Charlestown Bridge and lifting of market building mass

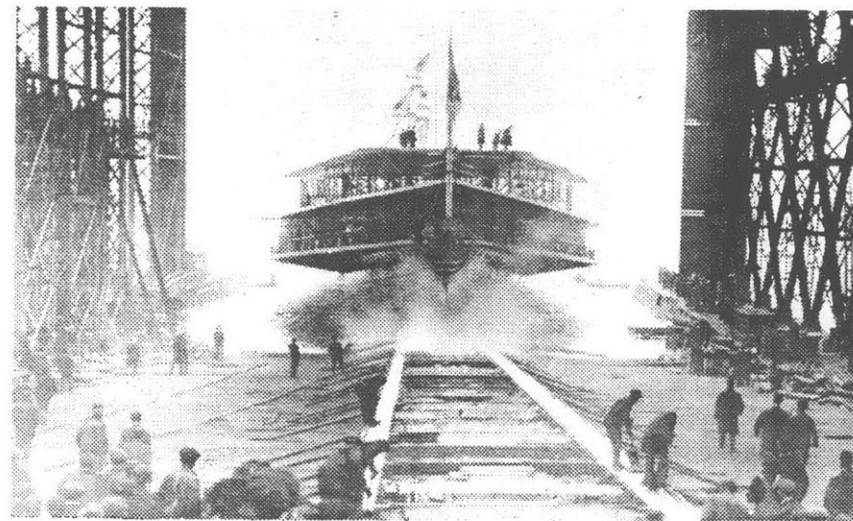
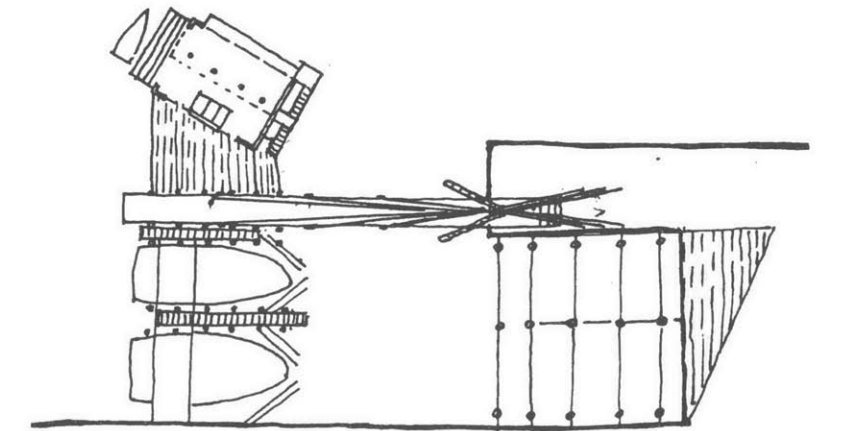
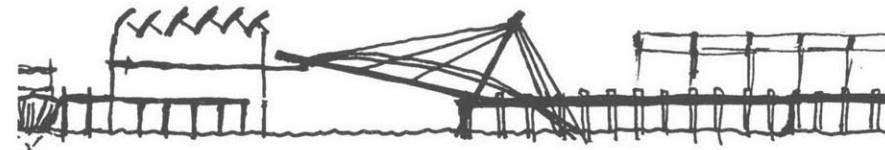
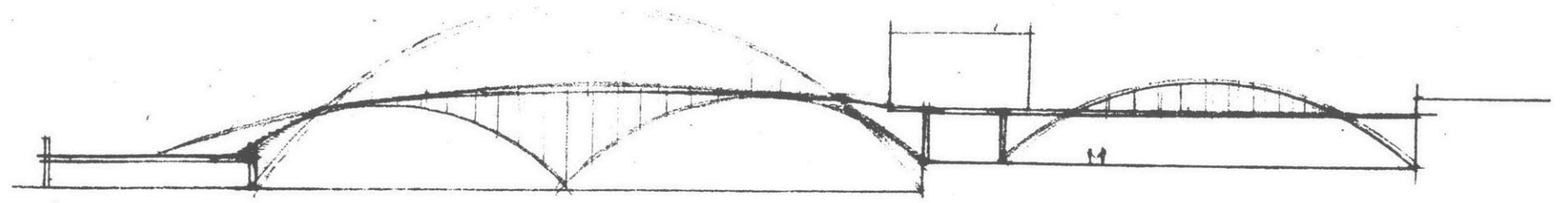


e) The Water Taxi and Ferry Station

The major design feature on the water is the structure for the ferry and water taxi facilities. The previously proposed cantilever is used here at a smaller scale to extend the pier to the structure. It is built as separate from the land and its orientation shifts to reflect that of the Charlestown Bridge. A board walk connects the water taxi station to the end point of the cantilever which in turn acts as an access area for the ferry station. The board walk thus accommodates the shift in the two directions of the water taxi and ferry stations. The ferry station occupies the area between the cantilever and Hoosac pier.

f) Boat Repair facility and parking

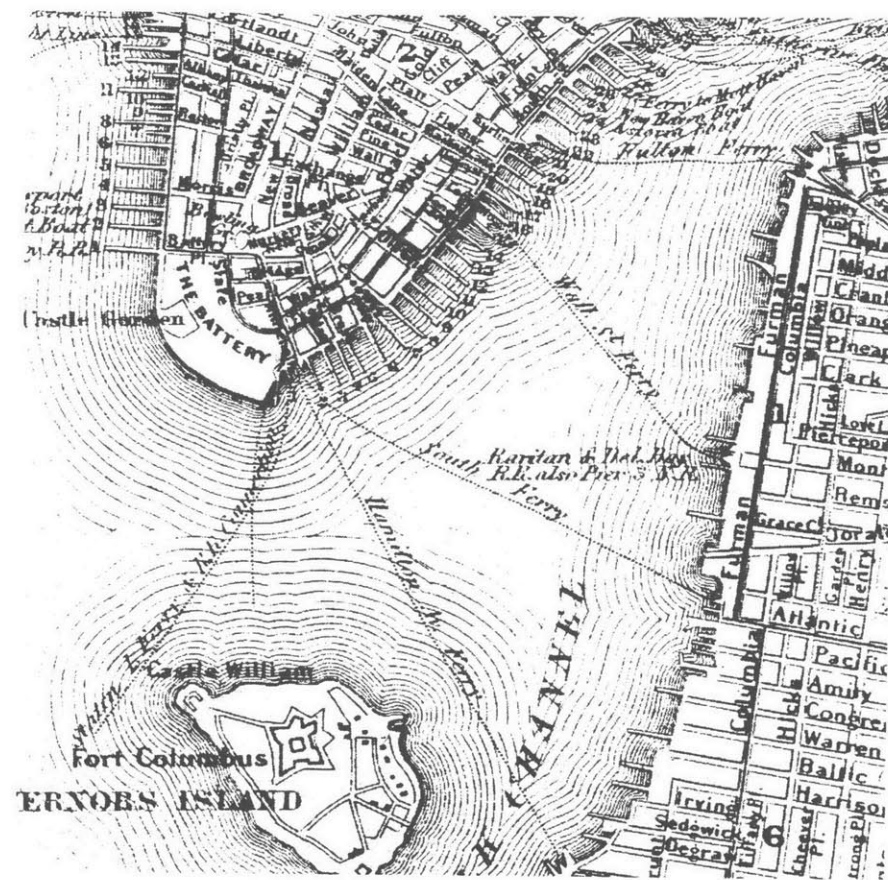
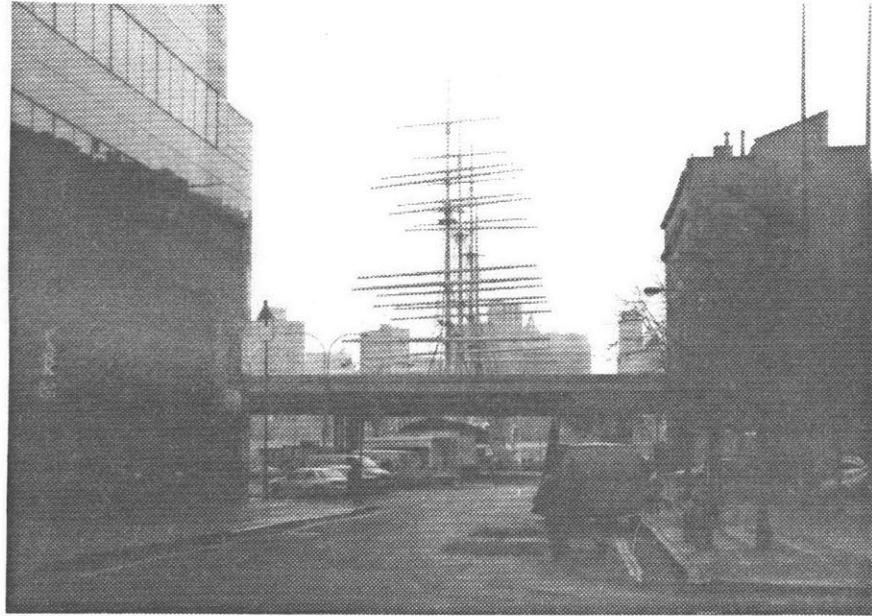
The boat repair facility is built on the water between the pier extension of Main street and Hoosac pier. It is serviced by a yard that extends behind its structure and provides facilities for the storage of small boats. The approach to the repair facility is from beneath the cantilever in the case of small boats and through the second ferry berthing structure for the large boats. The parking garage abuts Chelsea street and forms the rear edge of the area for boat storage. Its position is under the elevated rail and its access is from the street parallel to Main street along the Hoosac pier.



120. (top) Pedestrian Bridge connecting Main Street Pier to Market Building to Charlestown Bridge. Connecting the Main Street pier to the Water Taxi station.

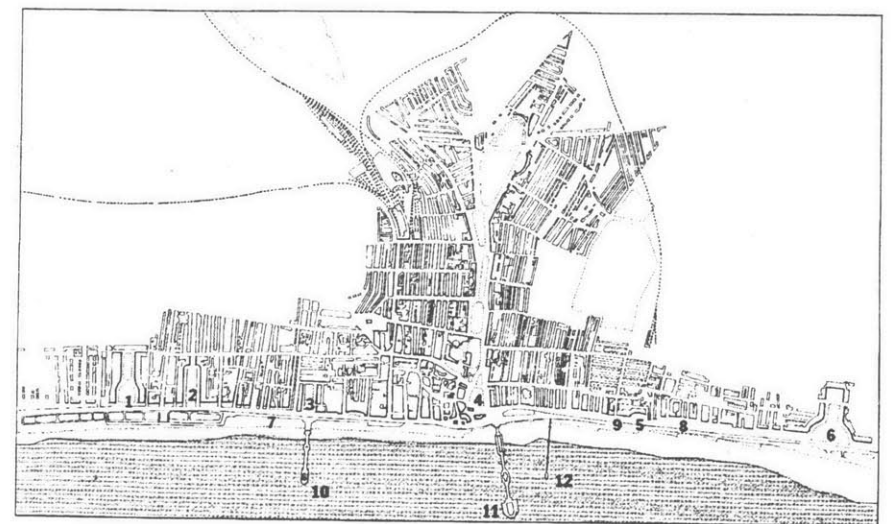
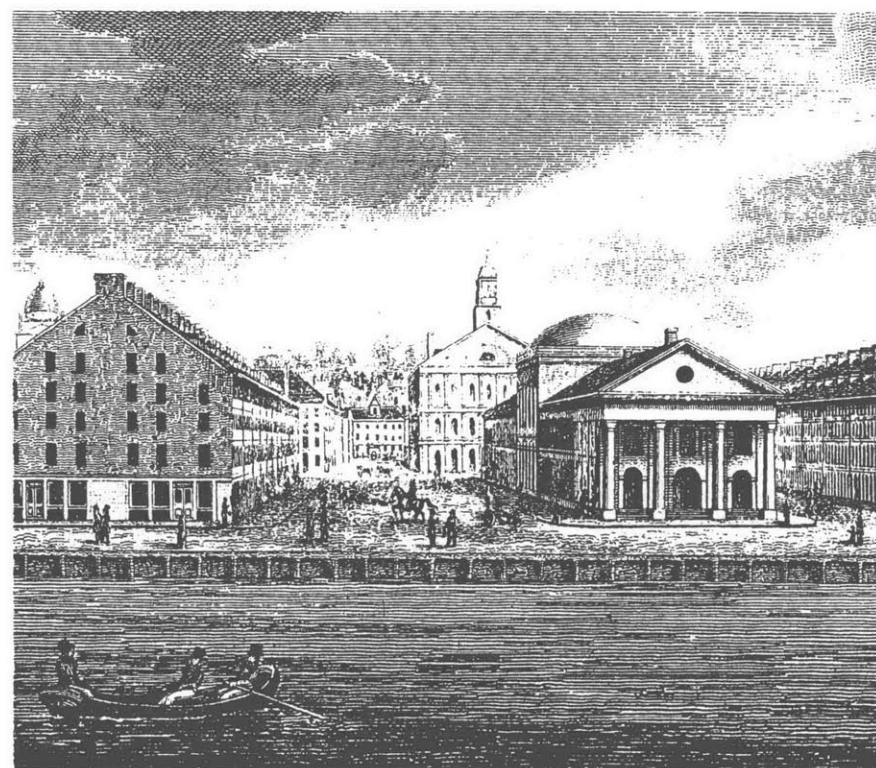
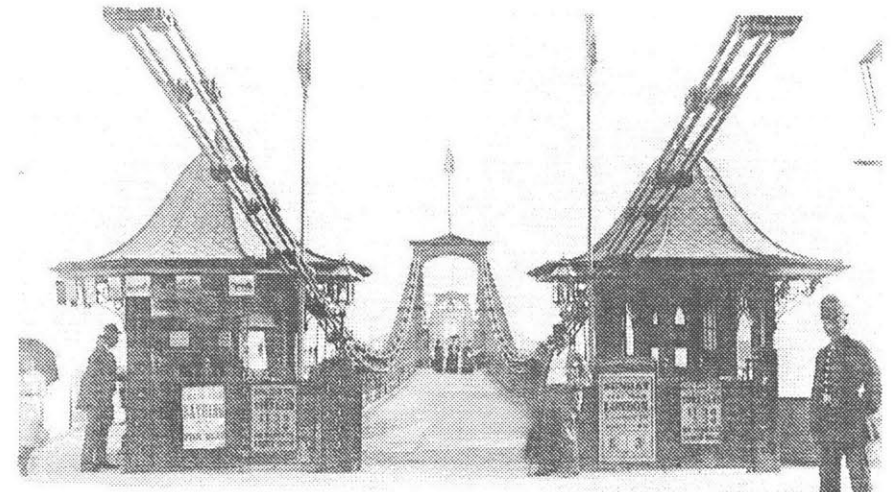
121. (middle) Water Taxi and Ferry Station: section and plan showing cantilevered connection off Main-Street Pier.

122. (bottom) The Delaware: dayline steamer being launched



g) Main Street and Pier

Many of the built configurations on the site define the access along Main street. The street itself extends in the form of a pier parallel to Hoosac pier. At the end of the pier a cantilevered bridge connects the access to the water taxi and ferry stations. The intention is to articulate main street , both in terms of public access and public place.



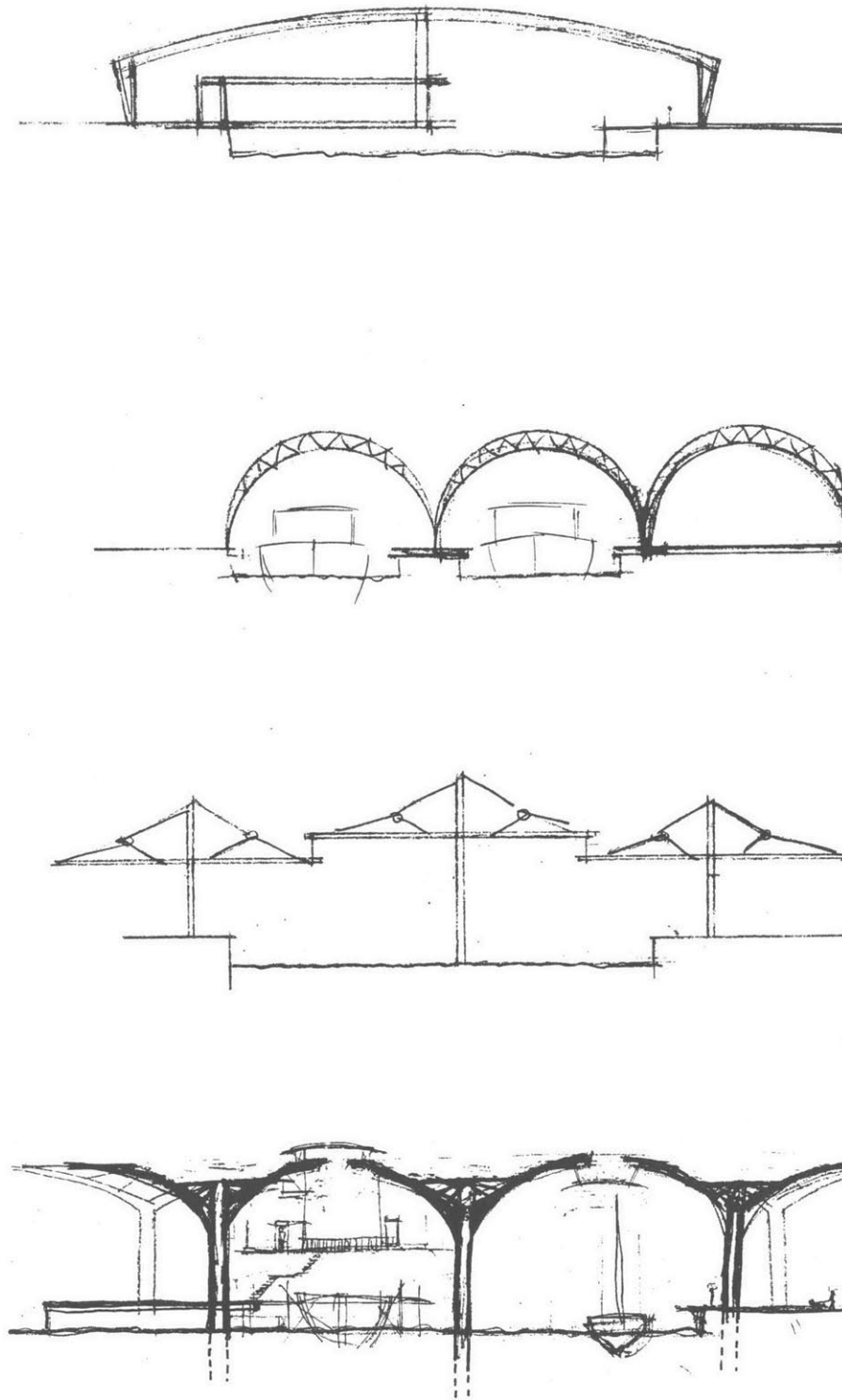
- 123. (top left) Tall Ship, Pier 17: View of the ship serves both as a landmark and a signal of the waterfront.
- 124. (top right) New York Harbor, 1866.
- 125. (bottom right) Quincy Market, 1826.
- 126. (top, far right) Birghton Chain Pier, 1822-1896.
- 127. (bottom, far right) Bighton Piers: plan showing Chain Pier, Palace Pier and West Pier that together developed into a seaside resort.

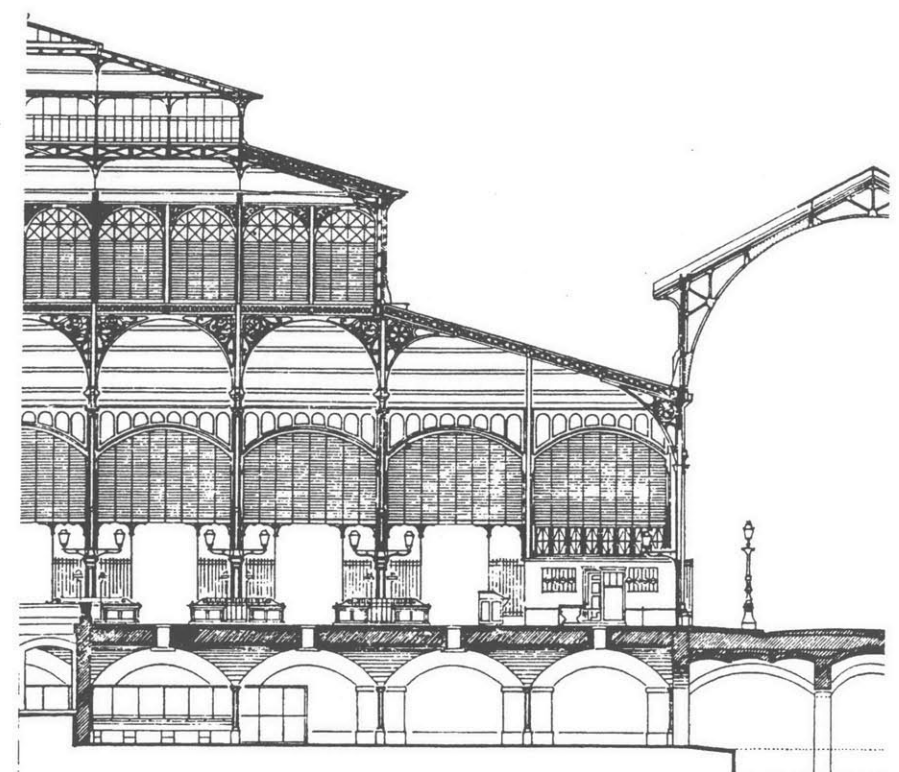
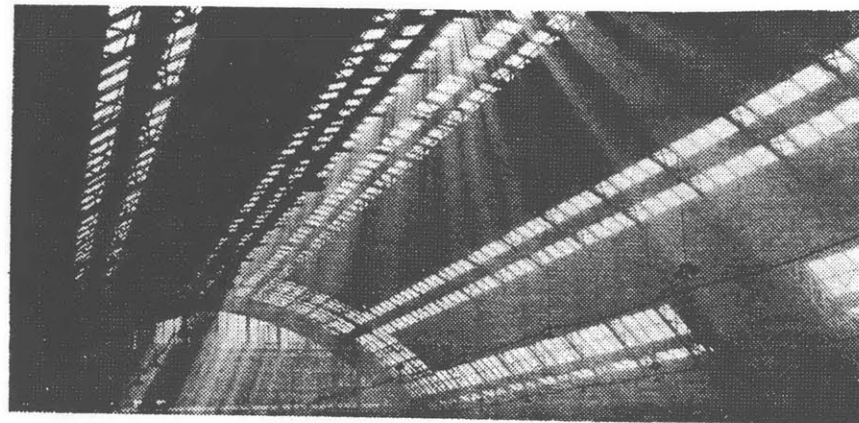
VI.5 Stage Five: The Transformation of The Pier/Warehouse

The vocabulary of piers and pier building types and their orientation towards the water presents a generative principle in determining the direction of the waterfront's built fabric. The necessity to use a consistent vocabulary within a larger infrastructure becomes essential to the coherence of the entire design. It is crucial however, to create an infrastructure that builds space in addition to access and to use a form that could be occupied at a variety of scales. The idea of inhabiting the zone beneath the surface of a pier (under the board walk) prompts the investigation of simply-supported structures several stories high that could be built on either land or on water. The potential of an arched structure, derived from the industrial vocabulary of trashed design, is employed due its capacity for spanning large spaces with relatively simple structural elements. The separation of the arch by the removal of what maybe reads as the keystone presents the opportunity to reduce the structural elements to post and cantilevered half arcs. The transformations is as follows:



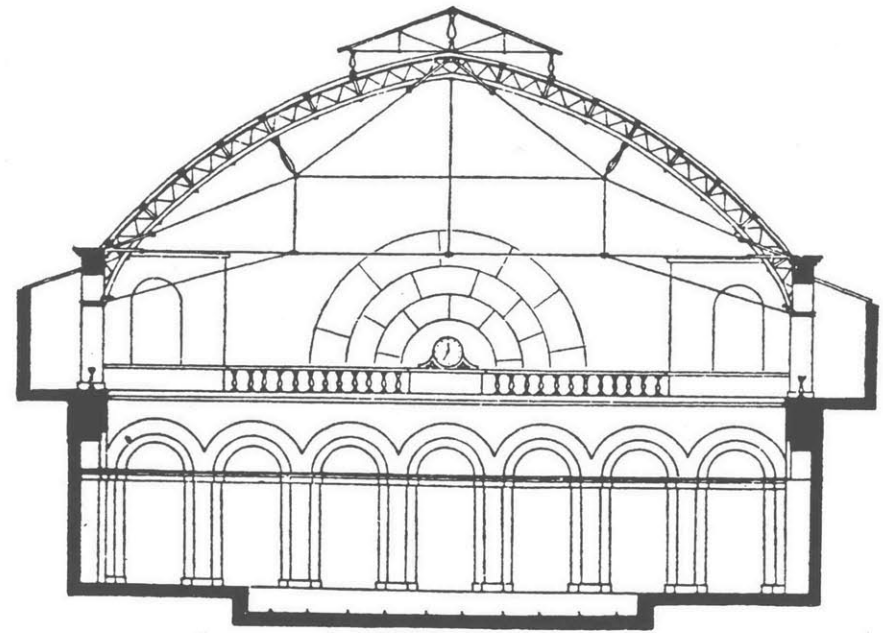
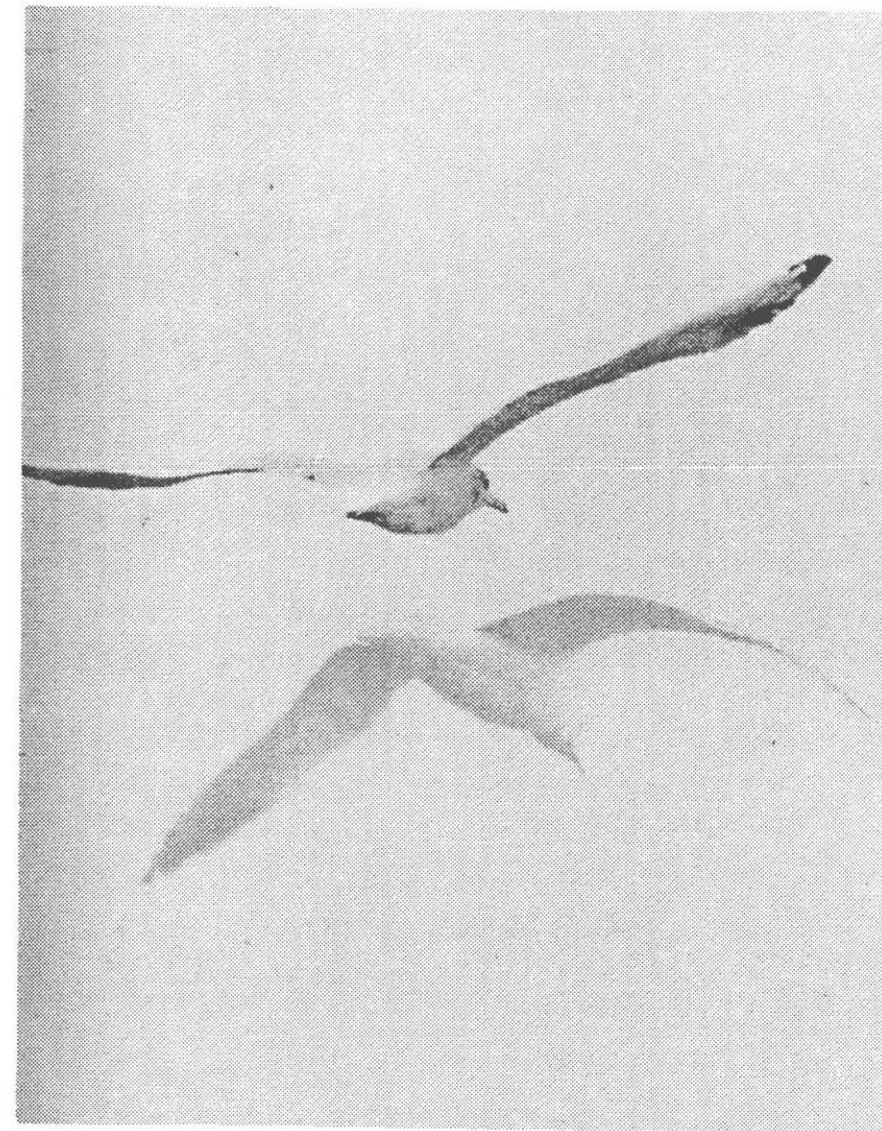
These elements are easily repeated and allow a greater degree of access and accessibility to the structure. The possibility of elevating the mass increases the degree of light that is able to penetrate the structure both from above and along its length.





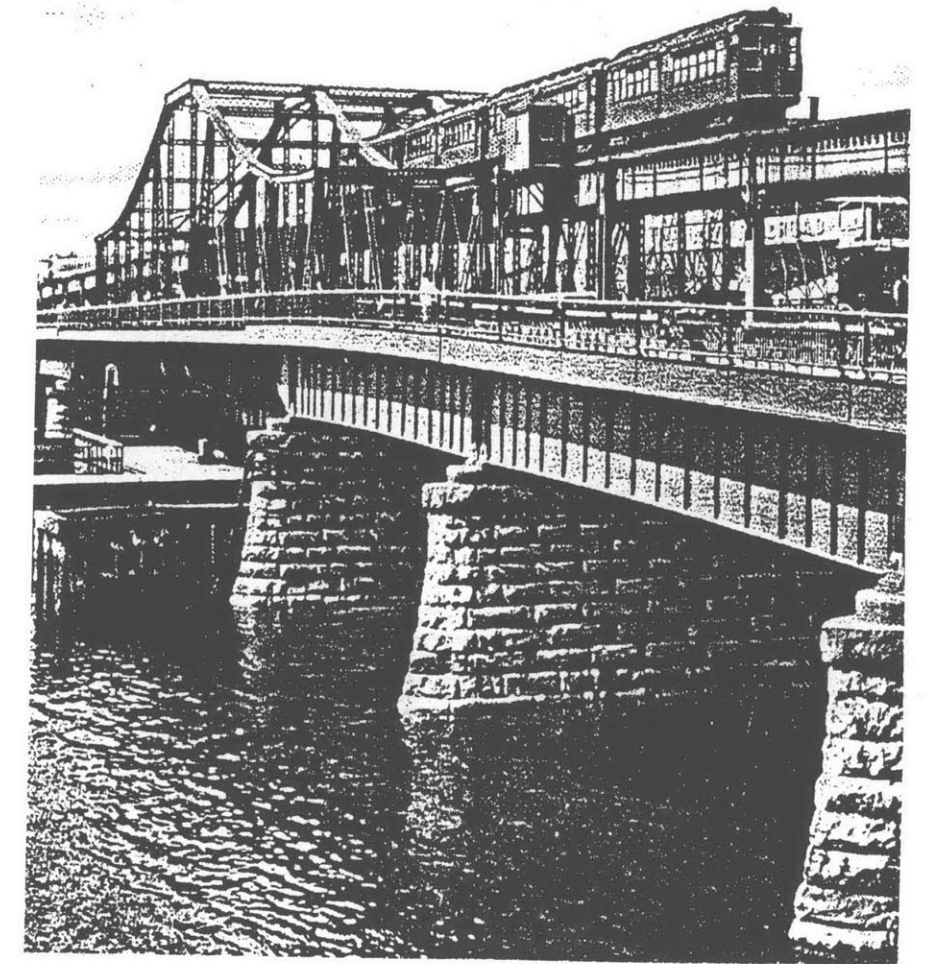
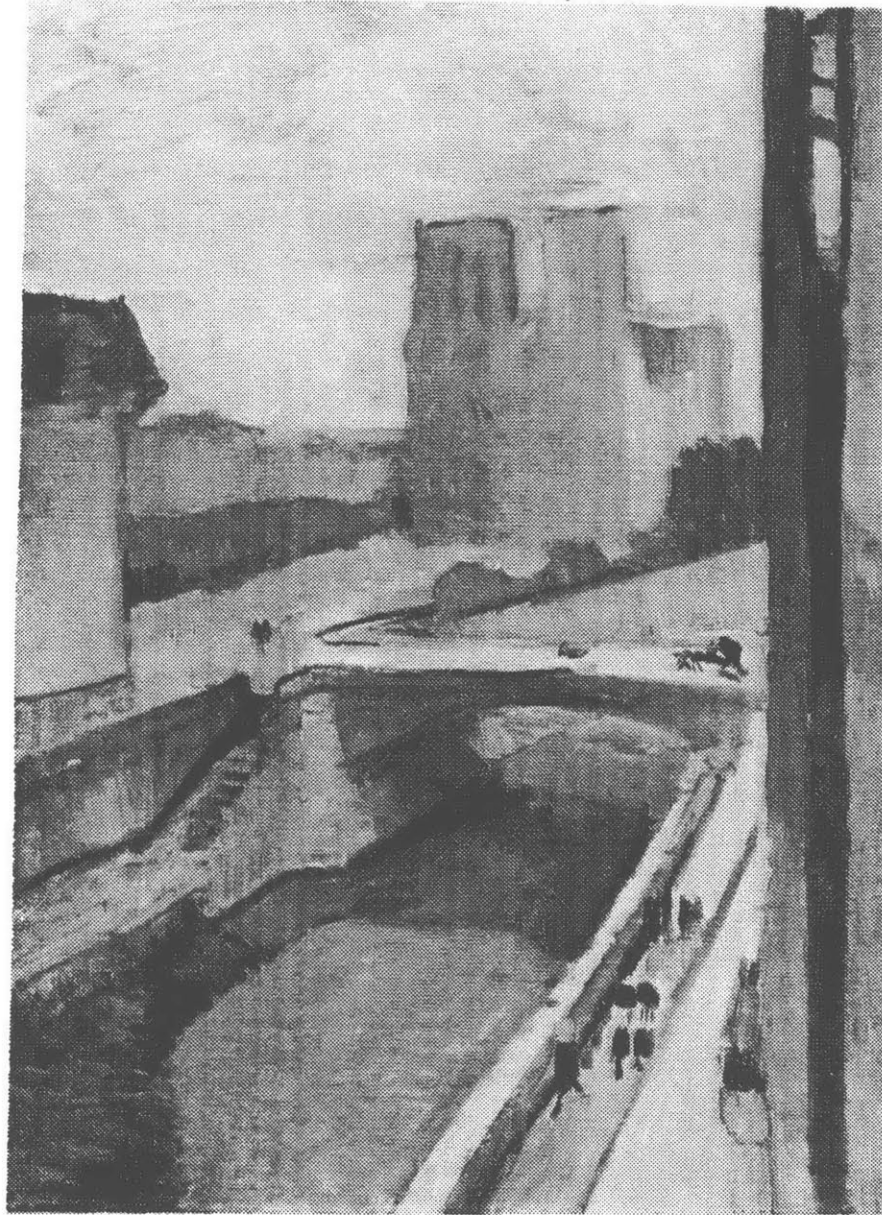
Les Halles: pavilion and access street (cross-section).

The form suggests a receiving action rather than the singular linear access implied by the industrial building type. The final form is a far more accessible and lighter structure than either the pier building or the industrial warehouse. Its sectional profile (from land and water) resembles the form of a seagull in flight. Although it was neither an inspiration or an intention that provoked the form, in discussing the design, I chose to refer to these structures as seagulls.



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- 128. (opposite, left) **Spatial Infrastructure:** Sketches investigating industrial-like structures to be repeated throughout the project.
- 129. (opposite, right) **Cafeteria at the Liverpool Street Station:** occupation of a larger structural system with smaller built enclosures.
- 130. (top left) **St Pancras Station, London:** The roofing panels are organized so as to allow ample light to penetrate.
- 131. (bottom, left) **Boathouse Residences, Ineura, Japan:** Occupying the zone beneath an inhabited structure.
- 132. (top right) **Paris, Les Halles: Cross Section of a Pavilion and an Access Street:** The arrangement allows for several levels of habitation within an industrial structure.
- 133. (bottom right) **Parc de l' Est:** Section of the elevated level reveals the roof structure.
- 134. (far right) **Uplifting Structural Form.** "But not one of them, not even Fletcher Lynd Gull, had come to believe that the flight of ideas could possibly be as real as the flight of mind and feather."
-Richard Bach, Jonathon Livingston Seagull



135. (left) 'Notre-Dame in the Late Afternoon' Henri Matisse, 1902.

136. (middle) Meudon, France, 1928: photo by Andre Kertesz

137. (right) Charlestown Bridge with Elevated Rail



139. 'Carcere d'Invenzione' by Piranesi

VI.6 Stage Six: The Final Design

The final design uses the 'seagull' structural elements to define the spatial organizations of the various areas of the site. This becomes the recurring form that defines the major direction of the site as parallel to Main street. The structures that reflect the direction of the Charlestown bridge are the Warehouse Railway Station, the Cantilevered Pier extension and the Ferry Station. The emphasis of the design remains on the definition of Main street and its articulation by a series of events that take place along its progression to the water.

The Proposed Programmatic Features maybe grouped as follows:

Places

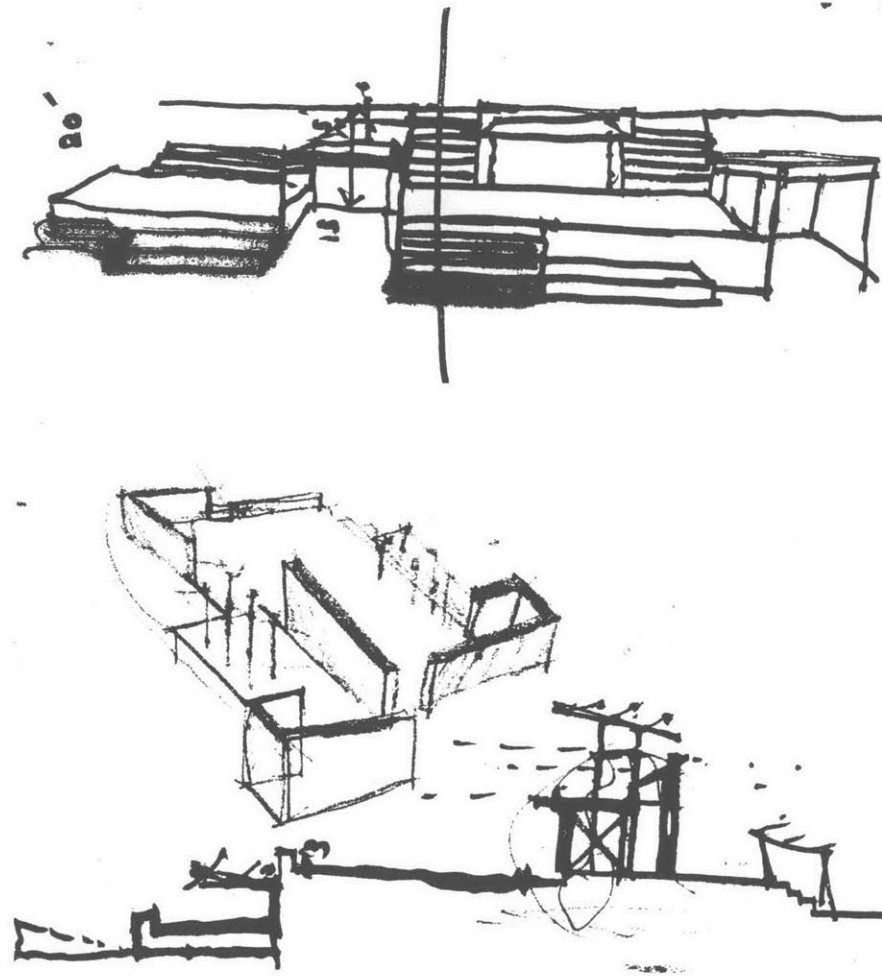
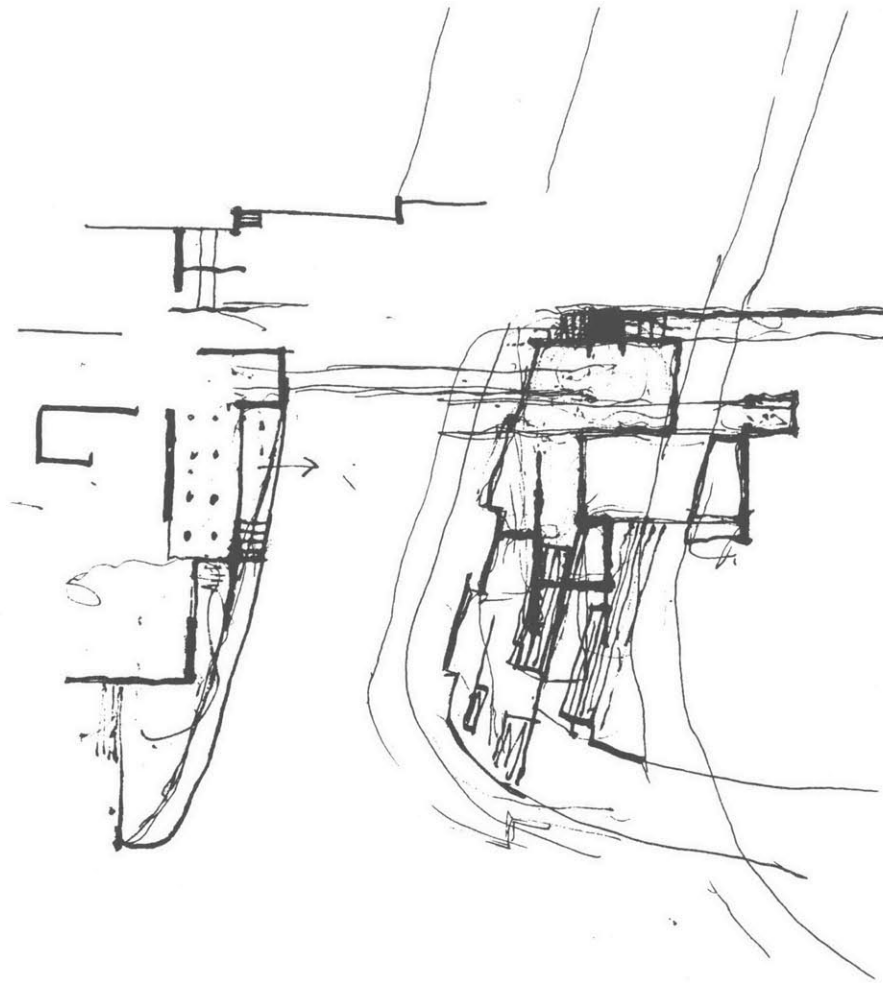
City Square Park
Steps to and along the water
Piers and Walkways
Public Library
Community Hall

Utilities

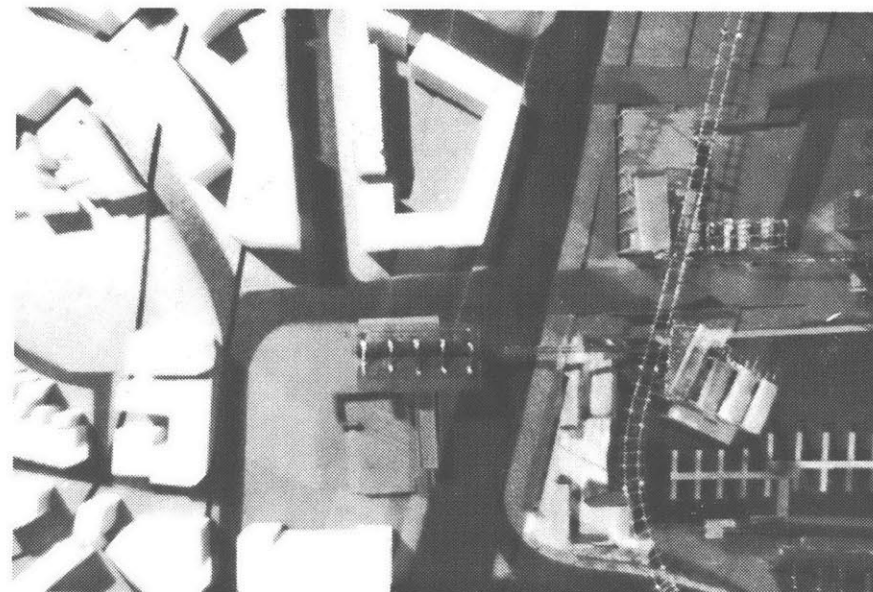
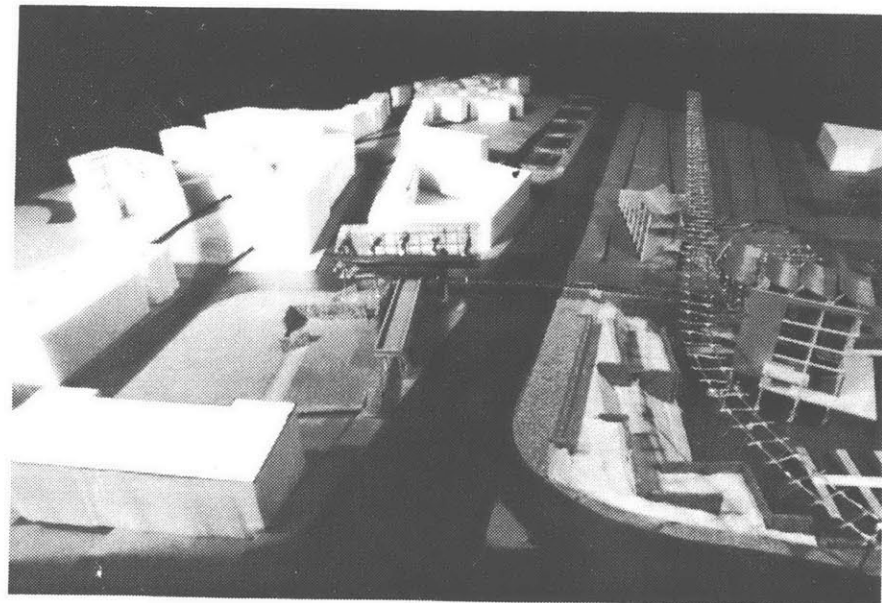
Light - Rail Station
Ferry and Water Taxi Station
Parking Garage
Bus Stop

Commodities

Bars and Restaurants
Stores
Farmer's Market
Tall Ship
Private Marina
Boat Repair Shop and Yard



140. (top) City Square: sketches experimenting with similar arrangement and direction of walls and steps on either side of Chelsea Streets



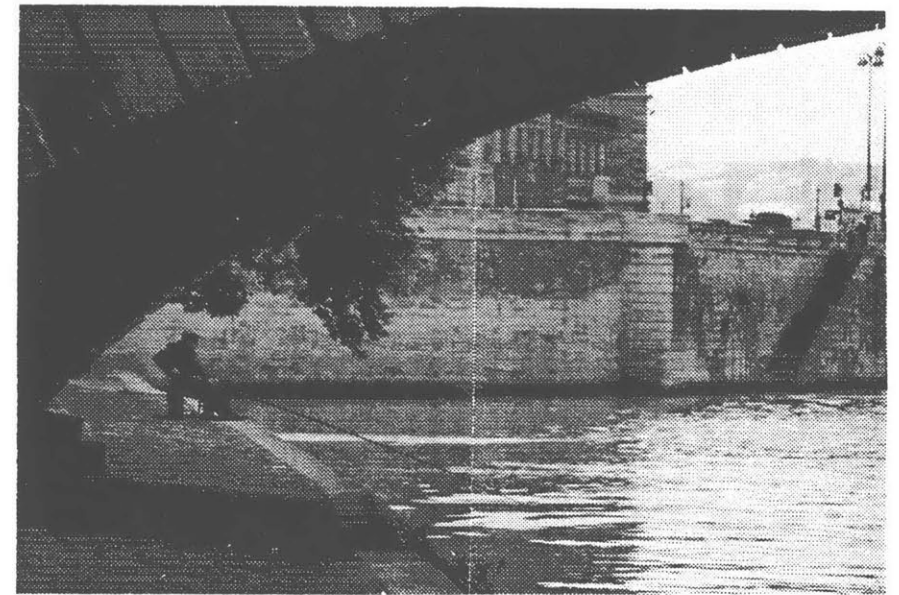
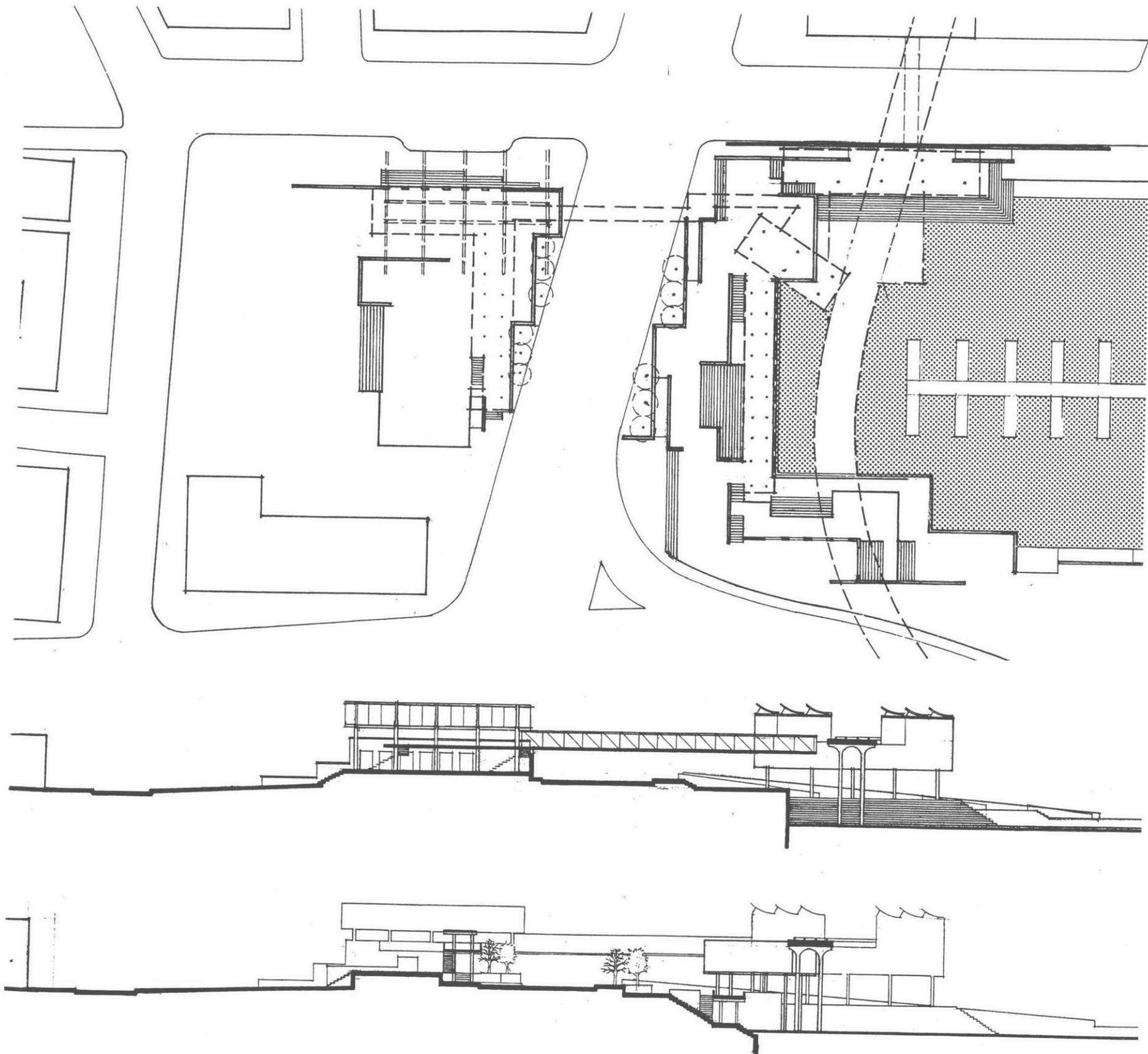
141. (bottom left) City Square and Steps: An effort was made to have the front edge of the square relate to the zone of the steps by continuing a similar geometry and vocabulary of walls and steps

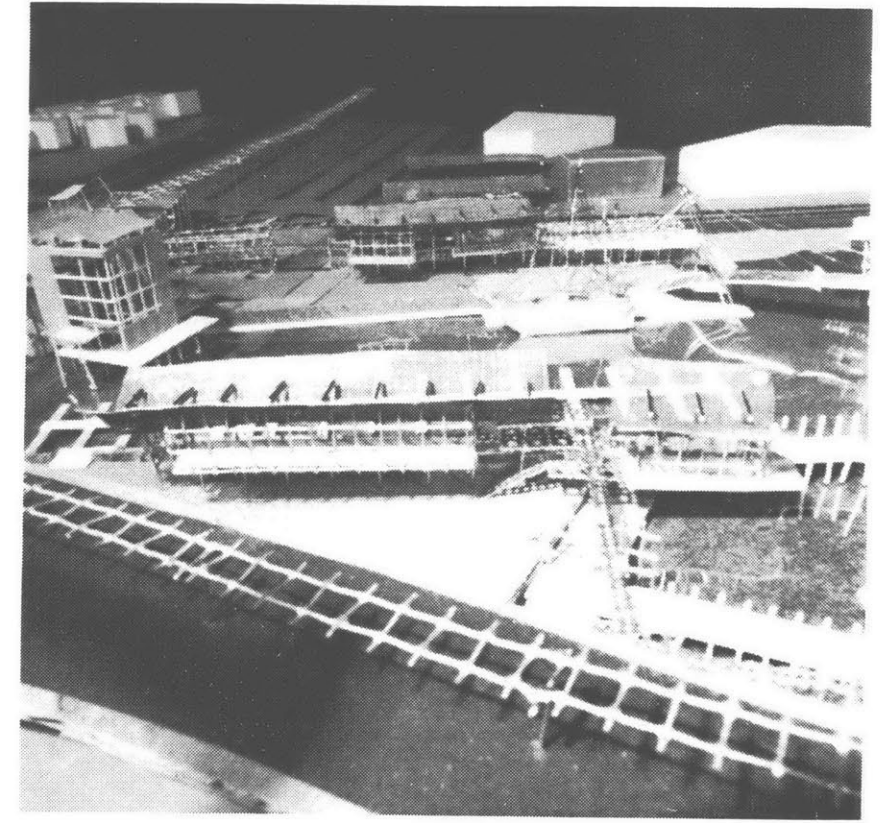
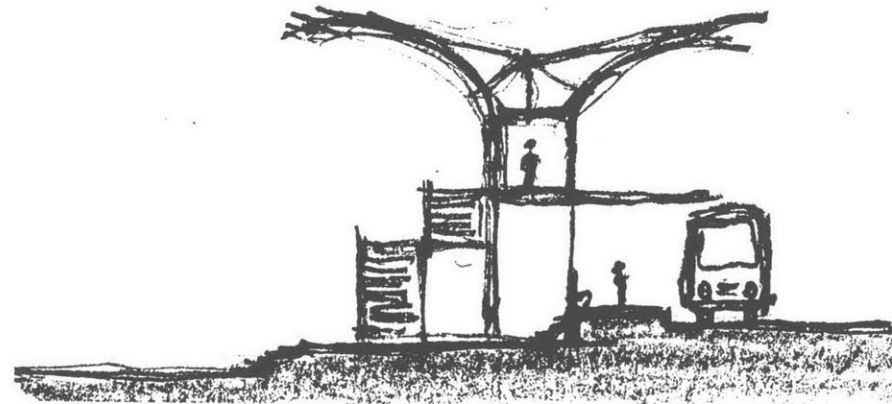
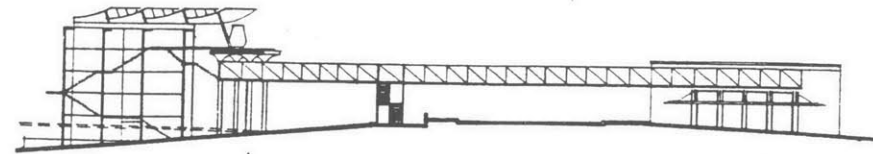
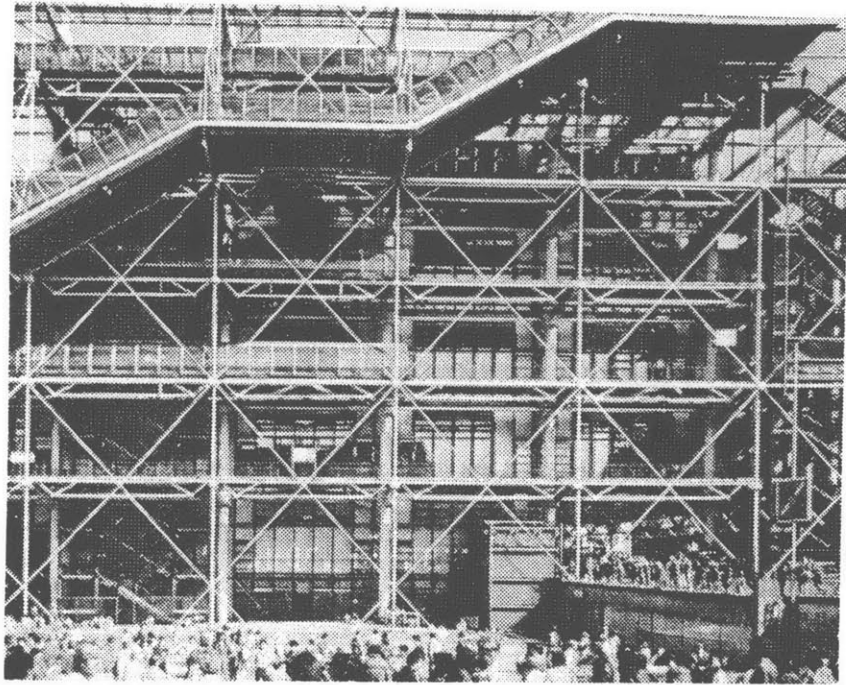
142. (bottom right) "Seagull" on City Square : Builds eastern edge along Main Street.. Incorporates elevated walkway and serves as a bus shelter at grade. Brings structures used on the waterfront inland, strengthening tie between City Square and water.

143. (opposite, left) City Square and Steps: plan and sections

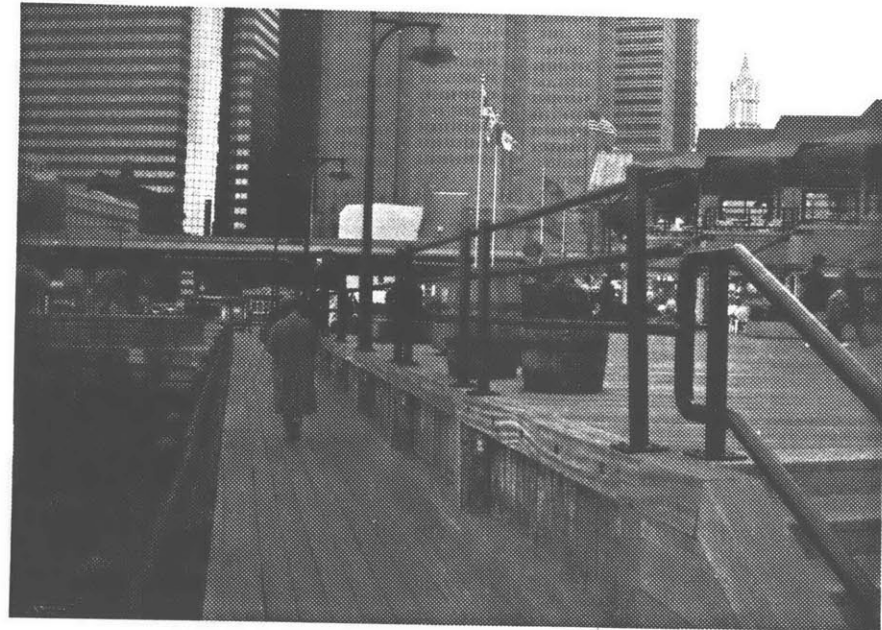
144. (opposite, top right) Amsterdam: view of a bridge and stairs across and down to the water

145. (opposite, bottom right) Water's Edge. A Parisian fisherman on the Seine occupies the space at the water's edge.





146. (top left) Pompidou Center, Paris (Piano and Rogers): The structure forming a screen to the building and incorporating elevated access systems was an inspiration for the warehouse renovation.
147. (bottom left) view from corner of Chelsea Street and Charlestown Bridge: rail station, marina, and market area
148. (top middle) Elevated walkways: sections cut north-south and east-west indicate the part of the elevated access system running between the City Square bus stop and the light-rail station.
149. (bottom middle) Place des Abbesses, Paris: Métro Station Entrance by Guimard. An example of an elegant pavilion structure.
150. (top right) Market Area: View from Charlestown bridge through break in market building frames a view of the tall ship moored along the Main Street

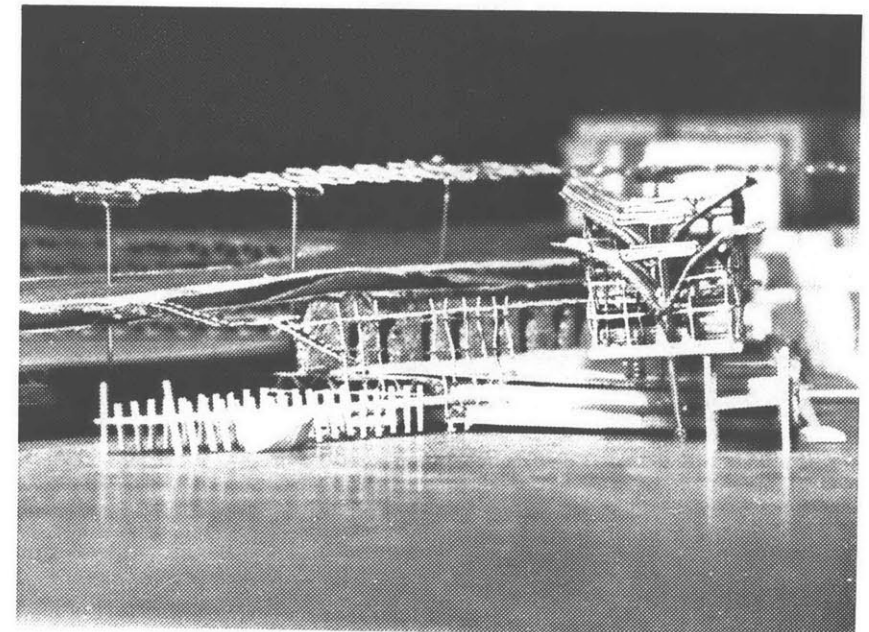
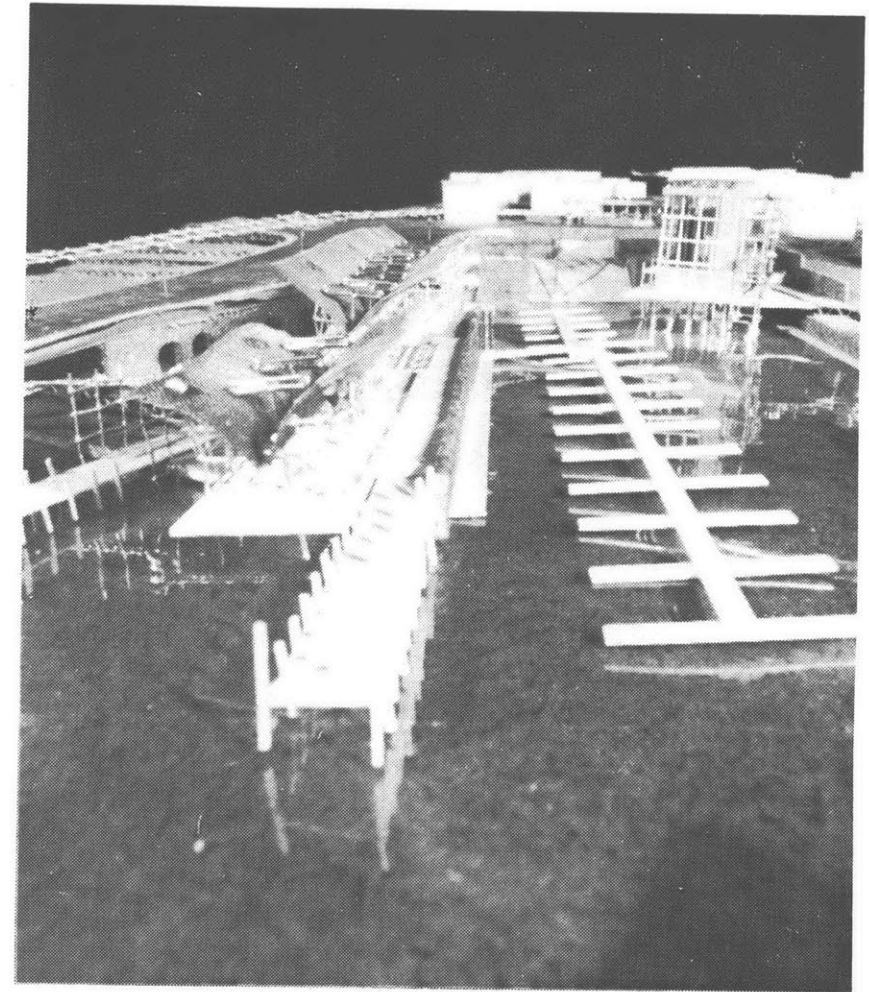
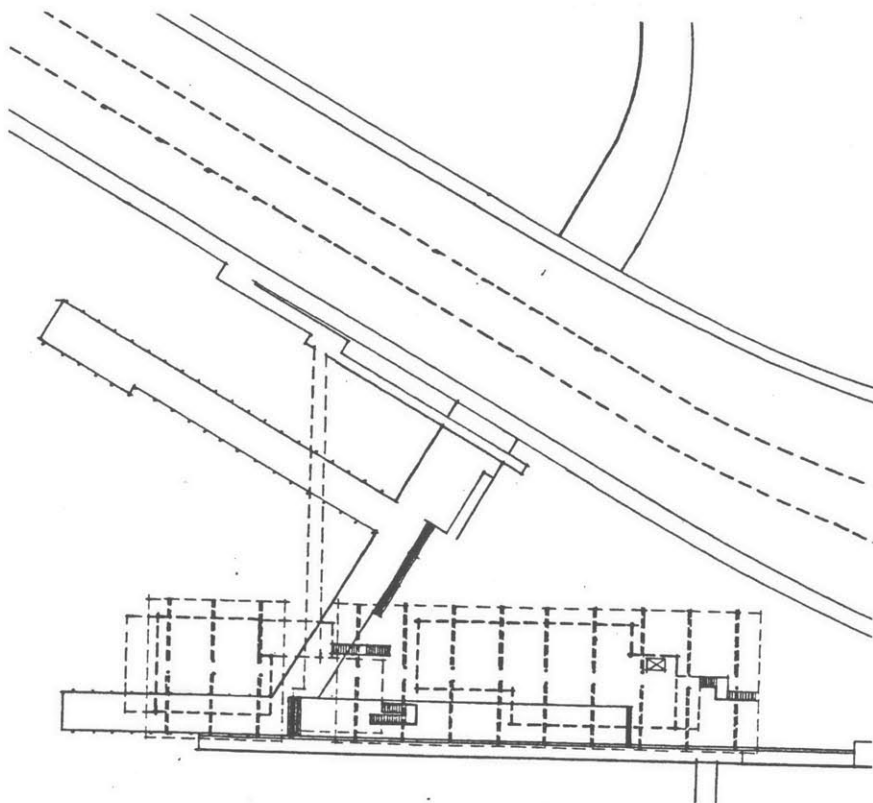
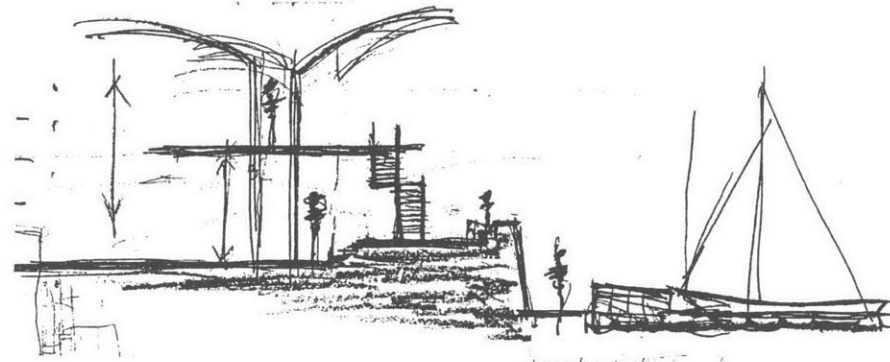
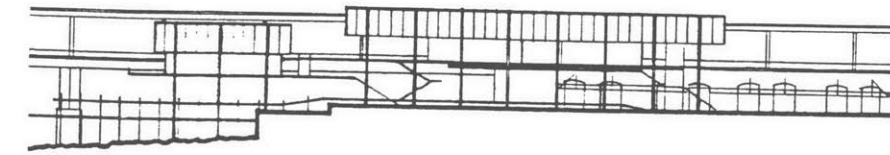


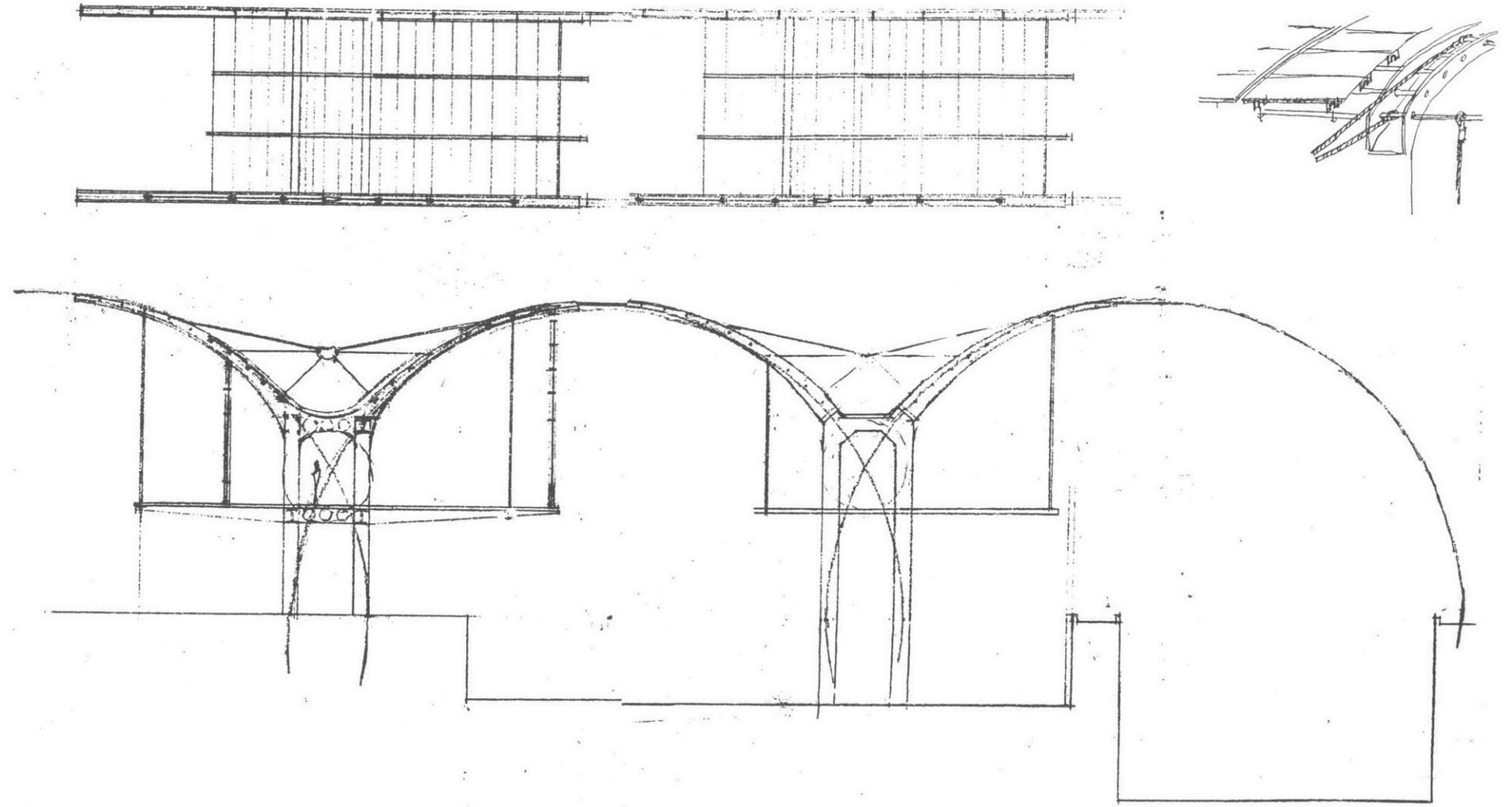
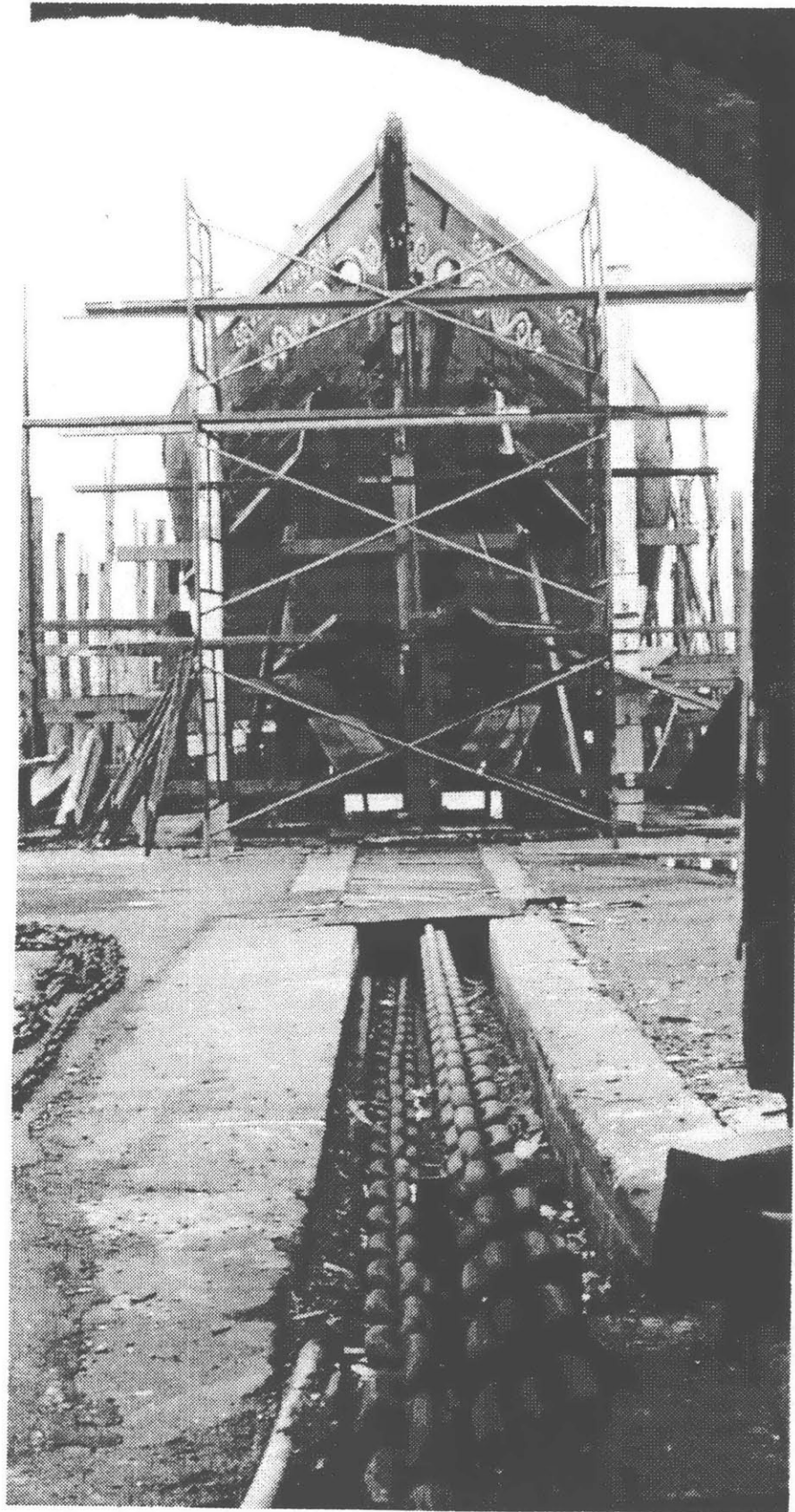
151. (top left) New York Pier 17, New York (Ben Thompson): Stairways defining access along and entrance zone to the buildings

152. (bottom left) Pier 17, New York (Ben Thompson): Dropped walkway relates to water while still part of the larger space.

153. (middle) "Seagull" in Market Area: sections and plan

154, 155. (right) Market Waterfront: views from water to the north

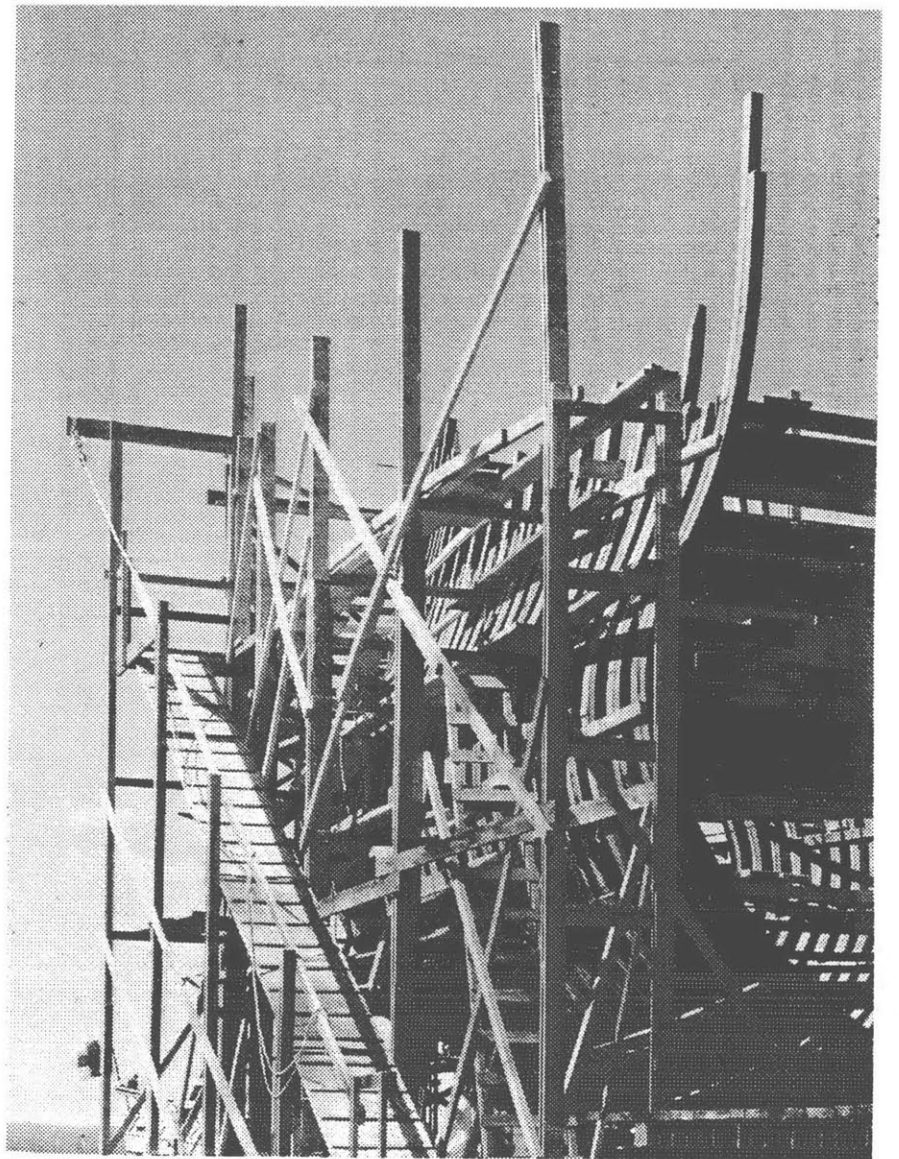
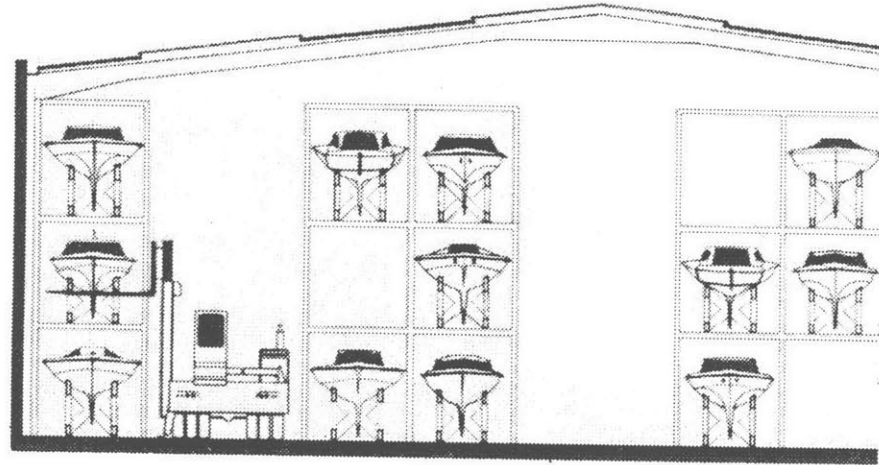
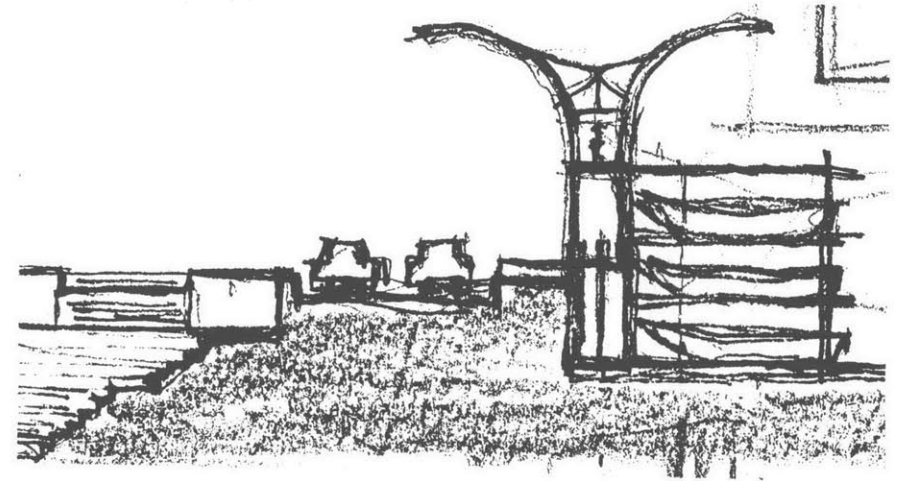
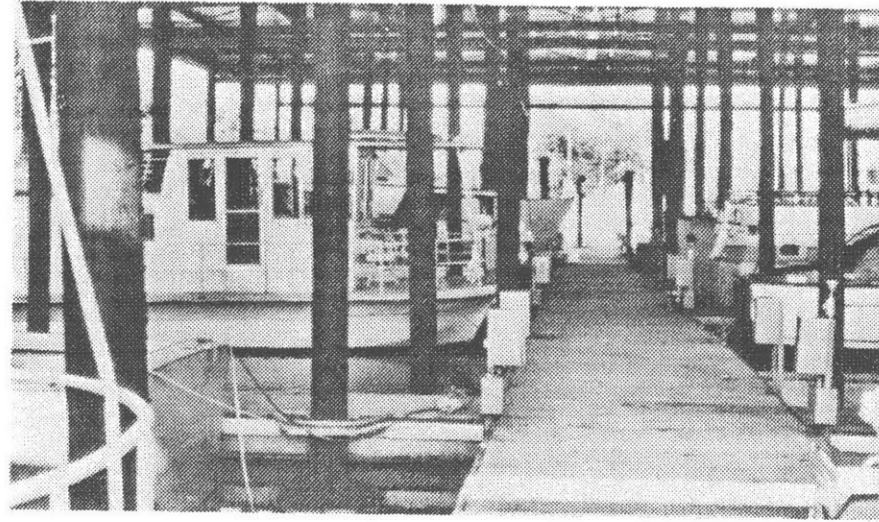
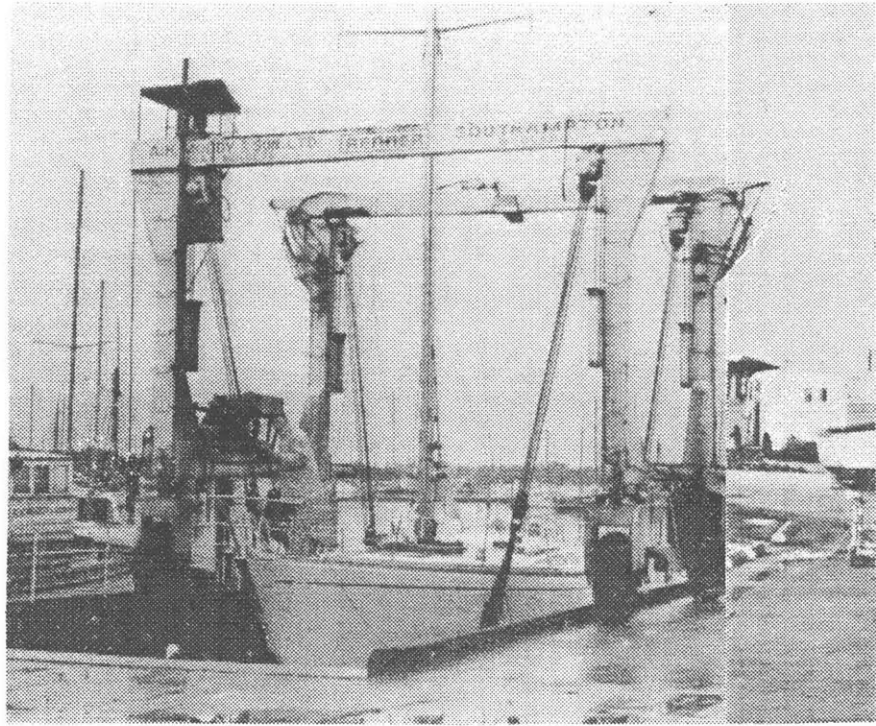




156. (left) Boat Repair Facility: A schooner brought in for repair. The chain is anchored to the building in the foreground.

157. (top right) Section through structure for the "Seagulls": Here shown in the boat repair area. Above is plan of the roofing panels.

158. (bottom right) Boat Repair Facility: view centered on repair and launching areas

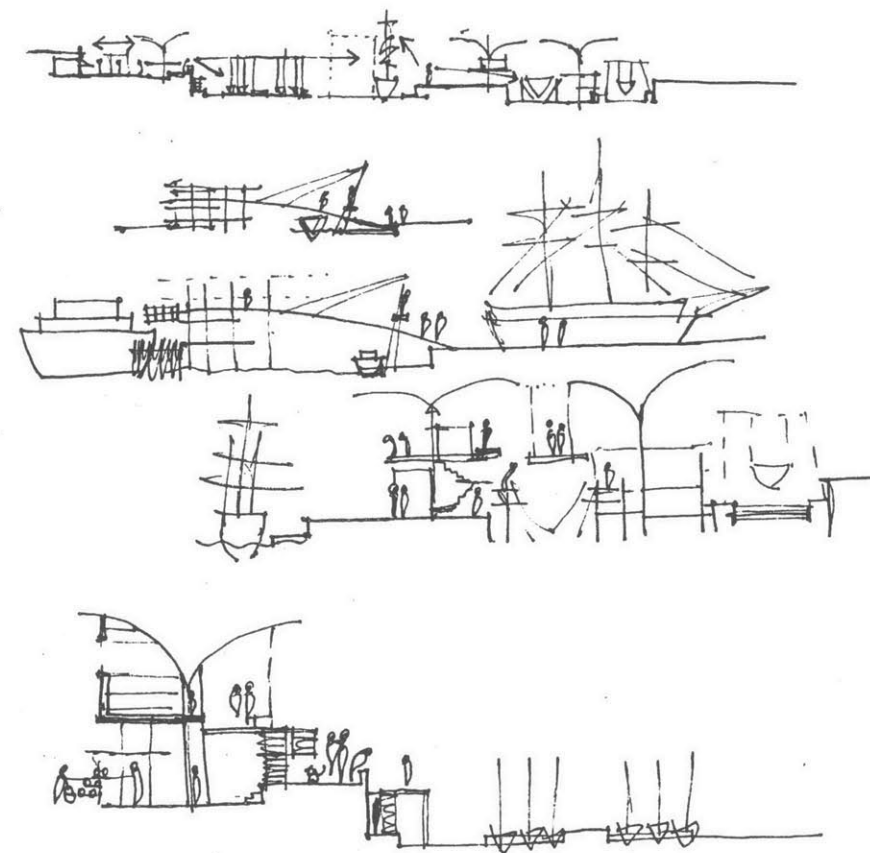
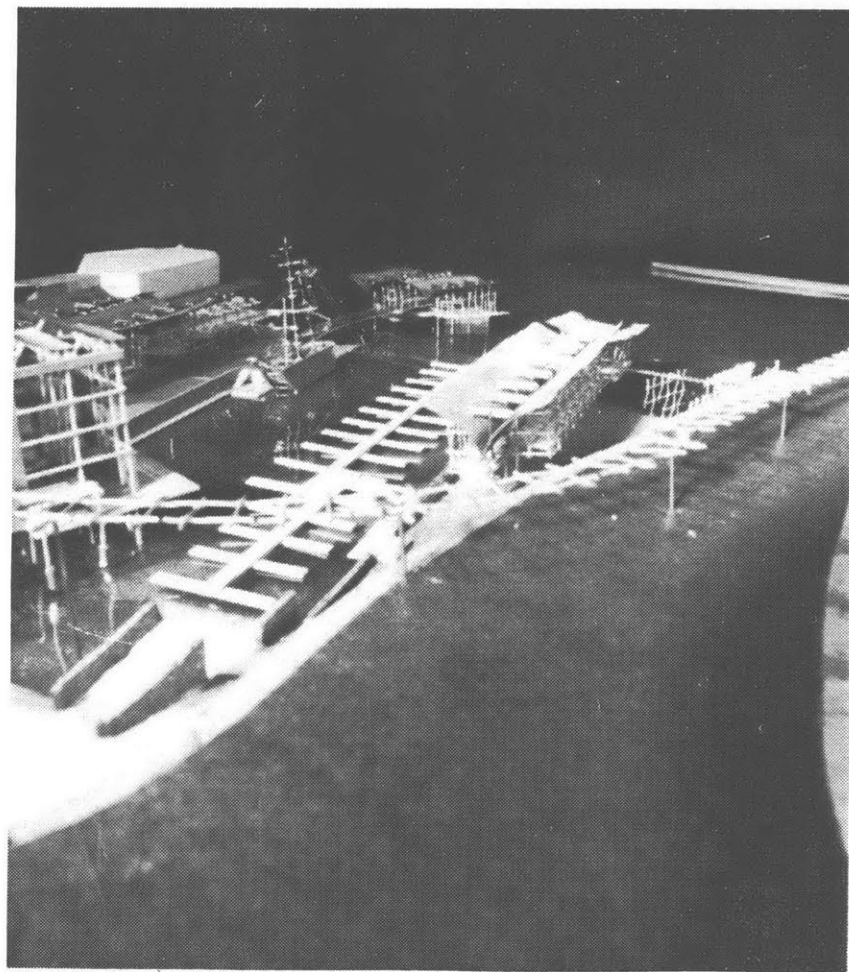
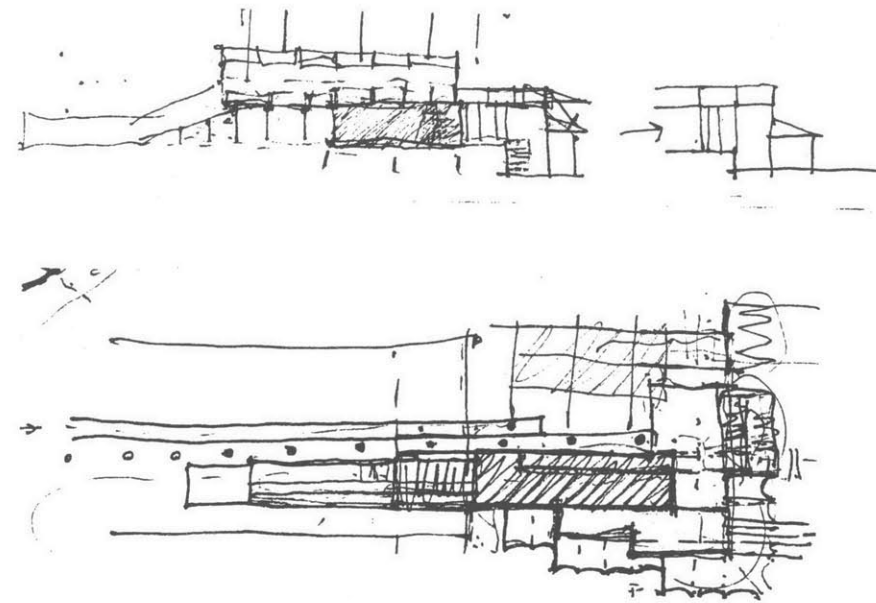
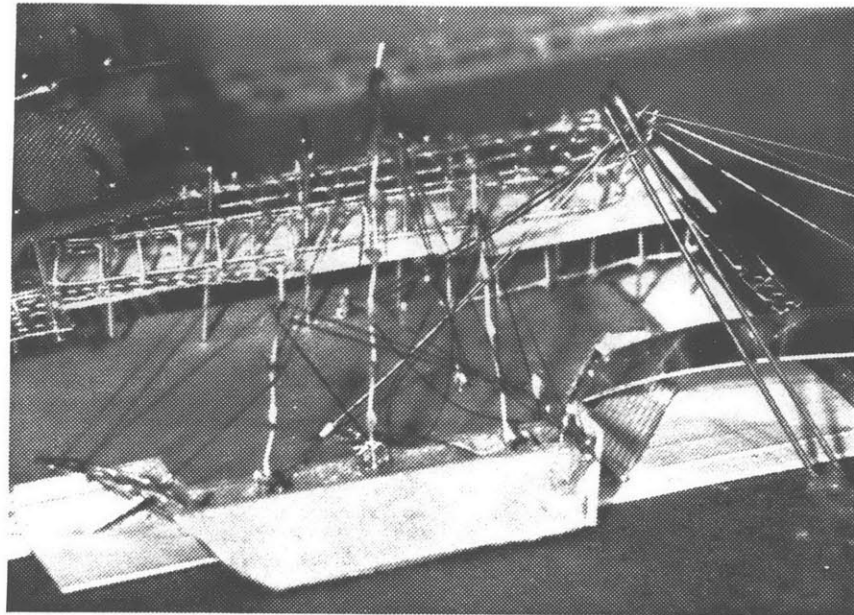


159. (left) Hoist for moving, launching and lifting large boats. Area pictured in image 158 includes such a structure.

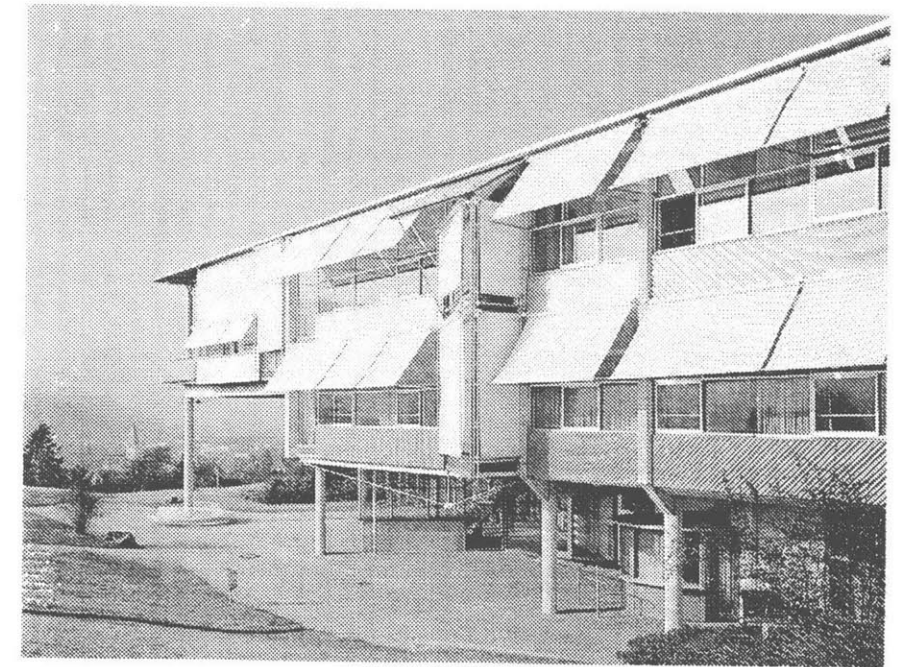
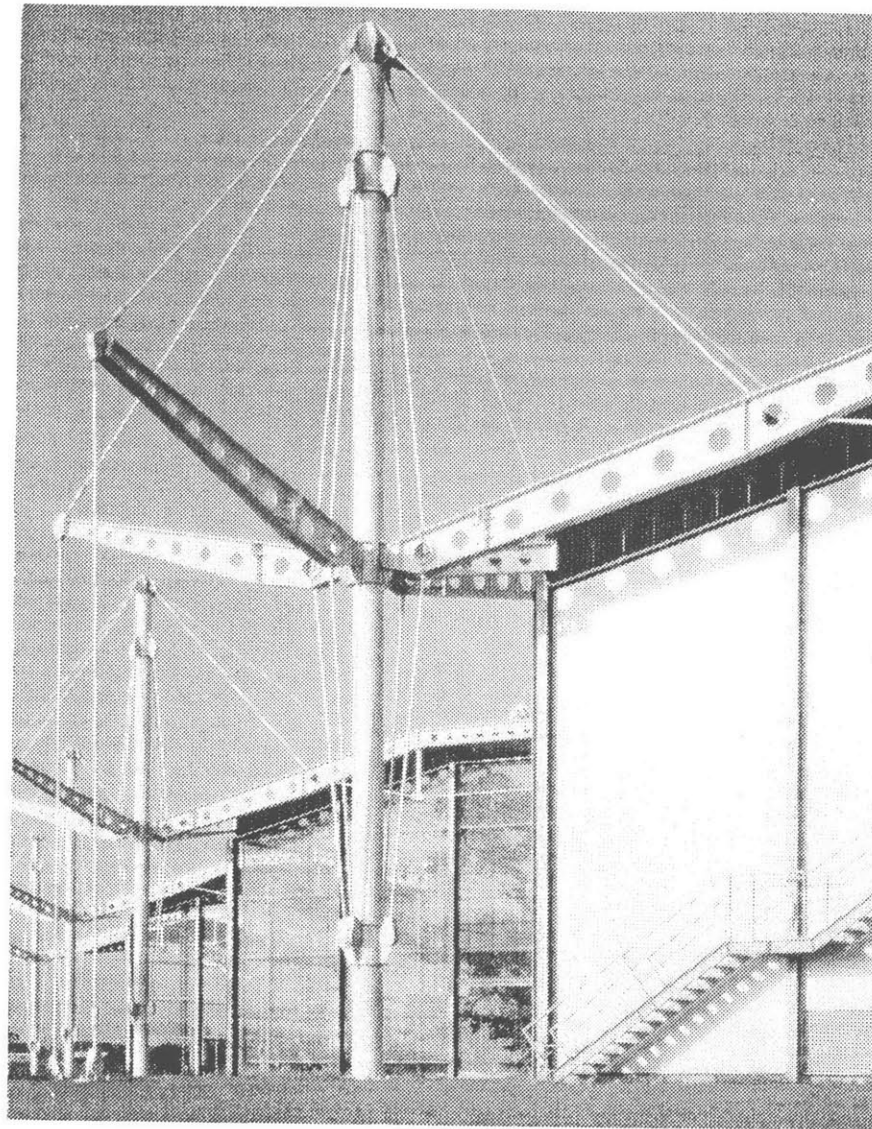
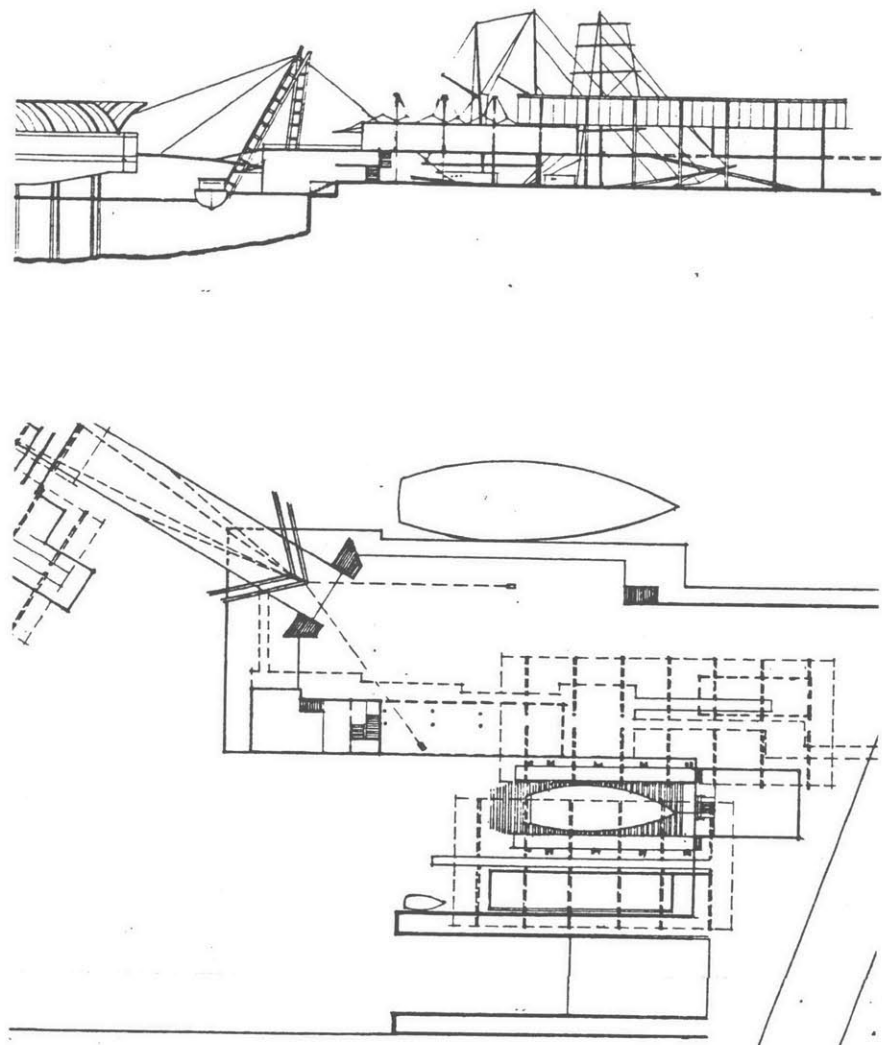
160. (middle) Marina structures and facilities.

161. (top right) Section through Main Street: steps to the left, boat storage area to the right

162. (bottom right) Framework for constructing wooden boat doubles as a scaffolding system. This arrangement was incorporated into the design of the boat repair facility.



163. (top left) Main Street Pier: public node at end of pier spatially defined by water-taxi building, steps, cantilever and tall ship.
164. (bottom left) View to east from Rutherford Avenue across marina to pier and ferry boat building
165. (top middle) Water-taxi building and restaurant: sketch of section and roof plan of the linear structure having which builds the edge of the Main Street pier.
166. (bottom middle) Relationships: sketch exploring views and spatial relationships
167. (above) Pier 17, NY: restaurant with structure for awnings

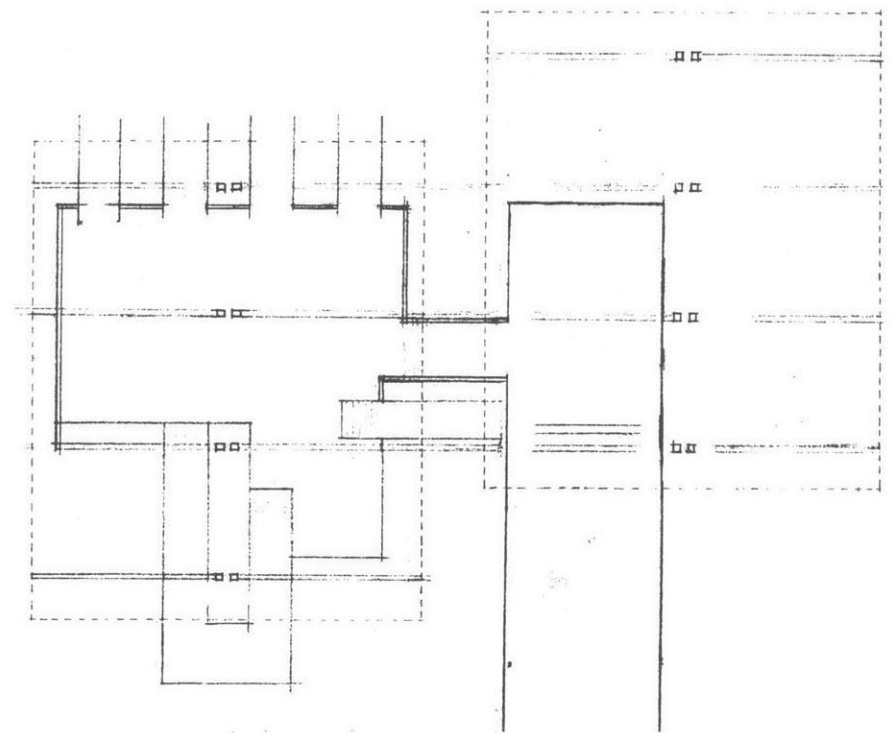
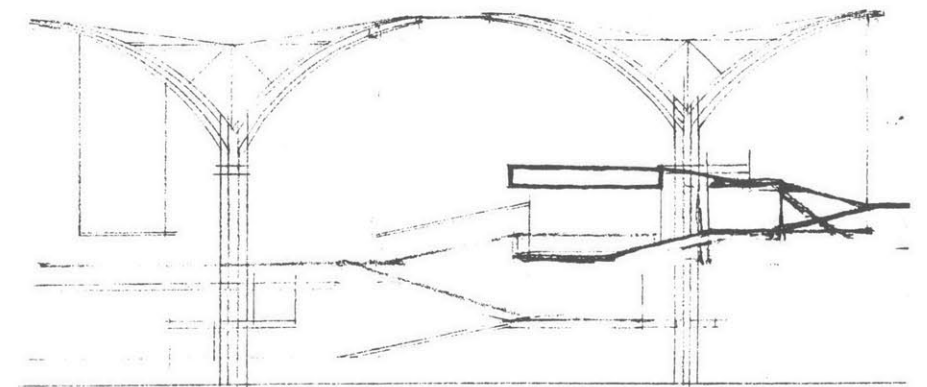
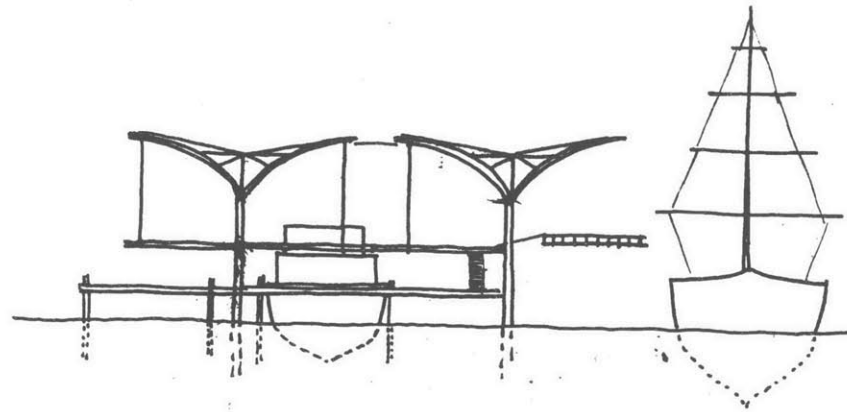
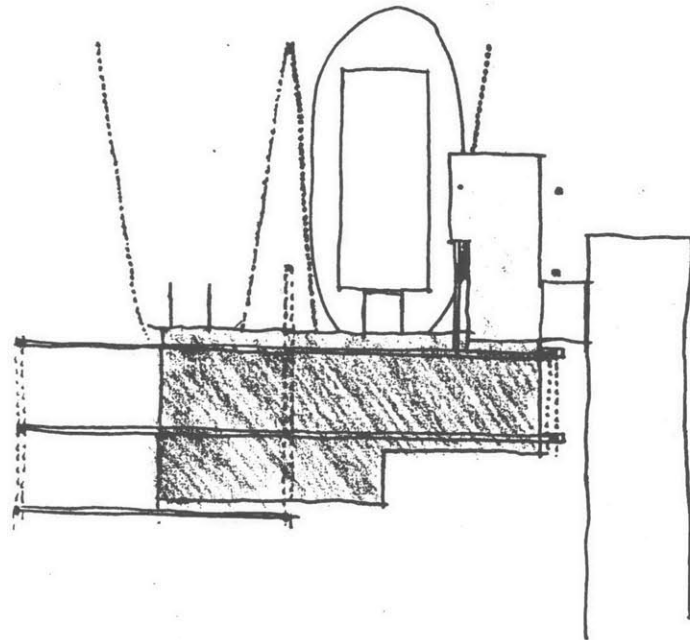
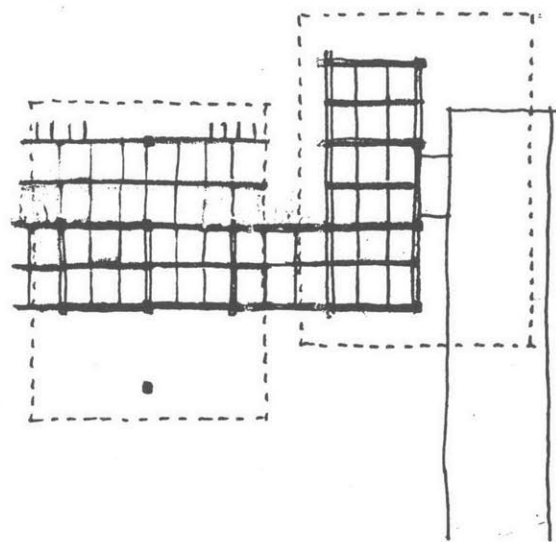
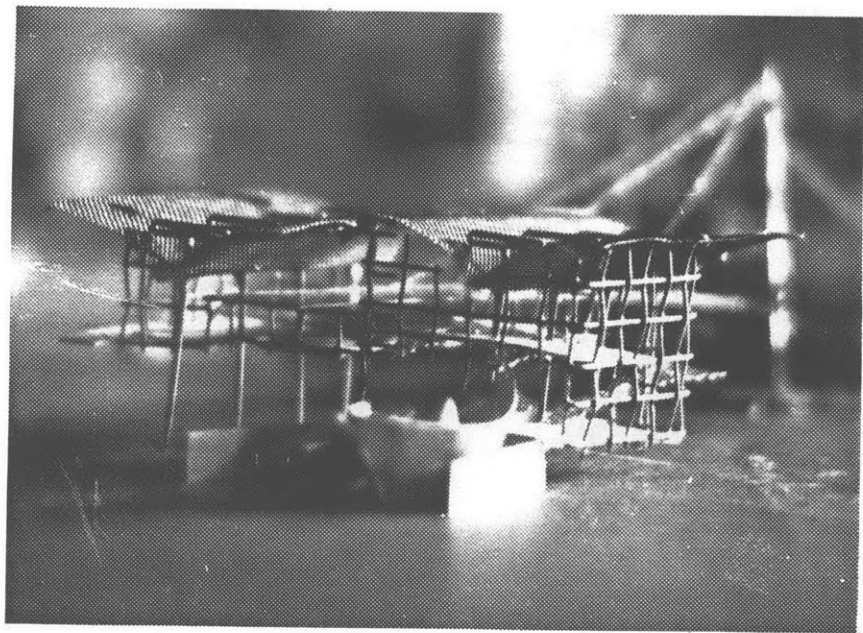
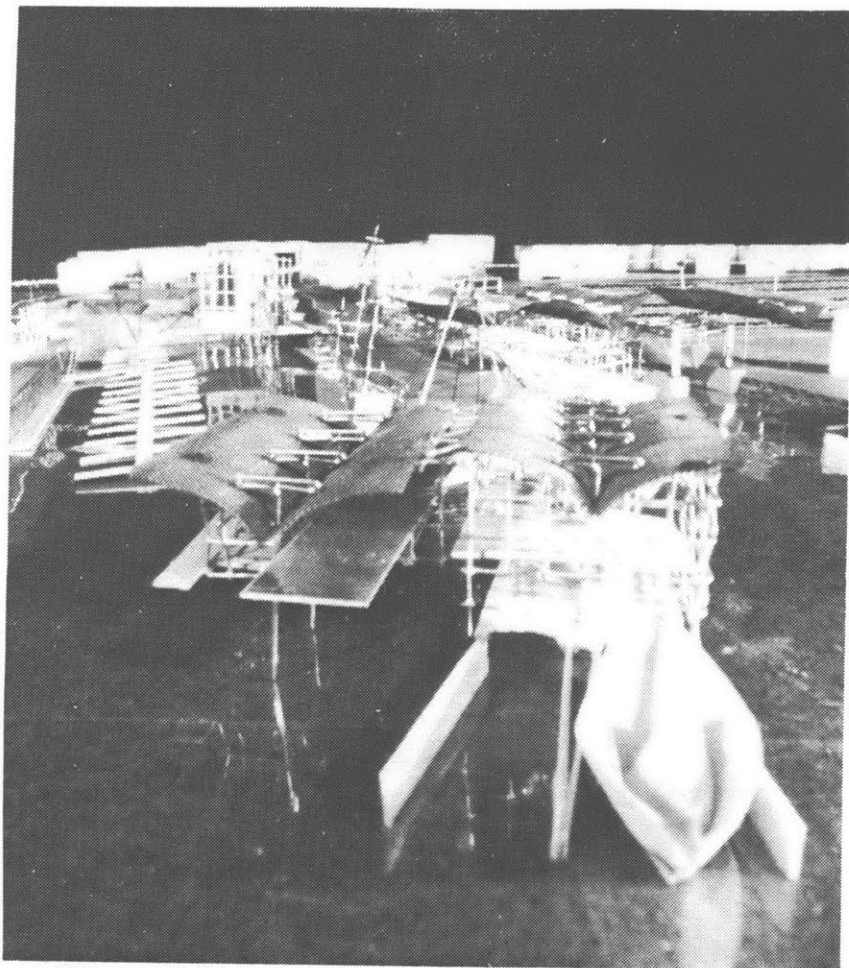


168. (left) Main Street Pier: plan and section of structures

169. (middle) Distribution Center for Renault, Wiltshire by Norman Foster

170. (top right) Hoch Schule by Behnisch: view of exterior elevation

171. (bottom right) Hi Solar Institute: view of interior walkways



172,173. (left) Ferry boat building at the end of the cantilever

174. (middle, above) Plans and Sections exploring organization of ferry building within the framework of the "Seagull".

175. (top left) Staten Island Ferry Terminal viewed from across water

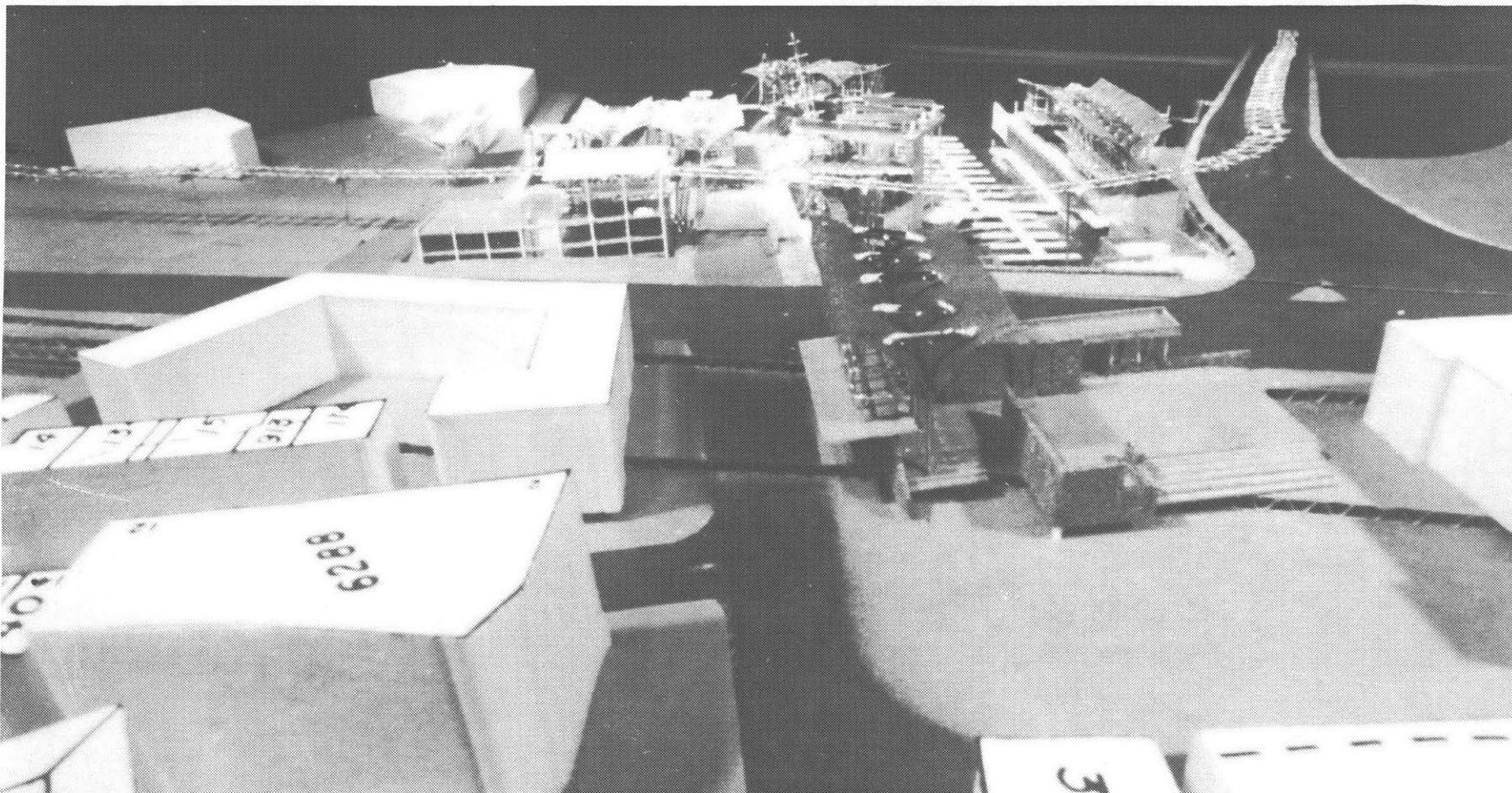
176. (bottom left) Access to the Staten Island Ferry at two levels
(upper walkways are lowered on to upper deck of boat).



177. (right) Piers and Manhattan skyline



178. (top) Present view from City Square to the water (This section of elevated highway will go underground in near future.)



179. (bottom) Model View down Main Street from John Harvard Mall

180. (opposite) View to west: area south of Chelsea Street, final model

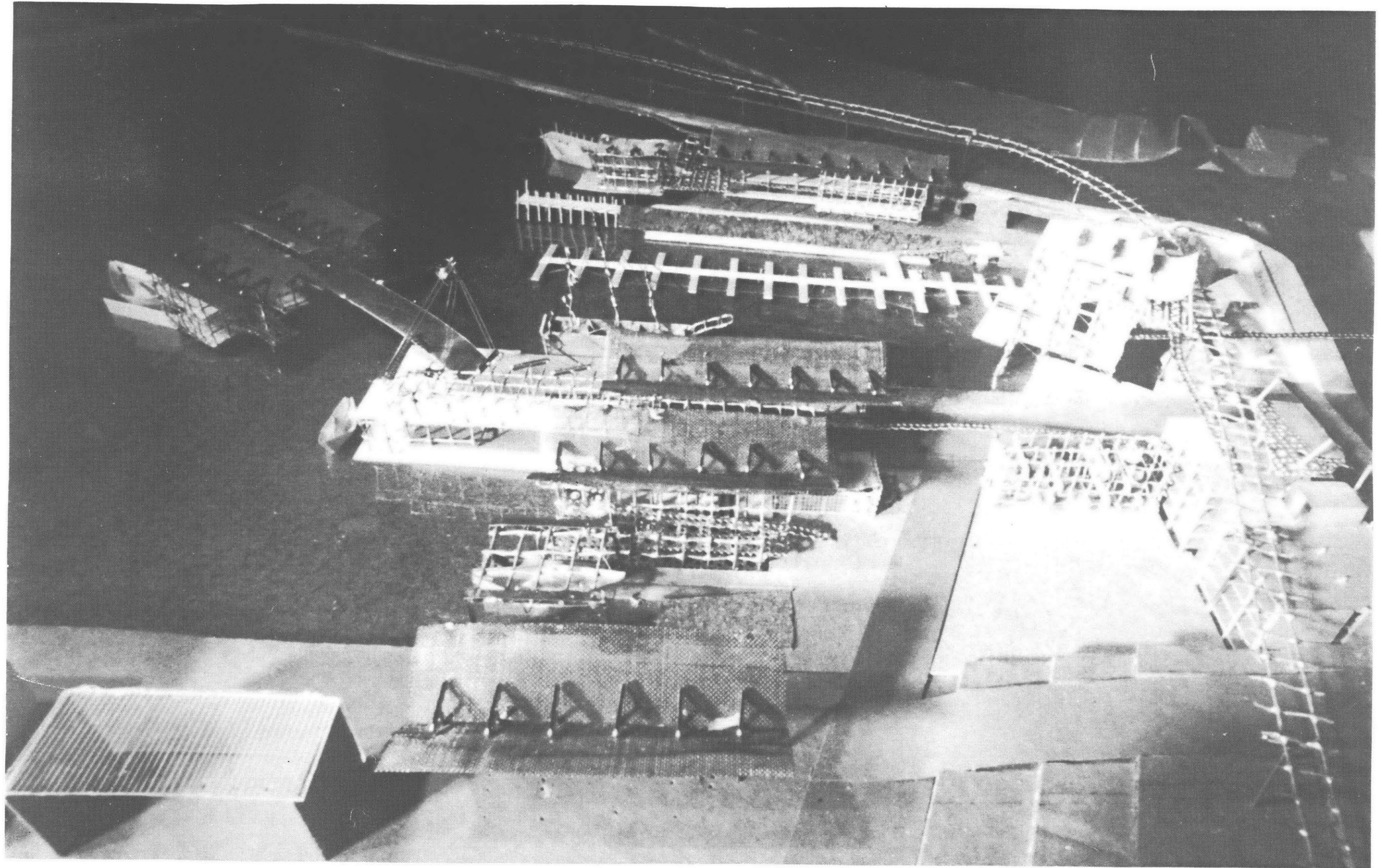
181. (page 80) Plan View of Site: 1": 40' final model

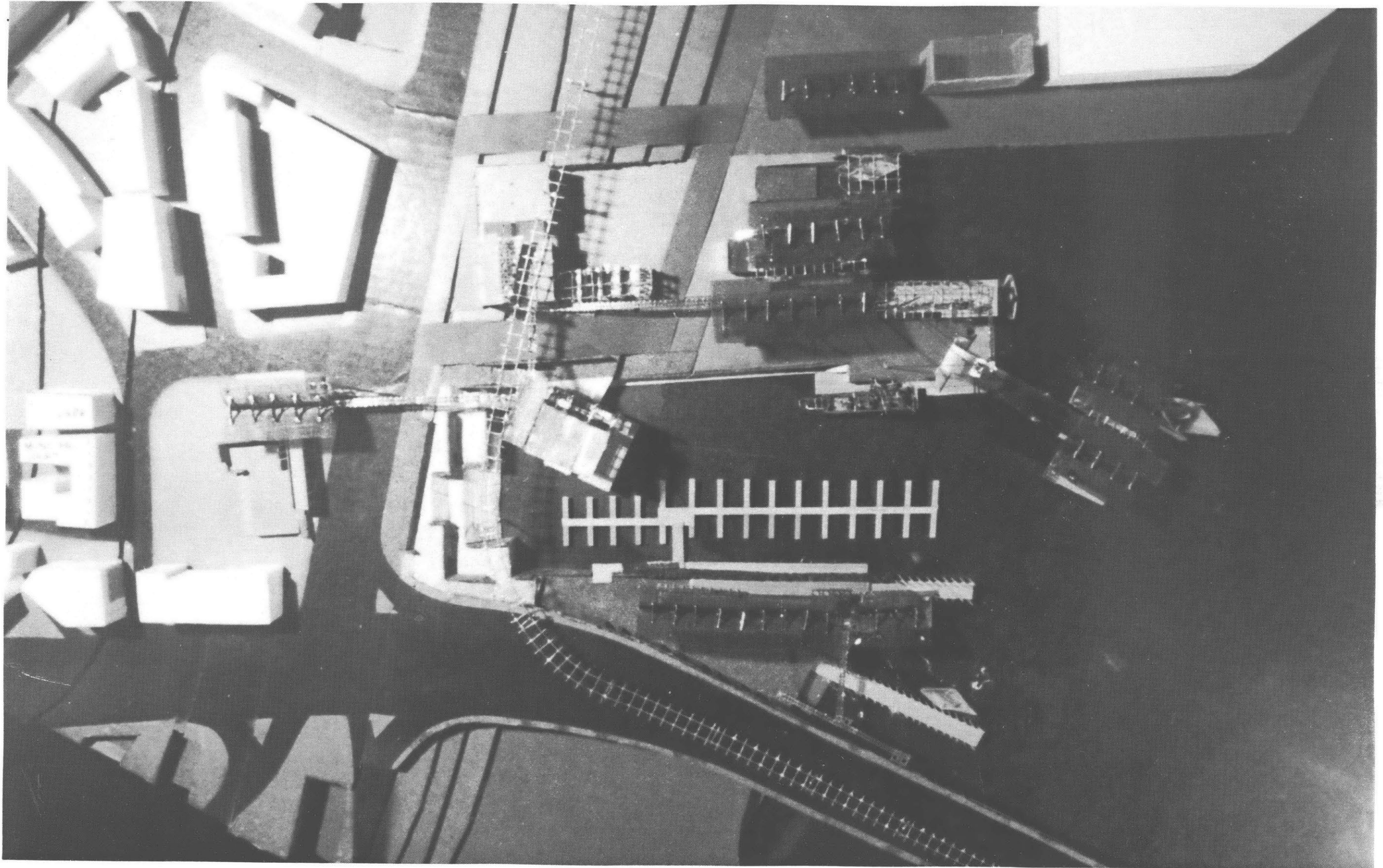
182. (page 81) Plan of Site: 1": 40'

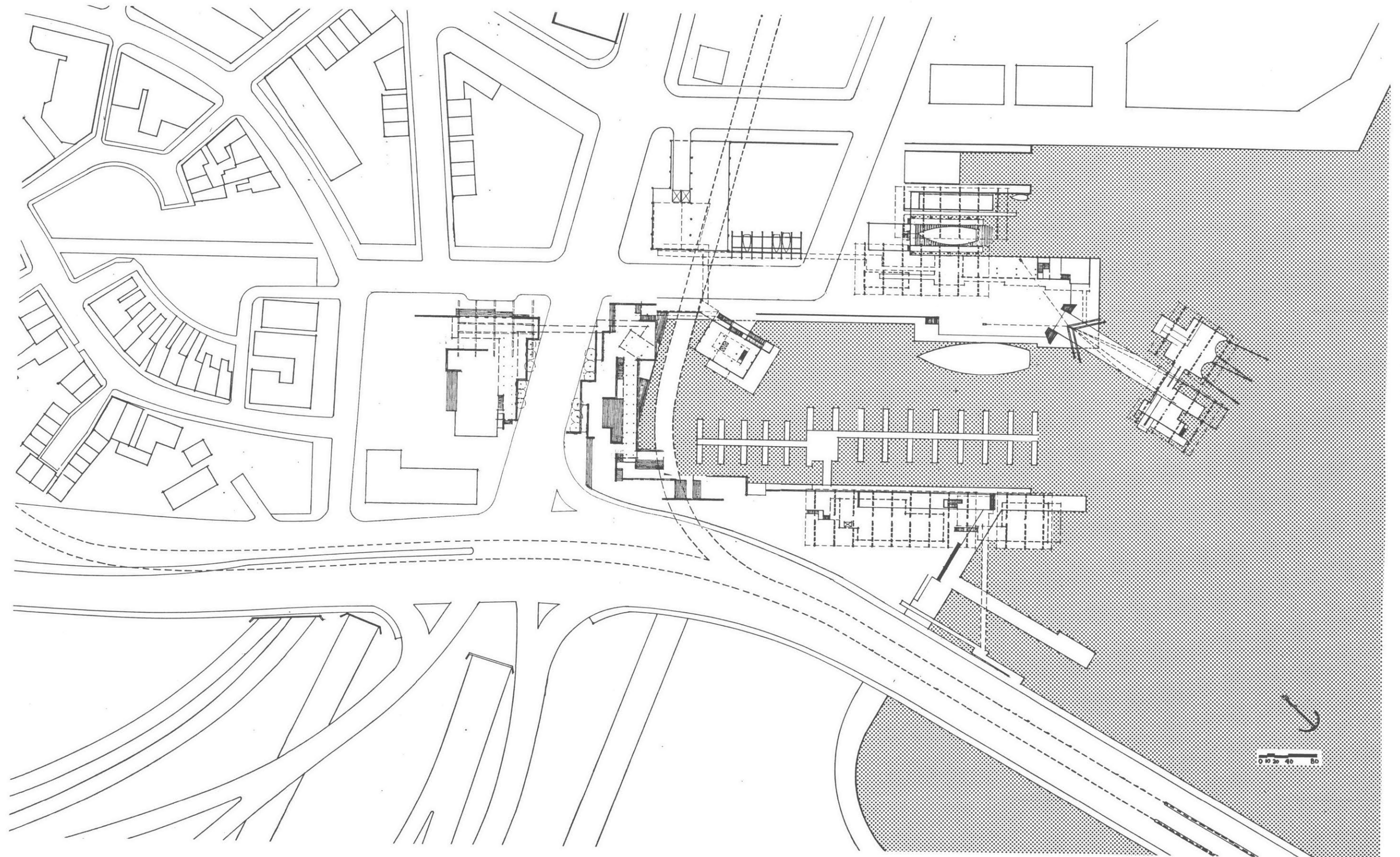
183. (pages 82-83) Section through site along Market Area: 1": 40'

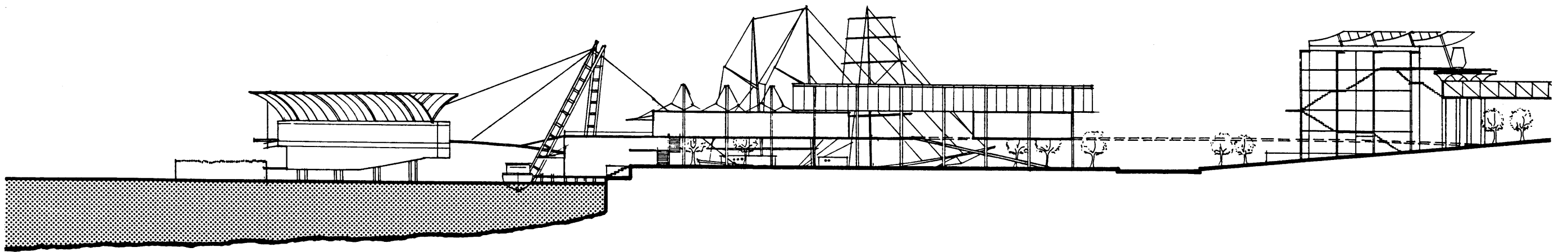
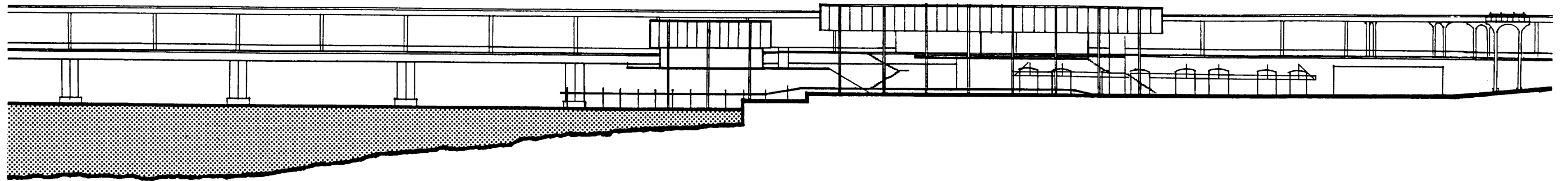
184. (pages 82-83) Section through site down Main Street: 1": 40'

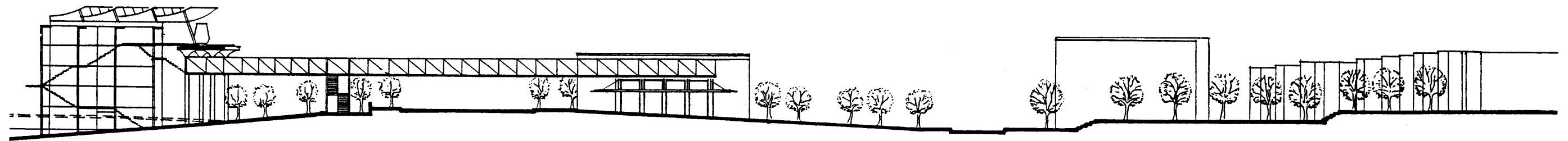
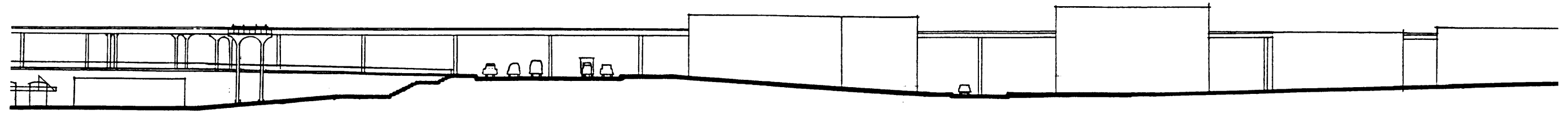
185. (pages 84-87) Section-Elevation across site from Charlestown Bridge to Market Area to Marina to Main-Street Pier to Boat Repair/Launch Area: 1": 8'



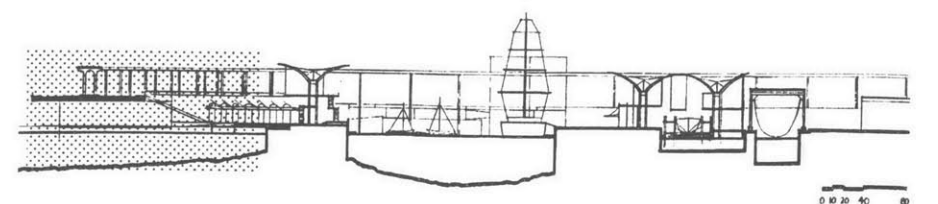
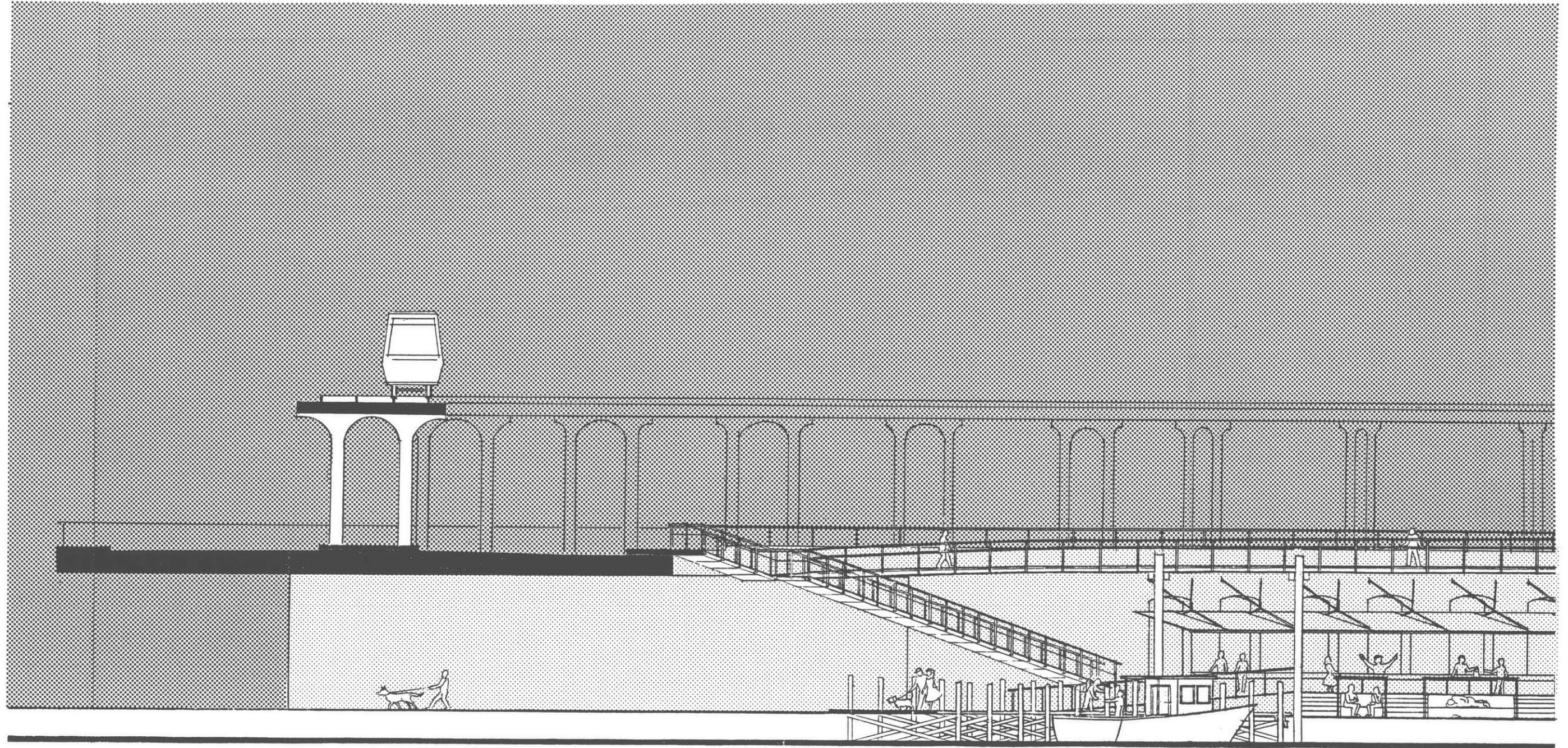




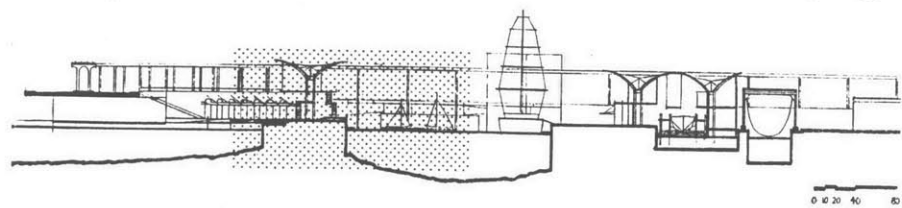
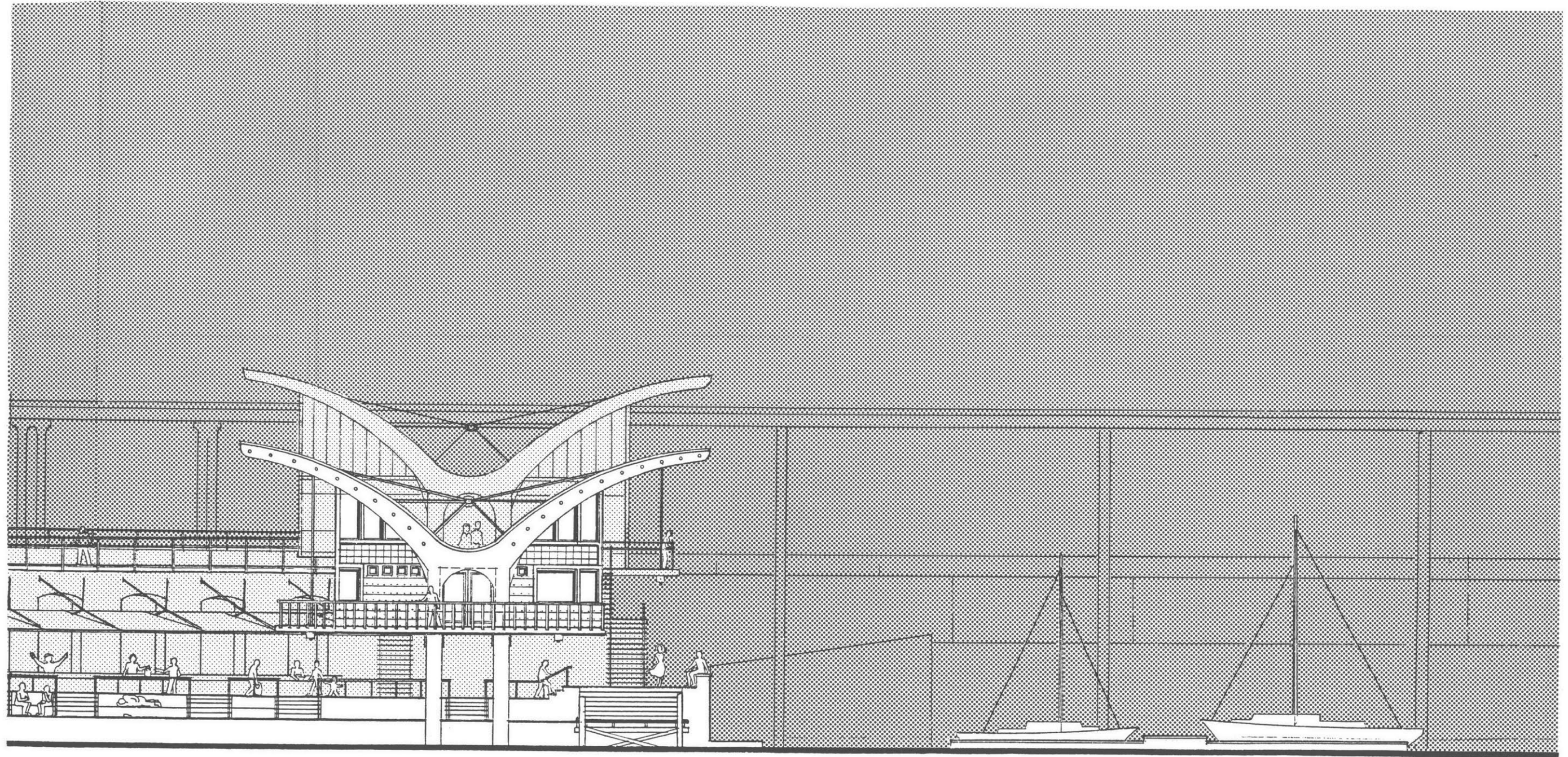


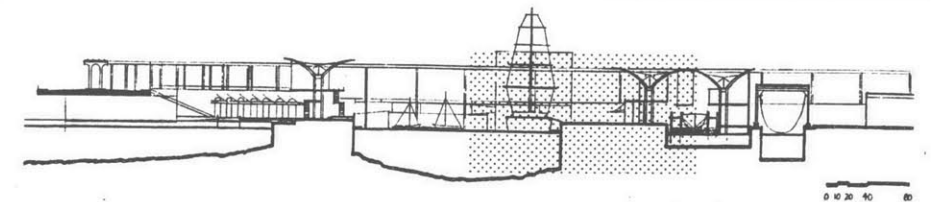
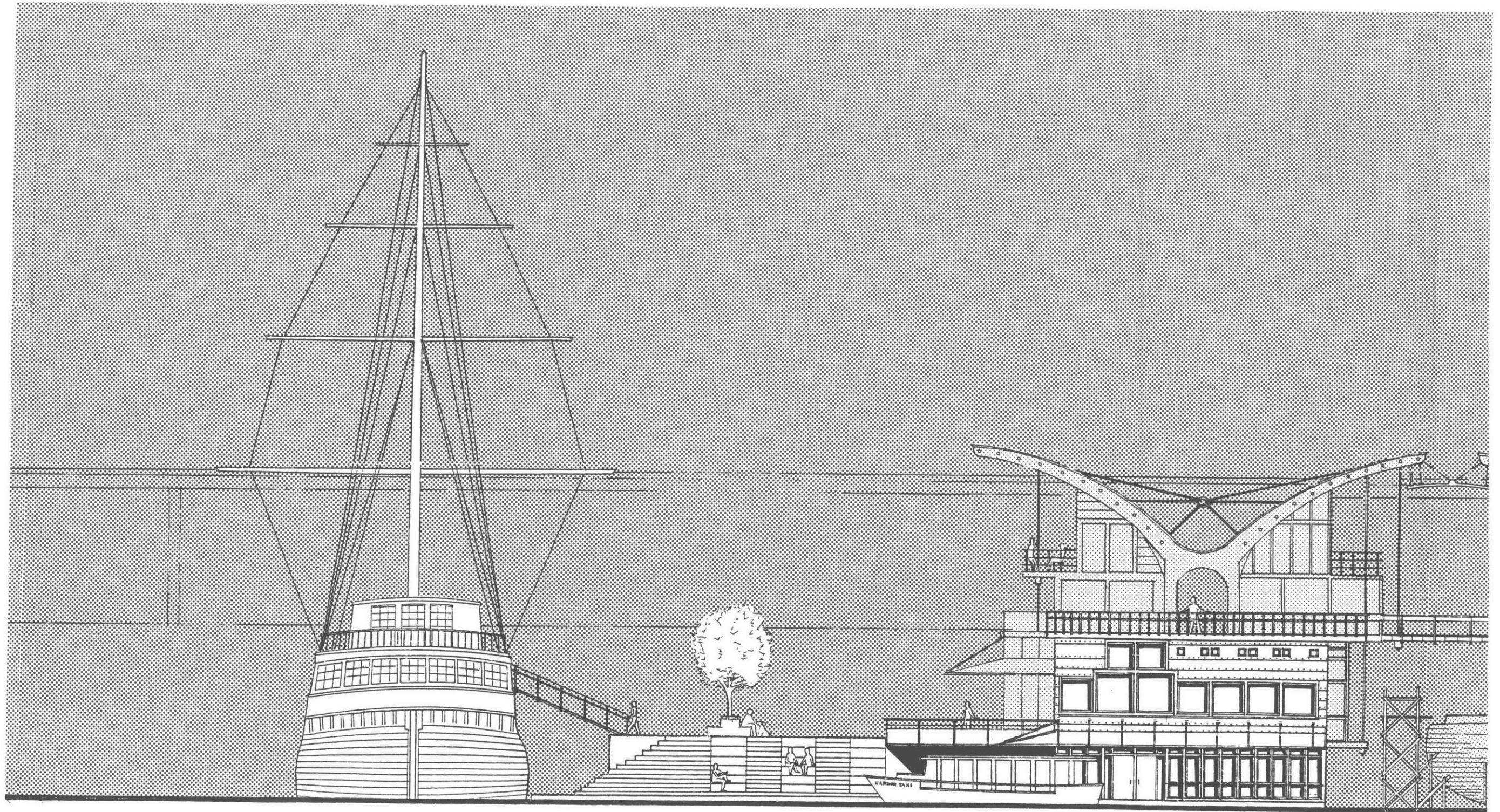


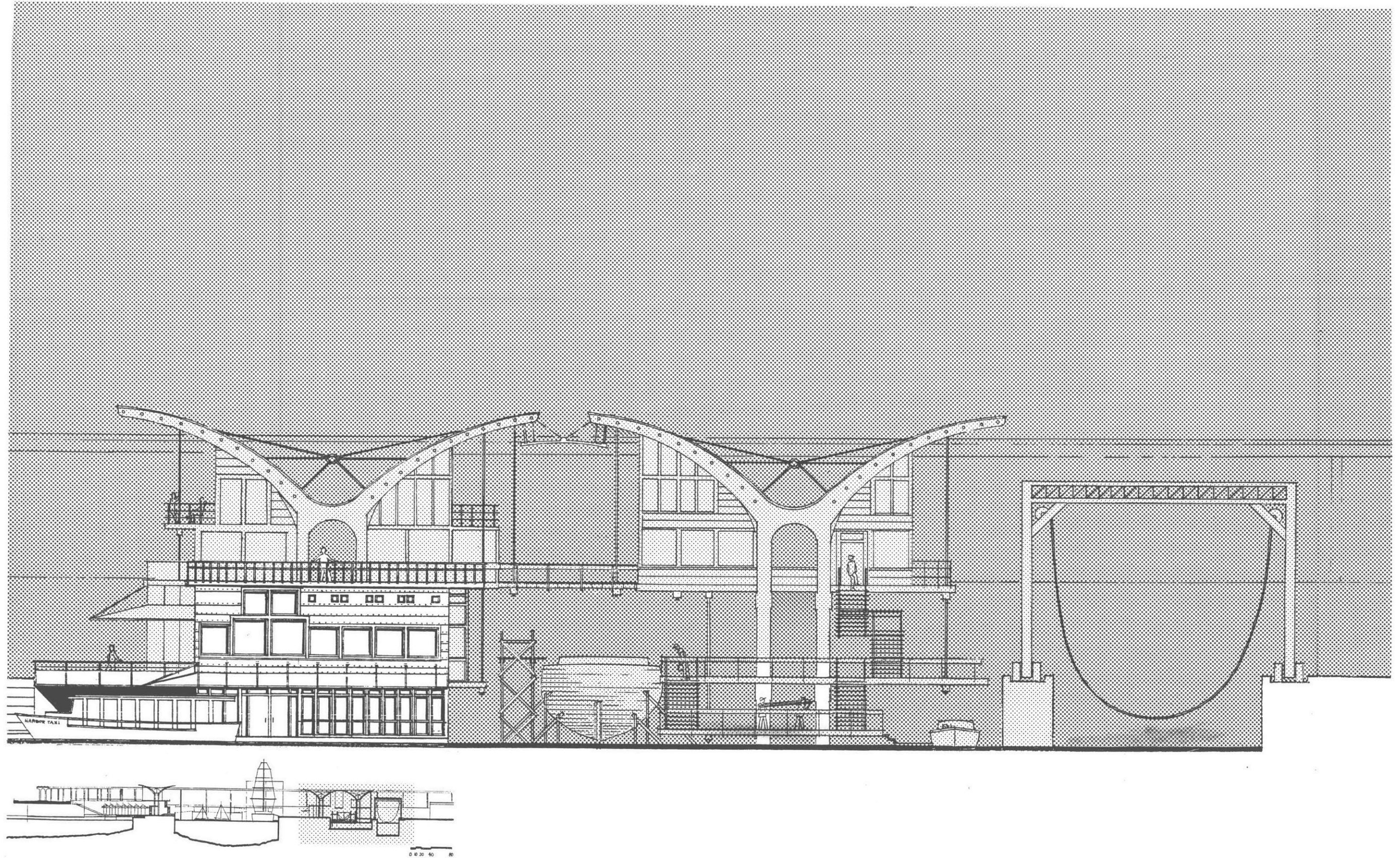
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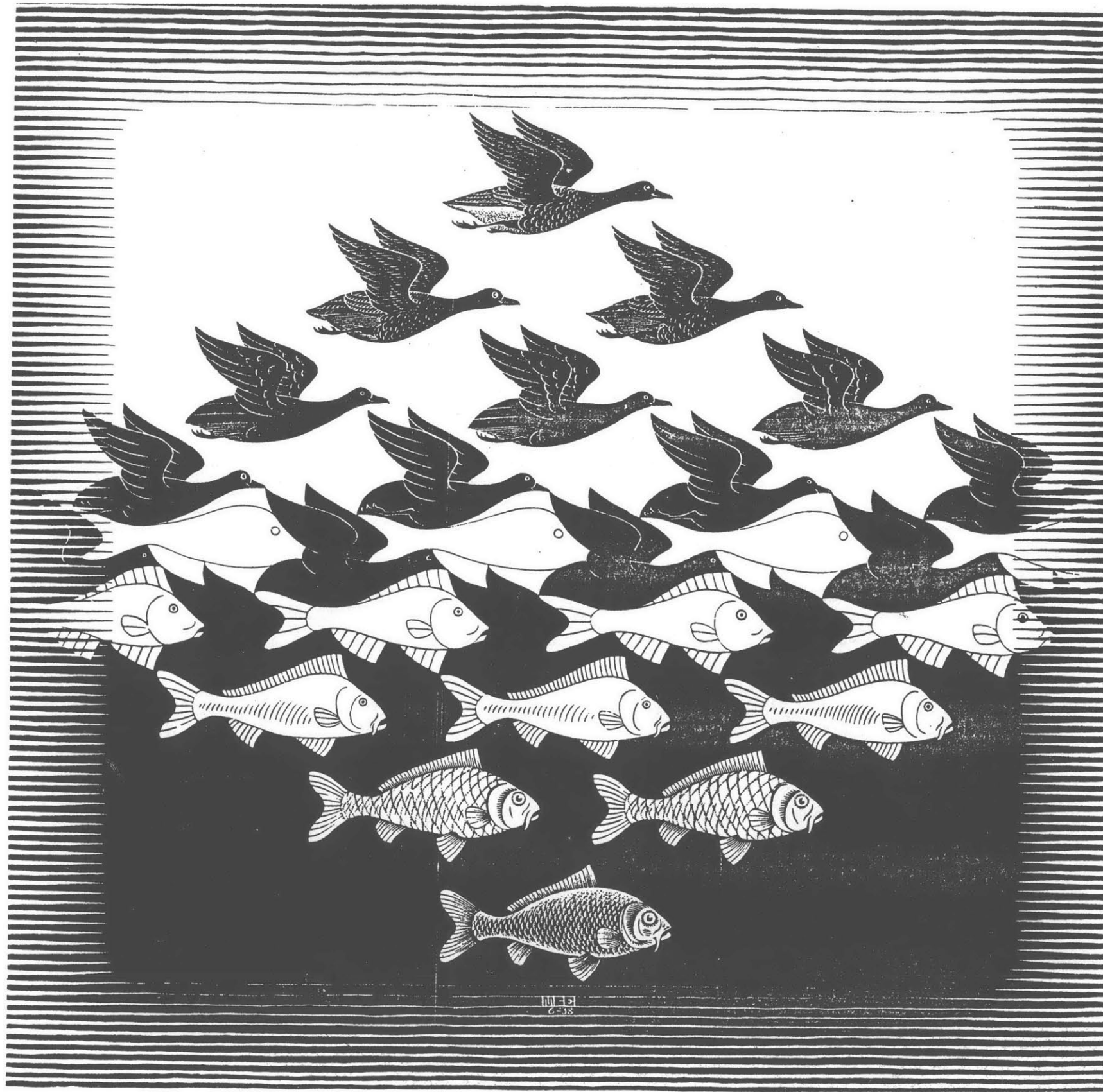


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186. Sky and Water I by M. C. Escher

VII. CONCLUSION

The analysis of both the context and the behavior of existing formal elements in Boston and Charlestown led to a better understanding of the forces which generated the built fabric. The intention of designing from the larger urban context down to the personal built structure was to explore potential for public access at all scales. The investigation of design elements related to pier and warehouse structures presented an opportunity to extend the potential of conventional waterfront design. The eventual transformation inverted the forms so that the spaces faced outward. Furthermore, the major building mass could be suspended above the ground floor, allowing this level to be predominantly open yet spatially defined by the structure's columns. These building forms acted as infrastructure to the site, generating not only public access but also public places.

Admittedly, there are many recent and unusual projects appearing along our urban waterfronts. Yet often the reason behind their novelty is a need for spectacle rather than a reciprocation of contextual forces. In cities where the nostalgic memory of the maritime era remains strong, the need to allude directly to historic forms often leads to the creation of what is called the "heritage industry", a post-modern reduction and representation of the past.

Whereas the factors that contributed to a maritime waterfront were indeed positive and successful, it is necessary to delineate the organizations that provoked this success and to reinterpret them in a contemporary vocabulary of architecture. The post-modern condition has been aptly described by Blake in his article "The New Rural Society"¹ as an "embarrassing exercise in Disneyland historicism...what the Germans call 'Junior's idea of the Renaissance'". More unfortunate are the attitudes of post-modernism which encourages the gradual removal of urban spaces from the realm of the general public. Although not a major factor in the design process, it has not been possible to maintain a perception of architecture that is completely external to economic and political agendas.

This design thesis is an attempt to reclaim a waterfront that has been physically and programmatically severed from public access by expressways and exclusive developments. The definition of public access is the generative force that establishes the direction and behavior of the designed forms. Although the site conditions are specific to a waterfront, the formal principles are applicable to all programs addressing the issue of public spaces in a city.

'The city ... is not a spatial framework external to its user, but is produced by them.' ... Not only does (this recognition) explicitly acknowledge the participation of diverse social groups in the production of the environment, it argues against an environment imposed from above by state institutions or private interests, one that is dictated by the necessities of control and profit but legitimized by concepts of efficiency or beauty.²

This design thesis advocates a similar attitude towards both its program and physical forms. Each is open to a variety of interpretations. Just as the program encourages multiple uses, the infrastructural forms may accommodate a range of spatial definitions. This flexibility is important in promoting the public qualities of urban space.

¹ Blake, *The New Rural society*.

² Deutsche, Rosalyn. *Uneven Development: Public Art in New York City. 'Out There'. Marginalization and Contemporary cultures*. 1990. The MIT Press, Cambridge, M.A.



*Then take me dissapearn' through the smoke rings of my mind,
Down the foggy ruins of time, far past the frozen leaves,
The haunted, frightened trees, out to the windy beach,
Far from the twisted reach of crazy sorrow.
Yes, to dance beneath the diamond sky with one hand waving free,
Silhouetted by the sea, circled by the circus sands,
With all memory and fate driven deep beneath the waves,
Let me forget about today until tomorrow.*

*Hey! Mr. Tambourine Man, play a song for me,
I'm not sleepy and there is no place I'm going to.
Hey! Mr. Tambourine Man, play a song for me,
In the jingle jangle morning I'll come followin' you.*

-Bob Dylan, Mr. Tambourine Man

187. Flight

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