THE DESIGN OF A COMMUNITY FOR A BOSTON HARBOR ISLAND

by

Andrew Teisher Weaver

Bachelor of Design
University of Florida
Gainesville, Florida
1982

SUBMITTED TO THE DEPARTMENT OF ARCHITECTURE
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE
DEGREE
MASTER OF ARCHITECTURE AT THE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Febuary 1986

Signature of the author

Andrew Teisher Weaver
Department of Architecture
January 17, 1985

Certified by

William Lyman Porter
Professor of Architecture
and Planning
Thesis Supervisor

Accepted by

Julie Moir Messervy
Departmental Committee for
Graduate Students
Chairperson

TABLE OF CONTENTS

The Design of a Community for a Boston Harbor Island

by

Andrew Teisher Weaver

Submitted to the Department of Architecture on January 17, 1986
in partial fulfillment of the requirements for the degree of
Master of Architecture

ABSTRACT

The Design of a Community on a Boston Harbor Island is an attempt to understand the particular local character of a natural place that is well defined by its edge condition and to provide an architectural response that is sensitive to the island's natural morphology, the larger context in which it exists, and is a celebration of human dwelling in that place.

The island must first be considered a place within its context; a reference point having its own particular characteristics. Orientation, views, and the island's formal configuration must be embodied in the architectural response of the place. The primary design implications of this understanding is to establish a public use territory; a series of paths, courtyards, and open space, that give the community an underlying structure or pattern of accessibility and collective use. The perception of these places is based on the dialogue between the natural and built landscapes that are each given formal clarity through the presence of the other. The architectural response should not try to transform the natural place but gain clarity by inhabiting it.

There are also important formal and spatial expectations of a place that are generated by the context in which it exists. The image and organization of a community should be a manifestation of use and the social relationship between it's citizens and the role that their community plays within the larger context.

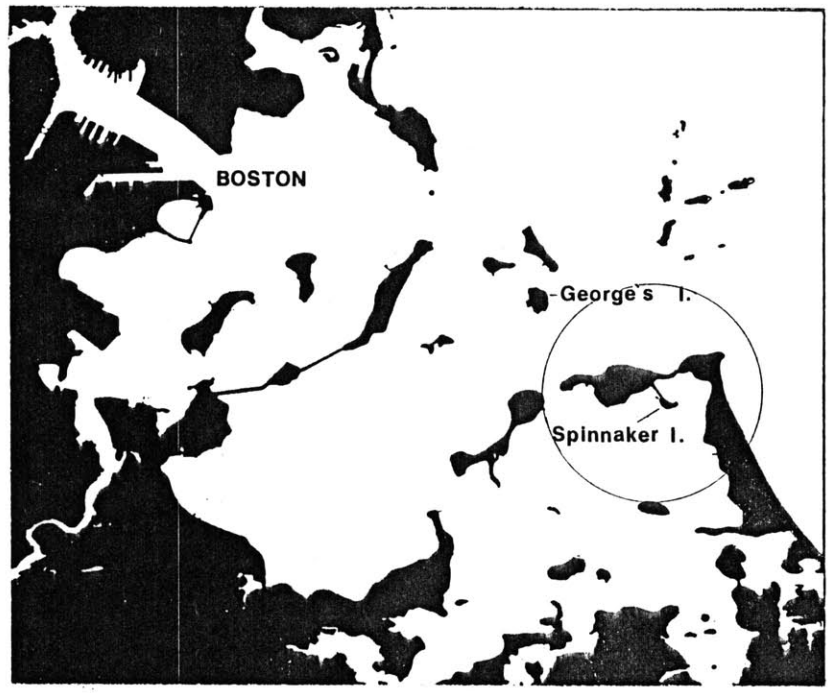
The way in which we choose to live in the world demands a lot from the architecture of a place. We expect it to do many things to make our lives comfortable and it must be sensitive to the contextual characteristics which create a particular "atmosphere" of a place. In other words the architecture must "fit" our expectations that are shaped by our own preconceptions and the local context.

Thesis Supervisor: William Lyman Porter

Title: Professor of Architecture and Planning

2 INTRODUCTION

The Boston Harbor Islands have long been recognized as the most under-utilized resourse of Boston's economic and recreational framework. They have historically been the barer of private interests, institutional obuse, land filling, pollution, and appropriation by the military in consideration of their strategic location. These uses have always precluded the use of the islands for public enjoyment; as a physical and psychological release from the pressures of urban life. It is important however, for Boston's future as a central urban metropolis for the Northeast to recognize the historic importance that water and the harbor have played in the development of the area. The continued linkage between the historical associations of the place (which brings thousands of visitors to Boston every year) and its present physical reality should be continually reinforcing that image and myth. The harbor islands could potentially have a tremendous impact in the further realization of the image of Boston by providing activities that are both clearly particular to their location



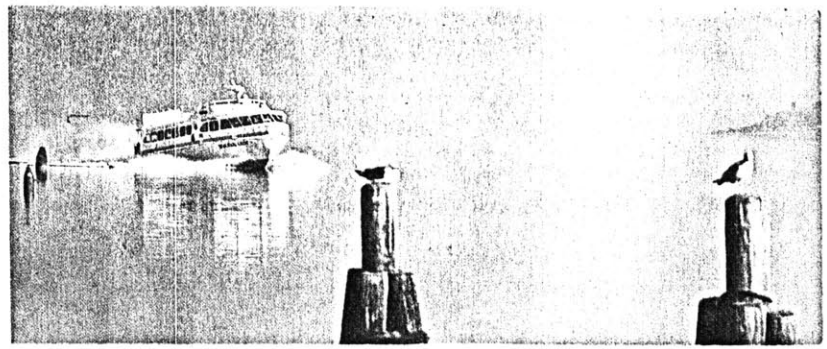


Figure 2.1 The Boston Harbor
Figure 2.2 Commuter Shuttle Boat

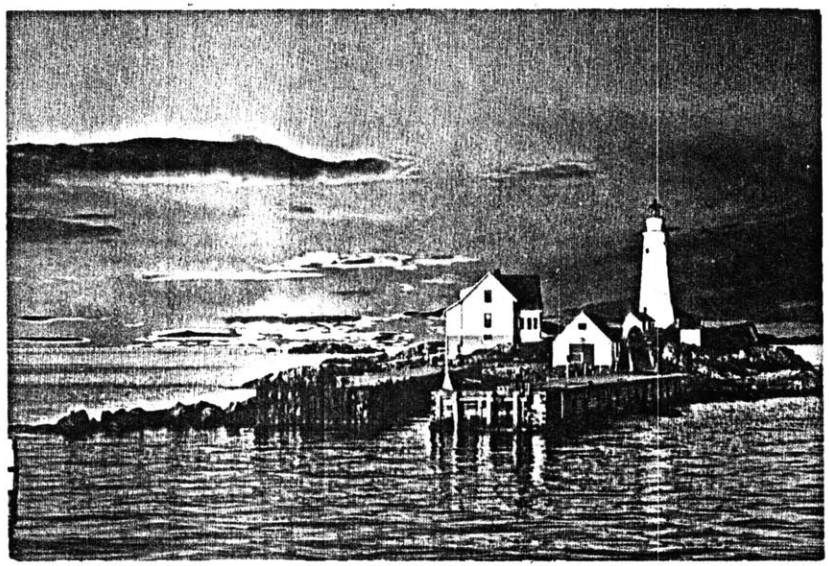


Figure 2.3 Little Brewster Island

and historic background.

Accessibility is an important issue to be dealt with regarding any development scheme however. A primary ferry connection has already been established to the islands of particular historic importance–i.e. George's Island which has extensive fortifications–and it has been suggested in several master plans for the development of the island system that a smaller "Water Taxi" loop system be employed to supplement it. These loops could operate from either one central location on Boston's waterfront or from particularily important stops along the ferry's route such as George's Island.

Recognizing the unique character of each island in terms of its natural attributes, historic significance, and particular location will to a certain extent determine its specific programmatic requirements for development. Accessibility to the islands from either a primary or secondary transportation system will also play an important role in establishing each island's development plan and the notion

of journey to a place will shape the visitor's expectations of what the place is about even before their actual arrival.

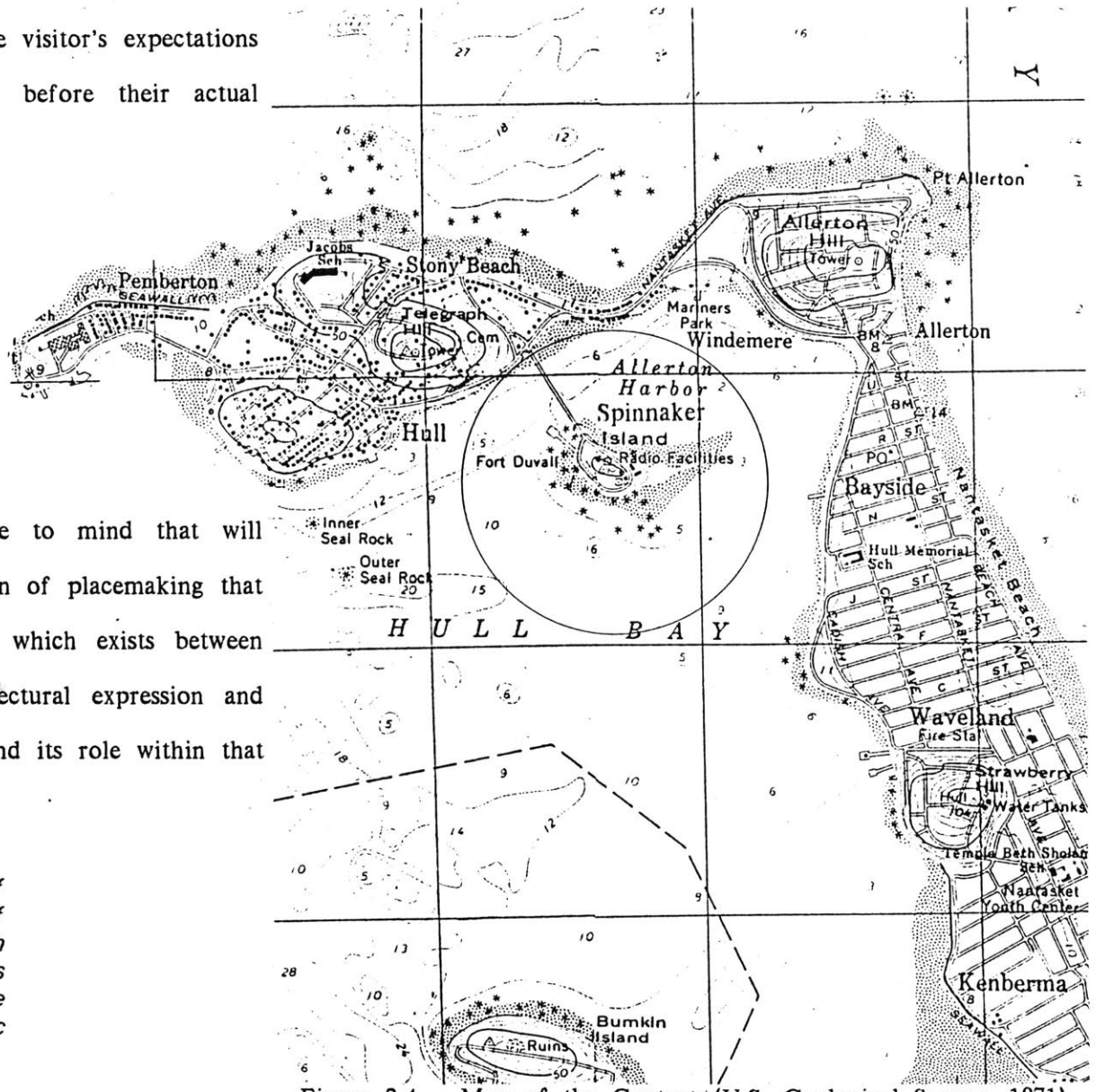


Figure 2.4 Map of the Context (U.S. Geological Survey, 1971)

More specific design notions come to mind that will become the basis for the exploration of placemaking that is derived from both the dialogue which exists between the specific context and its architectural expression and our own "vision" of a new place and its role within that particular context.

1. The architectural expression of arrival and departure in terms of form and spatial definition with a clear series of sequential goals (or places) that range from the general (public) to specific (entrance/private).

2. The clear articulation of the

public framework as defined by the composition of the building masses and open space.

3. The use of the natural landscape and appropriate materials to reinforce that spatial hierarchy and the perception of the place in its larger context.

4. The making of a total experience or recognizable community that is whole and complete and has become an integral expression of itself, its citizenry, and the context.

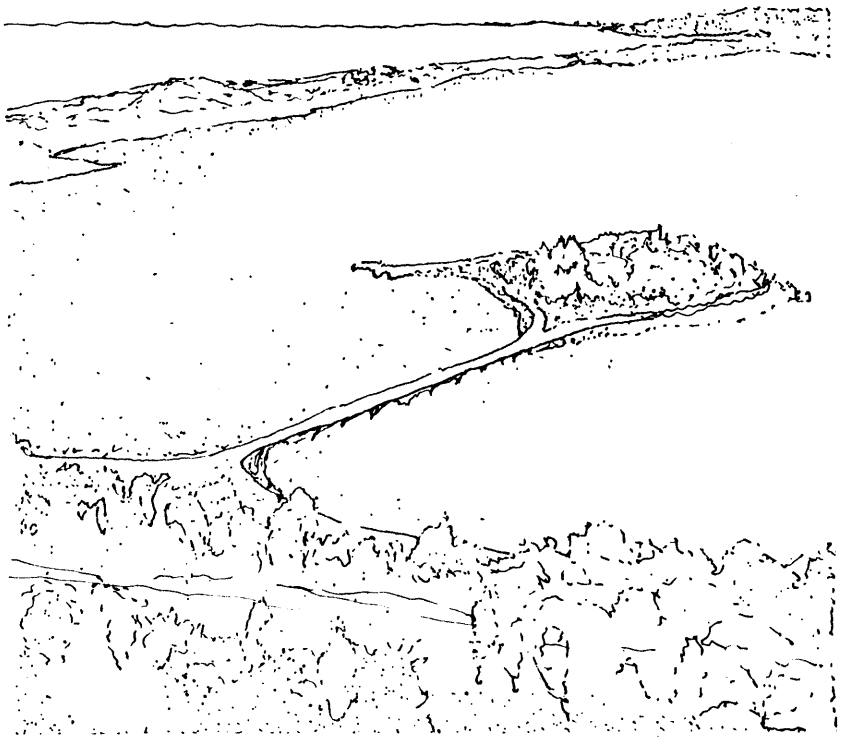


Figure 2.5 Sketch of Spinnaker Island from the Tellegraph Hill, Hull–Nantasket in Background

Spinnaker Island (previously known as Hog Island) was chosen for the exploration of these design notions because of it's close proximity to the adjoining communities of Hull and Nantasket Beach, the fact that it has a bridge connection into the mainland, and for it's interesting topography and shoreline.

Given the size (9.8 acres) and location of the island, our "vision" of what might occur there is already being shaped; that image is a preconception but more importantly is an educated expectation. An expectation that is based on the organization, relationship of the built environment to particular site characteristics, the formal articulation of

its built form, density, and use of the surrounding context that we must travel through to reach Spinnaker Island.

The varied topography and scale of the island suggests an architectural solution that will be quite diverse in its formal organization because of the wide range of activities that could occur in the many natural "places" on the island. Activities that will range from small intimate gatherings to community size spatial definitions.

Overriding importance has been placed on the conservation, recreation, and educational potentials of the islands as illustrated in both the 1972 and 1984 master plans for the development of the entire island system that were prepared by the MAPC (Metropolitan Area Planning Council) and the Massachusettes Department of Environmental Management; and those development issues will be adhered to. Spinnaker Island, however, is in a unique position because it is no longer publicly owned. Once used by the Navy to house a radio installation it has fallen into the hands of private interests. Ten years ago the island was given to the city of Hull which later sold it to a developer (for $200,000) who proposed what the city considered to be the best development scheme for the island. For the purpose of this thesis the island will be considered to be developed by private sector investment, but overriding design decisions will be made on behalf of the collective (public) form.

Public facilities such as a ferry dock for commuters, marina, restaurant, fish market/pier and a scattering of smaller public functions will begin to establish the public "object" framework. Complementing the above will be public "use" elements such as beaches for swimming and sunbathing, fishing areas, wooded walking areas, viewing decks, and courtyards for a variety of neighborhood activities.

Programmatically then, Spinnaker Island will primarily be developed for residential uses that are to be complemented with the appropriate recreational facilities. It is hoped that housing types that will range from single detached dwellings, duplexes and townhouses, to apartment

towers,which will all come together to produce a rich and diverse built landscape– a landscape that reinforces the natural characterisitcs of the site and celebrates the act of human dwelling.

3 THE NOTION OF PLACE

What does it mean to make a place–a community–and what notions about placemaking are set into motion?

A place is meaningful to us only through a process of identification. Identification begins when the place in which we are inhabiting satifies not only the physical requirements of the place for standing, sitting, moving through, or gathering, but also fulfills our expectations of what that place should be; what it should "look" like, how we would "expect" to inhabit it, and the way in which it relates to the inherent natural character of its place. Identification occurs over time and it is an important component of a meaningful place. It implies a harmonious union between the particular users and the built environment that transcends time, that is permanent and secure. If the character of the natural place and its architectural expression do not reinforce each other identification will not occur. This is not to say that the

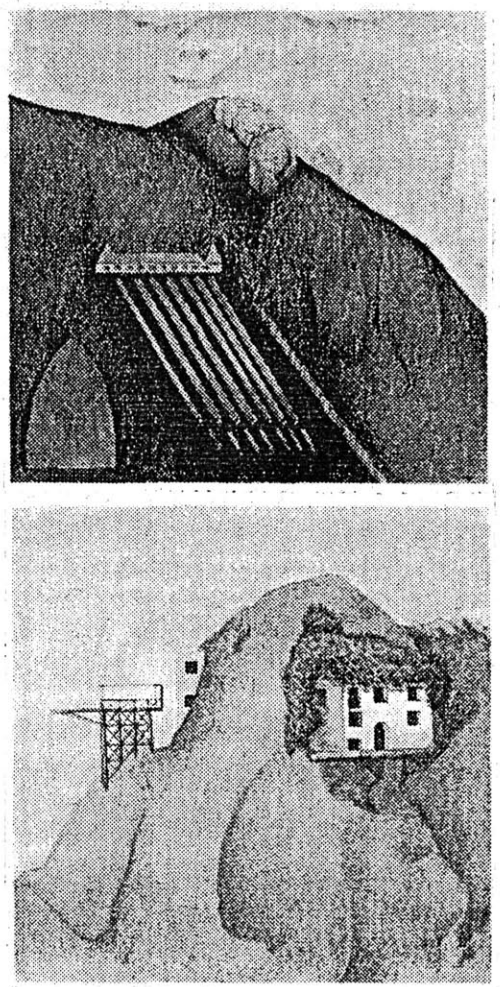


Figure 3.1 Scolari, 1975, Alpine Architecture

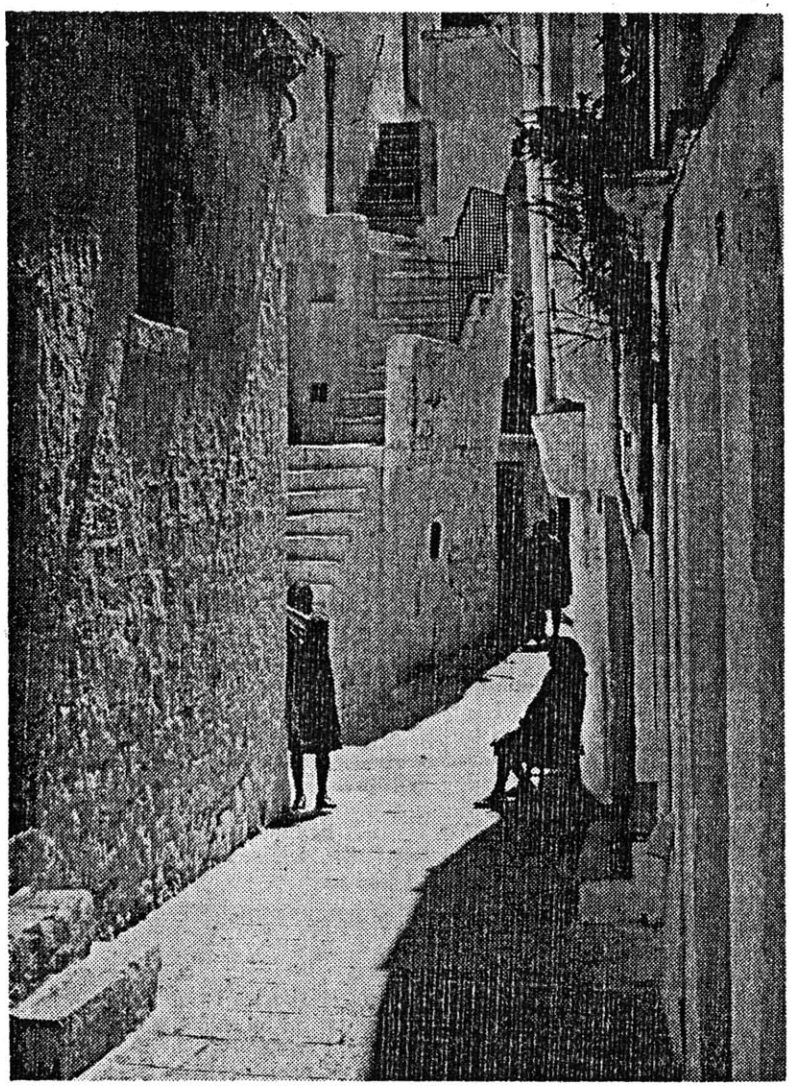


Figure 3.2 Italian Hill Town (Carver, 1983, p. 157)

architectural expression of a place is subservient to the landscape in which it exists but rather that both must communicate a formal clarity which is characteristic of itself (fig. 3.1).

To dwell in the qualitive sense is basic condition of humanity. When we identify with a place, we dedicate ourselves to a way of being in the world. Therefore dwelling demands something from us, as well as from our places. We have to have an open mind and the places have to offer rich possibilities for identification. (Schultz, 1985, p.32)

Formally this means that inherent in the making of a sense of community the designer must establish a recognizable underlying spatial order that "fits" the expectations and image that it's citizenry have formulated about a place as well as one that is sensitive to and embodies the character of the site itself (fig. 3.2). It must be flexible enough to allow for adaptation and change overtime and to demand that it's citizenry exercise their right to transform their community to fulfill that image. It is important to remember that while our physical requirements

for dwelling may change very little over time our expectations of a place and it's image will. The issue of continuity arises, however, with the introduction of participation in the process of place making. Individual expressions will tend to unstabilize this concept of identification through formal discontinuity unless the underlying structure is clear enough to give order to those variations. If the structure is not permanent enough to hold these variations together; or if it can be disassociated from the general character of the site, the process of identification that needs to solidify the relationship of users to both the built and natural landscapes will never occur. The community as a whole will be nothing more than a collection of exterior and interior "spaces" unable to posess a life of their own.

A particularly interesting problem is how a settlement may preserve its identity during the course of time. Although social conditions and artistic styles have changed, many important centers have remained the "same" throughout history. Evidently this is due to the fact that the works of the various epochs may be understood

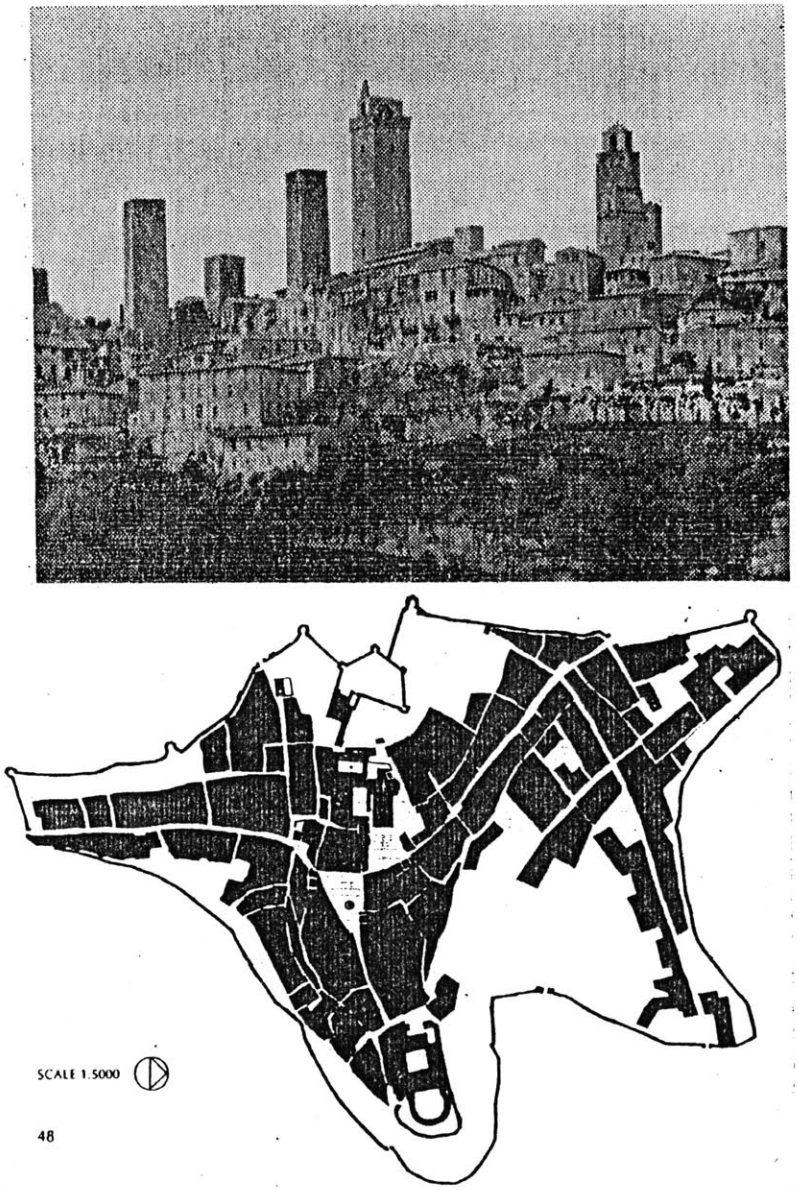


Figure 3.3 San Gimignano, Italy (Carver, 1983, p. 48)

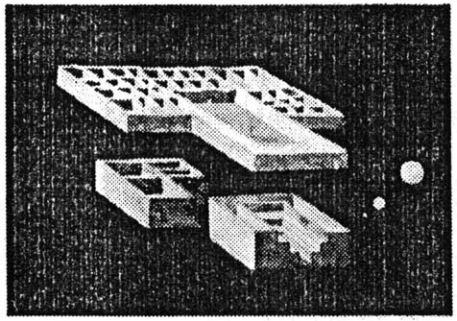


Figure 3.4 Scatola Per Meteora (1973)
Cantiere Alpino (1976) (Scolari, 1980, pp. 8,9)

Figure 3.5 Postignano, Italy (Carver, 1983, p. 82).

as interpretations of a stable genius loci. The problem of temporal continuity is well illustrated by the "eternal city" Rome, where the configuation of the land and the local mode of building has conditioned the character of the habitat from Italic times till the present day. (Rossi, 1984,p. 48)

This seems to imply that if a place "fits" its site to the point that the two (site and built form) are inseparable then that alone will inform us about the way in which its citizens live in their community (fig. 3.3). This is certainly true when we deal with our expectations of an Italian hill town, Greek island, or a Caribbean paradise. Images immediately come into our frame of reference which give us clues as to what we should expect to see; formally and experience spatially. These are well known archetypes that have become a part of our "collective memory" (Rossi, 1984) either though countless pictorial studies or by actually visiting each place. Probably the most important component to shape our expectations of a place grows from the particular context in which it exists. When the architecture of a place becomes so completely intertwined with the expression of the site's natural

attributes,however, the "life" or integrity of each is compromised and dependent upon the other's presence. Italian hill towns do this very well and although not inherently wrong it is rather a much more archaic sensibility with regard to place making. Understanding the context may insure us, as designers, that places we build seem to be reasonably located and that the scale seems comfortable but its architectural expression must also have an integrity of form and spatial organization. If it does not and it is so abstractly related to the context to be an independent expression then as architects we are simply going through some perverse form making exercise (fig 3.4).

Collective memories are based more on the permanence and clarity of a community's spatial organization (fig.3.5) as well as its ability to communicate its temporal identity through the pieces its citizenry either adds to or subtracts from that basic order.

Once that spatial order becomes a part of the collective memory, that is,it is understood and accepted by all of

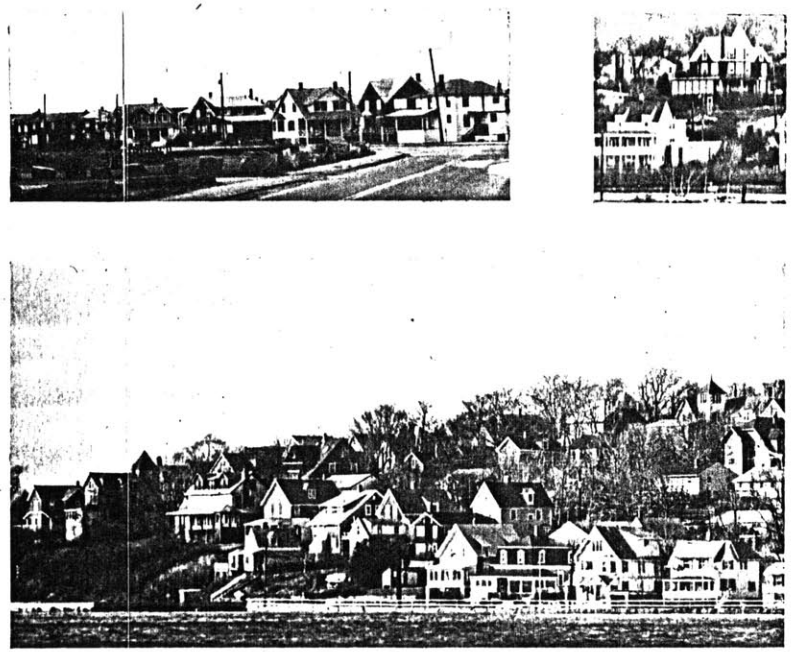


Figure 3.6 Images of Hull

its citizenry as an important image making component of their community then it can be transformed without destroying the sense of continuity.

A simple analogy here comes from the ever changing shoreline of Spinnaker Island as sand is continuously deposited and washed away; while the hill top and general configuration of the island will remain intact the edges of the island are in a constant state of transformation.

As Halbwachs writes in La Memoire Collective, "When a group is introduced into a part of space, it transforms it to its image, but at the same time, it yields and adapts itself to certain material things which resist it. It encloses itself in the framework that it has constructed. The image of the exterior environment and the stable relationships that it maintains with it pass into the realm of the idea that it has of itself. (Rossi, 1984, p. 130)

The idea becomes the physical image of the community–its built form. It is an embodiment of all that the people living there value, the way in which they relate to one another, and is a celebration of their lives in that place (fig.3.6). It implies a qualitative spatiality; and once it is set in motion it exhibits a life of its own that not only influences the image of the built environment but the way in which people live and function in their community. On a basic formal level, then, there are certain aspects of a place that are physically understood by it's citizens for particular uses. Enclosure that emphasizes a unique characteristic of the site for privacy or to frame significant views to either, say the ocean, or to other reference landmarks within the context. The ultimate outcome of enclosure is the clear definition, spatially, of the public and private extents of a communities organization. Placemaking, then, is more than the simple fulfillment of physical needs; it is a process which links the citizens of the community to each other through the architectural expression of the natural landscape.

4 THE CONTEXT

Our expectations of a place are to a larger degree shaped by our own frame of reference and the general image of the surrounding context. New England as a thought already begins to formulate an image of what we would expect to find there. A New England island community may recall images such as those found in Nantucket or Martha'a Vineyard or from various New England seaside communities such as Marblehead and Plymouth (figs. 4.1, 4.2).

The ultimate "tuning" however, of those expectations comes as we experience the actual context in which our community will exist. This dialogue between the context and its citizenry takes place in many different ways over time. Certainly the image (and memory) of a place is very different if experienced in an automobile at 45 m.p.h. than by walking through it,or if we visit it in the dead of winter or height of summer, and at night or during the day. Our mental image is also determined by

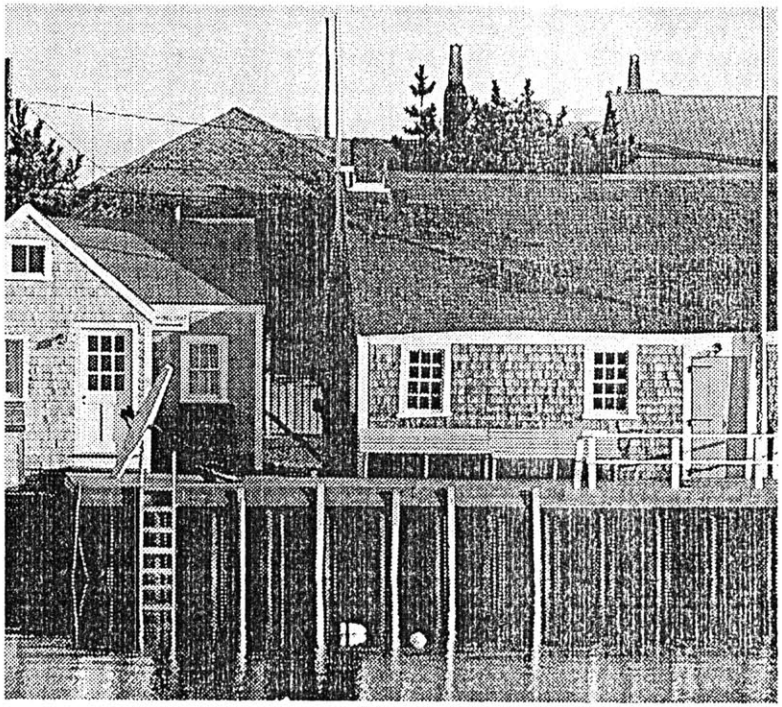


Figure 4.1 Nantucket Waterfront Residences

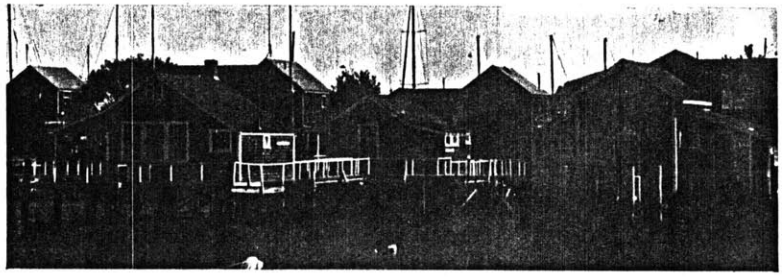


Figure 4.2 Nantucket Waterfront Residences

the purpose of our visit - the association of place is based upon our participation within it. If one resident used a place for a vacation retreat their perception of what is memorable about it is very different than someone that commutes to it everyday.

Regardless of these discrepancies there are distinctive formal and spatial attributes that make it an identifiable place to its citizens. In other words it must possess a clarity (and richness) of both its natural and built landscapes to have a life of its own that transcends the temporal participation of its residents.

> *All landscapes are characterized by an atmosphere which maintains its identity through climatic and seasonal changes. This atmosphere is of essential importance because of its unifying role in the environment (Norberg-Schultz, 1985, p. 19).*

The first thing to shape the image of a place and our perception of it is the underlying *Morphology,* the formal and spatial characteristics inherent in the natural landscape. This provides us with the first clues that we are given to understand the organization of the community which it contains (figs. 4.3, 4.4). If and only if the built environment is in harmony with its context, it is a good

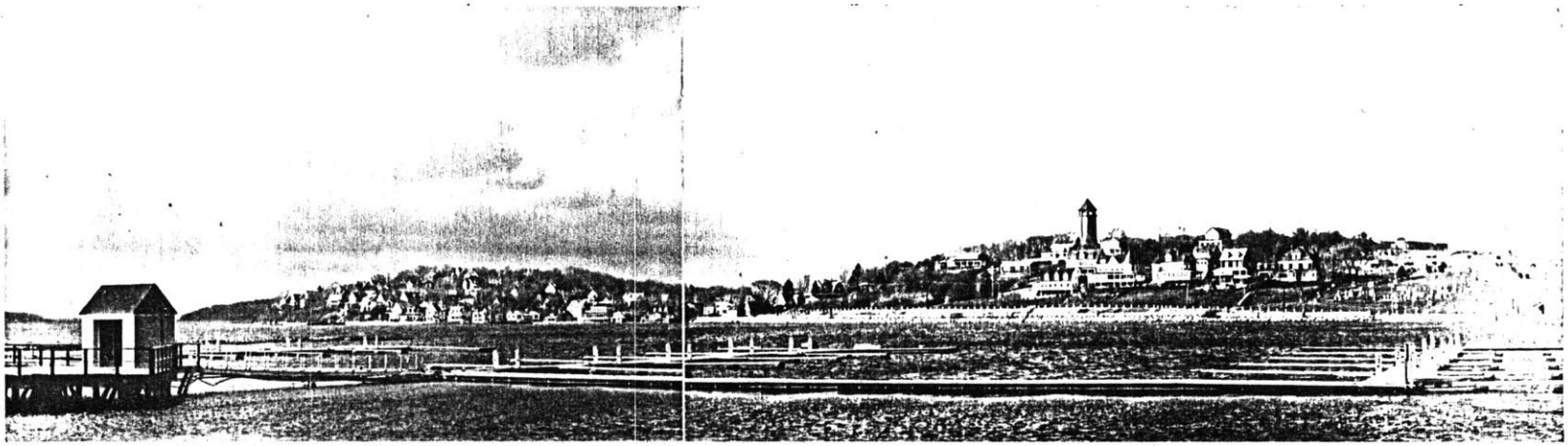


Figure 4.3 View back to Hull from Spinnaker Island.

"fit". This is not to say, however, that the natural characteristics of the context dominate the organization of the built environment but simply that there are certainly predominate views and geological events that are characteristic of a place. These events have a formal dependency on the adjoining context, on each other, and with the sky and the ocean to give not only them clarity but the entire landscape a sense of interrelated harmony.

A shoreline that is straight and flat could be considered the simplest and most unique event, formally, because it is the only natural landscape that brings the water, land,

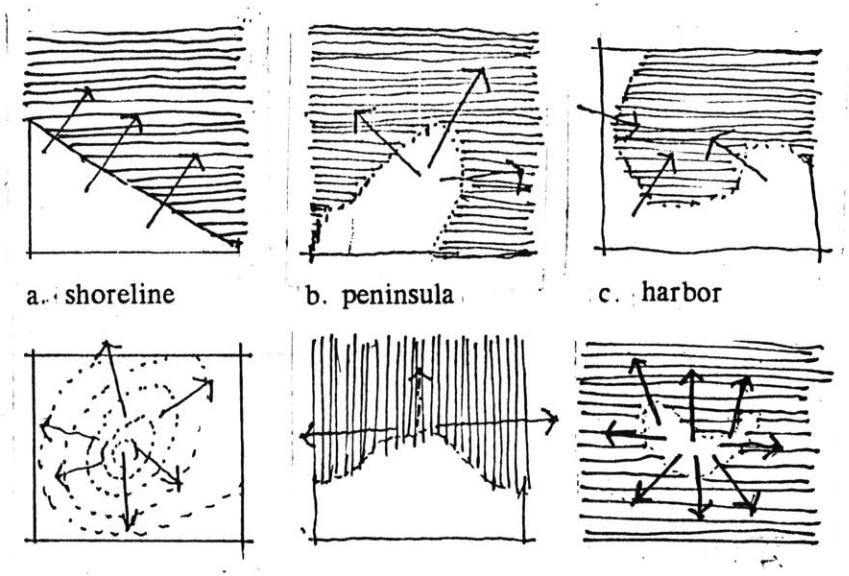


Figure 4.5 Diagrams

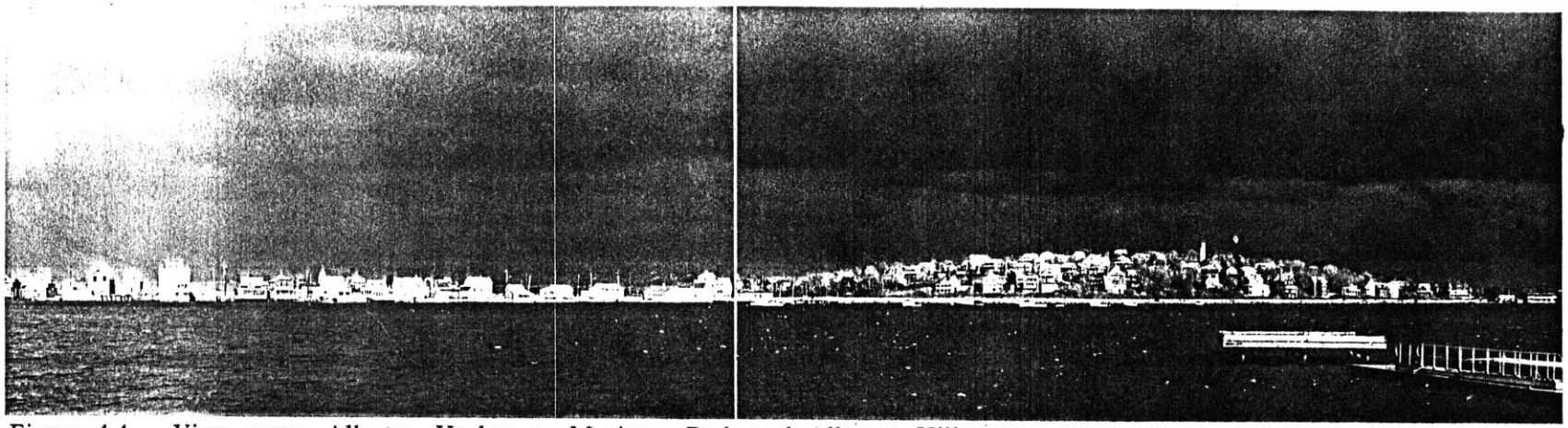
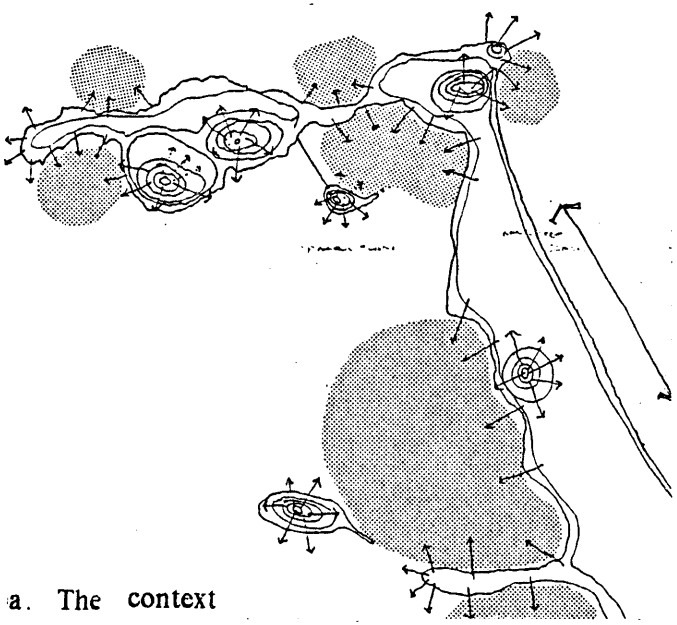
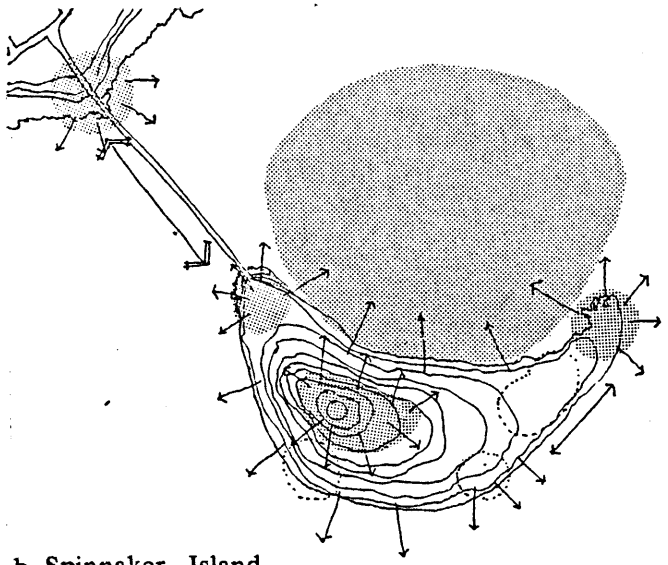


Figure 4.4 View across Allerton Harbor to Mariners Park and Allerton Hill



a. The context



b. Spinnaker Island

Figure 4.6 Recognition of Natural Places

and sky together as a line. Spatially then, Nantasket Beach is a two dimensional linear organization (fig. 4.5a) that suggests there is a one to one relationship between its natural components. As the land pushes out into the ocean to form a peninsula or "point" or receeds and wraps around on itself to form a protected harbor (figs. 4.5b, 4.5c) there is an important formal interdependency between the land and the water that is inseperable. This event produces a reciprocal relationship between land and water that can only survive in its total expression. Again, as with the above shoreline condition, this must be considered a predominately two dimensional composition, however, because there is little or no interdependency between the land and sky to give the place spatial clarity. Suppose for a moment that we gave that peninsula a slight rise or a flat landscape a dominate hill (figs. 4.5e, 4.5f). Spatially that hill would have a formal relationship to the sky and the total landscape that could not be divorced from our perception of it as a hill. Its silhouette has become an important reference form that can be related to from every point in the surrounding

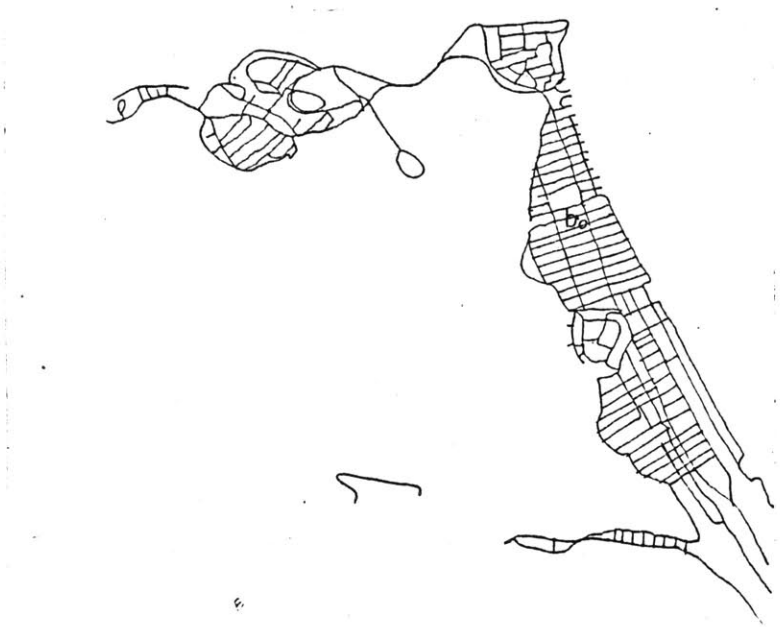
context (it is the most public natural form for this reason) and it has provided us with panoramic views of the region and the opportunity to identify with the entire community. Spinnaker Island consequently, is a landscape that plays out the dynamic exchange of the above natural events in a single place; (fig. 4.5f) which in itself, as an island, is an event within the larger landscape. The orchestration of these various natural events or places (figs. 4.6a, 4.6b) give the total landscape its particular unique character. These natural forms also begin to suggest a particular architectural response that reinforces the essence of its various natural places in their built form.

The built environment and the organization of the open space should exemplify and intensify those natural characteristics, but should also have a formal clarity of their own. Certain familiar patterns of accessibilty (streets, paths, and unit entrances), open space definitions, and building organizations emerge that are characteristic of the context. Generally speaking these patterns are based on the spatial definition of the public zones either in the form of a central street or grid, an open park system, or through set-back and height restrictions. The available infrastructure (water, gas, sewer, electric) that is provided to the community will also begin to establish a recognizable pattern of formal development.

Both the morphology or natural characteristics of a site and of its built counterpart constitute what we can consider to be the context.

"That every design problem begins with an effort to achieve fitness between two entities: the form in question and its context. The form is the solution to the problem; the context defines the problem. In other words when we speak of design, the real object of discussion is not the form alone, but the ensemble comprising the form and its context." (Alexander, 1964, pp. 15,16)

There seems to also be a reciprocal relationship between the natural and man-made characteristics of any given context, however. That is to say, when a landscape has few discernible natural reference points of its own, then,



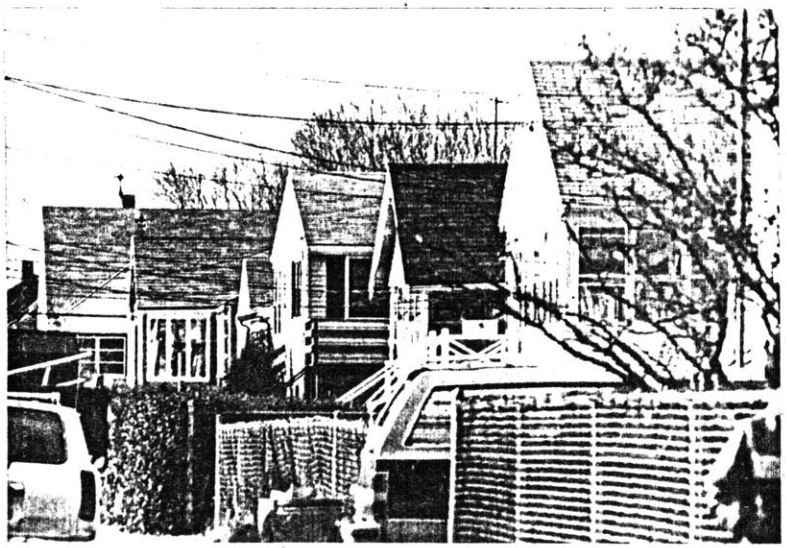


Figure 4.7a Street Pattern
Figure 4.7b View down Nantasket Beach street

the built environment becomes much more pervasive and rigorous in its formal articulation. When natural events do occur they short circuit or transform that regularity. The evidence of this can be seen (fig. 4.7a) where only the street pattern is drawn suggesting to us where those natural palces do occur (hills, waters edge, etc.) and in what way the built environment react to it. This pattern also indicates the general organization or placement of dwellings within the community and their spatial relationship to each other and to public facilities/places (fig. 4.7b). It is interesting to note that there is an important correlation between natural form "places" and areas designated for public uses (schools, churches, piers, cemeteries, marinas, etc.) (figs. 4.8a, 4.8b, 4.8c). The islands contained in the Boston Harbor are no exception to this notion of public service; although developed as such for different reasons they are again considered to be important places for public recreation. Our collective expectatons of the islands as public use places has remained intact regardless of their ever changing

programmatic requirements.

The prevailing formal image of Nantasket Beach and Hull is based upon the notion that the built portions of the context are of an "object" like quality. These objects are composed in such a way as to facilitate maximum accessibility for convenience sake, sun exposure, and views. They also exemplify the need of its users to express their own identity within the community and to change that image by making additions or changes over time. Gaps have been left to allow this to happen (fig. 4.9). The objects themselves possess an almost architectonic clarity of form that is easily understood as "a house" that becomes further articulated with additions or subtractions to the basic enclosure to satisy particular user needs. As these house forms are aggregated, primarily in accordance with the supplied public infrastructure of streets and utilities, they produce a particular character for that place that is based on relatively minor architectural differences (fig. 4.10). The formal vocabulary of the shapes and sizes of things are the same and their constructed

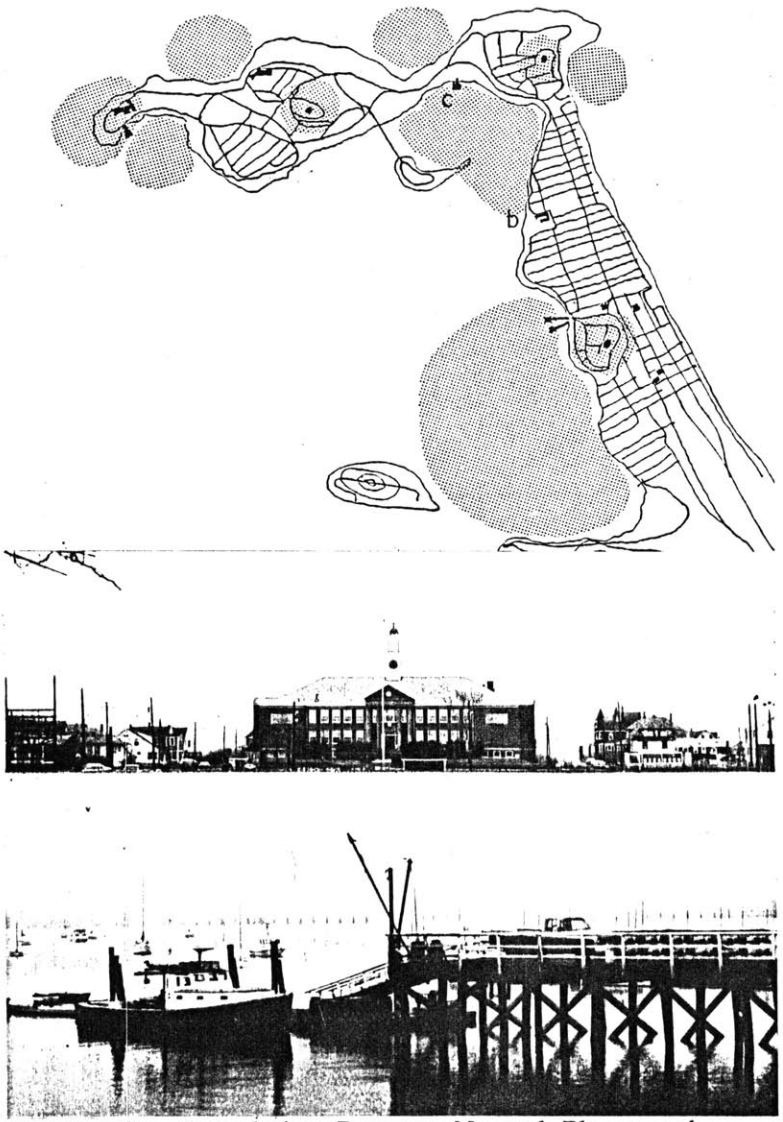
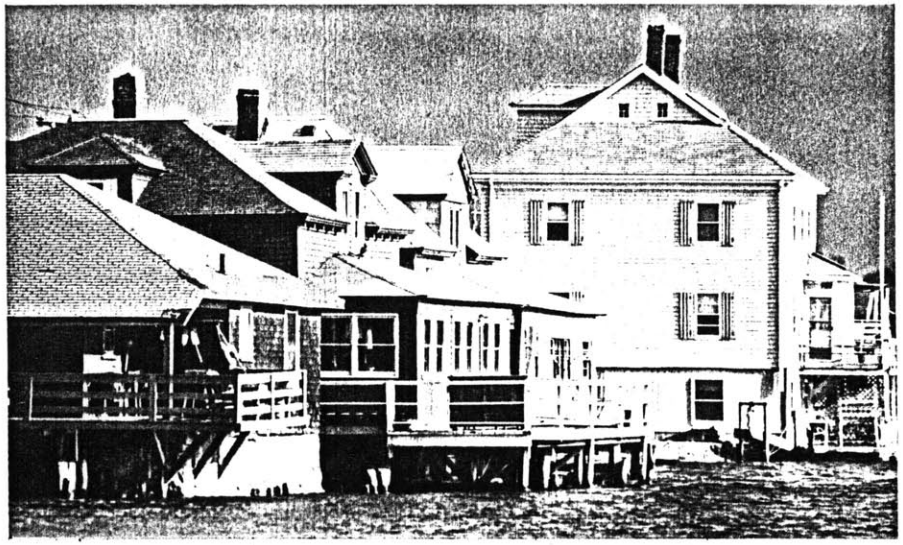


Figure 4.8a Correlation Between Natural Places and Public Uses
Figure 4.8b Nantasket High School
Figure 4.8c Mariners Park/Spinnaker Island Bridge

Figure 4.9 Hull Beach Houses
Figure 4.10 Repetition/Hull

execution (methods and materials) similar. There is a difference structurally, however, between dwellings that are land and water based. Land based units have foundation walls that firmly establish the notion of dwelling in that particular place. Shoreline units express, conversely, the more temporal qualities of its natural place as a changing environment by being constructed primarily of pole structures (figs. 4.11, 4.12).

The above seems to suggest, then, that the location, orientation, and particular views do more to make the built form a place than the actual architecture because of the dwellings object-like qualities. The "house" has a relationship in terms of placement to its context of land, sea, and sky (and to other units) but it is not an overtly spatial dialogue. This condition may be attributed to the somewhat low density of the aggregations (which has only recently been increasing) but more likely is the product of a weakly articulated public use territory. The architecture of the built environment needs to spatially reinforce its existance within a particular natural place and subsequently add to the topographical clarity of the entire community.



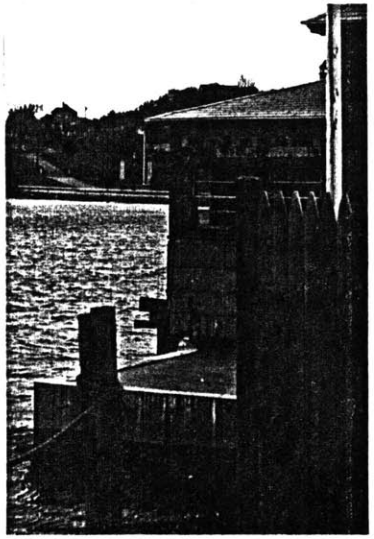


Figure 4.11 Hillside, the Notion of Permanence
Figure 4.12a Beach House Pole Construction
Figure 4.12b Detail
Figure 4.12c Detail

5 SITE PLANNING PRINCIPLES

Architecture cannot exist as an independent expression. The interplay of various natural morphological events within the landscape, producing a particular character, is augmented by architectural expressions that correspond to or react with those natural places and communicate a more wholistically built landscape. Architectural moves that have no regard for the context in which they exist can hardly be considered viable places for human habitation. The notion of collective place making is based on first, the recognition that individual places do exist within a built landscape and their orchestration to project an "image" begins to facilitate a sense of community between the users and the place; and secondly, the community has a certain role within its context through the formal associations and spatial connections it makes between itself, on an island, and mainland.

An island is by definition a place; it has very clear boundaries and its own unique morphology that is unlike

Figure 5.1 Hilltop Tower, Hull

any other on the mainland. It is seperate and isolated formally (although there is a bridge connection) creating an expression for itself. With the presence of the hill, Spinnaker Island also becomes an important reference point. We monitor our progress while moving through the adjoining landscapes of Hull and Nantasket Beach by relating to the island (fig. 5.2). Without a hill the island is reduced to a two dimensional territory that has little

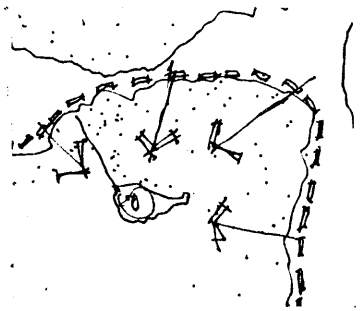


Figure 5.2 Island as Reference

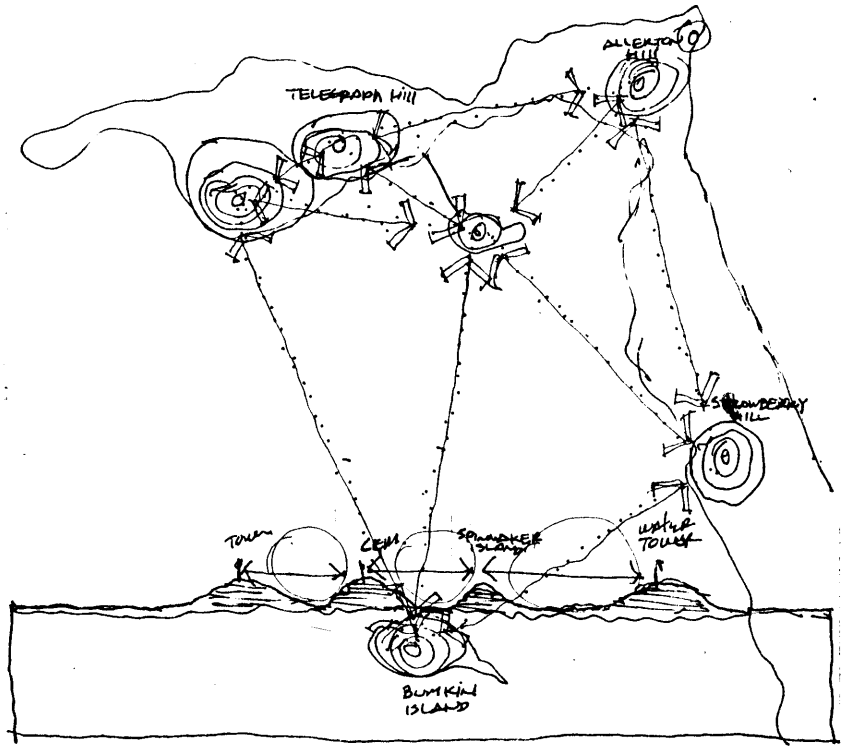


Figure 5.3 Hills in the Landscape

spatial qualities either to itself or the context. The hill also suggests a dialogue between itself and the other hilltops in the adjoining landscape. Together they communicate a general layout of the context. Reinforcing this notion, each hilltop has a particular architectural expression that supports the vertical nature of it's place, however, for different programmatic reasons (fig. 5.1, 5.3).

The natural forms of Spinnaker Island also tend to either reinforce these spatial relationships or provide places or territories that exist independently based on their own particular formal clarity and orientation (fig. 5.4). Spatial associations back to the mainland - Allerton Harbor being the most important of these - formally demands two things from the island. It requires Spinnaker Island to establish the boundaries of the harbor as and important natural place. This creates interdependencies between the architectural expression of the context and its corresponding response on Spinnaker Island. Issues of density, orientation, use, and the dimensional articulation of the built/unbuilt

landscape become important contextual issues.

As previously stated, the hill also reinforces strong visual connections by providing unobstructed views to the context, to downtown Boston (northeast), to the south,and to the southwest across a wide expanse of water; but its architectural implications go beyond the recognition of views. On Spinnaker Island as in the surrounding context, hills are the most stable natural place (the shore lines being the least stable) and as such, they suggest an architectural solution that reinforces those characteristics. By emphasizing certain views and reserving the top of the hill for public use, the hill becomes a particularly significant point of reference both within its own community and the entire context. The architecture should be as formally and spatially clear as the hill itself (fig. 5.5).

The shoreline is an everchanging landscape and the physical realities of its condition should also be embodied in the architectural expression of the built landscape that occupies it. Predominantly it could be considered an

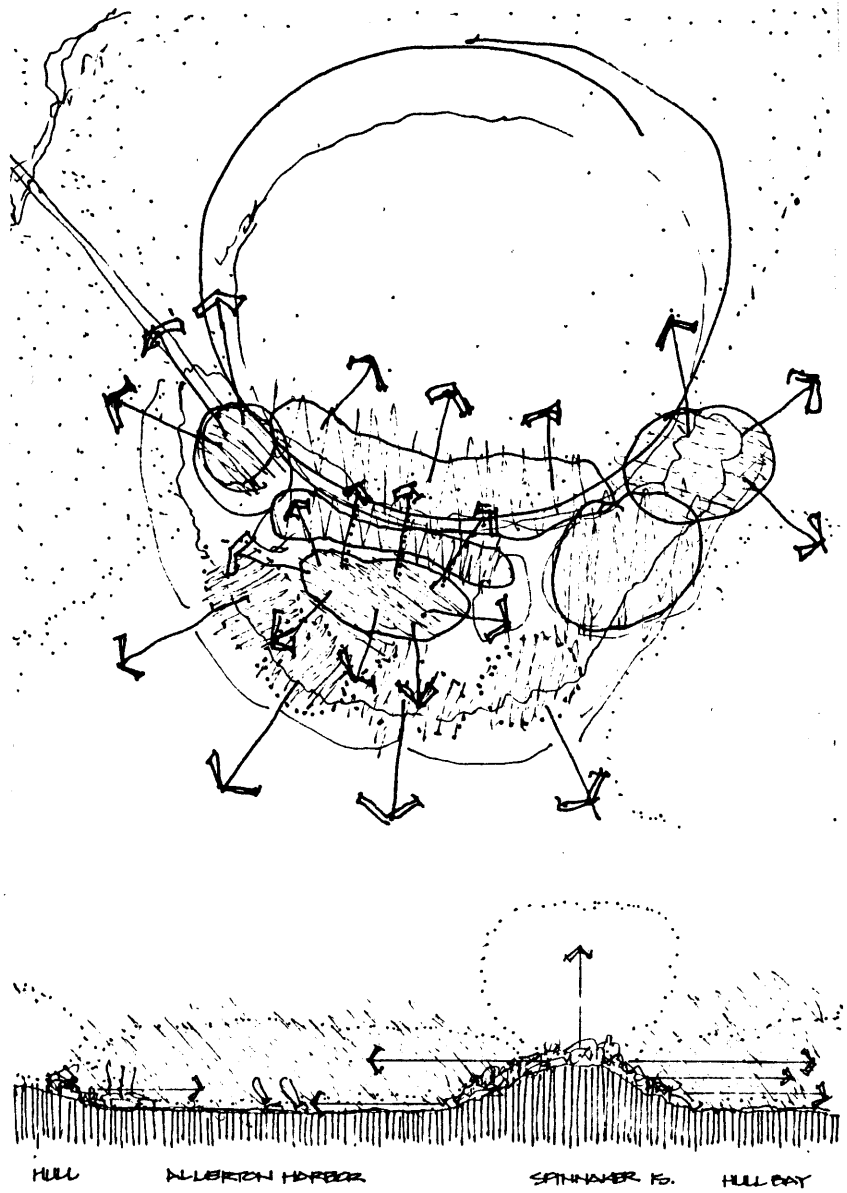


Figure 5.4 Natural Places

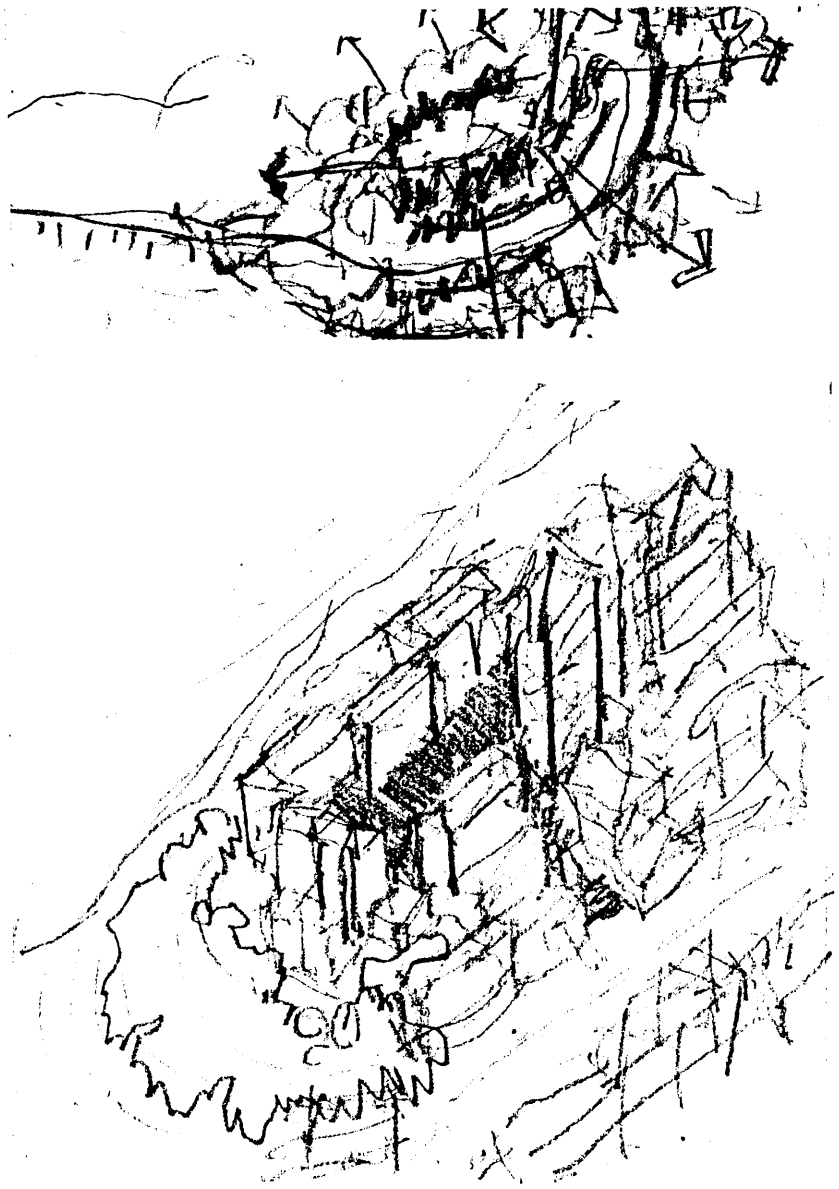


Figure 5.5 The Architecture of the Hill

impermanent and changeable (easily added or subtracted) place that must first address the immediatecy of the sea and should be perceived as being both the expression of the land and water. Unlike the context, however the built form of this morphological place must also possess a certain spatial responsibility, based on the aggregations of its parts to define a clear public use territory if the place is to be more than just an "object" based perception. The purity and separate expression of the parts is maintained but organized through a collective use jesture (fig. 5.6).

Other more specific architectural design notions begin to emerge from this discussion that solidify the vision of the place and begin to establish a more informed development strategy.

1. The existence of various edge conditions is a function of the density of a given area and the need to establish territories that respond to both the 'character' of the site at that locatiion and the organization of the dwelling

units. Double edge conditions occur (fig. 5.7):

a. where the site implies either enclosure or movement.

b. or where a particular view is to be emphasized.

c. at a point where the public territory and the built landscape can both support and gain formal/spatial clarity through clearly defined boundaries.

Single edge conditions imply both the need for a particular view or suggest a possible area for further development. The notion of the space between the various components of the built and natural environment become an important consideration. The dimensional relationship between objects in the landscape and the open space they contain begins to give clues as to the way the place is used and the possibilities of change over time (figs. 5.8).

2. The density of the built environment should not be determined by an abstract number or quota of so many units per acre, but rather the ability of the site's qualitative characteristics to support a place should determine

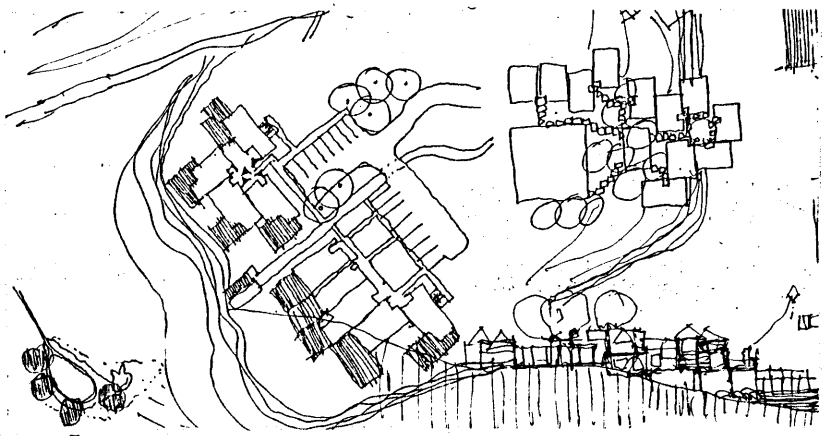


Figure 5.6 Collective Aggregations. Public use

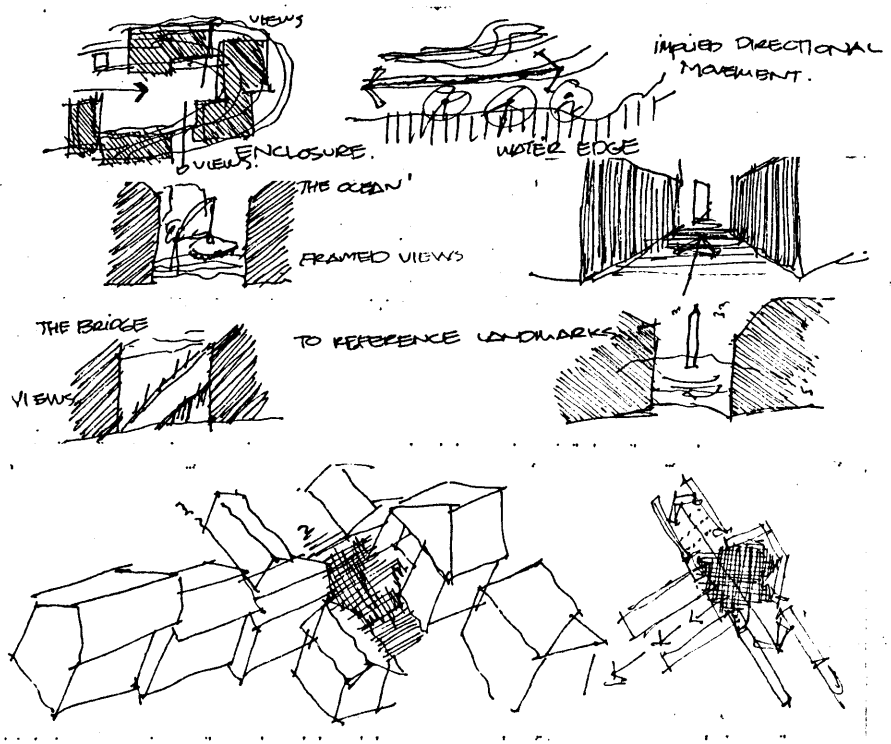


Figure 5.7 Edge Conditions/Views, Enclosure

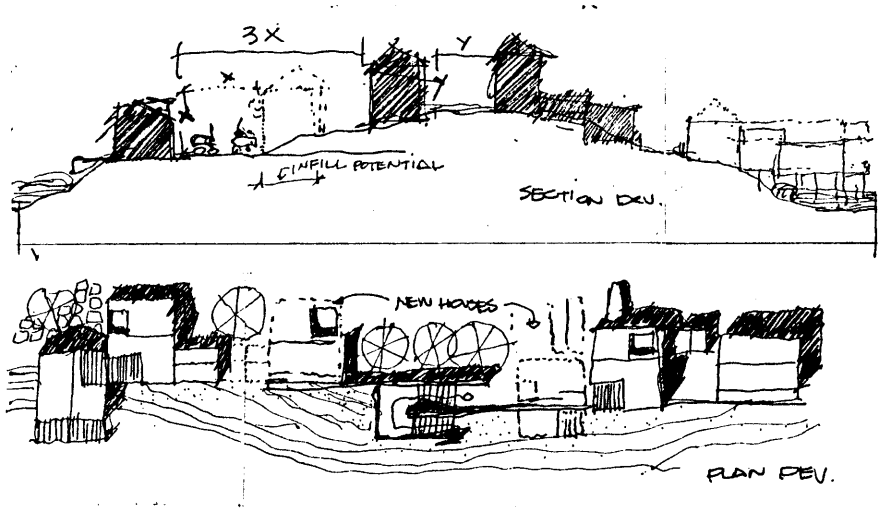


Figure 5.8 Use/Infill

the intensity of its use. For example, the north facing slope of the hill on Spinnaker Island which is predominately in shade and is exposed to northern winter winds is not the best place to build the highest density of dwellings for the community. It receives little direct light, is harder to access and does not have the most dramatic views. The ultimate density of Spinnaker island, or at least the image of that portion that is visible to us as we move through the landscape, will also be shaped by its adjacent communities. Nantasket Beach is of a higher density than the town of Hull for two good reasons, but it is still fairly low by urban standards. The morphology of the two places is quite different and are consequently able to support two different patterns of development. Nantasket is more geometric and rigorous while Hull with its many hills is more contextual. Also, the available infrastructure to Nantasket has a higher capacity to support a denser built environment; however, Hull is limited by what is leftover from Nantasket's requirements.

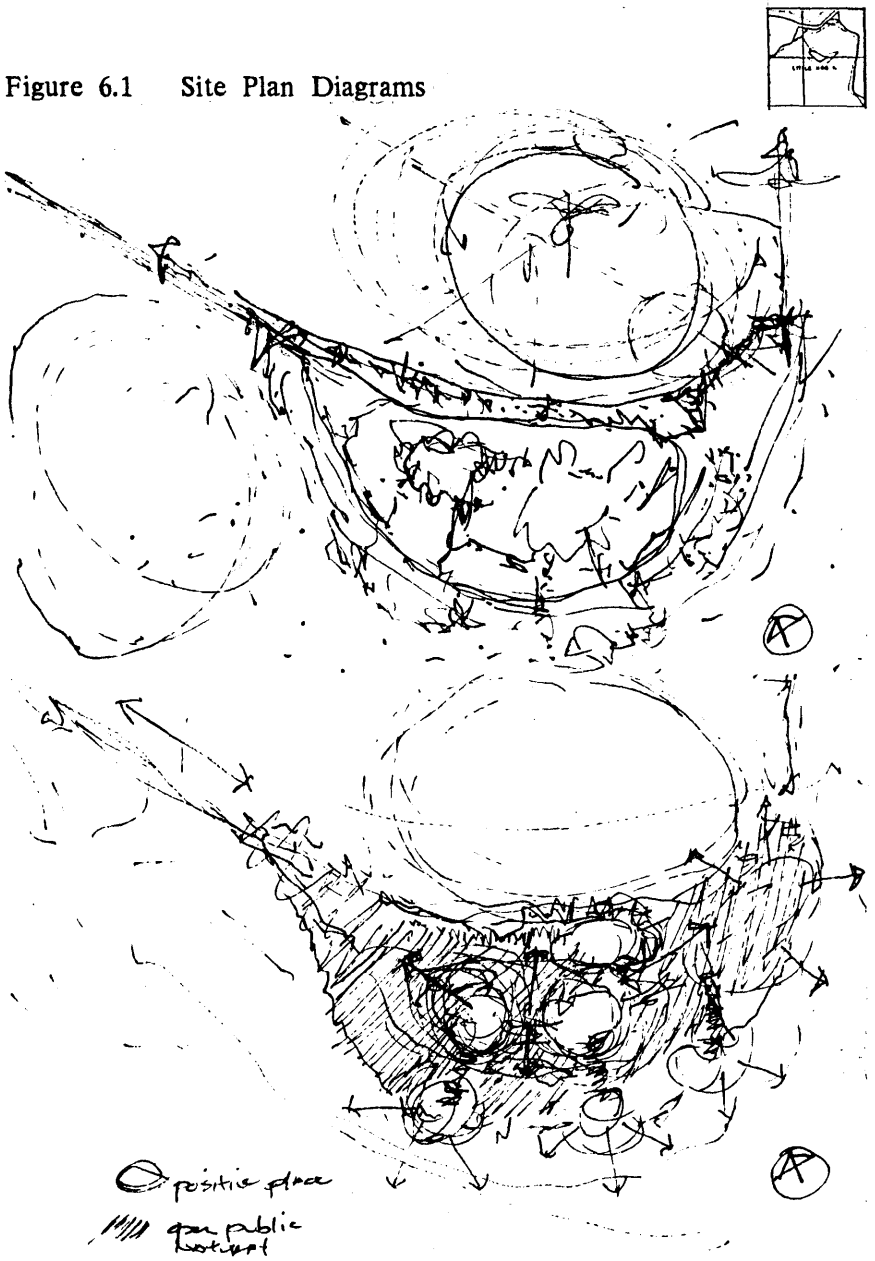
3. The available (or provided) infrastructure to a place

can in effect predetermine both the density and physical configuration of the built forms. Particularily for Hull this has insured that both the image of the place and its spatial organization will not change (although gaps may gradually be infilled) over time. The same holds true for Spinnaker Island. Recognizing that the infrastructure supplied to the island will be along the length of the bridge, as a spine that extends through the hill on its south slope and gradually disipates as it reaches the island's point. Hence, the extremities (the shoreline, and the furthest point from the bridge) are less effectively serviced which precludes those areas from certain development strategies. This is in a conscious effort to control what can be built. This becomes a form of zoning control to insure that design considerations become an important permanent feature of the community's image and collective memory. Issues such as light, views, orientation, density, and land use will remain intact to communicate the underlying character of the place.

6 SITE PLAN DEVELOPMENT

The Importance of the Site Plan. The development of a site plan comes from the clear understanding of the dialogue between the surrounding contextual characteristics, the site planning principles that are set into motion, and the implications of the specific dwelling types and their potential configurations. Large community scale moves are based upon the particular need for open space, positive place making, views, and accessibility. All reinforce the general character that the island suggests. (figs. 6.1a, 6.1b). The inherent compositional qualities of the many natural places and their relationship to each other is a notion that should also exist throughout the architectural expression of the built landscape as well. From the onset these formal/spatial decisions are an attempt to establish an overall public use strategy that is primarily based upon accessibility patterns. A clear attitude or pattern of accessibility gives the public territories validity as usable places by its citizens and should also exemplify the inherent topographical characteristics of the site. The

Figure 6.1 Site Plan Diagrams



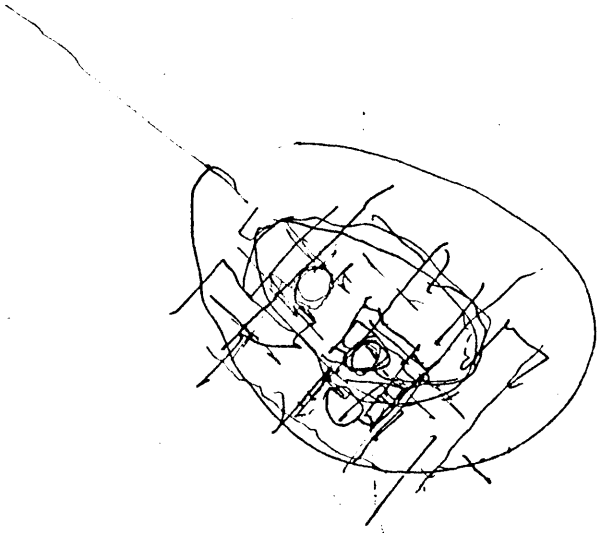


Figure 6.2 Access Diagram (L.B. Anderson, 1985)

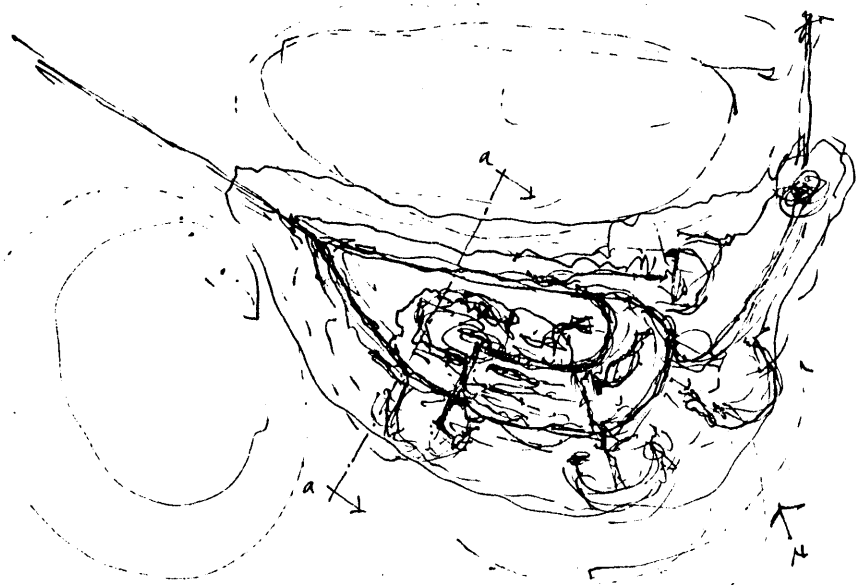


Figure 6.3 General Accessibility

primary access diagram for Spinnaker Island is based on pedestrian movement that is perpendicular to the slope of the hill and parallel vehicular access (figs. 6.2, 6.3, 6.4). It is also important from the onset to develop a coherent attitude in dealing with parking which is too often inserted into any remaining open space after the project is underway. In this case parking was thought an inseperable component of each dwelling to achieve maximum convenience and accessibility. The presence of a rather steep hill on a site should not be thought of as a hinderance or natural event that limits the design possibilities, but rather the opportunity to use the hill to produce a more spatial design response - the hill and the architecture then become inserperable; they coexist in that place.

More formal implications about plan making arise from this notion of accessibility and its relationship to the spatial characteristics of the island's natural morphology (hilltop, north shope, south slope, flats, continuous shorelines, point) and the definition of the public use territory which was articulated in two ways. The first method is through the linking of positive public place definitions

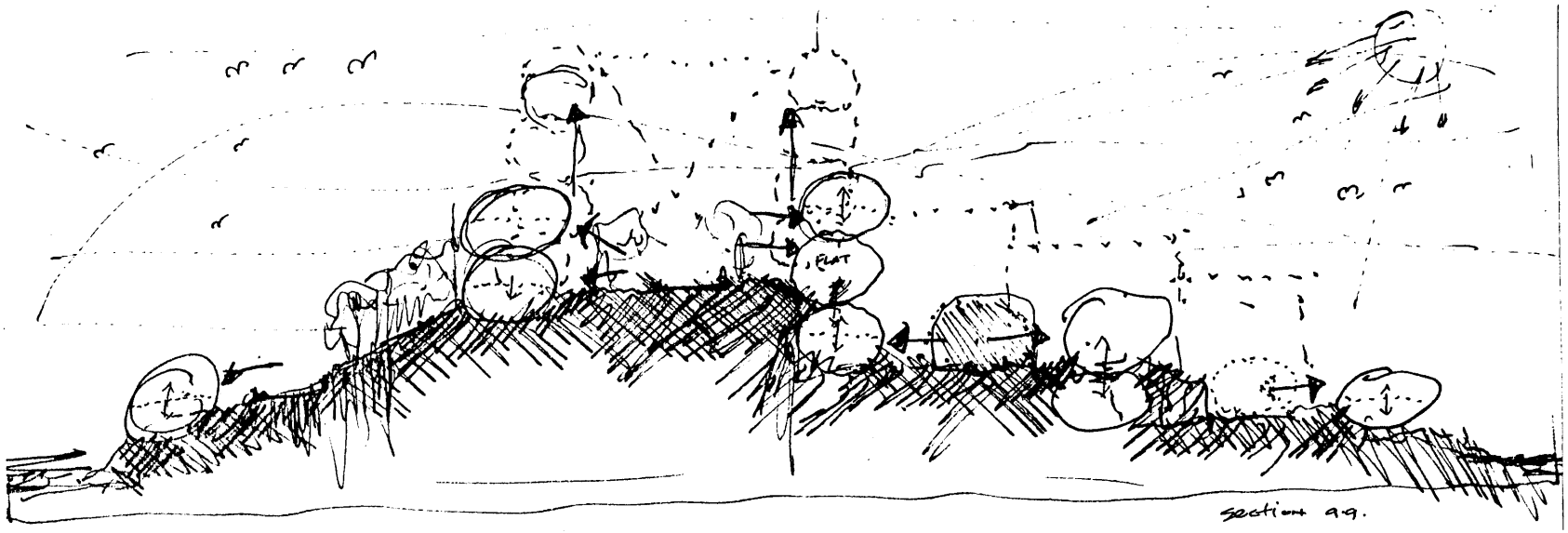


Figure 6.4 Accessibility

that are based on the spatial articulation of a public place by the building mass. The place is contained by, and has a dialogue of use with, its adjacent architecture. The dimensional characteristics of the place, then, determines to a large extent both the particular users and activities that would occur there. Narrow slots, breaks, or openings in the building mass suggests a direction of movement or the existance of important views. Tightly contained courtyards and plazas communicate a certain collective stability of either the natural place which the built form is emulating (hilltop) or the need of its adjacent citizens to identify with a collective place that orders a seemingly homogenous or hostile landscape (fig. 6.5)(or a rather straight and exposed shoreline). A sense of the built "boundaries" of the place is the underlying notion of positive placemaking (fig. 6.6, 6.7). The second method employed to articulate the public use territory is through the formal definition of that place for its particular use; for walking through, sitting, gathering, or viewing the surrounding landscape. The presumption here is that the

Figure 6.5
"Recinto Libano"
(Scolari, 1979, p. 109)

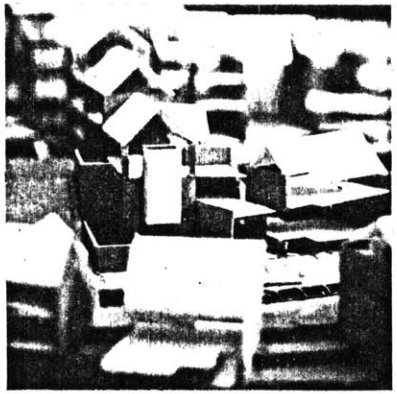
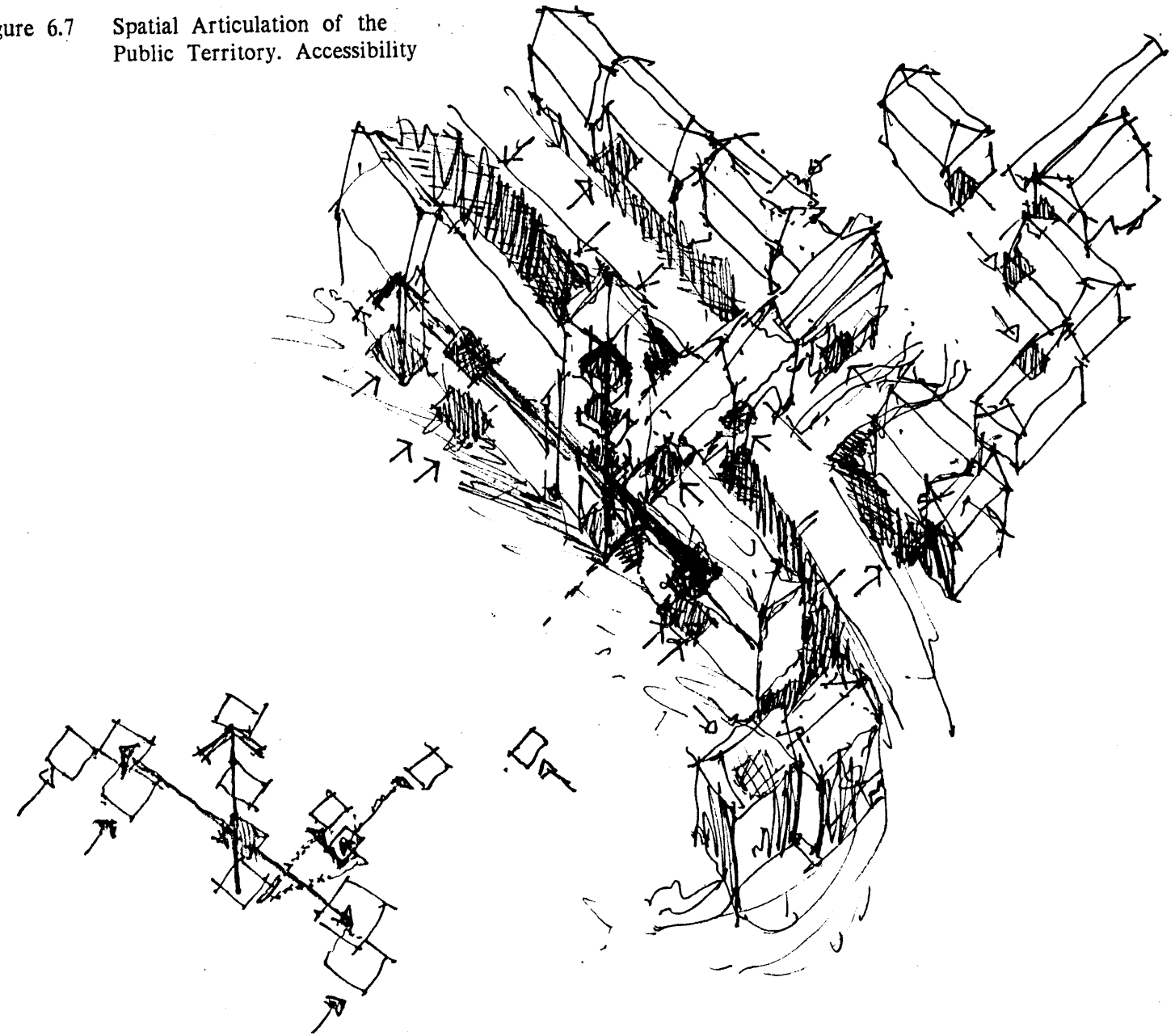


Figure 6.6 Model. The definition of public/ private territory

relationship between the place and the use is a condition through which we experience it. The spatial characteristics exhibited by the natural place, its size, shape, orientations, and views, are those aspects which define its more general zone of influence within the context. For this reason any public activity that passes through or occupies that natural place gains definition through its involvement with the entire zone of that place's influence, consequently linking the total expression of each to make it an inhabitable place (fig. 6.8, 6.9). The site plan in its entirety then communicates many notions about the act of dwelling in a particular place and culture. The initial level of information or first impressions of the community come to us by the way in which its architecture inhabits and reinforces the natural qualities of the landscape. Where it is sensitive to the formal implications of a strong natural place or imposing within a rather ambiguously and ill defined one, suggests the way it's citizens relate to their larger context and specific location. It also tells us who uses these places, how they use them, and the way in which they relate to their neighbors and the

Figure 6.7 Spatial Articulation of the Public Territory. Accessibility



community. The site plan also implies which orientations facilitate the maximum (or minimum) sun exposures and a sense of the location of major views around the site. In general, the site plan could be considered the graphic representation of the celebration of dwelling in a place by a particular culture (fig. 6.10). They identify with the place because it fulfills their collective expectations and image of being in the world. The direct manifestation of the image is through the elevations which gives us our first clues as to how the community relates to its context. We determine whether it is "fit", if we can identify with it as a valid expression of not only its particular site but also the "tuned" expectation that we have, as determined to a large extent by its context. Spinnaker Island in particular presents itself to us through the articulation of its northern face and silhouette; it is the only side visible from the mainland. The south elevation can only be seen from across a large expanse of water at a considerable distance (or by boat) and as such exists independently of any contextual tuning. This condition facilitates the articulation of two very different elevations that responds

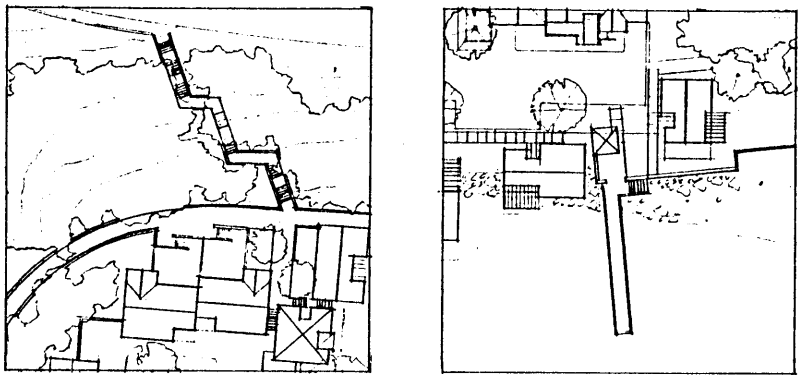


Figure 6.8 Natural/Public Territory

to first, the physical needs of the dwellings to receive maximum daylighting and to provide permanent views, and secondly, to fulfill our expectation of its image/context "fit". The north elevation of the island was articulated in its final form to fulfill a general sense of compatibility with the adjoining context in terms of density and spatial organization without sacrificing the notion of an island as a special place (fig. 6.11, 6.12).

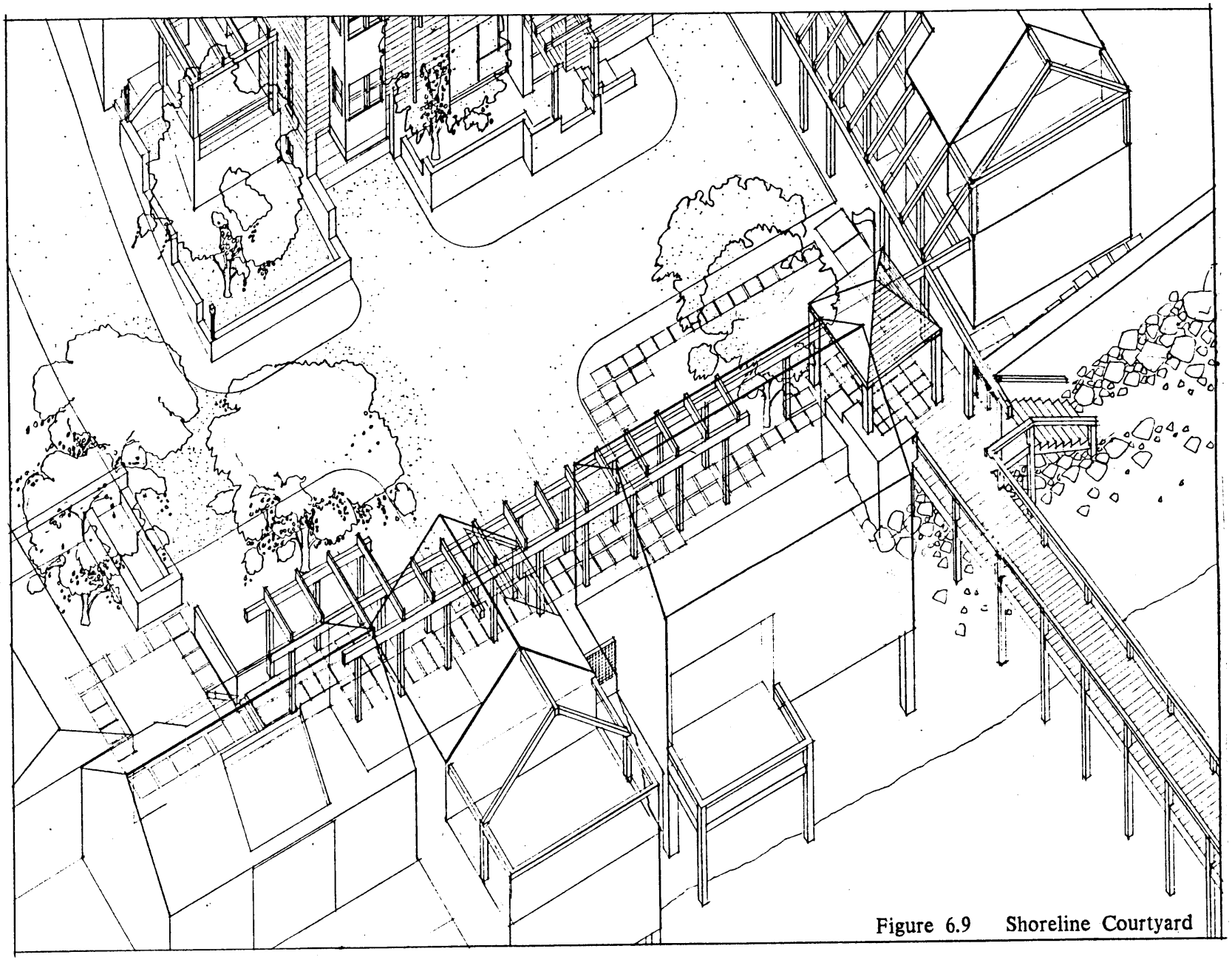


Figure 6.9 Shoreline Courtyard

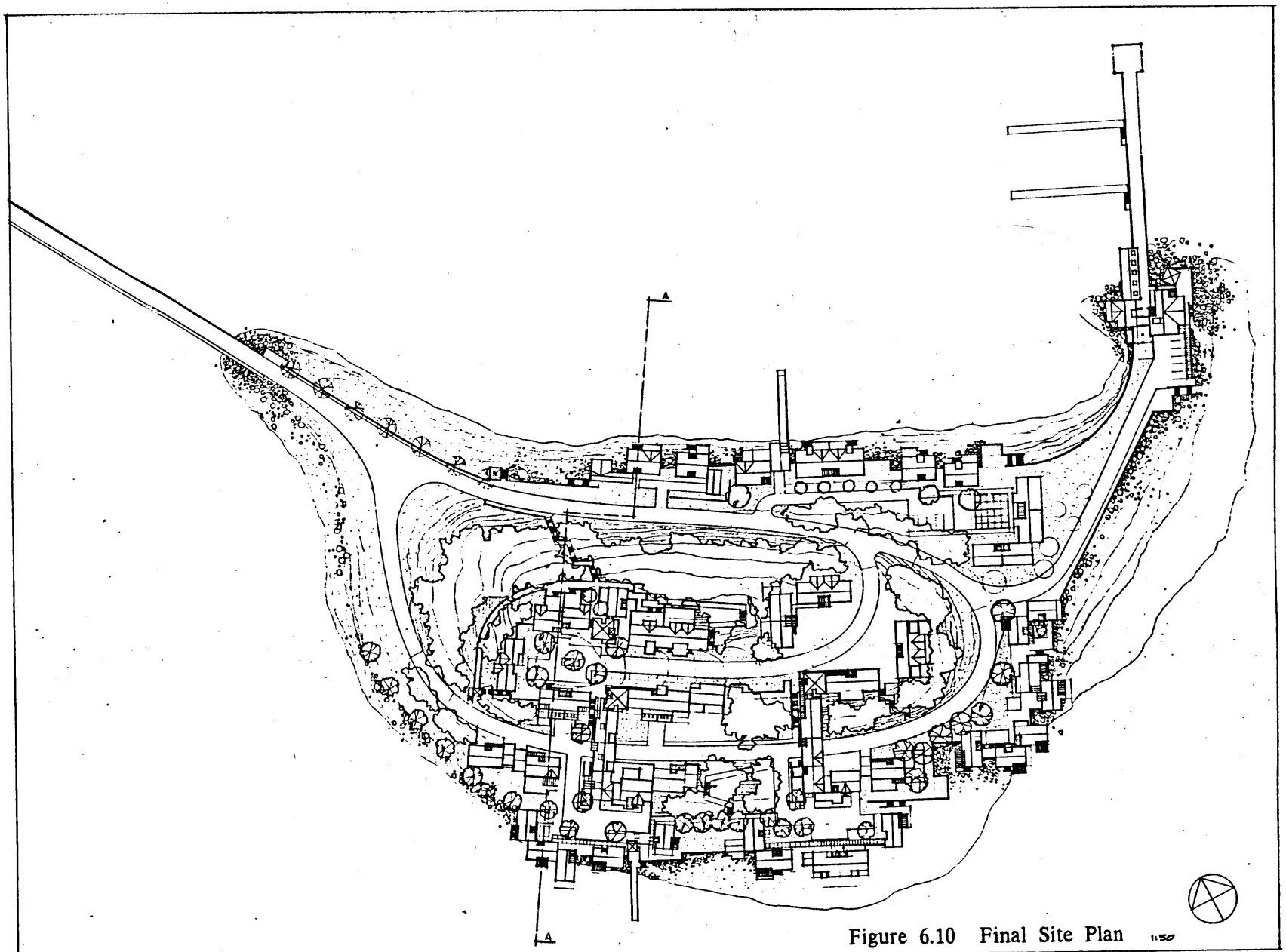
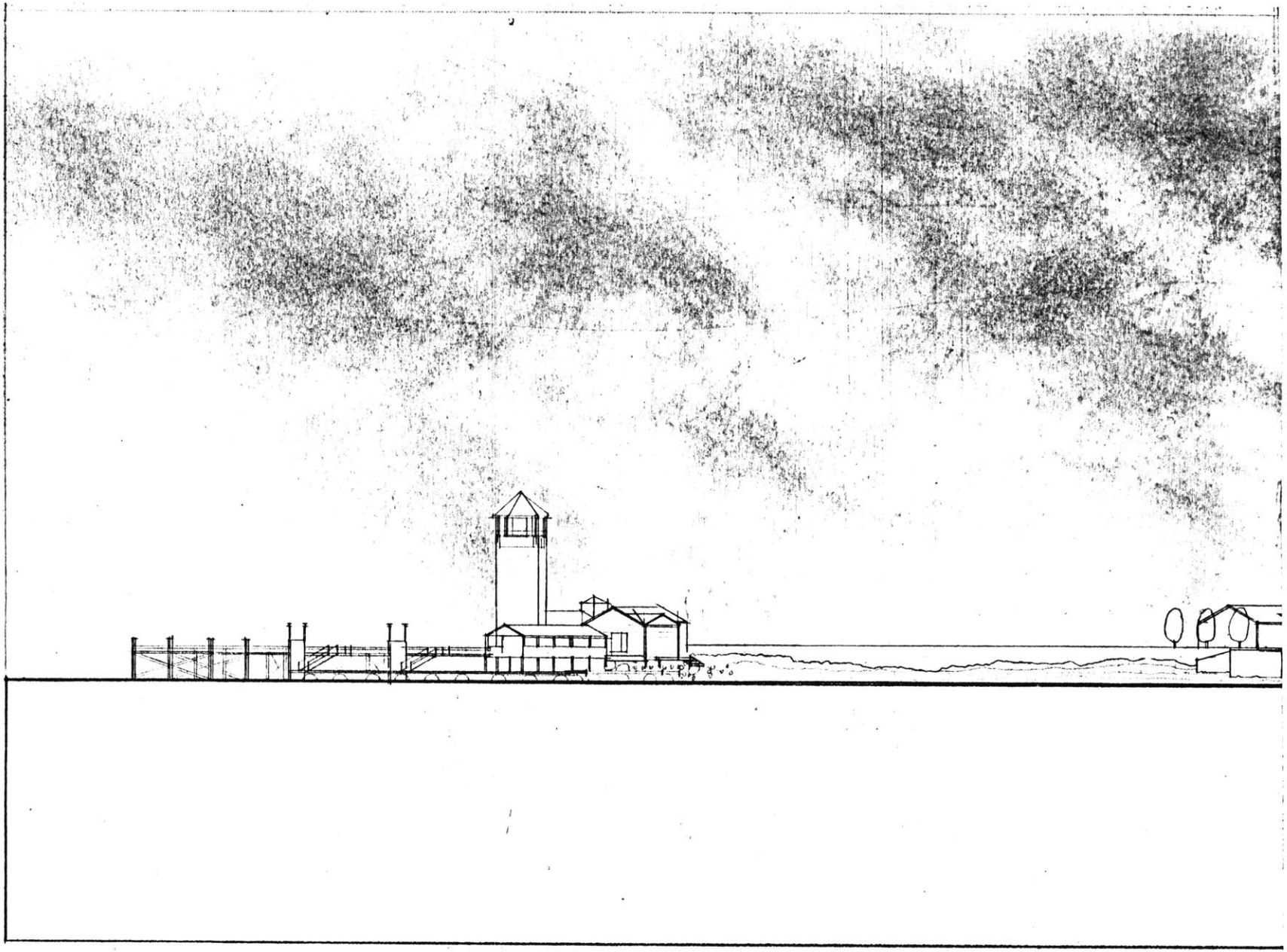


Figure 6.10 Final Site Plan 1:50



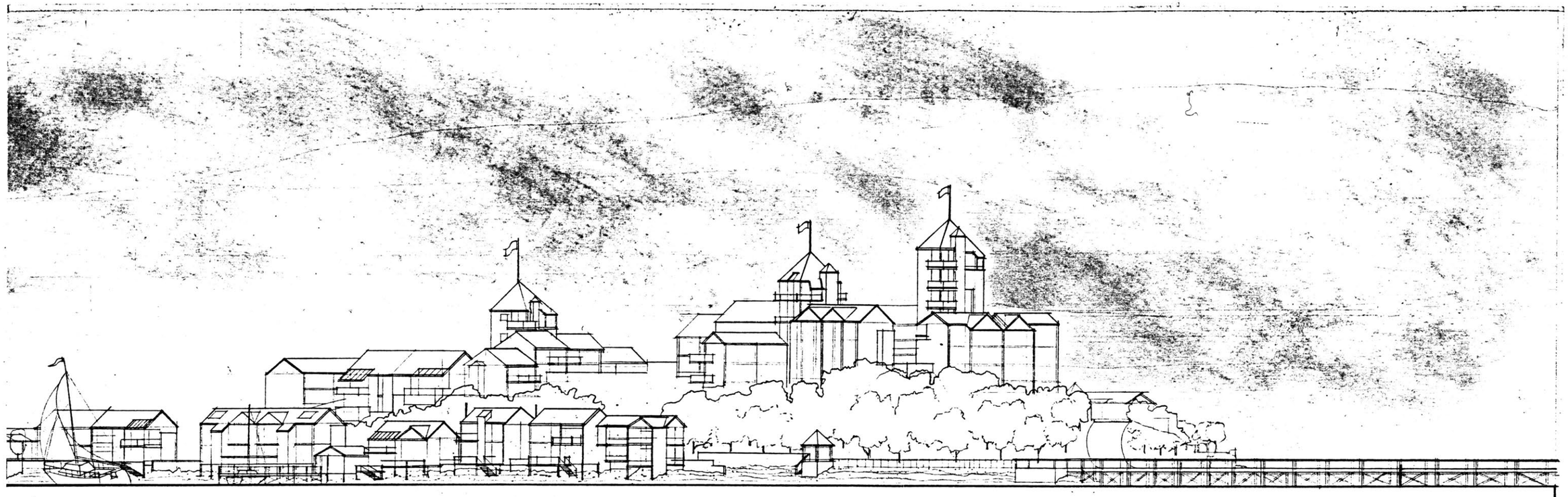
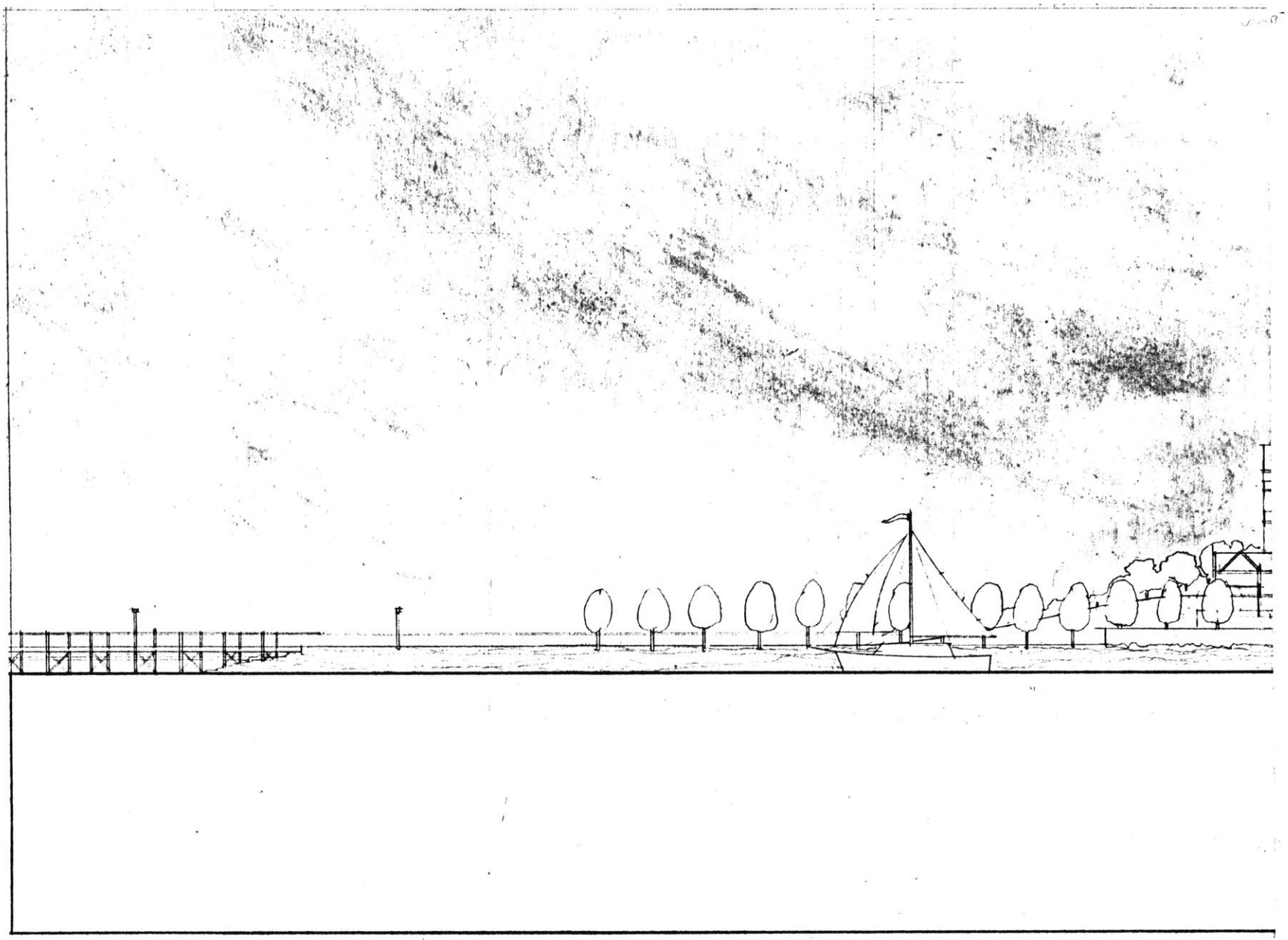


Figure 6.11 North Elevation



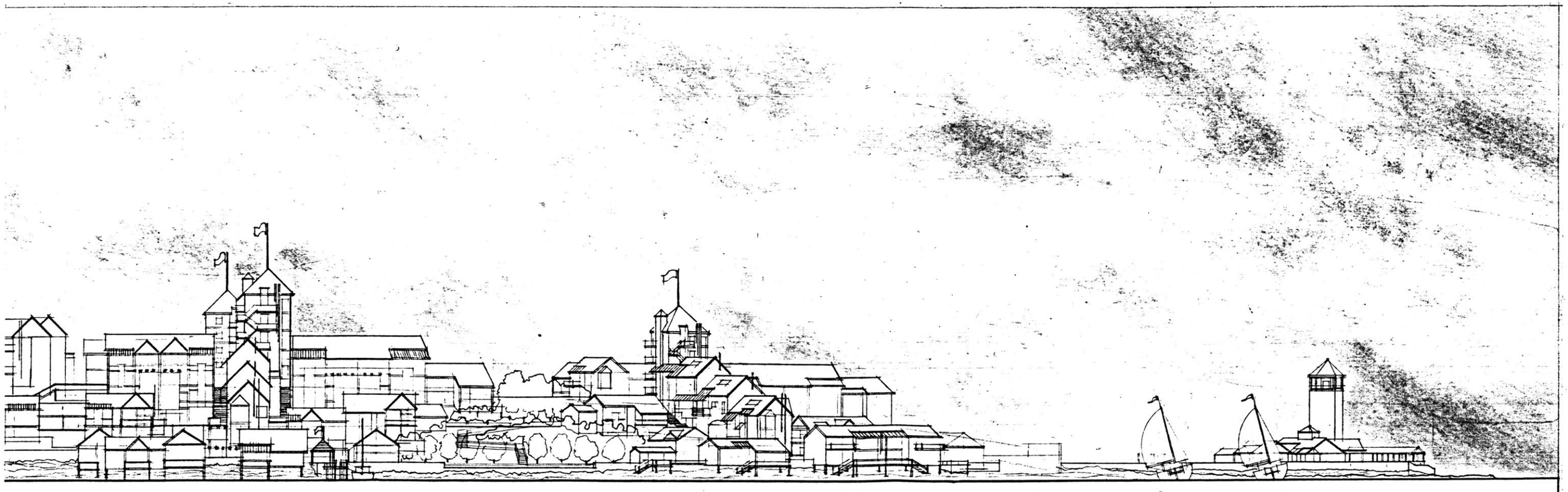


Figure 6.12 South Elevation

7 DWELLING UNIT DEVELOPMENT

To begin to develop unit types and collective aggregations that seemed to "fit" their particular location it was first important to understand the materials to be used and their physical limitations. Without over complicating the issue it was thought best to assume a construction type of both a vernacular and contemporary type that would have undoubtedly been used for such a project. Predominate building components of poured in place concrete foundation/retaining walls for partywalls and major public courtyards and paths will be used to just above grade except where special construction is required. Above the groundzone wood infill in the form of 2 x 4 and 2 x 6 stud walls and 2 x 12 floor joists and rafters will be used. Steel exterior stairs, railings, greenhouse type enclosures, and wood trellices would be used with the wood construction where it is needed (fig. 7.1). This construction system suggests uninterrupted spans of no more than approximately 18 feet, but allows for enormous

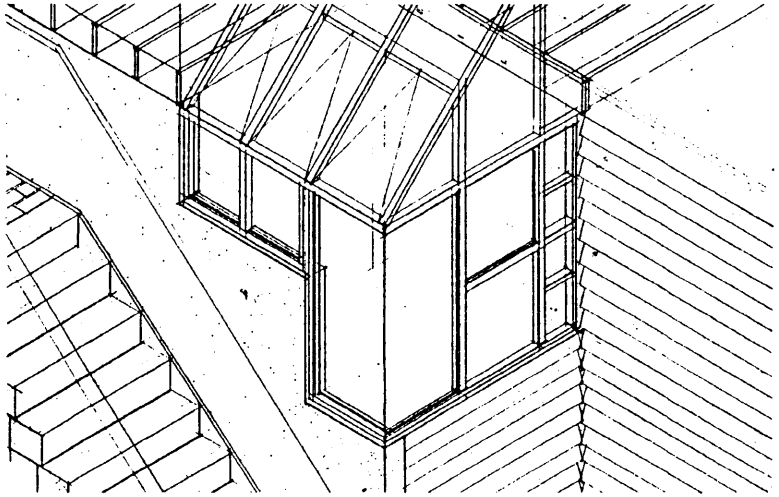


Figure 7.1 The Construction System

flexibility in terms of enclosure/opening options, the accommodation of additions or subtractions to the dwelling units primary form, and a variety of organizations and accessibility patterns. These three principles, enclosure/view, additions/subtractions, organization/accessibility, are given architectural form through a dwelling's qualitative relationship to the site and the physical requirements placed on the dwelling by its inhabitants.

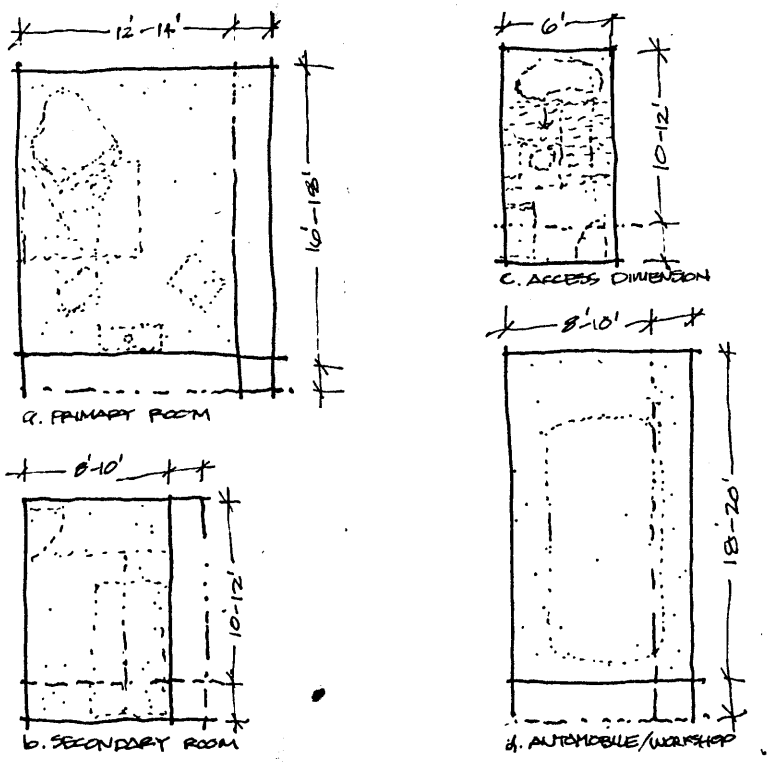


Figure 7.2 Room Use Dimensions

While the relationship between a given dwelling and its context is in continuous flux due to changing climatic conditions and the dwelling's temporal relationship to the site; a more quantitative relationship of human scale to use is a better point of departure in developing a more coherent approach to unit type design.

UNIT TYPE DEVELOPMENT

The following are the four major use dimensions that become the most essential components to satisfy the physical requirements of any dwelling unit in this context (fig. 7.2a, 7.2b, 7.2c, 7.2d).

A. A primary room use dimension. Use: a living room or master bedroom. This dimension could be wholly or partly contained with the enclosure. A portion could become an adjacent outside deck or patio.

B. Secondary use dimension. Use: a dining room, kitchen, or second bedroom.

C. Access/service dimension. Use: stairs, entry, bathrooms, storage, etc.

D. Automobile use dimension.

The variety of unit types is a product of the particular dwelling unit's relationship to the land, orientation to the sun, prominent views, its accessibility pattern, and the relationship of the use dimension room types to it's public/private edge conditions. Below are further guidelines used to aggregate particular components:

A. Major use dimensions should be oriented to receive maximum sun whenever possible but this may be superseded by prominent views. It is conceivable that this use dimension may "set" the maximum depth needed for any given unit type.

B. Secondary use components such as kitchens, dining rooms, and second bedrooms do not depend upon views or intense direct sunlight to support their activities but they should not be entirely dark. Indirect or filtered daylighting or northern light is a sufficient minimum requirement (fig. 7.3).

C. Access/service dimensions should occur where the least exposure and less than desirable views are located such as

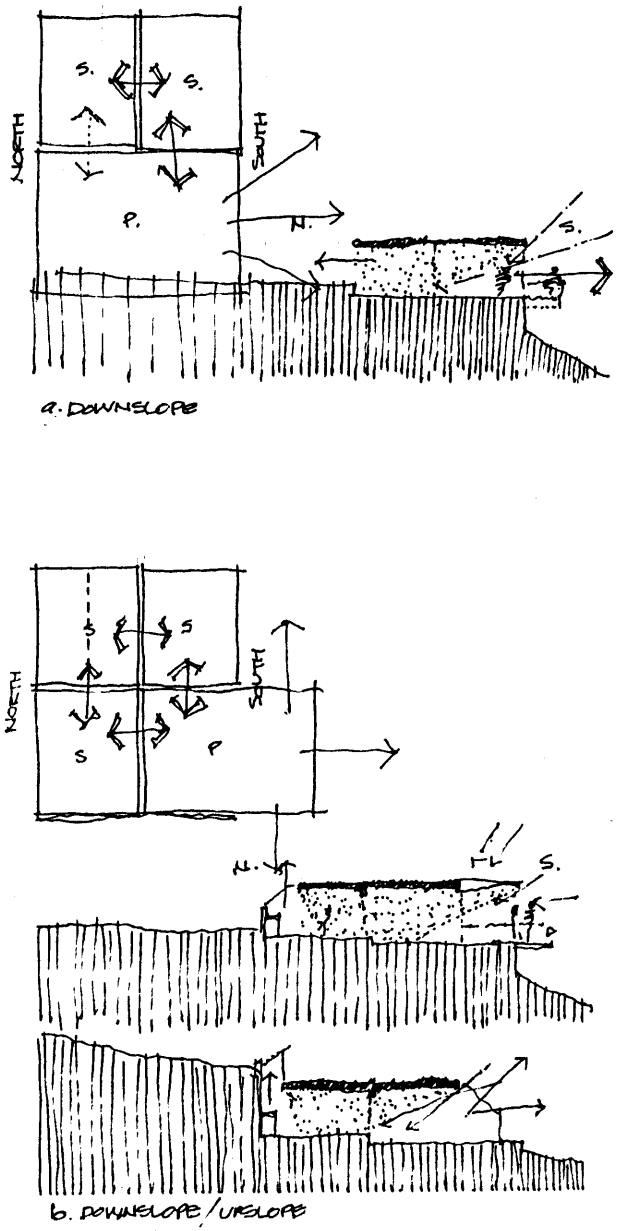


Figure 7.3 Orientation/Exposure

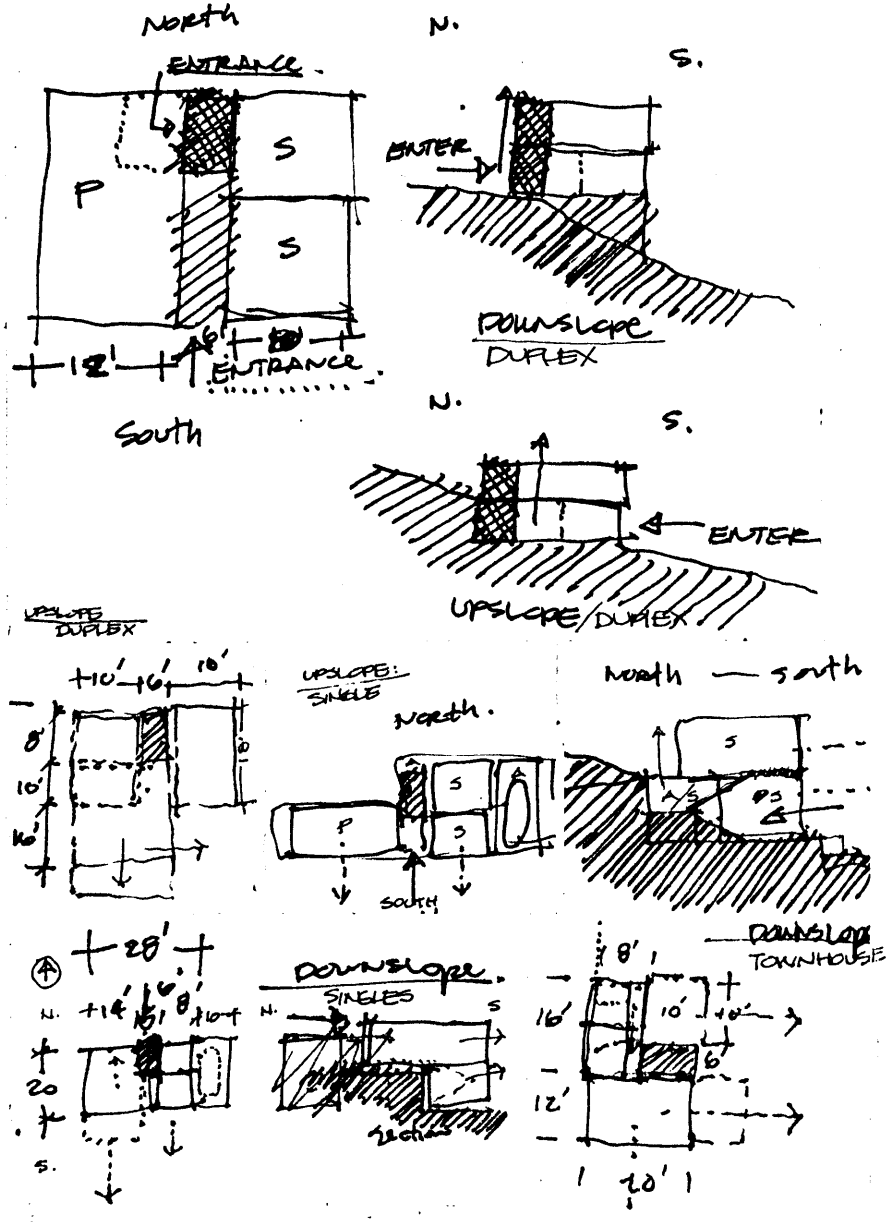


Figure 7.4 Unit Configurations

against retaining walls or the north exposure of the given unit occur (fig. 7.4).

From this analysis, unit types that exist in the same location and related to the public territory in much the same way were paired together when possible to share a common entrance/access dimensions. When impossible to do this they expressed much more of their own individuality but were still organized within the public framework. The outcome of this attitude within a landscape of a more homogeneous character would result in a very clear standardization of the built form. The richness of the place would come from its architectural expression alone and not the natural context in which it inhabits (fig. 7.5). Spinnaker Island's topography, public use territory, accessibility pattern, and various orientations facilitated the mixing of various unit types within a given area creating a richness of "house" expressions and spatial experiences. This mixing also facilitated the transformation of standard unit types when joints or gaps did occur to express their particular location (fig. 7.6).

These aggregations must, however, reinforce or intensify the notion of arrival to a particular place on the island or suggest a particular way of living. This is not to say that the site conditions are the only formal determinate for an appropriate architectural solution; there are also important collective notions that shape the image of a community.

The clarity of the form comes from the way the built form relates to or exemplifies the site qualities. This implies, then, a variety of unit types that are not only responsive to site characteristics but also to a citizen's need to identify with that place either by transforming it to express their own individuality or particular use, or to provide a 'stable', permanant sanctuary for dwelling.

The natural form of Spinnaker Island and the configuration of the final site plan suggests eight unit types that are manifestations of their particular location (fig 7.7a, 7.7b) with numerous local decisions to transform or accommodate the dwelling to address its adjoining public territory or special views.

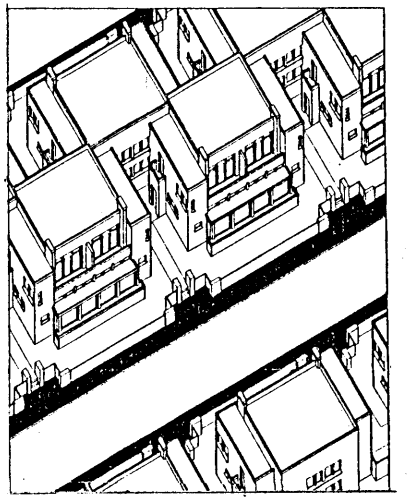


Figure 7.5 Jan Wils, Daal en Berg Duplex Houses (1920)

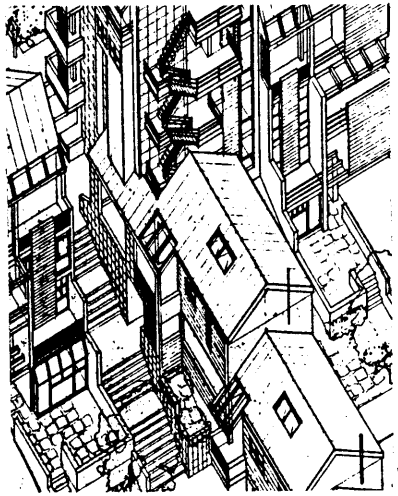


Figure 7.6 Spinnaker Island. Axonometric of Chunk

1. Hilltop Duplexes (1 bedroom)
2. Hilltop Flats (1 bedroom)
3. Tower Duplexes/Flats (1 - 2 bedrooms)
4. Upslope Duplex (2 bedrooms)
5. Downslope Single (2 bedroom)
6. Upslope Single (2 bedroom)

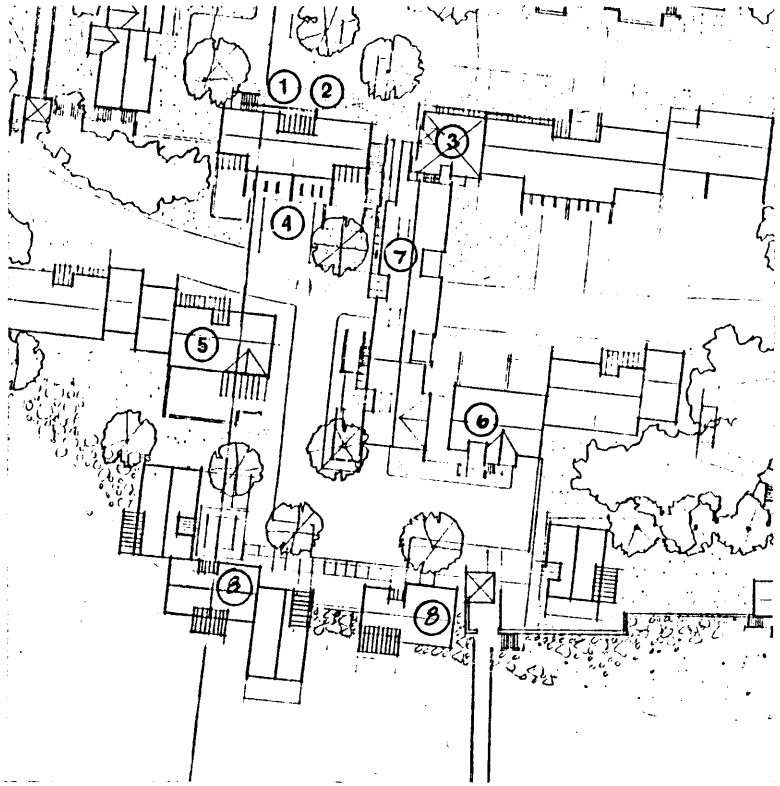
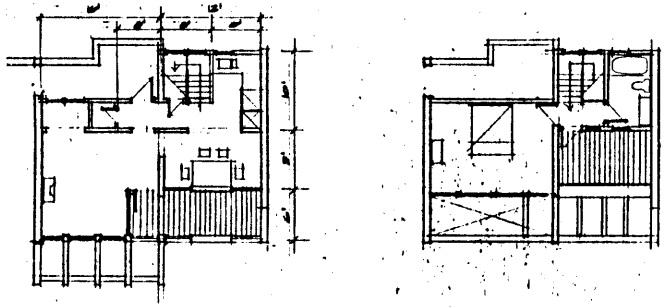


Figure 7.7a Unit Type Location

Figure 7.7b Unit Types/Plans

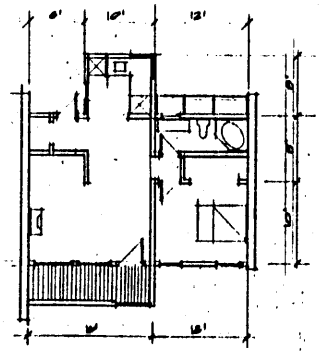


1. Hilltop Duplexes
   (1 bedroom) 750 sf

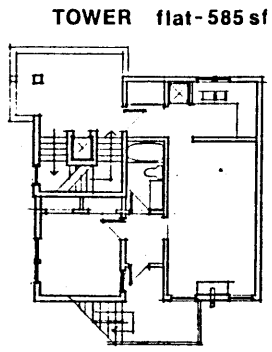
7. Downslope "Block" Townhouses
   (2 bedrooms)

8. Beach/Shoreline Town Houses and Singles
   (1 - 3 bedrooms)

Both the built environment and landscape must possess their own distinct clarity of expression. Architecture must celebrate the human act of dwelling in a place and nature must recognize the natural forces which shape it. However when they meet, both are pulled and reshaped to take on characteristics found in each other. The repetition which is found in both becomes transformed and coexist together giving each a formal/spatial clarity that cannot exist independently from each other.



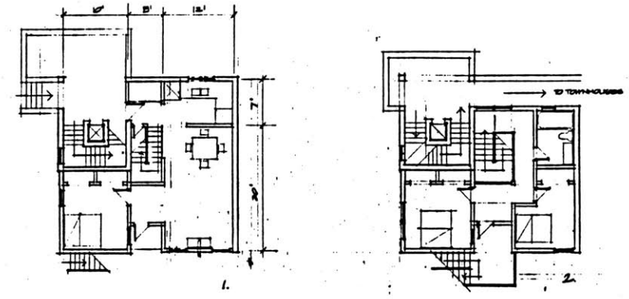
2. Hilltop Flats
   (1 bedroom) 560 sf



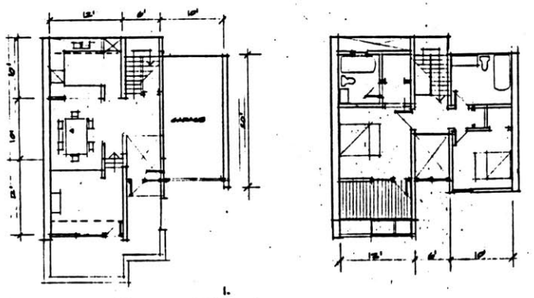
3. Tower Duplexes/Flats
   (1 - 2 bedrooms)

The range of "choices" in which to identify with the place; (with the community as a whole and to various orientations, views, densities, and uses) give clues that begin to express not only the individual identity of a dwelling but also a more metaphysical relationship of its users to the place and the context (fig. 7.8).

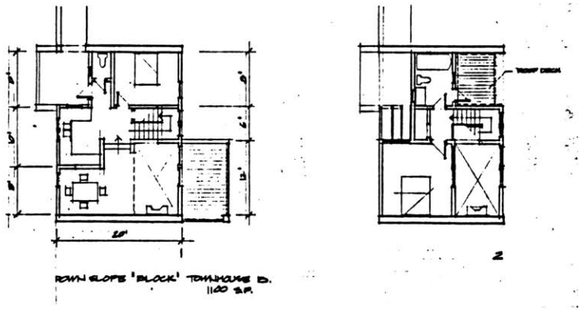
TOWER duplex – 1200sf



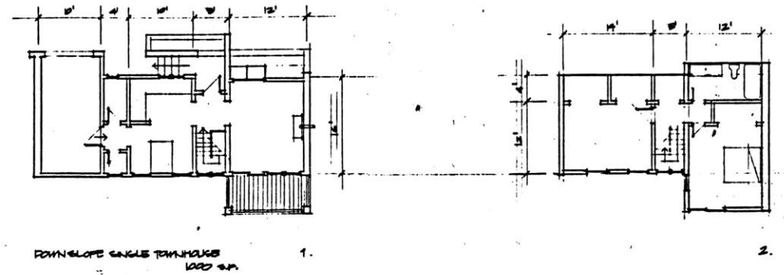
6. Upslope Single
(2 bedroom) 1100sf



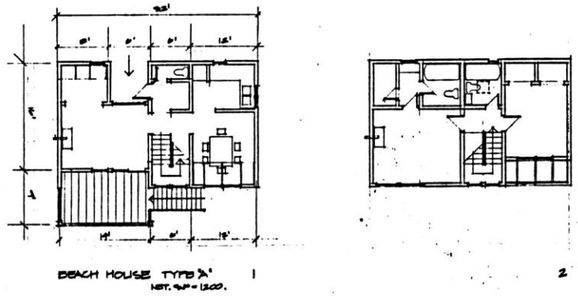
4. Upslope Duplex
(2 bedrooms) 1050sf



7. Downslope "Block" Townhouses
(2 bedrooms) 1000 sf



5. Downslope Single
(2 bedroom) 1000sf



8. Beach/Shoreline Town Houses and Singles
(1 – 3 bedrooms)

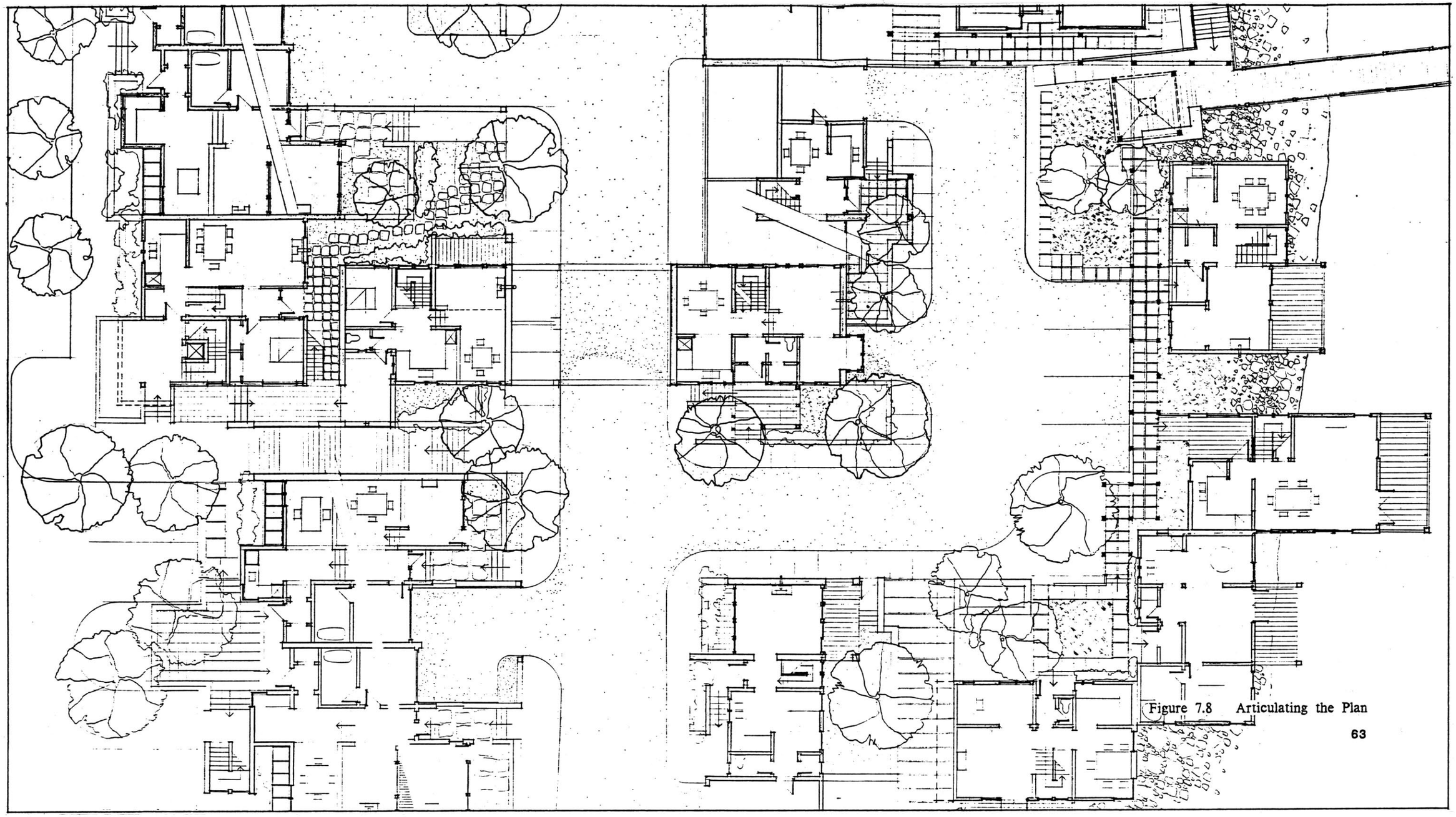


Figure 7.8 Articulating the Plan

8 ARTICULATION /REFINING THE ARCHITECTURE

The clear articulation of public territories (site plan) and the corresponding dwelling types that reinforce those spatial definitions establish the basis for which a community is architecturally perceived. Spinnaker Island is the medium; giving the built form a meaning of belonging to a place of "homeness" (fig 8.1).

The site section exemplifies the formal relationship of the island's natural configuration and its architectural expression. The dwelling units identify with their particular location by capturing specific views and natural light and by utilizing the site to gain easy accessibility. The section also suggests the way a community can transform and use the site as a place of dwelling by relating to each other. The hilltop, slope, and beachfront are important characteristics of each neighborhood grouping (fig. 8.2).

Each housing type or cluster establishes a series of spatial territorial definitions that communicate how the place is to

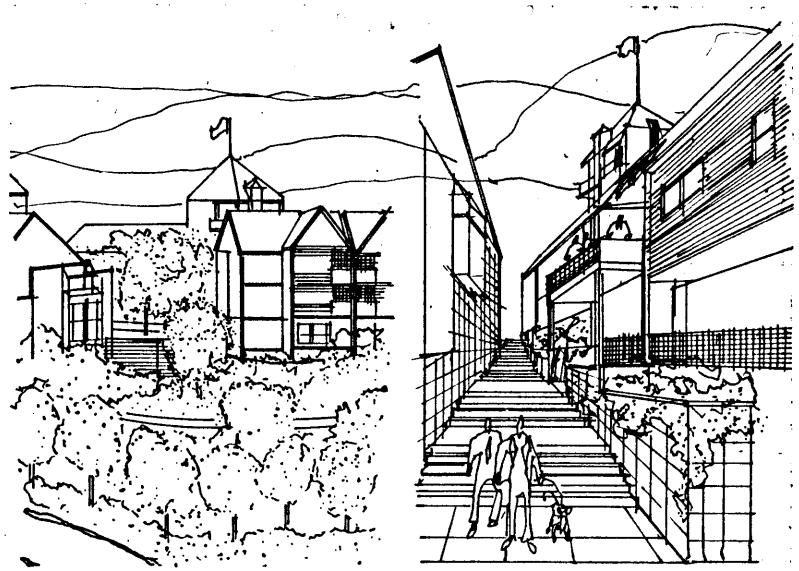


Figure 8.1 Sketches

be used. Walls play an important role by establishing clear boundaries or edges. The wall can then be articulated to accommodate both the use and amount of dialogue between adjoining places, by dropping down, continuing into the landscape, or the construction of screens and trellices to achieve various degrees of enclosure and privacy. The dimensional characteristics of an exterior place defined by these walls suggest the following (fig.

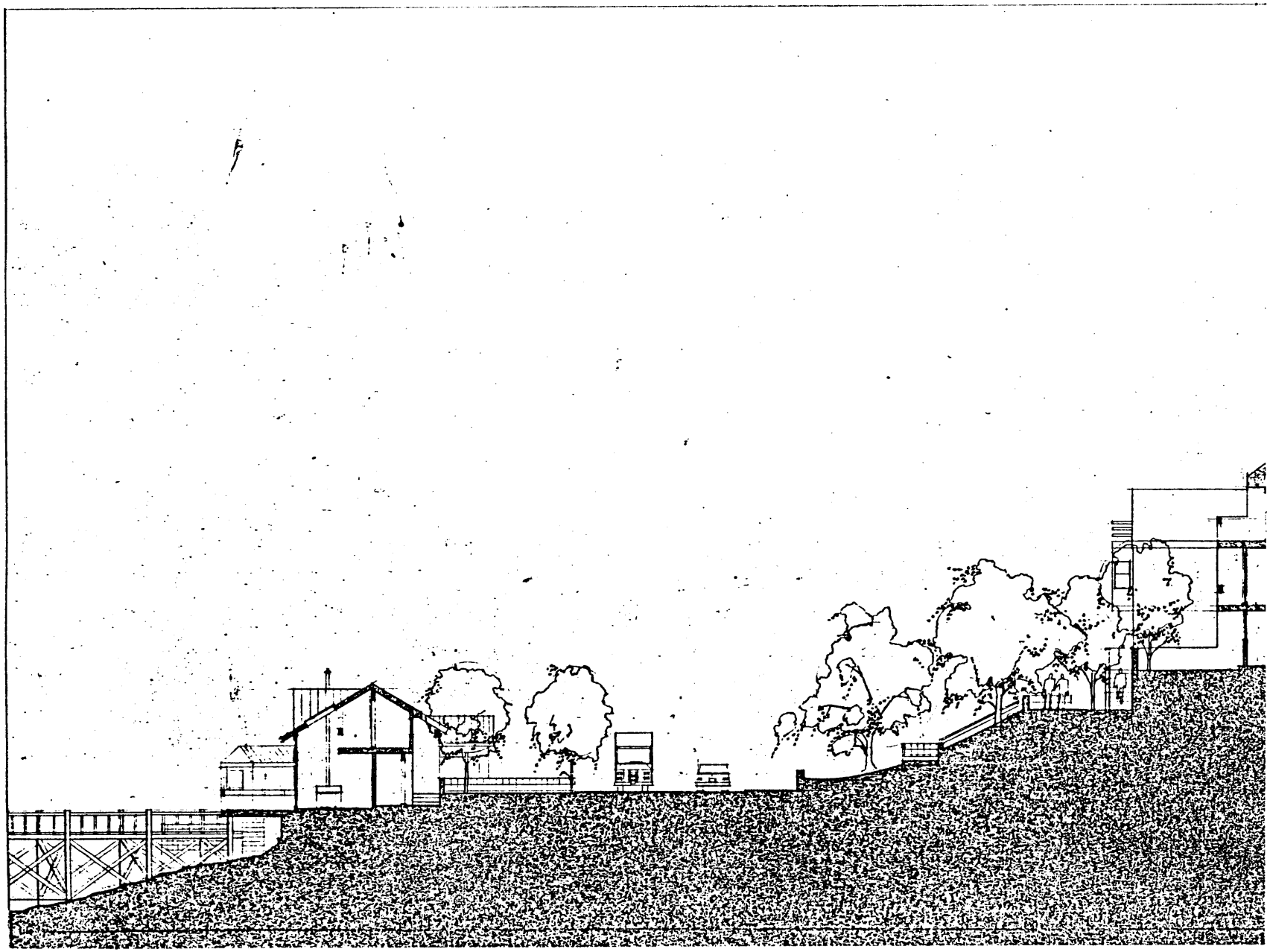
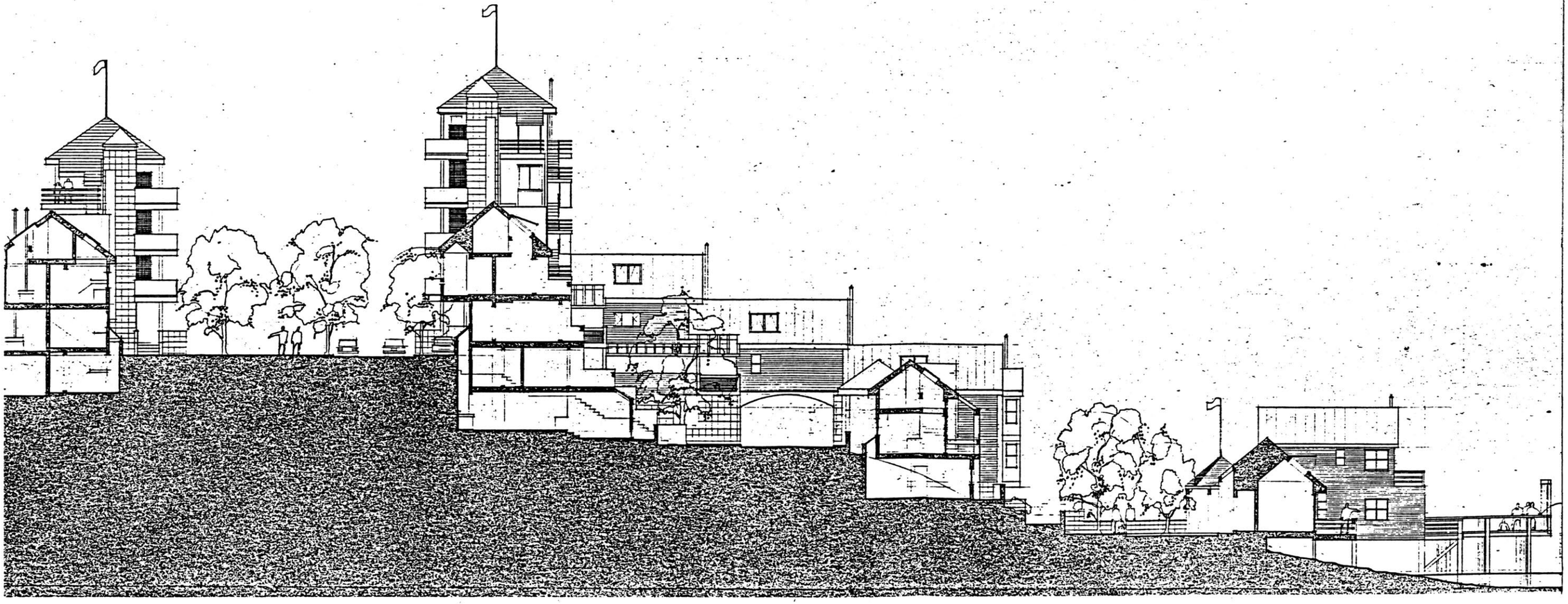


Figure 8.2 Site Section



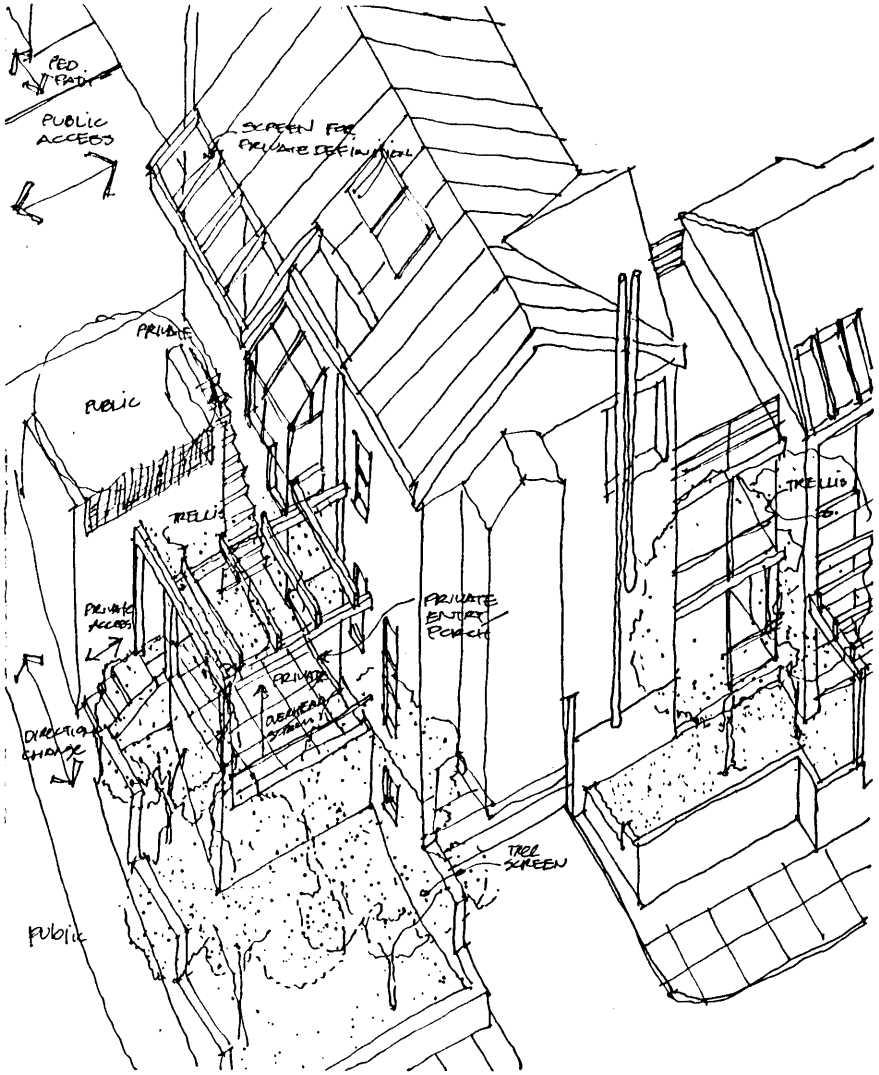


Figure 8.3 Articulation of Public/Private Territories

8.3):

1. If the place is for public or private use.

2. A directional place implying either movement or views – or centralized and stable.

3. For access/movement.

4. Or an extension of the interior territory of a dwelling to define a private exterior courtyard/entry.

Two places can only cccur together when an access/entry territory or sufficient screens occur between them. This insures that the clarity of each place and use is understood and that one place is not infringed upon by the other (private, low density vs. public, higher density). The built articulation of these territories is based upon changes in:

1. Materials.

2. Level changes.

3. The change in the direction of movement.

4. The amount and characteristics of enclosure.

5. Landscaping.

6. Exterior lighting.

The underlying premise here is that a sense of continuity must exist throughout a community based on the dimensional characteristics of it's many places. These places are then further articulate:, detailed to communicate their particular location and use and to acknowledge prominent views.

INSIDE/OUTSIDE

An important correlation must exist between exterior built form and the interior organization of the dwelling. Accessibility patterns and dimensions of use that articulate the public use territory, the "front yard", and dwelling entrance, should also "fit" the unit's internal use/organization. A six foot entry dimension can establish the internal accessibility pattern of the unit itself. The placement of room use dimensions are then a function of the amount of sunlight they need, and the public/private nature of their use (fig. 8.4). For example, a kitchen (public, medium daylighting, secondary room use dimension) should generally be placed near the entrance (as well as parking) facilitating the easy drop-off of packages and

Figure 8.4 Inside/Outside

should also be adjacent to the public territory to monitor passersby.

As units begin to be aggregated to form larger neighborhood definitions that are organized by the public use territory and natural morphology of the island reoccuring patterns of use begin to emerge. These patterns establish a rhythm to the street or path that distinguishes it from all others; a manifestation of the way the people living there and relate to each other (fig. 8.5). They identify with the place because these patterns have become a familiar characteristic of their neighborhood. A way of being in the world, celebrating life.

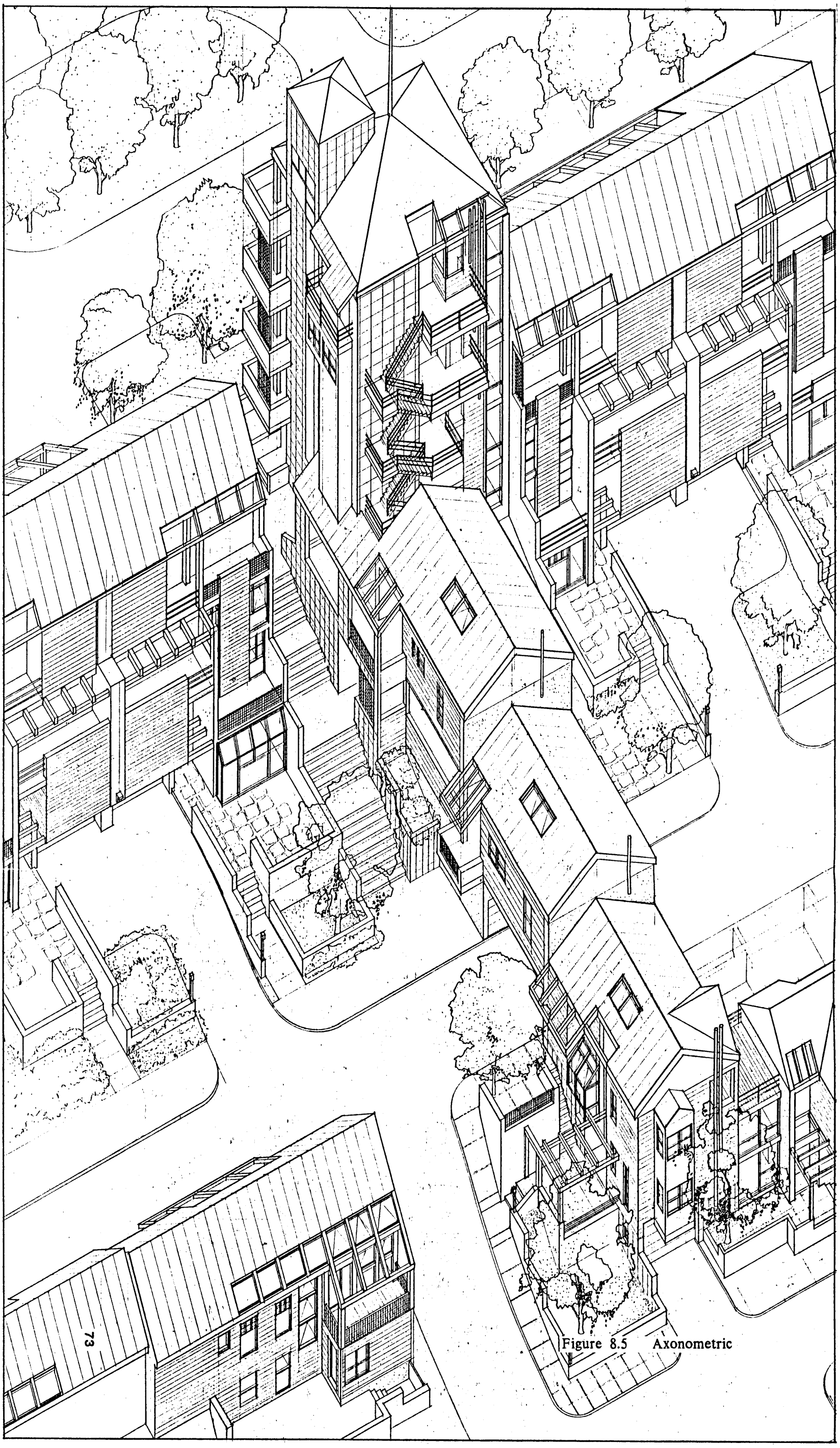


Figure 8.5 Axonometric

CONCLUSIONS

The intent of this thesis was not to design each and every place and dwelling on Spinnaker Island but to explore the notions of placemaking. To reach an understanding of the issues that were thought to be important about the design of a community and the formal/spatial implications of such an understanding. One can only speculate about who will inhabit the place and for what purpose. As architects we must provide the stage; places that bring people together and are sensitive to the natural morphology of the site.

The final outcome of this process resulted in one hundred units of housing, a marina, and restaurant, on an island of approximately 10 acres (10 units/acre). Although denser than the surrounding context the new community of Spinnaker Island "fits" because it acknowledges it's existance within the larger context.

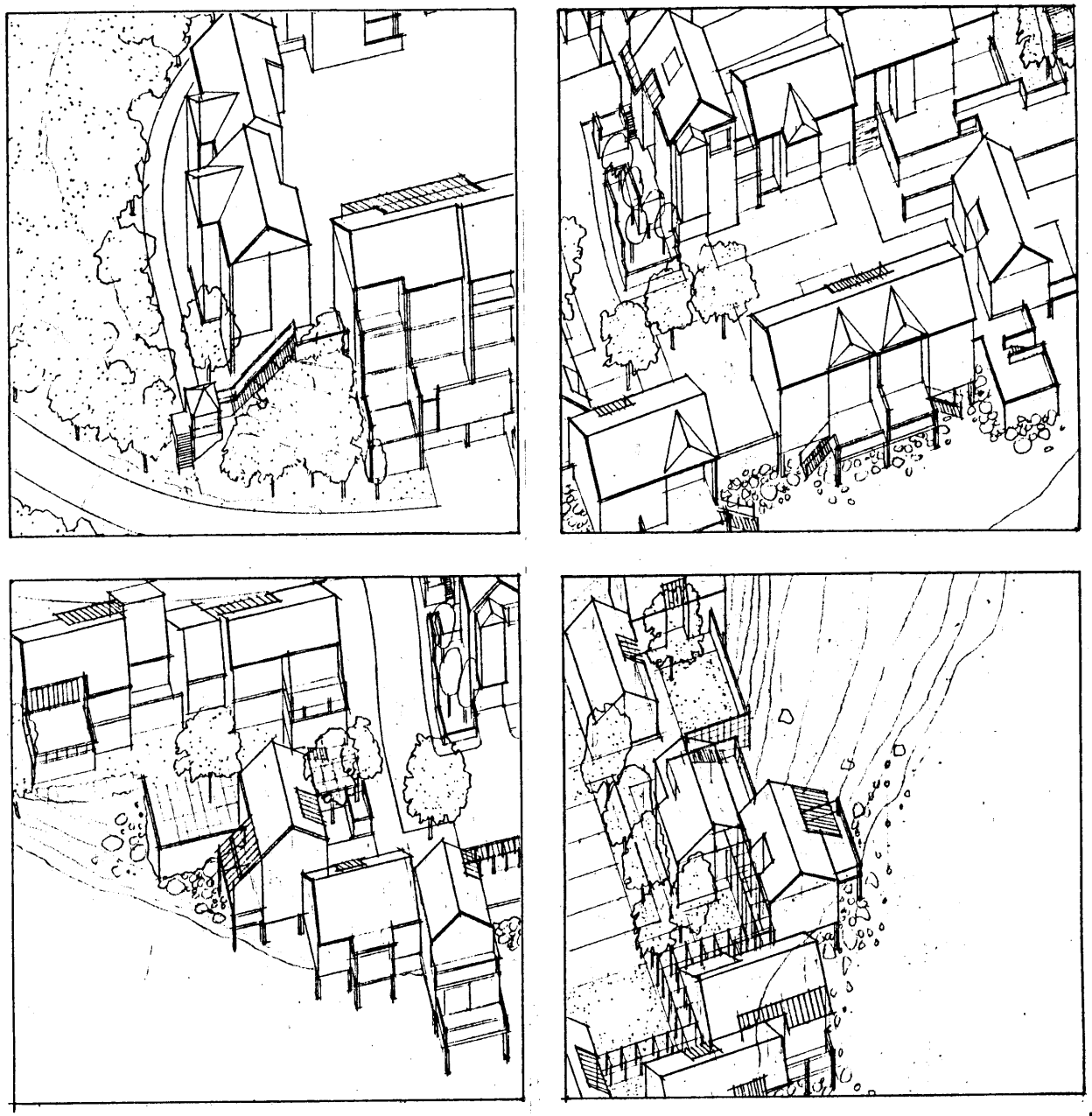
The first step to responsibly add to the built environment is to understand the inherent characteristics of the context and the forces that shape it's form. The architectural solution must recognize those contextual qualities that are a vital expression of "placeness". A community on Spinnaker Island must first be true it itself; a place that enjoys the same clarity of its built form that the island does naturally while acknowledging the role it has in the larger context of Hull and Nantasket Beach.

The site plan and elevations gave the first clue leading toward the understanding of the place. Full understanding can only be achieved as we begin to actually craft those places architecturally because it is at this scale of articulation that people begin to use and inhabit them. The site plan is nothing more than a diagram that can never actually be perceived spatially, although it certainly has spatial consequences.

As architects we must be able to put ourselves within the context of our creations and qualitatively understand them; do they capture the spirit of the context and

respond to the people which will inhabit them? If they do not, they are not places for people.

Figure 9.1 Site Sketches



LIST OF FIGURES

BIBLIOGRAPHY

Alexander, Christopher, NOTES ON THE SYNTHESIS OF FORM. Harvard University Press, Cambridge, Massachusetts, 1964.

Carver, Norman F., ITALIAN HILL TOWNS. Documan Press, Kalamazoo, Michigan, 1983.

Harbor Islands Study Group-M.I.T., THE HARBOR ISLANDS. Massachusetts Institute of Technology, Cambridge, Massachusetts, April 1969.

Massachusetts Department of Environmental Management, Boston Harbor Islands State Park 1984 Master Plan. Department of Environmental Management, October 1984.

Massachuetts Metropolitan Area Planning Council, BOSTON HARBOR ISLANDS COMPREHENSIVE PLAN. Metropolitan Area Planning Council, Boston, October 1972.

Norberg-Schultz, Christian, THE CONCEPT OF DWELLING. Rizzoli, New York, 1985.

Rossi, Aldo, THE ARCHITECTURE OF THE CITY. M.I.T. Press, Cambridge, Massachusetts, 1984.

Schmidt, Eric P., Design Projections for a Commuter Ferry Terminal and Commercial Pier. unpublished thesis for Master of Architecture, Massachusetts Institute of Technology, 1984.

Scolari, Massimo, BETWEEN MEMORY AND HOPE. M.I.T. Press, Cambridge, Massachusetts, 1980.

Scolari, Massimo, WATERCOLORS AND DRAWINGS 1965 - 1980. Rizzoli, New York, 1980.

Sherwood, R., MODERN HOUSING PROTOTYPES. Harvard University Press, Cambridge, Massachusetts, 1978.

Untermann, Richard & Robert Small, SITE PLANNING FOR CLUSTER HOUSING. Van Nostrand Reinhold Co., New York, 1977.