Living in Arverne: Rebuilding the Experience of Landscape

Elizabeth Rose Silver

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Signature of Author:

Elizabeth Rose Silver
Department of Architecture
January, 17 2003

Certified by:

Fernando P. Domeyko
Senior Lecturer, Department of Architecture
Thesis Supervisor

Accepted by:

William Q. Hubbard Jr.
Adjunct Associate Professor of Architecture
Chairman, Departmental Committee on Graduate Students

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Thesis Supervisor

Fernando P. Domeyko,
Senior Lecturer,
Department of Architecture, M.I.T.

Readers

John De Monchaux,
Professor and Director of Spurs Program,
Department of Urban Studies and Planning, M.I.T.

Eran Ben-Joseph,
Assistant Professor,
Department of Urban Studies and Planning, M.I.T.
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by Elizabeth Rose Silver

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Abstract

How do we approach the inhabitation of a landscape? Starting with an understanding of the ecological system, the design acts as an enabler to the landscape, both at the scale of the urban plan and at the scale of the architecture. By paying attention to the forces of the air and water, the newly built landscape reveals these underlying systems in the experience of this newly formed place.

While this design process can be generalized, it reaches its fullest expression by looking at a particular place. This thesis tackled developing Arverne, a once vibrant beach community on the eastern end of the Rockaway Peninsula, only fifteen miles from Times Square. The community of Arverne is part of one of the most significant landscapes in the United States, the barrier island system that runs the length of the eastern seaboard. Situated at the boundary between this powerful landscape and the city, any design must seek to balance both. The goal of the design is more than simply to allow the functioning of the city and nature side-by-side but to create an understanding of the landscape through the experience of this place. The ultimate value of these experiences lies in their ability to foster a new realization of a person’s relationship to the landscape and consequently a better sense of their own and the community’s identity.

Thesis Supervisor: Fernando P. Domeyko
Senior Lecturer, Department of Architecture, M.I.T.
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Foundations
here is a land shaped by water and wind
and then reshaped by the large and small gestures of man.

John De Monchaux
"Rockaway is a very close peninsula. The bay is on one side and the ocean is on the other. We had three actual play areas. In the bay, there were reeds, tall reeds. We cut them down and being influenced by the war we played different war games and when we got tired of that... we'd collect little tadpoles and fish, no cruelty, we just had them for a while and then back to our homes and we'd always have to check in and a bite to eat, or a piece of bread and chicken fat which to this day I regret, but boy did that taste good..."

Larry Raisfeld
"...we're talking about summers in Rockaway when I was, I guess eight and nine... we lived in the bungalow colony... very small and close together, the rooms are really tiny. We were able to rent it for the summer for 250-300 dollars for the whole summer... it was during the war years, and a lot of families had sons and daughters who were serving in the military. You'd wake up in the morning... and you'd have the smell of food coming from each house and there were almost distinct smells and odors, so you'd know who was cooking what and of course you would want to get up and that would make your mouth water and you were hungry too, you got some bread and maybe milk or orange juice and you were out of the house before you knew it."

Larry Raisfeld
Ocean

"...usually the afternoons we spent down at the beach, we'd climb on the rocks and punt around and dig in the sand and build and play different ball games and in the water, we were all good swimmers, living on the ocean...

...The evenings were spent around the bungalow area playing and at that time it was like a ton of money if you had 10 cents or a quarter. Rockaway didn't have many amusements on the boardwalk but they had a couple places that had these penny arcades and frankfurter places, knish places, boy did they taste good...

...the penny arcade had moving pictures... you'd collect big cards of movie stars or baseball players...I remember keeping mine in an old cigar box under my bed, under my pillow actually, I had my cards there, my jazz knife, it was a real Huck-Fin type existence. The Long Island Railroad was not elevated at the time, and in looking back it felt so country-ish, to walk across the railroad tracks going to the bay..."

Larry Raisfeld
"I ended up living in Rockaway as an adult when my family moved out of Brownsville New York, which is a poor area. It was very desolate out there [in the winter]. Only two or three families on the block, the rest was deserted until the summer. I'd take nice long walks on the beach with my dad, which were wonderful moments. It was a happy existence both as a kid, I have nice memories, and as an adult. I would have liked a little better living conditions for my parents, but now that I look back we all had a good time and it was very happy and for my father as a cop it was a big thing to own a house at that time."

Larry Raisfeld
The South Shore of Long Island

McCormick, Larry C.; Pilkey Jr., Orrin H.; Neal, William J.; Pilkey Sr., Orrin H.
I am able to imagine the glacial advance by remembering a day at the beach. Sitting in the sand, digging in my heals and shoving them forward, I form small mountains under the arches of my feet. Seventy thousand years ago the Wisconsin glacier began it's most recent southern advance through Canada. It pushed and scraped it's way across land and mountains carrying away debris embedded in it's advancing ice, only to deposit these collections of boulders and mineral laden soils at the edge of it's forward movement, the Ronkonkoma Moraine. The temperatures began to rise and it seemed that the glacier would finally retreat, but not without one last stand, and this final push forward created the Harbor Hill Moraine. Long Island is the result of what was left by the glaciers when they finished their move forward twenty thousand years ago. They began to melt and recede, but left behind large amounts of coarse debris they had dragged along during their long trip from the north. This debris, called a Moraine, was left in two large swaths, one extending between Lake Success and Montauk Point, the Ronkonkoma Moraine, and the other running from Staten Island out through Orient Point and into the ocean beyond. This is called the Harbor Hill Moraine. As the glacial ice melted smoother finer material was carried to the south creating outwash plains, which are responsible for the South shore's flat sandy beaches. At this point Long Island was not yet an island; in fact, it wasn't even near the coast, which was as much as seventy-five miles out to sea. As the glaciers continued to melt and the sea level continued to rise, the landscape changed and seven thousand years ago Georges Bank, the 150-mile ridge northeast of Nantucket, became an island. This trend persisted
The Moraines as backbones to Long Island's formation.


The Lighthouse on the Cliffs at Montauk Point.

A boulder field has been added to the point to reduce erosion and to protect the lighthouse. The consequences of this action will likely appear all along the barrier coast.
until about four thousand years ago when the climate stabilized and Nantucket, Martha's Vineyard, Long Island and the rest of the New York Bight began to resemble something of the coastline that we are familiar with today.

The Long Island shoreline is governed by the sun and the moon, the wind, water, and land. It is a system that seemingly touches on all the natural elements of our world. Heat from the sun creates the wind far out at sea and it is the winds that drive the waves in to batter the large morainal cliffs at Montauk. The headlands, beginning with the cliffs at Montauk Point, are the source of sand for Long Island's south shore barrier islands. The Atlantic Ocean meets Montauk Point with huge waves that land on a field of enormous smoothed and rounded boulders. Some of these rocks are as much as 5 ft. in diameter, although most seem to range between the size of a football and a watermelon. They lie scattered on the beach and into the surf as if they had slid down from the cliffs in some sort of avalanche of mud, spreading themselves out and allowing the mud to be washed away by the waves. There is the definite feeling that this half submerged boulder field is not a safe place to go exploring as it is constantly being battered by a booming surf so strong that even from the cliffs above the spray can be felt. Just up from the rock field rises a steep ochre colored cliff face. It has been cut into with valleys carved by the rain, and large chunks have been sawed off by the ocean. Even on this beaten face some small plants grow, but they probably arrived there as a result of a cliff breaking off and depositing some of the vegetation that grows at the upper edge along this ocean face. The top edge of the cliff face is marked by a blanket of green that comes to an abrupt halt at the cliff edge. This pattern of growth hints at the process of erosion along the cliffs. Large storms arrive at Montauk with the annual violent winter weather. Chunks of the cliff edge sheer off into the ocean during these storms to feed the southerly beaches through the littoral drift, a process by which sediment is carried (in the case of Long Island, from East to West) in tides running parallel to the shoreline, which result from the oblique angle at which the waves meet the beaches. There are a variety of theories as to the origins of barrier beaches. The beach islands might have been formed as peninsulas by littoral drift, becoming islands after weak points were breached to become inlets during storms. Another possibility is that beach ridges were formed during the glacial retreat and as sea levels rose the backsides filled in to become lagoons and the ridges became the barrier islands. A third theory suggests that there were barrier islands several kilometers off the coast when the sea level was much lower than it is now. When the sea level rose, the islands were drowned and a new series formed closer to the coast. Since that time it is thought that those islands have been migrating northward year by year. Whichever theory is correct, what is clear is that these islands are currently maintained through the continuous currents of sand brought to them from the Montauk cliffs.

Along a flat beach the tides move in and out twice daily. Some days they are higher than others and reach farther into the island, but these highest high tides only occur when the sun and moon align to pull the water up into a bulging tide far onto the shore. The sand deposited on the beach during these highest tides, therefore, has time to dry out. Once the sand has dried it can be lifted by the winds. Along the way a piece of driftwood is deposited high on the beach and as the sand laden wind approaches, the wood slows the wind, causing it to release the sand and a dune has begun to form. As the dune grows in size the landside is able to shelter dune grasses fed by the mineral rich salt spray and in turn the grasses stabilize the sand with their roots allowing the dune to grow yet larger. The effect of the dune line is one of division between the ocean and everything else. The dunes physically protect everything behind them from the ocean waters, but their presence as a barrier can be more keenly observed on a daily basis by the dramatic difference between the worlds of the seaside dune and the landside dune. I walk over the dune and am hit with a huge wind, I almost have to lean into my steps to stay balanced and the ocean is the only sound. The wind and the ocean create an overwhelming world battering my skin and ears. This side is a fight against the sea. Landside of the dune is a world of subtlety. There are a thousand different types of plants, all growing in various spots linked to the way the sea spray pops over the dune ridge, here though the winds have been so cut off that small
The inlet at Mecox Bay.

This summer it was closed by sand. Even this narrow spit is effective in separating the ocean and the bay.
insects can fly and bite me, I can watch the reeds slowly rustle back and forth and even flowers can bloom. It is very quiet on the landside of the dune. I stand still watching a deer standing still watching me. The dune is working very hard to create such a separation; yet, however successful it may feel, the landside of the dune is as heavily ruled by the ocean as is the seaside. The first symptoms of an approaching storm may be felt in the winds. As the winds gain strength they lift the lighter sand particles from their resting spot on the front of the beach and deposit them in the dunes, strengthening both the dunes with added sand and the shoreline with a surface of the remaining heavier sands. The same winds that are responsible for shoring up the beach are simultaneously creating the immense storm waves making their way towards the beach. The waves quickly consume the low flat beach and make their way to the dunes, gorging themselves on the plentiful sand. The feast of dune sand; however, will become the island’s ultimate defense as the sand is not lost to the ocean, rather it is redistributed into offshore sand bars which help to calm the crashing storm waves. After the storm has worn itself out, gentle ocean swells return dune sands to the beach from the defenses of the sandbars. The fine sands are light in color while the heavier sands are darker and redder; so, the colors of the beach sands communicate storm histories. If the storm has been powerful enough, the waves may even have washed through the dune line depositing sands into the bay. These disruptions to the ecosystem allow the island to migrate into the bay, permitting it to shift its location in response the rising sea levels and storms. This adaptability allows the barrier islands to maintain their shape and size in exchange for an adjustment in their location. The event of the over wash also helps to strengthen the bay, which further stabilizes the barrier islands, aiding in their ultimate survival.

These systems functioned uninterrupted until a great storm in 1931 chewed an inlet halfway between Montauk Point and Manhattan, opening a much-welcomed route to the sea. This inlet ordinarily would have filled with sands moving west in the littoral drift, but because of the value of this route to the ocean, it was strengthened with jetties and dredged of sand as it continued to try to heal itself. The fishermen and others who needed access to the Atlantic from Long Island were in luck and in 1938 another great hurricane arrived and it too created an inlet along the great south beach. This one was cut between the first inlet and Montauk Point and this one too was maintained for its value as a direct route to the sea. We know that the barrier islands have changed their number and length over the years if only through clues as simple as inconsistencies in maps and curious naming practices. For example, the name of Fire Island, which is in fact a misunderstood pronunciation of ‘five islands’ originates from the fact that the strip that is now maintained as Fire Island was at one time as many as five separate islands breached by multiple inlets; however, as is their nature, inlets trap sand and become islands, constantly altering the arrangement of this barrier coast. 1931 is an important date as it is the beginning of an attempt to maintain changes as they occur. This date marks the birth and maintenance of the Moriches Inlet, to be joined only seven years later by the Shinnecock Inlet. The maintenance of these inlets with dredging and jetties began to trap the westward flowing sand and caused the down drift islands to erode and become more susceptible to storms. Visiting this strip of land this summer I am aware that this first barrier island beyond the headlands of Montauk Point and East and South Hamptons, is entirely manmade from inlet to inlet. After WWII there was a huge residential rush to build on Long Island. The two areas most severely affected by the new inlets were the fairly unpopulated Fire Island and the increasingly populated Westhampton Beach. Finally, in 1954 the army corps of engineers was called to the rescue of the populous Westhampton Beach, whose land was steadily disappearing from under their feet. The corps’ suggestions for the maintenance of the island included widening the beaches, removing or elevating many buildings, creating dunes and planting dune grass, and constructing up to fifty groins to maintain this new sandy beach. It was hoped that these groins would maintain the new beaches by trapping sand from the longshore current as well as keeping any new sand from being carried away. In 1964 the project began, but instead of building the first groins at the west end of the island, the corps was influenced by wealthy property owners at the east end of the island and began their work
Dune Road in Westhampton Beach.

The shallow dunes can be seen on the left and the bay can be seen on the right.
there. The obvious result was growth of beaches on the east end and severe erosion on the west end beyond the groin field. When the corps became aware of the consequences of the project, further work was halted, but now the west end had no ability to gain sand and only lost more and more with each passing year. Finally on Halloween of 1991 the inevitable storm arrived at the island, which was now flat and entirely without the protection of dunes. Westhampton Beach before the storm was barely above sea level and covered with densely packed homes built on stilts so they could qualify for federal flood insurance. After the storm the island was barely more than a sandbar, reduced to 200 feet in width. The next two seasons, however, were even more brutal and the result was the almost total destruction of the island. The homeowners; however, feeling wronged by the very construction of the groin fields, incorporated as the village of Westhampton Dunes and allowed even those residents whose land was submerged to claim the village as their primary residence. The new village sued the county, state and federal governments. The result was a 1994 settlement that required the governments to rebuild the beach and the dunes and to maintain them for the next 30 years. One must wonder what the fate of this place will be after 30 years? Amazingly, despite the real dangers here, the newly constructed island is covered front to back and end to end in homes on stilts. The result is an entirely manmade island with deep beaches, low dunes, a single road and densely packed homes on both the bay and beach sides of the road. The section here is of a long low beach, rising slowly to a shallow dune, maybe ten to fifteen feet in height, with sparse grasses on the bayside and just barely enough space for a house raised on stilts to sit on either side of the two lane Dune Road. Beyond the houses on the north side of the road, the shallow marshy grass filled waters ebb out into the wide bay. This attempt at a constructed barrier island points to the strength of the natural systems in the paths they take and in the landscapes they shape. It is nearly impossible for us to build an island with the protective strength and stability (through instability) of a barrier island, shaped and continuously remolded through the actions of the wind and the ocean.

Under fifteen miles from Times Square are the barrier beaches that actually fall within New York City limits: Coney Island, with the communities of Manhattan and Brighton Beach, and the Rockaway peninsula. Both of these areas are accessible by the New York City subway system or by private car, though neither are on the more direct and pleasant Long Island Rail Road lines. All of these areas are also associated with the combination of summer playlands and dense residential populations. Coney Island is actually the first beach replenishment project in the world, begun in 1921. This project was not actually undertaken in order to preserve the beach, but so a boardwalk could be constructed. Brooklyn wanted their own Atlantic City, but there were concerns because the shoreline seemed to shift often. The answer to this problem was of course to build an artificial shoreline to go with the boardwalk. This way there would be plenty of room for both the walkway and the beach bathers, with the added bonus that the walkway would be protected by the new beach. The beach construction was simply a necessary support to the boardwalk construction, but as Cornelia Dean notes, the construction of the beach has become the major ongoing project.

Today, we know that this project was just the beginning of decades of work and tens of millions of dollars to stabilize, armor, and replace beaches at Coney Island and in the Rockaways nearby on the west end of Long Island. For New Yorkers, the effort has undoubtedly been worth it. These beaches are among the most heavily used in the United States and, as Farley noted, "the chief benefit that follows an improvement of this character is to be found in increased health and happiness of the vast crowd of people who are obliged to live in congested parts of a Great City and who have here an extensive playground for their recreation and enjoyment."...1

1 Dean, Cornelia. Against the Tide, The Battle for America's Beaches (New York: Columbia University Press, 1999),98.
Coney Island

Above: The pier, beach, boardwalk.
Left: the beach - seaside of the boardwalk.
Right: the playland - landside of the boardwalk.
The sectional experience of Coney Island spans between a pier, far out in the ocean, back to the amusements behind the boardwalk. Out on the edge of the pier all you can hear is the wind and the activities taking place there have a similar rawness (fishing with raw chicken as bait and fish guts everywhere). These brutal actions do not feel raw considering their environment, out in what is almost a wilderness, a place totally at the whim of the water. Farther back along the pier the sand appears and the crashing of the waves gives the wind some competition for noise. Without much notice all that is left behind and individual voices arise and you have arrived at the boardwalk, where there is talking and radios and people showering from a day in the sand. You pass vendors selling ice cream and hot dogs and then you descend over the boardwalk and into the amusements where you are as inundated with the artificial flash and color and movement and noise of the rides as you were by the natural ocean wind at the end of the pier out at the edge of the sea. Amazingly, though the boardwalk provides none of the protective qualities of a dune over the long term, on this day it has created just as clear a separation between the landside and the seaside as the most natural dunes on Fire Island.

My visit to Rockaway began at the subway stop across Broadway from the WTC site. I circled around to find the A train, which goes to 3 separate endpoints in Queens, and was told by a big guy that “it'll be a long ride”. The trip begins underground on the way to Brooklyn, passing Jay St., Borough Hall, Hoyt-Schermerhorn. It may be a long subway ride, but at least on a Friday afternoon the train is well air conditioned and uncrowded. The A train is an express passing Clinton, Washington Ave., Franklin Ave., a stop at Nostrand, passing Throop and Kingston, stop at Utica - this is a big station. Passing Ralph Ave., passing Rockaway Ave., stopping at Broadway East NY- lots of people get off here. Passing a deserted Liberty Ave., Van Siclen Ave., Shepherd Ave., grind to a stop at Euclid Ave., Grant Ave., and now we pop out into the sun, 80th St. Hudson, 88th St., next stop is the splitting point at Rockaway Blvd. After a lengthy wait here with a platform filled with beach goers, finally the train into Far Rockaway. Stop for Racetrack at North Conduit Ave. and here, the tracks, still elevated, are edged by trees. From inside the cool train the sunny trees are a pleasant landscape. Finally the feeling of beginning to get away. From here the train will cross Broad Channel and then there'll have to be another switch to the S. Just arrived at Howard Beach, the stop before Broad Channel, and it's finally more quiet as we cross the water of the bay. Water, marshes, birds, all fenced and barbed wired off from the people on the train, as if we were riding through a ghetto. From this train ride there is a world out there, but we can't feel the temperature or wetness of the air on our skin, we can't smell it or hear the birds or the roughness or the quietness of the waters.

Most of the people on the train are dressed for the beach. Mothers with small children, friends in flip flops and tank tops with bikinis underneath carrying thermoses of food and drinks, and umbrellas, rainbow colored and wrapped in plastic. Broad Channel has houses and boats to envy from the train, built on piers in the middle of the water or on the artificially extended land, motor boats anchored, birds enjoying the small shorelines and grasses and waters that we want for ourselves. The anticipation builds and we drop lower to the water, almost there, and now we're on the peninsula, over a park, over a road, the kids on the train are playing games chasing each other faster, almost there, Beach 90th street, they read the names out loud and there between giant apartment towers is the ocean on the horizon. The chatter is louder and the sneakers squeak. Stop at Beach 98th street - Playland. Each through street is a straight shot view through to the boardwalk and the ocean, only the large buildings parallel to the ocean feel like a bane, blocking large tracks of this release. Beach 105th, seaside. I can see the bright orange umbrellas from the lifeguard towers. Last stop, so slow to here, Rockaway Park, enclosed everywhere by trash and barbed wire and fences. Beach 116th Street. The strip to the beach. You know the direction to go because it's lined with outdoor tables selling all you need: umbrellas, towels, sunscreen, bathing suits, food. Next block, almost there. And now, standing here on the boardwalk at the edge of the beach the scurrying has stopped.

Quieter. Only sounds of conversation and the wind. Heads move slowly in the distance where the beach dips down to the ocean.
Rockaway

Above Left: The view through the towers to Rockaway Beach from the subway. 
Above Right: The boardwalk at Rockaway and 116th Street. 
Right: People enjoying a day at the beach.
The section here is the ocean, the long beach — so long I cannot see the edge and people get small and disappear over the ridge down to the ocean. Then the slow ramp to the boardwalk where you move across and look along the beach instead of through and then the ramp back down the other side to the urban thoroughfare to the subway. The boardwalk here is essentially the dune. It is on top of a dune and grasses and weeds grow up through the cracks between the wooden slats.

On the return trip the train is a bit of a club. It’s the beach crowd, wet and sandy with fries and ices, tired, quieter. The kids fall asleep when they sit down and their parents chat or snack on chips. Some people read in the sun through the train windows.

While part of this peninsula is a summer spot, it is not only a beach for visitors from the city, it is also a series of tightly knit residential communities. The importance of this place, beyond what makes it special in terms of the landscape and it’s proximity to the city, is in fact this sense of small intimate loyal communities spanning from generation to generation and the community actually becomes the thing that sustains this section of the barrier islands.

Less than twenty miles from Times Square is the barrier island containing the City of Long Beach and the Village of Atlantic Beach. As compared to their fairly public neighbors to the west, this island, whose beaches are public by law, is actually quite private and frequented mainly by residents as opposed to the many day-trippers who make their way to Coney Island and the Rockaways along the city subway lines. This privacy is achieved mainly by the limited access options: private car (resident only parking available) or the Long Island Rail Road. In fact, Atlantic Beach was founded on this very premise of privacy. The brochure for the initial offerings of land actually describes Atlantic Beach’s place in the social hierarchy of beach communities quite clearly.

The masses had their Coney Island... Occasionally the financier had his shore estate. But the man in between, who had not a great fortune but was affiliated with the best clubs, had superior social contacts, was used to the nice things of life in general, had actually no satisfactory sea place for retreat that was in reasonable distance from his business until Atlantic Beach, Long Island, was opened up and restricted to their tastes...

Until 1926, when the island was built up using elephants to haul sand, and a private toll bridge was erected, Atlantic Beach was not much more than a sand bar. The Atlantic Beach section begins at the ocean edge with a very deep beach, not as long as the beaches at Jones Beach or in Rockaway, but still a long flat walk across the sand. Each section of beach is sectioned off into separate units by lines of groins at either edge. These stone walls for the beach give the impression of a perfect square of beach. The width between groins and the length from boardwalk to water edge create what feels like a large square of space designated for play. From the edge of the water you move across the hot foot burning sand to the boardwalk edge, which is marked by a large shaded area of cool damp sand. The boardwalk is raised 15-20 feet above the sand and to access the beach you pass beneath it. The entrances and exits for the boardwalk occur only on the street edge, never between the boardwalk and the sand or even through any of the private clubs, which sit between the beach and the rest of the island.

The Atlantic Beach Boardwalk is unique on Long Island both in terms of its type of access as well as in terms of its elevation. It is the only Boardwalk which has been raised to such a height above the sand and whose underside is still inhabitable. A few of the other boardwalks are raised (Long Beach and Rockaway) but all have since had their undersides either filled in with sand or boarded up. The particular form of the boardwalk at Atlantic Beach creates two overlapping and totally separated worlds, the one of the observed on the beach, ocean, and private clubs, and the other of the voyeur continuing up from the street onto the public space of the boardwalk from whose vantage point the person strolling can watch the events in the beach clubs and the play on

2 Atlantic Beach Offering Brochure, Courtesy of Alberta Libbey.
Long Beach and Atlantic Beach

Above: The Long Beach boardwalk, ocean, and city behind the boardwalk.
Middle: The Lido Hotel in Long Beach. Long Beach was built as a fantasy island. This hotel was originally pink and dates from the 1920s.
Right: The Atlantic Beach boardwalk. The beach life is below. Note the groin field in the ocean.
the sand all the way down to the ocean’s edge. The only place where
the beachgoers find privacy from the boardwalk eyes is in the shaded
area below the boards. The rest of the beach runs under the boardwalk
into private beach enclosures bordered on one side by the boardwalk
and on the other three by the club (usually two sides of cabanas with
people sunning themselves and smaller children playing in this protected
sandy area and the far side being the entry to the club on the street side
and the entry to the beach on the ocean side), creating another smaller
square of beach. Where most of these clubs exist there have also
been added small artificial dunes on the ocean side of the boardwalk,
but even without the new dunes the street side of the boardwalk feels
much more protected and the wind is reduced to almost nothing. In
the undeveloped beach areas this stretch of sand continues under the
boardwalk back to the large two-way Ocean road with parking between
the two direction lanes. On the far side of the road is a pedestrian
sidewalk and then the even blocks of houses begin. Atlantic beach was
built up out of what had been only a sandbar so the strip is only wide
enough to accommodate two blocks of tightly packed homes, one group
behind the beach clubs and the other fronting the bay.

The city of Long Beach, though sitting on the site of a natural
barrier island, is just as constructed as the more "natural" looking
Westhampton Beach, the fully urbanized Coney Island, or even it's
completely fabricated neighbor Atlantic Beach. This "Riviera of the
East" was brought to life in 1907 by William Reynolds' will to develop
it. Reynolds dredged a 1,000-foot wide channel in the bay to make
room for steam ships and built the boardwalk, hotels and homes. For
many decades, peaking in the 20’s and 30’s, Long Beach was a center
for entertainers and wealthy businessmen. However, the city fell into
disrepair in the 60’s and 70’s, though it is currently seeing something of
a revival.

The Long Beach boardwalk and beach area is the ultimate in
man-made intervention. Where the dune once was the boardwalk sits,
like a main street along the ocean. Apartments, hotels and shops open
their front doors onto the boardwalk and people stroll there to see, be
seen, socialize, visit the ice cream parlor, go to the beach or go into
their own homes. All of this can be accessed from the boardwalk. The
result of the constructed dune/marsh zones is a constructed beach
zone. The beach has had an erosion problem over the years, requiring
the construction of groins along the coast. These constructions have
not been successful in maintaining a wide beach. A beach will always
shrink in relation to a fixed point, as it is only as a system that the beach
can maintain it's size. So, recently the beach has been renourished in a
project that has been working its way little by little along the Long Island
coast. Now there is a large constructed beach with constructed groins
and a constructed living environment where the dunes and marsh once
stood. Despite the completely unnatural state of this urban edge, the
density of the boardwalk and adjacent apartment buildings create the
same effect of separation created by a natural dune line. This urban
densification separates along a distinct line two vastly different worlds
in which the air smells different, there are different sounds, people,
and speed of movement. Here in Long Beach, the urban life is on the
boardwalk, while the quiet residential life is in the street behind the
6 story buildings. In fact this is something of a reversal of what one
might expect, as the urban center is located at the island's edge, on
the boardwalk and the beach, while the quiet residential area is located
farther back on the center of the island. The boardwalk gives the
impression of a major city street transplanted above the beach. And,
in fact, the walkways down to the beach from this boardwalk really
make the beach a public continuation of the streets. The center of the
boardwalk becomes the pedestrian / bicycle thoroughfare and the ocean
dge of the boardwalk becomes the place for stillness, the place for
sitting on a bench and viewing the beach below.

This barrier island is not any different, ecologically, from Jones
Beach to the east, but it feels tremendously different. Jones Beach was
built up into artificial dunes while this has been built up into suburban
houses. Along with the houses comes a constructed landscape and
with this landscape comes a whole set of colors, smells, and sounds.
The air here is moist and the wind is softer and gentler than at Jones
beach next door, where the wind is hot and harsh. Here it is humid,
hanging air, caught in the lush green lawns that are everywhere and the
Jones Beach

From top clockwise: the pool at the east bathhouse, the shuffleboard courts, the exercise program on the boardwalk, Ocean Parkway.

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trees shading the streets. With the green comes its own set of bugs and birds. I woke up in the morning in Atlantic Beach to the cicadas calling back and forth, a constant hum of crescendo and decrescendo, there is the - - - short high tweet birds, the higher, more distant twittering birds, the / staccato back and forth birds, the growl from the swans, less often, and then the cicadas rolling back in. Walking through the streets near the bay I had to dodge a caterpillar hanging from one of the shading trees. Later all the sounds die down and it’s quiet for some time until it is all brought back with a cascading cicada drum roll and this time the birds that join in are different, cawing from the bay.

The next thirty miles of barrier islands, located between thirty and sixty miles form Times Square are state and federal parks. Jones Beach opened to the public in 1929 and Fire Island National Seashore was created by President Lyndon B. Johnson in 1964. Despite their common commitment to the public, these two islands have been shaped according to two very divergent philosophies. Jones Beach, originally a series of smaller islands, the last of whose inlets were filled by 1930 to create one continuous beach, is the creation of Robert Moses. For Moses, public access was the priority and all else, including environmental concerns, became subservient to this goal. This island is the embodiment of the highway vision with bridges at either end, and the natural ecology reformed with the sole purpose of supporting the car. Accordingly, the marshes have been buried to create acres of parking lots and the natural dune line was bulldozed in 1927. The sand from the dunes (with some help from a little hydraulic fill) was used to create a ridgeline down the center of the island. This ridge was to become the Ocean Parkway, a breezy two-way parkway that carries you from one bridge to the other all in the comfort of your own car. The experience of this public park on the beach is of a carefully planned entertainment facility. There are huge bathhouses with pools, showers, concessions and toilets (admission for the day is only $2/person), and the extensive boardwalk. The boardwalk in Jones Beach; however, is unlike any of the other village or city boardwalks. This boardwalk is all about recreation with miniature golf, volleyball, shuffleboard, and basketball courts on the landside, and a series of signs for a workout program every 200 yards on the boardwalk itself for those who prefer a solitary regimen. In addition to all of these activities there is an enormous theater on the bay. You could come here and never even bother with the vast beaches.

The Fire Island National Seashore would have followed in the steps of its neighbor to the west (Jones Beach) had it not been declared a national park. However, the designation as a national park carries its own set of requirements. The philosophy of the government towards its parks is one of prioritizing the preservation of the natural ecology above all else, including public access. Fire Island is in fact the only one of all the barrier islands that does not have a paved road running its length. There are bridges at either end, but only sandy roads connect the two and to access the communities and parks in the center of the strip one must hike, take a four wheel drive vehicle, or travel by ferry across the bay. The benefit of all this is that Fire Island exists in the most natural state of all the barrier islands with a long beach, deep dunes, and a backside covered in vegetation leading into pine forests with huge deer populations and finally opening up to the Great South Bay to the North. Fire Island still moves and is currently extending itself westward as can be attested to by its lighthouse, built in 1825, which moves farther and farther from the inlet each year. Currently it sits five miles from the island’s western tip. Because of the natural state of much of this island, the necessity of human intervention for any level of inhabitation (not just access by roads, but even for something as seemingly simple as pedestrian access over the dunes) is highlighted. Pathways from the road to the ocean are necessary on this beach to mediate the long exhausting walk in the hot sand. In exactly the same way that roads for cars, and tracks for trains are necessary to create access to these unwelcoming islands, the boardwalks on the urban beaches are just as central to the ability to inhabit the beaches. This is a formidable environment to navigate and requires intervention for general access to the region, but just as importantly it also requires local access into any given area. To be enjoyed by the public the islands need to be maintained ecologically, but they also require architectural intervention and this necessity is made especially clear on Fire Island. On the flip side, the interventions to create access and convenience at Jones
The Fire Island Dunescape

Above: Dune on left, bay on right.
Right: The backside of a Fire Island dune.
Beach are so overwhelming that it is hard to imagine that Jones Beach's natural state could ever have resembled that of Fire Island, and this disconnect from the actual functioning of the landscape carries its own set of dangers. Beyond Fire Island is the barrier strip of Westhampton Beach, only seventy miles from Times Square, and then the Headlands extending out to Montauk Point, 110 miles from Times Square, at the end of Long Island.

The issue of inhabitation of the barrier islands, whether through permanent residences or through temporary visits is an important one. The question of whether to be there at all is at this point mute, so now the question becomes, how to be there. Humans have been living on Long Island since the receding glaciers allowed them to walk across the continent 12,000 years ago. The Native American inhabitants of the island were an extended family of Algonquin – speaking peoples living in about 13 family groups all over the island. There is evidence that the Native Americans living on Long Island used the island in a seasonal manner, settling near inland water or protected coastal areas during the mild months and then resettling farther inland in the winter for protection from the winds and storms on the coast. Even with the more recent settlement of the island by Europeans, people tended to stay out of the ocean's way, choosing to build on high ground. It was only in the 1920s that settlement began in earnest on the barrier islands, but even then the structures tended to be small enough to move in response to a shifting shoreline, or inexpensive enough to lose in the case of winter storms. This lack of permanent building is actually the tradition on the islands, while the permanent constructions are only a recent phenomenon in terms of the history of the islands. Up until the post war years building was limited to tents and small cottages of little value and simple construction so they could be moved or rebuilt without any great feeling of loss. Historically there was no insurance or financing for coastal development so the risk of loss at the shore was high. The result was that few people bothered to build there when they knew they would lose their investments in the end. If they did feel the need to build, the construction tended to be small and cheap so they didn't throw away too much of an investment. Beyond the environmental issues raised by building on the coast, however, there is a potentially enormous value to us as a society to living in such an expressive landscape. Up until the age of ten my family went to the beach in Atlantic Beach daily during the summer months. My mother would take me to search in the groin rocks for crabs, starfish, muscles, shells (clams, scallops, snails), jellyfish, seaweeds, and anything else that the rocks trapped in their inter-tidal pools. It was many years before I understood that this was a constructed environment. For me the tops of the rocks were this wonderful chance to walk out into the ocean with waves crashing all around my feet. For the gulls the rocks were the ideal location to drop crabs and clams, smashing their shells open, making them ready for breakfast lunch or dinner. There was a sense of danger and excitement, like I was exploring some unknown territory and negotiating with the wild ocean and the wild gulls. Meanwhile the cracks of the rocks held creeping crawling discoveries in wait. The experiences of play in a seemingly real landscape created memories and dreams that I still draw on for my daily life. From a social and psychological standpoint these kinds of discovery play and experiences are central to our development as observant emotive people; however, it was many years until I understood that the landscape I was playing had little relation to the original landscape of the islands. I was sure that I understood, at least in a basic way, how the ocean worked, washing away sand and leaving behind big boulders for crabs and barnacles to live in and birds to hunt in and children to collect shells in. This is in fact dangerous because through these games we learn about ourselves but we also learn about the landscape we are living in and if that landscape never reveals it's actual mode of functioning, how can we ever make educated decisions about how we will live with it? To this day most people I speak to think the groins make the beaches bigger because they are not around in the winter to see the beach nourishment and they are sure that if it weren't for these groins they would have much worse beach erosion problems than they do at present. Landscapes change and evolve over time and when we interfere in this evolution we prevent the communication from the landscape to us over time. We misunderstand what it is saying to us and become unable to read the signals it is trying to give to us.
The Walking Dunes

An example of what a naturally occurring dunescapes can be.
There are endless reasons to value the environment and the landscape; however, in my opinion one of the most essential is also one of the most selfish. Seeing the landscapes, smelling the air, feeling the hot sun or the cool air on my skin is pleasurable. However, this pleasurable experience does not simply end in consumption, rather it dramatically shapes who we are, how we act personally and as a society and this greater consciousness of the landscape will in the end lead to our desire to preserve it.
Coney Island: pier, beach, and boardwalk.

The Lido Hotel in Long Beach.

The pool at the east bathhouse.

The Suburban Beaches.

The City Beaches.

The Fire Island Dunescape.
Inhabitation of the South Shore Barrier Islands

The lighthouse at Montauk Point.

A boulder field has been added to the point to reduce erosion and to protect the lighthouse. The consequences of this action will likely appear all along the barrier coast.

The inlet at Montauk Bay. During the summer of 2002 it remained blocked by sand. Even this narrow spit is effective in separating the ocean and the bay.

Dune Road in Westhampton Beach. The shallow dunes can be seen on the left and the bay can be seen on the right.

The lighthouse at Montauk Point in two undated postcards.

Below, an earlier photo. Above, a later photo showing the erosion of the cliff.

The sand lost by the cliffs migrates along the coast, feeding the barrier beaches.

The Natural Systems

The East-West System: Littoral Drift

The Long Island shoreline is governed by the sun and the moon, the wind, water, and land. It is a system that seemingly touches on all the natural elements of our world. Heat from the sun creates the wind far out at sea and it is the winds that drive the waves in to batter the large morainal cliffs at Montauk.

The headlands, beginning with the cliffs at Montauk Point, are the source of sand for Long Island’s south shore barrier islands.

Large storms arrive at Montauk with the annual violent winter weather. Chunks of the cliff edge sheer off into the ocean during these storms to feed the southerly beaches through the littoral drift, a process by which sediment is carried (in the case of Long Island, from East to West) in tides running parallel to the shoreline, which result from the oblique angle at which the waves meet the beaches.
The Natural Systems

The North-South System: Dune Formation and Island Migration

1. Sand is lifted up the beach by the wind. The wind slows when it hits an object on the beach, and a dune begins to form.

2. The dune grows. Salt spray, carried on the wind from the crashing waves, nourishes the dune grass, further stabilizing the dune and allowing it to grow larger.

3. As a storm approaches, the waves consume the low flat beach and bite into the dune line.

4. However, the sand is not lost. It is carried out to form sandbars, helping to break the storm waves and protecting the rest of the island.

5. As the storm abates, gentle ocean swells help to return the sand to the beach, resuming the cycle.

6. However, if the storm is powerful enough the waves may wash over the dune, shifting sand into the bay.

7. The island has now migrated towards the mainland. It is through this periodic destructive migration that the island is able to survive and rebuild itself.
Base Map:
Hagstrom Map of The Borough of Queens, City of New York, 1997.
The Rockaway Peninsula

- Site
- Urban Renewal Area
- Boardwalk
- Local Roads
- Neighborhood Boundaries
- Main Through Roads
- Subway Lines
- Parks, Beaches, Golf
The Rockaway Peninsula:
Subway Lines
The Rockaway Peninsula:
Main Through Roads
The Rockaway Peninsula:
Local Roads
The Rockaway Peninsula: The Boardwalk
The Rockaway Peninsula:
Parks, Beaches, Golf

Two important conclusions emerge from the examination of both the site and the natural systems governing this landscape.

The first is an understanding of the site as land stretching from water to water, from ocean to bay. Considering the site within the boundaries of the urban renewal area (which extends from the beach to the elevated train) misses the defining issue of this landscape, which is the land’s relationship to water - to rain, to the freshwater lens underground, to flooding, to storm surge, to the ocean and to the bay.

The second is an understanding of what constitutes the landscape. The landscape is not simply what we might think of as “the natural”, it is also what it’s inhabitant’s have built it to be. With this in mind the boardwalk, the elevated train, and the streets and sewers constitute as true a definition of this landscape as do the wind, the ocean, sand, thicket shrubs and bay. With this understanding in mind I have chosen to approach these built features of the landscape as givens in this system to which my design will respond and seek to collaborate.
The Proposal
A Hierarchy of Moves on the Site

The Rail Stops,
The Major Through Road,
and The Commercial/Retail Zone:

The Rockaway peninsula is made up of many small communities, one after the next. The communities of Arverne and Edgemere (Arverne is the area South of the tracks and Edgemere is the area North of the tracks) can be defined as spanning the distance between rail stops in the East-West direction and the Atlantic Ocean and Jamaica Bay in the North-South direction. Another way to further define this new community is to give character to its major through road. When driving through Arverne, you should have a sense of being in this specific place. To enhance this major road, particularly as a winter center, I am proposing a commercial and retail zone to the blocks just North of the tracks.
A Hierarchy of Moves on the Site

Public Parks Connecting Water to Water, and Key Public Moments:

If one of the essential ideas of this landscape is the connection between the two waters, then parkland should not simply run along the waters, but should connect them, giving people the experience of the changes the landscape goes through from one coast to the other. I am proposing major North-South parks crossing at each rail stop. The location of these parks further defines the community, but it also connects the community to its neighbors through the newly shared resource of the park. Where these North-South parks intersect with the road and rail stops, key public moments are created. The Eastern rail stop is quite close to the bay and so this public space becomes about arrival at the bay, while the Western rail stop is quite close to the ocean, making this public space about arrival at the beach. The pairing of these spaces and their further connection through a wide pedestrian path along the South side of the road create a third, diagonal connection between the waters.
A Hierarchy of Moves on the Site

Local Car Roads Running from Water to Water:

With a focus on creating a felt connection between the two waters, the existing grid of local streets, which run mainly between the ocean and the bay, has been maintained.
A Hierarchy of Moves on the Site

Local Pedestrian Paths Running from Water to Water:

While the roads create an experience dominated by the built landscape, I am proposing pedestrian paths to compliment this experience on the interior of the blocks. These semi-public parks also run from water to water, but the experience here is focused on the growth of the landscape in conjunction with the built.
I began the design process by spending time at the site. First, during the summer by keeping a journal of my experiences, and then later during the semester by spending time in Arverne drawing, in an effort to understand and internalize what I felt and saw. When I returned to the studio I made three conceptual models, based on the drawings, about the experiences of moving through the three defining landscapes of the site: the ocean, the thicket and the bay.
The ocean and dune area gave me a sense of movement through and between the land.
Thicket

The thicket is about being in the land. It is in this area that I had a sense of the land being sheltering.
Bay

The bay is a landscape of extending boundaries. There was a constant sense of object after object reaching out into the land.
The Developing Place: Plans
Conceptual Models about the relationship between the land and the built.

This Page: The wood (the built) floats above the wire (the moving landscape) allowing the flow of the natural systems within the landscape to continue unimpeded. In this model the wire is stabilized by the nails driven into the wooden base. This relationship among the materials is analogous to the relationship between the vegetation, the freshwater lens under the peninsula, and the overall stability of the landscape. When the vegetation has enough freshwater it grows and stabilizes the land on the peninsula.

Opposite Page: The land, the built and the natural systems do not function independently, rather it is their interdependence which creates the landscapes we experience. So too, in this model, the shape of the land (the plaster) is the result of the introduction of the built (the green clay) and the liquid wax (now absent, but taking the role of water) which acted as the other half of the plaster mold. The shape of the plaster is further influenced by the changing form of the clay, which transitions from solid, to porous, and finally ends in extended fingers.
Architecture as an Enabler of the Landscape:
Three Landscapes, Three Ways to Touch the Land

The transition from observations about the landscape to shaping and building the landscape occurs within the decision about how to build. I feel that the role of architecture within these landscapes of the bay, thicket and ocean, is to act as an enabler to the land. By this I mean that the architecture should help to shape the land and encourage it to develop in accordance with the natural systems of that particular landscape. The three landscapes of the site require three different approaches and attitudes towards the architectural interventions.
The ocean landscape can be thought of like a closed fist. This is a hard, violent landscape where nothing can be seen as permanent. The architecture here needs to be muscular. It digs into the land creating protected enclaves, but also creating barriers for the sands to gather and form around, shaping the land. In accordance with the understanding of this area as a place of constant and rapid change, the program here must also be temporary and seasonal.
The Symbiotic Thicket

The relationship within the thicket between the land and the architecture is a far more symbiotic one. Here, the architecture protects the vegetation from the winds, encouraging it to grow and in turn as the vegetation matures it protects the architecture by anchoring and strengthening the land. The two work in tandem.
The Light Touch on The Bay

The bay requires a light, delicate touch. The soggy, spongy shores of the bay are essential to the functioning of this landscape. When the peninsula floods it is almost always from the bay side and it is the sponginess of the land which soaks up the water and controls the flooding. Here for the land to function the architecture must tiptoe across it and spread itself out like the fingers of an open hand.
The Developing Place:
Sections of Site Model from Ocean to Bay
Tectonic Implications

Tectonically, the structures are divided into two elements: the wall and the platform. The wall is a stronger, more permanent element, intended to reshape the landscape and in so doing, to create protected spaces for the platform element. The platform is intended to be lighter in construction and more temporary. This is the element of inhabitation.

The wall and the platform are the basic building elements throughout the site; however, it is their relationship to one another and to the natural systems that shifts from one landscape to the next.
Ocean Tectonics

In the ocean landscape the wall digs into the land, collecting sandy dunes around its edges. The light platform is protected by the wall and nestles itself in the spaces carved out of the land through the interaction of the wall, wind and sand.
In the thicket landscape the low wall protects and encourages the landscape by blocking the winds and thus giving the vegetation a haven in which to grow. This newly formed landscape, in turn, protects the platform, the sheltered space for living, eventually making the wall unnecessary.
Bay Tectonics

In the bay landscape, the wall disappears completely, leaving only the light, delicate platform. To shape this landscape is to touch it as little as possible; so, the platform lifts itself up and away from the spongy bay-shore.
The Central Through Road:

The central through road has been widened in order to create pedestrian zones on both the North and South sides. On both sides of the road, access lanes and tree-lined dividers have been added primarily as a shield to the pedestrian areas, slowing the traffic and buffering noise.

The North edge of the road is the commercial zone. The sidewalk here is wide and tree-lined leading into the interiors of the commercial blocks, where in the summer the courtyards provide shady spots for restaurants and shops and in the winter they provide protection from the windy weather.

The South edge of the road is a 50' wide tree-lined pedestrian park which runs from the bay in the North-East corner of the site to the ocean in the South-West corner of the site, carrying people from one major landscape to another. This central road also plays the role of the winter center for the community; so, even in winter there continues to be movement through the different landscapes on the site.

The Housing Type:

While both the individual structures as well as the larger arrangements respond to the concerns of the climate and the systems of the landscape, the building type was meant to be simple and fairly standardized from one landscape to the next and to change mainly in
terms of it's arrangement.

The roofs are raised to the North for added light and to help divert the South-West prevailing winds up and away.

The Southern faces are composed of vertical shutters, which when opened allow a view and a breeze, but also act as shading devices, and when closed can shield the house from intense weather, like hurricanes. The ability for shading overhangs to be removed in case of storms is important in that the overhangs can act as a lip for the wind and easily be blown away. The Northern face is a combination of sliding doors and panels, allowing the face to be fully opened for ventilation and light, or to be completely closed down for privacy and warmth.

In contrast to the North and South, the Eastern and Western faces are more public, abutting either the local roads or the pedestrian paths on the interiors of the blocks. So, in addition to the climatic concerns, there are also concerns regarding privacy here and accordingly these sides are proposed as some sort of screening system—meant to screen both sunlight and people.

The Local Roads and the Interior Block Pedestrian Paths:

The two ways to travel North-South across the peninsula are the local roads and the interior block pedestrian paths. Both are designed to work with the landscape, but in different ways. The pedestrian paths provide a more nature-oriented experience of how this series of landscapes change between the ocean and the bay, while the local car roads are designed to work with the landscape's needs, yet to remain as roads. With this in mind, the roads are meant to be gravel or some porous asphalt to allow drainage through their surface, helping to ensure the continued existence of the freshwater lens that is so crucial to the survival of the vegetation in this area. In addition, the edge between the roads and the blocks are left somewhat ambiguous and without a curb. People are allowed to park their cars at the edges of the street/houses in the spaces between vegetation and homes. This looser arrangement encourages a sense of personal ownership of the street. Just as a group of families might take walks on the interior block parks, they might also use the streets for block parties, learning to ride bikes, or to play ball. All of these street activities become possible because of the increased sense of ownership of the streets. Street activities are also encouraged by the casual nature of parking arrangements, such as this, which have been shown to result in slower and more careful driving.
Strip of Site Running from Ocean to Bay
The Ocean Intervention:

The ocean landscape is not for living. This is a place of tremendous instability and constant change. I have proposed the program as cabanas. The walls, fences, and arrangements of stumps here create a stabilizing landscape of dunes for summer play and discovery. The arrangements of the walls here, like those in the thicket, seek to build the landscape up to create areas protected from the winds. The light platforms take advantage of the spaces in the protection of the newly built dune landscape. Here the walls come from a standard size and have been combined and arranged in relation to one another. In the cases where a platform sits behind a wall, the wall is a few feet higher than the platform so the wind is diverted over a seated person's head on the platform. In the cases where the wall is behind the platform it is much higher than the platform and creates a cupped haven from the winds.
Final Model: Thicket into Ocean

The Thicket Houses:

The thicket houses have been arranged in groups to shield interior enclaves from the Southern and Western prevailing winds. The ground elevation in most of the thicket is close to 10', so the houses are raised only a few feet off the ground, if at all. The groups of houses are defined by low walls surrounding them on the South and West, the directions of the prevailing winds. In the first row or two the wall actually acts as a wind shield, but as the homes move farther back into the thicket the walls act more as a delineation between the public and private spaces within the thicket. Each house owns the land it sits on as well as a private garden, marked as private and belonging to the house because of it's location along one of these group walls.

The public spaces on the interior pathways of the thicket are marked by groupings of stumps. These stumps are actually an extension of the ocean landscape, in which they act as an alternate element to trap sand and build dunes. At the edge of the ocean and the thicket the stumps become low windbreaks encouraging vegetation to take root and to grow, but as they extend further into the thicket they act increasingly as interventions for the public. They signify places that are for anyone to stop and have lunch, meet friends, sit and draw or read, or to take a rest after a jog.
Final Model: Thicket into Bay

The Bay Houses:

As the thicket approaches the bay, concerns about protection from wind become less important. In the bay a breeze is desirable, so the local streets widen into larger landscapes for the breezes to move through, and the houses lose their walls and climb up on stilts, extending themselves away from the land. In the bay the landscape and its spongy qualities take precedence and the houses touch the ground as lightly as possible and the roads shrink to nothing at all.
Final Model: Thicket into Bay
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Illustrations:

Unless otherwise noted all illustrations are by the author.