Örum
A center for experiencing the archipelago
THERESE ANTMAN
Something essential in this project will be to highlight the spirit of the archipelago. It should be a place where you can experience the calm, the rough, the warm, and the cold. The sea can give such a variety of conditions. It changes with the seasons but it also changes with the weather and can quickly go from still breeze to full storm. The sea can be very comforting and calming but can also give you that feeling of water and wind hitting your face and you are both terrified and thrilled at the same time. It is a place that offers an escape in the same time as it ground you in the purest of realities.

• The water/waves

I see waves rolling towards the edge of the rock. Cold water sprays over my feet, standing firmly on the cliff. The roaring wind is overwhelming, my hair whip hard against my cheeks. I take a deep breath and jump in.

• The wind

I wake up, before I open my eyes, I hear the how the wind is roaring outside. The halyard hits hard against the mast and I feel how the hull rolls in the waves. I feel the butterflies in my stomach; this will be an exiting day.

• The air

Frozen, I crawl under the blanket next to you in the tent where the zipper is up. Just like you I love the fresh air so we let it come in. The stars light up the sky and I look towards the horizon and I do not long for anywhere else.

The Baltic Sea is 413000 square kilometers big and with an average depth of 56 meters, its deepest point is located outside of Landsort, 459 meters. The water has shifted from salt to sweet during the years and is today brackish water. Around the Baltic Sea there lives today more than 85 million people spread on 14 countries.

The Baltic Sea ecosystem has at least one century back been under strong impact of emissions, overfishing, land use change and different forms of coastal exploitation. The climate change affects the Baltic Sea and its limited number of species, which may cause changes in the food cycle. Rising water levels together with storms acting different the impact on our coast could be devastating. This is something I have investigated into more and developed my project around.

I am looking into how storms are acting today and what the scenario for the future would look like. I am taking these forces of wind and waves that comes with the storm and I will try to partly make a structure that will keep you sheltered but also using these elements as the key to the experience of the archipelago.
The purpose of this thesis is to explore and study how I can use old outdated military structures in a context that fits both today and the future. It is working with a future scenario of changing climate. It will be working with nature and the archipelago as the main inspiration when creating the architecture.
Drawing of Landsorts light house made 7 February 1689 by prince Carl. The lighthouse with storm signal hoisted. The signal means storm from north to east.

Original drawing made by major seapilot Holm. Principle sketch of the Trojeborg or maze. Seapilot boat on the way out from the west harbor. After an oil painting by Garibaldi Lindberg.

Costum guards room at Kasberget. A unique building that was demolished 1958. Some of the houses "där norr" on Landsort, drawn from memory by major seapilot Albert Holm around 1860.

Hay harvest on the Tomtslätten. The picture taken around the turn of the century.
<table>
<thead>
<tr>
<th>FUTURE SCENARIO</th>
<th>DESIGN STRATEGY</th>
<th>ÖRUM</th>
</tr>
</thead>
<tbody>
<tr>
<td>More storms - <em>stronger winds</em>&lt;br&gt;Higher water levels</td>
<td>Existing military structures</td>
<td>My addings</td>
</tr>
<tr>
<td>Create spaces for shelter but also using the elements wind &amp; waves that comes with the storm as a key to the experience of the spaces.</td>
<td>Heavy concrete&lt;br&gt;Robust&lt;br&gt;Grounded&lt;br&gt;Sheltering</td>
<td>Light&lt;br&gt;Wood&lt;br&gt;Lifted up&lt;br&gt;Framing</td>
</tr>
<tr>
<td>In opposite of today I want to preserve the possibility to explore the nature not to preserve the nature itself. I believe the nature will change and the outer archipaleago will be harder to visit. With my structures it will be possible to visit &amp; explore Landsort for many years to come.</td>
<td>A version of “Naturum”</td>
<td></td>
</tr>
</tbody>
</table>
The diagram shows the total amount of storms from the investigated stations from north to south. Landsort have the largest number of storms with nearly 540 storms. It has stormed more at the southern stations compared to the north over the last 84 years. The appearance of such a pattern can be linked to the fact that the low pressures usually reach the Baltic Sea at the Stockholm area and that the winds therefor become as strongest in this area.

The wind rose shows how common different wind speeds in the area around Landsort have been. At high wind speeds, greater than 25 m/s, the western winds are dominant, but there are also northeastern storms. For the area around Landsort, the maximum strength of the wind has increased by 6% between 1951-2010 and winds over 25 m/s have increased by 13%.

The period of data is from 1962-2003.

The period of data is from 1901-2010.
Ma

Ma is a word that describes the room as well as the time in a way that we in the west are not used to. In the same way as I am in a room, I find myself in a time, and for both, the flow is common, moving.

As an expression of space, we can mean space itself, the dimension of space, a unit of space, or the space between two things. As an expression of time, we can mean time itself, the interval between two events, rhythm, or timing.

Atsu Inagaki, The Nat. Tokyo

Asymmetry

Working with asymmetry means leaving a form unfinished and an opportunity open to movement and change, and through a visible disorder the tension field increases between Yin and Yang.

A form that is not finished, one has to complete in the imagination.

The numbers 3, 5 and 7 is considered symbolizing luck.

From part to whole

"In most cases it is difficult to pin point the beginning and impossible to see the whole"

Suzuki

In the Japanese tradition one finds examples of how the parts play against each other in the search for balance, and the starting point is their own inherent properties that are not defined and pasted in advance.

Motion space vs. geometric space

Motion is characterized by a lack of full views. Here, the composition is dependent on the relationship with each other instead of an overall system. The different room-creating elements are perceived in sequences.

Suzuki

Geometric space is based on a perpendicular or polar coordinate system. A so-called composition element is never independent in a geometric space, but always dependent on a pole or axis and is controlled by its coordinates.

Examples here are the baroque architecture's palace where the rooms are located in file and their openings along an axis.

The spectators can orient themselves in the building because he can see several rooms at the same time.

Ya n g

The perception of being a part of nature, which in turn is part of the world and the whole universe, comes in Japan from various religious and cultural patterns in the tradition, where one feels standing in a dynamic interplay with nature.

The Kaso (feng-shui) principle is based on the balance between Yin, the earthly, and Yang, the celestial.

Tao, the dynamic balance between these two opposites is more important than the individual parts.

In the architecture this has got its expression in a constantly changing interplay between house and garden, outside and inside. It is also visible in the interaction between void and materia.

Yin & Yang

Shakkei

In the promenade-garden you use a technique called shakkei to get the rhythm and pace of the movement. The garden where this technique is used tend to be extensive to the surface, but shakkei is applied not only in the promenade-garden but also occurs in other types of gardens, such as the dry landscaped garden, kare-sansui, where the garden is viewed from a fixed location, the veranda. Shakkei can be said to include four different techniques to capture a landscape: borrow from something at a long distance or something nearby and borrow from a high level or a low level.

The literal meaning of the Japanese word shakkei is "borrowed scenery" or "borrowed landscape" - that is, distant views incorporated into garden settings as part of the design. In its original sense, however, shakkei means neither a borrowed landscape nor a landscape that has been bought. It means a landscape captured from the room.

Teiji Ishik

STUDIES OF JAPANESE ELEMENTS

"The stone should never be laid on the ground. They must always be slightly basted. For a stone has a head, a tail, a back, and the abdomen needs the warmth of the earth. The stone is neither dead nor mute. It hears the noise of the waves, the plains if it is unfortunate, to the poet’s heartbreaking complaint”

Gunter Nitschke, Japanese gardens.

The stone

In the Japanese tradition one finds examples of how the parts play against each other in the search for balance, and the starting point is their own inherent properties that are not defined and pasted in advance.

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Yin & Yang
VADARBUNKER
The Wading Bunker

The bunker was used during the Cold War as a decoy. The military wanted Russia to bomb at these strategically placed bunkers instead of the real batteries.

Today Vadarbunkern is a place good for spotting migration birds. The bunker is not closed off with concrete, as many other old military structures on the island, and the view from the small openings in the bunker are amazing.

BERGRUMMET
The Central Tunnel

The room inside the bedrock, also called the central tunnel, is located on the south part of the Island, right under the famous lighthouse Landsort. The central tunnel was equipped with kitchen, rooms for healthcare, toilets, and storage of both water and oil and it had accommodation for 82 men. This central tunnel is connected to two more upper levels. One level up is one canon located together with ammunition storage and the fire control table. On the top level witch is located above ground is the commander bunker and measuring station located, one of few military facilities above ground on Landsort.

Today the top level is open for tourist and the second level with the canons can be visited in company with a local guide. The central tunnel was until recently closed of and the entrances covered with concrete. Today one entrance has just been opened up and there has been discussions of what you could use this space for today. The condition is bad and no plan for the future is taken.

MUSEUM
The Central Tunnel

The Central Tunnel will be renovated into a museum, telling the story about the island of Öja. The island as a fishing outpost, the military and the lighthouse. Except of exhibition space there will be a big auditorium for people to meet. The tunnel will be opened up to get in light and also giving hints of its existence above ground. I have designed the entrance building that will be docking on to the entrance of the central tunnel. The entrance building consists of a reception, public toilets, cloakroom and staff space, kitchen and toilet.

Total of 1050 m2

Program

50 m2
- Reception
- Cloakroom
- Public toilets

1000 m2
- Exhibition
  - Upper level
  - One level under ground
  - Two levels under ground
- Storage

SAUNA
The Wading Bunker

The old bunker will be transformed into a Sauna. From the outside a lot of the look of the bunker will be kept as it is. I have isolated and installed a sauna heater and the bunker will be divided into two separate saunas. Inside the bunker I have redecorated with wood and placed seating's. A another opening towards the sea have been placed and some steps have been installed both down to the sea and to the lagoon.
**The central tunnel**

*Second level under ground*

The central tunnel held, when it was active, accommodation for 82 men. It had surgery rooms, big water cisterns and oil tanks, all to be able to survive long underground.

A similar tunnel is located under another cannon and held 42 men.

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**The Command bunker**

*Above ground*

This commander bunker and measuring station is one of the only battery buildings above ground. It was built to be visible and embedded in the rock.

**The cannon**

*First level under ground*

Armored dome for 15.2 cm cannon. It held a crew of ten while another five handled ammunition.

**Entrance Museum**

*Above ground*

This new building will consist of all necessary functions as toilets and staff space. Using an elevator to get to the different museum rooms, the central tunnel, the cannon, the commander bunker and the lighthouse.

**The lighthouse “Landsort”**

*Above ground*

Landsort is the landmark for the island and a popular tourist attraction. Landsort is the oldest lighthouse in Sweden, built in 1659. During summers there is held guided tours in the lighthouse.
The Central Tunnel

The Central Tunnel will be renovated into a museum, telling the story about the island of Öja. The island as a fishing outpost, the military and the lighthouse. Except of exhibition space there will be a big auditorium for people to meet. The tunnel will be opened up to get in light and also giving hints of its existence above ground. I have designed the entrance building that will be docking on to the entrance of the central tunnel. The entrance building consists of a reception, public toilets, cloakroom and staff space, kitchen and toilet.

Total of 1050 m²

<table>
<thead>
<tr>
<th>Room</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reception</td>
<td>50 m²</td>
</tr>
<tr>
<td>Cloakroom</td>
<td>1000 m²</td>
</tr>
<tr>
<td>Public toilets</td>
<td>50 m²</td>
</tr>
</tbody>
</table>

The Wading Bunker

Vadarbunkern is located on the south part of the Island, close to the famous lighthouse Landsort. The bunker was used during the Cold War as a decoy. The military wanted Russia to bomb at these strategically placed bunkers instead of the real batteries.

Today Vadarbunkern is a place good for spotting migration birds. The bunker is not closed off with concrete, as many other old military structures on the island, and the view from the small openings in the bunker are amazing.

The old bunker will be transformed into a Sauna. From the outside a lot of the look of the bunker will be kept as it is. I have isolated and installed a sauna heater and the bunker will be divided into two separate saunas.

Inside the bunker I have redecorated with wood and placed seating’s. Another opening towards the sea have been placed and some steps have been installed both down to the sea and to the lagoon.

Total of 19 m²

Program

19 m²

Sauna

Seating outside

Bath ladder
1. Entrance
2. Benches
3. Sauna heater
4. Exit to the sea
5. The lagoon
6. The sea
7. Path to main road
THE MID. BUNKER & ADDITION

The Middle bunker is located on the west side of the island, fairly close to the old ammunition storage. Here was before one of the island’s 3 ERSTA 12/70 batteries. There were 6 of these built as a replacement of heavy coastal artillery along the coast. One of Landsorts 3 batteries are kept as a museum today but the one on this site is well covered in concrete.

CABIN

On top of the cliffs of an old military battery I have placed small cabins that you can rent for the night. These cabins are close to the Mid Bunker where one of the saunas is located and also close to the new restaurant where you find the check in for the cabins. At the restaurant it will be possible to get a breakfast basket and fresh water to your cabin. Here you also find showers and toilet. These cabins are also meant to be able to spread to other locations on the island.

15 m²/cabin

Program

<table>
<thead>
<tr>
<th>Long stay</th>
<th>Doublebed on loft</th>
<th>Table &amp; Chair</th>
<th>Sofa</th>
<th>Closet</th>
<th>Pantry</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 people</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medium stay</th>
<th>1 Bunk bed</th>
<th>Table &amp; Chair</th>
<th>Sofa</th>
<th>Closet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3 people</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Short stay</th>
<th>2 Bunk beds</th>
<th>Table &amp; Chair</th>
<th>Closet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4 people</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The Maze as I call it is located behind the Bird station, just north of the south village. At this spot there was before a large measuring station with associated bomb shelters, radio and radar stations. They were located mostly under ground and the measuring station had seven floors.

Today all is covered with concrete and only this so called “maze” gives and hint of what was here before.

**Windshield & Outlook**

On the so called “maze” I will add a wooden structure and create a Windshield and a place for outlook, over the wonderful view or for looking at migration birds. The structure will give you a varied of shelter without losing the experience of the wonderful view.

**Total of 40 m²**

**Program**

<table>
<thead>
<tr>
<th>40 m²</th>
<th>Windshield &amp; Outlook</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Outlook</td>
</tr>
</tbody>
</table>

**The Maze**

[Map of Maze and Windshield & Outlook location]
THE TOP BUNKER 

The top bunker is located on the north part of the Island, nearby the guest harbor. When walking up there you passes trough a sheep pasture and on top of the cliff is the top bunker standing looking out over the sea. The entrance to the bunker is today closed with concrete and during the Cold War this bunker was used as a decoy.

Sauna

The old bunker will be transformed into a Sauna. From the outside the a lot of the look of the bunker will be kept as it is. Inside the bunker will be redecorated with wood seating's in the sauna. A heater will be installed for warming up the sauna and a window towards the sea will be placed.

Total of 5,8 + 8 m²

Program

8 m²
5,8 m²

Sauna
Changing room

Seating outside
Outdoor shower?
Bath ladder

Scale 1:400
THE OLD AMMUNITION STORAGE

The old ammunition storage is located on the middle of the island. It is a green colored concrete building with no windows. Today the building is used as storage for different actors on the island. The building has one bigger hangar and several smaller storage rooms, all with separate entrances.

In connection to this building there is a smaller bay with docks, not used so frequently today but was a busy harbor for fishermen back in the days. By the docks there is also an old sauna.

The Old Ammunition Storage will be transformed into a restaurant. Most of the old doors will be replaced with glass doors to let in light. Mirrored to the big doorway there will be a large glass installed overlooking the bay. Also to the north more openings in the facade will be put in. The restaurant will also act as an lobby to check in for renting the cabins.

**Total of 286 m²**

**Program**

- **120 m²**
  - Entrance
  - 1 BRVC + 2 WC
  - Dining area
  - Bar

- **100 m²**
  - Kitchen

- **66 m²**
  - Changing room staff
  - Staff wc
  - Staff room
  - Storage

Scale 1:400
THE MIDDLE BUNKER & ADDITION

The Middle bunker is located on the west side of the island, fairly close to the old ammunition storage. Here was before one of the island’s ERSTA 12/70 batteries. There were 6 of these built as a replacement of heavy coastal artillery along the coast. One of Landsorts’s batteries are kept as a museum today but the one on this site is well covered in concrete.

Sauna

The old bunker will be transformed into a Sauna. From the outside the look of the bunker will be kept as it is. Inside the bunker will be re-equipped with wooden seatings in the sauna and with benches in the changing room. A heater will be installed for warming up the sauna and a opening towards the sea will be placed.

Total of 23 m²

Program

<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 m²</td>
<td>Sauna</td>
</tr>
<tr>
<td>9 m²</td>
<td>Changing room</td>
</tr>
<tr>
<td>9 m²</td>
<td>Seating outside</td>
</tr>
<tr>
<td></td>
<td>Outdoor shower?</td>
</tr>
<tr>
<td></td>
<td>Bath ladder</td>
</tr>
</tbody>
</table>

Scale 1:400
Situation plan Bunker/addition
Original A4

Scale 1:1000

Situation plan Bunker/addition
Oja, also called Landsort after the lighthouse on the island, is the very southernmost island in Stockholm Archipelago. Oja is a long narrow island, which lies in the north / south direction. The island is about 4.25 km long and about 600 meters wide at most.

The island has one harbor in the north (Norrhamn or Skravleviken), here is the guest harbor located. The village (Storhamn) is located on the southern part of the island, where there is two ports, one on the east side (Osterhamn) and one on the west side (Vinthamn). West Harbor is mostly used by pilot boats as well boats with Landsort as home port. No leisure boats are allowed in the west harbor.

Parts of the island from the village and to the north have dense forest with shrubs. The forest of the island largely consists of deciduous forest. The most common tree species are birch and al. Pine and space occur only in some smaller areas on the island’s inner parts. In addition, there are plenty of marshes, swings and water plants. Here are rare orchids and other botanical rarities such as white oxel, field berries and yew.

The island has long been known as an important site for watching migrating birds. The birdwatching station on the island, which is also used for scientific purposes, was opened in 1988.

The Landsort depth, twenty-two kilometers southeast of Landsort Island, is the deepest abyss of the Baltic Sea, reaching 459 meters at the deepest point.

Landsort’s current resident population is around thirty. In summer time, this number is substantially increased. Most of the summer residents are ancestors of Landsort sea pilots and other oldtime inhabitants of the island. Tradition runs deep on this island. The sea pilot station in Landsort currently employs nine seagulls, guiding ships throughout the Stockholm Archipelago and Lake Malaren waters, where navigation is tricky.

Landsort can be reached whole year around by boat from Ankarsudden, Torö.

How long there has been living on Oja is uncertain, however, it have served as a fishing outpost from at least 13th century. In Trosa city privilege letter from 1454 there is information that Trosa’s inhabitants had the right to fish “In the royal common waters”. In a letter of privilege from 1610 states that the privilege relates the fishing villages between Orustound and Talje. The fishermen from Trosa are usually referred to as “skärborgarna”. They formed a special association that consisted of those who fished out at sea, on Oja, Gunnarstenarna, Viksten and Mälsten. 1839 the state took over Oja.

On July 16, 1719, the Russians were in the Nynäsham area. They came to the archipelago route from the north. The population escaped, from Oja, spotting a smoke cloud bulging up north. Fishermen from Trosa and Talje, who were on Oja for fishing, had also made ready for rapid evacuation. In the evening of the 16th, most people left for Trosa, where one felt best at home. Around 17-18 July, the Russians were over Oja. A couple of hours after landing, the island was in flames from south to north. Only one house was spared, the reason why the cottage was spared was that the old woman who lived there was doing big things. The Russians took her bread, and kept her in exchange.

Another famous feature is the great labyrinth laid with stones on a cliff, most likely by fishermen in ancient times. There are similar labyrinths on many archipelago islands. Their purpose was probably to give luck to fishermen who passed through the labyrinths for good fishing and safe sailing in the hazardous waters. Nobody knows how old this labyrinth is, but the pattern dates back over 3,000 years.

Part of the text from the book "Landsort - the houses and the people" by Maria Landin and Björn Öberg. And text extract from the book "Landsort Oijan as and called Landsort" by Axel Öberg.
Landsort - The Military

With its strategic position, the island of Landsort has held great importance in Sweden's maritime history. In the 1500s, under King Gustav Vasa, Landsort is referred to as a sea pilot station in service of the Royal Navy. The sea pilot station is still in operation, and is thus one of the oldest in Sweden.

Guns and bunkers are still there but no longer in use. There is also an underground battery on four floors in the rock room that was built during the 70s to protect Stockholm from Soviet attack. Nowadays, guided tours are arranged in the facility, which has a gigantic 150 tons of heavy cannon, ammunition for attack. Nowadays, bird watchers almost daily visit the island, and the visiting is noted before it is released. The ring season lasts between March and November with a break during the high season. Here, bird watchers almost daily visit the island. From the different observations spots on the island, you have views of the island and surrounding seas.

LANDSORTS BIRDSTATION

Landsort’s location as an outpost in Stockholm’s southern archipelago attracts large amounts of migratory and resting birds. The mild climate of the autumn and rich access to insects and berries attracts the birds to linger on the island. More than 300 bird species have been seen on the island - a record among Swedish islands, except for Öland and Gotland.

Landsort was discovered early by ornithologists, who in the 1940s were happy to go out in winter to see large quantities of seabirds gathered in the ice-free waters around the island. In the spring, unusual things like summer revelry and turtle doves could appear. In the 1970s, tubers were more common and the magnificent autumn stretch with loons, dips, gulls and waders could easily be seen. Nowadays, bird watchers almost daily visit the island. From the different observations spots on the island, you have views of the island and surrounding seas.

Ring marking birds at Landsort were started on a small scale in the late 1970s, and committed volunteers formed an association in 1988. Since then, we have used the military’s old hospital in Landort (more specifically at Bredma) as a bird station and node for the business.

The business, which is completely non-profit, consists of continuous rings and stretching of migratory birds. Since the late 1970s has more than 150,000 birds been ringed here. It is mostly small birds that have been caught in nets and collected by trained staff. Inside the ring laboratory the ring sets on, the bird’s nature, sex and age are determined and different measurements are noted before it is released. The ring season lasts between March and November with a break during the high summer.

Our collection is part of the research on migratory birds. The national ring marking is part of a nationwide network of bird stations and other catch sites on behalf of the ring marking at the Swedish Museum of Natural History in Stockholm.

Originally, the ring was primarily a way of knowing where birds are moving and how old they are. Today, we can draw significantly more conclusions. For example, how the amount of birds varies between years and how birds change their migratory behavior. In addition, we can also try to make important connections to changes in the environment and climate.