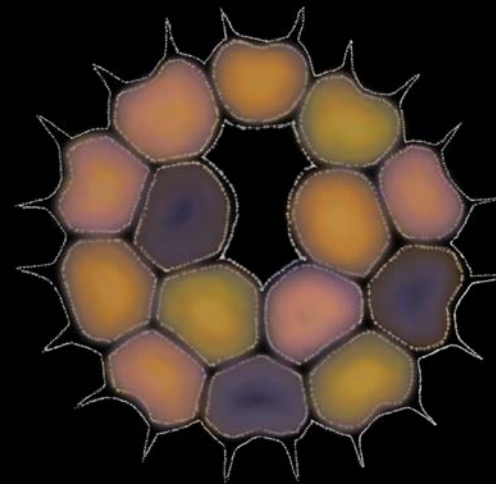
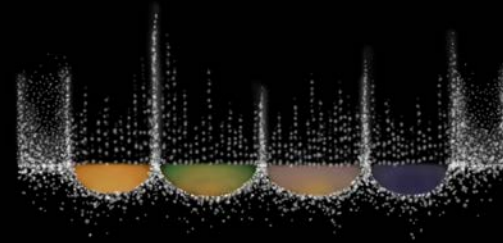


*wet dreams:*

*An investigation into a dreamscape bathhouse within a Sussex landscape.*



*CICELY BRYANT*

*STUDIO 14*



### **'WET DREAMS':**

*An investigation into a dreamscape bathhouse  
within a Sussex landscape.*

Located on the South edges of Lewes, East Sussex and sandwiched between the River Ouse, the A27 and a railway, the proposal invites the visitor to journey through a dreamlike bathhouse.

The project began as a response to an article from September 2017 in which a local newspaper warned of a bloom of poisonous algae in the River Ouse in Lewes. The scheme then developed as an investigation in the reinterpretation of algae, as it often accompanied by negative connotations, the proposal attempts to see algae in a positive light and as a tool of sustainability.

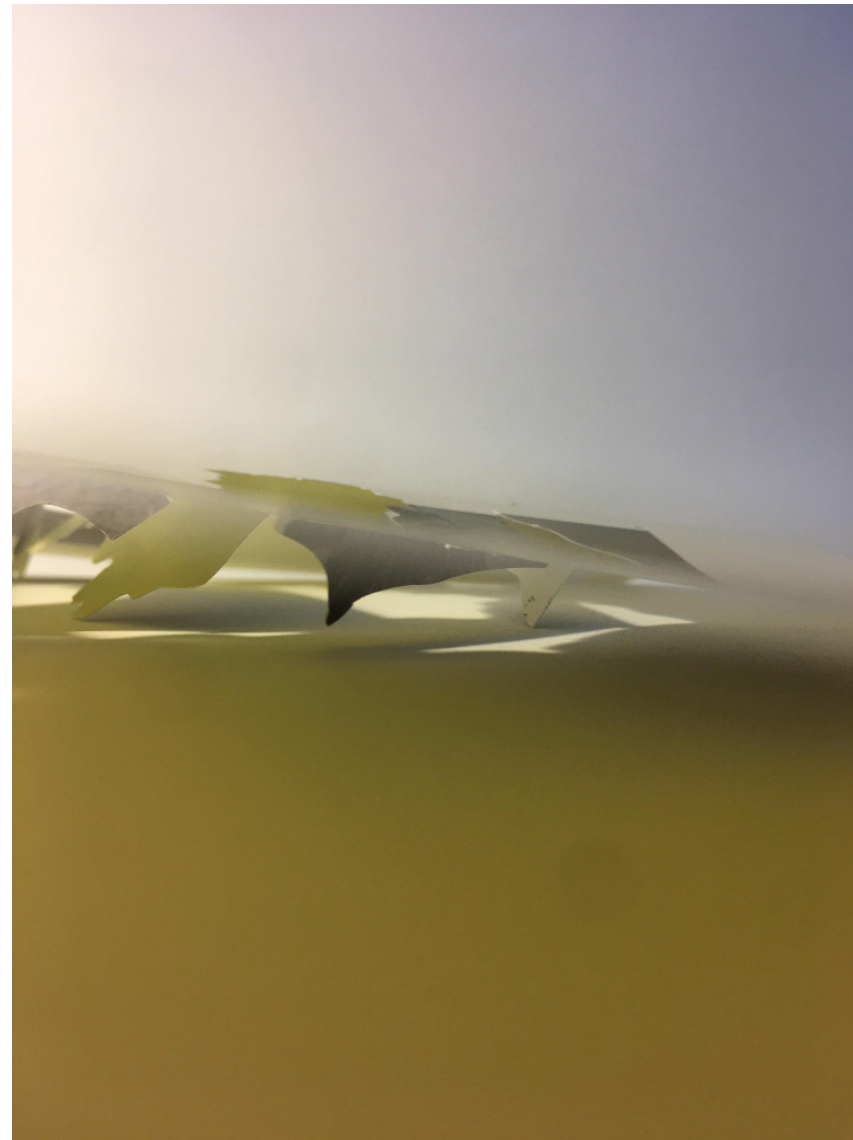
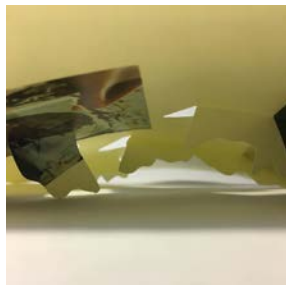
The bathhouse is therefore host to algae panels built within its South facing facade, allowing for the cultivation of micro algae which is then made into bio-fuel to heat the bathhouse. Additionally, any waste water from the bathhouse is then used to help grow the algae.

The project attempts to reconnect bathers to a simpler state, one where they can perhaps imagine themselves as frog like creatures roaming the baths.

The baths themselves are inspired by algae cells, built from the inside out to create a feeling of intimacy within vast rooms. Elements of the bathhouse are inspired by the sensitivity and lightness of Japanese Architecture. There is a temperature change between the spaces and the lighting within the bath rooms remain dark to create a meditative spaces bathed in orange from turmeric dyed algae bio plastic.

The spaces are designed as an escape into a different world.

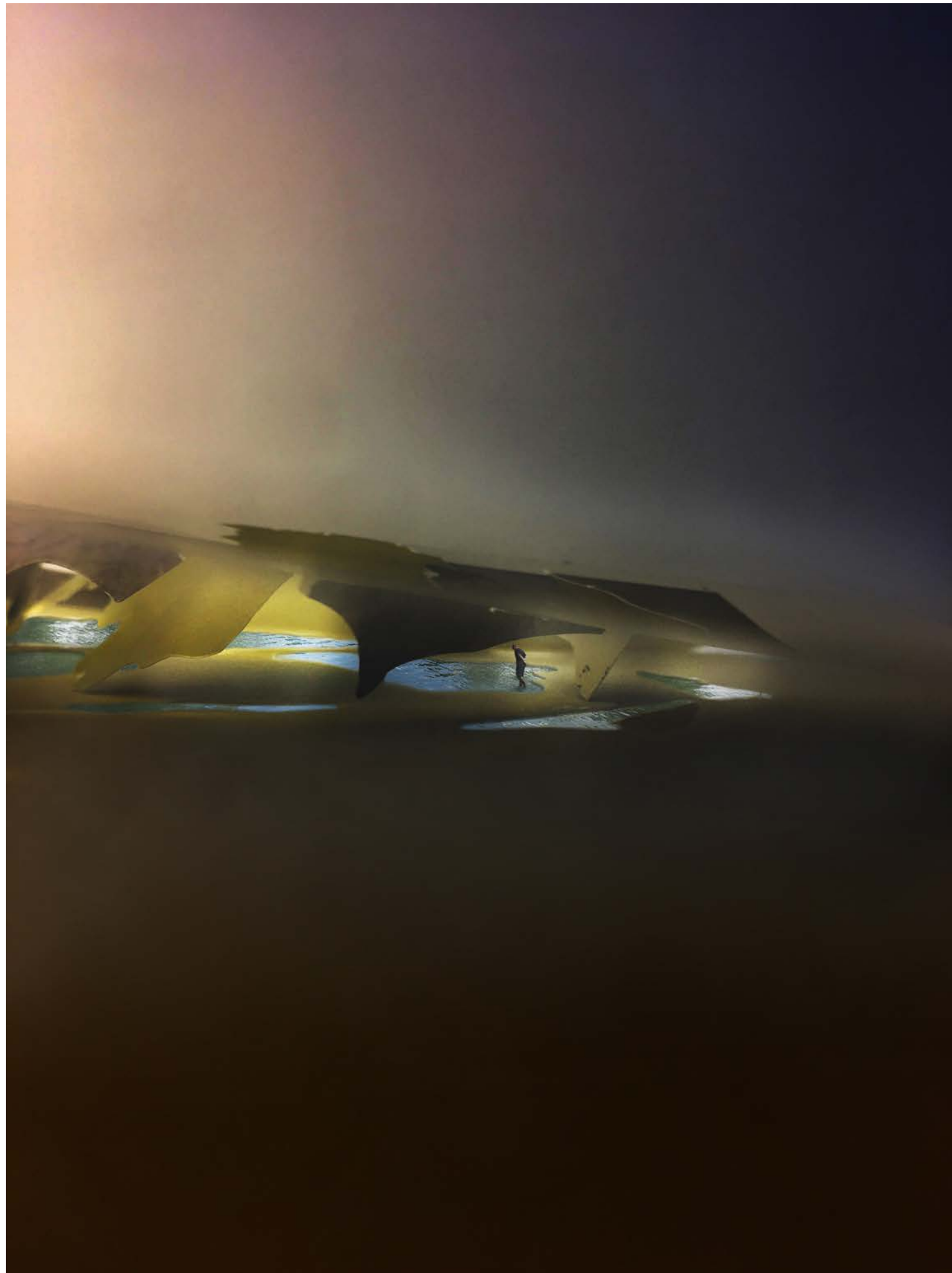
Reusing the card cut out from last term.



Unused images from last term. Showing a distant landscape. A destination. What awaits you? Where are you? It almost feels unattainable.

You move closer, it still echoes in the landscape.

*Landscape within paper.*



*Living on in an unknown world.*

Creating an initial  
structure within the  
first image.  
It feels surreal,  
with no determined  
surroundings.

Only mist and water.





*Living on in an unknown world II.*

Creating a destination within a landscape from the second image.

In the distance, it glows, it awaits you.



Initial sketches issued from the abstract landscape images.

Cuttlefish bones carved out to create a mould for pewter.



# 'SKIN AND BONES'



Cuttlefish castings made with pewter.

SKIN/SKIN/n [C or U] the natural outer layer that covers a person, animal, fruit.

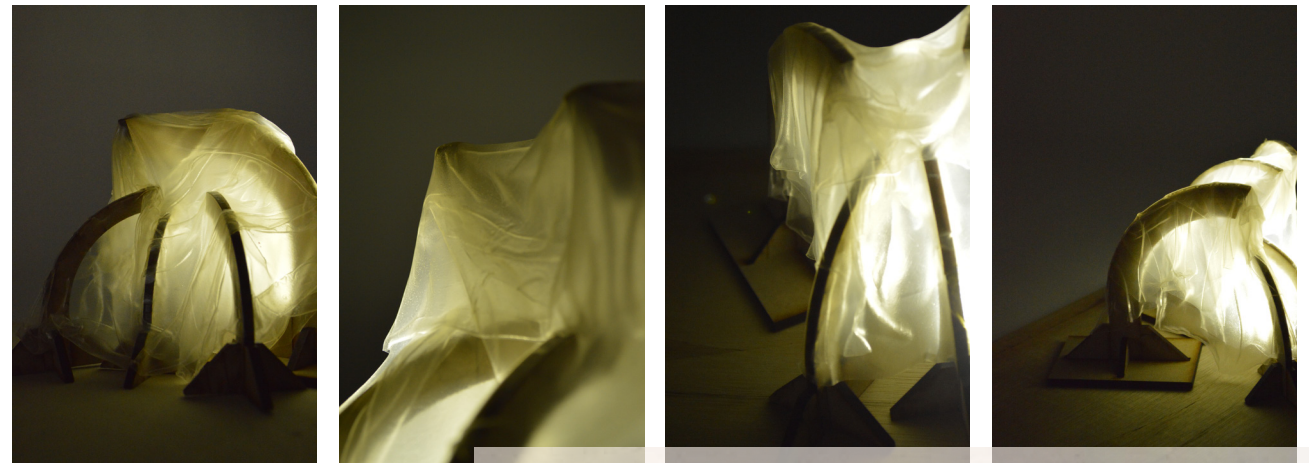
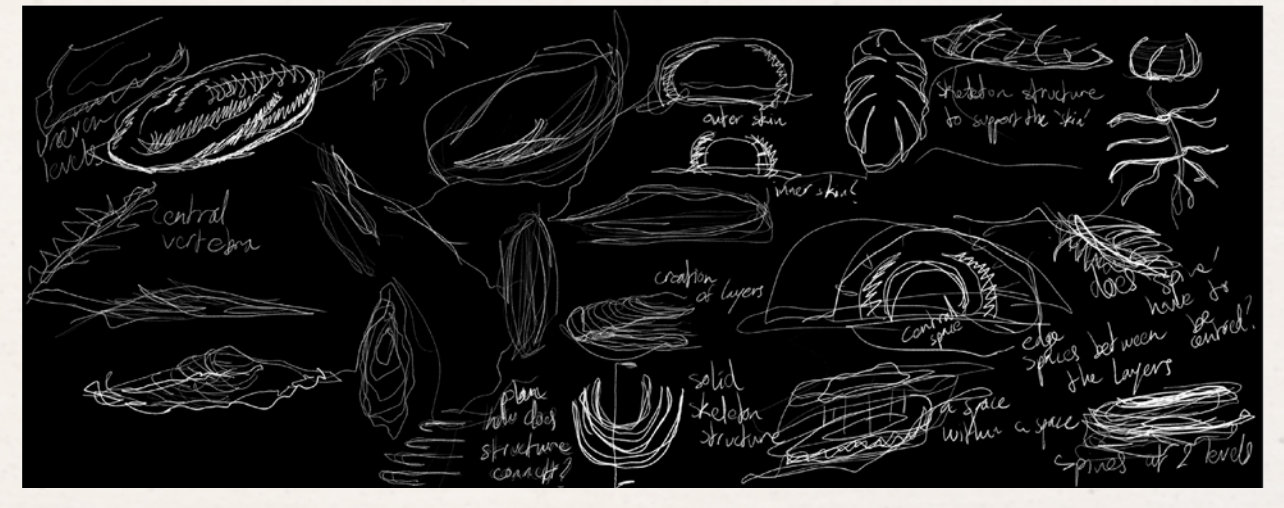
BONE/boʊn/n [C or U] any of the hard parts inside a human or animal that ~~make up~~ its frame.

Cuttlefish castings.





Sketches from cuttlefish castings.



Laser cut model with rice paper draped over it to explore the possibility of having a skeletal structure with a 'skin' over it to protect from the elements and allow the light from within to be seen on the outside.

*Skin and bones.*



The metamorphosis of a frog.



Skin and bones of a frog.

How can we metamorphose?



How do we as humans metamorphose?

How can we?  
Physically?  
Spiritually?  
Whilst we walk this planet,  
lose one's self.  
To understand.  
To metamorphose.

The environment of a tadpole and a frog.

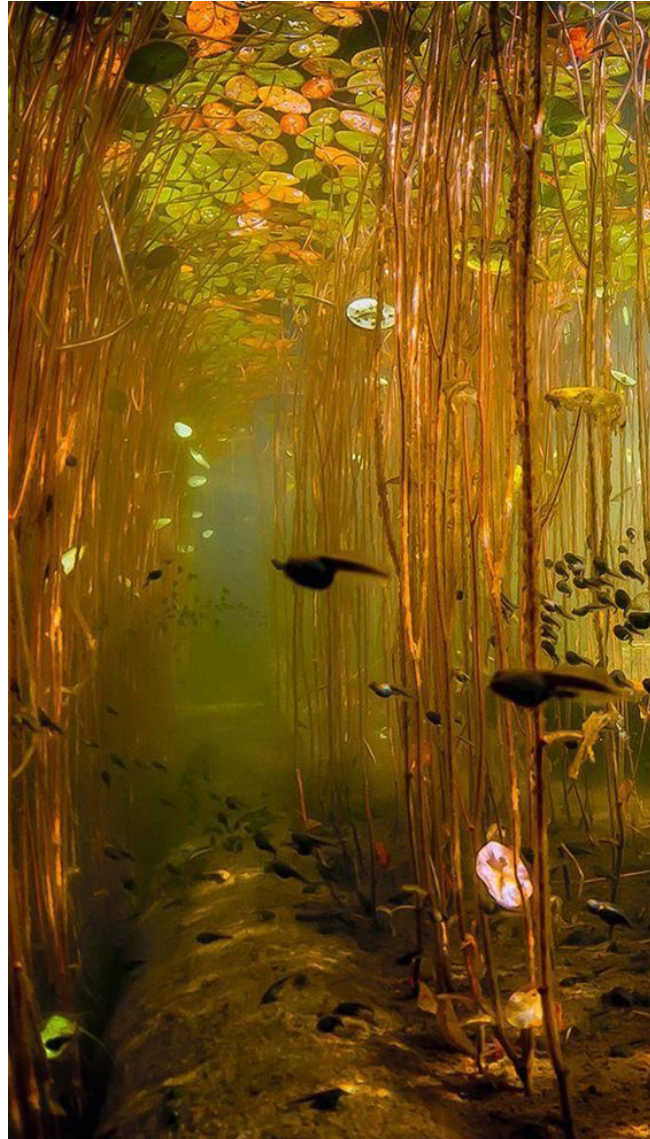


An enclosed environment, one of safety.

Of hues of green, yellow, orange and pink.  
A space of transformation.  
Of cleansing.

**Metamorphosis.**





I.

Photograph of a swarm of tadpoles in their natural environment.



II.

Edited photograph, a tadpole is replaced with a painting of a person swimming.

Reflecting the way in which a human would be able to experience a tadpole's habitat. As it goes through a change, its habitat is an important part of that. Could a specific environment could allow us to change?

To feel reborn.  
Cleansed.  
A bathhouse.

**Rebirth through bathing.**



III.

The surrounding environment is removed leaving the swimmer and tadpoles to swim together.



Cathedral Light, Nancy Farmer.





Your surroundings are wet.  
They feel fuzzy, blurred.  
Are you truly here?

Or in a dream?

*A place of connection.*

**Brief history of bathing.**

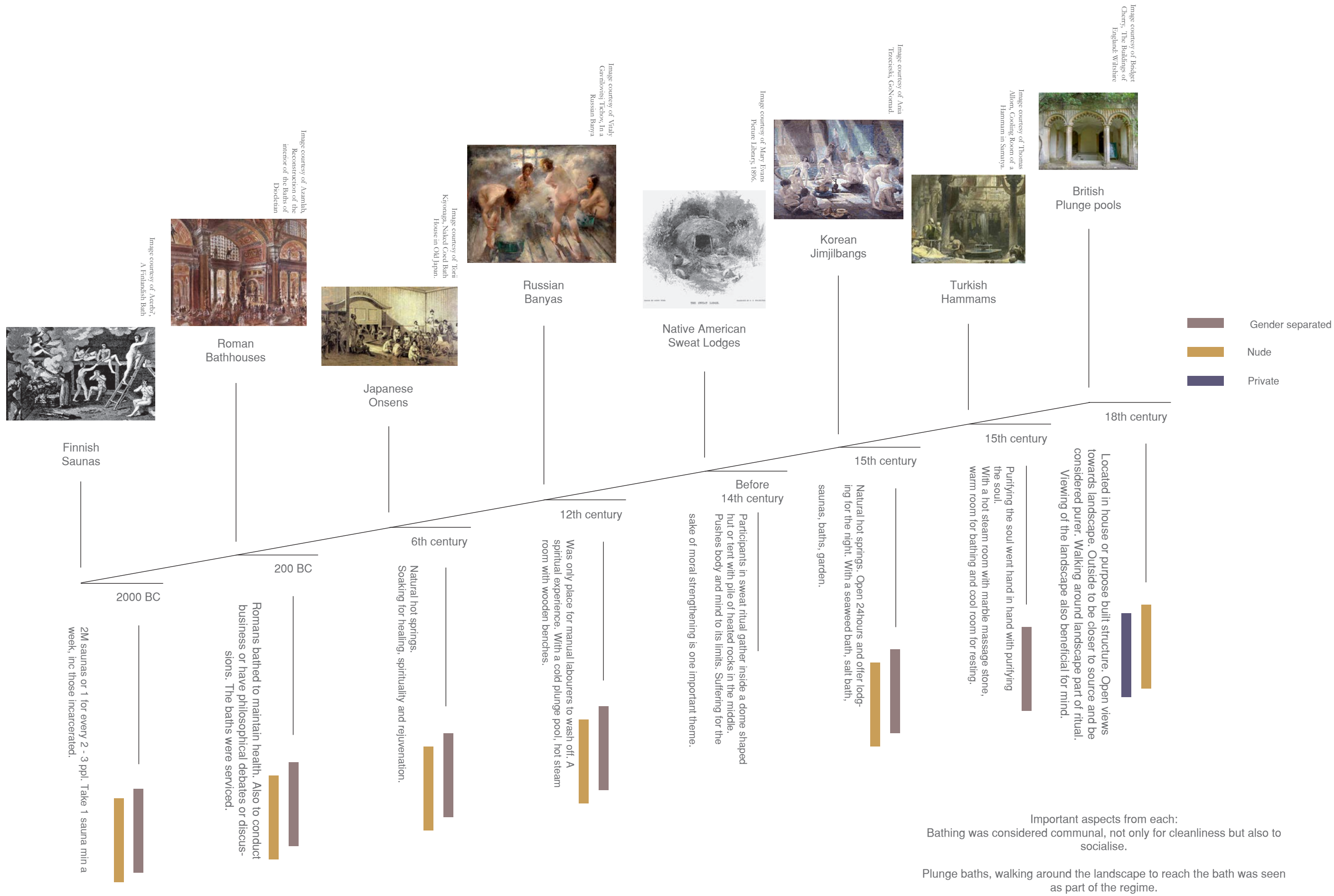


Image courtesy of Bridget Cherry, 'The Buildings of England: Wiltshire'



British Plunge pools

Image courtesy of Thomas Allom, 'Cooling Room of a Hammam in Samatra'



Turkish Hammams

Image courtesy of Anna Trzcuski, 'GöNönmü'



Korean Jimjilbangs

Image courtesy of Mary Evans Picture Library, 1896.



Native American Sweat Lodges

Image courtesy of Vitay Gavrilovici Tichon, 'In a Russian Banya'



Russian Banyas

Image courtesy of Tora Kiyonaga, 'Naked Cold Bath House in Old Japan.'



Japanese Onsens

Image courtesy of Azambh, 'Reconstruction of the interior of the Baths of Deciduan'



Roman Bathhouses

Image courtesy of Aertb, 'A Finnishish Bath'



Finnish Saunas



20th September 2017  
**River Ouse warning over poisonous algae**



River bailiff Jim Smith pictured by the Ouse

In Sept 2017, a bloom of blue green algae (A cyanobacteria, here, Mycrocystis) occurred near and around the Balcombe Reservoir. Releasing a toxin called microcystin.

This occurred due to an excess in nutrients, namely phosphorous, along with the long sunlight hours and ambient temperature.

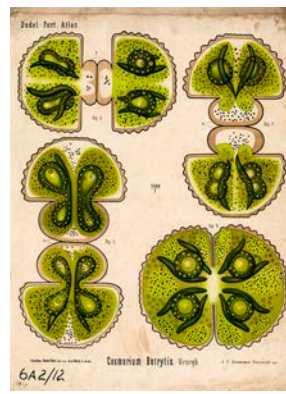
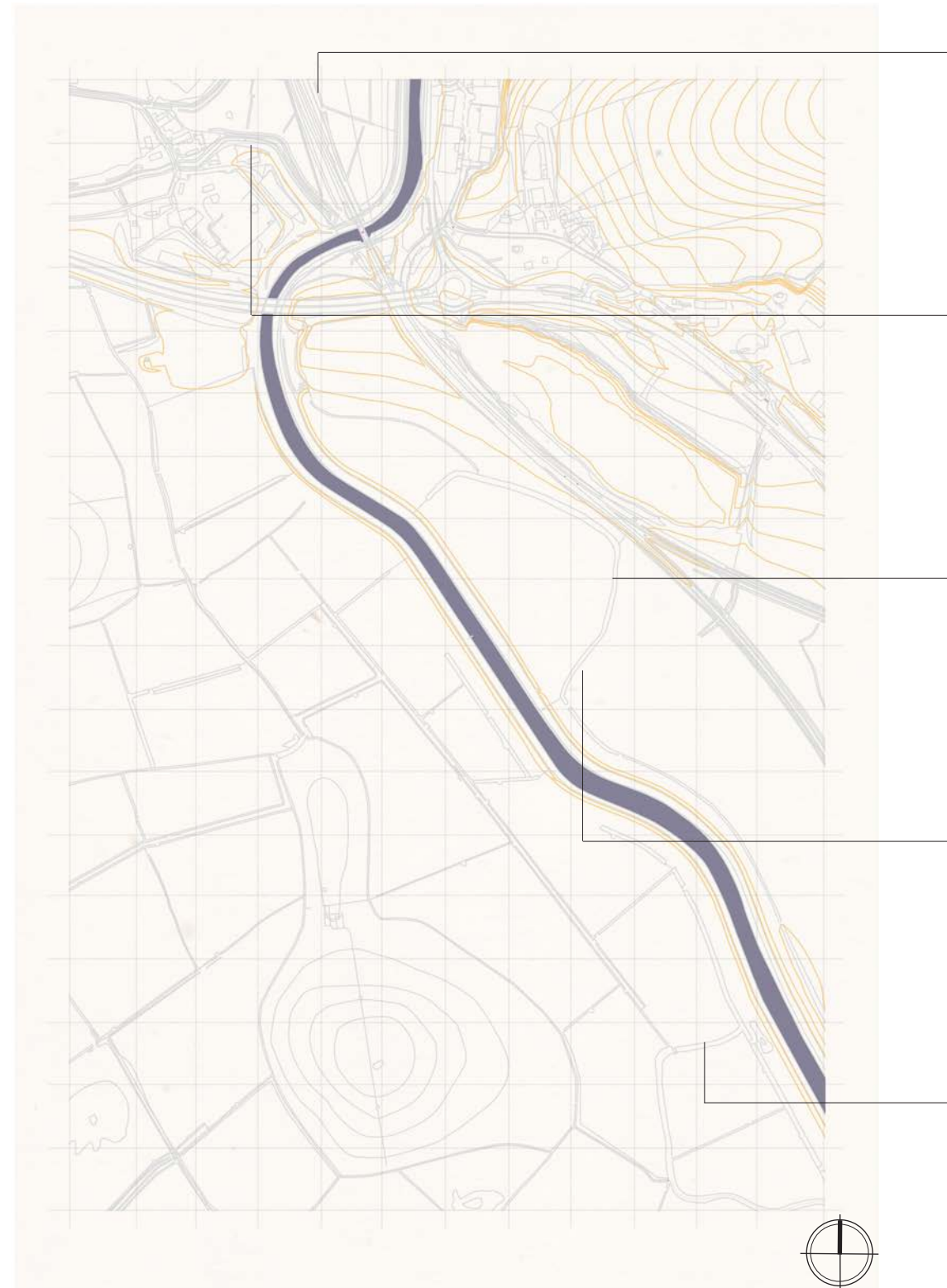
It ended Mid - Oct due to the fall in temperature and sunlight hours.

Other non toxic blooms occurred in 2018 and 2019 in the same area.

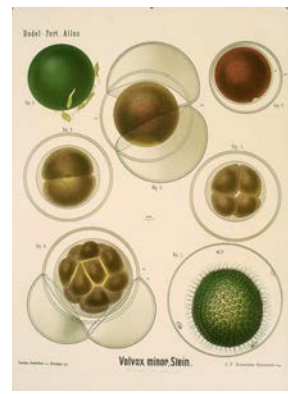


Balcombe Reservoir

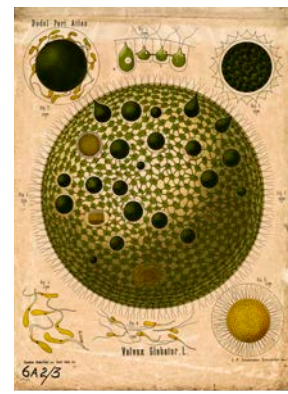
Lewes



**Cosmarium botrytis**  
 a genus of fresh water green algae belonging to the Charophyta



**Volvox minor**  
 a polyphyletic genus of chlorophyte green algae.



**Volvox globator**  
 a species of green algae of the genus Volvox

Algae changed atmosphere by producing oxygen, paving the way of eukaryotic organisms (all animals, plants, fungi and protists).

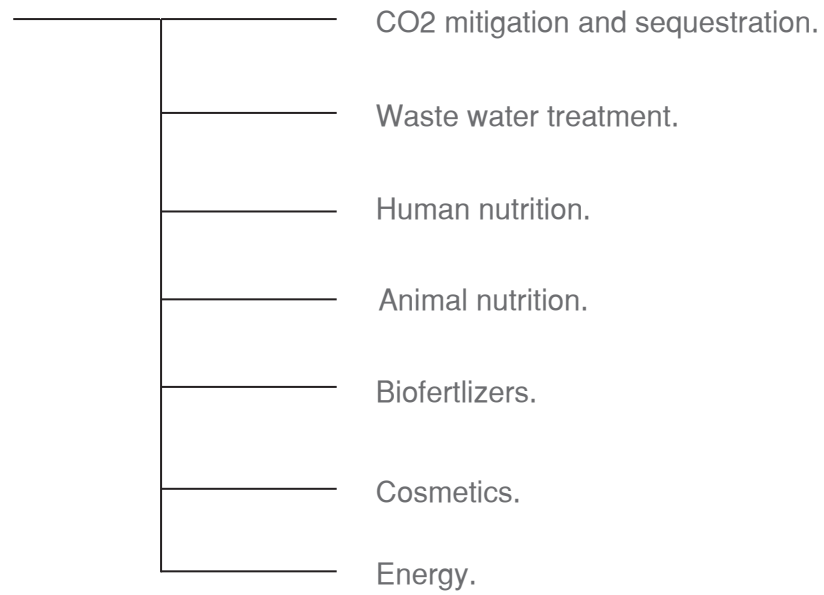
50% of oxygen is thought to be produced by algae and algae are the primary producers upon which aquatic ecosystems depend.

Some 3.5 billion years ago prokaryotic life began on the planet in absence of oxygen. Cyanobacteria (Blue green algae) arose and began releasing oxygen in the atmosphere as the waste product of chlorophyll a - mediated photosynthesis.

A bacterial cell swallowed a cyanobacteria cell which allowed the bacteria to produce energy from the sun. Gave organisms the ability to synthesize organic molecules from the inorganic environment.

1:10000 map showing where algae was found locally.

Different ways microalgae can be used.



Applying an environmental stress such as limiting the presence of key nutrients to an algal culture caused the cells to accumulate energy rich triacylglycerides like oleic, palmitic and linoleic fatty acids that closely resembled fossil fuels. Dvp of biofuel could reduce emissions by 2 billion tons per year if as little as 27% of consumed energy were derived from biofuels by 2050. Algae grown in reservoirs takes up less space than corn for ethanol for ex.

With people mostly experiencing algae through 'bad situations' as they create problems in lakes, fishingholes or pools (negative conotation), here we can make into a good one.

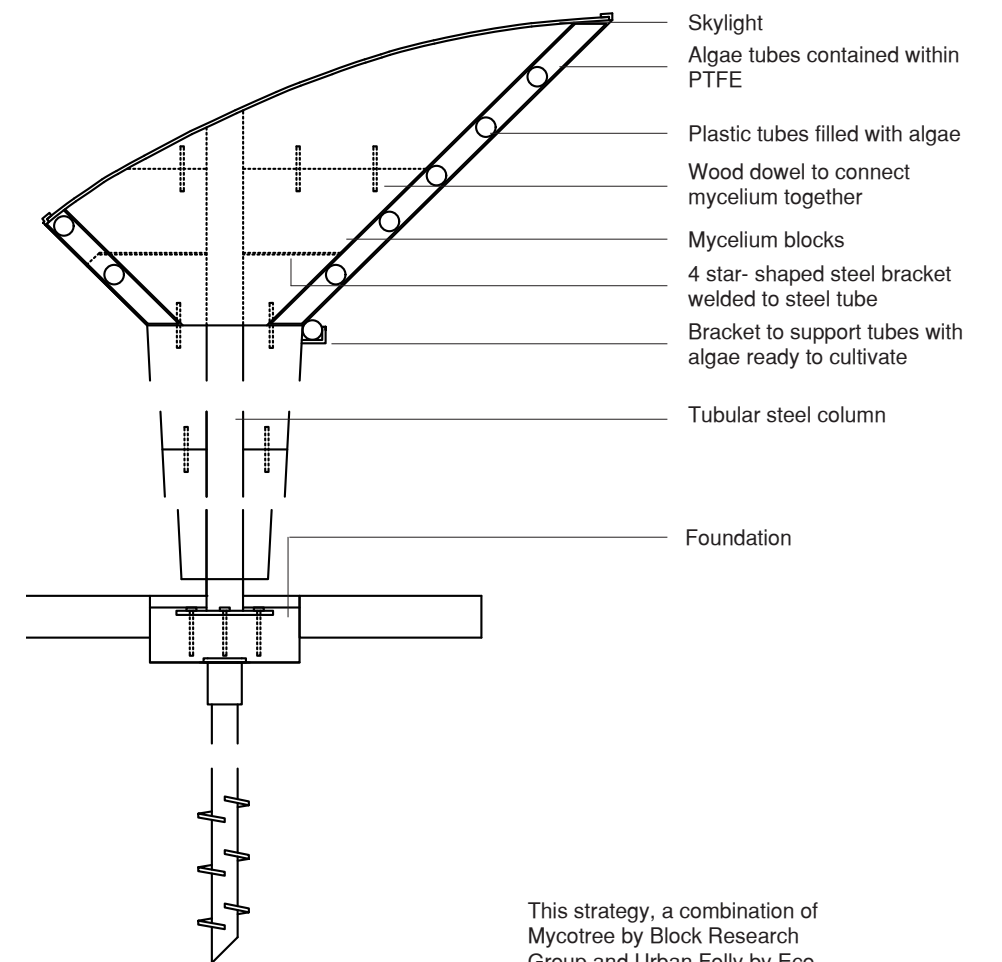


Growing mycelium in a moist environment to better understand how the mycelium structure would be effected in a bathhouse.

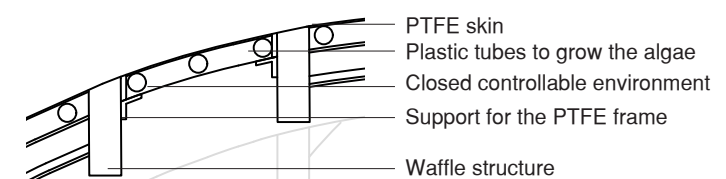
When grow in a moisture rich environment, the mycelium starts growing mushrooms, it is therefore important to: - grow mycelium in a coton based mixture. - heat it to kill the mycelium. - apply a sealant.

### 1:50 Algae farm structures

A column structure would mean the buildings would be timber framed.

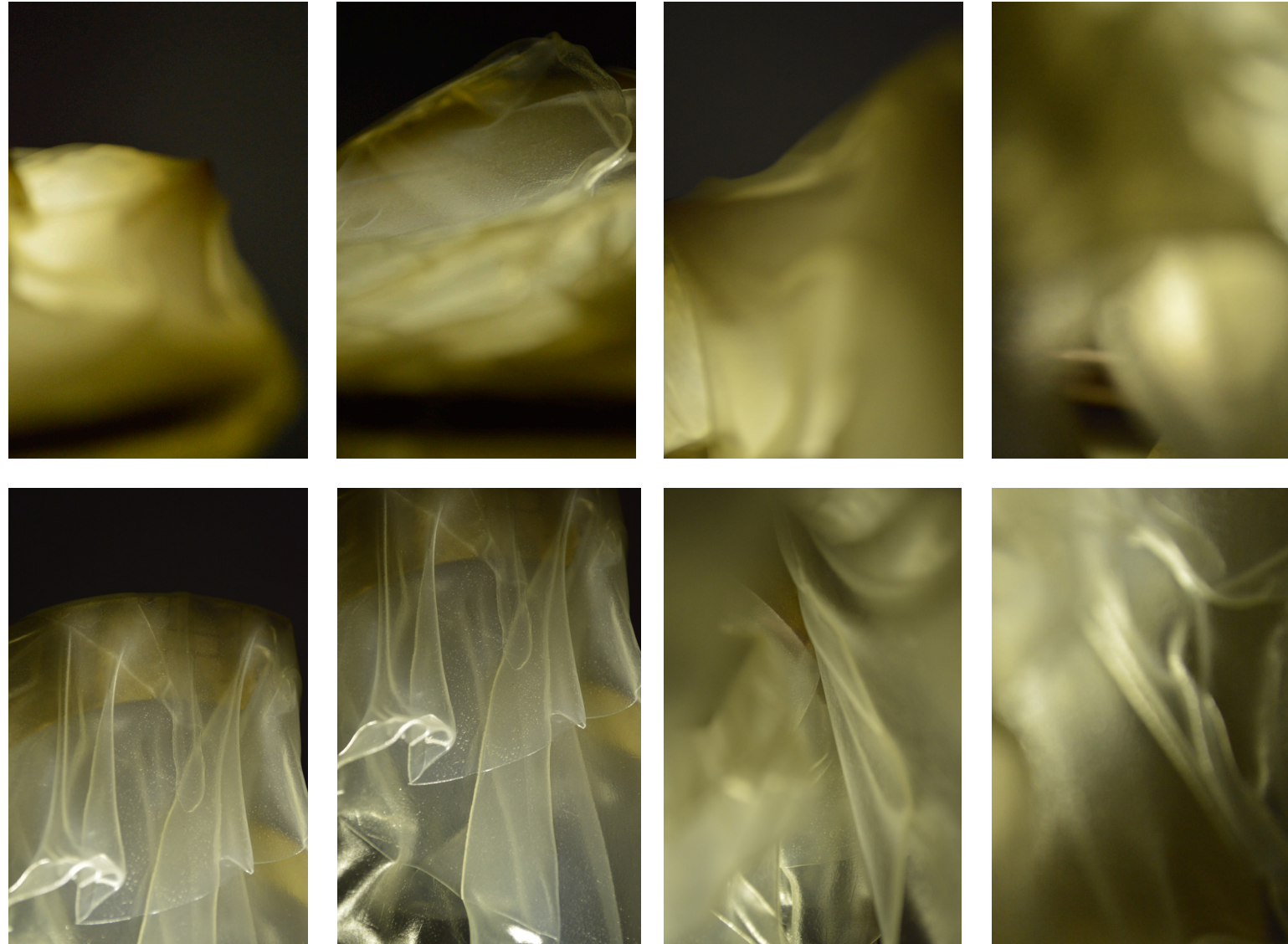


This strategy, a combination of Mycotree by Block Research Group and Urban Folly by Eco-Logic Studio. Allows for the algae farm to become part of the architecture. However, It does not allow for sufficient algae to be grow on site due to the limited space of the columns. The algae would also not have enough sun.



Similarly to Photo. Synthetica Curtain by EcoLogic Studio, the algae farm would become the cladding of the building. Due to the weight the structure would have to be a waffle structure and weight will have to be evenly distributed. The tubes would be dispersed and with minimal amount of water due to weight restrictions and as to optimise the flow of the algae through the system. This would allow the algae to get more light and for the space to be bathed in green light.





*Atmospheric photographs from laser cut  
and rice paper models.*

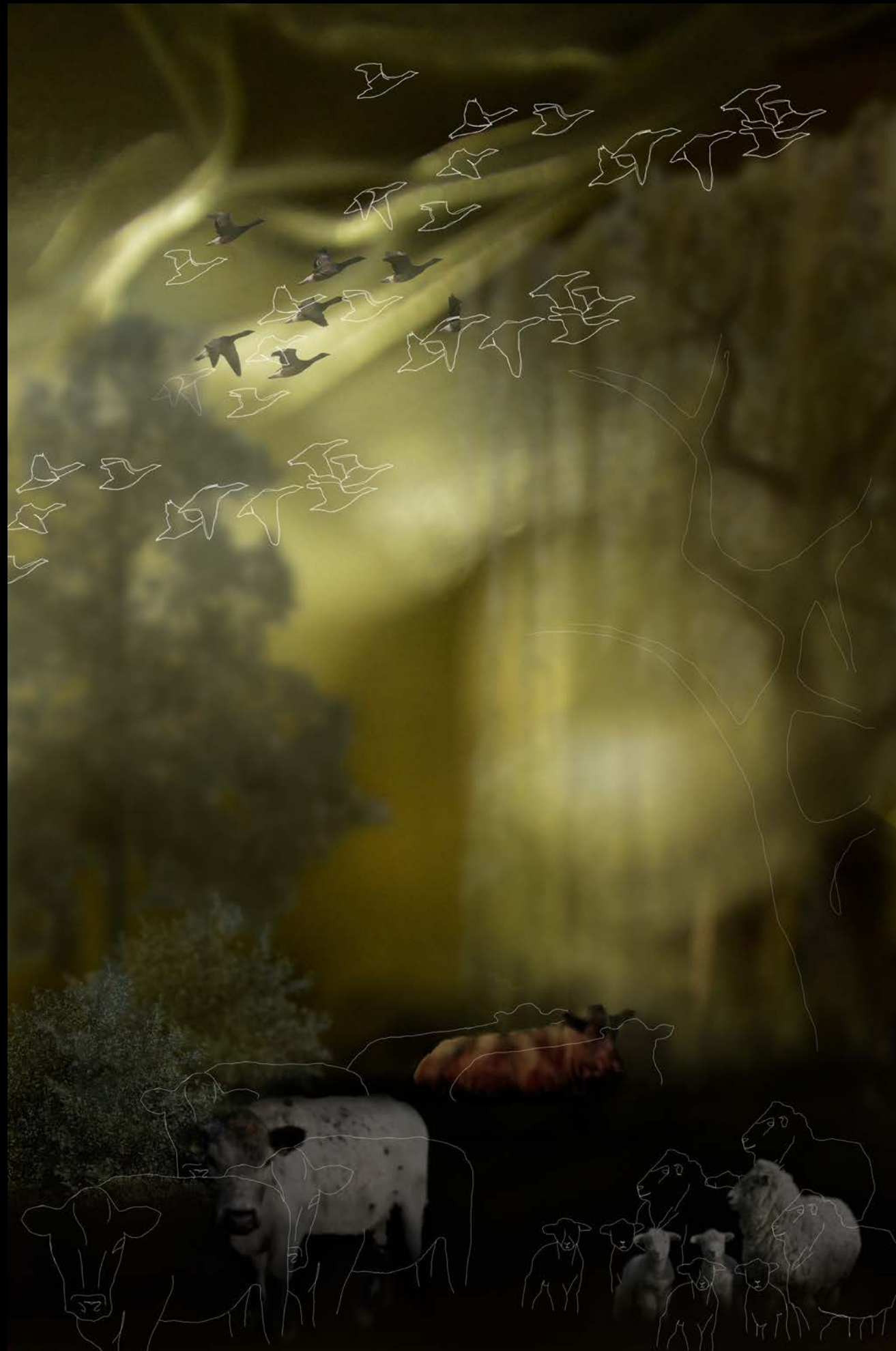




*Floating.*



*Green gold.*



*Wild.*



**The project will have two purposes.**

**The first**, a bathhouse, to provide visitors with an opportunity to travel out of Lewes and appreciate the nature which surrounds them and reconnect with it. Creating an environment similar to that of a tadpole or frog.

**The second**, an algae farm, to remove the possibility of harmful algae returning and disturbing the ecosystem. The farm will use algae to create bio fuel to heat the bathhouse (any excess will be used in the town) and the by products will be sold to be made into bio plastics.

**Lewes statistics**

**Lewes Population 18-64 years old**  
17 837 10 547

**Population density Mean age**  
4 776/km<sup>2</sup> 43.7

**Age percentage of Lewes**

<b>18 - 24</b> 6.9%	<b>30 - 44</b> 17.3%	<b>60 - 64</b> 7.4%
<b>25 - 29</b> 4.7%	<b>45 - 59</b> 21.1%	<b>65 - 74</b> 11.2%

*20 - 35 year olds.*



Access to the bathhouse:

- Day
- After hours
- Events

*35 - 60 year olds.*



Access to the bathhouse:

- Day
- After hours
- Events
- Weekends

*60 years and over.*



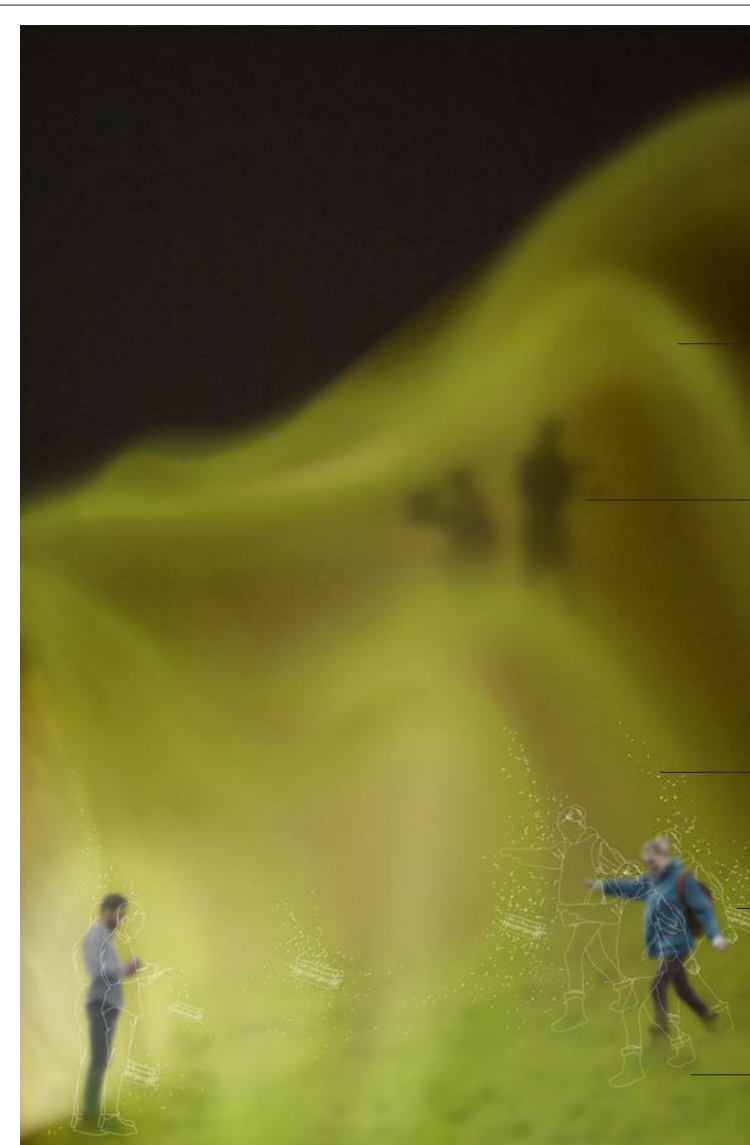
Access to the bathhouse:

- Day
- Weekends



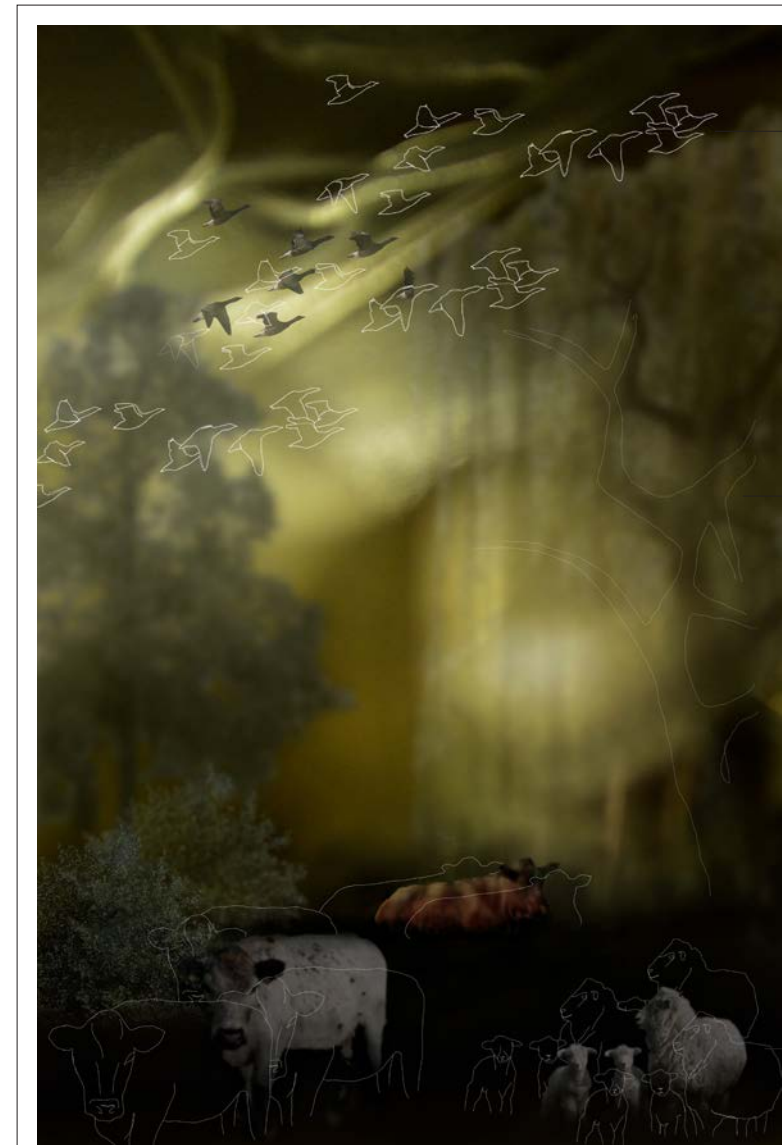
- Individual plunge pools.
- Communal pool with steam pools.
- Salt pool.
- Showers.
- Access to the pools after the showers.

Bathhouse



- Lab to survey and test the algae.
- Tubes on exterior of the building in which the algae grows.
- CO<sub>2</sub>
- Agitating the algae.
- Space to separate the oil and create fuel.

Algae farm



- Ensuring migrating birds aren't disturbed and possibly incorporate spaces for them to inhabit.
- Rewilding the spaces around the building with vegetation which survives floods.
- Ensuring there is space around the building for farmers to keep their sheep and cattle.

Rewilding



Individual  
bathing

Communal  
and internal

Alage farm

Interior bathing only  
Individual and communal



Alage farm

Communal  
and internal

Communal  
and external

Interior bathing only  
Communal only



Communal  
and external /  
internal

Individual  
bathing

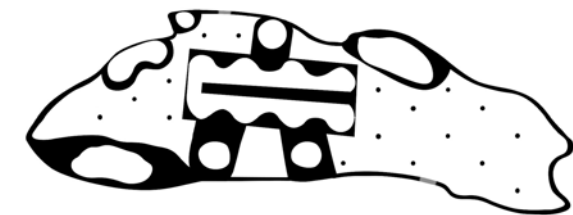
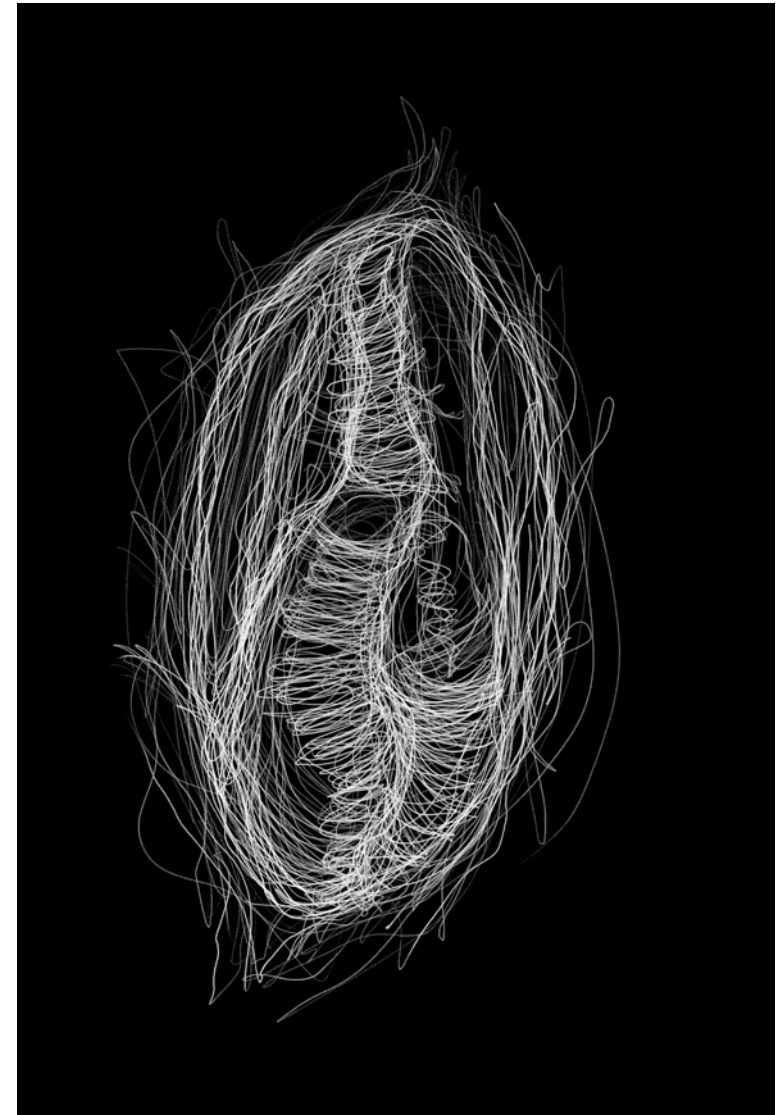
Alage farm

Interior and exterior bathing  
Individual and communal

*Using cuttlefish casting forms to hypothethise  
different spaces within the building.*



Creating drawings inspired by the cuttlefish castings  
in order to add depth and fluidity to the structure.





Initial form for the bathhouse exploring how the baths  
would sit within it.

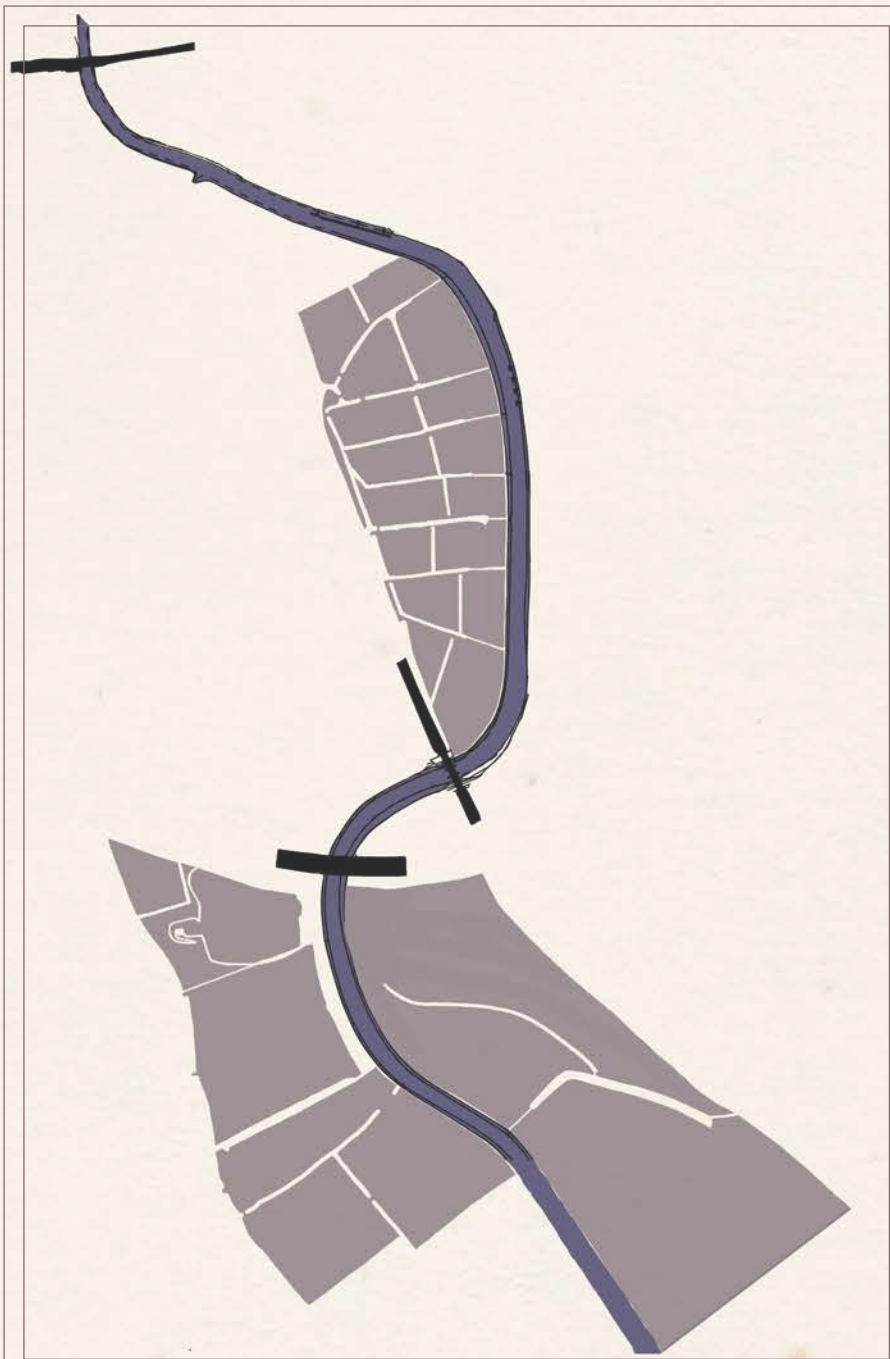
*Fluid cuttlefish.*





- |  |  |
|--|--|
|  Roads      |  Railway                  |
|  River Ouse |  Drainage and other water |

Highlighting possible areas of concern

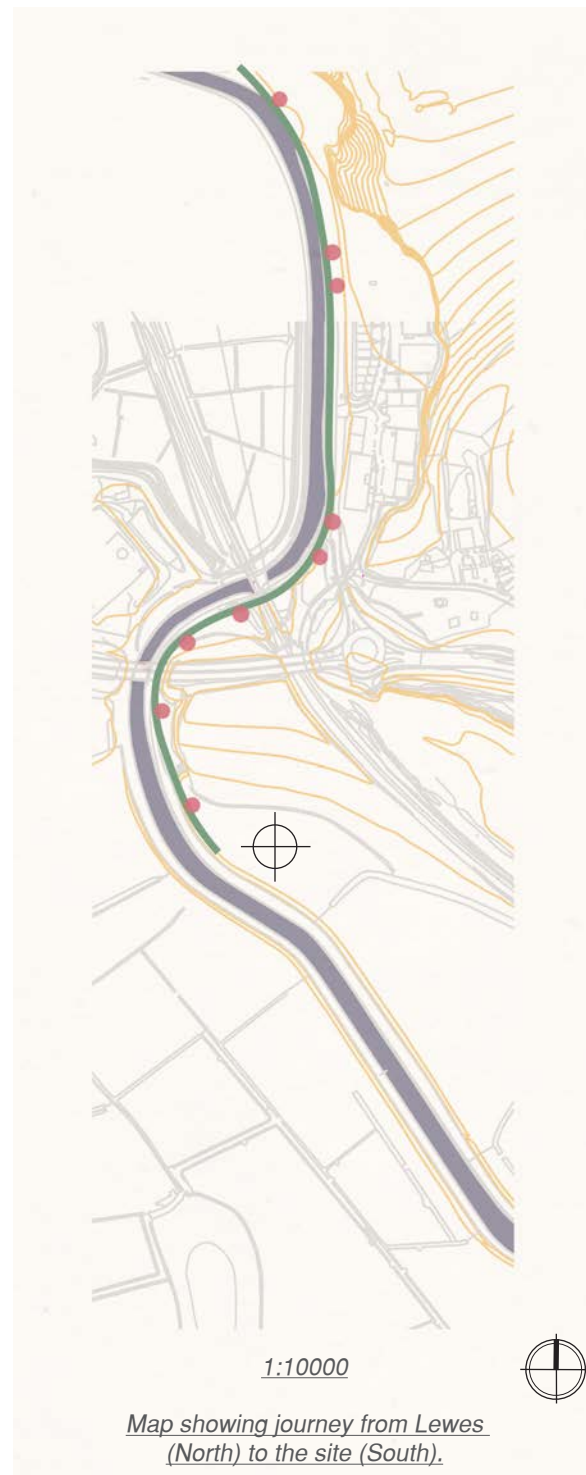


- |  |
|--|
|  River Ouse |
|  Farmland   |

Highlighting farmland as possible sites

Map of Lewes.  
1 : 10 000





● Image locations

⊕ Site location

Photographs to be read from left to right.



The photographs show the gradual change from an urban environment within Lewes to the site located in farmland.

**Towards the organic.**



A27.



Access for farmers.



Used as farmland to raise livestock.



Railway and quarry

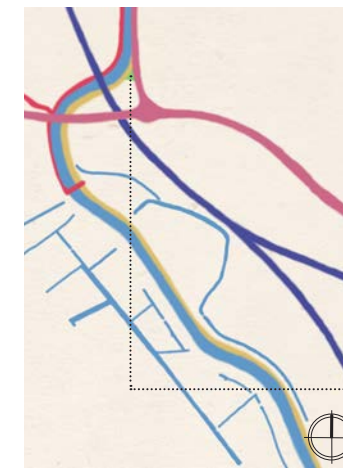


The River Ouse is tidal.



- River Ouse
- Railway
- By car
- By foot or by bicycle

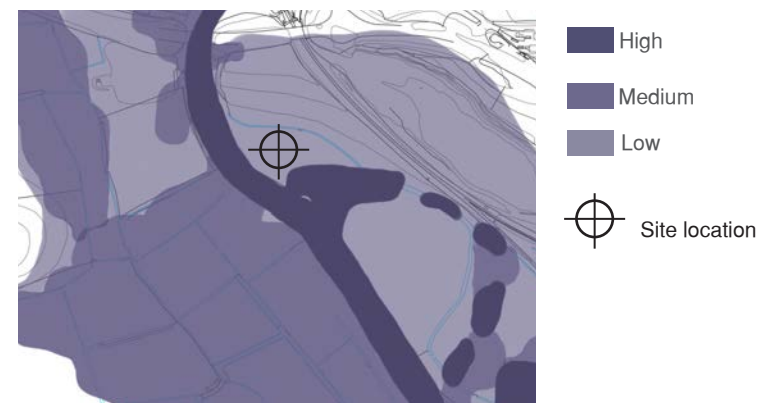
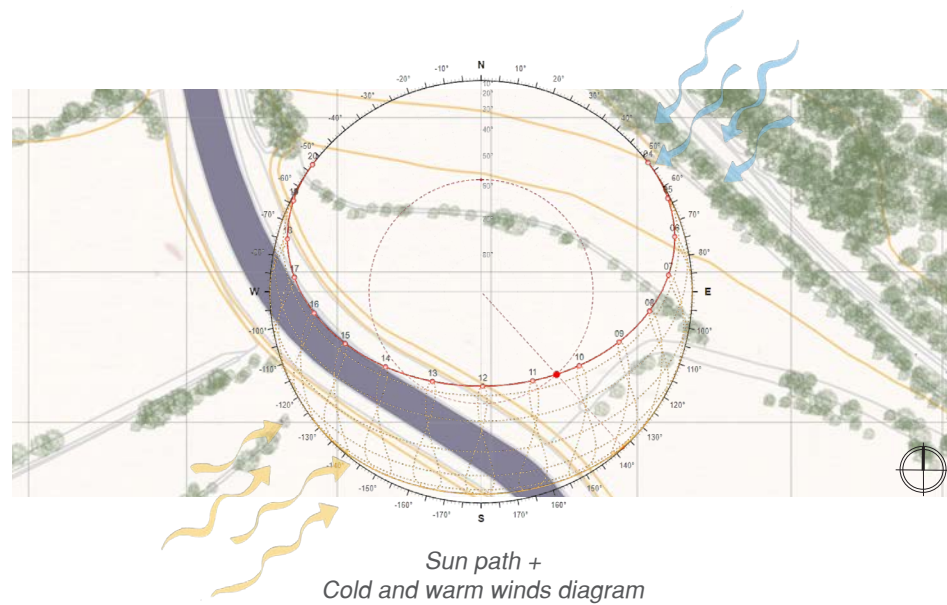
Sole access to the site: via the public footpath. Mainly accessed by foot, although it can be accessed by bike if the weather permits.



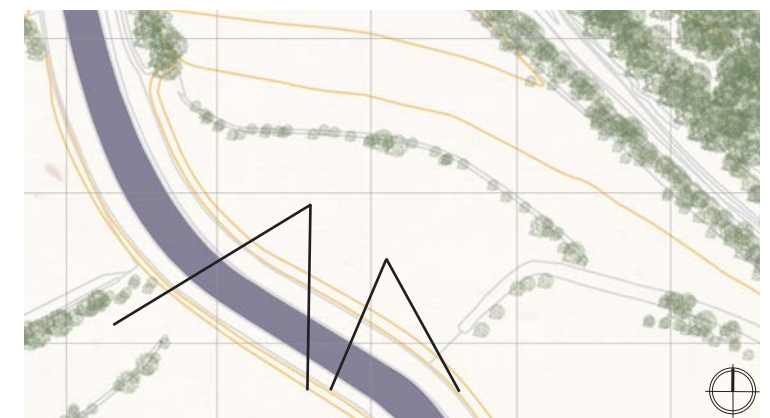
- Car park
- New access by foot or bicycle via new bridge



Unused space near the site which could be used as a car park.



Flood plains on site



Major views to the South.

1:10000 site plans.

**Important aspects on site.**





Digital collage exploring the drawings of the cuttlefish castings within the environment of a frog overlapped with sketches of the site and fragments of pastoral arcadia paintings.



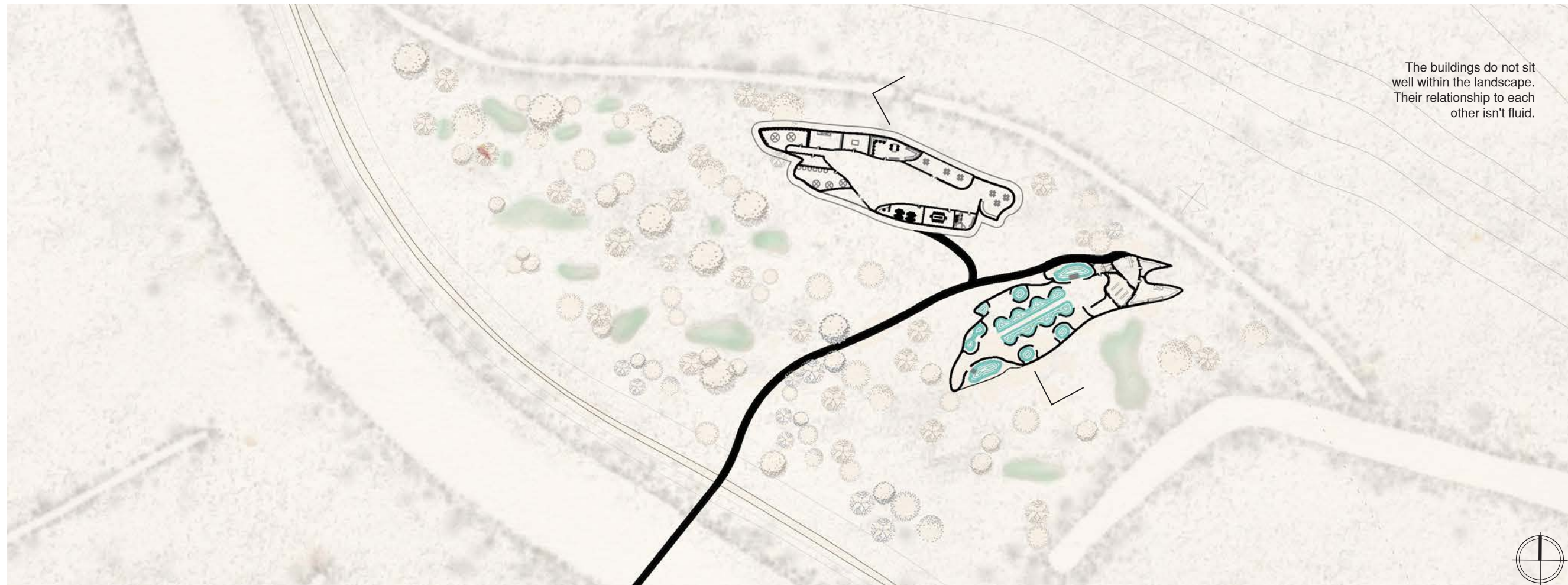
1:5000 site plan.

**Cuttlefish bathhouse**





The design is inspired by the cuttlefish castings, retaining a fluid form with an exposed structure to reflect the idea of skin and bone architecture.

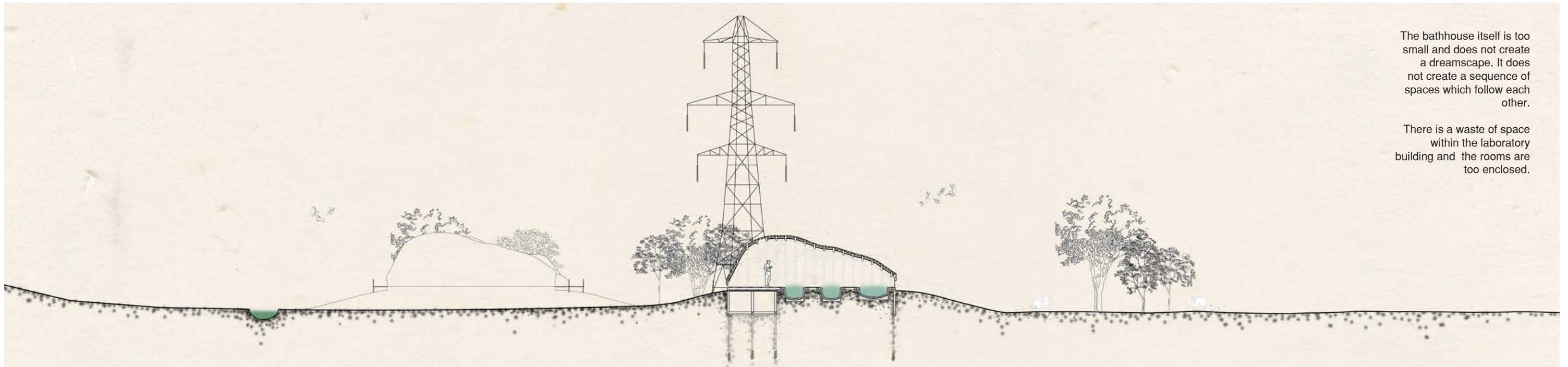


The buildings do not sit well within the landscape. Their relationship to each other isn't fluid.

*Cuttlefish bathhouse*

*1:1250 plan and section*





The bathhouse itself is too small and does not create a dreamscape. It does not create a sequence of spaces which follow each other.

There is a waste of space within the laboratory building and the rooms are too enclosed.



Algae Laboratory

1. Entrance / reception area
2. Bio fuel production and storage
3. General storage
4. Algae feedtanks
5. Emergency generator
6. New incubation room
7. Laboratory
8. Offices
9. Conference room
10. Toilets
11. Kitchenette
12. Exterior seating space

Bathhouse

1. Entrance / reception area
2. Staff room
3. Mechanical room
4. Changing room
5. Showers
6. Salt pool
7. Main communal pool
8. Steam pool
9. Exterior pool
10. Plunge pools

**Cuttlefish bathhouse**

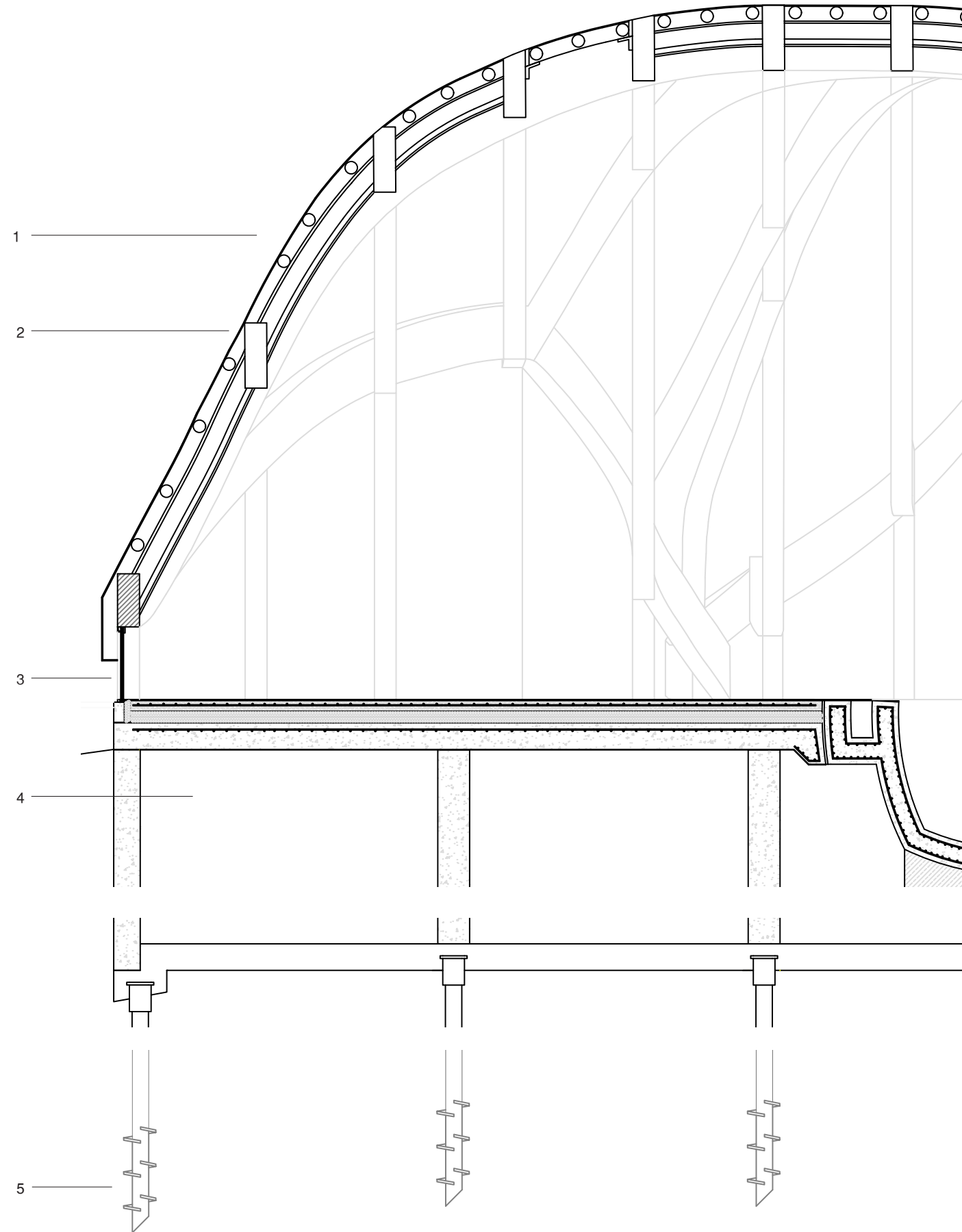
*1:500 plan and section with a focus on the bathhouse*

The waffle structure serves as a way for the roof and walls to be one in the same.

It also allows the building to have a fluid and organic structure whilst being able to support the algae growing within the structure of the roof and walls.

When inside the bathhouse, the structure is exposed to emphasise the idea of skin and bone architecture.

The fluid structure changes as you move through the building. Going from the edge spaces to the centre its fluid form pulls you with it.



#### 1:50 section

##### 1 Algae growing structure

PTFE skin  
PTFE skin frames  
creating a closed and  
controllable environment  
Plastic tubes to grow the  
algae

##### 2 Roof / wall structure

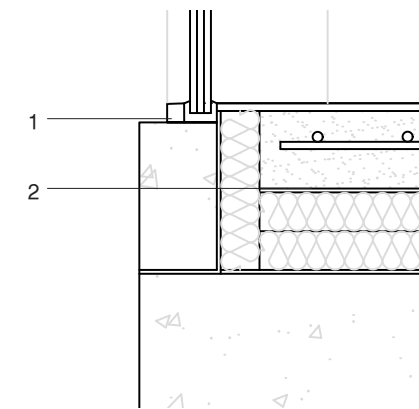
3 sheets of 9mm plywood  
Waffle structure  
Waterproof insulation  
Service cavity with vapour  
control layer and battens  
9mm plywood finish

##### 3 Concrete floor with tile finish

##### 4 Possibility of having space under the bathhouse for filtration and heating system

##### 5 Screw pile foundations down to stable ground

#### 1:10 Floor detail



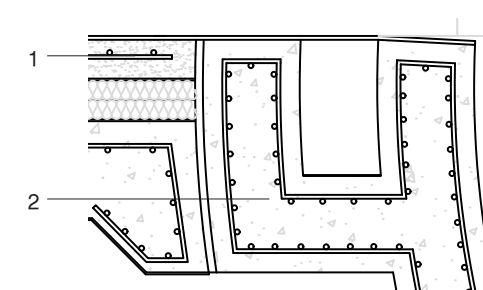
##### 1 Exterior wall

Triple glazed window  
Concrete  
Waterproof membrane  
Waterproof insulation  
Concrete slab

##### 2 Floor construction

Tile floor finish  
Underfloor heating  
Dry sand / cement mix  
2 x 50mm insulation  
Building protection  
mat with waterproof  
membrane

#### 1:10 Pool detail



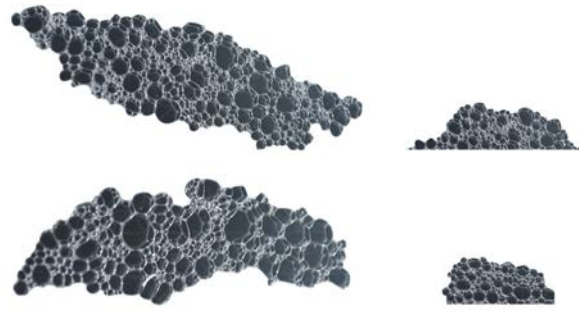
##### 1 Floor construction

Underfloor heating  
2 x 50 mm insulation  
External slab  
reinforcement  
Water insulating  
membrane

##### 2 Pool construction

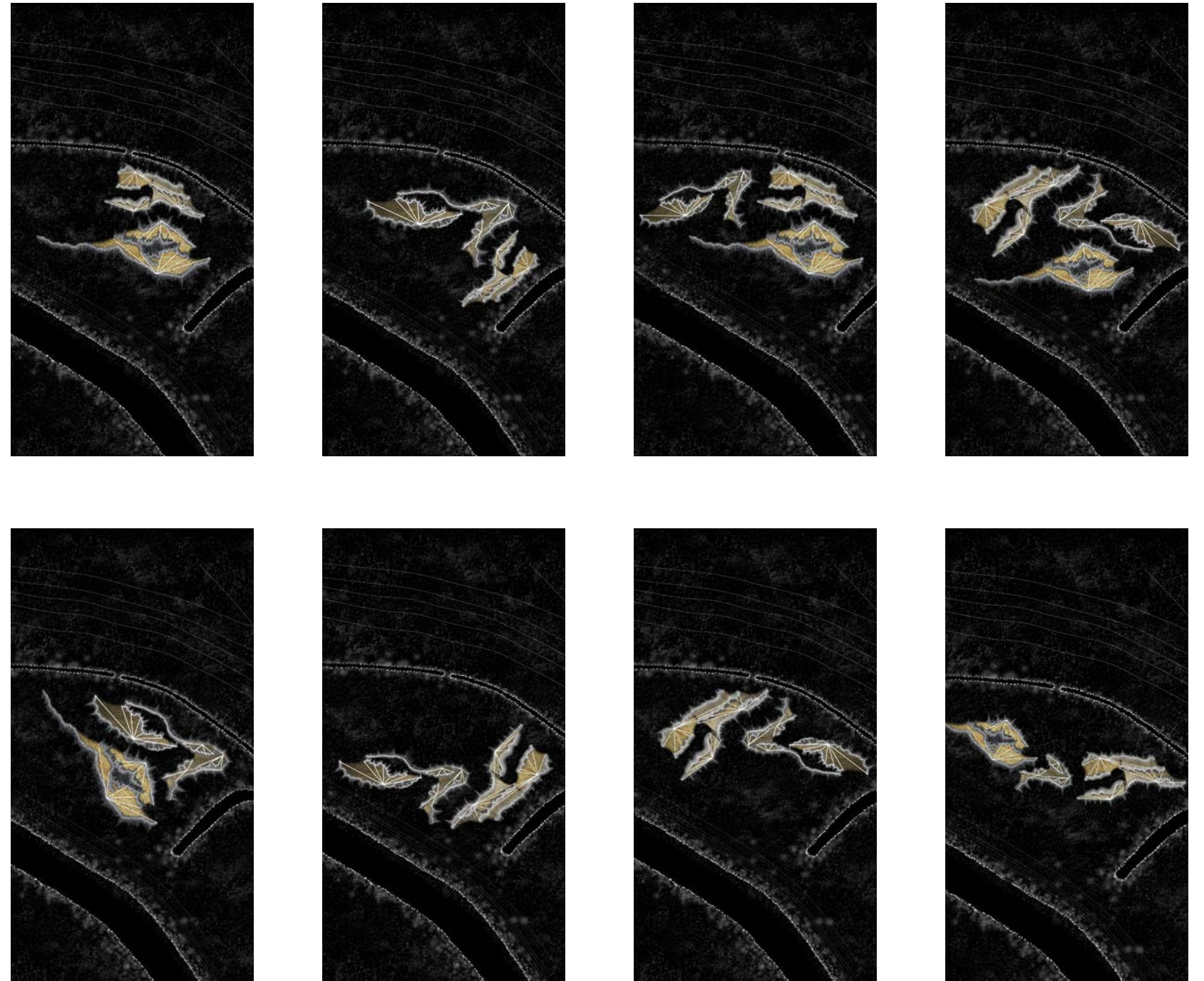
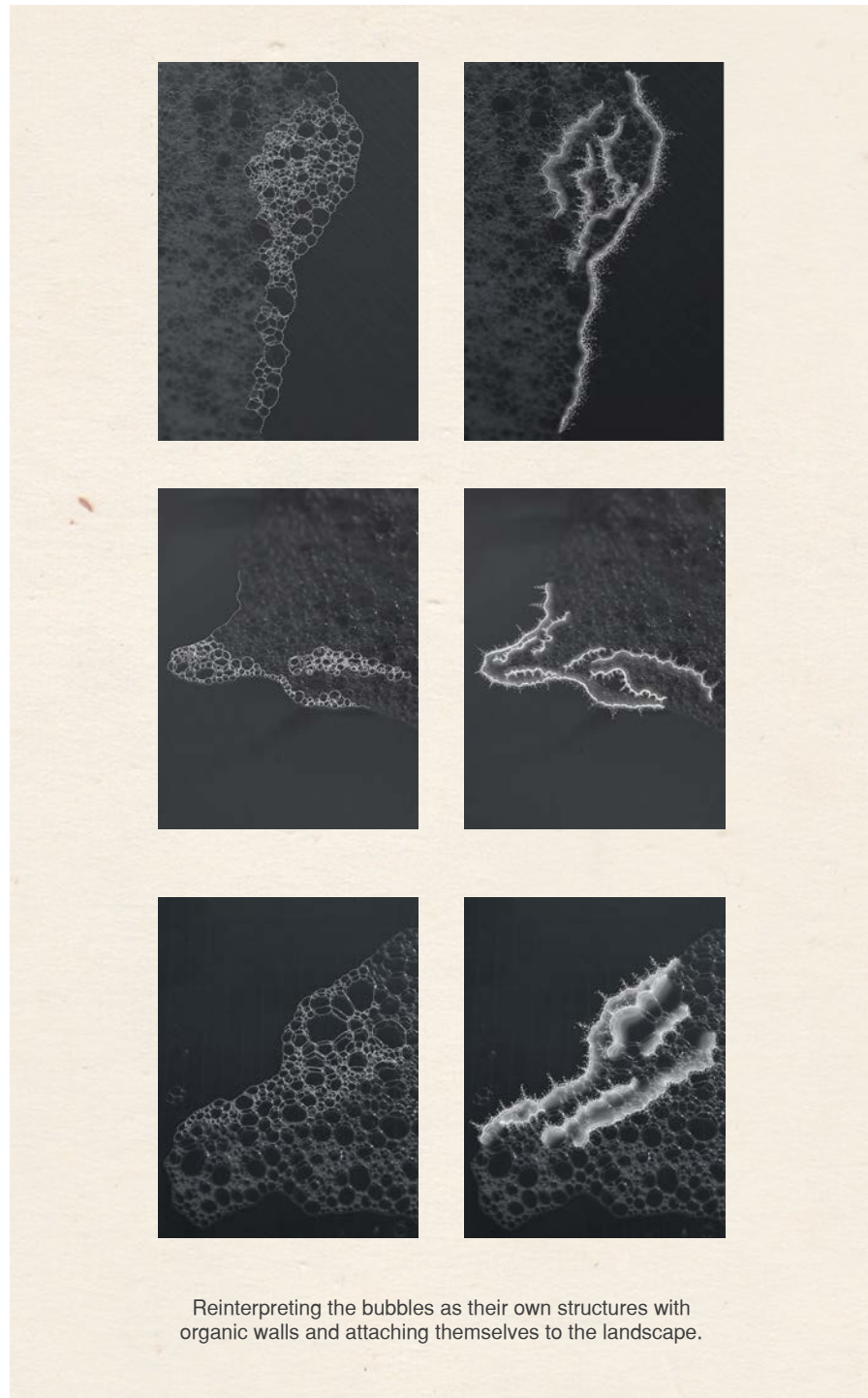
Tile floor finish  
Gutter top grill  
Vertical reinforcement  
Slab mesh reinforcement  
Concrete





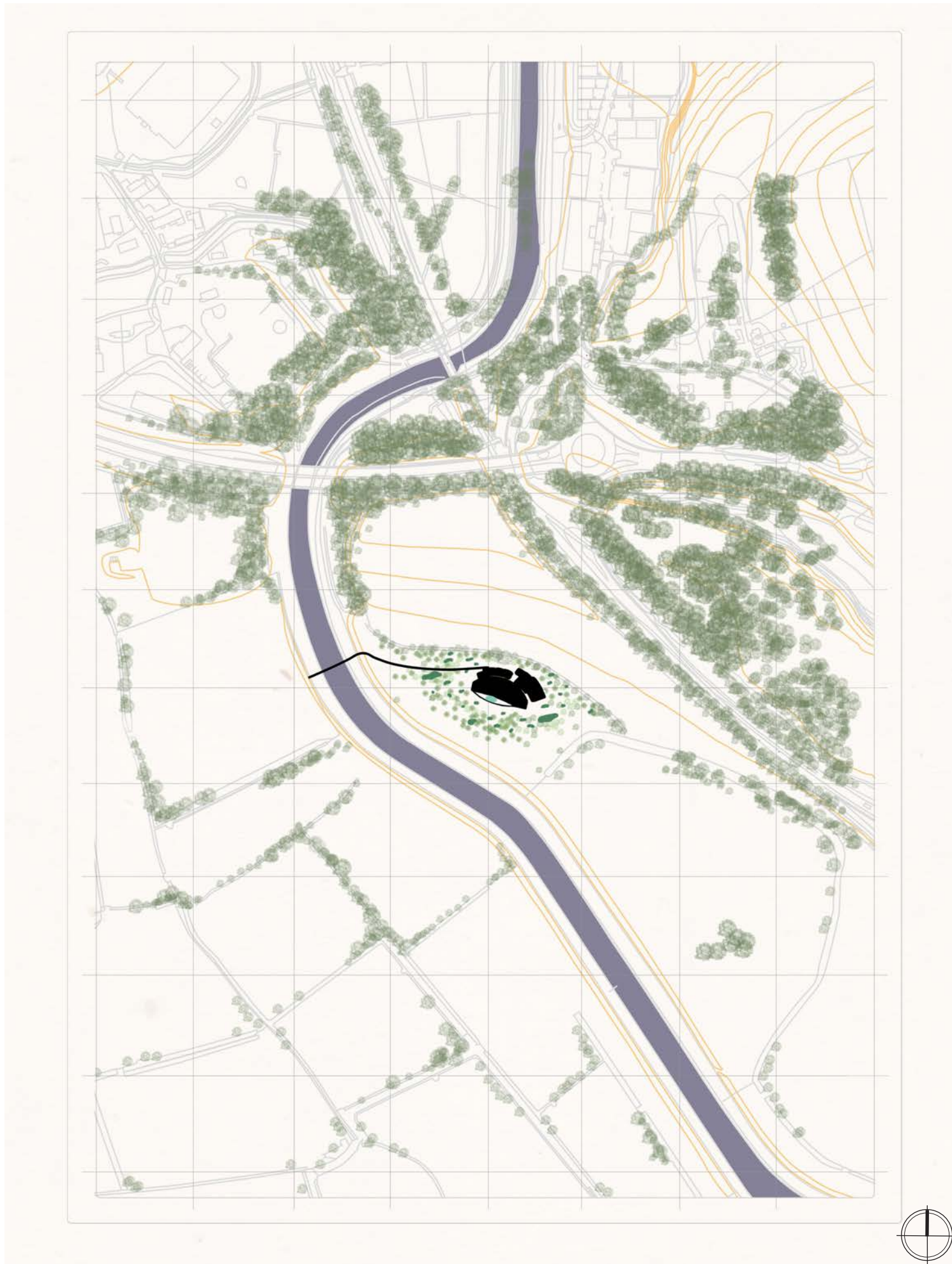
Photographing bubbles and placing them into the proposal to create an organic order.

Allowing the forms to work together to create a sequences of spaces within the landscape,



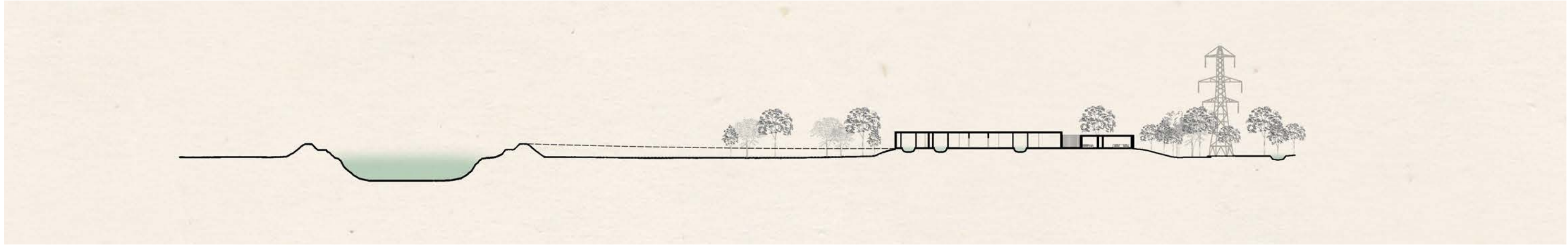
*Attached to the landscape.*





**Bubble rooms**





1:1250 plan and section

Bubble rooms

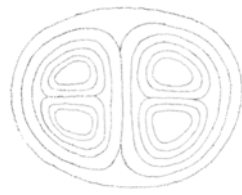


Reinterpreting different algae cells to reimagine the pools and create individual landscapes.

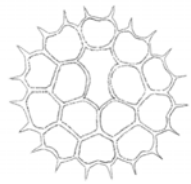
The landscape remains organic and adding the 'columns' creates an idea of grandeur allowing us to imagine them as structural elements.



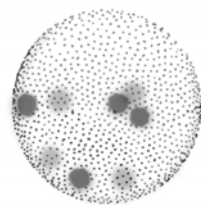
Drawing of a Gloeocapsa, a genus of cyanobacteria.



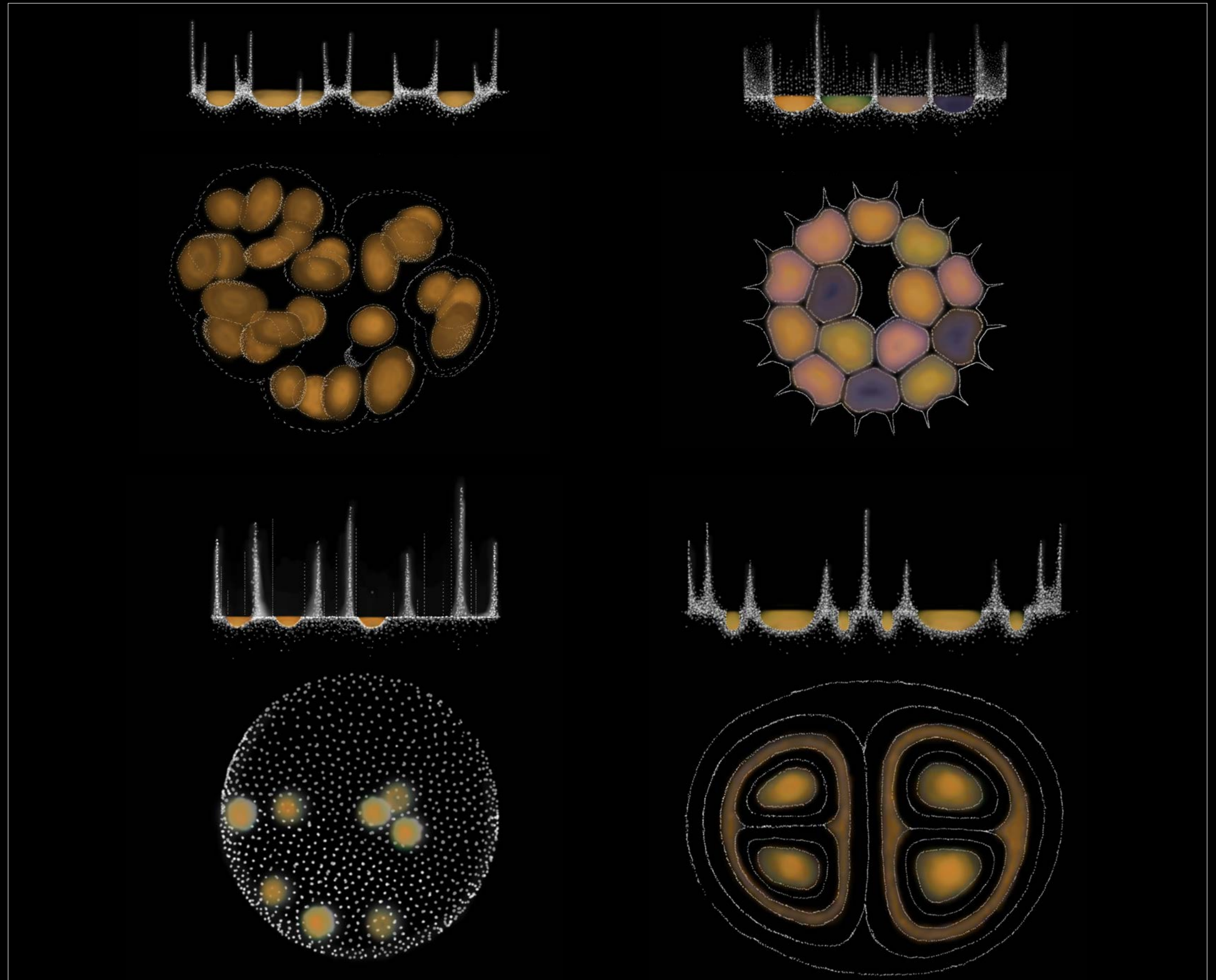
Drawing of a Gloeocapsa, a genus of cyanobacteria.



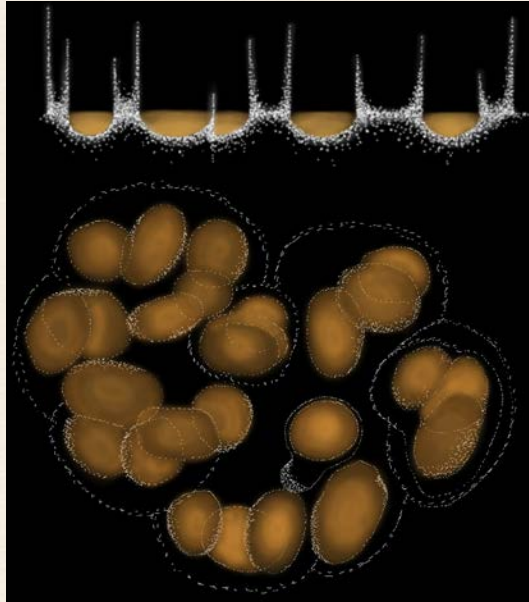
Drawing of a Pediastrum, a genus of green algae.



Drawing of a Volvox, a genus of green algae.







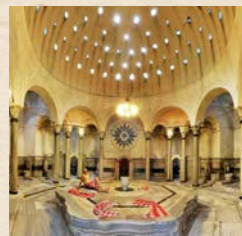
Drawing of a *Gloeocapsa*, a genus of cyanobacteria, reimagined.



Mississippi Swamp by Andrew Shapter.

The main pool area will emphasise the idea of grandeur with a central tall ceiling and columns of natural forms.

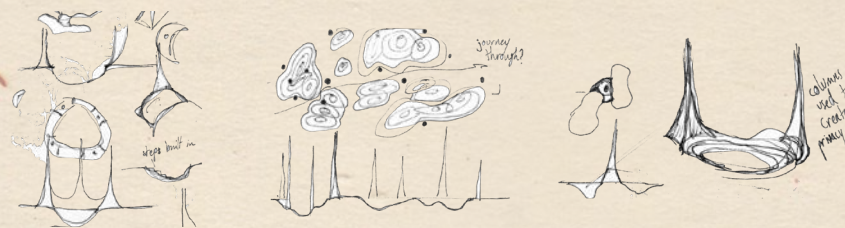
Inspired by forest bathing, there will be multiple columns mimicking tree trunks within a forest and the pools will take natural shapes from algae cells and ponds.



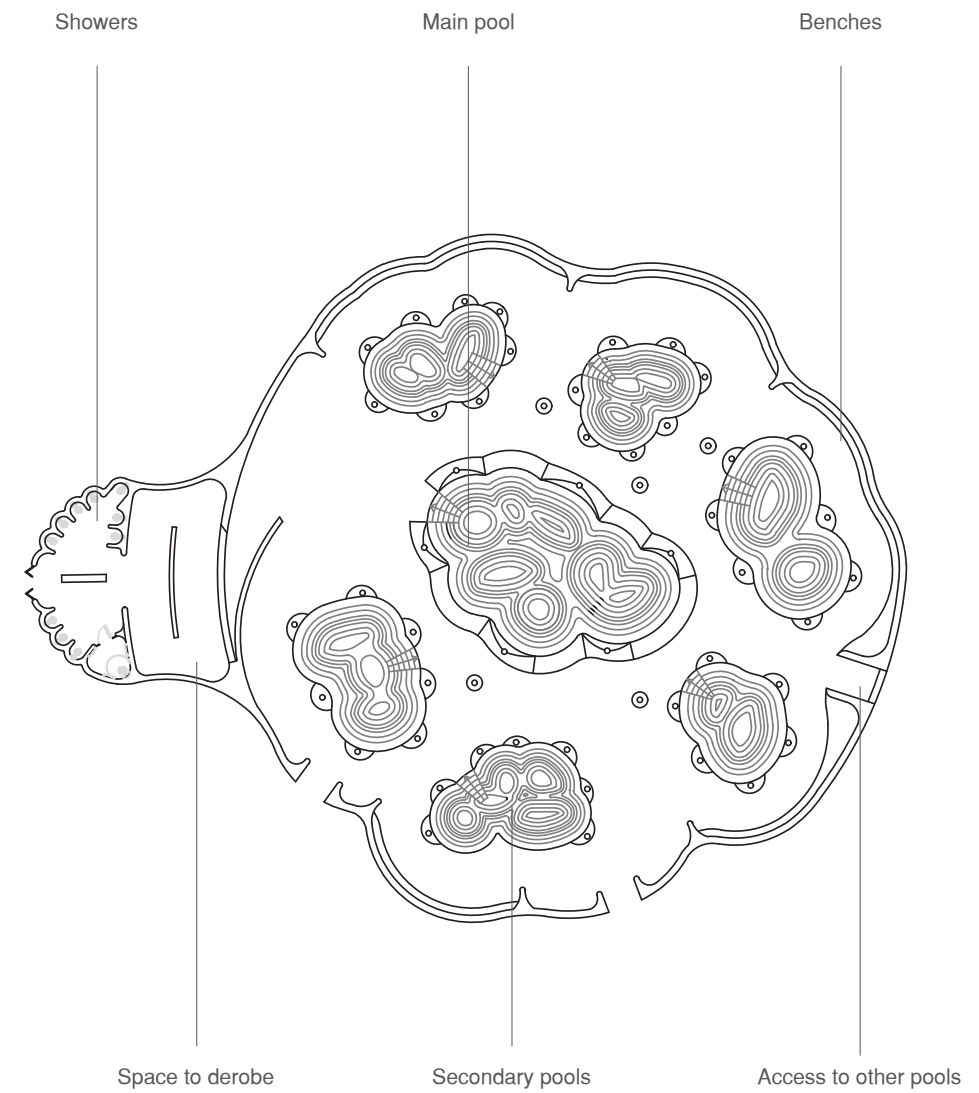
Sanduny Banya, Moscow, Russia.



Cagaloglu Hamam, Istanbul, Turkey.



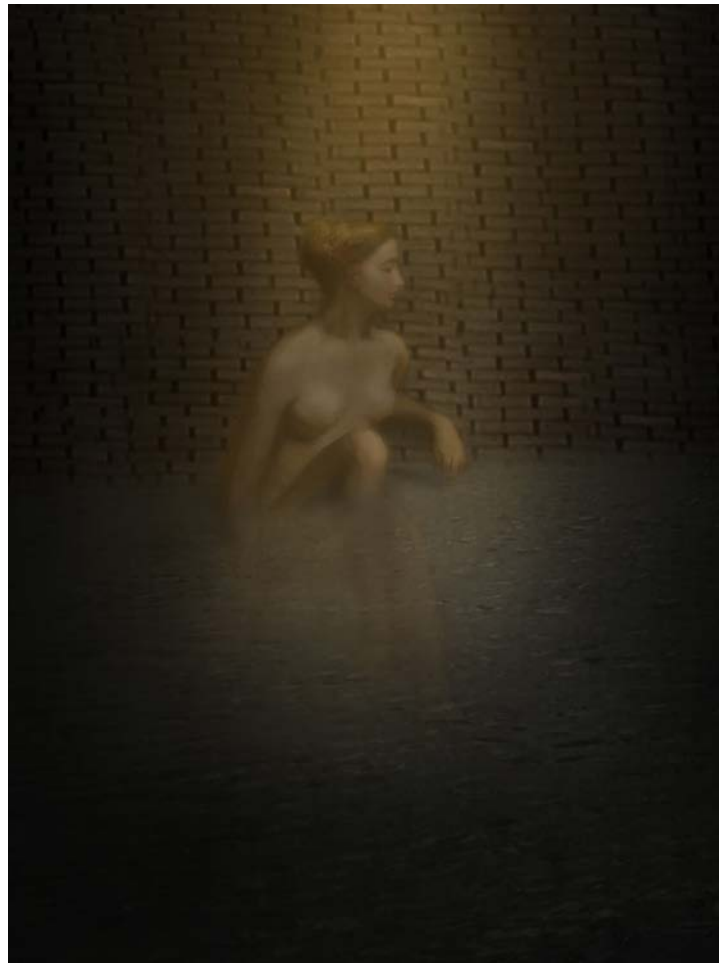
Sketches



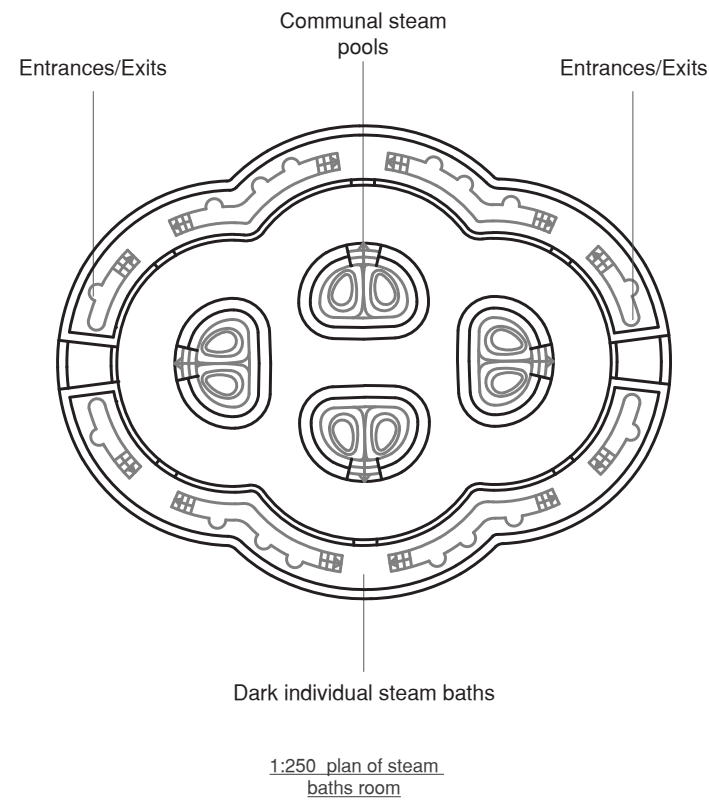
1:500 plan of main pool area

The algae cells form around each other. Working off of one another to form a structure, the pool rooms use a similar structure to organise themselves.

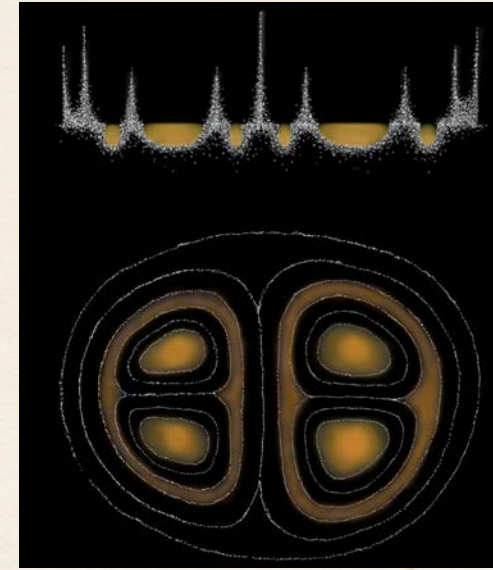




Placing a person from William Etty's painting within a dark pool space. Set within a mycelium backdrop, the image investigates the atmosphere dark solitude spaces would create within the bathhouse.



**Dark steam**



Drawing of a Gloeocapsa, a genus of cyanobacteria, reimagined.



Tadpoles by Eiko Jones.



Gellert Thermal Baths, Budapest, Hungary.

The pools are inspired by algae cells and similarly to the cell formation, the room is organised from the pools.

The steam baths area will be a space created for calm. Dark with orange light coming through the algae bioplastic to recreate the colours of the tadpoles habitat. The algae bioplastic will sit within screens inspired by Japanese paper screens.



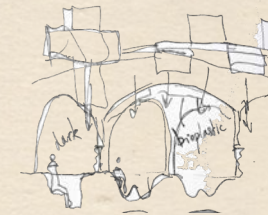
Feng Shui Swimming Pool, Mikou Studio.



Biblioteca Central de la Unam, Juan O'Gorman.

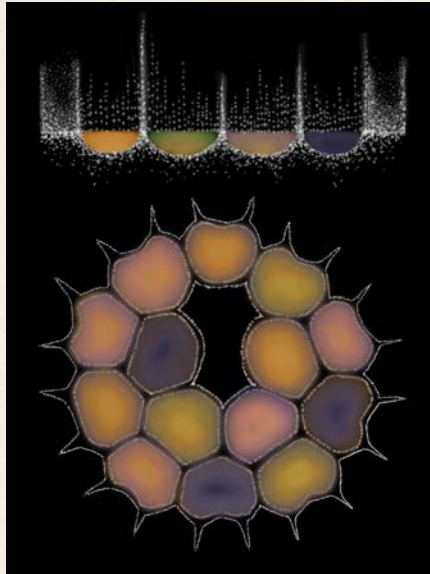


Investigating how to recreate the dark pool bathed in orange light by making bioplastic from agar agar powder, glycerin and water.



Sketches





Drawing of a Pediastrum, a genus of green algae, reimagined.



Boy Hidden in Egg by David Hockney.



Tadpoles by Geoff Gallice.

A secluded environment.

A womb.

Rebirth.

The salt pools will be individual spaces in order to ensure tranquility and encourage a meditative state.

Placed within dome shaped structures, light will be limited in order to allow visitors to focus on their experience of the space.



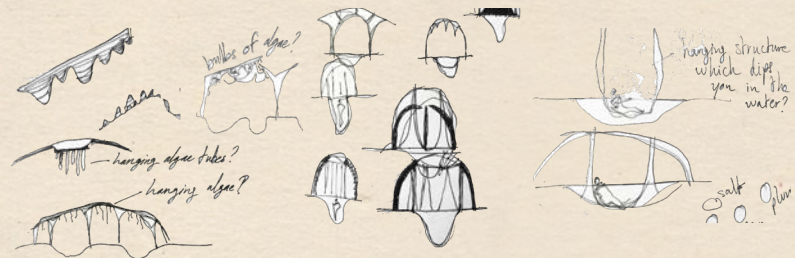
Sanduny Banya, Moscow, Russia.



Native American Sweat Lodge.



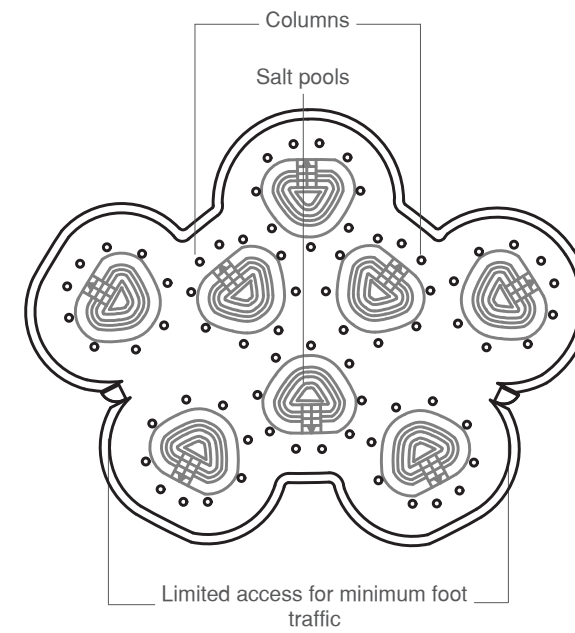
Traditional Sento, Tokyo, Japan, Schemata Architects.



Sketches



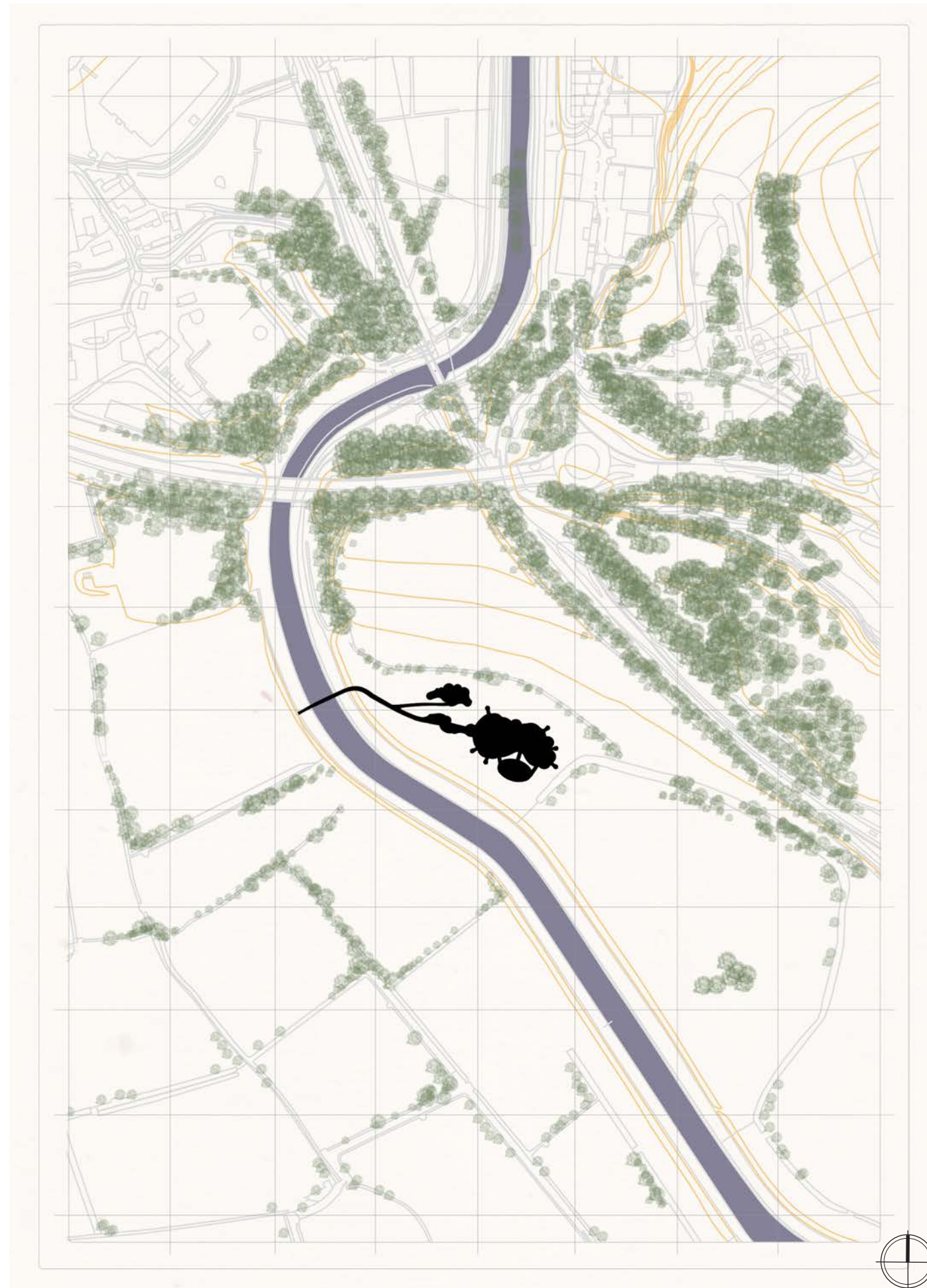
Using William Etty's Academic Study of a reclining male nude asleep to immerse a human in a tadpoles environment.



1:250 layout of salt pool room

**A place of seclusion.**



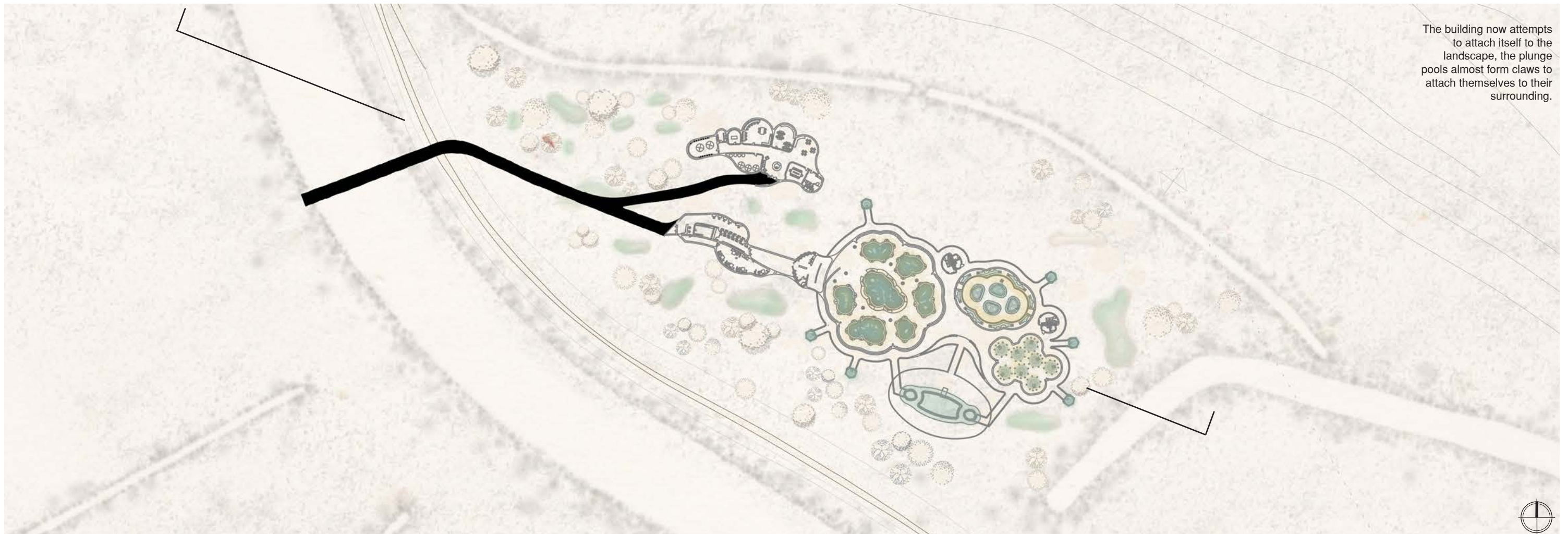
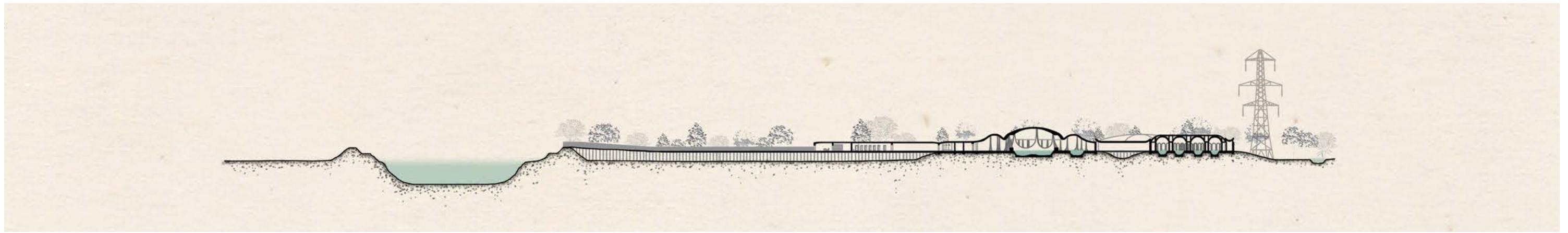


*Site plan.*

*1:5000 site plan.*

*Placing the bathhouse and laboratory within  
the surrounding context of Lewes.*





*1:1250 site section and plan.*

*Placing the bathhouse and laboratory within the surrounding context.*

**Site section and plan.**





Algae Laboratory

- 1. Entrance / reception area
- 2. Bio fuel production and storage
- 3. General storage
- 4. Algae feedtanks
- 5. Emergency generator
- 6. New incubation room
- 7. Laboratory
- 8. Offices
- 9. Conference room
- 10. Toilets
- 11. Kitchenette

Bathhouse

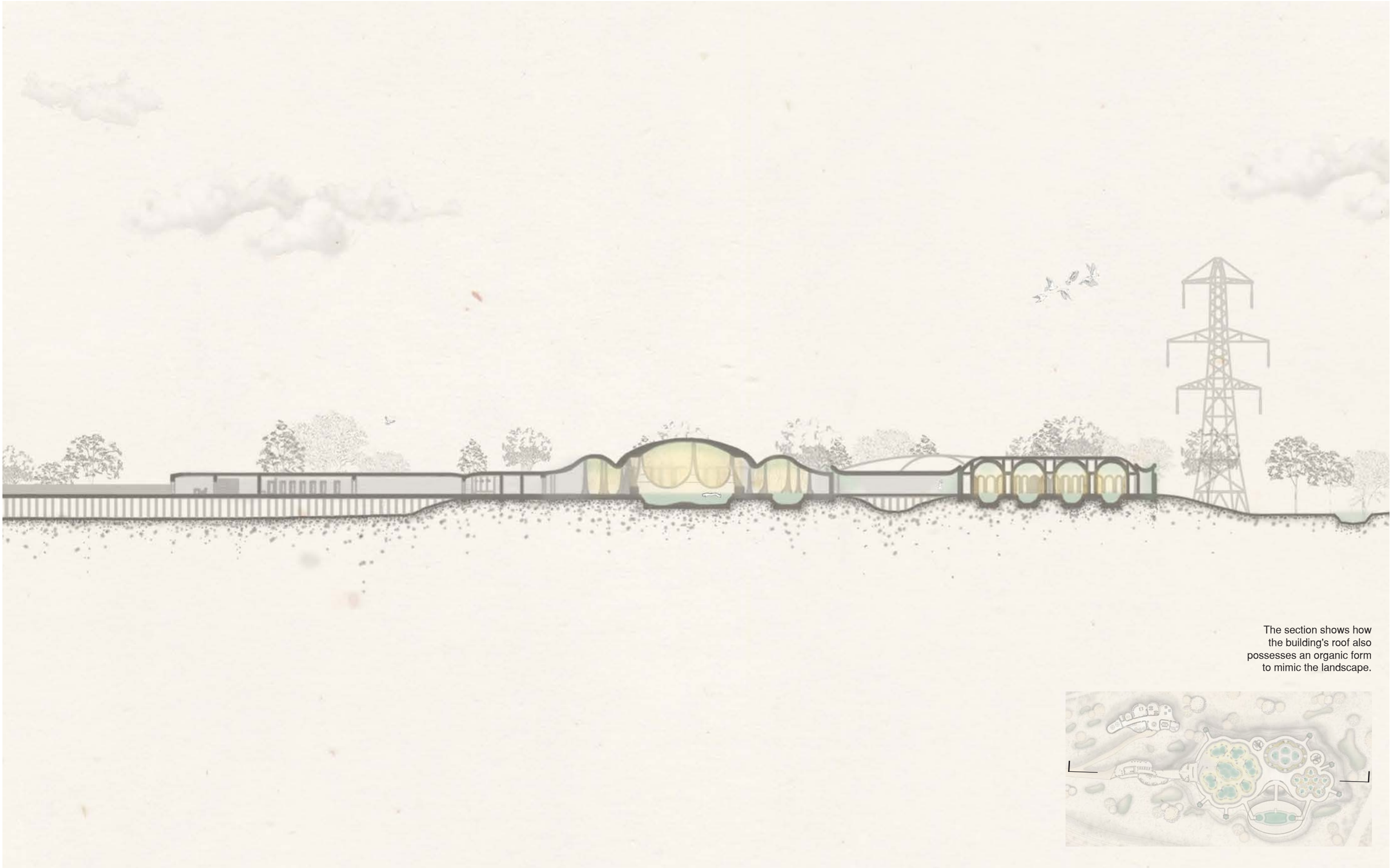
- 1. Entrance / reception area
- 2. Staff room
- 3. Mechanical room
- 4. Changing room
- 5. Showers
- 6. Salt pool
- 7. Main communal pool
- 8. Steam pool
- 9. Exterior pool
- 10. Plunge pools



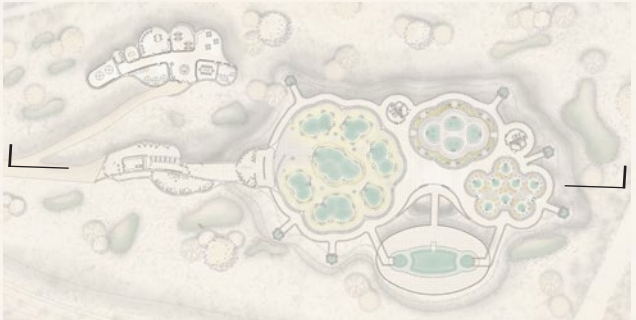
1:500.

**Bathhouse and laboratory plan.**





The section shows how the building's roof also possesses an organic form to mimic the landscape.



1:500.

*Bathouse section*



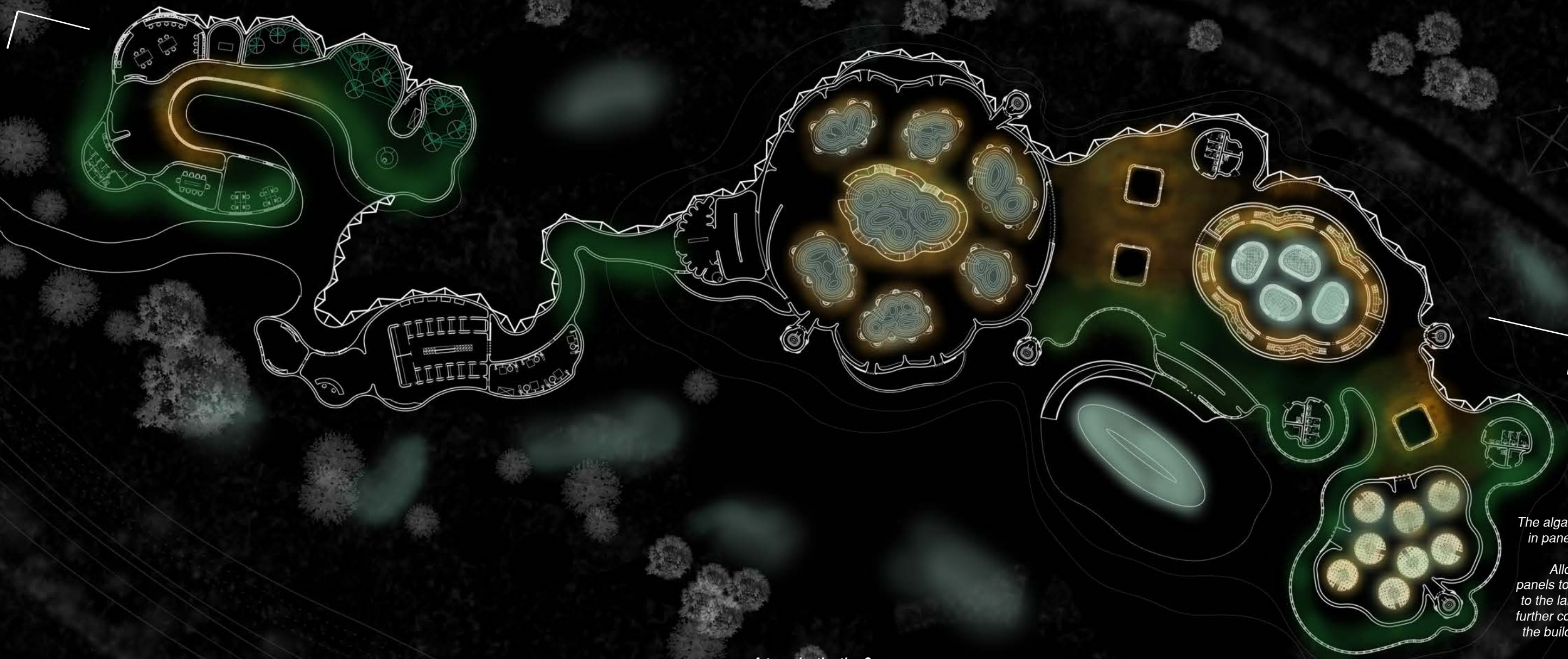


*A true destination?*

*Exaggerated axo showing the influence of how  
japanese gardens organise themselves as a complex.*

*Further creating a dreamscape using the light  
coming through the bioplastic.*



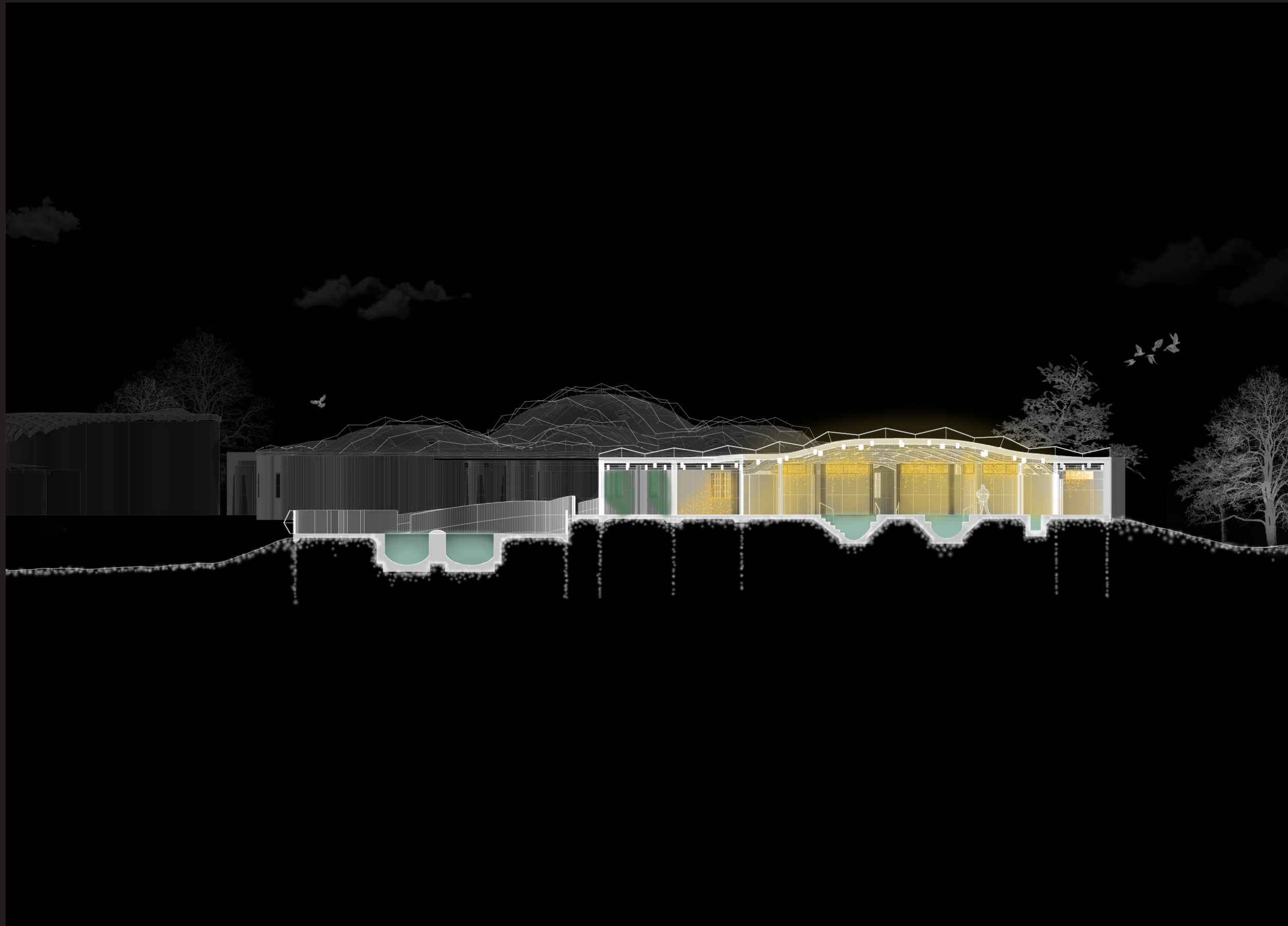


*A true destination?*

*The algae is grow in panels on the facade. Allowing the panels to open up to the landscape, further connecting the building to its natural surroundings.*

*1:500 plan and section*





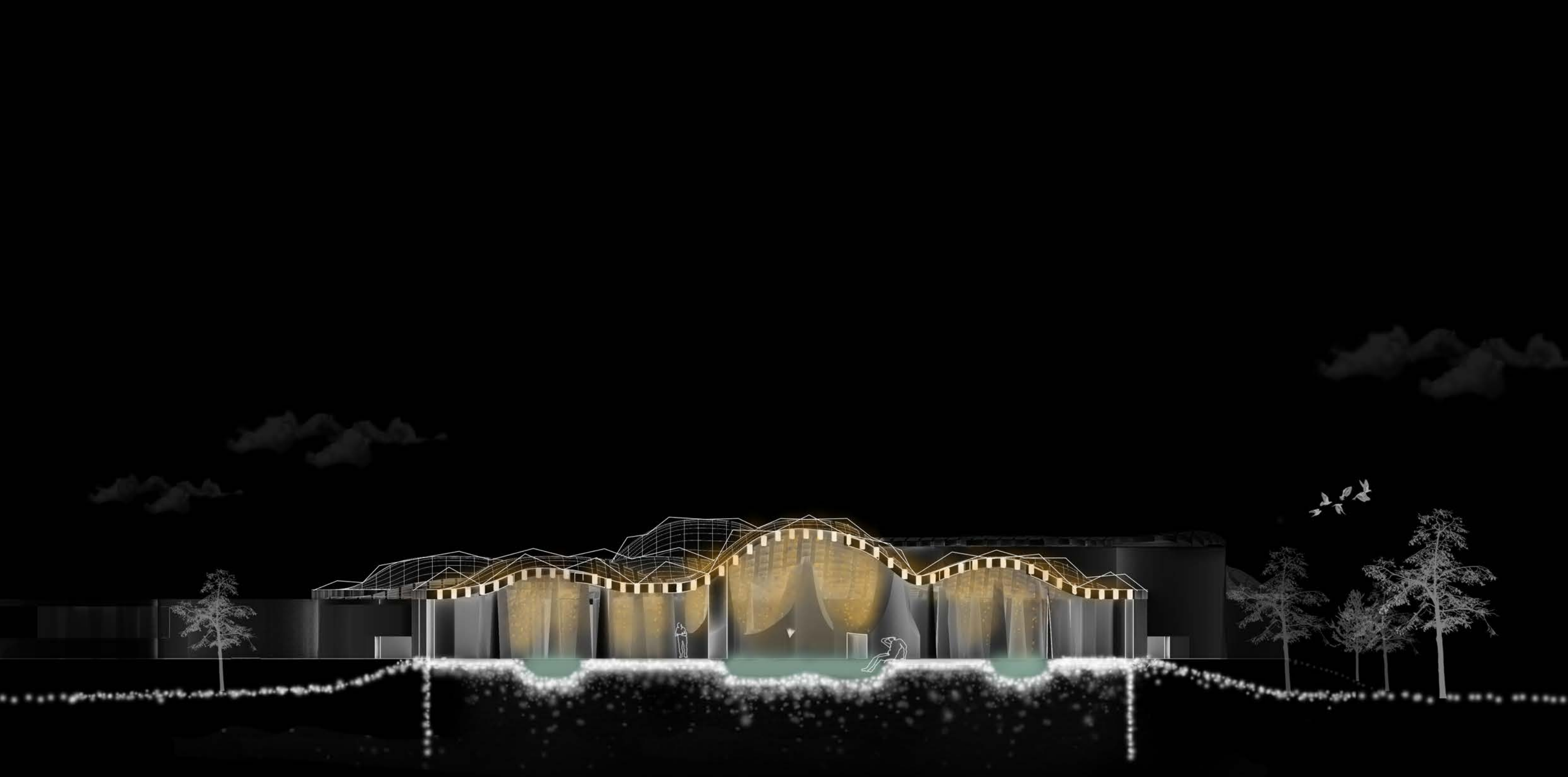
*The steam baths are drenched in orange, as you move to the exterior you change from orange to green light as you pass the algae panels before exiting.*



*A true destination?*

*1:250 section of the steam pool room exterior pool.*



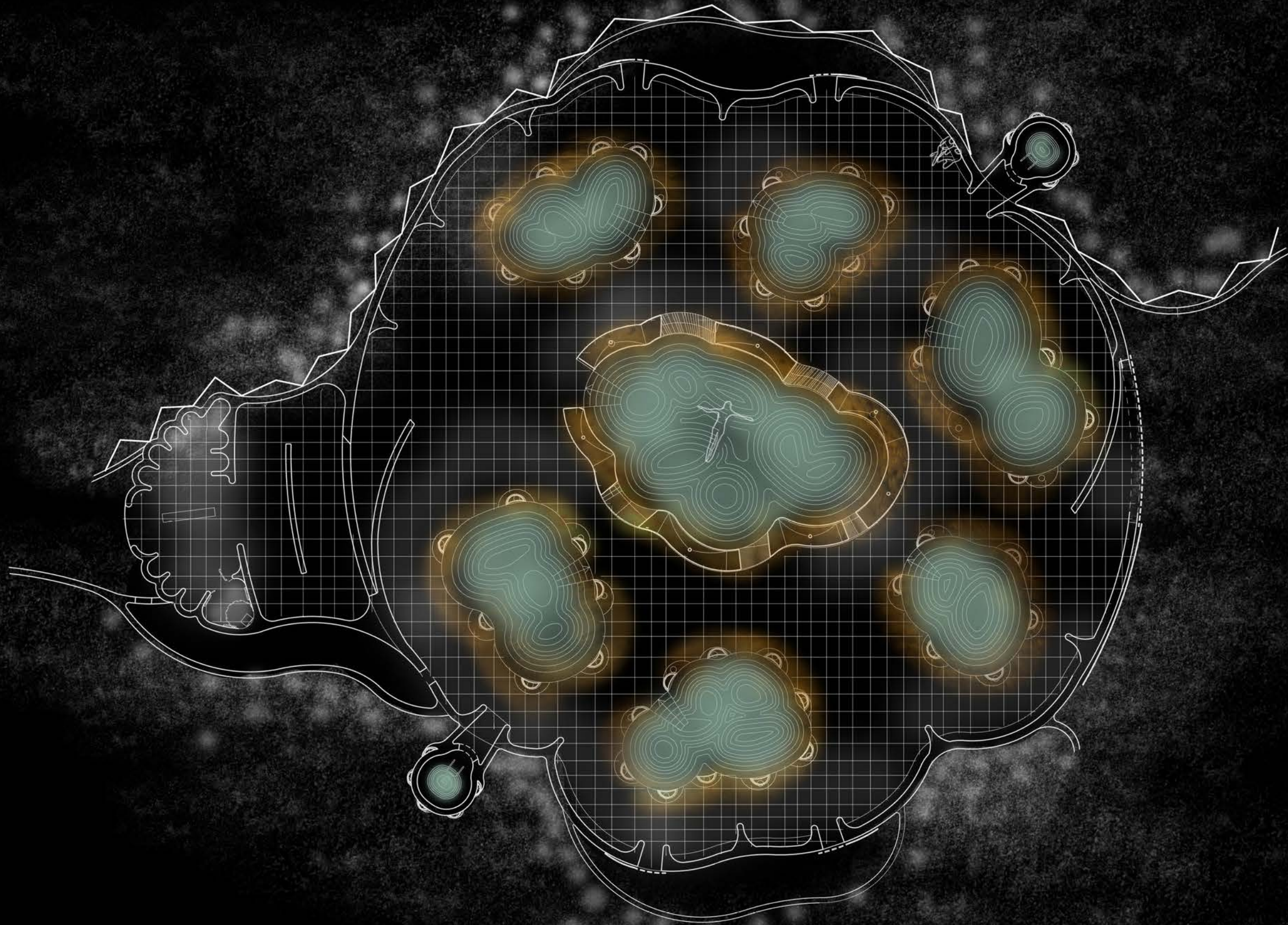


*Section showing the  
otherworldly-ness qualities.  
The drawing also  
depicts the creature like  
qualities of the roof.*

*A true destination?*

*1:200 section of the main pool room*

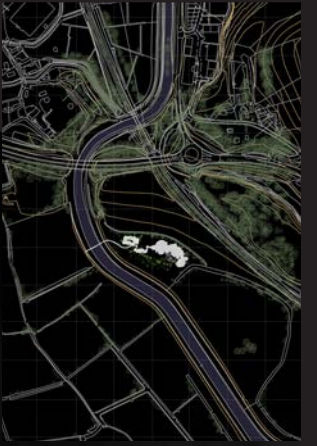




*Transported.*

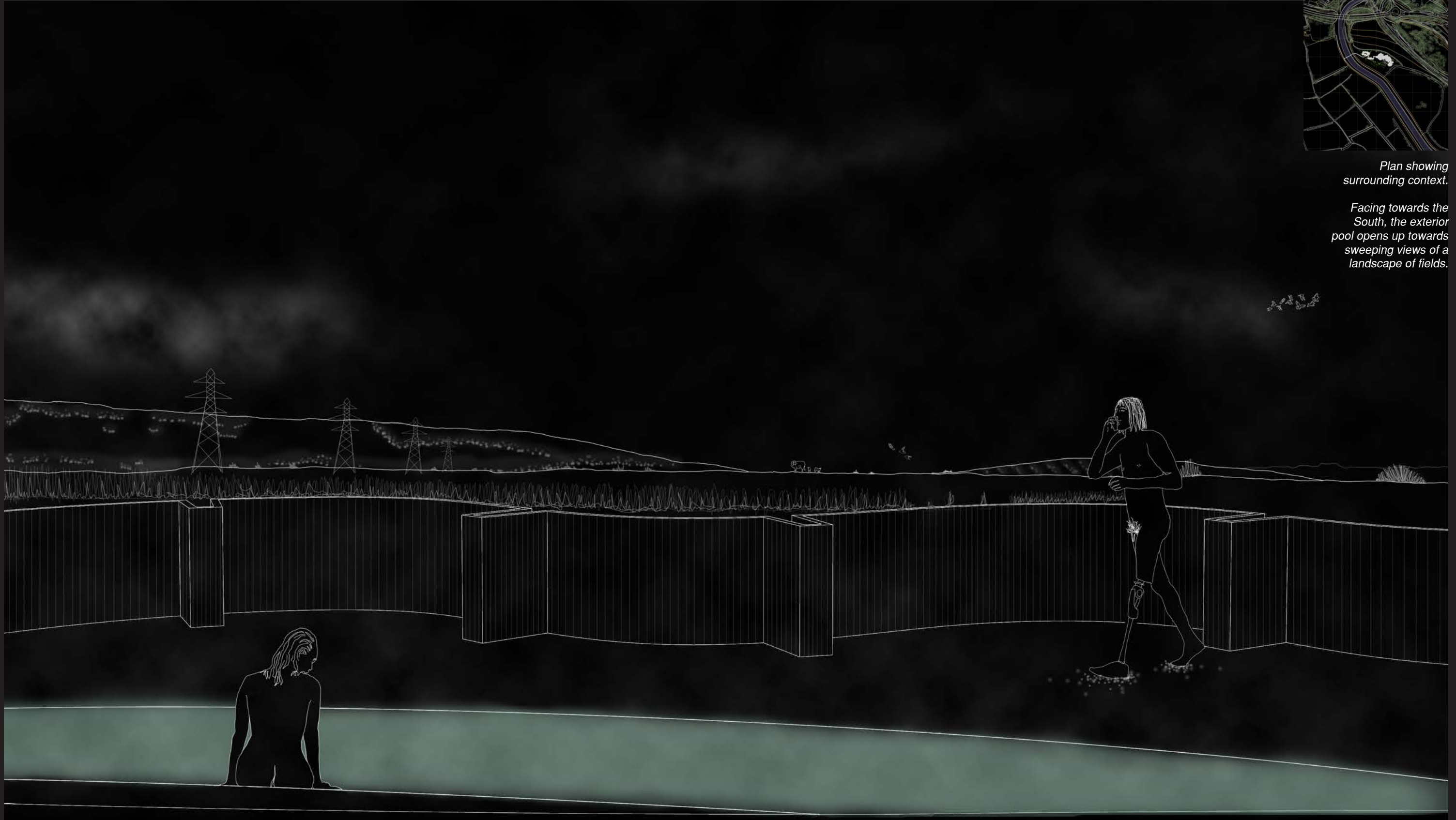
*1:200 plan of the main pool room*





*Plan showing surrounding context.*

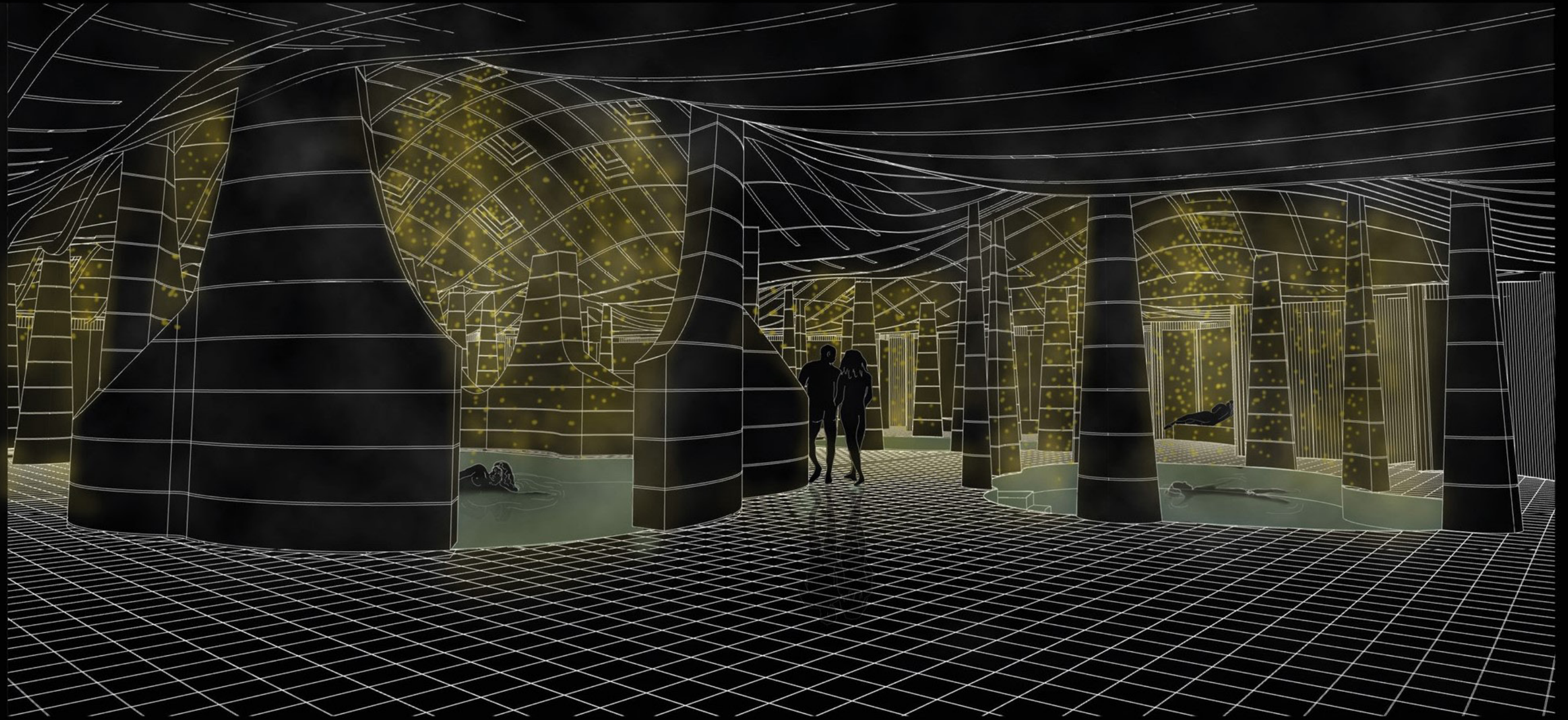
*Facing towards the South, the exterior pool opens up towards sweeping views of a landscape of fields.*



*Bathe I.*

*1:20000 plan and exterior view visual.*





*A grand room.*

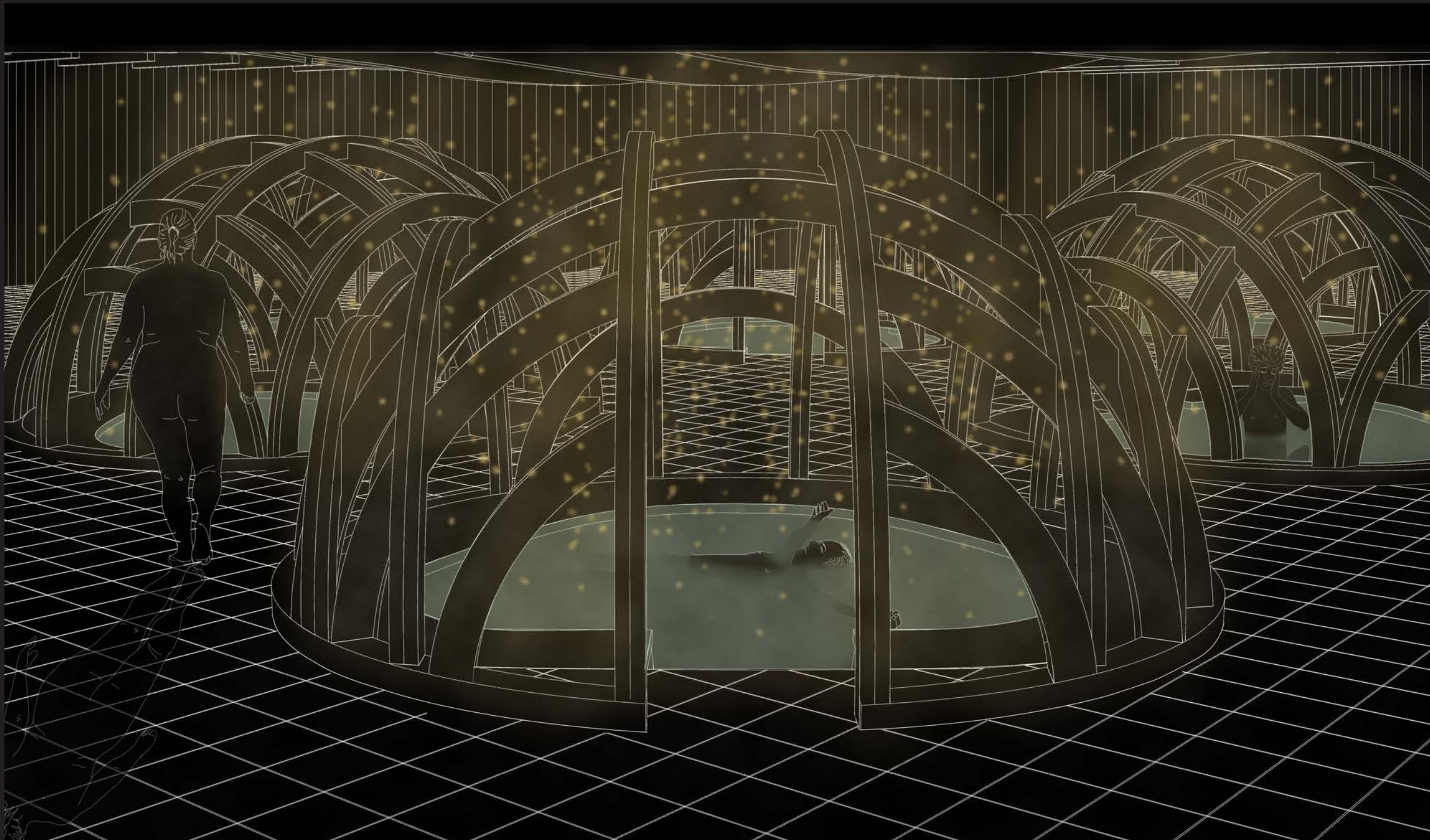
*The structure of the ceiling pulls you into and through the space.*

*You are an observer.*

*Bathe II.*

*Main pool interior view.*





*Solitude.*

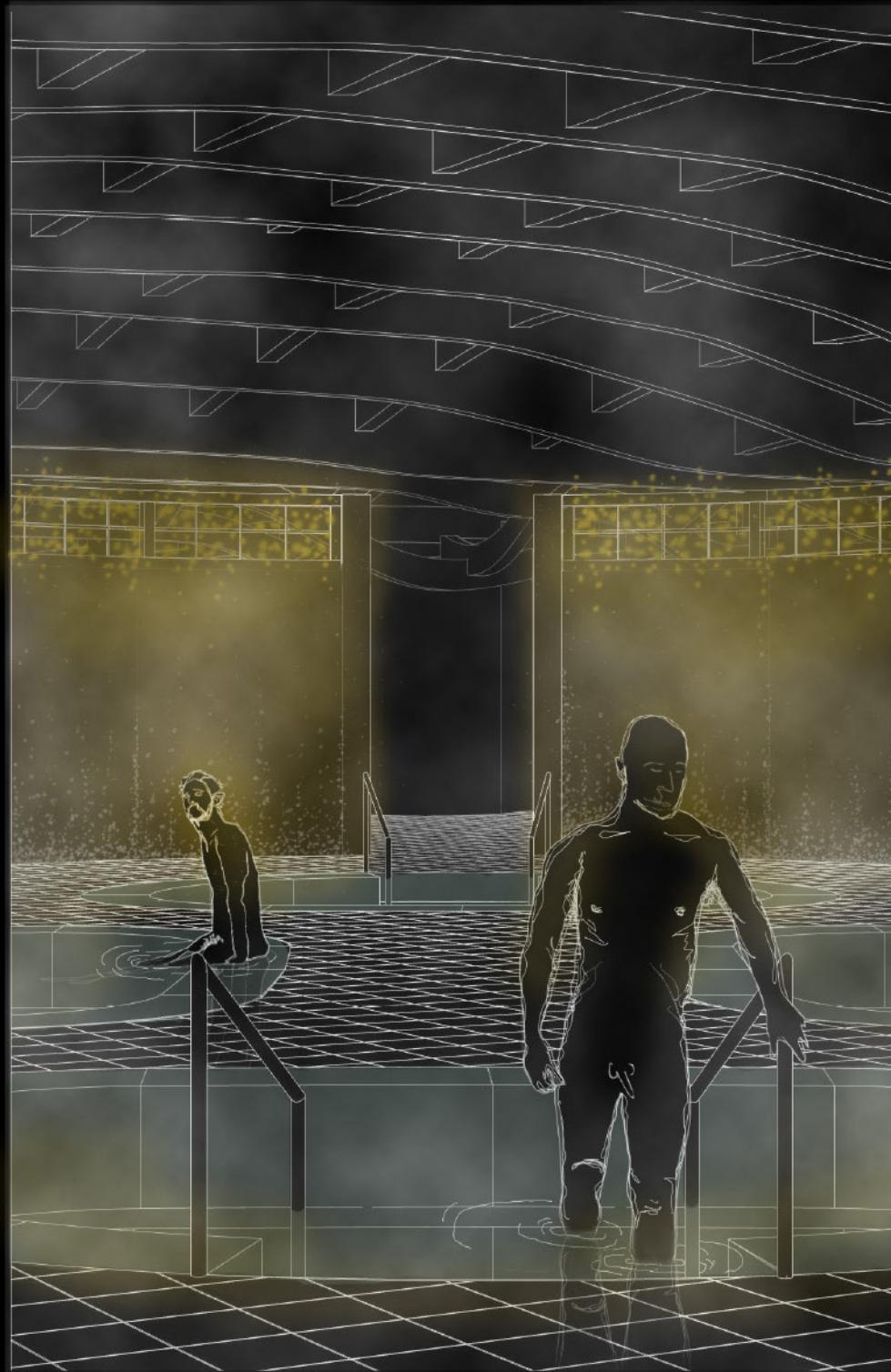
*An experience to undergo  
alone. You float within a  
structure which permits you  
to perhaps imagine yourself  
in a separate world.  
Your own world.*

*Never quite part of what is  
happening.*

*Bathe III.*

*Salt pool room interior view.*





*Bathe IV.*

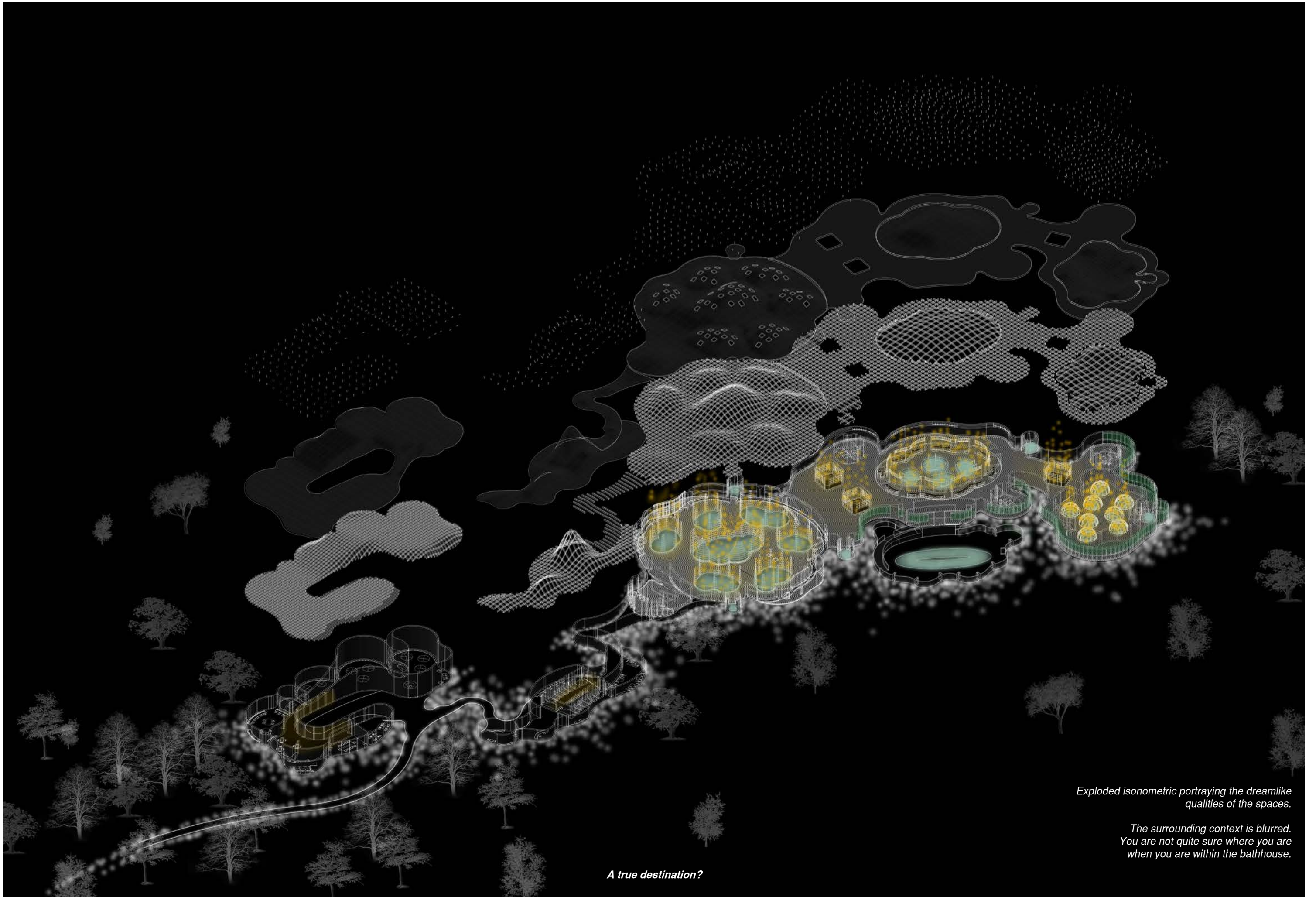
*A serene open space.*

*Here, you can take in  
the vastness of the room  
as the pools  
entice you to come in.*

*You see  
from a distance.*

*Steam pool interior view.*





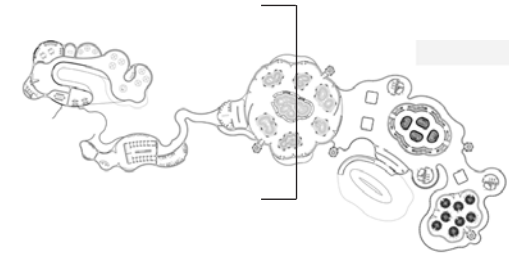
*A true destination?*

*Exploded isometric portraying the dreamlike qualities of the spaces.*

*The surrounding context is blurred. You are not quite sure where you are when you are within the bathhouse.*



Perspective section drawn at 1:20.



1. Roof detail

Single ply membrane.  
Plywood. (3mm x 9mm)  
Waterproof membrane.  
Rigid insulation set over the waffle structure. (120mm)  
Vapour control layer.  
Loosely packed wood fibre insulation with chicken wire, set between glulam waffle structure.  
Plywood as ceiling finish set between glulam waffle structure. (3mm x 9mm)

The room is designed to be experienced in very little light, therefore small skylights are used to provide natural light to enter the space.

The rooms are ventilated using a stack effect ventilation. Entering through the pivoting algae cultivating panels and exiting through the temperature controlled remote opening skylights.

2. Exterior wall detail

Exterior vertical cladding. (18mm x 75mm)  
Insect mesh.  
Vertical timber battens with horizontal timber battens to the outside. (50mm x 50mm)  
Breathable membrane.  
Plywood. (3mm x 9mm)  
Sole plates (150mm x 50mm)  
Wood fibre insulation sat within timber frame. (150mm)  
Vapour control layer.  
Plywood. (3mm x 9mm)  
Interior vertical cladding. (18mm x 75mm)

Gutter set within the roof. Solar panels could be mounted on the south facing roof.

3. Interior wall detail

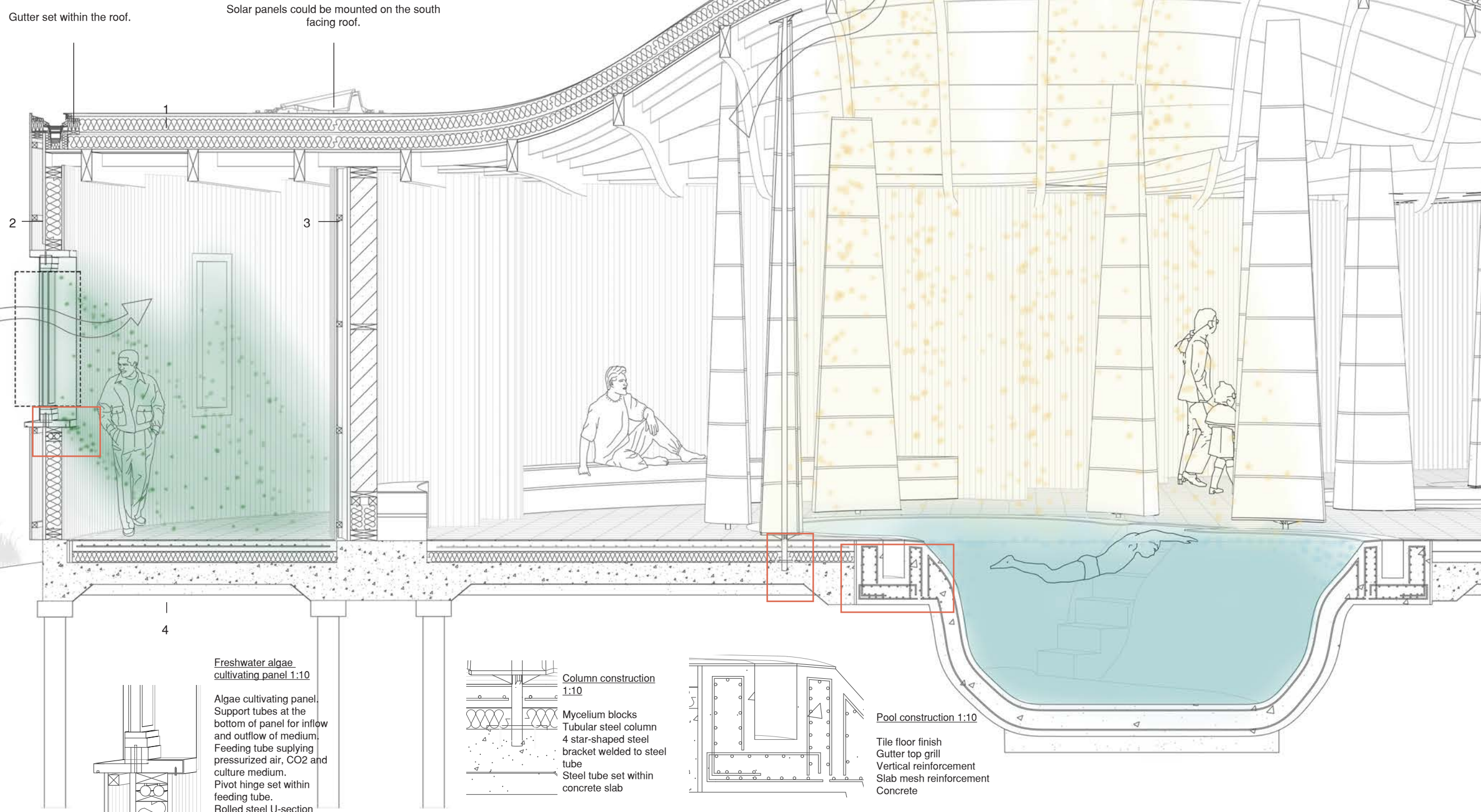
Interior vertical cladding. (18mm x 75mm)  
Vertical timber battens with horizontal battens to the outside, also acting as service cavity for wiring. (50mm x 50mm)  
Plywood. (3mm x 9mm)  
Head plate to support the mycelium block. (150mm x 50mm)  
Noggins to provide extra support for the mycelium block. (75mm x 75mm)  
Cotton based mycelium block with natural sealant set within studs and head plate.

Bench

Cotton based mycelium block cut with timber plates for extra support. Joined with wooden pegs and steel CHS.

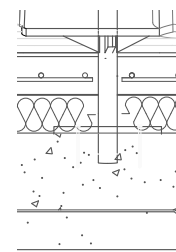
4. Floor detail

Well compacted hardcore. (150mm)  
Sand blinding (50mm) or concrete leveling pour (100mm)  
Reinforced concrete slab (200mm)  
Building protection mat with damp proof membrane (under insulation). EFP (expanded foam polystyrene). (100mm)  
Vapour control layer.  
Sand/cement screed layer with under-floor heating incorporated. (100mm)  
Ceramic tile finish.



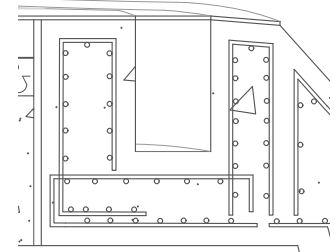
Freshwater algae cultivating panel 1:10

Algae cultivating panel. Support tubes at the bottom of panel for inflow and outflow of medium. Feeding tube supplying pressurized air, CO2 and culture medium. Pivot hinge set within feeding tube. Rolled steel U-section subframe bolted to sill for extra support.



Column construction 1:10

Mycelium blocks  
Tubular steel column  
4 star-shaped steel bracket welded to steel tube  
Steel tube set within concrete slab



Pool construction 1:10

Tile floor finish  
Gutter top grill  
Vertical reinforcement  
Slab mesh reinforcement  
Concrete