

‘The Organisation’

The Organisation is a speculative proposal that deals with the issue of how industrial farming may impact consumers and the lengths we may have to take to reverse the vices of humankind. The narrative centres around biohacking plant material and developing perishables through a process of DNA analysis ensuring each individual receives a meal unique to their bodily requirements.

The space is designed for the purpose of creating a self directed individual experiences, preserving a sense of anonymity and creating a more intense and profound relationship between the ‘meal’ and the client.



Site Analysis

The Nonconformist chapel was designed by Samuel Worth in 1836. The chapel was built on a quarry site and takes inspiration from Greek and Egyptian Architecture. In 1988 it was listed as a Grade II* Building, and as a heritage building at risk, due to its derelict state. In 2018 a £220,000 refurbishment of the Chapel took place and it is now used as a space to facilitate a variety of events.

When the Chapel was built it featured Vaults under the main space and crypts that were situated just off the back of the Chapel, and attached to the vaults. Despite still being accessible the vaults are no longer in use, and the entrance to the crypts was blocked when the space was used as a mass grave to alleviate demand.

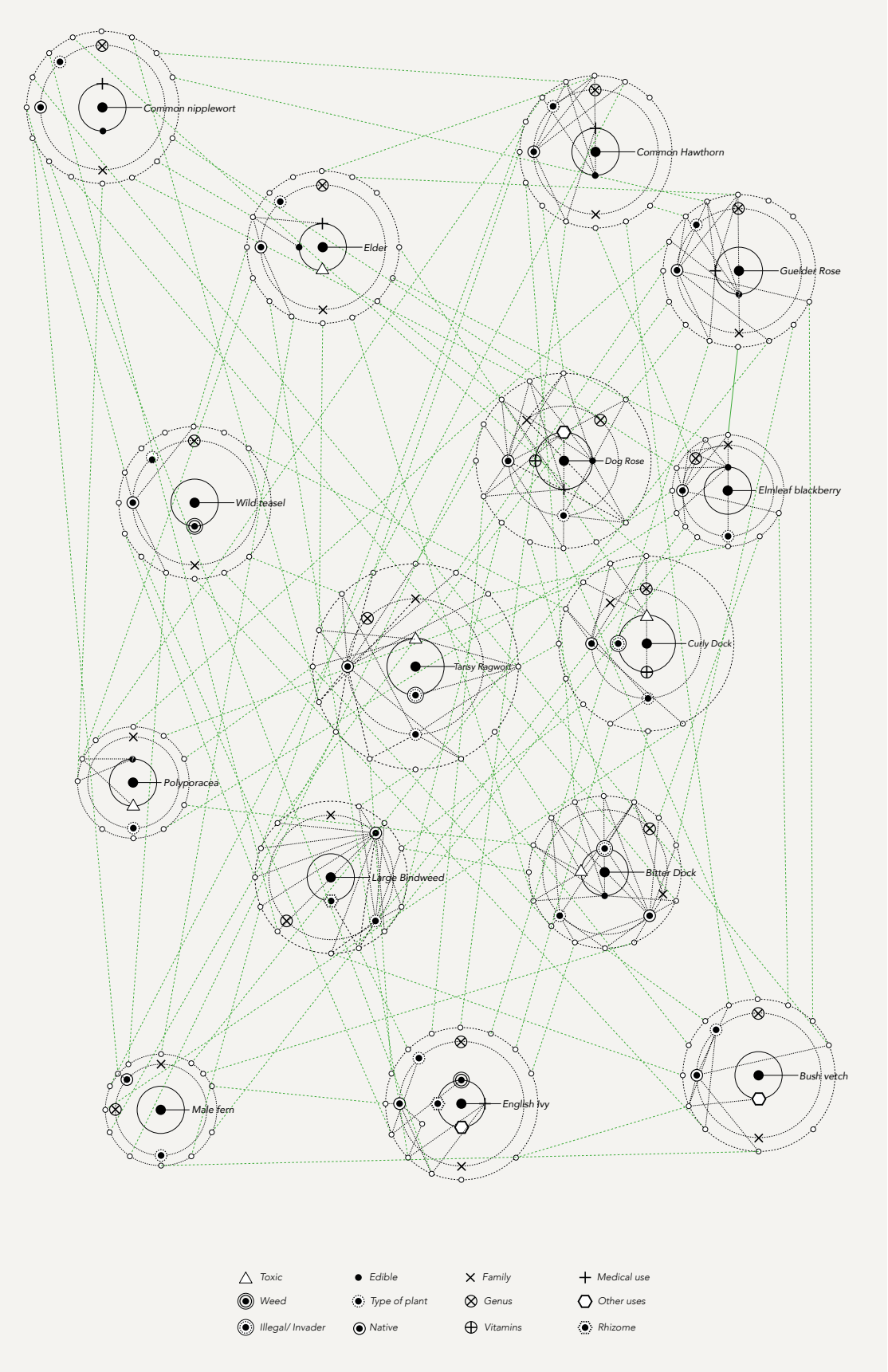
(a) I started my site analysis by looking into the types of vegetation found on site. This led me to think about the potential of each plant in terms of their unique characteristics. I found some interesting work that explored how endophytes (bacterial/fungal microorganism’s that live in the healthy cell tissue of a plant and have an influence on traits and attributes) can be grown separate to the specimen, isolated and then inoculated into other plants.

(b)The site is home to a wide range of edible, toxic, noxious and illegal plants. This diagram identifies the characteristics of each of these plants and connects them in relation to these identifiers. This diagram also highlights which species are more resilient, which are edible and which can be used for medical purposes. In addition to determining uses for plants on site, and possibilities for use of invader plants, the diagram also aids in establishing which could be used as a base plant to be inoculated with possible endophytes and bacteria. It gives an idea of which species would be able to evolve to the change in genetic material and brings to light questions regarding biohacking in plants in order to engineer edible fruits from once toxic and invasive weeds in the case of agricultural crisis.

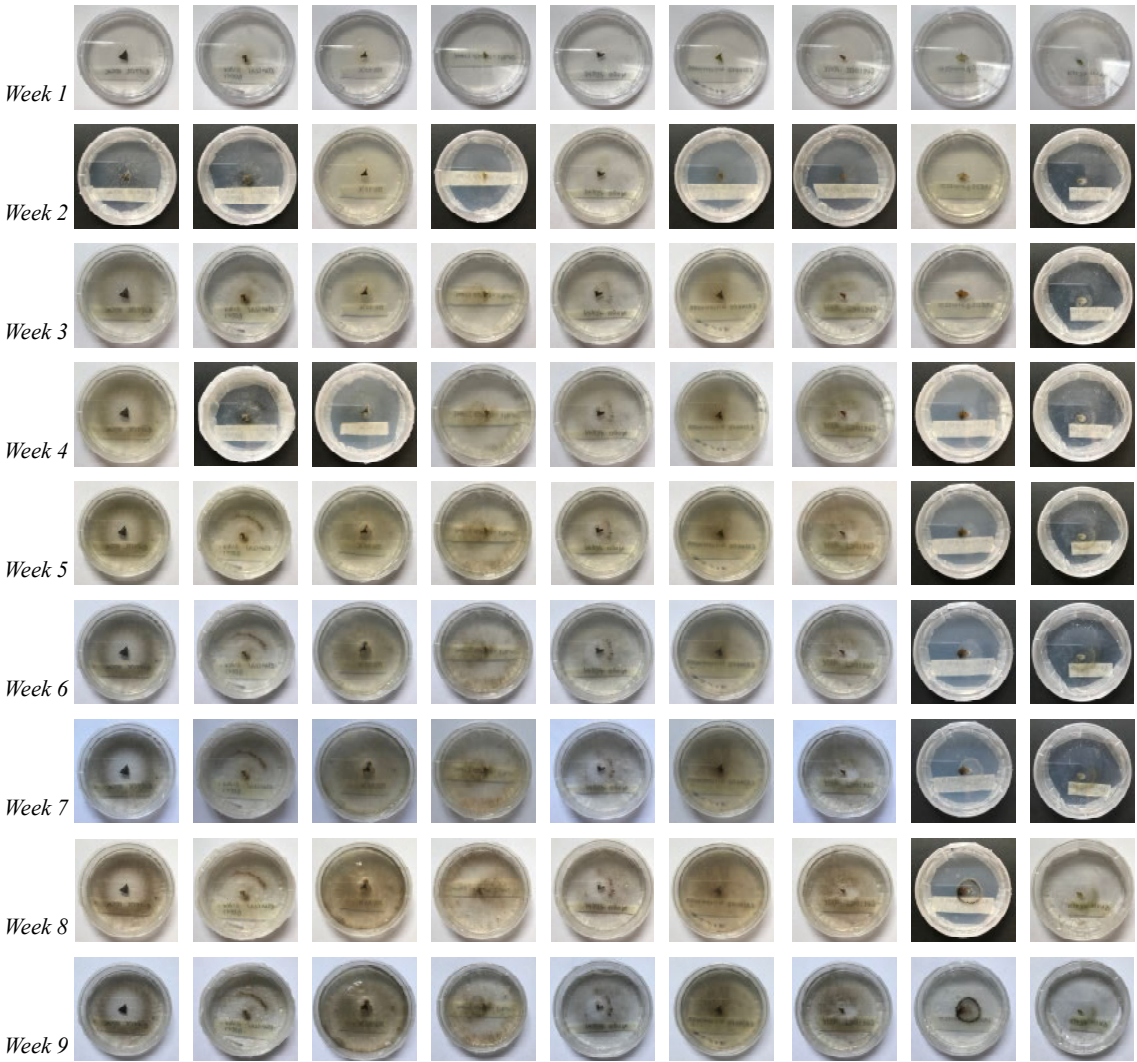
(c) In order to better understand endophytes - I took some samples from plants on site to see what variety of endophytes each plant was host to. I made Petri dishes using agar agar and meticulously plated up a small sample of each plant onto the plate. Within a week I began to see spores of white fungi growing on the surface of the plant and its surroundings. Some of the dishes even grew a ring of bacteria around the specimen. Over the 10 weeks of the growth period, despite boiling of the Petri dishes and bleaching of the specimen samples it was clear that the plates had been contaminated and mould started to grow. This shows the care and scrupulous attention to hygiene that needs to be taken when carrying out this process and is something to be considered within the design process.



(a)



(b)



(c)



i.

ii.

iii.

iv.

Concept Development

i. What happens when industrial farming kills all nutrients, bacteria and microbes that live in the rhizosphere? What happens when agrochemicals drive endophytes to near extinction? How will food taste? What will it look like? Will it grow at all? How will humans build a biodiverse society of gut microbiota necessary for immunity?

ii. As a result of industrial farming there has been a severe depletion of key bacteria that live in soil, this means that food no longer posses the same nutrients. Along side this, an excessive use of antibiotics, a lack of contact with soil and fecal matter and hygienic lifestyles, has lead to a rise in resilient super bugs, whilst also having a negative impact on soil biodiversity. In essence removing humans from a symbiotic cycle of mutual benefit with plants and soil.

iii. When we no longer have access to these crucial microbiota, the main solution is to look into biohacking. The idea of taking endophytes that live in plants and explore their potential. Isolate these microorganisms, understand how they benefit individual plants and use them to inoculate others. Gut microbiota will be grown outside the body and added to these mutated plants to create organisms that can fuel the revitalisation of our ecosystem. With a long term goal of essentially re-establishing the relationship between humans and bacteria. Initially this process will work on a trial basis with a select group of individuals, who will undergo DNA screening and testing to aid design and refinement of the process, and quality of product. Over time as the quality of product improves and trials become more successful, there should be a detectable change in the soil and rhizosphere of Sheffield land. By taking individuals from around Sheffield, it will encourage widespread regeneration of soil, aiding in the process of moving away from industrial farming. These individuals will benefit from the programme acquiring necessary bacteria that encourage health and immunity. Not yet government approved and using illegal and imported weeds, and fecal samples as a resilient foundation to grow new plants, this programme will operate on a confidential basis.

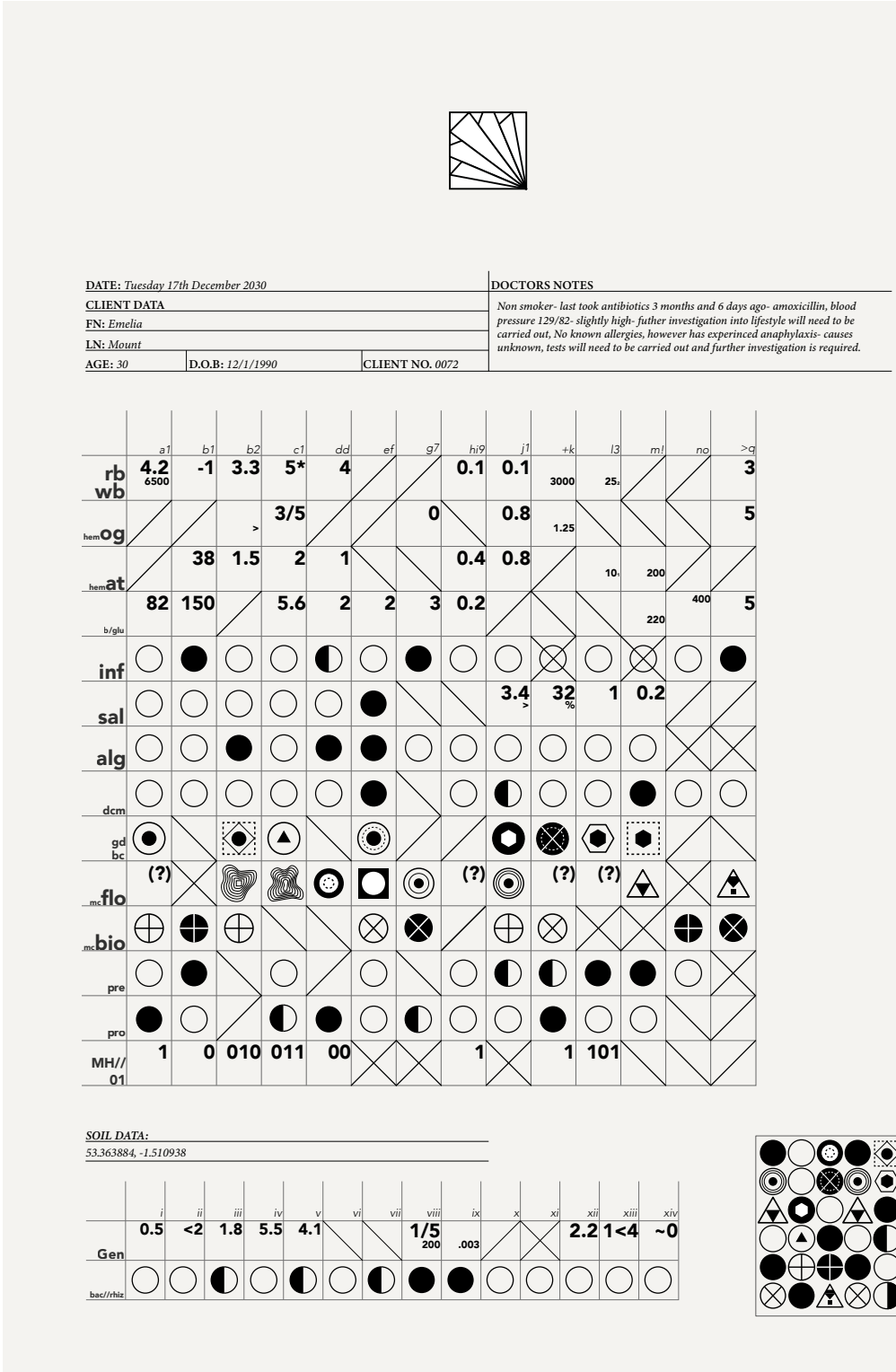
iv. Hosting this concept in a Cemetery I feel holds a sense of irony. In that this is a place where its once primary purpose was to facilitate funerals and act as a resting place for the dead. Where as my concept is to use it as a place that will promote regeneration. Another factor very key to the concept is the earth on which the chapel sits. It has been host to tens of thousands of bodies that have decomposed and given back to the ecosystem. These bodies, being from the 1800s would have had a significantly richer gut microbiota due to a lack of hygiene, medicine and industrial farming. Hypothetically the soil in the cemetery should be a lot more densely populated with bacteria than that of the surrounding area, making it the perfect place to take samples from as a medium to revitalise the rhizosphere and the plants it nourishes.

My concept is very much based in reality, a scenario where there is a global fear surrounding health and access to medicine and an agricultural crisis. The context of this proposal very much plays on the idea of this being a near future scenario. By taking a large issue such as agriculture, showing how it impacts individuals, and setting it in a world not too dissimilar to our own will hopefully lead to a proposal that makes people think about what they want for the future and how they can change the narrative.

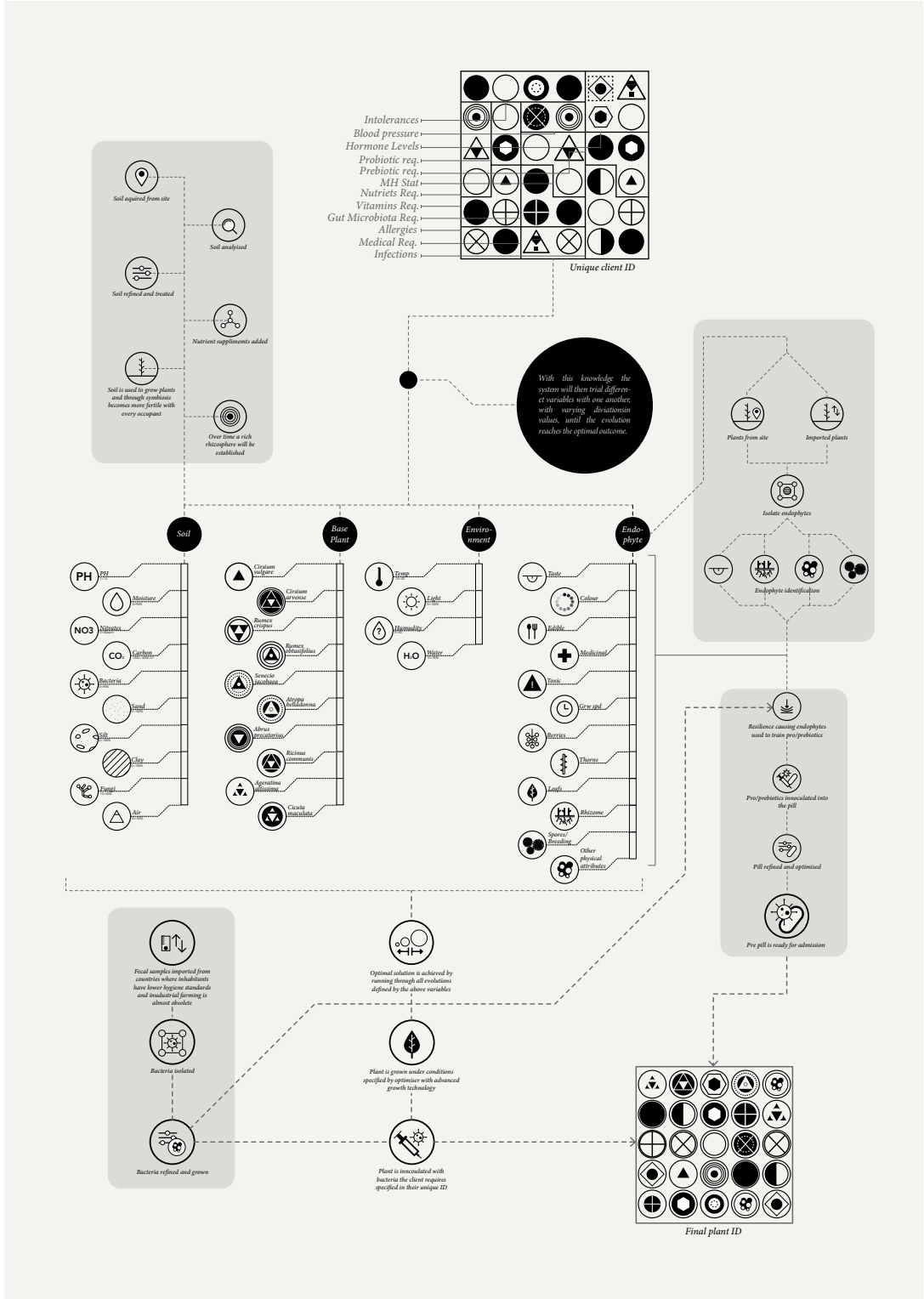
(a) A screening test will be carried out on the client. This test will involve blood work, to better understand the patients general health, red and white blood cell count, vitamins in the blood, detect any illnesses, diseases or infections. The screening will also involve a fecal matter test which will give a detailed look into the gut health of the client. These results will be of most importance when developing the most appropriate meal for each individual.

(b) In order to produce a plant that is completely unique to the very specific needs of each individual, an ID code is generated from the results of the screening. The code is entered into an evolutionary solver, and using this data, will trial different variables with one another, with varying deviations in values, until the solver reaches an optimal outcome. It will take into account base plants, soil, growth environment and endophytes. Once a plant has been optimised the base plant seed with by genetically modified, being inoculated with certain endophytes, and genes from other base plants. As the seed begins to grow in the optimal soil and environment bacteria/ probiotics are inoculated into the plants in accordance to client requirements. The client will receive a 'prep pill' which will contain specific probiotics which will be released gradually over a long period of time to ensure the effects of the plant are long lasting and sustained within a healthy gut environment.

(c + d) The main space occupied by 'the Organisation' is not part of the chapel or even within the grounds of the cemetery. It sits directly below the Chapel, 100m underground. Originally intended to be used as a river diversion system to carry water around Sheffield as an extension of the Megatron that begins on the northern edge of the Sheffield city centre. The space however was never connected due to a lack of funding for the project. The space will be used for energy generation, water filtration, preparing the saplings, enphytes and bacteria, and for the monitored growth of the plant. Due to the requirement that the plant must be closely monitored, in the place it is grown the plant will also be consumed to ensure optimal results in gut nourishment.



(a)



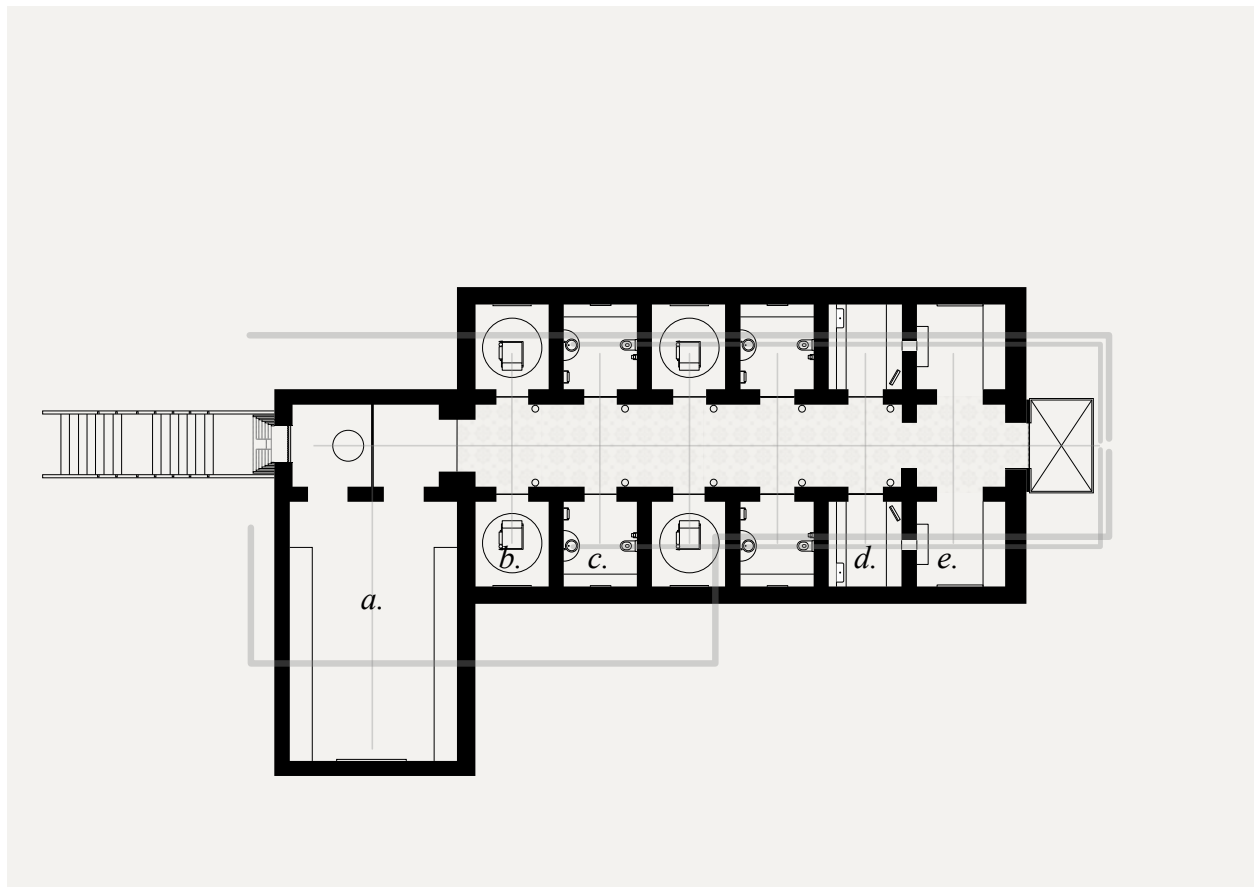
(b)

(d)



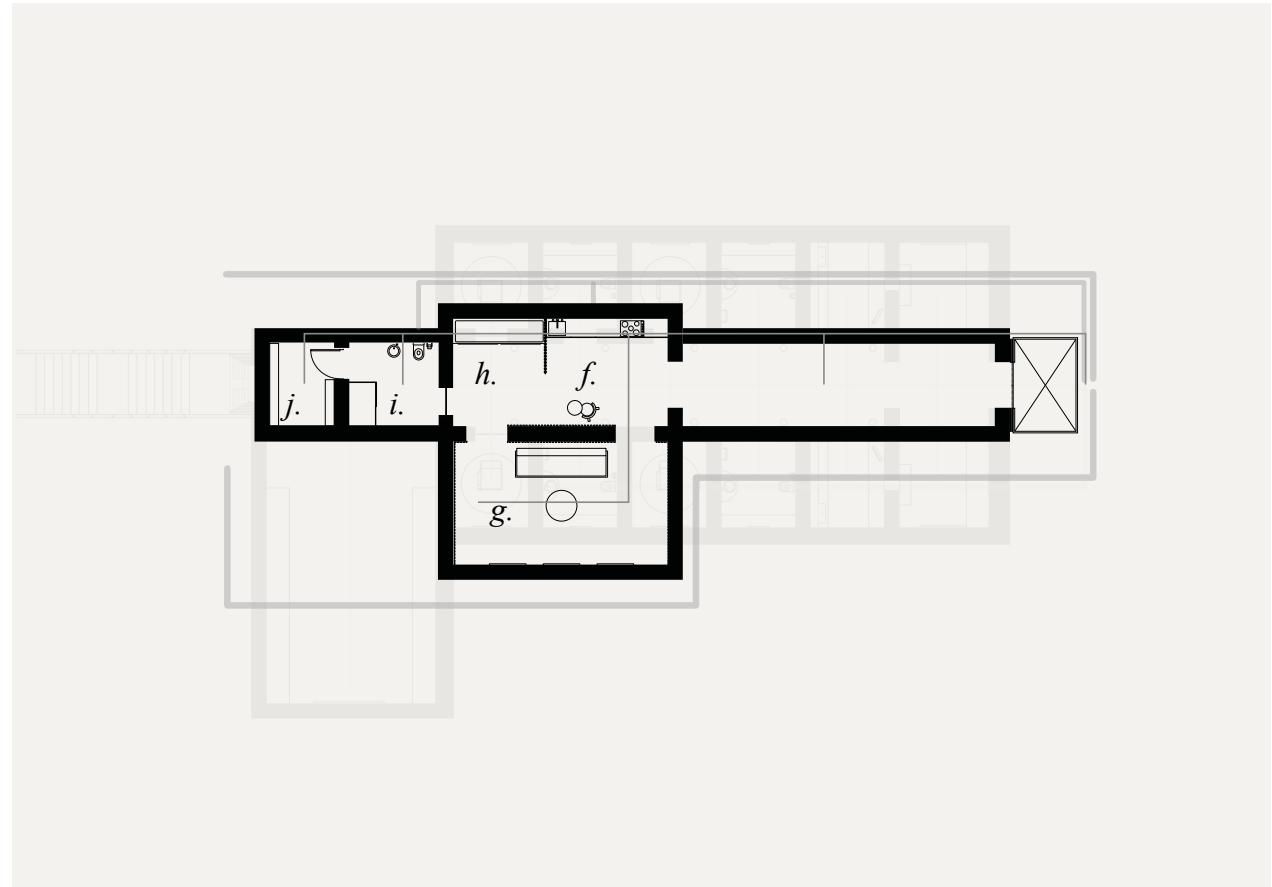
(c)





Lower Vaults

- a. Entrance space/ Waiting area*
- b. Screening room 001*
- c. Bathroom 001*
- d. Prep pill room*
- e. Second waiting area*

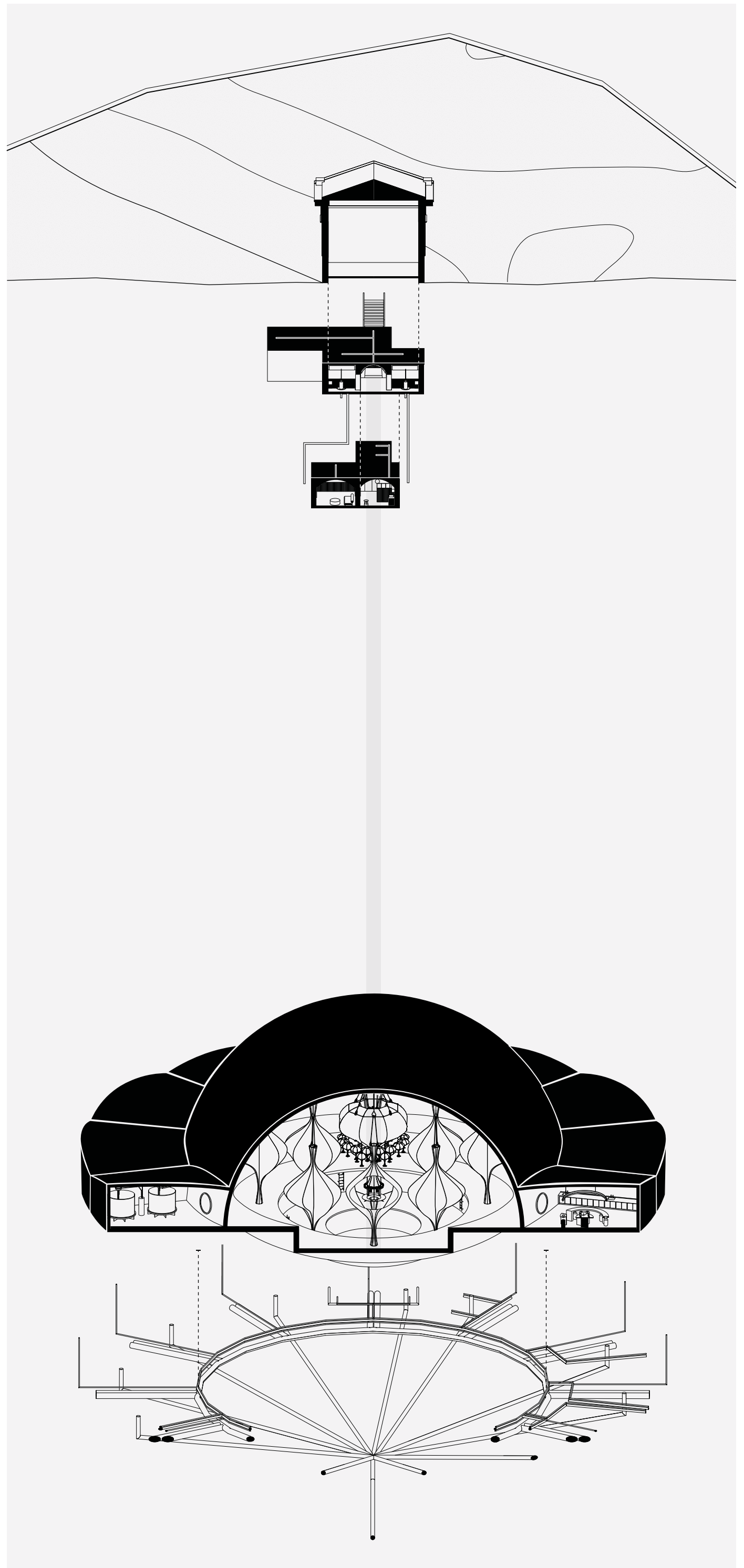


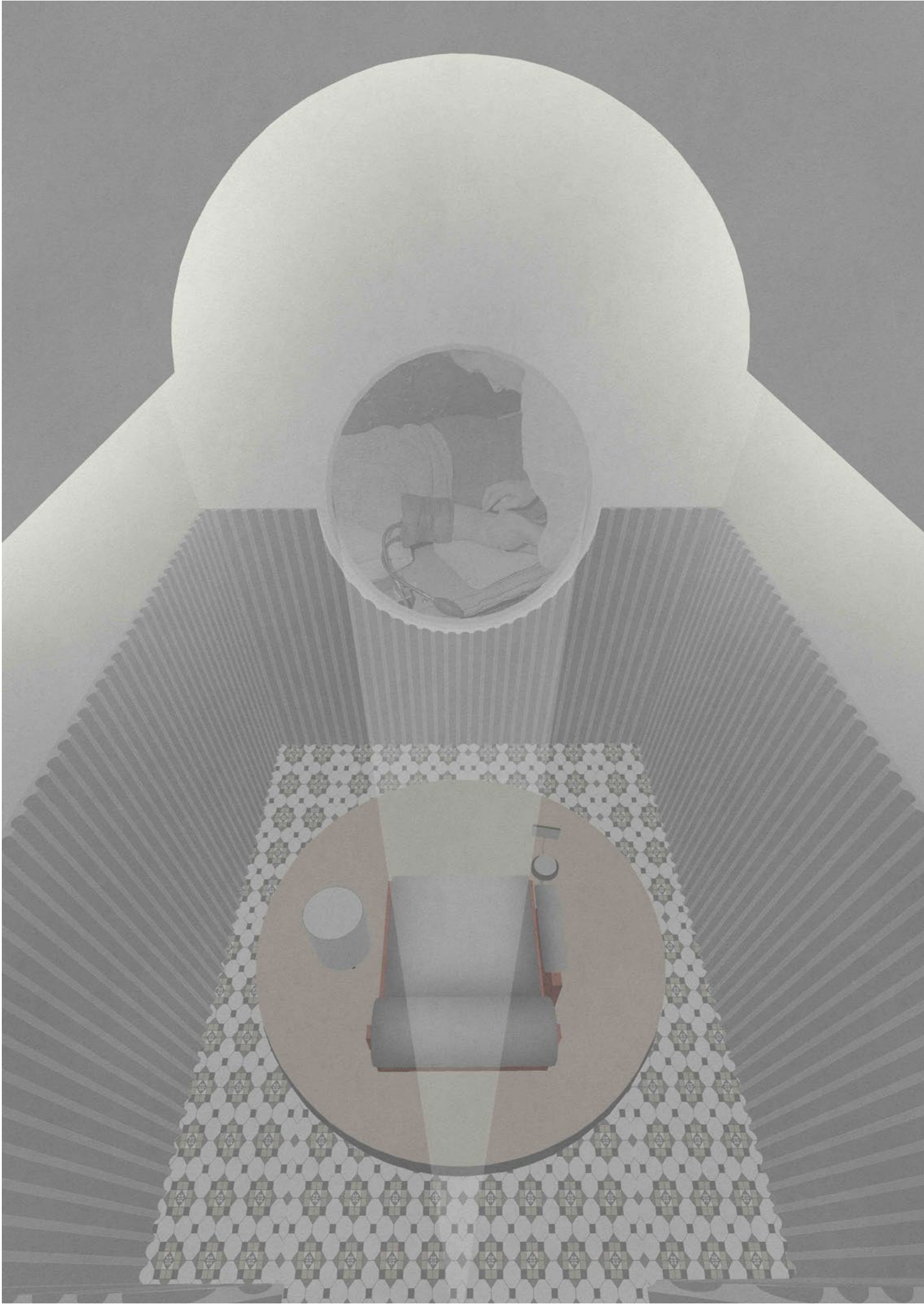
Protagonist Space

- f. Kitchen*
- g. Viewing/monitoring room*
- h. Bedroom*
- i. Bathroom*
- j. Storage*

An Overview of the Chapel

(a) The section highlights how the Vaults have been used as individual rooms for screening, cleaning and pill prep. It also highlights the extensions that have been made that provide lift access to the protagonist and an initial waiting room where the client will receive their first instructions on how to navigate the space. As a result of the extensions and recesses made in load bearing walls I have had to add in lintels and steel beams above the arches to compensate for this loss of support. I have also added drop arches that provide a means of diffusing light from the fluorescent tubes suspended from the arched ceilings.





(b)

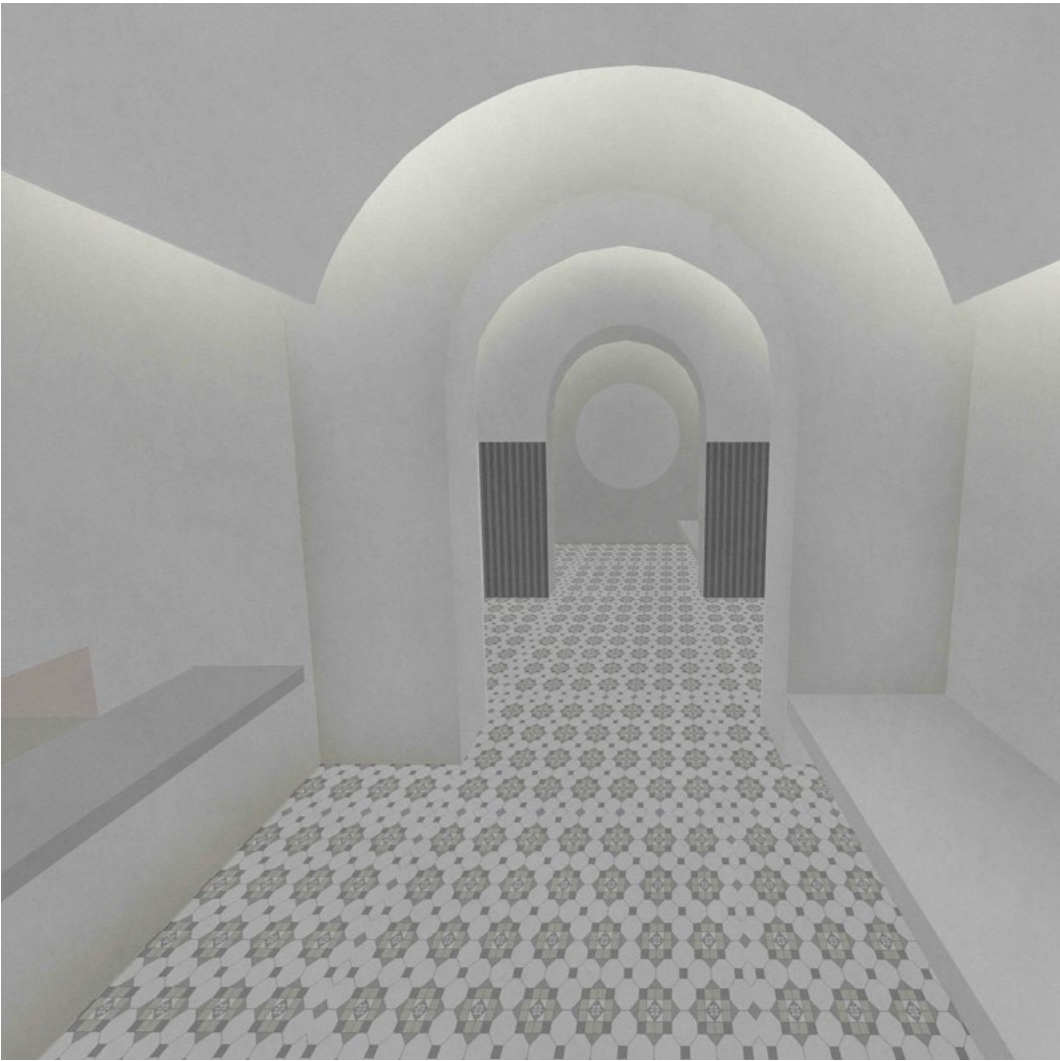
The Beginning

(a) The Exploded Isometric to the right shows the construction for the pocket doors to each of the vaults. In order to achieve pocket doors within the space a hole would have to be made in the wall to accommodate the door and tracks. As a result I have added in 2 steel beams that will run the length of the wall to compensate for a loss in structural integrity.

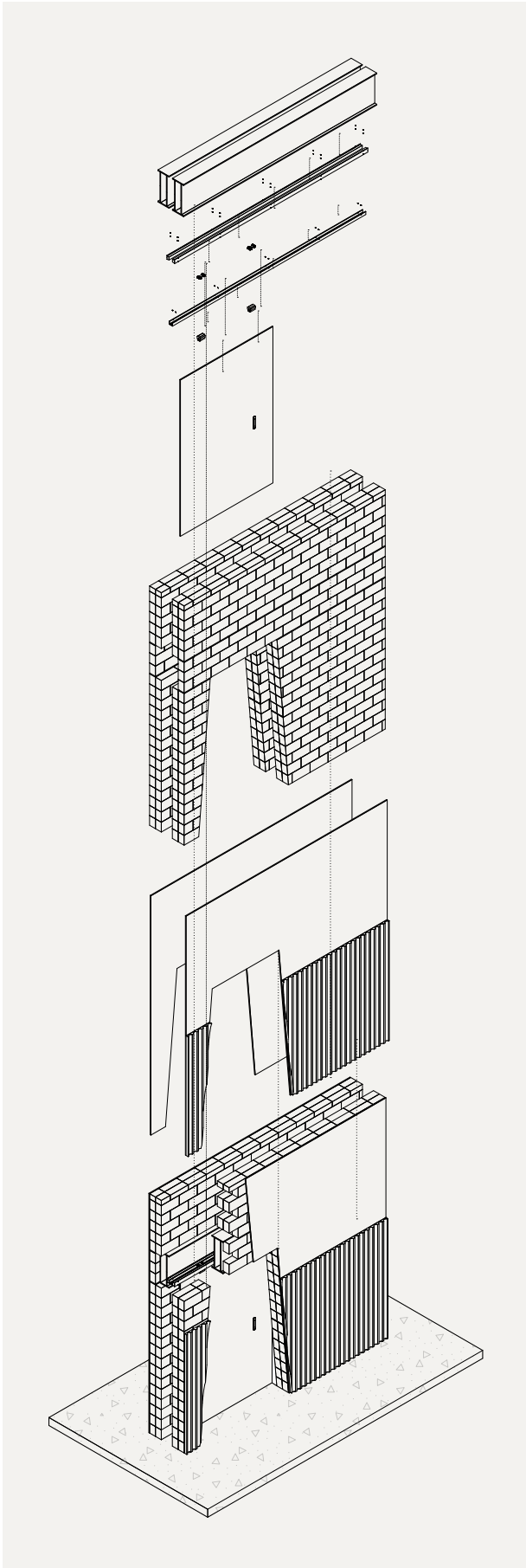
(b) Once the client has been made acquainted with 'the Organisation', its goals and how the space functions, they will be instructed to move through to one of the screening rooms. Here they will be instructed to take a seat and shown a short introductory video about the screening process. They will then be asked to follow the instructions on the display of the 'manibus screener', which will walk them through the process of blood acquisition, where a small sample will be taken in order to generate a unique client ID. Their mental health will also be assess through a series of questions they must answer using the display on the 'minibus screener'.

(c)After having their blood taken for the client screening they will then be instructed to enter one of the bathroom spaces to freshen up and place any final belongs into the store cabinets. They must ensure that their faces and arms are thoroughly cleaned as to try keep membrane contamination to a minimum. They will also be required to retrieve a fecal sample in the bathroom and deliver it to the prep pill room through a small recess in the wall of the second waiting area. This is also where they will be delivered their prep pill shortly after.

(d) Once they have been cleansed they will then take a seat in the second waiting room where they will be administered their prep pill and await instruction for their dissension to the consumption chamber.

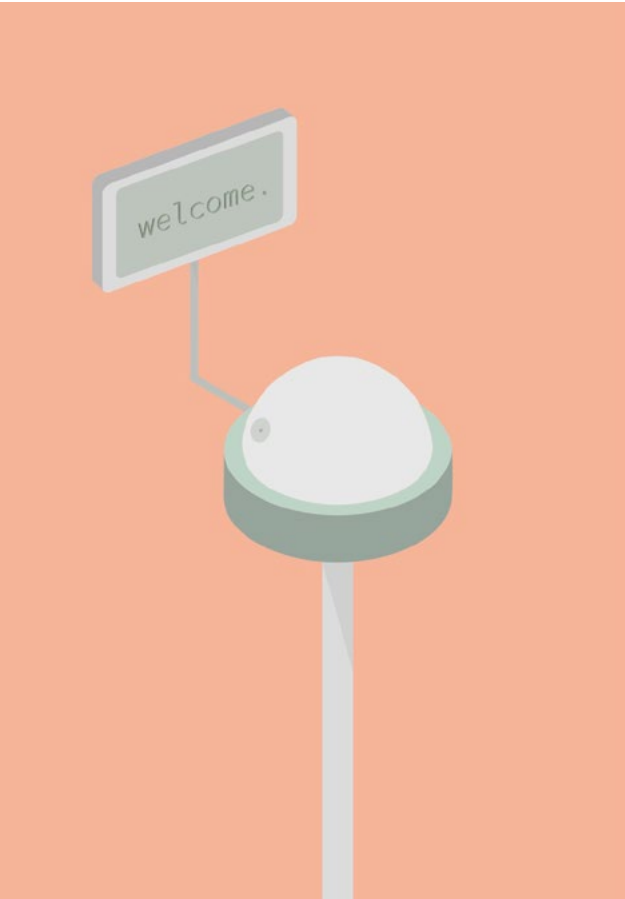
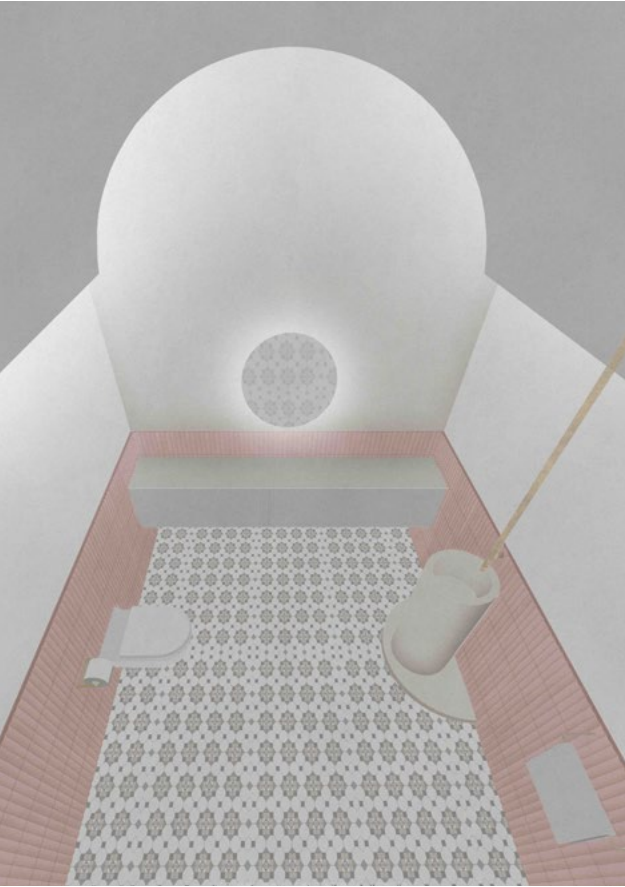


(d)



(a)

(c)

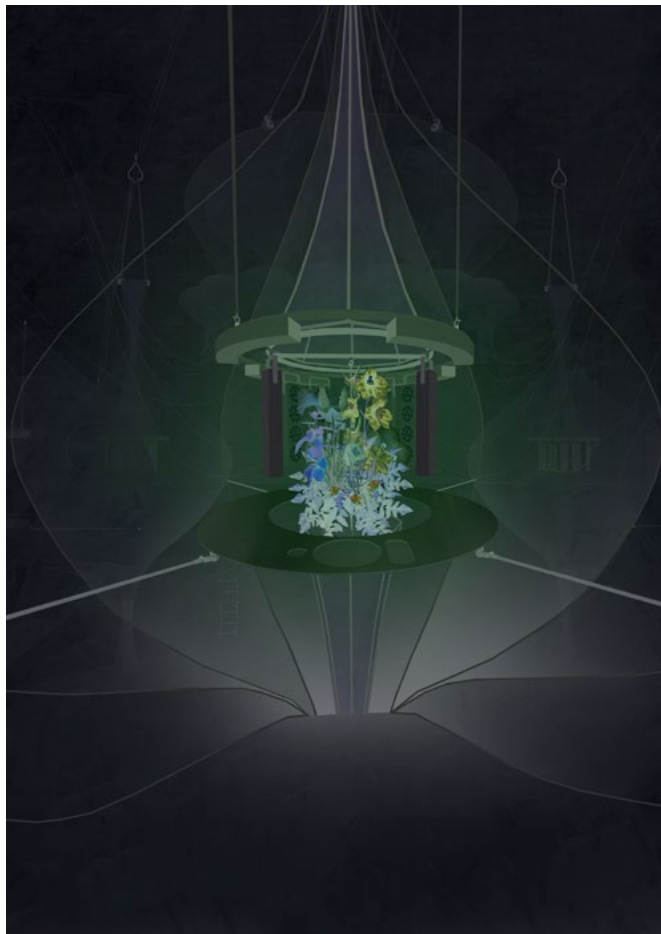




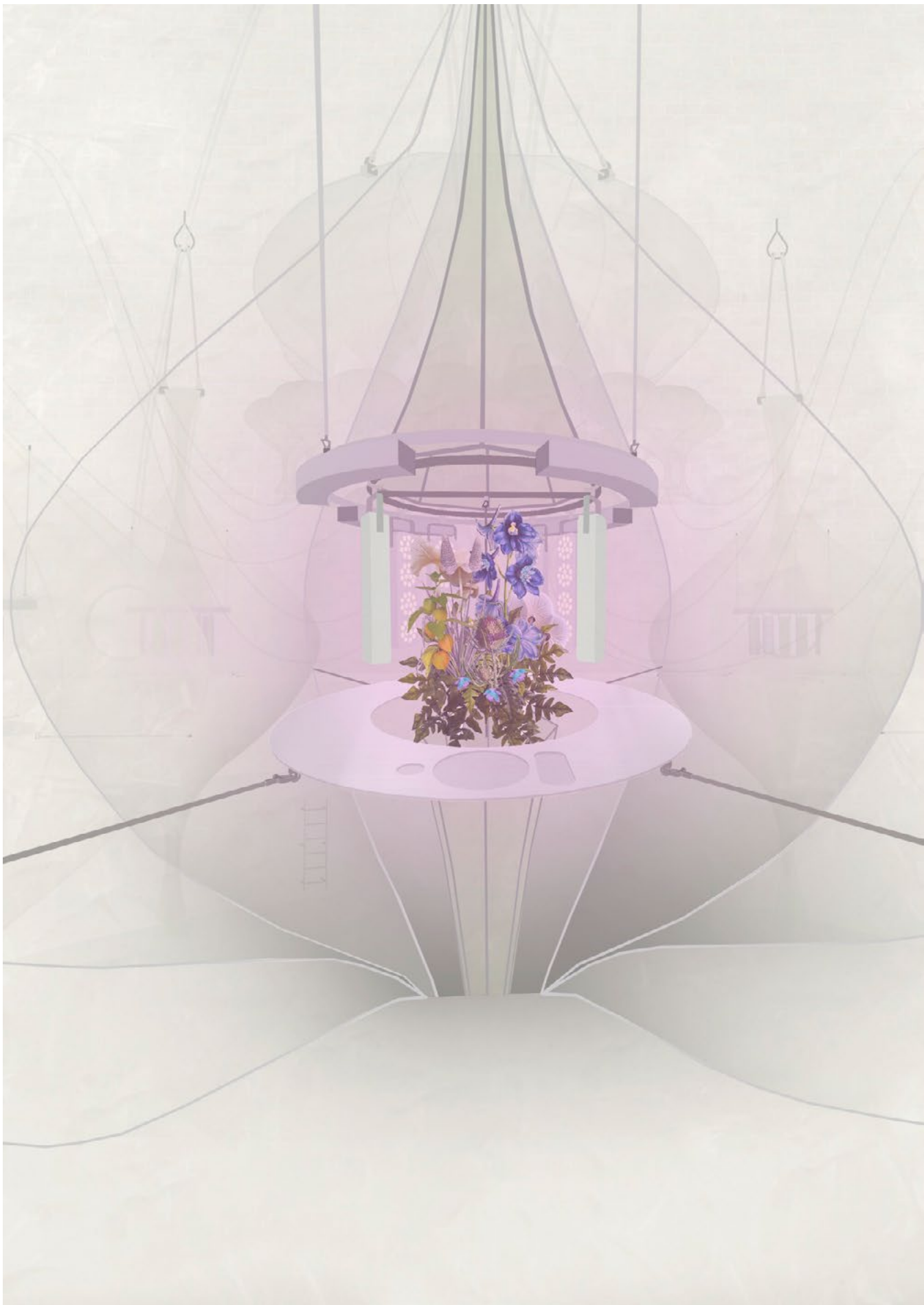
(b)



(e)



(c)



(d)

Consumption Chamber & Beyond the Chapel

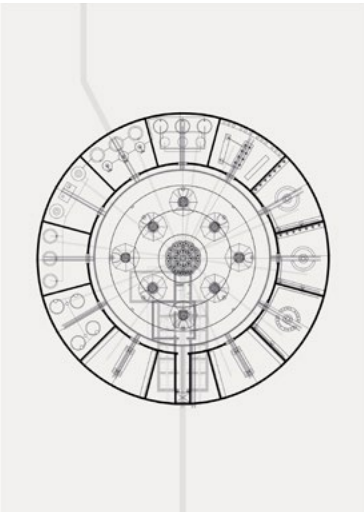
(a) Once the screening has taken place and a unique plant ID has been generated the base plant will be inoculated with the required endophytes, and bacteria. The sapling will then be transferred into the membrane for the advance growth process. The plant will also be inoculated with a genetically modified Eukaryotic cell. This will predict how the cells will generate, and thus be able to detect any future mutations in the growth of the plant. If a mutation is detected this information will be sent to the main Autopioetic System data log and a response will be generated.

(b + c + d) This response will include a change in independent variables that impact the growth of the plant. The response will be sent to the quantity valves on the Distribution membrane and the variables will be released according to the amounts specified in the response report.

Once the client has been screened and administered their prep pill they will be instructed to make the dissent down to the Consumption chamber. There they will be escorted to their allocated membrane where their unique plant has been growing. From here they will enter the membrane and watch an instructional video, projected onto the skin of the membrane, on how to consume the plant.

During consumption, the plant will still be attached to the Autopioetic system that provides it with life. Through designing the system in this way, it puts an emphasis on the idea of sacrifice- the plant is giving itself up for the greater good. It is a very intimate experience between client and plant and almost reminiscent of holy communion.

(e) Over time as 'The organisation' is able to treat more clients a widespread change will occur. The rhizosphere of local soil will once again be host to millions of good bacteria and cultures. This will enable individuals to plant regular seeds in their own soil and grow mutated plants that are higher in probiotics and other nutrients. As shown on the maps (Grey) this change will spread to a national scale over time and the bacterial revolution will be well underway.



(a)

