

Strategy II : Rainwater Collection

Rainwater will be collected from under the porous landscaping (under the drive and along the pathways on either side of the house), as well as from the downpipes from the roof and hard surfaces. The collected rainwater will be used almost entirely for watering the gardens, reducing the need of any mains water for the external green spaces. The rain garden and pond will collect most of the water runoff, though downpipes will feed into a subterranean tank and pumped into the pond. In the event of a significant rain event, overflow from the rainwater tank will be diverted to the grey water filtration system, where it will be cleaned and reused within the house.

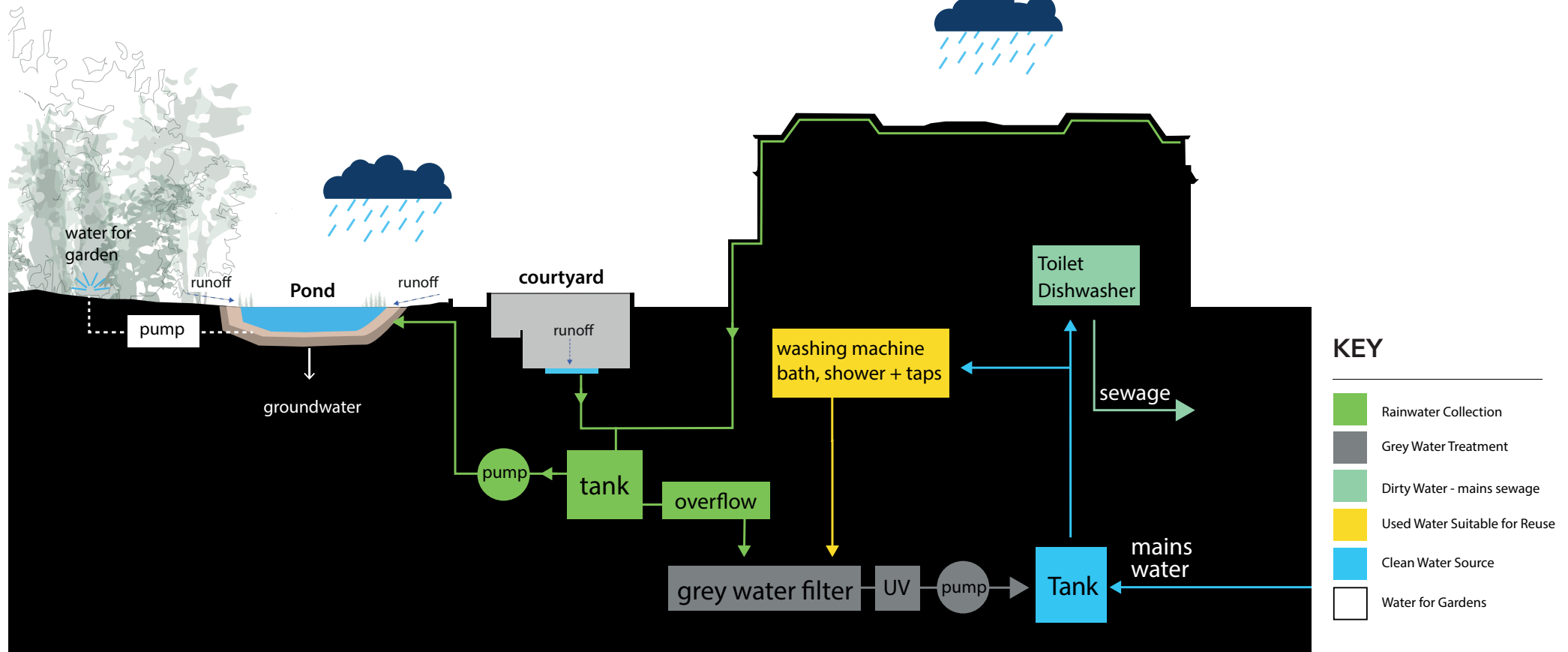


Figure 54. Sustainable Urban Drainage Strategy for Sproughton

Strategy III : Grey Water Filtration - Reusing what we have

Washing laundry, brushing our teeth, washing our hands, taking baths - most of our everyday water use can be collected, filtered and reused. This would substantially reduce the need to use mains water. Some water is not suitable for the grey water recycling system, such as toilets and the sink / dishwasher (because of grease), which will be connected to the mains sewer system. However, suitable grey water will be collected, filtered with UV and cleaned and pumped back up to be used for washing machines and secondary water needs. The water tank supplying the house will be topped-up with mains water. The collection, processing, storing and distribution for this system is located in the -2 Basement level (Figure 25).

vii : Landscaping and Biodiversity Strategy

a. Overview

In crafting our landscaping and biodiversity strategy, our approach has been meticulous, treating the natural habitat as not merely a backdrop but as the very essence that sets the stage for a stunning scenography. Recognizing that sustainability in architecture transcends the physical built environment, our focus is on ensuring that our buildings seamlessly coexist with and, ideally, enhance the natural surroundings they inhabit.

The landscaping strategy unfolded with a set of priorities aimed at nurturing and revitalizing high-value natural reserves. Our foremost initiative involves the meticulous restoration of areas surrounding mature oak trees, affording them the optimal conditions to flourish. Additionally, our attention extends to the rejuvenation of the rockery, a habitat that, while degraded, holds immense potential to support a vibrant ecosystem teeming with amphibians, insects, and various plant life.

Our second priority is rooted in leveraging the topography and a carefully considered drainage strategy to implement Sustainable Urban Drainage (SUD) designs. This not only results in the creation of visually striking spaces, such as ponds, but also serves as a catalyst for fostering a robust and interconnected biodiverse network. The rain garden is an example of a landscape feature that changes with the seasons and rain patterns, providing a natural flood buffer that is beautiful. The intent is to not only create aesthetically pleasing elements within the landscape but to actively contribute to the flourishing biodiversity of the site.

Lastly, our planting strategy, though rich in color and beauty, is exclusively curated with locally sourced plants and flowers. By selecting flora that harmonizes with the existing local ecosystem, we ensure not only a visually stunning landscape but also one that serves as a sanctuary for local bugs, bees, and birds. This conscientious approach underscores our commitment to creating a sustainable environment where architectural excellence seamlessly integrates with and enhances the natural beauty of the site.



Lavander



Helenium



Thymius



Verbena Bonariensis



Buddleia



Lilac



Foxglove



Echinacea



Aster



Rowan



Wild Marjoram



Rosmarinus

Figure 55. These flowering plants will enhance + restore insect, bee, bird, and butterfly populations.

b. Biodiversity Net Gain



Figure 56. Landscape plan identifying plant species specifically selected for both their pollinating and beautiful qualities

viii. Conclusions

a. Sustainability Statement

In our commitment to explore the optimal sustainability strategies, Eight Versa Sustainability Consultants were appointed to undertake a full comprehensive audit of the proposal. The team conducted ten reports, encompassing analyses of the existing building, the surrounding natural environment, the physical built proposal, building performance, and operational requirements. This ranged from understanding the existing property and opportunities for repurposing in the pre-demolition audit, to the following list of reports: *Biodiversity Net Gain, Circular Economy Statement, Dynamic Overheating, Ecological Impact Assessments, Operational Waste Management, Pre-Demolition Audit, Sustainable Urban Drainage Strategy, Sustainability Statement, Whole Life Carbon Report*

Key findings worth pointing out are:

- The total upfront embodied carbon (A1-A5) of the project is **164 kgCO₂e/m²**. **The project achieves a rating better than A+ (LEI target). The project also exceeds the extrapolated design targets for 2020-2030 and the aspirational targets set by the GLA** (A1-A5 = 500 kgCO₂e/m² for residential buildings). A comparative study using a concrete structure for super structure and less efficient sub structure model has also been performed to show that the whole life carbon emission **of the same project with concrete would have been roughly 184 kgCO₂/m² higher.**

- An estimate of the total percentage of waste materials that can be repurposed or recycled is 58% by weight. **A total diversion from landfill target of 95%** (Reuse + Recycle) by weight is therefore achieved.

- The development has appropriately provisioned waste storage and will encourage occupants to minimize waste. The waste storage has been sized according to the local borough's standards, and the plan includes a provision for bulky waste. The development's waste collection service is expected **to achieve a minimum of zero biodegradable and recyclable waste to landfill by 2026**, in line with the London Plan Policy. The plan aligns with Haringey's Reduction and Recycling Plan's strategic aim of managing waste sustainably, reducing waste quantity, and applying a sustainable/circular approach to the management of waste.

- DSY 1 Overheating is comfortably addressed with passive strategies.
- The scheme **achieves a minimum on-site CO₂ reduction of 66.2% beyond 2021 Building Regulations**, surpassing Haringey's Local Plan Strategic Policies. The scheme would then meet and **exceed the 25% carbon reduction target** set in the Haringey's Local Plan Strategic Policies 2013-2026

b. Limitations of the Reporting + Opportunities

Regarding the Energy Assessment, limitations of the SAP software that would potentially not illuminate the performance of the building and energy performance as accurately as with another metric. These include, but are not limited to:

- not having the capability to run a computational fluid dynamic (CFD) of the passive ventilation strategy and stack effect. This would have an impact on cooling. But this function does not exist in this programme (which is required by the council)
- The UTES (InterSeasonal Thermal Capture) is a non-standard technology. It captures cold winter air and stores it underground to be used in winter, and hot summer air in winter for use for winter heating. This would be a supplementary system. This system already exists, and works, but is not able to be modelled in the SAP programme.
- Battery provision - the programme only allows for maximum 4 batteries. We intend to use 12 used batteries. Generating energy is less of an issue, storing it is. This is problematic in understanding the results.

The current performance comfortably meets the Natural Carbon Solutions (NCS) protocol requirements for design stage Net Zero Carbon in Construction and Operations.

The final feedback received from our sustainability consultant is:

"Your (LOK)'s design approach is exemplary and even with lots of assumptions (which are generally overestimated by software) the results are exceptional. The results are going to improve at the next stages with accurate structural and MEP information"

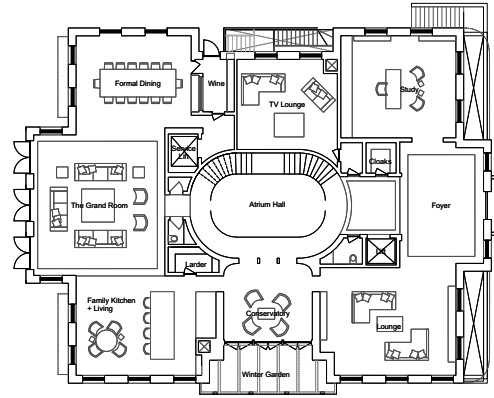
Hesham Ahmad, Eight Versa Ltd.
Senior Sustainability and Building LCA Consultant
27 September 2023

VI. DRAWINGS

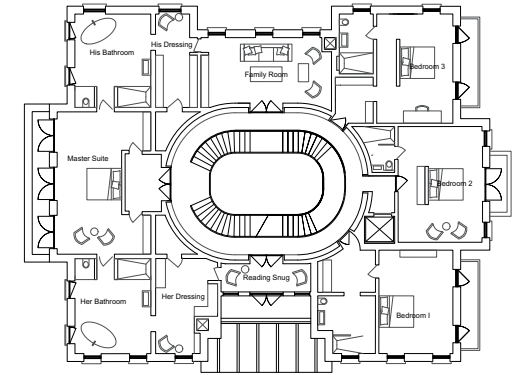
A. Proposed Plans

i. The Main House

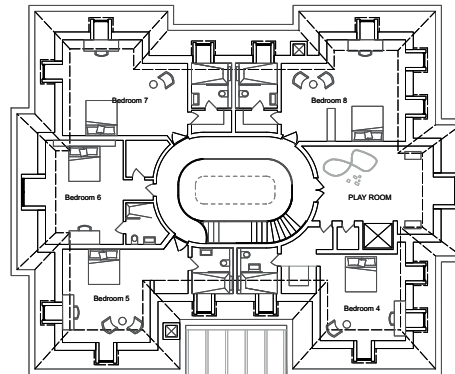
The layout was designed around the central atrium. The designated rooms follow the sunpath. The simplicity of the layout, along with its well proportioned rooms allow for future flexibility.



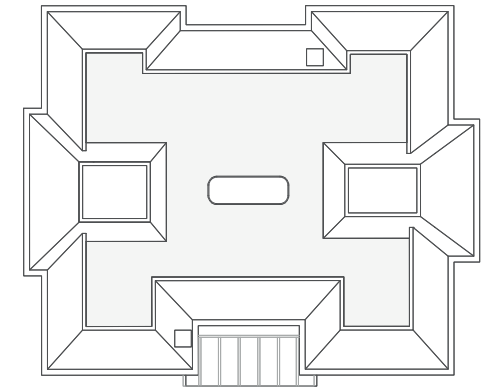
Proposed Ground Floor Plan



Proposed First Floor Plan



Proposed Second Floor Plan

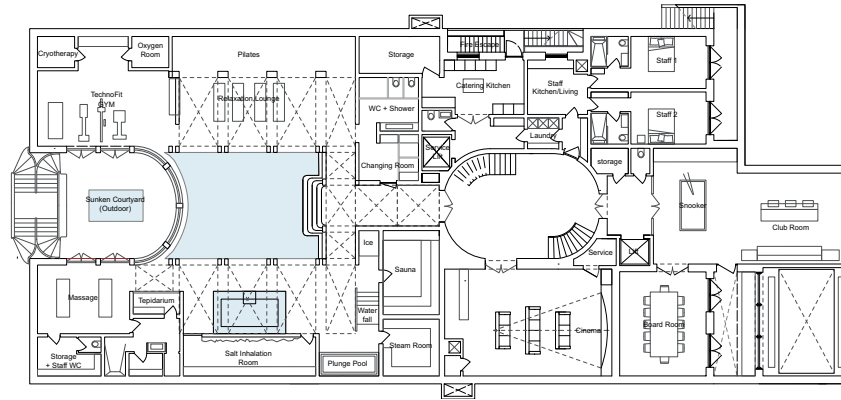


Proposed Roof Plan (shown without PV + green roof)

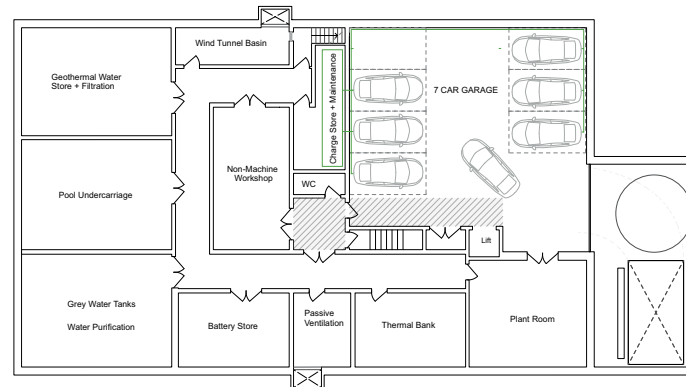
ii. Basement Levels

There are two basement levels; -1 Basement is an extension of the living space, with a spa, entertainment and leisure and staff provisions, whereas the -2 basement level is solely a service level and is essential to execute the net-zero sustainability strategy outlined previously.

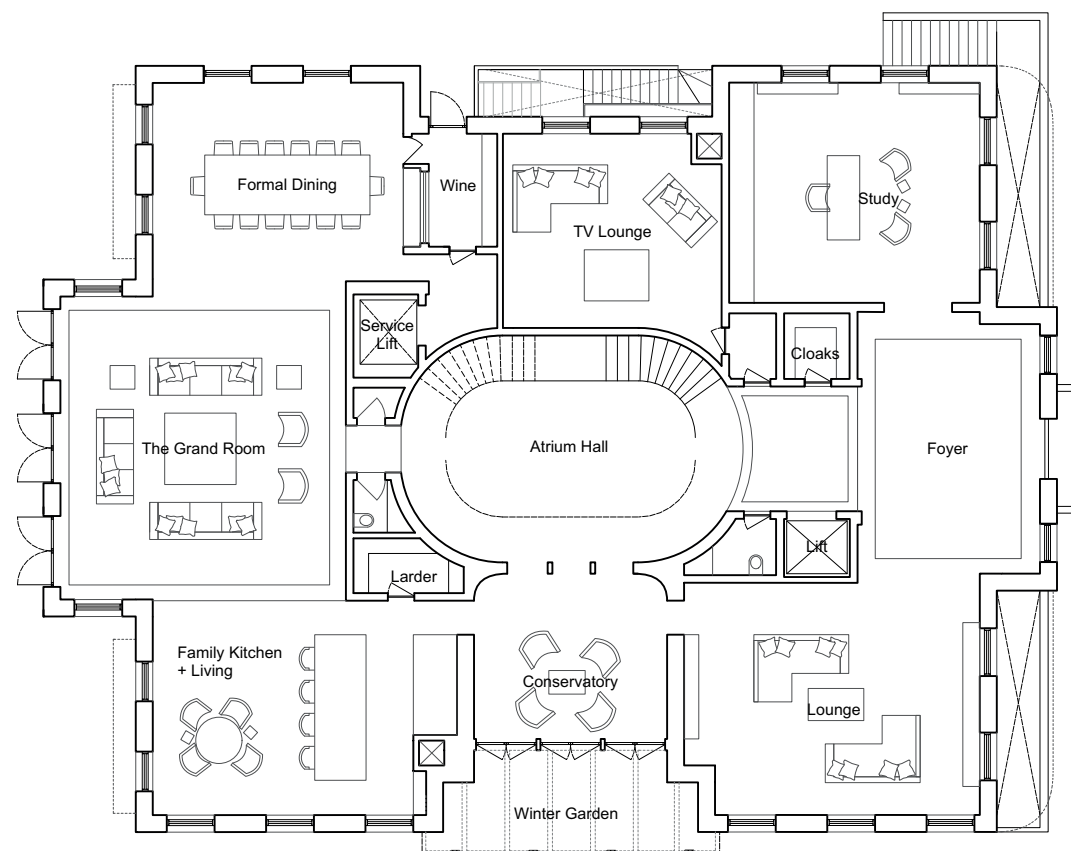
The follow pages have more detailed plans and descriptions of each floor.



Proposed Lower Ground Floor (-1) Plan



Proposed -2 Service Basement Plan



PROPOSED GROUND FLOOR

The entrance leads you in to the generous foyer, which then leads to the central atrium, a beautiful triple height space. An elegant curved staircase leads your eyes up, to the elliptical shaped library along the first floor landing, and then higher up to the feature transparent dome on the top, which pours natural light to the central space.

Aside from its sculptural qualities, the central atrium is designed as the thermal core of the building, using thermal stratification of the open space to support a comfortable living environment to the other living

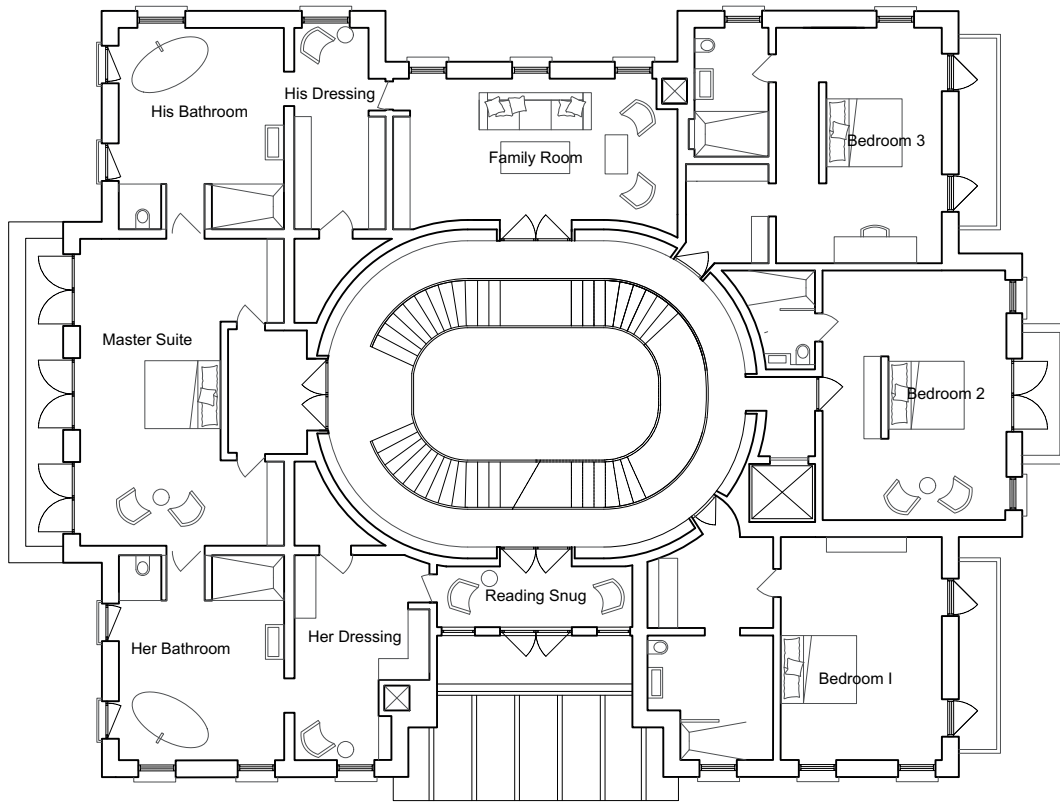
areas. In summer the apertures on the dome on the roof are opened, and with the west facing doors on the ground and lower ground floor open to pull fresh air through the house. In winter, this space is closed and the heat expelled and trapped into the atrium, creating a warm heart to the building.

Upon entering the atrium, a feature archway leads to a conservatory and winter garden atrium with views out to the garden to the south, and another door connecting to the rear of the house. Continuing through a doorway to the rear of the atrium leads to the Grand

Room, the main feature room with the best views over the garden. The four corners of the house work with the movement of the sun: to the south east is the morning room and lounge, where the morning sun can most be enjoyed. Here one sits with coffee and the papers and enjoys the views over the front garden.

To the south west, connection to the conservatory and the grand room, is the family kitchen and living. This dual aspect space gets the most sunlight and will be the most popular space in the house. The formal dining space is situated on the west corner, where the sun sets.

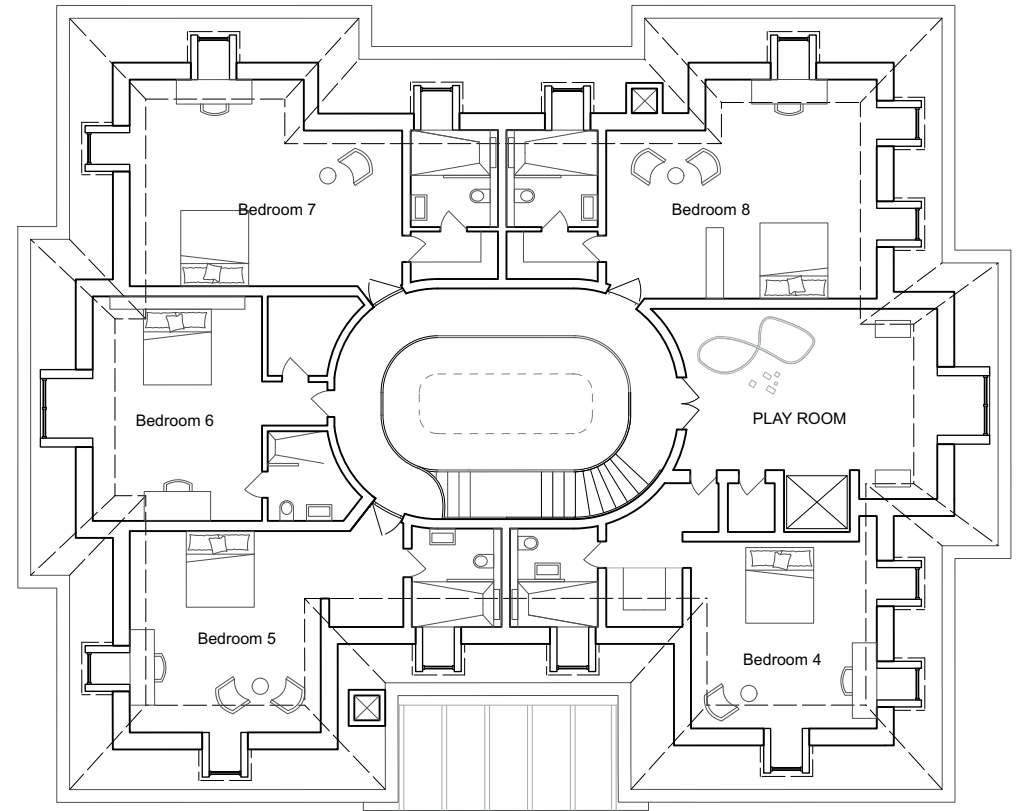
The family tv room and the study are located in the north side where there is little sunlight. Situated between the formal dining room and the family room is a back of house service area with a connection to the catering pitch downstairs, and the side exit, which would be used for catering and deliveries.



PROPOSED FIRST FLOOR

The central staircase brings you up to the first floor oval landing. Along the corridor are floor to ceiling bookshelves, transforming the first floor elliptical landing into the family library.

The bedrooms, family room and reading snug can be accessed directly from this space. The main landing located at the top of the stairs leads directly to the master suite, with his and her separate bathrooms and wardrobes. There is a generous balcony overlooking the rear garden. To the south of the first floor atrium is a reading snug. The front of the house has three bedrooms with ensuites. A family room is located on the north side.



PROPOSED SECOND FLOOR

The proposed second floor accommodates further bedrooms and a play room, which can be accessed from either the lift or of the staircases.

All rooms benefit from generous sized dormer windows, sufficient storage and amenity space. Wet spaces have been paired adjacently to one another where possible. The internal walls between bedroom 5 - 7 to the south, and the playroom and bedroom 8 are designed with flexibility as to be easily adapted for future use. The play area especially benefits from an abundance of natural light from the east faced windows and the glass dome above the atrium. All bedrooms have ensuites.

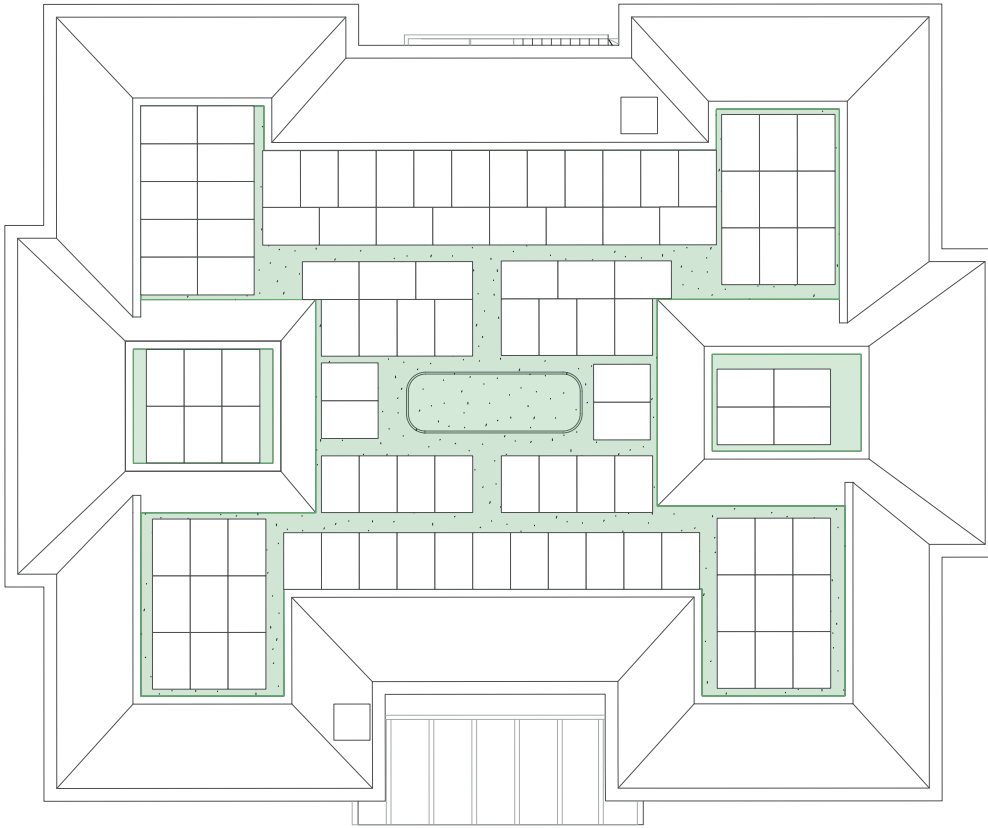


Figure 57: The large surface area of the roof provides enough space for a PV array to supply about 52,800 kWh per annum, to be used predominantly for lighting and appliances.

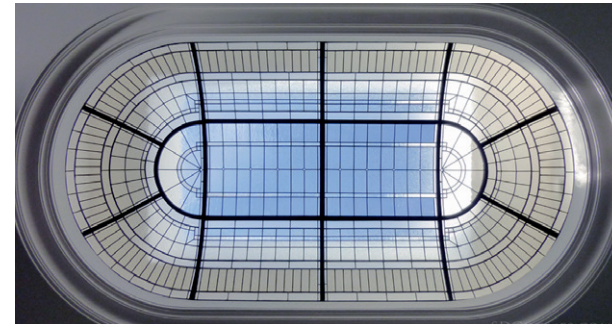


Figure 58: The barrel vault glass dome was inspired by the Keats House Hampstead. Fusing traditional elements with modern technology, this beautiful architectural element plays a key role in the ventilation system.

PROPOSED ROOF PLAN

Balancing proportion, aesthetics and function, the roof has two dominant features: an extensive PV array, and a central glass dome that sits directly above the central atrium.

In the initial conception design phase, it was clear that the house would require a generous surface area to provide substantial space for a comprehensive photovoltaic array. Although the heating and cooling of the building will be met with other strategies, the PV array will be the sole generation of electricity for the property.

The roof has been designed to have maximal surface area for the vast solar panel array; it will not at all be visible from below. To avoid a heavy and overbearing feel to the house, there are height variations on the roof line to give hierarchy to the main spaces. Both the proportions of the roof, the form and the pitch has been carefully designed to suit the proportionality of the main volume below.

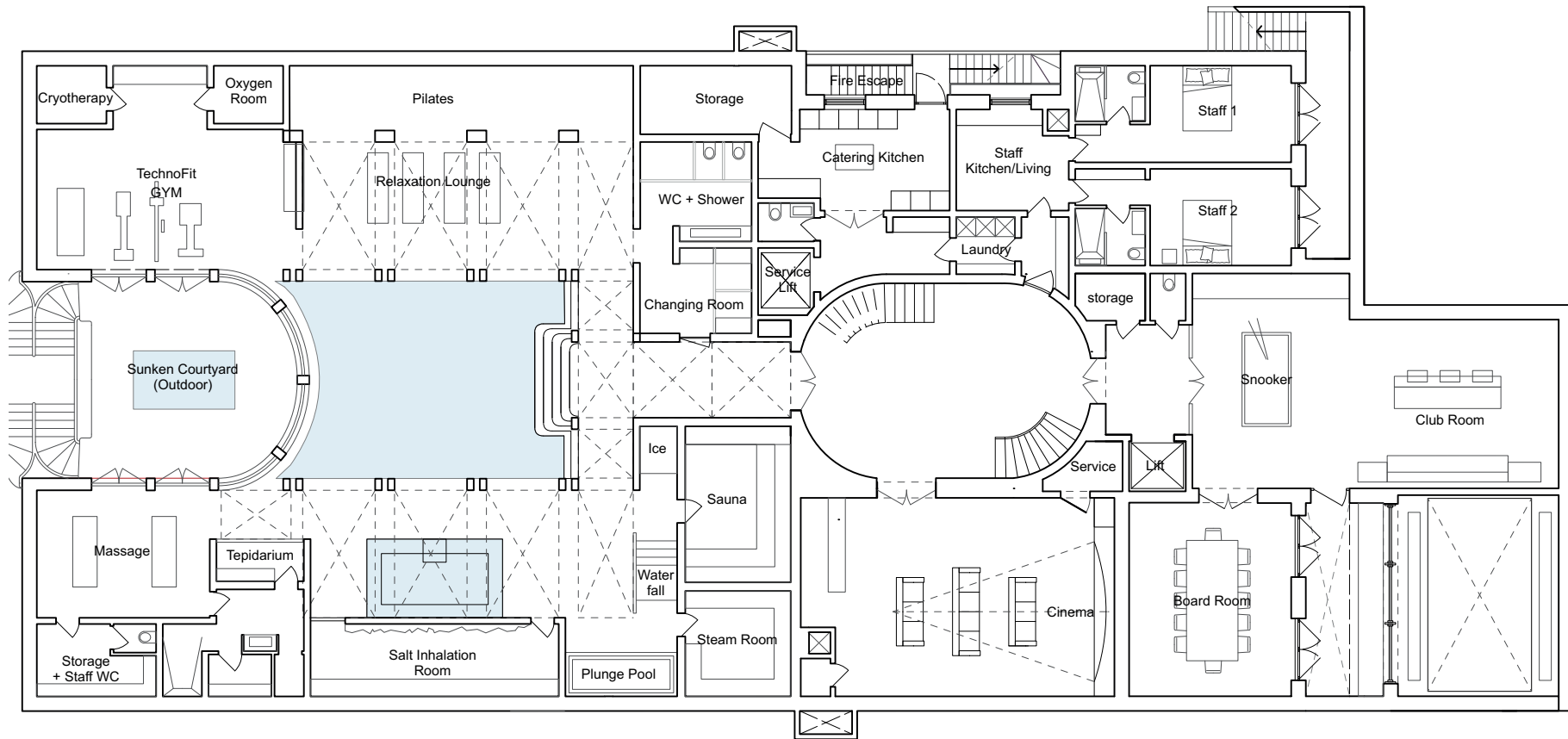
The glass dome is the centre of the roof is not only an architectural feature that lights up the central atrium, but its apertures that can be opened when required

for ventilation. The glass dome was inspired by the Keats House in Hampstead and provides an elegant architectural feature that brings an abundance of light into the central atrium.

The clay tiles are made from recycled material that gives a more textured weathered feel that softens the overall appearance of the house.

BASEMENT PLANS

Scale 1:200



PROPOSED LOWER GROUND FLOOR (-1)

The central atrium staircase is the main circulation throughout the house and is the main accessway that brings you down to the basement level, where the space is organised into 3 major zones.

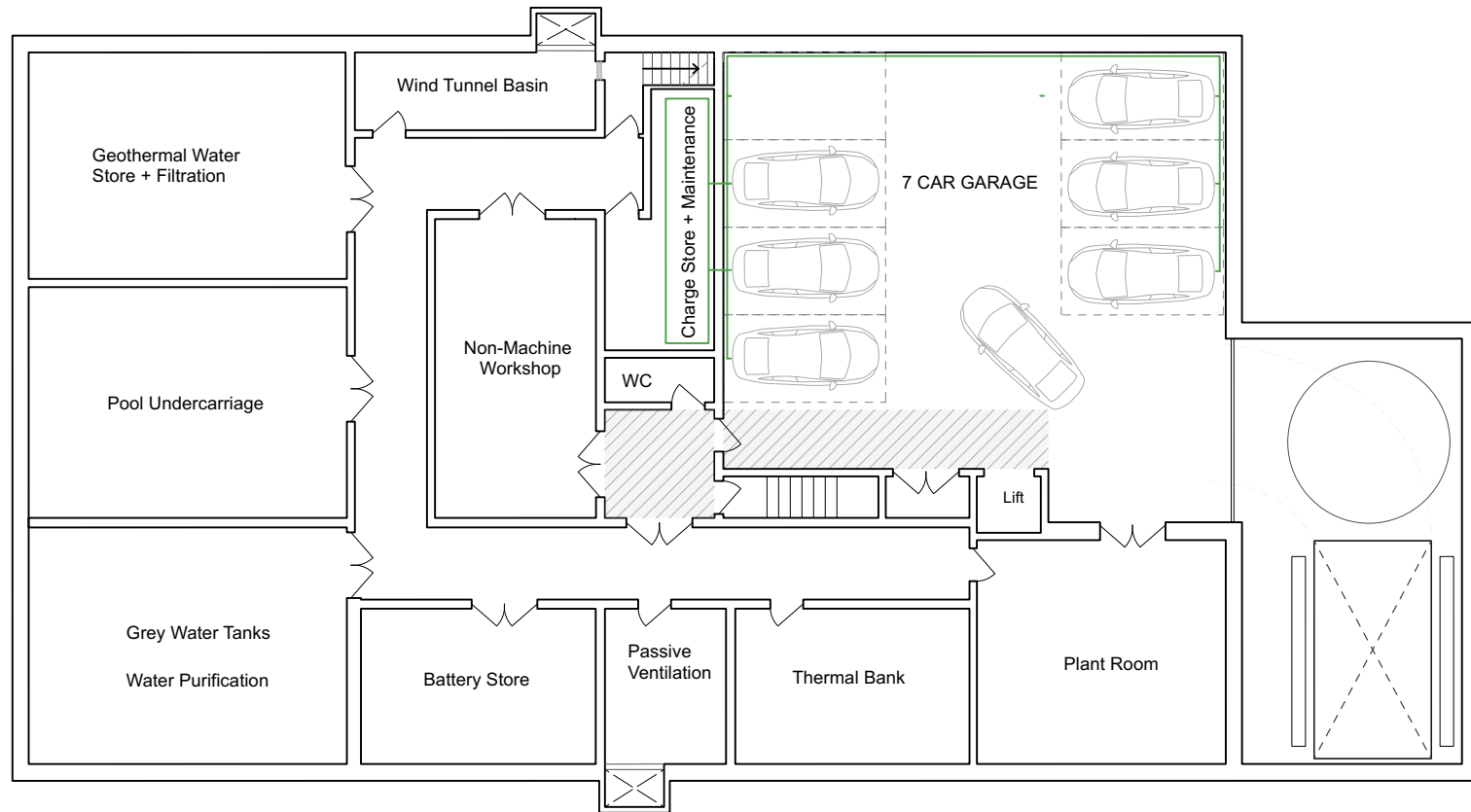
To the north and north east side of the basement are the staff areas. Here a catering kitchen and generous staff accommodation have generous light wells, ensuring that those working and living in the house have natural light and outside areas in all spaces. The catering kitchen has a service lift connection with the formal dining room upstairs.

To the south and south east are the recreational spaces including a snooker room + club room, business board room and a cinema. To the west is the spa area including a geothermal swimming pool, spa facilities, sports and massage area. This will be one of the most beautiful areas of the house, with the leisure area having direct access to a lower garden designed as a sunken courtyard that can be accessed directly from the spa area or the garden upstairs. This provides both a beautiful view onto a outdoor space landscaped with a small pond and plants as well as bringing a lot of sunlight into the spa area.

The large arched doors can be opened in warmer weather to allow cross ventilation. The lower pond not only features as a beautiful reflection point, but serves to collect rainwater that will funnel into the grey water filtration system one level below. In the summer, the pond and greenery will help with passive cooling through evapotranspiration, a natural strategy that has been used in hot countries for centuries. This systems is supplemented by the wind towers to the north and south sides of the building.

BASEMENT PLANS

Scale 1:200



PROPOSED SERVICE BASEMENT (-2)

The service basement area is accessed by a staircase leading from the central atrium to the service corridor. From here the garage, workshop or plant and service areas can be accessed. To the west of the basement area are the wet spaces; the pool undercarriage, located directly under the pool, is flanked on either side by geothermal water store, as well as the grey water collection and filtration system, which is fed in from the “wild” pond in the garden and the smaller reflection pond in the sunken courtyard.

The south side of the -2 basement houses the main service facilities. The battery store has a state-of-

the art electricity storage capacity that holds energy collected from the photovoltaic array on the roof through to darker seasons. The thermal bank stores cold temperatures collected from the outside air in winter until it can be used in the summer, and hot temperatures collected from geothermal sources and as the residual heat from the service equipment, which can be employed to heat spaces in winter.

A thermal bank functions like a temperature battery. This means that unwanted residual excess energy in the form of heat and cold do not infiltrate in the internal spaces at the wrong times (heat in summer and cold in

winter), which would require more extensive and energy intensive heating and air-conditioning systems. Instead this excess temperature would be captured and stored to avoid overheating/cooling, and then used as part of the heating and cooling system when needed.

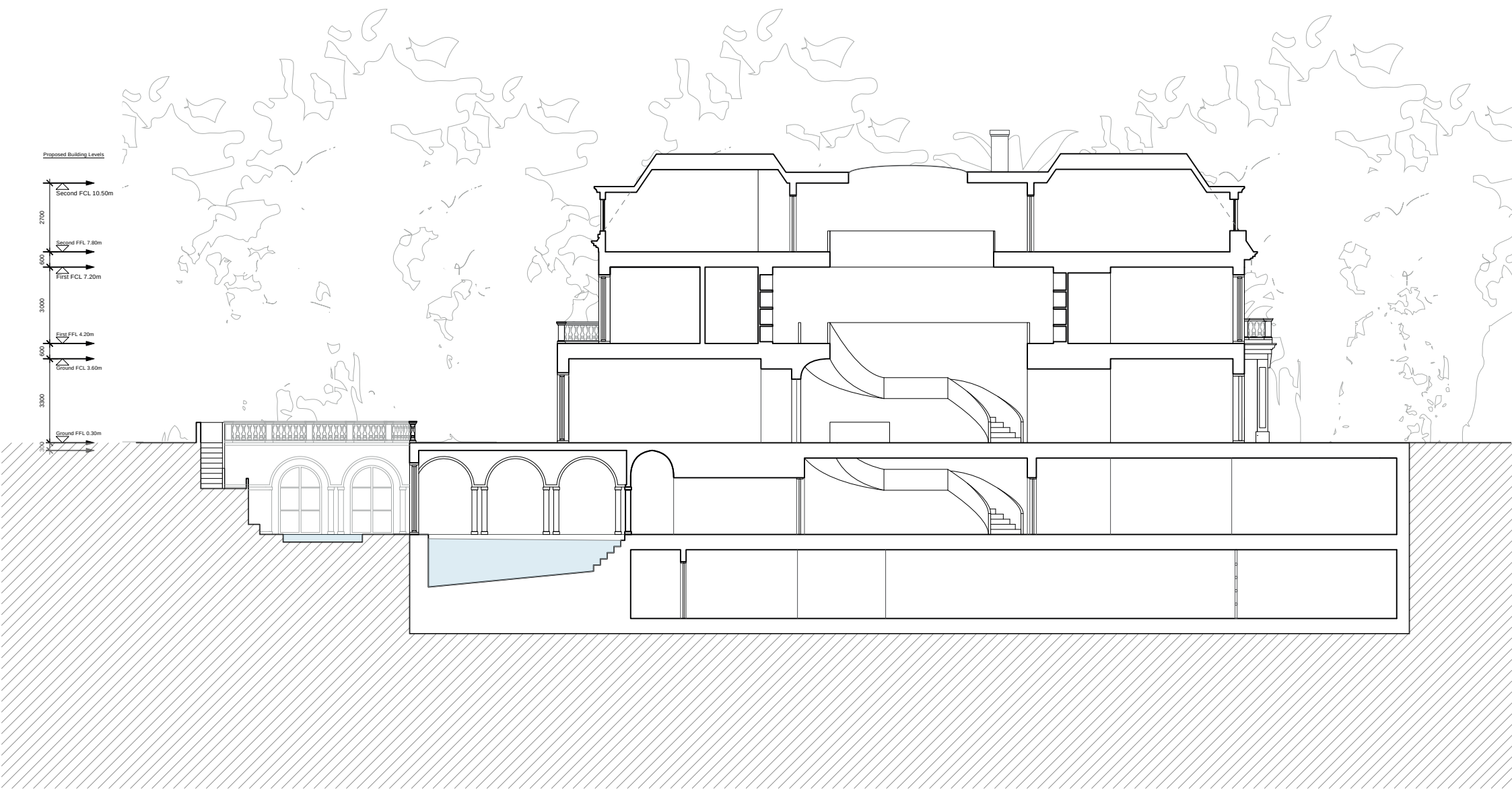
The plant room can be accessed by both the service corridor or the garage. The passive ventilation strategy employs wind towers, inspired by the ones used in Yazd, Iran for centuries as a cooling measure. At the base, a water filled basin helps cool the air being pulled in from the vents connecting to the garden, bringing fresh, cool air through the wind tunnel “chimneys” and

cooling the internal areas upstairs. In summer, these vents are closed at the base and at the top, making sure there is no fabric heat loss. This strategy reinterprets the chimney of today, and instead of burning fossil fuels, it celebrates the properties of thermodynamics as a source of cooling.

The seven car garage is accessed via a car lift. All cars will have 3-phase ultra fast e-charging points, and the car lift will be powered by renewable sources. The back wall of the parking will store the battery charging facilities and will be flanked by a workshop area. A fire escape is located on the north side of the building.

B. Proposed Section

SECTION
Scale 1:200



C. Proposed Elevations

i. Facade

Currently the entrance of Soughton leads you between two gate posts and along a curved road that splits the garden, rendering one corner unused and forgotten. The road curves around to what is seemingly the back of the house, but where the front entrance is. At no point is there a good vantage point where one can view and admire the house. The current road has been damaged and lifted as the great oak trees have grown, and this road is now also damaging one of the great oak trees. For this proposal, the entrance of the house has been moved to the east face of the house so that upon entering the gates onto the estate, one is met with a fabulous aspect of the house. The road has been moved so as to curve along the periphery of the north east garden, returning the previously split and unused garden to the rest of the green space and giving the house a beautiful and verdant frontage. This also allows for the beautiful mature oaks to have space to grow and be healthy.

The building is two stories above ground with a roof space, plus a two level basement. The hipped form of the main roof is reflective of the predominant roof form found on Courtenay Avenue, with height variations and dormer windows to give variation to the volume.

The soft white rendered facade is detailed with simple ornamentation in the form of architraves around the windows, a string course to break up the volume and simple moulding of the cornice that creates a definitive line between the roof and the main volume. The external front door is hardwood timber-framed with a simple yet classical portico with orthogonal columns. Window frames, doors and the fine metalwork on the balconies and pagoda-inspired conservatory are all featured in black to give a fine yet striking contrast to the heavier, solid volume.

Stone balustrades are featured on the front, south side and rear balconies that sit only atop solid walls, whilst cantilevered balconies and Juliet balconies all have fine black

metalwork. The differentiation of balustrades was designed to break up the rhythm of the façade, whilst ensuring that the building remains elegant and simple to read.

To the south side, the winter garden is protected by a fine pagoda style awning, inspired by the one found at Kenwood House. The glazed roof that extends over the conservatory bathes the internal spaces with light. This feature of the house was designed to celebrate movement through the interior, playing with views and light. In terms of internal sequencing of spaces, upon entering the house, you move through the entrance hall through an arched doorway and into the light-filled high central atrium space. From there, the light coming through the south face to the left of the atrium, and pulls you through the central space where you turn and look directly into the garden and curated water feature.

It is, however, the rear face of the house that responds most to the gardens. The grand room features three grandiose arched doorways that open onto the patio and onto the uninterrupted views of the beautiful, extensive gardens. The orientation of the house means that the social and dining spaces will enjoy the afternoon sun and sunset. The central space is designed to open up to the garden, blurring the interior and exterior boundary.

Beyond the patio is a sunken courtyard that is accessed from the garden side via a feature double flanked staircase. This variation of height and space not only serves the function of bringing natural light into the lower level swimming and fitness area, but also brings diversity and delight to the garden landscape and topography. The courtyard will be verdant and green, with a central pond. Arched doorways along the lower level semi-circular curved courtyard walls are a continuation of the ground floor fenestrative style, framing the views from the spa to the courtyard, whilst being an attractive facade when viewed from the garden.

COMPARATIVE SITE ELEVATIONS

Scale 1:350



PROPOSED SOUTH ELEVATION



EXISTING SOUTH ELEVATION

COMPARATIVE SITE ELEVATIONS

Scale 1:350



PROPOSED EAST ELEVATION

East Elevation



EXISTING EAST ELEVATION

East Elevation





Proposed Front Elevation



Proposed South Side Elevation



Proposed Rear Elevation



Proposed North Side Elevation



Figure 59. Rendered view of the front (south/east corner) when entering the site.