Welsh Jewish Heritage Centre, Merthyr Tydfil

THE FORMER SYNAGOGUE

THE PROPOSALS

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Foundation for Jewish Heritage

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6.0 SECTION FOUR - EXPLANATION OF THE PROPOSALS

6.1 The Project Brief

A project brief was produced at the commencement of the design process to set out the purpose, aspirations and requirements for Foundation for Jewish Heritage (the Foundation) and the planned new Welsh Jewish Heritage Centre in Merthyr Tydfil. It forms an agreed statement of intent by the Foundation and has served as the basis for the project's development.

6.1.1 Project Purpose

The purpose of the Project is to rescue, preserve and sustainably regenerate the derelict grade II listed Synagogue in Merthyr Tydfil, a landmark heritage building and the most important Jewish site in Wales, representing shared Jewish and Welsh Heritage.

The Synagogue will be home to a new Jewish Welsh Heritage Centre / Canolfan Treftadaeth Iddewig Cymru, which will provide a unique national cultural and educational facility delivering a programme and providing expertise on the Synagogue, Judaism and Jewish culture, Welsh Jewish history, Holocaust education, and tolerance education.

6.1.2 Project Vision

The vision for the project is that the Welsh Jewish Heritage Centre is a unique, high-quality, welcoming place that values and displays the development and contribution of the Jewish community to Merthyr Tydfil and Wales over the past 250 years. It will inform and inspire, providing opportunities for learning and engagement through a programme that explores the history of the Synagogue, Judaism and Jewish culture, Welsh Jewish history, the Holocaust, and contemporary themes relating to tolerance and inclusion.

6.1.3 Project Objectives

The brief set out the Project Objectives as being to:

- Repair and restore the landmark grade II listed Synagogue building, safeguarding its future as a leading heritage asset in Merthyr Tydfil, and giving it new life and meaning as a Heritage Centre.
- Provide a first-class visitor experience that showcases the history of the building and stories relating to the Welsh Jewish history and the experience of the Jewish population in Merthyr Tydfil and across Wales.
- Provide research and digital archive facilities that collate the stories of Welsh Jewish History and make this information available as a digital resource, thereby promoting and strengthening the links between communities and people and their heritage.
- Promote opportunities for learning and education, both in-house and through an outreach programme for schools and special interest groups.
- Engage with other minority and refugee communities, promoting cross-cultural dialogue and social inclusion.
- Provide high-quality spaces to host music, toured exhibitions, lectures, community activities and cultural activities.
- Create working partnerships with museums, heritage sites, cultural centres and other faith and minority organisations across Wales and the UK, based on common experiences and shared values.
- Provide supporting activities and facilities to create a rich and rewarding experience for visitors.
- Support the development of a Welsh Jewish Trail that links sites of historic interest across Wales from North to South, and which promotes understanding of Welsh Jewish history.
- Position the Synagogue as a recognised heritage asset in Merthyr Tydfil, thereby supporting the overall visitor offer and heritage significance of the town.
- Develop a strong digital presence, running a variety of online activities that will reach out to a global audience including the Welsh diaspora.
- Establish an organisational structure and financial model which is realistic and sustainable.

Underpinning the specific objectives set out above, the Synagogue needs to be:

- Accessible: The building must be fully accessible with a distinctive front façade and presence that welcomes people of all abilities.
- Engaging: Through a varied programme of activities, events and opportunities, the building must engage with local communities and visitors, promoting interest in and engagement with Welsh Jewish history and the minority experience.
- Supportive: The Synagogue must provide spaces where different communities and people can come together in an environment that is supportive and inclusive, to learn and share.
- Productive: The building must attract visitors into Merthyr Tydfil, bringing economic benefit to the town. It must actively encourage local volunteering and mentoring, enable residents to feel better connected and rooted in their community and providing opportunities for transferable skills to be passed on, thereby improving self-esteem and wellbeing.
- Attractive: The Synagogue is a visually striking, beautiful building and, through its restoration and repurposing, it needs to enhance a sense of place, improving local pride and making Merthyr Tydfil a more pleasant place to live, work and visit.
- Efficient: The building must be easy to manage and maintain, incorporating high-quality, robust and attractive materials that celebrate its history and heritage. It needs to offer a pleasant environment, with the ability to control ventilation, heating, lighting and acoustics, to ensure the building feels a healthy and comfortable place to be, using the latest approaches to energy efficiency and minimisation of waste.

6.1.4 Space Allocation

The aspirations for the Synagogue in terms of its accommodation and usage fell into the following categories:

1. Exhibition Space

The WJHC will be a visitor attraction, with (potentially paid for) admission to exhibits and displays, including a permanent exhibition on the Welsh Jewish story, the Jewish faith, culture, traditions and values, explained through the Synagogue setting, using artefacts, oral testimonies, collated information and the latest presentation technologies. The permanent exhibition is not based on an established collection of artefacts and so is expected to 'object light', although there is an expectation that representational objects will support and inform storytelling. A Holocaust element within the exhibition will explain the context of the refugees and survivors feeling Nazism, who settled in Wales.

In addition, the design of the Synagogue should allow for temporary and rotating exhibitions – curated by the WJHC or toured-in through collaborations and partnerships with other museums and centres – that address key narratives, including contemporary issues relating to minorities, diversity and social inclusion, and the dangers of intolerance, antisemitism and racism.

2. Education and Activity Space

The WJHC will provide space for a broad range of arts, culture and educational programmes including classes, lectures, heritage workshops, seminars, events festivals and possibly bespoke cultural activities such as cookery demonstrations – all linked to the Welsh Jewish story and the wider migrant experience.

There will also be a strong schools programme that will support the 2022 New Curriculum for Wales offering tailored Centre visits, teaching materials and expert advice on, Welsh Jewish history, Judaism, the Holocaust, Welsh minorities histories and citizenship/ethics.

The education programme will be supported by the interpretation and exhibitions within the building.

3. Community Space

The Synagogue will also provide space for community use. This includes the hire of spaces by the community for private events, classes and activities, thereby supporting the business plan. Community use may include the use of the building for religious services. Community usage does not necessarily require dedicated space, but can be achieved through flexible use of education, activity and other spaces in the building.

4. Archive and Research Space

The WJHC will provide archive and research facilities as a key objective of the Centre. Much of this will be digital, through a dedicated online resource that serves as a 'central address' presenting all the Jewish artefacts and materials in Welsh collections/archives, further enhanced by oral testimonies from across Wales. The digital presence providing Centre news and programmes to a range of audiences throughout Wales and internationally.

It is not anticipated that the archive and research space will have extensive physical materials (books, research papers) as most items will be available online. However, there should be space for key reference material, including a selection of books.

In addition to digital research facilities, the Centre should also provide physical facilities for researchers, historians and interested parties wishing to engage with online resources from within the building. Research space within the building will also serve as a source of general expertise available to schools, universities, colleges, museums, cultural and tourist agencies on the Welsh Jewish experience, the Holocaust, Welsh minorities, and inter-cultural dialogue.

5. Visitor Services

Toilet facilities (men, women and disabled).
Area for retail and select merchandise for Welsh and Jewish-themed items.
Catering facilities to support activities and events.

6. Administration and Back of House

The Synagogue should provide space for the following:

- Arrival / reception / welcome area for individual visitors and groups, with space for orientation, registration, bookings processing and payments.
- Office space for a minimum of three employees.
- Administrative and meeting space.
- Staff tea point (potentially part of catering facilities).
- Cleaner's cupboard and wet store.
- Storage space for educational equipment.
- Storage space for activity and event furniture (chairs, tables, etc).

7. Outreach Activity

The Centre will provide a robust outreach programme, taking stories and narratives beyond the building through:

- Links to Jewish heritage trails across Wales.
- Outreach activities beyond the building, working with strategic partners, bringing programmes especially to more marginal communities.
- Outreach education and collaboration with schools.

The following points were provided in support of the above 7-point 'Space Allocation':

- The design should work within the existing footprint of the building so far as possible.
- If there is any increase in the footprint of the building, this is to be justified based on achieving the accommodation scheduled above.
- There should be full integration of the building with the grounds for a fully cohesive scheme.
- There should be a controlled, stable environment for exhibition activity. It is anticipated that objects for the permanent exhibition are representational and not necessarily high value – and would not therefore require museum-grade storage/display. However, toured-in exhibits may have higher value objects, including artworks.
- Controlled natural light will be acceptable for most gallery and exhibition spaces, with provision to control UV and overall light levels.
- Exhibition spaces should be legible to visitors and fully accessible throughout.
- The design should respect and celebrate the original architectural integrity of the Synagogue.
- The building should exhibit the Mikvah if this is still in existence, along with any original features, both present in the building or identified and returned (potentially including the original Ark).
- Should have a visitor welcome reception and retail area, as a point of sale and provide information.
- Vertical access is required across all levels.
- Flexibility across the spaces is required so the Centre can respond to opportunity and demand – whether this be heritage activity, craft fairs, performances, wellbeing classes, social gatherings and public assembly activities.
- There should be digital infrastructure in spaces to allow for delivery of content in support of activities and possibly interpretation.
- There should be provision/scope for both seated and standing activities and receptions.
- Temporary staging may be required for some activities.
- If possible, there should be a degree of segmentation of spaces to allow for different activities at the same time.
- There is a requirement for catering support, including bar facilities, to service cultural activities, events, performances, celebrations and community gatherings.
- Catering provision will require a small kitchen and service area, but the main food preparation will be off site, in established facilities. Storage facilities and waste storage provision will need to be provided commensurate with the café/bar offer.
- Flexibility to configure activity spaces in different ways – both seated and standing – to host activities and events for small and large groups.
- The design should meet good practice standards for funders and strategic partners.
- Interior design for each element of the scheme to ensure the finished building has a cohesive feel and is fully coordinated throughout the facility.
- For energy use, ensure maximum efficiency and minimum running costs throughout the building, applying up to date technology, including renewable energy.

6.1.5 Development of Project Brief

During the RIBA Stage 2 design process, and the development of concept design options, along with the presentations to, and workshops with, the Foundation, it was agreed that the whole of the briefed '*Schedule of Accommodation*' could not be met within the floor space of the Synagogue building, whilst re-opening up the 2nd floor to be a partial void over the 1st floor, exactly as the two spaces where when the building was still in use as a Synagogue - see plans below.

Given the strength of the desire to restore the main space back to its original volume, form and aesthetic, it was appreciated that a number of the administrative, archival, catering, retail and storage spaces - which would require some level of spatial cellularisation - would not be accommodated within the Synagogue building. Discussion ensued as to these maybe being located elsewhere, within another building.

As a result, the brief for the Synagogue building changed during Stage 2 to focus more on providing entry, circulation (including stairs and lift) and toilets within the front range; and reinstating the rear range, at 1st and 2nd floor levels, as a two-storey interior with a 3-sided balcony around a central void - as per historic photographs and plans, dating from the late 1970s / early 1980s.

6.1.6 The Purchase of Primrose Hill

At around the same time that it became apparent that the project brief for the new Jewish Welsh Heritage Centre could not be met within the Synagogue alone, especially given the preference for opening up the main '*Prayer Hall*' space back to its original full height with a three-sided balcony, the building immediately to its north west – know as Primrose Hill House or, simply, Primrose Hill – became available for purchase. Primrose Hill and the Synagogue face each other (albeit at right angles), sharing the area at the top of Church Street, where it turns into Brynteg Terrace. Grade II listed, and built 25 years before the Synagogue, the 4-storey Primrose Hill has been in residential use for much of its existence and, in its configuration, it was deemed to be suitable for providing the accommodation which the Synagogue could not, without undesirable compromise and loss of character. Its proximity made this all the more suitable.

To that end, the Foundation have purchased Primrose Hill, and the proposals for the new Welsh Jewish Heritage Centre now incorporate the lower ground and ground floors of Primrose Hill. For further information on Primrose Hill and the proposals for it, please refer to other documentation included within this application.

6.1.7 The Land to the North of the Synagogue

At an early stage in the design development, it became apparent that the derelict land to the north of the Synagogue, which is also in the ownership of the Foundation, could make a very pleasing 'garden' to the Welsh Jewish Heritage Centre, providing additional space for interpretation, engagement and community and schools use. There was also a proposal to plant a sapling from the iconic '*Anne Frank Tree*' - a horse-chestnut tree that featured in Anne Frank's '*The Diary of a Young Girl*' as an important connection with nature and hope.

One element of the Synagogue proposals involve providing direct 'level' access between the Synagogue's main exhibition / communal space and the heart of the 'garden'.

The Foundation's purchase of Primrose Hill – and the land affiliated to it - then provided the opportunity for this 'garden' to expand for its full length, and provided access (albeit with steps) from the bottom of the site up to the top.

Original space looking west c.1978 *(source: 'alangeorge.co.uk' website)*

View of Primrose Hill as seen from top of steps of Synagogue

View of Derelict Land to the North of Synagogue from above (east)

6.2 Early Design Concepts & Development

On this page is a description of the early design thinking, at RIBA Stage 1. Whilst we developed further ideas during RIBA Stage 2, which tested out a few different ways of configuring and fitting out the spaces, the final preferred approach reverted back to the principles borne out from the early design thinking at Stage 1.

As the focal point for a programme to celebrate Jewish culture; provide education on Jewish history and heritage; provide advice and expertise; espouse inter-cultural cohesion; and present and interpret the oldest remaining purpose-built synagogue in Wales - the Welsh Jewish Heritage Centre will have to do many things. It will need to:

- Be an honest restoration of its former self;
- 'Feel' as it once did – externally majestic and commanding; internally rich, lit through decorative coloured glazing;
- Be able to host large groups, yet be welcoming to individuals;
- Be suitable for engagement, as well as quiet contemplation;
- Integrate space for interpretive exhibition, as well as workshops and activities;
- Be accessible to everyone;
- Be energy-efficient, without endangering its historic fabric;
- Include excellent it provisions and connections; and
- Be financially sustainable.

The brief sought a number of provisions over the four floors of the building. The lower ground floor provides only a small floor area and the upper ground floor is only half of the footprint of the building; making the first and second floors those where the most space is available. Currently, there are indeed two full floor plates on first and second; however, with the original Synagogue – prior to being adapted as a Gym – these two floors formed the one space of significant volume with only a three-sided balcony at second floor around a large void.

The vision for the project at the outset was for the restoration of this original Prayer Hall space back to its full-height of two-storeys plus part of the open roofspace, as an unpartitioned space with a 'U'-shaped upper balcony, which would be both honest in its restoration and beautiful in its provision. This large space, over two floors, would need to be capable of meeting many aspects of the brief – exhibition space, activity space, teaching space, research space, and space for contemplation. It would need to be designed with care to provide for each of these without compromising any.

The sketch plan ideas and the imagery for the main space on this page show a concept which returns the original Synagogue two-storey main space very much back to its original form and appearance; with a narrow balcony to the upper floor wrapped around the space on three sides (all but the east side) and the double-height space open to the roof structure.

In this scenario, this space would ultimately be one space, with no sub-division. The area beneath the balcony overhead would be, essentially, single-height, whilst the majority of the space would be double-height. The early sketch images below show, and the aspiration would be, that the space beneath the balcony overhang would be open to the rest of the space. This means that everything that this 'one' space needs to achieve would need to be met through clever interior design, fit-out and furniture, interpretative methods and variant lighting.

The upper ground 'school room' would be the 'second' space. It could also accommodate these provisions, whilst also being a good space for groups to assemble. To allow these two spaces to be successful, the front range of the building, over all four floors, would need to accommodate entrance, circulation, toilets, storage, services, catering and retail. Fortunately, it can, leaving the main spaces to be what they want to be.

One aspect of significance and difficulty is the provision of access-for-all. At four storeys, on a steeply sloped site, with the ground floor 2.8m above pavement, accessed via two flights of stairs; ensuring that everyone can enter, circulate and escape from the building without impediment is essential. The 15no. steep stepped approach is not only inaccessible to wheelchairs and pushchairs, but also difficult for those who struggle with steps. Fortunately, there was a solution. The lower ground floor is about the same level as the pavement and there are blocked up doorways into it. Access to the left-side door is a little tight, however access to the right-side door is wider. Installing a lift in this right-hand bay would allow it to rise through all four floors. Currently, the staircase is split across the left and right bays; so, moving the whole staircase to the left bay provides for both lift and stairs over all floors. Please see our sketch plans for some initial ideas.

Early Sketch of how the restored 'Prayer Hall' space could look - looking eastwards towards the rear, and the Ark

The celebration of existing features, and the restoration of lost features, will be an important part of the project. The mikvah remains on the lower ground floor and most of the stone ark remains on the upper ground floor, with the wooden doors lost. There are Hebrew inscriptions over the front door and 'Star of David' coloured leaded glass panes remaining, but damaged. A terracotta dragon sits atop the ridge of the central bay; he has lost a wing and a few details. These must all be repaired and restored.

The timber roof trusses, in good condition; the thick stone finial atop the upper front gable; the black and terracotta quarry floor tiles outside the mikvah; all require attention, but are all important aspects to the character of the building. These need to be preserved and repaired as required.

No longer part of the main space, however possibly viable for reinstatement at this early stage, were the wooden upper floor gallery, the wooden ark, the raised platform, the pews, the chandeliers and the coloured glass leaded windows.

To the rear is a two-layered retaining structure and a set of steps passing between the two. The steps have collapsed and are unsafe. The steps and wall could be re-build, but at a price, and for minimal benefit. We had already broached, with Cadw, the idea of removing the steps and front wall and forming a new usable flat outdoor space, which could provide access to a second more informal outdoor space. Whilst these spaces would be accessible from the two external staircases, they would also be accessible, at level, from the rear of the first floor main space.

On the next page are those initial thoughts as to where, within the building, it was felt that certain existing spaces could meet certain demands of the brief; and how these spaces might inter-relate.

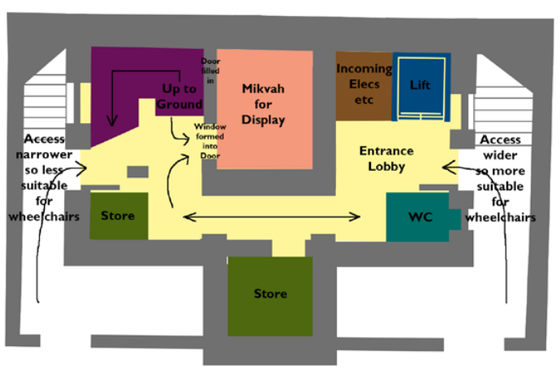
Early Sketch of how the restored 'Prayer Hall' space could look - looking westwards towards the entrances to the space

6.2.1 First Sketch Plans

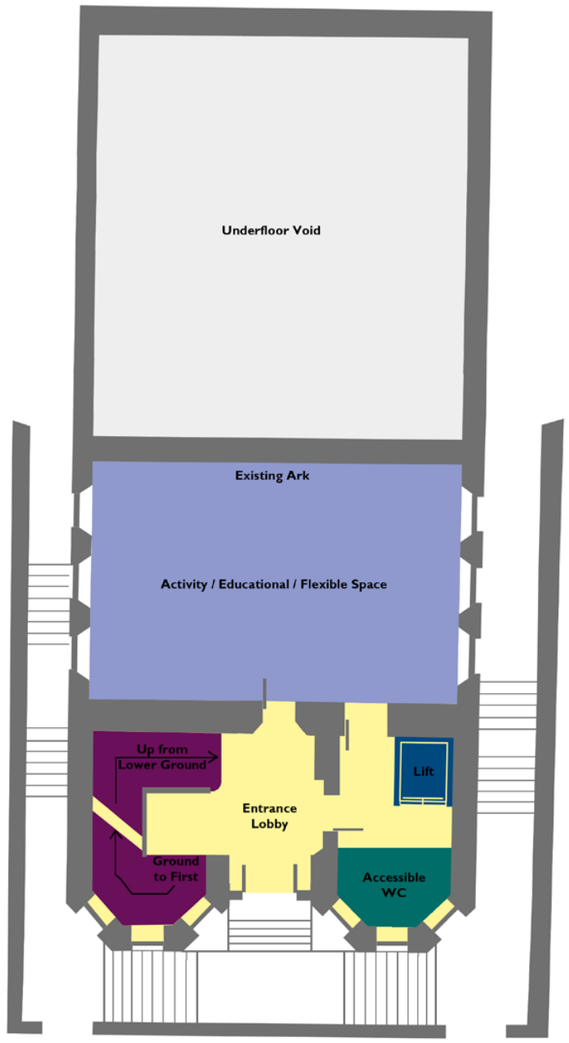
The square meterage of the building, in its original configuration (with a large void to the second floor), is as follows:

- Lower Ground Floor: 40 sq.m.
- Upper Ground Floor: 74 sq.m.
- First Floor: 159 sq.m.
- Second Floor: 105 sq.m.

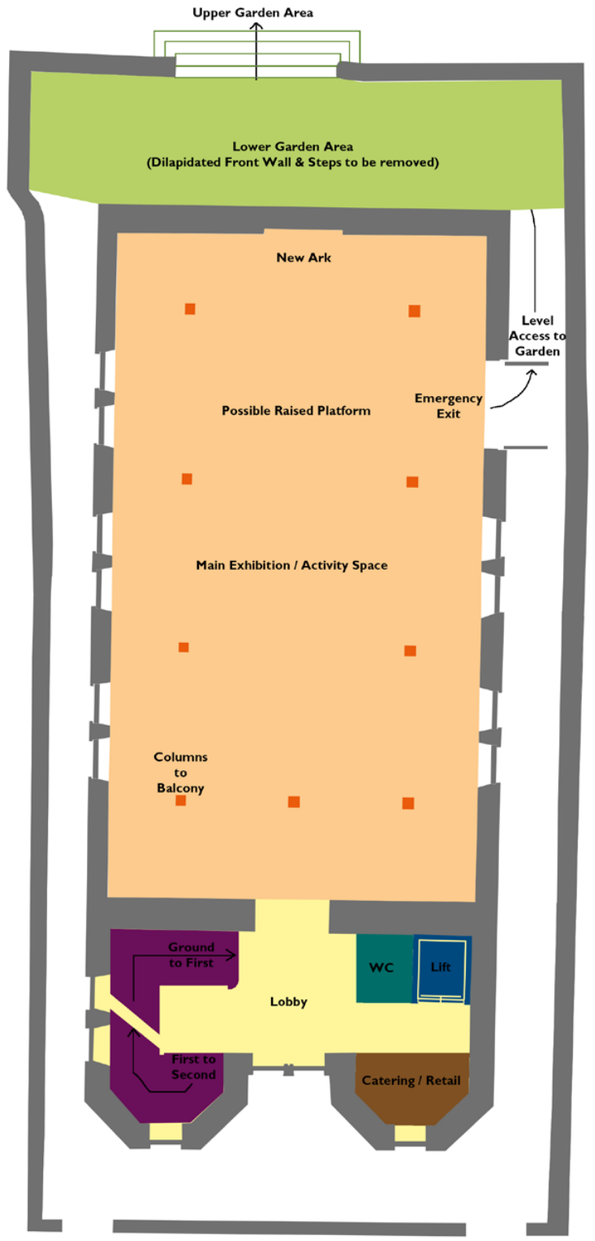
- Total Building Floor Area: 378 sq.m



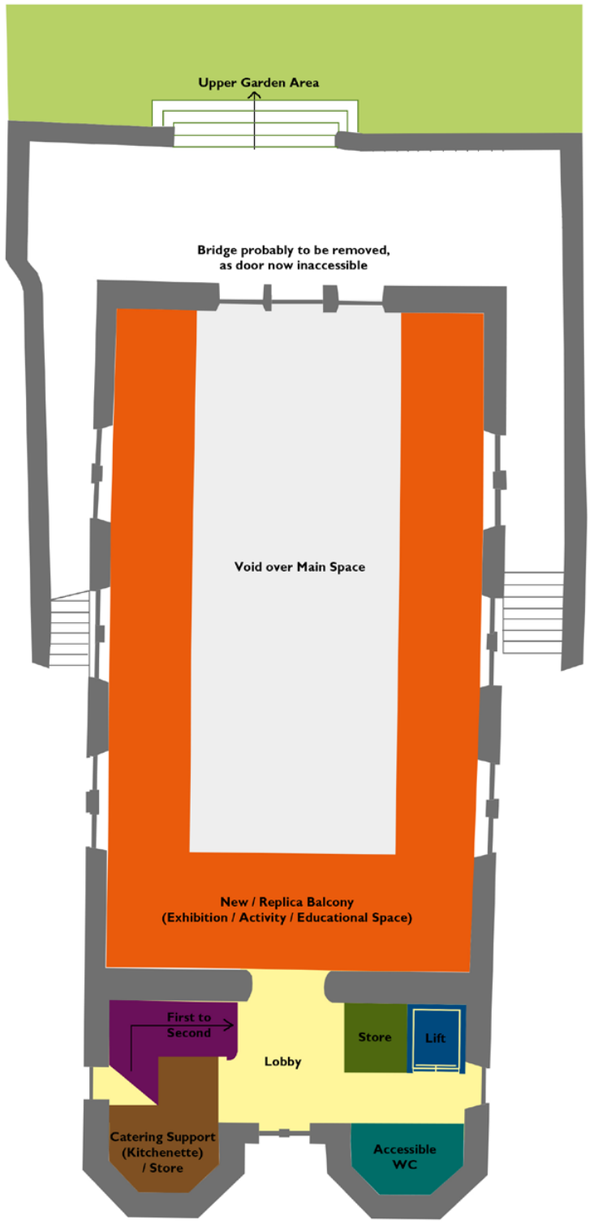
Lower Ground Floor Plan



Upper Ground Floor Plan



First Floor Plan



Second Floor Plan

6.2.2 Alternative Approaches

As stated, whilst the initial vision was to restore the main two floors back to the form and volume of the original Prayer Room, it was clear that this would not meet the briefed schedule of accommodation. Prior to any suggestion of purchasing Primrose Hill to assist with that, alternative approaches to the configuration of the interior needed to be tested, which might provide additional useable floor space to accommodate the ancillary accommodation set out within the brief.

Throughout this process, all options had been showing the front range accommodating all of the circulatory (lobbies, stairs and lift) and ancillary spaces (toilets and stores, and possibly catering and retail facilities). Given location and nature of these spaces, this was clearly the most suitable use of this range.

It was always the main body of the building (the first and second floor former Prayer Hall and the smaller ground floor School Room) which could accommodate various approaches.

The first approach tested was to provide as honest as possible a replication of the original space and to make the most of the double-height interior, with its exposed roof trusses and decorative windows.

However, this was likely to prove the least efficient use of the building in terms of its volume and potential floor area, assuming no additional floor area was to be provided by extensions.

To this area, there was an option to reproduce the current configuration of two quite separate floor plates, with an intermediate floor construction. This would mean partitioning this undercroft (first floor) space and, in so doing, provide cellular accommodation to both floors of the main central 'Prayer Hall' space. Such partitioning could be glazed (to retain the appearance of the one space) or solid (to provide privacy to the undercroft spaces). This would lose the double height space completely, albeit the upper (second) floor would still have additional height into the partially open roof space.

A decision needed to be made which would weigh up the provision of the briefed uses and areas against the desired aesthetic and heritage-led aspirations. It would have been wrong to assume that this is the solution, however, without looking at options to make better use of the volume and provide more floor area, some of which could be cellular and separate from the main space.

On the next page, we show how that might have been achieved. We commence, on the bottom row, with the balcony layout which would replicate the original. The sketch to the right shows the short end of the balcony extending to the next steel beam. On the next sketch, the balcony moves forward one more bay to the next steel beam. It moves forward one more bay on the next two sketches. The final sketch, bottom right, shows the floor fully across the space, with no void formed at all.

With each progression, the amount of double-height void reduces, finally to none, whilst the amount of usable floor area increases. This usable floor area could be cellular or open plan, or a combination of the two. It would be easier to make the lower, first floor spaces cellular than the upper, second floor (due to the trusses and sloped ceiling), but cellular space on both floors would be possible.

The most significant negatives about expanding the intermediate, second floor across the void is the loss of the original character and aesthetic, along with the loss, in full or in part, of the potentially stunning two-storey space, enwrapped with a three-sided balcony and lit by restored coloured-glass leaded windows and hanging chandeliers. The most significant positive is the increase of usable floor area.

Due to the orientation of the original balcony, this resultant reduction of the two-storey space, with the extension of the balcony further into the space, would mean that, even with a partial void, the impact of the two-storey space, the colourful windows and the timber roof trusses would not be perceived on entry to the space. The balcony overhead would obscure that view. On entry, one would need to move further into the space to experience that. The further the balcony extends into the space the more this becomes an issue.

The way one might address that is to rotate the orientation of the balcony, such that the short section would be at the far end of the space. This would have two positives - one would benefit from the impact of the two-storey void immediately on entry into the space (regardless of how much one were to extend the balcony from the far end); and the existing (albeit not original, but modified) rear exit from the second floor could be retained.

This layout option is presented on the top row of the sketches on the next page. Again, we commence, top left, with the balcony configurations reversed for the original. The sketch to the right shows the short end of the balcony extending to the next steel beam. On the next sketch, the balcony moves forward one more bay to the next steel beam. It moves forward one more bay on the next two sketches. A final move would take it to the same full floor plate that is shown on the bottom right sketch, with no void formed at all.

With all of these layouts, the benefits have been explained; however, the negatives are, in the main, the fact that it is not an honest replication of the original layout. That is not to say that the original character and aesthetic could not be achieved. The other negative is that the Ark, if one were to accurately replicate its location and size, could not fit.

On the page after that, we have selected a few of the variant options for the extent and orientation of the balcony / upper floor, and have identified areas / zone which could meet the different demands of the brief. Clearly, the more floor area there is, the more independent the uses can be (i.e. maybe cellular rooms); whilst the less the floor area available, the more the uses will need to share spaces.

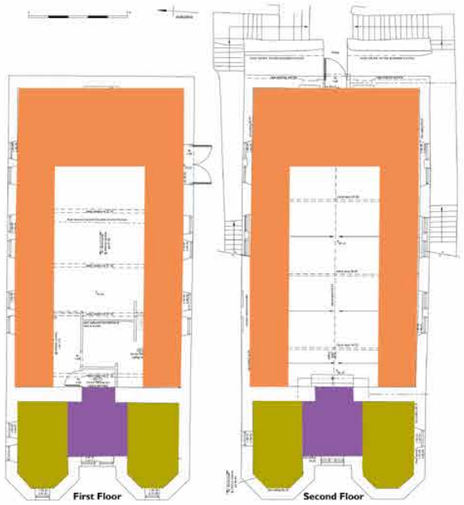
The layouts show that the original configuration of the balcony, be that as existing or extended, means that the two-storey void may not be immediately apparent, and there may be a need for a corridor, or open circulation space, leading to the double-height space. However, where the balcony is orientated the other way round (not as original), this corridor is not required, and the double-height space is immediately apparent; whilst the original location of the ark is not viable.

6.2.3 Alternative Layout Diagrams

Reversed Configuration with Balcony

Pros
Impact of double-height & windows on entry;
Access provided to upper garden.

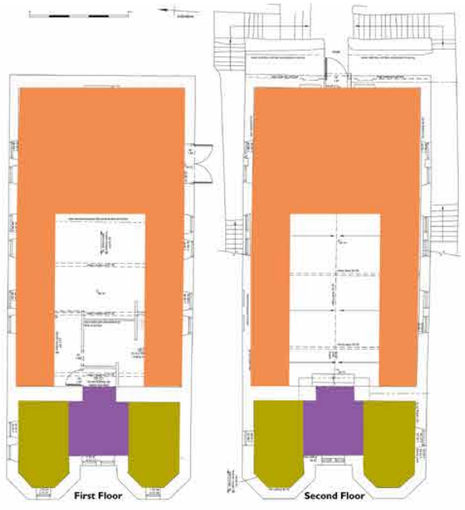
Cons
Least amount of floor area
Not honest replication;
Cannot locate Ark at rear



Reversed with 1no. additional Bay

Pros
Impact of double-height & windows on entry;
Access provided to upper garden.

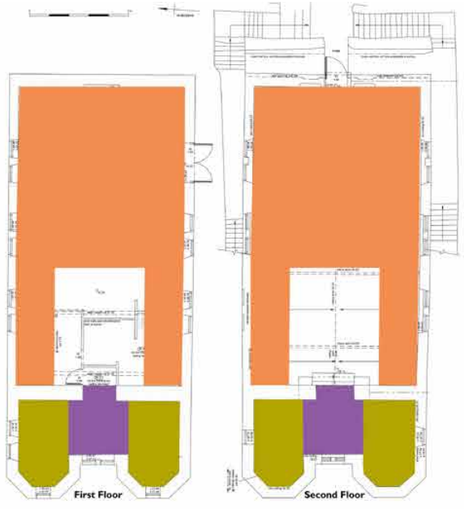
Cons
Not honest replication;
Cannot locate Ark at rear



Reversed with 2no. additional Bays

Pros
Good amount of floor area;
Impact of double-height & windows on entry;
Access provided to upper garden.

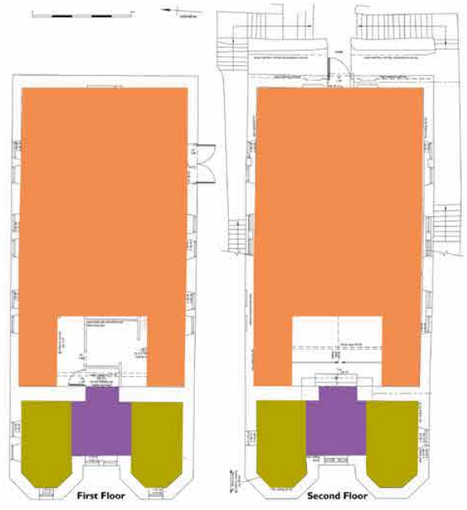
Cons
Not honest replication;
Cannot locate Ark at rear

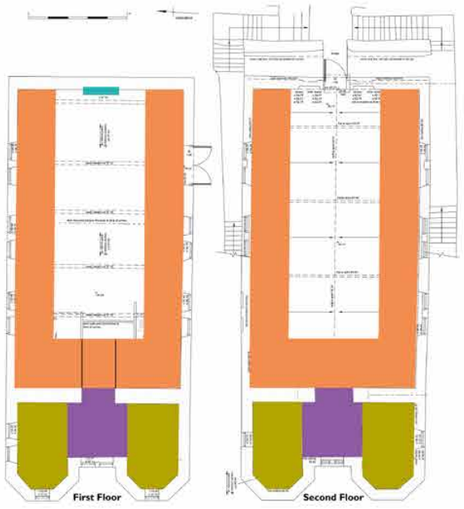


Reversed with 3no. additional Bays

Pros
Significant amount of floor area;
Impact of double-height & windows on entry;
Access provided to upper garden.

Cons
Not honest replication;
Cannot locate Ark at rear

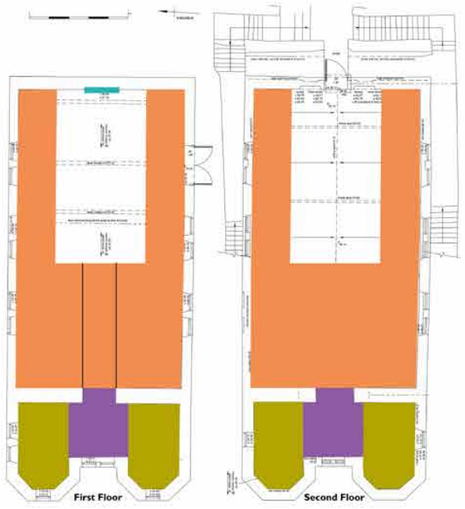




Original Configuration with Balcony

Pros
As original / honest replication;
Can include Ark (see blue rectangle)

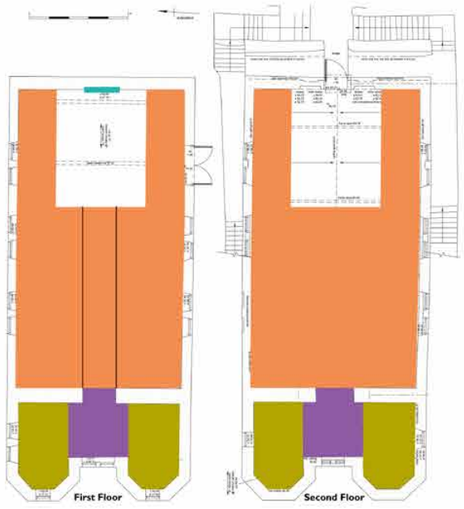
Cons
Least amount of floor area;



Original with 1no. additional Bay

Pros
Can include Ark (see blue rectangle)

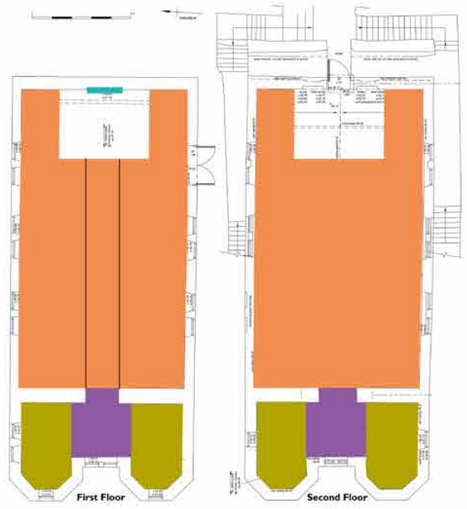
Cons
Not honest replication, but not far off;
No double height space / no view of roof
& windows from 1st floor



Original with 2no. additional Bays

Pros
Good amount of floor area;
Can include Ark (see blue rectangle)

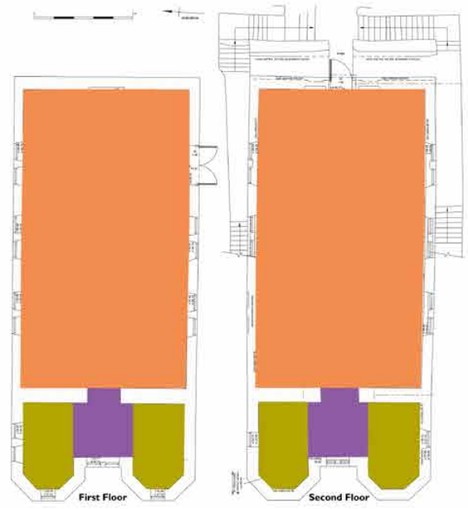
Cons
Not honest replication;
No double height space / no view of roof
& windows from 1st floor



Original with 3no. additional Bays

Pros
Significant amount of floor area;
Can include Ark (see blue rectangle)

Cons
Not honest replication;
No double height space / no view of roof
& windows from 1st floor



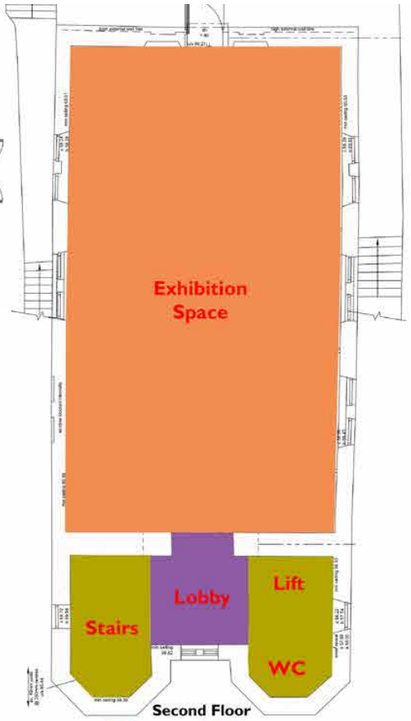
As Current - Full Floor

Pros
Most floor area to meet brief

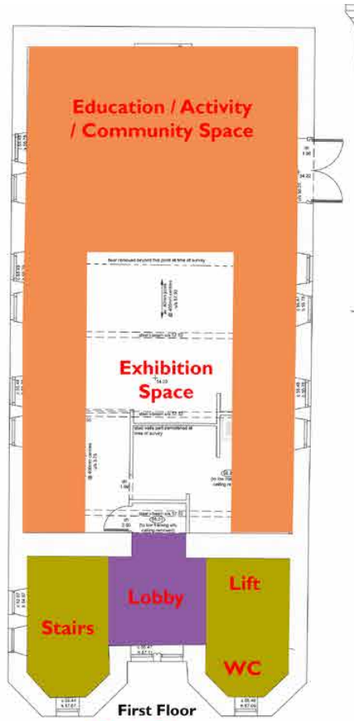
Cons
Not honest replication;
No double height space / no view of roof
& windows from 1st floor

6.2.4 Alternative Layout Diagrams with some suggested zoning

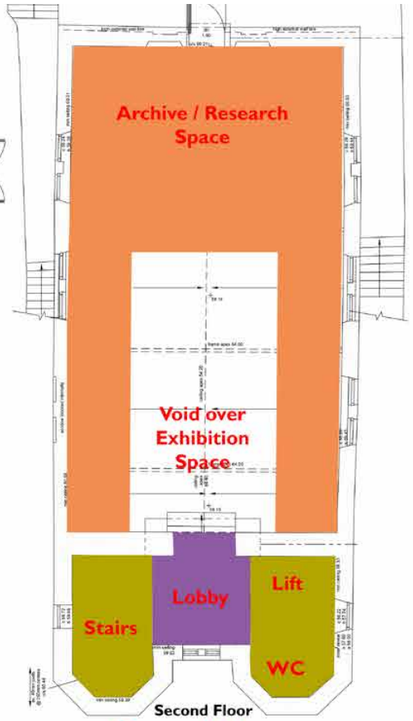
First Floor



Second Floor

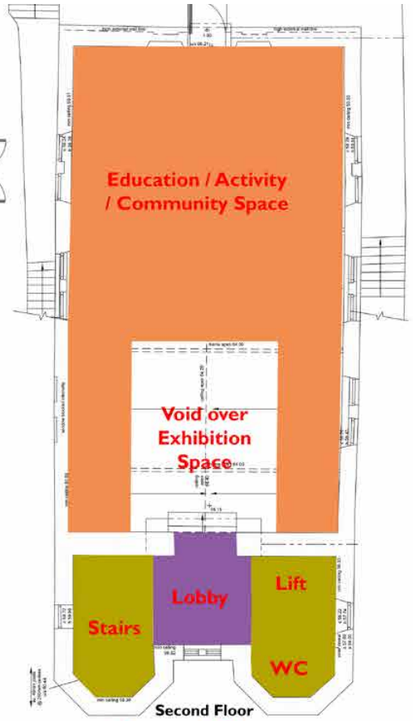


First Floor

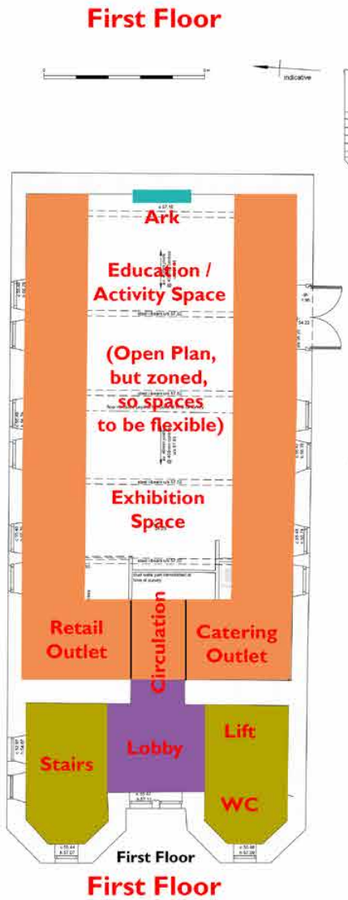


Second Floor

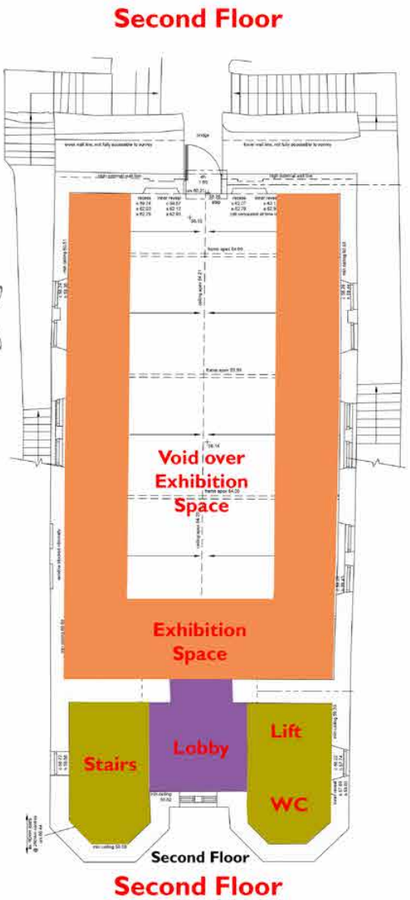
First Floor



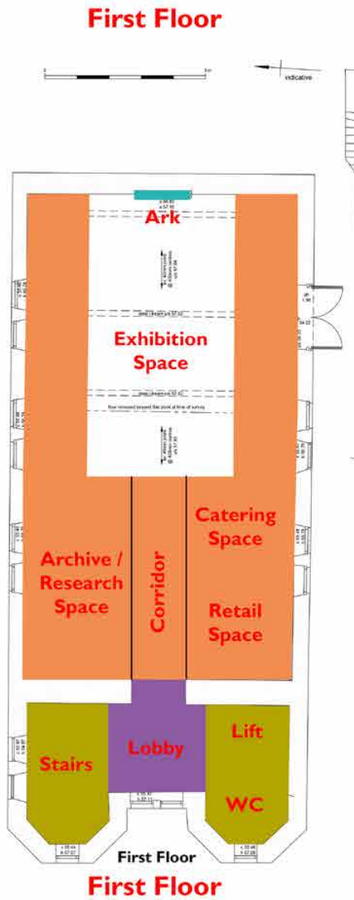
Second Floor



First Floor

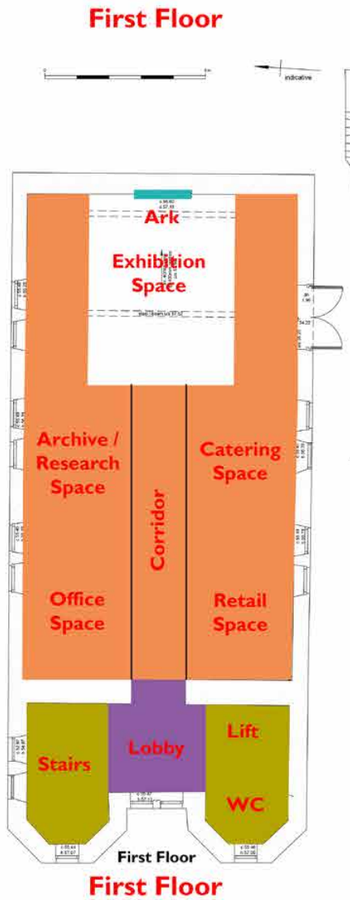


Second Floor

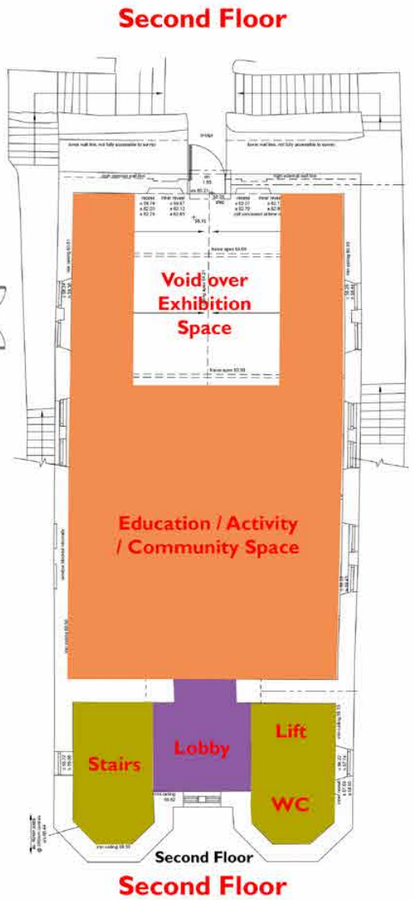


First Floor

Second Floor



First Floor



Second Floor

6.2.5 Next Stage Layout Options - Option A

Based upon the previous layout concepts, it was agreed that 3no. design approaches would be tested. These would comprise:

Option A
A reinstatement of the main space, at 1st and 2nd floors, with a 3-sided balcony around a central void.

Option B
The partial reduction of the sizes of the void, and hence an increase to the useable floor area, but no longer a replication of the original layout.

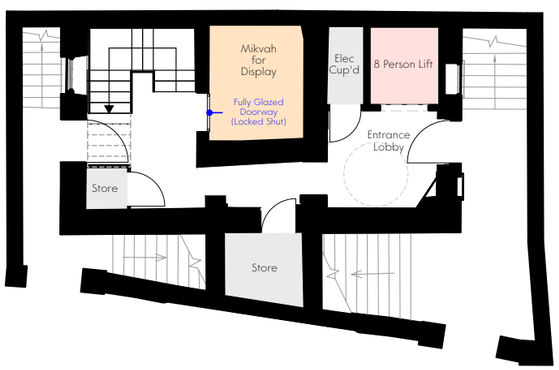
Option C
The retention of a full 2nd floor (as it is now), with no void and two single-storey full floors.

On this, and the next 4no. pages, these options are presented. There are 3no. variations for Option A, showing different ways of using the spaces.

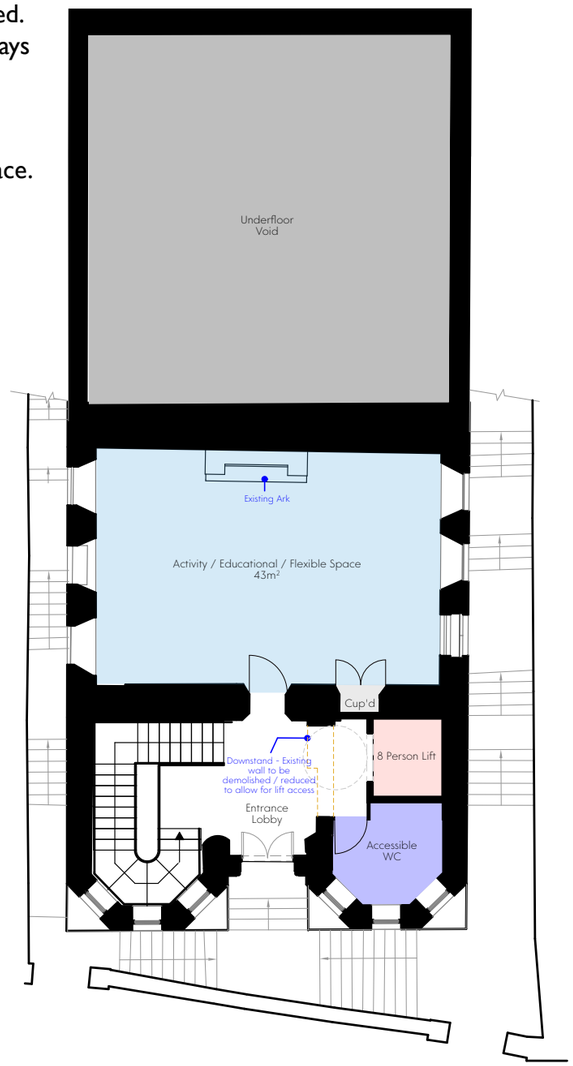
Option A1 shows (on this page) a Cafe on the 2nd floor balcony and the lower ground floor room as an Activity Space.

Option A2 (not included in the document) showed an Exhibition or Activity space on the 2nd floor balcony and Cafe within the 1st floor main space. Again, the lower ground floor room is shown as an Activity Space.

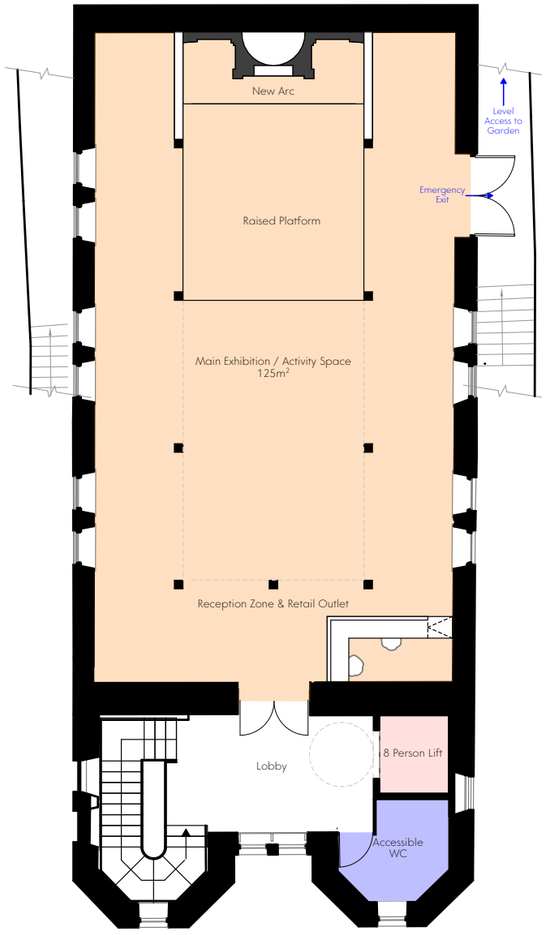
Option A3 (also not included in the document) showed an Exhibition or Activity space on the 2nd floor balcony; however, this time shows a sub-divided space on the lower ground floor room, being used partly for Administration and partly as a Reception, Seating and Cafe space.



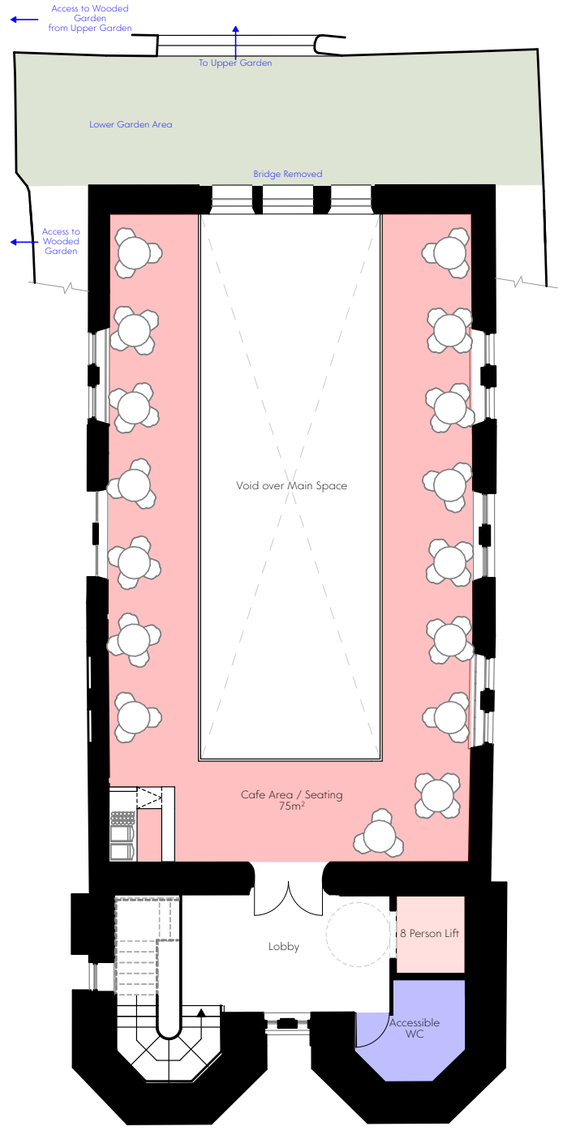
Lower Ground Floor Plan



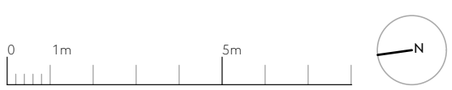
Upper Ground Floor Plan



First Floor Plan

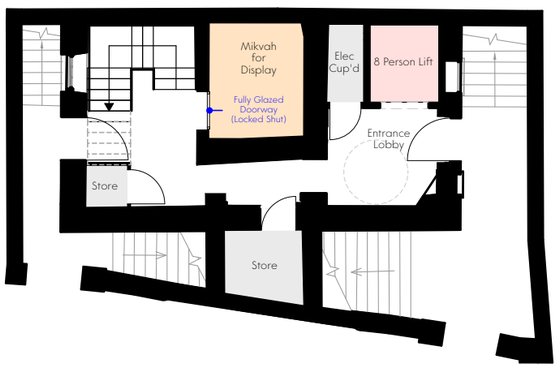


Second Floor Plan

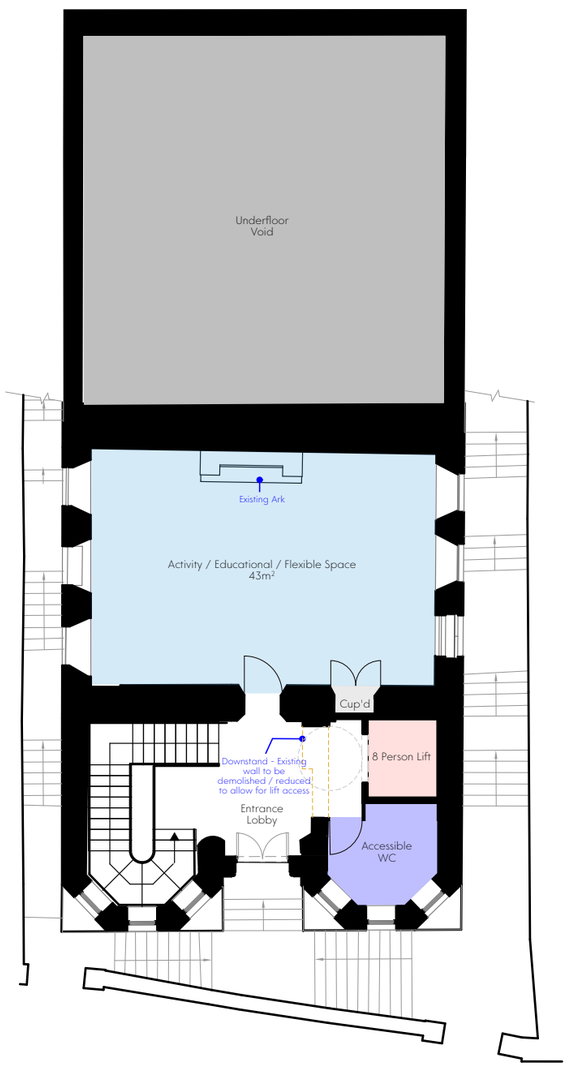


6.2.5 Next Stage Layout Options - Option B

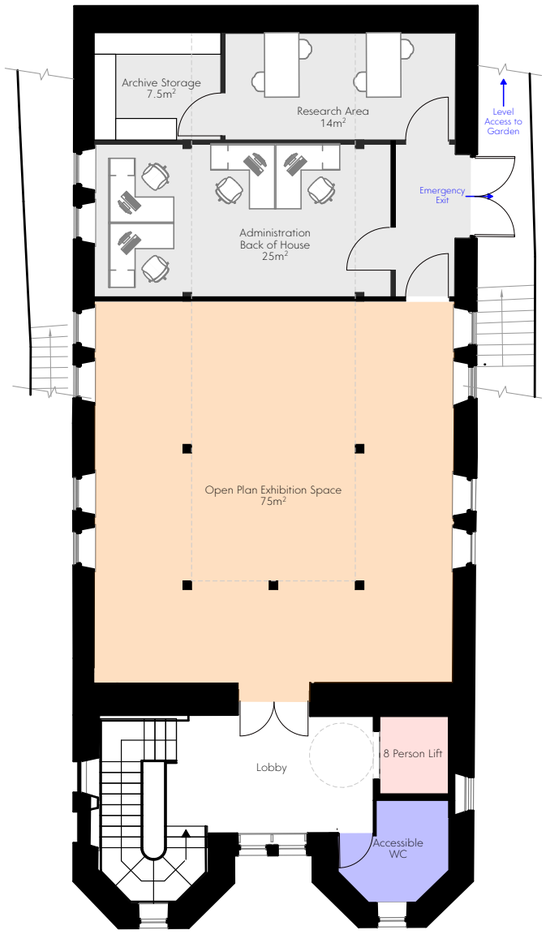
Option B shows this idea of reducing the 2nd floor void by about a half and providing a smaller double-height space, with a balcony around a void forming a 2-storey Exhibition space; and, within the other half, two separate floors of cellular accommodation: and Activity space to the 2nd floor and a series of smaller spaces (for Administration, Archive and Research) on the 1st floor.



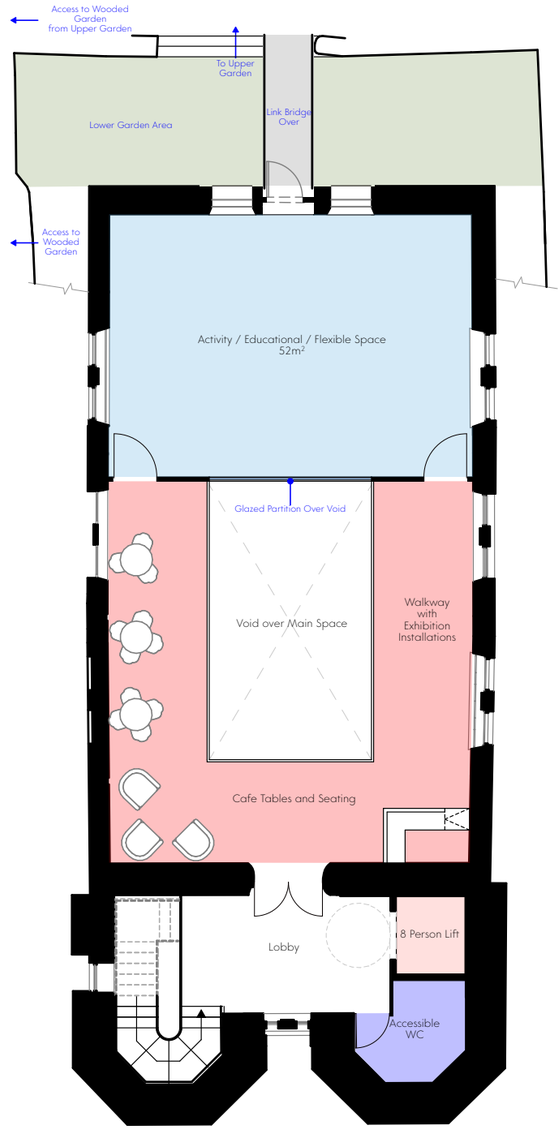
Lower Ground Floor Plan



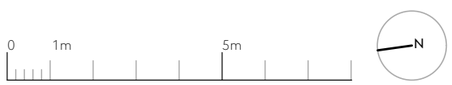
Upper Ground Floor Plan



First Floor Plan



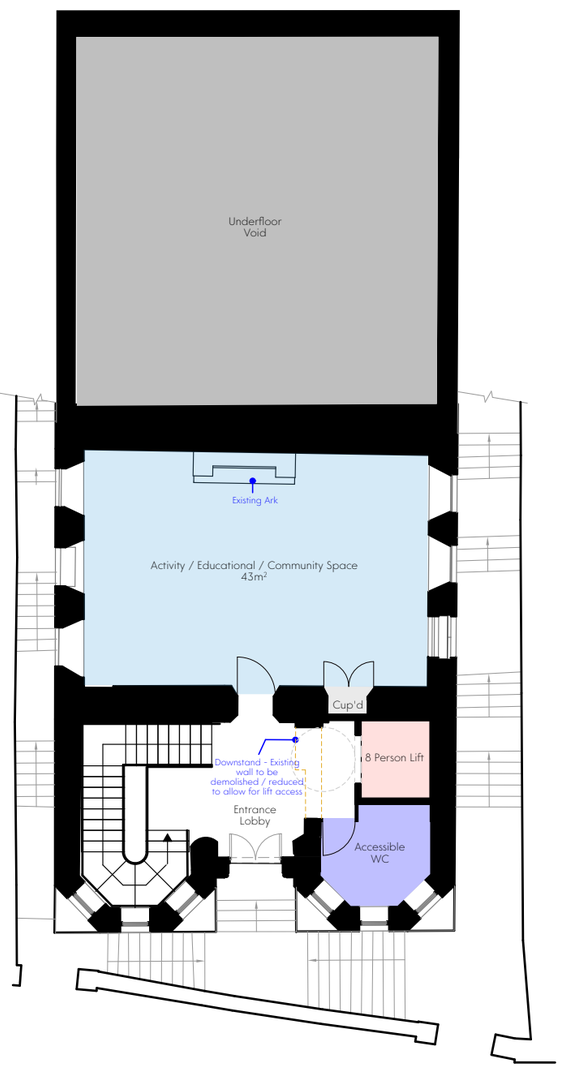
Second Floor Plan



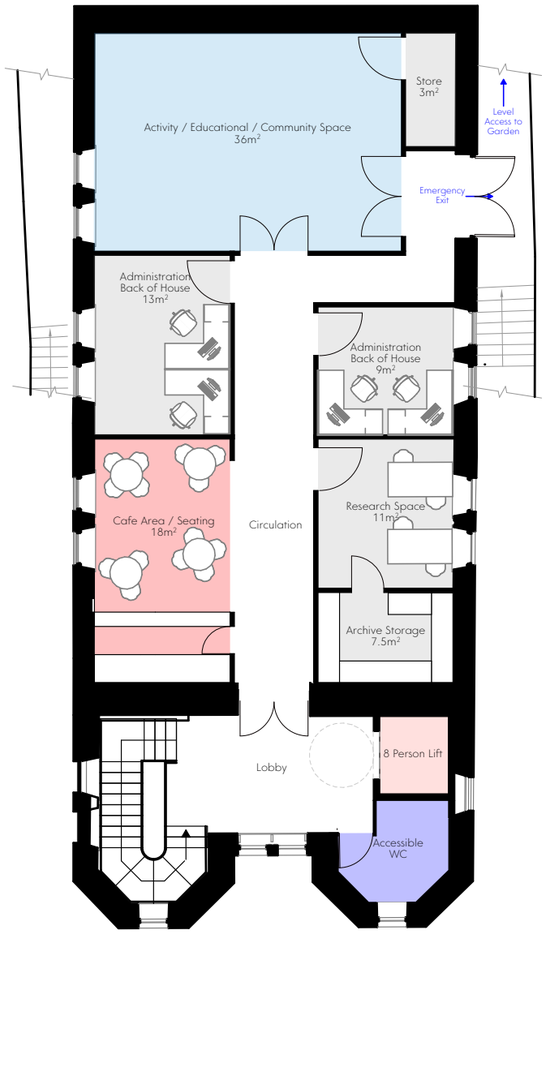
6.2.5 Next Stage Layout Options - Option C

Option C involved a full floor plate to the 2nd floor, set up as the main Exhibition space; and, to the single-storey 1st floor, a series of cellular space, providing a series of smaller spaces (for a Cafe, Administration, Archive and Research) with a larger Activity space at the rear.

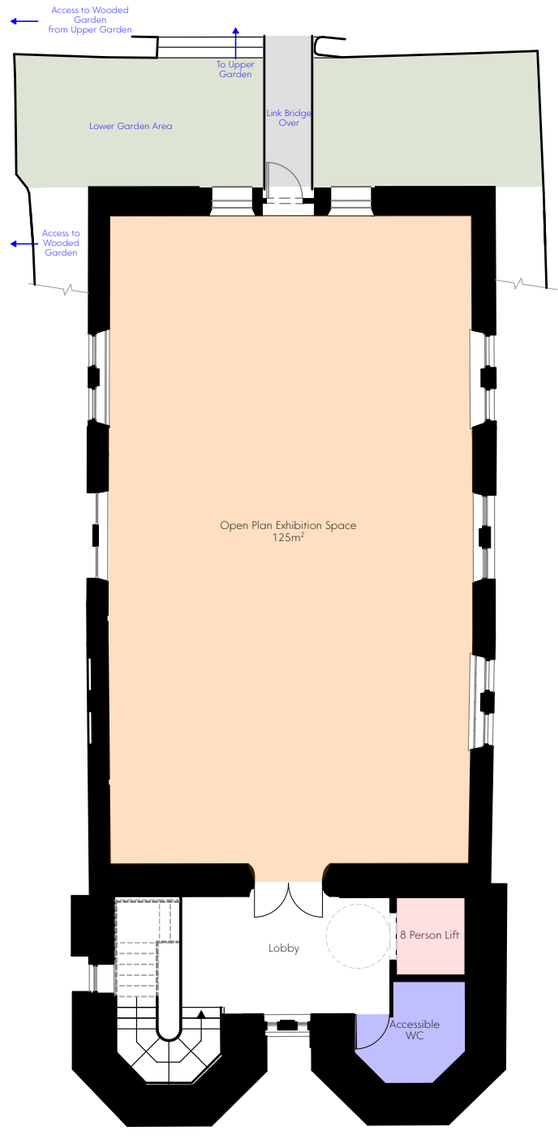
Lower Ground Floor Plan



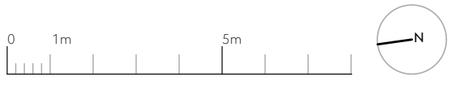
Upper Ground Floor Plan



First Floor Plan



Second Floor Plan



6.3 Preferred Proposal Developed

6.3.1 The Main Exhibition Space

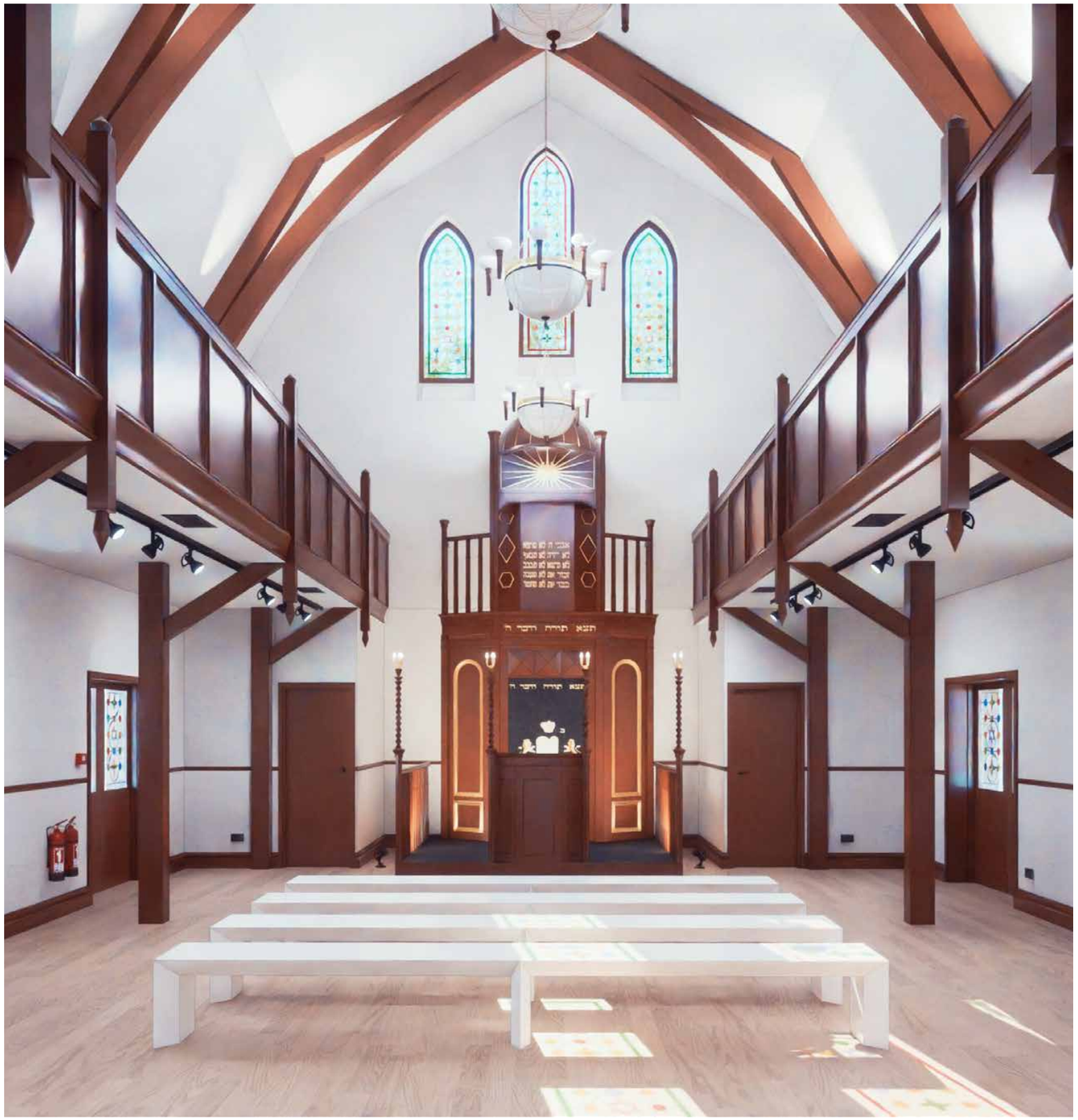
Following the process of developing options, the preferred solution is the one which restores the original Prayer Hall space back to its full-height of two-storeys plus part of the open roofspace, as an unpartitioned space with a 'U'-shaped upper balcony. This was the original vision for the project and, once the acquisition of Primrose Hill had been agreed, as provision for other briefed accommodation, this vision became viable. The concept was to deliver a space, both honest in its restoration and beautiful in its provision; albeit variant for a different use.

The space would no longer be a Prayer Hall for worship, but an interpretative space for education, engagement and contemplation. It is not intended that the space replicates the original lost, Prayer Hall. It is intended that it echoes and respects the lost Prayer Hall in layout, volume and impact; but have its own, more contemporary, character and aesthetic.

The photo below left shows the east end of the Synagogue when it was still in use as such. The three-sided balcony is evident, as is the Ark, the Bema, the pews, one of the feature chandeliers and the coloured leaded windows.

A CGI of the proposals, bottom right, presenting the same view, shows a reconstructed three-sided balcony (in lieu of the current floor), a replacement Ark (extracted from the Langside in Glasgow, as the original Ark is not available), replica chandeliers and new coloured leaded windows. The Bema is omitted, as it would take up too much space.

View of original Synagogue Prayer Hall looking towards Ark *(source: Doreen Jacob)*



CGI of Proposals looking in the same direction

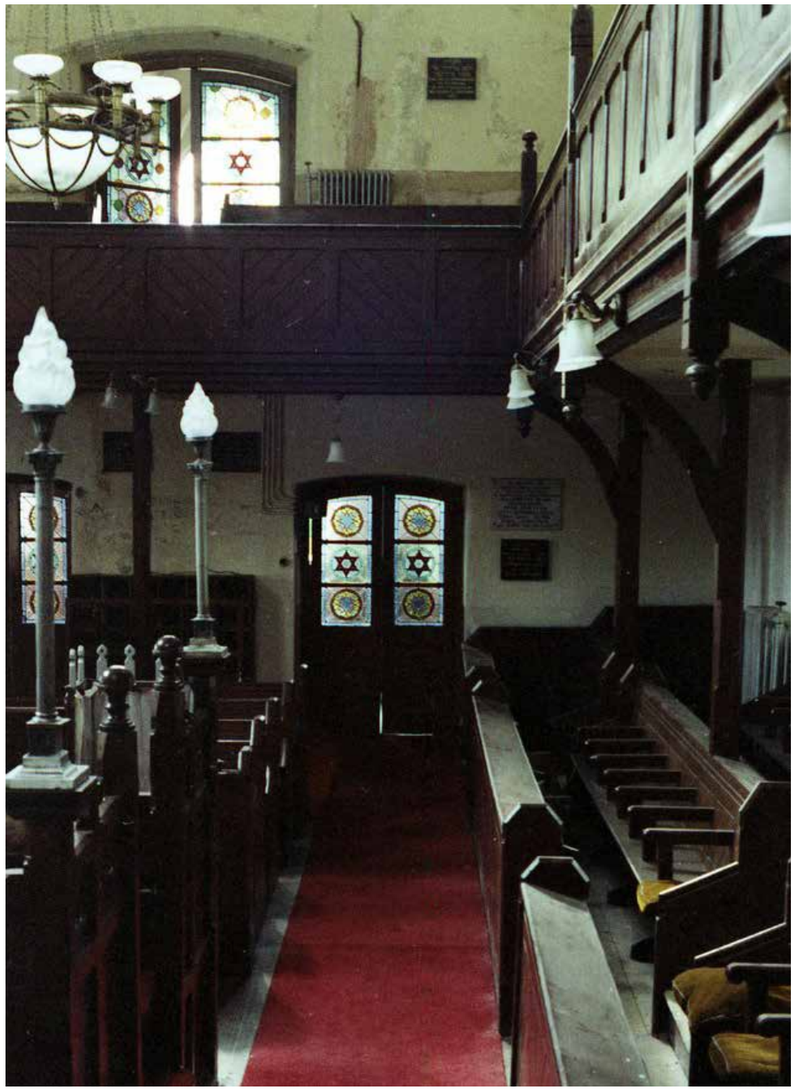
6.3.1 The Main Exhibition Space

However, the new space would differ in many ways too. The intention is not to replicate the original Synagogue in all respects, but to draw inspiration from it and provide a 'new' space which echoes the original.

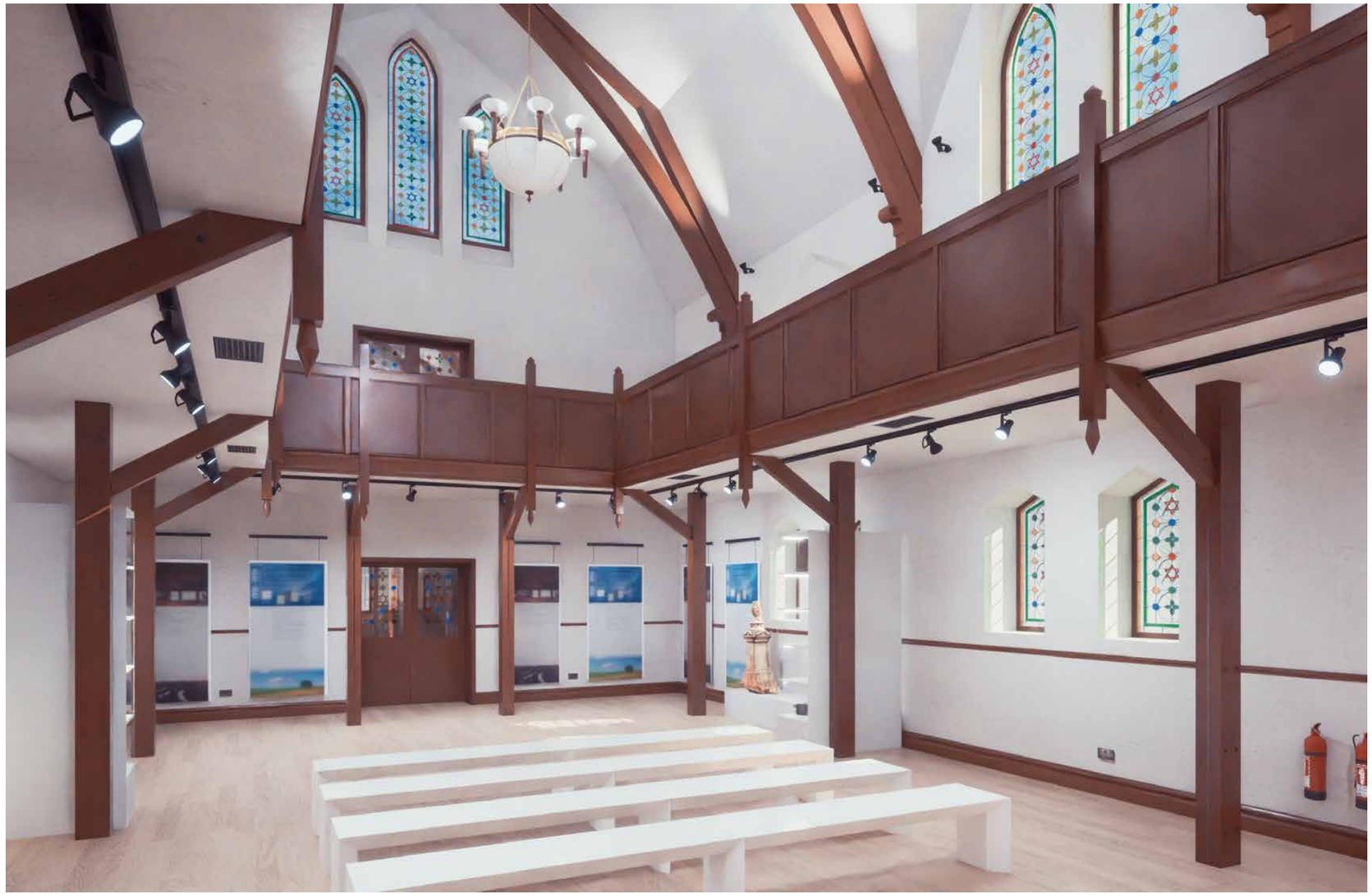
There would no longer be the dark timber pews. These would take up vital space and they would be too dominant. The walls would be light, as well as the floor and ceiling. However, the balcony fronts, columns and trusses would still be the dark brown timber colour they used to be.

Currently, almost all of the windows are badly damaged, with virtually all of the coloured leaded glass lost. Only 3no. of the 'Star of David' lights remain at the top of 3no windows. The proposals repair (or replace like-for-like) all of the window frames to be repaired. Apart from the 'Star of David' lights all of the glazing would be new. To this main space, and other spaces, new colourful design are to be produced by a specialist glass artist, to celebrate an commemorate the building, its heritage and that of the Jewish faith. It is possible that the colours would be fairly dark, so to minimise bright light within the space, thereby avoiding the need for black-out blinds. The glazing is either to be encapsulated into a Slimline double-glazed unit or is to incorporate secondary glazing behind in order to reduce heat loss which, through windows of this size, would be considerable.

This space is then to be furnished with displays of physical and audio-visual nature and provided with all the necessary facilities to meet the aspirations for the space. This is to be developed further during the next stage of the project; however, on the next page are three CGIs showing how the space might look, prepared by Interpretation Designers 'Creative Core'.



Internal Photo (c.1978) looking towards entrance doors
(source: 'alangeorge.co.uk' website)



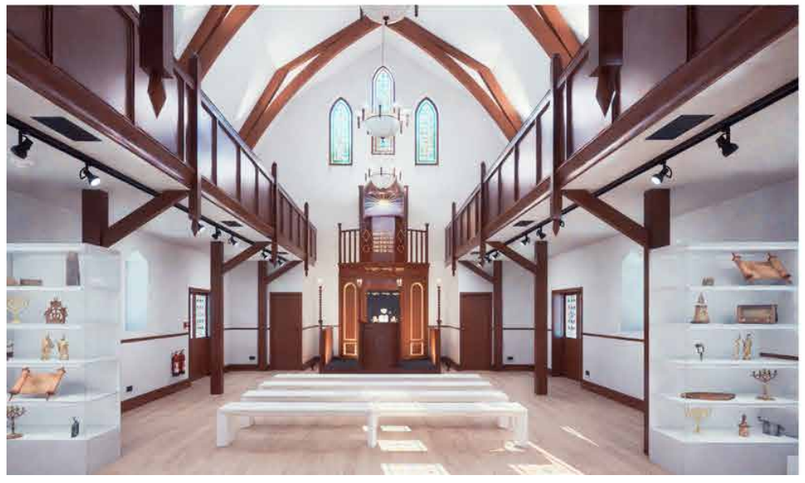
CGI of Proposals looking in the same direction

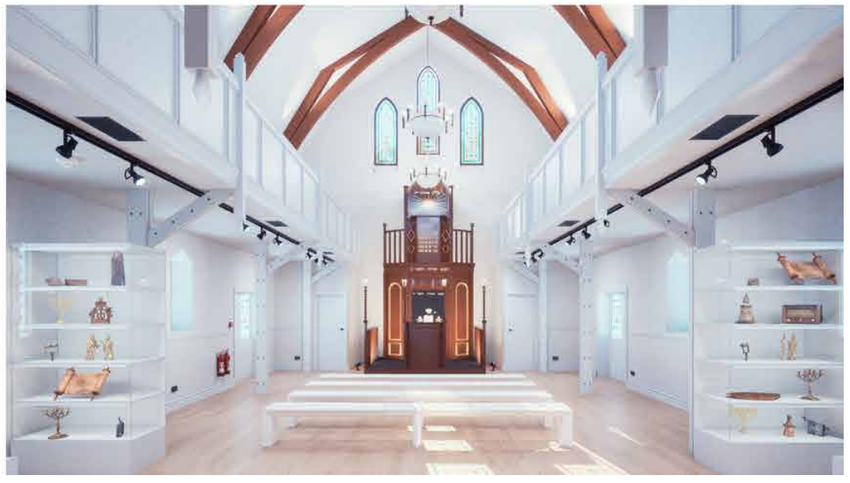
6.3.1 The Main Exhibition Space

A study was undertaken to determine whether the balcony construction should be:
Dark wood in colour (to match the original);
Light wood in colour (to brighten up the interior a little); or
White in colour (to be contemporary in appearance).

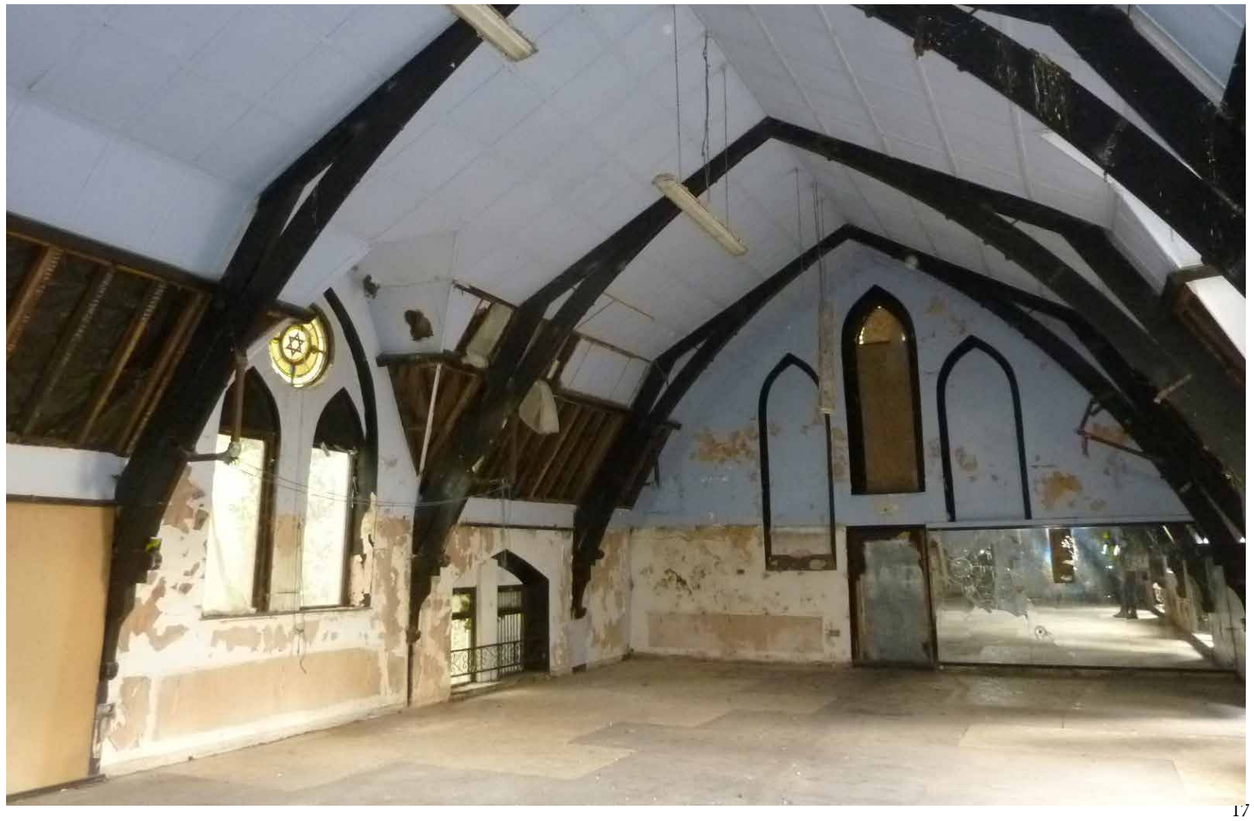
Same visuals testing the different wood colours were produced - see below.

The decision was to stick with the darker wood to match the original - not least, as the existing trusses are already this colour; however, to ensure the walls and ceiling were light and bright, in an off-white colour.

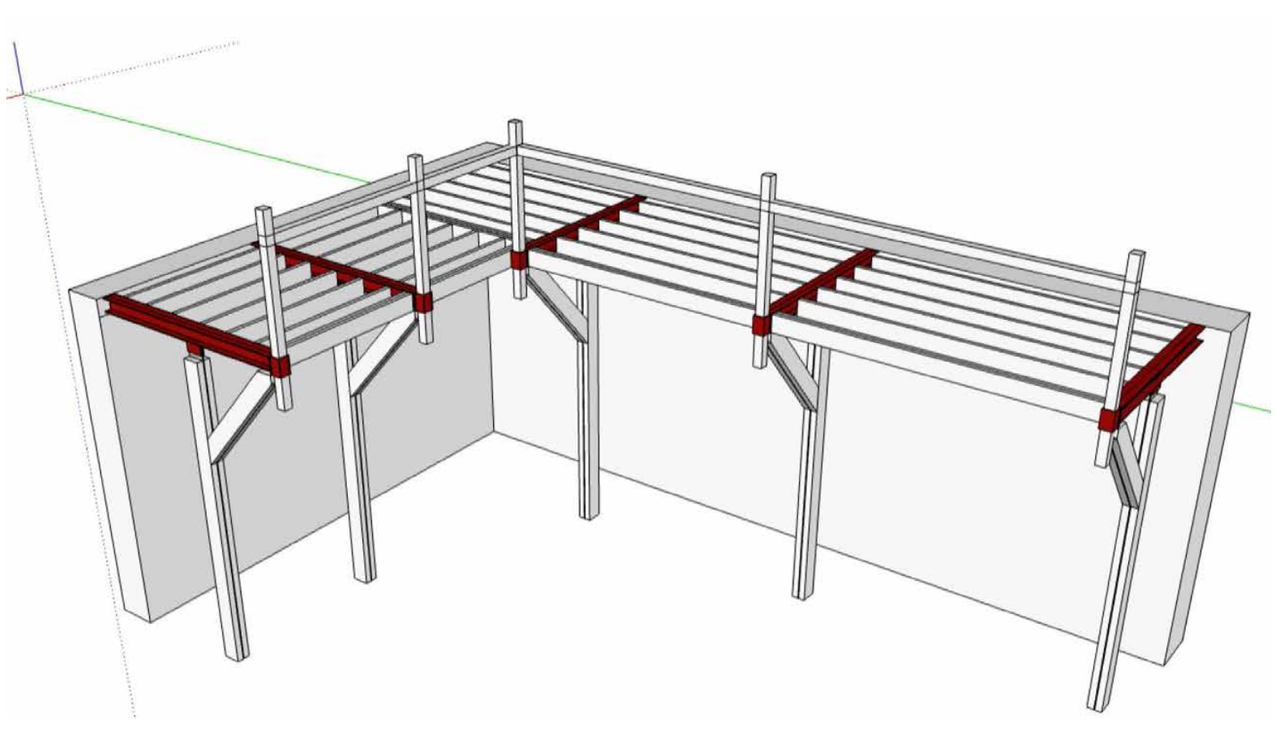


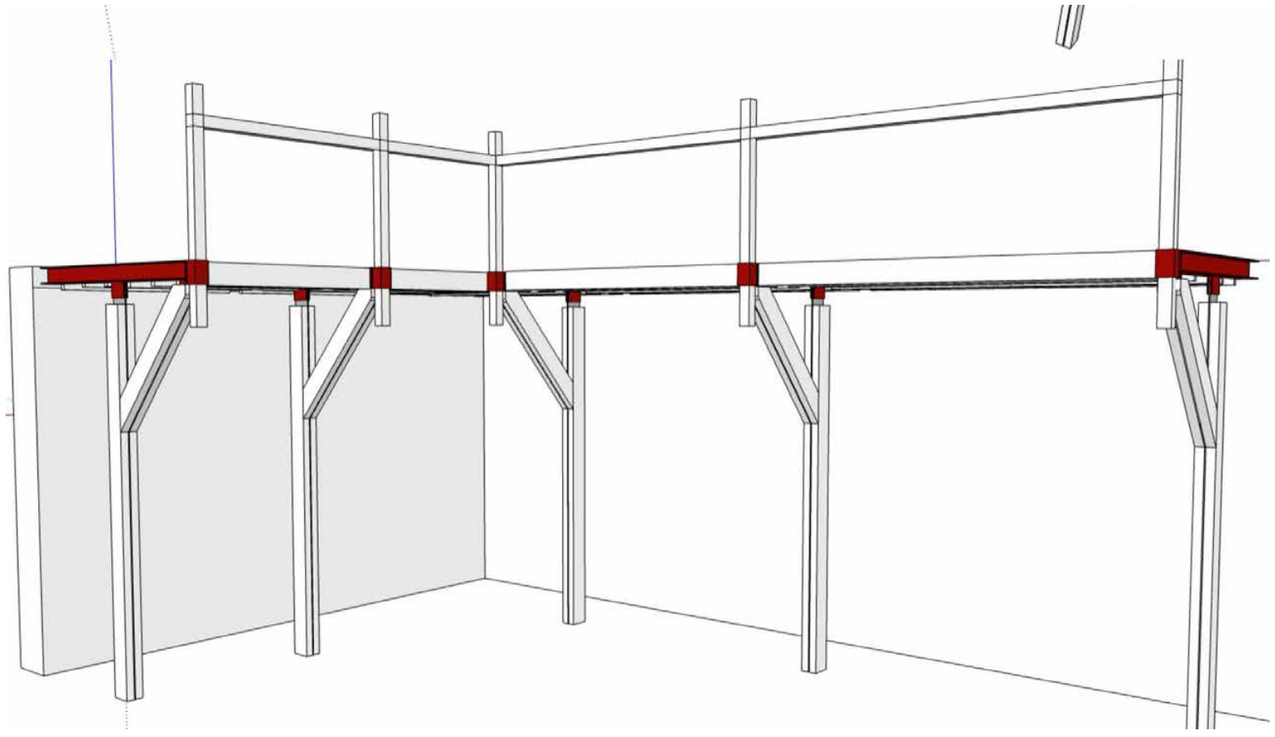


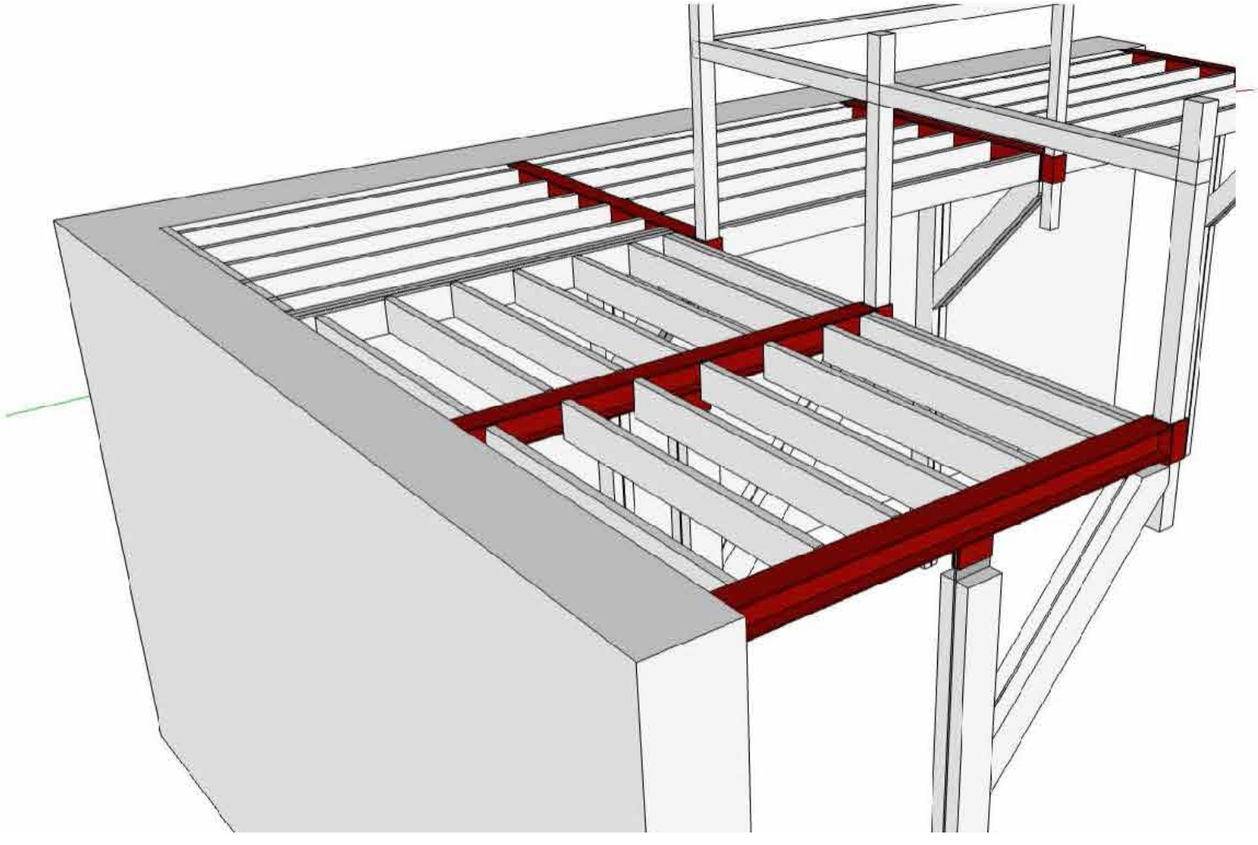
6.3.1 CGIs showing how the space might look (prepared by 'Creative Core') ***with Main Space at First Floor to the Left and Upper Level Balcony to the Right (with photo of existing from similar view below)***

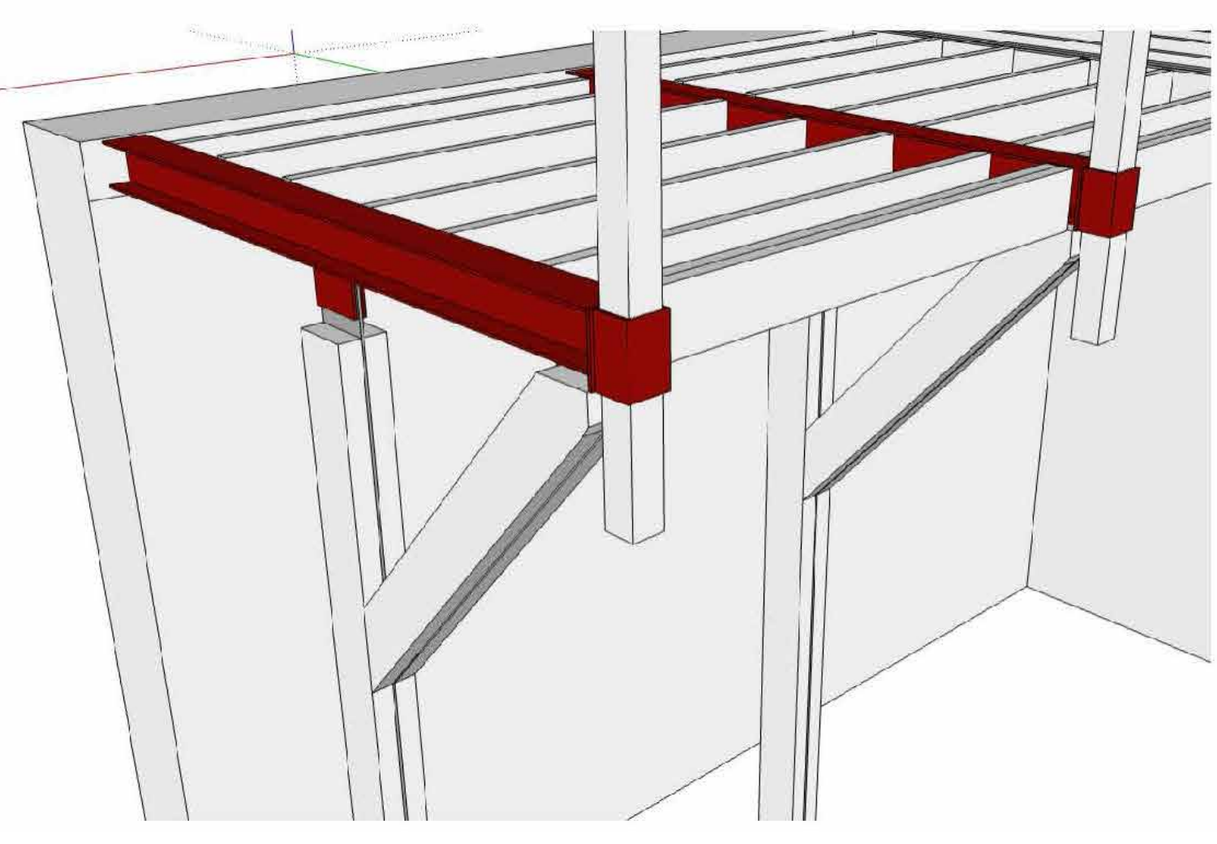


6.3.1 Proposed Approach to Structure for First Floor Balcony, *produced by Mann Williams Structural Engineers*









6.3.1 The Main Exhibition Space

Below are the floor plans of the main Prayer Hall space in 1978 when still in use as a Synagogue, produced by (then) students of the Welsh School of Architecture (Chris Loyn, Duncan Lawrence and Paul Hutchison), kindly supplied to Mann Williams by Chris Loyn and reproduced herein with thanks to Messers Loyn, Lawrence and Hutchison. To the right are the proposed floor plans of the main Exhibition space.

The new 3-sided balcony to the second floor matches that of the original, albeit without the pews. The balcony would be at least 1100mm high, in order to meet Building Regulations. It is not known whether the original balcony was that high or not (probably not), but it makes sense to ensure that the new one is safe and adheres to legislation.

To the main first floor, the columns from the balcony likewise match their location originally. It must be said that the columns are shown in the wrong place on the 1978 plan, as they were in board of the balcony edge, as the proposals locate them.

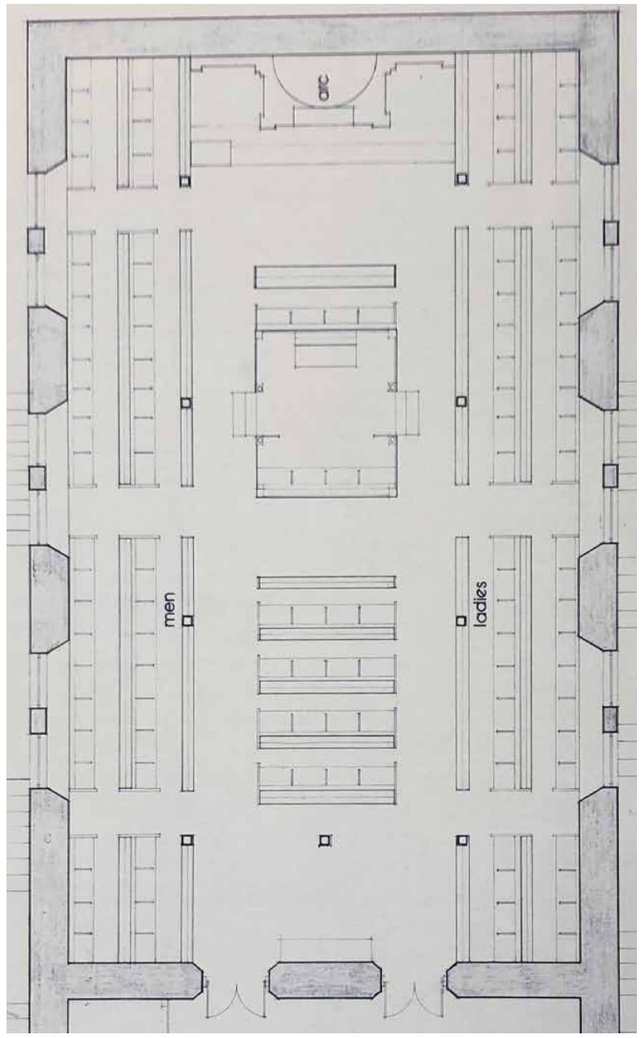
Along the short (west) side, however, there were originally 3no. columns, whereas the proposals show 4no. This is because, since 1978, the two doorways to the room have been filled in and a single, central doorway formed. To locate a column immediately opposite the single doorway would be wrong, and so 2no. columns are now proposed either side of the centre line.

As stated, the original Ark has been removed and is not available for reinstatement; and so the Ark from the now-closed Langside Synagogue in Glasgow would replace it, and would be located in exactly the same location. That Ark is currently in storage and images of that are shown on the next page. If installed with the full set of steps in front of it, the height of the Ark would extend above the window cills. As a result, the Ark would be reinstated with the platform in front of it much lower and only one set of steps included.

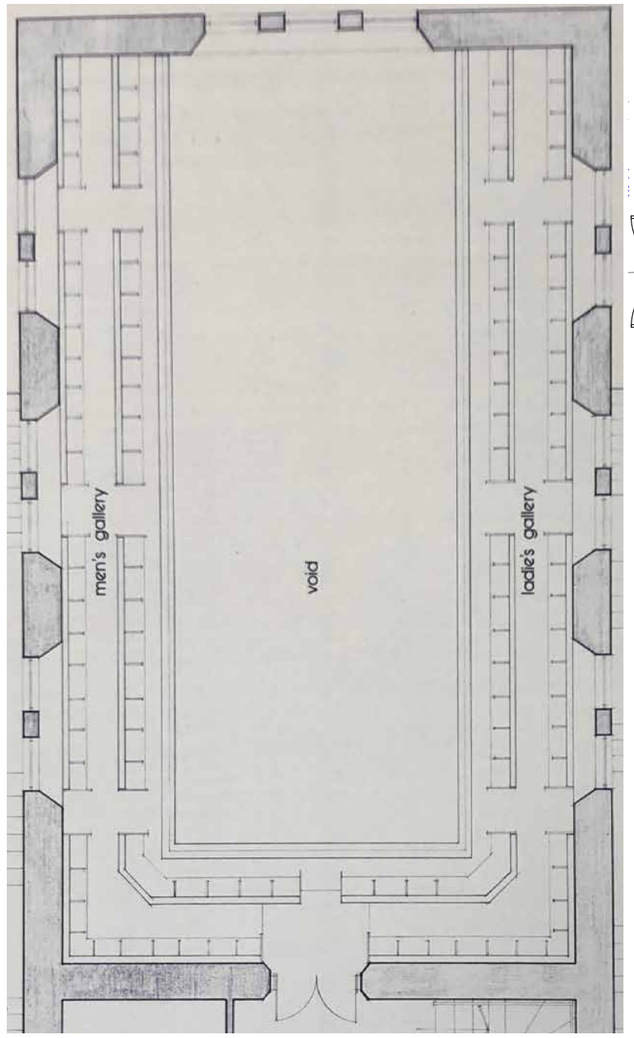
Either side of the Ark, two single-storey partitions forming store rooms are proposed. This is necessary due to the fact that there are no other areas suitable for storage; and is deemed to work well nestled underneath the balcony and providing framing to the Ark.

Also shown on the proposed second floor plan (as yellow circles) are the chandeliers proposed to replicate the originals as closely as possible.

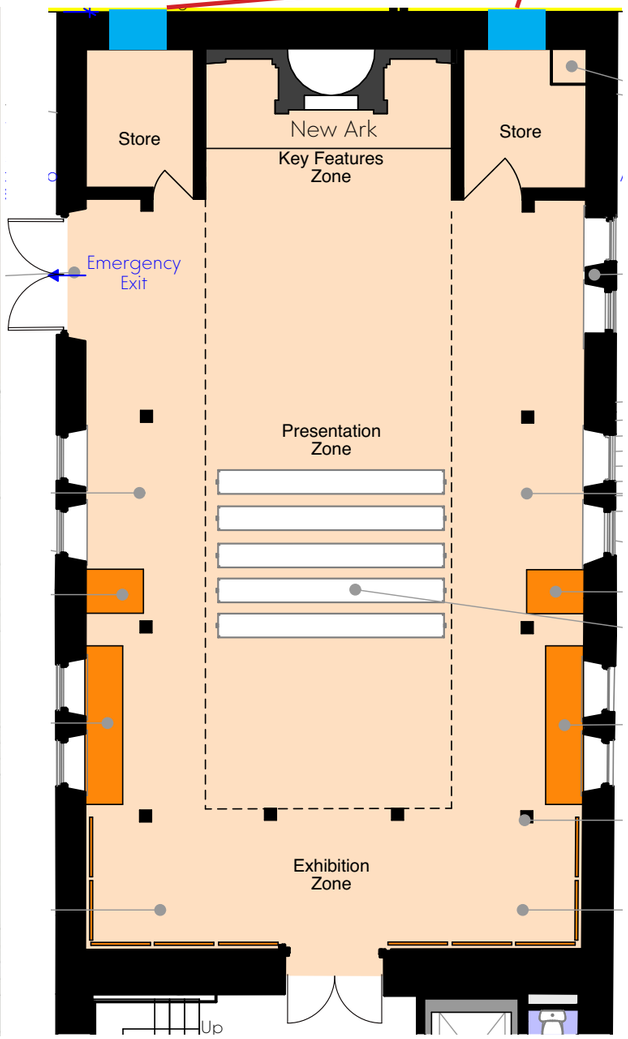
A matter is explained within the 'External Proposals' document relating to the means of forming two openings in the back wall of the Synagogue to gain access to the rear retaining wall and steps in order to undertake their safe stabilisation and retention. This involves the careful dismantling of two sections of masonry, each at approximately 1.2m wide x 2.2m high. Both openings would be infilled on completion, with the stones taken out numbered and reinstated; albeit with one smaller opening left for the ducts form the Air Source Heat Pump to pass. These two openings are identified on the plan below in blue.



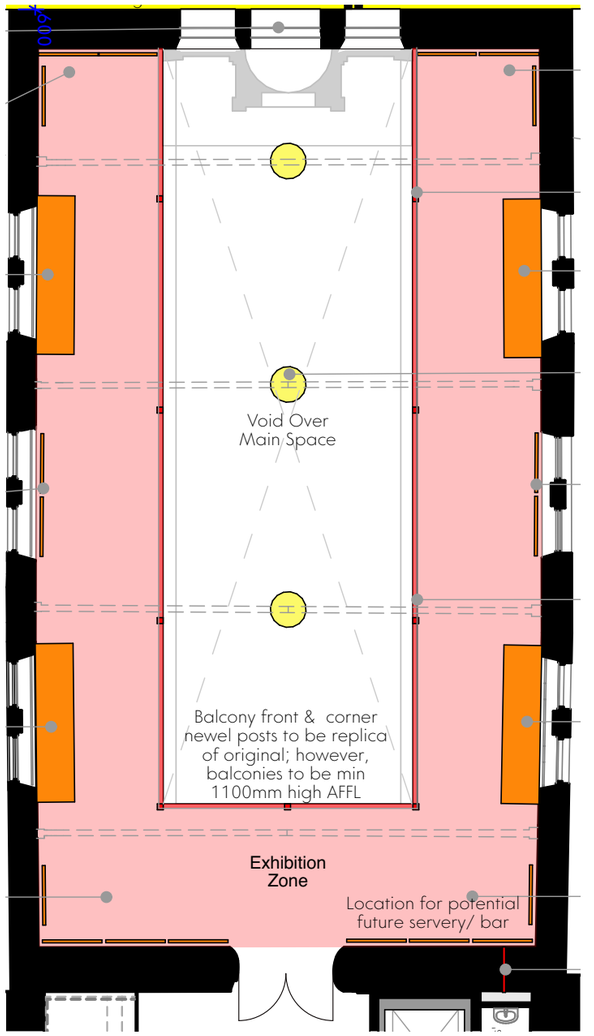
First Floor Plan in 1978 showing Prayer Hall



Second Floor Plan in 1978 showing Prayer Hall



Proposed First Floor Plan showing Main Hall



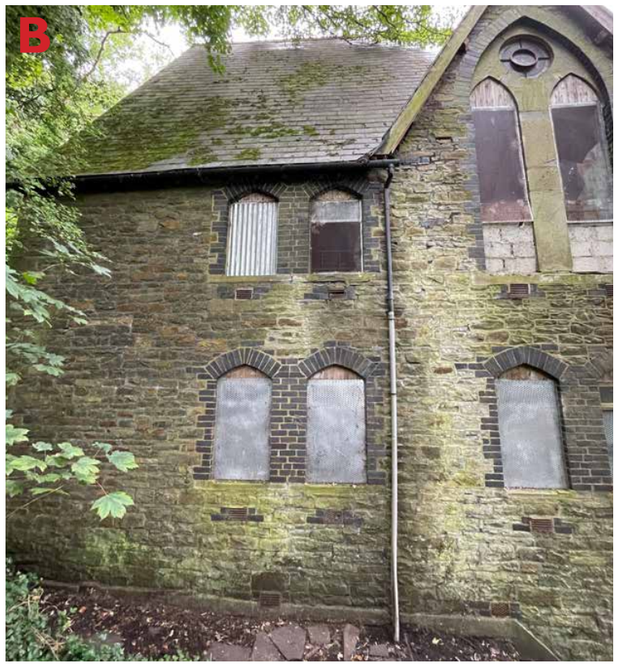
Proposed Second Floor Plan showing Main Hall

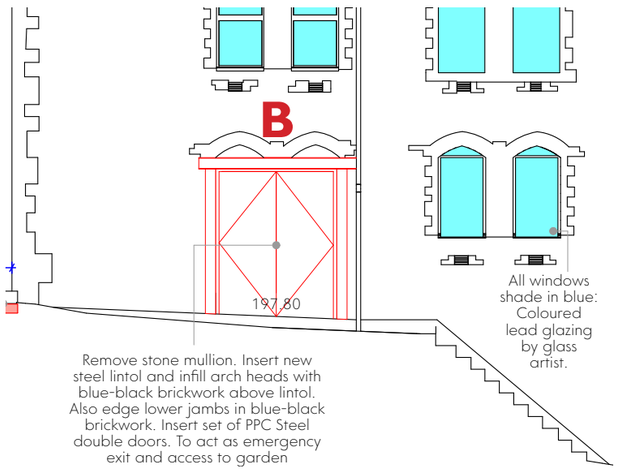
6.3.1 Photos of the Langside Ark proposed for installation

The images to the left and centre are of the now-closed Langside Ark still insitu in Glasgow, and reproduced courtesy of the 'Jewish Small Communities Network'; whilst the images to the right show the pieces of the Ark safely in storage, ready for installation.

6.3.1 External Doors to the Main Exhibition Space

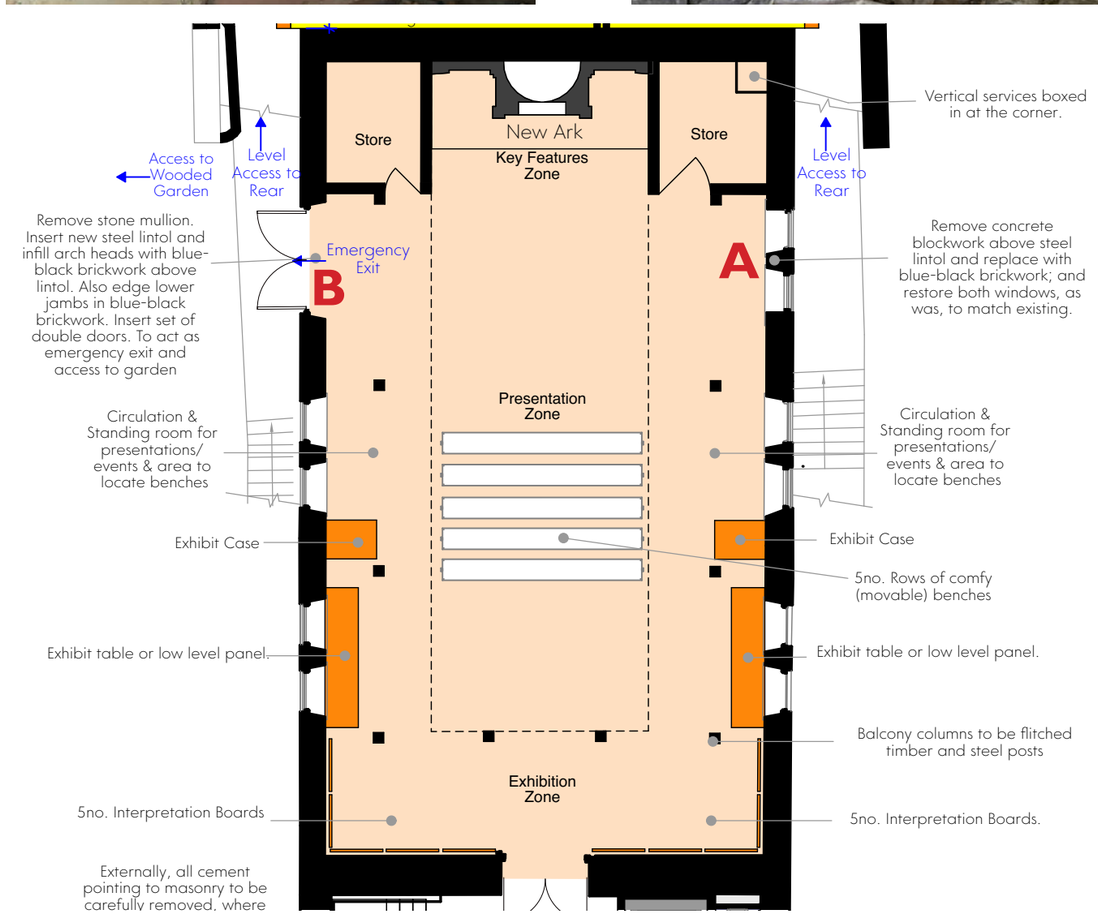
Since the building ceased to be used as a Synagogue, the two first floor windows at the east end of the south elevation (see 'A's on Plan, Elevation and Photos to the right) were removed and a larger opening formed which included a set of emergency escape double doors. To the north elevation, these windows still exist (see 'B's on Plan, Elevation and Photos to the left). However, with the garden to the north of the building, the opportunity to connect, at the same level, the main space in the building with the main space within the garden is a very significant opportunity which cannot be missed. Not to do so would result is a disconnect between the building and the garden, and no opportunity for people with restricted mobility to access the garden, as the steep steps would be the only option.





Extract of Proposed North Elevation

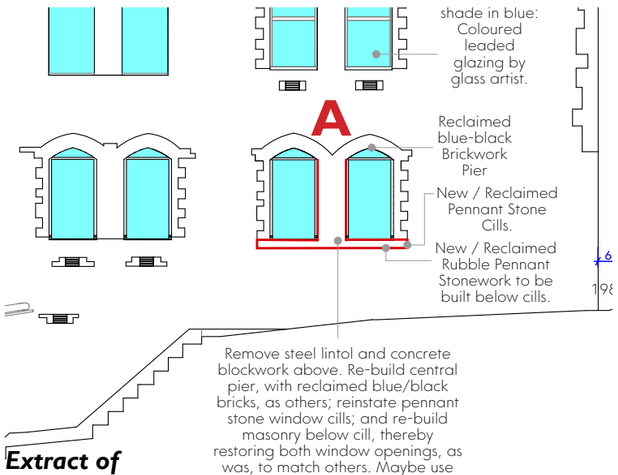
In addition, as was realised when the south elevation doors were incorporated, a secondary emergency exit is required; and this location would be ideal for that, providing escape to the garden, and access for all off the site. The current door to the south elevation would provide only access to the steep steps, with no level access. As a result the proposals seek to open up these two windows to form a larger opening for a set of double doors.



Proposed First Floor Plan showing Main Exhibition Hall

Because the existing south doors would be of no use (i.e. no access to the garden and no level or suitable escape); and because low level wall space inside the building is at a premium; the proposals bring back the two windows, as original. As a result, the impact is no change, just moving the doors to the other side.

The formation of the larger opening would be done more neatly than the previous version (see descriptions below); whilst the windows would be accurately reinstated.

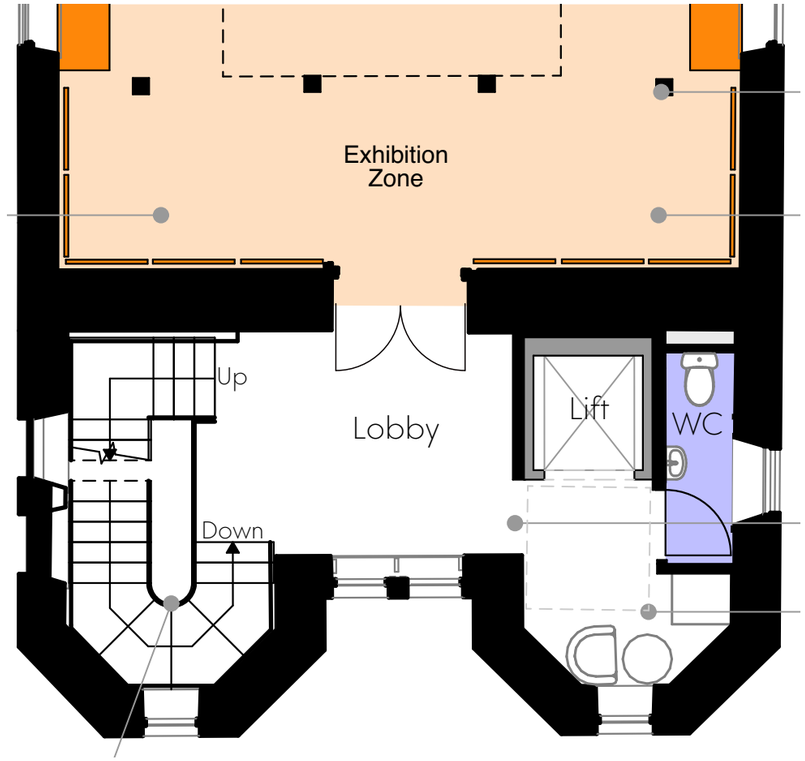


Extract of Proposed South Elevation

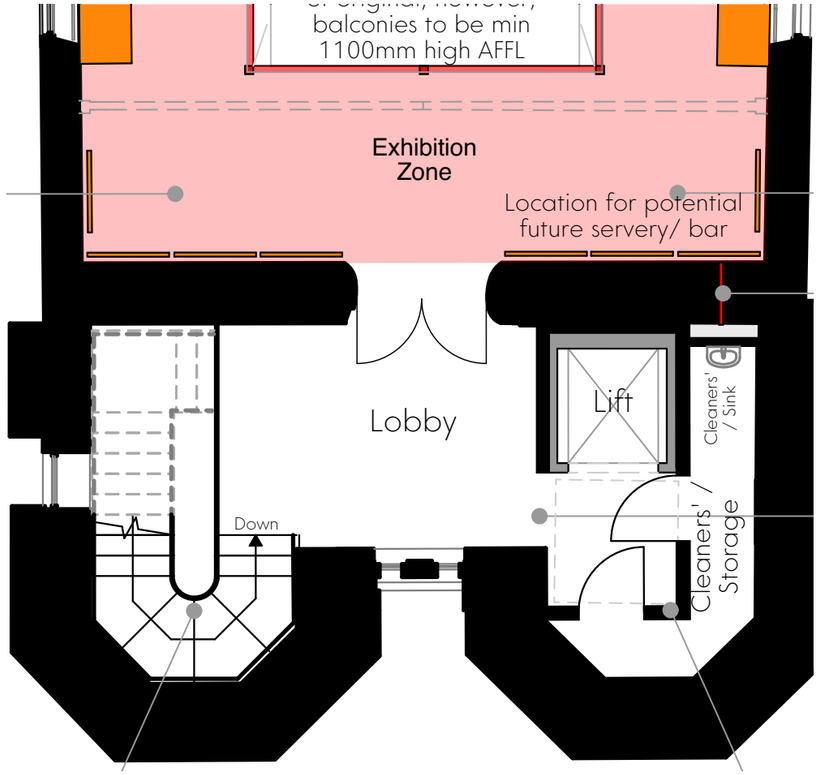
6.3.2 Front Range

The front range of the building is the only part of four storeys. It has always provided entrance, reception, circulation and toilets. The proposals seek to re-use it for the same purposes. However, one significant change is required; that of installing a passenger lift shaft and lift. The building has no such provision and, at 4-storeys, a lift is essential. Being the only part of the building spanning these 4-storeys, the lift must be in this range.

The main ground floor level is a storey above the pavement, with a significant set of steps leading up to the entrance. There is no means of wheelchair access up to this level, and, of course, the levels above. However, fortunately, the lower ground floor is about the same level as the pavement and there are doorways into it on both sides. Access to the left-side door is too tight for a wheelchair to manoeuvre, however access to the right-side door is notably wider. Installing a lift in this right-hand bay would allow it to rise through all four floors. Currently, the staircase is split across the left and right bays; so, moving the whole staircase to the left bay provides for both lift and stairs over all floors. The lift requirements are subject to a detailed design. It is possible that the lift shaft will require additional headroom beyond the roof structure, possibly only for installation of the lift itself; and/or possibly for one-off future maintenance. To achieve this, a section of the roof rafters, insulation, membrane, battens and slates is to be independent of the rest, allowing for installation after the lift and possible removal in the future. In terms of appearance, the roofline will be unimpacted.



Proposed First Floor Plan of Front Range



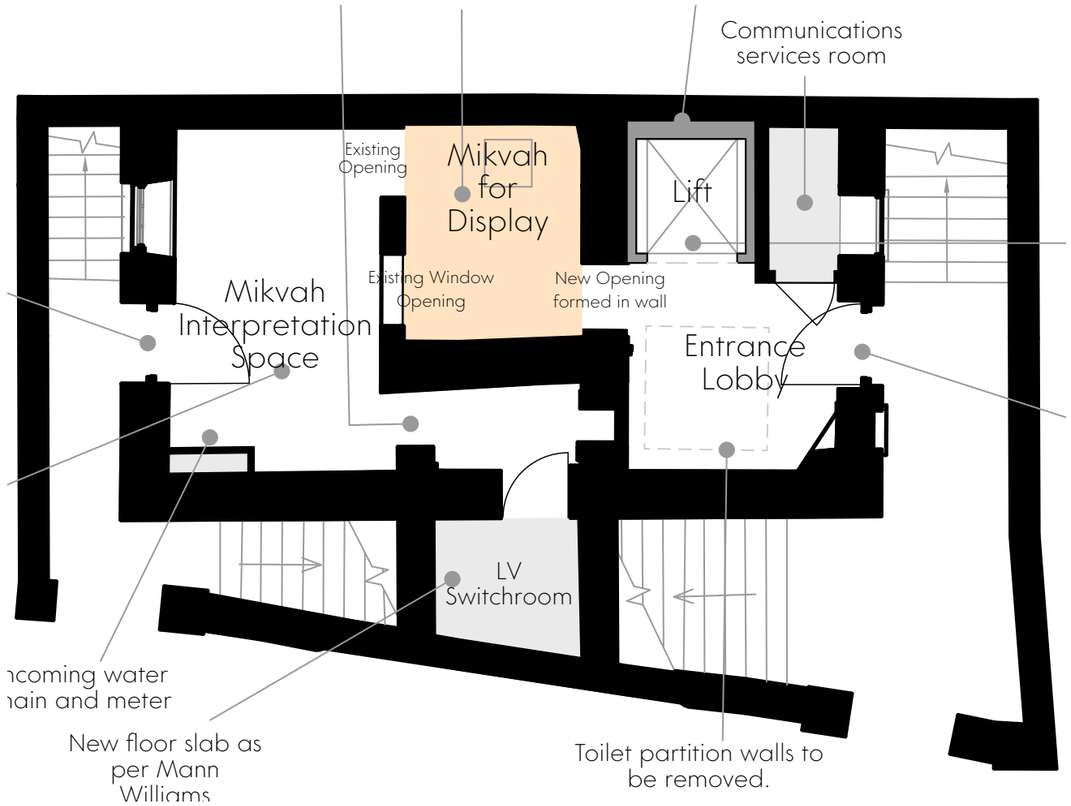
Proposed Second Floor Plan of Front Range

Once the lift shaft and the staircase take up most of the two side bays, and the circulation lobby is in the centre, the remaining space to the first and second floors is given over to toilets, stores and seating areas. This is the same for the south bay of the upper ground floor.

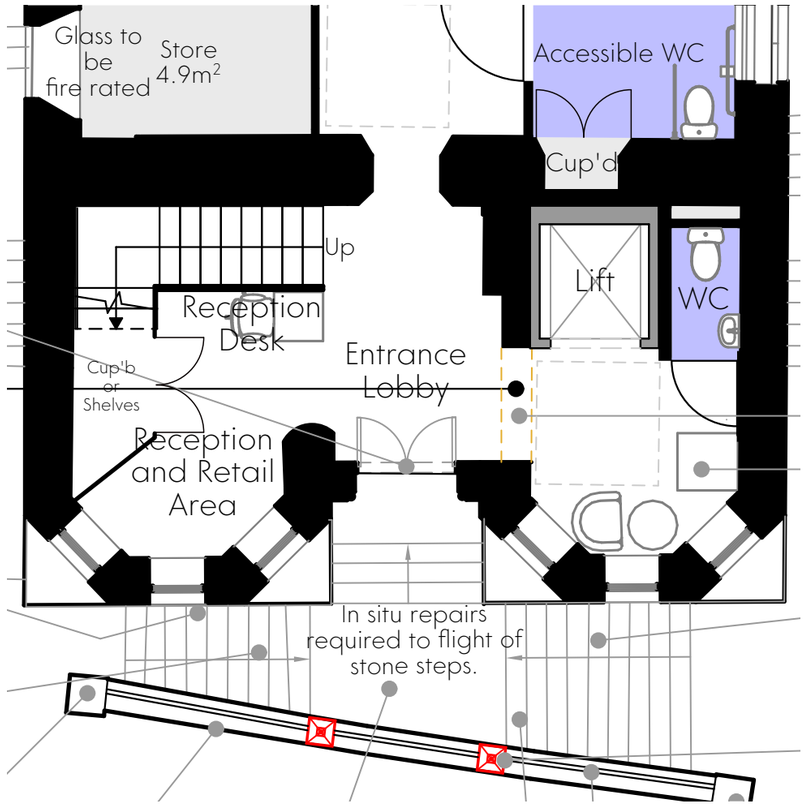
Within the lower ground floor is the original Mikvah (the Jewish ritual bath used for purification), albeit with its tiling lost. This will form part of the exhibition with an interpretation space alongside. There is currently no internal staircase linking the lower and upper ground floors, and the proposals retain that disconnect, with two sets of external steps and the lift providing that access. To form the link, a section of walling on the mikvah's south side is to be removed to provide access.

The lower ground floor would also accommodate the incoming services (as it does currently), an LV switchroom and the communications room.

As a result, there is space on the ground floor, below the rising staircase, for a Reception and Retail Area with storage behind.



Proposed Lower Ground Floor Plan of Front Range



Proposed Upper Ground Floor Plan of Front Range

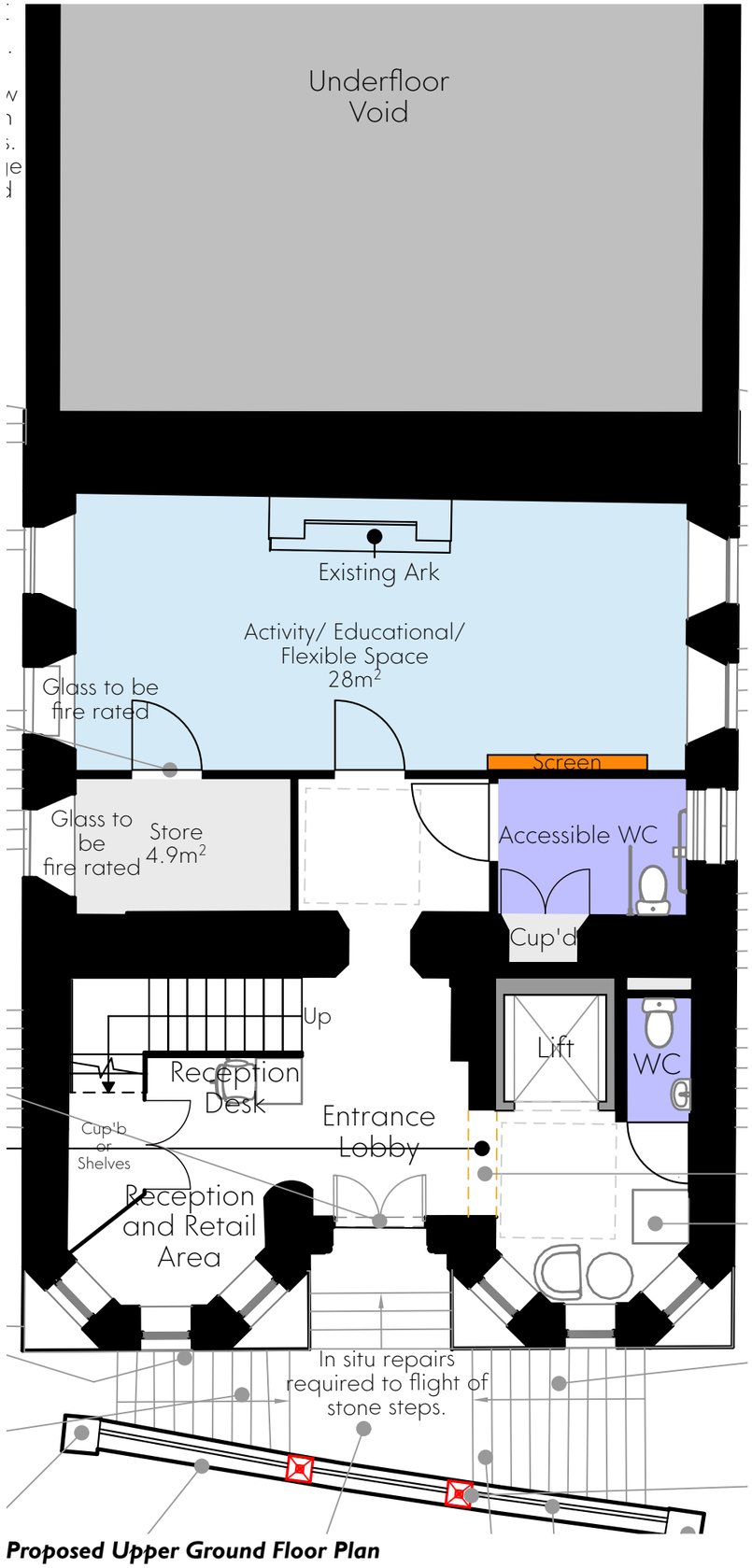
6.3.2 Upper Ground Floor

Behind the front range to the upper ground floor is the original School Room, with the one remaining Ark. There are 3no. windows on both sides, all blocked up currently.

The proposals would use this room as an Activity / Educational / Flexible Space, with the Ark retained and restored.

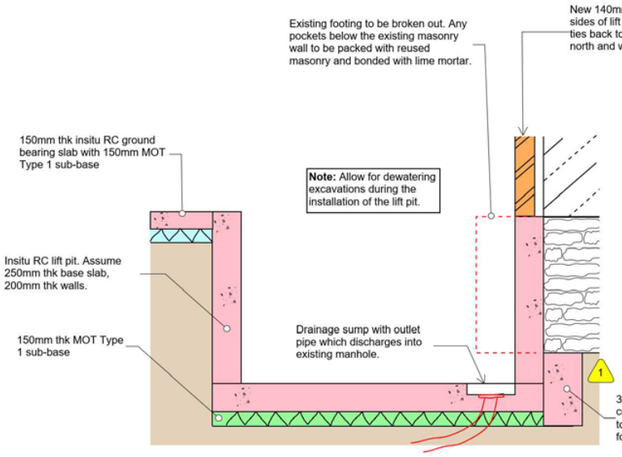
To the front range, with the staircase and lift both essentials, as well as the circulation space in front of the lift, it is not possible to fit an accessible WC. However, it is essential that there be at least one accessible WC within the building. As a result, the accessible WC has been located within the first of the three bays of the original School Room. It would be serviced from the water and drainage runs in the front range.

The result of this is to reduce the main room from three to two bays, and insert a store room on the opposite side of the WC.

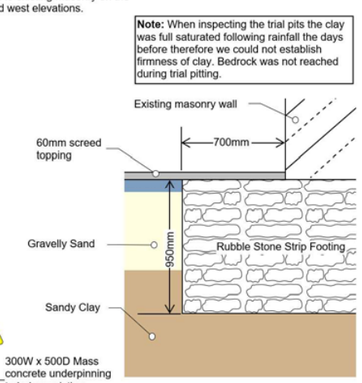


Proposed Upper Ground Floor Plan

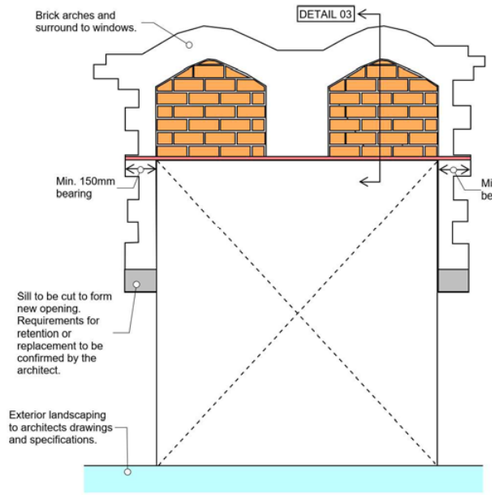
6.3.3 Structural Engineering Details - On this page are the Structural Engineers Proposed Details relating to the Lift Pit, the formation of the First Floor External Door, the Balcony Structure and Intermediate Floor Supports



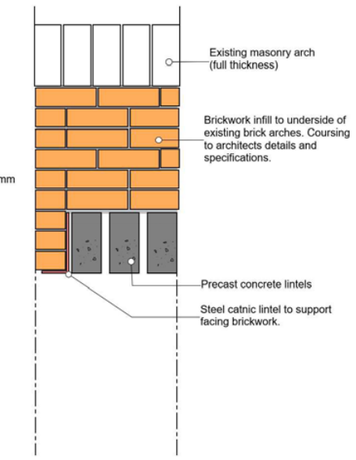
DETAIL 01 - PROPOSED LIFT PIT
SCALE 1:20



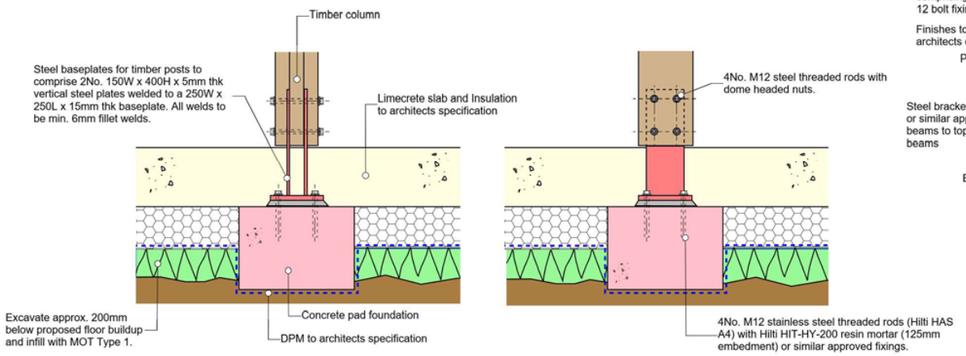
DETAIL 02 - EXISTING WALL FOOTING
SCALE 1:20



PART ELEVATION 01 - PROPOSED OPENING THROUGH EXISTING DOUBLE WINDOW.
SCALE 1:10

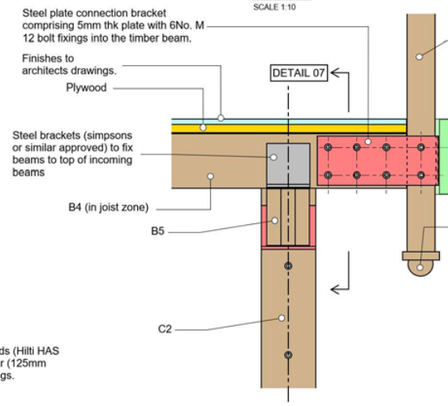


DETAIL 03 - PROPOSED OPENING AND WINDOW INFILL DETAIL
SCALE 1:10

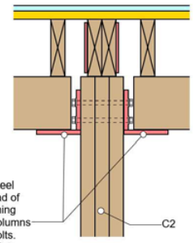


DETAIL 04 - TYPICAL TIMBER POST
SCALE 1:10

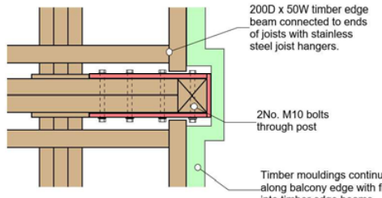
DETAIL 05 - TYPICAL TIMBER POST
SCALE 1:10



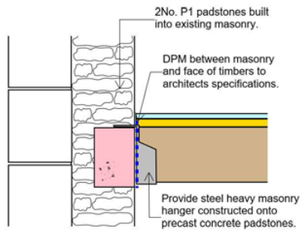
DETAIL 06 - BALUSTRADE POST TO BEAM AND BEAM TO COLUMN CONNECTION
SCALE 1:10



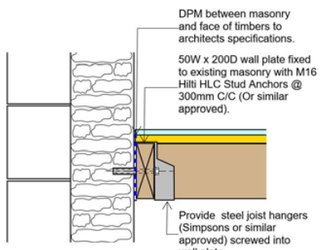
DETAIL 07 - TIMBER BEAM TO COLUMN CONNECTION DETAIL
SCALE 1:10



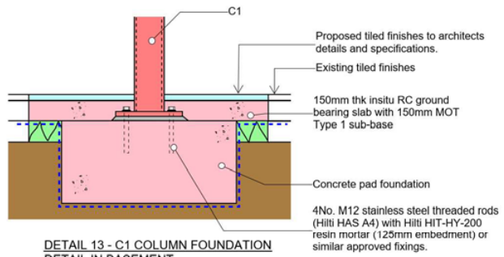
DETAIL 08 - PLAN VIEW OF BALUSTRADE POST TO BEAM CONNECTION
SCALE 1:10



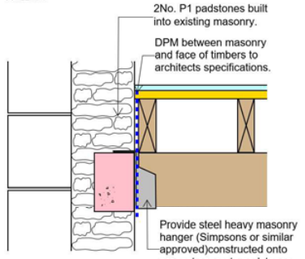
DETAIL 09 - BEAM B4 TO EXISTING MASONRY CONNECTION
SCALE 1:10



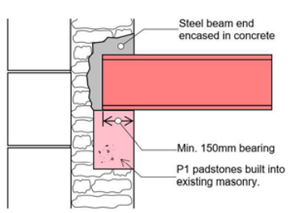
DETAIL 10 - TYPICAL JOIST TO WALL PLATE CONNECTION TO EXISTING MASONRY
SCALE 1:10



DETAIL 13 - C1 COLUMN FOUNDATION DETAIL IN BASEMENT



DETAIL 11 - BEAM B5 TO EXISTING MASONRY CONNECTION
SCALE 1:10



DETAIL 12 - TYPICAL STEEL BEAM TO EXISTING MASONRY CONNECTION
SCALE 1:10

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5. Only figured or calculated dimensions should be used and no drawing , in any format should be scaled.

CDM RESIDUAL STRUCTURAL AND ENVIRONMENTAL RISKS

1. Risk of undermining existing wall footings during excavations for lift pit.

In accordance with the Contractors (Design & Management) Regulations 2015, Mann Williams has undertaken a design risk assessment for the elements of work shown on this drawing, residual risks are identified above.

REV	DESCRIPTION	BY	DATE
P1	PRELIMINARY	JB	28.02.24

P PRELIMINARY T TENDER CONSTRUCTION

PROJECT
MERTHYR TYDFIL SYNAGOGUE

TITLE
STRUCTURAL DETAILS - SHEET 1

MANN WILLIAMS
CONSULTING CIVIL AND STRUCTURAL ENGINEERS
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E cardiff@mannwilliams.co.uk

DRAWN	CHKD	SIZE	SCALE	DATE
JB	PR	A1	AS SHOWN	27.02.24

STATUS
PRELIMINARY

PROJECT	DRAWING	REV
9684	301	P1

6.3.3 Structural Engineering Details - On this page are the Structural Engineers Proposed Details relating to the Floors, Staircase Supports, Lift Shaft and Other Supports to the Lower and Upper Ground Floors

KEY

- Existing floors to be retained
- Existing floors to be strengthened / repaired by augmenting existing or adding new elements.
- Proposed new or replacement floors
- Existing beams / lintels
- New beams
- One way spanning
- Two way spanning
- ## Beams located within joist zone

MEMBER SCHEDULE

FLOORS

S1 150mm thk insitu RC slab (1xA393 mesh) on 150mm MOT Type 1 sub-base

S2 New 200x50 (C24) Timber joists @ 400mm C/C topped with 1No. layer of 18mm hardwood plywood

S3 200mm thk limecrete slab on assumed 150mm thk insulation (to architect's specification)

A Existing timber joists to be retained and reused where required. Allow for replacing 25% of joists like for like over full area. Assume 200x50mm joists @ 400 C/C

B Double up existing joists by adding new 50Wx200D joists in existing spaces between joists. Existing timber joists to be retained and reused where required. Allow for replacing 25% of joists like for like over the full areas. Assume 200x50mm joists @ 400 C/C

BEAMS

EB1 Existing 305x165x??UB

B1 203x133x25UB (S355)
B2 152x152x37UC (S355)
B3 203x133x30UB (S355)
B4 100Wx200D timber beam (C24) comprised of 2No. 50Wx200D sections bolted together with M12 bolts at 400mm C/C (horizontally)
B5 150Wx200D timber beam (C24) comprised of 3No. 50Wx200D sections bolted together with M16 bolts at 400mm C/C (horizontally)

COLUMNS

C1 100x100x5.0 SHS (S355)
C2 150Wx200D timber column (C24) comprised of 3No. 50Wx200D sections bolted together with M16 bolts at 400mm C/C (vertically)
C3 100x100 timber balustrade post (C24)

WALLS

W1 140mm thk Dense Blockwork Wall

FOUNDATIONS

FP1 600W x 600L x 300D mass concrete pad foundation
FP2 400W x 400L x 300D mass concrete pad foundation

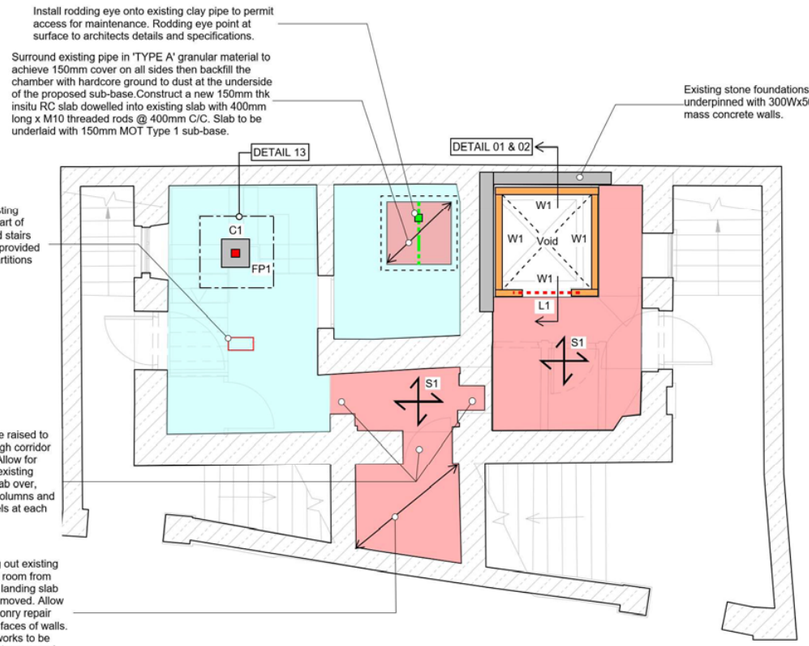
LINTELS & PADSTONES

L1 100W x 215D precast concrete lintel (Naylor Hi-spec or similar approved)
L2 100W x 140D precast concrete lintel (Naylor Hi-spec or similar approved)

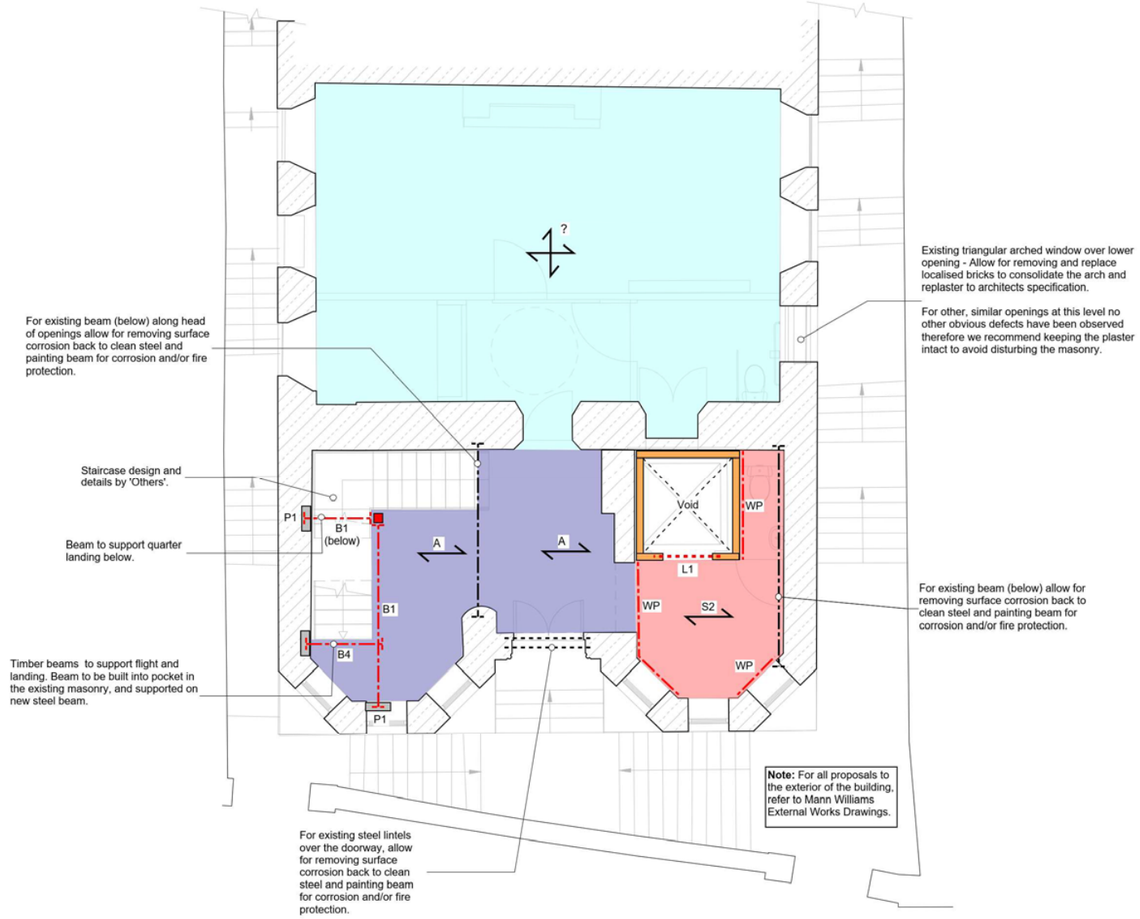
P1 215W x 440L x 215D precast concrete padstone (Naylor or similar approved)

SHELF ANGLES & WALL PLATES

WP 50W x 200D timber wall plate (C24) fixed to face of masonry with M16 Hilti HLC Stud Anchors @ 300 mm C/C (Or similar approved).



PLAN 1:50 — 1/101 LOWER GROUND FLOOR



PLAN 1:50 — 2/101 GROUND FLOOR

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REV	DESCRIPTION	BY	DATE
P1	PRELIMINARY	JB	28.02.24

P-PRELIMINARY T-TENDER CONSTRUCTION

PROJECT
MERTHYR TYDFIL SYNAGOGUE

TITLE
PROPOSED LOWER GROUND & GROUND FLOOR GENERAL ARRANGEMENT

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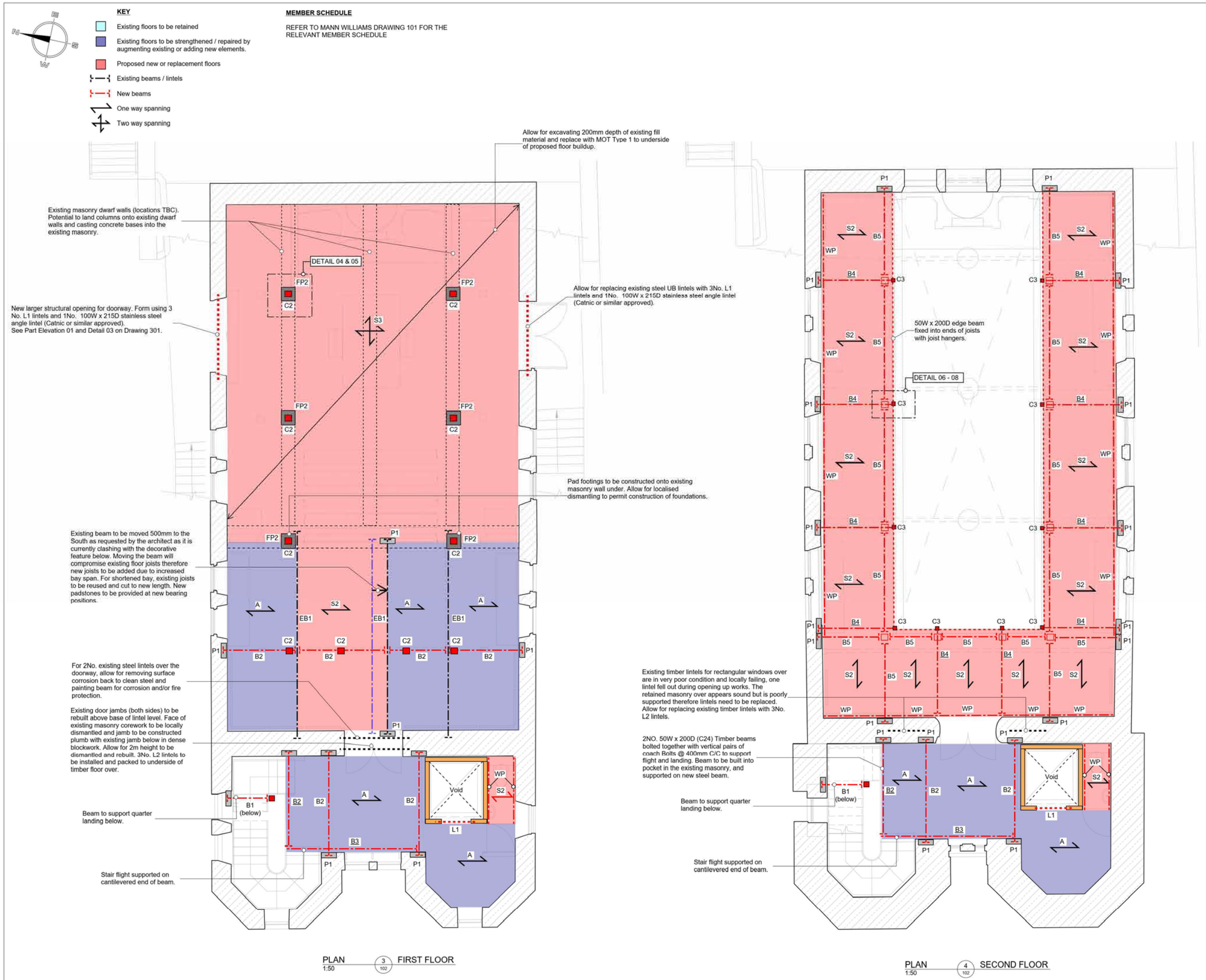
DRAWN	CHKD	SIZE	SCALE	DATE
JB	PR	A1	1:50	27.02.2024

STATUS
PRELIMINARY

PROJECT	DRAWING	REV
9684	101	P1

6.3.3 Structural Engineering Details - On this page are the Structural Engineers Proposed Details relating to the Floors, Staircase Supports, Lift Shaft, Balcony Construction and Other Supports to the First and Second Floors



6.3.4 The Roof

The natural slate, black clay roll top ridge tiles and leadwork coverings to the main and front range roofs are in poor condition. Patch repairs were undertaken in 2020; but this only addressed the worst issues of water ingress. There is also an impervious membrane within the roof make-up. As a result, the proposals seek to take up the whole of the roof and re-lay it. The slates and ridge tiles are to be carefully removed and set aside for re-use. New, matching natural Welsh slates are to replace those in poor condition, broken or lost. The same is to be the case with the ridge tiles.

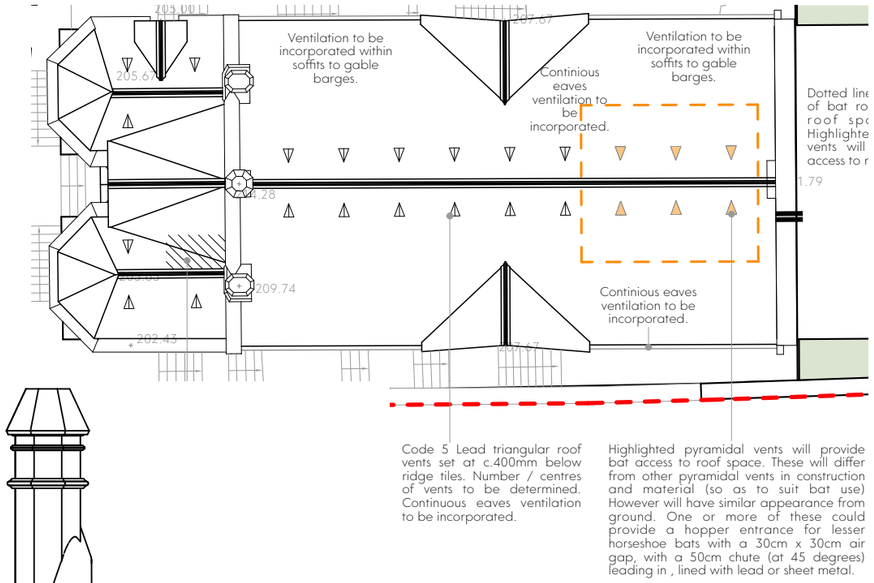
The new roof build-up would comprise:

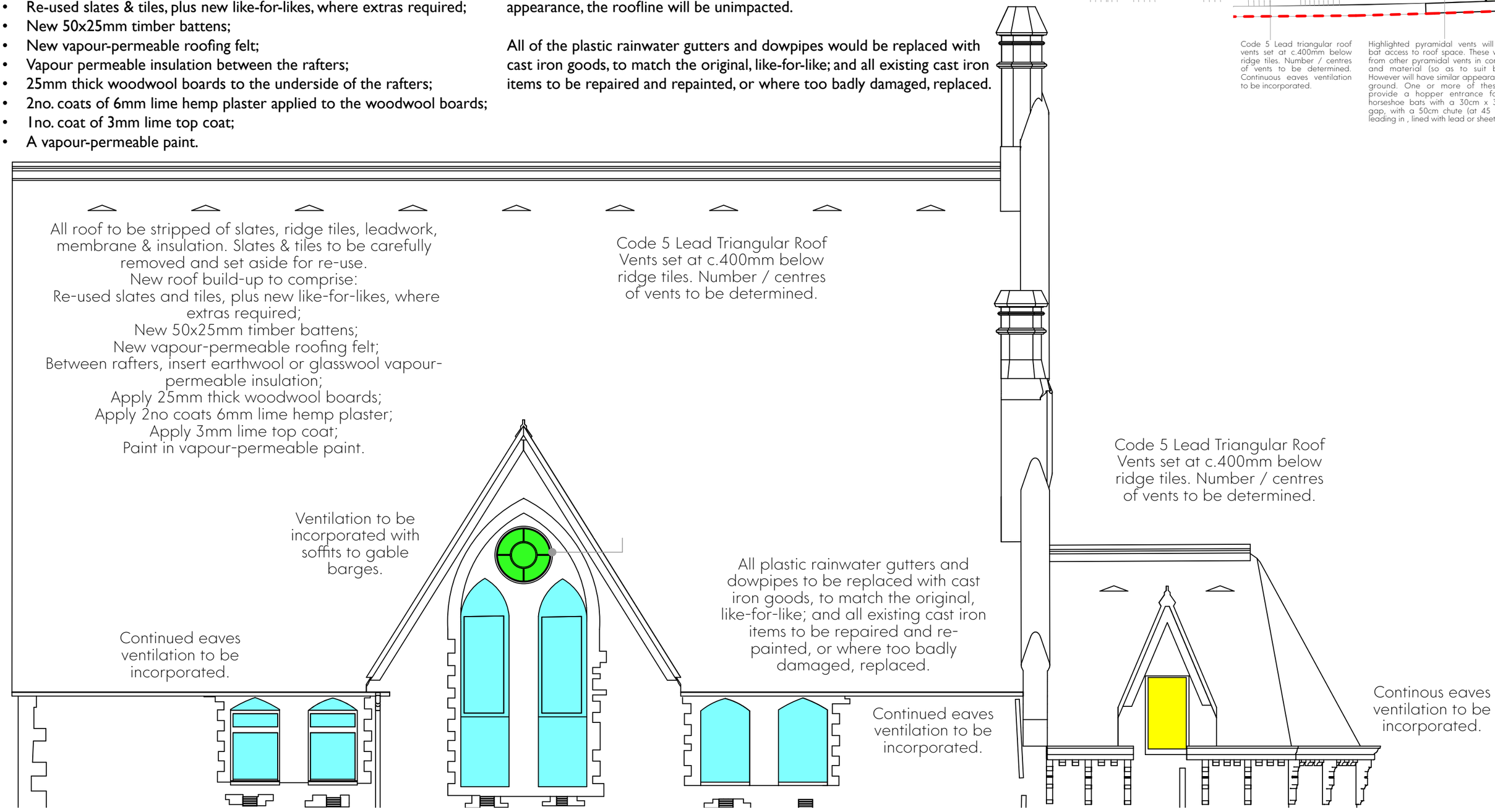
- Re-used slates & tiles, plus new like-for-likes, where extras required;
- New 50x25mm timber battens;
- New vapour-permeable roofing felt;
- Vapour permeable insulation between the rafters;
- 25mm thick woodwool boards to the underside of the rafters;
- 2no. coats of 6mm lime hemp plaster applied to the woodwool boards;
- 1no. coat of 3mm lime top coat;
- A vapour-permeable paint.

The roof void would be vented at the eaves, continuously, and through a series of code 5 lead triangular roof vents at c. 400mm below the ridge tiles.

As previously states, it is possible that the lift shaft within the front range will require additional headroom beyond the roof structure, possibly only for installation of the lift itself; and/or possibly for one-off future maintenance. To achieve this, a section of the roof rafters, insulation, membrane, battens and slates is to be independent of the rest, allowing for installation after the lift and possible removal in the future. In terms of appearance, the roofline will be unimpacted.

All of the plastic rainwater gutters and dowpipes would be replaced with cast iron goods, to match the original, like-for-like; and all existing cast iron items to be repaired and repainted, or where too badly damaged, replaced.



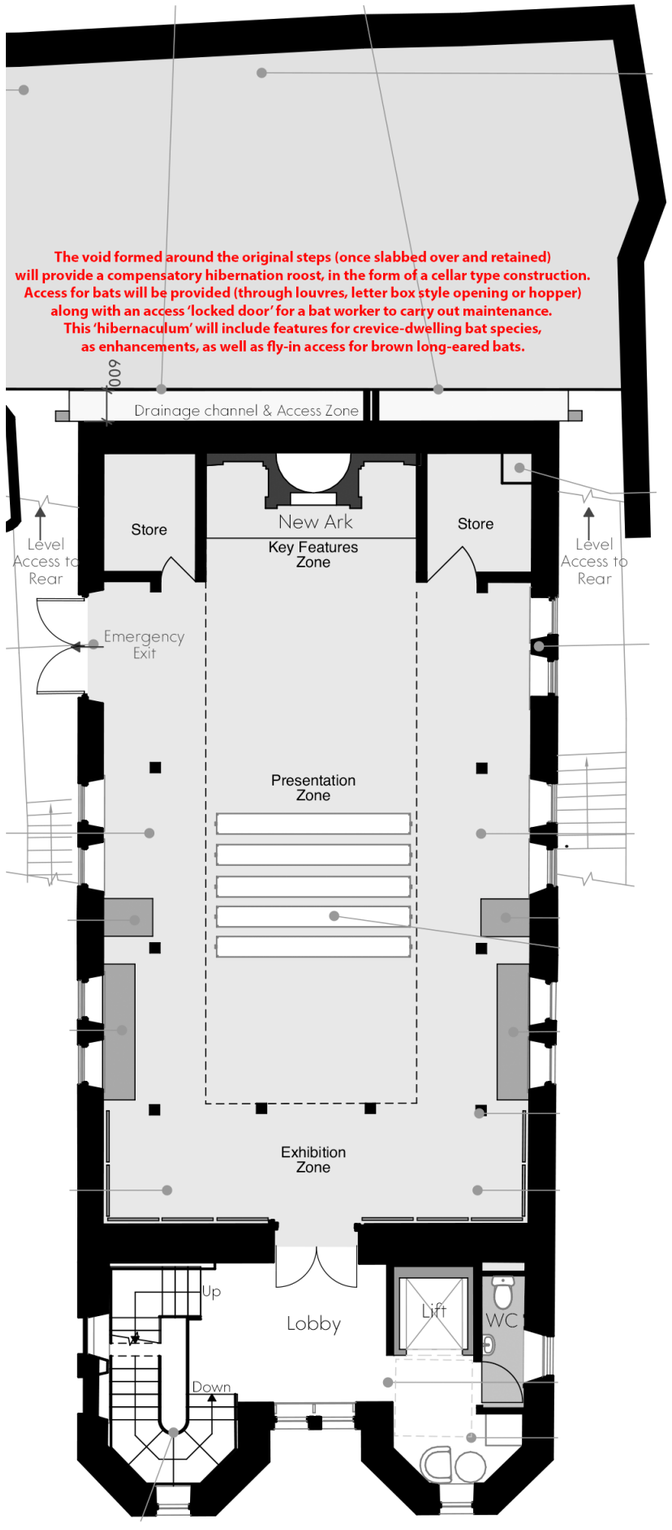


6.3.5 Bat Loft Roost and Hibernaculum

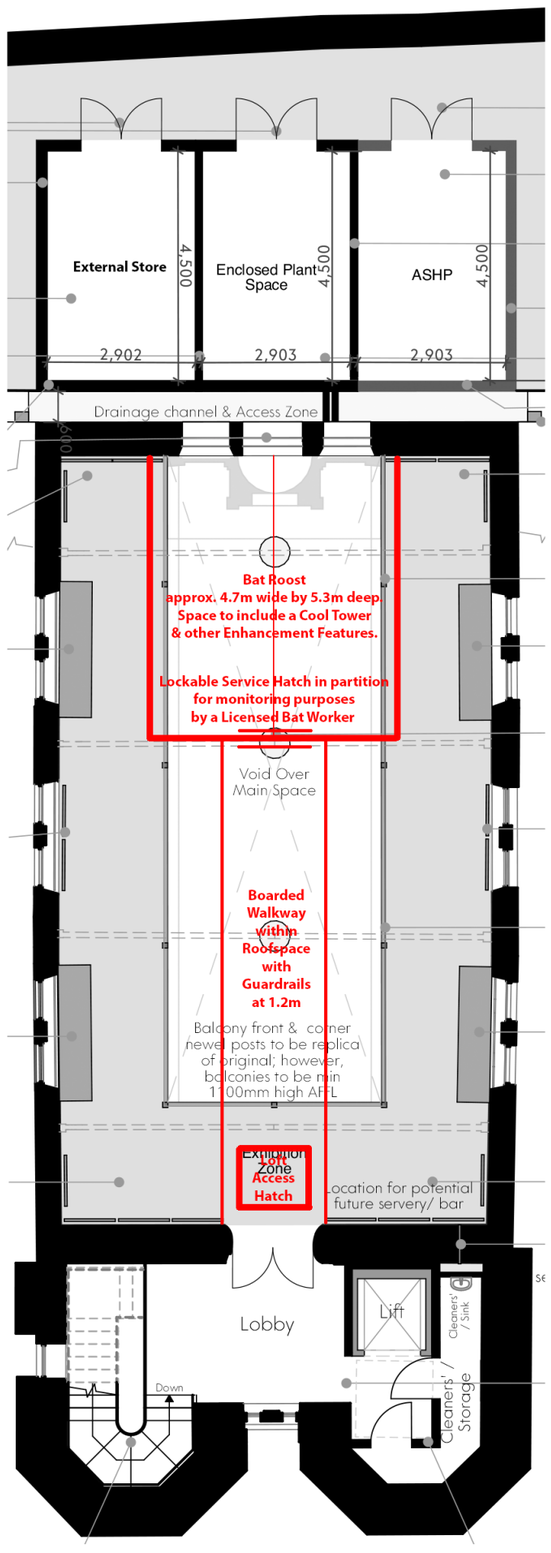
By virtue of an Ecological Impact Assessment, the Consultant Ecologists, Wildwood Ecology, have advised that a Bat Loft Roost and a Bat Hibernaculum are required; and that the roost must be within the roofspace of the Synagogue building, and not within a separate roost structure, not least as such a space would not be hot enough. They stipulated that the following would be required:

- A dedicated bat loft, min. 2m in height, with a length and width of at least 4m (ideally 5m x 5m x 2.8m).
- Due to the impact on crevice-dwelling bat roosts (common and soprano pipistrelle and serotine), dedicated bat access tiles must be installed within the roof of the building. A minimum of four modified bat access tiles and some modified bat access ridge tiles along the ridge lines.
- For lesser horseshoe, a supplementary fly-in access point may also be required; and so the louvres on the east elevation are to be retained for that.
- A hopper entrance into the loft would be required and should be c. 30cm x 20cm and include a metal lined chute (c. 50cm long), leading into the loft at a c. 45° angle (to provide bat access but to deter birds).
- A cool tower and enhancement features must be provided in the loft.
- The loft must be accessible via a lockable service hatch for monitoring purposes by a Licensed Bat Worker (LBW).
- It is advisable to provide external roosting features as enhancements; this would include creating access under some of the standard roof slates, by cutting a notch from the new slates to create a gap under the tile, which lead to the narrow space between felt, timbers and slates. Notches can also be cut out of battens in some areas to enable the bats to move more easily up and down the roof under the slates.
- Whilst a bitumen roofing membrane was initially requested, an agreement was reached that it could be a non-bitumen roofing membrane, of some vapour-permeability, that is suitable for bats - i.e. 'TLX BatSafe' or 'Siga Majcoat 350'.
- A compensatory hibernation roost is required, which will need to be separate from the bat loft, as this will be too warm and dry for hibernating bats. The utilisation of the space at the rear of the building for the compensatory hibernation roost, in the form of a cellar type construction, would work well. The construction will need to be dug into the ground and access provided to bats, as well as a bat worker to carry out maintenance, will be.

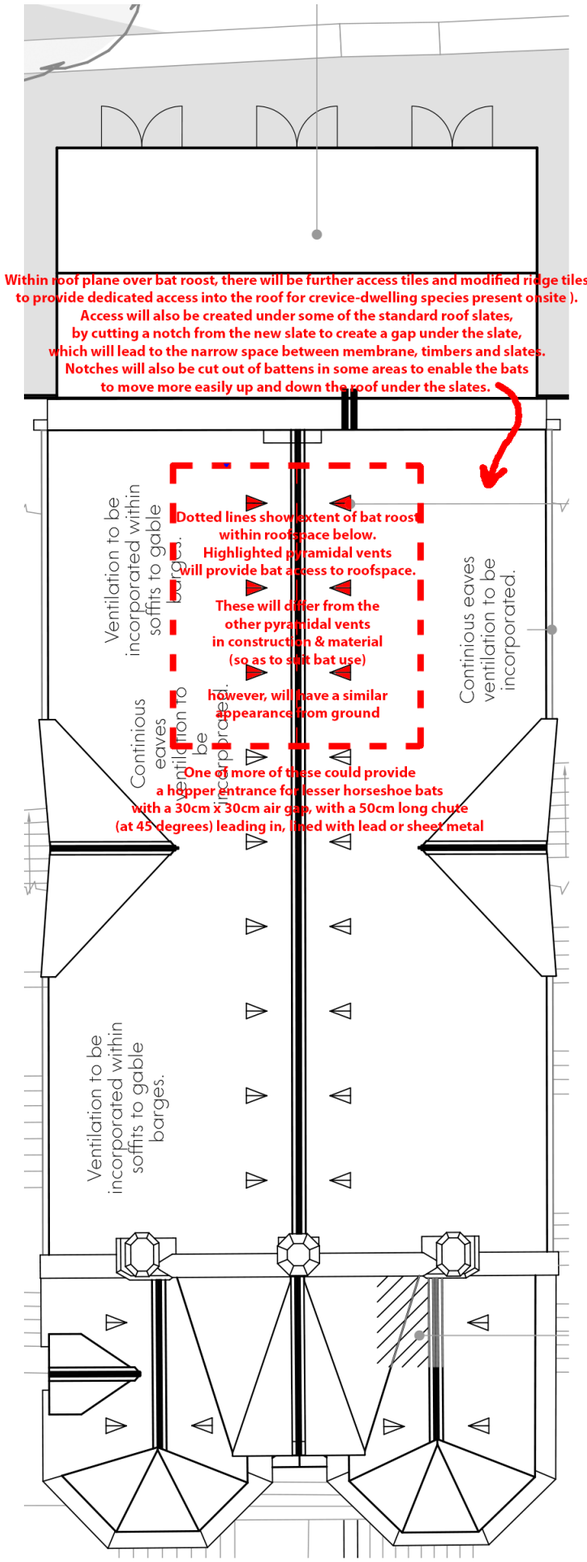
Below is Roof Plan, Roof Loft Plan and a First Floor Plan, all showing the features being proposed to accommodate the Ecologists' comments



Proposed First Floor Plan



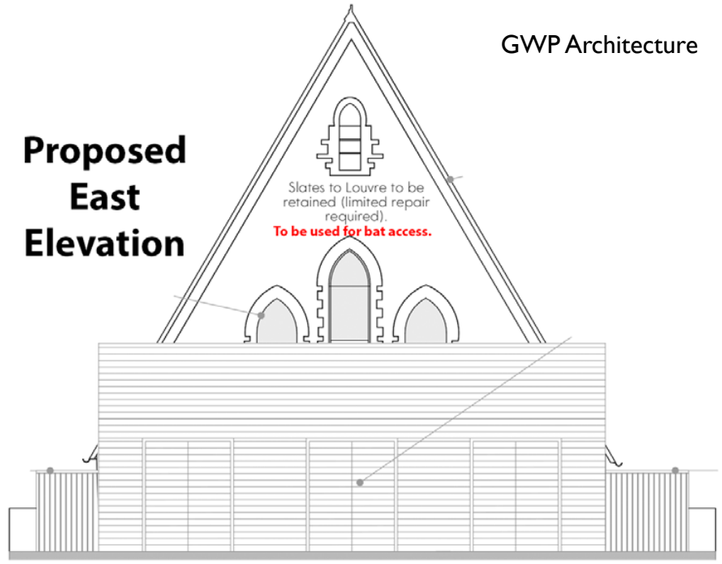
Proposed Roofspace Plan

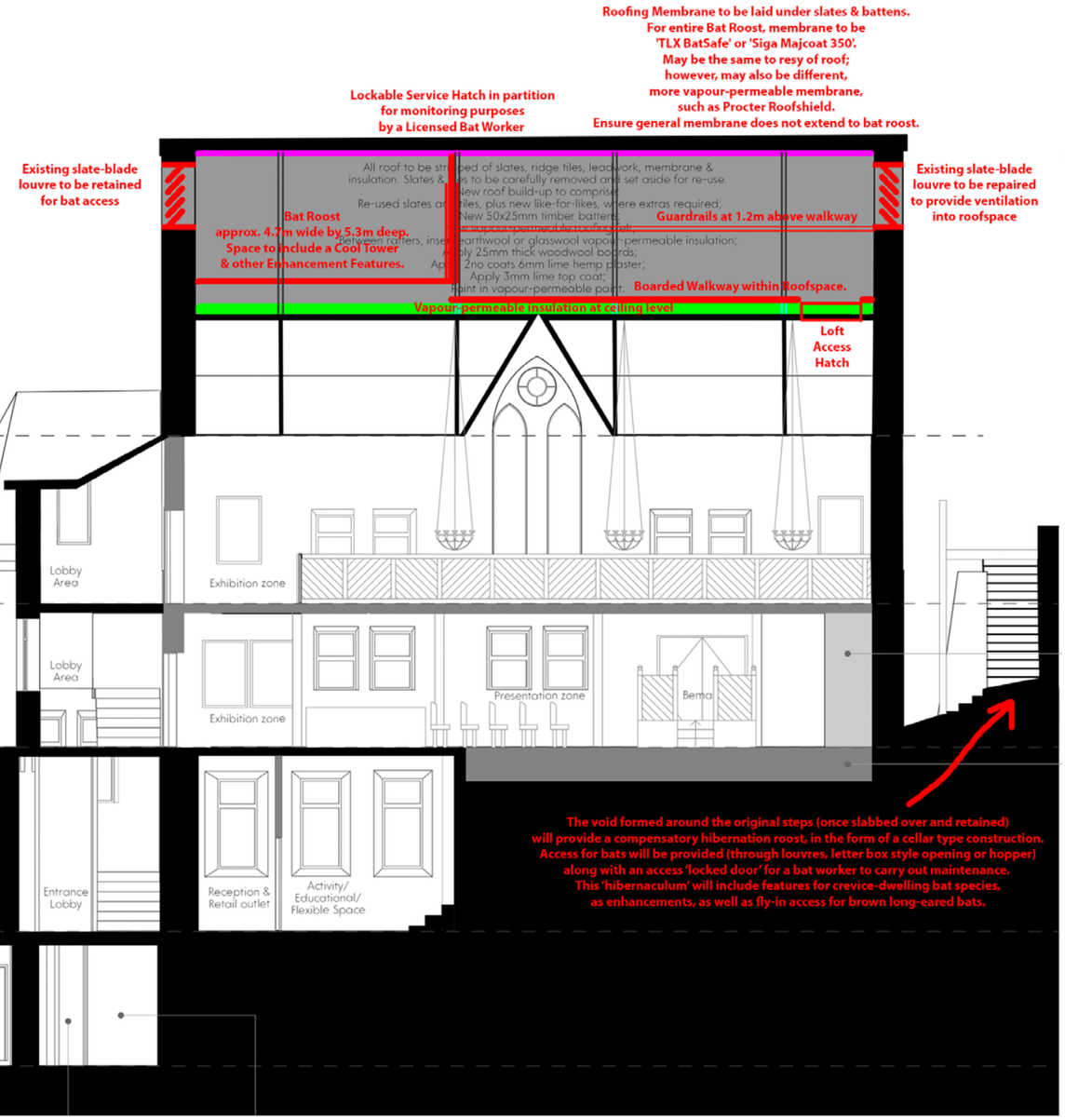


Proposed Roof Plan

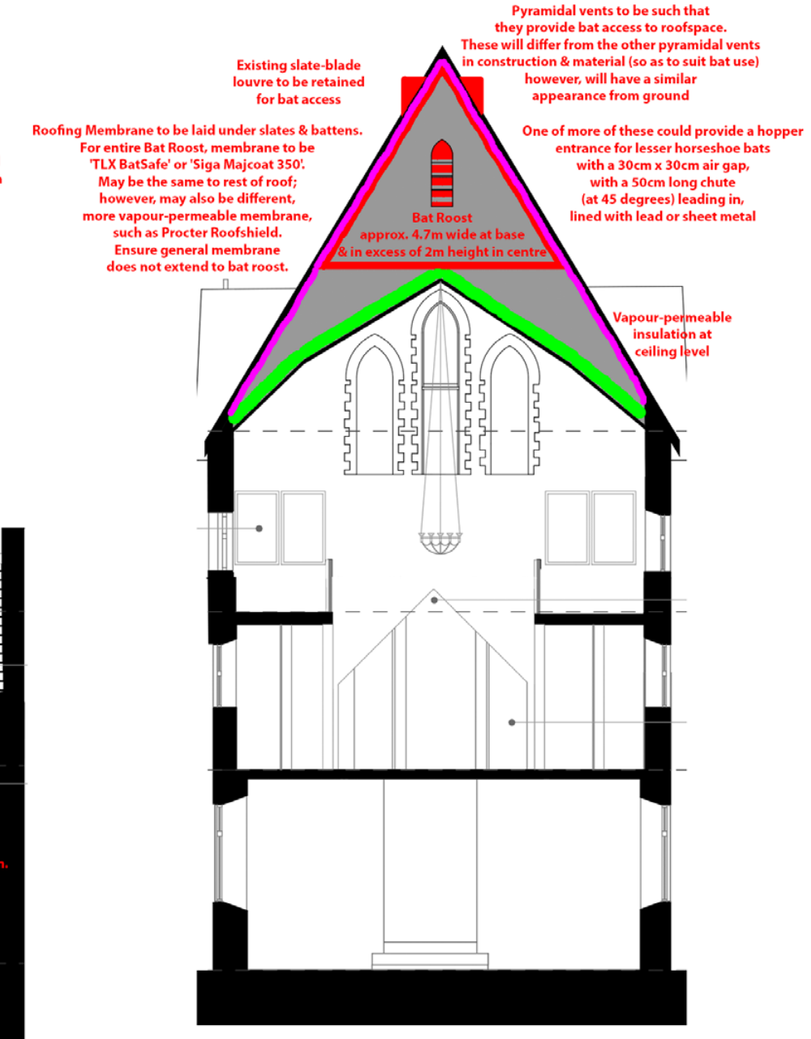
6.3.5 Bat Loft Roost and Hibernaculum

On this page are a Longitudinal Section, a Cross Section and a Partial Elevation showing the features being proposed to accommodate the requirement for the Bat Loft Roost and Bat Hibernaculum and the Ecologists' comments. These should be read along with the plans on the previous page.





Proposed Longitudinal Section



Proposed Cross Section

6.4 Summary of the Proposed Repair and New Work

The Synagogue is in a relatively poor condition, having been unoccupied and derelict for over 20 years. Holes in the roof and broken window panes had been the cause of regular water ingress to the building interior and significant pigeon residence. As a result, the building suffered from issues of water ingress, damp and a build-up of pigeon guano, and areas of the floor boarding were saturated and became unsafe. In 2020, various tasks were undertaken to address the water ingress in the short-term. Holes in roofs were patch repaired; the damage floor boards were replaced; perforated panels were applied to the windows (to provide security, yet also retain ventilation); and the collapsed retaining wall at the rear was stabilised. Since then, temporary stabilisation work has been undertaken to a rotten truss end.

Within the separate Condition Assessment report is a summary of the condition of the various elements of the building fabric, along with suggested repair specifications, which is also included over the next few pages in this report.

In it, we suggest that over 50% of the external walls have been re-pointed externally in a projected cement-based mortar and all walls have been re-plastered internally in a cement-based plaster. Both are inappropriate to this building and are ill-advised, not least because they stop the stone walls acting as they were intended to – absorbing and exuding moisture and contracting and stretching to suit the changing environment – and usually result in damage and degradation. It is proposed that this is all addressed through their removal and replacement with more appropriate materials.

Ironically, the holes in the roof and the broken windows were a bit of a blessing, as the internal spaces are well-ventilated, reducing the risk on condensation, mould-growth, rot and insect infestation. The insertion of perforated metal panels has ensured this ventilation has continued.

Whilst requiring considerable work, both the inappropriate cement-based pointing and plaster can be removed, the walls allowed to dry out, and a more appropriate lime-based mortar and plaster applied, as required. Whilst these cement-based applications will have resulted in some damaged to the building fabric - for example, the loss of facings on many of the softer ashlar dressed stone and bands - it is usually the case that their removal does, in due course, result in the proper equilibrium of the building fabric returning.

Once the cement-based pointing and plaster has been removed, the stone repairs are to be addressed. This will involve significant work.

The walls and piers to the front steps will require partially taking down to steps level and re-building, along with significant work to the stone steps themselves, once all of the roots have been removed. The stone pillars are also to be taken down and re-built straight, once all roots removed.

The wall to the rear steps was partially taken down in 2020; however, a focussed scheme of retention of those steps and that wall is proposed - see information form Mann Williams later in this report. There are also repairs required to some cracked lintols and many delaminated stones, particularly the dressed stones.

This scheme for access to the rear will involve two sections of the stone outer wall (each approx. 1.2m wide x 2.2m high) being carefully dismantled to form openings in order to access and work on rear wall and steps stabilisation and retention. The stones are to be numbered before dismantling and set aside for later reinstatement. The masonry above is to be needled and supported as per Mann Williams details / specifications. Once works to rear completed, the masonry is to be reinstated, as original with matching / suitable lime bedding mortar and pointing.

The new retaining wall, inserted in front of existing stone retaining wall, will comprise a reinforced concrete capping beam, as per Mann Williams information. The outer face of the wall is to be lined with lime render finish and painted in vapour-permeable paint.

On top of the front steps wall, the proposals reinstate the lost decorative iron railings, as original and as seen in photos; and the lamp posts on top of 2no. inner stone piers are to be replica iron lamp posts with copper heads, the pinned down with stainless steel bars. An electrical supply is needed to both.

The proposals also reinstate the Hebrew lettering above the main entrance doors.

At the rear of the first floor, one of the twinned windows has, in the past, been turned into a set of double doors, presumably to act as a fire escape during the use as a gym. The proposals seek to remove that door and turn the opening back into the twinned windows it was; by removing the concrete blockwork above the steel lintol and replacing it with blue-black brickwork; and restoring both windows, as was, to match existing.

To the other side, providing direct access to the garden, the proposals seek to form a set of doors in lieu of the twinned windows. This involves removing the stone mullion; inserting a new steel lintol and infilling the arch heads with blue-black brickwork above the lintol. This will also involve edging the lower jambs in blue-black brickwork and insert a set of double doors. These will act as an emergency exit and access to the garden.

Vegetation can have a very damaging effect on stonework, especially the very strong roots from buddelia. All vegetation, is proposed to be carefully removed, including, and especially, the roots. It is absolutely essential that the roots are removed, as, not to do so, will result in their re-growth.

Whilst there have been patch repairs undertaken to the roof, new damage has occurred since 2020, with a new hole having formed on the south-face of the main roof. Also, the repairs were only intended to be temporary; and there were many other defects which were not addressed in 2020, as they were not, then, deemed to be 'urgent works'. It should also be noted that the roof currently includes an inappropriate vapour-impermeable membrane, which need to be removed; and insufficient 'vapour-permeable' insulation for an adaptation project.

Therefore, all of the roof areas are to be stripped of slates, ridge tiles, leadwork, membrane and insulation. Slates and tiles are to be carefully removed and set aside for re-use. The new roof build-up is to comprise: re-used slates and tiles, plus new like-for-likes, where extras required; new 50x25mm timber battens; and a new vapour-permeable roofing felt. Between the rafters, earthwool or glasswool vapour-permeable insulation will be inserted, with 25mm thick woodwool boards applied over the top. Finally, 2no coats of 6mm lime hemp plaster will be applied to the woodwool boards followed by a 3mm lime top coat. The ceiling will then be painted in vapour-permeable paint.

Additional ventilation will be provided to the roof, through the eaves, with a continuous eaves vent, and through new code 5 lead triangular roof vents, set a little below the ridge line.

The lift requirements are subject to detailed design. However, it is possible that the lift shaft will require additional headroom beyond the roof structure, possibly only for installation of the lift itself; and/or possibly for one-of future maintenance. To achieve this, a section of the roof rafters, insulation, membrane, battens and slates is to be independent of the rest, allowing for installation after the lift and possible removal in the future. In terms of appearance, the roofline will be unimpacted.

There is considerable repair work required to the rainwater goods, as their poor condition currently risks the ingress of further moisture into the building fabric. There are many broken downpipes and some sagging gutters. The mix of metal and plastic pipes does not help with the variant movement and so all plastic items are to be replaced with cast iron and all existing cast iron items are repaired, or replaced where their condition is too poor.

There is also work required to the underground drainage runs - both surface and foul. The surface water drains to the sides of the building, running up the steps, is embedded in the steps themselves. Repair work is proposed to these. Please refer to Mann Williams' information for this.

There is also some repair work proposed to the low walls on the other side of both of the runs of external steps. In the case of the south steps, this work is not considerable. In the case of the north steps, this work will be undertaken as part of the external landscaping works.

Whilst most of the windows are damaged to some extent, not least with the loss of most of the panes of glass, this is rarely a matter for considerable concern (aside from the water ingress and the security), as, invariably, the worst of the damage to the timber frames is at the bottom, primarily to the cill and bottom rail, and sometimes the base of the two side stiles, and that this can usually be successfully addressed without need to replace the whole window. However, where a full replacement is necessary, this is viable.

As a result, all of the window frames are to be repaired, where possible. Where windows are lost, or badly damaged, the window frame is to be replaced, like-for-like. All glazing is to be replaced, apart from retained leaded glass units, which are to be retained and repaired and new secondary glazing unit incorporated into the inside face. All new glazing to main Synagogue space is to be new leaded, stained glass within Slimline double-glazed units. All new glazing to front range windows and upper ground floor is to be clear Slimline double-glazed units.

Apart from the remaining 'Star of David' leaded windows, many of the new glass is proposed to be special artist-designed stained leaded glass. A design for his is yet to be determined, as the intention is to tender this work to glass artists. It is to involve new colourful designs, with the colours being fairly dark so as to minimise bright light within the space, thereby avoiding the need for black-out blinds.

The original (or replica) sets of six-panelled timber double doors still remain; however, are clad with metal panels. The proposals carefully remove the metal panels and make good doors, as required. If restoration is not viable, then new hardwood doors matching the original / existing pattern and mouldings in all respects are to be installed.

New polyester powder-coated steel doorsets, with emergency hardware, are to be installed within the existing openings to both sides on the lower ground floor.

The door to the second floor east elevation is to be removed, and the opening is to be infilled with double skin cavity concrete blockwork, lime rendered externally and lime plastered internally.

There are beautiful slated louvres at high level to the front and rear gables. These appear to be in a good condition. They will need reviewing, and possible like-for-like repairs undertaken; but the work should not be much.

There are a number of vents and grilles in the stonework. Some are in a reasonable condition, albeit the paintwork is coming away; some are in a very poor condition and badly damaged; whilst some have been blocked up. Whilst the appearance of these vents affects the appearance of the building, they are an important practical aspects of the building, providing essential ventilation and air movement to sub-floors and intermediate floors. They should be repaired - where possible, or replaced, like-for-like.

The proposals remove the second floor plywood and OSB board intermediate floor altogether, along with the steel beams, and replace it with the new balcony structure. However, given the poor condition of much of the first and upper ground floor intermediate floors, significant repair and replacement is proposed for these. For this, please refer to Mann Williams' drawings later in this report.

The the rear of the upper ground floor, where the floor is currently suspended over earth and rock, a new floor build-up is to comprise: 22mm hard wax oiled oak floor boards; on 70mm deep, by 50mm wide, treated timber battens; on 60mm limescreed; on 150mm limescrete; over a geo-textile breather membrane; over min. 250mm insulating aggregate; laid onto existing ground, with all loose stones and other loose material removed.

The two staircases to the two front bays are to be removed and replaced with a new staircase. However, part of the north staircase still possesses its thick trefoil-relief pointed timber newel post and trefoil pattern baluster infills and heavy moulded handrail. These are to be retained and re-used in the new staircase, and replicas fabricate to match for the rest of the staircase, which will run two storeys, from upper ground floor to second floor.

New insertions - including a lift, new staircase, new balcony, new partitions, toilets - will also be incorporated into the works.

The balcony will be formed of timber and steel, with the columns flitched timber and steel posts. Refer to Mann Williams' information for more detail.

The balcony front corner newel posts will replicate the originals; however, the balconies will be a minimum of 1100mm high AFFL.

The lift shaft is to be formed of 140mm concrete blockwork. For the excavation of the lift pit, there will be some under-pinning of the walls. Refer to Mann Williams' information for this.

To the rear / east external area, the existing concrete slab over steps landing is to be broken up and removed. The existing steps and retaining wall are to be left in place and to be backfilled with hardcore up to new ground level. The concrete slab between the steps and boundary wall are also to be broken up and removed, with the earthern ground made good.

A new timber-framed structure is to be constructed on the new surface to accommodate plant, an air source heat pump and a bat roost. The structure is to be clad in horizontal timber ship-lap cladding, as are the doors. Around the air-source heat-pump part of the structure, the timber cladding is to be louvred, providing significant open area. The eaves are to be at 2.1 clear with the roof pitches at 32.5 degrees.

Infilling the gaps between this new structure and the ends will be a 1.5m high powder-coated steel guardrail with vertical baluster infills at 100mm centres.

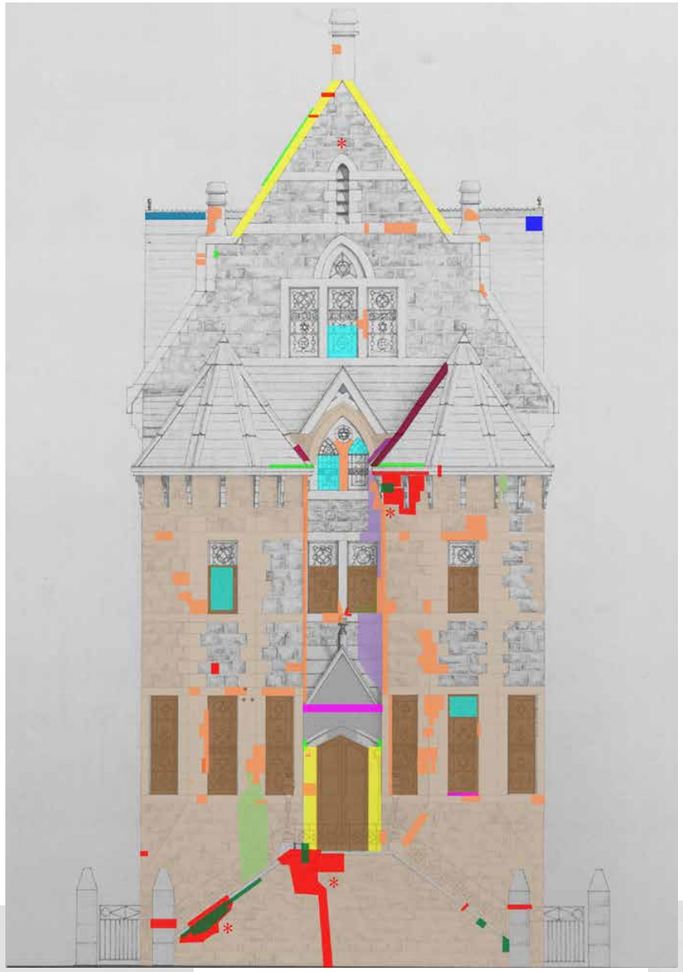
The ground outside the structures to be turfed. The ground inside the structure is to be left earthen, with localised concrete slabs for plant items. New structure to accommodate plant, air source heat pump and bat roost.

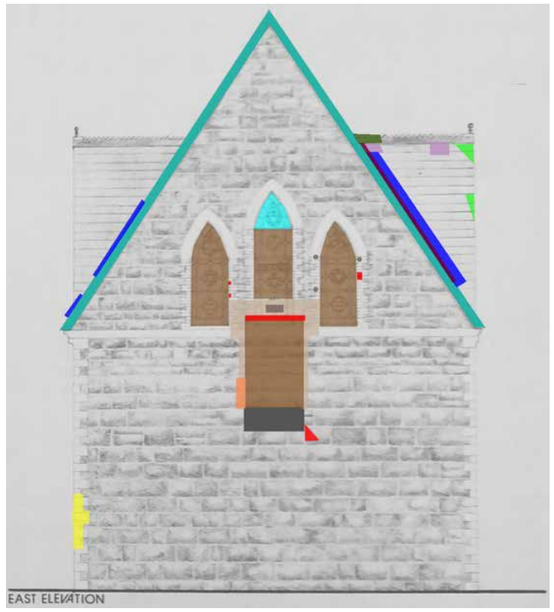
6.5 Envelope Repairs

Beyond the above, the other work proposed for the former Synagogue building involves repairs. Most of this is like-for-like; however, the replacement of cement mortar pointing with lime mortar, and of gypsum plaster with lime plaster are not like-for-like; although they are very much for the benefit of the building.

Please refer to the separate 'Record of Building and Condition Assessment Report' for more detail on what is proposed.

Over the next pages are the proposed Outline Repair Specifications; whilst on this page are the marked-up Condition Assessment drawings for the four elevations.

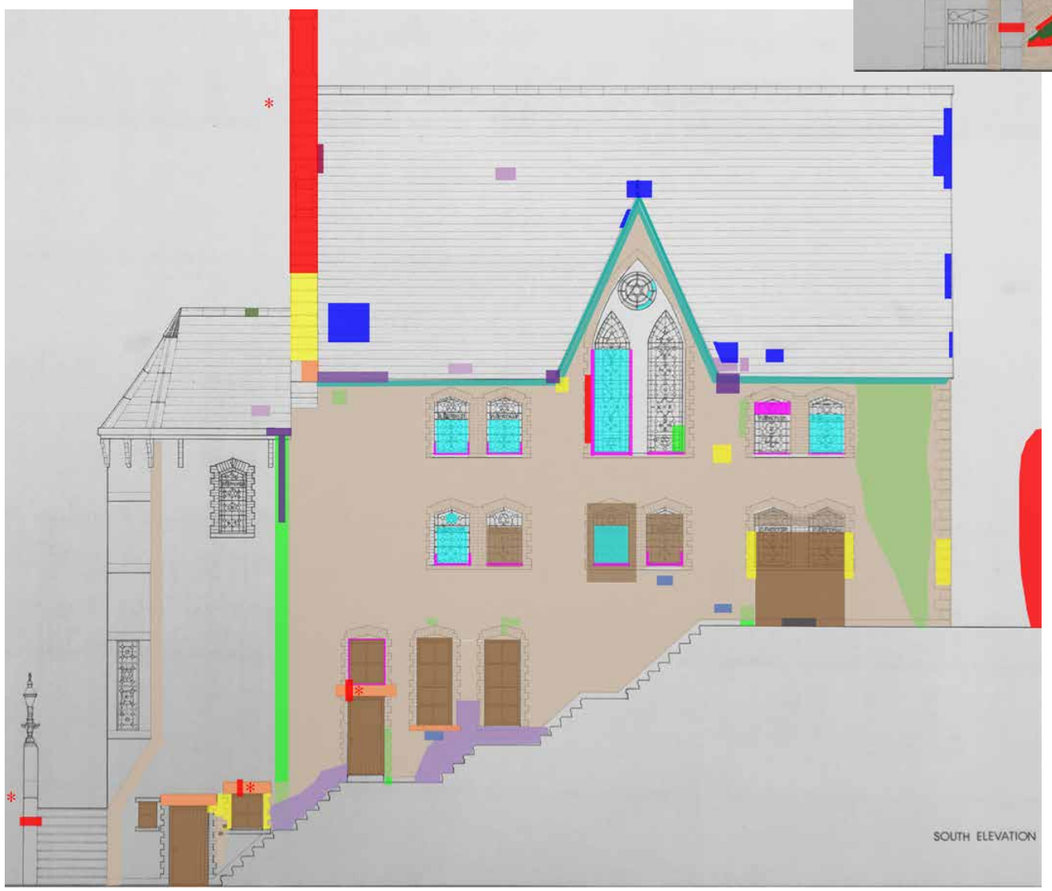




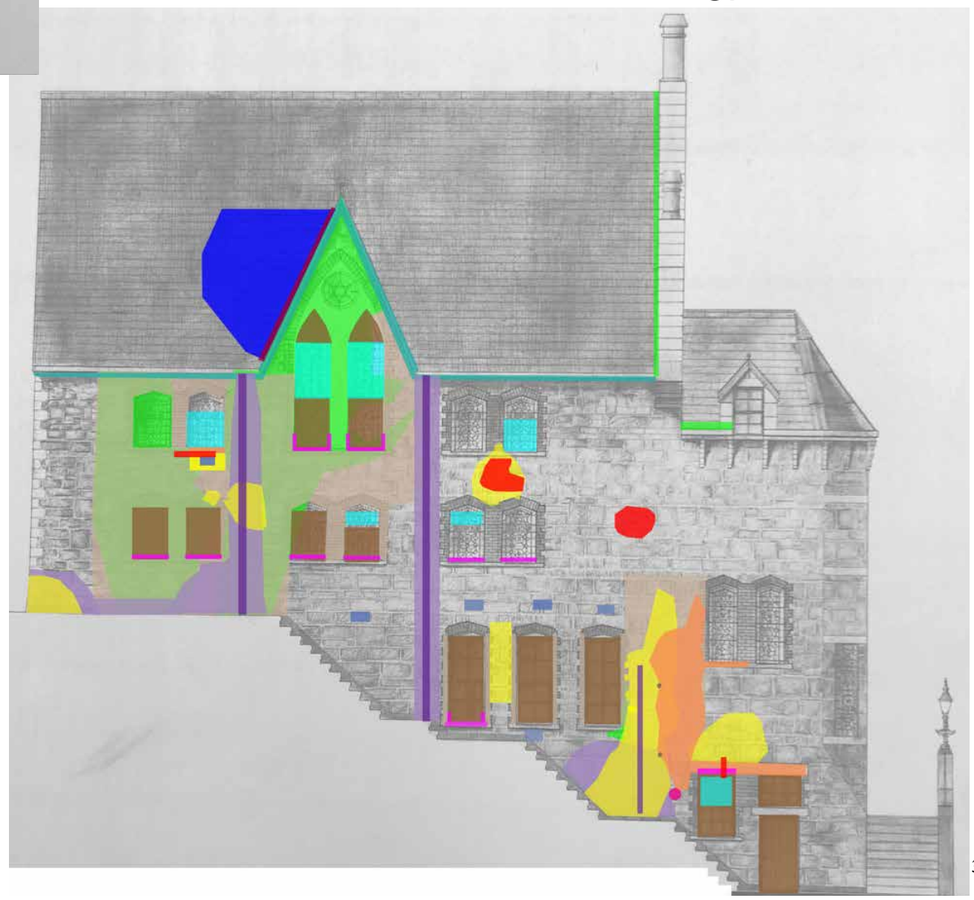
Condition Drawing for East Elevation

Condition Drawing for West Elevation

Condition Drawing for North Elevation



Condition Drawing for South Elevation



6.5.1 External Walls

Mann Williams's 'Structural Condition Report' should be referred to for the structural condition and integrity of the external and internal walls, however, during our review, we were not able to see any cracking or bulging in any of the external walls of the building, which might have suggested movement of the structure, or damage to it as a result of human or mechanical means or dislodging vegetation roots.

It is, however, apparent that the top section of the stone gable wall to the front elevation, within the upper half of the roof and above into the finial, is leaning quite considerably into the building. Some of the mortar joints at the top of the wall and to the finial have opened up a fair bit as a result. An inspection was made in the roof space, in 2020, to see if purlin ends had failed and encouraged the wall to lean into the pockets left by the failed purlin ends. There was no suggestion that this was the case.

It is also clear that structural damage has occurred to the retaining wall to the front entrance steps, caused, in a few locations, by the expansion of buddleia roots prising apart bonded stones. This has happened particularly to some of the capping stones.

Both end piers are also showing signs of loss of structural integrity, with large sections of stone de-bonding from their neighbouring stones.

There is also damage to some of the stone steps themselves.

Even more disconcerting was the exceptional bowing out of the retaining wall to the steps at the rear of the building, up the top, which has blown and dislodged a number of stones.

There is also damage to a number of the stone steps behind this wall.

Whilst undertaking the consolidation work, in 2020, to the retaining stone wall to the rear steps, it became apparent that the condition of the wall had further deteriorated since the survey was undertaken and that the wall would now be in danger of collapse even with the proposed consolidation work. Because the monies required to completely stabilise the wall intact was not available, it was agreed that sections of the stonework would be taken down to reduce the risk of collapse, whilst propping those parts of the wall which are retaining and cannot be taken away. Due to the risk of anti-social behaviour and theft, it was agreed that the stones should be stored inside the building, at the back of the first floor, which was easily accessible from the wall and allowed the stones to be laid on earth, on a plastic membrane. In so doing, it was agreed not to re-lay the timber suspended floor in this area. At that stage, the existing floor was completely rotten and was due to replacement.

The structural defects to both these sets of steps and their retaining walls are considerable, however, both walls are independent of the main walls to the building and do not yet appear to have compromised those walls. The bowing out to the upper steps wall is, however, putting the main building at risk, as the wall could, at any point, loss strength completely and the ground retained behind it could slide towards the base of the building, causing the wall and steps to collapse. It is recommended that these matters are address as soon as possible, especially at the top steps, in order to avoid any damage occurring to the walls of the building, although there are no obvious signs that the walls of the building are currently effected by the defects.

To the wall to the steps, but, more importantly, also to the large areas of the walls of the building, it is clear that, at some stage in the later part of the 20th century, the stonework was re-pointed. The pointing has been emphasised, by projecting it forward of the stone faces.

This is completely inappropriate for use with historic buildings: both visually (as those areas of wall at the Synagogue not re-pointed show that the pointing used to be flush with the stone, as it should be); and practically, as it traps and lets more water into the wall (via all the little ledges, ridges, uneven sections), by catching the rain and allowing it to seep into the wall where the rubble interior provides a path to the inside surface of the building.

To add to this, the material used for the re-pointing was a cement-based mortar. There are various issues with this:

- Masonry which is traditionally constructed is bedded in soft lime mortar and is, therefore, relatively flexible, allowing the structure to 'move' a little and stretch and shrink without cracking. Pointing with a hard cement restricts this movement, causing stress in the surface of the wall where it is bound by the cement, which often causes cracking in the wall and/or failure of the face of stone, which is softer that the mortar.
- Cement mortars are also impermeable - that is to say that they do not allow the structure behind to 'breathe': moisture is forced to evaporate through the stone, which, in extreme cases may cause the stone to deteriorate and its faces to delaminate. This has already happened in a number of areas at the Synagogue.
- Cement mortars are usually visibly different, both in colour and detail, changing the appearance of the wall as a whole.

It is noted that this cement re-pointing has been applied to the whole of the front (west) elevation and the whole of the side (south) elevation, it has not been applied to the rear (north) elevation and it has only been applied to part of the side (north) elevation. The fact that some of the walling still shows the original lime mortar pointing, confirms that this is original.

This has resulted in a large number of individual stones having been delaminated with their original outer surface being lost, revealing a softer new surface.

The fact that the walls are solid in construction means that they do not have a cavity in the way that modern buildings do. Whereas modern buildings use different construction techniques that allow for moisture blocking and management, such as cavity voids (forming capillary breaks), cement-based plasters and mortars, gypsum plasterboard, vapour control barriers and mechanical ventilation; solid wall buildings are usually constructed of absorbent materials - hygroscopic in that they attract moisture – which allows any moisture that enters the fabric to evaporate back out, through both its external and internal faces. In these cases, the masonry of solid wall buildings is designed to be allowed to 'breathe'.

The lime-based mortar used is more permeable than the stones, and so greater evaporation will take place through the joints. Salt deposits and frost action are consequently greater at the exposed faces of the joints, causing them to decay faster than the surrounding masonry. Since it is cheaper and easier to re-point at intervals than to replace bricks, the pointing may be regarded as sacrificial.

It is always preferable that any cement mortar is removed, allowing the fabric to 'breathe' again. However, if the cement mortar is still firmly bonded to the stones and the backing mortar, removing it can result in damage to the stones, and so it may be counter-productive trying to remove it. Conversely, if it is possible to remove it without damaging the stones, then this should be done. Because it is projected, it appears that it may not be too difficult to remove it without damaging the surrounding stonework or the lime bedding mortar behind it. It is therefore recommended that all of the cement pointing is removed.

6.5.1 Proposed Wall Repair Specification

6.5.1.1 Pointing & Plastering

As a result, it is proposed that the cement pointing is removed carefully, if and only if it comes away by hand, possibly using a light club hammer and sharp chisel or quirks, however, without the need for power tools. Where the cement pointing adheres so well that its removal might require power tools and/or might damage the surrounding brickwork, then the architect should be consulted. The fear here, however, is that, as time passes, more sections of the cement pointing are likely to continue to be prised off.

Once the cement pointing has been removed, either in areas or throughout, the next task is to consider whether, and where, new, lime mortar re-pointing is required. One of the most common mistakes made with old buildings is to carry out unnecessary re-pointing; a slightly recessed, yet firm, mortar joint is acceptable.

Pointing should only be carried out where the mortar has receded, leaving open joints, or is deeply weathered to a depth equal to or in excess of the joint width (i.e. about 10mm or more) and the exposed mortar is very soft, loose, friable or crumbly, and can be scraped or pulled out easily. If raking out a joint with manual raking tools does not extract the mortar, and a hammer and chisel is required, re-pointing is probably not necessary. If the mortar is firm but slightly recessed (i.e. weathered), it should be left untouched.

Any re-pointing is to be undertaken in a lime NHL2 mortar (or, due to the softness of the stone, more likely a lime putty mortar) to match the original in appearance, with a mortar mix of 1:3 fat lime non-hydraulic mortar:sand with sand being sharp, well graded and well washed.

Whilst the 'sealing up' of the outer face of the walls with cement pointing results in the retention of moisture in the fabric and the resultant damage to the stonework, to seal up the inside face of the walls only exacerbates the problem. At the Synagogue, this has happened; the inside face of the walls has had applied to it a cement-based plaster. This means that any moisture produced within the building, caused by various means, not least the occupancy of perspiring people, cannot evaporate, and, if there is no ventilation (natural or mechanical) and no heat-production within the space (through heating systems and/or people), then condensation will result, on the inside face, in mould growth and subsequently rot.

Whilst the holes in the roof and the broken windows are not a good thing, they do provide a consequential benefit where the walls have been sealed up with cement-based finishes. It means that the interior is well ventilated and serious and wholesale condensation, mould and rot have been avoided. There are areas where the walls do appear to be extremely damp (almost saturated), and sections of timber embedded within the walls as so damp that they are crumbling away, however, this is more the exception that the rule at the Synagogue.

It is proposed that the existing cementitous plaster is removed and the masonry walls given as much time as possible during the contract to adequately dry out. It is then suggested that a new lime plaster is applied to all of the walls. However, firstly the joints within the wall should be re-pointed as required; only where mortar is lost by at least 10mm depth. The mortar mix could be 1:3 fat lime non-hydraulic mortar:sand with sand being sharp, well graded and well washed. Then any uneven surfaces should be dubbed out with lime mortar.

The plaster treatment could involve one single coat (for a wavy, rustic finish), two coats (for a smoother finish) or three coats (for a very smooth, level finish). These coats could comprise:

- Scratch coat of 9mm thick NHL2 hydraulic lime plaster, or fat non-hydraulic lime plaster, with hair added to give tensile strength.
- Floating coat of 9mm thick NHL2 hydraulic lime plaster, or fat non-hydraulic lime plaster.
- Top coat of 3mm thick fat non-hydraulic lime plaster.
- Natural emulsion 'breathable' paint (i.e. Edward Bulmer Pots of Paint), or limewash, which should be used as thinly as possible, however applied in at least 3no. thin coats, allowing at least 12 hours between coats.

Below is a suggested specification for the new lime-based plasterwork:

- All existing plaster to be hacked off carefully, ensuring no damage to stonework.
- Prepare the wall surfaces generally including thorough cleaning down and removal of all loose material, dust, etc, and damping down before starting work.
- Once stone type is sampled and established, repair stonework, if required. (Appropriate and representative mortar sampling and analysis can reveal the constituents of original mortars and assist in developing compatible specifications which will closely match the colouring and texture of the original mortars.)
- Match original mortars and refrain from removing sound original mortars.
- Rake out any loose and friable material as it requires a sound surface to adhere to and cut out any cementitious mortar that won't damage the surrounding masonry when removed. If this is in danger of happening it is best to leave the well adhered pointing and patch point with a lime based mortar.
- A stiff bristled brush should be suitable for clearing stone surfaces of unwanted material, followed by lightly spraying water into the joints to remove any remaining dust and debris.
- Defective lime mortars (those which are friable or have become detached from the adjacent masonry) should be raked out to a sufficient depth where sound mortar exists. However, care should be taken to ensure that sound, original lime mortars are left in place.
- Re-point any areas where voids appear behind the stonework.
- Where masonry is relatively impervious and a suction bond may be difficult to achieve, joints may need to be raked out further, possibly at least twice the depth of the joint width to provide a level of mechanical anchoring of the new mortar into the joint.
- New pointing should be finished flush with the surface of the stone.
- Where areas of stonework will be left exposed, the lime based repair mortar can be used to fill decayed areas of stone and support delicate fragments of stone. The mortar should be blended to closely match original stone in terms of colour and texture.
- Treat re-pointing as a repair, to be carried out only where necessary.
- Control of suction between the new mortar and the substrate is required. The more absorbent the stone, the more wetting down it will need, in order to prevent water being drawn from the newly-placed mortar into the stone.
- In drying conditions, new lime pointing will need to be dampened regularly (by lightly spraying) to prevent rapid drying.
- Undertake any necessary dubbing out. Dubbing out to be maximum 10mm per layer.
- Apply three coat lime plaster (made up of a scratch coat, a floating coat and a finishing coat) to all internal faces of existing masonry walls, made up of:
  - Scratch coat of 9mm thick NHL2 hydraulic lime plaster, or fat non-hydraulic lime plaster, with hair reinforcement added to give tensile strength.
  - Floating coat of 9mm thick NHL2 hydraulic lime plaster, or fat non-hydraulic lime plaster.
  - Top coat of 3mm thick fat non-hydraulic lime plaster.
- Stainless steel or oak beading at corners.
- Cut out / chase, as required for fixing of conduits and services outlets and the like and then make good. Where services can be chased into substrate, isolate from coating by covering with galvanized metal lathing, fixed at staggered centres along both edges.
- Ensure the wall does not dry/cure too quickly or too slowly.
- Prevent rapid surface evaporation from direct sunlight or high temperatures by covering with damp hessian clear of lime surfaces.
- Do not use direct heat or de-humidifiers to avoid spot drying.
- Ensure exposure to natural air ventilation.
- All walls to be finished with natural emulsion (breathable) paint (i.e. Edward Bulmer Pots of Paint), or limewash, which should be used as thinly as possible, however applied in at least 3no. thin coats, allowing at least 12 hours between coats.

In addition to the matter of the inappropriate mortar and plaster, there are a number of areas where vegetation has been growing from joints in the stonework. Where this vegetation is buddleia, this can be extremely damaging, as the roots are extremely strong and can easily dislodge stone, as they have done to the wall at the front of the main external steps.

All vegetation and buddleia roots must be removed from walls. If roots do not come out by removing the mortar in the joint, or by taking down the top few courses of stone, then more stone may have to be taken down. It is essential to ensure no roots are left. Once all is finished, an approve biocide can be applied to all walls.

There are a number of iron vents within the walls, often below windows. Many of these are damaged and some have been either accidentally or intentionally blocked up. Whilst their repair is, in some respects, a matter of aesthetics, it would be beneficial to undertake proper repairs, however it is important that any vents are kept clear in order to ensure that the lower floors and sub-floor cavities are kept well ventilated to prevent condensation, which also causes decay.

The text within this section refers to the fact that the outer face pointing and inner face plaster to the external walls is cementitious and is not allowing the walls to 'breathe' as they were intended to, which results in them becoming saturated and, consequently, causes damp, rot and poor internal conditions and, in extreme circumstances, structural failure. However, the text also suggests that the holes within the roof and windows has helped avoid too great a problem here. The text then advises the removal of all the cementitious pointing and plaster and a re-application, as necessary, of lime-based mortar and plaster. This is achievable and, once the building fabric is properly dried out, and the water ingress controlled (by the repair of roofs and windows etc), then the current defects within the walls may all be reversed and the walls adequately conserved.

6.5.1.2 Cracking to Lintol Stonework over Openings

For the cracks lintol stonework over openings, of which there are a few, please refer to advice from Mann Williams Structural Engineers. Repairs to these lintol are necessary, or, if the stone is deemed to have failed, then a replacement stone will be required, such a stone being a like-for-like replacement.

If a structural repair is undertaken, then, following the repair, the crack itself will need to be filled in using a non-hydraulic 'fat' lime putty & stone dust (1:3 mix), ensuring the texture & colour match the adjacent original stone.

6.5.1.3 Piecing-in Small Sections of Stone

(i.e. Sections of window surrounds or dressing where sections of stone or detailing have been lost or damaged beyond repair and where they are of a larger size such that lime putty repairs would be ineffective).

Where adjoining stone is stable, insert a new piece of stone (to match existing). Indent new matching stone with 150mm indent, using s/s dowels & resin & fix with a lime mortar joint, to match existing. To avoid a 'patchwork' appearance, rather than piecing-in small stones, the existing original ashlar coursing will be respected and the full course depth will be replaced (but to the minimum practical width to avoid removal of existing sound structure).

6.5.1.4 For Small Patch Repairs

(i.e. Small chunks taken out of stone or holes in stone)

Small holes in the stonework, small chunks taken out of stone sections and minor repairs to architectural mouldings are to be repaired using a non-hydraulic 'fat' lime putty & stone dust (1:3 mix). Ensure texture & colour match adjacent original stone. Moulding profiles to be built-up in layers to match the existing profile to ensure thorough adhesion.

6.5.1.5 Full / Large Cracks in Stone

Large cracks in the stonework are to be filled in using a non-hydraulic 'fat' lime putty & stone dust (1:3 mix). Ensure texture & colour match adjacent original stone.

It will be beneficial to add in additional support into the joints, perpendicular to the fracture to tie the two parts of the stone together. The Structural Engineer will need to advise on this, however, it could involve the removal of the stone, its re-setting using stainless steel rods and resin or the insitu placement of reinforcement, such as austenitic stainless steel helical bars, in the joints above and below the crack before re-pointing. As the joints are ashlar, this may not be possible, as it may be too difficult to get helical bars into the small joints.

6.5.1.6 Hairline Cracks in Stone

Hairline cracks in the stonework are to be filled in using a non-hydraulic 'fat' lime putty & stone dust (1:3 mix), where it is possible to get putty into crack. Where crack too small, do nothing. Ensure texture & colour match adjacent original stone.

6.5.1.7 Complete Replacement of Stone

Stone to match existing Stone in all respects. Contractor to provide Architect with samples. Cut new stone to original profile & size exactly, in natural bedding plane complete with fine finish. Bed in ashlar joints to match existing. Use austenitic stainless steel dowels, as directed by Mann Williams Structural Engineers, to affix to existing stone & sections of stone.

6.5.1.8 Stone Spalling / Delamination

There are very many examples of this type of defect at the Synagogue.

Minor spalling / delaminations are to be gently and sensitively re-worked (by hand) using a non-hydraulic 'fat' lime putty: stone dust 1:3 mix. Ensure texture & colour match adjacent original stone. Minor shallow surface blemishes in the ashlar facing are to be left untouched.

This 're-working' is to be followed by a process of consolidation.

The fundamental principle of conservation is to alleviate the problems affecting the building in a way that does not detract from its history or endanger its fabric. In this case, consolidation of the stone would be deemed to be the most appropriate means of conservation, whereby the friable stone is stabilised, and the rate of decay reduced, with the introduction of a liquid treatment (its cohesion and natural strength are restored by binding together its constituent particles), whilst still allowing weathering to take place as a natural process at a natural rate. The stone is descaled using a phosphor bronze brush to expose a sound substrate. A suitable consolidation fluid can then be applied to reinstate the integrity of the bond between the particles of stone. The consolidation treatment would be with a polymer, probably a limewater or silane-based consolidant, penetrating at least 25mm into the stone. This should be applied during a period of low ambient humidity and when the building fabric is as dry as it can be. The most suitable type of consolidant will require tests for compatibility for make-up and colour and trials to be undertaken.

6.5.1.9 Areas of Lost or Friable Pointing to be Re-pointed

Re-pointing is only required to areas of damaged, friable or missing pointing or where cement mortar has been removed. Unnecessary re-pointing should be avoided.

The pointing technique should match the original not only in colour and texture, but also in design and application. Seek clarification, however new pointing likely to be non-hydraulic 'fat' lime putty:sand and stone dust 1:3 mix.

Where mortar is cementitious, investigate the ease of removing cementitious mortar. If there is a likely risk of damage to the stonework, then leave it as it is. If possible without damage, all cement mortar is to be carefully and sensitively removed (using hand tools) by experienced and proficient operatives taking great care not to damage the surrounding sound stonework. Then, re-point all joints to match existing, using a non-hydraulic 'fat' lime putty:sand & stone dust 1:3 mix.

Each area being re-pointed should be rinsed down well in advance so that, by the time of mortar application, it is damp rather than wet. This encourages good bonding between the new mortar and the substrate. The weather must be suitable; high temperatures or high winds will cause the mortar to dry too quickly, inhibiting carbonation. If necessary, the fresh pointing is to be covered with damp hessian and plastic sheeting to slow drying. No re-pointing should occur if the temperature is expected to drop below 5°C during the application or curing period. Start re-pointing at the top of the wall, so that any dripping water rinses the stonework rather than washing out the new mortar.

if not covering the stone parapets to the gables in lead, re-point all of them in an NHL5 lime mortar : sand 1:2 mix. Either one of these is essential.

6.5.1.10 General Cleaning (to all areas)

All stonework could be cleaned, however, this is not essential.

If cleaning is proposed, it should be such that it is not too much that is appears bleached, but rather that the 'patina of age' is retained. So a light clean is proposed, with more focus on the heavier stained areas.

From our previous work, we learnt the benefits of the 'Jos' cleaning system; a controllable low pressure 'vortex' system which uses small quantities of water, with a mixture of air and fine inert powder, such that only a light surface clean removes carbon, dirt, micro-organisms and atmospheric pollution, whilst retaining the patina of age on the masonry and limiting the risk of damage.

We feel, however, that the 'Jos' system, whilst well suited to brick, can be too harsh for stone. It can clean the stone too much, almost bleaching it, and open up / pit the texture of the surface a little.

For stone, we therefore often prefer the 'Doff' system at a very low pressure. It takes off the worst of the built-up grime, however does not remove the 'patina of age', nor any of the stone surface graining, nor bleach it. 'Jos' tends to clean to the appearance of bright clean new stone, which we do not propose, and it clearly takes a little off the top surface stone graining.

We had worried about the extra water required for the 'Doff' system, however it tends to be shed quickly and not absorbed, such that the wall feels dry within minutes.

The 'Doff' is not, however, as successful as the 'Jos' at removing ingrained soot and accumulations on the mouldings, however the 'Jos' appears to take a little off the sharpness of the profile and clean it too much, so, for mouldings, we propose the use a poultice, however limited to only one application, as it can be too bleaching otherwise.

We therefore propose the use of the 'Jos' system for the brick areas, the 'Doff' system for the stone areas and poulticing for the stone mouldings, which may also require one pass of the 'Jos' system afterwards, if the poultice leaves something behind.

The stonework is, therefore, to be cleaned using the 'Doff' system for the general areas and poulticing for the engrained dirt to the rear and other parts of the stone mouldings, which may also require one pass of the 'Jos' system afterwards, if the poultice leaves something behind.

The 'Doff' system is a high temperature steam based stone cleaning system. Whilst the temperature in the system is high, the pressure on the surface being cleaned is very gentle and the volume of water is low. The surface is therefore not saturated and will be dry within minutes. The steam/superheated water will remove moss, algae, fungi and other biological matter and will also kill off spores. This means there's then no need to use a chemical biocide during the removal process or as a protection against further biological activity.

In all cases, undertake a trial sample of 1sq.m. in an indiscrete location, with pressure varied in our presence, and seek approval before proceeding further. Maintain records of each trial area to enable replication of results elsewhere.

6.5.1.11 Specific Cleaning of Staining

Where staining is heavy (i.e. underneath projections), use a poultice, such as 'clean film for soot and accumulations'.

This is particularly relevant to the backs of the stone columns in front of the two and three-light windows.

Undertake a trial sample of 1sq.m. in an indiscrete location, with pressure varied in our presence, and seek approval before proceeding further. Maintain records of each trial area to enable replication of results elsewhere.

6.5.2 Windows

Whilst most of the windows are damaged to some extent, not least with the loss of many panes of glass, this is rarely a matter for considerable concern (aside from the water ingress and the security), as, invariably, the worst of the damage to the timber frames is at the bottom, primarily to the cill and bottom rail, and sometimes the base of the two side stiles, and that this can usually be successfully addressed without need to replace the whole window. However, where a full replacement is necessary, this is viable.

Most of the windows to the Synagogue are timber-framed - partly solid panes, partly opening casements - with single glazing. There are a few metal-framed windows, including the circular windows with stained leaded glass.

In the case of most of the windows, there was limited sign of timber degradation to the upper parts of the frames themselves, the heads or the stiles, however, in almost all cases, there was paintwork cracking to the timber frames.

However, in most cases, there was degradation and damage apparent to the timber window cills – some of which had been lost completely, the bottom rails and the base of some of the vertical stiles, whereby areas of paint degradation, and possibly soft patches behind the layers of paint (suggesting rot), were established in the surface of the timber.

Replacement windows are rarely necessary: decay is usually limited to the bottom few inches of the frame and new timber windows are liable to decay more quickly than the originals would if repaired.

Therefore, the report does not propose the replacement, nor even the extensive repair, of many windows, however a thorough sanding and re-painting is recommended for all timberwork to all the windows, which will allow a more detailed inspection and allow the extent of the necessary repairs to be made. It is not necessary to repair any more of the timber than appears soft or weak once the paint is stripped.

A few windows, however, have been almost completely lost. These are not many, however, they are likely to require full replacement.

The existing windows should be retained as much as possible. A thorough sanding and re-painting is recommended for all timberwork to all the windows, which will allow a full review of the condition of all parts of windows to be undertaken and allow the extent of the necessary repairs to be made.

As a result, all of the window frames are to be repaired, where possible. Where windows are lost, or badly damaged, the window frame is to be replaced, like-for-like. All glazing is to be replaced, apart from retained leaded glass units, which are to be retained and repaired and new secondary glazing unit incorporated into the inside face. All new glazing to main Synagogue space is to be new leaded, stained glass within Slimline double-glazed units. All new glazing to front range windows and upper ground floor is to be clear Slimline double-glazed units.

Apart from the remaining 'Star of David' leaded windows, many of the new glass is proposed to be special artist-designed stained leaded glass. A design for his is yet to be determined, as the intention is to tender this work to glass artists. It is to involve new colourful designs, with the colours being fairly dark so as to minimise bright light within the space, thereby avoiding the need for black-out blinds.

6.5.2.1 Proposed Timber Window Repair Specification

The first task is to remove the existing paint from the full extent of the cills in order to improve the appreciation of any soft patches prior to any repair work.

In any pre-1960s building, it is very likely that lead paint was used at some point. Paint based on white lead and linseed oil was extremely common for coating and protecting exterior timber, due to its suitability. Rather than becoming brittle and cracking, the paint would gradually weather or 'chalk' away to a matt surface which could be easily re-coated after a few years. White lead was a very common as a white pigment. So the external window frames may well have layers of lead on them.

In any areas where the paintwork has cracked, soft patches may have occurred, which will be a case of water entering the wood and, hence, further deterioration is likely.

Some of the cills comprise a large extent of apparently sound timber. It is therefore not believed that these require complete replacement, but rather one or more pieced-in spliced patch repairs.

Any areas of soft, decayed or damaged wood should be carefully cut away / gouged out until relatively sound material is reached. Excessive trimming of the existing timber should be avoided.

Then a preservative should be applied and the affected area consolidated by painting a liquid wood hardener onto it. One coat of hardener is enough to reinforce weakened fibres and seal the wood against future penetration.

After six hours, the holes, cracks and crevices should be filled with a flexible exterior wood filler.

Having gouged out the soft decayed wood to investigate the extent of the damage, a cavity should be chiselled out that is slightly larger than the damaged area and, if possible, the edges undercut to lock the new patch into place.

A patch should be cut from timber similar to that of the existing, matching the shape of the existing profile, with the grain running in the same direction.

Timber inserts should be from well-seasoned heartwood, and be as similar as possible to the host timber in species, density, moisture content, grain orientation and growth rate (number of growth rings), as the joint between the two is likely to fail if the two species have different rates of expansion and contraction. They should be preservative treated before insertion.

The patch should be shaped to match any undercuts and left very slightly oversized, both in thickness and in width, for planning down after fitting.

The new timber should be worked to the line of the existing timber following any existing deformations in the line of the cill.

Where possible, timber inserts should be designed so that water is directed towards the outer face of the timber, and cannot lie on or enter the repair joint.

The prepared area and the new timber should be painted with a chemical preservative before gluing the patch in place with a suitable waterproof exterior-grade synthetic-resin adhesive, and pinned with brass or stainless-steel fixings.

When the glue has set, the patch should be planed flush then coated with a preservative again before filling any gaps with a flexible wood filler.

If sections are damaged or rotten beyond repair, then these sections should be removed and new wood scarf spliced into the original to match the existing as closely as possible. This must be undertaken by skilled carpenters.

However, some of the window cills have completely rotten or been lost altogether, and therefore do require new cills to re-set at the base of the frame.

In these cases, the existing cill should be carefully removed, carefully chiselling or cutting it away from the base of the two stiles.

Then a new length of timber cut, matching that of the existing, in the shape and size of the existing profile. Timber should be from well-seasoned heartwood, and be as similar as possible to the original timber in species and density. It should be preservative treated before insertion.

The cill should be designed so that water is directed towards the outer face of the timber, and cannot lie on any part of the cill.

The cill should be located in place with a suitable waterproof exterior-grade synthetic-resin adhesive, and pinned to the existing stiles with brass or stainless-steel fixings.

When the glue has set, the joints between the cill and stiles should be planed flush and then coated with a preservative, before filling any gaps with a flexible wood filler.

It may be sensible to sample the paint by taking scrapings and send them to a specialist. It would also be very interesting to establish what the original colours were. The window frames could have been white but certainly not a brilliant white, more likely either an off-white or cream. This would also confirm, either way, whether lead exists in any of the paint layers.

In most cases, new panes of glass will be required. This should ideally be of crown or cylinder glass, rather than float.

In suggested, therefore, whilst there is likely to be a lot or carpentry repair work required to the timber windows, it is not unreasonable to assume that most, if not all, of them do not need replacement, simply repair and the insertion of some new sections, principally at the cill.

6.5.2.2 Proposed Metal Window Repair Specification

There are also a few metal-frame windows at the Synagogue. Likewise, it is usually viable to conserve and repair these, involving their rubbing down / abrasion of paint and rust and repair, where necessary, followed by re-painting. Rarely is replacement necessary. The repair of each steel window will involve some or all of the following works.

Suggested In situ Repairs

Removal of existing glass and putty
Hack out the existing putty and remove the glass pane, a number of which are broken and many of which are replacements to the original and now somewhat variant. [It is essential, however, that the putty is assessed for the inclusion of asbestos. If there is asbestos in the putty, then the requisite health & safety measures must be put in place for its removal, which could possibly require the frames to be taken off site].

Degreasing and removal of debris and dust
This should be carried out as part of the regular maintenance of steel windows and in preparation for any repairs. Oil or grease should be completely removed from the metal surface using scraping tools, washing with warm water and detergent, then rinsing off with warm water. Non-caustic degreasing agents such as white spirit followed by clean swabs can also be used. The removal of debris and dust can be assisted by careful brushing and vacuum cleaning.

Preparation
All hardware (except hinges) may have to be removed, if being re-used, and glazing masked or temporarily removed, or removed if being replaced.

Surface preparation
Abrade, file or grind off rust down to bright metal. In situ stripping back of paint and rust to healthy metal may be carried out using a variety of tools such as needle guns, disc sanders, hand scrapers, wire brushes and sandpaper. Grit blasting is a more rigorous alternative but extra care should be taken as the blasting medium can collect in crevices where it holds moisture and can cause rust or distortion through build up. Health and safety considerations relevant to the removal of lead-based paint should be observed carefully. Paint samples will have been be taken by the Client to assist with the identification of the original colour scheme. The extent of stripping will depend on the condition of the window, sometimes it is enough to rub down, prime exposed metal and repaint.

Priming
Stripped metal should be primed with a rust inhibitor / zinc-rich primer immediately to avoid the re-formation of rust on exposed surfaces.

Realignment
Once stripped of paint and/or cleaned of rust, window frames and casements can be realigned, adjusted and eased so that all operable windows are returned to good working order. Loss of alignment may be the result of rust behind the frames causing metal expansion and/or paint and debris build-up, both of which can cause distortion. Poor maintenance and user pressure on uncooperative windows may be contributory factors.

Assessment
Condition and the extent of necessary repairs are assessed at this stage and a decision made on whether to carry out in situ repairs or to remove the window for repairs at a workshop or to replace it. A detailed schedule of window repairs may include all three possibilities as the condition of individual windows in a building may vary.

Metal repair
Even when metal frames appear to be in very poor condition, often very little metal needs to be replaced. In situ repairs may involve the use of metal fillers. Piecing in of new metal is usually best carried out using brazing (rather than welding) because of its versatility and reduced fire risk. The original steel sections are no longer in production, so splicing / brazing repairs, while technically possible, are largely reliant on the availability of salvaged windows of the period. Replacing even small amounts of metal would therefore require material from suitable reclaimed windows, or adjusting currently available steel window profiles.

Opening lights
Outer frame cill channels have drain holes that can become clogged with paint, grime or insects. Clean them out and keep them open to ensure that the windows maintain their designed weather performance.

Hardware repair
Operators, hinges, pivots and locks should be cleaned using a fine wire wheel. Operators may have small lubrication holes and these are sometimes painted over. Mechanisms may have seized and can be repaired by flushing out the gears, then freeing the works by oiling. Missing or broken hardware and hinges should be replaced, perhaps using matching parts from salvaged windows. Alternatively, readily available parts can be adapted although this may necessitate filling existing screw holes with steel epoxy or plug welds and tapping in new screw holes. If the hardware is a highly significant element of the historic window, reproductions can be made.

Re-glazing
Depending on the degree of distortion, de-glazing and re-glazing may be necessary. Cracked or broken glass and failing putty should be replaced. Loose putty should be raked out, replaced with metal casement putty (not linseed oil based putty intended for wooden windows) and overpainted.

The edges of the single panes must be spaced from the metal frame glazing rebate with setting and location blocks. They must also be carefully separated from the glazing upstand with distance pieces, mastic tapes or preformed gaskets. Putty fronted single glass is retained by spring steel glazing clips placed in holes pre-drilled in the glazing frame rebate. Re-use or replace them when re-glazing.

Re-placement putty should be appropriate to the use and be allowed to harden for approximately two weeks or longer before it is painted to match the colour of the fenestration. Silicone sealant is not aesthetically appropriate for conservation work.

The glass currently has security film on it. This is to be removed, however, new security film is to be applied on completion, to protect from damage.

Painting
The steel sections should be protected with primer and paint. Two coats of primer and four coats of air-drying paint should be adequate. Subject to consultation with the Conservation Officer, powder-coating may be an option, albeit would involve their removal, which may not be suitable. The finished colour is to be advised by the Architect, further to the Client's paint sampling.

Weatherproofing & Sealant
The original sealant should be raked out, the joint thoroughly cleaned up, and new sealant applied which is compatible with the original. Traditional oil based mastic sealants depend on a paint overcoat to maintain their service life. Weather-stripping using silicone beads can also be undertaken. Modern polymer sealants are more resistant: over-painting remains desirable with acrylics, is possible but not necessary with polysulphides, and is to be avoided with silicones. Ensure a watertight paint seal between putty, glass and frame.

Suggested Workshop Repairs

As stated, if the paint to the window frames includes lead, or the putty includes asbestos, it may be necessary to take the windows out and undertake the work in a workshop. It is a requirement that the Contractor makes this decision.

In addition, in cases of severe deterioration, when extensive conservation work is required, involving the repair or replacement of hardware, the dismantling of composite assemblies, or the piecing in of replacement bars, it may be worth having the windows taken out, removed to a workshop, stripped down and hot dip galvanized before re-assembly. Dismantling and re-housing will involve disturbing the surrounding fabric, although it may still be possible to repair sub-frames in situ.

Once in the workshop, removal of flaking paint and corrosion can be carried out in a chemical bath of phosphoric acid. Unevenly distributed rust may have to be grit blasted. Test areas should always be carried out to determine the correct air pressure and size of grit, starting at a pressure of 40psi with a fine grit (usually copper slag) and not exceed 60-70psi. It is important that BS standards for abrasive cleaning should be carefully interpreted before applying to historic steel sections.

As with in situ work the stripped metal should be primed with a rust inhibitor immediately to avoid the re-formation of rust on exposed surfaces. Then realignment can be carried out as necessary using heat and pressure. Any perished metal sections may then be cut out and replacement matching metal sections welded in. Replacement metal can either be taken from matching salvaged windows or suitably adjusted, currently available sections. Matching replacements can be specially fabricated but this will be more expensive.

Where appropriate, the repaired window can be powder-coated to the required colour over hot-dip galvanising, a zinc-coating process which improves rust and corrosion resistance reducing the requirement for regular maintenance.

6.5.3 Roofs

The main duo-pitched slate roof is steeply pitched. This makes it especially successful in shedding water. However, the roof covering is damaged in places, with the largest hole to the south-facing side elevation. This is despite the programme, in 2020, to undertake various localised roof repairs. There are also some slipped and cracked slates in various areas.

The front elevation turret conical roofs have lead-covered hips and decorative terracotta tile ridges. To the left-hand turret, the 2020 works undertook temporary repairs; however, some of the hips covers - which were not lead, but a lead-substitute - have lifted and exposed gaps in the covering.

The main roof has blue-black clay capped angle ridge tiles. The review saw no damaged ridge tiles.

There are some areas of damaged and/or lifting leadwork at junctions between roofs and walls or parapets.

One thing which is not helping the roof is the fact that branches from the nearby trees are hanging over the roof, in some places, touching the roof and, no doubt, damaging the slates. This also results in far too many leaves falling into the rainwater gutters and blocking them up, which is one of the most serious, yet preventable, causes of water ingress into the fabric of buildings. The tree canvas also causes a considerable about of lichen to deposit on the slates.

It is apparent, from inside, that the main roof includes a roofing membrane (albeit not a vapour permeable one) and mineral wool insulation. This suggests that the roof might have once been re-laid. Whilst it is possible to insulate from below, it is not possible to apply a membrane from below; this requires the slates to be taken off.

Due to the damage to the slate covering, areas of the roof have also lost their membrane and insulation.

This being said, since the membrane does not appear to be vapour-permeable (which is highly recommended when working with historic buildings, if indeed a membrane is desired), it is recommended that the membrane be removed. Mineral wool insulation is vapour-permeable, and therefore its use acceptable, however, other insulations may be preferable.

Whilst there have been patch repairs undertaken to the roof, new damage has occurred since 2020, with a new hole having formed on the south-face of the main roof. Also, the repairs were only intended to be temporary; and there were many other defects which were not addressed in 2020, as they were not, then, deemed to be 'urgent works'. It should also be noted that the roof currently includes an inappropriate vapour-impermeable membrane, which need to be removed; and insufficient 'vapour-permeable' insulation for an adaptation project.

Therefore, all of the roof areas are to be stripped of slates, ridge tiles, leadwork, membrane and insulation. Slates and tiles are to be carefully removed and set aside for re-use. The new roof build-up is to comprise: re-used slates and tiles, plus new like-for-likes, where extras required; new 50x25mm timber battens; and a new vapour-permeable roofing felt. Between the rafters, earthwool or glasswool vapour-permeable insulation will be inserted, with 25mm thick woodwool boards applied over the top. Finally, 2no coats of 6mm lime hemp plaster will be applied to the woodwool boards followed by a 3mm lime top coat. The ceiling will then be painted in vapour-permeable paint.

The lift requirements are subject to detailed design. However, it is possible that the lift shaft will require additional headroom beyond the roof structure, possibly only for installation of the lift itself; and/or possibly for one-of future maintenance. To achieve this, a section of the roof rafters, insulation, membrane, battens and slates is to be independent of the rest, allowing for installation after the lift and possible removal in the future. In terms of appearance, the roofline will be unimpacted.

Note that all roofing works needs to be specifically programmed where bat roosts exist and / or nesting birds are present so that any disturbance is minimised to reduce the risk of harming bats or bats or birds deserting their nests or young. This work is to be co-ordinated through a registered bat ecologist.

6.5.3.1 Proposed Roof Repair Specification

The intention is to strip the roofs of their slates and tiled ridge and undertake a full reinstatement of the existing slates, addressing all defects and weaknesses, re-using the current slates and introducing some new slates (to match) as required, taking the opportunity also to incorporate a breathable roofing felt and new insulation.

- Carefully take down all ridge tiles and roofing slates and set aside carefully and safely for re-use.
- Carefully remove existing timber battens.
- Review condition of timber rafters and purlins from above, especially where embedded in masonry, and repair, as guided by Structural Engineer, any damaged or rotten timbers.
- Some localised repair work to timber truss ends may be required. Seek advice from Structural Engineer.
- Lay over rafters a truly vapour permeable roofing felt, such as Procter Roofshield - the product must be both vapour and air permeable. Do not allow felt to obstruct ventilation paths.
- Fix new battens (50 x 25mm preservative treated softwood) onto rafters to the gauge required for the slates. Fix with 65 x 3.35mm galvanized annular ring shank nails.
- Re-fix existing slates with two copper or aluminium clout nails to each slate. Where slates are damaged or in a poor condition, provide replacements. All replacement slates are to be reclaimed Welsh slate and will need to be sourced from the appropriate quarry to ensure a colour and texture match - size to match original. Check reclaimed tiles for any nail fatigue or delamination or rot; reject slates with any defects. Lay slates with an even overall appearance with slightly open (maximum 5mm) butt joints.
- Re-bed existing ridge tiles. Where tiles are damaged or in a poor condition, provide replacements, which are to be reclaimed and match existing in all respects.
- Provide in-line slate ventilators to eaves (comb type), and raise ridge nominally, with added ridge ventilators to achieve full cross ventilation to rafter zone. Ensure a minimum 25mm continuous gap is retained, after insulation has been installed. If raising the ridge is not an option, provide natural slate in-line ventilators, located 2-3 course down from the ridge.
- Provide new lead flashings and aprons to junction of roof with parapets - code 5 lead.
- Additional ventilation will be provided to the roof, through the eaves, with a continuous eaves vent, and through new code 5 lead triangular roof vents, set a little below the ridge line.
- All timber fascias will require replacement with new timberwork, and painting.

6.5.4 Rainwater Goods

Some of the rainwater gutters, hoppers and downpipes are made of cast iron (ogee profile for the gutters and round for the downpipes), whilst some are made of plastic (half-round profile for the gutters and round for the downpipes). In some cases, a downpipe constitutes part plastic, part cast iron.

The cast iron rainwater goods will be the older ones, with the plastic fairly new.

Both plastic and cast iron appear to be, in the main, in a poor condition and, in some cases, have disappeared, or sagging, causing severe damp and staining to the walls. It is very important that these aspects are addressed, as damaged rainwater goods are some of the most damaging defects to a building fabric, whilst also being one of the most viable to address.

There are some areas, however, where the rainwater goods are in a reasonable condition and could be retained and refurbished.

The plastic goods will be easily damaged by branches, winds and vandalism. The cast iron goods less so, however, they will deteriorate in time. Once the protective coating of the paint has been lost, the base metal (the iron) will, in time, display corrosion. This presents as a red oxide orangey brown colour. Corrosion can lead to coating loss, loss of structural strength or integrity, and serious corrosion of the iron can lead, in time, to its complete loss. Once corrosion has begun, it is practically irreversible.

The mix of metal and plastic pipes does not help with the variant movement.

6.5.4.1 Proposed Rainwater Goods Repairs

It is recommended that all plastic items are replaced with cast iron goods, to match the original, like-for-liek; and all existing cast iron items are repaired and re-painted, or where too badly damaged, replaced.

It may be possible to replace with plastic, however, this is not advised, as cast iron would have been the original material and it is far more robust, long-lasting and resistant to vandalism, and such replacements would require listed building consent.

The colour to paint all the cast ironwork is a matter for consideration. Black would certainly not have been the original colour. Despite the fact that it is often said that ironwork around the country was painted black after the death of Prince Albert in 1861, this is not the case; black painted ironwork rarely preceded the 1960s and indeed fast-drying black paints only became a possibility in the 1930s with the introduction of alkyd binders.

It is most likely that the originally colour was lead grey (like RAL 7037), not least because it was the least expensive paint to buy, although it is possible that the earthy red-lead colour of the one downpipe to the side of the turret could have been the original colour. Green, dark blue and chocolate brown were also popular colours of the time to paint ironwork. It is likely that the paint included a red-lead primer and a layer or two of iron-oxide paint.

The only way to be sure of the original colour is to take paint scrappings and test it for the innermost colour.

One the matter of any paint stripping, in any pre-1960s building, it is very likely that lead paint was used at some point. Cast iron was protected by applying two top coats of lead-based oil paints over a coat of primer.

Proposed Repair Specification for Cast Iron Rain Water Goods

Remove all vegetation from gutters and around downpipes.

Preparation

Either assess, in detail, all parts of the cast iron rainwater goods, once scaffolding is in place, and, only rub down paintwork in areas where the paint appears to be blowing or breaking down.

or

Rub down paintwork to all cast iron rainwater goods.

Particular care must be taken if dismantling any parts as cast iron is a brittle material. Joints should never be forced.

Abrade, file or grind off any rust down to bright metal.

In situ stripping back of paint and rust to healthy metal may be carried out using a variety of tools such as needle guns, disc sanders, hand scrapers, wire brushes and sandpaper. Grit blasting is a more rigorous alternative but extra care should be taken as the blasting medium can collect in crevices where it holds moisture and can cause rust or distortion through build up. Health and safety considerations relevant to the removal of lead-based paint should be observed carefully. Paint samples may be taken to assist with the identification of the original colour scheme. The extent of stripping will depend on the condition of the metal at each location; sometimes it is enough to rub down, prime exposed metal and re-paint.

Non-iron sections should ideally be replaced with cast iron sections to match the original. It is not essential that all parts are cast iron, rather than plastic or aluminium, however this is preferable.

Priming

The exposed metal should then be protected with primer and paint.

Stripped metal should be primed with a rust inhibitor / zinc-rich primer immediately to avoid the re-formation of rust on exposed surfaces.

Painting

Over the primer, 2 or 3 no. coats of an alkyd-based oil paint should be applied.

Colour to be either black, lead grey or led oxide red. Seek instruction from architect.

Repairing Joints

Joints in the cast iron rainwater pipes do not need to be sealed because the upper pipe runs inside the socket of the lower pipe, preventing leaks, and an unsealed pipe will be easier to dismantle and repair in the future. To the joints which are not well fitted, place three lead wedges between the socket and the spigot to centralise and secure it. It may be acceptable to seal the void using a low modulus silicone sealant.

Gutters, on the other hand, must be sealed. A cold caulking compound may be used, as may a low modulus silicone sealant, which would be spread evenly within the gutter socket before placing the gutter spigot into the socket and bolting them together with stainless steel or zinc-plated screws and washers. The nuts should be lightly tightened onto the washers to avoid damaging the paint. Finally, any excess sealant should be removed.

Testing

On completion, all gutters and pipes should be tested by passing water through them. For gutters, temporarily block all outlets and fill gutters to overflow level and after 5 minutes closely inspect for leakage.

6.5.5 Floors

Whilst the lower ground floor / part basement is of ground-bearing solid construction, the rest of the floor are of suspended timber construction.

The rear section of the upper ground floor was made up of timber joists which beared onto sleeper walls, with infill make-up ground in between. This flooring was so rotten in 2020 that it was all removed.

The front section of the upper ground floor and the first and second floors are all of suspended timber construction, made up of timber joists and steel beams. Some of the timber joists to the upper ground and first floors appear to be historic (principally those showing remnants of a lath and plaster ceiling) and some appear to be newer. Likewise the steel beams - some older, some newer.

The second floor timber floor construction is, however, a modern insertion, seemingly located about half a metre above the position of the original gallery floor.

In 2020, both the first and second timber suspended floors were in a very poor condition, due, principally, to the ingress of water into the building, from above, and probably, for the rear end of the first floor, through moisture ingress from below in a poorly ventilated sub-floor void, which has resulted in obvious decay to the timber structure and plywood covering. Areas of this flooring were temporarily repaired in 2020.

The finish to the lower ground floor is concrete, in the centre, and black and terracotta quarry tiles, in diamond pattern, to the north. Whilst very dirty, it appears that the quarry tiles are in a reasonable condition. However, the poor light in the room and the covering of dirt to the floor, means that it is not possible to be clear what the condition is throughout. This being said, any damage to these tiles can be addressed by a good restorer.

Recommendations for Floors

The proposals remove the second floor plywood and OSB board intermediate floor altogether, along with the steel beams, and replace it with the new balcony structure. However, given the poor condition of much of the first and upper ground floor intermediate floors, significant repair and replacement is proposed for these. For this, please refer to Mann Williams' drawings later in this report.

The the rear of the upper ground floor, where the floor is currently suspended over earth and rock, a new floor build-up is to comprise: 22mm hard wax oiled oak floor boards; on 70mm deep, by 50mm wide, treated timber battens; on 60mm limescreed; on 150mm limescrete; over a geo-textile breather membrane; over min. 250mm insulating aggregate; laid onto existing ground, with all loose stones and other loose material removed.

6.5.6 Wall Vents and Grilles

There are a number of vents and grilles in the stonework. Some are in a reasonable condition, albeit the paintwork is coming away; some are in a very poor condition and badly damaged; whilst some have been blocked up.

Whilst the appearance of these vents affects the appearance of the building, they are an important practical aspects of the building, providing essential ventilation and air movement to sub-floors and intermediate floors.

They should be repaired - where possible, or replaced, like-for-like.

Restoration of Re-usable Vents

For those vents able to be retained, and not requiring replacement, rub down the vent to establish the condition of the base metal. If the rust is only surface in nature, then abrade, file or grind off any rust down to bright metal, using a needle gun, disc sander, hand scraper, wire brushes or sandpaper. Health and safety considerations relevant to the removal of lead-based paint should be observed carefully.

Stripped metal should be primed with a rust inhibitor / zinc-rich primer immediately to avoid the re-formation of rust on exposed surfaces.

Over the primer, 2 or 3 no. coats of an alkyd-based oil paint should be applied. Colour to match the original.

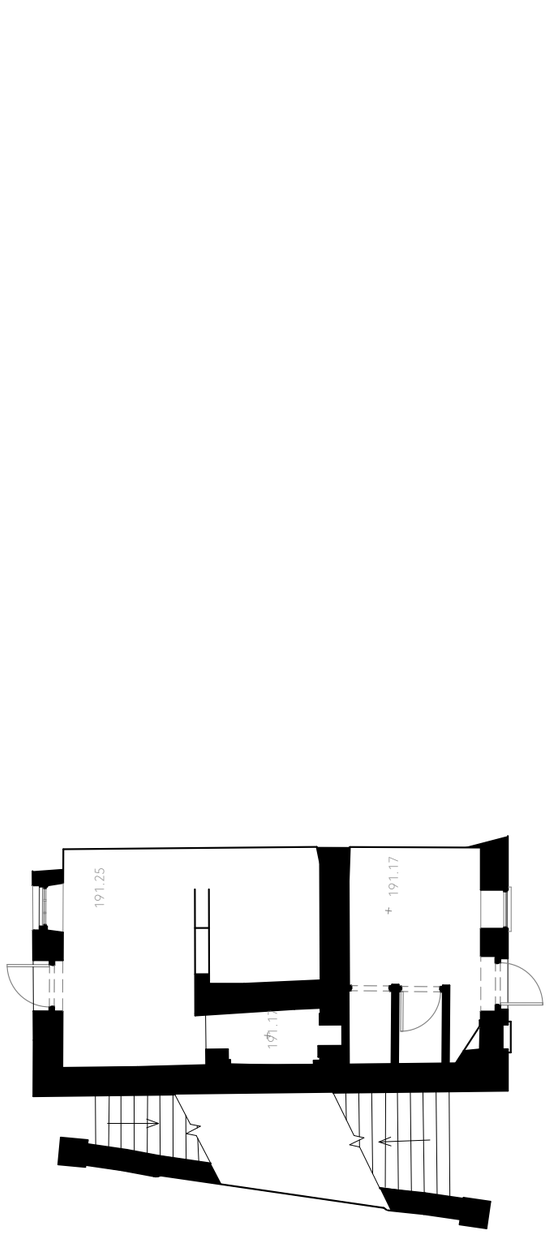
If the vent is corroded beyond its surface, then replace it like-for-like.

6.6 Existing & Proposed Drawings

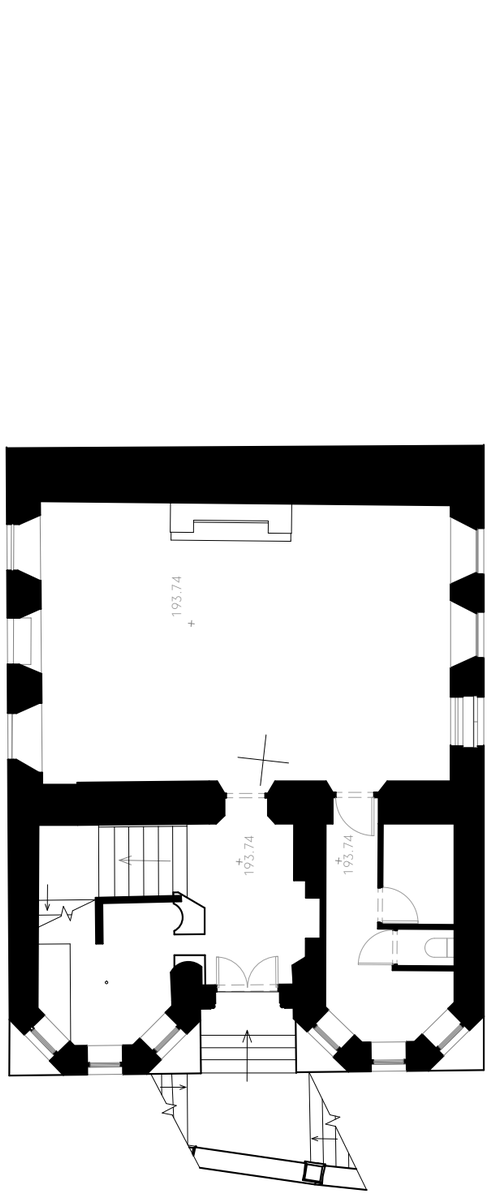
6.6.1 Existing Floor Plans

0 1m 5m

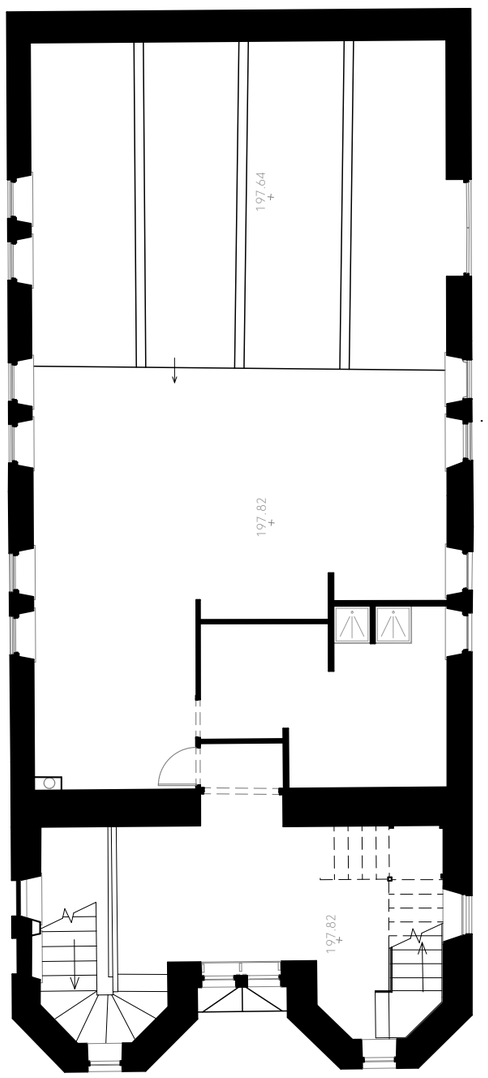
Scale - 1:150 @A3



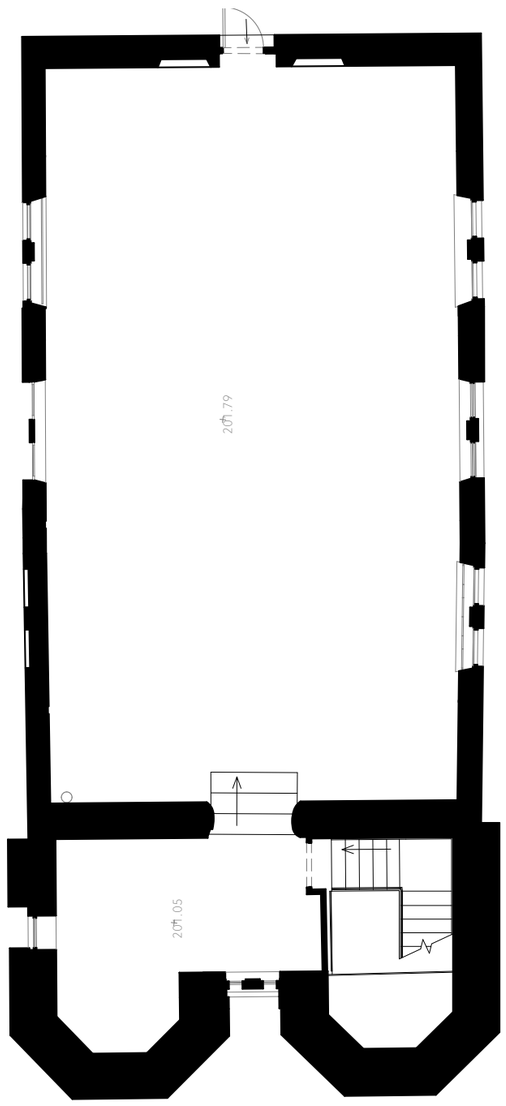
EXISTING LOWER GROUND FLOOR PLAN



EXISTING UPPER GROUND FLOOR PLAN

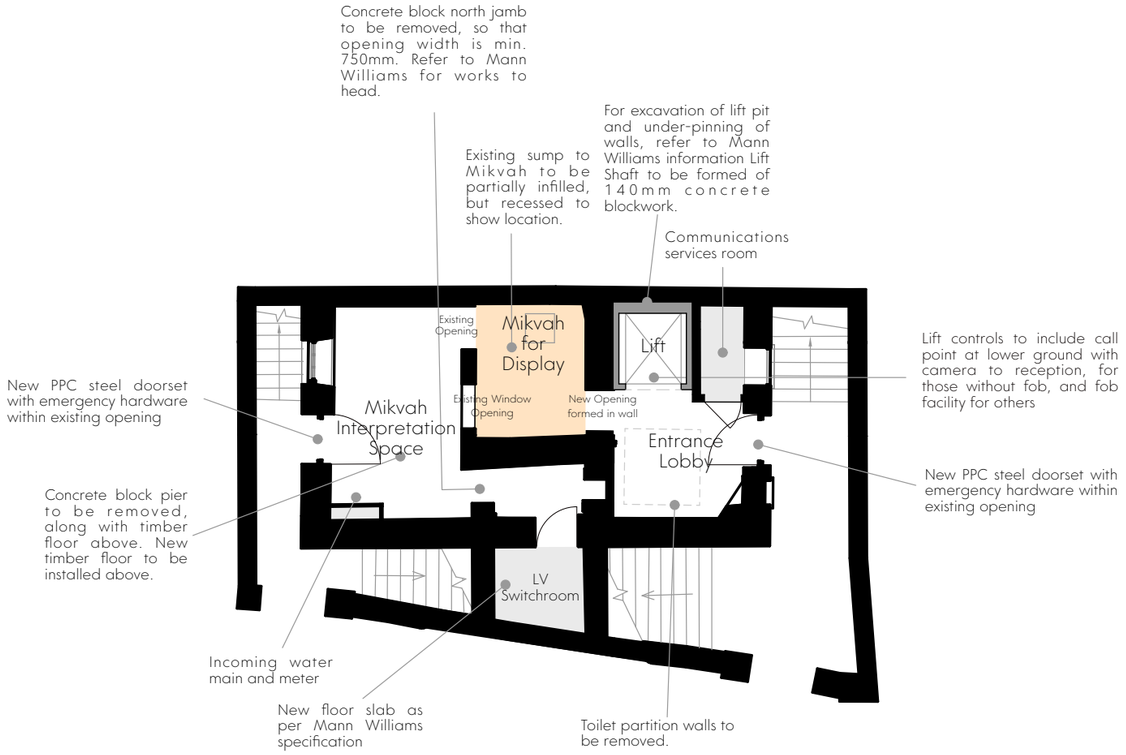


EXISTING FIRST FLOOR PLAN



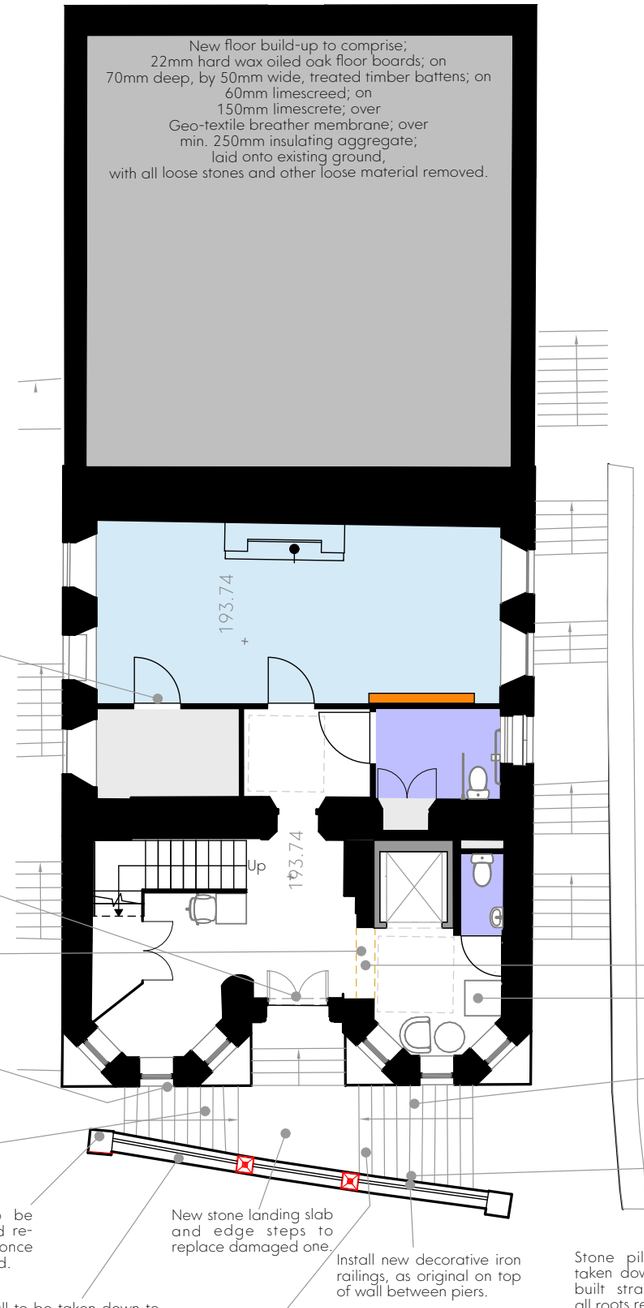
EXISTING SECOND FLOOR PLAN

6.6.2 Proposed Lower Ground and Upper Ground Floor Plans



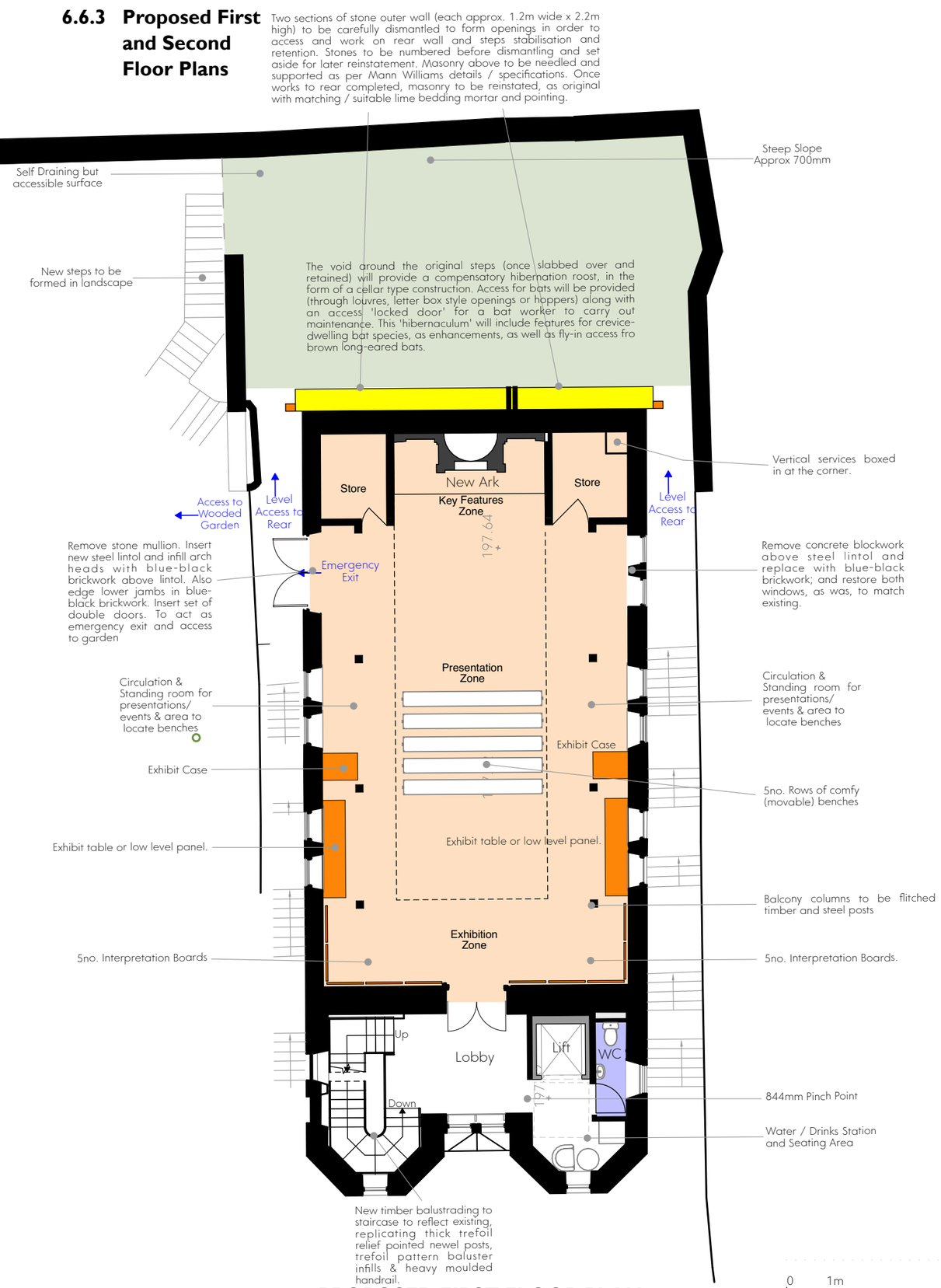
PROPOSED LOWER GROUND FLOOR PLAN

Scale - 1:150 @A3

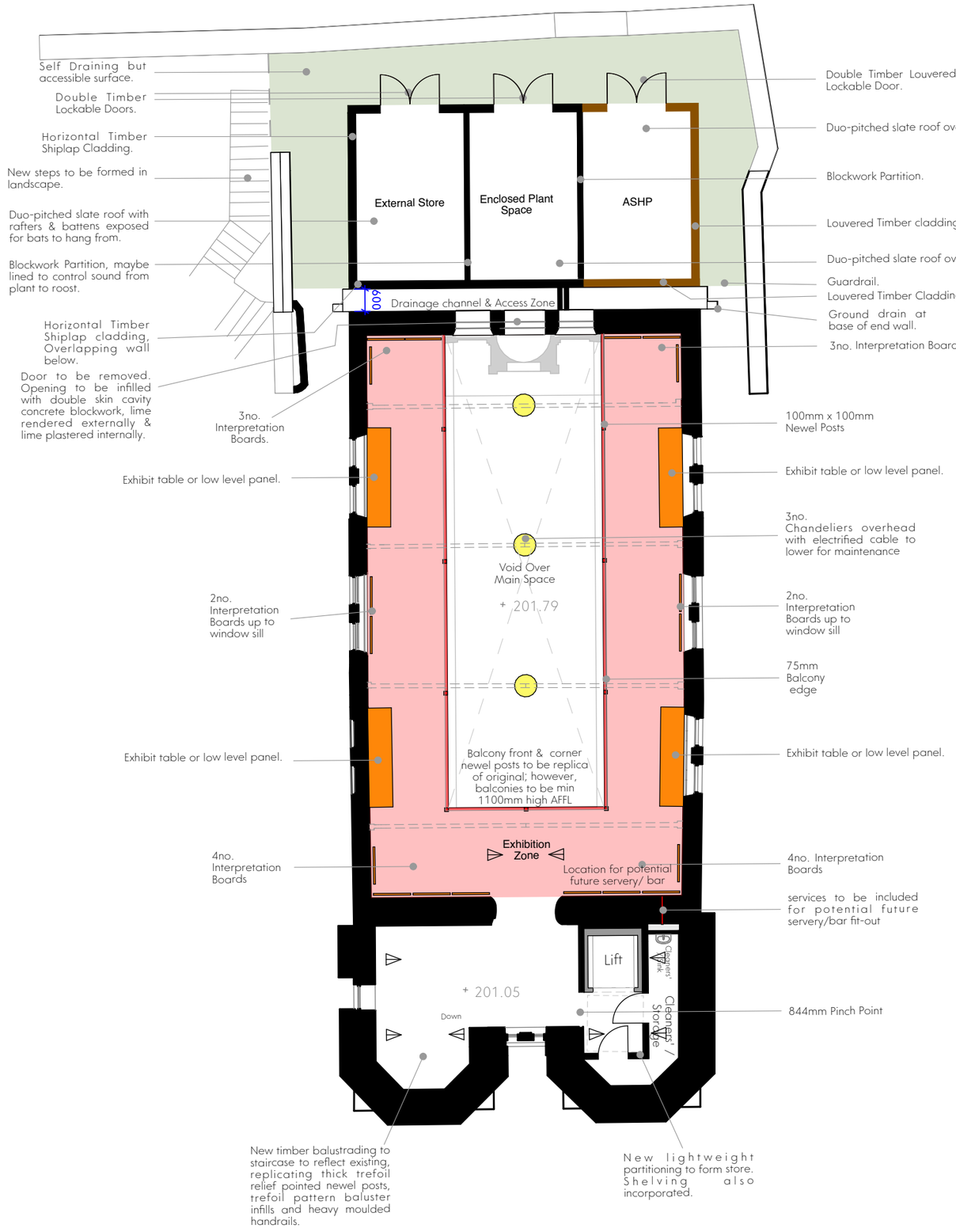


PROPOSED UPPER GROUND FLOOR PLAN

6.6.3 Proposed First and Second Floor Plans



PROPOSED FIRST FLOOR PLAN



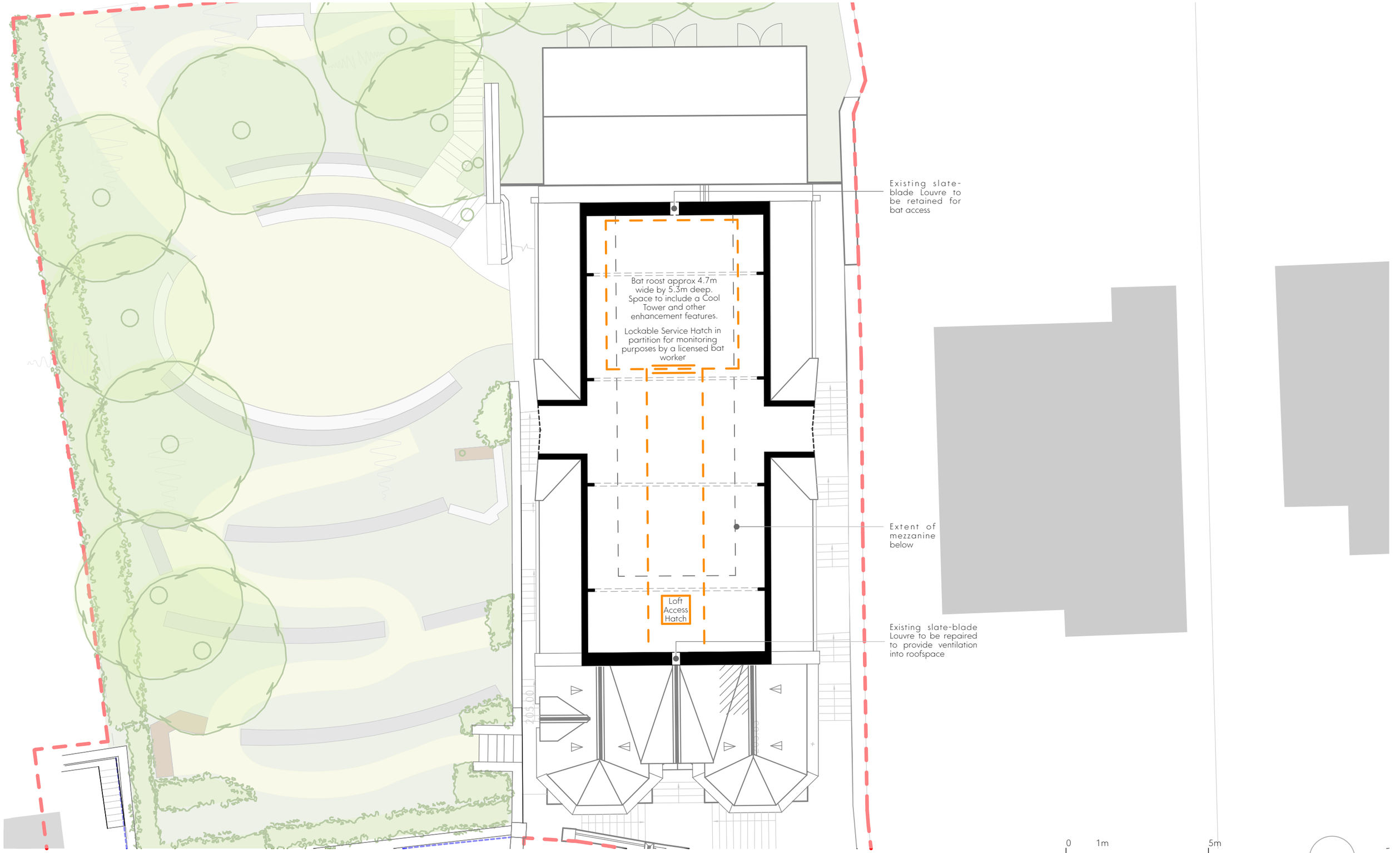
PROPOSED SECOND FLOOR PLAN

0 1m 5m

N

Scale - 1:150 @A3

6.6.4 Proposed Roof Loft Plan

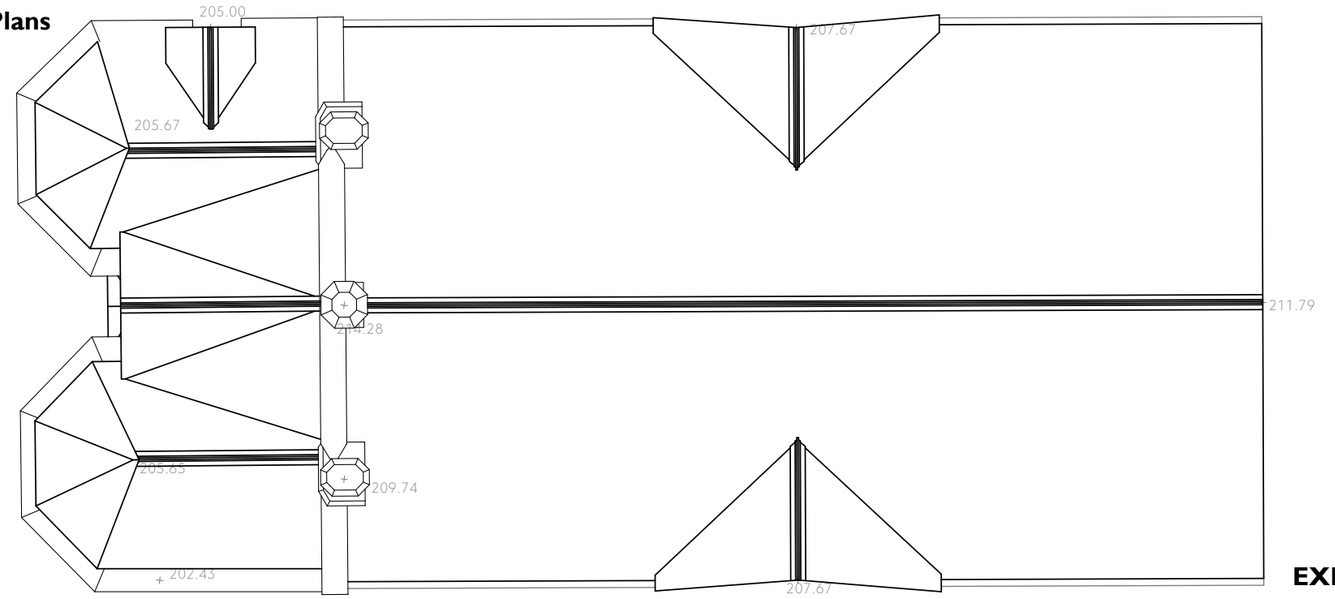


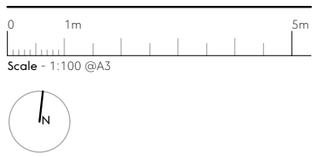
Plan

PROPOSED ROOF LOFT PLAN

Scale - 1:150 @A3

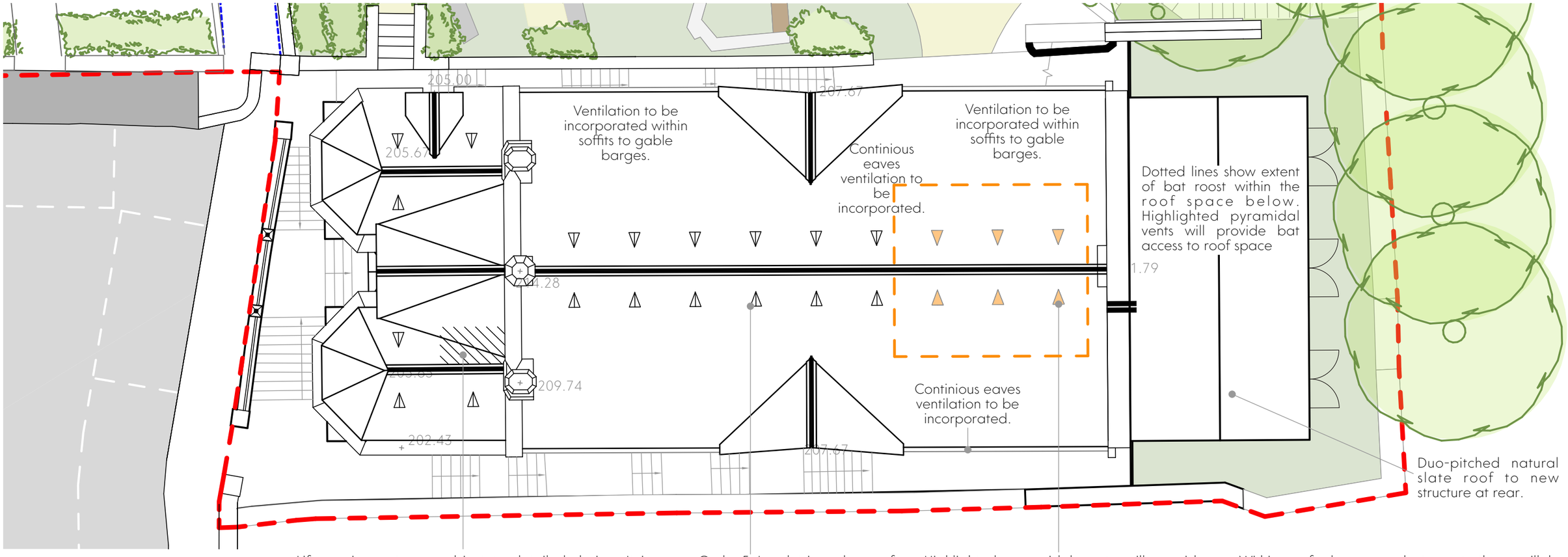
6.6.5 Existing & Proposed Roof Plans





EXISTING ROOF PLAN

PROPOSED ROOF PLAN



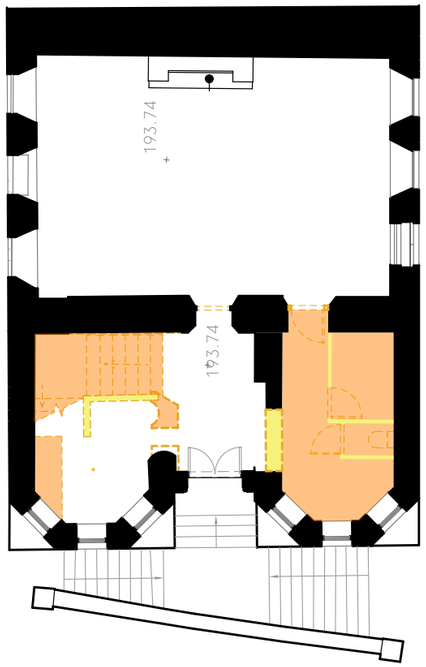
Lift requirements are subject to detailed design. It is possible that the lift shaft will require additional headroom beyond the roof structure, possibly only for installation of the lift itself; and/or possibly for one-off future maintenance. To achieve this, a section of the roof rafters, insulation, membrane, battens and slates is to be independent of the rest (as hatched), allowing for installation after the lift and possible removal in the future. In terms of appearance, the roofline will be unimpacted.

Code 5 Lead triangular roof vents set at c.400mm below ridge tiles. Number / centres of vents to be determined. Continuous eaves ventilation to be incorporated.

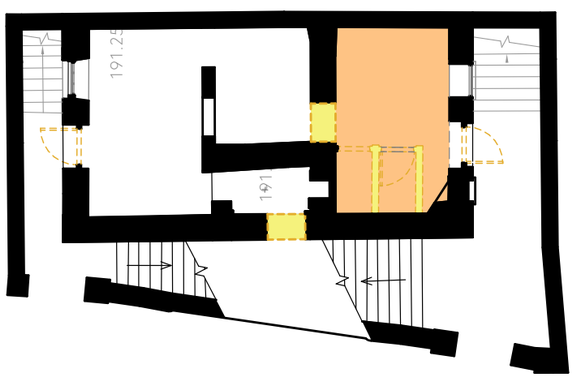
Highlighted pyramidal vents will provide bat access to roof space. These will differ from other pyramidal vents in construction and material (so as to suit bat use) However will have similar appearance from ground. One or more of these could provide a hopper entrance for lesser horseshoe bats with a 30cm x 30cm air gap, with a 50cm chute (at 45 degrees) leading in , lined with lead or sheet metal.

Within roof plane over bat roost, there will be further access tiles and modified ridge tiles to provide dedicated access into the roof for crevice-dwelling species present onsite. Access will also be created under some of the standard roof slates, by cutting a notch from the new slate to create a gap under the slate , which will lead to the narrow space between membrane, timbers and slates. Notches will also be cut out of the battens in some areas to enable the bats to move more easily up and down the roof under the slates.

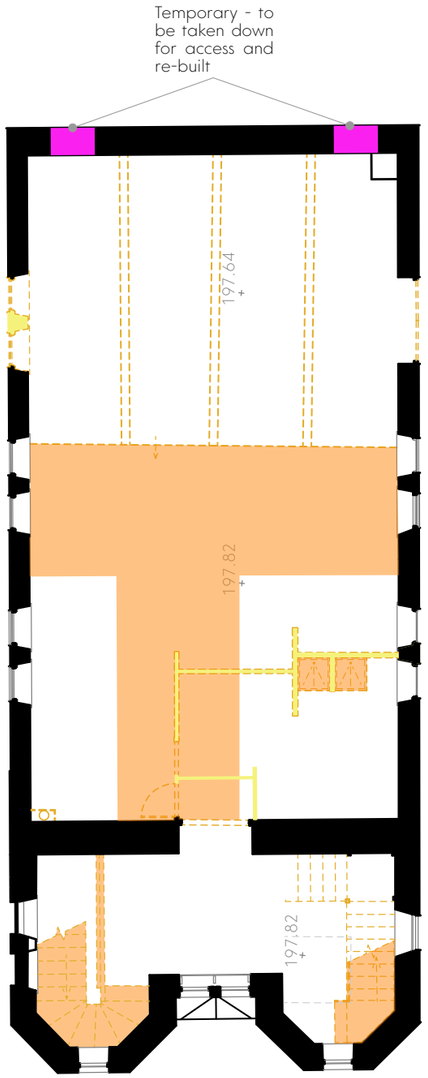
6.6.6 Proposed Floor Plans identifying Elements for Removal / Replacement



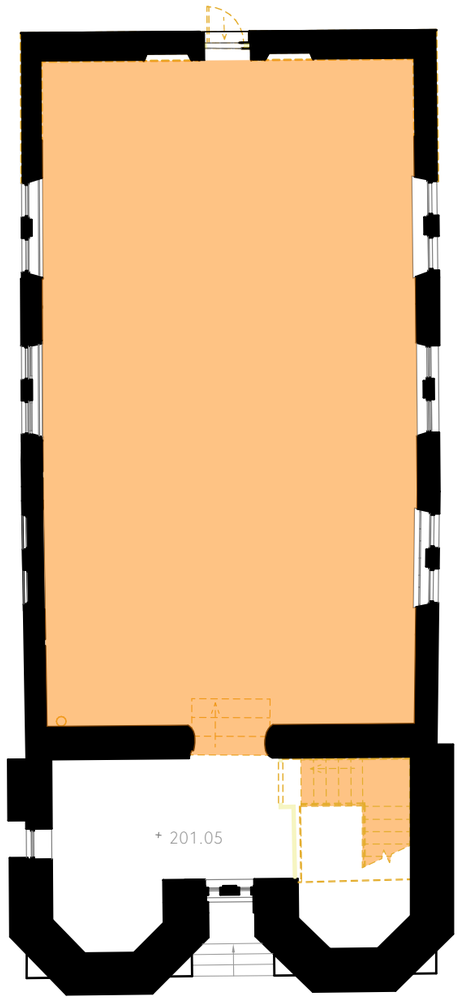
Upper Ground Floor Plan



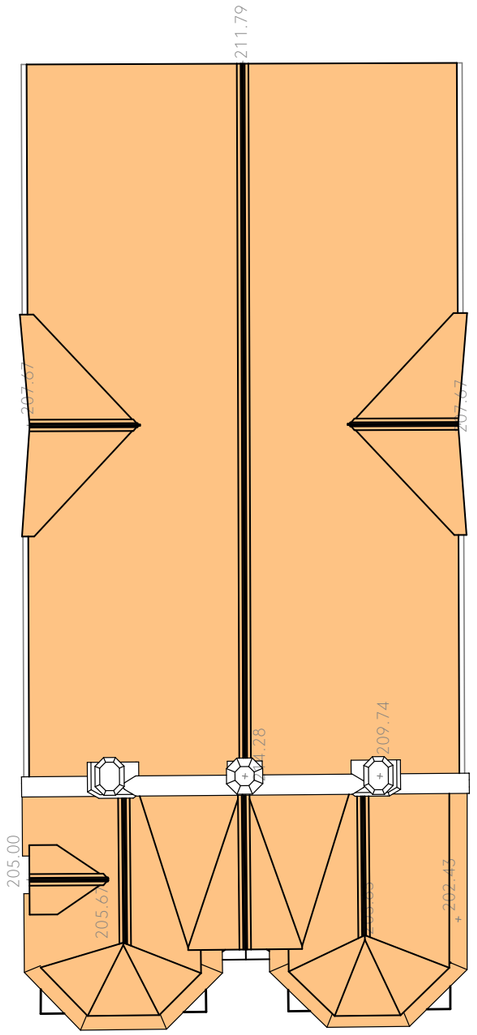
Lower Ground Floor Plan



First Floor Plan



Second Floor Plan



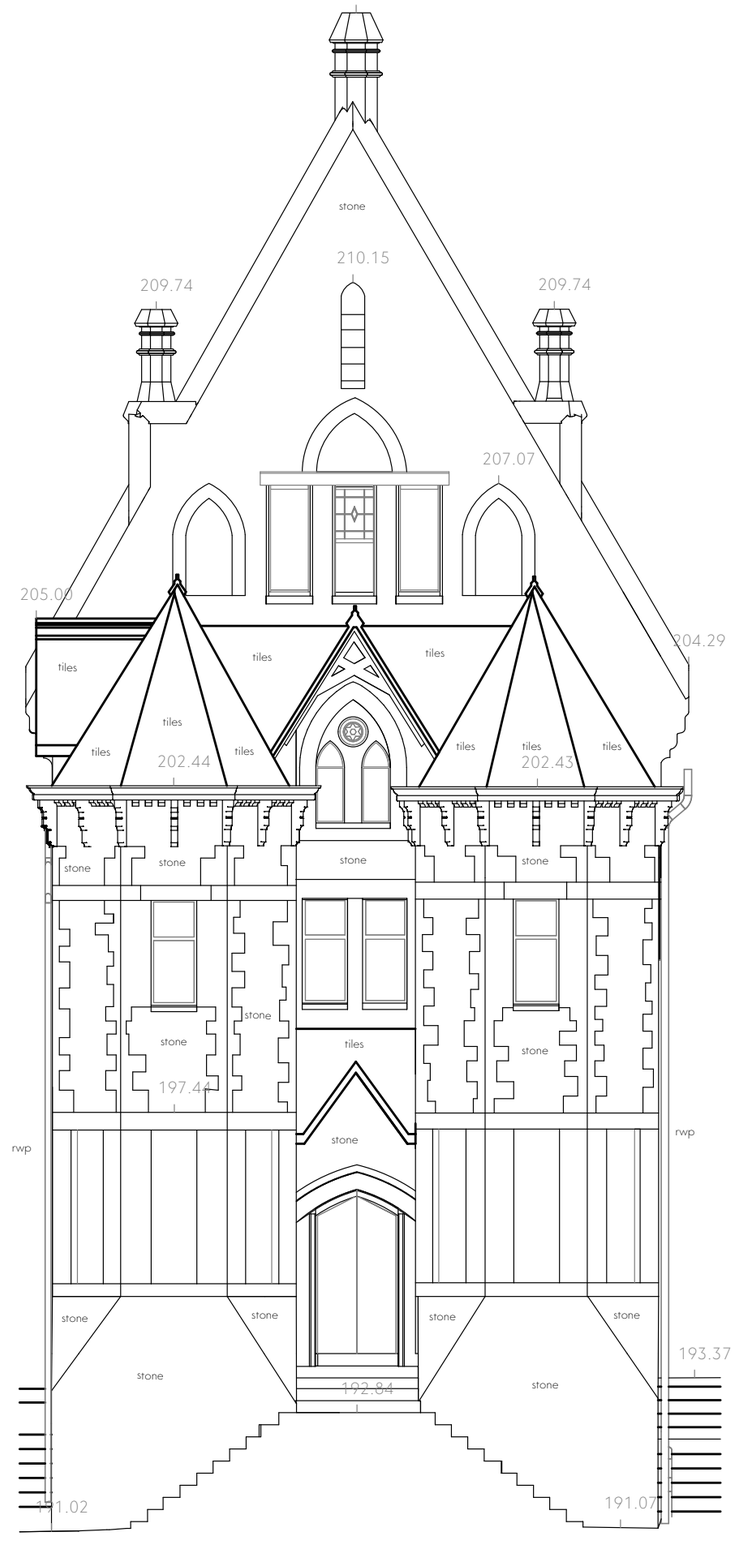
Roof Plan

0 1m 5m

Scale - 1:150 @A3

N

6.6.7 Existing & Proposed West (Front) Elevation



EXISTING WEST (FRONT) ELEVATION

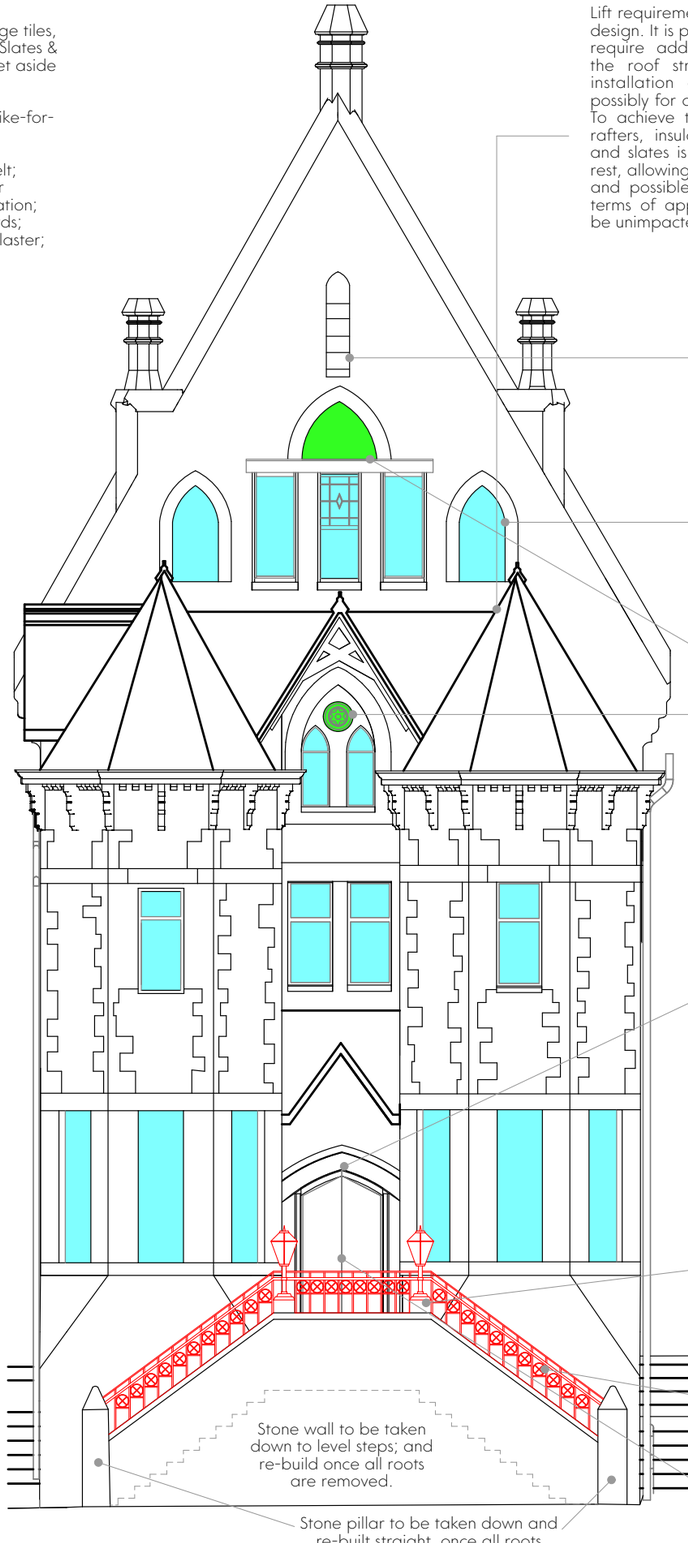
0 1m 5m

Scale - 1:100 @A3

All roof to be stripped of slates, ridge tiles, leadwork, membrane & insulation. Slates & tiles to be carefully removed and set aside for re-use.
New roof build-up to comprise:
Re-used slates and tiles, plus new like-for-likes, where extras required;
New 50x25mm timber battens;
New vapour-permeable roofing felt;
Between rafters, insert earthwool or glasswool vapour-permeable insulation;
Apply 25mm thick woodwool boards;
Apply 2no coats 6mm lime hemp plaster;
Apply 3mm lime top coat;
Paint in vapour-permeable paint.

All plastic rainwater gutters and dowpipes to be replaced with cast iron goods, to match the original, like-for-like; and all existing cast iron items to be repaired and re-painted, or where too badly damaged, replaced.

All cement pointing to masonry to be carefully removed, where possible. Once done, all pointing to be assessed; and any lost, friable or recessed joints to be re-pointing in lime mortar.



Proposed West Elevation

Lift requirements are subject to detailed design. It is possible that the lift shaft will require additional headroom beyond the roof structure, possibly only for installation of the lift itself; and/or possibly for one-off future maintenance. To achieve this, a section of the roof rafters, insulation, membrane, battens and slates is to be independent of the rest, allowing for installation after the lift and possible removal in the future. In terms of appearance, the roofline will be unimpacted.

Slates to louvre to be retained (limited repair required).

All windows shade in blue : Coloured leaded glazing by glass artist.

Circular Window (shaded in green) to retain original 'Star of David leaded glazing; however, significant repair required.

Hebrew carved lettering above door (now almost lost) to be reinstated by carefully re-carving the stone.

Replica iron lamp posts with copper heads to be installed on the 2no. inner stone piers, pinned down with stainless steel bars. Electrical supply needed to both.

Install new decorative iron railings, as original on top of wall between piers.

Original (or replica) six-panelled timber double doors still remain; however; clad with metal panels. Carefully remove metal panels and make good doors, as required. If restoration not viable, replace with new hardwood doors matching origional / existing pattern and mouldings in all respects.

PROPOSED WEST (FRONT) ELEVATION

6.6.8 Existing North (Woodland-Side) Elevation

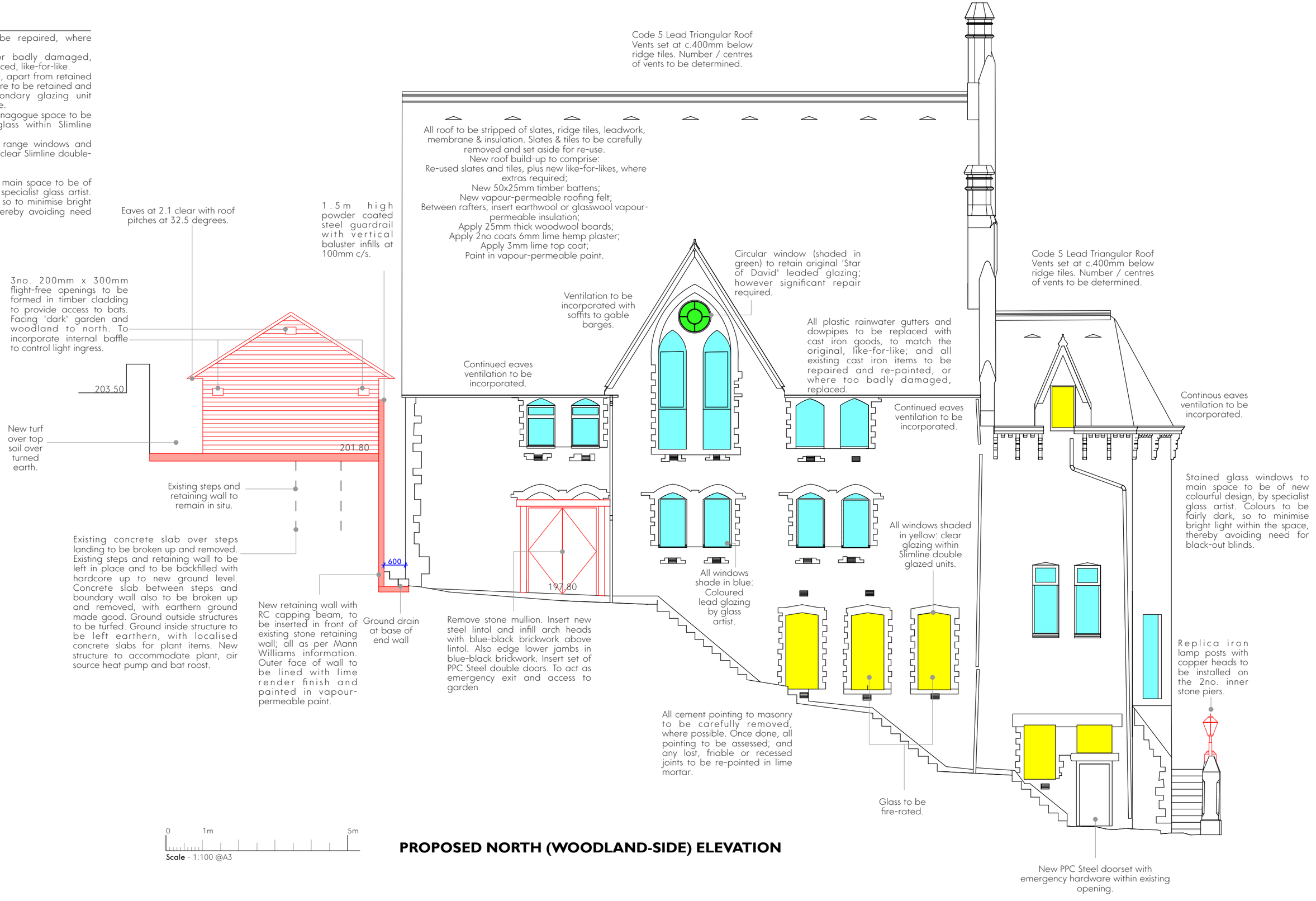
EXISTING NORTH (WOODLAND-SIDE) ELEVATION

6.6.9 Proposed North (Woodland-Side) Elevation

General Notes

All window frames to be repaired, where possible.
Where windows lost, or badly damaged, window frame to be replaced, like-for-like.
All glazing to be replaced, apart from retained leaded glass units which are to be retained and repaired and new secondary glazing unit incorporated to inside face.
All new glazing to main Synagogue space to be new leaded, stained glass within Slimline double-glazed units.
All new glazing to front range windows and upper ground floor to be clear Slimline double-glazed units.

Stained glass windows to main space to be of new colourful design, by specialist glass artist. Colours to be fairly dark, so to minimise bright light within the space, thereby avoiding need for black-out blinds.



0 1m 5m

Scale - 1:100 @A3

PROPOSED NORTH (WOODLAND-SIDE) ELEVATION

6.6.10 Existing South Elevation

0 1m 5m

Scale - 1:100 @A3

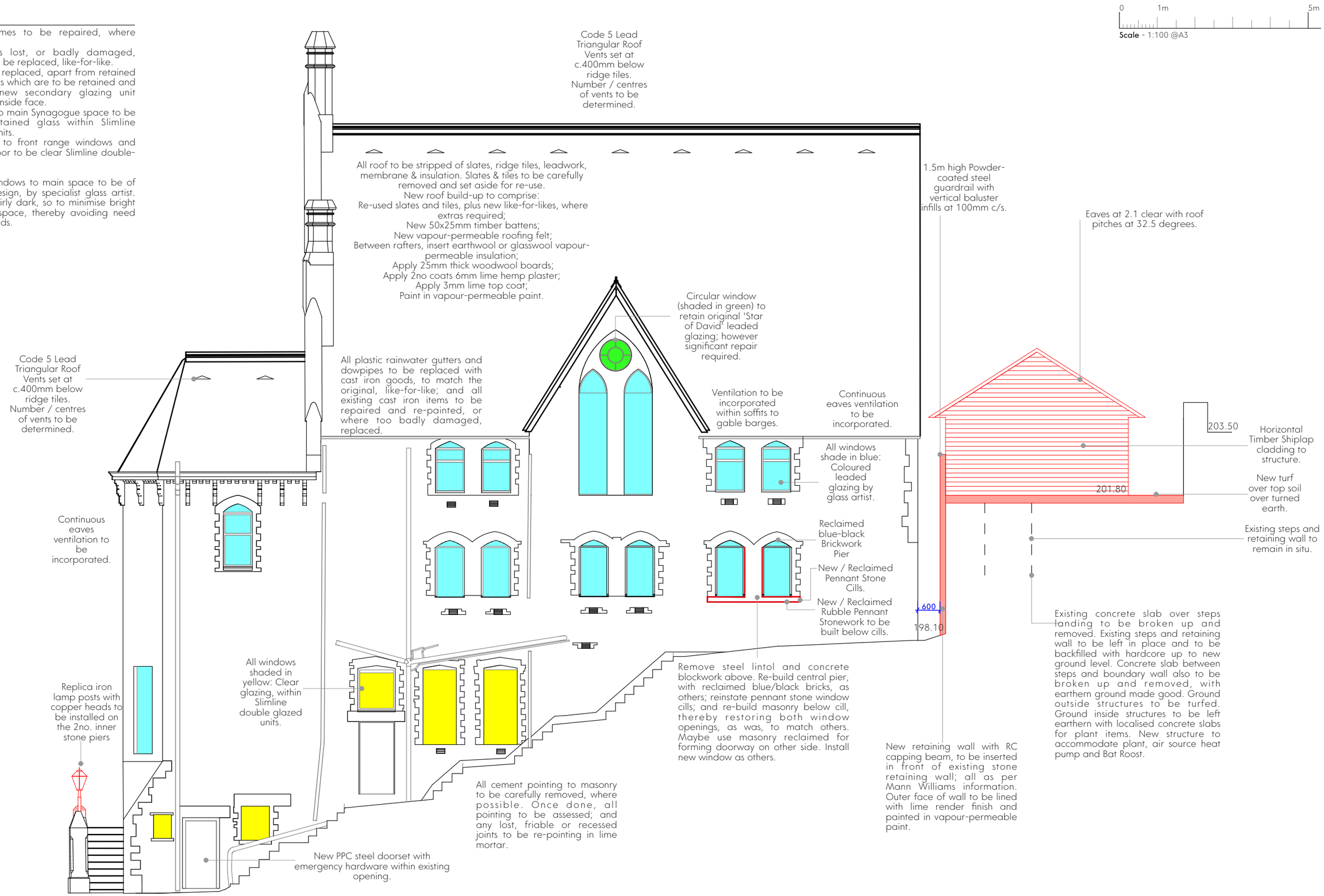
EXISTING SOUTH ELEVATION

6.6.11 Proposed South Elevation

General Notes

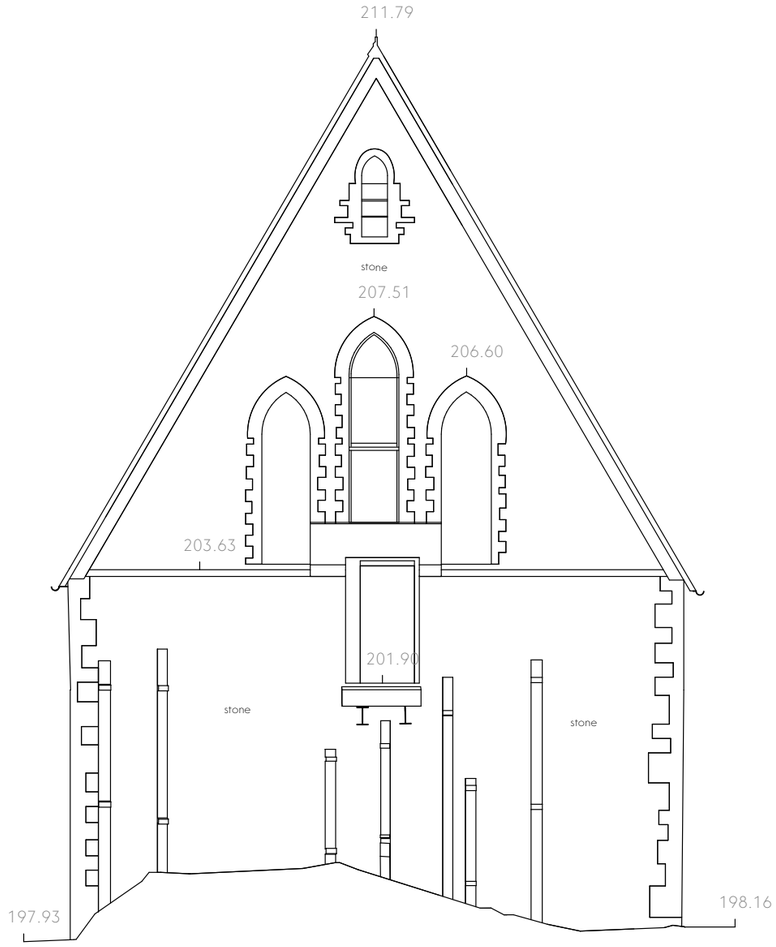
All window frames to be repaired, where possible.
Where windows lost, or badly damaged, window frame to be replaced, like-for-like.
All glazing to be replaced, apart from retained leaded glass units which are to be retained and repaired and new secondary glazing unit incorporated to inside face.
All new glazing to main Synagogue space to be new leaded, stained glass within Slimline double-glazed units.
All new glazing to front range windows and upper ground floor to be clear Slimline double-glazed units.

Stained glass windows to main space to be of new colourful design, by specialist glass artist. Colours to be fairly dark, so to minimise bright light within the space, thereby avoiding need for black-out blinds.

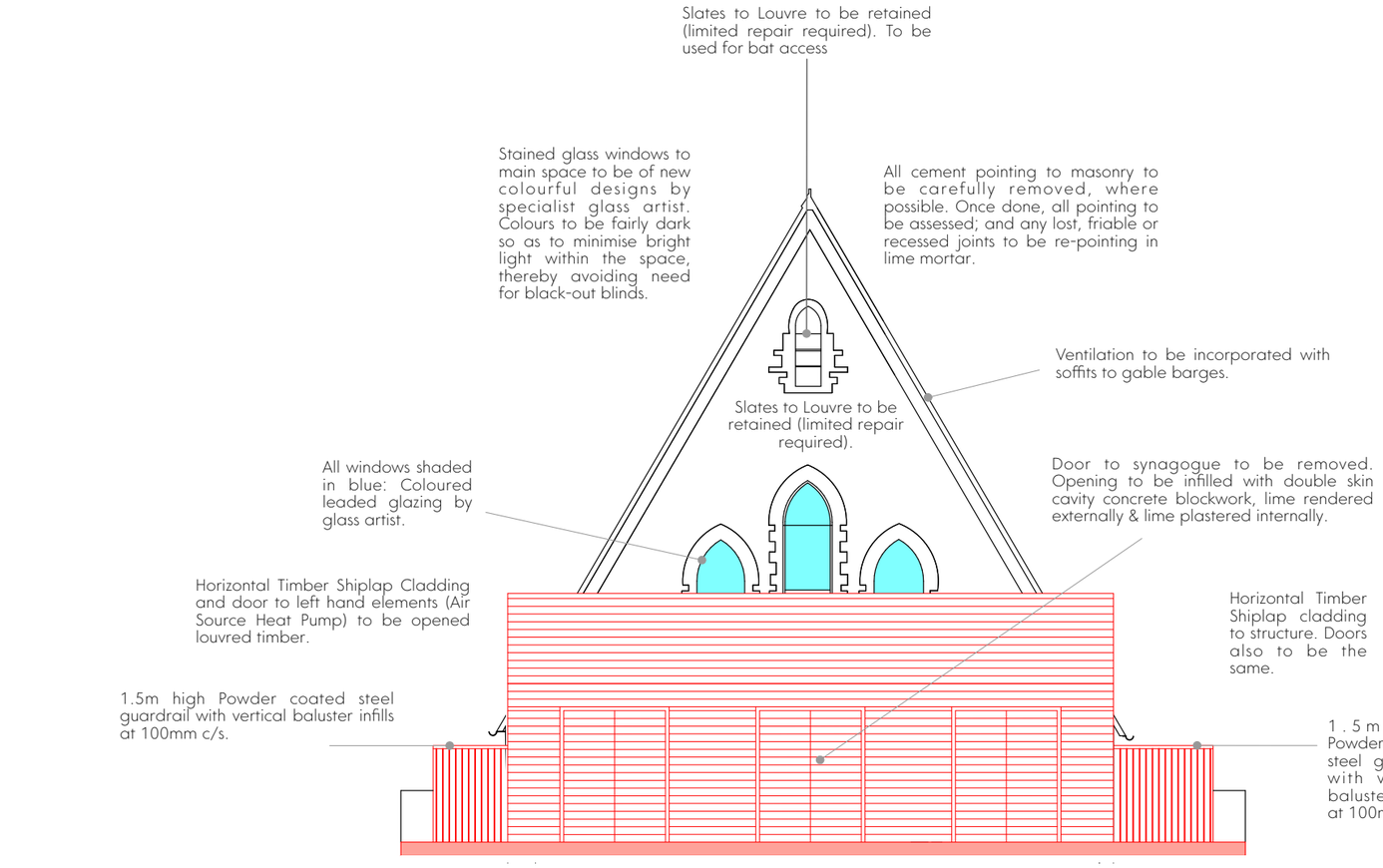


PROPOSED SOUTH ELEVATION

6.6.12 Existing & Proposed East (Rear) Elevation



EXISTING EAST (REAR) ELEVATION



'The proposed elevation drawings identify the proposed alterations and matters of restoration to the envelope, refer to the (25) series drawings. Both proposed and repair elevations should be read in conjunction. The architect should be consulted if there appears to be contradiction between the two'.

Existing concrete slab over steps landing to be broken up and removed. Existing steps and retaining wall to be left in place and to be backfilled with hardcore up to new ground level. Concrete slab between steps and boundary wall also to be broken up and removed, with earthern ground made good. Ground outside structures to be turfed. Ground inside structure to be left earthen, with localised concrete slabs for plant items. New structure to accommodate plant, air source heat pump and bat roost.

PROPOSED EAST (REAR) ELEVATION

Scale - 1:100 @A3

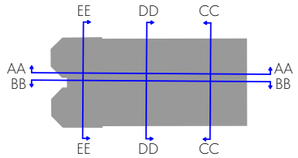
6.6.13 Existing Section A-A Facing Northwards

EXISTING SECTION A-A FACING NORTHWARDS

6.6.14 Existing Section B-B Facing Southwards

EXISTING SECTION B-B FACING SOUTHWARDS

6.6.15 Existing Cross Sections Through Main Space



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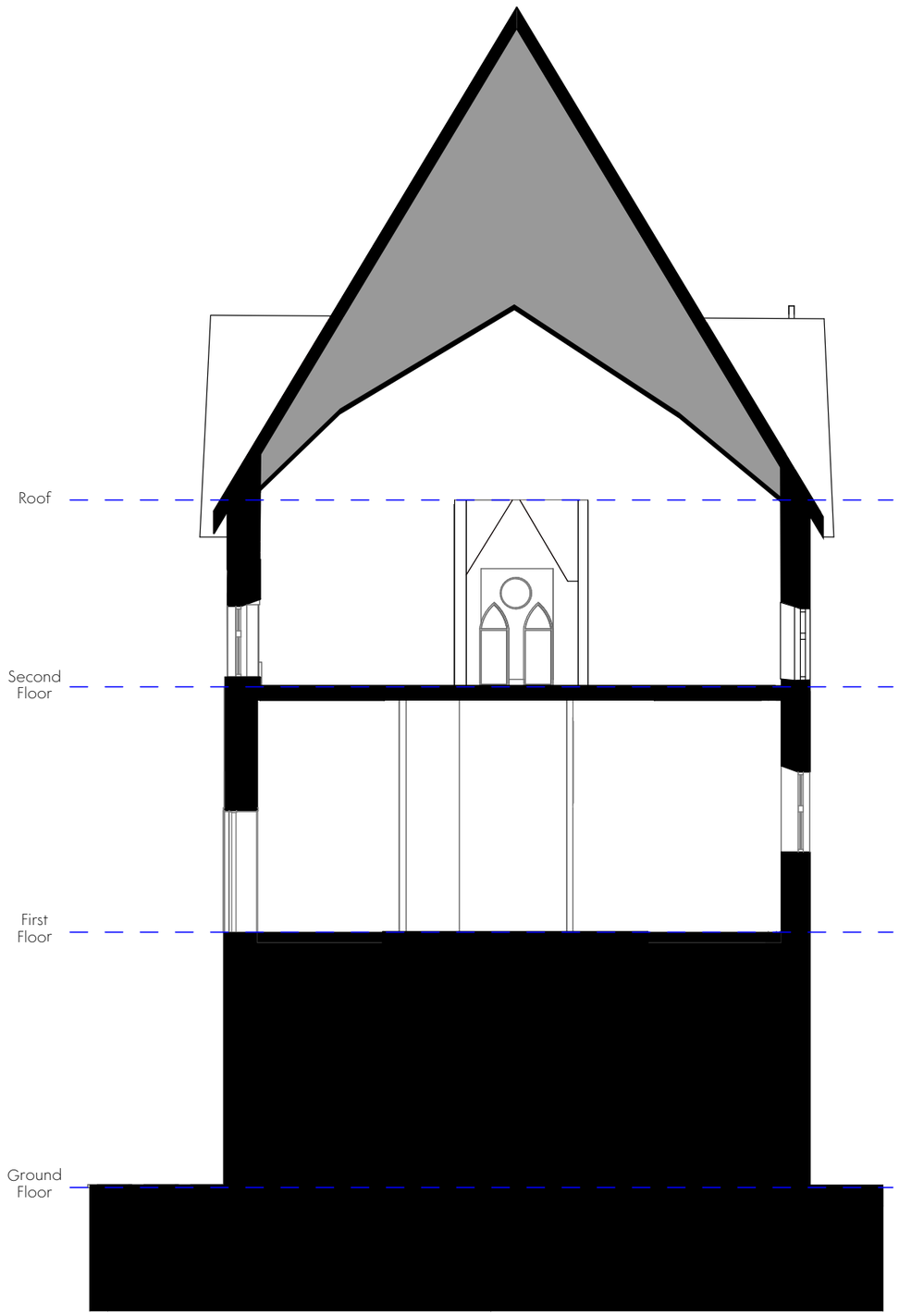
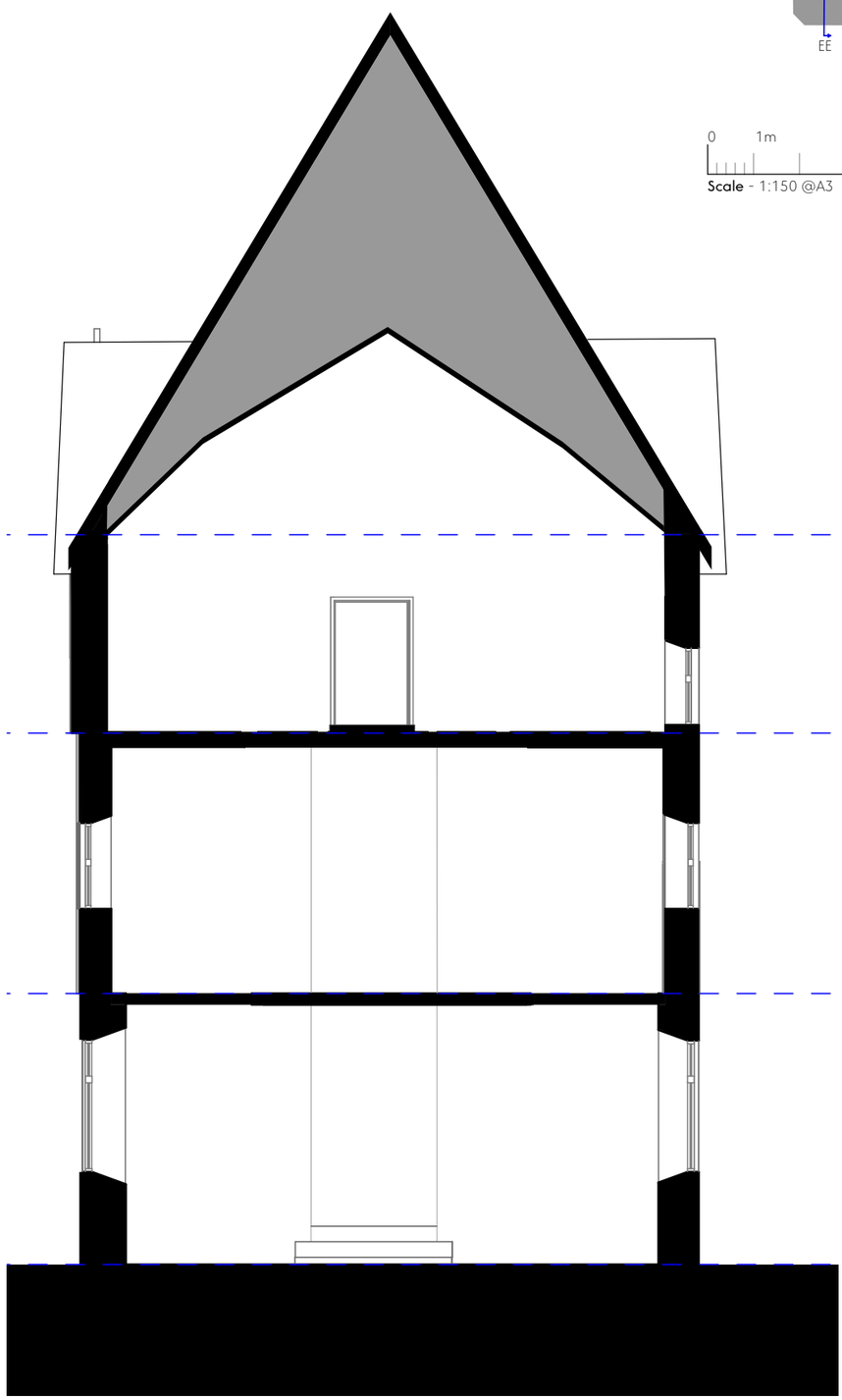
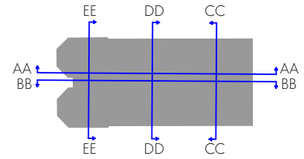


EXISTING SECTION C-C FACING WEST



EXISTING SECTION D-D FACING EAST

6.6.16 Existing Cross Sections Through Front Range



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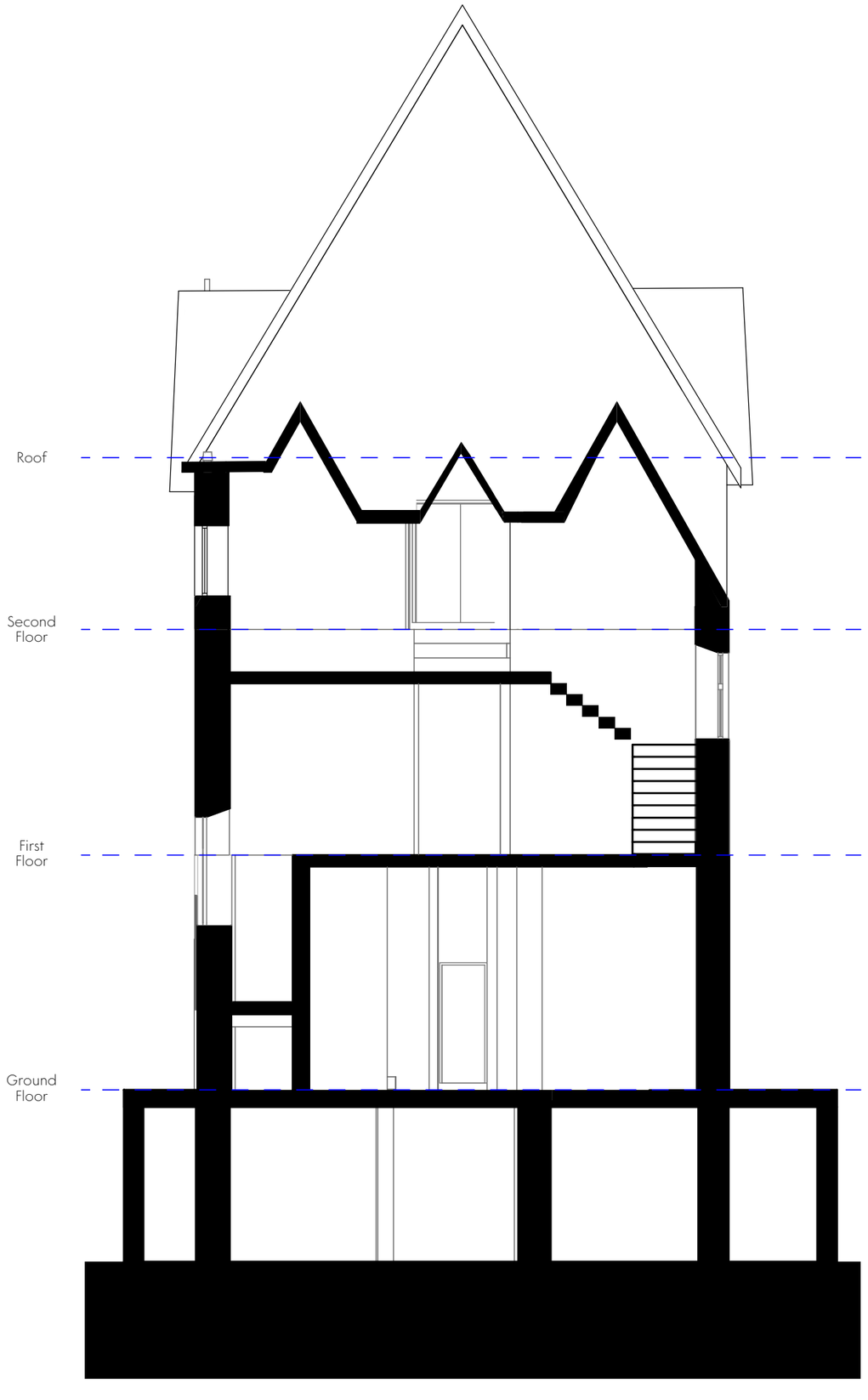


EXISTING SECTION E-E FACING EAST

6.6.17 Proposed Section A-A Facing Northwards

General Notes

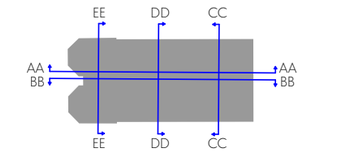
Externally, all cement pointing to masonry to be carefully removed, where possible. Once done, all pointing to be assessed; and any lost, friable or recessed joints to be re-pointing in lime mortar. Internally, all cement/gypsum plaster to be removed; and all existing walls to be re-plastered in a 3-coat lime plaster and finished in a vapour-permeable paint.

All window frames to be repaired, where possible.Where window lost, or badly damaged, window frame to be replaced, like-for-like. All glazing to be replaced, apart from retained and repaired and new leaded glass units, which are to be retained and repaired and new secondary glazing unit incorporated to inside face. All new glazing to main Synagogue space to be new leaded, stained glass within slimline double-glazed units. All new glazing to front range windows and upper ground floor to be clear slimline double-glazed units.

All roof to be stripped of slates, ridge tiles, leadwork, membrane & insulation. Slates & tiles to be carefully removed and set aside for re-use.
New roof build-up to comprise:
Re-used slates and tiles, plus new like-for-likes, where extras required;
New 50x25mm timber battens;
New vapour-permeable roofing felt;
Between rafters, insert earthwool or glasswool vapour-permeable insulation;
Apply 25mm thick woodwool boards;
Apply 2no coats 6mm lime hemp plaster;
Apply 3mm lime top coat;
Paint in vapour-permeable paint.

Lockable service hatch in partition for monitoring purposes by a licensed bat worker

Roof membrane to be laid under slates and battens for entire bat roost, membrane to be 'TXL Batsafe' or 'Siga Majcoat 350'. May be the same to rest of roof; however, may also be different, more vapour-permeable membrane, such as Procter Roofshield. Ensure general membrane does not extend to bat roost.



Scale - 1:100 @A3

Existing slate-blade Louvre to be repaired to provide ventilation into roofspace

Guardrails at 1.2m Above walkway

Boarded walkway within roof space.

Bat roost approx 4.7m wide by 5.3m deep. pace to include a cool tower and other enhancement features.

Existing slate-blade Louvre to be retained for bat access

Vapour-permeable insulation at ceiling level

Loft Access Hatch

Roof

Second Floor

First Floor

Ground Floor

Lower Ground Floor

Lobby Area

Exhibition zone

Lobby Area

Exhibition zone

Presentation zone

New Door Opening to replace 2no. Windows

Reception and Retail Area

Entrance Lobby

New Partition

Reception & Retail outlet

Activity/ Educational/ Flexible Space

New slab to be laid over existing steps and wall, at same level as current top landing.
to be finished with paving slabs and drained;
and to accommodate plant enclosure and air source heat pumps.
Existing steps and wall underneath to be made safe and left in situ.

New Ark

New Proposed Store Area

New floor build-up to comprise:
22mm hard wax oiled oak floor boards; on
70mm deep, by 50mm wide, treated timber battens; on
60mm limescreed; on
150mm limecrete; over
Geo-textile breather membrane; over
min. 250mm insulating aggregate;
laid onto existing ground,
with all loose stones and other loose material removed.

The void formed around the original steps (once slabbed over and retained) will provide a compensatory hibernation roost, in the form of a cellar type construction. Access for bats will be provided (through louvres, letter box style opening or hopper) along with an access 'locked door' for a bat worker to carry out maintenance. This 'hibernaculum' will include features for crevice-dwelling bat species, as enhancements, as well as fly-in access for brown long-eared bats.

New Floor slab

Existing window opening to be retained

Existing door opening to be retained

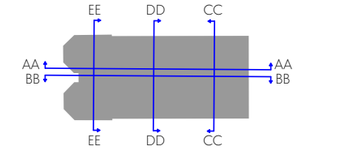
PROPOSED SECTION A-A FACING NORTHWARDS

6.6.18 Proposed Section B-B Facing Southwards

General Notes

Externally, all cement pointing to masonry to be carefully removed, where possible. Once done, all pointing to be assessed; and any lost, friable or recessed joints to be re-pointing in lime mortar. Internally, all cement/gypsum plaster to be removed; and all existing walls to be re-plastered in a 3-coat lime plaster and finished in a vapour-permeable paint.

All window frames to be repaired, where possible.Where window lost, or badly damaged, window frame to be replaced, like-for-like. All glazing to be replaced, apart from retained and repaired and new leaded glass units, which are to be retained and repaired and new secondary glazing unit incorporated to inside face. All new glazing to main Synagogue space to be new leaded, stained glass within slimline double-glazed units. All new glazing to front range windows and upper ground floor to be clear slimline double-glazed units.



0 1m 5m

Scale - 1:100 @A3

All roof to be stripped of slates, ridge tiles, leadwork, membrane & insulation. Slates & tiles to be carefully removed and set aside for re-use.
New roof build-up to comprise:
Re-used slates and tiles, plus new like-for-likes, where extras required;
New 50x25mm timber battens;
New vapour-permeable roofing felt;
Between rafters, insert earthwool or glasswool vapour-permeable insulation;
Apply 25mm thick woodwool boards;
Apply 2no coats 6mm lime hemp plaster;
Apply 3mm lime top coat;
Paint in vapour-permeable paint.

New slab to be laid over existing steps and wall, at same level as current top landing.
to be finished with paving slabs and drained;
and to accommodate plant enclosure and air source heat pumps.
Existing steps and wall underneath to be made safe and left in situ.

Roof

Interpretation Boards

Second Floor

Compensatory bat hibernation roost above retained steps

New Ark

Balcony front and corner posts to be replica of original, however, balconies to be min 1100mm high AFFl

Exhibition zone

Lobby Area

Presentation zone

Exhibition zone

Lobby Area

First Floor

New floor build-up to comprise:
22mm hard wax oiled oak floor boards; on
70mm deep, by 50mm wide, treated timber battens; on
60mm limescreed; on
150mm limecrete; over
Geo-textile breather membrane; over
min. 250mm insulating aggregate;
laid onto existing ground,
with all loose stones and other loose material removed.

Activity/ Educational/ Flexible Space

Reception & Retail outlet

Entrance Lobby

Ground Floor

Lower Ground Floor

New Floor slab

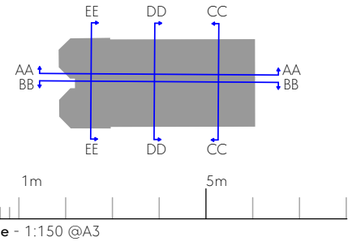
PROPOSED SECTION B-B FACING SOUTHWARDS

6.6.19 Proposed Cross Sections Through Main Space

General Notes

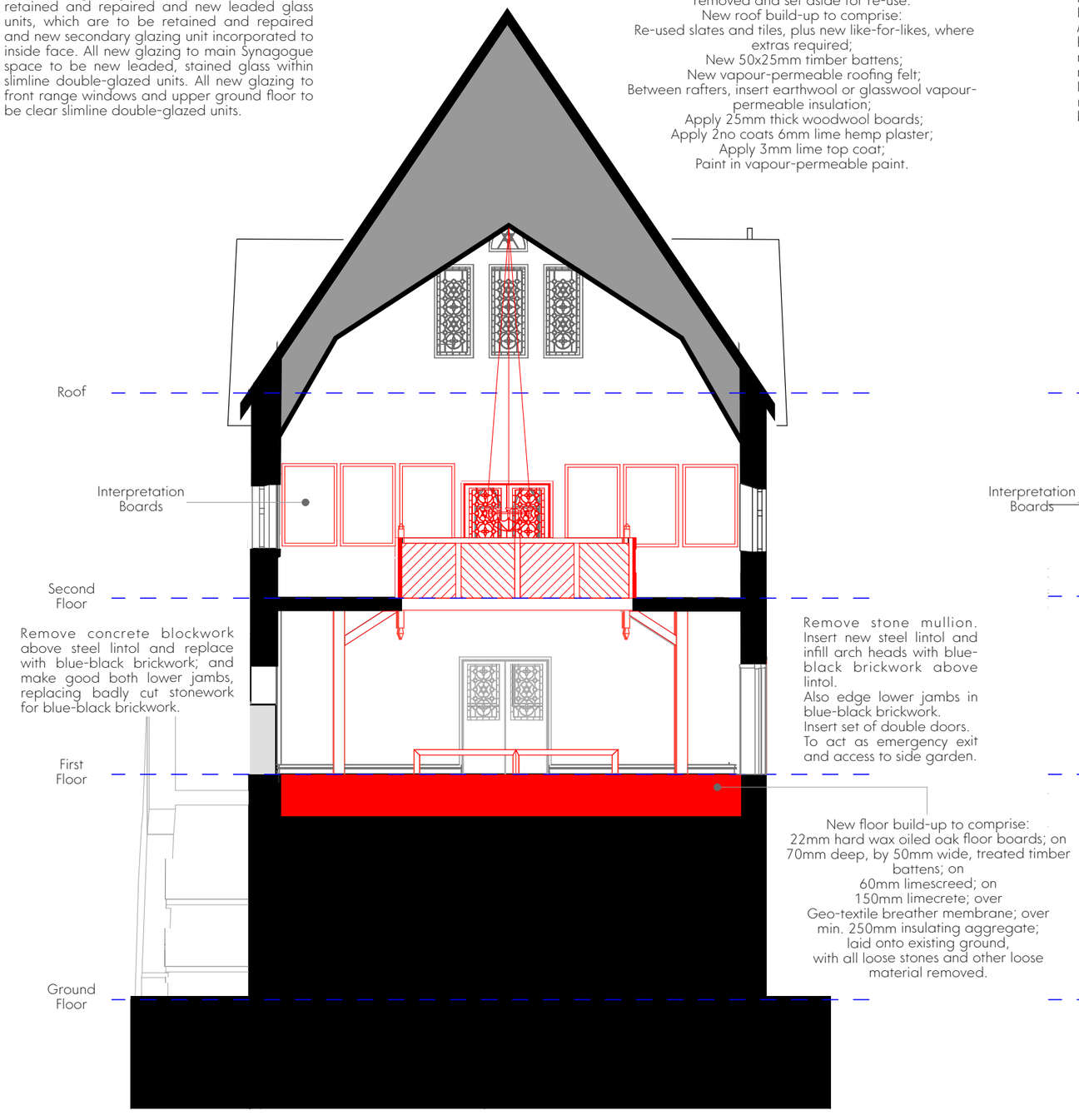
Externally, all cement pointing to masonry to be carefully removed, where possible. Once done, all pointing to be assessed; and any lost, friable or recessed joints to be re-pointing in lime mortar. Internally, all cement/gypsum plaster to be removed; and all existing walls to be re-plastered in a 3-coat lime plaster and finished in a vapour-permeable paint.

All window frames to be repaired, where possible.Where window lost, or badly damaged, window frame to be replaced, like-for-like. All glazing to be replaced, apart from retained and repaired and new leaded glass units, which are to be retained and repaired and new secondary glazing unit incorporated to inside face. All new glazing to main Synagogue space to be new leaded, stained glass within slimline double-glazed units. All new glazing to front range windows and upper ground floor to be clear slimline double-glazed units.



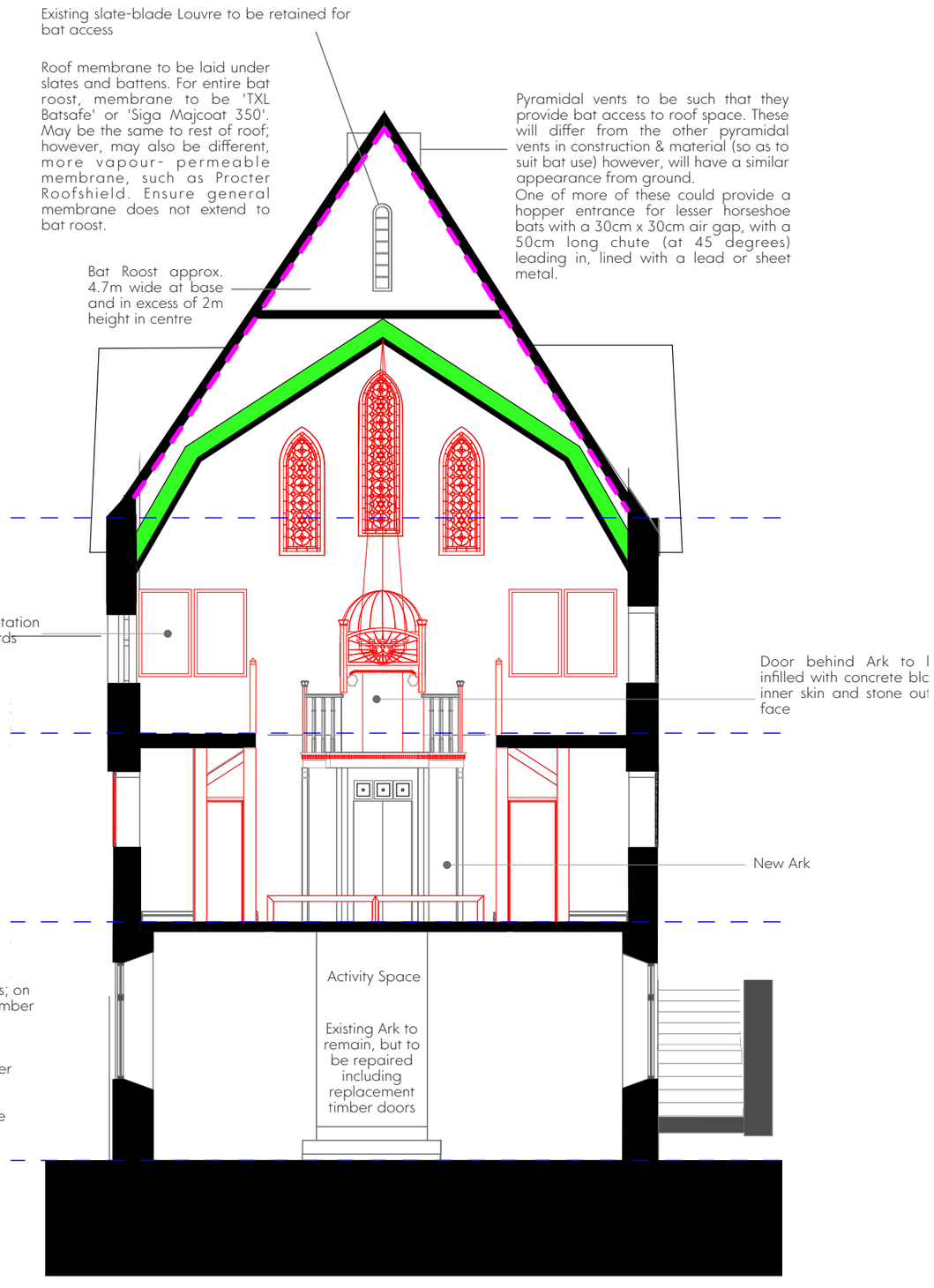
Scale - 1:150 @A3

All roof to be stripped of slates, ridge tiles, leadwork, membrane & insulation. Slates & tiles to be carefully removed and set aside for re-use.
New roof build-up to comprise:
Re-used slates and tiles, plus new like-for-likes, where extras required;
New 50x25mm timber battens;
New vapour-permeable roofing felt;
Between rafters, insert earthwool or glasswool vapour-permeable insulation;
Apply 25mm thick woodwool boards;
Apply 2no coats 6mm lime hemp plaster;
Apply 3mm lime top coat;
Paint in vapour-permeable paint.



PROPOSED SECTION C-C FACING WEST

Within roof plane over bat roost, there will be further access tiles and modified ridge tiles to provide dedicated access into the roof for crevice-dwelling species present onsite. Access will also be created under some of the standard roof slates, by cutting a notch from the new slate to create a gap under the slate , which will lead to the narrow space between membrane, timbers and slates. Notches will also be cut out of the battens in some areas to enable the bats to move more easily up and down the roof under the slates.



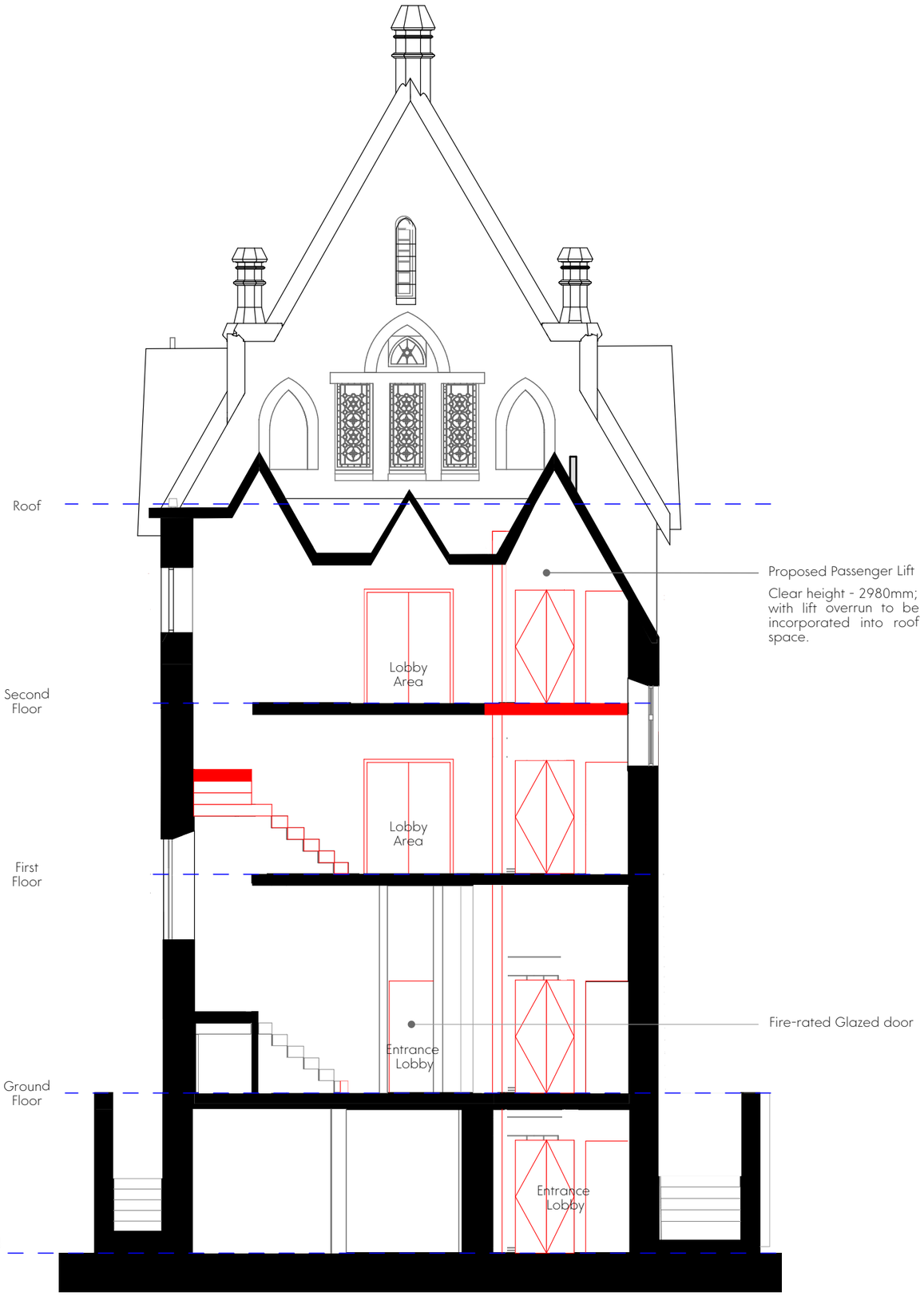
PROPOSED SECTION D-D FACING EAST

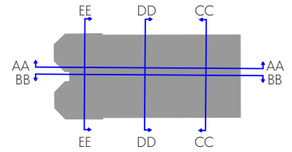
6.6.20 Proposed Cross Sections Through Front Range

General Notes

Externally, all cement pointing to masonry to be carefully removed, where possible. Once done, all pointing to be assessed; and any lost, friable or recessed joints to be re-pointing in lime mortar. Internally, all cement/gypsum plaster to be removed; and all existing walls to be re-plastered in a 3-coat lime plaster and finished in a vapour-permeable paint.

All window frames to be repaired, where possible.Where window lost, or badly damaged, window frame to be replaced, like-for-like. All glazing to be replaced, apart from retained and repaired and new leaded glass units, which are to be retained and repaired and new secondary glazing unit incorporated to inside face. All new glazing to main Synagogue space to be new leaded, stained glass within slimline double-glazed units. All new glazing to front range windows and upper ground floor to be clear slimline double-glazed units.





Scale - 1:150 @A3

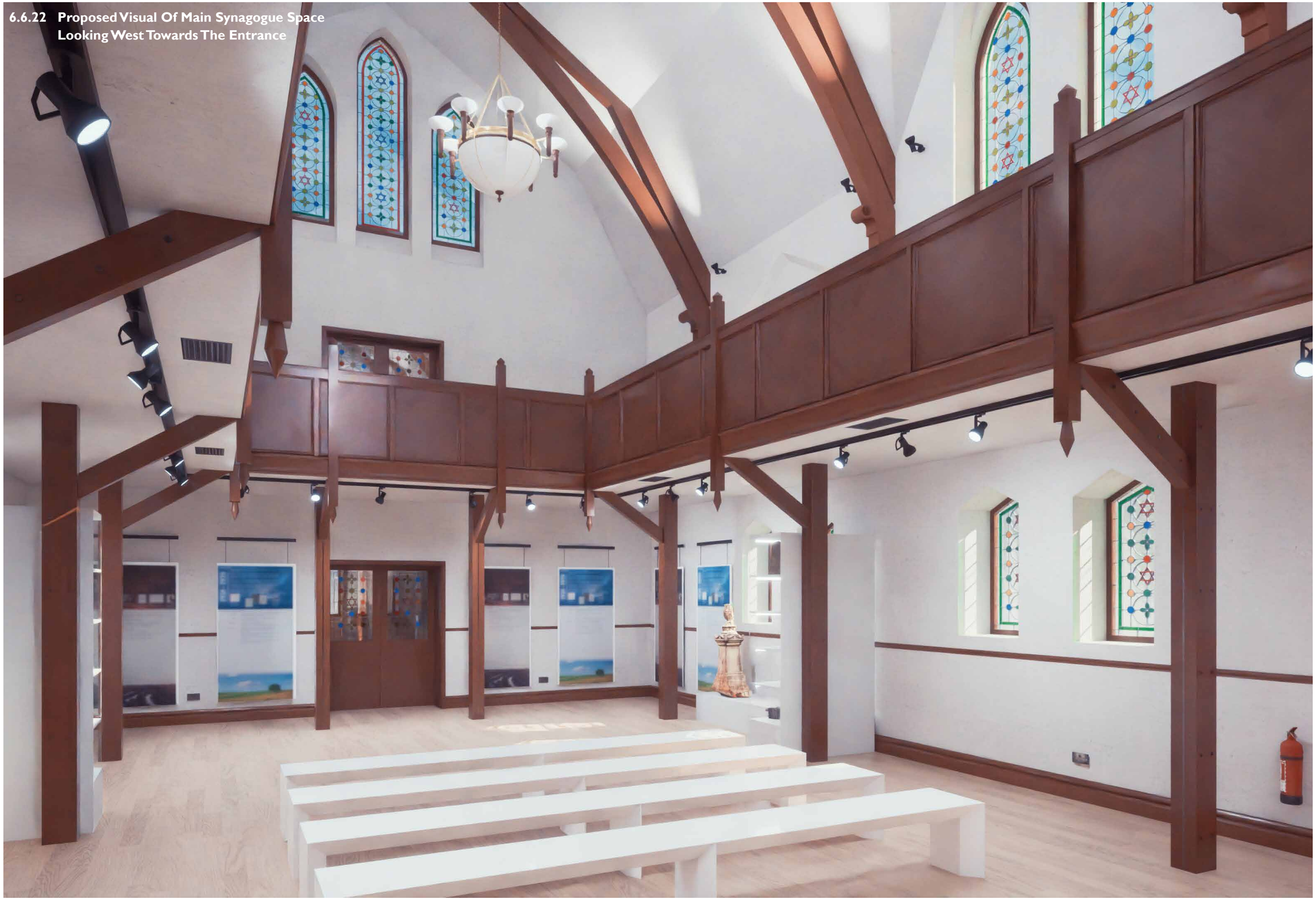
Key:

- Proposed

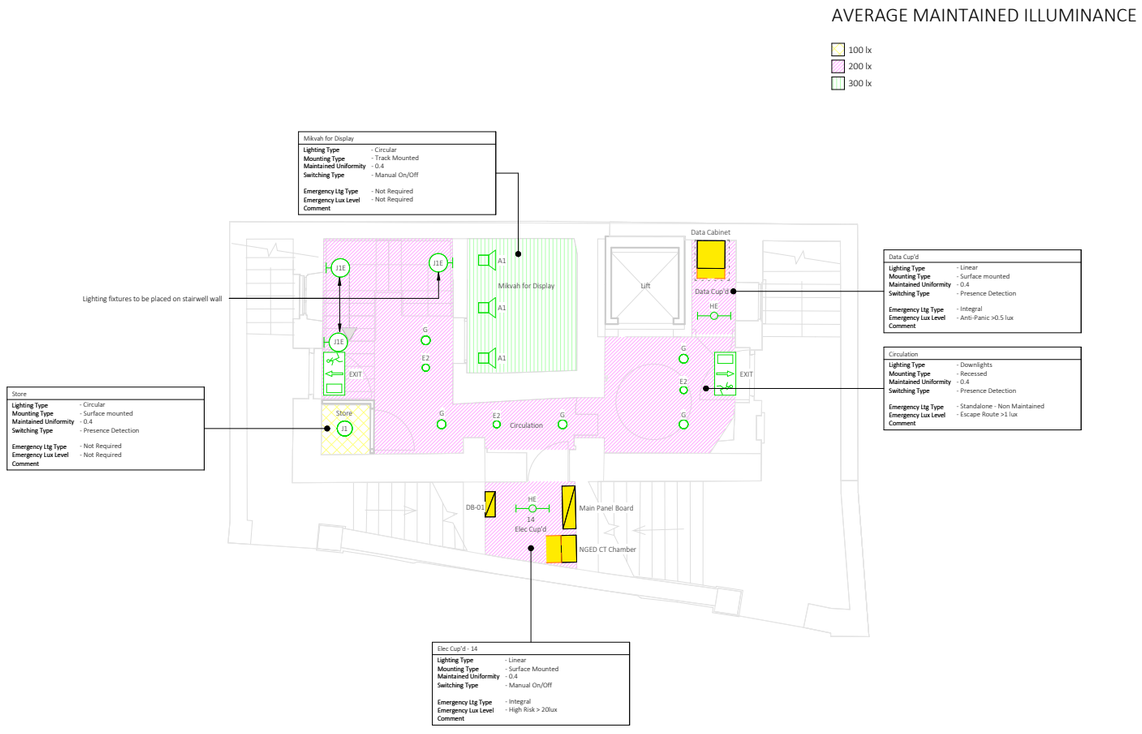
PROPOSED SECTION E-E FACING EAST

6.6.21 Proposed Visual Of Main Synagogue Space Looking East Towards The Ark

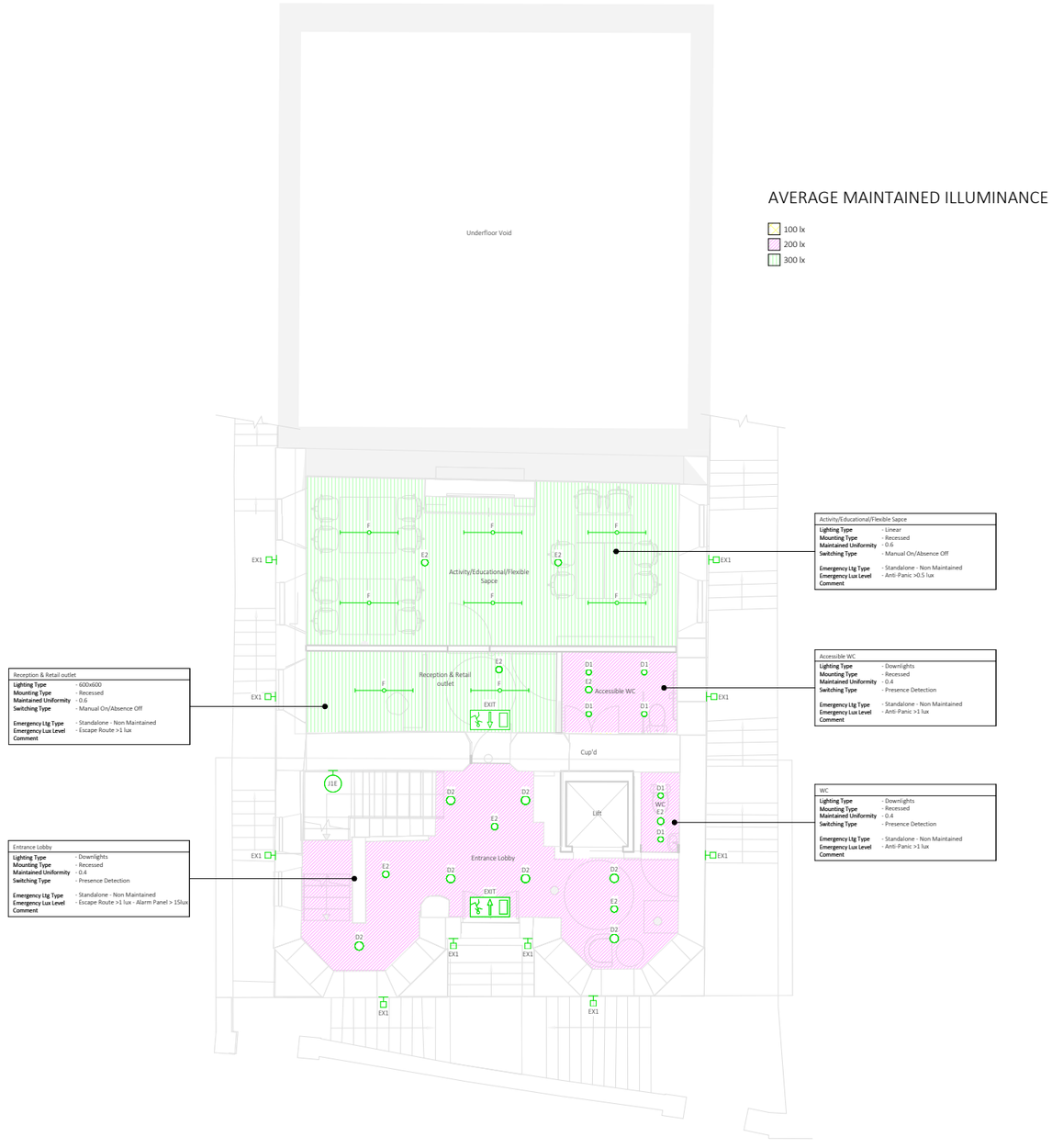
6.6.22 Proposed Visual Of Main Synagogue Space Looking West Towards The Entrance



6.6.23 Proposed Lighting Layouts - Lower Ground & Upper Ground Floors, produced by Hydrock (now Stantec)



PROPOSED LOWER GROUND FLOOR PLAN

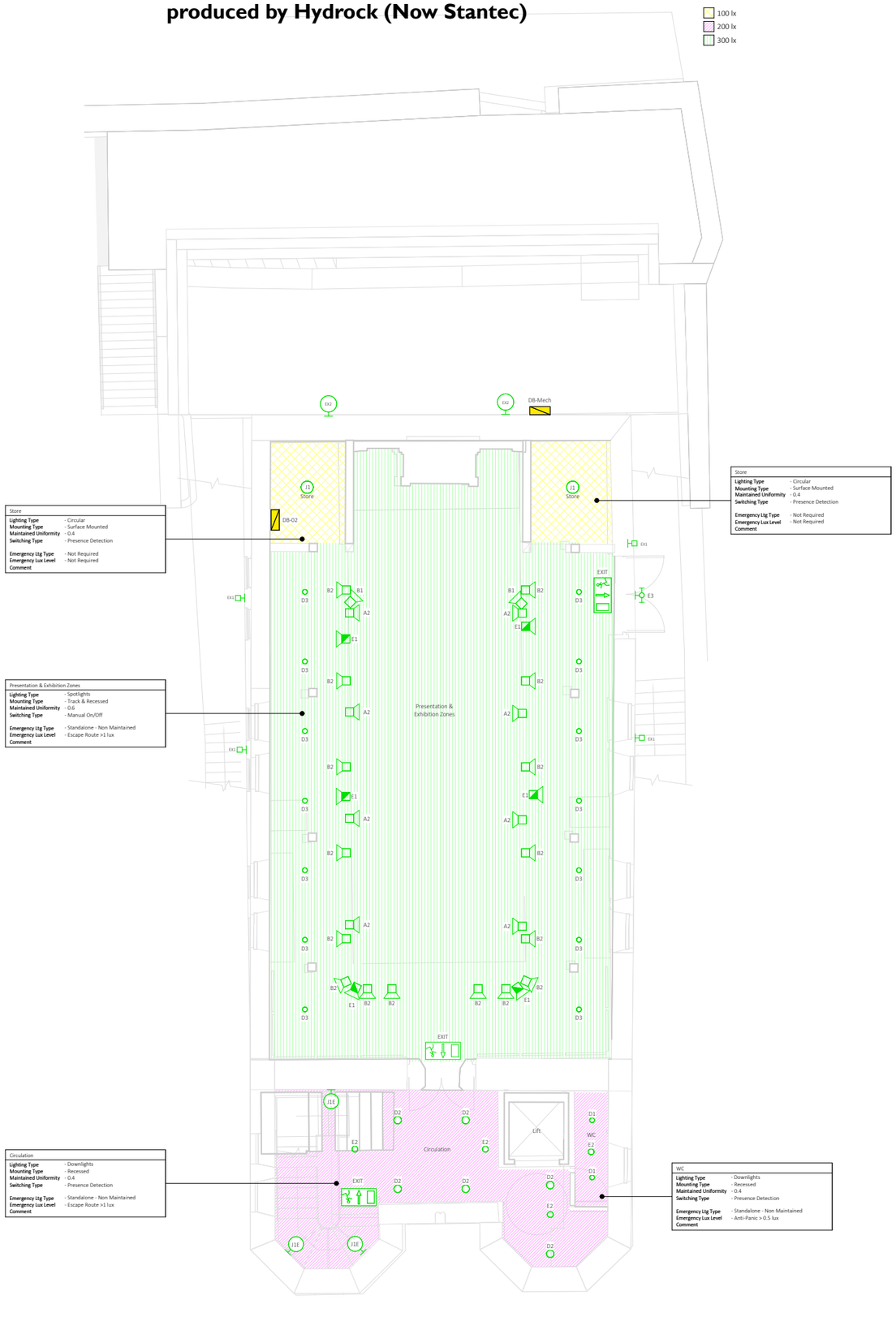


PROPOSED UPPER GROUND FLOOR PLAN

6.6.24 Proposed Lighting Layouts - First & Second Floors, produced by Hydrock (Now Stantec)

AVERAGE MAINTAINED ILLUMINANCE

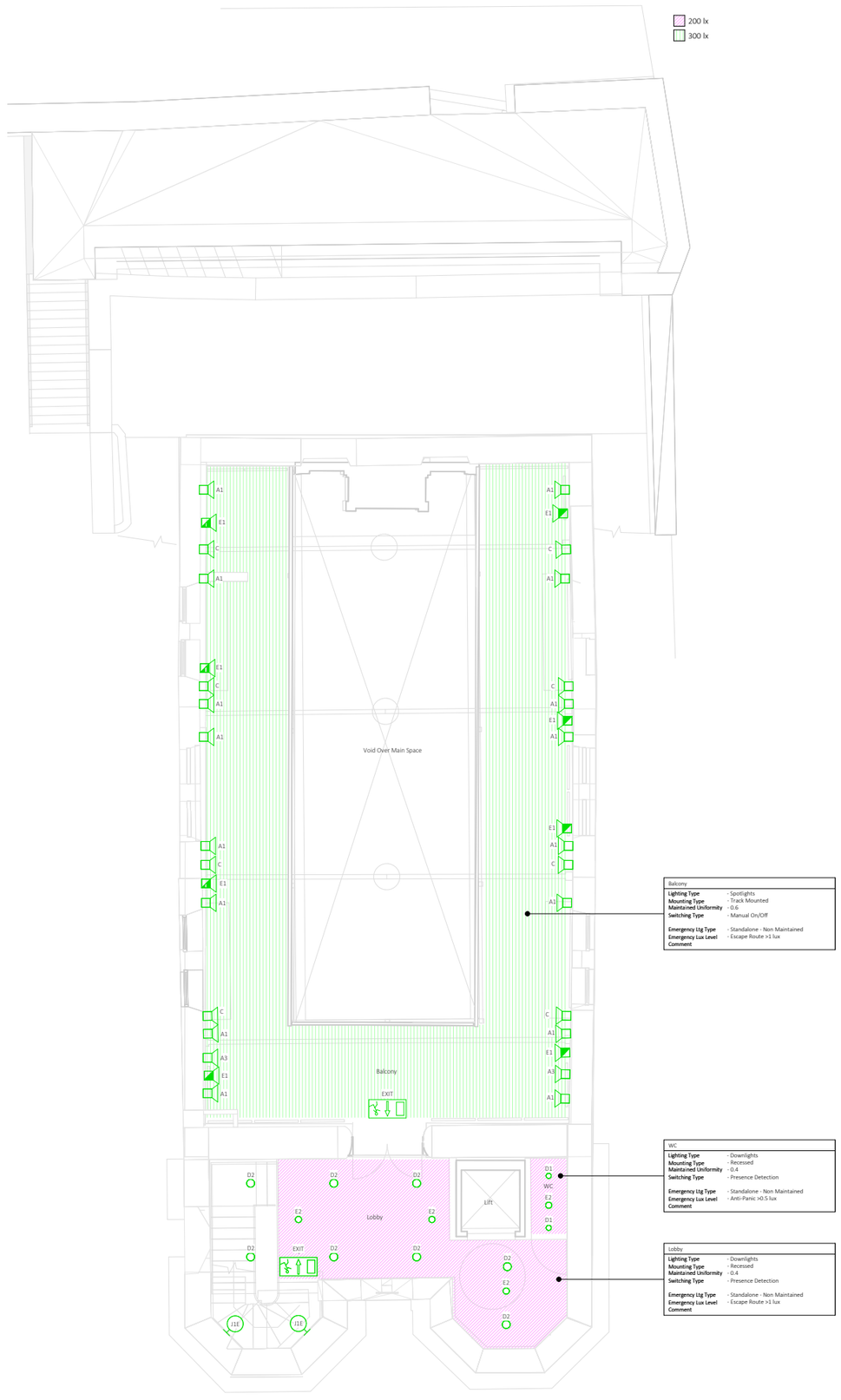
100 lx
200 lx
300 lx



PROPOSED FIRST FLOOR PLAN

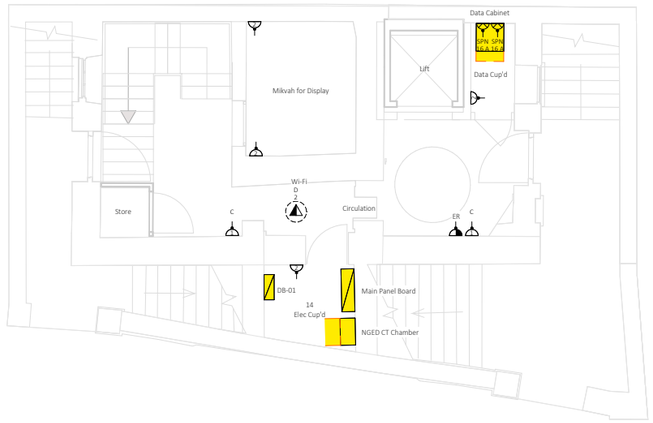
AVERAGE MAINTAINED ILLUMINANCE

200 lx
300 lx

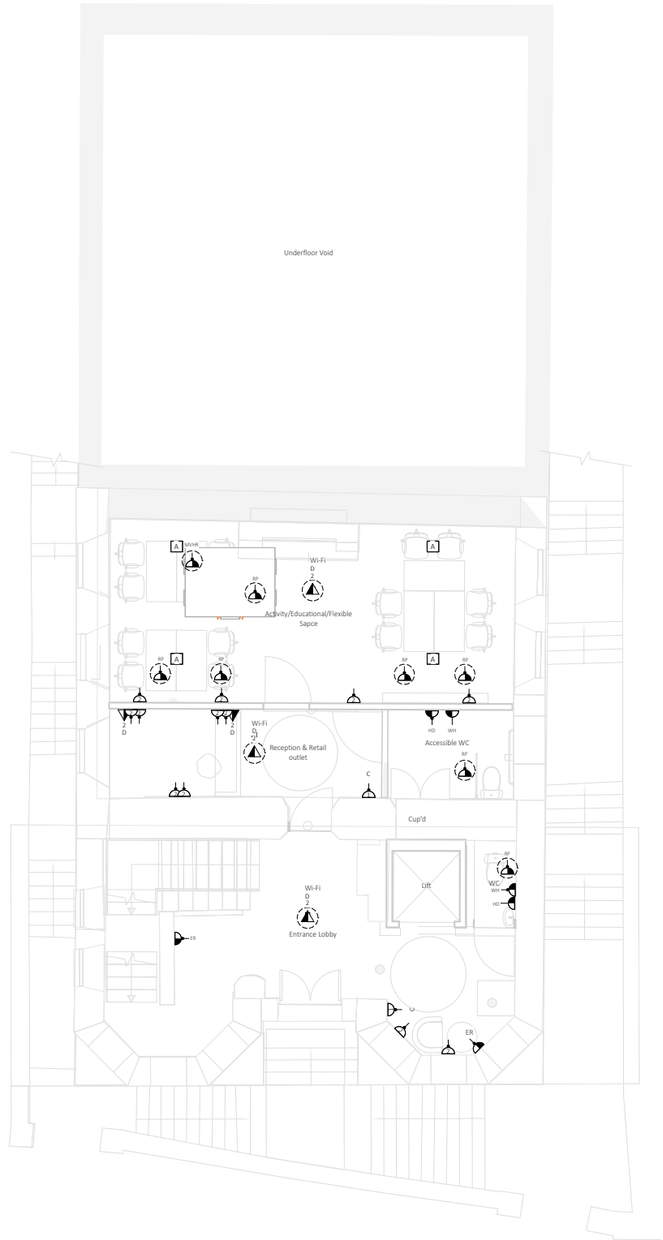


PROPOSED SECOND FLOOR PLAN

6.6.25 Proposed Small Power Layouts - Lower Ground & Upper Ground Floors, produced by Hydrock (now Stantec)

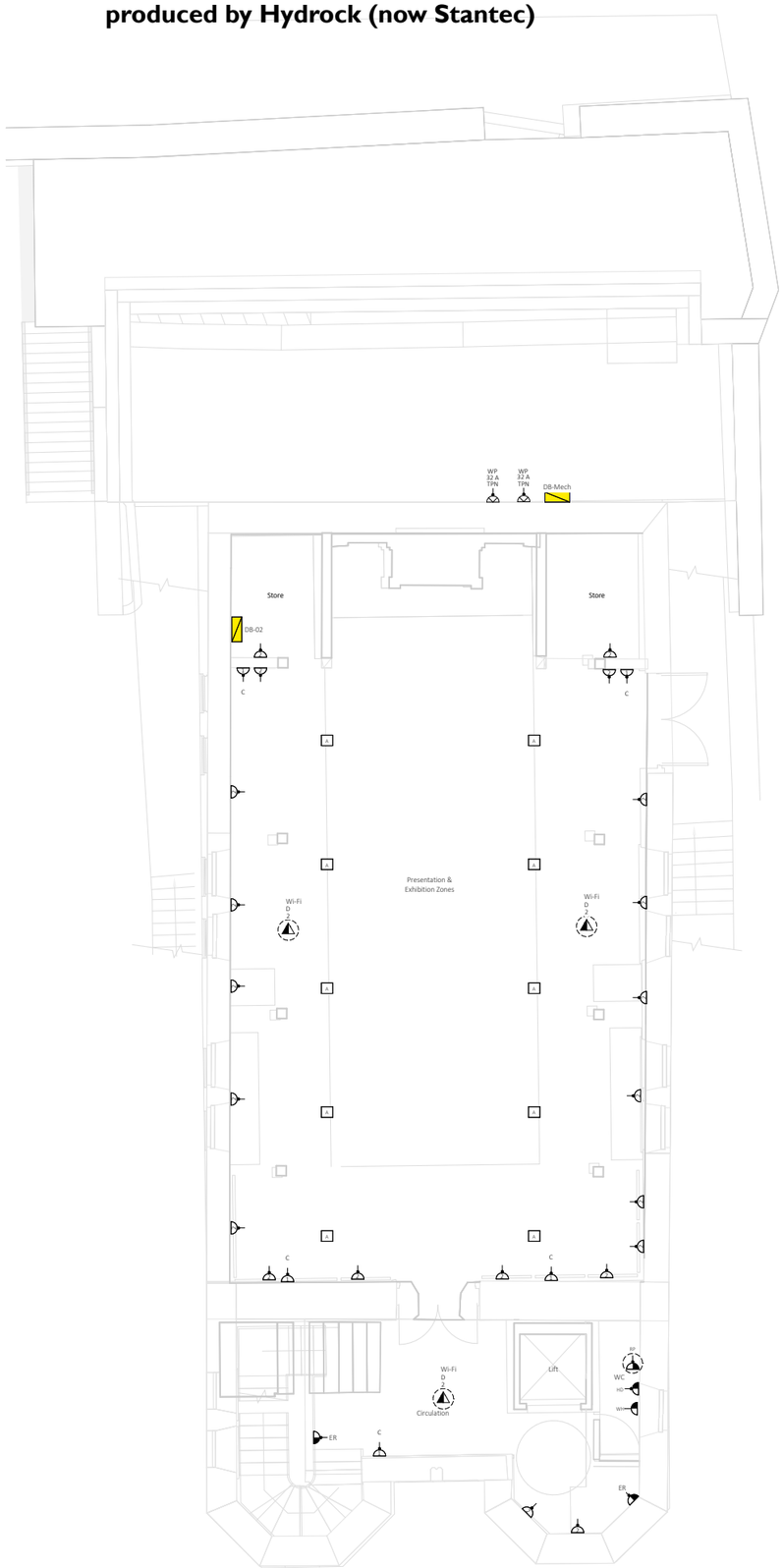


PROPOSED LOWER GROUND FLOOR PLAN

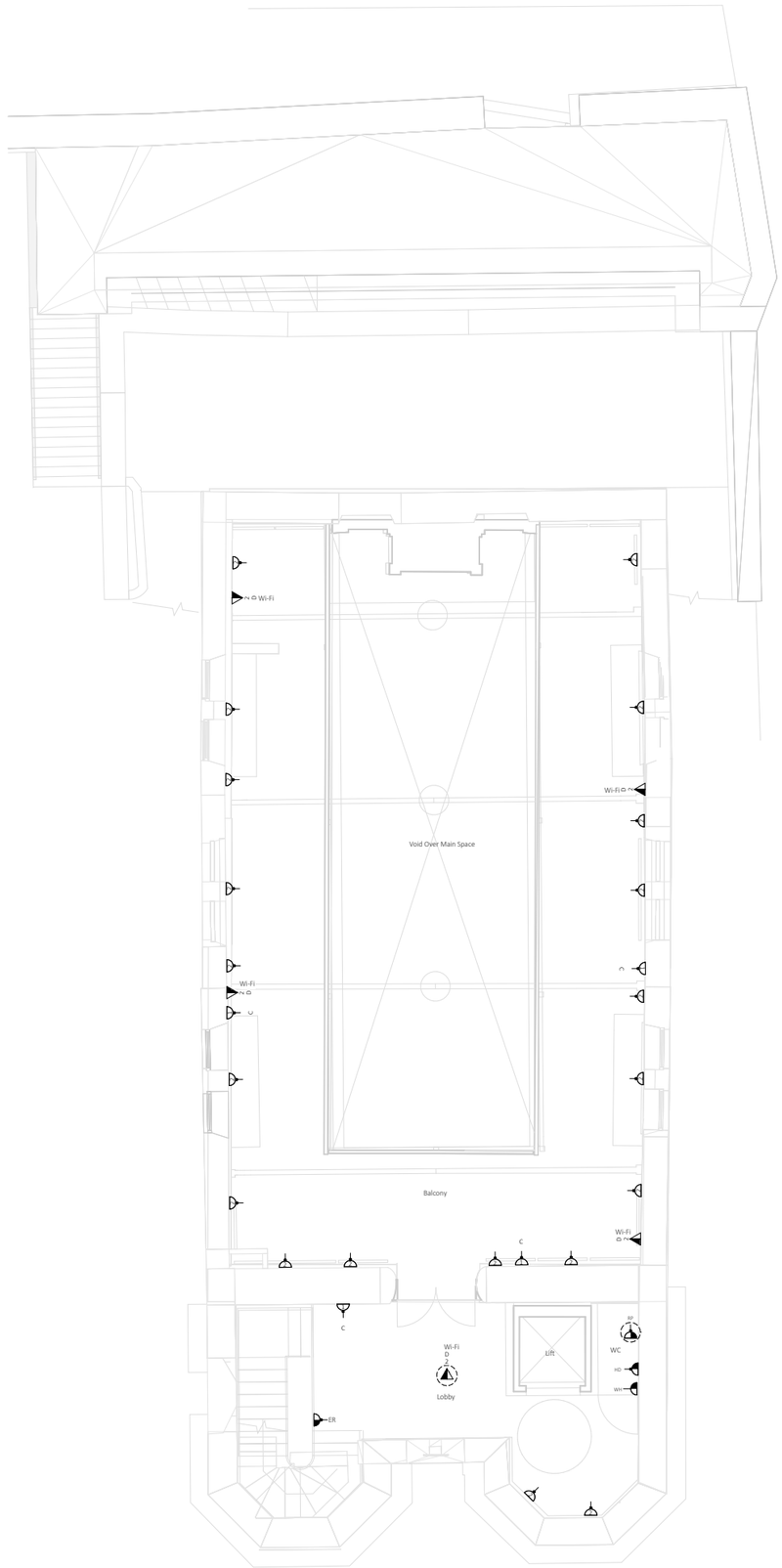


PROPOSED UPPER GROUND FLOOR PLAN

6.6.26 Proposed Small Power Layouts - First & Second Floors, produced by Hydrock (now Stantec)

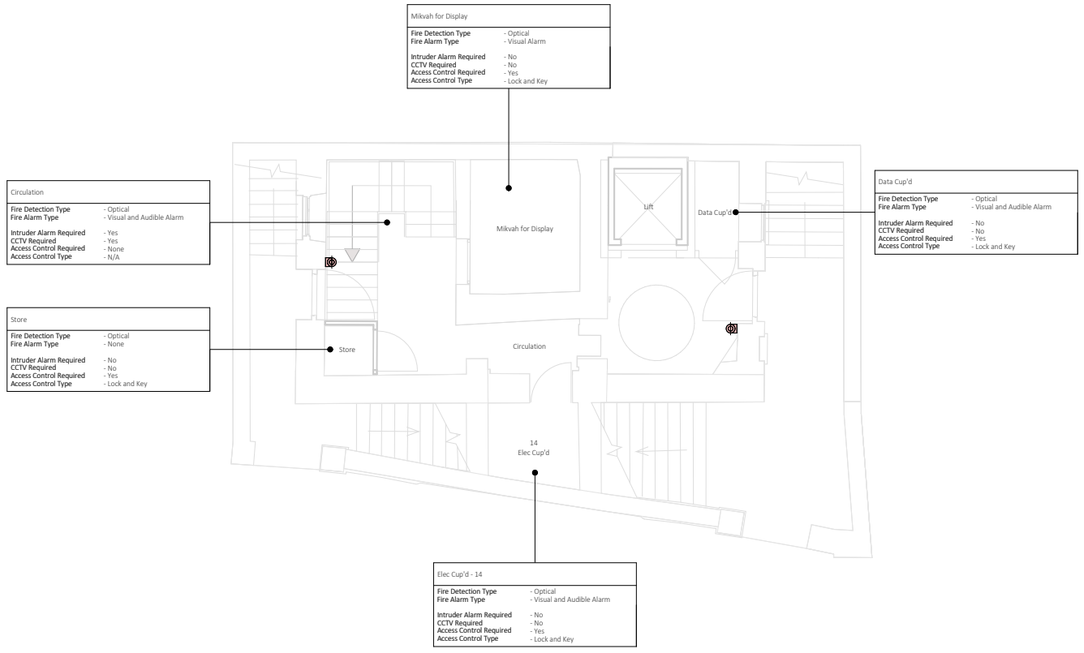


PROPOSED FIRST FLOOR PLAN

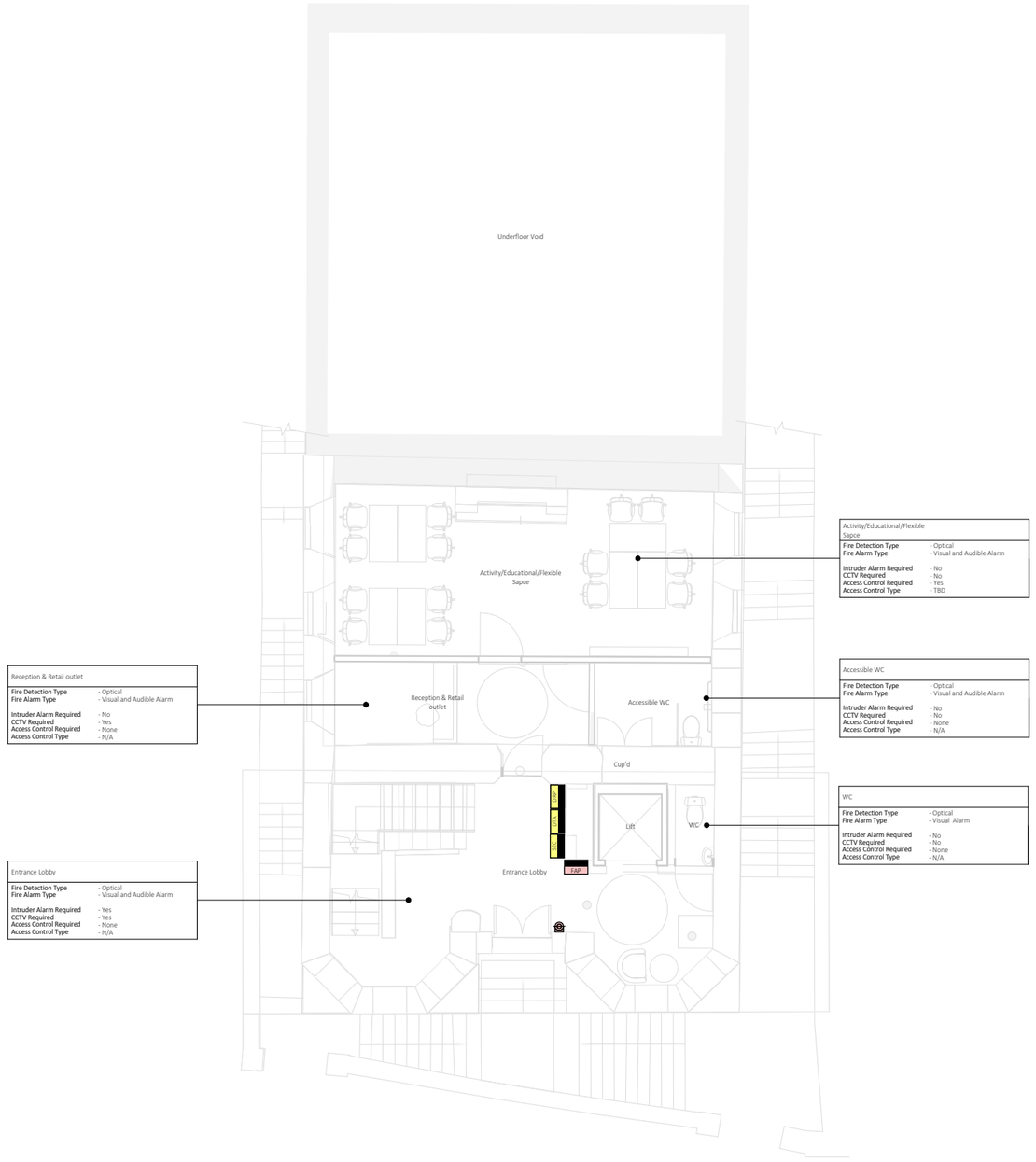


PROPOSED SECOND FLOOR PLAN

6.6.27 Proposed Protective Services Layouts - Lower Ground & Upper Ground Floors, produced by Hydrock (now Stantec)

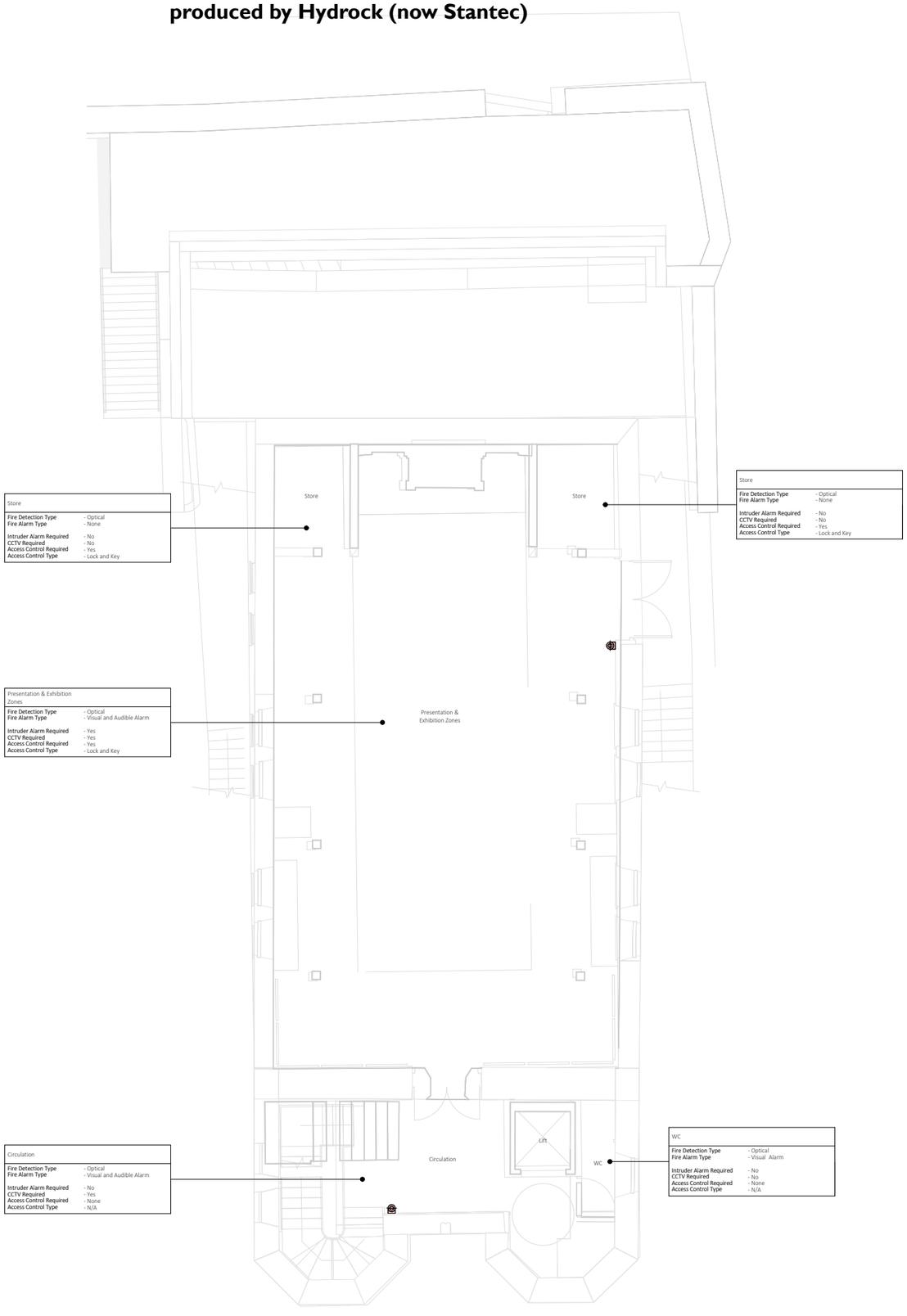


PROPOSED LOWER GROUND FLOOR PLAN

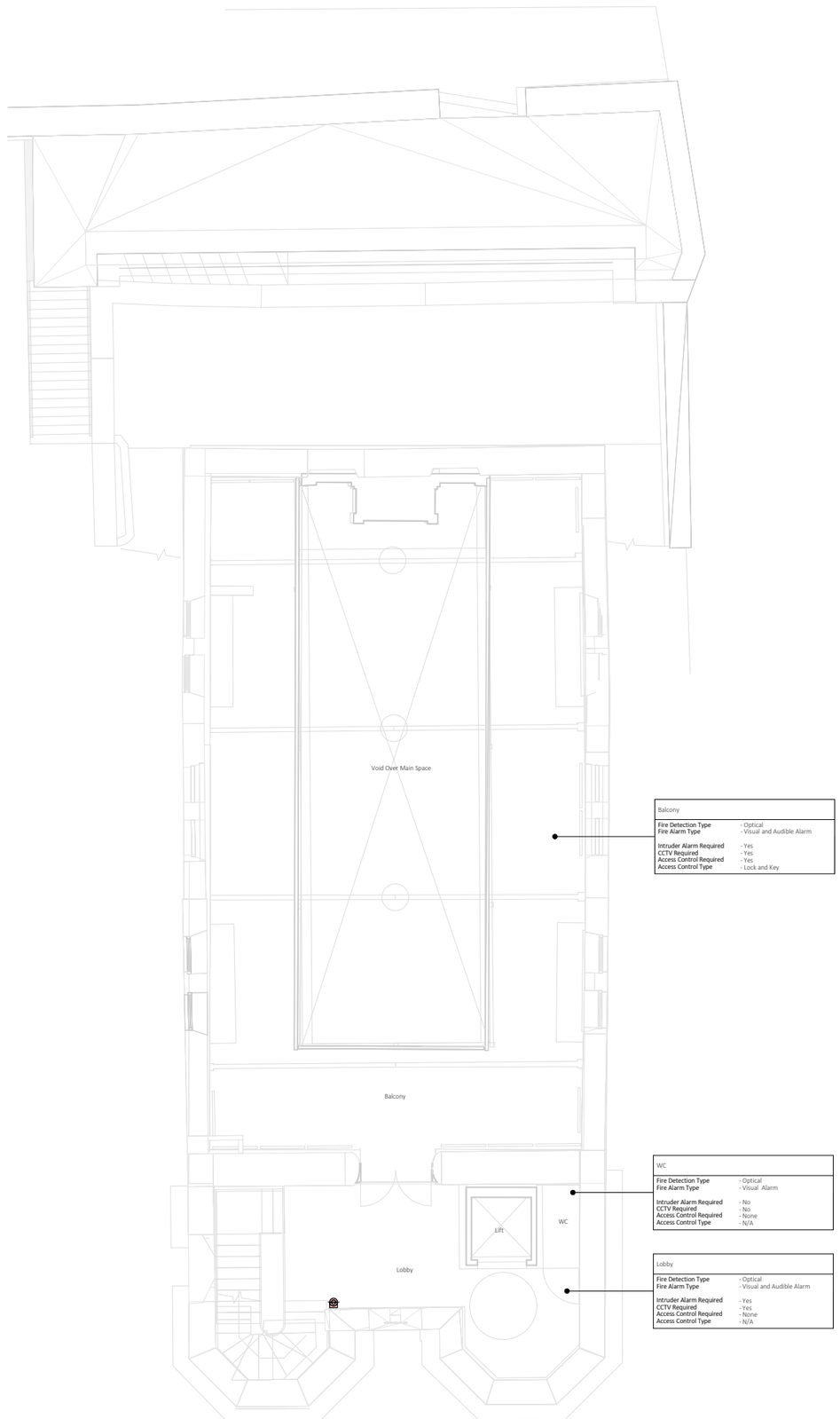


PROPOSED UPPER GROUND FLOOR PLAN

6.6.28 Proposed Protective Services Layouts - First & Second Floors, produced by Hydrock (now Stantec)

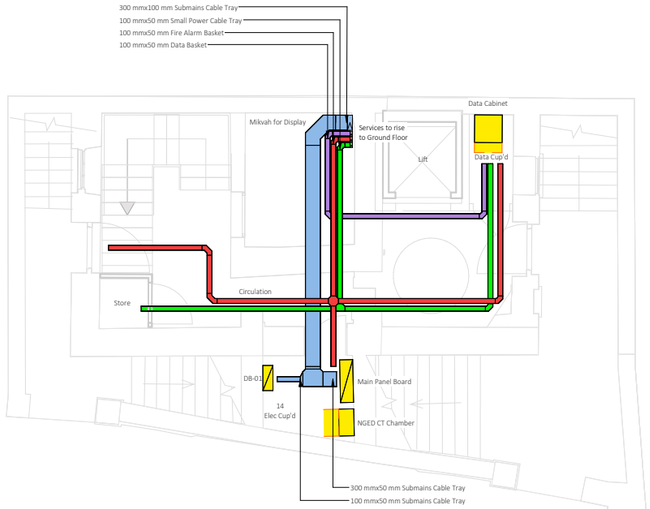


PROPOSED FIRST FLOOR PLAN

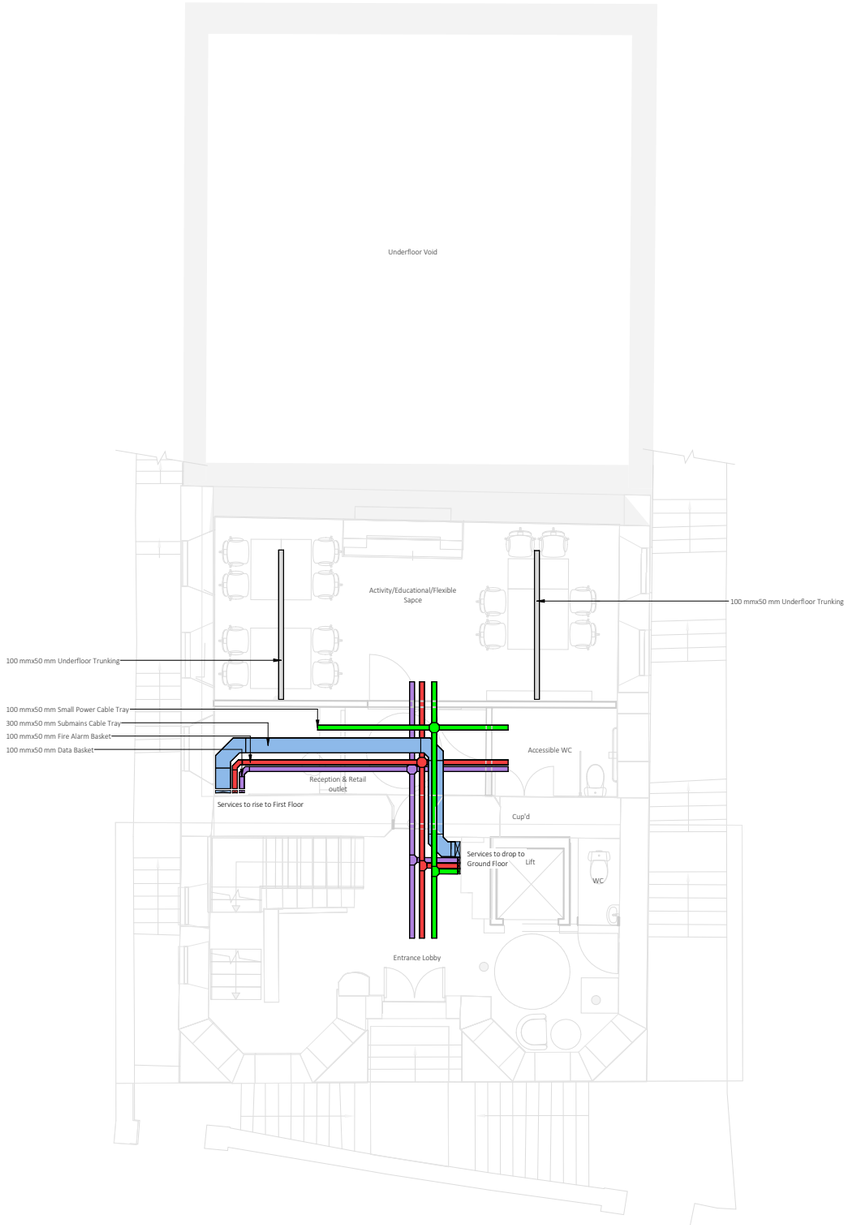


PROPOSED SECOND FLOOR PLAN

6.6.29 Proposed Containment Layouts - Lower Ground & Upper Ground Floors, produced by Hydrock (now Stantec)

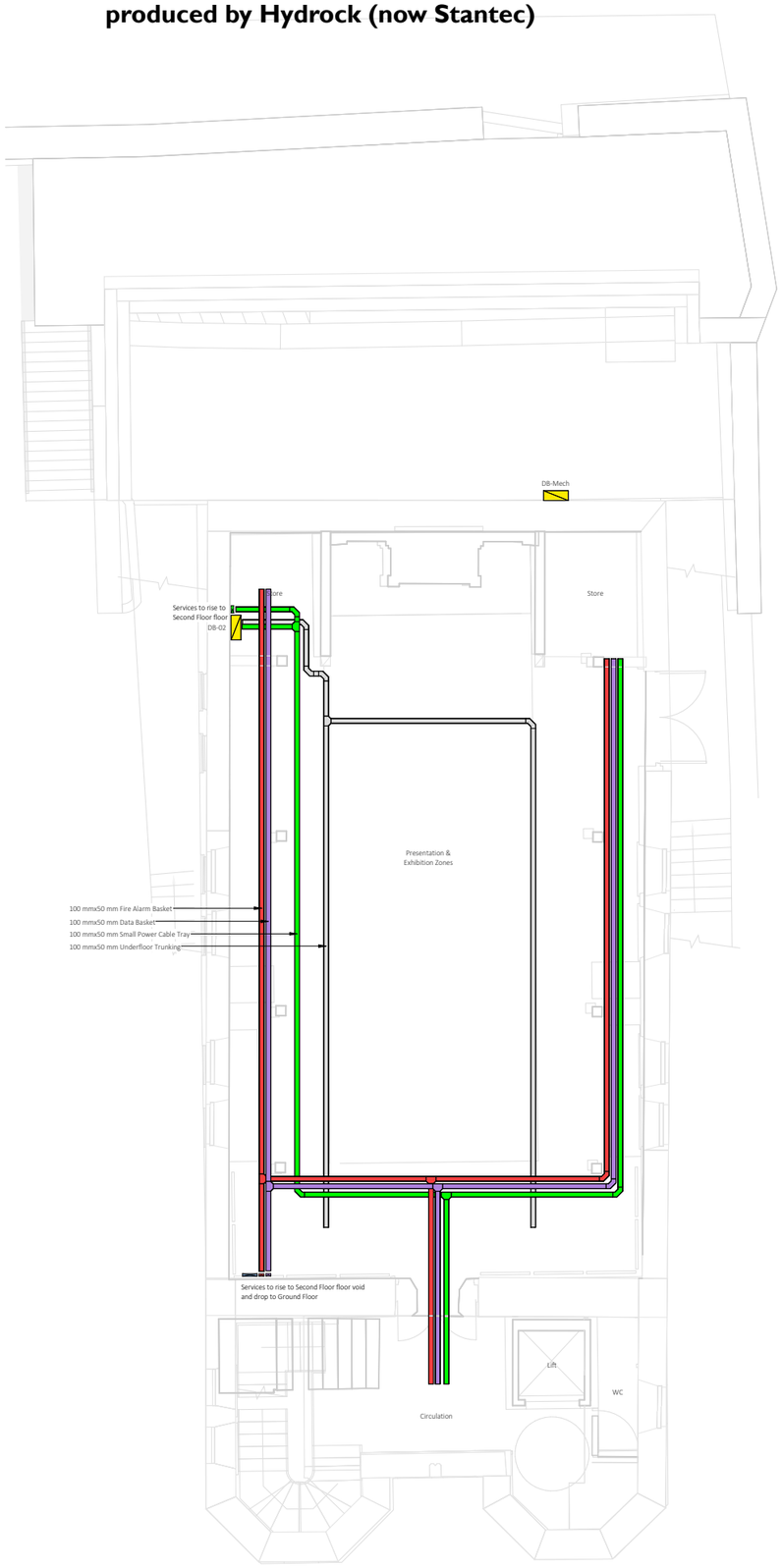


PROPOSED LOWER GROUND FLOOR PLAN

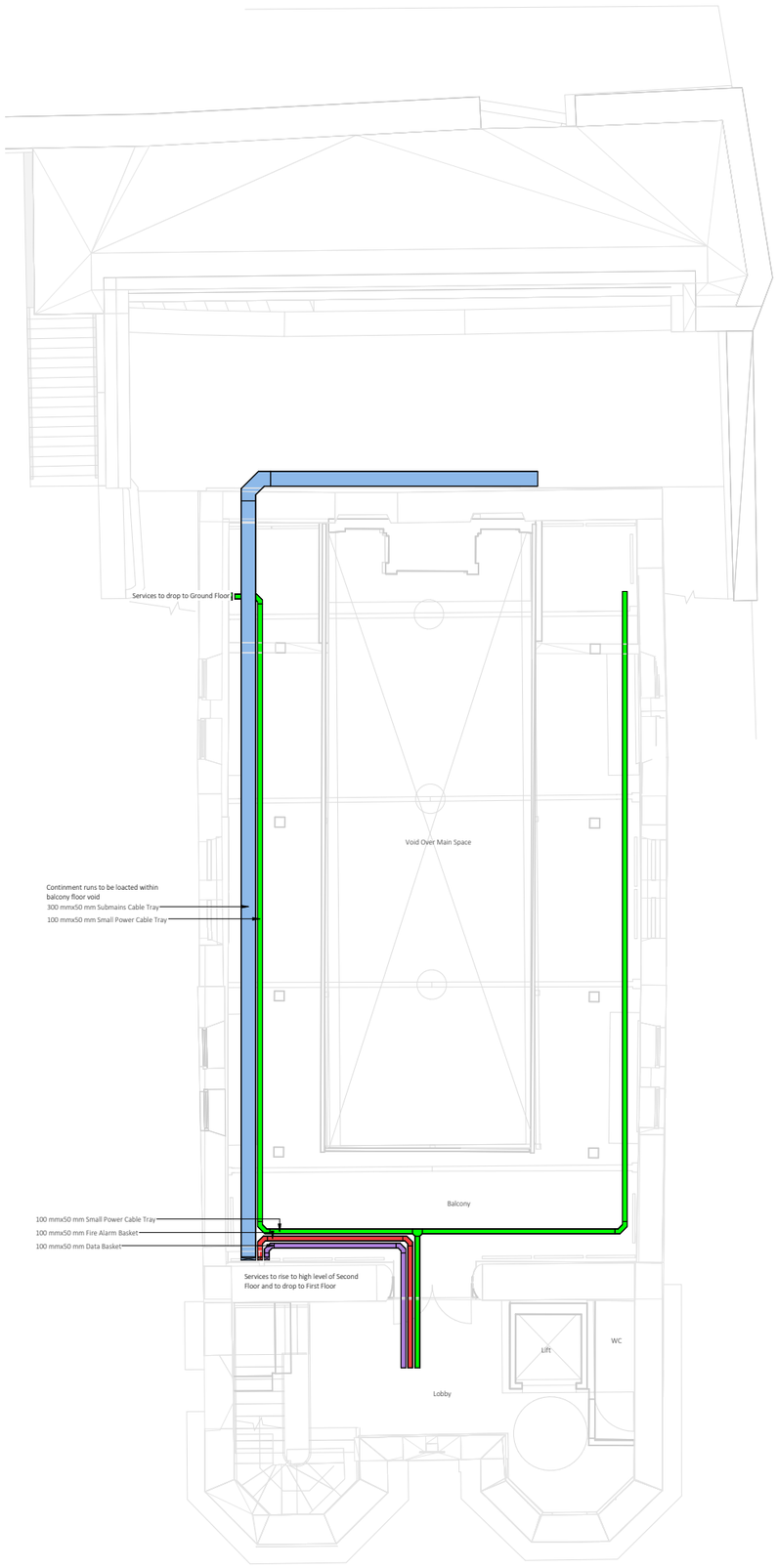


PROPOSED UPPER GROUND FLOOR PLAN

6.6.30 Proposed Containment Layouts - First & Second Floors, produced by Hydrock (now Stantec)

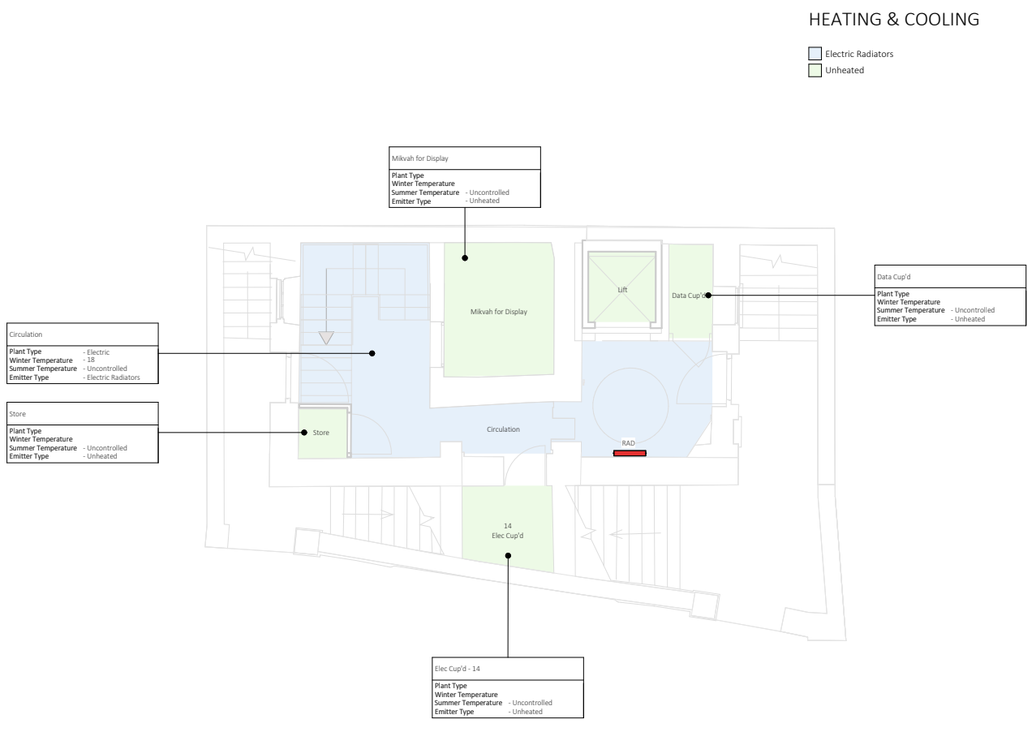


PROPOSED FIRST FLOOR PLAN

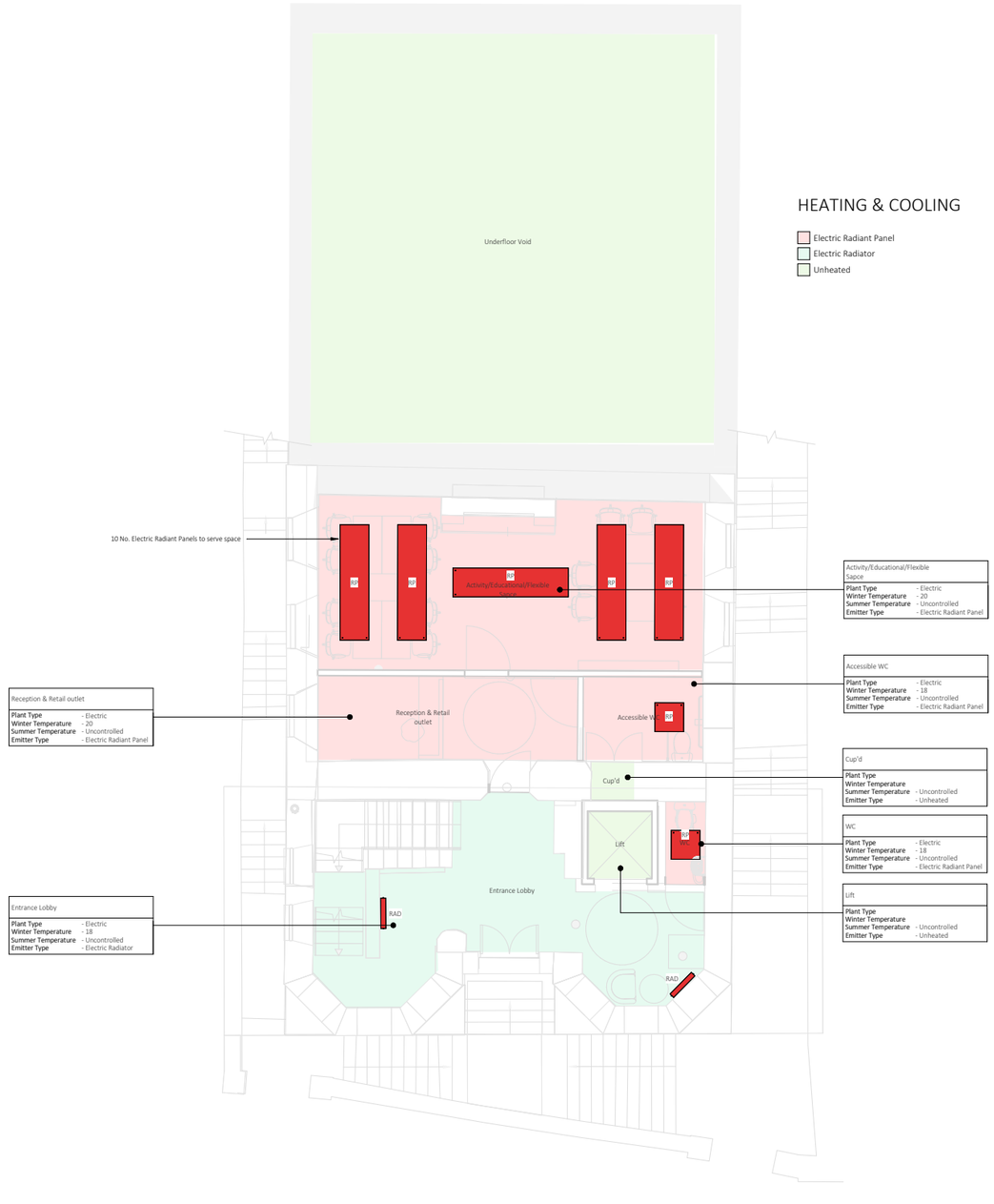


PROPOSED SECOND FLOOR PLAN

6.6.31 Proposed Heating & Cooling Layouts - Lower Ground & Upper Ground Floors, produced by Hydrock (now Stantec)

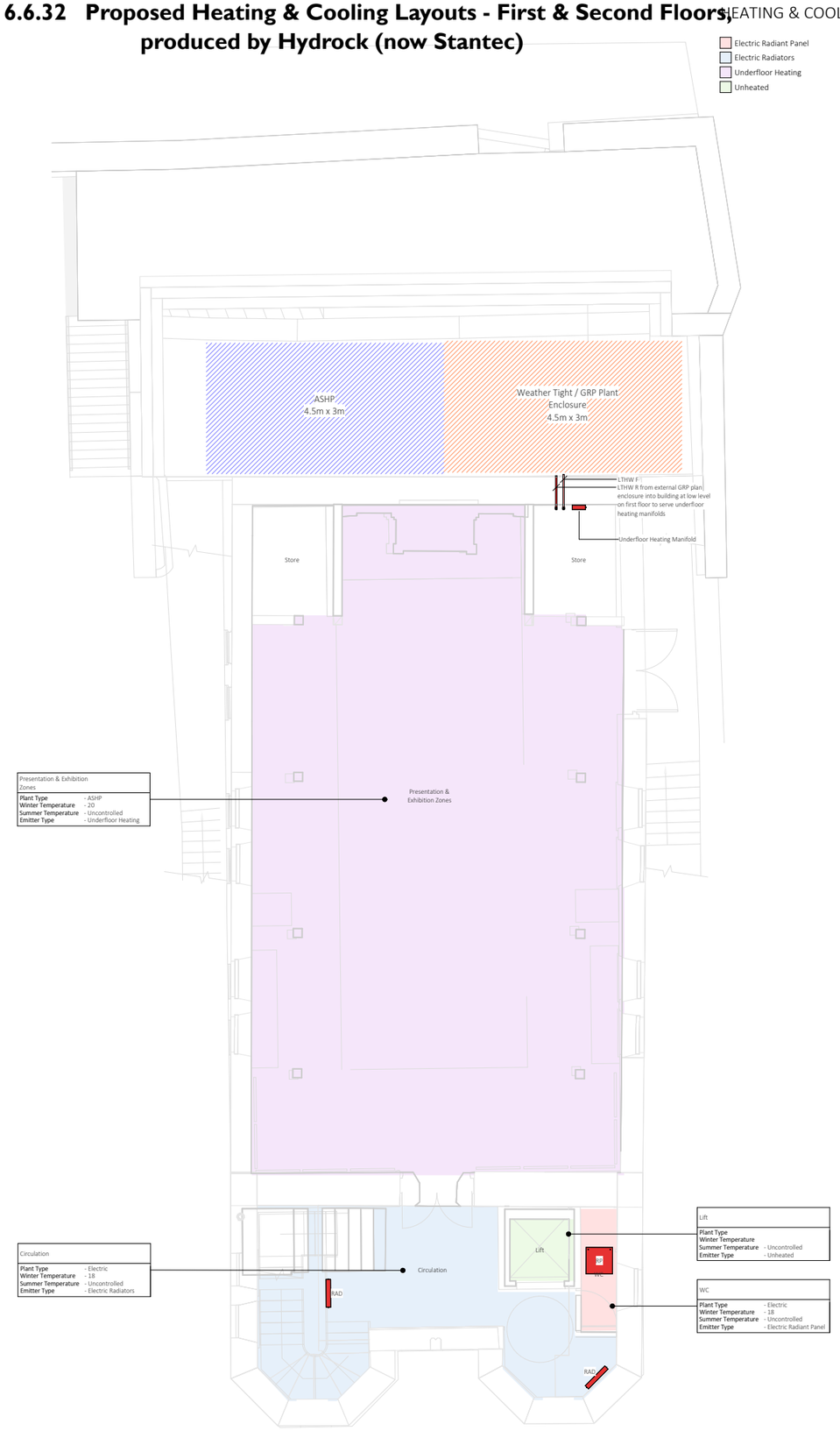


PROPOSED LOWER GROUND FLOOR PLAN

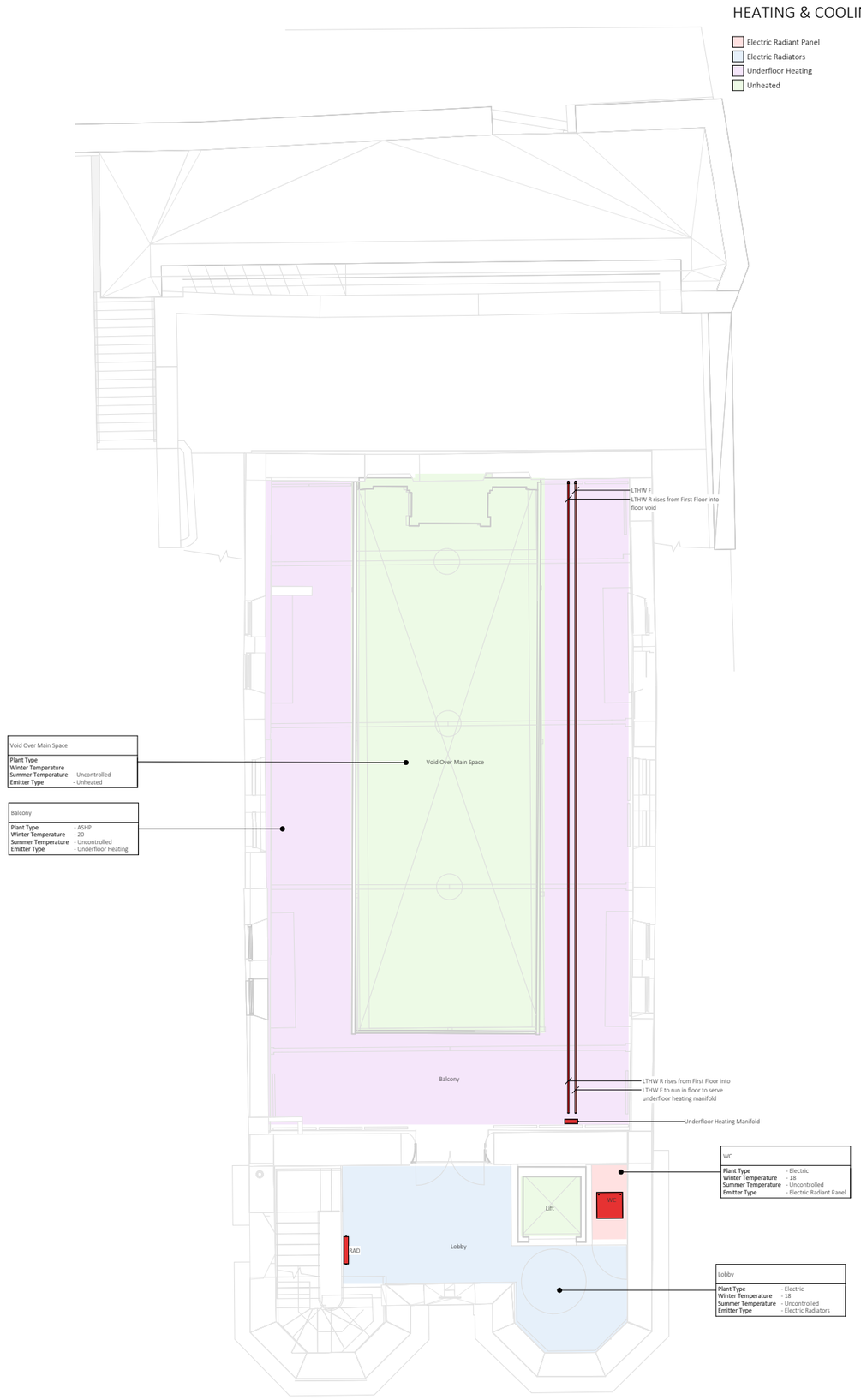


PROPOSED UPPER GROUND FLOOR PLAN

6.6.32 Proposed Heating & Cooling Layouts - First & Second Floors, produced by Hydrock (now Stantec)

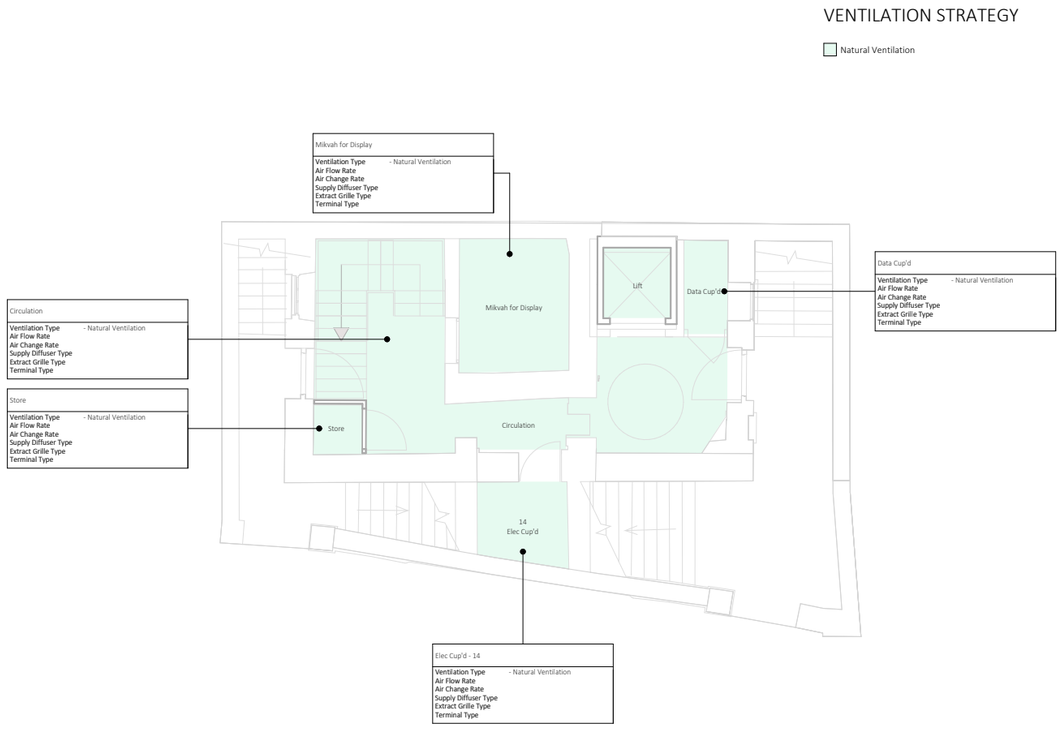


PROPOSED FIRST FLOOR PLAN

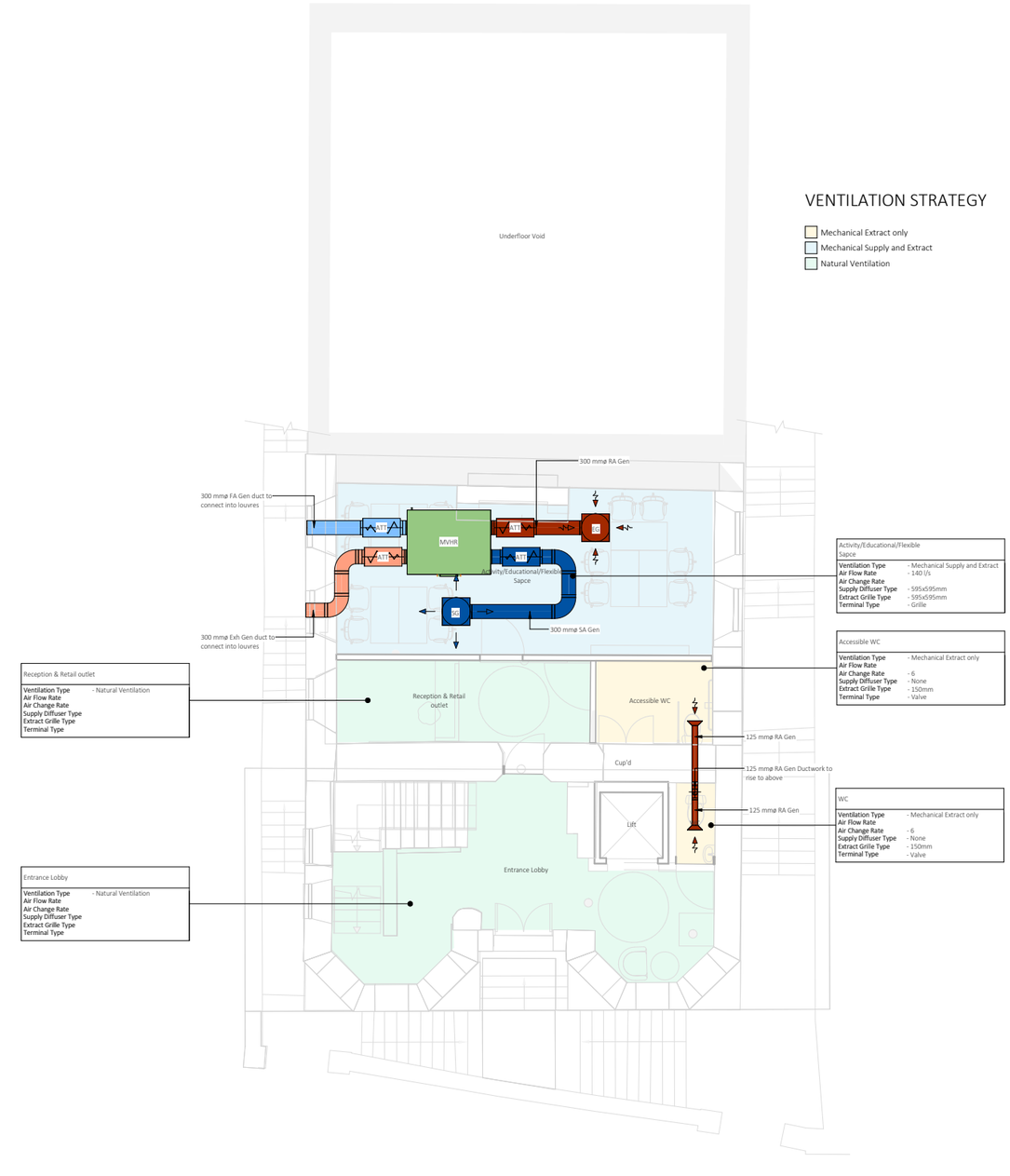


PROPOSED SECOND FLOOR PLAN

6.6.33 Proposed Ventilation Layouts - Lower Ground & Upper Ground Floors, produced by Hydrock (now Stantec)

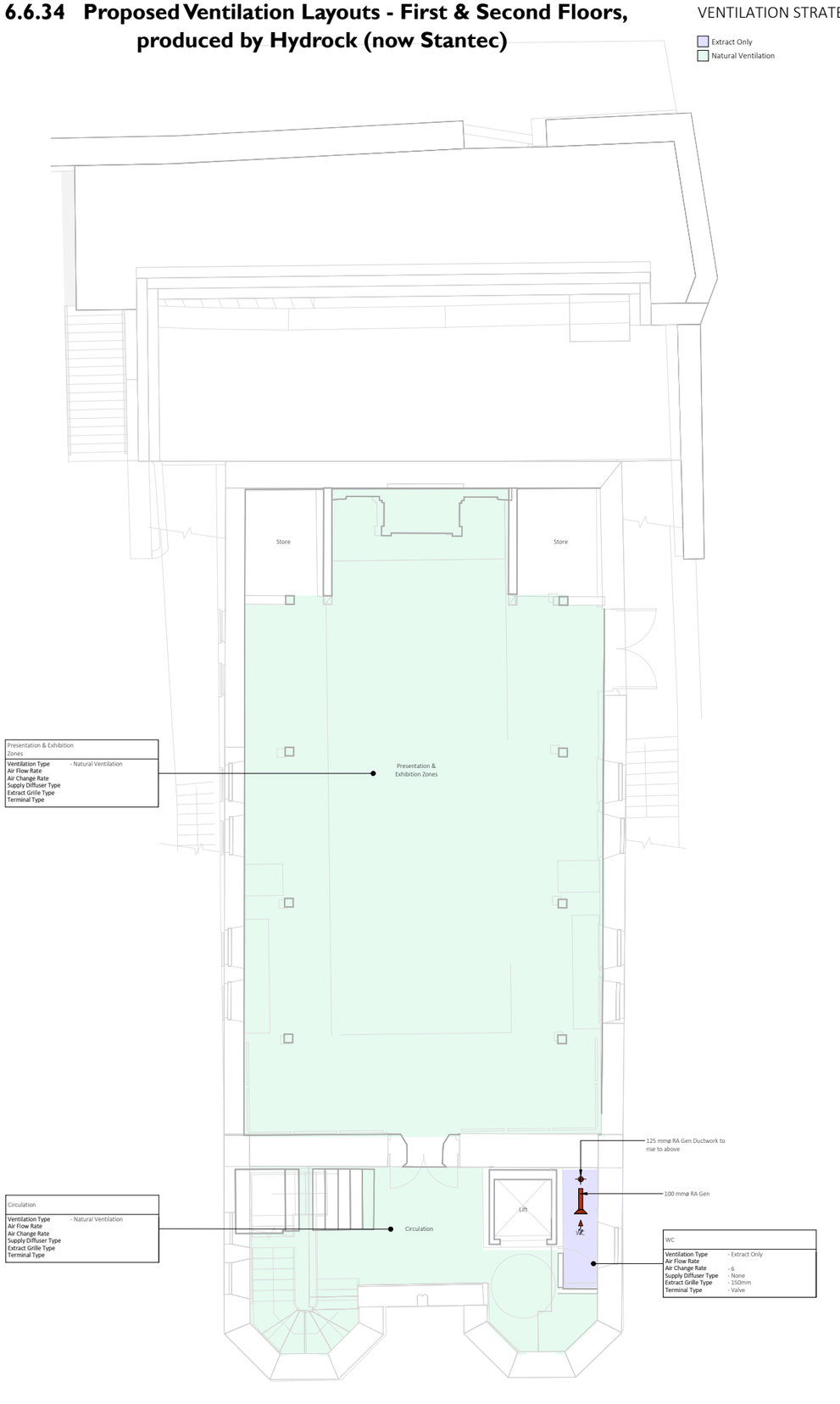


PROPOSED LOWER GROUND FLOOR PLAN

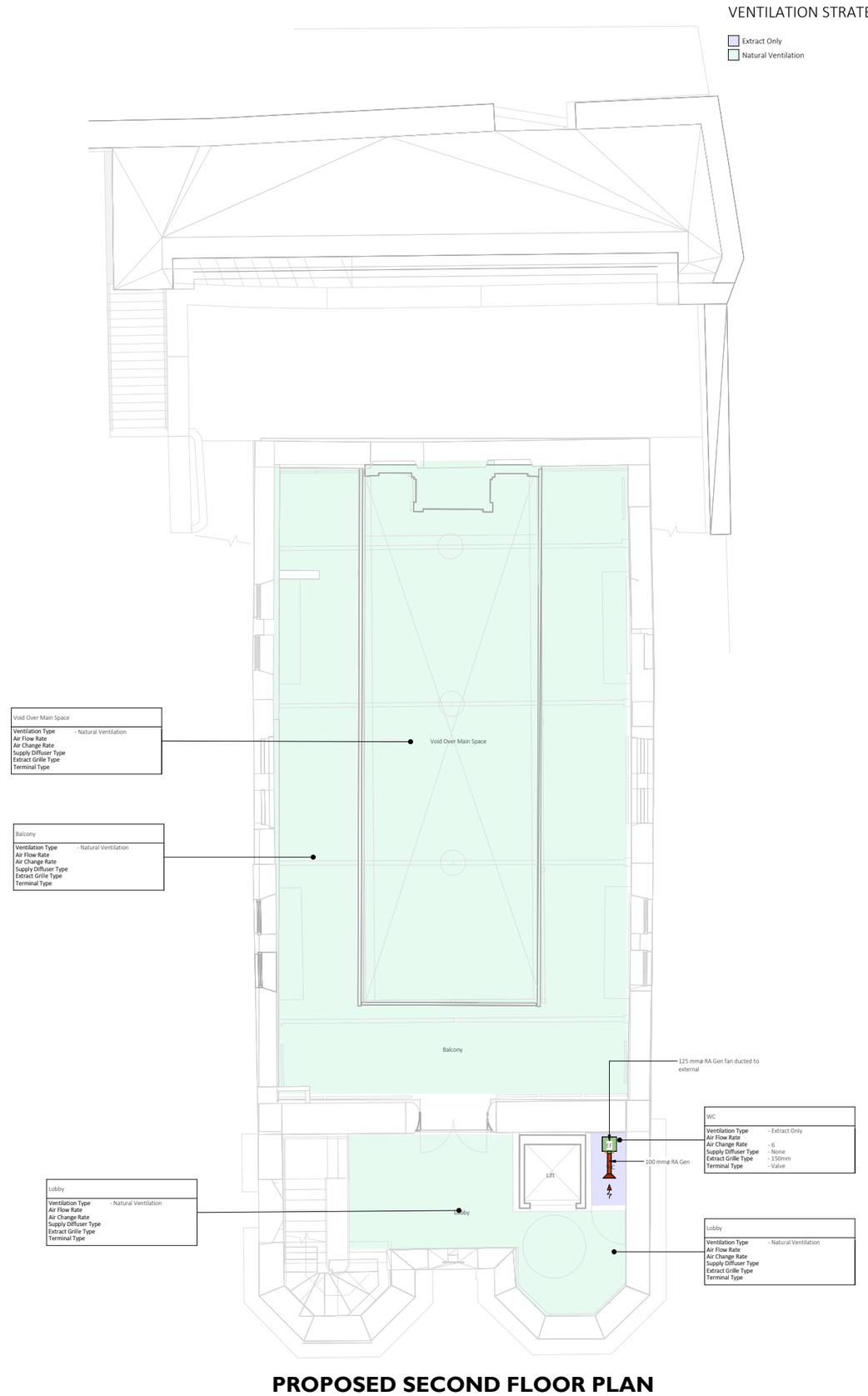


PROPOSED UPPER GROUND FLOOR PLAN

6.6.34 Proposed Ventilation Layouts - First & Second Floors, produced by Hydrock (now Stantec)

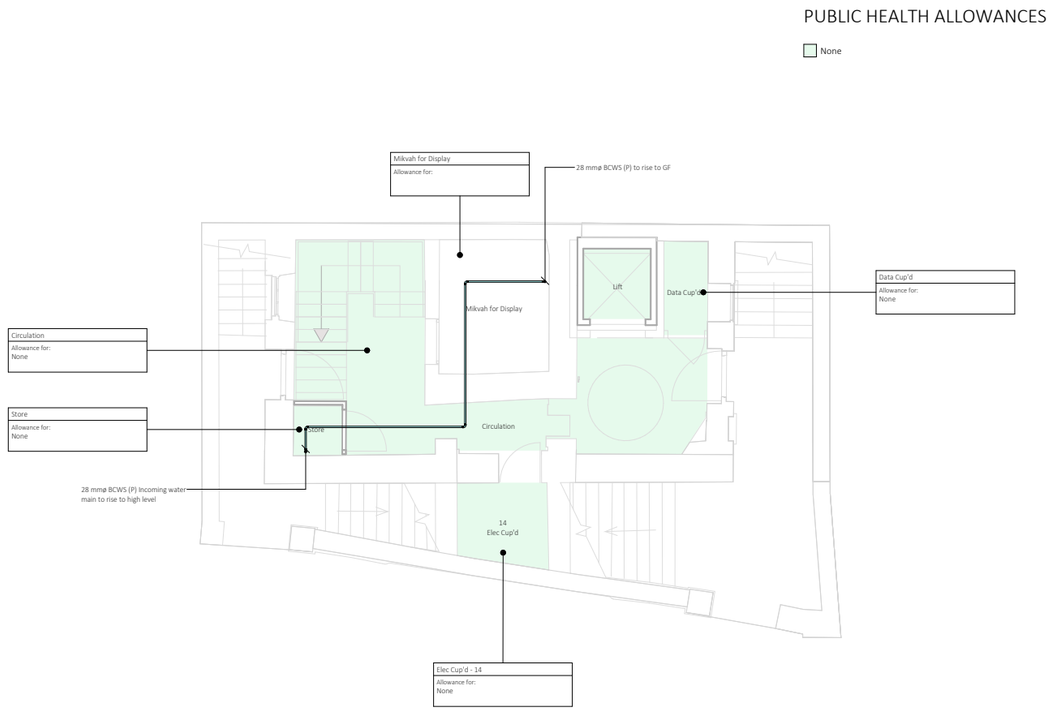


PROPOSED FIRST FLOOR PLAN

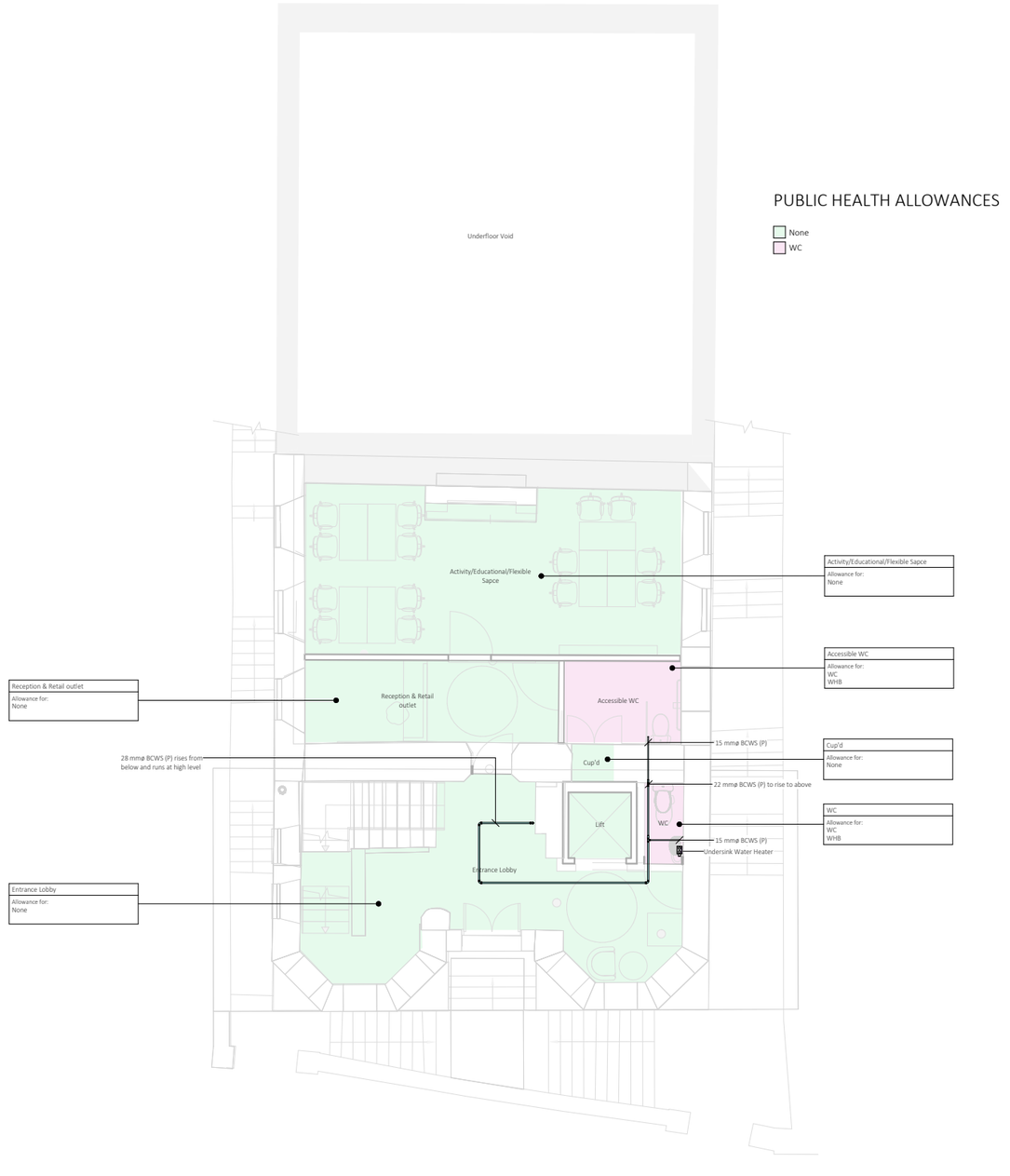


PROPOSED SECOND FLOOR PLAN

6.6.35 Proposed Public Health Layouts - Lower Ground & Upper Ground Floors, produced by Hydrock (now Stantec)

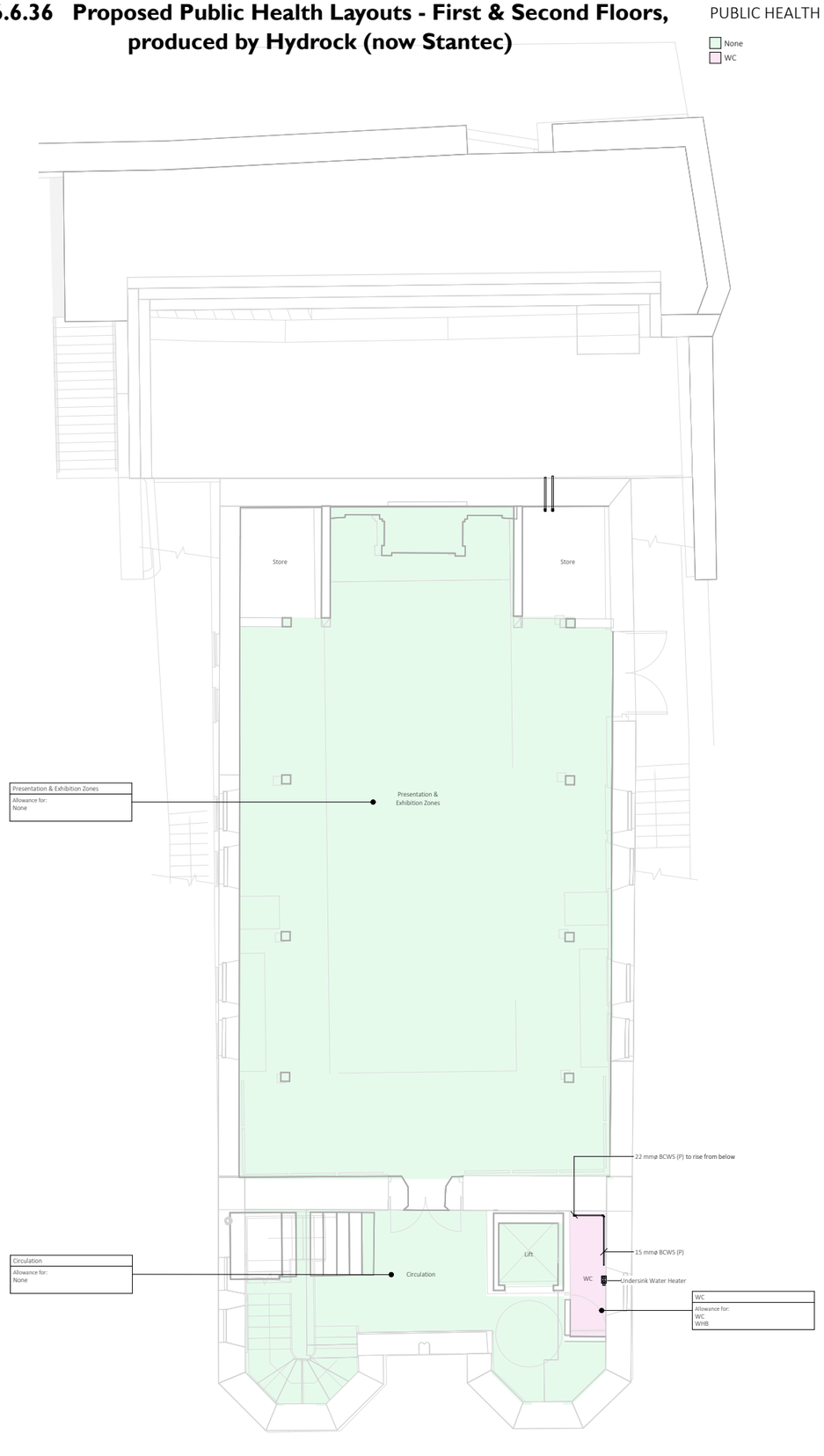


PROPOSED LOWER GROUND FLOOR PLAN

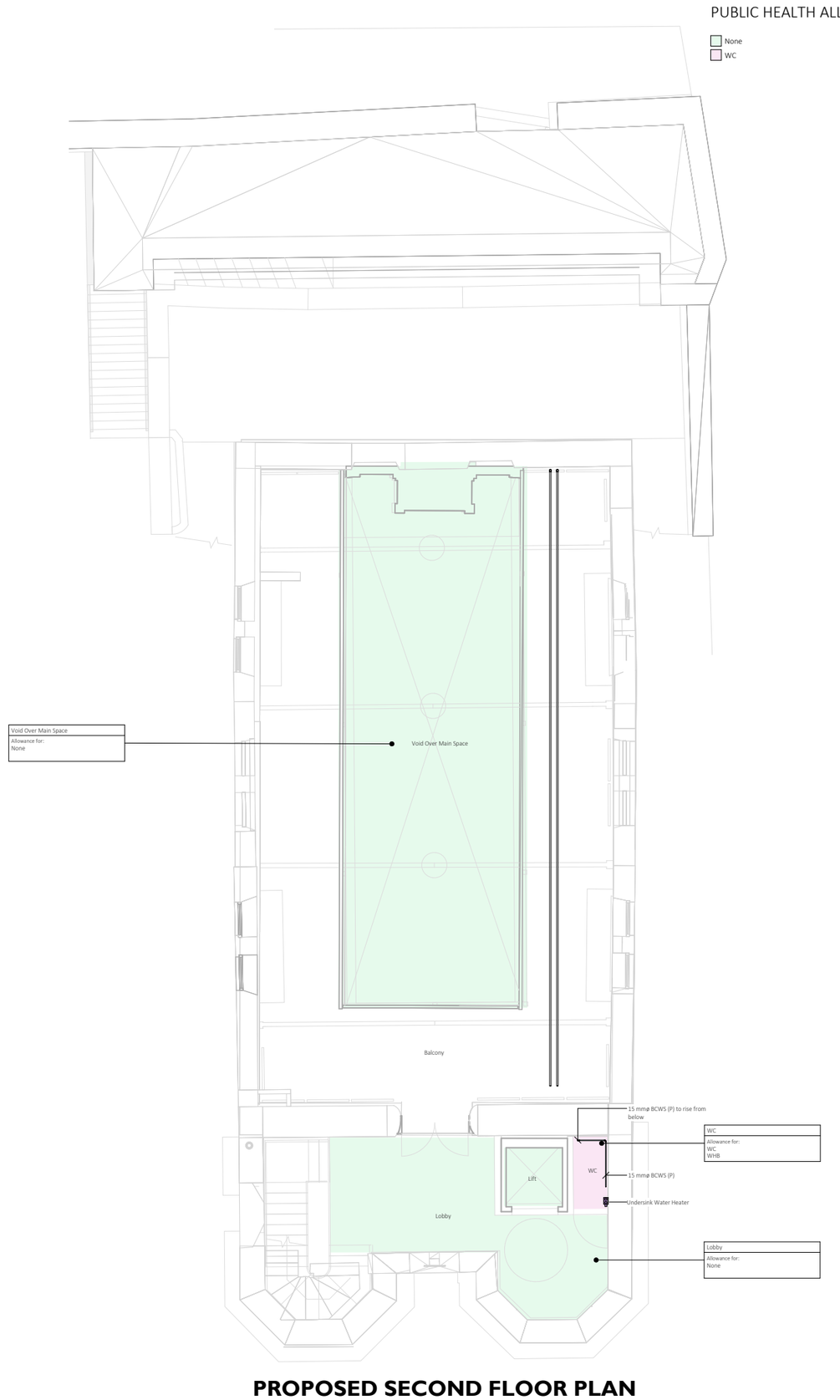


PROPOSED UPPER GROUND FLOOR PLAN

6.6.36 Proposed Public Health Layouts - First & Second Floors, produced by Hydrock (now Stantec)



PROPOSED FIRST FLOOR PLAN



PROPOSED SECOND FLOOR PLAN