

Highgate School – Richard’s Music Centre – Carbon Management Planning Responses

Date
8th August 2025

Prepared by
RB

Checked by
GA

Approved by
LG

Introduction

Highgate School submitted planning application for the redevelopment of Richard’s Music Centre located in Bishopswood Road, Hornsey, London, N6 4PR. The proposal and the following supporting documents have been reviewed by Haringey Council:

- Energy Statement including Overheating assessment prepared by AECOM (dated Dec 2022)
- Sustainability Statement prepared by AECOM (dated Dec 2022)
- Whole Life Cycle Carbon Assessment prepared by AECOM (dated Dec 2022)
- Circular Economy Statement prepared by AECOM (dated Jan 2023)
- Relevant supporting documents.

On 10th April 2024, Haringey Council provided a Carbon Management Response (REF: HGY/2023/0315) which confirmed objection to the application. Within this, the Council stated that “*Carbon Management cannot currently support this application. Some clarifications must be provided with regard to the Energy Strategy, Overheating Strategy and Whole-life carbon Assessment. This should be addressed prior to the determination of the application.*” A meeting was held 10th March 2025 between AECOM, Highgate School, Haringey’s Carbon Management team and the Case Officer to discuss the response and comments by the Carbon Management team. AECOM has liaised with the design team in order to respond to the concerns raised. The response tracker below contains the concerns and queries raised by Haringey council and the design team responses to these.

In responding to the comments provided by Haringey, the design of the building has been updated to incorporate more efficient lighting. This has had the result of improving the carbon savings after the “be lean” stage of the energy hierarchy to 5% compared to 0% reported in the RMC energy statement dated 2022, as well as increasing the overall savings after all stages of the energy hierarchy to 47%. Following these improvements, the updated headline carbon emissions and savings at each stage of the energy hierarchy are outlined in Table 1 and Table 2 below.

	Carbon dioxide emissions for non-residential buildings (Tonnes CO ₂ per annum)	
	Regulated	Unregulated
Baseline: Part L 2021 of the Building Regulations Compliant Development	5.4	8.0
After energy demand reduction (be lean)	5.2	8.0
After heat network connection (be clean)	5.2	8.0
After renewable energy (be green)	2.9	8.0

Table 1 Carbon dioxide emissions after each stage of the energy hierarchy - RMC

	Regulated non-residential carbon dioxide savings (Tonnes CO ₂ per annum)		(%)
Be lean: savings from energy demand reduction	0.2		4%
Be clean: savings from heat network	0.0		0%
Be green: savings from renewable energy	2.3		43%
Total Cumulative Savings	2.5		47%

Table 2 Regulated carbon dioxide savings from each stage of the energy hierarchy - RMC

As an improvement in the on-site regulated carbon savings is now proposed compared to that in the originally submitted energy statement, a reduced carbon offset payment is now proposed. The offset payment proposed for RMC is now £8,068. This is summarised in Table 3.

	Annual (tCO ₂)	Cumulative shortfall (tCO ₂)
Total Target Savings	5.4	-
Shortfall	2.9	86
Cash in-lieu contribution (£)	-	£8,169

Table 3 Carbon savings shortfall and offset payment - RMC

Response Tracker

Ref. No.	Haringey Comment	Applicant Response																																											
1.	The development achieves an overall reduction of 43% carbon dioxide emissions on site, which is supported in principle. However, the development fails to comply with the requirement to reduce carbon emissions by 15% under Be Lean scenario against Part L 2021. It is acknowledged that it is challenging for non-residential development to achieve the energy efficiency target against Part L 2021. However, it is expected to follow the energy hierarchy to maximise carbon savings with fabric first approach before offsetting. The applicant should explore more options to improve the fabric energy efficiency aiming towards 15% reduction under Be Lean scenario.	The building has been designed in line with the GLA energy hierarchy to provide a low carbon solution. The thermal performance of the building envelope is good with all U-values (except for external doors and louvred glazing) improving upon the notional building, as outlined in the table below. <table><tr><th></th><th colspan="3">U-value (W/m²K)</th><th></th></tr><tr><th>Element</th><th>Proposed</th><th>Part L 2021 Notional building</th><th>Part L 2021 Backstop</th><th>Comments</th></tr><tr><td>Roof</td><td>0.13</td><td>0.15</td><td>Flat: 0.18 Pitched: 0.16</td><td>13% better than the Notional</td></tr><tr><td>Exposed walls</td><td>0.15</td><td>0.18</td><td>0.26</td><td>17% better than the notional</td></tr><tr><td>Basement walls</td><td>0.15</td><td>0.18</td><td>0.26</td><td>17% better than the notional</td></tr><tr><td>Exposed floors and ground floors</td><td>0.13</td><td>0.15</td><td>0.18</td><td>13% better than the Notional</td></tr><tr><td>Windows and glazed doors</td><td>1.20</td><td>1.40</td><td>1.60</td><td>14% better than the Notional</td></tr><tr><td>Louvred glazing</td><td>1.60</td><td>1.40</td><td>1.60</td><td></td></tr></table>					U-value (W/m²K)				Element	Proposed	Part L 2021 Notional building	Part L 2021 Backstop	Comments	Roof	0.13	0.15	Flat: 0.18 Pitched: 0.16	13% better than the Notional	Exposed walls	0.15	0.18	0.26	17% better than the notional	Basement walls	0.15	0.18	0.26	17% better than the notional	Exposed floors and ground floors	0.13	0.15	0.18	13% better than the Notional	Windows and glazed doors	1.20	1.40	1.60	14% better than the Notional	Louvred glazing	1.60	1.40	1.60	
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Opaque pedestrian doors and high usage entrance doors	2.20	1.90	3.00	
Rooflights	1.80	2.1 (however not applied in our notional building due to building type)	2.20	14% better than the Notional

Table 4 RMC U value performance compared to notional

Although doors do not match the notional building, they are within Part L 2021 limits. The building is targeting Secured by Design (SBD) certification. Meeting the SBD requirements for doors often involves incorporating significant amounts of steel into opaque doors and this increases the U-value making the Part L notional building performance difficult to achieve. Similarly, louvred glazing is specified in some rooms as part of the overheating mitigation strategy. A conservative U-value has been proposed at this stage to align with the available products of this type. However, such doors and windows represent a very small proportion of the building envelope and the losses due to higher U-values in these elements is small.

The building design has largely solid wall constructions except for the north elevation which has significant glazing. Visibility of the sports pitches from the building is a design requirement and therefore, reducing the area of glazing is not feasible. Elsewhere, the lower proportion of glazing helps to reduce heat losses through walls.

Further, the building services are designed to be energy efficient. Following the planning submission, design development has allowed the proposed lighting efficiency to be increased from 95 lm/W to 120 lm/W.

The above improvements to lighting efficiency have resulted in an increase in carbon savings at the “be lean” stage of the energy hierarchy and after the “be green stage”. “Be lean” savings are now 0.2 tCO₂/year or 4% of baseline regulated emissions.

2.	Furthermore, the Whole Life Carbon Assessment does not meet the GLA requirement and is proposed to be the worst-case scenario in terms of LETI band rating of “G”. The highest embodied carbon attributed to substructure (45%), 20% of which is attributed to the basement with the use of 20m long piles and sheet piling. It is recommended to explore alternative measures to reduce	The GLA WLCA benchmarks have not been met, the main contributors are due to the basement and relatively small GIA. The small GIA of the building means that, across a rationalised carbon impact, this building is penalised compared to a building with a larger GIA. The opportunities to reduce the carbon impact, as included within the WLC report and accompanying GLA reporting spreadsheet, include: - Increase the quantity of cement replacements in the C30/37 structural concrete from 20% to 50%. The use of a higher percentage cement replacement across all structural concrete elements could reduce the embodied carbon impact by 91 kg CO₂e/m². - Recycled steel could be incorporated within the sheet piling.
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carbon in the proposed design aiming for the benchmark.	- Use a refrigerant with a GWP of less than 150 kg CO₂e/kg of refrigerant. The GLA WLCA benchmarks are benchmarks and not absolute targets set by policy. The LETI band ratings are not yet policy requirements. However, regardless as described in Section 29 -31 below, further opportunities will be explored to reduce the embodied carbon post planning.
3. Also, the cooling demand is higher than the notional cooling demand and the overheating assessment is required to properly following the London Plan's cooling hierarchy incorporating all passive measures to reduce the overheating risk of the building and minimise the cooling demand before introducing any mechanical form of cooling.	As outlined in section 4 of the energy statement, the cooling hierarchy has been followed to minimise cooling demand as far as possible and reduce overheating. Mechanical cooling is only proposed to areas which would otherwise overheat despite the inclusion of passive measures. In some areas, for example the theatre, openable windows have been avoided as this would likely not meet the functional requirements of the space. Windows are also not included in changing rooms (which are below ground). Openable windows are included where other constraints allow. Some spaces and the theatre are below ground, in part to help in responding to neighbours' concerns about building height. This limits the potential for natural ventilation in these spaces. Despite these limitations, passive measures have been included in the building design where possible to reduce overheating risk and mechanical cooling demand. These include: • Inclusion of efficient lighting to reduce heat gains (as outlined above, proposed lighting efficiency has since been further improved). • Use of high performance solar control glazing to reduce summer heat gains. • The incorporation of horizontal shading fins to the southern elevation. • Building insulation to reduce conductive heat gains. • Exposed soffits to provide some limited thermal mass benefits. • Natural ventilation in some spaces where constraints and predicted thermal comfort levels allow. Cross-ventilation and high-level clerestory ventilation louvres are included in addition to large openable areas. In addition to the above it is noted that the cooling energy demand is a very small compared to all other regulated energy uses. This is in part due to the cooling hierarchy being followed and few rooms having mechanical cooling included in the design.

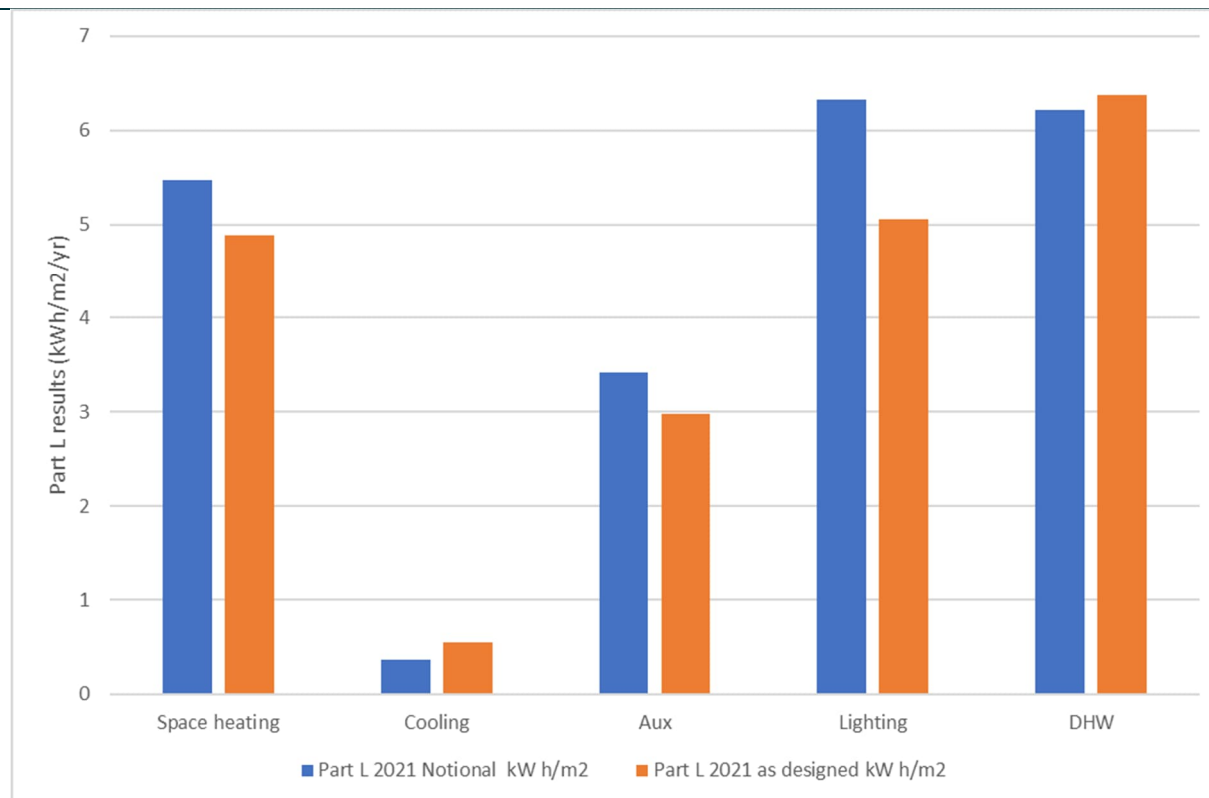


Figure 1 Part L 2021 energy demand breakdown for RMC.

4. The calculated space heating demand is more than the GLA benchmark. This indicates the need for energy efficiency measures to be incorporated in the design. Please provide commentary on what measures are proposed to lower the space heating demand.

The thermal performance of the building envelope is good with all U-values (except for external doors) improving upon the notional building, as outlined in the table below.

	U-value (W/m²K)			
Element	Proposed	Part L 2021 Notional building	Part L 2021 Backstop	Comments
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Table 5 RMC U value performance compared to notional

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		The building design has largely solid wall constructions except for the north elevation which has significant glazing. The solid areas allow for improved U-values over glazed areas and reduced heat losses. Visibility of the sports pitches from the building is a design requirement and therefore, reducing the area of glazing is not feasible. Consideration has been given to whether building fabric performance could be further improved, however, it was concluded that a commitment to better performing elements could not be made at this stage. This is to ensure that the developer does not commit to performance which is not achievable post-construction with available products. Despite this, where opportunities are identified to improve building performance during detailed design these will be investigated and incorporated where feasible.
5.	No carbon savings is proposed and the higher heating demand than the notional indicates the need for energy efficiency improvements in the building. Please explore measures to improve the building's energy efficiency.	As outlined in the row above, the proposed building fabric performance represents good performance compared to the Part L 2021 notional building and represents an efficient building fabric. Where opportunities are identified to improve building performance during detailed design these will be investigated and incorporated where feasible. The efficiency of the proposed building systems is similarly well-performing. It should be noted that the notional building often has similarly well-performing systems in Part L 2021 and as such savings against the baseline building are more difficult to achieve. However, since the original planning submission was made, the lighting design has been developed in more detail and the proposed efficiency has been increased from 95 lm/W to 120 lm/W. The above improvements to lighting efficiency have resulted in an increase in carbon savings at the "be lean" stage of the energy hierarchy and after the "be green stage". "Be lean" savings are now 0.2 tCO₂/year or 4% of baseline regulated emissions.
6.	Please identify on a plan where the MVHR units will be located within the building. The units should be less than 2m away from external walls. This detail can also be conditioned.	The MVHR units are located within the floor void and next to the external facade to allow of local fresh air supply to the classrooms. The images below show typical cross sections of rooms which incorporate MVHR.

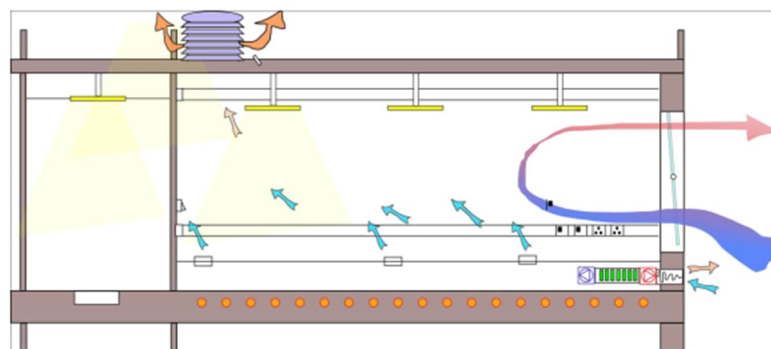


Figure 2 Drama Classroom Ventilation Strategy.

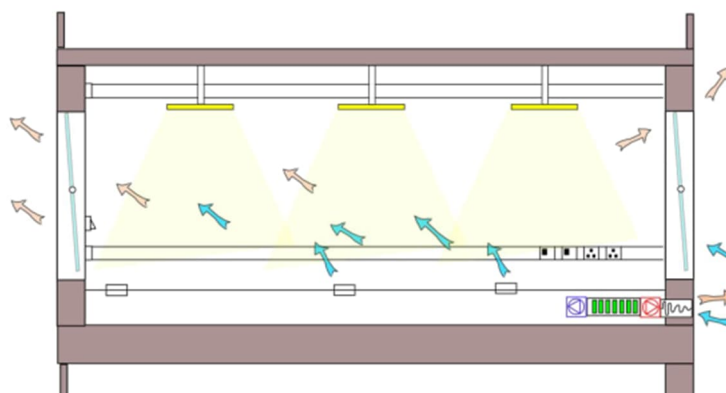


Figure 3 Classroom / Office Ventilation Strategy

Appendix 1 provides a section of the building indicating possible service zones for MVHR units.

7. The fabric efficiencies and thermal bridging should be improved upon to reduce heat losses

Responses 1, 4 and 5 above detail how building fabric efficiencies have been designed to minimise heat losses. The heat losses are generally a result of the glazed areas (which allow overlooking of the sports pitches) than due to the performance of the building fabric. Overall, the design aims to achieve a balance of energy performance, overheating mitigation and wider design requirements. Heating energy demand is reduced below that of the notional building, as shown in the chart in response 3.

Thermal bridging is discussed in responses 8 and 9 below.

8.	Set out how the scheme's thermal bridging will be reduced	It is too early within the design to establish the psi values/y- values. Thermal bridging details will be developed and detailed at later stage of the project to meet the energy performance committed to in the energy statement and improve on this where possible. At this stage, before detailed design is available, default Part L thermal bridging allowances have been used in building energy modelling to give a conservative estimate of energy performance.
9.	No measures are proposed to reduce heat loss from junction details, and it does not set out the what the proposed Psi (Ψ) value is.	In the next design stage, specialist software will be used to reduce the psi values as far as possible. The following topics will be considered: the materiality of bracketry (for example stainless steel has a better thermal performance than aluminium), the careful placement of thermal breaks, the placement of additional insulation where possible and if required at interfaces between components.
10.	What is the construction of the building and what is the assumed thermal mass?	The proposed building has two storeys above ground level and one basement level. The building has a reinforced concrete frame structure from basement level to first floor level. Above first floor level the structure changes to an engineered timber frame. Varying site levels lead to a half-storey-deep basement on the north elevation and full storey basement on the south elevation. The basement is formed using a steel sheet piled retaining wall with piled foundations supporting internal columns. From the flat roof, the vertical loads are carried by the reinforced concrete columns and the reinforced concrete walls. Typically, these elements are on a 7.2 m x 6 m grid. However, there are many locations where the grid is irregular. The current proposal includes several transfer structures which support columns that can't continue down to the basement due to clear span space requirements at that level. These transfer structures consist of a deep beam and larger columns than those used typically throughout the building. Typically, columns are 250 mm x 700 mm in size with walls being 250 mm thick. In some locations the column sizes are changed to reflect different loading conditions: on the outer line of columns along the arcade, the columns are 250 mm x 300 mm; under transfer beams the columns are 1,500 mm wide x 250 mm thick. The floor plates are typically 300 mm thick flat slabs spanning between the columns and walls. This solution is integrated with the architectural and M&E disciplines: The flat soffits are suitable for an architecturally desirable exposed concrete finish. Exposed concrete soffits are used to provide thermal mass. Typically, there are no upstand beams above slab level. This creates an unobstructed void between the structural slab level and the finished floor level for services distribution. Insulation will be required over the top of parts of the ground floor slab where the basement line extends out beyond the facade line. During the next design stage the team will need to consider how this is incorporated into the structural and architectural build-ups as simply as possible. Exposed timber glulam beams and columns provide the roof structure. The façade of the building primarily consists of red brick cavity wall with glazed elements and a standing seam pitched roof. The proposed building has been broken into visually distinct elements. Variations in the materiality and depth of the north facade supports the articulation of scale, while the two mono-pitched roofs further articulate this, giving a human scale to the facade.

		At ground floor, a continuous colonnade of window bench seating runs across the northern facade, increasing the transparency of the massing and adding visual interest. Exposed soffits are proposed to provide some thermal mass benefits.
11.	What is the peak output of the proposed solar PV system. How will the solar energy be used on site (before surplus is exported onto the grid)?	A PV area of 136 m ² at 15% nominal efficiency is proposed which has a peak power of 20.4 kW _p . Any supply from the PV installation would automatically be fed into the buildings main LV switchboard to offset the building load and reduce the demand on the incoming Distribution Network Operator (DNO) supply during normal school working hours. When the school is unoccupied, e.g. school holidays it is possible that the PV will generate a net surplus that can be sold back to the school's electricity provider. The amount is dependent on modelling the installation's output during a 12 month period to be undertaken at later design stages. The revenue generated would be subject to a specific tariff agreement between the school and their energy supplier.
12.	How much of the space heating demand will be met by the proposed types of heat pumps? If this cannot be met fully, how will this be supplemented?	The GSHP will provide 100% of space cooling and heating to the building, including all heat emitters and frost protection systems.
13.	What analysis was undertaken to determine why the GSHP system could not also provide hot water to WC and kitchenettes?	Centralised DHW generation using heat pumps would not be a suitable solution for WCs and kitchenettes as this would introduce storage and distribution losses in practice which would likely increase overall energy demand in real world use. Also, additional plant and refrigerants would be required which would increase embodied carbon of the building.
14.	Will the GSHP system also be used for cooling purposes (as indicated by the Overheating Strategy)?	The heating and cooling shall be provided by the closed loop GSHP system. Cooling will be provided to the studio theatre AHU, dimmer/AV rack room and control room as detailed in response 22.
15.	What is the proposed indicative capacity of the GSHP and the thermal storage? Please ensure the location of GSHP is also annotated on plans.	The GSHP system will provide 150 kW_p heating and 40 kW_p cooling. The proposed thermal storage tank size for heating purposes is 2,500 litres, and for cooling purposes is 750 litres. The locations of the GSHP boreholes and plant room are detailed in Figure 3 and 4 in the RMC Energy Statement which are reproduced below:

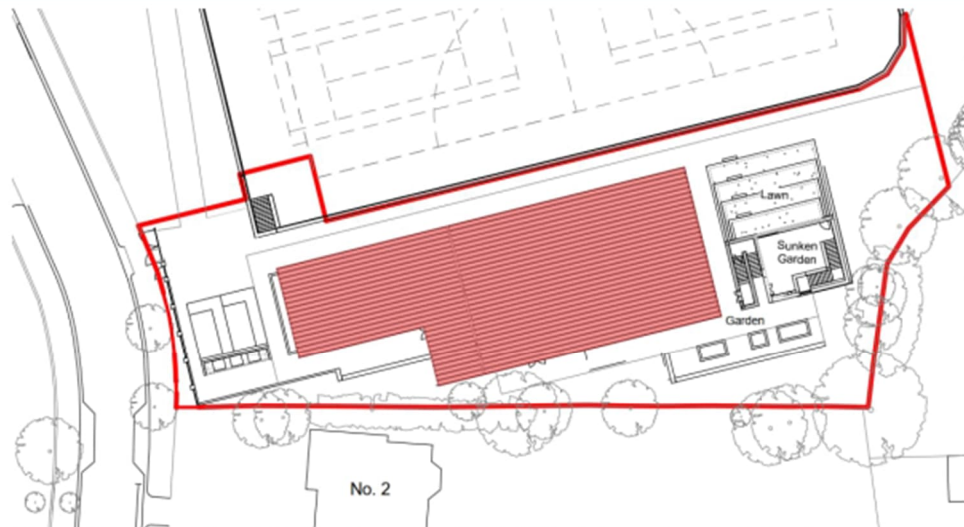


Figure 3 Proposed borehole location under the building (shown in red shading)

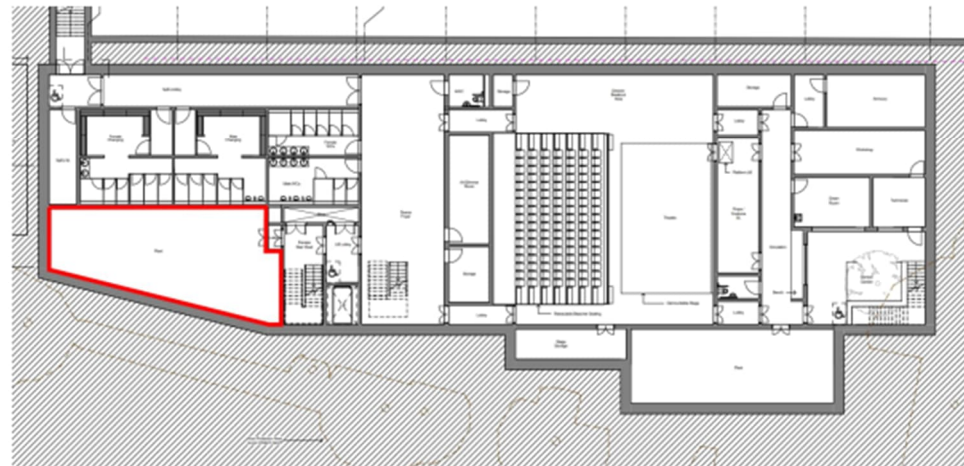


Figure 4 Proposed GSHP plant location (thick red outline)

Figure 4: Extract from the Energy Statement showing Figure 3 and 4 which details GSHP location of GSHP and plant room.

		The full cooling and heating load will be provided by geothermal heat pumps located at basement level plant room. This will consist of a closed loop geothermal system using a geothermal borefield located beneath the building. A ground source heat pump specialist sub-contractor shall be employed for the detailed design, supply, delivery, installation, testing, commissioning and setting to work of the GSHP system.
16.	Detailed plan, edges, access points for maintenance..... etc. for solar panels	Detailed layout of solar PV panels will be undertaken during detailed design. Figure 2 in the energy statement shows the proposed PV film location on the roof of the building. A higher resolution plan is included in Appendix. 2 The proposed active PV area is 136 m². Maintenance requirements are expected to be minimal as the cells incorporate an ETFE coating for water, UV and chemical resistance. The panels are also designed to be self-cleaning through the use of the roof slope and hydrophobic and oleophobic properties of the ETFE coating. This allows rainwater to clean the panels. When access for more extensive maintenance is required, a cherry picker will be used. The school's facilities team will work in coordination with Hopkins to produce a more detailed maintenance plan during the detailed design stages.
17.	A public display of energy usage and generation should also be provided in the main entrance area to raise awareness of developments energy consumption.	During the next stage of design overall wayfinding, graphics and signage will be developed. In response to comments from Haringey, the public display of energy usage and generation shall be provided by Highgate School. Energy usage content will be included in the scope of school displays in the main entrance or another prominent location as suitable.
18.	What are the unregulated emissions and proposed demand-side response to reducing energy: smart grids, smart meters, battery storage?	The unregulated emissions as modelled in Part L 2021 are estimated to be 7.9 tCO₂/year, as outlined in section 2.1 of the submitted energy statement. Section 7 of the energy statement outlines the predicted peak energy demand and flexibility measures in the building design. As outlined in response 15, thermal storage tanks are proposed of 2,500 litres for heating and 750 litres for cooling. Battery storage is not proposed as this technology is not currently widely commercially available. It could be possible to retrofit this in future if technically and economically suitable systems were developed and additional generation or carbon intensity-responsive electricity tariffs were introduced in future. Energy sub-metering is proposed to be included both by end use type and building function area. Smart grid connections are not proposed in the design currently, but could be retrofitted if such energy distribution systems are developed in future.
19.	Demonstrate that the planning stage energy performance data has been submitted to the GLA webform for this development: (https://www.london.gov.uk/what-we-	The screenshot , taken at the time of submission confirms the planning stage energy performance data has been submitted to the GLA via the webform.

do/planning/implementing-london-plan/london-plan-guidance/be-seen-energy-monitoring-guidance/be-seen-planning-stage-webform)

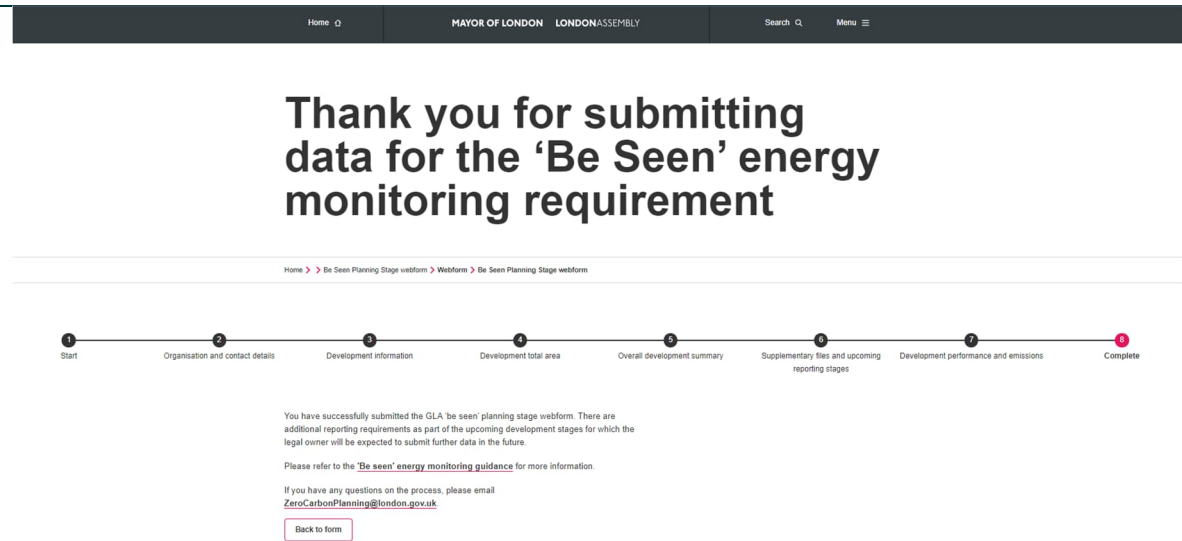


Figure 5 Submitted “Be Seen” webform for RMC

20. What are included in the energy consumptions by equipment and what measures are proposed to keep it below the notional figures.	It is not clear what this query is asking. If the comment relates to unregulated energy as modelled in Part L 2021, this is a Part L estimate of unregulated energy which is based on the building area and function type. The Part L estimate does not change from the notional building to the as-designed building, as it is an estimate of future building unregulated energy use. This type of energy use is not assessed in Part L. At this stage, focus has been on regulated energy use which can be more readily reduced through building design. For Be Seen estimates of in-use energy consumption and associated emissions, modelling was undertaken in line with GLA guidance and has been submitted to the GLA (see above screen shot under point 19).
21. The cooling demand is 1.5x times higher than the notional cooling demand. Please follow the cooling hierarchy in order and step by step, and first implement all passive measures to reduce the overheating risk and the cooling demand before introducing any mechanical form of cooling.	As outlined in section 4 of the energy statement, the cooling hierarchy has been followed to minimise cooling demand as far as possible and reduce overheating. Mechanical cooling is only proposed to areas which would otherwise overheat despite the inclusion of passive measures. In some areas, for example the theatre, openable windows have been avoided as this would likely not meet the functional requirements of the space. Windows are also not included in changing rooms (which are below ground). Openable windows are included where other constraints allow. Some spaces and the theatre are below ground, in part to help in responding to neighbours' concerns about building height. This limits the potential for natural ventilation in these spaces. Despite these limitations, passive measures have been included in the building design where possible to reduce overheating risk and mechanical cooling demand. These include:

- Inclusion of efficient lighting to reduce heat gains (as outlined above, proposed lighting efficiency has since been further improved).
- Use of high performance solar control glazing to reduce summer heat gains.
- The incorporation of horizontal shading fins to the southern elevation.
- Building insulation to reduce conductive heat gains.
- Exposed soffits to provide some limited thermal mass benefits.
- Natural ventilation in some spaces where constraints and predicted thermal comfort levels allow. Cross-ventilation and high-level clerestory ventilation louvres are included in addition to large openable areas.

In addition to the above it is noted that the cooling energy demand is a very small compared to all other regulated energy uses. This is in part due to the cooling hierarchy being followed and few rooms having mechanical cooling included in the design.

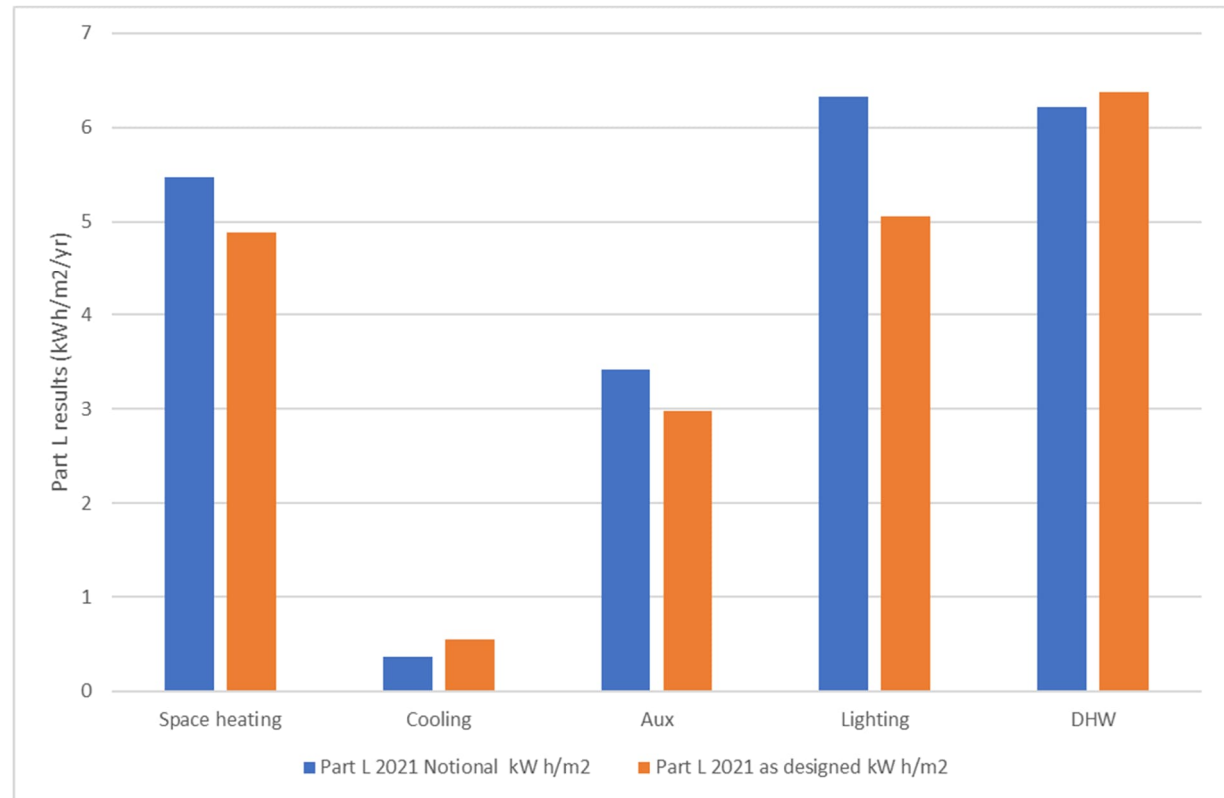


Figure 6 Energy demand breakdown for RMC

22. It is currently unclear which rooms will be naturally ventilated with MVHR, and which rooms will have active cooling. Submit a plan specifying the ventilation strategy and overheating risk mitigation strategy, as requested at pre-application stage.

Mechanical cooling is only utilised in the studio theatre which will be connected to the centralised heat pump system. The building services plant is centralised in the following primary locations: main plant room, basement, and Studio theatre AHU plant room.

Above ground rooms on the perimeter will be naturally ventilated in the summer and mechanically ventilated by localised low power heat recovery units in the winter. The basement will be mechanically ventilated. The studio theatre and associated switch room, control room and AV dimmer room will be the only mechanically cooled areas.

The overall building ventilation strategy is as follows:

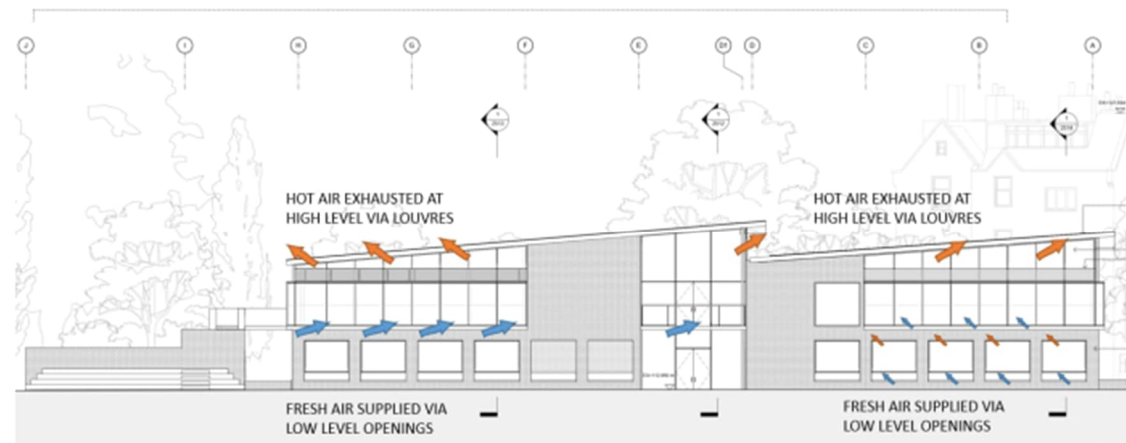
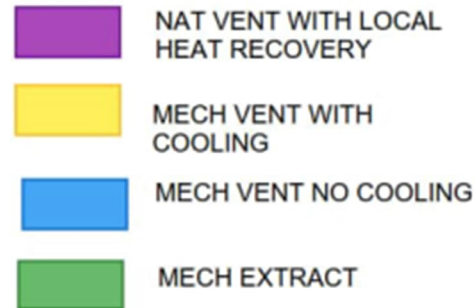


Figure 7: Overall Building Ventilation Strategy

Free cooling utilising a night time purge is currently part of the strategy taking advance of the building's thermal mass.

There are 4 types of ventilation strategy in the building:



Assisted Natural Ventilation/Natural vent with local heat recovering (Purple)

The areas of the building with assisted natural ventilation/natural vent with local heat recovery are shown in purple.

In these areas window openings are sized to provide the required ventilation in peak summer conditions during the school term.

During winter and cooler shoulder months a localised heat recovery system located in the floor void connected through the façade will provide background ventilation to maintain CO₂ levels, remove odours, moisture and prevent mould build up. The local ventilation system will provide night time purge during summer to cool the building fabric. The system will utilise the fabric of the exposed slabs to maintain thermal comfort. The windows will be linked to the ventilation system to ensure fans will not run when windows are opened.

In summer the drama classrooms will utilise the high level openable windows in combination with lower level windows to take advantage of the stack effect, and openable areas to the rear to provide cross ventilation, with floor mounted ventilator units drawing air to the back of the deep plan rooms. In winter the floor void mounted heat recovery units will provide occupancy based ventilation.

Staff office, including SportEx, will also utilise openable windows on both sides to provide cross ventilation.

Dedicated Extract / Mechanical Extract (Green)

Dedicated extract will be provided to remove odours from areas such as toilets and cleaners' stores.

Mechanical Ventilation (Blue and Yellow)

Mechanical ventilation (blue) and mechanical ventilation with mechanical cooling (yellow) is provided to areas where heat gains dictate or architecturally openable windows are not possible (internal rooms or basement areas).



Figure 8: Basement Ventilation Strategy

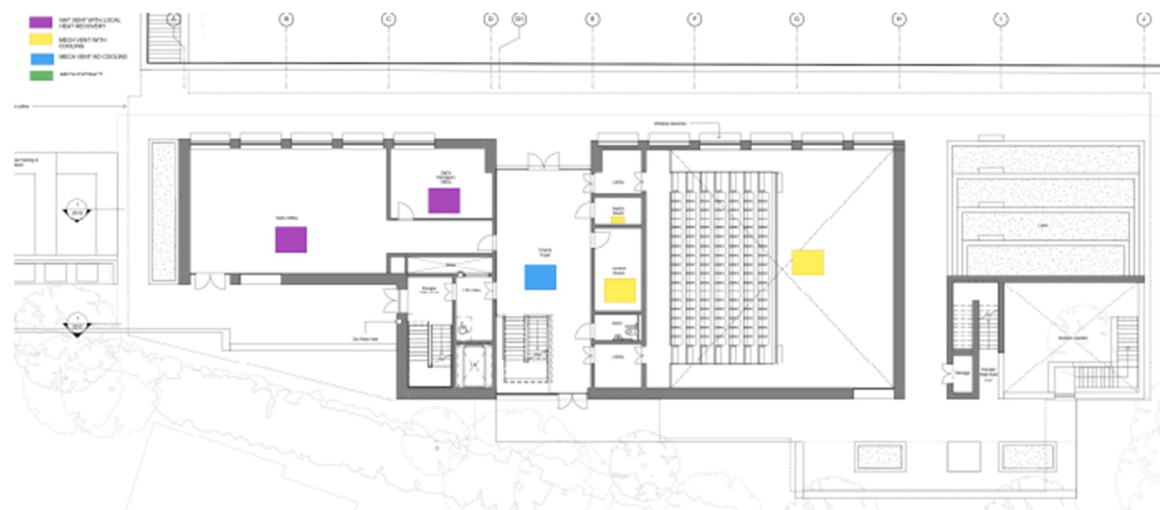


Figure 9: Ground Floor Ventilation Strategy



Figure 10: First Floor Ventilation Strategy

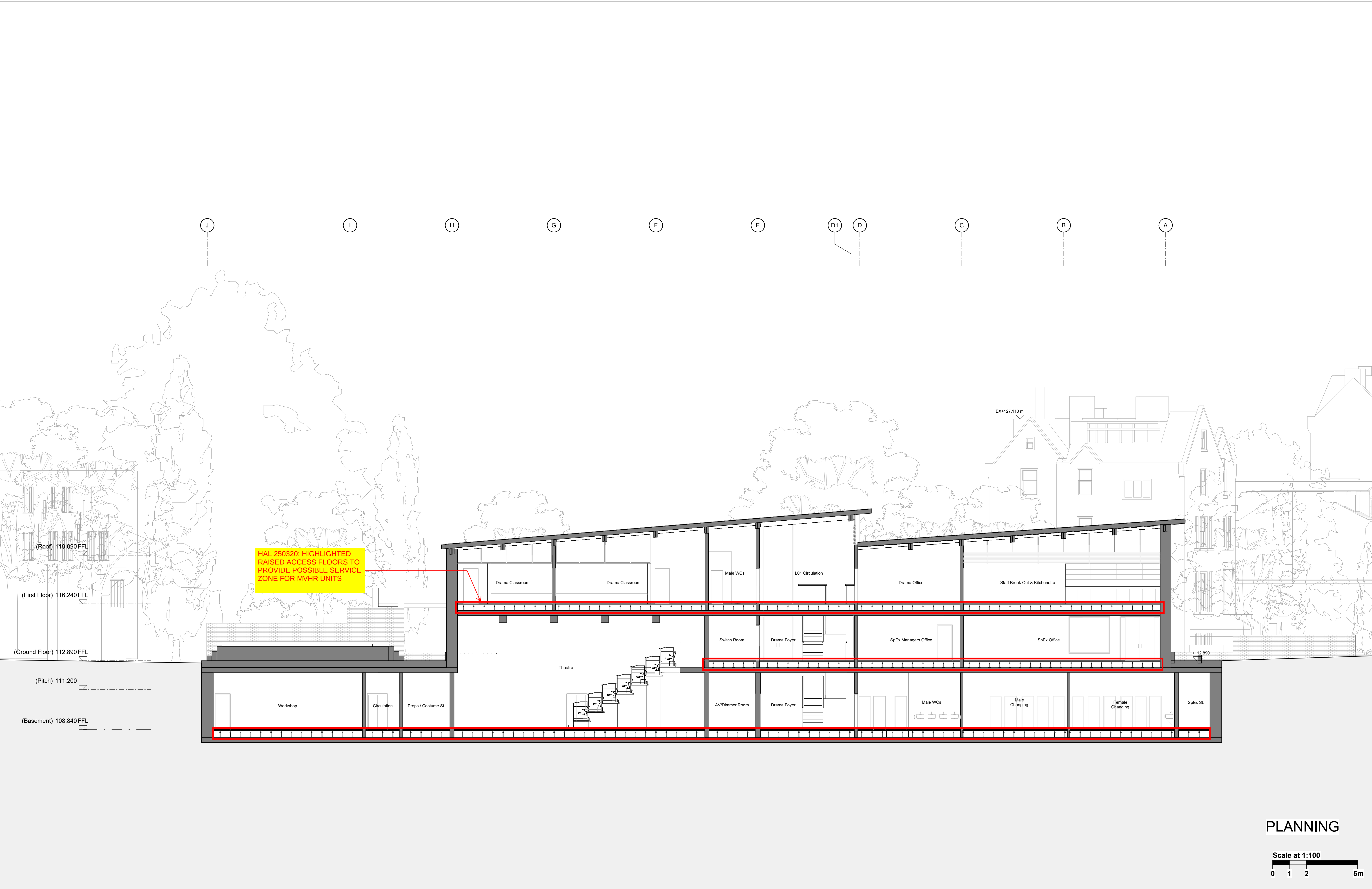
23.	Please provide the details of air changes.	This detail is not currently available and will be developed at the next design stage post planning. The current design is based on providing fresh air at a rate of 10 l/s/person as detailed in section B.2 of Appendix B of the Highgate School RMC Thermal modelling and overheating report (8 th August 2022) (PDF page 94 of the submitted energy statement).
24.	Specify the shading strategy, including technical specification and images of the proposed shading feature (e.g. overhangs, Brise Soleil, external shutters), elevations and sections showing where these measures are proposed. Internal blinds cannot be used to pass the weather files but can form part of the delivered strategy to reduce overheating risk for occupants (as long as it does not compromise any ventilation requirements).	External louvres are proposed to be installed on the glazed façades. These louvres are a bespoke design integrated to the architecture of the façade of the building. There is no detailed technical specification developed at this stage of the project. The sections show the extent of external louvres on the southern and northern glazed façades. The southern façade is at higher risk of overheating therefore the proportion of glazed area covered is appropriate to prevent overheating. Details are shown in Appendix 4.

25.	Is the Roof light opening mechanism manual or automatic?	No rooflight is proposed. Clerestory glazing opening mechanism is to be automatic with manual override.
26.	Identify communal spaces (indoor and outdoor) where students and staffs can cool down if the indoor spaces are overheating.	The theatre (the only mechanically cooled internal space), sunken garden and north facing stepped lawn are communal areas where it is proposed that students and staff could cool down if indoor spaces are overheating. These areas are highlighted on drawings provided in Appendix 4
27.	This development should have a heatwave plan / building user guide to mitigate overheating risk for occupants.	A heatwave plan/building user guide can be developed during detailed design in conjunction with the detailed MEP design.
28.	Please provide the biodiversity net-gain calculation. It is recommended to use the Biodiversity Metric 4.0. The calculation tools and user guide for the biodiversity metric are published on Natural England's Access to Evidence website. The user guide describes how to gather the information needed for the metric calculations. https://nepubprod.appspot.com/publication/6049804846366720	A BNG File Note for RMC is provided in Appendix 5. The note details the change in the biodiversity habitat metric is + 2.25% net gain in habitat units. The application was submitted prior the introduction of the mandatory 10% BNG policy, therefore the applicant understands it is not a requirement. Nonetheless, the applicant has proposed estate wide biodiversity net gain improvements as long-term stewards within the community.
29.	Reduce the embodied carbon related to basement piling.	Subject to availability the, the design team commits to increasing the GGBS content of the C30/37 structural concrete from 20% - 50% GGBS. The use of recycled steel and steel with a recycled content will be considered at the next design stage. Preference will also be given to the use of European steel where available. The main reduction potential we anticipate would be via design optimisation – the design is only developed to RIBA Stage 2, so it is expected that further design optimisation such as reduced pile numbers and may be possible as the design progresses. In line with GLA policy, updated reporting reflecting the WLC of the scheme shall be provided at post construction stage reflecting the design optimisations.
30.	How are the carbon reduction opportunities been incorporated in your design and how will you ensure you meet the benchmark?	The piling optimisations such as the use of GGBS have already been discussed with the design team. The plan is to engage with the design team throughout the project to identify and implement carbon optimisations particularly at technical design stage and when producing material specifications.

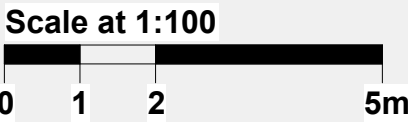
31. It is recommended to focus on reusing existing materials and incorporate that into the Whole Life Carbon Assessment.	The recommendation is noted. Reused sheet piles could be used for the perimeter basement wall however this would depend on availability at the time of construction, as there are uncertainties there will be sufficient supply for the product lengths specified. The proposed new building is being developed with a different footprint to the existing building on site and is being developed to use abasement to extend the useful space whilst not increasing building height, which means that re-use of foundations is not feasible. Further, the existing building has weakened foundations caused by historical drainage problems. In addition, the existing building is of a very different construction to the proposed new building, meaning that the opportunities for materials re-use on site are limited. A pre-demolition audit of the existing building has been undertaken to identify where there are opportunities to re-use materials.
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Appendices

Appendix 1 – Service zones for MVHR units

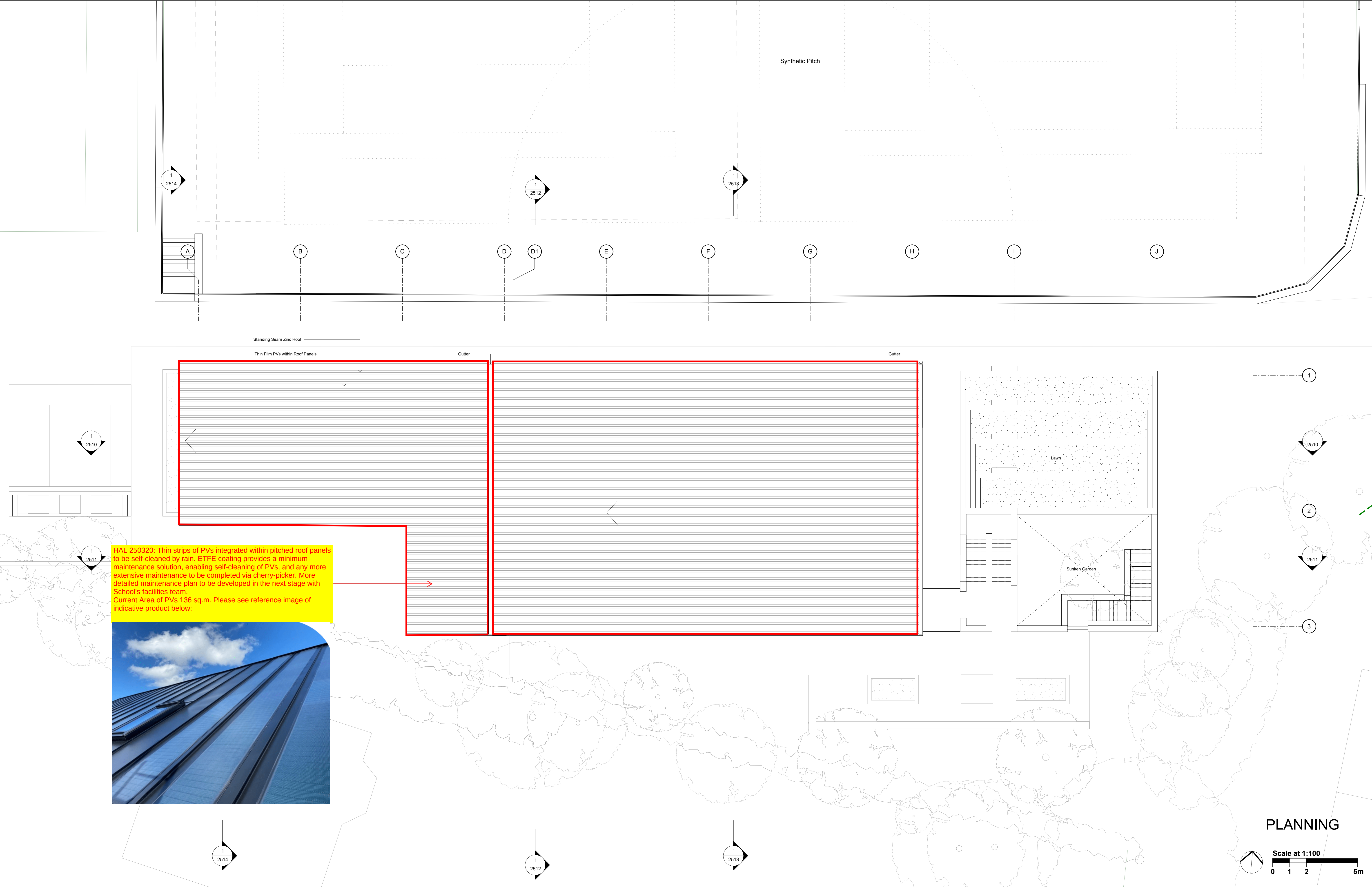


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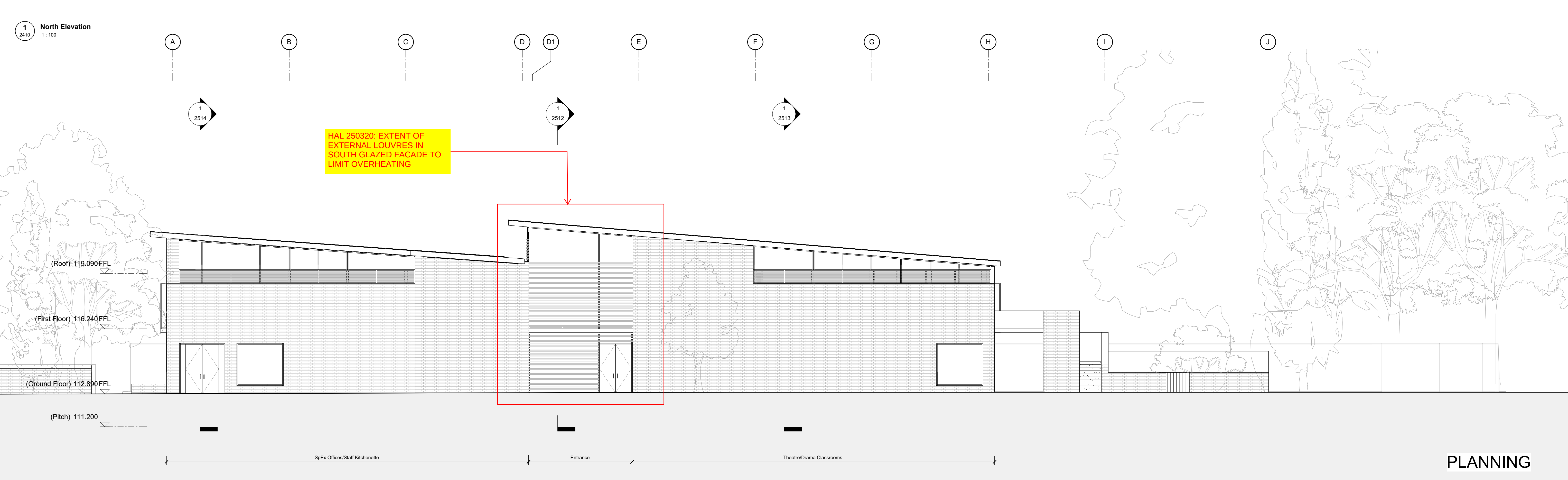
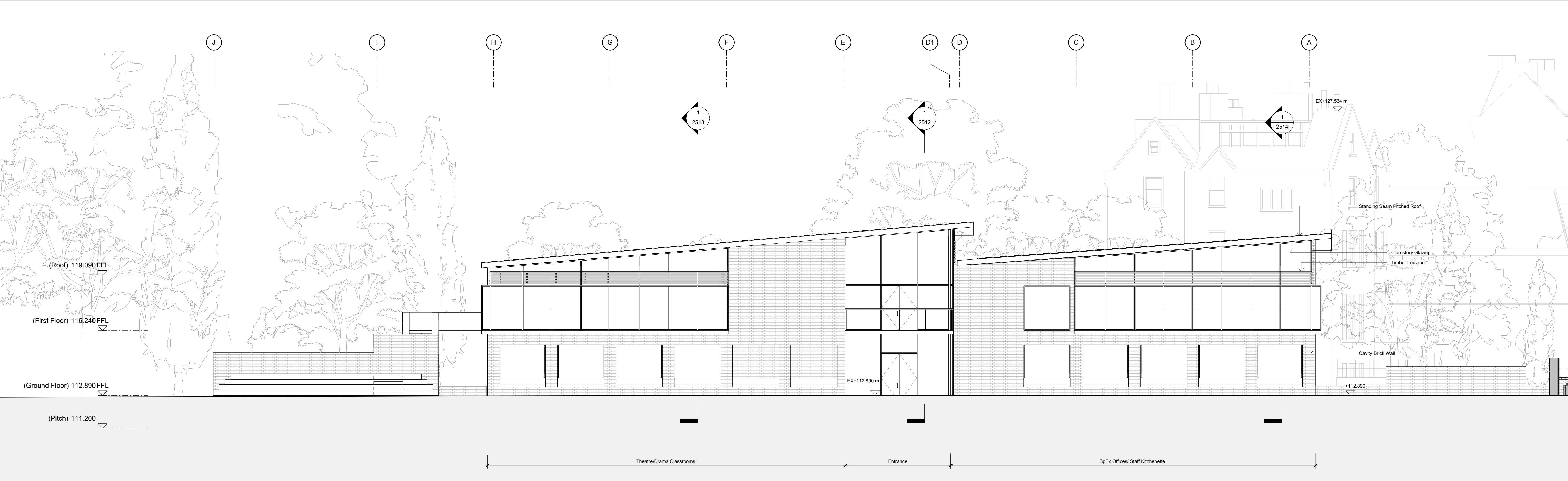
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						13.01.2023	L	ISS 0004_Planning Issue	MB					Subject	Proposed GA Long Section Through Foyer	A/HS-RMC2	2510	L
														Architects	Hopkins Architects Limited 27 Broadley Terrace, London, NW1 6LG T: 020 7724 1751 E: mail@hopkins.co.uk	Date: 11/04/2018	Scale: 1 : 100	at A1

Appendix 2 – Roof plan including PV thin film

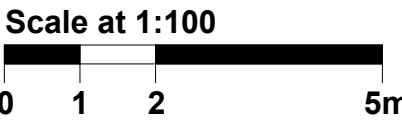


Work Package	Cost Check	Info/Briefing	Tender	Contract	Construction	Date	Rev.	Description	Approved By	Date	Rev.	Description	Approved By	Project	Highgate School Richards Music Centre 2	Sort Code	Drawing Number	Rev.
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														Architects	Hopkins Architects Limited 27 Broadley Terrace, London, NW1 6LG T: 020 7724 1751 E: mail@hopkins.co.uk	Date: 30.06.16	Scale: 1 : 100	at A1

Appendix 3 – Elevations detailing external louvres

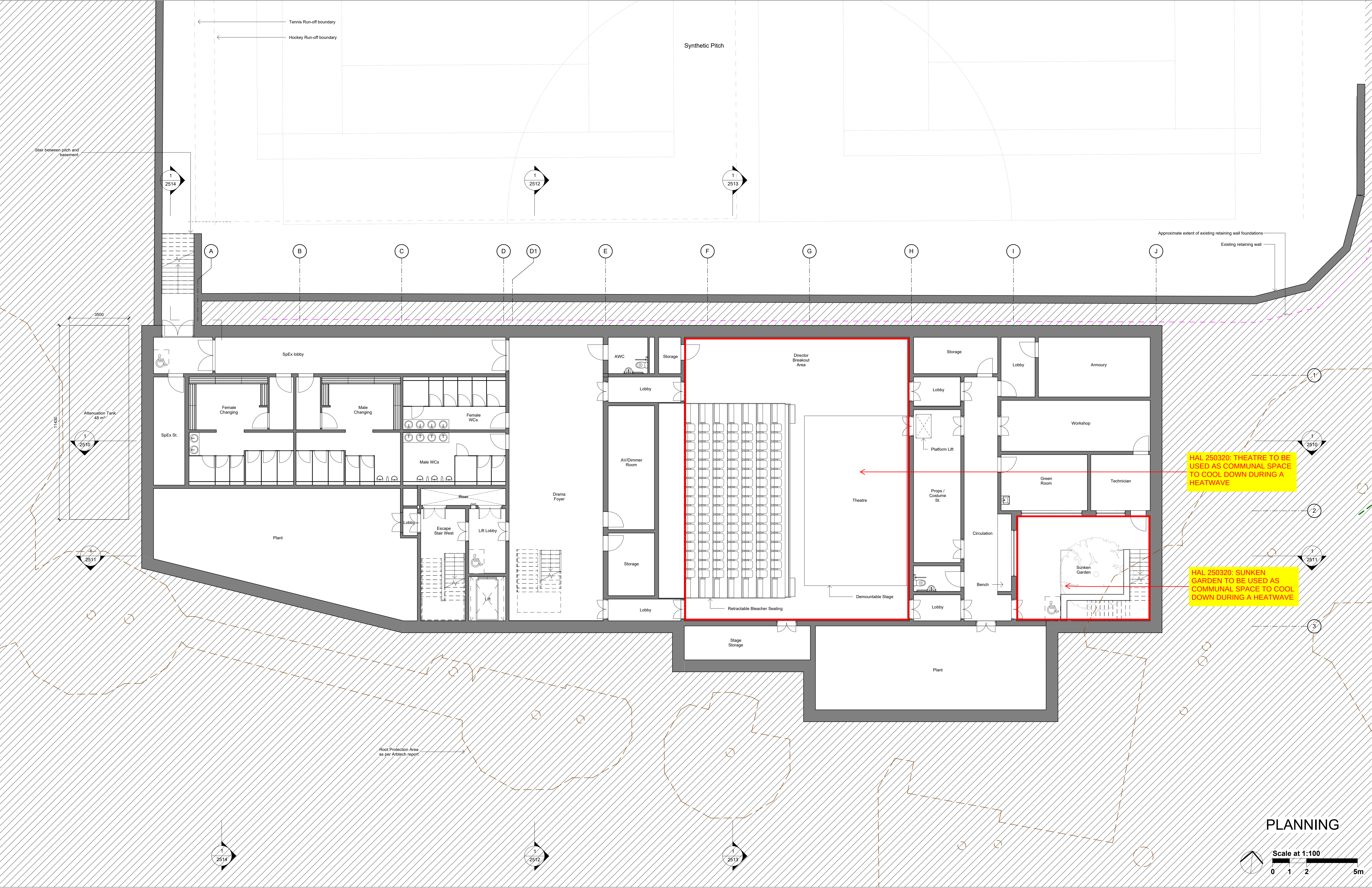


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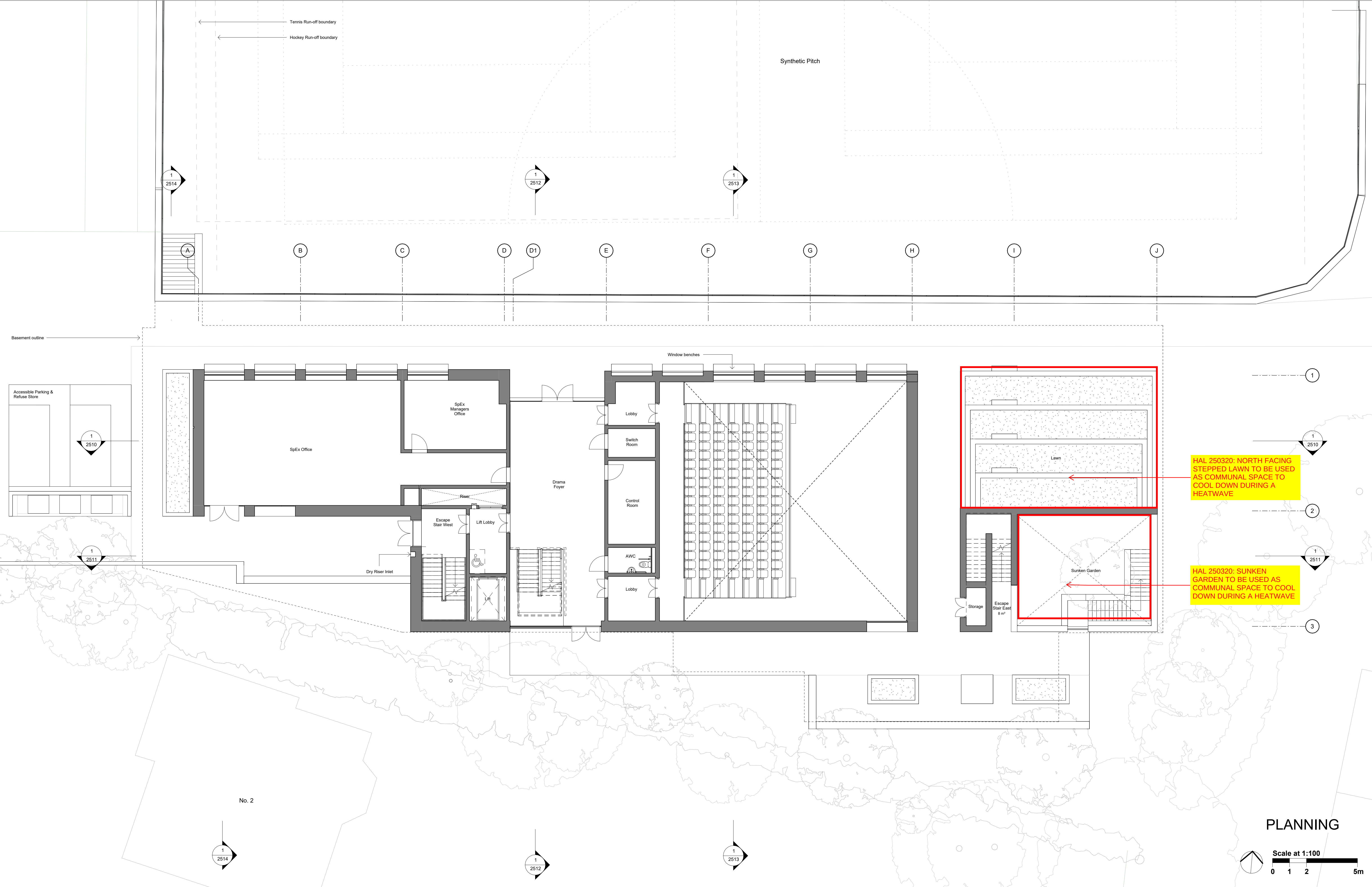


Work Package	Cost Check	Info/Briefing	Tender	Contract	Construction	Date	Rev.	Description	Approved By	Date	Rev.	Description	Approved By	Project	Highgate School Richards Music Centre 2	Sort Code	Drawing Number	Rev.
						13.01.2023	M	ISS 0004_Planning Issue	MB					Subject	Proposed GA Elevations - North and South	A/HS-RMC2	2410	M
														Architects	Hopkins Architects Limited 27 Broadley Terrace, London, NW1 6LG T: 020 7724 1751 E: mail@hopkins.co.uk	Date: 11/04/2018	Scale: 1 : 100	at A1

Appendix 4 – Potential spaces that could be used during a heatwave to cool down



Work Package	Cost Check	Info/Briefing	Tender	Contract	Construction	Date	Rev.	Description	Approved By	Date	Rev.	Description	Approved By	Project	Highgate School Richards Music Centre 2	Sort Code	Drawing Number	Rev.
						13.01.2023	M	ISS 0004_Planning Issue	MB					Subject	Proposed GA Basement Plan	A/HS-RMC2	2310	M
														Architects	Hopkins Architects Limited 27 Broadley Terrace, London, NW1 6LG T: 020 7724 1751 E: mail@hopkins.co.uk	Date: 11/04/2018	Scale: 1 : 100	at A1



Work Package	Cost Check	Info/Briefing	Tender	Contract	Construction	Date	Rev.	Description	Approved By	Date	Rev.	Description	Approved By	Project	Highgate School Richards Music Centre 2	Sort Code	Drawing Number	Rev.
						13.01.2023	M	ISS 0004_Planning Issue	MB					Subject	Proposed GA Ground Floor Plan	A/HS-RMC2	2311	M
														Architects	Hopkins Architects Limited 27 Broadley Terrace, London, NW1 6LG T: 020 7724 1751 E: mail@hopkins.co.uk	Date: 11/04/2018	Scale: 1 : 100	at A1

Appendix 5 – Biodiversity net gain file note and Statutory Biodiversity Metric Calculation Tool (Richard's Music Centre N6 4AY) v2



1st January 2024

File Note: BNG for Richards Music Centre Project - Highgate School

Ref: Biodiversity Net Gain (BNG) statutory metric reporting file note

Site address: Highgate School, North Road, London N6 4AY

National Grid Reference: Centred on TQ 2802 8760

Site area: 0.20018BNG area assessed.

Recipients: Highgate School

Record of activity

➤ **Background**

Arbtech consulting Ltd were instructed by Highgate School to undertake a Biodiversity Net Gain (BNG) evaluation of a development on the site, subject to a planning application with the London Borough of Haringey, described as:

The demolition of a two storey building and the construction of a new three-storey educational building including a single storey basement. The building provides drama classrooms, a double height Studio Theatre, offices for SpEx and Drama staff, Cadet armoury, and sports changing rooms with direct access to the synthetic all-weather pitch.

➤ **Purpose of survey**

The National Planning Policy Framework (NPPF) makes it clear (para 170) that “Planning policies and decisions should contribute to and enhance the natural and local environment by; minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures”.

Paragraph 174 requires the promotion of “the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity”.

Proposals for net gain should be clearly recorded and reported through use of an appropriate metric such as the DEFRA Statutory Biodiversity Metric. Natural England advise that any net gain should be fully secured and funded for the lifetime of the development.

Therefore, the purpose of this survey report is to provide an evaluation of the proposed plans compared to the ecological baseline, and to report any net gain (or loss) to biodiversity using the DEFRA Statutory Biodiversity Metric.

Local policy

The current Haringey Local Plan: Strategic Policies 2013 (with alterations 2017) makes no direct mention of biodiversity net gain.

In the absence of any specific number target in the above policy, this is taken to mean that any positive net gain is sufficient, and therefore a net gain of 1% is set as the target of this BNG assessment.

➤ **Surveyor and date of survey**

This survey report was carried out by Craig Williams, BSc (Hons), MSc, DIC, MRSB of Arbtech Consulting Ltd iteratively, with the latest version dated 1st January 2024. A previous preliminary ecological appraisal (PEA) is used as the ecological baseline and was carried out on 27th August 2022. The baseline habitat map and the current proposed soft landscaping plans are found in appendix 1 and 2.

Summary findings

- The full results of the metric are included in the excel file:

Statutory_Biodiversity_Metric_Calculation_Tool (Richards Music Centre N6 4AY) v1

This highlights that the current change in the biodiversity habitat metric is:

- +2.25% in habitat units

- The results indicate a slight net gain in habitat area units. This is contributed mainly to the retained and proposed grass areas and new trees, with retained existing trees.

Discussion

- The currently proposed plan results in a 2.25% net gain in habitat units.
- The change in area units is more than the overall positive target of biodiversity net gain outlined above.

Creation and management

- The creation and management of the habitats on the compensation site to the appropriate condition would need to be secured for at least 30 years - linked to the application through a planning obligation in Section 106 (S106) agreement.

- Design statement

This report contains recommendations on measures for achieving BNG. These recommendations do not constitute a design for BNG. In submitting these recommendations, Arbtech Consulting has no Design Liability associated with these recommendations for BNG. The strategy sets out the criteria which the landscape team can use to design the creation and management of the site.

Appendix 1: Habitat baseline map



Appendix 2: Currently proposed ecological map of the site (based on the site habitats in the metric)



BACK PAGE

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