5.5 Structural Strategy

A Basement Impact Assessment and a Structural Engineers Report is submitted with this application.

32 Torrington Square is of traditional construction utilising masonry vertical elements and timber floor structures with a basement enclosed on three sides and part submerged to the rear of the property.

Several structural defects within the existing structure have been identified through non-intrusive structural surveys. Further surveys were undertaken to confirm the extent of these defects in coordination with Camden Council.

Repair works will be required to ensure the stability of the existing structure and to justify it for the future use of the building. The proposed development is retaining the existing slab.

The annex on the empty site between 32 Torrington Square and the Warburg Institute is proposed as a 4 storey building with a lower ground floor which will link to the lower ground floor of 32 Torrington Square.

The current access to the rear of the Warburg institute is via an existing ramp through the gap between 32 Torrington Square and the Warburg Institute. This ramp is to be reinstated after the construction works are complete and will run through the building at ground floor level, connecting to the rear courtyard area.

32 Torrington Square will be refurbished, as the building was constructed in the 1800's it is unlikely that it provides sufficient horizontal ties to comply with modern day building regulations. With the constraints of the heritage listing of the structure none of the above can be achieved economically and not without removal of significant portions of the heritage assets and hence it is proposed that the redevelopment of the structure will make the structural robustness no worse than it currently is. New ties are being installed tying the floor joists to the masonry facade through the use of restraint straps and Helifix ties.

Repair works are proposed as part of the refurbishment of 32 Torrington Square as the several defects of the existing building have been observed as part of a non-intrusive survey. This includes rebuilding the front façade from second floor up, rebuilding the rear façade from third floor up as well as strengthening existing floor with new joists being installed. Further repair work is proposed due to local defects of the building. These are being investigated further through intrusive opening up works and monitoring works.

The structural works includes lower ground works (substructure), proposed works to 32 Torrington Square and proposed development of the annex.

The existing drainage from 32 Torrington Square appears to drain into the existing Thames Water combined sewer that runs along Torrington Square. The existing drainage system that serves the building appears to be combined. The annex is currently all hardstanding which appears to drain towards the existing drains in the rear of the property.

32 Torrington Square is a listed building and is currently served throughout the building by an existing combined drainage system which will remain. However, as the lower ground floor of this property is to be deepened and extended out the back, the drainage within the building will need to be diverted within the floor void at ground level to reconnect into the existing drainage system. Any drainage within the basement itself will need to be pumped out via a foul pumping system.

Due to the fact that this building is listed and that the existing drainage system for this building is combined and will need to remain there is no scope to try to reduce the existing surface water flowrate from the existing building via attenuation.

The annex will achieve a class 2B in accordance with the requirements of the Building regulations.

It is proposed to construct new raft foundations underneath the annex, supporting the new building. The existing building is to be underpinned where required to allow for basement excavation. Underpinning will be carried out for the gable end wall of 32 Torrington Square and for the Warburg Institute. A new 5-floor structure is proposed within the current empty space, this is to house various offices and research areas, along with this there is the inclusion of a ground floor ramp for vehicular access to a courtyard at the rear of the structure.

It is proposed to install a separate foul and drainage system for the annex which will combine into a demarcation chamber before connecting into the existing Thames Water Combined sewer. Where possible the new drainage system will drain via gravity. Where this is not possible due to site constraints the surface and foul water drains will drain to the new basement and be pumped back to ground level via a separate foul and surface water pump system. A cavity system will also be required as part of the waterproofing strategy for the new basement.

It is proposed to reduce the surface water runoff from the new building to a minimum of 5l/s as the minimum value recommended by BREEAM. Any excess water will be attenuated on site.

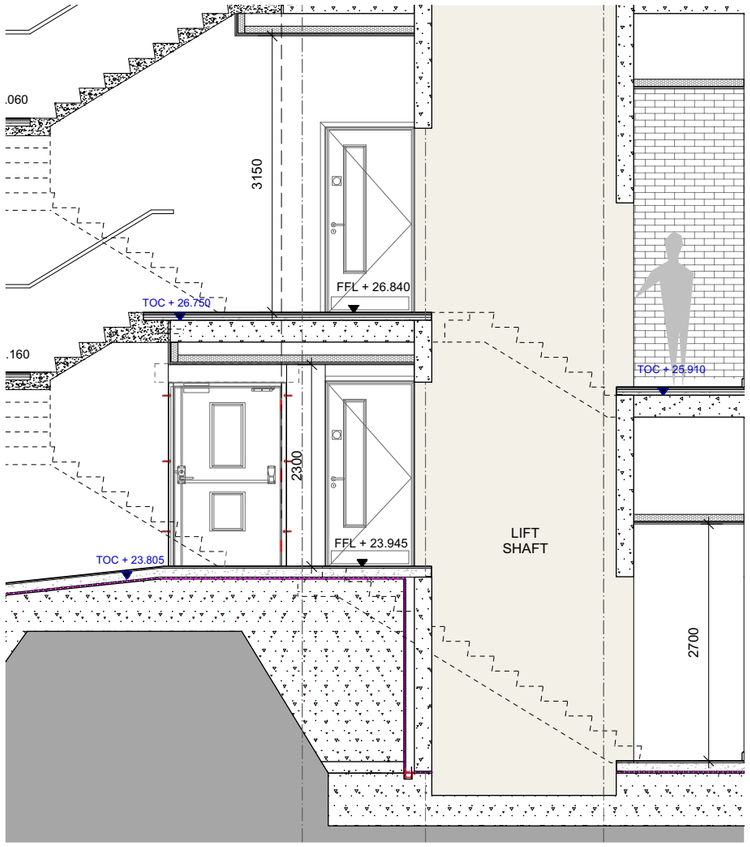

Figure 5.4. Raft basement slab detail

5.6 Fire Strategy

The building (existing no.32 and new annex element) has a top floor more than 11m above ground level, at 11.43mm. Guidance recommends that the building should be served by two escape stairs.

The proposed two escape stairs will be linked by a protected corridor located centrally within the building.

The refurbishment and extension of 32 Torrington Square is not a material change of use. Therefore there is no Building Regulations requirement to upgrade existing parts of 32 Torrington Square to meet current standards. However, the following should be achieved as part of the refurbishment:

- Any new building works should meet current standards; and
- On the completion of building works, the standard of safety within un-altered parts of the building should be at least as good as before the work commenced.

The GIA for the research space on each floor has been taken based on the drawings., and an occupancy density of 6m2/person.

The total occupancy above ground floor is calculated as 76. However, the capacity of the building is limited by the stair capacity.

The storey exits in the extended or reconfigured parts of the building were sized using guidance from the Approved Document B (ADB). Each storey exit into the additional escape stair is at least 750mm wide, which provides capacity for 60 occupants per floor.

The majority of the rooms located in the annex side of the building have access to two escape stairs. The exception is the waiting room lobbies at the upper levels of the extended part of the building, which will only have access to a single escape stair. It was recommended on the basis that:

- An L2 fire detection and alarm system is proposed throughout the building. This should alert any occupants within these rooms at an early stage of the fire;
- There are relatively short travel distances from the room and through the stair to reach the alternative direction of escape via the existing stair.

Travel distances at the upper levels of the building are no more than 7.5m in a single direction when measured direct and up to 12m to the nearest exit.

Disabled refuges are provided in the new stair at every level above ground and basement level. This refuge does not obstruct the clear width of the escape route. Emergency communication points would be provided for the refuge to alert management.

32 Torrington Square is less than 18m above ground level and fire fighting access level, therefore to meet current guidance the structure of the building should achieve 60 minutes fire resistance. All new elements of structure as part of the annex will be specified to achieve 60 minutes fire resistance.

Any areas of special fire hazard or rooms containing plant equipment should be enclosed in construction achieving 30 minutes fire resistance.

The escape stairs should be enclosed within 60 minutes fire resisting construction. The protected lobby linking the escape stairs at the upper levels should achieve 30 minutes fire resisting construction.

The lift shaft should be enclosed in 60 minutes fire rated construction as it penetrates the ground floor slab with FD30 doors.

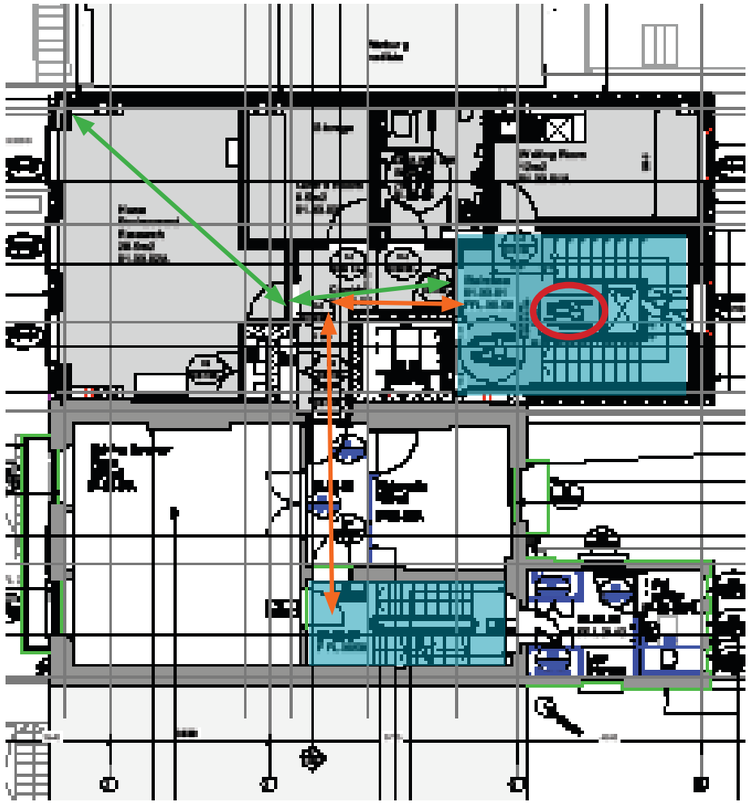

Figure 5.5. First Floor plan

Key

Wheelchair refuge

Stairs

7.5 metres single direction travel distance

Stairs connected via fire protected corridor

5.7 Acoustic Strategy

A detailed review of the proposed design and relevant acoustic guidance/industry standards has been undertaken in the form of two reports (Acoustic Testing Report 23591/AT1 dated 23 November 2016 and Environmental Noise Survey Report 23591/ENS1 dated 23 November 2016).

A detailed 72 hour daytime and night-time fully automated environmental noise survey has been undertaken in order to establish the currently prevailing roof level environmental noise climate around the site.

Plant noise emission criteria have been recommended based on the results of the noise survey and in conjunction with the Local Authority.

Proposed plant noise emission criteria can be found within our Environmental Noise Survey Report 23591/ENS1 dated 23 November 2016.

Test	Source Room		Receive Room	
	Location	Approximate Volume (m^3)	Location	Approximate Volume (m^3)
AW1	B09 Central Analysis Room	22	B08 Laboratory	9
AW2	B07 Laboratory	9	B08 Laboratory	9
AW3	B07 Laboratory	9	B17 Disabled WC	5
AW4	B10 Laboratory	12	B11 Laboratory	10
AW5	B12 Laboratory	18	B11 Laboratory	10
AW6	B13 Laboratory	18	B12 Laboratory	18
AW7	B13 Laboratory	18	B01 Sound Proof Pod	6
AW8	B02 Sound Proof Pod	8	B01 Sound Proof Pod	6
AW9*	B18 Testing Booth Room	31	B01 Sound Proof Pod	6

Figure 5.6. Acoustician testing schedule

In the absence of specific industry guidelines for university establishments, we are proposing project criteria where applicable in general accordance with Building bulletin 93, Acoustic design of schools: performance standards, February 2016 (BB93).

Based upon BB93 guidelines and our proposed noise tolerance levels within Section 3.0, we propose the following maximum performance standards for impact sound pressure levels.

Consideration of future mitigation against impact noise is likely required in order to consistently achieve requirements.

Acoustically absorptive finishes are recommended to minimize any reverberation within the rooms.

Refer to the Noise Impact Assessment Report for further details and guidance and the Noise Survey that forms part of this Application.

5.8 Transport

A supporting Travel Plan and a Transport Assessment has been produced that should be read in conjunction with this document.

The aims of the Travel Plan specific to this development are to mitigate the impact of additional trips generated by the site by widening travel choice, promoting sustainable transport and reducing single occupancy car travel whilst improving sustainability in the area and helping to improve the environment of the surroundings.

The proposal includes refurbishing works and extension to the back of the property 32 Torrington Square and the annex to the north. The access to the buildings will continue to be from Torrington Square. The existing pedestrian entrance to 32 Torrington Square will remain unchanged. A new step-free entrance will be provided to the annex from Torrington Square. The existing vehicular access will be converted to a 1.8m wide pedestrian access that leads to the yard behind the properties. The development is proposed as car-free and will have ten cycle spaces on-site.

The site is located within the Birkbeck, University of London. The area surrounding the site has an extensive network of footways, cycle routes and areas of public space. This provides an excellent opportunity for sustainable travel, and particularly walking and cycling. The site is in an area which is highly accessible by public transport (PTAL of 6b), with over 120 bus services available within five minutes' walk of the site and London Underground and National Rail stations nearby, which provide services to country-wide destinations.

The on-street car parking is under the CPZ operation and includes: dedicated space for disabled users, residents' permit holder spaces, pay & display spaces and loading bays. Parking regulation in place allows the blue badge holders to use pay & display parking spaces free of charge.

New trips are predicted to be made by public transport. Proportion of car trips are expected to be very low and was estimated to be: four car trips (two vehicles) by staff and two by visitors. This level of traffic and parking impact is non-material and will not have an impact on the operation or capacity of the existing network, or safety.

The development will comply with University-wide refuse collection, and delivery and service strategy. This will take place from Malet Street and will allow for more effective consolidation of deliveries and servicing.

Measures such as a construction management plan were considered and will be discussed with the Highways section of Camden Council during the detailed design phase.

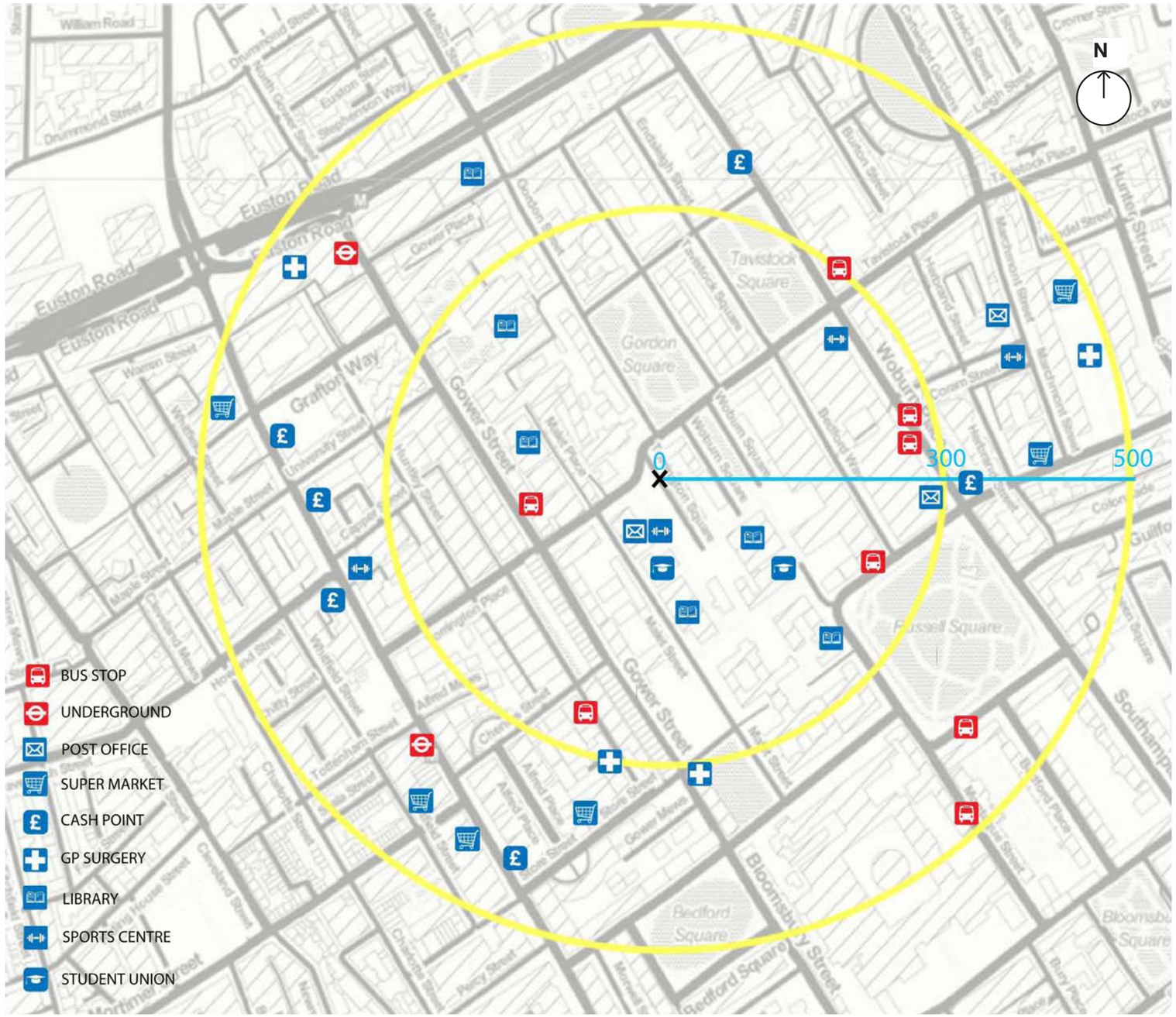

Figure 5.7. Map showing distance from site to local services

5.9 Accessibility

The design team has used their knowledge and expertise to deliver a design which is inclusive and accessible to all and meets the Current Approved Document – Part M.

The team has taken a broad approach to accessible design, addressing the requirements of disabled users as a minimum, but also ensuring all design decisions are taken in the context of inclusion and widening engagement and access by all.

The new annex offers a new entrance to the ToddlerLab as a whole. The entrance foyer is designed to create the greatest accessibility and sense of welcome, with good visibility from outside creating a transparent and welcoming space. It provides clear links to the rest of the scheme, with easy access to other levels via lifts and stairs, and new toilet facilities.

Through the architectural design, lighting, signage and public realm design, the entrance to the annex from Torrington Square can become an inviting public access, with safe and attractive public space externally. Internally, lighting design and signage will again provide an easily accessible and navigable environment, with the flexibility to create different moods and cater for different activities.

The design will be subject to further access reviews throughout the latter stages of the detailed design development. Important issues such as lighting, fixtures and finishes will have a major bearing on the ultimate accessibility of the design. These areas will be reviewed to ensure that they comply with mandatory and best practice standards. Through continuing access reviews, this complex scheme will maintain the high standard of access and inclusive design currently evident and ensure that the scheme continues to meet the requirements of the Equality Act 2010 and all accessibility standards.

The input from end users adds value and an additional valid level of approval beyond technical standards that goes right to the heart of the practicality of using the area on a daily basis.

Car, Motorcycle and bicycle Parking

There will be no allocated car park on site. Disabled parking spaces are located nearby on streets. Dropped curbs adjacent to this area will lead to a level path to the main entrance.

Secured and covered bicycle parking for the staff members will be located on the courtyard by the service access entrance.

Routes to entrances

External pedestrian circulation routes will have only moderate inclines well within the parameters prescribed in Approved Document M.

Existing vehicular routes in front of the site will be maintained. A designated vehicular drop-off area is provided close to the main entrance.

Entrance

The main entrance to the building will be positioned on the south-west part of the site, and will be provided with automatic opening doors. The glass doors will be appropriately identified with manifestation. The doors fail safe in the open position if the fire alarm is activated.

The entrance will be level, have a slip-resistant floor finish and be free from tripping hazards.

Reception

The reception area will be designed to maximise inclusion. The reception desk, finishes, signage and lighting will all be designed to the latest design guidance.

Horizontal and vertical circulation

Corridors and door widths, manoeuvring spaces, surface finishes to walls, floors and ceilings, colour and luminance contrast, lighting, control panels and switches will all be designed in accordance with best practice guidance.

There are two vertical circulation cores in the building plus one lift to take the visitors from the entrance lobby to the various floors. The lift will be chosen to maximise the opportunity of independent use by disabled people and to accommodate wheelchairs.

Toilets

Accessible gender neutral WCs and changing rooms will be provided. The Ground Floor toilet will be ambulant disabled compliant. Toilet accommodation at 1st Floor will be designed to meet the requirements of BS 8300:2009 and Approved Document M. Children size toilet facility and baby change are provided on the 3rd Floor

Lighting

External lighting along all access routes will be designed and maintained to meet all the prescribed standards. The lighting scheme will support the various needs of all those visiting and using the space after dark. This includes those with special needs, the elderly and in particular those with visual impairments. Supporting a highly accessible after-dark environment will include avoiding excessive contrasts, avoiding direct and reflected sources of glare, avoiding shiny, mirror-like surfaces at pedestrian level, and controlling shadow.

Signs and way-finding

A way-finding strategy will be established for the site as a whole. All external routes will be signposted and signs will be designed to meet the recommendations of the Sign Design Guide.

The main entrance will be highlighted using colour luminance contrast and appropriate levels of lighting.

Other access features

Hearing enhancement systems will be installed to the reception area. Induction loops will be fitted in all areas where hearing enhancement is required.

Means of Escape

Means of escape can be via the two staircases. All features and materials will comply with Approved Document B.

Management Approach

A maintenance programme will be implemented that will include issues related to accessibility such as lifts, induction loops etc. In addition, regular access audits will be carried out in conjunction with fire precautions and health and safety.

Staff members and visitors will be consulted regularly for feedback on accessibility issues.

Staff Training

Staff training in disability awareness and in the testing and use of specialised equipment such as induction loops will be undertaken as part of the Birkbeck on-going staff development programme.

5.10 Secure by Design

Birkbeck's security consultant was consulted to make sure the scheme included all aspects that they would consider necessary for maintaining a secure space especially out of hours.

To ensure the measures reflect the size, function and location of this site, Birkbeck's Security and further specialist advice will be obtained to:

1) Establish a baseline threat to the development from crime, disorder and terrorism.

2) Create a detailed vehicle access strategy, which should include description of all visible elements including intercoms, shutters, barriers and Hostile Vehicle Mitigation (HVM) measures required for successful implementation and operation.

3) Public Realm CCTV strategy and building's CCTV operational requirements that describe in detail the location and function of CCTV for all public areas and loading bay.

General Secure by Design principles were incorporated into the design and will be further explored at the next stage in order to minimize the potential for crime and anti-social behaviour.

- The annex will provide a more active façade on Torrington Square with new entrance and reception. This will in itself provide greater surveillance and activity to increase security.
- Main entrance doors are to be well-lit and doors and windows are to be flush so as to not encourage sitting along the public highway.
- A system of electronic access control will be used to restrict access into and around the building.
- The service ramp will retain secure and constrained access.
- Waste containers with lockable lids are kept inside a secure store located within the University campus.
- Glazing to the ground and first floors will be laminated glass to reduce the risk of injury from an external blast and to hinder a malicious attack and must be installed using a secure glazing retention system.
- The detail of materials, finishes and lighting are developed to employ durable, robust and tested design solutions to elements along the public highway.
- Building facades have been designed to minimize the opportunity for hiding and climbing up to windows or onto roofs, and were designed for easy maintenance.
- The lighting will be designed to assist in maintaining a safe environment at all times in and around the building. This includes consideration of the correct and positive illumination of potential hazards such as staircases, ramps and other changes of level, as well as areas where both vehicular and pedestrian uses may overlap. Lighting will be designed to provide an overall sense of security throughout the site, including supporting both active surveillance (e.g. CCTV) and passive surveillance as provided by views from surrounding areas. Adequate recognition and the modelling of people and surfaces will be carefully considered, particularly at the thresholds.
- The lighting for the lobby area needs to fulfill both functional and aesthetic criteria to reinforce a sense of arrival. Given the glazed nature of the entrance this will also provide an external expression. To this end, good facial recognition will be particularly important. It should be noted that perceptions of security are not necessarily dependent on providing high intensities of light. Creating an environment that feels secure will largely be dependent on ensuring that spaces are legible, appear well maintained and do not inhibit people's eyes adjusting through excessive contrast and glare.
- The main door into the space may need to comply with British Standards for providing a secure entrance.
- Bollards by the main entrance.

Figure 5.8. Metal gate and road fence by Annex main entrance


TODDLER LAB

6.0 CONSULTATION

6.0 CONSULTATION

6.1 Stakeholders

The proposal was developed in close consultation between the client and the design team, and in consultations with Camden Council Planning Department at Pre-Application stage.

During the Client Meeting held at Birkbeck University of London on 23rd November 2016, items discussed and minuted were as follows:

- Roles and responsibilities for the team along with
- End user requirements
- Aims of the design and design strategy
- Particular installation and construction requirements/limitation

  Design and construction risk assessments
- Legislative requirements

Further Design meeting between the client, Birkbeck's Maintenance team and the design team were held to discuss:

- Procurement and supply chain
- Identifying and measuring project success in line with project brief objectives
- Occupier's budget and technical expertise in maintaining any proposed system
- Maintainability and adaptability of the proposals
- Requirements for the production of project and end user documentation
- Requirements for commissioning, training and aftercare support.

A Building Control consultant has been appointed and his advice is and will be incorporated into the design.

Two aforementioned mentioned Pre-application meetings were held with Camden Council on the 14th of March 2017 and 17th of May 2017 respectively and the received feedback as been incorporated on the presented proposal.

We have also consulted with the Warburg Institute and University of London for the past 3-4 years over the proposed scheme to come to a mutual agreement on the proposal we have to date. Following this meeting, Birkbeck appointed Delva Patman Redler to act on behalf of Birkbeck to prepare a daylight and sunlight study. The study found that overall, the new intervention did not cause harm to the first floor offices. We are continuing our consultation dialogue with the Warburg Institute, University of London and others as we develop the scheme with the latest meeting with the Warburg Institute occurring on 1st December 2016 and a meeting with SOAS on 26th January 2017. We have also consulted with University of London on lease of terms in regards to the development.

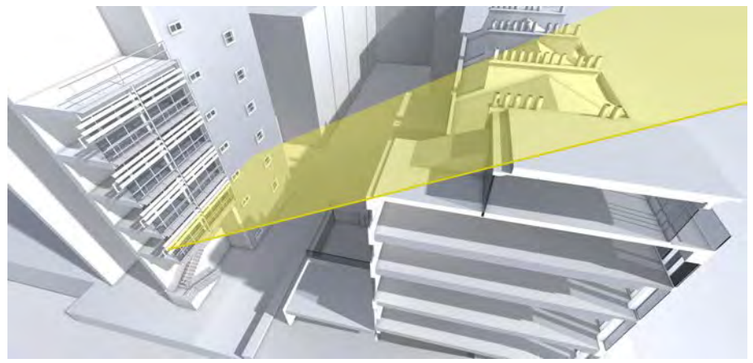

Figure 6.1 25 degree sun line missing Warburg Institute offices

Past Applications, by its public nature, allowed Community Involvement.

Prior to submission of the Planning Application, the proposal will presented to stakeholders such as the Bloomsbury Conservation Area Advisory Group.

The purpose of the presentations is to allow stakeholders the opportunity to view the proposals and to meet the team to ask any questions.

A public presentation will take place at Birkbeck (date to be confirmed).

7.0 CONCLUSION

7.0 CONCLUSION

7.1 Conclusion

The new CBCD ToddlerLab will contribute valuable research into a deeper understanding of autism and the understanding of the different ways a toddlers brain processes life around it. Research into this age group is scarce; toddlers, unlike babies studied in the BabyLab, are mobile and are far more influenced by their surroundings.

Because social interaction is one of the main challenges faced by children with autism, testing must take place in settings that are as true-to-life as possible, so that genuinely natural interactions can take place. Finding a way to achieve all of this within controlled laboratory conditions (as achieved with babies in the BabyLab) is extremely difficult.

The need to support this research is made even greater by the current policy of integrated education in mainstream schools.

Insight into the months before symptoms emerge will provide a deeper understanding of factors that affect individual differences in classroom behaviour and academic achievement. This offers considerable scope for creating a healthier, happier learning environment in which young children with autism can be supported to become more productive.

To conclude, the proposal will provide a world pioneering research opportunity to explore early development of toddlers with autism and other behavioural conditions. Funding is already in place. The design will be a considered intervention to complete the terrace and provide much needed research laboratory space for the CBCD.

APPENDIXES

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