DR WILLIAMS'S LIBRARY- 14 Gordon Square, London WC1H 0AR

DESIGN & ACCESS STATEMENT | MARCH 2020

8555-CPM- ZZ-ZZ-RP-A-10003_P02

Contents

1.0 Introduction

1.01 The report

This document describes proposals for the refurbishment and reordering of the existing Library. The Library occupies numbers 14 and 15 Gordon Square and is regarded as the pre-eminent library for the study of English Protestant Dissent, but its holdings are of much wider significance than this would suggest: both because of the variety and importance of its collections and because of the significance of Puritanism and Religious Dissent in the history and culture of this country and of the United States of America. For further information on the listed asset as well as the library and its legacy, please refer to the associated project Statement of Significance.

This report has been prepared as part of a suite of documents to support a planning application for internal alteration to a Grade Two listed building, and for two external extensions to the rear of the building.

As a heritage asset the Library must be viewed on three major levels. The continuing role of the Library as the repository of the history, literature, and ideas of Religious Dissent which had such a fundamental influence upon the modern development of Britain and the English-speaking world; the importance of the collections that it houses to the heritage of this country; and the building itself from which the Library operates.

The overall objectives of the Trustees are to secure the building and its important collections for the foreseeable future. The opportunity is also being taken to provide improved access to the collections for scholars and to widen the teaching commitment of the Trust through improved reader and teaching facilities.

This report has been written in conjunction with the associated Heritage Statement to avoid the repetition of information held within this document.

1.02 The Design Team

This statement has been prepared by the design team in conjunction with the Dr Williams's Trust. The principal contributors are as listed below:

Client:	Trustees of Dr Williams's Trust
Lead Consultant	John Eaton & Company
Lead Designer	CPMG Architects
Structural Engineers:	CTP Consulting Engineers
Building Services Engineer:	Green Building Design Consultants

1.03 The Brief

The need for the proposed modifications and extensions to the Library arises under two main heads.

- Previous structural analysis identified major structural weaknesses in the two side wings of the building.
- Secondly, the Trustees seek to reorganise their library functions to provide an improved range of services and facilities for their readers, whilst ensuring their precious collections are housed in conditions that are consistent with good conservation practice.

SITE:
Aerial view of Dr Williams's Library & courtyard

1.0 Introduction

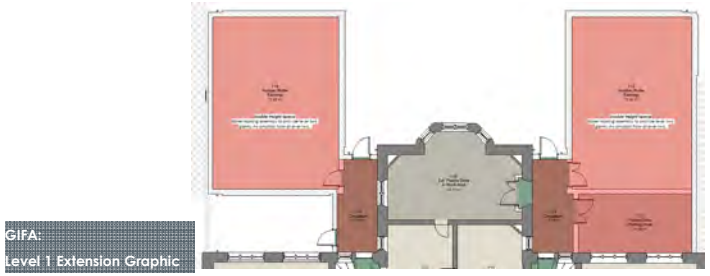
The 2018 structural investigations revealed serious structural limitations to the floors in each side of the North and South wings of the building. It was clear from their analysis that the book stacks housing parts of the collection in each of these areas had to be removed in order to avoid a risk of over loading of the structure. Their structural analysis showed that throughout the seven levels of the building from the basement to the roof, the side wings were originally constructed with load bearing central stud partitions and, throughout the history of the Library, ad hoc repairs and removals have revealed structural weaknesses. As a precaution, and due to the heavy loadings imposed by the book collection, the Library is now removing the collection off site. As precautionary measure, the Library has had to be closed to the public.

The Trust endeavours to support the local and international community by reopening the library and by extending its facilities through the increase of working areas and letting of the lecture hall.

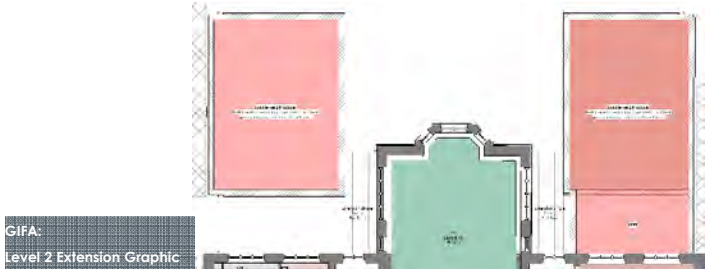
1.04 Area

The two proposed extensions to accommodate the Trusts rare collections are four stories high, the gross internal floor area (GIFA) are as below;

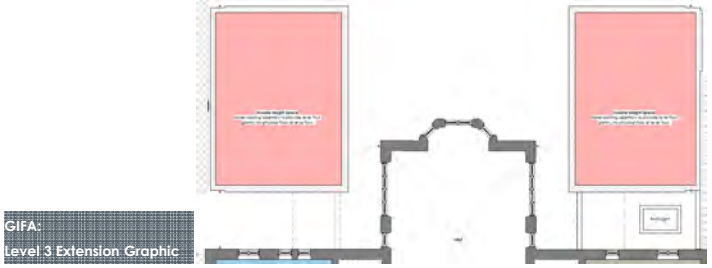
North Extension		South Extension	
Level One	117.74m²	Level One	93.57m²
Level Two	102.66m²	Level Two	79.67m²
Level Three	75.97m²	Level Three	79.67m²
Level Four	86.13m²	Level Four	89.84m²
Total	382.5m²	Total	342.75m²
Total GIFA for both extensions			725.25m²



GIFA:
Level 1 Extension Graphic



GIFA:
Level 2 Extension Graphic



GIFA:
Level 3 Extension Graphic

GIFA:
Level 4 Extension Graphic

2.0 The Site

2.01 Site Context

The site is formed by both the existing building and rear courtyard. The existing building, a symmetrical structure built between 1848-9 in the Victorian Gothic style.

Building address: Dr Williams's Library, 14 Gordon Square, Bloomsbury, London WC1H 0AR

The site is located in the heart of Camden Borough, London, within the Bloomsbury conservation area. The building is joined on either sides to the North and the South by two further grade two listed buildings. The Trust owns the building directly behind Dr Williams's Library, referred to as the Morley Building; this is currently leased to UCL for academic purposes.

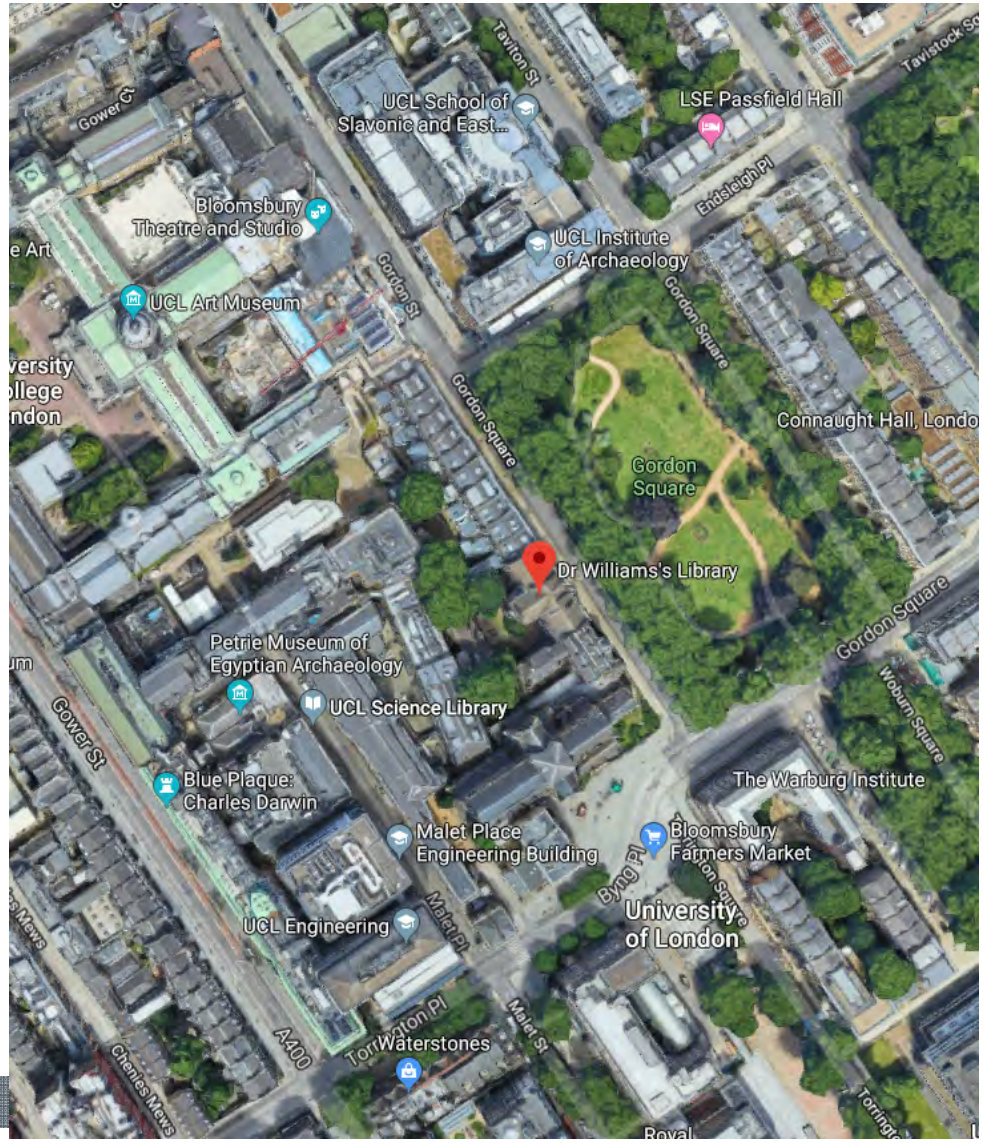
To the front of the building lies Gordon Square a large, predominantly grassed area of public land. Access into the park can be found directly in front of the main entrance to Dr Williams's Library as well as three other points within the park.

The area of the site to the rear of the existing building will hereafter be referred to as the courtyard.

2.02 Existing Site

The rear courtyard is currently considered unused, with areas of overgrown shrubbery. The area is predominantly finished in gravel and hardstanding and there have been issues with homelessness and anti-social behaviour. Staff from the building, and adjoining properties often utilise Gordon Square for recreational purposes.

Levels within the courtyard are generally flat.



SITE AND CONTEXT:
Site Context Aerial

2.0 The Site

2.03 Site Constraints and Opportunities

The courtyard is considered a back land area, strategically of limited value due to accessibility and overlooking issues. In this instance the courtyard has limited development potential for residential, educational or office use.

The proposed archives overcome these issues, the blank elevations contain no windows avoid any concerns in respect of overlooking. The nature of the rooms contained within the stores allow for un-inhabited, highly fire resistant spaces and remove the issues associated with access. The archives will provide environments appropriate to the paintings, rare books and manuscript storage.

No tree preservation orders (TPO) are recorded for any of the tree's contained within the courtyard. The site does however fall within the Bloomsbury Conservation Area, as such this application a request to remove three tree's and areas of shrubs. An arboriculture schedule and associated plan have been produced in support of this application, refer to appendix C.

The attached appendix highlights that of the trees proposed for removal one is considered to have moderate value while the other two are considered of low and negligible value. The argument for removal of these trees is addressed within the project associated Heritage Statement.

There is one tree within the courtyard area identified as high value, this tree shall be retained and hoardings will be placed to ensure the root protection area (RPA) is identified and not encroached.

SITE AND CONTEXT:
01 Rear Courtyard- South wing
02 Rear Courtyard- North Wing
03 Frontage-South External Stair
04 Frontage- North External Stair

3.0 Landscape Design

3.01 Landscape Masterplan

The courtyard will be finished in a similar way to the current site through the use of new gravel and existing hard standing as currently in place to access the Morley Building. New pathways will be allowed for to connect to the existing Morley Building access path from the escape doors from the North and South wings.

3.02 Site Security

The requirements for security are high with insurance requirements in excess of Secure by Design recommendations. As a consequence important components of scheme will include –

- Entry monitoring and access control
- CCTV
- Intruder alarm
- External lighting

The monolithic nature of the proposed extensions avoids where possible hiding spaces and external doors will be left secure with no external ironmongery to the rear courtyard area.

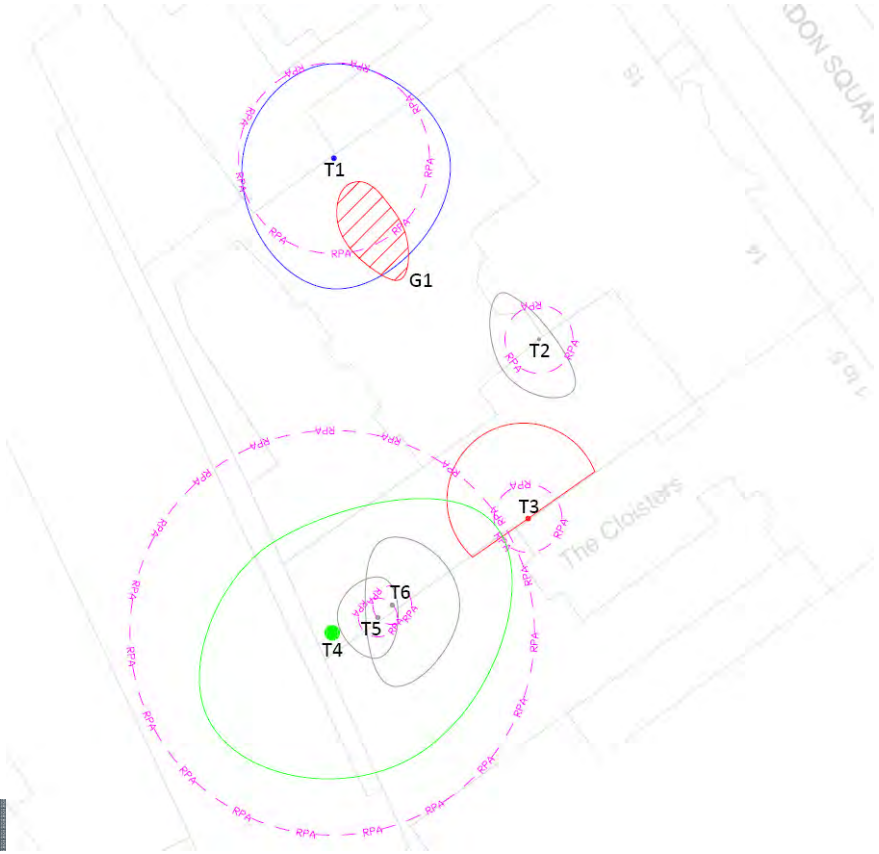
3.03 Ecology

As part of the BREEAM assessment a Land Use and Ecology survey has been carried out to the rear courtyard, containing the proposed extensions, (see appendix B). This assesses the rear courtyard to be of negligible ecological value. Only two trees, one identified as having ecological value, (see appendix C, and section 2.03).

As part of the works the Trust request to removal of three existing trees. For further information on this see the project associated Heritage Statement, section 10.4.

The only protected species which may be present within the courtyard are nesting birds. No other suitable habitat was identified for protected species.

The birds most likely to be within the area are identified as feral pigeon, house sparrow, starling and blackbird. Appendix B sets out the method statement for works being carried out during breeding season. The appointed contractor to the project will be tied into implementing the recommendations of the Ecology report if works are to be carried out during breeding season (March-September).



LANDSCAPE MASTERPLAN:
Tree Plan

3.0 Landscape Design

3.04 Proposed Pedestrian, Cycle and Vehicular Movement

The main point of access for staff and the public is from the front elevation facing Gordon Square. Access to the rear of the courtyard can be achieved by walking down UCL owned land using the Morley building pathway; there will be no route into the existing building or proposed extensions from this point. Access doors to the rear are for escape only and will not allow for staff use.

There are no designated parking spots for the library, public transport is recommended for people travelling to the library with Euston Square Station just 5 minutes' walk away. The Trust wish to retain their current, single, parking permit for the caretaker who is housed within the building for security purposes. This has been raised with the Planning Officer and considered not an issue

It is understood staff in the future will continue to utilise public transport, but the new works will also provide a small provision of bicycle storage to level 1, accessed via the new external stairs and associated cycle ramps.

Delivery access, refuse collection and emergency access will remain the same.

3.05 Boundary Treatment

The front elevation facing Gordon square will see no new boundary treatment. To the rear of the courtyard no new boundary treatment is proposed. The building is enclosed on two sides with the Morley building behind.

4.0 Building Design

4.02 Scale and Massing

The proposals entail no significant change in the size or massing of the existing building. The primary change the existing heritage asset is the proposal to link the new with the existing building at the rear.

A key consideration in developing the proposed extensions is to limit them in size and scale. The design team have worked hard to utilize space as much as possible between the existing building, the proposed extensions and the impact they will have on the rear courtyard and rear aspects of the existing building.

The needs of the library holdings have been considered carefully and the collection itself will need to be rationalised for the proposed extensions to provide future growth and to meet the current collection needs. On this basis the four storey extensions are as small as they can possibly be, to provide viable use to the Trust. Further information on the Trust's storage need can be found within the Heritage Statement, section 8.0.

4.03 Building Materials and Construction

The existing building works are characterised by the use of traditional materials used in an understated way.

Bricks colour matched to the existing building will be used to infill non original openings within the external façade. Existing external windows will be restored by professionals, and reinstated.

As part of the general refurbishment of the existing building it is proposed to strip off the late twentieth century concrete interlocking roof tiles and replace these with slate as per the original building specification from1848.

The proposed extensions make use of a very simple colour and material palette. Brick will be used to define the building. The key characteristic of the proposed extensions is the use of glazed mirrored cladding panels. These are designed to allow the existing historic buildings to the rear to be reflected within the new elevations. The concept is to minimise the visual impact of the proposed extensions, whilst highlighting the ornamentation of the historic asset. Parapet copings and cladding to the bridge links will be in a consistent material palette.

BUILDING DESIGN:
01 Reflective Glass Cladding
02 Welsh Slate Tiles
03 Brickwork & Mortar- Image shown indicatively brick type to be selected following external cleaning of existing building.

4.0 Building Design

4.04 Maintenance Strategy

In accordance with the requirements of CDM legislation, due regard to the ongoing maintenance of the proposals has been made during the design process. This ensures that a simple and pragmatic approach is incorporated for construction access and continuing maintenance. Strategic decisions have been made as follows:

Plant Provision-

The plant rooms identified at Level 1, houses all principal plant and incoming services. There is direct access from external hard standing areas to these rooms.

No new plant is to be placed on the existing building roof. Access to gutters for maintenance to the front and rear elevation has not changed and this is via an existing, retained, roof access dormer and a man safe system.

Separate access hatches have been incorporated into the extensions; these are required to access the PV panels. The parapet has been designed to a height of 1100mm removing the need of a man safe system to the roofs.

The design and layout of services, where possible, has been undertaken to allow effective and safe access for maintenance and future plant replacement. The layout and selection of equipment is consistent with industry best practice manufacturer recommendations for access and clearance space. The design will include strategies for all major plant replacement as well as more frequent maintenance access strategy requirements for consumable items, cleaning and inspection valves will be grouped together as far as practical to improve access requirements.

Building Fabric Cleaning and Maintenance-

External window cleaning to the existing building is currently via roped access, this strategy will remain as is, as the proposals make this no worse. Cleaning of the new mirrored façade and curtain wall glazing will generally be via long pole-handled brushes, which are suitable for use up to 20m. Areas of hard-standing will be allowed for within the landscape design to accommodate appropriate circulation areas.

All distributed service risers in the building are easily accessed from 4 key repeating points within the building. Access doors are allowed for on a level by level basis.

MAINTENANCE STRATEGY:
01 Long Reach Pole
02 Vertical Access Platform
03 Roof Access Hatch

4.0 Building Design

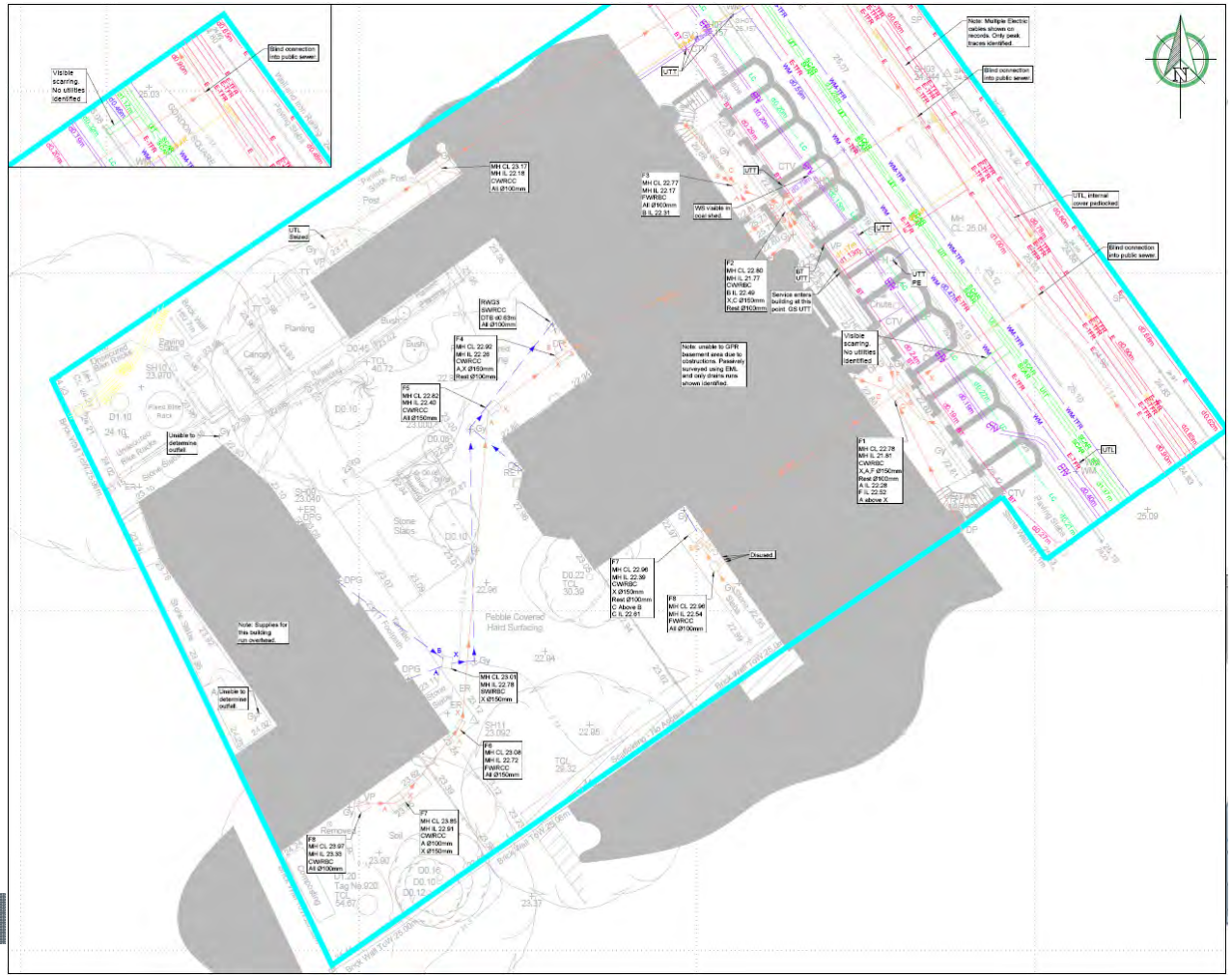
Construction Access-

Key consideration has to be given to access for 14 Gordon Square, and the lack of vehicular access to the rear courtyard, in addition the adjacent buildings fronting Gordon Square are partly occupied for residential use. All deliveries will be scheduled during restricted delivery hours. There will be a foreman responsible for deliveries at all times and travel routes will be dictated for all supply chain deliveries.

Further information on this will be supplied by the contractor once appointed, within the project Construction and Management Plan.

Underground Services-

Appropriate surveys have been undertaken at this stage to establish the approximate locations of underground services; gas, water, electricity and communications cabling. These can be supplied on request.



BUILDING DESIGN:
01 Utilities Survey

4.0 Building Design

4.05 Accommodation Schedule

In brief the accommodation provides for the following teaching and learning spaces:

- Strong Rooms
- Archive Roller Racking
- Reading Rooms
- Catalogue Space
- Reader Facilities
- Library Offices
- Lettable Offices
- Catering Kitchen
- Staff Room
- Caretaker Apartment

These spaces are supplemented by ancillary areas such as tea stations, WC's, plant rooms and circulation Spaces.

4.06 Sanitary Provisions

The Health & Safety Executive- Welfare at Work, Guidance for employers on welfare, provides guidance on sanitary provision. The design information is based on this document and on a maximum building occupancy figure of 319 people.

Based on the mixed use facilities, Table 1 of The Health & Safety Executive- Welfare at Work Provision, a minimum of 14 toilets will be required. Based on these figures the provision allowed for is suitable for the building use and in line with Approved Document Part G and the Health and Safety Executive guidance.

No facilities for pregnant and nursing mothers will be required. Due to the nature of the building and the need to maximise floor area it is not reasonably practicable to allow for these facilities.

Disabled toilets in conformity with the requirements set out in Approved Document (AD) Part M will be provided with alternate handing allowing for left and right transfer. Due to the nature of the listed building, the new toilet provision deviates from AD M section 5.9. Disabled access toilets will not be for the sole use of people requiring the specialist facilities. Travel distances to DWC toilets are within the forty metre combined horizontal distance.

Ambulant disabled toilets have been provided within the male and female toilets on the second floor.

Two new shower facilities are proposed as part of the refurbishment works. These will not be suitable for wheelchair users as they are supplied for staff and office workers using cycles to travel to work. Due to the limitations of the Historical Asset it is not feasible to provide a wheelchair accessible shower facility. The new shower facilities have been designed to meet guidance document BS 6465-2 2017.

5.0 Structural & Civil Engineering Design

5.01 Design Standards and Specifications

Design Statement:

The following information does not provide a detailed technical specification for the project. This document serves to define the philosophies and parameters that will govern the design, detailing and construction of the development in conjunction with all other applicable guidance and relevant standards applicable to the project.

Statutory Requirements-

- The Building Regulations 2010 (incorporating April 2012 amendments)
- Regulation 7 (Materials and Standards of Workmanship) of the Building Regulations
- European Construction Product Regulations (CPR)
- The Town and Country Planning Act 1990 (as amended) and Town and Country Planning (General Development Procedure) Order 1995
- BS 8000 Workmanship on Building Sites
- The Health and Safety at Work Act 1974
- The Construction (Design and Management) Regulations 20015
- European Standards and Code of Practice

Design Standards-

The building and associated works will be designed in accordance with the latest editions of the relevant European Codes of Practise as listed and as appropriate to the form of construction used, but not limited to:

- BS EN 1990 Basis of Structural Design
- BS EN 1991 Actions on structures
- BS EN 1992 Design of concrete structures
- BS EN 1993 Design of steel structures
- BS EN 1995 Design of timber structures
- BS EN 1996 Design of masonry structures
- BS EN 1997 Geotechnical design
- BS EN 752 Drain and sewer systems outside buildings
- Building Regulations 2010 Part H Drainage and waste disposal

For historic elements, relevant design guides applicable to the era of construction will be referred to where appropriate.

5.0 Structural & Civil Engineering Design

5.02 Structural Philosophy (Superstructure)

Extensions-

The proposed structures comprise two, four story hot-rolled steel frames, with composite concrete slabs, including at roof level to support PV panels. The external walls will be constructed using a proprietary metal framing system, designed to carry specialist fire boards.

Existing-

As there are concerns in respect to certain floors a number of floors stiffening measures will be integrated into the building. These will be tied into the existing superstructure.

5.03 Structural Philosophy (Sub-Structure)- New Builds

The Trust have appointed RSA Geotechnics Ltd to carry out a Site Investigation (SI) to the rear courtyard, this will cover;

- Geotechnical Strata
- Groundwater and Ground Gas Monitoring
- Contamination- A desktop study, and discussions with Camden Council have identified the courtyard to be of medium risk for ground contamination as it falls within 100m radius of; a Hospital, electrical sub-station, timber yard and unspecified industrial site's (appendix B). On this basis contamination testing is applicable, and will be carried out, as part of the SI survey

Foundation Design-

Foundation design will be confirmed following receipt of the Site Investigation. Piles and ground bearing rafts are currently being considered.

Design Loadings-

Floors will be designed to support an imposed load for dense mobile stacking of books. The corridors and lobbies will be designed as corridors subjected to wheeled trolleys. The roof will be designed for imposed roof access load only.

In addition to the structural self weight of the building, M&E services will be included in the permanent loading as well as PV panels on the roof.

Detailed loading for each element of the building will be confirmed in the submission for Building Regulations Approval, to follow at a later date in the design process

5.04 Retaining Structures

To the rear courtyard there is a small retaining wall on the property line, this will be retained and protected during works. No significant new retaining structures are currently envisaged.

5.05 Drainage Philosophy

Site drainage utilises the existing combined system, this is discussed in section 5.05 and 5.06. Refer to above sections and appendix D, drawing W82-CTL-Z1-01-DR-S-D100 Drainage Strategy Plan, for site wide drainage strategy.

5.06 Surface Water Strategy

The current surface water strategy allows for water to drain to the existing combined public sewers. This strategy will remain unchanged for the existing building.

Extension-

Due to the size of the proposed extensions gravity fed rain water pipes will be used to drain the new archive buildings. Due to the requirement to restrict surface water run off attenuation will be incorporated in the design, below the new extensions. These will be designed for 1 in 100 year storm plus 40% for climate change.

5.07 Foul Water Strategy:

The current foul water strategy is unchanged, the scheme will utilising the two existing combined drainage routes, pipework will be upgraded and replaced. No new strategy is required for the extensions as no piped services are needed.

6.0 Building Services Design

6.01 Sustainability

An energy strategy has been developed by following the GLA Energy Hierarchy of Lean, Clean, Green and Seen. Lean, passive and active design measures have been included, along with Green LZC technologies to achieve a greater than 35% improvement over baseline CO2 emissions.

- Be Lean: The design of the extensions will consider the building form and fabric to provide a highly efficient envelope to drive down the energy demand from heating.
- Be Clean: The building services plant and equipment that will be specified will be as efficient as possible to drive down energy consumption.
- Be Green: It is aimed to reduce the requirement for renewables technologies as far as possible by being 'Lean' and 'Clean'. Renewable technologies are not required to pass Building Regulations nor are they required to satisfy any local planning requirement.

Proposed Energy Strategy-

- Passive and active design measures
- Mechanical Ventilation with Heat Recovery
- Gas Fired heating and hot water provision
- 9.6Wp PV array to provide CO2 offset

Passive design measures include-

- High efficiency lighting using LED fittings complete with local motion sensor switching shall be included throughout the archive spaces. This allows electric lighting energy consumption to be reduced during daylight hours, reducing running costs and C02 emissions.
- The thermal envelope of the extensions will be designed to achieve better performance than the maximum permitted for building regulations compliance. This will include considerations of insulation and air permeability.
- Utilising low flow water fittings within the existing building, to minimise water consumption.
- Natural ventilation solutions will be utilised wherever possible and practical. Mixed mode ventilation solutions will be utilised to provide optimal energy savings during mild weather conditions whilst maintaining usability of the space during peak / extreme weather conditions or maximum occupancies.

For more information, reference should be made to the project associated BREEAM assessment; 20190926_SRE_Energy Sustainability Statement_Dr Williams Library_V1B.pdf.

6.0 Building Services Design

6.02 Utility Statement

Gas-

There is currently an existing gas supply to the existing building. This will be retained. There is no requirement to increase the gas supply but an application has been made for a new gas meter.

Main Electrical Supply (Existing)-

The existing electrical supply is limited to 200 amp TP&N located in the basement switch room.

The existing electrical supply to the main building is beyond its useful working life and is not compliant with current electricity at work act, regulations and good practice. For this reason a new supply has been requested from UKPN, to be located in a more suitable location. The current supply is limited to 200 amp TP&N, this is considered sufficient for future needs and no increase in supply capacity is required.

New separately metered supplies shall be provided to serve split metered distribution boards at each floor level within the south wing for lettable office spaces.

Main Electrical Supply (Extensions)-

The existing electrical supply from the existing building will be replaced and a new separately metered supply will be provided to serve each wing of the rear extensions.

6.03 External Lighting & Security

External Lighting

Existing lights are to be retained and new lighting is proposed to the front elevation of the existing building above the North and South wing entrance door to Gordon Square.

Building mounted security flood lighting will be allowed for to the rear of the building and new archive extensions, activated on appropriate proximity sensors for the security of the collections.

External lighting shall be provided along the access route of the PV installation for infrequent maintenance and shall incorporate local switching absence detection.

All external lighting will be designed to reduce light spill and light pollution in accordance with planning conditions. External lighting will require appropriate snoods and shrouds to be fitted to control light spill.

CCTV-

An internal CCTV system will be allowed for within critical circulation areas connecting to Strong Rooms. An internal CCTV system will also be allowed for within circulation areas and public areas,. For lettable offices, internal camera will be installed by tenants as required.

New external CCTV will be provided to prevent, detect, deter and help investigate crime to the rear external courtyard area of the premises and the system will be suitable for identification and providing evidence in accordance with secured by design principles.

New Ethernet ICT infrastructure will be provided to support both future internal and new external cameras. The CCTV system to be suitable for offsite monitoring.

Intruder Alarms-

An intruder alarm system will be installed which comprises two distinct systems which create a "double knock" zoned to allow the out of hours use of the lecture hall and associated facilities, and for the strong rooms and library facilities.

Access Control-

An access control system will be provided to selected areas within the building to manage and control entry and egress.

6.0 Building Services Design

6.03 External Lighting & Security- Access Control (cont)

The strategy for restricting access into and through the building will be developed in conjunction with the overall security and operational strategies for the building during design development. Identifiable zones consist;

- Strong Rooms
- Library- Public Spaces
- Library- Staff Only
- Lettable Offices
- Caretaker Apartment and Bedroom
- Lecture Hall and Associated Facilities

Entry into the building will be limited to the front elevation of the building from Gordon Square. Entry is via three doors;

- South Wing- Lettable Offices (wheelchair accessible)
- North Wing- Library (wheelchair accessible)
- Central Core- This will be a combined space with segregation between library and lettable achieved internally. This door is accessed via stairs and therefore cannot be used by people with mobility issues.

All internal public circulation doors to corridors and staircases within library areas will be provided with powered hold opens with fire alarm interfaces. Key internal circulation doors will also be access controlled to allow for community use of the Lecture Hall All lettable office circulation routes, Strong Room lobbies and Strong Rooms will have access control .

A video entry intercom system will be provided at each of the three external doors at Level two. Further video entry intercom systems will be required internally within the main entrance at the top of the stairs at level three.

6.04 Energy Statement

The proposed refurbishment and extension of 14 Gordon square will deliver passive and active energy demand reduction measures along with low and zero carbon technologies in order to reduce energy demand and associated C02 emissions resulting from the proposed developments operation.

The calculations undertaken successfully exceed Building Regulations Part L2A compliance by 35% through one of 2 viable energy options and achieve the emissions reductions requirements set by the London Plan.

Based on the strategies highlighted below the proposed works will implement the following strategy;

- Mechanical ventilation with heat recovery to extensions
- Passive and active design measures
- Gas fired heating and hot water provision
- A 9.6kWp PV array to provide c02 offset

Summary of C02 Emissions, Incremental Improvement & Improvement Over Baseline			
	C02 Emissions (t/yr))	Improvement	Improvement Over Baseline
Baseline	21.21		
Lean	17.30	18.39%	18.39%
Clean	17.30	0.00%	18.39%
Green (Heat Pump Only)	16.12	6.82%	23.00%
Green (Gas + PV)	13.62	21.27%	35.79%
Green (Heat Pump + PV)	13.18	23.82%	37.86%

Refer to M&E service summary documents for the existing (appendix F) and proposed extension (appendix G) for further information.

7.0 Access, Fire and Acoustics

7.01 Accessibility

Pedestrian access to the building is from Gordon Square. There are no designated drop off points or parking spaces available to the front of the building. There is no vehicle access to the rear of the building. There are no entry points to the rear of the building; these are escape only doors, used by staff on level one in the event of an emergency.

The reordering of the building will ensure compliance with the requirements of Part M of the Building Regulations wherever possible. This will include the provision of level thresholds and the provision of an additional lift (one lift currently serves the building). Wheelchair refuges with call points have been incorporated within the design. Disabled lavatory provision is discussed in section 4.4.

It is proposed to introduce a further pedestrian access to the building to the South wing. This will provide additional wheelchair access. It is proposed to match the new access to that serving the North wing on a like-for-like basis. The change will be precisely symmetrical and minor modifications will be needed to the listed railings. These will be altered on a like –for like basis.

There is a level change to the archive extensions at level three. Duty holders carrying out their roles as archival staff will need to be sufficiently able to access books on top shelves. On this basis it is considered reasonable that level access cannot be achieved to this floor.

7.02 Fire Strategy

The fire strategy will be based on Building Regulations AD Part B- Building Other than Dwellings. Independent Approved Building Control Inspector has been working closely with the design team and consultation will undertaken with the local Fire Officer. The purpose groups contained within the refurbishment scheme are-

Purpose Group: Group 3- Office
Group 5- Assembly and Recreation
Group 7(a)- Storage and Other Non- Residential

Automatic detection will be provided in accordance with BS 5839 part 1 to category L1 standard, with manual call points, automatic detectors and alarm/ flashing beacons. The alarm panel shall be located within the entrance lobbies of the North and South stairs.

There is no proposal to provide sprinklers to the building and they are not required for the purposes of satisfying the Building Regulations.

The occupancy figures have been calculated via AD Part B, Table D1 floor space factors. In specific areas, such as the reading rooms these numbers have been reduced due to the high level of security required for this type of library function. These figures will be reviewed and possibly reduced once a full survey has been carried out considering; actual stair widths, number of escape routes and final exit clear openings.

A number of doors will be replaced, most of which are not original to the building to ensure the current fire standards in the building are increased, with new floors providing an hour and a half hour fire separation.

Disabled refuges have been allowed for within both the North and South stair, with the exception of level two where new ramps allow for level access out of the building via internal and external ramps. The Trust will appoint a responsible person in respect of the 'Fire Safety Order' who will ensure that there is a suitable and sufficient risk assessment carried out, and measures put in place for disabled person's evacuation within the emergency action plan.

7.0 Access, Fire and Acoustics

7.02 Fire Strategy (cont)

Means of escape will be based on simultaneous evacuation of the building. There are two protected stairs and one accommodation stair serving the second to third floor. Travel distances within the existing building and the new archive extensions, all meet the maximum travel distance of 18m in one direction, and all fall within the approved single direction distances.

7.03 Acoustic Strategy

An environmental noise assessment has been undertaken by Sandy Brown, Acoustic Engineers, to establish the existing noise levels across the site and to set appropriate limits for noise egress from building services plant.

All plant proposed to the refurbishment and extensions shall be in accordance or below the figures set out within the report; 19322-R01-A Noise survey and plant noise egress limits report.pdf

The below table is based on guidance documents set out below;

- BS 4142:2014 Methods for rating and assessing industrial and commercial sound
- The London Borough of Camden's general policy on the control of building services plant- Development Policy 28.

Plant Noise Limit at 1m From The Nearest Noise Sensitive Premises	
Time of Day	**Maximum sound pressure level at 1 m from noise sensitive premises, LAeq,15min (dB)**
Daytime (07:00-23:00)	43
Night-Time (23:00-07:00)	41
The limits set out above do not include any results with attenuation catching features associated. If the building services plant contains attenuation catching features then the limits would need to be 5 dB lower than those stated.	

There is no acoustic requirement or strategy set out within the existing building. New works will be designed to limit the noise transfer between offices where possible. The new extensions are for storage purposes only and as such are not habitable spaces and no acoustic strategy has been allowed for.

8.0 Statutory Approvals

8.01 Planning

The design proposal has been assessed against National Planning Policy Framework and the Camden Local Plan- Design and Heritage and key guidance documentation. The proposal allows for a considered impact to the existing fabric of the listed asset, as discussed between the Planning Officer and Applicant. The extent of these works in regards to the portion of the listed building has been covered within the Heritage Statement, which should be reviewed in line with this document.

Preliminary planning meetings attended by the applicant and representatives of Camden Council Planning Department have been held to review the proposals at pre-application meetings (09.05.19, 27.06.19 and 22.08.19). This report and its associated documents have been produced following these meetings. As discussed with the Planner, core concerns have now been answered within the Heritage Statement.

8.02 Building Control

Salus are appointed by the Trust to undertake the role of Approved Inspector for the scheme. They are operating as an integral part of the design team to ensure that any legislative issues are highlighted and addressed quickly. Meetings have been held to review the proposal in detail, topics discussed to date have included:

- Firefighting
- Smoke extract
- Fire alarm systems
- Disable refuges
- Sanitary provisions
- Equalities act assessment

GA layouts have now been agreed in principal and the finer detail concerning fire safety will be reviewed more closely within the technical design stage.

Staff Kitchenette-

The staff area will be compliant with Approved Building Document Part M- Refreshment Facilities. Part of the worktop will be permanently accessible to wheelchair users at a level of not more than 850mm above finished floor with a clear knee space of not less than 700mm above floor level. The worktop will be dual height with a higher section working area for people standing. Tea stations will utilise a single level approach set at 850mm above finished floor level.

Sleeping Accommodation-

Sleeping accommodation is provided within the building this is designated for the caretaker. Due to the nature of their responsibilities as duty holders they must be able-bodied to carry out their role. On this basis sleeping arrangements have not be provided to accommodate wheelchair users

Appendix

Appendix A –
Structural Engineer's Conservation Engineering Report

Project Name: Dr Williams Library

Conservation Engineering Report on Works Proposed to the Library Building

Date: March 2020

Project Number: A6763

Contents

Document Status and Signatures

Document Status		
Document Reference: A6763/JDM/NG		
Issue Date	**Version**	**Rev**
02/03/2020	Final	F1
05/03/2020	Final	F2

File location: N:\Jobs\A6750-A6999\A6763\3 - Reports and Specifications\Conservation Engineering Report

Signed on behalf of CTP	
Prepared by:	**James Miller – MA CEng FICE FIStructE Conservation Accredited Engineer (Consultant)**
Reviewed by:	**Peter N Hawkins – BEng Tech) Hons CEng MICE (Senior Associate)**

1.0 Brief and Introduction

1.1 CTP Consulting Engineers have been instructed to provide conservation engineering services for the adaption of Dr Williams' Library.

1.2 This report was requested by Dr John Eaton, acting for the client Dr Williams's Library Trust, at a design team meeting on 17th February 2020.

1.3 The brief for the report was to provide a considered commentary on the structure of the existing building and the interventions proposed. This report is intended to support the Listed Building Consent application and has been prepared by a Conservation Accredited Engineer.

1.4 Dr Williams' Library is a fine Grade II listed seven-storey loadbearing masonry building overlooking Gordon Square in London, WC1 (Photograph 1). It dates from 1848 and was built to designs by Thomas Donaldson. It has cellular offices and ancillary rooms arranged symmetrically north and south of a central core, in which the original two-storey lecture theatre, library and reading room are located. It is constructed in red and yellow stock bricks with stone features under a shallow-pitch roof.

1.5 The forms of construction are consistent with the period of construction. Deep-joisted timber floors span between the masonry walls; beams are generally of cast iron; the internal stairs are of stone pencheck or 'cantilever' construction, projecting from the walls; the spine corridor is also of stone.

1.6 Later interventions include the library and reading room balconies and spiral stairs at levels 4 and 5, and a cast-iron grid floor at level 7 to the centre-rear of the building, just below the top floor.

1.7 No material change of use is proposed for the building.

1.8 Photographs are included in Appendix A; sketches and reference plans are included in Appendix B.

1.9 This report is not a full structural survey. We have not inspected timberwork or other materials that are covered, inaccessible or otherwise hidden and cannot warrant that such elements are free from defect.

1.10

2.0 Structure of Existing Building

2.1 *General framing*

2.1.1 The principles of framing are identified in the Brief and Introduction above.

2.1.2 The building is substantially in its original form and therefore most of the structure must date from around 1848. Although there have been a number of additions to the structure since it was constructed, there have been few interventions involving the removal of historic fabric.

2.1.3 Those earlier interventions involving addition include the balcony to the Reading Room at level 5 (Photograph 2), the two-stage walkways and the spiral stairs to the Library also around level 5 (Photograph 3), the new grid floor at level 7 (Photograph 4), the boarding-over of the book hoist and riser at the north and south ends of the corridor and the creation of a north accessible bridge-link to the front pavement at level 2.

2.1.4 Those earlier interventions involving removal of fabric include the creation of the southern lift shaft, the laying of concrete floors in the basement: level 1 and the cutting-down of the window to create the accessible bridge link on the front facade.

2.1.5 The timber floor joists are about 250mm (10") deep, spanning north-south across the building parallel to the road, at between 350-425mm centres and built into the loadbearing masonry or onto cast iron beams. The building dates from a time when wrought was steadily replacing cast as the iron for use in structural bending members.

2.2 *Defects*

2.2.1 Whilst an exhaustive structural inspection of the building has not been carried out, there appear to be relatively few structural defects in the building.

2.2.2 Those noted include:

- Slight diagonal cracks up to about 2mm wide to the rear wall, near the south-centre corner, between levels 6 and 7 (Photograph 5).
- Significant bowing (lean) in the chimneys
- A fractured tread to one stone pencheck (cantilever) stone stair on the south flights and damage to the landings from the introduction of building services (Photograph 6)
- Timber rots, potentially including dry rot, in the rear half-landing stores where water has wept from soil downpipes.

2.2.3 There is no obvious sag in the floors, despite current stacking and storage of books around the building. There are no obvious signs of foundation movement, despite the subsoil being shrinkable clay and the proximity of tall, mature trees.

2.2.4 The two external staircases in the front light well are a concern. The stone treads are built into the main façade and water collects at the edge, soaking into the brickwork, with damp penetrating the walls (Photograph 7). It is visible as staining and a greening with algae of the masonry. This is causing damp within the archives at level 1. It is a risk to fabric and it is proposed to remove the stairs and re-detail the flights.

2.3 *Options for Adaptation*

2.3.1 Various options have been considered for adaption.

2.3.2 One of the Trust's primary functions is to act as an archive for old and rare books. Such books require delicate and careful storage and this function is seriously compromised by the lack of modern storage facilities.

2.3.3 A modern facility to support the function of the Trust demands an appropriate form of racking storage and a temperature & humidity-controlled environment. The Library currently has good, effective roller racking in the basement (Level 1), which sits on a solid, ground-bearing slab. Should space be available, other roller racking might be installed at this level without significant impact on the listed fabric, although if found to be shallow in depth, the ground-bearing floors might need to be replaced.

2.3.4 Roller racking demands very high tolerance on structural deflection and high loadings: a deflection limit of up to 1/1000 instead of normal tolerances of 1/360 or 1/250 for floors, in order to stop the rollers jamming on sagging rails. The existing timber upper floors of the building are wholly unsuitable for the installation of such racking, and to remove the floors for this purpose, given the coherent and intact nature of the existing loadbearing structure, would be an unwarranted destruction of fabric in this Listed Building.

2.5 *Material Change of Use*

2.5.1 It is understood that the building originally functioned as a residential study centre and that the north and south wings have been used for book storage and cataloguing since then (Photograph 8).

2.5.2 No material change of use is proposed, as defined by The Building Regulations 2010: Regulations 5 and 6.

2.6 Conservation Philosophy

2.6.1 It is recommended strongly that a philosophy of minimum intervention be adopted, in accordance with Historic England Conservation Principles and BS7913: Guide to the Conservation of Historic Buildings. It would in any case be expected that such principles be applied to the building by the Local Authority Conservation Officer and statutory consultees. This is balanced by the need to provide good accessibility, make measured changes to maintain its use, and correct and repair defects.

2.6.2 The impact of such an approach is to essentially reject options which demand significant change to the fabric, such as the imposition of heavy floor loadings which would result in otherwise unnecessary removal of floors.

2.6.3 The structural impact of the various proposed elements of work is examined more fully in section 3 below. However, the most significant impact of adoption of these principles is that modern, accessible book storage cannot be housed within the existing Grade II listed envelope except in the basement, Level 1. However, the basement in itself cannot house all the Library's valuable archive collection of rare books and manuscripts, and if the Charitable Trust is to maintain its work on the site, then it is understood that storage will need to be built on the available footprint to the rear, alongside the adjoining rear building wings and extensions.

2.6.4 Additionally, it is understood that there are non-structural concerns related to the maintenance of the document archive, in terms of fire protection and humidity and temperature control. These various matters are defined in PD 5454:2012 Guide for the storage and exhibition of archival materials.

2.6.5 Whilst links would be required between existing and new buildings, any such new buildings should not unduly alter the existing masonry walls nor adversely affect the foundations.

3.0 Structural Interventions

3.1 *New lift shaft*

3.1.1 A new lift shaft is proposed to the north of the core area, in a location mirrored to match the south lift shaft. Floor joists will need to be trimmed back and new shaft walls formed on two sides, existing masonry walls forming the other two. Simple trench-fill foundations will be used.

3.2 *Removal and replacement of floor at Level 7*

3.2.1 It is proposed to carefully remove the grid floor intervention and construct a new floor at a slightly lower level, as the current floor level is about 500mm higher than the general floor at level 7. This will permit easier access and beneficial use. The new floor will be constructed of timber joists on steel beams, bearing on padstones in the wall; the beams will be split and spliced for easy manoeuvring and erection.

3.2.2 Removal of the grid floor is a straightforward operation but will require careful planning and back-propping of the floors below, to avoid damage from impact.

3.3 *Removal and replacement of Balcony Floor over Library to front, at Level 5*

3.3.1 The balcony floor, overlooking the Library, will be carefully removed and replaced with a new, deeper structure, at a slightly higher level and extending slight further over the library floor. This will provide space for study at a level that matches the balconies to the rear, at level 5.

3.4 *Extension and Upgrading of Balconies to Library to rear, at Level 5*

3.4.1 The balconies around the reading room at level 5 will be extended out by about 550mm. The existing balustrades dismantled and reassembled with some new components, providing resistance to lateral loading and preventing falls in accordance with the modern standards in BS6399-Part 1 and the Building Regulations. These lightweight balconies are already supported on the structure bookcases and calculations will be undertaken to show how the slightly increased loads may safely be taken into this system. The twist from the balcony balusters will similarly be taken into existing balcony joists and capacity confirmed by calculation.

3.4.2 In this way the balcony balustrades will be dismantled for partial re-use but the balcony decks will not: they will be maintained and extended outwards.

3.5 *Repairs to the Chimneys*

3.5.1 Some of the existing chimneys are at risk: there is significant lean on them that must be addressed. The lean is of order of perhaps 150mm.

3.5.2 A solution to stabilise the chimneys rather than rebuild them is preferred. Investigations are proposed that will locate and permit inspection of the flues from within the roof void. This will help to confirm whether the chimneys might be strengthened by inserting large diameter hollow tubes in two or three of them and grouting these in place using a lime mortar. Such a method would be sufficient to provide confidence in performance.

3.5.3 The details of chimney stabilization will be confirmed after investigation.

3.6 *Dismantling of Existing Bridge and Construction of Two New Bridges to the front pavement, Level 2*

3.6.1 It is proposed to dismantle the existing concrete bridge, because the awkward non-original brick enclosure below it, in the light well, is due to be removed and the bridge itself rests on this structure.

3.6.2 Two new bridge links are proposed, one in the current location and the other mirroring it to the south. These will be constructed in a fine-finished concrete and bear onto the brickwork façade, as does the existing. Particular attention will be given to correct rainwater detailing, to shed water away from the façade.

3.7 *New Stairs to the front pavement light well, down to Level 1*

3.7.1 As noted above, the detail of these stairs causes rainwater penetration and damp in the building. The existing stairs will be carefully dismantled and replaced by new steel stairs.

3.8 *New Buildings to the Rear*

3.8.1 New buildings are proposed to the rear. These will be founded on piled foundations. Rainwater attenuation is to be provided to offset the loss of permeable area. In this way, there will be no long-term detrimental effect of the overall construction and presence of the new buildings on the existing, listed fabric.

3.8.2 Link structures and canopies will be provided between new and existing. These will be relatively lightweight and secured to the face of masonry using screw and bolt fixings.

3.9 *Repairs to the internal stone stairs*

3.9.1 Stonemason's repairs will be undertaken to make good the services penetrations through the stone landing slabs and pin any fractures to treads.

4.0 Conclusions and Recommendations

4.1 There appear to be relatively few structural defects in the building; the most significant is the lean of the chimneys. There is no obvious sag in the floors.

4.2 The existing upper floors of the building are, however, unsuitable for the installation of modern roller racking storage and other heavy loads. New conservation-compliant archive storage might therefore prudently be provided in the basement (Level 1) and to the rear.

4.3 No material change of use is proposed, as defined by The Building Regulations: Regulations 5 and 6; the building as proposed will contain functions that are all currently found within it.

4.4 A philosophy of minimum intervention should be adopted to enact change, balanced by the need to provide accessibility, sustain and strengthen continued use and repair defects.

4.5 Greater accessibility is provided by an additional lift and new bridges over the front façade light well; continued use is strengthened by evening-out the levels of later floor interventions; and the defects to be repaired include making-good the internal stone stairs and stabilizing the chimneys.

4.6 The new buildings to the rear should be constructed in a way that will not be to the long-term structural detriment of the existing fabric of the Grade II listed building.

Appendix A – Photographs

Photograph 1

Photograph 2

Photograph 3

Photograph 4

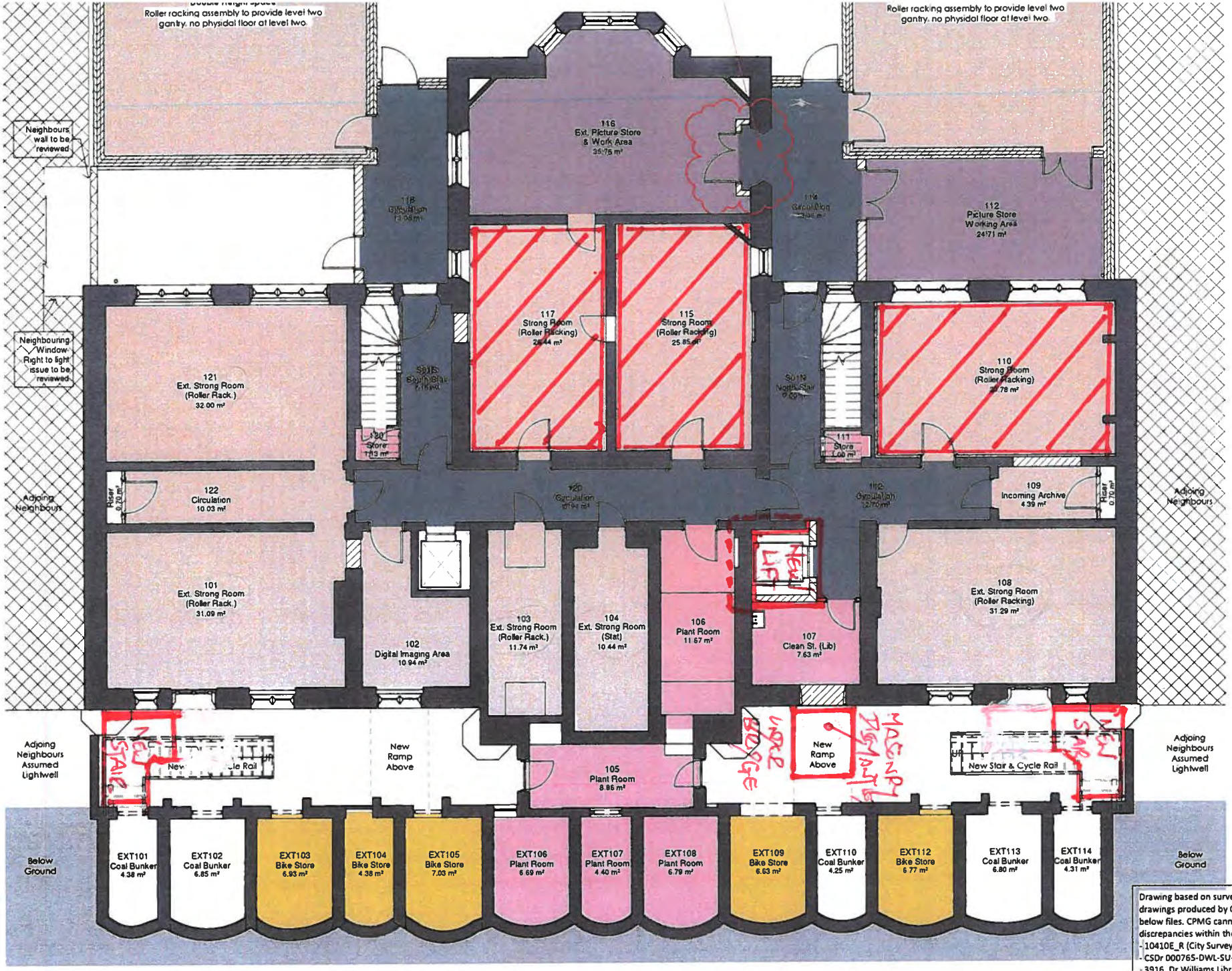
Photograph 5

Photograph 6

Photograph 7

Photograph 8

Appendix B – Plans



AREAS OF IMPACT SHOWN IN RED

= NEW FLOORS

LEVEL 1 (Basement)

Drawing based on survey information, Revit model ar
drawings produced by City Survey's and Survey Hub,
below files. CPMG cannot be held responsible for an
discrepancies within the original Revit survey or CAD
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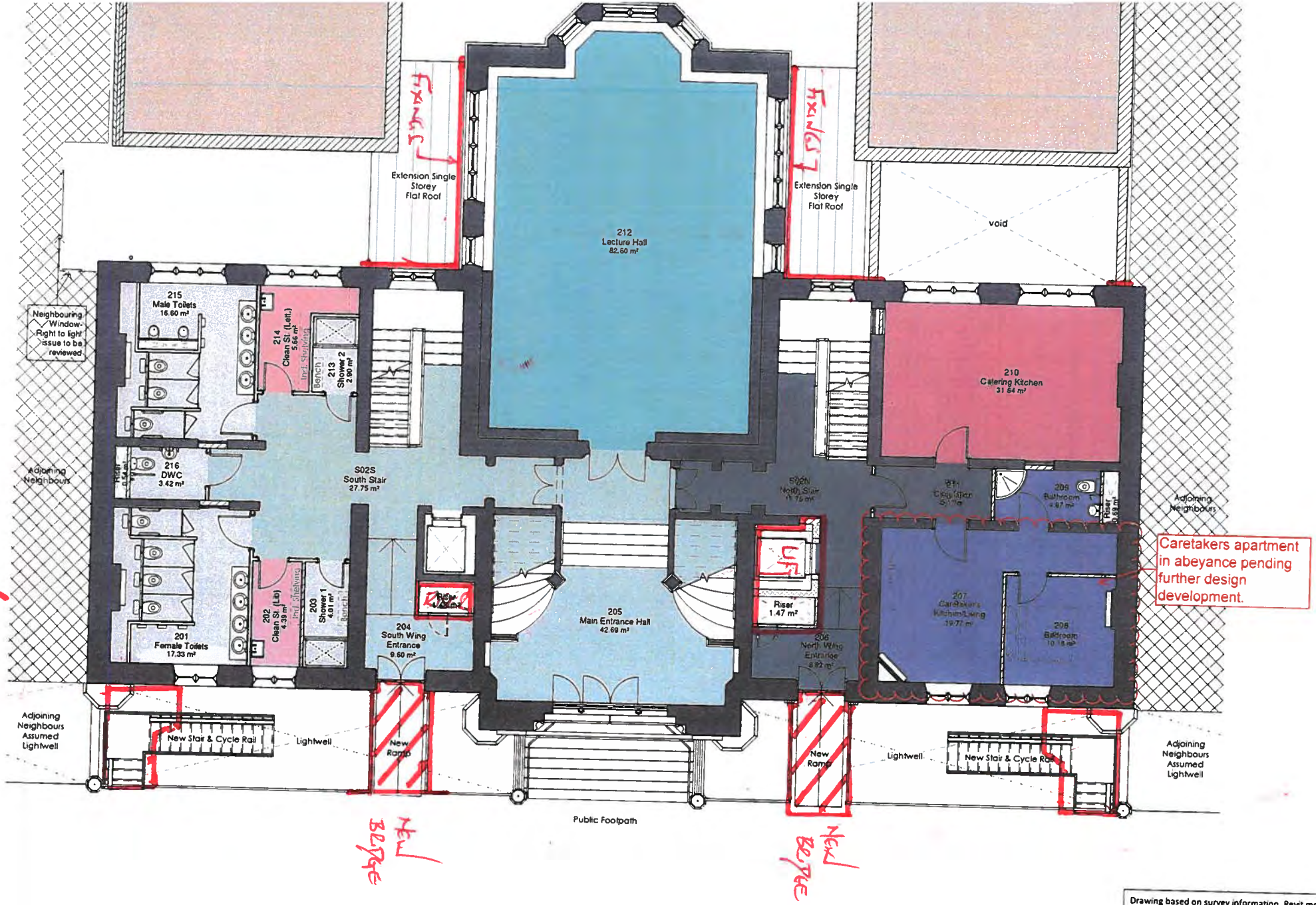
- CSDr 000765-DWL-SU-DRG-0001-A01.rvt (City Surve
- 3916_Dr Williams Library_3D Model (Survey Hub)



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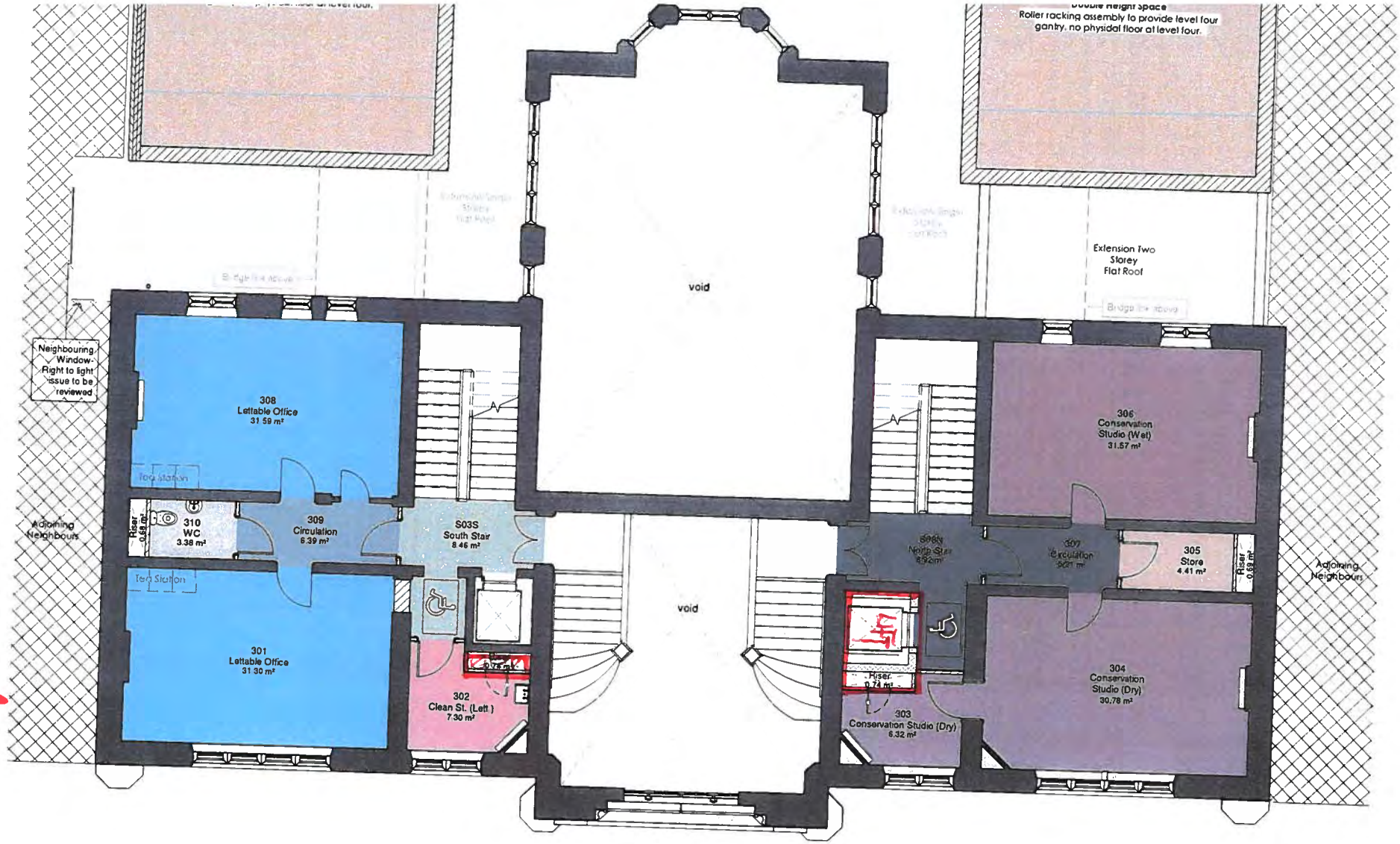
- CSDr 000765-DWL-SU-DRG-0001-A01.rvt (City Surveys)
- 3916_Dr Williams Library_3D Model (Survey Hub)



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- CSDr 000765-DWL-SU-DRG-0001-A01.rvt (City Surveys)
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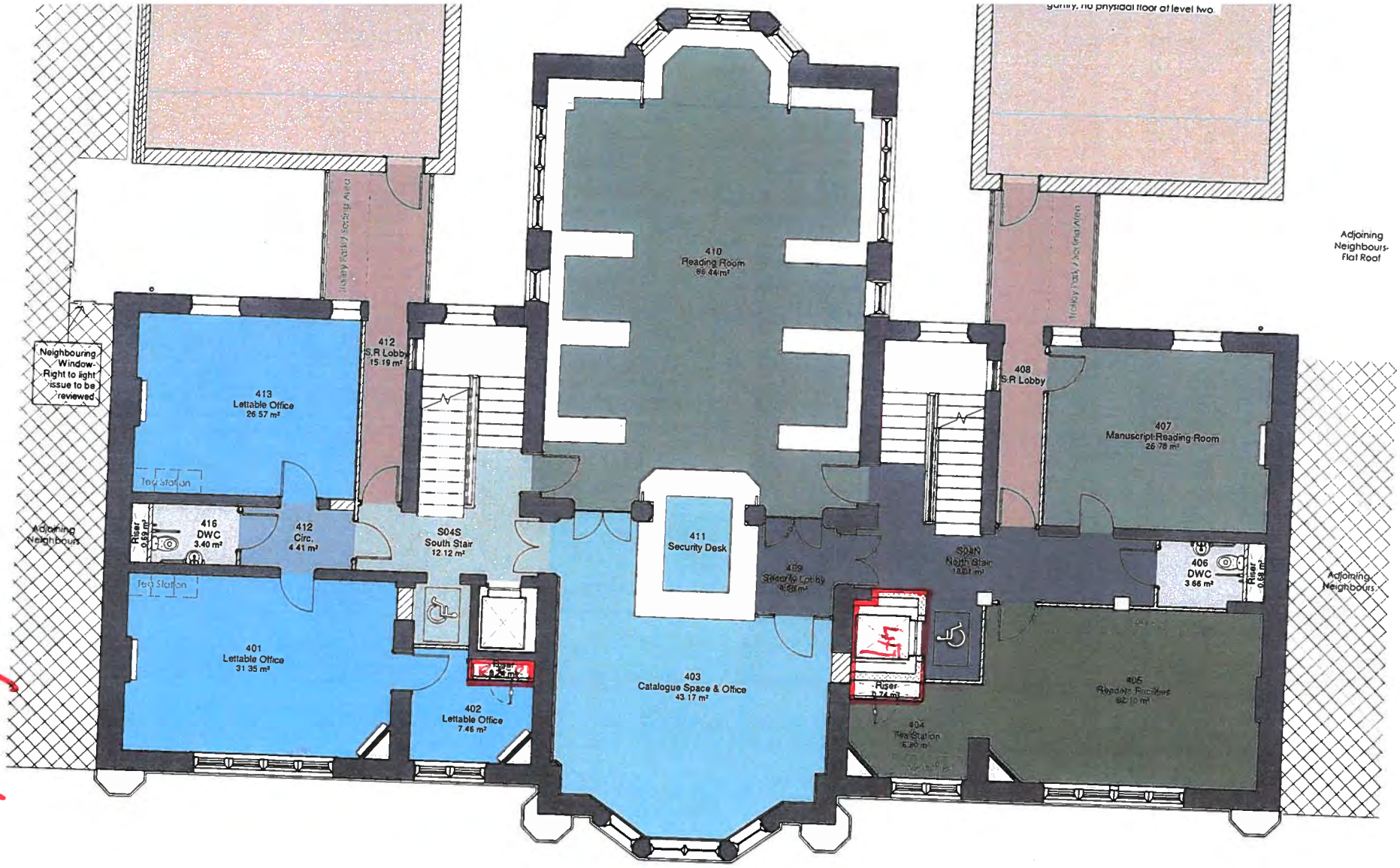

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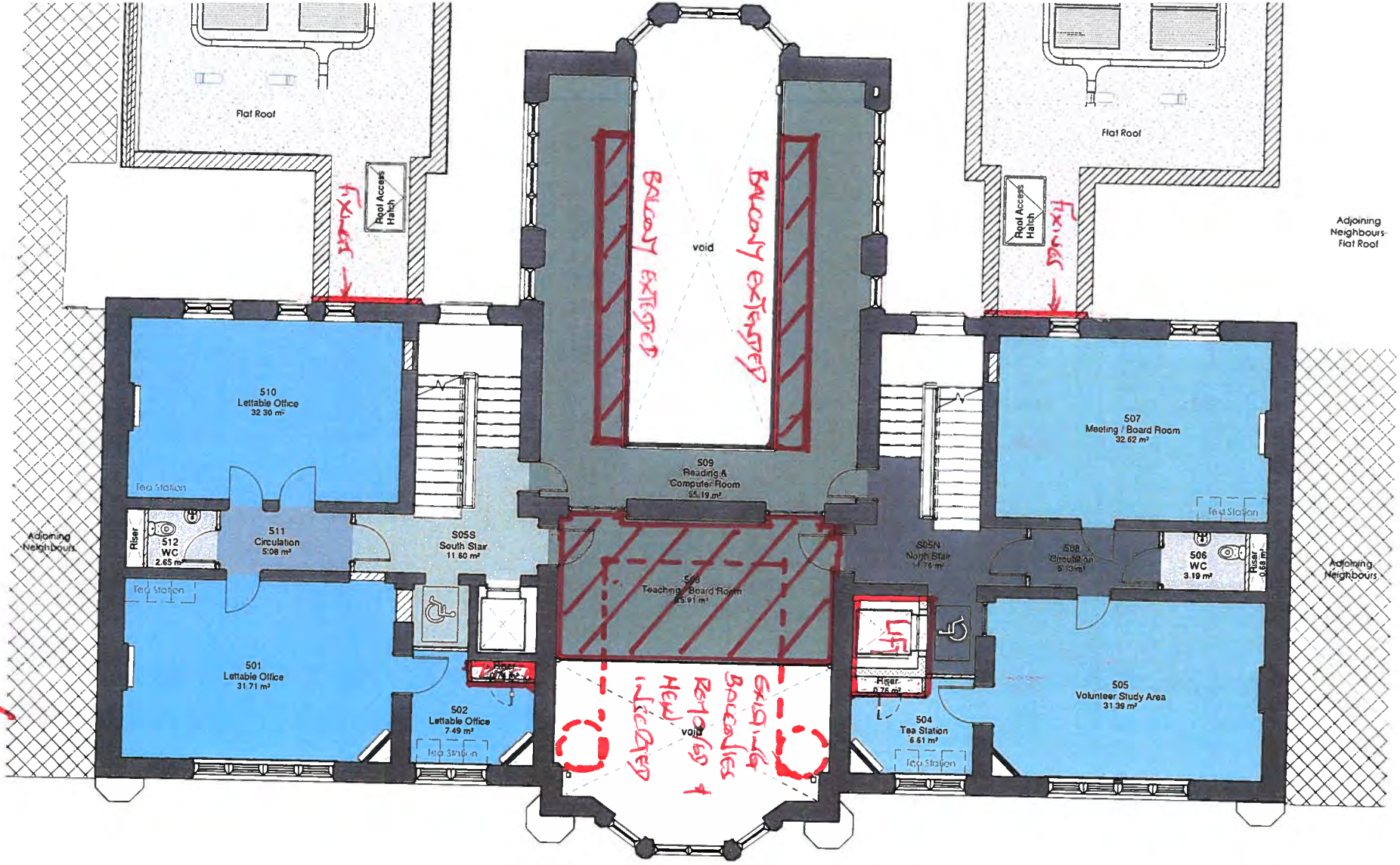
- CSDr 000765-DWL-SU-DRG-0001-A01.rvt (City Surveys)
- 3916_Dr Williams Library_3D Model (Survey Hub)



LEVEL 5

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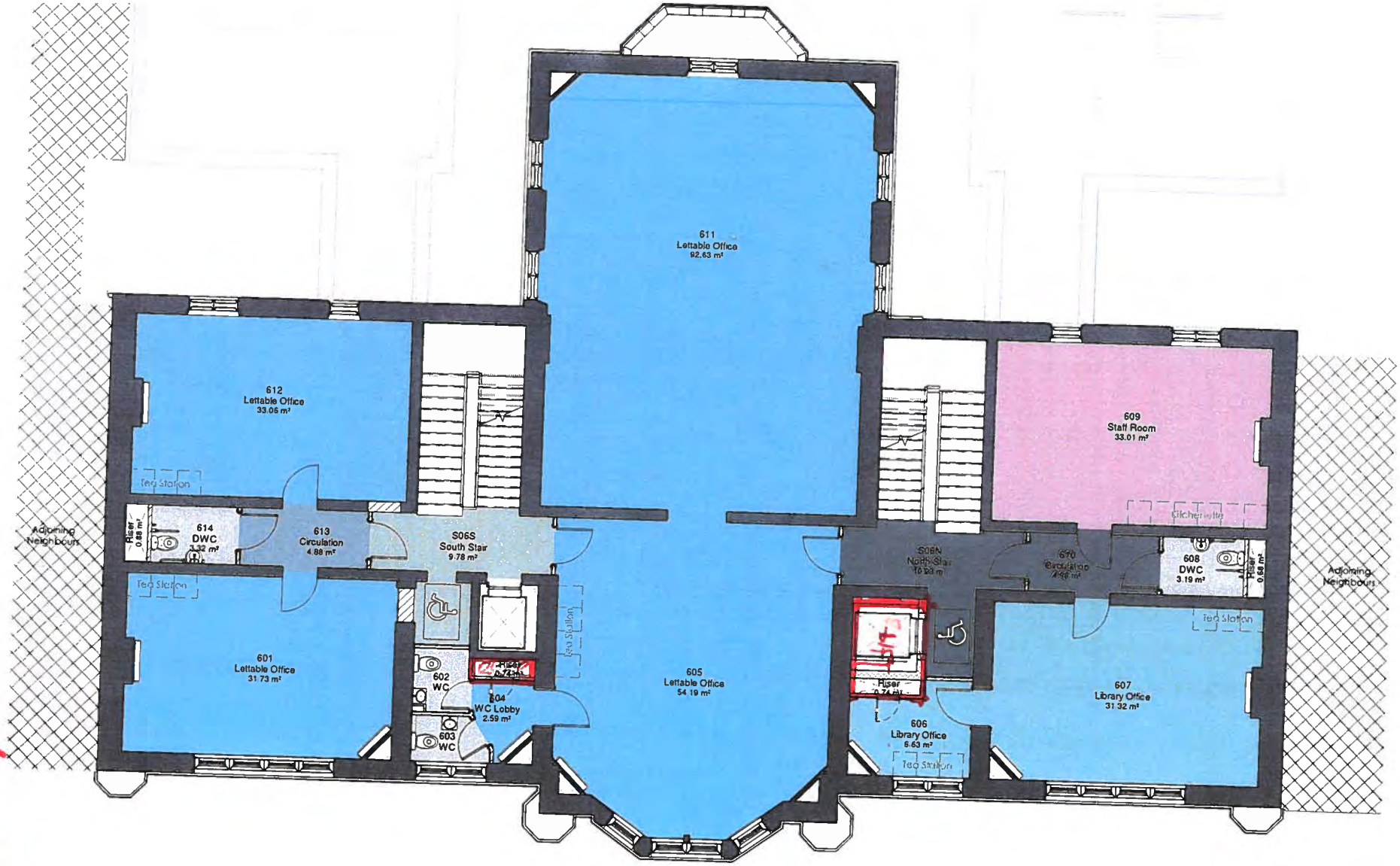
- 3916_Dr Williams Library_3D Model (Survey Hub)



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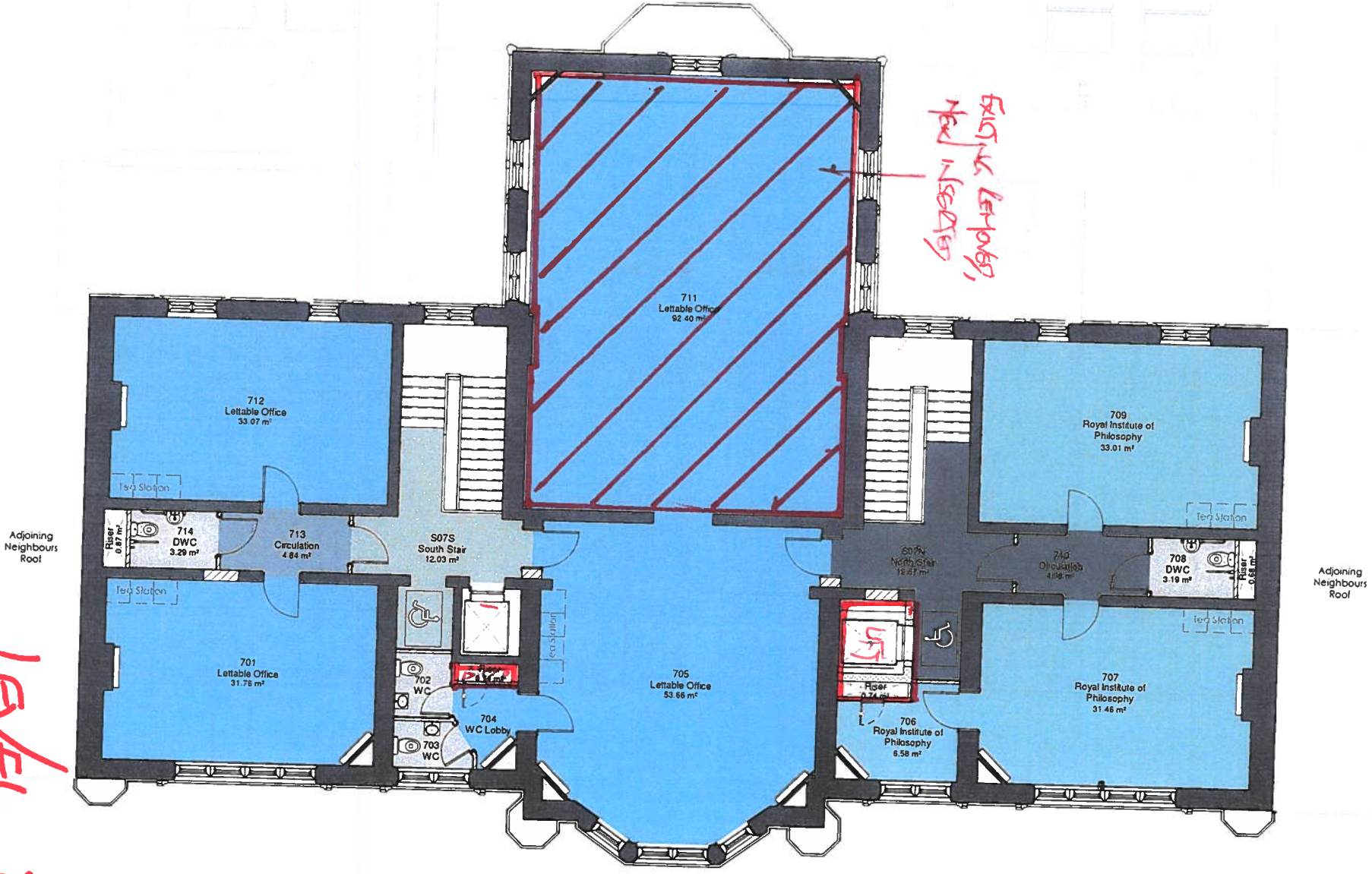
- CSDr 000765-DWL-SU-DRG-0001-A01.rvt (City Surveys)
- 3916_Dr Williams Library_3D Model (Survey Hub)



Existing Lettable Area

LEVEL 7

Drawing based on survey information, Revit model and CAD drawings produced by City Survey's and Survey Hub, refer to below files. CPMG cannot be held responsible for any discrepancies within the original Revit survey or CAD drawings.
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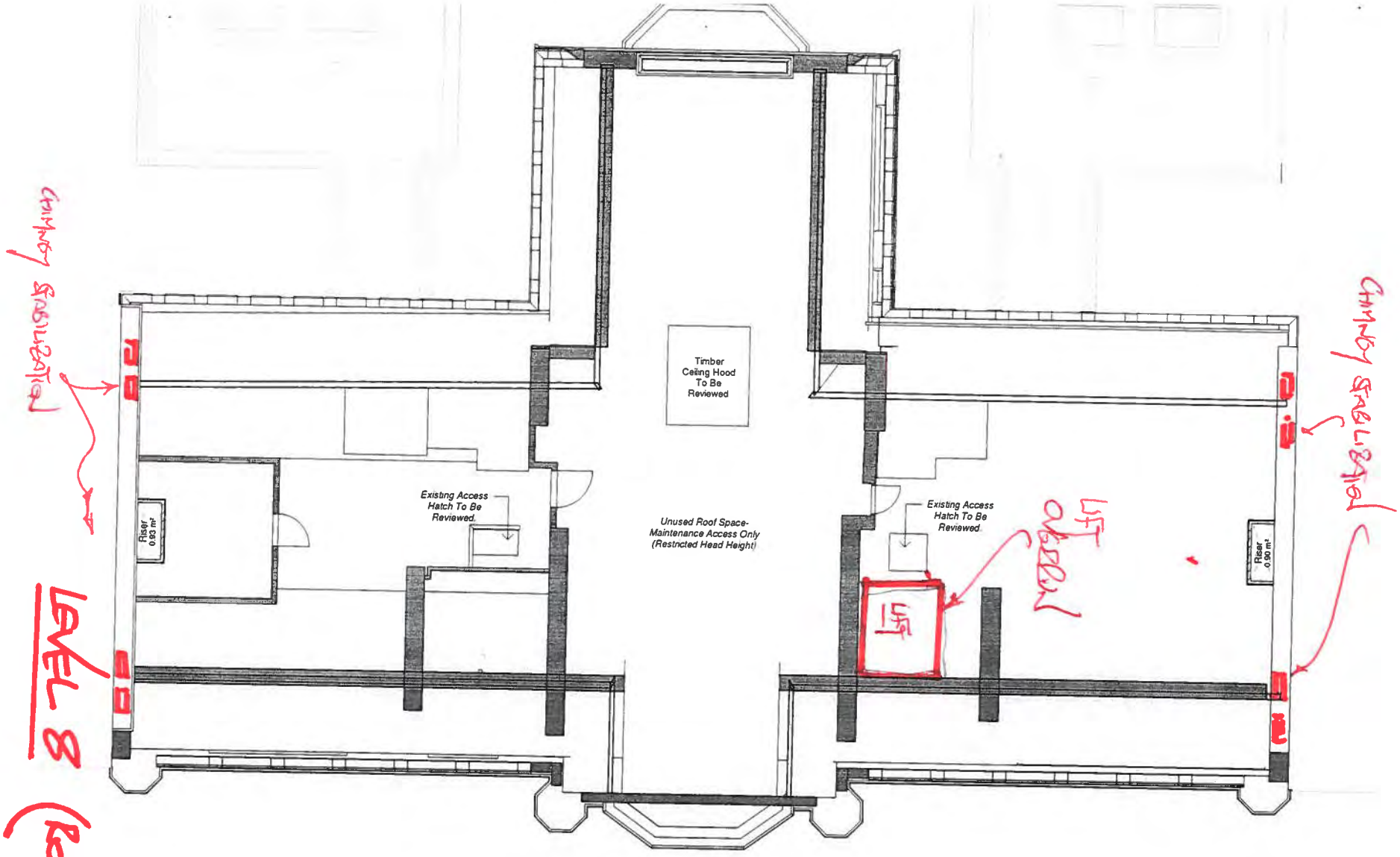
- 3916_Dr Williams Library_3D Model (Survey Hub)



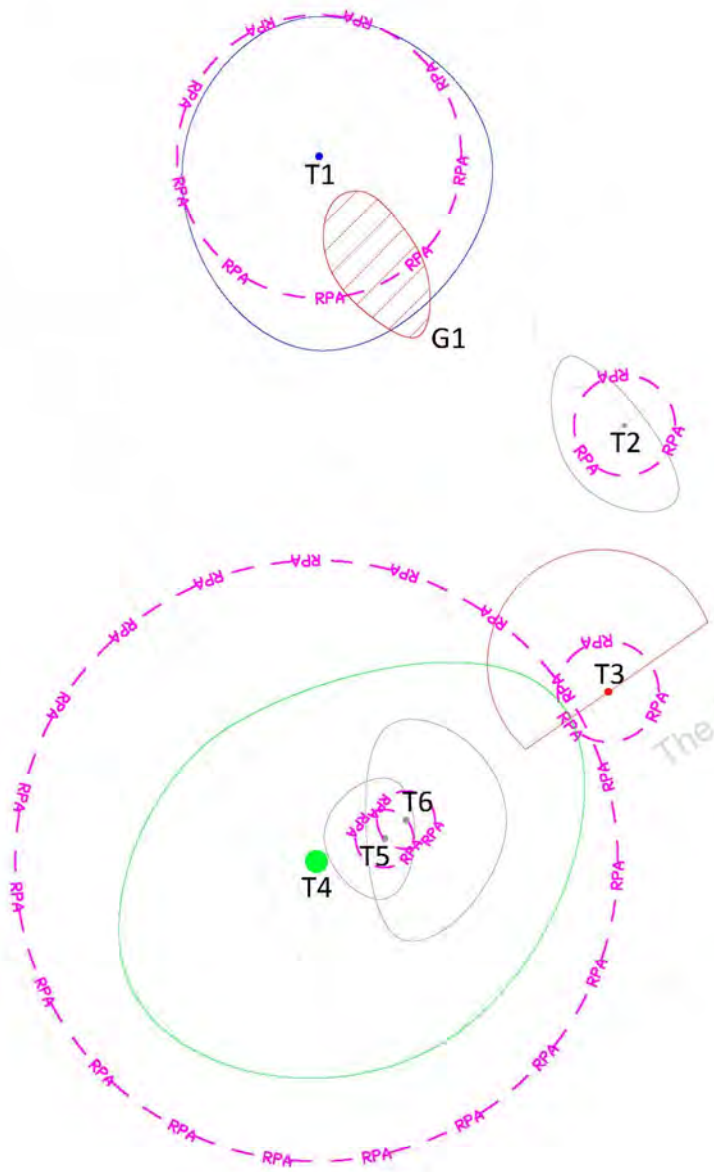
Drawing based on survey information, Revit model and CAD drawings produced by City Survey's and Survey Hub, refer to below files. CPMG cannot be held responsible for any discrepancies within the original Revit survey or CAD drawing

- 10410E_R (City Surveys)
- CSDr 000765-DWL-SU-DRG-0001-A01.rvt (City Surveys)
- 3916_Dr Williams Library_3D Model (Survey Hub)

Appendix B –
Arboriculture Schedule and Plan

SITE: Dr Williams Library, Gordon Square, London -- BS 5837:2012 TREE SCHEDULE -- DATE: 05/04/2019

TREE NUMBER	SPECIES	SCIENTIFIC NAME	AGE CLASS	STRUCTURAL CONDITION	PHYSIOLOGICAL CONDITION	COMMENTS (INCLUDING RECOMMENDATIONS AS APPROPRIATE)	CONTRIBUTING YEARS	VALUE CATEGORY	OVERALL HEIGHT (m)	CANOPY SPREAD (m)	GROUND - CANOPY (m)	D @ 1.5m	RPA (m^2)	RPR (m)
1	Sycamore	*Acer pseudoplatanus*	Late Semi-Mature	Good	Good	Stem bifurcates at 2.5m from GL. Very minor deadwood in crown. Tree Tag: 01955.	40+	B1	19.7m	N7 E8.6 S9.5 W6.5	9m	0.59m	157.48m^2	7.08m
2	Common holly	*Ilex aquifolium*	Semi-Mature	Good	Good	Growing within 0.5m of existing building, limited scope for long-term retention without frequent reduction works to crown to prevent nusience and damage to building fabric.	20+	C1	5.8m	N4 E1 S4.5 W3	GL	0.21m	19.95m^2	2.52m
3	Cotoneaster tree	*Cotoneaster frigidus*	Late Semi-Mature	Moderate	Good	Multi-stemmed specimen from GL, with numerous crossing and rubbing branches. Root plate is growing directly under building foundation, no obvious evidence of subsidence to main building fabric, although adjoing wall has slightly subsided approximately 2m to the west of stem, potential for a number of other non-tree related factors which may have accounted for drop in wall line. Given its location, tree has very limited scope for long-term retention.	10+	U	6.8m	N7 E6 S0 W5	1-2m	0.21m	19.95m^2	2.52m
4	London plane	*Platanus x hispanica*	Late Mature	Good	Good	Prominent tall and fully mature tree with a full and dense crown network, appearing from GL to be in overall good condition. Tree Tag: 0920.	40+	A1	35m (est)	N8 E14.5 S11 W11	7-8m	1.33m	800.23m^2	15.96m
5	Laburnum	*Laburnum sp.*	Young	Good	Good	Stem bifurcates at 1m from GL. Tree in good overall condition however sub-dominant position under canopy of T4 provides reduced scope for useful long term retention.	10+	C1	7.5m	N3 E1.5 S3 W3	2m	0.12m	6.51m^2	1.44m



KEY

- Category A Tree (High Value)
- Category B Tree (Moderate Value)
- Category C Tree (Low Value)
- Category U Tree (Negligible Value)
- Category U Group (Negligible Value)
- Root Protection Area (RPA)

LANDSCAPE SCIENCE CONSULTANCY LTD
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NG31 9AS

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e. admin@landscapescienceconsultancy.co.uk
www.landscapescienceconsultancy.com

PROJECT:
DR WILLLIAMS LIBRARY,
GORDON SQUARE, LONDON

TITLE:
TREE CONSTRAINTS PLAN

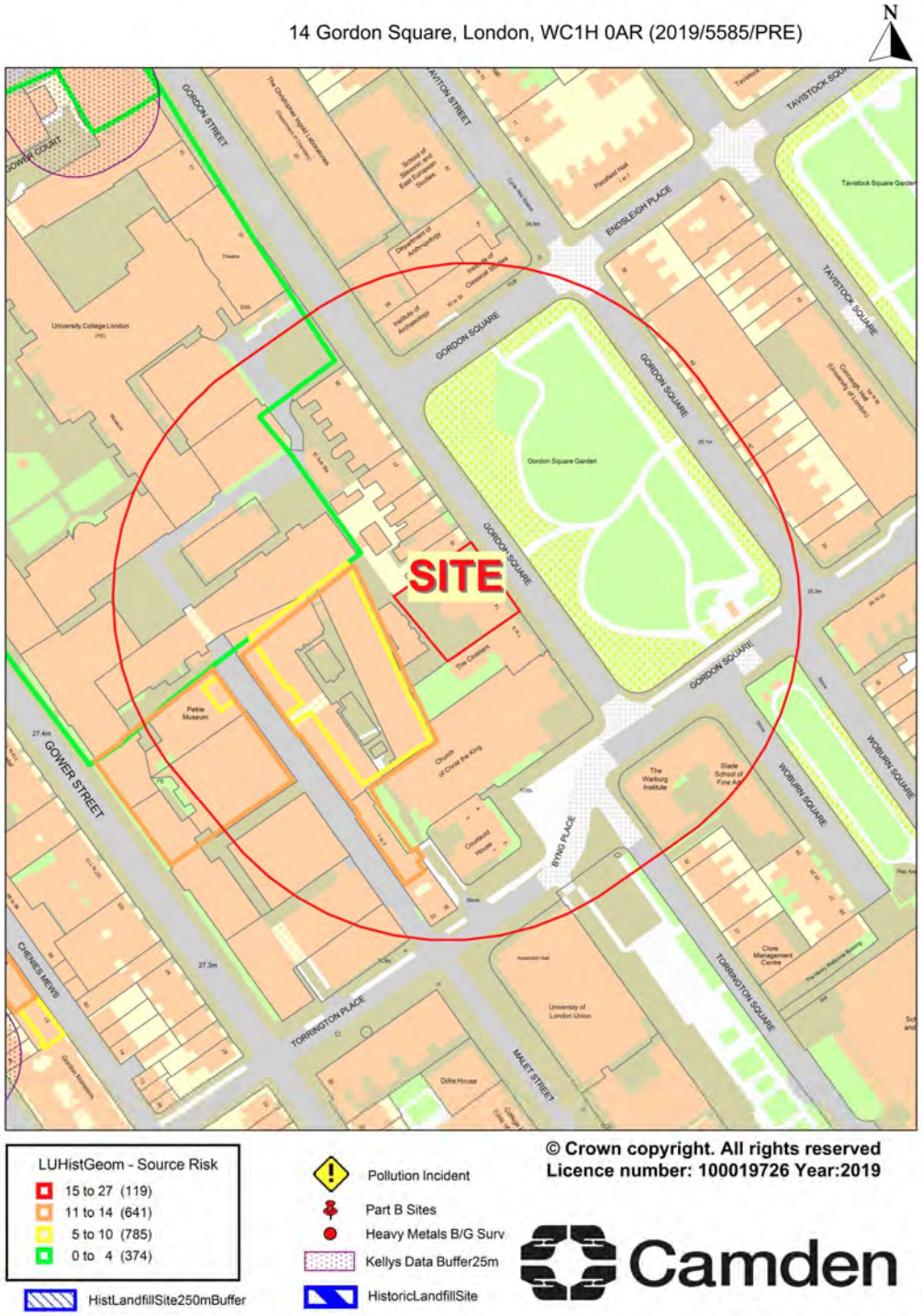
SCALE: 1:250 @ A3 DATE: 17/08/2019

SOURCE: Reproduced under OS Licence AL100014007

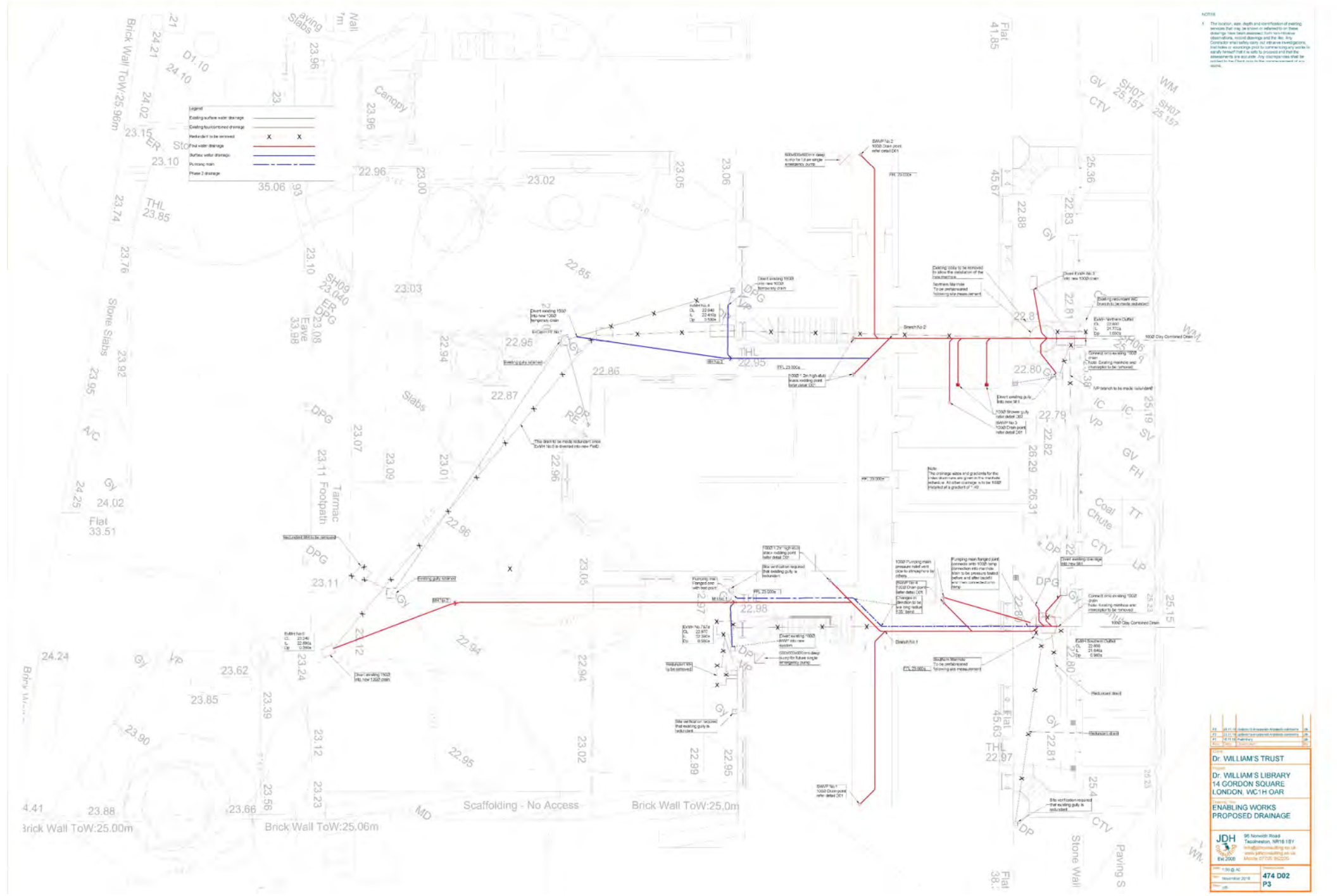
Job No	Figure No	Revision	Drawing Size
D41.19	01	-	A3

Appendix C –
Contamination Map

14 Gordon Square, London, WC1H 0AR (2019/5585/PRE)



Appendix D –
Drainage Strategy


Legend
Existing surface water drainage
Existing foul/combined drainage
Redundant to be removed
Foul water drainage
Surface water drainage
Pumping main
Phase 2 drainage
Dr. WILLIAM'S TRUST
Dr. WILLIAM'S LIBRARY
14 GORDON SQUARE
LONDON, WC1H 0AR
ENABLING WORKS
PROPOSED DRAINAGE
JDH
95 Norwich Road
Tacolneston, NR16 1BY
Est 2008
474 D02
P3
Brick Wall ToW:25.00m
Brick Wall ToW:25.06m
Scaffolding - No Access
Brick Wall ToW:25.0m
Stone Slabs
Tarmac Footpath
Coal Chute
Paving S

Appendix F –
Mechanical & Electrical Services Scheme Design Summary for Existing Building

GREEN
BUILDING
DESIGN
CONSULTANTS

Building Services Consulting Engineers

Dr. Williams Library
14 Gordon Square
Bloomsbury
London
WC1H 0AR

Mechanical & Electrical Services Scheme Design Summary for the Refurbishment of Existing Building for inclusion in Design & Access Statement

October 2019

Project: Dr. Williams Library
14 Gordon Square
Bloomsbury
London
WC1H 0AR

Client: The Trustees of Dr. Williams Library

Document: Mechanical & Electrical Scheme Design Summary Report for The Refurbishment of the existing Building for inclusion in the Design & Access Statement

Date: October 2019

Revision	Date	Description	Prepared	Checked	Approved
	18.10.2019	Support of planning	HD	RW	SG

Contents:

1.0 SUMMARY OF BUILDING SERVICES DESIGN

The building services design for the refurbishment and extension of Dr. Williams Library at 14 Gordon Square, London, WC1H have been developed in conjunction with the architecture and existing structure with the aim of producing the clients ambition to deliver a highest quality working environment for the storage of historic books and manuscripts whilst maintaining the fabric of the existing building in accordance with the recommendations of BS EN 16893 2018 Conservation of Cultural Heritage – Specifications for the location, construction and modifications of buildings or rooms intended for storage or use of heritage collections.

The existing building was originally constructed circa 1849 and is grade II listed. The building has and the building services installations have been modified several times during the buildings history and there appears to have been a significant intervention dating from the 1980's.

The electrical installations in the main appear to date from the 1980's are well beyond their recognised economic life of 20-25 years published in CIBSE guide M.

Similarly the heating plant dates from 1980's but two of the original boilers have recently been replaced. The central plant has an economic life expectancy of 15-20 years as published in CIBSE Guide M and is past its anticipated life.

The installation has not been done sympathetically and had little regard for interventions into the building fabric.

The heating controls are very limited with no zone control. The system operates at 80C flow and 70C return which is too high and can cause damage to timber elements and finishes.

The lack of humidity and temperature control means that the existing heating system is not fit for purpose.

All of the building services have been designed in accordance with current legislation and good practice guides including but not limited to:

- Local Planning Policy and Supplementary Planning Guide Lines
- Local Authority Regulations and Approvals
- Local Bye-laws and Regulations
- Building Regulations Parts E,F and L,
- BS EN 16893; 2018

The design has been developed to ensure that there is no detrimental impact on the existing utility infrastructure.

The sites drainage system shall include separate foul and surface water drainage which shall connect to the existing sewer connections that have the capacity to handle the discharge.

The Building is to be compliant with Building Regulations Part L2B 2017 and will include the following:

- High efficiency gas fire heating extended from the new heating system in the main building.
- Conservation Heating including Zone Control of heating areas
- Energy efficient LED lighting
- Energy efficient fabric providing better than minimum building regulations standards where new elements to be constructed.
- Energy efficient Building Services solutions and plant selections compliant with Current Building regulations Part L 2A

2.0 DESCRIPTION OF PROPOSED SERVICES

2.1 Utility Services

Electrical Supplies

The existing electrical supply is limited to 200 amp TP&N located in the basement switch room.

The existing electrical supply to the main building is beyond its useful working life and is not compliant with current electricity at work act, regulations and good practice. For this reason a new supply has been requested from UKPN to be located in a more suitable location but it is not intended that an increase in supply capacity is required.

A new separately metered supply shall be provided to serve Split metered distribution boards for both the Landlord and Tenant at each floor level.

Gas Supplies

The existing gas supply to the existing building shall remain and be reused. There is no requirement to increase the gas supply but an application has been made for a new gas meter.

Water Supplies

The existing water supplies shall be retained and reused to serve a new potable water storage tank and booster set located at basement level adjacent to the incoming main and a plant space has been allocated

Foul Water Drainage

A CCTV survey of the existing underground combined sewer has been undertaken and generally the installation is sound but some remedial works on displaced joints and scaling have been identified.

Generally it is proposed that the existing installation is retained and reused but there will be some modifications to accommodate new foul water stacks to feed WC accommodation and showers.

2.2 Heating and Cooling

No cooling is being provided.

Conservation heating will be provided throughout the building to control the temperature and humidity within the achieve and library spaces.

Comfort heating shall be provided to library office spaces, breakout spaces and lettable office spaces.

The heating system shall incorporate high efficiency condensing boilers and shall operate at 60C flow and 40C return which would be more sympathetic to the building fabric.

Each room shall be an individual control zone.

All lettable office spaces shall be provided with an energy meter.

2.3 Ventilation

The building will be naturally ventilated.

Toilet and shower rooms shall be provided with extract ventilation in accordance with Part F of the building regulations.

2.4 Electrical Power

From the new meter supply power shall be taken to a new switch panel located at level 01. Each outgoing way shall be metered and this shall include supplies to the lifts and Motor Control Panels for mechanical plant.

From the switch panel new supplies shall be taken to each floor to serve new split metered panel boards so that metering for power and lighting can be measured. The design incorporates energy metering in accordance with the requirements of Part L

The investigation works undertaken by the structural engineer suggest that there is sufficient depth to accommodate recessed floor boxes.

2.5 Lighting and Emergency Lighting

High efficiency lighting using LED fittings complete with daylight dimming and local motion sensor switching shall be included throughout the Lettable Offices and Library offices and administration spaces.

There will be some feature lighting to the main entrance area and Library rooms.

Within cellular offices and meeting rooms local switching shall be provided and in addition scene setting or dimming shall be provided in meeting rooms.

External access routes at Roof levels and within Level 01 shall be provided with batten type Led fittings switched locally.

Emergency lighting shall be provided on all escape routes to comply with BS 5266

2.6 Fire Alarms

Fire alarms shall be provided through the building to comply with BS 5839 part 1 to category L1 standard.

The fire alarm panel shall be located within the reception area.

2.7 Domestic Water Supplies

A new potable water standard water storage tank and booster set shall be provided at basement level and water shall be boosted to serve water fittings at each floor level. A pressure reducing valve shall be provided at each floor to regulate the pressure to 1.5 bar

Hot water shall be produced by instantaneous point of use non storage electric water heaters.

2.8 Data Containment

Data containment shall be provided via the 3 compartment trunking system and cable trays within the electrical riser to connect each floor box back to the proposed comms room.

Each desk floor box shall contain 2 power and 2 data outlets.

Appendix G –
Mechanical & Electrical Services Scheme Design Summary for Proposed Extensions

GREEN BUILDING DESIGN CONSULTANTS

Building Services Consulting Engineers

Dr. Williams Library
14 Gordon Square
Bloomsbury
London
WC1H 0AR

Mechanical & Electrical Services Scheme Design Summary for Rear Extensions for inclusion in Design & Access Statement

October 2019

Project: Dr. Williams Library
14 Gordon Square
Bloomsbury
London
WC1H 0AR

Client: The Trustees of Dr. Williams Library

Document: Mechanical & Electrical Scheme Design Summary Report for Rear Extensions inclusion in the Design & Access Statement

Date: October 2019

Revision	Date	Description	Prepared	Checked	Approved
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Contents:

1.0 SUMMARY OF BUILDING SERVICES DESIGN

The building services design for the rear extension of Dr. Williams Library at 14 Gordon Square, London, WC1H 0AR have been developed in conjunction with the Architecture and Structure with the aim of producing the clients ambition to deliver the highest quality working environment for the storage of historic books and manuscripts following the of the recommendations of BS EN 16893; 2018 Conservation of Cultural Heritage – Specifications for the location, construction and modifications of buildings or rooms intended for storage or use of heritage collections.

The proposed design promotes the health and wellbeing of the occupants whilst delivering genuinely sustainable design solutions that do not adversely impact on the local and global environments.

All of the building services have been designed in accordance with current legislation and good practice guides including but not limited to:

- Local Planning Policy and Supplementary Planning Guide Lines
- The London Plan & Emerging London Plan
- Local Authority Regulations and Approvals
- Local Bye-laws and Regulations
- Building Regulations Parts E,F and L,
- BS EN 16893; 2018

The design has been developed to ensure that there is no detrimental impact on the existing utility infrastructure.

The sites drainage system shall include separate foul and surface water drainage which shall connect to the existing sewer connections that have the capacity to handle the discharge.

The design has at its core the Energy Hierarchy set out within the London Plan and Local planning policy and seeks to follow:

- Be Lean: use less energy through energy efficiency measures
- Be Clean: use energy efficiently and reduce CO_2 emissions
- Be Green: use renewable energy or Low to Zero Carbon Technologies

The design as developed to dates makes provision for on-site renewable generation via the introduction of Photovoltaic Cells to produce 9.6kWp. Reference should be made to the energy and sustainability statement issued as part of the planning application for more details.

The Building is to be compliant with Building Regulations Part L2A 2017 and will include the following:

- High efficiency gas fire heating extended from the new heating system in the main building.
- Conservation Heating including Zone Control of heating areas
- Energy efficient LED lighting
- Energy efficient fabric providing better than minimum building regulations standards where new elements to be constructed.
- Energy efficient Building Services solutions and plant selections compliant with Current Building regulations Part L 2A
- Heat recovery air handling plant to provide fresh air in comporting high efficiency carbon filters.

2.0 DESCRIPTION OF PROPOSED SERVICES

2.1 Utility Services

Electrical Supplies

The existing electrical supply to the main building is beyond its useful working life and is not compliant with current electricity at work act, regulations and good practice. For this reason a new supply has been requested from UKPN to be located in a more suitable location but it is not intended that an increase in supply capacity is required.

A new separately metered supply shall be provided to serve each wing of the rear extensions.

Gas Supplies

The existing gas supply to the existing building shall remain and be reused. There is no requirement to increase the gas supply.

Water Supplies

There are no water fittings within the new extension and no water supplies are required.

Foul Water Drainage

A CCTV survey of the existing underground sewer has been undertaken and generally the installation is sound but some remedial works on displaced joints and scaling have been identified.

There are no water fittings within the rear extensions are there will be no impact on the existing drainage infrastructure.

2.2 Heating and Cooling

No cooling is being provided.

Conservation heating will be provided throughout the extension buildings to control he temperature and humidity within the achieve spaces.

Radiators shall be provided and arranged so that they do not impact on the storage racking and each floor shall be split into 4No. control zones.

Each wing shall be provided with a 50mm LTHW heating supply from the main header with the new boiler room in the existing building.

2.3 Ventilation

The archives shall have a controlled ventilation system that shall incorporate High Efficiency Particulate Air (HEPA) filters and heat recovery exchangers with an air handling unit located within the building mounted on the soffit of the uppermost floor.

Supply and exhaust air ductwork shall be distributed vertically to serve each floor level and horizontally on each floor to ensure an even air distribution throughout the space.

The ventilation rate shall be 0.5 Air changes per hour.

Fire dampers shall be provided in the distribution ductwork horizontally through the floor to marinating the fire integrity of the building.

2.4 Electrical Power

New separately metered supplies shall be taken from the new switch panel located within the basement of the existing building to serve a new 4 +6 way TP&N distribution board located at Level 01.

From the distribution boards small power shall be distributed to each floor such that each floor has its own supply to serve a maximum of 8No. power outlets distributed evenly around the perimeter of the floor plate.

A 9.6kW Electrical power Photovoltaic power generation system shall be incorporated at roof level and shall connect into the local UKPN power network at Level 01. The installation is required to meet the 35% reduction in carbon emissions required by local and London wide planning policy.

2.5 Lighting and Emergency Lighting

High efficiency lighting using LED fittings complete with local motion sensor switching shall be included throughout the achieve space.

Emergency lighting shall be provided on all escape routes to comply with BS 5266

2.6 Fire Alarms

Fire alarms shall be provided through the building to comply with BS 5839 part 1 to category L1 standard.

The fire alarm panel shall be located within the main building and each floor level of both extension wings shall be a designated zone

2.7 Data Containment

Data containment shall be provided via the 3 compartment trunking system and cable trays within the electrical riser to connect back to the proposed comms area.